

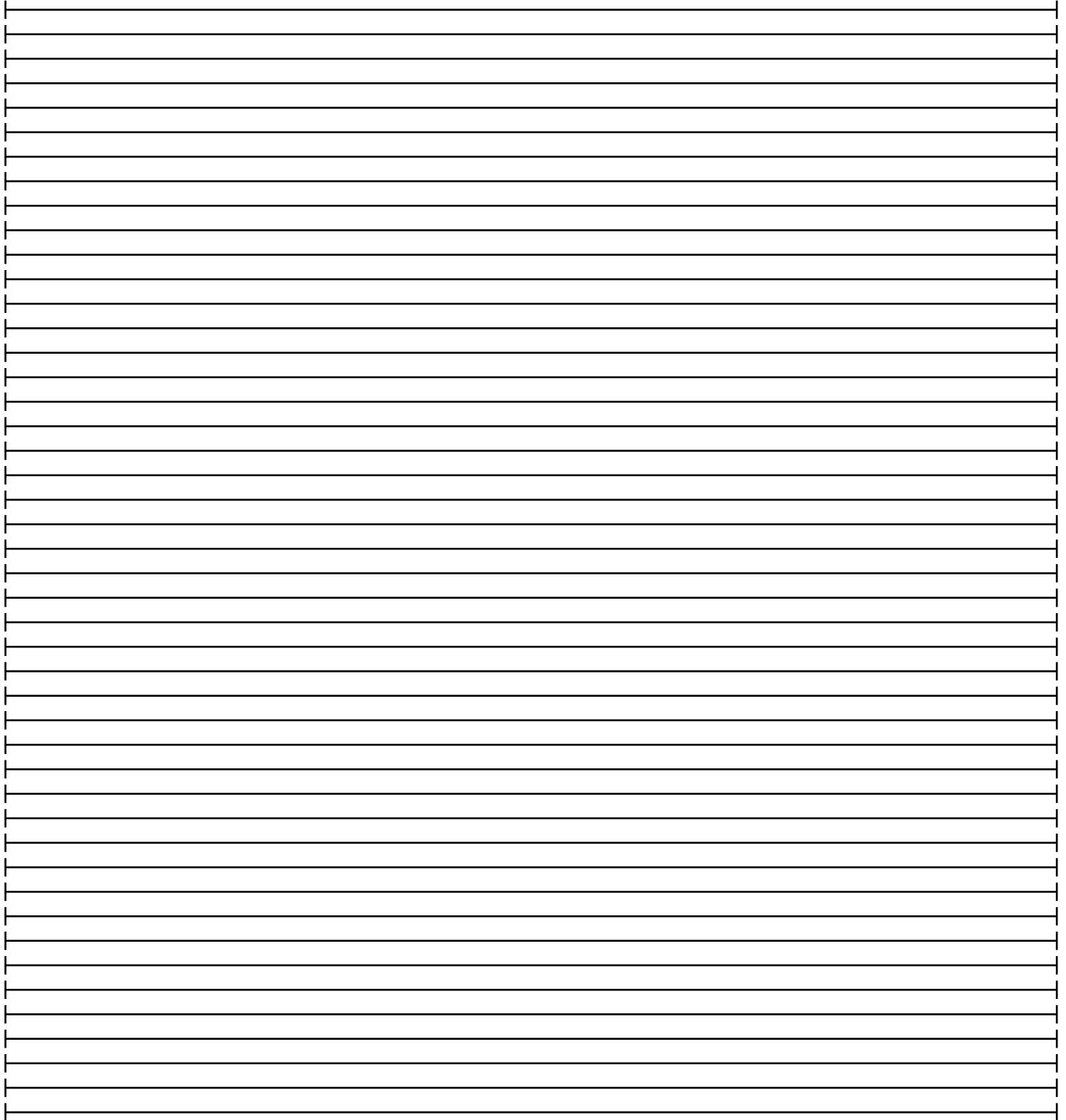
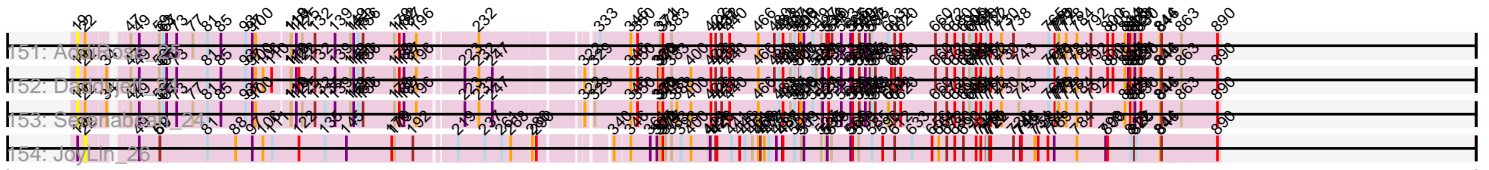
1. Xen	20	30	36	130	802
2. Ben	20	30	36	130	802
3. Mod	20	30	36	130	802
4. Eis	20	30	36	130	802
5. Ben	20	30	36	130	802
6. Kea	20	30	36	130	802
7. Cor	20	30	36	130	802
8. Dyn	20	30	36	130	802
9. Tro	20	30	36	130	802
10. Ch	20	30	36	130	802
11. Cl	20	30	36	130	802
12. JE	20	30	36	130	802
13. Mu	20	30	36	130	802
14. He	20	30	36	130	802
15. In	20	30	36	130	802
16. Br	20	30	36	130	802
17. Ca	20	30	36	130	802
18. Sy	20	30	36	130	802
19. Ni	20	30	36	130	802
20. Ar	20	30	36	130	802
21. Is	20	30	36	130	802
22. Te	20	30	36	130	802
23. Gu	20	30	36	130	802
24. Ca	20	30	36	130	802
25. Sc	20	30	36	130	802
26. Tr	20	30	36	130	802
27. Ta	20	30	36	130	802
28. Mi	20	30	36	130	802
29. Br	20	30	36	130	802
30. Te	20	30	36	130	802
31. De	20	30	36	130	802
32. Da	20	30	36	130	802
33. Ni	20	30	36	130	802
34. To	20	30	36	130	802
35. Sh	20	30	36	130	802
36. Li	20	30	36	130	802
37. Ph	20	30	36	130	802
38. G	20	30	36	130	802
39. In	20	30	36	130	802
40. Me	20	30	36	130	802
41. Ca	20	30	36	130	802
42. Ma	20	30	36	130	802
43. Th	20	30	36	130	802
44. Ar	20	30	36	130	802
45. Re	20	30	36	130	802
46. Ph	20	30	36	130	802
47. Ba	20	30	36	130	802
48. Ze	20	30	36	130	802
49. Le	20	30	36	130	802
50. Oz	20	30	36	130	802



51: Galt	81	82	100	200	200	200	200	200	200	200
52: Lev	81	82	100	200	200	200	200	200	200	200
53: Egg	81	82	100	200	200	200	200	200	200	200
54: Pigeon	81	82	100	200	200	200	200	200	200	200
55: Sl	81	82	100	200	200	200	200	200	200	200
56: Sp	81	82	100	200	200	200	200	200	200	200
57: Sl	81	82	100	200	200	200	200	200	200	200
58: Sa	81	82	100	200	200	200	200	200	200	200
59: Ra	81	82	100	200	200	200	200	200	200	200
60: Sh	81	82	100	200	200	200	200	200	200	200
61: Do	81	82	100	200	200	200	200	200	200	200
62: Iv	81	82	100	200	200	200	200	200	200	200
63: Co	81	82	100	200	200	200	200	200	200	200
64: In	81	82	100	200	200	200	200	200	200	200
65: M	81	82	100	200	200	200	200	200	200	200
66: F	81	82	100	200	200	200	200	200	200	200
67: M	81	82	100	200	200	200	200	200	200	200
68: F	81	82	100	200	200	200	200	200	200	200
69: T	81	82	100	200	200	200	200	200	200	200
70: I	81	82	100	200	200	200	200	200	200	200
71: Na	81	82	100	200	200	200	200	200	200	200
72: D	81	82	100	200	200	200	200	200	200	200
73: S	81	82	100	200	200	200	200	200	200	200
74: S	81	82	100	200	200	200	200	200	200	200
75: T	81	82	100	200	200	200	200	200	200	200
76: C	81	82	100	200	200	200	200	200	200	200
77: I	81	82	100	200	200	200	200	200	200	200
78: M	81	82	100	200	200	200	200	200	200	200
79: F	81	82	100	200	200	200	200	200	200	200
80: G	81	82	100	200	200	200	200	200	200	200
81: Ph	81	82	100	200	200	200	200	200	200	200
82: Ro	81	82	100	200	200	200	200	200	200	200
83: Bl	81	82	100	200	200	200	200	200	200	200
84: Sh	81	82	100	200	200	200	200	200	200	200
85: Sc	81	82	100	200	200	200	200	200	200	200
86: An	81	82	100	200	200	200	200	200	200	200
87: Ho	81	82	100	200	200	200	200	200	200	200
88: G	81	82	100	200	200	200	200	200	200	200
89: M	81	82	100	200	200	200	200	200	200	200
90: Do	81	82	100	200	200	200	200	200	200	200
91: Co	81	82	100	200	200	200	200	200	200	200
92: S	81	82	100	200	200	200	200	200	200	200
93: E	81	82	100	200	200	200	200	200	200	200
94: K	81	82	100	200	200	200	200	200	200	200
95: Cl	81	82	100	200	200	200	200	200	200	200
96: P	81	82	100	200	200	200	200	200	200	200
97: P	81	82	100	200	200	200	200	200	200	200
98: P	81	82	100	200	200	200	200	200	200	200
99: Fi	81	82	100	200	200	200	200	200	200	200
100: F	81	82	100	200	200	200	200	200	200	200







Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. If this default region is judged to be packed too tightly with annotated starts, the track will be further scaled to only show that region of the ORF with annotated starts. This action will be indicated by adding "Zoomed" to the title. For starts, yellow indicates the location of called starts comprised solely of Glimmer/GeneMark auto-annotations, green indicates the location of called starts with at least 1 manual gene annotation.

## Pham 189484 Report

This analysis was run 11/02/24 on database version 579.

Pham number 189484 has 191 members, 33 are drafts.

Phages represented in each track:

- Track 1 : Xenomorph\_20
- Track 2 : Benllo\_20
- Track 3 : Mooshroom\_21, Kardesai\_20, Hankly\_20
- Track 4 : Elsa\_22, Arcadia\_22, Nason\_22
- Track 5 : BenitoAntonio\_22
- Track 6 : KeaneyLin\_20, GoCrazy\_20
- Track 7 : Correa\_21
- Track 8 : Dynamite\_21, NapoleonB\_21
- Track 9 : Tribby\_22
- Track 10 : Cheesy\_22
- Track 11 : Circum\_22
- Track 12 : JEGGS\_21
- Track 13 : Mudcat\_21
- Track 14 : Heisenberger\_21
- Track 15 : Inked\_28
- Track 16 : Brunswick\_26
- Track 17 : CastorTray\_28
- Track 18 : Synopsis\_25
- Track 19 : Niktson\_26, ElephantMan\_26
- Track 20 : AreFloNak\_26, Nivinsha\_26
- Track 21 : Issa\_26
- Track 22 : Teacup\_26
- Track 23 : Gordon\_26
- Track 24 : CapnMurica\_26
- Track 25 : ScienceWizSam\_28
- Track 26 : Trustiboi\_27
- Track 27 : Tatanka\_26
- Track 28 : MiniBagel\_26
- Track 29 : Breylor17\_27
- Track 30 : Tenno\_27
- Track 31 : DevitoJr\_26
- Track 32 : Darby\_26
- Track 33 : Nightmare\_27
- Track 34 : Tokki\_27
- Track 35 : Shepard\_27
- Track 36 : LilHuddy\_27
- Track 37 : Phaby\_27

- Track 38 : Giantsbane\_27
- Track 39 : Ingrid\_26, Loretta\_26
- Track 40 : MediumFry\_24
- Track 41 : Caterpillar\_24
- Track 42 : Makai\_26, Truckee\_25
- Track 43 : TrixiePhattel\_27
- Track 44 : Argan\_25
- Track 45 : Renaldo\_31
- Track 46 : Phaila\_25
- Track 47 : BarbieDoll\_29
- Track 48 : Zeina\_26
- Track 49 : Leathea\_26
- Track 50 : Uzumaki\_26
- Track 51 : GantcherGoblin\_25
- Track 52 : Lewando\_29
- Track 53 : Egad\_23
- Track 54 : ProfFrink\_23, MrAaronian\_23, Djungelskog\_23
- Track 55 : Stayer\_23, BronxBay\_23
- Track 56 : Sporto\_24
- Track 57 : StarLord\_23, Sloopyjoe\_23
- Track 58 : Salk\_23, Linda\_23
- Track 59 : Raunak\_23
- Track 60 : Shiba\_23
- Track 61 : DoctorPepper\_23
- Track 62 : Michelle\_23
- Track 63 : CherryBlossom\_23
- Track 64 : Indigenous\_23, Jaylociraptor\_23
- Track 65 : Maya\_23
- Track 66 : FrodoSwaggins\_23, Popy\_23
- Track 67 : Meibysrarus\_23
- Track 68 : Hoshi\_23, Esketit\_23
- Track 69 : TaidaOne\_23
- Track 70 : TonyStarch\_23
- Track 71 : Namu\_23, Rima\_23
- Track 72 : DrGrey\_23
- Track 73 : Spectropatronm\_23
- Track 74 : Soshi\_23
- Track 75 : TieDye\_22
- Track 76 : OlympicHelado\_23
- Track 77 : IceWarrior\_23
- Track 78 : Madamoto\_23
- Track 79 : FidgetOrca\_23
- Track 80 : GirlPower\_22
- Track 81 : PherryCruz\_18, RavenPuff\_18
- Track 82 : RosaAsantewaa\_19
- Track 83 : Bilo\_19
- Track 84 : SheRa\_19
- Track 85 : Scap1\_19
- Track 86 : Annihilus\_19
- Track 87 : HotFries\_18
- Track 88 : GoblinVoyage\_19
- Track 89 : Moozy\_19
- Track 90 : Doxi13\_19

- Track 91 : LibertyBell\_21
- Track 92 : Thiqqums\_21, Miek\_21, SendItCS\_20, CrickKo\_21, Rainydai\_21, Regigigas\_22
- Track 93 : FromIndy\_22
- Track 94 : Bing\_24
- Track 95 : Kardashian\_22
- Track 96 : ClubPenguin\_22
- Track 97 : Pepy6\_035
- Track 98 : Poco6\_036
- Track 99 : Figliar\_32
- Track 100 : FortCran\_29, Artorias\_29
- Track 101 : JulesRay\_31
- Track 102 : Madvan\_32
- Track 103 : Vardy\_32
- Track 104 : Phepper\_32
- Track 105 : Schwartz33\_33
- Track 106 : Perkunas\_31
- Track 107 : AlainaMarie\_32, EndAve\_32
- Track 108 : Kerry\_29, Odesza\_29, Gill\_29, Tanis\_29, Gravy\_29
- Track 109 : Runhaar\_32, Burley\_32
- Track 110 : Zeph\_33
- Track 111 : Rickmore\_31
- Track 112 : Chikenjars\_32
- Track 113 : Duffington\_32
- Track 114 : Hydrus\_33
- Track 115 : TenaciousP\_33, Jodelie19\_33
- Track 116 : Nithya\_32
- Track 117 : Kenosha\_32
- Track 118 : Pherobrine\_31
- Track 119 : Gusicorn\_35
- Track 120 : Avazak\_29
- Track 121 : Capybara\_29
- Track 122 : Crocheter\_32
- Track 123 : Mysticmoon\_32
- Track 124 : Fazel\_30
- Track 125 : Conley\_30
- Track 126 : BluerMoon\_35
- Track 127 : Hortihabitatio\_33
- Track 128 : Petite\_31
- Track 129 : Secretariat\_30
- Track 130 : Captrips\_29
- Track 131 : Eddiemania\_33
- Track 132 : ShaggyRogers\_35
- Track 133 : Mossy\_33
- Track 134 : OlgasClover\_32
- Track 135 : NoPickles\_29
- Track 136 : Untouchable\_32
- Track 137 : Arataki\_30
- Track 138 : Aflac\_32
- Track 139 : Roney\_29
- Track 140 : Nadmeg\_33
- Track 141 : OhMyWard\_32
- Track 142 : Damascus\_24

- Track 143 : DizzyRudy\_24
- Track 144 : Count\_30
- Track 145 : Camille\_24
- Track 146 : Arzan\_22
- Track 147 : Jazzy4900\_24, Sunny4976\_23
- Track 148 : Paella\_40, Elver\_39, Qui\_40
- Track 149 : Eevee\_26, Yotsuba\_26
- Track 150 : Pippin15\_25
- Track 151 : AddiRose\_25
- Track 152 : Daddyjeff\_24
- Track 153 : Serenabean\_24
- Track 154 : JoyLin\_26

***Summary of Final Annotations (See graph section above for start numbers):***

The start number called the most often in the published annotations is 19, it was called in 121 of the 158 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AddiRose\_25, Aflac\_32, AlainaMarie\_32, Annihilus\_19, Arataki\_30, Arcadia\_22, AreFloNak\_26, Argan\_25, Artorias\_29, Avazak\_29, BenitoAntonio\_22, Benllo\_20, Bilo\_19, BluerMoon\_35, Breylor17\_27, BronxBay\_23, Brunswick\_26, Burley\_32, Camille\_24, CapnMurica\_26, Captrips\_29, Capybara\_29, CastorTray\_28, Caterpillar\_24, Cheesy\_22, Chikenjars\_32, Circum\_22, Conley\_30, Correa\_21, Count\_30, Crocheter\_32, Daddyjeff\_24, Damascus\_24, Darby\_26, DevitoJr\_26, DizzyRudy\_24, Djungelskog\_23, DoctorPepper\_23, Doxi13\_19, Duffington\_32, Dynamite\_21, Eddiemania\_33, ElephantMan\_26, Elsa\_22, EndAve\_32, Fazel\_30, Figliar\_32, FortCran\_29, GantcherGoblin\_25, Giantsbane\_27, Gill\_29, GoCrazy\_20, GoblinVoyage\_19, Gordon\_26, Gravy\_29, Gusicorn\_35, Hankly\_20, Heisenberger\_21, Hortihabitatio\_33, HotFries\_18, Hydrus\_33, Ingrid\_26, Inked\_28, Issa\_26, JEGGS\_21, Jodelie19\_33, JulesRay\_31, Kardesai\_20, KeaneyLin\_20, Kenosha\_32, Kerry\_29, Leatheia\_26, Lewando\_29, LilHuddy\_27, Linda\_23, Loretta\_26, Madvan\_32, Makai\_26, MediumFry\_24, Michelle\_23, MiniBagel\_26, Mooshroom\_21, Mossy\_33, MrAaronian\_23, Mudcat\_21, Mysticmoon\_32, Nadmeg\_33, NapoleonB\_21, Nason\_22, Nightmare\_27, Niktson\_26, Nithya\_32, Nivinsha\_26, NoPickles\_29, Odesza\_29, OhMyWard\_32, OlgasClover\_32, Pepy6\_035, Perkunas\_31, Petite\_31, Phaby\_27, Phaila\_25, Phepper\_32, Pherobrine\_31, PherryCruz\_18, Poco6\_036, ProfFrink\_23, RavenPuff\_18, Rickmore\_31, Roney\_29, RosaAsantewaa\_19, Runhaar\_32, Salk\_23, Schwartz33\_33, ScienceWizSam\_28, Secretariat\_30, Serenabean\_24, ShaggyRogers\_35, SheRa\_19, Shepard\_27, Sloopyjoe\_23, Sporto\_24, StarLord\_23, Stayer\_23, Synopsis\_25, Tanis\_29, Tatanka\_26, Teacup\_26, TenaciousP\_33, Tenno\_27, Tokki\_27, Tribby\_22, Truckee\_25, Trustiboi\_27, Untouchable\_32, Uzumaki\_26, Vardy\_32, Xenomorph\_20, Zeina\_26, Zeph\_33,

Genes that have the "Most Annotated" start but do not call it:

- BarbieDoll\_29, Eevee\_26, Egad\_23, JoyLin\_26, Moozy\_19, Pippin15\_25, Raunak\_23, Renaldo\_31, Scap1\_19, Shiba\_23, TrixiePhattel\_27, Yotsuba\_26,

Genes that do not have the "Most Annotated" start:



- Arzan\_22, Bing\_24, CherryBlossom\_23, ClubPenguin\_22, CricKo\_21, DrGrey\_23, Elver\_39, Esketit\_23, FidgetOrca\_23, FrodoSwaggins\_23, FromIndy\_22, GirlPower\_22, Hoshi\_23, IceWarrior\_23, Indigenous\_23, Jaylociraptor\_23, Jazzy4900\_24, Kardashian\_22, LibertyBell\_21, Madamoto\_23, Maya\_23, Meibysrarus\_23, Miek\_21, Namu\_23, OlympicHelado\_23, Paella\_40, Popy\_23, Qui\_40, Rainydai\_21, Regigigas\_22, Rima\_23, SendItCS\_20, Soshi\_23, Spectropatronm\_23, Sunny4976\_23, TaidaOne\_23, Thiqqums\_21, TieDye\_22, TonyStarch\_23,

### Summary by start number:

#### Start 2:

- Found in 32 of 191 ( 16.8% ) of genes in pham
- Manual Annotations of this start: 30 of 158
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bing\_24 (BI5), CherryBlossom\_23 (BI1), CricKo\_21 (BI4), DrGrey\_23 (BI1), Esketit\_23 (BI1), FidgetOrca\_23 (BI1), FrodoSwaggins\_23 (BI1), FromIndy\_22 (BI4), GirlPower\_22 (BI1), Hoshi\_23 (BI1), IceWarrior\_23 (BI1), Indigenous\_23 (BI1), Jaylociraptor\_23 (BI1), Kardashian\_22 (BI6), LibertyBell\_21 (BI3), Madamoto\_23 (BI1), Maya\_23 (BI1), Meibysrarus\_23 (BI1), Miek\_21 (BI4), Namu\_23 (BI1), OlympicHelado\_23 (BI1), Popy\_23 (BI1), Rainydai\_21 (BI4), Regigigas\_22 (BI4), Rima\_23 (BI1), SendItCS\_20 (BI4), Soshi\_23 (BI1), Spectropatronm\_23 (BI1), TaidaOne\_23 (BI1), Thiqqums\_21 (BI4), TieDye\_22 (BI1), TonyStarch\_23 (BI1),

#### Start 8:

- Found in 3 of 191 ( 1.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arzan\_22 (FI), Jazzy4900\_24 (FI), Sunny4976\_23 (FI),

#### Start 14:

- Found in 1 of 191 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 158
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ClubPenguin\_22 (BI7),

#### Start 18:

- Found in 93 of 191 ( 48.7% ) of genes in pham
- Manual Annotations of this start: 2 of 158
- Called 3.2% of time when present
- Phage (with cluster) where this start called: BarbieDoll\_29 (AU6), Moozy\_19 (BI2), Scap1\_19 (BI2),

#### Start 19:

- Found in 152 of 191 ( 79.6% ) of genes in pham
- Manual Annotations of this start: 121 of 158
- Called 92.1% of time when present
- Phage (with cluster) where this start called: AddiRose\_25 (JA), Aflac\_32 (DJ), AlainaMarie\_32 (DJ), Annihilus\_19 (BI2), Arataki\_30 (DJ), Arcadia\_22 (AM), AreFloNak\_26 (AU1), Argan\_25 (AU6), Artorias\_29 (DJ), Avazak\_29 (DJ), BenitoAntonio\_22 (AM), Benllo\_20 (AM), Bilo\_19 (BI2), BluerMoon\_35 (DJ),

Breylor17\_27 (AU1), BronxBay\_23 (AW), Brunswick\_26 (AU1), Burley\_32 (DJ), Camille\_24 (EL), CapnMurica\_26 (AU1), Captrips\_29 (DJ), Capybara\_29 (DJ), CastorTray\_28 (AU1), Caterpillar\_24 (AU4), Cheesy\_22 (AM), Chikenjars\_32 (DJ), Circum\_22 (AM), Conley\_30 (DJ), Correa\_21 (AM), Count\_30 (EL), Crocheter\_32 (DJ), Daddyjeff\_24 (JA), Damascus\_24 (EL), Darby\_26 (AU1), DevitoJr\_26 (AU1), DizzyRudy\_24 (EL), Djungelskog\_23 (AW), DoctorPepper\_23 (AW), Doxi13\_19 (BI2), Duffington\_32 (DJ), Dynamite\_21 (AM), Eddiemania\_33 (DJ), ElephantMan\_26 (AU1), Elsa\_22 (AM), EndAve\_32 (DJ), Fazel\_30 (DJ), Figliar\_32 (DJ), FortCran\_29 (DJ), GantcherGoblin\_25 (AU6), Giantsbane\_27 (AU2), Gill\_29 (DJ), GoCrazy\_20 (AM), GoblinVoyage\_19 (BI2), Gordon\_26 (AU1), Gravy\_29 (DJ), Gusicorn\_35 (DJ), Hankly\_20 (AM), Heisenberger\_21 (AM), Hortihabitatio\_33 (DJ), HotFries\_18 (BI2), Hydrus\_33 (DJ), Ingrid\_26 (AU3), Inked\_28 (AU), Issa\_26 (AU1), JEGGS\_21 (AM), Jodelie19\_33 (DJ), JulesRay\_31 (DJ), Kardesai\_20 (AM), KeaneyLin\_20 (AM), Kenosha\_32 (DJ), Kerry\_29 (DJ), Leathea\_26 (AU6), Lewando\_29 (AU6), LilHuddy\_27 (AU2), Linda\_23 (AW), Loretta\_26 (AU3), Madvan\_32 (DJ), Makai\_26 (AU5), MediumFry\_24 (AU4), Michelle\_23 (AW), MiniBagel\_26 (AU1), Mooshroom\_21 (AM), Mossy\_33 (DJ), MrAaronian\_23 (AW), Mudcat\_21 (AM), Mysticmoon\_32 (DJ), Nadmeg\_33 (DJ), NapoleonB\_21 (AM), Nason\_22 (AM), Nightmare\_27 (AU1), Niktson\_26 (AU1), Nithya\_32 (DJ), Nivinsha\_26 (AU1), NoPickles\_29 (DJ), Odesza\_29 (DJ), OhMyWard\_32 (DJ), OlgasClover\_32 (DJ), Pepy6\_035 (CC), Perkunas\_31 (DJ), Petite\_31 (DJ), Phaby\_27 (AU2), Phaila\_25 (AU6), Phepper\_32 (DJ), Pherobrine\_31 (DJ), PherryCruz\_18 (BI2), Poco6\_036 (CC), ProfFrink\_23 (AW), RavenPuff\_18 (BI2), Rickmore\_31 (DJ), Roney\_29 (DJ), RosaAsantewaa\_19 (BI2), Runhaar\_32 (DJ), Salk\_23 (AW), Schwartz33\_33 (DJ), ScienceWizSam\_28 (AU1), Secretariat\_30 (DJ), Serenabean\_24 (JA), ShaggyRogers\_35 (DJ), SheRa\_19 (BI2), Shepard\_27 (AU2), Sloopypjoe\_23 (AW), Sporto\_24 (AW), StarLord\_23 (AW), Stayer\_23 (AW), Synopsis\_25 (AU1), Tanis\_29 (DJ), Tatanka\_26 (AU1), Teacup\_26 (AU1), TenaciousP\_33 (DJ), Tenno\_27 (AU1), Tokki\_27 (AU2), Tribby\_22 (AM), Truckee\_25 (AU5), Trustiboi\_27 (AU1), Untouchable\_32 (DJ), Uzumaki\_26 (AU6), Vardy\_32 (DJ), Xenomorph\_20 (AM), Zeina\_26 (AU6), Zeph\_33 (DJ),

#### Start 22:

- Found in 152 of 191 ( 79.6% ) of genes in pham
- Manual Annotations of this start: 2 of 158
- Called 4.6% of time when present
- Phage (with cluster) where this start called: Eevee\_26 (JA), Egad\_23 (AW), JoyLin\_26 (JA), Pippin15\_25 (JA), Raunak\_23 (AW), Shiba\_23 (AW), Yotsuba\_26 (JA),

#### Start 27:

- Found in 3 of 191 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 2 of 158
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Elver\_39 (FK), Paella\_40 (FK), Qui\_40 (FK),

#### Start 33:

- Found in 28 of 191 ( 14.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 3.6% of time when present
- Phage (with cluster) where this start called: Renaldo\_31 (AU6),

Start 53:

- Found in 97 of 191 ( 50.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 1.0% of time when present
- Phage (with cluster) where this start called: TrixiePhattel\_27 (AU6),

### **Summary by clusters:**

There are 22 clusters represented in this pham: DJ, FI, FK, JA, AU1, AU3, AU2, AU5, AU4, AU6, EL, CC, AM, AU, AW, BI6, BI7, BI4, BI5, BI2, BI3, BI1,

Info for manual annotations of cluster AM:

- Start number 19 was manually annotated 19 times for cluster AM.

Info for manual annotations of cluster AU:

- Start number 19 was manually annotated 1 time for cluster AU.

Info for manual annotations of cluster AU1:

- Start number 19 was manually annotated 17 times for cluster AU1.

Info for manual annotations of cluster AU2:

- Start number 19 was manually annotated 5 times for cluster AU2.

Info for manual annotations of cluster AU3:

- Start number 19 was manually annotated 2 times for cluster AU3.

Info for manual annotations of cluster AU4:

- Start number 19 was manually annotated 2 times for cluster AU4.

Info for manual annotations of cluster AU5:

- Start number 19 was manually annotated 2 times for cluster AU5.

Info for manual annotations of cluster AU6:

- Start number 19 was manually annotated 5 times for cluster AU6.

Info for manual annotations of cluster AW:

- Start number 19 was manually annotated 12 times for cluster AW.
- Start number 22 was manually annotated 2 times for cluster AW.

Info for manual annotations of cluster BI1:

- Start number 2 was manually annotated 22 times for cluster BI1.

Info for manual annotations of cluster BI2:

- Start number 18 was manually annotated 2 times for cluster BI2.
- Start number 19 was manually annotated 9 times for cluster BI2.

Info for manual annotations of cluster BI3:

- Start number 2 was manually annotated 1 time for cluster BI3.

Info for manual annotations of cluster BI4:

- Start number 2 was manually annotated 5 times for cluster BI4.

Info for manual annotations of cluster BI5:



- Start number 2 was manually annotated 1 time for cluster BI5.

Info for manual annotations of cluster BI6:

- Start number 2 was manually annotated 1 time for cluster BI6.

Info for manual annotations of cluster BI7:

- Start number 14 was manually annotated 1 time for cluster BI7.

Info for manual annotations of cluster DJ:

- Start number 19 was manually annotated 43 times for cluster DJ.

Info for manual annotations of cluster EL:

- Start number 19 was manually annotated 4 times for cluster EL.

Info for manual annotations of cluster FK:

- Start number 27 was manually annotated 2 times for cluster FK.

### **Gene Information:**

Gene: AddiRose\_25 Start: 18536, Stop: 23140, Start Num: 19

Candidate Starts for AddiRose\_25:

(Start: 19 @18536 has 121 MA's), (Start: 22 @18569 has 2 MA's), (47, 18692), (49, 18716), (59, 18806), (63, 18824), (67, 18836), (73, 18881), (77, 18938), (81, 19004), (85, 19064), (93, 19175), (97, 19205), (100, 19220), (118, 19343), (119, 19346), (121, 19367), (125, 19394), (132, 19451), (139, 19541), (149, 19610), (151, 19625), (153, 19646), (156, 19667), (179, 19808), (182, 19829), (187, 19850), (196, 19904), (232, 20093), (333, 20480), (346, 20606), (350, 20636), (371, 20738), (374, 20750), (383, 20789), (422, 20966), (426, 20987), (431, 21011), (432, 21014), (440, 21050), (466, 21179), (480, 21251), (483, 21272), (488, 21290), (497, 21323), (501, 21341), (506, 21362), (508, 21368), (511, 21383), (519, 21422), (527, 21458), (534, 21482), (536, 21491), (540, 21506), (553, 21548), (565, 21590), (566, 21599), (569, 21626), (570, 21629), (577, 21656), (582, 21668), (585, 21677), (603, 21737), (612, 21767), (620, 21794), (660, 21950), (672, 22001), (680, 22037), (690, 22076), (695, 22103), (699, 22115), (704, 22133), (710, 22154), (717, 22181), (722, 22199), (730, 22247), (738, 22289), (765, 22433), (770, 22457), (771, 22466), (772, 22475), (778, 22508), (784, 22553), (792, 22607), (800, 22679), (806, 22703), (814, 22757), (817, 22772), (818, 22781), (821, 22793), (823, 22802), (827, 22814), (830, 22823), (844, 22901), (846, 22904), (863, 22976), (890, 23129),

Gene: Aflac\_32 Start: 23512, Stop: 28626, Start Num: 19

Candidate Starts for Aflac\_32:

(Start: 19 @23512 has 121 MA's), (Start: 22 @23542 has 2 MA's), (28, 23587), (53, 23731), (63, 23797), (73, 23857), (74, 23878), (81, 23980), (88, 24106), (91, 24142), (97, 24181), (106, 24229), (111, 24271), (117, 24343), (122, 24391), (136, 24517), (144, 24592), (145, 24604), (150, 24625), (162, 24730), (163, 24733), (207, 24955), (218, 25021), (235, 25111), (250, 25147), (264, 25198), (272, 25246), (275, 25258), (304, 25402), (312, 25441), (319, 25468), (346, 25630), (352, 25678), (355, 25693), (356, 25699), (361, 25717), (372, 25765), (386, 25831), (398, 25882), (399, 25894), (402, 25912), (414, 25966), (426, 26011), (430, 26032), (433, 26041), (437, 26062), (441, 26083), (451, 26137), (452, 26140), (454, 26149), (460, 26170), (462, 26182), (467, 26203), (469, 26209), (473, 26227), (479, 26263), (484, 26293), (497, 26341), (501, 26353), (503, 26359), (504, 26362),

(506, 26374), (507, 26377), (512, 26398), (519, 26434), (532, 26488), (533, 26491), (541, 26512), (546, 26524), (547, 26527), (559, 26575), (564, 26590), (565, 26593), (566, 26602), (568, 26623), (574, 26650), (575, 26653), (581, 26677), (585, 26689), (590, 26710), (592, 26722), (594, 26731), (598, 26743), (606, 26770), (616, 26803), (618, 26809), (623, 26827), (636, 26881), (640, 26896), (658, 26965), (684, 27076), (713, 27187), (724, 27232), (738, 27322), (763, 27466), (773, 27529), (777, 27556), (787, 27628), (789, 27640), (790, 27649), (795, 27703), (799, 27724), (801, 27736), (835, 27898), (851, 27985), (859, 28003), (866, 28033), (872, 28051), (873, 28054), (875, 28066), (881, 28093), (895, 28204), (901, 28267), (903, 28279), (911, 28327), (919, 28381), (923, 28408), (940, 28522), (950, 28612),

Gene: AlainaMarie\_32 Start: 23499, Stop: 28610, Start Num: 19

Candidate Starts for AlainaMarie\_32:

(Start: 19 @23499 has 121 MA's), (Start: 22 @23529 has 2 MA's), (28, 23574), (53, 23718), (63, 23784), (73, 23844), (74, 23865), (81, 23967), (87, 24057), (88, 24093), (91, 24129), (97, 24168), (106, 24216), (111, 24258), (117, 24330), (122, 24378), (136, 24504), (144, 24579), (145, 24591), (150, 24612), (162, 24717), (163, 24720), (207, 24942), (218, 25008), (219, 25011), (232, 25080), (235, 25098), (264, 25185), (277, 25254), (298, 25356), (299, 25359), (304, 25386), (312, 25425), (319, 25452), (346, 25614), (352, 25662), (356, 25683), (361, 25701), (363, 25716), (372, 25749), (386, 25815), (397, 25863), (398, 25866), (401, 25887), (402, 25896), (414, 25950), (426, 25995), (430, 26016), (433, 26025), (440, 26058), (441, 26067), (444, 26091), (451, 26121), (452, 26124), (454, 26133), (457, 26145), (460, 26154), (462, 26166), (467, 26187), (469, 26193), (479, 26247), (484, 26277), (497, 26325), (501, 26337), (503, 26343), (504, 26346), (507, 26361), (512, 26382), (519, 26418), (532, 26472), (533, 26475), (536, 26487), (541, 26496), (546, 26508), (547, 26511), (550, 26526), (557, 26553), (559, 26559), (564, 26574), (565, 26577), (566, 26586), (567, 26601), (568, 26607), (572, 26622), (574, 26634), (575, 26637), (585, 26673), (590, 26694), (592, 26706), (594, 26715), (598, 26727), (606, 26754), (613, 26778), (616, 26787), (618, 26793), (623, 26811), (640, 26880), (658, 26949), (694, 27105), (738, 27306), (763, 27450), (773, 27513), (777, 27540), (787, 27612), (789, 27624), (790, 27633), (795, 27687), (799, 27708), (801, 27720), (835, 27882), (851, 27969), (859, 27987), (866, 28017), (872, 28035), (873, 28038), (875, 28050), (881, 28077), (895, 28188), (903, 28263), (911, 28311), (919, 28365), (923, 28392), (940, 28506), (950, 28596),

Gene: Annihilus\_19 Start: 13516, Stop: 18744, Start Num: 19

Candidate Starts for Annihilus\_19:

(Start: 18 @13495 has 2 MA's), (Start: 19 @13516 has 121 MA's), (Start: 22 @13546 has 2 MA's), (45, 13648), (49, 13699), (63, 13807), (81, 13990), (88, 14116), (91, 14152), (97, 14191), (111, 14281), (153, 14668), (176, 14818), (181, 14842), (193, 14914), (245, 15145), (269, 15223), (274, 15241), (275, 15244), (285, 15277), (309, 15385), (329, 15445), (346, 15526), (356, 15595), (368, 15649), (389, 15736), (390, 15739), (392, 15748), (410, 15850), (423, 15886), (426, 15904), (437, 15955), (458, 16057), (461, 16069), (464, 16084), (478, 16153), (479, 16162), (484, 16192), (496, 16237), (503, 16258), (510, 16288), (513, 16300), (514, 16303), (518, 16324), (519, 16333), (527, 16369), (536, 16402), (562, 16486), (569, 16531), (570, 16534), (571, 16537), (585, 16582), (594, 16612), (608, 16657), (612, 16672), (622, 16705), (627, 16726), (629, 16735), (631, 16744), (637, 16768), (638, 16771), (641, 16780), (645, 16801), (648, 16813), (656, 16840), (665, 16879), (670, 16900), (678, 16936), (680, 16942), (714, 17074), (716, 17083), (718, 17092), (721, 17101), (722, 17104), (724, 17116), (725, 17119), (726, 17128), (728, 17137), (746, 17230), (753, 17284), (772, 17392), (775, 17407), (781, 17446), (783, 17461), (803, 17605), (847, 17839), (864, 17914), (907, 18193), (908, 18196), (912, 18217), (917, 18265), (919, 18271), (935, 18379), (941, 18424), (944, 18451), (952, 18553), (963, 18706),

Gene: Arataki\_30 Start: 22605, Stop: 27719, Start Num: 19

Candidate Starts for Arataki\_30:

(Start: 19 @22605 has 121 MA's), (Start: 22 @22635 has 2 MA's), (28, 22680), (53, 22824), (58, 22869), (59, 22872), (62, 22884), (63, 22890), (73, 22950), (74, 22971), (81, 23073), (83, 23109), (88,

23199), (97, 23274), (102, 23301), (106, 23322), (109, 23346), (111, 23364), (122, 23484), (138, 23640), (144, 23685), (150, 23718), (162, 23823), (163, 23826), (173, 23892), (176, 23901), (203, 24036), (218, 24114), (235, 24204), (264, 24291), (272, 24339), (288, 24414), (304, 24495), (312, 24534), (319, 24561), (343, 24702), (346, 24723), (355, 24786), (356, 24792), (361, 24810), (362, 24816), (372, 24858), (375, 24870), (377, 24879), (386, 24924), (396, 24966), (398, 24975), (399, 24987), (401, 24996), (402, 25005), (414, 25059), (426, 25104), (430, 25125), (433, 25134), (438, 25158), (439, 25161), (440, 25167), (451, 25230), (452, 25233), (454, 25242), (457, 25254), (459, 25260), (460, 25263), (462, 25275), (467, 25296), (469, 25302), (470, 25305), (475, 25326), (479, 25356), (481, 25371), (484, 25386), (497, 25434), (501, 25446), (503, 25452), (504, 25455), (506, 25467), (507, 25470), (519, 25527), (532, 25581), (541, 25605), (546, 25617), (547, 25620), (558, 25665), (559, 25668), (564, 25683), (565, 25686), (566, 25695), (567, 25710), (568, 25716), (569, 25722), (574, 25743), (575, 25746), (579, 25758), (582, 25773), (585, 25782), (590, 25803), (592, 25815), (598, 25836), (606, 25863), (616, 25896), (618, 25902), (623, 25920), (630, 25950), (640, 25989), (658, 26058), (687, 26181), (705, 26250), (724, 26325), (738, 26415), (763, 26559), (773, 26622), (783, 26688), (787, 26721), (789, 26733), (795, 26796), (799, 26817), (801, 26829), (806, 26850), (835, 26991), (851, 27078), (859, 27096), (866, 27126), (872, 27144), (873, 27147), (875, 27159), (881, 27186), (895, 27297), (903, 27372), (914, 27441), (919, 27474), (922, 27498), (940, 27615), (950, 27705),

Gene: Arcadia\_22 Start: 17670, Stop: 22148, Start Num: 19

Candidate Starts for Arcadia\_22:

(Start: 18 @17649 has 2 MA's), (Start: 19 @17670 has 121 MA's), (Start: 22 @17700 has 2 MA's), (25, 17733), (30, 17754), (70, 17985), (73, 18015), (80, 18096), (81, 18138), (82, 18156), (85, 18198), (90, 18285), (97, 18339), (100, 18354), (106, 18387), (119, 18480), (125, 18528), (127, 18543), (132, 18585), (136, 18639), (144, 18714), (150, 18747), (163, 18855), (173, 18921), (181, 18954), (183, 18963), (185, 18966), (188, 18984), (249, 19266), (262, 19290), (266, 19320), (308, 19479), (323, 19539), (346, 19668), (352, 19716), (363, 19770), (366, 19782), (368, 19791), (371, 19800), (377, 19824), (386, 19869), (392, 19890), (404, 19965), (412, 19998), (422, 20028), (426, 20049), (430, 20070), (442, 20130), (443, 20136), (451, 20175), (452, 20178), (456, 20193), (470, 20256), (475, 20277), (479, 20307), (484, 20337), (489, 20355), (501, 20403), (507, 20427), (511, 20445), (514, 20454), (515, 20463), (517, 20469), (520, 20490), (527, 20520), (536, 20553), (537, 20559), (538, 20562), (543, 20574), (550, 20595), (565, 20646), (566, 20655), (570, 20685), (572, 20691), (582, 20724), (585, 20733), (594, 20763), (597, 20772), (600, 20784), (612, 20823), (620, 20850), (622, 20856), (623, 20859), (626, 20874), (633, 20901), (637, 20919), (641, 20931), (649, 20967), (675, 21069), (690, 21132), (698, 21168), (699, 21171), (701, 21177), (705, 21192), (710, 21210), (716, 21234), (720, 21249), (721, 21252), (725, 21270), (730, 21303), (735, 21324), (746, 21381), (753, 21435), (755, 21444), (766, 21498), (782, 21525), (784, 21543), (791, 21591), (792, 21597), (800, 21669), (814, 21747), (817, 21762), (826, 21801), (834, 21825), (844, 21894), (849, 21915), (871, 22008), (892, 22137),

Gene: AreFloNak\_26 Start: 20074, Stop: 24663, Start Num: 19

Candidate Starts for AreFloNak\_26:

(Start: 18 @20053 has 2 MA's), (Start: 19 @20074 has 121 MA's), (Start: 22 @20104 has 2 MA's), (30, 20158), (33, 20179), (46, 20215), (53, 20293), (62, 20353), (68, 20377), (70, 20389), (73, 20419), (76, 20470), (80, 20500), (81, 20542), (82, 20560), (85, 20602), (87, 20632), (89, 20677), (90, 20689), (97, 20743), (100, 20758), (102, 20770), (106, 20791), (119, 20884), (122, 20917), (125, 20932), (131, 20980), (150, 21151), (165, 21265), (166, 21268), (193, 21430), (200, 21454), (203, 21469), (207, 21481), (220, 21556), (238, 21649), (243, 21664), (244, 21670), (255, 21688), (271, 21760), (283, 21811), (288, 21826), (294, 21856), (310, 21928), (312, 21934), (322, 21967), (323, 21970), (330, 21997), (346, 22111), (354, 22168), (356, 22180), (368, 22234), (371, 22243), (372, 22246), (377, 22267), (386, 22312), (392, 22333), (399, 22375), (402, 22393), (415, 22450), (422, 22471), (426, 22492), (442, 22573), (444, 22588), (445, 22591), (451, 22618), (452, 22621), (464, 22672), (479, 22750), (481, 22765), (482, 22768), (486, 22786), (487, 22792), (489, 22798), (492, 22807), (501,



22843), (504, 22852), (511, 22885), (522, 22939), (523, 22942), (527, 22960), (531, 22972), (538, 23002), (543, 23017), (548, 23026), (550, 23038), (555, 23059), (566, 23098), (577, 23155), (582, 23167), (585, 23176), (597, 23215), (600, 23227), (610, 23257), (612, 23266), (623, 23302), (632, 23341), (633, 23344), (637, 23362), (639, 23368), (654, 23428), (657, 23437), (669, 23491), (670, 23494), (673, 23503), (701, 23620), (702, 23623), (708, 23644), (716, 23677), (717, 23680), (718, 23686), (721, 23695), (726, 23722), (735, 23767), (747, 23833), (754, 23884), (756, 23890), (768, 23950), (782, 24034), (784, 24052), (785, 24064), (809, 24223), (810, 24232), (820, 24280), (828, 24313), (831, 24325), (834, 24331), (837, 24352), (838, 24355), (839, 24361), (845, 24400), (850, 24427), (886, 24613), (891, 24640),

Gene: Argan\_25 Start: 18963, Stop: 23600, Start Num: 19

Candidate Starts for Argan\_25:

(Start: 18 @18942 has 2 MA's), (Start: 19 @18963 has 121 MA's), (Start: 22 @18993 has 2 MA's), (30, 19047), (31, 19056), (63, 19326), (64, 19329), (73, 19386), (74, 19407), (80, 19467), (81, 19509), (85, 19569), (89, 19644), (97, 19710), (100, 19725), (106, 19758), (110, 19797), (111, 19800), (117, 19836), (119, 19851), (125, 19899), (145, 20097), (156, 20172), (163, 20226), (166, 20235), (174, 20295), (184, 20337), (193, 20397), (194, 20403), (197, 20412), (202, 20427), (203, 20436), (223, 20535), (224, 20547), (226, 20568), (305, 20853), (319, 20913), (323, 20922), (346, 21063), (352, 21111), (353, 21117), (357, 21135), (359, 21141), (368, 21186), (371, 21195), (377, 21219), (381, 21237), (391, 21282), (392, 21285), (395, 21294), (404, 21360), (415, 21402), (419, 21414), (422, 21423), (426, 21444), (437, 21495), (442, 21525), (444, 21540), (454, 21582), (459, 21600), (469, 21648), (470, 21651), (480, 21708), (506, 21816), (509, 21825), (519, 21876), (527, 21912), (536, 21945), (538, 21954), (543, 21966), (550, 21987), (557, 22014), (565, 22038), (566, 22047), (582, 22116), (583, 22119), (584, 22122), (585, 22125), (594, 22155), (600, 22176), (607, 22197), (612, 22215), (615, 22224), (620, 22242), (635, 22302), (643, 22335), (646, 22350), (648, 22356), (649, 22359), (662, 22404), (669, 22440), (670, 22443), (672, 22449), (675, 22461), (676, 22464), (704, 22581), (705, 22584), (710, 22602), (719, 22638), (728, 22680), (732, 22704), (746, 22773), (753, 22827), (756, 22839), (778, 22956), (784, 23001), (811, 23184), (814, 23205), (820, 23229), (834, 23280), (844, 23349), (845, 23352), (849, 23367),

Gene: Artorias\_29 Start: 20505, Stop: 25607, Start Num: 19

Candidate Starts for Artorias\_29:

(Start: 19 @20505 has 121 MA's), (Start: 22 @20535 has 2 MA's), (48, 20673), (52, 20718), (53, 20724), (54, 20733), (55, 20748), (58, 20769), (63, 20790), (70, 20820), (73, 20850), (74, 20871), (81, 20973), (85, 21033), (89, 21108), (90, 21120), (93, 21144), (97, 21174), (100, 21189), (106, 21222), (111, 21264), (116, 21315), (123, 21369), (124, 21372), (134, 21471), (137, 21495), (150, 21591), (162, 21696), (163, 21699), (174, 21768), (176, 21774), (177, 21780), (213, 21957), (223, 22008), (232, 22059), (250, 22113), (252, 22116), (304, 22368), (305, 22371), (320, 22446), (332, 22503), (344, 22587), (346, 22596), (358, 22671), (361, 22683), (363, 22698), (364, 22701), (369, 22722), (381, 22770), (386, 22797), (392, 22818), (395, 22827), (398, 22848), (399, 22860), (401, 22869), (402, 22878), (414, 22932), (415, 22935), (422, 22956), (430, 22998), (436, 23025), (439, 23034), (441, 23049), (442, 23058), (444, 23073), (446, 23085), (449, 23094), (457, 23127), (460, 23136), (478, 23220), (479, 23229), (481, 23244), (482, 23247), (486, 23265), (497, 23307), (504, 23328), (507, 23343), (509, 23349), (517, 23385), (519, 23400), (533, 23457), (536, 23469), (541, 23478), (546, 23490), (549, 23502), (550, 23508), (555, 23529), (559, 23541), (565, 23559), (566, 23568), (567, 23583), (568, 23589), (571, 23601), (581, 23643), (582, 23646), (585, 23655), (590, 23676), (592, 23688), (606, 23736), (609, 23745), (616, 23769), (618, 23775), (623, 23793), (624, 23802), (630, 23823), (647, 23892), (652, 23910), (658, 23931), (699, 24102), (713, 24153), (740, 24297), (751, 24366), (763, 24432), (771, 24483), (789, 24606), (795, 24669), (805, 24717), (806, 24723), (807, 24732), (815, 24780), (832, 24852), (843, 24912), (848, 24933), (849, 24936), (860, 24987), (862, 24996), (866, 25014), (873, 25035), (875, 25047), (887, 25140), (895, 25185), (903, 25260), (905, 25278), (909, 25299), (922, 25386), (939, 25497), (950, 25593),

Gene: Arzan\_22 Start: 17242, Stop: 22302, Start Num: 8

Candidate Starts for Arzan\_22:

(8, 17242), (11, 17272), (15, 17326), (16, 17347), (40, 17554), (41, 17560), (43, 17563), (53, 17683), (57, 17716), (63, 17749), (71, 17788), (74, 17830), (79, 17881), (81, 17932), (88, 18058), (90, 18079), (97, 18133), (103, 18163), (119, 18265), (121, 18286), (126, 18322), (131, 18361), (144, 18499), (150, 18532), (158, 18604), (160, 18625), (162, 18637), (163, 18640), (171, 18691), (178, 18724), (184, 18751), (187, 18769), (203, 18850), (212, 18949), (215, 18985), (221, 19021), (225, 19066), (250, 19171), (278, 19306), (306, 19468), (307, 19471), (317, 19531), (326, 19594), (327, 19600), (341, 19714), (346, 19768), (350, 19798), (357, 19840), (360, 19852), (370, 19897), (371, 19900), (373, 19909), (377, 19924), (386, 19969), (392, 19990), (395, 19999), (401, 20041), (422, 20128), (430, 20170), (444, 20245), (454, 20287), (467, 20347), (475, 20377), (489, 20455), (492, 20464), (499, 20494), (506, 20524), (527, 20620), (535, 20647), (536, 20653), (538, 20662), (543, 20674), (545, 20677), (550, 20695), (555, 20716), (565, 20746), (566, 20755), (577, 20812), (579, 20818), (585, 20833), (590, 20848), (597, 20872), (599, 20878), (607, 20905), (609, 20911), (612, 20923), (633, 21001), (635, 21010), (644, 21049), (645, 21052), (652, 21079), (660, 21106), (665, 21130), (678, 21187), (680, 21193), (681, 21202), (703, 21283), (718, 21343), (720, 21349), (721, 21352), (728, 21388), (730, 21403), (771, 21622), (784, 21709), (793, 21778), (809, 21880), (811, 21892), (814, 21913), (825, 21958), (830, 21976), (834, 21991), (839, 22021), (844, 22060), (889, 22276),

Gene: Avazak\_29 Start: 20512, Stop: 25614, Start Num: 19

Candidate Starts for Avazak\_29:

(Start: 19 @20512 has 121 MA's), (Start: 22 @20542 has 2 MA's), (48, 20680), (52, 20725), (53, 20731), (54, 20740), (55, 20755), (58, 20776), (63, 20797), (70, 20827), (73, 20857), (74, 20878), (81, 20980), (85, 21040), (89, 21115), (90, 21127), (93, 21151), (97, 21181), (100, 21196), (106, 21229), (111, 21271), (116, 21322), (123, 21376), (124, 21379), (134, 21478), (137, 21502), (142, 21538), (150, 21598), (162, 21703), (163, 21706), (174, 21775), (176, 21781), (177, 21787), (213, 21964), (223, 22015), (232, 22066), (250, 22120), (252, 22123), (279, 22255), (288, 22294), (304, 22375), (305, 22378), (320, 22453), (332, 22510), (344, 22594), (346, 22603), (358, 22678), (361, 22690), (363, 22705), (364, 22708), (369, 22729), (381, 22777), (386, 22804), (392, 22825), (395, 22834), (398, 22855), (399, 22867), (401, 22876), (402, 22885), (415, 22942), (422, 22963), (426, 22984), (430, 23005), (436, 23032), (439, 23041), (441, 23056), (442, 23065), (444, 23080), (446, 23092), (449, 23101), (457, 23134), (460, 23143), (478, 23227), (479, 23236), (481, 23251), (486, 23272), (497, 23314), (504, 23335), (507, 23350), (517, 23392), (519, 23407), (533, 23464), (536, 23476), (541, 23485), (546, 23497), (549, 23509), (550, 23515), (555, 23536), (559, 23548), (562, 23557), (565, 23566), (566, 23575), (567, 23590), (568, 23596), (571, 23608), (577, 23632), (581, 23650), (585, 23662), (590, 23683), (592, 23695), (606, 23743), (609, 23752), (616, 23776), (618, 23782), (619, 23785), (623, 23800), (624, 23809), (625, 23812), (630, 23830), (647, 23899), (658, 23938), (699, 24109), (713, 24160), (740, 24304), (751, 24373), (763, 24439), (771, 24490), (789, 24613), (795, 24676), (805, 24724), (806, 24730), (807, 24739), (815, 24787), (832, 24859), (843, 24919), (848, 24940), (849, 24943), (860, 24994), (862, 25003), (866, 25021), (873, 25042), (875, 25054), (887, 25147), (895, 25192), (903, 25267), (905, 25285), (909, 25306), (922, 25393), (939, 25504), (950, 25600),

Gene: BarbieDoll\_29 Start: 20909, Stop: 25573, Start Num: 18

Candidate Starts for BarbieDoll\_29:

(Start: 18 @20909 has 2 MA's), (Start: 19 @20930 has 121 MA's), (Start: 22 @20960 has 2 MA's), (30, 21014), (33, 21035), (38, 21071), (53, 21239), (62, 21299), (73, 21365), (74, 21386), (81, 21488), (82, 21506), (85, 21548), (89, 21623), (90, 21635), (97, 21689), (100, 21704), (106, 21737), (117, 21815), (119, 21830), (130, 21920), (136, 21989), (150, 22097), (156, 22151), (162, 22202), (163, 22205), (174, 22274), (184, 22316), (193, 22376), (194, 22382), (197, 22391), (202, 22406), (203, 22415), (218, 22493), (223, 22514), (224, 22526), (226, 22547), (287, 22754), (292, 22778), (305, 22832), (323, 22901), (346, 23042), (357, 23114), (359, 23120), (368, 23165), (370, 23171), (371, 23174), (377, 23198), (381, 23216), (392, 23264), (395, 23273), (415, 23381), (422, 23402), (426,

23423), (436, 23471), (442, 23504), (444, 23519), (459, 23579), (481, 23696), (506, 23795), (507, 23798), (519, 23855), (522, 23870), (524, 23882), (527, 23891), (536, 23924), (538, 23933), (543, 23945), (565, 24017), (566, 24026), (574, 24074), (582, 24095), (584, 24101), (585, 24104), (603, 24164), (612, 24194), (615, 24203), (637, 24290), (638, 24293), (639, 24296), (643, 24314), (646, 24329), (651, 24344), (654, 24356), (662, 24383), (669, 24419), (670, 24422), (672, 24428), (675, 24440), (687, 24494), (695, 24530), (705, 24563), (710, 24581), (716, 24605), (717, 24608), (723, 24629), (737, 24710), (743, 24740), (746, 24752), (753, 24806), (756, 24818), (778, 24935), (784, 24980), (793, 25049), (814, 25184), (820, 25208), (831, 25253), (834, 25259), (841, 25298), (844, 25328), (849, 25346),

Gene: BenitoAntonio\_22 Start: 17286, Stop: 21764, Start Num: 19

Candidate Starts for BenitoAntonio\_22:

(Start: 18 @17265 has 2 MA's), (Start: 19 @17286 has 121 MA's), (Start: 22 @17316 has 2 MA's), (25, 17349), (30, 17370), (70, 17601), (73, 17631), (80, 17712), (81, 17754), (82, 17772), (85, 17814), (90, 17901), (97, 17955), (100, 17970), (106, 18003), (117, 18081), (119, 18096), (125, 18144), (132, 18201), (136, 18255), (137, 18267), (144, 18330), (150, 18363), (163, 18471), (173, 18537), (181, 18570), (183, 18579), (188, 18600), (249, 18882), (265, 18927), (266, 18936), (308, 19095), (314, 19128), (323, 19155), (346, 19284), (359, 19362), (368, 19407), (371, 19416), (374, 19428), (377, 19440), (383, 19467), (386, 19485), (392, 19506), (404, 19581), (408, 19602), (409, 19605), (412, 19614), (422, 19644), (430, 19686), (442, 19746), (443, 19752), (444, 19761), (452, 19794), (455, 19806), (456, 19809), (468, 19866), (470, 19872), (475, 19893), (479, 19923), (484, 19953), (489, 19971), (501, 20019), (507, 20043), (511, 20061), (514, 20070), (517, 20085), (520, 20106), (527, 20136), (536, 20169), (537, 20175), (538, 20178), (543, 20190), (550, 20211), (565, 20262), (566, 20271), (570, 20301), (572, 20307), (582, 20340), (585, 20349), (594, 20379), (597, 20388), (600, 20400), (612, 20439), (620, 20466), (622, 20472), (623, 20475), (633, 20517), (641, 20547), (649, 20583), (675, 20685), (690, 20748), (698, 20784), (699, 20787), (701, 20793), (705, 20808), (710, 20826), (716, 20850), (720, 20865), (721, 20868), (725, 20886), (730, 20919), (735, 20940), (746, 20997), (753, 21051), (755, 21060), (766, 21114), (782, 21141), (784, 21159), (791, 21207), (792, 21213), (800, 21285), (814, 21363), (817, 21378), (826, 21417), (834, 21441), (844, 21510), (849, 21531), (871, 21624), (892, 21753),

Gene: Benllo\_20 Start: 17570, Stop: 22048, Start Num: 19

Candidate Starts for Benllo\_20:

(Start: 18 @17549 has 2 MA's), (Start: 19 @17570 has 121 MA's), (Start: 22 @17600 has 2 MA's), (25, 17633), (30, 17654), (70, 17885), (73, 17915), (80, 17996), (81, 18038), (82, 18056), (85, 18098), (90, 18185), (97, 18239), (100, 18254), (106, 18287), (117, 18365), (119, 18380), (125, 18428), (127, 18443), (132, 18485), (140, 18581), (144, 18614), (150, 18647), (163, 18755), (173, 18821), (181, 18854), (183, 18863), (185, 18866), (188, 18884), (249, 19166), (262, 19190), (266, 19220), (308, 19379), (323, 19439), (346, 19568), (352, 19616), (359, 19646), (363, 19670), (366, 19682), (368, 19691), (371, 19700), (377, 19724), (386, 19769), (392, 19790), (404, 19865), (412, 19898), (422, 19928), (426, 19949), (430, 19970), (442, 20030), (443, 20036), (451, 20075), (456, 20093), (475, 20177), (479, 20207), (484, 20237), (489, 20255), (501, 20303), (507, 20327), (511, 20345), (514, 20354), (515, 20363), (517, 20369), (520, 20390), (527, 20420), (536, 20453), (537, 20459), (541, 20468), (550, 20495), (557, 20522), (566, 20555), (569, 20582), (571, 20588), (578, 20615), (585, 20633), (594, 20663), (597, 20672), (600, 20684), (602, 20690), (603, 20693), (607, 20705), (612, 20723), (620, 20750), (622, 20756), (639, 20825), (645, 20852), (649, 20867), (675, 20969), (698, 21068), (699, 21071), (701, 21077), (705, 21092), (710, 21110), (720, 21149), (721, 21152), (725, 21170), (730, 21203), (735, 21224), (746, 21281), (753, 21335), (755, 21344), (766, 21398), (782, 21425), (784, 21443), (791, 21491), (792, 21497), (800, 21569), (814, 21647), (822, 21683), (826, 21701), (834, 21725), (838, 21749), (844, 21794), (849, 21815), (892, 22037),

Gene: Bilo\_19 Start: 14007, Stop: 19235, Start Num: 19

Candidate Starts for Bilo\_19:



(Start: 18 @13986 has 2 MA's), (Start: 19 @14007 has 121 MA's), (Start: 22 @14037 has 2 MA's), (49, 14190), (62, 14292), (63, 14298), (81, 14481), (86, 14562), (88, 14607), (91, 14643), (97, 14682), (104, 14715), (109, 14754), (111, 14772), (153, 15159), (176, 15309), (181, 15333), (193, 15405), (245, 15636), (263, 15684), (269, 15714), (274, 15732), (285, 15768), (346, 16017), (356, 16086), (371, 16149), (377, 16173), (390, 16230), (392, 16239), (399, 16281), (410, 16341), (412, 16347), (414, 16353), (423, 16377), (433, 16425), (458, 16548), (469, 16599), (478, 16644), (479, 16653), (484, 16683), (496, 16728), (503, 16749), (513, 16791), (514, 16794), (518, 16815), (519, 16824), (527, 16860), (536, 16893), (569, 17022), (571, 17028), (572, 17031), (585, 17073), (594, 17103), (608, 17148), (612, 17163), (622, 17196), (627, 17217), (629, 17226), (631, 17235), (637, 17259), (638, 17262), (645, 17292), (654, 17325), (665, 17370), (670, 17391), (680, 17433), (683, 17448), (700, 17514), (704, 17529), (718, 17583), (721, 17592), (722, 17595), (724, 17607), (725, 17610), (728, 17628), (753, 17775), (772, 17883), (775, 17898), (803, 18096), (847, 18330), (864, 18405), (900, 18642), (907, 18684), (908, 18687), (912, 18708), (917, 18756), (919, 18762), (935, 18870), (944, 18942), (952, 19044), (963, 19197),

Gene: Bing\_24 Start: 16028, Stop: 21496, Start Num: 2

Candidate Starts for Bing\_24:

(1, 16007), (Start: 2 @16028 has 30 MA's), (3, 16058), (6, 16133), (12, 16214), (13, 16217), (34, 16385), (62, 16571), (73, 16637), (81, 16760), (86, 16841), (88, 16886), (94, 16946), (97, 16961), (106, 17009), (111, 17051), (132, 17243), (137, 17309), (153, 17438), (165, 17519), (166, 17522), (176, 17588), (239, 17906), (250, 17924), (263, 17963), (274, 18011), (276, 18020), (285, 18047), (296, 18098), (304, 18131), (308, 18143), (310, 18161), (319, 18194), (322, 18200), (323, 18203), (346, 18293), (354, 18350), (356, 18362), (371, 18425), (389, 18503), (390, 18506), (392, 18515), (415, 18632), (423, 18653), (441, 18743), (458, 18824), (469, 18875), (478, 18920), (479, 18929), (495, 19001), (505, 19034), (511, 19061), (513, 19067), (516, 19082), (519, 19100), (527, 19136), (561, 19250), (565, 19262), (569, 19298), (571, 19304), (574, 19319), (585, 19349), (608, 19424), (612, 19439), (617, 19454), (620, 19466), (622, 19472), (625, 19487), (629, 19502), (635, 19526), (648, 19580), (649, 19583), (654, 19601), (660, 19622), (668, 19661), (673, 19676), (680, 19709), (700, 19790), (714, 19841), (718, 19859), (721, 19868), (728, 19904), (746, 19997), (768, 20135), (772, 20159), (773, 20162), (780, 20207), (803, 20372), (854, 20645), (904, 20948), (908, 20963), (912, 20984), (919, 21038), (927, 21089),

Gene: BluerMoon\_35 Start: 23509, Stop: 28623, Start Num: 19

Candidate Starts for BluerMoon\_35:

(Start: 19 @23509 has 121 MA's), (Start: 22 @23539 has 2 MA's), (28, 23584), (53, 23728), (62, 23788), (63, 23794), (73, 23854), (74, 23875), (81, 23977), (88, 24103), (91, 24139), (97, 24178), (106, 24226), (111, 24268), (117, 24340), (122, 24388), (136, 24514), (144, 24589), (145, 24601), (150, 24622), (162, 24727), (163, 24730), (207, 24952), (218, 25018), (235, 25108), (250, 25144), (264, 25195), (272, 25243), (275, 25255), (304, 25399), (312, 25438), (319, 25465), (346, 25627), (352, 25675), (356, 25696), (361, 25714), (372, 25762), (386, 25828), (398, 25879), (399, 25891), (402, 25909), (414, 25963), (426, 26008), (430, 26029), (433, 26038), (437, 26059), (441, 26080), (451, 26134), (452, 26137), (454, 26146), (460, 26167), (462, 26179), (467, 26200), (469, 26206), (473, 26224), (479, 26260), (484, 26290), (497, 26338), (501, 26350), (503, 26356), (504, 26359), (506, 26371), (507, 26374), (512, 26395), (519, 26431), (532, 26485), (533, 26488), (541, 26509), (546, 26521), (547, 26524), (559, 26572), (564, 26587), (565, 26590), (566, 26599), (568, 26620), (574, 26647), (575, 26650), (581, 26674), (585, 26686), (590, 26707), (592, 26719), (594, 26728), (598, 26740), (606, 26767), (616, 26800), (618, 26806), (623, 26824), (636, 26878), (640, 26893), (658, 26962), (684, 27073), (713, 27184), (724, 27229), (738, 27319), (760, 27442), (763, 27463), (773, 27526), (777, 27553), (787, 27625), (789, 27637), (790, 27646), (795, 27700), (799, 27721), (801, 27733), (806, 27754), (835, 27895), (851, 27982), (859, 28000), (866, 28030), (872, 28048), (873, 28051), (875, 28063), (881, 28090), (895, 28201), (903, 28276), (919, 28378), (923, 28405), (940, 28519), (950, 28609),

Gene: Breylor17\_27 Start: 20680, Stop: 25269, Start Num: 19

Candidate Starts for Breylor17\_27:

(Start: 18 @20659 has 2 MA's), (Start: 19 @20680 has 121 MA's), (Start: 22 @20710 has 2 MA's), (30, 20764), (33, 20785), (46, 20821), (53, 20899), (62, 20959), (68, 20983), (70, 20995), (73, 21025), (76, 21076), (80, 21106), (81, 21148), (82, 21166), (85, 21208), (87, 21238), (89, 21283), (90, 21295), (97, 21349), (100, 21364), (102, 21376), (106, 21397), (119, 21490), (122, 21523), (125, 21538), (131, 21586), (145, 21736), (150, 21757), (165, 21871), (166, 21874), (172, 21922), (193, 22036), (200, 22060), (203, 22075), (207, 22087), (238, 22255), (243, 22270), (244, 22276), (255, 22294), (271, 22366), (283, 22417), (288, 22432), (294, 22462), (310, 22534), (312, 22540), (322, 22573), (323, 22576), (330, 22603), (346, 22717), (354, 22774), (356, 22786), (368, 22840), (371, 22849), (372, 22852), (377, 22873), (386, 22918), (392, 22939), (399, 22981), (402, 22999), (415, 23056), (422, 23077), (426, 23098), (442, 23179), (444, 23194), (445, 23197), (452, 23227), (464, 23278), (479, 23356), (481, 23371), (482, 23374), (486, 23392), (487, 23398), (489, 23404), (492, 23413), (501, 23449), (504, 23458), (511, 23491), (522, 23545), (523, 23548), (527, 23566), (531, 23578), (538, 23608), (543, 23623), (548, 23632), (550, 23644), (555, 23665), (566, 23704), (577, 23761), (582, 23773), (585, 23782), (597, 23821), (600, 23833), (610, 23863), (612, 23872), (623, 23908), (632, 23947), (633, 23950), (639, 23974), (644, 23998), (654, 24034), (657, 24043), (663, 24064), (669, 24097), (670, 24100), (701, 24226), (702, 24229), (708, 24250), (716, 24283), (717, 24286), (718, 24292), (721, 24301), (726, 24328), (735, 24373), (747, 24439), (754, 24490), (756, 24496), (768, 24556), (772, 24580), (782, 24640), (784, 24658), (785, 24670), (792, 24712), (809, 24829), (810, 24838), (820, 24886), (828, 24919), (831, 24931), (834, 24937), (837, 24958), (838, 24961), (839, 24967), (845, 25006), (850, 25033), (886, 25219), (891, 25246),

Gene: BronxBay\_23 Start: 17240, Stop: 21790, Start Num: 19

Candidate Starts for BronxBay\_23:

(Start: 18 @17219 has 2 MA's), (Start: 19 @17240 has 121 MA's), (Start: 22 @17270 has 2 MA's), (25, 17303), (53, 17459), (68, 17543), (70, 17555), (73, 17585), (80, 17666), (81, 17708), (82, 17726), (85, 17768), (87, 17798), (89, 17843), (90, 17855), (97, 17909), (100, 17924), (106, 17957), (113, 18020), (119, 18050), (122, 18083), (125, 18098), (131, 18146), (145, 18296), (150, 18317), (163, 18425), (166, 18434), (172, 18482), (199, 18617), (209, 18659), (228, 18773), (241, 18824), (242, 18827), (244, 18836), (267, 18917), (288, 19001), (291, 19019), (302, 19064), (312, 19109), (313, 19112), (314, 19118), (325, 19151), (346, 19262), (356, 19331), (357, 19334), (366, 19376), (368, 19385), (371, 19394), (379, 19424), (386, 19463), (388, 19469), (392, 19484), (399, 19526), (422, 19622), (426, 19643), (427, 19646), (431, 19667), (442, 19724), (444, 19739), (451, 19769), (454, 19781), (461, 19808), (464, 19823), (475, 19871), (479, 19901), (481, 19916), (489, 19949), (491, 19955), (501, 19994), (504, 20003), (506, 20015), (511, 20036), (524, 20102), (527, 20111), (536, 20144), (537, 20150), (538, 20153), (543, 20165), (545, 20168), (551, 20189), (556, 20210), (566, 20246), (574, 20294), (585, 20324), (612, 20414), (628, 20471), (639, 20516), (643, 20534), (650, 20561), (652, 20570), (654, 20576), (668, 20636), (672, 20648), (675, 20660), (687, 20714), (697, 20756), (699, 20762), (701, 20768), (710, 20801), (711, 20804), (717, 20828), (718, 20834), (720, 20840), (721, 20843), (730, 20894), (733, 20906), (740, 20945), (764, 21077), (771, 21113), (778, 21155), (784, 21200), (794, 21290), (810, 21380), (814, 21404), (820, 21428), (822, 21440), (825, 21449), (828, 21461), (831, 21473), (841, 21518), (845, 21548), (849, 21566), (856, 21605),

Gene: Brunswick\_26 Start: 20146, Stop: 24735, Start Num: 19

Candidate Starts for Brunswick\_26:

(Start: 18 @20125 has 2 MA's), (Start: 19 @20146 has 121 MA's), (Start: 22 @20176 has 2 MA's), (30, 20230), (33, 20251), (46, 20287), (53, 20365), (62, 20425), (68, 20449), (70, 20461), (73, 20491), (76, 20542), (80, 20572), (81, 20614), (82, 20632), (85, 20674), (87, 20704), (89, 20749), (90, 20761), (97, 20815), (100, 20830), (102, 20842), (106, 20863), (119, 20956), (122, 20989), (125, 21004), (131, 21052), (145, 21202), (150, 21223), (163, 21331), (165, 21337), (166, 21340), (172, 21388), (193, 21502), (200, 21526), (203, 21541), (207, 21553), (220, 21628), (226, 21673), (238, 21721), (243, 21736), (244, 21742), (255, 21760), (271, 21832), (280, 21874), (283, 21883), (294, 21928), (310,

22000), (312, 22006), (322, 22039), (323, 22042), (330, 22069), (346, 22183), (354, 22240), (356, 22252), (368, 22306), (371, 22315), (372, 22318), (377, 22339), (386, 22384), (392, 22405), (413, 22516), (415, 22522), (422, 22543), (425, 22561), (426, 22564), (430, 22585), (442, 22645), (444, 22660), (445, 22663), (451, 22690), (452, 22693), (459, 22720), (479, 22822), (481, 22837), (482, 22840), (486, 22858), (487, 22864), (488, 22867), (492, 22879), (501, 22915), (504, 22924), (511, 22957), (522, 23011), (523, 23014), (527, 23032), (531, 23044), (538, 23074), (543, 23089), (548, 23098), (550, 23110), (566, 23170), (575, 23221), (577, 23227), (582, 23239), (585, 23248), (597, 23287), (600, 23299), (604, 23311), (610, 23329), (612, 23338), (632, 23413), (633, 23416), (637, 23434), (654, 23500), (656, 23506), (657, 23509), (669, 23563), (670, 23566), (701, 23692), (702, 23695), (708, 23716), (716, 23749), (718, 23758), (735, 23839), (741, 23872), (747, 23905), (756, 23962), (768, 24022), (772, 24046), (784, 24124), (785, 24136), (804, 24262), (810, 24304), (820, 24352), (828, 24385), (831, 24397), (834, 24403), (837, 24424), (838, 24427), (839, 24433), (845, 24472), (850, 24499), (855, 24526), (886, 24685), (891, 24712),

Gene: Burley\_32 Start: 23250, Stop: 28361, Start Num: 19

Candidate Starts for Burley\_32:

(Start: 19 @23250 has 121 MA's), (Start: 22 @23280 has 2 MA's), (28, 23325), (33, 23355), (53, 23469), (63, 23535), (73, 23595), (74, 23616), (81, 23718), (88, 23844), (91, 23880), (97, 23919), (102, 23946), (106, 23967), (111, 24009), (120, 24108), (122, 24129), (136, 24255), (144, 24330), (145, 24342), (150, 24363), (162, 24468), (163, 24471), (232, 24831), (264, 24936), (277, 25005), (282, 25026), (298, 25107), (299, 25110), (304, 25137), (312, 25176), (319, 25203), (346, 25365), (352, 25413), (356, 25434), (361, 25452), (372, 25500), (375, 25512), (386, 25566), (398, 25617), (399, 25629), (401, 25638), (402, 25647), (414, 25701), (426, 25746), (429, 25761), (430, 25767), (433, 25776), (434, 25782), (438, 25800), (439, 25803), (440, 25809), (441, 25818), (451, 25872), (452, 25875), (454, 25884), (459, 25902), (460, 25905), (462, 25917), (467, 25938), (469, 25944), (470, 25947), (475, 25968), (479, 25998), (481, 26013), (489, 26046), (493, 26061), (497, 26076), (501, 26088), (503, 26094), (504, 26097), (506, 26109), (507, 26112), (519, 26169), (532, 26223), (533, 26226), (541, 26247), (546, 26259), (547, 26262), (559, 26310), (564, 26325), (565, 26328), (566, 26337), (568, 26358), (574, 26385), (575, 26388), (581, 26412), (585, 26424), (590, 26445), (592, 26457), (598, 26478), (606, 26505), (616, 26538), (618, 26544), (623, 26562), (630, 26592), (640, 26631), (684, 26811), (687, 26823), (705, 26892), (738, 27057), (760, 27180), (763, 27201), (783, 27330), (787, 27363), (789, 27375), (795, 27438), (799, 27459), (801, 27471), (805, 27486), (815, 27549), (835, 27633), (851, 27720), (859, 27738), (866, 27768), (872, 27786), (873, 27789), (874, 27795), (875, 27801), (881, 27828), (895, 27939), (903, 28014), (905, 28032), (919, 28116), (922, 28140), (940, 28257), (950, 28347),

Gene: Camille\_24 Start: 16246, Stop: 20454, Start Num: 19

Candidate Starts for Camille\_24:

(Start: 18 @16225 has 2 MA's), (Start: 19 @16246 has 121 MA's), (21, 16258), (Start: 22 @16279 has 2 MA's), (48, 16417), (50, 16438), (59, 16516), (63, 16534), (73, 16594), (81, 16717), (85, 16777), (93, 16888), (96, 16912), (97, 16918), (100, 16933), (106, 16966), (113, 17029), (118, 17056), (119, 17059), (121, 17080), (122, 17092), (127, 17122), (151, 17338), (155, 17374), (164, 17437), (167, 17446), (176, 17509), (187, 17563), (190, 17587), (209, 17668), (214, 17698), (230, 17788), (253, 17836), (290, 17917), (294, 17938), (319, 18043), (324, 18055), (337, 18085), (344, 18154), (346, 18163), (356, 18232), (357, 18235), (368, 18286), (371, 18295), (377, 18319), (379, 18325), (380, 18328), (382, 18340), (385, 18358), (386, 18364), (392, 18385), (396, 18406), (398, 18415), (399, 18427), (401, 18436), (408, 18481), (415, 18502), (424, 18532), (433, 18574), (435, 18586), (440, 18607), (442, 18625), (448, 18655), (458, 18694), (467, 18733), (474, 18760), (478, 18784), (492, 18850), (527, 18871), (550, 18901), (572, 18997), (582, 19030), (585, 19039), (588, 19054), (589, 19057), (600, 19096), (601, 19099), (602, 19102), (608, 19120), (612, 19135), (622, 19168), (632, 19210), (633, 19213), (643, 19255), (650, 19282), (654, 19297), (663, 19327), (671, 19366), (677, 19390), (679, 19402), (680, 19405), (689, 19441), (690, 19444), (698, 19480), (713, 19534), (720, 19561), (722, 19567), (734, 19633), (736, 19645), (737, 19651), (745, 19690), (747, 19702), (749,

19723), (766, 19810), (784, 19855), (792, 19909), (799, 19975), (802, 19987), (806, 20005), (814, 20059), (817, 20074), (820, 20083), (825, 20104), (828, 20116), (830, 20122), (842, 20194), (858, 20263), (868, 20299), (873, 20314), (888, 20419), (891, 20434),

Gene: CapnMurica\_26 Start: 21235, Stop: 25824, Start Num: 19

Candidate Starts for CapnMurica\_26:

(Start: 18 @21214 has 2 MA's), (Start: 19 @21235 has 121 MA's), (Start: 22 @21265 has 2 MA's), (30, 21319), (33, 21340), (46, 21376), (62, 21514), (70, 21550), (73, 21580), (81, 21703), (82, 21721), (85, 21763), (92, 21871), (97, 21904), (100, 21919), (106, 21952), (117, 22030), (119, 22045), (121, 22066), (122, 22078), (126, 22102), (132, 22150), (140, 22246), (144, 22279), (150, 22312), (159, 22396), (163, 22420), (166, 22429), (207, 22642), (214, 22684), (220, 22717), (238, 22810), (243, 22825), (244, 22831), (255, 22849), (257, 22858), (265, 22891), (266, 22900), (283, 22972), (294, 23017), (310, 23089), (312, 23095), (322, 23128), (323, 23131), (330, 23158), (346, 23272), (354, 23329), (356, 23341), (368, 23395), (371, 23404), (372, 23407), (377, 23428), (386, 23473), (392, 23494), (413, 23605), (415, 23611), (422, 23632), (425, 23650), (426, 23653), (430, 23674), (442, 23734), (444, 23749), (445, 23752), (451, 23779), (452, 23782), (459, 23809), (477, 23893), (479, 23911), (481, 23926), (482, 23929), (486, 23947), (487, 23953), (488, 23956), (492, 23968), (493, 23974), (501, 24004), (504, 24013), (511, 24046), (522, 24100), (523, 24103), (527, 24121), (538, 24163), (543, 24178), (548, 24187), (550, 24199), (566, 24259), (577, 24316), (582, 24328), (585, 24337), (597, 24376), (600, 24388), (602, 24394), (606, 24406), (610, 24418), (612, 24427), (632, 24502), (633, 24505), (637, 24523), (654, 24589), (657, 24598), (669, 24652), (670, 24655), (701, 24781), (708, 24805), (716, 24838), (718, 24847), (723, 24862), (726, 24883), (735, 24928), (747, 24994), (756, 25051), (768, 25111), (781, 25189), (784, 25213), (785, 25225), (804, 25351), (810, 25393), (820, 25441), (828, 25474), (831, 25486), (834, 25492), (837, 25513), (838, 25516), (839, 25522), (845, 25561), (850, 25588), (886, 25774),

Gene: Captrips\_29 Start: 20541, Stop: 25643, Start Num: 19

Candidate Starts for Captrips\_29:

(Start: 19 @20541 has 121 MA's), (Start: 22 @20571 has 2 MA's), (48, 20709), (52, 20754), (53, 20760), (54, 20769), (55, 20784), (58, 20805), (63, 20826), (70, 20856), (73, 20886), (74, 20907), (81, 21009), (85, 21069), (89, 21144), (90, 21156), (93, 21180), (97, 21210), (100, 21225), (106, 21258), (111, 21300), (116, 21351), (123, 21405), (124, 21408), (134, 21507), (137, 21531), (150, 21627), (162, 21732), (163, 21735), (174, 21804), (176, 21810), (177, 21816), (213, 21993), (223, 22044), (232, 22095), (250, 22149), (252, 22152), (288, 22323), (304, 22404), (305, 22407), (320, 22482), (332, 22539), (344, 22623), (346, 22632), (355, 22695), (356, 22701), (358, 22707), (361, 22719), (363, 22734), (364, 22737), (369, 22758), (381, 22806), (386, 22833), (392, 22854), (395, 22863), (398, 22884), (399, 22896), (401, 22905), (402, 22914), (414, 22968), (415, 22971), (422, 22992), (430, 23034), (439, 23070), (441, 23085), (442, 23094), (444, 23109), (446, 23121), (449, 23130), (457, 23163), (460, 23172), (478, 23256), (479, 23265), (481, 23280), (482, 23283), (486, 23301), (497, 23343), (504, 23364), (507, 23379), (517, 23421), (519, 23436), (533, 23493), (536, 23505), (541, 23514), (546, 23526), (549, 23538), (550, 23544), (555, 23565), (559, 23577), (565, 23595), (566, 23604), (567, 23619), (568, 23625), (571, 23637), (581, 23679), (582, 23682), (585, 23691), (590, 23712), (592, 23724), (606, 23772), (609, 23781), (616, 23805), (618, 23811), (623, 23829), (624, 23838), (630, 23859), (647, 23928), (658, 23967), (699, 24138), (713, 24189), (740, 24333), (763, 24468), (771, 24519), (789, 24642), (795, 24705), (805, 24753), (806, 24759), (807, 24768), (815, 24816), (832, 24888), (843, 24948), (848, 24969), (849, 24972), (860, 25023), (862, 25032), (866, 25050), (873, 25071), (875, 25083), (887, 25176), (895, 25221), (903, 25296), (905, 25314), (909, 25335), (922, 25422), (939, 25533), (950, 25629),

Gene: Capybara\_29 Start: 20616, Stop: 25718, Start Num: 19

Candidate Starts for Capybara\_29:

(Start: 19 @20616 has 121 MA's), (Start: 22 @20646 has 2 MA's), (48, 20784), (52, 20829), (53, 20835), (54, 20844), (55, 20859), (58, 20880), (63, 20901), (70, 20931), (73, 20961), (74, 20982), (81,

21084), (85, 21144), (89, 21219), (90, 21231), (93, 21255), (97, 21285), (100, 21300), (106, 21333), (111, 21375), (116, 21426), (123, 21480), (124, 21483), (134, 21582), (137, 21606), (150, 21702), (162, 21807), (163, 21810), (174, 21879), (176, 21885), (177, 21891), (213, 22068), (223, 22119), (232, 22170), (250, 22224), (252, 22227), (279, 22359), (301, 22461), (304, 22479), (305, 22482), (320, 22557), (332, 22614), (344, 22698), (346, 22707), (361, 22794), (369, 22833), (381, 22881), (386, 22908), (392, 22929), (395, 22938), (398, 22959), (399, 22971), (401, 22980), (402, 22989), (406, 23016), (414, 23043), (415, 23046), (422, 23067), (430, 23109), (436, 23136), (439, 23145), (441, 23160), (442, 23169), (444, 23184), (446, 23196), (449, 23205), (452, 23217), (457, 23238), (460, 23247), (478, 23331), (479, 23340), (481, 23355), (482, 23358), (486, 23376), (489, 23388), (490, 23391), (497, 23418), (504, 23439), (507, 23454), (517, 23496), (519, 23511), (533, 23568), (536, 23580), (541, 23589), (546, 23601), (549, 23613), (550, 23619), (555, 23640), (559, 23652), (565, 23670), (566, 23679), (567, 23694), (568, 23700), (571, 23712), (581, 23754), (582, 23757), (585, 23766), (590, 23787), (592, 23799), (606, 23847), (609, 23856), (616, 23880), (618, 23886), (623, 23904), (624, 23913), (630, 23934), (647, 24003), (652, 24021), (653, 24024), (658, 24042), (688, 24168), (699, 24213), (713, 24264), (740, 24408), (763, 24543), (771, 24594), (783, 24672), (789, 24717), (795, 24780), (798, 24798), (805, 24828), (806, 24834), (815, 24891), (832, 24963), (843, 25023), (848, 25044), (849, 25047), (860, 25098), (862, 25107), (873, 25146), (875, 25158), (887, 25251), (895, 25296), (903, 25371), (909, 25410), (914, 25440), (922, 25497), (939, 25608), (950, 25704),

Gene: CastorTray\_28 Start: 20538, Stop: 25127, Start Num: 19

Candidate Starts for CastorTray\_28:

(Start: 18 @20517 has 2 MA's), (Start: 19 @20538 has 121 MA's), (Start: 22 @20568 has 2 MA's), (30, 20622), (33, 20643), (46, 20679), (53, 20757), (62, 20817), (68, 20841), (70, 20853), (73, 20883), (76, 20934), (80, 20964), (81, 21006), (82, 21024), (85, 21066), (87, 21096), (89, 21141), (90, 21153), (97, 21207), (100, 21222), (102, 21234), (106, 21255), (119, 21348), (122, 21381), (125, 21396), (131, 21444), (145, 21594), (150, 21615), (165, 21729), (166, 21732), (193, 21894), (200, 21918), (203, 21933), (207, 21945), (238, 22113), (243, 22128), (244, 22134), (255, 22152), (271, 22224), (283, 22275), (288, 22290), (294, 22320), (310, 22392), (312, 22398), (322, 22431), (323, 22434), (330, 22461), (346, 22575), (354, 22632), (356, 22644), (368, 22698), (371, 22707), (372, 22710), (377, 22731), (386, 22776), (392, 22797), (399, 22839), (402, 22857), (415, 22914), (422, 22935), (426, 22956), (442, 23037), (444, 23052), (445, 23055), (451, 23082), (452, 23085), (464, 23136), (479, 23214), (481, 23229), (482, 23232), (486, 23250), (487, 23256), (489, 23262), (492, 23271), (501, 23307), (502, 23310), (504, 23316), (505, 23322), (511, 23349), (522, 23403), (523, 23406), (527, 23424), (531, 23436), (538, 23466), (543, 23481), (548, 23490), (550, 23502), (555, 23523), (566, 23562), (577, 23619), (582, 23631), (585, 23640), (597, 23679), (600, 23691), (610, 23721), (612, 23730), (623, 23766), (632, 23805), (633, 23808), (637, 23826), (639, 23832), (654, 23892), (655, 23895), (657, 23901), (663, 23922), (669, 23955), (670, 23958), (701, 24084), (702, 24087), (708, 24108), (716, 24141), (717, 24144), (718, 24150), (721, 24159), (726, 24186), (732, 24219), (735, 24231), (747, 24297), (754, 24348), (756, 24354), (768, 24414), (772, 24438), (782, 24498), (784, 24516), (785, 24528), (792, 24570), (809, 24687), (810, 24696), (820, 24744), (828, 24777), (831, 24789), (834, 24795), (837, 24816), (838, 24819), (839, 24825), (845, 24864), (850, 24891), (886, 25077), (891, 25104),

Gene: Caterpillar\_24 Start: 19324, Stop: 23907, Start Num: 19

Candidate Starts for Caterpillar\_24:

(Start: 18 @19303 has 2 MA's), (Start: 19 @19324 has 121 MA's), (Start: 22 @19354 has 2 MA's), (30, 19408), (46, 19465), (50, 19513), (70, 19639), (73, 19669), (80, 19750), (81, 19792), (82, 19810), (85, 19852), (87, 19882), (89, 19927), (90, 19939), (97, 19993), (100, 20008), (101, 20014), (106, 20041), (113, 20104), (117, 20119), (119, 20134), (122, 20167), (125, 20182), (126, 20191), (131, 20230), (140, 20335), (150, 20401), (157, 20470), (163, 20509), (166, 20518), (174, 20578), (175, 20581), (200, 20704), (201, 20707), (209, 20743), (242, 20911), (244, 20920), (256, 20941), (265, 20974), (288, 21070), (300, 21124), (310, 21172), (312, 21178), (313, 21181), (323, 21214), (346,

21361), (363, 21463), (368, 21484), (371, 21493), (372, 21496), (377, 21517), (392, 21583), (404, 21658), (407, 21673), (413, 21694), (415, 21700), (422, 21721), (426, 21742), (430, 21763), (442, 21823), (444, 21838), (445, 21841), (450, 21865), (455, 21883), (471, 21955), (479, 22000), (481, 22015), (482, 22018), (486, 22036), (487, 22042), (489, 22048), (501, 22093), (504, 22102), (507, 22117), (511, 22135), (516, 22156), (522, 22189), (523, 22192), (527, 22210), (543, 22267), (548, 22276), (550, 22288), (555, 22309), (557, 22315), (558, 22318), (565, 22339), (566, 22348), (575, 22399), (577, 22405), (582, 22417), (585, 22426), (595, 22459), (612, 22516), (631, 22588), (632, 22591), (633, 22594), (637, 22612), (639, 22618), (644, 22642), (654, 22678), (656, 22684), (660, 22699), (668, 22738), (680, 22786), (690, 22825), (708, 22894), (718, 22936), (721, 22945), (747, 23083), (748, 23092), (749, 23104), (755, 23137), (756, 23140), (778, 23257), (781, 23278), (785, 23314), (792, 23356), (800, 23428), (820, 23530), (831, 23575), (834, 23581), (845, 23650), (850, 23677), (886, 23857), (889, 23866),

Gene: Cheesy\_22 Start: 17385, Stop: 21863, Start Num: 19

Candidate Starts for Cheesy\_22:

(Start: 18 @17364 has 2 MA's), (Start: 19 @17385 has 121 MA's), (Start: 22 @17415 has 2 MA's), (25, 17448), (30, 17469), (70, 17700), (73, 17730), (80, 17811), (81, 17853), (82, 17871), (85, 17913), (90, 18000), (97, 18054), (100, 18069), (106, 18102), (117, 18180), (119, 18195), (125, 18243), (132, 18300), (136, 18354), (140, 18396), (144, 18429), (150, 18462), (163, 18570), (173, 18636), (181, 18669), (183, 18678), (185, 18681), (188, 18699), (249, 18981), (262, 19005), (266, 19035), (308, 19194), (314, 19227), (323, 19254), (346, 19383), (359, 19461), (368, 19506), (371, 19515), (374, 19527), (377, 19539), (383, 19566), (386, 19584), (392, 19605), (404, 19680), (408, 19701), (409, 19704), (412, 19713), (422, 19743), (426, 19764), (430, 19785), (442, 19845), (443, 19851), (451, 19890), (452, 19893), (456, 19908), (470, 19971), (475, 19992), (479, 20022), (484, 20052), (489, 20070), (501, 20118), (507, 20142), (511, 20160), (514, 20169), (515, 20178), (517, 20184), (520, 20205), (527, 20235), (536, 20268), (537, 20274), (538, 20277), (543, 20289), (550, 20310), (565, 20361), (566, 20370), (570, 20400), (572, 20406), (582, 20439), (585, 20448), (594, 20478), (597, 20487), (600, 20499), (612, 20538), (620, 20565), (622, 20571), (623, 20574), (626, 20589), (633, 20616), (641, 20646), (649, 20682), (675, 20784), (690, 20847), (698, 20883), (699, 20886), (705, 20907), (710, 20925), (720, 20964), (722, 20970), (725, 20985), (729, 21006), (730, 21018), (753, 21150), (755, 21159), (766, 21213), (782, 21240), (784, 21258), (791, 21306), (792, 21312), (800, 21384), (814, 21462), (822, 21498), (826, 21516), (834, 21540), (838, 21564), (844, 21609), (849, 21630), (892, 21852),

Gene: CherryBlossom\_23 Start: 16177, Stop: 21663, Start Num: 2

Candidate Starts for CherryBlossom\_23:

(1, 16156), (Start: 2 @16177 has 30 MA's), (3, 16207), (12, 16351), (45, 16561), (56, 16681), (63, 16720), (70, 16750), (72, 16774), (73, 16780), (74, 16801), (75, 16816), (81, 16903), (87, 16993), (88, 17029), (89, 17038), (91, 17065), (97, 17104), (98, 17113), (102, 17131), (106, 17152), (111, 17194), (112, 17203), (122, 17311), (133, 17416), (144, 17512), (153, 17578), (176, 17728), (191, 17812), (195, 17833), (207, 17875), (231, 18010), (270, 18142), (274, 18151), (285, 18187), (287, 18196), (296, 18238), (304, 18271), (343, 18424), (346, 18445), (355, 18508), (356, 18514), (358, 18520), (363, 18547), (368, 18568), (370, 18574), (371, 18577), (377, 18601), (386, 18646), (389, 18655), (390, 18658), (392, 18667), (404, 18742), (410, 18769), (415, 18784), (416, 18787), (423, 18805), (426, 18823), (430, 18844), (441, 18895), (454, 18961), (458, 18976), (477, 19063), (479, 19081), (483, 19108), (508, 19198), (509, 19201), (518, 19243), (519, 19252), (527, 19288), (532, 19306), (533, 19309), (550, 19363), (551, 19366), (565, 19414), (569, 19450), (571, 19456), (576, 19477), (585, 19501), (594, 19531), (612, 19591), (622, 19624), (623, 19627), (626, 19642), (635, 19678), (645, 19720), (648, 19732), (649, 19735), (663, 19783), (668, 19813), (673, 19828), (680, 19861), (683, 19876), (699, 19939), (720, 20017), (721, 20020), (728, 20056), (740, 20122), (754, 20209), (755, 20212), (772, 20311), (780, 20359), (781, 20365), (803, 20524), (854, 20797), (881, 20899), (897, 21022), (908, 21115), (912, 21136), (917, 21184), (919, 21190), (920, 21196), (927, 21241), (942, 21349), (944, 21370), (949, 21418), (955, 21505), (962, 21607), (963, 21616),



Gene: Chikenjars\_32 Start: 23502, Stop: 28613, Start Num: 19

Candidate Starts for Chikenjars\_32:

(Start: 19 @23502 has 121 MA's), (Start: 22 @23532 has 2 MA's), (28, 23577), (53, 23721), (63, 23787), (73, 23847), (74, 23868), (81, 23970), (87, 24060), (88, 24096), (91, 24132), (97, 24171), (106, 24219), (111, 24261), (117, 24333), (122, 24381), (136, 24507), (144, 24582), (150, 24615), (162, 24720), (163, 24723), (207, 24945), (218, 25011), (219, 25014), (232, 25083), (264, 25188), (277, 25257), (298, 25359), (299, 25362), (304, 25389), (312, 25428), (319, 25455), (346, 25617), (352, 25665), (356, 25686), (361, 25704), (372, 25752), (386, 25818), (394, 25845), (395, 25848), (397, 25866), (398, 25869), (401, 25890), (402, 25899), (411, 25944), (414, 25953), (426, 25998), (430, 26019), (433, 26028), (440, 26061), (441, 26070), (444, 26094), (451, 26124), (452, 26127), (454, 26136), (457, 26148), (460, 26157), (462, 26169), (467, 26190), (469, 26196), (479, 26250), (497, 26328), (501, 26340), (503, 26346), (504, 26349), (507, 26364), (512, 26385), (519, 26421), (532, 26475), (533, 26478), (536, 26490), (541, 26499), (546, 26511), (547, 26514), (550, 26529), (557, 26556), (559, 26562), (564, 26577), (565, 26580), (566, 26589), (567, 26604), (568, 26610), (572, 26625), (574, 26637), (575, 26640), (581, 26664), (585, 26676), (590, 26697), (592, 26709), (594, 26718), (598, 26730), (606, 26757), (613, 26781), (616, 26790), (618, 26796), (623, 26814), (640, 26883), (658, 26952), (694, 27108), (738, 27309), (763, 27453), (773, 27516), (777, 27543), (787, 27615), (789, 27627), (790, 27636), (795, 27690), (799, 27711), (801, 27723), (835, 27885), (851, 27972), (859, 27990), (866, 28020), (872, 28038), (873, 28041), (875, 28053), (881, 28080), (895, 28191), (903, 28266), (911, 28314), (919, 28368), (923, 28395), (940, 28509), (950, 28599),

Gene: Circum\_22 Start: 17392, Stop: 21870, Start Num: 19

Candidate Starts for Circum\_22:

(Start: 18 @17371 has 2 MA's), (Start: 19 @17392 has 121 MA's), (Start: 22 @17422 has 2 MA's), (25, 17455), (30, 17476), (70, 17707), (73, 17737), (80, 17818), (81, 17860), (82, 17878), (85, 17920), (90, 18007), (97, 18061), (100, 18076), (106, 18109), (117, 18187), (119, 18202), (125, 18250), (132, 18307), (136, 18361), (140, 18403), (144, 18436), (150, 18469), (163, 18577), (173, 18643), (181, 18676), (183, 18685), (185, 18688), (188, 18706), (249, 18988), (262, 19012), (266, 19042), (308, 19201), (323, 19261), (346, 19390), (352, 19438), (363, 19492), (366, 19504), (368, 19513), (371, 19522), (377, 19546), (386, 19591), (392, 19612), (404, 19687), (412, 19720), (422, 19750), (430, 19792), (442, 19852), (443, 19858), (451, 19897), (456, 19915), (470, 19978), (475, 19999), (479, 20029), (484, 20059), (489, 20077), (501, 20125), (507, 20149), (511, 20167), (514, 20176), (515, 20185), (517, 20191), (520, 20212), (527, 20242), (536, 20275), (537, 20281), (538, 20284), (543, 20296), (550, 20317), (565, 20368), (566, 20377), (570, 20407), (572, 20413), (582, 20446), (585, 20455), (594, 20485), (597, 20494), (600, 20506), (612, 20545), (620, 20572), (622, 20578), (623, 20581), (626, 20596), (633, 20623), (637, 20641), (641, 20653), (649, 20689), (675, 20791), (698, 20890), (699, 20893), (701, 20899), (705, 20914), (710, 20932), (716, 20956), (720, 20971), (721, 20974), (725, 20992), (730, 21025), (735, 21046), (758, 21178), (766, 21220), (784, 21265), (785, 21277), (792, 21319), (800, 21391), (810, 21445), (814, 21469), (820, 21493), (822, 21505), (826, 21523), (838, 21571), (844, 21616), (849, 21637), (871, 21730), (892, 21859),

Gene: ClubPenguin\_22 Start: 15929, Stop: 21244, Start Num: 14

Candidate Starts for ClubPenguin\_22:

(12, 15908), (Start: 14 @15929 has 1 MA's), (17, 15959), (49, 16181), (51, 16202), (81, 16472), (87, 16562), (88, 16598), (97, 16673), (106, 16721), (108, 16730), (111, 16763), (153, 17150), (154, 17153), (165, 17231), (181, 17324), (191, 17384), (202, 17426), (266, 17696), (283, 17756), (297, 17813), (323, 17915), (346, 18023), (368, 18146), (371, 18155), (386, 18224), (389, 18233), (390, 18236), (401, 18296), (415, 18362), (419, 18374), (423, 18383), (426, 18401), (430, 18422), (447, 18512), (469, 18605), (478, 18650), (479, 18659), (484, 18689), (494, 18728), (495, 18731), (506, 18770), (513, 18797), (518, 18821), (519, 18830), (526, 18863), (527, 18866), (531, 18878), (536, 18899), (549, 18935), (553, 18950), (569, 19028), (574, 19049), (576, 19055), (582, 19070), (585, 19079), (612, 19169), (622, 19202), (634, 19253), (637, 19265), (648, 19310), (680, 19439), (690,

19478), (698, 19514), (704, 19535), (714, 19571), (718, 19589), (721, 19598), (728, 19634), (730, 19649), (731, 19655), (740, 19700), (764, 19844), (771, 19880), (772, 19889), (788, 20003), (800, 20096), (816, 20180), (874, 20447), (882, 20501), (894, 20582), (902, 20663), (908, 20696), (912, 20717), (918, 20768), (925, 20807), (927, 20822), (934, 20870), (935, 20879), (936, 20891), (944, 20951), (949, 20999), (951, 21023), (953, 21068),

Gene: Conley\_30 Start: 21600, Stop: 26687, Start Num: 19

Candidate Starts for Conley\_30:

(Start: 19 @21600 has 121 MA's), (Start: 22 @21630 has 2 MA's), (48, 21768), (55, 21843), (58, 21864), (63, 21885), (70, 21915), (73, 21945), (74, 21966), (81, 22068), (85, 22128), (89, 22203), (90, 22215), (93, 22239), (97, 22269), (100, 22284), (106, 22317), (107, 22323), (111, 22359), (116, 22410), (123, 22464), (124, 22467), (134, 22566), (150, 22686), (156, 22740), (159, 22770), (162, 22791), (163, 22794), (174, 22863), (176, 22869), (213, 23052), (234, 23160), (235, 23172), (238, 23184), (250, 23208), (257, 23226), (304, 23463), (305, 23466), (312, 23502), (320, 23541), (323, 23550), (332, 23598), (344, 23682), (346, 23691), (355, 23754), (356, 23760), (358, 23766), (361, 23778), (364, 23796), (375, 23838), (381, 23865), (386, 23892), (392, 23913), (395, 23922), (398, 23943), (399, 23955), (400, 23961), (401, 23964), (402, 23973), (415, 24030), (422, 24051), (430, 24093), (436, 24120), (438, 24126), (441, 24144), (442, 24153), (444, 24168), (446, 24180), (449, 24189), (457, 24222), (460, 24231), (478, 24315), (479, 24324), (481, 24339), (486, 24360), (497, 24402), (501, 24414), (504, 24423), (507, 24438), (517, 24480), (519, 24495), (533, 24552), (536, 24564), (541, 24573), (546, 24585), (549, 24597), (550, 24603), (555, 24624), (559, 24636), (562, 24645), (565, 24654), (566, 24663), (567, 24678), (568, 24684), (571, 24696), (574, 24711), (577, 24720), (581, 24738), (590, 24771), (592, 24783), (606, 24831), (609, 24840), (616, 24864), (618, 24870), (623, 24888), (624, 24897), (625, 24900), (630, 24918), (647, 24987), (658, 25026), (682, 25131), (683, 25134), (684, 25137), (699, 25197), (724, 25293), (726, 25305), (735, 25350), (740, 25392), (763, 25527), (787, 25689), (795, 25764), (806, 25818), (809, 25839), (832, 25947), (843, 26007), (851, 26046), (859, 26064), (860, 26067), (866, 26094), (868, 26100), (873, 26115), (874, 26121), (875, 26127), (879, 26145), (880, 26148), (893, 26253), (895, 26265), (903, 26340), (905, 26358), (909, 26379), (912, 26391), (922, 26466), (931, 26526), (947, 26622), (950, 26673),

Gene: Correa\_21 Start: 16900, Stop: 21378, Start Num: 19

Candidate Starts for Correa\_21:

(Start: 18 @16879 has 2 MA's), (Start: 19 @16900 has 121 MA's), (Start: 22 @16930 has 2 MA's), (25, 16963), (30, 16984), (70, 17215), (73, 17245), (80, 17326), (81, 17368), (82, 17386), (85, 17428), (90, 17515), (97, 17569), (100, 17584), (106, 17617), (119, 17710), (125, 17758), (127, 17773), (132, 17815), (136, 17869), (144, 17944), (150, 17977), (163, 18085), (173, 18151), (181, 18184), (183, 18193), (185, 18196), (188, 18214), (249, 18496), (262, 18520), (266, 18550), (308, 18709), (323, 18769), (346, 18898), (359, 18976), (365, 19006), (368, 19021), (371, 19030), (377, 19054), (383, 19081), (386, 19099), (392, 19120), (404, 19195), (408, 19216), (412, 19228), (422, 19258), (430, 19300), (442, 19360), (443, 19366), (451, 19405), (455, 19420), (456, 19423), (468, 19480), (470, 19486), (475, 19507), (479, 19537), (484, 19567), (489, 19585), (501, 19633), (507, 19657), (511, 19675), (514, 19684), (517, 19699), (520, 19720), (527, 19750), (536, 19783), (537, 19789), (538, 19792), (543, 19804), (550, 19825), (565, 19876), (566, 19885), (570, 19915), (572, 19921), (582, 19954), (585, 19963), (594, 19993), (597, 20002), (600, 20014), (606, 20032), (612, 20053), (620, 20080), (622, 20086), (623, 20089), (626, 20104), (633, 20131), (641, 20161), (649, 20197), (675, 20299), (690, 20362), (698, 20398), (699, 20401), (705, 20422), (710, 20440), (720, 20479), (722, 20485), (725, 20500), (729, 20521), (730, 20533), (753, 20665), (766, 20728), (782, 20755), (784, 20773), (791, 20821), (792, 20827), (800, 20899), (814, 20977), (822, 21013), (826, 21031), (836, 21064), (838, 21079), (844, 21124), (892, 21367),

Gene: Count\_30 Start: 23420, Stop: 27673, Start Num: 19

Candidate Starts for Count\_30:

(Start: 18 @23399 has 2 MA's), (Start: 19 @23420 has 121 MA's), (Start: 22 @23453 has 2 MA's), (37, 23555), (59, 23690), (64, 23711), (73, 23768), (81, 23891), (85, 23951), (93, 24062), (96, 24086), (97, 24092), (100, 24107), (106, 24140), (107, 24146), (119, 24233), (121, 24254), (122, 24266), (125, 24281), (144, 24467), (151, 24512), (164, 24611), (167, 24620), (187, 24737), (190, 24761), (197, 24794), (251, 25007), (308, 25166), (310, 25184), (334, 25268), (339, 25310), (356, 25433), (357, 25436), (368, 25487), (371, 25496), (376, 25517), (389, 25574), (396, 25607), (398, 25616), (401, 25637), (402, 25646), (408, 25682), (415, 25703), (424, 25733), (430, 25766), (432, 25772), (435, 25787), (440, 25808), (442, 25826), (449, 25862), (452, 25874), (454, 25883), (457, 25895), (467, 25934), (471, 25949), (472, 25955), (477, 25976), (479, 25994), (489, 26042), (492, 26051), (524, 26063), (527, 26072), (550, 26114), (551, 26117), (565, 26165), (566, 26174), (569, 26201), (582, 26243), (585, 26252), (596, 26294), (602, 26315), (608, 26333), (610, 26339), (612, 26348), (622, 26381), (623, 26384), (649, 26492), (650, 26495), (654, 26510), (656, 26516), (671, 26579), (675, 26594), (680, 26618), (689, 26654), (690, 26657), (698, 26693), (705, 26717), (706, 26720), (712, 26744), (713, 26747), (730, 26828), (738, 26870), (758, 26981), (766, 27023), (784, 27068), (797, 27182), (801, 27200), (817, 27290), (831, 27344), (844, 27419), (888, 27632),

Gene: CricKo\_21 Start: 15072, Stop: 20549, Start Num: 2

Candidate Starts for CricKo\_21:

(Start: 2 @15072 has 30 MA's), (3, 15102), (7, 15183), (9, 15213), (10, 15216), (12, 15246), (81, 15798), (88, 15924), (95, 15987), (97, 15999), (105, 16041), (111, 16089), (118, 16173), (132, 16281), (150, 16443), (153, 16476), (162, 16548), (176, 16626), (207, 16773), (285, 17085), (287, 17094), (303, 17157), (346, 17331), (351, 17373), (356, 17400), (359, 17409), (371, 17463), (377, 17487), (390, 17544), (411, 17658), (423, 17691), (430, 17730), (440, 17772), (441, 17781), (446, 17817), (458, 17862), (469, 17913), (477, 17949), (479, 17967), (484, 17997), (494, 18036), (495, 18039), (506, 18078), (507, 18081), (514, 18108), (518, 18129), (519, 18138), (526, 18171), (527, 18174), (533, 18195), (553, 18258), (569, 18336), (571, 18342), (582, 18378), (583, 18381), (584, 18384), (585, 18387), (603, 18447), (606, 18456), (612, 18477), (621, 18507), (622, 18510), (637, 18573), (638, 18576), (639, 18579), (649, 18621), (654, 18639), (663, 18669), (673, 18714), (675, 18723), (680, 18747), (698, 18822), (700, 18828), (714, 18879), (721, 18906), (724, 18921), (726, 18933), (728, 18942), (732, 18966), (745, 19032), (754, 19095), (759, 19119), (772, 19197), (780, 19245), (785, 19287), (803, 19410), (825, 19527), (847, 19644), (866, 19725), (876, 19770), (885, 19815), (908, 20001), (912, 20022), (913, 20034), (919, 20076), (927, 20127), (934, 20175), (938, 20214), (946, 20265), (954, 20388), (960, 20427),

Gene: Crocheter\_32 Start: 23642, Stop: 28753, Start Num: 19

Candidate Starts for Crocheter\_32:

(Start: 19 @23642 has 121 MA's), (Start: 22 @23672 has 2 MA's), (28, 23717), (53, 23861), (62, 23921), (63, 23927), (73, 23987), (74, 24008), (81, 24110), (88, 24236), (91, 24272), (97, 24311), (102, 24338), (106, 24359), (111, 24401), (117, 24473), (122, 24521), (136, 24647), (144, 24722), (145, 24734), (150, 24755), (162, 24860), (163, 24863), (182, 24971), (232, 25223), (264, 25328), (277, 25397), (282, 25418), (298, 25499), (299, 25502), (304, 25529), (312, 25568), (319, 25595), (343, 25736), (346, 25757), (355, 25820), (356, 25826), (361, 25844), (362, 25850), (372, 25892), (375, 25904), (377, 25913), (386, 25958), (396, 26000), (398, 26009), (399, 26021), (401, 26030), (402, 26039), (426, 26138), (430, 26159), (433, 26168), (438, 26192), (439, 26195), (451, 26264), (452, 26267), (454, 26276), (459, 26294), (460, 26297), (462, 26309), (467, 26330), (469, 26336), (470, 26339), (475, 26360), (479, 26390), (481, 26405), (484, 26420), (497, 26468), (501, 26480), (503, 26486), (504, 26489), (506, 26501), (507, 26504), (519, 26561), (532, 26615), (541, 26639), (546, 26651), (547, 26654), (558, 26699), (559, 26702), (564, 26717), (565, 26720), (566, 26729), (567, 26744), (568, 26750), (569, 26756), (574, 26777), (575, 26780), (579, 26792), (582, 26807), (585, 26816), (590, 26837), (592, 26849), (598, 26870), (606, 26897), (616, 26930), (618, 26936), (623, 26954), (630, 26984), (640, 27023), (658, 27092), (684, 27203), (687, 27215), (705, 27284), (724, 27359), (738, 27449), (763, 27593), (773, 27656), (783, 27722), (787, 27755), (789, 27767), (795, 27830), (799, 27851), (801, 27863), (806, 27884), (815, 27941), (835, 28025), (851, 28112),

(859, 28130), (866, 28160), (872, 28178), (873, 28181), (874, 28187), (875, 28193), (881, 28220), (895, 28331), (903, 28406), (914, 28475), (919, 28508), (922, 28532), (940, 28649), (950, 28739),

Gene: Daddyjeff\_24 Start: 18508, Stop: 23112, Start Num: 19

Candidate Starts for Daddyjeff\_24:

(Start: 19 @18508 has 121 MA's), (Start: 22 @18541 has 2 MA's), (34, 18616), (47, 18664), (49, 18688), (59, 18778), (63, 18796), (67, 18808), (73, 18853), (81, 18976), (85, 19036), (93, 19147), (97, 19177), (100, 19192), (106, 19225), (110, 19264), (118, 19315), (119, 19318), (121, 19339), (122, 19351), (132, 19423), (139, 19513), (149, 19582), (151, 19597), (153, 19618), (156, 19639), (179, 19780), (182, 19801), (187, 19822), (196, 19876), (223, 20014), (232, 20065), (247, 20110), (322, 20416), (329, 20434), (346, 20578), (350, 20608), (368, 20701), (370, 20707), (371, 20710), (374, 20722), (383, 20761), (400, 20848), (422, 20938), (426, 20959), (432, 20986), (440, 21022), (466, 21151), (480, 21223), (483, 21244), (488, 21262), (497, 21295), (501, 21313), (506, 21334), (507, 21337), (519, 21394), (521, 21406), (527, 21430), (529, 21436), (536, 21463), (553, 21520), (565, 21562), (566, 21571), (569, 21598), (570, 21601), (577, 21628), (582, 21640), (585, 21649), (588, 21658), (608, 21724), (612, 21739), (620, 21766), (660, 21922), (672, 21973), (680, 22009), (690, 22048), (695, 22075), (699, 22087), (704, 22105), (710, 22126), (717, 22153), (722, 22171), (730, 22219), (743, 22285), (765, 22405), (770, 22429), (771, 22438), (778, 22480), (784, 22525), (792, 22579), (800, 22651), (806, 22675), (814, 22729), (817, 22744), (818, 22753), (821, 22765), (823, 22774), (827, 22786), (830, 22795), (844, 22873), (846, 22876), (863, 22948), (890, 23101),

Gene: Damascus\_24 Start: 16928, Stop: 21136, Start Num: 19

Candidate Starts for Damascus\_24:

(Start: 18 @16907 has 2 MA's), (Start: 19 @16928 has 121 MA's), (Start: 22 @16961 has 2 MA's), (50, 17120), (59, 17198), (73, 17276), (81, 17399), (85, 17459), (93, 17570), (96, 17594), (97, 17600), (100, 17615), (106, 17648), (118, 17738), (119, 17741), (121, 17762), (122, 17774), (136, 17900), (151, 18020), (159, 18092), (163, 18116), (184, 18227), (197, 18302), (214, 18380), (231, 18473), (254, 18518), (287, 18587), (302, 18653), (308, 18674), (337, 18767), (344, 18836), (346, 18845), (356, 18914), (368, 18968), (371, 18977), (375, 18992), (377, 19001), (380, 19010), (385, 19040), (386, 19046), (392, 19067), (396, 19088), (399, 19109), (401, 19118), (402, 19127), (406, 19154), (408, 19163), (415, 19184), (416, 19187), (420, 19199), (442, 19307), (446, 19334), (452, 19355), (456, 19370), (463, 19397), (464, 19400), (467, 19415), (472, 19436), (477, 19457), (479, 19475), (492, 19532), (524, 19544), (525, 19547), (527, 19553), (550, 19583), (566, 19643), (570, 19673), (582, 19712), (585, 19721), (591, 19751), (600, 19778), (601, 19781), (602, 19784), (612, 19817), (622, 19850), (633, 19895), (643, 19937), (654, 19979), (655, 19982), (656, 19985), (671, 20048), (680, 20087), (689, 20123), (690, 20126), (698, 20162), (731, 20303), (758, 20450), (766, 20492), (784, 20537), (792, 20591), (804, 20675), (810, 20717), (811, 20720), (825, 20786), (828, 20798), (834, 20816), (842, 20876), (858, 20945), (868, 20981), (877, 21020), (891, 21116),

Gene: Darby\_26 Start: 19984, Stop: 24573, Start Num: 19

Candidate Starts for Darby\_26:

(Start: 18 @19963 has 2 MA's), (Start: 19 @19984 has 121 MA's), (Start: 22 @20014 has 2 MA's), (30, 20068), (33, 20089), (46, 20125), (53, 20203), (62, 20263), (68, 20287), (70, 20299), (73, 20329), (76, 20380), (80, 20410), (81, 20452), (82, 20470), (85, 20512), (87, 20542), (89, 20587), (90, 20599), (97, 20653), (100, 20668), (102, 20680), (106, 20701), (119, 20794), (122, 20827), (125, 20842), (131, 20890), (145, 21040), (150, 21061), (152, 21082), (165, 21175), (166, 21178), (172, 21226), (193, 21340), (200, 21364), (207, 21391), (220, 21466), (238, 21559), (243, 21574), (244, 21580), (255, 21598), (271, 21670), (283, 21721), (288, 21736), (294, 21766), (310, 21838), (312, 21844), (316, 21862), (322, 21877), (323, 21880), (330, 21907), (346, 22021), (354, 22078), (356, 22090), (368, 22144), (371, 22153), (372, 22156), (377, 22177), (386, 22222), (392, 22243), (399, 22285), (402, 22303), (415, 22360), (422, 22381), (426, 22402), (442, 22483), (444, 22498), (445, 22501), (451, 22528), (452, 22531), (464, 22582), (479, 22660), (481, 22675), (482, 22678), (486, 22696), (487, 22702), (489, 22708), (492, 22717), (501, 22753), (504, 22762), (511, 22795), (522, 22849), (523,

22852), (527, 22870), (531, 22882), (538, 22912), (543, 22927), (548, 22936), (550, 22948), (555, 22969), (566, 23008), (577, 23065), (582, 23077), (585, 23086), (597, 23125), (600, 23137), (610, 23167), (612, 23176), (632, 23251), (637, 23272), (639, 23278), (654, 23338), (657, 23347), (669, 23401), (670, 23404), (701, 23530), (702, 23533), (708, 23554), (716, 23587), (717, 23590), (718, 23596), (721, 23605), (726, 23632), (735, 23677), (747, 23743), (754, 23794), (756, 23800), (768, 23860), (772, 23884), (782, 23944), (784, 23962), (785, 23974), (792, 24016), (809, 24133), (810, 24142), (820, 24190), (828, 24223), (831, 24235), (834, 24241), (837, 24262), (838, 24265), (839, 24271), (845, 24310), (850, 24337), (886, 24523), (891, 24550),

Gene: DevitoJr\_26 Start: 20152, Stop: 24744, Start Num: 19

Candidate Starts for DevitoJr\_26:

(Start: 18 @20131 has 2 MA's), (Start: 19 @20152 has 121 MA's), (Start: 22 @20182 has 2 MA's), (30, 20236), (33, 20257), (46, 20293), (53, 20371), (62, 20431), (68, 20455), (70, 20467), (73, 20497), (76, 20548), (80, 20578), (81, 20620), (82, 20638), (85, 20680), (87, 20710), (89, 20755), (90, 20767), (97, 20821), (100, 20836), (102, 20848), (106, 20869), (119, 20962), (122, 20995), (125, 21010), (131, 21058), (150, 21229), (165, 21343), (166, 21346), (172, 21394), (193, 21508), (200, 21532), (203, 21547), (238, 21727), (243, 21742), (244, 21748), (255, 21766), (271, 21838), (288, 21904), (310, 22006), (312, 22012), (322, 22045), (323, 22048), (330, 22075), (346, 22192), (354, 22249), (356, 22261), (368, 22315), (371, 22324), (372, 22327), (377, 22348), (386, 22393), (392, 22414), (413, 22525), (415, 22531), (422, 22552), (425, 22570), (430, 22594), (442, 22654), (444, 22669), (445, 22672), (451, 22699), (452, 22702), (479, 22831), (481, 22846), (482, 22849), (486, 22867), (487, 22873), (488, 22876), (492, 22888), (501, 22924), (504, 22933), (511, 22966), (522, 23020), (523, 23023), (527, 23041), (531, 23053), (538, 23083), (543, 23098), (548, 23107), (550, 23119), (566, 23179), (577, 23236), (582, 23248), (585, 23257), (597, 23296), (600, 23308), (610, 23338), (612, 23347), (632, 23422), (633, 23425), (637, 23443), (654, 23509), (656, 23515), (657, 23518), (669, 23572), (670, 23575), (701, 23701), (702, 23704), (708, 23725), (716, 23758), (718, 23767), (735, 23848), (741, 23881), (747, 23914), (756, 23971), (768, 24031), (772, 24055), (784, 24133), (785, 24145), (804, 24271), (810, 24313), (820, 24361), (828, 24394), (831, 24406), (834, 24412), (837, 24433), (838, 24436), (839, 24442), (845, 24481), (850, 24508), (886, 24694), (891, 24721),

Gene: DizzyRudy\_24 Start: 16857, Stop: 21065, Start Num: 19

Candidate Starts for DizzyRudy\_24:

(Start: 18 @16836 has 2 MA's), (Start: 19 @16857 has 121 MA's), (Start: 22 @16890 has 2 MA's), (50, 17049), (73, 17205), (81, 17328), (85, 17388), (93, 17499), (96, 17523), (97, 17529), (100, 17544), (106, 17577), (118, 17667), (119, 17670), (121, 17691), (122, 17703), (136, 17829), (151, 17949), (159, 18021), (163, 18045), (184, 18156), (197, 18231), (214, 18309), (219, 18336), (231, 18402), (287, 18516), (302, 18582), (308, 18603), (337, 18696), (344, 18765), (346, 18774), (356, 18843), (368, 18897), (371, 18906), (375, 18921), (377, 18930), (380, 18939), (385, 18969), (386, 18975), (392, 18996), (396, 19017), (399, 19038), (401, 19047), (402, 19056), (406, 19083), (408, 19092), (415, 19113), (416, 19116), (420, 19128), (442, 19236), (446, 19263), (452, 19284), (464, 19329), (467, 19344), (472, 19365), (477, 19386), (479, 19404), (492, 19461), (524, 19473), (525, 19476), (527, 19482), (550, 19512), (566, 19572), (570, 19602), (582, 19641), (585, 19650), (591, 19680), (600, 19707), (601, 19710), (602, 19713), (612, 19746), (622, 19779), (631, 19818), (633, 19824), (643, 19866), (650, 19893), (654, 19908), (655, 19911), (656, 19914), (671, 19977), (674, 19986), (680, 20016), (689, 20052), (690, 20055), (698, 20091), (731, 20232), (758, 20379), (766, 20421), (784, 20466), (792, 20520), (804, 20604), (810, 20646), (811, 20649), (825, 20715), (828, 20727), (834, 20745), (842, 20805), (858, 20874), (868, 20910), (877, 20949), (891, 21045),

Gene: Djungelskog\_23 Start: 17240, Stop: 21790, Start Num: 19

Candidate Starts for Djungelskog\_23:

(Start: 18 @17219 has 2 MA's), (Start: 19 @17240 has 121 MA's), (Start: 22 @17270 has 2 MA's), (25, 17303), (53, 17459), (68, 17543), (70, 17555), (73, 17585), (80, 17666), (81, 17708), (82, 17726), (85, 17768), (87, 17798), (89, 17843), (90, 17855), (97, 17909), (100, 17924), (106, 17957), (113,

18020), (119, 18050), (122, 18083), (125, 18098), (131, 18146), (145, 18296), (150, 18317), (163, 18425), (166, 18434), (172, 18482), (199, 18617), (209, 18659), (228, 18773), (241, 18824), (244, 18836), (267, 18917), (288, 19001), (291, 19019), (302, 19064), (312, 19109), (313, 19112), (314, 19118), (325, 19151), (346, 19262), (356, 19331), (357, 19334), (366, 19376), (368, 19385), (371, 19394), (379, 19424), (386, 19463), (388, 19469), (392, 19484), (399, 19526), (422, 19622), (426, 19643), (427, 19646), (431, 19667), (442, 19724), (444, 19739), (451, 19769), (454, 19781), (461, 19808), (464, 19823), (475, 19871), (479, 19901), (481, 19916), (489, 19949), (491, 19955), (501, 19994), (504, 20003), (506, 20015), (511, 20036), (524, 20102), (527, 20111), (536, 20144), (537, 20150), (538, 20153), (543, 20165), (545, 20168), (551, 20189), (556, 20210), (566, 20246), (574, 20294), (585, 20324), (612, 20414), (628, 20471), (639, 20516), (643, 20534), (650, 20561), (652, 20570), (654, 20576), (668, 20636), (672, 20648), (675, 20660), (687, 20714), (697, 20756), (699, 20762), (701, 20768), (710, 20801), (711, 20804), (717, 20828), (718, 20834), (720, 20840), (721, 20843), (730, 20894), (733, 20906), (740, 20945), (764, 21077), (771, 21113), (778, 21155), (784, 21200), (794, 21290), (810, 21380), (814, 21404), (820, 21428), (822, 21440), (825, 21449), (828, 21461), (831, 21473), (841, 21518), (845, 21548), (849, 21566), (856, 21605),

Gene: DoctorPepper\_23 Start: 17240, Stop: 21790, Start Num: 19

Candidate Starts for DoctorPepper\_23:

(Start: 18 @17219 has 2 MA's), (Start: 19 @17240 has 121 MA's), (Start: 22 @17270 has 2 MA's), (25, 17303), (53, 17459), (68, 17543), (70, 17555), (73, 17585), (80, 17666), (81, 17708), (82, 17726), (85, 17768), (87, 17798), (89, 17843), (90, 17855), (97, 17909), (100, 17924), (106, 17957), (113, 18020), (119, 18050), (122, 18083), (125, 18098), (131, 18146), (145, 18296), (150, 18317), (163, 18425), (166, 18434), (172, 18482), (199, 18617), (209, 18659), (228, 18773), (241, 18824), (244, 18836), (267, 18917), (288, 19001), (291, 19019), (302, 19064), (312, 19109), (313, 19112), (314, 19118), (325, 19151), (346, 19262), (356, 19331), (357, 19334), (366, 19376), (368, 19385), (371, 19394), (379, 19424), (386, 19463), (388, 19469), (392, 19484), (399, 19526), (422, 19622), (426, 19643), (427, 19646), (431, 19667), (442, 19724), (444, 19739), (451, 19769), (454, 19781), (461, 19808), (464, 19823), (475, 19871), (479, 19901), (481, 19916), (489, 19949), (491, 19955), (501, 19994), (504, 20003), (506, 20015), (511, 20036), (524, 20102), (527, 20111), (536, 20144), (537, 20150), (538, 20153), (543, 20165), (545, 20168), (551, 20189), (556, 20210), (566, 20246), (574, 20294), (585, 20324), (612, 20414), (618, 20432), (628, 20471), (639, 20516), (643, 20534), (650, 20561), (652, 20570), (654, 20576), (668, 20636), (672, 20648), (675, 20660), (687, 20714), (695, 20750), (697, 20756), (699, 20762), (701, 20768), (711, 20804), (717, 20828), (718, 20834), (720, 20840), (721, 20843), (730, 20894), (733, 20906), (740, 20945), (764, 21077), (771, 21113), (778, 21155), (784, 21200), (794, 21290), (810, 21380), (814, 21404), (820, 21428), (822, 21440), (825, 21449), (828, 21461), (831, 21473), (841, 21518), (845, 21548), (849, 21566), (856, 21605), (878, 21683),

Gene: Doxi13\_19 Start: 13488, Stop: 18716, Start Num: 19

Candidate Starts for Doxi13\_19:

(Start: 18 @13467 has 2 MA's), (Start: 19 @13488 has 121 MA's), (Start: 22 @13518 has 2 MA's), (45, 13620), (49, 13671), (63, 13779), (81, 13962), (88, 14088), (91, 14124), (97, 14163), (111, 14253), (153, 14640), (176, 14790), (181, 14814), (193, 14886), (245, 15117), (269, 15195), (274, 15213), (275, 15216), (285, 15249), (309, 15357), (329, 15417), (346, 15498), (356, 15567), (368, 15621), (389, 15708), (390, 15711), (410, 15822), (423, 15858), (426, 15876), (437, 15927), (458, 16029), (461, 16041), (464, 16056), (478, 16125), (479, 16134), (484, 16164), (496, 16209), (503, 16230), (510, 16260), (513, 16272), (514, 16275), (518, 16296), (519, 16305), (527, 16341), (536, 16374), (561, 16455), (562, 16458), (569, 16503), (570, 16506), (571, 16509), (585, 16554), (594, 16584), (608, 16629), (612, 16644), (622, 16677), (627, 16698), (629, 16707), (631, 16716), (637, 16740), (638, 16743), (665, 16851), (676, 16893), (678, 16908), (680, 16914), (700, 16995), (714, 17046), (716, 17055), (718, 17064), (721, 17073), (722, 17076), (724, 17088), (725, 17091), (726, 17100), (728, 17109), (732, 17133), (746, 17202), (753, 17256), (772, 17364), (775, 17379), (781, 17418), (803, 17577), (847, 17811), (864, 17886), (874, 17919), (900, 18123), (907, 18165), (908,



18168), (912, 18189), (917, 18237), (919, 18243), (935, 18351), (944, 18423), (952, 18525), (963, 18678),

Gene: DrGrey\_23 Start: 16676, Stop: 22156, Start Num: 2

Candidate Starts for DrGrey\_23:

(1, 16655), (Start: 2 @16676 has 30 MA's), (3, 16706), (12, 16850), (17, 16901), (24, 16985), (45, 17060), (55, 17177), (56, 17180), (62, 17213), (70, 17249), (73, 17279), (81, 17402), (88, 17528), (91, 17564), (97, 17603), (99, 17615), (106, 17651), (111, 17693), (132, 17885), (137, 17951), (145, 18026), (150, 18047), (153, 18080), (161, 18143), (162, 18152), (176, 18230), (207, 18377), (230, 18509), (250, 18566), (270, 18644), (274, 18653), (276, 18662), (285, 18689), (302, 18764), (304, 18773), (321, 18839), (322, 18842), (338, 18881), (346, 18935), (356, 19004), (368, 19058), (377, 19091), (386, 19136), (389, 19145), (392, 19157), (404, 19232), (406, 19244), (418, 19283), (423, 19295), (430, 19334), (437, 19364), (440, 19376), (447, 19424), (458, 19466), (468, 19514), (479, 19571), (509, 19691), (518, 19733), (519, 19742), (527, 19778), (532, 19796), (533, 19799), (536, 19811), (550, 19853), (551, 19856), (565, 19904), (569, 19940), (571, 19946), (576, 19967), (585, 19991), (612, 20081), (622, 20114), (626, 20132), (629, 20144), (631, 20153), (645, 20210), (648, 20222), (649, 20225), (654, 20243), (668, 20303), (673, 20318), (680, 20351), (683, 20366), (702, 20438), (714, 20483), (718, 20501), (721, 20510), (728, 20546), (731, 20567), (732, 20570), (764, 20756), (768, 20777), (770, 20783), (772, 20801), (773, 20804), (775, 20816), (780, 20849), (781, 20855), (800, 21005), (803, 21014), (854, 21287), (881, 21389), (908, 21605), (912, 21626), (917, 21674), (919, 21680), (920, 21686), (927, 21731), (944, 21860), (949, 21908), (962, 22100), (963, 22109),

Gene: Duffington\_32 Start: 23487, Stop: 28601, Start Num: 19

Candidate Starts for Duffington\_32:

(Start: 19 @23487 has 121 MA's), (Start: 22 @23517 has 2 MA's), (28, 23562), (53, 23706), (63, 23772), (73, 23832), (74, 23853), (81, 23955), (88, 24081), (91, 24117), (97, 24156), (106, 24204), (111, 24246), (117, 24318), (122, 24366), (136, 24492), (144, 24567), (145, 24579), (150, 24600), (162, 24705), (163, 24708), (207, 24930), (218, 24996), (235, 25086), (250, 25122), (264, 25173), (272, 25221), (275, 25233), (304, 25377), (312, 25416), (319, 25443), (346, 25605), (352, 25653), (355, 25668), (356, 25674), (361, 25692), (372, 25740), (386, 25806), (398, 25857), (399, 25869), (402, 25887), (414, 25941), (426, 25986), (430, 26007), (433, 26016), (437, 26037), (441, 26058), (451, 26112), (452, 26115), (454, 26124), (460, 26145), (462, 26157), (467, 26178), (469, 26184), (473, 26202), (479, 26238), (484, 26268), (497, 26316), (501, 26328), (503, 26334), (504, 26337), (506, 26349), (507, 26352), (512, 26373), (519, 26409), (532, 26463), (533, 26466), (541, 26487), (546, 26499), (547, 26502), (559, 26550), (564, 26565), (565, 26568), (566, 26577), (568, 26598), (574, 26625), (575, 26628), (581, 26652), (585, 26664), (590, 26685), (592, 26697), (594, 26706), (598, 26718), (606, 26745), (616, 26778), (618, 26784), (623, 26802), (640, 26871), (658, 26940), (684, 27051), (713, 27162), (724, 27207), (738, 27297), (763, 27441), (773, 27504), (777, 27531), (787, 27603), (789, 27615), (790, 27624), (795, 27678), (799, 27699), (801, 27711), (835, 27873), (851, 27960), (859, 27978), (866, 28008), (872, 28026), (873, 28029), (875, 28041), (881, 28068), (895, 28179), (903, 28254), (911, 28302), (919, 28356), (923, 28383), (940, 28497), (950, 28587),

Gene: Dynamite\_21 Start: 17193, Stop: 21671, Start Num: 19

Candidate Starts for Dynamite\_21:

(Start: 18 @17172 has 2 MA's), (Start: 19 @17193 has 121 MA's), (Start: 22 @17223 has 2 MA's), (25, 17256), (30, 17277), (70, 17508), (73, 17538), (74, 17559), (80, 17619), (81, 17661), (82, 17679), (85, 17721), (90, 17808), (97, 17862), (100, 17877), (106, 17910), (119, 18003), (125, 18051), (127, 18066), (132, 18108), (136, 18162), (144, 18237), (150, 18270), (163, 18378), (173, 18444), (181, 18477), (183, 18486), (185, 18489), (188, 18507), (249, 18789), (262, 18813), (266, 18843), (308, 19002), (323, 19062), (346, 19191), (359, 19269), (365, 19299), (368, 19314), (371, 19323), (377, 19347), (383, 19374), (386, 19392), (392, 19413), (404, 19488), (408, 19509), (412, 19521), (422, 19551), (430, 19593), (442, 19653), (443, 19659), (451, 19698), (470, 19779), (475, 19800), (479,

19830), (484, 19860), (489, 19878), (501, 19926), (507, 19950), (511, 19968), (514, 19977), (515, 19986), (517, 19992), (520, 20013), (527, 20043), (536, 20076), (537, 20082), (538, 20085), (543, 20097), (550, 20118), (565, 20169), (566, 20178), (570, 20208), (572, 20214), (582, 20247), (585, 20256), (594, 20286), (597, 20295), (600, 20307), (607, 20328), (612, 20346), (620, 20373), (622, 20379), (623, 20382), (626, 20397), (633, 20424), (637, 20442), (641, 20454), (649, 20490), (675, 20592), (690, 20655), (698, 20691), (699, 20694), (701, 20700), (705, 20715), (710, 20733), (720, 20772), (721, 20775), (725, 20793), (730, 20826), (735, 20847), (746, 20904), (753, 20958), (755, 20967), (766, 21021), (782, 21048), (784, 21066), (791, 21114), (792, 21120), (800, 21192), (814, 21270), (817, 21285), (826, 21324), (834, 21348), (844, 21417), (849, 21438), (871, 21531), (892, 21660),

Gene: Eddiemania\_33 Start: 24148, Stop: 29262, Start Num: 19

Candidate Starts for Eddiemania\_33:

(Start: 19 @24148 has 121 MA's), (Start: 22 @24178 has 2 MA's), (28, 24223), (53, 24367), (63, 24433), (73, 24493), (74, 24514), (81, 24616), (88, 24742), (91, 24778), (97, 24817), (102, 24844), (106, 24865), (111, 24907), (122, 25027), (144, 25228), (145, 25240), (150, 25261), (159, 25345), (162, 25366), (163, 25369), (182, 25477), (203, 25579), (235, 25747), (250, 25783), (264, 25834), (272, 25882), (304, 26038), (312, 26077), (316, 26095), (319, 26104), (346, 26266), (355, 26329), (356, 26335), (361, 26353), (362, 26359), (372, 26401), (386, 26467), (398, 26518), (399, 26530), (402, 26548), (414, 26602), (426, 26647), (430, 26668), (433, 26677), (437, 26698), (440, 26710), (441, 26719), (444, 26743), (451, 26773), (452, 26776), (454, 26785), (459, 26803), (460, 26806), (462, 26818), (467, 26839), (469, 26845), (470, 26848), (473, 26863), (475, 26869), (479, 26899), (481, 26914), (484, 26929), (496, 26974), (497, 26977), (501, 26989), (503, 26995), (504, 26998), (506, 27010), (507, 27013), (511, 27031), (519, 27070), (532, 27124), (541, 27148), (546, 27160), (547, 27163), (559, 27211), (564, 27226), (565, 27229), (566, 27238), (567, 27253), (568, 27259), (574, 27286), (575, 27289), (579, 27301), (582, 27316), (585, 27325), (590, 27346), (592, 27358), (598, 27379), (606, 27406), (616, 27439), (618, 27445), (623, 27463), (630, 27493), (640, 27532), (687, 27724), (705, 27793), (738, 27958), (763, 28102), (773, 28165), (783, 28231), (787, 28264), (789, 28276), (795, 28339), (799, 28360), (801, 28372), (805, 28387), (815, 28450), (835, 28534), (851, 28621), (859, 28639), (866, 28669), (872, 28687), (874, 28696), (875, 28702), (881, 28729), (895, 28840), (903, 28915), (914, 28984), (919, 29017), (922, 29041), (940, 29158), (950, 29248),

Gene: Eevee\_26 Start: 20608, Stop: 25152, Start Num: 22

Candidate Starts for Eevee\_26:

(Start: 19 @20575 has 121 MA's), (Start: 22 @20608 has 2 MA's), (49, 20755), (59, 20845), (60, 20848), (81, 21043), (88, 21169), (97, 21244), (106, 21292), (111, 21334), (122, 21454), (135, 21571), (145, 21667), (176, 21871), (179, 21883), (192, 21964), (219, 22099), (237, 22192), (261, 22255), (268, 22294), (286, 22357), (290, 22372), (340, 22576), (346, 22627), (361, 22714), (367, 22744), (370, 22756), (371, 22759), (374, 22771), (377, 22783), (383, 22810), (393, 22852), (400, 22897), (419, 22978), (421, 22984), (426, 23008), (428, 23014), (441, 23080), (446, 23116), (453, 23140), (461, 23173), (466, 23200), (468, 23209), (472, 23227), (477, 23248), (481, 23281), (487, 23308), (488, 23311), (501, 23362), (509, 23392), (511, 23404), (527, 23479), (533, 23500), (535, 23506), (539, 23521), (565, 23605), (566, 23614), (569, 23641), (585, 23692), (596, 23728), (612, 23782), (633, 23860), (656, 23950), (664, 23980), (672, 24016), (680, 24052), (690, 24091), (704, 24148), (710, 24169), (716, 24193), (717, 24196), (720, 24208), (722, 24214), (738, 24304), (744, 24334), (745, 24337), (746, 24340), (754, 24400), (758, 24415), (769, 24469), (784, 24568), (799, 24688), (800, 24694), (819, 24796), (822, 24808), (825, 24817), (844, 24913), (846, 24916), (890, 25141),

Gene: Egad\_23 Start: 17271, Stop: 21791, Start Num: 22

Candidate Starts for Egad\_23:

(Start: 18 @17220 has 2 MA's), (Start: 19 @17241 has 121 MA's), (Start: 22 @17271 has 2 MA's), (25, 17304), (53, 17460), (68, 17544), (70, 17556), (73, 17586), (80, 17667), (81, 17709), (82, 17727), (85, 17769), (87, 17799), (89, 17844), (90, 17856), (97, 17910), (100, 17925), (106, 17958), (113,

18021), (119, 18051), (122, 18084), (125, 18099), (131, 18147), (145, 18297), (150, 18318), (163, 18426), (166, 18435), (172, 18483), (209, 18660), (228, 18774), (241, 18825), (244, 18837), (267, 18918), (288, 19002), (291, 19020), (302, 19065), (312, 19110), (313, 19113), (314, 19119), (325, 19152), (346, 19263), (356, 19332), (357, 19335), (366, 19377), (368, 19386), (371, 19395), (379, 19425), (386, 19464), (388, 19470), (392, 19485), (399, 19527), (422, 19623), (426, 19644), (427, 19647), (431, 19668), (442, 19725), (444, 19740), (451, 19770), (454, 19782), (461, 19809), (464, 19824), (475, 19872), (479, 19902), (481, 19917), (489, 19950), (491, 19956), (501, 19995), (504, 20004), (506, 20016), (511, 20037), (524, 20103), (527, 20112), (536, 20145), (537, 20151), (538, 20154), (543, 20166), (545, 20169), (551, 20190), (556, 20211), (566, 20247), (574, 20295), (585, 20325), (612, 20415), (628, 20472), (639, 20517), (643, 20535), (650, 20562), (652, 20571), (654, 20577), (668, 20637), (672, 20649), (675, 20661), (687, 20715), (695, 20751), (697, 20757), (699, 20763), (701, 20769), (711, 20805), (717, 20829), (718, 20835), (720, 20841), (721, 20844), (730, 20895), (733, 20907), (740, 20946), (764, 21078), (771, 21114), (778, 21156), (784, 21201), (794, 21291), (810, 21381), (814, 21405), (820, 21429), (822, 21441), (825, 21450), (828, 21462), (831, 21474), (841, 21519), (845, 21549), (849, 21567), (856, 21606),

Gene: ElephantMan\_26 Start: 20686, Stop: 25275, Start Num: 19

Candidate Starts for ElephantMan\_26:

(Start: 18 @20665 has 2 MA's), (Start: 19 @20686 has 121 MA's), (Start: 22 @20716 has 2 MA's), (30, 20770), (33, 20791), (46, 20827), (53, 20905), (62, 20965), (68, 20989), (70, 21001), (73, 21031), (80, 21112), (81, 21154), (82, 21172), (85, 21214), (87, 21244), (89, 21289), (90, 21301), (97, 21355), (100, 21370), (102, 21382), (106, 21403), (119, 21496), (122, 21529), (125, 21544), (131, 21592), (145, 21742), (150, 21763), (163, 21871), (165, 21877), (166, 21880), (172, 21928), (193, 22042), (200, 22066), (203, 22081), (207, 22093), (220, 22168), (226, 22213), (238, 22261), (243, 22276), (244, 22282), (255, 22300), (271, 22372), (280, 22414), (283, 22423), (294, 22468), (310, 22540), (312, 22546), (322, 22579), (323, 22582), (330, 22609), (346, 22723), (352, 22771), (354, 22780), (356, 22792), (368, 22846), (371, 22855), (372, 22858), (377, 22879), (386, 22924), (392, 22945), (413, 23056), (415, 23062), (422, 23083), (425, 23101), (426, 23104), (430, 23125), (442, 23185), (444, 23200), (445, 23203), (451, 23230), (452, 23233), (479, 23362), (481, 23377), (482, 23380), (486, 23398), (487, 23404), (492, 23419), (501, 23455), (504, 23464), (511, 23497), (522, 23551), (523, 23554), (527, 23572), (531, 23584), (538, 23614), (543, 23629), (548, 23638), (550, 23650), (566, 23710), (575, 23761), (577, 23767), (582, 23779), (585, 23788), (597, 23827), (600, 23839), (604, 23851), (610, 23869), (612, 23878), (632, 23953), (633, 23956), (637, 23974), (654, 24040), (656, 24046), (657, 24049), (669, 24103), (670, 24106), (701, 24232), (702, 24235), (708, 24256), (716, 24289), (718, 24298), (735, 24379), (741, 24412), (747, 24445), (756, 24502), (768, 24562), (772, 24586), (784, 24664), (785, 24676), (804, 24802), (810, 24844), (820, 24892), (828, 24925), (831, 24937), (834, 24943), (837, 24964), (838, 24967), (845, 25012), (850, 25039), (855, 25066), (856, 25069), (886, 25225), (891, 25252),

Gene: Elsa\_22 Start: 17670, Stop: 22148, Start Num: 19

Candidate Starts for Elsa\_22:

(Start: 18 @17649 has 2 MA's), (Start: 19 @17670 has 121 MA's), (Start: 22 @17700 has 2 MA's), (25, 17733), (30, 17754), (70, 17985), (73, 18015), (80, 18096), (81, 18138), (82, 18156), (85, 18198), (90, 18285), (97, 18339), (100, 18354), (106, 18387), (119, 18480), (125, 18528), (127, 18543), (132, 18585), (136, 18639), (144, 18714), (150, 18747), (163, 18855), (173, 18921), (181, 18954), (183, 18963), (185, 18966), (188, 18984), (249, 19266), (262, 19290), (266, 19320), (308, 19479), (323, 19539), (346, 19668), (352, 19716), (363, 19770), (366, 19782), (368, 19791), (371, 19800), (377, 19824), (386, 19869), (392, 19890), (404, 19965), (412, 19998), (422, 20028), (426, 20049), (430, 20070), (442, 20130), (443, 20136), (451, 20175), (452, 20178), (456, 20193), (470, 20256), (475, 20277), (479, 20307), (484, 20337), (489, 20355), (501, 20403), (507, 20427), (511, 20445), (514, 20454), (515, 20463), (517, 20469), (520, 20490), (527, 20520), (536, 20553), (537, 20559), (538, 20562), (543, 20574), (550, 20595), (565, 20646), (566, 20655), (570, 20685), (572, 20691), (582, 20724), (585, 20733), (594, 20763), (597, 20772), (600, 20784), (612, 20823), (620, 20850), (622,

20856), (623, 20859), (626, 20874), (633, 20901), (637, 20919), (641, 20931), (649, 20967), (675, 21069), (690, 21132), (698, 21168), (699, 21171), (701, 21177), (705, 21192), (710, 21210), (716, 21234), (720, 21249), (721, 21252), (725, 21270), (730, 21303), (735, 21324), (746, 21381), (753, 21435), (755, 21444), (766, 21498), (782, 21525), (784, 21543), (791, 21591), (792, 21597), (800, 21669), (814, 21747), (817, 21762), (826, 21801), (834, 21825), (844, 21894), (849, 21915), (871, 22008), (892, 22137),

Gene: Elver\_39 Start: 29219, Stop: 33769, Start Num: 27

Candidate Starts for Elver\_39:

(Start: 27 @29219 has 2 MA's), (32, 29249), (44, 29324), (46, 29360), (53, 29438), (81, 29687), (88, 29813), (93, 29858), (94, 29873), (97, 29888), (102, 29915), (106, 29936), (109, 29960), (111, 29978), (122, 30095), (128, 30140), (131, 30158), (143, 30281), (145, 30308), (148, 30320), (151, 30341), (181, 30536), (197, 30623), (199, 30629), (210, 30671), (217, 30722), (229, 30785), (258, 30860), (260, 30869), (295, 30989), (314, 31067), (318, 31076), (346, 31244), (359, 31322), (368, 31367), (371, 31376), (377, 31400), (386, 31445), (392, 31466), (408, 31562), (419, 31595), (426, 31625), (442, 31706), (444, 31721), (445, 31724), (464, 31805), (470, 31832), (479, 31883), (483, 31910), (489, 31931), (490, 31934), (501, 31976), (522, 32072), (527, 32093), (531, 32105), (536, 32126), (538, 32135), (543, 32147), (555, 32189), (565, 32219), (566, 32228), (574, 32276), (575, 32279), (582, 32297), (585, 32306), (600, 32357), (603, 32366), (612, 32396), (623, 32432), (629, 32459), (649, 32540), (650, 32543), (670, 32624), (674, 32636), (680, 32666), (683, 32681), (686, 32690), (690, 32705), (699, 32744), (710, 32783), (714, 32798), (716, 32807), (719, 32819), (722, 32828), (723, 32831), (730, 32876), (731, 32882), (742, 32939), (746, 32954), (749, 32984), (768, 33080), (778, 33137), (784, 33182), (793, 33251), (806, 33332), (809, 33353), (814, 33386), (825, 33431), (827, 33440), (831, 33455), (834, 33461), (844, 33530), (849, 33548), (861, 33599),

Gene: EndAve\_32 Start: 23502, Stop: 28613, Start Num: 19

Candidate Starts for EndAve\_32:

(Start: 19 @23502 has 121 MA's), (Start: 22 @23532 has 2 MA's), (28, 23577), (53, 23721), (63, 23787), (73, 23847), (74, 23868), (81, 23970), (87, 24060), (88, 24096), (91, 24132), (97, 24171), (106, 24219), (111, 24261), (117, 24333), (122, 24381), (136, 24507), (144, 24582), (145, 24594), (150, 24615), (162, 24720), (163, 24723), (207, 24945), (218, 25011), (219, 25014), (232, 25083), (235, 25101), (264, 25188), (277, 25257), (298, 25359), (299, 25362), (304, 25389), (312, 25428), (319, 25455), (346, 25617), (352, 25665), (356, 25686), (361, 25704), (363, 25719), (372, 25752), (386, 25818), (397, 25866), (398, 25869), (401, 25890), (402, 25899), (414, 25953), (426, 25998), (430, 26019), (433, 26028), (440, 26061), (441, 26070), (444, 26094), (451, 26124), (452, 26127), (454, 26136), (457, 26148), (460, 26157), (462, 26169), (467, 26190), (469, 26196), (479, 26250), (484, 26280), (497, 26328), (501, 26340), (503, 26346), (504, 26349), (507, 26364), (512, 26385), (519, 26421), (532, 26475), (533, 26478), (536, 26490), (541, 26499), (546, 26511), (547, 26514), (550, 26529), (557, 26556), (559, 26562), (564, 26577), (565, 26580), (566, 26589), (567, 26604), (568, 26610), (572, 26625), (574, 26637), (575, 26640), (585, 26676), (590, 26697), (592, 26709), (594, 26718), (598, 26730), (606, 26757), (613, 26781), (616, 26790), (618, 26796), (623, 26814), (640, 26883), (658, 26952), (694, 27108), (738, 27309), (763, 27453), (773, 27516), (777, 27543), (787, 27615), (789, 27627), (790, 27636), (795, 27690), (799, 27711), (801, 27723), (835, 27885), (851, 27972), (859, 27990), (866, 28020), (872, 28038), (873, 28041), (875, 28053), (881, 28080), (895, 28191), (903, 28266), (911, 28314), (919, 28368), (923, 28395), (940, 28509), (950, 28599),

Gene: Esketit\_23 Start: 16160, Stop: 21646, Start Num: 2

Candidate Starts for Esketit\_23:

(1, 16139), (Start: 2 @16160 has 30 MA's), (3, 16190), (12, 16334), (45, 16544), (56, 16664), (63, 16703), (70, 16733), (72, 16757), (73, 16763), (74, 16784), (75, 16799), (81, 16886), (87, 16976), (88, 17012), (89, 17021), (91, 17048), (97, 17087), (98, 17096), (102, 17114), (106, 17135), (111, 17177), (112, 17186), (122, 17294), (133, 17399), (144, 17495), (153, 17561), (176, 17711), (191, 17795), (195, 17816), (207, 17858), (231, 17993), (250, 18047), (274, 18134), (285, 18170), (287, 18179),

(296, 18221), (304, 18254), (310, 18284), (343, 18407), (346, 18428), (355, 18491), (356, 18497), (358, 18503), (363, 18530), (368, 18551), (370, 18557), (371, 18560), (377, 18584), (386, 18629), (389, 18638), (390, 18641), (392, 18650), (404, 18725), (410, 18752), (416, 18770), (423, 18788), (426, 18806), (430, 18827), (441, 18878), (454, 18944), (458, 18959), (477, 19046), (479, 19064), (483, 19091), (509, 19184), (518, 19226), (519, 19235), (527, 19271), (528, 19274), (532, 19289), (533, 19292), (536, 19304), (550, 19346), (551, 19349), (565, 19397), (569, 19433), (571, 19439), (576, 19460), (585, 19484), (594, 19514), (612, 19574), (622, 19607), (623, 19610), (626, 19625), (629, 19637), (635, 19661), (645, 19703), (648, 19715), (649, 19718), (663, 19766), (668, 19796), (673, 19811), (680, 19844), (683, 19859), (699, 19922), (718, 19994), (720, 20000), (721, 20003), (728, 20039), (740, 20105), (754, 20192), (755, 20195), (772, 20294), (780, 20342), (781, 20348), (803, 20507), (854, 20780), (864, 20816), (881, 20882), (897, 21005), (908, 21098), (912, 21119), (917, 21167), (919, 21173), (920, 21179), (927, 21224), (942, 21332), (944, 21353), (949, 21401), (955, 21488), (962, 21590), (963, 21599),

Gene: Fazel\_30 Start: 22536, Stop: 27638, Start Num: 19

Candidate Starts for Fazel\_30:

(Start: 19 @22536 has 121 MA's), (Start: 22 @22566 has 2 MA's), (28, 22611), (52, 22749), (53, 22755), (63, 22821), (70, 22851), (81, 23016), (85, 23076), (90, 23163), (93, 23187), (97, 23217), (100, 23232), (106, 23265), (116, 23358), (136, 23526), (150, 23634), (151, 23646), (157, 23703), (162, 23739), (163, 23742), (174, 23811), (176, 23817), (213, 24000), (214, 24006), (232, 24102), (235, 24120), (277, 24276), (302, 24402), (304, 24411), (346, 24642), (347, 24648), (356, 24711), (361, 24729), (366, 24756), (371, 24774), (386, 24843), (393, 24867), (395, 24873), (398, 24894), (400, 24912), (401, 24915), (414, 24978), (426, 25023), (430, 25044), (436, 25071), (442, 25104), (446, 25131), (451, 25149), (452, 25152), (454, 25161), (457, 25173), (459, 25179), (460, 25182), (462, 25194), (473, 25239), (481, 25290), (489, 25323), (494, 25344), (497, 25353), (501, 25365), (504, 25374), (507, 25389), (509, 25395), (510, 25401), (512, 25410), (515, 25425), (516, 25428), (518, 25437), (519, 25446), (527, 25482), (533, 25503), (541, 25524), (550, 25554), (554, 25569), (555, 25575), (563, 25599), (565, 25605), (566, 25614), (567, 25629), (568, 25635), (577, 25671), (581, 25689), (585, 25701), (590, 25722), (592, 25734), (598, 25755), (599, 25758), (606, 25782), (609, 25791), (616, 25815), (618, 25821), (623, 25839), (624, 25848), (625, 25851), (647, 25938), (656, 25968), (705, 26169), (724, 26244), (735, 26301), (738, 26334), (760, 26457), (787, 26640), (789, 26652), (790, 26661), (795, 26715), (805, 26763), (813, 26814), (824, 26865), (829, 26886), (840, 26934), (843, 26958), (851, 26997), (859, 27015), (872, 27063), (873, 27066), (875, 27078), (895, 27216), (903, 27291), (923, 27420), (929, 27468), (940, 27534), (947, 27573), (950, 27624),

Gene: FidgetOrca\_23 Start: 16166, Stop: 21652, Start Num: 2

Candidate Starts for FidgetOrca\_23:

(1, 16145), (Start: 2 @16166 has 30 MA's), (3, 16196), (12, 16340), (45, 16550), (56, 16670), (63, 16709), (70, 16739), (72, 16763), (73, 16769), (74, 16790), (75, 16805), (81, 16892), (87, 16982), (88, 17018), (89, 17027), (91, 17054), (97, 17093), (98, 17102), (102, 17120), (106, 17141), (111, 17183), (112, 17192), (122, 17300), (133, 17405), (144, 17501), (153, 17567), (176, 17717), (191, 17801), (195, 17822), (207, 17864), (231, 17999), (270, 18131), (274, 18140), (285, 18176), (287, 18185), (296, 18227), (304, 18260), (343, 18413), (346, 18434), (355, 18497), (356, 18503), (358, 18509), (363, 18536), (368, 18557), (370, 18563), (371, 18566), (377, 18590), (386, 18635), (389, 18644), (390, 18647), (392, 18656), (404, 18731), (410, 18758), (415, 18773), (416, 18776), (423, 18794), (426, 18812), (430, 18833), (441, 18884), (458, 18965), (477, 19052), (479, 19070), (483, 19097), (509, 19190), (518, 19232), (519, 19241), (527, 19277), (532, 19295), (533, 19298), (550, 19352), (565, 19403), (569, 19439), (571, 19445), (576, 19466), (585, 19490), (594, 19520), (612, 19580), (622, 19613), (623, 19616), (626, 19631), (635, 19667), (645, 19709), (648, 19721), (649, 19724), (663, 19772), (668, 19802), (673, 19817), (680, 19850), (683, 19865), (699, 19928), (720, 20006), (728, 20045), (740, 20111), (754, 20198), (755, 20201), (772, 20300), (780, 20348), (781, 20354), (803, 20513), (854, 20786), (881, 20888), (897, 21011), (908, 21104), (912, 21125), (917, 21173), (919, 21179), (920, 21185), (927, 21230), (942, 21338), (944, 21359), (949, 21407), (955, 21494),

(962, 21596), (963, 21605),

Gene: Figliar\_32 Start: 23512, Stop: 28611, Start Num: 19

Candidate Starts for Figliar\_32:

(Start: 19 @23512 has 121 MA's), (Start: 22 @23542 has 2 MA's), (28, 23587), (52, 23725), (53, 23731), (61, 23785), (63, 23797), (66, 23809), (70, 23827), (81, 23992), (85, 24052), (90, 24139), (93, 24163), (97, 24193), (100, 24208), (106, 24241), (116, 24334), (136, 24502), (150, 24610), (151, 24622), (153, 24643), (157, 24679), (162, 24715), (163, 24718), (174, 24787), (176, 24793), (191, 24877), (207, 24940), (213, 24976), (219, 25009), (234, 25084), (235, 25096), (250, 25132), (264, 25183), (272, 25231), (275, 25243), (304, 25387), (312, 25426), (319, 25453), (346, 25615), (352, 25663), (356, 25684), (361, 25702), (372, 25750), (386, 25816), (398, 25867), (399, 25879), (402, 25897), (414, 25951), (426, 25996), (430, 26017), (433, 26026), (436, 26044), (437, 26047), (441, 26068), (451, 26122), (452, 26125), (454, 26134), (460, 26155), (462, 26167), (467, 26188), (469, 26194), (473, 26212), (479, 26248), (484, 26278), (497, 26326), (501, 26338), (503, 26344), (504, 26347), (506, 26359), (507, 26362), (512, 26383), (519, 26419), (532, 26473), (533, 26476), (541, 26497), (546, 26509), (547, 26512), (559, 26560), (564, 26575), (565, 26578), (566, 26587), (568, 26608), (574, 26635), (575, 26638), (581, 26662), (585, 26674), (590, 26695), (592, 26707), (594, 26716), (598, 26728), (606, 26755), (616, 26788), (618, 26794), (623, 26812), (636, 26866), (640, 26881), (658, 26950), (684, 27061), (713, 27172), (724, 27217), (738, 27307), (763, 27451), (773, 27514), (777, 27541), (787, 27613), (789, 27625), (790, 27634), (795, 27688), (799, 27709), (801, 27721), (835, 27883), (851, 27970), (859, 27988), (866, 28018), (872, 28036), (873, 28039), (875, 28051), (881, 28078), (895, 28189), (901, 28252), (903, 28264), (911, 28312), (919, 28366), (923, 28393), (940, 28507), (950, 28597),

Gene: FortCran\_29 Start: 20505, Stop: 25607, Start Num: 19

Candidate Starts for FortCran\_29:

(Start: 19 @20505 has 121 MA's), (Start: 22 @20535 has 2 MA's), (48, 20673), (52, 20718), (53, 20724), (54, 20733), (55, 20748), (58, 20769), (63, 20790), (70, 20820), (73, 20850), (74, 20871), (81, 20973), (85, 21033), (89, 21108), (90, 21120), (93, 21144), (97, 21174), (100, 21189), (106, 21222), (111, 21264), (116, 21315), (123, 21369), (124, 21372), (134, 21471), (137, 21495), (150, 21591), (162, 21696), (163, 21699), (174, 21768), (176, 21774), (177, 21780), (213, 21957), (223, 22008), (232, 22059), (250, 22113), (252, 22116), (304, 22368), (305, 22371), (320, 22446), (332, 22503), (344, 22587), (346, 22596), (358, 22671), (361, 22683), (363, 22698), (364, 22701), (369, 22722), (381, 22770), (386, 22797), (392, 22818), (395, 22827), (398, 22848), (399, 22860), (401, 22869), (402, 22878), (414, 22932), (415, 22935), (422, 22956), (430, 22998), (436, 23025), (439, 23034), (441, 23049), (442, 23058), (444, 23073), (446, 23085), (449, 23094), (457, 23127), (460, 23136), (478, 23220), (479, 23229), (481, 23244), (482, 23247), (486, 23265), (497, 23307), (504, 23328), (507, 23343), (509, 23349), (517, 23385), (519, 23400), (533, 23457), (536, 23469), (541, 23478), (546, 23490), (549, 23502), (550, 23508), (555, 23529), (559, 23541), (565, 23559), (566, 23568), (567, 23583), (568, 23589), (571, 23601), (581, 23643), (582, 23646), (585, 23655), (590, 23676), (592, 23688), (606, 23736), (609, 23745), (616, 23769), (618, 23775), (623, 23793), (624, 23802), (630, 23823), (647, 23892), (652, 23910), (658, 23931), (699, 24102), (713, 24153), (740, 24297), (751, 24366), (763, 24432), (771, 24483), (789, 24606), (795, 24669), (805, 24717), (806, 24723), (807, 24732), (815, 24780), (832, 24852), (843, 24912), (848, 24933), (849, 24936), (860, 24987), (862, 24996), (866, 25014), (873, 25035), (875, 25047), (887, 25140), (895, 25185), (903, 25260), (905, 25278), (909, 25299), (922, 25386), (939, 25497), (950, 25593),

Gene: FrodoSwaggins\_23 Start: 16676, Stop: 22156, Start Num: 2

Candidate Starts for FrodoSwaggins\_23:

(1, 16655), (Start: 2 @16676 has 30 MA's), (3, 16706), (12, 16850), (17, 16901), (24, 16985), (45, 17060), (55, 17177), (56, 17180), (62, 17213), (70, 17249), (73, 17279), (81, 17402), (88, 17528), (91, 17564), (97, 17603), (99, 17615), (106, 17651), (111, 17693), (132, 17885), (137, 17951), (145, 18026), (150, 18047), (153, 18080), (161, 18143), (162, 18152), (176, 18230), (207, 18377), (230,



18509), (250, 18566), (270, 18644), (274, 18653), (276, 18662), (285, 18689), (302, 18764), (304, 18773), (321, 18839), (322, 18842), (338, 18881), (346, 18935), (356, 19004), (368, 19058), (377, 19091), (386, 19136), (389, 19145), (392, 19157), (404, 19232), (418, 19283), (423, 19295), (430, 19334), (437, 19364), (440, 19376), (447, 19424), (458, 19466), (468, 19514), (479, 19571), (509, 19691), (518, 19733), (519, 19742), (527, 19778), (532, 19796), (533, 19799), (536, 19811), (550, 19853), (551, 19856), (565, 19904), (569, 19940), (571, 19946), (576, 19967), (585, 19991), (612, 20081), (622, 20114), (626, 20132), (629, 20144), (631, 20153), (645, 20210), (648, 20222), (649, 20225), (654, 20243), (668, 20303), (673, 20318), (680, 20351), (683, 20366), (702, 20438), (714, 20483), (718, 20501), (721, 20510), (728, 20546), (731, 20567), (732, 20570), (764, 20756), (768, 20777), (770, 20783), (772, 20801), (773, 20804), (775, 20816), (780, 20849), (781, 20855), (800, 21005), (803, 21014), (854, 21287), (881, 21389), (908, 21605), (912, 21626), (917, 21674), (919, 21680), (920, 21686), (927, 21731), (944, 21860), (949, 21908), (962, 22100), (963, 22109),

Gene: FromIndy\_22 Start: 15060, Stop: 20537, Start Num: 2

Candidate Starts for FromIndy\_22:

(Start: 2 @15060 has 30 MA's), (3, 15090), (5, 15144), (7, 15171), (9, 15201), (10, 15204), (12, 15234), (81, 15786), (88, 15912), (97, 15987), (105, 16029), (111, 16077), (118, 16161), (132, 16269), (150, 16431), (153, 16464), (162, 16536), (176, 16614), (207, 16761), (285, 17073), (287, 17082), (303, 17145), (319, 17208), (346, 17319), (351, 17361), (356, 17388), (359, 17397), (371, 17451), (377, 17475), (390, 17532), (392, 17541), (411, 17646), (414, 17655), (423, 17679), (440, 17760), (458, 17850), (469, 17901), (477, 17937), (479, 17955), (484, 17985), (494, 18024), (495, 18027), (506, 18066), (514, 18096), (518, 18117), (519, 18126), (526, 18159), (527, 18162), (533, 18183), (553, 18246), (569, 18324), (571, 18330), (582, 18366), (583, 18369), (584, 18372), (585, 18375), (600, 18426), (603, 18435), (606, 18444), (612, 18465), (621, 18495), (622, 18498), (637, 18561), (638, 18564), (639, 18567), (649, 18609), (654, 18627), (663, 18657), (673, 18702), (680, 18735), (698, 18810), (700, 18816), (709, 18846), (714, 18867), (721, 18894), (724, 18909), (728, 18930), (732, 18954), (745, 19020), (750, 19062), (754, 19083), (759, 19107), (772, 19185), (780, 19233), (803, 19398), (847, 19632), (866, 19713), (876, 19758), (885, 19803), (908, 19989), (912, 20010), (913, 20022), (919, 20064), (927, 20115), (934, 20163), (938, 20202), (946, 20253), (954, 20376), (960, 20415),

Gene: GantcherGoblin\_25 Start: 19002, Stop: 23639, Start Num: 19

Candidate Starts for GantcherGoblin\_25:

(Start: 18 @18981 has 2 MA's), (Start: 19 @19002 has 121 MA's), (Start: 22 @19032 has 2 MA's), (30, 19086), (31, 19095), (63, 19365), (64, 19368), (73, 19425), (74, 19446), (80, 19506), (81, 19548), (85, 19608), (90, 19695), (94, 19734), (97, 19749), (100, 19764), (106, 19797), (110, 19836), (111, 19839), (117, 19875), (119, 19890), (125, 19938), (162, 20262), (166, 20274), (174, 20334), (184, 20376), (193, 20436), (194, 20442), (197, 20451), (202, 20466), (203, 20475), (223, 20574), (224, 20586), (225, 20595), (226, 20607), (305, 20892), (319, 20952), (323, 20961), (346, 21102), (352, 21150), (357, 21174), (359, 21180), (368, 21225), (371, 21234), (377, 21258), (381, 21276), (391, 21321), (392, 21324), (395, 21333), (404, 21399), (415, 21441), (419, 21453), (422, 21462), (426, 21483), (437, 21534), (442, 21564), (444, 21579), (454, 21621), (459, 21639), (469, 21687), (470, 21690), (480, 21747), (485, 21774), (506, 21855), (509, 21864), (519, 21915), (527, 21951), (536, 21984), (538, 21993), (543, 22005), (552, 22032), (557, 22053), (565, 22077), (566, 22086), (582, 22155), (583, 22158), (584, 22161), (585, 22164), (594, 22194), (600, 22215), (607, 22236), (612, 22254), (615, 22263), (620, 22281), (635, 22341), (643, 22374), (646, 22389), (648, 22395), (649, 22398), (662, 22443), (668, 22476), (669, 22479), (670, 22482), (675, 22500), (704, 22620), (705, 22623), (710, 22641), (719, 22677), (728, 22719), (732, 22743), (746, 22812), (753, 22866), (756, 22878), (778, 22995), (784, 23040), (791, 23088), (811, 23223), (814, 23244), (820, 23268), (834, 23319), (844, 23388), (849, 23406),

Gene: Giantsbane\_27 Start: 19149, Stop: 23738, Start Num: 19

Candidate Starts for Giantsbane\_27:

(Start: 18 @19128 has 2 MA's), (Start: 19 @19149 has 121 MA's), (Start: 22 @19179 has 2 MA's), (30, 19233), (46, 19290), (62, 19428), (70, 19464), (73, 19494), (80, 19575), (81, 19617), (82, 19635), (85, 19677), (90, 19764), (97, 19818), (100, 19833), (101, 19839), (106, 19866), (117, 19944), (119, 19959), (122, 19992), (125, 20007), (126, 20016), (129, 20043), (131, 20055), (135, 20109), (150, 20226), (163, 20334), (166, 20343), (173, 20400), (175, 20406), (198, 20523), (202, 20535), (207, 20556), (209, 20568), (214, 20598), (226, 20676), (244, 20745), (265, 20805), (288, 20901), (300, 20955), (310, 21003), (312, 21009), (323, 21045), (346, 21189), (348, 21201), (354, 21246), (356, 21258), (368, 21312), (371, 21321), (372, 21324), (377, 21345), (392, 21411), (403, 21477), (404, 21486), (405, 21489), (406, 21498), (413, 21522), (415, 21528), (422, 21549), (425, 21567), (426, 21570), (430, 21591), (442, 21651), (444, 21666), (445, 21669), (450, 21693), (451, 21696), (452, 21699), (461, 21735), (479, 21828), (481, 21843), (482, 21846), (486, 21864), (487, 21870), (492, 21885), (501, 21921), (504, 21930), (511, 21963), (522, 22017), (523, 22020), (527, 22038), (543, 22095), (548, 22104), (550, 22116), (555, 22137), (557, 22143), (558, 22146), (566, 22176), (577, 22233), (582, 22245), (584, 22251), (585, 22254), (612, 22344), (623, 22380), (639, 22446), (644, 22470), (645, 22473), (654, 22506), (655, 22509), (656, 22512), (657, 22515), (669, 22569), (670, 22572), (699, 22692), (708, 22722), (711, 22734), (718, 22764), (721, 22773), (723, 22779), (740, 22875), (749, 22932), (756, 22968), (769, 23031), (784, 23130), (785, 23142), (800, 23256), (820, 23358), (831, 23403), (834, 23409), (838, 23433), (841, 23448), (845, 23478), (850, 23505), (855, 23532), (869, 23577),

Gene: Gill\_29 Start: 20616, Stop: 25730, Start Num: 19

Candidate Starts for Gill\_29:

(Start: 19 @20616 has 121 MA's), (Start: 22 @20646 has 2 MA's), (49, 20793), (52, 20829), (53, 20835), (58, 20880), (63, 20901), (70, 20931), (81, 21096), (85, 21156), (89, 21231), (93, 21267), (94, 21282), (97, 21297), (100, 21312), (106, 21345), (116, 21438), (123, 21492), (124, 21495), (150, 21714), (162, 21819), (163, 21822), (174, 21891), (176, 21897), (213, 22080), (223, 22131), (232, 22182), (250, 22236), (252, 22239), (279, 22371), (301, 22473), (304, 22491), (305, 22494), (320, 22569), (332, 22626), (344, 22710), (346, 22719), (361, 22806), (369, 22845), (381, 22893), (386, 22920), (392, 22941), (395, 22950), (398, 22971), (399, 22983), (401, 22992), (402, 23001), (406, 23028), (414, 23055), (415, 23058), (422, 23079), (430, 23121), (436, 23148), (439, 23157), (441, 23172), (442, 23181), (444, 23196), (446, 23208), (449, 23217), (452, 23229), (457, 23250), (460, 23259), (478, 23343), (479, 23352), (481, 23367), (482, 23370), (486, 23388), (489, 23400), (490, 23403), (497, 23430), (504, 23451), (507, 23466), (517, 23508), (519, 23523), (533, 23580), (536, 23592), (541, 23601), (546, 23613), (549, 23625), (550, 23631), (555, 23652), (559, 23664), (565, 23682), (566, 23691), (567, 23706), (568, 23712), (571, 23724), (581, 23766), (582, 23769), (585, 23778), (590, 23799), (592, 23811), (606, 23859), (609, 23868), (616, 23892), (618, 23898), (623, 23916), (624, 23925), (630, 23946), (647, 24015), (652, 24033), (653, 24036), (658, 24054), (688, 24180), (699, 24225), (713, 24276), (740, 24420), (763, 24555), (771, 24606), (783, 24684), (789, 24729), (795, 24792), (798, 24810), (805, 24840), (806, 24846), (815, 24903), (832, 24975), (843, 25035), (848, 25056), (849, 25059), (860, 25110), (862, 25119), (873, 25158), (875, 25170), (887, 25263), (895, 25308), (903, 25383), (909, 25422), (914, 25452), (922, 25509), (939, 25620), (950, 25716),

Gene: GirlPower\_22 Start: 17641, Stop: 23130, Start Num: 2

Candidate Starts for GirlPower\_22:

(1, 17620), (Start: 2 @17641 has 30 MA's), (3, 17671), (12, 17815), (33, 17983), (53, 18118), (63, 18184), (70, 18214), (73, 18244), (81, 18367), (86, 18448), (87, 18457), (88, 18493), (97, 18568), (102, 18595), (105, 18610), (106, 18616), (111, 18658), (114, 18709), (132, 18847), (153, 19042), (165, 19123), (176, 19192), (195, 19297), (208, 19342), (250, 19528), (274, 19615), (285, 19651), (287, 19660), (343, 19888), (346, 19909), (355, 19972), (356, 19978), (358, 19984), (368, 20032), (370, 20038), (371, 20041), (377, 20065), (386, 20110), (389, 20119), (390, 20122), (395, 20140), (414, 20245), (423, 20269), (438, 20341), (441, 20359), (458, 20440), (479, 20545), (509, 20665), (518, 20707), (519, 20716), (527, 20752), (533, 20773), (551, 20830), (565, 20878), (569, 20914),

(576, 20941), (585, 20965), (594, 20995), (612, 21055), (622, 21088), (626, 21106), (631, 21127), (641, 21163), (645, 21184), (648, 21196), (649, 21199), (654, 21217), (656, 21223), (668, 21277), (673, 21292), (680, 21325), (683, 21340), (699, 21403), (720, 21481), (721, 21484), (728, 21520), (740, 21586), (744, 21607), (754, 21673), (757, 21685), (772, 21775), (780, 21823), (800, 21979), (803, 21988), (868, 22309), (885, 22393), (908, 22579), (912, 22600), (915, 22624), (917, 22648), (919, 22654), (920, 22660), (927, 22705), (942, 22813), (949, 22882), (955, 22969), (962, 23074), (963, 23083),

Gene: GoCrazy\_20 Start: 17193, Stop: 21671, Start Num: 19

Candidate Starts for GoCrazy\_20:

(Start: 18 @17172 has 2 MA's), (Start: 19 @17193 has 121 MA's), (Start: 22 @17223 has 2 MA's), (30, 17277), (46, 17334), (70, 17508), (73, 17538), (80, 17619), (81, 17661), (82, 17679), (85, 17721), (90, 17808), (97, 17862), (100, 17877), (106, 17910), (117, 17988), (119, 18003), (125, 18051), (132, 18108), (140, 18204), (144, 18237), (150, 18270), (163, 18378), (173, 18444), (181, 18477), (183, 18486), (185, 18489), (188, 18507), (249, 18789), (262, 18813), (266, 18843), (308, 19002), (323, 19062), (346, 19191), (352, 19239), (359, 19269), (363, 19293), (366, 19305), (368, 19314), (371, 19323), (377, 19347), (386, 19392), (392, 19413), (404, 19488), (408, 19509), (409, 19512), (412, 19521), (422, 19551), (430, 19593), (442, 19653), (443, 19659), (444, 19668), (452, 19701), (455, 19713), (456, 19716), (470, 19779), (475, 19800), (479, 19830), (484, 19860), (489, 19878), (501, 19926), (507, 19950), (511, 19968), (514, 19977), (520, 20013), (527, 20043), (536, 20076), (537, 20082), (538, 20085), (543, 20097), (550, 20118), (565, 20169), (566, 20178), (572, 20214), (582, 20247), (585, 20256), (594, 20286), (597, 20295), (600, 20307), (612, 20346), (620, 20373), (622, 20379), (623, 20382), (626, 20397), (633, 20424), (641, 20454), (649, 20490), (675, 20592), (690, 20655), (698, 20691), (705, 20715), (710, 20733), (720, 20772), (722, 20778), (725, 20793), (729, 20814), (730, 20826), (753, 20958), (766, 21021), (782, 21048), (784, 21066), (791, 21114), (792, 21120), (800, 21192), (814, 21270), (822, 21306), (826, 21324), (834, 21348), (838, 21372), (844, 21417), (849, 21438), (892, 21660),

Gene: GoblinVoyage\_19 Start: 13488, Stop: 18716, Start Num: 19

Candidate Starts for GoblinVoyage\_19:

(Start: 18 @13467 has 2 MA's), (Start: 19 @13488 has 121 MA's), (Start: 22 @13518 has 2 MA's), (45, 13620), (49, 13671), (63, 13779), (81, 13962), (88, 14088), (91, 14124), (97, 14163), (111, 14253), (153, 14640), (176, 14790), (181, 14814), (193, 14886), (245, 15117), (269, 15195), (274, 15213), (275, 15216), (285, 15249), (309, 15357), (329, 15417), (346, 15498), (356, 15567), (368, 15621), (389, 15708), (390, 15711), (410, 15822), (423, 15858), (426, 15876), (437, 15927), (458, 16029), (461, 16041), (464, 16056), (478, 16125), (479, 16134), (484, 16164), (496, 16209), (503, 16230), (510, 16260), (513, 16272), (514, 16275), (518, 16296), (519, 16305), (527, 16341), (536, 16374), (562, 16458), (569, 16503), (570, 16506), (571, 16509), (585, 16554), (594, 16584), (608, 16629), (612, 16644), (622, 16677), (627, 16698), (629, 16707), (631, 16716), (637, 16740), (638, 16743), (665, 16851), (676, 16893), (678, 16908), (680, 16914), (700, 16995), (714, 17046), (716, 17055), (717, 17058), (718, 17064), (721, 17073), (722, 17076), (724, 17088), (725, 17091), (726, 17100), (728, 17109), (732, 17133), (746, 17202), (753, 17256), (772, 17364), (775, 17379), (781, 17418), (803, 17577), (847, 17811), (864, 17886), (874, 17919), (900, 18123), (907, 18165), (908, 18168), (912, 18189), (917, 18237), (919, 18243), (935, 18351), (944, 18423), (952, 18525), (963, 18678),

Gene: Gordon\_26 Start: 21257, Stop: 25849, Start Num: 19

Candidate Starts for Gordon\_26:

(Start: 18 @21236 has 2 MA's), (Start: 19 @21257 has 121 MA's), (Start: 22 @21287 has 2 MA's), (30, 21341), (46, 21398), (53, 21476), (62, 21536), (70, 21572), (73, 21602), (81, 21725), (82, 21743), (85, 21785), (97, 21926), (100, 21941), (106, 21974), (117, 22052), (119, 22067), (121, 22088), (122, 22100), (126, 22124), (132, 22172), (140, 22268), (144, 22301), (150, 22334), (155, 22382), (163, 22442), (166, 22451), (172, 22499), (189, 22580), (193, 22613), (200, 22637), (203, 22652), (207,

22664), (238, 22832), (244, 22853), (255, 22871), (265, 22913), (271, 22943), (283, 22994), (288, 23009), (294, 23039), (310, 23111), (312, 23117), (322, 23150), (323, 23153), (346, 23297), (354, 23354), (356, 23366), (368, 23420), (371, 23429), (372, 23432), (377, 23453), (386, 23498), (392, 23519), (399, 23561), (402, 23579), (415, 23636), (422, 23657), (426, 23678), (430, 23699), (442, 23759), (444, 23774), (445, 23777), (451, 23804), (452, 23807), (464, 23858), (479, 23936), (481, 23951), (482, 23954), (486, 23972), (487, 23978), (488, 23981), (489, 23984), (492, 23993), (501, 24029), (504, 24038), (511, 24071), (522, 24125), (523, 24128), (527, 24146), (531, 24158), (538, 24188), (543, 24203), (548, 24212), (550, 24224), (555, 24245), (566, 24284), (577, 24341), (582, 24353), (585, 24362), (597, 24401), (600, 24413), (610, 24443), (612, 24452), (623, 24488), (632, 24527), (633, 24530), (637, 24548), (639, 24554), (654, 24614), (657, 24623), (669, 24677), (670, 24680), (701, 24806), (702, 24809), (708, 24830), (717, 24866), (718, 24872), (721, 24881), (726, 24908), (732, 24941), (735, 24953), (747, 25019), (756, 25076), (768, 25136), (772, 25160), (784, 25238), (785, 25250), (804, 25376), (809, 25409), (810, 25418), (820, 25466), (828, 25499), (831, 25511), (834, 25517), (837, 25538), (838, 25541), (839, 25547), (845, 25586), (850, 25613), (886, 25799), (891, 25826),

Gene: Gravy\_29 Start: 20616, Stop: 25730, Start Num: 19

Candidate Starts for Gravy\_29:

(Start: 19 @20616 has 121 MA's), (Start: 22 @20646 has 2 MA's), (49, 20793), (52, 20829), (53, 20835), (58, 20880), (63, 20901), (70, 20931), (81, 21096), (85, 21156), (89, 21231), (93, 21267), (94, 21282), (97, 21297), (100, 21312), (106, 21345), (116, 21438), (123, 21492), (124, 21495), (150, 21714), (162, 21819), (163, 21822), (174, 21891), (176, 21897), (213, 22080), (223, 22131), (232, 22182), (250, 22236), (252, 22239), (279, 22371), (301, 22473), (304, 22491), (305, 22494), (320, 22569), (332, 22626), (344, 22710), (346, 22719), (361, 22806), (369, 22845), (381, 22893), (386, 22920), (392, 22941), (395, 22950), (398, 22971), (399, 22983), (401, 22992), (402, 23001), (406, 23028), (414, 23055), (415, 23058), (422, 23079), (430, 23121), (436, 23148), (439, 23157), (441, 23172), (442, 23181), (444, 23196), (446, 23208), (449, 23217), (452, 23229), (457, 23250), (460, 23259), (478, 23343), (479, 23352), (481, 23367), (482, 23370), (486, 23388), (489, 23400), (490, 23403), (497, 23430), (504, 23451), (507, 23466), (517, 23508), (519, 23523), (533, 23580), (536, 23592), (541, 23601), (546, 23613), (549, 23625), (550, 23631), (555, 23652), (559, 23664), (565, 23682), (566, 23691), (567, 23706), (568, 23712), (571, 23724), (581, 23766), (582, 23769), (585, 23778), (590, 23799), (592, 23811), (606, 23859), (609, 23868), (616, 23892), (618, 23898), (623, 23916), (624, 23925), (630, 23946), (647, 24015), (652, 24033), (653, 24036), (658, 24054), (688, 24180), (699, 24225), (713, 24276), (740, 24420), (763, 24555), (771, 24606), (783, 24684), (789, 24729), (795, 24792), (798, 24810), (805, 24840), (806, 24846), (815, 24903), (832, 24975), (843, 25035), (848, 25056), (849, 25059), (860, 25110), (862, 25119), (873, 25158), (875, 25170), (887, 25263), (895, 25308), (903, 25383), (909, 25422), (914, 25452), (922, 25509), (939, 25620), (950, 25716),

Gene: Gusicorn\_35 Start: 23289, Stop: 28400, Start Num: 19

Candidate Starts for Gusicorn\_35:

(Start: 19 @23289 has 121 MA's), (Start: 22 @23319 has 2 MA's), (28, 23364), (53, 23508), (63, 23574), (73, 23634), (74, 23655), (81, 23757), (88, 23883), (91, 23919), (97, 23958), (102, 23985), (106, 24006), (111, 24048), (122, 24168), (134, 24282), (136, 24294), (144, 24369), (150, 24402), (162, 24507), (163, 24510), (232, 24870), (235, 24888), (277, 25044), (298, 25146), (299, 25149), (304, 25176), (312, 25215), (319, 25242), (323, 25263), (328, 25287), (346, 25404), (355, 25467), (356, 25473), (361, 25491), (362, 25497), (368, 25527), (375, 25551), (386, 25605), (393, 25629), (397, 25653), (398, 25656), (401, 25677), (402, 25686), (411, 25731), (414, 25740), (426, 25785), (430, 25806), (433, 25815), (434, 25821), (437, 25836), (439, 25842), (441, 25857), (451, 25911), (452, 25914), (454, 25923), (457, 25935), (460, 25944), (462, 25956), (467, 25977), (469, 25983), (475, 26007), (479, 26037), (481, 26052), (497, 26115), (501, 26127), (503, 26133), (504, 26136), (506, 26148), (507, 26151), (519, 26208), (532, 26262), (533, 26265), (541, 26286), (546, 26298), (547, 26301), (559, 26349), (564, 26364), (565, 26367), (566, 26376), (567, 26391), (568, 26397),

(574, 26424), (575, 26427), (577, 26433), (585, 26463), (590, 26484), (592, 26496), (594, 26505), (598, 26517), (606, 26544), (616, 26577), (618, 26583), (623, 26601), (630, 26631), (658, 26739), (679, 26829), (684, 26850), (713, 26961), (724, 27006), (735, 27063), (738, 27096), (763, 27240), (773, 27303), (783, 27369), (787, 27402), (789, 27414), (795, 27477), (799, 27498), (801, 27510), (806, 27531), (835, 27672), (851, 27759), (859, 27777), (866, 27807), (872, 27825), (873, 27828), (874, 27834), (875, 27840), (881, 27867), (895, 27978), (901, 28041), (903, 28053), (914, 28122), (919, 28155), (922, 28179), (940, 28296), (950, 28386),

Gene: Hankly\_20 Start: 16415, Stop: 20893, Start Num: 19

Candidate Starts for Hankly\_20:

(Start: 18 @16394 has 2 MA's), (Start: 19 @16415 has 121 MA's), (Start: 22 @16445 has 2 MA's), (30, 16499), (46, 16556), (70, 16730), (73, 16760), (80, 16841), (81, 16883), (82, 16901), (85, 16943), (90, 17030), (94, 17069), (97, 17084), (100, 17099), (106, 17132), (117, 17210), (119, 17225), (125, 17273), (127, 17288), (132, 17330), (140, 17426), (144, 17459), (150, 17492), (163, 17600), (173, 17666), (181, 17699), (183, 17708), (185, 17711), (188, 17729), (249, 18011), (262, 18035), (266, 18065), (308, 18224), (323, 18284), (346, 18413), (352, 18461), (359, 18491), (363, 18515), (366, 18527), (368, 18536), (371, 18545), (377, 18569), (386, 18614), (392, 18635), (404, 18710), (412, 18743), (422, 18773), (426, 18794), (430, 18815), (442, 18875), (443, 18881), (451, 18920), (456, 18938), (475, 19022), (479, 19052), (484, 19082), (489, 19100), (501, 19148), (507, 19172), (511, 19190), (514, 19199), (515, 19208), (517, 19214), (520, 19235), (527, 19265), (536, 19298), (537, 19304), (541, 19313), (550, 19340), (557, 19367), (566, 19400), (569, 19427), (571, 19433), (578, 19460), (585, 19478), (594, 19508), (597, 19517), (600, 19529), (602, 19535), (603, 19538), (607, 19550), (612, 19568), (620, 19595), (622, 19601), (639, 19670), (645, 19697), (649, 19712), (675, 19814), (698, 19913), (699, 19916), (701, 19922), (705, 19937), (710, 19955), (720, 19994), (721, 19997), (725, 20015), (730, 20048), (735, 20069), (746, 20126), (753, 20180), (766, 20243), (782, 20270), (784, 20288), (791, 20336), (792, 20342), (800, 20414), (814, 20492), (817, 20507), (826, 20546), (834, 20570), (838, 20594), (844, 20639), (849, 20660), (892, 20882),

Gene: Heisenberger\_21 Start: 17063, Stop: 21541, Start Num: 19

Candidate Starts for Heisenberger\_21:

(Start: 18 @17042 has 2 MA's), (Start: 19 @17063 has 121 MA's), (Start: 22 @17093 has 2 MA's), (25, 17126), (30, 17147), (70, 17378), (73, 17408), (80, 17489), (81, 17531), (82, 17549), (85, 17591), (90, 17678), (97, 17732), (100, 17747), (106, 17780), (117, 17858), (119, 17873), (125, 17921), (132, 17978), (136, 18032), (140, 18074), (141, 18077), (144, 18107), (150, 18140), (163, 18248), (173, 18314), (181, 18347), (183, 18356), (185, 18359), (188, 18377), (249, 18659), (262, 18683), (266, 18713), (308, 18872), (323, 18932), (346, 19061), (352, 19109), (359, 19139), (366, 19175), (368, 19184), (371, 19193), (377, 19217), (386, 19262), (392, 19283), (404, 19358), (412, 19391), (422, 19421), (426, 19442), (430, 19463), (442, 19523), (443, 19529), (451, 19568), (452, 19571), (456, 19586), (470, 19649), (475, 19670), (479, 19700), (484, 19730), (489, 19748), (501, 19796), (507, 19820), (511, 19838), (514, 19847), (515, 19856), (517, 19862), (520, 19883), (527, 19913), (536, 19946), (537, 19952), (538, 19955), (543, 19967), (550, 19988), (565, 20039), (566, 20048), (570, 20078), (572, 20084), (582, 20117), (585, 20126), (594, 20156), (597, 20165), (600, 20177), (612, 20216), (620, 20243), (622, 20249), (623, 20252), (626, 20267), (633, 20294), (637, 20312), (641, 20324), (649, 20360), (675, 20462), (690, 20525), (698, 20561), (699, 20564), (701, 20570), (705, 20585), (710, 20603), (716, 20627), (720, 20642), (721, 20645), (725, 20663), (730, 20696), (735, 20717), (746, 20774), (753, 20828), (755, 20837), (766, 20891), (782, 20918), (784, 20936), (791, 20984), (792, 20990), (800, 21062), (814, 21140), (817, 21155), (826, 21194), (834, 21218), (844, 21287), (849, 21308), (892, 21530),

Gene: Hortihabitatio\_33 Start: 22913, Stop: 28030, Start Num: 19

Candidate Starts for Hortihabitatio\_33:

(Start: 19 @22913 has 121 MA's), (Start: 22 @22943 has 2 MA's), (28, 22988), (53, 23132), (54, 23141), (62, 23192), (63, 23198), (71, 23237), (73, 23258), (74, 23279), (81, 23381), (88, 23507), (91,

23543), (97, 23582), (106, 23630), (111, 23672), (117, 23744), (122, 23792), (136, 23918), (140, 23960), (144, 23993), (150, 24026), (154, 24062), (159, 24110), (162, 24131), (163, 24134), (216, 24410), (232, 24494), (302, 24794), (304, 24803), (309, 24833), (323, 24890), (346, 25034), (347, 25040), (356, 25103), (361, 25121), (363, 25136), (371, 25166), (386, 25235), (393, 25259), (395, 25265), (396, 25277), (398, 25286), (399, 25298), (401, 25307), (408, 25352), (414, 25370), (426, 25415), (430, 25436), (436, 25463), (441, 25487), (442, 25496), (444, 25511), (449, 25532), (452, 25544), (454, 25553), (457, 25565), (460, 25574), (465, 25592), (467, 25607), (470, 25616), (475, 25637), (479, 25667), (494, 25736), (497, 25745), (501, 25757), (503, 25763), (504, 25766), (507, 25781), (510, 25793), (515, 25817), (517, 25823), (519, 25838), (524, 25865), (531, 25886), (533, 25895), (541, 25916), (550, 25946), (557, 25973), (558, 25976), (565, 25997), (568, 26027), (569, 26033), (574, 26054), (575, 26057), (577, 26063), (585, 26093), (590, 26114), (592, 26126), (598, 26147), (606, 26174), (609, 26183), (616, 26207), (618, 26213), (619, 26216), (623, 26231), (624, 26240), (625, 26243), (630, 26261), (639, 26297), (647, 26330), (650, 26339), (656, 26360), (658, 26369), (687, 26492), (691, 26504), (699, 26540), (705, 26561), (718, 26612), (738, 26726), (751, 26804), (760, 26849), (787, 27032), (789, 27044), (795, 27107), (796, 27119), (799, 27128), (801, 27140), (806, 27161), (813, 27206), (843, 27350), (851, 27389), (866, 27437), (872, 27455), (873, 27458), (875, 27470), (895, 27608), (901, 27671), (903, 27683), (905, 27701), (914, 27752), (923, 27812), (929, 27860), (947, 27965), (950, 28016),

Gene: Hoshi\_23 Start: 16160, Stop: 21646, Start Num: 2

Candidate Starts for Hoshi\_23:

(1, 16139), (Start: 2 @16160 has 30 MA's), (3, 16190), (12, 16334), (45, 16544), (56, 16664), (63, 16703), (70, 16733), (72, 16757), (73, 16763), (74, 16784), (75, 16799), (81, 16886), (87, 16976), (88, 17012), (89, 17021), (91, 17048), (97, 17087), (98, 17096), (102, 17114), (106, 17135), (111, 17177), (112, 17186), (122, 17294), (133, 17399), (144, 17495), (153, 17561), (176, 17711), (191, 17795), (195, 17816), (207, 17858), (231, 17993), (250, 18047), (274, 18134), (285, 18170), (287, 18179), (296, 18221), (304, 18254), (310, 18284), (343, 18407), (346, 18428), (355, 18491), (356, 18497), (358, 18503), (363, 18530), (368, 18551), (370, 18557), (371, 18560), (377, 18584), (386, 18629), (389, 18638), (390, 18641), (392, 18650), (404, 18725), (410, 18752), (416, 18770), (423, 18788), (426, 18806), (430, 18827), (441, 18878), (454, 18944), (458, 18959), (477, 19046), (479, 19064), (483, 19091), (509, 19184), (518, 19226), (519, 19235), (527, 19271), (528, 19274), (532, 19289), (533, 19292), (536, 19304), (550, 19346), (551, 19349), (565, 19397), (569, 19433), (571, 19439), (576, 19460), (585, 19484), (594, 19514), (612, 19574), (622, 19607), (623, 19610), (626, 19625), (629, 19637), (635, 19661), (645, 19703), (648, 19715), (649, 19718), (663, 19766), (668, 19796), (673, 19811), (680, 19844), (683, 19859), (699, 19922), (718, 19994), (720, 20000), (721, 20003), (728, 20039), (740, 20105), (754, 20192), (755, 20195), (772, 20294), (780, 20342), (781, 20348), (803, 20507), (854, 20780), (864, 20816), (881, 20882), (897, 21005), (908, 21098), (912, 21119), (917, 21167), (919, 21173), (920, 21179), (927, 21224), (942, 21332), (944, 21353), (949, 21401), (955, 21488), (962, 21590), (963, 21599),

Gene: HotFries\_18 Start: 13486, Stop: 18714, Start Num: 19

Candidate Starts for HotFries\_18:

(Start: 18 @13465 has 2 MA's), (Start: 19 @13486 has 121 MA's), (Start: 22 @13516 has 2 MA's), (45, 13618), (49, 13669), (63, 13777), (81, 13960), (88, 14086), (91, 14122), (97, 14161), (111, 14251), (153, 14638), (176, 14788), (181, 14812), (193, 14884), (245, 15115), (269, 15193), (274, 15211), (275, 15214), (285, 15247), (309, 15355), (329, 15415), (346, 15496), (356, 15565), (368, 15619), (374, 15640), (389, 15706), (390, 15709), (410, 15820), (423, 15856), (426, 15874), (437, 15925), (458, 16027), (461, 16039), (464, 16054), (478, 16123), (479, 16132), (484, 16162), (503, 16228), (510, 16258), (513, 16270), (514, 16273), (518, 16294), (519, 16303), (527, 16339), (536, 16372), (562, 16456), (569, 16501), (570, 16504), (571, 16507), (585, 16552), (594, 16582), (608, 16627), (612, 16642), (622, 16675), (627, 16696), (629, 16705), (631, 16714), (637, 16738), (638, 16741), (645, 16771), (648, 16783), (665, 16849), (670, 16870), (676, 16891), (678, 16906), (680, 16912), (714, 17044), (716, 17053), (718, 17062), (721, 17071), (722, 17074), (724, 17086), (725,



17089), (726, 17098), (728, 17107), (746, 17200), (753, 17254), (772, 17362), (775, 17377), (781, 17416), (803, 17575), (847, 17809), (864, 17884), (907, 18163), (908, 18166), (912, 18187), (917, 18235), (919, 18241), (935, 18349), (944, 18421), (948, 18460), (949, 18469), (952, 18523), (963, 18676),

Gene: Hydrus\_33 Start: 24017, Stop: 29128, Start Num: 19

Candidate Starts for Hydrus\_33:

(Start: 19 @24017 has 121 MA's), (Start: 22 @24047 has 2 MA's), (28, 24092), (53, 24236), (62, 24296), (63, 24302), (73, 24362), (74, 24383), (81, 24485), (88, 24611), (91, 24647), (97, 24686), (106, 24734), (111, 24776), (117, 24848), (122, 24896), (136, 25022), (144, 25097), (145, 25109), (150, 25130), (158, 25202), (162, 25235), (163, 25238), (182, 25346), (232, 25598), (264, 25703), (277, 25772), (282, 25793), (298, 25874), (299, 25877), (304, 25904), (312, 25943), (319, 25970), (343, 26111), (346, 26132), (355, 26195), (356, 26201), (361, 26219), (362, 26225), (372, 26267), (375, 26279), (377, 26288), (386, 26333), (396, 26375), (398, 26384), (399, 26396), (401, 26405), (402, 26414), (426, 26513), (430, 26534), (433, 26543), (438, 26567), (439, 26570), (451, 26639), (452, 26642), (454, 26651), (459, 26669), (460, 26672), (462, 26684), (467, 26705), (469, 26711), (470, 26714), (475, 26735), (479, 26765), (481, 26780), (484, 26795), (497, 26843), (501, 26855), (503, 26861), (504, 26864), (506, 26876), (507, 26879), (519, 26936), (532, 26990), (541, 27014), (546, 27026), (547, 27029), (558, 27074), (559, 27077), (564, 27092), (565, 27095), (566, 27104), (567, 27119), (568, 27125), (569, 27131), (574, 27152), (575, 27155), (579, 27167), (582, 27182), (585, 27191), (590, 27212), (592, 27224), (598, 27245), (606, 27272), (616, 27305), (618, 27311), (623, 27329), (630, 27359), (640, 27398), (658, 27467), (684, 27578), (687, 27590), (705, 27659), (724, 27734), (738, 27824), (763, 27968), (773, 28031), (783, 28097), (787, 28130), (789, 28142), (795, 28205), (799, 28226), (801, 28238), (806, 28259), (815, 28316), (835, 28400), (851, 28487), (859, 28505), (866, 28535), (872, 28553), (873, 28556), (874, 28562), (875, 28568), (881, 28595), (895, 28706), (903, 28781), (914, 28850), (919, 28883), (922, 28907), (940, 29024), (950, 29114),

Gene: IceWarrior\_23 Start: 16160, Stop: 21646, Start Num: 2

Candidate Starts for IceWarrior\_23:

(1, 16139), (Start: 2 @16160 has 30 MA's), (3, 16190), (12, 16334), (45, 16544), (55, 16661), (70, 16733), (73, 16763), (81, 16886), (88, 17012), (97, 17087), (106, 17135), (111, 17177), (132, 17366), (153, 17561), (162, 17633), (176, 17711), (191, 17795), (195, 17816), (207, 17858), (231, 17993), (250, 18047), (274, 18134), (285, 18170), (287, 18179), (296, 18221), (304, 18254), (310, 18284), (343, 18407), (346, 18428), (355, 18491), (356, 18497), (358, 18503), (363, 18530), (368, 18551), (370, 18557), (371, 18560), (377, 18584), (386, 18629), (389, 18638), (390, 18641), (392, 18650), (404, 18725), (410, 18752), (416, 18770), (423, 18788), (426, 18806), (430, 18827), (441, 18878), (454, 18944), (458, 18959), (477, 19046), (479, 19064), (483, 19091), (509, 19184), (518, 19226), (519, 19235), (527, 19271), (528, 19274), (532, 19289), (533, 19292), (536, 19304), (550, 19346), (551, 19349), (565, 19397), (569, 19433), (571, 19439), (576, 19460), (585, 19484), (594, 19514), (612, 19574), (622, 19607), (623, 19610), (626, 19625), (629, 19637), (635, 19661), (645, 19703), (648, 19715), (649, 19718), (663, 19766), (668, 19796), (673, 19811), (680, 19844), (683, 19859), (699, 19922), (718, 19994), (720, 20000), (721, 20003), (728, 20039), (740, 20105), (754, 20192), (755, 20195), (772, 20294), (780, 20342), (781, 20348), (803, 20507), (854, 20780), (864, 20816), (881, 20882), (897, 21005), (908, 21098), (912, 21119), (917, 21167), (919, 21173), (920, 21179), (927, 21224), (942, 21332), (944, 21353), (949, 21401), (955, 21488), (962, 21590), (963, 21599),

Gene: Indigenous\_23 Start: 16160, Stop: 21646, Start Num: 2

Candidate Starts for Indigenous\_23:

(1, 16139), (Start: 2 @16160 has 30 MA's), (3, 16190), (12, 16334), (45, 16544), (56, 16664), (63, 16703), (70, 16733), (72, 16757), (73, 16763), (74, 16784), (75, 16799), (81, 16886), (87, 16976), (88, 17012), (89, 17021), (91, 17048), (97, 17087), (98, 17096), (102, 17114), (106, 17135), (111, 17177), (112, 17186), (122, 17294), (133, 17399), (144, 17495), (153, 17561), (176, 17711), (191, 17795), (195, 17816), (207, 17858), (231, 17993), (270, 18125), (274, 18134), (285, 18170), (287, 18179),

(296, 18221), (304, 18254), (343, 18407), (346, 18428), (355, 18491), (356, 18497), (358, 18503), (363, 18530), (368, 18551), (370, 18557), (371, 18560), (377, 18584), (386, 18629), (389, 18638), (390, 18641), (392, 18650), (404, 18725), (410, 18752), (416, 18770), (423, 18788), (426, 18806), (430, 18827), (441, 18878), (454, 18944), (458, 18959), (477, 19046), (479, 19064), (483, 19091), (509, 19184), (518, 19226), (519, 19235), (527, 19271), (528, 19274), (532, 19289), (533, 19292), (536, 19304), (550, 19346), (551, 19349), (565, 19397), (569, 19433), (571, 19439), (576, 19460), (585, 19484), (594, 19514), (612, 19574), (622, 19607), (623, 19610), (626, 19625), (629, 19637), (635, 19661), (645, 19703), (648, 19715), (649, 19718), (663, 19766), (668, 19796), (673, 19811), (680, 19844), (683, 19859), (699, 19922), (718, 19994), (720, 20000), (721, 20003), (728, 20039), (740, 20105), (754, 20192), (755, 20195), (772, 20294), (780, 20342), (781, 20348), (803, 20507), (854, 20780), (864, 20816), (881, 20882), (897, 21005), (908, 21098), (912, 21119), (917, 21167), (919, 21173), (920, 21179), (927, 21224), (942, 21332), (944, 21353), (949, 21401), (955, 21488), (962, 21590), (963, 21599),

Gene: Ingrid\_26 Start: 19877, Stop: 24463, Start Num: 19

Candidate Starts for Ingrid\_26:

(Start: 18 @19856 has 2 MA's), (Start: 19 @19877 has 121 MA's), (Start: 22 @19907 has 2 MA's), (30, 19961), (46, 20018), (50, 20066), (62, 20156), (70, 20192), (73, 20222), (81, 20345), (85, 20405), (89, 20480), (97, 20546), (100, 20561), (106, 20594), (117, 20672), (119, 20687), (121, 20708), (122, 20720), (128, 20765), (132, 20792), (135, 20837), (140, 20888), (144, 20921), (150, 20954), (166, 21071), (172, 21119), (173, 21128), (196, 21245), (200, 21257), (201, 21260), (243, 21467), (265, 21527), (288, 21623), (300, 21677), (310, 21725), (312, 21731), (323, 21767), (346, 21911), (354, 21968), (356, 21980), (368, 22034), (371, 22043), (372, 22046), (377, 22067), (378, 22070), (387, 22115), (392, 22133), (404, 22208), (405, 22211), (407, 22223), (415, 22250), (422, 22271), (425, 22289), (426, 22292), (430, 22313), (442, 22373), (444, 22388), (445, 22391), (450, 22415), (451, 22418), (452, 22421), (459, 22448), (464, 22472), (466, 22484), (479, 22550), (481, 22565), (482, 22568), (486, 22586), (487, 22592), (488, 22595), (489, 22598), (501, 22643), (502, 22646), (504, 22652), (506, 22664), (511, 22685), (522, 22739), (523, 22742), (530, 22769), (537, 22799), (543, 22817), (548, 22826), (550, 22838), (555, 22859), (565, 22889), (566, 22898), (574, 22946), (577, 22955), (579, 22961), (585, 22976), (587, 22982), (594, 23006), (597, 23015), (610, 23057), (612, 23066), (623, 23102), (633, 23144), (637, 23162), (639, 23168), (644, 23192), (654, 23228), (668, 23288), (680, 23336), (681, 23345), (690, 23375), (708, 23444), (718, 23486), (721, 23495), (748, 23642), (749, 23654), (756, 23690), (771, 23765), (778, 23807), (784, 23852), (785, 23864), (792, 23906), (814, 24056), (820, 24080), (831, 24125), (833, 24128), (834, 24131), (838, 24155), (841, 24170), (845, 24200), (850, 24227), (889, 24422), (891, 24440),

Gene: Inked\_28 Start: 20894, Stop: 25474, Start Num: 19

Candidate Starts for Inked\_28:

(Start: 18 @20873 has 2 MA's), (Start: 19 @20894 has 121 MA's), (Start: 22 @20924 has 2 MA's), (46, 21035), (62, 21173), (70, 21209), (73, 21239), (81, 21362), (82, 21380), (85, 21422), (97, 21563), (100, 21578), (106, 21611), (117, 21689), (119, 21704), (121, 21725), (122, 21737), (132, 21809), (144, 21938), (150, 21971), (163, 22079), (166, 22088), (179, 22166), (184, 22190), (204, 22292), (209, 22313), (220, 22376), (246, 22493), (265, 22544), (271, 22574), (288, 22640), (310, 22742), (312, 22748), (315, 22763), (316, 22766), (323, 22784), (346, 22928), (353, 22982), (354, 22985), (363, 23030), (371, 23060), (372, 23063), (377, 23084), (378, 23087), (392, 23150), (394, 23156), (403, 23216), (404, 23225), (407, 23240), (415, 23267), (417, 23273), (422, 23288), (426, 23309), (430, 23330), (442, 23390), (444, 23405), (445, 23408), (450, 23432), (451, 23435), (452, 23438), (464, 23489), (471, 23522), (479, 23567), (481, 23582), (482, 23585), (487, 23609), (489, 23615), (492, 23624), (501, 23660), (504, 23669), (511, 23702), (522, 23756), (523, 23759), (527, 23777), (538, 23819), (541, 23828), (543, 23834), (548, 23843), (550, 23855), (551, 23858), (554, 23870), (555, 23876), (557, 23882), (558, 23885), (566, 23915), (576, 23969), (577, 23972), (584, 23990), (585, 23993), (586, 23996), (594, 24023), (595, 24026), (612, 24083), (623, 24119), (631, 24155), (632, 24158), (633, 24161), (639, 24185), (640, 24188), (644, 24209), (655, 24248), (656, 24251),

(668, 24305), (680, 24353), (681, 24362), (708, 24461), (718, 24503), (720, 24509), (721, 24512), (728, 24548), (747, 24650), (749, 24671), (756, 24707), (764, 24746), (778, 24824), (785, 24881), (820, 25097), (831, 25142), (845, 25217), (870, 25316), (886, 25424), (891, 25451),

Gene: Issa\_26 Start: 19961, Stop: 24553, Start Num: 19

Candidate Starts for Issa\_26:

(Start: 18 @19940 has 2 MA's), (Start: 19 @19961 has 121 MA's), (Start: 22 @19991 has 2 MA's), (30, 20045), (33, 20066), (46, 20102), (53, 20180), (62, 20240), (68, 20264), (70, 20276), (73, 20306), (76, 20357), (80, 20387), (81, 20429), (82, 20447), (85, 20489), (87, 20519), (89, 20564), (90, 20576), (97, 20630), (100, 20645), (102, 20657), (106, 20678), (119, 20771), (122, 20804), (125, 20819), (131, 20867), (150, 21038), (165, 21152), (166, 21155), (172, 21203), (193, 21317), (200, 21341), (203, 21356), (238, 21536), (243, 21551), (244, 21557), (255, 21575), (271, 21647), (288, 21713), (310, 21815), (312, 21821), (322, 21854), (323, 21857), (330, 21884), (346, 22001), (354, 22058), (356, 22070), (368, 22124), (371, 22133), (372, 22136), (377, 22157), (392, 22223), (413, 22334), (415, 22340), (422, 22361), (425, 22379), (430, 22403), (442, 22463), (444, 22478), (445, 22481), (451, 22508), (452, 22511), (479, 22640), (481, 22655), (482, 22658), (486, 22676), (487, 22682), (488, 22685), (492, 22697), (501, 22733), (504, 22742), (511, 22775), (522, 22829), (523, 22832), (527, 22850), (531, 22862), (538, 22892), (543, 22907), (548, 22916), (550, 22928), (566, 22988), (577, 23045), (582, 23057), (585, 23066), (597, 23105), (600, 23117), (610, 23147), (612, 23156), (632, 23231), (633, 23234), (637, 23252), (654, 23318), (656, 23324), (657, 23327), (669, 23381), (670, 23384), (701, 23510), (702, 23513), (708, 23534), (716, 23567), (718, 23576), (735, 23657), (741, 23690), (747, 23723), (756, 23780), (768, 23840), (772, 23864), (784, 23942), (785, 23954), (804, 24080), (810, 24122), (820, 24170), (828, 24203), (831, 24215), (834, 24221), (837, 24242), (838, 24245), (839, 24251), (845, 24290), (850, 24317), (886, 24503), (891, 24530),

Gene: JEGGS\_21 Start: 17117, Stop: 21595, Start Num: 19

Candidate Starts for JEGGS\_21:

(Start: 18 @17096 has 2 MA's), (Start: 19 @17117 has 121 MA's), (Start: 22 @17147 has 2 MA's), (25, 17180), (30, 17201), (53, 17336), (54, 17345), (59, 17384), (70, 17432), (73, 17462), (80, 17543), (81, 17585), (82, 17603), (85, 17645), (90, 17732), (97, 17786), (100, 17801), (106, 17834), (117, 17912), (119, 17927), (125, 17975), (132, 18032), (136, 18086), (140, 18128), (144, 18161), (150, 18194), (163, 18302), (173, 18368), (181, 18401), (183, 18410), (185, 18413), (188, 18431), (249, 18713), (262, 18737), (266, 18767), (308, 18926), (323, 18986), (346, 19115), (352, 19163), (359, 19193), (366, 19229), (368, 19238), (371, 19247), (377, 19271), (386, 19316), (392, 19337), (404, 19412), (412, 19445), (422, 19475), (426, 19496), (430, 19517), (442, 19577), (443, 19583), (451, 19622), (452, 19625), (456, 19640), (470, 19703), (475, 19724), (479, 19754), (484, 19784), (489, 19802), (501, 19850), (507, 19874), (511, 19892), (514, 19901), (515, 19910), (517, 19916), (520, 19937), (527, 19967), (536, 20000), (537, 20006), (538, 20009), (543, 20021), (550, 20042), (565, 20093), (566, 20102), (570, 20132), (572, 20138), (582, 20171), (585, 20180), (594, 20210), (597, 20219), (600, 20231), (612, 20270), (620, 20297), (622, 20303), (623, 20306), (626, 20321), (633, 20348), (637, 20366), (641, 20378), (649, 20414), (675, 20516), (690, 20579), (698, 20615), (699, 20618), (701, 20624), (705, 20639), (710, 20657), (716, 20681), (720, 20696), (721, 20699), (725, 20717), (730, 20750), (735, 20771), (746, 20828), (753, 20882), (755, 20891), (766, 20945), (782, 20972), (784, 20990), (791, 21038), (792, 21044), (800, 21116), (814, 21194), (817, 21209), (826, 21248), (834, 21272), (844, 21341), (849, 21362), (871, 21455), (892, 21584),

Gene: Jaylociraptor\_23 Start: 16160, Stop: 21646, Start Num: 2

Candidate Starts for Jaylociraptor\_23:

(1, 16139), (Start: 2 @16160 has 30 MA's), (3, 16190), (12, 16334), (45, 16544), (56, 16664), (63, 16703), (70, 16733), (72, 16757), (73, 16763), (74, 16784), (75, 16799), (81, 16886), (87, 16976), (88, 17012), (89, 17021), (91, 17048), (97, 17087), (98, 17096), (102, 17114), (106, 17135), (111, 17177), (112, 17186), (122, 17294), (133, 17399), (144, 17495), (153, 17561), (176, 17711), (191, 17795), (195, 17816), (207, 17858), (231, 17993), (270, 18125), (274, 18134), (285, 18170), (287, 18179),

(296, 18221), (304, 18254), (343, 18407), (346, 18428), (355, 18491), (356, 18497), (358, 18503), (363, 18530), (368, 18551), (370, 18557), (371, 18560), (377, 18584), (386, 18629), (389, 18638), (390, 18641), (392, 18650), (404, 18725), (410, 18752), (416, 18770), (423, 18788), (426, 18806), (430, 18827), (441, 18878), (454, 18944), (458, 18959), (477, 19046), (479, 19064), (483, 19091), (509, 19184), (518, 19226), (519, 19235), (527, 19271), (528, 19274), (532, 19289), (533, 19292), (536, 19304), (550, 19346), (551, 19349), (565, 19397), (569, 19433), (571, 19439), (576, 19460), (585, 19484), (594, 19514), (612, 19574), (622, 19607), (623, 19610), (626, 19625), (629, 19637), (635, 19661), (645, 19703), (648, 19715), (649, 19718), (663, 19766), (668, 19796), (673, 19811), (680, 19844), (683, 19859), (699, 19922), (718, 19994), (720, 20000), (721, 20003), (728, 20039), (740, 20105), (754, 20192), (755, 20195), (772, 20294), (780, 20342), (781, 20348), (803, 20507), (854, 20780), (864, 20816), (881, 20882), (897, 21005), (908, 21098), (912, 21119), (917, 21167), (919, 21173), (920, 21179), (927, 21224), (942, 21332), (944, 21353), (949, 21401), (955, 21488), (962, 21590), (963, 21599),

Gene: Jazzy4900\_24 Start: 18500, Stop: 23560, Start Num: 8

Candidate Starts for Jazzy4900\_24:

(8, 18500), (11, 18530), (15, 18584), (16, 18605), (40, 18812), (43, 18821), (44, 18824), (53, 18941), (57, 18974), (63, 19007), (71, 19046), (74, 19088), (81, 19190), (83, 19226), (87, 19280), (88, 19316), (90, 19337), (97, 19391), (119, 19523), (120, 19535), (121, 19544), (126, 19580), (144, 19757), (150, 19790), (158, 19862), (162, 19895), (163, 19898), (178, 19982), (212, 20207), (215, 20243), (218, 20267), (221, 20279), (240, 20405), (281, 20573), (306, 20726), (307, 20729), (326, 20852), (327, 20858), (336, 20909), (341, 20972), (346, 21026), (350, 21056), (363, 21128), (371, 21158), (373, 21167), (377, 21182), (386, 21227), (392, 21248), (394, 21254), (401, 21299), (422, 21386), (430, 21428), (444, 21503), (461, 21572), (475, 21635), (479, 21665), (489, 21713), (492, 21722), (506, 21782), (527, 21878), (536, 21911), (538, 21920), (543, 21932), (545, 21935), (550, 21953), (555, 21974), (565, 22004), (566, 22013), (569, 22040), (577, 22070), (585, 22091), (599, 22136), (607, 22163), (612, 22181), (633, 22259), (644, 22307), (645, 22310), (655, 22346), (665, 22388), (673, 22418), (674, 22421), (678, 22445), (680, 22451), (681, 22460), (703, 22541), (716, 22592), (721, 22610), (727, 22643), (728, 22646), (740, 22712), (753, 22793), (778, 22922), (784, 22967), (794, 23057), (809, 23138), (810, 23147), (814, 23171), (825, 23216), (830, 23234), (834, 23249), (844, 23318), (874, 23429),

Gene: Jodelie19\_33 Start: 24936, Stop: 30050, Start Num: 19

Candidate Starts for Jodelie19\_33:

(Start: 19 @24936 has 121 MA's), (Start: 22 @24966 has 2 MA's), (28, 25011), (53, 25155), (63, 25221), (73, 25281), (74, 25302), (81, 25404), (88, 25530), (91, 25566), (97, 25605), (106, 25653), (111, 25695), (117, 25767), (122, 25815), (136, 25941), (144, 26016), (145, 26028), (150, 26049), (162, 26154), (163, 26157), (207, 26379), (218, 26445), (235, 26535), (250, 26571), (264, 26622), (272, 26670), (275, 26682), (304, 26826), (312, 26865), (319, 26892), (346, 27054), (352, 27102), (355, 27117), (356, 27123), (361, 27141), (372, 27189), (386, 27255), (398, 27306), (399, 27318), (402, 27336), (414, 27390), (426, 27435), (430, 27456), (433, 27465), (437, 27486), (441, 27507), (451, 27561), (452, 27564), (454, 27573), (460, 27594), (462, 27606), (467, 27627), (469, 27633), (473, 27651), (479, 27687), (484, 27717), (497, 27765), (501, 27777), (503, 27783), (504, 27786), (506, 27798), (507, 27801), (512, 27822), (519, 27858), (532, 27912), (533, 27915), (536, 27927), (541, 27936), (546, 27948), (547, 27951), (559, 27999), (564, 28014), (565, 28017), (566, 28026), (568, 28047), (574, 28074), (575, 28077), (581, 28101), (585, 28113), (590, 28134), (592, 28146), (594, 28155), (598, 28167), (606, 28194), (609, 28203), (616, 28227), (618, 28233), (623, 28251), (636, 28305), (640, 28320), (658, 28389), (684, 28500), (713, 28611), (724, 28656), (738, 28746), (760, 28869), (763, 28890), (773, 28953), (777, 28980), (787, 29052), (789, 29064), (790, 29073), (795, 29127), (799, 29148), (801, 29160), (835, 29322), (851, 29409), (859, 29427), (866, 29457), (872, 29475), (873, 29478), (875, 29490), (881, 29517), (895, 29628), (903, 29703), (911, 29751), (919, 29805), (923, 29832), (940, 29946), (950, 30036),

Gene: JoyLin\_26 Start: 20599, Stop: 25143, Start Num: 22

Candidate Starts for JoyLin\_26:

(Start: 19 @20566 has 121 MA's), (Start: 22 @20599 has 2 MA's), (49, 20746), (59, 20836), (60, 20839), (81, 21034), (88, 21160), (97, 21235), (106, 21283), (111, 21325), (122, 21445), (135, 21562), (145, 21658), (176, 21862), (179, 21874), (192, 21955), (219, 22090), (237, 22183), (261, 22246), (268, 22285), (286, 22348), (290, 22363), (340, 22567), (346, 22618), (361, 22705), (367, 22735), (370, 22747), (371, 22750), (374, 22762), (377, 22774), (383, 22801), (393, 22843), (400, 22888), (419, 22969), (421, 22975), (426, 22999), (428, 23005), (441, 23071), (446, 23107), (453, 23131), (461, 23164), (466, 23191), (468, 23200), (472, 23218), (477, 23239), (481, 23272), (487, 23299), (488, 23302), (501, 23353), (509, 23383), (511, 23395), (527, 23470), (533, 23491), (535, 23497), (539, 23512), (565, 23596), (566, 23605), (569, 23632), (585, 23683), (596, 23719), (612, 23773), (633, 23851), (656, 23941), (664, 23971), (672, 24007), (680, 24043), (690, 24082), (704, 24139), (710, 24160), (716, 24184), (717, 24187), (720, 24199), (722, 24205), (738, 24295), (744, 24325), (745, 24328), (746, 24331), (754, 24391), (758, 24406), (764, 24436), (769, 24460), (784, 24559), (799, 24679), (800, 24685), (819, 24787), (822, 24799), (825, 24808), (844, 24904), (846, 24907), (890, 25132),

Gene: JulesRay\_31 Start: 20535, Stop: 25637, Start Num: 19

Candidate Starts for JulesRay\_31:

(Start: 19 @20535 has 121 MA's), (Start: 22 @20565 has 2 MA's), (48, 20703), (53, 20754), (54, 20763), (55, 20778), (58, 20799), (63, 20820), (70, 20850), (73, 20880), (74, 20901), (81, 21003), (85, 21063), (89, 21138), (90, 21150), (93, 21174), (97, 21204), (100, 21219), (106, 21252), (111, 21294), (116, 21345), (123, 21399), (124, 21402), (134, 21501), (137, 21525), (150, 21621), (159, 21705), (162, 21726), (163, 21729), (174, 21798), (176, 21804), (177, 21810), (213, 21987), (223, 22038), (232, 22089), (250, 22143), (252, 22146), (279, 22278), (288, 22317), (304, 22398), (305, 22401), (320, 22476), (332, 22533), (344, 22617), (346, 22626), (356, 22695), (358, 22701), (361, 22713), (363, 22728), (364, 22731), (369, 22752), (381, 22800), (386, 22827), (392, 22848), (395, 22857), (398, 22878), (399, 22890), (401, 22899), (402, 22908), (414, 22962), (415, 22965), (422, 22986), (430, 23028), (439, 23064), (441, 23079), (442, 23088), (444, 23103), (446, 23115), (449, 23124), (457, 23157), (460, 23166), (478, 23250), (479, 23259), (481, 23274), (486, 23295), (497, 23337), (504, 23358), (507, 23373), (509, 23379), (517, 23415), (519, 23430), (533, 23487), (536, 23499), (541, 23508), (546, 23520), (549, 23532), (550, 23538), (555, 23559), (559, 23571), (565, 23589), (566, 23598), (567, 23613), (568, 23619), (571, 23631), (581, 23673), (582, 23676), (585, 23685), (590, 23706), (592, 23718), (606, 23766), (609, 23775), (616, 23799), (618, 23805), (623, 23823), (624, 23832), (647, 23922), (652, 23940), (653, 23943), (658, 23961), (699, 24132), (713, 24183), (740, 24327), (763, 24462), (771, 24513), (789, 24636), (795, 24699), (805, 24747), (806, 24753), (807, 24762), (815, 24810), (832, 24882), (843, 24942), (848, 24963), (849, 24966), (860, 25017), (862, 25026), (866, 25044), (873, 25065), (875, 25077), (887, 25170), (895, 25215), (903, 25290), (905, 25308), (909, 25329), (922, 25416), (939, 25527), (950, 25623),

Gene: Kardashian\_22 Start: 16096, Stop: 21585, Start Num: 2

Candidate Starts for Kardashian\_22:

(1, 16075), (Start: 2 @16096 has 30 MA's), (3, 16126), (12, 16270), (20, 16354), (24, 16405), (56, 16612), (70, 16681), (81, 16834), (83, 16870), (88, 16960), (97, 17035), (106, 17083), (111, 17125), (132, 17317), (137, 17383), (153, 17512), (165, 17593), (176, 17662), (192, 17755), (209, 17818), (213, 17845), (236, 17968), (274, 18085), (275, 18088), (277, 18097), (297, 18175), (304, 18205), (323, 18277), (335, 18292), (346, 18367), (355, 18430), (356, 18436), (359, 18445), (371, 18499), (389, 18577), (390, 18580), (410, 18691), (423, 18727), (426, 18745), (441, 18817), (447, 18856), (458, 18898), (469, 18949), (478, 18994), (494, 19072), (511, 19135), (513, 19141), (518, 19165), (519, 19174), (526, 19207), (527, 19210), (569, 19372), (570, 19375), (571, 19378), (574, 19393), (582, 19414), (585, 19423), (603, 19483), (608, 19498), (612, 19513), (622, 19546), (624, 19558), (627, 19567), (638, 19612), (641, 19621), (648, 19654), (649, 19657), (654, 19675), (680, 19783), (700, 19864), (702, 19870), (714, 19915), (721, 19942), (726, 19969), (728, 19978), (740, 20044),

(754, 20131), (755, 20134), (761, 20167), (772, 20233), (780, 20281), (781, 20287), (785, 20323), (803, 20446), (847, 20680), (876, 20806), (889, 20893), (899, 20974), (901, 20995), (908, 21037), (912, 21058), (919, 21112), (927, 21163), (934, 21211), (941, 21265), (943, 21280), (958, 21454),

Gene: Kardesai\_20 Start: 16796, Stop: 21274, Start Num: 19

Candidate Starts for Kardesai\_20:

(Start: 18 @16775 has 2 MA's), (Start: 19 @16796 has 121 MA's), (Start: 22 @16826 has 2 MA's), (30, 16880), (46, 16937), (70, 17111), (73, 17141), (80, 17222), (81, 17264), (82, 17282), (85, 17324), (90, 17411), (94, 17450), (97, 17465), (100, 17480), (106, 17513), (117, 17591), (119, 17606), (125, 17654), (127, 17669), (132, 17711), (140, 17807), (144, 17840), (150, 17873), (163, 17981), (173, 18047), (181, 18080), (183, 18089), (185, 18092), (188, 18110), (249, 18392), (262, 18416), (266, 18446), (308, 18605), (323, 18665), (346, 18794), (352, 18842), (359, 18872), (363, 18896), (366, 18908), (368, 18917), (371, 18926), (377, 18950), (386, 18995), (392, 19016), (404, 19091), (412, 19124), (422, 19154), (426, 19175), (430, 19196), (442, 19256), (443, 19262), (451, 19301), (456, 19319), (475, 19403), (479, 19433), (484, 19463), (489, 19481), (501, 19529), (507, 19553), (511, 19571), (514, 19580), (515, 19589), (517, 19595), (520, 19616), (527, 19646), (536, 19679), (537, 19685), (541, 19694), (550, 19721), (557, 19748), (566, 19781), (569, 19808), (571, 19814), (578, 19841), (585, 19859), (594, 19889), (597, 19898), (600, 19910), (602, 19916), (603, 19919), (607, 19931), (612, 19949), (620, 19976), (622, 19982), (639, 20051), (645, 20078), (649, 20093), (675, 20195), (698, 20294), (699, 20297), (701, 20303), (705, 20318), (710, 20336), (720, 20375), (721, 20378), (725, 20396), (730, 20429), (735, 20450), (746, 20507), (753, 20561), (766, 20624), (782, 20651), (784, 20669), (791, 20717), (792, 20723), (800, 20795), (814, 20873), (817, 20888), (826, 20927), (834, 20951), (838, 20975), (844, 21020), (849, 21041), (892, 21263),

Gene: KeaneyLin\_20 Start: 17193, Stop: 21671, Start Num: 19

Candidate Starts for KeaneyLin\_20:

(Start: 18 @17172 has 2 MA's), (Start: 19 @17193 has 121 MA's), (Start: 22 @17223 has 2 MA's), (30, 17277), (46, 17334), (70, 17508), (73, 17538), (80, 17619), (81, 17661), (82, 17679), (85, 17721), (90, 17808), (97, 17862), (100, 17877), (106, 17910), (117, 17988), (119, 18003), (125, 18051), (132, 18108), (140, 18204), (144, 18237), (150, 18270), (163, 18378), (173, 18444), (181, 18477), (183, 18486), (185, 18489), (188, 18507), (249, 18789), (262, 18813), (266, 18843), (308, 19002), (323, 19062), (346, 19191), (352, 19239), (359, 19269), (363, 19293), (366, 19305), (368, 19314), (371, 19323), (377, 19347), (386, 19392), (392, 19413), (404, 19488), (408, 19509), (409, 19512), (412, 19521), (422, 19551), (430, 19593), (442, 19653), (443, 19659), (444, 19668), (452, 19701), (455, 19713), (456, 19716), (470, 19779), (475, 19800), (479, 19830), (484, 19860), (489, 19878), (501, 19926), (507, 19950), (511, 19968), (514, 19977), (520, 20013), (527, 20043), (536, 20076), (537, 20082), (538, 20085), (543, 20097), (550, 20118), (565, 20169), (566, 20178), (572, 20214), (582, 20247), (585, 20256), (594, 20286), (597, 20295), (600, 20307), (612, 20346), (620, 20373), (622, 20379), (623, 20382), (626, 20397), (633, 20424), (641, 20454), (649, 20490), (675, 20592), (690, 20655), (698, 20691), (705, 20715), (710, 20733), (720, 20772), (722, 20778), (725, 20793), (729, 20814), (730, 20826), (753, 20958), (766, 21021), (782, 21048), (784, 21066), (791, 21114), (792, 21120), (800, 21192), (814, 21270), (822, 21306), (826, 21324), (834, 21348), (838, 21372), (844, 21417), (849, 21438), (892, 21660),

Gene: Kenosha\_32 Start: 24052, Stop: 29163, Start Num: 19

Candidate Starts for Kenosha\_32:

(Start: 19 @24052 has 121 MA's), (Start: 22 @24082 has 2 MA's), (28, 24127), (53, 24271), (62, 24331), (63, 24337), (73, 24397), (74, 24418), (81, 24520), (87, 24610), (88, 24646), (91, 24682), (97, 24721), (102, 24748), (106, 24769), (111, 24811), (117, 24883), (122, 24931), (136, 25057), (144, 25132), (145, 25144), (150, 25165), (162, 25270), (163, 25273), (182, 25381), (232, 25633), (264, 25738), (277, 25807), (282, 25828), (298, 25909), (299, 25912), (304, 25939), (312, 25978), (319, 26005), (343, 26146), (346, 26167), (355, 26230), (356, 26236), (361, 26254), (362, 26260), (372, 26302), (375, 26314), (377, 26323), (386, 26368), (398, 26419), (399, 26431), (401, 26440), (402,

26449), (426, 26548), (430, 26569), (433, 26578), (438, 26602), (439, 26605), (440, 26611), (451, 26674), (452, 26677), (454, 26686), (457, 26698), (459, 26704), (460, 26707), (462, 26719), (467, 26740), (469, 26746), (470, 26749), (475, 26770), (479, 26800), (481, 26815), (484, 26830), (497, 26878), (501, 26890), (503, 26896), (504, 26899), (506, 26911), (507, 26914), (519, 26971), (532, 27025), (533, 27028), (541, 27049), (546, 27061), (547, 27064), (558, 27109), (559, 27112), (564, 27127), (565, 27130), (566, 27139), (567, 27154), (568, 27160), (569, 27166), (574, 27187), (575, 27190), (579, 27202), (582, 27217), (585, 27226), (590, 27247), (592, 27259), (598, 27280), (606, 27307), (616, 27340), (618, 27346), (623, 27364), (630, 27394), (640, 27433), (687, 27625), (705, 27694), (724, 27769), (738, 27859), (763, 28003), (783, 28132), (787, 28165), (789, 28177), (790, 28186), (795, 28240), (799, 28261), (801, 28273), (805, 28288), (815, 28351), (835, 28435), (851, 28522), (859, 28540), (860, 28543), (866, 28570), (872, 28588), (873, 28591), (874, 28597), (875, 28603), (881, 28630), (895, 28741), (903, 28816), (914, 28885), (919, 28918), (922, 28942), (940, 29059), (950, 29149),

Gene: Kerry\_29 Start: 20616, Stop: 25730, Start Num: 19

Candidate Starts for Kerry\_29:

(Start: 19 @20616 has 121 MA's), (Start: 22 @20646 has 2 MA's), (49, 20793), (52, 20829), (53, 20835), (58, 20880), (63, 20901), (70, 20931), (81, 21096), (85, 21156), (89, 21231), (93, 21267), (94, 21282), (97, 21297), (100, 21312), (106, 21345), (116, 21438), (123, 21492), (124, 21495), (150, 21714), (162, 21819), (163, 21822), (174, 21891), (176, 21897), (213, 22080), (223, 22131), (232, 22182), (250, 22236), (252, 22239), (279, 22371), (301, 22473), (304, 22491), (305, 22494), (320, 22569), (332, 22626), (344, 22710), (346, 22719), (361, 22806), (369, 22845), (381, 22893), (386, 22920), (392, 22941), (395, 22950), (398, 22971), (399, 22983), (401, 22992), (402, 23001), (406, 23028), (414, 23055), (415, 23058), (422, 23079), (430, 23121), (436, 23148), (439, 23157), (441, 23172), (442, 23181), (444, 23196), (446, 23208), (449, 23217), (452, 23229), (457, 23250), (460, 23259), (478, 23343), (479, 23352), (481, 23367), (482, 23370), (486, 23388), (489, 23400), (490, 23403), (497, 23430), (504, 23451), (507, 23466), (517, 23508), (519, 23523), (533, 23580), (536, 23592), (541, 23601), (546, 23613), (549, 23625), (550, 23631), (555, 23652), (559, 23664), (565, 23682), (566, 23691), (567, 23706), (568, 23712), (571, 23724), (581, 23766), (582, 23769), (585, 23778), (590, 23799), (592, 23811), (606, 23859), (609, 23868), (616, 23892), (618, 23898), (623, 23916), (624, 23925), (630, 23946), (647, 24015), (652, 24033), (653, 24036), (658, 24054), (688, 24180), (699, 24225), (713, 24276), (740, 24420), (763, 24555), (771, 24606), (783, 24684), (789, 24729), (795, 24792), (798, 24810), (805, 24840), (806, 24846), (815, 24903), (832, 24975), (843, 25035), (848, 25056), (849, 25059), (860, 25110), (862, 25119), (873, 25158), (875, 25170), (887, 25263), (895, 25308), (903, 25383), (909, 25422), (914, 25452), (922, 25509), (939, 25620), (950, 25716),

Gene: Leathea\_26 Start: 18979, Stop: 23520, Start Num: 19

Candidate Starts for Leathea\_26:

(Start: 18 @18958 has 2 MA's), (Start: 19 @18979 has 121 MA's), (Start: 22 @19009 has 2 MA's), (30, 19063), (53, 19198), (68, 19282), (73, 19324), (80, 19405), (81, 19447), (85, 19507), (89, 19582), (94, 19633), (97, 19648), (100, 19663), (106, 19696), (109, 19720), (117, 19774), (119, 19789), (125, 19837), (136, 19948), (145, 20035), (150, 20056), (163, 20164), (174, 20233), (184, 20275), (193, 20335), (194, 20341), (197, 20350), (203, 20374), (223, 20473), (224, 20485), (226, 20506), (305, 20791), (323, 20860), (346, 20998), (348, 21010), (359, 21076), (363, 21100), (368, 21121), (370, 21127), (371, 21130), (377, 21154), (381, 21172), (392, 21220), (395, 21229), (399, 21262), (419, 21349), (422, 21358), (426, 21379), (442, 21460), (469, 21583), (470, 21586), (471, 21592), (474, 21604), (475, 21607), (506, 21751), (507, 21754), (519, 21811), (527, 21847), (536, 21880), (538, 21889), (543, 21901), (557, 21949), (565, 21973), (566, 21982), (574, 22030), (582, 22051), (585, 22060), (602, 22117), (603, 22120), (607, 22132), (612, 22150), (635, 22237), (637, 22246), (638, 22249), (639, 22252), (643, 22270), (662, 22339), (668, 22372), (669, 22375), (672, 22384), (675, 22396), (695, 22486), (705, 22519), (710, 22537), (712, 22546), (716, 22561), (717, 22564), (746, 22708), (753, 22762), (756, 22774), (764, 22813), (778, 22891), (784, 22936), (810, 23116), (814,

23140), (820, 23164), (831, 23209), (834, 23215), (841, 23254), (844, 23284), (863, 23362), (865, 23371), (883, 23452),

Gene: Lewando\_29 Start: 20912, Stop: 25555, Start Num: 19

Candidate Starts for Lewando\_29:

(Start: 18 @20891 has 2 MA's), (Start: 19 @20912 has 121 MA's), (Start: 22 @20942 has 2 MA's), (30, 20996), (33, 21017), (38, 21053), (53, 21221), (54, 21230), (62, 21281), (73, 21347), (74, 21368), (81, 21470), (82, 21488), (85, 21530), (89, 21605), (90, 21617), (97, 21671), (100, 21686), (106, 21719), (117, 21797), (119, 21812), (130, 21902), (136, 21971), (150, 22079), (156, 22133), (163, 22187), (174, 22256), (184, 22298), (193, 22358), (194, 22364), (197, 22373), (202, 22388), (203, 22397), (223, 22496), (224, 22508), (226, 22529), (287, 22736), (292, 22760), (305, 22814), (323, 22883), (346, 23024), (357, 23096), (359, 23102), (368, 23147), (370, 23153), (371, 23156), (377, 23180), (381, 23198), (391, 23243), (392, 23246), (394, 23252), (395, 23255), (399, 23288), (402, 23306), (415, 23363), (422, 23384), (426, 23405), (436, 23453), (442, 23486), (444, 23501), (459, 23561), (471, 23618), (481, 23678), (506, 23777), (507, 23780), (519, 23837), (524, 23864), (527, 23873), (536, 23906), (538, 23915), (543, 23927), (550, 23948), (565, 23999), (566, 24008), (574, 24056), (582, 24077), (584, 24083), (585, 24086), (603, 24146), (612, 24176), (615, 24185), (637, 24272), (638, 24275), (639, 24278), (643, 24296), (646, 24311), (651, 24326), (662, 24365), (668, 24398), (669, 24401), (670, 24404), (672, 24410), (675, 24422), (705, 24545), (710, 24563), (732, 24665), (746, 24734), (753, 24788), (778, 24917), (784, 24962), (793, 25031), (814, 25166), (820, 25190), (831, 25235), (834, 25241), (841, 25280), (844, 25310), (849, 25328),

Gene: LibertyBell\_21 Start: 14934, Stop: 20459, Start Num: 2

Candidate Starts for LibertyBell\_21:

(1, 14913), (Start: 2 @14934 has 30 MA's), (3, 14964), (4, 14988), (29, 15264), (34, 15306), (35, 15309), (39, 15339), (63, 15552), (81, 15735), (88, 15861), (91, 15897), (97, 15936), (104, 15969), (106, 15984), (111, 16026), (132, 16218), (133, 16251), (150, 16380), (176, 16563), (177, 16569), (192, 16656), (209, 16719), (235, 16866), (250, 16899), (269, 16968), (277, 16998), (285, 17022), (304, 17106), (308, 17118), (323, 17178), (339, 17214), (346, 17268), (356, 17337), (370, 17397), (371, 17400), (386, 17469), (390, 17481), (419, 17619), (423, 17628), (426, 17646), (458, 17799), (481, 17919), (486, 17940), (489, 17952), (494, 17973), (495, 17976), (506, 18015), (513, 18042), (516, 18057), (518, 18066), (519, 18075), (526, 18108), (527, 18111), (553, 18195), (569, 18273), (570, 18276), (571, 18279), (574, 18294), (579, 18309), (582, 18315), (583, 18318), (585, 18324), (603, 18384), (608, 18399), (612, 18414), (622, 18447), (626, 18465), (637, 18510), (638, 18513), (645, 18543), (648, 18555), (649, 18558), (654, 18576), (673, 18651), (680, 18684), (690, 18723), (698, 18759), (704, 18780), (715, 18822), (719, 18837), (722, 18846), (724, 18858), (726, 18870), (728, 18879), (730, 18894), (735, 18915), (772, 19134), (803, 19347), (847, 19581), (876, 19707), (896, 19836), (906, 19932), (908, 19938), (912, 19959), (927, 20064), (932, 20103), (935, 20121), (941, 20166), (947, 20211), (953, 20307),

Gene: LilHuddy\_27 Start: 20332, Stop: 24921, Start Num: 19

Candidate Starts for LilHuddy\_27:

(Start: 18 @20311 has 2 MA's), (Start: 19 @20332 has 121 MA's), (Start: 22 @20362 has 2 MA's), (30, 20416), (62, 20611), (68, 20635), (70, 20647), (73, 20677), (80, 20758), (81, 20800), (82, 20818), (85, 20860), (87, 20890), (89, 20935), (90, 20947), (97, 21001), (100, 21016), (101, 21022), (106, 21049), (113, 21112), (117, 21127), (119, 21142), (122, 21175), (125, 21190), (131, 21238), (140, 21343), (150, 21409), (157, 21478), (163, 21517), (166, 21526), (170, 21541), (173, 21583), (174, 21586), (186, 21637), (209, 21751), (219, 21808), (233, 21880), (242, 21919), (255, 21946), (265, 21988), (288, 22084), (310, 22186), (312, 22192), (323, 22228), (346, 22375), (348, 22387), (353, 22429), (354, 22432), (363, 22477), (368, 22498), (371, 22507), (372, 22510), (377, 22531), (392, 22597), (393, 22600), (415, 22714), (422, 22735), (425, 22753), (426, 22756), (444, 22852), (446, 22864), (475, 22984), (479, 23014), (492, 23071), (501, 23107), (504, 23116), (506, 23128), (511, 23149), (514, 23158), (525, 23218), (535, 23251), (537, 23263), (538, 23266), (542, 23278), (552,



23305), (555, 23320), (557, 23326), (558, 23329), (565, 23350), (566, 23359), (582, 23428), (585, 23437), (597, 23476), (612, 23527), (639, 23629), (644, 23653), (645, 23656), (654, 23689), (655, 23692), (656, 23695), (657, 23698), (669, 23752), (670, 23755), (676, 23776), (699, 23875), (708, 23905), (711, 23917), (714, 23929), (718, 23947), (721, 23956), (722, 23959), (749, 24115), (753, 24139), (755, 24148), (768, 24211), (771, 24226), (784, 24313), (785, 24325), (792, 24367), (804, 24451), (814, 24517), (820, 24541), (831, 24586), (833, 24589), (834, 24592), (845, 24661), (846, 24664), (850, 24688), (886, 24871),

Gene: Linda\_23 Start: 17240, Stop: 21790, Start Num: 19

Candidate Starts for Linda\_23:

(Start: 18 @17219 has 2 MA's), (Start: 19 @17240 has 121 MA's), (Start: 22 @17270 has 2 MA's), (25, 17303), (53, 17459), (68, 17543), (70, 17555), (73, 17585), (80, 17666), (81, 17708), (82, 17726), (85, 17768), (87, 17798), (89, 17843), (90, 17855), (97, 17909), (100, 17924), (106, 17957), (113, 18020), (119, 18050), (122, 18083), (125, 18098), (131, 18146), (145, 18296), (150, 18317), (163, 18425), (166, 18434), (172, 18482), (199, 18617), (209, 18659), (228, 18773), (241, 18824), (244, 18836), (267, 18917), (288, 19001), (291, 19019), (302, 19064), (312, 19109), (313, 19112), (314, 19118), (325, 19151), (346, 19262), (356, 19331), (357, 19334), (366, 19376), (368, 19385), (371, 19394), (379, 19424), (386, 19463), (388, 19469), (392, 19484), (399, 19526), (422, 19622), (426, 19643), (427, 19646), (431, 19667), (442, 19724), (444, 19739), (451, 19769), (454, 19781), (461, 19808), (464, 19823), (475, 19871), (479, 19901), (481, 19916), (489, 19949), (491, 19955), (501, 19994), (504, 20003), (506, 20015), (511, 20036), (524, 20102), (527, 20111), (536, 20144), (537, 20150), (538, 20153), (543, 20165), (545, 20168), (551, 20189), (556, 20210), (566, 20246), (574, 20294), (585, 20324), (612, 20414), (628, 20471), (639, 20516), (643, 20534), (650, 20561), (652, 20570), (654, 20576), (668, 20636), (672, 20648), (675, 20660), (687, 20714), (695, 20750), (697, 20756), (699, 20762), (701, 20768), (711, 20804), (717, 20828), (718, 20834), (720, 20840), (721, 20843), (730, 20894), (733, 20906), (740, 20945), (764, 21077), (771, 21113), (778, 21155), (784, 21200), (794, 21290), (810, 21380), (814, 21404), (820, 21428), (822, 21440), (825, 21449), (828, 21461), (831, 21473), (841, 21518), (845, 21548), (849, 21566), (856, 21605), (878, 21683),

Gene: Loretta\_26 Start: 19877, Stop: 24463, Start Num: 19

Candidate Starts for Loretta\_26:

(Start: 18 @19856 has 2 MA's), (Start: 19 @19877 has 121 MA's), (Start: 22 @19907 has 2 MA's), (30, 19961), (46, 20018), (50, 20066), (62, 20156), (70, 20192), (73, 20222), (81, 20345), (85, 20405), (89, 20480), (97, 20546), (100, 20561), (106, 20594), (117, 20672), (119, 20687), (121, 20708), (122, 20720), (128, 20765), (132, 20792), (135, 20837), (140, 20888), (144, 20921), (150, 20954), (166, 21071), (172, 21119), (173, 21128), (196, 21245), (200, 21257), (201, 21260), (243, 21467), (265, 21527), (288, 21623), (300, 21677), (310, 21725), (312, 21731), (323, 21767), (346, 21911), (354, 21968), (356, 21980), (368, 22034), (371, 22043), (372, 22046), (377, 22067), (378, 22070), (387, 22115), (392, 22133), (404, 22208), (405, 22211), (407, 22223), (415, 22250), (422, 22271), (425, 22289), (426, 22292), (430, 22313), (442, 22373), (444, 22388), (445, 22391), (450, 22415), (451, 22418), (452, 22421), (459, 22448), (464, 22472), (466, 22484), (479, 22550), (481, 22565), (482, 22568), (486, 22586), (487, 22592), (488, 22595), (489, 22598), (501, 22643), (502, 22646), (504, 22652), (506, 22664), (511, 22685), (522, 22739), (523, 22742), (530, 22769), (537, 22799), (543, 22817), (548, 22826), (550, 22838), (555, 22859), (565, 22889), (566, 22898), (574, 22946), (577, 22955), (579, 22961), (585, 22976), (587, 22982), (594, 23006), (597, 23015), (610, 23057), (612, 23066), (623, 23102), (633, 23144), (637, 23162), (639, 23168), (644, 23192), (654, 23228), (668, 23288), (680, 23336), (681, 23345), (690, 23375), (708, 23444), (718, 23486), (721, 23495), (748, 23642), (749, 23654), (756, 23690), (771, 23765), (778, 23807), (784, 23852), (785, 23864), (792, 23906), (814, 24056), (820, 24080), (831, 24125), (833, 24128), (834, 24131), (838, 24155), (841, 24170), (845, 24200), (850, 24227), (889, 24422), (891, 24440),

Gene: Madamoto\_23 Start: 16133, Stop: 21622, Start Num: 2

Candidate Starts for Madamoto\_23:

(1, 16112), (Start: 2 @16133 has 30 MA's), (3, 16163), (12, 16307), (23, 16433), (45, 16517), (53, 16610), (54, 16619), (63, 16676), (70, 16706), (73, 16736), (74, 16757), (81, 16859), (88, 16985), (97, 17060), (106, 17108), (111, 17150), (132, 17339), (153, 17534), (160, 17594), (161, 17597), (166, 17618), (176, 17684), (207, 17831), (231, 17966), (274, 18107), (285, 18143), (287, 18152), (296, 18194), (304, 18227), (308, 18239), (319, 18290), (343, 18383), (346, 18404), (356, 18473), (358, 18479), (368, 18527), (371, 18536), (377, 18560), (386, 18605), (389, 18614), (390, 18617), (392, 18626), (410, 18728), (415, 18743), (423, 18764), (430, 18803), (432, 18809), (458, 18935), (469, 18986), (479, 19040), (494, 19109), (495, 19112), (507, 19154), (513, 19178), (518, 19202), (519, 19211), (527, 19247), (533, 19268), (565, 19373), (569, 19409), (571, 19415), (585, 19460), (612, 19550), (617, 19565), (622, 19583), (629, 19613), (633, 19628), (635, 19637), (641, 19658), (645, 19679), (648, 19691), (654, 19712), (673, 19787), (680, 19820), (699, 19898), (714, 19952), (718, 19970), (721, 19979), (728, 20015), (731, 20036), (764, 20225), (772, 20270), (803, 20483), (854, 20756), (908, 21074), (912, 21095), (917, 21143), (919, 21149), (920, 21155), (927, 21200), (934, 21248), (942, 21308), (946, 21338), (949, 21377), (962, 21566), (963, 21575),

Gene: Madvan\_32 Start: 23284, Stop: 28395, Start Num: 19

Candidate Starts for Madvan\_32:

(Start: 19 @23284 has 121 MA's), (Start: 22 @23314 has 2 MA's), (28, 23359), (53, 23503), (62, 23563), (63, 23569), (73, 23629), (74, 23650), (81, 23752), (87, 23842), (88, 23878), (91, 23914), (97, 23953), (102, 23980), (106, 24001), (111, 24043), (122, 24163), (136, 24289), (144, 24364), (145, 24376), (150, 24397), (158, 24469), (162, 24502), (163, 24505), (182, 24613), (232, 24865), (264, 24970), (277, 25039), (298, 25141), (299, 25144), (304, 25171), (312, 25210), (319, 25237), (346, 25399), (352, 25447), (356, 25468), (361, 25486), (372, 25534), (375, 25546), (386, 25600), (398, 25651), (399, 25663), (401, 25672), (402, 25681), (414, 25735), (426, 25780), (429, 25795), (430, 25801), (433, 25810), (434, 25816), (438, 25834), (439, 25837), (440, 25843), (441, 25852), (451, 25906), (452, 25909), (454, 25918), (459, 25936), (460, 25939), (462, 25951), (467, 25972), (469, 25978), (470, 25981), (475, 26002), (479, 26032), (481, 26047), (489, 26080), (497, 26110), (501, 26122), (503, 26128), (504, 26131), (506, 26143), (507, 26146), (519, 26203), (532, 26257), (533, 26260), (541, 26281), (546, 26293), (547, 26296), (558, 26341), (559, 26344), (564, 26359), (565, 26362), (566, 26371), (567, 26386), (568, 26392), (569, 26398), (574, 26419), (575, 26422), (579, 26434), (582, 26449), (585, 26458), (590, 26479), (592, 26491), (598, 26512), (606, 26539), (616, 26572), (618, 26578), (623, 26596), (630, 26626), (640, 26665), (658, 26734), (705, 26926), (724, 27001), (738, 27091), (763, 27235), (773, 27298), (783, 27364), (787, 27397), (789, 27409), (795, 27472), (799, 27493), (801, 27505), (806, 27526), (815, 27583), (835, 27667), (851, 27754), (859, 27772), (866, 27802), (872, 27820), (873, 27823), (874, 27829), (875, 27835), (881, 27862), (895, 27973), (903, 28048), (914, 28117), (919, 28150), (922, 28174), (940, 28291), (950, 28381),

Gene: Makai\_26 Start: 20118, Stop: 24710, Start Num: 19

Candidate Starts for Makai\_26:

(Start: 18 @20097 has 2 MA's), (Start: 19 @20118 has 121 MA's), (Start: 22 @20148 has 2 MA's), (30, 20202), (46, 20259), (53, 20337), (62, 20397), (68, 20421), (73, 20463), (81, 20586), (82, 20604), (85, 20646), (89, 20721), (90, 20733), (94, 20772), (97, 20787), (100, 20802), (106, 20835), (117, 20913), (119, 20928), (128, 21006), (136, 21087), (150, 21195), (166, 21312), (168, 21318), (191, 21462), (192, 21471), (209, 21537), (265, 21774), (277, 21834), (287, 21867), (288, 21870), (310, 21972), (312, 21978), (323, 22014), (346, 22158), (352, 22206), (353, 22212), (354, 22215), (363, 22260), (368, 22281), (371, 22290), (372, 22293), (377, 22314), (378, 22317), (392, 22380), (393, 22383), (415, 22497), (422, 22518), (425, 22536), (426, 22539), (437, 22590), (442, 22620), (444, 22635), (446, 22647), (472, 22758), (475, 22767), (479, 22797), (500, 22887), (501, 22890), (504, 22899), (506, 22911), (511, 22932), (515, 22950), (522, 22986), (527, 23007), (536, 23040), (553, 23097), (565, 23139), (566, 23148), (574, 23196), (582, 23217), (585, 23226), (594, 23256), (612, 23316), (623, 23352), (631, 23388), (643, 23436), (655, 23481), (657, 23487), (663, 23508), (668, 23538), (680, 23586), (690, 23625), (691, 23628), (718, 23736), (721, 23745), (727, 23778), (744, 23868), (751, 23916), (768, 24000), (784, 24102), (785, 24114), (792, 24156), (809, 24273), (810,

24282), (820, 24330), (831, 24375), (834, 24381), (845, 24450), (850, 24477), (886, 24660),

Gene: Maya\_23 Start: 16174, Stop: 21660, Start Num: 2

Candidate Starts for Maya\_23:

(1, 16153), (Start: 2 @16174 has 30 MA's), (3, 16204), (12, 16348), (45, 16558), (56, 16678), (63, 16717), (70, 16747), (72, 16771), (73, 16777), (74, 16798), (75, 16813), (81, 16900), (87, 16990), (88, 17026), (89, 17035), (91, 17062), (97, 17101), (98, 17110), (102, 17128), (106, 17149), (111, 17191), (112, 17200), (122, 17308), (133, 17413), (144, 17509), (153, 17575), (176, 17725), (191, 17809), (195, 17830), (207, 17872), (231, 18007), (270, 18139), (274, 18148), (285, 18184), (287, 18193), (296, 18235), (304, 18268), (310, 18298), (343, 18421), (346, 18442), (355, 18505), (356, 18511), (358, 18517), (363, 18544), (368, 18565), (370, 18571), (371, 18574), (377, 18598), (386, 18643), (389, 18652), (390, 18655), (392, 18664), (404, 18739), (410, 18766), (416, 18784), (423, 18802), (426, 18820), (430, 18841), (441, 18892), (454, 18958), (458, 18973), (477, 19060), (479, 19078), (483, 19105), (509, 19198), (518, 19240), (519, 19249), (527, 19285), (528, 19288), (532, 19303), (533, 19306), (536, 19318), (550, 19360), (551, 19363), (565, 19411), (569, 19447), (571, 19453), (576, 19474), (585, 19498), (594, 19528), (612, 19588), (622, 19621), (623, 19624), (626, 19639), (629, 19651), (635, 19675), (645, 19717), (648, 19729), (649, 19732), (663, 19780), (668, 19810), (673, 19825), (680, 19858), (683, 19873), (699, 19936), (718, 20008), (720, 20014), (721, 20017), (728, 20053), (740, 20119), (754, 20206), (755, 20209), (772, 20308), (780, 20356), (781, 20362), (803, 20521), (854, 20794), (864, 20830), (881, 20896), (897, 21019), (908, 21112), (912, 21133), (917, 21181), (919, 21187), (920, 21193), (927, 21238), (942, 21346), (944, 21367), (949, 21415), (955, 21502), (962, 21604), (963, 21613),

Gene: MediumFry\_24 Start: 19326, Stop: 23909, Start Num: 19

Candidate Starts for MediumFry\_24:

(Start: 18 @19305 has 2 MA's), (Start: 19 @19326 has 121 MA's), (Start: 22 @19356 has 2 MA's), (30, 19410), (46, 19467), (50, 19515), (70, 19641), (73, 19671), (80, 19752), (81, 19794), (82, 19812), (85, 19854), (87, 19884), (89, 19929), (90, 19941), (97, 19995), (100, 20010), (101, 20016), (106, 20043), (113, 20106), (117, 20121), (119, 20136), (122, 20169), (125, 20184), (126, 20193), (131, 20232), (140, 20337), (157, 20472), (163, 20511), (166, 20520), (169, 20529), (174, 20580), (175, 20583), (200, 20706), (201, 20709), (209, 20745), (244, 20922), (256, 20943), (265, 20976), (288, 21072), (300, 21126), (310, 21174), (312, 21180), (323, 21216), (346, 21363), (363, 21465), (368, 21486), (371, 21495), (372, 21498), (377, 21519), (378, 21522), (392, 21585), (404, 21660), (407, 21675), (413, 21696), (415, 21702), (422, 21723), (426, 21744), (430, 21765), (442, 21825), (444, 21840), (445, 21843), (450, 21867), (451, 21870), (479, 22002), (481, 22017), (482, 22020), (486, 22038), (487, 22044), (489, 22050), (501, 22095), (502, 22098), (504, 22104), (507, 22119), (511, 22137), (516, 22158), (522, 22191), (523, 22194), (527, 22212), (543, 22269), (548, 22278), (550, 22290), (555, 22311), (557, 22317), (558, 22320), (565, 22341), (566, 22350), (575, 22401), (577, 22407), (582, 22419), (585, 22428), (595, 22461), (612, 22518), (631, 22590), (632, 22593), (633, 22596), (637, 22614), (639, 22620), (644, 22644), (654, 22680), (656, 22686), (660, 22701), (668, 22740), (680, 22788), (690, 22827), (699, 22866), (708, 22896), (718, 22938), (721, 22947), (747, 23085), (748, 23094), (749, 23106), (756, 23142), (778, 23259), (781, 23280), (785, 23316), (792, 23358), (800, 23430), (820, 23532), (831, 23577), (834, 23583), (845, 23652), (850, 23679), (886, 23859), (889, 23868),

Gene: Meibysrarus\_23 Start: 16160, Stop: 21646, Start Num: 2

Candidate Starts for Meibysrarus\_23:

(1, 16139), (Start: 2 @16160 has 30 MA's), (3, 16190), (12, 16334), (45, 16544), (56, 16664), (63, 16703), (70, 16733), (72, 16757), (73, 16763), (74, 16784), (75, 16799), (81, 16886), (87, 16976), (88, 17012), (89, 17021), (91, 17048), (97, 17087), (98, 17096), (102, 17114), (106, 17135), (111, 17177), (112, 17186), (122, 17294), (133, 17399), (144, 17495), (153, 17561), (176, 17711), (191, 17795), (207, 17858), (231, 17993), (250, 18047), (274, 18134), (285, 18170), (287, 18179), (296, 18221), (304, 18254), (310, 18284), (343, 18407), (346, 18428), (355, 18491), (356, 18497), (358, 18503),

(363, 18530), (368, 18551), (370, 18557), (371, 18560), (377, 18584), (386, 18629), (389, 18638), (390, 18641), (392, 18650), (404, 18725), (410, 18752), (416, 18770), (423, 18788), (426, 18806), (430, 18827), (441, 18878), (454, 18944), (458, 18959), (477, 19046), (479, 19064), (483, 19091), (509, 19184), (518, 19226), (519, 19235), (527, 19271), (528, 19274), (532, 19289), (533, 19292), (536, 19304), (550, 19346), (551, 19349), (565, 19397), (569, 19433), (571, 19439), (576, 19460), (585, 19484), (594, 19514), (612, 19574), (622, 19607), (623, 19610), (626, 19625), (629, 19637), (635, 19661), (645, 19703), (648, 19715), (649, 19718), (663, 19766), (668, 19796), (673, 19811), (680, 19844), (683, 19859), (699, 19922), (718, 19994), (720, 20000), (721, 20003), (728, 20039), (740, 20105), (754, 20192), (755, 20195), (772, 20294), (780, 20342), (781, 20348), (803, 20507), (854, 20780), (864, 20816), (881, 20882), (897, 21005), (908, 21098), (912, 21119), (917, 21167), (919, 21173), (920, 21179), (927, 21224), (942, 21332), (944, 21353), (949, 21401), (955, 21488), (962, 21590), (963, 21599),

Gene: Michelle\_23 Start: 17240, Stop: 21790, Start Num: 19

Candidate Starts for Michelle\_23:

(Start: 18 @17219 has 2 MA's), (Start: 19 @17240 has 121 MA's), (Start: 22 @17270 has 2 MA's), (25, 17303), (53, 17459), (68, 17543), (70, 17555), (73, 17585), (80, 17666), (81, 17708), (82, 17726), (85, 17768), (87, 17798), (89, 17843), (90, 17855), (97, 17909), (100, 17924), (106, 17957), (113, 18020), (119, 18050), (122, 18083), (125, 18098), (131, 18146), (145, 18296), (150, 18317), (163, 18425), (166, 18434), (172, 18482), (199, 18617), (209, 18659), (228, 18773), (241, 18824), (242, 18827), (244, 18836), (267, 18917), (288, 19001), (291, 19019), (302, 19064), (312, 19109), (313, 19112), (314, 19118), (325, 19151), (346, 19262), (356, 19331), (357, 19334), (366, 19376), (368, 19385), (371, 19394), (379, 19424), (386, 19463), (388, 19469), (392, 19484), (394, 19490), (399, 19526), (422, 19622), (426, 19643), (427, 19646), (431, 19667), (442, 19724), (444, 19739), (451, 19769), (454, 19781), (461, 19808), (464, 19823), (475, 19871), (479, 19901), (481, 19916), (489, 19949), (491, 19955), (501, 19994), (504, 20003), (506, 20015), (511, 20036), (524, 20102), (527, 20111), (536, 20144), (537, 20150), (538, 20153), (543, 20165), (545, 20168), (551, 20189), (556, 20210), (566, 20246), (574, 20294), (585, 20324), (612, 20414), (628, 20471), (639, 20516), (643, 20534), (650, 20561), (652, 20570), (654, 20576), (668, 20636), (672, 20648), (675, 20660), (687, 20714), (697, 20756), (699, 20762), (701, 20768), (710, 20801), (711, 20804), (717, 20828), (718, 20834), (720, 20840), (721, 20843), (730, 20894), (733, 20906), (740, 20945), (764, 21077), (771, 21113), (778, 21155), (784, 21200), (794, 21290), (810, 21380), (814, 21404), (820, 21428), (822, 21440), (825, 21449), (828, 21461), (831, 21473), (841, 21518), (845, 21548), (849, 21566), (856, 21605),

Gene: Miek\_21 Start: 15072, Stop: 20549, Start Num: 2

Candidate Starts for Miek\_21:

(Start: 2 @15072 has 30 MA's), (3, 15102), (7, 15183), (9, 15213), (10, 15216), (12, 15246), (81, 15798), (88, 15924), (95, 15987), (97, 15999), (105, 16041), (111, 16089), (118, 16173), (132, 16281), (150, 16443), (153, 16476), (162, 16548), (176, 16626), (207, 16773), (285, 17085), (287, 17094), (303, 17157), (346, 17331), (351, 17373), (356, 17400), (359, 17409), (371, 17463), (377, 17487), (390, 17544), (411, 17658), (423, 17691), (430, 17730), (440, 17772), (441, 17781), (446, 17817), (458, 17862), (469, 17913), (477, 17949), (479, 17967), (484, 17997), (494, 18036), (495, 18039), (506, 18078), (507, 18081), (514, 18108), (518, 18129), (519, 18138), (526, 18171), (527, 18174), (533, 18195), (553, 18258), (569, 18336), (571, 18342), (582, 18378), (583, 18381), (584, 18384), (585, 18387), (603, 18447), (606, 18456), (612, 18477), (621, 18507), (622, 18510), (637, 18573), (638, 18576), (639, 18579), (649, 18621), (654, 18639), (663, 18669), (673, 18714), (675, 18723), (680, 18747), (698, 18822), (700, 18828), (714, 18879), (721, 18906), (724, 18921), (726, 18933), (728, 18942), (732, 18966), (745, 19032), (754, 19095), (759, 19119), (772, 19197), (780, 19245), (785, 19287), (803, 19410), (825, 19527), (847, 19644), (866, 19725), (876, 19770), (885, 19815), (908, 20001), (912, 20022), (913, 20034), (919, 20076), (927, 20127), (934, 20175), (938, 20214), (946, 20265), (954, 20388), (960, 20427),

Gene: MiniBagel\_26 Start: 21214, Stop: 25803, Start Num: 19

Candidate Starts for MiniBagel\_26:

(Start: 18 @21193 has 2 MA's), (Start: 19 @21214 has 121 MA's), (Start: 22 @21244 has 2 MA's), (30, 21298), (33, 21319), (46, 21355), (62, 21493), (70, 21529), (73, 21559), (81, 21682), (82, 21700), (85, 21742), (92, 21850), (97, 21883), (100, 21898), (106, 21931), (117, 22009), (119, 22024), (121, 22045), (122, 22057), (126, 22081), (132, 22129), (140, 22225), (144, 22258), (150, 22291), (159, 22375), (166, 22408), (207, 22621), (220, 22696), (238, 22789), (243, 22804), (244, 22810), (255, 22828), (257, 22837), (265, 22870), (266, 22879), (283, 22951), (294, 22996), (310, 23068), (312, 23074), (322, 23107), (323, 23110), (330, 23137), (346, 23251), (354, 23308), (356, 23320), (368, 23374), (371, 23383), (372, 23386), (377, 23407), (386, 23452), (392, 23473), (413, 23584), (415, 23590), (422, 23611), (425, 23629), (430, 23653), (442, 23713), (444, 23728), (445, 23731), (451, 23758), (452, 23761), (459, 23788), (477, 23872), (479, 23890), (481, 23905), (482, 23908), (486, 23926), (487, 23932), (488, 23935), (492, 23947), (493, 23953), (501, 23983), (504, 23992), (511, 24025), (522, 24079), (523, 24082), (527, 24100), (538, 24142), (543, 24157), (548, 24166), (550, 24178), (566, 24238), (577, 24295), (582, 24307), (585, 24316), (597, 24355), (600, 24367), (602, 24373), (606, 24385), (610, 24397), (612, 24406), (632, 24481), (633, 24484), (637, 24502), (654, 24568), (657, 24577), (669, 24631), (670, 24634), (708, 24784), (716, 24817), (718, 24826), (723, 24841), (726, 24862), (735, 24907), (741, 24940), (747, 24973), (756, 25030), (768, 25090), (781, 25168), (784, 25192), (785, 25204), (804, 25330), (810, 25372), (820, 25420), (828, 25453), (831, 25465), (834, 25471), (837, 25492), (838, 25495), (839, 25501), (845, 25540), (850, 25567), (886, 25753), (891, 25780),

Gene: Mooshroom\_21 Start: 16796, Stop: 21274, Start Num: 19

Candidate Starts for Mooshroom\_21:

(Start: 18 @16775 has 2 MA's), (Start: 19 @16796 has 121 MA's), (Start: 22 @16826 has 2 MA's), (30, 16880), (46, 16937), (70, 17111), (73, 17141), (80, 17222), (81, 17264), (82, 17282), (85, 17324), (90, 17411), (94, 17450), (97, 17465), (100, 17480), (106, 17513), (117, 17591), (119, 17606), (125, 17654), (127, 17669), (132, 17711), (140, 17807), (144, 17840), (150, 17873), (163, 17981), (173, 18047), (181, 18080), (183, 18089), (185, 18092), (188, 18110), (249, 18392), (262, 18416), (266, 18446), (308, 18605), (323, 18665), (346, 18794), (352, 18842), (359, 18872), (363, 18896), (366, 18908), (368, 18917), (371, 18926), (377, 18950), (386, 18995), (392, 19016), (404, 19091), (412, 19124), (422, 19154), (426, 19175), (430, 19196), (442, 19256), (443, 19262), (451, 19301), (456, 19319), (475, 19403), (479, 19433), (484, 19463), (489, 19481), (501, 19529), (507, 19553), (511, 19571), (514, 19580), (515, 19589), (517, 19595), (520, 19616), (527, 19646), (536, 19679), (537, 19685), (541, 19694), (550, 19721), (557, 19748), (566, 19781), (569, 19808), (571, 19814), (578, 19841), (585, 19859), (594, 19889), (597, 19898), (600, 19910), (602, 19916), (603, 19919), (607, 19931), (612, 19949), (620, 19976), (622, 19982), (639, 20051), (645, 20078), (649, 20093), (675, 20195), (698, 20294), (699, 20297), (701, 20303), (705, 20318), (710, 20336), (720, 20375), (721, 20378), (725, 20396), (730, 20429), (735, 20450), (746, 20507), (753, 20561), (766, 20624), (782, 20651), (784, 20669), (791, 20717), (792, 20723), (800, 20795), (814, 20873), (817, 20888), (826, 20927), (834, 20951), (838, 20975), (844, 21020), (849, 21041), (892, 21263),

Gene: Moozy\_19 Start: 13482, Stop: 18731, Start Num: 18

Candidate Starts for Moozy\_19:

(Start: 18 @13482 has 2 MA's), (Start: 19 @13503 has 121 MA's), (Start: 22 @13533 has 2 MA's), (45, 13635), (49, 13686), (63, 13794), (81, 13977), (88, 14103), (91, 14139), (97, 14178), (111, 14268), (153, 14655), (176, 14805), (181, 14829), (193, 14901), (245, 15132), (269, 15210), (274, 15228), (275, 15231), (285, 15264), (309, 15372), (329, 15432), (346, 15513), (356, 15582), (368, 15636), (389, 15723), (390, 15726), (392, 15735), (410, 15837), (423, 15873), (426, 15891), (437, 15942), (458, 16044), (461, 16056), (464, 16071), (478, 16140), (479, 16149), (484, 16179), (496, 16224), (503, 16245), (510, 16275), (513, 16287), (514, 16290), (518, 16311), (519, 16320), (527, 16356), (536, 16389), (562, 16473), (569, 16518), (570, 16521), (571, 16524), (585, 16569), (594, 16599), (608, 16644), (612, 16659), (622, 16692), (627, 16713), (629, 16722), (631, 16731), (637,

16755), (638, 16758), (641, 16767), (645, 16788), (648, 16800), (656, 16827), (665, 16866), (670, 16887), (678, 16923), (680, 16929), (714, 17061), (716, 17070), (718, 17079), (721, 17088), (722, 17091), (724, 17103), (725, 17106), (726, 17115), (728, 17124), (746, 17217), (753, 17271), (772, 17379), (775, 17394), (781, 17433), (803, 17592), (847, 17826), (864, 17901), (907, 18180), (908, 18183), (912, 18204), (917, 18252), (919, 18258), (935, 18366), (941, 18411), (944, 18438), (952, 18540), (963, 18693),

Gene: Mossy\_33 Start: 24706, Stop: 29808, Start Num: 19

Candidate Starts for Mossy\_33:

(Start: 19 @24706 has 121 MA's), (Start: 22 @24736 has 2 MA's), (28, 24781), (52, 24919), (53, 24925), (63, 24991), (70, 25021), (81, 25186), (85, 25246), (90, 25333), (93, 25357), (97, 25387), (100, 25402), (106, 25435), (116, 25528), (136, 25696), (150, 25804), (151, 25816), (157, 25873), (162, 25909), (163, 25912), (174, 25981), (176, 25987), (213, 26170), (214, 26176), (232, 26272), (235, 26290), (277, 26446), (302, 26572), (304, 26581), (343, 26791), (346, 26812), (347, 26818), (356, 26881), (361, 26899), (366, 26926), (371, 26944), (386, 27013), (393, 27037), (395, 27043), (398, 27064), (401, 27085), (414, 27148), (426, 27193), (430, 27214), (436, 27241), (438, 27247), (441, 27265), (442, 27274), (446, 27301), (451, 27319), (452, 27322), (454, 27331), (457, 27343), (459, 27349), (460, 27352), (462, 27364), (481, 27460), (489, 27493), (494, 27514), (496, 27520), (497, 27523), (501, 27535), (504, 27544), (507, 27559), (509, 27565), (510, 27571), (512, 27580), (515, 27595), (516, 27598), (519, 27616), (527, 27652), (533, 27673), (541, 27694), (550, 27724), (554, 27739), (555, 27745), (558, 27754), (560, 27760), (563, 27769), (565, 27775), (566, 27784), (567, 27799), (568, 27805), (573, 27829), (577, 27841), (585, 27871), (590, 27892), (592, 27904), (598, 27925), (599, 27928), (606, 27952), (609, 27961), (616, 27985), (618, 27991), (623, 28009), (624, 28018), (625, 28021), (639, 28075), (647, 28108), (684, 28258), (687, 28270), (691, 28282), (699, 28318), (705, 28339), (724, 28414), (751, 28582), (757, 28612), (762, 28645), (777, 28738), (787, 28810), (789, 28822), (790, 28831), (795, 28885), (805, 28933), (815, 28996), (826, 29047), (835, 29080), (851, 29167), (859, 29185), (866, 29215), (873, 29236), (874, 29242), (875, 29248), (881, 29275), (884, 29302), (895, 29386), (901, 29449), (903, 29461), (921, 29572), (923, 29590), (929, 29638), (950, 29794),

Gene: MrAaronian\_23 Start: 17240, Stop: 21790, Start Num: 19

Candidate Starts for MrAaronian\_23:

(Start: 18 @17219 has 2 MA's), (Start: 19 @17240 has 121 MA's), (Start: 22 @17270 has 2 MA's), (25, 17303), (53, 17459), (68, 17543), (70, 17555), (73, 17585), (80, 17666), (81, 17708), (82, 17726), (85, 17768), (87, 17798), (89, 17843), (90, 17855), (97, 17909), (100, 17924), (106, 17957), (113, 18020), (119, 18050), (122, 18083), (125, 18098), (131, 18146), (145, 18296), (150, 18317), (163, 18425), (166, 18434), (172, 18482), (199, 18617), (209, 18659), (228, 18773), (241, 18824), (244, 18836), (267, 18917), (288, 19001), (291, 19019), (302, 19064), (312, 19109), (313, 19112), (314, 19118), (325, 19151), (346, 19262), (356, 19331), (357, 19334), (366, 19376), (368, 19385), (371, 19394), (379, 19424), (386, 19463), (388, 19469), (392, 19484), (399, 19526), (422, 19622), (426, 19643), (427, 19646), (431, 19667), (442, 19724), (444, 19739), (451, 19769), (454, 19781), (461, 19808), (464, 19823), (475, 19871), (479, 19901), (481, 19916), (489, 19949), (491, 19955), (501, 19994), (504, 20003), (506, 20015), (511, 20036), (524, 20102), (527, 20111), (536, 20144), (537, 20150), (538, 20153), (543, 20165), (545, 20168), (551, 20189), (556, 20210), (566, 20246), (574, 20294), (585, 20324), (612, 20414), (628, 20471), (639, 20516), (643, 20534), (650, 20561), (652, 20570), (654, 20576), (668, 20636), (672, 20648), (675, 20660), (687, 20714), (697, 20756), (699, 20762), (701, 20768), (710, 20801), (711, 20804), (717, 20828), (718, 20834), (720, 20840), (721, 20843), (730, 20894), (733, 20906), (740, 20945), (764, 21077), (771, 21113), (778, 21155), (784, 21200), (794, 21290), (810, 21380), (814, 21404), (820, 21428), (822, 21440), (825, 21449), (828, 21461), (831, 21473), (841, 21518), (845, 21548), (849, 21566), (856, 21605),

Gene: Mudcat\_21 Start: 19094, Stop: 23572, Start Num: 19

Candidate Starts for Mudcat\_21:

(Start: 18 @19073 has 2 MA's), (Start: 19 @19094 has 121 MA's), (Start: 22 @19124 has 2 MA's), (25, 19157), (30, 19178), (70, 19409), (73, 19439), (80, 19520), (81, 19562), (82, 19580), (85, 19622), (90, 19709), (97, 19763), (100, 19778), (106, 19811), (117, 19889), (119, 19904), (125, 19952), (127, 19967), (132, 20009), (136, 20063), (140, 20105), (141, 20108), (144, 20138), (150, 20171), (163, 20279), (173, 20345), (181, 20378), (183, 20387), (185, 20390), (188, 20408), (249, 20690), (262, 20714), (266, 20744), (308, 20903), (314, 20936), (323, 20963), (346, 21092), (359, 21170), (368, 21215), (371, 21224), (374, 21236), (377, 21248), (383, 21275), (386, 21293), (392, 21314), (404, 21389), (408, 21410), (409, 21413), (412, 21422), (422, 21452), (426, 21473), (430, 21494), (442, 21554), (443, 21560), (451, 21599), (452, 21602), (456, 21617), (470, 21680), (475, 21701), (479, 21731), (484, 21761), (489, 21779), (501, 21827), (507, 21851), (511, 21869), (514, 21878), (515, 21887), (517, 21893), (520, 21914), (527, 21944), (536, 21977), (537, 21983), (538, 21986), (543, 21998), (550, 22019), (565, 22070), (566, 22079), (570, 22109), (572, 22115), (582, 22148), (585, 22157), (594, 22187), (597, 22196), (600, 22208), (612, 22247), (620, 22274), (622, 22280), (623, 22283), (626, 22298), (633, 22325), (637, 22343), (641, 22355), (649, 22391), (675, 22493), (690, 22556), (698, 22592), (699, 22595), (701, 22601), (705, 22616), (710, 22634), (716, 22658), (720, 22673), (721, 22676), (725, 22694), (730, 22727), (735, 22748), (746, 22805), (753, 22859), (755, 22868), (766, 22922), (782, 22949), (784, 22967), (791, 23015), (792, 23021), (800, 23093), (814, 23171), (817, 23186), (826, 23225), (834, 23249), (844, 23318), (849, 23339), (892, 23561),

Gene: Mysticmoon\_32 Start: 23315, Stop: 28429, Start Num: 19

Candidate Starts for Mysticmoon\_32:

(Start: 19 @23315 has 121 MA's), (Start: 22 @23345 has 2 MA's), (28, 23390), (53, 23534), (62, 23594), (63, 23600), (71, 23639), (73, 23660), (74, 23681), (81, 23783), (88, 23909), (91, 23945), (97, 23984), (102, 24011), (106, 24032), (111, 24074), (122, 24194), (144, 24395), (150, 24428), (153, 24461), (159, 24512), (162, 24533), (163, 24536), (176, 24611), (203, 24746), (216, 24812), (219, 24827), (232, 24896), (235, 24914), (248, 24947), (257, 24968), (259, 24977), (264, 25001), (277, 25070), (282, 25091), (288, 25124), (289, 25127), (302, 25196), (304, 25205), (323, 25292), (336, 25352), (342, 25403), (346, 25436), (347, 25442), (356, 25505), (361, 25523), (371, 25568), (386, 25637), (393, 25661), (395, 25667), (398, 25688), (402, 25718), (414, 25772), (415, 25775), (429, 25832), (430, 25838), (438, 25871), (441, 25889), (442, 25898), (444, 25913), (446, 25925), (451, 25943), (452, 25946), (454, 25955), (457, 25967), (459, 25973), (460, 25976), (467, 26009), (472, 26030), (479, 26069), (489, 26117), (493, 26132), (494, 26138), (497, 26147), (501, 26159), (504, 26168), (506, 26180), (507, 26183), (508, 26186), (509, 26189), (510, 26195), (512, 26204), (524, 26267), (531, 26288), (533, 26297), (541, 26318), (555, 26369), (563, 26393), (565, 26399), (567, 26423), (568, 26429), (574, 26456), (575, 26459), (585, 26495), (590, 26516), (592, 26528), (594, 26537), (598, 26549), (606, 26576), (609, 26585), (616, 26609), (618, 26615), (623, 26633), (630, 26663), (640, 26702), (647, 26732), (656, 26762), (687, 26894), (705, 26963), (738, 27128), (760, 27251), (787, 27434), (789, 27446), (790, 27455), (795, 27509), (805, 27557), (824, 27659), (829, 27680), (840, 27728), (851, 27791), (859, 27809), (872, 27857), (873, 27860), (875, 27872), (881, 27899), (895, 28010), (903, 28085), (919, 28187), (923, 28214), (924, 28217), (940, 28325), (947, 28364), (950, 28415),

Gene: Nadmeg\_33 Start: 24715, Stop: 29826, Start Num: 19

Candidate Starts for Nadmeg\_33:

(Start: 19 @24715 has 121 MA's), (Start: 22 @24745 has 2 MA's), (28, 24790), (53, 24934), (62, 24994), (63, 25000), (73, 25060), (74, 25081), (81, 25183), (87, 25273), (88, 25309), (91, 25345), (97, 25384), (102, 25411), (106, 25432), (111, 25474), (117, 25546), (122, 25594), (136, 25720), (144, 25795), (145, 25807), (150, 25828), (162, 25933), (163, 25936), (182, 26044), (232, 26296), (264, 26401), (277, 26470), (282, 26491), (298, 26572), (299, 26575), (304, 26602), (312, 26641), (319, 26668), (343, 26809), (346, 26830), (355, 26893), (356, 26899), (361, 26917), (362, 26923), (372, 26965), (377, 26986), (386, 27031), (398, 27082), (399, 27094), (401, 27103), (402, 27112), (426, 27211), (430, 27232), (433, 27241), (438, 27265), (439, 27268), (440, 27274), (451, 27337), (452, 27340), (454, 27349), (459, 27367), (460, 27370), (462, 27382), (467, 27403), (469, 27409), (470,

27412), (475, 27433), (479, 27463), (481, 27478), (484, 27493), (497, 27541), (501, 27553), (503, 27559), (504, 27562), (506, 27574), (507, 27577), (519, 27634), (532, 27688), (541, 27712), (546, 27724), (547, 27727), (558, 27772), (559, 27775), (564, 27790), (565, 27793), (566, 27802), (567, 27817), (568, 27823), (569, 27829), (574, 27850), (575, 27853), (579, 27865), (582, 27880), (585, 27889), (590, 27910), (592, 27922), (598, 27943), (606, 27970), (616, 28003), (618, 28009), (623, 28027), (630, 28057), (640, 28096), (705, 28357), (724, 28432), (738, 28522), (763, 28666), (773, 28729), (783, 28795), (787, 28828), (789, 28840), (795, 28903), (799, 28924), (801, 28936), (806, 28957), (815, 29014), (835, 29098), (851, 29185), (859, 29203), (866, 29233), (872, 29251), (873, 29254), (874, 29260), (875, 29266), (881, 29293), (895, 29404), (903, 29479), (914, 29548), (919, 29581), (922, 29605), (940, 29722), (950, 29812),

Gene: Namo\_23 Start: 16166, Stop: 21652, Start Num: 2

Candidate Starts for Namo\_23:

(1, 16145), (Start: 2 @16166 has 30 MA's), (3, 16196), (12, 16340), (45, 16550), (55, 16667), (70, 16739), (73, 16769), (81, 16892), (88, 17018), (97, 17093), (106, 17141), (111, 17183), (132, 17372), (153, 17567), (162, 17639), (176, 17717), (195, 17822), (207, 17864), (231, 17999), (250, 18053), (274, 18140), (285, 18176), (287, 18185), (296, 18227), (304, 18260), (310, 18290), (343, 18413), (346, 18434), (355, 18497), (356, 18503), (358, 18509), (363, 18536), (368, 18557), (370, 18563), (371, 18566), (377, 18590), (386, 18635), (389, 18644), (390, 18647), (392, 18656), (404, 18731), (410, 18758), (416, 18776), (423, 18794), (426, 18812), (430, 18833), (441, 18884), (454, 18950), (458, 18965), (477, 19052), (479, 19070), (483, 19097), (508, 19187), (509, 19190), (518, 19232), (519, 19241), (527, 19277), (532, 19295), (533, 19298), (550, 19352), (551, 19355), (565, 19403), (569, 19439), (571, 19445), (576, 19466), (585, 19490), (594, 19520), (612, 19580), (622, 19613), (623, 19616), (626, 19631), (635, 19667), (645, 19709), (648, 19721), (649, 19724), (663, 19772), (668, 19802), (673, 19817), (680, 19850), (683, 19865), (699, 19928), (720, 20006), (721, 20009), (728, 20045), (740, 20111), (754, 20198), (755, 20201), (772, 20300), (780, 20348), (781, 20354), (803, 20513), (854, 20786), (864, 20822), (881, 20888), (897, 21011), (901, 21062), (908, 21104), (912, 21125), (917, 21173), (919, 21179), (920, 21185), (927, 21230), (942, 21338), (944, 21359), (949, 21407), (955, 21494), (962, 21596), (963, 21605),

Gene: NapoleonB\_21 Start: 17193, Stop: 21671, Start Num: 19

Candidate Starts for NapoleonB\_21:

(Start: 18 @17172 has 2 MA's), (Start: 19 @17193 has 121 MA's), (Start: 22 @17223 has 2 MA's), (25, 17256), (30, 17277), (70, 17508), (73, 17538), (74, 17559), (80, 17619), (81, 17661), (82, 17679), (85, 17721), (90, 17808), (97, 17862), (100, 17877), (106, 17910), (119, 18003), (125, 18051), (127, 18066), (132, 18108), (136, 18162), (144, 18237), (150, 18270), (163, 18378), (173, 18444), (181, 18477), (183, 18486), (185, 18489), (188, 18507), (249, 18789), (262, 18813), (266, 18843), (308, 19002), (323, 19062), (346, 19191), (359, 19269), (365, 19299), (368, 19314), (371, 19323), (377, 19347), (383, 19374), (386, 19392), (392, 19413), (404, 19488), (408, 19509), (412, 19521), (422, 19551), (430, 19593), (442, 19653), (443, 19659), (451, 19698), (470, 19779), (475, 19800), (479, 19830), (484, 19860), (489, 19878), (501, 19926), (507, 19950), (511, 19968), (514, 19977), (515, 19986), (517, 19992), (520, 20013), (527, 20043), (536, 20076), (537, 20082), (538, 20085), (543, 20097), (550, 20118), (565, 20169), (566, 20178), (570, 20208), (572, 20214), (582, 20247), (585, 20256), (594, 20286), (597, 20295), (600, 20307), (607, 20328), (612, 20346), (620, 20373), (622, 20379), (623, 20382), (626, 20397), (633, 20424), (637, 20442), (641, 20454), (649, 20490), (675, 20592), (690, 20655), (698, 20691), (699, 20694), (701, 20700), (705, 20715), (710, 20733), (720, 20772), (721, 20775), (725, 20793), (730, 20826), (735, 20847), (746, 20904), (753, 20958), (755, 20967), (766, 21021), (782, 21048), (784, 21066), (791, 21114), (792, 21120), (800, 21192), (814, 21270), (817, 21285), (826, 21324), (834, 21348), (844, 21417), (849, 21438), (871, 21531), (892, 21660),

Gene: Nason\_22 Start: 17670, Stop: 22148, Start Num: 19

Candidate Starts for Nason\_22:



(Start: 18 @17649 has 2 MA's), (Start: 19 @17670 has 121 MA's), (Start: 22 @17700 has 2 MA's), (25, 17733), (30, 17754), (70, 17985), (73, 18015), (80, 18096), (81, 18138), (82, 18156), (85, 18198), (90, 18285), (97, 18339), (100, 18354), (106, 18387), (119, 18480), (125, 18528), (127, 18543), (132, 18585), (136, 18639), (144, 18714), (150, 18747), (163, 18855), (173, 18921), (181, 18954), (183, 18963), (185, 18966), (188, 18984), (249, 19266), (262, 19290), (266, 19320), (308, 19479), (323, 19539), (346, 19668), (352, 19716), (363, 19770), (366, 19782), (368, 19791), (371, 19800), (377, 19824), (386, 19869), (392, 19890), (404, 19965), (412, 19998), (422, 20028), (426, 20049), (430, 20070), (442, 20130), (443, 20136), (451, 20175), (452, 20178), (456, 20193), (470, 20256), (475, 20277), (479, 20307), (484, 20337), (489, 20355), (501, 20403), (507, 20427), (511, 20445), (514, 20454), (515, 20463), (517, 20469), (520, 20490), (527, 20520), (536, 20553), (537, 20559), (538, 20562), (543, 20574), (550, 20595), (565, 20646), (566, 20655), (570, 20685), (572, 20691), (582, 20724), (585, 20733), (594, 20763), (597, 20772), (600, 20784), (612, 20823), (620, 20850), (622, 20856), (623, 20859), (626, 20874), (633, 20901), (637, 20919), (641, 20931), (649, 20967), (675, 21069), (690, 21132), (698, 21168), (699, 21171), (701, 21177), (705, 21192), (710, 21210), (716, 21234), (720, 21249), (721, 21252), (725, 21270), (730, 21303), (735, 21324), (746, 21381), (753, 21435), (755, 21444), (766, 21498), (782, 21525), (784, 21543), (791, 21591), (792, 21597), (800, 21669), (814, 21747), (817, 21762), (826, 21801), (834, 21825), (844, 21894), (849, 21915), (871, 22008), (892, 22137),

Gene: Nightmare\_27 Start: 20521, Stop: 25113, Start Num: 19

Candidate Starts for Nightmare\_27:

(Start: 18 @20500 has 2 MA's), (Start: 19 @20521 has 121 MA's), (Start: 22 @20551 has 2 MA's), (30, 20605), (33, 20626), (46, 20662), (53, 20740), (62, 20800), (68, 20824), (70, 20836), (73, 20866), (76, 20917), (80, 20947), (81, 20989), (82, 21007), (85, 21049), (87, 21079), (89, 21124), (90, 21136), (97, 21190), (100, 21205), (102, 21217), (106, 21238), (119, 21331), (122, 21364), (125, 21379), (131, 21427), (150, 21598), (165, 21712), (166, 21715), (172, 21763), (193, 21877), (200, 21901), (238, 22096), (243, 22111), (244, 22117), (255, 22135), (271, 22207), (288, 22273), (310, 22375), (312, 22381), (322, 22414), (323, 22417), (330, 22444), (346, 22561), (354, 22618), (356, 22630), (368, 22684), (371, 22693), (372, 22696), (377, 22717), (386, 22762), (392, 22783), (413, 22894), (415, 22900), (422, 22921), (425, 22939), (430, 22963), (442, 23023), (444, 23038), (445, 23041), (451, 23068), (452, 23071), (479, 23200), (481, 23215), (482, 23218), (486, 23236), (487, 23242), (488, 23245), (492, 23257), (501, 23293), (504, 23302), (511, 23335), (522, 23389), (523, 23392), (527, 23410), (531, 23422), (538, 23452), (543, 23467), (548, 23476), (550, 23488), (566, 23548), (577, 23605), (582, 23617), (585, 23626), (597, 23665), (600, 23677), (610, 23707), (612, 23716), (632, 23791), (633, 23794), (637, 23812), (654, 23878), (656, 23884), (657, 23887), (669, 23941), (670, 23944), (701, 24070), (702, 24073), (708, 24094), (716, 24127), (718, 24136), (735, 24217), (741, 24250), (747, 24283), (756, 24340), (768, 24400), (772, 24424), (784, 24502), (785, 24514), (804, 24640), (810, 24682), (820, 24730), (828, 24763), (831, 24775), (834, 24781), (837, 24802), (838, 24805), (839, 24811), (845, 24850), (850, 24877), (886, 25063), (891, 25090),

Gene: Niktson\_26 Start: 20686, Stop: 25275, Start Num: 19

Candidate Starts for Niktson\_26:

(Start: 18 @20665 has 2 MA's), (Start: 19 @20686 has 121 MA's), (Start: 22 @20716 has 2 MA's), (30, 20770), (33, 20791), (46, 20827), (53, 20905), (62, 20965), (68, 20989), (70, 21001), (73, 21031), (80, 21112), (81, 21154), (82, 21172), (85, 21214), (87, 21244), (89, 21289), (90, 21301), (97, 21355), (100, 21370), (102, 21382), (106, 21403), (119, 21496), (122, 21529), (125, 21544), (131, 21592), (145, 21742), (150, 21763), (163, 21871), (165, 21877), (166, 21880), (172, 21928), (193, 22042), (200, 22066), (203, 22081), (207, 22093), (220, 22168), (226, 22213), (238, 22261), (243, 22276), (244, 22282), (255, 22300), (271, 22372), (280, 22414), (283, 22423), (294, 22468), (310, 22540), (312, 22546), (322, 22579), (323, 22582), (330, 22609), (346, 22723), (352, 22771), (354, 22780), (356, 22792), (368, 22846), (371, 22855), (372, 22858), (377, 22879), (386, 22924), (392, 22945), (413, 23056), (415, 23062), (422, 23083), (425, 23101), (426, 23104), (430, 23125), (442, 23185), (444, 23200), (445, 23203), (451, 23230), (452, 23233), (479, 23362), (481, 23377), (482, 23380),

(486, 23398), (487, 23404), (492, 23419), (501, 23455), (504, 23464), (511, 23497), (522, 23551), (523, 23554), (527, 23572), (531, 23584), (538, 23614), (543, 23629), (548, 23638), (550, 23650), (566, 23710), (575, 23761), (577, 23767), (582, 23779), (585, 23788), (597, 23827), (600, 23839), (604, 23851), (610, 23869), (612, 23878), (632, 23953), (633, 23956), (637, 23974), (654, 24040), (656, 24046), (657, 24049), (669, 24103), (670, 24106), (701, 24232), (702, 24235), (708, 24256), (716, 24289), (718, 24298), (735, 24379), (741, 24412), (747, 24445), (756, 24502), (768, 24562), (772, 24586), (784, 24664), (785, 24676), (804, 24802), (810, 24844), (820, 24892), (828, 24925), (831, 24937), (834, 24943), (837, 24964), (838, 24967), (845, 25012), (850, 25039), (855, 25066), (856, 25069), (886, 25225), (891, 25252),

Gene: Nithya\_32 Start: 23499, Stop: 28610, Start Num: 19

Candidate Starts for Nithya\_32:

(Start: 19 @23499 has 121 MA's), (Start: 22 @23529 has 2 MA's), (28, 23574), (53, 23718), (63, 23784), (73, 23844), (74, 23865), (81, 23967), (87, 24057), (88, 24093), (91, 24129), (97, 24168), (106, 24216), (111, 24258), (117, 24330), (122, 24378), (136, 24504), (144, 24579), (145, 24591), (150, 24612), (162, 24717), (163, 24720), (207, 24942), (218, 25008), (219, 25011), (232, 25080), (264, 25185), (277, 25254), (298, 25356), (299, 25359), (304, 25386), (312, 25425), (319, 25452), (346, 25614), (352, 25662), (356, 25683), (361, 25701), (372, 25749), (386, 25815), (394, 25842), (395, 25845), (397, 25863), (398, 25866), (401, 25887), (402, 25896), (414, 25950), (426, 25995), (430, 26016), (433, 26025), (440, 26058), (441, 26067), (444, 26091), (451, 26121), (452, 26124), (454, 26133), (457, 26145), (460, 26154), (462, 26166), (467, 26187), (469, 26193), (479, 26247), (497, 26325), (501, 26337), (503, 26343), (504, 26346), (507, 26361), (512, 26382), (519, 26418), (532, 26472), (533, 26475), (536, 26487), (541, 26496), (546, 26508), (547, 26511), (550, 26526), (557, 26553), (559, 26559), (564, 26574), (565, 26577), (566, 26586), (567, 26601), (568, 26607), (572, 26622), (574, 26634), (575, 26637), (585, 26673), (590, 26694), (592, 26706), (594, 26715), (598, 26727), (606, 26754), (613, 26778), (616, 26787), (618, 26793), (623, 26811), (640, 26880), (658, 26949), (694, 27105), (738, 27306), (763, 27450), (773, 27513), (777, 27540), (787, 27612), (789, 27624), (790, 27633), (795, 27687), (799, 27708), (801, 27720), (835, 27882), (851, 27969), (859, 27987), (866, 28017), (872, 28035), (873, 28038), (875, 28050), (881, 28077), (895, 28188), (903, 28263), (911, 28311), (919, 28365), (923, 28392), (940, 28506), (950, 28596),

Gene: Nivinsha\_26 Start: 20074, Stop: 24663, Start Num: 19

Candidate Starts for Nivinsha\_26:

(Start: 18 @20053 has 2 MA's), (Start: 19 @20074 has 121 MA's), (Start: 22 @20104 has 2 MA's), (30, 20158), (33, 20179), (46, 20215), (53, 20293), (62, 20353), (68, 20377), (70, 20389), (73, 20419), (76, 20470), (80, 20500), (81, 20542), (82, 20560), (85, 20602), (87, 20632), (89, 20677), (90, 20689), (97, 20743), (100, 20758), (102, 20770), (106, 20791), (119, 20884), (122, 20917), (125, 20932), (131, 20980), (150, 21151), (165, 21265), (166, 21268), (193, 21430), (200, 21454), (203, 21469), (207, 21481), (220, 21556), (238, 21649), (243, 21664), (244, 21670), (255, 21688), (271, 21760), (283, 21811), (288, 21826), (294, 21856), (310, 21928), (312, 21934), (322, 21967), (323, 21970), (330, 21997), (346, 22111), (354, 22168), (356, 22180), (368, 22234), (371, 22243), (372, 22246), (377, 22267), (386, 22312), (392, 22333), (399, 22375), (402, 22393), (415, 22450), (422, 22471), (426, 22492), (442, 22573), (444, 22588), (445, 22591), (451, 22618), (452, 22621), (464, 22672), (479, 22750), (481, 22765), (482, 22768), (486, 22786), (487, 22792), (489, 22798), (492, 22807), (501, 22843), (504, 22852), (511, 22885), (522, 22939), (523, 22942), (527, 22960), (531, 22972), (538, 23002), (543, 23017), (548, 23026), (550, 23038), (555, 23059), (566, 23098), (577, 23155), (582, 23167), (585, 23176), (597, 23215), (600, 23227), (610, 23257), (612, 23266), (623, 23302), (632, 23341), (633, 23344), (637, 23362), (639, 23368), (654, 23428), (657, 23437), (669, 23491), (670, 23494), (673, 23503), (701, 23620), (702, 23623), (708, 23644), (716, 23677), (717, 23680), (718, 23686), (721, 23695), (726, 23722), (735, 23767), (747, 23833), (754, 23884), (756, 23890), (768, 23950), (782, 24034), (784, 24052), (785, 24064), (809, 24223), (810, 24232), (820, 24280), (828, 24313), (831, 24325), (834, 24331), (837, 24352), (838, 24355), (839, 24361), (845, 24400), (850, 24427), (886, 24613), (891, 24640),

Gene: NoPickles\_29 Start: 20260, Stop: 25362, Start Num: 19

Candidate Starts for NoPickles\_29:

(Start: 19 @20260 has 121 MA's), (Start: 22 @20290 has 2 MA's), (48, 20428), (52, 20473), (53, 20479), (54, 20488), (55, 20503), (58, 20524), (63, 20545), (70, 20575), (73, 20605), (74, 20626), (81, 20728), (85, 20788), (89, 20863), (90, 20875), (93, 20899), (97, 20929), (100, 20944), (106, 20977), (111, 21019), (116, 21070), (123, 21124), (124, 21127), (134, 21226), (137, 21250), (150, 21346), (162, 21451), (163, 21454), (174, 21523), (176, 21529), (177, 21535), (213, 21712), (223, 21763), (232, 21814), (250, 21868), (252, 21871), (288, 22042), (304, 22123), (305, 22126), (320, 22201), (332, 22258), (344, 22342), (346, 22351), (355, 22414), (356, 22420), (358, 22426), (361, 22438), (363, 22453), (364, 22456), (369, 22477), (381, 22525), (386, 22552), (392, 22573), (395, 22582), (398, 22603), (399, 22615), (401, 22624), (402, 22633), (406, 22660), (414, 22687), (415, 22690), (422, 22711), (430, 22753), (436, 22780), (439, 22789), (441, 22804), (442, 22813), (444, 22828), (446, 22840), (449, 22849), (452, 22861), (457, 22882), (460, 22891), (478, 22975), (479, 22984), (481, 22999), (482, 23002), (486, 23020), (489, 23032), (490, 23035), (497, 23062), (504, 23083), (507, 23098), (517, 23140), (519, 23155), (533, 23212), (536, 23224), (541, 23233), (546, 23245), (549, 23257), (550, 23263), (555, 23284), (559, 23296), (565, 23314), (566, 23323), (567, 23338), (568, 23344), (571, 23356), (581, 23398), (582, 23401), (585, 23410), (590, 23431), (592, 23443), (606, 23491), (609, 23500), (616, 23524), (618, 23530), (623, 23548), (624, 23557), (630, 23578), (647, 23647), (652, 23665), (653, 23668), (658, 23686), (688, 23812), (699, 23857), (713, 23908), (740, 24052), (763, 24187), (771, 24238), (783, 24316), (789, 24361), (795, 24424), (798, 24442), (805, 24472), (806, 24478), (815, 24535), (832, 24607), (843, 24667), (848, 24688), (849, 24691), (860, 24742), (862, 24751), (873, 24790), (875, 24802), (887, 24895), (895, 24940), (903, 25015), (909, 25054), (914, 25084), (922, 25141), (939, 25252), (950, 25348),

Gene: Odesza\_29 Start: 20616, Stop: 25730, Start Num: 19

Candidate Starts for Odesza\_29:

(Start: 19 @20616 has 121 MA's), (Start: 22 @20646 has 2 MA's), (49, 20793), (52, 20829), (53, 20835), (58, 20880), (63, 20901), (70, 20931), (81, 21096), (85, 21156), (89, 21231), (93, 21267), (94, 21282), (97, 21297), (100, 21312), (106, 21345), (116, 21438), (123, 21492), (124, 21495), (150, 21714), (162, 21819), (163, 21822), (174, 21891), (176, 21897), (213, 22080), (223, 22131), (232, 22182), (250, 22236), (252, 22239), (279, 22371), (301, 22473), (304, 22491), (305, 22494), (320, 22569), (332, 22626), (344, 22710), (346, 22719), (361, 22806), (369, 22845), (381, 22893), (386, 22920), (392, 22941), (395, 22950), (398, 22971), (399, 22983), (401, 22992), (402, 23001), (406, 23028), (414, 23055), (415, 23058), (422, 23079), (430, 23121), (436, 23148), (439, 23157), (441, 23172), (442, 23181), (444, 23196), (446, 23208), (449, 23217), (452, 23229), (457, 23250), (460, 23259), (478, 23343), (479, 23352), (481, 23367), (482, 23370), (486, 23388), (489, 23400), (490, 23403), (497, 23430), (504, 23451), (507, 23466), (517, 23508), (519, 23523), (533, 23580), (536, 23592), (541, 23601), (546, 23613), (549, 23625), (550, 23631), (555, 23652), (559, 23664), (565, 23682), (566, 23691), (567, 23706), (568, 23712), (571, 23724), (581, 23766), (582, 23769), (585, 23778), (590, 23799), (592, 23811), (606, 23859), (609, 23868), (616, 23892), (618, 23898), (623, 23916), (624, 23925), (630, 23946), (647, 24015), (652, 24033), (653, 24036), (658, 24054), (688, 24180), (699, 24225), (713, 24276), (740, 24420), (763, 24555), (771, 24606), (783, 24684), (789, 24729), (795, 24792), (798, 24810), (805, 24840), (806, 24846), (815, 24903), (832, 24975), (843, 25035), (848, 25056), (849, 25059), (860, 25110), (862, 25119), (873, 25158), (875, 25170), (887, 25263), (895, 25308), (903, 25383), (909, 25422), (914, 25452), (922, 25509), (939, 25620), (950, 25716),

Gene: OhMyWard\_32 Start: 24046, Stop: 29148, Start Num: 19

Candidate Starts for OhMyWard\_32:

(Start: 19 @24046 has 121 MA's), (Start: 22 @24076 has 2 MA's), (28, 24121), (52, 24259), (53, 24265), (63, 24331), (70, 24361), (81, 24526), (85, 24586), (90, 24673), (93, 24697), (97, 24727), (100, 24742), (106, 24775), (116, 24868), (136, 25036), (150, 25144), (151, 25156), (157, 25213),

(162, 25249), (163, 25252), (166, 25261), (174, 25321), (176, 25327), (213, 25510), (214, 25516), (232, 25612), (235, 25630), (277, 25786), (302, 25912), (304, 25921), (346, 26152), (347, 26158), (356, 26221), (361, 26239), (366, 26266), (371, 26284), (386, 26353), (393, 26377), (395, 26383), (398, 26404), (400, 26422), (401, 26425), (414, 26488), (426, 26533), (430, 26554), (436, 26581), (442, 26614), (446, 26641), (451, 26659), (452, 26662), (454, 26671), (459, 26689), (460, 26692), (462, 26704), (481, 26800), (489, 26833), (494, 26854), (497, 26863), (501, 26875), (504, 26884), (507, 26899), (509, 26905), (510, 26911), (512, 26920), (515, 26935), (516, 26938), (518, 26947), (519, 26956), (527, 26992), (533, 27013), (541, 27034), (550, 27064), (554, 27079), (555, 27085), (563, 27109), (565, 27115), (566, 27124), (567, 27139), (568, 27145), (577, 27181), (581, 27199), (585, 27211), (590, 27232), (592, 27244), (598, 27265), (599, 27268), (606, 27292), (609, 27301), (616, 27325), (618, 27331), (623, 27349), (624, 27358), (625, 27361), (647, 27448), (656, 27478), (687, 27610), (705, 27679), (738, 27844), (757, 27952), (762, 27985), (777, 28078), (787, 28150), (789, 28162), (790, 28171), (795, 28225), (805, 28273), (815, 28336), (826, 28387), (835, 28420), (851, 28507), (859, 28525), (866, 28555), (873, 28576), (874, 28582), (875, 28588), (881, 28615), (884, 28642), (895, 28726), (901, 28789), (903, 28801), (921, 28912), (923, 28930), (929, 28978), (950, 29134),

Gene: OlgasClover\_32 Start: 24235, Stop: 29334, Start Num: 19

Candidate Starts for OlgasClover\_32:

(Start: 19 @24235 has 121 MA's), (Start: 22 @24265 has 2 MA's), (28, 24310), (52, 24448), (53, 24454), (61, 24508), (63, 24520), (66, 24532), (70, 24550), (81, 24715), (85, 24775), (90, 24862), (93, 24886), (97, 24916), (100, 24931), (106, 24964), (116, 25057), (136, 25225), (150, 25333), (151, 25345), (157, 25402), (162, 25438), (163, 25441), (174, 25510), (176, 25516), (191, 25600), (207, 25663), (213, 25699), (219, 25732), (234, 25807), (235, 25819), (250, 25855), (264, 25906), (272, 25954), (275, 25966), (304, 26110), (312, 26149), (319, 26176), (346, 26338), (352, 26386), (356, 26407), (361, 26425), (372, 26473), (386, 26539), (398, 26590), (399, 26602), (402, 26620), (414, 26674), (426, 26719), (430, 26740), (433, 26749), (437, 26770), (440, 26782), (441, 26791), (451, 26845), (452, 26848), (454, 26857), (460, 26878), (462, 26890), (467, 26911), (469, 26917), (473, 26935), (479, 26971), (484, 27001), (497, 27049), (501, 27061), (503, 27067), (504, 27070), (506, 27082), (507, 27085), (512, 27106), (519, 27142), (532, 27196), (533, 27199), (541, 27220), (546, 27232), (547, 27235), (559, 27283), (564, 27298), (565, 27301), (566, 27310), (568, 27331), (574, 27358), (575, 27361), (581, 27385), (585, 27397), (590, 27418), (592, 27430), (594, 27439), (598, 27451), (606, 27478), (616, 27511), (618, 27517), (623, 27535), (625, 27547), (636, 27589), (640, 27604), (658, 27673), (684, 27784), (713, 27895), (724, 27940), (738, 28030), (763, 28174), (773, 28237), (777, 28264), (787, 28336), (789, 28348), (790, 28357), (795, 28411), (799, 28432), (801, 28444), (835, 28606), (851, 28693), (859, 28711), (866, 28741), (872, 28759), (873, 28762), (875, 28774), (881, 28801), (895, 28912), (903, 28987), (911, 29035), (919, 29089), (923, 29116), (940, 29230), (950, 29320),

Gene: OlympicHelado\_23 Start: 16166, Stop: 21652, Start Num: 2

Candidate Starts for OlympicHelado\_23:

(1, 16145), (Start: 2 @16166 has 30 MA's), (3, 16196), (12, 16340), (45, 16550), (55, 16667), (70, 16739), (73, 16769), (81, 16892), (88, 17018), (97, 17093), (106, 17141), (111, 17183), (132, 17372), (153, 17567), (162, 17639), (176, 17717), (191, 17801), (195, 17822), (207, 17864), (231, 17999), (250, 18053), (274, 18140), (285, 18176), (287, 18185), (296, 18227), (304, 18260), (310, 18290), (343, 18413), (346, 18434), (355, 18497), (356, 18503), (358, 18509), (363, 18536), (368, 18557), (370, 18563), (371, 18566), (377, 18590), (386, 18635), (389, 18644), (390, 18647), (404, 18731), (410, 18758), (415, 18773), (416, 18776), (423, 18794), (426, 18812), (430, 18833), (441, 18884), (454, 18950), (458, 18965), (477, 19052), (479, 19070), (483, 19097), (509, 19190), (518, 19232), (519, 19241), (527, 19277), (532, 19295), (533, 19298), (536, 19310), (550, 19352), (551, 19355), (565, 19403), (569, 19439), (571, 19445), (576, 19466), (585, 19490), (594, 19520), (612, 19580), (622, 19613), (623, 19616), (626, 19631), (635, 19667), (645, 19709), (648, 19721), (649, 19724), (663, 19772), (668, 19802), (673, 19817), (680, 19850), (683, 19865), (699, 19928), (719, 20003),

(720, 20006), (721, 20009), (728, 20045), (740, 20111), (754, 20198), (755, 20201), (772, 20300), (780, 20348), (781, 20354), (800, 20504), (803, 20513), (854, 20786), (897, 21011), (908, 21104), (912, 21125), (915, 21149), (917, 21173), (919, 21179), (920, 21185), (927, 21230), (942, 21338), (949, 21407), (955, 21494), (962, 21596), (963, 21605),

Gene: Paella\_40 Start: 29221, Stop: 33771, Start Num: 27

Candidate Starts for Paella\_40:

(Start: 27 @29221 has 2 MA's), (32, 29251), (44, 29326), (46, 29362), (53, 29440), (81, 29689), (88, 29815), (93, 29860), (94, 29875), (97, 29890), (102, 29917), (106, 29938), (109, 29962), (111, 29980), (122, 30097), (128, 30142), (131, 30160), (143, 30283), (145, 30310), (148, 30322), (151, 30343), (181, 30538), (197, 30625), (199, 30631), (210, 30673), (217, 30724), (229, 30787), (258, 30862), (260, 30871), (295, 30991), (314, 31069), (318, 31078), (346, 31246), (359, 31324), (368, 31369), (371, 31378), (377, 31402), (386, 31447), (392, 31468), (408, 31564), (419, 31597), (426, 31627), (442, 31708), (444, 31723), (445, 31726), (464, 31807), (470, 31834), (479, 31885), (483, 31912), (489, 31933), (490, 31936), (501, 31978), (522, 32074), (527, 32095), (531, 32107), (536, 32128), (538, 32137), (543, 32149), (555, 32191), (565, 32221), (566, 32230), (574, 32278), (575, 32281), (582, 32299), (585, 32308), (600, 32359), (603, 32368), (612, 32398), (623, 32434), (629, 32461), (649, 32542), (650, 32545), (670, 32626), (674, 32638), (680, 32668), (683, 32683), (686, 32692), (690, 32707), (699, 32746), (710, 32785), (714, 32800), (716, 32809), (719, 32821), (722, 32830), (723, 32833), (730, 32878), (731, 32884), (742, 32941), (746, 32956), (749, 32986), (768, 33082), (778, 33139), (784, 33184), (793, 33253), (806, 33334), (809, 33355), (814, 33388), (825, 33433), (827, 33442), (831, 33457), (834, 33463), (844, 33532), (849, 33550), (861, 33601),

Gene: Pepy6\_035 Start: 30017, Stop: 35869, Start Num: 19

Candidate Starts for Pepy6\_035:

(Start: 18 @29996 has 2 MA's), (Start: 19 @30017 has 121 MA's), (Start: 22 @30047 has 2 MA's), (28, 30092), (30, 30101), (33, 30122), (48, 30185), (53, 30236), (73, 30362), (74, 30383), (80, 30443), (81, 30485), (85, 30545), (93, 30656), (97, 30686), (100, 30701), (106, 30734), (111, 30776), (116, 30827), (123, 30881), (124, 30884), (127, 30899), (151, 31115), (158, 31175), (160, 31196), (166, 31220), (207, 31433), (213, 31469), (231, 31568), (293, 31826), (304, 31877), (312, 31916), (313, 31919), (322, 31961), (324, 31967), (331, 32012), (337, 32033), (343, 32087), (346, 32108), (366, 32222), (373, 32249), (377, 32264), (380, 32273), (384, 32300), (392, 32330), (393, 32333), (395, 32339), (400, 32378), (402, 32390), (411, 32435), (412, 32438), (426, 32489), (430, 32510), (433, 32519), (437, 32540), (442, 32570), (446, 32597), (449, 32606), (450, 32612), (460, 32648), (462, 32660), (472, 32702), (473, 32705), (476, 32717), (478, 32732), (483, 32768), (487, 32783), (497, 32819), (501, 32831), (508, 32858), (518, 32903), (519, 32912), (522, 32927), (531, 32960), (533, 32969), (535, 32975), (541, 32990), (551, 33023), (557, 33047), (562, 33062), (566, 33080), (572, 33116), (580, 33152), (582, 33158), (590, 33188), (592, 33200), (593, 33206), (598, 33221), (605, 33245), (609, 33257), (611, 33263), (613, 33272), (614, 33275), (630, 33335), (636, 33359), (656, 33434), (678, 33530), (739, 33806), (743, 33824), (744, 33830), (748, 33854), (757, 33908), (774, 34016), (779, 34043), (781, 34058), (786, 34112), (805, 34238), (814, 34298), (873, 34586), (910, 34850), (916, 34898), (931, 35000), (936, 35033), (948, 35132), (949, 35141), (956, 35246), (959, 35264), (961, 35300), (962, 35345), (966, 35627), (967, 35660), (968, 35855),

Gene: Perkunas\_31 Start: 21027, Stop: 26129, Start Num: 19

Candidate Starts for Perkunas\_31:

(Start: 19 @21027 has 121 MA's), (Start: 22 @21057 has 2 MA's), (48, 21195), (52, 21240), (58, 21291), (62, 21306), (63, 21312), (70, 21342), (73, 21372), (74, 21393), (81, 21495), (85, 21555), (93, 21666), (97, 21696), (100, 21711), (106, 21744), (111, 21786), (116, 21837), (123, 21891), (124, 21894), (134, 21993), (150, 22113), (162, 22218), (163, 22221), (174, 22290), (176, 22296), (203, 22431), (250, 22635), (252, 22638), (301, 22872), (304, 22890), (312, 22929), (319, 22956), (320, 22968), (323, 22977), (344, 23109), (346, 23118), (358, 23193), (361, 23205), (362, 23211), (381, 23292), (385, 23313), (386, 23319), (392, 23340), (395, 23349), (398, 23370), (399, 23382), (401,

23391), (402, 23400), (406, 23427), (414, 23454), (415, 23457), (422, 23478), (430, 23520), (438, 23553), (439, 23556), (441, 23571), (442, 23580), (446, 23607), (449, 23616), (452, 23628), (457, 23649), (460, 23658), (467, 23691), (478, 23742), (479, 23751), (481, 23766), (486, 23787), (490, 23802), (496, 23826), (497, 23829), (501, 23841), (503, 23847), (504, 23850), (517, 23907), (519, 23922), (533, 23979), (536, 23991), (541, 24000), (546, 24012), (549, 24024), (550, 24030), (558, 24060), (559, 24063), (562, 24072), (565, 24081), (566, 24090), (567, 24105), (568, 24111), (571, 24123), (581, 24165), (585, 24177), (590, 24198), (592, 24210), (609, 24267), (616, 24291), (618, 24297), (619, 24300), (623, 24315), (625, 24327), (630, 24345), (647, 24414), (653, 24435), (675, 24522), (699, 24624), (704, 24642), (730, 24756), (735, 24777), (740, 24819), (763, 24954), (789, 25128), (795, 25191), (798, 25209), (805, 25239), (806, 25245), (809, 25266), (832, 25374), (843, 25434), (848, 25455), (849, 25458), (860, 25509), (862, 25518), (866, 25536), (873, 25557), (875, 25569), (887, 25662), (895, 25707), (901, 25770), (903, 25782), (909, 25821), (914, 25851), (919, 25884), (922, 25908), (931, 25968), (950, 26115),

Gene: Petito\_31 Start: 21794, Stop: 26884, Start Num: 19

Candidate Starts for Petito\_31:

(Start: 19 @21794 has 121 MA's), (Start: 22 @21824 has 2 MA's), (48, 21962), (52, 22007), (53, 22013), (55, 22037), (58, 22058), (63, 22079), (70, 22109), (73, 22139), (74, 22160), (81, 22262), (85, 22322), (89, 22397), (90, 22409), (93, 22433), (97, 22463), (100, 22478), (106, 22511), (107, 22517), (111, 22553), (116, 22604), (123, 22658), (124, 22661), (134, 22760), (137, 22784), (150, 22880), (156, 22934), (159, 22964), (162, 22985), (163, 22988), (174, 23057), (176, 23063), (207, 23210), (213, 23246), (218, 23276), (232, 23348), (238, 23378), (250, 23402), (304, 23657), (320, 23735), (323, 23744), (332, 23792), (344, 23876), (346, 23885), (355, 23948), (361, 23972), (364, 23990), (369, 24011), (381, 24059), (386, 24086), (395, 24116), (398, 24137), (399, 24149), (401, 24158), (402, 24167), (414, 24221), (415, 24224), (422, 24245), (430, 24287), (436, 24314), (439, 24323), (441, 24338), (442, 24347), (444, 24362), (446, 24374), (449, 24383), (452, 24395), (457, 24416), (460, 24425), (473, 24482), (478, 24509), (479, 24518), (481, 24533), (482, 24536), (486, 24554), (497, 24596), (501, 24608), (504, 24617), (507, 24632), (517, 24674), (519, 24689), (533, 24746), (536, 24758), (541, 24767), (546, 24779), (549, 24791), (550, 24797), (555, 24818), (559, 24830), (562, 24839), (565, 24848), (566, 24857), (567, 24872), (568, 24878), (571, 24890), (577, 24914), (581, 24932), (585, 24944), (590, 24965), (592, 24977), (606, 25025), (609, 25034), (616, 25058), (618, 25064), (619, 25067), (623, 25082), (624, 25091), (625, 25094), (630, 25112), (647, 25181), (653, 25202), (673, 25280), (687, 25343), (692, 25364), (701, 25397), (726, 25499), (735, 25544), (740, 25586), (751, 25655), (763, 25721), (774, 25793), (787, 25883), (795, 25958), (806, 26012), (809, 26033), (815, 26069), (824, 26108), (826, 26120), (832, 26141), (849, 26225), (859, 26258), (866, 26288), (868, 26294), (873, 26309), (875, 26321), (893, 26447), (895, 26459), (903, 26534), (905, 26552), (909, 26573), (912, 26585), (922, 26660), (923, 26663), (950, 26870),

Gene: Phaby\_27 Start: 20255, Stop: 24850, Start Num: 19

Candidate Starts for Phaby\_27:

(Start: 18 @20234 has 2 MA's), (Start: 19 @20255 has 121 MA's), (Start: 22 @20285 has 2 MA's), (30, 20339), (70, 20570), (73, 20600), (80, 20681), (81, 20723), (82, 20741), (85, 20783), (90, 20870), (97, 20924), (100, 20939), (101, 20945), (106, 20972), (117, 21050), (119, 21065), (122, 21098), (125, 21113), (126, 21122), (129, 21149), (131, 21161), (135, 21215), (145, 21311), (150, 21332), (166, 21449), (173, 21506), (175, 21512), (187, 21569), (202, 21641), (209, 21674), (211, 21677), (265, 21911), (287, 22004), (288, 22007), (310, 22109), (312, 22115), (323, 22151), (346, 22298), (353, 22352), (354, 22355), (368, 22421), (371, 22430), (372, 22433), (377, 22454), (383, 22481), (392, 22520), (393, 22523), (415, 22637), (422, 22658), (425, 22676), (426, 22679), (444, 22775), (446, 22787), (475, 22907), (479, 22937), (481, 22952), (492, 22994), (498, 23015), (501, 23030), (504, 23039), (506, 23051), (511, 23072), (522, 23126), (527, 23147), (536, 23180), (537, 23186), (538, 23189), (545, 23207), (546, 23210), (550, 23228), (565, 23279), (566, 23288), (576, 23342), (585, 23366), (595, 23399), (602, 23423), (612, 23456), (631, 23528), (632, 23531), (637, 23552), (643, 23576), (645, 23585), (654, 23618), (655, 23621), (657, 23627), (667, 23672), (668, 23678), (680,

23726), (708, 23834), (718, 23876), (721, 23885), (749, 24044), (753, 24068), (755, 24077), (764, 24119), (768, 24140), (771, 24155), (784, 24242), (785, 24254), (792, 24296), (804, 24380), (814, 24446), (820, 24470), (831, 24515), (834, 24521), (845, 24590), (846, 24593), (850, 24617), (886, 24800),

Gene: Phaila\_25 Start: 18580, Stop: 23217, Start Num: 19

Candidate Starts for Phaila\_25:

(Start: 18 @18559 has 2 MA's), (Start: 19 @18580 has 121 MA's), (Start: 22 @18610 has 2 MA's), (30, 18664), (31, 18673), (63, 18943), (64, 18946), (73, 19003), (74, 19024), (80, 19084), (81, 19126), (85, 19186), (94, 19312), (97, 19327), (100, 19342), (106, 19375), (110, 19414), (111, 19417), (117, 19453), (119, 19468), (125, 19516), (156, 19789), (163, 19843), (166, 19852), (174, 19912), (184, 19954), (193, 20014), (194, 20020), (197, 20029), (202, 20044), (203, 20053), (223, 20152), (224, 20164), (225, 20173), (226, 20185), (305, 20470), (319, 20530), (323, 20539), (346, 20680), (352, 20728), (353, 20734), (359, 20758), (368, 20803), (371, 20812), (377, 20836), (381, 20854), (391, 20899), (392, 20902), (395, 20911), (404, 20977), (415, 21019), (419, 21031), (422, 21040), (426, 21061), (437, 21112), (442, 21142), (444, 21157), (454, 21199), (459, 21217), (469, 21265), (470, 21268), (480, 21325), (506, 21433), (509, 21442), (519, 21493), (522, 21508), (527, 21529), (536, 21562), (538, 21571), (543, 21583), (550, 21604), (552, 21610), (557, 21631), (565, 21655), (566, 21664), (582, 21733), (583, 21736), (584, 21739), (585, 21742), (594, 21772), (600, 21793), (607, 21814), (612, 21832), (615, 21841), (620, 21859), (635, 21919), (637, 21928), (643, 21952), (646, 21967), (648, 21973), (649, 21976), (662, 22021), (668, 22054), (669, 22057), (670, 22060), (675, 22078), (704, 22198), (705, 22201), (710, 22219), (728, 22297), (731, 22318), (746, 22390), (753, 22444), (756, 22456), (778, 22573), (784, 22618), (811, 22801), (814, 22822), (820, 22846), (834, 22897), (844, 22966), (849, 22984),

Gene: Phepper\_32 Start: 23282, Stop: 28393, Start Num: 19

Candidate Starts for Phepper\_32:

(Start: 19 @23282 has 121 MA's), (Start: 22 @23312 has 2 MA's), (28, 23357), (53, 23501), (63, 23567), (73, 23627), (74, 23648), (81, 23750), (88, 23876), (91, 23912), (97, 23951), (102, 23978), (106, 23999), (111, 24041), (122, 24161), (136, 24287), (144, 24362), (150, 24395), (162, 24500), (163, 24503), (232, 24863), (264, 24968), (277, 25037), (282, 25058), (298, 25139), (299, 25142), (304, 25169), (312, 25208), (319, 25235), (346, 25397), (352, 25445), (356, 25466), (361, 25484), (372, 25532), (375, 25544), (386, 25598), (398, 25649), (399, 25661), (401, 25670), (402, 25679), (414, 25733), (426, 25778), (429, 25793), (430, 25799), (433, 25808), (434, 25814), (438, 25832), (439, 25835), (440, 25841), (441, 25850), (451, 25904), (452, 25907), (454, 25916), (459, 25934), (460, 25937), (462, 25949), (467, 25970), (469, 25976), (470, 25979), (475, 26000), (479, 26030), (481, 26045), (489, 26078), (493, 26093), (497, 26108), (501, 26120), (503, 26126), (504, 26129), (506, 26141), (507, 26144), (519, 26201), (532, 26255), (533, 26258), (541, 26279), (546, 26291), (547, 26294), (559, 26342), (564, 26357), (565, 26360), (566, 26369), (568, 26390), (574, 26417), (575, 26420), (581, 26444), (585, 26456), (590, 26477), (592, 26489), (598, 26510), (606, 26537), (616, 26570), (618, 26576), (623, 26594), (630, 26624), (640, 26663), (684, 26843), (687, 26855), (705, 26924), (738, 27089), (760, 27212), (763, 27233), (783, 27362), (787, 27395), (789, 27407), (795, 27470), (799, 27491), (801, 27503), (805, 27518), (815, 27581), (835, 27665), (851, 27752), (859, 27770), (866, 27800), (872, 27818), (873, 27821), (874, 27827), (875, 27833), (881, 27860), (895, 27971), (903, 28046), (905, 28064), (919, 28148), (922, 28172), (940, 28289), (950, 28379),

Gene: Pherobrine\_31 Start: 23313, Stop: 28427, Start Num: 19

Candidate Starts for Pherobrine\_31:

(Start: 19 @23313 has 121 MA's), (Start: 22 @23343 has 2 MA's), (28, 23388), (53, 23532), (62, 23592), (63, 23598), (71, 23637), (73, 23658), (74, 23679), (81, 23781), (83, 23817), (88, 23907), (91, 23943), (97, 23982), (102, 24009), (106, 24030), (111, 24072), (122, 24192), (144, 24393), (150, 24426), (153, 24459), (159, 24510), (162, 24531), (163, 24534), (176, 24609), (203, 24744), (216, 24810), (219, 24825), (232, 24894), (235, 24912), (248, 24945), (257, 24966), (259, 24975), (264,

24999), (277, 25068), (282, 25089), (288, 25122), (289, 25125), (302, 25194), (304, 25203), (323, 25290), (336, 25350), (342, 25401), (346, 25434), (347, 25440), (356, 25503), (361, 25521), (371, 25566), (386, 25635), (393, 25659), (395, 25665), (398, 25686), (402, 25716), (414, 25770), (415, 25773), (429, 25830), (430, 25836), (438, 25869), (441, 25887), (442, 25896), (444, 25911), (446, 25923), (451, 25941), (452, 25944), (454, 25953), (457, 25965), (459, 25971), (460, 25974), (467, 26007), (472, 26028), (479, 26067), (489, 26115), (493, 26130), (494, 26136), (497, 26145), (501, 26157), (504, 26166), (506, 26178), (507, 26181), (508, 26184), (509, 26187), (510, 26193), (512, 26202), (524, 26265), (531, 26286), (533, 26295), (541, 26316), (555, 26367), (557, 26373), (558, 26376), (563, 26391), (565, 26397), (567, 26421), (568, 26427), (574, 26454), (575, 26457), (585, 26493), (590, 26514), (592, 26526), (594, 26535), (598, 26547), (606, 26574), (609, 26583), (616, 26607), (618, 26613), (623, 26631), (630, 26661), (640, 26700), (647, 26730), (656, 26760), (687, 26892), (705, 26961), (738, 27126), (757, 27234), (762, 27267), (777, 27360), (787, 27432), (789, 27444), (795, 27507), (805, 27555), (824, 27657), (829, 27678), (835, 27702), (840, 27726), (851, 27789), (859, 27807), (872, 27855), (873, 27858), (875, 27870), (881, 27897), (895, 28008), (903, 28083), (919, 28185), (923, 28212), (924, 28215), (940, 28323), (947, 28362), (950, 28413),

Gene: PherryCruz\_18 Start: 13488, Stop: 18716, Start Num: 19

Candidate Starts for PherryCruz\_18:

(Start: 18 @13467 has 2 MA's), (Start: 19 @13488 has 121 MA's), (Start: 22 @13518 has 2 MA's), (45, 13620), (49, 13671), (63, 13779), (81, 13962), (88, 14088), (91, 14124), (97, 14163), (111, 14253), (153, 14640), (176, 14790), (181, 14814), (193, 14886), (245, 15117), (269, 15195), (274, 15213), (275, 15216), (285, 15249), (309, 15357), (329, 15417), (346, 15498), (355, 15561), (356, 15567), (368, 15621), (374, 15642), (389, 15708), (390, 15711), (410, 15822), (423, 15858), (426, 15876), (437, 15927), (458, 16029), (461, 16041), (464, 16056), (478, 16125), (479, 16134), (484, 16164), (496, 16209), (503, 16230), (510, 16260), (513, 16272), (514, 16275), (518, 16296), (519, 16305), (527, 16341), (536, 16374), (561, 16455), (562, 16458), (569, 16503), (570, 16506), (571, 16509), (585, 16554), (594, 16584), (608, 16629), (612, 16644), (622, 16677), (627, 16698), (629, 16707), (631, 16716), (637, 16740), (638, 16743), (641, 16752), (645, 16773), (648, 16785), (656, 16812), (665, 16851), (670, 16872), (676, 16893), (678, 16908), (680, 16914), (714, 17046), (716, 17055), (718, 17064), (721, 17073), (722, 17076), (724, 17088), (725, 17091), (726, 17100), (728, 17109), (746, 17202), (753, 17256), (772, 17364), (775, 17379), (803, 17577), (847, 17811), (864, 17886), (907, 18165), (908, 18168), (912, 18189), (917, 18237), (919, 18243), (935, 18351), (944, 18423), (952, 18525), (963, 18678),

Gene: Pippin15\_25 Start: 18244, Stop: 22791, Start Num: 22

Candidate Starts for Pippin15\_25:

(Start: 19 @18211 has 121 MA's), (Start: 22 @18244 has 2 MA's), (49, 18391), (60, 18484), (81, 18679), (83, 18715), (88, 18805), (106, 18928), (111, 18970), (122, 19090), (155, 19372), (159, 19408), (166, 19441), (176, 19507), (205, 19654), (219, 19735), (237, 19828), (275, 19954), (290, 20008), (346, 20260), (370, 20389), (371, 20392), (374, 20404), (383, 20443), (396, 20503), (399, 20524), (412, 20590), (415, 20599), (426, 20641), (428, 20647), (430, 20662), (435, 20683), (455, 20782), (466, 20833), (472, 20860), (477, 20881), (479, 20899), (486, 20935), (491, 20953), (501, 20995), (507, 21019), (508, 21022), (511, 21037), (514, 21046), (527, 21115), (533, 21136), (536, 21148), (539, 21157), (544, 21169), (551, 21193), (565, 21241), (582, 21319), (585, 21328), (607, 21400), (610, 21409), (612, 21418), (631, 21490), (642, 21532), (648, 21559), (661, 21604), (671, 21649), (672, 21652), (680, 21688), (690, 21727), (696, 21757), (710, 21805), (722, 21850), (732, 21907), (749, 22006), (750, 22015), (755, 22039), (761, 22060), (778, 22159), (784, 22204), (812, 22390), (819, 22432), (822, 22444), (828, 22465), (831, 22477), (844, 22552), (846, 22555), (849, 22570), (876, 22681), (890, 22780),

Gene: Poco6\_036 Start: 32036, Stop: 37891, Start Num: 19

Candidate Starts for Poco6\_036:



(Start: 19 @32036 has 121 MA's), (Start: 22 @32066 has 2 MA's), (28, 32111), (30, 32120), (33, 32141), (48, 32204), (53, 32255), (55, 32279), (73, 32381), (74, 32402), (81, 32519), (85, 32579), (93, 32690), (97, 32720), (100, 32735), (106, 32768), (116, 32861), (124, 32909), (146, 33110), (151, 33140), (176, 33311), (193, 33407), (213, 33494), (293, 33851), (304, 33902), (312, 33941), (322, 33986), (331, 34037), (337, 34058), (343, 34112), (346, 34133), (354, 34190), (366, 34247), (373, 34274), (377, 34289), (380, 34298), (384, 34325), (392, 34355), (393, 34358), (395, 34364), (402, 34415), (412, 34463), (426, 34514), (430, 34535), (433, 34544), (437, 34565), (441, 34586), (450, 34637), (452, 34643), (457, 34664), (460, 34673), (462, 34685), (466, 34700), (472, 34727), (473, 34730), (478, 34757), (493, 34829), (497, 34844), (501, 34856), (508, 34883), (518, 34928), (519, 34937), (531, 34985), (533, 34994), (541, 35015), (551, 35048), (555, 35066), (557, 35072), (562, 35087), (563, 35090), (564, 35093), (566, 35105), (580, 35177), (582, 35183), (590, 35213), (592, 35225), (593, 35231), (596, 35240), (598, 35246), (605, 35270), (609, 35282), (611, 35288), (630, 35360), (636, 35384), (653, 35450), (656, 35459), (673, 35528), (678, 35555), (739, 35831), (743, 35849), (748, 35879), (752, 35912), (757, 35933), (774, 36041), (779, 36068), (786, 36137), (789, 36152), (857, 36542), (910, 36872), (916, 36920), (931, 37022), (949, 37163), (956, 37268), (961, 37322), (962, 37367), (964, 37433), (965, 37532), (966, 37649), (967, 37682), (968, 37877),

Gene: Popy\_23 Start: 16676, Stop: 22156, Start Num: 2

Candidate Starts for Popy\_23:

(1, 16655), (Start: 2 @16676 has 30 MA's), (3, 16706), (12, 16850), (17, 16901), (24, 16985), (45, 17060), (55, 17177), (56, 17180), (62, 17213), (70, 17249), (73, 17279), (81, 17402), (88, 17528), (91, 17564), (97, 17603), (99, 17615), (106, 17651), (111, 17693), (132, 17885), (137, 17951), (145, 18026), (150, 18047), (153, 18080), (161, 18143), (162, 18152), (176, 18230), (207, 18377), (230, 18509), (250, 18566), (270, 18644), (274, 18653), (276, 18662), (285, 18689), (302, 18764), (304, 18773), (321, 18839), (322, 18842), (338, 18881), (346, 18935), (356, 19004), (368, 19058), (377, 19091), (386, 19136), (389, 19145), (392, 19157), (404, 19232), (418, 19283), (423, 19295), (430, 19334), (437, 19364), (440, 19376), (447, 19424), (458, 19466), (468, 19514), (479, 19571), (509, 19691), (518, 19733), (519, 19742), (527, 19778), (532, 19796), (533, 19799), (536, 19811), (550, 19853), (551, 19856), (565, 19904), (569, 19940), (571, 19946), (576, 19967), (585, 19991), (612, 20081), (622, 20114), (626, 20132), (629, 20144), (631, 20153), (645, 20210), (648, 20222), (649, 20225), (654, 20243), (668, 20303), (673, 20318), (680, 20351), (683, 20366), (702, 20438), (714, 20483), (718, 20501), (721, 20510), (728, 20546), (731, 20567), (732, 20570), (764, 20756), (768, 20777), (770, 20783), (772, 20801), (773, 20804), (775, 20816), (780, 20849), (781, 20855), (800, 21005), (803, 21014), (854, 21287), (881, 21389), (908, 21605), (912, 21626), (917, 21674), (919, 21680), (920, 21686), (927, 21731), (944, 21860), (949, 21908), (962, 22100), (963, 22109),

Gene: ProfFrink\_23 Start: 17240, Stop: 21790, Start Num: 19

Candidate Starts for ProfFrink\_23:

(Start: 18 @17219 has 2 MA's), (Start: 19 @17240 has 121 MA's), (Start: 22 @17270 has 2 MA's), (25, 17303), (53, 17459), (68, 17543), (70, 17555), (73, 17585), (80, 17666), (81, 17708), (82, 17726), (85, 17768), (87, 17798), (89, 17843), (90, 17855), (97, 17909), (100, 17924), (106, 17957), (113, 18020), (119, 18050), (122, 18083), (125, 18098), (131, 18146), (145, 18296), (150, 18317), (163, 18425), (166, 18434), (172, 18482), (199, 18617), (209, 18659), (228, 18773), (241, 18824), (244, 18836), (267, 18917), (288, 19001), (291, 19019), (302, 19064), (312, 19109), (313, 19112), (314, 19118), (325, 19151), (346, 19262), (356, 19331), (357, 19334), (366, 19376), (368, 19385), (371, 19394), (379, 19424), (386, 19463), (388, 19469), (392, 19484), (399, 19526), (422, 19622), (426, 19643), (427, 19646), (431, 19667), (442, 19724), (444, 19739), (451, 19769), (454, 19781), (461, 19808), (464, 19823), (475, 19871), (479, 19901), (481, 19916), (489, 19949), (491, 19955), (501, 19994), (504, 20003), (506, 20015), (511, 20036), (524, 20102), (527, 20111), (536, 20144), (537, 20150), (538, 20153), (543, 20165), (545, 20168), (551, 20189), (556, 20210), (566, 20246), (574, 20294), (585, 20324), (612, 20414), (628, 20471), (639, 20516), (643, 20534), (650, 20561), (652, 20570), (654, 20576), (668, 20636), (672, 20648), (675, 20660), (687, 20714), (697, 20756), (699, 20762), (701, 20768), (710, 20801), (711, 20804), (717, 20828), (718, 20834), (720, 20840), (721,

20843), (730, 20894), (733, 20906), (740, 20945), (764, 21077), (771, 21113), (778, 21155), (784, 21200), (794, 21290), (810, 21380), (814, 21404), (820, 21428), (822, 21440), (825, 21449), (828, 21461), (831, 21473), (841, 21518), (845, 21548), (849, 21566), (856, 21605),

Gene: Qui\_40 Start: 29221, Stop: 33771, Start Num: 27

Candidate Starts for Qui\_40:

(Start: 27 @29221 has 2 MA's), (32, 29251), (44, 29326), (46, 29362), (53, 29440), (81, 29689), (88, 29815), (93, 29860), (94, 29875), (97, 29890), (102, 29917), (106, 29938), (109, 29962), (111, 29980), (122, 30097), (128, 30142), (131, 30160), (143, 30283), (145, 30310), (148, 30322), (151, 30343), (181, 30538), (197, 30625), (199, 30631), (210, 30673), (217, 30724), (229, 30787), (258, 30862), (260, 30871), (295, 30991), (314, 31069), (318, 31078), (346, 31246), (359, 31324), (368, 31369), (371, 31378), (377, 31402), (386, 31447), (392, 31468), (408, 31564), (419, 31597), (426, 31627), (442, 31708), (444, 31723), (445, 31726), (464, 31807), (470, 31834), (479, 31885), (483, 31912), (489, 31933), (490, 31936), (501, 31978), (522, 32074), (527, 32095), (531, 32107), (536, 32128), (538, 32137), (543, 32149), (555, 32191), (565, 32221), (566, 32230), (574, 32278), (575, 32281), (582, 32299), (585, 32308), (600, 32359), (603, 32368), (612, 32398), (623, 32434), (629, 32461), (649, 32542), (650, 32545), (670, 32626), (674, 32638), (680, 32668), (683, 32683), (686, 32692), (690, 32707), (699, 32746), (710, 32785), (714, 32800), (716, 32809), (719, 32821), (722, 32830), (723, 32833), (730, 32878), (731, 32884), (742, 32941), (746, 32956), (749, 32986), (768, 33082), (778, 33139), (784, 33184), (793, 33253), (806, 33334), (809, 33355), (814, 33388), (825, 33433), (827, 33442), (831, 33457), (834, 33463), (844, 33532), (849, 33550), (861, 33601),

Gene: Rainydai\_21 Start: 15072, Stop: 20549, Start Num: 2

Candidate Starts for Rainydai\_21:

(Start: 2 @15072 has 30 MA's), (3, 15102), (7, 15183), (9, 15213), (10, 15216), (12, 15246), (81, 15798), (88, 15924), (95, 15987), (97, 15999), (105, 16041), (111, 16089), (118, 16173), (132, 16281), (150, 16443), (153, 16476), (162, 16548), (176, 16626), (207, 16773), (285, 17085), (287, 17094), (303, 17157), (346, 17331), (351, 17373), (356, 17400), (359, 17409), (371, 17463), (377, 17487), (390, 17544), (411, 17658), (423, 17691), (430, 17730), (440, 17772), (441, 17781), (446, 17817), (458, 17862), (469, 17913), (477, 17949), (479, 17967), (484, 17997), (494, 18036), (495, 18039), (506, 18078), (507, 18081), (514, 18108), (518, 18129), (519, 18138), (526, 18171), (527, 18174), (533, 18195), (553, 18258), (569, 18336), (571, 18342), (582, 18378), (583, 18381), (584, 18384), (585, 18387), (603, 18447), (606, 18456), (612, 18477), (621, 18507), (622, 18510), (637, 18573), (638, 18576), (639, 18579), (649, 18621), (654, 18639), (663, 18669), (673, 18714), (675, 18723), (680, 18747), (698, 18822), (700, 18828), (714, 18879), (721, 18906), (724, 18921), (726, 18933), (728, 18942), (732, 18966), (745, 19032), (754, 19095), (759, 19119), (772, 19197), (780, 19245), (785, 19287), (803, 19410), (825, 19527), (847, 19644), (866, 19725), (876, 19770), (885, 19815), (908, 20001), (912, 20022), (913, 20034), (919, 20076), (927, 20127), (934, 20175), (938, 20214), (946, 20265), (954, 20388), (960, 20427),

Gene: Raunak\_23 Start: 17270, Stop: 21790, Start Num: 22

Candidate Starts for Raunak\_23:

(Start: 18 @17219 has 2 MA's), (Start: 19 @17240 has 121 MA's), (Start: 22 @17270 has 2 MA's), (25, 17303), (53, 17459), (68, 17543), (70, 17555), (73, 17585), (80, 17666), (81, 17708), (82, 17726), (85, 17768), (87, 17798), (89, 17843), (90, 17855), (97, 17909), (100, 17924), (106, 17957), (113, 18020), (119, 18050), (122, 18083), (125, 18098), (131, 18146), (145, 18296), (150, 18317), (163, 18425), (166, 18434), (172, 18482), (209, 18659), (228, 18773), (241, 18824), (244, 18836), (267, 18917), (288, 19001), (291, 19019), (302, 19064), (312, 19109), (313, 19112), (314, 19118), (325, 19151), (346, 19262), (356, 19331), (357, 19334), (359, 19340), (366, 19376), (368, 19385), (371, 19394), (379, 19424), (386, 19463), (388, 19469), (392, 19484), (399, 19526), (422, 19622), (426, 19643), (427, 19646), (431, 19667), (442, 19724), (444, 19739), (451, 19769), (454, 19781), (461, 19808), (464, 19823), (475, 19871), (479, 19901), (481, 19916), (489, 19949), (491, 19955), (501, 19994), (504, 20003), (506, 20015), (511, 20036), (524, 20102), (527, 20111), (536, 20144), (537,

20150), (538, 20153), (543, 20165), (545, 20168), (551, 20189), (556, 20210), (566, 20246), (574, 20294), (585, 20324), (612, 20414), (628, 20471), (639, 20516), (643, 20534), (650, 20561), (652, 20570), (654, 20576), (672, 20648), (675, 20660), (687, 20714), (695, 20750), (699, 20762), (701, 20768), (711, 20804), (718, 20834), (720, 20840), (721, 20843), (730, 20894), (733, 20906), (740, 20945), (764, 21077), (771, 21113), (778, 21155), (784, 21200), (794, 21290), (810, 21380), (814, 21404), (820, 21428), (822, 21440), (825, 21449), (828, 21461), (831, 21473), (841, 21518), (845, 21548), (849, 21566), (856, 21605), (878, 21683),

Gene: RavenPuff\_18 Start: 13488, Stop: 18716, Start Num: 19

Candidate Starts for RavenPuff\_18:

(Start: 18 @13467 has 2 MA's), (Start: 19 @13488 has 121 MA's), (Start: 22 @13518 has 2 MA's), (45, 13620), (49, 13671), (63, 13779), (81, 13962), (88, 14088), (91, 14124), (97, 14163), (111, 14253), (153, 14640), (176, 14790), (181, 14814), (193, 14886), (245, 15117), (269, 15195), (274, 15213), (275, 15216), (285, 15249), (309, 15357), (329, 15417), (346, 15498), (355, 15561), (356, 15567), (368, 15621), (374, 15642), (389, 15708), (390, 15711), (410, 15822), (423, 15858), (426, 15876), (437, 15927), (458, 16029), (461, 16041), (464, 16056), (478, 16125), (479, 16134), (484, 16164), (496, 16209), (503, 16230), (510, 16260), (513, 16272), (514, 16275), (518, 16296), (519, 16305), (527, 16341), (536, 16374), (561, 16455), (562, 16458), (569, 16503), (570, 16506), (571, 16509), (585, 16554), (594, 16584), (608, 16629), (612, 16644), (622, 16677), (627, 16698), (629, 16707), (631, 16716), (637, 16740), (638, 16743), (641, 16752), (645, 16773), (648, 16785), (656, 16812), (665, 16851), (670, 16872), (676, 16893), (678, 16908), (680, 16914), (714, 17046), (716, 17055), (718, 17064), (721, 17073), (722, 17076), (724, 17088), (725, 17091), (726, 17100), (728, 17109), (746, 17202), (753, 17256), (772, 17364), (775, 17379), (803, 17577), (847, 17811), (864, 17886), (907, 18165), (908, 18168), (912, 18189), (917, 18237), (919, 18243), (935, 18351), (944, 18423), (952, 18525), (963, 18678),

Gene: Regigigas\_22 Start: 15072, Stop: 20549, Start Num: 2

Candidate Starts for Regigigas\_22:

(Start: 2 @15072 has 30 MA's), (3, 15102), (7, 15183), (9, 15213), (10, 15216), (12, 15246), (81, 15798), (88, 15924), (95, 15987), (97, 15999), (105, 16041), (111, 16089), (118, 16173), (132, 16281), (150, 16443), (153, 16476), (162, 16548), (176, 16626), (207, 16773), (285, 17085), (287, 17094), (303, 17157), (346, 17331), (351, 17373), (356, 17400), (359, 17409), (371, 17463), (377, 17487), (390, 17544), (411, 17658), (423, 17691), (430, 17730), (440, 17772), (441, 17781), (446, 17817), (458, 17862), (469, 17913), (477, 17949), (479, 17967), (484, 17997), (494, 18036), (495, 18039), (506, 18078), (507, 18081), (514, 18108), (518, 18129), (519, 18138), (526, 18171), (527, 18174), (533, 18195), (553, 18258), (569, 18336), (571, 18342), (582, 18378), (583, 18381), (584, 18384), (585, 18387), (603, 18447), (606, 18456), (612, 18477), (621, 18507), (622, 18510), (637, 18573), (638, 18576), (639, 18579), (649, 18621), (654, 18639), (663, 18669), (673, 18714), (675, 18723), (680, 18747), (698, 18822), (700, 18828), (714, 18879), (721, 18906), (724, 18921), (726, 18933), (728, 18942), (732, 18966), (745, 19032), (754, 19095), (759, 19119), (772, 19197), (780, 19245), (785, 19287), (803, 19410), (825, 19527), (847, 19644), (866, 19725), (876, 19770), (885, 19815), (908, 20001), (912, 20022), (913, 20034), (919, 20076), (927, 20127), (934, 20175), (938, 20214), (946, 20265), (954, 20388), (960, 20427),

Gene: Renaldo\_31 Start: 21026, Stop: 25564, Start Num: 33

Candidate Starts for Renaldo\_31:

(Start: 18 @20900 has 2 MA's), (Start: 19 @20921 has 121 MA's), (Start: 22 @20951 has 2 MA's), (30, 21005), (33, 21026), (38, 21062), (53, 21230), (62, 21290), (73, 21356), (74, 21377), (81, 21479), (82, 21497), (85, 21539), (89, 21614), (90, 21626), (97, 21680), (100, 21695), (106, 21728), (117, 21806), (119, 21821), (130, 21911), (136, 21980), (156, 22142), (163, 22196), (174, 22265), (184, 22307), (193, 22367), (194, 22373), (197, 22382), (202, 22397), (203, 22406), (223, 22505), (224, 22517), (226, 22538), (287, 22745), (292, 22769), (305, 22823), (323, 22892), (346, 23033), (357, 23105), (359, 23111), (368, 23156), (370, 23162), (371, 23165), (377, 23189), (381, 23207), (391,

23252), (392, 23255), (394, 23261), (395, 23264), (399, 23297), (402, 23315), (415, 23372), (422, 23393), (426, 23414), (436, 23462), (442, 23495), (444, 23510), (459, 23570), (506, 23786), (507, 23789), (519, 23846), (522, 23861), (524, 23873), (527, 23882), (536, 23915), (538, 23924), (543, 23936), (550, 23957), (565, 24008), (566, 24017), (574, 24065), (582, 24086), (584, 24092), (585, 24095), (603, 24155), (612, 24185), (615, 24194), (637, 24281), (638, 24284), (639, 24287), (643, 24305), (646, 24320), (651, 24335), (662, 24374), (668, 24407), (669, 24410), (670, 24413), (672, 24419), (675, 24431), (705, 24554), (710, 24572), (732, 24674), (746, 24743), (753, 24797), (778, 24926), (784, 24971), (793, 25040), (814, 25175), (820, 25199), (831, 25244), (834, 25250), (841, 25289), (844, 25319),

Gene: Rickmore\_31 Start: 21933, Stop: 27044, Start Num: 19

Candidate Starts for Rickmore\_31:

(Start: 19 @21933 has 121 MA's), (Start: 22 @21963 has 2 MA's), (28, 22008), (53, 22152), (62, 22212), (63, 22218), (73, 22278), (74, 22299), (81, 22401), (87, 22491), (88, 22527), (91, 22563), (97, 22602), (99, 22614), (106, 22650), (111, 22692), (117, 22764), (122, 22812), (136, 22938), (140, 22980), (144, 23013), (145, 23025), (150, 23046), (162, 23151), (163, 23154), (207, 23376), (216, 23430), (272, 23667), (274, 23676), (282, 23709), (284, 23721), (298, 23790), (299, 23793), (304, 23820), (319, 23886), (346, 24048), (352, 24096), (355, 24111), (356, 24117), (359, 24126), (361, 24135), (386, 24249), (398, 24300), (399, 24312), (401, 24321), (402, 24330), (406, 24357), (426, 24429), (430, 24450), (433, 24459), (439, 24486), (441, 24501), (442, 24510), (451, 24555), (452, 24558), (460, 24588), (462, 24600), (468, 24624), (472, 24642), (473, 24645), (478, 24672), (479, 24681), (482, 24699), (489, 24729), (497, 24759), (501, 24771), (503, 24777), (504, 24780), (507, 24795), (509, 24801), (519, 24852), (532, 24906), (536, 24921), (541, 24930), (546, 24942), (547, 24945), (549, 24954), (558, 24990), (559, 24993), (564, 25008), (565, 25011), (566, 25020), (568, 25041), (574, 25068), (575, 25071), (582, 25098), (585, 25107), (590, 25128), (592, 25140), (598, 25161), (606, 25188), (616, 25221), (618, 25227), (623, 25245), (625, 25257), (630, 25275), (653, 25365), (658, 25383), (659, 25386), (702, 25563), (711, 25596), (738, 25740), (740, 25749), (760, 25863), (763, 25884), (777, 25974), (787, 26046), (789, 26058), (790, 26067), (795, 26121), (799, 26142), (805, 26169), (806, 26175), (815, 26232), (825, 26274), (851, 26403), (859, 26421), (866, 26451), (873, 26472), (875, 26484), (895, 26622), (903, 26697), (919, 26799), (922, 26823), (923, 26826), (933, 26892), (940, 26940), (950, 27030),

Gene: Rima\_23 Start: 16166, Stop: 21652, Start Num: 2

Candidate Starts for Rima\_23:

(1, 16145), (Start: 2 @16166 has 30 MA's), (3, 16196), (12, 16340), (45, 16550), (55, 16667), (70, 16739), (73, 16769), (81, 16892), (88, 17018), (97, 17093), (106, 17141), (111, 17183), (132, 17372), (153, 17567), (162, 17639), (176, 17717), (195, 17822), (207, 17864), (231, 17999), (250, 18053), (274, 18140), (285, 18176), (287, 18185), (296, 18227), (304, 18260), (310, 18290), (343, 18413), (346, 18434), (355, 18497), (356, 18503), (358, 18509), (363, 18536), (368, 18557), (370, 18563), (371, 18566), (377, 18590), (386, 18635), (389, 18644), (390, 18647), (392, 18656), (404, 18731), (410, 18758), (416, 18776), (423, 18794), (426, 18812), (430, 18833), (441, 18884), (454, 18950), (458, 18965), (477, 19052), (479, 19070), (483, 19097), (508, 19187), (509, 19190), (518, 19232), (519, 19241), (527, 19277), (532, 19295), (533, 19298), (550, 19352), (551, 19355), (565, 19403), (569, 19439), (571, 19445), (576, 19466), (585, 19490), (594, 19520), (612, 19580), (622, 19613), (623, 19616), (626, 19631), (635, 19667), (645, 19709), (648, 19721), (649, 19724), (663, 19772), (668, 19802), (673, 19817), (680, 19850), (683, 19865), (699, 19928), (720, 20006), (721, 20009), (728, 20045), (740, 20111), (754, 20198), (755, 20201), (772, 20300), (780, 20348), (781, 20354), (803, 20513), (854, 20786), (864, 20822), (881, 20888), (897, 21011), (901, 21062), (908, 21104), (912, 21125), (917, 21173), (919, 21179), (920, 21185), (927, 21230), (942, 21338), (944, 21359), (949, 21407), (955, 21494), (962, 21596), (963, 21605),

Gene: Roney\_29 Start: 20616, Stop: 25730, Start Num: 19

Candidate Starts for Roney\_29:

(Start: 19 @20616 has 121 MA's), (Start: 22 @20646 has 2 MA's), (49, 20793), (52, 20829), (53, 20835), (58, 20880), (63, 20901), (70, 20931), (81, 21096), (85, 21156), (89, 21231), (93, 21267), (94, 21282), (97, 21297), (100, 21312), (106, 21345), (116, 21438), (123, 21492), (124, 21495), (150, 21714), (162, 21819), (163, 21822), (174, 21891), (176, 21897), (213, 22080), (223, 22131), (232, 22182), (250, 22236), (252, 22239), (279, 22371), (301, 22473), (304, 22491), (305, 22494), (320, 22569), (332, 22626), (344, 22710), (346, 22719), (361, 22806), (369, 22845), (381, 22893), (386, 22920), (392, 22941), (395, 22950), (398, 22971), (399, 22983), (401, 22992), (402, 23001), (406, 23028), (414, 23055), (415, 23058), (422, 23079), (430, 23121), (436, 23148), (439, 23157), (441, 23172), (442, 23181), (444, 23196), (446, 23208), (449, 23217), (452, 23229), (457, 23250), (460, 23259), (478, 23343), (479, 23352), (481, 23367), (482, 23370), (486, 23388), (489, 23400), (490, 23403), (497, 23430), (504, 23451), (507, 23466), (511, 23484), (517, 23508), (519, 23523), (533, 23580), (536, 23592), (541, 23601), (546, 23613), (549, 23625), (550, 23631), (555, 23652), (559, 23664), (565, 23682), (566, 23691), (567, 23706), (568, 23712), (571, 23724), (581, 23766), (582, 23769), (585, 23778), (590, 23799), (592, 23811), (606, 23859), (609, 23868), (616, 23892), (618, 23898), (623, 23916), (624, 23925), (630, 23946), (647, 24015), (652, 24033), (653, 24036), (658, 24054), (688, 24180), (699, 24225), (713, 24276), (740, 24420), (763, 24555), (771, 24606), (783, 24684), (789, 24729), (795, 24792), (798, 24810), (805, 24840), (806, 24846), (815, 24903), (832, 24975), (843, 25035), (848, 25056), (849, 25059), (860, 25110), (862, 25119), (873, 25158), (875, 25170), (887, 25263), (895, 25308), (903, 25383), (909, 25422), (914, 25452), (922, 25509), (939, 25620), (950, 25716),

Gene: RosaAsantewaa\_19 Start: 13292, Stop: 18511, Start Num: 19

Candidate Starts for RosaAsantewaa\_19:

(Start: 18 @13271 has 2 MA's), (Start: 19 @13292 has 121 MA's), (Start: 22 @13322 has 2 MA's), (36, 13397), (42, 13403), (54, 13526), (78, 13703), (81, 13766), (88, 13892), (97, 13967), (104, 14000), (106, 14015), (111, 14057), (132, 14249), (135, 14294), (145, 14390), (153, 14444), (176, 14594), (192, 14687), (209, 14750), (270, 15008), (304, 15137), (321, 15203), (323, 15209), (340, 15257), (346, 15308), (352, 15356), (356, 15377), (371, 15440), (377, 15464), (386, 15509), (389, 15518), (412, 15638), (415, 15647), (423, 15668), (430, 15707), (449, 15803), (455, 15827), (458, 15839), (469, 15890), (478, 15935), (495, 16016), (506, 16055), (507, 16058), (511, 16076), (513, 16082), (514, 16085), (518, 16106), (519, 16115), (525, 16145), (527, 16151), (531, 16163), (569, 16313), (571, 16319), (585, 16364), (612, 16454), (614, 16460), (622, 16487), (638, 16553), (654, 16616), (672, 16688), (680, 16724), (683, 16739), (695, 16790), (718, 16874), (721, 16883), (724, 16898), (728, 16919), (729, 16922), (731, 16940), (745, 17009), (772, 17174), (776, 17198), (803, 17387), (837, 17558), (847, 17621), (864, 17696), (885, 17792), (908, 17978), (912, 17999), (919, 18053), (926, 18095), (928, 18116), (930, 18137), (936, 18173), (937, 18182), (938, 18191), (944, 18233), (951, 18305), (957, 18392),

Gene: Runhaar\_32 Start: 23285, Stop: 28396, Start Num: 19

Candidate Starts for Runhaar\_32:

(Start: 19 @23285 has 121 MA's), (Start: 22 @23315 has 2 MA's), (28, 23360), (33, 23390), (53, 23504), (63, 23570), (73, 23630), (74, 23651), (81, 23753), (88, 23879), (91, 23915), (97, 23954), (102, 23981), (106, 24002), (111, 24044), (120, 24143), (122, 24164), (136, 24290), (144, 24365), (145, 24377), (150, 24398), (162, 24503), (163, 24506), (232, 24866), (264, 24971), (277, 25040), (282, 25061), (298, 25142), (299, 25145), (304, 25172), (312, 25211), (319, 25238), (346, 25400), (352, 25448), (356, 25469), (361, 25487), (372, 25535), (375, 25547), (386, 25601), (398, 25652), (399, 25664), (401, 25673), (402, 25682), (414, 25736), (426, 25781), (429, 25796), (430, 25802), (433, 25811), (434, 25817), (438, 25835), (439, 25838), (440, 25844), (441, 25853), (451, 25907), (452, 25910), (454, 25919), (459, 25937), (460, 25940), (462, 25952), (467, 25973), (469, 25979), (470, 25982), (475, 26003), (479, 26033), (481, 26048), (489, 26081), (493, 26096), (497, 26111), (501, 26123), (503, 26129), (504, 26132), (506, 26144), (507, 26147), (519, 26204), (532, 26258), (533, 26261), (541, 26282), (546, 26294), (547, 26297), (559, 26345), (564, 26360), (565, 26363), (566, 26372), (568, 26393), (574, 26420), (575, 26423), (581, 26447), (585, 26459), (590, 26480),

(592, 26492), (598, 26513), (606, 26540), (616, 26573), (618, 26579), (623, 26597), (630, 26627), (640, 26666), (684, 26846), (687, 26858), (705, 26927), (738, 27092), (760, 27215), (763, 27236), (783, 27365), (787, 27398), (789, 27410), (795, 27473), (799, 27494), (801, 27506), (805, 27521), (815, 27584), (835, 27668), (851, 27755), (859, 27773), (866, 27803), (872, 27821), (873, 27824), (874, 27830), (875, 27836), (881, 27863), (895, 27974), (903, 28049), (905, 28067), (919, 28151), (922, 28175), (940, 28292), (950, 28382),

Gene: Salk\_23 Start: 17240, Stop: 21790, Start Num: 19

Candidate Starts for Salk\_23:

(Start: 18 @17219 has 2 MA's), (Start: 19 @17240 has 121 MA's), (Start: 22 @17270 has 2 MA's), (25, 17303), (53, 17459), (68, 17543), (70, 17555), (73, 17585), (80, 17666), (81, 17708), (82, 17726), (85, 17768), (87, 17798), (89, 17843), (90, 17855), (97, 17909), (100, 17924), (106, 17957), (113, 18020), (119, 18050), (122, 18083), (125, 18098), (131, 18146), (145, 18296), (150, 18317), (163, 18425), (166, 18434), (172, 18482), (199, 18617), (209, 18659), (228, 18773), (241, 18824), (244, 18836), (267, 18917), (288, 19001), (291, 19019), (302, 19064), (312, 19109), (313, 19112), (314, 19118), (325, 19151), (346, 19262), (356, 19331), (357, 19334), (366, 19376), (368, 19385), (371, 19394), (379, 19424), (386, 19463), (388, 19469), (392, 19484), (399, 19526), (422, 19622), (426, 19643), (427, 19646), (431, 19667), (442, 19724), (444, 19739), (451, 19769), (454, 19781), (461, 19808), (464, 19823), (475, 19871), (479, 19901), (481, 19916), (489, 19949), (491, 19955), (501, 19994), (504, 20003), (506, 20015), (511, 20036), (524, 20102), (527, 20111), (536, 20144), (537, 20150), (538, 20153), (543, 20165), (545, 20168), (551, 20189), (556, 20210), (566, 20246), (574, 20294), (585, 20324), (612, 20414), (628, 20471), (639, 20516), (643, 20534), (650, 20561), (652, 20570), (654, 20576), (668, 20636), (672, 20648), (675, 20660), (687, 20714), (695, 20750), (697, 20756), (699, 20762), (701, 20768), (711, 20804), (717, 20828), (718, 20834), (720, 20840), (721, 20843), (730, 20894), (733, 20906), (740, 20945), (764, 21077), (771, 21113), (778, 21155), (784, 21200), (794, 21290), (810, 21380), (814, 21404), (820, 21428), (822, 21440), (825, 21449), (828, 21461), (831, 21473), (841, 21518), (845, 21548), (849, 21566), (856, 21605), (878, 21683),

Gene: Scap1\_19 Start: 13425, Stop: 18671, Start Num: 18

Candidate Starts for Scap1\_19:

(Start: 18 @13425 has 2 MA's), (Start: 19 @13446 has 121 MA's), (Start: 22 @13476 has 2 MA's), (49, 13629), (58, 13716), (63, 13737), (68, 13755), (76, 13848), (81, 13920), (88, 14046), (91, 14082), (97, 14121), (99, 14133), (109, 14193), (111, 14211), (135, 14448), (153, 14598), (176, 14748), (181, 14772), (206, 14889), (245, 15075), (263, 15123), (274, 15171), (285, 15207), (287, 15216), (321, 15357), (323, 15363), (346, 15456), (356, 15525), (371, 15588), (375, 15603), (377, 15612), (378, 15615), (390, 15669), (399, 15720), (416, 15798), (423, 15816), (440, 15897), (458, 15987), (469, 16038), (478, 16083), (479, 16092), (484, 16122), (496, 16167), (503, 16188), (506, 16203), (513, 16230), (514, 16233), (518, 16254), (519, 16263), (527, 16299), (569, 16461), (571, 16467), (582, 16503), (585, 16512), (594, 16542), (600, 16563), (602, 16569), (606, 16581), (608, 16587), (612, 16602), (622, 16635), (627, 16656), (629, 16665), (631, 16674), (638, 16701), (645, 16731), (648, 16743), (649, 16746), (673, 16839), (680, 16872), (683, 16887), (716, 17013), (718, 17022), (721, 17031), (722, 17034), (724, 17046), (728, 17067), (729, 17070), (748, 17178), (770, 17304), (772, 17322), (803, 17535), (808, 17565), (825, 17652), (852, 17796), (874, 17877), (886, 17973), (908, 18126), (912, 18147), (923, 18231), (930, 18285), (934, 18300), (942, 18360), (944, 18381), (945, 18384), (948, 18420), (951, 18453), (963, 18633),

Gene: Schwartz33\_33 Start: 23640, Stop: 28727, Start Num: 19

Candidate Starts for Schwartz33\_33:

(Start: 19 @23640 has 121 MA's), (20, 23646), (Start: 22 @23670 has 2 MA's), (49, 23817), (55, 23883), (58, 23904), (63, 23925), (70, 23955), (73, 23985), (74, 24006), (81, 24108), (85, 24168), (89, 24243), (93, 24279), (97, 24309), (100, 24324), (106, 24357), (116, 24450), (123, 24504), (124, 24507), (144, 24693), (150, 24726), (159, 24810), (162, 24831), (163, 24834), (174, 24903), (176, 24909), (177, 24915), (201, 25032), (203, 25044), (209, 25068), (218, 25122), (219, 25125), (227,

25179), (235, 25212), (304, 25503), (319, 25569), (331, 25635), (344, 25722), (345, 25728), (346, 25731), (355, 25794), (356, 25800), (361, 25818), (375, 25878), (386, 25932), (395, 25962), (399, 25995), (401, 26004), (402, 26013), (414, 26067), (416, 26073), (426, 26112), (430, 26133), (433, 26142), (438, 26166), (439, 26169), (440, 26175), (441, 26184), (444, 26208), (451, 26238), (452, 26241), (453, 26244), (460, 26271), (472, 26325), (479, 26364), (486, 26400), (497, 26442), (503, 26460), (504, 26463), (506, 26475), (507, 26478), (509, 26484), (512, 26499), (515, 26514), (519, 26535), (524, 26562), (533, 26592), (541, 26613), (555, 26664), (565, 26694), (566, 26703), (576, 26757), (585, 26790), (590, 26811), (592, 26823), (598, 26844), (606, 26871), (616, 26904), (618, 26910), (623, 26928), (624, 26937), (625, 26940), (647, 27027), (658, 27066), (659, 27069), (669, 27114), (687, 27189), (702, 27246), (707, 27264), (740, 27432), (744, 27453), (760, 27546), (774, 27639), (781, 27681), (787, 27729), (789, 27741), (795, 27804), (796, 27816), (801, 27837), (805, 27852), (806, 27858), (835, 27999), (853, 28095), (859, 28104), (872, 28152), (873, 28155), (875, 28167), (895, 28305), (903, 28380), (922, 28506), (950, 28713),

Gene: ScienceWizSam\_28 Start: 20475, Stop: 25064, Start Num: 19

Candidate Starts for ScienceWizSam\_28:

(Start: 18 @20454 has 2 MA's), (Start: 19 @20475 has 121 MA's), (Start: 22 @20505 has 2 MA's), (30, 20559), (33, 20580), (46, 20616), (53, 20694), (62, 20754), (68, 20778), (70, 20790), (73, 20820), (76, 20871), (80, 20901), (81, 20943), (82, 20961), (85, 21003), (87, 21033), (89, 21078), (90, 21090), (97, 21144), (100, 21159), (102, 21171), (106, 21192), (119, 21285), (122, 21318), (125, 21333), (131, 21381), (136, 21444), (150, 21552), (165, 21666), (166, 21669), (172, 21717), (193, 21831), (200, 21855), (203, 21870), (207, 21882), (238, 22050), (243, 22065), (244, 22071), (255, 22089), (271, 22161), (283, 22212), (288, 22227), (294, 22257), (310, 22329), (312, 22335), (316, 22353), (322, 22368), (323, 22371), (330, 22398), (346, 22512), (354, 22569), (356, 22581), (368, 22635), (371, 22644), (372, 22647), (377, 22668), (386, 22713), (392, 22734), (399, 22776), (402, 22794), (415, 22851), (422, 22872), (426, 22893), (442, 22974), (444, 22989), (445, 22992), (451, 23019), (452, 23022), (464, 23073), (479, 23151), (481, 23166), (482, 23169), (486, 23187), (487, 23193), (489, 23199), (492, 23208), (501, 23244), (502, 23247), (504, 23253), (505, 23259), (511, 23286), (522, 23340), (523, 23343), (527, 23361), (531, 23373), (538, 23403), (543, 23418), (548, 23427), (550, 23439), (555, 23460), (566, 23499), (577, 23556), (582, 23568), (585, 23577), (597, 23616), (600, 23628), (610, 23658), (612, 23667), (632, 23742), (633, 23745), (637, 23763), (639, 23769), (654, 23829), (655, 23832), (657, 23838), (663, 23859), (669, 23892), (670, 23895), (701, 24021), (702, 24024), (708, 24045), (716, 24078), (717, 24081), (718, 24087), (721, 24096), (726, 24123), (735, 24168), (747, 24234), (754, 24285), (756, 24291), (768, 24351), (772, 24375), (782, 24435), (784, 24453), (785, 24465), (809, 24624), (810, 24633), (820, 24681), (828, 24714), (831, 24726), (834, 24732), (837, 24753), (838, 24756), (839, 24762), (845, 24801), (850, 24828), (886, 25014), (891, 25041),

Gene: Secretariat\_30 Start: 22365, Stop: 27458, Start Num: 19

Candidate Starts for Secretariat\_30:

(Start: 19 @22365 has 121 MA's), (Start: 22 @22395 has 2 MA's), (26, 22434), (49, 22542), (53, 22584), (65, 22659), (69, 22677), (73, 22710), (80, 22803), (81, 22845), (85, 22905), (93, 23016), (97, 23046), (100, 23061), (106, 23094), (109, 23118), (115, 23184), (116, 23187), (123, 23241), (124, 23244), (127, 23259), (159, 23547), (162, 23568), (174, 23640), (219, 23862), (227, 23916), (234, 23937), (235, 23949), (262, 24024), (273, 24087), (282, 24126), (284, 24138), (288, 24159), (301, 24222), (304, 24240), (305, 24243), (311, 24276), (336, 24384), (342, 24435), (343, 24447), (344, 24459), (346, 24468), (356, 24537), (358, 24543), (361, 24555), (366, 24582), (372, 24603), (386, 24669), (393, 24693), (395, 24699), (399, 24732), (401, 24741), (402, 24750), (414, 24804), (426, 24849), (430, 24870), (433, 24879), (439, 24906), (441, 24921), (444, 24945), (451, 24975), (452, 24978), (457, 24999), (459, 25005), (460, 25008), (467, 25041), (479, 25101), (494, 25170), (497, 25179), (501, 25191), (503, 25197), (504, 25200), (505, 25206), (512, 25236), (516, 25254), (518, 25263), (519, 25272), (524, 25299), (531, 25320), (533, 25329), (546, 25362), (558, 25410), (565, 25431), (566, 25440), (567, 25455), (568, 25461), (585, 25527), (590, 25548), (592, 25560), (598,

25581), (606, 25608), (609, 25617), (611, 25623), (612, 25629), (618, 25647), (623, 25665), (630, 25695), (652, 25782), (656, 25794), (662, 25815), (663, 25818), (666, 25836), (698, 25971), (701, 25980), (702, 25983), (751, 26238), (753, 26250), (760, 26283), (773, 26367), (787, 26466), (795, 26541), (796, 26553), (799, 26562), (806, 26595), (813, 26640), (851, 26823), (859, 26841), (864, 26865), (873, 26892), (874, 26898), (875, 26904), (895, 27042), (898, 27081), (903, 27117), (905, 27135), (922, 27237), (950, 27444),

Gene: SendItCS\_20 Start: 15072, Stop: 20549, Start Num: 2

Candidate Starts for SendItCS\_20:

(Start: 2 @15072 has 30 MA's), (3, 15102), (7, 15183), (9, 15213), (10, 15216), (12, 15246), (81, 15798), (88, 15924), (95, 15987), (97, 15999), (105, 16041), (111, 16089), (118, 16173), (132, 16281), (150, 16443), (153, 16476), (162, 16548), (176, 16626), (207, 16773), (285, 17085), (287, 17094), (303, 17157), (346, 17331), (351, 17373), (356, 17400), (359, 17409), (371, 17463), (377, 17487), (390, 17544), (411, 17658), (423, 17691), (430, 17730), (440, 17772), (441, 17781), (446, 17817), (458, 17862), (469, 17913), (477, 17949), (479, 17967), (484, 17997), (494, 18036), (495, 18039), (506, 18078), (507, 18081), (514, 18108), (518, 18129), (519, 18138), (526, 18171), (527, 18174), (533, 18195), (553, 18258), (569, 18336), (571, 18342), (582, 18378), (583, 18381), (584, 18384), (585, 18387), (603, 18447), (606, 18456), (612, 18477), (621, 18507), (622, 18510), (637, 18573), (638, 18576), (639, 18579), (649, 18621), (654, 18639), (663, 18669), (673, 18714), (675, 18723), (680, 18747), (698, 18822), (700, 18828), (714, 18879), (721, 18906), (724, 18921), (726, 18933), (728, 18942), (732, 18966), (745, 19032), (754, 19095), (759, 19119), (772, 19197), (780, 19245), (785, 19287), (803, 19410), (825, 19527), (847, 19644), (866, 19725), (876, 19770), (885, 19815), (908, 20001), (912, 20022), (913, 20034), (919, 20076), (927, 20127), (934, 20175), (938, 20214), (946, 20265), (954, 20388), (960, 20427),

Gene: Serenabeen\_24 Start: 18537, Stop: 23141, Start Num: 19

Candidate Starts for Serenabeen\_24:

(Start: 19 @18537 has 121 MA's), (Start: 22 @18570 has 2 MA's), (34, 18645), (47, 18693), (49, 18717), (59, 18807), (63, 18825), (67, 18837), (73, 18882), (77, 18939), (81, 19005), (85, 19065), (93, 19176), (97, 19206), (100, 19221), (118, 19344), (119, 19347), (121, 19368), (125, 19395), (132, 19452), (135, 19497), (139, 19542), (149, 19611), (151, 19626), (153, 19647), (156, 19668), (179, 19809), (182, 19830), (187, 19851), (196, 19905), (223, 20043), (232, 20094), (247, 20139), (322, 20445), (329, 20463), (346, 20607), (350, 20637), (368, 20730), (370, 20736), (371, 20739), (374, 20751), (383, 20790), (388, 20814), (400, 20877), (422, 20967), (426, 20988), (432, 21015), (440, 21051), (466, 21180), (483, 21273), (488, 21291), (497, 21324), (501, 21342), (506, 21363), (508, 21369), (511, 21384), (519, 21423), (527, 21459), (529, 21465), (536, 21492), (553, 21549), (565, 21591), (566, 21600), (569, 21627), (570, 21630), (577, 21657), (582, 21669), (585, 21678), (588, 21687), (603, 21738), (604, 21741), (612, 21768), (620, 21795), (660, 21951), (672, 22002), (680, 22038), (690, 22077), (695, 22104), (699, 22116), (704, 22134), (710, 22155), (717, 22182), (722, 22200), (730, 22248), (743, 22314), (765, 22434), (770, 22458), (771, 22467), (772, 22476), (778, 22509), (784, 22554), (792, 22608), (814, 22758), (818, 22782), (821, 22794), (823, 22803), (830, 22824), (844, 22902), (846, 22905), (863, 22977), (890, 23130),

Gene: ShaggyRogers\_35 Start: 23288, Stop: 28399, Start Num: 19

Candidate Starts for ShaggyRogers\_35:

(Start: 19 @23288 has 121 MA's), (Start: 22 @23318 has 2 MA's), (28, 23363), (53, 23507), (62, 23567), (63, 23573), (73, 23633), (74, 23654), (81, 23756), (88, 23882), (91, 23918), (97, 23957), (102, 23984), (106, 24005), (111, 24047), (122, 24167), (134, 24281), (136, 24293), (144, 24368), (145, 24380), (150, 24401), (162, 24506), (163, 24509), (232, 24869), (235, 24887), (277, 25043), (298, 25145), (299, 25148), (304, 25175), (312, 25214), (319, 25241), (323, 25262), (346, 25403), (355, 25466), (356, 25472), (361, 25490), (362, 25496), (372, 25538), (375, 25550), (386, 25604), (393, 25628), (396, 25646), (398, 25655), (399, 25667), (401, 25676), (402, 25685), (411, 25730), (414, 25739), (426, 25784), (430, 25805), (433, 25814), (439, 25841), (441, 25856), (451, 25910),



(452, 25913), (454, 25922), (457, 25934), (460, 25943), (462, 25955), (467, 25976), (469, 25982), (475, 26006), (479, 26036), (481, 26051), (497, 26114), (501, 26126), (503, 26132), (504, 26135), (506, 26147), (507, 26150), (519, 26207), (532, 26261), (533, 26264), (541, 26285), (546, 26297), (547, 26300), (559, 26348), (564, 26363), (565, 26366), (566, 26375), (567, 26390), (568, 26396), (574, 26423), (575, 26426), (585, 26462), (590, 26483), (592, 26495), (594, 26504), (598, 26516), (606, 26543), (616, 26576), (618, 26582), (623, 26600), (630, 26630), (658, 26738), (684, 26849), (713, 26960), (724, 27005), (735, 27062), (738, 27095), (763, 27239), (773, 27302), (783, 27368), (787, 27401), (789, 27413), (795, 27476), (799, 27497), (801, 27509), (806, 27530), (835, 27671), (851, 27758), (859, 27776), (866, 27806), (872, 27824), (873, 27827), (874, 27833), (875, 27839), (881, 27866), (895, 27977), (901, 28040), (903, 28052), (914, 28121), (919, 28154), (922, 28178), (940, 28295), (950, 28385),

Gene: SheRa\_19 Start: 13487, Stop: 18715, Start Num: 19

Candidate Starts for SheRa\_19:

(Start: 18 @13466 has 2 MA's), (Start: 19 @13487 has 121 MA's), (Start: 22 @13517 has 2 MA's), (45, 13619), (49, 13670), (63, 13778), (81, 13961), (88, 14087), (91, 14123), (97, 14162), (111, 14252), (153, 14639), (176, 14789), (181, 14813), (193, 14885), (245, 15116), (269, 15194), (274, 15212), (275, 15215), (285, 15248), (309, 15356), (329, 15416), (346, 15497), (356, 15566), (368, 15620), (374, 15641), (389, 15707), (390, 15710), (410, 15821), (423, 15857), (426, 15875), (437, 15926), (458, 16028), (461, 16040), (464, 16055), (478, 16124), (479, 16133), (484, 16163), (503, 16229), (510, 16259), (513, 16271), (514, 16274), (518, 16295), (519, 16304), (527, 16340), (528, 16343), (536, 16373), (562, 16457), (569, 16502), (570, 16505), (571, 16508), (585, 16553), (594, 16583), (608, 16628), (612, 16643), (622, 16676), (627, 16697), (629, 16706), (631, 16715), (637, 16739), (638, 16742), (645, 16772), (648, 16784), (665, 16850), (670, 16871), (676, 16892), (678, 16907), (680, 16913), (714, 17045), (716, 17054), (718, 17063), (721, 17072), (722, 17075), (724, 17087), (725, 17090), (726, 17099), (728, 17108), (746, 17201), (753, 17255), (772, 17363), (775, 17378), (781, 17417), (803, 17576), (847, 17810), (864, 17885), (907, 18164), (908, 18167), (912, 18188), (917, 18236), (919, 18242), (935, 18350), (944, 18422), (948, 18461), (949, 18470), (952, 18524), (963, 18677),

Gene: Shepard\_27 Start: 20329, Stop: 24918, Start Num: 19

Candidate Starts for Shepard\_27:

(Start: 18 @20308 has 2 MA's), (Start: 19 @20329 has 121 MA's), (Start: 22 @20359 has 2 MA's), (30, 20413), (62, 20608), (68, 20632), (70, 20644), (73, 20674), (80, 20755), (81, 20797), (82, 20815), (85, 20857), (87, 20887), (89, 20932), (90, 20944), (97, 20998), (100, 21013), (101, 21019), (106, 21046), (113, 21109), (117, 21124), (119, 21139), (122, 21172), (125, 21187), (131, 21235), (140, 21340), (150, 21406), (157, 21475), (163, 21514), (166, 21523), (170, 21538), (173, 21580), (174, 21583), (186, 21634), (209, 21748), (219, 21805), (233, 21877), (242, 21916), (255, 21943), (265, 21985), (288, 22081), (310, 22183), (312, 22189), (323, 22225), (346, 22372), (348, 22384), (353, 22426), (354, 22429), (363, 22474), (368, 22495), (371, 22504), (372, 22507), (377, 22528), (392, 22594), (393, 22597), (415, 22711), (422, 22732), (425, 22750), (426, 22753), (444, 22849), (446, 22861), (475, 22981), (479, 23011), (492, 23068), (501, 23104), (504, 23113), (506, 23125), (511, 23146), (514, 23155), (525, 23215), (535, 23248), (537, 23260), (538, 23263), (542, 23275), (552, 23302), (555, 23317), (557, 23323), (558, 23326), (565, 23347), (566, 23356), (582, 23425), (585, 23434), (597, 23473), (612, 23524), (628, 23581), (639, 23626), (644, 23650), (645, 23653), (654, 23686), (655, 23689), (656, 23692), (657, 23695), (669, 23749), (670, 23752), (676, 23773), (699, 23872), (708, 23902), (711, 23914), (714, 23926), (718, 23944), (721, 23953), (722, 23956), (749, 24112), (753, 24136), (755, 24145), (768, 24208), (771, 24223), (784, 24310), (785, 24322), (792, 24364), (804, 24448), (814, 24514), (820, 24538), (831, 24583), (833, 24586), (834, 24589), (845, 24658), (846, 24661), (850, 24685), (886, 24868),

Gene: Shiba\_23 Start: 17270, Stop: 21790, Start Num: 22

Candidate Starts for Shiba\_23:

(Start: 18 @17219 has 2 MA's), (Start: 19 @17240 has 121 MA's), (Start: 22 @17270 has 2 MA's), (25, 17303), (53, 17459), (68, 17543), (70, 17555), (73, 17585), (80, 17666), (81, 17708), (82, 17726), (85, 17768), (87, 17798), (89, 17843), (90, 17855), (97, 17909), (100, 17924), (106, 17957), (113, 18020), (119, 18050), (122, 18083), (125, 18098), (131, 18146), (145, 18296), (150, 18317), (163, 18425), (166, 18434), (172, 18482), (199, 18617), (209, 18659), (228, 18773), (241, 18824), (242, 18827), (244, 18836), (267, 18917), (288, 19001), (291, 19019), (302, 19064), (312, 19109), (313, 19112), (314, 19118), (325, 19151), (346, 19262), (356, 19331), (357, 19334), (366, 19376), (368, 19385), (371, 19394), (379, 19424), (386, 19463), (388, 19469), (392, 19484), (399, 19526), (422, 19622), (426, 19643), (427, 19646), (431, 19667), (442, 19724), (444, 19739), (451, 19769), (454, 19781), (461, 19808), (464, 19823), (475, 19871), (479, 19901), (481, 19916), (489, 19949), (491, 19955), (501, 19994), (504, 20003), (506, 20015), (511, 20036), (524, 20102), (527, 20111), (536, 20144), (537, 20150), (538, 20153), (543, 20165), (545, 20168), (551, 20189), (556, 20210), (566, 20246), (574, 20294), (585, 20324), (612, 20414), (628, 20471), (639, 20516), (643, 20534), (650, 20561), (652, 20570), (654, 20576), (668, 20636), (672, 20648), (675, 20660), (687, 20714), (697, 20756), (699, 20762), (701, 20768), (710, 20801), (711, 20804), (717, 20828), (718, 20834), (720, 20840), (721, 20843), (730, 20894), (733, 20906), (740, 20945), (764, 21077), (771, 21113), (778, 21155), (784, 21200), (794, 21290), (810, 21380), (814, 21404), (820, 21428), (822, 21440), (825, 21449), (828, 21461), (831, 21473), (841, 21518), (845, 21548), (849, 21566), (856, 21605),

Gene: Sloopyjoe\_23 Start: 17241, Stop: 21791, Start Num: 19

Candidate Starts for Sloopyjoe\_23:

(Start: 18 @17220 has 2 MA's), (Start: 19 @17241 has 121 MA's), (Start: 22 @17271 has 2 MA's), (25, 17304), (53, 17460), (68, 17544), (70, 17556), (73, 17586), (80, 17667), (81, 17709), (82, 17727), (85, 17769), (87, 17799), (89, 17844), (90, 17856), (97, 17910), (100, 17925), (106, 17958), (113, 18021), (119, 18051), (122, 18084), (125, 18099), (131, 18147), (145, 18297), (150, 18318), (163, 18426), (166, 18435), (172, 18483), (199, 18618), (209, 18660), (228, 18774), (241, 18825), (244, 18837), (267, 18918), (288, 19002), (291, 19020), (302, 19065), (312, 19110), (313, 19113), (314, 19119), (325, 19152), (346, 19263), (356, 19332), (357, 19335), (366, 19377), (368, 19386), (371, 19395), (379, 19425), (386, 19464), (388, 19470), (392, 19485), (399, 19527), (422, 19623), (426, 19644), (427, 19647), (431, 19668), (442, 19725), (444, 19740), (451, 19770), (454, 19782), (461, 19809), (464, 19824), (475, 19872), (479, 19902), (481, 19917), (489, 19950), (491, 19956), (501, 19995), (504, 20004), (506, 20016), (511, 20037), (524, 20103), (527, 20112), (536, 20145), (537, 20151), (538, 20154), (543, 20166), (545, 20169), (551, 20190), (556, 20211), (566, 20247), (574, 20295), (585, 20325), (612, 20415), (628, 20472), (639, 20517), (643, 20535), (650, 20562), (652, 20571), (654, 20577), (668, 20637), (672, 20649), (675, 20661), (687, 20715), (697, 20757), (699, 20763), (701, 20769), (710, 20802), (711, 20805), (717, 20829), (718, 20835), (720, 20841), (721, 20844), (730, 20895), (733, 20907), (740, 20946), (764, 21078), (771, 21114), (778, 21156), (784, 21201), (794, 21291), (810, 21381), (814, 21405), (820, 21429), (822, 21441), (825, 21450), (828, 21462), (831, 21474), (841, 21519), (845, 21549), (849, 21567), (856, 21606), (878, 21684),

Gene: Soshi\_23 Start: 16685, Stop: 22165, Start Num: 2

Candidate Starts for Soshi\_23:

(1, 16664), (Start: 2 @16685 has 30 MA's), (3, 16715), (12, 16859), (24, 16994), (45, 17069), (55, 17186), (56, 17189), (62, 17222), (70, 17258), (73, 17288), (79, 17360), (81, 17411), (88, 17537), (91, 17573), (97, 17612), (99, 17624), (106, 17660), (111, 17702), (132, 17894), (137, 17960), (145, 18035), (150, 18056), (153, 18089), (161, 18152), (162, 18161), (176, 18239), (207, 18386), (230, 18518), (250, 18575), (270, 18653), (274, 18662), (276, 18671), (285, 18698), (302, 18773), (304, 18782), (321, 18848), (322, 18851), (338, 18890), (346, 18944), (356, 19013), (368, 19067), (377, 19100), (386, 19145), (389, 19154), (392, 19166), (404, 19241), (406, 19253), (418, 19292), (423, 19304), (430, 19343), (437, 19373), (447, 19433), (458, 19475), (468, 19523), (469, 19526), (479, 19580), (509, 19700), (518, 19742), (519, 19751), (527, 19787), (533, 19808), (536, 19820), (550, 19862), (551, 19865), (555, 19883), (565, 19913), (569, 19949), (571, 19955), (576, 19976), (585, 20000), (594, 20030), (612, 20090), (622, 20123), (626, 20141), (629, 20153), (631, 20162), (645,

20219), (648, 20231), (649, 20234), (654, 20252), (663, 20282), (668, 20312), (680, 20360), (683, 20375), (702, 20447), (714, 20492), (718, 20510), (721, 20519), (728, 20555), (731, 20576), (732, 20579), (764, 20765), (768, 20786), (770, 20792), (772, 20810), (775, 20825), (780, 20858), (781, 20864), (800, 21014), (803, 21023), (854, 21296), (856, 21305), (897, 21521), (908, 21614), (912, 21635), (917, 21683), (919, 21689), (920, 21695), (927, 21740), (949, 21917), (962, 22109), (963, 22118),

Gene: Spectropatronm\_23 Start: 16160, Stop: 21646, Start Num: 2

Candidate Starts for Spectropatronm\_23:

(1, 16139), (Start: 2 @16160 has 30 MA's), (3, 16190), (12, 16334), (45, 16544), (56, 16664), (63, 16703), (70, 16733), (72, 16757), (73, 16763), (74, 16784), (75, 16799), (81, 16886), (87, 16976), (88, 17012), (89, 17021), (91, 17048), (97, 17087), (98, 17096), (102, 17114), (106, 17135), (111, 17177), (112, 17186), (122, 17294), (133, 17399), (144, 17495), (153, 17561), (176, 17711), (191, 17795), (195, 17816), (207, 17858), (231, 17993), (270, 18125), (274, 18134), (285, 18170), (287, 18179), (296, 18221), (304, 18254), (343, 18407), (346, 18428), (355, 18491), (356, 18497), (358, 18503), (363, 18530), (368, 18551), (370, 18557), (371, 18560), (377, 18584), (386, 18629), (389, 18638), (390, 18641), (392, 18650), (404, 18725), (410, 18752), (415, 18767), (416, 18770), (423, 18788), (426, 18806), (430, 18827), (441, 18878), (458, 18959), (477, 19046), (479, 19064), (483, 19091), (509, 19184), (518, 19226), (519, 19235), (527, 19271), (532, 19289), (533, 19292), (550, 19346), (565, 19397), (569, 19433), (571, 19439), (576, 19460), (585, 19484), (594, 19514), (612, 19574), (622, 19607), (623, 19610), (626, 19625), (635, 19661), (645, 19703), (648, 19715), (649, 19718), (663, 19766), (668, 19796), (673, 19811), (680, 19844), (683, 19859), (699, 19922), (720, 20000), (728, 20039), (740, 20105), (754, 20192), (755, 20195), (772, 20294), (780, 20342), (781, 20348), (803, 20507), (854, 20780), (864, 20816), (881, 20882), (897, 21005), (908, 21098), (912, 21119), (917, 21167), (919, 21173), (920, 21179), (927, 21224), (942, 21332), (944, 21353), (949, 21401), (955, 21488), (962, 21590), (963, 21599),

Gene: Sporto\_24 Start: 18451, Stop: 23001, Start Num: 19

Candidate Starts for Sporto\_24:

(Start: 18 @18430 has 2 MA's), (Start: 19 @18451 has 121 MA's), (Start: 22 @18481 has 2 MA's), (30, 18535), (49, 18628), (54, 18679), (56, 18697), (70, 18766), (73, 18796), (80, 18877), (81, 18919), (82, 18937), (85, 18979), (87, 19009), (89, 19054), (90, 19066), (97, 19120), (100, 19135), (101, 19141), (106, 19168), (113, 19231), (117, 19246), (119, 19261), (122, 19294), (125, 19309), (131, 19357), (136, 19420), (145, 19507), (147, 19516), (157, 19597), (158, 19600), (159, 19612), (163, 19636), (166, 19645), (171, 19687), (174, 19705), (197, 19822), (265, 20095), (288, 20191), (291, 20209), (302, 20254), (312, 20299), (323, 20335), (343, 20449), (346, 20470), (348, 20482), (349, 20497), (368, 20593), (371, 20602), (375, 20617), (377, 20626), (383, 20653), (387, 20674), (389, 20680), (392, 20692), (402, 20752), (404, 20767), (422, 20830), (426, 20851), (431, 20875), (442, 20932), (444, 20947), (445, 20950), (452, 20980), (454, 20989), (461, 21016), (464, 21031), (477, 21091), (479, 21109), (481, 21124), (489, 21157), (491, 21163), (501, 21202), (504, 21211), (506, 21223), (511, 21244), (516, 21265), (524, 21310), (527, 21319), (536, 21352), (537, 21358), (538, 21361), (543, 21373), (550, 21394), (553, 21403), (562, 21436), (566, 21454), (572, 21490), (574, 21502), (582, 21523), (585, 21532), (589, 21544), (600, 21583), (612, 21622), (623, 21658), (627, 21676), (639, 21724), (646, 21757), (650, 21769), (654, 21784), (668, 21844), (675, 21868), (686, 21916), (687, 21922), (693, 21952), (704, 21988), (717, 22036), (718, 22042), (720, 22048), (721, 22051), (730, 22102), (738, 22144), (746, 22180), (747, 22189), (749, 22210), (778, 22363), (784, 22408), (794, 22498), (806, 22558), (810, 22588), (820, 22636), (822, 22648), (831, 22681), (838, 22711), (856, 22816), (867, 22852), (892, 22990),

Gene: StarLord\_23 Start: 17241, Stop: 21791, Start Num: 19

Candidate Starts for StarLord\_23:

(Start: 18 @17220 has 2 MA's), (Start: 19 @17241 has 121 MA's), (Start: 22 @17271 has 2 MA's), (25, 17304), (53, 17460), (68, 17544), (70, 17556), (73, 17586), (80, 17667), (81, 17709), (82, 17727),

(85, 17769), (87, 17799), (89, 17844), (90, 17856), (97, 17910), (100, 17925), (106, 17958), (113, 18021), (119, 18051), (122, 18084), (125, 18099), (131, 18147), (145, 18297), (150, 18318), (163, 18426), (166, 18435), (172, 18483), (199, 18618), (209, 18660), (228, 18774), (241, 18825), (244, 18837), (267, 18918), (288, 19002), (291, 19020), (302, 19065), (312, 19110), (313, 19113), (314, 19119), (325, 19152), (346, 19263), (356, 19332), (357, 19335), (366, 19377), (368, 19386), (371, 19395), (379, 19425), (386, 19464), (388, 19470), (392, 19485), (399, 19527), (422, 19623), (426, 19644), (427, 19647), (431, 19668), (442, 19725), (444, 19740), (451, 19770), (454, 19782), (461, 19809), (464, 19824), (475, 19872), (479, 19902), (481, 19917), (489, 19950), (491, 19956), (501, 19995), (504, 20004), (506, 20016), (511, 20037), (524, 20103), (527, 20112), (536, 20145), (537, 20151), (538, 20154), (543, 20166), (545, 20169), (551, 20190), (556, 20211), (566, 20247), (574, 20295), (585, 20325), (612, 20415), (628, 20472), (639, 20517), (643, 20535), (650, 20562), (652, 20571), (654, 20577), (668, 20637), (672, 20649), (675, 20661), (687, 20715), (697, 20757), (699, 20763), (701, 20769), (710, 20802), (711, 20805), (717, 20829), (718, 20835), (720, 20841), (721, 20844), (730, 20895), (733, 20907), (740, 20946), (764, 21078), (771, 21114), (778, 21156), (784, 21201), (794, 21291), (810, 21381), (814, 21405), (820, 21429), (822, 21441), (825, 21450), (828, 21462), (831, 21474), (841, 21519), (845, 21549), (849, 21567), (856, 21606), (878, 21684),

Gene: Stayer\_23 Start: 17240, Stop: 21790, Start Num: 19

Candidate Starts for Stayer\_23:

(Start: 18 @17219 has 2 MA's), (Start: 19 @17240 has 121 MA's), (Start: 22 @17270 has 2 MA's), (25, 17303), (53, 17459), (68, 17543), (70, 17555), (73, 17585), (80, 17666), (81, 17708), (82, 17726), (85, 17768), (87, 17798), (89, 17843), (90, 17855), (97, 17909), (100, 17924), (106, 17957), (113, 18020), (119, 18050), (122, 18083), (125, 18098), (131, 18146), (145, 18296), (150, 18317), (163, 18425), (166, 18434), (172, 18482), (199, 18617), (209, 18659), (228, 18773), (241, 18824), (242, 18827), (244, 18836), (267, 18917), (288, 19001), (291, 19019), (302, 19064), (312, 19109), (313, 19112), (314, 19118), (325, 19151), (346, 19262), (356, 19331), (357, 19334), (366, 19376), (368, 19385), (371, 19394), (379, 19424), (386, 19463), (388, 19469), (392, 19484), (399, 19526), (422, 19622), (426, 19643), (427, 19646), (431, 19667), (442, 19724), (444, 19739), (451, 19769), (454, 19781), (461, 19808), (464, 19823), (475, 19871), (479, 19901), (481, 19916), (489, 19949), (491, 19955), (501, 19994), (504, 20003), (506, 20015), (511, 20036), (524, 20102), (527, 20111), (536, 20144), (537, 20150), (538, 20153), (543, 20165), (545, 20168), (551, 20189), (556, 20210), (566, 20246), (574, 20294), (585, 20324), (612, 20414), (628, 20471), (639, 20516), (643, 20534), (650, 20561), (652, 20570), (654, 20576), (668, 20636), (672, 20648), (675, 20660), (687, 20714), (697, 20756), (699, 20762), (701, 20768), (710, 20801), (711, 20804), (717, 20828), (718, 20834), (720, 20840), (721, 20843), (730, 20894), (733, 20906), (740, 20945), (764, 21077), (771, 21113), (778, 21155), (784, 21200), (794, 21290), (810, 21380), (814, 21404), (820, 21428), (822, 21440), (825, 21449), (828, 21461), (831, 21473), (841, 21518), (845, 21548), (849, 21566), (856, 21605),

Gene: Sunny4976\_23 Start: 18500, Stop: 23560, Start Num: 8

Candidate Starts for Sunny4976\_23:

(8, 18500), (11, 18530), (15, 18584), (16, 18605), (40, 18812), (43, 18821), (44, 18824), (53, 18941), (57, 18974), (63, 19007), (71, 19046), (74, 19088), (81, 19190), (83, 19226), (87, 19280), (88, 19316), (90, 19337), (97, 19391), (119, 19523), (120, 19535), (121, 19544), (126, 19580), (144, 19757), (150, 19790), (158, 19862), (162, 19895), (163, 19898), (178, 19982), (212, 20207), (215, 20243), (218, 20267), (221, 20279), (240, 20405), (281, 20573), (306, 20726), (307, 20729), (326, 20852), (327, 20858), (336, 20909), (341, 20972), (346, 21026), (350, 21056), (363, 21128), (371, 21158), (373, 21167), (377, 21182), (386, 21227), (392, 21248), (394, 21254), (401, 21299), (422, 21386), (430, 21428), (444, 21503), (461, 21572), (475, 21635), (479, 21665), (489, 21713), (492, 21722), (506, 21782), (527, 21878), (536, 21911), (538, 21920), (543, 21932), (545, 21935), (550, 21953), (555, 21974), (565, 22004), (566, 22013), (569, 22040), (577, 22070), (585, 22091), (599, 22136), (607, 22163), (612, 22181), (633, 22259), (644, 22307), (645, 22310), (655, 22346), (665, 22388), (673, 22418), (674, 22421), (678, 22445), (680, 22451), (681, 22460), (703, 22541), (716, 22592), (721, 22610), (727, 22643), (728, 22646), (740, 22712), (753, 22793), (778, 22922), (784, 22967), (794,

23057), (809, 23138), (810, 23147), (814, 23171), (825, 23216), (830, 23234), (834, 23249), (844, 23318), (874, 23429),

Gene: Synopsis\_25 Start: 20138, Stop: 24727, Start Num: 19

Candidate Starts for Synopsis\_25:

(Start: 18 @20117 has 2 MA's), (Start: 19 @20138 has 121 MA's), (Start: 22 @20168 has 2 MA's), (30, 20222), (33, 20243), (46, 20279), (53, 20357), (62, 20417), (68, 20441), (70, 20453), (73, 20483), (76, 20534), (80, 20564), (81, 20606), (82, 20624), (85, 20666), (87, 20696), (89, 20741), (90, 20753), (97, 20807), (100, 20822), (102, 20834), (106, 20855), (119, 20948), (122, 20981), (125, 20996), (131, 21044), (145, 21194), (150, 21215), (165, 21329), (166, 21332), (172, 21380), (193, 21494), (200, 21518), (203, 21533), (207, 21545), (238, 21713), (243, 21728), (244, 21734), (255, 21752), (271, 21824), (283, 21875), (288, 21890), (294, 21920), (310, 21992), (312, 21998), (322, 22031), (323, 22034), (330, 22061), (346, 22175), (354, 22232), (356, 22244), (368, 22298), (371, 22307), (372, 22310), (377, 22331), (386, 22376), (392, 22397), (402, 22457), (415, 22514), (422, 22535), (426, 22556), (442, 22637), (444, 22652), (445, 22655), (451, 22682), (452, 22685), (464, 22736), (479, 22814), (481, 22829), (482, 22832), (486, 22850), (487, 22856), (489, 22862), (492, 22871), (501, 22907), (504, 22916), (511, 22949), (522, 23003), (523, 23006), (527, 23024), (531, 23036), (538, 23066), (543, 23081), (548, 23090), (550, 23102), (555, 23123), (566, 23162), (577, 23219), (582, 23231), (585, 23240), (597, 23279), (600, 23291), (610, 23321), (612, 23330), (623, 23366), (632, 23405), (633, 23408), (637, 23426), (639, 23432), (654, 23492), (657, 23501), (663, 23522), (669, 23555), (670, 23558), (673, 23567), (701, 23684), (702, 23687), (708, 23708), (716, 23741), (717, 23744), (718, 23750), (721, 23759), (726, 23786), (735, 23831), (747, 23897), (754, 23948), (756, 23954), (768, 24014), (772, 24038), (782, 24098), (784, 24116), (785, 24128), (809, 24287), (810, 24296), (820, 24344), (828, 24377), (831, 24389), (834, 24395), (837, 24416), (838, 24419), (839, 24425), (845, 24464), (850, 24491), (886, 24677), (891, 24704),

Gene: TaidaOne\_23 Start: 16808, Stop: 22294, Start Num: 2

Candidate Starts for TaidaOne\_23:

(1, 16787), (Start: 2 @16808 has 30 MA's), (3, 16838), (12, 16982), (45, 17192), (55, 17309), (70, 17381), (73, 17411), (81, 17534), (88, 17660), (97, 17735), (106, 17783), (111, 17825), (132, 18014), (153, 18209), (162, 18281), (176, 18359), (195, 18464), (207, 18506), (231, 18641), (270, 18773), (274, 18782), (285, 18818), (287, 18827), (296, 18869), (304, 18902), (310, 18932), (343, 19055), (346, 19076), (355, 19139), (356, 19145), (358, 19151), (363, 19178), (368, 19199), (370, 19205), (371, 19208), (377, 19232), (386, 19277), (389, 19286), (390, 19289), (404, 19373), (410, 19400), (415, 19415), (416, 19418), (423, 19436), (426, 19454), (430, 19475), (441, 19526), (454, 19592), (458, 19607), (477, 19694), (479, 19712), (483, 19739), (509, 19832), (518, 19874), (519, 19883), (527, 19919), (532, 19937), (533, 19940), (536, 19952), (550, 19994), (551, 19997), (565, 20045), (569, 20081), (571, 20087), (576, 20108), (585, 20132), (594, 20162), (612, 20222), (622, 20255), (623, 20258), (626, 20273), (629, 20285), (635, 20309), (645, 20351), (648, 20363), (649, 20366), (663, 20414), (668, 20444), (673, 20459), (680, 20492), (683, 20507), (699, 20570), (718, 20642), (720, 20648), (721, 20651), (728, 20687), (740, 20753), (754, 20840), (755, 20843), (772, 20942), (780, 20990), (781, 20996), (800, 21146), (803, 21155), (854, 21428), (897, 21653), (908, 21746), (912, 21767), (915, 21791), (917, 21815), (919, 21821), (920, 21827), (927, 21872), (942, 21980), (949, 22049), (955, 22136), (962, 22238), (963, 22247),

Gene: Tanis\_29 Start: 20466, Stop: 25580, Start Num: 19

Candidate Starts for Tanis\_29:

(Start: 19 @20466 has 121 MA's), (Start: 22 @20496 has 2 MA's), (49, 20643), (52, 20679), (53, 20685), (58, 20730), (63, 20751), (70, 20781), (81, 20946), (85, 21006), (89, 21081), (93, 21117), (94, 21132), (97, 21147), (100, 21162), (106, 21195), (116, 21288), (123, 21342), (124, 21345), (150, 21564), (162, 21669), (163, 21672), (174, 21741), (176, 21747), (213, 21930), (223, 21981), (232, 22032), (250, 22086), (252, 22089), (279, 22221), (301, 22323), (304, 22341), (305, 22344), (320, 22419), (332, 22476), (344, 22560), (346, 22569), (361, 22656), (369, 22695), (381, 22743), (386,

22770), (392, 22791), (395, 22800), (398, 22821), (399, 22833), (401, 22842), (402, 22851), (406, 22878), (414, 22905), (415, 22908), (422, 22929), (430, 22971), (436, 22998), (439, 23007), (441, 23022), (442, 23031), (444, 23046), (446, 23058), (449, 23067), (452, 23079), (457, 23100), (460, 23109), (478, 23193), (479, 23202), (481, 23217), (482, 23220), (486, 23238), (489, 23250), (490, 23253), (497, 23280), (504, 23301), (507, 23316), (517, 23358), (519, 23373), (533, 23430), (536, 23442), (541, 23451), (546, 23463), (549, 23475), (550, 23481), (555, 23502), (559, 23514), (565, 23532), (566, 23541), (567, 23556), (568, 23562), (571, 23574), (581, 23616), (582, 23619), (585, 23628), (590, 23649), (592, 23661), (606, 23709), (609, 23718), (616, 23742), (618, 23748), (623, 23766), (624, 23775), (630, 23796), (647, 23865), (652, 23883), (653, 23886), (658, 23904), (688, 24030), (699, 24075), (713, 24126), (740, 24270), (763, 24405), (771, 24456), (783, 24534), (789, 24579), (795, 24642), (798, 24660), (805, 24690), (806, 24696), (815, 24753), (832, 24825), (843, 24885), (848, 24906), (849, 24909), (860, 24960), (862, 24969), (873, 25008), (875, 25020), (887, 25113), (895, 25158), (903, 25233), (909, 25272), (914, 25302), (922, 25359), (939, 25470), (950, 25566),

Gene: Tatanka\_26 Start: 20622, Stop: 25211, Start Num: 19

Candidate Starts for Tatanka\_26:

(Start: 18 @20601 has 2 MA's), (Start: 19 @20622 has 121 MA's), (Start: 22 @20652 has 2 MA's), (30, 20706), (33, 20727), (46, 20763), (53, 20841), (62, 20901), (68, 20925), (70, 20937), (73, 20967), (76, 21018), (80, 21048), (81, 21090), (82, 21108), (85, 21150), (87, 21180), (89, 21225), (90, 21237), (97, 21291), (100, 21306), (102, 21318), (106, 21339), (119, 21432), (122, 21465), (125, 21480), (131, 21528), (145, 21678), (150, 21699), (165, 21813), (166, 21816), (172, 21864), (193, 21978), (200, 22002), (203, 22017), (207, 22029), (238, 22197), (243, 22212), (244, 22218), (255, 22236), (271, 22308), (283, 22359), (288, 22374), (294, 22404), (310, 22476), (312, 22482), (316, 22500), (322, 22515), (323, 22518), (330, 22545), (346, 22659), (354, 22716), (356, 22728), (368, 22782), (371, 22791), (372, 22794), (377, 22815), (386, 22860), (392, 22881), (415, 22998), (422, 23019), (426, 23040), (430, 23061), (442, 23121), (444, 23136), (445, 23139), (451, 23166), (452, 23169), (477, 23280), (479, 23298), (481, 23313), (482, 23316), (486, 23334), (487, 23340), (488, 23343), (492, 23355), (501, 23391), (504, 23400), (511, 23433), (522, 23487), (523, 23490), (527, 23508), (531, 23520), (538, 23550), (543, 23565), (548, 23574), (550, 23586), (566, 23646), (575, 23697), (577, 23703), (582, 23715), (585, 23724), (597, 23763), (600, 23775), (610, 23805), (612, 23814), (632, 23889), (633, 23892), (637, 23910), (654, 23976), (656, 23982), (657, 23985), (669, 24039), (670, 24042), (701, 24168), (702, 24171), (708, 24192), (716, 24225), (718, 24234), (735, 24315), (741, 24348), (747, 24381), (756, 24438), (768, 24498), (784, 24600), (785, 24612), (809, 24771), (810, 24780), (820, 24828), (828, 24861), (831, 24873), (834, 24879), (837, 24900), (838, 24903), (839, 24909), (845, 24948), (850, 24975), (886, 25161), (891, 25188),

Gene: Teacup\_26 Start: 19991, Stop: 24583, Start Num: 19

Candidate Starts for Teacup\_26:

(Start: 18 @19970 has 2 MA's), (Start: 19 @19991 has 121 MA's), (Start: 22 @20021 has 2 MA's), (30, 20075), (33, 20096), (46, 20132), (62, 20270), (70, 20306), (73, 20336), (81, 20459), (82, 20477), (85, 20519), (92, 20627), (97, 20660), (100, 20675), (106, 20708), (113, 20771), (117, 20786), (119, 20801), (121, 20822), (122, 20834), (132, 20906), (135, 20951), (140, 21002), (144, 21035), (150, 21068), (155, 21116), (166, 21185), (172, 21233), (193, 21347), (200, 21371), (207, 21398), (220, 21473), (238, 21566), (243, 21581), (244, 21587), (255, 21605), (265, 21647), (283, 21728), (294, 21773), (310, 21845), (312, 21851), (322, 21884), (323, 21887), (330, 21914), (346, 22031), (354, 22088), (356, 22100), (368, 22154), (371, 22163), (372, 22166), (377, 22187), (386, 22232), (392, 22253), (415, 22370), (422, 22391), (425, 22409), (426, 22412), (430, 22433), (442, 22493), (444, 22508), (445, 22511), (451, 22538), (452, 22541), (479, 22670), (481, 22685), (482, 22688), (486, 22706), (487, 22712), (488, 22715), (492, 22727), (501, 22763), (504, 22772), (511, 22805), (522, 22859), (523, 22862), (527, 22880), (531, 22892), (538, 22922), (543, 22937), (548, 22946), (550, 22958), (566, 23018), (575, 23069), (577, 23075), (582, 23087), (585, 23096), (597, 23135), (600, 23147), (602, 23153), (604, 23159), (610, 23177), (612, 23186), (632, 23261), (633, 23264), (637,

23282), (654, 23348), (656, 23354), (657, 23357), (668, 23408), (701, 23540), (702, 23543), (708, 23564), (716, 23597), (718, 23606), (735, 23687), (741, 23720), (747, 23753), (756, 23810), (768, 23870), (772, 23894), (784, 23972), (785, 23984), (804, 24110), (810, 24152), (820, 24200), (828, 24233), (831, 24245), (834, 24251), (837, 24272), (838, 24275), (839, 24281), (845, 24320), (850, 24347), (855, 24374), (886, 24533), (891, 24560),

Gene: TenaciousP\_33 Start: 24936, Stop: 30050, Start Num: 19

Candidate Starts for TenaciousP\_33:

(Start: 19 @24936 has 121 MA's), (Start: 22 @24966 has 2 MA's), (28, 25011), (53, 25155), (63, 25221), (73, 25281), (74, 25302), (81, 25404), (88, 25530), (91, 25566), (97, 25605), (106, 25653), (111, 25695), (117, 25767), (122, 25815), (136, 25941), (144, 26016), (145, 26028), (150, 26049), (162, 26154), (163, 26157), (207, 26379), (218, 26445), (235, 26535), (250, 26571), (264, 26622), (272, 26670), (275, 26682), (304, 26826), (312, 26865), (319, 26892), (346, 27054), (352, 27102), (355, 27117), (356, 27123), (361, 27141), (372, 27189), (386, 27255), (398, 27306), (399, 27318), (402, 27336), (414, 27390), (426, 27435), (430, 27456), (433, 27465), (437, 27486), (441, 27507), (451, 27561), (452, 27564), (454, 27573), (460, 27594), (462, 27606), (467, 27627), (469, 27633), (473, 27651), (479, 27687), (484, 27717), (497, 27765), (501, 27777), (503, 27783), (504, 27786), (506, 27798), (507, 27801), (512, 27822), (519, 27858), (532, 27912), (533, 27915), (536, 27927), (541, 27936), (546, 27948), (547, 27951), (559, 27999), (564, 28014), (565, 28017), (566, 28026), (568, 28047), (574, 28074), (575, 28077), (581, 28101), (585, 28113), (590, 28134), (592, 28146), (594, 28155), (598, 28167), (606, 28194), (609, 28203), (616, 28227), (618, 28233), (623, 28251), (636, 28305), (640, 28320), (658, 28389), (684, 28500), (713, 28611), (724, 28656), (738, 28746), (760, 28869), (763, 28890), (773, 28953), (777, 28980), (787, 29052), (789, 29064), (790, 29073), (795, 29127), (799, 29148), (801, 29160), (835, 29322), (851, 29409), (859, 29427), (866, 29457), (872, 29475), (873, 29478), (875, 29490), (881, 29517), (895, 29628), (903, 29703), (911, 29751), (919, 29805), (923, 29832), (940, 29946), (950, 30036),

Gene: Tenno\_27 Start: 21223, Stop: 25812, Start Num: 19

Candidate Starts for Tenno\_27:

(Start: 18 @21202 has 2 MA's), (Start: 19 @21223 has 121 MA's), (Start: 22 @21253 has 2 MA's), (30, 21307), (33, 21328), (46, 21364), (62, 21502), (70, 21538), (73, 21568), (81, 21691), (82, 21709), (85, 21751), (92, 21859), (97, 21892), (100, 21907), (106, 21940), (117, 22018), (119, 22033), (121, 22054), (122, 22066), (126, 22090), (132, 22138), (140, 22234), (144, 22267), (150, 22300), (159, 22384), (163, 22408), (166, 22417), (199, 22600), (207, 22630), (220, 22705), (222, 22711), (238, 22798), (243, 22813), (244, 22819), (255, 22837), (257, 22846), (265, 22879), (266, 22888), (283, 22960), (294, 23005), (310, 23077), (312, 23083), (322, 23116), (323, 23119), (330, 23146), (346, 23260), (354, 23317), (356, 23329), (368, 23383), (371, 23392), (372, 23395), (377, 23416), (386, 23461), (392, 23482), (413, 23593), (415, 23599), (422, 23620), (425, 23638), (430, 23662), (442, 23722), (444, 23737), (445, 23740), (451, 23767), (452, 23770), (459, 23797), (477, 23881), (479, 23899), (481, 23914), (482, 23917), (486, 23935), (487, 23941), (488, 23944), (492, 23956), (493, 23962), (501, 23992), (504, 24001), (511, 24034), (522, 24088), (523, 24091), (527, 24109), (538, 24151), (543, 24166), (548, 24175), (550, 24187), (566, 24247), (577, 24304), (582, 24316), (585, 24325), (597, 24364), (600, 24376), (602, 24382), (606, 24394), (610, 24406), (612, 24415), (632, 24490), (633, 24493), (637, 24511), (654, 24577), (657, 24586), (669, 24640), (670, 24643), (701, 24769), (708, 24793), (716, 24826), (718, 24835), (723, 24850), (726, 24871), (735, 24916), (741, 24949), (747, 24982), (756, 25039), (768, 25099), (781, 25177), (784, 25201), (785, 25213), (804, 25339), (810, 25381), (820, 25429), (828, 25462), (831, 25474), (834, 25480), (837, 25501), (838, 25504), (839, 25510), (845, 25549), (850, 25576), (886, 25762), (891, 25789),

Gene: Thiqqums\_21 Start: 15072, Stop: 20549, Start Num: 2

Candidate Starts for Thiqqums\_21:

(Start: 2 @15072 has 30 MA's), (3, 15102), (7, 15183), (9, 15213), (10, 15216), (12, 15246), (81, 15798), (88, 15924), (95, 15987), (97, 15999), (105, 16041), (111, 16089), (118, 16173), (132, 16281),

(150, 16443), (153, 16476), (162, 16548), (176, 16626), (207, 16773), (285, 17085), (287, 17094), (303, 17157), (346, 17331), (351, 17373), (356, 17400), (359, 17409), (371, 17463), (377, 17487), (390, 17544), (411, 17658), (423, 17691), (430, 17730), (440, 17772), (441, 17781), (446, 17817), (458, 17862), (469, 17913), (477, 17949), (479, 17967), (484, 17997), (494, 18036), (495, 18039), (506, 18078), (507, 18081), (514, 18108), (518, 18129), (519, 18138), (526, 18171), (527, 18174), (533, 18195), (553, 18258), (569, 18336), (571, 18342), (582, 18378), (583, 18381), (584, 18384), (585, 18387), (603, 18447), (606, 18456), (612, 18477), (621, 18507), (622, 18510), (637, 18573), (638, 18576), (639, 18579), (649, 18621), (654, 18639), (663, 18669), (673, 18714), (675, 18723), (680, 18747), (698, 18822), (700, 18828), (714, 18879), (721, 18906), (724, 18921), (726, 18933), (728, 18942), (732, 18966), (745, 19032), (754, 19095), (759, 19119), (772, 19197), (780, 19245), (785, 19287), (803, 19410), (825, 19527), (847, 19644), (866, 19725), (876, 19770), (885, 19815), (908, 20001), (912, 20022), (913, 20034), (919, 20076), (927, 20127), (934, 20175), (938, 20214), (946, 20265), (954, 20388), (960, 20427),

Gene: TieDye\_22 Start: 15852, Stop: 21338, Start Num: 2

Candidate Starts for TieDye\_22:

(1, 15831), (Start: 2 @15852 has 30 MA's), (3, 15882), (12, 16026), (45, 16236), (56, 16356), (63, 16395), (70, 16425), (72, 16449), (73, 16455), (74, 16476), (75, 16491), (81, 16578), (84, 16620), (87, 16668), (88, 16704), (89, 16713), (91, 16740), (97, 16779), (98, 16788), (106, 16827), (108, 16836), (111, 16869), (112, 16878), (122, 16986), (133, 17091), (144, 17187), (153, 17253), (176, 17403), (191, 17487), (195, 17508), (207, 17550), (231, 17685), (250, 17739), (274, 17826), (285, 17862), (287, 17871), (296, 17913), (304, 17946), (310, 17976), (343, 18099), (346, 18120), (355, 18183), (356, 18189), (358, 18195), (363, 18222), (368, 18243), (370, 18249), (371, 18252), (377, 18276), (386, 18321), (389, 18330), (390, 18333), (404, 18417), (410, 18444), (415, 18459), (416, 18462), (423, 18480), (426, 18498), (430, 18519), (441, 18570), (454, 18636), (458, 18651), (477, 18738), (479, 18756), (483, 18783), (509, 18876), (518, 18918), (519, 18927), (527, 18963), (532, 18981), (533, 18984), (536, 18996), (550, 19038), (551, 19041), (565, 19089), (569, 19125), (571, 19131), (576, 19152), (585, 19176), (594, 19206), (612, 19266), (622, 19299), (623, 19302), (626, 19317), (629, 19329), (635, 19353), (645, 19395), (648, 19407), (649, 19410), (663, 19458), (668, 19488), (673, 19503), (680, 19536), (683, 19551), (699, 19614), (718, 19686), (720, 19692), (721, 19695), (728, 19731), (740, 19797), (754, 19884), (755, 19887), (772, 19986), (780, 20034), (781, 20040), (800, 20190), (803, 20199), (854, 20472), (897, 20697), (908, 20790), (912, 20811), (915, 20835), (917, 20859), (919, 20865), (920, 20871), (927, 20916), (942, 21024), (949, 21093), (955, 21180), (962, 21282), (963, 21291),

Gene: Tokki\_27 Start: 20280, Stop: 24866, Start Num: 19

Candidate Starts for Tokki\_27:

(Start: 18 @20259 has 2 MA's), (Start: 19 @20280 has 121 MA's), (Start: 22 @20310 has 2 MA's), (30, 20364), (70, 20595), (73, 20625), (80, 20706), (81, 20748), (82, 20766), (85, 20808), (90, 20895), (97, 20949), (100, 20964), (101, 20970), (106, 20997), (117, 21075), (119, 21090), (122, 21123), (125, 21138), (126, 21147), (129, 21174), (131, 21186), (135, 21240), (150, 21357), (165, 21471), (166, 21474), (173, 21531), (175, 21537), (202, 21666), (209, 21699), (265, 21936), (288, 22032), (310, 22134), (312, 22140), (323, 22176), (346, 22320), (353, 22374), (354, 22377), (368, 22443), (371, 22452), (372, 22455), (377, 22476), (392, 22542), (394, 22548), (402, 22602), (415, 22659), (422, 22680), (425, 22698), (426, 22701), (430, 22722), (432, 22728), (437, 22752), (444, 22797), (446, 22809), (472, 22920), (475, 22929), (477, 22941), (479, 22959), (492, 23016), (501, 23052), (502, 23055), (504, 23061), (506, 23073), (507, 23076), (511, 23094), (514, 23103), (524, 23160), (538, 23211), (542, 23223), (551, 23247), (552, 23250), (565, 23295), (566, 23304), (582, 23373), (585, 23382), (597, 23421), (600, 23433), (612, 23472), (639, 23574), (644, 23598), (645, 23601), (654, 23634), (655, 23637), (656, 23640), (657, 23643), (669, 23697), (670, 23700), (676, 23721), (699, 23820), (708, 23850), (711, 23862), (714, 23874), (718, 23892), (721, 23901), (722, 23904), (749, 24060), (753, 24084), (755, 24093), (768, 24156), (771, 24171), (784, 24258), (785, 24270), (792, 24312), (804, 24396), (814, 24462), (820, 24486), (831, 24531), (834, 24537), (845, 24606), (846,



24609), (850, 24633), (886, 24816),

Gene: TonyStarch\_23 Start: 16166, Stop: 21652, Start Num: 2

Candidate Starts for TonyStarch\_23:

(1, 16145), (Start: 2 @16166 has 30 MA's), (3, 16196), (12, 16340), (45, 16550), (55, 16667), (70, 16739), (73, 16769), (81, 16892), (88, 17018), (97, 17093), (106, 17141), (111, 17183), (132, 17372), (153, 17567), (162, 17639), (176, 17717), (191, 17801), (207, 17864), (231, 17999), (250, 18053), (274, 18140), (285, 18176), (287, 18185), (296, 18227), (304, 18260), (310, 18290), (343, 18413), (346, 18434), (355, 18497), (356, 18503), (358, 18509), (363, 18536), (368, 18557), (370, 18563), (371, 18566), (377, 18590), (386, 18635), (389, 18644), (390, 18647), (392, 18656), (404, 18731), (410, 18758), (416, 18776), (423, 18794), (426, 18812), (430, 18833), (441, 18884), (454, 18950), (458, 18965), (477, 19052), (479, 19070), (483, 19097), (509, 19190), (518, 19232), (519, 19241), (527, 19277), (528, 19280), (532, 19295), (533, 19298), (536, 19310), (550, 19352), (551, 19355), (565, 19403), (569, 19439), (571, 19445), (576, 19466), (585, 19490), (594, 19520), (612, 19580), (622, 19613), (623, 19616), (626, 19631), (629, 19643), (635, 19667), (645, 19709), (648, 19721), (649, 19724), (663, 19772), (668, 19802), (673, 19817), (680, 19850), (683, 19865), (699, 19928), (718, 20000), (720, 20006), (721, 20009), (728, 20045), (740, 20111), (754, 20198), (755, 20201), (772, 20300), (780, 20348), (781, 20354), (803, 20513), (854, 20786), (864, 20822), (881, 20888), (897, 21011), (908, 21104), (912, 21125), (917, 21173), (919, 21179), (920, 21185), (927, 21230), (942, 21338), (944, 21359), (949, 21407), (955, 21494), (962, 21596), (963, 21605),

Gene: Tribby\_22 Start: 17385, Stop: 21863, Start Num: 19

Candidate Starts for Tribby\_22:

(Start: 18 @17364 has 2 MA's), (Start: 19 @17385 has 121 MA's), (Start: 22 @17415 has 2 MA's), (25, 17448), (30, 17469), (70, 17700), (73, 17730), (80, 17811), (81, 17853), (82, 17871), (85, 17913), (90, 18000), (97, 18054), (100, 18069), (106, 18102), (117, 18180), (119, 18195), (125, 18243), (127, 18258), (132, 18300), (136, 18354), (144, 18429), (150, 18462), (163, 18570), (173, 18636), (181, 18669), (183, 18678), (185, 18681), (188, 18699), (249, 18981), (262, 19005), (266, 19035), (272, 19065), (308, 19194), (323, 19254), (346, 19383), (359, 19461), (366, 19497), (368, 19506), (371, 19515), (377, 19539), (383, 19566), (386, 19584), (392, 19605), (404, 19680), (412, 19713), (422, 19743), (430, 19785), (442, 19845), (443, 19851), (451, 19890), (452, 19893), (456, 19908), (470, 19971), (475, 19992), (479, 20022), (484, 20052), (489, 20070), (501, 20118), (507, 20142), (511, 20160), (514, 20169), (517, 20184), (520, 20205), (527, 20235), (536, 20268), (537, 20274), (538, 20277), (543, 20289), (550, 20310), (565, 20361), (566, 20370), (570, 20400), (572, 20406), (582, 20439), (585, 20448), (594, 20478), (600, 20499), (612, 20538), (620, 20565), (622, 20571), (623, 20574), (626, 20589), (633, 20616), (641, 20646), (649, 20682), (675, 20784), (685, 20829), (698, 20883), (699, 20886), (701, 20892), (710, 20925), (720, 20964), (722, 20970), (725, 20985), (730, 21018), (753, 21150), (766, 21213), (782, 21240), (784, 21258), (791, 21306), (792, 21312), (800, 21384), (814, 21462), (822, 21498), (826, 21516), (834, 21540), (838, 21564), (844, 21609), (849, 21630), (892, 21852),

Gene: TrixiePhattel\_27 Start: 19423, Stop: 23763, Start Num: 53

Candidate Starts for TrixiePhattel\_27:

(Start: 18 @19183 has 2 MA's), (Start: 19 @19204 has 121 MA's), (Start: 22 @19234 has 2 MA's), (30, 19288), (33, 19309), (51, 19402), (53, 19423), (63, 19489), (64, 19492), (73, 19549), (74, 19570), (80, 19630), (81, 19672), (85, 19732), (94, 19858), (97, 19873), (100, 19888), (106, 19921), (117, 19999), (119, 20014), (125, 20062), (140, 20215), (145, 20260), (150, 20281), (153, 20314), (163, 20389), (166, 20398), (171, 20440), (174, 20458), (184, 20500), (193, 20560), (194, 20566), (197, 20575), (202, 20590), (203, 20599), (223, 20698), (224, 20710), (225, 20719), (226, 20731), (305, 21016), (319, 21076), (323, 21085), (343, 21205), (346, 21226), (357, 21298), (359, 21304), (368, 21349), (371, 21358), (377, 21382), (381, 21400), (392, 21448), (395, 21457), (407, 21538), (415, 21565), (419, 21577), (422, 21586), (426, 21607), (442, 21688), (466, 21799), (469, 21811), (470, 21814), (485, 21898), (488, 21910), (506, 21979), (515, 22018), (519, 22039), (527, 22075), (536,

22108), (538, 22117), (543, 22129), (545, 22132), (565, 22201), (566, 22210), (570, 22240), (582, 22279), (585, 22288), (594, 22318), (600, 22339), (612, 22378), (635, 22465), (639, 22480), (643, 22498), (646, 22513), (649, 22522), (651, 22528), (662, 22567), (668, 22600), (669, 22603), (675, 22624), (676, 22627), (695, 22714), (704, 22744), (705, 22747), (710, 22765), (716, 22789), (722, 22810), (731, 22864), (732, 22867), (746, 22936), (753, 22990), (778, 23119), (784, 23164), (810, 23344), (814, 23368), (820, 23392), (831, 23437), (834, 23443), (841, 23482), (844, 23512), (849, 23530), (880, 23650),

Gene: Truckee\_25 Start: 20163, Stop: 24755, Start Num: 19

Candidate Starts for Truckee\_25:

(Start: 18 @20142 has 2 MA's), (Start: 19 @20163 has 121 MA's), (Start: 22 @20193 has 2 MA's), (30, 20247), (46, 20304), (53, 20382), (62, 20442), (68, 20466), (73, 20508), (81, 20631), (82, 20649), (85, 20691), (89, 20766), (90, 20778), (94, 20817), (97, 20832), (100, 20847), (106, 20880), (117, 20958), (119, 20973), (128, 21051), (136, 21132), (150, 21240), (166, 21357), (168, 21363), (191, 21507), (192, 21516), (209, 21582), (265, 21819), (277, 21879), (287, 21912), (288, 21915), (310, 22017), (312, 22023), (323, 22059), (346, 22203), (352, 22251), (353, 22257), (354, 22260), (363, 22305), (368, 22326), (371, 22335), (372, 22338), (377, 22359), (378, 22362), (392, 22425), (393, 22428), (415, 22542), (422, 22563), (425, 22581), (426, 22584), (437, 22635), (442, 22665), (444, 22680), (446, 22692), (472, 22803), (475, 22812), (479, 22842), (500, 22932), (501, 22935), (504, 22944), (506, 22956), (511, 22977), (515, 22995), (522, 23031), (527, 23052), (536, 23085), (553, 23142), (565, 23184), (566, 23193), (574, 23241), (582, 23262), (585, 23271), (594, 23301), (612, 23361), (623, 23397), (631, 23433), (643, 23481), (655, 23526), (657, 23532), (663, 23553), (668, 23583), (680, 23631), (690, 23670), (691, 23673), (718, 23781), (721, 23790), (727, 23823), (744, 23913), (751, 23961), (768, 24045), (784, 24147), (785, 24159), (792, 24201), (809, 24318), (810, 24327), (820, 24375), (831, 24420), (834, 24426), (845, 24495), (850, 24522), (886, 24705),

Gene: Trustiboi\_27 Start: 20688, Stop: 25280, Start Num: 19

Candidate Starts for Trustiboi\_27:

(Start: 18 @20667 has 2 MA's), (Start: 19 @20688 has 121 MA's), (Start: 22 @20718 has 2 MA's), (30, 20772), (33, 20793), (46, 20829), (53, 20907), (62, 20967), (68, 20991), (70, 21003), (73, 21033), (76, 21084), (80, 21114), (81, 21156), (82, 21174), (85, 21216), (87, 21246), (89, 21291), (90, 21303), (97, 21357), (100, 21372), (102, 21384), (106, 21405), (119, 21498), (122, 21531), (125, 21546), (131, 21594), (145, 21744), (150, 21765), (165, 21879), (166, 21882), (193, 22044), (200, 22068), (203, 22083), (207, 22095), (238, 22263), (243, 22278), (244, 22284), (255, 22302), (271, 22374), (283, 22425), (288, 22440), (294, 22470), (310, 22542), (312, 22548), (322, 22581), (323, 22584), (346, 22728), (352, 22776), (354, 22785), (356, 22797), (368, 22851), (371, 22860), (372, 22863), (377, 22884), (386, 22929), (392, 22950), (399, 22992), (402, 23010), (415, 23067), (422, 23088), (426, 23109), (442, 23190), (444, 23205), (445, 23208), (451, 23235), (464, 23289), (479, 23367), (481, 23382), (482, 23385), (486, 23403), (487, 23409), (489, 23415), (492, 23424), (501, 23460), (504, 23469), (511, 23502), (522, 23556), (523, 23559), (527, 23577), (531, 23589), (538, 23619), (543, 23634), (548, 23643), (550, 23655), (555, 23676), (566, 23715), (577, 23772), (582, 23784), (585, 23793), (597, 23832), (600, 23844), (610, 23874), (612, 23883), (623, 23919), (632, 23958), (633, 23961), (637, 23979), (639, 23985), (654, 24045), (657, 24054), (669, 24108), (670, 24111), (673, 24120), (701, 24237), (702, 24240), (708, 24261), (716, 24294), (717, 24297), (718, 24303), (721, 24312), (726, 24339), (747, 24450), (754, 24501), (756, 24507), (768, 24567), (772, 24591), (782, 24651), (784, 24669), (785, 24681), (809, 24840), (810, 24849), (820, 24897), (828, 24930), (831, 24942), (834, 24948), (837, 24969), (838, 24972), (839, 24978), (845, 25017), (850, 25044), (886, 25230), (891, 25257),

Gene: Untouchable\_32 Start: 23641, Stop: 28752, Start Num: 19

Candidate Starts for Untouchable\_32:

(Start: 19 @23641 has 121 MA's), (Start: 22 @23671 has 2 MA's), (28, 23716), (53, 23860), (62, 23920), (63, 23926), (73, 23986), (74, 24007), (81, 24109), (88, 24235), (91, 24271), (97, 24310),

(102, 24337), (106, 24358), (111, 24400), (117, 24472), (122, 24520), (136, 24646), (144, 24721), (145, 24733), (150, 24754), (162, 24859), (163, 24862), (182, 24970), (232, 25222), (264, 25327), (277, 25396), (282, 25417), (298, 25498), (299, 25501), (304, 25528), (312, 25567), (319, 25594), (343, 25735), (346, 25756), (355, 25819), (356, 25825), (361, 25843), (362, 25849), (372, 25891), (375, 25903), (377, 25912), (386, 25957), (396, 25999), (398, 26008), (399, 26020), (401, 26029), (402, 26038), (426, 26137), (430, 26158), (433, 26167), (438, 26191), (439, 26194), (451, 26263), (452, 26266), (454, 26275), (459, 26293), (460, 26296), (462, 26308), (467, 26329), (469, 26335), (470, 26338), (475, 26359), (479, 26389), (481, 26404), (484, 26419), (497, 26467), (501, 26479), (503, 26485), (504, 26488), (506, 26500), (507, 26503), (519, 26560), (532, 26614), (541, 26638), (546, 26650), (547, 26653), (558, 26698), (559, 26701), (564, 26716), (565, 26719), (566, 26728), (567, 26743), (568, 26749), (569, 26755), (574, 26776), (575, 26779), (579, 26791), (582, 26806), (585, 26815), (590, 26836), (592, 26848), (598, 26869), (606, 26896), (616, 26929), (618, 26935), (623, 26953), (630, 26983), (640, 27022), (658, 27091), (684, 27202), (687, 27214), (705, 27283), (724, 27358), (738, 27448), (763, 27592), (767, 27616), (783, 27721), (787, 27754), (789, 27766), (795, 27829), (799, 27850), (801, 27862), (806, 27883), (815, 27940), (835, 28024), (851, 28111), (859, 28129), (866, 28159), (872, 28177), (873, 28180), (874, 28186), (875, 28192), (881, 28219), (895, 28330), (903, 28405), (914, 28474), (919, 28507), (922, 28531), (940, 28648), (950, 28738),

Gene: Uzumaki\_26 Start: 19821, Stop: 24458, Start Num: 19

Candidate Starts for Uzumaki\_26:

(Start: 18 @19800 has 2 MA's), (Start: 19 @19821 has 121 MA's), (Start: 22 @19851 has 2 MA's), (30, 19905), (31, 19914), (63, 20184), (64, 20187), (73, 20244), (74, 20265), (80, 20325), (81, 20367), (85, 20427), (90, 20514), (94, 20553), (97, 20568), (100, 20583), (106, 20616), (110, 20655), (111, 20658), (117, 20694), (119, 20709), (125, 20757), (162, 21081), (166, 21093), (174, 21153), (180, 21174), (184, 21195), (193, 21255), (194, 21261), (197, 21270), (202, 21285), (203, 21294), (223, 21393), (224, 21405), (225, 21414), (226, 21426), (305, 21711), (319, 21771), (323, 21780), (346, 21921), (352, 21969), (353, 21975), (357, 21993), (359, 21999), (368, 22044), (371, 22053), (377, 22077), (381, 22095), (391, 22140), (392, 22143), (395, 22152), (404, 22218), (415, 22260), (422, 22281), (426, 22302), (437, 22353), (442, 22383), (444, 22398), (454, 22440), (459, 22458), (469, 22506), (470, 22509), (480, 22566), (506, 22674), (509, 22683), (519, 22734), (522, 22749), (527, 22770), (536, 22803), (538, 22812), (543, 22824), (550, 22845), (552, 22851), (557, 22872), (565, 22896), (566, 22905), (582, 22974), (583, 22977), (584, 22980), (585, 22983), (594, 23013), (600, 23034), (607, 23055), (612, 23073), (615, 23082), (620, 23100), (635, 23160), (643, 23193), (646, 23208), (648, 23214), (649, 23217), (662, 23262), (669, 23298), (670, 23301), (672, 23307), (675, 23319), (676, 23322), (704, 23439), (705, 23442), (710, 23460), (719, 23496), (728, 23538), (732, 23562), (746, 23631), (753, 23685), (756, 23697), (778, 23814), (784, 23859), (791, 23907), (811, 24042), (814, 24063), (820, 24087), (834, 24138), (844, 24207), (845, 24210), (849, 24225),

Gene: Vardy\_32 Start: 23250, Stop: 28361, Start Num: 19

Candidate Starts for Vardy\_32:

(Start: 19 @23250 has 121 MA's), (Start: 22 @23280 has 2 MA's), (28, 23325), (53, 23469), (63, 23535), (73, 23595), (74, 23616), (81, 23718), (88, 23844), (91, 23880), (97, 23919), (102, 23946), (106, 23967), (111, 24009), (120, 24108), (122, 24129), (136, 24255), (144, 24330), (145, 24342), (150, 24363), (162, 24468), (163, 24471), (232, 24831), (264, 24936), (277, 25005), (282, 25026), (298, 25107), (299, 25110), (304, 25137), (312, 25176), (319, 25203), (346, 25365), (352, 25413), (356, 25434), (361, 25452), (372, 25500), (375, 25512), (386, 25566), (398, 25617), (399, 25629), (401, 25638), (402, 25647), (414, 25701), (426, 25746), (429, 25761), (430, 25767), (433, 25776), (434, 25782), (438, 25800), (439, 25803), (440, 25809), (441, 25818), (451, 25872), (452, 25875), (454, 25884), (459, 25902), (460, 25905), (462, 25917), (467, 25938), (469, 25944), (470, 25947), (475, 25968), (479, 25998), (481, 26013), (489, 26046), (493, 26061), (497, 26076), (501, 26088), (503, 26094), (504, 26097), (506, 26109), (507, 26112), (519, 26169), (532, 26223), (533, 26226), (541, 26247), (546, 26259), (547, 26262), (559, 26310), (564, 26325), (565, 26328), (566, 26337), (568, 26358), (574, 26385), (575, 26388), (581, 26412), (585, 26424), (590, 26445), (592, 26457),

(598, 26478), (606, 26505), (616, 26538), (618, 26544), (623, 26562), (630, 26592), (640, 26631), (684, 26811), (687, 26823), (705, 26892), (738, 27057), (760, 27180), (763, 27201), (783, 27330), (787, 27363), (789, 27375), (795, 27438), (799, 27459), (801, 27471), (805, 27486), (815, 27549), (835, 27633), (851, 27720), (859, 27738), (866, 27768), (872, 27786), (873, 27789), (874, 27795), (875, 27801), (881, 27828), (895, 27939), (903, 28014), (905, 28032), (919, 28116), (922, 28140), (940, 28257), (950, 28347),

Gene: Xenomorph\_20 Start: 17403, Stop: 21881, Start Num: 19

Candidate Starts for Xenomorph\_20:

(Start: 18 @17382 has 2 MA's), (Start: 19 @17403 has 121 MA's), (Start: 22 @17433 has 2 MA's), (25, 17466), (30, 17487), (53, 17622), (54, 17631), (70, 17718), (73, 17748), (81, 17871), (82, 17889), (85, 17931), (90, 18018), (94, 18057), (97, 18072), (100, 18087), (106, 18120), (117, 18198), (119, 18213), (125, 18261), (127, 18276), (132, 18318), (134, 18360), (136, 18372), (140, 18414), (144, 18447), (150, 18480), (163, 18588), (173, 18654), (181, 18687), (183, 18696), (185, 18699), (188, 18717), (192, 18756), (249, 18999), (266, 19053), (308, 19212), (314, 19245), (323, 19272), (346, 19401), (359, 19479), (368, 19524), (370, 19530), (371, 19533), (374, 19545), (377, 19557), (383, 19584), (386, 19602), (392, 19623), (404, 19698), (408, 19719), (409, 19722), (412, 19731), (422, 19761), (430, 19803), (431, 19806), (442, 19863), (443, 19869), (444, 19878), (452, 19911), (455, 19923), (456, 19926), (468, 19983), (470, 19989), (475, 20010), (479, 20040), (484, 20070), (489, 20088), (501, 20136), (507, 20160), (511, 20178), (514, 20187), (517, 20202), (520, 20223), (527, 20253), (536, 20286), (537, 20292), (538, 20295), (543, 20307), (550, 20328), (565, 20379), (566, 20388), (570, 20418), (572, 20424), (582, 20457), (585, 20466), (594, 20496), (597, 20505), (600, 20517), (606, 20535), (612, 20556), (620, 20583), (622, 20589), (623, 20592), (626, 20607), (633, 20634), (641, 20664), (649, 20700), (675, 20802), (690, 20865), (698, 20901), (699, 20904), (705, 20925), (710, 20943), (720, 20982), (722, 20988), (725, 21003), (729, 21024), (730, 21036), (753, 21168), (766, 21231), (782, 21258), (784, 21276), (791, 21324), (792, 21330), (800, 21402), (814, 21480), (822, 21516), (826, 21534), (834, 21558), (838, 21582), (844, 21627), (849, 21648), (892, 21870),

Gene: Yotsuba\_26 Start: 20608, Stop: 25152, Start Num: 22

Candidate Starts for Yotsuba\_26:

(Start: 19 @20575 has 121 MA's), (Start: 22 @20608 has 2 MA's), (49, 20755), (59, 20845), (60, 20848), (81, 21043), (88, 21169), (97, 21244), (106, 21292), (111, 21334), (122, 21454), (135, 21571), (145, 21667), (176, 21871), (179, 21883), (192, 21964), (219, 22099), (237, 22192), (261, 22255), (268, 22294), (286, 22357), (290, 22372), (340, 22576), (346, 22627), (361, 22714), (367, 22744), (370, 22756), (371, 22759), (374, 22771), (377, 22783), (383, 22810), (393, 22852), (400, 22897), (419, 22978), (421, 22984), (426, 23008), (428, 23014), (441, 23080), (446, 23116), (453, 23140), (461, 23173), (466, 23200), (468, 23209), (472, 23227), (477, 23248), (481, 23281), (487, 23308), (488, 23311), (501, 23362), (509, 23392), (511, 23404), (527, 23479), (533, 23500), (535, 23506), (539, 23521), (565, 23605), (566, 23614), (569, 23641), (585, 23692), (596, 23728), (612, 23782), (633, 23860), (656, 23950), (664, 23980), (672, 24016), (680, 24052), (690, 24091), (704, 24148), (710, 24169), (716, 24193), (717, 24196), (720, 24208), (722, 24214), (738, 24304), (744, 24334), (745, 24337), (746, 24340), (754, 24400), (758, 24415), (769, 24469), (784, 24568), (799, 24688), (800, 24694), (819, 24796), (822, 24808), (825, 24817), (844, 24913), (846, 24916), (890, 25141),

Gene: Zeina\_26 Start: 19202, Stop: 23839, Start Num: 19

Candidate Starts for Zeina\_26:

(Start: 18 @19181 has 2 MA's), (Start: 19 @19202 has 121 MA's), (Start: 22 @19232 has 2 MA's), (30, 19286), (31, 19295), (63, 19565), (64, 19568), (73, 19625), (74, 19646), (80, 19706), (81, 19748), (85, 19808), (89, 19883), (97, 19949), (100, 19964), (106, 19997), (110, 20036), (111, 20039), (117, 20075), (119, 20090), (125, 20138), (156, 20411), (163, 20465), (166, 20474), (174, 20534), (184, 20576), (193, 20636), (194, 20642), (197, 20651), (202, 20666), (203, 20675), (223, 20774), (224, 20786), (225, 20795), (226, 20807), (305, 21092), (319, 21152), (323, 21161), (346, 21302), (352,

21350), (357, 21374), (359, 21380), (368, 21425), (371, 21434), (377, 21458), (381, 21476), (391, 21521), (392, 21524), (395, 21533), (404, 21599), (415, 21641), (419, 21653), (422, 21662), (426, 21683), (437, 21734), (442, 21764), (444, 21779), (454, 21821), (459, 21839), (469, 21887), (470, 21890), (485, 21974), (506, 22055), (509, 22064), (519, 22115), (527, 22151), (536, 22184), (538, 22193), (543, 22205), (550, 22226), (552, 22232), (557, 22253), (565, 22277), (566, 22286), (569, 22313), (582, 22355), (583, 22358), (584, 22361), (585, 22364), (600, 22415), (607, 22436), (612, 22454), (620, 22481), (639, 22556), (643, 22574), (649, 22598), (662, 22643), (668, 22676), (669, 22679), (670, 22682), (675, 22700), (704, 22820), (705, 22823), (710, 22841), (728, 22919), (732, 22943), (746, 23012), (753, 23066), (771, 23153), (778, 23195), (784, 23240), (791, 23288), (811, 23423), (814, 23444), (820, 23468), (834, 23519), (844, 23588), (849, 23606),

Gene: Zeph\_33 Start: 23999, Stop: 29110, Start Num: 19

Candidate Starts for Zeph\_33:

(Start: 19 @23999 has 121 MA's), (Start: 22 @24029 has 2 MA's), (28, 24074), (53, 24218), (62, 24278), (63, 24284), (73, 24344), (74, 24365), (81, 24467), (88, 24593), (91, 24629), (97, 24668), (106, 24716), (111, 24758), (117, 24830), (122, 24878), (136, 25004), (144, 25079), (145, 25091), (150, 25112), (158, 25184), (162, 25217), (163, 25220), (182, 25328), (232, 25580), (264, 25685), (277, 25754), (282, 25775), (298, 25856), (299, 25859), (304, 25886), (312, 25925), (319, 25952), (343, 26093), (346, 26114), (355, 26177), (356, 26183), (361, 26201), (362, 26207), (372, 26249), (375, 26261), (377, 26270), (386, 26315), (396, 26357), (398, 26366), (399, 26378), (401, 26387), (402, 26396), (426, 26495), (430, 26516), (433, 26525), (438, 26549), (439, 26552), (451, 26621), (452, 26624), (454, 26633), (459, 26651), (460, 26654), (462, 26666), (467, 26687), (469, 26693), (470, 26696), (475, 26717), (479, 26747), (481, 26762), (484, 26777), (497, 26825), (501, 26837), (503, 26843), (504, 26846), (506, 26858), (507, 26861), (519, 26918), (532, 26972), (541, 26996), (546, 27008), (547, 27011), (558, 27056), (559, 27059), (564, 27074), (565, 27077), (566, 27086), (567, 27101), (568, 27107), (569, 27113), (574, 27134), (575, 27137), (579, 27149), (582, 27164), (585, 27173), (590, 27194), (592, 27206), (598, 27227), (606, 27254), (616, 27287), (618, 27293), (623, 27311), (630, 27341), (640, 27380), (658, 27449), (705, 27641), (724, 27716), (738, 27806), (763, 27950), (773, 28013), (783, 28079), (787, 28112), (789, 28124), (795, 28187), (799, 28208), (801, 28220), (806, 28241), (815, 28298), (835, 28382), (851, 28469), (859, 28487), (866, 28517), (872, 28535), (873, 28538), (874, 28544), (875, 28550), (881, 28577), (895, 28688), (903, 28763), (919, 28865), (922, 28889), (940, 29006), (950, 29096),