

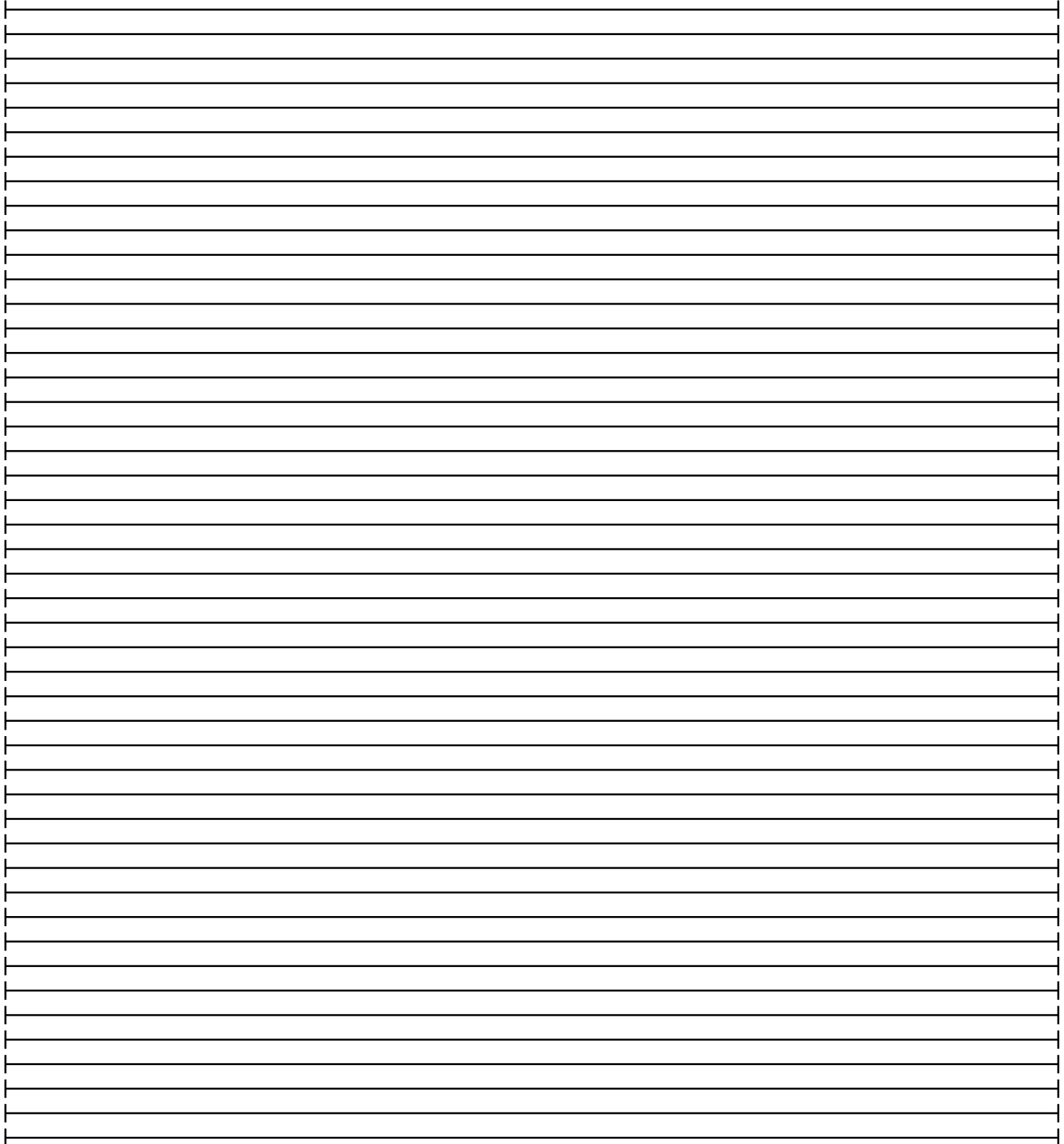
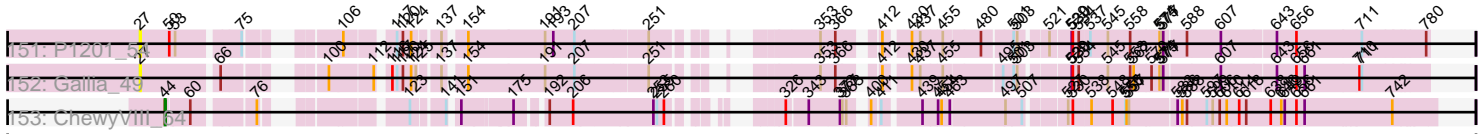




Pham 308101

	2	51	96	81	76	86	90	108	110	128	153	192	204	226	269	286	326	366	414	434	468	476	500	516	524	536	556	573	709	720	766		
r01: Kimchi	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r02: StickyNote_40	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r03: Roberts_33 + 6	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r04: Mirreles_36	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r05: Ezurina_32	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r06: LastNadia_35	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r07: Studio_36	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r08: Agamoto_33	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r09: Makima_33	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r10: Audeil_32	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r11: TripleC_34	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r12: TMaxx_34	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r13: PauloDiaboli_104	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r14: Dodo_106	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r15: A3Waily_104	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r16: Erasmago_95	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r17: Big4_93	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r18: Zooman_88	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r19: Cece_87	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r20: Pumpemickel_101	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r21: FuzzBuster_83	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r22: MissGang_60	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r23: Cborin_70	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r24: Puisseint_60	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r25: Darg_60	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r26: Megal_60	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r27: Predator_60	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r28: Phree_60	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r29: Beck_60	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r30: Thun_60	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r31: Bobin_60	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r32: Kugel_60	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r33: Oatid_60	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r34: Barnyard_60	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r35: DiLupo_60	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r36: Papyrus_60	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r37: MontyDev_60	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r38: Nilo_94	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r39: Send5T3_60	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r40: Riparian_60	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r41: Weiss13_60	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r42: Candie_81	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461	473	485	497	509	521	533
r43: Rope_90	148	161	173	185	197	209	221	233	245	257	269	281	293	305	317	329	341	353	365	377	389	401	413	425	437	449	461						

Pham 308101



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 308101 Report

This analysis was run 06/27/26 on database version 652.

Pham number 308101 has 203 members, 23 are drafts.

Phages represented in each track:

- Track 1 : Cuke\_107
- Track 2 : Fowlmouth\_101
- Track 3 : MrMiyagi\_99
- Track 4 : Indlulamithi\_95
- Track 5 : Leopard\_106
- Track 6 : Aikoy\_108
- Track 7 : Onyinye\_107
- Track 8 : GTE5\_44
- Track 9 : Flapper\_57
- Track 10 : Dalilpop\_57
- Track 11 : GRU1\_42
- Track 12 : Turuncu\_57
- Track 13 : Commandaria\_53
- Track 14 : Outis\_54, StarStruck\_54
- Track 15 : GrootJr\_54, NovumRegina\_52, Wheezy\_52, Arti\_52
- Track 16 : Bonum\_56, Kabluna\_56
- Track 17 : Kurt\_52, KidneyBean\_52, Jifall16\_51, NatB6\_52, Emianna\_52, Phomeo\_51
- Track 18 : MerCougar\_54
- Track 19 : GTE8\_41
- Track 20 : Tracker\_52
- Track 21 : SuperSulley\_54, Buggaboo\_54
- Track 22 : NosilaM\_56
- Track 23 : Foxboro\_53
- Track 24 : Ennea\_59
- Track 25 : Patio\_56
- Track 26 : Skysand\_55
- Track 27 : Lollipop1437\_58
- Track 28 : Float294\_55
- Track 29 : RedRaider\_60
- Track 30 : BiPauneto\_54, Pemberton\_55, Yndexa\_53, Sukkupi\_53
- Track 31 : WhoseManz\_53, Marietta\_54
- Track 32 : IDyn\_53
- Track 33 : NadineRae\_52
- Track 34 : HubbaBubba\_49
- Track 35 : HomeFry\_57
- Track 36 : Scuba\_61

- Track 37 : Fury\_60, Pleakley\_60
- Track 38 : Gagieri\_52
- Track 39 : Braxoaddie\_53, Maselop\_53, CoffeeBean\_53, Apiary\_53
- Track 40 : Polyzuki\_53
- Track 41 : MacGully\_60
- Track 42 : Gumball\_88, SirHarley\_90
- Track 43 : Helpful\_91
- Track 44 : Erk16\_89
- Track 45 : Adjutor\_86
- Track 46 : KandZ\_86
- Track 47 : Delton\_87
- Track 48 : PLOT\_89
- Track 49 : Visconti\_89
- Track 50 : Nova\_88
- Track 51 : Thoth\_88
- Track 52 : WaldoWhy\_89, Chill\_89
- Track 53 : BigMama\_87
- Track 54 : SuperheroCarly\_87
- Track 55 : Troll4\_88
- Track 56 : Butterscotch\_86, PBI1\_81
- Track 57 : Phalaborwa\_90
- Track 58 : Mopey\_90
- Track 59 : Prager\_88
- Track 60 : Giuseppe\_90
- Track 61 : Penelope2018\_88
- Track 62 : Hawkeye\_102
- Track 63 : LilyPad\_80
- Track 64 : Djokovic\_83, Madi\_82, Sienna\_83, Terapin\_84, BiteSize\_83, Beyoncage\_83
- Track 65 : Suzy\_81
- Track 66 : LittleFella\_81
- Track 67 : Apeppi\_84, LuckyLeo\_86
- Track 68 : Erutan\_88
- Track 69 : Ranch\_92
- Track 70 : Alyssamiracle\_89, RazorC\_86, Astralis\_86
- Track 71 : DoobyDoo\_88
- Track 72 : Genamy16\_89
- Track 73 : Gibbin\_90
- Track 74 : Riduram\_85, Jamemuya19\_84
- Track 75 : Rukungu\_89
- Track 76 : Rumi\_87
- Track 77 : Patos\_93, NorManre\_93
- Track 78 : Sampudon\_90, Alephilan\_90, Jalebi\_88
- Track 79 : Charminar\_85
- Track 80 : Sadboi\_88, ParvusTarda\_88, Gretellyn\_88, Lila22\_89, OtterstedtS21\_89
- Track 81 : Lambo\_88
- Track 82 : Xenia2\_91
- Track 83 : DaviePasture\_89
- Track 84 : DumpTruck\_91
- Track 85 : Avian\_84
- Track 86 : Tillicus\_82
- Track 87 : Wojtek\_81
- Track 88 : LavAbarElk\_88

- Track 89 : Pywacket\_86
- Track 90 : Stormer\_89
- Track 91 : Zany\_87, Yikes\_89
- Track 92 : Rota\_87
- Track 93 : MoiGyank\_91
- Track 94 : NovaSharks\_88
- Track 95 : BirthdayBoy\_91
- Track 96 : GOATification\_87, Fulcrum\_87
- Track 97 : Mima20\_87
- Track 98 : PeteyPab\_40, PotatoChip\_41, Zion\_41
- Track 99 : Cruella\_38, C3PO\_38
- Track 100 : Darwin\_42
- Track 101 : Kimchi1738\_38
- Track 102 : Stickynote\_40
- Track 103 : Roberts\_33, ChamoyPickle\_35, Gerri43\_33, CardboardBox\_34, AnnabelLee\_33, Neuville\_33, ChipsNGuac\_33
- Track 104 : Mireles\_36
- Track 105 : Ezurina\_32
- Track 106 : LastNadiia\_35
- Track 107 : Studio\_35
- Track 108 : Agamoto\_33
- Track 109 : Makima\_33
- Track 110 : Audell\_32
- Track 111 : TripleC\_34
- Track 112 : TMaxx\_34
- Track 113 : PauloDiaboli\_104
- Track 114 : Dodo\_106
- Track 115 : A3Wally\_104
- Track 116 : Erasmago\_95
- Track 117 : Big4\_93
- Track 118 : Zooman\_88
- Track 119 : Cece\_87
- Track 120 : Pumpernickel\_101
- Track 121 : FuzzBuster\_83
- Track 122 : MisoSoup\_72
- Track 123 : Cborch11\_93, Nish23\_93
- Track 124 : Puissant\_90
- Track 125 : Damien\_92
- Track 126 : Megatron06\_93
- Track 127 : Predator\_92
- Track 128 : Phreeze\_91
- Track 129 : Beckerton\_91
- Track 130 : Thumb\_93
- Track 131 : BobtimousPrime\_94
- Track 132 : Konstantine\_94
- Track 133 : Oaker\_91
- Track 134 : Barnyard\_108
- Track 135 : DrLupo\_109
- Track 136 : Papyrus\_91
- Track 137 : MontyDev\_93
- Track 138 : Nilo\_94
- Track 139 : Send513\_89
- Track 140 : Riparian\_93

- Track 141 : Weiss13\_91
- Track 142 : Candle\_87
- Track 143 : Rope\_90
- Track 144 : Yelo\_88
- Track 145 : Zenon\_93
- Track 146 : Demikore\_109
- Track 147 : Labelle\_108
- Track 148 : Patience\_109
- Track 149 : Madruga\_106
- Track 150 : SuperSonics\_114
- Track 151 : P1201\_54
- Track 152 : Gallia\_49
- Track 153 : ChewyVIII\_64

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

The start number called the most often in the published annotations is 44, it was called in 42 of the 180 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Arti\_52, BiPauneto\_54, Bonum\_56, Buggaboo\_54, ChewyVIII\_64, Commandaria\_53, Dalilpop\_57, Emianna\_52, Ennea\_59, Flapper\_57, Float294\_55, Foxboro\_53, Fury\_60, GRU1\_42, GTE5\_44, GTE8\_41, GrootJr\_54, HomeFry\_57, HubbaBubba\_49, IDyn\_53, Jifall16\_51, Kabluna\_56, KidneyBean\_52, Kurt\_52, Lollipop1437\_58, Marietta\_54, MerCougar\_54, NadineRae\_52, NatB6\_52, NosilaM\_56, NovumRegina\_52, Outis\_54, Patio\_56, Pemberton\_55, Phomeo\_51, Pleakley\_60, RedRaider\_60, Scuba\_61, Skysand\_55, StarStruck\_54, Sukkupi\_53, SuperSulley\_54, Tracker\_52, Turuncu\_57, Wheezy\_52, WhoseManz\_53, Yndexa\_53,

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

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

- A3Wally\_104, Adjutor\_86, Agamoto\_33, Aikoy\_108, Alephilan\_90, Alyssamiracle\_89, AnnabelLee\_33, Apeppi\_84, Apiary\_53, Astralis\_86, Audell\_32, Avian\_84, Barnyard\_108, Beckerton\_91, Beyoncage\_83, Big4\_93, BigMama\_87, BirthdayBoy\_91, BiteSize\_83, BobtimousPrime\_94, Braxoaddie\_53, Butterscotch\_86, C3PO\_38, Candle\_87, CardboardBox\_34, Cborch11\_93, Cece\_87, ChamoyPickle\_35, Charminar\_85, Chill\_89, ChipsNGuac\_33, CoffeeBean\_53, Cruella\_38, Cuke\_107, Damien\_92, Darwin\_42, DaviePasture\_89, Delton\_87, Demikore\_109, Djokovic\_83, Dodo\_106, DoobyDoo\_88, DrLupo\_109, DumpTruck\_91, Erasmago\_95, Erk16\_89, Erutan\_88, Ezurina\_32, Fowlmouth\_101, Fulcrum\_87, FuzzBuster\_83, GOATification\_87, Gagieri\_52, Gallia\_49, Genamy16\_89, Gerri43\_33, Gibbin\_90, Giuseppe\_90, Gretellyn\_88, Gumball\_88, Hawkeye\_102, Helpful\_91, Indlulamithi\_95, Jalebi\_88, Jamemuya19\_84, KandZ\_86, Kimchi1738\_38, Konstantine\_94, Labelle\_108, Lambo\_88, LastNadiia\_35, LavAbarEik\_88, Leopard\_106, Lila22\_89, LilyPad\_80, LittleFella\_81, LuckyLeo\_86, MacGully\_60, Madi\_82, Madruga\_106, Makima\_33, Maselop\_53, Megatron06\_93, Mima20\_87, Mireles\_36, MisoSoup\_72, MoiGyank\_91, MontyDev\_93, Mopey\_90,

MrMiyagi\_99, Neuville\_33, Nilo\_94, Nish23\_93, NorManre\_93, NovaSharks\_88, Nova\_88, Oaker\_91, Onyinye\_107, OtterstedtS21\_89, P1201\_54, PBI1\_81, PLOT\_89, Papyrus\_91, ParvusTarda\_88, Patience\_109, Patos\_93, PauloDiaboli\_104, Penelope2018\_88, PeteyPab\_40, Phalaborwa\_90, Phreeze\_91, Polyyuki\_53, PotatoChip\_41, Prager\_88, Predator\_92, Puissant\_90, Pumpnickel\_101, Pywacket\_86, Ranch\_92, RazorC\_86, Riduram\_85, Riparian\_93, Roberts\_33, Rope\_90, Rota\_87, Rukungu\_89, Rumi\_87, Sadboi\_88, Sampudon\_90, Send513\_89, Sienna\_83, SirHarley\_90, Stickynote\_40, Stormer\_89, Studio\_35, SuperSonic\_114, SuperheroCarly\_87, Suzy\_81, TMaxx\_34, Terapin\_84, Thoth\_88, Thumb\_93, Tillicus\_82, TripleC\_34, Troll4\_88, Visconti\_89, WaldoWhy\_89, Weiss13\_91, Wojtek\_81, Xenia2\_91, Yelo\_88, Yikes\_89, Zany\_87, Zenon\_93, Zion\_41, Zooman\_88,

### Summary by start number:

#### Start 27:

- Found in 2 of 203 ( 1.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gallia\_49 (singleton), P1201\_54 (singleton),

#### Start 29:

- Found in 12 of 203 ( 5.9% ) of genes in pham
- Manual Annotations of this start: 1 of 180
- Called 8.3% of time when present
- Phage (with cluster) where this start called: Predator\_92 (H1),

#### Start 34:

- Found in 3 of 203 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 180
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Aikoy\_108 (AE),

#### Start 35:

- Found in 1 of 203 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 180
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Puissant\_90 (H1),

#### Start 36:

- Found in 13 of 203 ( 6.4% ) of genes in pham
- Manual Annotations of this start: 2 of 180
- Called 23.1% of time when present
- Phage (with cluster) where this start called: Cborch11\_93 (H1), Nish23\_93 (H1), Phreeze\_91 (H1),

#### Start 38:

- Found in 20 of 203 ( 9.9% ) of genes in pham
- Manual Annotations of this start: 15 of 180
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Barnyard\_108 (H2), Beckerton\_91 (H1), BobtimousPrime\_94 (H1), Damien\_92 (H1), DrLupo\_109 (H2), Indlulamithi\_95 (AC),

Konstantine\_94 (H1), LittleFella\_81 (DG2), Megatron06\_93 (H1), MontyDev\_93 (R), Nilo\_94 (R), Oaker\_91 (H1), Riparian\_93 (R), Thumb\_93 (H1), Zenon\_93 (R),

Start 39:

- Found in 44 of 203 ( 21.7% ) of genes in pham
- Manual Annotations of this start: 39 of 180
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alephilan\_90 (DV), Alyssamiracle\_89 (DV), Apeppi\_84 (DV), Astralis\_86 (DV), Avian\_84 (DV), BirthdayBoy\_91 (DV), Charminar\_85 (DV), DaviePasture\_89 (DV), DoobyDoo\_88 (DV), DumpTruck\_91 (DV), Erutan\_88 (DV), Fulcrum\_87 (DV), GOATification\_87 (DV), Genamy16\_89 (DV), Gibbin\_90 (DV), GretelLyn\_88 (DV), Jalebi\_88 (DV), Jamemuya19\_84 (DV), Lambo\_88 (DV), LavAbarElk\_88 (DV), Lila22\_89 (DV), LuckyLeo\_86 (DV), Mima20\_87 (DV), MoiGyank\_91 (DV), NorManre\_93 (DV), NovaSharks\_88 (DV), OtterstedtS21\_89 (DV), ParvusTarda\_88 (DV), Patos\_93 (DV), Pywacket\_86 (DV), Ranch\_92 (DV), RazorC\_86 (DV), Riduram\_85 (DV), Rota\_87 (DV), Rukungu\_89 (DV), Rumi\_87 (DV), Sadboi\_88 (DV), Sampudon\_90 (DV), Stormer\_89 (DV), Tillicus\_82 (DV), Wojtek\_81 (DV), Xenia2\_91 (DV), Yikes\_89 (DV), Zany\_87 (DV),

Start 40:

- Found in 32 of 203 ( 15.8% ) of genes in pham
- Manual Annotations of this start: 31 of 180
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Adjutor\_86 (D1), Beyoncage\_83 (DG1), BigMama\_87 (D1), BiteSize\_83 (DG1), Butterscotch\_86 (D1), Chill\_89 (D1), Delton\_87 (D1), Djokovic\_83 (DG1), Erk16\_89 (D1), Giuseppe\_90 (D1), Gumball\_88 (D1), Hawkeye\_102 (D2), Helpful\_91 (D1), KandZ\_86 (D1), LilyPad\_80 (DG1), Madi\_82 (DG1), Mopey\_90 (D1), Nova\_88 (D1), PBI1\_81 (D1), PLOT\_89 (D1), Penelope2018\_88 (D1), Phalaborwa\_90 (D1), Prager\_88 (D1), Sienna\_83 (DG1), SirHarley\_90 (D1), SuperheroCarly\_87 (D1), Suzy\_81 (DG1), Terapin\_84 (DG1), Thoth\_88 (D1), Troll4\_88 (D1), Visconti\_89 (D1), WaldoWhy\_89 (D1),

Start 41:

- Found in 14 of 203 ( 6.9% ) of genes in pham
- Manual Annotations of this start: 9 of 180
- Called 64.3% of time when present
- Phage (with cluster) where this start called: Candle\_87 (R), Cuke\_107 (AC), Fowlmouth\_101 (AC), MrMiyagi\_99 (AC), Papyrus\_91 (R), Rope\_90 (R), Send513\_89 (R), Weiss13\_91 (R), Yelo\_88 (R),

Start 42:

- Found in 5 of 203 ( 2.5% ) of genes in pham
- Manual Annotations of this start: 3 of 180
- Called 60.0% of time when present
- Phage (with cluster) where this start called: Labelle\_108 (U), Madrugada\_106 (U), Patience\_109 (U),

Start 44:

- Found in 47 of 203 ( 23.2% ) of genes in pham
- Manual Annotations of this start: 42 of 180
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arti\_52 (CR2), BiPauneto\_54 (CR4), Bonum\_56 (CR2), Buggaboo\_54 (CR2), ChewyVIII\_64 (singleton), Commandaria\_53

(CR2), Dalilpop\_57 (CR1), Emianna\_52 (CR2), Ennea\_59 (CR3), Flapper\_57 (CR1), Float294\_55 (CR3), Foxboro\_53 (CR2), Fury\_60 (CR5), GRU1\_42 (CR1), GTE5\_44 (CR1), GTE8\_41 (CR2), GrootJr\_54 (CR2), HomeFry\_57 (CR5), HubbaBubba\_49 (CR4), IDyn\_53 (CR4), Jifall16\_51 (CR2), Kabluna\_56 (CR2), KidneyBean\_52 (CR2), Kurt\_52 (CR2), Lollipop1437\_58 (CR3), Marietta\_54 (CR4), MerCougar\_54 (CR2), NadineRae\_52 (CR4), NatB6\_52 (CR2), NosilaM\_56 (CR2), NovumRegina\_52 (CR2), Outis\_54 (CR2), Patio\_56 (CR3), Pemberton\_55 (CR4), Phomeo\_51 (CR2), Pleakley\_60 (CR5), RedRaider\_60 (CR3), Scuba\_61 (CR5), Skysand\_55 (CR3), StarStruck\_54 (CR2), Sukkupi\_53 (CR4), SuperSulley\_54 (CR2), Tracker\_52 (CR2), Turuncu\_57 (CR1), Wheezy\_52 (CR2), WhoseManz\_53 (CR4), Yndexa\_53 (CR4),

#### Start 45:

- Found in 3 of 203 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 2 of 180
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Leopard\_106 (AE), Onyinye\_107 (AE),

#### Start 46:

- Found in 5 of 203 ( 2.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 20.0% of time when present
- Phage (with cluster) where this start called: SuperSonics\_114 (U),

#### Start 47:

- Found in 1 of 203 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 180
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MacGully\_60 (CR7),

#### Start 48:

- Found in 5 of 203 ( 2.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Demikore\_109 (U),

#### Start 49:

- Found in 6 of 203 ( 3.0% ) of genes in pham
- Manual Annotations of this start: 6 of 180
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Apiary\_53 (CR6), Braxoaddie\_53 (CR6), CoffeeBean\_53 (CR6), Gagieri\_52 (CR6), Maselop\_53 (CR6), Polyuyuki\_53 (CR6),

#### Start 52:

- Found in 8 of 203 ( 3.9% ) of genes in pham
- Manual Annotations of this start: 8 of 180
- Called 100.0% of time when present
- Phage (with cluster) where this start called: C3PO\_38 (EN), Cruella\_38 (EN), Darwin\_42 (EN), Kimchi1738\_38 (EN), PeteyPab\_40 (EN), PotatoChip\_41 (EN), Stickynote\_40 (EN), Zion\_41 (EN),

#### Start 91:

- Found in 4 of 203 ( 2.0% ) of genes in pham
- Manual Annotations of this start: 2 of 180

- Called 50.0% of time when present
- Phage (with cluster) where this start called: A3Wally\_104 (GD1), Dodo\_106 (GD1),

Start 92:

- Found in 1 of 203 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 180
- Called 100.0% of time when present
- Phage (with cluster) where this start called: FuzzBuster\_83 (GM),

Start 93:

- Found in 1 of 203 ( 0.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MisoSoup\_72 (GM),

Start 97:

- Found in 8 of 203 ( 3.9% ) of genes in pham
- Manual Annotations of this start: 5 of 180
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Big4\_93 (GD2), Cece\_87 (GD3), Erasmago\_95 (GD2), PauloDiaboli\_104 (GD1), Pumpernickel\_101 (GD4), Zooman\_88 (GD2),

Start 149:

- Found in 16 of 203 ( 7.9% ) of genes in pham
- Manual Annotations of this start: 11 of 180
- Called 87.5% of time when present
- Phage (with cluster) where this start called: Agamoto\_33 (FR), AnnabelLee\_33 (FR), Audell\_32 (FR), CardboardBox\_34 (FR), ChamoyPickle\_35 (FR), ChipsNGuac\_33 (FR), Gerri43\_33 (FR), LastNadiia\_35 (FR), Makima\_33 (FR), Mireles\_36 (FR), Neuville\_33 (FR), Roberts\_33 (FR), TMaxx\_34 (FR), TripleC\_34 (FR),

Start 161:

- Found in 12 of 203 ( 5.9% ) of genes in pham
- No Manual Annotations of this start.
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Ezurina\_32 (FR), Studio\_35 (FR),

### **Summary by clusters:**

There are 26 clusters represented in this pham: GD1, FR, GD3, GD4, GD2, DV, GM, AC, EN, AE, DG2, R, U, singleton, CR2, CR3, CR1, CR6, CR7, CR4, CR5, H2, H1, DG1, D2, D1,

Info for manual annotations of cluster AC:

- Start number 38 was manually annotated 1 time for cluster AC.
- Start number 41 was manually annotated 3 times for cluster AC.

Info for manual annotations of cluster AE:

- Start number 34 was manually annotated 1 time for cluster AE.
- Start number 45 was manually annotated 2 times for cluster AE.

Info for manual annotations of cluster CR1:

- Start number 44 was manually annotated 3 times for cluster CR1.

Info for manual annotations of cluster CR2:

- Start number 44 was manually annotated 21 times for cluster CR2.

Info for manual annotations of cluster CR3:

- Start number 44 was manually annotated 6 times for cluster CR3.

Info for manual annotations of cluster CR4:

- Start number 44 was manually annotated 8 times for cluster CR4.

Info for manual annotations of cluster CR5:

- Start number 44 was manually annotated 3 times for cluster CR5.

Info for manual annotations of cluster CR6:

- Start number 49 was manually annotated 6 times for cluster CR6.

Info for manual annotations of cluster CR7:

- Start number 47 was manually annotated 1 time for cluster CR7.

Info for manual annotations of cluster D1:

- Start number 40 was manually annotated 22 times for cluster D1.

Info for manual annotations of cluster D2:

- Start number 40 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster DG1:

- Start number 40 was manually annotated 8 times for cluster DG1.

Info for manual annotations of cluster DG2:

- Start number 38 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DV:

- Start number 39 was manually annotated 39 times for cluster DV.

Info for manual annotations of cluster EN:

- Start number 52 was manually annotated 8 times for cluster EN.

Info for manual annotations of cluster FR:

- Start number 149 was manually annotated 11 times for cluster FR.

Info for manual annotations of cluster GD1:

- Start number 91 was manually annotated 2 times for cluster GD1.
- Start number 97 was manually annotated 1 time for cluster GD1.

Info for manual annotations of cluster GD2:

- Start number 97 was manually annotated 2 times for cluster GD2.

Info for manual annotations of cluster GD3:

- Start number 97 was manually annotated 1 time for cluster GD3.

Info for manual annotations of cluster GD4:

- Start number 97 was manually annotated 1 time for cluster GD4.

Info for manual annotations of cluster GM:

- Start number 92 was manually annotated 1 time for cluster GM.

Info for manual annotations of cluster H1:

- Start number 29 was manually annotated 1 time for cluster H1.
- Start number 35 was manually annotated 1 time for cluster H1.
- Start number 36 was manually annotated 2 times for cluster H1.
- Start number 38 was manually annotated 7 times for cluster H1.

Info for manual annotations of cluster H2:

- Start number 38 was manually annotated 2 times for cluster H2.

Info for manual annotations of cluster R:

- Start number 38 was manually annotated 4 times for cluster R.
- Start number 41 was manually annotated 6 times for cluster R.

Info for manual annotations of cluster U:

- Start number 42 was manually annotated 3 times for cluster U.

### **Gene Information:**

Gene: A3Wally\_104 Start: 71211, Stop: 68536, Start Num: 91

Candidate Starts for A3Wally\_104:

(Start: 91 @71211 has 2 MA's), (94, 71190), (Start: 97 @71181 has 5 MA's), (126, 70944), (165, 70776), (171, 70725), (199, 70608), (204, 70587), (218, 70521), (234, 70449), (241, 70431), (250, 70398), (256, 70371), (270, 70317), (289, 70275), (291, 70263), (292, 70260), (322, 70149), (341, 70101), (368, 70020), (394, 69960), (401, 69930), (409, 69909), (425, 69849), (433, 69822), (489, 69636), (491, 69627), (493, 69615), (494, 69612), (536, 69408), (537, 69405), (545, 69360), (571, 69243), (574, 69228), (577, 69219), (583, 69192), (587, 69177), (614, 69051), (625, 69015), (636, 68979), (657, 68916), (683, 68829), (684, 68823), (688, 68805), (710, 68766), (725, 68718), (744, 68676), (759, 68643),

Gene: Adjutor\_86 Start: 61133, Stop: 64084, Start Num: 40

Candidate Starts for Adjutor\_86:

(Start: 40 @61133 has 31 MA's), (73, 61316), (109, 61526), (115, 61571), (144, 61724), (163, 61811), (170, 61844), (171, 61850), (174, 61865), (178, 61880), (192, 61928), (215, 62021), (221, 62057), (224, 62066), (245, 62141), (248, 62153), (261, 62204), (263, 62213), (302, 62357), (329, 62480), (334, 62504), (347, 62540), (357, 62576), (385, 62630), (387, 62636), (397, 62678), (410, 62714), (426, 62780), (467, 62906), (469, 62915), (478, 62957), (484, 62975), (506, 63053), (522, 63116), (525, 63137), (538, 63203), (555, 63284), (575, 63359), (582, 63389), (586, 63404), (592, 63434), (604, 63488), (614, 63542), (617, 63557), (618, 63560), (619, 63563), (632, 63602), (635, 63611), (649, 63641), (656, 63671), (670, 63716), (683, 63758), (688, 63782), (695, 63797), (712, 63836), (726, 63878), (731, 63887), (754, 63935), (809, 64061), (810, 64067),

Gene: Agamoto\_33 Start: 24496, Stop: 22310, Start Num: 149

Candidate Starts for Agamoto\_33:

(Start: 149 @24496 has 11 MA's), (196, 24271), (216, 24181), (243, 24088), (255, 24037), (344, 23770), (438, 23509), (444, 23485), (469, 23416), (481, 23365), (507, 23266), (515, 23227), (528, 23155), (548, 23053), (562, 23005), (587, 22894), (588, 22885), (592, 22867), (615, 22765), (627,

22729), (641, 22690), (655, 22639), (674, 22585), (688, 22531), (694, 22525), (710, 22492), (731, 22432), (737, 22417), (750, 22387),

Gene: Aikoy\_108 Start: 68446, Stop: 71229, Start Num: 34

Candidate Starts for Aikoy\_108:

(Start: 34 @68446 has 1 MA's), (Start: 45 @68485 has 2 MA's), (58, 68530), (76, 68677), (86, 68761), (111, 68917), (115, 68938), (122, 68989), (129, 69028), (139, 69079), (148, 69109), (154, 69142), (175, 69229), (178, 69238), (189, 69265), (192, 69277), (194, 69289), (200, 69310), (213, 69364), (241, 69472), (242, 69475), (254, 69526), (255, 69529), (281, 69598), (298, 69643), (306, 69652), (307, 69655), (311, 69664), (337, 69754), (348, 69784), (375, 69829), (382, 69838), (389, 69859), (477, 70096), (478, 70099), (480, 70105), (499, 70168), (518, 70228), (530, 70297), (532, 70306), (538, 70339), (544, 70378), (553, 70414), (565, 70438), (572, 70477), (577, 70498), (581, 70522), (606, 70624), (614, 70672), (617, 70687), (618, 70690), (622, 70702), (652, 70786), (656, 70804), (668, 70843), (673, 70852), (678, 70867), (687, 70906), (703, 70945), (729, 70999), (733, 71008), (752, 71050), (781, 71116), (792, 71146), (804, 71179), (810, 71194),

Gene: Alephilan\_90 Start: 60569, Stop: 63292, Start Num: 39

Candidate Starts for Alephilan\_90:

(Start: 39 @60569 has 39 MA's), (76, 60797), (100, 60869), (151, 61124), (154, 61142), (158, 61157), (163, 61181), (169, 61202), (174, 61229), (189, 61268), (192, 61280), (213, 61364), (214, 61367), (280, 61622), (325, 61757), (328, 61763), (396, 61943), (442, 62072), (480, 62192), (527, 62381), (529, 62390), (530, 62393), (533, 62405), (537, 62432), (543, 62471), (545, 62477), (548, 62489), (551, 62498), (557, 62525), (570, 62567), (583, 62624), (586, 62636), (611, 62753), (652, 62882), (678, 62969), (693, 63020), (745, 63131), (758, 63158), (770, 63179), (793, 63230),

Gene: Alyssamiracle\_89 Start: 58582, Stop: 61320, Start Num: 39

Candidate Starts for Alyssamiracle\_89:

(Start: 39 @58582 has 39 MA's), (76, 58810), (100, 58882), (151, 59137), (158, 59170), (163, 59194), (169, 59215), (174, 59242), (189, 59281), (192, 59293), (213, 59377), (214, 59380), (252, 59539), (280, 59635), (319, 59752), (342, 59821), (345, 59833), (398, 59962), (407, 59989), (408, 59992), (449, 60115), (467, 60163), (473, 60193), (474, 60199), (490, 60250), (495, 60274), (516, 60343), (517, 60349), (527, 60409), (529, 60418), (530, 60421), (533, 60433), (537, 60460), (543, 60499), (544, 60502), (546, 60511), (547, 60514), (549, 60520), (551, 60526), (583, 60658), (586, 60670), (589, 60685), (641, 60880), (652, 60916), (653, 60919), (693, 61054), (745, 61165), (747, 61171), (753, 61180), (795, 61270),

Gene: AnnabelLee\_33 Start: 21714, Stop: 19510, Start Num: 149

Candidate Starts for AnnabelLee\_33:

(Start: 149 @21714 has 11 MA's), (161, 21660), (303, 21111), (344, 20982), (350, 20967), (386, 20883), (413, 20799), (423, 20754), (429, 20736), (444, 20685), (452, 20664), (481, 20565), (504, 20475), (513, 20430), (528, 20355), (548, 20253), (562, 20205), (573, 20151), (588, 20085), (592, 20067), (615, 19965), (620, 19944), (653, 19851), (655, 19839), (674, 19785), (688, 19731), (710, 19692), (731, 19632), (737, 19617), (750, 19587),

Gene: Apeppi\_84 Start: 59800, Stop: 62529, Start Num: 39

Candidate Starts for Apeppi\_84:

(Start: 39 @59800 has 39 MA's), (61, 59890), (63, 59914), (79, 60037), (118, 60286), (119, 60289), (169, 60496), (170, 60502), (171, 60508), (175, 60526), (181, 60547), (194, 60586), (200, 60607), (206, 60634), (231, 60736), (241, 60769), (260, 60835), (269, 60859), (280, 60886), (330, 61015), (374, 61135), (390, 61168), (403, 61177), (474, 61366), (493, 61435), (494, 61438), (514, 61513), (537, 61636), (544, 61678), (548, 61693), (555, 61720), (569, 61768), (574, 61792), (575, 61795), (580, 61810), (586, 61840), (587, 61843), (597, 61903), (599, 61915), (618, 61999), (628, 62023), (633, 62047), (637, 62059), (640, 62068), (655, 62122), (656, 62125), (672, 62176), (681, 62203),

(693, 62245), (758, 62395), (778, 62431), (794, 62473),

Gene: Apiary\_53 Start: 40112, Stop: 37512, Start Num: 49

Candidate Starts for Apiary\_53:

(Start: 49 @40112 has 6 MA's), (67, 39995), (76, 39932), (78, 39923), (82, 39905), (116, 39719), (117, 39707), (118, 39701), (177, 39458), (192, 39413), (196, 39395), (206, 39353), (208, 39347), (212, 39329), (214, 39323), (229, 39251), (244, 39191), (304, 39044), (311, 39029), (313, 39026), (321, 38987), (338, 38945), (341, 38936), (349, 38912), (428, 38747), (454, 38672), (459, 38660), (477, 38591), (493, 38540), (513, 38474), (529, 38399), (537, 38357), (549, 38297), (556, 38270), (569, 38216), (572, 38204), (574, 38192), (586, 38144), (597, 38084), (598, 38081), (602, 38066), (627, 37967), (649, 37907), (700, 37739), (749, 37622), (761, 37598), (774, 37568), (776, 37565), (783, 37553), (790, 37535),

Gene: Arti\_52 Start: 42132, Stop: 39583, Start Num: 44

Candidate Starts for Arti\_52:

(Start: 44 @42132 has 42 MA's), (62, 42060), (76, 41952), (105, 41826), (139, 41628), (152, 41601), (167, 41538), (175, 41505), (192, 41451), (201, 41412), (206, 41391), (207, 41388), (239, 41247), (293, 41097), (299, 41085), (326, 41016), (356, 40926), (383, 40878), (400, 40851), (421, 40809), (452, 40719), (454, 40713), (457, 40704), (488, 40596), (529, 40434), (547, 40338), (567, 40260), (569, 40251), (575, 40224), (592, 40149), (602, 40101), (610, 40071), (618, 40023), (646, 39951), (649, 39942), (666, 39882), (667, 39876), (669, 39870), (687, 39807), (730, 39714), (737, 39696), (742, 39687), (759, 39651), (772, 39618),

Gene: Astralis\_86 Start: 58138, Stop: 60876, Start Num: 39

Candidate Starts for Astralis\_86:

(Start: 39 @58138 has 39 MA's), (76, 58366), (100, 58438), (151, 58693), (158, 58726), (163, 58750), (169, 58771), (174, 58798), (189, 58837), (192, 58849), (213, 58933), (214, 58936), (252, 59095), (280, 59191), (319, 59308), (342, 59377), (345, 59389), (398, 59518), (407, 59545), (408, 59548), (449, 59671), (467, 59719), (473, 59749), (474, 59755), (490, 59806), (495, 59830), (516, 59899), (517, 59905), (527, 59965), (529, 59974), (530, 59977), (533, 59989), (537, 60016), (543, 60055), (544, 60058), (546, 60067), (547, 60070), (549, 60076), (551, 60082), (583, 60214), (586, 60226), (589, 60241), (641, 60436), (652, 60472), (653, 60475), (693, 60610), (745, 60721), (747, 60727), (753, 60736), (795, 60826),

Gene: Audell\_32 Start: 24128, Stop: 21942, Start Num: 149

Candidate Starts for Audell\_32:

(Start: 149 @24128 has 11 MA's), (216, 23813), (217, 23810), (255, 23669), (344, 23402), (413, 23231), (423, 23186), (438, 23141), (444, 23117), (481, 22997), (507, 22898), (513, 22862), (528, 22787), (548, 22685), (562, 22637), (587, 22526), (588, 22517), (592, 22499), (615, 22397), (627, 22361), (641, 22322), (655, 22271), (674, 22217), (694, 22157), (710, 22124), (731, 22064), (737, 22049), (750, 22019),

Gene: Avian\_84 Start: 58264, Stop: 60969, Start Num: 39

Candidate Starts for Avian\_84:

(Start: 39 @58264 has 39 MA's), (61, 58354), (111, 58672), (134, 58837), (169, 58960), (170, 58966), (171, 58972), (181, 59011), (194, 59050), (200, 59071), (206, 59098), (213, 59125), (219, 59158), (231, 59200), (241, 59233), (260, 59299), (267, 59320), (269, 59323), (280, 59350), (336, 59497), (391, 59629), (428, 59704), (442, 59749), (453, 59773), (467, 59812), (474, 59848), (478, 59863), (482, 59875), (494, 59920), (501, 59947), (502, 59950), (524, 60043), (533, 60085), (537, 60112), (552, 60187), (557, 60205), (563, 60214), (566, 60217), (574, 60268), (592, 60346), (594, 60361), (618, 60472), (628, 60493), (650, 60553), (656, 60580), (693, 60700), (709, 60733), (758, 60841), (768, 60853), (804, 60937), (805, 60940),

Gene: Barnyard\_108 Start: 67484, Stop: 70234, Start Num: 38

Candidate Starts for Barnyard\_108:

(Start: 36 @67478 has 2 MA's), (Start: 38 @67484 has 15 MA's), (100, 67802), (154, 68093), (159, 68117), (163, 68132), (170, 68159), (183, 68210), (192, 68234), (199, 68264), (210, 68312), (213, 68321), (214, 68324), (255, 68486), (333, 68708), (340, 68720), (363, 68795), (378, 68819), (383, 68828), (388, 68840), (406, 68897), (442, 68999), (472, 69089), (477, 69110), (487, 69140), (530, 69296), (537, 69335), (543, 69374), (544, 69377), (546, 69386), (550, 69398), (551, 69401), (568, 69461), (574, 69488), (575, 69491), (578, 69500), (583, 69530), (584, 69536), (587, 69545), (599, 69614), (602, 69620), (607, 69635), (610, 69650), (623, 69713), (641, 69752), (652, 69788), (669, 69848), (681, 69881), (689, 69914), (697, 69932), (783, 70115),

Gene: Beckerton\_91 Start: 65152, Stop: 68088, Start Num: 38

Candidate Starts for Beckerton\_91:

(16, 65068), (21, 65092), (22, 65098), (Start: 29 @65125 has 1 MA's), (Start: 36 @65146 has 2 MA's), (Start: 38 @65152 has 15 MA's), (54, 65206), (60, 65242), (76, 65377), (102, 65515), (150, 65776), (163, 65842), (170, 65872), (190, 65962), (192, 65989), (230, 66154), (255, 66241), (265, 66274), (268, 66295), (271, 66301), (276, 66328), (287, 66358), (292, 66376), (296, 66382), (311, 66472), (319, 66511), (415, 66781), (448, 66880), (480, 66985), (482, 66991), (487, 67006), (505, 67075), (513, 67099), (521, 67120), (528, 67165), (539, 67216), (544, 67252), (554, 67291), (574, 67363), (575, 67366), (576, 67369), (586, 67411), (591, 67441), (596, 67471), (598, 67477), (599, 67486), (610, 67522), (618, 67570), (623, 67585), (641, 67630), (649, 67654), (681, 67756), (689, 67789), (716, 67852), (739, 67903), (754, 67927), (767, 67963), (797, 68029),

Gene: Beyoncage\_83 Start: 56924, Stop: 59785, Start Num: 40

Candidate Starts for Beyoncage\_83:

(Start: 40 @56924 has 31 MA's), (59, 56996), (76, 57143), (100, 57320), (123, 57479), (124, 57482), (130, 57518), (137, 57551), (155, 57614), (166, 57650), (201, 57773), (237, 57896), (249, 57932), (264, 57989), (272, 58016), (275, 58034), (283, 58061), (301, 58115), (392, 58409), (395, 58427), (404, 58448), (416, 58487), (417, 58502), (433, 58556), (436, 58565), (466, 58643), (474, 58685), (499, 58772), (500, 58775), (517, 58829), (530, 58901), (531, 58907), (544, 58982), (548, 58997), (574, 59093), (586, 59144), (592, 59174), (593, 59186), (604, 59228), (607, 59237), (613, 59270), (614, 59282), (624, 59315), (626, 59318), (641, 59360), (642, 59363), (653, 59399), (687, 59486), (699, 59510), (701, 59519), (764, 59651), (800, 59732), (809, 59756),

Gene: BiPauneto\_54 Start: 41664, Stop: 39112, Start Num: 44

Candidate Starts for BiPauneto\_54:

(31, 41709), (Start: 44 @41664 has 42 MA's), (62, 41586), (74, 41505), (76, 41475), (81, 41451), (89, 41424), (192, 40977), (201, 40938), (206, 40917), (207, 40914), (293, 40623), (304, 40608), (326, 40542), (452, 40245), (454, 40239), (457, 40230), (477, 40158), (527, 39969), (529, 39960), (547, 39864), (555, 39834), (557, 39825), (567, 39786), (569, 39777), (574, 39753), (575, 39750), (586, 39705), (597, 39645), (598, 39642), (602, 39627), (610, 39597), (614, 39567), (618, 39549), (631, 39513), (654, 39444), (659, 39429), (667, 39402), (684, 39348), (687, 39333), (708, 39294), (728, 39243), (742, 39213),

Gene: Big4\_93 Start: 70347, Stop: 67702, Start Num: 97

Candidate Starts for Big4\_93:

(94, 70353), (95, 70350), (Start: 97 @70347 has 5 MA's), (110, 70248), (127, 70104), (128, 70098), (131, 70080), (156, 69969), (171, 69888), (182, 69846), (197, 69777), (199, 69771), (204, 69750), (205, 69747), (224, 69660), (234, 69615), (244, 69585), (250, 69564), (256, 69537), (263, 69510), (270, 69483), (282, 69459), (289, 69441), (291, 69429), (300, 69399), (338, 69279), (341, 69270), (360, 69204), (368, 69186), (394, 69126), (401, 69096), (445, 68946), (491, 68793), (494, 68778), (536, 68574), (537, 68571), (571, 68409), (574, 68394), (577, 68385), (583, 68358), (587, 68343), (614, 68217), (636, 68145), (683, 67995), (684, 67989), (688, 67971), (725, 67884), (758, 67812),

(762, 67797),

Gene: BigMama\_87 Start: 61224, Stop: 64166, Start Num: 40

Candidate Starts for BigMama\_87:

(Start: 40 @61224 has 31 MA's), (73, 61407), (109, 61617), (115, 61662), (144, 61815), (163, 61902), (170, 61935), (174, 61956), (178, 61971), (192, 62019), (221, 62148), (224, 62157), (245, 62232), (248, 62244), (261, 62295), (263, 62304), (302, 62448), (329, 62571), (334, 62595), (347, 62631), (357, 62667), (385, 62721), (387, 62727), (397, 62769), (410, 62805), (426, 62871), (467, 62988), (469, 62997), (478, 63039), (484, 63057), (495, 63096), (506, 63135), (522, 63198), (525, 63219), (538, 63285), (555, 63366), (575, 63441), (582, 63471), (586, 63486), (592, 63516), (604, 63570), (614, 63624), (617, 63639), (618, 63642), (619, 63645), (632, 63684), (635, 63693), (649, 63723), (656, 63753), (670, 63798), (683, 63840), (688, 63864), (695, 63879), (712, 63918), (726, 63960), (731, 63969), (754, 64017), (809, 64143), (810, 64149),

Gene: BirthdayBoy\_91 Start: 60564, Stop: 63269, Start Num: 39

Candidate Starts for BirthdayBoy\_91:

(Start: 39 @60564 has 39 MA's), (61, 60654), (111, 60972), (134, 61137), (169, 61260), (170, 61266), (171, 61272), (181, 61311), (206, 61398), (213, 61425), (219, 61458), (231, 61500), (232, 61503), (241, 61533), (260, 61599), (267, 61620), (280, 61650), (336, 61797), (391, 61929), (428, 62004), (442, 62049), (453, 62073), (467, 62112), (482, 62175), (494, 62220), (501, 62247), (502, 62250), (524, 62343), (533, 62385), (537, 62412), (557, 62505), (563, 62514), (566, 62517), (574, 62568), (594, 62661), (618, 62772), (628, 62793), (641, 62826), (650, 62853), (656, 62880), (661, 62898), (680, 62952), (693, 63000), (709, 63033), (758, 63141), (768, 63153), (804, 63237),

Gene: BiteSize\_83 Start: 57010, Stop: 59871, Start Num: 40

Candidate Starts for BiteSize\_83:

(Start: 40 @57010 has 31 MA's), (59, 57082), (76, 57229), (100, 57406), (123, 57565), (124, 57568), (130, 57604), (137, 57637), (155, 57700), (166, 57736), (201, 57859), (237, 57982), (249, 58018), (264, 58075), (272, 58102), (275, 58120), (283, 58147), (301, 58201), (392, 58495), (395, 58513), (404, 58534), (416, 58573), (417, 58588), (433, 58642), (436, 58651), (466, 58729), (474, 58771), (499, 58858), (500, 58861), (517, 58915), (530, 58987), (531, 58993), (544, 59068), (548, 59083), (574, 59179), (586, 59230), (592, 59260), (593, 59272), (604, 59314), (607, 59323), (613, 59356), (614, 59368), (624, 59401), (626, 59404), (641, 59446), (642, 59449), (653, 59485), (687, 59572), (699, 59596), (701, 59605), (764, 59737), (800, 59818), (809, 59842),

Gene: BobtimousPrime\_94 Start: 65421, Stop: 68357, Start Num: 38

Candidate Starts for BobtimousPrime\_94:

(13, 65322), (18, 65346), (21, 65361), (22, 65367), (Start: 29 @65394 has 1 MA's), (Start: 36 @65415 has 2 MA's), (Start: 38 @65421 has 15 MA's), (54, 65475), (60, 65511), (76, 65646), (102, 65784), (150, 66045), (163, 66111), (170, 66141), (184, 66201), (190, 66231), (192, 66258), (230, 66423), (255, 66510), (265, 66543), (268, 66564), (271, 66570), (276, 66597), (287, 66627), (292, 66645), (296, 66651), (311, 66741), (319, 66780), (415, 67050), (448, 67149), (480, 67254), (482, 67260), (487, 67275), (505, 67344), (513, 67368), (521, 67389), (528, 67434), (539, 67485), (544, 67521), (554, 67560), (574, 67632), (575, 67635), (576, 67638), (586, 67680), (596, 67740), (598, 67746), (599, 67755), (610, 67791), (618, 67839), (623, 67854), (641, 67899), (649, 67923), (689, 68058), (716, 68121), (739, 68172), (754, 68196), (767, 68232), (797, 68298),

Gene: Bonum\_56 Start: 42802, Stop: 40232, Start Num: 44

Candidate Starts for Bonum\_56:

(Start: 44 @42802 has 42 MA's), (76, 42622), (126, 42340), (151, 42253), (153, 42238), (159, 42211), (192, 42094), (201, 42055), (207, 42031), (224, 41956), (258, 41818), (293, 41743), (294, 41740), (325, 41665), (326, 41662), (356, 41572), (383, 41524), (409, 41485), (427, 41437), (436, 41410), (452, 41365), (454, 41359), (477, 41278), (489, 41239), (507, 41173), (534, 41062), (557, 40945),

(561, 40936), (567, 40906), (569, 40897), (575, 40870), (586, 40825), (592, 40795), (596, 40768), (597, 40765), (598, 40762), (602, 40747), (610, 40717), (618, 40669), (631, 40633), (646, 40597), (649, 40588), (659, 40549), (666, 40528), (669, 40516), (687, 40453), (702, 40423), (742, 40333), (749, 40315),

Gene: Braxoaddie\_53 Start: 40101, Stop: 37501, Start Num: 49

Candidate Starts for Braxoaddie\_53:

(Start: 49 @40101 has 6 MA's), (67, 39984), (76, 39921), (78, 39912), (82, 39894), (116, 39708), (117, 39696), (118, 39690), (177, 39447), (192, 39402), (196, 39384), (206, 39342), (208, 39336), (212, 39318), (214, 39312), (229, 39240), (244, 39180), (304, 39033), (311, 39018), (313, 39015), (321, 38976), (338, 38934), (341, 38925), (349, 38901), (428, 38736), (454, 38661), (459, 38649), (477, 38580), (493, 38529), (513, 38463), (529, 38388), (537, 38346), (549, 38286), (556, 38259), (569, 38205), (572, 38193), (574, 38181), (586, 38133), (597, 38073), (598, 38070), (602, 38055), (627, 37956), (649, 37896), (700, 37728), (749, 37611), (761, 37587), (774, 37557), (776, 37554), (783, 37542), (790, 37524),

Gene: Buggaboo\_54 Start: 43281, Stop: 40711, Start Num: 44

Candidate Starts for Buggaboo\_54:

(Start: 44 @43281 has 42 MA's), (76, 43101), (126, 42819), (151, 42732), (153, 42717), (159, 42690), (192, 42573), (201, 42534), (207, 42510), (258, 42297), (293, 42222), (294, 42219), (325, 42144), (326, 42141), (356, 42051), (383, 42003), (409, 41964), (427, 41916), (436, 41889), (452, 41844), (454, 41838), (477, 41757), (489, 41718), (507, 41652), (534, 41541), (557, 41424), (561, 41415), (567, 41385), (569, 41376), (575, 41349), (586, 41304), (592, 41274), (596, 41247), (597, 41244), (598, 41241), (602, 41226), (610, 41196), (618, 41148), (631, 41112), (646, 41076), (649, 41067), (659, 41028), (666, 41007), (669, 40995), (687, 40932), (702, 40902), (742, 40812), (749, 40794),

Gene: Butterscotch\_86 Start: 61184, Stop: 64135, Start Num: 40

Candidate Starts for Butterscotch\_86:

(Start: 40 @61184 has 31 MA's), (73, 61367), (109, 61577), (115, 61622), (144, 61775), (163, 61862), (170, 61895), (171, 61901), (174, 61916), (178, 61931), (192, 61979), (215, 62072), (221, 62108), (224, 62117), (245, 62192), (248, 62204), (261, 62255), (263, 62264), (302, 62408), (329, 62531), (334, 62555), (347, 62591), (357, 62627), (385, 62681), (387, 62687), (397, 62729), (410, 62765), (426, 62831), (467, 62957), (469, 62966), (478, 63008), (484, 63026), (492, 63056), (506, 63104), (522, 63167), (525, 63188), (538, 63254), (555, 63335), (575, 63410), (582, 63440), (586, 63455), (592, 63485), (604, 63539), (614, 63593), (617, 63608), (618, 63611), (619, 63614), (632, 63653), (635, 63662), (649, 63692), (656, 63722), (661, 63740), (670, 63767), (683, 63809), (688, 63833), (695, 63848), (712, 63887), (726, 63929), (731, 63938), (754, 63986), (809, 64112), (810, 64118),

Gene: C3PO\_38 Start: 37166, Stop: 34623, Start Num: 52

Candidate Starts for C3PO\_38:

(32, 37223), (51, 37169), (Start: 52 @37166 has 8 MA's), (64, 37085), (65, 37076), (67, 37055), (76, 36989), (86, 36965), (96, 36923), (101, 36902), (108, 36845), (118, 36764), (119, 36761), (128, 36719), (153, 36647), (191, 36482), (192, 36470), (207, 36407), (214, 36380), (226, 36317), (269, 36167), (286, 36137), (326, 36059), (366, 35945), (381, 35921), (434, 35810), (437, 35801), (459, 35741), (465, 35729), (476, 35675), (490, 35630), (495, 35606), (501, 35582), (503, 35573), (507, 35561), (536, 35429), (540, 35417), (547, 35372), (556, 35339), (569, 35288), (572, 35276), (574, 35264), (656, 34946), (705, 34805), (717, 34769), (722, 34757), (740, 34715), (766, 34655),

Gene: Candle\_87 Start: 65111, Stop: 67858, Start Num: 41

Candidate Starts for Candle\_87:

(Start: 41 @65111 has 9 MA's), (55, 65162), (57, 65174), (61, 65198), (100, 65450), (113, 65555), (114, 65567), (121, 65618), (124, 65636), (125, 65648), (129, 65663), (151, 65732), (159, 65774), (168, 65810), (170, 65819), (189, 65882), (192, 65894), (200, 65927), (213, 65981), (323, 66317),

(341, 66362), (348, 66386), (349, 66389), (354, 66410), (357, 66419), (393, 66488), (418, 66560), (428, 66596), (435, 66608), (446, 66644), (457, 66671), (459, 66674), (463, 66683), (467, 66695), (472, 66722), (485, 66767), (494, 66803), (499, 66818), (521, 66884), (535, 66965), (537, 66983), (541, 66992), (542, 66998), (546, 67031), (547, 67034), (575, 67136), (576, 67139), (577, 67142), (592, 67208), (598, 67241), (611, 67295), (613, 67304), (617, 67331), (644, 67400), (649, 67418), (652, 67430), (658, 67454), (659, 67457), (662, 67466), (666, 67475), (678, 67511), (688, 67553), (713, 67610), (736, 67664), (786, 67766), (812, 67841),

Gene: CardboardBox\_34 Start: 21717, Stop: 19513, Start Num: 149

Candidate Starts for CardboardBox\_34:

(Start: 149 @21717 has 11 MA's), (161, 21663), (303, 21114), (344, 20985), (350, 20970), (386, 20886), (413, 20802), (423, 20757), (429, 20739), (444, 20688), (452, 20667), (481, 20568), (504, 20478), (513, 20433), (528, 20358), (548, 20256), (562, 20208), (573, 20154), (588, 20088), (592, 20070), (615, 19968), (620, 19947), (653, 19854), (655, 19842), (674, 19788), (688, 19734), (710, 19695), (731, 19635), (737, 19620), (750, 19590),

Gene: Cborch11\_93 Start: 64787, Stop: 67738, Start Num: 36

Candidate Starts for Cborch11\_93:

(9, 64637), (11, 64661), (12, 64667), (15, 64685), (19, 64703), (20, 64721), (22, 64739), (Start: 29 @64766 has 1 MA's), (Start: 36 @64787 has 2 MA's), (Start: 38 @64793 has 15 MA's), (54, 64847), (60, 64883), (76, 65018), (102, 65156), (150, 65417), (163, 65483), (170, 65513), (184, 65573), (190, 65603), (192, 65630), (230, 65795), (255, 65882), (265, 65915), (268, 65936), (271, 65942), (276, 65969), (287, 65999), (292, 66017), (296, 66023), (311, 66113), (319, 66152), (415, 66422), (448, 66521), (480, 66626), (482, 66632), (487, 66647), (505, 66716), (513, 66740), (521, 66761), (528, 66806), (539, 66857), (544, 66893), (554, 66932), (574, 67004), (575, 67007), (576, 67010), (586, 67052), (596, 67112), (598, 67118), (599, 67127), (610, 67163), (618, 67211), (623, 67226), (641, 67271), (649, 67295), (684, 67412), (692, 67433), (707, 67463), (727, 67517), (764, 67592), (767, 67601), (796, 67664),

Gene: Cece\_87 Start: 73398, Stop: 70756, Start Num: 97

Candidate Starts for Cece\_87:

(Start: 97 @73398 has 5 MA's), (113, 73263), (161, 73008), (165, 72993), (168, 72960), (188, 72870), (199, 72825), (204, 72804), (205, 72801), (227, 72702), (234, 72678), (241, 72660), (270, 72546), (289, 72504), (291, 72492), (292, 72489), (335, 72342), (365, 72261), (368, 72255), (394, 72195), (401, 72165), (422, 72093), (479, 71904), (491, 71862), (508, 71781), (536, 71643), (540, 71631), (545, 71595), (548, 71583), (571, 71478), (574, 71463), (583, 71427), (587, 71412), (614, 71286), (670, 71106), (684, 71058), (688, 71040), (710, 71001), (725, 70953), (758, 70881), (759, 70878), (791, 70803),

Gene: ChamoyPickle\_35 Start: 22257, Stop: 20053, Start Num: 149

Candidate Starts for ChamoyPickle\_35:

(Start: 149 @22257 has 11 MA's), (161, 22203), (303, 21654), (344, 21525), (350, 21510), (386, 21426), (413, 21342), (423, 21297), (429, 21279), (444, 21228), (452, 21207), (481, 21108), (504, 21018), (513, 20973), (528, 20898), (548, 20796), (562, 20748), (573, 20694), (588, 20628), (592, 20610), (615, 20508), (620, 20487), (653, 20394), (655, 20382), (674, 20328), (688, 20274), (710, 20235), (731, 20175), (737, 20160), (750, 20130),

Gene: Charminar\_85 Start: 57821, Stop: 60592, Start Num: 39

Candidate Starts for Charminar\_85:

(Start: 39 @57821 has 39 MA's), (61, 57911), (111, 58229), (169, 58517), (170, 58523), (171, 58529), (181, 58568), (194, 58607), (206, 58655), (213, 58682), (219, 58715), (231, 58757), (232, 58760), (241, 58790), (260, 58856), (267, 58877), (269, 58880), (280, 58907), (300, 58961), (319, 59030), (342, 59102), (361, 59162), (374, 59186), (391, 59219), (419, 59291), (471, 59459), (473, 59465),

(485, 59507), (495, 59546), (519, 59627), (537, 59732), (544, 59774), (551, 59798), (554, 59813), (572, 59873), (575, 59888), (576, 59891), (583, 59921), (598, 59993), (619, 60092), (633, 60134), (648, 60167), (652, 60182), (670, 60245), (681, 60278), (693, 60320), (746, 60443), (758, 60464), (783, 60500), (785, 60503),

Gene: ChewyVIII\_64 Start: 47777, Stop: 45207, Start Num: 44

Candidate Starts for ChewyVIII\_64:

(Start: 44 @47777 has 42 MA's), (60, 47723), (76, 47594), (123, 47348), (141, 47279), (151, 47264), (175, 47150), (192, 47096), (206, 47036), (253, 46841), (255, 46832), (260, 46814), (326, 46670), (343, 46622), (373, 46547), (377, 46541), (383, 46532), (400, 46505), (411, 46490), (439, 46406), (451, 46373), (454, 46364), (463, 46343), (497, 46214), (507, 46175), (527, 46091), (530, 46079), (538, 46037), (548, 45983), (555, 45956), (556, 45953), (557, 45947), (583, 45839), (586, 45827), (588, 45815), (597, 45767), (599, 45755), (606, 45737), (610, 45719), (614, 45689), (618, 45671), (638, 45608), (646, 45581), (649, 45572), (656, 45542), (661, 45524), (742, 45308),

Gene: Chill\_89 Start: 61161, Stop: 64103, Start Num: 40

Candidate Starts for Chill\_89:

(Start: 40 @61161 has 31 MA's), (73, 61344), (109, 61554), (115, 61599), (144, 61752), (163, 61839), (170, 61872), (174, 61893), (178, 61908), (192, 61956), (215, 62049), (221, 62085), (224, 62094), (245, 62169), (248, 62181), (261, 62232), (263, 62241), (302, 62385), (329, 62508), (334, 62532), (347, 62568), (357, 62604), (385, 62658), (387, 62664), (397, 62706), (410, 62742), (426, 62808), (467, 62925), (469, 62934), (484, 62994), (495, 63033), (506, 63072), (522, 63135), (525, 63156), (538, 63222), (555, 63303), (575, 63378), (582, 63408), (586, 63423), (592, 63453), (604, 63507), (614, 63561), (617, 63576), (618, 63579), (619, 63582), (632, 63621), (635, 63630), (649, 63660), (656, 63690), (670, 63735), (683, 63777), (688, 63801), (695, 63816), (712, 63855), (726, 63897), (731, 63906), (754, 63954), (809, 64080), (810, 64086),

Gene: ChipsNGuac\_33 Start: 21717, Stop: 19513, Start Num: 149

Candidate Starts for ChipsNGuac\_33:

(Start: 149 @21717 has 11 MA's), (161, 21663), (303, 21114), (344, 20985), (350, 20970), (386, 20886), (413, 20802), (423, 20757), (429, 20739), (444, 20688), (452, 20667), (481, 20568), (504, 20478), (513, 20433), (528, 20358), (548, 20256), (562, 20208), (573, 20154), (588, 20088), (592, 20070), (615, 19968), (620, 19947), (653, 19854), (655, 19842), (674, 19788), (688, 19734), (710, 19695), (731, 19635), (737, 19620), (750, 19590),

Gene: CoffeeBean\_53 Start: 40059, Stop: 37459, Start Num: 49

Candidate Starts for CoffeeBean\_53:

(Start: 49 @40059 has 6 MA's), (67, 39942), (76, 39879), (78, 39870), (82, 39852), (116, 39666), (117, 39654), (118, 39648), (177, 39405), (192, 39360), (196, 39342), (206, 39300), (208, 39294), (212, 39276), (214, 39270), (229, 39198), (244, 39138), (304, 38991), (311, 38976), (313, 38973), (321, 38934), (338, 38892), (341, 38883), (349, 38859), (428, 38694), (454, 38619), (459, 38607), (477, 38538), (493, 38487), (513, 38421), (529, 38346), (537, 38304), (549, 38244), (556, 38217), (569, 38163), (572, 38151), (574, 38139), (586, 38091), (597, 38031), (598, 38028), (602, 38013), (627, 37914), (649, 37854), (700, 37686), (749, 37569), (761, 37545), (774, 37515), (776, 37512), (783, 37500), (790, 37482),

Gene: Commandaria\_53 Start: 43256, Stop: 40707, Start Num: 44

Candidate Starts for Commandaria\_53:

(33, 43301), (Start: 44 @43256 has 42 MA's), (62, 43178), (76, 43070), (105, 42947), (139, 42749), (192, 42572), (201, 42533), (206, 42512), (207, 42509), (209, 42497), (212, 42488), (224, 42434), (251, 42326), (286, 42233), (293, 42218), (326, 42137), (356, 42047), (379, 42005), (383, 41999), (388, 41987), (400, 41972), (427, 41912), (440, 41873), (452, 41840), (454, 41834), (457, 41825), (477, 41753), (507, 41651), (527, 41567), (529, 41558), (534, 41540), (547, 41462), (567, 41384),

(569, 41375), (586, 41303), (592, 41273), (597, 41243), (602, 41225), (610, 41195), (618, 41147), (649, 41066), (666, 41006), (684, 40946), (687, 40931), (708, 40892), (742, 40811), (749, 40793), (759, 40775), (766, 40757),

Gene: Cruella\_38 Start: 37166, Stop: 34623, Start Num: 52

Candidate Starts for Cruella\_38:

(32, 37223), (51, 37169), (Start: 52 @37166 has 8 MA's), (64, 37085), (65, 37076), (67, 37055), (76, 36989), (86, 36965), (96, 36923), (101, 36902), (108, 36845), (118, 36764), (119, 36761), (128, 36719), (153, 36647), (191, 36482), (192, 36470), (207, 36407), (214, 36380), (226, 36317), (269, 36167), (286, 36137), (326, 36059), (366, 35945), (381, 35921), (434, 35810), (437, 35801), (459, 35741), (465, 35729), (476, 35675), (490, 35630), (495, 35606), (501, 35582), (503, 35573), (507, 35561), (536, 35429), (540, 35417), (547, 35372), (556, 35339), (569, 35288), (572, 35276), (574, 35264), (656, 34946), (705, 34805), (717, 34769), (722, 34757), (740, 34715), (766, 34655),

Gene: Cuke\_107 Start: 58893, Stop: 61625, Start Num: 41

Candidate Starts for Cuke\_107:

(Start: 41 @58893 has 9 MA's), (69, 59055), (111, 59292), (123, 59367), (153, 59484), (154, 59487), (186, 59625), (191, 59646), (192, 59658), (194, 59670), (221, 59787), (230, 59823), (244, 59865), (277, 59964), (308, 60039), (310, 60042), (331, 60114), (351, 60171), (364, 60210), (380, 60231), (391, 60258), (404, 60300), (414, 60327), (424, 60357), (442, 60408), (452, 60432), (458, 60447), (467, 60468), (468, 60474), (471, 60492), (483, 60534), (488, 60549), (492, 60570), (521, 60651), (527, 60690), (530, 60702), (532, 60711), (541, 60753), (544, 60783), (550, 60804), (551, 60807), (572, 60891), (587, 60951), (606, 61038), (607, 61041), (617, 61101), (618, 61104), (619, 61107), (627, 61125), (649, 61188), (652, 61200), (653, 61203), (658, 61224), (675, 61278), (681, 61296), (683, 61305), (687, 61326), (735, 61440), (755, 61482), (769, 61518), (773, 61527), (778, 61533), (794, 61575), (797, 61581), (801, 61590), (806, 61605),

Gene: Dalilpop\_57 Start: 44428, Stop: 41867, Start Num: 44

Candidate Starts for Dalilpop\_57:

(2, 44695), (4, 44656), (17, 44554), (24, 44494), (Start: 44 @44428 has 42 MA's), (76, 44245), (77, 44239), (78, 44236), (111, 44062), (159, 43843), (192, 43723), (201, 43684), (206, 43663), (207, 43660), (224, 43585), (247, 43492), (286, 43387), (326, 43291), (421, 43084), (443, 43012), (452, 42994), (454, 42988), (457, 42979), (477, 42907), (527, 42727), (534, 42700), (567, 42544), (575, 42508), (586, 42463), (592, 42433), (596, 42406), (597, 42403), (598, 42400), (602, 42385), (610, 42355), (618, 42307), (627, 42286), (636, 42265), (646, 42235), (649, 42226), (669, 42154), (677, 42136), (684, 42106), (687, 42091), (742, 41974), (766, 41920),

Gene: Damien\_92 Start: 64671, Stop: 67616, Start Num: 38

Candidate Starts for Damien\_92:

(9, 64587), (11, 64611), (12, 64617), (Start: 29 @64644 has 1 MA's), (Start: 36 @64665 has 2 MA's), (Start: 38 @64671 has 15 MA's), (54, 64725), (60, 64761), (76, 64896), (102, 65034), (150, 65295), (163, 65361), (170, 65391), (184, 65451), (190, 65481), (192, 65508), (230, 65673), (255, 65760), (265, 65793), (268, 65814), (271, 65820), (276, 65847), (287, 65877), (292, 65895), (296, 65901), (311, 65991), (319, 66030), (415, 66300), (448, 66399), (480, 66504), (482, 66510), (487, 66525), (505, 66594), (513, 66618), (521, 66639), (528, 66684), (539, 66735), (544, 66771), (554, 66810), (574, 66882), (575, 66885), (576, 66888), (586, 66930), (591, 66960), (596, 66990), (598, 66996), (599, 67005), (606, 67023), (607, 67026), (610, 67041), (618, 67089), (623, 67104), (641, 67149), (649, 67173), (684, 67290), (692, 67311), (707, 67341), (727, 67395), (764, 67470), (767, 67479), (796, 67542),

Gene: Darwin\_42 Start: 37044, Stop: 34501, Start Num: 52

Candidate Starts for Darwin\_42:

(32, 37101), (51, 37047), (Start: 52 @37044 has 8 MA's), (65, 36954), (67, 36933), (76, 36867), (86, 36843), (96, 36801), (101, 36780), (108, 36723), (118, 36642), (119, 36639), (128, 36597), (153, 36525), (191, 36360), (192, 36348), (207, 36285), (214, 36258), (226, 36195), (269, 36045), (286, 36015), (326, 35937), (366, 35823), (381, 35799), (402, 35766), (414, 35745), (434, 35688), (437, 35679), (459, 35619), (461, 35616), (465, 35607), (467, 35598), (475, 35559), (476, 35553), (490, 35508), (492, 35493), (495, 35484), (501, 35460), (503, 35451), (507, 35439), (536, 35307), (540, 35295), (547, 35250), (556, 35217), (569, 35166), (572, 35154), (574, 35142), (583, 35106), (656, 34824), (673, 34770), (705, 34683), (717, 34647), (722, 34635), (740, 34593), (766, 34533),

Gene: DaviePasture\_89 Start: 60116, Stop: 62887, Start Num: 39

Candidate Starts for DaviePasture\_89:

(Start: 39 @60116 has 39 MA's), (61, 60206), (111, 60524), (134, 60689), (169, 60812), (170, 60818), (171, 60824), (181, 60863), (206, 60950), (213, 60977), (219, 61010), (231, 61052), (232, 61055), (241, 61085), (260, 61151), (267, 61172), (269, 61175), (280, 61202), (300, 61256), (319, 61325), (342, 61397), (361, 61457), (374, 61481), (391, 61514), (419, 61586), (471, 61754), (485, 61802), (486, 61805), (495, 61841), (519, 61922), (537, 62027), (544, 62069), (551, 62093), (554, 62108), (572, 62168), (575, 62183), (576, 62186), (583, 62216), (598, 62288), (619, 62387), (633, 62429), (648, 62462), (652, 62477), (661, 62513), (670, 62540), (675, 62555), (681, 62573), (686, 62594), (691, 62609), (693, 62615), (746, 62738), (758, 62759), (783, 62795), (785, 62798),

Gene: Delton\_87 Start: 61594, Stop: 64536, Start Num: 40

Candidate Starts for Delton\_87:

(Start: 40 @61594 has 31 MA's), (73, 61777), (109, 61987), (115, 62032), (144, 62185), (163, 62272), (170, 62305), (174, 62326), (178, 62341), (192, 62389), (215, 62482), (221, 62518), (224, 62527), (245, 62602), (248, 62614), (261, 62665), (263, 62674), (302, 62818), (329, 62941), (334, 62965), (347, 63001), (357, 63037), (385, 63091), (387, 63097), (397, 63139), (410, 63175), (426, 63241), (467, 63358), (469, 63367), (478, 63409), (484, 63427), (495, 63466), (506, 63505), (522, 63568), (525, 63589), (538, 63655), (555, 63736), (575, 63811), (582, 63841), (586, 63856), (592, 63886), (604, 63940), (614, 63994), (617, 64009), (618, 64012), (619, 64015), (632, 64054), (635, 64063), (649, 64093), (656, 64123), (661, 64141), (670, 64168), (683, 64210), (688, 64234), (695, 64249), (712, 64288), (726, 64330), (731, 64339), (754, 64387), (809, 64513), (810, 64519),

Gene: Demikore\_109 Start: 66287, Stop: 68983, Start Num: 48

Candidate Starts for Demikore\_109:

(Start: 42 @66269 has 3 MA's), (46, 66284), (48, 66287), (61, 66350), (62, 66362), (66, 66398), (142, 66815), (150, 66830), (153, 66854), (163, 66896), (164, 66902), (170, 66926), (192, 67007), (198, 67034), (225, 67154), (235, 67193), (251, 67247), (271, 67319), (285, 67349), (288, 67355), (305, 67397), (312, 67412), (316, 67421), (330, 67472), (332, 67484), (340, 67502), (348, 67529), (383, 67607), (415, 67706), (423, 67727), (427, 67739), (467, 67841), (473, 67871), (478, 67892), (487, 67922), (492, 67946), (525, 68045), (530, 68069), (533, 68081), (544, 68150), (618, 68468), (636, 68516), (645, 68531), (647, 68540), (649, 68546), (650, 68549), (656, 68576), (660, 68588), (663, 68597), (678, 68639), (693, 68690), (712, 68732), (723, 68759), (751, 68816), (784, 68885), (795, 68918), (798, 68924), (804, 68942),

Gene: Djokovic\_83 Start: 56923, Stop: 59784, Start Num: 40

Candidate Starts for Djokovic\_83:

(Start: 40 @56923 has 31 MA's), (59, 56995), (76, 57142), (100, 57319), (123, 57478), (124, 57481), (130, 57517), (137, 57550), (155, 57613), (166, 57649), (201, 57772), (237, 57895), (249, 57931), (264, 57988), (272, 58015), (275, 58033), (283, 58060), (301, 58114), (392, 58408), (395, 58426), (404, 58447), (416, 58486), (417, 58501), (433, 58555), (436, 58564), (466, 58642), (474, 58684), (499, 58771), (500, 58774), (517, 58828), (530, 58900), (531, 58906), (544, 58981), (548, 58996), (574, 59092), (586, 59143), (592, 59173), (593, 59185), (604, 59227), (607, 59236), (613, 59269), (614, 59281), (624, 59314), (626, 59317), (641, 59359), (642, 59362), (653, 59398), (687, 59485),

(699, 59509), (701, 59518), (764, 59650), (800, 59731), (809, 59755),

Gene: Dodo\_106 Start: 71533, Stop: 68858, Start Num: 91

Candidate Starts for Dodo\_106:

(Start: 91 @71533 has 2 MA's), (94, 71512), (Start: 97 @71503 has 5 MA's), (126, 71266), (165, 71098), (171, 71047), (199, 70930), (204, 70909), (218, 70843), (234, 70771), (241, 70753), (250, 70720), (256, 70693), (270, 70639), (289, 70597), (291, 70585), (292, 70582), (322, 70471), (341, 70423), (368, 70342), (394, 70282), (401, 70252), (409, 70231), (425, 70171), (433, 70144), (479, 69991), (489, 69958), (491, 69949), (493, 69937), (536, 69730), (537, 69727), (545, 69682), (571, 69565), (574, 69550), (577, 69541), (583, 69514), (587, 69499), (614, 69373), (625, 69337), (636, 69301), (657, 69238), (683, 69151), (684, 69145), (688, 69127), (710, 69088), (725, 69040), (744, 68998), (759, 68965),

Gene: DoobyDoo\_88 Start: 58914, Stop: 61589, Start Num: 39

Candidate Starts for DoobyDoo\_88:

(Start: 39 @58914 has 39 MA's), (123, 59391), (124, 59394), (151, 59475), (170, 59559), (189, 59619), (192, 59631), (197, 59655), (207, 59691), (251, 59865), (257, 59895), (280, 59946), (330, 60075), (339, 60102), (374, 60195), (390, 60228), (399, 60231), (403, 60237), (427, 60276), (438, 60309), (462, 60372), (474, 60426), (493, 60495), (494, 60498), (499, 60513), (516, 60579), (521, 60606), (537, 60696), (544, 60738), (548, 60753), (555, 60780), (569, 60828), (580, 60870), (586, 60900), (597, 60963), (614, 61041), (618, 61059), (628, 61083), (633, 61107), (637, 61119), (652, 61167), (656, 61185), (681, 61263), (693, 61305), (745, 61428), (758, 61455), (794, 61533),

Gene: DrLupo\_109 Start: 66667, Stop: 69420, Start Num: 38

Candidate Starts for DrLupo\_109:

(Start: 36 @66661 has 2 MA's), (Start: 38 @66667 has 15 MA's), (163, 67324), (170, 67351), (189, 67414), (192, 67426), (197, 67450), (207, 67489), (215, 67519), (223, 67561), (226, 67579), (255, 67678), (288, 67765), (333, 67900), (340, 67912), (363, 67987), (378, 68011), (383, 68020), (388, 68032), (415, 68119), (420, 68134), (466, 68248), (469, 68263), (472, 68281), (477, 68302), (528, 68482), (533, 68500), (544, 68569), (546, 68578), (550, 68590), (551, 68593), (555, 68611), (572, 68668), (602, 68815), (609, 68842), (641, 68947), (647, 68965), (649, 68971), (652, 68983), (669, 69043), (681, 69076), (682, 69082), (696, 69127), (705, 69142), (724, 69187), (767, 69280), (794, 69334),

Gene: DumpTruck\_91 Start: 60124, Stop: 62823, Start Num: 39

Candidate Starts for DumpTruck\_91:

(Start: 39 @60124 has 39 MA's), (76, 60355), (100, 60427), (107, 60460), (111, 60511), (151, 60682), (163, 60739), (169, 60760), (170, 60766), (174, 60787), (189, 60826), (192, 60838), (200, 60871), (214, 60925), (219, 60961), (229, 61003), (280, 61180), (330, 61309), (339, 61336), (352, 61384), (362, 61411), (374, 61429), (390, 61462), (427, 61510), (447, 61570), (469, 61633), (474, 61660), (493, 61729), (494, 61732), (495, 61735), (532, 61900), (537, 61930), (544, 61972), (548, 61987), (551, 61996), (569, 62062), (570, 62065), (572, 62074), (580, 62104), (597, 62197), (599, 62209), (614, 62275), (628, 62317), (633, 62341), (637, 62353), (640, 62362), (648, 62386), (656, 62419), (668, 62461), (681, 62497), (691, 62533), (745, 62662), (758, 62689), (778, 62725), (794, 62767), (809, 62800),

Gene: Emianna\_52 Start: 43124, Stop: 40575, Start Num: 44

Candidate Starts for Emianna\_52:

(Start: 44 @43124 has 42 MA's), (62, 43052), (76, 42944), (105, 42818), (139, 42620), (152, 42593), (167, 42530), (175, 42497), (192, 42443), (201, 42404), (206, 42383), (207, 42380), (239, 42239), (293, 42089), (299, 42077), (326, 42008), (356, 41918), (383, 41870), (400, 41843), (411, 41828), (421, 41801), (452, 41711), (454, 41705), (457, 41696), (488, 41588), (529, 41426), (547, 41330), (567, 41252), (569, 41243), (575, 41216), (592, 41141), (602, 41093), (610, 41063), (618, 41015),

(646, 40943), (649, 40934), (666, 40874), (667, 40868), (669, 40862), (687, 40799), (730, 40706), (737, 40688), (742, 40679), (759, 40643), (772, 40610),

Gene: Ennea\_59 Start: 44147, Stop: 41586, Start Num: 44

Candidate Starts for Ennea\_59:

(24, 44213), (Start: 44 @44147 has 42 MA's), (56, 44120), (62, 44072), (76, 43964), (159, 43559), (167, 43529), (192, 43439), (201, 43400), (206, 43379), (207, 43376), (213, 43352), (224, 43301), (247, 43208), (258, 43163), (259, 43160), (286, 43103), (326, 43007), (443, 42728), (452, 42710), (454, 42704), (457, 42695), (477, 42623), (527, 42443), (534, 42416), (567, 42260), (574, 42227), (586, 42179), (596, 42122), (597, 42119), (602, 42101), (610, 42071), (618, 42023), (627, 42002), (636, 41981), (649, 41942), (669, 41870), (677, 41852), (686, 41816), (687, 41807), (710, 41765), (742, 41690), (759, 41654), (766, 41636),

Gene: Erasmago\_95 Start: 67992, Stop: 65359, Start Num: 97

Candidate Starts for Erasmago\_95:

(Start: 91 @68022 has 2 MA's), (94, 68001), (Start: 97 @67992 has 5 MA's), (127, 67752), (160, 67608), (182, 67494), (188, 67464), (199, 67419), (203, 67401), (204, 67398), (205, 67395), (234, 67263), (241, 67245), (250, 67212), (256, 67185), (270, 67131), (289, 67089), (291, 67077), (322, 66963), (324, 66960), (341, 66915), (360, 66855), (365, 66843), (368, 66837), (394, 66777), (401, 66747), (445, 66597), (456, 66567), (479, 66486), (491, 66444), (494, 66429), (536, 66225), (537, 66222), (571, 66060), (574, 66045), (577, 66036), (583, 66009), (614, 65868), (636, 65796), (684, 65640), (688, 65622), (710, 65583), (725, 65535), (758, 65463),

Gene: Erk16\_89 Start: 61516, Stop: 64449, Start Num: 40

Candidate Starts for Erk16\_89:

(Start: 40 @61516 has 31 MA's), (73, 61699), (109, 61909), (115, 61954), (144, 62107), (163, 62194), (170, 62227), (174, 62248), (178, 62263), (192, 62311), (215, 62404), (221, 62440), (224, 62449), (245, 62524), (248, 62536), (261, 62587), (263, 62596), (302, 62740), (329, 62863), (347, 62923), (357, 62959), (385, 63013), (387, 63019), (397, 63061), (410, 63097), (426, 63163), (467, 63271), (469, 63280), (478, 63322), (484, 63340), (506, 63418), (522, 63481), (525, 63502), (538, 63568), (555, 63649), (575, 63724), (582, 63754), (586, 63769), (592, 63799), (604, 63853), (614, 63907), (617, 63922), (618, 63925), (619, 63928), (632, 63967), (635, 63976), (649, 64006), (656, 64036), (670, 64081), (683, 64123), (688, 64147), (695, 64162), (712, 64201), (726, 64243), (731, 64252), (754, 64300), (809, 64426), (810, 64432),

Gene: Erutan\_88 Start: 60078, Stop: 62780, Start Num: 39

Candidate Starts for Erutan\_88:

(Start: 39 @60078 has 39 MA's), (123, 60555), (124, 60558), (151, 60639), (170, 60723), (189, 60783), (192, 60795), (197, 60819), (207, 60855), (251, 61029), (257, 61059), (280, 61110), (330, 61263), (342, 61296), (399, 61446), (419, 61485), (442, 61563), (447, 61575), (449, 61578), (460, 61605), (469, 61638), (477, 61677), (490, 61716), (499, 61752), (516, 61809), (517, 61815), (529, 61884), (530, 61887), (537, 61926), (538, 61929), (540, 61935), (543, 61965), (544, 61968), (549, 61986), (551, 61992), (569, 62058), (574, 62082), (583, 62118), (587, 62133), (601, 62205), (614, 62268), (628, 62307), (641, 62340), (653, 62379), (656, 62394), (661, 62412), (693, 62514), (713, 62559), (718, 62574), (744, 62622), (745, 62625), (758, 62652), (765, 62661), (770, 62673), (799, 62733),

Gene: Ezurina\_32 Start: 22705, Stop: 20555, Start Num: 161

Candidate Starts for Ezurina\_32:

(Start: 149 @22759 has 11 MA's), (161, 22705), (344, 22027), (350, 22012), (386, 21928), (429, 21781), (444, 21730), (452, 21709), (481, 21610), (504, 21520), (510, 21484), (525, 21418), (528, 21400), (548, 21298), (562, 21250), (573, 21196), (588, 21130), (592, 21112), (615, 21010), (620, 20989), (641, 20935), (655, 20884), (674, 20830), (688, 20776), (710, 20737), (731, 20677), (737, 20662), (750, 20632),

Gene: Flapper\_57 Start: 43860, Stop: 41299, Start Num: 44

Candidate Starts for Flapper\_57:

(17, 43986), (24, 43926), (Start: 44 @43860 has 42 MA's), (76, 43677), (78, 43668), (104, 43560), (125, 43404), (159, 43275), (192, 43155), (201, 43116), (206, 43095), (207, 43092), (224, 43017), (286, 42819), (326, 42723), (421, 42516), (443, 42444), (452, 42426), (454, 42420), (457, 42411), (477, 42339), (527, 42159), (534, 42132), (567, 41976), (586, 41895), (592, 41865), (596, 41838), (597, 41835), (602, 41817), (610, 41787), (616, 41745), (618, 41739), (627, 41718), (642, 41679), (669, 41586), (677, 41568), (684, 41538), (687, 41523), (742, 41406), (766, 41352),

Gene: Float294\_55 Start: 43589, Stop: 41028, Start Num: 44

Candidate Starts for Float294\_55:

(24, 43655), (Start: 44 @43589 has 42 MA's), (56, 43562), (62, 43514), (76, 43406), (159, 43001), (167, 42971), (192, 42881), (201, 42842), (206, 42821), (207, 42818), (213, 42794), (224, 42743), (247, 42650), (258, 42605), (259, 42602), (286, 42545), (326, 42449), (443, 42170), (452, 42152), (454, 42146), (457, 42137), (477, 42065), (527, 41885), (534, 41858), (567, 41702), (574, 41669), (586, 41621), (596, 41564), (597, 41561), (602, 41543), (610, 41513), (618, 41465), (627, 41444), (636, 41423), (649, 41384), (669, 41312), (677, 41294), (687, 41249), (710, 41207), (742, 41132), (759, 41096), (766, 41078),

Gene: Fowlmouth\_101 Start: 59257, Stop: 61992, Start Num: 41

Candidate Starts for Fowlmouth\_101:

(Start: 41 @59257 has 9 MA's), (123, 59731), (152, 59842), (154, 59851), (191, 60010), (192, 60022), (194, 60034), (221, 60151), (230, 60187), (244, 60229), (263, 60304), (277, 60328), (308, 60406), (331, 60481), (351, 60538), (364, 60577), (375, 60592), (380, 60598), (402, 60664), (414, 60694), (442, 60775), (452, 60799), (458, 60814), (467, 60835), (468, 60841), (530, 61069), (532, 61078), (538, 61111), (541, 61120), (544, 61150), (550, 61171), (551, 61174), (569, 61246), (572, 61258), (587, 61318), (607, 61408), (614, 61453), (615, 61456), (618, 61471), (636, 61525), (641, 61531), (650, 61558), (652, 61567), (681, 61663), (683, 61672), (691, 61699), (725, 61786), (728, 61792), (732, 61801), (755, 61849), (769, 61885), (778, 61900), (783, 61909), (804, 61969), (806, 61972),

Gene: Foxboro\_53 Start: 43630, Stop: 41081, Start Num: 44

Candidate Starts for Foxboro\_53:

(Start: 44 @43630 has 42 MA's), (62, 43558), (76, 43450), (105, 43324), (139, 43126), (152, 43099), (154, 43090), (167, 43036), (175, 43003), (192, 42949), (201, 42910), (206, 42889), (207, 42886), (239, 42745), (293, 42595), (299, 42583), (326, 42514), (356, 42424), (400, 42349), (411, 42334), (452, 42217), (454, 42211), (457, 42202), (488, 42094), (529, 41932), (547, 41836), (567, 41758), (569, 41749), (575, 41722), (592, 41647), (602, 41599), (610, 41569), (618, 41521), (646, 41449), (649, 41440), (666, 41380), (667, 41374), (669, 41368), (687, 41305), (730, 41212), (737, 41194), (742, 41185), (759, 41149), (772, 41116),

Gene: Fulcrum\_87 Start: 59741, Stop: 62446, Start Num: 39

Candidate Starts for Fulcrum\_87:

(Start: 39 @59741 has 39 MA's), (61, 59831), (111, 60149), (169, 60437), (170, 60443), (171, 60449), (181, 60488), (206, 60575), (213, 60602), (219, 60635), (231, 60677), (232, 60680), (241, 60710), (260, 60776), (267, 60797), (269, 60800), (280, 60827), (336, 60974), (391, 61106), (428, 61181), (442, 61226), (453, 61250), (467, 61289), (482, 61352), (494, 61397), (501, 61424), (502, 61427), (524, 61520), (533, 61562), (537, 61589), (557, 61682), (563, 61691), (566, 61694), (574, 61745), (594, 61838), (618, 61949), (628, 61970), (650, 62030), (656, 62057), (661, 62075), (680, 62129), (693, 62177), (709, 62210), (758, 62318), (768, 62330), (804, 62414),

Gene: Fury\_60 Start: 42279, Stop: 39745, Start Num: 44

Candidate Starts for Fury\_60:

(Start: 44 @42279 has 42 MA's), (62, 42204), (76, 42096), (89, 42045), (151, 41757), (167, 41685), (192, 41598), (201, 41559), (206, 41538), (207, 41535), (215, 41505), (224, 41460), (229, 41436), (243, 41385), (286, 41262), (326, 41166), (383, 41028), (404, 40995), (421, 40959), (452, 40869), (493, 40728), (529, 40587), (534, 40569), (557, 40452), (567, 40413), (574, 40380), (586, 40332), (597, 40272), (602, 40254), (610, 40224), (618, 40176), (627, 40155), (636, 40134), (649, 40095), (659, 40056), (666, 40035), (730, 39867), (737, 39849), (742, 39840), (757, 39810), (766, 39786),

Gene: FuzzBuster\_83 Start: 50816, Stop: 53374, Start Num: 92

Candidate Starts for FuzzBuster\_83:

(Start: 92 @50816 has 1 MA's), (124, 51020), (138, 51101), (187, 51281), (202, 51350), (211, 51389), (237, 51500), (246, 51536), (254, 51569), (263, 51602), (271, 51623), (286, 51662), (311, 51722), (318, 51755), (322, 51779), (426, 52070), (432, 52088), (450, 52139), (465, 52187), (466, 52190), (470, 52220), (475, 52238), (484, 52271), (486, 52277), (499, 52331), (508, 52379), (528, 52484), (534, 52505), (545, 52577), (564, 52631), (570, 52670), (573, 52685), (588, 52751), (593, 52784), (596, 52799), (600, 52811), (611, 52853), (612, 52856), (616, 52886), (618, 52892), (651, 52994), (673, 53069), (685, 53111), (689, 53126), (720, 53201), (736, 53240), (763, 53303), (773, 53327), (780, 53336), (787, 53348),

Gene: GOATification\_87 Start: 59741, Stop: 62446, Start Num: 39

Candidate Starts for GOATification\_87:

(Start: 39 @59741 has 39 MA's), (61, 59831), (111, 60149), (169, 60437), (170, 60443), (171, 60449), (181, 60488), (206, 60575), (213, 60602), (219, 60635), (231, 60677), (232, 60680), (241, 60710), (260, 60776), (267, 60797), (269, 60800), (280, 60827), (336, 60974), (391, 61106), (428, 61181), (442, 61226), (453, 61250), (467, 61289), (482, 61352), (494, 61397), (501, 61424), (502, 61427), (524, 61520), (533, 61562), (537, 61589), (557, 61682), (563, 61691), (566, 61694), (574, 61745), (594, 61838), (618, 61949), (628, 61970), (650, 62030), (656, 62057), (661, 62075), (680, 62129), (693, 62177), (709, 62210), (758, 62318), (768, 62330), (804, 62414),

Gene: GRU1\_42 Start: 35406, Stop: 32845, Start Num: 44

Candidate Starts for GRU1\_42:

(17, 35532), (24, 35472), (Start: 44 @35406 has 42 MA's), (76, 35223), (78, 35214), (111, 35040), (125, 34950), (126, 34947), (159, 34821), (192, 34701), (201, 34662), (206, 34641), (207, 34638), (213, 34614), (224, 34563), (243, 34488), (286, 34365), (326, 34269), (421, 34062), (443, 33990), (452, 33972), (454, 33966), (457, 33957), (477, 33885), (527, 33705), (534, 33678), (567, 33522), (574, 33489), (575, 33486), (592, 33411), (596, 33384), (597, 33381), (598, 33378), (602, 33363), (610, 33333), (618, 33285), (627, 33264), (636, 33243), (642, 33225), (646, 33213), (649, 33204), (669, 33132), (677, 33114), (684, 33084), (687, 33069), (742, 32952), (766, 32898),

Gene: GTE5\_44 Start: 36717, Stop: 34156, Start Num: 44

Candidate Starts for GTE5\_44:

(24, 36783), (Start: 44 @36717 has 42 MA's), (76, 36534), (78, 36525), (111, 36351), (125, 36261), (159, 36132), (177, 36057), (192, 36012), (201, 35973), (206, 35952), (207, 35949), (224, 35874), (286, 35676), (326, 35580), (421, 35373), (443, 35301), (452, 35283), (454, 35277), (457, 35268), (477, 35196), (527, 35016), (534, 34989), (567, 34833), (575, 34797), (586, 34752), (592, 34722), (596, 34695), (597, 34692), (602, 34674), (610, 34644), (616, 34602), (618, 34596), (627, 34575), (669, 34443), (677, 34425), (684, 34395), (687, 34380), (742, 34263), (766, 34209),

Gene: GTE8\_41 Start: 36385, Stop: 33836, Start Num: 44

Candidate Starts for GTE8\_41:

(Start: 44 @36385 has 42 MA's), (62, 36313), (76, 36205), (81, 36184), (105, 36085), (118, 35977), (139, 35887), (167, 35797), (192, 35710), (201, 35671), (206, 35650), (207, 35647), (213, 35623), (239, 35506), (293, 35356), (299, 35344), (326, 35275), (356, 35185), (383, 35137), (421, 35068), (452, 34978), (454, 34972), (457, 34963), (477, 34891), (529, 34693), (547, 34597), (567, 34519),

(569, 34510), (575, 34483), (586, 34438), (598, 34375), (602, 34360), (610, 34330), (618, 34282), (666, 34141), (687, 34066), (730, 33973), (737, 33955), (742, 33946), (759, 33910), (766, 33892),

Gene: Gagieri\_52 Start: 40296, Stop: 37690, Start Num: 49

Candidate Starts for Gagieri\_52:

(37, 40329), (Start: 49 @40296 has 6 MA's), (67, 40179), (76, 40116), (78, 40107), (82, 40089), (116, 39903), (117, 39891), (118, 39885), (177, 39642), (178, 39639), (192, 39597), (196, 39579), (206, 39537), (208, 39531), (212, 39513), (214, 39507), (229, 39435), (244, 39375), (304, 39228), (311, 39213), (317, 39186), (338, 39123), (341, 39114), (349, 39090), (437, 38898), (446, 38868), (454, 38850), (459, 38838), (477, 38769), (493, 38718), (498, 38703), (529, 38577), (537, 38535), (549, 38475), (556, 38448), (569, 38394), (572, 38382), (574, 38370), (586, 38322), (597, 38262), (598, 38259), (602, 38244), (627, 38145), (649, 38085), (700, 37917), (749, 37800), (761, 37776), (774, 37746), (776, 37743), (780, 37737), (783, 37731), (790, 37713),

Gene: Gallia\_49 Start: 43669, Stop: 41024, Start Num: 27

Candidate Starts for Gallia\_49:

(27, 43669), (66, 43486), (100, 43324), (112, 43219), (116, 43201), (117, 43189), (120, 43174), (124, 43153), (125, 43141), (137, 43099), (154, 43057), (191, 42868), (207, 42793), (251, 42625), (353, 42367), (366, 42334), (412, 42262), (430, 42208), (437, 42187), (455, 42136), (495, 42004), (501, 41980), (503, 41971), (529, 41866), (530, 41863), (534, 41848), (545, 41779), (558, 41728), (562, 41719), (570, 41683), (574, 41662), (575, 41659), (577, 41653), (607, 41521), (643, 41395), (656, 41350), (661, 41332), (710, 41194), (711, 41188),

Gene: Genamy16\_89 Start: 58550, Stop: 61255, Start Num: 39

Candidate Starts for Genamy16\_89:

(Start: 39 @58550 has 39 MA's), (61, 58640), (111, 58958), (169, 59246), (170, 59252), (171, 59258), (181, 59297), (206, 59384), (213, 59411), (219, 59444), (231, 59486), (232, 59489), (241, 59519), (260, 59585), (267, 59606), (269, 59609), (280, 59636), (336, 59783), (391, 59915), (428, 59990), (442, 60035), (453, 60059), (467, 60098), (474, 60134), (482, 60161), (494, 60206), (501, 60233), (502, 60236), (524, 60329), (533, 60371), (537, 60398), (557, 60491), (563, 60500), (566, 60503), (574, 60554), (594, 60647), (618, 60758), (628, 60779), (650, 60839), (656, 60866), (693, 60986), (709, 61019), (758, 61127), (768, 61139), (804, 61223), (805, 61226),

Gene: Gerri43\_33 Start: 21717, Stop: 19513, Start Num: 149

Candidate Starts for Gerri43\_33:

(Start: 149 @21717 has 11 MA's), (161, 21663), (303, 21114), (344, 20985), (350, 20970), (386, 20886), (413, 20802), (423, 20757), (429, 20739), (444, 20688), (452, 20667), (481, 20568), (504, 20478), (513, 20433), (528, 20358), (548, 20256), (562, 20208), (573, 20154), (588, 20088), (592, 20070), (615, 19968), (620, 19947), (653, 19854), (655, 19842), (674, 19788), (688, 19734), (710, 19695), (731, 19635), (737, 19620), (750, 19590),

Gene: Gibbin\_90 Start: 60381, Stop: 63056, Start Num: 39

Candidate Starts for Gibbin\_90:

(Start: 39 @60381 has 39 MA's), (123, 60858), (124, 60861), (151, 60942), (170, 61026), (189, 61086), (192, 61098), (197, 61122), (207, 61158), (251, 61332), (257, 61362), (330, 61542), (339, 61569), (374, 61662), (390, 61695), (399, 61698), (403, 61704), (427, 61743), (438, 61776), (462, 61839), (469, 61866), (474, 61893), (493, 61962), (494, 61965), (499, 61980), (516, 62046), (521, 62073), (537, 62163), (544, 62205), (548, 62220), (555, 62247), (569, 62295), (574, 62319), (580, 62337), (586, 62367), (597, 62430), (614, 62508), (618, 62526), (628, 62550), (633, 62574), (637, 62586), (652, 62634), (656, 62652), (681, 62730), (693, 62772), (745, 62895), (758, 62922), (794, 63000),

Gene: Giuseppe\_90 Start: 61236, Stop: 64178, Start Num: 40

Candidate Starts for Giuseppe\_90:

(Start: 40 @61236 has 31 MA's), (73, 61419), (109, 61629), (115, 61674), (144, 61827), (163, 61914), (170, 61947), (174, 61968), (178, 61983), (192, 62031), (215, 62124), (221, 62160), (224, 62169), (245, 62244), (248, 62256), (261, 62307), (263, 62316), (302, 62460), (329, 62583), (334, 62607), (347, 62643), (357, 62679), (385, 62733), (387, 62739), (397, 62781), (410, 62817), (426, 62883), (467, 63000), (469, 63009), (484, 63069), (492, 63099), (506, 63147), (522, 63210), (525, 63231), (538, 63297), (555, 63378), (575, 63453), (582, 63483), (586, 63498), (592, 63528), (604, 63582), (614, 63636), (617, 63651), (618, 63654), (619, 63657), (632, 63696), (635, 63705), (649, 63735), (656, 63765), (670, 63810), (683, 63852), (688, 63876), (695, 63891), (712, 63930), (726, 63972), (731, 63981), (754, 64029), (809, 64155), (810, 64161),

Gene: Gretellyn\_88 Start: 60113, Stop: 62884, Start Num: 39

Candidate Starts for Gretellyn\_88:

(Start: 39 @60113 has 39 MA's), (61, 60203), (111, 60521), (134, 60686), (169, 60809), (170, 60815), (171, 60821), (181, 60860), (194, 60899), (200, 60920), (206, 60947), (213, 60974), (219, 61007), (231, 61049), (232, 61052), (241, 61082), (260, 61148), (267, 61169), (269, 61172), (280, 61199), (300, 61253), (319, 61322), (342, 61394), (361, 61454), (374, 61478), (391, 61511), (419, 61583), (471, 61751), (485, 61799), (486, 61802), (495, 61838), (519, 61919), (537, 62024), (544, 62066), (551, 62090), (554, 62105), (572, 62165), (575, 62180), (576, 62183), (583, 62213), (598, 62285), (619, 62384), (633, 62426), (648, 62459), (652, 62474), (661, 62510), (670, 62537), (675, 62552), (681, 62570), (686, 62591), (693, 62612), (746, 62735), (758, 62756), (783, 62792), (785, 62795),

Gene: GrootJr\_54 Start: 42506, Stop: 39957, Start Num: 44

Candidate Starts for GrootJr\_54:

(Start: 44 @42506 has 42 MA's), (62, 42434), (76, 42326), (105, 42200), (139, 42002), (152, 41975), (167, 41912), (175, 41879), (192, 41825), (201, 41786), (206, 41765), (207, 41762), (239, 41621), (293, 41471), (299, 41459), (326, 41390), (356, 41300), (383, 41252), (400, 41225), (421, 41183), (452, 41093), (454, 41087), (457, 41078), (488, 40970), (529, 40808), (547, 40712), (567, 40634), (569, 40625), (575, 40598), (592, 40523), (602, 40475), (610, 40445), (618, 40397), (646, 40325), (649, 40316), (666, 40256), (667, 40250), (669, 40244), (687, 40181), (730, 40088), (737, 40070), (742, 40061), (759, 40025), (772, 39992),

Gene: Gumball\_88 Start: 61448, Stop: 64381, Start Num: 40

Candidate Starts for Gumball\_88:

(Start: 40 @61448 has 31 MA's), (73, 61631), (109, 61841), (115, 61886), (144, 62039), (163, 62126), (170, 62159), (174, 62180), (178, 62195), (180, 62204), (192, 62243), (215, 62336), (221, 62372), (224, 62381), (245, 62456), (248, 62468), (261, 62519), (263, 62528), (302, 62672), (329, 62795), (334, 62819), (347, 62855), (357, 62891), (385, 62945), (387, 62951), (397, 62993), (410, 63029), (426, 63095), (467, 63203), (469, 63212), (478, 63254), (484, 63272), (492, 63302), (506, 63350), (522, 63413), (525, 63434), (538, 63500), (555, 63581), (575, 63656), (582, 63686), (586, 63701), (592, 63731), (604, 63785), (614, 63839), (617, 63854), (618, 63857), (619, 63860), (632, 63899), (635, 63908), (649, 63938), (656, 63968), (670, 64013), (683, 64055), (688, 64079), (695, 64094), (712, 64133), (726, 64175), (731, 64184), (754, 64232), (809, 64358), (810, 64364),

Gene: Hawkeye\_102 Start: 63837, Stop: 66758, Start Num: 40

Candidate Starts for Hawkeye\_102:

(30, 63810), (Start: 40 @63837 has 31 MA's), (72, 64014), (73, 64020), (84, 64095), (90, 64128), (144, 64425), (159, 64497), (163, 64512), (170, 64542), (174, 64563), (178, 64578), (191, 64614), (192, 64626), (245, 64839), (316, 65163), (327, 65208), (329, 65211), (347, 65271), (427, 65514), (482, 65637), (537, 65868), (538, 65871), (576, 66030), (583, 66060), (586, 66072), (598, 66135), (614, 66210), (632, 66270), (649, 66306), (678, 66405), (698, 66468), (782, 66663), (800, 66702), (802, 66708),

Gene: Helpful\_91 Start: 61435, Stop: 64368, Start Num: 40

Candidate Starts for Helpful\_91:

(Start: 40 @61435 has 31 MA's), (73, 61618), (109, 61828), (115, 61873), (144, 62026), (163, 62113), (170, 62146), (171, 62152), (174, 62167), (178, 62182), (192, 62230), (215, 62323), (221, 62359), (224, 62368), (245, 62443), (248, 62455), (261, 62506), (263, 62515), (302, 62659), (329, 62782), (334, 62806), (347, 62842), (357, 62878), (385, 62932), (387, 62938), (397, 62980), (410, 63016), (426, 63082), (467, 63190), (469, 63199), (478, 63241), (484, 63259), (506, 63337), (522, 63400), (525, 63421), (538, 63487), (555, 63568), (575, 63643), (582, 63673), (586, 63688), (592, 63718), (604, 63772), (614, 63826), (617, 63841), (618, 63844), (619, 63847), (632, 63886), (635, 63895), (649, 63925), (656, 63955), (661, 63973), (670, 64000), (683, 64042), (688, 64066), (695, 64081), (712, 64120), (726, 64162), (731, 64171), (754, 64219), (809, 64345), (810, 64351),

Gene: HomeFry\_57 Start: 40979, Stop: 38445, Start Num: 44

Candidate Starts for HomeFry\_57:

(Start: 44 @40979 has 42 MA's), (62, 40904), (76, 40796), (139, 40475), (151, 40457), (153, 40442), (167, 40385), (192, 40298), (201, 40259), (207, 40235), (215, 40205), (224, 40160), (225, 40151), (243, 40085), (326, 39866), (421, 39659), (443, 39587), (452, 39569), (471, 39506), (534, 39269), (557, 39152), (567, 39113), (575, 39077), (586, 39032), (602, 38954), (610, 38924), (614, 38894), (619, 38873), (642, 38816), (666, 38735), (671, 38720), (705, 38627), (710, 38618), (719, 38588), (730, 38567), (742, 38540), (757, 38510),

Gene: HubbaBubba\_49 Start: 38673, Stop: 36124, Start Num: 44

Candidate Starts for HubbaBubba\_49:

(Start: 44 @38673 has 42 MA's), (62, 38595), (76, 38487), (104, 38370), (192, 37989), (201, 37950), (229, 37827), (293, 37635), (304, 37620), (326, 37554), (452, 37257), (454, 37251), (477, 37170), (501, 37086), (527, 36981), (529, 36972), (557, 36837), (567, 36798), (574, 36765), (575, 36762), (586, 36717), (597, 36657), (598, 36654), (602, 36639), (610, 36609), (617, 36564), (618, 36561), (631, 36525), (654, 36456), (659, 36441), (666, 36420), (684, 36360), (687, 36345), (728, 36255), (742, 36225),

Gene: IDyn\_53 Start: 40105, Stop: 37556, Start Num: 44

Candidate Starts for IDyn\_53:

(31, 40150), (Start: 44 @40105 has 42 MA's), (62, 40027), (76, 39919), (81, 39895), (104, 39802), (192, 39421), (201, 39382), (229, 39259), (293, 39067), (304, 39052), (326, 38986), (452, 38689), (454, 38683), (477, 38602), (527, 38413), (529, 38404), (557, 38269), (567, 38230), (574, 38197), (575, 38194), (586, 38149), (597, 38089), (598, 38086), (602, 38071), (610, 38041), (617, 37996), (618, 37993), (631, 37957), (654, 37888), (659, 37873), (666, 37852), (684, 37792), (687, 37777), (708, 37738), (728, 37687), (742, 37657),

Gene: Indlulamithi\_95 Start: 62047, Stop: 64761, Start Num: 38

Candidate Starts for Indlulamithi\_95:

(Start: 38 @62047 has 15 MA's), (Start: 41 @62053 has 9 MA's), (61, 62140), (98, 62362), (191, 62800), (192, 62812), (238, 63004), (241, 63007), (279, 63118), (331, 63262), (391, 63406), (397, 63430), (439, 63541), (442, 63553), (452, 63577), (458, 63592), (468, 63619), (473, 63643), (495, 63724), (530, 63841), (541, 63892), (544, 63922), (617, 64240), (618, 64243), (641, 64303), (653, 64342), (658, 64363), (735, 64579), (755, 64621),

Gene: Jalebi\_88 Start: 61026, Stop: 63749, Start Num: 39

Candidate Starts for Jalebi\_88:

(Start: 39 @61026 has 39 MA's), (76, 61254), (100, 61326), (151, 61581), (154, 61599), (158, 61614), (163, 61638), (169, 61659), (174, 61686), (189, 61725), (192, 61737), (213, 61821), (214, 61824), (280, 62079), (325, 62214), (328, 62220), (396, 62400), (442, 62529), (480, 62649), (527, 62838), (529, 62847), (530, 62850), (533, 62862), (537, 62889), (543, 62928), (545, 62934), (548, 62946), (551, 62955), (557, 62982), (570, 63024), (583, 63081), (586, 63093), (611, 63210), (652, 63339),

(678, 63426), (693, 63477), (745, 63588), (758, 63615), (770, 63636), (793, 63687),

Gene: Jamemuya19\_84 Start: 58176, Stop: 60947, Start Num: 39

Candidate Starts for Jamemuya19\_84:

(Start: 39 @58176 has 39 MA's), (61, 58266), (111, 58584), (169, 58872), (170, 58878), (171, 58884), (181, 58923), (206, 59010), (213, 59037), (219, 59070), (231, 59112), (232, 59115), (241, 59145), (260, 59211), (267, 59232), (269, 59235), (280, 59262), (300, 59316), (319, 59385), (342, 59457), (361, 59517), (374, 59541), (391, 59574), (419, 59646), (471, 59814), (473, 59820), (485, 59862), (495, 59901), (519, 59982), (537, 60087), (544, 60129), (551, 60153), (554, 60168), (572, 60228), (575, 60243), (576, 60246), (583, 60276), (598, 60348), (605, 60375), (614, 60426), (619, 60447), (633, 60489), (648, 60522), (652, 60537), (670, 60600), (681, 60633), (693, 60675), (746, 60798), (758, 60819), (783, 60855), (785, 60858),

Gene: Jifall16\_51 Start: 42778, Stop: 40229, Start Num: 44

Candidate Starts for Jifall16\_51:

(Start: 44 @42778 has 42 MA's), (62, 42706), (76, 42598), (105, 42472), (139, 42274), (152, 42247), (167, 42184), (175, 42151), (192, 42097), (201, 42058), (206, 42037), (207, 42034), (239, 41893), (293, 41743), (299, 41731), (326, 41662), (356, 41572), (383, 41524), (400, 41497), (411, 41482), (421, 41455), (452, 41365), (454, 41359), (457, 41350), (488, 41242), (529, 41080), (547, 40984), (567, 40906), (569, 40897), (575, 40870), (592, 40795), (602, 40747), (610, 40717), (618, 40669), (646, 40597), (649, 40588), (666, 40528), (667, 40522), (669, 40516), (687, 40453), (730, 40360), (737, 40342), (742, 40333), (759, 40297), (772, 40264),

Gene: Kabluna\_56 Start: 42217, Stop: 39647, Start Num: 44

Candidate Starts for Kabluna\_56:

(Start: 44 @42217 has 42 MA's), (76, 42037), (126, 41755), (151, 41668), (153, 41653), (159, 41626), (192, 41509), (201, 41470), (207, 41446), (224, 41371), (258, 41233), (293, 41158), (294, 41155), (325, 41080), (326, 41077), (356, 40987), (383, 40939), (409, 40900), (427, 40852), (436, 40825), (452, 40780), (454, 40774), (477, 40693), (489, 40654), (507, 40588), (534, 40477), (557, 40360), (561, 40351), (567, 40321), (569, 40312), (575, 40285), (586, 40240), (592, 40210), (596, 40183), (597, 40180), (598, 40177), (602, 40162), (610, 40132), (618, 40084), (631, 40048), (646, 40012), (649, 40003), (659, 39964), (666, 39943), (669, 39931), (687, 39868), (702, 39838), (742, 39748), (749, 39730),

Gene: KandZ\_86 Start: 61258, Stop: 64194, Start Num: 40

Candidate Starts for KandZ\_86:

(Start: 40 @61258 has 31 MA's), (73, 61441), (109, 61651), (115, 61696), (144, 61849), (163, 61936), (170, 61969), (171, 61975), (174, 61990), (178, 62005), (192, 62053), (215, 62146), (221, 62182), (224, 62191), (245, 62266), (248, 62278), (261, 62329), (263, 62338), (302, 62482), (329, 62605), (334, 62629), (347, 62665), (357, 62701), (385, 62755), (387, 62761), (397, 62803), (410, 62839), (426, 62905), (467, 63013), (469, 63022), (478, 63064), (484, 63082), (506, 63160), (522, 63223), (525, 63244), (538, 63310), (555, 63391), (575, 63466), (582, 63496), (586, 63511), (592, 63541), (604, 63595), (614, 63649), (617, 63664), (618, 63667), (619, 63670), (632, 63709), (635, 63718), (649, 63748), (656, 63778), (670, 63823), (683, 63865), (688, 63889), (695, 63904), (712, 63943), (721, 63970), (726, 63985), (731, 63994), (734, 64000), (754, 64042), (764, 64069), (779, 64099), (790, 64117), (807, 64165), (810, 64174),

Gene: KidneyBean\_52 Start: 42902, Stop: 40353, Start Num: 44

Candidate Starts for KidneyBean\_52:

(Start: 44 @42902 has 42 MA's), (62, 42830), (76, 42722), (105, 42596), (139, 42398), (152, 42371), (167, 42308), (175, 42275), (192, 42221), (201, 42182), (206, 42161), (207, 42158), (239, 42017), (293, 41867), (299, 41855), (326, 41786), (356, 41696), (383, 41648), (400, 41621), (411, 41606), (421, 41579), (452, 41489), (454, 41483), (457, 41474), (488, 41366), (529, 41204), (547, 41108),

(567, 41030), (569, 41021), (575, 40994), (592, 40919), (602, 40871), (610, 40841), (618, 40793), (646, 40721), (649, 40712), (666, 40652), (667, 40646), (669, 40640), (687, 40577), (730, 40484), (737, 40466), (742, 40457), (759, 40421), (772, 40388),

Gene: Kimchi1738\_38 Start: 36253, Stop: 33710, Start Num: 52

Candidate Starts for Kimchi1738\_38:

(32, 36310), (51, 36256), (Start: 52 @36253 has 8 MA's), (64, 36172), (65, 36163), (67, 36142), (76, 36076), (86, 36052), (96, 36010), (101, 35989), (108, 35932), (118, 35851), (119, 35848), (128, 35806), (153, 35734), (191, 35569), (192, 35557), (207, 35494), (214, 35467), (226, 35404), (269, 35254), (286, 35224), (326, 35146), (366, 35032), (381, 35008), (414, 34954), (434, 34897), (437, 34888), (459, 34828), (465, 34816), (476, 34762), (490, 34717), (492, 34702), (495, 34693), (501, 34669), (503, 34660), (507, 34648), (536, 34516), (540, 34504), (547, 34459), (556, 34426), (572, 34363), (574, 34351), (583, 34315), (656, 34033), (673, 33979), (705, 33892), (717, 33856), (722, 33844), (740, 33802), (766, 33742),

Gene: Konstantine\_94 Start: 65170, Stop: 68157, Start Num: 38

Candidate Starts for Konstantine\_94:

(13, 65071), (18, 65095), (21, 65110), (22, 65116), (Start: 29 @65143 has 1 MA's), (Start: 36 @65164 has 2 MA's), (Start: 38 @65170 has 15 MA's), (54, 65224), (60, 65260), (76, 65395), (102, 65584), (150, 65845), (163, 65911), (170, 65941), (184, 66001), (190, 66031), (192, 66058), (230, 66223), (255, 66310), (265, 66343), (268, 66364), (271, 66370), (276, 66397), (287, 66427), (292, 66445), (296, 66451), (311, 66541), (319, 66580), (415, 66850), (448, 66949), (480, 67054), (482, 67060), (487, 67075), (505, 67144), (513, 67168), (521, 67189), (528, 67234), (539, 67285), (544, 67321), (554, 67360), (574, 67432), (575, 67435), (576, 67438), (586, 67480), (596, 67540), (598, 67546), (599, 67555), (610, 67591), (618, 67639), (623, 67654), (641, 67699), (649, 67723), (681, 67825), (689, 67858), (716, 67921), (717, 67927), (739, 67972), (744, 67978), (767, 68032), (779, 68053), (801, 68107),

Gene: Kurt\_52 Start: 43139, Stop: 40590, Start Num: 44

Candidate Starts for Kurt\_52:

(Start: 44 @43139 has 42 MA's), (62, 43067), (76, 42959), (105, 42833), (139, 42635), (152, 42608), (167, 42545), (175, 42512), (192, 42458), (201, 42419), (206, 42398), (207, 42395), (239, 42254), (293, 42104), (299, 42092), (326, 42023), (356, 41933), (383, 41885), (400, 41858), (411, 41843), (421, 41816), (452, 41726), (454, 41720), (457, 41711), (488, 41603), (529, 41441), (547, 41345), (567, 41267), (569, 41258), (575, 41231), (592, 41156), (602, 41108), (610, 41078), (618, 41030), (646, 40958), (649, 40949), (666, 40889), (667, 40883), (669, 40877), (687, 40814), (730, 40721), (737, 40703), (742, 40694), (759, 40658), (772, 40625),

Gene: Labelle\_108 Start: 66613, Stop: 69327, Start Num: 42

Candidate Starts for Labelle\_108:

(Start: 42 @66613 has 3 MA's), (46, 66628), (48, 66631), (61, 66694), (62, 66706), (66, 66742), (142, 67159), (150, 67174), (153, 67198), (163, 67240), (164, 67246), (170, 67270), (192, 67351), (198, 67378), (225, 67498), (235, 67537), (251, 67591), (271, 67663), (285, 67693), (288, 67699), (305, 67741), (312, 67756), (316, 67765), (330, 67816), (332, 67828), (340, 67846), (348, 67873), (383, 67951), (415, 68050), (423, 68071), (427, 68083), (467, 68185), (473, 68215), (478, 68236), (487, 68266), (492, 68290), (525, 68389), (530, 68413), (533, 68425), (544, 68494), (618, 68812), (636, 68860), (645, 68875), (647, 68884), (649, 68890), (650, 68893), (656, 68920), (660, 68932), (663, 68941), (678, 68983), (693, 69034), (712, 69076), (723, 69103), (751, 69160), (784, 69229), (795, 69262), (798, 69268), (804, 69286),

Gene: Lambo\_88 Start: 60143, Stop: 62848, Start Num: 39

Candidate Starts for Lambo\_88:

(Start: 39 @60143 has 39 MA's), (61, 60233), (99, 60461), (111, 60551), (169, 60839), (170, 60845), (171, 60851), (181, 60890), (206, 60977), (213, 61004), (219, 61037), (231, 61079), (232, 61082), (241, 61112), (260, 61178), (267, 61199), (269, 61202), (280, 61229), (336, 61376), (391, 61508), (428, 61583), (442, 61628), (453, 61652), (467, 61691), (474, 61727), (478, 61742), (482, 61754), (494, 61799), (501, 61826), (502, 61829), (524, 61922), (533, 61964), (537, 61991), (552, 62066), (557, 62084), (563, 62093), (566, 62096), (574, 62147), (594, 62240), (618, 62351), (628, 62372), (650, 62432), (656, 62459), (661, 62477), (680, 62531), (693, 62579), (709, 62612), (758, 62720), (768, 62732), (804, 62816), (805, 62819),

Gene: LastNadiia\_35 Start: 24087, Stop: 21901, Start Num: 149

Candidate Starts for LastNadiia\_35:

(Start: 149 @24087 has 11 MA's), (216, 23772), (217, 23769), (255, 23628), (344, 23361), (413, 23190), (423, 23145), (438, 23100), (444, 23076), (481, 22956), (496, 22899), (507, 22857), (528, 22746), (548, 22644), (562, 22596), (587, 22485), (588, 22476), (592, 22458), (615, 22356), (627, 22320), (641, 22281), (655, 22230), (674, 22176), (688, 22122), (694, 22116), (710, 22083), (731, 22023), (737, 22008), (750, 21978),

Gene: LavAbarElk\_88 Start: 59199, Stop: 61904, Start Num: 39

Candidate Starts for LavAbarElk\_88:

(Start: 39 @59199 has 39 MA's), (61, 59289), (99, 59517), (111, 59607), (169, 59895), (170, 59901), (171, 59907), (181, 59946), (206, 60033), (213, 60060), (219, 60093), (231, 60135), (232, 60138), (241, 60168), (260, 60234), (267, 60255), (269, 60258), (280, 60285), (336, 60432), (391, 60564), (428, 60639), (442, 60684), (453, 60708), (467, 60747), (482, 60810), (494, 60855), (501, 60882), (502, 60885), (524, 60978), (533, 61020), (537, 61047), (557, 61140), (563, 61149), (566, 61152), (574, 61203), (594, 61296), (618, 61407), (628, 61428), (650, 61488), (656, 61515), (661, 61533), (680, 61587), (693, 61635), (709, 61668), (758, 61776), (768, 61788), (804, 61872),

Gene: Leopard\_106 Start: 68398, Stop: 71190, Start Num: 45

Candidate Starts for Leopard\_106:

(Start: 34 @68359 has 1 MA's), (Start: 45 @68398 has 2 MA's), (58, 68443), (76, 68590), (86, 68674), (111, 68830), (115, 68851), (122, 68902), (129, 68941), (139, 68992), (171, 69124), (175, 69142), (178, 69151), (189, 69178), (192, 69190), (194, 69202), (200, 69223), (213, 69277), (241, 69385), (242, 69388), (254, 69439), (255, 69442), (290, 69544), (311, 69586), (378, 69754), (465, 69961), (472, 69997), (474, 70006), (499, 70093), (506, 70120), (521, 70171), (529, 70219), (530, 70222), (532, 70231), (544, 70303), (551, 70327), (557, 70354), (569, 70390), (572, 70402), (577, 70423), (579, 70432), (591, 70498), (617, 70624), (618, 70627), (619, 70630), (621, 70636), (681, 70819), (686, 70840), (688, 70852), (706, 70891), (760, 71023), (770, 71050), (785, 71077), (801, 71122), (803, 71128), (804, 71134), (815, 71173),

Gene: Lila22\_89 Start: 60501, Stop: 63272, Start Num: 39

Candidate Starts for Lila22\_89:

(Start: 39 @60501 has 39 MA's), (61, 60591), (111, 60909), (134, 61074), (169, 61197), (170, 61203), (171, 61209), (181, 61248), (194, 61287), (200, 61308), (206, 61335), (213, 61362), (219, 61395), (231, 61437), (232, 61440), (241, 61470), (260, 61536), (267, 61557), (269, 61560), (280, 61587), (300, 61641), (319, 61710), (342, 61782), (361, 61842), (374, 61866), (391, 61899), (419, 61971), (471, 62139), (485, 62187), (486, 62190), (495, 62226), (519, 62307), (537, 62412), (544, 62454), (551, 62478), (554, 62493), (572, 62553), (575, 62568), (576, 62571), (583, 62601), (598, 62673), (619, 62772), (633, 62814), (648, 62847), (652, 62862), (661, 62898), (670, 62925), (675, 62940), (681, 62958), (686, 62979), (693, 63000), (746, 63123), (758, 63144), (783, 63180), (785, 63183),

Gene: LilyPad\_80 Start: 55864, Stop: 58713, Start Num: 40

Candidate Starts for LilyPad\_80:

(Start: 40 @55864 has 31 MA's), (59, 55936), (76, 56083), (78, 56092), (80, 56098), (123, 56395), (124, 56398), (130, 56434), (137, 56467), (147, 56494), (201, 56698), (237, 56821), (264, 56914), (272, 56941), (283, 56986), (301, 57052), (315, 57133), (337, 57208), (358, 57277), (367, 57295), (383, 57322), (395, 57370), (404, 57391), (405, 57394), (431, 57493), (438, 57514), (463, 57580), (469, 57601), (505, 57739), (512, 57760), (527, 57832), (544, 57925), (547, 57937), (548, 57940), (559, 57976), (574, 58036), (586, 58084), (588, 58096), (606, 58174), (614, 58222), (616, 58234), (627, 58261), (649, 58315), (652, 58327), (653, 58330), (656, 58345), (690, 58423), (704, 58456), (726, 58501), (738, 58528), (748, 58549), (785, 58618), (794, 58645), (797, 58651), (809, 58681),

Gene: LittleFella\_81 Start: 56231, Stop: 59035, Start Num: 38

Candidate Starts for LittleFella\_81:

(Start: 38 @56231 has 15 MA's), (55, 56288), (76, 56456), (78, 56465), (85, 56513), (87, 56543), (89, 56555), (123, 56771), (124, 56774), (140, 56852), (143, 56858), (146, 56867), (155, 56906), (179, 56996), (195, 57053), (222, 57161), (228, 57191), (237, 57215), (243, 57227), (264, 57308), (273, 57338), (274, 57350), (278, 57368), (297, 57401), (301, 57422), (303, 57467), (306, 57476), (369, 57662), (389, 57701), (427, 57818), (436, 57845), (474, 57965), (492, 58031), (493, 58034), (501, 58061), (519, 58115), (525, 58154), (526, 58160), (530, 58178), (531, 58184), (547, 58271), (548, 58274), (559, 58313), (575, 58376), (576, 58379), (592, 58451), (595, 58472), (605, 58508), (606, 58511), (647, 58643), (652, 58661), (656, 58679), (676, 58718), (679, 58727), (704, 58784), (720, 58811), (726, 58829), (764, 58904), (813, 59015),

Gene: Lollipop1437\_58 Start: 44135, Stop: 41574, Start Num: 44

Candidate Starts for Lollipop1437\_58:

(24, 44201), (Start: 44 @44135 has 42 MA's), (56, 44108), (62, 44060), (76, 43952), (159, 43547), (167, 43517), (177, 43472), (192, 43427), (201, 43388), (206, 43367), (207, 43364), (213, 43340), (224, 43289), (247, 43196), (258, 43151), (259, 43148), (286, 43091), (326, 42995), (443, 42716), (452, 42698), (454, 42692), (457, 42683), (477, 42611), (527, 42431), (534, 42404), (567, 42248), (574, 42215), (586, 42167), (596, 42110), (597, 42107), (602, 42089), (610, 42059), (618, 42011), (627, 41990), (636, 41969), (649, 41930), (669, 41858), (677, 41840), (686, 41804), (687, 41795), (710, 41753), (742, 41678), (759, 41642), (766, 41624),

Gene: LuckyLeo\_86 Start: 59800, Stop: 62529, Start Num: 39

Candidate Starts for LuckyLeo\_86:

(Start: 39 @59800 has 39 MA's), (61, 59890), (63, 59914), (79, 60037), (118, 60286), (119, 60289), (169, 60496), (170, 60502), (171, 60508), (175, 60526), (181, 60547), (194, 60586), (200, 60607), (206, 60634), (231, 60736), (241, 60769), (260, 60835), (269, 60859), (280, 60886), (330, 61015), (374, 61135), (390, 61168), (403, 61177), (474, 61366), (493, 61435), (494, 61438), (514, 61513), (537, 61636), (544, 61678), (548, 61693), (555, 61720), (569, 61768), (574, 61792), (575, 61795), (580, 61810), (586, 61840), (587, 61843), (597, 61903), (599, 61915), (618, 61999), (628, 62023), (633, 62047), (637, 62059), (640, 62068), (655, 62122), (656, 62125), (672, 62176), (681, 62203), (693, 62245), (758, 62395), (778, 62431), (794, 62473),

Gene: MacGully\_60 Start: 42358, Stop: 39776, Start Num: 47

Candidate Starts for MacGully\_60:

(1, 42739), (6, 42580), (17, 42496), (Start: 47 @42358 has 1 MA's), (67, 42238), (74, 42202), (76, 42175), (83, 42145), (111, 41992), (117, 41950), (125, 41902), (126, 41899), (151, 41824), (177, 41701), (192, 41656), (206, 41596), (214, 41566), (233, 41482), (311, 41272), (314, 41266), (326, 41221), (359, 41131), (383, 41092), (414, 41041), (434, 40981), (437, 40972), (459, 40912), (474, 40855), (478, 40840), (501, 40765), (527, 40660), (529, 40651), (537, 40609), (538, 40606), (544, 40567), (547, 40555), (549, 40549), (569, 40468), (572, 40456), (574, 40444), (586, 40396), (597, 40336), (602, 40318), (618, 40240), (631, 40204), (646, 40168), (649, 40159), (700, 39994), (722, 39940), (728, 39925), (759, 39859), (774, 39823), (776, 39820), (789, 39793),

Gene: Madi\_82 Start: 56748, Stop: 59609, Start Num: 40

Candidate Starts for Madi\_82:

(Start: 40 @56748 has 31 MA's), (59, 56820), (76, 56967), (100, 57144), (123, 57303), (124, 57306), (130, 57342), (137, 57375), (155, 57438), (166, 57474), (201, 57597), (237, 57720), (249, 57756), (264, 57813), (272, 57840), (275, 57858), (283, 57885), (301, 57939), (392, 58233), (395, 58251), (404, 58272), (416, 58311), (417, 58326), (433, 58380), (436, 58389), (466, 58467), (474, 58509), (499, 58596), (500, 58599), (517, 58653), (530, 58725), (531, 58731), (544, 58806), (548, 58821), (574, 58917), (586, 58968), (592, 58998), (593, 59010), (604, 59052), (607, 59061), (613, 59094), (614, 59106), (624, 59139), (626, 59142), (641, 59184), (642, 59187), (653, 59223), (687, 59310), (699, 59334), (701, 59343), (764, 59475), (800, 59556), (809, 59580),

Gene: Madruga\_106 Start: 66185, Stop: 68893, Start Num: 42

Candidate Starts for Madruga\_106:

(Start: 42 @66185 has 3 MA's), (46, 66200), (48, 66203), (61, 66266), (62, 66278), (66, 66314), (142, 66731), (150, 66746), (153, 66770), (163, 66812), (164, 66818), (170, 66842), (192, 66923), (198, 66950), (225, 67070), (235, 67109), (271, 67235), (285, 67265), (288, 67271), (305, 67313), (312, 67328), (316, 67337), (330, 67388), (332, 67400), (340, 67418), (348, 67445), (383, 67523), (420, 67631), (440, 67679), (467, 67751), (473, 67781), (478, 67802), (487, 67832), (509, 67907), (525, 67955), (530, 67979), (533, 67991), (544, 68060), (618, 68378), (636, 68426), (645, 68441), (647, 68450), (649, 68456), (650, 68459), (656, 68486), (660, 68498), (663, 68507), (678, 68549), (684, 68573), (693, 68600), (712, 68642), (714, 68648), (743, 68711), (751, 68726), (756, 68735), (798, 68834), (814, 68885),

Gene: Makima\_33 Start: 23197, Stop: 21011, Start Num: 149

Candidate Starts for Makima\_33:

(Start: 149 @23197 has 11 MA's), (161, 23143), (173, 23071), (180, 23044), (236, 22807), (243, 22789), (250, 22762), (270, 22684), (295, 22615), (337, 22486), (382, 22384), (413, 22300), (424, 22252), (432, 22228), (436, 22216), (441, 22201), (481, 22066), (494, 22015), (504, 21976), (507, 21967), (528, 21856), (548, 21754), (562, 21706), (592, 21568), (614, 21469), (615, 21466), (620, 21445), (627, 21430), (655, 21340), (710, 21193), (737, 21118), (750, 21088), (762, 21058),

Gene: Marietta\_54 Start: 39999, Stop: 37450, Start Num: 44

Candidate Starts for Marietta\_54:

(Start: 44 @39999 has 42 MA's), (62, 39921), (76, 39813), (81, 39789), (104, 39696), (192, 39315), (201, 39276), (229, 39153), (293, 38961), (304, 38946), (326, 38880), (452, 38583), (454, 38577), (477, 38496), (527, 38307), (529, 38298), (557, 38163), (567, 38124), (574, 38091), (575, 38088), (586, 38043), (597, 37983), (598, 37980), (602, 37965), (610, 37935), (617, 37890), (618, 37887), (631, 37851), (654, 37782), (659, 37767), (666, 37746), (684, 37686), (687, 37671), (708, 37632), (728, 37581), (742, 37551),

Gene: Maselop\_53 Start: 40135, Stop: 37535, Start Num: 49

Candidate Starts for Maselop\_53:

(Start: 49 @40135 has 6 MA's), (67, 40018), (76, 39955), (78, 39946), (82, 39928), (116, 39742), (117, 39730), (118, 39724), (177, 39481), (192, 39436), (196, 39418), (206, 39376), (208, 39370), (212, 39352), (214, 39346), (229, 39274), (244, 39214), (304, 39067), (311, 39052), (313, 39049), (321, 39010), (338, 38968), (341, 38959), (349, 38935), (428, 38770), (454, 38695), (459, 38683), (477, 38614), (493, 38563), (513, 38497), (529, 38422), (537, 38380), (549, 38320), (556, 38293), (569, 38239), (572, 38227), (574, 38215), (586, 38167), (597, 38107), (598, 38104), (602, 38089), (627, 37990), (649, 37930), (700, 37762), (749, 37645), (761, 37621), (774, 37591), (776, 37588), (783, 37576), (790, 37558),

Gene: Megatron06\_93 Start: 65379, Stop: 68324, Start Num: 38

Candidate Starts for Megatron06\_93:

(9, 65241), (11, 65265), (12, 65271), (15, 65289), (20, 65307), (22, 65325), (Start: 29 @65352 has 1 MA's), (Start: 36 @65373 has 2 MA's), (Start: 38 @65379 has 15 MA's), (54, 65433), (60, 65469), (76, 65604), (102, 65742), (150, 66003), (163, 66069), (170, 66099), (190, 66189), (192, 66216), (230, 66381), (255, 66468), (265, 66501), (268, 66522), (271, 66528), (276, 66555), (287, 66585), (292, 66603), (296, 66609), (311, 66699), (319, 66738), (415, 67008), (448, 67107), (480, 67212), (482, 67218), (487, 67233), (505, 67302), (513, 67326), (521, 67347), (528, 67392), (539, 67443), (544, 67479), (554, 67518), (574, 67590), (576, 67596), (586, 67638), (591, 67668), (596, 67698), (598, 67704), (599, 67713), (606, 67731), (607, 67734), (610, 67749), (618, 67797), (623, 67812), (641, 67857), (649, 67881), (684, 67998), (692, 68019), (707, 68049), (727, 68103), (764, 68178), (767, 68187), (796, 68250),

Gene: MerCougar\_54 Start: 43419, Stop: 40849, Start Num: 44

Candidate Starts for MerCougar\_54:

(22, 43494), (24, 43485), (Start: 44 @43419 has 42 MA's), (76, 43239), (153, 42855), (159, 42828), (192, 42711), (201, 42672), (207, 42648), (258, 42435), (293, 42360), (294, 42357), (325, 42282), (326, 42279), (356, 42189), (383, 42141), (427, 42054), (428, 42051), (436, 42027), (452, 41982), (454, 41976), (457, 41967), (477, 41895), (489, 41856), (507, 41790), (534, 41679), (557, 41562), (561, 41553), (567, 41523), (569, 41514), (575, 41487), (586, 41442), (592, 41412), (596, 41385), (597, 41382), (598, 41379), (602, 41364), (610, 41334), (618, 41286), (646, 41214), (649, 41205), (659, 41166), (666, 41145), (669, 41133), (687, 41070), (702, 41040), (710, 41028), (742, 40950), (749, 40932),

Gene: Mima20\_87 Start: 59812, Stop: 62517, Start Num: 39

Candidate Starts for Mima20\_87:

(Start: 39 @59812 has 39 MA's), (61, 59902), (111, 60220), (134, 60385), (169, 60508), (170, 60514), (171, 60520), (181, 60559), (206, 60646), (213, 60673), (219, 60706), (231, 60748), (232, 60751), (241, 60781), (260, 60847), (267, 60868), (269, 60871), (280, 60898), (336, 61045), (391, 61177), (428, 61252), (442, 61297), (453, 61321), (467, 61360), (478, 61411), (482, 61423), (494, 61468), (501, 61495), (502, 61498), (524, 61591), (533, 61633), (537, 61660), (557, 61753), (563, 61762), (566, 61765), (574, 61816), (594, 61909), (618, 62020), (628, 62041), (650, 62101), (656, 62128), (680, 62200), (693, 62248), (709, 62281), (758, 62389), (804, 62485), (805, 62488),

Gene: Mireles\_36 Start: 22753, Stop: 20567, Start Num: 149

Candidate Starts for Mireles\_36:

(Start: 149 @22753 has 11 MA's), (161, 22699), (173, 22627), (236, 22363), (243, 22345), (250, 22318), (270, 22240), (295, 22171), (383, 21937), (413, 21856), (424, 21808), (432, 21784), (440, 21760), (441, 21757), (472, 21655), (494, 21571), (528, 21412), (548, 21310), (562, 21262), (592, 21124), (614, 21025), (615, 21022), (620, 21001), (627, 20986), (655, 20896), (688, 20788), (694, 20782), (710, 20749), (731, 20689), (737, 20674), (750, 20644), (770, 20596),

Gene: MisoSoup\_72 Start: 46879, Stop: 44357, Start Num: 93

Candidate Starts for MisoSoup\_72:

(64, 47077), (68, 47038), (71, 47014), (93, 46879), (119, 46687), (124, 46663), (135, 46597), (176, 46426), (220, 46252), (254, 46117), (271, 46063), (286, 46024), (322, 45907), (370, 45787), (376, 45778), (403, 45721), (464, 45541), (466, 45532), (511, 45349), (520, 45316), (537, 45208), (538, 45205), (560, 45115), (573, 45055), (585, 45004), (590, 44977), (602, 44923), (603, 44920), (608, 44902), (613, 44875), (618, 44845), (664, 44692), (715, 44548), (741, 44485), (789, 44380),

Gene: MoiGyank\_91 Start: 60432, Stop: 63107, Start Num: 39

Candidate Starts for MoiGyank\_91:

(Start: 39 @60432 has 39 MA's), (123, 60909), (124, 60912), (151, 60993), (170, 61077), (189, 61137), (192, 61149), (207, 61209), (251, 61383), (257, 61413), (280, 61464), (330, 61593), (339, 61620), (374, 61713), (390, 61746), (399, 61749), (403, 61755), (427, 61794), (438, 61827), (462, 61890),

(469, 61917), (474, 61944), (493, 62013), (494, 62016), (499, 62031), (516, 62097), (521, 62124), (537, 62214), (544, 62256), (548, 62271), (555, 62298), (569, 62346), (580, 62388), (586, 62418), (597, 62481), (628, 62601), (633, 62625), (637, 62637), (652, 62685), (656, 62703), (681, 62781), (693, 62823), (745, 62946), (758, 62973), (794, 63051),

Gene: MontyDev\_93 Start: 64935, Stop: 67688, Start Num: 38

Candidate Starts for MontyDev\_93:

(Start: 38 @64935 has 15 MA's), (Start: 41 @64941 has 9 MA's), (55, 64992), (57, 65004), (100, 65280), (113, 65385), (114, 65397), (121, 65448), (124, 65466), (125, 65478), (129, 65493), (151, 65562), (159, 65604), (168, 65640), (170, 65649), (189, 65712), (192, 65724), (200, 65757), (213, 65811), (323, 66147), (341, 66192), (348, 66216), (349, 66219), (354, 66240), (357, 66249), (363, 66261), (393, 66318), (418, 66390), (428, 66426), (435, 66438), (446, 66474), (457, 66501), (459, 66504), (463, 66513), (467, 66525), (472, 66552), (485, 66597), (494, 66633), (499, 66648), (521, 66714), (535, 66795), (537, 66813), (541, 66822), (542, 66828), (546, 66861), (547, 66864), (575, 66966), (576, 66969), (577, 66972), (592, 67038), (598, 67071), (611, 67125), (613, 67134), (617, 67161), (644, 67230), (649, 67248), (652, 67260), (658, 67284), (659, 67287), (666, 67305), (678, 67341), (688, 67383), (713, 67440), (736, 67494), (786, 67596), (812, 67671),

Gene: Mopey\_90 Start: 61256, Stop: 64198, Start Num: 40

Candidate Starts for Mopey\_90:

(Start: 40 @61256 has 31 MA's), (73, 61439), (109, 61649), (115, 61694), (144, 61847), (163, 61934), (170, 61967), (174, 61988), (178, 62003), (192, 62051), (221, 62180), (224, 62189), (245, 62264), (248, 62276), (261, 62327), (263, 62336), (302, 62480), (329, 62603), (334, 62627), (347, 62663), (357, 62699), (385, 62753), (387, 62759), (397, 62801), (410, 62837), (426, 62903), (467, 63020), (469, 63029), (478, 63071), (484, 63089), (522, 63230), (525, 63251), (538, 63317), (555, 63398), (575, 63473), (582, 63503), (586, 63518), (592, 63548), (604, 63602), (614, 63656), (617, 63671), (618, 63674), (619, 63677), (632, 63716), (635, 63725), (649, 63755), (656, 63785), (670, 63830), (683, 63872), (688, 63896), (695, 63911), (712, 63950), (726, 63992), (731, 64001), (754, 64049), (809, 64175), (810, 64181),

Gene: MrMiyagi\_99 Start: 59517, Stop: 62252, Start Num: 41

Candidate Starts for MrMiyagi\_99:

(Start: 41 @59517 has 9 MA's), (123, 59991), (152, 60102), (191, 60270), (192, 60282), (194, 60294), (221, 60411), (230, 60447), (244, 60489), (263, 60564), (277, 60588), (308, 60666), (331, 60741), (351, 60798), (364, 60837), (375, 60852), (380, 60858), (402, 60924), (414, 60954), (442, 61035), (452, 61059), (458, 61074), (467, 61095), (468, 61101), (530, 61329), (532, 61338), (538, 61371), (541, 61380), (544, 61410), (550, 61431), (551, 61434), (569, 61506), (572, 61518), (587, 61578), (607, 61668), (614, 61713), (615, 61716), (618, 61731), (619, 61734), (630, 61761), (636, 61785), (641, 61791), (650, 61818), (652, 61827), (681, 61923), (683, 61932), (691, 61959), (725, 62046), (728, 62052), (732, 62061), (755, 62109), (769, 62145), (773, 62154), (778, 62160), (783, 62169), (787, 62175), (804, 62229), (806, 62232),

Gene: NadineRae\_52 Start: 39243, Stop: 36694, Start Num: 44

Candidate Starts for NadineRae\_52:

(31, 39288), (Start: 44 @39243 has 42 MA's), (62, 39165), (76, 39057), (104, 38940), (192, 38559), (201, 38520), (207, 38496), (229, 38397), (293, 38205), (304, 38190), (326, 38124), (452, 37827), (454, 37821), (477, 37740), (501, 37656), (527, 37551), (529, 37542), (557, 37407), (567, 37368), (574, 37335), (575, 37332), (586, 37287), (597, 37227), (598, 37224), (602, 37209), (610, 37179), (617, 37134), (618, 37131), (631, 37095), (654, 37026), (659, 37011), (666, 36990), (684, 36930), (687, 36915), (728, 36825), (742, 36795), (771, 36729),

Gene: NatB6\_52 Start: 42196, Stop: 39647, Start Num: 44

Candidate Starts for NatB6\_52:

(Start: 44 @42196 has 42 MA's), (62, 42124), (76, 42016), (105, 41890), (139, 41692), (152, 41665), (167, 41602), (175, 41569), (192, 41515), (201, 41476), (206, 41455), (207, 41452), (239, 41311), (293, 41161), (299, 41149), (326, 41080), (356, 40990), (383, 40942), (400, 40915), (411, 40900), (421, 40873), (452, 40783), (454, 40777), (457, 40768), (488, 40660), (529, 40498), (547, 40402), (567, 40324), (569, 40315), (575, 40288), (592, 40213), (602, 40165), (610, 40135), (618, 40087), (646, 40015), (649, 40006), (666, 39946), (667, 39940), (669, 39934), (687, 39871), (730, 39778), (737, 39760), (742, 39751), (759, 39715), (772, 39682),

Gene: Neuville\_33 Start: 21717, Stop: 19513, Start Num: 149

Candidate Starts for Neuville\_33:

(Start: 149 @21717 has 11 MA's), (161, 21663), (303, 21114), (344, 20985), (350, 20970), (386, 20886), (413, 20802), (423, 20757), (429, 20739), (444, 20688), (452, 20667), (481, 20568), (504, 20478), (513, 20433), (528, 20358), (548, 20256), (562, 20208), (573, 20154), (588, 20088), (592, 20070), (615, 19968), (620, 19947), (653, 19854), (655, 19842), (674, 19788), (688, 19734), (710, 19695), (731, 19635), (737, 19620), (750, 19590),

Gene: Nilo\_94 Start: 65434, Stop: 68187, Start Num: 38

Candidate Starts for Nilo\_94:

(Start: 38 @65434 has 15 MA's), (Start: 41 @65440 has 9 MA's), (55, 65491), (57, 65503), (61, 65527), (100, 65779), (113, 65884), (114, 65896), (121, 65947), (124, 65965), (125, 65977), (129, 65992), (151, 66061), (159, 66103), (168, 66139), (170, 66148), (189, 66211), (192, 66223), (200, 66256), (213, 66310), (323, 66646), (341, 66691), (348, 66715), (349, 66718), (354, 66739), (357, 66748), (393, 66817), (418, 66889), (428, 66925), (435, 66937), (446, 66973), (457, 67000), (459, 67003), (463, 67012), (467, 67024), (472, 67051), (481, 67081), (485, 67096), (494, 67132), (499, 67147), (521, 67213), (535, 67294), (537, 67312), (541, 67321), (542, 67327), (546, 67360), (547, 67363), (575, 67465), (576, 67468), (577, 67471), (592, 67537), (598, 67570), (611, 67624), (613, 67633), (617, 67660), (644, 67729), (649, 67747), (652, 67759), (658, 67783), (659, 67786), (662, 67795), (666, 67804), (678, 67840), (688, 67882), (713, 67939), (736, 67993), (786, 68095), (812, 68170),

Gene: Nish23\_93 Start: 64787, Stop: 67738, Start Num: 36

Candidate Starts for Nish23\_93:

(9, 64637), (11, 64661), (12, 64667), (15, 64685), (19, 64703), (20, 64721), (22, 64739), (Start: 29 @64766 has 1 MA's), (Start: 36 @64787 has 2 MA's), (Start: 38 @64793 has 15 MA's), (54, 64847), (60, 64883), (76, 65018), (102, 65156), (150, 65417), (163, 65483), (170, 65513), (184, 65573), (190, 65603), (192, 65630), (230, 65795), (255, 65882), (265, 65915), (268, 65936), (271, 65942), (276, 65969), (287, 65999), (292, 66017), (296, 66023), (311, 66113), (319, 66152), (415, 66422), (448, 66521), (480, 66626), (482, 66632), (487, 66647), (505, 66716), (513, 66740), (521, 66761), (528, 66806), (539, 66857), (544, 66893), (554, 66932), (574, 67004), (575, 67007), (576, 67010), (586, 67052), (596, 67112), (598, 67118), (599, 67127), (610, 67163), (618, 67211), (623, 67226), (641, 67271), (649, 67295), (684, 67412), (692, 67433), (707, 67463), (727, 67517), (764, 67592), (767, 67601), (796, 67664),

Gene: NorManre\_93 Start: 61343, Stop: 64114, Start Num: 39

Candidate Starts for NorManre\_93:

(Start: 39 @61343 has 39 MA's), (61, 61433), (111, 61751), (169, 62039), (170, 62045), (171, 62051), (181, 62090), (194, 62129), (200, 62150), (206, 62177), (213, 62204), (219, 62237), (231, 62279), (232, 62282), (241, 62312), (260, 62378), (267, 62399), (269, 62402), (280, 62429), (300, 62483), (319, 62552), (342, 62624), (361, 62684), (374, 62708), (391, 62741), (419, 62813), (471, 62981), (485, 63029), (486, 63032), (495, 63068), (519, 63149), (537, 63254), (544, 63296), (551, 63320), (554, 63335), (572, 63395), (575, 63410), (576, 63413), (583, 63443), (598, 63515), (619, 63614), (633, 63656), (648, 63689), (652, 63704), (661, 63740), (670, 63767), (675, 63782), (681, 63800), (686, 63821), (693, 63842), (746, 63965), (758, 63986), (783, 64022), (785, 64025),

Gene: NosilaM\_56 Start: 43114, Stop: 40544, Start Num: 44

Candidate Starts for NosilaM\_56:

(26, 43177), (Start: 44 @43114 has 42 MA's), (76, 42934), (126, 42652), (151, 42565), (153, 42550), (159, 42523), (192, 42406), (201, 42367), (207, 42343), (224, 42268), (258, 42130), (293, 42055), (294, 42052), (325, 41977), (326, 41974), (356, 41884), (383, 41836), (404, 41803), (409, 41797), (427, 41749), (436, 41722), (452, 41677), (454, 41671), (477, 41590), (489, 41551), (507, 41485), (534, 41374), (557, 41257), (561, 41248), (567, 41218), (569, 41209), (575, 41182), (586, 41137), (592, 41107), (597, 41077), (598, 41074), (602, 41059), (610, 41029), (631, 40945), (646, 40909), (649, 40900), (659, 40861), (666, 40840), (669, 40828), (687, 40765), (702, 40735), (742, 40645),

Gene: Nova\_88 Start: 61749, Stop: 64682, Start Num: 40

Candidate Starts for Nova\_88:

(Start: 40 @61749 has 31 MA's), (73, 61932), (109, 62142), (115, 62187), (124, 62244), (144, 62340), (163, 62427), (170, 62460), (174, 62481), (178, 62496), (192, 62544), (215, 62637), (221, 62673), (224, 62682), (245, 62757), (248, 62769), (261, 62820), (263, 62829), (302, 62973), (329, 63096), (347, 63156), (357, 63192), (385, 63246), (387, 63252), (397, 63294), (410, 63330), (426, 63396), (467, 63504), (469, 63513), (478, 63555), (484, 63573), (506, 63651), (522, 63714), (525, 63735), (538, 63801), (555, 63882), (575, 63957), (586, 64002), (592, 64032), (604, 64086), (614, 64140), (617, 64155), (618, 64158), (619, 64161), (632, 64200), (635, 64209), (649, 64239), (656, 64269), (670, 64314), (683, 64356), (688, 64380), (695, 64395), (712, 64434), (721, 64461), (726, 64476), (731, 64485), (734, 64491), (754, 64533), (809, 64659), (810, 64665),

Gene: NovaSharks\_88 Start: 58253, Stop: 60976, Start Num: 39

Candidate Starts for NovaSharks\_88:

(Start: 39 @58253 has 39 MA's), (76, 58481), (100, 58553), (151, 58808), (158, 58841), (163, 58865), (169, 58886), (174, 58913), (189, 58952), (192, 58964), (213, 59048), (214, 59051), (280, 59306), (325, 59441), (328, 59447), (396, 59627), (442, 59756), (480, 59876), (519, 60011), (527, 60065), (529, 60074), (530, 60077), (533, 60089), (537, 60116), (543, 60155), (545, 60161), (548, 60173), (551, 60182), (557, 60209), (570, 60251), (583, 60308), (586, 60320), (611, 60437), (652, 60566), (678, 60653), (693, 60704), (745, 60815), (758, 60842), (770, 60863), (793, 60914),

Gene: NovumRegina\_52 Start: 42505, Stop: 39956, Start Num: 44

Candidate Starts for NovumRegina\_52:

(Start: 44 @42505 has 42 MA's), (62, 42433), (76, 42325), (105, 42199), (139, 42001), (152, 41974), (167, 41911), (175, 41878), (192, 41824), (201, 41785), (206, 41764), (207, 41761), (239, 41620), (293, 41470), (299, 41458), (326, 41389), (356, 41299), (383, 41251), (400, 41224), (421, 41182), (452, 41092), (454, 41086), (457, 41077), (488, 40969), (529, 40807), (547, 40711), (567, 40633), (569, 40624), (575, 40597), (592, 40522), (602, 40474), (610, 40444), (618, 40396), (646, 40324), (649, 40315), (666, 40255), (667, 40249), (669, 40243), (687, 40180), (730, 40087), (737, 40069), (742, 40060), (759, 40024), (772, 39991),

Gene: Oaker\_91 Start: 65369, Stop: 68305, Start Num: 38

Candidate Starts for Oaker\_91:

(3, 65177), (6, 65201), (7, 65207), (8, 65225), (10, 65243), (12, 65261), (15, 65279), (20, 65297), (22, 65315), (Start: 29 @65342 has 1 MA's), (Start: 36 @65363 has 2 MA's), (Start: 38 @65369 has 15 MA's), (54, 65423), (76, 65594), (102, 65732), (150, 65993), (163, 66059), (170, 66089), (184, 66149), (190, 66179), (192, 66206), (230, 66371), (255, 66458), (265, 66491), (268, 66512), (271, 66518), (276, 66545), (287, 66575), (292, 66593), (296, 66599), (311, 66689), (319, 66728), (415, 66998), (448, 67097), (480, 67202), (482, 67208), (487, 67223), (505, 67292), (513, 67316), (521, 67337), (528, 67382), (530, 67388), (539, 67433), (544, 67469), (554, 67508), (574, 67580), (575, 67583), (576, 67586), (586, 67628), (596, 67688), (598, 67694), (599, 67703), (610, 67739), (618, 67787), (623, 67802), (641, 67847), (649, 67871), (681, 67973), (689, 68006), (716, 68069), (739, 68120), (754, 68144), (767, 68180), (797, 68246),

Gene: Onyinye\_107 Start: 68278, Stop: 71022, Start Num: 45

Candidate Starts for Onyinye\_107:

(Start: 34 @68239 has 1 MA's), (Start: 45 @68278 has 2 MA's), (58, 68323), (76, 68470), (86, 68554), (111, 68710), (115, 68731), (122, 68782), (129, 68821), (139, 68872), (148, 68902), (154, 68935), (175, 69022), (178, 69031), (189, 69058), (192, 69070), (194, 69082), (200, 69103), (213, 69157), (241, 69265), (242, 69268), (254, 69319), (255, 69322), (281, 69391), (298, 69436), (306, 69445), (307, 69448), (311, 69457), (337, 69547), (348, 69577), (375, 69622), (382, 69631), (389, 69652), (477, 69889), (478, 69892), (480, 69898), (499, 69961), (518, 70021), (530, 70090), (532, 70099), (538, 70132), (544, 70171), (553, 70207), (565, 70231), (572, 70270), (577, 70291), (581, 70315), (606, 70417), (614, 70465), (617, 70480), (618, 70483), (622, 70495), (652, 70579), (656, 70597), (668, 70636), (673, 70645), (678, 70660), (687, 70699), (703, 70738), (729, 70792), (733, 70801), (752, 70843), (781, 70909), (792, 70939), (804, 70972), (810, 70987),

Gene: OtterstedtS21\_89 Start: 60155, Stop: 62926, Start Num: 39

Candidate Starts for OtterstedtS21\_89:

(Start: 39 @60155 has 39 MA's), (61, 60245), (111, 60563), (134, 60728), (169, 60851), (170, 60857), (171, 60863), (181, 60902), (194, 60941), (200, 60962), (206, 60989), (213, 61016), (219, 61049), (231, 61091), (232, 61094), (241, 61124), (260, 61190), (267, 61211), (269, 61214), (280, 61241), (300, 61295), (319, 61364), (342, 61436), (361, 61496), (374, 61520), (391, 61553), (419, 61625), (471, 61793), (485, 61841), (486, 61844), (495, 61880), (519, 61961), (537, 62066), (544, 62108), (551, 62132), (554, 62147), (572, 62207), (575, 62222), (576, 62225), (583, 62255), (598, 62327), (619, 62426), (633, 62468), (648, 62501), (652, 62516), (661, 62552), (670, 62579), (675, 62594), (681, 62612), (686, 62633), (693, 62654), (746, 62777), (758, 62798), (783, 62834), (785, 62837),

Gene: Outis\_54 Start: 43113, Stop: 40543, Start Num: 44

Candidate Starts for Outis\_54:

(22, 43188), (24, 43179), (Start: 44 @43113 has 42 MA's), (76, 42933), (151, 42564), (153, 42549), (159, 42522), (192, 42405), (201, 42366), (207, 42342), (258, 42129), (293, 42054), (294, 42051), (325, 41976), (326, 41973), (356, 41883), (371, 41853), (383, 41835), (427, 41748), (428, 41745), (436, 41721), (452, 41676), (454, 41670), (457, 41661), (477, 41589), (489, 41550), (507, 41484), (534, 41373), (557, 41256), (561, 41247), (567, 41217), (569, 41208), (575, 41181), (586, 41136), (592, 41106), (596, 41079), (597, 41076), (598, 41073), (602, 41058), (610, 41028), (618, 40980), (646, 40908), (649, 40899), (659, 40860), (666, 40839), (669, 40827), (687, 40764), (702, 40734), (710, 40722), (742, 40644), (749, 40626),

Gene: P1201\_54 Start: 43347, Stop: 40702, Start Num: 27

Candidate Starts for P1201\_54:

(27, 43347), (50, 43272), (53, 43257), (75, 43119), (106, 42966), (117, 42867), (120, 42852), (124, 42831), (137, 42777), (154, 42735), (191, 42546), (193, 42525), (207, 42471), (251, 42303), (353, 42045), (366, 42012), (412, 41940), (430, 41886), (437, 41865), (455, 41814), (480, 41727), (501, 41658), (503, 41649), (521, 41592), (529, 41544), (530, 41541), (534, 41526), (537, 41502), (545, 41457), (558, 41406), (574, 41340), (575, 41337), (577, 41331), (588, 41280), (607, 41199), (643, 41073), (656, 41028), (711, 40866), (780, 40710),

Gene: PBI1\_81 Start: 61116, Stop: 64067, Start Num: 40

Candidate Starts for PBI1\_81:

(Start: 40 @61116 has 31 MA's), (73, 61299), (109, 61509), (115, 61554), (144, 61707), (163, 61794), (170, 61827), (171, 61833), (174, 61848), (178, 61863), (192, 61911), (215, 62004), (221, 62040), (224, 62049), (245, 62124), (248, 62136), (261, 62187), (263, 62196), (302, 62340), (329, 62463), (334, 62487), (347, 62523), (357, 62559), (385, 62613), (387, 62619), (397, 62661), (410, 62697), (426, 62763), (467, 62889), (469, 62898), (478, 62940), (484, 62958), (492, 62988), (506, 63036), (522, 63099), (525, 63120), (538, 63186), (555, 63267), (575, 63342), (582, 63372), (586, 63387),

(592, 63417), (604, 63471), (614, 63525), (617, 63540), (618, 63543), (619, 63546), (632, 63585), (635, 63594), (649, 63624), (656, 63654), (661, 63672), (670, 63699), (683, 63741), (688, 63765), (695, 63780), (712, 63819), (726, 63861), (731, 63870), (754, 63918), (809, 64044), (810, 64050),

Gene: PLOT\_89 Start: 61410, Stop: 64361, Start Num: 40

Candidate Starts for PLOT\_89:

(Start: 40 @61410 has 31 MA's), (73, 61593), (109, 61803), (115, 61848), (144, 62001), (163, 62088), (170, 62121), (174, 62142), (178, 62157), (192, 62205), (221, 62334), (224, 62343), (245, 62418), (248, 62430), (261, 62481), (263, 62490), (302, 62634), (329, 62757), (347, 62817), (357, 62853), (385, 62907), (387, 62913), (397, 62955), (410, 62991), (426, 63057), (467, 63183), (469, 63192), (478, 63234), (484, 63252), (506, 63330), (522, 63393), (525, 63414), (538, 63480), (555, 63561), (575, 63636), (582, 63666), (586, 63681), (592, 63711), (604, 63765), (614, 63819), (617, 63834), (618, 63837), (619, 63840), (632, 63879), (635, 63888), (649, 63918), (656, 63948), (670, 63993), (683, 64035), (688, 64059), (695, 64074), (712, 64113), (726, 64155), (731, 64164), (754, 64212), (809, 64338), (810, 64344),

Gene: Papyrus\_91 Start: 64374, Stop: 67121, Start Num: 41

Candidate Starts for Papyrus\_91:

(Start: 38 @64368 has 15 MA's), (Start: 41 @64374 has 9 MA's), (55, 64425), (57, 64437), (61, 64461), (113, 64818), (114, 64830), (121, 64881), (124, 64899), (125, 64911), (129, 64926), (151, 64995), (159, 65037), (168, 65073), (170, 65082), (189, 65145), (192, 65157), (200, 65190), (213, 65244), (323, 65580), (341, 65625), (348, 65649), (349, 65652), (354, 65673), (357, 65682), (363, 65694), (393, 65751), (418, 65823), (428, 65859), (435, 65871), (446, 65907), (457, 65934), (459, 65937), (463, 65946), (467, 65958), (472, 65985), (481, 66015), (485, 66030), (494, 66066), (499, 66081), (521, 66147), (535, 66228), (537, 66246), (541, 66255), (542, 66261), (546, 66294), (547, 66297), (575, 66399), (576, 66402), (577, 66405), (592, 66471), (598, 66504), (611, 66558), (613, 66567), (617, 66594), (644, 66663), (649, 66681), (652, 66693), (658, 66717), (659, 66720), (666, 66738), (678, 66774), (688, 66816), (713, 66873), (736, 66927), (786, 67029), (812, 67104),

Gene: ParvusTarda\_88 Start: 59427, Stop: 62198, Start Num: 39

Candidate Starts for ParvusTarda\_88:

(Start: 39 @59427 has 39 MA's), (61, 59517), (111, 59835), (134, 60000), (169, 60123), (170, 60129), (171, 60135), (181, 60174), (194, 60213), (200, 60234), (206, 60261), (213, 60288), (219, 60321), (231, 60363), (232, 60366), (241, 60396), (260, 60462), (267, 60483), (269, 60486), (280, 60513), (300, 60567), (319, 60636), (342, 60708), (361, 60768), (374, 60792), (391, 60825), (419, 60897), (471, 61065), (485, 61113), (486, 61116), (495, 61152), (519, 61233), (537, 61338), (544, 61380), (551, 61404), (554, 61419), (572, 61479), (575, 61494), (576, 61497), (583, 61527), (598, 61599), (619, 61698), (633, 61740), (648, 61773), (652, 61788), (661, 61824), (670, 61851), (675, 61866), (681, 61884), (686, 61905), (693, 61926), (746, 62049), (758, 62070), (783, 62106), (785, 62109),

Gene: Patience\_109 Start: 67316, Stop: 70024, Start Num: 42

Candidate Starts for Patience\_109:

(Start: 42 @67316 has 3 MA's), (46, 67331), (48, 67334), (61, 67397), (62, 67409), (142, 67862), (153, 67901), (163, 67943), (164, 67949), (170, 67973), (192, 68054), (198, 68081), (225, 68201), (235, 68240), (271, 68366), (285, 68396), (305, 68444), (312, 68459), (316, 68468), (330, 68519), (332, 68531), (340, 68549), (348, 68576), (383, 68654), (420, 68762), (440, 68810), (467, 68882), (473, 68912), (478, 68933), (487, 68963), (492, 68987), (509, 69038), (525, 69086), (530, 69110), (533, 69122), (544, 69191), (618, 69509), (636, 69557), (645, 69572), (647, 69581), (649, 69587), (650, 69590), (656, 69617), (660, 69629), (663, 69638), (678, 69680), (684, 69704), (693, 69731), (712, 69773), (743, 69842), (751, 69857), (756, 69866), (798, 69965), (814, 70016),

Gene: Patio\_56 Start: 43371, Stop: 40810, Start Num: 44

Candidate Starts for Patio\_56:

(24, 43437), (Start: 44 @43371 has 42 MA's), (56, 43344), (62, 43296), (76, 43188), (159, 42783), (167, 42753), (192, 42663), (201, 42624), (206, 42603), (207, 42600), (213, 42576), (224, 42525), (247, 42432), (258, 42387), (259, 42384), (286, 42327), (326, 42231), (355, 42144), (373, 42108), (443, 41952), (452, 41934), (454, 41928), (457, 41919), (477, 41847), (493, 41799), (534, 41640), (567, 41484), (574, 41451), (586, 41403), (596, 41346), (597, 41343), (602, 41325), (610, 41295), (618, 41247), (627, 41226), (636, 41205), (649, 41166), (658, 41130), (669, 41094), (677, 41076), (687, 41031), (710, 40989), (742, 40914), (759, 40878), (766, 40860),

Gene: Patos\_93 Start: 61342, Stop: 64113, Start Num: 39

Candidate Starts for Patos\_93:

(Start: 39 @61342 has 39 MA's), (61, 61432), (111, 61750), (169, 62038), (170, 62044), (171, 62050), (181, 62089), (194, 62128), (200, 62149), (206, 62176), (213, 62203), (219, 62236), (231, 62278), (232, 62281), (241, 62311), (260, 62377), (267, 62398), (269, 62401), (280, 62428), (300, 62482), (319, 62551), (342, 62623), (361, 62683), (374, 62707), (391, 62740), (419, 62812), (471, 62980), (485, 63028), (486, 63031), (495, 63067), (519, 63148), (537, 63253), (544, 63295), (551, 63319), (554, 63334), (572, 63394), (575, 63409), (576, 63412), (583, 63442), (598, 63514), (619, 63613), (633, 63655), (648, 63688), (652, 63703), (661, 63739), (670, 63766), (675, 63781), (681, 63799), (686, 63820), (693, 63841), (746, 63964), (758, 63985), (783, 64021), (785, 64024),

Gene: PauloDiaboli\_104 Start: 70538, Stop: 67893, Start Num: 97

Candidate Starts for PauloDiaboli\_104:

(Start: 91 @70568 has 2 MA's), (94, 70547), (Start: 97 @70538 has 5 MA's), (126, 70301), (165, 70133), (171, 70082), (199, 69965), (204, 69944), (218, 69878), (234, 69806), (241, 69788), (250, 69755), (256, 69728), (270, 69674), (289, 69632), (291, 69620), (292, 69617), (322, 69506), (341, 69458), (368, 69377), (394, 69317), (401, 69287), (409, 69266), (425, 69206), (433, 69179), (479, 69026), (489, 68993), (491, 68984), (493, 68972), (536, 68765), (537, 68762), (545, 68717), (571, 68600), (574, 68585), (577, 68576), (583, 68549), (587, 68534), (614, 68408), (625, 68372), (636, 68336), (657, 68273), (683, 68186), (684, 68180), (688, 68162), (710, 68123), (725, 68075), (744, 68033), (759, 68000),

Gene: Pemberton\_55 Start: 39981, Stop: 37429, Start Num: 44

Candidate Starts for Pemberton\_55:

(31, 40026), (Start: 44 @39981 has 42 MA's), (62, 39903), (74, 39822), (76, 39792), (81, 39768), (89, 39741), (192, 39294), (201, 39255), (206, 39234), (207, 39231), (293, 38940), (304, 38925), (326, 38859), (452, 38562), (454, 38556), (457, 38547), (477, 38475), (527, 38286), (529, 38277), (547, 38181), (555, 38151), (557, 38142), (567, 38103), (569, 38094), (574, 38070), (575, 38067), (586, 38022), (597, 37962), (598, 37959), (602, 37944), (610, 37914), (614, 37884), (618, 37866), (631, 37830), (654, 37761), (659, 37746), (667, 37719), (684, 37665), (687, 37650), (708, 37611), (728, 37560), (742, 37530),

Gene: Penelope2018\_88 Start: 61186, Stop: 64128, Start Num: 40

Candidate Starts for Penelope2018\_88:

(Start: 40 @61186 has 31 MA's), (73, 61369), (109, 61579), (115, 61624), (144, 61777), (163, 61864), (170, 61897), (174, 61918), (178, 61933), (192, 61981), (215, 62074), (221, 62110), (224, 62119), (245, 62194), (248, 62206), (261, 62257), (263, 62266), (302, 62410), (329, 62533), (334, 62557), (347, 62593), (357, 62629), (385, 62683), (387, 62689), (397, 62731), (410, 62767), (426, 62833), (467, 62950), (469, 62959), (478, 63001), (484, 63019), (506, 63097), (522, 63160), (525, 63181), (538, 63247), (555, 63328), (575, 63403), (582, 63433), (586, 63448), (592, 63478), (604, 63532), (614, 63586), (617, 63601), (618, 63604), (619, 63607), (632, 63646), (635, 63655), (649, 63685), (656, 63715), (670, 63760), (683, 63802), (688, 63826), (695, 63841), (712, 63880), (726, 63922), (731, 63931), (754, 63979), (809, 64105), (810, 64111),

Gene: PeteyPab\_40 Start: 38011, Stop: 35468, Start Num: 52

Candidate Starts for PeteyPab\_40:

(32, 38068), (51, 38014), (Start: 52 @38011 has 8 MA's), (64, 37930), (65, 37921), (67, 37900), (76, 37834), (86, 37810), (96, 37768), (101, 37747), (108, 37690), (118, 37609), (119, 37606), (128, 37564), (153, 37492), (191, 37327), (192, 37315), (207, 37252), (214, 37225), (226, 37162), (269, 37012), (286, 36982), (326, 36904), (366, 36790), (381, 36766), (414, 36712), (434, 36655), (437, 36646), (459, 36586), (465, 36574), (476, 36520), (490, 36475), (492, 36460), (495, 36451), (501, 36427), (503, 36418), (507, 36406), (536, 36274), (540, 36262), (547, 36217), (556, 36184), (569, 36133), (572, 36121), (574, 36109), (656, 35791), (673, 35737), (717, 35614), (722, 35602), (740, 35560), (766, 35500),

Gene: Phalaborwa\_90 Start: 61757, Stop: 64696, Start Num: 40

Candidate Starts for Phalaborwa\_90:

(14, 61634), (28, 61718), (Start: 29 @61724 has 1 MA's), (Start: 40 @61757 has 31 MA's), (73, 61940), (78, 61985), (109, 62150), (115, 62195), (144, 62348), (145, 62351), (158, 62411), (163, 62435), (170, 62468), (174, 62489), (178, 62504), (180, 62513), (192, 62552), (221, 62681), (245, 62765), (248, 62777), (263, 62837), (302, 62981), (329, 63104), (334, 63128), (347, 63164), (385, 63254), (387, 63260), (410, 63338), (469, 63524), (478, 63566), (484, 63584), (493, 63617), (506, 63662), (522, 63725), (525, 63746), (530, 63770), (537, 63809), (538, 63812), (555, 63893), (575, 63968), (582, 63998), (586, 64013), (614, 64151), (617, 64166), (618, 64169), (619, 64172), (632, 64211), (635, 64220), (649, 64250), (656, 64280), (670, 64325), (683, 64367), (695, 64406), (712, 64445), (721, 64472), (726, 64487), (731, 64496), (734, 64502), (754, 64544), (779, 64601), (807, 64667), (810, 64676),

Gene: Phomeo\_51 Start: 42774, Stop: 40225, Start Num: 44

Candidate Starts for Phomeo\_51:

(Start: 44 @42774 has 42 MA's), (62, 42702), (76, 42594), (105, 42468), (139, 42270), (152, 42243), (167, 42180), (175, 42147), (192, 42093), (201, 42054), (206, 42033), (207, 42030), (239, 41889), (293, 41739), (299, 41727), (326, 41658), (356, 41568), (383, 41520), (400, 41493), (411, 41478), (421, 41451), (452, 41361), (454, 41355), (457, 41346), (488, 41238), (529, 41076), (547, 40980), (567, 40902), (569, 40893), (575, 40866), (592, 40791), (602, 40743), (610, 40713), (618, 40665), (646, 40593), (649, 40584), (666, 40524), (667, 40518), (669, 40512), (687, 40449), (730, 40356), (737, 40338), (742, 40329), (759, 40293), (772, 40260),

Gene: Phreeze\_91 Start: 64168, Stop: 67110, Start Num: 36

Candidate Starts for Phreeze\_91:

(23, 64126), (Start: 29 @64147 has 1 MA's), (Start: 36 @64168 has 2 MA's), (Start: 38 @64174 has 15 MA's), (54, 64228), (60, 64264), (76, 64399), (102, 64537), (150, 64798), (163, 64864), (170, 64894), (184, 64954), (190, 64984), (192, 65011), (230, 65176), (255, 65263), (265, 65296), (268, 65317), (271, 65323), (276, 65350), (287, 65380), (292, 65398), (296, 65404), (311, 65494), (319, 65533), (415, 65803), (448, 65902), (480, 66007), (482, 66013), (487, 66028), (505, 66097), (513, 66121), (521, 66142), (528, 66187), (539, 66238), (544, 66274), (554, 66313), (574, 66385), (575, 66388), (576, 66391), (586, 66433), (596, 66493), (598, 66499), (599, 66508), (610, 66544), (618, 66592), (623, 66607), (641, 66652), (649, 66676), (689, 66811), (716, 66874), (739, 66925), (754, 66949), (767, 66985), (797, 67051),

Gene: Pleakley\_60 Start: 42280, Stop: 39746, Start Num: 44

Candidate Starts for Pleakley\_60:

(Start: 44 @42280 has 42 MA's), (62, 42205), (76, 42097), (89, 42046), (151, 41758), (167, 41686), (192, 41599), (201, 41560), (206, 41539), (207, 41536), (215, 41506), (224, 41461), (229, 41437), (243, 41386), (286, 41263), (326, 41167), (383, 41029), (404, 40996), (421, 40960), (452, 40870), (493, 40729), (529, 40588), (534, 40570), (557, 40453), (567, 40414), (574, 40381), (586, 40333), (597, 40273), (602, 40255), (610, 40225), (618, 40177), (627, 40156), (636, 40135), (649, 40096), (659, 40057), (666, 40036), (730, 39868), (737, 39850), (742, 39841), (757, 39811), (766, 39787),

Gene: Polygyki\_53 Start: 40124, Stop: 37524, Start Num: 49

Candidate Starts for Polygyki\_53:

(Start: 49 @40124 has 6 MA's), (67, 40007), (76, 39944), (78, 39935), (82, 39917), (116, 39731), (117, 39719), (118, 39713), (177, 39470), (192, 39425), (196, 39407), (206, 39365), (208, 39359), (212, 39341), (214, 39335), (244, 39203), (304, 39056), (311, 39041), (313, 39038), (321, 38999), (338, 38957), (341, 38948), (349, 38924), (428, 38759), (454, 38684), (459, 38672), (477, 38603), (493, 38552), (513, 38486), (529, 38411), (537, 38369), (549, 38309), (556, 38282), (569, 38228), (572, 38216), (574, 38204), (586, 38156), (597, 38096), (598, 38093), (602, 38078), (627, 37979), (649, 37919), (700, 37751), (749, 37634), (761, 37610), (774, 37580), (776, 37577), (783, 37565), (790, 37547),

Gene: PotatoChip\_41 Start: 38013, Stop: 35470, Start Num: 52

Candidate Starts for PotatoChip\_41:

(32, 38070), (51, 38016), (Start: 52 @38013 has 8 MA's), (64, 37932), (65, 37923), (67, 37902), (76, 37836), (86, 37812), (96, 37770), (101, 37749), (108, 37692), (118, 37611), (119, 37608), (128, 37566), (153, 37494), (191, 37329), (192, 37317), (207, 37254), (214, 37227), (226, 37164), (269, 37014), (286, 36984), (326, 36906), (366, 36792), (381, 36768), (414, 36714), (434, 36657), (437, 36648), (459, 36588), (465, 36576), (476, 36522), (490, 36477), (492, 36462), (495, 36453), (501, 36429), (503, 36420), (507, 36408), (536, 36276), (540, 36264), (547, 36219), (556, 36186), (569, 36135), (572, 36123), (574, 36111), (656, 35793), (673, 35739), (717, 35616), (722, 35604), (740, 35562), (766, 35502),

Gene: Prager\_88 Start: 61094, Stop: 64036, Start Num: 40

Candidate Starts for Prager\_88:

(Start: 40 @61094 has 31 MA's), (73, 61277), (109, 61487), (115, 61532), (144, 61685), (163, 61772), (170, 61805), (171, 61811), (174, 61826), (178, 61841), (192, 61889), (221, 62018), (224, 62027), (245, 62102), (248, 62114), (261, 62165), (263, 62174), (302, 62318), (329, 62441), (334, 62465), (347, 62501), (357, 62537), (385, 62591), (387, 62597), (397, 62639), (410, 62675), (426, 62741), (467, 62858), (469, 62867), (478, 62909), (484, 62927), (495, 62966), (506, 63005), (522, 63068), (525, 63089), (538, 63155), (555, 63236), (575, 63311), (582, 63341), (586, 63356), (592, 63386), (604, 63440), (614, 63494), (617, 63509), (618, 63512), (619, 63515), (632, 63554), (635, 63563), (649, 63593), (656, 63623), (670, 63668), (683, 63710), (688, 63734), (695, 63749), (712, 63788), (726, 63830), (731, 63839), (754, 63887), (809, 64013), (810, 64019),

Gene: Predator\_92 Start: 66439, Stop: 69402, Start Num: 29

Candidate Starts for Predator\_92:

(28, 66433), (Start: 29 @66439 has 1 MA's), (61, 66562), (69, 66637), (112, 66913), (116, 66931), (158, 67126), (163, 67150), (170, 67180), (172, 67192), (185, 67243), (192, 67297), (241, 67492), (262, 67576), (265, 67582), (268, 67603), (276, 67636), (284, 67654), (287, 67666), (292, 67684), (296, 67690), (298, 67699), (311, 67762), (319, 67801), (346, 67885), (415, 68071), (448, 68170), (472, 68245), (478, 68269), (505, 68365), (513, 68389), (523, 68422), (544, 68542), (551, 68566), (554, 68581), (557, 68593), (568, 68626), (569, 68629), (574, 68653), (579, 68671), (586, 68701), (596, 68761), (598, 68767), (607, 68797), (625, 68878), (627, 68881), (636, 68914), (641, 68920), (645, 68929), (646, 68935), (650, 68947), (663, 68995), (689, 69079), (739, 69196), (744, 69202), (767, 69256), (779, 69277), (808, 69349), (811, 69358), (816, 69385), (817, 69394),

Gene: Puissant\_90 Start: 65588, Stop: 68590, Start Num: 35

Candidate Starts for Puissant\_90:

(Start: 35 @65588 has 1 MA's), (Start: 36 @65591 has 2 MA's), (43, 65612), (70, 65771), (76, 65822), (112, 66095), (116, 66113), (136, 66224), (142, 66248), (150, 66266), (154, 66293), (162, 66329), (163, 66332), (170, 66362), (184, 66422), (192, 66479), (207, 66542), (221, 66608), (230, 66644), (265, 66764), (268, 66785), (271, 66791), (276, 66818), (280, 66824), (287, 66848), (292, 66866),

(296, 66872), (298, 66881), (311, 66965), (319, 67004), (415, 67274), (448, 67373), (482, 67484), (487, 67499), (505, 67568), (528, 67658), (530, 67664), (539, 67709), (544, 67745), (554, 67784), (557, 67796), (574, 67856), (575, 67859), (586, 67904), (591, 67934), (596, 67964), (599, 67979), (606, 67997), (607, 68000), (610, 68015), (616, 68057), (618, 68063), (639, 68120), (641, 68123), (646, 68138), (649, 68147), (684, 68264), (692, 68285), (724, 68360), (796, 68516), (801, 68528),

Gene: Pumpernickel\_101 Start: 72101, Stop: 69495, Start Num: 97

Candidate Starts for Pumpernickel\_101:

(88, 72155), (94, 72110), (Start: 97 @72101 has 5 MA's), (103, 72068), (126, 71864), (127, 71861), (156, 71726), (183, 71597), (197, 71525), (199, 71519), (204, 71498), (227, 71414), (234, 71387), (270, 71255), (289, 71213), (291, 71201), (300, 71171), (309, 71147), (320, 71096), (363, 70994), (365, 70991), (368, 70985), (372, 70979), (394, 70925), (427, 70805), (432, 70790), (439, 70769), (490, 70598), (491, 70592), (536, 70373), (537, 70370), (540, 70361), (543, 70331), (545, 70325), (548, 70313), (571, 70208), (574, 70193), (614, 70016), (657, 69881), (684, 69788), (688, 69770), (710, 69731), (725, 69683), (769, 69584), (775, 69572), (777, 69569), (800, 69518), (801, 69515),

Gene: Pywacket\_86 Start: 60316, Stop: 63018, Start Num: 39

Candidate Starts for Pywacket\_86:

(Start: 39 @60316 has 39 MA's), (123, 60793), (124, 60796), (151, 60877), (170, 60961), (189, 61021), (192, 61033), (197, 61057), (207, 61093), (251, 61267), (257, 61297), (280, 61348), (330, 61501), (342, 61534), (399, 61684), (419, 61723), (442, 61801), (447, 61813), (449, 61816), (460, 61843), (469, 61876), (477, 61915), (490, 61954), (499, 61990), (516, 62047), (517, 62053), (529, 62122), (530, 62125), (537, 62164), (538, 62167), (540, 62173), (543, 62203), (544, 62206), (549, 62224), (551, 62230), (569, 62296), (574, 62320), (583, 62356), (587, 62371), (601, 62443), (614, 62506), (628, 62545), (641, 62578), (653, 62617), (656, 62632), (661, 62650), (693, 62752), (713, 62797), (718, 62812), (744, 62860), (745, 62863), (758, 62890), (765, 62899), (770, 62911),

Gene: Ranch\_92 Start: 59829, Stop: 62600, Start Num: 39

Candidate Starts for Ranch\_92:

(Start: 39 @59829 has 39 MA's), (61, 59919), (111, 60237), (169, 60525), (170, 60531), (171, 60537), (181, 60576), (194, 60615), (200, 60636), (206, 60663), (213, 60690), (219, 60723), (231, 60765), (232, 60768), (241, 60798), (260, 60864), (267, 60885), (269, 60888), (280, 60915), (300, 60969), (319, 61038), (342, 61110), (361, 61170), (374, 61194), (391, 61227), (419, 61299), (471, 61467), (485, 61515), (486, 61518), (495, 61554), (519, 61635), (537, 61740), (544, 61782), (551, 61806), (554, 61821), (572, 61881), (575, 61896), (576, 61899), (583, 61929), (598, 62001), (619, 62100), (633, 62142), (648, 62175), (652, 62190), (661, 62226), (670, 62253), (675, 62268), (681, 62286), (686, 62307), (693, 62328), (746, 62451), (758, 62472), (783, 62508), (785, 62511),

Gene: RazorC\_86 Start: 58293, Stop: 61031, Start Num: 39

Candidate Starts for RazorC\_86:

(Start: 39 @58293 has 39 MA's), (76, 58521), (100, 58593), (151, 58848), (158, 58881), (163, 58905), (169, 58926), (174, 58953), (189, 58992), (192, 59004), (213, 59088), (214, 59091), (252, 59250), (280, 59346), (319, 59463), (342, 59532), (345, 59544), (398, 59673), (407, 59700), (408, 59703), (449, 59826), (467, 59874), (473, 59904), (474, 59910), (490, 59961), (495, 59985), (516, 60054), (517, 60060), (527, 60120), (529, 60129), (530, 60132), (533, 60144), (537, 60171), (543, 60210), (544, 60213), (546, 60222), (547, 60225), (549, 60231), (551, 60237), (583, 60369), (586, 60381), (589, 60396), (641, 60591), (652, 60627), (653, 60630), (693, 60765), (745, 60876), (747, 60882), (753, 60891), (795, 60981),

Gene: RedRaider\_60 Start: 45393, Stop: 42832, Start Num: 44

Candidate Starts for RedRaider\_60:

(5, 45618), (17, 45519), (24, 45459), (Start: 44 @45393 has 42 MA's), (56, 45366), (76, 45210), (159, 44805), (167, 44775), (177, 44730), (192, 44685), (201, 44646), (206, 44625), (207, 44622), (213,

44598), (224, 44547), (247, 44454), (258, 44409), (259, 44406), (286, 44349), (326, 44253), (422, 44043), (443, 43974), (452, 43956), (454, 43950), (457, 43941), (477, 43869), (523, 43716), (527, 43689), (534, 43662), (567, 43506), (574, 43473), (586, 43425), (596, 43368), (597, 43365), (598, 43362), (602, 43347), (610, 43317), (618, 43269), (627, 43248), (636, 43227), (649, 43188), (669, 43116), (677, 43098), (687, 43053), (710, 43011), (742, 42936), (759, 42900), (766, 42882), (788, 42849),

Gene: Riduram\_85 Start: 57891, Stop: 60662, Start Num: 39

Candidate Starts for Riduram\_85:

(Start: 39 @57891 has 39 MA's), (61, 57981), (111, 58299), (169, 58587), (170, 58593), (171, 58599), (181, 58638), (206, 58725), (213, 58752), (219, 58785), (231, 58827), (232, 58830), (241, 58860), (260, 58926), (267, 58947), (269, 58950), (280, 58977), (300, 59031), (319, 59100), (342, 59172), (361, 59232), (374, 59256), (391, 59289), (419, 59361), (471, 59529), (473, 59535), (485, 59577), (495, 59616), (519, 59697), (537, 59802), (544, 59844), (551, 59868), (554, 59883), (572, 59943), (575, 59958), (576, 59961), (583, 59991), (598, 60063), (605, 60090), (614, 60141), (619, 60162), (633, 60204), (648, 60237), (652, 60252), (670, 60315), (681, 60348), (693, 60390), (746, 60513), (758, 60534), (783, 60570), (785, 60573),

Gene: Riparian\_93 Start: 64880, Stop: 67633, Start Num: 38

Candidate Starts for Riparian\_93:

(Start: 38 @64880 has 15 MA's), (Start: 41 @64886 has 9 MA's), (55, 64937), (57, 64949), (61, 64973), (113, 65330), (114, 65342), (121, 65393), (124, 65411), (125, 65423), (129, 65438), (151, 65507), (159, 65549), (168, 65585), (170, 65594), (189, 65657), (192, 65669), (200, 65702), (213, 65756), (323, 66092), (341, 66137), (348, 66161), (349, 66164), (354, 66185), (357, 66194), (393, 66263), (418, 66335), (428, 66371), (435, 66383), (446, 66419), (457, 66446), (459, 66449), (463, 66458), (467, 66470), (472, 66497), (481, 66527), (485, 66542), (494, 66578), (499, 66593), (521, 66659), (535, 66740), (537, 66758), (541, 66767), (542, 66773), (546, 66806), (547, 66809), (575, 66911), (576, 66914), (577, 66917), (592, 66983), (598, 67016), (611, 67070), (613, 67079), (617, 67106), (644, 67175), (649, 67193), (652, 67205), (658, 67229), (659, 67232), (662, 67241), (666, 67250), (678, 67286), (688, 67328), (713, 67385), (736, 67439), (786, 67541), (812, 67616),

Gene: Roberts\_33 Start: 21717, Stop: 19513, Start Num: 149

Candidate Starts for Roberts\_33:

(Start: 149 @21717 has 11 MA's), (161, 21663), (303, 21114), (344, 20985), (350, 20970), (386, 20886), (413, 20802), (423, 20757), (429, 20739), (444, 20688), (452, 20667), (481, 20568), (504, 20478), (513, 20433), (528, 20358), (548, 20256), (562, 20208), (573, 20154), (588, 20088), (592, 20070), (615, 19968), (620, 19947), (653, 19854), (655, 19842), (674, 19788), (688, 19734), (710, 19695), (731, 19635), (737, 19620), (750, 19590),

Gene: Rope\_90 Start: 64692, Stop: 67439, Start Num: 41

Candidate Starts for Rope\_90:

(Start: 41 @64692 has 9 MA's), (55, 64743), (57, 64755), (61, 64779), (113, 65136), (114, 65148), (121, 65199), (124, 65217), (125, 65229), (129, 65244), (151, 65313), (159, 65355), (168, 65391), (170, 65400), (189, 65463), (192, 65475), (200, 65508), (213, 65562), (323, 65898), (341, 65943), (348, 65967), (349, 65970), (354, 65991), (357, 66000), (363, 66012), (384, 66048), (393, 66069), (428, 66177), (435, 66189), (446, 66225), (457, 66252), (459, 66255), (463, 66264), (467, 66276), (472, 66303), (481, 66333), (485, 66348), (494, 66384), (499, 66399), (521, 66465), (535, 66546), (537, 66564), (541, 66573), (542, 66579), (546, 66612), (547, 66615), (575, 66717), (576, 66720), (577, 66723), (592, 66789), (598, 66822), (611, 66876), (613, 66885), (617, 66912), (644, 66981), (649, 66999), (652, 67011), (659, 67038), (666, 67056), (678, 67092), (688, 67134), (713, 67191), (736, 67245), (786, 67347), (812, 67422),

Gene: Rota\_87 Start: 60255, Stop: 62960, Start Num: 39

Candidate Starts for Rota\_87:

(Start: 39 @60255 has 39 MA's), (61, 60345), (63, 60369), (111, 60663), (134, 60828), (169, 60951), (170, 60957), (171, 60963), (181, 61002), (194, 61041), (206, 61089), (213, 61116), (219, 61149), (231, 61191), (232, 61194), (241, 61224), (260, 61290), (267, 61311), (269, 61314), (280, 61341), (336, 61488), (428, 61695), (442, 61740), (453, 61764), (467, 61803), (478, 61854), (482, 61866), (494, 61911), (501, 61938), (502, 61941), (524, 62034), (533, 62076), (537, 62103), (552, 62178), (557, 62196), (563, 62205), (566, 62208), (574, 62259), (594, 62352), (618, 62463), (628, 62484), (650, 62544), (656, 62571), (693, 62691), (709, 62724), (758, 62832), (804, 62928), (805, 62931),

Gene: Rukungu\_89 Start: 60588, Stop: 63359, Start Num: 39

Candidate Starts for Rukungu\_89:

(Start: 39 @60588 has 39 MA's), (61, 60678), (111, 60996), (169, 61284), (170, 61290), (171, 61296), (181, 61335), (206, 61422), (213, 61449), (219, 61482), (231, 61524), (232, 61527), (241, 61557), (260, 61623), (267, 61644), (269, 61647), (280, 61674), (300, 61728), (319, 61797), (342, 61869), (361, 61929), (374, 61953), (391, 61986), (419, 62058), (471, 62226), (485, 62274), (486, 62277), (495, 62313), (519, 62394), (537, 62499), (544, 62541), (551, 62565), (554, 62580), (572, 62640), (575, 62655), (576, 62658), (583, 62688), (598, 62760), (619, 62859), (633, 62901), (648, 62934), (652, 62949), (661, 62985), (670, 63012), (675, 63027), (681, 63045), (686, 63066), (691, 63081), (693, 63087), (746, 63210), (758, 63231), (783, 63267), (785, 63270),

Gene: Rumi\_87 Start: 57838, Stop: 60543, Start Num: 39

Candidate Starts for Rumi\_87:

(Start: 39 @57838 has 39 MA's), (61, 57928), (111, 58246), (134, 58411), (169, 58534), (170, 58540), (171, 58546), (181, 58585), (194, 58624), (200, 58645), (206, 58672), (213, 58699), (219, 58732), (231, 58774), (241, 58807), (260, 58873), (267, 58894), (269, 58897), (280, 58924), (336, 59071), (391, 59203), (428, 59278), (442, 59323), (453, 59347), (467, 59386), (474, 59422), (478, 59437), (482, 59449), (494, 59494), (501, 59521), (502, 59524), (524, 59617), (533, 59659), (537, 59686), (552, 59761), (557, 59779), (563, 59788), (566, 59791), (574, 59842), (592, 59920), (594, 59935), (618, 60046), (628, 60067), (650, 60127), (656, 60154), (693, 60274), (709, 60307), (758, 60415), (768, 60427), (804, 60511), (805, 60514),

Gene: Sadboi\_88 Start: 60111, Stop: 62882, Start Num: 39

Candidate Starts for Sadboi\_88:

(Start: 39 @60111 has 39 MA's), (61, 60201), (111, 60519), (134, 60684), (169, 60807), (170, 60813), (171, 60819), (181, 60858), (194, 60897), (200, 60918), (206, 60945), (213, 60972), (219, 61005), (231, 61047), (232, 61050), (241, 61080), (260, 61146), (267, 61167), (269, 61170), (280, 61197), (300, 61251), (319, 61320), (342, 61392), (361, 61452), (374, 61476), (391, 61509), (419, 61581), (471, 61749), (485, 61797), (486, 61800), (495, 61836), (519, 61917), (537, 62022), (544, 62064), (551, 62088), (554, 62103), (572, 62163), (575, 62178), (576, 62181), (583, 62211), (598, 62283), (619, 62382), (633, 62424), (648, 62457), (652, 62472), (661, 62508), (670, 62535), (675, 62550), (681, 62568), (686, 62589), (693, 62610), (746, 62733), (758, 62754), (783, 62790), (785, 62793),

Gene: Sampudon\_90 Start: 61026, Stop: 63749, Start Num: 39

Candidate Starts for Sampudon\_90:

(Start: 39 @61026 has 39 MA's), (76, 61254), (100, 61326), (151, 61581), (154, 61599), (158, 61614), (163, 61638), (169, 61659), (174, 61686), (189, 61725), (192, 61737), (213, 61821), (214, 61824), (280, 62079), (325, 62214), (328, 62220), (396, 62400), (442, 62529), (480, 62649), (527, 62838), (529, 62847), (530, 62850), (533, 62862), (537, 62889), (543, 62928), (545, 62934), (548, 62946), (551, 62955), (557, 62982), (570, 63024), (583, 63081), (586, 63093), (611, 63210), (652, 63339), (678, 63426), (693, 63477), (745, 63588), (758, 63615), (770, 63636), (793, 63687),

Gene: Scuba\_61 Start: 42354, Stop: 39820, Start Num: 44

Candidate Starts for Scuba\_61:

(Start: 44 @42354 has 42 MA's), (62, 42279), (76, 42171), (89, 42120), (124, 41910), (151, 41832), (167, 41760), (192, 41673), (201, 41634), (206, 41613), (207, 41610), (215, 41580), (224, 41535), (229, 41511), (243, 41460), (286, 41337), (326, 41241), (373, 41118), (383, 41103), (404, 41070), (421, 41034), (452, 40944), (454, 40938), (493, 40803), (529, 40662), (534, 40644), (557, 40527), (567, 40488), (574, 40455), (586, 40407), (597, 40347), (602, 40329), (610, 40299), (618, 40251), (627, 40230), (636, 40209), (649, 40170), (659, 40131), (666, 40110), (686, 40044), (730, 39942), (737, 39924), (742, 39915), (757, 39885), (766, 39861),

Gene: Send513\_89 Start: 65266, Stop: 68013, Start Num: 41

Candidate Starts for Send513\_89:

(Start: 41 @65266 has 9 MA's), (55, 65317), (57, 65329), (61, 65353), (113, 65710), (114, 65722), (121, 65773), (124, 65791), (125, 65803), (129, 65818), (151, 65887), (159, 65929), (168, 65965), (170, 65974), (189, 66037), (192, 66049), (200, 66082), (213, 66136), (323, 66472), (341, 66517), (348, 66541), (349, 66544), (354, 66565), (357, 66574), (393, 66643), (418, 66715), (428, 66751), (435, 66763), (446, 66799), (457, 66826), (459, 66829), (463, 66838), (467, 66850), (472, 66877), (485, 66922), (494, 66958), (499, 66973), (521, 67039), (535, 67120), (537, 67138), (541, 67147), (542, 67153), (546, 67186), (547, 67189), (575, 67291), (576, 67294), (577, 67297), (592, 67363), (598, 67396), (611, 67450), (613, 67459), (617, 67486), (644, 67555), (649, 67573), (652, 67585), (658, 67609), (659, 67612), (666, 67630), (678, 67666), (688, 67708), (713, 67765), (736, 67819), (786, 67921), (812, 67996),

Gene: Sienna\_83 Start: 56989, Stop: 59850, Start Num: 40

Candidate Starts for Sienna\_83:

(Start: 40 @56989 has 31 MA's), (59, 57061), (76, 57208), (100, 57385), (123, 57544), (124, 57547), (130, 57583), (137, 57616), (155, 57679), (166, 57715), (201, 57838), (237, 57961), (249, 57997), (264, 58054), (272, 58081), (275, 58099), (283, 58126), (301, 58180), (392, 58474), (395, 58492), (404, 58513), (416, 58552), (417, 58567), (433, 58621), (436, 58630), (466, 58708), (474, 58750), (499, 58837), (500, 58840), (517, 58894), (530, 58966), (531, 58972), (544, 59047), (548, 59062), (574, 59158), (586, 59209), (592, 59239), (593, 59251), (604, 59293), (607, 59302), (613, 59335), (614, 59347), (624, 59380), (626, 59383), (641, 59425), (642, 59428), (653, 59464), (687, 59551), (699, 59575), (701, 59584), (764, 59716), (800, 59797), (809, 59821),

Gene: SirHarley\_90 Start: 61432, Stop: 64365, Start Num: 40

Candidate Starts for SirHarley\_90:

(Start: 40 @61432 has 31 MA's), (73, 61615), (109, 61825), (115, 61870), (144, 62023), (163, 62110), (170, 62143), (174, 62164), (178, 62179), (180, 62188), (192, 62227), (215, 62320), (221, 62356), (224, 62365), (245, 62440), (248, 62452), (261, 62503), (263, 62512), (302, 62656), (329, 62779), (334, 62803), (347, 62839), (357, 62875), (385, 62929), (387, 62935), (397, 62977), (410, 63013), (426, 63079), (467, 63187), (469, 63196), (478, 63238), (484, 63256), (492, 63286), (506, 63334), (522, 63397), (525, 63418), (538, 63484), (555, 63565), (575, 63640), (582, 63670), (586, 63685), (592, 63715), (604, 63769), (614, 63823), (617, 63838), (618, 63841), (619, 63844), (632, 63883), (635, 63892), (649, 63922), (656, 63952), (670, 63997), (683, 64039), (688, 64063), (695, 64078), (712, 64117), (726, 64159), (731, 64168), (754, 64216), (809, 64342), (810, 64348),

Gene: Skysand\_55 Start: 43591, Stop: 41030, Start Num: 44

Candidate Starts for Skysand\_55:

(24, 43657), (Start: 44 @43591 has 42 MA's), (56, 43564), (62, 43516), (76, 43408), (159, 43003), (167, 42973), (192, 42883), (201, 42844), (206, 42823), (207, 42820), (213, 42796), (224, 42745), (247, 42652), (258, 42607), (259, 42604), (286, 42547), (326, 42451), (373, 42328), (443, 42172), (452, 42154), (454, 42148), (457, 42139), (477, 42067), (527, 41887), (534, 41860), (567, 41704), (574, 41671), (586, 41623), (596, 41566), (597, 41563), (602, 41545), (610, 41515), (618, 41467), (627, 41446), (629, 41440), (636, 41425), (649, 41386), (677, 41296), (687, 41251), (707, 41215), (742, 41134), (759, 41098), (766, 41080),

Gene: StarStruck\_54 Start: 43113, Stop: 40543, Start Num: 44

Candidate Starts for StarStruck\_54:

(22, 43188), (24, 43179), (Start: 44 @43113 has 42 MA's), (76, 42933), (151, 42564), (153, 42549), (159, 42522), (192, 42405), (201, 42366), (207, 42342), (258, 42129), (293, 42054), (294, 42051), (325, 41976), (326, 41973), (356, 41883), (371, 41853), (383, 41835), (427, 41748), (428, 41745), (436, 41721), (452, 41676), (454, 41670), (457, 41661), (477, 41589), (489, 41550), (507, 41484), (534, 41373), (557, 41256), (561, 41247), (567, 41217), (569, 41208), (575, 41181), (586, 41136), (592, 41106), (596, 41079), (597, 41076), (598, 41073), (602, 41058), (610, 41028), (618, 40980), (646, 40908), (649, 40899), (659, 40860), (666, 40839), (669, 40827), (687, 40764), (702, 40734), (710, 40722), (742, 40644), (749, 40626),

Gene: Stickynote\_40 Start: 37433, Stop: 34890, Start Num: 52

Candidate Starts for Stickynote\_40:

(25, 37514), (32, 37490), (51, 37436), (Start: 52 @37433 has 8 MA's), (67, 37322), (76, 37256), (86, 37232), (96, 37190), (101, 37169), (108, 37112), (118, 37031), (119, 37028), (128, 36986), (153, 36914), (191, 36749), (192, 36737), (207, 36674), (214, 36647), (226, 36584), (269, 36434), (286, 36404), (326, 36326), (366, 36212), (381, 36188), (414, 36134), (434, 36077), (437, 36068), (459, 36008), (465, 35996), (476, 35942), (490, 35897), (492, 35882), (495, 35873), (501, 35849), (503, 35840), (507, 35828), (536, 35696), (540, 35684), (547, 35639), (556, 35606), (569, 35555), (572, 35543), (574, 35531), (583, 35495), (656, 35213), (673, 35159), (705, 35072), (717, 35036), (722, 35024), (740, 34982), (766, 34922),

Gene: Stormer\_89 Start: 57952, Stop: 60723, Start Num: 39

Candidate Starts for Stormer\_89:

(Start: 39 @57952 has 39 MA's), (61, 58042), (111, 58360), (169, 58648), (170, 58654), (171, 58660), (181, 58699), (194, 58738), (206, 58786), (213, 58813), (219, 58846), (231, 58888), (232, 58891), (241, 58921), (260, 58987), (267, 59008), (269, 59011), (280, 59038), (300, 59092), (319, 59161), (342, 59233), (361, 59293), (374, 59317), (391, 59350), (419, 59422), (471, 59590), (473, 59596), (485, 59638), (495, 59677), (519, 59758), (537, 59863), (544, 59905), (551, 59929), (554, 59944), (572, 60004), (575, 60019), (576, 60022), (583, 60052), (598, 60124), (614, 60202), (619, 60223), (633, 60265), (648, 60298), (652, 60313), (661, 60349), (670, 60376), (672, 60382), (675, 60391), (681, 60409), (686, 60430), (691, 60445), (693, 60451), (746, 60574), (758, 60595), (783, 60631),

Gene: Studio\_35 Start: 23029, Stop: 20882, Start Num: 161

Candidate Starts for Studio\_35:

(132, 23152), (Start: 149 @23083 has 11 MA's), (161, 23029), (244, 22669), (344, 22354), (350, 22339), (413, 22171), (429, 22108), (469, 21988), (481, 21937), (507, 21838), (528, 21727), (548, 21625), (562, 21577), (573, 21523), (588, 21457), (592, 21439), (615, 21337), (655, 21211), (674, 21157), (688, 21103), (710, 21064), (731, 21004), (737, 20989), (750, 20959),

Gene: Sukkupi\_53 Start: 41555, Stop: 39003, Start Num: 44

Candidate Starts for Sukkupi\_53:

(31, 41600), (Start: 44 @41555 has 42 MA's), (62, 41477), (74, 41396), (76, 41366), (81, 41342), (89, 41315), (192, 40868), (201, 40829), (206, 40808), (207, 40805), (293, 40514), (304, 40499), (326, 40433), (452, 40136), (454, 40130), (457, 40121), (477, 40049), (527, 39860), (529, 39851), (547, 39755), (555, 39725), (557, 39716), (567, 39677), (569, 39668), (574, 39644), (575, 39641), (586, 39596), (597, 39536), (598, 39533), (602, 39518), (610, 39488), (614, 39458), (618, 39440), (631, 39404), (654, 39335), (659, 39320), (667, 39293), (684, 39239), (687, 39224), (708, 39185), (728, 39134), (742, 39104),

Gene: SuperSonics\_114 Start: 65955, Stop: 68648, Start Num: 46

Candidate Starts for SuperSonics\_114:

(Start: 42 @65940 has 3 MA's), (46, 65955), (48, 65958), (61, 66021), (62, 66033), (142, 66486), (150, 66501), (153, 66525), (163, 66567), (164, 66573), (170, 66597), (192, 66678), (198, 66705), (225, 66825), (235, 66864), (251, 66918), (271, 66990), (285, 67020), (288, 67026), (305, 67068), (312, 67083), (316, 67092), (330, 67143), (340, 67173), (348, 67200), (383, 67278), (420, 67386), (440, 67434), (467, 67506), (473, 67536), (478, 67557), (487, 67587), (492, 67611), (509, 67662), (525, 67710), (530, 67734), (533, 67746), (544, 67815), (618, 68133), (636, 68181), (645, 68196), (647, 68205), (649, 68211), (650, 68214), (656, 68241), (660, 68253), (663, 68262), (678, 68304), (684, 68328), (693, 68355), (712, 68397), (714, 68403), (743, 68466), (751, 68481), (756, 68490), (798, 68589), (814, 68640),

Gene: SuperSulley\_54 Start: 43281, Stop: 40711, Start Num: 44

Candidate Starts for SuperSulley\_54:

(Start: 44 @43281 has 42 MA's), (76, 43101), (126, 42819), (151, 42732), (153, 42717), (159, 42690), (192, 42573), (201, 42534), (207, 42510), (258, 42297), (293, 42222), (294, 42219), (325, 42144), (326, 42141), (356, 42051), (383, 42003), (409, 41964), (427, 41916), (436, 41889), (452, 41844), (454, 41838), (477, 41757), (489, 41718), (507, 41652), (534, 41541), (557, 41424), (561, 41415), (567, 41385), (569, 41376), (575, 41349), (586, 41304), (592, 41274), (596, 41247), (597, 41244), (598, 41241), (602, 41226), (610, 41196), (618, 41148), (631, 41112), (646, 41076), (649, 41067), (659, 41028), (666, 41007), (669, 40995), (687, 40932), (702, 40902), (742, 40812), (749, 40794),

Gene: SuperheroCarly\_87 Start: 61163, Stop: 64114, Start Num: 40

Candidate Starts for SuperheroCarly\_87:

(Start: 40 @61163 has 31 MA's), (73, 61346), (109, 61556), (115, 61601), (144, 61754), (163, 61841), (170, 61874), (174, 61895), (178, 61910), (180, 61919), (192, 61958), (221, 62087), (224, 62096), (245, 62171), (248, 62183), (261, 62234), (263, 62243), (302, 62387), (329, 62510), (334, 62534), (347, 62570), (357, 62606), (385, 62660), (387, 62666), (397, 62708), (410, 62744), (426, 62810), (467, 62936), (469, 62945), (478, 62987), (484, 63005), (506, 63083), (522, 63146), (525, 63167), (538, 63233), (555, 63314), (575, 63389), (582, 63419), (586, 63434), (592, 63464), (604, 63518), (614, 63572), (617, 63587), (618, 63590), (619, 63593), (632, 63632), (635, 63641), (649, 63671), (656, 63701), (670, 63746), (683, 63788), (688, 63812), (695, 63827), (712, 63866), (726, 63908), (731, 63917), (754, 63965), (809, 64091), (810, 64097),

Gene: Suzy\_81 Start: 57365, Stop: 60250, Start Num: 40

Candidate Starts for Suzy\_81:

(Start: 40 @57365 has 31 MA's), (59, 57437), (76, 57584), (123, 57917), (124, 57920), (130, 57956), (137, 57989), (157, 58064), (170, 58124), (201, 58241), (237, 58364), (249, 58400), (264, 58457), (272, 58484), (275, 58502), (283, 58529), (301, 58583), (395, 58895), (416, 58955), (417, 58970), (433, 59024), (466, 59111), (468, 59123), (474, 59153), (499, 59240), (500, 59243), (517, 59297), (530, 59369), (531, 59375), (544, 59450), (548, 59465), (551, 59474), (574, 59561), (586, 59612), (592, 59642), (593, 59654), (604, 59696), (607, 59705), (613, 59738), (614, 59750), (624, 59783), (626, 59786), (641, 59828), (653, 59867), (676, 59921), (687, 59954), (699, 59978), (701, 59987), (737, 60059), (740, 60065), (764, 60119), (792, 60182), (800, 60200), (809, 60224),

Gene: TMaxx\_34 Start: 22370, Stop: 20184, Start Num: 149

Candidate Starts for TMaxx\_34:

(Start: 149 @22370 has 11 MA's), (216, 22055), (243, 21962), (255, 21911), (344, 21644), (436, 21389), (440, 21377), (444, 21359), (451, 21341), (481, 21239), (507, 21140), (517, 21095), (528, 21029), (548, 20927), (562, 20879), (592, 20741), (615, 20639), (627, 20603), (641, 20564), (655, 20513), (674, 20459), (688, 20405), (710, 20366), (731, 20306), (737, 20291), (750, 20261),

Gene: Terapin\_84 Start: 56925, Stop: 59786, Start Num: 40

Candidate Starts for Terapin\_84:

(Start: 40 @56925 has 31 MA's), (59, 56997), (76, 57144), (100, 57321), (123, 57480), (124, 57483), (130, 57519), (137, 57552), (155, 57615), (166, 57651), (201, 57774), (237, 57897), (249, 57933), (264, 57990), (272, 58017), (275, 58035), (283, 58062), (301, 58116), (392, 58410), (395, 58428), (404, 58449), (416, 58488), (417, 58503), (433, 58557), (436, 58566), (466, 58644), (474, 58686), (499, 58773), (500, 58776), (517, 58830), (530, 58902), (531, 58908), (544, 58983), (548, 58998), (574, 59094), (586, 59145), (592, 59175), (593, 59187), (604, 59229), (607, 59238), (613, 59271), (614, 59283), (624, 59316), (626, 59319), (641, 59361), (642, 59364), (653, 59400), (687, 59487), (699, 59511), (701, 59520), (764, 59652), (800, 59733), (809, 59757),

Gene: Thoth\_88 Start: 61237, Stop: 64179, Start Num: 40

Candidate Starts for Thoth\_88:

(Start: 40 @61237 has 31 MA's), (73, 61420), (109, 61630), (115, 61675), (144, 61828), (163, 61915), (170, 61948), (174, 61969), (178, 61984), (192, 62032), (221, 62161), (224, 62170), (245, 62245), (248, 62257), (261, 62308), (263, 62317), (302, 62461), (329, 62584), (347, 62644), (357, 62680), (385, 62734), (387, 62740), (397, 62782), (410, 62818), (426, 62884), (467, 63001), (469, 63010), (478, 63052), (484, 63070), (492, 63100), (506, 63148), (522, 63211), (525, 63232), (538, 63298), (555, 63379), (575, 63454), (582, 63484), (586, 63499), (592, 63529), (604, 63583), (614, 63637), (617, 63652), (618, 63655), (619, 63658), (632, 63697), (635, 63706), (649, 63736), (656, 63766), (661, 63784), (670, 63811), (683, 63853), (688, 63877), (695, 63892), (712, 63931), (726, 63973), (731, 63982), (754, 64030), (809, 64156), (810, 64162),

Gene: Thumb\_93 Start: 64678, Stop: 67614, Start Num: 38

Candidate Starts for Thumb\_93:

(9, 64540), (11, 64564), (12, 64570), (15, 64588), (20, 64606), (22, 64624), (Start: 29 @64651 has 1 MA's), (Start: 36 @64672 has 2 MA's), (Start: 38 @64678 has 15 MA's), (54, 64732), (60, 64768), (76, 64903), (102, 65041), (150, 65302), (163, 65368), (170, 65398), (184, 65458), (190, 65488), (192, 65515), (230, 65680), (255, 65767), (265, 65800), (268, 65821), (271, 65827), (276, 65854), (287, 65884), (292, 65902), (296, 65908), (311, 65998), (319, 66037), (415, 66307), (448, 66406), (480, 66511), (482, 66517), (487, 66532), (505, 66601), (513, 66625), (521, 66646), (528, 66691), (530, 66697), (539, 66742), (544, 66778), (554, 66817), (574, 66889), (575, 66892), (576, 66895), (586, 66937), (596, 66997), (598, 67003), (599, 67012), (610, 67048), (618, 67096), (623, 67111), (641, 67156), (649, 67180), (689, 67315), (716, 67378), (739, 67429), (754, 67453), (767, 67489), (797, 67555),

Gene: Tillicus\_82 Start: 59535, Stop: 62240, Start Num: 39

Candidate Starts for Tillicus\_82:

(Start: 39 @59535 has 39 MA's), (61, 59625), (79, 59772), (118, 60021), (119, 60024), (169, 60231), (170, 60237), (171, 60243), (175, 60261), (181, 60282), (194, 60321), (200, 60342), (206, 60369), (231, 60471), (232, 60474), (241, 60504), (260, 60570), (267, 60591), (269, 60594), (280, 60621), (336, 60768), (391, 60900), (428, 60975), (442, 61020), (453, 61044), (467, 61083), (478, 61134), (482, 61146), (494, 61191), (501, 61218), (502, 61221), (524, 61314), (533, 61356), (537, 61383), (557, 61476), (563, 61485), (566, 61488), (574, 61539), (594, 61632), (618, 61743), (628, 61764), (650, 61824), (656, 61851), (680, 61923), (693, 61971), (709, 62004), (758, 62112), (804, 62208), (805, 62211),

Gene: Tracker\_52 Start: 41920, Stop: 39374, Start Num: 44

Candidate Starts for Tracker\_52:

(Start: 44 @41920 has 42 MA's), (62, 41848), (76, 41740), (139, 41419), (167, 41329), (175, 41296), (192, 41242), (201, 41203), (206, 41182), (207, 41179), (224, 41104), (239, 41038), (293, 40888), (299, 40876), (326, 40807), (356, 40717), (383, 40669), (400, 40642), (421, 40600), (452, 40510), (454, 40504), (457, 40495), (488, 40387), (529, 40225), (547, 40129), (567, 40051), (569, 40042), (575, 40015), (586, 39970), (592, 39940), (602, 39892), (610, 39862), (618, 39814), (646, 39742), (649, 39733), (666, 39673), (667, 39667), (669, 39661), (687, 39598), (730, 39505), (737, 39487),

(742, 39478), (759, 39442), (772, 39409),

Gene: TripleC\_34 Start: 24714, Stop: 22528, Start Num: 149

Candidate Starts for TripleC\_34:

(Start: 149 @24714 has 11 MA's), (216, 24399), (217, 24396), (240, 24315), (243, 24306), (250, 24279), (255, 24255), (270, 24198), (334, 24009), (337, 24003), (344, 23988), (438, 23727), (444, 23703), (481, 23583), (507, 23484), (513, 23448), (528, 23373), (548, 23271), (562, 23223), (587, 23112), (588, 23103), (592, 23085), (615, 22983), (627, 22947), (634, 22920), (641, 22908), (655, 22857), (665, 22830), (674, 22803), (688, 22749), (710, 22710), (731, 22650), (737, 22635), (750, 22605), (753, 22602),

Gene: Troll4\_88 Start: 61244, Stop: 64192, Start Num: 40

Candidate Starts for Troll4\_88:

(Start: 40 @61244 has 31 MA's), (73, 61427), (109, 61637), (115, 61682), (144, 61835), (163, 61922), (170, 61955), (174, 61976), (178, 61991), (180, 62000), (192, 62039), (221, 62168), (224, 62177), (245, 62252), (248, 62264), (261, 62315), (263, 62324), (302, 62468), (329, 62591), (347, 62651), (357, 62687), (385, 62741), (387, 62747), (397, 62789), (410, 62825), (426, 62891), (467, 63014), (469, 63023), (478, 63065), (484, 63083), (492, 63113), (506, 63161), (522, 63224), (538, 63311), (555, 63392), (575, 63467), (582, 63497), (586, 63512), (592, 63542), (604, 63596), (614, 63650), (617, 63665), (618, 63668), (619, 63671), (632, 63710), (635, 63719), (649, 63749), (656, 63779), (661, 63797), (670, 63824), (683, 63866), (688, 63890), (695, 63905), (712, 63944), (726, 63986), (731, 63995), (754, 64043), (809, 64169), (810, 64175),

Gene: Turuncu\_57 Start: 43522, Stop: 40961, Start Num: 44

Candidate Starts for Turuncu\_57:

(17, 43648), (24, 43588), (Start: 44 @43522 has 42 MA's), (76, 43339), (78, 43330), (111, 43156), (125, 43066), (130, 43042), (159, 42937), (192, 42817), (201, 42778), (206, 42757), (207, 42754), (224, 42679), (286, 42481), (326, 42385), (421, 42178), (443, 42106), (452, 42088), (454, 42082), (457, 42073), (477, 42001), (527, 41821), (534, 41794), (567, 41638), (575, 41602), (586, 41557), (592, 41527), (596, 41500), (597, 41497), (602, 41479), (610, 41449), (616, 41407), (618, 41401), (636, 41359), (642, 41341), (669, 41248), (677, 41230), (684, 41200), (687, 41185), (742, 41068), (766, 41014),

Gene: Visconti\_89 Start: 61201, Stop: 64143, Start Num: 40

Candidate Starts for Visconti\_89:

(Start: 40 @61201 has 31 MA's), (73, 61384), (109, 61594), (115, 61639), (144, 61792), (163, 61879), (170, 61912), (174, 61933), (178, 61948), (192, 61996), (215, 62089), (221, 62125), (224, 62134), (245, 62209), (248, 62221), (261, 62272), (263, 62281), (302, 62425), (329, 62548), (334, 62572), (347, 62608), (357, 62644), (385, 62698), (387, 62704), (397, 62746), (410, 62782), (426, 62848), (467, 62965), (469, 62974), (478, 63016), (484, 63034), (506, 63112), (522, 63175), (525, 63196), (538, 63262), (555, 63343), (575, 63418), (582, 63448), (586, 63463), (592, 63493), (604, 63547), (614, 63601), (617, 63616), (618, 63619), (619, 63622), (632, 63661), (635, 63670), (649, 63700), (656, 63730), (661, 63748), (670, 63775), (683, 63817), (688, 63841), (695, 63856), (712, 63895), (726, 63937), (731, 63946), (754, 63994), (809, 64120), (810, 64126),

Gene: WaldoWhy\_89 Start: 61161, Stop: 64103, Start Num: 40

Candidate Starts for WaldoWhy\_89:

(Start: 40 @61161 has 31 MA's), (73, 61344), (109, 61554), (115, 61599), (144, 61752), (163, 61839), (170, 61872), (174, 61893), (178, 61908), (192, 61956), (215, 62049), (221, 62085), (224, 62094), (245, 62169), (248, 62181), (261, 62232), (263, 62241), (302, 62385), (329, 62508), (334, 62532), (347, 62568), (357, 62604), (385, 62658), (387, 62664), (397, 62706), (410, 62742), (426, 62808), (467, 62925), (469, 62934), (484, 62994), (495, 63033), (506, 63072), (522, 63135), (525, 63156), (538, 63222), (555, 63303), (575, 63378), (582, 63408), (586, 63423), (592, 63453), (604, 63507),

(614, 63561), (617, 63576), (618, 63579), (619, 63582), (632, 63621), (635, 63630), (649, 63660), (656, 63690), (670, 63735), (683, 63777), (688, 63801), (695, 63816), (712, 63855), (726, 63897), (731, 63906), (754, 63954), (809, 64080), (810, 64086),

Gene: Weiss13\_91 Start: 65123, Stop: 67870, Start Num: 41

Candidate Starts for Weiss13\_91:

(Start: 38 @65117 has 15 MA's), (Start: 41 @65123 has 9 MA's), (55, 65174), (57, 65186), (61, 65210), (113, 65567), (114, 65579), (121, 65630), (124, 65648), (125, 65660), (129, 65675), (151, 65744), (159, 65786), (168, 65822), (170, 65831), (189, 65894), (192, 65906), (200, 65939), (213, 65993), (323, 66329), (341, 66374), (348, 66398), (349, 66401), (354, 66422), (357, 66431), (393, 66500), (418, 66572), (428, 66608), (435, 66620), (446, 66656), (457, 66683), (459, 66686), (463, 66695), (467, 66707), (472, 66734), (481, 66764), (485, 66779), (494, 66815), (499, 66830), (521, 66896), (535, 66977), (537, 66995), (541, 67004), (542, 67010), (546, 67043), (547, 67046), (575, 67148), (576, 67151), (577, 67154), (592, 67220), (598, 67253), (611, 67307), (613, 67316), (617, 67343), (644, 67412), (649, 67430), (652, 67442), (658, 67466), (659, 67469), (662, 67478), (666, 67487), (678, 67523), (688, 67565), (713, 67622), (736, 67676), (786, 67778), (812, 67853),

Gene: Wheezy\_52 Start: 42128, Stop: 39579, Start Num: 44

Candidate Starts for Wheezy\_52:

(Start: 44 @42128 has 42 MA's), (62, 42056), (76, 41948), (105, 41822), (139, 41624), (152, 41597), (167, 41534), (175, 41501), (192, 41447), (201, 41408), (206, 41387), (207, 41384), (239, 41243), (293, 41093), (299, 41081), (326, 41012), (356, 40922), (383, 40874), (400, 40847), (421, 40805), (452, 40715), (454, 40709), (457, 40700), (488, 40592), (529, 40430), (547, 40334), (567, 40256), (569, 40247), (575, 40220), (592, 40145), (602, 40097), (610, 40067), (618, 40019), (646, 39947), (649, 39938), (666, 39878), (667, 39872), (669, 39866), (687, 39803), (730, 39710), (737, 39692), (742, 39683), (759, 39647), (772, 39614),

Gene: WhoseManz\_53 Start: 39612, Stop: 37063, Start Num: 44

Candidate Starts for WhoseManz\_53:

(Start: 44 @39612 has 42 MA's), (62, 39534), (76, 39426), (81, 39402), (104, 39309), (192, 38928), (201, 38889), (229, 38766), (293, 38574), (304, 38559), (326, 38493), (452, 38196), (454, 38190), (477, 38109), (527, 37920), (529, 37911), (557, 37776), (567, 37737), (574, 37704), (575, 37701), (586, 37656), (597, 37596), (598, 37593), (602, 37578), (610, 37548), (617, 37503), (618, 37500), (631, 37464), (654, 37395), (659, 37380), (666, 37359), (684, 37299), (687, 37284), (708, 37245), (728, 37194), (742, 37164),

Gene: Wojtek\_81 Start: 60132, Stop: 62855, Start Num: 39

Candidate Starts for Wojtek\_81:

(Start: 39 @60132 has 39 MA's), (76, 60360), (100, 60432), (151, 60687), (158, 60720), (163, 60744), (169, 60765), (174, 60792), (189, 60831), (192, 60843), (213, 60927), (214, 60930), (280, 61185), (325, 61320), (328, 61326), (396, 61506), (442, 61635), (480, 61755), (519, 61890), (527, 61944), (529, 61953), (530, 61956), (533, 61968), (537, 61995), (543, 62034), (545, 62040), (548, 62052), (551, 62061), (557, 62088), (570, 62130), (583, 62187), (586, 62199), (611, 62316), (652, 62445), (678, 62532), (693, 62583), (745, 62694), (758, 62721), (770, 62742), (793, 62793),

Gene: Xenia2\_91 Start: 60492, Stop: 63191, Start Num: 39

Candidate Starts for Xenia2\_91:

(Start: 39 @60492 has 39 MA's), (76, 60723), (100, 60795), (107, 60828), (151, 61050), (163, 61107), (169, 61128), (170, 61134), (174, 61155), (189, 61194), (192, 61206), (200, 61239), (214, 61293), (219, 61329), (229, 61371), (280, 61548), (330, 61677), (339, 61704), (352, 61752), (362, 61779), (374, 61797), (390, 61830), (427, 61878), (447, 61938), (469, 62001), (474, 62028), (493, 62097), (494, 62100), (495, 62103), (532, 62268), (537, 62298), (544, 62340), (548, 62355), (551, 62364), (569, 62430), (570, 62433), (572, 62442), (580, 62472), (597, 62565), (599, 62577), (614, 62643),

(628, 62685), (633, 62709), (637, 62721), (640, 62730), (648, 62754), (656, 62787), (668, 62829), (681, 62865), (691, 62901), (745, 63030), (758, 63057), (778, 63093), (794, 63135), (809, 63168),

Gene: Yelo\_88 Start: 65158, Stop: 67905, Start Num: 41

Candidate Starts for Yelo\_88:

(Start: 41 @65158 has 9 MA's), (55, 65209), (57, 65221), (61, 65245), (100, 65497), (113, 65602), (114, 65614), (124, 65683), (125, 65695), (129, 65710), (151, 65779), (159, 65821), (168, 65857), (170, 65866), (189, 65929), (192, 65941), (200, 65974), (213, 66028), (323, 66364), (341, 66409), (348, 66433), (349, 66436), (354, 66457), (357, 66466), (393, 66535), (418, 66607), (428, 66643), (435, 66655), (446, 66691), (457, 66718), (459, 66721), (463, 66730), (467, 66742), (472, 66769), (481, 66799), (485, 66814), (494, 66850), (499, 66865), (521, 66931), (535, 67012), (537, 67030), (541, 67039), (542, 67045), (546, 67078), (547, 67081), (575, 67183), (576, 67186), (577, 67189), (592, 67255), (598, 67288), (611, 67342), (613, 67351), (617, 67378), (644, 67447), (649, 67465), (652, 67477), (659, 67504), (666, 67522), (678, 67558), (688, 67600), (713, 67657), (736, 67711), (786, 67813), (812, 67888),

Gene: Yikes\_89 Start: 60657, Stop: 63332, Start Num: 39

Candidate Starts for Yikes\_89:

(Start: 39 @60657 has 39 MA's), (123, 61134), (124, 61137), (151, 61218), (170, 61302), (189, 61362), (192, 61374), (197, 61398), (207, 61434), (251, 61608), (257, 61638), (280, 61689), (330, 61818), (339, 61845), (374, 61938), (390, 61971), (399, 61974), (403, 61980), (427, 62019), (438, 62052), (462, 62115), (469, 62142), (474, 62169), (493, 62238), (494, 62241), (499, 62256), (516, 62322), (521, 62349), (537, 62439), (544, 62481), (548, 62496), (555, 62523), (569, 62571), (574, 62595), (580, 62613), (586, 62643), (597, 62706), (614, 62784), (618, 62802), (628, 62826), (633, 62850), (637, 62862), (652, 62910), (656, 62928), (681, 63006), (693, 63048), (745, 63171), (758, 63198), (794, 63276),

Gene: Yndexa\_53 Start: 41555, Stop: 39003, Start Num: 44

Candidate Starts for Yndexa\_53:

(31, 41600), (Start: 44 @41555 has 42 MA's), (62, 41477), (74, 41396), (76, 41366), (81, 41342), (89, 41315), (192, 40868), (201, 40829), (206, 40808), (207, 40805), (293, 40514), (304, 40499), (326, 40433), (452, 40136), (454, 40130), (457, 40121), (477, 40049), (527, 39860), (529, 39851), (547, 39755), (555, 39725), (557, 39716), (567, 39677), (569, 39668), (574, 39644), (575, 39641), (586, 39596), (597, 39536), (598, 39533), (602, 39518), (610, 39488), (614, 39458), (618, 39440), (631, 39404), (654, 39335), (659, 39320), (667, 39293), (684, 39239), (687, 39224), (708, 39185), (728, 39134), (742, 39104),

Gene: Zany\_87 Start: 60891, Stop: 63566, Start Num: 39

Candidate Starts for Zany\_87:

(Start: 39 @60891 has 39 MA's), (123, 61368), (124, 61371), (151, 61452), (170, 61536), (189, 61596), (192, 61608), (197, 61632), (207, 61668), (251, 61842), (257, 61872), (280, 61923), (330, 62052), (339, 62079), (374, 62172), (390, 62205), (399, 62208), (403, 62214), (427, 62253), (438, 62286), (462, 62349), (469, 62376), (474, 62403), (493, 62472), (494, 62475), (499, 62490), (516, 62556), (521, 62583), (537, 62673), (544, 62715), (548, 62730), (555, 62757), (569, 62805), (574, 62829), (580, 62847), (586, 62877), (597, 62940), (614, 63018), (618, 63036), (628, 63060), (633, 63084), (637, 63096), (652, 63144), (656, 63162), (681, 63240), (693, 63282), (745, 63405), (758, 63432), (794, 63510),

Gene: Zenon\_93 Start: 65443, Stop: 68196, Start Num: 38

Candidate Starts for Zenon\_93:

(Start: 38 @65443 has 15 MA's), (Start: 41 @65449 has 9 MA's), (55, 65500), (57, 65512), (61, 65536), (100, 65788), (113, 65893), (121, 65956), (124, 65974), (125, 65986), (129, 66001), (151, 66070), (159, 66112), (168, 66148), (170, 66157), (189, 66220), (192, 66232), (200, 66265), (213, 66319),

(323, 66655), (341, 66700), (348, 66724), (349, 66727), (354, 66748), (357, 66757), (393, 66826), (411, 66877), (418, 66898), (428, 66934), (435, 66946), (446, 66982), (457, 67009), (459, 67012), (463, 67021), (467, 67033), (472, 67060), (485, 67105), (494, 67141), (499, 67156), (521, 67222), (535, 67303), (537, 67321), (541, 67330), (542, 67336), (546, 67369), (547, 67372), (575, 67474), (576, 67477), (577, 67480), (592, 67546), (598, 67579), (611, 67633), (613, 67642), (617, 67669), (644, 67738), (649, 67756), (652, 67768), (666, 67813), (678, 67849), (688, 67891), (713, 67948), (736, 68002), (786, 68104), (812, 68179),

Gene: Zion\_41 Start: 38011, Stop: 35468, Start Num: 52

Candidate Starts for Zion\_41:

(32, 38068), (51, 38014), (Start: 52 @38011 has 8 MA's), (64, 37930), (65, 37921), (67, 37900), (76, 37834), (86, 37810), (96, 37768), (101, 37747), (108, 37690), (118, 37609), (119, 37606), (128, 37564), (153, 37492), (191, 37327), (192, 37315), (207, 37252), (214, 37225), (226, 37162), (269, 37012), (286, 36982), (326, 36904), (366, 36790), (381, 36766), (414, 36712), (434, 36655), (437, 36646), (459, 36586), (465, 36574), (476, 36520), (490, 36475), (492, 36460), (495, 36451), (501, 36427), (503, 36418), (507, 36406), (536, 36274), (540, 36262), (547, 36217), (556, 36184), (569, 36133), (572, 36121), (574, 36109), (656, 35791), (673, 35737), (717, 35614), (722, 35602), (740, 35560), (766, 35500),

Gene: Zooman\_88 Start: 68194, Stop: 65549, Start Num: 97

Candidate Starts for Zooman\_88:

(94, 68200), (95, 68197), (Start: 97 @68194 has 5 MA's), (110, 68095), (127, 67951), (128, 67945), (133, 67924), (156, 67816), (171, 67735), (182, 67693), (197, 67624), (199, 67618), (204, 67597), (205, 67594), (234, 67462), (244, 67432), (250, 67411), (256, 67384), (263, 67357), (266, 67339), (270, 67330), (289, 67288), (291, 67276), (341, 67117), (360, 67051), (368, 67033), (394, 66973), (401, 66943), (445, 66793), (479, 66682), (491, 66640), (494, 66625), (536, 66421), (537, 66418), (571, 66256), (574, 66241), (583, 66205), (587, 66190), (614, 66064), (636, 65992), (683, 65842), (684, 65836), (688, 65818), (725, 65731), (758, 65659), (762, 65644),