







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 171267 Report

This analysis was run 07/10/24 on database version 566.

Pham number 171267 has 140 members, 17 are drafts.

Phages represented in each track:

- Track 1 : AikoCarson\_15
- Track 2 : Agatha\_16
- Track 3 : Nodigi\_18
- Track 4 : Cozz\_16
- Track 5 : Quasar\_16
- Track 6 : Elliott\_16, PsychoKiller\_16
- Track 7 : SteamedHams\_18
- Track 8 : Feastonyeet\_15, BigChungus\_15
- Track 9 : Amok\_15
- Track 10 : Mayweather\_17
- Track 11 : GiKK\_19
- Track 12 : Vine\_17
- Track 13 : SweatNTears\_18
- Track 14 : Nina\_17
- Track 15 : Orla\_18
- Track 16 : CherryonLim\_17
- Track 17 : Lauer\_15
- Track 18 : Buttrmilkdreams\_16
- Track 19 : Yummy\_17, Horseradish\_17
- Track 20 : Tolls\_18
- Track 21 : Button\_17
- Track 22 : PotPie\_16
- Track 23 : SheckWes\_15
- Track 24 : Jamzy\_19
- Track 25 : KayGee\_15
- Track 26 : Biskit\_17, SketchMex\_15
- Track 27 : Survivors\_18
- Track 28 : GoldHunter\_17
- Track 29 : SummitAcademy\_15
- Track 30 : Hexbug\_18
- Track 31 : Dre3\_16, Gibbous\_16
- Track 32 : MunkgeeRoachy\_17
- Track 33 : HippoPololi\_18
- Track 34 : MAnor\_16
- Track 35 : Cleo\_16
- Track 36 : Nibbles\_18
- Track 37 : BillDoor\_18

- Track 38 : Sopespian\_16
- Track 39 : Troje\_16
- Track 40 : RedBaron\_17
- Track 41 : AndPeggy\_15, Yarn\_15
- Track 42 : Elinal\_17
- Track 43 : Pons\_16
- Track 44 : Typhonomachy\_17
- Track 45 : Zareef\_20
- Track 46 : Axym\_16
- Track 47 : MaVan\_18
- Track 48 : MScarn\_18
- Track 49 : Emalyn\_15
- Track 50 : GTE2\_14
- Track 51 : Margaret\_19
- Track 52 : Burnsey\_16
- Track 53 : Azira\_18
- Track 54 : Fribs8\_17
- Track 55 : PhrostedPhlake\_18
- Track 56 : Wocket\_18
- Track 57 : Malachai\_18, Begonia\_18
- Track 58 : Murp\_17
- Track 59 : MintFen\_17, Melba\_17, BlingBling\_17, Barco\_17
- Track 60 : CaptainKirk2\_17, Delian\_17, UmaThurman\_17
- Track 61 : Pipp\_17
- Track 62 : Wisp\_16
- Track 63 : Mellie\_16
- Track 64 : Gambino\_19, Azula\_19, MissRona\_19, Blueberry\_19
- Track 65 : Frokostdame\_17
- Track 66 : Petra\_19
- Track 67 : CarolAnn\_17
- Track 68 : Guacamole\_17, JasperJr\_17
- Track 69 : ZiggyZoo\_16, Obliviate\_16
- Track 70 : Samba\_17
- Track 71 : PrincePatrick\_17
- Track 72 : Walrus\_18
- Track 73 : Blino\_17
- Track 74 : William\_17
- Track 75 : Archis\_18
- Track 76 : Hitter\_17
- Track 77 : Jalammah\_19
- Track 78 : KappaFarmDelta\_17
- Track 79 : JuJu\_17
- Track 80 : Lysidious\_18
- Track 81 : Utz\_17
- Track 82 : PCoral7\_17
- Track 83 : Zarbodnamra\_17
- Track 84 : Fairfaxidum\_17
- Track 85 : Fenry\_16
- Track 86 : Toast\_17
- Track 87 : Bowser\_17
- Track 88 : BackstagePass\_17
- Track 89 : Eyes\_17
- Track 90 : GEazy\_17, HannahD\_17

- Track 91 : BBQValindra\_17
- Track 92 : Kiko\_18
- Track 93 : TaronosaurusRx\_17
- Track 94 : Schnabeltier\_17, MagicMan\_17
- Track 95 : ZAYM\_17
- Track 96 : DirtyBoi\_18
- Track 97 : Opie\_17
- Track 98 : Bunker\_17
- Track 99 : Hedwig\_18
- Track 100 : Budski\_18
- Track 101 : Malisha\_19
- Track 102 : Periwinkle\_20
- Track 103 : Lutum\_18, Kenna\_17
- Track 104 : Whitney\_19
- Track 105 : CheeseTouch\_18
- Track 106 : Leroy\_18
- Track 107 : Horus\_18
- Track 108 : Getalong\_19
- Track 109 : BENtherdunthat\_18, Asapag\_18
- Track 110 : LitninMcQueen\_18, Phabuloso\_18
- Track 111 : Frickyeah\_18
- Track 112 : Kamaru\_18, Holliday\_18
- Track 113 : Phistory\_19
- Track 114 : Spooky\_18
- Track 115 : Squiddly\_20
- Track 116 : Whack\_16
- Track 117 : REQ2\_18

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

The start number called the most often in the published annotations is 9, it was called in 37 of the 123 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Archis\_18, Azula\_19, Barco\_17, Begonia\_18, BlingBling\_17, Blino\_17, Blueberry\_19, CaptainKirk2\_17, CarolAnn\_17, Delian\_17, Fairfaxidum\_17, Fenry\_16, Gambino\_19, Guacamole\_17, Hitter\_17, Jalammah\_19, JasperJr\_17, JuJu\_17, KappaFarmDelta\_17, Lysidious\_18, Malachai\_18, Melba\_17, Mellie\_16, MintFen\_17, MissRona\_19, Murp\_17, Obliviate\_16, PCoral7\_17, PhrostedPhlake\_18, PrincePatrick\_17, Samba\_17, UmaThurman\_17, Utz\_17, William\_17, Wocket\_18, Zarbodnamra\_17, ZiggyZoo\_16,

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

- Frokostdame\_17, Petra\_19, Pipp\_17, Toast\_17, Walrus\_18, Wisp\_16,

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

- Agatha\_16, AikoCarson\_15, Amok\_15, AndPeggy\_15, Asapag\_18, Axym\_16, Azira\_18, BBQValindra\_17, BENtherdunthat\_18, BackstagePass\_17, BigChungus\_15, BillDoor\_18, Biskit\_17, Bowser\_17, Budski\_18, Bunker\_17, Burnsey\_16, Button\_17, Buttrmikdreams\_16, CheeseTouch\_18, CherryonLim\_17,

Cleo\_16, Cozz\_16, DirtyBoi\_18, Dre3\_16, Elinal\_17, Elliott\_16, Emalyn\_15, Eyes\_17, Feastonyeet\_15, Fribs8\_17, Frickyeah\_18, GEazy\_17, GTE2\_14, Getalong\_19, GiKK\_19, Gibbous\_16, GoldHunter\_17, HannahD\_17, Hedwig\_18, Hexbug\_18, HippoPololi\_18, Holliday\_18, Horseradish\_17, Horus\_18, Jamzy\_19, Kamaru\_18, KayGee\_15, Kenna\_17, Kiko\_18, Lauer\_15, Leroy\_18, LitninMcQueen\_18, Lutum\_18, MAnor\_16, MScarn\_18, MaVan\_18, MagicMan\_17, Malisha\_19, Margaret\_19, Mayweather\_17, MunkgeeRoachy\_17, Nibbles\_18, Nina\_17, Nodigi\_18, Opie\_17, Orla\_18, Periwinkle\_20, Phabuloso\_18, Phistory\_19, Pons\_16, PotPie\_16, PsychoKiller\_16, Quasar\_16, REQ2\_18, RedBaron\_17, Schnabeltier\_17, SheckWes\_15, SketchMex\_15, Sopespian\_16, Spooky\_18, Squiddly\_20, SteamedHams\_18, SummitAcademy\_15, Survivors\_18, SweatNTears\_18, TaronosaurusRx\_17, Tolls\_18, Troje\_16, Typhonomachy\_17, Vine\_17, Whack\_16, Whitney\_19, Yarn\_15, Yummy\_17, ZAYM\_17, Zareef\_20,

### Summary by start number:

#### Start 1:

- Found in 2 of 140 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 123
- Called 100.0% of time when present
- Phage (with cluster) where this start called: REQ2\_18 (singleton), Whack\_16 (singleton),

#### Start 6:

- Found in 1 of 140 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 123
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Pipp\_17 (CV),

#### Start 7:

- Found in 5 of 140 ( 3.6% ) of genes in pham
- Manual Annotations of this start: 1 of 123
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Toast\_17 (CV),

#### Start 9:

- Found in 43 of 140 ( 30.7% ) of genes in pham
- Manual Annotations of this start: 37 of 123
- Called 86.0% of time when present
- Phage (with cluster) where this start called: Archis\_18 (CV), Azula\_19 (CV), Barco\_17 (CV), Begonia\_18 (CV), BlingBling\_17 (CV), Blino\_17 (CV), Blueberry\_19 (CV), CaptainKirk2\_17 (CV), CarolAnn\_17 (CV), Delian\_17 (CV), Fairfaxidum\_17 (CV), Fenry\_16 (CV), Gambino\_19 (CV), Guacamole\_17 (CV), Hitter\_17 (CV), Jalammah\_19 (CV), JasperJr\_17 (CV), JuJu\_17 (CV), KappaFarmDelta\_17 (CV), Lysidious\_18 (CV), Malachai\_18 (CV), Melba\_17 (CV), Mellie\_16 (CV), MintFen\_17 (CV), MissRona\_19 (CV), Murp\_17 (CV), Obliviate\_16 (CV), PCoral7\_17 (CV), PhrostedPhlake\_18 (CV), PrincePatrick\_17 (CV), Samba\_17 (CV), UmaThurman\_17 (CV), Utz\_17 (CV), William\_17 (CV), Wocket\_18 (CV), Zarbodnamra\_17 (CV), ZiggyZoo\_16 (CV),

#### Start 11:

- Found in 34 of 140 ( 24.3% ) of genes in pham
- Manual Annotations of this start: 1 of 123

- Called 2.9% of time when present
- Phage (with cluster) where this start called: Frokostdame\_17 (CV),

Start 12:

- Found in 36 of 140 ( 25.7% ) of genes in pham
- Manual Annotations of this start: 1 of 123
- Called 2.8% of time when present
- Phage (with cluster) where this start called: Walrus\_18 (CV),

Start 14:

- Found in 38 of 140 ( 27.1% ) of genes in pham
- Manual Annotations of this start: 1 of 123
- Called 5.3% of time when present
- Phage (with cluster) where this start called: Petra\_19 (CV), Wisp\_16 (CV),

Start 19:

- Found in 1 of 140 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 123
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Phistory\_19 (DN1),

Start 20:

- Found in 1 of 140 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 123
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Periwinkle\_20 (DN1),

Start 21:

- Found in 13 of 140 ( 9.3% ) of genes in pham
- Manual Annotations of this start: 10 of 123
- Called 76.9% of time when present
- Phage (with cluster) where this start called: Asapag\_18 (DN1), BENtherdunthat\_18 (DN1), CheeseTouch\_18 (DN1), Holliday\_18 (DN1), Kamaru\_18 (DN1), Kenna\_17 (DN1), Leroy\_18 (DN1), LitninMcQueen\_18 (DN1), Lutum\_18 (DN1), Phabuloso\_18 (DN1),

Start 22:

- Found in 27 of 140 ( 19.3% ) of genes in pham
- Manual Annotations of this start: 5 of 123
- Called 18.5% of time when present
- Phage (with cluster) where this start called: Getalong\_19 (DN1), Malisha\_19 (DN), Spooky\_18 (DN2), Squiddly\_20 (DN2), Whitney\_19 (DN1),

Start 24:

- Found in 16 of 140 ( 11.4% ) of genes in pham
- Manual Annotations of this start: 12 of 123
- Called 93.8% of time when present
- Phage (with cluster) where this start called: BBQValindra\_17 (DB), BackstagePass\_17 (DB), Bowser\_17 (DB), Bunker\_17 (DB), DirtyBoi\_18 (DB), Eyes\_17 (DB), GEazy\_17 (DB), HannahD\_17 (DB), Hedwig\_18 (DB), Kiko\_18 (DB), MagicMan\_17 (DB), Opie\_17 (DB), Schnabeltier\_17 (DB), TaronosaurusRx\_17 (DB), ZAYM\_17 (DB),



Start 27:

- Found in 46 of 140 ( 32.9% ) of genes in pham
- Manual Annotations of this start: 26 of 123
- Called 76.1% of time when present
- Phage (with cluster) where this start called: Agatha\_16 (CT), Axym\_16 (CT), Azira\_18 (CT), BigChungus\_15 (CT), Burnsey\_16 (CT), CherryonLim\_17 (CT), Cleo\_16 (CT), Cozz\_16 (CT), Dre3\_16 (CT), Elinal\_17 (CT), Elliott\_16 (CT), Feastonyeet\_15 (CT), Fribs8\_17 (CT), Gibbous\_16 (CT), GoldHunter\_17 (CT), HippoPololi\_18 (CT), Lauer\_15 (CT), MAnor\_16 (CT), MaVan\_18 (CT), Mayweather\_17 (CT), MunkgeeRoachy\_17 (CT), Nibbles\_18 (CT), Nina\_17 (CT), Pons\_16 (CT), PotPie\_16 (CT), PsychoKiller\_16 (CT), Quasar\_16 (CT), RedBaron\_17 (CT), SheckWes\_15 (CT), Sopespian\_16 (CT), SummitAcademy\_15 (CT), Survivors\_18 (CT), Typhonmochy\_17 (CT), Vine\_17 (CT), Zareef\_20 (CT),

Start 30:

- Found in 22 of 140 ( 15.7% ) of genes in pham
- Manual Annotations of this start: 1 of 123
- Called 9.1% of time when present
- Phage (with cluster) where this start called: Frickyeah\_18 (DN1), Horus\_18 (DN1),

Start 41:

- Found in 18 of 140 ( 12.9% ) of genes in pham
- Manual Annotations of this start: 1 of 123
- Called 5.6% of time when present
- Phage (with cluster) where this start called: Budski\_18 (DN),

Start 45:

- Found in 39 of 140 ( 27.9% ) of genes in pham
- No Manual Annotations of this start.
- Called 2.6% of time when present
- Phage (with cluster) where this start called: KayGee\_15 (CT),

Start 80:

- Found in 24 of 140 ( 17.1% ) of genes in pham
- Manual Annotations of this start: 22 of 123
- Called 91.7% of time when present
- Phage (with cluster) where this start called: AikoCarson\_15 (CT), Amok\_15 (CT), AndPeggy\_15 (CT), BillDoor\_18 (CT), Biskit\_17 (CT), Buttrmldreams\_16 (CT), Emalyn\_15 (CT), GiKK\_19 (CT), Hexbug\_18 (CT), Horseradish\_17 (CT), Jamzy\_19 (CT), MScarn\_18 (CT), Margaret\_19 (CT), Nodigi\_18 (CT), Orla\_18 (CT), SketchMex\_15 (CT), SteamedHams\_18 (CT), SweatNTears\_18 (CT), Tolls\_18 (CT), Troje\_16 (CT), Yarn\_15 (CT), Yummy\_17 (CT),

Start 85:

- Found in 23 of 140 ( 16.4% ) of genes in pham
- Manual Annotations of this start: 1 of 123
- Called 4.3% of time when present
- Phage (with cluster) where this start called: Button\_17 (CT),

Start 107:

- Found in 42 of 140 ( 30.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 2.4% of time when present

- Phage (with cluster) where this start called: GTE2\_14 (CT),

### **Summary by clusters:**

There are 7 clusters represented in this pham: DN, singleton, DB, DN1, DN2, CV, CT,

Info for manual annotations of cluster CT:

- Start number 27 was manually annotated 26 times for cluster CT.
- Start number 80 was manually annotated 22 times for cluster CT.
- Start number 85 was manually annotated 1 time for cluster CT.

Info for manual annotations of cluster CV:

- Start number 6 was manually annotated 1 time for cluster CV.
- Start number 7 was manually annotated 1 time for cluster CV.
- Start number 9 was manually annotated 37 times for cluster CV.
- Start number 11 was manually annotated 1 time for cluster CV.
- Start number 12 was manually annotated 1 time for cluster CV.
- Start number 14 was manually annotated 1 time for cluster CV.

Info for manual annotations of cluster DB:

- Start number 24 was manually annotated 12 times for cluster DB.

Info for manual annotations of cluster DN:

- Start number 22 was manually annotated 1 time for cluster DN.
- Start number 41 was manually annotated 1 time for cluster DN.

Info for manual annotations of cluster DN1:

- Start number 19 was manually annotated 1 time for cluster DN1.
- Start number 20 was manually annotated 1 time for cluster DN1.
- Start number 21 was manually annotated 10 times for cluster DN1.
- Start number 22 was manually annotated 2 times for cluster DN1.
- Start number 30 was manually annotated 1 time for cluster DN1.

Info for manual annotations of cluster DN2:

- Start number 22 was manually annotated 2 times for cluster DN2.

### **Gene Information:**

Gene: Agatha\_16 Start: 9629, Stop: 14767, Start Num: 27

Candidate Starts for Agatha\_16:

(Start: 22 @9605 has 5 MA's), (Start: 27 @9629 has 26 MA's), (31, 9656), (45, 9785), (48, 9860), (76, 10013), (77, 10016), (93, 10112), (96, 10121), (102, 10151), (104, 10157), (106, 10172), (107, 10175), (111, 10196), (123, 10268), (126, 10289), (136, 10355), (138, 10376), (153, 10493), (180, 10655), (187, 10694), (196, 10769), (212, 10928), (217, 10940), (221, 10967), (226, 11012), (228, 11024), (244, 11114), (247, 11132), (251, 11153), (254, 11183), (260, 11207), (263, 11219), (266, 11258), (270, 11291), (287, 11393), (288, 11396), (292, 11420), (303, 11513), (306, 11528), (310, 11567), (323, 11663), (332, 11705), (339, 11735), (340, 11738), (350, 11846), (351, 11849), (356, 11900), (370, 11975), (381, 12077), (389, 12122), (393, 12143), (394, 12146), (395, 12149), (411, 12224), (421, 12257), (425, 12278), (429, 12308), (437, 12356), (439, 12362), (443, 12389), (463, 12524), (478, 12641), (481, 12674), (483, 12695), (484, 12698), (498, 12764), (499, 12770), (501, 12785), (524, 12905), (526, 12914), (541, 12998), (606, 13319), (646, 13538), (653, 13574), (686, 13787),

(726, 13979), (738, 14027), (743, 14048), (758, 14156), (774, 14222), (777, 14240), (789, 14345), (796, 14375), (797, 14384), (803, 14414), (814, 14480), (818, 14528), (825, 14588), (838, 14675), (852, 14738),

Gene: AikoCarson\_15 Start: 9357, Stop: 14072, Start Num: 80

Candidate Starts for AikoCarson\_15:

(Start: 80 @9357 has 22 MA's), (Start: 85 @9384 has 1 MA's), (107, 9513), (122, 9600), (125, 9615), (129, 9660), (132, 9672), (136, 9690), (139, 9717), (150, 9789), (154, 9831), (156, 9846), (157, 9849), (163, 9873), (166, 9891), (169, 9909), (176, 9954), (178, 9963), (185, 9990), (189, 10023), (199, 10083), (203, 10122), (205, 10161), (207, 10176), (221, 10245), (225, 10272), (242, 10368), (245, 10386), (257, 10449), (285, 10617), (287, 10623), (301, 10737), (303, 10743), (306, 10758), (336, 10947), (340, 10968), (343, 10986), (344, 10995), (356, 11130), (370, 11205), (372, 11241), (377, 11280), (378, 11283), (381, 11307), (385, 11337), (389, 11352), (394, 11376), (405, 11415), (411, 11454), (413, 11460), (443, 11619), (477, 11868), (478, 11871), (481, 11904), (483, 11925), (498, 11994), (499, 12000), (513, 12099), (526, 12144), (541, 12231), (572, 12366), (606, 12558), (621, 12627), (626, 12651), (650, 12792), (683, 13005), (686, 13026), (695, 13083), (750, 13386), (755, 13443), (758, 13461), (774, 13527), (782, 13599), (789, 13650), (795, 13674), (796, 13680), (797, 13689), (803, 13719), (814, 13785), (818, 13833), (825, 13893), (839, 13983), (852, 14043),

Gene: Amok\_15 Start: 9357, Stop: 14069, Start Num: 80

Candidate Starts for Amok\_15:

(Start: 80 @9357 has 22 MA's), (Start: 85 @9384 has 1 MA's), (107, 9513), (122, 9600), (125, 9615), (129, 9660), (132, 9672), (136, 9690), (139, 9717), (150, 9789), (154, 9831), (156, 9846), (157, 9849), (163, 9873), (166, 9891), (169, 9909), (173, 9930), (176, 9954), (178, 9963), (185, 9990), (189, 10023), (190, 10032), (203, 10122), (205, 10161), (207, 10176), (221, 10245), (225, 10272), (242, 10368), (245, 10386), (257, 10449), (285, 10617), (287, 10623), (301, 10737), (303, 10743), (306, 10758), (336, 10947), (340, 10968), (343, 10986), (344, 10995), (356, 11130), (365, 11184), (370, 11205), (372, 11241), (377, 11280), (378, 11283), (381, 11307), (385, 11337), (389, 11352), (394, 11376), (405, 11415), (411, 11454), (413, 11460), (437, 11586), (442, 11616), (443, 11619), (445, 11637), (446, 11640), (477, 11868), (478, 11871), (481, 11904), (483, 11925), (498, 11994), (499, 12000), (541, 12231), (572, 12366), (606, 12558), (621, 12627), (626, 12651), (650, 12792), (683, 13005), (686, 13026), (695, 13080), (750, 13383), (755, 13440), (758, 13458), (774, 13524), (782, 13596), (789, 13647), (796, 13677), (797, 13686), (803, 13716), (814, 13782), (818, 13830), (825, 13890), (839, 13980), (852, 14040),

Gene: AndPeggy\_15 Start: 9645, Stop: 14432, Start Num: 80

Candidate Starts for AndPeggy\_15:

(Start: 80 @9645 has 22 MA's), (Start: 85 @9672 has 1 MA's), (98, 9750), (107, 9801), (122, 9888), (125, 9903), (132, 9960), (136, 9978), (139, 10005), (140, 10008), (150, 10077), (156, 10134), (166, 10179), (169, 10197), (176, 10242), (185, 10278), (189, 10311), (197, 10359), (198, 10362), (203, 10410), (205, 10449), (207, 10464), (242, 10656), (245, 10674), (261, 10758), (285, 10905), (291, 10932), (301, 11025), (303, 11031), (306, 11046), (310, 11085), (311, 11097), (320, 11163), (336, 11235), (339, 11253), (340, 11256), (344, 11283), (372, 11529), (381, 11595), (389, 11640), (393, 11661), (394, 11664), (395, 11667), (405, 11703), (411, 11742), (413, 11748), (421, 11775), (442, 11904), (443, 11907), (445, 11925), (464, 12048), (466, 12063), (481, 12192), (483, 12213), (492, 12255), (498, 12282), (499, 12288), (522, 12420), (526, 12432), (541, 12519), (550, 12561), (558, 12597), (588, 12723), (593, 12762), (615, 12891), (627, 12948), (633, 12990), (650, 13083), (660, 13158), (669, 13221), (683, 13302), (686, 13323), (714, 13500), (715, 13506), (747, 13725), (755, 13803), (758, 13821), (761, 13827), (774, 13887), (777, 13905), (780, 13938), (789, 14010), (797, 14049), (803, 14079), (814, 14145), (818, 14193), (825, 14253), (839, 14343), (852, 14403),

Gene: Archis\_18 Start: 10485, Stop: 16007, Start Num: 9

Candidate Starts for Archis\_18:

(Start: 9 @10485 has 37 MA's), (Start: 11 @10500 has 1 MA's), (Start: 12 @10506 has 1 MA's), (Start: 14 @10536 has 1 MA's), (15, 10545), (16, 10548), (18, 10590), (37, 10701), (39, 10722), (46, 10842), (53, 10884), (64, 10950), (67, 10968), (71, 10989), (72, 10992), (75, 11010), (81, 11034), (94, 11118), (96, 11124), (104, 11160), (106, 11175), (108, 11184), (135, 11352), (138, 11379), (153, 11496), (182, 11667), (187, 11697), (208, 11901), (217, 11946), (221, 11973), (222, 11985), (239, 12075), (244, 12120), (249, 12147), (253, 12177), (266, 12264), (267, 12267), (271, 12306), (284, 12390), (292, 12426), (296, 12468), (301, 12513), (303, 12519), (305, 12531), (306, 12534), (312, 12588), (316, 12627), (319, 12648), (320, 12651), (323, 12669), (324, 12678), (329, 12696), (334, 12717), (336, 12723), (340, 12744), (344, 12771), (349, 12849), (388, 13038), (396, 13062), (402, 13074), (403, 13077), (415, 13092), (420, 13107), (421, 13110), (429, 13161), (442, 13242), (443, 13245), (449, 13278), (452, 13308), (454, 13332), (502, 13665), (511, 13713), (515, 13758), (516, 13761), (519, 13776), (528, 13821), (529, 13830), (530, 13839), (540, 13890), (556, 13962), (560, 13980), (568, 14001), (580, 14100), (581, 14103), (589, 14136), (597, 14202), (599, 14220), (602, 14235), (609, 14268), (617, 14319), (629, 14370), (635, 14418), (664, 14613), (665, 14616), (675, 14688), (676, 14691), (685, 14757), (686, 14760), (688, 14778), (698, 14838), (704, 14895), (707, 14913), (718, 14994), (719, 14997), (722, 15012), (744, 15171), (754, 15225), (760, 15291), (772, 15345), (773, 15357), (774, 15363), (779, 15393), (789, 15486), (795, 15510), (799, 15528), (803, 15552), (804, 15558), (807, 15579), (814, 15618), (828, 15759), (842, 15822), (845, 15840), (855, 15897), (864, 15990),

Gene: Asapag\_18 Start: 9881, Stop: 15508, Start Num: 21

Candidate Starts for Asapag\_18:

(Start: 21 @9881 has 10 MA's), (Start: 30 @9926 has 1 MA's), (32, 9947), (36, 9968), (40, 10013), (Start: 41 @10028 has 1 MA's), (47, 10112), (55, 10154), (56, 10166), (67, 10229), (70, 10244), (72, 10253), (75, 10271), (76, 10277), (87, 10325), (111, 10460), (134, 10610), (138, 10640), (187, 10964), (200, 11060), (208, 11168), (216, 11210), (217, 11213), (218, 11219), (221, 11240), (233, 11321), (244, 11387), (249, 11414), (251, 11426), (253, 11444), (254, 11456), (260, 11480), (263, 11492), (266, 11531), (267, 11534), (268, 11543), (271, 11573), (289, 11678), (292, 11693), (295, 11723), (296, 11735), (301, 11780), (303, 11786), (306, 11801), (309, 11831), (311, 11852), (312, 11855), (320, 11918), (324, 11945), (325, 11948), (326, 11951), (327, 11957), (333, 11981), (334, 11984), (336, 11990), (338, 11996), (340, 12011), (343, 12029), (345, 12074), (354, 12158), (355, 12164), (359, 12191), (372, 12284), (373, 12293), (381, 12350), (382, 12362), (390, 12398), (391, 12404), (402, 12446), (405, 12458), (411, 12497), (413, 12503), (414, 12506), (419, 12524), (420, 12527), (421, 12530), (426, 12554), (437, 12629), (444, 12668), (448, 12692), (452, 12725), (462, 12836), (465, 12869), (470, 12932), (475, 12968), (479, 12998), (490, 13076), (491, 13079), (493, 13088), (497, 13112), (509, 13193), (511, 13199), (515, 13244), (516, 13247), (519, 13262), (528, 13307), (529, 13316), (530, 13325), (531, 13328), (552, 13433), (565, 13481), (566, 13484), (568, 13487), (580, 13586), (581, 13589), (587, 13601), (602, 13718), (609, 13751), (617, 13802), (625, 13832), (634, 13892), (647, 13973), (651, 13994), (654, 14027), (667, 14099), (668, 14108), (686, 14222), (690, 14252), (693, 14261), (699, 14300), (700, 14303), (703, 14333), (704, 14354), (731, 14552), (741, 14615), (742, 14621), (751, 14672), (778, 14858), (787, 14945), (792, 14972), (793, 14975), (808, 15050), (812, 15074), (817, 15113), (819, 15149), (824, 15170), (834, 15257), (841, 15299), (847, 15332), (849, 15344), (861, 15422), (865, 15488),

Gene: Axym\_16 Start: 9629, Stop: 14767, Start Num: 27

Candidate Starts for Axym\_16:

(Start: 22 @9605 has 5 MA's), (Start: 27 @9629 has 26 MA's), (31, 9656), (45, 9785), (48, 9860), (76, 10013), (77, 10016), (93, 10112), (96, 10121), (102, 10151), (104, 10157), (106, 10172), (107, 10175), (111, 10196), (123, 10268), (126, 10289), (136, 10355), (138, 10376), (153, 10493), (180, 10655), (187, 10694), (196, 10769), (212, 10928), (217, 10940), (221, 10967), (226, 11012), (228, 11024), (244, 11114), (247, 11132), (251, 11153), (254, 11183), (260, 11207), (263, 11219), (266, 11258), (270, 11291), (287, 11393), (288, 11396), (292, 11420), (303, 11513), (306, 11528), (310, 11567), (316, 11621), (323, 11663), (325, 11675), (332, 11705), (339, 11735), (340, 11738), (350, 11846),

(351, 11849), (356, 11900), (370, 11975), (379, 12065), (381, 12077), (389, 12122), (393, 12143), (394, 12146), (395, 12149), (411, 12224), (421, 12257), (425, 12278), (429, 12308), (437, 12356), (439, 12362), (443, 12389), (463, 12524), (478, 12641), (481, 12674), (483, 12695), (484, 12698), (498, 12764), (499, 12770), (501, 12785), (524, 12905), (526, 12914), (541, 12998), (606, 13319), (646, 13538), (653, 13574), (686, 13787), (726, 13979), (738, 14027), (743, 14048), (758, 14156), (774, 14222), (777, 14240), (783, 14300), (789, 14345), (796, 14375), (797, 14384), (803, 14414), (814, 14480), (818, 14528), (825, 14588), (838, 14675), (852, 14738),

Gene: Azira\_18 Start: 10619, Stop: 15748, Start Num: 27

Candidate Starts for Azira\_18:

(Start: 22 @10598 has 5 MA's), (Start: 27 @10619 has 26 MA's), (31, 10646), (45, 10775), (53, 10871), (61, 10922), (73, 10979), (78, 11012), (79, 11015), (93, 11102), (97, 11114), (106, 11162), (107, 11165), (108, 11171), (116, 11225), (118, 11231), (126, 11279), (136, 11345), (138, 11366), (196, 11759), (197, 11762), (205, 11864), (217, 11930), (218, 11936), (221, 11957), (253, 12161), (256, 12179), (258, 12185), (260, 12197), (263, 12209), (266, 12248), (268, 12260), (273, 12296), (280, 12353), (285, 12377), (287, 12383), (303, 12503), (306, 12518), (310, 12557), (319, 12632), (325, 12665), (329, 12680), (330, 12686), (331, 12692), (340, 12728), (350, 12836), (359, 12908), (369, 12962), (381, 13067), (389, 13112), (394, 13136), (408, 13196), (409, 13208), (411, 13214), (419, 13241), (420, 13244), (421, 13247), (435, 13340), (437, 13346), (445, 13397), (454, 13466), (460, 13499), (463, 13514), (464, 13520), (470, 13577), (472, 13589), (477, 13628), (478, 13631), (480, 13652), (481, 13664), (483, 13685), (484, 13688), (492, 13727), (495, 13739), (498, 13754), (524, 13895), (541, 13991), (555, 14057), (563, 14078), (567, 14084), (606, 14321), (614, 14351), (621, 14390), (644, 14525), (650, 14555), (653, 14576), (678, 14735), (683, 14768), (726, 14981), (734, 14999), (738, 15005), (758, 15134), (774, 15200), (780, 15251), (789, 15323), (797, 15362), (803, 15392), (809, 15425), (814, 15458), (823, 15530), (828, 15602), (838, 15656), (840, 15662), (852, 15719),

Gene: Azula\_19 Start: 10619, Stop: 16108, Start Num: 9

Candidate Starts for Azula\_19:

(Start: 9 @10619 has 37 MA's), (Start: 11 @10634 has 1 MA's), (Start: 12 @10640 has 1 MA's), (Start: 14 @10670 has 1 MA's), (15, 10679), (16, 10682), (18, 10724), (37, 10835), (39, 10856), (46, 10976), (53, 11018), (64, 11084), (67, 11102), (71, 11123), (72, 11126), (75, 11144), (81, 11168), (94, 11252), (104, 11294), (106, 11309), (108, 11318), (135, 11486), (138, 11513), (153, 11630), (182, 11801), (187, 11831), (208, 12035), (217, 12080), (221, 12107), (222, 12119), (224, 12131), (239, 12209), (244, 12254), (249, 12281), (253, 12311), (266, 12398), (267, 12401), (271, 12440), (280, 12503), (282, 12512), (292, 12560), (296, 12602), (301, 12647), (303, 12653), (306, 12668), (312, 12722), (316, 12761), (319, 12782), (320, 12785), (323, 12803), (329, 12830), (334, 12851), (336, 12857), (340, 12878), (343, 12896), (344, 12905), (384, 13178), (403, 13232), (420, 13262), (421, 13265), (429, 13316), (442, 13397), (443, 13400), (449, 13433), (452, 13463), (454, 13487), (465, 13553), (502, 13820), (511, 13868), (513, 13901), (515, 13913), (516, 13916), (528, 13976), (529, 13985), (530, 13994), (540, 14045), (556, 14117), (560, 14135), (568, 14156), (580, 14255), (581, 14258), (589, 14291), (597, 14357), (599, 14375), (602, 14390), (609, 14423), (617, 14474), (629, 14525), (639, 14594), (664, 14768), (665, 14771), (675, 14843), (676, 14846), (685, 14912), (686, 14915), (688, 14933), (698, 14993), (704, 15050), (707, 15068), (718, 15149), (719, 15152), (722, 15167), (744, 15338), (754, 15392), (769, 15464), (770, 15473), (776, 15509), (784, 15569), (786, 15587), (790, 15605), (802, 15650), (806, 15683), (822, 15794), (828, 15863), (842, 15926), (845, 15944), (864, 16094),

Gene: BBQValindra\_17 Start: 10583, Stop: 15709, Start Num: 24

Candidate Starts for BBQValindra\_17:

(Start: 24 @10583 has 12 MA's), (Start: 27 @10592 has 26 MA's), (56, 10865), (58, 10874), (62, 10904), (75, 10970), (105, 11126), (108, 11144), (131, 11297), (138, 11339), (150, 11426), (180, 11618), (197, 11735), (202, 11774), (208, 11858), (211, 11867), (212, 11891), (216, 11900), (218,

11909), (222, 11942), (224, 11954), (227, 11978), (237, 12023), (239, 12032), (243, 12068), (249, 12104), (251, 12116), (253, 12134), (260, 12170), (275, 12293), (282, 12335), (288, 12359), (301, 12470), (302, 12473), (303, 12476), (306, 12491), (312, 12545), (316, 12584), (331, 12665), (336, 12680), (340, 12701), (342, 12716), (344, 12728), (345, 12764), (348, 12800), (373, 12962), (404, 13019), (410, 13031), (411, 13034), (421, 13067), (422, 13073), (424, 13085), (435, 13160), (437, 13166), (439, 13172), (441, 13193), (442, 13196), (443, 13199), (452, 13262), (456, 13298), (459, 13313), (464, 13337), (466, 13352), (467, 13355), (474, 13415), (486, 13514), (494, 13556), (507, 13634), (517, 13703), (523, 13721), (542, 13829), (544, 13832), (546, 13838), (549, 13856), (550, 13859), (554, 13880), (561, 13898), (562, 13901), (566, 13910), (582, 14015), (589, 14045), (591, 14063), (592, 14069), (600, 14129), (613, 14189), (623, 14237), (630, 14267), (640, 14315), (643, 14327), (653, 14387), (661, 14444), (664, 14462), (671, 14507), (676, 14534), (679, 14552), (683, 14582), (684, 14591), (689, 14630), (691, 14636), (694, 14645), (716, 14804), (720, 14846), (751, 15038), (752, 15041), (757, 15098), (764, 15107), (767, 15119), (771, 15140), (805, 15353), (812, 15392), (823, 15461), (826, 15515), (857, 15668), (859, 15692),

Gene: BENtherdunthat\_18 Start: 9881, Stop: 15508, Start Num: 21

Candidate Starts for BENtherdunthat\_18:

(Start: 21 @9881 has 10 MA's), (Start: 30 @9926 has 1 MA's), (32, 9947), (36, 9968), (40, 10013), (Start: 41 @10028 has 1 MA's), (47, 10112), (55, 10154), (56, 10166), (67, 10229), (70, 10244), (72, 10253), (75, 10271), (76, 10277), (87, 10325), (111, 10460), (134, 10610), (138, 10640), (187, 10964), (200, 11060), (208, 11168), (216, 11210), (217, 11213), (218, 11219), (221, 11240), (233, 11321), (244, 11387), (249, 11414), (251, 11426), (253, 11444), (254, 11456), (260, 11480), (263, 11492), (266, 11531), (267, 11534), (268, 11543), (271, 11573), (289, 11678), (292, 11693), (295, 11723), (296, 11735), (301, 11780), (303, 11786), (306, 11801), (309, 11831), (311, 11852), (312, 11855), (320, 11918), (324, 11945), (325, 11948), (326, 11951), (327, 11957), (333, 11981), (334, 11984), (336, 11990), (338, 11996), (340, 12011), (343, 12029), (345, 12074), (354, 12158), (355, 12164), (359, 12191), (372, 12284), (373, 12293), (381, 12350), (382, 12362), (390, 12398), (391, 12404), (402, 12446), (405, 12458), (411, 12497), (413, 12503), (414, 12506), (419, 12524), (420, 12527), (421, 12530), (426, 12554), (437, 12629), (444, 12668), (448, 12692), (452, 12725), (462, 12836), (465, 12869), (470, 12932), (475, 12968), (479, 12998), (490, 13076), (491, 13079), (493, 13088), (497, 13112), (509, 13193), (511, 13199), (515, 13244), (516, 13247), (519, 13262), (528, 13307), (529, 13316), (530, 13325), (531, 13328), (552, 13433), (565, 13481), (566, 13484), (568, 13487), (580, 13586), (581, 13589), (587, 13601), (602, 13718), (609, 13751), (617, 13802), (625, 13832), (634, 13892), (647, 13973), (651, 13994), (654, 14027), (667, 14099), (668, 14108), (686, 14222), (690, 14252), (693, 14261), (699, 14300), (700, 14303), (703, 14333), (704, 14354), (731, 14552), (741, 14615), (742, 14621), (751, 14672), (778, 14858), (787, 14945), (792, 14972), (793, 14975), (808, 15050), (812, 15074), (817, 15113), (819, 15149), (824, 15170), (834, 15257), (841, 15299), (847, 15332), (849, 15344), (861, 15422), (865, 15488),

Gene: BackstagePass\_17 Start: 10561, Stop: 15849, Start Num: 24

Candidate Starts for BackstagePass\_17:

(Start: 24 @10561 has 12 MA's), (Start: 27 @10570 has 26 MA's), (56, 10843), (58, 10852), (62, 10882), (74, 10945), (77, 10957), (81, 10972), (86, 10999), (100, 11083), (105, 11104), (110, 11131), (112, 11143), (131, 11275), (138, 11317), (146, 11371), (150, 11404), (182, 11605), (192, 11683), (208, 11836), (212, 11869), (216, 11878), (218, 11887), (222, 11920), (224, 11932), (227, 11956), (237, 12001), (244, 12055), (248, 12079), (249, 12082), (251, 12094), (253, 12112), (260, 12148), (275, 12271), (282, 12313), (301, 12448), (303, 12454), (306, 12469), (315, 12559), (316, 12562), (320, 12586), (324, 12613), (332, 12646), (336, 12658), (340, 12679), (344, 12706), (348, 12778), (374, 12949), (375, 12952), (376, 12964), (378, 12973), (392, 13057), (405, 13102), (421, 13174), (424, 13192), (429, 13225), (431, 13237), (437, 13273), (443, 13306), (450, 13357), (456, 13405), (464, 13444), (466, 13459), (467, 13462), (468, 13468), (472, 13513), (486, 13621), (494, 13663), (507, 13741), (511, 13765), (517, 13810), (542, 13933), (544, 13936), (550, 13963), (554, 13984), (561, 14002), (562, 14005), (566, 14014), (582, 14119), (592, 14173), (632, 14398), (637, 14434),

(653, 14524), (656, 14566), (671, 14647), (676, 14674), (679, 14692), (684, 14731), (689, 14770), (691, 14776), (694, 14785), (716, 14944), (720, 14986), (751, 15178), (752, 15181), (764, 15247), (767, 15259), (771, 15280), (772, 15283), (805, 15493), (812, 15532), (823, 15601), (826, 15655), (857, 15808),

Gene: Barco\_17 Start: 10274, Stop: 15796, Start Num: 9

Candidate Starts for Barco\_17:

(Start: 9 @10274 has 37 MA's), (Start: 11 @10289 has 1 MA's), (Start: 12 @10295 has 1 MA's), (Start: 14 @10325 has 1 MA's), (15, 10334), (16, 10337), (18, 10379), (37, 10490), (39, 10511), (46, 10631), (53, 10673), (64, 10739), (67, 10757), (71, 10778), (72, 10781), (75, 10799), (81, 10823), (94, 10907), (95, 10910), (104, 10949), (106, 10964), (108, 10973), (135, 11141), (138, 11168), (153, 11285), (182, 11456), (187, 11486), (208, 11690), (217, 11735), (221, 11762), (222, 11774), (239, 11864), (244, 11909), (249, 11936), (253, 11966), (266, 12053), (267, 12056), (271, 12095), (284, 12179), (292, 12215), (296, 12257), (301, 12302), (303, 12308), (305, 12320), (306, 12323), (312, 12377), (316, 12416), (319, 12437), (320, 12440), (323, 12458), (324, 12467), (329, 12485), (334, 12506), (336, 12512), (340, 12533), (344, 12560), (349, 12638), (388, 12827), (396, 12851), (402, 12863), (403, 12866), (415, 12881), (420, 12896), (421, 12899), (429, 12950), (442, 13031), (443, 13034), (449, 13067), (452, 13097), (454, 13121), (502, 13454), (511, 13502), (515, 13547), (516, 13550), (519, 13565), (528, 13610), (529, 13619), (530, 13628), (540, 13679), (556, 13751), (560, 13769), (568, 13790), (580, 13889), (581, 13892), (589, 13925), (597, 13991), (599, 14009), (602, 14024), (609, 14057), (617, 14108), (629, 14159), (635, 14207), (664, 14402), (665, 14405), (675, 14477), (676, 14480), (685, 14546), (686, 14549), (688, 14567), (698, 14627), (704, 14684), (707, 14702), (718, 14783), (719, 14786), (722, 14801), (754, 15014), (760, 15080), (772, 15134), (773, 15146), (774, 15152), (789, 15275), (795, 15299), (799, 15317), (803, 15341), (804, 15347), (807, 15368), (814, 15407), (828, 15548), (831, 15560), (842, 15611), (845, 15629), (864, 15779),

Gene: Begonia\_18 Start: 10785, Stop: 16274, Start Num: 9

Candidate Starts for Begonia\_18:

(Start: 9 @10785 has 37 MA's), (13, 10824), (Start: 14 @10836 has 1 MA's), (15, 10845), (16, 10848), (18, 10890), (37, 11001), (39, 11022), (46, 11142), (53, 11184), (64, 11250), (67, 11268), (70, 11283), (71, 11289), (72, 11292), (75, 11310), (81, 11334), (94, 11418), (104, 11460), (106, 11475), (108, 11484), (135, 11652), (138, 11679), (148, 11754), (153, 11796), (161, 11844), (182, 11967), (187, 11997), (208, 12201), (217, 12246), (221, 12273), (222, 12285), (239, 12375), (244, 12420), (249, 12447), (253, 12477), (266, 12564), (271, 12606), (292, 12726), (296, 12768), (301, 12813), (303, 12819), (305, 12831), (306, 12834), (312, 12888), (316, 12927), (319, 12948), (320, 12951), (323, 12969), (329, 12996), (336, 13023), (340, 13044), (344, 13071), (348, 13143), (384, 13344), (388, 13359), (396, 13383), (403, 13398), (420, 13428), (421, 13431), (429, 13482), (442, 13563), (443, 13566), (449, 13599), (452, 13629), (454, 13653), (465, 13719), (502, 13986), (511, 14034), (515, 14079), (516, 14082), (519, 14097), (528, 14142), (529, 14151), (530, 14160), (540, 14211), (556, 14283), (560, 14301), (568, 14322), (580, 14421), (581, 14424), (589, 14457), (597, 14523), (599, 14541), (602, 14556), (609, 14589), (617, 14640), (629, 14691), (664, 14934), (665, 14937), (676, 15012), (685, 15078), (686, 15081), (688, 15099), (698, 15159), (718, 15315), (719, 15318), (722, 15333), (754, 15552), (766, 15609), (769, 15624), (776, 15672), (781, 15717), (805, 15837), (806, 15846), (813, 15885), (822, 15957), (828, 16026), (831, 16038), (842, 16089), (845, 16107), (855, 16164), (864, 16257),

Gene: BigChungus\_15 Start: 9403, Stop: 14511, Start Num: 27

Candidate Starts for BigChungus\_15:

(Start: 27 @9403 has 26 MA's), (45, 9559), (59, 9688), (63, 9718), (76, 9787), (79, 9799), (87, 9835), (93, 9886), (96, 9895), (104, 9931), (108, 9955), (118, 10015), (127, 10069), (131, 10108), (133, 10114), (136, 10129), (138, 10150), (162, 10321), (173, 10384), (180, 10429), (191, 10510), (208, 10669), (212, 10702), (217, 10714), (221, 10741), (228, 10798), (235, 10828), (238, 10840), (252, 10942), (253, 10945), (266, 11032), (273, 11080), (292, 11194), (303, 11287), (306, 11302), (308,

11323), (312, 11356), (314, 11386), (317, 11398), (323, 11437), (328, 11461), (329, 11464), (335, 11488), (340, 11512), (349, 11617), (362, 11695), (369, 11725), (370, 11728), (372, 11764), (378, 11806), (381, 11830), (383, 11845), (385, 11860), (389, 11875), (394, 11899), (405, 11938), (407, 11953), (408, 11959), (419, 12004), (421, 12010), (441, 12136), (447, 12166), (451, 12202), (452, 12205), (458, 12253), (462, 12274), (463, 12277), (471, 12349), (478, 12394), (481, 12427), (483, 12448), (495, 12502), (506, 12577), (526, 12661), (541, 12748), (606, 13066), (614, 13096), (638, 13234), (648, 13285), (653, 13315), (678, 13480), (683, 13510), (721, 13690), (727, 13741), (738, 13783), (743, 13804), (758, 13900), (770, 13948), (774, 13966), (789, 14089), (795, 14113), (797, 14128), (803, 14158), (807, 14185), (809, 14191), (814, 14224), (821, 14293), (823, 14296), (825, 14332), (839, 14422),

Gene: BillDoor\_18 Start: 9610, Stop: 14400, Start Num: 80

Candidate Starts for BillDoor\_18:

(Start: 80 @9610 has 22 MA's), (Start: 85 @9637 has 1 MA's), (98, 9715), (107, 9766), (122, 9853), (125, 9868), (132, 9925), (136, 9943), (139, 9970), (140, 9973), (150, 10042), (156, 10099), (166, 10144), (169, 10162), (176, 10207), (185, 10243), (189, 10276), (197, 10324), (198, 10327), (203, 10375), (205, 10414), (207, 10429), (242, 10621), (245, 10639), (261, 10723), (285, 10870), (291, 10897), (301, 10990), (303, 10996), (306, 11011), (310, 11050), (311, 11062), (320, 11128), (336, 11200), (339, 11218), (340, 11221), (344, 11248), (356, 11383), (370, 11458), (372, 11494), (381, 11560), (389, 11605), (393, 11626), (394, 11629), (395, 11632), (405, 11668), (411, 11707), (413, 11713), (421, 11740), (442, 11869), (443, 11872), (445, 11890), (464, 12013), (466, 12028), (481, 12157), (483, 12178), (492, 12220), (498, 12247), (499, 12253), (522, 12385), (526, 12397), (541, 12484), (550, 12526), (558, 12562), (588, 12688), (593, 12727), (615, 12856), (627, 12913), (633, 12958), (650, 13051), (660, 13126), (669, 13189), (683, 13270), (686, 13291), (714, 13468), (715, 13474), (747, 13693), (755, 13771), (758, 13789), (761, 13795), (774, 13855), (777, 13873), (780, 13906), (789, 13978), (797, 14017), (803, 14047), (814, 14113), (818, 14161), (825, 14221), (839, 14311), (852, 14371),

Gene: Biskit\_17 Start: 9616, Stop: 14415, Start Num: 80

Candidate Starts for Biskit\_17:

(Start: 80 @9616 has 22 MA's), (Start: 85 @9643 has 1 MA's), (107, 9772), (125, 9874), (129, 9919), (132, 9931), (136, 9949), (139, 9976), (140, 9979), (142, 9994), (149, 10045), (150, 10048), (156, 10105), (157, 10108), (166, 10150), (169, 10168), (176, 10213), (185, 10249), (189, 10282), (194, 10315), (195, 10327), (203, 10381), (205, 10420), (207, 10435), (210, 10444), (213, 10471), (223, 10522), (231, 10564), (235, 10582), (238, 10591), (245, 10645), (257, 10708), (260, 10723), (268, 10786), (285, 10876), (291, 10903), (301, 10996), (303, 11002), (306, 11017), (310, 11056), (320, 11134), (326, 11167), (336, 11206), (339, 11224), (340, 11227), (344, 11254), (347, 11311), (349, 11332), (357, 11395), (362, 11431), (365, 11443), (370, 11464), (372, 11500), (378, 11542), (379, 11554), (381, 11566), (389, 11611), (390, 11614), (393, 11632), (394, 11635), (395, 11638), (411, 11713), (413, 11719), (421, 11746), (430, 11806), (433, 11821), (441, 11872), (442, 11875), (443, 11878), (445, 11896), (459, 11995), (462, 12010), (463, 12013), (481, 12163), (483, 12184), (492, 12226), (498, 12253), (499, 12259), (522, 12391), (526, 12403), (541, 12490), (550, 12532), (558, 12568), (576, 12643), (588, 12694), (593, 12733), (603, 12811), (615, 12862), (627, 12919), (650, 13057), (660, 13132), (683, 13276), (686, 13297), (714, 13474), (715, 13480), (758, 13804), (761, 13810), (774, 13870), (777, 13888), (780, 13921), (789, 13993), (797, 14032), (803, 14062), (814, 14128), (818, 14176), (825, 14236), (839, 14326), (852, 14386),

Gene: BlingBling\_17 Start: 10274, Stop: 15796, Start Num: 9

Candidate Starts for BlingBling\_17:

(Start: 9 @10274 has 37 MA's), (Start: 11 @10289 has 1 MA's), (Start: 12 @10295 has 1 MA's), (Start: 14 @10325 has 1 MA's), (15, 10334), (16, 10337), (18, 10379), (37, 10490), (39, 10511), (46, 10631), (53, 10673), (64, 10739), (67, 10757), (71, 10778), (72, 10781), (75, 10799), (81, 10823), (94, 10907), (95, 10910), (104, 10949), (106, 10964), (108, 10973), (135, 11141), (138, 11168), (153, 11285), (182,



11456), (187, 11486), (208, 11690), (217, 11735), (221, 11762), (222, 11774), (239, 11864), (244, 11909), (249, 11936), (253, 11966), (266, 12053), (267, 12056), (271, 12095), (284, 12179), (292, 12215), (296, 12257), (301, 12302), (303, 12308), (305, 12320), (306, 12323), (312, 12377), (316, 12416), (319, 12437), (320, 12440), (323, 12458), (324, 12467), (329, 12485), (334, 12506), (336, 12512), (340, 12533), (344, 12560), (349, 12638), (388, 12827), (396, 12851), (402, 12863), (403, 12866), (415, 12881), (420, 12896), (421, 12899), (429, 12950), (442, 13031), (443, 13034), (449, 13067), (452, 13097), (454, 13121), (502, 13454), (511, 13502), (515, 13547), (516, 13550), (519, 13565), (528, 13610), (529, 13619), (530, 13628), (540, 13679), (556, 13751), (560, 13769), (568, 13790), (580, 13889), (581, 13892), (589, 13925), (597, 13991), (599, 14009), (602, 14024), (609, 14057), (617, 14108), (629, 14159), (635, 14207), (664, 14402), (665, 14405), (675, 14477), (676, 14480), (685, 14546), (686, 14549), (688, 14567), (698, 14627), (704, 14684), (707, 14702), (718, 14783), (719, 14786), (722, 14801), (754, 15014), (760, 15080), (772, 15134), (773, 15146), (774, 15152), (789, 15275), (795, 15299), (799, 15317), (803, 15341), (804, 15347), (807, 15368), (814, 15407), (828, 15548), (831, 15560), (842, 15611), (845, 15629), (864, 15779),

Gene: Blino\_17 Start: 10173, Stop: 15764, Start Num: 9

Candidate Starts for Blino\_17:

(Start: 9 @10173 has 37 MA's), (Start: 11 @10188 has 1 MA's), (Start: 14 @10224 has 1 MA's), (15, 10233), (16, 10236), (18, 10278), (37, 10389), (39, 10410), (46, 10530), (64, 10638), (67, 10656), (71, 10677), (72, 10680), (75, 10698), (96, 10812), (104, 10848), (106, 10863), (108, 10872), (135, 11040), (138, 11067), (153, 11184), (182, 11355), (187, 11385), (208, 11589), (217, 11634), (244, 11808), (249, 11835), (253, 11865), (266, 11952), (267, 11955), (271, 11994), (280, 12057), (292, 12114), (296, 12156), (301, 12201), (303, 12207), (305, 12219), (306, 12222), (312, 12276), (316, 12315), (319, 12336), (320, 12339), (323, 12357), (329, 12384), (334, 12405), (336, 12411), (340, 12432), (344, 12459), (346, 12507), (349, 12537), (373, 12693), (376, 12717), (378, 12726), (380, 12747), (397, 12828), (420, 12924), (421, 12927), (422, 12933), (428, 12975), (429, 12978), (432, 12999), (442, 13059), (443, 13062), (449, 13095), (452, 13125), (465, 13215), (502, 13482), (511, 13530), (515, 13575), (516, 13578), (519, 13593), (528, 13638), (529, 13647), (530, 13656), (540, 13707), (556, 13779), (560, 13797), (568, 13818), (580, 13917), (581, 13920), (589, 13953), (597, 14019), (599, 14037), (602, 14052), (609, 14085), (617, 14136), (629, 14187), (635, 14235), (664, 14430), (665, 14433), (675, 14505), (676, 14508), (685, 14574), (686, 14577), (688, 14595), (698, 14655), (707, 14730), (719, 14814), (722, 14829), (754, 15042), (766, 15099), (769, 15114), (776, 15162), (781, 15207), (805, 15327), (806, 15336), (813, 15375), (822, 15447), (828, 15516), (842, 15579), (845, 15597), (855, 15654), (864, 15747),

Gene: Blueberry\_19 Start: 10619, Stop: 16108, Start Num: 9

Candidate Starts for Blueberry\_19:

(Start: 9 @10619 has 37 MA's), (Start: 11 @10634 has 1 MA's), (Start: 12 @10640 has 1 MA's), (Start: 14 @10670 has 1 MA's), (15, 10679), (16, 10682), (18, 10724), (37, 10835), (39, 10856), (46, 10976), (53, 11018), (64, 11084), (67, 11102), (71, 11123), (72, 11126), (75, 11144), (81, 11168), (94, 11252), (104, 11294), (106, 11309), (108, 11318), (135, 11486), (138, 11513), (153, 11630), (182, 11801), (187, 11831), (208, 12035), (217, 12080), (221, 12107), (222, 12119), (224, 12131), (239, 12209), (244, 12254), (249, 12281), (253, 12311), (266, 12398), (267, 12401), (271, 12440), (280, 12503), (282, 12512), (292, 12560), (296, 12602), (301, 12647), (303, 12653), (306, 12668), (312, 12722), (316, 12761), (319, 12782), (320, 12785), (323, 12803), (329, 12830), (334, 12851), (336, 12857), (340, 12878), (343, 12896), (344, 12905), (384, 13178), (403, 13232), (420, 13262), (421, 13265), (429, 13316), (442, 13397), (443, 13400), (449, 13433), (452, 13463), (454, 13487), (465, 13553), (502, 13820), (511, 13868), (513, 13901), (515, 13913), (516, 13916), (528, 13976), (529, 13985), (530, 13994), (540, 14045), (556, 14117), (560, 14135), (568, 14156), (580, 14255), (581, 14258), (589, 14291), (597, 14357), (599, 14375), (602, 14390), (609, 14423), (617, 14474), (629, 14525), (639, 14594), (664, 14768), (665, 14771), (675, 14843), (676, 14846), (685, 14912), (686, 14915), (688, 14933), (698, 14993), (704, 15050), (707, 15068), (718, 15149), (719, 15152), (722, 15167), (744, 15338), (754, 15392), (769, 15464), (770, 15473), (776, 15509), (784, 15569), (786, 15587),

(790, 15605), (802, 15650), (806, 15683), (822, 15794), (828, 15863), (842, 15926), (845, 15944), (864, 16094),

Gene: Bowser\_17 Start: 10588, Stop: 15702, Start Num: 24

Candidate Starts for Bowser\_17:

(Start: 24 @10588 has 12 MA's), (Start: 27 @10597 has 26 MA's), (56, 10870), (58, 10879), (62, 10909), (65, 10918), (75, 10975), (89, 11038), (100, 11110), (105, 11131), (108, 11149), (131, 11302), (138, 11344), (146, 11398), (181, 11626), (197, 11740), (202, 11779), (208, 11863), (212, 11896), (216, 11905), (218, 11914), (222, 11947), (224, 11959), (227, 11983), (237, 12028), (243, 12073), (249, 12109), (251, 12121), (253, 12139), (260, 12175), (275, 12298), (279, 12322), (282, 12340), (301, 12475), (303, 12481), (305, 12493), (306, 12496), (312, 12550), (316, 12589), (319, 12610), (320, 12613), (323, 12631), (324, 12640), (336, 12685), (340, 12706), (344, 12733), (349, 12811), (373, 12967), (404, 13024), (410, 13036), (411, 13039), (421, 13072), (424, 13090), (435, 13165), (437, 13171), (439, 13177), (441, 13198), (442, 13201), (443, 13204), (452, 13267), (456, 13303), (459, 13318), (464, 13342), (466, 13357), (467, 13360), (468, 13366), (472, 13411), (474, 13420), (486, 13519), (494, 13561), (508, 13645), (517, 13708), (523, 13726), (542, 13834), (546, 13843), (549, 13861), (550, 13864), (561, 13903), (562, 13906), (566, 13915), (589, 14050), (592, 14074), (613, 14194), (622, 14239), (630, 14272), (640, 14320), (643, 14332), (653, 14392), (671, 14512), (676, 14539), (679, 14557), (689, 14635), (691, 14641), (694, 14650), (708, 14770), (716, 14809), (720, 14851), (733, 14944), (751, 15037), (752, 15040), (757, 15097), (764, 15106), (767, 15118), (771, 15139), (785, 15244), (805, 15352), (812, 15391), (823, 15460), (826, 15514), (857, 15664),

Gene: Budski\_18 Start: 10015, Stop: 15501, Start Num: 41

Candidate Starts for Budski\_18:

(Start: 21 @9868 has 10 MA's), (28, 9895), (Start: 30 @9913 has 1 MA's), (32, 9934), (36, 9955), (40, 10000), (Start: 41 @10015 has 1 MA's), (47, 10099), (55, 10141), (56, 10153), (67, 10216), (70, 10231), (72, 10240), (75, 10258), (76, 10264), (87, 10312), (111, 10447), (134, 10597), (138, 10627), (169, 10846), (182, 10921), (187, 10951), (208, 11155), (216, 11197), (217, 11200), (218, 11206), (221, 11227), (233, 11308), (244, 11374), (249, 11401), (251, 11413), (253, 11431), (254, 11443), (260, 11467), (263, 11479), (266, 11518), (267, 11521), (268, 11530), (271, 11560), (277, 11605), (289, 11665), (292, 11680), (295, 11710), (296, 11722), (301, 11767), (303, 11773), (306, 11788), (309, 11818), (311, 11839), (312, 11842), (320, 11905), (324, 11932), (325, 11935), (326, 11938), (327, 11944), (333, 11968), (334, 11971), (336, 11977), (338, 11983), (340, 11998), (343, 12016), (348, 12097), (354, 12145), (355, 12151), (359, 12178), (381, 12337), (382, 12349), (390, 12385), (405, 12445), (411, 12484), (413, 12490), (414, 12493), (420, 12514), (421, 12517), (437, 12616), (444, 12655), (448, 12679), (452, 12712), (455, 12757), (461, 12811), (469, 12898), (470, 12919), (475, 12955), (479, 12985), (490, 13063), (491, 13066), (493, 13075), (497, 13099), (509, 13180), (511, 13186), (515, 13231), (516, 13234), (519, 13249), (528, 13294), (529, 13303), (530, 13312), (531, 13315), (552, 13420), (565, 13468), (568, 13474), (580, 13573), (581, 13576), (587, 13588), (602, 13705), (609, 13738), (617, 13789), (618, 13801), (625, 13819), (634, 13879), (647, 13960), (651, 13981), (654, 14014), (666, 14077), (668, 14095), (686, 14209), (690, 14239), (693, 14248), (699, 14287), (700, 14290), (703, 14320), (704, 14341), (724, 14494), (731, 14545), (741, 14608), (742, 14614), (751, 14665), (778, 14851), (787, 14938), (792, 14965), (793, 14968), (808, 15043), (812, 15067), (817, 15106), (819, 15142), (824, 15163), (834, 15250), (841, 15292), (847, 15325), (849, 15337), (861, 15415), (865, 15481),

Gene: Bunker\_17 Start: 10580, Stop: 15829, Start Num: 24

Candidate Starts for Bunker\_17:

(Start: 24 @10580 has 12 MA's), (Start: 27 @10589 has 26 MA's), (44, 10736), (56, 10862), (58, 10871), (69, 10934), (70, 10940), (71, 10946), (75, 10967), (81, 10991), (87, 11021), (89, 11030), (105, 11123), (107, 11135), (108, 11141), (131, 11294), (138, 11336), (146, 11390), (150, 11423), (182, 11624), (208, 11855), (212, 11888), (216, 11897), (218, 11906), (222, 11939), (224, 11951), (227, 11975), (237, 12020), (239, 12029), (249, 12101), (251, 12113), (253, 12131), (260, 12167),

(275, 12290), (279, 12314), (298, 12431), (301, 12467), (303, 12473), (306, 12488), (312, 12542), (316, 12581), (319, 12602), (320, 12605), (323, 12623), (324, 12632), (336, 12677), (339, 12695), (340, 12698), (344, 12725), (349, 12803), (374, 12968), (376, 12983), (378, 12992), (392, 13076), (419, 13187), (421, 13193), (422, 13199), (429, 13244), (431, 13256), (437, 13292), (439, 13298), (441, 13319), (443, 13325), (444, 13331), (450, 13376), (452, 13388), (456, 13424), (464, 13463), (466, 13478), (467, 13481), (468, 13487), (472, 13532), (494, 13682), (507, 13760), (508, 13766), (517, 13832), (523, 13850), (542, 13958), (544, 13961), (549, 13985), (550, 13988), (561, 14027), (562, 14030), (566, 14039), (572, 14087), (589, 14174), (592, 14198), (600, 14258), (613, 14318), (630, 14396), (640, 14444), (643, 14456), (653, 14516), (671, 14633), (676, 14660), (689, 14756), (691, 14762), (694, 14771), (716, 14930), (720, 14972), (764, 15230), (767, 15242), (771, 15263), (772, 15266), (774, 15284), (805, 15476), (812, 15515), (826, 15638), (857, 15788), (859, 15812),

Gene: Burnsey\_16 Start: 9630, Stop: 14768, Start Num: 27

Candidate Starts for Burnsey\_16:

(Start: 22 @9606 has 5 MA's), (Start: 27 @9630 has 26 MA's), (31, 9657), (45, 9786), (48, 9861), (76, 10014), (77, 10017), (93, 10113), (96, 10122), (102, 10152), (104, 10158), (106, 10173), (107, 10176), (111, 10197), (126, 10290), (136, 10356), (138, 10377), (153, 10494), (180, 10656), (187, 10695), (196, 10770), (212, 10929), (217, 10941), (221, 10968), (226, 11013), (228, 11025), (244, 11115), (247, 11133), (251, 11154), (254, 11184), (260, 11208), (263, 11220), (266, 11259), (270, 11292), (287, 11394), (288, 11397), (292, 11421), (303, 11514), (306, 11529), (310, 11568), (323, 11664), (331, 11703), (332, 11706), (340, 11739), (350, 11847), (351, 11850), (356, 11901), (370, 11976), (381, 12078), (389, 12123), (393, 12144), (394, 12147), (395, 12150), (411, 12225), (421, 12258), (425, 12279), (429, 12309), (437, 12357), (439, 12363), (443, 12390), (463, 12525), (478, 12642), (481, 12675), (483, 12696), (484, 12699), (498, 12765), (499, 12771), (501, 12786), (524, 12906), (526, 12915), (541, 12999), (606, 13320), (646, 13539), (653, 13575), (686, 13788), (726, 13980), (738, 14028), (743, 14049), (758, 14157), (774, 14223), (777, 14241), (783, 14301), (789, 14346), (796, 14376), (797, 14385), (803, 14415), (814, 14481), (818, 14529), (825, 14589), (838, 14676), (852, 14739),

Gene: Button\_17 Start: 9644, Stop: 13834, Start Num: 85

Candidate Starts for Button\_17:

(Start: 80 @9617 has 22 MA's), (Start: 85 @9644 has 1 MA's), (127, 9890), (136, 9953), (143, 10010), (147, 10037), (151, 10079), (160, 10142), (164, 10157), (167, 10175), (169, 10193), (171, 10205), (175, 10238), (183, 10280), (186, 10295), (201, 10400), (203, 10424), (206, 10463), (211, 10487), (215, 10514), (220, 10544), (223, 10565), (234, 10619), (238, 10634), (258, 10763), (276, 10895), (278, 10904), (285, 10940), (306, 11081), (308, 11102), (312, 11135), (313, 11153), (315, 11171), (323, 11216), (336, 11270), (340, 11291), (358, 11354), (367, 11402), (369, 11414), (372, 11453), (400, 11507), (411, 11534), (413, 11540), (420, 11564), (421, 11567), (430, 11627), (435, 11660), (443, 11699), (445, 11717), (446, 11720), (452, 11762), (453, 11774), (457, 11807), (462, 11831), (466, 11855), (467, 11858), (480, 11972), (481, 11984), (485, 12014), (487, 12023), (489, 12029), (514, 12182), (533, 12242), (534, 12251), (536, 12257), (545, 12293), (584, 12425), (606, 12563), (611, 12587), (645, 12785), (646, 12788), (673, 12950), (677, 12974), (678, 12977), (717, 13079), (753, 13184), (766, 13256), (770, 13280), (773, 13292), (777, 13316), (779, 13328), (788, 13412), (789, 13418), (800, 13460), (803, 13481), (809, 13514), (814, 13547), (816, 13568), (818, 13595), (825, 13655), (827, 13682), (828, 13691), (832, 13703), (852, 13805),

Gene: Buttrmlkdreams\_16 Start: 9601, Stop: 14397, Start Num: 80

Candidate Starts for Buttrmlkdreams\_16:

(Start: 80 @9601 has 22 MA's), (Start: 85 @9628 has 1 MA's), (87, 9634), (107, 9757), (125, 9859), (129, 9904), (132, 9916), (136, 9934), (139, 9961), (140, 9964), (142, 9979), (149, 10030), (150, 10033), (156, 10090), (157, 10093), (166, 10135), (169, 10153), (176, 10198), (185, 10234), (189, 10267), (194, 10300), (195, 10312), (203, 10366), (205, 10405), (207, 10420), (210, 10429), (213, 10456), (223, 10507), (235, 10567), (238, 10576), (245, 10630), (257, 10693), (260, 10708), (285,

10861), (291, 10888), (299, 10969), (301, 10981), (303, 10987), (306, 11002), (309, 11032), (310, 11041), (320, 11119), (326, 11152), (336, 11191), (339, 11209), (340, 11212), (344, 11239), (347, 11296), (349, 11317), (357, 11380), (365, 11428), (370, 11449), (372, 11485), (378, 11527), (381, 11551), (389, 11596), (390, 11599), (393, 11617), (394, 11620), (395, 11623), (411, 11698), (413, 11704), (421, 11731), (430, 11791), (441, 11857), (442, 11860), (443, 11863), (445, 11881), (459, 11980), (462, 11995), (463, 11998), (481, 12148), (483, 12169), (492, 12211), (498, 12238), (499, 12244), (526, 12388), (541, 12475), (550, 12517), (558, 12553), (576, 12628), (588, 12679), (593, 12718), (615, 12847), (627, 12904), (650, 13042), (660, 13117), (683, 13261), (686, 13282), (714, 13456), (715, 13462), (758, 13786), (761, 13792), (774, 13852), (780, 13903), (789, 13975), (797, 14014), (803, 14044), (814, 14110), (818, 14158), (825, 14218), (839, 14308), (852, 14368),

Gene: CaptainKirk2\_17 Start: 10277, Stop: 15820, Start Num: 9

Candidate Starts for CaptainKirk2\_17:

(Start: 9 @10277 has 37 MA's), (Start: 11 @10292 has 1 MA's), (Start: 12 @10298 has 1 MA's), (Start: 14 @10328 has 1 MA's), (15, 10337), (16, 10340), (18, 10382), (37, 10493), (39, 10514), (64, 10742), (67, 10760), (70, 10775), (71, 10781), (72, 10784), (75, 10802), (81, 10826), (94, 10910), (95, 10913), (104, 10952), (106, 10967), (108, 10976), (135, 11144), (138, 11171), (187, 11489), (208, 11693), (217, 11738), (218, 11744), (221, 11765), (222, 11777), (239, 11867), (244, 11912), (249, 11939), (253, 11969), (266, 12056), (267, 12059), (271, 12098), (292, 12218), (296, 12260), (301, 12305), (303, 12311), (306, 12326), (312, 12380), (316, 12419), (319, 12440), (320, 12443), (323, 12461), (324, 12470), (334, 12509), (336, 12515), (340, 12536), (344, 12563), (369, 12770), (384, 12836), (396, 12875), (403, 12890), (420, 12920), (421, 12923), (429, 12974), (442, 13055), (443, 13058), (449, 13091), (452, 13121), (454, 13145), (502, 13478), (511, 13526), (515, 13571), (516, 13574), (519, 13589), (528, 13634), (529, 13643), (530, 13652), (540, 13703), (556, 13775), (560, 13793), (568, 13814), (580, 13913), (581, 13916), (589, 13949), (597, 14015), (599, 14033), (602, 14048), (609, 14081), (617, 14132), (629, 14183), (635, 14231), (664, 14426), (665, 14429), (675, 14501), (676, 14504), (685, 14570), (686, 14573), (688, 14591), (698, 14651), (704, 14708), (707, 14726), (718, 14807), (719, 14810), (722, 14825), (744, 14984), (754, 15038), (760, 15104), (772, 15158), (773, 15170), (774, 15176), (789, 15299), (795, 15323), (799, 15341), (803, 15365), (804, 15371), (807, 15392), (814, 15431), (828, 15572), (831, 15584), (842, 15635), (845, 15653), (864, 15803),

Gene: CarolAnn\_17 Start: 10172, Stop: 15763, Start Num: 9

Candidate Starts for CarolAnn\_17:

(Start: 9 @10172 has 37 MA's), (Start: 11 @10187 has 1 MA's), (Start: 14 @10223 has 1 MA's), (15, 10232), (16, 10235), (18, 10277), (37, 10388), (39, 10409), (46, 10529), (64, 10637), (67, 10655), (71, 10676), (72, 10679), (75, 10697), (96, 10811), (104, 10847), (106, 10862), (108, 10871), (135, 11039), (138, 11066), (153, 11183), (182, 11354), (187, 11384), (208, 11588), (217, 11633), (244, 11807), (249, 11834), (253, 11864), (257, 11885), (266, 11951), (267, 11954), (271, 11993), (280, 12056), (292, 12113), (296, 12155), (301, 12200), (303, 12206), (305, 12218), (306, 12221), (312, 12275), (316, 12314), (319, 12335), (320, 12338), (323, 12356), (329, 12383), (334, 12404), (336, 12410), (340, 12431), (344, 12458), (346, 12506), (349, 12536), (373, 12692), (376, 12716), (378, 12725), (380, 12746), (397, 12827), (420, 12923), (421, 12926), (422, 12932), (428, 12974), (429, 12977), (432, 12998), (442, 13058), (443, 13061), (449, 13094), (452, 13124), (465, 13214), (502, 13481), (511, 13529), (515, 13574), (516, 13577), (519, 13592), (528, 13637), (529, 13646), (530, 13655), (540, 13706), (556, 13778), (560, 13796), (568, 13817), (580, 13916), (581, 13919), (589, 13952), (597, 14018), (599, 14036), (602, 14051), (609, 14084), (617, 14135), (629, 14186), (635, 14234), (664, 14429), (665, 14432), (675, 14504), (676, 14507), (685, 14573), (686, 14576), (688, 14594), (698, 14654), (707, 14729), (719, 14813), (722, 14828), (754, 15041), (766, 15098), (769, 15113), (776, 15161), (781, 15206), (805, 15326), (806, 15335), (813, 15374), (822, 15446), (828, 15515), (842, 15578), (845, 15596), (855, 15653), (864, 15746),

Gene: CheeseTouch\_18 Start: 9868, Stop: 15501, Start Num: 21

Candidate Starts for CheeseTouch\_18:

(Start: 21 @9868 has 10 MA's), (Start: 30 @9913 has 1 MA's), (32, 9934), (36, 9955), (40, 10000), (Start: 41 @10015 has 1 MA's), (47, 10099), (55, 10141), (56, 10153), (67, 10216), (70, 10231), (72, 10240), (75, 10258), (76, 10264), (87, 10312), (111, 10447), (134, 10597), (138, 10627), (182, 10921), (187, 10951), (205, 11134), (208, 11155), (217, 11200), (218, 11206), (221, 11227), (233, 11308), (244, 11374), (249, 11401), (251, 11413), (253, 11431), (254, 11443), (260, 11467), (263, 11479), (266, 11518), (268, 11530), (271, 11560), (277, 11605), (289, 11665), (292, 11680), (295, 11710), (296, 11722), (301, 11767), (303, 11773), (305, 11785), (306, 11788), (308, 11809), (311, 11839), (312, 11842), (320, 11905), (324, 11932), (325, 11935), (326, 11938), (327, 11944), (333, 11968), (334, 11971), (336, 11977), (338, 11983), (340, 11998), (343, 12016), (348, 12097), (354, 12145), (355, 12151), (359, 12178), (381, 12337), (382, 12349), (390, 12385), (391, 12391), (402, 12433), (405, 12445), (411, 12484), (413, 12490), (414, 12493), (419, 12511), (420, 12514), (421, 12517), (426, 12541), (437, 12616), (444, 12655), (448, 12679), (452, 12712), (462, 12823), (465, 12856), (470, 12919), (475, 12955), (479, 12985), (490, 13063), (491, 13066), (493, 13075), (497, 13099), (511, 13186), (515, 13231), (516, 13234), (519, 13249), (528, 13294), (529, 13303), (530, 13312), (531, 13315), (552, 13420), (565, 13468), (568, 13474), (580, 13573), (581, 13576), (587, 13588), (602, 13705), (609, 13738), (617, 13789), (625, 13819), (634, 13879), (647, 13960), (651, 13981), (652, 13984), (654, 14014), (666, 14077), (667, 14086), (668, 14095), (686, 14209), (690, 14239), (699, 14287), (700, 14290), (703, 14320), (704, 14341), (731, 14539), (741, 14602), (742, 14608), (751, 14659), (778, 14851), (787, 14938), (792, 14965), (793, 14968), (808, 15043), (812, 15067), (817, 15106), (819, 15142), (824, 15163), (834, 15250), (841, 15292), (847, 15325), (849, 15337), (861, 15415), (865, 15481),

Gene: CherryonLim\_17 Start: 10133, Stop: 15220, Start Num: 27

Candidate Starts for CherryonLim\_17:

(Start: 27 @10133 has 26 MA's), (45, 10289), (59, 10418), (71, 10490), (76, 10517), (87, 10565), (89, 10574), (93, 10616), (95, 10622), (96, 10625), (104, 10661), (108, 10685), (113, 10712), (127, 10799), (131, 10838), (133, 10844), (136, 10859), (138, 10880), (146, 10934), (162, 11051), (173, 11114), (180, 11159), (191, 11240), (208, 11402), (211, 11411), (212, 11435), (217, 11447), (221, 11474), (222, 11486), (228, 11531), (235, 11561), (238, 11573), (252, 11675), (253, 11678), (266, 11765), (269, 11792), (283, 11882), (288, 11903), (292, 11927), (298, 11978), (303, 12020), (306, 12035), (307, 12044), (308, 12056), (312, 12089), (317, 12131), (327, 12191), (328, 12194), (329, 12197), (330, 12203), (335, 12221), (340, 12245), (345, 12308), (347, 12329), (349, 12350), (358, 12398), (362, 12428), (368, 12455), (369, 12458), (378, 12539), (379, 12551), (381, 12563), (383, 12578), (389, 12608), (393, 12629), (394, 12632), (408, 12692), (412, 12713), (419, 12737), (421, 12743), (434, 12827), (441, 12869), (447, 12899), (452, 12938), (458, 12986), (462, 13007), (463, 13010), (464, 13016), (471, 13082), (478, 13127), (481, 13160), (483, 13181), (495, 13235), (524, 13385), (526, 13394), (541, 13481), (583, 13658), (606, 13799), (614, 13829), (638, 13967), (653, 14048), (678, 14201), (683, 14231), (725, 14441), (726, 14450), (727, 14456), (738, 14492), (758, 14609), (761, 14615), (770, 14657), (774, 14675), (789, 14798), (795, 14822), (797, 14837), (803, 14867), (807, 14894), (809, 14900), (814, 14933), (821, 15002), (823, 15005), (825, 15041), (835, 15113), (839, 15131),

Gene: Cleo\_16 Start: 9909, Stop: 15023, Start Num: 27

Candidate Starts for Cleo\_16:

(Start: 22 @9888 has 5 MA's), (Start: 27 @9909 has 26 MA's), (31, 9936), (45, 10065), (50, 10149), (53, 10161), (61, 10212), (68, 10245), (73, 10269), (78, 10302), (93, 10392), (106, 10452), (107, 10455), (118, 10521), (124, 10557), (126, 10569), (134, 10626), (136, 10635), (138, 10656), (188, 10995), (197, 11052), (205, 11154), (217, 11220), (218, 11226), (221, 11247), (244, 11394), (253, 11451), (256, 11469), (259, 11484), (263, 11499), (266, 11538), (280, 11643), (285, 11667), (287, 11673), (300, 11784), (303, 11793), (306, 11808), (310, 11847), (323, 11943), (329, 11970), (330, 11976), (331, 11982), (339, 12015), (340, 12018), (350, 12126), (354, 12165), (359, 12198), (363, 12228), (364, 12231), (369, 12252), (370, 12255), (381, 12357), (389, 12402), (394, 12426), (395, 12429), (419, 12531), (420, 12534), (421, 12537), (429, 12588), (437, 12636), (439, 12642), (445,

12687), (463, 12804), (464, 12810), (470, 12867), (478, 12921), (480, 12942), (481, 12954), (483, 12975), (484, 12978), (498, 13044), (499, 13050), (524, 13185), (535, 13251), (541, 13278), (558, 13356), (606, 13596), (614, 13626), (644, 13800), (650, 13830), (653, 13851), (668, 13959), (675, 13995), (683, 14043), (738, 14280), (755, 14391), (758, 14409), (774, 14475), (780, 14526), (789, 14598), (796, 14628), (797, 14637), (798, 14640), (803, 14667), (807, 14694), (814, 14733), (818, 14781), (825, 14841), (828, 14877), (838, 14931),

Gene: Cozz\_16 Start: 9630, Stop: 14768, Start Num: 27

Candidate Starts for Cozz\_16:

(Start: 22 @9606 has 5 MA's), (Start: 27 @9630 has 26 MA's), (31, 9657), (45, 9786), (48, 9861), (76, 10014), (77, 10017), (93, 10113), (96, 10122), (102, 10152), (104, 10158), (106, 10173), (107, 10176), (111, 10197), (123, 10269), (126, 10290), (136, 10356), (138, 10377), (153, 10494), (180, 10656), (187, 10695), (196, 10770), (212, 10929), (217, 10941), (221, 10968), (226, 11013), (228, 11025), (244, 11115), (247, 11133), (251, 11154), (254, 11184), (260, 11208), (263, 11220), (266, 11259), (270, 11292), (287, 11394), (288, 11397), (292, 11421), (303, 11514), (306, 11529), (310, 11568), (323, 11664), (331, 11703), (332, 11706), (340, 11739), (350, 11847), (351, 11850), (356, 11901), (370, 11976), (381, 12078), (389, 12123), (393, 12144), (394, 12147), (395, 12150), (411, 12225), (421, 12258), (425, 12279), (437, 12357), (439, 12363), (443, 12390), (463, 12525), (478, 12642), (481, 12675), (483, 12696), (498, 12765), (499, 12771), (501, 12786), (524, 12906), (526, 12915), (541, 12999), (606, 13320), (646, 13539), (653, 13575), (686, 13788), (726, 13980), (738, 14028), (743, 14049), (758, 14157), (774, 14223), (777, 14241), (783, 14301), (789, 14346), (796, 14376), (797, 14385), (803, 14415), (814, 14481), (818, 14529), (825, 14589), (838, 14676), (852, 14739),

Gene: Delian\_17 Start: 10277, Stop: 15820, Start Num: 9

Candidate Starts for Delian\_17:

(Start: 9 @10277 has 37 MA's), (Start: 11 @10292 has 1 MA's), (Start: 12 @10298 has 1 MA's), (Start: 14 @10328 has 1 MA's), (15, 10337), (16, 10340), (18, 10382), (37, 10493), (39, 10514), (64, 10742), (67, 10760), (70, 10775), (71, 10781), (72, 10784), (75, 10802), (81, 10826), (94, 10910), (95, 10913), (104, 10952), (106, 10967), (108, 10976), (135, 11144), (138, 11171), (187, 11489), (208, 11693), (217, 11738), (218, 11744), (221, 11765), (222, 11777), (239, 11867), (244, 11912), (249, 11939), (253, 11969), (266, 12056), (267, 12059), (271, 12098), (292, 12218), (296, 12260), (301, 12305), (303, 12311), (306, 12326), (312, 12380), (316, 12419), (319, 12440), (320, 12443), (323, 12461), (324, 12470), (334, 12509), (336, 12515), (340, 12536), (344, 12563), (369, 12770), (384, 12836), (396, 12875), (403, 12890), (420, 12920), (421, 12923), (429, 12974), (442, 13055), (443, 13058), (449, 13091), (452, 13121), (454, 13145), (502, 13478), (511, 13526), (515, 13571), (516, 13574), (519, 13589), (528, 13634), (529, 13643), (530, 13652), (540, 13703), (556, 13775), (560, 13793), (568, 13814), (580, 13913), (581, 13916), (589, 13949), (597, 14015), (599, 14033), (602, 14048), (609, 14081), (617, 14132), (629, 14183), (635, 14231), (664, 14426), (665, 14429), (675, 14501), (676, 14504), (685, 14570), (686, 14573), (688, 14591), (698, 14651), (704, 14708), (707, 14726), (718, 14807), (719, 14810), (722, 14825), (744, 14984), (754, 15038), (760, 15104), (772, 15158), (773, 15170), (774, 15176), (789, 15299), (795, 15323), (799, 15341), (803, 15365), (804, 15371), (807, 15392), (814, 15431), (828, 15572), (831, 15584), (842, 15635), (845, 15653), (864, 15803),

Gene: DirtyBoi\_18 Start: 11005, Stop: 16017, Start Num: 24

Candidate Starts for DirtyBoi\_18:

(Start: 24 @11005 has 12 MA's), (Start: 30 @11035 has 1 MA's), (32, 11056), (38, 11092), (58, 11296), (62, 11326), (77, 11401), (96, 11506), (108, 11566), (120, 11644), (121, 11647), (131, 11719), (138, 11761), (150, 11848), (208, 12277), (212, 12310), (218, 12328), (224, 12373), (227, 12397), (237, 12442), (239, 12451), (243, 12487), (244, 12496), (248, 12520), (251, 12535), (253, 12553), (266, 12640), (274, 12694), (275, 12712), (289, 12787), (294, 12817), (301, 12889), (303, 12895), (306, 12910), (312, 12964), (320, 13027), (323, 13045), (329, 13072), (331, 13084), (336, 13099), (340, 13120), (352, 13240), (354, 13267), (359, 13300), (366, 13339), (369, 13354), (373, 13402), (376, 13426), (380, 13456), (392, 13519), (405, 13564), (406, 13567), (421, 13636), (432, 13708),

(435, 13729), (437, 13735), (439, 13741), (442, 13765), (443, 13768), (446, 13789), (450, 13819), (452, 13831), (456, 13867), (466, 13921), (467, 13924), (468, 13930), (472, 13975), (474, 13984), (494, 14125), (500, 14158), (507, 14203), (508, 14209), (509, 14221), (517, 14272), (539, 14356), (544, 14380), (549, 14404), (550, 14407), (566, 14458), (572, 14506), (589, 14593), (592, 14617), (594, 14629), (596, 14650), (600, 14677), (622, 14782), (630, 14815), (640, 14863), (643, 14875), (655, 14947), (658, 14956), (698, 15112), (709, 15142), (748, 15334), (771, 15454), (772, 15457), (794, 15601), (805, 15664), (826, 15826), (829, 15838), (843, 15895), (856, 15970), (857, 15976), (860, 16006), (862, 16009),

Gene: Dre3\_16 Start: 9856, Stop: 14970, Start Num: 27

Candidate Starts for Dre3\_16:

(Start: 22 @9835 has 5 MA's), (Start: 27 @9856 has 26 MA's), (31, 9883), (45, 10012), (50, 10096), (53, 10108), (61, 10159), (68, 10192), (73, 10216), (78, 10249), (93, 10339), (106, 10399), (107, 10402), (118, 10468), (124, 10504), (126, 10516), (134, 10573), (136, 10582), (138, 10603), (188, 10942), (197, 10999), (205, 11101), (217, 11167), (218, 11173), (221, 11194), (244, 11341), (253, 11398), (256, 11416), (259, 11431), (263, 11446), (266, 11485), (280, 11590), (285, 11614), (287, 11620), (300, 11731), (303, 11740), (306, 11755), (310, 11794), (323, 11890), (329, 11917), (330, 11923), (331, 11929), (339, 11962), (340, 11965), (350, 12073), (354, 12112), (359, 12145), (363, 12175), (364, 12178), (369, 12199), (370, 12202), (381, 12304), (389, 12349), (394, 12373), (395, 12376), (412, 12454), (419, 12478), (420, 12481), (421, 12484), (429, 12535), (437, 12583), (439, 12589), (445, 12634), (463, 12751), (464, 12757), (470, 12814), (478, 12868), (480, 12889), (481, 12901), (483, 12922), (484, 12925), (498, 12991), (499, 12997), (524, 13132), (535, 13198), (541, 13225), (558, 13303), (606, 13543), (614, 13573), (644, 13747), (650, 13777), (653, 13798), (668, 13906), (683, 13990), (738, 14227), (755, 14338), (758, 14356), (774, 14422), (780, 14473), (789, 14545), (797, 14584), (798, 14587), (803, 14614), (807, 14641), (814, 14680), (818, 14728), (825, 14788), (828, 14824), (838, 14878),

Gene: Elinal\_17 Start: 9384, Stop: 14468, Start Num: 27

Candidate Starts for Elinal\_17:

(Start: 27 @9384 has 26 MA's), (45, 9540), (59, 9669), (63, 9699), (76, 9768), (79, 9780), (89, 9825), (93, 9867), (96, 9876), (104, 9912), (108, 9936), (127, 10050), (131, 10089), (133, 10095), (134, 10101), (136, 10110), (138, 10131), (162, 10302), (173, 10365), (180, 10410), (191, 10491), (208, 10650), (212, 10683), (217, 10695), (221, 10722), (228, 10779), (235, 10809), (238, 10821), (252, 10923), (253, 10926), (266, 11013), (273, 11061), (292, 11175), (303, 11268), (306, 11283), (308, 11304), (312, 11337), (314, 11367), (317, 11379), (323, 11418), (328, 11442), (329, 11445), (335, 11469), (340, 11493), (349, 11598), (358, 11646), (362, 11676), (366, 11691), (369, 11706), (372, 11745), (378, 11787), (379, 11799), (381, 11811), (383, 11826), (385, 11841), (389, 11856), (394, 11880), (405, 11919), (407, 11934), (408, 11940), (412, 11961), (419, 11985), (421, 11991), (441, 12117), (447, 12147), (453, 12198), (458, 12234), (462, 12255), (463, 12258), (471, 12330), (478, 12375), (481, 12408), (483, 12429), (495, 12483), (506, 12558), (526, 12642), (541, 12729), (586, 12915), (606, 13047), (614, 13077), (638, 13215), (648, 13266), (653, 13296), (678, 13452), (683, 13482), (721, 13662), (727, 13713), (738, 13740), (743, 13761), (758, 13857), (770, 13905), (774, 13923), (789, 14046), (795, 14070), (797, 14085), (803, 14115), (807, 14142), (809, 14148), (814, 14181), (821, 14250), (823, 14253), (825, 14289), (839, 14379),

Gene: Elliott\_16 Start: 9629, Stop: 14767, Start Num: 27

Candidate Starts for Elliott\_16:

(Start: 22 @9605 has 5 MA's), (Start: 27 @9629 has 26 MA's), (31, 9656), (45, 9785), (48, 9860), (76, 10013), (77, 10016), (93, 10112), (96, 10121), (102, 10151), (104, 10157), (106, 10172), (107, 10175), (111, 10196), (123, 10268), (126, 10289), (136, 10355), (138, 10376), (153, 10493), (180, 10655), (187, 10694), (196, 10769), (212, 10928), (217, 10940), (221, 10967), (226, 11012), (228, 11024), (244, 11114), (247, 11132), (251, 11153), (254, 11183), (260, 11207), (263, 11219), (266, 11258), (270, 11291), (287, 11393), (288, 11396), (292, 11420), (303, 11513), (306, 11528), (310, 11567),

(331, 11702), (332, 11705), (340, 11738), (350, 11846), (351, 11849), (356, 11900), (370, 11975), (381, 12077), (389, 12122), (393, 12143), (394, 12146), (395, 12149), (411, 12224), (421, 12257), (425, 12278), (429, 12308), (437, 12356), (439, 12362), (443, 12389), (463, 12524), (478, 12641), (481, 12674), (483, 12695), (498, 12764), (499, 12770), (501, 12785), (524, 12905), (526, 12914), (541, 12998), (606, 13319), (646, 13538), (653, 13574), (686, 13787), (726, 13979), (738, 14027), (743, 14048), (758, 14156), (774, 14222), (777, 14240), (789, 14345), (796, 14375), (797, 14384), (803, 14414), (814, 14480), (818, 14528), (825, 14588), (838, 14675), (852, 14738),

Gene: Emalyn\_15 Start: 9356, Stop: 14068, Start Num: 80

Candidate Starts for Emalyn\_15:

(Start: 80 @9356 has 22 MA's), (107, 9512), (122, 9599), (125, 9614), (129, 9659), (132, 9671), (136, 9689), (139, 9716), (150, 9788), (154, 9830), (156, 9845), (157, 9848), (163, 9872), (166, 9890), (169, 9908), (173, 9929), (176, 9953), (178, 9962), (185, 9989), (189, 10022), (190, 10031), (203, 10121), (205, 10160), (207, 10175), (221, 10244), (225, 10271), (242, 10367), (245, 10385), (257, 10448), (285, 10616), (287, 10622), (301, 10736), (303, 10742), (306, 10757), (336, 10946), (340, 10967), (343, 10985), (344, 10994), (356, 11129), (370, 11204), (372, 11240), (377, 11279), (378, 11282), (381, 11306), (385, 11336), (389, 11351), (394, 11375), (405, 11414), (411, 11453), (413, 11459), (443, 11618), (477, 11867), (478, 11870), (481, 11903), (483, 11924), (498, 11993), (499, 11999), (541, 12230), (572, 12365), (606, 12557), (621, 12626), (626, 12650), (650, 12791), (683, 13004), (686, 13025), (695, 13079), (750, 13382), (755, 13439), (758, 13457), (774, 13523), (782, 13595), (789, 13646), (795, 13670), (796, 13676), (797, 13685), (803, 13715), (814, 13781), (818, 13829), (825, 13889), (839, 13979), (852, 14039),

Gene: Eyes\_17 Start: 10596, Stop: 15716, Start Num: 24

Candidate Starts for Eyes\_17:

(Start: 24 @10596 has 12 MA's), (Start: 27 @10605 has 26 MA's), (51, 10848), (56, 10878), (58, 10887), (62, 10917), (70, 10956), (75, 10983), (105, 11139), (108, 11157), (131, 11310), (138, 11352), (146, 11406), (180, 11631), (181, 11634), (187, 11670), (197, 11748), (202, 11787), (208, 11871), (212, 11904), (216, 11913), (218, 11922), (222, 11955), (224, 11967), (227, 11991), (237, 12036), (239, 12045), (243, 12081), (249, 12117), (251, 12129), (253, 12147), (260, 12183), (262, 12192), (275, 12306), (282, 12348), (301, 12483), (302, 12486), (303, 12489), (306, 12504), (312, 12558), (316, 12597), (331, 12678), (336, 12693), (340, 12714), (345, 12777), (348, 12813), (373, 12975), (404, 13032), (410, 13044), (411, 13047), (421, 13080), (424, 13098), (435, 13173), (437, 13179), (439, 13185), (441, 13206), (442, 13209), (443, 13212), (452, 13275), (456, 13311), (459, 13326), (464, 13350), (466, 13365), (467, 13368), (468, 13374), (474, 13428), (486, 13527), (494, 13569), (507, 13647), (517, 13716), (523, 13734), (542, 13842), (544, 13845), (549, 13869), (550, 13872), (554, 13893), (562, 13914), (566, 13923), (589, 14058), (592, 14082), (600, 14142), (613, 14202), (622, 14247), (630, 14280), (640, 14328), (643, 14340), (653, 14400), (676, 14550), (679, 14568), (689, 14646), (691, 14652), (694, 14661), (696, 14688), (708, 14781), (716, 14820), (720, 14862), (745, 15015), (751, 15048), (752, 15051), (757, 15108), (764, 15117), (767, 15129), (771, 15150), (774, 15171), (805, 15363), (812, 15402), (823, 15471), (826, 15525), (857, 15678),

Gene: Fairfaxidum\_17 Start: 10343, Stop: 15964, Start Num: 9

Candidate Starts for Fairfaxidum\_17:

(Start: 7 @10307 has 1 MA's), (Start: 9 @10343 has 37 MA's), (Start: 12 @10364 has 1 MA's), (13, 10382), (16, 10406), (18, 10448), (35, 10547), (37, 10559), (39, 10580), (44, 10637), (47, 10709), (50, 10730), (55, 10751), (58, 10772), (59, 10775), (66, 10823), (67, 10826), (72, 10850), (75, 10868), (87, 10922), (96, 10982), (104, 11018), (105, 11024), (138, 11237), (165, 11423), (182, 11525), (184, 11540), (187, 11555), (193, 11612), (217, 11804), (237, 11924), (249, 12005), (253, 12035), (260, 12071), (266, 12122), (271, 12164), (292, 12284), (298, 12335), (301, 12371), (303, 12377), (306, 12392), (312, 12446), (316, 12485), (320, 12509), (323, 12527), (330, 12560), (334, 12575), (336, 12581), (339, 12599), (340, 12602), (344, 12629), (345, 12665), (378, 12896), (382, 12932), (383, 12935), (390, 12968), (412, 13070), (421, 13103), (431, 13166), (437, 13202), (443, 13238), (447,



13262), (450, 13289), (462, 13370), (470, 13436), (473, 13454), (486, 13559), (493, 13592), (502, 13658), (503, 13667), (511, 13706), (513, 13739), (515, 13751), (516, 13754), (519, 13769), (520, 13778), (528, 13814), (529, 13823), (530, 13832), (549, 13928), (565, 13988), (566, 13991), (568, 13994), (569, 14015), (581, 14096), (590, 14138), (602, 14225), (609, 14258), (610, 14267), (617, 14309), (639, 14423), (664, 14597), (675, 14672), (676, 14675), (681, 14705), (682, 14708), (684, 14732), (685, 14741), (686, 14744), (698, 14822), (704, 14879), (722, 14996), (729, 15047), (754, 15185), (760, 15251), (773, 15317), (774, 15323), (777, 15341), (787, 15434), (789, 15446), (801, 15494), (803, 15512), (804, 15518), (807, 15539), (814, 15578), (828, 15719), (842, 15782), (855, 15857), (864, 15950),

Gene: Feastonyeet\_15 Start: 9403, Stop: 14511, Start Num: 27

Candidate Starts for Feastonyeet\_15:

(Start: 27 @9403 has 26 MA's), (45, 9559), (59, 9688), (63, 9718), (76, 9787), (79, 9799), (87, 9835), (93, 9886), (96, 9895), (104, 9931), (108, 9955), (118, 10015), (127, 10069), (131, 10108), (133, 10114), (136, 10129), (138, 10150), (162, 10321), (173, 10384), (180, 10429), (191, 10510), (208, 10669), (212, 10702), (217, 10714), (221, 10741), (228, 10798), (235, 10828), (238, 10840), (252, 10942), (253, 10945), (266, 11032), (273, 11080), (292, 11194), (303, 11287), (306, 11302), (308, 11323), (312, 11356), (314, 11386), (317, 11398), (323, 11437), (328, 11461), (329, 11464), (335, 11488), (340, 11512), (349, 11617), (362, 11695), (369, 11725), (370, 11728), (372, 11764), (378, 11806), (381, 11830), (383, 11845), (385, 11860), (389, 11875), (394, 11899), (405, 11938), (407, 11953), (408, 11959), (419, 12004), (421, 12010), (441, 12136), (447, 12166), (451, 12202), (452, 12205), (458, 12253), (462, 12274), (463, 12277), (471, 12349), (478, 12394), (481, 12427), (483, 12448), (495, 12502), (506, 12577), (526, 12661), (541, 12748), (606, 13066), (614, 13096), (638, 13234), (648, 13285), (653, 13315), (678, 13480), (683, 13510), (721, 13690), (727, 13741), (738, 13783), (743, 13804), (758, 13900), (770, 13948), (774, 13966), (789, 14089), (795, 14113), (797, 14128), (803, 14158), (807, 14185), (809, 14191), (814, 14224), (821, 14293), (823, 14296), (825, 14332), (839, 14422),

Gene: Fenry\_16 Start: 10023, Stop: 15515, Start Num: 9

Candidate Starts for Fenry\_16:

(Start: 9 @10023 has 37 MA's), (Start: 11 @10038 has 1 MA's), (Start: 12 @10044 has 1 MA's), (Start: 14 @10074 has 1 MA's), (15, 10083), (16, 10086), (18, 10128), (37, 10239), (39, 10260), (46, 10380), (64, 10488), (67, 10506), (70, 10521), (71, 10527), (72, 10530), (75, 10548), (81, 10572), (94, 10656), (96, 10662), (104, 10698), (106, 10713), (108, 10722), (135, 10890), (138, 10917), (169, 11130), (187, 11235), (208, 11439), (217, 11484), (221, 11511), (222, 11523), (239, 11613), (244, 11658), (249, 11685), (253, 11715), (266, 11802), (267, 11805), (271, 11844), (292, 11964), (296, 12006), (301, 12051), (303, 12057), (305, 12069), (306, 12072), (312, 12126), (316, 12165), (319, 12186), (320, 12189), (323, 12207), (334, 12255), (336, 12261), (340, 12282), (344, 12309), (348, 12381), (369, 12516), (386, 12588), (388, 12597), (392, 12609), (396, 12621), (403, 12636), (420, 12666), (421, 12669), (429, 12720), (442, 12801), (443, 12804), (449, 12837), (452, 12867), (454, 12891), (465, 12957), (496, 13173), (502, 13224), (511, 13272), (515, 13317), (516, 13320), (519, 13335), (528, 13380), (529, 13389), (530, 13398), (540, 13449), (556, 13521), (560, 13539), (568, 13560), (580, 13659), (581, 13662), (589, 13695), (597, 13761), (599, 13779), (602, 13794), (609, 13827), (617, 13878), (629, 13929), (664, 14172), (665, 14175), (675, 14247), (676, 14250), (685, 14316), (686, 14319), (688, 14337), (698, 14397), (718, 14553), (719, 14556), (722, 14571), (744, 14742), (754, 14796), (766, 14853), (769, 14868), (776, 14916), (781, 14961), (805, 15081), (806, 15090), (813, 15129), (822, 15201), (828, 15270), (831, 15282), (842, 15333), (845, 15351), (864, 15501),

Gene: Fribs8\_17 Start: 10424, Stop: 15559, Start Num: 27

Candidate Starts for Fribs8\_17:

(Start: 27 @10424 has 26 MA's), (31, 10451), (45, 10580), (53, 10676), (61, 10727), (68, 10760), (73, 10784), (78, 10817), (93, 10907), (106, 10967), (107, 10970), (116, 11030), (118, 11036), (126, 11084), (136, 11150), (138, 11171), (145, 11207), (197, 11567), (205, 11669), (212, 11723), (214,

11726), (217, 11735), (218, 11741), (221, 11762), (244, 11909), (253, 11966), (256, 11984), (260, 12002), (263, 12014), (266, 12053), (273, 12101), (280, 12158), (285, 12182), (287, 12188), (300, 12299), (303, 12308), (306, 12323), (310, 12362), (319, 12437), (329, 12485), (330, 12491), (340, 12533), (350, 12641), (354, 12680), (359, 12713), (381, 12872), (389, 12917), (394, 12941), (412, 13022), (419, 13046), (420, 13049), (421, 13052), (424, 13070), (429, 13103), (435, 13145), (443, 13184), (450, 13235), (463, 13319), (464, 13325), (470, 13382), (472, 13394), (478, 13436), (480, 13457), (481, 13469), (483, 13490), (484, 13493), (498, 13559), (501, 13580), (524, 13700), (535, 13766), (541, 13793), (551, 13838), (555, 13859), (563, 13880), (606, 14123), (614, 14153), (621, 14192), (644, 14327), (650, 14357), (653, 14378), (683, 14570), (726, 14783), (730, 14801), (738, 14816), (755, 14927), (758, 14945), (774, 15011), (780, 15062), (787, 15122), (789, 15134), (797, 15173), (798, 15176), (803, 15203), (809, 15236), (814, 15269), (838, 15467), (840, 15473), (852, 15530),

Gene: Frickyeah\_18 Start: 9926, Stop: 15508, Start Num: 30

Candidate Starts for Frickyeah\_18:

(Start: 21 @9881 has 10 MA's), (Start: 30 @9926 has 1 MA's), (32, 9947), (36, 9968), (40, 10013), (Start: 41 @10028 has 1 MA's), (47, 10112), (55, 10154), (56, 10166), (67, 10229), (70, 10244), (72, 10253), (75, 10271), (76, 10277), (87, 10325), (111, 10460), (134, 10610), (138, 10640), (187, 10964), (200, 11060), (208, 11168), (217, 11213), (218, 11219), (221, 11240), (233, 11321), (244, 11387), (249, 11414), (251, 11426), (253, 11444), (254, 11456), (260, 11480), (263, 11492), (266, 11531), (267, 11534), (268, 11543), (271, 11573), (277, 11618), (289, 11678), (292, 11693), (295, 11723), (296, 11735), (301, 11780), (303, 11786), (306, 11801), (309, 11831), (311, 11852), (312, 11855), (320, 11918), (324, 11945), (325, 11948), (326, 11951), (327, 11957), (333, 11981), (334, 11984), (336, 11990), (338, 11996), (340, 12011), (343, 12029), (345, 12074), (354, 12158), (355, 12164), (359, 12191), (372, 12284), (373, 12293), (381, 12350), (382, 12362), (390, 12398), (391, 12404), (402, 12446), (405, 12458), (411, 12497), (413, 12503), (414, 12506), (419, 12524), (420, 12527), (421, 12530), (426, 12554), (437, 12629), (444, 12668), (448, 12692), (452, 12725), (462, 12836), (465, 12869), (470, 12932), (475, 12968), (479, 12998), (490, 13076), (491, 13079), (493, 13088), (497, 13112), (509, 13193), (511, 13199), (515, 13244), (516, 13247), (519, 13262), (528, 13307), (529, 13316), (530, 13325), (531, 13328), (552, 13433), (565, 13481), (566, 13484), (568, 13487), (580, 13586), (581, 13589), (587, 13601), (602, 13718), (609, 13751), (617, 13802), (625, 13832), (634, 13892), (647, 13973), (651, 13994), (654, 14027), (667, 14099), (668, 14108), (686, 14222), (690, 14252), (693, 14261), (699, 14300), (700, 14303), (703, 14333), (704, 14354), (731, 14552), (741, 14615), (742, 14621), (751, 14672), (778, 14858), (787, 14945), (792, 14972), (793, 14975), (808, 15050), (812, 15074), (817, 15113), (819, 15149), (824, 15170), (834, 15257), (841, 15299), (847, 15332), (849, 15344), (861, 15422), (865, 15488),

Gene: Frokostdame\_17 Start: 10288, Stop: 15762, Start Num: 11

Candidate Starts for Frokostdame\_17:

(Start: 9 @10273 has 37 MA's), (10, 10285), (Start: 11 @10288 has 1 MA's), (Start: 12 @10294 has 1 MA's), (Start: 14 @10324 has 1 MA's), (15, 10333), (18, 10378), (37, 10489), (39, 10510), (46, 10630), (53, 10672), (64, 10738), (67, 10756), (71, 10777), (72, 10780), (75, 10798), (81, 10822), (94, 10906), (104, 10948), (106, 10963), (108, 10972), (135, 11140), (138, 11167), (153, 11284), (162, 11338), (169, 11380), (187, 11485), (208, 11689), (217, 11734), (218, 11740), (221, 11761), (222, 11773), (239, 11863), (244, 11908), (249, 11935), (253, 11965), (266, 12052), (267, 12055), (271, 12094), (280, 12157), (282, 12166), (292, 12214), (296, 12256), (303, 12307), (306, 12322), (312, 12376), (316, 12415), (319, 12436), (320, 12439), (323, 12457), (329, 12484), (334, 12505), (336, 12511), (340, 12532), (343, 12550), (344, 12559), (384, 12832), (392, 12859), (396, 12871), (403, 12886), (420, 12916), (421, 12919), (429, 12970), (435, 13012), (442, 13051), (443, 13054), (449, 13087), (452, 13117), (454, 13141), (465, 13207), (502, 13474), (511, 13522), (513, 13555), (515, 13567), (516, 13570), (519, 13585), (528, 13630), (529, 13639), (530, 13648), (540, 13699), (556, 13771), (560, 13789), (568, 13810), (580, 13909), (581, 13912), (589, 13945), (597, 14011), (599, 14029), (602, 14044), (609, 14077), (617, 14128), (629, 14179), (664, 14422), (665, 14425), (675, 14497),

(676, 14500), (685, 14566), (686, 14569), (688, 14587), (698, 14647), (704, 14704), (707, 14722), (718, 14803), (719, 14806), (722, 14821), (744, 14992), (754, 15046), (769, 15118), (770, 15127), (776, 15163), (784, 15223), (786, 15241), (790, 15259), (802, 15304), (806, 15337), (822, 15448), (828, 15517), (842, 15580), (845, 15598), (864, 15748),

Gene: GEazy\_17 Start: 10605, Stop: 15728, Start Num: 24

Candidate Starts for GEazy\_17:

(Start: 24 @10605 has 12 MA's), (Start: 27 @10614 has 26 MA's), (56, 10887), (58, 10896), (62, 10926), (89, 11055), (108, 11166), (117, 11223), (138, 11361), (146, 11415), (150, 11448), (182, 11649), (187, 11679), (197, 11757), (200, 11775), (202, 11796), (208, 11880), (212, 11913), (216, 11922), (218, 11931), (222, 11964), (224, 11976), (227, 12000), (237, 12045), (239, 12054), (243, 12090), (244, 12099), (249, 12126), (251, 12138), (253, 12156), (260, 12192), (275, 12315), (282, 12357), (301, 12492), (302, 12495), (303, 12498), (306, 12513), (312, 12567), (316, 12606), (331, 12687), (336, 12702), (340, 12723), (342, 12738), (344, 12750), (345, 12786), (348, 12822), (373, 12984), (404, 13041), (410, 13053), (411, 13056), (421, 13089), (424, 13107), (435, 13182), (437, 13188), (439, 13194), (441, 13215), (442, 13218), (443, 13221), (452, 13284), (456, 13320), (459, 13335), (464, 13359), (466, 13374), (467, 13377), (474, 13437), (486, 13536), (494, 13578), (507, 13656), (517, 13725), (523, 13743), (542, 13851), (549, 13878), (550, 13881), (561, 13920), (562, 13923), (566, 13932), (572, 13980), (589, 14067), (592, 14091), (600, 14151), (613, 14211), (630, 14289), (640, 14337), (643, 14349), (653, 14409), (656, 14451), (671, 14532), (676, 14559), (679, 14577), (683, 14607), (689, 14655), (691, 14661), (694, 14670), (701, 14718), (708, 14790), (716, 14829), (720, 14871), (751, 15057), (752, 15060), (757, 15117), (764, 15126), (767, 15138), (771, 15159), (805, 15372), (812, 15411), (823, 15480), (826, 15534), (843, 15606), (857, 15687), (859, 15711),

Gene: GTE2\_14 Start: 9463, Stop: 14106, Start Num: 107

Candidate Starts for GTE2\_14:

(Start: 80 @9307 has 22 MA's), (Start: 85 @9334 has 1 MA's), (98, 9412), (107, 9463), (122, 9550), (125, 9565), (132, 9622), (136, 9640), (139, 9667), (140, 9670), (150, 9739), (156, 9796), (166, 9841), (169, 9859), (176, 9904), (185, 9940), (189, 9973), (197, 10021), (198, 10024), (203, 10072), (205, 10111), (207, 10126), (242, 10318), (245, 10336), (261, 10420), (285, 10567), (291, 10594), (301, 10687), (303, 10693), (306, 10708), (310, 10747), (320, 10825), (336, 10897), (339, 10915), (340, 10918), (356, 11080), (370, 11155), (372, 11191), (381, 11257), (389, 11302), (393, 11323), (394, 11326), (395, 11329), (405, 11365), (411, 11404), (413, 11410), (419, 11431), (421, 11437), (430, 11497), (442, 11566), (443, 11569), (445, 11587), (464, 11710), (466, 11725), (481, 11854), (483, 11875), (490, 11908), (498, 11944), (499, 11950), (522, 12082), (526, 12094), (541, 12181), (576, 12334), (588, 12385), (593, 12424), (615, 12553), (627, 12610), (633, 12655), (650, 12748), (660, 12823), (669, 12886), (683, 12967), (686, 12988), (714, 13174), (715, 13180), (747, 13399), (755, 13477), (758, 13495), (761, 13501), (774, 13561), (777, 13579), (780, 13612), (789, 13684), (797, 13723), (803, 13753), (814, 13819), (818, 13867), (825, 13927), (839, 14017), (852, 14077),

Gene: Gambino\_19 Start: 10619, Stop: 16108, Start Num: 9

Candidate Starts for Gambino\_19:

(Start: 9 @10619 has 37 MA's), (Start: 11 @10634 has 1 MA's), (Start: 12 @10640 has 1 MA's), (Start: 14 @10670 has 1 MA's), (15, 10679), (16, 10682), (18, 10724), (37, 10835), (39, 10856), (46, 10976), (53, 11018), (64, 11084), (67, 11102), (71, 11123), (72, 11126), (75, 11144), (81, 11168), (94, 11252), (104, 11294), (106, 11309), (108, 11318), (135, 11486), (138, 11513), (153, 11630), (182, 11801), (187, 11831), (208, 12035), (217, 12080), (221, 12107), (222, 12119), (224, 12131), (239, 12209), (244, 12254), (249, 12281), (253, 12311), (266, 12398), (267, 12401), (271, 12440), (280, 12503), (282, 12512), (292, 12560), (296, 12602), (301, 12647), (303, 12653), (306, 12668), (312, 12722), (316, 12761), (319, 12782), (320, 12785), (323, 12803), (329, 12830), (334, 12851), (336, 12857), (340, 12878), (343, 12896), (344, 12905), (384, 13178), (403, 13232), (420, 13262), (421, 13265), (429, 13316), (442, 13397), (443, 13400), (449, 13433), (452, 13463), (454, 13487), (465, 13553),

(502, 13820), (511, 13868), (513, 13901), (515, 13913), (516, 13916), (528, 13976), (529, 13985), (530, 13994), (540, 14045), (556, 14117), (560, 14135), (568, 14156), (580, 14255), (581, 14258), (589, 14291), (597, 14357), (599, 14375), (602, 14390), (609, 14423), (617, 14474), (629, 14525), (639, 14594), (664, 14768), (665, 14771), (675, 14843), (676, 14846), (685, 14912), (686, 14915), (688, 14933), (698, 14993), (704, 15050), (707, 15068), (718, 15149), (719, 15152), (722, 15167), (744, 15338), (754, 15392), (769, 15464), (770, 15473), (776, 15509), (784, 15569), (786, 15587), (790, 15605), (802, 15650), (806, 15683), (822, 15794), (828, 15863), (842, 15926), (845, 15944), (864, 16094),

Gene: Getalong\_19 Start: 10672, Stop: 16305, Start Num: 22

Candidate Starts for Getalong\_19:

(Start: 22 @10672 has 5 MA's), (Start: 30 @10717 has 1 MA's), (32, 10738), (36, 10759), (40, 10804), (Start: 41 @10819 has 1 MA's), (47, 10903), (55, 10945), (56, 10957), (67, 11020), (70, 11035), (72, 11044), (75, 11062), (76, 11068), (87, 11116), (111, 11251), (134, 11401), (138, 11431), (169, 11650), (182, 11725), (187, 11755), (208, 11959), (217, 12004), (218, 12010), (221, 12031), (224, 12055), (233, 12112), (244, 12178), (249, 12205), (251, 12217), (253, 12235), (254, 12247), (260, 12271), (263, 12283), (266, 12322), (267, 12325), (268, 12334), (271, 12364), (277, 12409), (289, 12469), (292, 12484), (295, 12514), (296, 12526), (301, 12571), (303, 12577), (306, 12592), (309, 12622), (311, 12643), (312, 12646), (320, 12709), (324, 12736), (325, 12739), (326, 12742), (327, 12748), (333, 12772), (334, 12775), (336, 12781), (338, 12787), (340, 12802), (343, 12820), (345, 12865), (354, 12949), (355, 12955), (359, 12982), (372, 13075), (373, 13084), (381, 13141), (382, 13153), (390, 13189), (391, 13195), (402, 13237), (405, 13249), (411, 13288), (413, 13294), (414, 13297), (419, 13315), (420, 13318), (421, 13321), (437, 13420), (444, 13459), (448, 13483), (452, 13516), (462, 13627), (465, 13660), (470, 13723), (475, 13759), (479, 13789), (490, 13867), (491, 13870), (493, 13879), (497, 13903), (511, 13990), (515, 14035), (516, 14038), (519, 14053), (528, 14098), (529, 14107), (530, 14116), (531, 14119), (552, 14224), (565, 14272), (568, 14278), (580, 14377), (581, 14380), (587, 14392), (602, 14509), (609, 14542), (617, 14593), (625, 14623), (634, 14683), (647, 14764), (651, 14785), (652, 14788), (654, 14818), (666, 14881), (667, 14890), (668, 14899), (686, 15013), (690, 15043), (699, 15091), (700, 15094), (703, 15124), (704, 15145), (731, 15343), (741, 15406), (742, 15412), (751, 15463), (778, 15655), (787, 15742), (792, 15769), (793, 15772), (808, 15847), (812, 15871), (817, 15910), (819, 15946), (824, 15967), (834, 16054), (841, 16096), (847, 16129), (849, 16141), (865, 16285),

Gene: GiKK\_19 Start: 9920, Stop: 14137, Start Num: 80

Candidate Starts for GiKK\_19:

(Start: 80 @9920 has 22 MA's), (Start: 85 @9947 has 1 MA's), (127, 10193), (136, 10256), (143, 10313), (147, 10340), (151, 10382), (160, 10445), (164, 10460), (167, 10478), (169, 10496), (171, 10508), (175, 10541), (183, 10583), (186, 10598), (200, 10694), (201, 10703), (206, 10766), (208, 10781), (215, 10817), (223, 10868), (230, 10901), (232, 10910), (245, 10991), (255, 11057), (258, 11066), (259, 11075), (264, 11096), (283, 11231), (285, 11243), (306, 11384), (308, 11405), (312, 11438), (313, 11456), (315, 11474), (323, 11519), (336, 11573), (338, 11579), (340, 11594), (358, 11657), (367, 11705), (370, 11720), (372, 11756), (400, 11810), (411, 11837), (412, 11840), (413, 11843), (420, 11867), (421, 11870), (430, 11930), (442, 11999), (443, 12002), (445, 12020), (450, 12053), (456, 12104), (462, 12134), (466, 12158), (467, 12161), (481, 12287), (483, 12308), (485, 12317), (487, 12326), (489, 12332), (514, 12485), (534, 12554), (536, 12560), (545, 12596), (583, 12725), (606, 12866), (611, 12890), (621, 12935), (645, 13088), (646, 13091), (678, 13283), (683, 13313), (753, 13487), (766, 13559), (773, 13595), (777, 13619), (779, 13631), (782, 13673), (788, 13715), (789, 13721), (795, 13745), (800, 13763), (803, 13784), (807, 13811), (809, 13817), (814, 13850), (816, 13871), (818, 13898), (823, 13922), (825, 13958), (832, 14006), (852, 14108),

Gene: Gibbous\_16 Start: 9856, Stop: 14970, Start Num: 27

Candidate Starts for Gibbous\_16:

(Start: 22 @9835 has 5 MA's), (Start: 27 @9856 has 26 MA's), (31, 9883), (45, 10012), (50, 10096), (53, 10108), (61, 10159), (68, 10192), (73, 10216), (78, 10249), (93, 10339), (106, 10399), (107, 10402), (118, 10468), (124, 10504), (126, 10516), (134, 10573), (136, 10582), (138, 10603), (188, 10942), (197, 10999), (205, 11101), (217, 11167), (218, 11173), (221, 11194), (244, 11341), (253, 11398), (256, 11416), (259, 11431), (263, 11446), (266, 11485), (280, 11590), (285, 11614), (287, 11620), (300, 11731), (303, 11740), (306, 11755), (310, 11794), (323, 11890), (329, 11917), (330, 11923), (331, 11929), (339, 11962), (340, 11965), (350, 12073), (354, 12112), (359, 12145), (363, 12175), (364, 12178), (369, 12199), (370, 12202), (381, 12304), (389, 12349), (394, 12373), (395, 12376), (412, 12454), (419, 12478), (420, 12481), (421, 12484), (429, 12535), (437, 12583), (439, 12589), (445, 12634), (463, 12751), (464, 12757), (470, 12814), (478, 12868), (480, 12889), (481, 12901), (483, 12922), (484, 12925), (498, 12991), (499, 12997), (524, 13132), (535, 13198), (541, 13225), (558, 13303), (606, 13543), (614, 13573), (644, 13747), (650, 13777), (653, 13798), (668, 13906), (683, 13990), (738, 14227), (755, 14338), (758, 14356), (774, 14422), (780, 14473), (789, 14545), (797, 14584), (798, 14587), (803, 14614), (807, 14641), (814, 14680), (818, 14728), (825, 14788), (828, 14824), (838, 14878),

Gene: GoldHunter\_17 Start: 9630, Stop: 14768, Start Num: 27

Candidate Starts for GoldHunter\_17:

(Start: 22 @9606 has 5 MA's), (Start: 27 @9630 has 26 MA's), (31, 9657), (45, 9786), (48, 9861), (76, 10014), (77, 10017), (93, 10113), (96, 10122), (102, 10152), (104, 10158), (106, 10173), (107, 10176), (111, 10197), (123, 10269), (126, 10290), (136, 10356), (138, 10377), (153, 10494), (180, 10656), (187, 10695), (196, 10770), (212, 10929), (217, 10941), (221, 10968), (226, 11013), (228, 11025), (244, 11115), (247, 11133), (251, 11154), (254, 11184), (260, 11208), (263, 11220), (266, 11259), (270, 11292), (287, 11394), (288, 11397), (292, 11421), (303, 11514), (306, 11529), (310, 11568), (316, 11622), (323, 11664), (332, 11706), (339, 11736), (340, 11739), (350, 11847), (351, 11850), (356, 11901), (370, 11976), (379, 12066), (381, 12078), (389, 12123), (393, 12144), (394, 12147), (395, 12150), (411, 12225), (421, 12258), (425, 12279), (429, 12309), (437, 12357), (439, 12363), (443, 12390), (463, 12525), (478, 12642), (481, 12675), (483, 12696), (484, 12699), (498, 12765), (499, 12771), (501, 12786), (524, 12906), (526, 12915), (541, 12999), (606, 13320), (646, 13539), (653, 13575), (686, 13788), (726, 13980), (738, 14028), (743, 14049), (758, 14157), (774, 14223), (777, 14241), (783, 14301), (789, 14346), (796, 14376), (797, 14385), (803, 14415), (814, 14481), (818, 14529), (825, 14589), (838, 14676), (852, 14739),

Gene: Guacamole\_17 Start: 10278, Stop: 15800, Start Num: 9

Candidate Starts for Guacamole\_17:

(Start: 9 @10278 has 37 MA's), (Start: 11 @10293 has 1 MA's), (Start: 12 @10299 has 1 MA's), (Start: 14 @10329 has 1 MA's), (15, 10338), (16, 10341), (18, 10383), (37, 10494), (39, 10515), (46, 10635), (53, 10677), (64, 10743), (67, 10761), (71, 10782), (72, 10785), (75, 10803), (81, 10827), (94, 10911), (95, 10914), (104, 10953), (106, 10968), (108, 10977), (135, 11145), (138, 11172), (153, 11289), (161, 11337), (182, 11460), (187, 11490), (208, 11694), (217, 11739), (221, 11766), (222, 11778), (239, 11868), (244, 11913), (249, 11940), (253, 11970), (266, 12057), (267, 12060), (271, 12099), (284, 12183), (292, 12219), (296, 12261), (301, 12306), (303, 12312), (305, 12324), (306, 12327), (312, 12381), (316, 12420), (319, 12441), (320, 12444), (323, 12462), (324, 12471), (329, 12489), (334, 12510), (336, 12516), (340, 12537), (344, 12564), (349, 12642), (388, 12831), (396, 12855), (402, 12867), (403, 12870), (415, 12885), (420, 12900), (421, 12903), (429, 12954), (442, 13035), (443, 13038), (449, 13071), (452, 13101), (454, 13125), (476, 13284), (502, 13458), (511, 13506), (515, 13551), (516, 13554), (519, 13569), (528, 13614), (529, 13623), (530, 13632), (540, 13683), (556, 13755), (560, 13773), (568, 13794), (580, 13893), (581, 13896), (589, 13929), (597, 13995), (599, 14013), (602, 14028), (609, 14061), (617, 14112), (629, 14163), (635, 14211), (664, 14406), (665, 14409), (675, 14481), (676, 14484), (685, 14550), (686, 14553), (688, 14571), (698, 14631), (704, 14688), (707, 14706), (718, 14787), (719, 14790), (722, 14805), (754, 15018), (760, 15084), (772, 15138), (773, 15150), (774, 15156), (789, 15279), (795, 15303), (799, 15321), (803, 15345), (804, 15351), (807, 15372), (814, 15411), (828, 15552), (831, 15564), (842, 15615), (845, 15633), (864,

15783),

Gene: HannahD\_17 Start: 10605, Stop: 15728, Start Num: 24

Candidate Starts for HannahD\_17:

(Start: 24 @10605 has 12 MA's), (Start: 27 @10614 has 26 MA's), (56, 10887), (58, 10896), (62, 10926), (89, 11055), (108, 11166), (117, 11223), (138, 11361), (146, 11415), (150, 11448), (182, 11649), (187, 11679), (197, 11757), (200, 11775), (202, 11796), (208, 11880), (212, 11913), (216, 11922), (218, 11931), (222, 11964), (224, 11976), (227, 12000), (237, 12045), (239, 12054), (243, 12090), (244, 12099), (249, 12126), (251, 12138), (253, 12156), (260, 12192), (275, 12315), (282, 12357), (301, 12492), (302, 12495), (303, 12498), (306, 12513), (312, 12567), (316, 12606), (331, 12687), (336, 12702), (340, 12723), (342, 12738), (344, 12750), (345, 12786), (348, 12822), (373, 12984), (404, 13041), (410, 13053), (411, 13056), (421, 13089), (424, 13107), (435, 13182), (437, 13188), (439, 13194), (441, 13215), (442, 13218), (443, 13221), (452, 13284), (456, 13320), (459, 13335), (464, 13359), (466, 13374), (467, 13377), (474, 13437), (486, 13536), (494, 13578), (507, 13656), (517, 13725), (523, 13743), (542, 13851), (549, 13878), (550, 13881), (561, 13920), (562, 13923), (566, 13932), (572, 13980), (589, 14067), (592, 14091), (600, 14151), (613, 14211), (630, 14289), (640, 14337), (643, 14349), (653, 14409), (656, 14451), (671, 14532), (676, 14559), (679, 14577), (683, 14607), (689, 14655), (691, 14661), (694, 14670), (701, 14718), (708, 14790), (716, 14829), (720, 14871), (751, 15057), (752, 15060), (757, 15117), (764, 15126), (767, 15138), (771, 15159), (805, 15372), (812, 15411), (823, 15480), (826, 15534), (843, 15606), (857, 15687), (859, 15711),

Gene: Hedwig\_18 Start: 11001, Stop: 16013, Start Num: 24

Candidate Starts for Hedwig\_18:

(Start: 24 @11001 has 12 MA's), (Start: 30 @11031 has 1 MA's), (32, 11052), (38, 11088), (58, 11292), (62, 11322), (77, 11397), (96, 11502), (108, 11562), (120, 11640), (121, 11643), (131, 11715), (138, 11757), (150, 11844), (208, 12273), (211, 12282), (212, 12306), (218, 12324), (224, 12369), (227, 12393), (237, 12438), (239, 12447), (243, 12483), (244, 12492), (248, 12516), (251, 12531), (253, 12549), (258, 12573), (266, 12636), (274, 12690), (275, 12708), (289, 12783), (294, 12813), (301, 12885), (303, 12891), (306, 12906), (308, 12927), (312, 12960), (320, 13023), (323, 13041), (329, 13068), (331, 13080), (336, 13095), (340, 13116), (352, 13236), (354, 13263), (359, 13296), (366, 13335), (369, 13350), (373, 13398), (376, 13422), (380, 13452), (392, 13515), (405, 13560), (406, 13563), (421, 13632), (432, 13704), (435, 13725), (437, 13731), (439, 13737), (442, 13761), (443, 13764), (446, 13785), (450, 13815), (452, 13827), (456, 13863), (466, 13917), (467, 13920), (468, 13926), (472, 13971), (474, 13980), (494, 14121), (500, 14154), (507, 14199), (508, 14205), (509, 14217), (517, 14268), (539, 14352), (544, 14376), (549, 14400), (550, 14403), (566, 14454), (572, 14502), (589, 14589), (592, 14613), (594, 14625), (596, 14646), (600, 14673), (622, 14778), (630, 14811), (640, 14859), (643, 14871), (655, 14943), (658, 14952), (698, 15108), (709, 15138), (748, 15330), (771, 15450), (772, 15453), (794, 15597), (805, 15660), (826, 15822), (829, 15834), (843, 15891), (856, 15966), (857, 15972), (860, 16002), (862, 16005),

Gene: Hexbug\_18 Start: 10603, Stop: 14823, Start Num: 80

Candidate Starts for Hexbug\_18:

(Start: 80 @10603 has 22 MA's), (Start: 85 @10630 has 1 MA's), (136, 10939), (143, 10996), (146, 11020), (151, 11065), (152, 11068), (155, 11110), (160, 11128), (164, 11143), (167, 11161), (168, 11170), (175, 11224), (186, 11281), (198, 11362), (203, 11410), (206, 11449), (208, 11464), (211, 11473), (215, 11500), (220, 11530), (221, 11533), (223, 11551), (245, 11674), (255, 11740), (265, 11803), (278, 11890), (292, 11959), (305, 12064), (306, 12067), (308, 12088), (312, 12121), (313, 12139), (315, 12157), (319, 12181), (323, 12202), (324, 12211), (336, 12256), (337, 12259), (340, 12277), (367, 12388), (369, 12400), (370, 12403), (372, 12439), (388, 12481), (400, 12493), (411, 12520), (421, 12553), (433, 12628), (442, 12682), (443, 12685), (445, 12703), (452, 12748), (456, 12787), (457, 12793), (462, 12817), (465, 12838), (466, 12841), (467, 12844), (481, 12970), (483, 12991), (485, 13000), (487, 13009), (489, 13015), (514, 13168), (527, 13213), (534, 13237), (536,

13243), (545, 13279), (553, 13312), (565, 13336), (575, 13387), (584, 13432), (606, 13570), (614, 13600), (678, 13981), (753, 14173), (766, 14245), (773, 14281), (777, 14305), (779, 14317), (782, 14359), (789, 14407), (803, 14470), (809, 14503), (814, 14536), (816, 14557), (818, 14584), (823, 14608), (825, 14644), (827, 14671), (828, 14680), (832, 14692), (852, 14794),

Gene: HippoPololi\_18 Start: 10513, Stop: 15630, Start Num: 27

Candidate Starts for HippoPololi\_18:

(Start: 22 @10492 has 5 MA's), (Start: 27 @10513 has 26 MA's), (31, 10540), (45, 10669), (50, 10753), (57, 10792), (61, 10816), (73, 10873), (77, 10900), (78, 10906), (93, 10996), (106, 11056), (107, 11059), (118, 11125), (126, 11173), (136, 11239), (138, 11260), (188, 11599), (196, 11653), (197, 11656), (205, 11758), (214, 11815), (216, 11821), (217, 11824), (218, 11830), (221, 11851), (239, 11953), (253, 12055), (256, 12073), (266, 12142), (273, 12190), (280, 12247), (285, 12271), (287, 12277), (303, 12397), (306, 12412), (310, 12451), (319, 12526), (323, 12547), (329, 12574), (330, 12580), (339, 12619), (340, 12622), (350, 12730), (359, 12802), (369, 12856), (381, 12961), (389, 13006), (394, 13030), (412, 13111), (420, 13138), (421, 13141), (429, 13192), (437, 13240), (439, 13246), (445, 13291), (463, 13408), (464, 13414), (470, 13471), (478, 13525), (480, 13546), (481, 13558), (483, 13579), (484, 13582), (498, 13648), (499, 13654), (524, 13789), (526, 13798), (535, 13855), (541, 13882), (567, 13975), (606, 14203), (610, 14224), (614, 14233), (644, 14407), (650, 14437), (653, 14458), (683, 14650), (710, 14740), (738, 14887), (743, 14908), (758, 15016), (768, 15049), (774, 15082), (780, 15133), (789, 15205), (797, 15244), (798, 15247), (803, 15274), (809, 15307), (814, 15340), (816, 15361), (818, 15388), (828, 15484), (838, 15538),

Gene: Hitter\_17 Start: 10274, Stop: 15796, Start Num: 9

Candidate Starts for Hitter\_17:

(Start: 9 @10274 has 37 MA's), (Start: 11 @10289 has 1 MA's), (Start: 12 @10295 has 1 MA's), (Start: 14 @10325 has 1 MA's), (15, 10334), (16, 10337), (18, 10379), (37, 10490), (39, 10511), (64, 10739), (67, 10757), (70, 10772), (71, 10778), (72, 10781), (75, 10799), (81, 10823), (94, 10907), (96, 10913), (104, 10949), (106, 10964), (108, 10973), (135, 11141), (138, 11168), (153, 11285), (182, 11456), (187, 11486), (208, 11690), (217, 11735), (244, 11909), (249, 11936), (253, 11966), (266, 12053), (271, 12095), (284, 12179), (292, 12215), (296, 12257), (301, 12302), (303, 12308), (305, 12320), (306, 12323), (312, 12377), (316, 12416), (319, 12437), (320, 12440), (323, 12458), (324, 12467), (329, 12485), (334, 12506), (336, 12512), (340, 12533), (344, 12560), (349, 12638), (388, 12827), (396, 12851), (402, 12863), (403, 12866), (415, 12881), (420, 12896), (421, 12899), (429, 12950), (442, 13031), (443, 13034), (449, 13067), (452, 13097), (454, 13121), (502, 13454), (511, 13502), (515, 13547), (516, 13550), (519, 13565), (528, 13610), (529, 13619), (530, 13628), (540, 13679), (556, 13751), (560, 13769), (568, 13790), (580, 13889), (581, 13892), (589, 13925), (597, 13991), (599, 14009), (602, 14024), (609, 14057), (617, 14108), (629, 14159), (664, 14402), (665, 14405), (675, 14477), (676, 14480), (685, 14546), (686, 14549), (688, 14567), (698, 14627), (704, 14684), (707, 14702), (718, 14783), (719, 14786), (722, 14801), (754, 15014), (760, 15080), (761, 15086), (773, 15146), (774, 15152), (789, 15275), (795, 15299), (799, 15317), (803, 15341), (804, 15347), (807, 15368), (814, 15407), (828, 15548), (831, 15560), (842, 15611), (845, 15629), (864, 15779),

Gene: Holliday\_18 Start: 9868, Stop: 15501, Start Num: 21

Candidate Starts for Holliday\_18:

(Start: 21 @9868 has 10 MA's), (28, 9895), (Start: 30 @9913 has 1 MA's), (32, 9934), (36, 9955), (40, 10000), (Start: 41 @10015 has 1 MA's), (47, 10099), (55, 10141), (56, 10153), (67, 10216), (70, 10231), (72, 10240), (75, 10258), (76, 10264), (87, 10312), (111, 10447), (134, 10597), (138, 10627), (169, 10846), (182, 10921), (187, 10951), (208, 11155), (216, 11197), (217, 11200), (218, 11206), (221, 11227), (233, 11308), (244, 11374), (249, 11401), (251, 11413), (253, 11431), (254, 11443), (260, 11467), (263, 11479), (266, 11518), (267, 11521), (268, 11530), (271, 11560), (277, 11605), (289, 11665), (292, 11680), (295, 11710), (296, 11722), (301, 11767), (303, 11773), (306, 11788), (309, 11818), (311, 11839), (312, 11842), (320, 11905), (324, 11932), (325, 11935), (326, 11938), (327, 11944), (333, 11968), (334, 11971), (336, 11977), (338, 11983), (340, 11998), (343, 12016),

(348, 12097), (354, 12145), (355, 12151), (359, 12178), (381, 12337), (382, 12349), (390, 12385), (405, 12445), (411, 12484), (413, 12490), (414, 12493), (420, 12514), (421, 12517), (437, 12616), (444, 12655), (448, 12679), (452, 12712), (455, 12757), (461, 12811), (469, 12898), (470, 12919), (475, 12955), (479, 12985), (490, 13063), (491, 13066), (493, 13075), (497, 13099), (509, 13180), (511, 13186), (515, 13231), (516, 13234), (519, 13249), (528, 13294), (529, 13303), (530, 13312), (531, 13315), (552, 13420), (565, 13468), (568, 13474), (580, 13573), (581, 13576), (587, 13588), (602, 13705), (609, 13738), (617, 13789), (618, 13801), (625, 13819), (634, 13879), (647, 13960), (651, 13981), (654, 14014), (666, 14077), (668, 14095), (686, 14209), (690, 14239), (693, 14248), (699, 14287), (700, 14290), (703, 14320), (704, 14341), (724, 14494), (731, 14545), (741, 14608), (742, 14614), (751, 14665), (778, 14851), (787, 14938), (792, 14965), (793, 14968), (808, 15043), (812, 15067), (817, 15106), (819, 15142), (824, 15163), (834, 15250), (841, 15292), (847, 15325), (849, 15337), (861, 15415), (865, 15481),

Gene: Horseradish\_17 Start: 9515, Stop: 14311, Start Num: 80

Candidate Starts for Horseradish\_17:

(Start: 80 @9515 has 22 MA's), (Start: 85 @9542 has 1 MA's), (87, 9548), (107, 9671), (125, 9773), (129, 9818), (132, 9830), (136, 9848), (139, 9875), (140, 9878), (142, 9893), (149, 9944), (150, 9947), (156, 10004), (157, 10007), (158, 10010), (166, 10049), (169, 10067), (176, 10112), (185, 10148), (189, 10181), (194, 10214), (195, 10226), (203, 10280), (205, 10319), (207, 10334), (210, 10343), (213, 10370), (223, 10421), (235, 10481), (238, 10490), (245, 10544), (257, 10607), (260, 10622), (268, 10685), (285, 10775), (291, 10802), (301, 10895), (303, 10901), (306, 10916), (310, 10955), (320, 11033), (326, 11066), (336, 11105), (339, 11123), (340, 11126), (344, 11153), (347, 11210), (349, 11231), (365, 11342), (370, 11363), (372, 11399), (378, 11441), (379, 11453), (381, 11465), (389, 11510), (390, 11513), (393, 11531), (394, 11534), (395, 11537), (411, 11612), (421, 11645), (430, 11705), (441, 11771), (442, 11774), (443, 11777), (445, 11795), (459, 11894), (462, 11909), (463, 11912), (481, 12062), (483, 12083), (492, 12125), (498, 12152), (499, 12158), (522, 12290), (526, 12302), (541, 12389), (550, 12431), (558, 12467), (570, 12503), (576, 12542), (588, 12593), (593, 12632), (603, 12710), (615, 12761), (627, 12818), (650, 12956), (660, 13028), (683, 13172), (686, 13193), (714, 13370), (715, 13376), (758, 13700), (761, 13706), (774, 13766), (777, 13784), (780, 13817), (789, 13889), (797, 13928), (803, 13958), (814, 14024), (815, 14042), (818, 14072), (825, 14132), (839, 14222), (852, 14282),

Gene: Horus\_18 Start: 9926, Stop: 15514, Start Num: 30

Candidate Starts for Horus\_18:

(Start: 21 @9881 has 10 MA's), (Start: 30 @9926 has 1 MA's), (32, 9947), (36, 9968), (40, 10013), (Start: 41 @10028 has 1 MA's), (47, 10112), (55, 10154), (56, 10166), (67, 10229), (70, 10244), (72, 10253), (75, 10271), (76, 10277), (87, 10325), (111, 10460), (134, 10610), (138, 10640), (187, 10964), (200, 11060), (208, 11168), (216, 11210), (217, 11213), (218, 11219), (221, 11240), (233, 11321), (244, 11387), (249, 11414), (251, 11426), (253, 11444), (254, 11456), (260, 11480), (263, 11492), (266, 11531), (267, 11534), (268, 11543), (271, 11573), (289, 11678), (292, 11693), (295, 11723), (296, 11735), (301, 11780), (303, 11786), (306, 11801), (309, 11831), (311, 11852), (312, 11855), (320, 11918), (324, 11945), (325, 11948), (326, 11951), (327, 11957), (333, 11981), (334, 11984), (336, 11990), (338, 11996), (340, 12011), (343, 12029), (345, 12074), (354, 12158), (355, 12164), (359, 12191), (372, 12284), (373, 12293), (381, 12350), (382, 12362), (390, 12398), (402, 12446), (405, 12458), (411, 12497), (413, 12503), (414, 12506), (419, 12524), (420, 12527), (421, 12530), (426, 12554), (437, 12629), (448, 12692), (452, 12725), (456, 12800), (461, 12824), (462, 12836), (465, 12869), (470, 12932), (475, 12968), (479, 12998), (490, 13076), (491, 13079), (493, 13088), (511, 13199), (515, 13244), (516, 13247), (519, 13262), (528, 13307), (529, 13316), (530, 13325), (531, 13328), (552, 13433), (565, 13481), (568, 13487), (580, 13586), (581, 13589), (587, 13601), (602, 13718), (609, 13751), (617, 13802), (625, 13832), (634, 13892), (647, 13973), (651, 13994), (652, 13997), (654, 14027), (666, 14090), (667, 14099), (668, 14108), (686, 14222), (690, 14252), (699, 14300), (700, 14303), (703, 14333), (704, 14354), (731, 14552), (741, 14615), (742, 14621), (751, 14672), (778, 14864), (787, 14951), (792, 14978), (793, 14981), (808, 15056), (812, 15080),



(817, 15119), (819, 15155), (824, 15176), (834, 15263), (841, 15305), (847, 15338), (849, 15350), (865, 15494),

Gene: Jalammah\_19 Start: 11050, Stop: 16590, Start Num: 9

Candidate Starts for Jalammah\_19:

(Start: 9 @11050 has 37 MA's), (Start: 14 @11101 has 1 MA's), (15, 11110), (16, 11113), (18, 11155), (37, 11266), (39, 11287), (46, 11407), (53, 11449), (64, 11515), (67, 11533), (71, 11554), (72, 11557), (75, 11575), (81, 11599), (94, 11683), (104, 11725), (106, 11740), (108, 11749), (135, 11917), (138, 11944), (153, 12061), (182, 12232), (187, 12262), (208, 12466), (217, 12511), (221, 12538), (222, 12550), (239, 12640), (244, 12685), (249, 12712), (253, 12742), (266, 12829), (267, 12832), (271, 12871), (284, 12955), (292, 12991), (296, 13033), (301, 13078), (303, 13084), (305, 13096), (306, 13099), (312, 13153), (316, 13192), (319, 13213), (320, 13216), (323, 13234), (329, 13261), (334, 13282), (336, 13288), (340, 13309), (344, 13336), (370, 13546), (388, 13624), (396, 13648), (402, 13660), (403, 13663), (415, 13678), (420, 13693), (421, 13696), (429, 13747), (442, 13828), (443, 13831), (449, 13864), (452, 13894), (454, 13918), (465, 13984), (502, 14251), (511, 14299), (515, 14344), (516, 14347), (519, 14362), (528, 14407), (529, 14416), (530, 14425), (540, 14476), (556, 14548), (560, 14566), (568, 14587), (580, 14686), (581, 14689), (589, 14722), (597, 14788), (599, 14806), (602, 14821), (609, 14854), (617, 14905), (629, 14956), (664, 15199), (665, 15202), (675, 15274), (676, 15277), (685, 15343), (686, 15346), (688, 15364), (698, 15424), (704, 15481), (707, 15499), (718, 15580), (719, 15583), (722, 15598), (744, 15757), (754, 15811), (760, 15877), (761, 15883), (773, 15943), (774, 15949), (779, 15979), (789, 16072), (795, 16096), (799, 16114), (803, 16138), (804, 16144), (807, 16165), (814, 16204), (828, 16345), (831, 16357), (842, 16408), (845, 16426), (864, 16576),

Gene: Jamzy\_19 Start: 9930, Stop: 14147, Start Num: 80

Candidate Starts for Jamzy\_19:

(Start: 80 @9930 has 22 MA's), (Start: 85 @9957 has 1 MA's), (127, 10203), (136, 10266), (143, 10323), (147, 10350), (151, 10392), (160, 10455), (164, 10470), (167, 10488), (169, 10506), (171, 10518), (175, 10551), (183, 10593), (186, 10608), (200, 10704), (201, 10713), (206, 10776), (208, 10791), (215, 10827), (223, 10878), (230, 10911), (232, 10920), (245, 11001), (255, 11067), (258, 11076), (259, 11085), (264, 11106), (283, 11241), (285, 11253), (306, 11394), (308, 11415), (312, 11448), (313, 11466), (315, 11484), (323, 11529), (336, 11583), (340, 11604), (358, 11667), (367, 11715), (370, 11730), (372, 11766), (400, 11820), (411, 11847), (413, 11853), (420, 11877), (421, 11880), (430, 11940), (435, 11973), (443, 12012), (445, 12030), (446, 12033), (452, 12075), (453, 12087), (457, 12120), (458, 12123), (462, 12144), (466, 12168), (467, 12171), (478, 12264), (480, 12285), (481, 12297), (483, 12318), (485, 12327), (487, 12336), (489, 12342), (514, 12495), (533, 12555), (534, 12564), (536, 12570), (545, 12606), (584, 12738), (606, 12876), (611, 12900), (645, 13098), (646, 13101), (673, 13263), (677, 13287), (678, 13290), (717, 13392), (753, 13497), (766, 13569), (770, 13593), (773, 13605), (777, 13629), (779, 13641), (788, 13725), (789, 13731), (800, 13773), (803, 13794), (809, 13827), (814, 13860), (816, 13881), (818, 13908), (825, 13968), (827, 13995), (828, 14004), (832, 14016), (852, 14118),

Gene: JasperJr\_17 Start: 10278, Stop: 15800, Start Num: 9

Candidate Starts for JasperJr\_17:

(Start: 9 @10278 has 37 MA's), (Start: 11 @10293 has 1 MA's), (Start: 12 @10299 has 1 MA's), (Start: 14 @10329 has 1 MA's), (15, 10338), (16, 10341), (18, 10383), (37, 10494), (39, 10515), (46, 10635), (53, 10677), (64, 10743), (67, 10761), (71, 10782), (72, 10785), (75, 10803), (81, 10827), (94, 10911), (95, 10914), (104, 10953), (106, 10968), (108, 10977), (135, 11145), (138, 11172), (153, 11289), (161, 11337), (182, 11460), (187, 11490), (208, 11694), (217, 11739), (221, 11766), (222, 11778), (239, 11868), (244, 11913), (249, 11940), (253, 11970), (266, 12057), (267, 12060), (271, 12099), (284, 12183), (292, 12219), (296, 12261), (301, 12306), (303, 12312), (305, 12324), (306, 12327), (312, 12381), (316, 12420), (319, 12441), (320, 12444), (323, 12462), (324, 12471), (329, 12489), (334, 12510), (336, 12516), (340, 12537), (344, 12564), (349, 12642), (388, 12831), (396, 12855), (402,

12867), (403, 12870), (415, 12885), (420, 12900), (421, 12903), (429, 12954), (442, 13035), (443, 13038), (449, 13071), (452, 13101), (454, 13125), (476, 13284), (502, 13458), (511, 13506), (515, 13551), (516, 13554), (519, 13569), (528, 13614), (529, 13623), (530, 13632), (540, 13683), (556, 13755), (560, 13773), (568, 13794), (580, 13893), (581, 13896), (589, 13929), (597, 13995), (599, 14013), (602, 14028), (609, 14061), (617, 14112), (629, 14163), (635, 14211), (664, 14406), (665, 14409), (675, 14481), (676, 14484), (685, 14550), (686, 14553), (688, 14571), (698, 14631), (704, 14688), (707, 14706), (718, 14787), (719, 14790), (722, 14805), (754, 15018), (760, 15084), (772, 15138), (773, 15150), (774, 15156), (789, 15279), (795, 15303), (799, 15321), (803, 15345), (804, 15351), (807, 15372), (814, 15411), (828, 15552), (831, 15564), (842, 15615), (845, 15633), (864, 15783),

Gene: JuJu\_17 Start: 10202, Stop: 15721, Start Num: 9

Candidate Starts for JuJu\_17:

(Start: 9 @10202 has 37 MA's), (Start: 11 @10217 has 1 MA's), (Start: 12 @10223 has 1 MA's), (Start: 14 @10253 has 1 MA's), (15, 10262), (16, 10265), (18, 10307), (37, 10418), (39, 10439), (67, 10685), (71, 10706), (72, 10709), (75, 10727), (81, 10751), (94, 10835), (96, 10841), (104, 10877), (106, 10892), (108, 10901), (111, 10916), (118, 10961), (135, 11069), (138, 11096), (144, 11129), (187, 11414), (208, 11618), (217, 11663), (244, 11837), (249, 11864), (253, 11894), (266, 11981), (271, 12023), (282, 12095), (292, 12143), (296, 12185), (301, 12230), (303, 12236), (305, 12248), (306, 12251), (312, 12305), (316, 12344), (319, 12365), (320, 12368), (323, 12386), (324, 12395), (329, 12413), (334, 12434), (336, 12440), (340, 12461), (344, 12488), (349, 12566), (369, 12674), (384, 12740), (396, 12779), (420, 12824), (421, 12827), (429, 12878), (442, 12959), (443, 12962), (449, 12995), (452, 13025), (465, 13115), (475, 13196), (493, 13316), (502, 13382), (511, 13430), (515, 13475), (516, 13478), (519, 13493), (520, 13502), (528, 13538), (529, 13547), (530, 13556), (556, 13679), (568, 13718), (580, 13817), (581, 13820), (597, 13919), (599, 13937), (602, 13952), (609, 13985), (617, 14036), (629, 14087), (639, 14156), (664, 14330), (665, 14333), (674, 14399), (675, 14405), (676, 14408), (685, 14474), (686, 14477), (688, 14495), (698, 14555), (704, 14612), (707, 14630), (718, 14711), (722, 14729), (729, 14780), (744, 14888), (754, 14942), (760, 15008), (772, 15062), (773, 15074), (774, 15080), (779, 15110), (789, 15203), (795, 15227), (799, 15245), (803, 15269), (804, 15275), (807, 15296), (814, 15335), (828, 15476), (842, 15539), (845, 15557), (855, 15614), (864, 15707),

Gene: Kamaru\_18 Start: 9868, Stop: 15501, Start Num: 21

Candidate Starts for Kamaru\_18:

(Start: 21 @9868 has 10 MA's), (28, 9895), (Start: 30 @9913 has 1 MA's), (32, 9934), (36, 9955), (40, 10000), (Start: 41 @10015 has 1 MA's), (47, 10099), (55, 10141), (56, 10153), (67, 10216), (70, 10231), (72, 10240), (75, 10258), (76, 10264), (87, 10312), (111, 10447), (134, 10597), (138, 10627), (169, 10846), (182, 10921), (187, 10951), (208, 11155), (216, 11197), (217, 11200), (218, 11206), (221, 11227), (233, 11308), (244, 11374), (249, 11401), (251, 11413), (253, 11431), (254, 11443), (260, 11467), (263, 11479), (266, 11518), (267, 11521), (268, 11530), (271, 11560), (277, 11605), (289, 11665), (292, 11680), (295, 11710), (296, 11722), (301, 11767), (303, 11773), (306, 11788), (309, 11818), (311, 11839), (312, 11842), (320, 11905), (324, 11932), (325, 11935), (326, 11938), (327, 11944), (333, 11968), (334, 11971), (336, 11977), (338, 11983), (340, 11998), (343, 12016), (348, 12097), (354, 12145), (355, 12151), (359, 12178), (381, 12337), (382, 12349), (390, 12385), (405, 12445), (411, 12484), (413, 12490), (414, 12493), (420, 12514), (421, 12517), (437, 12616), (444, 12655), (448, 12679), (452, 12712), (455, 12757), (461, 12811), (469, 12898), (470, 12919), (475, 12955), (479, 12985), (490, 13063), (491, 13066), (493, 13075), (497, 13099), (509, 13180), (511, 13186), (515, 13231), (516, 13234), (519, 13249), (528, 13294), (529, 13303), (530, 13312), (531, 13315), (552, 13420), (565, 13468), (568, 13474), (580, 13573), (581, 13576), (587, 13588), (602, 13705), (609, 13738), (617, 13789), (618, 13801), (625, 13819), (634, 13879), (647, 13960), (651, 13981), (654, 14014), (666, 14077), (668, 14095), (686, 14209), (690, 14239), (693, 14248), (699, 14287), (700, 14290), (703, 14320), (704, 14341), (724, 14494), (731, 14545), (741, 14608), (742, 14614), (751, 14665), (778, 14851), (787, 14938), (792, 14965), (793, 14968), (808, 15043),

(812, 15067), (817, 15106), (819, 15142), (824, 15163), (834, 15250), (841, 15292), (847, 15325), (849, 15337), (861, 15415), (865, 15481),

Gene: KappaFarmDelta\_17 Start: 10424, Stop: 15964, Start Num: 9

Candidate Starts for KappaFarmDelta\_17:

(Start: 9 @10424 has 37 MA's), (Start: 11 @10439 has 1 MA's), (Start: 12 @10445 has 1 MA's), (Start: 14 @10475 has 1 MA's), (15, 10484), (16, 10487), (18, 10529), (37, 10640), (39, 10661), (64, 10889), (67, 10907), (71, 10928), (72, 10931), (75, 10949), (81, 10973), (94, 11057), (96, 11063), (104, 11099), (106, 11114), (108, 11123), (135, 11291), (138, 11318), (153, 11435), (182, 11606), (187, 11636), (208, 11840), (217, 11885), (221, 11912), (244, 12059), (249, 12086), (253, 12116), (266, 12203), (267, 12206), (271, 12245), (273, 12251), (292, 12365), (296, 12407), (301, 12452), (303, 12458), (305, 12470), (306, 12473), (312, 12527), (316, 12566), (319, 12587), (320, 12590), (323, 12608), (329, 12635), (334, 12656), (336, 12662), (340, 12683), (344, 12710), (348, 12782), (384, 12983), (388, 12998), (396, 13022), (403, 13037), (420, 13067), (421, 13070), (429, 13121), (443, 13205), (449, 13238), (454, 13292), (490, 13547), (502, 13625), (511, 13673), (513, 13706), (515, 13718), (516, 13721), (519, 13736), (520, 13745), (528, 13781), (529, 13790), (530, 13799), (552, 13907), (565, 13955), (566, 13958), (568, 13961), (569, 13982), (581, 14063), (582, 14066), (602, 14192), (609, 14225), (616, 14273), (617, 14276), (620, 14291), (629, 14327), (664, 14570), (665, 14573), (675, 14645), (676, 14648), (685, 14714), (686, 14717), (688, 14735), (698, 14795), (704, 14852), (707, 14870), (718, 14951), (722, 14969), (754, 15182), (760, 15248), (773, 15314), (774, 15320), (779, 15350), (789, 15443), (795, 15467), (803, 15509), (807, 15536), (814, 15575), (828, 15716), (842, 15779), (845, 15797), (855, 15854),

Gene: KayGee\_15 Start: 9540, Stop: 14468, Start Num: 45

Candidate Starts for KayGee\_15:

(Start: 27 @9384 has 26 MA's), (45, 9540), (59, 9669), (63, 9699), (76, 9768), (79, 9780), (89, 9825), (93, 9867), (96, 9876), (104, 9912), (108, 9936), (127, 10050), (131, 10089), (133, 10095), (134, 10101), (136, 10110), (138, 10131), (162, 10302), (173, 10365), (180, 10410), (191, 10491), (208, 10650), (212, 10683), (217, 10695), (221, 10722), (228, 10779), (235, 10809), (238, 10821), (252, 10923), (253, 10926), (266, 11013), (273, 11061), (292, 11175), (303, 11268), (306, 11283), (308, 11304), (312, 11337), (314, 11367), (317, 11379), (323, 11418), (328, 11442), (329, 11445), (335, 11469), (340, 11493), (349, 11598), (358, 11646), (362, 11676), (366, 11691), (369, 11706), (372, 11745), (378, 11787), (379, 11799), (381, 11811), (383, 11826), (385, 11841), (389, 11856), (394, 11880), (405, 11919), (407, 11934), (408, 11940), (412, 11961), (419, 11985), (421, 11991), (441, 12117), (447, 12147), (453, 12198), (458, 12234), (462, 12255), (463, 12258), (471, 12330), (478, 12375), (481, 12408), (483, 12429), (495, 12483), (506, 12558), (526, 12642), (541, 12729), (586, 12915), (606, 13047), (614, 13077), (638, 13215), (648, 13266), (653, 13296), (678, 13452), (683, 13482), (721, 13662), (727, 13713), (738, 13740), (743, 13761), (758, 13857), (770, 13905), (774, 13923), (789, 14046), (795, 14070), (797, 14085), (803, 14115), (807, 14142), (809, 14148), (814, 14181), (821, 14250), (823, 14253), (825, 14289), (839, 14379),

Gene: Kenna\_17 Start: 9881, Stop: 15508, Start Num: 21

Candidate Starts for Kenna\_17:

(Start: 21 @9881 has 10 MA's), (28, 9908), (Start: 30 @9926 has 1 MA's), (32, 9947), (36, 9968), (40, 10013), (Start: 41 @10028 has 1 MA's), (47, 10112), (55, 10154), (56, 10166), (67, 10229), (70, 10244), (72, 10253), (75, 10271), (76, 10277), (87, 10325), (111, 10460), (134, 10610), (138, 10640), (187, 10964), (200, 11060), (208, 11168), (217, 11213), (218, 11219), (221, 11240), (224, 11264), (233, 11321), (244, 11387), (249, 11414), (251, 11426), (253, 11444), (254, 11456), (260, 11480), (263, 11492), (266, 11531), (267, 11534), (268, 11543), (271, 11573), (277, 11618), (289, 11678), (292, 11693), (295, 11723), (296, 11735), (301, 11780), (303, 11786), (306, 11801), (309, 11831), (311, 11852), (312, 11855), (320, 11918), (324, 11945), (325, 11948), (326, 11951), (327, 11957), (333, 11981), (334, 11984), (336, 11990), (338, 11996), (340, 12011), (343, 12029), (345, 12074), (354, 12158), (355, 12164), (359, 12191), (372, 12284), (373, 12293), (381, 12350), (382, 12362),

(390, 12398), (391, 12404), (402, 12446), (405, 12458), (411, 12497), (413, 12503), (414, 12506), (419, 12524), (420, 12527), (421, 12530), (426, 12554), (437, 12629), (444, 12668), (448, 12692), (452, 12725), (462, 12836), (465, 12869), (470, 12932), (475, 12968), (479, 12998), (490, 13076), (491, 13079), (493, 13088), (497, 13112), (509, 13193), (511, 13199), (515, 13244), (516, 13247), (519, 13262), (528, 13307), (529, 13316), (530, 13325), (531, 13328), (552, 13433), (565, 13481), (566, 13484), (568, 13487), (580, 13586), (581, 13589), (587, 13601), (602, 13718), (609, 13751), (617, 13802), (625, 13832), (634, 13892), (647, 13973), (651, 13994), (654, 14027), (667, 14099), (668, 14108), (686, 14222), (690, 14252), (693, 14261), (699, 14300), (700, 14303), (703, 14333), (704, 14354), (731, 14552), (741, 14615), (742, 14621), (751, 14672), (778, 14858), (787, 14945), (792, 14972), (793, 14975), (808, 15050), (812, 15074), (817, 15113), (819, 15149), (824, 15170), (834, 15257), (841, 15299), (847, 15332), (849, 15344), (861, 15422), (865, 15488),

Gene: Kiko\_18 Start: 10875, Stop: 15764, Start Num: 24

Candidate Starts for Kiko\_18:

(Start: 24 @10875 has 12 MA's), (29, 10899), (38, 10962), (42, 11019), (48, 11115), (51, 11127), (54, 11142), (58, 11166), (62, 11196), (84, 11307), (86, 11313), (87, 11316), (88, 11322), (89, 11325), (90, 11337), (96, 11376), (105, 11418), (107, 11430), (116, 11490), (123, 11523), (131, 11589), (136, 11610), (138, 11631), (146, 11685), (150, 11718), (168, 11835), (180, 11910), (182, 11919), (187, 11949), (197, 12027), (208, 12147), (216, 12189), (218, 12198), (222, 12231), (224, 12243), (227, 12267), (228, 12276), (239, 12321), (243, 12357), (244, 12366), (247, 12384), (253, 12423), (260, 12459), (262, 12468), (266, 12510), (275, 12582), (287, 12645), (298, 12723), (300, 12756), (301, 12759), (303, 12765), (306, 12780), (308, 12801), (311, 12831), (312, 12834), (317, 12876), (324, 12924), (329, 12942), (330, 12948), (334, 12963), (336, 12969), (339, 12987), (340, 12990), (344, 13017), (346, 13065), (347, 13074), (352, 13110), (353, 13113), (359, 13170), (363, 13200), (369, 13224), (373, 13272), (376, 13296), (378, 13305), (380, 13326), (401, 13416), (419, 13500), (421, 13506), (450, 13557), (456, 13605), (459, 13620), (464, 13644), (465, 13656), (466, 13659), (467, 13662), (468, 13668), (472, 13713), (474, 13722), (494, 13863), (500, 13896), (507, 13941), (542, 14136), (544, 14139), (546, 14145), (561, 14205), (566, 14217), (582, 14322), (592, 14376), (597, 14412), (600, 14436), (642, 14637), (659, 14727), (687, 14844), (698, 14886), (749, 15093), (752, 15102), (764, 15168), (771, 15201), (805, 15411), (826, 15573), (829, 15585), (843, 15642), (858, 15726), (860, 15753),

Gene: Lauer\_15 Start: 9433, Stop: 14517, Start Num: 27

Candidate Starts for Lauer\_15:

(Start: 27 @9433 has 26 MA's), (45, 9589), (59, 9718), (63, 9748), (76, 9817), (79, 9829), (93, 9916), (96, 9925), (104, 9961), (108, 9985), (118, 10045), (127, 10099), (131, 10138), (133, 10144), (136, 10159), (138, 10180), (162, 10351), (173, 10414), (180, 10459), (191, 10540), (208, 10699), (212, 10732), (217, 10744), (221, 10771), (228, 10828), (235, 10858), (238, 10870), (252, 10972), (253, 10975), (266, 11062), (273, 11110), (292, 11224), (303, 11317), (306, 11332), (308, 11353), (312, 11386), (314, 11416), (317, 11428), (323, 11467), (328, 11491), (329, 11494), (335, 11518), (340, 11542), (349, 11647), (362, 11725), (369, 11755), (370, 11758), (372, 11794), (378, 11836), (381, 11860), (383, 11875), (385, 11890), (389, 11905), (394, 11929), (405, 11968), (407, 11983), (408, 11989), (412, 12010), (419, 12034), (421, 12040), (441, 12166), (447, 12196), (452, 12235), (458, 12283), (462, 12304), (463, 12307), (471, 12379), (478, 12424), (481, 12457), (483, 12478), (495, 12532), (506, 12607), (526, 12691), (541, 12778), (586, 12964), (606, 13096), (614, 13126), (638, 13264), (648, 13315), (653, 13345), (678, 13501), (683, 13531), (721, 13711), (727, 13762), (738, 13789), (743, 13810), (758, 13906), (770, 13954), (774, 13972), (789, 14095), (795, 14119), (797, 14134), (803, 14164), (807, 14191), (809, 14197), (814, 14230), (821, 14299), (823, 14302), (825, 14338), (839, 14428),

Gene: Leroy\_18 Start: 9882, Stop: 15515, Start Num: 21

Candidate Starts for Leroy\_18:

(Start: 21 @9882 has 10 MA's), (Start: 30 @9927 has 1 MA's), (32, 9948), (36, 9969), (40, 10014), (Start: 41 @10029 has 1 MA's), (47, 10113), (55, 10155), (56, 10167), (67, 10230), (70, 10245), (72, 10254), (75, 10272), (76, 10278), (87, 10326), (111, 10461), (134, 10611), (138, 10641), (182, 10935), (187, 10965), (208, 11169), (216, 11211), (217, 11214), (218, 11220), (221, 11241), (224, 11265), (233, 11322), (244, 11388), (249, 11415), (251, 11427), (253, 11445), (254, 11457), (260, 11481), (263, 11493), (266, 11532), (267, 11535), (268, 11544), (271, 11574), (273, 11580), (289, 11679), (292, 11694), (295, 11724), (296, 11736), (301, 11781), (303, 11787), (306, 11802), (309, 11832), (311, 11853), (312, 11856), (320, 11919), (324, 11946), (326, 11952), (333, 11982), (334, 11985), (336, 11991), (338, 11997), (340, 12012), (343, 12030), (348, 12111), (354, 12159), (355, 12165), (357, 12180), (359, 12192), (381, 12351), (382, 12363), (390, 12399), (391, 12405), (405, 12459), (411, 12498), (413, 12504), (414, 12507), (419, 12525), (420, 12528), (421, 12531), (426, 12555), (437, 12630), (448, 12693), (452, 12726), (455, 12771), (461, 12825), (462, 12837), (469, 12912), (470, 12933), (475, 12969), (479, 12999), (491, 13080), (493, 13089), (497, 13113), (511, 13200), (515, 13245), (516, 13248), (528, 13308), (529, 13317), (530, 13326), (552, 13434), (565, 13482), (568, 13488), (580, 13587), (581, 13590), (587, 13602), (602, 13719), (609, 13752), (617, 13803), (625, 13833), (634, 13893), (647, 13974), (651, 13995), (654, 14028), (667, 14100), (668, 14109), (686, 14223), (690, 14253), (693, 14262), (699, 14301), (700, 14304), (703, 14334), (704, 14355), (731, 14553), (741, 14616), (742, 14622), (751, 14673), (778, 14865), (787, 14952), (792, 14979), (793, 14982), (808, 15057), (812, 15081), (817, 15120), (819, 15156), (824, 15177), (834, 15264), (841, 15306), (847, 15339), (849, 15351), (865, 15495),

Gene: LitninMcQueen\_18 Start: 9869, Stop: 15502, Start Num: 21

Candidate Starts for LitninMcQueen\_18:

(Start: 21 @9869 has 10 MA's), (28, 9896), (Start: 30 @9914 has 1 MA's), (32, 9935), (36, 9956), (40, 10001), (Start: 41 @10016 has 1 MA's), (47, 10100), (55, 10142), (56, 10154), (67, 10217), (70, 10232), (72, 10241), (75, 10259), (76, 10265), (87, 10313), (111, 10448), (134, 10598), (138, 10628), (169, 10847), (182, 10922), (187, 10952), (208, 11156), (216, 11198), (217, 11201), (218, 11207), (221, 11228), (233, 11309), (244, 11375), (249, 11402), (251, 11414), (253, 11432), (254, 11444), (260, 11468), (263, 11480), (266, 11519), (267, 11522), (268, 11531), (271, 11561), (277, 11606), (289, 11666), (292, 11681), (295, 11711), (296, 11723), (301, 11768), (303, 11774), (306, 11789), (309, 11819), (311, 11840), (312, 11843), (320, 11906), (324, 11933), (325, 11936), (326, 11939), (327, 11945), (333, 11969), (334, 11972), (336, 11978), (338, 11984), (340, 11999), (343, 12017), (348, 12098), (354, 12146), (355, 12152), (359, 12179), (381, 12338), (382, 12350), (390, 12386), (405, 12446), (411, 12485), (413, 12491), (414, 12494), (420, 12515), (421, 12518), (437, 12617), (444, 12656), (448, 12680), (452, 12713), (455, 12758), (461, 12812), (469, 12899), (470, 12920), (475, 12956), (479, 12986), (490, 13064), (491, 13067), (493, 13076), (497, 13100), (509, 13181), (511, 13187), (515, 13232), (516, 13235), (519, 13250), (528, 13295), (529, 13304), (530, 13313), (531, 13316), (552, 13421), (565, 13469), (568, 13475), (580, 13574), (581, 13577), (587, 13589), (602, 13706), (609, 13739), (617, 13790), (625, 13820), (634, 13880), (647, 13961), (651, 13982), (654, 14015), (666, 14078), (668, 14096), (686, 14210), (690, 14240), (693, 14249), (699, 14288), (700, 14291), (703, 14321), (704, 14342), (724, 14495), (731, 14546), (741, 14609), (742, 14615), (751, 14666), (778, 14852), (787, 14939), (792, 14966), (793, 14969), (808, 15044), (812, 15068), (817, 15107), (819, 15143), (824, 15164), (834, 15251), (841, 15293), (847, 15326), (849, 15338), (861, 15416), (865, 15482),

Gene: Lutum\_18 Start: 9881, Stop: 15508, Start Num: 21

Candidate Starts for Lutum\_18:

(Start: 21 @9881 has 10 MA's), (28, 9908), (Start: 30 @9926 has 1 MA's), (32, 9947), (36, 9968), (40, 10013), (Start: 41 @10028 has 1 MA's), (47, 10112), (55, 10154), (56, 10166), (67, 10229), (70, 10244), (72, 10253), (75, 10271), (76, 10277), (87, 10325), (111, 10460), (134, 10610), (138, 10640), (187, 10964), (200, 11060), (208, 11168), (217, 11213), (218, 11219), (221, 11240), (224, 11264), (233, 11321), (244, 11387), (249, 11414), (251, 11426), (253, 11444), (254, 11456), (260, 11480), (263, 11492), (266, 11531), (267, 11534), (268, 11543), (271, 11573), (277, 11618), (289, 11678),

(292, 11693), (295, 11723), (296, 11735), (301, 11780), (303, 11786), (306, 11801), (309, 11831), (311, 11852), (312, 11855), (320, 11918), (324, 11945), (325, 11948), (326, 11951), (327, 11957), (333, 11981), (334, 11984), (336, 11990), (338, 11996), (340, 12011), (343, 12029), (345, 12074), (354, 12158), (355, 12164), (359, 12191), (372, 12284), (373, 12293), (381, 12350), (382, 12362), (390, 12398), (391, 12404), (402, 12446), (405, 12458), (411, 12497), (413, 12503), (414, 12506), (419, 12524), (420, 12527), (421, 12530), (426, 12554), (437, 12629), (444, 12668), (448, 12692), (452, 12725), (462, 12836), (465, 12869), (470, 12932), (475, 12968), (479, 12998), (490, 13076), (491, 13079), (493, 13088), (497, 13112), (509, 13193), (511, 13199), (515, 13244), (516, 13247), (519, 13262), (528, 13307), (529, 13316), (530, 13325), (531, 13328), (552, 13433), (565, 13481), (566, 13484), (568, 13487), (580, 13586), (581, 13589), (587, 13601), (602, 13718), (609, 13751), (617, 13802), (625, 13832), (634, 13892), (647, 13973), (651, 13994), (654, 14027), (667, 14099), (668, 14108), (686, 14222), (690, 14252), (693, 14261), (699, 14300), (700, 14303), (703, 14333), (704, 14354), (731, 14552), (741, 14615), (742, 14621), (751, 14672), (778, 14858), (787, 14945), (792, 14972), (793, 14975), (808, 15050), (812, 15074), (817, 15113), (819, 15149), (824, 15170), (834, 15257), (841, 15299), (847, 15332), (849, 15344), (861, 15422), (865, 15488),

Gene: Lysidious\_18 Start: 10777, Stop: 16320, Start Num: 9

Candidate Starts for Lysidious\_18:

(Start: 9 @10777 has 37 MA's), (Start: 14 @10828 has 1 MA's), (15, 10837), (16, 10840), (18, 10882), (37, 10993), (39, 11014), (46, 11134), (53, 11176), (64, 11242), (67, 11260), (71, 11281), (72, 11284), (75, 11302), (81, 11326), (94, 11410), (96, 11416), (104, 11452), (106, 11467), (108, 11476), (135, 11644), (138, 11671), (153, 11788), (182, 11959), (187, 11989), (208, 12193), (217, 12238), (221, 12265), (222, 12277), (239, 12367), (244, 12412), (249, 12439), (253, 12469), (266, 12556), (267, 12559), (271, 12598), (292, 12718), (296, 12760), (301, 12805), (303, 12811), (305, 12823), (306, 12826), (312, 12880), (316, 12919), (319, 12940), (320, 12943), (323, 12961), (324, 12970), (329, 12988), (334, 13009), (336, 13015), (340, 13036), (344, 13063), (369, 13270), (388, 13351), (396, 13375), (402, 13387), (403, 13390), (415, 13405), (420, 13420), (421, 13423), (429, 13474), (442, 13555), (443, 13558), (449, 13591), (452, 13621), (454, 13645), (465, 13711), (502, 13978), (511, 14026), (515, 14071), (516, 14074), (519, 14089), (528, 14134), (529, 14143), (530, 14152), (540, 14203), (556, 14275), (560, 14293), (568, 14314), (580, 14413), (581, 14416), (589, 14449), (597, 14515), (599, 14533), (602, 14548), (609, 14581), (617, 14632), (629, 14683), (664, 14926), (665, 14929), (675, 15001), (676, 15004), (685, 15070), (686, 15073), (688, 15091), (698, 15151), (704, 15208), (707, 15226), (718, 15307), (719, 15310), (722, 15325), (744, 15484), (754, 15538), (760, 15604), (761, 15610), (773, 15670), (774, 15676), (789, 15799), (795, 15823), (799, 15841), (803, 15865), (804, 15871), (807, 15892), (814, 15931), (828, 16072), (831, 16084), (842, 16135), (845, 16153), (855, 16210), (864, 16303),

Gene: MAnor\_16 Start: 9376, Stop: 14475, Start Num: 27

Candidate Starts for MAnor\_16:

(Start: 27 @9376 has 26 MA's), (45, 9532), (55, 9637), (59, 9661), (67, 9712), (76, 9760), (87, 9808), (89, 9817), (93, 9859), (95, 9865), (96, 9868), (104, 9904), (108, 9928), (113, 9955), (127, 10042), (131, 10081), (133, 10087), (136, 10102), (138, 10123), (162, 10294), (173, 10357), (180, 10402), (187, 10441), (191, 10483), (208, 10645), (211, 10654), (212, 10678), (217, 10690), (221, 10717), (222, 10729), (228, 10774), (235, 10804), (238, 10816), (252, 10918), (253, 10921), (266, 11008), (269, 11035), (277, 11095), (283, 11125), (288, 11146), (292, 11170), (303, 11263), (306, 11278), (307, 11287), (308, 11299), (312, 11332), (317, 11374), (327, 11434), (328, 11437), (329, 11440), (330, 11446), (335, 11464), (340, 11488), (349, 11593), (369, 11701), (370, 11704), (372, 11740), (381, 11806), (383, 11821), (385, 11836), (389, 11851), (393, 11872), (394, 11875), (395, 11878), (405, 11914), (407, 11929), (408, 11935), (412, 11956), (419, 11980), (421, 11986), (441, 12112), (447, 12142), (452, 12181), (458, 12229), (462, 12250), (463, 12253), (464, 12259), (471, 12325), (478, 12370), (481, 12403), (483, 12424), (495, 12478), (524, 12628), (526, 12637), (541, 12724), (583, 12901), (606, 13042), (614, 13072), (638, 13210), (653, 13291), (678, 13444), (683, 13474), (725, 13696), (726, 13705), (727, 13711), (738, 13747), (758, 13864), (770, 13912), (774, 13930),

(789, 14053), (795, 14077), (797, 14092), (803, 14122), (807, 14149), (809, 14155), (814, 14188), (821, 14257), (823, 14260), (825, 14296), (835, 14368), (836, 14371), (839, 14386),

Gene: MScarn\_18 Start: 9601, Stop: 14400, Start Num: 80

Candidate Starts for MScarn\_18:

(Start: 80 @9601 has 22 MA's), (Start: 85 @9628 has 1 MA's), (87, 9634), (107, 9757), (125, 9859), (129, 9904), (132, 9916), (136, 9934), (139, 9961), (140, 9964), (142, 9979), (149, 10030), (150, 10033), (156, 10090), (157, 10093), (166, 10135), (169, 10153), (176, 10198), (185, 10234), (189, 10267), (194, 10300), (195, 10312), (203, 10366), (205, 10405), (207, 10420), (210, 10429), (213, 10456), (223, 10507), (235, 10567), (238, 10576), (245, 10630), (257, 10693), (260, 10708), (285, 10861), (291, 10888), (301, 10981), (303, 10987), (306, 11002), (310, 11041), (320, 11119), (326, 11152), (336, 11191), (339, 11209), (340, 11212), (344, 11239), (347, 11296), (349, 11317), (365, 11428), (370, 11449), (372, 11485), (378, 11527), (379, 11539), (381, 11551), (389, 11596), (390, 11599), (393, 11617), (394, 11620), (395, 11623), (411, 11698), (421, 11731), (430, 11791), (441, 11857), (442, 11860), (443, 11863), (445, 11881), (459, 11980), (462, 11995), (463, 11998), (481, 12148), (483, 12169), (492, 12211), (498, 12238), (499, 12244), (526, 12388), (541, 12475), (550, 12517), (558, 12553), (576, 12628), (588, 12679), (593, 12718), (595, 12742), (615, 12847), (627, 12904), (650, 13042), (660, 13117), (683, 13261), (686, 13282), (714, 13459), (715, 13465), (758, 13789), (761, 13795), (774, 13855), (780, 13906), (789, 13978), (797, 14017), (803, 14047), (814, 14113), (818, 14161), (825, 14221), (839, 14311), (852, 14371),

Gene: MaVan\_18 Start: 10619, Stop: 15748, Start Num: 27

Candidate Starts for MaVan\_18:

(Start: 22 @10598 has 5 MA's), (Start: 27 @10619 has 26 MA's), (31, 10646), (45, 10775), (53, 10871), (61, 10922), (73, 10979), (78, 11012), (79, 11015), (93, 11102), (97, 11114), (106, 11162), (107, 11165), (108, 11171), (116, 11225), (118, 11231), (126, 11279), (136, 11345), (138, 11366), (196, 11759), (197, 11762), (205, 11864), (217, 11930), (218, 11936), (221, 11957), (253, 12161), (256, 12179), (260, 12197), (263, 12209), (266, 12248), (268, 12260), (273, 12296), (280, 12353), (285, 12377), (287, 12383), (303, 12503), (306, 12518), (310, 12557), (319, 12632), (325, 12665), (329, 12680), (330, 12686), (331, 12692), (340, 12728), (350, 12836), (359, 12908), (369, 12962), (371, 12968), (389, 13112), (394, 13136), (408, 13196), (409, 13208), (411, 13214), (419, 13241), (420, 13244), (421, 13247), (435, 13340), (437, 13346), (445, 13397), (454, 13466), (460, 13499), (463, 13514), (464, 13520), (470, 13577), (472, 13589), (477, 13628), (478, 13631), (480, 13652), (481, 13664), (483, 13685), (484, 13688), (492, 13727), (495, 13739), (498, 13754), (524, 13895), (541, 13991), (555, 14057), (563, 14078), (567, 14084), (606, 14321), (614, 14351), (621, 14390), (644, 14525), (650, 14555), (653, 14576), (678, 14735), (683, 14768), (726, 14981), (734, 14999), (738, 15005), (758, 15134), (774, 15200), (780, 15251), (789, 15323), (797, 15362), (803, 15392), (809, 15425), (814, 15458), (823, 15530), (828, 15602), (838, 15656), (840, 15662), (852, 15719),

Gene: MagicMan\_17 Start: 10932, Stop: 16046, Start Num: 24

Candidate Starts for MagicMan\_17:

(Start: 24 @10932 has 12 MA's), (Start: 27 @10941 has 26 MA's), (56, 11214), (58, 11223), (62, 11253), (65, 11262), (75, 11319), (89, 11382), (100, 11454), (105, 11475), (108, 11493), (131, 11646), (138, 11688), (146, 11742), (150, 11775), (180, 11967), (181, 11970), (187, 12006), (197, 12084), (202, 12123), (208, 12207), (212, 12240), (216, 12249), (218, 12258), (222, 12291), (224, 12303), (227, 12327), (237, 12372), (239, 12381), (243, 12417), (244, 12426), (249, 12453), (251, 12465), (253, 12483), (260, 12519), (275, 12642), (282, 12684), (301, 12819), (302, 12822), (303, 12825), (306, 12840), (312, 12894), (316, 12933), (329, 13002), (331, 13014), (336, 13029), (340, 13050), (342, 13065), (344, 13077), (345, 13113), (348, 13149), (373, 13311), (404, 13368), (410, 13380), (411, 13383), (421, 13416), (435, 13509), (437, 13515), (439, 13521), (441, 13542), (442, 13545), (443, 13548), (452, 13611), (456, 13647), (459, 13662), (464, 13686), (466, 13701), (467, 13704), (468, 13710), (474, 13764), (486, 13863), (494, 13905), (507, 13983), (511, 14007), (517, 14052), (542, 14178), (546, 14187), (549, 14205), (550, 14208), (561, 14247), (562, 14250), (566, 14259),

(592, 14418), (613, 14538), (630, 14616), (640, 14664), (643, 14676), (653, 14736), (671, 14853), (676, 14880), (679, 14898), (689, 14976), (691, 14982), (694, 14991), (696, 15018), (708, 15111), (716, 15150), (720, 15192), (745, 15345), (751, 15378), (752, 15381), (757, 15438), (764, 15447), (767, 15459), (771, 15480), (774, 15501), (805, 15693), (812, 15732), (823, 15801), (826, 15855), (857, 16008),

Gene: Malachai\_18 Start: 10785, Stop: 16274, Start Num: 9

Candidate Starts for Malachai\_18:

(Start: 9 @10785 has 37 MA's), (13, 10824), (Start: 14 @10836 has 1 MA's), (15, 10845), (16, 10848), (18, 10890), (37, 11001), (39, 11022), (46, 11142), (53, 11184), (64, 11250), (67, 11268), (70, 11283), (71, 11289), (72, 11292), (75, 11310), (81, 11334), (94, 11418), (104, 11460), (106, 11475), (108, 11484), (135, 11652), (138, 11679), (148, 11754), (153, 11796), (161, 11844), (182, 11967), (187, 11997), (208, 12201), (217, 12246), (221, 12273), (222, 12285), (239, 12375), (244, 12420), (249, 12447), (253, 12477), (266, 12564), (271, 12606), (292, 12726), (296, 12768), (301, 12813), (303, 12819), (305, 12831), (306, 12834), (312, 12888), (316, 12927), (319, 12948), (320, 12951), (323, 12969), (329, 12996), (336, 13023), (340, 13044), (344, 13071), (348, 13143), (384, 13344), (388, 13359), (396, 13383), (403, 13398), (420, 13428), (421, 13431), (429, 13482), (442, 13563), (443, 13566), (449, 13599), (452, 13629), (454, 13653), (465, 13719), (502, 13986), (511, 14034), (515, 14079), (516, 14082), (519, 14097), (528, 14142), (529, 14151), (530, 14160), (540, 14211), (556, 14283), (560, 14301), (568, 14322), (580, 14421), (581, 14424), (589, 14457), (597, 14523), (599, 14541), (602, 14556), (609, 14589), (617, 14640), (629, 14691), (664, 14934), (665, 14937), (676, 15012), (685, 15078), (686, 15081), (688, 15099), (698, 15159), (718, 15315), (719, 15318), (722, 15333), (754, 15552), (766, 15609), (769, 15624), (776, 15672), (781, 15717), (805, 15837), (806, 15846), (813, 15885), (822, 15957), (828, 16026), (831, 16038), (842, 16089), (845, 16107), (855, 16164), (864, 16257),

Gene: Malisha\_19 Start: 11668, Stop: 17280, Start Num: 22

Candidate Starts for Malisha\_19:

(Start: 22 @11668 has 5 MA's), (25, 11686), (28, 11695), (Start: 30 @11713 has 1 MA's), (32, 11734), (34, 11746), (40, 11800), (Start: 41 @11815 has 1 MA's), (62, 11992), (67, 12016), (72, 12040), (75, 12058), (84, 12103), (95, 12169), (96, 12172), (108, 12232), (134, 12397), (138, 12427), (157, 12583), (182, 12721), (200, 12847), (208, 12955), (212, 12988), (217, 13000), (221, 13027), (244, 13174), (249, 13201), (253, 13231), (260, 13267), (266, 13318), (267, 13321), (268, 13330), (273, 13366), (282, 13432), (292, 13480), (294, 13495), (295, 13510), (300, 13564), (301, 13567), (303, 13573), (305, 13585), (306, 13588), (311, 13639), (312, 13642), (316, 13681), (336, 13777), (340, 13798), (362, 14002), (369, 14032), (378, 14113), (381, 14137), (382, 14149), (390, 14185), (405, 14245), (411, 14284), (414, 14293), (420, 14314), (421, 14317), (437, 14416), (444, 14455), (448, 14479), (452, 14512), (455, 14557), (461, 14611), (462, 14623), (469, 14698), (470, 14719), (475, 14755), (479, 14785), (491, 14866), (493, 14875), (497, 14899), (509, 14980), (511, 14986), (515, 15031), (516, 15034), (528, 15094), (529, 15103), (530, 15112), (552, 15220), (565, 15268), (568, 15274), (580, 15373), (581, 15376), (587, 15388), (602, 15505), (609, 15538), (616, 15586), (617, 15589), (625, 15619), (634, 15679), (647, 15760), (651, 15781), (652, 15784), (666, 15877), (667, 15886), (683, 15988), (686, 16009), (690, 16039), (693, 16048), (699, 16087), (700, 16090), (701, 16093), (703, 16120), (711, 16174), (724, 16291), (737, 16375), (740, 16387), (741, 16399), (742, 16405), (746, 16432), (751, 16456), (778, 16633), (787, 16720), (791, 16738), (792, 16747), (808, 16825), (810, 16840), (812, 16849), (819, 16924), (820, 16933), (824, 16945), (834, 17032), (841, 17074), (847, 17107), (849, 17119), (861, 17194), (865, 17260),

Gene: Margaret\_19 Start: 10311, Stop: 14516, Start Num: 80

Candidate Starts for Margaret\_19:

(Start: 80 @10311 has 22 MA's), (Start: 85 @10338 has 1 MA's), (131, 10626), (136, 10647), (137, 10653), (141, 10686), (143, 10704), (146, 10728), (155, 10818), (158, 10827), (160, 10836), (167, 10869), (170, 10896), (172, 10905), (174, 10929), (201, 11082), (206, 11145), (208, 11160), (215,



11196), (220, 11226), (223, 11247), (232, 11289), (245, 11370), (258, 11445), (259, 11454), (264, 11475), (285, 11622), (306, 11763), (308, 11784), (312, 11817), (313, 11835), (316, 11856), (319, 11877), (323, 11898), (335, 11949), (336, 11952), (337, 11955), (340, 11973), (360, 12054), (367, 12084), (372, 12135), (400, 12189), (411, 12216), (421, 12249), (430, 12309), (442, 12378), (443, 12381), (456, 12483), (457, 12489), (462, 12513), (466, 12537), (467, 12540), (478, 12633), (481, 12666), (483, 12687), (485, 12696), (487, 12705), (489, 12711), (514, 12864), (534, 12933), (536, 12939), (545, 12975), (583, 13104), (606, 13245), (611, 13269), (621, 13314), (645, 13467), (646, 13470), (678, 13659), (683, 13689), (753, 13866), (766, 13938), (770, 13962), (773, 13974), (777, 13998), (779, 14010), (788, 14094), (789, 14100), (800, 14142), (803, 14163), (809, 14196), (814, 14229), (816, 14250), (818, 14277), (823, 14301), (825, 14337), (832, 14385), (852, 14487),

Gene: Mayweather\_17 Start: 10006, Stop: 15090, Start Num: 27

Candidate Starts for Mayweather\_17:

(Start: 27 @10006 has 26 MA's), (45, 10162), (59, 10291), (63, 10321), (76, 10390), (79, 10402), (82, 10417), (87, 10438), (89, 10447), (93, 10489), (96, 10498), (104, 10534), (108, 10558), (118, 10618), (127, 10672), (131, 10711), (133, 10717), (136, 10732), (138, 10753), (162, 10924), (173, 10987), (180, 11032), (191, 11113), (208, 11272), (212, 11305), (217, 11317), (221, 11344), (228, 11401), (235, 11431), (238, 11443), (252, 11545), (253, 11548), (266, 11635), (273, 11683), (292, 11797), (303, 11890), (306, 11905), (308, 11926), (312, 11959), (317, 12001), (323, 12040), (328, 12064), (329, 12067), (330, 12073), (335, 12091), (340, 12115), (349, 12220), (358, 12268), (369, 12328), (370, 12331), (372, 12367), (381, 12433), (383, 12448), (389, 12478), (393, 12499), (394, 12502), (405, 12541), (408, 12562), (412, 12583), (419, 12607), (421, 12613), (441, 12739), (447, 12769), (452, 12808), (458, 12856), (462, 12877), (463, 12880), (471, 12952), (478, 12997), (481, 13030), (483, 13051), (495, 13105), (506, 13180), (526, 13264), (541, 13351), (606, 13669), (614, 13699), (638, 13837), (648, 13888), (653, 13918), (678, 14071), (683, 14101), (725, 14311), (726, 14320), (727, 14326), (738, 14362), (758, 14479), (761, 14485), (770, 14527), (774, 14545), (789, 14668), (795, 14692), (797, 14707), (803, 14737), (807, 14764), (809, 14770), (814, 14803), (821, 14872), (823, 14875), (825, 14911), (835, 14983), (839, 15001),

Gene: Melba\_17 Start: 10274, Stop: 15796, Start Num: 9

Candidate Starts for Melba\_17:

(Start: 9 @10274 has 37 MA's), (Start: 11 @10289 has 1 MA's), (Start: 12 @10295 has 1 MA's), (Start: 14 @10325 has 1 MA's), (15, 10334), (16, 10337), (18, 10379), (37, 10490), (39, 10511), (46, 10631), (53, 10673), (64, 10739), (67, 10757), (71, 10778), (72, 10781), (75, 10799), (81, 10823), (94, 10907), (95, 10910), (104, 10949), (106, 10964), (108, 10973), (135, 11141), (138, 11168), (153, 11285), (182, 11456), (187, 11486), (208, 11690), (217, 11735), (221, 11762), (222, 11774), (239, 11864), (244, 11909), (249, 11936), (253, 11966), (266, 12053), (267, 12056), (271, 12095), (284, 12179), (292, 12215), (296, 12257), (301, 12302), (303, 12308), (305, 12320), (306, 12323), (312, 12377), (316, 12416), (319, 12437), (320, 12440), (323, 12458), (324, 12467), (329, 12485), (334, 12506), (336, 12512), (340, 12533), (344, 12560), (349, 12638), (388, 12827), (396, 12851), (402, 12863), (403, 12866), (415, 12881), (420, 12896), (421, 12899), (429, 12950), (442, 13031), (443, 13034), (449, 13067), (452, 13097), (454, 13121), (502, 13454), (511, 13502), (515, 13547), (516, 13550), (519, 13565), (528, 13610), (529, 13619), (530, 13628), (540, 13679), (556, 13751), (560, 13769), (568, 13790), (580, 13889), (581, 13892), (589, 13925), (597, 13991), (599, 14009), (602, 14024), (609, 14057), (617, 14108), (629, 14159), (635, 14207), (664, 14402), (665, 14405), (675, 14477), (676, 14480), (685, 14546), (686, 14549), (688, 14567), (698, 14627), (704, 14684), (707, 14702), (718, 14783), (719, 14786), (722, 14801), (754, 15014), (760, 15080), (772, 15134), (773, 15146), (774, 15152), (789, 15275), (795, 15299), (799, 15317), (803, 15341), (804, 15347), (807, 15368), (814, 15407), (828, 15548), (831, 15560), (842, 15611), (845, 15629), (864, 15779),

Gene: Mellie\_16 Start: 10014, Stop: 15557, Start Num: 9

Candidate Starts for Mellie\_16:

(Start: 9 @10014 has 37 MA's), (Start: 11 @10029 has 1 MA's), (Start: 12 @10035 has 1 MA's), (Start: 14 @10065 has 1 MA's), (15, 10074), (16, 10077), (18, 10119), (37, 10230), (39, 10251), (64, 10479), (67, 10497), (70, 10512), (71, 10518), (72, 10521), (75, 10539), (81, 10563), (94, 10647), (96, 10653), (104, 10689), (106, 10704), (108, 10713), (135, 10881), (138, 10908), (153, 11025), (182, 11196), (187, 11226), (208, 11430), (217, 11475), (221, 11502), (222, 11514), (239, 11604), (249, 11676), (253, 11706), (266, 11793), (267, 11796), (271, 11835), (292, 11955), (296, 11997), (301, 12042), (303, 12048), (305, 12060), (306, 12063), (312, 12117), (316, 12156), (319, 12177), (320, 12180), (323, 12198), (334, 12246), (336, 12252), (340, 12273), (344, 12300), (348, 12372), (369, 12507), (388, 12588), (396, 12612), (403, 12627), (420, 12657), (421, 12660), (429, 12711), (442, 12792), (443, 12795), (449, 12828), (452, 12858), (454, 12882), (465, 12948), (502, 13215), (505, 13233), (511, 13263), (515, 13308), (516, 13311), (519, 13326), (520, 13335), (528, 13371), (529, 13380), (530, 13389), (540, 13440), (556, 13512), (560, 13530), (568, 13551), (580, 13650), (581, 13653), (589, 13686), (597, 13752), (599, 13770), (602, 13785), (609, 13818), (617, 13869), (629, 13920), (664, 14163), (665, 14166), (675, 14238), (676, 14241), (685, 14307), (686, 14310), (688, 14328), (698, 14388), (704, 14445), (707, 14463), (718, 14544), (719, 14547), (722, 14562), (754, 14775), (760, 14841), (761, 14847), (773, 14907), (774, 14913), (789, 15036), (795, 15060), (799, 15078), (803, 15102), (804, 15108), (807, 15129), (814, 15168), (828, 15309), (831, 15321), (842, 15372), (845, 15390), (864, 15540),

Gene: MintFen\_17 Start: 10274, Stop: 15796, Start Num: 9

Candidate Starts for MintFen\_17:

(Start: 9 @10274 has 37 MA's), (Start: 11 @10289 has 1 MA's), (Start: 12 @10295 has 1 MA's), (Start: 14 @10325 has 1 MA's), (15, 10334), (16, 10337), (18, 10379), (37, 10490), (39, 10511), (46, 10631), (53, 10673), (64, 10739), (67, 10757), (71, 10778), (72, 10781), (75, 10799), (81, 10823), (94, 10907), (95, 10910), (104, 10949), (106, 10964), (108, 10973), (135, 11141), (138, 11168), (153, 11285), (182, 11456), (187, 11486), (208, 11690), (217, 11735), (221, 11762), (222, 11774), (239, 11864), (244, 11909), (249, 11936), (253, 11966), (266, 12053), (267, 12056), (271, 12095), (284, 12179), (292, 12215), (296, 12257), (301, 12302), (303, 12308), (305, 12320), (306, 12323), (312, 12377), (316, 12416), (319, 12437), (320, 12440), (323, 12458), (324, 12467), (329, 12485), (334, 12506), (336, 12512), (340, 12533), (344, 12560), (349, 12638), (388, 12827), (396, 12851), (402, 12863), (403, 12866), (415, 12881), (420, 12896), (421, 12899), (429, 12950), (442, 13031), (443, 13034), (449, 13067), (452, 13097), (454, 13121), (502, 13454), (511, 13502), (515, 13547), (516, 13550), (519, 13565), (528, 13610), (529, 13619), (530, 13628), (540, 13679), (556, 13751), (560, 13769), (568, 13790), (580, 13889), (581, 13892), (589, 13925), (597, 13991), (599, 14009), (602, 14024), (609, 14057), (617, 14108), (629, 14159), (635, 14207), (664, 14402), (665, 14405), (675, 14477), (676, 14480), (685, 14546), (686, 14549), (688, 14567), (698, 14627), (704, 14684), (707, 14702), (718, 14783), (719, 14786), (722, 14801), (754, 15014), (760, 15080), (772, 15134), (773, 15146), (774, 15152), (789, 15275), (795, 15299), (799, 15317), (803, 15341), (804, 15347), (807, 15368), (814, 15407), (828, 15548), (831, 15560), (842, 15611), (845, 15629), (864, 15779),

Gene: MissRona\_19 Start: 10619, Stop: 16108, Start Num: 9

Candidate Starts for MissRona\_19:

(Start: 9 @10619 has 37 MA's), (Start: 11 @10634 has 1 MA's), (Start: 12 @10640 has 1 MA's), (Start: 14 @10670 has 1 MA's), (15, 10679), (16, 10682), (18, 10724), (37, 10835), (39, 10856), (46, 10976), (53, 11018), (64, 11084), (67, 11102), (71, 11123), (72, 11126), (75, 11144), (81, 11168), (94, 11252), (104, 11294), (106, 11309), (108, 11318), (135, 11486), (138, 11513), (153, 11630), (182, 11801), (187, 11831), (208, 12035), (217, 12080), (221, 12107), (222, 12119), (224, 12131), (239, 12209), (244, 12254), (249, 12281), (253, 12311), (266, 12398), (267, 12401), (271, 12440), (280, 12503), (282, 12512), (292, 12560), (296, 12602), (301, 12647), (303, 12653), (306, 12668), (312, 12722), (316, 12761), (319, 12782), (320, 12785), (323, 12803), (329, 12830), (334, 12851), (336, 12857), (340, 12878), (343, 12896), (344, 12905), (384, 13178), (403, 13232), (420, 13262), (421, 13265), (429, 13316), (442, 13397), (443, 13400), (449, 13433), (452, 13463), (454, 13487), (465, 13553), (502, 13820), (511, 13868), (513, 13901), (515, 13913), (516, 13916), (528, 13976), (529, 13985),

(530, 13994), (540, 14045), (556, 14117), (560, 14135), (568, 14156), (580, 14255), (581, 14258), (589, 14291), (597, 14357), (599, 14375), (602, 14390), (609, 14423), (617, 14474), (629, 14525), (639, 14594), (664, 14768), (665, 14771), (675, 14843), (676, 14846), (685, 14912), (686, 14915), (688, 14933), (698, 14993), (704, 15050), (707, 15068), (718, 15149), (719, 15152), (722, 15167), (744, 15338), (754, 15392), (769, 15464), (770, 15473), (776, 15509), (784, 15569), (786, 15587), (790, 15605), (802, 15650), (806, 15683), (822, 15794), (828, 15863), (842, 15926), (845, 15944), (864, 16094),

Gene: MunkgeeRoachy\_17 Start: 9677, Stop: 14815, Start Num: 27

Candidate Starts for MunkgeeRoachy\_17:

(Start: 22 @9653 has 5 MA's), (Start: 27 @9677 has 26 MA's), (31, 9704), (45, 9833), (48, 9908), (76, 10061), (77, 10064), (93, 10160), (96, 10169), (102, 10199), (104, 10205), (106, 10220), (107, 10223), (111, 10244), (123, 10316), (126, 10337), (136, 10403), (138, 10424), (153, 10541), (180, 10703), (187, 10742), (196, 10817), (212, 10976), (217, 10988), (221, 11015), (226, 11060), (228, 11072), (247, 11180), (251, 11201), (254, 11231), (260, 11255), (263, 11267), (266, 11306), (270, 11339), (287, 11441), (288, 11444), (291, 11462), (292, 11468), (303, 11561), (306, 11576), (310, 11615), (316, 11669), (323, 11711), (332, 11753), (339, 11783), (340, 11786), (350, 11894), (351, 11897), (356, 11948), (370, 12023), (379, 12113), (381, 12125), (389, 12170), (393, 12191), (394, 12194), (395, 12197), (411, 12272), (421, 12305), (425, 12326), (429, 12356), (437, 12404), (439, 12410), (443, 12437), (463, 12572), (478, 12689), (481, 12722), (483, 12743), (484, 12746), (498, 12812), (499, 12818), (501, 12833), (524, 12953), (526, 12962), (541, 13046), (606, 13367), (646, 13586), (653, 13622), (686, 13835), (726, 14027), (738, 14075), (743, 14096), (758, 14204), (774, 14270), (777, 14288), (789, 14393), (796, 14423), (797, 14432), (803, 14462), (814, 14528), (818, 14576), (825, 14636), (838, 14723), (852, 14786),

Gene: Murp\_17 Start: 10264, Stop: 15864, Start Num: 9

Candidate Starts for Murp\_17:

(Start: 9 @10264 has 37 MA's), (Start: 11 @10279 has 1 MA's), (Start: 12 @10285 has 1 MA's), (Start: 14 @10315 has 1 MA's), (15, 10324), (16, 10327), (18, 10369), (37, 10480), (39, 10501), (46, 10621), (54, 10669), (64, 10729), (67, 10747), (71, 10768), (72, 10771), (75, 10789), (94, 10897), (96, 10903), (104, 10939), (106, 10954), (108, 10963), (135, 11131), (138, 11158), (153, 11275), (182, 11446), (187, 11476), (200, 11572), (208, 11680), (217, 11725), (221, 11752), (222, 11764), (239, 11854), (244, 11899), (249, 11926), (253, 11956), (266, 12043), (271, 12085), (273, 12091), (292, 12205), (296, 12247), (301, 12292), (303, 12298), (306, 12313), (312, 12367), (316, 12406), (319, 12427), (320, 12430), (323, 12448), (324, 12457), (329, 12475), (334, 12496), (336, 12502), (340, 12523), (344, 12550), (346, 12598), (349, 12628), (384, 12802), (396, 12841), (403, 12856), (420, 12886), (421, 12889), (429, 12940), (442, 13021), (443, 13024), (449, 13057), (452, 13087), (454, 13111), (464, 13165), (465, 13177), (490, 13366), (502, 13444), (509, 13486), (515, 13537), (516, 13540), (519, 13555), (521, 13567), (528, 13600), (529, 13609), (547, 13723), (557, 13777), (559, 13795), (573, 13879), (574, 13885), (578, 13921), (630, 14245), (636, 14293), (639, 14305), (649, 14368), (657, 14437), (662, 14467), (663, 14470), (664, 14479), (665, 14482), (669, 14515), (675, 14554), (676, 14557), (685, 14623), (686, 14626), (688, 14644), (698, 14704), (704, 14761), (707, 14779), (718, 14860), (722, 14878), (754, 15079), (760, 15145), (773, 15211), (774, 15217), (789, 15343), (795, 15367), (799, 15385), (803, 15409), (804, 15415), (807, 15436), (814, 15475), (828, 15616), (842, 15679), (845, 15697), (855, 15757), (864, 15850),

Gene: Nibbles\_18 Start: 10619, Stop: 15748, Start Num: 27

Candidate Starts for Nibbles\_18:

(Start: 22 @10598 has 5 MA's), (Start: 27 @10619 has 26 MA's), (31, 10646), (45, 10775), (53, 10871), (61, 10922), (73, 10979), (78, 11012), (79, 11015), (93, 11102), (97, 11114), (106, 11162), (107, 11165), (108, 11171), (116, 11225), (118, 11231), (126, 11279), (136, 11345), (138, 11366), (196, 11759), (197, 11762), (205, 11864), (217, 11930), (218, 11936), (221, 11957), (253, 12161), (256, 12179), (258, 12185), (260, 12197), (263, 12209), (266, 12248), (268, 12260), (273, 12296),

(280, 12353), (285, 12377), (303, 12503), (306, 12518), (310, 12557), (319, 12632), (325, 12665), (329, 12680), (330, 12686), (331, 12692), (340, 12728), (350, 12836), (359, 12908), (369, 12962), (389, 13112), (394, 13136), (408, 13196), (409, 13208), (411, 13214), (419, 13241), (420, 13244), (421, 13247), (435, 13340), (437, 13346), (445, 13397), (454, 13466), (460, 13499), (463, 13514), (464, 13520), (470, 13577), (472, 13589), (477, 13628), (478, 13631), (480, 13652), (481, 13664), (483, 13685), (484, 13688), (492, 13727), (495, 13739), (498, 13754), (524, 13895), (541, 13991), (555, 14057), (563, 14078), (567, 14084), (606, 14321), (614, 14351), (621, 14390), (644, 14525), (650, 14555), (653, 14576), (678, 14735), (683, 14768), (726, 14981), (734, 14999), (738, 15005), (758, 15134), (774, 15200), (780, 15251), (789, 15323), (797, 15362), (803, 15392), (809, 15425), (814, 15458), (823, 15530), (828, 15602), (838, 15656), (840, 15662), (852, 15719),

Gene: Nina\_17 Start: 10662, Stop: 15809, Start Num: 27

Candidate Starts for Nina\_17:

(Start: 22 @10638 has 5 MA's), (Start: 27 @10662 has 26 MA's), (31, 10689), (45, 10818), (50, 10911), (51, 10914), (66, 11004), (71, 11028), (81, 11073), (82, 11082), (93, 11154), (95, 11160), (96, 11163), (101, 11190), (103, 11196), (106, 11214), (107, 11217), (111, 11238), (123, 11310), (126, 11331), (136, 11397), (138, 11418), (153, 11535), (180, 11697), (187, 11736), (196, 11811), (212, 11970), (217, 11982), (221, 12009), (226, 12054), (228, 12066), (244, 12156), (247, 12174), (251, 12195), (254, 12225), (260, 12249), (263, 12261), (266, 12300), (270, 12333), (287, 12435), (288, 12438), (292, 12462), (303, 12555), (306, 12570), (310, 12609), (316, 12663), (323, 12705), (325, 12717), (332, 12747), (339, 12777), (340, 12780), (350, 12888), (351, 12891), (356, 12942), (357, 12948), (370, 13017), (379, 13107), (381, 13119), (389, 13164), (393, 13185), (394, 13188), (395, 13191), (411, 13266), (421, 13299), (425, 13320), (429, 13350), (437, 13398), (439, 13404), (443, 13431), (463, 13566), (478, 13683), (481, 13716), (483, 13737), (498, 13806), (499, 13812), (501, 13827), (524, 13947), (526, 13956), (541, 14040), (606, 14361), (610, 14382), (646, 14580), (653, 14616), (686, 14829), (726, 15021), (738, 15069), (743, 15090), (758, 15198), (774, 15264), (777, 15282), (789, 15387), (796, 15417), (797, 15426), (803, 15456), (814, 15522), (818, 15570), (825, 15630), (838, 15717), (852, 15780),

Gene: Nodigi\_18 Start: 10594, Stop: 14802, Start Num: 80

Candidate Starts for Nodigi\_18:

(Start: 80 @10594 has 22 MA's), (Start: 85 @10621 has 1 MA's), (136, 10930), (143, 10987), (146, 11011), (151, 11056), (155, 11101), (160, 11119), (164, 11134), (167, 11152), (168, 11161), (175, 11215), (186, 11272), (198, 11353), (203, 11401), (206, 11440), (208, 11455), (211, 11464), (215, 11491), (220, 11521), (223, 11542), (245, 11665), (255, 11731), (265, 11794), (278, 11881), (292, 11950), (306, 12058), (308, 12079), (312, 12112), (313, 12130), (315, 12148), (319, 12172), (324, 12202), (336, 12247), (337, 12250), (340, 12268), (367, 12379), (369, 12391), (370, 12394), (372, 12430), (388, 12472), (400, 12484), (411, 12511), (421, 12544), (433, 12619), (442, 12673), (443, 12676), (445, 12694), (452, 12739), (457, 12784), (466, 12832), (467, 12835), (481, 12961), (485, 12991), (487, 13000), (489, 13006), (514, 13159), (527, 13204), (534, 13228), (536, 13234), (545, 13270), (565, 13327), (575, 13378), (584, 13423), (606, 13561), (614, 13591), (645, 13783), (678, 13960), (753, 14152), (766, 14224), (773, 14260), (777, 14284), (779, 14296), (782, 14338), (789, 14386), (803, 14449), (807, 14476), (809, 14482), (814, 14515), (816, 14536), (818, 14563), (823, 14587), (825, 14623), (827, 14650), (828, 14659), (832, 14671), (852, 14773),

Gene: Obliviate\_16 Start: 10043, Stop: 15586, Start Num: 9

Candidate Starts for Obliviate\_16:

(Start: 9 @10043 has 37 MA's), (Start: 11 @10058 has 1 MA's), (Start: 12 @10064 has 1 MA's), (Start: 14 @10094 has 1 MA's), (15, 10103), (16, 10106), (18, 10148), (37, 10259), (39, 10280), (64, 10508), (67, 10526), (70, 10541), (71, 10547), (72, 10550), (75, 10568), (81, 10592), (94, 10676), (96, 10682), (104, 10718), (106, 10733), (108, 10742), (135, 10910), (138, 10937), (153, 11054), (162, 11108), (182, 11225), (187, 11255), (208, 11459), (217, 11504), (221, 11531), (222, 11543), (239, 11633), (244, 11678), (249, 11705), (253, 11735), (266, 11822), (267, 11825), (271, 11864), (292, 11984),

(296, 12026), (301, 12071), (303, 12077), (305, 12089), (306, 12092), (312, 12146), (316, 12185), (319, 12206), (320, 12209), (323, 12227), (329, 12254), (334, 12275), (336, 12281), (340, 12302), (344, 12329), (348, 12401), (369, 12536), (388, 12617), (396, 12641), (403, 12656), (420, 12686), (421, 12689), (429, 12740), (442, 12821), (443, 12824), (449, 12857), (452, 12887), (454, 12911), (465, 12977), (502, 13244), (505, 13262), (511, 13292), (515, 13337), (516, 13340), (519, 13355), (520, 13364), (528, 13400), (529, 13409), (530, 13418), (540, 13469), (556, 13541), (560, 13559), (568, 13580), (580, 13679), (581, 13682), (589, 13715), (597, 13781), (599, 13799), (602, 13814), (609, 13847), (617, 13898), (629, 13949), (664, 14192), (665, 14195), (675, 14267), (676, 14270), (685, 14336), (686, 14339), (688, 14357), (698, 14417), (704, 14474), (707, 14492), (718, 14573), (719, 14576), (722, 14591), (744, 14750), (754, 14804), (760, 14870), (761, 14876), (773, 14936), (774, 14942), (780, 14993), (789, 15065), (795, 15089), (799, 15107), (803, 15131), (804, 15137), (807, 15158), (814, 15197), (828, 15338), (831, 15350), (842, 15401), (845, 15419), (864, 15569),

Gene: Opie\_17 Start: 10940, Stop: 16069, Start Num: 24

Candidate Starts for Opie\_17:

(Start: 24 @10940 has 12 MA's), (Start: 27 @10949 has 26 MA's), (56, 11222), (58, 11231), (75, 11327), (83, 11369), (89, 11390), (105, 11483), (108, 11501), (138, 11696), (159, 11855), (180, 11975), (181, 11978), (187, 12014), (197, 12092), (208, 12215), (212, 12248), (216, 12257), (218, 12266), (222, 12299), (224, 12311), (227, 12335), (237, 12380), (243, 12425), (249, 12461), (251, 12473), (253, 12491), (260, 12527), (275, 12650), (282, 12692), (301, 12827), (302, 12830), (303, 12833), (306, 12848), (312, 12902), (316, 12941), (331, 13022), (336, 13037), (340, 13058), (342, 13073), (344, 13085), (345, 13121), (348, 13157), (373, 13319), (388, 13352), (404, 13376), (410, 13388), (411, 13391), (421, 13424), (424, 13442), (437, 13523), (439, 13529), (441, 13550), (442, 13553), (443, 13556), (456, 13655), (459, 13670), (464, 13694), (466, 13709), (467, 13712), (468, 13718), (474, 13772), (486, 13871), (494, 13913), (500, 13946), (507, 13991), (511, 14015), (517, 14060), (523, 14078), (542, 14186), (550, 14216), (561, 14255), (562, 14258), (566, 14267), (608, 14516), (612, 14540), (640, 14684), (644, 14708), (653, 14759), (671, 14876), (676, 14903), (679, 14921), (689, 14999), (691, 15005), (694, 15014), (696, 15041), (708, 15134), (716, 15173), (720, 15215), (745, 15368), (751, 15401), (752, 15404), (757, 15461), (764, 15470), (767, 15482), (771, 15503), (774, 15524), (805, 15716), (812, 15755), (821, 15821), (823, 15824), (826, 15878), (857, 16031),

Gene: Orla\_18 Start: 10598, Stop: 14806, Start Num: 80

Candidate Starts for Orla\_18:

(Start: 80 @10598 has 22 MA's), (Start: 85 @10625 has 1 MA's), (136, 10934), (143, 10991), (146, 11015), (151, 11060), (155, 11105), (160, 11123), (164, 11138), (167, 11156), (168, 11165), (175, 11219), (186, 11276), (198, 11357), (203, 11405), (206, 11444), (208, 11459), (211, 11468), (215, 11495), (220, 11525), (223, 11546), (245, 11669), (255, 11735), (265, 11798), (278, 11885), (292, 11954), (306, 12062), (308, 12083), (312, 12116), (313, 12134), (315, 12152), (319, 12176), (324, 12206), (336, 12251), (337, 12254), (340, 12272), (367, 12383), (369, 12395), (372, 12434), (388, 12476), (400, 12488), (403, 12500), (411, 12515), (421, 12548), (433, 12623), (442, 12677), (443, 12680), (445, 12698), (452, 12743), (456, 12782), (457, 12788), (462, 12812), (465, 12833), (466, 12836), (467, 12839), (481, 12965), (483, 12986), (485, 12995), (487, 13004), (489, 13010), (514, 13163), (527, 13208), (534, 13232), (536, 13238), (545, 13274), (553, 13307), (565, 13331), (575, 13382), (584, 13427), (606, 13565), (614, 13595), (645, 13787), (678, 13964), (753, 14156), (766, 14228), (773, 14264), (777, 14288), (779, 14300), (782, 14342), (789, 14390), (803, 14453), (807, 14480), (809, 14486), (814, 14519), (816, 14540), (818, 14567), (823, 14591), (825, 14627), (827, 14654), (828, 14663), (832, 14675), (852, 14777),

Gene: PCoral7\_17 Start: 10271, Stop: 15886, Start Num: 9

Candidate Starts for PCoral7\_17:

(Start: 7 @10235 has 1 MA's), (Start: 9 @10271 has 37 MA's), (Start: 12 @10292 has 1 MA's), (15, 10331), (18, 10376), (33, 10466), (35, 10475), (37, 10487), (39, 10508), (44, 10565), (47, 10637), (50,

10658), (58, 10700), (59, 10703), (62, 10730), (66, 10751), (67, 10754), (71, 10775), (75, 10796), (86, 10847), (87, 10850), (96, 10910), (128, 11093), (138, 11165), (165, 11351), (182, 11453), (184, 11468), (187, 11483), (193, 11540), (217, 11732), (237, 11852), (249, 11933), (253, 11963), (260, 11999), (266, 12050), (287, 12185), (288, 12188), (292, 12212), (298, 12263), (301, 12299), (303, 12305), (306, 12320), (312, 12374), (316, 12413), (320, 12437), (323, 12455), (334, 12503), (336, 12509), (339, 12527), (340, 12530), (342, 12545), (344, 12557), (346, 12605), (369, 12743), (378, 12824), (381, 12848), (382, 12860), (383, 12863), (390, 12896), (412, 12998), (419, 13025), (420, 13028), (421, 13031), (422, 13037), (429, 13082), (431, 13094), (433, 13106), (437, 13130), (440, 13145), (442, 13160), (443, 13163), (447, 13187), (450, 13214), (462, 13295), (473, 13379), (486, 13484), (493, 13517), (502, 13583), (503, 13592), (511, 13631), (513, 13664), (515, 13676), (516, 13679), (519, 13694), (520, 13703), (528, 13739), (529, 13748), (530, 13757), (565, 13913), (566, 13916), (568, 13919), (569, 13940), (581, 14021), (590, 14063), (602, 14150), (609, 14183), (610, 14192), (617, 14234), (639, 14348), (663, 14513), (675, 14597), (676, 14600), (681, 14630), (682, 14633), (685, 14666), (686, 14669), (698, 14747), (704, 14804), (722, 14921), (729, 14972), (748, 15074), (754, 15107), (760, 15173), (773, 15239), (774, 15245), (777, 15263), (780, 15296), (789, 15368), (799, 15410), (801, 15416), (803, 15434), (804, 15440), (807, 15461), (814, 15500), (828, 15641), (842, 15704), (855, 15779), (864, 15872),

Gene: Periwinkle\_20 Start: 10340, Stop: 15973, Start Num: 20

Candidate Starts for Periwinkle\_20:

(17, 10313), (Start: 20 @10340 has 1 MA's), (Start: 30 @10385 has 1 MA's), (32, 10406), (36, 10427), (40, 10472), (Start: 41 @10487 has 1 MA's), (47, 10571), (55, 10613), (56, 10625), (67, 10688), (70, 10703), (72, 10712), (75, 10730), (76, 10736), (87, 10784), (94, 10838), (111, 10919), (133, 11063), (134, 11069), (138, 11099), (169, 11318), (182, 11393), (187, 11423), (205, 11606), (208, 11627), (217, 11672), (218, 11678), (221, 11699), (233, 11780), (244, 11846), (249, 11873), (251, 11885), (253, 11903), (254, 11915), (260, 11939), (263, 11951), (266, 11990), (267, 11993), (268, 12002), (271, 12032), (277, 12077), (289, 12137), (292, 12152), (295, 12182), (296, 12194), (301, 12239), (303, 12245), (305, 12257), (306, 12260), (308, 12281), (311, 12311), (312, 12314), (320, 12377), (324, 12404), (325, 12407), (326, 12410), (327, 12416), (333, 12440), (334, 12443), (336, 12449), (338, 12455), (340, 12470), (343, 12488), (348, 12569), (354, 12617), (355, 12623), (359, 12650), (381, 12809), (382, 12821), (390, 12857), (405, 12917), (411, 12956), (413, 12962), (414, 12965), (420, 12986), (421, 12989), (437, 13088), (444, 13127), (448, 13151), (452, 13184), (455, 13229), (461, 13283), (469, 13370), (470, 13391), (475, 13427), (479, 13457), (491, 13538), (493, 13547), (497, 13571), (509, 13652), (511, 13658), (515, 13703), (516, 13706), (528, 13766), (529, 13775), (530, 13784), (552, 13892), (565, 13940), (568, 13946), (580, 14045), (581, 14048), (587, 14060), (602, 14177), (609, 14210), (617, 14261), (625, 14291), (634, 14351), (647, 14432), (651, 14453), (654, 14486), (666, 14549), (667, 14558), (668, 14567), (686, 14681), (690, 14711), (693, 14720), (699, 14759), (700, 14762), (703, 14792), (704, 14813), (731, 15017), (741, 15080), (742, 15086), (751, 15137), (778, 15323), (787, 15410), (792, 15437), (793, 15440), (808, 15515), (812, 15539), (817, 15578), (819, 15614), (824, 15635), (834, 15722), (841, 15764), (847, 15797), (849, 15809), (861, 15887), (865, 15953),

Gene: Petra\_19 Start: 10705, Stop: 16197, Start Num: 14

Candidate Starts for Petra\_19:

(Start: 9 @10654 has 37 MA's), (Start: 11 @10669 has 1 MA's), (Start: 12 @10675 has 1 MA's), (Start: 14 @10705 has 1 MA's), (15, 10714), (16, 10717), (18, 10759), (37, 10870), (39, 10891), (64, 11119), (67, 11137), (71, 11158), (72, 11161), (75, 11179), (81, 11203), (94, 11287), (104, 11329), (106, 11344), (108, 11353), (135, 11521), (138, 11548), (153, 11665), (182, 11836), (187, 11866), (208, 12070), (217, 12115), (244, 12289), (249, 12316), (253, 12346), (266, 12433), (271, 12475), (273, 12481), (292, 12595), (294, 12610), (296, 12637), (301, 12682), (303, 12688), (306, 12703), (312, 12757), (316, 12796), (319, 12817), (320, 12820), (323, 12838), (329, 12865), (334, 12886), (336, 12892), (340, 12913), (344, 12940), (384, 13213), (396, 13252), (403, 13267), (420, 13297), (421, 13300), (429, 13351), (442, 13432), (443, 13435), (449, 13468), (452, 13498), (465, 13588), (502,

13855), (511, 13903), (515, 13948), (516, 13951), (519, 13966), (520, 13975), (528, 14011), (529, 14020), (530, 14029), (540, 14080), (556, 14152), (560, 14170), (568, 14191), (580, 14290), (581, 14293), (589, 14326), (597, 14392), (599, 14410), (602, 14425), (609, 14458), (617, 14509), (629, 14560), (664, 14803), (665, 14806), (675, 14878), (676, 14881), (685, 14947), (686, 14950), (688, 14968), (698, 15028), (704, 15085), (707, 15103), (718, 15184), (719, 15187), (722, 15202), (744, 15361), (754, 15415), (760, 15481), (773, 15547), (774, 15553), (789, 15676), (795, 15700), (799, 15718), (803, 15742), (804, 15748), (807, 15769), (814, 15808), (828, 15949), (831, 15961), (842, 16012), (845, 16030), (855, 16087), (864, 16180),

Gene: Phabuloso\_18 Start: 9869, Stop: 15502, Start Num: 21

Candidate Starts for Phabuloso\_18:

(Start: 21 @9869 has 10 MA's), (28, 9896), (Start: 30 @9914 has 1 MA's), (32, 9935), (36, 9956), (40, 10001), (Start: 41 @10016 has 1 MA's), (47, 10100), (55, 10142), (56, 10154), (67, 10217), (70, 10232), (72, 10241), (75, 10259), (76, 10265), (87, 10313), (111, 10448), (134, 10598), (138, 10628), (169, 10847), (182, 10922), (187, 10952), (208, 11156), (216, 11198), (217, 11201), (218, 11207), (221, 11228), (233, 11309), (244, 11375), (249, 11402), (251, 11414), (253, 11432), (254, 11444), (260, 11468), (263, 11480), (266, 11519), (267, 11522), (268, 11531), (271, 11561), (277, 11606), (289, 11666), (292, 11681), (295, 11711), (296, 11723), (301, 11768), (303, 11774), (306, 11789), (309, 11819), (311, 11840), (312, 11843), (320, 11906), (324, 11933), (325, 11936), (326, 11939), (327, 11945), (333, 11969), (334, 11972), (336, 11978), (338, 11984), (340, 11999), (343, 12017), (348, 12098), (354, 12146), (355, 12152), (359, 12179), (381, 12338), (382, 12350), (390, 12386), (405, 12446), (411, 12485), (413, 12491), (414, 12494), (420, 12515), (421, 12518), (437, 12617), (444, 12656), (448, 12680), (452, 12713), (455, 12758), (461, 12812), (469, 12899), (470, 12920), (475, 12956), (479, 12986), (490, 13064), (491, 13067), (493, 13076), (497, 13100), (509, 13181), (511, 13187), (515, 13232), (516, 13235), (519, 13250), (528, 13295), (529, 13304), (530, 13313), (531, 13316), (552, 13421), (565, 13469), (568, 13475), (580, 13574), (581, 13577), (587, 13589), (602, 13706), (609, 13739), (617, 13790), (625, 13820), (634, 13880), (647, 13961), (651, 13982), (654, 14015), (666, 14078), (668, 14096), (686, 14210), (690, 14240), (693, 14249), (699, 14288), (700, 14291), (703, 14321), (704, 14342), (724, 14495), (731, 14546), (741, 14609), (742, 14615), (751, 14666), (778, 14852), (787, 14939), (792, 14966), (793, 14969), (808, 15044), (812, 15068), (817, 15107), (819, 15143), (824, 15164), (834, 15251), (841, 15293), (847, 15326), (849, 15338), (861, 15416), (865, 15482),

Gene: Phistory\_19 Start: 10653, Stop: 16280, Start Num: 19

Candidate Starts for Phistory\_19:

(Start: 19 @10653 has 1 MA's), (23, 10659), (Start: 30 @10698 has 1 MA's), (40, 10785), (47, 10884), (55, 10926), (56, 10938), (67, 11001), (70, 11016), (72, 11025), (75, 11043), (76, 11049), (87, 11097), (99, 11172), (111, 11232), (134, 11382), (138, 11412), (182, 11706), (187, 11736), (205, 11919), (208, 11940), (216, 11982), (217, 11985), (218, 11991), (221, 12012), (222, 12024), (232, 12084), (237, 12105), (244, 12159), (249, 12186), (251, 12198), (253, 12216), (254, 12228), (260, 12252), (263, 12264), (266, 12303), (267, 12306), (268, 12315), (272, 12348), (282, 12417), (287, 12438), (292, 12465), (293, 12471), (296, 12507), (297, 12510), (301, 12552), (303, 12558), (305, 12570), (306, 12573), (311, 12624), (312, 12627), (320, 12690), (321, 12699), (324, 12717), (325, 12720), (327, 12729), (336, 12762), (340, 12783), (341, 12789), (342, 12798), (345, 12846), (349, 12888), (354, 12930), (359, 12963), (368, 13014), (369, 13017), (372, 13056), (373, 13065), (381, 13122), (382, 13134), (390, 13170), (405, 13230), (411, 13269), (413, 13275), (420, 13299), (421, 13302), (424, 13320), (437, 13401), (448, 13464), (452, 13497), (456, 13572), (461, 13596), (462, 13608), (465, 13641), (470, 13704), (475, 13740), (479, 13770), (490, 13848), (491, 13851), (493, 13860), (497, 13884), (511, 13971), (515, 14016), (516, 14019), (519, 14034), (528, 14079), (529, 14088), (530, 14097), (531, 14100), (552, 14205), (565, 14253), (568, 14259), (580, 14358), (581, 14361), (587, 14373), (602, 14490), (609, 14523), (617, 14574), (625, 14604), (634, 14664), (647, 14745), (651, 14766), (652, 14769), (666, 14862), (668, 14880), (686, 14994), (690, 15024), (693, 15033), (699, 15072), (700, 15075), (703, 15105), (704, 15126), (731, 15324), (741, 15387), (742, 15393), (746,

15420), (751, 15444), (778, 15630), (787, 15717), (792, 15744), (793, 15747), (808, 15822), (812, 15846), (817, 15885), (819, 15921), (824, 15942), (834, 16029), (841, 16071), (847, 16104), (849, 16116), (861, 16194), (865, 16260),

Gene: PhrostedPhlake\_18 Start: 10632, Stop: 16172, Start Num: 9

Candidate Starts for PhrostedPhlake\_18:

(Start: 9 @10632 has 37 MA's), (Start: 11 @10647 has 1 MA's), (Start: 12 @10653 has 1 MA's), (Start: 14 @10683 has 1 MA's), (15, 10692), (18, 10737), (37, 10848), (39, 10869), (64, 11097), (67, 11115), (71, 11136), (72, 11139), (75, 11157), (81, 11181), (94, 11265), (96, 11271), (104, 11307), (106, 11322), (108, 11331), (118, 11391), (135, 11499), (138, 11526), (153, 11643), (162, 11697), (169, 11739), (182, 11814), (187, 11844), (208, 12048), (217, 12093), (244, 12267), (249, 12294), (253, 12324), (266, 12411), (271, 12453), (280, 12516), (292, 12573), (296, 12615), (301, 12660), (303, 12666), (306, 12681), (312, 12735), (316, 12774), (319, 12795), (320, 12798), (323, 12816), (329, 12843), (334, 12864), (336, 12870), (340, 12891), (344, 12918), (396, 13230), (403, 13245), (420, 13275), (421, 13278), (429, 13329), (442, 13410), (443, 13413), (449, 13446), (452, 13476), (465, 13566), (502, 13833), (511, 13881), (513, 13914), (515, 13926), (516, 13929), (519, 13944), (520, 13953), (528, 13989), (529, 13998), (530, 14007), (552, 14115), (565, 14163), (566, 14166), (568, 14169), (581, 14271), (582, 14274), (602, 14400), (609, 14433), (616, 14481), (617, 14484), (629, 14535), (639, 14604), (664, 14778), (665, 14781), (675, 14853), (676, 14856), (685, 14922), (686, 14925), (688, 14943), (698, 15003), (704, 15060), (707, 15078), (718, 15159), (719, 15162), (722, 15177), (744, 15336), (754, 15390), (760, 15456), (773, 15522), (774, 15528), (779, 15558), (789, 15651), (795, 15675), (799, 15693), (803, 15717), (804, 15723), (807, 15744), (814, 15783), (828, 15924), (842, 15987), (845, 16005), (864, 16155),

Gene: Pipp\_17 Start: 10133, Stop: 15790, Start Num: 6

Candidate Starts for Pipp\_17:

(4, 10094), (Start: 6 @10133 has 1 MA's), (Start: 9 @10247 has 37 MA's), (Start: 11 @10262 has 1 MA's), (Start: 12 @10268 has 1 MA's), (Start: 14 @10298 has 1 MA's), (15, 10307), (16, 10310), (18, 10352), (37, 10463), (39, 10484), (67, 10730), (71, 10751), (72, 10754), (75, 10772), (81, 10796), (94, 10880), (96, 10886), (104, 10922), (106, 10937), (108, 10946), (111, 10961), (118, 11006), (135, 11114), (138, 11141), (144, 11174), (153, 11258), (187, 11459), (208, 11663), (218, 11714), (221, 11735), (222, 11747), (239, 11837), (244, 11882), (249, 11909), (253, 11939), (266, 12026), (267, 12029), (271, 12068), (282, 12140), (292, 12188), (296, 12230), (301, 12275), (303, 12281), (305, 12293), (306, 12296), (312, 12350), (316, 12389), (319, 12410), (320, 12413), (323, 12431), (329, 12458), (334, 12479), (336, 12485), (340, 12506), (369, 12740), (384, 12806), (396, 12845), (403, 12860), (420, 12890), (421, 12893), (429, 12944), (442, 13025), (443, 13028), (449, 13061), (452, 13091), (465, 13181), (493, 13382), (502, 13448), (511, 13496), (515, 13541), (516, 13544), (519, 13559), (520, 13568), (528, 13604), (529, 13613), (530, 13622), (556, 13745), (568, 13784), (580, 13883), (581, 13886), (597, 13985), (599, 14003), (602, 14018), (609, 14051), (617, 14102), (629, 14153), (639, 14222), (664, 14396), (665, 14399), (674, 14465), (675, 14471), (676, 14474), (685, 14540), (686, 14543), (688, 14561), (698, 14621), (704, 14678), (707, 14696), (718, 14777), (722, 14795), (729, 14846), (744, 14954), (754, 15008), (760, 15074), (772, 15128), (773, 15140), (774, 15146), (779, 15176), (789, 15269), (795, 15293), (799, 15311), (803, 15335), (804, 15341), (807, 15362), (814, 15401), (828, 15542), (842, 15605), (845, 15623), (855, 15680), (864, 15773),

Gene: Pons\_16 Start: 9384, Stop: 14465, Start Num: 27

Candidate Starts for Pons\_16:

(Start: 27 @9384 has 26 MA's), (45, 9540), (59, 9669), (63, 9699), (76, 9768), (79, 9780), (82, 9795), (87, 9816), (89, 9825), (93, 9867), (96, 9876), (104, 9912), (108, 9936), (118, 9996), (127, 10050), (131, 10089), (133, 10095), (136, 10110), (138, 10131), (146, 10185), (162, 10302), (173, 10365), (180, 10410), (187, 10449), (191, 10491), (208, 10650), (212, 10683), (217, 10695), (221, 10722), (228, 10779), (235, 10809), (238, 10821), (252, 10923), (253, 10926), (266, 11013), (273, 11061), (292, 11175), (298, 11226), (303, 11268), (306, 11283), (307, 11292), (308, 11304), (312, 11337),



(317, 11379), (327, 11439), (328, 11442), (329, 11445), (330, 11451), (335, 11469), (340, 11493), (349, 11598), (358, 11646), (369, 11706), (370, 11709), (372, 11745), (383, 11826), (389, 11856), (393, 11877), (394, 11880), (395, 11883), (412, 11961), (419, 11985), (421, 11991), (441, 12117), (447, 12147), (452, 12186), (458, 12234), (462, 12255), (463, 12258), (464, 12264), (471, 12330), (478, 12375), (481, 12408), (483, 12429), (495, 12483), (524, 12633), (526, 12642), (541, 12729), (606, 13047), (614, 13077), (638, 13215), (653, 13296), (678, 13446), (683, 13476), (725, 13686), (726, 13695), (727, 13701), (738, 13737), (758, 13854), (761, 13860), (770, 13902), (774, 13920), (789, 14043), (795, 14067), (797, 14082), (803, 14112), (807, 14139), (809, 14145), (814, 14178), (821, 14247), (823, 14250), (825, 14286), (835, 14358), (839, 14376),

Gene: PotPie\_16 Start: 10237, Stop: 15330, Start Num: 27

Candidate Starts for PotPie\_16:

(Start: 27 @10237 has 26 MA's), (45, 10393), (59, 10522), (63, 10552), (76, 10621), (79, 10633), (87, 10669), (89, 10678), (93, 10720), (96, 10729), (104, 10765), (108, 10789), (127, 10903), (131, 10942), (136, 10963), (138, 10984), (162, 11155), (173, 11218), (180, 11263), (191, 11344), (208, 11503), (212, 11536), (217, 11548), (221, 11575), (228, 11632), (235, 11662), (238, 11674), (252, 11776), (253, 11779), (266, 11866), (273, 11914), (292, 12028), (303, 12121), (306, 12136), (308, 12157), (312, 12190), (314, 12220), (317, 12232), (323, 12271), (328, 12295), (329, 12298), (335, 12322), (340, 12346), (349, 12451), (362, 12529), (369, 12559), (370, 12562), (372, 12598), (378, 12640), (381, 12664), (383, 12679), (385, 12694), (389, 12709), (394, 12733), (405, 12772), (407, 12787), (408, 12793), (419, 12838), (421, 12844), (441, 12970), (447, 13000), (453, 13051), (458, 13087), (462, 13108), (463, 13111), (471, 13183), (478, 13228), (481, 13261), (483, 13282), (495, 13336), (506, 13411), (526, 13495), (541, 13582), (606, 13900), (614, 13930), (638, 14068), (648, 14119), (653, 14149), (678, 14314), (683, 14344), (721, 14524), (727, 14575), (738, 14602), (743, 14623), (758, 14719), (770, 14767), (774, 14785), (789, 14908), (795, 14932), (797, 14947), (803, 14977), (807, 15004), (809, 15010), (814, 15043), (821, 15112), (823, 15115), (825, 15151), (839, 15241),

Gene: PrincePatrick\_17 Start: 10339, Stop: 15960, Start Num: 9

Candidate Starts for PrincePatrick\_17:

(Start: 7 @10303 has 1 MA's), (Start: 9 @10339 has 37 MA's), (Start: 12 @10360 has 1 MA's), (15, 10399), (18, 10444), (33, 10534), (35, 10543), (37, 10555), (39, 10576), (44, 10633), (47, 10705), (50, 10726), (58, 10768), (59, 10771), (62, 10798), (66, 10819), (67, 10822), (71, 10843), (75, 10864), (86, 10915), (87, 10918), (96, 10978), (128, 11161), (138, 11233), (165, 11419), (182, 11521), (184, 11536), (187, 11551), (193, 11608), (217, 11800), (237, 11920), (249, 12001), (253, 12031), (260, 12067), (266, 12118), (271, 12160), (282, 12232), (290, 12268), (292, 12280), (298, 12331), (303, 12373), (306, 12388), (312, 12442), (316, 12481), (320, 12505), (323, 12523), (334, 12571), (336, 12577), (339, 12595), (340, 12598), (342, 12613), (344, 12625), (346, 12673), (349, 12703), (361, 12778), (378, 12892), (381, 12916), (382, 12928), (383, 12931), (390, 12964), (412, 13066), (421, 13099), (429, 13150), (431, 13162), (433, 13174), (437, 13198), (443, 13234), (447, 13258), (450, 13285), (462, 13366), (473, 13450), (486, 13555), (493, 13588), (502, 13654), (503, 13663), (511, 13702), (513, 13735), (515, 13747), (516, 13750), (519, 13765), (520, 13774), (528, 13810), (529, 13819), (530, 13828), (539, 13870), (565, 13984), (566, 13987), (568, 13990), (569, 14011), (581, 14092), (590, 14134), (602, 14221), (609, 14254), (610, 14263), (617, 14305), (639, 14419), (675, 14668), (676, 14671), (681, 14701), (682, 14704), (684, 14728), (685, 14737), (686, 14740), (698, 14818), (704, 14875), (722, 14992), (729, 15043), (754, 15181), (760, 15247), (773, 15313), (774, 15319), (777, 15337), (787, 15430), (789, 15442), (801, 15490), (803, 15508), (804, 15514), (807, 15535), (814, 15574), (828, 15715), (842, 15778), (855, 15853), (864, 15946),

Gene: PsychoKiller\_16 Start: 9629, Stop: 14767, Start Num: 27

Candidate Starts for PsychoKiller\_16:

(Start: 22 @9605 has 5 MA's), (Start: 27 @9629 has 26 MA's), (31, 9656), (45, 9785), (48, 9860), (76, 10013), (77, 10016), (93, 10112), (96, 10121), (102, 10151), (104, 10157), (106, 10172), (107, 10175), (111, 10196), (123, 10268), (126, 10289), (136, 10355), (138, 10376), (153, 10493), (180, 10655),

(187, 10694), (196, 10769), (212, 10928), (217, 10940), (221, 10967), (226, 11012), (228, 11024), (244, 11114), (247, 11132), (251, 11153), (254, 11183), (260, 11207), (263, 11219), (266, 11258), (270, 11291), (287, 11393), (288, 11396), (292, 11420), (303, 11513), (306, 11528), (310, 11567), (331, 11702), (332, 11705), (340, 11738), (350, 11846), (351, 11849), (356, 11900), (370, 11975), (381, 12077), (389, 12122), (393, 12143), (394, 12146), (395, 12149), (411, 12224), (421, 12257), (425, 12278), (429, 12308), (437, 12356), (439, 12362), (443, 12389), (463, 12524), (478, 12641), (481, 12674), (483, 12695), (498, 12764), (499, 12770), (501, 12785), (524, 12905), (526, 12914), (541, 12998), (606, 13319), (646, 13538), (653, 13574), (686, 13787), (726, 13979), (738, 14027), (743, 14048), (758, 14156), (774, 14222), (777, 14240), (789, 14345), (796, 14375), (797, 14384), (803, 14414), (814, 14480), (818, 14528), (825, 14588), (838, 14675), (852, 14738),

Gene: Quasar\_16 Start: 10238, Stop: 15376, Start Num: 27

Candidate Starts for Quasar\_16:

(Start: 22 @10214 has 5 MA's), (Start: 27 @10238 has 26 MA's), (31, 10265), (45, 10394), (48, 10469), (76, 10622), (77, 10625), (93, 10721), (96, 10730), (102, 10760), (104, 10766), (106, 10781), (107, 10784), (111, 10805), (123, 10877), (126, 10898), (136, 10964), (138, 10985), (153, 11102), (180, 11264), (187, 11303), (196, 11378), (212, 11537), (217, 11549), (221, 11576), (226, 11621), (228, 11633), (244, 11723), (247, 11741), (251, 11762), (254, 11792), (260, 11816), (263, 11828), (266, 11867), (270, 11900), (287, 12002), (288, 12005), (292, 12029), (293, 12035), (303, 12122), (306, 12137), (310, 12176), (332, 12314), (339, 12344), (340, 12347), (350, 12455), (351, 12458), (356, 12509), (370, 12584), (381, 12686), (389, 12731), (393, 12752), (394, 12755), (395, 12758), (411, 12833), (421, 12866), (425, 12887), (429, 12917), (437, 12965), (439, 12971), (443, 12998), (463, 13133), (478, 13250), (481, 13283), (483, 13304), (484, 13307), (498, 13373), (499, 13379), (501, 13394), (524, 13514), (526, 13523), (541, 13607), (606, 13928), (646, 14147), (653, 14183), (686, 14396), (726, 14588), (738, 14636), (743, 14657), (758, 14765), (774, 14831), (777, 14849), (789, 14954), (796, 14984), (797, 14993), (803, 15023), (814, 15089), (818, 15137), (825, 15197), (838, 15284), (852, 15347),

Gene: REQ2\_18 Start: 12445, Stop: 18258, Start Num: 1

Candidate Starts for REQ2\_18:

(Start: 1 @12445 has 1 MA's), (3, 12493), (8, 12664), (Start: 24 @12805 has 12 MA's), (43, 12958), (45, 12970), (48, 13045), (49, 13051), (52, 13060), (60, 13114), (66, 13147), (76, 13198), (77, 13201), (88, 13252), (96, 13306), (97, 13309), (108, 13366), (109, 13369), (114, 13402), (115, 13420), (119, 13447), (120, 13450), (126, 13480), (130, 13531), (133, 13540), (142, 13630), (204, 14125), (219, 14227), (229, 14308), (236, 14338), (246, 14407), (252, 14452), (264, 14515), (282, 14668), (298, 14767), (301, 14803), (303, 14809), (304, 14818), (306, 14824), (315, 14914), (321, 14950), (328, 14983), (335, 15010), (340, 15034), (342, 15049), (344, 15061), (350, 15142), (368, 15244), (398, 15430), (402, 15445), (417, 15517), (421, 15529), (423, 15544), (430, 15589), (435, 15622), (438, 15631), (444, 15667), (464, 15802), (468, 15826), (469, 15838), (470, 15859), (472, 15871), (482, 15961), (501, 16075), (502, 16093), (512, 16150), (532, 16264), (537, 16297), (566, 16405), (571, 16441), (577, 16480), (579, 16498), (585, 16519), (588, 16522), (601, 16615), (628, 16750), (631, 16771), (641, 16828), (692, 17152), (697, 17185), (706, 17263), (715, 17308), (719, 17347), (723, 17377), (724, 17392), (728, 17410), (732, 17443), (762, 17611), (830, 18052), (833, 18064), (837, 18094), (838, 18097), (848, 18142), (854, 18190),

Gene: RedBaron\_17 Start: 9673, Stop: 14811, Start Num: 27

Candidate Starts for RedBaron\_17:

(Start: 22 @9649 has 5 MA's), (Start: 27 @9673 has 26 MA's), (31, 9700), (45, 9829), (48, 9904), (76, 10057), (77, 10060), (93, 10156), (96, 10165), (102, 10195), (104, 10201), (106, 10216), (107, 10219), (111, 10240), (123, 10312), (126, 10333), (136, 10399), (138, 10420), (153, 10537), (180, 10699), (187, 10738), (196, 10813), (221, 11011), (240, 11119), (251, 11197), (253, 11215), (256, 11233), (266, 11302), (267, 11305), (268, 11314), (272, 11347), (291, 11458), (292, 11464), (303, 11557), (306, 11572), (323, 11707), (330, 11740), (340, 11782), (350, 11890), (356, 11944), (369, 12016),

(370, 12019), (381, 12121), (389, 12166), (391, 12175), (393, 12187), (394, 12190), (395, 12193), (411, 12268), (412, 12271), (413, 12274), (416, 12286), (419, 12295), (421, 12301), (427, 12343), (429, 12352), (437, 12400), (443, 12433), (463, 12568), (478, 12685), (481, 12718), (483, 12739), (498, 12808), (499, 12814), (524, 12949), (526, 12958), (541, 13042), (606, 13363), (646, 13582), (653, 13618), (726, 14023), (738, 14071), (743, 14092), (758, 14200), (774, 14266), (777, 14284), (789, 14389), (796, 14419), (797, 14428), (803, 14458), (814, 14524), (818, 14572), (825, 14632), (838, 14719), (852, 14782),

Gene: Samba\_17 Start: 10382, Stop: 15874, Start Num: 9

Candidate Starts for Samba\_17:

(Start: 9 @10382 has 37 MA's), (Start: 11 @10397 has 1 MA's), (Start: 12 @10403 has 1 MA's), (Start: 14 @10433 has 1 MA's), (15, 10442), (16, 10445), (18, 10487), (37, 10598), (39, 10619), (46, 10739), (53, 10781), (64, 10847), (67, 10865), (70, 10880), (71, 10886), (72, 10889), (75, 10907), (81, 10931), (94, 11015), (104, 11057), (106, 11072), (108, 11081), (135, 11249), (138, 11276), (153, 11393), (182, 11564), (187, 11594), (208, 11798), (217, 11843), (221, 11870), (222, 11882), (239, 11972), (244, 12017), (249, 12044), (253, 12074), (266, 12161), (271, 12203), (280, 12266), (282, 12275), (292, 12323), (296, 12365), (301, 12410), (303, 12416), (305, 12428), (306, 12431), (312, 12485), (316, 12524), (319, 12545), (320, 12548), (323, 12566), (324, 12575), (334, 12614), (336, 12620), (339, 12638), (340, 12641), (344, 12668), (384, 12941), (392, 12968), (396, 12980), (402, 12992), (403, 12995), (420, 13025), (421, 13028), (429, 13079), (442, 13160), (443, 13163), (449, 13196), (452, 13226), (454, 13250), (465, 13316), (502, 13583), (511, 13631), (515, 13676), (516, 13679), (519, 13694), (528, 13739), (529, 13748), (530, 13757), (540, 13808), (556, 13880), (560, 13898), (568, 13919), (580, 14018), (581, 14021), (589, 14054), (597, 14120), (599, 14138), (602, 14153), (609, 14186), (617, 14237), (629, 14288), (664, 14531), (665, 14534), (675, 14606), (676, 14609), (685, 14675), (686, 14678), (688, 14696), (698, 14756), (718, 14912), (719, 14915), (722, 14930), (744, 15101), (754, 15155), (766, 15212), (769, 15227), (776, 15275), (781, 15320), (805, 15440), (806, 15449), (813, 15488), (822, 15560), (828, 15629), (842, 15692), (845, 15710), (864, 15860),

Gene: Schnabeltier\_17 Start: 10933, Stop: 16047, Start Num: 24

Candidate Starts for Schnabeltier\_17:

(Start: 24 @10933 has 12 MA's), (Start: 27 @10942 has 26 MA's), (56, 11215), (58, 11224), (62, 11254), (65, 11263), (75, 11320), (89, 11383), (100, 11455), (105, 11476), (108, 11494), (131, 11647), (138, 11689), (146, 11743), (150, 11776), (180, 11968), (181, 11971), (187, 12007), (197, 12085), (202, 12124), (208, 12208), (212, 12241), (216, 12250), (218, 12259), (222, 12292), (224, 12304), (227, 12328), (237, 12373), (239, 12382), (243, 12418), (244, 12427), (249, 12454), (251, 12466), (253, 12484), (260, 12520), (275, 12643), (282, 12685), (301, 12820), (302, 12823), (303, 12826), (306, 12841), (312, 12895), (316, 12934), (329, 13003), (331, 13015), (336, 13030), (340, 13051), (342, 13066), (344, 13078), (345, 13114), (348, 13150), (373, 13312), (404, 13369), (410, 13381), (411, 13384), (421, 13417), (435, 13510), (437, 13516), (439, 13522), (441, 13543), (442, 13546), (443, 13549), (452, 13612), (456, 13648), (459, 13663), (464, 13687), (466, 13702), (467, 13705), (468, 13711), (474, 13765), (486, 13864), (494, 13906), (507, 13984), (511, 14008), (517, 14053), (542, 14179), (546, 14188), (549, 14206), (550, 14209), (561, 14248), (562, 14251), (566, 14260), (592, 14419), (613, 14539), (630, 14617), (640, 14665), (643, 14677), (653, 14737), (671, 14854), (676, 14881), (679, 14899), (689, 14977), (691, 14983), (694, 14992), (696, 15019), (708, 15112), (716, 15151), (720, 15193), (745, 15346), (751, 15379), (752, 15382), (757, 15439), (764, 15448), (767, 15460), (771, 15481), (774, 15502), (805, 15694), (812, 15733), (823, 15802), (826, 15856), (857, 16009),

Gene: SheckWes\_15 Start: 9372, Stop: 14465, Start Num: 27

Candidate Starts for SheckWes\_15:

(Start: 27 @9372 has 26 MA's), (45, 9528), (55, 9633), (59, 9657), (67, 9708), (70, 9723), (76, 9756), (87, 9804), (89, 9813), (93, 9855), (95, 9861), (96, 9864), (104, 9900), (108, 9924), (113, 9951), (127, 10038), (131, 10077), (133, 10083), (136, 10098), (138, 10119), (146, 10173), (162, 10290), (173,

10353), (180, 10398), (187, 10437), (191, 10479), (208, 10641), (211, 10650), (212, 10674), (217, 10686), (221, 10713), (222, 10725), (228, 10770), (235, 10800), (238, 10812), (252, 10914), (253, 10917), (266, 11004), (269, 11031), (277, 11091), (283, 11121), (288, 11142), (292, 11166), (298, 11217), (303, 11259), (306, 11274), (307, 11283), (308, 11295), (312, 11328), (317, 11370), (327, 11430), (328, 11433), (329, 11436), (330, 11442), (335, 11460), (340, 11484), (347, 11568), (349, 11589), (358, 11637), (369, 11697), (370, 11700), (372, 11736), (381, 11802), (383, 11817), (389, 11847), (393, 11868), (394, 11871), (395, 11874), (412, 11952), (419, 11976), (421, 11982), (441, 12108), (447, 12138), (452, 12177), (458, 12225), (462, 12246), (463, 12249), (464, 12255), (471, 12321), (478, 12366), (481, 12399), (483, 12420), (495, 12474), (524, 12624), (526, 12633), (541, 12720), (583, 12897), (606, 13038), (614, 13068), (638, 13206), (653, 13287), (678, 13440), (683, 13470), (725, 13686), (726, 13695), (727, 13701), (738, 13737), (758, 13854), (761, 13860), (770, 13902), (774, 13920), (789, 14043), (795, 14067), (797, 14082), (803, 14112), (807, 14139), (809, 14145), (814, 14178), (821, 14247), (823, 14250), (825, 14286), (835, 14358), (836, 14361), (839, 14376),

Gene: SketchMex\_15 Start: 9616, Stop: 14415, Start Num: 80

Candidate Starts for SketchMex\_15:

(Start: 80 @9616 has 22 MA's), (Start: 85 @9643 has 1 MA's), (107, 9772), (125, 9874), (129, 9919), (132, 9931), (136, 9949), (139, 9976), (140, 9979), (142, 9994), (149, 10045), (150, 10048), (156, 10105), (157, 10108), (166, 10150), (169, 10168), (176, 10213), (185, 10249), (189, 10282), (194, 10315), (195, 10327), (203, 10381), (205, 10420), (207, 10435), (210, 10444), (213, 10471), (223, 10522), (231, 10564), (235, 10582), (238, 10591), (245, 10645), (257, 10708), (260, 10723), (268, 10786), (285, 10876), (291, 10903), (301, 10996), (303, 11002), (306, 11017), (310, 11056), (320, 11134), (326, 11167), (336, 11206), (339, 11224), (340, 11227), (344, 11254), (347, 11311), (349, 11332), (357, 11395), (362, 11431), (365, 11443), (370, 11464), (372, 11500), (378, 11542), (379, 11554), (381, 11566), (389, 11611), (390, 11614), (393, 11632), (394, 11635), (395, 11638), (411, 11713), (413, 11719), (421, 11746), (430, 11806), (433, 11821), (441, 11872), (442, 11875), (443, 11878), (445, 11896), (459, 11995), (462, 12010), (463, 12013), (481, 12163), (483, 12184), (492, 12226), (498, 12253), (499, 12259), (522, 12391), (526, 12403), (541, 12490), (550, 12532), (558, 12568), (576, 12643), (588, 12694), (593, 12733), (603, 12811), (615, 12862), (627, 12919), (650, 13057), (660, 13132), (683, 13276), (686, 13297), (714, 13474), (715, 13480), (758, 13804), (761, 13810), (774, 13870), (777, 13888), (780, 13921), (789, 13993), (797, 14032), (803, 14062), (814, 14128), (818, 14176), (825, 14236), (839, 14326), (852, 14386),

Gene: Sopespian\_16 Start: 9630, Stop: 14768, Start Num: 27

Candidate Starts for Sopespian\_16:

(Start: 22 @9606 has 5 MA's), (Start: 27 @9630 has 26 MA's), (31, 9657), (45, 9786), (48, 9861), (76, 10014), (77, 10017), (93, 10113), (96, 10122), (102, 10152), (104, 10158), (106, 10173), (107, 10176), (111, 10197), (123, 10269), (126, 10290), (136, 10356), (138, 10377), (153, 10494), (180, 10656), (187, 10695), (196, 10770), (212, 10929), (217, 10941), (221, 10968), (226, 11013), (228, 11025), (244, 11115), (247, 11133), (251, 11154), (254, 11184), (260, 11208), (263, 11220), (266, 11259), (270, 11292), (287, 11394), (288, 11397), (292, 11421), (303, 11514), (306, 11529), (310, 11568), (331, 11703), (332, 11706), (340, 11739), (350, 11847), (351, 11850), (356, 11901), (370, 11976), (379, 12066), (381, 12078), (389, 12123), (393, 12144), (394, 12147), (395, 12150), (411, 12225), (421, 12258), (425, 12279), (429, 12309), (437, 12357), (439, 12363), (443, 12390), (463, 12525), (478, 12642), (481, 12675), (483, 12696), (498, 12765), (499, 12771), (501, 12786), (524, 12906), (526, 12915), (541, 12999), (606, 13320), (646, 13539), (653, 13575), (686, 13788), (726, 13980), (738, 14028), (743, 14049), (758, 14157), (774, 14223), (777, 14241), (789, 14346), (796, 14376), (797, 14385), (803, 14415), (814, 14481), (818, 14529), (825, 14589), (838, 14676), (852, 14739),

Gene: Spooky\_18 Start: 9874, Stop: 15489, Start Num: 22

Candidate Starts for Spooky\_18:

(Start: 22 @9874 has 5 MA's), (Start: 30 @9919 has 1 MA's), (32, 9940), (36, 9961), (40, 10006), (72, 10246), (90, 10339), (91, 10351), (95, 10375), (96, 10378), (108, 10438), (110, 10447), (111, 10453), (123, 10525), (134, 10603), (136, 10612), (138, 10633), (200, 11053), (208, 11161), (212, 11194), (217, 11206), (221, 11233), (244, 11380), (249, 11407), (253, 11437), (260, 11473), (266, 11524), (267, 11527), (268, 11536), (273, 11572), (282, 11638), (292, 11686), (300, 11770), (301, 11773), (303, 11779), (305, 11791), (306, 11794), (311, 11845), (312, 11848), (316, 11887), (336, 11983), (340, 12004), (362, 12208), (369, 12238), (378, 12319), (381, 12343), (382, 12355), (390, 12391), (405, 12451), (411, 12490), (413, 12496), (414, 12499), (420, 12520), (421, 12523), (437, 12622), (444, 12661), (448, 12685), (452, 12718), (455, 12763), (461, 12817), (462, 12829), (469, 12904), (470, 12925), (475, 12961), (479, 12991), (491, 13072), (493, 13081), (497, 13105), (509, 13186), (511, 13192), (515, 13237), (516, 13240), (519, 13255), (528, 13300), (529, 13309), (530, 13318), (552, 13426), (560, 13459), (565, 13474), (568, 13480), (580, 13579), (581, 13582), (582, 13585), (587, 13594), (602, 13711), (609, 13744), (616, 13792), (617, 13795), (625, 13825), (634, 13885), (647, 13966), (651, 13987), (652, 13990), (666, 14083), (667, 14092), (683, 14194), (686, 14215), (690, 14245), (693, 14254), (699, 14293), (700, 14296), (701, 14299), (703, 14326), (711, 14380), (724, 14497), (737, 14581), (740, 14593), (741, 14605), (742, 14611), (746, 14638), (751, 14662), (778, 14839), (787, 14926), (791, 14944), (792, 14953), (808, 15031), (811, 15049), (820, 15139), (824, 15151), (834, 15238), (841, 15280), (847, 15313), (849, 15325), (865, 15469),

Gene: Squiddly\_20 Start: 11289, Stop: 16901, Start Num: 22

Candidate Starts for Squiddly\_20:

(Start: 22 @11289 has 5 MA's), (25, 11307), (28, 11316), (Start: 30 @11334 has 1 MA's), (32, 11355), (34, 11367), (40, 11421), (Start: 41 @11436 has 1 MA's), (61, 11604), (62, 11613), (67, 11637), (72, 11661), (75, 11679), (84, 11724), (95, 11790), (96, 11793), (108, 11853), (134, 12018), (138, 12048), (157, 12204), (182, 12342), (184, 12357), (200, 12468), (208, 12576), (216, 12618), (217, 12621), (218, 12627), (221, 12648), (222, 12660), (244, 12795), (249, 12822), (253, 12852), (256, 12870), (266, 12939), (268, 12951), (282, 13053), (292, 13101), (296, 13143), (301, 13188), (303, 13194), (305, 13206), (306, 13209), (308, 13230), (311, 13260), (312, 13263), (315, 13299), (316, 13302), (330, 13377), (336, 13398), (340, 13419), (347, 13503), (358, 13593), (378, 13734), (382, 13770), (389, 13803), (390, 13806), (393, 13824), (405, 13866), (411, 13905), (413, 13911), (414, 13914), (420, 13935), (421, 13938), (437, 14037), (444, 14076), (452, 14133), (456, 14208), (462, 14244), (470, 14340), (475, 14376), (479, 14406), (490, 14484), (491, 14487), (493, 14496), (497, 14520), (501, 14544), (504, 14577), (509, 14601), (511, 14607), (513, 14640), (515, 14652), (516, 14655), (519, 14670), (525, 14688), (528, 14715), (529, 14724), (530, 14733), (531, 14736), (552, 14841), (565, 14889), (568, 14895), (581, 14997), (587, 15009), (602, 15126), (609, 15159), (617, 15210), (618, 15222), (625, 15240), (634, 15300), (647, 15381), (651, 15402), (666, 15498), (668, 15516), (672, 15540), (683, 15609), (686, 15630), (690, 15660), (693, 15669), (699, 15708), (700, 15711), (701, 15714), (703, 15741), (711, 15795), (724, 15912), (737, 15996), (740, 16008), (741, 16020), (742, 16026), (746, 16053), (751, 16077), (778, 16254), (787, 16341), (791, 16359), (792, 16368), (808, 16446), (810, 16461), (812, 16470), (819, 16545), (820, 16554), (824, 16566), (834, 16653), (841, 16695), (847, 16728), (849, 16740), (861, 16815), (865, 16881),

Gene: SteamedHams\_18 Start: 9646, Stop: 14433, Start Num: 80

Candidate Starts for SteamedHams\_18:

(Start: 80 @9646 has 22 MA's), (Start: 85 @9673 has 1 MA's), (98, 9751), (107, 9802), (122, 9889), (125, 9904), (132, 9961), (136, 9979), (139, 10006), (140, 10009), (150, 10078), (156, 10135), (166, 10180), (169, 10198), (176, 10243), (185, 10279), (189, 10312), (197, 10360), (198, 10363), (203, 10411), (205, 10450), (207, 10465), (233, 10606), (242, 10657), (245, 10675), (254, 10729), (285, 10906), (291, 10933), (301, 11026), (303, 11032), (306, 11047), (310, 11086), (311, 11098), (320, 11164), (336, 11236), (339, 11254), (340, 11257), (344, 11284), (372, 11530), (381, 11596), (389, 11641), (393, 11662), (394, 11665), (395, 11668), (405, 11704), (411, 11743), (413, 11749), (421, 11776), (442, 11905), (443, 11908), (445, 11926), (464, 12049), (466, 12064), (481, 12193), (483, 12214), (492, 12256), (498, 12283), (499, 12289), (522, 12421), (526, 12433), (541, 12520), (550,

12562), (558, 12598), (588, 12724), (593, 12763), (615, 12892), (627, 12949), (633, 12991), (650, 13084), (660, 13159), (669, 13222), (683, 13303), (686, 13324), (714, 13501), (715, 13507), (747, 13726), (755, 13804), (758, 13822), (761, 13828), (774, 13888), (777, 13906), (780, 13939), (789, 14011), (797, 14050), (803, 14080), (814, 14146), (818, 14194), (825, 14254), (839, 14344), (852, 14404),

Gene: SummitAcademy\_15 Start: 9452, Stop: 14545, Start Num: 27

Candidate Starts for SummitAcademy\_15:

(Start: 27 @9452 has 26 MA's), (45, 9608), (59, 9737), (63, 9767), (76, 9836), (79, 9848), (87, 9884), (93, 9935), (96, 9944), (104, 9980), (108, 10004), (118, 10064), (127, 10118), (131, 10157), (133, 10163), (136, 10178), (138, 10199), (162, 10370), (173, 10433), (180, 10478), (191, 10559), (208, 10718), (212, 10751), (217, 10763), (221, 10790), (228, 10847), (235, 10877), (238, 10889), (252, 10991), (253, 10994), (266, 11081), (273, 11129), (292, 11243), (303, 11336), (306, 11351), (308, 11372), (312, 11405), (314, 11435), (317, 11447), (323, 11486), (328, 11510), (329, 11513), (335, 11537), (340, 11561), (349, 11666), (362, 11744), (369, 11774), (370, 11777), (372, 11813), (378, 11855), (381, 11879), (383, 11894), (385, 11909), (389, 11924), (394, 11948), (405, 11987), (407, 12002), (408, 12008), (412, 12029), (419, 12053), (421, 12059), (441, 12185), (447, 12215), (453, 12266), (458, 12302), (462, 12323), (463, 12326), (471, 12398), (478, 12443), (481, 12476), (483, 12497), (495, 12551), (506, 12626), (526, 12710), (541, 12797), (606, 13115), (614, 13145), (638, 13283), (648, 13334), (653, 13364), (678, 13529), (683, 13559), (721, 13739), (727, 13790), (738, 13817), (743, 13838), (758, 13934), (770, 13982), (774, 14000), (789, 14123), (795, 14147), (797, 14162), (803, 14192), (807, 14219), (809, 14225), (814, 14258), (821, 14327), (823, 14330), (825, 14366), (839, 14456),

Gene: Survivors\_18 Start: 10474, Stop: 15597, Start Num: 27

Candidate Starts for Survivors\_18:

(Start: 22 @10453 has 5 MA's), (Start: 27 @10474 has 26 MA's), (31, 10501), (45, 10630), (53, 10726), (61, 10777), (73, 10834), (78, 10867), (79, 10870), (93, 10957), (97, 10969), (106, 11017), (107, 11020), (108, 11026), (116, 11080), (118, 11086), (126, 11134), (136, 11200), (138, 11221), (196, 11614), (197, 11617), (205, 11719), (217, 11785), (218, 11791), (221, 11812), (253, 12016), (256, 12034), (258, 12040), (260, 12052), (263, 12064), (266, 12103), (268, 12115), (273, 12151), (280, 12208), (285, 12232), (287, 12238), (303, 12358), (306, 12373), (310, 12412), (319, 12487), (325, 12520), (329, 12535), (330, 12541), (331, 12547), (340, 12583), (350, 12691), (359, 12763), (369, 12817), (389, 12967), (394, 12991), (408, 13051), (409, 13063), (411, 13069), (419, 13096), (420, 13099), (421, 13102), (435, 13195), (437, 13201), (445, 13252), (454, 13321), (460, 13354), (463, 13369), (464, 13375), (470, 13432), (472, 13444), (477, 13483), (478, 13486), (480, 13507), (481, 13519), (483, 13540), (484, 13543), (492, 13582), (495, 13594), (498, 13609), (524, 13750), (541, 13846), (555, 13912), (563, 13933), (567, 13939), (606, 14176), (614, 14206), (621, 14245), (644, 14380), (650, 14410), (653, 14431), (675, 14569), (683, 14617), (734, 14848), (738, 14854), (758, 14983), (774, 15049), (780, 15100), (789, 15172), (797, 15211), (803, 15241), (809, 15274), (814, 15307), (823, 15379), (828, 15451), (838, 15505), (840, 15511), (852, 15568),

Gene: SweatNTears\_18 Start: 10127, Stop: 14926, Start Num: 80

Candidate Starts for SweatNTears\_18:

(Start: 80 @10127 has 22 MA's), (Start: 85 @10154 has 1 MA's), (87, 10160), (107, 10283), (125, 10385), (129, 10430), (132, 10442), (136, 10460), (139, 10487), (140, 10490), (142, 10505), (149, 10556), (150, 10559), (156, 10616), (157, 10619), (166, 10661), (169, 10679), (176, 10724), (185, 10760), (189, 10793), (194, 10826), (195, 10838), (203, 10892), (205, 10931), (207, 10946), (210, 10955), (213, 10982), (223, 11033), (235, 11093), (238, 11102), (245, 11156), (257, 11219), (260, 11234), (268, 11297), (285, 11387), (291, 11414), (299, 11495), (301, 11507), (303, 11513), (306, 11528), (309, 11558), (310, 11567), (320, 11645), (326, 11678), (336, 11717), (339, 11735), (340, 11738), (344, 11765), (347, 11822), (349, 11843), (365, 11954), (370, 11975), (372, 12011), (378, 12053), (379, 12065), (381, 12077), (389, 12122), (390, 12125), (393, 12143), (394, 12146), (395,

12149), (411, 12224), (421, 12257), (430, 12317), (441, 12383), (442, 12386), (443, 12389), (445, 12407), (459, 12506), (462, 12521), (463, 12524), (481, 12674), (483, 12695), (492, 12737), (498, 12764), (499, 12770), (522, 12902), (526, 12914), (541, 13001), (550, 13043), (558, 13079), (576, 13154), (588, 13205), (593, 13244), (595, 13268), (615, 13373), (627, 13430), (650, 13568), (660, 13643), (683, 13787), (686, 13808), (714, 13985), (715, 13991), (758, 14315), (761, 14321), (774, 14381), (777, 14399), (780, 14432), (789, 14504), (797, 14543), (803, 14573), (814, 14639), (818, 14687), (825, 14747), (839, 14837), (852, 14897),

Gene: TaronosaurusRx\_17 Start: 10940, Stop: 16063, Start Num: 24

Candidate Starts for TaronosaurusRx\_17:

(Start: 24 @10940 has 12 MA's), (26, 10946), (56, 11219), (58, 11228), (65, 11267), (75, 11324), (89, 11387), (105, 11480), (108, 11498), (131, 11651), (138, 11693), (150, 11780), (180, 11972), (181, 11975), (187, 12011), (192, 12059), (208, 12212), (212, 12245), (216, 12254), (218, 12263), (222, 12296), (224, 12308), (227, 12332), (237, 12377), (239, 12386), (244, 12431), (249, 12458), (251, 12470), (253, 12488), (275, 12647), (279, 12671), (280, 12680), (281, 12683), (301, 12824), (302, 12827), (303, 12830), (305, 12842), (306, 12845), (312, 12899), (316, 12938), (336, 13034), (340, 13055), (342, 13070), (344, 13082), (348, 13154), (373, 13316), (404, 13373), (410, 13385), (411, 13388), (421, 13421), (435, 13514), (437, 13520), (439, 13526), (441, 13547), (442, 13550), (443, 13553), (446, 13574), (450, 13604), (456, 13652), (457, 13658), (459, 13667), (464, 13691), (466, 13706), (467, 13709), (468, 13715), (472, 13760), (474, 13769), (486, 13868), (494, 13910), (500, 13943), (507, 13988), (511, 14012), (517, 14057), (523, 14075), (550, 14213), (554, 14234), (561, 14252), (562, 14255), (566, 14264), (604, 14495), (608, 14513), (612, 14537), (640, 14681), (644, 14705), (653, 14756), (676, 14900), (679, 14918), (684, 14957), (689, 14996), (691, 15002), (694, 15011), (699, 15053), (708, 15131), (716, 15170), (733, 15305), (751, 15398), (752, 15401), (757, 15458), (764, 15467), (767, 15479), (771, 15500), (805, 15713), (812, 15752), (823, 15821), (826, 15875), (857, 16025),

Gene: Toast\_17 Start: 10235, Stop: 15886, Start Num: 7

Candidate Starts for Toast\_17:

(Start: 7 @10235 has 1 MA's), (Start: 9 @10271 has 37 MA's), (Start: 12 @10292 has 1 MA's), (15, 10331), (18, 10376), (33, 10466), (35, 10475), (37, 10487), (39, 10508), (44, 10565), (47, 10637), (50, 10658), (58, 10700), (59, 10703), (62, 10730), (66, 10751), (67, 10754), (71, 10775), (75, 10796), (86, 10847), (87, 10850), (96, 10910), (128, 11093), (138, 11165), (165, 11351), (182, 11453), (184, 11468), (187, 11483), (193, 11540), (217, 11732), (237, 11852), (249, 11933), (253, 11963), (260, 11999), (266, 12050), (287, 12185), (288, 12188), (292, 12212), (298, 12263), (301, 12299), (303, 12305), (306, 12320), (312, 12374), (316, 12413), (320, 12437), (323, 12455), (334, 12503), (336, 12509), (339, 12527), (340, 12530), (342, 12545), (344, 12557), (346, 12605), (369, 12743), (378, 12824), (381, 12848), (382, 12860), (383, 12863), (390, 12896), (412, 12998), (419, 13025), (420, 13028), (421, 13031), (422, 13037), (429, 13082), (431, 13094), (433, 13106), (437, 13130), (440, 13145), (442, 13160), (443, 13163), (447, 13187), (450, 13214), (462, 13295), (473, 13379), (486, 13484), (493, 13517), (502, 13583), (503, 13592), (511, 13631), (513, 13664), (515, 13676), (516, 13679), (519, 13694), (520, 13703), (528, 13739), (529, 13748), (530, 13757), (565, 13913), (566, 13916), (568, 13919), (569, 13940), (581, 14021), (590, 14063), (602, 14150), (609, 14183), (610, 14192), (617, 14234), (639, 14348), (663, 14513), (675, 14597), (676, 14600), (681, 14630), (682, 14633), (685, 14666), (686, 14669), (698, 14747), (704, 14804), (722, 14921), (729, 14972), (748, 15074), (754, 15107), (760, 15173), (773, 15239), (774, 15245), (777, 15263), (780, 15296), (789, 15368), (799, 15410), (801, 15416), (803, 15434), (804, 15440), (807, 15461), (814, 15500), (828, 15641), (842, 15704), (855, 15779), (864, 15872),

Gene: Tolls\_18 Start: 9649, Stop: 14436, Start Num: 80

Candidate Starts for Tolls\_18:

(Start: 80 @9649 has 22 MA's), (Start: 85 @9676 has 1 MA's), (98, 9754), (107, 9805), (122, 9892), (125, 9907), (132, 9964), (136, 9982), (139, 10009), (140, 10012), (150, 10081), (156, 10138), (166,

10183), (169, 10201), (176, 10246), (179, 10261), (185, 10282), (189, 10315), (197, 10363), (198, 10366), (203, 10414), (205, 10453), (207, 10468), (242, 10660), (245, 10678), (261, 10762), (285, 10909), (291, 10936), (301, 11029), (303, 11035), (306, 11050), (310, 11089), (311, 11101), (320, 11167), (336, 11239), (339, 11257), (340, 11260), (344, 11287), (372, 11533), (381, 11599), (389, 11644), (393, 11665), (394, 11668), (395, 11671), (405, 11707), (411, 11746), (413, 11752), (421, 11779), (442, 11908), (443, 11911), (445, 11929), (464, 12052), (466, 12067), (481, 12196), (483, 12217), (492, 12259), (498, 12286), (499, 12292), (522, 12424), (526, 12436), (541, 12523), (550, 12565), (558, 12601), (588, 12727), (593, 12766), (615, 12895), (627, 12952), (633, 12994), (650, 13087), (660, 13162), (669, 13225), (683, 13306), (686, 13327), (714, 13504), (715, 13510), (747, 13729), (755, 13807), (758, 13825), (761, 13831), (774, 13891), (777, 13909), (780, 13942), (789, 14014), (797, 14053), (803, 14083), (814, 14149), (818, 14197), (825, 14257), (839, 14347), (852, 14407),

Gene: Troje\_16 Start: 9601, Stop: 14397, Start Num: 80

Candidate Starts for Troje\_16:

(Start: 80 @9601 has 22 MA's), (Start: 85 @9628 has 1 MA's), (87, 9634), (107, 9757), (125, 9859), (129, 9904), (132, 9916), (136, 9934), (139, 9961), (140, 9964), (142, 9979), (149, 10030), (150, 10033), (156, 10090), (157, 10093), (166, 10135), (169, 10153), (176, 10198), (185, 10234), (189, 10267), (194, 10300), (195, 10312), (203, 10366), (205, 10405), (207, 10420), (210, 10429), (213, 10456), (223, 10507), (235, 10567), (238, 10576), (245, 10630), (257, 10693), (260, 10708), (285, 10861), (291, 10888), (299, 10969), (301, 10981), (303, 10987), (306, 11002), (310, 11041), (320, 11119), (326, 11152), (336, 11191), (339, 11209), (340, 11212), (344, 11239), (347, 11296), (349, 11317), (357, 11380), (365, 11428), (370, 11449), (372, 11485), (378, 11527), (381, 11551), (389, 11596), (390, 11599), (393, 11617), (394, 11620), (395, 11623), (411, 11698), (413, 11704), (421, 11731), (430, 11791), (441, 11857), (442, 11860), (443, 11863), (445, 11881), (459, 11980), (462, 11995), (463, 11998), (481, 12148), (483, 12169), (492, 12211), (498, 12238), (499, 12244), (526, 12388), (541, 12475), (550, 12517), (558, 12553), (576, 12628), (588, 12679), (593, 12718), (603, 12796), (615, 12847), (627, 12904), (650, 13042), (660, 13114), (683, 13258), (686, 13279), (714, 13456), (715, 13462), (758, 13786), (761, 13792), (774, 13852), (777, 13870), (780, 13903), (789, 13975), (797, 14014), (803, 14044), (814, 14110), (815, 14128), (818, 14158), (825, 14218), (839, 14308), (852, 14368),

Gene: Typhonomachy\_17 Start: 9629, Stop: 14767, Start Num: 27

Candidate Starts for Typhonomachy\_17:

(Start: 22 @9605 has 5 MA's), (Start: 27 @9629 has 26 MA's), (31, 9656), (45, 9785), (48, 9860), (76, 10013), (77, 10016), (93, 10112), (96, 10121), (102, 10151), (104, 10157), (106, 10172), (107, 10175), (111, 10196), (123, 10268), (126, 10289), (136, 10355), (138, 10376), (153, 10493), (180, 10655), (187, 10694), (196, 10769), (212, 10928), (217, 10940), (221, 10967), (226, 11012), (228, 11024), (244, 11114), (247, 11132), (251, 11153), (254, 11183), (260, 11207), (263, 11219), (266, 11258), (270, 11291), (272, 11303), (287, 11393), (288, 11396), (292, 11420), (303, 11513), (306, 11528), (310, 11567), (316, 11621), (323, 11663), (332, 11705), (339, 11735), (340, 11738), (350, 11846), (351, 11849), (356, 11900), (370, 11975), (379, 12065), (381, 12077), (387, 12116), (389, 12122), (393, 12143), (394, 12146), (395, 12149), (411, 12224), (421, 12257), (425, 12278), (429, 12308), (437, 12356), (439, 12362), (443, 12389), (463, 12524), (478, 12641), (481, 12674), (483, 12695), (498, 12764), (499, 12770), (501, 12785), (524, 12905), (526, 12914), (541, 12998), (606, 13319), (646, 13538), (653, 13574), (686, 13787), (726, 13979), (738, 14027), (743, 14048), (758, 14156), (774, 14222), (777, 14240), (789, 14345), (796, 14375), (797, 14384), (803, 14414), (814, 14480), (818, 14528), (825, 14588), (838, 14675), (852, 14738),

Gene: UmaThurman\_17 Start: 10381, Stop: 15924, Start Num: 9

Candidate Starts for UmaThurman\_17:

(Start: 9 @10381 has 37 MA's), (Start: 11 @10396 has 1 MA's), (Start: 12 @10402 has 1 MA's), (Start: 14 @10432 has 1 MA's), (15, 10441), (16, 10444), (18, 10486), (37, 10597), (39, 10618), (64, 10846),



(67, 10864), (70, 10879), (71, 10885), (72, 10888), (75, 10906), (81, 10930), (94, 11014), (95, 11017), (104, 11056), (106, 11071), (108, 11080), (135, 11248), (138, 11275), (187, 11593), (208, 11797), (217, 11842), (218, 11848), (221, 11869), (222, 11881), (239, 11971), (244, 12016), (249, 12043), (253, 12073), (266, 12160), (267, 12163), (271, 12202), (292, 12322), (296, 12364), (301, 12409), (303, 12415), (306, 12430), (312, 12484), (316, 12523), (319, 12544), (320, 12547), (323, 12565), (324, 12574), (334, 12613), (336, 12619), (340, 12640), (344, 12667), (369, 12874), (384, 12940), (396, 12979), (403, 12994), (420, 13024), (421, 13027), (429, 13078), (442, 13159), (443, 13162), (449, 13195), (452, 13225), (454, 13249), (502, 13582), (511, 13630), (515, 13675), (516, 13678), (519, 13693), (528, 13738), (529, 13747), (530, 13756), (540, 13807), (556, 13879), (560, 13897), (568, 13918), (580, 14017), (581, 14020), (589, 14053), (597, 14119), (599, 14137), (602, 14152), (609, 14185), (617, 14236), (629, 14287), (635, 14335), (664, 14530), (665, 14533), (675, 14605), (676, 14608), (685, 14674), (686, 14677), (688, 14695), (698, 14755), (704, 14812), (707, 14830), (718, 14911), (719, 14914), (722, 14929), (744, 15088), (754, 15142), (760, 15208), (772, 15262), (773, 15274), (774, 15280), (789, 15403), (795, 15427), (799, 15445), (803, 15469), (804, 15475), (807, 15496), (814, 15535), (828, 15676), (831, 15688), (842, 15739), (845, 15757), (864, 15907),

Gene: Utz\_17 Start: 10248, Stop: 15791, Start Num: 9

Candidate Starts for Utz\_17:

(Start: 9 @10248 has 37 MA's), (Start: 11 @10263 has 1 MA's), (Start: 12 @10269 has 1 MA's), (Start: 14 @10299 has 1 MA's), (15, 10308), (16, 10311), (18, 10353), (37, 10464), (39, 10485), (46, 10605), (53, 10647), (64, 10713), (67, 10731), (71, 10752), (72, 10755), (75, 10773), (81, 10797), (94, 10881), (95, 10884), (104, 10923), (106, 10938), (108, 10947), (135, 11115), (138, 11142), (153, 11259), (182, 11430), (187, 11460), (208, 11664), (217, 11709), (221, 11736), (222, 11748), (239, 11838), (249, 11910), (253, 11940), (266, 12027), (267, 12030), (271, 12069), (292, 12189), (296, 12231), (301, 12276), (303, 12282), (305, 12294), (306, 12297), (312, 12351), (316, 12390), (319, 12411), (320, 12414), (323, 12432), (334, 12480), (336, 12486), (340, 12507), (344, 12534), (384, 12807), (396, 12846), (403, 12861), (420, 12891), (421, 12894), (429, 12945), (442, 13026), (443, 13029), (449, 13062), (452, 13092), (454, 13116), (465, 13182), (502, 13449), (505, 13467), (511, 13497), (515, 13542), (516, 13545), (519, 13560), (520, 13569), (528, 13605), (529, 13614), (530, 13623), (540, 13674), (556, 13746), (560, 13764), (568, 13785), (580, 13884), (581, 13887), (589, 13920), (597, 13986), (599, 14004), (602, 14019), (609, 14052), (617, 14103), (629, 14154), (664, 14397), (665, 14400), (675, 14472), (676, 14475), (685, 14541), (686, 14544), (688, 14562), (698, 14622), (704, 14679), (707, 14697), (718, 14778), (719, 14781), (722, 14796), (754, 15009), (760, 15075), (773, 15141), (774, 15147), (789, 15270), (795, 15294), (799, 15312), (803, 15336), (804, 15342), (807, 15363), (814, 15402), (828, 15543), (842, 15606), (845, 15624), (850, 15651), (855, 15681), (864, 15774),

Gene: Vine\_17 Start: 10381, Stop: 15480, Start Num: 27

Candidate Starts for Vine\_17:

(Start: 27 @10381 has 26 MA's), (45, 10537), (59, 10666), (63, 10696), (76, 10765), (79, 10777), (87, 10813), (89, 10822), (93, 10864), (96, 10873), (104, 10909), (108, 10933), (118, 10993), (127, 11047), (131, 11086), (136, 11107), (138, 11128), (159, 11287), (162, 11299), (173, 11362), (180, 11407), (191, 11488), (208, 11647), (212, 11680), (217, 11692), (221, 11719), (228, 11776), (235, 11806), (238, 11818), (252, 11920), (253, 11923), (266, 12010), (272, 12055), (273, 12058), (292, 12172), (303, 12265), (306, 12280), (308, 12301), (312, 12334), (314, 12364), (317, 12376), (323, 12415), (328, 12439), (329, 12442), (335, 12466), (340, 12490), (349, 12595), (362, 12673), (369, 12703), (370, 12706), (372, 12742), (378, 12784), (381, 12808), (383, 12823), (385, 12838), (389, 12853), (394, 12877), (405, 12916), (407, 12931), (408, 12937), (412, 12958), (419, 12982), (421, 12988), (441, 13114), (447, 13144), (453, 13195), (458, 13231), (462, 13252), (463, 13255), (471, 13327), (478, 13372), (481, 13405), (483, 13426), (495, 13480), (506, 13555), (526, 13639), (541, 13726), (586, 13912), (606, 14044), (614, 14074), (638, 14212), (648, 14263), (653, 14293), (668, 14398), (678, 14449), (683, 14479), (721, 14659), (727, 14710), (738, 14752), (743, 14773), (758, 14869), (770, 14917), (774, 14935), (789, 15058), (795, 15082), (797, 15097), (803, 15127), (807, 15154),

(809, 15160), (814, 15193), (821, 15262), (823, 15265), (825, 15301), (839, 15391),

Gene: Walrus\_18 Start: 10497, Stop: 16019, Start Num: 12

Candidate Starts for Walrus\_18:

(Start: 9 @10476 has 37 MA's), (Start: 11 @10491 has 1 MA's), (Start: 12 @10497 has 1 MA's), (Start: 14 @10527 has 1 MA's), (15, 10536), (16, 10539), (18, 10581), (37, 10692), (39, 10713), (46, 10833), (64, 10941), (67, 10959), (72, 10983), (75, 11001), (81, 11025), (94, 11109), (96, 11115), (104, 11151), (106, 11166), (108, 11175), (111, 11190), (118, 11235), (121, 11256), (135, 11343), (138, 11370), (144, 11403), (153, 11487), (162, 11541), (169, 11583), (182, 11658), (187, 11688), (208, 11892), (217, 11937), (244, 12111), (249, 12138), (253, 12168), (266, 12255), (267, 12258), (271, 12297), (273, 12303), (280, 12360), (292, 12417), (296, 12459), (301, 12504), (303, 12510), (306, 12525), (312, 12579), (316, 12618), (319, 12639), (320, 12642), (323, 12660), (329, 12687), (334, 12708), (336, 12714), (340, 12735), (348, 12834), (384, 13035), (388, 13050), (396, 13074), (403, 13089), (420, 13119), (421, 13122), (429, 13173), (442, 13254), (443, 13257), (449, 13290), (452, 13320), (454, 13344), (465, 13410), (502, 13677), (511, 13725), (515, 13770), (516, 13773), (519, 13788), (525, 13806), (528, 13833), (529, 13842), (530, 13851), (540, 13902), (556, 13974), (560, 13992), (568, 14013), (580, 14112), (581, 14115), (589, 14148), (597, 14214), (599, 14232), (602, 14247), (609, 14280), (617, 14331), (629, 14382), (664, 14625), (665, 14628), (675, 14700), (676, 14703), (685, 14769), (686, 14772), (688, 14790), (698, 14850), (704, 14907), (707, 14925), (718, 15006), (719, 15009), (722, 15024), (744, 15183), (754, 15237), (760, 15303), (761, 15309), (773, 15369), (774, 15375), (789, 15498), (795, 15522), (799, 15540), (803, 15564), (804, 15570), (807, 15591), (814, 15630), (828, 15771), (831, 15783), (842, 15834), (845, 15852), (863, 15981), (864, 16002),

Gene: Whack\_16 Start: 10349, Stop: 16249, Start Num: 1

Candidate Starts for Whack\_16:

(Start: 1 @10349 has 1 MA's), (2, 10358), (3, 10397), (5, 10445), (45, 10874), (48, 10949), (49, 10955), (60, 11018), (61, 11021), (67, 11054), (76, 11102), (77, 11105), (92, 11192), (97, 11213), (100, 11231), (108, 11270), (114, 11306), (120, 11354), (126, 11384), (133, 11444), (146, 11567), (173, 11777), (177, 11819), (204, 12029), (209, 12083), (219, 12134), (229, 12215), (250, 12341), (252, 12359), (286, 12593), (298, 12674), (301, 12710), (303, 12716), (306, 12731), (311, 12782), (312, 12785), (318, 12836), (322, 12860), (323, 12866), (330, 12899), (338, 12926), (340, 12941), (345, 13004), (347, 13025), (354, 13088), (362, 13145), (376, 13247), (399, 13343), (416, 13400), (418, 13406), (419, 13409), (436, 13511), (440, 13529), (444, 13553), (478, 13802), (480, 13823), (488, 13880), (510, 14024), (518, 14081), (538, 14183), (543, 14207), (545, 14210), (558, 14270), (564, 14276), (572, 14324), (588, 14399), (598, 14498), (605, 14549), (607, 14555), (619, 14636), (624, 14645), (670, 14966), (674, 14990), (680, 15026), (685, 15065), (693, 15110), (702, 15170), (705, 15212), (712, 15242), (713, 15245), (735, 15416), (736, 15419), (739, 15446), (756, 15578), (759, 15593), (763, 15599), (765, 15608), (775, 15656), (814, 15905), (823, 15977), (830, 16052), (838, 16097), (844, 16127), (846, 16136), (853, 16172), (854, 16187),

Gene: Whitney\_19 Start: 10672, Stop: 16305, Start Num: 22

Candidate Starts for Whitney\_19:

(Start: 22 @10672 has 5 MA's), (Start: 30 @10717 has 1 MA's), (32, 10738), (36, 10759), (40, 10804), (Start: 41 @10819 has 1 MA's), (47, 10903), (55, 10945), (56, 10957), (67, 11020), (70, 11035), (72, 11044), (75, 11062), (76, 11068), (87, 11116), (111, 11251), (134, 11401), (138, 11431), (169, 11650), (182, 11725), (187, 11755), (208, 11959), (217, 12004), (218, 12010), (221, 12031), (224, 12055), (233, 12112), (244, 12178), (249, 12205), (251, 12217), (253, 12235), (254, 12247), (260, 12271), (263, 12283), (266, 12322), (267, 12325), (268, 12334), (271, 12364), (277, 12409), (289, 12469), (292, 12484), (295, 12514), (296, 12526), (301, 12571), (303, 12577), (306, 12592), (309, 12622), (311, 12643), (312, 12646), (320, 12709), (324, 12736), (325, 12739), (326, 12742), (327, 12748), (333, 12772), (334, 12775), (336, 12781), (338, 12787), (340, 12802), (343, 12820), (345, 12865), (354, 12949), (355, 12955), (359, 12982), (372, 13075), (373, 13084), (381, 13141), (382, 13153),

(390, 13189), (391, 13195), (402, 13237), (405, 13249), (411, 13288), (413, 13294), (414, 13297), (419, 13315), (420, 13318), (421, 13321), (426, 13345), (437, 13420), (444, 13459), (448, 13483), (452, 13516), (462, 13627), (465, 13660), (470, 13723), (475, 13759), (479, 13789), (490, 13867), (491, 13870), (493, 13879), (497, 13903), (511, 13990), (515, 14035), (516, 14038), (519, 14053), (528, 14098), (529, 14107), (530, 14116), (531, 14119), (552, 14224), (565, 14272), (568, 14278), (580, 14377), (581, 14380), (587, 14392), (602, 14509), (609, 14542), (617, 14593), (625, 14623), (634, 14683), (647, 14764), (651, 14785), (652, 14788), (654, 14818), (666, 14881), (667, 14890), (668, 14899), (686, 15013), (690, 15043), (699, 15091), (700, 15094), (703, 15124), (704, 15145), (731, 15343), (741, 15406), (742, 15412), (751, 15463), (778, 15655), (787, 15742), (792, 15769), (793, 15772), (808, 15847), (812, 15871), (817, 15910), (819, 15946), (824, 15967), (834, 16054), (841, 16096), (847, 16129), (849, 16141), (865, 16285),

Gene: William\_17 Start: 10217, Stop: 15835, Start Num: 9

Candidate Starts for William\_17:

(Start: 7 @10181 has 1 MA's), (Start: 9 @10217 has 37 MA's), (Start: 12 @10238 has 1 MA's), (16, 10280), (18, 10322), (33, 10412), (35, 10421), (37, 10433), (39, 10454), (45, 10520), (47, 10583), (50, 10604), (58, 10646), (59, 10649), (62, 10676), (66, 10697), (67, 10700), (71, 10721), (75, 10742), (86, 10793), (87, 10796), (96, 10856), (128, 11039), (138, 11111), (165, 11297), (182, 11399), (184, 11414), (187, 11429), (193, 11486), (217, 11678), (237, 11798), (249, 11879), (253, 11909), (260, 11945), (266, 11996), (287, 12131), (288, 12134), (292, 12158), (298, 12209), (301, 12245), (303, 12251), (306, 12266), (312, 12320), (316, 12359), (320, 12383), (323, 12401), (334, 12449), (336, 12455), (339, 12473), (340, 12476), (342, 12491), (344, 12503), (346, 12551), (369, 12689), (378, 12770), (381, 12794), (382, 12806), (383, 12809), (390, 12842), (412, 12944), (419, 12971), (420, 12974), (421, 12977), (422, 12983), (431, 13040), (433, 13052), (437, 13076), (440, 13091), (442, 13106), (443, 13109), (447, 13133), (450, 13160), (462, 13241), (473, 13325), (486, 13430), (493, 13463), (502, 13529), (503, 13538), (511, 13577), (513, 13610), (515, 13622), (516, 13625), (519, 13640), (520, 13649), (528, 13685), (529, 13694), (530, 13703), (565, 13859), (566, 13862), (568, 13865), (569, 13886), (581, 13967), (590, 14009), (602, 14096), (609, 14129), (610, 14138), (617, 14180), (639, 14294), (675, 14543), (676, 14546), (681, 14576), (682, 14579), (684, 14603), (685, 14612), (686, 14615), (698, 14693), (704, 14750), (722, 14867), (729, 14918), (754, 15056), (760, 15122), (773, 15188), (774, 15194), (777, 15212), (787, 15305), (789, 15317), (801, 15365), (803, 15383), (804, 15389), (807, 15410), (814, 15449), (828, 15590), (842, 15653), (855, 15728), (864, 15821),

Gene: Wisp\_16 Start: 10065, Stop: 15509, Start Num: 14

Candidate Starts for Wisp\_16:

(Start: 9 @10014 has 37 MA's), (Start: 11 @10029 has 1 MA's), (Start: 12 @10035 has 1 MA's), (Start: 14 @10065 has 1 MA's), (15, 10074), (16, 10077), (18, 10119), (37, 10230), (39, 10251), (46, 10371), (53, 10413), (59, 10446), (64, 10479), (67, 10497), (70, 10512), (71, 10518), (72, 10521), (75, 10539), (81, 10563), (94, 10647), (104, 10689), (106, 10704), (108, 10713), (135, 10881), (138, 10908), (153, 11025), (182, 11196), (187, 11226), (208, 11430), (217, 11475), (221, 11502), (222, 11514), (239, 11604), (244, 11649), (249, 11676), (253, 11706), (266, 11793), (267, 11796), (271, 11835), (280, 11898), (292, 11955), (296, 11997), (301, 12042), (303, 12048), (305, 12060), (306, 12063), (312, 12117), (316, 12156), (319, 12177), (320, 12180), (323, 12198), (329, 12225), (334, 12246), (336, 12252), (339, 12270), (340, 12273), (341, 12279), (344, 12300), (384, 12573), (392, 12600), (396, 12612), (403, 12627), (420, 12657), (421, 12660), (442, 12792), (443, 12795), (449, 12828), (452, 12858), (454, 12882), (465, 12948), (502, 13215), (511, 13263), (515, 13308), (516, 13311), (519, 13326), (528, 13371), (529, 13380), (530, 13389), (540, 13440), (556, 13512), (560, 13530), (568, 13551), (580, 13650), (581, 13653), (589, 13686), (597, 13752), (599, 13770), (602, 13785), (609, 13818), (617, 13869), (629, 13920), (664, 14163), (665, 14166), (675, 14238), (676, 14241), (685, 14307), (686, 14310), (688, 14328), (698, 14388), (718, 14544), (719, 14547), (722, 14562), (744, 14733), (754, 14787), (766, 14844), (769, 14859), (776, 14907), (781, 14952), (805, 15072), (806, 15081), (813, 15120), (822, 15192), (828, 15261), (831, 15273), (842, 15324), (845, 15342), (855,

15399), (864, 15492),

Gene: Wocket\_18 Start: 10497, Stop: 15983, Start Num: 9

Candidate Starts for Wocket\_18:

(Start: 9 @10497 has 37 MA's), (Start: 11 @10512 has 1 MA's), (Start: 14 @10548 has 1 MA's), (15, 10557), (16, 10560), (18, 10602), (37, 10713), (39, 10734), (46, 10854), (64, 10962), (67, 10980), (71, 11001), (72, 11004), (75, 11022), (81, 11046), (87, 11076), (94, 11130), (96, 11136), (104, 11172), (106, 11187), (108, 11196), (135, 11364), (138, 11391), (162, 11562), (169, 11604), (182, 11679), (187, 11709), (208, 11913), (217, 11958), (218, 11964), (221, 11985), (222, 11997), (239, 12087), (244, 12132), (249, 12159), (253, 12189), (266, 12276), (271, 12318), (282, 12390), (292, 12438), (296, 12480), (301, 12525), (303, 12531), (306, 12546), (312, 12600), (316, 12639), (319, 12660), (320, 12663), (323, 12681), (329, 12708), (334, 12729), (336, 12735), (340, 12756), (344, 12783), (396, 13095), (403, 13110), (420, 13140), (421, 13143), (429, 13194), (442, 13275), (443, 13278), (449, 13311), (452, 13341), (454, 13365), (465, 13431), (502, 13698), (509, 13740), (511, 13746), (513, 13779), (515, 13791), (516, 13794), (519, 13809), (525, 13827), (528, 13854), (529, 13863), (530, 13872), (552, 13980), (565, 14028), (566, 14031), (568, 14034), (569, 14055), (581, 14136), (582, 14139), (602, 14265), (609, 14298), (616, 14346), (617, 14349), (620, 14364), (629, 14400), (665, 14646), (675, 14718), (676, 14721), (685, 14787), (686, 14790), (688, 14808), (698, 14868), (718, 15024), (722, 15042), (744, 15207), (754, 15261), (766, 15318), (769, 15333), (776, 15381), (781, 15426), (805, 15546), (806, 15555), (813, 15594), (822, 15666), (828, 15735), (842, 15798), (845, 15816), (851, 15846),

Gene: Yarn\_15 Start: 9639, Stop: 14426, Start Num: 80

Candidate Starts for Yarn\_15:

(Start: 80 @9639 has 22 MA's), (Start: 85 @9666 has 1 MA's), (98, 9744), (107, 9795), (122, 9882), (125, 9897), (132, 9954), (136, 9972), (139, 9999), (140, 10002), (150, 10071), (156, 10128), (166, 10173), (169, 10191), (176, 10236), (185, 10272), (189, 10305), (197, 10353), (198, 10356), (203, 10404), (205, 10443), (207, 10458), (242, 10650), (245, 10668), (261, 10752), (285, 10899), (291, 10926), (301, 11019), (303, 11025), (306, 11040), (310, 11079), (311, 11091), (320, 11157), (336, 11229), (339, 11247), (340, 11250), (344, 11277), (372, 11523), (381, 11589), (389, 11634), (393, 11655), (394, 11658), (395, 11661), (405, 11697), (411, 11736), (413, 11742), (421, 11769), (442, 11898), (443, 11901), (445, 11919), (464, 12042), (466, 12057), (481, 12186), (483, 12207), (492, 12249), (498, 12276), (499, 12282), (522, 12414), (526, 12426), (541, 12513), (550, 12555), (558, 12591), (588, 12717), (593, 12756), (615, 12885), (627, 12942), (633, 12984), (650, 13077), (660, 13152), (669, 13215), (683, 13296), (686, 13317), (714, 13494), (715, 13500), (747, 13719), (755, 13797), (758, 13815), (761, 13821), (774, 13881), (777, 13899), (780, 13932), (789, 14004), (797, 14043), (803, 14073), (814, 14139), (818, 14187), (825, 14247), (839, 14337), (852, 14397),

Gene: Yummy\_17 Start: 9515, Stop: 14311, Start Num: 80

Candidate Starts for Yummy\_17:

(Start: 80 @9515 has 22 MA's), (Start: 85 @9542 has 1 MA's), (87, 9548), (107, 9671), (125, 9773), (129, 9818), (132, 9830), (136, 9848), (139, 9875), (140, 9878), (142, 9893), (149, 9944), (150, 9947), (156, 10004), (157, 10007), (158, 10010), (166, 10049), (169, 10067), (176, 10112), (185, 10148), (189, 10181), (194, 10214), (195, 10226), (203, 10280), (205, 10319), (207, 10334), (210, 10343), (213, 10370), (223, 10421), (235, 10481), (238, 10490), (245, 10544), (257, 10607), (260, 10622), (268, 10685), (285, 10775), (291, 10802), (301, 10895), (303, 10901), (306, 10916), (310, 10955), (320, 11033), (326, 11066), (336, 11105), (339, 11123), (340, 11126), (344, 11153), (347, 11210), (349, 11231), (365, 11342), (370, 11363), (372, 11399), (378, 11441), (379, 11453), (381, 11465), (389, 11510), (390, 11513), (393, 11531), (394, 11534), (395, 11537), (411, 11612), (421, 11645), (430, 11705), (441, 11771), (442, 11774), (443, 11777), (445, 11795), (459, 11894), (462, 11909), (463, 11912), (481, 12062), (483, 12083), (492, 12125), (498, 12152), (499, 12158), (522, 12290), (526, 12302), (541, 12389), (550, 12431), (558, 12467), (570, 12503), (576, 12542), (588, 12593), (593, 12632), (603, 12710), (615, 12761), (627, 12818), (650, 12956), (660, 13028), (683, 13172),

(686, 13193), (714, 13370), (715, 13376), (758, 13700), (761, 13706), (774, 13766), (777, 13784), (780, 13817), (789, 13889), (797, 13928), (803, 13958), (814, 14024), (815, 14042), (818, 14072), (825, 14132), (839, 14222), (852, 14282),

Gene: ZAYM\_17 Start: 10932, Stop: 16055, Start Num: 24

Candidate Starts for ZAYM\_17:

(Start: 24 @10932 has 12 MA's), (26, 10938), (56, 11211), (58, 11220), (65, 11259), (75, 11316), (89, 11379), (105, 11472), (108, 11490), (131, 11643), (138, 11685), (150, 11772), (180, 11964), (181, 11967), (187, 12003), (192, 12051), (208, 12204), (212, 12237), (216, 12246), (218, 12255), (222, 12288), (224, 12300), (227, 12324), (237, 12369), (239, 12378), (249, 12450), (251, 12462), (253, 12480), (275, 12639), (279, 12663), (280, 12672), (281, 12675), (301, 12816), (302, 12819), (303, 12822), (306, 12837), (312, 12891), (316, 12930), (336, 13026), (340, 13047), (342, 13062), (344, 13074), (348, 13146), (373, 13308), (404, 13365), (410, 13377), (411, 13380), (421, 13413), (435, 13506), (437, 13512), (439, 13518), (441, 13539), (442, 13542), (443, 13545), (446, 13566), (450, 13596), (456, 13644), (457, 13650), (459, 13659), (464, 13683), (466, 13698), (467, 13701), (468, 13707), (472, 13752), (474, 13761), (486, 13860), (494, 13902), (500, 13935), (507, 13980), (511, 14004), (517, 14049), (523, 14067), (550, 14205), (554, 14226), (561, 14244), (562, 14247), (566, 14256), (604, 14487), (608, 14505), (612, 14529), (640, 14673), (644, 14697), (653, 14748), (676, 14892), (679, 14910), (684, 14949), (689, 14988), (691, 14994), (694, 15003), (699, 15045), (708, 15123), (716, 15162), (733, 15297), (751, 15390), (752, 15393), (757, 15450), (764, 15459), (767, 15471), (771, 15492), (805, 15705), (812, 15744), (823, 15813), (826, 15867), (857, 16017),

Gene: Zarbodnamra\_17 Start: 10273, Stop: 15795, Start Num: 9

Candidate Starts for Zarbodnamra\_17:

(Start: 9 @10273 has 37 MA's), (Start: 11 @10288 has 1 MA's), (Start: 12 @10294 has 1 MA's), (Start: 14 @10324 has 1 MA's), (15, 10333), (16, 10336), (18, 10378), (37, 10489), (39, 10510), (64, 10738), (67, 10756), (70, 10771), (71, 10777), (72, 10780), (75, 10798), (81, 10822), (94, 10906), (95, 10909), (104, 10948), (106, 10963), (108, 10972), (135, 11140), (138, 11167), (182, 11455), (187, 11485), (208, 11689), (217, 11734), (221, 11761), (222, 11773), (239, 11863), (244, 11908), (249, 11935), (253, 11965), (266, 12052), (267, 12055), (271, 12094), (284, 12178), (292, 12214), (296, 12256), (301, 12301), (303, 12307), (305, 12319), (306, 12322), (312, 12376), (316, 12415), (319, 12436), (320, 12439), (323, 12457), (324, 12466), (329, 12484), (334, 12505), (336, 12511), (340, 12532), (344, 12559), (349, 12637), (388, 12826), (396, 12850), (402, 12862), (403, 12865), (415, 12880), (420, 12895), (421, 12898), (429, 12949), (442, 13030), (443, 13033), (449, 13066), (452, 13096), (454, 13120), (502, 13453), (511, 13501), (515, 13546), (516, 13549), (519, 13564), (528, 13609), (529, 13618), (530, 13627), (540, 13678), (556, 13750), (560, 13768), (568, 13789), (580, 13888), (581, 13891), (589, 13924), (597, 13990), (599, 14008), (602, 14023), (609, 14056), (617, 14107), (629, 14158), (664, 14401), (665, 14404), (675, 14476), (676, 14479), (685, 14545), (686, 14548), (688, 14566), (698, 14626), (704, 14683), (707, 14701), (718, 14782), (719, 14785), (722, 14800), (744, 14959), (754, 15013), (760, 15079), (761, 15085), (773, 15145), (774, 15151), (789, 15274), (795, 15298), (799, 15316), (803, 15340), (804, 15346), (807, 15367), (814, 15406), (828, 15547), (831, 15559), (842, 15610), (845, 15628), (864, 15778),

Gene: Zareef\_20 Start: 10620, Stop: 15749, Start Num: 27

Candidate Starts for Zareef\_20:

(Start: 22 @10599 has 5 MA's), (Start: 27 @10620 has 26 MA's), (31, 10647), (45, 10776), (53, 10872), (61, 10923), (73, 10980), (78, 11013), (79, 11016), (93, 11103), (97, 11115), (106, 11163), (107, 11166), (108, 11172), (109, 11175), (116, 11226), (118, 11232), (126, 11280), (136, 11346), (138, 11367), (196, 11760), (197, 11763), (205, 11865), (214, 11922), (216, 11928), (217, 11931), (218, 11937), (221, 11958), (239, 12060), (241, 12087), (253, 12162), (256, 12180), (260, 12198), (263, 12210), (266, 12249), (273, 12297), (280, 12354), (285, 12378), (287, 12384), (303, 12504), (306, 12519), (310, 12558), (319, 12633), (325, 12666), (329, 12681), (330, 12687), (331, 12693), (340, 12729), (350, 12837), (359, 12909), (369, 12963), (381, 13068), (389, 13113), (394, 13137),

(403, 13167), (408, 13197), (409, 13209), (411, 13215), (419, 13242), (421, 13248), (435, 13341), (437, 13347), (445, 13398), (454, 13467), (460, 13500), (463, 13515), (464, 13521), (470, 13578), (478, 13632), (480, 13653), (481, 13665), (483, 13686), (484, 13689), (498, 13755), (524, 13896), (541, 13992), (548, 14025), (555, 14058), (563, 14079), (567, 14085), (606, 14322), (614, 14352), (644, 14526), (650, 14556), (653, 14577), (683, 14769), (684, 14778), (710, 14859), (734, 15000), (738, 15006), (758, 15135), (774, 15201), (780, 15252), (789, 15324), (797, 15363), (798, 15366), (803, 15393), (809, 15426), (814, 15459), (823, 15531), (828, 15603), (838, 15657), (840, 15663), (852, 15720),

Gene: ZiggyZoo\_16 Start: 10043, Stop: 15586, Start Num: 9

Candidate Starts for ZiggyZoo\_16:

(Start: 9 @10043 has 37 MA's), (Start: 11 @10058 has 1 MA's), (Start: 12 @10064 has 1 MA's), (Start: 14 @10094 has 1 MA's), (15, 10103), (16, 10106), (18, 10148), (37, 10259), (39, 10280), (64, 10508), (67, 10526), (70, 10541), (71, 10547), (72, 10550), (75, 10568), (81, 10592), (94, 10676), (96, 10682), (104, 10718), (106, 10733), (108, 10742), (135, 10910), (138, 10937), (153, 11054), (162, 11108), (182, 11225), (187, 11255), (208, 11459), (217, 11504), (221, 11531), (222, 11543), (239, 11633), (244, 11678), (249, 11705), (253, 11735), (266, 11822), (267, 11825), (271, 11864), (292, 11984), (296, 12026), (301, 12071), (303, 12077), (305, 12089), (306, 12092), (312, 12146), (316, 12185), (319, 12206), (320, 12209), (323, 12227), (329, 12254), (334, 12275), (336, 12281), (340, 12302), (344, 12329), (348, 12401), (369, 12536), (388, 12617), (396, 12641), (403, 12656), (420, 12686), (421, 12689), (429, 12740), (442, 12821), (443, 12824), (449, 12857), (452, 12887), (454, 12911), (465, 12977), (502, 13244), (505, 13262), (511, 13292), (515, 13337), (516, 13340), (519, 13355), (520, 13364), (528, 13400), (529, 13409), (530, 13418), (540, 13469), (556, 13541), (560, 13559), (568, 13580), (580, 13679), (581, 13682), (589, 13715), (597, 13781), (599, 13799), (602, 13814), (609, 13847), (617, 13898), (629, 13949), (664, 14192), (665, 14195), (675, 14267), (676, 14270), (685, 14336), (686, 14339), (688, 14357), (698, 14417), (704, 14474), (707, 14492), (718, 14573), (719, 14576), (722, 14591), (744, 14750), (754, 14804), (760, 14870), (761, 14876), (773, 14936), (774, 14942), (780, 14993), (789, 15065), (795, 15089), (799, 15107), (803, 15131), (804, 15137), (807, 15158), (814, 15197), (828, 15338), (831, 15350), (842, 15401), (845, 15419), (864, 15569),