

1. LongHai_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
2. 8U2L_19	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
3. Mac06_17	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
4. FF47_19	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
5. Juddy_9	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
6. Jabs_86	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
7. Jaxera_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
8. Avado_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
9. Jaxata_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
10. Jaxper_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
11. Jaxadonna_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
12. Jax4_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
13. JaxaPoly_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
14. JaxaShia_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
15. JaxaHath_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
16. JaxaLusy_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
17. JaxaOmni_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
18. JaxaEponi_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
19. JaxaMain_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
20. JaxaY2_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
21. JaxaDanS_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
22. JaxaLeso_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
23. JaxaSlip_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
24. JaxaRaqui_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
25. JaxaCheer_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
26. JaxaChan_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
27. JaxaRutme_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
28. JaxaThyara_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
29. JaxaMiy_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
30. JaxaAyo_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
31. JaxaKali_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
32. JaxaPsycho_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
33. JaxaCoti_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
34. JaxaLov_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
35. JaxaEdu_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
36. JaxaInco_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
37. JaxaDadu_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
38. JaxaCNR_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
39. JaxaSoSeph_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
40. JaxaFrie_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
41. JaxaRando_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
42. JaxaGmi_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
43. JaxaHathP_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
44. JaxaEifer_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
45. JaxaPiec_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
46. JaxaSoBum_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
47. JaxaJoven_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
48. JaxaFalle_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
49. JaxaKuku_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456
50. JaxaAmohm_2	200	216	232	248	264	280	296	312	328	344	360	376	392	408	424	440	456

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 283734 Report

This analysis was run 02/23/26 on database version 636.

Pham number 283734 has 78 members, 13 are drafts.

Phages represented in each track:

- Track 1 : LongHai_20, Salvus_20
- Track 2 : 8UZL_19
- Track 3 : Maco6_17
- Track 4 : FF47_19
- Track 5 : Muddy_19
- Track 6 : Rabbs_16, Sneeze_16
- Track 7 : Taheera_16, Terror_16
- Track 8 : Avocado_16
- Track 9 : FlagStaff_16
- Track 10 : GodSpeed_17
- Track 11 : Belladonna_21
- Track 12 : TM4_17
- Track 13 : YasnayaPolyana_22
- Track 14 : Bobquesha_22
- Track 15 : Fionnbharth_22, Wintermute_22
- Track 16 : MissDaisy_22, Reptar3000_22, Patt_22
- Track 17 : OmniCritical_22, SamScheppers_20, Mitti_22
- Track 18 : Eponine_22
- Track 19 : Malthus_22, Kraw_22
- Track 20 : Y2_22, Y10_22, JF1_22
- Track 21 : DanSyl44_22
- Track 22 : Lebo14_22
- Track 23 : Slarp_22, Qhanda_22
- Track 24 : Taquito_20
- Track 25 : Cheetobro_22
- Track 26 : Chancellor_22
- Track 27 : Ruthiejr_21, Juliette_22
- Track 28 : Thyatira_19, Waterfoul_19
- Track 29 : Miryou_19
- Track 30 : AlleyCat_19
- Track 31 : Kratio_18
- Track 32 : Psycho_19
- Track 33 : Gengar_19, Guillsminger_19, Leston_19, Paola_19
- Track 34 : Larva_19, Neighly_19
- Track 35 : Edugator_18
- Track 36 : InvictusManeo_19, DoubleChamp_19, BananenDer11_19, LilDirt_18, ViviJ_18, Agent47_19, Collard_19

- Track 37 : Dadosky_19
- Track 38 : OkiRoe_19
- Track 39 : SoSeph_19, Heftyboy_19
- Track 40 : Feyre_19
- Track 41 : Rando14_19
- Track 42 : Omnicron_19
- Track 43 : DarthP_20, Hammy_20
- Track 44 : Fefferhead_20
- Track 45 : Applecrisp_19
- Track 46 : Lavahound_19
- Track 47 : November_19
- Track 48 : Ellie_18
- Track 49 : Ekdilam_18
- Track 50 : Amohnition_20
- Track 51 : Amgine_19
- Track 52 : Boilgate_18

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

The start number called the most often in the published annotations is 7, it was called in 33 of the 65 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Amgine_19, Amohnition_20, Applecrisp_19, Avocado_16, Bobquesha_22, Chancellor_22, Cheetobro_22, DanSyl44_22, DarthP_20, Ekdilam_18, Ellie_18, Eponine_22, Fefferhead_20, Fionnbharth_22, FlagStaff_16, GodSpeed_17, Hammy_20, JF1_22, Juliette_22, Kraw_22, Lavahound_19, Lebo14_22, Malthus_22, MissDaisy_22, Mitti_22, November_19, OmniCritical_22, Patt_22, Qhanda_22, Reptar3000_22, Ruthiejr_21, SamScheppers_20, Slarp_22, Taquito_20, Wintermute_22, Y10_22, Y2_22, YasnayaPolyana_22,

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

- Belladonna_21, Boilgate_18,

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

- 8UZL_19, Agent47_19, AlleyCat_19, BananenDer11_19, Collard_19, Dadosky_19, DoubleChamp_19, Edugator_18, FF47_19, Feyre_19, Gengar_19, Guillsminger_19, Heftyboy_19, InvictusManeo_19, Kratio_18, Larva_19, Leston_19, LilDirt_18, LongHai_20, Maco6_17, Miryou_19, Muddy_19, Neighly_19, OkiRoe_19, Omnicron_19, Paola_19, Psycho_19, Rabbs_16, Rando14_19, Salvus_20, Sneeze_16, SoSeph_19, TM4_17, Taheera_16, Terror_16, Thyatira_19, ViviJ_18, Waterfoul_19,

Summary by start number:

Start 4:

- Found in 2 of 78 (2.6%) of genes in pham
- Manual Annotations of this start: 1 of 65
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Psycho_19 (K5),

Start 5:

- Found in 28 of 78 (35.9%) of genes in pham
- Manual Annotations of this start: 23 of 65
- Called 96.4% of time when present
- Phage (with cluster) where this start called: Agent47_19 (K5), AlleyCat_19 (K5), BananenDer11_19 (K5), Collard_19 (K5), Dadosky_19 (K5), DoubleChamp_19 (K5), Edugator_18 (K5), Feyre_19 (K5), Gengar_19 (K5), Guillsminger_19 (K5), Heftyboy_19 (K5), InvictusManeo_19 (K5), Kratio_18 (K5), Larva_19 (K5), Leston_19 (K5), LilDirt_18 (K5), Miryou_19 (K5), Neighly_19 (K3), OkiRoe_19 (K5), Omnicron_19 (K5), Paola_19 (K5), Rando14_19 (K5), SoSeph_19 (K5), TM4_17 (K2), Thyatira_19 (K5), ViviJ_18 (K5), Waterfoul_19 (K5),

Start 6:

- Found in 4 of 78 (5.1%) of genes in pham
- Manual Annotations of this start: 4 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rabbs_16 (G1), Sneeze_16 (G1), Taheera_16 (G1), Terror_16 (G1),

Start 7:

- Found in 40 of 78 (51.3%) of genes in pham
- Manual Annotations of this start: 33 of 65
- Called 95.0% of time when present
- Phage (with cluster) where this start called: Amgine_19 (K6), Amohntion_20 (K6), Applecrisp_19 (K6), Avocado_16 (G2), Bobquesha_22 (K4), Chancellor_22 (K4), Cheetobro_22 (K4), DanSyl44_22 (K4), DarthP_20 (K6), Ekdilam_18 (K6), Ellie_18 (K6), Eponine_22 (K4), Fefferhead_20 (K6), Fionnbharth_22 (K4), FlagStaff_16 (G2), GodSpeed_17 (G2), Hammy_20 (K6), JF1_22 (K4), Juliette_22 (K4), Kraw_22 (K4), Lavahound_19 (K6), Lebo14_22 (K4), Malthus_22 (K4), MissDaisy_22 (K4), Mitti_22 (K4), November_19 (K6), OmniCritical_22 (K4), Patt_22 (K4), Qhanda_22 (K4), Reptar3000_22 (K4), Ruthiejr_21 (K4), SamScheppers_20 (K4), Slarp_22 (K4), Taquito_20 (K4), Wintermute_22 (K4), Y10_22 (K4), Y2_22 (K4), YasnayaPolyana_22 (K4),

Start 9:

- Found in 12 of 78 (15.4%) of genes in pham
- Manual Annotations of this start: 1 of 65
- Called 8.3% of time when present
- Phage (with cluster) where this start called: Belladonna_21 (K1),

Start 10:

- Found in 18 of 78 (23.1%) of genes in pham
- Manual Annotations of this start: 1 of 65
- Called 5.6% of time when present
- Phage (with cluster) where this start called: Boilgate_18 (K8),

Start 24:

- Found in 14 of 78 (17.9%) of genes in pham
- Manual Annotations of this start: 2 of 65
- Called 42.9% of time when present
- Phage (with cluster) where this start called: 8UZL_19 (AB), FF47_19 (AB), LongHai_20 (AB), Maco6_17 (AB), Muddy_19 (AB), Salvus_20 (AB),

Summary by clusters:

There are 10 clusters represented in this pham: AB, G2, G1, K3, K2, K1, K6, K5, K4, K8,

Info for manual annotations of cluster AB:

- Start number 24 was manually annotated 2 times for cluster AB.

Info for manual annotations of cluster G1:

- Start number 6 was manually annotated 4 times for cluster G1.

Info for manual annotations of cluster G2:

- Start number 7 was manually annotated 2 times for cluster G2.

Info for manual annotations of cluster K1:

- Start number 9 was manually annotated 1 time for cluster K1.

Info for manual annotations of cluster K2:

- Start number 5 was manually annotated 1 time for cluster K2.

Info for manual annotations of cluster K4:

- Start number 7 was manually annotated 22 times for cluster K4.

Info for manual annotations of cluster K5:

- Start number 4 was manually annotated 1 time for cluster K5.
- Start number 5 was manually annotated 22 times for cluster K5.

Info for manual annotations of cluster K6:

- Start number 7 was manually annotated 9 times for cluster K6.

Info for manual annotations of cluster K8:

- Start number 10 was manually annotated 1 time for cluster K8.

Gene Information:

Gene: 8UZL_19 Start: 11439, Stop: 14888, Start Num: 24

Candidate Starts for 8UZL_19:

(Start: 24 @11439 has 2 MA's), (26, 11454), (33, 11502), (34, 11505), (41, 11550), (48, 11673), (75, 12000), (76, 12012), (78, 12033), (88, 12117), (94, 12171), (95, 12180), (101, 12234), (102, 12243), (106, 12267), (108, 12276), (115, 12318), (120, 12363), (122, 12375), (124, 12396), (128, 12420), (139, 12474), (145, 12528), (150, 12549), (151, 12561), (157, 12585), (158, 12594), (168, 12672), (187, 12798), (194, 12840), (216, 13008), (230, 13014), (236, 13059), (253, 13182), (262, 13260), (268, 13293), (271, 13320), (273, 13332), (287, 13440), (289, 13449), (300, 13542), (306, 13572), (313, 13608), (323, 13638), (327, 13656), (332, 13683), (333, 13686), (343, 13740), (344, 13743), (352, 13833), (357, 13881), (360, 13896), (362, 13914), (364, 13929), (367, 13989), (370, 14022), (371, 14031), (376, 14040), (381, 14076), (384, 14091), (412, 14286), (424, 14481), (432, 14577), (434, 14595), (437, 14637), (438, 14643), (440, 14670), (452, 14772), (454, 14781), (456, 14820),

Gene: Agent47_19 Start: 12236, Stop: 16342, Start Num: 5

Candidate Starts for Agent47_19:

(Start: 5 @12236 has 23 MA's), (Start: 10 @12329 has 1 MA's), (16, 12407), (17, 12431), (22, 12491), (27, 12575), (28, 12587), (43, 12689), (45, 12749), (46, 12761), (47, 12782), (50, 12836), (53, 12884), (56, 12929), (57, 12950), (68, 13067), (77, 13145), (79, 13169), (86, 13235), (95, 13310), (106, 13403), (111, 13433), (133, 13607), (134, 13616), (139, 13646), (140, 13670), (143, 13691), (154, 13751), (163, 13829), (164, 13838), (173, 13916), (184, 13982), (191, 14024), (192, 14033), (198, 14117), (201, 14138), (203, 14171), (212, 14237), (215, 14258), (221, 14312), (222, 14321), (225, 14339), (228, 14357), (229, 14366), (233, 14396), (238, 14432), (245, 14486), (250, 14522), (252, 14528), (253, 14546), (266, 14651), (274, 14717), (302, 14912), (308, 14942), (314, 14975), (330, 15026), (341, 15047), (343, 15062), (345, 15068), (352, 15152), (357, 15200), (363, 15239), (367, 15299), (370, 15332), (375, 15353), (379, 15377), (385, 15407), (403, 15473), (408, 15545), (425, 15860), (426, 15869), (427, 15872), (429, 15914), (431, 15941), (436, 15971), (440, 16022), (442, 16040), (453, 16106), (458, 16154), (460, 16178), (462, 16190), (471, 16271), (473, 16295), (475, 16334),

Gene: AlleyCat_19 Start: 12112, Stop: 16224, Start Num: 5

Candidate Starts for AlleyCat_19:

(Start: 5 @12112 has 23 MA's), (Start: 10 @12205 has 1 MA's), (16, 12283), (17, 12307), (22, 12367), (27, 12451), (43, 12565), (45, 12625), (46, 12637), (47, 12658), (50, 12712), (53, 12760), (56, 12805), (57, 12826), (68, 12943), (77, 13021), (79, 13045), (82, 13087), (86, 13111), (95, 13186), (106, 13279), (111, 13309), (133, 13483), (139, 13522), (140, 13546), (143, 13567), (154, 13627), (163, 13705), (164, 13714), (173, 13792), (184, 13858), (191, 13900), (192, 13909), (198, 13993), (201, 14014), (203, 14047), (204, 14068), (212, 14113), (215, 14134), (221, 14188), (222, 14197), (225, 14215), (229, 14242), (233, 14272), (238, 14308), (250, 14398), (252, 14404), (253, 14422), (266, 14527), (274, 14593), (302, 14788), (308, 14818), (314, 14851), (330, 14902), (341, 14923), (343, 14938), (345, 14944), (352, 15028), (357, 15076), (363, 15115), (367, 15175), (370, 15208), (375, 15229), (379, 15253), (385, 15283), (403, 15349), (408, 15421), (425, 15736), (426, 15745), (427, 15748), (428, 15775), (429, 15790), (430, 15805), (431, 15817), (436, 15847), (440, 15901), (442, 15919), (453, 15988), (458, 16036), (460, 16060), (462, 16072), (464, 16081), (471, 16153), (473, 16177), (475, 16216),

Gene: Amgine_19 Start: 11863, Stop: 16011, Start Num: 7

Candidate Starts for Amgine_19:

(Start: 7 @11863 has 33 MA's), (Start: 9 @11932 has 1 MA's), (21, 12094), (26, 12196), (27, 12202), (30, 12223), (45, 12376), (46, 12388), (50, 12463), (56, 12556), (57, 12577), (61, 12616), (68, 12694), (77, 12772), (79, 12796), (84, 12850), (86, 12862), (95, 12937), (106, 13030), (117, 13111), (123, 13174), (131, 13228), (135, 13249), (137, 13261), (140, 13297), (143, 13318), (149, 13345), (152, 13369), (155, 13390), (159, 13411), (163, 13456), (180, 13582), (184, 13630), (194, 13690), (195, 13696), (201, 13786), (213, 13897), (219, 13948), (220, 13954), (228, 14005), (233, 14044), (235, 14065), (252, 14176), (257, 14236), (261, 14269), (264, 14287), (268, 14305), (270, 14323), (272, 14335), (275, 14380), (284, 14431), (292, 14479), (302, 14557), (318, 14644), (320, 14650), (335, 14716), (336, 14719), (349, 14794), (354, 14860), (370, 14995), (382, 15055), (387, 15070), (388, 15076), (426, 15526), (431, 15598), (432, 15607), (441, 15694), (460, 15847), (470, 15946), (473, 15973), (474, 15985),

Gene: Amohndition_20 Start: 12196, Stop: 16386, Start Num: 7

Candidate Starts for Amohndition_20:

(2, 12151), (Start: 7 @12196 has 33 MA's), (Start: 9 @12265 has 1 MA's), (15, 12352), (21, 12427), (Start: 24 @12514 has 2 MA's), (25, 12517), (37, 12589), (42, 12640), (43, 12649), (45, 12709), (46, 12721), (47, 12742), (50, 12796), (52, 12826), (56, 12889), (57, 12910), (61, 12949), (68, 13027), (77, 13105), (79, 13129), (86, 13195), (94, 13261), (98, 13303), (103, 13342), (105, 13354), (110, 13384), (111, 13393), (123, 13507), (125, 13522), (134, 13576), (139, 13606), (140, 13630), (143, 13651), (151, 13699), (159, 13744), (160, 13747), (163, 13789), (166, 13810), (171, 13858), (180, 13915), (182, 13930), (185, 13966), (186, 13978), (194, 14023), (195, 14029), (201, 14119), (228, 14338),

(233, 14377), (235, 14398), (248, 14485), (252, 14509), (254, 14536), (255, 14539), (257, 14569), (264, 14620), (270, 14656), (284, 14764), (302, 14899), (303, 14902), (316, 14968), (317, 14974), (325, 15013), (340, 15085), (341, 15091), (345, 15112), (352, 15196), (355, 15226), (358, 15247), (360, 15259), (367, 15340), (370, 15373), (371, 15382), (373, 15388), (382, 15430), (396, 15481), (399, 15487), (416, 15778), (425, 15892), (426, 15901), (427, 15904), (431, 15973), (448, 16108), (455, 16177), (460, 16225), (470, 16321), (474, 16360),

Gene: Applecrisp_19 Start: 12274, Stop: 16422, Start Num: 7

Candidate Starts for Applecrisp_19:

(Start: 7 @12274 has 33 MA's), (Start: 9 @12343 has 1 MA's), (21, 12505), (26, 12607), (27, 12613), (30, 12634), (45, 12787), (46, 12799), (50, 12874), (52, 12904), (56, 12967), (57, 12988), (61, 13027), (68, 13105), (77, 13183), (79, 13207), (86, 13273), (95, 13348), (106, 13441), (113, 13474), (117, 13522), (123, 13585), (131, 13639), (132, 13642), (135, 13660), (137, 13672), (143, 13729), (149, 13756), (152, 13780), (155, 13801), (159, 13822), (163, 13867), (184, 14041), (201, 14197), (215, 14317), (219, 14359), (220, 14365), (230, 14437), (233, 14455), (235, 14476), (252, 14587), (257, 14647), (261, 14680), (264, 14698), (268, 14716), (270, 14734), (272, 14746), (275, 14791), (284, 14842), (292, 14890), (302, 14968), (318, 15055), (320, 15061), (321, 15070), (335, 15127), (336, 15130), (349, 15205), (354, 15271), (370, 15406), (382, 15466), (387, 15481), (388, 15487), (426, 15937), (431, 16009), (432, 16018), (441, 16105), (460, 16258), (470, 16357), (473, 16384), (474, 16396),

Gene: Avocado_16 Start: 11691, Stop: 15731, Start Num: 7

Candidate Starts for Avocado_16:

(Start: 7 @11691 has 33 MA's), (11, 11784), (14, 11814), (22, 11961), (27, 12045), (35, 12093), (46, 12231), (47, 12252), (50, 12306), (56, 12399), (57, 12420), (58, 12441), (61, 12459), (64, 12483), (65, 12495), (71, 12567), (74, 12582), (77, 12615), (92, 12747), (94, 12771), (97, 12792), (99, 12825), (103, 12852), (110, 12894), (114, 12942), (131, 13080), (132, 13083), (139, 13125), (148, 13194), (149, 13197), (160, 13266), (163, 13308), (172, 13386), (191, 13503), (192, 13512), (195, 13527), (199, 13608), (201, 13617), (207, 13677), (221, 13791), (229, 13845), (231, 13869), (232, 13872), (233, 13875), (237, 13905), (243, 13935), (255, 14037), (256, 14058), (271, 14163), (272, 14166), (295, 14319), (298, 14337), (305, 14403), (307, 14418), (311, 14442), (322, 14484), (325, 14493), (339, 14553), (349, 14643), (361, 14739), (366, 14796), (370, 14829), (389, 14904), (412, 15099), (425, 15309), (430, 15378), (431, 15390), (432, 15399), (435, 15420), (451, 15579), (460, 15657),

Gene: BananenDer11_19 Start: 12197, Stop: 16303, Start Num: 5

Candidate Starts for BananenDer11_19:

(Start: 5 @12197 has 23 MA's), (Start: 10 @12290 has 1 MA's), (16, 12368), (17, 12392), (22, 12452), (27, 12536), (28, 12548), (43, 12650), (45, 12710), (46, 12722), (47, 12743), (50, 12797), (53, 12845), (56, 12890), (57, 12911), (68, 13028), (77, 13106), (79, 13130), (86, 13196), (95, 13271), (106, 13364), (111, 13394), (133, 13568), (134, 13577), (139, 13607), (140, 13631), (143, 13652), (154, 13712), (163, 13790), (164, 13799), (173, 13877), (184, 13943), (191, 13985), (192, 13994), (198, 14078), (201, 14099), (203, 14132), (212, 14198), (215, 14219), (221, 14273), (222, 14282), (225, 14300), (228, 14318), (229, 14327), (233, 14357), (238, 14393), (245, 14447), (250, 14483), (252, 14489), (253, 14507), (266, 14612), (274, 14678), (302, 14873), (308, 14903), (314, 14936), (330, 14987), (341, 15008), (343, 15023), (345, 15029), (352, 15113), (357, 15161), (363, 15200), (367, 15260), (370, 15293), (375, 15314), (379, 15338), (385, 15368), (403, 15434), (408, 15506), (425, 15821), (426, 15830), (427, 15833), (429, 15875), (431, 15902), (436, 15932), (440, 15983), (442, 16001), (453, 16067), (458, 16115), (460, 16139), (462, 16151), (471, 16232), (473, 16256), (475, 16295),

Gene: Belladonna_21 Start: 12185, Stop: 15949, Start Num: 9

Candidate Starts for Belladonna_21:

(Start: 7 @12116 has 33 MA's), (Start: 9 @12185 has 1 MA's), (15, 12272), (21, 12347), (26, 12449), (30, 12476), (41, 12548), (42, 12560), (43, 12569), (46, 12641), (50, 12716), (55, 12800), (56, 12809),

(57, 12830), (61, 12869), (65, 12905), (68, 12947), (77, 13025), (86, 13115), (95, 13190), (106, 13283), (108, 13292), (110, 13304), (111, 13313), (140, 13550), (147, 13589), (152, 13622), (163, 13709), (167, 13733), (176, 13817), (190, 13901), (192, 13913), (196, 13934), (252, 14090), (259, 14171), (268, 14219), (270, 14237), (273, 14258), (275, 14294), (284, 14345), (294, 14402), (302, 14480), (304, 14489), (318, 14567), (321, 14582), (331, 14624), (345, 14678), (370, 14918), (387, 14993), (406, 15104), (416, 15323), (418, 15335), (431, 15518), (432, 15527), (440, 15599), (444, 15629), (448, 15650), (460, 15770), (465, 15842), (468, 15860), (470, 15866),

Gene: Bobquesha_22 Start: 13067, Stop: 17233, Start Num: 7

Candidate Starts for Bobquesha_22:

(2, 13031), (Start: 7 @13067 has 33 MA's), (18, 13265), (41, 13493), (42, 13505), (43, 13514), (44, 13544), (47, 13607), (56, 13754), (57, 13775), (61, 13814), (62, 13817), (68, 13892), (77, 13970), (85, 14057), (86, 14060), (90, 14090), (93, 14123), (97, 14147), (107, 14231), (112, 14261), (114, 14288), (127, 14396), (130, 14417), (132, 14429), (134, 14441), (140, 14495), (163, 14654), (166, 14675), (176, 14783), (193, 14903), (217, 15152), (233, 15263), (241, 15314), (243, 15323), (247, 15368), (250, 15389), (265, 15488), (268, 15503), (269, 15509), (276, 15578), (280, 15599), (282, 15608), (283, 15620), (285, 15629), (298, 15701), (302, 15752), (303, 15755), (308, 15782), (331, 15881), (337, 15899), (349, 15974), (369, 16163), (370, 16175), (387, 16250), (409, 16430), (415, 16550), (422, 16658), (431, 16805), (443, 16925), (446, 16934), (447, 16937), (457, 17036), (460, 17063), (472, 17159), (477, 17222),

Gene: Boilgate_18 Start: 12212, Stop: 16429, Start Num: 10

Candidate Starts for Boilgate_18:

(1, 12077), (3, 12101), (Start: 7 @12122 has 33 MA's), (Start: 10 @12212 has 1 MA's), (18, 12323), (31, 12494), (37, 12512), (40, 12536), (41, 12551), (42, 12563), (45, 12632), (46, 12644), (47, 12665), (52, 12749), (55, 12803), (56, 12812), (57, 12833), (60, 12866), (61, 12872), (62, 12875), (63, 12890), (66, 12926), (68, 12950), (69, 12953), (77, 13028), (78, 13040), (85, 13115), (86, 13118), (87, 13121), (94, 13184), (108, 13295), (116, 13352), (121, 13406), (126, 13448), (134, 13496), (135, 13502), (138, 13517), (140, 13550), (146, 13583), (152, 13622), (153, 13625), (161, 13670), (163, 13709), (164, 13718), (166, 13730), (169, 13757), (178, 13850), (181, 13862), (186, 13919), (197, 14015), (208, 14090), (213, 14138), (214, 14144), (218, 14156), (230, 14192), (240, 14234), (269, 14432), (278, 14507), (298, 14624), (302, 14675), (303, 14678), (314, 14738), (315, 14741), (339, 14837), (348, 14915), (349, 14918), (365, 15074), (368, 15107), (369, 15116), (370, 15128), (378, 15152), (391, 15227), (393, 15236), (394, 15239), (398, 15263), (400, 15272), (401, 15275), (404, 15296), (409, 15368), (410, 15410), (412, 15440), (413, 15482), (417, 15554), (420, 15575), (423, 15662), (425, 15677), (431, 15758), (446, 15890), (467, 16112), (469, 16118), (478, 16232), (479, 16262), (480, 16280), (481, 16322), (482, 16355), (483, 16418),

Gene: Chancellor_22 Start: 13324, Stop: 17499, Start Num: 7

Candidate Starts for Chancellor_22:

(2, 13288), (Start: 7 @13324 has 33 MA's), (18, 13522), (42, 13762), (43, 13771), (47, 13864), (56, 14011), (57, 14032), (61, 14071), (62, 14074), (68, 14149), (77, 14227), (85, 14314), (86, 14317), (90, 14347), (93, 14380), (97, 14404), (107, 14488), (112, 14518), (114, 14545), (127, 14653), (130, 14674), (132, 14686), (134, 14698), (140, 14752), (163, 14911), (166, 14932), (176, 15040), (193, 15160), (233, 15520), (241, 15571), (243, 15580), (247, 15625), (250, 15646), (282, 15865), (283, 15877), (285, 15886), (298, 15958), (302, 16009), (303, 16012), (308, 16039), (331, 16138), (337, 16156), (349, 16231), (369, 16420), (370, 16432), (387, 16507), (409, 16693), (415, 16813), (422, 16921), (431, 17071), (443, 17191), (446, 17200), (447, 17203), (449, 17224), (457, 17302), (460, 17329), (472, 17425), (477, 17488),

Gene: Cheetobro_22 Start: 13324, Stop: 17496, Start Num: 7

Candidate Starts for Cheetobro_22:

(2, 13288), (Start: 7 @13324 has 33 MA's), (18, 13522), (42, 13762), (43, 13771), (47, 13864), (56, 14011), (57, 14032), (61, 14071), (62, 14074), (68, 14149), (77, 14227), (85, 14314), (86, 14317), (90, 14347), (93, 14380), (97, 14404), (107, 14488), (112, 14518), (114, 14545), (127, 14653), (130, 14674), (132, 14686), (134, 14698), (140, 14752), (163, 14911), (166, 14932), (176, 15040), (193, 15160), (233, 15520), (241, 15571), (243, 15580), (247, 15625), (250, 15646), (282, 15865), (283, 15877), (285, 15886), (298, 15958), (302, 16009), (303, 16012), (308, 16039), (331, 16138), (337, 16156), (349, 16231), (369, 16420), (370, 16432), (387, 16507), (409, 16693), (415, 16813), (422, 16921), (431, 17068), (443, 17188), (446, 17197), (447, 17200), (457, 17299), (460, 17326), (472, 17422), (477, 17485),

Gene: Collard_19 Start: 12197, Stop: 16303, Start Num: 5

Candidate Starts for Collard_19:

(Start: 5 @12197 has 23 MA's), (Start: 10 @12290 has 1 MA's), (16, 12368), (17, 12392), (22, 12452), (27, 12536), (28, 12548), (43, 12650), (45, 12710), (46, 12722), (47, 12743), (50, 12797), (53, 12845), (56, 12890), (57, 12911), (68, 13028), (77, 13106), (79, 13130), (86, 13196), (95, 13271), (106, 13364), (111, 13394), (133, 13568), (134, 13577), (139, 13607), (140, 13631), (143, 13652), (154, 13712), (163, 13790), (164, 13799), (173, 13877), (184, 13943), (191, 13985), (192, 13994), (198, 14078), (201, 14099), (203, 14132), (212, 14198), (215, 14219), (221, 14273), (222, 14282), (225, 14300), (228, 14318), (229, 14327), (233, 14357), (238, 14393), (245, 14447), (250, 14483), (252, 14489), (253, 14507), (266, 14612), (274, 14678), (302, 14873), (308, 14903), (314, 14936), (330, 14987), (341, 15008), (343, 15023), (345, 15029), (352, 15113), (357, 15161), (363, 15200), (367, 15260), (370, 15293), (375, 15314), (379, 15338), (385, 15368), (403, 15434), (408, 15506), (425, 15821), (426, 15830), (427, 15833), (429, 15875), (431, 15902), (436, 15932), (440, 15983), (442, 16001), (453, 16067), (458, 16115), (460, 16139), (462, 16151), (471, 16232), (473, 16256), (475, 16295),

Gene: Dadosky_19 Start: 12113, Stop: 16225, Start Num: 5

Candidate Starts for Dadosky_19:

(Start: 5 @12113 has 23 MA's), (Start: 10 @12206 has 1 MA's), (16, 12284), (17, 12308), (22, 12368), (27, 12452), (43, 12566), (45, 12626), (46, 12638), (47, 12659), (50, 12713), (53, 12761), (56, 12806), (57, 12827), (68, 12944), (77, 13022), (79, 13046), (82, 13088), (86, 13112), (95, 13187), (106, 13280), (111, 13310), (133, 13484), (139, 13523), (140, 13547), (143, 13568), (154, 13628), (163, 13706), (173, 13793), (184, 13859), (191, 13901), (192, 13910), (198, 13994), (201, 14015), (203, 14048), (212, 14114), (215, 14135), (221, 14189), (222, 14198), (225, 14216), (229, 14243), (233, 14273), (238, 14309), (250, 14399), (252, 14405), (253, 14423), (266, 14528), (274, 14594), (302, 14789), (308, 14819), (314, 14852), (330, 14903), (341, 14924), (343, 14939), (345, 14945), (352, 15029), (357, 15077), (363, 15116), (367, 15176), (370, 15209), (375, 15230), (379, 15254), (385, 15284), (403, 15350), (408, 15422), (425, 15737), (426, 15746), (427, 15749), (428, 15776), (429, 15791), (430, 15806), (431, 15818), (436, 15848), (440, 15902), (442, 15920), (453, 15989), (458, 16037), (460, 16061), (462, 16073), (464, 16082), (471, 16154), (473, 16178), (475, 16217),

Gene: DanSyl44_22 Start: 13327, Stop: 17502, Start Num: 7

Candidate Starts for DanSyl44_22:

(2, 13291), (Start: 7 @13327 has 33 MA's), (18, 13525), (42, 13765), (43, 13774), (47, 13867), (56, 14014), (57, 14035), (61, 14074), (62, 14077), (68, 14152), (77, 14230), (85, 14317), (86, 14320), (90, 14350), (93, 14383), (97, 14407), (107, 14491), (112, 14521), (114, 14548), (127, 14656), (130, 14677), (132, 14689), (134, 14701), (140, 14755), (163, 14914), (166, 14935), (176, 15043), (193, 15163), (233, 15523), (241, 15574), (243, 15583), (247, 15628), (250, 15649), (282, 15868), (283, 15880), (285, 15889), (293, 15934), (298, 15961), (302, 16012), (303, 16015), (308, 16042), (315, 16078), (331, 16141), (337, 16159), (349, 16234), (369, 16423), (370, 16435), (387, 16510), (409, 16696), (415, 16816), (422, 16924), (431, 17074), (443, 17194), (446, 17203), (447, 17206), (457, 17305), (460, 17332), (472, 17428), (477, 17491),

Gene: DarthP_20 Start: 12196, Stop: 16335, Start Num: 7

Candidate Starts for DarthP_20:

(2, 12151), (Start: 7 @12196 has 33 MA's), (Start: 9 @12265 has 1 MA's), (15, 12352), (21, 12427), (26, 12529), (27, 12535), (30, 12556), (37, 12589), (38, 12601), (42, 12640), (43, 12649), (45, 12709), (46, 12721), (47, 12742), (50, 12796), (52, 12826), (56, 12889), (57, 12910), (61, 12949), (68, 13027), (77, 13105), (79, 13129), (98, 13303), (103, 13342), (104, 13351), (105, 13354), (110, 13384), (123, 13507), (125, 13522), (131, 13561), (139, 13606), (140, 13630), (157, 13732), (159, 13744), (161, 13750), (163, 13789), (180, 13915), (182, 13930), (185, 13966), (186, 13978), (194, 14023), (201, 14119), (228, 14338), (233, 14377), (235, 14398), (248, 14485), (252, 14509), (254, 14536), (255, 14539), (257, 14569), (264, 14620), (270, 14656), (284, 14764), (302, 14899), (303, 14902), (316, 14968), (317, 14974), (325, 15013), (340, 15085), (341, 15091), (345, 15112), (352, 15196), (355, 15226), (358, 15247), (360, 15259), (367, 15340), (370, 15373), (371, 15382), (373, 15388), (382, 15430), (388, 15448), (396, 15481), (399, 15487), (407, 15532), (416, 15742), (425, 15841), (426, 15850), (427, 15853), (431, 15922), (448, 16057), (455, 16126), (460, 16174), (470, 16270), (474, 16309),

Gene: DoubleChamp_19 Start: 12197, Stop: 16303, Start Num: 5

Candidate Starts for DoubleChamp_19:

(Start: 5 @12197 has 23 MA's), (Start: 10 @12290 has 1 MA's), (16, 12368), (17, 12392), (22, 12452), (27, 12536), (28, 12548), (43, 12650), (45, 12710), (46, 12722), (47, 12743), (50, 12797), (53, 12845), (56, 12890), (57, 12911), (68, 13028), (77, 13106), (79, 13130), (86, 13196), (95, 13271), (106, 13364), (111, 13394), (133, 13568), (134, 13577), (139, 13607), (140, 13631), (143, 13652), (154, 13712), (163, 13790), (164, 13799), (173, 13877), (184, 13943), (191, 13985), (192, 13994), (198, 14078), (201, 14099), (203, 14132), (212, 14198), (215, 14219), (221, 14273), (222, 14282), (225, 14300), (228, 14318), (229, 14327), (233, 14357), (238, 14393), (245, 14447), (250, 14483), (252, 14489), (253, 14507), (266, 14612), (274, 14678), (302, 14873), (308, 14903), (314, 14936), (330, 14987), (341, 15008), (343, 15023), (345, 15029), (352, 15113), (357, 15161), (363, 15200), (367, 15260), (370, 15293), (375, 15314), (379, 15338), (385, 15368), (403, 15434), (408, 15506), (425, 15821), (426, 15830), (427, 15833), (429, 15875), (431, 15902), (436, 15932), (440, 15983), (442, 16001), (453, 16067), (458, 16115), (460, 16139), (462, 16151), (471, 16232), (473, 16256), (475, 16295),

Gene: Edugator_18 Start: 12113, Stop: 16225, Start Num: 5

Candidate Starts for Edugator_18:

(Start: 4 @12092 has 1 MA's), (Start: 5 @12113 has 23 MA's), (Start: 10 @12206 has 1 MA's), (16, 12284), (17, 12308), (22, 12368), (27, 12452), (43, 12566), (45, 12626), (46, 12638), (47, 12659), (50, 12713), (53, 12761), (56, 12806), (57, 12827), (68, 12944), (77, 13022), (79, 13046), (82, 13088), (86, 13112), (95, 13187), (106, 13280), (111, 13310), (133, 13484), (139, 13523), (140, 13547), (143, 13568), (154, 13628), (163, 13706), (173, 13793), (184, 13859), (191, 13901), (192, 13910), (198, 13994), (201, 14015), (203, 14048), (212, 14114), (215, 14135), (221, 14189), (222, 14198), (225, 14216), (229, 14243), (233, 14273), (238, 14309), (250, 14399), (252, 14405), (253, 14423), (266, 14528), (274, 14594), (302, 14789), (308, 14819), (314, 14852), (330, 14903), (341, 14924), (343, 14939), (345, 14945), (352, 15029), (357, 15077), (363, 15116), (367, 15176), (370, 15209), (375, 15230), (379, 15254), (385, 15284), (403, 15350), (408, 15422), (425, 15737), (426, 15746), (427, 15749), (428, 15776), (429, 15791), (430, 15806), (431, 15818), (436, 15848), (440, 15902), (442, 15920), (453, 15989), (458, 16037), (460, 16061), (462, 16073), (464, 16082), (471, 16154), (473, 16178), (475, 16217),

Gene: Ekdilam_18 Start: 11907, Stop: 16097, Start Num: 7

Candidate Starts for Ekdilam_18:

(2, 11862), (Start: 7 @11907 has 33 MA's), (Start: 9 @11976 has 1 MA's), (15, 12063), (21, 12138), (26, 12240), (30, 12267), (37, 12300), (38, 12312), (42, 12351), (45, 12420), (46, 12432), (47, 12453), (50, 12507), (51, 12531), (52, 12537), (56, 12600), (57, 12621), (61, 12660), (64, 12684), (68, 12738), (77, 12816), (79, 12840), (88, 12915), (98, 13014), (103, 13053), (105, 13065), (110, 13095), (123, 13218), (125, 13233), (131, 13272), (134, 13287), (140, 13341), (159, 13455), (160, 13458), (163,

13500), (166, 13521), (180, 13626), (182, 13641), (183, 13656), (185, 13677), (186, 13689), (194, 13734), (201, 13830), (215, 13950), (233, 14088), (235, 14109), (248, 14196), (252, 14220), (254, 14247), (255, 14250), (257, 14280), (264, 14331), (270, 14367), (284, 14475), (302, 14610), (303, 14613), (316, 14679), (317, 14685), (325, 14724), (340, 14796), (341, 14802), (345, 14823), (352, 14907), (355, 14937), (358, 14958), (360, 14970), (367, 15051), (370, 15084), (371, 15093), (373, 15099), (382, 15141), (388, 15159), (396, 15192), (399, 15198), (416, 15486), (425, 15600), (426, 15609), (427, 15612), (431, 15681), (448, 15813), (460, 15933), (466, 16011), (470, 16032), (474, 16071),

Gene: Ellie_18 Start: 11944, Stop: 16092, Start Num: 7

Candidate Starts for Ellie_18:

(Start: 7 @11944 has 33 MA's), (Start: 9 @12013 has 1 MA's), (21, 12175), (26, 12277), (27, 12283), (30, 12304), (45, 12457), (46, 12469), (50, 12544), (52, 12574), (56, 12637), (57, 12658), (61, 12697), (68, 12775), (77, 12853), (79, 12877), (86, 12943), (95, 13018), (106, 13111), (117, 13192), (123, 13255), (131, 13309), (132, 13312), (135, 13330), (137, 13342), (143, 13399), (149, 13426), (152, 13450), (155, 13471), (159, 13492), (163, 13537), (184, 13711), (201, 13867), (215, 13987), (219, 14029), (220, 14035), (230, 14107), (233, 14125), (235, 14146), (252, 14257), (257, 14317), (261, 14350), (264, 14368), (268, 14386), (270, 14404), (272, 14416), (275, 14461), (284, 14512), (292, 14560), (302, 14638), (318, 14725), (320, 14731), (321, 14740), (335, 14797), (336, 14800), (349, 14875), (354, 14941), (370, 15076), (382, 15136), (387, 15151), (388, 15157), (426, 15607), (431, 15679), (432, 15688), (441, 15775), (460, 15928), (470, 16027), (473, 16054), (474, 16066),

Gene: Eponine_22 Start: 13193, Stop: 17389, Start Num: 7

Candidate Starts for Eponine_22:

(Start: 7 @13193 has 33 MA's), (18, 13391), (40, 13604), (42, 13631), (43, 13640), (46, 13712), (47, 13733), (55, 13871), (56, 13880), (57, 13901), (61, 13940), (67, 14009), (68, 14018), (77, 14096), (78, 14108), (86, 14186), (90, 14216), (93, 14249), (94, 14252), (97, 14273), (114, 14414), (116, 14423), (132, 14555), (134, 14567), (140, 14621), (147, 14660), (152, 14693), (163, 14780), (166, 14801), (185, 14978), (193, 15029), (205, 15188), (233, 15389), (241, 15440), (243, 15449), (247, 15494), (250, 15515), (252, 15521), (267, 15626), (269, 15635), (282, 15734), (283, 15746), (285, 15755), (298, 15827), (299, 15860), (302, 15878), (303, 15881), (308, 15908), (331, 16007), (337, 16025), (349, 16100), (369, 16289), (370, 16301), (387, 16376), (397, 16445), (409, 16577), (413, 16691), (431, 16958), (433, 16976), (446, 17087), (447, 17090), (457, 17189), (460, 17216), (461, 17219), (472, 17315), (477, 17378),

Gene: FF47_19 Start: 11405, Stop: 14815, Start Num: 24

Candidate Starts for FF47_19:

(Start: 24 @11405 has 2 MA's), (26, 11420), (33, 11468), (34, 11471), (41, 11516), (48, 11639), (75, 11966), (76, 11978), (78, 11999), (88, 12083), (94, 12137), (95, 12146), (101, 12200), (106, 12233), (108, 12242), (115, 12284), (120, 12329), (122, 12341), (124, 12362), (128, 12386), (139, 12440), (145, 12494), (150, 12515), (151, 12527), (157, 12551), (158, 12560), (168, 12638), (174, 12695), (187, 12764), (216, 12974), (234, 13013), (236, 13025), (245, 13088), (252, 13130), (253, 13148), (263, 13235), (268, 13259), (271, 13286), (273, 13298), (287, 13406), (289, 13415), (300, 13508), (306, 13538), (309, 13559), (313, 13574), (342, 13685), (346, 13706), (352, 13781), (364, 13877), (367, 13934), (370, 13967), (374, 13982), (412, 14213), (424, 14408), (432, 14504), (434, 14522), (437, 14564), (438, 14570), (440, 14597), (452, 14699), (454, 14708), (456, 14747),

Gene: Fefferhead_20 Start: 12111, Stop: 16259, Start Num: 7

Candidate Starts for Fefferhead_20:

(Start: 7 @12111 has 33 MA's), (Start: 9 @12180 has 1 MA's), (21, 12342), (26, 12444), (27, 12450), (30, 12471), (45, 12624), (46, 12636), (50, 12711), (56, 12804), (57, 12825), (61, 12864), (68, 12942), (77, 13020), (79, 13044), (84, 13098), (86, 13110), (95, 13185), (106, 13278), (117, 13359), (123, 13422), (131, 13476), (135, 13497), (137, 13509), (140, 13545), (143, 13566), (147, 13584), (152,

13617), (155, 13638), (156, 13644), (159, 13659), (161, 13665), (163, 13704), (184, 13878), (201, 14034), (219, 14196), (220, 14202), (228, 14253), (233, 14292), (235, 14313), (252, 14424), (257, 14484), (261, 14517), (264, 14535), (268, 14553), (270, 14571), (272, 14583), (275, 14628), (284, 14679), (292, 14727), (302, 14805), (304, 14814), (318, 14892), (320, 14898), (321, 14907), (335, 14964), (336, 14967), (349, 15042), (354, 15108), (370, 15243), (382, 15303), (387, 15318), (388, 15324), (426, 15774), (431, 15846), (432, 15855), (441, 15942), (460, 16095), (470, 16194), (473, 16221), (474, 16233),

Gene: Feyre_19 Start: 12055, Stop: 16164, Start Num: 5

Candidate Starts for Feyre_19:

(Start: 5 @12055 has 23 MA's), (22, 12313), (27, 12397), (38, 12463), (41, 12490), (43, 12511), (45, 12571), (46, 12583), (47, 12604), (50, 12658), (52, 12688), (56, 12751), (57, 12772), (68, 12889), (73, 12931), (74, 12934), (77, 12967), (80, 13000), (106, 13225), (109, 13237), (110, 13246), (121, 13324), (129, 13387), (132, 13402), (133, 13405), (134, 13414), (135, 13420), (137, 13432), (138, 13435), (140, 13468), (142, 13486), (144, 13492), (161, 13588), (163, 13627), (184, 13780), (191, 13822), (195, 13846), (201, 13936), (203, 13969), (221, 14110), (222, 14119), (225, 14137), (229, 14164), (240, 14242), (252, 14326), (266, 14449), (274, 14515), (291, 14617), (302, 14710), (304, 14719), (308, 14740), (314, 14773), (330, 14824), (341, 14845), (343, 14860), (345, 14866), (352, 14950), (355, 14980), (357, 14998), (363, 15037), (367, 15097), (370, 15130), (375, 15151), (379, 15175), (385, 15208), (403, 15292), (408, 15364), (425, 15673), (429, 15727), (430, 15742), (431, 15754), (436, 15784), (458, 15970), (460, 15994), (462, 16006), (471, 16093), (473, 16117),

Gene: Fionnbharth_22 Start: 13314, Stop: 17489, Start Num: 7

Candidate Starts for Fionnbharth_22:

(2, 13278), (Start: 7 @13314 has 33 MA's), (18, 13512), (42, 13752), (43, 13761), (47, 13854), (53, 13956), (56, 14001), (61, 14061), (68, 14139), (77, 14217), (85, 14304), (86, 14307), (90, 14337), (93, 14370), (97, 14394), (107, 14478), (112, 14508), (114, 14535), (127, 14643), (130, 14664), (132, 14676), (134, 14688), (140, 14742), (163, 14901), (166, 14922), (176, 15030), (193, 15150), (230, 15492), (233, 15510), (241, 15561), (243, 15570), (247, 15615), (250, 15636), (269, 15756), (282, 15855), (283, 15867), (285, 15876), (298, 15948), (302, 15999), (303, 16002), (308, 16029), (331, 16128), (337, 16146), (349, 16221), (369, 16410), (370, 16422), (387, 16497), (392, 16527), (409, 16683), (415, 16803), (422, 16911), (431, 17061), (446, 17190), (447, 17193), (457, 17292), (460, 17319), (472, 17415), (477, 17478),

Gene: FlagStaff_16 Start: 11630, Stop: 15664, Start Num: 7

Candidate Starts for FlagStaff_16:

(Start: 7 @11630 has 33 MA's), (11, 11723), (14, 11753), (22, 11900), (27, 11984), (35, 12032), (45, 12158), (46, 12170), (47, 12191), (56, 12338), (57, 12359), (58, 12380), (61, 12398), (64, 12422), (65, 12434), (71, 12506), (74, 12521), (77, 12554), (92, 12686), (94, 12710), (97, 12731), (98, 12752), (99, 12764), (103, 12791), (105, 12803), (110, 12833), (114, 12881), (132, 13022), (133, 13025), (139, 13064), (140, 13088), (148, 13133), (149, 13136), (163, 13247), (192, 13451), (199, 13547), (201, 13556), (207, 13616), (221, 13730), (223, 13751), (232, 13811), (237, 13844), (243, 13874), (252, 13946), (255, 13976), (256, 13997), (271, 14102), (272, 14105), (279, 14159), (295, 14258), (298, 14276), (305, 14342), (307, 14357), (311, 14381), (322, 14423), (325, 14432), (339, 14492), (349, 14582), (361, 14678), (366, 14735), (370, 14768), (383, 14828), (389, 14843), (412, 15038), (425, 15245), (430, 15314), (431, 15326), (435, 15356), (439, 15416), (451, 15512), (459, 15572), (460, 15590),

Gene: Gengar_19 Start: 12162, Stop: 16271, Start Num: 5

Candidate Starts for Gengar_19:

(Start: 5 @12162 has 23 MA's), (22, 12420), (27, 12504), (38, 12570), (43, 12618), (45, 12678), (46, 12690), (47, 12711), (50, 12765), (52, 12795), (56, 12858), (57, 12879), (63, 12936), (68, 12996), (77, 13074), (79, 13098), (82, 13140), (88, 13173), (106, 13332), (110, 13353), (121, 13431), (129, 13494),

(132, 13509), (133, 13512), (134, 13521), (135, 13527), (137, 13539), (140, 13575), (142, 13593), (161, 13695), (163, 13734), (184, 13887), (191, 13929), (195, 13953), (201, 14043), (203, 14076), (212, 14142), (221, 14217), (222, 14226), (225, 14244), (229, 14271), (240, 14349), (252, 14433), (266, 14556), (274, 14622), (291, 14724), (302, 14817), (308, 14847), (312, 14874), (314, 14880), (330, 14931), (341, 14952), (343, 14967), (345, 14973), (352, 15057), (355, 15087), (357, 15105), (363, 15144), (367, 15204), (370, 15237), (375, 15258), (379, 15282), (385, 15315), (403, 15399), (408, 15471), (425, 15780), (429, 15834), (430, 15849), (431, 15861), (436, 15891), (458, 16077), (460, 16101), (462, 16113), (471, 16200), (473, 16224),

Gene: GodSpeed_17 Start: 11597, Stop: 15640, Start Num: 7

Candidate Starts for GodSpeed_17:

(Start: 7 @11597 has 33 MA's), (11, 11690), (14, 11720), (22, 11867), (27, 11951), (30, 11972), (35, 11999), (39, 12023), (41, 12044), (46, 12137), (47, 12158), (56, 12305), (58, 12347), (61, 12365), (64, 12389), (65, 12401), (70, 12461), (71, 12473), (74, 12488), (77, 12521), (84, 12599), (92, 12653), (94, 12677), (97, 12698), (98, 12719), (99, 12731), (103, 12758), (110, 12800), (114, 12848), (137, 13019), (139, 13031), (146, 13088), (149, 13103), (156, 13154), (159, 13169), (163, 13214), (172, 13292), (195, 13433), (199, 13514), (201, 13523), (207, 13583), (209, 13598), (221, 13697), (223, 13718), (229, 13751), (232, 13778), (237, 13811), (241, 13832), (247, 13886), (248, 13889), (255, 13943), (256, 13964), (272, 14072), (279, 14126), (296, 14234), (297, 14249), (301, 14297), (305, 14318), (307, 14333), (319, 14396), (325, 14408), (328, 14432), (329, 14435), (334, 14450), (343, 14501), (347, 14528), (359, 14633), (370, 14729), (387, 14804), (408, 14927), (409, 14948), (411, 15011), (412, 15020), (419, 15149), (427, 15230), (428, 15257), (430, 15287), (431, 15299), (435, 15329), (450, 15467), (459, 15548), (460, 15566),

Gene: Guillsminger_19 Start: 12137, Stop: 16246, Start Num: 5

Candidate Starts for Guillsminger_19:

(Start: 5 @12137 has 23 MA's), (22, 12395), (27, 12479), (38, 12545), (43, 12593), (45, 12653), (46, 12665), (47, 12686), (50, 12740), (52, 12770), (56, 12833), (57, 12854), (63, 12911), (68, 12971), (77, 13049), (79, 13073), (82, 13115), (88, 13148), (106, 13307), (110, 13328), (121, 13406), (129, 13469), (132, 13484), (133, 13487), (134, 13496), (135, 13502), (137, 13514), (140, 13550), (142, 13568), (161, 13670), (163, 13709), (184, 13862), (191, 13904), (195, 13928), (201, 14018), (203, 14051), (212, 14117), (221, 14192), (222, 14201), (225, 14219), (229, 14246), (240, 14324), (252, 14408), (266, 14531), (274, 14597), (291, 14699), (302, 14792), (308, 14822), (312, 14849), (314, 14855), (330, 14906), (341, 14927), (343, 14942), (345, 14948), (352, 15032), (355, 15062), (357, 15080), (363, 15119), (367, 15179), (370, 15212), (375, 15233), (379, 15257), (385, 15290), (403, 15374), (408, 15446), (425, 15755), (429, 15809), (430, 15824), (431, 15836), (436, 15866), (458, 16052), (460, 16076), (462, 16088), (471, 16175), (473, 16199),

Gene: Hammy_20 Start: 12190, Stop: 16329, Start Num: 7

Candidate Starts for Hammy_20:

(2, 12145), (Start: 7 @12190 has 33 MA's), (Start: 9 @12259 has 1 MA's), (15, 12346), (21, 12421), (26, 12523), (27, 12529), (30, 12550), (37, 12583), (38, 12595), (42, 12634), (43, 12643), (45, 12703), (46, 12715), (47, 12736), (50, 12790), (52, 12820), (56, 12883), (57, 12904), (61, 12943), (68, 13021), (77, 13099), (79, 13123), (98, 13297), (103, 13336), (104, 13345), (105, 13348), (110, 13378), (123, 13501), (125, 13516), (131, 13555), (139, 13600), (140, 13624), (157, 13726), (159, 13738), (161, 13744), (163, 13783), (180, 13909), (182, 13924), (185, 13960), (186, 13972), (194, 14017), (201, 14113), (228, 14332), (233, 14371), (235, 14392), (248, 14479), (252, 14503), (254, 14530), (255, 14533), (257, 14563), (264, 14614), (270, 14650), (284, 14758), (302, 14893), (303, 14896), (316, 14962), (317, 14968), (325, 15007), (340, 15079), (341, 15085), (345, 15106), (352, 15190), (355, 15220), (358, 15241), (360, 15253), (367, 15334), (370, 15367), (371, 15376), (373, 15382), (382, 15424), (388, 15442), (396, 15475), (399, 15481), (407, 15526), (416, 15736), (425, 15835), (426, 15844), (427, 15847), (431, 15916), (448, 16051), (455, 16120), (460, 16168), (470, 16264), (474, 16303),

Gene: Heftyboy_19 Start: 12264, Stop: 16394, Start Num: 5

Candidate Starts for Heftyboy_19:

(Start: 5 @12264 has 23 MA's), (Start: 10 @12357 has 1 MA's), (16, 12435), (17, 12459), (22, 12519), (27, 12603), (28, 12615), (43, 12717), (45, 12777), (46, 12789), (47, 12810), (50, 12864), (53, 12912), (56, 12957), (57, 12978), (68, 13095), (77, 13173), (79, 13197), (86, 13263), (95, 13338), (106, 13431), (111, 13461), (133, 13635), (134, 13644), (139, 13674), (140, 13698), (143, 13719), (154, 13779), (163, 13857), (164, 13866), (173, 13944), (184, 14010), (191, 14052), (192, 14061), (198, 14145), (201, 14166), (203, 14199), (221, 14340), (222, 14349), (225, 14367), (229, 14394), (240, 14472), (252, 14556), (266, 14679), (274, 14745), (302, 14940), (308, 14970), (312, 14997), (314, 15003), (326, 15030), (341, 15075), (343, 15090), (345, 15096), (352, 15180), (357, 15228), (363, 15267), (367, 15327), (370, 15360), (375, 15381), (379, 15405), (385, 15438), (403, 15522), (408, 15594), (425, 15903), (429, 15957), (430, 15972), (431, 15984), (436, 16014), (458, 16200), (460, 16224), (462, 16236), (471, 16323), (473, 16347),

Gene: InvictusManeo_19 Start: 12240, Stop: 16346, Start Num: 5

Candidate Starts for InvictusManeo_19:

(Start: 5 @12240 has 23 MA's), (Start: 10 @12333 has 1 MA's), (16, 12411), (17, 12435), (22, 12495), (27, 12579), (28, 12591), (43, 12693), (45, 12753), (46, 12765), (47, 12786), (50, 12840), (53, 12888), (56, 12933), (57, 12954), (68, 13071), (77, 13149), (79, 13173), (86, 13239), (95, 13314), (106, 13407), (111, 13437), (133, 13611), (134, 13620), (139, 13650), (140, 13674), (143, 13695), (154, 13755), (163, 13833), (164, 13842), (173, 13920), (184, 13986), (191, 14028), (192, 14037), (198, 14121), (201, 14142), (203, 14175), (212, 14241), (215, 14262), (221, 14316), (222, 14325), (225, 14343), (228, 14361), (229, 14370), (233, 14400), (238, 14436), (245, 14490), (250, 14526), (252, 14532), (253, 14550), (266, 14655), (274, 14721), (302, 14916), (308, 14946), (314, 14979), (330, 15030), (341, 15051), (343, 15066), (345, 15072), (352, 15156), (357, 15204), (363, 15243), (367, 15303), (370, 15336), (375, 15357), (379, 15381), (385, 15411), (403, 15477), (408, 15549), (425, 15864), (426, 15873), (427, 15876), (429, 15918), (431, 15945), (436, 15975), (440, 16026), (442, 16044), (453, 16110), (458, 16158), (460, 16182), (462, 16194), (471, 16275), (473, 16299), (475, 16338),

Gene: JF1_22 Start: 13313, Stop: 17488, Start Num: 7

Candidate Starts for JF1_22:

(2, 13277), (Start: 7 @13313 has 33 MA's), (18, 13511), (42, 13751), (43, 13760), (47, 13853), (53, 13955), (56, 14000), (61, 14060), (68, 14138), (77, 14216), (85, 14303), (86, 14306), (90, 14336), (93, 14369), (97, 14393), (107, 14477), (112, 14507), (114, 14534), (127, 14642), (130, 14663), (132, 14675), (134, 14687), (140, 14741), (163, 14900), (166, 14921), (176, 15029), (193, 15149), (230, 15491), (233, 15509), (241, 15560), (243, 15569), (247, 15614), (250, 15635), (269, 15755), (282, 15854), (283, 15866), (285, 15875), (298, 15947), (302, 15998), (303, 16001), (308, 16028), (331, 16127), (337, 16145), (349, 16220), (369, 16409), (370, 16421), (387, 16496), (392, 16526), (409, 16682), (415, 16802), (422, 16910), (431, 17060), (443, 17180), (446, 17189), (447, 17192), (457, 17291), (460, 17318), (472, 17414), (477, 17477),

Gene: Juliette_22 Start: 13193, Stop: 17389, Start Num: 7

Candidate Starts for Juliette_22:

(Start: 7 @13193 has 33 MA's), (18, 13391), (40, 13604), (42, 13631), (43, 13640), (46, 13712), (47, 13733), (55, 13871), (56, 13880), (57, 13901), (61, 13940), (67, 14009), (68, 14018), (77, 14096), (78, 14108), (86, 14186), (90, 14216), (93, 14249), (94, 14252), (97, 14273), (114, 14414), (116, 14423), (132, 14555), (134, 14567), (140, 14621), (147, 14660), (152, 14693), (163, 14780), (166, 14801), (185, 14978), (193, 15029), (205, 15188), (233, 15389), (241, 15440), (243, 15449), (247, 15494), (250, 15515), (252, 15521), (269, 15635), (282, 15734), (283, 15746), (285, 15755), (298, 15827), (299, 15860), (302, 15878), (303, 15881), (308, 15908), (331, 16007), (337, 16025), (349, 16100), (369, 16289), (370, 16301), (387, 16376), (397, 16445), (409, 16577), (413, 16691), (431, 16958), (433, 16976), (446, 17087), (447, 17090), (457, 17189), (460, 17216), (461, 17219), (472, 17315),

(477, 17378),

Gene: Kratio_18 Start: 11868, Stop: 15977, Start Num: 5

Candidate Starts for Kratio_18:

(Start: 5 @11868 has 23 MA's), (Start: 10 @11961 has 1 MA's), (16, 12039), (17, 12063), (22, 12123), (27, 12207), (38, 12273), (43, 12321), (45, 12381), (46, 12393), (47, 12414), (50, 12468), (53, 12516), (56, 12561), (57, 12582), (68, 12699), (77, 12777), (79, 12801), (86, 12867), (95, 12942), (106, 13035), (111, 13065), (133, 13239), (134, 13248), (139, 13278), (140, 13302), (143, 13323), (154, 13383), (163, 13461), (164, 13470), (173, 13548), (184, 13614), (191, 13656), (198, 13749), (201, 13770), (203, 13803), (212, 13869), (215, 13890), (221, 13944), (222, 13953), (225, 13971), (228, 13989), (229, 13998), (233, 14028), (238, 14064), (250, 14154), (252, 14160), (253, 14178), (266, 14283), (274, 14349), (302, 14544), (308, 14574), (314, 14607), (330, 14658), (341, 14679), (343, 14694), (345, 14700), (352, 14784), (357, 14832), (363, 14871), (367, 14931), (370, 14964), (375, 14985), (379, 15009), (403, 15105), (408, 15177), (425, 15492), (426, 15501), (427, 15504), (429, 15546), (430, 15561), (431, 15573), (436, 15603), (440, 15654), (442, 15672), (458, 15789), (460, 15813), (462, 15825), (471, 15906), (473, 15930), (475, 15969),

Gene: Kraw_22 Start: 13237, Stop: 17412, Start Num: 7

Candidate Starts for Kraw_22:

(2, 13201), (Start: 7 @13237 has 33 MA's), (18, 13435), (42, 13675), (43, 13684), (47, 13777), (53, 13879), (56, 13924), (61, 13984), (68, 14062), (77, 14140), (85, 14227), (86, 14230), (90, 14260), (93, 14293), (97, 14317), (107, 14401), (112, 14431), (114, 14458), (127, 14566), (130, 14587), (132, 14599), (134, 14611), (140, 14665), (163, 14824), (166, 14845), (176, 14953), (193, 15073), (230, 15415), (233, 15433), (241, 15484), (243, 15493), (247, 15538), (250, 15559), (269, 15679), (282, 15778), (283, 15790), (285, 15799), (298, 15871), (302, 15922), (303, 15925), (308, 15952), (331, 16051), (337, 16069), (349, 16144), (369, 16333), (370, 16345), (387, 16420), (392, 16450), (409, 16606), (415, 16726), (422, 16834), (431, 16984), (446, 17113), (447, 17116), (457, 17215), (460, 17242), (472, 17338), (477, 17401),

Gene: Larva_19 Start: 11980, Stop: 16092, Start Num: 5

Candidate Starts for Larva_19:

(Start: 5 @11980 has 23 MA's), (Start: 10 @12073 has 1 MA's), (16, 12151), (17, 12175), (22, 12235), (27, 12319), (43, 12433), (45, 12493), (46, 12505), (47, 12526), (50, 12580), (53, 12628), (56, 12673), (57, 12694), (68, 12811), (77, 12889), (79, 12913), (86, 12979), (95, 13054), (106, 13147), (111, 13177), (133, 13351), (139, 13390), (140, 13414), (143, 13435), (154, 13495), (163, 13573), (173, 13660), (184, 13726), (191, 13768), (192, 13777), (198, 13861), (201, 13882), (203, 13915), (212, 13981), (215, 14002), (221, 14056), (222, 14065), (225, 14083), (229, 14110), (233, 14140), (238, 14176), (250, 14266), (252, 14272), (253, 14290), (266, 14395), (274, 14461), (302, 14656), (308, 14686), (314, 14719), (330, 14770), (341, 14791), (343, 14806), (345, 14812), (352, 14896), (357, 14944), (363, 14983), (367, 15043), (370, 15076), (375, 15097), (379, 15121), (385, 15151), (403, 15217), (408, 15289), (425, 15604), (426, 15613), (427, 15616), (428, 15643), (429, 15658), (430, 15673), (431, 15685), (436, 15715), (440, 15769), (442, 15787), (453, 15856), (458, 15904), (460, 15928), (462, 15940), (464, 15949), (471, 16021), (473, 16045), (475, 16084),

Gene: Lavahound_19 Start: 11863, Stop: 16011, Start Num: 7

Candidate Starts for Lavahound_19:

(Start: 7 @11863 has 33 MA's), (Start: 9 @11932 has 1 MA's), (21, 12094), (26, 12196), (27, 12202), (30, 12223), (45, 12376), (46, 12388), (50, 12463), (56, 12556), (57, 12577), (61, 12616), (68, 12694), (77, 12772), (79, 12796), (84, 12850), (86, 12862), (95, 12937), (106, 13030), (117, 13111), (123, 13174), (131, 13228), (135, 13249), (137, 13261), (140, 13297), (143, 13318), (149, 13345), (152, 13369), (155, 13390), (159, 13411), (163, 13456), (180, 13582), (184, 13630), (194, 13690), (195, 13696), (201, 13786), (212, 13885), (213, 13897), (219, 13948), (220, 13954), (228, 14005), (233, 14044), (235, 14065), (252, 14176), (257, 14236), (261, 14269), (264, 14287), (268, 14305), (270,

14323), (272, 14335), (275, 14380), (284, 14431), (292, 14479), (302, 14557), (318, 14644), (320, 14650), (321, 14659), (335, 14716), (336, 14719), (349, 14794), (354, 14860), (370, 14995), (382, 15055), (387, 15070), (388, 15076), (426, 15526), (431, 15598), (432, 15607), (441, 15694), (460, 15847), (470, 15946), (473, 15973), (474, 15985),

Gene: Lebo14_22 Start: 13327, Stop: 17505, Start Num: 7

Candidate Starts for Lebo14_22:

(2, 13291), (Start: 7 @13327 has 33 MA's), (18, 13525), (42, 13765), (43, 13774), (47, 13867), (56, 14014), (57, 14035), (61, 14074), (62, 14077), (68, 14152), (77, 14230), (85, 14317), (86, 14320), (90, 14350), (93, 14383), (97, 14407), (107, 14491), (112, 14521), (114, 14548), (127, 14656), (130, 14677), (132, 14689), (134, 14701), (140, 14755), (163, 14914), (166, 14935), (176, 15043), (193, 15163), (233, 15523), (241, 15574), (243, 15583), (247, 15628), (250, 15649), (282, 15868), (283, 15880), (285, 15889), (298, 15961), (302, 16012), (303, 16015), (308, 16042), (315, 16078), (331, 16141), (337, 16159), (349, 16234), (369, 16423), (370, 16435), (387, 16510), (409, 16696), (415, 16816), (422, 16924), (431, 17077), (443, 17197), (446, 17206), (447, 17209), (457, 17308), (460, 17335), (472, 17431), (477, 17494),

Gene: Leston_19 Start: 12267, Stop: 16376, Start Num: 5

Candidate Starts for Leston_19:

(Start: 5 @12267 has 23 MA's), (22, 12525), (27, 12609), (38, 12675), (43, 12723), (45, 12783), (46, 12795), (47, 12816), (50, 12870), (52, 12900), (56, 12963), (57, 12984), (63, 13041), (68, 13101), (77, 13179), (79, 13203), (82, 13245), (88, 13278), (106, 13437), (110, 13458), (121, 13536), (129, 13599), (132, 13614), (133, 13617), (134, 13626), (135, 13632), (137, 13644), (140, 13680), (142, 13698), (161, 13800), (163, 13839), (184, 13992), (191, 14034), (195, 14058), (201, 14148), (203, 14181), (212, 14247), (221, 14322), (222, 14331), (225, 14349), (229, 14376), (240, 14454), (252, 14538), (266, 14661), (274, 14727), (291, 14829), (302, 14922), (308, 14952), (312, 14979), (314, 14985), (330, 15036), (341, 15057), (343, 15072), (345, 15078), (352, 15162), (355, 15192), (357, 15210), (363, 15249), (367, 15309), (370, 15342), (375, 15363), (379, 15387), (385, 15420), (403, 15504), (408, 15576), (425, 15885), (429, 15939), (430, 15954), (431, 15966), (436, 15996), (458, 16182), (460, 16206), (462, 16218), (471, 16305), (473, 16329),

Gene: LilDirt_18 Start: 11997, Stop: 16103, Start Num: 5

Candidate Starts for LilDirt_18:

(Start: 5 @11997 has 23 MA's), (Start: 10 @12090 has 1 MA's), (16, 12168), (17, 12192), (22, 12252), (27, 12336), (28, 12348), (43, 12450), (45, 12510), (46, 12522), (47, 12543), (50, 12597), (53, 12645), (56, 12690), (57, 12711), (68, 12828), (77, 12906), (79, 12930), (86, 12996), (95, 13071), (106, 13164), (111, 13194), (133, 13368), (134, 13377), (139, 13407), (140, 13431), (143, 13452), (154, 13512), (163, 13590), (164, 13599), (173, 13677), (184, 13743), (191, 13785), (192, 13794), (198, 13878), (201, 13899), (203, 13932), (212, 13998), (215, 14019), (221, 14073), (222, 14082), (225, 14100), (228, 14118), (229, 14127), (233, 14157), (238, 14193), (245, 14247), (250, 14283), (252, 14289), (253, 14307), (266, 14412), (274, 14478), (302, 14673), (308, 14703), (314, 14736), (330, 14787), (341, 14808), (343, 14823), (345, 14829), (352, 14913), (357, 14961), (363, 15000), (367, 15060), (370, 15093), (375, 15114), (379, 15138), (385, 15168), (403, 15234), (408, 15306), (425, 15621), (426, 15630), (427, 15633), (429, 15675), (431, 15702), (436, 15732), (440, 15783), (442, 15801), (453, 15867), (458, 15915), (460, 15939), (462, 15951), (471, 16032), (473, 16056), (475, 16095),

Gene: LongHai_20 Start: 11740, Stop: 15189, Start Num: 24

Candidate Starts for LongHai_20:

(Start: 24 @11740 has 2 MA's), (26, 11755), (33, 11803), (34, 11806), (41, 11851), (48, 11974), (49, 11995), (75, 12301), (76, 12313), (78, 12334), (88, 12418), (94, 12472), (95, 12481), (106, 12568), (108, 12577), (115, 12619), (120, 12664), (122, 12676), (124, 12697), (128, 12721), (139, 12775), (150, 12850), (151, 12862), (157, 12886), (168, 12973), (174, 13030), (187, 13099), (196, 13153), (216, 13309), (234, 13348), (236, 13360), (245, 13423), (252, 13465), (253, 13483), (263, 13570),

(268, 13594), (271, 13621), (273, 13633), (281, 13699), (287, 13741), (289, 13750), (300, 13843), (306, 13873), (313, 13909), (323, 13939), (327, 13957), (332, 13984), (333, 13987), (342, 14038), (343, 14041), (344, 14044), (352, 14134), (357, 14182), (360, 14197), (362, 14215), (364, 14230), (367, 14290), (370, 14323), (371, 14332), (376, 14341), (381, 14377), (384, 14392), (412, 14587), (424, 14782), (432, 14878), (434, 14896), (437, 14938), (438, 14944), (440, 14971), (452, 15073), (454, 15082), (456, 15121),

Gene: Maco6_17 Start: 10697, Stop: 14146, Start Num: 24

Candidate Starts for Maco6_17:

(Start: 24 @10697 has 2 MA's), (26, 10712), (33, 10760), (34, 10763), (41, 10808), (48, 10931), (75, 11258), (76, 11270), (78, 11291), (88, 11375), (94, 11429), (95, 11438), (101, 11492), (102, 11501), (106, 11525), (108, 11534), (115, 11576), (120, 11621), (122, 11633), (124, 11654), (128, 11678), (135, 11708), (139, 11732), (150, 11807), (151, 11819), (157, 11843), (158, 11852), (168, 11930), (174, 11987), (187, 12056), (230, 12272), (236, 12317), (253, 12440), (262, 12518), (268, 12551), (271, 12578), (273, 12590), (287, 12698), (289, 12707), (300, 12800), (306, 12830), (313, 12866), (323, 12896), (327, 12914), (332, 12941), (333, 12944), (343, 12998), (344, 13001), (352, 13091), (357, 13139), (360, 13154), (362, 13172), (364, 13187), (367, 13247), (370, 13280), (371, 13289), (376, 13298), (381, 13334), (384, 13349), (405, 13421), (412, 13544), (424, 13739), (432, 13835), (434, 13853), (437, 13895), (438, 13901), (440, 13928), (452, 14030), (454, 14039), (456, 14078),

Gene: Malthus_22 Start: 13237, Stop: 17412, Start Num: 7

Candidate Starts for Malthus_22:

(2, 13201), (Start: 7 @13237 has 33 MA's), (18, 13435), (42, 13675), (43, 13684), (47, 13777), (53, 13879), (56, 13924), (61, 13984), (68, 14062), (77, 14140), (85, 14227), (86, 14230), (90, 14260), (93, 14293), (97, 14317), (107, 14401), (112, 14431), (114, 14458), (127, 14566), (130, 14587), (132, 14599), (134, 14611), (140, 14665), (163, 14824), (166, 14845), (176, 14953), (193, 15073), (230, 15415), (233, 15433), (241, 15484), (243, 15493), (247, 15538), (250, 15559), (269, 15679), (282, 15778), (283, 15790), (285, 15799), (298, 15871), (302, 15922), (303, 15925), (308, 15952), (331, 16051), (337, 16069), (349, 16144), (369, 16333), (370, 16345), (387, 16420), (392, 16450), (409, 16606), (415, 16726), (422, 16834), (431, 16984), (446, 17113), (447, 17116), (457, 17215), (460, 17242), (472, 17338), (477, 17401),

Gene: Miryou_19 Start: 12115, Stop: 16230, Start Num: 5

Candidate Starts for Miryou_19:

(Start: 5 @12115 has 23 MA's), (22, 12373), (27, 12457), (38, 12523), (43, 12571), (45, 12631), (46, 12643), (47, 12664), (50, 12718), (52, 12748), (56, 12811), (57, 12832), (63, 12889), (68, 12949), (73, 12991), (77, 13027), (79, 13051), (82, 13093), (88, 13126), (106, 13285), (110, 13306), (121, 13384), (129, 13447), (132, 13462), (133, 13465), (134, 13474), (135, 13480), (137, 13492), (140, 13528), (142, 13546), (161, 13648), (163, 13687), (184, 13840), (191, 13882), (195, 13906), (201, 13996), (203, 14029), (212, 14095), (221, 14170), (222, 14179), (225, 14197), (229, 14224), (240, 14302), (252, 14386), (266, 14509), (274, 14575), (291, 14677), (302, 14770), (308, 14800), (312, 14827), (314, 14833), (330, 14884), (341, 14905), (343, 14920), (345, 14926), (352, 15010), (355, 15040), (357, 15058), (363, 15097), (367, 15157), (370, 15190), (375, 15211), (379, 15235), (385, 15268), (403, 15352), (408, 15424), (425, 15739), (429, 15793), (430, 15808), (431, 15820), (436, 15850), (458, 16036), (462, 16072), (471, 16159), (473, 16183),

Gene: MissDaisy_22 Start: 13088, Stop: 17254, Start Num: 7

Candidate Starts for MissDaisy_22:

(2, 13052), (Start: 7 @13088 has 33 MA's), (18, 13286), (41, 13514), (42, 13526), (43, 13535), (44, 13565), (47, 13628), (56, 13775), (57, 13796), (61, 13835), (62, 13838), (68, 13913), (77, 13991), (85, 14078), (86, 14081), (90, 14111), (93, 14144), (97, 14168), (107, 14252), (112, 14282), (114, 14309), (127, 14417), (130, 14438), (132, 14450), (134, 14462), (140, 14516), (163, 14675), (166, 14696), (176, 14804), (193, 14924), (217, 15173), (233, 15284), (241, 15335), (243, 15344), (247, 15389),

(250, 15410), (265, 15509), (268, 15524), (269, 15530), (276, 15599), (280, 15620), (282, 15629), (283, 15641), (285, 15650), (298, 15722), (302, 15773), (303, 15776), (308, 15803), (331, 15902), (337, 15920), (349, 15995), (369, 16184), (370, 16196), (387, 16271), (409, 16451), (415, 16571), (422, 16679), (424, 16739), (431, 16826), (436, 16856), (443, 16946), (446, 16955), (447, 16958), (457, 17057), (460, 17084), (472, 17180), (477, 17243),

Gene: Mitti_22 Start: 13237, Stop: 17412, Start Num: 7

Candidate Starts for Mitti_22:

(2, 13201), (Start: 7 @13237 has 33 MA's), (18, 13435), (42, 13675), (43, 13684), (47, 13777), (56, 13924), (57, 13945), (61, 13984), (62, 13987), (68, 14062), (77, 14140), (85, 14227), (86, 14230), (90, 14260), (93, 14293), (97, 14317), (107, 14401), (112, 14431), (114, 14458), (127, 14566), (130, 14587), (132, 14599), (134, 14611), (140, 14665), (163, 14824), (166, 14845), (176, 14953), (193, 15073), (233, 15433), (241, 15484), (243, 15493), (247, 15538), (250, 15559), (282, 15778), (283, 15790), (285, 15799), (298, 15871), (302, 15922), (303, 15925), (308, 15952), (331, 16051), (337, 16069), (349, 16144), (369, 16333), (370, 16345), (387, 16420), (409, 16606), (415, 16726), (422, 16834), (431, 16984), (443, 17104), (446, 17113), (447, 17116), (457, 17215), (460, 17242), (472, 17338), (477, 17401),

Gene: Muddy_19 Start: 11647, Stop: 15096, Start Num: 24

Candidate Starts for Muddy_19:

(Start: 24 @11647 has 2 MA's), (26, 11662), (33, 11710), (34, 11713), (41, 11758), (48, 11881), (72, 12187), (75, 12208), (76, 12220), (78, 12241), (88, 12325), (94, 12379), (95, 12388), (106, 12475), (108, 12484), (115, 12526), (120, 12571), (122, 12583), (124, 12604), (128, 12628), (139, 12682), (145, 12736), (150, 12757), (151, 12769), (157, 12793), (158, 12802), (168, 12880), (170, 12898), (174, 12937), (187, 13006), (196, 13060), (212, 13180), (216, 13216), (230, 13222), (234, 13255), (236, 13267), (253, 13390), (268, 13501), (271, 13528), (273, 13540), (287, 13648), (289, 13657), (300, 13750), (306, 13780), (313, 13816), (323, 13846), (327, 13864), (332, 13891), (333, 13894), (343, 13948), (344, 13951), (352, 14041), (357, 14089), (360, 14104), (362, 14122), (364, 14137), (367, 14197), (370, 14230), (371, 14239), (376, 14248), (381, 14284), (384, 14299), (412, 14494), (424, 14689), (432, 14785), (434, 14803), (437, 14845), (438, 14851), (440, 14878), (452, 14980), (454, 14989), (456, 15028),

Gene: Neighly_19 Start: 11979, Stop: 16091, Start Num: 5

Candidate Starts for Neighly_19:

(Start: 5 @11979 has 23 MA's), (Start: 10 @12072 has 1 MA's), (16, 12150), (17, 12174), (22, 12234), (27, 12318), (43, 12432), (45, 12492), (46, 12504), (47, 12525), (50, 12579), (53, 12627), (56, 12672), (57, 12693), (68, 12810), (77, 12888), (79, 12912), (86, 12978), (95, 13053), (106, 13146), (111, 13176), (133, 13350), (139, 13389), (140, 13413), (143, 13434), (154, 13494), (163, 13572), (173, 13659), (184, 13725), (191, 13767), (192, 13776), (198, 13860), (201, 13881), (203, 13914), (212, 13980), (215, 14001), (221, 14055), (222, 14064), (225, 14082), (229, 14109), (233, 14139), (238, 14175), (250, 14265), (252, 14271), (253, 14289), (266, 14394), (274, 14460), (302, 14655), (308, 14685), (314, 14718), (330, 14769), (341, 14790), (343, 14805), (345, 14811), (352, 14895), (357, 14943), (363, 14982), (367, 15042), (370, 15075), (375, 15096), (379, 15120), (385, 15150), (403, 15216), (408, 15288), (425, 15603), (426, 15612), (427, 15615), (428, 15642), (429, 15657), (430, 15672), (431, 15684), (436, 15714), (440, 15768), (442, 15786), (453, 15855), (458, 15903), (460, 15927), (462, 15939), (464, 15948), (471, 16020), (473, 16044), (475, 16083),

Gene: November_19 Start: 12038, Stop: 16228, Start Num: 7

Candidate Starts for November_19:

(Start: 7 @12038 has 33 MA's), (Start: 9 @12107 has 1 MA's), (Start: 10 @12128 has 1 MA's), (15, 12194), (Start: 24 @12356 has 2 MA's), (37, 12431), (42, 12482), (43, 12491), (45, 12551), (46, 12563), (47, 12584), (50, 12638), (52, 12668), (56, 12731), (57, 12752), (61, 12791), (68, 12869), (77, 12947), (79, 12971), (84, 13025), (86, 13037), (94, 13103), (98, 13145), (103, 13184), (105, 13196),

(110, 13226), (111, 13235), (123, 13349), (125, 13364), (134, 13418), (139, 13448), (140, 13472), (143, 13493), (151, 13541), (159, 13586), (160, 13589), (163, 13631), (166, 13652), (171, 13700), (180, 13757), (182, 13772), (183, 13787), (185, 13808), (186, 13820), (194, 13865), (201, 13961), (233, 14219), (235, 14240), (248, 14327), (252, 14351), (254, 14378), (255, 14381), (257, 14411), (264, 14462), (270, 14498), (284, 14606), (302, 14741), (303, 14744), (316, 14810), (317, 14816), (325, 14855), (340, 14927), (341, 14933), (345, 14954), (352, 15038), (355, 15068), (358, 15089), (360, 15101), (367, 15182), (370, 15215), (371, 15224), (373, 15230), (382, 15272), (388, 15290), (396, 15323), (399, 15329), (416, 15617), (425, 15731), (426, 15740), (427, 15743), (431, 15812), (448, 15947), (460, 16067), (470, 16163), (474, 16202),

Gene: OkiRoe_19 Start: 12137, Stop: 16246, Start Num: 5

Candidate Starts for OkiRoe_19:

(Start: 5 @12137 has 23 MA's), (22, 12395), (27, 12479), (38, 12545), (43, 12593), (45, 12653), (46, 12665), (47, 12686), (50, 12740), (52, 12770), (56, 12833), (57, 12854), (63, 12911), (68, 12971), (77, 13049), (79, 13073), (82, 13115), (88, 13148), (106, 13307), (110, 13328), (121, 13406), (129, 13469), (132, 13484), (133, 13487), (134, 13496), (135, 13502), (137, 13514), (142, 13568), (161, 13670), (163, 13709), (184, 13862), (191, 13904), (195, 13928), (201, 14018), (203, 14051), (221, 14192), (222, 14201), (225, 14219), (229, 14246), (240, 14324), (252, 14408), (266, 14531), (274, 14597), (291, 14699), (302, 14792), (308, 14822), (312, 14849), (314, 14855), (330, 14906), (341, 14927), (343, 14942), (345, 14948), (352, 15032), (357, 15080), (363, 15119), (367, 15179), (370, 15212), (375, 15233), (379, 15257), (385, 15290), (403, 15374), (408, 15446), (425, 15755), (429, 15809), (430, 15824), (431, 15836), (436, 15866), (458, 16052), (462, 16088), (471, 16175), (473, 16199),

Gene: OmniCritical_22 Start: 13225, Stop: 17397, Start Num: 7

Candidate Starts for OmniCritical_22:

(2, 13189), (Start: 7 @13225 has 33 MA's), (18, 13423), (42, 13663), (43, 13672), (47, 13765), (56, 13912), (57, 13933), (61, 13972), (62, 13975), (68, 14050), (77, 14128), (85, 14215), (86, 14218), (90, 14248), (93, 14281), (97, 14305), (107, 14389), (112, 14419), (114, 14446), (127, 14554), (130, 14575), (132, 14587), (134, 14599), (140, 14653), (163, 14812), (166, 14833), (176, 14941), (193, 15061), (233, 15421), (241, 15472), (243, 15481), (247, 15526), (250, 15547), (282, 15766), (283, 15778), (285, 15787), (298, 15859), (302, 15910), (303, 15913), (308, 15940), (331, 16039), (337, 16057), (349, 16132), (369, 16321), (370, 16333), (387, 16408), (409, 16594), (415, 16714), (422, 16822), (431, 16969), (443, 17089), (446, 17098), (447, 17101), (457, 17200), (460, 17227), (472, 17323), (477, 17386),

Gene: Omnicron_19 Start: 11169, Stop: 15011, Start Num: 5

Candidate Starts for Omnicron_19:

(Start: 5 @11169 has 23 MA's), (19, 11355), (20, 11367), (23, 11433), (Start: 24 @11445 has 2 MA's), (26, 11457), (29, 11475), (30, 11478), (46, 11631), (47, 11652), (50, 11706), (52, 11736), (53, 11754), (54, 11784), (55, 11790), (56, 11799), (57, 11820), (59, 11847), (68, 11937), (77, 12015), (80, 12048), (81, 12060), (84, 12093), (91, 12138), (94, 12171), (98, 12213), (99, 12225), (100, 12228), (118, 12348), (121, 12372), (130, 12438), (133, 12453), (134, 12462), (135, 12468), (140, 12516), (179, 12627), (181, 12636), (188, 12687), (189, 12693), (192, 12708), (195, 12723), (201, 12813), (203, 12846), (219, 12975), (221, 12987), (222, 12996), (225, 13014), (227, 13029), (229, 13041), (233, 13071), (239, 13110), (243, 13131), (244, 13140), (246, 13173), (249, 13185), (250, 13197), (252, 13203), (257, 13263), (258, 13272), (266, 13326), (269, 13338), (290, 13488), (302, 13569), (303, 13572), (312, 13626), (324, 13674), (326, 13683), (330, 13707), (351, 13827), (352, 13830), (363, 13917), (364, 13926), (367, 13986), (370, 14019), (372, 14034), (377, 14040), (388, 14085), (395, 14106), (402, 14133), (410, 14268), (414, 14343), (421, 14451), (425, 14520), (426, 14529), (427, 14532), (428, 14559), (431, 14601), (436, 14631), (440, 14688), (443, 14715), (453, 14775), (460, 14847), (464, 14868), (471, 14940), (473, 14964), (476, 15003),

Gene: Paola_19 Start: 12137, Stop: 16246, Start Num: 5

Candidate Starts for Paola_19:

(Start: 5 @12137 has 23 MA's), (22, 12395), (27, 12479), (38, 12545), (43, 12593), (45, 12653), (46, 12665), (47, 12686), (50, 12740), (52, 12770), (56, 12833), (57, 12854), (63, 12911), (68, 12971), (77, 13049), (79, 13073), (82, 13115), (88, 13148), (106, 13307), (110, 13328), (121, 13406), (129, 13469), (132, 13484), (133, 13487), (134, 13496), (135, 13502), (137, 13514), (140, 13550), (142, 13568), (161, 13670), (163, 13709), (184, 13862), (191, 13904), (195, 13928), (201, 14018), (203, 14051), (212, 14117), (221, 14192), (222, 14201), (225, 14219), (229, 14246), (240, 14324), (252, 14408), (266, 14531), (274, 14597), (291, 14699), (302, 14792), (308, 14822), (312, 14849), (314, 14855), (330, 14906), (341, 14927), (343, 14942), (345, 14948), (352, 15032), (355, 15062), (357, 15080), (363, 15119), (367, 15179), (370, 15212), (375, 15233), (379, 15257), (385, 15290), (403, 15374), (408, 15446), (425, 15755), (429, 15809), (430, 15824), (431, 15836), (436, 15866), (458, 16052), (460, 16076), (462, 16088), (471, 16175), (473, 16199),

Gene: Patt_22 Start: 13064, Stop: 17230, Start Num: 7

Candidate Starts for Patt_22:

(2, 13028), (Start: 7 @13064 has 33 MA's), (18, 13262), (41, 13490), (42, 13502), (43, 13511), (44, 13541), (47, 13604), (56, 13751), (57, 13772), (61, 13811), (62, 13814), (68, 13889), (77, 13967), (85, 14054), (86, 14057), (90, 14087), (93, 14120), (97, 14144), (107, 14228), (112, 14258), (114, 14285), (127, 14393), (130, 14414), (132, 14426), (134, 14438), (140, 14492), (163, 14651), (166, 14672), (176, 14780), (193, 14900), (217, 15149), (233, 15260), (241, 15311), (243, 15320), (247, 15365), (250, 15386), (265, 15485), (268, 15500), (269, 15506), (276, 15575), (280, 15596), (282, 15605), (283, 15617), (285, 15626), (298, 15698), (302, 15749), (303, 15752), (308, 15779), (331, 15878), (337, 15896), (349, 15971), (369, 16160), (370, 16172), (387, 16247), (409, 16427), (415, 16547), (422, 16655), (424, 16715), (431, 16802), (436, 16832), (443, 16922), (446, 16931), (447, 16934), (457, 17033), (460, 17060), (472, 17156), (477, 17219),

Gene: Psycho_19 Start: 12089, Stop: 16222, Start Num: 4

Candidate Starts for Psycho_19:

(Start: 4 @12089 has 1 MA's), (Start: 5 @12110 has 23 MA's), (Start: 10 @12203 has 1 MA's), (16, 12281), (17, 12305), (22, 12365), (27, 12449), (43, 12563), (45, 12623), (46, 12635), (47, 12656), (50, 12710), (53, 12758), (56, 12803), (57, 12824), (68, 12941), (77, 13019), (79, 13043), (82, 13085), (86, 13109), (95, 13184), (106, 13277), (111, 13307), (133, 13481), (139, 13520), (140, 13544), (143, 13565), (154, 13625), (163, 13703), (164, 13712), (173, 13790), (184, 13856), (191, 13898), (192, 13907), (198, 13991), (201, 14012), (203, 14045), (212, 14111), (215, 14132), (221, 14186), (222, 14195), (225, 14213), (229, 14240), (233, 14270), (238, 14306), (250, 14396), (252, 14402), (253, 14420), (266, 14525), (274, 14591), (302, 14786), (308, 14816), (314, 14849), (330, 14900), (341, 14921), (343, 14936), (345, 14942), (352, 15026), (357, 15074), (363, 15113), (367, 15173), (370, 15206), (375, 15227), (379, 15251), (385, 15281), (403, 15347), (408, 15419), (425, 15734), (426, 15743), (427, 15746), (428, 15773), (429, 15788), (430, 15803), (431, 15815), (436, 15845), (440, 15899), (442, 15917), (453, 15986), (458, 16034), (460, 16058), (462, 16070), (464, 16079), (471, 16151), (473, 16175), (475, 16214),

Gene: Qhanda_22 Start: 13333, Stop: 17508, Start Num: 7

Candidate Starts for Qhanda_22:

(2, 13297), (Start: 7 @13333 has 33 MA's), (13, 13432), (18, 13531), (42, 13771), (43, 13780), (47, 13873), (56, 14020), (57, 14041), (61, 14080), (62, 14083), (68, 14158), (77, 14236), (85, 14323), (86, 14326), (90, 14356), (93, 14389), (97, 14413), (107, 14497), (112, 14527), (114, 14554), (127, 14662), (130, 14683), (132, 14695), (134, 14707), (140, 14761), (163, 14920), (166, 14941), (176, 15049), (193, 15169), (233, 15529), (241, 15580), (243, 15589), (247, 15634), (250, 15655), (282, 15874), (283, 15886), (285, 15895), (298, 15967), (302, 16018), (303, 16021), (308, 16048), (331, 16147), (337, 16165), (349, 16240), (369, 16429), (370, 16441), (387, 16516), (409, 16702), (415, 16822), (422, 16930), (431, 17080), (443, 17200), (446, 17209), (447, 17212), (457, 17311), (460, 17338), (472, 17434), (477, 17497),

Gene: Rabbs_16 Start: 11454, Stop: 15479, Start Num: 6

Candidate Starts for Rabbs_16:

(Start: 6 @11454 has 4 MA's), (8, 11478), (18, 11655), (Start: 24 @11769 has 2 MA's), (30, 11811), (32, 11832), (36, 11841), (46, 11976), (47, 11997), (56, 12144), (58, 12186), (61, 12204), (62, 12207), (64, 12228), (65, 12240), (77, 12360), (82, 12426), (92, 12492), (94, 12516), (103, 12597), (119, 12720), (121, 12741), (134, 12831), (136, 12840), (141, 12891), (147, 12924), (150, 12942), (159, 12999), (163, 13044), (173, 13131), (176, 13152), (192, 13248), (195, 13263), (201, 13353), (205, 13410), (207, 13413), (228, 13572), (229, 13581), (232, 13608), (252, 13743), (268, 13872), (272, 13902), (300, 14124), (305, 14148), (307, 14163), (310, 14184), (325, 14238), (339, 14298), (349, 14388), (350, 14421), (353, 14436), (361, 14484), (366, 14541), (370, 14574), (420, 15006), (427, 15096), (428, 15123), (431, 15165), (432, 15174), (440, 15243), (445, 15270), (451, 15327), (459, 15387), (460, 15405), (463, 15414),

Gene: Rando14_19 Start: 11071, Stop: 14910, Start Num: 5

Candidate Starts for Rando14_19:

(Start: 5 @11071 has 23 MA's), (12, 11170), (19, 11257), (20, 11269), (23, 11335), (Start: 24 @11347 has 2 MA's), (26, 11359), (29, 11377), (46, 11533), (47, 11554), (52, 11638), (53, 11656), (54, 11686), (55, 11692), (56, 11701), (57, 11722), (59, 11749), (60, 11755), (63, 11779), (68, 11839), (77, 11917), (80, 11950), (81, 11962), (84, 11995), (94, 12073), (96, 12091), (98, 12115), (99, 12127), (100, 12130), (118, 12250), (121, 12274), (129, 12337), (130, 12340), (133, 12355), (140, 12418), (162, 12466), (184, 12559), (186, 12574), (201, 12715), (203, 12748), (219, 12877), (221, 12889), (222, 12898), (224, 12913), (227, 12931), (229, 12943), (233, 12973), (239, 13012), (242, 13030), (243, 13033), (250, 13099), (252, 13105), (255, 13135), (257, 13165), (263, 13210), (266, 13228), (269, 13240), (288, 13375), (290, 13390), (302, 13471), (303, 13474), (312, 13528), (324, 13576), (326, 13585), (330, 13609), (338, 13630), (351, 13729), (352, 13732), (360, 13795), (364, 13828), (367, 13888), (370, 13921), (372, 13936), (377, 13942), (388, 13987), (395, 14008), (402, 14035), (410, 14170), (414, 14245), (420, 14335), (425, 14422), (426, 14431), (427, 14434), (428, 14461), (430, 14491), (431, 14503), (436, 14533), (440, 14587), (442, 14605), (453, 14674), (460, 14746), (464, 14767), (471, 14839), (473, 14863), (476, 14902),

Gene: Reptar3000_22 Start: 13066, Stop: 17232, Start Num: 7

Candidate Starts for Reptar3000_22:

(2, 13030), (Start: 7 @13066 has 33 MA's), (18, 13264), (41, 13492), (42, 13504), (43, 13513), (44, 13543), (47, 13606), (56, 13753), (57, 13774), (61, 13813), (62, 13816), (68, 13891), (77, 13969), (85, 14056), (86, 14059), (90, 14089), (93, 14122), (97, 14146), (107, 14230), (112, 14260), (114, 14287), (127, 14395), (130, 14416), (132, 14428), (134, 14440), (140, 14494), (163, 14653), (166, 14674), (176, 14782), (193, 14902), (217, 15151), (233, 15262), (241, 15313), (243, 15322), (247, 15367), (250, 15388), (265, 15487), (268, 15502), (269, 15508), (276, 15577), (280, 15598), (282, 15607), (283, 15619), (285, 15628), (298, 15700), (302, 15751), (303, 15754), (308, 15781), (331, 15880), (337, 15898), (349, 15973), (369, 16162), (370, 16174), (387, 16249), (409, 16429), (415, 16549), (422, 16657), (424, 16717), (431, 16804), (436, 16834), (443, 16924), (446, 16933), (447, 16936), (457, 17035), (460, 17062), (472, 17158), (477, 17221),

Gene: Ruthiejr_21 Start: 12924, Stop: 17120, Start Num: 7

Candidate Starts for Ruthiejr_21:

(Start: 7 @12924 has 33 MA's), (18, 13122), (40, 13335), (42, 13362), (43, 13371), (46, 13443), (47, 13464), (55, 13602), (56, 13611), (57, 13632), (61, 13671), (67, 13740), (68, 13749), (77, 13827), (78, 13839), (86, 13917), (90, 13947), (93, 13980), (94, 13983), (97, 14004), (114, 14145), (116, 14154), (132, 14286), (134, 14298), (140, 14352), (147, 14391), (152, 14424), (163, 14511), (166, 14532), (185, 14709), (193, 14760), (205, 14919), (233, 15120), (241, 15171), (243, 15180), (247, 15225), (250, 15246), (252, 15252), (269, 15366), (282, 15465), (283, 15477), (285, 15486), (298, 15558), (299, 15591), (302, 15609), (303, 15612), (308, 15639), (331, 15738), (337, 15756), (349, 15831),

(369, 16020), (370, 16032), (387, 16107), (397, 16176), (409, 16308), (413, 16422), (431, 16689), (433, 16707), (446, 16818), (447, 16821), (457, 16920), (460, 16947), (461, 16950), (472, 17046), (477, 17109),

Gene: Salvus_20 Start: 11740, Stop: 15189, Start Num: 24

Candidate Starts for Salvus_20:

(Start: 24 @11740 has 2 MA's), (26, 11755), (33, 11803), (34, 11806), (41, 11851), (48, 11974), (49, 11995), (75, 12301), (76, 12313), (78, 12334), (88, 12418), (94, 12472), (95, 12481), (106, 12568), (108, 12577), (115, 12619), (120, 12664), (122, 12676), (124, 12697), (128, 12721), (139, 12775), (150, 12850), (151, 12862), (157, 12886), (168, 12973), (174, 13030), (187, 13099), (196, 13153), (216, 13309), (234, 13348), (236, 13360), (245, 13423), (252, 13465), (253, 13483), (263, 13570), (268, 13594), (271, 13621), (273, 13633), (281, 13699), (287, 13741), (289, 13750), (300, 13843), (306, 13873), (313, 13909), (323, 13939), (327, 13957), (332, 13984), (333, 13987), (342, 14038), (343, 14041), (344, 14044), (352, 14134), (357, 14182), (360, 14197), (362, 14215), (364, 14230), (367, 14290), (370, 14323), (371, 14332), (376, 14341), (381, 14377), (384, 14392), (412, 14587), (424, 14782), (432, 14878), (434, 14896), (437, 14938), (438, 14944), (440, 14971), (452, 15073), (454, 15082), (456, 15121),

Gene: SamScheppers_20 Start: 12840, Stop: 17027, Start Num: 7

Candidate Starts for SamScheppers_20:

(2, 12804), (Start: 7 @12840 has 33 MA's), (18, 13038), (42, 13278), (43, 13287), (47, 13380), (56, 13527), (57, 13548), (61, 13587), (62, 13590), (68, 13665), (77, 13743), (85, 13830), (86, 13833), (90, 13863), (93, 13896), (97, 13920), (107, 14004), (112, 14034), (114, 14061), (127, 14169), (130, 14190), (132, 14202), (134, 14214), (140, 14268), (163, 14427), (166, 14448), (176, 14556), (193, 14676), (233, 15036), (241, 15087), (243, 15096), (247, 15141), (250, 15162), (282, 15381), (283, 15393), (285, 15402), (298, 15474), (302, 15525), (303, 15528), (308, 15555), (331, 15654), (337, 15672), (349, 15747), (369, 15936), (370, 15948), (387, 16023), (409, 16224), (415, 16344), (422, 16452), (431, 16599), (443, 16719), (446, 16728), (447, 16731), (457, 16830), (460, 16857), (472, 16953), (477, 17016),

Gene: Slarp_22 Start: 13324, Stop: 17499, Start Num: 7

Candidate Starts for Slarp_22:

(2, 13288), (Start: 7 @13324 has 33 MA's), (13, 13423), (18, 13522), (42, 13762), (43, 13771), (47, 13864), (56, 14011), (57, 14032), (61, 14071), (62, 14074), (68, 14149), (77, 14227), (85, 14314), (86, 14317), (90, 14347), (93, 14380), (97, 14404), (107, 14488), (112, 14518), (114, 14545), (127, 14653), (130, 14674), (132, 14686), (134, 14698), (140, 14752), (163, 14911), (166, 14932), (176, 15040), (193, 15160), (233, 15520), (241, 15571), (243, 15580), (247, 15625), (250, 15646), (282, 15865), (283, 15877), (285, 15886), (298, 15958), (302, 16009), (303, 16012), (308, 16039), (331, 16138), (337, 16156), (349, 16231), (369, 16420), (370, 16432), (387, 16507), (409, 16693), (415, 16813), (422, 16921), (431, 17071), (443, 17191), (446, 17200), (447, 17203), (457, 17302), (460, 17329), (472, 17425), (477, 17488),

Gene: Sneeze_16 Start: 11453, Stop: 15478, Start Num: 6

Candidate Starts for Sneeze_16:

(Start: 6 @11453 has 4 MA's), (8, 11477), (18, 11654), (Start: 24 @11768 has 2 MA's), (30, 11810), (32, 11831), (36, 11840), (46, 11975), (47, 11996), (56, 12143), (58, 12185), (61, 12203), (62, 12206), (64, 12227), (65, 12239), (77, 12359), (82, 12425), (92, 12491), (94, 12515), (103, 12596), (119, 12719), (121, 12740), (134, 12830), (136, 12839), (141, 12890), (147, 12923), (150, 12941), (159, 12998), (163, 13043), (173, 13130), (176, 13151), (192, 13247), (195, 13262), (201, 13352), (205, 13409), (207, 13412), (228, 13571), (229, 13580), (232, 13607), (252, 13742), (268, 13871), (272, 13901), (300, 14123), (305, 14147), (307, 14162), (310, 14183), (325, 14237), (339, 14297), (349, 14387), (350, 14420), (353, 14435), (361, 14483), (366, 14540), (370, 14573), (420, 15005), (427, 15095), (428, 15122), (431, 15164), (432, 15173), (440, 15242), (445, 15269), (451, 15326), (459,

15386), (460, 15404), (463, 15413),

Gene: SoSeph_19 Start: 12264, Stop: 16394, Start Num: 5

Candidate Starts for SoSeph_19:

(Start: 5 @12264 has 23 MA's), (Start: 10 @12357 has 1 MA's), (16, 12435), (17, 12459), (22, 12519), (27, 12603), (28, 12615), (43, 12717), (45, 12777), (46, 12789), (47, 12810), (50, 12864), (53, 12912), (56, 12957), (57, 12978), (68, 13095), (77, 13173), (79, 13197), (86, 13263), (95, 13338), (106, 13431), (111, 13461), (133, 13635), (134, 13644), (139, 13674), (140, 13698), (143, 13719), (154, 13779), (163, 13857), (164, 13866), (173, 13944), (184, 14010), (191, 14052), (192, 14061), (198, 14145), (201, 14166), (203, 14199), (221, 14340), (222, 14349), (225, 14367), (229, 14394), (240, 14472), (252, 14556), (266, 14679), (274, 14745), (302, 14940), (308, 14970), (312, 14997), (314, 15003), (326, 15030), (341, 15075), (343, 15090), (345, 15096), (352, 15180), (357, 15228), (363, 15267), (367, 15327), (370, 15360), (375, 15381), (379, 15405), (385, 15438), (403, 15522), (408, 15594), (425, 15903), (429, 15957), (430, 15972), (431, 15984), (436, 16014), (458, 16200), (460, 16224), (462, 16236), (471, 16323), (473, 16347),

Gene: TM4_17 Start: 10184, Stop: 13873, Start Num: 5

Candidate Starts for TM4_17:

(Start: 5 @10184 has 23 MA's), (Start: 9 @10256 has 1 MA's), (29, 10490), (41, 10541), (46, 10634), (47, 10655), (50, 10709), (56, 10802), (57, 10823), (58, 10844), (59, 10850), (68, 10940), (73, 10982), (77, 11018), (79, 11042), (80, 11051), (81, 11063), (83, 11087), (86, 11108), (89, 11132), (90, 11138), (94, 11174), (95, 11183), (96, 11192), (98, 11216), (99, 11228), (103, 11255), (129, 11438), (131, 11450), (133, 11456), (139, 11495), (140, 11519), (162, 11567), (165, 11579), (175, 11612), (177, 11618), (199, 11807), (200, 11813), (202, 11843), (206, 11870), (210, 11888), (211, 11894), (215, 11918), (225, 11987), (229, 12014), (234, 12047), (242, 12080), (243, 12083), (251, 12134), (257, 12167), (260, 12188), (270, 12212), (277, 12242), (286, 12263), (343, 12545), (352, 12638), (357, 12686), (358, 12689), (360, 12701), (367, 12782), (370, 12815), (371, 12824), (372, 12830), (380, 12863), (386, 12890), (390, 12908), (393, 12926), (395, 12932), (413, 13178), (425, 13358), (426, 13367), (432, 13448), (460, 13703), (470, 13796),

Gene: Taheera_16 Start: 11466, Stop: 15491, Start Num: 6

Candidate Starts for Taheera_16:

(Start: 6 @11466 has 4 MA's), (8, 11490), (18, 11667), (Start: 24 @11781 has 2 MA's), (30, 11823), (32, 11844), (36, 11853), (46, 11988), (47, 12009), (56, 12156), (58, 12198), (61, 12216), (62, 12219), (63, 12234), (64, 12240), (65, 12252), (77, 12372), (82, 12438), (92, 12504), (94, 12528), (103, 12609), (119, 12732), (121, 12753), (129, 12816), (134, 12843), (136, 12852), (141, 12903), (150, 12954), (159, 13011), (163, 13056), (173, 13143), (192, 13260), (195, 13275), (201, 13365), (205, 13422), (207, 13425), (226, 13575), (229, 13593), (268, 13884), (272, 13914), (300, 14136), (305, 14160), (307, 14175), (310, 14196), (325, 14250), (339, 14310), (349, 14400), (350, 14433), (353, 14448), (361, 14496), (366, 14553), (370, 14586), (420, 15018), (427, 15108), (428, 15135), (431, 15177), (432, 15186), (440, 15255), (445, 15282), (451, 15339), (459, 15399), (460, 15417), (463, 15426),

Gene: Taquito_20 Start: 12915, Stop: 17108, Start Num: 7

Candidate Starts for Taquito_20:

(Start: 7 @12915 has 33 MA's), (18, 13113), (42, 13353), (43, 13362), (46, 13434), (47, 13455), (55, 13593), (56, 13602), (57, 13623), (61, 13662), (67, 13731), (68, 13740), (77, 13818), (78, 13830), (86, 13908), (90, 13938), (93, 13971), (94, 13974), (97, 13995), (114, 14136), (116, 14145), (132, 14277), (134, 14289), (140, 14343), (147, 14382), (152, 14415), (163, 14502), (166, 14523), (185, 14700), (193, 14751), (205, 14910), (233, 15111), (241, 15162), (243, 15171), (247, 15216), (250, 15237), (282, 15456), (283, 15468), (285, 15477), (293, 15522), (298, 15549), (299, 15582), (302, 15600), (303, 15603), (308, 15630), (331, 15729), (337, 15747), (349, 15822), (356, 15894), (369, 16011), (370, 16023), (387, 16098), (397, 16167), (409, 16296), (413, 16410), (431, 16677), (433, 16695), (446, 16806), (447, 16809), (457, 16908), (460, 16935), (461, 16938), (472, 17034), (477, 17097),

Gene: Terror_16 Start: 11466, Stop: 15491, Start Num: 6

Candidate Starts for Terror_16:

(Start: 6 @11466 has 4 MA's), (8, 11490), (18, 11667), (Start: 24 @11781 has 2 MA's), (30, 11823), (32, 11844), (36, 11853), (46, 11988), (47, 12009), (56, 12156), (58, 12198), (61, 12216), (62, 12219), (63, 12234), (64, 12240), (65, 12252), (77, 12372), (82, 12438), (92, 12504), (94, 12528), (103, 12609), (119, 12732), (121, 12753), (129, 12816), (134, 12843), (136, 12852), (141, 12903), (150, 12954), (159, 13011), (163, 13056), (173, 13143), (192, 13260), (195, 13275), (201, 13365), (205, 13422), (207, 13425), (226, 13575), (229, 13593), (268, 13884), (272, 13914), (300, 14136), (305, 14160), (307, 14175), (310, 14196), (325, 14250), (339, 14310), (349, 14400), (350, 14433), (353, 14448), (361, 14496), (366, 14553), (370, 14586), (420, 15018), (427, 15108), (428, 15135), (431, 15177), (432, 15186), (440, 15255), (445, 15282), (451, 15339), (459, 15399), (460, 15417), (463, 15426),

Gene: Thyatira_19 Start: 12136, Stop: 16245, Start Num: 5

Candidate Starts for Thyatira_19:

(Start: 5 @12136 has 23 MA's), (22, 12394), (27, 12478), (38, 12544), (43, 12592), (45, 12652), (46, 12664), (47, 12685), (50, 12739), (52, 12769), (56, 12832), (57, 12853), (63, 12910), (68, 12970), (77, 13048), (79, 13072), (82, 13114), (88, 13147), (106, 13306), (110, 13327), (121, 13405), (129, 13468), (132, 13483), (133, 13486), (134, 13495), (135, 13501), (137, 13513), (142, 13567), (161, 13669), (163, 13708), (184, 13861), (191, 13903), (195, 13927), (201, 14017), (203, 14050), (221, 14191), (222, 14200), (225, 14218), (229, 14245), (240, 14323), (252, 14407), (266, 14530), (274, 14596), (291, 14698), (302, 14791), (304, 14800), (308, 14821), (314, 14854), (330, 14905), (341, 14926), (343, 14941), (345, 14947), (352, 15031), (355, 15061), (357, 15079), (363, 15118), (367, 15178), (370, 15211), (375, 15232), (379, 15256), (385, 15289), (403, 15373), (408, 15445), (425, 15754), (429, 15808), (430, 15823), (431, 15835), (436, 15865), (458, 16051), (460, 16075), (462, 16087), (471, 16174), (473, 16198),

Gene: ViviJ_18 Start: 11997, Stop: 16103, Start Num: 5

Candidate Starts for ViviJ_18:

(Start: 5 @11997 has 23 MA's), (Start: 10 @12090 has 1 MA's), (16, 12168), (17, 12192), (22, 12252), (27, 12336), (28, 12348), (43, 12450), (45, 12510), (46, 12522), (47, 12543), (50, 12597), (53, 12645), (56, 12690), (57, 12711), (68, 12828), (77, 12906), (79, 12930), (86, 12996), (95, 13071), (106, 13164), (111, 13194), (133, 13368), (134, 13377), (139, 13407), (140, 13431), (143, 13452), (154, 13512), (163, 13590), (164, 13599), (173, 13677), (184, 13743), (191, 13785), (192, 13794), (198, 13878), (201, 13899), (203, 13932), (212, 13998), (215, 14019), (221, 14073), (222, 14082), (225, 14100), (228, 14118), (229, 14127), (233, 14157), (238, 14193), (245, 14247), (250, 14283), (252, 14289), (253, 14307), (266, 14412), (274, 14478), (302, 14673), (308, 14703), (314, 14736), (330, 14787), (341, 14808), (343, 14823), (345, 14829), (352, 14913), (357, 14961), (363, 15000), (367, 15060), (370, 15093), (375, 15114), (379, 15138), (385, 15168), (403, 15234), (408, 15306), (425, 15621), (426, 15630), (427, 15633), (429, 15675), (431, 15702), (436, 15732), (440, 15783), (442, 15801), (453, 15867), (458, 15915), (460, 15939), (462, 15951), (471, 16032), (473, 16056), (475, 16095),

Gene: Waterfoul_19 Start: 12158, Stop: 16267, Start Num: 5

Candidate Starts for Waterfoul_19:

(Start: 5 @12158 has 23 MA's), (22, 12416), (27, 12500), (38, 12566), (43, 12614), (45, 12674), (46, 12686), (47, 12707), (50, 12761), (52, 12791), (56, 12854), (57, 12875), (63, 12932), (68, 12992), (77, 13070), (79, 13094), (82, 13136), (88, 13169), (106, 13328), (110, 13349), (121, 13427), (129, 13490), (132, 13505), (133, 13508), (134, 13517), (135, 13523), (137, 13535), (142, 13589), (161, 13691), (163, 13730), (184, 13883), (191, 13925), (195, 13949), (201, 14039), (203, 14072), (221, 14213), (222, 14222), (225, 14240), (229, 14267), (240, 14345), (252, 14429), (266, 14552), (274, 14618), (291, 14720), (302, 14813), (304, 14822), (308, 14843), (314, 14876), (330, 14927), (341, 14948), (343, 14963), (345, 14969), (352, 15053), (355, 15083), (357, 15101), (363, 15140), (367, 15200), (370, 15233), (375, 15254), (379, 15278), (385, 15311), (403, 15395), (408, 15467), (425, 15776),

(429, 15830), (430, 15845), (431, 15857), (436, 15887), (458, 16073), (460, 16097), (462, 16109), (471, 16196), (473, 16220),

Gene: Wintermute_22 Start: 13313, Stop: 17488, Start Num: 7

Candidate Starts for Wintermute_22:

(2, 13277), (Start: 7 @13313 has 33 MA's), (18, 13511), (42, 13751), (43, 13760), (47, 13853), (53, 13955), (56, 14000), (61, 14060), (68, 14138), (77, 14216), (85, 14303), (86, 14306), (90, 14336), (93, 14369), (97, 14393), (107, 14477), (112, 14507), (114, 14534), (127, 14642), (130, 14663), (132, 14675), (134, 14687), (140, 14741), (163, 14900), (166, 14921), (176, 15029), (193, 15149), (230, 15491), (233, 15509), (241, 15560), (243, 15569), (247, 15614), (250, 15635), (269, 15755), (282, 15854), (283, 15866), (285, 15875), (298, 15947), (302, 15998), (303, 16001), (308, 16028), (331, 16127), (337, 16145), (349, 16220), (369, 16409), (370, 16421), (387, 16496), (392, 16526), (409, 16682), (415, 16802), (422, 16910), (431, 17060), (446, 17189), (447, 17192), (457, 17291), (460, 17318), (472, 17414), (477, 17477),

Gene: Y10_22 Start: 13313, Stop: 17488, Start Num: 7

Candidate Starts for Y10_22:

(2, 13277), (Start: 7 @13313 has 33 MA's), (18, 13511), (42, 13751), (43, 13760), (47, 13853), (53, 13955), (56, 14000), (61, 14060), (68, 14138), (77, 14216), (85, 14303), (86, 14306), (90, 14336), (93, 14369), (97, 14393), (107, 14477), (112, 14507), (114, 14534), (127, 14642), (130, 14663), (132, 14675), (134, 14687), (140, 14741), (163, 14900), (166, 14921), (176, 15029), (193, 15149), (230, 15491), (233, 15509), (241, 15560), (243, 15569), (247, 15614), (250, 15635), (269, 15755), (282, 15854), (283, 15866), (285, 15875), (298, 15947), (302, 15998), (303, 16001), (308, 16028), (331, 16127), (337, 16145), (349, 16220), (369, 16409), (370, 16421), (387, 16496), (392, 16526), (409, 16682), (415, 16802), (422, 16910), (431, 17060), (443, 17180), (446, 17189), (447, 17192), (457, 17291), (460, 17318), (472, 17414), (477, 17477),

Gene: Y2_22 Start: 13313, Stop: 17488, Start Num: 7

Candidate Starts for Y2_22:

(2, 13277), (Start: 7 @13313 has 33 MA's), (18, 13511), (42, 13751), (43, 13760), (47, 13853), (53, 13955), (56, 14000), (61, 14060), (68, 14138), (77, 14216), (85, 14303), (86, 14306), (90, 14336), (93, 14369), (97, 14393), (107, 14477), (112, 14507), (114, 14534), (127, 14642), (130, 14663), (132, 14675), (134, 14687), (140, 14741), (163, 14900), (166, 14921), (176, 15029), (193, 15149), (230, 15491), (233, 15509), (241, 15560), (243, 15569), (247, 15614), (250, 15635), (269, 15755), (282, 15854), (283, 15866), (285, 15875), (298, 15947), (302, 15998), (303, 16001), (308, 16028), (331, 16127), (337, 16145), (349, 16220), (369, 16409), (370, 16421), (387, 16496), (392, 16526), (409, 16682), (415, 16802), (422, 16910), (431, 17060), (443, 17180), (446, 17189), (447, 17192), (457, 17291), (460, 17318), (472, 17414), (477, 17477),

Gene: YasnayaPolyana_22 Start: 13314, Stop: 17489, Start Num: 7

Candidate Starts for YasnayaPolyana_22:

(2, 13278), (Start: 7 @13314 has 33 MA's), (18, 13512), (42, 13752), (43, 13761), (47, 13854), (53, 13956), (56, 14001), (57, 14022), (61, 14061), (62, 14064), (68, 14139), (77, 14217), (85, 14304), (86, 14307), (90, 14337), (93, 14370), (97, 14394), (107, 14478), (112, 14508), (114, 14535), (127, 14643), (130, 14664), (132, 14676), (134, 14688), (140, 14742), (163, 14901), (166, 14922), (176, 15030), (193, 15150), (230, 15492), (233, 15510), (241, 15561), (243, 15570), (247, 15615), (250, 15636), (269, 15756), (282, 15855), (283, 15867), (285, 15876), (298, 15948), (302, 15999), (303, 16002), (308, 16029), (331, 16128), (337, 16146), (349, 16221), (369, 16410), (370, 16422), (387, 16497), (392, 16527), (409, 16683), (415, 16803), (422, 16911), (431, 17061), (446, 17190), (447, 17193), (457, 17292), (460, 17319), (472, 17415), (477, 17478),