

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 311394 Report

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

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 311394 has 113 members, 29 are drafts.

Phages represented in each track:

- Track 1 : Brynnie_16
- Track 2 : Zixiang_16, Niblet_16, Chicken_16
- Track 3 : Amanises_17
- Track 4 : Vulpecula_16
- Track 5 : Eesa_16
- Track 6 : Pelletreau_17, KendraB23_17, Toad24_17, Gravel_17
- Track 7 : Ruchi_16
- Track 8 : Jamun_16
- Track 9 : WileyE_15, Chickaboom_15
- Track 10 : Basilisk_16
- Track 11 : Shen_17
- Track 12 : TaylorSipht_16
- Track 13 : Westrich_17
- Track 14 : Orcanus_16
- Track 15 : Cygnet_16
- Track 16 : OtsoOtso_16, Pineda_17, Amelia_17, Polka_16, Cote_17, Bedetta_17, PhirstandPhine_17, Lunar_17, Daob_17, Damocles_17, Melons_17, Coral_16, Colusalem_16, Kepler_16, GramZayde_16, Jerole_17
- Track 17 : Kuleana_16
- Track 18 : Bibble12_17, HannahPhantana_17
- Track 19 : LittleTokyo_16
- Track 20 : Antrice_16
- Track 21 : Zhuangyuan_17
- Track 22 : Amphitrite_15
- Track 23 : Juno112_15, DanHam62_15, Fingolfin_15, AdoptaAdorbs_15, Atlantica_15, RedFox_15
- Track 24 : HamCheese_15, PhluffyCoco_15, Laphuphu24k_14, Camara_15
- Track 25 : Glotell_15, Oppalora_15, KHumphrey_15, AmiCi24_15
- Track 26 : Renna12_16
- Track 27 : StuartMinion_15, AlexMinion_16
- Track 28 : Andrew_16
- Track 29 : Leona_15, Azaz_15, Rattail_15
- Track 30 : Babushka_15

- Track 31 : phiBT1_43
- Track 32 : Lilbooboo_12
- Track 33 : Euratis_12
- Track 34 : TG1_12
- Track 35 : Vash_12
- Track 36 : Samora_12
- Track 37 : Shawty_12
- Track 38 : Sebastisaurus_12
- Track 39 : Heather_12
- Track 40 : RemusLoopin_12
- Track 41 : SV1_16
- Track 42 : Raleigh_16
- Track 43 : PapayaSalad_16
- Track 44 : Ididsumtinwong_16, Bioscum_16
- Track 45 : Lishka_16, Austintatious_16
- Track 46 : Losacky_23, Antuna_22, Violeta_23, MenE_22
- Track 47 : Phingu_24
- Track 48 : ScoobySnack_20
- Track 49 : Bush_22
- Track 50 : CookieDog_22
- Track 51 : Dropshot_21, Appa_21
- Track 52 : Blett_22
- Track 53 : Carrillo_23
- Track 54 : NCRodriguez_23
- Track 55 : Warren_22
- Track 56 : Guzman_23
- Track 57 : Phonegingi_21
- Track 58 : Jakelyne_24
- Track 59 : Pickles13_21
- Track 60 : Winchester007_37
- Track 61 : Mariel_25
- Track 62 : PhillyJawn_22
- Track 63 : DelaGarza_20
- Track 64 : Teng_22
- Track 65 : Gingerbug_18
- Track 66 : Lesiram_21
- Track 67 : Sweetums_22
- Track 68 : Wrackline_26
- Track 69 : Parvarticeps_35
- Track 70 : Chymera_17
- Track 71 : Lukepolites_18

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

The start number called the most often in the published annotations is 5, it was called in 49 of the 84 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AdoptaAdorbs_15, AlexMinion_16, Amanises_17, Amelia_17, AmiCi24_15, Amphitrite_15, Antrice_16, Atlantica_15, Azaz_15, Babushka_15, Basilisk_16,

Bedetta_17, Bibble12_17, Brynnie_16, Camara_15, Chickaboom_15, Chicken_16, Colusalem_16, Coral_16, Cote_17, Cygnet_16, Damocles_17, DanHam62_15, Daob_17, Eesa_16, Fingolfin_15, Glotell_15, GramZayde_16, Gravel_17, HamCheese_15, HannahPhantana_17, Jamun_16, Jerole_17, Juno112_15, KHumphrey_15, KendraB23_17, Kepler_16, Laphuphu24k_14, Leona_15, LittleTokyo_16, Lunar_17, Melons_17, Niblet_16, Oppalora_15, Orcanus_16, OtsoOtso_16, Pelletreau_17, PhirstandPhine_17, PhluffyCoco_15, Pineda_17, Polka_16, Rattail_15, RedFox_15, Renna12_16, Ruchi_16, StuartMinion_15, TaylorSipt_16, Toad24_17, Vulpecula_16, Westrich_17, WileyE_15, Zhuangyuan_17, Zixiang_16,

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

- Shen_17,

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

- Andrew_16, Antuna_22, Appa_21, Austintatious_16, Bioscum_16, Blett_22, Bush_22, Carrillo_23, Chymera_17, CookieDog_22, DelaGarza_20, Dropshot_21, Euratis_12, Gingerbug_18, Guzman_23, Heather_12, Ididsumtinwong_16, Jakelyne_24, Kuleana_16, Lesiram_21, Lilbooboo_12, Lishka_16, Losacky_23, Lukepolites_18, Mariel_25, MenE_22, NCRodriguez_23, PapayaSalad_16, Parvapaticeps_35, PhillyJawn_22, Phingu_24, Phonegingi_21, Pickles13_21, Raleigh_16, RemusLoopin_12, SV1_16, Samora_12, ScoobySnack_20, Sebastisaurus_12, Shawty_12, Sweetums_22, TG1_12, Teng_22, Vash_12, Violeta_23, Warren_22, Winchester007_37, Wrackline_26, phiBT1_43,

Summary by start number:

Start 1:

- Found in 7 of 113 (6.2%) of genes in pham
- Manual Annotations of this start: 7 of 84
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Austintatious_16 (BC3), Bioscum_16 (BC3), Ididsumtinwong_16 (BC3), Lishka_16 (BC3), PapayaSalad_16 (BC3), Raleigh_16 (BC2), SV1_16 (BC1),

Start 5:

- Found in 64 of 113 (56.6%) of genes in pham
- Manual Annotations of this start: 49 of 84
- Called 98.4% of time when present
- Phage (with cluster) where this start called: AdoptaAdorbs_15 (AS3), AlexMinion_16 (AS3), Amanises_17 (AS1), Amelia_17 (AS2), AmiCi24_15 (AS3), Amphitrite_15 (AS3), Antrice_16 (AS2), Atlantica_15 (AS3), Azaz_15 (AS3), Babushka_15 (AS3), Basilisk_16 (AS1), Bedetta_17 (AS2), Bibble12_17 (AS2), Brynnie_16 (AS1), Camara_15 (AS3), Chickaboom_15 (AS1), Chicken_16 (AS1), Colusalem_16 (AS2), Coral_16 (AS2), Cote_17 (AS2), Cygnet_16 (AS2), Damocles_17 (AS2), DanHam62_15 (AS3), Daob_17 (AS2), Eesa_16 (AS1), Fingolfin_15 (AS3), Glotell_15 (AS3), GramZayde_16 (AS2), Gravel_17 (AS1), HamCheese_15 (AS3), HannahPhantana_17 (AS2), Jamun_16 (AS1), Jerole_17 (AS2), Juno112_15 (AS3), KHumphrey_15 (AS3), KendraB23_17 (AS1), Kepler_16 (AS2), Laphuphu24k_14 (AS3), Leona_15 (AS3), LittleTokyo_16 (AS2), Lunar_17 (AS2), Melons_17 (AS2), Niblet_16 (AS1), Oppalora_15 (AS3), Orcanus_16 (AS1), OtsoOtso_16 (AS2), Pelletreau_17 (AS1), PhirstandPhine_17 (AS2), PhluffyCoco_15 (AS3), Pineda_17 (AS2), Polka_16 (AS2), Rattail_15 (AS3), RedFox_15 (AS3), Renna12_16 (AS3),

Ruchi_16 (AS1), StuartMinion_15 (AS3), TaylorSipht_16 (AS1), Toad24_17 (AS1), Vulpecula_16 (AS1), Westrich_17 (AS1), WileyE_15 (AS1), Zhuangyuan_17 (AS2), Zixiang_16 (AS1),

Start 6:

- Found in 2 of 113 (1.8%) of genes in pham
- Manual Annotations of this start: 2 of 84
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Andrew_16 (AS3), Kuleana_16 (AS2),

Start 11:

- Found in 10 of 113 (8.8%) of genes in pham
- Manual Annotations of this start: 9 of 84
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Euratis_12 (BB1), Heather_12 (BB2), Lilbooboo_12 (BB1), RemusLoopin_12 (BB2), Samora_12 (BB1), Sebastisaurus_12 (BB2), Shawty_12 (BB1), TG1_12 (BB1), Vash_12 (BB1), phiBT1_43 (BB1),

Start 13:

- Found in 53 of 113 (46.9%) of genes in pham
- Manual Annotations of this start: 16 of 84
- Called 52.8% of time when present
- Phage (with cluster) where this start called: Antuna_22 (GA), Appa_21 (GA), Blett_22 (GA), Bush_22 (GA), Carrillo_23 (GA), CookieDog_22 (GA), DelaGarza_20 (GF), Dropshot_21 (GA), Gingerbug_18 (GF), Guzman_23 (GA), Jakelyne_24 (GA), Lesiram_21 (GF), Losacky_23 (GA), Mariel_25 (GA), MenE_22 (GA), NCRodriguez_23 (GA), Parvuparticeps_35 (UNK), PhillyJawn_22 (GA), Phingu_24 (GA), Phonegingi_21 (GA), Pickles13_21 (GA), ScoobySnack_20 (GA), Sweetums_22 (GF), Teng_22 (GF), Violeta_23 (GA), Warren_22 (GA), Winchester007_37 (GA), Wrackline_26 (GF),

Start 16:

- Found in 1 of 113 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 84
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Chymera_17 (singleton),

Start 18:

- Found in 9 of 113 (8.0%) of genes in pham
- No Manual Annotations of this start.
- Called 11.1% of time when present
- Phage (with cluster) where this start called: Shen_17 (AS1),

Start 24:

- Found in 22 of 113 (19.5%) of genes in pham
- No Manual Annotations of this start.
- Called 4.5% of time when present
- Phage (with cluster) where this start called: Lukepolites_18 (singleton),

Summary by clusters:

There are 12 clusters represented in this pham: AS3, AS2, AS1, singleton, BB2, GF, BC2, GA, UNK, BC1, BB1, BC3,

Info for manual annotations of cluster AS1:

- Start number 5 was manually annotated 15 times for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 5 was manually annotated 17 times for cluster AS2.
- Start number 6 was manually annotated 1 time for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 5 was manually annotated 17 times for cluster AS3.
- Start number 6 was manually annotated 1 time for cluster AS3.

Info for manual annotations of cluster BB1:

- Start number 11 was manually annotated 6 times for cluster BB1.

Info for manual annotations of cluster BB2:

- Start number 11 was manually annotated 3 times for cluster BB2.

Info for manual annotations of cluster BC1:

- Start number 1 was manually annotated 1 time for cluster BC1.

Info for manual annotations of cluster BC2:

- Start number 1 was manually annotated 1 time for cluster BC2.

Info for manual annotations of cluster BC3:

- Start number 1 was manually annotated 5 times for cluster BC3.

Info for manual annotations of cluster GA:

- Start number 13 was manually annotated 11 times for cluster GA.

Info for manual annotations of cluster GF:

- Start number 13 was manually annotated 5 times for cluster GF.

Gene Information:

Gene: AdoptaAdorbs_15 Start: 9788, Stop: 12076, Start Num: 5

Candidate Starts for AdoptaAdorbs_15:

(Start: 5 @9788 has 49 MA's), (7, 9800), (9, 9821), (Start: 13 @9830 has 16 MA's), (15, 9839), (31, 9941), (40, 9983), (57, 10121), (64, 10175), (69, 10205), (86, 10307), (89, 10319), (91, 10337), (95, 10361), (99, 10382), (101, 10403), (113, 10484), (114, 10487), (115, 10496), (118, 10508), (138, 10628), (141, 10658), (148, 10700), (166, 10826), (173, 10850), (178, 10871), (190, 10919), (194, 10931), (197, 10943), (200, 10952), (204, 10979), (211, 11015), (213, 11027), (214, 11030), (215, 11039), (224, 11087), (228, 11108), (268, 11273), (311, 11420), (313, 11429), (325, 11492), (337, 11567), (355, 11690), (368, 11750), (370, 11756), (372, 11777), (387, 11852), (434, 12068),

Gene: AlexMinion_16 Start: 9820, Stop: 12108, Start Num: 5

Candidate Starts for AlexMinion_16:

(Start: 5 @9820 has 49 MA's), (9, 9853), (Start: 13 @9862 has 16 MA's), (15, 9871), (31, 9973), (40, 10015), (57, 10153), (64, 10207), (89, 10351), (91, 10369), (95, 10393), (101, 10435), (113, 10516), (114, 10519), (115, 10528), (118, 10540), (120, 10549), (138, 10660), (141, 10690), (147, 10729),

(166, 10858), (173, 10882), (178, 10903), (197, 10975), (199, 10981), (203, 11005), (213, 11059), (214, 11062), (215, 11071), (224, 11119), (228, 11140), (268, 11305), (325, 11524), (327, 11536), (337, 11599), (352, 11710), (366, 11776), (370, 11788), (372, 11809), (386, 11881), (387, 11884), (414, 11986), (427, 12043), (434, 12097), (435, 12100),

Gene: Amanises_17 Start: 10381, Stop: 12531, Start Num: 5

Candidate Starts for Amanises_17:

(Start: 5 @10381 has 49 MA's), (9, 10417), (15, 10435), (18, 10456), (40, 10576), (49, 10627), (61, 10747), (78, 10843), (89, 10912), (91, 10930), (95, 10954), (101, 10996), (113, 11077), (114, 11080), (115, 11089), (118, 11101), (138, 11221), (141, 11251), (148, 11293), (164, 11407), (166, 11419), (176, 11455), (196, 11533), (199, 11542), (215, 11632), (224, 11680), (228, 11701), (234, 11734), (251, 11794), (307, 11863), (310, 11878), (336, 12019), (352, 12139), (372, 12238), (393, 12325), (414, 12409), (427, 12466), (434, 12520),

Gene: Amelia_17 Start: 10375, Stop: 12510, Start Num: 5

Candidate Starts for Amelia_17:

(Start: 5 @10375 has 49 MA's), (9, 10408), (12, 10414), (15, 10426), (33, 10531), (57, 10696), (59, 10717), (79, 10831), (89, 10894), (95, 10936), (99, 10957), (101, 10978), (113, 11059), (114, 11062), (115, 11071), (118, 11083), (119, 11086), (138, 11203), (141, 11233), (148, 11275), (150, 11284), (166, 11401), (175, 11434), (182, 11461), (188, 11485), (191, 11497), (194, 11506), (196, 11515), (204, 11554), (211, 11590), (213, 11602), (215, 11614), (219, 11635), (224, 11662), (230, 11695), (233, 11710), (313, 11872), (317, 11896), (325, 11935), (331, 11971), (347, 12079), (355, 12133), (370, 12199), (372, 12220), (414, 12391), (424, 12424), (425, 12436), (433, 12481), (434, 12502),

Gene: AmiCi24_15 Start: 9786, Stop: 12074, Start Num: 5

Candidate Starts for AmiCi24_15:

(Start: 5 @9786 has 49 MA's), (7, 9798), (9, 9819), (Start: 13 @9828 has 16 MA's), (15, 9837), (31, 9939), (40, 9981), (57, 10119), (64, 10173), (69, 10203), (86, 10305), (89, 10317), (91, 10335), (95, 10359), (99, 10380), (101, 10401), (113, 10482), (114, 10485), (115, 10494), (118, 10506), (138, 10626), (141, 10656), (148, 10698), (166, 10824), (173, 10848), (178, 10869), (190, 10917), (194, 10929), (197, 10941), (200, 10950), (204, 10977), (211, 11013), (213, 11025), (214, 11028), (215, 11037), (224, 11085), (228, 11106), (268, 11271), (311, 11418), (313, 11427), (325, 11490), (327, 11502), (337, 11565), (355, 11688), (368, 11748), (370, 11754), (372, 11775), (387, 11850), (434, 12066),

Gene: Amphitrite_15 Start: 9786, Stop: 12074, Start Num: 5

Candidate Starts for Amphitrite_15:

(Start: 5 @9786 has 49 MA's), (7, 9798), (9, 9819), (Start: 13 @9828 has 16 MA's), (15, 9837), (31, 9939), (40, 9981), (57, 10119), (64, 10173), (69, 10203), (86, 10305), (89, 10317), (91, 10335), (95, 10359), (99, 10380), (101, 10401), (113, 10482), (114, 10485), (115, 10494), (118, 10506), (138, 10626), (141, 10656), (148, 10698), (166, 10824), (173, 10848), (178, 10869), (190, 10917), (194, 10929), (197, 10941), (200, 10950), (204, 10977), (211, 11013), (213, 11025), (214, 11028), (215, 11037), (224, 11085), (228, 11106), (268, 11271), (311, 11418), (313, 11427), (325, 11490), (327, 11502), (337, 11565), (344, 11613), (355, 11688), (368, 11748), (370, 11754), (372, 11775), (434, 12066),

Gene: Andrew_16 Start: 10166, Stop: 12529, Start Num: 6

Candidate Starts for Andrew_16:

(Start: 6 @10166 has 2 MA's), (9, 10199), (27, 10328), (32, 10358), (37, 10379), (38, 10385), (43, 10409), (57, 10541), (60, 10565), (63, 10583), (76, 10661), (83, 10694), (86, 10730), (87, 10736), (90, 10751), (91, 10760), (98, 10796), (103, 10850), (104, 10856), (109, 10892), (110, 10901), (112, 10913), (118, 10943), (126, 10997), (132, 11042), (142, 11099), (147, 11135), (152, 11168), (155, 11180), (166, 11279), (171, 11294), (176, 11315), (188, 11363), (204, 11432), (206, 11438), (213,

11480), (215, 11492), (220, 11516), (224, 11540), (230, 11573), (231, 11576), (268, 11726), (311, 11873), (313, 11882), (314, 11885), (317, 11906), (325, 11945), (328, 11966), (336, 12011), (337, 12020), (341, 12044), (352, 12131), (355, 12143), (369, 12206), (372, 12230), (400, 12347), (410, 12389), (414, 12407), (425, 12452), (433, 12497), (434, 12518),

Gene: Antrice_16 Start: 10127, Stop: 12421, Start Num: 5

Candidate Starts for Antrice_16:

(Start: 5 @10127 has 49 MA's), (9, 10163), (Start: 13 @10172 has 16 MA's), (15, 10181), (37, 10316), (41, 10331), (55, 10442), (64, 10520), (69, 10550), (76, 10583), (86, 10652), (89, 10664), (95, 10706), (101, 10748), (115, 10841), (118, 10853), (119, 10856), (129, 10928), (138, 10973), (141, 11003), (144, 11012), (166, 11171), (174, 11198), (188, 11255), (194, 11276), (200, 11297), (203, 11318), (215, 11384), (219, 11405), (224, 11432), (230, 11465), (231, 11468), (237, 11498), (268, 11618), (306, 11744), (313, 11774), (317, 11798), (325, 11837), (328, 11858), (331, 11873), (339, 11927), (352, 12023), (355, 12035), (366, 12089), (370, 12101), (372, 12122), (384, 12185), (387, 12197), (395, 12212), (397, 12224), (424, 12332), (433, 12389),

Gene: Antuna_22 Start: 11505, Stop: 13703, Start Num: 13

Candidate Starts for Antuna_22:

(Start: 13 @11505 has 16 MA's), (24, 11580), (34, 11631), (40, 11658), (52, 11751), (57, 11808), (63, 11850), (67, 11883), (69, 11895), (79, 11946), (80, 11949), (82, 11958), (83, 11961), (86, 11997), (87, 12003), (88, 12006), (90, 12018), (91, 12027), (95, 12051), (108, 12150), (118, 12210), (124, 12249), (126, 12264), (134, 12321), (156, 12459), (158, 12489), (160, 12501), (163, 12525), (164, 12534), (169, 12555), (170, 12558), (173, 12570), (177, 12588), (188, 12630), (196, 12660), (223, 12801), (234, 12858), (250, 12924), (271, 12984), (272, 12993), (291, 13056), (308, 13122), (385, 13473), (394, 13497), (404, 13536), (409, 13557),

Gene: Appa_21 Start: 11367, Stop: 13565, Start Num: 13

Candidate Starts for Appa_21:

(Start: 13 @11367 has 16 MA's), (24, 11442), (34, 11493), (40, 11520), (52, 11613), (57, 11670), (63, 11712), (67, 11745), (69, 11757), (79, 11808), (80, 11811), (82, 11820), (83, 11823), (86, 11859), (87, 11865), (88, 11868), (90, 11880), (91, 11889), (95, 11913), (108, 12012), (118, 12072), (124, 12111), (126, 12126), (134, 12183), (156, 12321), (158, 12351), (160, 12363), (163, 12387), (164, 12396), (169, 12417), (170, 12420), (173, 12432), (177, 12450), (188, 12492), (196, 12522), (223, 12663), (234, 12720), (250, 12786), (271, 12846), (272, 12855), (291, 12918), (308, 12984), (322, 13017), (385, 13335), (394, 13359), (404, 13398), (409, 13419),

Gene: Atlantica_15 Start: 9788, Stop: 12076, Start Num: 5

Candidate Starts for Atlantica_15:

(Start: 5 @9788 has 49 MA's), (7, 9800), (9, 9821), (Start: 13 @9830 has 16 MA's), (15, 9839), (31, 9941), (40, 9983), (57, 10121), (64, 10175), (69, 10205), (86, 10307), (89, 10319), (91, 10337), (95, 10361), (99, 10382), (101, 10403), (113, 10484), (114, 10487), (115, 10496), (118, 10508), (138, 10628), (141, 10658), (148, 10700), (166, 10826), (173, 10850), (178, 10871), (190, 10919), (194, 10931), (197, 10943), (200, 10952), (204, 10979), (211, 11015), (213, 11027), (214, 11030), (215, 11039), (224, 11087), (228, 11108), (268, 11273), (311, 11420), (313, 11429), (325, 11492), (337, 11567), (355, 11690), (368, 11750), (370, 11756), (372, 11777), (387, 11852), (434, 12068),

Gene: Austintatious_16 Start: 9780, Stop: 12197, Start Num: 1

Candidate Starts for Austintatious_16:

(Start: 1 @9780 has 7 MA's), (2, 9792), (4, 9846), (8, 9867), (41, 10041), (44, 10062), (51, 10119), (54, 10152), (66, 10254), (74, 10296), (82, 10338), (83, 10341), (85, 10353), (96, 10431), (103, 10494), (112, 10557), (116, 10575), (118, 10587), (126, 10641), (127, 10650), (133, 10695), (134, 10698), (147, 10779), (159, 10866), (160, 10869), (167, 10917), (172, 10935), (178, 10953), (181, 10965), (208, 11076), (217, 11133), (226, 11169), (229, 11190), (236, 11223), (237, 11229), (246, 11262),

(250, 11283), (259, 11316), (266, 11340), (321, 11538), (364, 11796), (371, 11817), (375, 11841), (379, 11862), (392, 11916), (408, 11982), (411, 11994), (422, 12039),

Gene: Azaz_15 Start: 9839, Stop: 12127, Start Num: 5

Candidate Starts for Azaz_15:

(Start: 5 @9839 has 49 MA's), (7, 9851), (9, 9872), (Start: 13 @9881 has 16 MA's), (15, 9890), (31, 9992), (40, 10034), (57, 10172), (64, 10226), (69, 10256), (89, 10370), (91, 10388), (95, 10412), (99, 10433), (101, 10454), (113, 10535), (114, 10538), (115, 10547), (118, 10559), (138, 10679), (141, 10709), (148, 10751), (166, 10877), (173, 10901), (178, 10922), (197, 10994), (204, 11030), (211, 11066), (213, 11078), (215, 11090), (219, 11111), (224, 11138), (228, 11159), (268, 11324), (311, 11471), (313, 11480), (325, 11543), (327, 11555), (337, 11618), (355, 11741), (368, 11801), (370, 11807), (372, 11828), (387, 11903), (434, 12119),

Gene: Babushka_15 Start: 9836, Stop: 12124, Start Num: 5

Candidate Starts for Babushka_15:

(Start: 5 @9836 has 49 MA's), (7, 9848), (9, 9869), (Start: 13 @9878 has 16 MA's), (15, 9887), (31, 9989), (40, 10031), (41, 10034), (57, 10169), (59, 10190), (64, 10223), (86, 10355), (89, 10367), (91, 10385), (95, 10409), (99, 10430), (101, 10451), (113, 10532), (114, 10535), (115, 10544), (118, 10556), (138, 10676), (141, 10706), (148, 10748), (166, 10874), (173, 10898), (178, 10919), (190, 10967), (197, 10991), (204, 11027), (211, 11063), (213, 11075), (215, 11087), (219, 11108), (224, 11135), (311, 11468), (313, 11477), (325, 11540), (337, 11615), (372, 11825), (387, 11900), (434, 12116),

Gene: Basilisk_16 Start: 10798, Stop: 13203, Start Num: 5

Candidate Starts for Basilisk_16:

(Start: 5 @10798 has 49 MA's), (9, 10834), (15, 10852), (20, 10888), (29, 10963), (38, 11008), (51, 11095), (52, 11107), (72, 11266), (74, 11275), (92, 11383), (93, 11389), (103, 11470), (111, 11524), (119, 11563), (147, 11764), (153, 11800), (158, 11854), (167, 11914), (168, 11917), (175, 11944), (183, 11974), (196, 12028), (204, 12067), (208, 12085), (211, 12103), (219, 12151), (228, 12196), (241, 12256), (244, 12268), (248, 12289), (249, 12292), (258, 12325), (260, 12328), (262, 12334), (263, 12343), (267, 12355), (269, 12361), (273, 12376), (276, 12385), (294, 12439), (296, 12457), (301, 12490), (311, 12559), (313, 12568), (314, 12571), (317, 12592), (324, 12628), (335, 12688), (337, 12706), (372, 12916), (414, 13081), (427, 13138),

Gene: Bedetta_17 Start: 10375, Stop: 12510, Start Num: 5

Candidate Starts for Bedetta_17:

(Start: 5 @10375 has 49 MA's), (9, 10408), (12, 10414), (15, 10426), (33, 10531), (57, 10696), (59, 10717), (79, 10831), (89, 10894), (95, 10936), (99, 10957), (101, 10978), (113, 11059), (114, 11062), (115, 11071), (118, 11083), (119, 11086), (138, 11203), (141, 11233), (148, 11275), (150, 11284), (166, 11401), (175, 11434), (182, 11461), (188, 11485), (191, 11497), (194, 11506), (196, 11515), (204, 11554), (211, 11590), (213, 11602), (215, 11614), (219, 11635), (224, 11662), (230, 11695), (233, 11710), (313, 11872), (317, 11896), (325, 11935), (331, 11971), (347, 12079), (355, 12133), (370, 12199), (372, 12220), (414, 12391), (424, 12424), (425, 12436), (433, 12481), (434, 12502),

Gene: Bible12_17 Start: 10378, Stop: 12513, Start Num: 5

Candidate Starts for Bible12_17:

(Start: 5 @10378 has 49 MA's), (9, 10411), (12, 10417), (15, 10429), (33, 10534), (42, 10567), (57, 10699), (59, 10720), (79, 10834), (89, 10897), (95, 10939), (99, 10960), (101, 10981), (113, 11062), (114, 11065), (115, 11074), (118, 11086), (119, 11089), (138, 11206), (141, 11236), (148, 11278), (150, 11287), (166, 11404), (175, 11437), (182, 11464), (188, 11488), (191, 11500), (194, 11509), (196, 11518), (204, 11557), (211, 11593), (213, 11605), (215, 11617), (219, 11638), (224, 11665), (230, 11698), (233, 11713), (313, 11875), (317, 11899), (325, 11938), (331, 11974), (347, 12082), (355, 12136), (370, 12202), (372, 12223), (414, 12394), (424, 12427), (425, 12439), (433, 12484),

(434, 12505),

Gene: Bioscum_16 Start: 9816, Stop: 12233, Start Num: 1

Candidate Starts for Bioscum_16:

(Start: 1 @9816 has 7 MA's), (2, 9828), (4, 9882), (8, 9903), (41, 10077), (44, 10098), (51, 10155), (54, 10188), (66, 10290), (74, 10332), (82, 10374), (83, 10377), (85, 10389), (96, 10467), (103, 10530), (112, 10593), (116, 10611), (118, 10623), (126, 10677), (127, 10686), (133, 10731), (134, 10734), (147, 10815), (159, 10902), (160, 10905), (167, 10953), (172, 10971), (178, 10989), (181, 11001), (208, 11112), (217, 11169), (226, 11205), (229, 11226), (236, 11259), (237, 11265), (250, 11319), (259, 11352), (266, 11376), (321, 11574), (364, 11832), (371, 11853), (375, 11877), (379, 11898), (392, 11952), (408, 12018), (411, 12030), (422, 12075),

Gene: Blett_22 Start: 11520, Stop: 13718, Start Num: 13

Candidate Starts for Blett_22:

(Start: 13 @11520 has 16 MA's), (24, 11595), (34, 11646), (40, 11673), (52, 11766), (57, 11823), (63, 11865), (67, 11898), (69, 11910), (79, 11961), (80, 11964), (82, 11973), (83, 11976), (86, 12012), (87, 12018), (88, 12021), (90, 12033), (91, 12042), (95, 12066), (108, 12165), (118, 12225), (124, 12264), (126, 12279), (134, 12336), (156, 12474), (158, 12504), (160, 12516), (163, 12540), (164, 12549), (169, 12570), (170, 12573), (173, 12585), (177, 12603), (188, 12645), (196, 12675), (222, 12804), (234, 12873), (250, 12939), (271, 12999), (272, 13008), (291, 13071), (308, 13137), (322, 13170), (385, 13488), (394, 13512), (404, 13551), (409, 13572),

Gene: Brynnie_16 Start: 10610, Stop: 13015, Start Num: 5

Candidate Starts for Brynnie_16:

(Start: 5 @10610 has 49 MA's), (9, 10646), (15, 10664), (20, 10700), (29, 10775), (38, 10820), (51, 10907), (52, 10919), (72, 11078), (74, 11087), (92, 11195), (93, 11201), (103, 11282), (111, 11336), (119, 11375), (131, 11468), (147, 11576), (153, 11612), (158, 11666), (167, 11726), (168, 11729), (175, 11756), (183, 11786), (196, 11840), (204, 11879), (208, 11897), (211, 11915), (219, 11963), (228, 12008), (240, 12065), (241, 12068), (244, 12080), (248, 12101), (249, 12104), (258, 12137), (260, 12140), (262, 12146), (263, 12155), (267, 12167), (269, 12173), (273, 12188), (276, 12197), (294, 12251), (296, 12269), (301, 12302), (311, 12371), (313, 12380), (314, 12383), (317, 12404), (324, 12440), (335, 12500), (337, 12518), (372, 12728), (414, 12893), (427, 12950),

Gene: Bush_22 Start: 11501, Stop: 13699, Start Num: 13

Candidate Starts for Bush_22:

(Start: 13 @11501 has 16 MA's), (24, 11576), (34, 11627), (40, 11654), (52, 11747), (57, 11804), (63, 11846), (67, 11879), (69, 11891), (79, 11942), (80, 11945), (82, 11954), (83, 11957), (86, 11993), (87, 11999), (88, 12002), (90, 12014), (91, 12023), (95, 12047), (108, 12146), (118, 12206), (124, 12245), (126, 12260), (147, 12398), (149, 12404), (156, 12455), (158, 12485), (160, 12497), (163, 12521), (164, 12530), (169, 12551), (170, 12554), (173, 12566), (177, 12584), (188, 12626), (196, 12656), (223, 12797), (234, 12854), (250, 12920), (271, 12980), (272, 12989), (291, 13052), (308, 13118), (322, 13151), (385, 13469), (394, 13493), (404, 13532), (409, 13553),

Gene: Camara_15 Start: 9789, Stop: 12077, Start Num: 5

Candidate Starts for Camara_15:

(Start: 5 @9789 has 49 MA's), (7, 9801), (9, 9822), (Start: 13 @9831 has 16 MA's), (15, 9840), (31, 9942), (40, 9984), (57, 10122), (64, 10176), (69, 10206), (86, 10308), (89, 10320), (91, 10338), (95, 10362), (99, 10383), (101, 10404), (113, 10485), (114, 10488), (115, 10497), (118, 10509), (138, 10629), (141, 10659), (148, 10701), (166, 10827), (173, 10851), (178, 10872), (190, 10920), (194, 10932), (197, 10944), (200, 10953), (204, 10980), (211, 11016), (213, 11028), (214, 11031), (215, 11040), (224, 11088), (228, 11109), (268, 11274), (311, 11421), (313, 11430), (325, 11493), (327, 11505), (337, 11568), (344, 11616), (355, 11691), (368, 11751), (370, 11757), (372, 11778), (387, 11853), (434, 12069),

Gene: Carrillo_23 Start: 11474, Stop: 13672, Start Num: 13

Candidate Starts for Carrillo_23:

(Start: 13 @11474 has 16 MA's), (24, 11549), (34, 11600), (40, 11627), (52, 11720), (57, 11777), (63, 11819), (67, 11852), (69, 11864), (79, 11915), (80, 11918), (82, 11927), (83, 11930), (86, 11966), (87, 11972), (88, 11975), (90, 11987), (91, 11996), (95, 12020), (108, 12119), (118, 12179), (124, 12218), (126, 12233), (134, 12290), (156, 12428), (158, 12458), (160, 12470), (163, 12494), (164, 12503), (169, 12524), (170, 12527), (173, 12539), (177, 12557), (188, 12599), (196, 12629), (223, 12770), (234, 12827), (250, 12893), (271, 12953), (272, 12962), (291, 13025), (308, 13091), (335, 13172), (385, 13442), (394, 13466), (404, 13505), (409, 13526),

Gene: Chickaboom_15 Start: 10149, Stop: 12554, Start Num: 5

Candidate Starts for Chickaboom_15:

(Start: 5 @10149 has 49 MA's), (9, 10185), (15, 10203), (20, 10239), (29, 10314), (38, 10359), (51, 10446), (52, 10458), (72, 10617), (74, 10626), (92, 10734), (103, 10821), (111, 10875), (119, 10914), (125, 10953), (153, 11151), (158, 11205), (168, 11268), (169, 11271), (175, 11295), (197, 11382), (204, 11418), (228, 11547), (240, 11604), (241, 11607), (249, 11643), (254, 11661), (258, 11676), (260, 11679), (262, 11685), (263, 11694), (267, 11706), (269, 11712), (273, 11727), (276, 11736), (282, 11754), (288, 11778), (294, 11790), (296, 11808), (301, 11841), (311, 11910), (313, 11919), (314, 11922), (317, 11943), (324, 11979), (335, 12039), (337, 12057), (372, 12267), (414, 12432),

Gene: Chicken_16 Start: 10182, Stop: 12410, Start Num: 5

Candidate Starts for Chicken_16:

(Start: 5 @10182 has 49 MA's), (7, 10197), (9, 10218), (20, 10272), (27, 10347), (32, 10377), (33, 10380), (44, 10434), (57, 10560), (60, 10584), (61, 10593), (63, 10602), (75, 10674), (76, 10680), (82, 10710), (83, 10713), (86, 10749), (90, 10770), (94, 10791), (98, 10815), (103, 10869), (104, 10875), (106, 10881), (109, 10911), (110, 10920), (118, 10962), (126, 11016), (132, 11061), (155, 11199), (158, 11241), (162, 11271), (171, 11313), (178, 11343), (197, 11415), (200, 11424), (203, 11445), (215, 11511), (224, 11559), (225, 11562), (231, 11595), (272, 11673), (307, 11742), (331, 11868), (335, 11889), (336, 11898), (368, 12090), (369, 12093), (372, 12117), (414, 12288), (427, 12345), (434, 12399),

Gene: Chymera_17 Start: 10951, Stop: 12987, Start Num: 16

Candidate Starts for Chymera_17:

(3, 10852), (Start: 16 @10951 has 1 MA's), (21, 10987), (39, 11086), (42, 11095), (44, 11113), (54, 11203), (59, 11260), (61, 11272), (66, 11305), (67, 11314), (74, 11347), (94, 11470), (95, 11482), (97, 11491), (98, 11494), (104, 11554), (105, 11557), (107, 11569), (126, 11695), (144, 11803), (146, 11821), (151, 11854), (156, 11887), (160, 11929), (163, 11953), (165, 11965), (168, 11980), (180, 12019), (191, 12061), (192, 12064), (202, 12103), (207, 12124), (209, 12136), (210, 12139), (222, 12208), (308, 12475), (337, 12574), (350, 12661), (356, 12691), (376, 12763), (401, 12841), (412, 12883), (413, 12886),

Gene: Colusalem_16 Start: 10214, Stop: 12349, Start Num: 5

Candidate Starts for Colusalem_16:

(Start: 5 @10214 has 49 MA's), (9, 10247), (12, 10253), (15, 10265), (33, 10370), (57, 10535), (59, 10556), (79, 10670), (89, 10733), (95, 10775), (99, 10796), (101, 10817), (113, 10898), (114, 10901), (115, 10910), (118, 10922), (119, 10925), (138, 11042), (141, 11072), (148, 11114), (150, 11123), (166, 11240), (175, 11273), (182, 11300), (188, 11324), (191, 11336), (194, 11345), (196, 11354), (204, 11393), (211, 11429), (213, 11441), (215, 11453), (219, 11474), (224, 11501), (230, 11534), (233, 11549), (313, 11711), (317, 11735), (325, 11774), (331, 11810), (347, 11918), (355, 11972), (370, 12038), (372, 12059), (414, 12230), (424, 12263), (425, 12275), (433, 12320), (434, 12341),

Gene: CookieDog_22 Start: 11501, Stop: 13699, Start Num: 13

Candidate Starts for CookieDog_22:

(Start: 13 @11501 has 16 MA's), (24, 11576), (34, 11627), (40, 11654), (52, 11747), (63, 11846), (67, 11879), (69, 11891), (79, 11942), (80, 11945), (82, 11954), (83, 11957), (86, 11993), (87, 11999), (88, 12002), (90, 12014), (91, 12023), (95, 12047), (108, 12146), (118, 12206), (124, 12245), (126, 12260), (147, 12398), (149, 12404), (156, 12455), (158, 12485), (160, 12497), (163, 12521), (164, 12530), (169, 12551), (170, 12554), (173, 12566), (177, 12584), (188, 12626), (196, 12656), (223, 12797), (234, 12854), (250, 12920), (271, 12980), (272, 12989), (291, 13052), (308, 13118), (335, 13199), (385, 13469), (394, 13493), (404, 13532), (409, 13553),

Gene: Coral_16 Start: 10214, Stop: 12349, Start Num: 5

Candidate Starts for Coral_16:

(Start: 5 @10214 has 49 MA's), (9, 10247), (12, 10253), (15, 10265), (33, 10370), (57, 10535), (59, 10556), (79, 10670), (89, 10733), (95, 10775), (99, 10796), (101, 10817), (113, 10898), (114, 10901), (115, 10910), (118, 10922), (119, 10925), (138, 11042), (141, 11072), (148, 11114), (150, 11123), (166, 11240), (175, 11273), (182, 11300), (188, 11324), (191, 11336), (194, 11345), (196, 11354), (204, 11393), (211, 11429), (213, 11441), (215, 11453), (219, 11474), (224, 11501), (230, 11534), (233, 11549), (313, 11711), (317, 11735), (325, 11774), (331, 11810), (347, 11918), (355, 11972), (370, 12038), (372, 12059), (414, 12230), (424, 12263), (425, 12275), (433, 12320), (434, 12341),

Gene: Cote_17 Start: 10375, Stop: 12510, Start Num: 5

Candidate Starts for Cote_17:

(Start: 5 @10375 has 49 MA's), (9, 10408), (12, 10414), (15, 10426), (33, 10531), (57, 10696), (59, 10717), (79, 10831), (89, 10894), (95, 10936), (99, 10957), (101, 10978), (113, 11059), (114, 11062), (115, 11071), (118, 11083), (119, 11086), (138, 11203), (141, 11233), (148, 11275), (150, 11284), (166, 11401), (175, 11434), (182, 11461), (188, 11485), (191, 11497), (194, 11506), (196, 11515), (204, 11554), (211, 11590), (213, 11602), (215, 11614), (219, 11635), (224, 11662), (230, 11695), (233, 11710), (313, 11872), (317, 11896), (325, 11935), (331, 11971), (347, 12079), (355, 12133), (370, 12199), (372, 12220), (414, 12391), (424, 12424), (425, 12436), (433, 12481), (434, 12502),

Gene: Cygnet_16 Start: 10164, Stop: 12530, Start Num: 5

Candidate Starts for Cygnet_16:

(Start: 5 @10164 has 49 MA's), (7, 10179), (9, 10200), (28, 10332), (41, 10395), (50, 10455), (53, 10494), (56, 10533), (58, 10554), (60, 10566), (61, 10575), (63, 10584), (75, 10656), (76, 10662), (83, 10695), (86, 10731), (87, 10737), (90, 10752), (98, 10797), (103, 10851), (104, 10857), (109, 10893), (110, 10902), (118, 10944), (126, 10998), (132, 11043), (152, 11169), (155, 11181), (158, 11223), (162, 11253), (166, 11280), (188, 11364), (194, 11385), (199, 11403), (209, 11454), (211, 11469), (213, 11481), (215, 11493), (216, 11502), (224, 11541), (230, 11574), (231, 11577), (246, 11640), (268, 11727), (301, 11805), (306, 11853), (325, 11946), (328, 11967), (331, 11982), (339, 12036), (366, 12198), (370, 12210), (372, 12231), (380, 12264), (384, 12294), (403, 12354), (427, 12465), (433, 12498),

Gene: Damocles_17 Start: 10375, Stop: 12510, Start Num: 5

Candidate Starts for Damocles_17:

(Start: 5 @10375 has 49 MA's), (9, 10408), (12, 10414), (15, 10426), (33, 10531), (57, 10696), (59, 10717), (79, 10831), (89, 10894), (95, 10936), (99, 10957), (101, 10978), (113, 11059), (114, 11062), (115, 11071), (118, 11083), (119, 11086), (138, 11203), (141, 11233), (148, 11275), (150, 11284), (166, 11401), (175, 11434), (182, 11461), (188, 11485), (191, 11497), (194, 11506), (196, 11515), (204, 11554), (211, 11590), (213, 11602), (215, 11614), (219, 11635), (224, 11662), (230, 11695), (233, 11710), (313, 11872), (317, 11896), (325, 11935), (331, 11971), (347, 12079), (355, 12133), (370, 12199), (372, 12220), (414, 12391), (424, 12424), (425, 12436), (433, 12481), (434, 12502),

Gene: DanHam62_15 Start: 9788, Stop: 12076, Start Num: 5

Candidate Starts for DanHam62_15:

(Start: 5 @9788 has 49 MA's), (7, 9800), (9, 9821), (Start: 13 @9830 has 16 MA's), (15, 9839), (31, 9941), (40, 9983), (57, 10121), (64, 10175), (69, 10205), (86, 10307), (89, 10319), (91, 10337), (95, 10361), (99, 10382), (101, 10403), (113, 10484), (114, 10487), (115, 10496), (118, 10508), (138, 10628), (141, 10658), (148, 10700), (166, 10826), (173, 10850), (178, 10871), (190, 10919), (194, 10931), (197, 10943), (200, 10952), (204, 10979), (211, 11015), (213, 11027), (214, 11030), (215, 11039), (224, 11087), (228, 11108), (268, 11273), (311, 11420), (313, 11429), (325, 11492), (337, 11567), (355, 11690), (368, 11750), (370, 11756), (372, 11777), (387, 11852), (434, 12068),

Gene: Daob_17 Start: 10378, Stop: 12513, Start Num: 5

Candidate Starts for Daob_17:

(Start: 5 @10378 has 49 MA's), (9, 10411), (12, 10417), (15, 10429), (33, 10534), (57, 10699), (59, 10720), (79, 10834), (89, 10897), (95, 10939), (99, 10960), (101, 10981), (113, 11062), (114, 11065), (115, 11074), (118, 11086), (119, 11089), (138, 11206), (141, 11236), (148, 11278), (150, 11287), (166, 11404), (175, 11437), (182, 11464), (188, 11488), (191, 11500), (194, 11509), (196, 11518), (204, 11557), (211, 11593), (213, 11605), (215, 11617), (219, 11638), (224, 11665), (230, 11698), (233, 11713), (313, 11875), (317, 11899), (325, 11938), (331, 11974), (347, 12082), (355, 12136), (370, 12202), (372, 12223), (414, 12394), (424, 12427), (425, 12439), (433, 12484), (434, 12505),

Gene: DelaGarza_20 Start: 12031, Stop: 14265, Start Num: 13

Candidate Starts for DelaGarza_20:

(Start: 13 @12031 has 16 MA's), (14, 12037), (25, 12118), (26, 12130), (32, 12148), (35, 12157), (44, 12199), (45, 12205), (63, 12367), (65, 12382), (68, 12403), (69, 12412), (82, 12475), (94, 12556), (95, 12568), (102, 12616), (103, 12634), (108, 12667), (118, 12727), (126, 12781), (134, 12838), (156, 12976), (158, 13006), (160, 13018), (166, 13063), (184, 13132), (195, 13171), (201, 13195), (205, 13216), (216, 13282), (235, 13372), (238, 13381), (239, 13384), (253, 13435), (298, 13579), (313, 13675), (318, 13711), (323, 13732), (332, 13783), (335, 13798), (360, 13963), (362, 13972), (374, 14008), (385, 14065), (391, 14083), (396, 14098), (398, 14107),

Gene: Dropshot_21 Start: 11367, Stop: 13565, Start Num: 13

Candidate Starts for Dropshot_21:

(Start: 13 @11367 has 16 MA's), (24, 11442), (34, 11493), (40, 11520), (52, 11613), (57, 11670), (63, 11712), (67, 11745), (69, 11757), (79, 11808), (80, 11811), (82, 11820), (83, 11823), (86, 11859), (87, 11865), (88, 11868), (90, 11880), (91, 11889), (95, 11913), (108, 12012), (118, 12072), (124, 12111), (126, 12126), (134, 12183), (156, 12321), (158, 12351), (160, 12363), (163, 12387), (164, 12396), (169, 12417), (170, 12420), (173, 12432), (177, 12450), (188, 12492), (196, 12522), (223, 12663), (234, 12720), (250, 12786), (271, 12846), (272, 12855), (291, 12918), (308, 12984), (322, 13017), (385, 13335), (394, 13359), (404, 13398), (409, 13419),

Gene: Eesa_16 Start: 10396, Stop: 12624, Start Num: 5

Candidate Starts for Eesa_16:

(Start: 5 @10396 has 49 MA's), (7, 10411), (9, 10432), (20, 10486), (27, 10561), (32, 10591), (37, 10612), (44, 10648), (57, 10774), (60, 10798), (61, 10807), (63, 10816), (75, 10888), (83, 10927), (86, 10963), (90, 10984), (94, 11005), (98, 11029), (103, 11083), (104, 11089), (106, 11095), (109, 11125), (110, 11134), (118, 11176), (126, 11230), (132, 11275), (155, 11413), (158, 11455), (162, 11485), (171, 11527), (178, 11557), (194, 11617), (197, 11629), (200, 11638), (203, 11659), (215, 11725), (224, 11773), (228, 11794), (231, 11809), (234, 11827), (272, 11887), (336, 12112), (372, 12331), (414, 12502), (427, 12559), (434, 12613),

Gene: Euratis_12 Start: 8185, Stop: 10374, Start Num: 11

Candidate Starts for Euratis_12:

(Start: 11 @8185 has 9 MA's), (17, 8212), (23, 8242), (50, 8392), (54, 8443), (56, 8470), (62, 8518), (66, 8545), (70, 8569), (81, 8626), (82, 8629), (85, 8644), (96, 8722), (103, 8785), (110, 8836), (123, 8911), (126, 8932), (147, 9070), (157, 9127), (160, 9160), (171, 9220), (192, 9295), (206, 9355), (208,

9367), (217, 9424), (219, 9430), (221, 9439), (226, 9460), (229, 9481), (242, 9538), (248, 9568), (250, 9574), (253, 9589), (259, 9607), (266, 9631), (276, 9664), (279, 9673), (281, 9679), (298, 9685), (305, 9748), (312, 9778), (328, 9862), (334, 9895), (336, 9907), (357, 10048), (364, 10081), (369, 10093), (377, 10132), (384, 10177), (401, 10231), (405, 10255), (428, 10342),

Gene: Fingolfin_15 Start: 9789, Stop: 12077, Start Num: 5

Candidate Starts for Fingolfin_15:

(Start: 5 @9789 has 49 MA's), (7, 9801), (9, 9822), (Start: 13 @9831 has 16 MA's), (15, 9840), (31, 9942), (40, 9984), (57, 10122), (64, 10176), (69, 10206), (86, 10308), (89, 10320), (91, 10338), (95, 10362), (99, 10383), (101, 10404), (113, 10485), (114, 10488), (115, 10497), (118, 10509), (138, 10629), (141, 10659), (148, 10701), (166, 10827), (173, 10851), (178, 10872), (190, 10920), (194, 10932), (197, 10944), (200, 10953), (204, 10980), (211, 11016), (213, 11028), (214, 11031), (215, 11040), (224, 11088), (228, 11109), (268, 11274), (311, 11421), (313, 11430), (325, 11493), (337, 11568), (355, 11691), (368, 11751), (370, 11757), (372, 11778), (387, 11853), (434, 12069),

Gene: Gingerbug_18 Start: 11192, Stop: 13474, Start Num: 13

Candidate Starts for Gingerbug_18:

(Start: 13 @11192 has 16 MA's), (25, 11273), (26, 11285), (50, 11393), (56, 11471), (57, 11480), (59, 11501), (63, 11522), (65, 11537), (68, 11558), (82, 11630), (85, 11645), (94, 11711), (96, 11726), (98, 11735), (102, 11771), (103, 11789), (108, 11822), (118, 11882), (126, 11936), (133, 11990), (140, 12023), (149, 12080), (157, 12140), (158, 12161), (160, 12173), (161, 12185), (168, 12224), (170, 12230), (175, 12251), (177, 12260), (188, 12302), (191, 12314), (196, 12332), (215, 12428), (219, 12449), (223, 12473), (224, 12476), (228, 12497), (235, 12533), (250, 12596), (255, 12620), (288, 12752), (292, 12761), (313, 12884), (318, 12920), (330, 12983), (338, 13034), (340, 13046), (346, 13091), (367, 13190), (374, 13217), (396, 13307), (414, 13376),

Gene: Glotell_15 Start: 9786, Stop: 12074, Start Num: 5

Candidate Starts for Glotell_15:

(Start: 5 @9786 has 49 MA's), (7, 9798), (9, 9819), (Start: 13 @9828 has 16 MA's), (15, 9837), (31, 9939), (40, 9981), (57, 10119), (64, 10173), (69, 10203), (86, 10305), (89, 10317), (91, 10335), (95, 10359), (99, 10380), (101, 10401), (113, 10482), (114, 10485), (115, 10494), (118, 10506), (138, 10626), (141, 10656), (148, 10698), (166, 10824), (173, 10848), (178, 10869), (190, 10917), (194, 10929), (197, 10941), (200, 10950), (204, 10977), (211, 11013), (213, 11025), (214, 11028), (215, 11037), (224, 11085), (228, 11106), (268, 11271), (311, 11418), (313, 11427), (325, 11490), (327, 11502), (337, 11565), (355, 11688), (368, 11748), (370, 11754), (372, 11775), (387, 11850), (434, 12066),

Gene: GramZayde_16 Start: 10214, Stop: 12349, Start Num: 5

Candidate Starts for GramZayde_16:

(Start: 5 @10214 has 49 MA's), (9, 10247), (12, 10253), (15, 10265), (33, 10370), (57, 10535), (59, 10556), (79, 10670), (89, 10733), (95, 10775), (99, 10796), (101, 10817), (113, 10898), (114, 10901), (115, 10910), (118, 10922), (119, 10925), (138, 11042), (141, 11072), (148, 11114), (150, 11123), (166, 11240), (175, 11273), (182, 11300), (188, 11324), (191, 11336), (194, 11345), (196, 11354), (204, 11393), (211, 11429), (213, 11441), (215, 11453), (219, 11474), (224, 11501), (230, 11534), (233, 11549), (313, 11711), (317, 11735), (325, 11774), (331, 11810), (347, 11918), (355, 11972), (370, 12038), (372, 12059), (414, 12230), (424, 12263), (425, 12275), (433, 12320), (434, 12341),

Gene: Gravel_17 Start: 10380, Stop: 12530, Start Num: 5

Candidate Starts for Gravel_17:

(Start: 5 @10380 has 49 MA's), (9, 10416), (15, 10434), (18, 10455), (40, 10575), (49, 10626), (61, 10746), (78, 10842), (89, 10911), (91, 10929), (95, 10953), (101, 10995), (113, 11076), (114, 11079), (115, 11088), (118, 11100), (138, 11220), (141, 11250), (148, 11292), (164, 11406), (166, 11418), (176, 11454), (196, 11532), (199, 11541), (215, 11631), (224, 11679), (228, 11700), (234, 11733),

(251, 11793), (307, 11862), (310, 11877), (336, 12018), (372, 12237), (393, 12324), (414, 12408), (427, 12465), (434, 12519),

Gene: Guzman_23 Start: 11782, Stop: 13980, Start Num: 13

Candidate Starts for Guzman_23:

(Start: 13 @11782 has 16 MA's), (24, 11857), (34, 11908), (40, 11935), (52, 12028), (57, 12085), (63, 12127), (67, 12160), (69, 12172), (79, 12223), (80, 12226), (82, 12235), (83, 12238), (86, 12274), (87, 12280), (88, 12283), (90, 12295), (91, 12304), (95, 12328), (108, 12427), (118, 12487), (124, 12526), (126, 12541), (134, 12598), (156, 12736), (158, 12766), (160, 12778), (163, 12802), (164, 12811), (169, 12832), (170, 12835), (173, 12847), (177, 12865), (188, 12907), (196, 12937), (223, 13078), (234, 13135), (250, 13201), (271, 13261), (272, 13270), (291, 13333), (308, 13399), (335, 13480), (374, 13693), (385, 13750), (394, 13774), (404, 13813), (409, 13834),

Gene: HamCheese_15 Start: 9788, Stop: 12076, Start Num: 5

Candidate Starts for HamCheese_15:

(Start: 5 @9788 has 49 MA's), (7, 9800), (9, 9821), (Start: 13 @9830 has 16 MA's), (15, 9839), (31, 9941), (40, 9983), (57, 10121), (64, 10175), (69, 10205), (86, 10307), (89, 10319), (91, 10337), (95, 10361), (99, 10382), (101, 10403), (113, 10484), (114, 10487), (115, 10496), (118, 10508), (138, 10628), (141, 10658), (148, 10700), (166, 10826), (173, 10850), (178, 10871), (190, 10919), (194, 10931), (197, 10943), (200, 10952), (204, 10979), (211, 11015), (213, 11027), (214, 11030), (215, 11039), (224, 11087), (228, 11108), (268, 11273), (311, 11420), (313, 11429), (325, 11492), (327, 11504), (337, 11567), (344, 11615), (355, 11690), (368, 11750), (370, 11756), (372, 11777), (387, 11852), (434, 12068),

Gene: HannahPhantana_17 Start: 10378, Stop: 12513, Start Num: 5

Candidate Starts for HannahPhantana_17:

(Start: 5 @10378 has 49 MA's), (9, 10411), (12, 10417), (15, 10429), (33, 10534), (42, 10567), (57, 10699), (59, 10720), (79, 10834), (89, 10897), (95, 10939), (99, 10960), (101, 10981), (113, 11062), (114, 11065), (115, 11074), (118, 11086), (119, 11089), (138, 11206), (141, 11236), (148, 11278), (150, 11287), (166, 11404), (175, 11437), (182, 11464), (188, 11488), (191, 11500), (194, 11509), (196, 11518), (204, 11557), (211, 11593), (213, 11605), (215, 11617), (219, 11638), (224, 11665), (230, 11698), (233, 11713), (313, 11875), (317, 11899), (325, 11938), (331, 11974), (347, 12082), (355, 12136), (370, 12202), (372, 12223), (414, 12394), (424, 12427), (425, 12439), (433, 12484), (434, 12505),

Gene: Heather_12 Start: 8215, Stop: 10404, Start Num: 11

Candidate Starts for Heather_12:

(Start: 11 @8215 has 9 MA's), (42, 8365), (44, 8383), (50, 8422), (54, 8473), (56, 8500), (66, 8575), (70, 8599), (82, 8659), (96, 8752), (103, 8815), (110, 8866), (112, 8878), (126, 8962), (139, 9037), (144, 9070), (147, 9100), (157, 9157), (160, 9190), (245, 9580), (250, 9604), (259, 9637), (266, 9661), (276, 9694), (280, 9706), (336, 9937), (351, 10045), (357, 10078), (364, 10111), (384, 10207), (392, 10228), (417, 10324),

Gene: Ididsumtinwong_16 Start: 9816, Stop: 12233, Start Num: 1

Candidate Starts for Ididsumtinwong_16:

(Start: 1 @9816 has 7 MA's), (2, 9828), (4, 9882), (8, 9903), (41, 10077), (44, 10098), (51, 10155), (54, 10188), (66, 10290), (74, 10332), (82, 10374), (83, 10377), (85, 10389), (96, 10467), (103, 10530), (112, 10593), (116, 10611), (118, 10623), (126, 10677), (127, 10686), (133, 10731), (134, 10734), (147, 10815), (159, 10902), (160, 10905), (167, 10953), (172, 10971), (178, 10989), (181, 11001), (208, 11112), (217, 11169), (226, 11205), (229, 11226), (236, 11259), (237, 11265), (250, 11319), (259, 11352), (266, 11376), (321, 11574), (364, 11832), (371, 11853), (375, 11877), (379, 11898), (392, 11952), (408, 12018), (411, 12030), (422, 12075),

Gene: Jakelyne_24 Start: 11520, Stop: 13781, Start Num: 13

Candidate Starts for Jakelyne_24:

(Start: 13 @11520 has 16 MA's), (24, 11595), (34, 11646), (40, 11673), (52, 11766), (57, 11823), (63, 11865), (67, 11898), (69, 11910), (79, 11961), (80, 11964), (82, 11973), (83, 11976), (86, 12012), (87, 12018), (88, 12021), (90, 12033), (91, 12042), (95, 12066), (108, 12165), (118, 12225), (124, 12264), (126, 12279), (134, 12336), (156, 12474), (158, 12504), (160, 12516), (163, 12540), (164, 12549), (169, 12570), (170, 12573), (173, 12585), (177, 12603), (188, 12645), (196, 12675), (222, 12804), (234, 12873), (243, 12906), (250, 12939), (271, 12999), (272, 13008), (285, 13038), (294, 13098), (322, 13170), (335, 13218), (339, 13251), (346, 13302), (351, 13335), (353, 13368), (354, 13371), (367, 13446), (383, 13545), (385, 13551), (394, 13575), (404, 13614), (409, 13635),

Gene: Jamun_16 Start: 10816, Stop: 13221, Start Num: 5

Candidate Starts for Jamun_16:

(Start: 5 @10816 has 49 MA's), (9, 10852), (15, 10870), (20, 10906), (29, 10981), (38, 11026), (51, 11113), (52, 11125), (72, 11284), (74, 11293), (84, 11344), (92, 11401), (93, 11407), (103, 11488), (111, 11542), (119, 11581), (125, 11620), (153, 11818), (158, 11872), (167, 11932), (168, 11935), (175, 11962), (196, 12046), (204, 12085), (208, 12103), (211, 12121), (219, 12169), (228, 12214), (241, 12274), (244, 12286), (248, 12307), (249, 12310), (254, 12328), (258, 12343), (260, 12346), (262, 12352), (263, 12361), (267, 12373), (269, 12379), (273, 12394), (276, 12403), (282, 12421), (288, 12445), (294, 12457), (296, 12475), (301, 12508), (311, 12577), (313, 12586), (314, 12589), (317, 12610), (324, 12646), (335, 12706), (337, 12724), (372, 12934), (399, 13042), (414, 13099), (427, 13156),

Gene: Jerole_17 Start: 10375, Stop: 12510, Start Num: 5

Candidate Starts for Jerole_17:

(Start: 5 @10375 has 49 MA's), (9, 10408), (12, 10414), (15, 10426), (33, 10531), (57, 10696), (59, 10717), (79, 10831), (89, 10894), (95, 10936), (99, 10957), (101, 10978), (113, 11059), (114, 11062), (115, 11071), (118, 11083), (119, 11086), (138, 11203), (141, 11233), (148, 11275), (150, 11284), (166, 11401), (175, 11434), (182, 11461), (188, 11485), (191, 11497), (194, 11506), (196, 11515), (204, 11554), (211, 11590), (213, 11602), (215, 11614), (219, 11635), (224, 11662), (230, 11695), (233, 11710), (313, 11872), (317, 11896), (325, 11935), (331, 11971), (347, 12079), (355, 12133), (370, 12199), (372, 12220), (414, 12391), (424, 12424), (425, 12436), (433, 12481), (434, 12502),

Gene: Juno112_15 Start: 9789, Stop: 12077, Start Num: 5

Candidate Starts for Juno112_15:

(Start: 5 @9789 has 49 MA's), (7, 9801), (9, 9822), (Start: 13 @9831 has 16 MA's), (15, 9840), (31, 9942), (40, 9984), (57, 10122), (64, 10176), (69, 10206), (86, 10308), (89, 10320), (91, 10338), (95, 10362), (99, 10383), (101, 10404), (113, 10485), (114, 10488), (115, 10497), (118, 10509), (138, 10629), (141, 10659), (148, 10701), (166, 10827), (173, 10851), (178, 10872), (190, 10920), (194, 10932), (197, 10944), (200, 10953), (204, 10980), (211, 11016), (213, 11028), (214, 11031), (215, 11040), (224, 11088), (228, 11109), (268, 11274), (311, 11421), (313, 11430), (325, 11493), (337, 11568), (355, 11691), (368, 11751), (370, 11757), (372, 11778), (387, 11853), (434, 12069),

Gene: KHumphrey_15 Start: 9786, Stop: 12074, Start Num: 5

Candidate Starts for KHumphrey_15:

(Start: 5 @9786 has 49 MA's), (7, 9798), (9, 9819), (Start: 13 @9828 has 16 MA's), (15, 9837), (31, 9939), (40, 9981), (57, 10119), (64, 10173), (69, 10203), (86, 10305), (89, 10317), (91, 10335), (95, 10359), (99, 10380), (101, 10401), (113, 10482), (114, 10485), (115, 10494), (118, 10506), (138, 10626), (141, 10656), (148, 10698), (166, 10824), (173, 10848), (178, 10869), (190, 10917), (194, 10929), (197, 10941), (200, 10950), (204, 10977), (211, 11013), (213, 11025), (214, 11028), (215, 11037), (224, 11085), (228, 11106), (268, 11271), (311, 11418), (313, 11427), (325, 11490), (327, 11502), (337, 11565), (355, 11688), (368, 11748), (370, 11754), (372, 11775), (387, 11850), (434, 12066),

Gene: KendraB23_17 Start: 10381, Stop: 12531, Start Num: 5

Candidate Starts for KendraB23_17:

(Start: 5 @10381 has 49 MA's), (9, 10417), (15, 10435), (18, 10456), (40, 10576), (49, 10627), (61, 10747), (78, 10843), (89, 10912), (91, 10930), (95, 10954), (101, 10996), (113, 11077), (114, 11080), (115, 11089), (118, 11101), (138, 11221), (141, 11251), (148, 11293), (164, 11407), (166, 11419), (176, 11455), (196, 11533), (199, 11542), (215, 11632), (224, 11680), (228, 11701), (234, 11734), (251, 11794), (307, 11863), (310, 11878), (336, 12019), (372, 12238), (393, 12325), (414, 12409), (427, 12466), (434, 12520),

Gene: Kepler_16 Start: 10213, Stop: 12348, Start Num: 5

Candidate Starts for Kepler_16:

(Start: 5 @10213 has 49 MA's), (9, 10246), (12, 10252), (15, 10264), (33, 10369), (57, 10534), (59, 10555), (79, 10669), (89, 10732), (95, 10774), (99, 10795), (101, 10816), (113, 10897), (114, 10900), (115, 10909), (118, 10921), (119, 10924), (138, 11041), (141, 11071), (148, 11113), (150, 11122), (166, 11239), (175, 11272), (182, 11299), (188, 11323), (191, 11335), (194, 11344), (196, 11353), (204, 11392), (211, 11428), (213, 11440), (215, 11452), (219, 11473), (224, 11500), (230, 11533), (233, 11548), (313, 11710), (317, 11734), (325, 11773), (331, 11809), (347, 11917), (355, 11971), (370, 12037), (372, 12058), (414, 12229), (424, 12262), (425, 12274), (433, 12319), (434, 12340),

Gene: Kuleana_16 Start: 10172, Stop: 12535, Start Num: 6

Candidate Starts for Kuleana_16:

(Start: 6 @10172 has 2 MA's), (9, 10205), (27, 10334), (37, 10385), (50, 10460), (57, 10547), (60, 10571), (63, 10589), (76, 10667), (86, 10736), (87, 10742), (90, 10757), (98, 10802), (103, 10856), (104, 10862), (106, 10868), (109, 10898), (110, 10907), (118, 10949), (126, 11003), (132, 11048), (135, 11069), (152, 11174), (153, 11177), (155, 11186), (160, 11240), (162, 11258), (166, 11285), (171, 11300), (178, 11330), (190, 11378), (194, 11390), (204, 11438), (215, 11498), (216, 11507), (224, 11546), (230, 11579), (231, 11582), (233, 11594), (234, 11600), (268, 11732), (306, 11858), (325, 11951), (339, 12041), (366, 12203), (372, 12236), (380, 12269), (397, 12338), (398, 12344), (414, 12413), (433, 12503), (434, 12524),

Gene: Laphuphu24k_14 Start: 9788, Stop: 12076, Start Num: 5

Candidate Starts for Laphuphu24k_14:

(Start: 5 @9788 has 49 MA's), (7, 9800), (9, 9821), (Start: 13 @9830 has 16 MA's), (15, 9839), (31, 9941), (40, 9983), (57, 10121), (64, 10175), (69, 10205), (86, 10307), (89, 10319), (91, 10337), (95, 10361), (99, 10382), (101, 10403), (113, 10484), (114, 10487), (115, 10496), (118, 10508), (138, 10628), (141, 10658), (148, 10700), (166, 10826), (173, 10850), (178, 10871), (190, 10919), (194, 10931), (197, 10943), (200, 10952), (204, 10979), (211, 11015), (213, 11027), (214, 11030), (215, 11039), (224, 11087), (228, 11108), (268, 11273), (311, 11420), (313, 11429), (325, 11492), (327, 11504), (337, 11567), (344, 11615), (355, 11690), (368, 11750), (370, 11756), (372, 11777), (387, 11852), (434, 12068),

Gene: Leona_15 Start: 9839, Stop: 12127, Start Num: 5

Candidate Starts for Leona_15:

(Start: 5 @9839 has 49 MA's), (7, 9851), (9, 9872), (Start: 13 @9881 has 16 MA's), (15, 9890), (31, 9992), (40, 10034), (57, 10172), (64, 10226), (69, 10256), (89, 10370), (91, 10388), (95, 10412), (99, 10433), (101, 10454), (113, 10535), (114, 10538), (115, 10547), (118, 10559), (138, 10679), (141, 10709), (148, 10751), (166, 10877), (173, 10901), (178, 10922), (197, 10994), (204, 11030), (211, 11066), (213, 11078), (215, 11090), (219, 11111), (224, 11138), (228, 11159), (268, 11324), (311, 11471), (313, 11480), (325, 11543), (327, 11555), (337, 11618), (355, 11741), (368, 11801), (370, 11807), (372, 11828), (387, 11903), (434, 12119),

Gene: Lesiram_21 Start: 12001, Stop: 14235, Start Num: 13

Candidate Starts for Lesiram_21:

(Start: 13 @12001 has 16 MA's), (14, 12007), (25, 12088), (26, 12100), (32, 12118), (35, 12127), (44, 12169), (45, 12175), (63, 12337), (65, 12352), (68, 12373), (69, 12382), (82, 12445), (94, 12526), (95, 12538), (102, 12586), (103, 12604), (108, 12637), (118, 12697), (126, 12751), (134, 12808), (156, 12946), (158, 12976), (160, 12988), (166, 13033), (184, 13102), (195, 13141), (201, 13165), (205, 13186), (216, 13252), (235, 13342), (239, 13354), (253, 13405), (257, 13438), (313, 13645), (318, 13681), (323, 13702), (332, 13753), (335, 13768), (360, 13933), (362, 13942), (374, 13978), (385, 14035), (391, 14053), (396, 14068), (398, 14077),

Gene: Lilbooboo_12 Start: 8195, Stop: 10384, Start Num: 11

Candidate Starts for Lilbooboo_12:

(Start: 11 @8195 has 9 MA's), (17, 8222), (19, 8240), (44, 8363), (50, 8402), (54, 8453), (62, 8528), (66, 8555), (70, 8579), (71, 8585), (81, 8636), (82, 8639), (85, 8654), (96, 8732), (103, 8795), (110, 8846), (117, 8879), (121, 8900), (123, 8921), (126, 8942), (147, 9080), (160, 9170), (170, 9227), (177, 9251), (179, 9260), (192, 9305), (198, 9326), (217, 9434), (226, 9470), (229, 9491), (249, 9581), (250, 9584), (259, 9617), (266, 9641), (278, 9680), (280, 9686), (317, 9815), (328, 9872), (334, 9905), (335, 9908), (337, 9926), (342, 9959), (364, 10091), (384, 10187), (401, 10241), (428, 10352),

Gene: Lishka_16 Start: 9780, Stop: 12197, Start Num: 1

Candidate Starts for Lishka_16:

(Start: 1 @9780 has 7 MA's), (2, 9792), (4, 9846), (8, 9867), (41, 10041), (44, 10062), (51, 10119), (54, 10152), (66, 10254), (74, 10296), (82, 10338), (83, 10341), (85, 10353), (96, 10431), (103, 10494), (112, 10557), (116, 10575), (118, 10587), (126, 10641), (127, 10650), (133, 10695), (134, 10698), (147, 10779), (159, 10866), (160, 10869), (167, 10917), (172, 10935), (178, 10953), (181, 10965), (208, 11076), (217, 11133), (226, 11169), (229, 11190), (236, 11223), (237, 11229), (246, 11262), (250, 11283), (259, 11316), (266, 11340), (321, 11538), (364, 11796), (371, 11817), (375, 11841), (379, 11862), (392, 11916), (408, 11982), (411, 11994), (422, 12039),

Gene: LittleTokyo_16 Start: 10123, Stop: 12486, Start Num: 5

Candidate Starts for LittleTokyo_16:

(Start: 5 @10123 has 49 MA's), (7, 10138), (9, 10159), (Start: 13 @10168 has 16 MA's), (36, 10336), (40, 10351), (50, 10414), (53, 10453), (56, 10492), (57, 10501), (58, 10513), (60, 10525), (61, 10534), (63, 10543), (76, 10621), (83, 10654), (86, 10690), (90, 10711), (97, 10753), (98, 10756), (103, 10810), (104, 10816), (106, 10822), (109, 10852), (110, 10861), (118, 10903), (126, 10957), (132, 11002), (152, 11128), (155, 11140), (158, 11182), (162, 11212), (164, 11227), (166, 11239), (176, 11275), (189, 11326), (194, 11344), (199, 11362), (201, 11374), (209, 11413), (211, 11428), (212, 11437), (214, 11443), (215, 11452), (224, 11500), (230, 11533), (231, 11536), (268, 11686), (306, 11812), (313, 11842), (317, 11866), (325, 11905), (337, 11980), (343, 12025), (352, 12091), (366, 12157), (370, 12169), (372, 12190), (380, 12223), (384, 12253), (397, 12292), (398, 12298), (424, 12397), (433, 12454), (434, 12475),

Gene: Losacky_23 Start: 11647, Stop: 13845, Start Num: 13

Candidate Starts for Losacky_23:

(Start: 13 @11647 has 16 MA's), (24, 11722), (34, 11773), (40, 11800), (52, 11893), (57, 11950), (63, 11992), (67, 12025), (69, 12037), (79, 12088), (80, 12091), (82, 12100), (83, 12103), (86, 12139), (87, 12145), (88, 12148), (90, 12160), (91, 12169), (95, 12193), (108, 12292), (118, 12352), (124, 12391), (126, 12406), (134, 12463), (156, 12601), (158, 12631), (160, 12643), (163, 12667), (164, 12676), (169, 12697), (170, 12700), (173, 12712), (177, 12730), (188, 12772), (196, 12802), (223, 12943), (234, 13000), (250, 13066), (271, 13126), (272, 13135), (291, 13198), (308, 13264), (385, 13615), (394, 13639), (404, 13678), (409, 13699),

Gene: Lukepolites_18 Start: 13346, Stop: 15520, Start Num: 24

Candidate Starts for Lukepolites_18:

(24, 13346), (96, 13823), (104, 13892), (110, 13931), (128, 14039), (130, 14054), (137, 14084), (143, 14120), (146, 14144), (150, 14174), (153, 14195), (158, 14249), (173, 14330), (178, 14348), (258, 14711), (277, 14774), (279, 14780), (300, 14798), (303, 14813), (320, 14921), (327, 14954), (331, 14978), (333, 14987), (345, 15074), (348, 15092), (349, 15095), (363, 15182), (365, 15191), (372, 15227), (381, 15272), (420, 15428), (426, 15467), (429, 15482),

Gene: Lunar_17 Start: 10375, Stop: 12510, Start Num: 5

Candidate Starts for Lunar_17:

(Start: 5 @10375 has 49 MA's), (9, 10408), (12, 10414), (15, 10426), (33, 10531), (57, 10696), (59, 10717), (79, 10831), (89, 10894), (95, 10936), (99, 10957), (101, 10978), (113, 11059), (114, 11062), (115, 11071), (118, 11083), (119, 11086), (138, 11203), (141, 11233), (148, 11275), (150, 11284), (166, 11401), (175, 11434), (182, 11461), (188, 11485), (191, 11497), (194, 11506), (196, 11515), (204, 11554), (211, 11590), (213, 11602), (215, 11614), (219, 11635), (224, 11662), (230, 11695), (233, 11710), (313, 11872), (317, 11896), (325, 11935), (331, 11971), (347, 12079), (355, 12133), (370, 12199), (372, 12220), (414, 12391), (424, 12424), (425, 12436), (433, 12481), (434, 12502),

Gene: Mariel_25 Start: 11675, Stop: 14137, Start Num: 13

Candidate Starts for Mariel_25:

(Start: 13 @11675 has 16 MA's), (24, 11750), (30, 11780), (40, 11828), (50, 11891), (52, 11921), (54, 11942), (63, 12020), (67, 12053), (69, 12065), (79, 12116), (80, 12119), (83, 12131), (86, 12167), (87, 12173), (88, 12176), (90, 12188), (91, 12197), (95, 12221), (106, 12299), (108, 12320), (118, 12380), (124, 12419), (126, 12434), (134, 12491), (139, 12509), (147, 12572), (149, 12578), (156, 12629), (158, 12659), (160, 12671), (163, 12695), (164, 12704), (169, 12725), (170, 12728), (173, 12740), (188, 12800), (200, 12839), (201, 12848), (204, 12866), (219, 12947), (221, 12956), (224, 12974), (265, 13190), (273, 13223), (290, 13298), (295, 13400), (331, 13616), (347, 13724), (374, 13850), (385, 13907), (394, 13931), (404, 13970),

Gene: Melons_17 Start: 10375, Stop: 12510, Start Num: 5

Candidate Starts for Melons_17:

(Start: 5 @10375 has 49 MA's), (9, 10408), (12, 10414), (15, 10426), (33, 10531), (57, 10696), (59, 10717), (79, 10831), (89, 10894), (95, 10936), (99, 10957), (101, 10978), (113, 11059), (114, 11062), (115, 11071), (118, 11083), (119, 11086), (138, 11203), (141, 11233), (148, 11275), (150, 11284), (166, 11401), (175, 11434), (182, 11461), (188, 11485), (191, 11497), (194, 11506), (196, 11515), (204, 11554), (211, 11590), (213, 11602), (215, 11614), (219, 11635), (224, 11662), (230, 11695), (233, 11710), (313, 11872), (317, 11896), (325, 11935), (331, 11971), (347, 12079), (355, 12133), (370, 12199), (372, 12220), (414, 12391), (424, 12424), (425, 12436), (433, 12481), (434, 12502),

Gene: MenE_22 Start: 11635, Stop: 13833, Start Num: 13

Candidate Starts for MenE_22:

(Start: 13 @11635 has 16 MA's), (24, 11710), (34, 11761), (40, 11788), (52, 11881), (57, 11938), (63, 11980), (67, 12013), (69, 12025), (79, 12076), (80, 12079), (82, 12088), (83, 12091), (86, 12127), (87, 12133), (88, 12136), (90, 12148), (91, 12157), (95, 12181), (108, 12280), (118, 12340), (124, 12379), (126, 12394), (134, 12451), (156, 12589), (158, 12619), (160, 12631), (163, 12655), (164, 12664), (169, 12685), (170, 12688), (173, 12700), (177, 12718), (188, 12760), (196, 12790), (223, 12931), (234, 12988), (250, 13054), (271, 13114), (272, 13123), (291, 13186), (308, 13252), (385, 13603), (394, 13627), (404, 13666), (409, 13687),

Gene: NCRodriguez_23 Start: 11633, Stop: 13894, Start Num: 13

Candidate Starts for NCRodriguez_23:

(Start: 13 @11633 has 16 MA's), (24, 11708), (34, 11759), (40, 11786), (52, 11879), (57, 11936), (63, 11978), (67, 12011), (69, 12023), (79, 12074), (80, 12077), (82, 12086), (83, 12089), (86, 12125), (87, 12131), (88, 12134), (90, 12146), (91, 12155), (95, 12179), (108, 12278), (118, 12338), (124, 12377), (126, 12392), (149, 12536), (156, 12587), (158, 12617), (160, 12629), (163, 12653), (164, 12662),

(169, 12683), (170, 12686), (173, 12698), (177, 12716), (188, 12758), (196, 12788), (222, 12917), (234, 12986), (243, 13019), (250, 13052), (271, 13112), (272, 13121), (285, 13151), (294, 13211), (322, 13283), (335, 13331), (339, 13364), (346, 13415), (351, 13448), (353, 13481), (354, 13484), (367, 13559), (383, 13658), (385, 13664), (394, 13688), (404, 13727), (409, 13748),

Gene: Niblet_16 Start: 10182, Stop: 12410, Start Num: 5

Candidate Starts for Niblet_16:

(Start: 5 @10182 has 49 MA's), (7, 10197), (9, 10218), (20, 10272), (27, 10347), (32, 10377), (33, 10380), (44, 10434), (57, 10560), (60, 10584), (61, 10593), (63, 10602), (75, 10674), (76, 10680), (82, 10710), (83, 10713), (86, 10749), (90, 10770), (94, 10791), (98, 10815), (103, 10869), (104, 10875), (106, 10881), (109, 10911), (110, 10920), (118, 10962), (126, 11016), (132, 11061), (155, 11199), (158, 11241), (162, 11271), (171, 11313), (178, 11343), (197, 11415), (200, 11424), (203, 11445), (215, 11511), (224, 11559), (225, 11562), (231, 11595), (272, 11673), (307, 11742), (331, 11868), (335, 11889), (336, 11898), (368, 12090), (369, 12093), (372, 12117), (414, 12288), (427, 12345), (434, 12399),

Gene: Oppalora_15 Start: 9786, Stop: 12074, Start Num: 5

Candidate Starts for Oppalora_15:

(Start: 5 @9786 has 49 MA's), (7, 9798), (9, 9819), (Start: 13 @9828 has 16 MA's), (15, 9837), (31, 9939), (40, 9981), (57, 10119), (64, 10173), (69, 10203), (86, 10305), (89, 10317), (91, 10335), (95, 10359), (99, 10380), (101, 10401), (113, 10482), (114, 10485), (115, 10494), (118, 10506), (138, 10626), (141, 10656), (148, 10698), (166, 10824), (173, 10848), (178, 10869), (190, 10917), (194, 10929), (197, 10941), (200, 10950), (204, 10977), (211, 11013), (213, 11025), (214, 11028), (215, 11037), (224, 11085), (228, 11106), (268, 11271), (311, 11418), (313, 11427), (325, 11490), (327, 11502), (337, 11565), (355, 11688), (368, 11748), (370, 11754), (372, 11775), (387, 11850), (434, 12066),

Gene: Orcanus_16 Start: 10174, Stop: 12324, Start Num: 5

Candidate Starts for Orcanus_16:

(Start: 5 @10174 has 49 MA's), (9, 10210), (15, 10228), (18, 10249), (40, 10369), (49, 10420), (61, 10540), (64, 10561), (78, 10636), (89, 10705), (91, 10723), (95, 10747), (101, 10789), (113, 10870), (114, 10873), (115, 10882), (118, 10894), (138, 11014), (148, 11086), (164, 11200), (166, 11212), (176, 11248), (196, 11326), (199, 11335), (215, 11425), (224, 11473), (228, 11494), (234, 11527), (251, 11587), (307, 11656), (310, 11671), (336, 11812), (355, 11944), (366, 11998), (368, 12004), (369, 12007), (372, 12031), (393, 12118), (414, 12202), (427, 12259), (434, 12313),

Gene: OtsoOtso_16 Start: 10214, Stop: 12352, Start Num: 5

Candidate Starts for OtsoOtso_16:

(Start: 5 @10214 has 49 MA's), (9, 10250), (12, 10256), (15, 10268), (33, 10373), (57, 10538), (59, 10559), (79, 10673), (89, 10736), (95, 10778), (99, 10799), (101, 10820), (113, 10901), (114, 10904), (115, 10913), (118, 10925), (119, 10928), (138, 11045), (141, 11075), (148, 11117), (150, 11126), (166, 11243), (175, 11276), (182, 11303), (188, 11327), (191, 11339), (194, 11348), (196, 11357), (204, 11396), (211, 11432), (213, 11444), (215, 11456), (219, 11477), (224, 11504), (230, 11537), (233, 11552), (313, 11714), (317, 11738), (325, 11777), (331, 11813), (347, 11921), (355, 11975), (370, 12041), (372, 12062), (414, 12233), (424, 12266), (425, 12278), (433, 12323), (434, 12344),

Gene: PapayaSalad_16 Start: 9786, Stop: 12203, Start Num: 1

Candidate Starts for PapayaSalad_16:

(Start: 1 @9786 has 7 MA's), (2, 9798), (4, 9852), (8, 9873), (41, 10047), (44, 10068), (51, 10125), (66, 10260), (74, 10302), (82, 10344), (83, 10347), (85, 10359), (96, 10437), (103, 10500), (112, 10563), (116, 10581), (118, 10593), (126, 10647), (127, 10656), (133, 10701), (134, 10704), (147, 10785), (159, 10872), (160, 10875), (167, 10923), (172, 10941), (178, 10959), (181, 10971), (208, 11082), (217, 11139), (226, 11175), (229, 11196), (236, 11229), (237, 11235), (246, 11268), (250, 11289),

(259, 11322), (266, 11346), (302, 11421), (371, 11823), (375, 11847), (379, 11868), (392, 11922), (406, 11985), (411, 12000), (422, 12045),

Gene: Parvarticeps_35 Start: 26694, Stop: 24370, Start Num: 13

Candidate Starts for Parvarticeps_35:

(Start: 13 @26694 has 16 MA's), (33, 26571), (34, 26568), (44, 26517), (49, 26490), (50, 26478), (58, 26379), (59, 26370), (63, 26349), (69, 26304), (82, 26241), (83, 26238), (88, 26193), (98, 26136), (100, 26118), (103, 26082), (112, 26019), (118, 25989), (126, 25935), (162, 25680), (171, 25638), (173, 25629), (189, 25566), (191, 25557), (193, 25551), (194, 25548), (207, 25494), (221, 25401), (228, 25362), (230, 25350), (234, 25329), (248, 25269), (253, 25248), (273, 25185), (286, 25158), (297, 25074), (304, 25020), (316, 24954), (347, 24765), (357, 24702), (360, 24687), (367, 24669), (368, 24666), (374, 24642), (388, 24573), (396, 24552), (414, 24468), (423, 24435), (430, 24402),

Gene: Pelletreau_17 Start: 10380, Stop: 12530, Start Num: 5

Candidate Starts for Pelletreau_17:

(Start: 5 @10380 has 49 MA's), (9, 10416), (15, 10434), (18, 10455), (40, 10575), (49, 10626), (61, 10746), (78, 10842), (89, 10911), (91, 10929), (95, 10953), (101, 10995), (113, 11076), (114, 11079), (115, 11088), (118, 11100), (138, 11220), (141, 11250), (148, 11292), (164, 11406), (166, 11418), (176, 11454), (196, 11532), (199, 11541), (215, 11631), (224, 11679), (228, 11700), (234, 11733), (251, 11793), (307, 11862), (310, 11877), (336, 12018), (372, 12237), (393, 12324), (414, 12408), (427, 12465), (434, 12519),

Gene: PhillyJawn_22 Start: 11367, Stop: 13565, Start Num: 13

Candidate Starts for PhillyJawn_22:

(Start: 13 @11367 has 16 MA's), (24, 11442), (34, 11493), (40, 11520), (52, 11613), (57, 11670), (63, 11712), (67, 11745), (69, 11757), (79, 11808), (80, 11811), (82, 11820), (83, 11823), (86, 11859), (87, 11865), (88, 11868), (90, 11880), (91, 11889), (95, 11913), (108, 12012), (118, 12072), (124, 12111), (126, 12126), (134, 12183), (156, 12321), (158, 12351), (160, 12363), (163, 12387), (164, 12396), (169, 12417), (170, 12420), (173, 12432), (177, 12450), (223, 12663), (234, 12720), (250, 12786), (271, 12846), (272, 12855), (291, 12918), (308, 12984), (322, 13017), (385, 13335), (394, 13359), (404, 13398), (409, 13419),

Gene: Phingu_24 Start: 11523, Stop: 13784, Start Num: 13

Candidate Starts for Phingu_24:

(Start: 13 @11523 has 16 MA's), (24, 11598), (34, 11649), (40, 11676), (52, 11769), (57, 11826), (63, 11868), (67, 11901), (69, 11913), (79, 11964), (80, 11967), (82, 11976), (83, 11979), (86, 12015), (87, 12021), (88, 12024), (90, 12036), (91, 12045), (95, 12069), (108, 12168), (118, 12228), (124, 12267), (126, 12282), (134, 12339), (156, 12477), (158, 12507), (160, 12519), (163, 12543), (164, 12552), (169, 12573), (170, 12576), (173, 12588), (177, 12606), (188, 12648), (196, 12678), (224, 12822), (234, 12876), (250, 12942), (271, 13002), (272, 13011), (291, 13074), (294, 13101), (322, 13173), (335, 13221), (339, 13254), (346, 13305), (351, 13338), (353, 13371), (354, 13374), (367, 13449), (383, 13548), (385, 13554), (394, 13578), (404, 13617), (409, 13638),

Gene: PhirstandPhine_17 Start: 10375, Stop: 12510, Start Num: 5

Candidate Starts for PhirstandPhine_17:

(Start: 5 @10375 has 49 MA's), (9, 10408), (12, 10414), (15, 10426), (33, 10531), (57, 10696), (59, 10717), (79, 10831), (89, 10894), (95, 10936), (99, 10957), (101, 10978), (113, 11059), (114, 11062), (115, 11071), (118, 11083), (119, 11086), (138, 11203), (141, 11233), (148, 11275), (150, 11284), (166, 11401), (175, 11434), (182, 11461), (188, 11485), (191, 11497), (194, 11506), (196, 11515), (204, 11554), (211, 11590), (213, 11602), (215, 11614), (219, 11635), (224, 11662), (230, 11695), (233, 11710), (313, 11872), (317, 11896), (325, 11935), (331, 11971), (347, 12079), (355, 12133), (370, 12199), (372, 12220), (414, 12391), (424, 12424), (425, 12436), (433, 12481), (434, 12502),

Gene: PhluffyCoco_15 Start: 9788, Stop: 12076, Start Num: 5

Candidate Starts for PhluffyCoco_15:

(Start: 5 @9788 has 49 MA's), (7, 9800), (9, 9821), (Start: 13 @9830 has 16 MA's), (15, 9839), (31, 9941), (40, 9983), (57, 10121), (64, 10175), (69, 10205), (86, 10307), (89, 10319), (91, 10337), (95, 10361), (99, 10382), (101, 10403), (113, 10484), (114, 10487), (115, 10496), (118, 10508), (138, 10628), (141, 10658), (148, 10700), (166, 10826), (173, 10850), (178, 10871), (190, 10919), (194, 10931), (197, 10943), (200, 10952), (204, 10979), (211, 11015), (213, 11027), (214, 11030), (215, 11039), (224, 11087), (228, 11108), (268, 11273), (311, 11420), (313, 11429), (325, 11492), (327, 11504), (337, 11567), (344, 11615), (355, 11690), (368, 11750), (370, 11756), (372, 11777), (387, 11852), (434, 12068),

Gene: Phonegingi_21 Start: 11365, Stop: 13626, Start Num: 13

Candidate Starts for Phonegingi_21:

(Start: 13 @11365 has 16 MA's), (24, 11440), (34, 11491), (40, 11518), (52, 11611), (58, 11680), (63, 11710), (67, 11743), (69, 11755), (79, 11806), (80, 11809), (82, 11818), (83, 11821), (86, 11857), (87, 11863), (88, 11866), (90, 11878), (91, 11887), (108, 12010), (118, 12070), (124, 12109), (126, 12124), (134, 12181), (149, 12268), (156, 12319), (158, 12349), (160, 12361), (163, 12385), (164, 12394), (166, 12406), (169, 12415), (170, 12418), (173, 12430), (187, 12487), (188, 12490), (196, 12520), (222, 12649), (234, 12718), (243, 12751), (250, 12784), (253, 12799), (271, 12844), (272, 12853), (294, 12943), (322, 13015), (335, 13063), (339, 13096), (346, 13147), (351, 13180), (353, 13213), (354, 13216), (367, 13291), (385, 13396), (394, 13420), (404, 13459),

Gene: Pickles13_21 Start: 11528, Stop: 13990, Start Num: 13

Candidate Starts for Pickles13_21:

(Start: 13 @11528 has 16 MA's), (24, 11603), (30, 11633), (36, 11666), (40, 11681), (50, 11744), (52, 11774), (54, 11795), (57, 11831), (63, 11873), (67, 11906), (69, 11918), (79, 11969), (80, 11972), (83, 11984), (86, 12020), (87, 12026), (88, 12029), (90, 12041), (91, 12050), (95, 12074), (106, 12152), (118, 12233), (124, 12272), (126, 12287), (128, 12299), (134, 12344), (139, 12362), (147, 12425), (149, 12431), (156, 12482), (158, 12512), (160, 12524), (163, 12548), (164, 12557), (169, 12578), (170, 12581), (173, 12593), (177, 12611), (180, 12623), (188, 12653), (201, 12701), (204, 12719), (219, 12800), (221, 12809), (224, 12827), (265, 13043), (273, 13076), (290, 13151), (295, 13253), (298, 13271), (304, 13322), (306, 13337), (315, 13385), (331, 13469), (347, 13577), (385, 13760), (394, 13784), (404, 13823), (405, 13838), (418, 13886), (432, 13964),

Gene: Pineda_17 Start: 10375, Stop: 12510, Start Num: 5

Candidate Starts for Pineda_17:

(Start: 5 @10375 has 49 MA's), (9, 10408), (12, 10414), (15, 10426), (33, 10531), (57, 10696), (59, 10717), (79, 10831), (89, 10894), (95, 10936), (99, 10957), (101, 10978), (113, 11059), (114, 11062), (115, 11071), (118, 11083), (119, 11086), (138, 11203), (141, 11233), (148, 11275), (150, 11284), (166, 11401), (175, 11434), (182, 11461), (188, 11485), (191, 11497), (194, 11506), (196, 11515), (204, 11554), (211, 11590), (213, 11602), (215, 11614), (219, 11635), (224, 11662), (230, 11695), (233, 11710), (313, 11872), (317, 11896), (325, 11935), (331, 11971), (347, 12079), (355, 12133), (370, 12199), (372, 12220), (414, 12391), (424, 12424), (425, 12436), (433, 12481), (434, 12502),

Gene: Polka_16 Start: 10214, Stop: 12352, Start Num: 5

Candidate Starts for Polka_16:

(Start: 5 @10214 has 49 MA's), (9, 10250), (12, 10256), (15, 10268), (33, 10373), (57, 10538), (59, 10559), (79, 10673), (89, 10736), (95, 10778), (99, 10799), (101, 10820), (113, 10901), (114, 10904), (115, 10913), (118, 10925), (119, 10928), (138, 11045), (141, 11075), (148, 11117), (150, 11126), (166, 11243), (175, 11276), (182, 11303), (188, 11327), (191, 11339), (194, 11348), (196, 11357), (204, 11396), (211, 11432), (213, 11444), (215, 11456), (219, 11477), (224, 11504), (230, 11537), (233, 11552), (313, 11714), (317, 11738), (325, 11777), (331, 11813), (347, 11921), (355, 11975), (370, 12041), (372, 12062), (414, 12233), (424, 12266), (425, 12278), (433, 12323), (434, 12344),

Gene: Raleigh_16 Start: 10247, Stop: 12655, Start Num: 1

Candidate Starts for Raleigh_16:

(Start: 1 @10247 has 7 MA's), (4, 10313), (8, 10334), (10, 10355), (22, 10412), (41, 10508), (47, 10544), (51, 10586), (67, 10730), (73, 10760), (74, 10763), (76, 10775), (77, 10784), (82, 10805), (86, 10844), (95, 10895), (103, 10961), (105, 10970), (107, 10982), (118, 11054), (126, 11108), (160, 11336), (167, 11384), (173, 11405), (232, 11675), (246, 11729), (247, 11732), (250, 11750), (253, 11765), (259, 11783), (266, 11807), (270, 11816), (275, 11837), (302, 11882), (308, 11933), (329, 12041), (349, 12176), (359, 12230), (361, 12251), (371, 12284), (379, 12329), (392, 12383), (411, 12464), (416, 12491), (424, 12515),

Gene: Rattail_15 Start: 9839, Stop: 12127, Start Num: 5

Candidate Starts for Rattail_15:

(Start: 5 @9839 has 49 MA's), (7, 9851), (9, 9872), (Start: 13 @9881 has 16 MA's), (15, 9890), (31, 9992), (40, 10034), (57, 10172), (64, 10226), (69, 10256), (89, 10370), (91, 10388), (95, 10412), (99, 10433), (101, 10454), (113, 10535), (114, 10538), (115, 10547), (118, 10559), (138, 10679), (141, 10709), (148, 10751), (166, 10877), (173, 10901), (178, 10922), (197, 10994), (204, 11030), (211, 11066), (213, 11078), (215, 11090), (219, 11111), (224, 11138), (228, 11159), (268, 11324), (311, 11471), (313, 11480), (325, 11543), (327, 11555), (337, 11618), (355, 11741), (368, 11801), (370, 11807), (372, 11828), (387, 11903), (434, 12119),

Gene: RedFox_15 Start: 9788, Stop: 12076, Start Num: 5

Candidate Starts for RedFox_15:

(Start: 5 @9788 has 49 MA's), (7, 9800), (9, 9821), (Start: 13 @9830 has 16 MA's), (15, 9839), (31, 9941), (40, 9983), (57, 10121), (64, 10175), (69, 10205), (86, 10307), (89, 10319), (91, 10337), (95, 10361), (99, 10382), (101, 10403), (113, 10484), (114, 10487), (115, 10496), (118, 10508), (138, 10628), (141, 10658), (148, 10700), (166, 10826), (173, 10850), (178, 10871), (190, 10919), (194, 10931), (197, 10943), (200, 10952), (204, 10979), (211, 11015), (213, 11027), (214, 11030), (215, 11039), (224, 11087), (228, 11108), (268, 11273), (311, 11420), (313, 11429), (325, 11492), (337, 11567), (355, 11690), (368, 11750), (370, 11756), (372, 11777), (387, 11852), (434, 12068),

Gene: RemusLoopin_12 Start: 8193, Stop: 10382, Start Num: 11

Candidate Starts for RemusLoopin_12:

(Start: 11 @8193 has 9 MA's), (42, 8343), (44, 8361), (50, 8400), (54, 8451), (56, 8478), (66, 8553), (70, 8577), (82, 8637), (85, 8652), (95, 8727), (103, 8793), (110, 8844), (126, 8940), (144, 9048), (147, 9078), (160, 9168), (213, 9405), (217, 9432), (229, 9489), (242, 9546), (245, 9558), (250, 9582), (259, 9615), (266, 9639), (317, 9813), (336, 9915), (364, 10089), (384, 10185), (392, 10206), (421, 10311),

Gene: Renna12_16 Start: 9997, Stop: 12417, Start Num: 5

Candidate Starts for Renna12_16:

(Start: 5 @9997 has 49 MA's), (7, 10009), (9, 10030), (Start: 13 @10039 has 16 MA's), (15, 10048), (31, 10150), (40, 10192), (57, 10330), (64, 10384), (69, 10414), (89, 10528), (91, 10546), (95, 10570), (99, 10591), (101, 10612), (113, 10693), (114, 10696), (115, 10705), (118, 10717), (141, 10867), (148, 10909), (166, 11035), (173, 11059), (176, 11071), (178, 11080), (190, 11128), (197, 11152), (200, 11161), (204, 11188), (211, 11224), (213, 11236), (224, 11296), (246, 11395), (293, 11614), (325, 11833), (337, 11908), (370, 12097), (372, 12118), (387, 12193), (414, 12298), (434, 12409),

Gene: Ruchi_16 Start: 10744, Stop: 13149, Start Num: 5

Candidate Starts for Ruchi_16:

(Start: 5 @10744 has 49 MA's), (9, 10780), (15, 10798), (20, 10834), (29, 10909), (38, 10954), (51, 11041), (52, 11053), (72, 11212), (74, 11221), (92, 11329), (93, 11335), (103, 11416), (111, 11470), (119, 11509), (147, 11710), (153, 11746), (158, 11800), (167, 11860), (168, 11863), (175, 11890), (183, 11920), (196, 11974), (204, 12013), (208, 12031), (211, 12049), (219, 12097), (228, 12142),

(241, 12202), (244, 12214), (248, 12235), (249, 12238), (254, 12256), (258, 12271), (260, 12274), (262, 12280), (263, 12289), (267, 12301), (269, 12307), (273, 12322), (276, 12331), (288, 12373), (294, 12385), (296, 12403), (301, 12436), (311, 12505), (313, 12514), (314, 12517), (317, 12538), (324, 12574), (335, 12634), (337, 12652), (372, 12862), (414, 13027), (427, 13084),

Gene: SV1_16 Start: 10022, Stop: 12439, Start Num: 1

Candidate Starts for SV1_16:

(Start: 1 @10022 has 7 MA's), (2, 10034), (4, 10088), (8, 10109), (41, 10283), (44, 10304), (50, 10343), (54, 10394), (66, 10496), (74, 10538), (81, 10577), (82, 10580), (83, 10583), (96, 10673), (103, 10736), (112, 10799), (116, 10817), (118, 10829), (126, 10883), (134, 10940), (147, 11021), (159, 11108), (160, 11111), (167, 11159), (172, 11177), (181, 11207), (229, 11432), (237, 11471), (241, 11486), (250, 11525), (259, 11558), (266, 11582), (308, 11708), (321, 11780), (358, 12002), (364, 12038), (371, 12059), (375, 12083), (379, 12104), (382, 12131), (390, 12155), (392, 12158), (406, 12221), (408, 12224), (411, 12236), (422, 12281),

Gene: Samora_12 Start: 8227, Stop: 10419, Start Num: 11

Candidate Starts for Samora_12:

(Start: 11 @8227 has 9 MA's), (17, 8254), (19, 8272), (54, 8485), (56, 8512), (62, 8560), (66, 8587), (70, 8611), (82, 8671), (83, 8674), (85, 8686), (96, 8764), (103, 8827), (110, 8878), (121, 8932), (123, 8953), (126, 8974), (144, 9082), (147, 9112), (160, 9202), (226, 9502), (250, 9616), (259, 9649), (266, 9673), (278, 9712), (280, 9718), (317, 9847), (328, 9904), (334, 9937), (364, 10123), (384, 10219), (401, 10273), (405, 10297),

Gene: ScoobySnack_20 Start: 11232, Stop: 13694, Start Num: 13

Candidate Starts for ScoobySnack_20:

(Start: 13 @11232 has 16 MA's), (24, 11307), (34, 11358), (40, 11385), (54, 11499), (63, 11577), (67, 11610), (69, 11622), (79, 11673), (80, 11676), (82, 11685), (83, 11688), (86, 11724), (87, 11730), (88, 11733), (90, 11745), (91, 11754), (95, 11778), (108, 11877), (118, 11937), (124, 11976), (126, 11991), (156, 12186), (158, 12216), (160, 12228), (163, 12252), (164, 12261), (168, 12279), (169, 12282), (170, 12285), (173, 12297), (177, 12315), (180, 12327), (201, 12405), (204, 12423), (221, 12513), (224, 12531), (252, 12663), (265, 12747), (273, 12780), (285, 12828), (295, 12957), (316, 13092), (331, 13173), (339, 13227), (345, 13266), (347, 13281), (374, 13407), (385, 13464), (394, 13488), (398, 13506),

Gene: Sebastisaurus_12 Start: 8219, Stop: 10408, Start Num: 11

Candidate Starts for Sebastisaurus_12:

(Start: 11 @8219 has 9 MA's), (42, 8369), (44, 8387), (50, 8426), (52, 8456), (54, 8477), (56, 8504), (66, 8579), (70, 8603), (82, 8663), (85, 8678), (95, 8753), (103, 8819), (126, 8966), (144, 9074), (147, 9104), (157, 9161), (160, 9194), (213, 9431), (217, 9458), (229, 9515), (242, 9572), (245, 9584), (250, 9608), (259, 9641), (266, 9665), (317, 9839), (334, 9929), (336, 9941), (351, 10049), (357, 10082), (364, 10115), (373, 10151), (384, 10211), (393, 10235), (417, 10328), (421, 10337),

Gene: Shawty_12 Start: 8222, Stop: 10411, Start Num: 11

Candidate Starts for Shawty_12:

(Start: 11 @8222 has 9 MA's), (17, 8249), (48, 8414), (50, 8429), (54, 8480), (56, 8507), (66, 8582), (70, 8606), (82, 8666), (85, 8681), (89, 8717), (95, 8756), (103, 8822), (110, 8873), (123, 8948), (126, 8969), (135, 9035), (145, 9083), (147, 9107), (157, 9164), (160, 9197), (192, 9332), (218, 9464), (221, 9476), (226, 9497), (248, 9605), (250, 9611), (253, 9626), (259, 9644), (266, 9668), (279, 9710), (298, 9722), (312, 9815), (317, 9842), (334, 9932), (357, 10085), (364, 10118), (384, 10214),

Gene: Shen_17 Start: 10456, Stop: 12531, Start Num: 18

Candidate Starts for Shen_17:

(Start: 5 @10381 has 49 MA's), (9, 10417), (15, 10435), (18, 10456), (40, 10576), (49, 10627), (61, 10747), (78, 10843), (89, 10912), (91, 10930), (95, 10954), (101, 10996), (113, 11077), (114, 11080), (115, 11089), (118, 11101), (138, 11221), (141, 11251), (148, 11293), (164, 11407), (166, 11419), (176, 11455), (196, 11533), (199, 11542), (215, 11632), (224, 11680), (228, 11701), (234, 11734), (251, 11794), (307, 11863), (310, 11878), (336, 12019), (352, 12139), (372, 12238), (393, 12325), (414, 12409), (427, 12466), (434, 12520),

Gene: StuartMinion_15 Start: 9820, Stop: 12108, Start Num: 5

Candidate Starts for StuartMinion_15:

(Start: 5 @9820 has 49 MA's), (9, 9853), (Start: 13 @9862 has 16 MA's), (15, 9871), (31, 9973), (40, 10015), (57, 10153), (64, 10207), (89, 10351), (91, 10369), (95, 10393), (101, 10435), (113, 10516), (114, 10519), (115, 10528), (118, 10540), (120, 10549), (138, 10660), (141, 10690), (147, 10729), (166, 10858), (173, 10882), (178, 10903), (197, 10975), (199, 10981), (203, 11005), (213, 11059), (214, 11062), (215, 11071), (224, 11119), (228, 11140), (268, 11305), (325, 11524), (327, 11536), (337, 11599), (352, 11710), (366, 11776), (370, 11788), (372, 11809), (386, 11881), (387, 11884), (414, 11986), (427, 12043), (434, 12097), (435, 12100),

Gene: Sweetums_22 Start: 12109, Stop: 14346, Start Num: 13

Candidate Starts for Sweetums_22:

(Start: 13 @12109 has 16 MA's), (14, 12115), (17, 12133), (18, 12139), (44, 12280), (45, 12286), (50, 12319), (57, 12406), (63, 12448), (65, 12463), (68, 12484), (69, 12493), (82, 12556), (94, 12637), (95, 12649), (102, 12697), (103, 12715), (108, 12748), (118, 12808), (126, 12862), (134, 12919), (156, 13057), (157, 13066), (158, 13087), (166, 13144), (195, 13252), (201, 13276), (205, 13297), (216, 13363), (235, 13453), (238, 13462), (239, 13465), (253, 13516), (298, 13660), (313, 13756), (318, 13792), (323, 13813), (332, 13864), (335, 13879), (360, 14044), (362, 14053), (374, 14089), (385, 14146), (391, 14164), (396, 14179), (398, 14188),

Gene: TG1_12 Start: 8190, Stop: 10379, Start Num: 11

Candidate Starts for TG1_12:

(Start: 11 @8190 has 9 MA's), (17, 8217), (42, 8340), (46, 8370), (49, 8385), (50, 8397), (54, 8448), (70, 8574), (82, 8634), (96, 8727), (103, 8790), (104, 8796), (121, 8895), (126, 8937), (139, 9012), (144, 9045), (147, 9075), (160, 9165), (185, 9276), (186, 9279), (192, 9300), (203, 9348), (221, 9444), (236, 9519), (241, 9540), (250, 9579), (253, 9594), (259, 9612), (264, 9627), (266, 9636), (299, 9693), (304, 9741), (336, 9912), (340, 9942), (342, 9954), (364, 10086), (369, 10098), (384, 10182), (407, 10263), (415, 10299), (431, 10362),

Gene: TaylorSipt_16 Start: 10274, Stop: 12499, Start Num: 5

Candidate Starts for TaylorSipt_16:

(Start: 5 @10274 has 49 MA's), (7, 10289), (9, 10310), (32, 10469), (44, 10526), (50, 10565), (57, 10652), (58, 10664), (60, 10676), (61, 10685), (63, 10694), (70, 10742), (75, 10766), (76, 10772), (86, 10841), (90, 10862), (97, 10904), (98, 10907), (103, 10961), (104, 10967), (106, 10973), (109, 11003), (110, 11012), (118, 11054), (126, 11108), (132, 11153), (155, 11291), (158, 11333), (162, 11363), (171, 11405), (178, 11435), (197, 11507), (200, 11516), (203, 11537), (214, 11594), (215, 11603), (224, 11651), (228, 11672), (234, 11705), (272, 11765), (274, 11771), (306, 11831), (309, 11846), (327, 11936), (328, 11945), (335, 11981), (352, 12110), (355, 12122), (372, 12209), (393, 12296), (397, 12311), (408, 12353), (414, 12380), (427, 12437), (434, 12491),

Gene: Teng_22 Start: 12028, Stop: 14262, Start Num: 13

Candidate Starts for Teng_22:

(Start: 13 @12028 has 16 MA's), (14, 12034), (25, 12115), (26, 12127), (32, 12145), (35, 12154), (44, 12196), (45, 12202), (63, 12364), (65, 12379), (68, 12400), (69, 12409), (82, 12472), (94, 12553), (95, 12565), (102, 12613), (103, 12631), (108, 12664), (118, 12724), (126, 12778), (134, 12835), (156, 12973), (158, 13003), (160, 13015), (184, 13129), (195, 13168), (201, 13192), (205, 13213), (216,

13279), (235, 13369), (239, 13381), (253, 13432), (318, 13708), (323, 13729), (332, 13780), (335, 13795), (360, 13960), (362, 13969), (374, 14005), (385, 14062), (391, 14080), (396, 14095), (398, 14104),

Gene: Toad24_17 Start: 10381, Stop: 12531, Start Num: 5

Candidate Starts for Toad24_17:

(Start: 5 @10381 has 49 MA's), (9, 10417), (15, 10435), (18, 10456), (40, 10576), (49, 10627), (61, 10747), (78, 10843), (89, 10912), (91, 10930), (95, 10954), (101, 10996), (113, 11077), (114, 11080), (115, 11089), (118, 11101), (138, 11221), (141, 11251), (148, 11293), (164, 11407), (166, 11419), (176, 11455), (196, 11533), (199, 11542), (215, 11632), (224, 11680), (228, 11701), (234, 11734), (251, 11794), (307, 11863), (310, 11878), (336, 12019), (372, 12238), (393, 12325), (414, 12409), (427, 12466), (434, 12520),

Gene: Vash_12 Start: 8200, Stop: 10392, Start Num: 11

Candidate Starts for Vash_12:

(Start: 11 @8200 has 9 MA's), (17, 8227), (44, 8368), (50, 8407), (54, 8458), (62, 8533), (66, 8560), (70, 8584), (71, 8590), (81, 8641), (82, 8644), (85, 8659), (96, 8737), (103, 8800), (110, 8851), (117, 8884), (123, 8926), (126, 8947), (135, 9013), (147, 9085), (160, 9175), (170, 9232), (179, 9265), (186, 9289), (192, 9310), (198, 9331), (217, 9439), (226, 9475), (245, 9565), (247, 9571), (249, 9586), (250, 9589), (259, 9622), (266, 9646), (278, 9685), (317, 9820), (328, 9877), (334, 9910), (336, 9922), (364, 10096), (384, 10192), (401, 10246), (405, 10270), (415, 10309), (419, 10315), (428, 10360),

Gene: Violeta_23 Start: 11465, Stop: 13663, Start Num: 13

Candidate Starts for Violeta_23:

(Start: 13 @11465 has 16 MA's), (24, 11540), (34, 11591), (40, 11618), (52, 11711), (57, 11768), (63, 11810), (67, 11843), (69, 11855), (79, 11906), (80, 11909), (82, 11918), (83, 11921), (86, 11957), (87, 11963), (88, 11966), (90, 11978), (91, 11987), (95, 12011), (108, 12110), (118, 12170), (124, 12209), (126, 12224), (134, 12281), (156, 12419), (158, 12449), (160, 12461), (163, 12485), (164, 12494), (169, 12515), (170, 12518), (173, 12530), (177, 12548), (188, 12590), (196, 12620), (223, 12761), (234, 12818), (250, 12884), (271, 12944), (272, 12953), (291, 13016), (308, 13082), (385, 13433), (394, 13457), (404, 13496), (409, 13517),

Gene: Vulpecula_16 Start: 10814, Stop: 13219, Start Num: 5

Candidate Starts for Vulpecula_16:

(Start: 5 @10814 has 49 MA's), (9, 10850), (15, 10868), (20, 10904), (29, 10979), (38, 11024), (51, 11111), (52, 11123), (72, 11282), (74, 11291), (84, 11342), (92, 11399), (93, 11405), (103, 11486), (111, 11540), (119, 11579), (153, 11816), (158, 11870), (167, 11930), (168, 11933), (175, 11960), (183, 11990), (204, 12083), (208, 12101), (211, 12119), (228, 12212), (241, 12272), (244, 12284), (248, 12305), (249, 12308), (254, 12326), (258, 12341), (260, 12344), (262, 12350), (263, 12359), (267, 12371), (269, 12377), (273, 12392), (276, 12401), (282, 12419), (288, 12443), (294, 12455), (296, 12473), (301, 12506), (313, 12584), (314, 12587), (317, 12608), (319, 12626), (324, 12644), (335, 12704), (337, 12722), (372, 12932), (399, 13040), (414, 13097), (427, 13154),

Gene: Warren_22 Start: 11565, Stop: 13763, Start Num: 13

Candidate Starts for Warren_22:

(Start: 13 @11565 has 16 MA's), (24, 11640), (34, 11691), (40, 11718), (52, 11811), (63, 11910), (67, 11943), (69, 11955), (79, 12006), (80, 12009), (82, 12018), (83, 12021), (86, 12057), (87, 12063), (88, 12066), (90, 12078), (91, 12087), (95, 12111), (108, 12210), (118, 12270), (124, 12309), (126, 12324), (134, 12381), (156, 12519), (158, 12549), (160, 12561), (163, 12585), (164, 12594), (169, 12615), (170, 12618), (173, 12630), (177, 12648), (188, 12690), (196, 12720), (202, 12744), (222, 12849), (234, 12918), (243, 12951), (250, 12984), (271, 13044), (272, 13053), (291, 13116), (308, 13182), (322, 13215), (368, 13452), (385, 13533), (394, 13557), (404, 13596), (409, 13617),

Gene: Westrich_17 Start: 10369, Stop: 12519, Start Num: 5

Candidate Starts for Westrich_17:

(Start: 5 @10369 has 49 MA's), (9, 10405), (15, 10423), (18, 10444), (40, 10564), (49, 10615), (61, 10735), (78, 10831), (89, 10900), (91, 10918), (95, 10942), (99, 10963), (101, 10984), (113, 11065), (114, 11068), (115, 11077), (118, 11089), (119, 11092), (138, 11209), (148, 11281), (164, 11395), (166, 11407), (176, 11443), (196, 11521), (199, 11530), (215, 11620), (224, 11668), (228, 11689), (234, 11722), (251, 11782), (307, 11851), (310, 11866), (336, 12007), (355, 12139), (366, 12193), (368, 12199), (369, 12202), (372, 12226), (393, 12313), (414, 12397), (427, 12454), (434, 12508),

Gene: WileyE_15 Start: 10149, Stop: 12554, Start Num: 5

Candidate Starts for WileyE_15:

(Start: 5 @10149 has 49 MA's), (9, 10185), (15, 10203), (20, 10239), (29, 10314), (38, 10359), (51, 10446), (52, 10458), (72, 10617), (74, 10626), (92, 10734), (103, 10821), (111, 10875), (119, 10914), (125, 10953), (153, 11151), (158, 11205), (168, 11268), (169, 11271), (175, 11295), (197, 11382), (204, 11418), (228, 11547), (240, 11604), (241, 11607), (249, 11643), (254, 11661), (258, 11676), (260, 11679), (262, 11685), (263, 11694), (267, 11706), (269, 11712), (273, 11727), (276, 11736), (282, 11754), (288, 11778), (294, 11790), (296, 11808), (301, 11841), (311, 11910), (313, 11919), (314, 11922), (317, 11943), (324, 11979), (335, 12039), (337, 12057), (372, 12267), (414, 12432),

Gene: Winchester007_37 Start: 17485, Stop: 19683, Start Num: 13

Candidate Starts for Winchester007_37:

(Start: 13 @17485 has 16 MA's), (24, 17560), (34, 17611), (40, 17638), (52, 17731), (63, 17830), (67, 17863), (69, 17875), (79, 17926), (80, 17929), (82, 17938), (83, 17941), (86, 17977), (87, 17983), (88, 17986), (90, 17998), (91, 18007), (95, 18031), (108, 18130), (118, 18190), (124, 18229), (126, 18244), (134, 18301), (156, 18439), (158, 18469), (160, 18481), (163, 18505), (164, 18514), (169, 18535), (170, 18538), (173, 18550), (177, 18568), (196, 18640), (223, 18781), (234, 18838), (250, 18904), (271, 18964), (272, 18973), (291, 19036), (308, 19102), (385, 19453), (394, 19477), (404, 19516), (409, 19537),

Gene: Wrackline_26 Start: 12677, Stop: 15094, Start Num: 13

Candidate Starts for Wrackline_26:

(Start: 13 @12677 has 16 MA's), (17, 12695), (25, 12758), (26, 12770), (45, 12845), (49, 12866), (50, 12878), (56, 12956), (63, 13007), (65, 13022), (68, 13043), (69, 13052), (75, 13079), (79, 13103), (80, 13106), (82, 13115), (91, 13184), (94, 13196), (102, 13256), (103, 13274), (106, 13286), (108, 13307), (112, 13337), (118, 13367), (122, 13382), (126, 13421), (136, 13490), (140, 13508), (154, 13598), (155, 13604), (157, 13625), (158, 13646), (160, 13658), (166, 13703), (168, 13709), (169, 13712), (175, 13736), (177, 13745), (181, 13760), (191, 13799), (196, 13817), (203, 13847), (216, 13922), (219, 13934), (223, 13958), (224, 13961), (225, 13964), (228, 13982), (243, 14048), (256, 14114), (261, 14159), (283, 14237), (284, 14246), (287, 14261), (289, 14279), (294, 14372), (326, 14576), (328, 14588), (337, 14642), (338, 14651), (339, 14657), (346, 14708), (367, 14807), (378, 14852), (385, 14891), (389, 14906), (396, 14924), (398, 14933),

Gene: Zhuangyuan_17 Start: 10550, Stop: 12916, Start Num: 5

Candidate Starts for Zhuangyuan_17:

(Start: 5 @10550 has 49 MA's), (7, 10565), (9, 10586), (Start: 13 @10595 has 16 MA's), (33, 10748), (41, 10781), (50, 10841), (53, 10880), (56, 10919), (58, 10940), (60, 10952), (61, 10961), (63, 10970), (75, 11042), (83, 11081), (86, 11117), (90, 11138), (91, 11147), (94, 11159), (98, 11183), (103, 11237), (104, 11243), (106, 11249), (109, 11279), (110, 11288), (118, 11330), (126, 11384), (132, 11429), (152, 11555), (155, 11567), (158, 11609), (162, 11639), (166, 11666), (197, 11783), (199, 11789), (201, 11801), (211, 11855), (214, 11870), (215, 11879), (216, 11888), (224, 11927), (230, 11960), (231, 11963), (268, 12113), (306, 12239), (313, 12269), (317, 12293), (325, 12332), (337, 12407), (355, 12530), (366, 12584), (370, 12596), (372, 12617), (380, 12650), (384, 12680), (397, 12719), (414, 12794), (433, 12884),

Gene: Zixiang_16 Start: 10182, Stop: 12410, Start Num: 5

Candidate Starts for Zixiang_16:

(Start: 5 @10182 has 49 MA's), (7, 10197), (9, 10218), (20, 10272), (27, 10347), (32, 10377), (33, 10380), (44, 10434), (57, 10560), (60, 10584), (61, 10593), (63, 10602), (75, 10674), (76, 10680), (82, 10710), (83, 10713), (86, 10749), (90, 10770), (94, 10791), (98, 10815), (103, 10869), (104, 10875), (106, 10881), (109, 10911), (110, 10920), (118, 10962), (126, 11016), (132, 11061), (155, 11199), (158, 11241), (162, 11271), (171, 11313), (178, 11343), (197, 11415), (200, 11424), (203, 11445), (215, 11511), (224, 11559), (225, 11562), (231, 11595), (272, 11673), (307, 11742), (331, 11868), (335, 11889), (336, 11898), (368, 12090), (369, 12093), (372, 12117), (414, 12288), (427, 12345), (434, 12399),

Gene: phiBT1_43 Start: 8225, Stop: 10414, Start Num: 11

Candidate Starts for phiBT1_43:

(Start: 11 @8225 has 9 MA's), (17, 8252), (50, 8432), (54, 8483), (56, 8510), (62, 8558), (66, 8585), (70, 8609), (82, 8669), (85, 8684), (96, 8762), (103, 8825), (105, 8834), (110, 8876), (121, 8930), (123, 8951), (126, 8972), (144, 9080), (147, 9110), (160, 9200), (177, 9281), (185, 9311), (192, 9335), (198, 9356), (211, 9425), (213, 9437), (218, 9467), (221, 9479), (227, 9503), (246, 9593), (248, 9608), (250, 9614), (259, 9647), (264, 9662), (266, 9671), (278, 9710), (280, 9716), (298, 9725), (312, 9818), (328, 9902), (335, 9938), (336, 9947), (357, 10088), (364, 10121), (373, 10157), (384, 10217), (401, 10271), (402, 10277), (421, 10343),