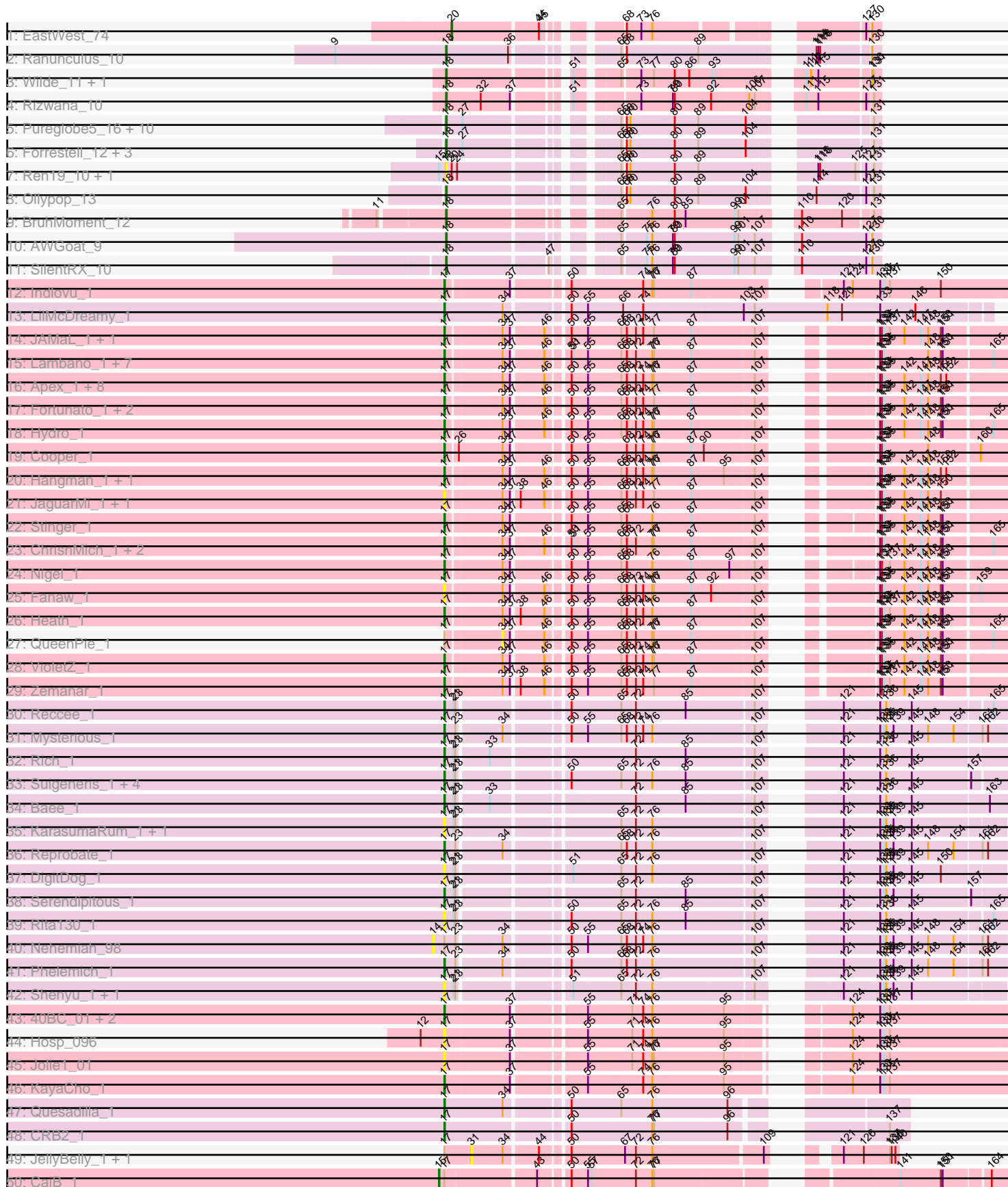


Pham 311318



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 311318 Report

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

Pham number 311318 has 153 members, 41 are drafts.

Phages represented in each track:

- Track 1 : EastWest_74
- Track 2 : Ranunculus_10
- Track 3 : Wilde_11, Tank_11
- Track 4 : Rizwana_10
- Track 5 : Pureglobe5_16, Popstraw_13, Hive_13, PhuzzTulsa_12, Kubulix_15, DogYard_14, Odyssey395_16, Beagle_15, Pointis_14, RIPWilbur_12, BetaFish_14
- Track 6 : Forrestell_12, NyleyClemson_11, MellowYellow_12, RazzB_11
- Track 7 : Ren19_10, Nikan_12
- Track 8 : Ollypop_13
- Track 9 : BruhMoment_12
- Track 10 : AWGoat_9
- Track 11 : SilentRX_10
- Track 12 : Indlovu_1
- Track 13 : LilMcDreamy_1
- Track 14 : JAMaL_1, BobbyK_1
- Track 15 : Lambano_1, GinPorsche_1, Hally898_1, Antihero_1, Epah_1, Ahwei_1, Nanao_1, Poster_1
- Track 16 : Apex_1, Lolalove_1, Prince_1, Waleliano_1, Mudslide_1, BrownCNA_1, Austelle_1, Frederick_1, Mithril_1
- Track 17 : Fortunato_1, RawrgerThat_1, Magpie_1
- Track 18 : Hydro_1
- Track 19 : Cooper_1
- Track 20 : Hangman_1, JoyceMaria_1
- Track 21 : JaguarMi_1, Xincheng_1
- Track 22 : Stinger_1
- Track 23 : ChrisnMich_1, LittleDigger_1, Renkei_1
- Track 24 : Nigel_1
- Track 25 : Fanaw_1
- Track 26 : Heath_1
- Track 27 : QueenPie_1
- Track 28 : VioletZ_1
- Track 29 : Zemanar_1
- Track 30 : Reccee_1
- Track 31 : Mysterious_1
- Track 32 : Rich_1
- Track 33 : Suigeneris_1, EastView9101_1, Acadian_1, SirJeffery_1, Donny_1
- Track 34 : Bae_1

- Track 35 : KarasumaRum_1, StinkyVeggy_1
- Track 36 : Reprobate_1
- Track 37 : DigitDog_1
- Track 38 : Serendipitous_1
- Track 39 : Rita130_1
- Track 40 : Nehemiah_98
- Track 41 : Phelemich_1
- Track 42 : Shenyu_1, Nangang_1
- Track 43 : 40BC_01, ForDig_1, 39HC_01
- Track 44 : Hosp_096
- Track 45 : Jolie1_01
- Track 46 : KayaCho_1
- Track 47 : Quesadilla_1
- Track 48 : CRB2_1
- Track 49 : JellyBelly_1, CharlottesWeb_1
- Track 50 : CaiB_1
- Track 51 : BiggityBass_1
- Track 52 : BobRoss2024_1
- Track 53 : AksarBAT_1
- Track 54 : NHagos_1
- Track 55 : Fresco_1, Axumite_1, Shatter_1, Ligma_1
- Track 56 : Mariokart_1
- Track 57 : AnarQue_1, MakoManhole_1, MossRose_1, CloverMinnie_1, FelixTres_1
- Track 58 : Sisko_1
- Track 59 : Wooper_1
- Track 60 : LittleMunchkin_1
- Track 61 : Blackpen_1
- Track 62 : Yeshua_1
- Track 63 : Yago84_1
- Track 64 : TraderJ_1
- Track 65 : Nicole72_1
- Track 66 : Megan_1
- Track 67 : MementoMori_97
- Track 68 : Terij_1
- Track 69 : Cinna_94, Matzah_98
- Track 70 : Cinna_1, Matzah_1
- Track 71 : Margaery_97
- Track 72 : Cressida_1
- Track 73 : MementoMori_1
- Track 74 : Margaery_1
- Track 75 : Cressida_96
- Track 76 : Kozie_86
- Track 77 : Mufasa8_91
- Track 78 : Nandito_63
- Track 79 : Bolt007_62
- Track 80 : Klevey_64
- Track 81 : Altadena_60
- Track 82 : Prairie_62
- Track 83 : Circuit_59
- Track 84 : CalWood4100_65, Lilmac1015_65
- Track 85 : Bumble_59
- Track 86 : Ottawa_72, Kharcho_72
- Track 87 : Ottawa_73, Kharcho_73

- Track 88 : RomansRevenge_8, Boise_8
- Track 89 : TurkishDelight_122
- Track 90 : BigAnti_66
- Track 91 : BigAnti_67
- Track 92 : Jace_85
- Track 93 : Gilgamesh_84
- Track 94 : Tonitrus_1

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

The start number called the most often in the published annotations is 17, it was called in 52 of the 112 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 39HC_01, 40BC_01, Acadian_1, Ahwei_1, AksarBAT_1, Antihero_1, Apex_1, Austelle_1, Axumite_1, Bae_1, BigAnti_66, BiggityBass_1, BobRoss2024_1, BobbyK_1, BrownCNA_1, CRB2_1, ChrisnMich_1, Cooper_1, DigitDog_1, Donny_1, EastView9101_1, Epah_1, Fanaw_1, ForDig_1, Fortunato_1, Frederick_1, Fresco_1, GinPorsche_1, Hally898_1, Hangman_1, Heath_1, Hosp_096, Hydro_1, Indlovu_1, JAMaL_1, JaguarMi_1, Jolie1_01, JoyceMaria_1, KarasumaRum_1, KayaCho_1, Lambano_1, Ligma_1, LilMcDreamy_1, LittleDigger_1, LittleMunchkin_1, Lolalove_1, Magpie_1, Mariokart_1, Mithril_1, Mudslide_1, Mysterious_1, Nanao_1, Nangang_1, Nigel_1, Phelemich_1, Poster_1, Prince_1, Quesadilla_1, RawrgerThat_1, Reccee_1, Renkei_1, Reprobate_1, Rich_1, Rita130_1, Serendipitous_1, Shatter_1, Shenyu_1, SirJeffery_1, Sisko_1, Stinger_1, StinkyVeggy_1, Suigeneris_1, VioletZ_1, Waleliano_1, Xincheng_1, Yago84_1, Zemanar_1,

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

- AnarQue_1, Blackpen_1, CaiB_1, CharlottesWeb_1, CloverMinnie_1, FelixTres_1, JellyBelly_1, MakoManhole_1, MossRose_1, NHagos_1, Nehemiah_98, QueenPie_1, TraderJ_1, Wooper_1, Yeshua_1,

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

- AWGoat_9, Altadena_60, Beagle_15, BetaFish_14, BigAnti_67, Boise_8, Bolt007_62, BruhMoment_12, Bumble_59, CalWood4100_65, Cinna_1, Cinna_94, Circuit_59, Cressida_1, Cressida_96, DogYard_14, EastWest_74, Forrestell_12, Gilgamesh_84, Hive_13, Jace_85, Kharcho_72, Kharcho_73, Klevey_64, Kozie_86, Kubulix_15, Lilmac1015_65, Margaery_1, Margaery_97, Matzah_1, Matzah_98, Megan_1, MellowYellow_12, MementoMori_1, MementoMori_97, Mufasa8_91, Nandito_63, Nicole72_1, Nikan_12, NyleyClemson_11, Odyssey395_16, Ollypop_13, Ottawa_72, Ottawa_73, PhuzzTulsa_12, Pointis_14, Popstraw_13, Prairie_62, Pureglobe5_16, RIPWilbur_12, Ranunculus_10, RazzB_11, Ren19_10, Rizwana_10, RomansRevenge_8, SilentRX_10, Tank_11, Terij_1, Tonitrus_1, TurkishDelight_122, Wilde_11,

Summary by start number:

Start 14:

- Found in 1 of 153 (0.7%) of genes in pham
- No Manual Annotations of this start.

- Called 100.0% of time when present
- Phage (with cluster) where this start called: Nehemiah_98 (B5),

Start 15:

- Found in 16 of 153 (10.5%) of genes in pham
- Manual Annotations of this start: 10 of 112
- Called 75.0% of time when present
- Phage (with cluster) where this start called: AnarQue_1 (DR), Blackpen_1 (DR), CaiB_1 (DR), CloverMinnie_1 (DR), FelixTres_1 (DR), KoziE_86 (EI), MakoManhole_1 (DR), MossRose_1 (DR), NHagos_1 (DR), TraderJ_1 (DR), Wooper_1 (DR), Yeshua_1 (DR),

Start 16:

- Found in 9 of 153 (5.9%) of genes in pham
- Manual Annotations of this start: 7 of 112
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Altadena_60 (FH), Bolt007_62 (FH), Bumble_59 (FH), CalWood4100_65 (FH), Circuit_59 (FH), Klevey_64 (FH), Lilmac1015_65 (FH), Nandito_63 (FH), Prairie_62 (FH),

Start 17:

- Found in 92 of 153 (60.1%) of genes in pham
- Manual Annotations of this start: 52 of 112
- Called 83.7% of time when present
- Phage (with cluster) where this start called: 39HC_01 (B6), 40BC_01 (B6), Acadian_1 (B5), Ahwei_1 (B4), AksarBAT_1 (DR), Antihero_1 (B4), Apex_1 (B4), Austelle_1 (B4), Axumite_1 (DR), BaeE_1 (B5), BigAnti_66 (singleton), BiggityBass_1 (DR), BobRoss2024_1 (DR), BobbyK_1 (B4), BrownCNA_1 (B4), CRB2_1 (B9), ChrisnMich_1 (B4), Cooper_1 (B4), DigitDog_1 (B5), Donny_1 (B5), EastView9101_1 (B5), Epah_1 (B4), Fanaw_1 (B4), ForDig_1 (B6), Fortunato_1 (B4), Frederick_1 (B4), Fresco_1 (DR), GinPorsche_1 (B4), Hally898_1 (B4), Hangman_1 (B4), Heath_1 (B4), Hosp_096 (B6), Hydro_1 (B4), Indlovu_1 (B11), JAMaL_1 (B4), JaguarMi_1 (B4), Jolie1_01 (B6), JoyceMaria_1 (B4), KarasumaRum_1 (B5), KayaCho_1 (B6), Lambano_1 (B4), Ligma_1 (DR), LilMcDreamy_1 (B12), LittleDigger_1 (B4), LittleMunchkin_1 (DR), Lolalove_1 (B4), Magpie_1 (B4), Mariokart_1 (DR), Mithril_1 (B4), Mudslide_1 (B4), Mysterious_1 (B5), Nanao_1 (B4), Nangang_1 (B5), Nigel_1 (B4), Phelemich_1 (B5), Poster_1 (B4), Prince_1 (B4), Quesadilla_1 (B9), RawrgerThat_1 (B4), Reccee_1 (B5), Renkei_1 (B4), Reprobate_1 (B5), Rich_1 (B5), Rita130_1 (B5), Serendipitous_1 (B5), Shatter_1 (DR), Shenyu_1 (B5), SirJeffery_1 (B5), Sisko_1 (DR), Stinger_1 (B4), StinkyVeggy_1 (B5), Suigeneris_1 (B5), VioletZ_1 (B4), Waleliano_1 (B4), Xincheng_1 (B4), Yago84_1 (DR), Zemanar_1 (B4),

Start 18:

- Found in 26 of 153 (17.0%) of genes in pham
- Manual Annotations of this start: 20 of 112
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AWGoat_9 (AP4), Beagle_15 (AP2), BetaFish_14 (AP2), BruhMoment_12 (AP3), DogYard_14 (AP2), Forrestell_12 (AP2), Hive_13 (AP2), Kubulix_15 (AP2), Margaery_97 (EI), MellowYellow_12 (AP2), Nikan_12 (AP2), NyleyClemson_11 (AP2), Odyssey395_16 (AP2), Ollypop_13 (AP2), PhuzzTulsa_12 (AP2), Pointis_14 (AP2), Popstraw_13 (AP2), Pureglobe5_16 (AP2), RIPWilbur_12 (AP2), Ranunculus_10 (AP), RazzB_11 (AP2), Ren19_10 (AP2),

Rizwana_10 (AP1), SilentRX_10 (AP4), Tank_11 (AP1), Wilde_11 (AP1),

Start 19:

- Found in 5 of 153 (3.3%) of genes in pham
- Manual Annotations of this start: 4 of 112
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Boise_8 (FT), Gilgamesh_84 (singleton), Kharcho_72 (FM), Ottawa_72 (FM), RomansRevenge_8 (FT),

Start 20:

- Found in 10 of 153 (6.5%) of genes in pham
- Manual Annotations of this start: 7 of 112
- Called 70.0% of time when present
- Phage (with cluster) where this start called: Cinna_94 (EI), Cressida_96 (EI), EastWest_74 (AO), Matzah_98 (EI), MementoMori_97 (EI), Mufasa8_91 (FG), TurkishDelight_122 (singleton),

Start 22:

- Found in 1 of 153 (0.7%) of genes in pham
- Manual Annotations of this start: 1 of 112
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Tonitrus_1 (singleton),

Start 24:

- Found in 5 of 153 (3.3%) of genes in pham
- Manual Annotations of this start: 2 of 112
- Called 60.0% of time when present
- Phage (with cluster) where this start called: BigAnti_67 (singleton), Megan_1 (EC), Nicole72_1 (EC),

Start 25:

- Found in 1 of 153 (0.7%) of genes in pham
- Manual Annotations of this start: 1 of 112
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jace_85 (singleton),

Start 28:

- Found in 6 of 153 (3.9%) of genes in pham
- Manual Annotations of this start: 6 of 112
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cinna_1 (EI), Cressida_1 (EI), Margaery_1 (EI), Matzah_1 (EI), MementoMori_1 (EI), Terij_1 (EI),

Start 29:

- Found in 4 of 153 (2.6%) of genes in pham
- Manual Annotations of this start: 2 of 112
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Kharcho_73 (FM), Ottawa_73 (FM),

Start 31:

- Found in 9 of 153 (5.9%) of genes in pham
- No Manual Annotations of this start.
- Called 22.2% of time when present

- Phage (with cluster) where this start called: CharlottesWeb_1 (DR), JellyBelly_1 (DR),

Start 34:

- Found in 58 of 153 (37.9%) of genes in pham
- No Manual Annotations of this start.
- Called 1.7% of time when present
- Phage (with cluster) where this start called: QueenPie_1 (B4),

Summary by clusters:

There are 20 clusters represented in this pham: FG, singleton, EI, AP, AP2, AP3, AP1, AP4, B9, B4, B5, B6, EC, B12, AO, B11, FH, FT, DR, FM,

Info for manual annotations of cluster AO:

- Start number 20 was manually annotated 1 time for cluster AO.

Info for manual annotations of cluster AP:

- Start number 18 was manually annotated 1 time for cluster AP.

Info for manual annotations of cluster AP1:

- Start number 18 was manually annotated 3 times for cluster AP1.

Info for manual annotations of cluster AP2:

- Start number 18 was manually annotated 12 times for cluster AP2.

Info for manual annotations of cluster AP3:

- Start number 18 was manually annotated 1 time for cluster AP3.

Info for manual annotations of cluster AP4:

- Start number 18 was manually annotated 2 times for cluster AP4.

Info for manual annotations of cluster B11:

- Start number 17 was manually annotated 1 time for cluster B11.

Info for manual annotations of cluster B12:

- Start number 17 was manually annotated 1 time for cluster B12.

Info for manual annotations of cluster B4:

- Start number 17 was manually annotated 26 times for cluster B4.

Info for manual annotations of cluster B5:

- Start number 17 was manually annotated 11 times for cluster B5.

Info for manual annotations of cluster B6:

- Start number 17 was manually annotated 2 times for cluster B6.

Info for manual annotations of cluster B9:

- Start number 17 was manually annotated 2 times for cluster B9.

Info for manual annotations of cluster DR:

- Start number 15 was manually annotated 9 times for cluster DR.
- Start number 17 was manually annotated 9 times for cluster DR.

Info for manual annotations of cluster EC:

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

Info for manual annotations of cluster EI:

- Start number 15 was manually annotated 1 time for cluster EI.
- Start number 18 was manually annotated 1 time for cluster EI.
- Start number 20 was manually annotated 4 times for cluster EI.
- Start number 28 was manually annotated 6 times for cluster EI.

Info for manual annotations of cluster FG:

- Start number 20 was manually annotated 1 time for cluster FG.

Info for manual annotations of cluster FH:

- Start number 16 was manually annotated 7 times for cluster FH.

Info for manual annotations of cluster FM:

- Start number 19 was manually annotated 2 times for cluster FM.
- Start number 29 was manually annotated 2 times for cluster FM.

Info for manual annotations of cluster FT:

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

Gene Information:

Gene: 39HC_01 Start: 1, Stop: 810, Start Num: 17

Candidate Starts for 39HC_01:

(Start: 17 @1 has 52 MA's), (37, 106), (55, 208), (71, 277), (74, 295), (76, 310), (95, 424), (124, 541), (133, 586), (135, 592), (137, 601),

Gene: 40BC_01 Start: 1, Stop: 810, Start Num: 17

Candidate Starts for 40BC_01:

(Start: 17 @1 has 52 MA's), (37, 106), (55, 208), (71, 277), (74, 295), (76, 310), (95, 424), (124, 541), (133, 586), (135, 592), (137, 601),

Gene: AWGoat_9 Start: 3580, Stop: 4173, Start Num: 18

Candidate Starts for AWGoat_9:

(Start: 18 @3580 has 20 MA's), (65, 3808), (75, 3844), (76, 3853), (79, 3886), (80, 3889), (99, 3985), (101, 3991), (107, 4015), (110, 4051), (127, 4153), (130, 4159),

Gene: Acadian_1 Start: 1, Stop: 816, Start Num: 17

Candidate Starts for Acadian_1:

(Start: 17 @1 has 52 MA's), (21, 16), (23, 19), (50, 178), (65, 256), (72, 277), (76, 304), (85, 358), (107, 463), (121, 538), (133, 595), (136, 604), (145, 646), (157, 739),

Gene: Ahwei_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Ahwei_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (51, 181), (55, 202), (65, 256), (68, 262), (72, 277), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (148, 655), (150, 676), (151, 679), (165, 754),

Gene: AksarBAT_1 Start: 10, Stop: 633, Start Num: 17

Candidate Starts for AksarBAT_1:

(Start: 15 @1 has 10 MA's), (Start: 17 @10 has 52 MA's), (34, 103), (35, 109), (44, 154), (50, 193), (55, 217), (72, 292), (94, 424), (102, 463), (121, 547), (126, 580), (137, 619), (138, 622), (140, 628),

Gene: Altadena_60 Start: 38689, Stop: 39465, Start Num: 16

Candidate Starts for Altadena_60:

(2, 38008), (3, 38044), (4, 38092), (6, 38137), (7, 38146), (Start: 16 @38689 has 7 MA's), (99, 39097), (101, 39103), (138, 39301), (143, 39325), (153, 39394),

Gene: AnarQue_1 Start: 1, Stop: 804, Start Num: 15

Candidate Starts for AnarQue_1:

(Start: 15 @1 has 10 MA's), (Start: 17 @10 has 52 MA's), (43, 151), (50, 193), (55, 217), (57, 223), (72, 292), (76, 319), (77, 322), (150, 703), (151, 706), (164, 775),

Gene: Antihero_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Antihero_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (51, 181), (55, 202), (65, 256), (68, 262), (72, 277), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (148, 655), (150, 676), (151, 679), (165, 754),

Gene: Apex_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Apex_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (152, 685),

Gene: Austelle_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Austelle_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (152, 685),

Gene: Axumite_1 Start: 1, Stop: 606, Start Num: 17

Candidate Starts for Axumite_1:

(Start: 17 @1 has 52 MA's), (34, 85), (39, 112), (44, 136), (50, 175), (83, 349), (109, 472), (126, 553), (137, 592), (138, 595), (140, 601),

Gene: Bae_1 Start: 1, Stop: 822, Start Num: 17

Candidate Starts for Bae_1:

(Start: 17 @1 has 52 MA's), (21, 16), (23, 19), (33, 67), (72, 277), (85, 358), (107, 463), (121, 538), (133, 595), (136, 604), (145, 646), (163, 769),

Gene: Beagle_15 Start: 4696, Stop: 5277, Start Num: 18

Candidate Starts for Beagle_15:

(Start: 18 @4696 has 20 MA's), (27, 4723), (65, 4924), (68, 4927), (70, 4933), (80, 5002), (89, 5041), (104, 5116), (131, 5266),

Gene: BetaFish_14 Start: 4896, Stop: 5477, Start Num: 18

Candidate Starts for BetaFish_14:

(Start: 18 @4896 has 20 MA's), (27, 4923), (65, 5124), (68, 5127), (70, 5133), (80, 5202), (89, 5241), (104, 5316), (131, 5466),

Gene: BigAnti_66 Start: 50973, Stop: 51656, Start Num: 17

Candidate Starts for BigAnti_66:

(Start: 17 @50973 has 52 MA's), (44, 51114), (50, 51153), (70, 51219), (71, 51222), (77, 51258), (84, 51306), (88, 51327), (95, 51366), (98, 51378), (133, 51519), (141, 51552),

Gene: BigAnti_67 Start: 51667, Stop: 52422, Start Num: 24

Candidate Starts for BigAnti_67:

(Start: 24 @51667 has 2 MA's), (50, 51826), (60, 51874), (71, 51919), (77, 51955), (87, 52015), (133, 52249), (134, 52252), (136, 52258), (142, 52288), (144, 52297),

Gene: BiggityBass_1 Start: 1, Stop: 600, Start Num: 17

Candidate Starts for BiggityBass_1:

(Start: 17 @1 has 52 MA's), (31, 28), (34, 79), (40, 118), (50, 169), (76, 295), (119, 508), (137, 586),

Gene: Blackpen_1 Start: 1, Stop: 804, Start Num: 15

Candidate Starts for Blackpen_1:

(Start: 15 @1 has 10 MA's), (Start: 17 @10 has 52 MA's), (43, 151), (50, 193), (55, 217), (57, 223), (72, 292), (76, 319), (77, 322), (100, 451), (150, 703), (151, 706), (164, 775),

Gene: BobRoss2024_1 Start: 1, Stop: 780, Start Num: 17

Candidate Starts for BobRoss2024_1:

(Start: 17 @1 has 52 MA's), (34, 97), (50, 187), (55, 211), (134, 589), (151, 688),

Gene: BobbyK_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for BobbyK_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (137, 592), (142, 616), (147, 643), (148, 655), (150, 676), (151, 679),

Gene: Boise_8 Start: 3035, Stop: 3610, Start Num: 19

Candidate Starts for Boise_8:

(Start: 19 @3035 has 4 MA's), (30, 3071), (31, 3074), (32, 3089), (45, 3179), (63, 3254), (69, 3266), (70, 3269), (78, 3308), (84, 3353), (86, 3362), (105, 3443), (114, 3512), (121, 3554), (123, 3563), (127, 3590),

Gene: Bolt007_62 Start: 40946, Stop: 41710, Start Num: 16

Candidate Starts for Bolt007_62:

(1, 40265), (4, 40349), (5, 40358), (6, 40394), (7, 40403), (Start: 16 @40946 has 7 MA's), (70, 41186), (99, 41339), (101, 41345), (138, 41537), (139, 41540), (140, 41543), (143, 41561), (153, 41630),

Gene: BrownCNA_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for BrownCNA_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (152, 685),

Gene: BruhMoment_12 Start: 4721, Stop: 5308, Start Num: 18

Candidate Starts for BruhMoment_12:

(11, 4628), (Start: 18 @4721 has 20 MA's), (65, 4949), (76, 4994), (80, 5030), (85, 5048), (99, 5126), (101, 5132), (110, 5189), (120, 5255), (131, 5297),

Gene: Bumble_59 Start: 39508, Stop: 40269, Start Num: 16

Candidate Starts for Bumble_59:

(Start: 16 @39508 has 7 MA's), (70, 39748), (93, 39865), (101, 39907), (138, 40111), (143, 40135), (144, 40141), (153, 40204),

Gene: CRB2_1 Start: 1, Stop: 633, Start Num: 17

Candidate Starts for CRB2_1:

(Start: 17 @1 has 52 MA's), (50, 187), (76, 313), (77, 316), (96, 433), (137, 601),

Gene: CaiB_1 Start: 1, Stop: 804, Start Num: 15

Candidate Starts for CaiB_1:

(Start: 15 @1 has 10 MA's), (Start: 17 @10 has 52 MA's), (43, 151), (50, 193), (55, 217), (57, 223), (72, 292), (76, 319), (77, 322), (141, 637), (150, 703), (151, 706), (164, 775),

Gene: CalWood4100_65 Start: 40886, Stop: 41671, Start Num: 16

Candidate Starts for CalWood4100_65:

(Start: 16 @40886 has 7 MA's), (54, 41078), (70, 41126), (84, 41210), (99, 41279), (101, 41285), (138, 41498), (139, 41501), (140, 41504), (143, 41522), (153, 41591),

Gene: CharlottesWeb_1 Start: 40, Stop: 612, Start Num: 31

Candidate Starts for CharlottesWeb_1:

(Start: 17 @1 has 52 MA's), (31, 40), (34, 91), (44, 142), (50, 181), (67, 262), (72, 280), (76, 307), (109, 478), (121, 526), (126, 559), (137, 598), (138, 601), (140, 607),

Gene: ChrisnMich_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for ChrisnMich_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (51, 181), (55, 202), (65, 256), (68, 262), (72, 277), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (151, 679), (165, 754),

Gene: Cinna_94 Start: 54580, Stop: 55263, Start Num: 20

Candidate Starts for Cinna_94:

(Start: 20 @54580 has 7 MA's), (35, 54667), (53, 54775), (56, 54793), (59, 54808), (64, 54838), (66, 54844), (78, 54898), (82, 54934), (88, 54964), (97, 55015), (99, 55024), (113, 55081), (122, 55129),

Gene: Cinna_1 Start: 1, Stop: 648, Start Num: 28

Candidate Starts for Cinna_1:

(Start: 28 @1 has 6 MA's), (38, 85), (43, 112), (45, 118), (49, 160), (59, 211), (64, 244), (66, 250), (81, 337), (122, 523), (129, 562), (145, 628),

Gene: Circuit_59 Start: 40042, Stop: 40803, Start Num: 16

Candidate Starts for Circuit_59:

(Start: 16 @40042 has 7 MA's), (101, 40438), (138, 40645), (139, 40648), (143, 40669), (144, 40675), (153, 40738), (155, 40750),

Gene: CloverMinnie_1 Start: 1, Stop: 804, Start Num: 15

Candidate Starts for CloverMinnie_1:

(Start: 15 @1 has 10 MA's), (Start: 17 @10 has 52 MA's), (43, 151), (50, 193), (55, 217), (57, 223), (72, 292), (76, 319), (77, 322), (150, 703), (151, 706), (164, 775),

Gene: Cooper_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Cooper_1:

(Start: 17 @1 has 52 MA's), (26, 19), (34, 88), (37, 100), (50, 178), (55, 202), (68, 262), (72, 277), (74, 289), (76, 304), (77, 307), (87, 367), (90, 388), (107, 466), (133, 577), (134, 580), (135, 583), (148, 655), (160, 733),

Gene: Cressida_1 Start: 1, Stop: 645, Start Num: 28

Candidate Starts for Cressida_1:

(Start: 28 @1 has 6 MA's), (38, 85), (45, 118), (49, 160), (60, 217), (66, 247), (81, 334), (122, 520), (129, 559), (145, 625),

Gene: Cressida_96 Start: 55174, Stop: 55857, Start Num: 20

Candidate Starts for Cressida_96:

(Start: 20 @55174 has 7 MA's), (35, 55261), (53, 55369), (56, 55387), (59, 55402), (64, 55432), (66, 55438), (78, 55492), (82, 55528), (88, 55558), (97, 55609), (113, 55675),

Gene: DigitDog_1 Start: 1, Stop: 807, Start Num: 17

Candidate Starts for DigitDog_1:

(Start: 17 @1 has 52 MA's), (21, 16), (23, 19), (51, 181), (65, 256), (72, 277), (76, 304), (107, 463), (121, 538), (133, 595), (135, 601), (136, 604), (139, 616), (145, 646), (150, 694),

Gene: DogYard_14 Start: 4766, Stop: 5347, Start Num: 18

Candidate Starts for DogYard_14:

(Start: 18 @4766 has 20 MA's), (27, 4793), (65, 4994), (68, 4997), (70, 5003), (80, 5072), (89, 5111), (104, 5186), (131, 5336),

Gene: Donny_1 Start: 1, Stop: 816, Start Num: 17

Candidate Starts for Donny_1:

(Start: 17 @1 has 52 MA's), (21, 16), (23, 19), (50, 178), (65, 256), (72, 277), (76, 304), (85, 358), (107, 463), (121, 538), (133, 595), (136, 604), (145, 646), (157, 739),

Gene: EastView9101_1 Start: 1, Stop: 816, Start Num: 17

Candidate Starts for EastView9101_1:

(Start: 17 @1 has 52 MA's), (21, 16), (23, 19), (50, 178), (65, 256), (72, 277), (76, 304), (85, 358), (107, 463), (121, 538), (133, 595), (136, 604), (145, 646), (157, 739),

Gene: EastWest_74 Start: 43726, Stop: 44280, Start Num: 20

Candidate Starts for EastWest_74:

(Start: 20 @43726 has 7 MA's), (44, 43861), (45, 43864), (68, 43951), (73, 43972), (76, 43990), (127, 44260), (130, 44266),

Gene: Epah_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Epah_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (51, 181), (55, 202), (65, 256), (68, 262), (72, 277), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (148, 655), (150, 676), (151, 679), (165, 754),

Gene: Fanaw_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Fanaw_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (76, 304), (77, 307), (87, 367), (92, 397), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (151, 679), (159, 733),

Gene: FelixTres_1 Start: 1, Stop: 804, Start Num: 15

Candidate Starts for FelixTres_1:

(Start: 15 @1 has 10 MA's), (Start: 17 @10 has 52 MA's), (43, 151), (50, 193), (55, 217), (57, 223), (72, 292), (76, 319), (77, 322), (150, 703), (151, 706), (164, 775),

Gene: ForDig_1 Start: 1, Stop: 810, Start Num: 17

Candidate Starts for ForDig_1:

(Start: 17 @1 has 52 MA's), (37, 106), (55, 208), (71, 277), (74, 295), (76, 310), (95, 424), (124, 541), (133, 586), (135, 592), (137, 601),

Gene: Forrestell_12 Start: 4123, Stop: 4704, Start Num: 18

Candidate Starts for Forrestell_12:

(Start: 18 @4123 has 20 MA's), (27, 4150), (65, 4351), (68, 4354), (70, 4360), (80, 4429), (89, 4468), (104, 4543), (131, 4693),

Gene: Fortunato_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Fortunato_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (151, 679),

Gene: Frederick_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Frederick_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (152, 685),

Gene: Fresco_1 Start: 1, Stop: 606, Start Num: 17

Candidate Starts for Fresco_1:

(Start: 17 @1 has 52 MA's), (34, 85), (39, 112), (44, 136), (50, 175), (83, 349), (109, 472), (126, 553), (137, 592), (138, 595), (140, 601),

Gene: Gilgamesh_84 Start: 79987, Stop: 80619, Start Num: 19

Candidate Starts for Gilgamesh_84:

(Start: 19 @79987 has 4 MA's), (31, 80026), (39, 80104), (42, 80122), (53, 80191), (55, 80206), (59, 80224), (66, 80260), (91, 80395), (98, 80434),

Gene: GinPorsche_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for GinPorsche_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (51, 181), (55, 202), (65, 256), (68, 262), (72, 277), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (148, 655), (150, 676), (151, 679), (165, 754),

Gene: Hally898_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Hally898_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (51, 181), (55, 202), (65, 256), (68, 262), (72, 277), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (148, 655), (150, 676), (151, 679), (165, 754),

Gene: Hangman_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Hangman_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (76, 304), (77, 307), (87, 367), (95, 418), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (152, 685),

Gene: Heath_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Heath_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (38, 109), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (76, 304), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (137, 592), (142, 616), (147, 643), (148, 655), (150, 676), (151, 679),

Gene: Hive_13 Start: 4780, Stop: 5361, Start Num: 18

Candidate Starts for Hive_13:

(Start: 18 @4780 has 20 MA's), (27, 4807), (65, 5008), (68, 5011), (70, 5017), (80, 5086), (89, 5125), (104, 5200), (131, 5350),

Gene: Hosp_096 Start: 68870, Stop: 69679, Start Num: 17

Candidate Starts for Hosp_096:

(12, 68831), (Start: 17 @68870 has 52 MA's), (37, 68975), (55, 69077), (71, 69146), (74, 69164), (76, 69179), (95, 69293), (124, 69410), (133, 69455), (135, 69461), (137, 69470),

Gene: Hydro_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Hydro_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (151, 679), (165, 754),

Gene: Indlovu_1 Start: 1, Stop: 825, Start Num: 17

Candidate Starts for Indlovu_1:

(Start: 17 @1 has 52 MA's), (37, 100), (50, 178), (74, 289), (76, 304), (77, 307), (87, 367), (121, 538), (124, 553), (133, 598), (135, 604), (137, 613), (150, 697),

Gene: JAMaL_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for JAMaL_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (137, 592), (142, 616), (147, 643), (148, 655), (150, 676), (151, 679),

Gene: Jace_85 Start: 47046, Stop: 47594, Start Num: 25

Candidate Starts for Jace_85:

(Start: 25 @47046 has 1 MA's), (50, 47202), (58, 47223), (76, 47304), (77, 47307), (87, 47367), (126, 47559), (132, 47577), (134, 47586), (135, 47589),

Gene: JaguarMi_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for JaguarMi_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (38, 109), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676),

Gene: JellyBelly_1 Start: 40, Stop: 612, Start Num: 31

Candidate Starts for JellyBelly_1:

(Start: 17 @1 has 52 MA's), (31, 40), (34, 91), (44, 142), (50, 181), (67, 262), (72, 280), (76, 307), (109, 478), (121, 526), (126, 559), (137, 598), (138, 601), (140, 607),

Gene: Jolie1_01 Start: 1, Stop: 810, Start Num: 17

Candidate Starts for Jolie1_01:

(Start: 17 @1 has 52 MA's), (37, 106), (55, 208), (71, 277), (74, 295), (76, 310), (77, 313), (95, 424), (124, 541), (133, 586), (135, 592), (137, 601),

Gene: JoyceMaria_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for JoyceMaria_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (76, 304), (77, 307), (87, 367), (95, 418), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (152, 685),

Gene: KarasumaRum_1 Start: 1, Stop: 807, Start Num: 17

Candidate Starts for KarasumaRum_1:

(Start: 17 @1 has 52 MA's), (21, 16), (23, 19), (65, 256), (72, 277), (76, 304), (107, 463), (121, 538), (133, 595), (135, 601), (136, 604), (139, 616), (145, 646),

Gene: KayaCho_1 Start: 1, Stop: 813, Start Num: 17

Candidate Starts for KayaCho_1:

(Start: 17 @1 has 52 MA's), (37, 106), (55, 208), (74, 295), (76, 310), (95, 424), (124, 544), (133, 589), (135, 595), (137, 604),

Gene: Kharcho_73 Start: 42919, Stop: 43530, Start Num: 29

Candidate Starts for Kharcho_73:

(Start: 29 @42919 has 2 MA's), (68, 43129), (97, 43291),

Gene: Kharcho_72 Start: 42263, Stop: 42922, Start Num: 19

Candidate Starts for Kharcho_72:

(Start: 19 @42263 has 4 MA's), (30, 42293), (44, 42395), (144, 42872),

Gene: Klevey_64 Start: 40643, Stop: 41416, Start Num: 16

Candidate Starts for Klevey_64:

(3, 39998), (4, 40046), (5, 40055), (6, 40091), (Start: 16 @40643 has 7 MA's), (54, 40835), (70, 40883), (101, 41042), (138, 41243), (139, 41246), (140, 41249), (143, 41267), (153, 41336),

Gene: Kozie_86 Start: 51332, Stop: 52135, Start Num: 15

Candidate Starts for Kozie_86:

(Start: 15 @51332 has 10 MA's), (Start: 29 @51377 has 2 MA's), (44, 51488), (60, 51590), (62, 51605), (93, 51764), (122, 51926), (128, 51959), (144, 52028),

Gene: Kubulix_15 Start: 4895, Stop: 5476, Start Num: 18

Candidate Starts for Kubulix_15:

(Start: 18 @4895 has 20 MA's), (27, 4922), (65, 5123), (68, 5126), (70, 5132), (80, 5201), (89, 5240), (104, 5315), (131, 5465),

Gene: Lambano_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Lambano_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (51, 181), (55, 202), (65, 256), (68, 262), (72, 277), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (148, 655), (150, 676), (151, 679), (165, 754),

Gene: Ligma_1 Start: 1, Stop: 606, Start Num: 17

Candidate Starts for Ligma_1:

(Start: 17 @1 has 52 MA's), (34, 85), (39, 112), (44, 136), (50, 175), (83, 349), (109, 472), (126, 553), (137, 592), (138, 595), (140, 601),

Gene: LilMcDreamy_1 Start: 1, Stop: 852, Start Num: 17

Candidate Starts for LilMcDreamy_1:

(Start: 17 @1 has 52 MA's), (34, 97), (50, 187), (55, 211), (66, 265), (74, 298), (103, 457), (107, 475), (118, 595), (120, 619), (133, 679), (146, 736),

Gene: Lilmac1015_65 Start: 40886, Stop: 41671, Start Num: 16

Candidate Starts for Lilmac1015_65:

(Start: 16 @40886 has 7 MA's), (54, 41078), (70, 41126), (84, 41210), (99, 41279), (101, 41285), (138, 41498), (139, 41501), (140, 41504), (143, 41522), (153, 41591),

Gene: LittleDigger_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for LittleDigger_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (51, 181), (55, 202), (65, 256), (68, 262), (72, 277), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (151, 679), (165, 754),

Gene: LittleMunchkin_1 Start: 10, Stop: 807, Start Num: 17

Candidate Starts for LittleMunchkin_1:

(Start: 15 @1 has 10 MA's), (Start: 17 @10 has 52 MA's), (44, 154), (49, 187), (50, 193), (51, 196), (52, 199), (61, 250), (66, 271), (68, 277), (72, 292), (77, 322), (158, 763), (164, 778),

Gene: Lolalove_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Lolalove_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (152, 685),

Gene: Magpie_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Magpie_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (151, 679),

Gene: MakoManhole_1 Start: 1, Stop: 804, Start Num: 15

Candidate Starts for MakoManhole_1:

(Start: 15 @1 has 10 MA's), (Start: 17 @10 has 52 MA's), (43, 151), (50, 193), (55, 217), (57, 223), (72, 292), (76, 319), (77, 322), (150, 703), (151, 706), (164, 775),

Gene: Margaery_97 Start: 55238, Stop: 55930, Start Num: 18

Candidate Starts for Margaery_97:

(10, 55121), (Start: 18 @55238 has 20 MA's), (Start: 20 @55247 has 7 MA's), (35, 55334), (53, 55442), (56, 55460), (59, 55475), (88, 55631), (122, 55796),

Gene: Margaery_1 Start: 1, Stop: 645, Start Num: 28

Candidate Starts for Margaery_1:

(Start: 28 @1 has 6 MA's), (38, 85), (45, 118), (59, 211), (64, 241), (88, 367), (97, 418), (100, 430), (122, 520), (129, 559), (145, 625),

Gene: Mariokart_1 Start: 1, Stop: 612, Start Num: 17

Candidate Starts for Mariokart_1:

(Start: 17 @1 has 52 MA's), (31, 40), (34, 91), (44, 142), (50, 181), (67, 262), (72, 280), (76, 307), (121, 526), (126, 559), (138, 601),

Gene: Matzah_1 Start: 1, Stop: 648, Start Num: 28

Candidate Starts for Matzah_1:

(Start: 28 @1 has 6 MA's), (38, 85), (43, 112), (45, 118), (49, 160), (59, 211), (64, 244), (66, 250), (81, 337), (122, 523), (129, 562), (145, 628),

Gene: Matzah_98 Start: 54900, Stop: 55583, Start Num: 20

Candidate Starts for Matzah_98:

(Start: 20 @54900 has 7 MA's), (35, 54987), (53, 55095), (56, 55113), (59, 55128), (64, 55158), (66, 55164), (78, 55218), (82, 55254), (88, 55284), (97, 55335), (99, 55344), (113, 55401), (122, 55449),

Gene: Megan_1 Start: 1, Stop: 666, Start Num: 24

Candidate Starts for Megan_1:

(Start: 24 @1 has 2 MA's), (38, 97), (48, 154), (53, 190), (55, 205), (59, 223), (60, 229), (62, 244), (64, 253), (68, 265), (93, 403), (115, 517), (117, 529), (139, 637),

Gene: MellowYellow_12 Start: 4153, Stop: 4734, Start Num: 18

Candidate Starts for MellowYellow_12:

(Start: 18 @4153 has 20 MA's), (27, 4180), (65, 4381), (68, 4384), (70, 4390), (80, 4459), (89, 4498), (104, 4573), (131, 4723),

Gene: MementoMori_97 Start: 54789, Stop: 55472, Start Num: 20

Candidate Starts for MementoMori_97:

(Start: 20 @54789 has 7 MA's), (35, 54876), (53, 54984), (56, 55002), (59, 55017), (64, 55047), (66, 55053), (78, 55107), (82, 55143), (88, 55173), (113, 55290), (122, 55338),

Gene: MementoMori_1 Start: 1, Stop: 645, Start Num: 28

Candidate Starts for MementoMori_1:

(Start: 28 @1 has 6 MA's), (45, 118), (49, 160), (60, 217), (66, 247), (81, 334), (122, 520), (129, 559), (145, 625),

Gene: Mithril_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Mithril_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (152, 685),

Gene: MossRose_1 Start: 1, Stop: 804, Start Num: 15

Candidate Starts for MossRose_1:

(Start: 15 @1 has 10 MA's), (Start: 17 @10 has 52 MA's), (43, 151), (50, 193), (55, 217), (57, 223), (72, 292), (76, 319), (77, 322), (150, 703), (151, 706), (164, 775),

Gene: Mudslide_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Mudslide_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (152, 685),

Gene: Mufasa8_91 Start: 53065, Stop: 53769, Start Num: 20

Candidate Starts for Mufasa8_91:

(13, 53020), (Start: 20 @53065 has 7 MA's), (40, 53197), (41, 53200), (44, 53209), (62, 53332), (70, 53359), (84, 53440), (103, 53530), (105, 53536), (121, 53635),

Gene: Mysterious_1 Start: 1, Stop: 813, Start Num: 17

Candidate Starts for Mysterious_1:

(Start: 17 @1 has 52 MA's), (23, 19), (34, 88), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (76, 304), (107, 463), (121, 535), (133, 592), (135, 598), (136, 601), (139, 613), (145, 643), (148, 670), (154, 712), (161, 754), (162, 763),

Gene: NHagos_1 Start: 1, Stop: 633, Start Num: 15

Candidate Starts for NHagos_1:

(Start: 15 @1 has 10 MA's), (Start: 17 @10 has 52 MA's), (34, 103), (35, 109), (44, 154), (50, 193), (55, 217), (72, 292), (94, 424), (102, 463), (121, 547), (126, 580), (137, 619), (138, 622), (140, 628),

Gene: Nanao_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Nanao_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (51, 181), (55, 202), (65, 256), (68, 262), (72, 277), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (148, 655), (150, 676), (151, 679), (165, 754),

Gene: Nandito_63 Start: 41050, Stop: 41814, Start Num: 16

Candidate Starts for Nandito_63:

(3, 40405), (4, 40453), (6, 40498), (7, 40507), (8, 40807), (Start: 16 @41050 has 7 MA's), (138, 41641), (140, 41647), (143, 41665), (144, 41671),

Gene: Nangang_1 Start: 1, Stop: 807, Start Num: 17

Candidate Starts for Nangang_1:

(Start: 17 @1 has 52 MA's), (21, 16), (23, 19), (51, 181), (65, 256), (72, 277), (76, 304), (107, 463), (121, 538), (133, 595), (135, 601), (136, 604), (139, 616), (145, 646),

Gene: Nehemiah_98 Start: 70135, Stop: 813, Start Num: 14

Candidate Starts for Nehemiah_98:

(14, 70135), (Start: 17 @70153 has 52 MA's), (23, 70171), (34, 70240), (50, 70330), (55, 70354), (65, 70408), (68, 70414), (72, 70429), (74, 70441), (76, 70456), (107, 70615), (121, 70687), (133, 70744), (135, 70750), (136, 70753), (139, 70765), (145, 70795), (148, 70822), (154, 70864), (161, 70906), (162, 70915),

Gene: Nicole72_1 Start: 1, Stop: 666, Start Num: 24

Candidate Starts for Nicole72_1:

(Start: 24 @1 has 2 MA's), (38, 97), (53, 190), (59, 223), (60, 229), (62, 244), (64, 253), (66, 259), (115, 517), (139, 637),

Gene: Nigel_1 Start: 1, Stop: 789, Start Num: 17

Candidate Starts for Nigel_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (50, 178), (55, 202), (65, 256), (68, 262), (76, 304), (87, 367), (97, 427), (107, 466), (133, 568), (134, 571), (137, 583), (142, 607), (147, 634), (148, 646), (150, 667), (151, 670),

Gene: Nikan_12 Start: 4634, Stop: 5215, Start Num: 18

Candidate Starts for Nikan_12:

(Start: 15 @4622 has 10 MA's), (Start: 18 @4634 has 20 MA's), (Start: 20 @4643 has 7 MA's), (Start: 24 @4652 has 2 MA's), (65, 4862), (68, 4865), (70, 4871), (80, 4940), (89, 4979), (115, 5126), (116, 5129), (125, 5183), (127, 5195), (131, 5204),

Gene: NyleyClemson_11 Start: 4095, Stop: 4676, Start Num: 18

Candidate Starts for NyleyClemson_11:

(Start: 18 @4095 has 20 MA's), (27, 4122), (65, 4323), (68, 4326), (70, 4332), (80, 4401), (89, 4440), (104, 4515), (131, 4665),

Gene: Odyssey395_16 Start: 4894, Stop: 5475, Start Num: 18

Candidate Starts for Odyssey395_16:

(Start: 18 @4894 has 20 MA's), (27, 4921), (65, 5122), (68, 5125), (70, 5131), (80, 5200), (89, 5239), (104, 5314), (131, 5464),

Gene: Ollypop_13 Start: 4602, Stop: 5183, Start Num: 18

Candidate Starts for Ollypop_13:

(Start: 18 @4602 has 20 MA's), (65, 4830), (68, 4833), (70, 4839), (80, 4908), (89, 4947), (104, 5022), (114, 5091), (127, 5163), (131, 5172),

Gene: Ottawa_72 Start: 42213, Stop: 42872, Start Num: 19

Candidate Starts for Ottawa_72:

(Start: 19 @42213 has 4 MA's), (30, 42243), (44, 42345), (144, 42822),

Gene: Ottawa_73 Start: 42869, Stop: 43480, Start Num: 29

Candidate Starts for Ottawa_73:

(Start: 29 @42869 has 2 MA's), (68, 43079), (97, 43241),

Gene: Phelemich_1 Start: 1, Stop: 813, Start Num: 17

Candidate Starts for Phelemich_1:

(Start: 17 @1 has 52 MA's), (23, 19), (34, 88), (50, 178), (65, 256), (68, 262), (72, 277), (76, 304), (107, 463), (121, 535), (133, 592), (135, 598), (136, 601), (139, 613), (145, 643), (148, 670), (154, 712), (161, 754), (162, 763),

Gene: PhuzzTulsa_12 Start: 4684, Stop: 5265, Start Num: 18

Candidate Starts for PhuzzTulsa_12:

(Start: 18 @4684 has 20 MA's), (27, 4711), (65, 4912), (68, 4915), (70, 4921), (80, 4990), (89, 5029), (104, 5104), (131, 5254),

Gene: Pointis_14 Start: 4895, Stop: 5476, Start Num: 18

Candidate Starts for Pointis_14:

(Start: 18 @4895 has 20 MA's), (27, 4922), (65, 5123), (68, 5126), (70, 5132), (80, 5201), (89, 5240), (104, 5315), (131, 5465),

Gene: Popstraw_13 Start: 4684, Stop: 5265, Start Num: 18

Candidate Starts for Popstraw_13:

(Start: 18 @4684 has 20 MA's), (27, 4711), (65, 4912), (68, 4915), (70, 4921), (80, 4990), (89, 5029), (104, 5104), (131, 5254),

Gene: Poster_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Poster_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (51, 181), (55, 202), (65, 256), (68, 262), (72, 277), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (148, 655), (150, 676), (151, 679), (165, 754),

Gene: Prairie_62 Start: 40182, Stop: 40967, Start Num: 16

Candidate Starts for Prairie_62:

(3, 39537), (4, 39585), (5, 39594), (Start: 16 @40182 has 7 MA's), (54, 40374), (70, 40422), (99, 40575), (101, 40581), (138, 40794), (139, 40797), (140, 40800), (143, 40818), (153, 40887),

Gene: Prince_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Prince_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (152, 685),

Gene: Pureglobe5_16 Start: 4908, Stop: 5489, Start Num: 18

Candidate Starts for Pureglobe5_16:

(Start: 18 @4908 has 20 MA's), (27, 4935), (65, 5136), (68, 5139), (70, 5145), (80, 5214), (89, 5253), (104, 5328), (131, 5478),

Gene: QueenPie_1 Start: 88, Stop: 798, Start Num: 34

Candidate Starts for QueenPie_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (151, 679), (165, 754),

Gene: Quesadilla_1 Start: 1, Stop: 633, Start Num: 17

Candidate Starts for Quesadilla_1:

(Start: 17 @1 has 52 MA's), (34, 97), (50, 187), (65, 265), (76, 313), (96, 433),

Gene: RIPWilbur_12 Start: 4548, Stop: 5129, Start Num: 18

Candidate Starts for RIPWilbur_12:

(Start: 18 @4548 has 20 MA's), (27, 4575), (65, 4776), (68, 4779), (70, 4785), (80, 4854), (89, 4893), (104, 4968), (131, 5118),

Gene: Ranunculus_10 Start: 4388, Stop: 4969, Start Num: 18

Candidate Starts for Ranunculus_10:

(9, 4211), (Start: 18 @4388 has 20 MA's), (36, 4490), (65, 4616), (68, 4619), (89, 4733), (114, 4877), (115, 4880), (116, 4883), (130, 4955),

Gene: RawrgerThat_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for RawrgerThat_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (151, 679),

Gene: RazzB_11 Start: 3923, Stop: 4504, Start Num: 18

Candidate Starts for RazzB_11:

(Start: 18 @3923 has 20 MA's), (27, 3950), (65, 4151), (68, 4154), (70, 4160), (80, 4229), (89, 4268), (104, 4343), (131, 4493),

Gene: Reccee_1 Start: 1, Stop: 816, Start Num: 17

Candidate Starts for Reccee_1:

(Start: 17 @1 has 52 MA's), (21, 16), (23, 19), (50, 178), (65, 256), (72, 277), (85, 358), (107, 463), (121, 538), (133, 595), (136, 604), (145, 646), (165, 769),

Gene: Ren19_10 Start: 4634, Stop: 5215, Start Num: 18

Candidate Starts for Ren19_10:

(Start: 15 @4622 has 10 MA's), (Start: 18 @4634 has 20 MA's), (Start: 20 @4643 has 7 MA's), (Start: 24 @4652 has 2 MA's), (65, 4862), (68, 4865), (70, 4871), (80, 4940), (89, 4979), (115, 5126), (116, 5129), (125, 5183), (127, 5195), (131, 5204),

Gene: Renkei_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Renkei_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (51, 181), (55, 202), (65, 256), (68, 262), (72, 277), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (151, 679), (165, 754),

Gene: Reprobate_1 Start: 1, Stop: 810, Start Num: 17

Candidate Starts for Reprobate_1:

(Start: 17 @1 has 52 MA's), (23, 19), (34, 88), (65, 256), (68, 262), (72, 277), (76, 304), (107, 463), (121, 532), (133, 589), (135, 595), (136, 598), (139, 610), (145, 640), (148, 667), (154, 709), (161, 751), (162, 760),

Gene: Rich_1 Start: 1, Stop: 819, Start Num: 17

Candidate Starts for Rich_1:

(Start: 17 @1 has 52 MA's), (21, 16), (23, 19), (33, 67), (72, 277), (85, 358), (107, 463), (121, 538), (133, 595), (136, 604), (145, 646),

Gene: Rita130_1 Start: 1, Stop: 816, Start Num: 17

Candidate Starts for Rita130_1:

(Start: 17 @1 has 52 MA's), (21, 16), (23, 19), (50, 178), (65, 256), (72, 277), (76, 304), (85, 358), (107, 463), (121, 538), (133, 595), (136, 604), (145, 646), (165, 769),

Gene: Rizwana_10 Start: 4484, Stop: 5074, Start Num: 18

Candidate Starts for Rizwana_10:

(Start: 18 @4484 has 20 MA's), (32, 4541), (37, 4589), (51, 4655), (73, 4739), (79, 4790), (80, 4793), (92, 4850), (106, 4913), (107, 4922), (111, 4964), (115, 4982), (127, 5054), (131, 5063),

Gene: RomansRevenge_8 Start: 3035, Stop: 3610, Start Num: 19

Candidate Starts for RomansRevenge_8:

(Start: 19 @3035 has 4 MA's), (30, 3071), (31, 3074), (32, 3089), (45, 3179), (63, 3254), (69, 3266), (70, 3269), (78, 3308), (84, 3353), (86, 3362), (105, 3443), (114, 3512), (121, 3554), (123, 3563), (127, 3590),

Gene: Serendipitous_1 Start: 1, Stop: 816, Start Num: 17

Candidate Starts for Serendipitous_1:

(Start: 17 @1 has 52 MA's), (21, 16), (23, 19), (65, 256), (72, 277), (85, 358), (107, 463), (121, 538), (133, 595), (135, 601), (136, 604), (139, 616), (145, 646), (157, 739),

Gene: Shatter_1 Start: 1, Stop: 606, Start Num: 17

Candidate Starts for Shatter_1:

(Start: 17 @1 has 52 MA's), (34, 85), (39, 112), (44, 136), (50, 175), (83, 349), (109, 472), (126, 553), (137, 592), (138, 595), (140, 601),

Gene: Shenyu_1 Start: 1, Stop: 807, Start Num: 17

Candidate Starts for Shenyu_1:

(Start: 17 @1 has 52 MA's), (21, 16), (23, 19), (51, 181), (65, 256), (72, 277), (76, 304), (107, 463), (121, 538), (133, 595), (135, 601), (136, 604), (139, 616), (145, 646),

Gene: SilentRX_10 Start: 3301, Stop: 3894, Start Num: 18

Candidate Starts for SilentRX_10:

(Start: 18 @3301 has 20 MA's), (47, 3454), (65, 3529), (75, 3565), (76, 3574), (79, 3607), (80, 3610), (99, 3706), (101, 3712), (107, 3736), (110, 3772), (127, 3874), (130, 3880),

Gene: SirJeffery_1 Start: 1, Stop: 816, Start Num: 17

Candidate Starts for SirJeffery_1:

(Start: 17 @1 has 52 MA's), (21, 16), (23, 19), (50, 178), (65, 256), (72, 277), (76, 304), (85, 358), (107, 463), (121, 538), (133, 595), (136, 604), (145, 646), (157, 739),

Gene: Sisko_1 Start: 1, Stop: 600, Start Num: 17

Candidate Starts for Sisko_1:

(Start: 17 @1 has 52 MA's), (31, 28), (34, 79), (40, 118), (76, 295), (137, 586), (138, 589),

Gene: Stinger_1 Start: 1, Stop: 789, Start Num: 17

Candidate Starts for Stinger_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (50, 178), (55, 202), (65, 256), (68, 262), (76, 304), (87, 367), (107, 466), (133, 568), (134, 571), (135, 574), (142, 607), (147, 634), (148, 646), (150, 667), (151, 670),

Gene: StinkyVeggy_1 Start: 1, Stop: 807, Start Num: 17

Candidate Starts for StinkyVeggy_1:

(Start: 17 @1 has 52 MA's), (21, 16), (23, 19), (65, 256), (72, 277), (76, 304), (107, 463), (121, 538), (133, 595), (135, 601), (136, 604), (139, 616), (145, 646),

Gene: Suigeneris_1 Start: 1, Stop: 816, Start Num: 17

Candidate Starts for Suigeneris_1:

(Start: 17 @1 has 52 MA's), (21, 16), (23, 19), (50, 178), (65, 256), (72, 277), (76, 304), (85, 358), (107, 463), (121, 538), (133, 595), (136, 604), (145, 646), (157, 739),

Gene: Tank_11 Start: 4502, Stop: 5092, Start Num: 18

Candidate Starts for Tank_11:

(Start: 18 @4502 has 20 MA's), (51, 4673), (65, 4730), (73, 4757), (77, 4778), (80, 4811), (86, 4835), (93, 4871), (111, 4982), (112, 4988), (115, 5000), (130, 5078), (131, 5081),

Gene: Terij_1 Start: 1, Stop: 645, Start Num: 28

Candidate Starts for Terij_1:

(Start: 28 @1 has 6 MA's), (38, 85), (45, 118), (64, 241), (66, 247), (97, 418), (100, 430), (122, 520), (129, 559), (145, 625),

Gene: Tonitrus_1 Start: 1, Stop: 750, Start Num: 22

Candidate Starts for Tonitrus_1:

(Start: 22 @1 has 1 MA's), (Start: 29 @16 has 2 MA's), (44, 127), (45, 130), (49, 160), (50, 166), (51, 169), (55, 190), (65, 244), (69, 253), (76, 292), (87, 355), (120, 496), (124, 514), (134, 559), (135, 562), (142, 595), (145, 607), (149, 652), (151, 658), (153, 667), (156, 685),

Gene: TraderJ_1 Start: 1, Stop: 804, Start Num: 15

Candidate Starts for TraderJ_1:

(Start: 15 @1 has 10 MA's), (Start: 17 @10 has 52 MA's), (50, 193), (55, 217), (57, 223), (72, 292), (84, 370), (100, 451), (124, 562), (150, 703), (151, 706), (164, 775),

Gene: TurkishDelight_122 Start: 89500, Stop: 90093, Start Num: 20

Candidate Starts for TurkishDelight_122:

(Start: 20 @89500 has 7 MA's), (27, 89518), (34, 89584), (54, 89689),

Gene: VioletZ_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for VioletZ_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (151, 679),

Gene: Waleliano_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Waleliano_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (76, 304), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676), (152, 685),

Gene: Wilde_11 Start: 4430, Stop: 5020, Start Num: 18

Candidate Starts for Wilde_11:

(Start: 18 @4430 has 20 MA's), (51, 4601), (65, 4658), (73, 4685), (77, 4706), (80, 4739), (86, 4763), (93, 4799), (111, 4910), (112, 4916), (115, 4928), (130, 5006), (131, 5009),

Gene: Wooper_1 Start: 1, Stop: 804, Start Num: 15

Candidate Starts for Wooper_1:

(Start: 15 @1 has 10 MA's), (Start: 17 @10 has 52 MA's), (43, 151), (50, 193), (55, 217), (57, 223), (72, 292), (76, 319), (77, 322), (137, 619), (150, 703), (151, 706), (164, 775),

Gene: Xincheng_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Xincheng_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (38, 109), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (142, 616), (147, 643), (148, 655), (150, 676),

Gene: Yago84_1 Start: 1, Stop: 600, Start Num: 17

Candidate Starts for Yago84_1:

(Start: 17 @1 has 52 MA's), (31, 28), (34, 79), (40, 118), (76, 295), (108, 463), (137, 586), (138, 589),

Gene: Yeshua_1 Start: 1, Stop: 804, Start Num: 15

Candidate Starts for Yeshua_1:

(Start: 15 @1 has 10 MA's), (Start: 17 @10 has 52 MA's), (43, 151), (50, 193), (55, 217), (57, 223), (72, 292), (76, 319), (77, 322), (151, 706), (164, 775),

Gene: Zemanar_1 Start: 1, Stop: 798, Start Num: 17

Candidate Starts for Zemanar_1:

(Start: 17 @1 has 52 MA's), (34, 88), (37, 100), (38, 109), (46, 148), (50, 178), (55, 202), (65, 256), (68, 262), (72, 277), (74, 289), (77, 307), (87, 367), (107, 466), (133, 577), (134, 580), (135, 583), (137, 592), (142, 616), (147, 643), (148, 655), (150, 676), (151, 679),