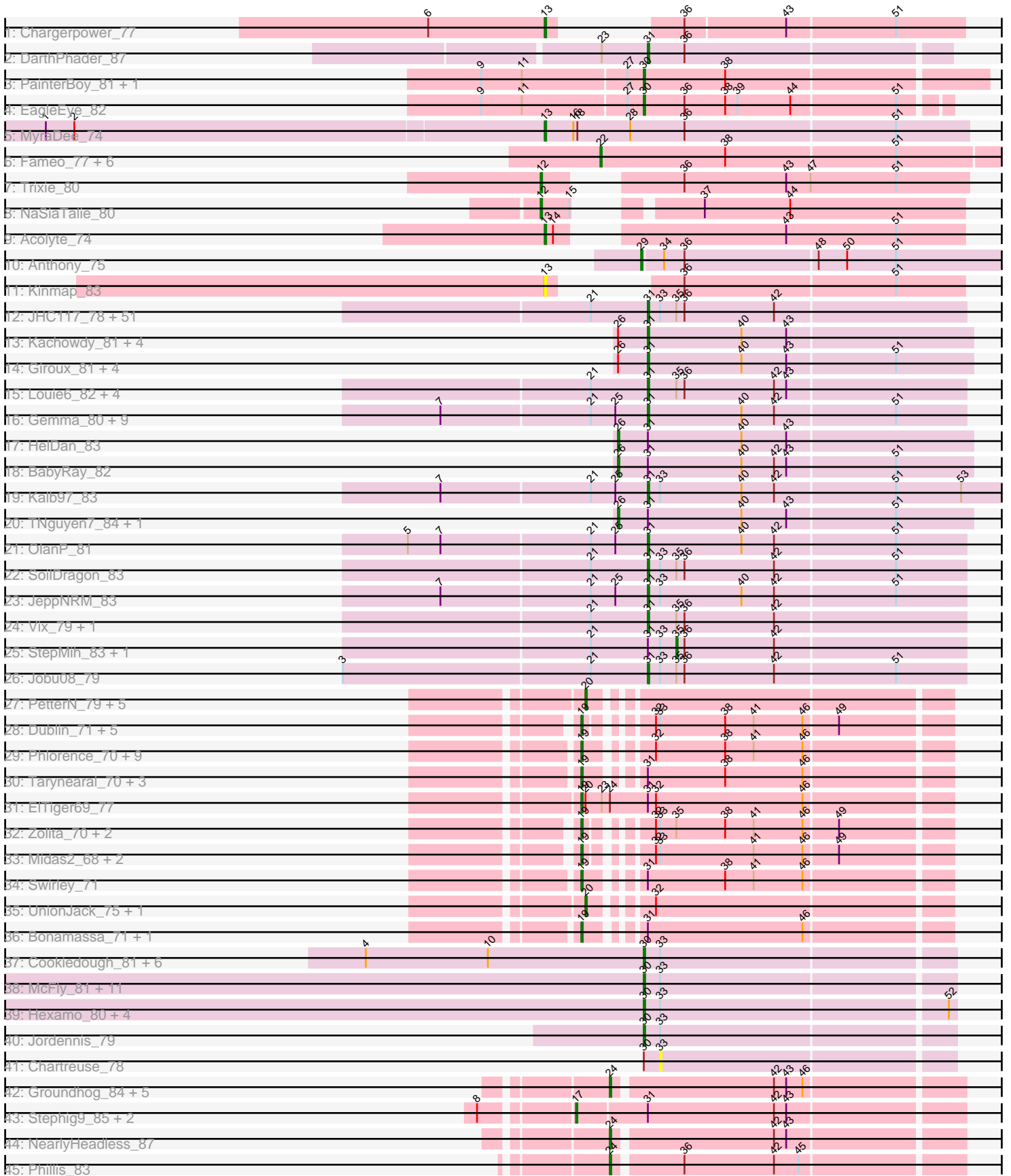


Pham 182016



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 182016 Report

This analysis was run 11/02/24 on database version 579.

Pham number 182016 has 183 members, 9 are drafts.

Phages represented in each track:

- Track 1 : Chargerpower_77
- Track 2 : DarthPhader_87
- Track 3 : PainterBoy_81, Lucyedi_81
- Track 4 : EagleEye_82
- Track 5 : MyraDee_74
- Track 6 : Fameo_77, Anselm_80, QueenB2_76, Heffalump_76, Dalmatian_79, DudeLittle_77, Retro23_79
- Track 7 : Trixie_80
- Track 8 : NaSiaTalie_80
- Track 9 : Acolyte_74
- Track 10 : Anthony_75
- Track 11 : Kinmap_83
- Track 12 : JHC117_78, HashRod_84, LugYA_86, Penny1_83, Snickers_79, Mainiac_82, Grub_81, Aglet_84, Grum1_83, Malinsilva_86, Methuselah_76, Beauxregard13_82, Cullens_84, Grif_81, Marie_81, MoneyMay_83, Sabinator_81, EpicPhail_84, JenCasNa_84, Stagni_80, LarryKay_83, Lilith_81, Sabia_81, Farber_83, Wooldri_85, PGHhamlin_85, PotatoSplit_84, MarQuardt_83, Pembroke_83, Phoxy_83, Ollie_83, AugsMagnumOpus_86, Spike509_83, Microwolf_79, SoYo_80, Watson_82, MuchMore_86, MadMarie_81, Hercules11_83, Taurus_84, GinkgoMaracino_83, BreSam8_83, Tiffany_82, Colbster_79, P28Green_83, DaHudson_82, Fernando_84, GtownJaz_83, Rummer_82, Dieselweasel_84, Phoebe_84, LBerry_84
- Track 13 : Kachowdy_81, Fred313_80, Scout_82, Puppy_84, Heathen_82
- Track 14 : Giroux_81, Pistachio_83, SaturnRing_84, BlueBird_85, Bugatti_84
- Track 15 : Louie6_82, Daishi_82, Bxz2_78, KADY_80, BuzzBuzz_77
- Track 16 : Gemma_80, Groupthink_83, PhishRPhriends_79, Kalnoky_83, Reba_78, Pawn_81, Manu_82, Marius_83, HaveUMetTed_83, Heliosoles_80
- Track 17 : HelDan_83
- Track 18 : BabyRay_82
- Track 19 : Kalb97_83
- Track 20 : TNguyen7_84, Idleandcovert_83
- Track 21 : OlanP_81
- Track 22 : SoilDragon_83
- Track 23 : JeppNRM_83
- Track 24 : Vix_79, Anubis_87
- Track 25 : StepMih_83, Soshari_85
- Track 26 : Jobu08_79

- Track 27 : PetterN_79, Benedict_75, Naca_74, Airmid_74, Jabiru_73, Scorpia_74
- Track 28 : Dublin_71, Theia_70, Archetta_69, Micasa_71, Bluefalcon_67, MarysWell_71
- Track 29 : Phlorence_70, ForGetIt_72, Tiger_70, PickleBack_72, Jovo_71, Conspiracy_72, Discoknowium_69, AgentM_71, Lev2_72, Aragog_71
- Track 30 : Tarynearal_70, Milcery_71, LittleCherry_70, George_66
- Track 31 : ElTiger69_77
- Track 32 : Zolita_70, SydNat_71, Ghoulboy_71
- Track 33 : Midas2_68, Cuco_70, Coog_68
- Track 34 : Swirley_71
- Track 35 : UnionJack_75, Chadwick_75
- Track 36 : Bonamassa_71, HuhtaEnerson15_69
- Track 37 : Cookiedough_81, Neeharika16_80, Isiphiwo_78, Hoot_76, Newrala_80, Pmask_80, SuperAwesome_81
- Track 38 : McFly_81, Kazan_82, VohminGhazi_81, Candra_79, DaVinci_79, SuperCallie99_78, SmellyB_81, Dorothea_81, BAbullseye_74, EricB_80, Rifter_81, Kipper29_81
- Track 39 : Hexamo_80, Hammer_81, Gruunaga_80, CloudWang3_81, Gladiator_77
- Track 40 : Jordennis_79
- Track 41 : Chartreuse_78
- Track 42 : Groundhog_84, Astro_86, Dixon_85, Expelliarmus_83, Roary_88, Smeadley_86
- Track 43 : Stephig9_85, Danforth_87, Saintus_82
- Track 44 : NearlyHeadless_87
- Track 45 : Phillis_83

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

The start number called the most often in the published annotations is 31, it was called in 79 of the 174 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aglet_84, Anubis_87, AugsMagnumOpus_86, Beauxregard13_82, BlueBird_85, BreSam8_83, Bugatti_84, BuzzBuzz_77, Bxz2_78, Colbster_79, Cullens_84, DaHudson_82, Daishi_82, DarthPhader_87, Dieselweasel_84, EpicPhail_84, Farber_83, Fernando_84, Fred313_80, Gemma_80, GingkoMaracino_83, Giroux_81, Grif_81, Groupthink_83, Grub_81, Grum1_83, GtownJaz_83, HashRod_84, HaveUMetTed_83, Heathen_82, Heliosoles_80, Hercules11_83, JHC117_78, JenCasNa_84, JeppNRM_83, Jobu08_79, KADY_80, Kachowdy_81, Kalb97_83, Kalnoky_83, LBerry_84, LarryKay_83, Lilith_81, Louie6_82, LugYA_86, MadMarie_81, Mainiac_82, Malinsilva_86, Manu_82, MarQuardt_83, Marie_81, Marius_83, Methuselah_76, Microwolf_79, MoneyMay_83, MuchMore_86, OlanP_81, Ollie_83, P28Green_83, PGHhamlin_85, Pawn_81, Pembroke_83, Penny1_83, PhishRPhriends_79, Phoebe_84, Phoxy_83, Pistachio_83, PotatoSplit_84, Puppy_84, Reba_78, Rummer_82, Sabia_81, Sabinator_81, SaturnRing_84, Scout_82, Snickers_79, SoYo_80, SoilDragon_83, Spike509_83, Stagni_80, Taurus_84, Tiffany_82, Vix_79, Watson_82, Wooldri_85,

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

• BabyRay_82, Bonamassa_71, Danforth_87, EITiger69_77, George_66, HelDan_83, HuhtaEnerson15_69, Idleandcovert_83, LittleCherry_70, Milcery_71, Saintus_82, Soshari_85, StepMih_83, StepHig9_85, Swirley_71, TNguyen7_84, Tarynearal_70,

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

• Acolyte_74, AgentM_71, Airmid_74, Anselm_80, Anthony_75, Aragog_71, Archetta_69, Astro_86, BABullseye_74, Benedict_75, Bluefalcon_67, Candra_79, Chadwick_75, Chargerpower_77, Chartreuse_78, CloudWang3_81, Conspiracy_72, Coog_68, Cookiedough_81, Cuco_70, DaVinci_79, Dalmatian_79, Discoknowium_69, Dixon_85, Dorothea_81, Dublin_71, DudeLittle_77, EagleEye_82, EricB_80, Expelliarmus_83, Fameo_77, ForGetIt_72, Ghoulyboy_71, Gladiator_77, Groundhog_84, Gruunaga_80, Hammer_81, Heffalump_76, Hexamo_80, Hoot_76, Isiphiwo_78, Jabiru_73, Jordennis_79, Jovo_71, Kazan_82, Kinmap_83, Kipper29_81, Lev2_72, Lucyedi_81, MarysWell_71, McFly_81, Micasa_71, Midas2_68, MyraDee_74, NaSiaTalie_80, Naca_74, NearlyHeadless_87, Neeharika16_80, Newrala_80, PainterBoy_81, PetterN_79, Phillis_83, Phlorence_70, PickleBack_72, Pmask_80, QueenB2_76, Retro23_79, Rifter_81, Roary_88, Scorpia_74, Smeadley_86, SmellyB_81, SuperAwesome_81, SuperCallie99_78, SydNat_71, Theia_70, Tiger_70, Trixie_80, UnionJack_75, VohminGhazi_81, Zolita_70,

Summary by start number:

Start 12:

- Found in 2 of 183 (1.1%) of genes in pham
- Manual Annotations of this start: 2 of 174
- Called 100.0% of time when present
- Phage (with cluster) where this start called: NaSiaTalie_80 (A2), Trixie_80 (A2),

Start 13:

- Found in 4 of 183 (2.2%) of genes in pham
- Manual Annotations of this start: 3 of 174
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acolyte_74 (A2), Chargerpower_77 (A), Kinmap_83 (A21), MyraDee_74 (A18),

Start 17:

- Found in 3 of 183 (1.6%) of genes in pham
- Manual Annotations of this start: 3 of 174
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Danforth_87 (A8), Saintus_82 (A8), StepHig9_85 (A8),

Start 19:

- Found in 30 of 183 (16.4%) of genes in pham
- Manual Annotations of this start: 30 of 174
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AgentM_71 (A5), Aragog_71 (A5), Archetta_69 (A5), Bluefalcon_67 (A5), Bonamassa_71 (A5), Conspiracy_72 (A5), Coog_68 (A5), Cuco_70 (A5), Discoknowium_69 (A5), Dublin_71 (A5), EITiger69_77 (A5), ForGetIt_72 (A5), George_66 (A5), Ghoulyboy_71 (A5), HuhtaEnerson15_69 (A5), Jovo_71 (A5), Lev2_72 (A5), LittleCherry_70 (A5), MarysWell_71 (A5), Micasa_71 (A5), Midas2_68 (A5), Milcery_71 (A5), Phlorence_70 (A5),

PickleBack_72 (A5), Swirley_71 (A5), SydNat_71 (A5), Tarynearal_70 (A5), Theia_70 (A5), Tiger_70 (A5), Zolita_70 (A5),

Start 20:

- Found in 9 of 183 (4.9%) of genes in pham
- Manual Annotations of this start: 8 of 174
- Called 88.9% of time when present
- Phage (with cluster) where this start called: Airmid_74 (A5), Benedict_75 (A5), Chadwick_75 (A5), Jabiru_73 (A5), Naca_74 (A5), PetterN_79 (A5), Scorpia_74 (A5), UnionJack_75 (A5),

Start 22:

- Found in 7 of 183 (3.8%) of genes in pham
- Manual Annotations of this start: 7 of 174
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anselm_80 (A2), Dalmatian_79 (A2), DudeLittle_77 (A2), Fameo_77 (A2), Heffalump_76 (A2), QueenB2_76 (A2), Retro23_79 (A2),

Start 24:

- Found in 9 of 183 (4.9%) of genes in pham
- Manual Annotations of this start: 8 of 174
- Called 88.9% of time when present
- Phage (with cluster) where this start called: Astro_86 (A8), Dixon_85 (A8), Expelliarmus_83 (A8), Groundhog_84 (A8), NearlyHeadless_87 (A8), Phillis_83 (A8), Roary_88 (A8), Smeadley_86 (A8),

Start 26:

- Found in 14 of 183 (7.7%) of genes in pham
- Manual Annotations of this start: 4 of 174
- Called 28.6% of time when present
- Phage (with cluster) where this start called: BabyRay_82 (A3), HelDan_83 (A3), Idleandcovert_83 (A3), TNguyen7_84 (A3),

Start 29:

- Found in 1 of 183 (0.5%) of genes in pham
- Manual Annotations of this start: 1 of 174
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anthony_75 (A20),

Start 30:

- Found in 29 of 183 (15.8%) of genes in pham
- Manual Annotations of this start: 27 of 174
- Called 96.6% of time when present
- Phage (with cluster) where this start called: BABullseye_74 (A6), Candra_79 (A6), CloudWang3_81 (A6), Cookiedough_81 (A6), DaVinci_79 (A6), Dorothea_81 (A6), EagleEye_82 (A16), EricB_80 (A6), Gladiator_77 (A6), Gruunaga_80 (A6), Hammer_81 (A6), Hexamo_80 (A6), Hoot_76 (A6), Isiphiwo_78 (A6), Jordennis_79 (A6), Kazan_82 (A6), Kipper29_81 (A6), Lucyedi_81 (A16), McFly_81 (A6), Neeharika16_80 (A6), Newrala_80 (A6), PainterBoy_81 (A16), Pmask_80 (A6), Rifter_81 (A6), SmellyB_81 (A6), SuperAwesome_81 (A6), SuperCallie99_78 (A6), VohminGhazi_81 (A6),

Start 31:

- Found in 102 of 183 (55.7%) of genes in pham
- Manual Annotations of this start: 79 of 174
- Called 83.3% of time when present
- Phage (with cluster) where this start called: Aglet_84 (A3), Anubis_87 (A3), AugsMagnumOpus_86 (A3), Beauxregard13_82 (A3), BlueBird_85 (A3), BreSam8_83 (A3), Bugatti_84 (A3), BuzzBuzz_77 (A3), Bxz2_78 (A3), Colbster_79 (A3), Cullens_84 (A3), DaHudson_82 (A3), Daishi_82 (A3), DarthPhader_87 (A12), Dieselweasel_84 (A3), EpicPhail_84 (A3), Farber_83 (A3), Fernando_84 (A3), Fred313_80 (A3), Gemma_80 (A3), GingkoMaracino_83 (A3), Giroux_81 (A3), Grif_81 (A3), Groupthink_83 (A3), Grub_81 (A3), Grum1_83 (A3), GtownJaz_83 (A3), HashRod_84 (A3), HaveUMetTed_83 (A3), Heathen_82 (A3), Heliosoles_80 (A3), Hercules11_83 (A3), JHC117_78 (A3), JenCasNa_84 (A3), JeppNRM_83 (A3), Jobu08_79 (A3), KADY_80 (A3), Kachowdy_81 (A3), Kalb97_83 (A3), Kalnoky_83 (A3), LBerry_84 (A3), LarryKay_83 (A3), Lilit_81 (A3), Louie6_82 (A3), LugYA_86 (A3), MadMarie_81 (A3), Mainiac_82 (A3), Malinsilva_86 (A3), Manu_82 (A3), MarQuardt_83 (A3), Marie_81 (A3), Marius_83 (A3), Methuselah_76 (A3), Microwolf_79 (A3), MoneyMay_83 (A3), MuchMore_86 (A3), OlanP_81 (A3), Ollie_83 (A3), P28Green_83 (A3), PGHhamlin_85 (A3), Pawn_81 (A3), Pembroke_83 (A3), Penny1_83 (A3), PhishRPhriends_79 (A3), Phoebe_84 (A3), Phoxy_83 (A3), Pistachio_83 (A3), PotatoSplit_84 (A3), Puppy_84 (A3), Reba_78 (A3), Rummer_82 (A3), Sabia_81 (A3), Sabinator_81 (A3), SaturnRing_84 (A3), Scout_82 (A3), Snickers_79 (A3), SoYo_80 (A3), SoilDragon_83 (A3), Spike509_83 (A3), Stagni_80 (A3), Taurus_84 (A3), Tiffany_82 (A3), Vix_79 (A3), Watson_82 (A3), Wooldri_85 (A3),

Start 33:

- Found in 96 of 183 (52.5%) of genes in pham
- No Manual Annotations of this start.
- Called 1.0% of time when present
- Phage (with cluster) where this start called: Chartreuse_78 (A6),

Start 35:

- Found in 66 of 183 (36.1%) of genes in pham
- Manual Annotations of this start: 2 of 174
- Called 3.0% of time when present
- Phage (with cluster) where this start called: Soshari_85 (A3), StepMih_83 (A3),

Summary by clusters:

There are 11 clusters represented in this pham: A, A20, A16, A21, A12, A18, A3, A2, A5, A6, A8,

Info for manual annotations of cluster A:

- Start number 13 was manually annotated 1 time for cluster A.

Info for manual annotations of cluster A12:

- Start number 31 was manually annotated 1 time for cluster A12.

Info for manual annotations of cluster A16:

- Start number 30 was manually annotated 3 times for cluster A16.

Info for manual annotations of cluster A18:

- Start number 13 was manually annotated 1 time for cluster A18.

Info for manual annotations of cluster A2:

- Start number 12 was manually annotated 2 times for cluster A2.
- Start number 13 was manually annotated 1 time for cluster A2.
- Start number 22 was manually annotated 7 times for cluster A2.

Info for manual annotations of cluster A20:

- Start number 29 was manually annotated 1 time for cluster A20.

Info for manual annotations of cluster A3:

- Start number 26 was manually annotated 4 times for cluster A3.
- Start number 31 was manually annotated 78 times for cluster A3.
- Start number 35 was manually annotated 2 times for cluster A3.

Info for manual annotations of cluster A5:

- Start number 19 was manually annotated 30 times for cluster A5.
- Start number 20 was manually annotated 8 times for cluster A5.

Info for manual annotations of cluster A6:

- Start number 30 was manually annotated 24 times for cluster A6.

Info for manual annotations of cluster A8:

- Start number 17 was manually annotated 3 times for cluster A8.
- Start number 24 was manually annotated 8 times for cluster A8.

Gene Information:

Gene: Acolyte_74 Start: 46022, Stop: 45753, Start Num: 13

Candidate Starts for Acolyte_74:

(Start: 13 @46022 has 3 MA's), (14, 46016), (43, 45884), (51, 45803),

Gene: AgentM_71 Start: 44359, Stop: 44114, Start Num: 19

Candidate Starts for AgentM_71:

(Start: 19 @44359 has 30 MA's), (32, 44323), (38, 44272), (41, 44251), (46, 44215),

Gene: Aglet_84 Start: 46272, Stop: 46042, Start Num: 31

Candidate Starts for Aglet_84:

(21, 46314), (Start: 31 @46272 has 79 MA's), (33, 46263), (Start: 35 @46251 has 2 MA's), (36, 46245), (42, 46179),

Gene: Airmid_74 Start: 45167, Stop: 44925, Start Num: 20

Candidate Starts for Airmid_74:

(Start: 20 @45167 has 8 MA's),

Gene: Anselm_80 Start: 46936, Stop: 46634, Start Num: 22

Candidate Starts for Anselm_80:

(Start: 22 @46936 has 7 MA's), (38, 46846), (51, 46723),

Gene: Anthony_75 Start: 45522, Stop: 45256, Start Num: 29

Candidate Starts for Anthony_75:

(Start: 29 @45522 has 1 MA's), (34, 45507), (36, 45492), (48, 45396), (50, 45375), (51, 45339),

Gene: Anubis_87 Start: 46158, Stop: 45928, Start Num: 31

Candidate Starts for Anubis_87:

(21, 46200), (Start: 31 @46158 has 79 MA's), (Start: 35 @46137 has 2 MA's), (36, 46131), (42, 46065),

Gene: Aragog_71 Start: 44377, Stop: 44132, Start Num: 19

Candidate Starts for Aragog_71:

(Start: 19 @44377 has 30 MA's), (32, 44341), (38, 44290), (41, 44269), (46, 44233),

Gene: Archetta_69 Start: 44318, Stop: 44076, Start Num: 19

Candidate Starts for Archetta_69:

(Start: 19 @44318 has 30 MA's), (32, 44285), (33, 44282), (38, 44234), (41, 44213), (46, 44177), (49, 44153),

Gene: Astro_86 Start: 46880, Stop: 46638, Start Num: 24

Candidate Starts for Astro_86:

(Start: 24 @46880 has 8 MA's), (42, 46769), (43, 46760), (46, 46748),

Gene: AugsMagnumOpus_86 Start: 46260, Stop: 46030, Start Num: 31

Candidate Starts for AugsMagnumOpus_86:

(21, 46302), (Start: 31 @46260 has 79 MA's), (33, 46251), (Start: 35 @46239 has 2 MA's), (36, 46233), (42, 46167),

Gene: BABullseye_74 Start: 43477, Stop: 43256, Start Num: 30

Candidate Starts for BABullseye_74:

(Start: 30 @43477 has 27 MA's), (33, 43465),

Gene: BabyRay_82 Start: 46614, Stop: 46357, Start Num: 26

Candidate Starts for BabyRay_82:

(Start: 26 @46614 has 4 MA's), (Start: 31 @46593 has 79 MA's), (40, 46524), (42, 46500), (43, 46491), (51, 46413),

Gene: Beauxregard13_82 Start: 46275, Stop: 46045, Start Num: 31

Candidate Starts for Beauxregard13_82:

(21, 46317), (Start: 31 @46275 has 79 MA's), (33, 46266), (Start: 35 @46254 has 2 MA's), (36, 46248), (42, 46182),

Gene: Benedict_75 Start: 44899, Stop: 44657, Start Num: 20

Candidate Starts for Benedict_75:

(Start: 20 @44899 has 8 MA's),

Gene: BlueBird_85 Start: 47028, Stop: 46792, Start Num: 31

Candidate Starts for BlueBird_85:

(Start: 26 @47049 has 4 MA's), (Start: 31 @47028 has 79 MA's), (40, 46959), (43, 46926), (51, 46848),

Gene: Bluefalcon_67 Start: 44317, Stop: 44075, Start Num: 19

Candidate Starts for Bluefalcon_67:

(Start: 19 @44317 has 30 MA's), (32, 44284), (33, 44281), (38, 44233), (41, 44212), (46, 44176), (49, 44152),

Gene: Bonamassa_71 Start: 44547, Stop: 44302, Start Num: 19
Candidate Starts for Bonamassa_71:
(Start: 19 @44547 has 30 MA's), (Start: 31 @44517 has 79 MA's), (46, 44403),

Gene: BreSam8_83 Start: 46265, Stop: 46035, Start Num: 31
Candidate Starts for BreSam8_83:
(21, 46307), (Start: 31 @46265 has 79 MA's), (33, 46256), (Start: 35 @46244 has 2 MA's), (36, 46238), (42, 46172),

Gene: Bugatti_84 Start: 47028, Stop: 46792, Start Num: 31
Candidate Starts for Bugatti_84:
(Start: 26 @47049 has 4 MA's), (Start: 31 @47028 has 79 MA's), (40, 46959), (43, 46926), (51, 46848),

Gene: BuzzBuzz_77 Start: 46300, Stop: 46070, Start Num: 31
Candidate Starts for BuzzBuzz_77:
(21, 46342), (Start: 31 @46300 has 79 MA's), (Start: 35 @46279 has 2 MA's), (36, 46273), (42, 46207), (43, 46198),

Gene: Bxz2_78 Start: 46307, Stop: 46077, Start Num: 31
Candidate Starts for Bxz2_78:
(21, 46349), (Start: 31 @46307 has 79 MA's), (Start: 35 @46286 has 2 MA's), (36, 46280), (42, 46214), (43, 46205),

Gene: Candra_79 Start: 45172, Stop: 44951, Start Num: 30
Candidate Starts for Candra_79:
(Start: 30 @45172 has 27 MA's), (33, 45160),

Gene: Chadwick_75 Start: 44643, Stop: 44401, Start Num: 20
Candidate Starts for Chadwick_75:
(Start: 20 @44643 has 8 MA's), (32, 44610),

Gene: Chargerpower_77 Start: 44887, Stop: 44654, Start Num: 13
Candidate Starts for Chargerpower_77:
(6, 44971), (Start: 13 @44887 has 3 MA's), (36, 44854), (43, 44782), (51, 44704),

Gene: Chartreuse_78 Start: 44471, Stop: 44262, Start Num: 33
Candidate Starts for Chartreuse_78:
(Start: 30 @44483 has 27 MA's), (33, 44471),

Gene: CloudWang3_81 Start: 45345, Stop: 45124, Start Num: 30
Candidate Starts for CloudWang3_81:
(Start: 30 @45345 has 27 MA's), (33, 45333), (52, 45129),

Gene: Colbster_79 Start: 46275, Stop: 46045, Start Num: 31
Candidate Starts for Colbster_79:
(21, 46317), (Start: 31 @46275 has 79 MA's), (33, 46266), (Start: 35 @46254 has 2 MA's), (36, 46248), (42, 46182),

Gene: Conspiracy_72 Start: 44599, Stop: 44354, Start Num: 19
Candidate Starts for Conspiracy_72:
(Start: 19 @44599 has 30 MA's), (32, 44563), (38, 44512), (41, 44491), (46, 44455),

Gene: Coog_68 Start: 44365, Stop: 44123, Start Num: 19
Candidate Starts for Coog_68:
(Start: 19 @44365 has 30 MA's), (32, 44332), (33, 44329), (41, 44260), (46, 44224), (49, 44200),

Gene: Cookiedough_81 Start: 45790, Stop: 45569, Start Num: 30
Candidate Starts for Cookiedough_81:
(4, 45994), (10, 45904), (Start: 30 @45790 has 27 MA's), (33, 45778),

Gene: Cuco_70 Start: 44225, Stop: 43983, Start Num: 19
Candidate Starts for Cuco_70:
(Start: 19 @44225 has 30 MA's), (32, 44192), (33, 44189), (41, 44120), (46, 44084), (49, 44060),

Gene: Cullens_84 Start: 46274, Stop: 46044, Start Num: 31
Candidate Starts for Cullens_84:
(21, 46316), (Start: 31 @46274 has 79 MA's), (33, 46265), (Start: 35 @46253 has 2 MA's), (36, 46247), (42, 46181),

Gene: DaHudson_82 Start: 46264, Stop: 46034, Start Num: 31
Candidate Starts for DaHudson_82:
(21, 46306), (Start: 31 @46264 has 79 MA's), (33, 46255), (Start: 35 @46243 has 2 MA's), (36, 46237), (42, 46171),

Gene: DaVinci_79 Start: 44537, Stop: 44316, Start Num: 30
Candidate Starts for DaVinci_79:
(Start: 30 @44537 has 27 MA's), (33, 44525),

Gene: Daishi_82 Start: 45141, Stop: 44911, Start Num: 31
Candidate Starts for Daishi_82:
(21, 45183), (Start: 31 @45141 has 79 MA's), (Start: 35 @45120 has 2 MA's), (36, 45114), (42, 45048), (43, 45039),

Gene: Dalmatian_79 Start: 46667, Stop: 46365, Start Num: 22
Candidate Starts for Dalmatian_79:
(Start: 22 @46667 has 7 MA's), (38, 46577), (51, 46454),

Gene: Danforth_87 Start: 46987, Stop: 46715, Start Num: 17
Candidate Starts for Danforth_87:
(8, 47047), (Start: 17 @46987 has 3 MA's), (Start: 31 @46939 has 79 MA's), (42, 46846), (43, 46837),

Gene: DarthPhader_87 Start: 50218, Stop: 50003, Start Num: 31
Candidate Starts for DarthPhader_87:
(23, 50251), (Start: 31 @50218 has 79 MA's), (36, 50191),

Gene: Dieselweasel_84 Start: 46273, Stop: 46043, Start Num: 31
Candidate Starts for Dieselweasel_84:
(21, 46315), (Start: 31 @46273 has 79 MA's), (33, 46264), (Start: 35 @46252 has 2 MA's), (36, 46246), (42, 46180),

Gene: Discoknowium_69 Start: 44116, Stop: 43871, Start Num: 19
Candidate Starts for Discoknowium_69:
(Start: 19 @44116 has 30 MA's), (32, 44080), (38, 44029), (41, 44008), (46, 43972),

Gene: Dixon_85 Start: 46439, Stop: 46197, Start Num: 24
Candidate Starts for Dixon_85:
(Start: 24 @46439 has 8 MA's), (42, 46328), (43, 46319), (46, 46307),

Gene: Dorothea_81 Start: 45783, Stop: 45562, Start Num: 30
Candidate Starts for Dorothea_81:
(Start: 30 @45783 has 27 MA's), (33, 45771),

Gene: Dublin_71 Start: 44497, Stop: 44255, Start Num: 19
Candidate Starts for Dublin_71:
(Start: 19 @44497 has 30 MA's), (32, 44464), (33, 44461), (38, 44413), (41, 44392), (46, 44356), (49, 44332),

Gene: DudeLittle_77 Start: 46433, Stop: 46131, Start Num: 22
Candidate Starts for DudeLittle_77:
(Start: 22 @46433 has 7 MA's), (38, 46343), (51, 46220),

Gene: EagleEye_82 Start: 46572, Stop: 46357, Start Num: 30
Candidate Starts for EagleEye_82:
(9, 46689), (11, 46659), (27, 46584), (Start: 30 @46572 has 27 MA's), (36, 46542), (38, 46512), (39, 46503), (44, 46464), (51, 46389),

Gene: EITiger69_77 Start: 45591, Stop: 45328, Start Num: 19
Candidate Starts for EITiger69_77:
(Start: 19 @45591 has 30 MA's), (Start: 20 @45588 has 8 MA's), (23, 45576), (Start: 24 @45570 has 8 MA's), (Start: 31 @45543 has 79 MA's), (32, 45537), (46, 45429),

Gene: EpicPhail_84 Start: 46275, Stop: 46045, Start Num: 31
Candidate Starts for EpicPhail_84:
(21, 46317), (Start: 31 @46275 has 79 MA's), (33, 46266), (Start: 35 @46254 has 2 MA's), (36, 46248), (42, 46182),

Gene: EricB_80 Start: 45129, Stop: 44908, Start Num: 30
Candidate Starts for EricB_80:
(Start: 30 @45129 has 27 MA's), (33, 45117),

Gene: Expelliarmus_83 Start: 46653, Stop: 46411, Start Num: 24
Candidate Starts for Expelliarmus_83:
(Start: 24 @46653 has 8 MA's), (42, 46542), (43, 46533), (46, 46521),

Gene: Fameo_77 Start: 46475, Stop: 46173, Start Num: 22
Candidate Starts for Fameo_77:
(Start: 22 @46475 has 7 MA's), (38, 46385), (51, 46262),

Gene: Farber_83 Start: 46261, Stop: 46031, Start Num: 31
Candidate Starts for Farber_83:
(21, 46303), (Start: 31 @46261 has 79 MA's), (33, 46252), (Start: 35 @46240 has 2 MA's), (36, 46234), (42, 46168),

Gene: Fernando_84 Start: 46274, Stop: 46044, Start Num: 31
Candidate Starts for Fernando_84:
(21, 46316), (Start: 31 @46274 has 79 MA's), (33, 46265), (Start: 35 @46253 has 2 MA's), (36, 46247), (42, 46181),

Gene: ForGetIt_72 Start: 44624, Stop: 44379, Start Num: 19

Candidate Starts for ForGetIt_72:

(Start: 19 @44624 has 30 MA's), (32, 44588), (38, 44537), (41, 44516), (46, 44480),

Gene: Fred313_80 Start: 46658, Stop: 46422, Start Num: 31

Candidate Starts for Fred313_80:

(Start: 26 @46679 has 4 MA's), (Start: 31 @46658 has 79 MA's), (40, 46589), (43, 46556),

Gene: Gemma_80 Start: 46081, Stop: 45851, Start Num: 31

Candidate Starts for Gemma_80:

(7, 46231), (21, 46123), (25, 46105), (Start: 31 @46081 has 79 MA's), (40, 46012), (42, 45988), (51, 45901),

Gene: George_66 Start: 44285, Stop: 44040, Start Num: 19

Candidate Starts for George_66:

(Start: 19 @44285 has 30 MA's), (Start: 31 @44255 has 79 MA's), (38, 44198), (46, 44141),

Gene: Ghoulboy_71 Start: 44592, Stop: 44350, Start Num: 19

Candidate Starts for Ghoulboy_71:

(Start: 19 @44592 has 30 MA's), (32, 44559), (33, 44556), (Start: 35 @44544 has 2 MA's), (38, 44508), (41, 44487), (46, 44451), (49, 44427),

Gene: GingkoMaracino_83 Start: 46157, Stop: 45927, Start Num: 31

Candidate Starts for GingkoMaracino_83:

(21, 46199), (Start: 31 @46157 has 79 MA's), (33, 46148), (Start: 35 @46136 has 2 MA's), (36, 46130), (42, 46064),

Gene: Giroux_81 Start: 47027, Stop: 46791, Start Num: 31

Candidate Starts for Giroux_81:

(Start: 26 @47048 has 4 MA's), (Start: 31 @47027 has 79 MA's), (40, 46958), (43, 46925), (51, 46847),

Gene: Gladiator_77 Start: 45001, Stop: 44780, Start Num: 30

Candidate Starts for Gladiator_77:

(Start: 30 @45001 has 27 MA's), (33, 44989), (52, 44785),

Gene: Grif_81 Start: 46348, Stop: 46118, Start Num: 31

Candidate Starts for Grif_81:

(21, 46390), (Start: 31 @46348 has 79 MA's), (33, 46339), (Start: 35 @46327 has 2 MA's), (36, 46321), (42, 46255),

Gene: Groundhog_84 Start: 46709, Stop: 46467, Start Num: 24

Candidate Starts for Groundhog_84:

(Start: 24 @46709 has 8 MA's), (42, 46598), (43, 46589), (46, 46577),

Gene: Groupthink_83 Start: 46082, Stop: 45852, Start Num: 31

Candidate Starts for Groupthink_83:

(7, 46232), (21, 46124), (25, 46106), (Start: 31 @46082 has 79 MA's), (40, 46013), (42, 45989), (51, 45902),

Gene: Grub_81 Start: 46264, Stop: 46034, Start Num: 31

Candidate Starts for Grub_81:

(21, 46306), (Start: 31 @46264 has 79 MA's), (33, 46255), (Start: 35 @46243 has 2 MA's), (36, 46237), (42, 46171),

Gene: Grum1_83 Start: 46274, Stop: 46044, Start Num: 31

Candidate Starts for Grum1_83:

(21, 46316), (Start: 31 @46274 has 79 MA's), (33, 46265), (Start: 35 @46253 has 2 MA's), (36, 46247), (42, 46181),

Gene: Gruunaga_80 Start: 44956, Stop: 44735, Start Num: 30

Candidate Starts for Gruunaga_80:

(Start: 30 @44956 has 27 MA's), (33, 44944), (52, 44740),

Gene: GtownJaz_83 Start: 46272, Stop: 46042, Start Num: 31

Candidate Starts for GtownJaz_83:

(21, 46314), (Start: 31 @46272 has 79 MA's), (33, 46263), (Start: 35 @46251 has 2 MA's), (36, 46245), (42, 46179),

Gene: Hammer_81 Start: 44663, Stop: 44442, Start Num: 30

Candidate Starts for Hammer_81:

(Start: 30 @44663 has 27 MA's), (33, 44651), (52, 44447),

Gene: HashRod_84 Start: 46301, Stop: 46071, Start Num: 31

Candidate Starts for HashRod_84:

(21, 46343), (Start: 31 @46301 has 79 MA's), (33, 46292), (Start: 35 @46280 has 2 MA's), (36, 46274), (42, 46208),

Gene: HaveUMetTed_83 Start: 46070, Stop: 45840, Start Num: 31

Candidate Starts for HaveUMetTed_83:

(7, 46220), (21, 46112), (25, 46094), (Start: 31 @46070 has 79 MA's), (40, 46001), (42, 45977), (51, 45890),

Gene: Heathen_82 Start: 46746, Stop: 46510, Start Num: 31

Candidate Starts for Heathen_82:

(Start: 26 @46767 has 4 MA's), (Start: 31 @46746 has 79 MA's), (40, 46677), (43, 46644),

Gene: Heffalump_76 Start: 46943, Stop: 46641, Start Num: 22

Candidate Starts for Heffalump_76:

(Start: 22 @46943 has 7 MA's), (38, 46853), (51, 46730),

Gene: HelDan_83 Start: 46990, Stop: 46733, Start Num: 26

Candidate Starts for HelDan_83:

(Start: 26 @46990 has 4 MA's), (Start: 31 @46969 has 79 MA's), (40, 46900), (43, 46867),

Gene: Heliosoles_80 Start: 46086, Stop: 45856, Start Num: 31

Candidate Starts for Heliosoles_80:

(7, 46236), (21, 46128), (25, 46110), (Start: 31 @46086 has 79 MA's), (40, 46017), (42, 45993), (51, 45906),

Gene: Hercules11_83 Start: 46283, Stop: 46053, Start Num: 31

Candidate Starts for Hercules11_83:

(21, 46325), (Start: 31 @46283 has 79 MA's), (33, 46274), (Start: 35 @46262 has 2 MA's), (36, 46256), (42, 46190),

Gene: Hexamo_80 Start: 44831, Stop: 44610, Start Num: 30
Candidate Starts for Hexamo_80:
(Start: 30 @44831 has 27 MA's), (33, 44819), (52, 44615),

Gene: Hoot_76 Start: 42987, Stop: 42766, Start Num: 30
Candidate Starts for Hoot_76:
(4, 43191), (10, 43101), (Start: 30 @42987 has 27 MA's), (33, 42975),

Gene: HuhtaEnerson15_69 Start: 44200, Stop: 43955, Start Num: 19
Candidate Starts for HuhtaEnerson15_69:
(Start: 19 @44200 has 30 MA's), (Start: 31 @44170 has 79 MA's), (46, 44056),

Gene: Idleandcovert_83 Start: 47049, Stop: 46792, Start Num: 26
Candidate Starts for Idleandcovert_83:
(Start: 26 @47049 has 4 MA's), (Start: 31 @47028 has 79 MA's), (40, 46959), (43, 46926), (51, 46848),

Gene: Isiphiwo_78 Start: 45157, Stop: 44936, Start Num: 30
Candidate Starts for Isiphiwo_78:
(4, 45361), (10, 45271), (Start: 30 @45157 has 27 MA's), (33, 45145),

Gene: JHC117_78 Start: 46269, Stop: 46039, Start Num: 31
Candidate Starts for JHC117_78:
(21, 46311), (Start: 31 @46269 has 79 MA's), (33, 46260), (Start: 35 @46248 has 2 MA's), (36, 46242), (42, 46176),

Gene: Jabiru_73 Start: 44754, Stop: 44512, Start Num: 20
Candidate Starts for Jabiru_73:
(Start: 20 @44754 has 8 MA's),

Gene: JenCasNa_84 Start: 46274, Stop: 46044, Start Num: 31
Candidate Starts for JenCasNa_84:
(21, 46316), (Start: 31 @46274 has 79 MA's), (33, 46265), (Start: 35 @46253 has 2 MA's), (36, 46247), (42, 46181),

Gene: JeppNRM_83 Start: 46084, Stop: 45854, Start Num: 31
Candidate Starts for JeppNRM_83:
(7, 46234), (21, 46126), (25, 46108), (Start: 31 @46084 has 79 MA's), (33, 46075), (40, 46015), (42, 45991), (51, 45904),

Gene: Jobu08_79 Start: 46098, Stop: 45868, Start Num: 31
Candidate Starts for Jobu08_79:
(3, 46320), (21, 46140), (Start: 31 @46098 has 79 MA's), (33, 46089), (Start: 35 @46077 has 2 MA's), (36, 46071), (42, 46005), (51, 45918),

Gene: Jordennis_79 Start: 45369, Stop: 45148, Start Num: 30
Candidate Starts for Jordennis_79:
(Start: 30 @45369 has 27 MA's), (33, 45357),

Gene: Jovo_71 Start: 44880, Stop: 44635, Start Num: 19
Candidate Starts for Jovo_71:
(Start: 19 @44880 has 30 MA's), (32, 44844), (38, 44793), (41, 44772), (46, 44736),

Gene: KADY_80 Start: 46301, Stop: 46071, Start Num: 31
Candidate Starts for KADY_80:
(21, 46343), (Start: 31 @46301 has 79 MA's), (Start: 35 @46280 has 2 MA's), (36, 46274), (42, 46208), (43, 46199),

Gene: Kachowdy_81 Start: 46998, Stop: 46762, Start Num: 31
Candidate Starts for Kachowdy_81:
(Start: 26 @47019 has 4 MA's), (Start: 31 @46998 has 79 MA's), (40, 46929), (43, 46896),

Gene: Kalb97_83 Start: 45452, Stop: 45192, Start Num: 31
Candidate Starts for Kalb97_83:
(7, 45602), (21, 45494), (25, 45476), (Start: 31 @45452 has 79 MA's), (33, 45443), (40, 45383), (42, 45359), (51, 45272), (53, 45224),

Gene: Kalnoky_83 Start: 46079, Stop: 45849, Start Num: 31
Candidate Starts for Kalnoky_83:
(7, 46229), (21, 46121), (25, 46103), (Start: 31 @46079 has 79 MA's), (40, 46010), (42, 45986), (51, 45899),

Gene: Kazan_82 Start: 45142, Stop: 44921, Start Num: 30
Candidate Starts for Kazan_82:
(Start: 30 @45142 has 27 MA's), (33, 45130),

Gene: Kinmap_83 Start: 45453, Stop: 45217, Start Num: 13
Candidate Starts for Kinmap_83:
(Start: 13 @45453 has 3 MA's), (36, 45420), (51, 45267),

Gene: Kipper29_81 Start: 45155, Stop: 44934, Start Num: 30
Candidate Starts for Kipper29_81:
(Start: 30 @45155 has 27 MA's), (33, 45143),

Gene: LBerry_84 Start: 46275, Stop: 46045, Start Num: 31
Candidate Starts for LBerry_84:
(21, 46317), (Start: 31 @46275 has 79 MA's), (33, 46266), (Start: 35 @46254 has 2 MA's), (36, 46248), (42, 46182),

Gene: LarryKay_83 Start: 46305, Stop: 46075, Start Num: 31
Candidate Starts for LarryKay_83:
(21, 46347), (Start: 31 @46305 has 79 MA's), (33, 46296), (Start: 35 @46284 has 2 MA's), (36, 46278), (42, 46212),

Gene: Lev2_72 Start: 44512, Stop: 44267, Start Num: 19
Candidate Starts for Lev2_72:
(Start: 19 @44512 has 30 MA's), (32, 44476), (38, 44425), (41, 44404), (46, 44368),

Gene: Lilith_81 Start: 46264, Stop: 46034, Start Num: 31
Candidate Starts for Lilith_81:
(21, 46306), (Start: 31 @46264 has 79 MA's), (33, 46255), (Start: 35 @46243 has 2 MA's), (36, 46237), (42, 46171),

Gene: LittleCherry_70 Start: 44070, Stop: 43825, Start Num: 19
Candidate Starts for LittleCherry_70:
(Start: 19 @44070 has 30 MA's), (Start: 31 @44040 has 79 MA's), (38, 43983), (46, 43926),

Gene: Louie6_82 Start: 46302, Stop: 46072, Start Num: 31

Candidate Starts for Louie6_82:

(21, 46344), (Start: 31 @46302 has 79 MA's), (Start: 35 @46281 has 2 MA's), (36, 46275), (42, 46209), (43, 46200),

Gene: Lucyedi_81 Start: 46771, Stop: 46526, Start Num: 30

Candidate Starts for Lucyedi_81:

(9, 46888), (11, 46858), (27, 46783), (Start: 30 @46771 has 27 MA's), (38, 46711),

Gene: LugYA_86 Start: 46275, Stop: 46045, Start Num: 31

Candidate Starts for LugYA_86:

(21, 46317), (Start: 31 @46275 has 79 MA's), (33, 46266), (Start: 35 @46254 has 2 MA's), (36, 46248), (42, 46182),

Gene: MadMarie_81 Start: 46272, Stop: 46042, Start Num: 31

Candidate Starts for MadMarie_81:

(21, 46314), (Start: 31 @46272 has 79 MA's), (33, 46263), (Start: 35 @46251 has 2 MA's), (36, 46245), (42, 46179),

Gene: Mainiac_82 Start: 46264, Stop: 46034, Start Num: 31

Candidate Starts for Mainiac_82:

(21, 46306), (Start: 31 @46264 has 79 MA's), (33, 46255), (Start: 35 @46243 has 2 MA's), (36, 46237), (42, 46171),

Gene: Malinsilva_86 Start: 46263, Stop: 46033, Start Num: 31

Candidate Starts for Malinsilva_86:

(21, 46305), (Start: 31 @46263 has 79 MA's), (33, 46254), (Start: 35 @46242 has 2 MA's), (36, 46236), (42, 46170),

Gene: Manu_82 Start: 46086, Stop: 45856, Start Num: 31

Candidate Starts for Manu_82:

(7, 46236), (21, 46128), (25, 46110), (Start: 31 @46086 has 79 MA's), (40, 46017), (42, 45993), (51, 45906),

Gene: MarQuardt_83 Start: 46273, Stop: 46043, Start Num: 31

Candidate Starts for MarQuardt_83:

(21, 46315), (Start: 31 @46273 has 79 MA's), (33, 46264), (Start: 35 @46252 has 2 MA's), (36, 46246), (42, 46180),

Gene: Marie_81 Start: 46274, Stop: 46044, Start Num: 31

Candidate Starts for Marie_81:

(21, 46316), (Start: 31 @46274 has 79 MA's), (33, 46265), (Start: 35 @46253 has 2 MA's), (36, 46247), (42, 46181),

Gene: Marius_83 Start: 46079, Stop: 45849, Start Num: 31

Candidate Starts for Marius_83:

(7, 46229), (21, 46121), (25, 46103), (Start: 31 @46079 has 79 MA's), (40, 46010), (42, 45986), (51, 45899),

Gene: MarysWell_71 Start: 44740, Stop: 44498, Start Num: 19

Candidate Starts for MarysWell_71:

(Start: 19 @44740 has 30 MA's), (32, 44707), (33, 44704), (38, 44656), (41, 44635), (46, 44599), (49, 44575),

Gene: McFly_81 Start: 45491, Stop: 45270, Start Num: 30

Candidate Starts for McFly_81:

(Start: 30 @45491 has 27 MA's), (33, 45479),

Gene: Methuselah_76 Start: 46295, Stop: 46065, Start Num: 31

Candidate Starts for Methuselah_76:

(21, 46337), (Start: 31 @46295 has 79 MA's), (33, 46286), (Start: 35 @46274 has 2 MA's), (36, 46268), (42, 46202),

Gene: Micasa_71 Start: 44462, Stop: 44220, Start Num: 19

Candidate Starts for Micasa_71:

(Start: 19 @44462 has 30 MA's), (32, 44429), (33, 44426), (38, 44378), (41, 44357), (46, 44321), (49, 44297),

Gene: Microwolf_79 Start: 46287, Stop: 46057, Start Num: 31

Candidate Starts for Microwolf_79:

(21, 46329), (Start: 31 @46287 has 79 MA's), (33, 46278), (Start: 35 @46266 has 2 MA's), (36, 46260), (42, 46194),

Gene: Midas2_68 Start: 44365, Stop: 44123, Start Num: 19

Candidate Starts for Midas2_68:

(Start: 19 @44365 has 30 MA's), (32, 44332), (33, 44329), (41, 44260), (46, 44224), (49, 44200),

Gene: Milcery_71 Start: 44253, Stop: 44008, Start Num: 19

Candidate Starts for Milcery_71:

(Start: 19 @44253 has 30 MA's), (Start: 31 @44223 has 79 MA's), (38, 44166), (46, 44109),

Gene: MoneyMay_83 Start: 46274, Stop: 46044, Start Num: 31

Candidate Starts for MoneyMay_83:

(21, 46316), (Start: 31 @46274 has 79 MA's), (33, 46265), (Start: 35 @46253 has 2 MA's), (36, 46247), (42, 46181),

Gene: MuchMore_86 Start: 46260, Stop: 46030, Start Num: 31

Candidate Starts for MuchMore_86:

(21, 46302), (Start: 31 @46260 has 79 MA's), (33, 46251), (Start: 35 @46239 has 2 MA's), (36, 46233), (42, 46167),

Gene: MyraDee_74 Start: 43043, Stop: 42735, Start Num: 13

Candidate Starts for MyraDee_74:

(1, 43406), (2, 43385), (Start: 13 @43043 has 3 MA's), (16, 43022), (18, 43019), (28, 42980), (36, 42941), (51, 42788),

Gene: NaSiaTalie_80 Start: 46561, Stop: 46298, Start Num: 12

Candidate Starts for NaSiaTalie_80:

(Start: 12 @46561 has 2 MA's), (15, 46540), (37, 46489), (44, 46426),

Gene: Naca_74 Start: 45642, Stop: 45400, Start Num: 20

Candidate Starts for Naca_74:

(Start: 20 @45642 has 8 MA's),

Gene: NearlyHeadless_87 Start: 46723, Stop: 46481, Start Num: 24
Candidate Starts for NearlyHeadless_87:
(Start: 24 @46723 has 8 MA's), (42, 46612), (43, 46603),

Gene: Neeharika16_80 Start: 45241, Stop: 45020, Start Num: 30
Candidate Starts for Neeharika16_80:
(4, 45445), (10, 45355), (Start: 30 @45241 has 27 MA's), (33, 45229),

Gene: Newrala_80 Start: 45577, Stop: 45356, Start Num: 30
Candidate Starts for Newrala_80:
(4, 45781), (10, 45691), (Start: 30 @45577 has 27 MA's), (33, 45565),

Gene: OlanP_81 Start: 46258, Stop: 46028, Start Num: 31
Candidate Starts for OlanP_81:
(5, 46432), (7, 46408), (21, 46300), (25, 46282), (Start: 31 @46258 has 79 MA's), (40, 46189), (42, 46165), (51, 46078),

Gene: Ollie_83 Start: 46142, Stop: 45912, Start Num: 31
Candidate Starts for Ollie_83:
(21, 46184), (Start: 31 @46142 has 79 MA's), (33, 46133), (Start: 35 @46121 has 2 MA's), (36, 46115), (42, 46049),

Gene: P28Green_83 Start: 46277, Stop: 46047, Start Num: 31
Candidate Starts for P28Green_83:
(21, 46319), (Start: 31 @46277 has 79 MA's), (33, 46268), (Start: 35 @46256 has 2 MA's), (36, 46250), (42, 46184),

Gene: PGHhamlin_85 Start: 46263, Stop: 46033, Start Num: 31
Candidate Starts for PGHhamlin_85:
(21, 46305), (Start: 31 @46263 has 79 MA's), (33, 46254), (Start: 35 @46242 has 2 MA's), (36, 46236), (42, 46170),

Gene: PainterBoy_81 Start: 46481, Stop: 46236, Start Num: 30
Candidate Starts for PainterBoy_81:
(9, 46598), (11, 46568), (27, 46493), (Start: 30 @46481 has 27 MA's), (38, 46421),

Gene: Pawn_81 Start: 46086, Stop: 45856, Start Num: 31
Candidate Starts for Pawn_81:
(7, 46236), (21, 46128), (25, 46110), (Start: 31 @46086 has 79 MA's), (40, 46017), (42, 45993), (51, 45906),

Gene: Pembroke_83 Start: 46272, Stop: 46042, Start Num: 31
Candidate Starts for Pembroke_83:
(21, 46314), (Start: 31 @46272 has 79 MA's), (33, 46263), (Start: 35 @46251 has 2 MA's), (36, 46245), (42, 46179),

Gene: Penny1_83 Start: 46275, Stop: 46045, Start Num: 31
Candidate Starts for Penny1_83:
(21, 46317), (Start: 31 @46275 has 79 MA's), (33, 46266), (Start: 35 @46254 has 2 MA's), (36, 46248), (42, 46182),

Gene: PetterN_79 Start: 45429, Stop: 45187, Start Num: 20
Candidate Starts for PetterN_79:

(Start: 20 @45429 has 8 MA's),

Gene: Phillis_83 Start: 45739, Stop: 45497, Start Num: 24

Candidate Starts for Phillis_83:

(Start: 24 @45739 has 8 MA's), (36, 45694), (42, 45628), (45, 45610),

Gene: PhishRPhriends_79 Start: 45266, Stop: 45036, Start Num: 31

Candidate Starts for PhishRPhriends_79:

(7, 45416), (21, 45308), (25, 45290), (Start: 31 @45266 has 79 MA's), (40, 45197), (42, 45173), (51, 45086),

Gene: Phlorence_70 Start: 44259, Stop: 44014, Start Num: 19

Candidate Starts for Phlorence_70:

(Start: 19 @44259 has 30 MA's), (32, 44223), (38, 44172), (41, 44151), (46, 44115),

Gene: Phoebe_84 Start: 46267, Stop: 46037, Start Num: 31

Candidate Starts for Phoebe_84:

(21, 46309), (Start: 31 @46267 has 79 MA's), (33, 46258), (Start: 35 @46246 has 2 MA's), (36, 46240), (42, 46174),

Gene: Phoxy_83 Start: 46296, Stop: 46066, Start Num: 31

Candidate Starts for Phoxy_83:

(21, 46338), (Start: 31 @46296 has 79 MA's), (33, 46287), (Start: 35 @46275 has 2 MA's), (36, 46269), (42, 46203),

Gene: PickleBack_72 Start: 44434, Stop: 44189, Start Num: 19

Candidate Starts for PickleBack_72:

(Start: 19 @44434 has 30 MA's), (32, 44398), (38, 44347), (41, 44326), (46, 44290),

Gene: Pistachio_83 Start: 46575, Stop: 46339, Start Num: 31

Candidate Starts for Pistachio_83:

(Start: 26 @46596 has 4 MA's), (Start: 31 @46575 has 79 MA's), (40, 46506), (43, 46473), (51, 46395),

Gene: Pmask_80 Start: 45778, Stop: 45557, Start Num: 30

Candidate Starts for Pmask_80:

(4, 45982), (10, 45892), (Start: 30 @45778 has 27 MA's), (33, 45766),

Gene: PotatoSplit_84 Start: 46275, Stop: 46045, Start Num: 31

Candidate Starts for PotatoSplit_84:

(21, 46317), (Start: 31 @46275 has 79 MA's), (33, 46266), (Start: 35 @46254 has 2 MA's), (36, 46248), (42, 46182),

Gene: Puppy_84 Start: 46645, Stop: 46409, Start Num: 31

Candidate Starts for Puppy_84:

(Start: 26 @46666 has 4 MA's), (Start: 31 @46645 has 79 MA's), (40, 46576), (43, 46543),

Gene: QueenB2_76 Start: 46156, Stop: 45854, Start Num: 22

Candidate Starts for QueenB2_76:

(Start: 22 @46156 has 7 MA's), (38, 46066), (51, 45943),

Gene: Reba_78 Start: 44922, Stop: 44692, Start Num: 31

Candidate Starts for Reba_78:

(7, 45072), (21, 44964), (25, 44946), (Start: 31 @44922 has 79 MA's), (40, 44853), (42, 44829), (51, 44742),

Gene: Retro23_79 Start: 46560, Stop: 46258, Start Num: 22

Candidate Starts for Retro23_79:

(Start: 22 @46560 has 7 MA's), (38, 46470), (51, 46347),

Gene: Rifter_81 Start: 44458, Stop: 44243, Start Num: 30

Candidate Starts for Rifter_81:

(Start: 30 @44458 has 27 MA's), (33, 44446),

Gene: Roary_88 Start: 46911, Stop: 46669, Start Num: 24

Candidate Starts for Roary_88:

(Start: 24 @46911 has 8 MA's), (42, 46800), (43, 46791), (46, 46779),

Gene: Rummer_82 Start: 46299, Stop: 46069, Start Num: 31

Candidate Starts for Rummer_82:

(21, 46341), (Start: 31 @46299 has 79 MA's), (33, 46290), (Start: 35 @46278 has 2 MA's), (36, 46272), (42, 46206),

Gene: Sabia_81 Start: 46279, Stop: 46049, Start Num: 31

Candidate Starts for Sabia_81:

(21, 46321), (Start: 31 @46279 has 79 MA's), (33, 46270), (Start: 35 @46258 has 2 MA's), (36, 46252), (42, 46186),

Gene: Sabinator_81 Start: 46273, Stop: 46043, Start Num: 31

Candidate Starts for Sabinator_81:

(21, 46315), (Start: 31 @46273 has 79 MA's), (33, 46264), (Start: 35 @46252 has 2 MA's), (36, 46246), (42, 46180),

Gene: Saintus_82 Start: 43589, Stop: 43317, Start Num: 17

Candidate Starts for Saintus_82:

(8, 43649), (Start: 17 @43589 has 3 MA's), (Start: 31 @43541 has 79 MA's), (42, 43448), (43, 43439),

Gene: SaturnRing_84 Start: 47028, Stop: 46792, Start Num: 31

Candidate Starts for SaturnRing_84:

(Start: 26 @47049 has 4 MA's), (Start: 31 @47028 has 79 MA's), (40, 46959), (43, 46926), (51, 46848),

Gene: Scorpia_74 Start: 45000, Stop: 44758, Start Num: 20

Candidate Starts for Scorpia_74:

(Start: 20 @45000 has 8 MA's),

Gene: Scout_82 Start: 46209, Stop: 45973, Start Num: 31

Candidate Starts for Scout_82:

(Start: 26 @46230 has 4 MA's), (Start: 31 @46209 has 79 MA's), (40, 46140), (43, 46107),

Gene: Smeadley_86 Start: 46775, Stop: 46533, Start Num: 24

Candidate Starts for Smeadley_86:

(Start: 24 @46775 has 8 MA's), (42, 46664), (43, 46655), (46, 46643),

Gene: SmellyB_81 Start: 45136, Stop: 44915, Start Num: 30

Candidate Starts for SmellyB_81:

(Start: 30 @45136 has 27 MA's), (33, 45124),

Gene: Snickers_79 Start: 46244, Stop: 46014, Start Num: 31

Candidate Starts for Snickers_79:

(21, 46286), (Start: 31 @46244 has 79 MA's), (33, 46235), (Start: 35 @46223 has 2 MA's), (36, 46217), (42, 46151),

Gene: SoYo_80 Start: 46187, Stop: 45957, Start Num: 31

Candidate Starts for SoYo_80:

(21, 46229), (Start: 31 @46187 has 79 MA's), (33, 46178), (Start: 35 @46166 has 2 MA's), (36, 46160), (42, 46094),

Gene: SoilDragon_83 Start: 45714, Stop: 45484, Start Num: 31

Candidate Starts for SoilDragon_83:

(21, 45756), (Start: 31 @45714 has 79 MA's), (33, 45705), (Start: 35 @45693 has 2 MA's), (36, 45687), (42, 45621), (51, 45534),

Gene: Soshari_85 Start: 46274, Stop: 46065, Start Num: 35

Candidate Starts for Soshari_85:

(21, 46337), (Start: 31 @46295 has 79 MA's), (33, 46286), (Start: 35 @46274 has 2 MA's), (36, 46268), (42, 46202),

Gene: Spike509_83 Start: 46296, Stop: 46066, Start Num: 31

Candidate Starts for Spike509_83:

(21, 46338), (Start: 31 @46296 has 79 MA's), (33, 46287), (Start: 35 @46275 has 2 MA's), (36, 46269), (42, 46203),

Gene: Stagni_80 Start: 46274, Stop: 46044, Start Num: 31

Candidate Starts for Stagni_80:

(21, 46316), (Start: 31 @46274 has 79 MA's), (33, 46265), (Start: 35 @46253 has 2 MA's), (36, 46247), (42, 46181),

Gene: StepMih_83 Start: 46244, Stop: 46035, Start Num: 35

Candidate Starts for StepMih_83:

(21, 46307), (Start: 31 @46265 has 79 MA's), (33, 46256), (Start: 35 @46244 has 2 MA's), (36, 46238), (42, 46172),

Gene: Stephig9_85 Start: 46744, Stop: 46472, Start Num: 17

Candidate Starts for Stephig9_85:

(8, 46804), (Start: 17 @46744 has 3 MA's), (Start: 31 @46696 has 79 MA's), (42, 46603), (43, 46594),

Gene: SuperAwesome_81 Start: 45817, Stop: 45596, Start Num: 30

Candidate Starts for SuperAwesome_81:

(4, 46021), (10, 45931), (Start: 30 @45817 has 27 MA's), (33, 45805),

Gene: SuperCallie99_78 Start: 45658, Stop: 45437, Start Num: 30

Candidate Starts for SuperCallie99_78:

(Start: 30 @45658 has 27 MA's), (33, 45646),

Gene: Swirley_71 Start: 44403, Stop: 44158, Start Num: 19

Candidate Starts for Swirley_71:

(Start: 19 @44403 has 30 MA's), (Start: 31 @44373 has 79 MA's), (38, 44316), (41, 44295), (46, 44259),

Gene: SydNat_71 Start: 44601, Stop: 44359, Start Num: 19

Candidate Starts for SydNat_71:

(Start: 19 @44601 has 30 MA's), (32, 44568), (33, 44565), (Start: 35 @44553 has 2 MA's), (38, 44517), (41, 44496), (46, 44460), (49, 44436),

Gene: TNguyen7_84 Start: 47007, Stop: 46750, Start Num: 26

Candidate Starts for TNguyen7_84:

(Start: 26 @47007 has 4 MA's), (Start: 31 @46986 has 79 MA's), (40, 46917), (43, 46884), (51, 46806),

Gene: Tarynearal_70 Start: 44239, Stop: 43994, Start Num: 19

Candidate Starts for Tarynearal_70:

(Start: 19 @44239 has 30 MA's), (Start: 31 @44209 has 79 MA's), (38, 44152), (46, 44095),

Gene: Taurus_84 Start: 46274, Stop: 46044, Start Num: 31

Candidate Starts for Taurus_84:

(21, 46316), (Start: 31 @46274 has 79 MA's), (33, 46265), (Start: 35 @46253 has 2 MA's), (36, 46247), (42, 46181),

Gene: Theia_70 Start: 44724, Stop: 44482, Start Num: 19

Candidate Starts for Theia_70:

(Start: 19 @44724 has 30 MA's), (32, 44691), (33, 44688), (38, 44640), (41, 44619), (46, 44583), (49, 44559),

Gene: Tiffany_82 Start: 46159, Stop: 45929, Start Num: 31

Candidate Starts for Tiffany_82:

(21, 46201), (Start: 31 @46159 has 79 MA's), (33, 46150), (Start: 35 @46138 has 2 MA's), (36, 46132), (42, 46066),

Gene: Tiger_70 Start: 44180, Stop: 43935, Start Num: 19

Candidate Starts for Tiger_70:

(Start: 19 @44180 has 30 MA's), (32, 44144), (38, 44093), (41, 44072), (46, 44036),

Gene: Trixie_80 Start: 47546, Stop: 47271, Start Num: 12

Candidate Starts for Trixie_80:

(Start: 12 @47546 has 2 MA's), (36, 47480), (43, 47405), (47, 47387), (51, 47324),

Gene: UnionJack_75 Start: 44664, Stop: 44422, Start Num: 20

Candidate Starts for UnionJack_75:

(Start: 20 @44664 has 8 MA's), (32, 44631),

Gene: Vix_79 Start: 46354, Stop: 46124, Start Num: 31

Candidate Starts for Vix_79:

(21, 46396), (Start: 31 @46354 has 79 MA's), (Start: 35 @46333 has 2 MA's), (36, 46327), (42, 46261),

Gene: VohminGhazi_81 Start: 45137, Stop: 44916, Start Num: 30

Candidate Starts for VohminGhazi_81:

(Start: 30 @45137 has 27 MA's), (33, 45125),

Gene: Watson_82 Start: 46263, Stop: 46033, Start Num: 31

Candidate Starts for Watson_82:

(21, 46305), (Start: 31 @46263 has 79 MA's), (33, 46254), (Start: 35 @46242 has 2 MA's), (36, 46236), (42, 46170),

Gene: Wooldri_85 Start: 46180, Stop: 45950, Start Num: 31

Candidate Starts for Wooldri_85:

(21, 46222), (Start: 31 @46180 has 79 MA's), (33, 46171), (Start: 35 @46159 has 2 MA's), (36, 46153), (42, 46087),

Gene: Zolita_70 Start: 44584, Stop: 44342, Start Num: 19

Candidate Starts for Zolita_70:

(Start: 19 @44584 has 30 MA's), (32, 44551), (33, 44548), (Start: 35 @44536 has 2 MA's), (38, 44500), (41, 44479), (46, 44443), (49, 44419),