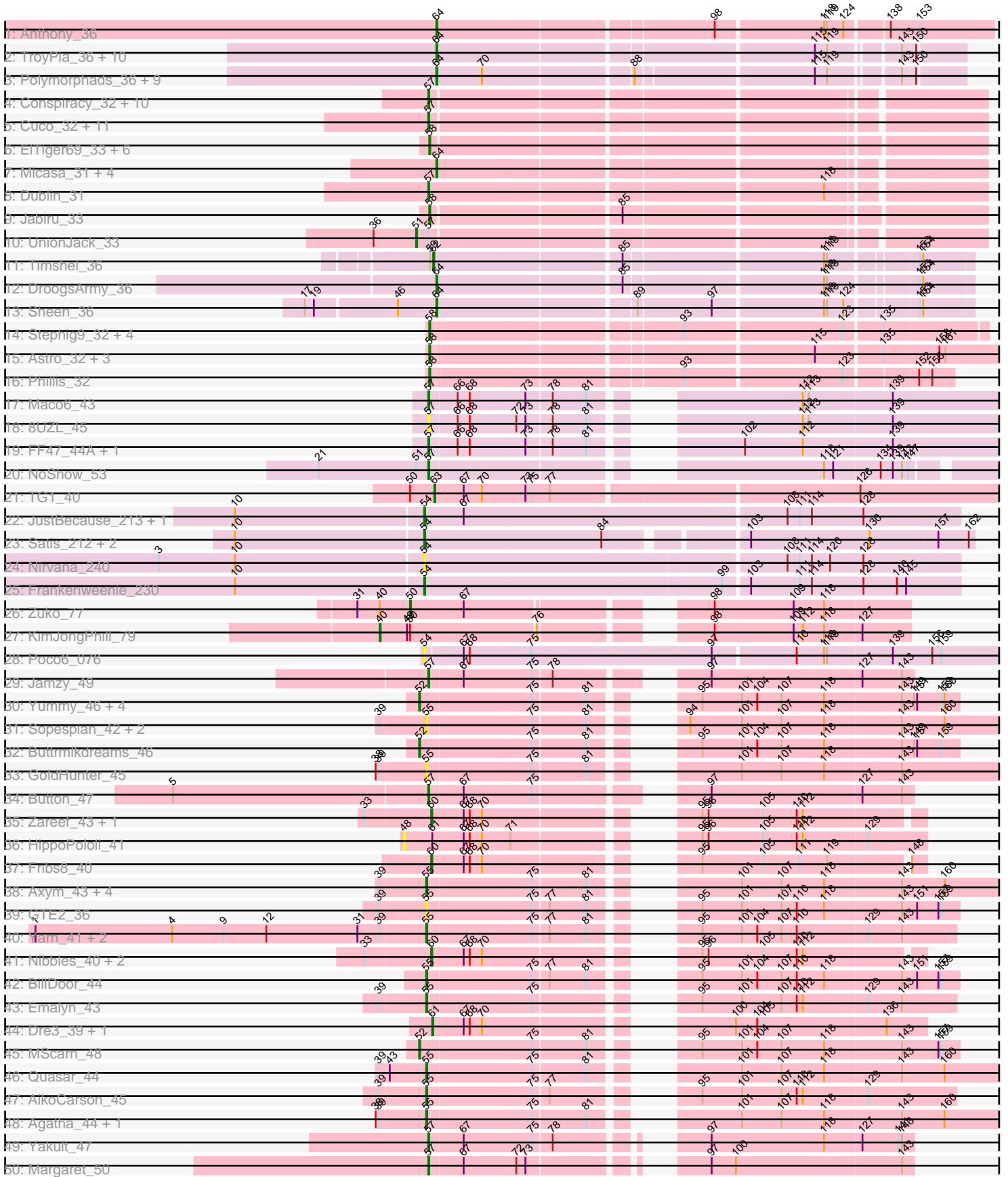
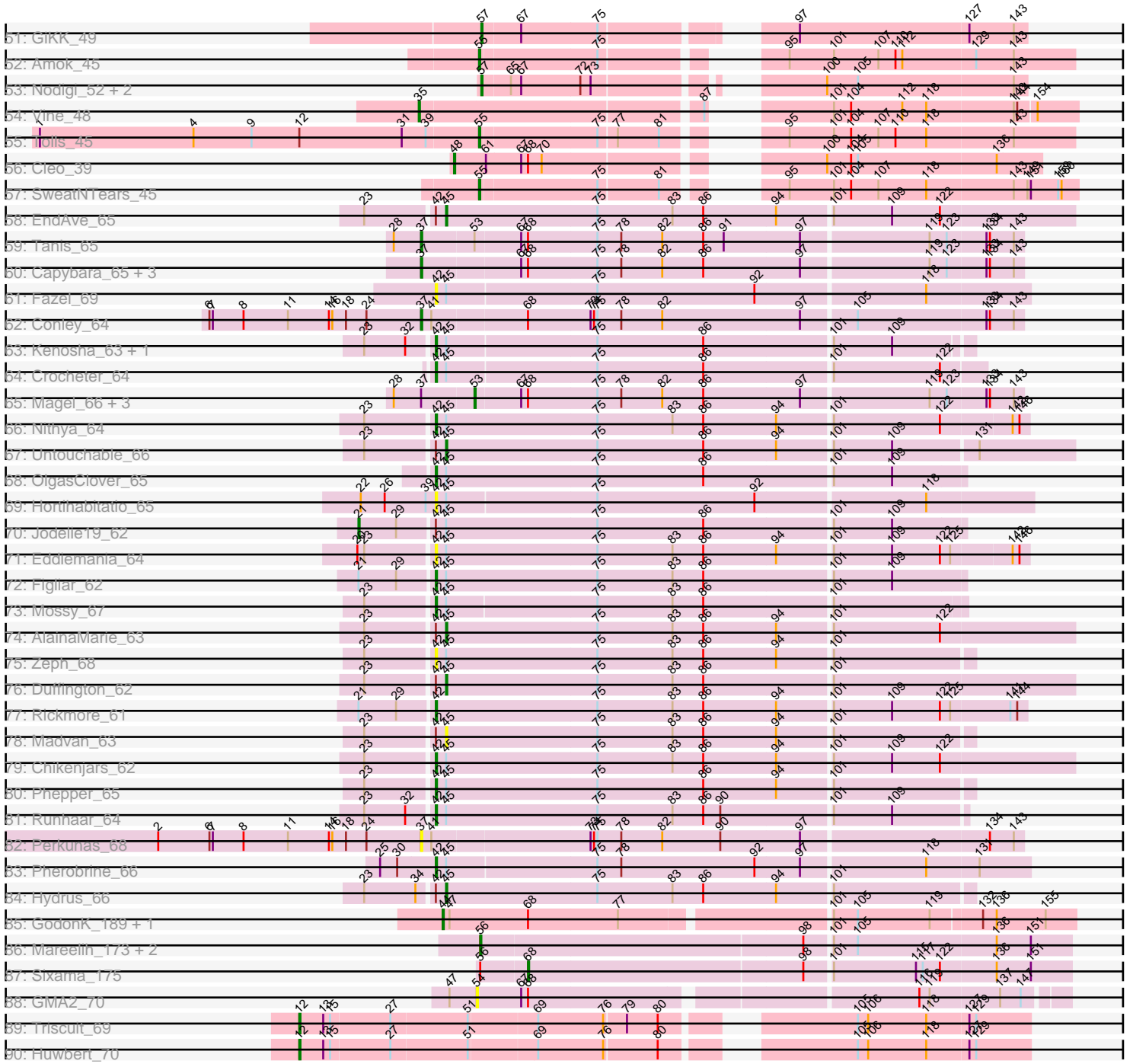


Pham 157625



Pham 157625



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 157625 Report

This analysis was run 04/13/24 on database version 558.

Pham number 157625 has 180 members, 23 are drafts.

Phages represented in each track:

- Track 1 : Anthony_36
- Track 2 : TroyPia_36, Pumbaa_35, TinaFeyge_36, LittleGuy_35, Commander_36, Ulysses_34, Medusa_36, Phontbonne_35, Melvin_37, Nyxis_35, Phelipe_36
- Track 3 : Polymorphads_36, Maxo_36, BellusTerra_36, Nebs_36, Eurydice_36, Sparxx_36, Morrow_36, Eagle_35, Abdiel_35, Ohfah_36
- Track 4 : Conspiracy_32, Jovo_32, Bluefalcon_31, ForGetIt_32, Discoknowium_32, Lev2_32, Aragog_32, AgentM_32, Tiger_32, Phlorence_32, PickleBack_32
- Track 5 : Cuco_32, HuhtaEnerson15_32, Milcery_32, George_31, Archetta_32, LittleCherry_32, Tarynearal_31, Coog_32, Bonamassa_32, Theia_30, Midas2_32, MarysWell_31
- Track 6 : EITiger69_33, Scorpia_34, PetterN_34, Chadwick_34, Benedict_33, Naca_33, Airmid_33
- Track 7 : Micasa_31, Zolita_31, Ghoulboy_32, SydNat_32, Swirley_32
- Track 8 : Dublin_31
- Track 9 : Jabiru_33
- Track 10 : UnionJack_33
- Track 11 : Timshel_36
- Track 12 : DroogsArmy_36
- Track 13 : Sheen_36
- Track 14 : Stephig9_32, NearlyHeadless_32, Danforth_31, Roary_32, Expelliarmus_31
- Track 15 : Astro_32, Smeadley_32, Groundhog_31, Dixon_32
- Track 16 : Phillis_32
- Track 17 : Maco6_43
- Track 18 : 8UZL_45
- Track 19 : FF47_44A, Muddy_45
- Track 20 : NoShow_53
- Track 21 : TG1_40
- Track 22 : JustBecause_213, Kela_211
- Track 23 : Satis_212, EhyElimayoE_215, Kradal_214
- Track 24 : Nirvana_240
- Track 25 : Frankenweenie_230
- Track 26 : Zuko_77
- Track 27 : KimJongPhill_79
- Track 28 : Poco6_076
- Track 29 : Jamzy_49
- Track 30 : Yummy_46, Troje_46, SketchMex_44, Horseradish_46, Biskit_46

- Track 31 : Sopespian_42, Elliott_44, PsychoKiller_43
- Track 32 : Buttrmlkdreams_46
- Track 33 : GoldHunter_45
- Track 34 : Button_47
- Track 35 : Zareef_43, Azira_41
- Track 36 : HippoPololi_41
- Track 37 : Fribs8_40
- Track 38 : Axym_43, Typhonomachy_44, RedBaron_46, Burnsey_44, Nina_43
- Track 39 : GTE2_36
- Track 40 : Yarn_41, SteamedHams_44, AndPeggy_41
- Track 41 : Nibbles_40, MaVan_43, Survivors_41
- Track 42 : BillDoor_44
- Track 43 : Emalyn_43
- Track 44 : Dre3_39, Gibbous_39
- Track 45 : MScarn_48
- Track 46 : Quasar_44
- Track 47 : AikoCarson_45
- Track 48 : Agatha_44, Cozz_42
- Track 49 : Yakult_47
- Track 50 : Margaret_50
- Track 51 : GiKK_49
- Track 52 : Amok_45
- Track 53 : Nodigi_52, Orla_52, Hexbug_52
- Track 54 : Vine_48
- Track 55 : Tolls_45
- Track 56 : Cleo_39
- Track 57 : SweatNTears_45
- Track 58 : EndAve_65
- Track 59 : Tanis_65
- Track 60 : Capybara_65, Gravy_64, Kerry_64, Artorias_65
- Track 61 : Fazel_69
- Track 62 : Conley_64
- Track 63 : Kenosha_63, Nadmeg_65
- Track 64 : Crocheter_64
- Track 65 : Magel_66, Roney_65, Odesza_64, Gill_65
- Track 66 : Nithya_64
- Track 67 : Untouchable_66
- Track 68 : OlgasClover_65
- Track 69 : Hortihabitatio_65
- Track 70 : Jodelie19_62
- Track 71 : Eddiemania_64
- Track 72 : Figliar_62
- Track 73 : Mossy_67
- Track 74 : AlainaMarie_63
- Track 75 : Zeph_68
- Track 76 : Duffington_62
- Track 77 : Rickmore_61
- Track 78 : Madvan_63
- Track 79 : Chikenjars_62
- Track 80 : Phepper_65
- Track 81 : Runhaar_64
- Track 82 : Perkunas_68
- Track 83 : Pherobrine_66

- Track 84 : Hydrus_66
- Track 85 : GodonK_189, Phendrix_177
- Track 86 : Mareelih_173, Boopy_175, BlueNGold_172
- Track 87 : Sixama_175
- Track 88 : GMA2_70
- Track 89 : Triscuit_69
- Track 90 : Huwbert_70

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

The start number called the most often in the published annotations is 57, it was called in 35 of the 157 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 8UZL_45, AgentM_32, Aragog_32, Archetta_32, Bluefalcon_31, Bonamassa_32, Button_47, Conspiracy_32, Coog_32, Cuco_32, Discoknowium_32, Dublin_31, FF47_44A, ForGetIt_32, George_31, GiKK_49, Hexbug_52, HuhtaEnerson15_32, Jamzy_49, Jovo_32, Lev2_32, LittleCherry_32, Maco6_43, Margaret_50, MarysWell_31, Midas2_32, Milcery_32, Muddy_45, NoShow_53, Nodigi_52, Orla_52, Phlorence_32, PickleBack_32, Tarynearal_31, Theia_30, Tiger_32, Yakult_47,

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

- UnionJack_33,

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

- Abdiel_35, Agatha_44, AikoCarson_45, Airmid_33, AlainaMarie_63, Amok_45, AndPeggy_41, Anthony_36, Artorias_65, Astro_32, Axym_43, Azira_41, BellusTerra_36, Benedict_33, BillDoor_44, Biskit_46, BlueNGold_172, Boopy_175, Burnsey_44, Buttrmlkdreams_46, Capybara_65, Chadwick_34, Chickenjars_62, Cleo_39, Commander_36, Conley_64, Cozz_42, Crocheter_64, Danforth_31, Dixon_32, Dre3_39, DroogsArmy_36, Duffington_62, Eagle_35, Eddiemania_64, EhyElimayoE_215, ElTiger69_33, Elliott_44, Emalyn_43, EndAve_65, Eurydice_36, Expelliarmus_31, Fazel_69, Figliar_62, Frankenweenie_230, Fribs8_40, GMA2_70, GTE2_36, Ghoulboy_32, Gibbous_39, Gill_65, GodonK_189, GoldHunter_45, Gravy_64, Groundhog_31, HippoPololi_41, Horseradish_46, Hortihabitatio_65, Huwbert_70, Hydrus_66, Jabiru_33, Jodelie19_62, JustBecause_213, Kela_211, Kenosha_63, Kerry_64, KimJongPhill_79, Kradal_214, LittleGuy_35, MScarn_48, MaVan_43, Madvan_63, Magel_66, Mareelih_173, Maxo_36, Medusa_36, Melvin_37, Micasa_31, Morrow_36, Mossy_67, Naca_33, Nadmeg_65, NearlyHeadless_32, Nebs_36, Nibbles_40, Nina_43, Nirvana_240, Nithya_64, Nyxis_35, Odesza_64, Ohfah_36, OlgasClover_65, Perkunas_68, PetterN_34, Phelipe_36, Phendrix_177, Phepper_65, Pherobrine_66, Phillis_32, Phontbonne_35, Poco6_076, Polymorphads_36, PsychoKiller_43, Pumbaa_35, Quasar_44, RedBaron_46, Rickmore_61, Roary_32, Roney_65, Runhaar_64, Satis_212, Scorpia_34, Sheen_36, Sixama_175, SketchMex_44, Smeadley_32, Sopespian_42, Sparxx_36, SteamedHams_44, Stephig9_32, Survivors_41, SweatNTears_45, Swirley_32, SydNat_32, TG1_40, Tanis_65, Timshel_36, TinaFeyge_36, Tolls_45, Triscuit_69, Troje_46, TroyPia_36, Typhonmarchy_44, Ulysses_34, Untouchable_66, Vine_48, Yarn_41, Yummy_46, Zareef_43, Zeph_68, Zolita_31, Zuko_77,

Summary by start number:

Start 12:

- Found in 6 of 180 (3.3%) of genes in pham
- Manual Annotations of this start: 2 of 157
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Huwbert_70 (GG), Triscuit_69 (GG),

Start 21:

- Found in 4 of 180 (2.2%) of genes in pham
- Manual Annotations of this start: 1 of 157
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Jodelie19_62 (DJ),

Start 35:

- Found in 1 of 180 (0.6%) of genes in pham
- Manual Annotations of this start: 1 of 157
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Vine_48 (CT),

Start 37:

- Found in 11 of 180 (6.1%) of genes in pham
- Manual Annotations of this start: 5 of 157
- Called 63.6% of time when present
- Phage (with cluster) where this start called: Artorias_65 (DJ), Capybara_65 (DJ), Conley_64 (DJ), Gravy_64 (DJ), Kerry_64 (DJ), Perunas_68 (DJ), Tanis_65 (DJ),

Start 40:

- Found in 2 of 180 (1.1%) of genes in pham
- Manual Annotations of this start: 1 of 157
- Called 50.0% of time when present
- Phage (with cluster) where this start called: KimJongPhill_79 (BR),

Start 42:

- Found in 23 of 180 (12.8%) of genes in pham
- Manual Annotations of this start: 12 of 157
- Called 69.6% of time when present
- Phage (with cluster) where this start called: Chikenjars_62 (DJ), Crocheter_64 (DJ), Eddiemania_64 (DJ), Fazel_69 (DJ), Figliar_62 (DJ), Hortihabitatio_65 (DJ), Kenosha_63 (DJ), Mossy_67 (DJ), Nadmeg_65 (DJ), Nithya_64 (DJ), OlgasClover_65 (DJ), Phepper_65 (DJ), Pherobrine_66 (DJ), Rickmore_61 (DJ), Runhaar_64 (DJ), Zeph_68 (DJ),

Start 44:

- Found in 2 of 180 (1.1%) of genes in pham
- Manual Annotations of this start: 2 of 157
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GodonK_189 (DK), Phendrix_177 (DK),

Start 45:

- Found in 22 of 180 (12.2%) of genes in pham
- Manual Annotations of this start: 5 of 157
- Called 27.3% of time when present

- Phage (with cluster) where this start called: AlainaMarie_63 (DJ), Duffington_62 (DJ), EndAve_65 (DJ), Hydrus_66 (DJ), Madvan_63 (DJ), Untouchable_66 (DJ),

Start 48:

- Found in 2 of 180 (1.1%) of genes in pham
- Manual Annotations of this start: 1 of 157
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cleo_39 (CT), HippoPololi_41 (CT),

Start 50:

- Found in 3 of 180 (1.7%) of genes in pham
- Manual Annotations of this start: 1 of 157
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Zuko_77 (BR),

Start 51:

- Found in 4 of 180 (2.2%) of genes in pham
- Manual Annotations of this start: 1 of 157
- Called 25.0% of time when present
- Phage (with cluster) where this start called: UnionJack_33 (A5),

Start 52:

- Found in 7 of 180 (3.9%) of genes in pham
- Manual Annotations of this start: 7 of 157
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Biskit_46 (CT), Buttrmlkdreams_46 (CT), Horseradish_46 (CT), MScarn_48 (CT), SketchMex_44 (CT), Troje_46 (CT), Yummy_46 (CT),

Start 53:

- Found in 5 of 180 (2.8%) of genes in pham
- Manual Annotations of this start: 4 of 157
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Gill_65 (DJ), Magel_66 (DJ), Odesza_64 (DJ), Roney_65 (DJ),

Start 54:

- Found in 9 of 180 (5.0%) of genes in pham
- Manual Annotations of this start: 6 of 157
- Called 100.0% of time when present
- Phage (with cluster) where this start called: EhyElimayoE_215 (BM), Frankenweenie_230 (BM), GMA2_70 (DS), JustBecause_213 (BM), Kela_211 (BM), Kradal_214 (BM), Nirvana_240 (BM), Poco6_076 (CC), Satis_212 (BM),

Start 55:

- Found in 22 of 180 (12.2%) of genes in pham
- Manual Annotations of this start: 15 of 157
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Agatha_44 (CT), AikoCarson_45 (CT), Amok_45 (CT), AndPeggy_41 (CT), Axym_43 (CT), BillDoor_44 (CT), Burnsey_44 (CT), Cozz_42 (CT), Elliott_44 (CT), Emalyn_43 (CT), GTE2_36 (CT), GoldHunter_45 (CT), Nina_43 (CT), PsychoKiller_43 (CT), Quasar_44 (CT), RedBaron_46 (CT), Sopespian_42 (CT), SteamedHams_44 (CT), SweatNTears_45 (CT), Tolls_45 (CT),

Typhonomachy_44 (CT), Yarn_41 (CT),

Start 56:

- Found in 4 of 180 (2.2%) of genes in pham
- Manual Annotations of this start: 3 of 157
- Called 75.0% of time when present
- Phage (with cluster) where this start called: BlueNGold_172 (DS), Boopy_175 (DS), Mareelih_173 (DS),

Start 57:

- Found in 38 of 180 (21.1%) of genes in pham
- Manual Annotations of this start: 35 of 157
- Called 97.4% of time when present
- Phage (with cluster) where this start called: 8UZL_45 (AB), AgentM_32 (A5), Aragog_32 (A5), Archetta_32 (A5), Bluefalcon_31 (A5), Bonamassa_32 (A5), Button_47 (CT), Conspiracy_32 (A5), Coog_32 (A5), Cuco_32 (A5), Discoknowium_32 (A5), Dublin_31 (A5), FF47_44A (AB), ForGetIt_32 (A5), George_31 (A5), GiKK_49 (CT), Hexbug_52 (CT), HuhtaEnerson15_32 (A5), Jamzy_49 (CT), Jovo_32 (A5), Lev2_32 (A5), LittleCherry_32 (A5), Maco6_43 (AB), Margaret_50 (CT), MarysWell_31 (A5), Midas2_32 (A5), Milcery_32 (A5), Muddy_45 (AB), NoShow_53 (AB), Nodigi_52 (CT), Orla_52 (CT), Phlorence_32 (A5), PickleBack_32 (A5), Tarynearal_31 (A5), Theia_30 (A5), Tiger_32 (A5), Yakult_47 (CT),

Start 58:

- Found in 18 of 180 (10.0%) of genes in pham
- Manual Annotations of this start: 18 of 157
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Airmid_33 (A5), Astro_32 (A8), Benedict_33 (A5), Chadwick_34 (A5), Danforth_31 (A8), Dixon_32 (A8), EITiger69_33 (A5), Expelliarmus_31 (A8), Groundhog_31 (A8), Jabiru_33 (A5), Naca_33 (A5), NearlyHeadless_32 (A8), PetterN_34 (A5), Phillis_32 (A8), Roary_32 (A8), Scorpia_34 (A5), Smeadley_32 (A8), StepHig9_32 (A8),

Start 60:

- Found in 6 of 180 (3.3%) of genes in pham
- Manual Annotations of this start: 4 of 157
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Azira_41 (CT), Fribs8_40 (CT), MaVan_43 (CT), Nibbles_40 (CT), Survivors_41 (CT), Zareef_43 (CT),

Start 61:

- Found in 4 of 180 (2.2%) of genes in pham
- Manual Annotations of this start: 2 of 157
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Dre3_39 (CT), Gibbous_39 (CT),

Start 62:

- Found in 1 of 180 (0.6%) of genes in pham
- Manual Annotations of this start: 1 of 157
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Timshel_36 (A7),

Start 63:

- Found in 1 of 180 (0.6%) of genes in pham
- Manual Annotations of this start: 1 of 157
- Called 100.0% of time when present
- Phage (with cluster) where this start called: TG1_40 (BB1),

Start 64:

- Found in 29 of 180 (16.1%) of genes in pham
- Manual Annotations of this start: 28 of 157
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abdiel_35 (A4), Anthony_36 (A20), BellusTerra_36 (A4), Commander_36 (A4), DroogsArmy_36 (A7), Eagle_35 (A4), Eurydice_36 (A4), Ghouboy_32 (A5), LittleGuy_35 (A4), Maxo_36 (A4), Medusa_36 (A4), Melvin_37 (A4), Micasa_31 (A5), Morrow_36 (A4), Nebs_36 (A4), Nyxis_35 (A4), Ohfah_36 (A4), Phelipe_36 (A4), Phontbonne_35 (A4), Polymorphads_36 (A4), Pumbaa_35 (A4), Sheen_36 (A7), Sparxx_36 (A4), Swirley_32 (A5), SydNat_32 (A5), TinaFeyge_36 (A4), TroyPia_36 (A4), Ulysses_34 (A4), Zolita_31 (A5),

Start 68:

- Found in 29 of 180 (16.1%) of genes in pham
- Manual Annotations of this start: 1 of 157
- Called 3.4% of time when present
- Phage (with cluster) where this start called: Sixama_175 (DS),

Summary by clusters:

There are 15 clusters represented in this pham: A20, AB, DJ, BR, CC, BM, GG, A5, A4, A7, DK, A8, DS, BB1, CT,

Info for manual annotations of cluster A20:

- Start number 64 was manually annotated 1 time for cluster A20.

Info for manual annotations of cluster A4:

- Start number 64 was manually annotated 21 times for cluster A4.

Info for manual annotations of cluster A5:

- Start number 51 was manually annotated 1 time for cluster A5.
- Start number 57 was manually annotated 24 times for cluster A5.
- Start number 58 was manually annotated 8 times for cluster A5.
- Start number 64 was manually annotated 4 times for cluster A5.

Info for manual annotations of cluster A7:

- Start number 62 was manually annotated 1 time for cluster A7.
- Start number 64 was manually annotated 2 times for cluster A7.

Info for manual annotations of cluster A8:

- Start number 58 was manually annotated 10 times for cluster A8.

Info for manual annotations of cluster AB:

- Start number 57 was manually annotated 3 times for cluster AB.

Info for manual annotations of cluster BB1:

- Start number 63 was manually annotated 1 time for cluster BB1.

Info for manual annotations of cluster BM:

- Start number 54 was manually annotated 6 times for cluster BM.

Info for manual annotations of cluster BR:

- Start number 40 was manually annotated 1 time for cluster BR.
- Start number 50 was manually annotated 1 time for cluster BR.

Info for manual annotations of cluster CT:

- Start number 35 was manually annotated 1 time for cluster CT.
- Start number 48 was manually annotated 1 time for cluster CT.
- Start number 52 was manually annotated 7 times for cluster CT.
- Start number 55 was manually annotated 15 times for cluster CT.
- Start number 57 was manually annotated 8 times for cluster CT.
- Start number 60 was manually annotated 4 times for cluster CT.
- Start number 61 was manually annotated 2 times for cluster CT.

Info for manual annotations of cluster DJ:

- Start number 21 was manually annotated 1 time for cluster DJ.
- Start number 37 was manually annotated 5 times for cluster DJ.
- Start number 42 was manually annotated 12 times for cluster DJ.
- Start number 45 was manually annotated 5 times for cluster DJ.
- Start number 53 was manually annotated 4 times for cluster DJ.

Info for manual annotations of cluster DK:

- Start number 44 was manually annotated 2 times for cluster DK.

Info for manual annotations of cluster DS:

- Start number 56 was manually annotated 3 times for cluster DS.
- Start number 68 was manually annotated 1 time for cluster DS.

Info for manual annotations of cluster GG:

- Start number 12 was manually annotated 2 times for cluster GG.

Gene Information:

Gene: 8UZL_45 Start: 34790, Stop: 34248, Start Num: 57

Candidate Starts for 8UZL_45:

(Start: 57 @34790 has 35 MA's), (66, 34763), (Start: 68 @34751 has 1 MA's), (72, 34706), (73, 34697), (78, 34673), (81, 34640), (112, 34484), (113, 34478), (139, 34397),

Gene: Abdiel_35 Start: 27799, Stop: 27323, Start Num: 64

Candidate Starts for Abdiel_35:

(Start: 64 @27799 has 28 MA's), (70, 27754), (88, 27616), (115, 27451), (119, 27439), (143, 27379), (150, 27367),

Gene: Agatha_44 Start: 33075, Stop: 32551, Start Num: 55

Candidate Starts for Agatha_44:

(38, 33123), (39, 33120), (Start: 55 @33075 has 15 MA's), (75, 32976), (81, 32925), (101, 32829), (107, 32790), (118, 32748), (143, 32673), (160, 32631),

Gene: AgentM_32 Start: 27051, Stop: 26542, Start Num: 57

Candidate Starts for AgentM_32:

(Start: 57 @27051 has 35 MA's),

Gene: AikoCarson_45 Start: 33253, Stop: 32798, Start Num: 55

Candidate Starts for AikoCarson_45:

(39, 33298), (Start: 55 @33253 has 15 MA's), (75, 33154), (77, 33139), (95, 33046), (101, 33007), (107, 32968), (110, 32953), (112, 32947), (129, 32884),

Gene: Airmid_33 Start: 26678, Stop: 26169, Start Num: 58

Candidate Starts for Airmid_33:

(Start: 58 @26678 has 18 MA's),

Gene: AlainaMarie_63 Start: 46290, Stop: 46832, Start Num: 45

Candidate Starts for AlainaMarie_63:

(23, 46224), (Start: 42 @46281 has 12 MA's), (Start: 45 @46290 has 5 MA's), (75, 46422), (83, 46488), (86, 46515), (94, 46578), (101, 46623), (122, 46716),

Gene: Amok_45 Start: 33277, Stop: 32822, Start Num: 55

Candidate Starts for Amok_45:

(Start: 55 @33277 has 15 MA's), (75, 33178), (95, 33070), (101, 33031), (107, 32992), (110, 32977), (112, 32971), (129, 32908), (143, 32875),

Gene: AndPeggy_41 Start: 32608, Stop: 32153, Start Num: 55

Candidate Starts for AndPeggy_41:

(1, 32992), (4, 32857), (9, 32806), (Start: 12 @32764 has 2 MA's), (31, 32674), (39, 32653), (Start: 55 @32608 has 15 MA's), (75, 32509), (77, 32494), (81, 32458), (95, 32401), (101, 32362), (104, 32347), (107, 32323), (110, 32308), (129, 32239), (143, 32206),

Gene: Anthony_36 Start: 26453, Stop: 25938, Start Num: 64

Candidate Starts for Anthony_36:

(Start: 64 @26453 has 28 MA's), (98, 26195), (118, 26093), (119, 26090), (124, 26075), (138, 26036), (153, 26009),

Gene: Aragog_32 Start: 27081, Stop: 26572, Start Num: 57

Candidate Starts for Aragog_32:

(Start: 57 @27081 has 35 MA's),

Gene: Archetta_32 Start: 27187, Stop: 26678, Start Num: 57

Candidate Starts for Archetta_32:

(Start: 57 @27187 has 35 MA's),

Gene: Artorias_65 Start: 46494, Stop: 47009, Start Num: 37

Candidate Starts for Artorias_65:

(Start: 37 @46494 has 5 MA's), (67, 46578), (Start: 68 @46584 has 1 MA's), (75, 46644), (78, 46665), (82, 46701), (86, 46737), (97, 46821), (119, 46929), (123, 46944), (133, 46977), (134, 46980), (143, 47001),

Gene: Astro_32 Start: 26313, Stop: 25705, Start Num: 58

Candidate Starts for Astro_32:

(Start: 58 @26313 has 18 MA's), (115, 25959), (135, 25896), (158, 25845), (161, 25839),

Gene: Axym_43 Start: 32972, Stop: 32448, Start Num: 55

Candidate Starts for Axym_43:

(39, 33017), (Start: 55 @32972 has 15 MA's), (75, 32873), (81, 32822), (101, 32726), (107, 32687), (118, 32645), (143, 32570), (160, 32528),

Gene: Azira_41 Start: 32431, Stop: 32018, Start Num: 60

Candidate Starts for Azira_41:

(33, 32494), (Start: 60 @32431 has 4 MA's), (67, 32401), (Start: 68 @32395 has 1 MA's), (70, 32383), (95, 32227), (96, 32221), (105, 32167), (110, 32134), (112, 32128),

Gene: BellusTerra_36 Start: 27799, Stop: 27323, Start Num: 64

Candidate Starts for BellusTerra_36:

(Start: 64 @27799 has 28 MA's), (70, 27754), (88, 27616), (115, 27451), (119, 27439), (143, 27379), (150, 27367),

Gene: Benedict_33 Start: 26684, Stop: 26172, Start Num: 58

Candidate Starts for Benedict_33:

(Start: 58 @26684 has 18 MA's),

Gene: BillDoor_44 Start: 32280, Stop: 31822, Start Num: 55

Candidate Starts for BillDoor_44:

(Start: 55 @32280 has 15 MA's), (75, 32181), (77, 32166), (81, 32130), (95, 32073), (101, 32034), (104, 32019), (107, 31995), (110, 31980), (118, 31953), (143, 31878), (151, 31863), (157, 31842), (159, 31839),

Gene: Biskit_46 Start: 32979, Stop: 32512, Start Num: 52

Candidate Starts for Biskit_46:

(Start: 52 @32979 has 7 MA's), (75, 32871), (81, 32820), (95, 32763), (101, 32724), (104, 32709), (107, 32685), (118, 32643), (143, 32568), (149, 32556), (151, 32553), (159, 32529), (160, 32526),

Gene: BlueNGold_172 Start: 101916, Stop: 101413, Start Num: 56

Candidate Starts for BlueNGold_172:

(Start: 56 @101916 has 3 MA's), (98, 101640), (101, 101619), (105, 101598), (136, 101478), (151, 101448),

Gene: Bluefalcon_31 Start: 27140, Stop: 26631, Start Num: 57

Candidate Starts for Bluefalcon_31:

(Start: 57 @27140 has 35 MA's),

Gene: Bonamassa_32 Start: 26981, Stop: 26472, Start Num: 57

Candidate Starts for Bonamassa_32:

(Start: 57 @26981 has 35 MA's),

Gene: Boopy_175 Start: 101927, Stop: 101424, Start Num: 56

Candidate Starts for Boopy_175:

(Start: 56 @101927 has 3 MA's), (98, 101651), (101, 101630), (105, 101609), (136, 101489), (151, 101459),

Gene: Burnsey_44 Start: 33066, Stop: 32542, Start Num: 55

Candidate Starts for Burnsey_44:

(39, 33111), (Start: 55 @33066 has 15 MA's), (75, 32967), (81, 32916), (101, 32820), (107, 32781), (118, 32739), (143, 32664), (160, 32622),

Gene: Button_47 Start: 33224, Stop: 32799, Start Num: 57

Candidate Starts for Button_47:

(5, 33473), (Start: 57 @33224 has 35 MA's), (67, 33191), (75, 33125), (97, 32996), (127, 32849), (143, 32810),

Gene: Buttrmlkdreams_46 Start: 33426, Stop: 32959, Start Num: 52

Candidate Starts for Buttrmlkdreams_46:

(Start: 52 @33426 has 7 MA's), (75, 33318), (81, 33267), (95, 33210), (101, 33171), (104, 33156), (107, 33132), (118, 33090), (143, 33015), (149, 33003), (151, 33000), (159, 32976),

Gene: Capybara_65 Start: 46300, Stop: 46815, Start Num: 37

Candidate Starts for Capybara_65:

(Start: 37 @46300 has 5 MA's), (67, 46384), (Start: 68 @46390 has 1 MA's), (75, 46450), (78, 46471), (82, 46507), (86, 46543), (97, 46627), (119, 46735), (123, 46750), (133, 46783), (134, 46786), (143, 46807),

Gene: Chadwick_34 Start: 26587, Stop: 26075, Start Num: 58

Candidate Starts for Chadwick_34:

(Start: 58 @26587 has 18 MA's),

Gene: Chikenjars_62 Start: 46297, Stop: 46848, Start Num: 42

Candidate Starts for Chikenjars_62:

(23, 46240), (Start: 42 @46297 has 12 MA's), (Start: 45 @46306 has 5 MA's), (75, 46438), (83, 46504), (86, 46531), (94, 46594), (101, 46639), (109, 46690), (122, 46732),

Gene: Cleo_39 Start: 32050, Stop: 31601, Start Num: 48

Candidate Starts for Cleo_39:

(Start: 48 @32050 has 1 MA's), (Start: 61 @32023 has 2 MA's), (67, 31993), (Start: 68 @31987 has 1 MA's), (70, 31975), (100, 31786), (104, 31765), (105, 31759), (136, 31639),

Gene: Commander_36 Start: 27803, Stop: 27324, Start Num: 64

Candidate Starts for Commander_36:

(Start: 64 @27803 has 28 MA's), (115, 27452), (119, 27440), (143, 27380), (150, 27368),

Gene: Conley_64 Start: 47055, Stop: 47570, Start Num: 37

Candidate Starts for Conley_64:

(6, 46869), (7, 46872), (8, 46899), (11, 46938), (14, 46974), (16, 46977), (18, 46989), (24, 47007), (Start: 37 @47055 has 5 MA's), (41, 47064), (Start: 68 @47145 has 1 MA's), (73, 47199), (74, 47202), (75, 47205), (78, 47226), (82, 47262), (97, 47382), (105, 47427), (133, 47538), (134, 47541), (143, 47562),

Gene: Conspiracy_32 Start: 26881, Stop: 26372, Start Num: 57

Candidate Starts for Conspiracy_32:

(Start: 57 @26881 has 35 MA's),

Gene: Coog_32 Start: 27021, Stop: 26512, Start Num: 57

Candidate Starts for Coog_32:

(Start: 57 @27021 has 35 MA's),

Gene: Cozz_42 Start: 32663, Stop: 32139, Start Num: 55

Candidate Starts for Cozz_42:

(38, 32711), (39, 32708), (Start: 55 @32663 has 15 MA's), (75, 32564), (81, 32513), (101, 32417), (107, 32378), (118, 32336), (143, 32261), (160, 32219),

Gene: Crocheter_64 Start: 46484, Stop: 46954, Start Num: 42

Candidate Starts for Crocheter_64:

(Start: 42 @46484 has 12 MA's), (Start: 45 @46493 has 5 MA's), (75, 46622), (86, 46715), (101, 46823), (122, 46916),

Gene: Cuco_32 Start: 26980, Stop: 26471, Start Num: 57

Candidate Starts for Cuco_32:

(Start: 57 @26980 has 35 MA's),

Gene: Danforth_31 Start: 26198, Stop: 25686, Start Num: 58

Candidate Starts for Danforth_31:

(Start: 58 @26198 has 18 MA's), (93, 25967), (123, 25817), (135, 25781),

Gene: Discoknowium_32 Start: 27090, Stop: 26581, Start Num: 57

Candidate Starts for Discoknowium_32:

(Start: 57 @27090 has 35 MA's),

Gene: Dixon_32 Start: 26307, Stop: 25699, Start Num: 58

Candidate Starts for Dixon_32:

(Start: 58 @26307 has 18 MA's), (115, 25953), (135, 25890), (158, 25839), (161, 25833),

Gene: Dre3_39 Start: 31766, Stop: 31344, Start Num: 61

Candidate Starts for Dre3_39:

(Start: 61 @31766 has 2 MA's), (67, 31736), (Start: 68 @31730 has 1 MA's), (70, 31718), (100, 31529), (104, 31508), (105, 31502), (136, 31382),

Gene: DroogsArmy_36 Start: 29992, Stop: 29501, Start Num: 64

Candidate Starts for DroogsArmy_36:

(Start: 64 @29992 has 28 MA's), (85, 29818), (118, 29632), (119, 29629), (153, 29551), (154, 29548),

Gene: Dublin_31 Start: 26952, Stop: 26440, Start Num: 57

Candidate Starts for Dublin_31:

(Start: 57 @26952 has 35 MA's), (118, 26583),

Gene: Duffington_62 Start: 46002, Stop: 46544, Start Num: 45

Candidate Starts for Duffington_62:

(23, 45936), (Start: 42 @45993 has 12 MA's), (Start: 45 @46002 has 5 MA's), (75, 46134), (83, 46200), (86, 46227), (101, 46335),

Gene: Eagle_35 Start: 27823, Stop: 27347, Start Num: 64

Candidate Starts for Eagle_35:

(Start: 64 @27823 has 28 MA's), (70, 27778), (88, 27640), (115, 27475), (119, 27463), (143, 27403), (150, 27391),

Gene: Eddiemania_64 Start: 47192, Stop: 47701, Start Num: 42

Candidate Starts for Eddiemania_64:

(20, 47129), (23, 47135), (Start: 42 @47192 has 12 MA's), (Start: 45 @47201 has 5 MA's), (75, 47333), (83, 47399), (86, 47426), (94, 47489), (101, 47534), (109, 47585), (122, 47627), (125, 47636), (142, 47687), (146, 47693),

Gene: EhyElimayoE_215 Start: 129333, Stop: 129842, Start Num: 54

Candidate Starts for EhyElimayoE_215:

(10, 129150), (Start: 54 @129333 has 6 MA's), (84, 129507), (103, 129624), (130, 129741), (157, 129807), (162, 129837),

Gene: EITiger69_33 Start: 26682, Stop: 26170, Start Num: 58
Candidate Starts for EITiger69_33:
(Start: 58 @26682 has 18 MA's),

Gene: Elliott_44 Start: 32961, Stop: 32437, Start Num: 55
Candidate Starts for Elliott_44:
(39, 33006), (Start: 55 @32961 has 15 MA's), (75, 32862), (81, 32811), (94, 32766), (101, 32715), (107, 32676), (118, 32634), (143, 32559), (160, 32517),

Gene: Emalyn_43 Start: 32069, Stop: 31614, Start Num: 55
Candidate Starts for Emalyn_43:
(39, 32114), (Start: 55 @32069 has 15 MA's), (75, 31970), (95, 31862), (101, 31823), (107, 31784), (110, 31769), (112, 31763), (129, 31700), (143, 31667),

Gene: EndAve_65 Start: 46474, Stop: 47016, Start Num: 45
Candidate Starts for EndAve_65:
(23, 46408), (Start: 42 @46465 has 12 MA's), (Start: 45 @46474 has 5 MA's), (75, 46606), (83, 46672), (86, 46699), (94, 46762), (101, 46807), (109, 46858), (122, 46900),

Gene: Eurydice_36 Start: 27798, Stop: 27322, Start Num: 64
Candidate Starts for Eurydice_36:
(Start: 64 @27798 has 28 MA's), (70, 27753), (88, 27615), (115, 27450), (119, 27438), (143, 27378), (150, 27366),

Gene: Expelliarmus_31 Start: 26184, Stop: 25672, Start Num: 58
Candidate Starts for Expelliarmus_31:
(Start: 58 @26184 has 18 MA's), (93, 25953), (123, 25803), (135, 25767),

Gene: FF47_44A Start: 34701, Stop: 34159, Start Num: 57
Candidate Starts for FF47_44A:
(Start: 57 @34701 has 35 MA's), (66, 34674), (Start: 68 @34662 has 1 MA's), (73, 34608), (78, 34584), (81, 34551), (102, 34452), (112, 34395), (139, 34308),

Gene: Fazel_69 Start: 46305, Stop: 46814, Start Num: 42
Candidate Starts for Fazel_69:
(Start: 42 @46305 has 12 MA's), (Start: 45 @46314 has 5 MA's), (75, 46443), (92, 46581), (118, 46725),

Gene: Figliar_62 Start: 46394, Stop: 46849, Start Num: 42
Candidate Starts for Figliar_62:
(Start: 21 @46331 has 1 MA's), (29, 46364), (Start: 42 @46394 has 12 MA's), (Start: 45 @46403 has 5 MA's), (75, 46535), (83, 46601), (86, 46628), (101, 46736), (109, 46787),

Gene: ForGetIt_32 Start: 26906, Stop: 26397, Start Num: 57
Candidate Starts for ForGetIt_32:
(Start: 57 @26906 has 35 MA's),

Gene: Frankenweenie_230 Start: 138966, Stop: 139478, Start Num: 54
Candidate Starts for Frankenweenie_230:

(10, 138783), (Start: 54 @138966 has 6 MA's), (99, 139251), (103, 139272), (111, 139320), (114, 139332), (128, 139383), (140, 139416), (145, 139425),

Gene: Fribs8_40 Start: 32159, Stop: 31746, Start Num: 60

Candidate Starts for Fribs8_40:

(Start: 60 @32159 has 4 MA's), (67, 32129), (Start: 68 @32123 has 1 MA's), (70, 32111), (95, 31955), (105, 31895), (111, 31859), (119, 31832), (148, 31760),

Gene: GMA2_70 Start: 73346, Stop: 72861, Start Num: 54

Candidate Starts for GMA2_70:

(47, 73370), (Start: 54 @73346 has 6 MA's), (67, 73307), (Start: 68 @73301 has 1 MA's), (116, 72983), (119, 72974), (137, 72914), (147, 72896),

Gene: GTE2_36 Start: 32665, Stop: 32207, Start Num: 55

Candidate Starts for GTE2_36:

(39, 32710), (Start: 55 @32665 has 15 MA's), (75, 32566), (77, 32551), (81, 32515), (95, 32458), (101, 32419), (107, 32380), (110, 32365), (118, 32338), (143, 32263), (151, 32248), (157, 32227), (159, 32224),

Gene: George_31 Start: 26981, Stop: 26472, Start Num: 57

Candidate Starts for George_31:

(Start: 57 @26981 has 35 MA's),

Gene: Ghoulboy_32 Start: 27221, Stop: 26715, Start Num: 64

Candidate Starts for Ghoulboy_32:

(Start: 64 @27221 has 28 MA's),

Gene: GiKK_49 Start: 33554, Stop: 33129, Start Num: 57

Candidate Starts for GiKK_49:

(Start: 57 @33554 has 35 MA's), (67, 33521), (75, 33455), (97, 33326), (127, 33179), (143, 33140),

Gene: Gibbous_39 Start: 31766, Stop: 31344, Start Num: 61

Candidate Starts for Gibbous_39:

(Start: 61 @31766 has 2 MA's), (67, 31736), (Start: 68 @31730 has 1 MA's), (70, 31718), (100, 31529), (104, 31508), (105, 31502), (136, 31382),

Gene: Gill_65 Start: 46357, Stop: 46827, Start Num: 53

Candidate Starts for Gill_65:

(28, 46288), (Start: 37 @46312 has 5 MA's), (Start: 53 @46357 has 4 MA's), (67, 46396), (Start: 68 @46402 has 1 MA's), (75, 46462), (78, 46483), (82, 46519), (86, 46555), (97, 46639), (119, 46747), (123, 46762), (133, 46795), (134, 46798), (143, 46819),

Gene: GodonK_189 Start: 98192, Stop: 97662, Start Num: 44

Candidate Starts for GodonK_189:

(Start: 44 @98192 has 2 MA's), (47, 98186), (Start: 68 @98117 has 1 MA's), (77, 98039), (101, 97868), (105, 97847), (119, 97784), (132, 97742), (136, 97730), (155, 97688),

Gene: GoldHunter_45 Start: 33075, Stop: 32551, Start Num: 55

Candidate Starts for GoldHunter_45:

(38, 33123), (39, 33120), (Start: 55 @33075 has 15 MA's), (75, 32976), (81, 32925), (101, 32829), (107, 32790), (118, 32748), (143, 32673),

Gene: Gravy_64 Start: 45990, Stop: 46505, Start Num: 37

Candidate Starts for Gravy_64:

(Start: 37 @45990 has 5 MA's), (67, 46074), (Start: 68 @46080 has 1 MA's), (75, 46140), (78, 46161), (82, 46197), (86, 46233), (97, 46317), (119, 46425), (123, 46440), (133, 46473), (134, 46476), (143, 46497),

Gene: Groundhog_31 Start: 26278, Stop: 25670, Start Num: 58

Candidate Starts for Groundhog_31:

(Start: 58 @26278 has 18 MA's), (115, 25924), (135, 25861), (158, 25810), (161, 25804),

Gene: Hexbug_52 Start: 35640, Stop: 35221, Start Num: 57

Candidate Starts for Hexbug_52:

(Start: 57 @35640 has 35 MA's), (65, 35616), (67, 35607), (72, 35556), (73, 35547), (100, 35394), (105, 35367), (143, 35232),

Gene: HippoPololi_41 Start: 32205, Stop: 31756, Start Num: 48

Candidate Starts for HippoPololi_41:

(Start: 48 @32205 has 1 MA's), (Start: 61 @32178 has 2 MA's), (67, 32148), (Start: 68 @32142 has 1 MA's), (70, 32130), (71, 32103), (95, 31974), (96, 31968), (105, 31914), (110, 31881), (112, 31875), (129, 31812),

Gene: Horseradish_46 Start: 32912, Stop: 32445, Start Num: 52

Candidate Starts for Horseradish_46:

(Start: 52 @32912 has 7 MA's), (75, 32804), (81, 32753), (95, 32696), (101, 32657), (104, 32642), (107, 32618), (118, 32576), (143, 32501), (149, 32489), (151, 32486), (159, 32462), (160, 32459),

Gene: Hortihabitatio_65 Start: 47098, Stop: 47610, Start Num: 42

Candidate Starts for Hortihabitatio_65:

(22, 47032), (26, 47053), (39, 47089), (Start: 42 @47098 has 12 MA's), (Start: 45 @47107 has 5 MA's), (75, 47236), (92, 47374), (118, 47518),

Gene: HuhtaEnerson15_32 Start: 26972, Stop: 26463, Start Num: 57

Candidate Starts for HuhtaEnerson15_32:

(Start: 57 @26972 has 35 MA's),

Gene: Huwbert_70 Start: 43330, Stop: 43914, Start Num: 12

Candidate Starts for Huwbert_70:

(Start: 12 @43330 has 2 MA's), (13, 43351), (15, 43357), (27, 43408), (Start: 51 @43474 has 1 MA's), (69, 43531), (76, 43588), (80, 43633), (105, 43765), (106, 43774), (118, 43825), (127, 43861), (129, 43867),

Gene: Hydrus_66 Start: 47228, Stop: 47680, Start Num: 45

Candidate Starts for Hydrus_66:

(23, 47162), (34, 47207), (Start: 42 @47219 has 12 MA's), (Start: 45 @47228 has 5 MA's), (75, 47360), (83, 47426), (86, 47453), (94, 47516), (101, 47561),

Gene: Jabiru_33 Start: 26731, Stop: 26219, Start Num: 58

Candidate Starts for Jabiru_33:

(Start: 58 @26731 has 18 MA's), (85, 26554),

Gene: Jamzy_49 Start: 33537, Stop: 33112, Start Num: 57

Candidate Starts for Jamzy_49:

(Start: 57 @33537 has 35 MA's), (67, 33504), (75, 33438), (78, 33420), (97, 33309), (127, 33162), (143, 33123),

Gene: Jodelie19_62 Start: 47735, Stop: 48253, Start Num: 21

Candidate Starts for Jodelie19_62:

(Start: 21 @47735 has 1 MA's), (29, 47768), (Start: 42 @47798 has 12 MA's), (Start: 45 @47807 has 5 MA's), (75, 47939), (86, 48032), (101, 48140), (109, 48191),

Gene: Jovo_32 Start: 27162, Stop: 26653, Start Num: 57

Candidate Starts for Jovo_32:

(Start: 57 @27162 has 35 MA's),

Gene: JustBecause_213 Start: 126485, Stop: 127003, Start Num: 54

Candidate Starts for JustBecause_213:

(10, 126302), (Start: 54 @126485 has 6 MA's), (67, 126524), (108, 126833), (111, 126845), (114, 126857), (128, 126908),

Gene: Kela_211 Start: 126330, Stop: 126848, Start Num: 54

Candidate Starts for Kela_211:

(10, 126147), (Start: 54 @126330 has 6 MA's), (67, 126369), (108, 126678), (111, 126690), (114, 126702), (128, 126753),

Gene: Kenosha_63 Start: 46678, Stop: 47133, Start Num: 42

Candidate Starts for Kenosha_63:

(23, 46621), (32, 46657), (Start: 42 @46678 has 12 MA's), (Start: 45 @46687 has 5 MA's), (75, 46816), (86, 46909), (101, 47017), (109, 47068),

Gene: Kerry_64 Start: 45990, Stop: 46505, Start Num: 37

Candidate Starts for Kerry_64:

(Start: 37 @45990 has 5 MA's), (67, 46074), (Start: 68 @46080 has 1 MA's), (75, 46140), (78, 46161), (82, 46197), (86, 46233), (97, 46317), (119, 46425), (123, 46440), (133, 46473), (134, 46476), (143, 46497),

Gene: KimJongPhill_79 Start: 56740, Stop: 57207, Start Num: 40

Candidate Starts for KimJongPhill_79:

(Start: 40 @56740 has 1 MA's), (49, 56767), (Start: 50 @56770 has 1 MA's), (76, 56887), (98, 57016), (109, 57094), (112, 57103), (118, 57124), (127, 57160),

Gene: Kradal_214 Start: 129330, Stop: 129839, Start Num: 54

Candidate Starts for Kradal_214:

(10, 129147), (Start: 54 @129330 has 6 MA's), (84, 129504), (103, 129621), (130, 129738), (157, 129804), (162, 129834),

Gene: Lev2_32 Start: 26794, Stop: 26285, Start Num: 57

Candidate Starts for Lev2_32:

(Start: 57 @26794 has 35 MA's),

Gene: LittleCherry_32 Start: 26982, Stop: 26473, Start Num: 57

Candidate Starts for LittleCherry_32:

(Start: 57 @26982 has 35 MA's),

Gene: LittleGuy_35 Start: 27703, Stop: 27230, Start Num: 64

Candidate Starts for LittleGuy_35:

(Start: 64 @27703 has 28 MA's), (115, 27352), (119, 27340), (143, 27280), (150, 27268),

Gene: MScarn_48 Start: 33094, Stop: 32627, Start Num: 52

Candidate Starts for MScarn_48:

(Start: 52 @33094 has 7 MA's), (75, 32986), (81, 32935), (95, 32878), (101, 32839), (104, 32824), (107, 32800), (118, 32758), (143, 32683), (157, 32647), (159, 32644),

Gene: MaVan_43 Start: 32460, Stop: 32047, Start Num: 60

Candidate Starts for MaVan_43:

(33, 32523), (Start: 60 @32460 has 4 MA's), (67, 32430), (Start: 68 @32424 has 1 MA's), (70, 32412), (95, 32256), (96, 32250), (105, 32196), (110, 32163), (112, 32157),

Gene: Maco6_43 Start: 34041, Stop: 33499, Start Num: 57

Candidate Starts for Maco6_43:

(Start: 57 @34041 has 35 MA's), (66, 34014), (Start: 68 @34002 has 1 MA's), (73, 33948), (78, 33924), (81, 33891), (112, 33735), (113, 33729), (139, 33648),

Gene: Madvan_63 Start: 46114, Stop: 46566, Start Num: 45

Candidate Starts for Madvan_63:

(23, 46048), (Start: 42 @46105 has 12 MA's), (Start: 45 @46114 has 5 MA's), (75, 46246), (83, 46312), (86, 46339), (94, 46402), (101, 46447),

Gene: Magel_66 Start: 46272, Stop: 46742, Start Num: 53

Candidate Starts for Magel_66:

(28, 46203), (Start: 37 @46227 has 5 MA's), (Start: 53 @46272 has 4 MA's), (67, 46311), (Start: 68 @46317 has 1 MA's), (75, 46377), (78, 46398), (82, 46434), (86, 46470), (97, 46554), (119, 46662), (123, 46677), (133, 46710), (134, 46713), (143, 46734),

Gene: Mareelih_173 Start: 101362, Stop: 100859, Start Num: 56

Candidate Starts for Mareelih_173:

(Start: 56 @101362 has 3 MA's), (98, 101086), (101, 101065), (105, 101044), (136, 100924), (151, 100894),

Gene: Margaret_50 Start: 34280, Stop: 33861, Start Num: 57

Candidate Starts for Margaret_50:

(Start: 57 @34280 has 35 MA's), (67, 34247), (72, 34196), (73, 34187), (97, 34058), (100, 34034), (143, 33872),

Gene: MarysWell_31 Start: 27030, Stop: 26521, Start Num: 57

Candidate Starts for MarysWell_31:

(Start: 57 @27030 has 35 MA's),

Gene: Maxo_36 Start: 27800, Stop: 27324, Start Num: 64

Candidate Starts for Maxo_36:

(Start: 64 @27800 has 28 MA's), (70, 27755), (88, 27617), (115, 27452), (119, 27440), (143, 27380), (150, 27368),

Gene: Medusa_36 Start: 27803, Stop: 27324, Start Num: 64

Candidate Starts for Medusa_36:

(Start: 64 @27803 has 28 MA's), (115, 27452), (119, 27440), (143, 27380), (150, 27368),

Gene: Melvin_37 Start: 27802, Stop: 27323, Start Num: 64

Candidate Starts for Melvin_37:

(Start: 64 @27802 has 28 MA's), (115, 27451), (119, 27439), (143, 27379), (150, 27367),

Gene: Micasa_31 Start: 26944, Stop: 26438, Start Num: 64
Candidate Starts for Micasa_31:
(Start: 64 @26944 has 28 MA's),

Gene: Midas2_32 Start: 27021, Stop: 26512, Start Num: 57
Candidate Starts for Midas2_32:
(Start: 57 @27021 has 35 MA's),

Gene: Milcery_32 Start: 26986, Stop: 26477, Start Num: 57
Candidate Starts for Milcery_32:
(Start: 57 @26986 has 35 MA's),

Gene: Morrow_36 Start: 27804, Stop: 27328, Start Num: 64
Candidate Starts for Morrow_36:
(Start: 64 @27804 has 28 MA's), (70, 27759), (88, 27621), (115, 27456), (119, 27444), (143, 27384),
(150, 27372),

Gene: Mossy_67 Start: 48112, Stop: 48564, Start Num: 42
Candidate Starts for Mossy_67:
(23, 48055), (Start: 42 @48112 has 12 MA's), (Start: 45 @48121 has 5 MA's), (75, 48250), (83,
48316), (86, 48343), (101, 48451),

Gene: Muddy_45 Start: 35273, Stop: 34731, Start Num: 57
Candidate Starts for Muddy_45:
(Start: 57 @35273 has 35 MA's), (66, 35246), (Start: 68 @35234 has 1 MA's), (73, 35180), (78,
35156), (81, 35123), (102, 35024), (112, 34967), (139, 34880),

Gene: Naca_33 Start: 27224, Stop: 26715, Start Num: 58
Candidate Starts for Naca_33:
(Start: 58 @27224 has 18 MA's),

Gene: Nadmeg_65 Start: 47342, Stop: 47797, Start Num: 42
Candidate Starts for Nadmeg_65:
(23, 47285), (32, 47321), (Start: 42 @47342 has 12 MA's), (Start: 45 @47351 has 5 MA's), (75,
47480), (86, 47573), (101, 47681), (109, 47732),

Gene: NearlyHeadless_32 Start: 26237, Stop: 25725, Start Num: 58
Candidate Starts for NearlyHeadless_32:
(Start: 58 @26237 has 18 MA's), (93, 26006), (123, 25856), (135, 25820),

Gene: Nebs_36 Start: 27798, Stop: 27322, Start Num: 64
Candidate Starts for Nebs_36:
(Start: 64 @27798 has 28 MA's), (70, 27753), (88, 27615), (115, 27450), (119, 27438), (143, 27378),
(150, 27366),

Gene: Nibbles_40 Start: 32147, Stop: 31734, Start Num: 60
Candidate Starts for Nibbles_40:
(33, 32210), (Start: 60 @32147 has 4 MA's), (67, 32117), (Start: 68 @32111 has 1 MA's), (70, 32099),
(95, 31943), (96, 31937), (105, 31883), (110, 31850), (112, 31844),

Gene: Nina_43 Start: 33199, Stop: 32675, Start Num: 55
Candidate Starts for Nina_43:

(39, 33244), (Start: 55 @33199 has 15 MA's), (75, 33100), (81, 33049), (101, 32953), (107, 32914), (118, 32872), (143, 32797), (160, 32755),

Gene: Nirvana_240 Start: 137189, Stop: 137701, Start Num: 54

Candidate Starts for Nirvana_240:

(3, 136931), (10, 137006), (Start: 54 @137189 has 6 MA's), (108, 137531), (111, 137543), (114, 137555), (120, 137573), (128, 137606),

Gene: Nithya_64 Start: 46208, Stop: 46717, Start Num: 42

Candidate Starts for Nithya_64:

(23, 46151), (Start: 42 @46208 has 12 MA's), (Start: 45 @46217 has 5 MA's), (75, 46349), (83, 46415), (86, 46442), (94, 46505), (101, 46550), (122, 46643), (142, 46703), (146, 46709),

Gene: NoShow_53 Start: 38273, Stop: 37752, Start Num: 57

Candidate Starts for NoShow_53:

(Start: 21 @38381 has 1 MA's), (Start: 51 @38285 has 1 MA's), (Start: 57 @38273 has 35 MA's), (118, 37946), (121, 37937), (134, 37892), (139, 37880), (143, 37871), (147, 37865),

Gene: Nodigi_52 Start: 35691, Stop: 35272, Start Num: 57

Candidate Starts for Nodigi_52:

(Start: 57 @35691 has 35 MA's), (65, 35667), (67, 35658), (72, 35607), (73, 35598), (100, 35445), (105, 35418), (143, 35283),

Gene: Nyxis_35 Start: 27697, Stop: 27224, Start Num: 64

Candidate Starts for Nyxis_35:

(Start: 64 @27697 has 28 MA's), (115, 27346), (119, 27334), (143, 27274), (150, 27262),

Gene: Odesza_64 Start: 46216, Stop: 46686, Start Num: 53

Candidate Starts for Odesza_64:

(28, 46147), (Start: 37 @46171 has 5 MA's), (Start: 53 @46216 has 4 MA's), (67, 46255), (Start: 68 @46261 has 1 MA's), (75, 46321), (78, 46342), (82, 46378), (86, 46414), (97, 46498), (119, 46606), (123, 46621), (133, 46654), (134, 46657), (143, 46678),

Gene: Ohfah_36 Start: 27798, Stop: 27322, Start Num: 64

Candidate Starts for Ohfah_36:

(Start: 64 @27798 has 28 MA's), (70, 27753), (88, 27615), (115, 27450), (119, 27438), (143, 27378), (150, 27366),

Gene: OlgasClover_65 Start: 47388, Stop: 47843, Start Num: 42

Candidate Starts for OlgasClover_65:

(Start: 42 @47388 has 12 MA's), (Start: 45 @47397 has 5 MA's), (75, 47529), (86, 47622), (101, 47730), (109, 47781),

Gene: Orla_52 Start: 35599, Stop: 35180, Start Num: 57

Candidate Starts for Orla_52:

(Start: 57 @35599 has 35 MA's), (65, 35575), (67, 35566), (72, 35515), (73, 35506), (100, 35353), (105, 35326), (143, 35191),

Gene: Perkunas_68 Start: 46556, Stop: 47071, Start Num: 37

Candidate Starts for Perkunas_68:

(2, 46325), (6, 46370), (7, 46373), (8, 46400), (11, 46439), (14, 46475), (16, 46478), (18, 46490), (24, 46508), (Start: 37 @46556 has 5 MA's), (41, 46565), (73, 46700), (74, 46703), (75, 46706), (78, 46727), (82, 46763), (90, 46814), (97, 46883), (134, 47042), (143, 47063),

Gene: PetterN_34 Start: 26587, Stop: 26075, Start Num: 58

Candidate Starts for PetterN_34:

(Start: 58 @26587 has 18 MA's),

Gene: Phelipe_36 Start: 27804, Stop: 27325, Start Num: 64

Candidate Starts for Phelipe_36:

(Start: 64 @27804 has 28 MA's), (115, 27453), (119, 27441), (143, 27381), (150, 27369),

Gene: Phendrix_177 Start: 96622, Stop: 96095, Start Num: 44

Candidate Starts for Phendrix_177:

(Start: 44 @96622 has 2 MA's), (47, 96616), (Start: 68 @96547 has 1 MA's), (77, 96469), (101, 96298), (105, 96277), (119, 96214), (132, 96172), (136, 96160), (155, 96118),

Gene: Phepper_65 Start: 46347, Stop: 46808, Start Num: 42

Candidate Starts for Phepper_65:

(23, 46290), (Start: 42 @46347 has 12 MA's), (Start: 45 @46356 has 5 MA's), (75, 46488), (86, 46581), (94, 46644), (101, 46689),

Gene: Pherobrine_66 Start: 47919, Stop: 48428, Start Num: 42

Candidate Starts for Pherobrine_66:

(25, 47871), (30, 47886), (Start: 42 @47919 has 12 MA's), (Start: 45 @47928 has 5 MA's), (75, 48057), (78, 48078), (92, 48195), (97, 48234), (118, 48339), (131, 48384),

Gene: Phillis_32 Start: 26263, Stop: 25784, Start Num: 58

Candidate Starts for Phillis_32:

(Start: 58 @26263 has 18 MA's), (93, 26032), (123, 25882), (152, 25816), (156, 25804),

Gene: Phlorence_32 Start: 27081, Stop: 26572, Start Num: 57

Candidate Starts for Phlorence_32:

(Start: 57 @27081 has 35 MA's),

Gene: Phontbonne_35 Start: 27698, Stop: 27225, Start Num: 64

Candidate Starts for Phontbonne_35:

(Start: 64 @27698 has 28 MA's), (115, 27347), (119, 27335), (143, 27275), (150, 27263),

Gene: PickleBack_32 Start: 26795, Stop: 26286, Start Num: 57

Candidate Starts for PickleBack_32:

(Start: 57 @26795 has 35 MA's),

Gene: Poco6_076 Start: 59210, Stop: 59797, Start Num: 54

Candidate Starts for Poco6_076:

(Start: 54 @59210 has 6 MA's), (67, 59246), (Start: 68 @59252 has 1 MA's), (75, 59312), (97, 59489), (110, 59567), (118, 59594), (119, 59597), (139, 59660), (156, 59699), (159, 59708),

Gene: Polymorphads_36 Start: 27797, Stop: 27321, Start Num: 64

Candidate Starts for Polymorphads_36:

(Start: 64 @27797 has 28 MA's), (70, 27752), (88, 27614), (115, 27449), (119, 27437), (143, 27377), (150, 27365),

Gene: PsychoKiller_43 Start: 32962, Stop: 32438, Start Num: 55

Candidate Starts for PsychoKiller_43:

(39, 33007), (Start: 55 @32962 has 15 MA's), (75, 32863), (81, 32812), (94, 32767), (101, 32716), (107, 32677), (118, 32635), (143, 32560), (160, 32518),

Gene: Pumbaa_35 Start: 27749, Stop: 27276, Start Num: 64

Candidate Starts for Pumbaa_35:

(Start: 64 @27749 has 28 MA's), (115, 27398), (119, 27386), (143, 27326), (150, 27314),

Gene: Quasar_44 Start: 33624, Stop: 33100, Start Num: 55

Candidate Starts for Quasar_44:

(39, 33669), (43, 33660), (Start: 55 @33624 has 15 MA's), (75, 33525), (81, 33474), (101, 33378), (107, 33339), (118, 33297), (143, 33222), (160, 33180),

Gene: RedBaron_46 Start: 33291, Stop: 32767, Start Num: 55

Candidate Starts for RedBaron_46:

(39, 33336), (Start: 55 @33291 has 15 MA's), (75, 33192), (81, 33141), (101, 33045), (107, 33006), (118, 32964), (143, 32889), (160, 32847),

Gene: Rickmore_61 Start: 44723, Stop: 45232, Start Num: 42

Candidate Starts for Rickmore_61:

(Start: 21 @44660 has 1 MA's), (29, 44693), (Start: 42 @44723 has 12 MA's), (75, 44864), (83, 44930), (86, 44957), (94, 45020), (101, 45065), (109, 45116), (122, 45158), (125, 45167), (141, 45218), (144, 45224),

Gene: Roary_32 Start: 26183, Stop: 25671, Start Num: 58

Candidate Starts for Roary_32:

(Start: 58 @26183 has 18 MA's), (93, 25952), (123, 25802), (135, 25766),

Gene: Roney_65 Start: 46382, Stop: 46852, Start Num: 53

Candidate Starts for Roney_65:

(28, 46313), (Start: 37 @46337 has 5 MA's), (Start: 53 @46382 has 4 MA's), (67, 46421), (Start: 68 @46427 has 1 MA's), (75, 46487), (78, 46508), (82, 46544), (86, 46580), (97, 46664), (119, 46772), (123, 46787), (133, 46820), (134, 46823), (143, 46844),

Gene: Runhaar_64 Start: 46158, Stop: 46613, Start Num: 42

Candidate Starts for Runhaar_64:

(23, 46101), (32, 46137), (Start: 42 @46158 has 12 MA's), (Start: 45 @46167 has 5 MA's), (75, 46299), (83, 46365), (86, 46392), (90, 46407), (101, 46500), (109, 46551),

Gene: Satis_212 Start: 129667, Stop: 130176, Start Num: 54

Candidate Starts for Satis_212:

(10, 129484), (Start: 54 @129667 has 6 MA's), (84, 129841), (103, 129958), (130, 130075), (157, 130141), (162, 130171),

Gene: Scorpia_34 Start: 26664, Stop: 26152, Start Num: 58

Candidate Starts for Scorpia_34:

(Start: 58 @26664 has 18 MA's),

Gene: Sheen_36 Start: 29802, Stop: 29311, Start Num: 64

Candidate Starts for Sheen_36:

(17, 29925), (19, 29916), (46, 29838), (Start: 64 @29802 has 28 MA's), (89, 29616), (97, 29547), (118, 29442), (119, 29439), (124, 29424), (153, 29361), (154, 29358),

Gene: Sixama_175 Start: 101856, Stop: 101392, Start Num: 68

Candidate Starts for Sixama_175:

(Start: 56 @101895 has 3 MA's), (Start: 68 @101856 has 1 MA's), (98, 101619), (101, 101598), (115, 101526), (117, 101520), (122, 101505), (136, 101457), (151, 101427),

Gene: SketchMex_44 Start: 32979, Stop: 32512, Start Num: 52

Candidate Starts for SketchMex_44:

(Start: 52 @32979 has 7 MA's), (75, 32871), (81, 32820), (95, 32763), (101, 32724), (104, 32709), (107, 32685), (118, 32643), (143, 32568), (149, 32556), (151, 32553), (159, 32529), (160, 32526),

Gene: Smeadley_32 Start: 26306, Stop: 25698, Start Num: 58

Candidate Starts for Smeadley_32:

(Start: 58 @26306 has 18 MA's), (115, 25952), (135, 25889), (158, 25838), (161, 25832),

Gene: Sopespian_42 Start: 32963, Stop: 32439, Start Num: 55

Candidate Starts for Sopespian_42:

(39, 33008), (Start: 55 @32963 has 15 MA's), (75, 32864), (81, 32813), (94, 32768), (101, 32717), (107, 32678), (118, 32636), (143, 32561), (160, 32519),

Gene: Sparxx_36 Start: 27799, Stop: 27323, Start Num: 64

Candidate Starts for Sparxx_36:

(Start: 64 @27799 has 28 MA's), (70, 27754), (88, 27616), (115, 27451), (119, 27439), (143, 27379), (150, 27367),

Gene: SteamedHams_44 Start: 32460, Stop: 32005, Start Num: 55

Candidate Starts for SteamedHams_44:

(1, 32844), (4, 32709), (9, 32658), (Start: 12 @32616 has 2 MA's), (31, 32526), (39, 32505), (Start: 55 @32460 has 15 MA's), (75, 32361), (77, 32346), (81, 32310), (95, 32253), (101, 32214), (104, 32199), (107, 32175), (110, 32160), (129, 32091), (143, 32058),

Gene: Stephig9_32 Start: 26211, Stop: 25699, Start Num: 58

Candidate Starts for Stephig9_32:

(Start: 58 @26211 has 18 MA's), (93, 25980), (123, 25830), (135, 25794),

Gene: Survivors_41 Start: 32356, Stop: 31943, Start Num: 60

Candidate Starts for Survivors_41:

(33, 32419), (Start: 60 @32356 has 4 MA's), (67, 32326), (Start: 68 @32320 has 1 MA's), (70, 32308), (95, 32152), (96, 32146), (105, 32092), (110, 32059), (112, 32053),

Gene: SweatNTears_45 Start: 32906, Stop: 32448, Start Num: 55

Candidate Starts for SweatNTears_45:

(Start: 55 @32906 has 15 MA's), (75, 32807), (81, 32756), (95, 32699), (101, 32660), (104, 32645), (107, 32621), (118, 32579), (143, 32504), (149, 32492), (151, 32489), (159, 32465), (160, 32462),

Gene: Swirley_32 Start: 26951, Stop: 26445, Start Num: 64

Candidate Starts for Swirley_32:

(Start: 64 @26951 has 28 MA's),

Gene: SydNat_32 Start: 27230, Stop: 26724, Start Num: 64

Candidate Starts for SydNat_32:

(Start: 64 @27230 has 28 MA's),

Gene: TG1_40 Start: 31978, Stop: 32517, Start Num: 63

Candidate Starts for TG1_40:

(Start: 50 @31954 has 1 MA's), (Start: 63 @31978 has 1 MA's), (67, 32005), (70, 32023), (73, 32065), (75, 32071), (77, 32089), (126, 32380),

Gene: Tanis_65 Start: 46157, Stop: 46672, Start Num: 37

Candidate Starts for Tanis_65:

(28, 46133), (Start: 37 @46157 has 5 MA's), (Start: 53 @46202 has 4 MA's), (67, 46241), (Start: 68 @46247 has 1 MA's), (75, 46307), (78, 46328), (82, 46364), (86, 46400), (91, 46418), (97, 46484), (119, 46592), (123, 46607), (133, 46640), (134, 46643), (143, 46664),

Gene: Tarynearal_31 Start: 26979, Stop: 26470, Start Num: 57

Candidate Starts for Tarynearal_31:

(Start: 57 @26979 has 35 MA's),

Gene: Theia_30 Start: 27003, Stop: 26494, Start Num: 57

Candidate Starts for Theia_30:

(Start: 57 @27003 has 35 MA's),

Gene: Tiger_32 Start: 26872, Stop: 26363, Start Num: 57

Candidate Starts for Tiger_32:

(Start: 57 @26872 has 35 MA's),

Gene: Timshel_36 Start: 30226, Stop: 29732, Start Num: 62

Candidate Starts for Timshel_36:

(59, 30229), (Start: 62 @30226 has 1 MA's), (85, 30049), (118, 29863), (119, 29860), (153, 29782), (154, 29779),

Gene: TinaFeyge_36 Start: 27799, Stop: 27320, Start Num: 64

Candidate Starts for TinaFeyge_36:

(Start: 64 @27799 has 28 MA's), (115, 27448), (119, 27436), (143, 27376), (150, 27364),

Gene: Tolls_45 Start: 32853, Stop: 32398, Start Num: 55

Candidate Starts for Tolls_45:

(1, 33237), (4, 33102), (9, 33051), (Start: 12 @33009 has 2 MA's), (31, 32919), (39, 32898), (Start: 55 @32853 has 15 MA's), (75, 32754), (77, 32739), (81, 32703), (95, 32646), (101, 32607), (104, 32592), (107, 32568), (110, 32553), (118, 32526), (143, 32451),

Gene: Triscuit_69 Start: 43287, Stop: 43871, Start Num: 12

Candidate Starts for Triscuit_69:

(Start: 12 @43287 has 2 MA's), (13, 43308), (15, 43314), (27, 43365), (Start: 51 @43431 has 1 MA's), (69, 43488), (76, 43545), (79, 43563), (80, 43590), (105, 43722), (106, 43731), (118, 43782), (127, 43818), (129, 43824),

Gene: Troje_46 Start: 33317, Stop: 32850, Start Num: 52

Candidate Starts for Troje_46:

(Start: 52 @33317 has 7 MA's), (75, 33209), (81, 33158), (95, 33101), (101, 33062), (104, 33047), (107, 33023), (118, 32981), (143, 32906), (149, 32894), (151, 32891), (159, 32867), (160, 32864),

Gene: TroyPia_36 Start: 27802, Stop: 27323, Start Num: 64

Candidate Starts for TroyPia_36:

(Start: 64 @27802 has 28 MA's), (115, 27451), (119, 27439), (143, 27379), (150, 27367),

Gene: Typhonomachy_44 Start: 32785, Stop: 32261, Start Num: 55

Candidate Starts for Typhonomachy_44:

(39, 32830), (Start: 55 @32785 has 15 MA's), (75, 32686), (81, 32635), (101, 32539), (107, 32500), (118, 32458), (143, 32383), (160, 32341),

Gene: Ulysses_34 Start: 27484, Stop: 27011, Start Num: 64

Candidate Starts for Ulysses_34:

(Start: 64 @27484 has 28 MA's), (115, 27133), (119, 27121), (143, 27061), (150, 27049),

Gene: UnionJack_33 Start: 26328, Stop: 25807, Start Num: 51

Candidate Starts for UnionJack_33:

(36, 26370), (Start: 51 @26328 has 1 MA's), (Start: 57 @26316 has 35 MA's),

Gene: Untouchable_66 Start: 47269, Stop: 47808, Start Num: 45

Candidate Starts for Untouchable_66:

(23, 47203), (Start: 42 @47260 has 12 MA's), (Start: 45 @47269 has 5 MA's), (75, 47401), (86, 47494), (94, 47557), (101, 47602), (109, 47653), (131, 47725),

Gene: Vine_48 Start: 35175, Stop: 34666, Start Num: 35

Candidate Starts for Vine_48:

(Start: 35 @35175 has 1 MA's), (87, 34941), (101, 34875), (104, 34860), (112, 34815), (118, 34794), (143, 34719), (144, 34716), (154, 34701),

Gene: Yakult_47 Start: 34354, Stop: 33935, Start Num: 57

Candidate Starts for Yakult_47:

(Start: 57 @34354 has 35 MA's), (67, 34321), (75, 34255), (78, 34237), (97, 34132), (118, 34021), (127, 33985), (141, 33949), (143, 33946),

Gene: Yarn_41 Start: 32613, Stop: 32158, Start Num: 55

Candidate Starts for Yarn_41:

(1, 32997), (4, 32862), (9, 32811), (Start: 12 @32769 has 2 MA's), (31, 32679), (39, 32658), (Start: 55 @32613 has 15 MA's), (75, 32514), (77, 32499), (81, 32463), (95, 32406), (101, 32367), (104, 32352), (107, 32328), (110, 32313), (129, 32244), (143, 32211),

Gene: Yummy_46 Start: 33026, Stop: 32559, Start Num: 52

Candidate Starts for Yummy_46:

(Start: 52 @33026 has 7 MA's), (75, 32918), (81, 32867), (95, 32810), (101, 32771), (104, 32756), (107, 32732), (118, 32690), (143, 32615), (149, 32603), (151, 32600), (159, 32576), (160, 32573),

Gene: Zareef_43 Start: 32450, Stop: 32037, Start Num: 60

Candidate Starts for Zareef_43:

(33, 32513), (Start: 60 @32450 has 4 MA's), (67, 32420), (Start: 68 @32414 has 1 MA's), (70, 32402), (95, 32246), (96, 32240), (105, 32186), (110, 32153), (112, 32147),

Gene: Zeph_68 Start: 47186, Stop: 47647, Start Num: 42

Candidate Starts for Zeph_68:

(23, 47129), (Start: 42 @47186 has 12 MA's), (Start: 45 @47195 has 5 MA's), (75, 47327), (83, 47393), (86, 47420), (94, 47483), (101, 47528),

Gene: Zolita_31 Start: 27234, Stop: 26728, Start Num: 64

Candidate Starts for Zolita_31:

(Start: 64 @27234 has 28 MA's),

Gene: Zuko_77 Start: 57041, Stop: 57478, Start Num: 50

Candidate Starts for Zuko_77:

(31, 56990), (Start: 40 @57011 has 1 MA's), (Start: 50 @57041 has 1 MA's), (67, 57092), (98, 57287),
(109, 57365), (118, 57395),