

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 169754 Report

This analysis was run 07/09/24 on database version 566.

Pham number 169754 has 118 members, 11 are drafts.

Phages represented in each track:

- Track 1 : Inked_32
- Track 2 : Darby_30, Synopsis_29, CastorTray_32, Trustiboi_31, Breylor17_31
- Track 3 : Nivinsha_30, AreFloNak_30, Tatanka_30
- Track 4 : ElephantMan_30, Brunswick_30, Teacup_30, Niktson_30
- Track 5 : MiniBagel_30
- Track 6 : CapnMurica_30, Tenno_31
- Track 7 : ScienceWizSam_32
- Track 8 : Issa_30, DevitoJr_30, Nightmare_31
- Track 9 : Gordon_30
- Track 10 : Phaby_31, Tokki_31
- Track 11 : Shepard_31, LilHuddy_31
- Track 12 : Giantsbane_31
- Track 13 : Ingrid_30, Loretta_30
- Track 14 : MediumFry_28, Caterpillar_28
- Track 15 : Makai_30
- Track 16 : Truckee_29
- Track 17 : ProfFrink_27, Stayer_27, StarLord_27, Salk_27, Raunak_27, Egad_27, BronxBay_27, Shiba_27, MrAaronian_27, DoctorPepper_27, Michelle_27, Djungelskog_27, Sloopypjoe_27, Linda_27
- Track 18 : Sporto_28
- Track 19 : Burritobowl_21, DickRichards_21, Abigail_21
- Track 20 : Armstrong_19
- Track 21 : Johnathan_21, Avocadoman_21, Albright_21, Doobus_21
- Track 22 : IndyLu_21, Finalfrontier_22, BabyDaisy_22
- Track 23 : AnnaLie_22, SansAfet_21, BelmontSKP_22
- Track 24 : LimaBean_21
- Track 25 : FlameThrower_19
- Track 26 : Albedo_21, Phisb_21, BubbaBear_21
- Track 27 : BabyYoda_20, Stromboli_20, DirtyBubble_20
- Track 28 : Clayda5_19
- Track 29 : Cashington_21
- Track 30 : Didgeridoo_22
- Track 31 : Icarian_21
- Track 32 : BAjuniper_20
- Track 33 : CroZenni_21
- Track 34 : Swervy_21, Slay_21, SarBear_21
- Track 35 : Gack_19, Franklin22_20

- Track 36 : AvGardian_21
- Track 37 : Quenya_20
- Track 38 : Stoor_20, Loviatar_36, SanaSana_21
- Track 39 : Kieran_19, Rona_19, ChiliPepper_19, Dismas_19, Sharkboy_19
- Track 40 : Lynlen_21, Kenzers_21
- Track 41 : Arroyo_22
- Track 42 : Eden_19
- Track 43 : Coltrane_19, Brahms_19, Skylord_19
- Track 44 : Celaena_19
- Track 45 : Vitas_19
- Track 46 : Bachaco_19
- Track 47 : Eula_21, QMacho_22
- Track 48 : TukTuk_21, Jovita_21
- Track 49 : Rollins_19, Bernstein_19
- Track 50 : Lahqtemish_21
- Track 51 : Nicky22_22
- Track 52 : Elva_21
- Track 53 : Katzastrophic_19
- Track 54 : SuMoo_19
- Track 55 : Floof_20
- Track 56 : IAmGroot_20, GardenState_20
- Track 57 : Caron_19
- Track 58 : Barnstormer_19
- Track 59 : UtzChips_19
- Track 60 : Mabodamaca_20

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

The start number called the most often in the published annotations is 8, it was called in 60 of the 107 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abigail_21, Albedo_21, Albright_21, AnnaLie_22, Armstrong_19, Arroyo_22, AvGardian_21, Avocadoman_21, BAjuniper_20, BabyDaisy_22, BabyYoda_20, Bachaco_19, BelmontSKP_22, Bernstein_19, Brahms_19, BubbaBear_21, Burritobowl_21, Cashington_21, Celaena_19, ChiliPepper_19, Clayda5_19, Coltrane_19, CroZenni_21, DickRichards_21, Didgeridoo_22, DirtyBubble_20, Dismas_19, Doobus_21, Eden_19, Elva_21, Eula_21, Finalfrontier_22, FlameThrower_19, Franklin22_20, Gack_19, Icarian_21, IndyLu_21, Johnathan_21, Jovita_21, Katzastrophic_19, Kenzers_21, Kieran_19, Lahqtemish_21, LimaBean_21, Loviatar_36, Lynlen_21, Nicky22_22, Phisb_21, QMacho_22, Quenya_20, Rollins_19, Rona_19, SanaSana_21, SansAfet_21, SarBear_21, Sharkboy_19, Skylord_19, Slay_21, Stoor_20, Stromboli_20, Swervy_21, TukTuk_21, Vitas_19,

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

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

- AreFloNak_30, Barnstormer_19, Breylor17_31, BronxBay_27, Brunswick_30, CapnMurica_30, Caron_19, CastorTray_32, Caterpillar_28, Darby_30, DevitoJr_30,

Djungelskog_27, DoctorPepper_27, Egad_27, ElephantMan_30, Floop_20, GardenState_20, Giantsbane_31, Gordon_30, IAmGroot_20, Ingrid_30, Inked_32, Issa_30, LilHuddy_31, Linda_27, Loretta_30, Mabodamaca_20, Makai_30, MediumFry_28, Michelle_27, MiniBagel_30, MrAaronian_27, Nightmare_31, Niktson_30, Nivinsha_30, Phaby_31, ProfFrink_27, Raunak_27, Salk_27, ScienceWizSam_32, Shepard_31, Shiba_27, Sloopyjoe_27, Sporto_28, StarLord_27, Stayer_27, SuMoo_19, Synopsis_29, Tatanka_30, Teacup_30, Tenno_31, Tokki_31, Truckee_29, Trustiboi_31, UtzChips_19,

Summary by start number:

Start 8:

- Found in 63 of 118 (53.4%) of genes in pham
- Manual Annotations of this start: 60 of 107
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abigail_21 (EB), Albedo_21 (EB), Albright_21 (EB), AnnaLie_22 (EB), Armstrong_19 (EB), Arroyo_22 (EB), AvGardian_21 (EB), Avocadoman_21 (EB), BAjuniper_20 (EB), BabyDaisy_22 (EB), BabyYoda_20 (EB), Bachaco_19 (EB), BelmontSKP_22 (EB), Bernstein_19 (EB), Brahms_19 (EB), BubbaBear_21 (EB), Burritobowl_21 (EB), Cashington_21 (EB), Celaena_19 (EB), ChiliPepper_19 (EB), Clayda5_19 (EB), Coltrane_19 (EB), CroZenni_21 (EB), DickRichards_21 (EB), Didgeridoo_22 (EB), DirtyBubble_20 (EB), Dismas_19 (EB), Doobus_21 (EB), Eden_19 (EB), Elva_21 (EB), Eula_21 (EB), Finalfrontier_22 (EB), FlameThrower_19 (EB), Franklin22_20 (EB), Gack_19 (EB), Icarian_21 (EB), IndyLu_21 (EB), Johnathan_21 (EB), Jovita_21 (EB), Katzastrophic_19 (EB), Kenzers_21 (EB), Kieran_19 (EB), Lahqtemish_21 (EB), LimaBean_21 (EB), Loviatar_36 (EB), Lynlen_21 (EB), Nicky22_22 (EB), Phisb_21 (EB), QMacho_22 (EB), Quenya_20 (EB), Rollins_19 (EB), Rona_19 (EB), SanaSana_21 (EB), SansAfet_21 (EB), SarBear_21 (EB), Sharkboy_19 (EB), Skylord_19 (EB), Slay_21 (EB), Stoor_20 (EB), Stromboli_20 (EB), Swervy_21 (EB), TukTuk_21 (EB), Vitas_19 (EB),

Start 9:

- Found in 53 of 118 (44.9%) of genes in pham
- Manual Annotations of this start: 46 of 107
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AreFloNak_30 (AU1), Barnstormer_19 (EH), Breylor17_31 (AU1), BronxBay_27 (AW), Brunswick_30 (AU1), CapnMurica_30 (AU1), Caron_19 (EH), CastorTray_32 (AU1), Caterpillar_28 (AU4), Darby_30 (AU1), DevitoJr_30 (AU1), Djungelskog_27 (AW), DoctorPepper_27 (AW), Egad_27 (AW), ElephantMan_30 (AU1), Floop_20 (EH), GardenState_20 (EH), Giantsbane_31 (AU2), Gordon_30 (AU1), IAmGroot_20 (EH), Ingrid_30 (AU3), Inked_32 (AU), Issa_30 (AU1), LilHuddy_31 (AU2), Linda_27 (AW), Loretta_30 (AU3), Makai_30 (AU5), MediumFry_28 (AU4), Michelle_27 (AW), MiniBagel_30 (AU1), MrAaronian_27 (AW), Nightmare_31 (AU1), Niktson_30 (AU1), Nivinsha_30 (AU1), Phaby_31 (AU2), ProfFrink_27 (AW), Raunak_27 (AW), Salk_27 (AW), ScienceWizSam_32 (AU1), Shepard_31 (AU2), Shiba_27 (AW), Sloopyjoe_27 (AW), Sporto_28 (AW), StarLord_27 (AW), Stayer_27 (AW), Synopsis_29 (AU1), Tatanka_30 (AU1), Teacup_30 (AU1), Tenno_31 (AU1), Tokki_31 (AU2), Truckee_29 (AU5), Trustiboi_31 (AU1), UtzChips_19 (EH),

Start 10:

- Found in 2 of 118 (1.7%) of genes in pham

- Manual Annotations of this start: 1 of 107
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Mabodamaca_20 (EH), SuMoo_19 (EH),

Summary by clusters:

There are 9 clusters represented in this pham: EH, EB, AU1, AU3, AU2, AU5, AU4, AW, AU,

Info for manual annotations of cluster AU:

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

Info for manual annotations of cluster AU1:

- Start number 9 was manually annotated 17 times for cluster AU1.

Info for manual annotations of cluster AU2:

- Start number 9 was manually annotated 4 times for cluster AU2.

Info for manual annotations of cluster AU3:

- Start number 9 was manually annotated 2 times for cluster AU3.

Info for manual annotations of cluster AU4:

- Start number 9 was manually annotated 2 times for cluster AU4.

Info for manual annotations of cluster AU5:

- Start number 9 was manually annotated 2 times for cluster AU5.

Info for manual annotations of cluster AW:

- Start number 9 was manually annotated 12 times for cluster AW.

Info for manual annotations of cluster EB:

- Start number 8 was manually annotated 60 times for cluster EB.

Info for manual annotations of cluster EH:

- Start number 9 was manually annotated 6 times for cluster EH.
- Start number 10 was manually annotated 1 time for cluster EH.

Gene Information:

Gene: Abigail_21 Start: 17351, Stop: 18154, Start Num: 8

Candidate Starts for Abigail_21:

(Start: 8 @17351 has 60 MA's), (23, 17519), (69, 17924), (70, 17927), (81, 18035),

Gene: Albedo_21 Start: 17222, Stop: 18025, Start Num: 8

Candidate Starts for Albedo_21:

(Start: 8 @17222 has 60 MA's), (23, 17390), (42, 17543), (47, 17582),

Gene: Albright_21 Start: 17109, Stop: 17912, Start Num: 8

Candidate Starts for Albright_21:

(Start: 8 @17109 has 60 MA's), (23, 17277), (51, 17514), (54, 17538), (73, 17703),

Gene: AnnaLie_22 Start: 17538, Stop: 18341, Start Num: 8
Candidate Starts for AnnaLie_22:
(Start: 8 @17538 has 60 MA's), (23, 17706), (26, 17721), (69, 18111), (70, 18114), (81, 18222),

Gene: AreFloNak_30 Start: 26892, Stop: 27680, Start Num: 9
Candidate Starts for AreFloNak_30:
(Start: 9 @26892 has 46 MA's), (15, 26967), (17, 26991), (29, 27123), (33, 27141), (44, 27225), (50, 27306), (53, 27327), (54, 27336),

Gene: Armstrong_19 Start: 15059, Stop: 15847, Start Num: 8
Candidate Starts for Armstrong_19:
(5, 14900), (Start: 8 @15059 has 60 MA's), (13, 15113), (23, 15227), (27, 15248), (36, 15347), (37, 15353), (44, 15386), (45, 15401), (53, 15479), (59, 15569), (67, 15611), (77, 15671), (82, 15749), (90, 15827),

Gene: Arroyo_22 Start: 17739, Stop: 18542, Start Num: 8
Candidate Starts for Arroyo_22:
(Start: 8 @17739 has 60 MA's), (23, 17907), (26, 17922), (37, 18033), (42, 18060), (58, 18225), (81, 18423),

Gene: AvGardian_21 Start: 16503, Stop: 17306, Start Num: 8
Candidate Starts for AvGardian_21:
(Start: 8 @16503 has 60 MA's), (13, 16560), (27, 16695), (54, 16947), (67, 17073), (80, 17184), (87, 17250),

Gene: Avocadoman_21 Start: 17294, Stop: 18097, Start Num: 8
Candidate Starts for Avocadoman_21:
(Start: 8 @17294 has 60 MA's), (23, 17462), (51, 17699), (54, 17723), (73, 17888),

Gene: BAjuniper_20 Start: 16995, Stop: 17786, Start Num: 8
Candidate Starts for BAjuniper_20:
(Start: 8 @16995 has 60 MA's), (23, 17163), (36, 17283), (44, 17322), (49, 17391), (51, 17400), (56, 17430), (59, 17505), (76, 17598), (79, 17634), (90, 17766),

Gene: BabyDaisy_22 Start: 17351, Stop: 18157, Start Num: 8
Candidate Starts for BabyDaisy_22:
(Start: 8 @17351 has 60 MA's), (23, 17519), (37, 17645), (69, 17924), (81, 18035),

Gene: BabyYoda_20 Start: 16979, Stop: 17782, Start Num: 8
Candidate Starts for BabyYoda_20:
(Start: 8 @16979 has 60 MA's), (23, 17147), (30, 17216), (37, 17273), (41, 17297), (54, 17408), (56, 17414), (61, 17498), (62, 17501), (72, 17561),

Gene: Bachaco_19 Start: 16998, Stop: 17840, Start Num: 8
Candidate Starts for Bachaco_19:
(Start: 8 @16998 has 60 MA's), (16, 17094), (23, 17166), (27, 17187), (36, 17283), (37, 17289), (45, 17337), (56, 17436), (75, 17640), (90, 17817),

Gene: Barnstormer_19 Start: 16890, Stop: 17669, Start Num: 9
Candidate Starts for Barnstormer_19:
(Start: 9 @16890 has 46 MA's), (48, 17268), (54, 17319), (68, 17442), (88, 17628),

Gene: BelmontSKP_22 Start: 17538, Stop: 18341, Start Num: 8
Candidate Starts for BelmontSKP_22:
(Start: 8 @17538 has 60 MA's), (23, 17706), (26, 17721), (69, 18111), (70, 18114), (81, 18222),

Gene: Bernstein_19 Start: 15090, Stop: 15878, Start Num: 8
Candidate Starts for Bernstein_19:
(6, 14958), (Start: 8 @15090 has 60 MA's), (13, 15144), (23, 15258), (36, 15378), (37, 15384), (44, 15417), (45, 15432), (53, 15510), (59, 15600), (80, 15753), (90, 15858),

Gene: Brahms_19 Start: 15035, Stop: 15823, Start Num: 8
Candidate Starts for Brahms_19:
(5, 14876), (Start: 8 @15035 has 60 MA's), (13, 15089), (16, 15131), (23, 15203), (27, 15224), (36, 15323), (37, 15329), (44, 15362), (45, 15377), (53, 15455), (57, 15509), (59, 15545), (80, 15698), (82, 15725), (90, 15803),

Gene: Breylor17_31 Start: 27498, Stop: 28286, Start Num: 9
Candidate Starts for Breylor17_31:
(Start: 9 @27498 has 46 MA's), (15, 27573), (17, 27597), (29, 27729), (33, 27747), (44, 27831), (50, 27912), (53, 27933),

Gene: BronxBay_27 Start: 24029, Stop: 24829, Start Num: 9
Candidate Starts for BronxBay_27:
(Start: 9 @24029 has 46 MA's), (25, 24212), (27, 24230), (28, 24248), (29, 24275), (40, 24362), (54, 24482), (60, 24569), (71, 24611), (73, 24626), (77, 24659),

Gene: Brunswick_30 Start: 26964, Stop: 27752, Start Num: 9
Candidate Starts for Brunswick_30:
(Start: 9 @26964 has 46 MA's), (15, 27039), (17, 27063), (27, 27150), (29, 27195), (33, 27213), (44, 27297), (50, 27378), (53, 27399),

Gene: BubbaBear_21 Start: 17222, Stop: 18025, Start Num: 8
Candidate Starts for BubbaBear_21:
(Start: 8 @17222 has 60 MA's), (23, 17390), (42, 17543), (47, 17582),

Gene: Burritobowl_21 Start: 17294, Stop: 18097, Start Num: 8
Candidate Starts for Burritobowl_21:
(Start: 8 @17294 has 60 MA's), (23, 17462), (69, 17867), (70, 17870), (81, 17978),

Gene: CapnMurica_30 Start: 28050, Stop: 28838, Start Num: 9
Candidate Starts for CapnMurica_30:
(Start: 9 @28050 has 46 MA's), (15, 28125), (17, 28149), (27, 28236), (29, 28281), (33, 28299), (44, 28383), (50, 28464), (53, 28485), (54, 28494),

Gene: Caron_19 Start: 16273, Stop: 17052, Start Num: 9
Candidate Starts for Caron_19:
(1, 15871), (2, 15922), (Start: 9 @16273 has 46 MA's), (32, 16513), (48, 16651), (54, 16702), (88, 17011),

Gene: Cashington_21 Start: 17143, Stop: 17946, Start Num: 8
Candidate Starts for Cashington_21:
(Start: 8 @17143 has 60 MA's), (23, 17311), (26, 17326), (51, 17548), (54, 17572), (73, 17737),

Gene: CastorTray_32 Start: 27356, Stop: 28144, Start Num: 9

Candidate Starts for CastorTray_32:

(Start: 9 @27356 has 46 MA's), (15, 27431), (17, 27455), (29, 27587), (33, 27605), (44, 27689), (50, 27770), (53, 27791),

Gene: Caterpillar_28 Start: 26130, Stop: 26918, Start Num: 9

Candidate Starts for Caterpillar_28:

(Start: 9 @26130 has 46 MA's), (28, 26334), (53, 26565), (66, 26685), (84, 26835),

Gene: Celaena_19 Start: 16946, Stop: 17788, Start Num: 8

Candidate Starts for Celaena_19:

(Start: 8 @16946 has 60 MA's), (16, 17042), (23, 17114), (36, 17231), (37, 17237), (45, 17285), (56, 17384), (75, 17588), (90, 17765),

Gene: ChiliPepper_19 Start: 16530, Stop: 17369, Start Num: 8

Candidate Starts for ChiliPepper_19:

(Start: 8 @16530 has 60 MA's), (23, 16698), (27, 16719), (30, 16767), (36, 16818), (42, 16851), (44, 16857), (45, 16872), (88, 17322), (89, 17343),

Gene: Clayda5_19 Start: 15065, Stop: 15853, Start Num: 8

Candidate Starts for Clayda5_19:

(4, 14897), (Start: 8 @15065 has 60 MA's), (13, 15119), (23, 15233), (27, 15254), (36, 15353), (37, 15359), (44, 15392), (45, 15407), (53, 15485), (59, 15575), (67, 15617), (77, 15677), (82, 15755), (90, 15833),

Gene: Coltrane_19 Start: 15035, Stop: 15823, Start Num: 8

Candidate Starts for Coltrane_19:

(5, 14876), (Start: 8 @15035 has 60 MA's), (13, 15089), (16, 15131), (23, 15203), (27, 15224), (36, 15323), (37, 15329), (44, 15362), (45, 15377), (53, 15455), (57, 15509), (59, 15545), (80, 15698), (82, 15725), (90, 15803),

Gene: CroZenni_21 Start: 17129, Stop: 17932, Start Num: 8

Candidate Starts for CroZenni_21:

(Start: 8 @17129 has 60 MA's), (23, 17297), (69, 17702), (81, 17813),

Gene: Darby_30 Start: 26802, Stop: 27590, Start Num: 9

Candidate Starts for Darby_30:

(Start: 9 @26802 has 46 MA's), (15, 26877), (17, 26901), (29, 27033), (33, 27051), (44, 27135), (50, 27216), (53, 27237),

Gene: DevitoJr_30 Start: 26973, Stop: 27761, Start Num: 9

Candidate Starts for DevitoJr_30:

(Start: 9 @26973 has 46 MA's), (15, 27048), (17, 27072), (27, 27159), (29, 27204), (33, 27222), (50, 27387), (53, 27408),

Gene: DickRichards_21 Start: 17624, Stop: 18427, Start Num: 8

Candidate Starts for DickRichards_21:

(Start: 8 @17624 has 60 MA's), (23, 17792), (69, 18197), (70, 18200), (81, 18308),

Gene: Didgeridoo_22 Start: 17353, Stop: 18159, Start Num: 8

Candidate Starts for Didgeridoo_22:

(Start: 8 @17353 has 60 MA's), (23, 17521), (37, 17647), (69, 17926), (81, 18037), (86, 18076),

Gene: DirtyBubble_20 Start: 16937, Stop: 17740, Start Num: 8

Candidate Starts for DirtyBubble_20:

(Start: 8 @16937 has 60 MA's), (23, 17105), (30, 17174), (37, 17231), (41, 17255), (54, 17366), (56, 17372), (61, 17456), (62, 17459), (72, 17519),

Gene: Dismas_19 Start: 16530, Stop: 17369, Start Num: 8

Candidate Starts for Dismas_19:

(Start: 8 @16530 has 60 MA's), (23, 16698), (27, 16719), (30, 16767), (36, 16818), (42, 16851), (44, 16857), (45, 16872), (88, 17322), (89, 17343),

Gene: Djungelskog_27 Start: 24029, Stop: 24829, Start Num: 9

Candidate Starts for Djungelskog_27:

(Start: 9 @24029 has 46 MA's), (25, 24212), (27, 24230), (28, 24248), (29, 24275), (40, 24362), (54, 24482), (60, 24569), (71, 24611), (73, 24626), (77, 24659),

Gene: DoctorPepper_27 Start: 24029, Stop: 24829, Start Num: 9

Candidate Starts for DoctorPepper_27:

(Start: 9 @24029 has 46 MA's), (25, 24212), (27, 24230), (28, 24248), (29, 24275), (40, 24362), (54, 24482), (60, 24569), (71, 24611), (73, 24626), (77, 24659),

Gene: Doobus_21 Start: 17460, Stop: 18263, Start Num: 8

Candidate Starts for Doobus_21:

(Start: 8 @17460 has 60 MA's), (23, 17628), (51, 17865), (54, 17889), (73, 18054),

Gene: Eden_19 Start: 15433, Stop: 16218, Start Num: 8

Candidate Starts for Eden_19:

(Start: 8 @15433 has 60 MA's), (13, 15487), (16, 15529), (23, 15601), (36, 15721), (41, 15751), (44, 15760), (45, 15775), (54, 15862), (85, 16132), (90, 16198),

Gene: Egad_27 Start: 24030, Stop: 24830, Start Num: 9

Candidate Starts for Egad_27:

(Start: 9 @24030 has 46 MA's), (25, 24213), (27, 24231), (28, 24249), (29, 24276), (40, 24363), (54, 24483), (60, 24570), (71, 24612), (73, 24627), (77, 24660),

Gene: ElephantMan_30 Start: 27504, Stop: 28292, Start Num: 9

Candidate Starts for ElephantMan_30:

(Start: 9 @27504 has 46 MA's), (15, 27579), (17, 27603), (27, 27690), (29, 27735), (33, 27753), (44, 27837), (50, 27918), (53, 27939),

Gene: Elva_21 Start: 16898, Stop: 17701, Start Num: 8

Candidate Starts for Elva_21:

(Start: 8 @16898 has 60 MA's), (23, 17066), (30, 17135), (41, 17216), (44, 17225), (54, 17327), (56, 17333), (61, 17417), (62, 17420),

Gene: Eula_21 Start: 17210, Stop: 18013, Start Num: 8

Candidate Starts for Eula_21:

(Start: 8 @17210 has 60 MA's), (23, 17378), (26, 17393),

Gene: Finalfrontier_22 Start: 17720, Stop: 18526, Start Num: 8

Candidate Starts for Finalfrontier_22:

(Start: 8 @17720 has 60 MA's), (23, 17888), (37, 18014), (69, 18293), (81, 18404),

Gene: FlameThrower_19 Start: 16517, Stop: 17305, Start Num: 8

Candidate Starts for FlameThrower_19:

(Start: 8 @16517 has 60 MA's), (23, 16685), (31, 16757), (36, 16805), (37, 16811), (45, 16859), (54, 16946), (57, 16991), (80, 17180),

Gene: Floof_20 Start: 17012, Stop: 17818, Start Num: 9

Candidate Starts for Floof_20:

(Start: 9 @17012 has 46 MA's), (35, 17276), (38, 17309), (45, 17354), (46, 17366), (52, 17450), (55, 17468), (56, 17471), (78, 17669), (79, 17675), (86, 17744), (88, 17777),

Gene: Franklin22_20 Start: 15619, Stop: 16404, Start Num: 8

Candidate Starts for Franklin22_20:

(Start: 8 @15619 has 60 MA's), (23, 15787), (26, 15802), (36, 15907), (41, 15937), (44, 15946), (45, 15961), (54, 16048), (57, 16093), (83, 16312), (90, 16384),

Gene: Gack_19 Start: 15505, Stop: 16290, Start Num: 8

Candidate Starts for Gack_19:

(Start: 8 @15505 has 60 MA's), (23, 15673), (26, 15688), (36, 15793), (41, 15823), (44, 15832), (45, 15847), (54, 15934), (57, 15979), (83, 16198), (90, 16270),

Gene: GardenState_20 Start: 17271, Stop: 18089, Start Num: 9

Candidate Starts for GardenState_20:

(Start: 9 @17271 has 46 MA's), (19, 17388), (21, 17430), (24, 17442), (34, 17520), (39, 17589), (54, 17736), (55, 17739), (72, 17871), (88, 18045),

Gene: Giantsbane_31 Start: 25967, Stop: 26758, Start Num: 9

Candidate Starts for Giantsbane_31:

(Start: 9 @25967 has 46 MA's), (15, 26042), (27, 26153), (28, 26171), (29, 26198), (44, 26300), (53, 26402), (54, 26411),

Gene: Gordon_30 Start: 28078, Stop: 28866, Start Num: 9

Candidate Starts for Gordon_30:

(Start: 9 @28078 has 46 MA's), (15, 28153), (22, 28240), (27, 28264), (28, 28282), (29, 28309), (44, 28411), (53, 28513),

Gene: IAmGroot_20 Start: 17933, Stop: 18751, Start Num: 9

Candidate Starts for IAmGroot_20:

(Start: 9 @17933 has 46 MA's), (19, 18050), (21, 18092), (24, 18104), (34, 18182), (39, 18251), (54, 18398), (55, 18401), (72, 18533), (88, 18707),

Gene: Icarian_21 Start: 16815, Stop: 17618, Start Num: 8

Candidate Starts for Icarian_21:

(Start: 8 @16815 has 60 MA's), (23, 16983), (42, 17136), (44, 17142), (54, 17244), (65, 17349), (72, 17397),

Gene: IndyLu_21 Start: 17175, Stop: 17981, Start Num: 8

Candidate Starts for IndyLu_21:

(Start: 8 @17175 has 60 MA's), (23, 17343), (37, 17469), (69, 17748), (81, 17859),

Gene: Ingrid_30 Start: 26692, Stop: 27489, Start Num: 9

Candidate Starts for Ingrid_30:

(Start: 9 @26692 has 46 MA's), (17, 26797), (29, 26929), (40, 27016), (53, 27133), (54, 27142),

Gene: Inked_32 Start: 27706, Stop: 28497, Start Num: 9

Candidate Starts for Inked_32:

(7, 27703), (Start: 9 @27706 has 46 MA's), (28, 27910), (44, 28039), (53, 28141), (63, 28243),

Gene: Issa_30 Start: 26782, Stop: 27570, Start Num: 9

Candidate Starts for Issa_30:

(Start: 9 @26782 has 46 MA's), (15, 26857), (17, 26881), (27, 26968), (29, 27013), (33, 27031), (50, 27196), (53, 27217),

Gene: Johnathan_21 Start: 17233, Stop: 18036, Start Num: 8

Candidate Starts for Johnathan_21:

(Start: 8 @17233 has 60 MA's), (23, 17401), (51, 17638), (54, 17662), (73, 17827),

Gene: Jovita_21 Start: 17314, Stop: 18117, Start Num: 8

Candidate Starts for Jovita_21:

(Start: 8 @17314 has 60 MA's), (23, 17482), (26, 17497), (74, 17917),

Gene: Katzastrophic_19 Start: 16659, Stop: 17447, Start Num: 8

Candidate Starts for Katzastrophic_19:

(Start: 8 @16659 has 60 MA's), (23, 16827), (36, 16947), (37, 16953), (45, 17001), (54, 17088), (57, 17133), (80, 17322),

Gene: Kenzers_21 Start: 17197, Stop: 18000, Start Num: 8

Candidate Starts for Kenzers_21:

(Start: 8 @17197 has 60 MA's), (23, 17365), (54, 17626), (57, 17671), (58, 17683),

Gene: Kieran_19 Start: 16533, Stop: 17372, Start Num: 8

Candidate Starts for Kieran_19:

(Start: 8 @16533 has 60 MA's), (23, 16701), (27, 16722), (30, 16770), (36, 16821), (42, 16854), (44, 16860), (45, 16875), (88, 17325), (89, 17346),

Gene: Lahqtemish_21 Start: 17223, Stop: 18029, Start Num: 8

Candidate Starts for Lahqtemish_21:

(Start: 8 @17223 has 60 MA's), (23, 17391), (42, 17544), (81, 17907),

Gene: LilHuddy_31 Start: 27150, Stop: 27941, Start Num: 9

Candidate Starts for LilHuddy_31:

(Start: 9 @27150 has 46 MA's), (13, 27207), (15, 27225), (17, 27249), (27, 27336), (28, 27354), (43, 27480), (44, 27483), (53, 27585), (54, 27594),

Gene: LimaBean_21 Start: 17229, Stop: 18032, Start Num: 8

Candidate Starts for LimaBean_21:

(Start: 8 @17229 has 60 MA's), (23, 17397), (51, 17634), (54, 17658), (73, 17823), (81, 17913),

Gene: Linda_27 Start: 24029, Stop: 24829, Start Num: 9

Candidate Starts for Linda_27:

(Start: 9 @24029 has 46 MA's), (25, 24212), (27, 24230), (28, 24248), (29, 24275), (40, 24362), (54, 24482), (60, 24569), (71, 24611), (73, 24626), (77, 24659),

Gene: Loretta_30 Start: 26692, Stop: 27489, Start Num: 9

Candidate Starts for Loretta_30:

(Start: 9 @26692 has 46 MA's), (17, 26797), (29, 26929), (40, 27016), (53, 27133), (54, 27142),

Gene: Loviatar_36 Start: 16905, Stop: 17708, Start Num: 8

Candidate Starts for Loviatar_36:

(Start: 8 @16905 has 60 MA's), (23, 17073), (42, 17226), (44, 17232), (54, 17334), (65, 17439),

Gene: Lynlen_21 Start: 17197, Stop: 18000, Start Num: 8

Candidate Starts for Lynlen_21:

(Start: 8 @17197 has 60 MA's), (23, 17365), (54, 17626), (57, 17671), (58, 17683),

Gene: Mabodamaca_20 Start: 17290, Stop: 18099, Start Num: 10

Candidate Starts for Mabodamaca_20:

(Start: 10 @17290 has 1 MA's), (24, 17458), (55, 17749), (64, 17848),

Gene: Makai_30 Start: 26936, Stop: 27727, Start Num: 9

Candidate Starts for Makai_30:

(Start: 9 @26936 has 46 MA's), (27, 27122), (28, 27140), (29, 27167), (40, 27254), (44, 27269), (53, 27371), (54, 27380), (63, 27476),

Gene: MediumFry_28 Start: 26132, Stop: 26920, Start Num: 9

Candidate Starts for MediumFry_28:

(Start: 9 @26132 has 46 MA's), (28, 26336), (53, 26567), (66, 26687), (84, 26837),

Gene: Michelle_27 Start: 24029, Stop: 24829, Start Num: 9

Candidate Starts for Michelle_27:

(Start: 9 @24029 has 46 MA's), (25, 24212), (27, 24230), (28, 24248), (29, 24275), (40, 24362), (54, 24482), (60, 24569), (71, 24611), (73, 24626), (77, 24659),

Gene: MiniBagel_30 Start: 28029, Stop: 28817, Start Num: 9

Candidate Starts for MiniBagel_30:

(Start: 9 @28029 has 46 MA's), (15, 28104), (27, 28215), (29, 28260), (33, 28278), (44, 28362), (50, 28443), (53, 28464), (54, 28473),

Gene: MrAaronian_27 Start: 24029, Stop: 24829, Start Num: 9

Candidate Starts for MrAaronian_27:

(Start: 9 @24029 has 46 MA's), (25, 24212), (27, 24230), (28, 24248), (29, 24275), (40, 24362), (54, 24482), (60, 24569), (71, 24611), (73, 24626), (77, 24659),

Gene: Nicky22_22 Start: 17657, Stop: 18460, Start Num: 8

Candidate Starts for Nicky22_22:

(Start: 8 @17657 has 60 MA's), (23, 17825), (26, 17840), (69, 18230),

Gene: Nightmare_31 Start: 27342, Stop: 28130, Start Num: 9

Candidate Starts for Nightmare_31:

(Start: 9 @27342 has 46 MA's), (15, 27417), (17, 27441), (27, 27528), (29, 27573), (33, 27591), (50, 27756), (53, 27777),

Gene: Niktson_30 Start: 27504, Stop: 28292, Start Num: 9

Candidate Starts for Niktson_30:

(Start: 9 @27504 has 46 MA's), (15, 27579), (17, 27603), (27, 27690), (29, 27735), (33, 27753), (44, 27837), (50, 27918), (53, 27939),

Gene: Nivinsha_30 Start: 26892, Stop: 27680, Start Num: 9

Candidate Starts for Nivinsha_30:

(Start: 9 @26892 has 46 MA's), (15, 26967), (17, 26991), (29, 27123), (33, 27141), (44, 27225), (50, 27306), (53, 27327), (54, 27336),

Gene: Phaby_31 Start: 27082, Stop: 27873, Start Num: 9
Candidate Starts for Phaby_31:
(Start: 9 @27082 has 46 MA's), (20, 27214), (27, 27268), (28, 27286), (29, 27313), (53, 27517), (54, 27526), (63, 27622), (79, 27730),

Gene: Phisb_21 Start: 17223, Stop: 18026, Start Num: 8
Candidate Starts for Phisb_21:
(Start: 8 @17223 has 60 MA's), (23, 17391), (42, 17544), (47, 17583),

Gene: ProfFrink_27 Start: 24029, Stop: 24829, Start Num: 9
Candidate Starts for ProfFrink_27:
(Start: 9 @24029 has 46 MA's), (25, 24212), (27, 24230), (28, 24248), (29, 24275), (40, 24362), (54, 24482), (60, 24569), (71, 24611), (73, 24626), (77, 24659),

Gene: QMacho_22 Start: 17693, Stop: 18496, Start Num: 8
Candidate Starts for QMacho_22:
(Start: 8 @17693 has 60 MA's), (23, 17861), (26, 17876),

Gene: Quenya_20 Start: 16489, Stop: 17313, Start Num: 8
Candidate Starts for Quenya_20:
(Start: 8 @16489 has 60 MA's), (12, 16537), (23, 16657), (27, 16678), (36, 16777), (41, 16807), (42, 16810), (54, 16918), (61, 17008), (91, 17296),

Gene: Raunak_27 Start: 24029, Stop: 24829, Start Num: 9
Candidate Starts for Raunak_27:
(Start: 9 @24029 has 46 MA's), (25, 24212), (27, 24230), (28, 24248), (29, 24275), (40, 24362), (54, 24482), (60, 24569), (71, 24611), (73, 24626), (77, 24659),

Gene: Rollins_19 Start: 15090, Stop: 15878, Start Num: 8
Candidate Starts for Rollins_19:
(6, 14958), (Start: 8 @15090 has 60 MA's), (13, 15144), (23, 15258), (36, 15378), (37, 15384), (44, 15417), (45, 15432), (53, 15510), (59, 15600), (80, 15753), (90, 15858),

Gene: Rona_19 Start: 16530, Stop: 17369, Start Num: 8
Candidate Starts for Rona_19:
(Start: 8 @16530 has 60 MA's), (23, 16698), (27, 16719), (30, 16767), (36, 16818), (42, 16851), (44, 16857), (45, 16872), (88, 17322), (89, 17343),

Gene: Salk_27 Start: 24029, Stop: 24829, Start Num: 9
Candidate Starts for Salk_27:
(Start: 9 @24029 has 46 MA's), (25, 24212), (27, 24230), (28, 24248), (29, 24275), (40, 24362), (54, 24482), (60, 24569), (71, 24611), (73, 24626), (77, 24659),

Gene: SanaSana_21 Start: 16844, Stop: 17647, Start Num: 8
Candidate Starts for SanaSana_21:
(Start: 8 @16844 has 60 MA's), (23, 17012), (42, 17165), (44, 17171), (54, 17273), (65, 17378),

Gene: SansAfet_21 Start: 17140, Stop: 17943, Start Num: 8
Candidate Starts for SansAfet_21:
(Start: 8 @17140 has 60 MA's), (23, 17308), (26, 17323), (69, 17713), (70, 17716), (81, 17824),

Gene: SarBear_21 Start: 17191, Stop: 17994, Start Num: 8
Candidate Starts for SarBear_21:

(Start: 8 @17191 has 60 MA's), (23, 17359), (47, 17551), (54, 17620), (69, 17764), (73, 17785),

Gene: ScienceWizSam_32 Start: 27293, Stop: 28081, Start Num: 9

Candidate Starts for ScienceWizSam_32:

(Start: 9 @27293 has 46 MA's), (15, 27368), (17, 27392), (28, 27497), (29, 27524), (33, 27542), (44, 27626), (50, 27707), (53, 27728), (54, 27737),

Gene: Sharkboy_19 Start: 16517, Stop: 17356, Start Num: 8

Candidate Starts for Sharkboy_19:

(Start: 8 @16517 has 60 MA's), (23, 16685), (27, 16706), (30, 16754), (36, 16805), (42, 16838), (44, 16844), (45, 16859), (88, 17309), (89, 17330),

Gene: Shepard_31 Start: 27147, Stop: 27938, Start Num: 9

Candidate Starts for Shepard_31:

(Start: 9 @27147 has 46 MA's), (13, 27204), (15, 27222), (17, 27246), (27, 27333), (28, 27351), (43, 27477), (44, 27480), (53, 27582), (54, 27591),

Gene: Shiba_27 Start: 24029, Stop: 24829, Start Num: 9

Candidate Starts for Shiba_27:

(Start: 9 @24029 has 46 MA's), (25, 24212), (27, 24230), (28, 24248), (29, 24275), (40, 24362), (54, 24482), (60, 24569), (71, 24611), (73, 24626), (77, 24659),

Gene: Skylord_19 Start: 15035, Stop: 15823, Start Num: 8

Candidate Starts for Skylord_19:

(5, 14876), (Start: 8 @15035 has 60 MA's), (13, 15089), (16, 15131), (23, 15203), (27, 15224), (36, 15323), (37, 15329), (44, 15362), (45, 15377), (53, 15455), (57, 15509), (59, 15545), (80, 15698), (82, 15725), (90, 15803),

Gene: Slay_21 Start: 17733, Stop: 18536, Start Num: 8

Candidate Starts for Slay_21:

(Start: 8 @17733 has 60 MA's), (23, 17901), (47, 18093), (54, 18162), (69, 18306), (73, 18327),

Gene: Sloopyjoe_27 Start: 24030, Stop: 24830, Start Num: 9

Candidate Starts for Sloopyjoe_27:

(Start: 9 @24030 has 46 MA's), (25, 24213), (27, 24231), (28, 24249), (29, 24276), (40, 24363), (54, 24483), (60, 24570), (71, 24612), (73, 24627), (77, 24660),

Gene: Sporto_28 Start: 25240, Stop: 26040, Start Num: 9

Candidate Starts for Sporto_28:

(Start: 9 @25240 has 46 MA's), (11, 25249), (14, 25300), (18, 25351), (25, 25423), (27, 25441), (28, 25459), (29, 25486), (54, 25693), (60, 25780), (71, 25822), (73, 25837), (77, 25870),

Gene: StarLord_27 Start: 24030, Stop: 24830, Start Num: 9

Candidate Starts for StarLord_27:

(Start: 9 @24030 has 46 MA's), (25, 24213), (27, 24231), (28, 24249), (29, 24276), (40, 24363), (54, 24483), (60, 24570), (71, 24612), (73, 24627), (77, 24660),

Gene: Stayer_27 Start: 24029, Stop: 24829, Start Num: 9

Candidate Starts for Stayer_27:

(Start: 9 @24029 has 46 MA's), (25, 24212), (27, 24230), (28, 24248), (29, 24275), (40, 24362), (54, 24482), (60, 24569), (71, 24611), (73, 24626), (77, 24659),

Gene: Stoor_20 Start: 16841, Stop: 17644, Start Num: 8

Candidate Starts for Stoor_20:

(Start: 8 @16841 has 60 MA's), (23, 17009), (42, 17162), (44, 17168), (54, 17270), (65, 17375),

Gene: Stromboli_20 Start: 16977, Stop: 17780, Start Num: 8

Candidate Starts for Stromboli_20:

(Start: 8 @16977 has 60 MA's), (23, 17145), (30, 17214), (37, 17271), (41, 17295), (54, 17406), (56, 17412), (61, 17496), (62, 17499), (72, 17559),

Gene: SuMoo_19 Start: 16242, Stop: 17054, Start Num: 10

Candidate Starts for SuMoo_19:

(2, 15909), (3, 16029), (Start: 10 @16242 has 1 MA's), (64, 16803),

Gene: Swervy_21 Start: 17191, Stop: 17994, Start Num: 8

Candidate Starts for Swervy_21:

(Start: 8 @17191 has 60 MA's), (23, 17359), (47, 17551), (54, 17620), (69, 17764), (73, 17785),

Gene: Synopsis_29 Start: 26956, Stop: 27744, Start Num: 9

Candidate Starts for Synopsis_29:

(Start: 9 @26956 has 46 MA's), (15, 27031), (17, 27055), (29, 27187), (33, 27205), (44, 27289), (50, 27370), (53, 27391),

Gene: Tatanka_30 Start: 27440, Stop: 28228, Start Num: 9

Candidate Starts for Tatanka_30:

(Start: 9 @27440 has 46 MA's), (15, 27515), (17, 27539), (29, 27671), (33, 27689), (44, 27773), (50, 27854), (53, 27875), (54, 27884),

Gene: Teacup_30 Start: 26812, Stop: 27600, Start Num: 9

Candidate Starts for Teacup_30:

(Start: 9 @26812 has 46 MA's), (15, 26887), (17, 26911), (27, 26998), (29, 27043), (33, 27061), (44, 27145), (50, 27226), (53, 27247),

Gene: Tenno_31 Start: 28038, Stop: 28826, Start Num: 9

Candidate Starts for Tenno_31:

(Start: 9 @28038 has 46 MA's), (15, 28113), (17, 28137), (27, 28224), (29, 28269), (33, 28287), (44, 28371), (50, 28452), (53, 28473), (54, 28482),

Gene: Tokki_31 Start: 27098, Stop: 27889, Start Num: 9

Candidate Starts for Tokki_31:

(Start: 9 @27098 has 46 MA's), (20, 27230), (27, 27284), (28, 27302), (29, 27329), (53, 27533), (54, 27542), (63, 27638), (79, 27746),

Gene: Truckee_29 Start: 26981, Stop: 27772, Start Num: 9

Candidate Starts for Truckee_29:

(Start: 9 @26981 has 46 MA's), (19, 27095), (27, 27167), (28, 27185), (29, 27212), (40, 27299), (44, 27314), (53, 27416), (54, 27425), (63, 27521),

Gene: Trustiboi_31 Start: 27509, Stop: 28297, Start Num: 9

Candidate Starts for Trustiboi_31:

(Start: 9 @27509 has 46 MA's), (15, 27584), (17, 27608), (29, 27740), (33, 27758), (44, 27842), (50, 27923), (53, 27944),

Gene: TukTuk_21 Start: 17249, Stop: 18052, Start Num: 8

Candidate Starts for TukTuk_21:

(Start: 8 @17249 has 60 MA's), (23, 17417), (26, 17432), (74, 17852),

Gene: UtzChips_19 Start: 16878, Stop: 17657, Start Num: 9

Candidate Starts for UtzChips_19:

(Start: 9 @16878 has 46 MA's), (35, 17139), (48, 17256), (54, 17307), (68, 17430), (88, 17616),

Gene: Vitas_19 Start: 15030, Stop: 15818, Start Num: 8

Candidate Starts for Vitas_19:

(6, 14898), (Start: 8 @15030 has 60 MA's), (13, 15084), (23, 15198), (27, 15219), (36, 15318), (37, 15324), (44, 15357), (45, 15372), (53, 15450), (57, 15504), (59, 15540), (80, 15693), (82, 15720), (90, 15798),