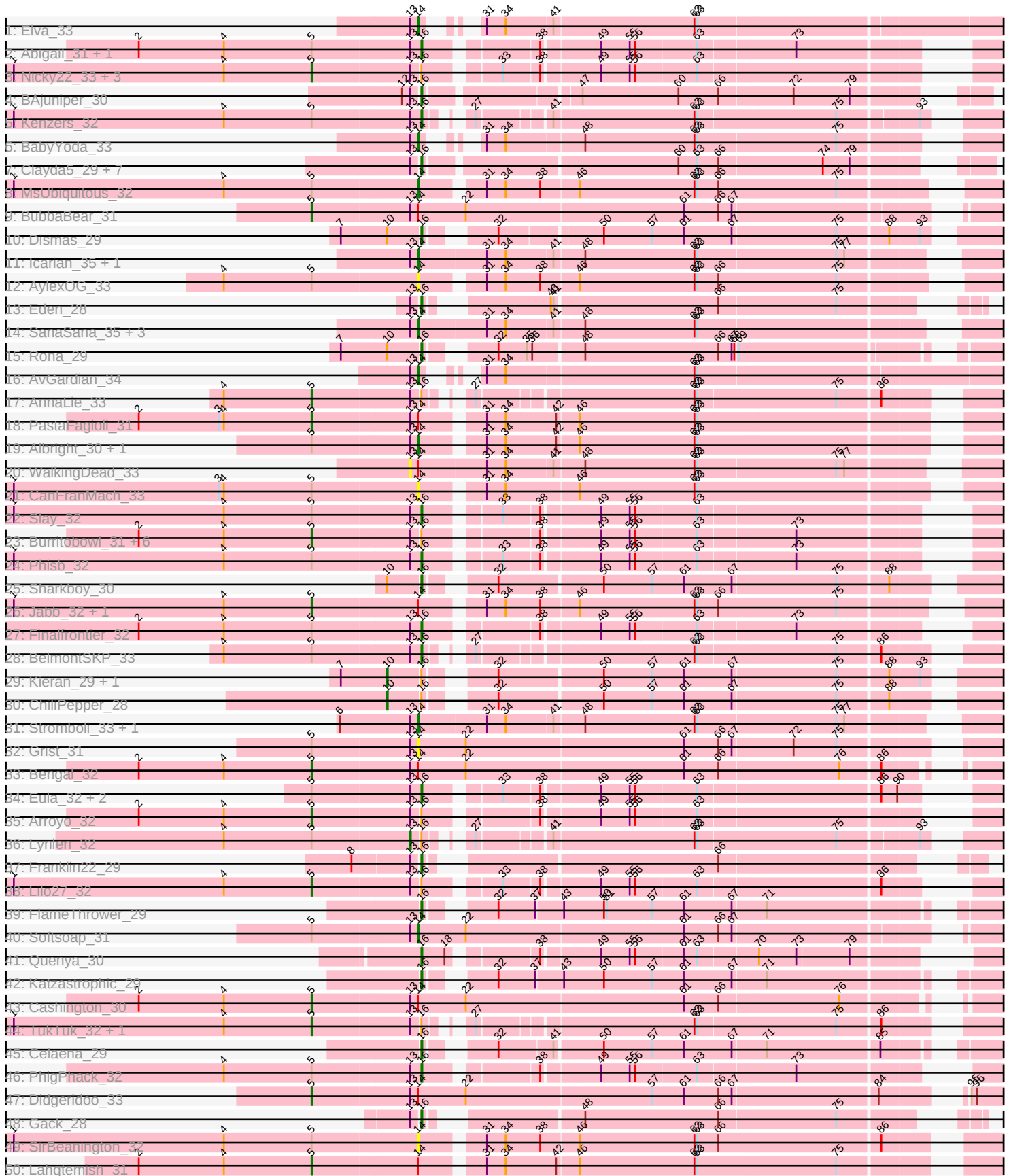
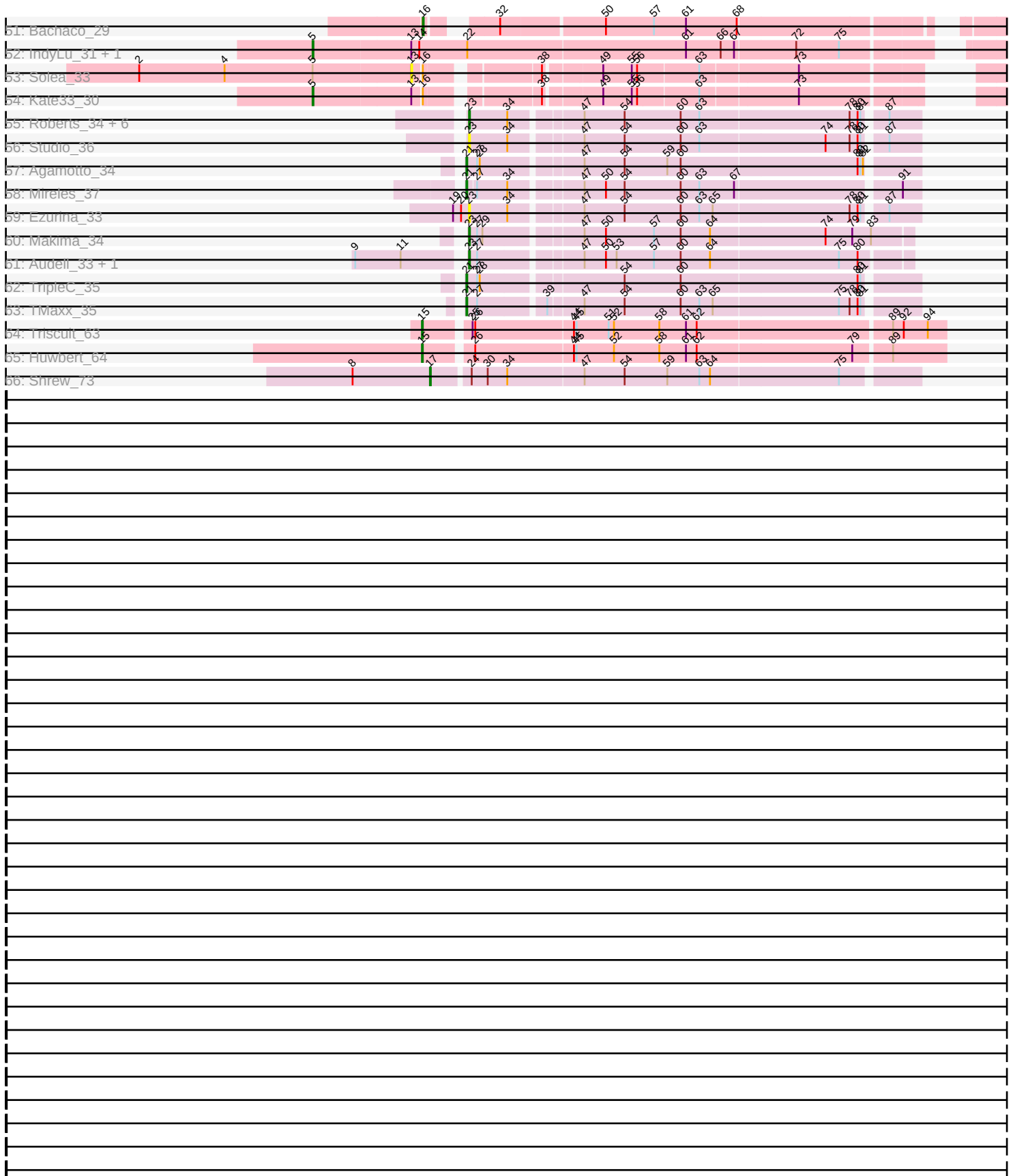




Pham 325037



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 325037 Report

This analysis was run 09/05/26 on database version 662.

Pham number 325037 has 102 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Elva_33
- Track 2 : Abigail_31, Johnathan_31
- Track 3 : Nicky22_33, SarBear_31, Jovita_32, Swervy_32
- Track 4 : BAjuniper_30
- Track 5 : Kenzers_32
- Track 6 : BabyYoda_33
- Track 7 : Clayda5_29, Coltrane_28, Rollins_28, Skylord_28, Bernstein_28, Brahms_28, Armstrong_28, Vitas_28
- Track 8 : MsUbiquitous_32
- Track 9 : BubbaBear_31
- Track 10 : Dismas_29
- Track 11 : Icarian_35, Stoor_33
- Track 12 : AylexOG_33
- Track 13 : Eden_28
- Track 14 : SanaSana_35, Akino08_33, Loviatar_34, PondAmelia_34
- Track 15 : Rona_29
- Track 16 : AvGardian_34
- Track 17 : AnnaLie_33
- Track 18 : PastaFagioli_31
- Track 19 : Albright_30, CroZenni_31
- Track 20 : WalkingDead_33
- Track 21 : CanFranMach_33
- Track 22 : Slay_32
- Track 23 : Burritobowl_31, SansAfet_32, Milomuff_32, Doobus_31, DickRichards_31, LimaBean_31, Avocadoman_31
- Track 24 : Phisb_32
- Track 25 : Sharkboy_30
- Track 26 : Jabb_32, CupcakePrincess_32
- Track 27 : Finalfrontier_32
- Track 28 : BelmontSKP_33
- Track 29 : Kieran_29, Kamdara_29
- Track 30 : ChiliPepper_28
- Track 31 : Stromboli_33, DirtyBubble_32
- Track 32 : Grist_31
- Track 33 : Bengal_32
- Track 34 : Eula_32, QMacho_33, Pecas_32
- Track 35 : Arroyo_32

- Track 36 : Lynlen_32
- Track 37 : Franklin22_29
- Track 38 : Lilo27_32
- Track 39 : FlameThrower_29
- Track 40 : Softsoap_31
- Track 41 : Quenya_30
- Track 42 : Katzastrophic_29
- Track 43 : Cashington_30
- Track 44 : TukTuk_32, Albedo_32
- Track 45 : Celaena_29
- Track 46 : PhigPhack_32
- Track 47 : Didgeridoo_33
- Track 48 : Gack_28
- Track 49 : SirBeanington_32
- Track 50 : Lahqtemish_31
- Track 51 : Bachaco_29
- Track 52 : IndyLu_31, BabyDaisy_31
- Track 53 : Solea_33
- Track 54 : Kate33_30
- Track 55 : Roberts_34, ChamoyPickle_36, Gerri43_34, AnnabelLee_34, CardboardBox_35, Neuville_34, ChipsNGuac_34
- Track 56 : Studio_36
- Track 57 : Agamoto_34
- Track 58 : Mireles_37
- Track 59 : Ezurina_33
- Track 60 : Makima_34
- Track 61 : Audell_33, LastNadiia_36
- Track 62 : TripleC_35
- Track 63 : TMaxx_35
- Track 64 : Triscuit_63
- Track 65 : Huwbert_64
- Track 66 : Shrew_73

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

The start number called the most often in the published annotations is 16, it was called in 31 of the 90 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abigail_31, Armstrong_28, BAjuniper_30, Bachaco_29, BelmontSKP_33, Bernstein_28, Brahms_28, Celaena_29, Clayda5_29, Coltrane_28, Dismas_29, Eden_28, Eula_32, Finalfrontier_32, FlameThrower_29, Franklin22_29, Gack_28, Johnathan_31, Katzastrophic_29, Kenzers_32, Pecas_32, PhigPhack_32, Phisb_32, QMacho_33, Quenya_30, Rollins_28, Rona_29, Sharkboy_30, Skylord_28, Slay_32, Vitas_28,

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

- Albedo_32, AnnaLie_33, Arroyo_32, Avocadoman_31, Burritobowl_31, ChiliPepper_28, DickRichards_31, Doobus_31, Jovita_32, Kamdara_29, Kate33_30, Kieran_29, Lilo27_32, LimaBean_31, Lynlen_32, Milomuff_32, Nicky22_33,

SansAfet_32, SarBear_31, Solea_33, Swervy_32, TukTuk_32,

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

• Agamotto_34, Akino08_33, Albright_30, AnnabelLee_34, Audell_33, AvGardian_34, AylexOG_33, BabyDaisy_31, BabyYoda_33, Bengal_32, BubbaBear_31, CanFranMach_33, CardboardBox_35, Cashington_30, ChamoyPickle_36, ChipsNGuac_34, CroZenni_31, CupcakePrincess_32, Didgeridoo_33, DirtyBubble_32, Elva_33, Ezurina_33, Gerri43_34, Grist_31, Huwbert_64, Icarian_35, IndyLu_31, Jabb_32, Lahqtemish_31, LastNadiia_36, Loviatar_34, Makima_34, Mireles_37, MsUbiquitous_32, Neuvillelette_34, PastaFagioli_31, PondAmelia_34, Roberts_34, SanaSana_35, Shrew_73, SirBeanington_32, Softsoap_31, Stoor_33, Stromboli_33, Studio_36, TMaxx_35, TripleC_35, Triscuit_63, WalkingDead_33,

Summary by start number:

Start 5:

- Found in 48 of 102 (47.1%) of genes in pham
- Manual Annotations of this start: 27 of 90
- Called 56.2% of time when present
- Phage (with cluster) where this start called: Albedo_32 (EB), AnnaLie_33 (EB), Arroyo_32 (EB), Avocadoman_31 (EB), BabyDaisy_31 (EB), Bengal_32 (EB), BubbaBear_31 (EB), Burritobowl_31 (EB), Cashington_30 (EB), CupcakePrincess_32 (EB), DickRichards_31 (EB), Didgeridoo_33 (EB), Doobus_31 (EB), IndyLu_31 (EB), Jabb_32 (EB), Jovita_32 (EB), Kate33_30 (EB), Lahqtemish_31 (EB), Lilo27_32 (EB), LimaBean_31 (EB), Milomuff_32 (EB), Nicky22_33 (EB), PastaFagioli_31 (EB), SansAfet_32 (EB), SarBear_31 (EB), Swervy_32 (EB), TukTuk_32 (EB),

Start 10:

- Found in 6 of 102 (5.9%) of genes in pham
- Manual Annotations of this start: 2 of 90
- Called 50.0% of time when present
- Phage (with cluster) where this start called: ChiliPepper_28 (EB), Kamdara_29 (EB), Kieran_29 (EB),

Start 13:

- Found in 65 of 102 (63.7%) of genes in pham
- Manual Annotations of this start: 1 of 90
- Called 4.6% of time when present
- Phage (with cluster) where this start called: Lynlen_32 (EB), Solea_33 (EB), WalkingDead_33 (EB),

Start 14:

- Found in 30 of 102 (29.4%) of genes in pham
- Manual Annotations of this start: 15 of 90
- Called 63.3% of time when present
- Phage (with cluster) where this start called: Akino08_33 (EB), Albright_30 (EB), AvGardian_34 (EB), AylexOG_33 (EB), BabyYoda_33 (EB), CanFranMach_33 (EB), CroZenni_31 (EB), DirtyBubble_32 (EB), Elva_33 (EB), Grist_31 (EB), Icarian_35 (EB), Loviatar_34 (EB), MsUbiquitous_32 (EB), PondAmelia_34 (EB), SanaSana_35 (EB), SirBeanington_32 (EB), Softsoap_31 (EB), Stoor_33 (EB), Stromboli_33 (EB),

Start 15:

- Found in 2 of 102 (2.0%) of genes in pham

- Manual Annotations of this start: 2 of 90
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Huwbert_64 (GG), Triscuit_63 (GG),

Start 16:

- Found in 53 of 102 (52.0%) of genes in pham
- Manual Annotations of this start: 31 of 90
- Called 58.5% of time when present
- Phage (with cluster) where this start called: Abigail_31 (EB), Armstrong_28 (EB), BAJuniper_30 (EB), Bachaco_29 (EB), BelmontSKP_33 (EB), Bernstein_28 (EB), Brahms_28 (EB), Celaena_29 (EB), Clayda5_29 (EB), Coltrane_28 (EB), Dismas_29 (EB), Eden_28 (EB), Eula_32 (EB), Finalfrontier_32 (EB), FlameThrower_29 (EB), Franklin22_29 (EB), Gack_28 (EB), Johnathan_31 (EB), Katzastrophic_29 (EB), Kenzers_32 (EB), Pecas_32 (EB), PhigPhack_32 (EB), Phisb_32 (EB), QMacho_33 (EB), Quenya_30 (EB), Rollins_28 (EB), Rona_29 (EB), Sharkboy_30 (EB), Skylord_28 (EB), Slay_32 (EB), Vitas_28 (EB),

Start 17:

- Found in 1 of 102 (1.0%) of genes in pham
- Manual Annotations of this start: 1 of 90
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Shrew_73 (singleton),

Start 21:

- Found in 4 of 102 (3.9%) of genes in pham
- Manual Annotations of this start: 4 of 90
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Agamotto_34 (FR), Mireles_37 (FR), TMaxx_35 (FR), TripleC_35 (FR),

Start 23:

- Found in 12 of 102 (11.8%) of genes in pham
- Manual Annotations of this start: 7 of 90
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AnnabelLee_34 (FR), Audell_33 (FR), CardboardBox_35 (FR), ChamoyPickle_36 (FR), ChipsNGuac_34 (FR), Ezurina_33 (FR), Gerri43_34 (FR), LastNadia_36 (FR), Makima_34 (FR), Neuville_34 (FR), Roberts_34 (FR), Studio_36 (FR),

Summary by clusters:

There are 4 clusters represented in this pham: GG, FR, singleton, EB,

Info for manual annotations of cluster EB:

- Start number 5 was manually annotated 27 times for cluster EB.
- Start number 10 was manually annotated 2 times for cluster EB.
- Start number 13 was manually annotated 1 time for cluster EB.
- Start number 14 was manually annotated 15 times for cluster EB.
- Start number 16 was manually annotated 31 times for cluster EB.

Info for manual annotations of cluster FR:

- Start number 21 was manually annotated 4 times for cluster FR.
- Start number 23 was manually annotated 7 times for cluster FR.

Info for manual annotations of cluster GG:

•Start number 15 was manually annotated 2 times for cluster GG.

Gene Information:

Gene: Abigail_31 Start: 22628, Stop: 23164, Start Num: 16

Candidate Starts for Abigail_31:

(2, 22316), (4, 22412), (Start: 5 @22511 has 27 MA's), (Start: 13 @22619 has 1 MA's), (Start: 16 @22628 has 31 MA's), (38, 22736), (49, 22793), (55, 22823), (56, 22829), (63, 22895), (73, 23000),

Gene: Agamotto_34 Start: 24994, Stop: 24515, Start Num: 21

Candidate Starts for Agamotto_34:

(Start: 21 @24994 has 4 MA's), (27, 24982), (28, 24979), (47, 24877), (54, 24832), (59, 24784), (60, 24769), (80, 24574), (81, 24571), (82, 24568),

Gene: Akino08_33 Start: 24925, Stop: 25521, Start Num: 14

Candidate Starts for Akino08_33:

(Start: 13 @24916 has 1 MA's), (Start: 14 @24925 has 15 MA's), (31, 25000), (34, 25021), (41, 25072), (48, 25105), (62, 25228), (63, 25231),

Gene: Albedo_32 Start: 22977, Stop: 23642, Start Num: 5

Candidate Starts for Albedo_32:

(1, 22641), (4, 22878), (Start: 5 @22977 has 27 MA's), (Start: 13 @23085 has 1 MA's), (Start: 16 @23094 has 31 MA's), (27, 23118), (62, 23346), (63, 23349), (75, 23502), (86, 23547),

Gene: Albright_30 Start: 22216, Stop: 22803, Start Num: 14

Candidate Starts for Albright_30:

(Start: 5 @22099 has 27 MA's), (Start: 13 @22207 has 1 MA's), (Start: 14 @22216 has 15 MA's), (31, 22276), (34, 22297), (42, 22354), (46, 22378), (62, 22507), (63, 22510),

Gene: AnnaLie_33 Start: 23260, Stop: 23925, Start Num: 5

Candidate Starts for AnnaLie_33:

(4, 23161), (Start: 5 @23260 has 27 MA's), (Start: 13 @23368 has 1 MA's), (Start: 16 @23377 has 31 MA's), (27, 23401), (62, 23629), (63, 23632), (75, 23785), (86, 23830),

Gene: AnnabelLee_34 Start: 22212, Stop: 21736, Start Num: 23

Candidate Starts for AnnabelLee_34:

(Start: 23 @22212 has 7 MA's), (34, 22170), (47, 22098), (54, 22053), (60, 21990), (63, 21969), (78, 21804), (80, 21795), (81, 21792), (87, 21771),

Gene: Armstrong_28 Start: 20941, Stop: 21507, Start Num: 16

Candidate Starts for Armstrong_28:

(Start: 13 @20932 has 1 MA's), (Start: 16 @20941 has 31 MA's), (60, 21208), (63, 21229), (66, 21253), (74, 21367), (79, 21397),

Gene: Arroyo_32 Start: 23288, Stop: 23941, Start Num: 5

Candidate Starts for Arroyo_32:

(2, 23093), (4, 23189), (Start: 5 @23288 has 27 MA's), (Start: 13 @23396 has 1 MA's), (Start: 16 @23405 has 31 MA's), (38, 23513), (49, 23570), (55, 23600), (56, 23606), (63, 23672),

Gene: Audell_33 Start: 24613, Stop: 24143, Start Num: 23

Candidate Starts for Audell_33:

(9, 24724), (11, 24673), (Start: 23 @24613 has 7 MA's), (27, 24604), (47, 24499), (50, 24475), (53, 24463), (57, 24421), (60, 24391), (64, 24358), (75, 24217), (80, 24196),

Gene: AvGardian_34 Start: 23607, Stop: 24188, Start Num: 14

Candidate Starts for AvGardian_34:

(Start: 13 @23598 has 1 MA's), (Start: 14 @23607 has 15 MA's), (31, 23631), (34, 23652), (62, 23859), (63, 23862),

Gene: Avocadoman_31 Start: 22453, Stop: 23106, Start Num: 5

Candidate Starts for Avocadoman_31:

(2, 22258), (4, 22354), (Start: 5 @22453 has 27 MA's), (Start: 13 @22561 has 1 MA's), (Start: 16 @22570 has 31 MA's), (38, 22678), (49, 22735), (55, 22765), (56, 22771), (63, 22837), (73, 22942),

Gene: AylexOG_33 Start: 23405, Stop: 23989, Start Num: 14

Candidate Starts for AylexOG_33:

(4, 23189), (Start: 5 @23288 has 27 MA's), (Start: 14 @23405 has 15 MA's), (31, 23465), (34, 23486), (38, 23525), (46, 23567), (62, 23696), (63, 23699), (66, 23723), (75, 23852),

Gene: BAjuniper_30 Start: 23839, Stop: 24396, Start Num: 16

Candidate Starts for BAjuniper_30:

(12, 23821), (Start: 13 @23830 has 1 MA's), (Start: 16 @23839 has 31 MA's), (47, 23992), (60, 24100), (66, 24145), (72, 24226), (79, 24289),

Gene: BabyDaisy_31 Start: 22831, Stop: 23553, Start Num: 5

Candidate Starts for BabyDaisy_31:

(Start: 5 @22831 has 27 MA's), (Start: 13 @22939 has 1 MA's), (Start: 14 @22948 has 15 MA's), (22, 23002), (61, 23245), (66, 23284), (67, 23299), (72, 23365), (75, 23413),

Gene: BabyYoda_33 Start: 24127, Stop: 24666, Start Num: 14

Candidate Starts for BabyYoda_33:

(Start: 13 @24118 has 1 MA's), (Start: 14 @24127 has 15 MA's), (31, 24151), (34, 24172), (48, 24256), (62, 24379), (63, 24382), (75, 24535),

Gene: Bachaco_29 Start: 24051, Stop: 24608, Start Num: 16

Candidate Starts for Bachaco_29:

(Start: 16 @24051 has 31 MA's), (32, 24105), (50, 24216), (57, 24270), (61, 24306), (68, 24363),

Gene: BelmontSKP_33 Start: 23377, Stop: 23925, Start Num: 16

Candidate Starts for BelmontSKP_33:

(4, 23161), (Start: 5 @23260 has 27 MA's), (Start: 13 @23368 has 1 MA's), (Start: 16 @23377 has 31 MA's), (27, 23401), (62, 23629), (63, 23632), (75, 23785), (86, 23830),

Gene: Bengal_32 Start: 22846, Stop: 23553, Start Num: 5

Candidate Starts for Bengal_32:

(2, 22651), (4, 22747), (Start: 5 @22846 has 27 MA's), (Start: 13 @22954 has 1 MA's), (Start: 14 @22963 has 15 MA's), (22, 23017), (61, 23260), (66, 23299), (76, 23431), (86, 23473),

Gene: Bernstein_28 Start: 20996, Stop: 21562, Start Num: 16

Candidate Starts for Bernstein_28:

(Start: 13 @20987 has 1 MA's), (Start: 16 @20996 has 31 MA's), (60, 21263), (63, 21284), (66, 21308), (74, 21422), (79, 21452),

Gene: Brahms_28 Start: 20943, Stop: 21509, Start Num: 16

Candidate Starts for Brahms_28:

(Start: 13 @20934 has 1 MA's), (Start: 16 @20943 has 31 MA's), (60, 21210), (63, 21231), (66, 21255), (74, 21369), (79, 21399),

Gene: BubbaBear_31 Start: 22778, Stop: 23494, Start Num: 5

Candidate Starts for BubbaBear_31:

(Start: 5 @22778 has 27 MA's), (Start: 13 @22886 has 1 MA's), (Start: 14 @22895 has 15 MA's), (22, 22949), (61, 23192), (66, 23231), (67, 23246),

Gene: Burritobowl_31 Start: 22845, Stop: 23498, Start Num: 5

Candidate Starts for Burritobowl_31:

(2, 22650), (4, 22746), (Start: 5 @22845 has 27 MA's), (Start: 13 @22953 has 1 MA's), (Start: 16 @22962 has 31 MA's), (38, 23070), (49, 23127), (55, 23157), (56, 23163), (63, 23229), (73, 23334),

Gene: CanFranMach_33 Start: 23077, Stop: 23664, Start Num: 14

Candidate Starts for CanFranMach_33:

(1, 22624), (3, 22855), (4, 22861), (Start: 5 @22960 has 27 MA's), (Start: 14 @23077 has 15 MA's), (31, 23137), (34, 23158), (46, 23239), (62, 23368), (63, 23371),

Gene: CardboardBox_35 Start: 22215, Stop: 21739, Start Num: 23

Candidate Starts for CardboardBox_35:

(Start: 23 @22215 has 7 MA's), (34, 22173), (47, 22101), (54, 22056), (60, 21993), (63, 21972), (78, 21807), (80, 21798), (81, 21795), (87, 21774),

Gene: Cashington_30 Start: 22134, Stop: 22841, Start Num: 5

Candidate Starts for Cashington_30:

(2, 21939), (4, 22035), (Start: 5 @22134 has 27 MA's), (Start: 13 @22242 has 1 MA's), (Start: 14 @22251 has 15 MA's), (22, 22305), (61, 22548), (66, 22587), (76, 22719),

Gene: Celaena_29 Start: 23736, Stop: 24290, Start Num: 16

Candidate Starts for Celaena_29:

(Start: 16 @23736 has 31 MA's), (32, 23790), (41, 23847), (50, 23898), (57, 23952), (61, 23988), (67, 24042), (71, 24078), (85, 24198),

Gene: ChamoyPickle_36 Start: 22755, Stop: 22279, Start Num: 23

Candidate Starts for ChamoyPickle_36:

(Start: 23 @22755 has 7 MA's), (34, 22713), (47, 22641), (54, 22596), (60, 22533), (63, 22512), (78, 22347), (80, 22338), (81, 22335), (87, 22314),

Gene: ChiliPepper_28 Start: 23178, Stop: 23786, Start Num: 10

Candidate Starts for ChiliPepper_28:

(Start: 10 @23178 has 2 MA's), (Start: 16 @23214 has 31 MA's), (32, 23268), (50, 23379), (57, 23433), (61, 23469), (67, 23523), (75, 23637), (88, 23691),

Gene: ChipsNGuac_34 Start: 22215, Stop: 21739, Start Num: 23

Candidate Starts for ChipsNGuac_34:

(Start: 23 @22215 has 7 MA's), (34, 22173), (47, 22101), (54, 22056), (60, 21993), (63, 21972), (78, 21807), (80, 21798), (81, 21795), (87, 21774),

Gene: Clayda5_29 Start: 20930, Stop: 21496, Start Num: 16

Candidate Starts for Clayda5_29:

(Start: 13 @20921 has 1 MA's), (Start: 16 @20930 has 31 MA's), (60, 21197), (63, 21218), (66, 21242), (74, 21356), (79, 21386),

Gene: Coltrane_28 Start: 20943, Stop: 21509, Start Num: 16

Candidate Starts for Coltrane_28:

(Start: 13 @20934 has 1 MA's), (Start: 16 @20943 has 31 MA's), (60, 21210), (63, 21231), (66, 21255), (74, 21369), (79, 21399),

Gene: CroZenni_31 Start: 22800, Stop: 23387, Start Num: 14

Candidate Starts for CroZenni_31:

(Start: 5 @22683 has 27 MA's), (Start: 13 @22791 has 1 MA's), (Start: 14 @22800 has 15 MA's), (31, 22860), (34, 22881), (42, 22938), (46, 22962), (62, 23091), (63, 23094),

Gene: CupcakePrincess_32 Start: 22975, Stop: 23676, Start Num: 5

Candidate Starts for CupcakePrincess_32:

(1, 22639), (4, 22876), (Start: 5 @22975 has 27 MA's), (Start: 14 @23092 has 15 MA's), (31, 23152), (34, 23173), (38, 23212), (46, 23254), (62, 23383), (63, 23386), (66, 23410), (75, 23539),

Gene: DickRichards_31 Start: 23174, Stop: 23827, Start Num: 5

Candidate Starts for DickRichards_31:

(2, 22979), (4, 23075), (Start: 5 @23174 has 27 MA's), (Start: 13 @23282 has 1 MA's), (Start: 16 @23291 has 31 MA's), (38, 23399), (49, 23456), (55, 23486), (56, 23492), (63, 23558), (73, 23663),

Gene: Didgeridoo_33 Start: 23183, Stop: 23950, Start Num: 5

Candidate Starts for Didgeridoo_33:

(Start: 5 @23183 has 27 MA's), (Start: 13 @23291 has 1 MA's), (Start: 14 @23300 has 15 MA's), (22, 23354), (57, 23561), (61, 23597), (66, 23636), (67, 23651), (84, 23807), (95, 23867), (96, 23873),

Gene: DirtyBubble_32 Start: 23754, Stop: 24350, Start Num: 14

Candidate Starts for DirtyBubble_32:

(6, 23667), (Start: 13 @23745 has 1 MA's), (Start: 14 @23754 has 15 MA's), (31, 23829), (34, 23850), (41, 23901), (48, 23934), (62, 24057), (63, 24060), (75, 24213), (77, 24222),

Gene: Dismas_29 Start: 23391, Stop: 23957, Start Num: 16

Candidate Starts for Dismas_29:

(7, 23304), (Start: 10 @23355 has 2 MA's), (Start: 16 @23391 has 31 MA's), (32, 23445), (50, 23550), (57, 23604), (61, 23640), (67, 23694), (75, 23808), (88, 23862), (93, 23895),

Gene: Doobus_31 Start: 22620, Stop: 23273, Start Num: 5

Candidate Starts for Doobus_31:

(2, 22425), (4, 22521), (Start: 5 @22620 has 27 MA's), (Start: 13 @22728 has 1 MA's), (Start: 16 @22737 has 31 MA's), (38, 22845), (49, 22902), (55, 22932), (56, 22938), (63, 23004), (73, 23109),

Gene: Eden_28 Start: 21161, Stop: 21682, Start Num: 16

Candidate Starts for Eden_28:

(Start: 13 @21152 has 1 MA's), (Start: 16 @21161 has 31 MA's), (40, 21263), (41, 21266), (66, 21446), (75, 21575),

Gene: Elva_33 Start: 23789, Stop: 24370, Start Num: 14

Candidate Starts for Elva_33:

(Start: 13 @23780 has 1 MA's), (Start: 14 @23789 has 15 MA's), (31, 23813), (34, 23834), (41, 23885), (62, 24041), (63, 24044),

Gene: Eula_32 Start: 23053, Stop: 23589, Start Num: 16

Candidate Starts for Eula_32:

(Start: 5 @22936 has 27 MA's), (Start: 13 @23044 has 1 MA's), (Start: 16 @23053 has 31 MA's), (33, 23122), (38, 23161), (49, 23218), (55, 23248), (56, 23254), (63, 23320), (86, 23515), (90, 23533),

Gene: Ezurina_33 Start: 23256, Stop: 22780, Start Num: 23

Candidate Starts for Ezurina_33:

(19, 23274), (20, 23265), (Start: 23 @23256 has 7 MA's), (34, 23214), (47, 23142), (54, 23097), (60, 23034), (63, 23013), (65, 22998), (78, 22848), (80, 22839), (81, 22836), (87, 22815),

Gene: Finalfrontier_32 Start: 23664, Stop: 24200, Start Num: 16

Candidate Starts for Finalfrontier_32:

(2, 23352), (4, 23448), (Start: 5 @23547 has 27 MA's), (Start: 13 @23655 has 1 MA's), (Start: 16 @23664 has 31 MA's), (38, 23772), (49, 23829), (55, 23859), (56, 23865), (63, 23931), (73, 24036),

Gene: FlameThrower_29 Start: 23222, Stop: 23782, Start Num: 16

Candidate Starts for FlameThrower_29:

(Start: 16 @23222 has 31 MA's), (32, 23276), (37, 23315), (43, 23345), (50, 23390), (51, 23393), (57, 23444), (61, 23480), (67, 23534), (71, 23570),

Gene: Franklin22_29 Start: 21323, Stop: 21847, Start Num: 16

Candidate Starts for Franklin22_29:

(8, 21251), (Start: 13 @21314 has 1 MA's), (Start: 16 @21323 has 31 MA's), (66, 21608),

Gene: Gack_28 Start: 21205, Stop: 21726, Start Num: 16

Candidate Starts for Gack_28:

(Start: 13 @21196 has 1 MA's), (Start: 16 @21205 has 31 MA's), (48, 21340), (66, 21490), (75, 21619),

Gene: Gerri43_34 Start: 22215, Stop: 21739, Start Num: 23

Candidate Starts for Gerri43_34:

(Start: 23 @22215 has 7 MA's), (34, 22173), (47, 22101), (54, 22056), (60, 21993), (63, 21972), (78, 21807), (80, 21798), (81, 21795), (87, 21774),

Gene: Grist_31 Start: 22772, Stop: 23377, Start Num: 14

Candidate Starts for Grist_31:

(Start: 5 @22655 has 27 MA's), (Start: 13 @22763 has 1 MA's), (Start: 14 @22772 has 15 MA's), (22, 22826), (61, 23069), (66, 23108), (67, 23123), (72, 23189), (75, 23237),

Gene: Huwbert_64 Start: 39565, Stop: 40128, Start Num: 15

Candidate Starts for Huwbert_64:

(Start: 15 @39565 has 2 MA's), (26, 39613), (44, 39721), (45, 39724), (52, 39766), (58, 39817), (61, 39847), (62, 39859), (79, 40030), (89, 40069),

Gene: Icarian_35 Start: 24388, Stop: 24984, Start Num: 14

Candidate Starts for Icarian_35:

(Start: 13 @24379 has 1 MA's), (Start: 14 @24388 has 15 MA's), (31, 24463), (34, 24484), (41, 24535), (48, 24568), (62, 24691), (63, 24694), (75, 24847), (77, 24856),

Gene: IndyLu_31 Start: 22792, Stop: 23514, Start Num: 5

Candidate Starts for IndyLu_31:

(Start: 5 @22792 has 27 MA's), (Start: 13 @22900 has 1 MA's), (Start: 14 @22909 has 15 MA's), (22, 22963), (61, 23206), (66, 23245), (67, 23260), (72, 23326), (75, 23374),

Gene: Jabb_32 Start: 22975, Stop: 23676, Start Num: 5

Candidate Starts for Jabb_32:

(1, 22639), (4, 22876), (Start: 5 @22975 has 27 MA's), (Start: 14 @23092 has 15 MA's), (31, 23152), (34, 23173), (38, 23212), (46, 23254), (62, 23383), (63, 23386), (66, 23410), (75, 23539),

Gene: Johnathan_31 Start: 22510, Stop: 23046, Start Num: 16

Candidate Starts for Johnathan_31:

(2, 22198), (4, 22294), (Start: 5 @22393 has 27 MA's), (Start: 13 @22501 has 1 MA's), (Start: 16 @22510 has 31 MA's), (38, 22618), (49, 22675), (55, 22705), (56, 22711), (63, 22777), (73, 22882),

Gene: Jovita_32 Start: 23039, Stop: 23692, Start Num: 5

Candidate Starts for Jovita_32:

(1, 22703), (4, 22940), (Start: 5 @23039 has 27 MA's), (Start: 13 @23147 has 1 MA's), (Start: 16 @23156 has 31 MA's), (33, 23225), (38, 23264), (49, 23321), (55, 23351), (56, 23357), (63, 23423),

Gene: Kamdara_29 Start: 23354, Stop: 23962, Start Num: 10

Candidate Starts for Kamdara_29:

(7, 23303), (Start: 10 @23354 has 2 MA's), (Start: 16 @23390 has 31 MA's), (32, 23444), (50, 23555), (57, 23609), (61, 23645), (67, 23699), (75, 23813), (88, 23867), (93, 23900),

Gene: Kate33_30 Start: 22654, Stop: 23307, Start Num: 5

Candidate Starts for Kate33_30:

(Start: 5 @22654 has 27 MA's), (Start: 13 @22762 has 1 MA's), (Start: 16 @22771 has 31 MA's), (38, 22879), (49, 22936), (55, 22966), (56, 22972), (63, 23038), (73, 23143),

Gene: Katzastrophic_29 Start: 23340, Stop: 23900, Start Num: 16

Candidate Starts for Katzastrophic_29:

(Start: 16 @23340 has 31 MA's), (32, 23394), (37, 23433), (43, 23463), (50, 23508), (57, 23562), (61, 23598), (67, 23652), (71, 23688),

Gene: Kenzers_32 Start: 23043, Stop: 23639, Start Num: 16

Candidate Starts for Kenzers_32:

(1, 22590), (4, 22827), (Start: 5 @22926 has 27 MA's), (Start: 13 @23034 has 1 MA's), (Start: 16 @23043 has 31 MA's), (27, 23067), (41, 23139), (62, 23295), (63, 23298), (75, 23451), (93, 23535),

Gene: Kieran_29 Start: 23358, Stop: 23966, Start Num: 10

Candidate Starts for Kieran_29:

(7, 23307), (Start: 10 @23358 has 2 MA's), (Start: 16 @23394 has 31 MA's), (32, 23448), (50, 23559), (57, 23613), (61, 23649), (67, 23703), (75, 23817), (88, 23871), (93, 23904),

Gene: Lahqtemish_31 Start: 22843, Stop: 23547, Start Num: 5

Candidate Starts for Lahqtemish_31:

(2, 22648), (4, 22744), (Start: 5 @22843 has 27 MA's), (Start: 14 @22960 has 15 MA's), (31, 23020), (34, 23041), (42, 23098), (46, 23122), (62, 23251), (63, 23254), (75, 23407),

Gene: LastNadiia_36 Start: 24572, Stop: 24102, Start Num: 23

Candidate Starts for LastNadiia_36:

(9, 24683), (11, 24632), (Start: 23 @24572 has 7 MA's), (27, 24563), (47, 24458), (50, 24434), (53, 24422), (57, 24380), (60, 24350), (64, 24317), (75, 24176), (80, 24155),

Gene: Lilo27_32 Start: 22847, Stop: 23500, Start Num: 5

Candidate Starts for Lilo27_32:

(1, 22511), (4, 22748), (Start: 5 @22847 has 27 MA's), (Start: 13 @22955 has 1 MA's), (Start: 16 @22964 has 31 MA's), (33, 23033), (38, 23072), (49, 23129), (55, 23159), (56, 23165), (63, 23231), (86, 23426),

Gene: LimaBean_31 Start: 22389, Stop: 23042, Start Num: 5

Candidate Starts for LimaBean_31:

(2, 22194), (4, 22290), (Start: 5 @22389 has 27 MA's), (Start: 13 @22497 has 1 MA's), (Start: 16 @22506 has 31 MA's), (38, 22614), (49, 22671), (55, 22701), (56, 22707), (63, 22773), (73, 22878),

Gene: Loviatar_34 Start: 24940, Stop: 25536, Start Num: 14

Candidate Starts for Loviatar_34:

(Start: 13 @24931 has 1 MA's), (Start: 14 @24940 has 15 MA's), (31, 25015), (34, 25036), (41, 25087), (48, 25120), (62, 25243), (63, 25246),

Gene: Lynlen_32 Start: 23034, Stop: 23639, Start Num: 13

Candidate Starts for Lynlen_32:

(4, 22827), (Start: 5 @22926 has 27 MA's), (Start: 13 @23034 has 1 MA's), (Start: 16 @23043 has 31 MA's), (27, 23067), (41, 23139), (62, 23295), (63, 23298), (75, 23451), (93, 23535),

Gene: Makima_34 Start: 23688, Stop: 23212, Start Num: 23

Candidate Starts for Makima_34:

(Start: 23 @23688 has 7 MA's), (27, 23679), (29, 23673), (47, 23574), (50, 23550), (57, 23496), (60, 23466), (64, 23433), (74, 23307), (79, 23277), (83, 23256),

Gene: Milomuff_32 Start: 22754, Stop: 23407, Start Num: 5

Candidate Starts for Milomuff_32:

(2, 22559), (4, 22655), (Start: 5 @22754 has 27 MA's), (Start: 13 @22862 has 1 MA's), (Start: 16 @22871 has 31 MA's), (38, 22979), (49, 23036), (55, 23066), (56, 23072), (63, 23138), (73, 23243),

Gene: Mireles_37 Start: 23247, Stop: 22771, Start Num: 21

Candidate Starts for Mireles_37:

(Start: 21 @23247 has 4 MA's), (27, 23238), (34, 23205), (47, 23133), (50, 23109), (54, 23088), (60, 23025), (63, 23004), (67, 22965), (91, 22791),

Gene: MsUbiquitous_32 Start: 23092, Stop: 23676, Start Num: 14

Candidate Starts for MsUbiquitous_32:

(1, 22639), (4, 22876), (Start: 5 @22975 has 27 MA's), (Start: 14 @23092 has 15 MA's), (31, 23152), (34, 23173), (38, 23212), (46, 23254), (62, 23383), (63, 23386), (66, 23410), (75, 23539),

Gene: Neuville_34 Start: 22215, Stop: 21739, Start Num: 23

Candidate Starts for Neuville_34:

(Start: 23 @22215 has 7 MA's), (34, 22173), (47, 22101), (54, 22056), (60, 21993), (63, 21972), (78, 21807), (80, 21798), (81, 21795), (87, 21774),

Gene: Nicky22_33 Start: 23401, Stop: 24054, Start Num: 5

Candidate Starts for Nicky22_33:

(1, 23065), (4, 23302), (Start: 5 @23401 has 27 MA's), (Start: 13 @23509 has 1 MA's), (Start: 16 @23518 has 31 MA's), (33, 23587), (38, 23626), (49, 23683), (55, 23713), (56, 23719), (63, 23785),

Gene: PastaFagioli_31 Start: 22828, Stop: 23532, Start Num: 5

Candidate Starts for PastaFagioli_31:

(2, 22633), (3, 22723), (4, 22729), (Start: 5 @22828 has 27 MA's), (Start: 13 @22936 has 1 MA's), (Start: 14 @22945 has 15 MA's), (31, 23005), (34, 23026), (42, 23083), (46, 23107), (62, 23236), (63,

23239),

Gene: Pecas_32 Start: 23053, Stop: 23589, Start Num: 16

Candidate Starts for Pecas_32:

(Start: 5 @22936 has 27 MA's), (Start: 13 @23044 has 1 MA's), (Start: 16 @23053 has 31 MA's), (33, 23122), (38, 23161), (49, 23218), (55, 23248), (56, 23254), (63, 23320), (86, 23515), (90, 23533),

Gene: PhigPhack_32 Start: 22873, Stop: 23409, Start Num: 16

Candidate Starts for PhigPhack_32:

(4, 22657), (Start: 5 @22756 has 27 MA's), (Start: 13 @22864 has 1 MA's), (Start: 16 @22873 has 31 MA's), (38, 22981), (49, 23038), (55, 23068), (56, 23074), (63, 23140), (73, 23245),

Gene: Phisb_32 Start: 23109, Stop: 23645, Start Num: 16

Candidate Starts for Phisb_32:

(1, 22656), (4, 22893), (Start: 5 @22992 has 27 MA's), (Start: 13 @23100 has 1 MA's), (Start: 16 @23109 has 31 MA's), (33, 23178), (38, 23217), (49, 23274), (55, 23304), (56, 23310), (63, 23376), (73, 23481),

Gene: PondAmelia_34 Start: 23954, Stop: 24535, Start Num: 14

Candidate Starts for PondAmelia_34:

(Start: 13 @23945 has 1 MA's), (Start: 14 @23954 has 15 MA's), (31, 23978), (34, 23999), (41, 24050), (48, 24083), (62, 24206), (63, 24209),

Gene: QMacho_33 Start: 23536, Stop: 24072, Start Num: 16

Candidate Starts for QMacho_33:

(Start: 5 @23419 has 27 MA's), (Start: 13 @23527 has 1 MA's), (Start: 16 @23536 has 31 MA's), (33, 23605), (38, 23644), (49, 23701), (55, 23731), (56, 23737), (63, 23803), (86, 23998), (90, 24016),

Gene: Quenya_30 Start: 23232, Stop: 23762, Start Num: 16

Candidate Starts for Quenya_30:

(Start: 16 @23232 has 31 MA's), (18, 23256), (38, 23340), (49, 23397), (55, 23427), (56, 23433), (61, 23484), (63, 23499), (70, 23562), (73, 23604), (79, 23661),

Gene: Roberts_34 Start: 22215, Stop: 21739, Start Num: 23

Candidate Starts for Roberts_34:

(Start: 23 @22215 has 7 MA's), (34, 22173), (47, 22101), (54, 22056), (60, 21993), (63, 21972), (78, 21807), (80, 21798), (81, 21795), (87, 21774),

Gene: Rollins_28 Start: 20996, Stop: 21562, Start Num: 16

Candidate Starts for Rollins_28:

(Start: 13 @20987 has 1 MA's), (Start: 16 @20996 has 31 MA's), (60, 21263), (63, 21284), (66, 21308), (74, 21422), (79, 21452),

Gene: Rona_29 Start: 23391, Stop: 23948, Start Num: 16

Candidate Starts for Rona_29:

(7, 23304), (Start: 10 @23355 has 2 MA's), (Start: 16 @23391 has 31 MA's), (32, 23445), (35, 23475), (36, 23481), (48, 23535), (66, 23685), (67, 23700), (68, 23703), (69, 23706),

Gene: SanaSana_35 Start: 24590, Stop: 25186, Start Num: 14

Candidate Starts for SanaSana_35:

(Start: 13 @24581 has 1 MA's), (Start: 14 @24590 has 15 MA's), (31, 24665), (34, 24686), (41, 24737), (48, 24770), (62, 24893), (63, 24896),

Gene: SansAfet_32 Start: 22861, Stop: 23514, Start Num: 5

Candidate Starts for SansAfet_32:

(2, 22666), (4, 22762), (Start: 5 @22861 has 27 MA's), (Start: 13 @22969 has 1 MA's), (Start: 16 @22978 has 31 MA's), (38, 23086), (49, 23143), (55, 23173), (56, 23179), (63, 23245), (73, 23350),

Gene: SarBear_31 Start: 22749, Stop: 23402, Start Num: 5

Candidate Starts for SarBear_31:

(1, 22413), (4, 22650), (Start: 5 @22749 has 27 MA's), (Start: 13 @22857 has 1 MA's), (Start: 16 @22866 has 31 MA's), (33, 22935), (38, 22974), (49, 23031), (55, 23061), (56, 23067), (63, 23133),

Gene: Sharkboy_30 Start: 23475, Stop: 24047, Start Num: 16

Candidate Starts for Sharkboy_30:

(Start: 10 @23439 has 2 MA's), (Start: 16 @23475 has 31 MA's), (32, 23529), (50, 23640), (57, 23694), (61, 23730), (67, 23784), (75, 23898), (88, 23952),

Gene: Shrew_73 Start: 43134, Stop: 43658, Start Num: 17

Candidate Starts for Shrew_73:

(8, 43047), (Start: 17 @43134 has 1 MA's), (24, 43173), (30, 43191), (34, 43212), (47, 43296), (54, 43341), (59, 43389), (63, 43425), (64, 43437), (75, 43578),

Gene: SirBeanington_32 Start: 23102, Stop: 23689, Start Num: 14

Candidate Starts for SirBeanington_32:

(1, 22649), (4, 22886), (Start: 5 @22985 has 27 MA's), (Start: 14 @23102 has 15 MA's), (31, 23162), (34, 23183), (38, 23222), (46, 23264), (62, 23393), (63, 23396), (66, 23420), (86, 23594),

Gene: Skylord_28 Start: 20927, Stop: 21493, Start Num: 16

Candidate Starts for Skylord_28:

(Start: 13 @20918 has 1 MA's), (Start: 16 @20927 has 31 MA's), (60, 21194), (63, 21215), (66, 21239), (74, 21353), (79, 21383),

Gene: Slay_32 Start: 23514, Stop: 24050, Start Num: 16

Candidate Starts for Slay_32:

(1, 23061), (4, 23298), (Start: 5 @23397 has 27 MA's), (Start: 13 @23505 has 1 MA's), (Start: 16 @23514 has 31 MA's), (33, 23583), (38, 23622), (49, 23679), (55, 23709), (56, 23715), (63, 23781),

Gene: Softsoap_31 Start: 22801, Stop: 23400, Start Num: 14

Candidate Starts for Softsoap_31:

(Start: 5 @22684 has 27 MA's), (Start: 13 @22792 has 1 MA's), (Start: 14 @22801 has 15 MA's), (22, 22855), (61, 23098), (66, 23137), (67, 23152),

Gene: Solea_33 Start: 22862, Stop: 23407, Start Num: 13

Candidate Starts for Solea_33:

(2, 22559), (4, 22655), (Start: 5 @22754 has 27 MA's), (Start: 13 @22862 has 1 MA's), (Start: 16 @22871 has 31 MA's), (38, 22979), (49, 23036), (55, 23066), (56, 23072), (63, 23138), (73, 23243),

Gene: Stoor_33 Start: 24258, Stop: 24854, Start Num: 14

Candidate Starts for Stoor_33:

(Start: 13 @24249 has 1 MA's), (Start: 14 @24258 has 15 MA's), (31, 24333), (34, 24354), (41, 24405), (48, 24438), (62, 24561), (63, 24564), (75, 24717), (77, 24726),

Gene: Stromboli_33 Start: 24124, Stop: 24720, Start Num: 14

Candidate Starts for Stromboli_33:

(6, 24037), (Start: 13 @24115 has 1 MA's), (Start: 14 @24124 has 15 MA's), (31, 24199), (34, 24220), (41, 24271), (48, 24304), (62, 24427), (63, 24430), (75, 24583), (77, 24592),

Gene: Studio_36 Start: 23580, Stop: 23104, Start Num: 23

Candidate Starts for Studio_36:

(Start: 23 @23580 has 7 MA's), (34, 23538), (47, 23466), (54, 23421), (60, 23358), (63, 23337), (74, 23199), (78, 23172), (80, 23163), (81, 23160), (87, 23139),

Gene: Swervy_32 Start: 22916, Stop: 23569, Start Num: 5

Candidate Starts for Swervy_32:

(1, 22580), (4, 22817), (Start: 5 @22916 has 27 MA's), (Start: 13 @23024 has 1 MA's), (Start: 16 @23033 has 31 MA's), (33, 23102), (38, 23141), (49, 23198), (55, 23228), (56, 23234), (63, 23300),

Gene: TMaxx_35 Start: 22869, Stop: 22390, Start Num: 21

Candidate Starts for TMaxx_35:

(Start: 21 @22869 has 4 MA's), (27, 22857), (39, 22788), (47, 22752), (54, 22707), (60, 22644), (63, 22623), (65, 22608), (75, 22470), (78, 22458), (80, 22449), (81, 22446),

Gene: TripleC_35 Start: 25213, Stop: 24734, Start Num: 21

Candidate Starts for TripleC_35:

(Start: 21 @25213 has 4 MA's), (27, 25201), (28, 25198), (54, 25051), (60, 24988), (80, 24793), (81, 24790),

Gene: Triscuit_63 Start: 39489, Stop: 40052, Start Num: 15

Candidate Starts for Triscuit_63:

(Start: 15 @39489 has 2 MA's), (25, 39534), (26, 39537), (44, 39645), (45, 39648), (51, 39684), (52, 39690), (58, 39741), (61, 39771), (62, 39783), (89, 39993), (92, 40005), (94, 40032),

Gene: TukTuk_32 Start: 22975, Stop: 23640, Start Num: 5

Candidate Starts for TukTuk_32:

(1, 22639), (4, 22876), (Start: 5 @22975 has 27 MA's), (Start: 13 @23083 has 1 MA's), (Start: 16 @23092 has 31 MA's), (27, 23116), (62, 23344), (63, 23347), (75, 23500), (86, 23545),

Gene: Vitas_28 Start: 20936, Stop: 21502, Start Num: 16

Candidate Starts for Vitas_28:

(Start: 13 @20927 has 1 MA's), (Start: 16 @20936 has 31 MA's), (60, 21203), (63, 21224), (66, 21248), (74, 21362), (79, 21392),

Gene: WalkingDead_33 Start: 24355, Stop: 24960, Start Num: 13

Candidate Starts for WalkingDead_33:

(Start: 13 @24355 has 1 MA's), (Start: 14 @24364 has 15 MA's), (31, 24439), (34, 24460), (41, 24511), (48, 24544), (62, 24667), (63, 24670), (75, 24823), (77, 24832),