



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 212351 Report

This analysis was run 02/22/25 on database version 588.

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 212351 has 168 members, 19 are drafts.

Phages represented in each track:

- Track 1 : Zemlya_38, Toma_36, Danzina_38, Celeste_37, Brataylor_39, Dattran_38, Goby_36
- Track 2 : BeardedLady_37, Legacy_36, Nerdos_35, Eddasa_37, Caliburn_36, EnochSoames_39, Rusticus_37, Unstoppable_36, SunsetPointe_36, Leviticus_36, Indigo_35, Aaronocolus_36, Esperer_36, Hydra_38, Phettuccine_36, Izzy_37, Jash_37, Bovely_36, BryanRecycles_37, Ozzie_36, Oliynyk_37
- Track 3 : Snorlax_36, Werner_36, Chucky_36, Hippo_36, Dwayne_36, BarryBee_39, OzzyJ_37, TagePhighter_38, SarahRose_36, Triste_36, Whatever_36, Emaanora_39, Asten_36
- Track 4 : RedBear_37, South40_36, Katalie_36
- Track 5 : Lorelei_37, Nabi_37, Rana_37
- Track 6 : TuanPN_35, Maneekul_36, Ejemplo_35, Yasdnil_36
- Track 7 : Nanodon_38
- Track 8 : Sujidade_37, Godpower_37, Lika_36
- Track 9 : Lannister_38
- Track 10 : Issmi_38
- Track 11 : Thestral_38, Bowden_37, BartholomewSD_39, TinaBelcher_37
- Track 12 : Pablito_36
- Track 13 : Daudau_37
- Track 14 : Animus_36, GirlDinner_36, SqueakyClean_36, Janus_37
- Track 15 : Hank144_38
- Track 16 : Zainub_39, Paolo_39
- Track 17 : Puginator_39
- Track 18 : Omar_39
- Track 19 : Marav_40, Jevington_39
- Track 20 : Haizum_38, Tefunt_38, Nishikigoi_38
- Track 21 : Paedore_36, R4_37, Loofah_37, ELB20_35
- Track 22 : TrvxScott_36
- Track 23 : Superstar_40
- Track 24 : Triumph_38
- Track 25 : Axiom_39
- Track 26 : Andris_36
- Track 27 : Caelum_38

- Track 28 : Alvy_39
- Track 29 : Amethyst_36
- Track 30 : Saftant_37
- Track 31 : Speedwell_42
- Track 32 : Dexers_36
- Track 33 : Yosif_39
- Track 34 : Alsaber_38, Pavo_38, Conan_38, ElGato_38, Vanseggelen_42, Kaine_37, Provolone_38, Verse_37
- Track 35 : Celery_40
- Track 36 : Amela_37
- Track 37 : phiCAM_36
- Track 38 : Verabelle_40
- Track 39 : BroPlease_37, GreenWeasel_38
- Track 40 : phiHau3_38
- Track 41 : Celia_38, Urza_38, Itza_38
- Track 42 : VieEnRose_37
- Track 43 : P106L_32, P106M_32, P106C_33, P106I_32
- Track 44 : P106A_32
- Track 45 : PHL071N05_32
- Track 46 : Lauchelly_32, Rileysaurus_31
- Track 47 : PHL114L00_32
- Track 48 : PAS50_33
- Track 49 : PHL010M04_32
- Track 50 : P107C_32, ATCC29399BT_32
- Track 51 : PAD20_33
- Track 52 : Enoki_32
- Track 53 : Procrass1_32
- Track 54 : ATCC29399BC_32
- Track 55 : PHL060L00_32
- Track 56 : BruceLethal_32
- Track 57 : Supernova_32
- Track 58 : Enochoraptor_31, Keiki_32, Pirate_32
- Track 59 : Attacne_32, SKKY_32
- Track 60 : P100.1_32
- Track 61 : Wizzo_32
- Track 62 : P101A_32
- Track 63 : LilBandit_32
- Track 64 : P104A_32
- Track 65 : Solid_32
- Track 66 : QueenBey_32
- Track 67 : PHL112N00_32
- Track 68 : P14.4_32
- Track 69 : MrAK_32
- Track 70 : Kubed_32
- Track 71 : DrParker_32
- Track 72 : P107A_32
- Track 73 : Ouroboros_32
- Track 74 : P100D_32
- Track 75 : Stormborn_32, P105_32
- Track 76 : PHL113M01_32
- Track 77 : Aquarius_32
- Track 78 : P100A_32
- Track 79 : PHL037M02_32

- Track 80 : Leviosa_32
- Track 81 : P104B_32
- Track 82 : PHL111M01_32
- Track 83 : Moyashi_32
- Track 84 : P9.1_32
- Track 85 : PA6_33
- Track 86 : MEAK_32
- Track 87 : P108C_32
- Track 88 : PHL067M10_32
- Track 89 : Cota_32

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

The start number called the most often in the published annotations is 26, it was called in 67 of the 149 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aaronocolus_36, Alsaber_38, Amela_37, Asten_36, BarryBee_39, BeardedLady_37, Bovely_36, Brataylor_39, BryanRecycles_37, Caliburn_36, Celery_40, Celeste_37, Chucky_36, Conan_38, Danzina_38, Dattran_38, Dexers_36, Dwayne_36, Eddasa_37, Ejemplo_35, ElGato_38, Emaanora_39, EnochSoames_39, Esperer_36, Goby_36, Godpower_37, Hippo_36, Hydra_38, Indigo_35, Izzy_37, Jash_37, Kaine_37, Katalie_36, Lannister_38, Legacy_36, Leviticus_36, Lika_36, Lorelei_37, Maneekul_36, Nabi_37, Nanodon_38, Nerdos_35, Oliynyk_37, Ozzie_36, OzzyJ_37, Pavo_38, Phettuccine_36, Provolone_38, Rana_37, RedBear_37, Rusticus_37, Saftant_37, SarahRose_36, Snorlax_36, South40_36, Speedwell_42, Sujidade_37, SunsetPointe_36, TagePhighter_38, Toma_36, Triste_36, TuanPN_35, Unstoppable_36, Vanseggelen_42, Verse_37, Werner_36, Whatever_36, Yasdnil_36, Yosif_39, Zemlya_38, phiCAM_36,

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

- Verabelle_40,

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

- ATCC29399BC_32, ATCC29399BT_32, Alvy_39, Amethyst_36, Andris_36, Animus_36, Aquarius_32, Attacne_32, Axiom_39, BartholomewSD_39, Bowden_37, BroPlease_37, BruceLethal_32, Caelum_38, Celia_38, Cota_32, Daudau_37, DrParker_32, ELB20_35, Enochoraptor_31, Enoki_32, GirlDinner_36, GreenWeasel_38, Haizum_38, Hank144_38, Issmi_38, Itza_38, Janus_37, Jevington_39, Keiki_32, Kubed_32, Lauchelly_32, Leviosa_32, LilBandit_32, Loofah_37, MEAK_32, Marav_40, Moyashi_32, MrAK_32, Nishikigoi_38, Omar_39, Ouroboros_32, P100.1_32, P100A_32, P100D_32, P101A_32, P104A_32, P104B_32, P105_32, P106A_32, P106C_33, P106I_32, P106L_32, P106M_32, P107A_32, P107C_32, P108C_32, P14.4_32, P9.1_32, PA6_33, PAD20_33, PAS50_33, PHL010M04_32, PHL037M02_32, PHL060L00_32, PHL067M10_32, PHL071N05_32, PHL111M01_32, PHL112N00_32, PHL113M01_32, PHL114L00_32, Pablito_36, Paedore_36, Paolo_39, Pirate_32, Procrass1_32, Puginator_39, QueenBey_32, R4_37, Rileysaurus_31, SKKY_32, Solid_32, SqueakyClean_36, Stormborn_32, Supernova_32, Superstar_40, Tefunt_38, Thestral_38, TinaBelcher_37, Triumph_38, TrvxScott_36, Urza_38, VieEnRose_37,

Wizzo_32, Zainub_39, phiHau3_38,

Summary by start number:

Start 15:

- Found in 1 of 168 (0.6%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Verabelle_40 (BD3),

Start 21:

- Found in 12 of 168 (7.1%) of genes in pham
- Manual Annotations of this start: 2 of 149
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Hank144_38 (BD2), Pablito_36 (BD2),

Start 22:

- Found in 37 of 168 (22.0%) of genes in pham
- Manual Annotations of this start: 1 of 149
- Called 2.7% of time when present
- Phage (with cluster) where this start called: TrvxScott_36 (BD2),

Start 23:

- Found in 33 of 168 (19.6%) of genes in pham
- Manual Annotations of this start: 7 of 149
- Called 30.3% of time when present
- Phage (with cluster) where this start called: ATCC29399BC_32 (BU), LilBandit_32 (BU), Ouroboros_32 (BU), P104B_32 (BU), P106A_32 (BU), P108C_32 (BU), PHL010M04_32 (BU), PHL037M02_32 (BU), PHL071N05_32 (BU), Solid_32 (BU),

Start 24:

- Found in 56 of 168 (33.3%) of genes in pham
- Manual Annotations of this start: 36 of 149
- Called 80.4% of time when present
- Phage (with cluster) where this start called: ATCC29399BT_32 (BU), Aquarius_32 (BU), Attacne_32 (BU), BruceLethal_32 (BU), Cota_32 (BU), DrParker_32 (BU), Enochoraptor_31 (BU), Enoki_32 (BU), Keiki_32 (BU), Kubed_32 (BU), Lauchelly_32 (BU), Leviosa_32 (BU), MEAK_32 (BU), Moyashi_32 (BU), MrAK_32 (BU), P100.1_32 (BU), P100A_32 (BU), P100D_32 (BU), P101A_32 (BU), P104A_32 (BU), P105_32 (BU), P106C_33 (BU), P106I_32 (BU), P106L_32 (BU), P106M_32 (BU), P107A_32 (BU), P107C_32 (BU), P14.4_32 (BU), PA6_33 (BU), PAD20_33 (BU), PAS50_33 (BU), PHL060L00_32 (BU), PHL067M10_32 (BU), PHL111M01_32 (BU), PHL112N00_32 (BU), PHL113M01_32 (BU), PHL114L00_32 (BU), Pirate_32 (BU), Procrass1_32 (BU), QueenBey_32 (BU), Rileysaurus_31 (BU), SKKY_32 (BU), Stormborn_32 (BU), Supernova_32 (BU), Wizzo_32 (BU),

Start 25:

- Found in 37 of 168 (22.0%) of genes in pham
- Manual Annotations of this start: 32 of 149
- Called 91.9% of time when present
- Phage (with cluster) where this start called: Alvy_39 (BD2), Amethyst_36 (BD2), Andris_36 (BD2), Animus_36 (BD2), Axiom_39 (BD2), BartholomewSD_39 (BD2), Bowden_37 (BD2), Caelum_38 (BD2), Celia_38 (BD6), Daudau_37 (BD2), ELB20_35

(BD2), GirlDinner_36 (BD2), Haizum_38 (BD2), Issmi_38 (BD2), Itza_38 (BD6), Janus_37 (BD2), Jevington_39 (BD2), Loofah_37 (BD2), Marav_40 (BD2), Nishikigoi_38 (BD2), Omar_39 (BD2), Paedore_36 (BD2), Paolo_39 (BD2), Puginator_39 (BD2), R4_37 (BD2), SqueakyClean_36 (BD2), Superstar_40 (BD2), Tefunt_38 (BD2), Thestral_38 (BD2), TinaBelcher_37 (BD2), Triumph_38 (BD2), Urza_38 (BD6), VieEnRose_37 (BD6), Zainub_39 (BD2),

Start 26:

- Found in 72 of 168 (42.9%) of genes in pham
- Manual Annotations of this start: 67 of 149
- Called 98.6% of time when present
- Phage (with cluster) where this start called: Aaronocolus_36 (BD1), Alsaber_38 (BD3), Amela_37 (BD3), Asten_36 (BD1), BarryBee_39 (BD1), BeardedLady_37 (BD1), Bovely_36 (BD1), Brataylor_39 (BD1), BryanRecycles_37 (BD1), Caliburn_36 (BD1), Celery_40 (BD3), Celeste_37 (BD1), Chucky_36 (BD1), Conan_38 (BD3), Danzina_38 (BD1), Dattran_38 (BD1), Dexers_36 (BD3), Dwayne_36 (BD1), Eddasa_37 (BD1), Ejemplo_35 (BD1), ElGato_38 (BD3), Emaanora_39 (BD1), EnochSoames_39 (BD1), Esperer_36 (BD1), Goby_36 (BD1), Godpower_37 (BD1), Hippo_36 (BD1), Hydra_38 (BD1), Indigo_35 (BD1), Izzy_37 (BD1), Jash_37 (BD1), Kaine_37 (BD3), Katalie_36 (BD1), Lannister_38 (BD1), Legacy_36 (BD1), Leviticus_36 (BD1), Lika_36 (BD1), Lorelei_37 (BD1), Maneekul_36 (BD1), Nabi_37 (BD1), Nanodon_38 (BD1), Nerdos_35 (BD1), Oliynyk_37 (BD1), Ozzie_36 (BD1), OzzyJ_37 (BD1), Pavo_38 (BD3), Phettuccine_36 (BD1), Provolone_38 (BD3), Rana_37 (BD1), RedBear_37 (BD1), Rusticus_37 (BD1), Saftant_37 (BD3), SarahRose_36 (BD1), Snorlax_36 (BD1), South40_36 (BD1), Speedwell_42 (BD3), Sujidade_37 (BD1), SunsetPointe_36 (BD1), TagePhighter_38 (BD1), Toma_36 (BD1), Triste_36 (BD1), TuanPN_35 (BD1), Unstoppable_36 (BD1), Vanseggelen_42 (BD3), Verse_37 (BD3), Werner_36 (BD1), Whatever_36 (BD1), Yasdnih_36 (BD1), Yosif_39 (BD3), Zemlya_38 (BD1), phiCAM_36 (BD3),

Start 27:

- Found in 3 of 168 (1.8%) of genes in pham
- Manual Annotations of this start: 3 of 149
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BroPlease_37 (BD4), GreenWeasel_38 (BD4), phiHau3_38 (BD4),

Start 29:

- Found in 21 of 168 (12.5%) of genes in pham
- Manual Annotations of this start: 1 of 149
- Called 4.8% of time when present
- Phage (with cluster) where this start called: P9.1_32 (BU),

Summary by clusters:

There are 6 clusters represented in this pham: BD4, BU, BD6, BD1, BD3, BD2,

Info for manual annotations of cluster BD1:

- Start number 26 was manually annotated 55 times for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 21 was manually annotated 2 times for cluster BD2.
- Start number 22 was manually annotated 1 time for cluster BD2.

- Start number 25 was manually annotated 28 times for cluster BD2.

Info for manual annotations of cluster BD3:

- Start number 26 was manually annotated 12 times for cluster BD3.

Info for manual annotations of cluster BD4:

- Start number 27 was manually annotated 3 times for cluster BD4.

Info for manual annotations of cluster BD6:

- Start number 25 was manually annotated 4 times for cluster BD6.

Info for manual annotations of cluster BU:

- Start number 23 was manually annotated 7 times for cluster BU.
- Start number 24 was manually annotated 36 times for cluster BU.
- Start number 29 was manually annotated 1 time for cluster BU.

Gene Information:

Gene: ATCC29399BC_32 Start: 21881, Stop: 21522, Start Num: 23

Candidate Starts for ATCC29399BC_32:

(Start: 23 @21881 has 7 MA's), (Start: 24 @21878 has 36 MA's), (38, 21677), (45, 21599), (46, 21596), (48, 21560),

Gene: ATCC29399BT_32 Start: 21878, Stop: 21522, Start Num: 24

Candidate Starts for ATCC29399BT_32:

(Start: 23 @21881 has 7 MA's), (Start: 24 @21878 has 36 MA's), (38, 21677), (45, 21599), (46, 21596), (48, 21560),

Gene: Aaronocolus_36 Start: 27054, Stop: 27416, Start Num: 26

Candidate Starts for Aaronocolus_36:

(10, 26874), (14, 26991), (16, 27000), (Start: 26 @27054 has 67 MA's), (34, 27210), (39, 27261), (42, 27315), (43, 27324), (48, 27369),

Gene: Alsaber_38 Start: 28924, Stop: 29289, Start Num: 26

Candidate Starts for Alsaber_38:

(Start: 26 @28924 has 67 MA's), (35, 29107), (39, 29134), (44, 29200),

Gene: Alvy_39 Start: 28390, Stop: 28767, Start Num: 25

Candidate Starts for Alvy_39:

(Start: 22 @28381 has 1 MA's), (Start: 25 @28390 has 32 MA's), (33, 28561), (34, 28564), (37, 28600), (48, 28723),

Gene: Amela_37 Start: 29758, Stop: 30123, Start Num: 26

Candidate Starts for Amela_37:

(Start: 26 @29758 has 67 MA's), (35, 29941), (39, 29968), (44, 30034), (48, 30076),

Gene: Amethyst_36 Start: 27761, Stop: 28138, Start Num: 25

Candidate Starts for Amethyst_36:

(19, 27743), (Start: 22 @27752 has 1 MA's), (Start: 25 @27761 has 32 MA's), (34, 27935), (45, 28055), (48, 28094),

Gene: Andris_36 Start: 27819, Stop: 28196, Start Num: 25
Candidate Starts for Andris_36:
(Start: 21 @27807 has 2 MA's), (Start: 22 @27810 has 1 MA's), (Start: 25 @27819 has 32 MA's), (34, 27993), (44, 28110), (48, 28152),

Gene: Animus_36 Start: 28249, Stop: 28626, Start Num: 25
Candidate Starts for Animus_36:
(Start: 21 @28237 has 2 MA's), (Start: 22 @28240 has 1 MA's), (Start: 25 @28249 has 32 MA's), (34, 28423), (37, 28459), (44, 28540), (48, 28582),

Gene: Aquarius_32 Start: 21351, Stop: 20995, Start Num: 24
Candidate Starts for Aquarius_32:
(18, 21384), (Start: 24 @21351 has 36 MA's), (38, 21150), (46, 21069), (48, 21033),

Gene: Asten_36 Start: 27412, Stop: 27774, Start Num: 26
Candidate Starts for Asten_36:
(10, 27235), (14, 27349), (16, 27358), (20, 27397), (Start: 26 @27412 has 67 MA's), (39, 27619), (42, 27673), (43, 27682), (46, 27691), (48, 27727),

Gene: Attacne_32 Start: 21366, Stop: 21010, Start Num: 24
Candidate Starts for Attacne_32:
(18, 21399), (Start: 24 @21366 has 36 MA's), (34, 21207), (38, 21165), (46, 21084), (48, 21048),

Gene: Axiom_39 Start: 27982, Stop: 28359, Start Num: 25
Candidate Starts for Axiom_39:
(1, 27451), (4, 27613), (8, 27763), (12, 27877), (14, 27919), (Start: 21 @27970 has 2 MA's), (Start: 22 @27973 has 1 MA's), (Start: 25 @27982 has 32 MA's), (34, 28156), (44, 28273), (48, 28315),

Gene: BarryBee_39 Start: 27422, Stop: 27784, Start Num: 26
Candidate Starts for BarryBee_39:
(10, 27245), (14, 27359), (16, 27368), (20, 27407), (Start: 26 @27422 has 67 MA's), (39, 27629), (42, 27683), (43, 27692), (46, 27701), (48, 27737),

Gene: BartholomewSD_39 Start: 28389, Stop: 28766, Start Num: 25
Candidate Starts for BartholomewSD_39:
(Start: 22 @28380 has 1 MA's), (Start: 25 @28389 has 32 MA's), (34, 28563), (37, 28599), (48, 28722),

Gene: BeardedLady_37 Start: 27307, Stop: 27669, Start Num: 26
Candidate Starts for BeardedLady_37:
(10, 27127), (14, 27244), (16, 27253), (Start: 26 @27307 has 67 MA's), (34, 27463), (39, 27514), (42, 27568), (43, 27577), (48, 27622),

Gene: Bovely_36 Start: 27060, Stop: 27422, Start Num: 26
Candidate Starts for Bovely_36:
(10, 26880), (14, 26997), (16, 27006), (Start: 26 @27060 has 67 MA's), (34, 27216), (39, 27267), (42, 27321), (43, 27330), (48, 27375),

Gene: Bowden_37 Start: 28305, Stop: 28682, Start Num: 25
Candidate Starts for Bowden_37:
(Start: 22 @28296 has 1 MA's), (Start: 25 @28305 has 32 MA's), (34, 28479), (37, 28515), (48, 28638),

Gene: Brataylor_39 Start: 28396, Stop: 28758, Start Num: 26
Candidate Starts for Brataylor_39:

(10, 28216), (14, 28333), (16, 28342), (Start: 26 @28396 has 67 MA's), (39, 28603), (42, 28657), (43, 28666), (44, 28669), (46, 28675), (48, 28711),

Gene: BroPlease_37 Start: 27534, Stop: 27908, Start Num: 27

Candidate Starts for BroPlease_37:

(6, 27219), (7, 27240), (11, 27369), (17, 27486), (Start: 27 @27534 has 3 MA's), (28, 27597), (31, 27654), (34, 27705), (39, 27756), (42, 27810), (48, 27864), (49, 27876),

Gene: BruceLethal_32 Start: 21887, Stop: 21531, Start Num: 24

Candidate Starts for BruceLethal_32:

(2, 22376), (3, 22334), (5, 22241), (18, 21920), (Start: 23 @21890 has 7 MA's), (Start: 24 @21887 has 36 MA's), (38, 21686), (44, 21611), (46, 21605), (48, 21569),

Gene: BryanRecycles_37 Start: 27411, Stop: 27773, Start Num: 26

Candidate Starts for BryanRecycles_37:

(10, 27231), (14, 27348), (16, 27357), (Start: 26 @27411 has 67 MA's), (34, 27567), (39, 27618), (42, 27672), (43, 27681), (48, 27726),

Gene: Caelum_38 Start: 28011, Stop: 28388, Start Num: 25

Candidate Starts for Caelum_38:

(Start: 21 @27999 has 2 MA's), (Start: 22 @28002 has 1 MA's), (Start: 25 @28011 has 32 MA's), (32, 28152), (34, 28185), (44, 28302), (48, 28344),

Gene: Caliburn_36 Start: 27037, Stop: 27399, Start Num: 26

Candidate Starts for Caliburn_36:

(10, 26857), (14, 26974), (16, 26983), (Start: 26 @27037 has 67 MA's), (34, 27193), (39, 27244), (42, 27298), (43, 27307), (48, 27352),

Gene: Celery_40 Start: 28854, Stop: 29222, Start Num: 26

Candidate Starts for Celery_40:

(Start: 26 @28854 has 67 MA's), (28, 28908), (34, 29016), (35, 29040), (39, 29067), (40, 29106), (44, 29133), (46, 29139),

Gene: Celeste_37 Start: 27865, Stop: 28227, Start Num: 26

Candidate Starts for Celeste_37:

(10, 27685), (14, 27802), (16, 27811), (Start: 26 @27865 has 67 MA's), (39, 28072), (42, 28126), (43, 28135), (44, 28138), (46, 28144), (48, 28180),

Gene: Celia_38 Start: 27923, Stop: 28297, Start Num: 25

Candidate Starts for Celia_38:

(Start: 22 @27914 has 1 MA's), (Start: 25 @27923 has 32 MA's), (Start: 29 @27977 has 1 MA's), (34, 28091), (39, 28142), (44, 28208), (46, 28214), (48, 28250), (50, 28280),

Gene: Chucky_36 Start: 27426, Stop: 27788, Start Num: 26

Candidate Starts for Chucky_36:

(10, 27249), (14, 27363), (16, 27372), (20, 27411), (Start: 26 @27426 has 67 MA's), (39, 27633), (42, 27687), (43, 27696), (46, 27705), (48, 27741),

Gene: Conan_38 Start: 28818, Stop: 29183, Start Num: 26

Candidate Starts for Conan_38:

(Start: 26 @28818 has 67 MA's), (35, 29001), (39, 29028), (44, 29094),

Gene: Cota_32 Start: 21927, Stop: 21571, Start Num: 24

Candidate Starts for Cota_32:

(Start: 23 @21930 has 7 MA's), (Start: 24 @21927 has 36 MA's), (38, 21726), (45, 21648), (46, 21645), (48, 21609),

Gene: Danzina_38 Start: 28166, Stop: 28528, Start Num: 26

Candidate Starts for Danzina_38:

(10, 27986), (14, 28103), (16, 28112), (Start: 26 @28166 has 67 MA's), (39, 28373), (42, 28427), (43, 28436), (44, 28439), (46, 28445), (48, 28481),

Gene: Dattran_38 Start: 27972, Stop: 28334, Start Num: 26

Candidate Starts for Dattran_38:

(10, 27792), (14, 27909), (16, 27918), (Start: 26 @27972 has 67 MA's), (39, 28179), (42, 28233), (43, 28242), (44, 28245), (46, 28251), (48, 28287),

Gene: Daudau_37 Start: 28123, Stop: 28500, Start Num: 25

Candidate Starts for Daudau_37:

(Start: 22 @28114 has 1 MA's), (Start: 25 @28123 has 32 MA's), (34, 28297), (44, 28414),

Gene: Dexers_36 Start: 28846, Stop: 29208, Start Num: 26

Candidate Starts for Dexers_36:

(Start: 26 @28846 has 67 MA's), (34, 29005), (35, 29029), (39, 29056), (44, 29122), (46, 29128), (48, 29164),

Gene: DrParker_32 Start: 21981, Stop: 21625, Start Num: 24

Candidate Starts for DrParker_32:

(18, 22014), (Start: 24 @21981 has 36 MA's), (34, 21822), (38, 21780), (46, 21699), (48, 21663),

Gene: Dwayne_36 Start: 27413, Stop: 27775, Start Num: 26

Candidate Starts for Dwayne_36:

(10, 27236), (14, 27350), (16, 27359), (20, 27398), (Start: 26 @27413 has 67 MA's), (39, 27620), (42, 27674), (43, 27683), (46, 27692), (48, 27728),

Gene: ELB20_35 Start: 28408, Stop: 28785, Start Num: 25

Candidate Starts for ELB20_35:

(Start: 22 @28399 has 1 MA's), (Start: 25 @28408 has 32 MA's), (32, 28549), (34, 28582), (48, 28741),

Gene: Eddasa_37 Start: 27411, Stop: 27773, Start Num: 26

Candidate Starts for Eddasa_37:

(10, 27231), (14, 27348), (16, 27357), (Start: 26 @27411 has 67 MA's), (34, 27567), (39, 27618), (42, 27672), (43, 27681), (48, 27726),

Gene: Ejemplo_35 Start: 27357, Stop: 27719, Start Num: 26

Candidate Starts for Ejemplo_35:

(10, 27177), (14, 27294), (Start: 26 @27357 has 67 MA's), (39, 27564), (42, 27618), (43, 27627), (46, 27636), (48, 27672),

Gene: ElGato_38 Start: 28482, Stop: 28847, Start Num: 26

Candidate Starts for ElGato_38:

(Start: 26 @28482 has 67 MA's), (35, 28665), (39, 28692), (44, 28758),

Gene: Emaanora_39 Start: 27371, Stop: 27733, Start Num: 26

Candidate Starts for Emaanora_39:

(10, 27194), (14, 27308), (16, 27317), (20, 27356), (Start: 26 @27371 has 67 MA's), (39, 27578), (42, 27632), (43, 27641), (46, 27650), (48, 27686),

Gene: EnochSoames_39 Start: 27406, Stop: 27768, Start Num: 26

Candidate Starts for EnochSoames_39:

(10, 27226), (14, 27343), (16, 27352), (Start: 26 @27406 has 67 MA's), (34, 27562), (39, 27613), (42, 27667), (43, 27676), (48, 27721),

Gene: Enochoraptor_31 Start: 21900, Stop: 21544, Start Num: 24

Candidate Starts for Enochoraptor_31:

(Start: 23 @21903 has 7 MA's), (Start: 24 @21900 has 36 MA's), (Start: 29 @21843 has 1 MA's), (38, 21699), (45, 21621), (46, 21618), (48, 21582),

Gene: Enoki_32 Start: 21911, Stop: 21555, Start Num: 24

Candidate Starts for Enoki_32:

(18, 21944), (Start: 24 @21911 has 36 MA's), (38, 21710), (46, 21629), (48, 21593),

Gene: Esperer_36 Start: 26873, Stop: 27235, Start Num: 26

Candidate Starts for Esperer_36:

(10, 26693), (14, 26810), (16, 26819), (Start: 26 @26873 has 67 MA's), (34, 27029), (39, 27080), (42, 27134), (43, 27143), (48, 27188),

Gene: GirlDinner_36 Start: 27750, Stop: 28127, Start Num: 25

Candidate Starts for GirlDinner_36:

(Start: 21 @27738 has 2 MA's), (Start: 22 @27741 has 1 MA's), (Start: 25 @27750 has 32 MA's), (34, 27924), (37, 27960), (44, 28041), (48, 28083),

Gene: Goby_36 Start: 27871, Stop: 28233, Start Num: 26

Candidate Starts for Goby_36:

(10, 27691), (14, 27808), (16, 27817), (Start: 26 @27871 has 67 MA's), (39, 28078), (42, 28132), (43, 28141), (44, 28144), (46, 28150), (48, 28186),

Gene: Godpower_37 Start: 27866, Stop: 28228, Start Num: 26

Candidate Starts for Godpower_37:

(10, 27686), (14, 27803), (Start: 26 @27866 has 67 MA's), (39, 28073), (42, 28127), (43, 28136), (44, 28139), (46, 28145), (48, 28181),

Gene: GreenWeasel_38 Start: 27541, Stop: 27915, Start Num: 27

Candidate Starts for GreenWeasel_38:

(6, 27226), (7, 27247), (11, 27376), (17, 27493), (Start: 27 @27541 has 3 MA's), (28, 27604), (31, 27661), (34, 27712), (39, 27763), (42, 27817), (48, 27871), (49, 27883),

Gene: Haizum_38 Start: 28102, Stop: 28479, Start Num: 25

Candidate Starts for Haizum_38:

(Start: 22 @28093 has 1 MA's), (Start: 25 @28102 has 32 MA's), (34, 28276), (37, 28312), (45, 28396), (48, 28435),

Gene: Hank144_38 Start: 28134, Stop: 28523, Start Num: 21

Candidate Starts for Hank144_38:

(Start: 21 @28134 has 2 MA's), (Start: 22 @28137 has 1 MA's), (Start: 25 @28146 has 32 MA's), (32, 28287), (34, 28320), (44, 28437), (48, 28479),

Gene: Hippo_36 Start: 27422, Stop: 27784, Start Num: 26

Candidate Starts for Hippo_36:

(10, 27245), (14, 27359), (16, 27368), (20, 27407), (Start: 26 @27422 has 67 MA's), (39, 27629), (42, 27683), (43, 27692), (46, 27701), (48, 27737),

Gene: Hydra_38 Start: 27585, Stop: 27947, Start Num: 26

Candidate Starts for Hydra_38:

(10, 27405), (14, 27522), (16, 27531), (Start: 26 @27585 has 67 MA's), (34, 27741), (39, 27792), (42, 27846), (43, 27855), (48, 27900),

Gene: Indigo_35 Start: 27053, Stop: 27415, Start Num: 26

Candidate Starts for Indigo_35:

(10, 26873), (14, 26990), (16, 26999), (Start: 26 @27053 has 67 MA's), (34, 27209), (39, 27260), (42, 27314), (43, 27323), (48, 27368),

Gene: Issmi_38 Start: 28702, Stop: 29079, Start Num: 25

Candidate Starts for Issmi_38:

(Start: 21 @28690 has 2 MA's), (Start: 22 @28693 has 1 MA's), (Start: 25 @28702 has 32 MA's), (37, 28912), (48, 29035),

Gene: Itza_38 Start: 27837, Stop: 28211, Start Num: 25

Candidate Starts for Itza_38:

(Start: 22 @27828 has 1 MA's), (Start: 25 @27837 has 32 MA's), (Start: 29 @27891 has 1 MA's), (34, 28005), (39, 28056), (44, 28122), (46, 28128), (48, 28164), (50, 28194),

Gene: Izzy_37 Start: 27458, Stop: 27820, Start Num: 26

Candidate Starts for Izzy_37:

(10, 27278), (14, 27395), (16, 27404), (Start: 26 @27458 has 67 MA's), (34, 27614), (39, 27665), (42, 27719), (43, 27728), (48, 27773),

Gene: Janus_37 Start: 28090, Stop: 28467, Start Num: 25

Candidate Starts for Janus_37:

(Start: 21 @28078 has 2 MA's), (Start: 22 @28081 has 1 MA's), (Start: 25 @28090 has 32 MA's), (34, 28264), (37, 28300), (44, 28381), (48, 28423),

Gene: Jash_37 Start: 27411, Stop: 27773, Start Num: 26

Candidate Starts for Jash_37:

(10, 27231), (14, 27348), (16, 27357), (Start: 26 @27411 has 67 MA's), (34, 27567), (39, 27618), (42, 27672), (43, 27681), (48, 27726),

Gene: Jevington_39 Start: 28493, Stop: 28870, Start Num: 25

Candidate Starts for Jevington_39:

(Start: 22 @28484 has 1 MA's), (Start: 25 @28493 has 32 MA's), (34, 28667), (37, 28703), (44, 28784), (45, 28787),

Gene: Kaine_37 Start: 28633, Stop: 28998, Start Num: 26

Candidate Starts for Kaine_37:

(Start: 26 @28633 has 67 MA's), (35, 28816), (39, 28843), (44, 28909),

Gene: Katalie_36 Start: 27596, Stop: 27958, Start Num: 26

Candidate Starts for Katalie_36:

(10, 27413), (14, 27530), (16, 27539), (Start: 26 @27596 has 67 MA's), (39, 27803), (42, 27857), (43, 27866), (46, 27875), (48, 27911),

Gene: Keiki_32 Start: 21826, Stop: 21470, Start Num: 24

Candidate Starts for Keiki_32:

(Start: 23 @21829 has 7 MA's), (Start: 24 @21826 has 36 MA's), (Start: 29 @21769 has 1 MA's), (38, 21625), (45, 21547), (46, 21544), (48, 21508),

Gene: Kubed_32 Start: 21882, Stop: 21526, Start Num: 24

Candidate Starts for Kubed_32:

(Start: 24 @21882 has 36 MA's), (38, 21681), (44, 21606), (46, 21600), (48, 21564),

Gene: Lannister_38 Start: 28076, Stop: 28438, Start Num: 26

Candidate Starts for Lannister_38:

(14, 28013), (16, 28022), (Start: 26 @28076 has 67 MA's), (39, 28283), (42, 28337), (43, 28346), (46, 28355), (48, 28391),

Gene: Lauchelly_32 Start: 21931, Stop: 21575, Start Num: 24

Candidate Starts for Lauchelly_32:

(Start: 23 @21934 has 7 MA's), (Start: 24 @21931 has 36 MA's), (Start: 29 @21874 has 1 MA's), (34, 21772), (38, 21730), (45, 21652), (46, 21649), (48, 21613),

Gene: Legacy_36 Start: 27028, Stop: 27390, Start Num: 26

Candidate Starts for Legacy_36:

(10, 26848), (14, 26965), (16, 26974), (Start: 26 @27028 has 67 MA's), (34, 27184), (39, 27235), (42, 27289), (43, 27298), (48, 27343),

Gene: Leviosa_32 Start: 21927, Stop: 21571, Start Num: 24

Candidate Starts for Leviosa_32:

(Start: 24 @21927 has 36 MA's), (Start: 29 @21870 has 1 MA's), (44, 21651), (46, 21645), (48, 21609),

Gene: Leviticus_36 Start: 27057, Stop: 27419, Start Num: 26

Candidate Starts for Leviticus_36:

(10, 26877), (14, 26994), (16, 27003), (Start: 26 @27057 has 67 MA's), (34, 27213), (39, 27264), (42, 27318), (43, 27327), (48, 27372),

Gene: Lika_36 Start: 27869, Stop: 28231, Start Num: 26

Candidate Starts for Lika_36:

(10, 27689), (14, 27806), (Start: 26 @27869 has 67 MA's), (39, 28076), (42, 28130), (43, 28139), (44, 28142), (46, 28148), (48, 28184),

Gene: LilBandit_32 Start: 21724, Stop: 21365, Start Num: 23

Candidate Starts for LilBandit_32:

(Start: 23 @21724 has 7 MA's), (Start: 24 @21721 has 36 MA's), (Start: 29 @21664 has 1 MA's), (38, 21520), (45, 21442), (46, 21439), (48, 21403),

Gene: Loofah_37 Start: 28278, Stop: 28655, Start Num: 25

Candidate Starts for Loofah_37:

(Start: 22 @28269 has 1 MA's), (Start: 25 @28278 has 32 MA's), (32, 28419), (34, 28452), (48, 28611),

Gene: Lorelei_37 Start: 27928, Stop: 28290, Start Num: 26

Candidate Starts for Lorelei_37:

(10, 27748), (14, 27865), (16, 27874), (Start: 26 @27928 has 67 MA's), (34, 28084), (39, 28135), (42, 28189), (43, 28198), (46, 28207), (48, 28243),

Gene: MEAK_32 Start: 21588, Stop: 21232, Start Num: 24

Candidate Starts for MEAK_32:

(18, 21621), (Start: 24 @21588 has 36 MA's), (38, 21387), (46, 21306), (48, 21270),

Gene: Maneekul_36 Start: 27447, Stop: 27809, Start Num: 26

Candidate Starts for Maneekul_36:

(10, 27267), (14, 27384), (Start: 26 @27447 has 67 MA's), (39, 27654), (42, 27708), (43, 27717), (46, 27726), (48, 27762),

Gene: Marav_40 Start: 28818, Stop: 29195, Start Num: 25

Candidate Starts for Marav_40:

(Start: 22 @28809 has 1 MA's), (Start: 25 @28818 has 32 MA's), (34, 28992), (37, 29028), (44, 29109), (45, 29112),

Gene: Moyashi_32 Start: 21693, Stop: 21337, Start Num: 24

Candidate Starts for Moyashi_32:

(18, 21726), (Start: 24 @21693 has 36 MA's), (38, 21492), (45, 21414), (46, 21411), (48, 21375),

Gene: MrAK_32 Start: 21698, Stop: 21342, Start Num: 24

Candidate Starts for MrAK_32:

(18, 21731), (Start: 24 @21698 has 36 MA's), (34, 21539), (38, 21497), (45, 21419), (46, 21416), (48, 21380),

Gene: Nabi_37 Start: 27928, Stop: 28290, Start Num: 26

Candidate Starts for Nabi_37:

(10, 27748), (14, 27865), (16, 27874), (Start: 26 @27928 has 67 MA's), (34, 28084), (39, 28135), (42, 28189), (43, 28198), (46, 28207), (48, 28243),

Gene: Nanodon_38 Start: 27697, Stop: 28059, Start Num: 26

Candidate Starts for Nanodon_38:

(10, 27514), (14, 27631), (16, 27640), (Start: 26 @27697 has 67 MA's), (39, 27904), (42, 27958), (43, 27967), (46, 27976), (47, 27991),

Gene: Nerdos_35 Start: 27052, Stop: 27414, Start Num: 26

Candidate Starts for Nerdos_35:

(10, 26872), (14, 26989), (16, 26998), (Start: 26 @27052 has 67 MA's), (34, 27208), (39, 27259), (42, 27313), (43, 27322), (48, 27367),

Gene: Nishikigoi_38 Start: 28102, Stop: 28479, Start Num: 25

Candidate Starts for Nishikigoi_38:

(Start: 22 @28093 has 1 MA's), (Start: 25 @28102 has 32 MA's), (34, 28276), (37, 28312), (45, 28396), (48, 28435),

Gene: Oliynyk_37 Start: 27411, Stop: 27773, Start Num: 26

Candidate Starts for Oliynyk_37:

(10, 27231), (14, 27348), (16, 27357), (Start: 26 @27411 has 67 MA's), (34, 27567), (39, 27618), (42, 27672), (43, 27681), (48, 27726),

Gene: Omar_39 Start: 28330, Stop: 28707, Start Num: 25

Candidate Starts for Omar_39:

(Start: 22 @28321 has 1 MA's), (Start: 25 @28330 has 32 MA's), (48, 28663),

Gene: Ouroboros_32 Start: 21911, Stop: 21552, Start Num: 23

Candidate Starts for Ouroboros_32:

(18, 21941), (Start: 23 @21911 has 7 MA's), (Start: 24 @21908 has 36 MA's), (34, 21749), (36, 21719), (38, 21707), (46, 21626), (48, 21590),

Gene: Ozzie_36 Start: 27037, Stop: 27399, Start Num: 26

Candidate Starts for Ozzie_36:

(10, 26857), (14, 26974), (16, 26983), (Start: 26 @27037 has 67 MA's), (34, 27193), (39, 27244), (42, 27298), (43, 27307), (48, 27352),

Gene: OzzyJ_37 Start: 27413, Stop: 27775, Start Num: 26

Candidate Starts for OzzyJ_37:

(10, 27236), (14, 27350), (16, 27359), (20, 27398), (Start: 26 @27413 has 67 MA's), (39, 27620), (42, 27674), (43, 27683), (46, 27692), (48, 27728),

Gene: P100.1_32 Start: 21963, Stop: 21607, Start Num: 24

Candidate Starts for P100.1_32:

(Start: 24 @21963 has 36 MA's), (Start: 29 @21906 has 1 MA's), (38, 21762), (46, 21681), (48, 21645),

Gene: P100A_32 Start: 21913, Stop: 21557, Start Num: 24

Candidate Starts for P100A_32:

(Start: 23 @21916 has 7 MA's), (Start: 24 @21913 has 36 MA's), (Start: 29 @21856 has 1 MA's), (34, 21754), (36, 21724), (38, 21712), (46, 21631), (48, 21595),

Gene: P100D_32 Start: 21906, Stop: 21550, Start Num: 24

Candidate Starts for P100D_32:

(Start: 24 @21906 has 36 MA's), (34, 21747), (38, 21705), (45, 21627), (46, 21624), (48, 21588),

Gene: P101A_32 Start: 21932, Stop: 21576, Start Num: 24

Candidate Starts for P101A_32:

(5, 22286), (18, 21965), (Start: 24 @21932 has 36 MA's), (38, 21731), (46, 21650), (48, 21614),

Gene: P104A_32 Start: 21701, Stop: 21345, Start Num: 24

Candidate Starts for P104A_32:

(Start: 23 @21704 has 7 MA's), (Start: 24 @21701 has 36 MA's), (Start: 29 @21644 has 1 MA's), (38, 21500), (46, 21419), (48, 21383),

Gene: P104B_32 Start: 21899, Stop: 21540, Start Num: 23

Candidate Starts for P104B_32:

(Start: 23 @21899 has 7 MA's), (Start: 24 @21896 has 36 MA's), (Start: 29 @21839 has 1 MA's), (38, 21695), (45, 21617), (46, 21614), (48, 21578),

Gene: P105_32 Start: 21561, Stop: 21205, Start Num: 24

Candidate Starts for P105_32:

(18, 21594), (Start: 24 @21561 has 36 MA's), (38, 21360), (45, 21282), (46, 21279), (48, 21243),

Gene: P106A_32 Start: 21990, Stop: 21631, Start Num: 23

Candidate Starts for P106A_32:

(18, 22020), (Start: 23 @21990 has 7 MA's), (Start: 24 @21987 has 36 MA's), (34, 21828), (36, 21798), (38, 21786), (45, 21708), (46, 21705), (48, 21669),

Gene: P106C_33 Start: 21925, Stop: 21569, Start Num: 24

Candidate Starts for P106C_33:

(18, 21958), (Start: 23 @21928 has 7 MA's), (Start: 24 @21925 has 36 MA's), (34, 21766), (36, 21736), (38, 21724), (45, 21646), (46, 21643), (48, 21607),

Gene: P106I_32 Start: 21754, Stop: 21398, Start Num: 24

Candidate Starts for P106I_32:

(18, 21787), (Start: 23 @21757 has 7 MA's), (Start: 24 @21754 has 36 MA's), (34, 21595), (36, 21565), (38, 21553), (45, 21475), (46, 21472), (48, 21436),

Gene: P106L_32 Start: 21925, Stop: 21569, Start Num: 24

Candidate Starts for P106L_32:

(18, 21958), (Start: 23 @21928 has 7 MA's), (Start: 24 @21925 has 36 MA's), (34, 21766), (36, 21736), (38, 21724), (45, 21646), (46, 21643), (48, 21607),

Gene: P106M_32 Start: 21925, Stop: 21569, Start Num: 24

Candidate Starts for P106M_32:

(18, 21958), (Start: 23 @21928 has 7 MA's), (Start: 24 @21925 has 36 MA's), (34, 21766), (36, 21736), (38, 21724), (45, 21646), (46, 21643), (48, 21607),

Gene: P107A_32 Start: 21941, Stop: 21585, Start Num: 24

Candidate Starts for P107A_32:

(18, 21974), (Start: 23 @21944 has 7 MA's), (Start: 24 @21941 has 36 MA's), (34, 21782), (36, 21752), (38, 21740), (41, 21689), (44, 21665), (48, 21623),

Gene: P107C_32 Start: 21878, Stop: 21522, Start Num: 24

Candidate Starts for P107C_32:

(Start: 23 @21881 has 7 MA's), (Start: 24 @21878 has 36 MA's), (38, 21677), (45, 21599), (46, 21596), (48, 21560),

Gene: P108C_32 Start: 21895, Stop: 21536, Start Num: 23

Candidate Starts for P108C_32:

(Start: 23 @21895 has 7 MA's), (Start: 24 @21892 has 36 MA's), (34, 21733), (38, 21691), (45, 21613), (46, 21610), (48, 21574),

Gene: P14.4_32 Start: 21894, Stop: 21538, Start Num: 24

Candidate Starts for P14.4_32:

(5, 22248), (18, 21927), (Start: 24 @21894 has 36 MA's), (34, 21735), (38, 21693), (45, 21615), (46, 21612), (48, 21576),

Gene: P9.1_32 Start: 21865, Stop: 21566, Start Num: 29

Candidate Starts for P9.1_32:

(Start: 23 @21925 has 7 MA's), (Start: 24 @21922 has 36 MA's), (Start: 29 @21865 has 1 MA's), (34, 21763), (38, 21721), (46, 21640), (48, 21604),

Gene: PA6_33 Start: 21886, Stop: 21530, Start Num: 24

Candidate Starts for PA6_33:

(Start: 24 @21886 has 36 MA's), (34, 21727), (38, 21685), (46, 21604), (48, 21568),

Gene: PAD20_33 Start: 21666, Stop: 21310, Start Num: 24

Candidate Starts for PAD20_33:

(5, 22020), (Start: 23 @21669 has 7 MA's), (Start: 24 @21666 has 36 MA's), (Start: 29 @21609 has 1 MA's), (38, 21465), (46, 21384), (48, 21348),

Gene: PAS50_33 Start: 21831, Stop: 21475, Start Num: 24

Candidate Starts for PAS50_33:

(3, 22278), (5, 22185), (Start: 23 @21834 has 7 MA's), (Start: 24 @21831 has 36 MA's), (38, 21630), (46, 21549), (48, 21513),

Gene: PHL010M04_32 Start: 21909, Stop: 21550, Start Num: 23

Candidate Starts for PHL010M04_32:

(Start: 23 @21909 has 7 MA's), (Start: 24 @21906 has 36 MA's), (34, 21747), (38, 21705), (46, 21624), (48, 21588),

Gene: PHL037M02_32 Start: 21893, Stop: 21534, Start Num: 23

Candidate Starts for PHL037M02_32:

(18, 21923), (Start: 23 @21893 has 7 MA's), (Start: 24 @21890 has 36 MA's), (Start: 29 @21833 has 1 MA's), (34, 21731), (38, 21689), (44, 21614), (46, 21608), (48, 21572),

Gene: PHL060L00_32 Start: 21736, Stop: 21380, Start Num: 24

Candidate Starts for PHL060L00_32:

(Start: 23 @21739 has 7 MA's), (Start: 24 @21736 has 36 MA's), (38, 21535), (46, 21454), (48, 21418),

Gene: PHL067M10_32 Start: 21856, Stop: 21500, Start Num: 24

Candidate Starts for PHL067M10_32:

(Start: 23 @21859 has 7 MA's), (Start: 24 @21856 has 36 MA's), (Start: 29 @21799 has 1 MA's), (34, 21697), (38, 21655), (45, 21577), (46, 21574), (48, 21538),

Gene: PHL071N05_32 Start: 21918, Stop: 21559, Start Num: 23

Candidate Starts for PHL071N05_32:

(18, 21948), (Start: 23 @21918 has 7 MA's), (Start: 24 @21915 has 36 MA's), (Start: 29 @21858 has 1 MA's), (34, 21756), (38, 21714), (45, 21636), (46, 21633), (48, 21597),

Gene: PHL111M01_32 Start: 21613, Stop: 21257, Start Num: 24

Candidate Starts for PHL111M01_32:

(18, 21646), (Start: 24 @21613 has 36 MA's), (38, 21412), (46, 21331), (48, 21295),

Gene: PHL112N00_32 Start: 21923, Stop: 21567, Start Num: 24

Candidate Starts for PHL112N00_32:

(Start: 23 @21926 has 7 MA's), (Start: 24 @21923 has 36 MA's), (34, 21764), (38, 21722), (46, 21641), (48, 21605),

Gene: PHL113M01_32 Start: 21662, Stop: 21306, Start Num: 24

Candidate Starts for PHL113M01_32:

(18, 21695), (Start: 24 @21662 has 36 MA's), (38, 21461), (45, 21383), (48, 21344),

Gene: PHL114L00_32 Start: 21878, Stop: 21522, Start Num: 24

Candidate Starts for PHL114L00_32:

(18, 21911), (Start: 23 @21881 has 7 MA's), (Start: 24 @21878 has 36 MA's), (38, 21677), (45, 21599), (46, 21596), (48, 21560),

Gene: Pablito_36 Start: 27641, Stop: 28030, Start Num: 21

Candidate Starts for Pablito_36:

(Start: 21 @27641 has 2 MA's), (Start: 22 @27644 has 1 MA's), (Start: 25 @27653 has 32 MA's), (32, 27794), (34, 27827), (44, 27944), (48, 27986),

Gene: Paedore_36 Start: 28263, Stop: 28640, Start Num: 25

Candidate Starts for Paedore_36:

(Start: 22 @28254 has 1 MA's), (Start: 25 @28263 has 32 MA's), (32, 28404), (34, 28437), (48, 28596),

Gene: Paolo_39 Start: 28672, Stop: 29049, Start Num: 25

Candidate Starts for Paolo_39:

(Start: 22 @28663 has 1 MA's), (Start: 25 @28672 has 32 MA's), (34, 28846), (37, 28882), (44, 28963), (48, 29005),

Gene: Pavo_38 Start: 29091, Stop: 29456, Start Num: 26

Candidate Starts for Pavo_38:

(Start: 26 @29091 has 67 MA's), (35, 29274), (39, 29301), (44, 29367),

Gene: Phettuccine_36 Start: 27053, Stop: 27415, Start Num: 26

Candidate Starts for Phettuccine_36:

(10, 26873), (14, 26990), (16, 26999), (Start: 26 @27053 has 67 MA's), (34, 27209), (39, 27260), (42, 27314), (43, 27323), (48, 27368),

Gene: Pirate_32 Start: 21811, Stop: 21455, Start Num: 24

Candidate Starts for Pirate_32:

(Start: 23 @21814 has 7 MA's), (Start: 24 @21811 has 36 MA's), (Start: 29 @21754 has 1 MA's), (38, 21610), (45, 21532), (46, 21529), (48, 21493),

Gene: Procrass1_32 Start: 21885, Stop: 21529, Start Num: 24

Candidate Starts for Procrass1_32:

(Start: 24 @21885 has 36 MA's), (38, 21684), (45, 21606), (46, 21603), (48, 21567),

Gene: Provolone_38 Start: 28473, Stop: 28838, Start Num: 26

Candidate Starts for Provolone_38:

(Start: 26 @28473 has 67 MA's), (35, 28656), (39, 28683), (44, 28749),

Gene: Puginator_39 Start: 28693, Stop: 29070, Start Num: 25

Candidate Starts for Puginator_39:

(Start: 22 @28684 has 1 MA's), (Start: 25 @28693 has 32 MA's), (30, 28771), (34, 28867), (37, 28903), (48, 29026),

Gene: QueenBey_32 Start: 21868, Stop: 21512, Start Num: 24

Candidate Starts for QueenBey_32:

(Start: 24 @21868 has 36 MA's), (34, 21709), (38, 21667), (45, 21589), (48, 21550),

Gene: R4_37 Start: 28418, Stop: 28795, Start Num: 25

Candidate Starts for R4_37:

(Start: 22 @28409 has 1 MA's), (Start: 25 @28418 has 32 MA's), (32, 28559), (34, 28592), (48, 28751),

Gene: Rana_37 Start: 27928, Stop: 28290, Start Num: 26

Candidate Starts for Rana_37:

(10, 27748), (14, 27865), (16, 27874), (Start: 26 @27928 has 67 MA's), (34, 28084), (39, 28135), (42, 28189), (43, 28198), (46, 28207), (48, 28243),

Gene: RedBear_37 Start: 27596, Stop: 27958, Start Num: 26

Candidate Starts for RedBear_37:

(10, 27413), (14, 27530), (16, 27539), (Start: 26 @27596 has 67 MA's), (39, 27803), (42, 27857), (43, 27866), (46, 27875), (48, 27911),

Gene: Rileysaurus_31 Start: 21916, Stop: 21560, Start Num: 24

Candidate Starts for Rileysaurus_31:

(Start: 23 @21919 has 7 MA's), (Start: 24 @21916 has 36 MA's), (Start: 29 @21859 has 1 MA's), (34, 21757), (38, 21715), (45, 21637), (46, 21634), (48, 21598),

Gene: Rusticus_37 Start: 27411, Stop: 27773, Start Num: 26

Candidate Starts for Rusticus_37:

(10, 27231), (14, 27348), (16, 27357), (Start: 26 @27411 has 67 MA's), (34, 27567), (39, 27618), (42, 27672), (43, 27681), (48, 27726),

Gene: SKKY_32 Start: 21667, Stop: 21311, Start Num: 24

Candidate Starts for SKKY_32:

(18, 21700), (Start: 24 @21667 has 36 MA's), (34, 21508), (38, 21466), (46, 21385), (48, 21349),

Gene: Saftant_37 Start: 29043, Stop: 29411, Start Num: 26

Candidate Starts for Saftant_37:

(Start: 26 @29043 has 67 MA's), (35, 29229), (39, 29256), (44, 29322), (46, 29328), (48, 29364),

Gene: SarahRose_36 Start: 27421, Stop: 27783, Start Num: 26

Candidate Starts for SarahRose_36:

(10, 27244), (14, 27358), (16, 27367), (20, 27406), (Start: 26 @27421 has 67 MA's), (39, 27628), (42, 27682), (43, 27691), (46, 27700), (48, 27736),

Gene: Snorlax_36 Start: 27425, Stop: 27787, Start Num: 26

Candidate Starts for Snorlax_36:

(10, 27248), (14, 27362), (16, 27371), (20, 27410), (Start: 26 @27425 has 67 MA's), (39, 27632), (42, 27686), (43, 27695), (46, 27704), (48, 27740),

Gene: Solid_32 Start: 21901, Stop: 21542, Start Num: 23

Candidate Starts for Solid_32:

(18, 21931), (Start: 23 @21901 has 7 MA's), (Start: 24 @21898 has 36 MA's), (Start: 29 @21841 has 1 MA's), (38, 21697), (45, 21619), (46, 21616), (48, 21580),

Gene: South40_36 Start: 27596, Stop: 27958, Start Num: 26

Candidate Starts for South40_36:

(10, 27413), (14, 27530), (16, 27539), (Start: 26 @27596 has 67 MA's), (39, 27803), (42, 27857), (43, 27866), (46, 27875), (48, 27911),

Gene: Speedwell_42 Start: 30345, Stop: 30707, Start Num: 26

Candidate Starts for Speedwell_42:

(Start: 26 @30345 has 67 MA's), (35, 30528), (39, 30555), (40, 30594), (44, 30621), (46, 30627),

Gene: SqueakyClean_36 Start: 28181, Stop: 28558, Start Num: 25

Candidate Starts for SqueakyClean_36:

(Start: 21 @28169 has 2 MA's), (Start: 22 @28172 has 1 MA's), (Start: 25 @28181 has 32 MA's), (34, 28355), (37, 28391), (44, 28472), (48, 28514),

Gene: Stormborn_32 Start: 21505, Stop: 21149, Start Num: 24

Candidate Starts for Stormborn_32:

(18, 21538), (Start: 24 @21505 has 36 MA's), (38, 21304), (45, 21226), (46, 21223), (48, 21187),

Gene: Sujidade_37 Start: 28154, Stop: 28516, Start Num: 26

Candidate Starts for Sujidade_37:

(10, 27974), (14, 28091), (Start: 26 @28154 has 67 MA's), (39, 28361), (42, 28415), (43, 28424), (44, 28427), (46, 28433), (48, 28469),

Gene: SunsetPointe_36 Start: 27044, Stop: 27406, Start Num: 26

Candidate Starts for SunsetPointe_36:

(10, 26864), (14, 26981), (16, 26990), (Start: 26 @27044 has 67 MA's), (34, 27200), (39, 27251), (42, 27305), (43, 27314), (48, 27359),

Gene: Supernova_32 Start: 21669, Stop: 21313, Start Num: 24

Candidate Starts for Supernova_32:

(18, 21702), (Start: 24 @21669 has 36 MA's), (34, 21510), (38, 21468), (45, 21390), (46, 21387), (48, 21351),

Gene: Superstar_40 Start: 29217, Stop: 29594, Start Num: 25

Candidate Starts for Superstar_40:

(Start: 21 @29205 has 2 MA's), (Start: 22 @29208 has 1 MA's), (Start: 25 @29217 has 32 MA's), (32, 29358), (34, 29391), (44, 29508), (48, 29550),

Gene: TagePighter_38 Start: 27425, Stop: 27787, Start Num: 26

Candidate Starts for TagePighter_38:

(10, 27248), (14, 27362), (16, 27371), (20, 27410), (Start: 26 @27425 has 67 MA's), (39, 27632), (42, 27686), (43, 27695), (46, 27704), (48, 27740),

Gene: Tefunt_38 Start: 28104, Stop: 28481, Start Num: 25

Candidate Starts for Tefunt_38:

(Start: 22 @28095 has 1 MA's), (Start: 25 @28104 has 32 MA's), (34, 28278), (37, 28314), (45, 28398), (48, 28437),

Gene: Thestral_38 Start: 28297, Stop: 28674, Start Num: 25

Candidate Starts for Thestral_38:

(Start: 22 @28288 has 1 MA's), (Start: 25 @28297 has 32 MA's), (34, 28471), (37, 28507), (48, 28630),

Gene: TinaBelcher_37 Start: 28244, Stop: 28621, Start Num: 25

Candidate Starts for TinaBelcher_37:

(Start: 22 @28235 has 1 MA's), (Start: 25 @28244 has 32 MA's), (34, 28418), (37, 28454), (48, 28577),

Gene: Toma_36 Start: 27871, Stop: 28233, Start Num: 26

Candidate Starts for Toma_36:

(10, 27691), (14, 27808), (16, 27817), (Start: 26 @27871 has 67 MA's), (39, 28078), (42, 28132), (43, 28141), (44, 28144), (46, 28150), (48, 28186),

Gene: Triste_36 Start: 27413, Stop: 27775, Start Num: 26

Candidate Starts for Triste_36:

(10, 27236), (14, 27350), (16, 27359), (20, 27398), (Start: 26 @27413 has 67 MA's), (39, 27620), (42, 27674), (43, 27683), (46, 27692), (48, 27728),

Gene: Triumph_38 Start: 27999, Stop: 28376, Start Num: 25

Candidate Starts for Triumph_38:

(12, 27894), (14, 27936), (Start: 21 @27987 has 2 MA's), (Start: 22 @27990 has 1 MA's), (Start: 25 @27999 has 32 MA's), (34, 28173), (44, 28290), (48, 28332),

Gene: TrvxScott_36 Start: 28281, Stop: 28667, Start Num: 22

Candidate Starts for TrvxScott_36:

(Start: 22 @28281 has 1 MA's), (Start: 25 @28290 has 32 MA's), (34, 28464), (37, 28500), (48, 28623),

Gene: TuanPN_35 Start: 27357, Stop: 27719, Start Num: 26

Candidate Starts for TuanPN_35:

(10, 27177), (14, 27294), (Start: 26 @27357 has 67 MA's), (39, 27564), (42, 27618), (43, 27627), (46, 27636), (48, 27672),

Gene: Unstoppable_36 Start: 27048, Stop: 27410, Start Num: 26

Candidate Starts for Unstoppable_36:

(10, 26868), (14, 26985), (16, 26994), (Start: 26 @27048 has 67 MA's), (34, 27204), (39, 27255), (42, 27309), (43, 27318), (48, 27363),

Gene: Urza_38 Start: 27858, Stop: 28232, Start Num: 25

Candidate Starts for Urza_38:

(Start: 22 @27849 has 1 MA's), (Start: 25 @27858 has 32 MA's), (Start: 29 @27912 has 1 MA's), (34, 28026), (39, 28077), (44, 28143), (46, 28149), (48, 28185), (50, 28215),

Gene: Vanseggelen_42 Start: 28601, Stop: 28966, Start Num: 26

Candidate Starts for Vanseggelen_42:

(Start: 26 @28601 has 67 MA's), (35, 28784), (39, 28811), (44, 28877),

Gene: Verabelle_40 Start: 28933, Stop: 29355, Start Num: 15

Candidate Starts for Verabelle_40:

(13, 28906), (15, 28933), (Start: 26 @28993 has 67 MA's), (28, 29044), (35, 29176), (38, 29194), (39, 29203), (44, 29269), (46, 29275),

Gene: Verse_37 Start: 29752, Stop: 30117, Start Num: 26

Candidate Starts for Verse_37:

(Start: 26 @29752 has 67 MA's), (35, 29935), (39, 29962), (44, 30028),

Gene: VieEnRose_37 Start: 27779, Stop: 28156, Start Num: 25

Candidate Starts for VieEnRose_37:

(Start: 22 @27770 has 1 MA's), (Start: 25 @27779 has 32 MA's), (Start: 29 @27836 has 1 MA's), (34, 27950), (39, 28001), (44, 28067), (46, 28073), (48, 28109),

Gene: Werner_36 Start: 27423, Stop: 27785, Start Num: 26

Candidate Starts for Werner_36:

(10, 27246), (14, 27360), (16, 27369), (20, 27408), (Start: 26 @27423 has 67 MA's), (39, 27630), (42, 27684), (43, 27693), (46, 27702), (48, 27738),

Gene: Whatever_36 Start: 27423, Stop: 27785, Start Num: 26

Candidate Starts for Whatever_36:

(10, 27246), (14, 27360), (16, 27369), (20, 27408), (Start: 26 @27423 has 67 MA's), (39, 27630), (42, 27684), (43, 27693), (46, 27702), (48, 27738),

Gene: Wizzo_32 Start: 21394, Stop: 21038, Start Num: 24

Candidate Starts for Wizzo_32:

(3, 21841), (5, 21748), (18, 21427), (Start: 24 @21394 has 36 MA's), (38, 21193), (45, 21115), (46, 21112), (48, 21076),

Gene: Yasdnil_36 Start: 27475, Stop: 27837, Start Num: 26

Candidate Starts for Yasdnil_36:

(10, 27295), (14, 27412), (Start: 26 @27475 has 67 MA's), (39, 27682), (42, 27736), (43, 27745), (46, 27754), (48, 27790),

Gene: Yosif_39 Start: 29550, Stop: 29933, Start Num: 26
Candidate Starts for Yosif_39:
(Start: 26 @29550 has 67 MA's), (32, 29682), (34, 29727), (48, 29886),

Gene: Zainub_39 Start: 28633, Stop: 29010, Start Num: 25
Candidate Starts for Zainub_39:
(Start: 22 @28624 has 1 MA's), (Start: 25 @28633 has 32 MA's), (34, 28807), (37, 28843), (44, 28924),
(48, 28966),

Gene: Zemlya_38 Start: 27972, Stop: 28334, Start Num: 26
Candidate Starts for Zemlya_38:
(10, 27792), (14, 27909), (16, 27918), (Start: 26 @27972 has 67 MA's), (39, 28179), (42, 28233), (43,
28242), (44, 28245), (46, 28251), (48, 28287),

Gene: phiCAM_36 Start: 30877, Stop: 31242, Start Num: 26
Candidate Starts for phiCAM_36:
(Start: 26 @30877 has 67 MA's), (28, 30928), (35, 31060), (38, 31078), (39, 31087), (44, 31153), (46,
31159), (48, 31195),

Gene: phiHau3_38 Start: 27506, Stop: 27880, Start Num: 27
Candidate Starts for phiHau3_38:
(6, 27191), (7, 27212), (9, 27317), (11, 27341), (17, 27458), (Start: 27 @27506 has 3 MA's), (28,
27569), (31, 27626), (34, 27677), (39, 27728), (42, 27782), (49, 27848),