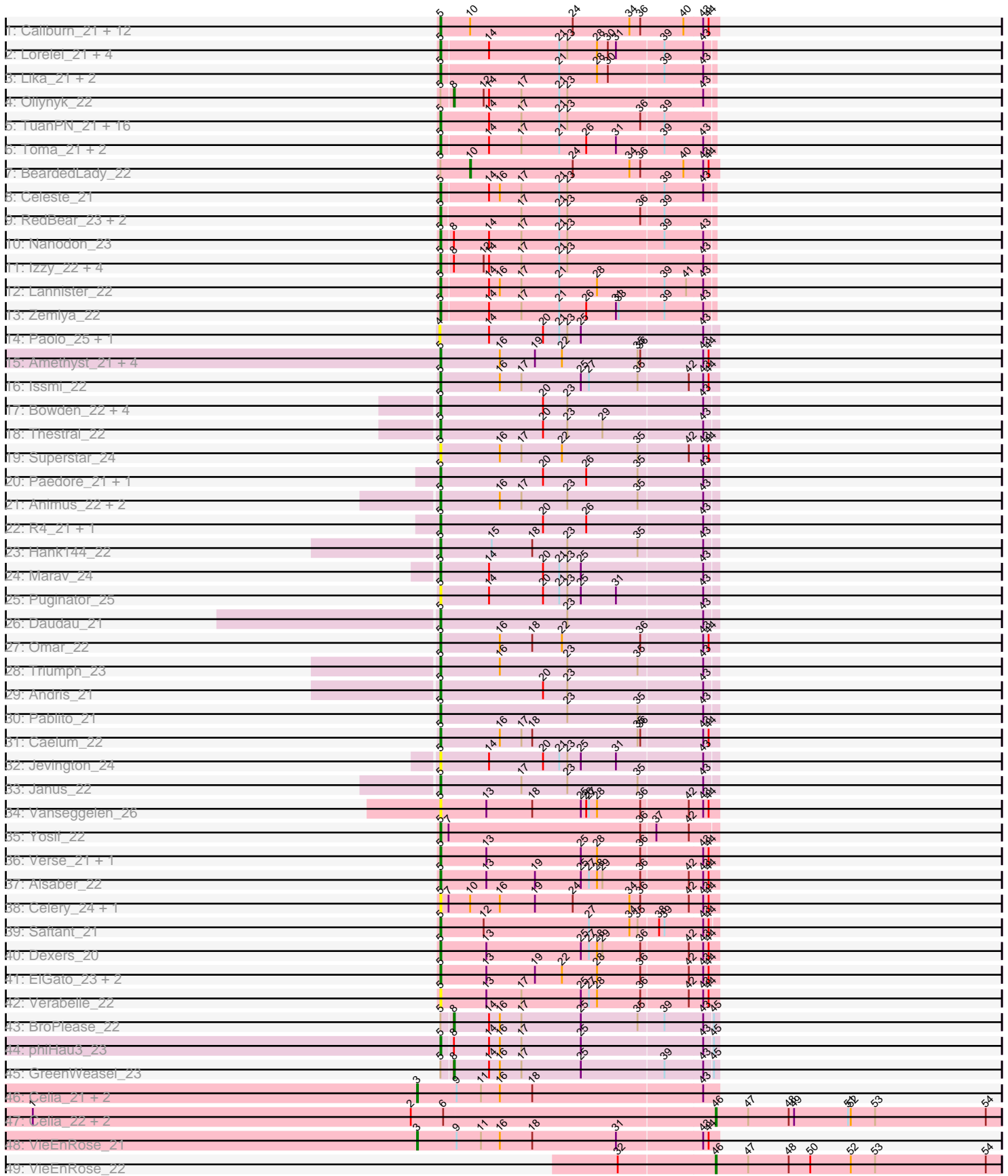


Pham 156250



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 156250 Report

This analysis was run 04/12/24 on database version 558.

Pham number 156250 has 112 members, 14 are drafts.

Phages represented in each track:

- Track 1 : Caliburn_21, Legacy_21, Nerdos_21, Leviticus_21, Unstoppable_21, SunsetPointe_21, Aaronocolus_21, Phettuccine_21, Hydra_23, Indigo_21, Bovely_21, Ozzie_21, Esperer_21
- Track 2 : Lorelei_21, Danzina_22, Brataylor_22, Nabi_21, Rana_21
- Track 3 : Lika_21, Sujidade_22, Godpower_22
- Track 4 : Oliynyk_22
- Track 5 : TuanPN_21, Asten_21, Snorlax_21, Yasdnil_21, Maneekul_21, Hippo_21, Ejemplo_21, Werner_21, Dwayne_21, SarahRose_21, Chucky_21, BarryBee_23, OzzyJ_22, TagePhighter_22, Whatever_21, Emaanora_23, Triste_21
- Track 6 : Toma_21, Dattran_22, Goby_21
- Track 7 : BeardedLady_22
- Track 8 : Celeste_21
- Track 9 : RedBear_23, South40_22, Katalie_22
- Track 10 : Nanodon_23
- Track 11 : Izzy_22, Jash_22, BryanRecycles_22, Rusticus_22, Eddasa_22
- Track 12 : Lannister_22
- Track 13 : Zemlya_22
- Track 14 : Paolo_25, Zainub_27
- Track 15 : Amethyst_21, Diane_21, Haizum_21, Nishikigoi_21, Tefunt_21
- Track 16 : Issmi_22
- Track 17 : Bowden_22, TrvxScott_20, BartholomewSD_23, Alvy_23, TinaBelcher_21
- Track 18 : Thestral_22
- Track 19 : Superstar_24
- Track 20 : Paedore_21, Loofah_22
- Track 21 : Animus_22, SqueakyClean_22, GirlDinner_22
- Track 22 : R4_21, ELB20_20
- Track 23 : Hank144_22
- Track 24 : Marav_24
- Track 25 : Puginator_25
- Track 26 : Daudau_21
- Track 27 : Omar_22
- Track 28 : Triumph_23
- Track 29 : Andris_21
- Track 30 : Pablito_21
- Track 31 : Caelum_22
- Track 32 : Jevington_24

- Track 33 : Janus_22
- Track 34 : Vanseggelen_26
- Track 35 : Yosif_22
- Track 36 : Verse_21, Amela_21
- Track 37 : Alsaber_22
- Track 38 : Celery_24, phiCAM_22
- Track 39 : Saftant_21
- Track 40 : Dexers_20
- Track 41 : ElGato_23, Conan_24, Provolone_22
- Track 42 : Verabelle_22
- Track 43 : BroPlease_22
- Track 44 : phiHau3_23
- Track 45 : GreenWeasel_23
- Track 46 : Celia_21, Urza_21, Itza_21
- Track 47 : Celia_22, Urza_22, Itza_22
- Track 48 : VieEnRose_21
- Track 49 : VieEnRose_22

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

The start number called the most often in the published annotations is 5, it was called in 86 of the 98 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aaronocolus_21, Alsaber_22, Alvy_23, Amela_21, Amethyst_21, Andris_21, Animus_22, Asten_21, BarryBee_23, BartholomewSD_23, Bovely_21, Bowden_22, Brataylor_22, BryanRecycles_22, Caelum_22, Caliburn_21, Celery_24, Celeste_21, Chucky_21, Conan_24, Danzina_22, Dattran_22, Daudau_21, Dexers_20, Diane_21, Dwayne_21, ELB20_20, Eddasa_22, Ejemplo_21, ElGato_23, Emaanora_23, Esperer_21, GirlDinner_22, Goby_21, Godpower_22, Haizum_21, Hank144_22, Hippo_21, Hydra_23, Indigo_21, Issmi_22, Izzy_22, Janus_22, Jash_22, Jevington_24, Katalie_22, Lannister_22, Legacy_21, Leviticus_21, Lika_21, Loofah_22, Lorelei_21, Maneekul_21, Marav_24, Nabi_21, Nanodon_23, Nerdos_21, Nishikigoi_21, Omar_22, Ozzie_21, OzzyJ_22, Pablito_21, Paedore_21, Phettuccine_21, Provolone_22, Puginator_25, R4_21, Rana_21, RedBear_23, Rusticus_22, Saftant_21, SarahRose_21, Snorlax_21, South40_22, SqueakyClean_22, Sujidade_22, SunsetPointe_21, Superstar_24, TagePhighter_22, Tefunt_21, Thestral_22, TinaBelcher_21, Toma_21, Triste_21, Triumph_23, TrvxScott_20, TuanPN_21, Unstoppable_21, Vanseggelen_26, Verabelle_22, Verse_21, Werner_21, Whatever_21, Yasdnil_21, Yosif_22, Zemlya_22, phiCAM_22, phiHau3_23,

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

- BeardedLady_22, BroPlease_22, GreenWeasel_23, Oliynyk_22,

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

- Celia_21, Celia_22, Itza_21, Itza_22, Paolo_25, Urza_21, Urza_22, VieEnRose_21, VieEnRose_22, Zainub_27,

Summary by start number:

Start 3:

- Found in 4 of 112 (3.6%) of genes in pham
- Manual Annotations of this start: 4 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Celia_21 (BD6), Itza_21 (BD6), Urza_21 (BD6), VieEnRose_21 (BD6),

Start 4:

- Found in 2 of 112 (1.8%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Paolo_25 (BD2), Zainub_27 (BD2),

Start 5:

- Found in 102 of 112 (91.1%) of genes in pham
- Manual Annotations of this start: 86 of 98
- Called 96.1% of time when present
- Phage (with cluster) where this start called: Aaronocolus_21 (BD1), Alsaber_22 (BD3), Alvy_23 (BD2), Amela_21 (BD3), Amethyst_21 (BD2), Andris_21 (BD2), Animus_22 (BD2), Asten_21 (BD1), BarryBee_23 (BD1), BartholomewSD_23 (BD2), Bovely_21 (BD1), Bowden_22 (BD2), Brataylor_22 (BD1), BryanRecycles_22 (BD1), Caelum_22 (BD2), Caliburn_21 (BD1), Celery_24 (BD3), Celeste_21 (BD1), Chucky_21 (BD1), Conan_24 (BD3), Danzina_22 (BD1), Dattran_22 (BD1), Daudau_21 (BD2), Dexers_20 (BD3), Diane_21 (BD2), Dwayne_21 (BD1), ELB20_20 (BD2), Eddasa_22 (BD1), Ejemplo_21 (BD1), ElGato_23 (BD3), Emaanora_23 (BD1), Esperer_21 (BD1), GirlDinner_22 (BD2), Goby_21 (BD1), Godpower_22 (BD1), Haizum_21 (BD2), Hank144_22 (BD2), Hippo_21 (BD1), Hydra_23 (BD1), Indigo_21 (BD1), Issmi_22 (BD2), Izzy_22 (BD1), Janus_22 (BD2), Jash_22 (BD1), Jevington_24 (BD2), Katalie_22 (BD1), Lannister_22 (BD1), Legacy_21 (BD1), Leviticus_21 (BD1), Lika_21 (BD1), Loofah_22 (BD2), Lorelei_21 (BD1), Maneekul_21 (BD1), Marav_24 (BD2), Nabi_21 (BD1), Nanodon_23 (BD1), Nerdos_21 (BD1), Nishikigoi_21 (BD2), Omar_22 (BD2), Ozzie_21 (BD1), OzzyJ_22 (BD1), Pablito_21 (BD2), Paedore_21 (BD2), Phettuccine_21 (BD1), Provolone_22 (BD3), Puginator_25 (BD2), R4_21 (BD2), Rana_21 (BD1), RedBear_23 (BD1), Rusticus_22 (BD1), Saftant_21 (BD3), SarahRose_21 (BD1), Snorlax_21 (BD1), South40_22 (BD1), SqueakyClean_22 (BD2), Sujidade_22 (BD1), SunsetPointe_21 (BD1), Superstar_24 (BD2), TagePhighter_22 (BD1), Tefunt_21 (BD2), Thestral_22 (BD2), TinaBelcher_21 (BD2), Toma_21 (BD1), Triste_21 (BD1), Triumph_23 (BD2), TrvxScott_20 (BD2), TuanPN_21 (BD1), Unstoppable_21 (BD1), Vanseggelen_26 (BD3), Verabelle_22 (BD3), Verse_21 (BD3), Werner_21 (BD1), Whatever_21 (BD1), Yasdnil_21 (BD1), Yosif_22 (BD3), Zemlya_22 (BD1), phiCAM_22 (BD3), phiHau3_23 (BD4),

Start 8:

- Found in 10 of 112 (8.9%) of genes in pham
- Manual Annotations of this start: 3 of 98
- Called 30.0% of time when present
- Phage (with cluster) where this start called: BroPlease_22 (BD4), GreenWeasel_23 (BD4), Oliynyk_22 (BD1),

Start 10:

- Found in 16 of 112 (14.3%) of genes in pham

- Manual Annotations of this start: 1 of 98
- Called 6.2% of time when present
- Phage (with cluster) where this start called: BeardedLady_22 (BD1),

Start 46:

- Found in 4 of 112 (3.6%) of genes in pham
- Manual Annotations of this start: 4 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Celia_22 (BD6), Itza_22 (BD6), Urza_22 (BD6), VieEnRose_22 (BD6),

Summary by clusters:

There are 5 clusters represented in this pham: BD4, BD6, BD1, BD3, BD2,

Info for manual annotations of cluster BD1:

- Start number 5 was manually annotated 52 times for cluster BD1.
- Start number 8 was manually annotated 1 time for cluster BD1.
- Start number 10 was manually annotated 1 time for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 5 was manually annotated 26 times for cluster BD2.

Info for manual annotations of cluster BD3:

- Start number 5 was manually annotated 7 times for cluster BD3.

Info for manual annotations of cluster BD4:

- Start number 5 was manually annotated 1 time for cluster BD4.
- Start number 8 was manually annotated 2 times for cluster BD4.

Info for manual annotations of cluster BD6:

- Start number 3 was manually annotated 4 times for cluster BD6.
- Start number 46 was manually annotated 4 times for cluster BD6.

Gene Information:

Gene: Aaronocolus_21 Start: 17072, Stop: 17380, Start Num: 5

Candidate Starts for Aaronocolus_21:

(Start: 5 @17072 has 86 MA's), (Start: 10 @17105 has 1 MA's), (24, 17219), (34, 17282), (36, 17294), (40, 17342), (43, 17363), (44, 17369),

Gene: Alsaber_22 Start: 17759, Stop: 18064, Start Num: 5

Candidate Starts for Alsaber_22:

(Start: 5 @17759 has 86 MA's), (13, 17810), (19, 17864), (25, 17915), (27, 17924), (28, 17933), (29, 17939), (36, 17981), (42, 18032), (43, 18047), (44, 18053),

Gene: Alvy_23 Start: 17073, Stop: 17375, Start Num: 5

Candidate Starts for Alvy_23:

(Start: 5 @17073 has 86 MA's), (20, 17187), (23, 17214), (43, 17361),

Gene: Amela_21 Start: 18052, Stop: 18357, Start Num: 5

Candidate Starts for Amela_21:

(Start: 5 @18052 has 86 MA's), (13, 18103), (25, 18208), (28, 18226), (36, 18274), (43, 18340), (44, 18346),

Gene: Amethyst_21 Start: 17528, Stop: 17833, Start Num: 5

Candidate Starts for Amethyst_21:

(Start: 5 @17528 has 86 MA's), (16, 17594), (19, 17633), (22, 17663), (35, 17747), (36, 17750), (43, 17816), (44, 17822),

Gene: Andris_21 Start: 16778, Stop: 17080, Start Num: 5

Candidate Starts for Andris_21:

(Start: 5 @16778 has 86 MA's), (20, 16892), (23, 16919), (43, 17066),

Gene: Animus_22 Start: 17114, Stop: 17416, Start Num: 5

Candidate Starts for Animus_22:

(Start: 5 @17114 has 86 MA's), (16, 17180), (17, 17204), (23, 17255), (35, 17333), (43, 17402),

Gene: Asten_21 Start: 17035, Stop: 17334, Start Num: 5

Candidate Starts for Asten_21:

(Start: 5 @17035 has 86 MA's), (14, 17089), (17, 17125), (21, 17167), (23, 17176), (36, 17257), (39, 17281),

Gene: BarryBee_23 Start: 17045, Stop: 17344, Start Num: 5

Candidate Starts for BarryBee_23:

(Start: 5 @17045 has 86 MA's), (14, 17099), (17, 17135), (21, 17177), (23, 17186), (36, 17267), (39, 17291),

Gene: BartholomewSD_23 Start: 17073, Stop: 17375, Start Num: 5

Candidate Starts for BartholomewSD_23:

(Start: 5 @17073 has 86 MA's), (20, 17187), (23, 17214), (43, 17361),

Gene: BeardedLady_22 Start: 17352, Stop: 17627, Start Num: 10

Candidate Starts for BeardedLady_22:

(Start: 5 @17319 has 86 MA's), (Start: 10 @17352 has 1 MA's), (24, 17466), (34, 17529), (36, 17541), (40, 17589), (43, 17610), (44, 17616),

Gene: Bovely_21 Start: 17078, Stop: 17386, Start Num: 5

Candidate Starts for Bovely_21:

(Start: 5 @17078 has 86 MA's), (Start: 10 @17111 has 1 MA's), (24, 17225), (34, 17288), (36, 17300), (40, 17348), (43, 17369), (44, 17375),

Gene: Bowden_22 Start: 17005, Stop: 17307, Start Num: 5

Candidate Starts for Bowden_22:

(Start: 5 @17005 has 86 MA's), (20, 17119), (23, 17146), (43, 17293),

Gene: Brataylor_22 Start: 17062, Stop: 17358, Start Num: 5

Candidate Starts for Brataylor_22:

(Start: 5 @17062 has 86 MA's), (14, 17113), (21, 17191), (23, 17200), (28, 17233), (30, 17245), (31, 17254), (39, 17305), (43, 17347),

Gene: BroPlease_22 Start: 17764, Stop: 18051, Start Num: 8

Candidate Starts for BroPlease_22:

(Start: 5 @17752 has 86 MA's), (Start: 8 @17764 has 3 MA's), (14, 17803), (16, 17815), (17, 17839), (25, 17905), (35, 17968), (39, 17995), (43, 18037), (45, 18046),

Gene: BryanRecycles_22 Start: 17223, Stop: 17519, Start Num: 5

Candidate Starts for BryanRecycles_22:

(Start: 5 @17223 has 86 MA's), (Start: 8 @17235 has 3 MA's), (12, 17268), (14, 17274), (17, 17310), (21, 17352), (23, 17361), (43, 17508),

Gene: Caelum_22 Start: 17555, Stop: 17860, Start Num: 5

Candidate Starts for Caelum_22:

(Start: 5 @17555 has 86 MA's), (16, 17621), (17, 17645), (18, 17657), (35, 17774), (36, 17777), (43, 17843), (44, 17849),

Gene: Caliburn_21 Start: 17052, Stop: 17360, Start Num: 5

Candidate Starts for Caliburn_21:

(Start: 5 @17052 has 86 MA's), (Start: 10 @17085 has 1 MA's), (24, 17199), (34, 17262), (36, 17274), (40, 17322), (43, 17343), (44, 17349),

Gene: Celery_24 Start: 17710, Stop: 18018, Start Num: 5

Candidate Starts for Celery_24:

(Start: 5 @17710 has 86 MA's), (7, 17719), (Start: 10 @17743 has 1 MA's), (16, 17776), (19, 17815), (24, 17857), (34, 17920), (36, 17932), (42, 17986), (43, 18001), (44, 18007),

Gene: Celeste_21 Start: 17054, Stop: 17350, Start Num: 5

Candidate Starts for Celeste_21:

(Start: 5 @17054 has 86 MA's), (14, 17105), (16, 17117), (17, 17141), (21, 17183), (23, 17192), (39, 17297), (43, 17339),

Gene: Celia_21 Start: 17498, Stop: 17827, Start Num: 3

Candidate Starts for Celia_21:

(Start: 3 @17498 has 4 MA's), (9, 17540), (11, 17567), (16, 17588), (18, 17624), (43, 17810),

Gene: Celia_22 Start: 17824, Stop: 18141, Start Num: 46

Candidate Starts for Celia_22:

(1, 17071), (2, 17491), (6, 17527), (Start: 46 @17824 has 4 MA's), (47, 17860), (48, 17905), (49, 17911), (51, 17971), (52, 17974), (53, 18001), (54, 18124),

Gene: Chucky_21 Start: 17046, Stop: 17345, Start Num: 5

Candidate Starts for Chucky_21:

(Start: 5 @17046 has 86 MA's), (14, 17100), (17, 17136), (21, 17178), (23, 17187), (36, 17268), (39, 17292),

Gene: Conan_24 Start: 17481, Stop: 17786, Start Num: 5

Candidate Starts for Conan_24:

(Start: 5 @17481 has 86 MA's), (13, 17532), (19, 17586), (22, 17616), (28, 17655), (36, 17703), (42, 17754), (43, 17769), (44, 17775),

Gene: Danzina_22 Start: 17264, Stop: 17560, Start Num: 5

Candidate Starts for Danzina_22:

(Start: 5 @17264 has 86 MA's), (14, 17315), (21, 17393), (23, 17402), (28, 17435), (30, 17447), (31, 17456), (39, 17507), (43, 17549),

Gene: Dattran_22 Start: 17053, Stop: 17349, Start Num: 5

Candidate Starts for Dattran_22:

(Start: 5 @17053 has 86 MA's), (14, 17104), (17, 17140), (21, 17182), (26, 17212), (31, 17245), (39, 17296), (43, 17338),

Gene: Daudau_21 Start: 16985, Stop: 17287, Start Num: 5

Candidate Starts for Daudau_21:

(Start: 5 @16985 has 86 MA's), (23, 17126), (43, 17273),

Gene: Dexers_20 Start: 17462, Stop: 17767, Start Num: 5

Candidate Starts for Dexers_20:

(Start: 5 @17462 has 86 MA's), (13, 17513), (25, 17618), (27, 17627), (28, 17636), (29, 17642), (36, 17684), (42, 17735), (43, 17750), (44, 17756),

Gene: Diane_21 Start: 17521, Stop: 17826, Start Num: 5

Candidate Starts for Diane_21:

(Start: 5 @17521 has 86 MA's), (16, 17587), (19, 17626), (22, 17656), (35, 17740), (36, 17743), (43, 17809), (44, 17815),

Gene: Dwayne_21 Start: 17042, Stop: 17341, Start Num: 5

Candidate Starts for Dwayne_21:

(Start: 5 @17042 has 86 MA's), (14, 17096), (17, 17132), (21, 17174), (23, 17183), (36, 17264), (39, 17288),

Gene: ELB20_20 Start: 17109, Stop: 17411, Start Num: 5

Candidate Starts for ELB20_20:

(Start: 5 @17109 has 86 MA's), (20, 17223), (26, 17271), (43, 17397),

Gene: Eddasa_22 Start: 17223, Stop: 17519, Start Num: 5

Candidate Starts for Eddasa_22:

(Start: 5 @17223 has 86 MA's), (Start: 8 @17235 has 3 MA's), (12, 17268), (14, 17274), (17, 17310), (21, 17352), (23, 17361), (43, 17508),

Gene: Ejemplo_21 Start: 17042, Stop: 17341, Start Num: 5

Candidate Starts for Ejemplo_21:

(Start: 5 @17042 has 86 MA's), (14, 17096), (17, 17132), (21, 17174), (23, 17183), (36, 17264), (39, 17288),

Gene: ElGato_23 Start: 17484, Stop: 17789, Start Num: 5

Candidate Starts for ElGato_23:

(Start: 5 @17484 has 86 MA's), (13, 17535), (19, 17589), (22, 17619), (28, 17658), (36, 17706), (42, 17757), (43, 17772), (44, 17778),

Gene: Emaanora_23 Start: 17045, Stop: 17344, Start Num: 5

Candidate Starts for Emaanora_23:

(Start: 5 @17045 has 86 MA's), (14, 17099), (17, 17135), (21, 17177), (23, 17186), (36, 17267), (39, 17291),

Gene: Esperer_21 Start: 17072, Stop: 17380, Start Num: 5

Candidate Starts for Esperer_21:

(Start: 5 @17072 has 86 MA's), (Start: 10 @17105 has 1 MA's), (24, 17219), (34, 17282), (36, 17294), (40, 17342), (43, 17363), (44, 17369),

Gene: GirlDinner_22 Start: 16776, Stop: 17078, Start Num: 5

Candidate Starts for GirlDinner_22:

(Start: 5 @16776 has 86 MA's), (16, 16842), (17, 16866), (23, 16917), (35, 16995), (43, 17064),

Gene: Goby_21 Start: 17059, Stop: 17355, Start Num: 5

Candidate Starts for Goby_21:

(Start: 5 @17059 has 86 MA's), (14, 17110), (17, 17146), (21, 17188), (26, 17218), (31, 17251), (39, 17302), (43, 17344),

Gene: Godpower_22 Start: 17070, Stop: 17366, Start Num: 5

Candidate Starts for Godpower_22:

(Start: 5 @17070 has 86 MA's), (21, 17199), (28, 17241), (30, 17253), (39, 17313), (43, 17355),

Gene: GreenWeasel_23 Start: 17773, Stop: 18060, Start Num: 8

Candidate Starts for GreenWeasel_23:

(Start: 5 @17761 has 86 MA's), (Start: 8 @17773 has 3 MA's), (14, 17812), (16, 17824), (17, 17848), (25, 17914), (39, 18004), (43, 18046), (45, 18055),

Gene: Haizum_21 Start: 17553, Stop: 17858, Start Num: 5

Candidate Starts for Haizum_21:

(Start: 5 @17553 has 86 MA's), (16, 17619), (19, 17658), (22, 17688), (35, 17772), (36, 17775), (43, 17841), (44, 17847),

Gene: Hank144_22 Start: 17171, Stop: 17473, Start Num: 5

Candidate Starts for Hank144_22:

(Start: 5 @17171 has 86 MA's), (15, 17228), (18, 17273), (23, 17312), (35, 17390), (43, 17459),

Gene: Hippo_21 Start: 17045, Stop: 17344, Start Num: 5

Candidate Starts for Hippo_21:

(Start: 5 @17045 has 86 MA's), (14, 17099), (17, 17135), (21, 17177), (23, 17186), (36, 17267), (39, 17291),

Gene: Hydra_23 Start: 17600, Stop: 17908, Start Num: 5

Candidate Starts for Hydra_23:

(Start: 5 @17600 has 86 MA's), (Start: 10 @17633 has 1 MA's), (24, 17747), (34, 17810), (36, 17822), (40, 17870), (43, 17891), (44, 17897),

Gene: Indigo_21 Start: 17072, Stop: 17380, Start Num: 5

Candidate Starts for Indigo_21:

(Start: 5 @17072 has 86 MA's), (Start: 10 @17105 has 1 MA's), (24, 17219), (34, 17282), (36, 17294), (40, 17342), (43, 17363), (44, 17369),

Gene: Issmi_22 Start: 17987, Stop: 18292, Start Num: 5

Candidate Starts for Issmi_22:

(Start: 5 @17987 has 86 MA's), (16, 18053), (17, 18077), (25, 18143), (27, 18152), (35, 18206), (42, 18260), (43, 18275), (44, 18281),

Gene: Itza_22 Start: 17747, Stop: 18064, Start Num: 46

Candidate Starts for Itza_22:

(1, 16994), (2, 17414), (6, 17450), (Start: 46 @17747 has 4 MA's), (47, 17783), (48, 17828), (49, 17834), (51, 17894), (52, 17897), (53, 17924), (54, 18047),

Gene: Itza_21 Start: 17421, Stop: 17750, Start Num: 3

Candidate Starts for Itza_21:

(Start: 3 @17421 has 4 MA's), (9, 17463), (11, 17490), (16, 17511), (18, 17547), (43, 17733),

Gene: Izzy_22 Start: 17270, Stop: 17566, Start Num: 5

Candidate Starts for Izzy_22:

(Start: 5 @17270 has 86 MA's), (Start: 8 @17282 has 3 MA's), (12, 17315), (14, 17321), (17, 17357), (21, 17399), (23, 17408), (43, 17555),

Gene: Janus_22 Start: 17114, Stop: 17416, Start Num: 5

Candidate Starts for Janus_22:

(Start: 5 @17114 has 86 MA's), (17, 17204), (23, 17255), (35, 17333), (43, 17402),

Gene: Jash_22 Start: 17223, Stop: 17519, Start Num: 5

Candidate Starts for Jash_22:

(Start: 5 @17223 has 86 MA's), (Start: 8 @17235 has 3 MA's), (12, 17268), (14, 17274), (17, 17310), (21, 17352), (23, 17361), (43, 17508),

Gene: Jevington_24 Start: 17423, Stop: 17725, Start Num: 5

Candidate Starts for Jevington_24:

(Start: 5 @17423 has 86 MA's), (14, 17477), (20, 17537), (21, 17555), (23, 17564), (25, 17579), (31, 17618), (43, 17711),

Gene: Katalie_22 Start: 17311, Stop: 17607, Start Num: 5

Candidate Starts for Katalie_22:

(Start: 5 @17311 has 86 MA's), (17, 17398), (21, 17440), (23, 17449), (36, 17530), (39, 17554),

Gene: Lannister_22 Start: 17079, Stop: 17375, Start Num: 5

Candidate Starts for Lannister_22:

(Start: 5 @17079 has 86 MA's), (14, 17130), (16, 17142), (17, 17166), (21, 17208), (28, 17250), (39, 17322), (41, 17346), (43, 17364),

Gene: Legacy_21 Start: 17043, Stop: 17351, Start Num: 5

Candidate Starts for Legacy_21:

(Start: 5 @17043 has 86 MA's), (Start: 10 @17076 has 1 MA's), (24, 17190), (34, 17253), (36, 17265), (40, 17313), (43, 17334), (44, 17340),

Gene: Leviticus_21 Start: 17072, Stop: 17380, Start Num: 5

Candidate Starts for Leviticus_21:

(Start: 5 @17072 has 86 MA's), (Start: 10 @17105 has 1 MA's), (24, 17219), (34, 17282), (36, 17294), (40, 17342), (43, 17363), (44, 17369),

Gene: Lika_21 Start: 17074, Stop: 17370, Start Num: 5

Candidate Starts for Lika_21:

(Start: 5 @17074 has 86 MA's), (21, 17203), (28, 17245), (30, 17257), (39, 17317), (43, 17359),

Gene: Loofah_22 Start: 17038, Stop: 17340, Start Num: 5

Candidate Starts for Loofah_22:

(Start: 5 @17038 has 86 MA's), (20, 17152), (26, 17200), (35, 17257), (43, 17326),

Gene: Lorelei_21 Start: 17044, Stop: 17340, Start Num: 5

Candidate Starts for Lorelei_21:

(Start: 5 @17044 has 86 MA's), (14, 17095), (21, 17173), (23, 17182), (28, 17215), (30, 17227), (31, 17236), (39, 17287), (43, 17329),

Gene: Maneekul_21 Start: 17041, Stop: 17340, Start Num: 5

Candidate Starts for Maneekul_21:

(Start: 5 @17041 has 86 MA's), (14, 17095), (17, 17131), (21, 17173), (23, 17182), (36, 17263), (39, 17287),

Gene: Marav_24 Start: 17773, Stop: 18075, Start Num: 5

Candidate Starts for Marav_24:

(Start: 5 @17773 has 86 MA's), (14, 17827), (20, 17887), (21, 17905), (23, 17914), (25, 17929), (43, 18061),

Gene: Nabi_21 Start: 17044, Stop: 17340, Start Num: 5

Candidate Starts for Nabi_21:

(Start: 5 @17044 has 86 MA's), (14, 17095), (21, 17173), (23, 17182), (28, 17215), (30, 17227), (31, 17236), (39, 17287), (43, 17329),

Gene: Nanodon_23 Start: 17252, Stop: 17548, Start Num: 5

Candidate Starts for Nanodon_23:

(Start: 5 @17252 has 86 MA's), (Start: 8 @17264 has 3 MA's), (14, 17303), (17, 17339), (21, 17381), (23, 17390), (39, 17495), (43, 17537),

Gene: Nerdos_21 Start: 17072, Stop: 17380, Start Num: 5

Candidate Starts for Nerdos_21:

(Start: 5 @17072 has 86 MA's), (Start: 10 @17105 has 1 MA's), (24, 17219), (34, 17282), (36, 17294), (40, 17342), (43, 17363), (44, 17369),

Gene: Nishikigoi_21 Start: 17553, Stop: 17858, Start Num: 5

Candidate Starts for Nishikigoi_21:

(Start: 5 @17553 has 86 MA's), (16, 17619), (19, 17658), (22, 17688), (35, 17772), (36, 17775), (43, 17841), (44, 17847),

Gene: Oliynyk_22 Start: 17235, Stop: 17519, Start Num: 8

Candidate Starts for Oliynyk_22:

(Start: 5 @17223 has 86 MA's), (Start: 8 @17235 has 3 MA's), (12, 17268), (14, 17274), (17, 17310), (21, 17352), (23, 17361), (43, 17508),

Gene: Omar_22 Start: 17891, Stop: 18196, Start Num: 5

Candidate Starts for Omar_22:

(Start: 5 @17891 has 86 MA's), (16, 17957), (18, 17993), (22, 18026), (36, 18113), (43, 18179), (44, 18185),

Gene: Ozzie_21 Start: 17052, Stop: 17360, Start Num: 5

Candidate Starts for Ozzie_21:

(Start: 5 @17052 has 86 MA's), (Start: 10 @17085 has 1 MA's), (24, 17199), (34, 17262), (36, 17274), (40, 17322), (43, 17343), (44, 17349),

Gene: OzzyJ_22 Start: 17036, Stop: 17335, Start Num: 5

Candidate Starts for OzzyJ_22:

(Start: 5 @17036 has 86 MA's), (14, 17090), (17, 17126), (21, 17168), (23, 17177), (36, 17258), (39, 17282),

Gene: Pablito_21 Start: 16878, Stop: 17180, Start Num: 5

Candidate Starts for Pablito_21:

(Start: 5 @16878 has 86 MA's), (23, 17019), (35, 17097), (43, 17166),

Gene: Paedore_21 Start: 17038, Stop: 17340, Start Num: 5

Candidate Starts for Paedore_21:

(Start: 5 @17038 has 86 MA's), (20, 17152), (26, 17200), (35, 17257), (43, 17326),

Gene: Paolo_25 Start: 17435, Stop: 17737, Start Num: 4

Candidate Starts for Paolo_25:

(4, 17435), (14, 17489), (20, 17549), (21, 17567), (23, 17576), (25, 17591), (43, 17723),

Gene: Phettuccine_21 Start: 17072, Stop: 17380, Start Num: 5

Candidate Starts for Phettuccine_21:

(Start: 5 @17072 has 86 MA's), (Start: 10 @17105 has 1 MA's), (24, 17219), (34, 17282), (36, 17294), (40, 17342), (43, 17363), (44, 17369),

Gene: Provolone_22 Start: 17484, Stop: 17789, Start Num: 5

Candidate Starts for Provolone_22:

(Start: 5 @17484 has 86 MA's), (13, 17535), (19, 17589), (22, 17619), (28, 17658), (36, 17706), (42, 17757), (43, 17772), (44, 17778),

Gene: Puginator_25 Start: 17480, Stop: 17782, Start Num: 5

Candidate Starts for Puginator_25:

(Start: 5 @17480 has 86 MA's), (14, 17534), (20, 17594), (21, 17612), (23, 17621), (25, 17636), (31, 17675), (43, 17768),

Gene: R4_21 Start: 17120, Stop: 17422, Start Num: 5

Candidate Starts for R4_21:

(Start: 5 @17120 has 86 MA's), (20, 17234), (26, 17282), (43, 17408),

Gene: Rana_21 Start: 17044, Stop: 17340, Start Num: 5

Candidate Starts for Rana_21:

(Start: 5 @17044 has 86 MA's), (14, 17095), (21, 17173), (23, 17182), (28, 17215), (30, 17227), (31, 17236), (39, 17287), (43, 17329),

Gene: RedBear_23 Start: 17311, Stop: 17607, Start Num: 5

Candidate Starts for RedBear_23:

(Start: 5 @17311 has 86 MA's), (17, 17398), (21, 17440), (23, 17449), (36, 17530), (39, 17554),

Gene: Rusticus_22 Start: 17223, Stop: 17519, Start Num: 5

Candidate Starts for Rusticus_22:

(Start: 5 @17223 has 86 MA's), (Start: 8 @17235 has 3 MA's), (12, 17268), (14, 17274), (17, 17310), (21, 17352), (23, 17361), (43, 17508),

Gene: Saftant_21 Start: 18032, Stop: 18334, Start Num: 5

Candidate Starts for Saftant_21:

(Start: 5 @18032 has 86 MA's), (12, 18080), (27, 18197), (34, 18242), (35, 18251), (38, 18272), (39, 18278), (43, 18320), (44, 18326),

Gene: SarahRose_21 Start: 17042, Stop: 17341, Start Num: 5

Candidate Starts for SarahRose_21:

(Start: 5 @17042 has 86 MA's), (14, 17096), (17, 17132), (21, 17174), (23, 17183), (36, 17264), (39, 17288),

Gene: Snorlax_21 Start: 17045, Stop: 17344, Start Num: 5

Candidate Starts for Snorlax_21:

(Start: 5 @17045 has 86 MA's), (14, 17099), (17, 17135), (21, 17177), (23, 17186), (36, 17267), (39, 17291),

Gene: South40_22 Start: 17311, Stop: 17607, Start Num: 5

Candidate Starts for South40_22:

(Start: 5 @17311 has 86 MA's), (17, 17398), (21, 17440), (23, 17449), (36, 17530), (39, 17554),

Gene: SqueakyClean_22 Start: 17040, Stop: 17342, Start Num: 5

Candidate Starts for SqueakyClean_22:

(Start: 5 @17040 has 86 MA's), (16, 17106), (17, 17130), (23, 17181), (35, 17259), (43, 17328),

Gene: Sujidade_22 Start: 17350, Stop: 17646, Start Num: 5

Candidate Starts for Sujidade_22:

(Start: 5 @17350 has 86 MA's), (21, 17479), (28, 17521), (30, 17533), (39, 17593), (43, 17635),

Gene: SunsetPointe_21 Start: 17062, Stop: 17370, Start Num: 5

Candidate Starts for SunsetPointe_21:

(Start: 5 @17062 has 86 MA's), (Start: 10 @17095 has 1 MA's), (24, 17209), (34, 17272), (36, 17284), (40, 17332), (43, 17353), (44, 17359),

Gene: Superstar_24 Start: 18759, Stop: 19064, Start Num: 5

Candidate Starts for Superstar_24:

(Start: 5 @18759 has 86 MA's), (16, 18825), (17, 18849), (22, 18894), (35, 18978), (42, 19032), (43, 19047), (44, 19053),

Gene: TagePhighter_22 Start: 17045, Stop: 17344, Start Num: 5

Candidate Starts for TagePhighter_22:

(Start: 5 @17045 has 86 MA's), (14, 17099), (17, 17135), (21, 17177), (23, 17186), (36, 17267), (39, 17291),

Gene: Tefunt_21 Start: 17553, Stop: 17858, Start Num: 5

Candidate Starts for Tefunt_21:

(Start: 5 @17553 has 86 MA's), (16, 17619), (19, 17658), (22, 17688), (35, 17772), (36, 17775), (43, 17841), (44, 17847),

Gene: Thestral_22 Start: 17008, Stop: 17310, Start Num: 5

Candidate Starts for Thestral_22:

(Start: 5 @17008 has 86 MA's), (20, 17122), (23, 17149), (29, 17188), (43, 17296),

Gene: TinaBelcher_21 Start: 16956, Stop: 17258, Start Num: 5

Candidate Starts for TinaBelcher_21:

(Start: 5 @16956 has 86 MA's), (20, 17070), (23, 17097), (43, 17244),

Gene: Toma_21 Start: 17059, Stop: 17355, Start Num: 5

Candidate Starts for Toma_21:

(Start: 5 @17059 has 86 MA's), (14, 17110), (17, 17146), (21, 17188), (26, 17218), (31, 17251), (39, 17302), (43, 17344),

Gene: Triste_21 Start: 17036, Stop: 17335, Start Num: 5

Candidate Starts for Triste_21:

(Start: 5 @17036 has 86 MA's), (14, 17090), (17, 17126), (21, 17168), (23, 17177), (36, 17258), (39, 17282),

Gene: Triumph_23 Start: 16957, Stop: 17259, Start Num: 5

Candidate Starts for Triumph_23:

(Start: 5 @16957 has 86 MA's), (16, 17023), (23, 17098), (35, 17176), (43, 17245),

Gene: TrvxScott_20 Start: 16958, Stop: 17260, Start Num: 5

Candidate Starts for TrvxScott_20:

(Start: 5 @16958 has 86 MA's), (20, 17072), (23, 17099), (43, 17246),

Gene: TuanPN_21 Start: 17042, Stop: 17341, Start Num: 5

Candidate Starts for TuanPN_21:

(Start: 5 @17042 has 86 MA's), (14, 17096), (17, 17132), (21, 17174), (23, 17183), (36, 17264), (39, 17288),

Gene: Unstoppable_21 Start: 17063, Stop: 17371, Start Num: 5

Candidate Starts for Unstoppable_21:

(Start: 5 @17063 has 86 MA's), (Start: 10 @17096 has 1 MA's), (24, 17210), (34, 17273), (36, 17285), (40, 17333), (43, 17354), (44, 17360),

Gene: Urza_22 Start: 17759, Stop: 18076, Start Num: 46

Candidate Starts for Urza_22:

(1, 17006), (2, 17426), (6, 17462), (Start: 46 @17759 has 4 MA's), (47, 17795), (48, 17840), (49, 17846), (51, 17906), (52, 17909), (53, 17936), (54, 18059),

Gene: Urza_21 Start: 17433, Stop: 17762, Start Num: 3

Candidate Starts for Urza_21:

(Start: 3 @17433 has 4 MA's), (9, 17475), (11, 17502), (16, 17523), (18, 17559), (43, 17745),

Gene: Vanseggelen_26 Start: 17414, Stop: 17719, Start Num: 5

Candidate Starts for Vanseggelen_26:

(Start: 5 @17414 has 86 MA's), (13, 17465), (18, 17516), (25, 17570), (26, 17576), (27, 17579), (28, 17588), (36, 17636), (42, 17687), (43, 17702), (44, 17708),

Gene: Verabelle_22 Start: 17747, Stop: 18052, Start Num: 5

Candidate Starts for Verabelle_22:

(Start: 5 @17747 has 86 MA's), (13, 17798), (17, 17837), (25, 17903), (27, 17912), (28, 17921), (36, 17969), (42, 18020), (43, 18035), (44, 18041),

Gene: Verse_21 Start: 18046, Stop: 18351, Start Num: 5

Candidate Starts for Verse_21:

(Start: 5 @18046 has 86 MA's), (13, 18097), (25, 18202), (28, 18220), (36, 18268), (43, 18334), (44, 18340),

Gene: VieEnRose_21 Start: 17499, Stop: 17828, Start Num: 3

Candidate Starts for VieEnRose_21:

(Start: 3 @17499 has 4 MA's), (9, 17541), (11, 17568), (16, 17589), (18, 17625), (31, 17718), (43, 17811), (44, 17817),

Gene: VieEnRose_22 Start: 17825, Stop: 18142, Start Num: 46

Candidate Starts for VieEnRose_22:

(32, 17720), (Start: 46 @17825 has 4 MA's), (47, 17861), (48, 17906), (50, 17930), (52, 17975), (53, 18002), (54, 18125),

Gene: Werner_21 Start: 17046, Stop: 17345, Start Num: 5

Candidate Starts for Werner_21:

(Start: 5 @17046 has 86 MA's), (14, 17100), (17, 17136), (21, 17178), (23, 17187), (36, 17268), (39, 17292),

Gene: Whatever_21 Start: 17046, Stop: 17345, Start Num: 5

Candidate Starts for Whatever_21:

(Start: 5 @17046 has 86 MA's), (14, 17100), (17, 17136), (21, 17178), (23, 17187), (36, 17268), (39, 17292),

Gene: Yasdni1_21 Start: 17038, Stop: 17337, Start Num: 5

Candidate Starts for Yasdni1_21:

(Start: 5 @17038 has 86 MA's), (14, 17092), (17, 17128), (21, 17170), (23, 17179), (36, 17260), (39, 17284),

Gene: Yosif_22 Start: 17987, Stop: 18289, Start Num: 5

Candidate Starts for Yosif_22:

(Start: 5 @17987 has 86 MA's), (7, 17996), (36, 18209), (37, 18224), (42, 18260),

Gene: Zainub_27 Start: 17393, Stop: 17695, Start Num: 4

Candidate Starts for Zainub_27:

(4, 17393), (14, 17447), (20, 17507), (21, 17525), (23, 17534), (25, 17549), (43, 17681),

Gene: Zemlya_22 Start: 17070, Stop: 17366, Start Num: 5

Candidate Starts for Zemlya_22:

(Start: 5 @17070 has 86 MA's), (14, 17121), (17, 17157), (21, 17199), (26, 17229), (31, 17262), (33, 17265), (39, 17313), (43, 17355),

Gene: phiCAM_22 Start: 19709, Stop: 20017, Start Num: 5

Candidate Starts for phiCAM_22:

(Start: 5 @19709 has 86 MA's), (7, 19718), (Start: 10 @19742 has 1 MA's), (16, 19775), (19, 19814), (24, 19856), (34, 19919), (36, 19931), (42, 19985), (43, 20000), (44, 20006),

Gene: phiHau3_23 Start: 17729, Stop: 18028, Start Num: 5

Candidate Starts for phiHau3_23:

(Start: 5 @17729 has 86 MA's), (Start: 8 @17741 has 3 MA's), (14, 17780), (16, 17792), (17, 17816), (25, 17882), (43, 18014), (45, 18023),