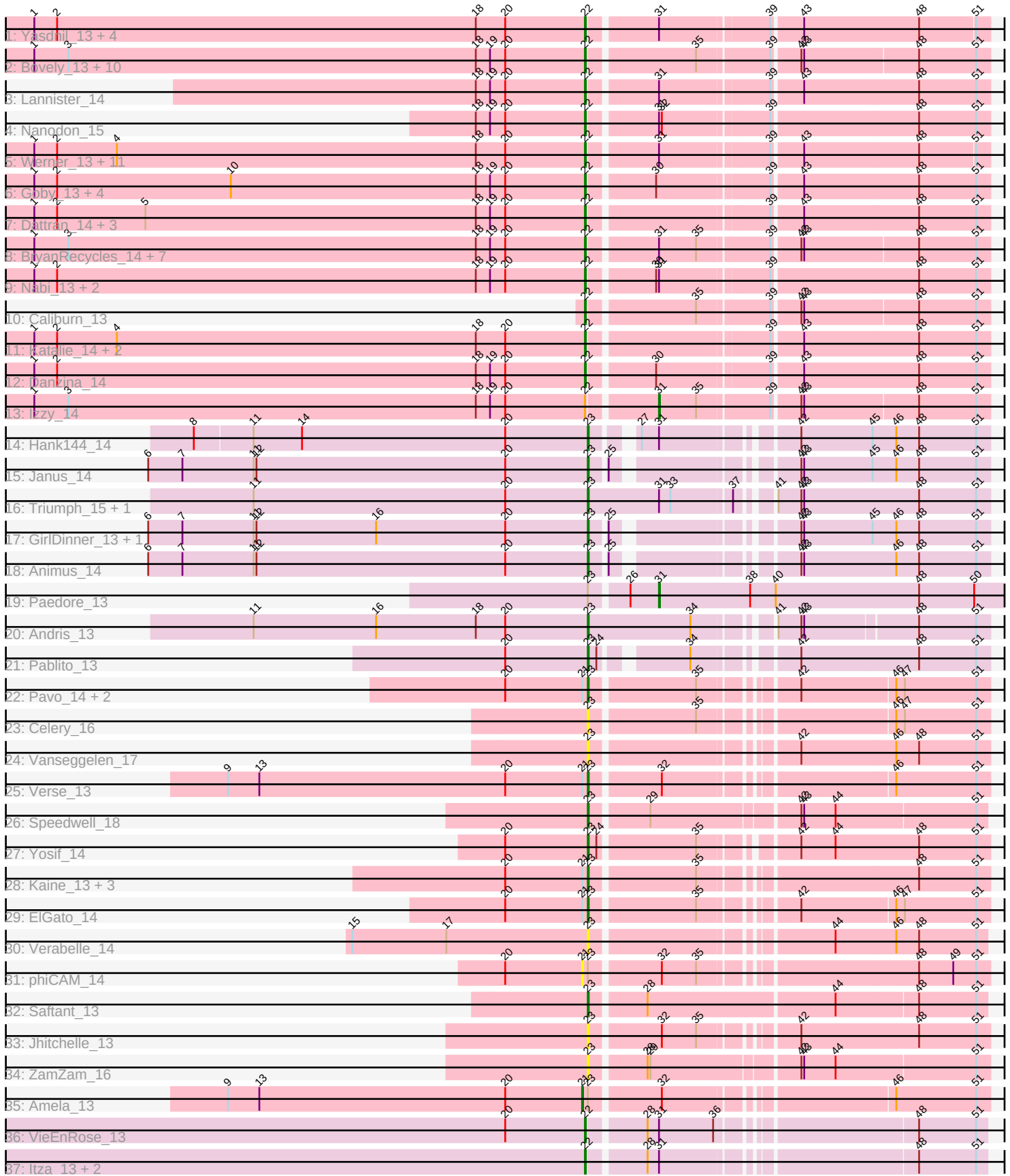




Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. If this default region is judged to be packed too tightly 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 280316 Report

This analysis was run 02/07/26 on database version 634.

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 280316 has 89 members, 8 are drafts.

Phages represented in each track:

- Track 1 : Yasdnil_13, Chucky_13, TuanPN_13, Maneekul_13, Ejemplo_13
- Track 2 : Bovely_13, Esperer_13, SunsetPointe_13, Indigo_13, Nerdos_13, Hydra_15, Leviticus_13, Unstoppable_13, Legacy_13, Phettuccine_13, Aaronocolus_13
- Track 3 : Lannister_14
- Track 4 : Nanodon_15
- Track 5 : Werner_13, Whatever_13, OzzyJ_14, Hippo_13, Snorlax_13, SarahRose_13, BarryBee_15, Emaanora_15, TagePhighter_14, Asten_13, Dwayne_13, Triste_13
- Track 6 : Goby_13, Godpower_14, Sujidade_14, Lika_13, Toma_13
- Track 7 : Dattran_14, Brataylor_14, Zemlya_14, Celeste_13
- Track 8 : BryanRecycles_14, Oliynyk_14, Rusticus_14, Eddasa_14, Ozzie_13, Jash_14, EnochSoames_14, BeardedLady_14
- Track 9 : Nabi_13, Lorelei_13, Rana_13
- Track 10 : Caliburn_13
- Track 11 : Katalie_14, RedBear_15, South40_14
- Track 12 : Danzina_14
- Track 13 : Izzy_14
- Track 14 : Hank144_14
- Track 15 : Janus_14
- Track 16 : Triumph_15, Axiom_14
- Track 17 : GirlDinner_13, SqueakyClean_14
- Track 18 : Animus_14
- Track 19 : Paedore_13
- Track 20 : Andris_13
- Track 21 : Pablito_13
- Track 22 : Pavo_14, Conan_14, Provolone_14
- Track 23 : Celery_16
- Track 24 : Vanseggelen_17
- Track 25 : Verse_13
- Track 26 : Speedwell_18
- Track 27 : Yosif_14
- Track 28 : Kaine_13, Dexers_12, Alsaber_14, Sudan_14

- Track 29 : ElGato_14
- Track 30 : Verabelle_14
- Track 31 : phiCAM_14
- Track 32 : Saftant_13
- Track 33 : Jhitchelle_13
- Track 34 : ZamZam_16
- Track 35 : Amela_13
- Track 36 : VieEnRose_13
- Track 37 : Itza_13, Celia_13, Urza_13

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

The start number called the most often in the published annotations is 22, it was called in 58 of the 81 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aaronocolus_13, Asten_13, BarryBee_15, BeardedLady_14, Bovely_13, Brataylor_14, BryanRecycles_14, Caliburn_13, Celeste_13, Celia_13, Chucky_13, Danzina_14, Dattran_14, Dwayne_13, Eddasa_14, Ejemplo_13, Emaanora_15, EnochSoames_14, Esperer_13, Goby_13, Godpower_14, Hippo_13, Hydra_15, Indigo_13, Itza_13, Jash_14, Katalie_14, Lannister_14, Legacy_13, Leviticus_13, Lika_13, Lorelei_13, Maneekul_13, Nabi_13, Nanodon_15, Nerdos_13, Oliynyk_14, Ozzie_13, OzzyJ_14, Phettuccine_13, Rana_13, RedBear_15, Rusticus_14, SarahRose_13, Snorlax_13, South40_14, Sujidade_14, SunsetPointe_13, TagePhighter_14, Toma_13, Triste_13, TuanPN_13, Unstoppable_13, Urza_13, VieEnRose_13, Werner_13, Whatever_13, Yasdnil_13, Zemlya_14,

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

- Izzy_14,

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

- Alsaber_14, Amela_13, Andris_13, Animus_14, Axiom_14, Celery_16, Conan_14, Dexers_12, ElGato_14, GirlDinner_13, Hank144_14, Janus_14, Jhitchelle_13, Kaine_13, Pablito_13, Paedore_13, Pavo_14, Provolone_14, Saftant_13, Speedwell_18, SqueakyClean_14, Sudan_14, Triumph_15, Vanseggelen_17, Verabelle_14, Verse_13, Yosif_14, ZamZam_16, phiCAM_14,

Summary by start number:

Start 21:

- Found in 11 of 89 (12.4%) of genes in pham
- Manual Annotations of this start: 1 of 81
- Called 18.2% of time when present
- Phage (with cluster) where this start called: Amela_13 (BD3), phiCAM_14 (BD3),

Start 22:

- Found in 60 of 89 (67.4%) of genes in pham
- Manual Annotations of this start: 58 of 81
- Called 98.3% of time when present

- Phage (with cluster) where this start called: Aaronocolus_13 (BD1), Asten_13 (BD1), BarryBee_15 (BD1), BeardedLady_14 (BD1), Bovely_13 (BD1), Brataylor_14 (BD1), BryanRecycles_14 (BD1), Caliburn_13 (BD1), Celeste_13 (BD1), Celia_13 (BD6), Chucky_13 (BD1), Danzina_14 (BD1), Dattran_14 (BD1), Dwayne_13 (BD1), Eddasa_14 (BD1), Ejemplo_13 (BD1), Emaanora_15 (BD1), EnochSoames_14 (BD1), Esperer_13 (BD1), Goby_13 (BD1), Godpower_14 (BD1), Hippo_13 (BD1), Hydra_15 (BD1), Indigo_13 (BD1), Itza_13 (BD6), Jash_14 (BD1), Katalie_14 (BD1), Lannister_14 (BD1), Legacy_13 (BD1), Leviticus_13 (BD1), Lika_13 (BD1), Lorelei_13 (BD1), Maneekul_13 (BD1), Nabi_13 (BD1), Nanodon_15 (BD1), Nerdos_13 (BD1), Oliynyk_14 (BD1), Ozzie_13 (BD1), OzzyJ_14 (BD1), Phettuccine_13 (BD1), Rana_13 (BD1), RedBear_15 (BD1), Rusticus_14 (BD1), SarahRose_13 (BD1), Snorlax_13 (BD1), South40_14 (BD1), Sujidade_14 (BD1), SunsetPointe_13 (BD1), TagePhighter_14 (BD1), Toma_13 (BD1), Triste_13 (BD1), TuanPN_13 (BD1), Unstoppable_13 (BD1), Urza_13 (BD6), VieEnRose_13 (BD6), Werner_13 (BD1), Whatever_13 (BD1), Yasdnil_13 (BD1), Zemlya_14 (BD1),

Start 23:

- Found in 29 of 89 (32.6%) of genes in pham
- Manual Annotations of this start: 20 of 81
- Called 89.7% of time when present
- Phage (with cluster) where this start called: Alsaber_14 (BD3), Andris_13 (BD2), Animus_14 (BD2), Axiom_14 (BD2), Celery_16 (BD3), Conan_14 (BD3), Dexers_12 (BD3), ElGato_14 (BD3), GirlDinner_13 (BD2), Hank144_14 (BD2), Janus_14 (BD2), Jhitchelle_13 (BD3), Kaine_13 (BD3), Pablito_13 (BD2), Pavo_14 (BD3), Provolone_14 (BD3), Saftant_13 (BD3), Speedwell_18 (BD3), SqueakyClean_14 (BD2), Sudan_14 (BD3), Triumph_15 (BD2), Vanseggelen_17 (BD3), Verabelle_14 (BD3), Verse_13 (BD3), Yosif_14 (BD3), ZamZam_16 (BD3),

Start 31:

- Found in 39 of 89 (43.8%) of genes in pham
- Manual Annotations of this start: 2 of 81
- Called 5.1% of time when present
- Phage (with cluster) where this start called: Izzy_14 (BD1), Paedore_13 (BD2),

Summary by clusters:

There are 4 clusters represented in this pham: BD6, BD1, BD3, BD2,

Info for manual annotations of cluster BD1:

- Start number 22 was manually annotated 54 times for cluster BD1.
- Start number 31 was manually annotated 1 time for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 23 was manually annotated 9 times for cluster BD2.
- Start number 31 was manually annotated 1 time for cluster BD2.

Info for manual annotations of cluster BD3:

- Start number 21 was manually annotated 1 time for cluster BD3.
- Start number 23 was manually annotated 11 times for cluster BD3.

Info for manual annotations of cluster BD6:

- Start number 22 was manually annotated 4 times for cluster BD6.

Gene Information:

Gene: Aaronocolus_13 Start: 9179, Stop: 9577, Start Num: 22

Candidate Starts for Aaronocolus_13:

(1, 8600), (3, 8636), (18, 9065), (19, 9080), (20, 9095), (Start: 22 @9179 has 58 MA's), (35, 9284), (39, 9356), (42, 9383), (43, 9386), (48, 9503), (51, 9563),

Gene: Alsaber_14 Start: 9250, Stop: 9636, Start Num: 23

Candidate Starts for Alsaber_14:

(20, 9163), (Start: 21 @9244 has 1 MA's), (Start: 23 @9250 has 20 MA's), (35, 9355), (48, 9562), (51, 9622),

Gene: Amela_13 Start: 9353, Stop: 9742, Start Num: 21

Candidate Starts for Amela_13:

(9, 8981), (13, 9014), (20, 9272), (Start: 21 @9353 has 1 MA's), (Start: 23 @9359 has 20 MA's), (32, 9428), (46, 9644), (51, 9728),

Gene: Andris_13 Start: 9002, Stop: 9391, Start Num: 23

Candidate Starts for Andris_13:

(11, 8651), (16, 8780), (18, 8885), (20, 8915), (Start: 23 @9002 has 20 MA's), (34, 9110), (41, 9176), (42, 9200), (43, 9203), (48, 9317), (51, 9377),

Gene: Animus_14 Start: 9373, Stop: 9744, Start Num: 23

Candidate Starts for Animus_14:

(6, 8911), (7, 8947), (11, 9022), (12, 9025), (20, 9286), (Start: 23 @9373 has 20 MA's), (25, 9388), (42, 9547), (43, 9550), (46, 9646), (48, 9670), (51, 9730),

Gene: Asten_13 Start: 9138, Stop: 9533, Start Num: 22

Candidate Starts for Asten_13:

(1, 8559), (2, 8583), (4, 8646), (18, 9024), (20, 9054), (Start: 22 @9138 has 58 MA's), (Start: 31 @9204 has 2 MA's), (39, 9312), (43, 9342), (48, 9462), (51, 9519),

Gene: Axiom_14 Start: 9034, Stop: 9429, Start Num: 23

Candidate Starts for Axiom_14:

(11, 8683), (20, 8947), (Start: 23 @9034 has 20 MA's), (Start: 31 @9109 has 2 MA's), (33, 9121), (37, 9181), (41, 9208), (42, 9232), (43, 9235), (48, 9355), (51, 9415),

Gene: BarryBee_15 Start: 9145, Stop: 9540, Start Num: 22

Candidate Starts for BarryBee_15:

(1, 8566), (2, 8590), (4, 8653), (18, 9031), (20, 9061), (Start: 22 @9145 has 58 MA's), (Start: 31 @9211 has 2 MA's), (39, 9319), (43, 9349), (48, 9469), (51, 9526),

Gene: BeardedLady_14 Start: 9426, Stop: 9824, Start Num: 22

Candidate Starts for BeardedLady_14:

(1, 8847), (3, 8883), (18, 9312), (19, 9327), (20, 9342), (Start: 22 @9426 has 58 MA's), (Start: 31 @9492 has 2 MA's), (35, 9531), (39, 9603), (42, 9630), (43, 9633), (48, 9750), (51, 9810),

Gene: Bovely_13 Start: 9185, Stop: 9583, Start Num: 22

Candidate Starts for Bovely_13:

(1, 8606), (3, 8642), (18, 9071), (19, 9086), (20, 9101), (Start: 22 @9185 has 58 MA's), (35, 9290), (39, 9362), (42, 9389), (43, 9392), (48, 9509), (51, 9569),

Gene: Brataylor_14 Start: 9148, Stop: 9546, Start Num: 22

Candidate Starts for Brataylor_14:

(1, 8569), (2, 8593), (5, 8686), (18, 9034), (19, 9049), (20, 9064), (Start: 22 @9148 has 58 MA's), (39, 9322), (43, 9352), (48, 9472), (51, 9532),

Gene: BryanRecycles_14 Start: 9342, Stop: 9740, Start Num: 22

Candidate Starts for BryanRecycles_14:

(1, 8763), (3, 8799), (18, 9228), (19, 9243), (20, 9258), (Start: 22 @9342 has 58 MA's), (Start: 31 @9408 has 2 MA's), (35, 9447), (39, 9519), (42, 9546), (43, 9549), (48, 9666), (51, 9726),

Gene: Caliburn_13 Start: 9159, Stop: 9557, Start Num: 22

Candidate Starts for Caliburn_13:

(Start: 22 @9159 has 58 MA's), (35, 9264), (39, 9336), (42, 9363), (43, 9366), (48, 9483), (51, 9543),

Gene: Celery_16 Start: 9208, Stop: 9591, Start Num: 23

Candidate Starts for Celery_16:

(Start: 23 @9208 has 20 MA's), (35, 9313), (46, 9493), (47, 9502), (51, 9577),

Gene: Celeste_13 Start: 9146, Stop: 9544, Start Num: 22

Candidate Starts for Celeste_13:

(1, 8567), (2, 8591), (5, 8684), (18, 9032), (19, 9047), (20, 9062), (Start: 22 @9146 has 58 MA's), (39, 9320), (43, 9350), (48, 9470), (51, 9530),

Gene: Celia_13 Start: 9481, Stop: 9861, Start Num: 22

Candidate Starts for Celia_13:

(Start: 22 @9481 has 58 MA's), (28, 9535), (Start: 31 @9547 has 2 MA's), (48, 9790), (51, 9850),

Gene: Chucky_13 Start: 9146, Stop: 9541, Start Num: 22

Candidate Starts for Chucky_13:

(1, 8567), (2, 8591), (18, 9032), (20, 9062), (Start: 22 @9146 has 58 MA's), (Start: 31 @9212 has 2 MA's), (39, 9320), (43, 9350), (48, 9470), (51, 9527),

Gene: Conan_14 Start: 8960, Stop: 9343, Start Num: 23

Candidate Starts for Conan_14:

(20, 8873), (Start: 21 @8954 has 1 MA's), (Start: 23 @8960 has 20 MA's), (35, 9065), (42, 9149), (46, 9245), (47, 9254), (51, 9329),

Gene: Danzina_14 Start: 9350, Stop: 9748, Start Num: 22

Candidate Starts for Danzina_14:

(1, 8771), (2, 8795), (18, 9236), (19, 9251), (20, 9266), (Start: 22 @9350 has 58 MA's), (30, 9413), (39, 9524), (43, 9554), (48, 9674), (51, 9734),

Gene: Dattran_14 Start: 9145, Stop: 9543, Start Num: 22

Candidate Starts for Dattran_14:

(1, 8566), (2, 8590), (5, 8683), (18, 9031), (19, 9046), (20, 9061), (Start: 22 @9145 has 58 MA's), (39, 9319), (43, 9349), (48, 9469), (51, 9529),

Gene: Dexers_12 Start: 8953, Stop: 9339, Start Num: 23

Candidate Starts for Dexers_12:

(20, 8866), (Start: 21 @8947 has 1 MA's), (Start: 23 @8953 has 20 MA's), (35, 9058), (48, 9265), (51, 9325),

Gene: Dwayne_13 Start: 9145, Stop: 9540, Start Num: 22

Candidate Starts for Dwayne_13:

(1, 8566), (2, 8590), (4, 8653), (18, 9031), (20, 9061), (Start: 22 @9145 has 58 MA's), (Start: 31 @9211 has 2 MA's), (39, 9319), (43, 9349), (48, 9469), (51, 9526),

Gene: Eddasa_14 Start: 9342, Stop: 9740, Start Num: 22

Candidate Starts for Eddasa_14:

(1, 8763), (3, 8799), (18, 9228), (19, 9243), (20, 9258), (Start: 22 @9342 has 58 MA's), (Start: 31 @9408 has 2 MA's), (35, 9447), (39, 9519), (42, 9546), (43, 9549), (48, 9666), (51, 9726),

Gene: Ejemplo_13 Start: 9148, Stop: 9543, Start Num: 22

Candidate Starts for Ejemplo_13:

(1, 8569), (2, 8593), (18, 9034), (20, 9064), (Start: 22 @9148 has 58 MA's), (Start: 31 @9214 has 2 MA's), (39, 9322), (43, 9352), (48, 9472), (51, 9529),

Gene: ElGato_14 Start: 8963, Stop: 9346, Start Num: 23

Candidate Starts for ElGato_14:

(20, 8876), (Start: 21 @8957 has 1 MA's), (Start: 23 @8963 has 20 MA's), (35, 9068), (42, 9152), (46, 9248), (47, 9257), (51, 9332),

Gene: Emaanora_15 Start: 9145, Stop: 9540, Start Num: 22

Candidate Starts for Emaanora_15:

(1, 8566), (2, 8590), (4, 8653), (18, 9031), (20, 9061), (Start: 22 @9145 has 58 MA's), (Start: 31 @9211 has 2 MA's), (39, 9319), (43, 9349), (48, 9469), (51, 9526),

Gene: EnochSoames_14 Start: 9338, Stop: 9736, Start Num: 22

Candidate Starts for EnochSoames_14:

(1, 8759), (3, 8795), (18, 9224), (19, 9239), (20, 9254), (Start: 22 @9338 has 58 MA's), (Start: 31 @9404 has 2 MA's), (35, 9443), (39, 9515), (42, 9542), (43, 9545), (48, 9662), (51, 9722),

Gene: Esperer_13 Start: 9179, Stop: 9577, Start Num: 22

Candidate Starts for Esperer_13:

(1, 8600), (3, 8636), (18, 9065), (19, 9080), (20, 9095), (Start: 22 @9179 has 58 MA's), (35, 9284), (39, 9356), (42, 9383), (43, 9386), (48, 9503), (51, 9563),

Gene: GirlDinner_13 Start: 9035, Stop: 9406, Start Num: 23

Candidate Starts for GirlDinner_13:

(6, 8573), (7, 8609), (11, 8684), (12, 8687), (16, 8813), (20, 8948), (Start: 23 @9035 has 20 MA's), (25, 9050), (42, 9209), (43, 9212), (45, 9284), (46, 9308), (48, 9332), (51, 9392),

Gene: Goby_13 Start: 9148, Stop: 9546, Start Num: 22

Candidate Starts for Goby_13:

(1, 8569), (2, 8593), (10, 8776), (18, 9034), (19, 9049), (20, 9064), (Start: 22 @9148 has 58 MA's), (30, 9211), (39, 9322), (43, 9352), (48, 9472), (51, 9532),

Gene: Godpower_14 Start: 9163, Stop: 9561, Start Num: 22

Candidate Starts for Godpower_14:

(1, 8584), (2, 8608), (10, 8791), (18, 9049), (19, 9064), (20, 9079), (Start: 22 @9163 has 58 MA's), (30, 9226), (39, 9337), (43, 9367), (48, 9487), (51, 9547),

Gene: Hank144_14 Start: 9304, Stop: 9675, Start Num: 23

Candidate Starts for Hank144_14:

(8, 8893), (11, 8953), (14, 9004), (20, 9217), (Start: 23 @9304 has 20 MA's), (27, 9337), (Start: 31 @9355 has 2 MA's), (42, 9478), (45, 9553), (46, 9577), (48, 9601), (51, 9661),

Gene: Hippo_13 Start: 9145, Stop: 9540, Start Num: 22

Candidate Starts for Hippo_13:

(1, 8566), (2, 8590), (4, 8653), (18, 9031), (20, 9061), (Start: 22 @9145 has 58 MA's), (Start: 31 @9211 has 2 MA's), (39, 9319), (43, 9349), (48, 9469), (51, 9526),

Gene: Hydra_15 Start: 9707, Stop: 10105, Start Num: 22

Candidate Starts for Hydra_15:

(1, 9128), (3, 9164), (18, 9593), (19, 9608), (20, 9623), (Start: 22 @9707 has 58 MA's), (35, 9812), (39, 9884), (42, 9911), (43, 9914), (48, 10031), (51, 10091),

Gene: Indigo_13 Start: 9179, Stop: 9577, Start Num: 22

Candidate Starts for Indigo_13:

(1, 8600), (3, 8636), (18, 9065), (19, 9080), (20, 9095), (Start: 22 @9179 has 58 MA's), (35, 9284), (39, 9356), (42, 9383), (43, 9386), (48, 9503), (51, 9563),

Gene: Itza_13 Start: 9404, Stop: 9784, Start Num: 22

Candidate Starts for Itza_13:

(Start: 22 @9404 has 58 MA's), (28, 9458), (Start: 31 @9470 has 2 MA's), (48, 9713), (51, 9773),

Gene: Izzy_14 Start: 9455, Stop: 9787, Start Num: 31

Candidate Starts for Izzy_14:

(1, 8810), (3, 8846), (18, 9275), (19, 9290), (20, 9305), (Start: 22 @9389 has 58 MA's), (Start: 31 @9455 has 2 MA's), (35, 9494), (39, 9566), (42, 9593), (43, 9596), (48, 9713), (51, 9773),

Gene: Janus_14 Start: 9373, Stop: 9744, Start Num: 23

Candidate Starts for Janus_14:

(6, 8911), (7, 8947), (11, 9022), (12, 9025), (20, 9286), (Start: 23 @9373 has 20 MA's), (25, 9388), (42, 9547), (43, 9550), (45, 9622), (46, 9646), (48, 9670), (51, 9730),

Gene: Jash_14 Start: 9342, Stop: 9740, Start Num: 22

Candidate Starts for Jash_14:

(1, 8763), (3, 8799), (18, 9228), (19, 9243), (20, 9258), (Start: 22 @9342 has 58 MA's), (Start: 31 @9408 has 2 MA's), (35, 9447), (39, 9519), (42, 9546), (43, 9549), (48, 9666), (51, 9726),

Gene: Jhitchelle_13 Start: 8888, Stop: 9274, Start Num: 23

Candidate Starts for Jhitchelle_13:

(Start: 23 @8888 has 20 MA's), (32, 8957), (35, 8993), (42, 9077), (48, 9200), (51, 9260),

Gene: Kaine_13 Start: 8953, Stop: 9339, Start Num: 23

Candidate Starts for Kaine_13:

(20, 8866), (Start: 21 @8947 has 1 MA's), (Start: 23 @8953 has 20 MA's), (35, 9058), (48, 9265), (51, 9325),

Gene: Katalie_14 Start: 9418, Stop: 9816, Start Num: 22

Candidate Starts for Katalie_14:

(1, 8839), (2, 8863), (4, 8926), (18, 9304), (20, 9334), (Start: 22 @9418 has 58 MA's), (39, 9592), (43, 9622), (48, 9742), (51, 9802),

Gene: Lannister_14 Start: 9166, Stop: 9564, Start Num: 22

Candidate Starts for Lannister_14:

(18, 9052), (19, 9067), (20, 9082), (Start: 22 @9166 has 58 MA's), (Start: 31 @9232 has 2 MA's), (39, 9340), (43, 9370), (48, 9490), (51, 9550),

Gene: Legacy_13 Start: 9150, Stop: 9548, Start Num: 22

Candidate Starts for Legacy_13:

(1, 8571), (3, 8607), (18, 9036), (19, 9051), (20, 9066), (Start: 22 @9150 has 58 MA's), (35, 9255), (39, 9327), (42, 9354), (43, 9357), (48, 9474), (51, 9534),

Gene: Leviticus_13 Start: 9179, Stop: 9577, Start Num: 22

Candidate Starts for Leviticus_13:

(1, 8600), (3, 8636), (18, 9065), (19, 9080), (20, 9095), (Start: 22 @9179 has 58 MA's), (35, 9284), (39, 9356), (42, 9383), (43, 9386), (48, 9503), (51, 9563),

Gene: Lika_13 Start: 9164, Stop: 9562, Start Num: 22

Candidate Starts for Lika_13:

(1, 8585), (2, 8609), (10, 8792), (18, 9050), (19, 9065), (20, 9080), (Start: 22 @9164 has 58 MA's), (30, 9227), (39, 9338), (43, 9368), (48, 9488), (51, 9548),

Gene: Lorelei_13 Start: 9136, Stop: 9534, Start Num: 22

Candidate Starts for Lorelei_13:

(1, 8557), (2, 8581), (18, 9022), (19, 9037), (20, 9052), (Start: 22 @9136 has 58 MA's), (30, 9199), (Start: 31 @9202 has 2 MA's), (39, 9310), (48, 9460), (51, 9520),

Gene: Maneekul_13 Start: 9147, Stop: 9542, Start Num: 22

Candidate Starts for Maneekul_13:

(1, 8568), (2, 8592), (18, 9033), (20, 9063), (Start: 22 @9147 has 58 MA's), (Start: 31 @9213 has 2 MA's), (39, 9321), (43, 9351), (48, 9471), (51, 9528),

Gene: Nabi_13 Start: 9136, Stop: 9534, Start Num: 22

Candidate Starts for Nabi_13:

(1, 8557), (2, 8581), (18, 9022), (19, 9037), (20, 9052), (Start: 22 @9136 has 58 MA's), (30, 9199), (Start: 31 @9202 has 2 MA's), (39, 9310), (48, 9460), (51, 9520),

Gene: Nanodon_15 Start: 9338, Stop: 9736, Start Num: 22

Candidate Starts for Nanodon_15:

(18, 9224), (19, 9239), (20, 9254), (Start: 22 @9338 has 58 MA's), (Start: 31 @9404 has 2 MA's), (32, 9407), (39, 9512), (48, 9662), (51, 9722),

Gene: Nerdos_13 Start: 9179, Stop: 9577, Start Num: 22

Candidate Starts for Nerdos_13:

(1, 8600), (3, 8636), (18, 9065), (19, 9080), (20, 9095), (Start: 22 @9179 has 58 MA's), (35, 9284), (39, 9356), (42, 9383), (43, 9386), (48, 9503), (51, 9563),

Gene: Oliynyk_14 Start: 9342, Stop: 9740, Start Num: 22

Candidate Starts for Oliynyk_14:

(1, 8763), (3, 8799), (18, 9228), (19, 9243), (20, 9258), (Start: 22 @9342 has 58 MA's), (Start: 31 @9408 has 2 MA's), (35, 9447), (39, 9519), (42, 9546), (43, 9549), (48, 9666), (51, 9726),

Gene: Ozzie_13 Start: 9159, Stop: 9557, Start Num: 22

Candidate Starts for Ozzie_13:

(1, 8580), (3, 8616), (18, 9045), (19, 9060), (20, 9075), (Start: 22 @9159 has 58 MA's), (Start: 31 @9225 has 2 MA's), (35, 9264), (39, 9336), (42, 9363), (43, 9366), (48, 9483), (51, 9543),

Gene: OzzyJ_14 Start: 9139, Stop: 9534, Start Num: 22

Candidate Starts for OzzyJ_14:

(1, 8560), (2, 8584), (4, 8647), (18, 9025), (20, 9055), (Start: 22 @9139 has 58 MA's), (Start: 31 @9205 has 2 MA's), (39, 9313), (43, 9343), (48, 9463), (51, 9520),

Gene: Pablito_13 Start: 9034, Stop: 9405, Start Num: 23

Candidate Starts for Pablito_13:

(20, 8947), (Start: 23 @9034 has 20 MA's), (24, 9043), (34, 9118), (42, 9208), (48, 9331), (51, 9391),

Gene: Paedore_13 Start: 9152, Stop: 9547, Start Num: 31

Candidate Starts for Paedore_13:

(Start: 23 @9086 has 20 MA's), (26, 9122), (Start: 31 @9152 has 2 MA's), (38, 9248), (40, 9275), (48, 9425), (50, 9482),

Gene: Pavo_14 Start: 9233, Stop: 9616, Start Num: 23

Candidate Starts for Pavo_14:

(20, 9146), (Start: 21 @9227 has 1 MA's), (Start: 23 @9233 has 20 MA's), (35, 9338), (42, 9422), (46, 9518), (47, 9527), (51, 9602),

Gene: Phettuccine_13 Start: 9179, Stop: 9577, Start Num: 22

Candidate Starts for Phettuccine_13:

(1, 8600), (3, 8636), (18, 9065), (19, 9080), (20, 9095), (Start: 22 @9179 has 58 MA's), (35, 9284), (39, 9356), (42, 9383), (43, 9386), (48, 9503), (51, 9563),

Gene: Provolone_14 Start: 8963, Stop: 9346, Start Num: 23

Candidate Starts for Provolone_14:

(20, 8876), (Start: 21 @8957 has 1 MA's), (Start: 23 @8963 has 20 MA's), (35, 9068), (42, 9152), (46, 9248), (47, 9257), (51, 9332),

Gene: Rana_13 Start: 9136, Stop: 9534, Start Num: 22

Candidate Starts for Rana_13:

(1, 8557), (2, 8581), (18, 9022), (19, 9037), (20, 9052), (Start: 22 @9136 has 58 MA's), (30, 9199), (Start: 31 @9202 has 2 MA's), (39, 9310), (48, 9460), (51, 9520),

Gene: RedBear_15 Start: 9418, Stop: 9816, Start Num: 22

Candidate Starts for RedBear_15:

(1, 8839), (2, 8863), (4, 8926), (18, 9304), (20, 9334), (Start: 22 @9418 has 58 MA's), (39, 9592), (43, 9622), (48, 9742), (51, 9802),

Gene: Rusticus_14 Start: 9342, Stop: 9740, Start Num: 22

Candidate Starts for Rusticus_14:

(1, 8763), (3, 8799), (18, 9228), (19, 9243), (20, 9258), (Start: 22 @9342 has 58 MA's), (Start: 31 @9408 has 2 MA's), (35, 9447), (39, 9519), (42, 9546), (43, 9549), (48, 9666), (51, 9726),

Gene: Saftant_13 Start: 9237, Stop: 9638, Start Num: 23

Candidate Starts for Saftant_13:

(Start: 23 @9237 has 20 MA's), (28, 9291), (44, 9483), (48, 9567), (51, 9627),

Gene: SarahRose_13 Start: 9145, Stop: 9540, Start Num: 22

Candidate Starts for SarahRose_13:

(1, 8566), (2, 8590), (4, 8653), (18, 9031), (20, 9061), (Start: 22 @9145 has 58 MA's), (Start: 31 @9211 has 2 MA's), (39, 9319), (43, 9349), (48, 9469), (51, 9526),

Gene: Snorlax_13 Start: 9145, Stop: 9540, Start Num: 22

Candidate Starts for Snorlax_13:

(1, 8566), (2, 8590), (4, 8653), (18, 9031), (20, 9061), (Start: 22 @9145 has 58 MA's), (Start: 31 @9211 has 2 MA's), (39, 9319), (43, 9349), (48, 9469), (51, 9526),

Gene: South40_14 Start: 9418, Stop: 9816, Start Num: 22

Candidate Starts for South40_14:

(1, 8839), (2, 8863), (4, 8926), (18, 9304), (20, 9334), (Start: 22 @9418 has 58 MA's), (39, 9592), (43, 9622), (48, 9742), (51, 9802),

Gene: Speedwell_18 Start: 10967, Stop: 11362, Start Num: 23

Candidate Starts for Speedwell_18:

(Start: 23 @10967 has 20 MA's), (29, 11024), (42, 11171), (43, 11174), (44, 11207), (51, 11351),

Gene: SqueakyClean_14 Start: 9299, Stop: 9670, Start Num: 23

Candidate Starts for SqueakyClean_14:

(6, 8837), (7, 8873), (11, 8948), (12, 8951), (16, 9077), (20, 9212), (Start: 23 @9299 has 20 MA's), (25, 9314), (42, 9473), (43, 9476), (45, 9548), (46, 9572), (48, 9596), (51, 9656),

Gene: Sudan_14 Start: 9240, Stop: 9626, Start Num: 23

Candidate Starts for Sudan_14:

(20, 9153), (Start: 21 @9234 has 1 MA's), (Start: 23 @9240 has 20 MA's), (35, 9345), (48, 9552), (51, 9612),

Gene: Sujidade_14 Start: 9440, Stop: 9838, Start Num: 22

Candidate Starts for Sujidade_14:

(1, 8861), (2, 8885), (10, 9068), (18, 9326), (19, 9341), (20, 9356), (Start: 22 @9440 has 58 MA's), (30, 9503), (39, 9614), (43, 9644), (48, 9764), (51, 9824),

Gene: SunsetPointe_13 Start: 9169, Stop: 9567, Start Num: 22

Candidate Starts for SunsetPointe_13:

(1, 8590), (3, 8626), (18, 9055), (19, 9070), (20, 9085), (Start: 22 @9169 has 58 MA's), (35, 9274), (39, 9346), (42, 9373), (43, 9376), (48, 9493), (51, 9553),

Gene: TagePhighter_14 Start: 9145, Stop: 9540, Start Num: 22

Candidate Starts for TagePhighter_14:

(1, 8566), (2, 8590), (4, 8653), (18, 9031), (20, 9061), (Start: 22 @9145 has 58 MA's), (Start: 31 @9211 has 2 MA's), (39, 9319), (43, 9349), (48, 9469), (51, 9526),

Gene: Toma_13 Start: 9148, Stop: 9546, Start Num: 22

Candidate Starts for Toma_13:

(1, 8569), (2, 8593), (10, 8776), (18, 9034), (19, 9049), (20, 9064), (Start: 22 @9148 has 58 MA's), (30, 9211), (39, 9322), (43, 9352), (48, 9472), (51, 9532),

Gene: Triste_13 Start: 9139, Stop: 9534, Start Num: 22

Candidate Starts for Triste_13:

(1, 8560), (2, 8584), (4, 8647), (18, 9025), (20, 9055), (Start: 22 @9139 has 58 MA's), (Start: 31 @9205 has 2 MA's), (39, 9313), (43, 9343), (48, 9463), (51, 9520),

Gene: Triumph_15 Start: 9064, Stop: 9459, Start Num: 23

Candidate Starts for Triumph_15:

(11, 8713), (20, 8977), (Start: 23 @9064 has 20 MA's), (Start: 31 @9139 has 2 MA's), (33, 9151), (37, 9211), (41, 9238), (42, 9262), (43, 9265), (48, 9385), (51, 9445),

Gene: TuanPN_13 Start: 9148, Stop: 9543, Start Num: 22

Candidate Starts for TuanPN_13:

(1, 8569), (2, 8593), (18, 9034), (20, 9064), (Start: 22 @9148 has 58 MA's), (Start: 31 @9214 has 2 MA's), (39, 9322), (43, 9352), (48, 9472), (51, 9529),

Gene: Unstoppable_13 Start: 9170, Stop: 9568, Start Num: 22

Candidate Starts for Unstoppable_13:

(1, 8591), (3, 8627), (18, 9056), (19, 9071), (20, 9086), (Start: 22 @9170 has 58 MA's), (35, 9275), (39, 9347), (42, 9374), (43, 9377), (48, 9494), (51, 9554),

Gene: Urza_13 Start: 9416, Stop: 9796, Start Num: 22

Candidate Starts for Urza_13:

(Start: 22 @9416 has 58 MA's), (28, 9470), (Start: 31 @9482 has 2 MA's), (48, 9725), (51, 9785),

Gene: Vanseggelen_17 Start: 8887, Stop: 9273, Start Num: 23

Candidate Starts for Vanseggelen_17:

(Start: 23 @8887 has 20 MA's), (42, 9076), (46, 9175), (48, 9199), (51, 9259),

Gene: Verabelle_14 Start: 9237, Stop: 9620, Start Num: 23

Candidate Starts for Verabelle_14:

(15, 8991), (17, 9090), (Start: 23 @9237 has 20 MA's), (44, 9462), (46, 9525), (48, 9549), (51, 9609),

Gene: Verse_13 Start: 9353, Stop: 9736, Start Num: 23

Candidate Starts for Verse_13:

(9, 8975), (13, 9008), (20, 9266), (Start: 21 @9347 has 1 MA's), (Start: 23 @9353 has 20 MA's), (32, 9422), (46, 9638), (51, 9722),

Gene: VieEnRose_13 Start: 9486, Stop: 9866, Start Num: 22

Candidate Starts for VieEnRose_13:

(20, 9402), (Start: 22 @9486 has 58 MA's), (28, 9540), (Start: 31 @9552 has 2 MA's), (36, 9609), (48, 9795), (51, 9855),

Gene: Werner_13 Start: 9146, Stop: 9541, Start Num: 22

Candidate Starts for Werner_13:

(1, 8567), (2, 8591), (4, 8654), (18, 9032), (20, 9062), (Start: 22 @9146 has 58 MA's), (Start: 31 @9212 has 2 MA's), (39, 9320), (43, 9350), (48, 9470), (51, 9527),

Gene: Whatever_13 Start: 9146, Stop: 9541, Start Num: 22

Candidate Starts for Whatever_13:

(1, 8567), (2, 8591), (4, 8654), (18, 9032), (20, 9062), (Start: 22 @9146 has 58 MA's), (Start: 31 @9212 has 2 MA's), (39, 9320), (43, 9350), (48, 9470), (51, 9527),

Gene: Yasdnii_13 Start: 9144, Stop: 9539, Start Num: 22

Candidate Starts for Yasdnii_13:

(1, 8565), (2, 8589), (18, 9030), (20, 9060), (Start: 22 @9144 has 58 MA's), (Start: 31 @9210 has 2 MA's), (39, 9318), (43, 9348), (48, 9468), (51, 9525),

Gene: Yosif_14 Start: 9614, Stop: 10000, Start Num: 23

Candidate Starts for Yosif_14:

(20, 9527), (Start: 23 @9614 has 20 MA's), (24, 9623), (35, 9719), (42, 9803), (44, 9839), (48, 9926), (51, 9986),

Gene: ZamZam_16 Start: 9242, Stop: 9640, Start Num: 23

Candidate Starts for ZamZam_16:

(Start: 23 @9242 has 20 MA's), (28, 9296), (29, 9299), (42, 9446), (43, 9449), (44, 9482), (51, 9626),

Gene: Zemlya_14 Start: 9156, Stop: 9554, Start Num: 22

Candidate Starts for Zemlya_14:

(1, 8577), (2, 8601), (5, 8694), (18, 9042), (19, 9057), (20, 9072), (Start: 22 @9156 has 58 MA's), (39, 9330), (43, 9360), (48, 9480), (51, 9540),

Gene: phiCAM_14 Start: 11010, Stop: 11402, Start Num: 21

Candidate Starts for phiCAM_14:

(20, 10929), (Start: 21 @11010 has 1 MA's), (Start: 23 @11016 has 20 MA's), (32, 11085), (35, 11121), (48, 11328), (49, 11364), (51, 11388),