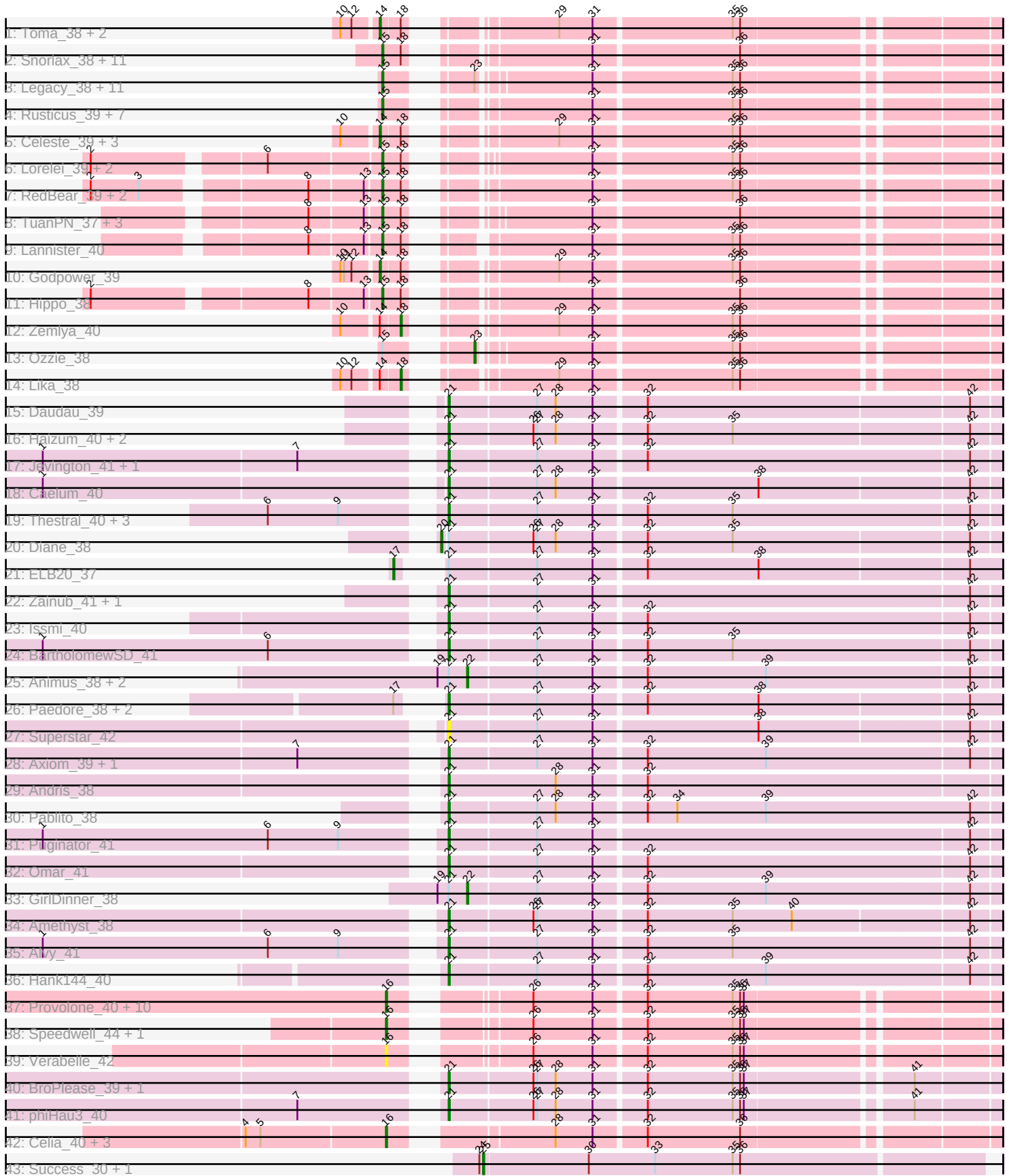




Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. If this default region is judged to be packed too tightly 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 280244 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 280244 has 112 members, 6 are drafts.

Phages represented in each track:

- Track 1 : Toma_38, Goby_38, Sujidade_39
- Track 2 : Snorlax_38, Werner_38, Emaanora_41, Dwayne_38, Chucky_38, OzzyJ_39, Triste_38, SarahRose_38, BarryBee_41, Whatever_38, TagePhighter_40, Asten_38
- Track 3 : Legacy_38, Nerdos_37, Caliburn_38, Esperer_38, SunsetPointe_38, Unstoppable_38, BeardedLady_39, Leviticus_38, Phettuccine_38, Bovely_38, Hydra_40, Indigo_37
- Track 4 : Rusticus_39, EnochSoames_41, Nanodon_40, Izzy_39, Jash_39, BryanRecycles_39, Eddasa_39, Oliynyk_39
- Track 5 : Celeste_39, Brataylor_41, Dattran_40, Danzina_40
- Track 6 : Lorelei_39, Nabi_39, Rana_39
- Track 7 : RedBear_39, South40_38, Katalie_38
- Track 8 : TuanPN_37, Maneeku_38, Ejemplo_37, Yasdnil_38
- Track 9 : Lannister_40
- Track 10 : Godpower_39
- Track 11 : Hippo_38
- Track 12 : Zemlya_40
- Track 13 : Ozzie_38
- Track 14 : Lika_38
- Track 15 : Daudau_39
- Track 16 : Haizum_40, Tefunt_40, Nishikigoi_40
- Track 17 : Jevington_41, Marav_42
- Track 18 : Caelum_40
- Track 19 : Thestral_40, Bowden_39, TrvxScott_38, TinaBelcher_39
- Track 20 : Diane_38
- Track 21 : ELB20_37
- Track 22 : Zainub_41, Paolo_41
- Track 23 : Issmi_40
- Track 24 : BartholomewSD_41
- Track 25 : Animus_38, SqueakyClean_38, Janus_39
- Track 26 : Paedore_38, R4_39, Loofah_39
- Track 27 : Superstar_42
- Track 28 : Axiom_39, Triumph_40

- Track 29 : Andris_38
- Track 30 : Pablito_38
- Track 31 : Puginator_41
- Track 32 : Omar_41
- Track 33 : GirlDinner_38
- Track 34 : Amethyst_38
- Track 35 : Alvy_41
- Track 36 : Hank144_40
- Track 37 : Provolone_40, Alsaber_40, Sudan_40, Pavo_40, ElGato_40, Amela_39, Conan_40, Vanseggelen_44, Kaine_39, Celery_42, Verse_39
- Track 38 : Speedwell_44, Dexers_38
- Track 39 : Verabelle_42
- Track 40 : BroPlease_39, GreenWeasel_40
- Track 41 : phiHau3_40
- Track 42 : Celia_40, Urza_40, VieEnRose_39, Itza_40
- Track 43 : Success_30, Bimmel_28

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

The start number called the most often in the published annotations is 15, it was called in 43 of the 106 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Asten_38, BarryBee_41, BeardedLady_39, Bovely_38, BryanRecycles_39, Caliburn_38, Chucky_38, Dwayne_38, Eddasa_39, Ejemplo_37, Emaanora_41, EnochSoames_41, Esperer_38, Hippo_38, Hydra_40, Indigo_37, Izzy_39, Jash_39, Katalie_38, Lannister_40, Legacy_38, Leviticus_38, Lorelei_39, Maneekul_38, Nabi_39, Nanodon_40, Nerdos_37, Oliynyk_39, OzzyJ_39, Phettuccine_38, Rana_39, RedBear_39, Rusticus_39, SarahRose_38, Snorlax_38, South40_38, SunsetPointe_38, TagePhighter_40, Triste_38, TuanPN_37, Unstoppable_38, Werner_38, Whatever_38, Yasdnil_38,

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

- Ozzie_38,

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

- Alsaber_40, Alvy_41, Amela_39, Amethyst_38, Andris_38, Animus_38, Axiom_39, BartholomewSD_41, Bimmel_28, Bowden_39, Brataylor_41, BroPlease_39, Caelum_40, Celery_42, Celeste_39, Celia_40, Conan_40, Danzina_40, Dattran_40, Daudau_39, Dexers_38, Diane_38, ELB20_37, ElGato_40, GirlDinner_38, Goby_38, Godpower_39, GreenWeasel_40, Haizum_40, Hank144_40, Issmi_40, Itza_40, Janus_39, Jevington_41, Kaine_39, Lika_38, Loofah_39, Marav_42, Nishikigoi_40, Omar_41, Pablito_38, Paedore_38, Paolo_41, Pavo_40, Provolone_40, Puginator_41, R4_39, Speedwell_44, SqueakyClean_38, Success_30, Sudan_40, Sujidade_39, Superstar_42, Tefunt_40, Thestral_40, TinaBelcher_39, Toma_38, Triumph_40, TrvxScott_38, Urza_40, Vanseggelen_44, Verabelle_42, Verse_39, VieEnRose_39, Zainub_41, Zemlya_40, phiHau3_40,

Summary by start number:

Start 14:

- Found in 10 of 112 (8.9%) of genes in pham
- Manual Annotations of this start: 8 of 106
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Brataylor_41 (BD1), Celeste_39 (BD1), Danzina_40 (BD1), Dattran_40 (BD1), Goby_38 (BD1), Godpower_39 (BD1), Sujidade_39 (BD1), Toma_38 (BD1),

Start 15:

- Found in 45 of 112 (40.2%) of genes in pham
- Manual Annotations of this start: 43 of 106
- Called 97.8% of time when present
- Phage (with cluster) where this start called: Asten_38 (BD1), BarryBee_41 (BD1), BeardedLady_39 (BD1), Bovely_38 (BD1), BryanRecycles_39 (BD1), Caliburn_38 (BD1), Chucky_38 (BD1), Dwayne_38 (BD1), Eddasa_39 (BD1), Ejemplo_37 (BD1), Emaanora_41 (BD1), EnochSoames_41 (BD1), Esperer_38 (BD1), Hippo_38 (BD1), Hydra_40 (BD1), Indigo_37 (BD1), Izzy_39 (BD1), Jash_39 (BD1), Katalie_38 (BD1), Lannister_40 (BD1), Legacy_38 (BD1), Leviticus_38 (BD1), Lorelei_39 (BD1), Maneekul_38 (BD1), Nabi_39 (BD1), Nanodon_40 (BD1), Nerdos_37 (BD1), Oliynyk_39 (BD1), OzzyJ_39 (BD1), Phettuccine_38 (BD1), Rana_39 (BD1), RedBear_39 (BD1), Rusticus_39 (BD1), SarahRose_38 (BD1), Snorlax_38 (BD1), South40_38 (BD1), SunsetPointe_38 (BD1), TagePhighter_40 (BD1), Triste_38 (BD1), TuanPN_37 (BD1), Unstoppable_38 (BD1), Werner_38 (BD1), Whatever_38 (BD1), Yasdnil_38 (BD1),

Start 16:

- Found in 18 of 112 (16.1%) of genes in pham
- Manual Annotations of this start: 14 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alsaber_40 (BD3), Amela_39 (BD3), Celery_42 (BD3), Celia_40 (BD6), Conan_40 (BD3), Dexers_38 (BD3), ElGato_40 (BD3), Itza_40 (BD6), Kaine_39 (BD3), Pavo_40 (BD3), Provolone_40 (BD3), Speedwell_44 (BD3), Sudan_40 (BD3), Urza_40 (BD6), Vanseggelen_44 (BD3), Verabelle_42 (BD3), Verse_39 (BD3), VieEnRose_39 (BD6),

Start 17:

- Found in 4 of 112 (3.6%) of genes in pham
- Manual Annotations of this start: 1 of 106
- Called 25.0% of time when present
- Phage (with cluster) where this start called: ELB20_37 (BD2),

Start 18:

- Found in 34 of 112 (30.4%) of genes in pham
- Manual Annotations of this start: 2 of 106
- Called 5.9% of time when present
- Phage (with cluster) where this start called: Lika_38 (BD1), Zemlya_40 (BD1),

Start 20:

- Found in 1 of 112 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Diane_38 (BD2),

Start 21:

- Found in 37 of 112 (33.0%) of genes in pham
- Manual Annotations of this start: 30 of 106
- Called 83.8% of time when present
- Phage (with cluster) where this start called: Alvy_41 (BD2), Amethyst_38 (BD2), Andris_38 (BD2), Axiom_39 (BD2), BartholomewSD_41 (BD2), Bowden_39 (BD2), BroPlease_39 (BD4), Caelum_40 (BD2), Daudau_39 (BD2), GreenWeasel_40 (BD4), Haizum_40 (BD2), Hank144_40 (BD2), Issmi_40 (BD2), Jevington_41 (BD2), Loofah_39 (BD2), Marav_42 (BD2), Nishikigoi_40 (BD2), Omar_41 (BD2), Pablito_38 (BD2), Paedore_38 (BD2), Paolo_41 (BD2), Puginator_41 (BD2), R4_39 (BD2), Superstar_42 (BD2), Tefunt_40 (BD2), Thestral_40 (BD2), TinaBelcher_39 (BD2), Triumph_40 (BD2), TrvxScott_38 (BD2), Zainub_41 (BD2), phiHau3_40 (BD4),

Start 22:

- Found in 4 of 112 (3.6%) of genes in pham
- Manual Annotations of this start: 4 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Animus_38 (BD2), GirlDinner_38 (BD2), Janus_39 (BD2), SqueakyClean_38 (BD2),

Start 23:

- Found in 13 of 112 (11.6%) of genes in pham
- Manual Annotations of this start: 1 of 106
- Called 7.7% of time when present
- Phage (with cluster) where this start called: Ozzie_38 (BD1),

Start 25:

- Found in 2 of 112 (1.8%) of genes in pham
- Manual Annotations of this start: 2 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bimmel_28 (BT), Success_30 (BT),

Summary by clusters:

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

Info for manual annotations of cluster BD1:

- Start number 14 was manually annotated 8 times for cluster BD1.
- Start number 15 was manually annotated 43 times for cluster BD1.
- Start number 18 was manually annotated 2 times for cluster BD1.
- Start number 23 was manually annotated 1 time for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 17 was manually annotated 1 time for cluster BD2.
- Start number 20 was manually annotated 1 time for cluster BD2.
- Start number 21 was manually annotated 27 times for cluster BD2.
- Start number 22 was manually annotated 4 times for cluster BD2.

Info for manual annotations of cluster BD3:

- Start number 16 was manually annotated 10 times for cluster BD3.

Info for manual annotations of cluster BD4:

- Start number 21 was manually annotated 3 times for cluster BD4.

Info for manual annotations of cluster BD6:

- Start number 16 was manually annotated 4 times for cluster BD6.

Info for manual annotations of cluster BT:

- Start number 25 was manually annotated 2 times for cluster BT.

Gene Information:

Gene: Alsaber_40 Start: 29436, Stop: 29873, Start Num: 16

Candidate Starts for Alsaber_40:

(Start: 16 @29436 has 14 MA's), (26, 29520), (31, 29568), (32, 29607), (35, 29676), (36, 29682), (37, 29685),

Gene: Alvy_41 Start: 28916, Stop: 29350, Start Num: 21

Candidate Starts for Alvy_41:

(1, 28610), (6, 28793), (9, 28850), (Start: 21 @28916 has 30 MA's), (27, 28985), (31, 29030), (32, 29069), (35, 29138), (42, 29327),

Gene: Amela_39 Start: 30243, Stop: 30680, Start Num: 16

Candidate Starts for Amela_39:

(Start: 16 @30243 has 14 MA's), (26, 30327), (31, 30375), (32, 30414), (35, 30483), (36, 30489), (37, 30492),

Gene: Amethyst_38 Start: 28284, Stop: 28715, Start Num: 21

Candidate Starts for Amethyst_38:

(Start: 21 @28284 has 30 MA's), (26, 28350), (27, 28353), (31, 28398), (32, 28437), (35, 28506), (40, 28554), (42, 28692),

Gene: Andris_38 Start: 28339, Stop: 28776, Start Num: 21

Candidate Starts for Andris_38:

(Start: 21 @28339 has 30 MA's), (28, 28426), (31, 28456), (32, 28495),

Gene: Animus_38 Start: 28772, Stop: 29191, Start Num: 22

Candidate Starts for Animus_38:

(19, 28748), (Start: 21 @28757 has 30 MA's), (Start: 22 @28772 has 4 MA's), (27, 28826), (31, 28871), (32, 28910), (39, 29006), (42, 29168),

Gene: Asten_38 Start: 27911, Stop: 28345, Start Num: 15

Candidate Starts for Asten_38:

(Start: 15 @27911 has 43 MA's), (Start: 18 @27926 has 2 MA's), (31, 28040), (36, 28154),

Gene: Axiom_39 Start: 28502, Stop: 28936, Start Num: 21

Candidate Starts for Axiom_39:

(7, 28406), (Start: 21 @28502 has 30 MA's), (27, 28571), (31, 28616), (32, 28655), (39, 28751), (42, 28913),

Gene: BarryBee_41 Start: 27921, Stop: 28355, Start Num: 15

Candidate Starts for BarryBee_41:

(Start: 15 @27921 has 43 MA's), (Start: 18 @27936 has 2 MA's), (31, 28050), (36, 28164),

Gene: BartholomewSD_41 Start: 28915, Stop: 29349, Start Num: 21

Candidate Starts for BartholomewSD_41:

(1, 28609), (6, 28792), (Start: 21 @28915 has 30 MA's), (27, 28984), (31, 29029), (32, 29068), (35, 29137), (42, 29326),

Gene: BeardedLady_39 Start: 27805, Stop: 28236, Start Num: 15

Candidate Starts for BeardedLady_39:

(Start: 15 @27805 has 43 MA's), (Start: 23 @27850 has 1 MA's), (31, 27931), (35, 28039), (36, 28045),

Gene: Bimmel_28 Start: 18955, Stop: 18557, Start Num: 25

Candidate Starts for Bimmel_28:

(24, 18958), (Start: 25 @18955 has 2 MA's), (30, 18871), (33, 18817), (35, 18754), (36, 18748),

Gene: Bovely_38 Start: 27558, Stop: 27989, Start Num: 15

Candidate Starts for Bovely_38:

(Start: 15 @27558 has 43 MA's), (Start: 23 @27603 has 1 MA's), (31, 27684), (35, 27792), (36, 27798),

Gene: Bowden_39 Start: 28831, Stop: 29265, Start Num: 21

Candidate Starts for Bowden_39:

(6, 28708), (9, 28765), (Start: 21 @28831 has 30 MA's), (27, 28900), (31, 28945), (32, 28984), (35, 29053), (42, 29242),

Gene: Brataylor_41 Start: 28894, Stop: 29328, Start Num: 14

Candidate Starts for Brataylor_41:

(10, 28867), (Start: 14 @28894 has 8 MA's), (Start: 18 @28909 has 2 MA's), (29, 28996), (31, 29023), (35, 29131), (36, 29137),

Gene: BroPlease_39 Start: 28051, Stop: 28470, Start Num: 21

Candidate Starts for BroPlease_39:

(Start: 21 @28051 has 30 MA's), (26, 28117), (27, 28120), (28, 28135), (31, 28165), (32, 28204), (35, 28273), (36, 28279), (37, 28282), (41, 28405),

Gene: BryanRecycles_39 Start: 27909, Stop: 28343, Start Num: 15

Candidate Starts for BryanRecycles_39:

(Start: 15 @27909 has 43 MA's), (31, 28038), (35, 28146), (36, 28152),

Gene: Caelum_40 Start: 28531, Stop: 28962, Start Num: 21

Candidate Starts for Caelum_40:

(1, 28231), (Start: 21 @28531 has 30 MA's), (27, 28600), (28, 28615), (31, 28645), (38, 28774), (42, 28939),

Gene: Caliburn_38 Start: 27535, Stop: 27966, Start Num: 15

Candidate Starts for Caliburn_38:

(Start: 15 @27535 has 43 MA's), (Start: 23 @27580 has 1 MA's), (31, 27661), (35, 27769), (36, 27775),

Gene: Celery_42 Start: 29369, Stop: 29806, Start Num: 16

Candidate Starts for Celery_42:

(Start: 16 @29369 has 14 MA's), (26, 29453), (31, 29501), (32, 29540), (35, 29609), (36, 29615), (37, 29618),

Gene: Celeste_39 Start: 28363, Stop: 28797, Start Num: 14

Candidate Starts for Celeste_39:

(10, 28336), (Start: 14 @28363 has 8 MA's), (Start: 18 @28378 has 2 MA's), (29, 28465), (31, 28492), (35, 28600), (36, 28606),

Gene: Celia_40 Start: 28458, Stop: 28898, Start Num: 16

Candidate Starts for Celia_40:

(4, 28347), (5, 28359), (Start: 16 @28458 has 14 MA's), (28, 28563), (31, 28593), (32, 28632), (36, 28707),

Gene: Chucky_38 Start: 27925, Stop: 28359, Start Num: 15

Candidate Starts for Chucky_38:

(Start: 15 @27925 has 43 MA's), (Start: 18 @27940 has 2 MA's), (31, 28054), (36, 28168),

Gene: Conan_40 Start: 29330, Stop: 29767, Start Num: 16

Candidate Starts for Conan_40:

(Start: 16 @29330 has 14 MA's), (26, 29414), (31, 29462), (32, 29501), (35, 29570), (36, 29576), (37, 29579),

Gene: Danzina_40 Start: 28664, Stop: 29098, Start Num: 14

Candidate Starts for Danzina_40:

(10, 28637), (Start: 14 @28664 has 8 MA's), (Start: 18 @28679 has 2 MA's), (29, 28766), (31, 28793), (35, 28901), (36, 28907),

Gene: Dattran_40 Start: 28470, Stop: 28904, Start Num: 14

Candidate Starts for Dattran_40:

(10, 28443), (Start: 14 @28470 has 8 MA's), (Start: 18 @28485 has 2 MA's), (29, 28572), (31, 28599), (35, 28707), (36, 28713),

Gene: Daudau_39 Start: 28676, Stop: 29107, Start Num: 21

Candidate Starts for Daudau_39:

(Start: 21 @28676 has 30 MA's), (27, 28745), (28, 28760), (31, 28790), (32, 28829), (42, 29084),

Gene: Dexers_38 Start: 29354, Stop: 29791, Start Num: 16

Candidate Starts for Dexers_38:

(Start: 16 @29354 has 14 MA's), (26, 29438), (31, 29486), (32, 29525), (35, 29594), (36, 29600), (37, 29603),

Gene: Diane_38 Start: 28510, Stop: 28944, Start Num: 20

Candidate Starts for Diane_38:

(Start: 20 @28510 has 1 MA's), (Start: 21 @28513 has 30 MA's), (26, 28579), (27, 28582), (28, 28597), (31, 28627), (32, 28666), (35, 28735), (42, 28921),

Gene: Dwayne_38 Start: 27912, Stop: 28346, Start Num: 15

Candidate Starts for Dwayne_38:

(Start: 15 @27912 has 43 MA's), (Start: 18 @27927 has 2 MA's), (31, 28041), (36, 28155),

Gene: ELB20_37 Start: 28907, Stop: 29350, Start Num: 17

Candidate Starts for ELB20_37:

(Start: 17 @28907 has 1 MA's), (Start: 21 @28916 has 30 MA's), (27, 28985), (31, 29030), (32, 29069), (38, 29159), (42, 29324),

Gene: Eddasa_39 Start: 27909, Stop: 28343, Start Num: 15

Candidate Starts for Eddasa_39:

(Start: 15 @27909 has 43 MA's), (31, 28038), (35, 28146), (36, 28152),

Gene: Ejemplo_37 Start: 27859, Stop: 28290, Start Num: 15

Candidate Starts for Ejemplo_37:

(8, 27805), (13, 27847), (Start: 15 @27859 has 43 MA's), (Start: 18 @27874 has 2 MA's), (31, 27985), (36, 28099),

Gene: ElGato_40 Start: 28994, Stop: 29431, Start Num: 16

Candidate Starts for ElGato_40:

(Start: 16 @28994 has 14 MA's), (26, 29078), (31, 29126), (32, 29165), (35, 29234), (36, 29240), (37, 29243),

Gene: Emaanora_41 Start: 27870, Stop: 28304, Start Num: 15

Candidate Starts for Emaanora_41:

(Start: 15 @27870 has 43 MA's), (Start: 18 @27885 has 2 MA's), (31, 27999), (36, 28113),

Gene: EnochSoames_41 Start: 27904, Stop: 28338, Start Num: 15

Candidate Starts for EnochSoames_41:

(Start: 15 @27904 has 43 MA's), (31, 28033), (35, 28141), (36, 28147),

Gene: Esperer_38 Start: 27371, Stop: 27802, Start Num: 15

Candidate Starts for Esperer_38:

(Start: 15 @27371 has 43 MA's), (Start: 23 @27416 has 1 MA's), (31, 27497), (35, 27605), (36, 27611),

Gene: GirlDinner_38 Start: 28273, Stop: 28692, Start Num: 22

Candidate Starts for GirlDinner_38:

(19, 28249), (Start: 21 @28258 has 30 MA's), (Start: 22 @28273 has 4 MA's), (27, 28327), (31, 28372), (32, 28411), (39, 28507), (42, 28669),

Gene: Goby_38 Start: 28369, Stop: 28803, Start Num: 14

Candidate Starts for Goby_38:

(10, 28342), (12, 28351), (Start: 14 @28369 has 8 MA's), (Start: 18 @28384 has 2 MA's), (29, 28471), (31, 28498), (35, 28606), (36, 28612),

Gene: Godpower_39 Start: 28364, Stop: 28798, Start Num: 14

Candidate Starts for Godpower_39:

(10, 28337), (11, 28340), (12, 28346), (Start: 14 @28364 has 8 MA's), (Start: 18 @28379 has 2 MA's), (29, 28466), (31, 28493), (35, 28601), (36, 28607),

Gene: GreenWeasel_40 Start: 28058, Stop: 28477, Start Num: 21

Candidate Starts for GreenWeasel_40:

(Start: 21 @28058 has 30 MA's), (26, 28124), (27, 28127), (28, 28142), (31, 28172), (32, 28211), (35, 28280), (36, 28286), (37, 28289), (41, 28412),

Gene: Haizum_40 Start: 28628, Stop: 29059, Start Num: 21

Candidate Starts for Haizum_40:

(Start: 21 @28628 has 30 MA's), (26, 28694), (27, 28697), (28, 28712), (31, 28742), (32, 28781), (35, 28850), (42, 29036),

Gene: Hank144_40 Start: 28621, Stop: 29055, Start Num: 21

Candidate Starts for Hank144_40:

(Start: 21 @28621 has 30 MA's), (27, 28690), (31, 28735), (32, 28774), (39, 28870), (42, 29032),

Gene: Hippo_38 Start: 27924, Stop: 28358, Start Num: 15

Candidate Starts for Hippo_38:

(2, 27711), (8, 27870), (13, 27912), (Start: 15 @27924 has 43 MA's), (Start: 18 @27939 has 2 MA's), (31, 28053), (36, 28167),

Gene: Hydra_40 Start: 28083, Stop: 28514, Start Num: 15

Candidate Starts for Hydra_40:

(Start: 15 @28083 has 43 MA's), (Start: 23 @28128 has 1 MA's), (31, 28209), (35, 28317), (36, 28323),

Gene: Indigo_37 Start: 27551, Stop: 27982, Start Num: 15

Candidate Starts for Indigo_37:

(Start: 15 @27551 has 43 MA's), (Start: 23 @27596 has 1 MA's), (31, 27677), (35, 27785), (36, 27791),

Gene: Issmi_40 Start: 29225, Stop: 29659, Start Num: 21

Candidate Starts for Issmi_40:

(Start: 21 @29225 has 30 MA's), (27, 29294), (31, 29339), (32, 29378), (42, 29636),

Gene: Itza_40 Start: 28372, Stop: 28812, Start Num: 16

Candidate Starts for Itza_40:

(4, 28261), (5, 28273), (Start: 16 @28372 has 14 MA's), (28, 28477), (31, 28507), (32, 28546), (36, 28621),

Gene: Izzy_39 Start: 27956, Stop: 28390, Start Num: 15

Candidate Starts for Izzy_39:

(Start: 15 @27956 has 43 MA's), (31, 28085), (35, 28193), (36, 28199),

Gene: Janus_39 Start: 28613, Stop: 29032, Start Num: 22

Candidate Starts for Janus_39:

(19, 28589), (Start: 21 @28598 has 30 MA's), (Start: 22 @28613 has 4 MA's), (27, 28667), (31, 28712), (32, 28751), (39, 28847), (42, 29009),

Gene: Jash_39 Start: 27909, Stop: 28343, Start Num: 15

Candidate Starts for Jash_39:

(Start: 15 @27909 has 43 MA's), (31, 28038), (35, 28146), (36, 28152),

Gene: Jevington_41 Start: 29016, Stop: 29450, Start Num: 21

Candidate Starts for Jevington_41:

(1, 28713), (7, 28917), (Start: 21 @29016 has 30 MA's), (27, 29085), (31, 29130), (32, 29169), (42, 29427),

Gene: Kaine_39 Start: 29145, Stop: 29582, Start Num: 16

Candidate Starts for Kaine_39:

(Start: 16 @29145 has 14 MA's), (26, 29229), (31, 29277), (32, 29316), (35, 29385), (36, 29391), (37, 29394),

Gene: Katalie_38 Start: 28095, Stop: 28529, Start Num: 15

Candidate Starts for Katalie_38:

(2, 27885), (3, 27924), (8, 28041), (13, 28083), (Start: 15 @28095 has 43 MA's), (Start: 18 @28110 has 2 MA's), (31, 28224), (35, 28332), (36, 28338),

Gene: Lannister_40 Start: 28575, Stop: 29006, Start Num: 15

Candidate Starts for Lannister_40:

(8, 28521), (13, 28563), (Start: 15 @28575 has 43 MA's), (Start: 18 @28590 has 2 MA's), (31, 28701), (35, 28809), (36, 28815),

Gene: Legacy_38 Start: 27526, Stop: 27957, Start Num: 15

Candidate Starts for Legacy_38:

(Start: 15 @27526 has 43 MA's), (Start: 23 @27571 has 1 MA's), (31, 27652), (35, 27760), (36, 27766),

Gene: Leviticus_38 Start: 27555, Stop: 27986, Start Num: 15

Candidate Starts for Leviticus_38:

(Start: 15 @27555 has 43 MA's), (Start: 23 @27600 has 1 MA's), (31, 27681), (35, 27789), (36, 27795),

Gene: Lika_38 Start: 28382, Stop: 28801, Start Num: 18

Candidate Starts for Lika_38:

(10, 28340), (12, 28349), (Start: 14 @28367 has 8 MA's), (Start: 18 @28382 has 2 MA's), (29, 28469), (31, 28496), (35, 28604), (36, 28610),

Gene: Loofah_39 Start: 28786, Stop: 29220, Start Num: 21

Candidate Starts for Loofah_39:

(Start: 17 @28777 has 1 MA's), (Start: 21 @28786 has 30 MA's), (27, 28855), (31, 28900), (32, 28939), (38, 29029), (42, 29194),

Gene: Lorelei_39 Start: 28430, Stop: 28861, Start Num: 15

Candidate Starts for Lorelei_39:

(2, 28217), (6, 28343), (Start: 15 @28430 has 43 MA's), (Start: 18 @28445 has 2 MA's), (31, 28556), (35, 28664), (36, 28670),

Gene: Maneekul_38 Start: 27949, Stop: 28380, Start Num: 15

Candidate Starts for Maneekul_38:

(8, 27895), (13, 27937), (Start: 15 @27949 has 43 MA's), (Start: 18 @27964 has 2 MA's), (31, 28075), (36, 28189),

Gene: Marav_42 Start: 29341, Stop: 29775, Start Num: 21

Candidate Starts for Marav_42:

(1, 29038), (7, 29242), (Start: 21 @29341 has 30 MA's), (27, 29410), (31, 29455), (32, 29494), (42, 29752),

Gene: Nabi_39 Start: 28430, Stop: 28861, Start Num: 15

Candidate Starts for Nabi_39:

(2, 28217), (6, 28343), (Start: 15 @28430 has 43 MA's), (Start: 18 @28445 has 2 MA's), (31, 28556), (35, 28664), (36, 28670),

Gene: Nanodon_40 Start: 28195, Stop: 28632, Start Num: 15

Candidate Starts for Nanodon_40:

(Start: 15 @28195 has 43 MA's), (31, 28327), (35, 28435), (36, 28441),

Gene: Nerdos_37 Start: 27550, Stop: 27981, Start Num: 15

Candidate Starts for Nerdos_37:

(Start: 15 @27550 has 43 MA's), (Start: 23 @27595 has 1 MA's), (31, 27676), (35, 27784), (36, 27790),

Gene: Nishikigoi_40 Start: 28628, Stop: 29059, Start Num: 21

Candidate Starts for Nishikigoi_40:

(Start: 21 @28628 has 30 MA's), (26, 28694), (27, 28697), (28, 28712), (31, 28742), (32, 28781), (35, 28850), (42, 29036),

Gene: Oliynyk_39 Start: 27909, Stop: 28343, Start Num: 15

Candidate Starts for Oliynyk_39:

(Start: 15 @27909 has 43 MA's), (31, 28038), (35, 28146), (36, 28152),

Gene: Omar_41 Start: 28853, Stop: 29287, Start Num: 21

Candidate Starts for Omar_41:

(Start: 21 @28853 has 30 MA's), (27, 28922), (31, 28967), (32, 29006), (42, 29264),

Gene: Ozzie_38 Start: 27580, Stop: 27966, Start Num: 23

Candidate Starts for Ozzie_38:

(Start: 15 @27535 has 43 MA's), (Start: 23 @27580 has 1 MA's), (31, 27661), (35, 27769), (36, 27775),

Gene: OzzyJ_39 Start: 27912, Stop: 28346, Start Num: 15

Candidate Starts for OzzyJ_39:

(Start: 15 @27912 has 43 MA's), (Start: 18 @27927 has 2 MA's), (31, 28041), (36, 28155),

Gene: Pablito_38 Start: 28161, Stop: 28598, Start Num: 21

Candidate Starts for Pablito_38:

(Start: 21 @28161 has 30 MA's), (27, 28230), (28, 28245), (31, 28275), (32, 28314), (34, 28338), (39, 28410), (42, 28575),

Gene: Paedore_38 Start: 28771, Stop: 29205, Start Num: 21

Candidate Starts for Paedore_38:

(Start: 17 @28762 has 1 MA's), (Start: 21 @28771 has 30 MA's), (27, 28840), (31, 28885), (32, 28924), (38, 29014), (42, 29179),

Gene: Paolo_41 Start: 29198, Stop: 29632, Start Num: 21

Candidate Starts for Paolo_41:

(Start: 21 @29198 has 30 MA's), (27, 29267), (31, 29312), (42, 29609),

Gene: Pavo_40 Start: 29603, Stop: 30040, Start Num: 16

Candidate Starts for Pavo_40:

(Start: 16 @29603 has 14 MA's), (26, 29687), (31, 29735), (32, 29774), (35, 29843), (36, 29849), (37, 29852),

Gene: Phettuccine_38 Start: 27551, Stop: 27982, Start Num: 15

Candidate Starts for Phettuccine_38:

(Start: 15 @27551 has 43 MA's), (Start: 23 @27596 has 1 MA's), (31, 27677), (35, 27785), (36, 27791),

Gene: Provolone_40 Start: 28985, Stop: 29422, Start Num: 16

Candidate Starts for Provolone_40:

(Start: 16 @28985 has 14 MA's), (26, 29069), (31, 29117), (32, 29156), (35, 29225), (36, 29231), (37, 29234),

Gene: Puginator_41 Start: 29219, Stop: 29653, Start Num: 21

Candidate Starts for Puginator_41:

(1, 28913), (6, 29096), (9, 29153), (Start: 21 @29219 has 30 MA's), (27, 29288), (31, 29333), (42, 29630),

Gene: R4_39 Start: 28926, Stop: 29360, Start Num: 21

Candidate Starts for R4_39:

(Start: 17 @28917 has 1 MA's), (Start: 21 @28926 has 30 MA's), (27, 28995), (31, 29040), (32, 29079), (38, 29169), (42, 29334),

Gene: Rana_39 Start: 28430, Stop: 28861, Start Num: 15

Candidate Starts for Rana_39:

(2, 28217), (6, 28343), (Start: 15 @28430 has 43 MA's), (Start: 18 @28445 has 2 MA's), (31, 28556), (35, 28664), (36, 28670),

Gene: RedBear_39 Start: 28095, Stop: 28529, Start Num: 15

Candidate Starts for RedBear_39:

(2, 27885), (3, 27924), (8, 28041), (13, 28083), (Start: 15 @28095 has 43 MA's), (Start: 18 @28110 has 2 MA's), (31, 28224), (35, 28332), (36, 28338),

Gene: Rusticus_39 Start: 27909, Stop: 28343, Start Num: 15

Candidate Starts for Rusticus_39:

(Start: 15 @27909 has 43 MA's), (31, 28038), (35, 28146), (36, 28152),

Gene: SarahRose_38 Start: 27920, Stop: 28354, Start Num: 15

Candidate Starts for SarahRose_38:

(Start: 15 @27920 has 43 MA's), (Start: 18 @27935 has 2 MA's), (31, 28049), (36, 28163),

Gene: Snorlax_38 Start: 27924, Stop: 28358, Start Num: 15

Candidate Starts for Snorlax_38:

(Start: 15 @27924 has 43 MA's), (Start: 18 @27939 has 2 MA's), (31, 28053), (36, 28167),

Gene: South40_38 Start: 28095, Stop: 28529, Start Num: 15

Candidate Starts for South40_38:

(2, 27885), (3, 27924), (8, 28041), (13, 28083), (Start: 15 @28095 has 43 MA's), (Start: 18 @28110 has 2 MA's), (31, 28224), (35, 28332), (36, 28338),

Gene: Speedwell_44 Start: 30853, Stop: 31290, Start Num: 16

Candidate Starts for Speedwell_44:

(Start: 16 @30853 has 14 MA's), (26, 30937), (31, 30985), (32, 31024), (35, 31093), (36, 31099), (37, 31102),

Gene: SqueakyClean_38 Start: 28704, Stop: 29123, Start Num: 22

Candidate Starts for SqueakyClean_38:

(19, 28680), (Start: 21 @28689 has 30 MA's), (Start: 22 @28704 has 4 MA's), (27, 28758), (31, 28803), (32, 28842), (39, 28938), (42, 29100),

Gene: Success_30 Start: 19188, Stop: 18790, Start Num: 25

Candidate Starts for Success_30:

(24, 19191), (Start: 25 @19188 has 2 MA's), (30, 19104), (33, 19050), (35, 18987), (36, 18981),

Gene: Sudan_40 Start: 29432, Stop: 29869, Start Num: 16

Candidate Starts for Sudan_40:

(Start: 16 @29432 has 14 MA's), (26, 29516), (31, 29564), (32, 29603), (35, 29672), (36, 29678), (37, 29681),

Gene: Sujidade_39 Start: 28652, Stop: 29086, Start Num: 14

Candidate Starts for Sujidade_39:

(10, 28625), (12, 28634), (Start: 14 @28652 has 8 MA's), (Start: 18 @28667 has 2 MA's), (29, 28754), (31, 28781), (35, 28889), (36, 28895),

Gene: SunsetPointe_38 Start: 27542, Stop: 27973, Start Num: 15

Candidate Starts for SunsetPointe_38:

(Start: 15 @27542 has 43 MA's), (Start: 23 @27587 has 1 MA's), (31, 27668), (35, 27776), (36, 27782),

Gene: Superstar_42 Start: 29737, Stop: 30168, Start Num: 21

Candidate Starts for Superstar_42:

(Start: 21 @29737 has 30 MA's), (27, 29806), (31, 29851), (38, 29980), (42, 30145),

Gene: TagePhighter_40 Start: 27924, Stop: 28358, Start Num: 15

Candidate Starts for TagePhighter_40:

(Start: 15 @27924 has 43 MA's), (Start: 18 @27939 has 2 MA's), (31, 28053), (36, 28167),

Gene: Tefunt_40 Start: 28630, Stop: 29061, Start Num: 21

Candidate Starts for Tefunt_40:

(Start: 21 @28630 has 30 MA's), (26, 28696), (27, 28699), (28, 28714), (31, 28744), (32, 28783), (35, 28852), (42, 29038),

Gene: Thestral_40 Start: 28823, Stop: 29257, Start Num: 21

Candidate Starts for Thestral_40:

(6, 28700), (9, 28757), (Start: 21 @28823 has 30 MA's), (27, 28892), (31, 28937), (32, 28976), (35, 29045), (42, 29234),

Gene: TinaBelcher_39 Start: 28770, Stop: 29204, Start Num: 21

Candidate Starts for TinaBelcher_39:

(6, 28647), (9, 28704), (Start: 21 @28770 has 30 MA's), (27, 28839), (31, 28884), (32, 28923), (35, 28992), (42, 29181),

Gene: Toma_38 Start: 28369, Stop: 28803, Start Num: 14

Candidate Starts for Toma_38:

(10, 28342), (12, 28351), (Start: 14 @28369 has 8 MA's), (Start: 18 @28384 has 2 MA's), (29, 28471), (31, 28498), (35, 28606), (36, 28612),

Gene: Triste_38 Start: 27912, Stop: 28346, Start Num: 15

Candidate Starts for Triste_38:

(Start: 15 @27912 has 43 MA's), (Start: 18 @27927 has 2 MA's), (31, 28041), (36, 28155),

Gene: Triumph_40 Start: 28519, Stop: 28953, Start Num: 21

Candidate Starts for Triumph_40:

(7, 28423), (Start: 21 @28519 has 30 MA's), (27, 28588), (31, 28633), (32, 28672), (39, 28768), (42, 28930),

Gene: TrvxScott_38 Start: 28816, Stop: 29250, Start Num: 21

Candidate Starts for TrvxScott_38:

(6, 28693), (9, 28750), (Start: 21 @28816 has 30 MA's), (27, 28885), (31, 28930), (32, 28969), (35, 29038), (42, 29227),

Gene: TuanPN_37 Start: 27859, Stop: 28290, Start Num: 15

Candidate Starts for TuanPN_37:

(8, 27805), (13, 27847), (Start: 15 @27859 has 43 MA's), (Start: 18 @27874 has 2 MA's), (31, 27985), (36, 28099),

Gene: Unstoppable_38 Start: 27546, Stop: 27977, Start Num: 15

Candidate Starts for Unstoppable_38:

(Start: 15 @27546 has 43 MA's), (Start: 23 @27591 has 1 MA's), (31, 27672), (35, 27780), (36, 27786),

Gene: Urza_40 Start: 28393, Stop: 28833, Start Num: 16

Candidate Starts for Urza_40:

(4, 28282), (5, 28294), (Start: 16 @28393 has 14 MA's), (28, 28498), (31, 28528), (32, 28567), (36, 28642),

Gene: Vanseggelen_44 Start: 29086, Stop: 29523, Start Num: 16

Candidate Starts for Vanseggelen_44:

(Start: 16 @29086 has 14 MA's), (26, 29170), (31, 29218), (32, 29257), (35, 29326), (36, 29332), (37, 29335),

Gene: Verabelle_42 Start: 29495, Stop: 29932, Start Num: 16

Candidate Starts for Verabelle_42:

(Start: 16 @29495 has 14 MA's), (26, 29579), (31, 29627), (32, 29666), (35, 29735), (36, 29741), (37, 29744),

Gene: Verse_39 Start: 30237, Stop: 30674, Start Num: 16

Candidate Starts for Verse_39:

(Start: 16 @30237 has 14 MA's), (26, 30321), (31, 30369), (32, 30408), (35, 30477), (36, 30483), (37, 30486),

Gene: VieEnRose_39 Start: 28317, Stop: 28757, Start Num: 16

Candidate Starts for VieEnRose_39:

(4, 28206), (5, 28218), (Start: 16 @28317 has 14 MA's), (28, 28422), (31, 28452), (32, 28491), (36, 28566),

Gene: Werner_38 Start: 27922, Stop: 28356, Start Num: 15

Candidate Starts for Werner_38:

(Start: 15 @27922 has 43 MA's), (Start: 18 @27937 has 2 MA's), (31, 28051), (36, 28165),

Gene: Whatever_38 Start: 27922, Stop: 28356, Start Num: 15

Candidate Starts for Whatever_38:

(Start: 15 @27922 has 43 MA's), (Start: 18 @27937 has 2 MA's), (31, 28051), (36, 28165),

Gene: Yasdnil_38 Start: 27977, Stop: 28408, Start Num: 15

Candidate Starts for Yasdnil_38:

(8, 27923), (13, 27965), (Start: 15 @27977 has 43 MA's), (Start: 18 @27992 has 2 MA's), (31, 28103), (36, 28217),

Gene: Zainub_41 Start: 29159, Stop: 29593, Start Num: 21

Candidate Starts for Zainub_41:

(Start: 21 @29159 has 30 MA's), (27, 29228), (31, 29273), (42, 29570),

Gene: Zemlya_40 Start: 28485, Stop: 28904, Start Num: 18

Candidate Starts for Zemlya_40:

(10, 28443), (Start: 14 @28470 has 8 MA's), (Start: 18 @28485 has 2 MA's), (29, 28572), (31, 28599), (35, 28707), (36, 28713),

Gene: phiHau3_40 Start: 28023, Stop: 28442, Start Num: 21

Candidate Starts for phiHau3_40:

(7, 27927), (Start: 21 @28023 has 30 MA's), (26, 28089), (27, 28092), (28, 28107), (31, 28137), (32, 28176), (35, 28245), (36, 28251), (37, 28254), (41, 28377),