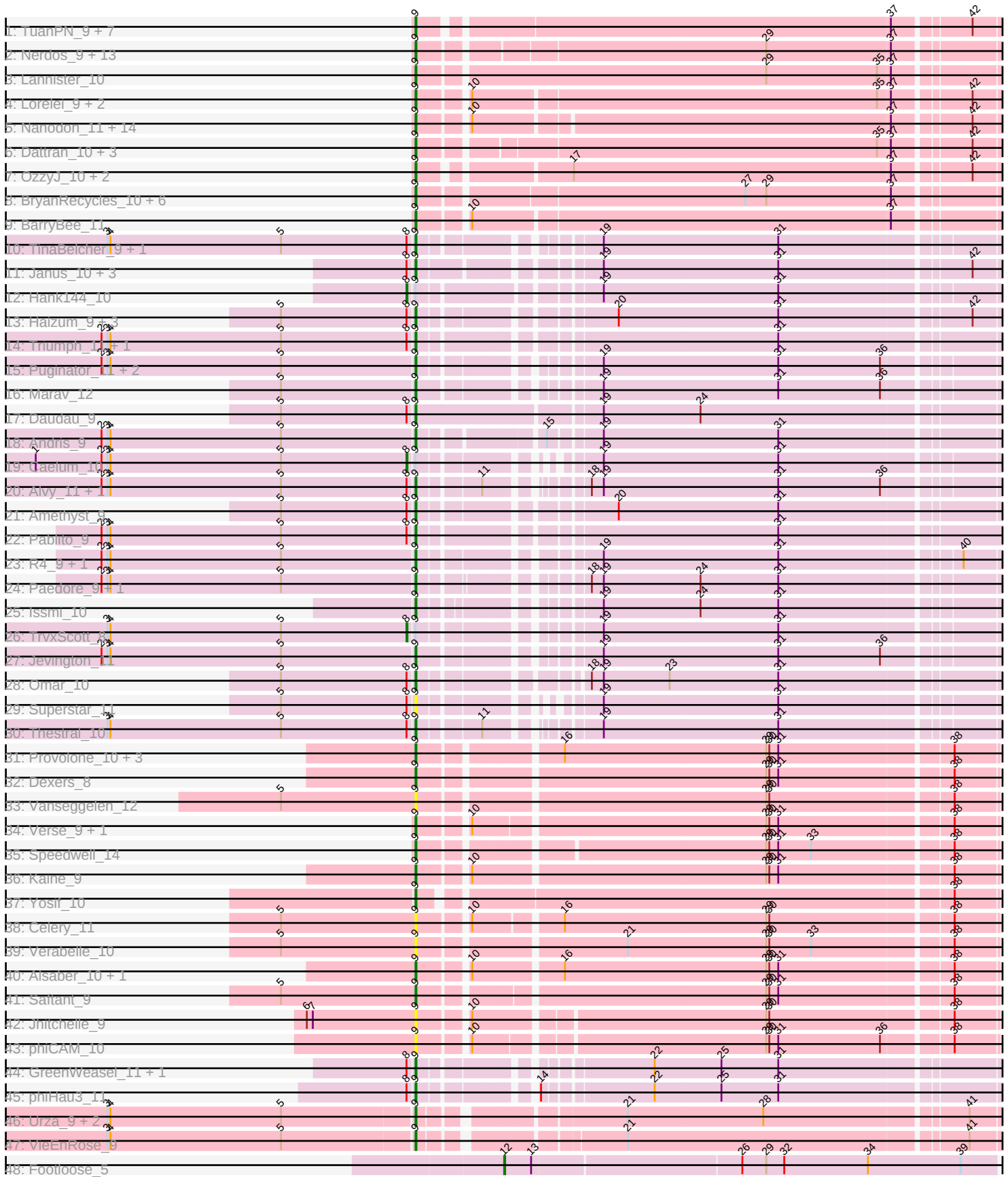




Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. If this default region is judged to be packed too tightly 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 280236 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 280236 has 116 members, 8 are drafts.

Phages represented in each track:

- Track 1 : TuanPN_9, Yasdni1_9, Zemlya_10, Godpower_10, Maneekul_9, Celeste_9, Ejemplo_9, Lika_9
- Track 2 : Nerdos_9, Leviticus_9, Bovely_9, Hydra_11, Phettuccine_9, Aaronocolus_9, Legacy_9, Unstoppable_9, Ozzie_9, Indigo_9, BeardedLady_10, Esperer_9, Caliburn_9, SunsetPointe_9
- Track 3 : Lannister_10
- Track 4 : Lorelei_9, Nabi_9, Rana_9
- Track 5 : Nanodon_11, SarahRose_9, Brataylor_10, Chucky_9, Snorlax_9, TagePhighter_10, Dwayne_9, Emaanora_11, Werner_9, Katalie_10, RedBear_11, Sujidade_10, Hippo_9, South40_10, Whatever_9
- Track 6 : Dattran_10, Toma_9, Goby_9, Danzina_10
- Track 7 : OzzyJ_10, Asten_9, Triste_9
- Track 8 : BryanRecycles_10, Oliynyk_10, Rusticus_10, Eddasa_10, EnochSoames_10, Izzy_10, Jash_10
- Track 9 : BarryBee_11
- Track 10 : TinaBelcher_9, Bowden_10
- Track 11 : Janus_10, Animus_10, SqueakyClean_10, GirlDinner_9
- Track 12 : Hank144_10
- Track 13 : Haizum_9, Tefunt_9, Nishikigoi_9, Diane_9
- Track 14 : Triumph_11, Axiom_10
- Track 15 : Puginator_11, Paolo_11, Zainub_11
- Track 16 : Marav_12
- Track 17 : Daudau_9
- Track 18 : Andris_9
- Track 19 : Caelum_10
- Track 20 : Alvy_11, BartholomewSD_11
- Track 21 : Amethyst_9
- Track 22 : Pablito_9
- Track 23 : R4_9, ELB20_08
- Track 24 : Paedore_9, Loofah_10
- Track 25 : Issmi_10
- Track 26 : TrvxScott_8
- Track 27 : Jevington_11

- Track 28 : Omar_10
- Track 29 : Superstar_11
- Track 30 : Thestral_10
- Track 31 : Provolone_10, Pavo_10, Conan_10, ElGato_10
- Track 32 : Dexers_8
- Track 33 : Vanseggelen_12
- Track 34 : Verse_9, Amela_9
- Track 35 : Speedwell_14
- Track 36 : Kaine_9
- Track 37 : Yosif_10
- Track 38 : Celery_11
- Track 39 : Verabelle_10
- Track 40 : Alsaber_10, Sudan_10
- Track 41 : Saftant_9
- Track 42 : Jhitchelle_9
- Track 43 : phiCAM_10
- Track 44 : GreenWeasel_11, BroPlease_10
- Track 45 : phiHau3_11
- Track 46 : Urza_9, Celia_9, Itza_9
- Track 47 : VieEnRose_9
- Track 48 : Footloose_5

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

The start number called the most often in the published annotations is 9, it was called in 104 of the 108 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• Aaronocolus_9, Alsaber_10, Alvy_11, Amela_9, Amethyst_9, Andris_9, Animus_10, Asten_9, Axiom_10, BarryBee_11, BartholomewSD_11, BeardedLady_10, Bovely_9, Bowden_10, Brataylor_10, BroPlease_10, BryanRecycles_10, Caliburn_9, Celery_11, Celeste_9, Celia_9, Chucky_9, Conan_10, Danzina_10, Dattran_10, Daudau_9, Dexers_8, Diane_9, Dwayne_9, ELB20_08, Eddasa_10, Ejemplo_9, ElGato_10, Emaanora_11, EnochSoames_10, Esperer_9, GirlDinner_9, Goby_9, Godpower_10, GreenWeasel_11, Haizum_9, Hippo_9, Hydra_11, Indigo_9, Issmi_10, Itza_9, Izzy_10, Janus_10, Jash_10, Jevington_11, Jhitchelle_9, Kaine_9, Katalie_10, Lannister_10, Legacy_9, Leviticus_9, Lika_9, Loofah_10, Lorelei_9, Maneekul_9, Marav_12, Nabi_9, Nanodon_11, Nerdos_9, Nishikigoi_9, Oliynyk_10, Omar_10, Ozzie_9, OzzyJ_10, Pablito_9, Paedore_9, Paolo_11, Pavo_10, Phettuccine_9, Provolone_10, Puginator_11, R4_9, Rana_9, RedBear_11, Rusticus_10, Saftant_9, SarahRose_9, Snorlax_9, South40_10, Speedwell_14, SqueakyClean_10, Sudan_10, Sujidade_10, SunsetPointe_9, Superstar_11, TagePhighter_10, Tefunt_9, Thestral_10, TinaBelcher_9, Toma_9, Triste_9, Triumph_11, TuanPN_9, Unstoppable_9, Urza_9, Vanseggelen_12, Verabelle_10, Verse_9, VieEnRose_9, Werner_9, Whatever_9, Yasdnil_9, Yosif_10, Zainub_11, Zemlya_10, phiCAM_10, phiHau3_11,

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

- Caelum_10, Hank144_10, TrvxScott_8,

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

- Footloose_5,

Summary by start number:

Start 8:

- Found in 26 of 116 (22.4%) of genes in pham
- Manual Annotations of this start: 3 of 108
- Called 11.5% of time when present
- Phage (with cluster) where this start called: Caelum_10 (BD2), Hank144_10 (BD2), TrvxScott_8 (BD2),

Start 9:

- Found in 115 of 116 (99.1%) of genes in pham
- Manual Annotations of this start: 104 of 108
- Called 97.4% of time when present
- Phage (with cluster) where this start called: Aaronocolus_9 (BD1), Alsaber_10 (BD3), Alvy_11 (BD2), Amela_9 (BD3), Amethyst_9 (BD2), Andris_9 (BD2), Animus_10 (BD2), Asten_9 (BD1), Axiom_10 (BD2), BarryBee_11 (BD1), BartholomewSD_11 (BD2), BeardedLady_10 (BD1), Bovely_9 (BD1), Bowden_10 (BD2), Brataylor_10 (BD1), BroPlease_10 (BD4), BryanRecycles_10 (BD1), Caliburn_9 (BD1), Celery_11 (BD3), Celeste_9 (BD1), Celia_9 (BD6), Chucky_9 (BD1), Conan_10 (BD3), Danzina_10 (BD1), Dattran_10 (BD1), Daudau_9 (BD2), Dexers_8 (BD3), Diane_9 (BD2), Dwayne_9 (BD1), ELB20_08 (BD2), Eddasa_10 (BD1), Ejemplo_9 (BD1), ElGato_10 (BD3), Emaanora_11 (BD1), EnochSoames_10 (BD1), Esperer_9 (BD1), GirlDinner_9 (BD2), Goby_9 (BD1), Godpower_10 (BD1), GreenWeasel_11 (BD4), Haizum_9 (BD2), Hippo_9 (BD1), Hydra_11 (BD1), Indigo_9 (BD1), Issmi_10 (BD2), Itza_9 (BD6), Izzy_10 (BD1), Janus_10 (BD2), Jash_10 (BD1), Jevington_11 (BD2), Jhitchelle_9 (BD3), Kaine_9 (BD3), Katalie_10 (BD1), Lannister_10 (BD1), Legacy_9 (BD1), Leviticus_9 (BD1), Lika_9 (BD1), Loofah_10 (BD2), Lorelei_9 (BD1), Maneekul_9 (BD1), Marav_12 (BD2), Nabi_9 (BD1), Nanodon_11 (BD1), Nerdos_9 (BD1), Nishikigoi_9 (BD2), Oliynyk_10 (BD1), Omar_10 (BD2), Ozzie_9 (BD1), OzzyJ_10 (BD1), Pablito_9 (BD2), Paedore_9 (BD2), Paolo_11 (BD2), Pavo_10 (BD3), Phettuccine_9 (BD1), Provolone_10 (BD3), Puginator_11 (BD2), R4_9 (BD2), Rana_9 (BD1), RedBear_11 (BD1), Rusticus_10 (BD1), Saftant_9 (BD3), SarahRose_9 (BD1), Snorlax_9 (BD1), South40_10 (BD1), Speedwell_14 (BD3), SqueakyClean_10 (BD2), Sudan_10 (BD3), Sujidade_10 (BD1), SunsetPointe_9 (BD1), Superstar_11 (BD2), TagePighiter_10 (BD1), Tefunt_9 (BD2), Thestral_10 (BD2), TinaBelcher_9 (BD2), Toma_9 (BD1), Triste_9 (BD1), Triumph_11 (BD2), TuanPN_9 (BD1), Unstoppable_9 (BD1), Urza_9 (BD6), Vanseggelen_12 (BD3), Verabelle_10 (BD3), Verse_9 (BD3), VieEnRose_9 (BD6), Werner_9 (BD1), Whatever_9 (BD1), Yasdni_9 (BD1), Yosif_10 (BD3), Zainub_11 (BD2), Zemlya_10 (BD1), phiCAM_10 (BD3), phiHau3_11 (BD4),

Start 12:

- Found in 1 of 116 (0.9%) of genes in pham
- Manual Annotations of this start: 1 of 108
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Footloose_5 (singleton),

Summary by clusters:

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

Info for manual annotations of cluster BD1:

- Start number 9 was manually annotated 55 times for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 8 was manually annotated 3 times for cluster BD2.
- Start number 9 was manually annotated 30 times for cluster BD2.

Info for manual annotations of cluster BD3:

- Start number 9 was manually annotated 12 times for cluster BD3.

Info for manual annotations of cluster BD4:

- Start number 9 was manually annotated 3 times for cluster BD4.

Info for manual annotations of cluster BD6:

- Start number 9 was manually annotated 4 times for cluster BD6.

Gene Information:

Gene: Aaronocolus_9 Start: 6636, Stop: 7181, Start Num: 9

Candidate Starts for Aaronocolus_9:

(Start: 9 @6636 has 104 MA's), (29, 6960), (37, 7083),

Gene: Alsaber_10 Start: 6736, Stop: 7278, Start Num: 9

Candidate Starts for Alsaber_10:

(Start: 9 @6736 has 104 MA's), (10, 6778), (16, 6859), (29, 7060), (30, 7063), (31, 7072), (38, 7237),

Gene: Alvy_11 Start: 6598, Stop: 7116, Start Num: 9

Candidate Starts for Alvy_11:

(2, 6286), (3, 6292), (4, 6295), (5, 6466), (Start: 8 @6592 has 3 MA's), (Start: 9 @6598 has 104 MA's), (11, 6652), (18, 6724), (19, 6736), (31, 6910), (36, 7012),

Gene: Amela_9 Start: 6795, Stop: 7334, Start Num: 9

Candidate Starts for Amela_9:

(Start: 9 @6795 has 104 MA's), (10, 6837), (29, 7116), (30, 7119), (31, 7128), (38, 7293),

Gene: Amethyst_9 Start: 6407, Stop: 6937, Start Num: 9

Candidate Starts for Amethyst_9:

(5, 6275), (Start: 8 @6401 has 3 MA's), (Start: 9 @6407 has 104 MA's), (20, 6569), (31, 6728),

Gene: Andris_9 Start: 6465, Stop: 6998, Start Num: 9

Candidate Starts for Andris_9:

(2, 6153), (3, 6159), (4, 6162), (5, 6333), (Start: 9 @6465 has 104 MA's), (15, 6570), (19, 6615), (31, 6789),

Gene: Animus_10 Start: 6815, Stop: 7348, Start Num: 9

Candidate Starts for Animus_10:

(Start: 8 @6809 has 3 MA's), (Start: 9 @6815 has 104 MA's), (19, 6965), (31, 7139), (42, 7319),

Gene: Asten_9 Start: 6604, Stop: 7146, Start Num: 9

Candidate Starts for Asten_9:

(Start: 9 @6604 has 104 MA's), (17, 6733), (37, 7048), (42, 7117),

Gene: Axiom_10 Start: 6474, Stop: 7007, Start Num: 9

Candidate Starts for Axiom_10:

(2, 6162), (3, 6168), (4, 6171), (5, 6342), (Start: 8 @6468 has 3 MA's), (Start: 9 @6474 has 104 MA's), (31, 6798),

Gene: BarryBee_11 Start: 6604, Stop: 7149, Start Num: 9

Candidate Starts for BarryBee_11:

(Start: 9 @6604 has 104 MA's), (10, 6646), (37, 7051),

Gene: BartholomewSD_11 Start: 6598, Stop: 7116, Start Num: 9

Candidate Starts for BartholomewSD_11:

(2, 6286), (3, 6292), (4, 6295), (5, 6466), (Start: 8 @6592 has 3 MA's), (Start: 9 @6598 has 104 MA's), (11, 6652), (18, 6724), (19, 6736), (31, 6910), (36, 7012),

Gene: BeardedLady_10 Start: 6883, Stop: 7428, Start Num: 9

Candidate Starts for BeardedLady_10:

(Start: 9 @6883 has 104 MA's), (29, 7207), (37, 7330),

Gene: Bovely_9 Start: 6642, Stop: 7187, Start Num: 9

Candidate Starts for Bovely_9:

(Start: 9 @6642 has 104 MA's), (29, 6966), (37, 7089),

Gene: Bowden_10 Start: 6509, Stop: 7030, Start Num: 9

Candidate Starts for Bowden_10:

(3, 6203), (4, 6206), (5, 6377), (Start: 8 @6503 has 3 MA's), (Start: 9 @6509 has 104 MA's), (19, 6650), (31, 6824),

Gene: Brataylor_10 Start: 6607, Stop: 7152, Start Num: 9

Candidate Starts for Brataylor_10:

(Start: 9 @6607 has 104 MA's), (10, 6649), (37, 7054), (42, 7123),

Gene: BroPlease_10 Start: 6713, Stop: 7237, Start Num: 9

Candidate Starts for BroPlease_10:

(Start: 8 @6707 has 3 MA's), (Start: 9 @6713 has 104 MA's), (22, 6905), (25, 6971), (31, 7028),

Gene: BryanRecycles_10 Start: 6796, Stop: 7344, Start Num: 9

Candidate Starts for BryanRecycles_10:

(Start: 9 @6796 has 104 MA's), (27, 7102), (29, 7123), (37, 7246),

Gene: Caelum_10 Start: 6369, Stop: 6884, Start Num: 8

Candidate Starts for Caelum_10:

(1, 5997), (2, 6063), (3, 6069), (4, 6072), (5, 6243), (Start: 8 @6369 has 3 MA's), (Start: 9 @6375 has 104 MA's), (19, 6504), (31, 6678),

Gene: Caliburn_9 Start: 6616, Stop: 7161, Start Num: 9

Candidate Starts for Caliburn_9:

(Start: 9 @6616 has 104 MA's), (29, 6940), (37, 7063),

Gene: Celery_11 Start: 6699, Stop: 7238, Start Num: 9

Candidate Starts for Celery_11:

(5, 6564), (Start: 9 @6699 has 104 MA's), (10, 6741), (16, 6819), (29, 7020), (30, 7023), (38, 7197),

Gene: Celeste_9 Start: 6606, Stop: 7151, Start Num: 9

Candidate Starts for Celeste_9:

(Start: 9 @6606 has 104 MA's), (37, 7053), (42, 7122),

Gene: Celia_9 Start: 6927, Stop: 7451, Start Num: 9

Candidate Starts for Celia_9:

(3, 6624), (4, 6627), (5, 6798), (Start: 9 @6927 has 104 MA's), (21, 7092), (28, 7227), (41, 7419),

Gene: Chucky_9 Start: 6605, Stop: 7150, Start Num: 9

Candidate Starts for Chucky_9:

(Start: 9 @6605 has 104 MA's), (10, 6647), (37, 7052), (42, 7121),

Gene: Conan_10 Start: 6446, Stop: 6988, Start Num: 9

Candidate Starts for Conan_10:

(Start: 9 @6446 has 104 MA's), (16, 6569), (29, 6770), (30, 6773), (31, 6782), (38, 6947),

Gene: Danzina_10 Start: 6804, Stop: 7349, Start Num: 9

Candidate Starts for Danzina_10:

(Start: 9 @6804 has 104 MA's), (35, 7239), (37, 7251), (42, 7320),

Gene: Dattran_10 Start: 6605, Stop: 7150, Start Num: 9

Candidate Starts for Dattran_10:

(Start: 9 @6605 has 104 MA's), (35, 7040), (37, 7052), (42, 7121),

Gene: Daudau_9 Start: 6400, Stop: 6954, Start Num: 9

Candidate Starts for Daudau_9:

(5, 6268), (Start: 8 @6394 has 3 MA's), (Start: 9 @6400 has 104 MA's), (19, 6571), (24, 6667),

Gene: Dexers_8 Start: 6439, Stop: 6981, Start Num: 9

Candidate Starts for Dexers_8:

(Start: 9 @6439 has 104 MA's), (29, 6763), (30, 6766), (31, 6775), (38, 6940),

Gene: Diane_9 Start: 6409, Stop: 6939, Start Num: 9

Candidate Starts for Diane_9:

(5, 6277), (Start: 8 @6403 has 3 MA's), (Start: 9 @6409 has 104 MA's), (20, 6571), (31, 6730), (42, 6910),

Gene: Dwayne_9 Start: 6605, Stop: 7150, Start Num: 9

Candidate Starts for Dwayne_9:

(Start: 9 @6605 has 104 MA's), (10, 6647), (37, 7052), (42, 7121),

Gene: ELB20_08 Start: 6466, Stop: 6990, Start Num: 9

Candidate Starts for ELB20_08:

(2, 6154), (3, 6160), (4, 6163), (5, 6334), (Start: 9 @6466 has 104 MA's), (19, 6610), (31, 6784), (40, 6952),

Gene: Eddasa_10 Start: 6796, Stop: 7344, Start Num: 9

Candidate Starts for Eddasa_10:

(Start: 9 @6796 has 104 MA's), (27, 7102), (29, 7123), (37, 7246),

Gene: Ejemplo_9 Start: 6608, Stop: 7153, Start Num: 9

Candidate Starts for Ejemplo_9:

(Start: 9 @6608 has 104 MA's), (37, 7055), (42, 7124),

Gene: ElGato_10 Start: 6449, Stop: 6991, Start Num: 9

Candidate Starts for ElGato_10:

(Start: 9 @6449 has 104 MA's), (16, 6572), (29, 6773), (30, 6776), (31, 6785), (38, 6950),

Gene: Emaanora_11 Start: 6604, Stop: 7149, Start Num: 9

Candidate Starts for Emaanora_11:

(Start: 9 @6604 has 104 MA's), (10, 6646), (37, 7051), (42, 7120),

Gene: EnochSoames_10 Start: 6792, Stop: 7340, Start Num: 9

Candidate Starts for EnochSoames_10:

(Start: 9 @6792 has 104 MA's), (27, 7098), (29, 7119), (37, 7242),

Gene: Esperer_9 Start: 6636, Stop: 7181, Start Num: 9

Candidate Starts for Esperer_9:

(Start: 9 @6636 has 104 MA's), (29, 6960), (37, 7083),

Gene: Footloose_5 Start: 4342, Stop: 4824, Start Num: 12

Candidate Starts for Footloose_5:

(Start: 12 @4342 has 1 MA's), (13, 4369), (26, 4570), (29, 4594), (32, 4612), (34, 4696), (39, 4789),

Gene: GirlDinner_9 Start: 6478, Stop: 7011, Start Num: 9

Candidate Starts for GirlDinner_9:

(Start: 8 @6472 has 3 MA's), (Start: 9 @6478 has 104 MA's), (19, 6628), (31, 6802), (42, 6982),

Gene: Goby_9 Start: 6605, Stop: 7150, Start Num: 9

Candidate Starts for Goby_9:

(Start: 9 @6605 has 104 MA's), (35, 7040), (37, 7052), (42, 7121),

Gene: Godpower_10 Start: 6608, Stop: 7147, Start Num: 9

Candidate Starts for Godpower_10:

(Start: 9 @6608 has 104 MA's), (37, 7049), (42, 7118),

Gene: GreenWeasel_11 Start: 6722, Stop: 7246, Start Num: 9

Candidate Starts for GreenWeasel_11:

(Start: 8 @6716 has 3 MA's), (Start: 9 @6722 has 104 MA's), (22, 6914), (25, 6980), (31, 7037),

Gene: Haizum_9 Start: 6438, Stop: 6968, Start Num: 9

Candidate Starts for Haizum_9:

(5, 6306), (Start: 8 @6432 has 3 MA's), (Start: 9 @6438 has 104 MA's), (20, 6600), (31, 6759), (42, 6939),

Gene: Hank144_10 Start: 6746, Stop: 7285, Start Num: 8

Candidate Starts for Hank144_10:

(Start: 8 @6746 has 3 MA's), (Start: 9 @6752 has 104 MA's), (19, 6905), (31, 7079),

Gene: Hippo_9 Start: 6604, Stop: 7149, Start Num: 9

Candidate Starts for Hippo_9:

(Start: 9 @6604 has 104 MA's), (10, 6646), (37, 7051), (42, 7120),

Gene: Hydra_11 Start: 7173, Stop: 7718, Start Num: 9

Candidate Starts for Hydra_11:

(Start: 9 @7173 has 104 MA's), (29, 7497), (37, 7620),

Gene: Indigo_9 Start: 6636, Stop: 7181, Start Num: 9

Candidate Starts for Indigo_9:

(Start: 9 @6636 has 104 MA's), (29, 6960), (37, 7083),

Gene: Issmi_10 Start: 6720, Stop: 7238, Start Num: 9

Candidate Starts for Issmi_10:

(Start: 9 @6720 has 104 MA's), (19, 6858), (24, 6954), (31, 7032),

Gene: Itza_9 Start: 6850, Stop: 7374, Start Num: 9

Candidate Starts for Itza_9:

(3, 6547), (4, 6550), (5, 6721), (Start: 9 @6850 has 104 MA's), (21, 7015), (28, 7150), (41, 7342),

Gene: Izzy_10 Start: 6843, Stop: 7391, Start Num: 9

Candidate Starts for Izzy_10:

(Start: 9 @6843 has 104 MA's), (27, 7149), (29, 7170), (37, 7293),

Gene: Janus_10 Start: 6815, Stop: 7348, Start Num: 9

Candidate Starts for Janus_10:

(Start: 8 @6809 has 3 MA's), (Start: 9 @6815 has 104 MA's), (19, 6965), (31, 7139), (42, 7319),

Gene: Jash_10 Start: 6796, Stop: 7344, Start Num: 9

Candidate Starts for Jash_10:

(Start: 9 @6796 has 104 MA's), (27, 7102), (29, 7123), (37, 7246),

Gene: Jevington_11 Start: 7004, Stop: 7528, Start Num: 9

Candidate Starts for Jevington_11:

(2, 6692), (3, 6698), (4, 6701), (5, 6872), (Start: 9 @7004 has 104 MA's), (19, 7148), (31, 7322), (36, 7424),

Gene: Jhitchelle_9 Start: 6386, Stop: 6919, Start Num: 9

Candidate Starts for Jhitchelle_9:

(6, 6278), (7, 6284), (Start: 9 @6386 has 104 MA's), (10, 6428), (29, 6701), (30, 6704), (38, 6878),

Gene: Kaine_9 Start: 6439, Stop: 6981, Start Num: 9

Candidate Starts for Kaine_9:

(Start: 9 @6439 has 104 MA's), (10, 6481), (29, 6763), (30, 6766), (31, 6775), (38, 6940),

Gene: Katalie_10 Start: 6876, Stop: 7421, Start Num: 9

Candidate Starts for Katalie_10:

(Start: 9 @6876 has 104 MA's), (10, 6918), (37, 7323), (42, 7392),

Gene: Lannister_10 Start: 6609, Stop: 7163, Start Num: 9

Candidate Starts for Lannister_10:

(Start: 9 @6609 has 104 MA's), (29, 6942), (35, 7053), (37, 7065),

Gene: Legacy_9 Start: 6616, Stop: 7161, Start Num: 9

Candidate Starts for Legacy_9:

(Start: 9 @6616 has 104 MA's), (29, 6940), (37, 7063),

Gene: Leviticus_9 Start: 6636, Stop: 7181, Start Num: 9

Candidate Starts for Leviticus_9:

(Start: 9 @6636 has 104 MA's), (29, 6960), (37, 7083),

Gene: Lika_9 Start: 6609, Stop: 7148, Start Num: 9

Candidate Starts for Lika_9:

(Start: 9 @6609 has 104 MA's), (37, 7050), (42, 7119),

Gene: Loofah_10 Start: 6516, Stop: 7034, Start Num: 9

Candidate Starts for Loofah_10:

(2, 6204), (3, 6210), (4, 6213), (5, 6384), (Start: 9 @6516 has 104 MA's), (18, 6642), (19, 6654), (24, 6750), (31, 6828),

Gene: Lorelei_9 Start: 6602, Stop: 7147, Start Num: 9

Candidate Starts for Lorelei_9:

(Start: 9 @6602 has 104 MA's), (10, 6644), (35, 7037), (37, 7049), (42, 7118),

Gene: Maneekul_9 Start: 6607, Stop: 7152, Start Num: 9

Candidate Starts for Maneekul_9:

(Start: 9 @6607 has 104 MA's), (37, 7054), (42, 7123),

Gene: Marav_12 Start: 7354, Stop: 7878, Start Num: 9

Candidate Starts for Marav_12:

(5, 7222), (Start: 9 @7354 has 104 MA's), (19, 7498), (31, 7672), (36, 7774),

Gene: Nabi_9 Start: 6602, Stop: 7147, Start Num: 9

Candidate Starts for Nabi_9:

(Start: 9 @6602 has 104 MA's), (10, 6644), (35, 7037), (37, 7049), (42, 7118),

Gene: Nanodon_11 Start: 6798, Stop: 7337, Start Num: 9

Candidate Starts for Nanodon_11:

(Start: 9 @6798 has 104 MA's), (10, 6840), (37, 7239), (42, 7308),

Gene: Nerdos_9 Start: 6636, Stop: 7181, Start Num: 9

Candidate Starts for Nerdos_9:

(Start: 9 @6636 has 104 MA's), (29, 6960), (37, 7083),

Gene: Nishikigoi_9 Start: 6438, Stop: 6968, Start Num: 9

Candidate Starts for Nishikigoi_9:

(5, 6306), (Start: 8 @6432 has 3 MA's), (Start: 9 @6438 has 104 MA's), (20, 6600), (31, 6759), (42, 6939),

Gene: Oliynyk_10 Start: 6796, Stop: 7344, Start Num: 9

Candidate Starts for Oliynyk_10:

(Start: 9 @6796 has 104 MA's), (27, 7102), (29, 7123), (37, 7246),

Gene: Omar_10 Start: 6663, Stop: 7190, Start Num: 9

Candidate Starts for Omar_10:

(5, 6531), (Start: 8 @6657 has 3 MA's), (Start: 9 @6663 has 104 MA's), (18, 6795), (19, 6807), (23, 6873), (31, 6981),

Gene: Ozzie_9 Start: 6616, Stop: 7161, Start Num: 9

Candidate Starts for Ozzie_9:

(Start: 9 @6616 has 104 MA's), (29, 6940), (37, 7063),

Gene: OzzyJ_10 Start: 6605, Stop: 7147, Start Num: 9
Candidate Starts for OzzyJ_10:
(Start: 9 @6605 has 104 MA's), (17, 6734), (37, 7049), (42, 7118),

Gene: Pablito_9 Start: 6493, Stop: 7029, Start Num: 9
Candidate Starts for Pablito_9:
(2, 6181), (3, 6187), (4, 6190), (5, 6361), (Start: 8 @6487 has 3 MA's), (Start: 9 @6493 has 104 MA's),
(31, 6817),

Gene: Paedore_9 Start: 6516, Stop: 7034, Start Num: 9
Candidate Starts for Paedore_9:
(2, 6204), (3, 6210), (4, 6213), (5, 6384), (Start: 9 @6516 has 104 MA's), (18, 6642), (19, 6654), (24,
6750), (31, 6828),

Gene: Paolo_11 Start: 7046, Stop: 7567, Start Num: 9
Candidate Starts for Paolo_11:
(2, 6734), (3, 6740), (4, 6743), (5, 6914), (Start: 9 @7046 has 104 MA's), (19, 7187), (31, 7361), (36,
7463),

Gene: Pavo_10 Start: 6719, Stop: 7261, Start Num: 9
Candidate Starts for Pavo_10:
(Start: 9 @6719 has 104 MA's), (16, 6842), (29, 7043), (30, 7046), (31, 7055), (38, 7220),

Gene: Phettuccine_9 Start: 6636, Stop: 7181, Start Num: 9
Candidate Starts for Phettuccine_9:
(Start: 9 @6636 has 104 MA's), (29, 6960), (37, 7083),

Gene: Provolone_10 Start: 6449, Stop: 6991, Start Num: 9
Candidate Starts for Provolone_10:
(Start: 9 @6449 has 104 MA's), (16, 6572), (29, 6773), (30, 6776), (31, 6785), (38, 6950),

Gene: Puginator_11 Start: 6992, Stop: 7513, Start Num: 9
Candidate Starts for Puginator_11:
(2, 6680), (3, 6686), (4, 6689), (5, 6860), (Start: 9 @6992 has 104 MA's), (19, 7133), (31, 7307), (36,
7409),

Gene: R4_9 Start: 6477, Stop: 7001, Start Num: 9
Candidate Starts for R4_9:
(2, 6165), (3, 6171), (4, 6174), (5, 6345), (Start: 9 @6477 has 104 MA's), (19, 6621), (31, 6795), (40,
6963),

Gene: Rana_9 Start: 6602, Stop: 7147, Start Num: 9
Candidate Starts for Rana_9:
(Start: 9 @6602 has 104 MA's), (10, 6644), (35, 7037), (37, 7049), (42, 7118),

Gene: RedBear_11 Start: 6876, Stop: 7421, Start Num: 9
Candidate Starts for RedBear_11:
(Start: 9 @6876 has 104 MA's), (10, 6918), (37, 7323), (42, 7392),

Gene: Rusticus_10 Start: 6796, Stop: 7344, Start Num: 9
Candidate Starts for Rusticus_10:
(Start: 9 @6796 has 104 MA's), (27, 7102), (29, 7123), (37, 7246),

Gene: Saftant_9 Start: 6729, Stop: 7268, Start Num: 9

Candidate Starts for Saftant_9:

(5, 6594), (Start: 9 @6729 has 104 MA's), (29, 7050), (30, 7053), (31, 7062), (38, 7227),

Gene: SarahRose_9 Start: 6604, Stop: 7149, Start Num: 9

Candidate Starts for SarahRose_9:

(Start: 9 @6604 has 104 MA's), (10, 6646), (37, 7051), (42, 7120),

Gene: Snorlax_9 Start: 6604, Stop: 7149, Start Num: 9

Candidate Starts for Snorlax_9:

(Start: 9 @6604 has 104 MA's), (10, 6646), (37, 7051), (42, 7120),

Gene: South40_10 Start: 6876, Stop: 7421, Start Num: 9

Candidate Starts for South40_10:

(Start: 9 @6876 has 104 MA's), (10, 6918), (37, 7323), (42, 7392),

Gene: Speedwell_14 Start: 8417, Stop: 8953, Start Num: 9

Candidate Starts for Speedwell_14:

(Start: 9 @8417 has 104 MA's), (29, 8735), (30, 8738), (31, 8747), (33, 8780), (38, 8912),

Gene: SqueakyClean_10 Start: 6741, Stop: 7274, Start Num: 9

Candidate Starts for SqueakyClean_10:

(Start: 8 @6735 has 3 MA's), (Start: 9 @6741 has 104 MA's), (19, 6891), (31, 7065), (42, 7245),

Gene: Sudan_10 Start: 6726, Stop: 7268, Start Num: 9

Candidate Starts for Sudan_10:

(Start: 9 @6726 has 104 MA's), (10, 6768), (16, 6849), (29, 7050), (30, 7053), (31, 7062), (38, 7227),

Gene: Sujidade_10 Start: 6900, Stop: 7445, Start Num: 9

Candidate Starts for Sujidade_10:

(Start: 9 @6900 has 104 MA's), (10, 6942), (37, 7347), (42, 7416),

Gene: SunsetPointe_9 Start: 6635, Stop: 7180, Start Num: 9

Candidate Starts for SunsetPointe_9:

(Start: 9 @6635 has 104 MA's), (29, 6959), (37, 7082),

Gene: Superstar_11 Start: 7579, Stop: 8088, Start Num: 9

Candidate Starts for Superstar_11:

(5, 7447), (Start: 8 @7573 has 3 MA's), (Start: 9 @7579 has 104 MA's), (19, 7708), (31, 7882),

Gene: TagePhighter_10 Start: 6604, Stop: 7149, Start Num: 9

Candidate Starts for TagePhighter_10:

(Start: 9 @6604 has 104 MA's), (10, 6646), (37, 7051), (42, 7120),

Gene: Tefunt_9 Start: 6438, Stop: 6968, Start Num: 9

Candidate Starts for Tefunt_9:

(5, 6306), (Start: 8 @6432 has 3 MA's), (Start: 9 @6438 has 104 MA's), (20, 6600), (31, 6759), (42, 6939),

Gene: Thestral_10 Start: 6515, Stop: 7033, Start Num: 9

Candidate Starts for Thestral_10:

(3, 6209), (4, 6212), (5, 6383), (Start: 8 @6509 has 3 MA's), (Start: 9 @6515 has 104 MA's), (11, 6569), (19, 6653), (31, 6827),

Gene: TinaBelcher_9 Start: 6460, Stop: 6981, Start Num: 9

Candidate Starts for TinaBelcher_9:

(3, 6154), (4, 6157), (5, 6328), (Start: 8 @6454 has 3 MA's), (Start: 9 @6460 has 104 MA's), (19, 6601), (31, 6775),

Gene: Toma_9 Start: 6605, Stop: 7150, Start Num: 9

Candidate Starts for Toma_9:

(Start: 9 @6605 has 104 MA's), (35, 7040), (37, 7052), (42, 7121),

Gene: Triste_9 Start: 6605, Stop: 7147, Start Num: 9

Candidate Starts for Triste_9:

(Start: 9 @6605 has 104 MA's), (17, 6734), (37, 7049), (42, 7118),

Gene: Triumph_11 Start: 6504, Stop: 7037, Start Num: 9

Candidate Starts for Triumph_11:

(2, 6192), (3, 6198), (4, 6201), (5, 6372), (Start: 8 @6498 has 3 MA's), (Start: 9 @6504 has 104 MA's), (31, 6828),

Gene: TrvxScott_8 Start: 6455, Stop: 6982, Start Num: 8

Candidate Starts for TrvxScott_8:

(3, 6155), (4, 6158), (5, 6329), (Start: 8 @6455 has 3 MA's), (Start: 9 @6461 has 104 MA's), (19, 6602), (31, 6776),

Gene: TuanPN_9 Start: 6608, Stop: 7153, Start Num: 9

Candidate Starts for TuanPN_9:

(Start: 9 @6608 has 104 MA's), (37, 7055), (42, 7124),

Gene: Unstoppable_9 Start: 6636, Stop: 7181, Start Num: 9

Candidate Starts for Unstoppable_9:

(Start: 9 @6636 has 104 MA's), (29, 6960), (37, 7083),

Gene: Urza_9 Start: 6850, Stop: 7386, Start Num: 9

Candidate Starts for Urza_9:

(3, 6547), (4, 6550), (5, 6721), (Start: 9 @6850 has 104 MA's), (21, 7027), (28, 7162), (41, 7354),

Gene: Vanseggelen_12 Start: 6357, Stop: 6899, Start Num: 9

Candidate Starts for Vanseggelen_12:

(5, 6222), (Start: 9 @6357 has 104 MA's), (29, 6681), (30, 6684), (38, 6858),

Gene: Verabelle_10 Start: 6722, Stop: 7264, Start Num: 9

Candidate Starts for Verabelle_10:

(5, 6587), (Start: 9 @6722 has 104 MA's), (21, 6908), (29, 7046), (30, 7049), (33, 7091), (38, 7223),

Gene: Verse_9 Start: 6789, Stop: 7328, Start Num: 9

Candidate Starts for Verse_9:

(Start: 9 @6789 has 104 MA's), (10, 6831), (29, 7110), (30, 7113), (31, 7122), (38, 7287),

Gene: VieEnRose_9 Start: 6924, Stop: 7457, Start Num: 9

Candidate Starts for VieEnRose_9:

(3, 6621), (4, 6624), (5, 6795), (Start: 9 @6924 has 104 MA's), (21, 7098), (41, 7425),

Gene: Werner_9 Start: 6605, Stop: 7150, Start Num: 9

Candidate Starts for Werner_9:

(Start: 9 @6605 has 104 MA's), (10, 6647), (37, 7052), (42, 7121),

Gene: Whatever_9 Start: 6605, Stop: 7150, Start Num: 9

Candidate Starts for Whatever_9:

(Start: 9 @6605 has 104 MA's), (10, 6647), (37, 7052), (42, 7121),

Gene: Yasdnil_9 Start: 6604, Stop: 7149, Start Num: 9

Candidate Starts for Yasdnil_9:

(Start: 9 @6604 has 104 MA's), (37, 7051), (42, 7120),

Gene: Yosif_10 Start: 7092, Stop: 7634, Start Num: 9

Candidate Starts for Yosif_10:

(Start: 9 @7092 has 104 MA's), (38, 7593),

Gene: Zainub_11 Start: 6992, Stop: 7513, Start Num: 9

Candidate Starts for Zainub_11:

(2, 6680), (3, 6686), (4, 6689), (5, 6860), (Start: 9 @6992 has 104 MA's), (19, 7133), (31, 7307), (36, 7409),

Gene: Zemlya_10 Start: 6604, Stop: 7149, Start Num: 9

Candidate Starts for Zemlya_10:

(Start: 9 @6604 has 104 MA's), (37, 7051), (42, 7120),

Gene: phiCAM_10 Start: 8461, Stop: 8991, Start Num: 9

Candidate Starts for phiCAM_10:

(Start: 9 @8461 has 104 MA's), (10, 8503), (29, 8773), (30, 8776), (31, 8785), (36, 8887), (38, 8950),

Gene: phiHau3_11 Start: 6678, Stop: 7202, Start Num: 9

Candidate Starts for phiHau3_11:

(Start: 8 @6672 has 3 MA's), (Start: 9 @6678 has 104 MA's), (14, 6771), (22, 6870), (25, 6936), (31, 6993),