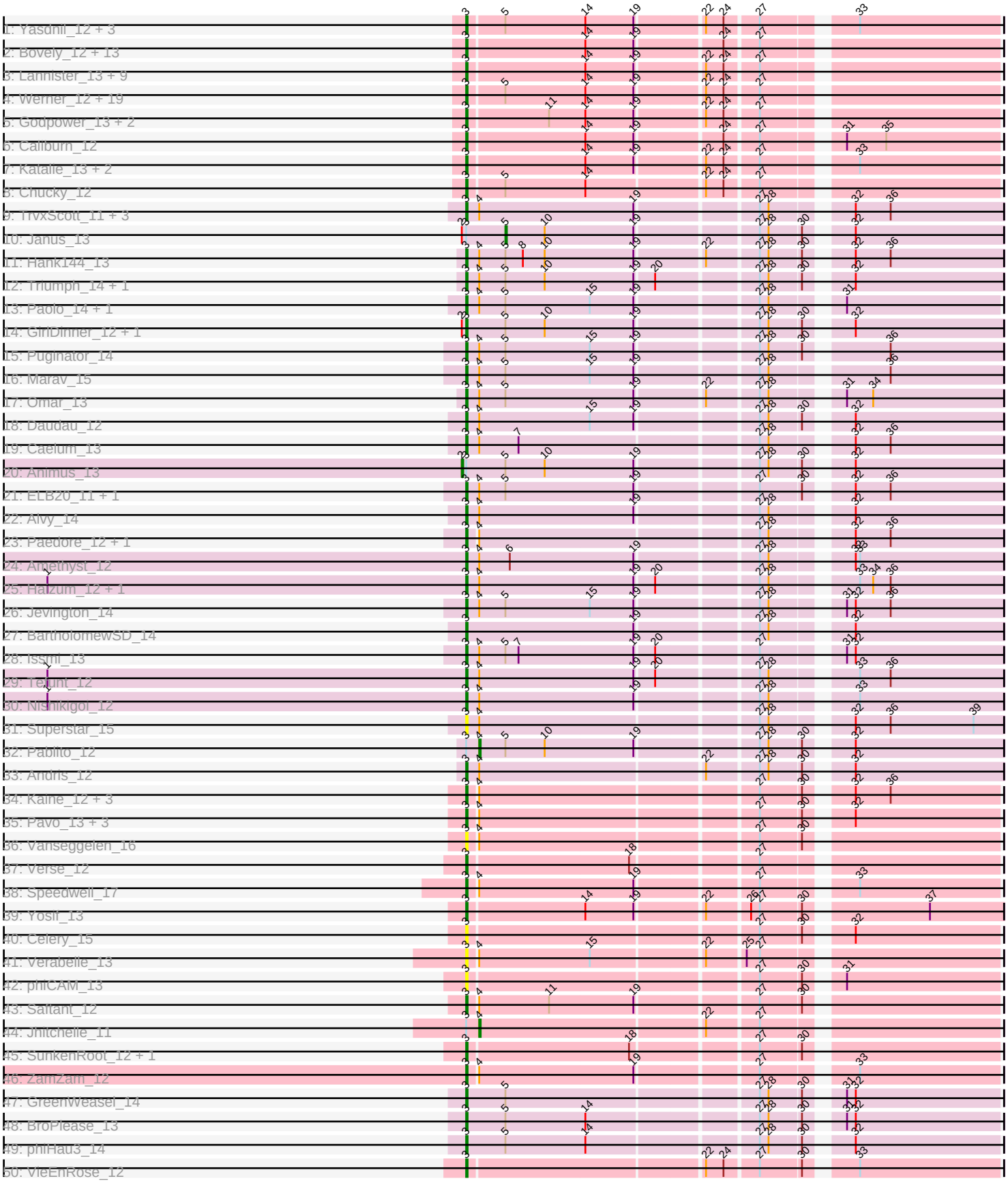
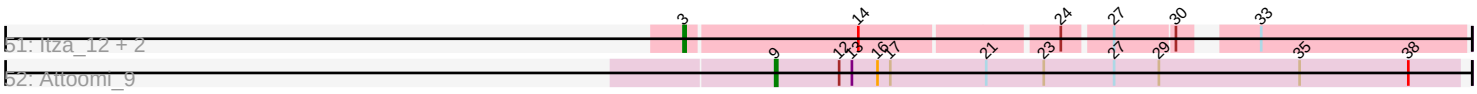
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1: Yasuhil_12 + 3
2: Bovely_12 + 13
3: Lannister_13 + 9
4: Werner_12 + 19
5: Godpower_13 + 2
6: Calburn_12
7: Katalie_13 + 2
8: Chucky_12
9: TrvxScott_11 + 3
10: Janus_13
11: Hank144_13
12: Triumph_14 + 1
13: Paolo_14 + 1
14: GinDinner_12 + 1
15: Puginator_14
16: Marav_15
17: Omar_13
18: Daudau_12
19: Caelum_13
20: Animus_13
21: ELB20_11 + 1
22: Alvy_14
23: Paedore_12 + 1
24: Amethyst_12
25: Halzum_12 + 1
26: Jevington_14
27: BartholomewSD_14
28: Issmi_13
29: Tejunt_12
30: Nishikigoi_12
31: Superstar_15
32: Pablito_12
33: Andris_12
34: Kaine_12 + 3
35: Pavo_13 + 3
36: Vanseggelen_16
37: Verse_12
38: Speedwell_17
39: Yosif_13
40: Celery_15
41: Verabelle_13
42: phiCAM_13
43: Saltant_12
44: Jhitchelle_11
45: SunkenRoot_12 + 1
46: ZamZam_12
47: GreenWeasel_14
48: BroPlease_13
49: phiHau3_14
50: VieEnRose_12

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51: Itza_12 + 2
52: Attoomi_9
3
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12
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17
21
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38

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 343784 Report

This analysis was run 11/14/26 on database version 672.

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 343784 has 118 members, 6 are drafts.

Phages represented in each track:
- Track 1 : Yasdnil_12, Maneekul_12, TuanPN_12, Ejemplo_12
- Track 2 : Bovely_12, Nanodon_14, Esperer_12, SunsetPointe_12, Indigo_12, Nerdos_12, Ozzie_12, Hydra_14, Aaronocolus_12, Leviticus_12, Unstoppable_12, BeardedLady_13, Legacy_12, Phettuccine_12
- Track 3 : Lannister_13, BryanRecycles_13, Oliynyk_13, Rusticus_13, Goby_12, Eddasa_13, EnochSoames_13, Izzy_13, Toma_12, Jash_13
- Track 4 : Werner_12, Whatever_12, Dattran_13, Brataylor_13, OzzyJ_13, Hippo_12, Celeste_12, Snorlax_12, Zemlya_13, SarahRose_12, BarryBee_14, Nabi_12, Emaanora_14, Lorelei_12, TagePhighter_13, Rana_12, Danzina_13, Asten_12, Dwayne_12, Triste_12
- Track 5 : Godpower_13, Sujidade_13, Lika_12
- Track 6 : Caliburn_12
- Track 7 : Katalie_13, RedBear_14, South40_13
- Track 8 : Chucky_12
- Track 9 : TrvxScott_11, Thestral_13, Bowden_13, TinaBelcher_12
- Track 10 : Janus_13
- Track 11 : Hank144_13
- Track 12 : Triumph_14, Axiom_13
- Track 13 : Paolo_14, Zainub_14
- Track 14 : GirlDinner_12, SqueakyClean_13
- Track 15 : Puginator_14
- Track 16 : Marav_15
- Track 17 : Omar_13
- Track 18 : Daudau_12
- Track 19 : Caelum_13
- Track 20 : Animus_13
- Track 21 : ELB20_11, R4_12
- Track 22 : Alvy_14
- Track 23 : Paedore_12, Loofah_13
- Track 24 : Amethyst_12
- Track 25 : Haizum_12, Diane_12
- Track 26 : Jevington_14
- Track 27 : BartholomewSD_14

• Track 28 : Issmi_13
• Track 29 : Tefunt_12
• Track 30 : Nishikigoi_12
• Track 31 : Superstar_15
• Track 32 : Pablito_12
• Track 33 : Andris_12
• Track 34 : Kaine_12, Alsaber_13, Sudan_12, Dexers_11
• Track 35 : Pavo_13, Conan_13, ElGato_13, Provolone_13
• Track 36 : Vanseggelen_16
• Track 37 : Verse_12
• Track 38 : Speedwell_17
• Track 39 : Yosif_13
• Track 40 : Celery_15
• Track 41 : Verabelle_13
• Track 42 : phiCAM_13
• Track 43 : Saftant_12
• Track 44 : Jhitchelle_11
• Track 45 : SunkenRoot_12, Amela_12
• Track 46 : ZamZam_12
• Track 47 : GreenWeasel_14
• Track 48 : BroPlease_13
• Track 49 : phiHau3_14
• Track 50 : VieEnRose_12
• Track 51 : Itza_12, Celia_12, Urza_12
• Track 52 : Attoomi_9

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

The start number called the most often in the published annotations is 3, it was called in 107 of the 112 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Aaronocolus_12, Alsaber_13, Alvy_14, Amela_12, Amethyst_12, Andris_12, Asten_12, Axiom_13, BarryBee_14, BartholomewSD_14, BeardedLady_13, Bovely_12, Bowden_13, Brataylor_13, BroPlease_13, BryanRecycles_13, Caelum_13, Caliburn_12, Celery_15, Celeste_12, Celia_12, Chucky_12, Conan_13, Danzina_13, Dattran_13, Daudau_12, Dexers_11, Diane_12, Dwayne_12, ELB20_11, Eddasa_13, Ejemplo_12, ElGato_13, Emaanora_14, EnochSoames_13, Esperer_12, GirlDinner_12, Goby_12, Godpower_13, GreenWeasel_14, Haizum_12, Hank144_13, Hippo_12, Hydra_14, Indigo_12, Issmi_13, Itza_12, Izzy_13, Jash_13, Jevington_14, Kaine_12, Katalie_13, Lannister_13, Legacy_12, Leviticus_12, Lika_12, Loofah_13, Lorelei_12, Maneekul_12, Marav_15, Nabi_12, Nanodon_14, Nerdos_12, Nishikigoi_12, Oliynyk_13, Omar_13, Ozzie_12, OzzyJ_13, Paedore_12, Paolo_14, Pavo_13, Phettuccine_12, Provolone_13, Puginator_14, R4_12, Rana_12, RedBear_14, Rusticus_13, Saftant_12, SarahRose_12, Snorlax_12, South40_13, Speedwell_17, SqueakyClean_13, Sudan_12, Sujidade_13, SunkenRoot_12, SunsetPointe_12, Superstar_15, TagePhighter_13, Tefunt_12, Thestral_13, TinaBelcher_12, Toma_12, Triste_12, Triumph_14, TrvxScott_11, TuanPN_12, Unstoppable_12, Urza_12, Vanseggelen_16, Verabelle_13, Verse_12, VieEnRose_12, Werner_12, Whatever_12, Yasdnil_12, Yosif_13, Zainub_14,

ZamZam_12, Zemlya_13, phiCAM_13, phiHau3_14,

Genes that have the "Most Annotated" start but do not call it:
• Animus_13, Janus_13, Jhitchelle_11, Pablito_12,

Genes that do not have the "Most Annotated" start:
• Attoomi_9,

Summary by start number:

Start 2:
• Found in 4 of 118 (3.4%) of genes in pham
• Manual Annotations of this start: 1 of 112
• Called 25.0% of time when present
• Phage (with cluster) where this start called: Animus_13 (BD2),

Start 3:
• Found in 117 of 118 (99.2%) of genes in pham
• Manual Annotations of this start: 107 of 112
• Called 96.6% of time when present
• Phage (with cluster) where this start called: Aaronocolus_12 (BD1), Alsaber_13 (BD3), Alvy_14 (BD2), Amela_12 (BD3), Amethyst_12 (BD2), Andris_12 (BD2), Asten_12 (BD1), Axiom_13 (BD2), BarryBee_14 (BD1), BartholomewSD_14 (BD2), BeardedLady_13 (BD1), Bovely_12 (BD1), Bowden_13 (BD2), Brataylor_13 (BD1), BroPlease_13 (BD4), BryanRecycles_13 (BD1), Caelum_13 (BD2), Caliburn_12 (BD1), Celery_15 (BD3), Celeste_12 (BD1), Celia_12 (BD6), Chucky_12 (BD1), Conan_13 (BD3), Danzina_13 (BD1), Dattran_13 (BD1), Daudau_12 (BD2), Dexers_11 (BD3), Diane_12 (BD2), Dwayne_12 (BD1), ELB20_11 (BD2), Eddasa_13 (BD1), Ejemplo_12 (BD1), ElGato_13 (BD3), Emaanora_14 (BD1), EnochSoames_13 (BD1), Esperer_12 (BD1), GirlDinner_12 (BD2), Goby_12 (BD1), Godpower_13 (BD1), GreenWeasel_14 (BD4), Haizum_12 (BD2), Hank144_13 (BD2), Hippo_12 (BD1), Hydra_14 (BD1), Indigo_12 (BD1), Issmi_13 (BD2), Itza_12 (BD6), Izzy_13 (BD1), Jash_13 (BD1), Jevington_14 (BD2), Kaine_12 (BD3), Katalie_13 (BD1), Lannister_13 (BD1), Legacy_12 (BD1), Leviticus_12 (BD1), Lika_12 (BD1), Loofah_13 (BD2), Lorelei_12 (BD1), Maneekul_12 (BD1), Marav_15 (BD2), Nabi_12 (BD1), Nanodon_14 (BD1), Nerdos_12 (BD1), Nishikigoi_12 (BD2), Oliynyk_13 (BD1), Omar_13 (BD2), Ozzie_12 (BD1), OzzyJ_13 (BD1), Paedore_12 (BD2), Paolo_14 (BD2), Pavo_13 (BD3), Phettuccine_12 (BD1), Provolone_13 (BD3), Puginator_14 (BD2), R4_12 (BD2), Rana_12 (BD1), RedBear_14 (BD1), Rusticus_13 (BD1), Saftant_12 (BD3), SarahRose_12 (BD1), Snorlax_12 (BD1), South40_13 (BD1), Speedwell_17 (BD3), SqueakyClean_13 (BD2), Sudan_12 (BD3), Sujidade_13 (BD1), SunkenRoot_12 (BD3), SunsetPointe_12 (BD1), Superstar_15 (BD2), TagePhighter_13 (BD1), Tefunt_12 (BD2), Thestral_13 (BD2), TinaBelcher_12 (BD2), Toma_12 (BD1), Triste_12 (BD1), Triumph_14 (BD2), TrvxScott_11 (BD2), TuanPN_12 (BD1), Unstoppable_12 (BD1), Urza_12 (BD6), Vanseggelen_16 (BD3), Verabelle_13 (BD3), Verse_12 (BD3), VieEnRose_12 (BD6), Werner_12 (BD1), Whatever_12 (BD1), Yasdnil_12 (BD1), Yosif_13 (BD3), Zainub_14 (BD2), ZamZam_12 (BD3), Zemlya_13 (BD1), phiCAM_13 (BD3), phiHau3_14 (BD4),

Start 4:
• Found in 43 of 118 (36.4%) of genes in pham
• Manual Annotations of this start: 2 of 112
• Called 4.7% of time when present

• Phage (with cluster) where this start called: Jhitchelle_11 (BD3), Pablito_12 (BD2),

Start 5:
• Found in 45 of 118 (38.1%) of genes in pham
• Manual Annotations of this start: 1 of 112
• Called 2.2% of time when present
• Phage (with cluster) where this start called: Janus_13 (BD2),

Start 9:
• Found in 1 of 118 (0.8%) of genes in pham
• Manual Annotations of this start: 1 of 112
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Attoomi_9 (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 3 was manually annotated 55 times for cluster BD1.

Info for manual annotations of cluster BD2:
•Start number 2 was manually annotated 1 time for cluster BD2.
•Start number 3 was manually annotated 30 times for cluster BD2.
•Start number 4 was manually annotated 1 time for cluster BD2.
•Start number 5 was manually annotated 1 time for cluster BD2.

Info for manual annotations of cluster BD3:
•Start number 3 was manually annotated 15 times for cluster BD3.
•Start number 4 was manually annotated 1 time for cluster BD3.

Info for manual annotations of cluster BD4:
•Start number 3 was manually annotated 3 times for cluster BD4.

Info for manual annotations of cluster BD6:
•Start number 3 was manually annotated 4 times for cluster BD6.

Gene Information:

Gene: Aaronocolus_12 Start: 8844, Stop: 9179, Start Num: 3
Candidate Starts for Aaronocolus_12:
(Start: 3 @8844 has 107 MA's), (14, 8922), (19, 8955), (24, 9009), (27, 9030),

Gene: Alsaber_13 Start: 8912, Stop: 9247, Start Num: 3
Candidate Starts for Alsaber_13:
(Start: 3 @8912 has 107 MA's), (Start: 4 @8918 has 2 MA's), (27, 9098), (30, 9125), (32, 9149), (36, 9173),

Gene: Alvy_14 Start: 8791, Stop: 9132, Start Num: 3
Candidate Starts for Alvy_14:

(Start: 3 @8791 has 107 MA's), (Start: 4 @8800 has 2 MA's), (19, 8905), (27, 8980), (28, 8986), (32, 9031),

Gene: Amela_12 Start: 9021, Stop: 9356, Start Num: 3
Candidate Starts for Amela_12:
(Start: 3 @9021 has 107 MA's), (18, 9129), (27, 9207), (30, 9234),

Gene: Amethyst_12 Start: 8604, Stop: 8945, Start Num: 3
Candidate Starts for Amethyst_12:
(Start: 3 @8604 has 107 MA's), (Start: 4 @8613 has 2 MA's), (6, 8634), (19, 8718), (27, 8793), (28, 8799), (32, 8844), (33, 8847),

Gene: Andris_12 Start: 8661, Stop: 9002, Start Num: 3
Candidate Starts for Andris_12:
(Start: 3 @8661 has 107 MA's), (Start: 4 @8670 has 2 MA's), (22, 8817), (27, 8850), (28, 8856), (30, 8877), (32, 8901),

Gene: Animus_13 Start: 9029, Stop: 9373, Start Num: 2
Candidate Starts for Animus_13:
(Start: 2 @9029 has 1 MA's), (Start: 3 @9032 has 107 MA's), (Start: 5 @9059 has 1 MA's), (10, 9086), (19, 9146), (27, 9221), (28, 9227), (30, 9248), (32, 9272),

Gene: Asten_12 Start: 8803, Stop: 9138, Start Num: 3
Candidate Starts for Asten_12:
(Start: 3 @8803 has 107 MA's), (Start: 5 @8827 has 1 MA's), (14, 8881), (19, 8914), (22, 8956), (24, 8968), (27, 8989),

Gene: Attoomi_9 Start: 6957, Stop: 7277, Start Num: 9
Candidate Starts for Attoomi_9:
(Start: 9 @6957 has 1 MA's), (12, 6987), (13, 6993), (16, 7005), (17, 7011), (21, 7056), (23, 7083), (27, 7116), (29, 7137), (35, 7203), (38, 7254),

Gene: Axiom_13 Start: 8693, Stop: 9034, Start Num: 3
Candidate Starts for Axiom_13:
(Start: 3 @8693 has 107 MA's), (Start: 4 @8702 has 2 MA's), (Start: 5 @8720 has 1 MA's), (10, 8747), (19, 8807), (20, 8819), (27, 8882), (28, 8888), (30, 8909), (32, 8933),

Gene: BarryBee_14 Start: 8810, Stop: 9145, Start Num: 3
Candidate Starts for BarryBee_14:
(Start: 3 @8810 has 107 MA's), (Start: 5 @8834 has 1 MA's), (14, 8888), (19, 8921), (22, 8963), (24, 8975), (27, 8996),

Gene: BartholomewSD_14 Start: 8791, Stop: 9132, Start Num: 3
Candidate Starts for BartholomewSD_14:
(Start: 3 @8791 has 107 MA's), (19, 8905), (27, 8980), (28, 8986), (32, 9031),

Gene: BeardedLady_13 Start: 9091, Stop: 9426, Start Num: 3
Candidate Starts for BeardedLady_13:
(Start: 3 @9091 has 107 MA's), (14, 9169), (19, 9202), (24, 9256), (27, 9277),

Gene: Bovely_12 Start: 8850, Stop: 9185, Start Num: 3
Candidate Starts for Bovely_12:
(Start: 3 @8850 has 107 MA's), (14, 8928), (19, 8961), (24, 9015), (27, 9036),

Gene: Bowden_13 Start: 8705, Stop: 9046, Start Num: 3
Candidate Starts for Bowden_13:
(Start: 3 @8705 has 107 MA's), (Start: 4 @8714 has 2 MA's), (19, 8819), (27, 8894), (28, 8900), (32, 8945), (36, 8969),

Gene: Brataylor_13 Start: 8813, Stop: 9148, Start Num: 3
Candidate Starts for Brataylor_13:
(Start: 3 @8813 has 107 MA's), (Start: 5 @8837 has 1 MA's), (14, 8891), (19, 8924), (22, 8966), (24, 8978), (27, 8999),

Gene: BroPlease_13 Start: 8914, Stop: 9252, Start Num: 3
Candidate Starts for BroPlease_13:
(Start: 3 @8914 has 107 MA's), (Start: 5 @8941 has 1 MA's), (14, 8995), (27, 9103), (28, 9109), (30, 9130), (31, 9148), (32, 9154),

Gene: BryanRecycles_13 Start: 9007, Stop: 9342, Start Num: 3
Candidate Starts for BryanRecycles_13:
(Start: 3 @9007 has 107 MA's), (14, 9085), (19, 9118), (22, 9160), (24, 9172), (27, 9193),

Gene: Caelum_13 Start: 8560, Stop: 8901, Start Num: 3
Candidate Starts for Caelum_13:
(Start: 3 @8560 has 107 MA's), (Start: 4 @8569 has 2 MA's), (7, 8596), (27, 8749), (28, 8755), (32, 8800), (36, 8824),

Gene: Caliburn_12 Start: 8824, Stop: 9159, Start Num: 3
Candidate Starts for Caliburn_12:
(Start: 3 @8824 has 107 MA's), (14, 8902), (19, 8935), (24, 8989), (27, 9010), (31, 9055), (35, 9082),

Gene: Celery_15 Start: 8871, Stop: 9206, Start Num: 3
Candidate Starts for Celery_15:
(Start: 3 @8871 has 107 MA's), (27, 9057), (30, 9084), (32, 9108),

Gene: Celeste_12 Start: 8811, Stop: 9146, Start Num: 3
Candidate Starts for Celeste_12:
(Start: 3 @8811 has 107 MA's), (Start: 5 @8835 has 1 MA's), (14, 8889), (19, 8922), (22, 8964), (24, 8976), (27, 8997),

Gene: Celia_12 Start: 9146, Stop: 9481, Start Num: 3
Candidate Starts for Celia_12:
(Start: 3 @9146 has 107 MA's), (14, 9224), (24, 9311), (27, 9332), (30, 9359), (33, 9386),

Gene: Chucky_12 Start: 8811, Stop: 9146, Start Num: 3
Candidate Starts for Chucky_12:
(Start: 3 @8811 has 107 MA's), (Start: 5 @8835 has 1 MA's), (14, 8889), (22, 8964), (24, 8976), (27, 8997),

Gene: Conan_13 Start: 8622, Stop: 8957, Start Num: 3
Candidate Starts for Conan_13:
(Start: 3 @8622 has 107 MA's), (Start: 4 @8628 has 2 MA's), (27, 8808), (30, 8835), (32, 8859),

Gene: Danzina_13 Start: 9015, Stop: 9350, Start Num: 3
Candidate Starts for Danzina_13:

(Start: 3 @9015 has 107 MA's), (Start: 5 @9039 has 1 MA's), (14, 9093), (19, 9126), (22, 9168), (24, 9180), (27, 9201),

Gene: Dattran_13 Start: 8810, Stop: 9145, Start Num: 3
Candidate Starts for Dattran_13:
(Start: 3 @8810 has 107 MA's), (Start: 5 @8834 has 1 MA's), (14, 8888), (19, 8921), (22, 8963), (24, 8975), (27, 8996),

Gene: Daudau_12 Start: 8695, Stop: 9036, Start Num: 3
Candidate Starts for Daudau_12:
(Start: 3 @8695 has 107 MA's), (Start: 4 @8704 has 2 MA's), (15, 8779), (19, 8809), (27, 8884), (28, 8890), (30, 8911), (32, 8935),

Gene: Dexers_11 Start: 8615, Stop: 8950, Start Num: 3
Candidate Starts for Dexers_11:
(Start: 3 @8615 has 107 MA's), (Start: 4 @8621 has 2 MA's), (27, 8801), (30, 8828), (32, 8852), (36, 8876),

Gene: Diane_12 Start: 8603, Stop: 8944, Start Num: 3
Candidate Starts for Diane_12:
(1, 8315), (Start: 3 @8603 has 107 MA's), (Start: 4 @8612 has 2 MA's), (19, 8717), (20, 8729), (27, 8792), (28, 8798), (33, 8846), (34, 8855), (36, 8867),

Gene: Dwayne_12 Start: 8810, Stop: 9145, Start Num: 3
Candidate Starts for Dwayne_12:
(Start: 3 @8810 has 107 MA's), (Start: 5 @8834 has 1 MA's), (14, 8888), (19, 8921), (22, 8963), (24, 8975), (27, 8996),

Gene: ELB20_11 Start: 8708, Stop: 9049, Start Num: 3
Candidate Starts for ELB20_11:
(Start: 3 @8708 has 107 MA's), (Start: 4 @8717 has 2 MA's), (Start: 5 @8735 has 1 MA's), (19, 8822), (27, 8897), (30, 8924), (32, 8948), (36, 8972),

Gene: Eddasa_13 Start: 9007, Stop: 9342, Start Num: 3
Candidate Starts for Eddasa_13:
(Start: 3 @9007 has 107 MA's), (14, 9085), (19, 9118), (22, 9160), (24, 9172), (27, 9193),

Gene: Ejemplo_12 Start: 8813, Stop: 9148, Start Num: 3
Candidate Starts for Ejemplo_12:
(Start: 3 @8813 has 107 MA's), (Start: 5 @8837 has 1 MA's), (14, 8891), (19, 8924), (22, 8966), (24, 8978), (27, 8999), (33, 9053),

Gene: ElGato_13 Start: 8625, Stop: 8960, Start Num: 3
Candidate Starts for ElGato_13:
(Start: 3 @8625 has 107 MA's), (Start: 4 @8631 has 2 MA's), (27, 8811), (30, 8838), (32, 8862),

Gene: Emaanora_14 Start: 8810, Stop: 9145, Start Num: 3
Candidate Starts for Emaanora_14:
(Start: 3 @8810 has 107 MA's), (Start: 5 @8834 has 1 MA's), (14, 8888), (19, 8921), (22, 8963), (24, 8975), (27, 8996),

Gene: EnochSoames_13 Start: 9003, Stop: 9338, Start Num: 3
Candidate Starts for EnochSoames_13:

(Start: 3 @9003 has 107 MA's), (14, 9081), (19, 9114), (22, 9156), (24, 9168), (27, 9189),

Gene: Esperer_12 Start: 8844, Stop: 9179, Start Num: 3
Candidate Starts for Esperer_12:
(Start: 3 @8844 has 107 MA's), (14, 8922), (19, 8955), (24, 9009), (27, 9030),

Gene: GirlDinner_12 Start: 8694, Stop: 9035, Start Num: 3
Candidate Starts for GirlDinner_12:
(Start: 2 @8691 has 1 MA's), (Start: 3 @8694 has 107 MA's), (Start: 5 @8721 has 1 MA's), (10, 8748), (19, 8808), (27, 8883), (28, 8889), (30, 8910), (32, 8934),

Gene: Goby_12 Start: 8813, Stop: 9148, Start Num: 3
Candidate Starts for Goby_12:
(Start: 3 @8813 has 107 MA's), (14, 8891), (19, 8924), (22, 8966), (24, 8978), (27, 8999),

Gene: Godpower_13 Start: 8828, Stop: 9163, Start Num: 3
Candidate Starts for Godpower_13:
(Start: 3 @8828 has 107 MA's), (11, 8882), (14, 8906), (19, 8939), (22, 8981), (24, 8993), (27, 9014),

Gene: GreenWeasel_14 Start: 8923, Stop: 9261, Start Num: 3
Candidate Starts for GreenWeasel_14:
(Start: 3 @8923 has 107 MA's), (Start: 5 @8950 has 1 MA's), (27, 9112), (28, 9118), (30, 9139), (31, 9157), (32, 9163),

Gene: Haizum_12 Start: 8633, Stop: 8974, Start Num: 3
Candidate Starts for Haizum_12:
(1, 8345), (Start: 3 @8633 has 107 MA's), (Start: 4 @8642 has 2 MA's), (19, 8747), (20, 8759), (27, 8822), (28, 8828), (33, 8876), (34, 8885), (36, 8897),

Gene: Hank144_13 Start: 8963, Stop: 9304, Start Num: 3
Candidate Starts for Hank144_13:
(Start: 3 @8963 has 107 MA's), (Start: 4 @8972 has 2 MA's), (Start: 5 @8990 has 1 MA's), (8, 9002), (10, 9017), (19, 9077), (22, 9119), (27, 9152), (28, 9158), (30, 9179), (32, 9203), (36, 9227),

Gene: Hippo_12 Start: 8810, Stop: 9145, Start Num: 3
Candidate Starts for Hippo_12:
(Start: 3 @8810 has 107 MA's), (Start: 5 @8834 has 1 MA's), (14, 8888), (19, 8921), (22, 8963), (24, 8975), (27, 8996),

Gene: Hydra_14 Start: 9372, Stop: 9707, Start Num: 3
Candidate Starts for Hydra_14:
(Start: 3 @9372 has 107 MA's), (14, 9450), (19, 9483), (24, 9537), (27, 9558),

Gene: Indigo_12 Start: 8844, Stop: 9179, Start Num: 3
Candidate Starts for Indigo_12:
(Start: 3 @8844 has 107 MA's), (14, 8922), (19, 8955), (24, 9009), (27, 9030),

Gene: Issmi_13 Start: 8913, Stop: 9254, Start Num: 3
Candidate Starts for Issmi_13:
(Start: 3 @8913 has 107 MA's), (Start: 4 @8922 has 2 MA's), (Start: 5 @8940 has 1 MA's), (7, 8949), (19, 9027), (20, 9039), (27, 9102), (31, 9147), (32, 9153),

Gene: Itza_12 Start: 9069, Stop: 9404, Start Num: 3

Candidate Starts for Itza_12:
(Start: 3 @9069 has 107 MA's), (14, 9147), (24, 9234), (27, 9255), (30, 9282), (33, 9309),

Gene: Izzy_13 Start: 9054, Stop: 9389, Start Num: 3
Candidate Starts for Izzy_13:
(Start: 3 @9054 has 107 MA's), (14, 9132), (19, 9165), (22, 9207), (24, 9219), (27, 9240),

Gene: Janus_13 Start: 9059, Stop: 9373, Start Num: 5
Candidate Starts for Janus_13:
(Start: 2 @9029 has 1 MA's), (Start: 3 @9032 has 107 MA's), (Start: 5 @9059 has 1 MA's), (10, 9086), (19, 9146), (27, 9221), (28, 9227), (30, 9248), (32, 9272),

Gene: Jash_13 Start: 9007, Stop: 9342, Start Num: 3
Candidate Starts for Jash_13:
(Start: 3 @9007 has 107 MA's), (14, 9085), (19, 9118), (22, 9160), (24, 9172), (27, 9193),

Gene: Jevington_14 Start: 9215, Stop: 9556, Start Num: 3
Candidate Starts for Jevington_14:
(Start: 3 @9215 has 107 MA's), (Start: 4 @9224 has 2 MA's), (Start: 5 @9242 has 1 MA's), (15, 9299), (19, 9329), (27, 9404), (28, 9410), (31, 9449), (32, 9455), (36, 9479),

Gene: Jhitchelle_11 Start: 8557, Stop: 8886, Start Num: 4
Candidate Starts for Jhitchelle_11:
(Start: 3 @8551 has 107 MA's), (Start: 4 @8557 has 2 MA's), (22, 8704), (27, 8737),

Gene: Kaine_12 Start: 8615, Stop: 8950, Start Num: 3
Candidate Starts for Kaine_12:
(Start: 3 @8615 has 107 MA's), (Start: 4 @8621 has 2 MA's), (27, 8801), (30, 8828), (32, 8852), (36, 8876),

Gene: Katalie_13 Start: 9083, Stop: 9418, Start Num: 3
Candidate Starts for Katalie_13:
(Start: 3 @9083 has 107 MA's), (14, 9161), (19, 9194), (22, 9236), (24, 9248), (27, 9269), (33, 9323),

Gene: Lannister_13 Start: 8831, Stop: 9166, Start Num: 3
Candidate Starts for Lannister_13:
(Start: 3 @8831 has 107 MA's), (14, 8909), (19, 8942), (22, 8984), (24, 8996), (27, 9017),

Gene: Legacy_12 Start: 8815, Stop: 9150, Start Num: 3
Candidate Starts for Legacy_12:
(Start: 3 @8815 has 107 MA's), (14, 8893), (19, 8926), (24, 8980), (27, 9001),

Gene: Leviticus_12 Start: 8844, Stop: 9179, Start Num: 3
Candidate Starts for Leviticus_12:
(Start: 3 @8844 has 107 MA's), (14, 8922), (19, 8955), (24, 9009), (27, 9030),

Gene: Lika_12 Start: 8829, Stop: 9164, Start Num: 3
Candidate Starts for Lika_12:
(Start: 3 @8829 has 107 MA's), (11, 8883), (14, 8907), (19, 8940), (22, 8982), (24, 8994), (27, 9015),

Gene: Loofah_13 Start: 8748, Stop: 9086, Start Num: 3
Candidate Starts for Loofah_13:

(Start: 3 @8748 has 107 MA's), (Start: 4 @8754 has 2 MA's), (27, 8934), (28, 8940), (32, 8985), (36, 9009),

Gene: Lorelei_12 Start: 8801, Stop: 9136, Start Num: 3
Candidate Starts for Lorelei_12:
(Start: 3 @8801 has 107 MA's), (Start: 5 @8825 has 1 MA's), (14, 8879), (19, 8912), (22, 8954), (24, 8966), (27, 8987),

Gene: Maneekul_12 Start: 8812, Stop: 9147, Start Num: 3
Candidate Starts for Maneekul_12:
(Start: 3 @8812 has 107 MA's), (Start: 5 @8836 has 1 MA's), (14, 8890), (19, 8923), (22, 8965), (24, 8977), (27, 8998), (33, 9052),

Gene: Marav_15 Start: 9565, Stop: 9906, Start Num: 3
Candidate Starts for Marav_15:
(Start: 3 @9565 has 107 MA's), (Start: 4 @9574 has 2 MA's), (Start: 5 @9592 has 1 MA's), (15, 9649), (19, 9679), (27, 9754), (28, 9760), (36, 9829),

Gene: Nabi_12 Start: 8801, Stop: 9136, Start Num: 3
Candidate Starts for Nabi_12:
(Start: 3 @8801 has 107 MA's), (Start: 5 @8825 has 1 MA's), (14, 8879), (19, 8912), (22, 8954), (24, 8966), (27, 8987),

Gene: Nanodon_14 Start: 9003, Stop: 9338, Start Num: 3
Candidate Starts for Nanodon_14:
(Start: 3 @9003 has 107 MA's), (14, 9081), (19, 9114), (24, 9168), (27, 9189),

Gene: Nerdos_12 Start: 8844, Stop: 9179, Start Num: 3
Candidate Starts for Nerdos_12:
(Start: 3 @8844 has 107 MA's), (14, 8922), (19, 8955), (24, 9009), (27, 9030),

Gene: Nishikigoi_12 Start: 8633, Stop: 8974, Start Num: 3
Candidate Starts for Nishikigoi_12:
(1, 8345), (Start: 3 @8633 has 107 MA's), (Start: 4 @8642 has 2 MA's), (19, 8747), (27, 8822), (28, 8828), (33, 8876),

Gene: Oliynyk_13 Start: 9007, Stop: 9342, Start Num: 3
Candidate Starts for Oliynyk_13:
(Start: 3 @9007 has 107 MA's), (14, 9085), (19, 9118), (22, 9160), (24, 9172), (27, 9193),

Gene: Omar_13 Start: 8867, Stop: 9208, Start Num: 3
Candidate Starts for Omar_13:
(Start: 3 @8867 has 107 MA's), (Start: 4 @8876 has 2 MA's), (Start: 5 @8894 has 1 MA's), (19, 8981), (22, 9023), (27, 9056), (28, 9062), (31, 9101), (34, 9119),

Gene: Ozzie_12 Start: 8824, Stop: 9159, Start Num: 3
Candidate Starts for Ozzie_12:
(Start: 3 @8824 has 107 MA's), (14, 8902), (19, 8935), (24, 8989), (27, 9010),

Gene: OzzyJ_13 Start: 8804, Stop: 9139, Start Num: 3
Candidate Starts for OzzyJ_13:
(Start: 3 @8804 has 107 MA's), (Start: 5 @8828 has 1 MA's), (14, 8882), (19, 8915), (22, 8957), (24, 8969), (27, 8990),

Gene: Pablito_12 Start: 8702, Stop: 9034, Start Num: 4
Candidate Starts for Pablito_12:
(Start: 3 @8693 has 107 MA's), (Start: 4 @8702 has 2 MA's), (Start: 5 @8720 has 1 MA's), (10, 8747), (19, 8807), (27, 8882), (28, 8888), (30, 8909), (32, 8933),

Gene: Paedore_12 Start: 8748, Stop: 9086, Start Num: 3
Candidate Starts for Paedore_12:
(Start: 3 @8748 has 107 MA's), (Start: 4 @8754 has 2 MA's), (27, 8934), (28, 8940), (32, 8985), (36, 9009),

Gene: Paolo_14 Start: 9242, Stop: 9580, Start Num: 3
Candidate Starts for Paolo_14:
(Start: 3 @9242 has 107 MA's), (Start: 4 @9251 has 2 MA's), (Start: 5 @9269 has 1 MA's), (15, 9326), (19, 9356), (27, 9431), (28, 9437), (31, 9476),

Gene: Pavo_13 Start: 8895, Stop: 9230, Start Num: 3
Candidate Starts for Pavo_13:
(Start: 3 @8895 has 107 MA's), (Start: 4 @8901 has 2 MA's), (27, 9081), (30, 9108), (32, 9132),

Gene: Phettuccine_12 Start: 8844, Stop: 9179, Start Num: 3
Candidate Starts for Phettuccine_12:
(Start: 3 @8844 has 107 MA's), (14, 8922), (19, 8955), (24, 9009), (27, 9030),

Gene: Provolone_13 Start: 8625, Stop: 8960, Start Num: 3
Candidate Starts for Provolone_13:
(Start: 3 @8625 has 107 MA's), (Start: 4 @8631 has 2 MA's), (27, 8811), (30, 8838), (32, 8862),

Gene: Puginator_14 Start: 9188, Stop: 9529, Start Num: 3
Candidate Starts for Puginator_14:
(Start: 3 @9188 has 107 MA's), (Start: 4 @9197 has 2 MA's), (Start: 5 @9215 has 1 MA's), (15, 9272), (19, 9302), (27, 9377), (28, 9383), (30, 9404), (36, 9452),

Gene: R4_12 Start: 8719, Stop: 9060, Start Num: 3
Candidate Starts for R4_12:
(Start: 3 @8719 has 107 MA's), (Start: 4 @8728 has 2 MA's), (Start: 5 @8746 has 1 MA's), (19, 8833), (27, 8908), (30, 8935), (32, 8959), (36, 8983),

Gene: Rana_12 Start: 8801, Stop: 9136, Start Num: 3
Candidate Starts for Rana_12:
(Start: 3 @8801 has 107 MA's), (Start: 5 @8825 has 1 MA's), (14, 8879), (19, 8912), (22, 8954), (24, 8966), (27, 8987),

Gene: RedBear_14 Start: 9083, Stop: 9418, Start Num: 3
Candidate Starts for RedBear_14:
(Start: 3 @9083 has 107 MA's), (14, 9161), (19, 9194), (22, 9236), (24, 9248), (27, 9269), (33, 9323),

Gene: Rusticus_13 Start: 9007, Stop: 9342, Start Num: 3
Candidate Starts for Rusticus_13:
(Start: 3 @9007 has 107 MA's), (14, 9085), (19, 9118), (22, 9160), (24, 9172), (27, 9193),

Gene: Saftant_12 Start: 8900, Stop: 9235, Start Num: 3
Candidate Starts for Saftant_12:

(Start: 3 @8900 has 107 MA's), (Start: 4 @8906 has 2 MA's), (11, 8954), (19, 9011), (27, 9086), (30, 9113),

Gene: SarahRose_12 Start: 8810, Stop: 9145, Start Num: 3
Candidate Starts for SarahRose_12:
(Start: 3 @8810 has 107 MA's), (Start: 5 @8834 has 1 MA's), (14, 8888), (19, 8921), (22, 8963), (24, 8975), (27, 8996),

Gene: Snorlax_12 Start: 8810, Stop: 9145, Start Num: 3
Candidate Starts for Snorlax_12:
(Start: 3 @8810 has 107 MA's), (Start: 5 @8834 has 1 MA's), (14, 8888), (19, 8921), (22, 8963), (24, 8975), (27, 8996),

Gene: South40_13 Start: 9083, Stop: 9418, Start Num: 3
Candidate Starts for South40_13:
(Start: 3 @9083 has 107 MA's), (14, 9161), (19, 9194), (22, 9236), (24, 9248), (27, 9269), (33, 9323),

Gene: Speedwell_17 Start: 10630, Stop: 10965, Start Num: 3
Candidate Starts for Speedwell_17:
(Start: 3 @10630 has 107 MA's), (Start: 4 @10636 has 2 MA's), (19, 10741), (27, 10816), (33, 10870),

Gene: SqueakyClean_13 Start: 8958, Stop: 9299, Start Num: 3
Candidate Starts for SqueakyClean_13:
(Start: 2 @8955 has 1 MA's), (Start: 3 @8958 has 107 MA's), (Start: 5 @8985 has 1 MA's), (10, 9012), (19, 9072), (27, 9147), (28, 9153), (30, 9174), (32, 9198),

Gene: Sudan_12 Start: 8902, Stop: 9237, Start Num: 3
Candidate Starts for Sudan_12:
(Start: 3 @8902 has 107 MA's), (Start: 4 @8908 has 2 MA's), (27, 9088), (30, 9115), (32, 9139), (36, 9163),

Gene: Sujidade_13 Start: 9105, Stop: 9440, Start Num: 3
Candidate Starts for Sujidade_13:
(Start: 3 @9105 has 107 MA's), (11, 9159), (14, 9183), (19, 9216), (22, 9258), (24, 9270), (27, 9291),

Gene: SunkenRoot_12 Start: 9014, Stop: 9349, Start Num: 3
Candidate Starts for SunkenRoot_12:
(Start: 3 @9014 has 107 MA's), (18, 9122), (27, 9200), (30, 9227),

Gene: SunsetPointe_12 Start: 8834, Stop: 9169, Start Num: 3
Candidate Starts for SunsetPointe_12:
(Start: 3 @8834 has 107 MA's), (14, 8912), (19, 8945), (24, 8999), (27, 9020),

Gene: Superstar_15 Start: 9764, Stop: 10105, Start Num: 3
Candidate Starts for Superstar_15:
(Start: 3 @9764 has 107 MA's), (Start: 4 @9773 has 2 MA's), (27, 9953), (28, 9959), (32, 10004), (36, 10028), (39, 10085),

Gene: TagePhighter_13 Start: 8810, Stop: 9145, Start Num: 3
Candidate Starts for TagePhighter_13:
(Start: 3 @8810 has 107 MA's), (Start: 5 @8834 has 1 MA's), (14, 8888), (19, 8921), (22, 8963), (24, 8975), (27, 8996),

Gene: Tefunt_12 Start: 8633, Stop: 8974, Start Num: 3
Candidate Starts for Tefunt_12:
(1, 8345), (Start: 3 @8633 has 107 MA's), (Start: 4 @8642 has 2 MA's), (19, 8747), (20, 8759), (27, 8822), (28, 8828), (33, 8876), (36, 8897),

Gene: Thestral_13 Start: 8708, Stop: 9049, Start Num: 3
Candidate Starts for Thestral_13:
(Start: 3 @8708 has 107 MA's), (Start: 4 @8717 has 2 MA's), (19, 8822), (27, 8897), (28, 8903), (32, 8948), (36, 8972),

Gene: TinaBelcher_12 Start: 8656, Stop: 8997, Start Num: 3
Candidate Starts for TinaBelcher_12:
(Start: 3 @8656 has 107 MA's), (Start: 4 @8665 has 2 MA's), (19, 8770), (27, 8845), (28, 8851), (32, 8896), (36, 8920),

Gene: Toma_12 Start: 8813, Stop: 9148, Start Num: 3
Candidate Starts for Toma_12:
(Start: 3 @8813 has 107 MA's), (14, 8891), (19, 8924), (22, 8966), (24, 8978), (27, 8999),

Gene: Triste_12 Start: 8804, Stop: 9139, Start Num: 3
Candidate Starts for Triste_12:
(Start: 3 @8804 has 107 MA's), (Start: 5 @8828 has 1 MA's), (14, 8882), (19, 8915), (22, 8957), (24, 8969), (27, 8990),

Gene: Triumph_14 Start: 8723, Stop: 9064, Start Num: 3
Candidate Starts for Triumph_14:
(Start: 3 @8723 has 107 MA's), (Start: 4 @8732 has 2 MA's), (Start: 5 @8750 has 1 MA's), (10, 8777), (19, 8837), (20, 8849), (27, 8912), (28, 8918), (30, 8939), (32, 8963),

Gene: TrvxScott_11 Start: 8657, Stop: 8998, Start Num: 3
Candidate Starts for TrvxScott_11:
(Start: 3 @8657 has 107 MA's), (Start: 4 @8666 has 2 MA's), (19, 8771), (27, 8846), (28, 8852), (32, 8897), (36, 8921),

Gene: TuanPN_12 Start: 8813, Stop: 9148, Start Num: 3
Candidate Starts for TuanPN_12:
(Start: 3 @8813 has 107 MA's), (Start: 5 @8837 has 1 MA's), (14, 8891), (19, 8924), (22, 8966), (24, 8978), (27, 8999), (33, 9053),

Gene: Unstoppable_12 Start: 8835, Stop: 9170, Start Num: 3
Candidate Starts for Unstoppable_12:
(Start: 3 @8835 has 107 MA's), (14, 8913), (19, 8946), (24, 9000), (27, 9021),

Gene: Urza_12 Start: 9081, Stop: 9416, Start Num: 3
Candidate Starts for Urza_12:
(Start: 3 @9081 has 107 MA's), (14, 9159), (24, 9246), (27, 9267), (30, 9294), (33, 9321),

Gene: Vanseggelen_16 Start: 8550, Stop: 8885, Start Num: 3
Candidate Starts for Vanseggelen_16:
(Start: 3 @8550 has 107 MA's), (Start: 4 @8556 has 2 MA's), (27, 8736), (30, 8763),

Gene: Verabelle_13 Start: 8900, Stop: 9235, Start Num: 3
Candidate Starts for Verabelle_13:

(Start: 3 @8900 has 107 MA's), (Start: 4 @8906 has 2 MA's), (15, 8981), (22, 9053), (25, 9077), (27, 9086),

Gene: Verse_12 Start: 9015, Stop: 9350, Start Num: 3
Candidate Starts for Verse_12:
(Start: 3 @9015 has 107 MA's), (18, 9123), (27, 9201),

Gene: VieEnRose_12 Start: 9151, Stop: 9486, Start Num: 3
Candidate Starts for VieEnRose_12:
(Start: 3 @9151 has 107 MA's), (22, 9304), (24, 9316), (27, 9337), (30, 9364), (33, 9391),

Gene: Werner_12 Start: 8811, Stop: 9146, Start Num: 3
Candidate Starts for Werner_12:
(Start: 3 @8811 has 107 MA's), (Start: 5 @8835 has 1 MA's), (14, 8889), (19, 8922), (22, 8964), (24, 8976), (27, 8997),

Gene: Whatever_12 Start: 8811, Stop: 9146, Start Num: 3
Candidate Starts for Whatever_12:
(Start: 3 @8811 has 107 MA's), (Start: 5 @8835 has 1 MA's), (14, 8889), (19, 8922), (22, 8964), (24, 8976), (27, 8997),

Gene: Yasdnil_12 Start: 8809, Stop: 9144, Start Num: 3
Candidate Starts for Yasdnil_12:
(Start: 3 @8809 has 107 MA's), (Start: 5 @8833 has 1 MA's), (14, 8887), (19, 8920), (22, 8962), (24, 8974), (27, 8995), (33, 9049),

Gene: Yosif_13 Start: 9276, Stop: 9614, Start Num: 3
Candidate Starts for Yosif_13:
(Start: 3 @9276 has 107 MA's), (14, 9354), (19, 9387), (22, 9429), (26, 9456), (27, 9462), (30, 9489), (37, 9564),

Gene: Zainub_14 Start: 9200, Stop: 9538, Start Num: 3
Candidate Starts for Zainub_14:
(Start: 3 @9200 has 107 MA's), (Start: 4 @9209 has 2 MA's), (Start: 5 @9227 has 1 MA's), (15, 9284), (19, 9314), (27, 9389), (28, 9395), (31, 9434),

Gene: ZamZam_12 Start: 8905, Stop: 9240, Start Num: 3
Candidate Starts for ZamZam_12:
(Start: 3 @8905 has 107 MA's), (Start: 4 @8911 has 2 MA's), (19, 9016), (27, 9091), (33, 9145),

Gene: Zemlya_13 Start: 8821, Stop: 9156, Start Num: 3
Candidate Starts for Zemlya_13:
(Start: 3 @8821 has 107 MA's), (Start: 5 @8845 has 1 MA's), (14, 8899), (19, 8932), (22, 8974), (24, 8986), (27, 9007),

Gene: phiCAM_13 Start: 10678, Stop: 11013, Start Num: 3
Candidate Starts for phiCAM_13:
(Start: 3 @10678 has 107 MA's), (27, 10864), (30, 10891), (31, 10909),

Gene: phiHau3_14 Start: 8891, Stop: 9229, Start Num: 3
Candidate Starts for phiHau3_14:
(Start: 3 @8891 has 107 MA's), (Start: 5 @8918 has 1 MA's), (14, 8972), (27, 9080), (28, 9086), (30, 9107), (32, 9131),