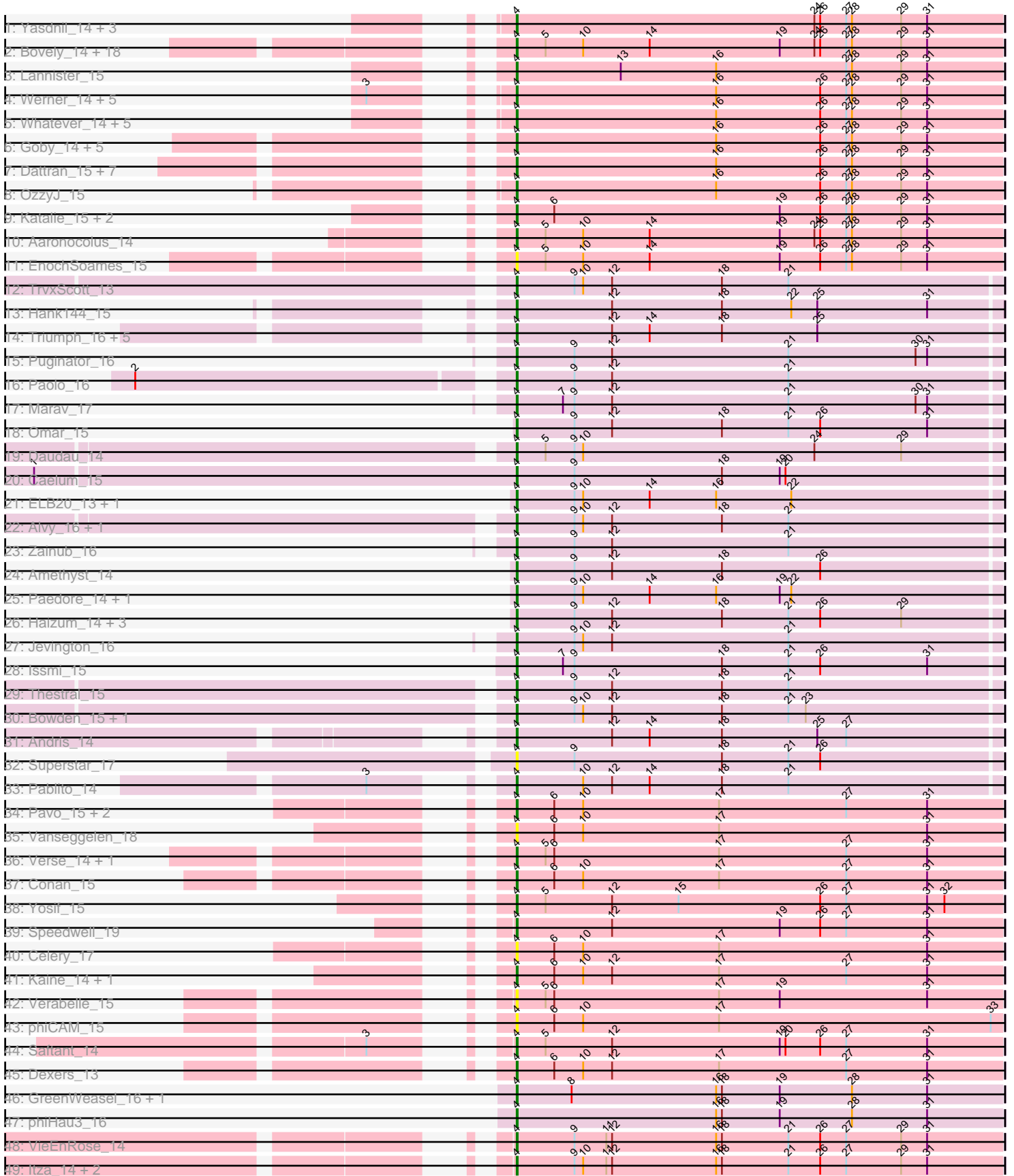


Pham 224425



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 224425 Report

This analysis was run 03/28/25 on database version 593.

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 224425 has 113 members, 7 are drafts.

Phages represented in each track:

- Track 1 : Yasdni1_14, TuanPN_14, Maneekul_14, Ejemplo_14
- Track 2 : Bovely_14, Esperer_14, SunsetPointe_14, Izzy_15, Indigo_14, BryanRecycles_15, Oliynyk_15, Rusticus_15, Nerdos_14, Eddasa_15, Ozzie_14, Caliburn_14, Hydra_16, Leviticus_14, Unstoppable_14, Legacy_14, BeardedLady_15, Phettuccine_14, Jash_15
- Track 3 : Lannister_15
- Track 4 : Werner_14, Hippo_14, Snorlax_14, BarryBee_16, Emaanora_16, Dwayne_14
- Track 5 : Whatever_14, Chucky_14, SarahRose_14, TagePhighter_15, Asten_14, Triste_14
- Track 6 : Goby_14, Godpower_15, Sujidade_15, Lika_14, Danzina_15, Toma_14
- Track 7 : Dattran_15, Brataylor_15, Nanodon_16, Zemlya_15, Nabi_14, Lorelei_14, Rana_14, Celeste_14
- Track 8 : OzzyJ_15
- Track 9 : Katalie_15, RedBear_16, South40_15
- Track 10 : Aaronocolus_14
- Track 11 : EnochSoames_15
- Track 12 : TrvxScott_13
- Track 13 : Hank144_15
- Track 14 : Triumph_16, GirlDinner_14, Janus_15, Axiom_15, Animus_15, SqueakyClean_15
- Track 15 : Puginator_16
- Track 16 : Paolo_16
- Track 17 : Marav_17
- Track 18 : Omar_15
- Track 19 : Daudau_14
- Track 20 : Caelum_15
- Track 21 : ELB20_13, R4_14
- Track 22 : Alvy_16, BartholomewSD_16
- Track 23 : Zainub_16
- Track 24 : Amethyst_14
- Track 25 : Paedore_14, Loofah_15
- Track 26 : Haizum_14, Nishikigoi_14, Diane_14, Tefunt_14

- Track 27 : Jevington_16
- Track 28 : Issmi_15
- Track 29 : Thestral_15
- Track 30 : Bowden_15, TinaBelcher_14
- Track 31 : Andris_14
- Track 32 : Superstar_17
- Track 33 : Pablito_14
- Track 34 : Pavo_15, ElGato_15, Provolone_15
- Track 35 : Vanseggelen_18
- Track 36 : Verse_14, Amela_14
- Track 37 : Conan_15
- Track 38 : Yosif_15
- Track 39 : Speedwell_19
- Track 40 : Celery_17
- Track 41 : Kaine_14, Alsaber_15
- Track 42 : Verabelle_15
- Track 43 : phiCAM_15
- Track 44 : Saftant_14
- Track 45 : Dexers_13
- Track 46 : GreenWeasel_16, BroPlease_15
- Track 47 : phiHau3_16
- Track 48 : VieEnRose_14
- Track 49 : Itza_14, Celia_14, Urza_14

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

The start number called the most often in the published annotations is 4, it was called in 106 of the 106 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• Aaronocolus_14, Alsaber_15, Alvy_16, Amela_14, Amethyst_14, Andris_14, Animus_15, Asten_14, Axiom_15, BarryBee_16, BartholomewSD_16, BeardedLady_15, Bovely_14, Bowden_15, Brataylor_15, BroPlease_15, BryanRecycles_15, Caelum_15, Caliburn_14, Celery_17, Celeste_14, Celia_14, Chucky_14, Conan_15, Danzina_15, Dattran_15, Daudau_14, Dexers_13, Diane_14, Dwayne_14, ELB20_13, Eddasa_15, Ejemplo_14, ElGato_15, Emaanora_16, EnochSoames_15, Esperer_14, GirlDinner_14, Goby_14, Godpower_15, GreenWeasel_16, Haizum_14, Hank144_15, Hippo_14, Hydra_16, Indigo_14, Issmi_15, Itza_14, Izzy_15, Janus_15, Jash_15, Jevington_16, Kaine_14, Katalie_15, Lannister_15, Legacy_14, Leviticus_14, Lika_14, Loofah_15, Lorelei_14, Maneekul_14, Marav_17, Nabi_14, Nanodon_16, Nerdos_14, Nishikigoi_14, Oliynyk_15, Omar_15, Ozzie_14, OzzyJ_15, Pablito_14, Paedore_14, Paolo_16, Pavo_15, Phettuccine_14, Provolone_15, Puginator_16, R4_14, Rana_14, RedBear_16, Rusticus_15, Saftant_14, SarahRose_14, Snorlax_14, South40_15, Speedwell_19, SqueakyClean_15, Sujidade_15, SunsetPointe_14, Superstar_17, TaguePighiter_15, Tefunt_14, Thestral_15, TinaBelcher_14, Toma_14, Triste_14, Triumph_16, TrvxScott_13, TuanPN_14, Unstoppable_14, Urza_14, Vanseggelen_18, Verabelle_15, Verse_14, VieEnRose_14, Werner_14, Whatever_14, Yasdnil_14, Yosif_15, Zainub_16, Zemlya_15, phiCAM_15, phiHau3_16,

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

-

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

-

Summary by start number:

Start 4:

- Found in 113 of 113 (100.0%) of genes in pham
- Manual Annotations of this start: 106 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aaronocolus_14 (BD1), Alsaber_15 (BD3), Alvy_16 (BD2), Amela_14 (BD3), Amethyst_14 (BD2), Andris_14 (BD2), Animus_15 (BD2), Asten_14 (BD1), Axiom_15 (BD2), BarryBee_16 (BD1), BartholomewSD_16 (BD2), BeardedLady_15 (BD1), Bovely_14 (BD1), Bowden_15 (BD2), Brataylor_15 (BD1), BroPlease_15 (BD4), BryanRecycles_15 (BD1), Caelum_15 (BD2), Caliburn_14 (BD1), Celery_17 (BD3), Celeste_14 (BD1), Celia_14 (BD6), Chucky_14 (BD1), Conan_15 (BD3), Danzina_15 (BD1), Dattran_15 (BD1), Daudau_14 (BD2), Dexers_13 (BD3), Diane_14 (BD2), Dwayne_14 (BD1), ELB20_13 (BD2), Eddasa_15 (BD1), Ejemplo_14 (BD1), ElGato_15 (BD3), Emaanora_16 (BD1), EnochSoames_15 (BD1), Esperer_14 (BD1), GirlDinner_14 (BD2), Goby_14 (BD1), Godpower_15 (BD1), GreenWeasel_16 (BD4), Haizum_14 (BD2), Hank144_15 (BD2), Hippo_14 (BD1), Hydra_16 (BD1), Indigo_14 (BD1), Issmi_15 (BD2), Itza_14 (BD6), Izzy_15 (BD1), Janus_15 (BD2), Jash_15 (BD1), Jevington_16 (BD2), Kaine_14 (BD3), Katalie_15 (BD1), Lannister_15 (BD1), Legacy_14 (BD1), Leviticus_14 (BD1), Lika_14 (BD1), Loofah_15 (BD2), Lorelei_14 (BD1), Maneekul_14 (BD1), Marav_17 (BD2), Nabi_14 (BD1), Nanodon_16 (BD1), Nerdos_14 (BD1), Nishikigoi_14 (BD2), Oliynyk_15 (BD1), Omar_15 (BD2), Ozzie_14 (BD1), OzzyJ_15 (BD1), Pablito_14 (BD2), Paedore_14 (BD2), Paolo_16 (BD2), Pavo_15 (BD3), Phettuccine_14 (BD1), Provolone_15 (BD3), Puginator_16 (BD2), R4_14 (BD2), Rana_14 (BD1), RedBear_16 (BD1), Rusticus_15 (BD1), Saftant_14 (BD3), SarahRose_14 (BD1), Snorlax_14 (BD1), South40_15 (BD1), Speedwell_19 (BD3), SqueakyClean_15 (BD2), Sujidade_15 (BD1), SunsetPointe_14 (BD1), Superstar_17 (BD2), TAgePhighter_15 (BD1), Tefunt_14 (BD2), Thestral_15 (BD2), TinaBelcher_14 (BD2), Toma_14 (BD1), Triste_14 (BD1), Triumph_16 (BD2), TrvxScott_13 (BD2), TuanPN_14 (BD1), Unstoppable_14 (BD1), Urza_14 (BD6), Vanseggelen_18 (BD3), Verabelle_15 (BD3), Verse_14 (BD3), VieEnRose_14 (BD6), Werner_14 (BD1), Whatever_14 (BD1), Yasdnil_14 (BD1), Yosif_15 (BD3), Zainub_16 (BD2), Zemlya_15 (BD1), phiCAM_15 (BD3), phiHau3_16 (BD4),

Summary by clusters:

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

Info for manual annotations of cluster BD1:

- Start number 4 was manually annotated 55 times for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 4 was manually annotated 32 times for cluster BD2.

Info for manual annotations of cluster BD3:

- Start number 4 was manually annotated 12 times for cluster BD3.

Info for manual annotations of cluster BD4:

- Start number 4 was manually annotated 3 times for cluster BD4.

Info for manual annotations of cluster BD6:

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

Gene Information:

Gene: Aaronocolus_14 Start: 9577, Stop: 10080, Start Num: 4

Candidate Starts for Aaronocolus_14:

(Start: 4 @9577 has 106 MA's), (5, 9607), (10, 9646), (14, 9715), (19, 9850), (24, 9886), (26, 9892), (27, 9919), (28, 9925), (29, 9976), (31, 10003),

Gene: Alsaber_15 Start: 9636, Stop: 10139, Start Num: 4

Candidate Starts for Alsaber_15:

(Start: 4 @9636 has 106 MA's), (6, 9675), (10, 9705), (12, 9735), (17, 9846), (27, 9978), (31, 10062),

Gene: Alvy_16 Start: 9584, Stop: 10081, Start Num: 4

Candidate Starts for Alvy_16:

(Start: 4 @9584 has 106 MA's), (9, 9644), (10, 9653), (12, 9683), (18, 9797), (21, 9866),

Gene: Amela_14 Start: 9742, Stop: 10245, Start Num: 4

Candidate Starts for Amela_14:

(Start: 4 @9742 has 106 MA's), (5, 9772), (6, 9781), (17, 9952), (27, 10084), (31, 10168),

Gene: Amethyst_14 Start: 9406, Stop: 9903, Start Num: 4

Candidate Starts for Amethyst_14:

(Start: 4 @9406 has 106 MA's), (9, 9466), (12, 9505), (18, 9619), (26, 9721),

Gene: Andris_14 Start: 9391, Stop: 9888, Start Num: 4

Candidate Starts for Andris_14:

(Start: 4 @9391 has 106 MA's), (12, 9490), (14, 9529), (18, 9604), (25, 9703), (27, 9733),

Gene: Animus_15 Start: 9744, Stop: 10241, Start Num: 4

Candidate Starts for Animus_15:

(Start: 4 @9744 has 106 MA's), (12, 9843), (14, 9882), (18, 9957), (25, 10056),

Gene: Asten_14 Start: 9533, Stop: 10036, Start Num: 4

Candidate Starts for Asten_14:

(Start: 4 @9533 has 106 MA's), (16, 9740), (26, 9848), (27, 9875), (28, 9881), (29, 9932), (31, 9959),

Gene: Axiom_15 Start: 9429, Stop: 9926, Start Num: 4

Candidate Starts for Axiom_15:

(Start: 4 @9429 has 106 MA's), (12, 9528), (14, 9567), (18, 9642), (25, 9741),

Gene: BarryBee_16 Start: 9540, Stop: 10043, Start Num: 4

Candidate Starts for BarryBee_16:

(3, 9459), (Start: 4 @9540 has 106 MA's), (16, 9747), (26, 9855), (27, 9882), (28, 9888), (29, 9939), (31, 9966),

Gene: BartholomewSD_16 Start: 9584, Stop: 10081, Start Num: 4

Candidate Starts for BartholomewSD_16:

(Start: 4 @9584 has 106 MA's), (9, 9644), (10, 9653), (12, 9683), (18, 9797), (21, 9866),

Gene: BeardedLady_15 Start: 9824, Stop: 10327, Start Num: 4

Candidate Starts for BeardedLady_15:

(Start: 4 @9824 has 106 MA's), (5, 9854), (10, 9893), (14, 9962), (19, 10097), (24, 10133), (26, 10139), (27, 10166), (28, 10172), (29, 10223), (31, 10250),

Gene: Bovely_14 Start: 9583, Stop: 10086, Start Num: 4

Candidate Starts for Bovely_14:

(Start: 4 @9583 has 106 MA's), (5, 9613), (10, 9652), (14, 9721), (19, 9856), (24, 9892), (26, 9898), (27, 9925), (28, 9931), (29, 9982), (31, 10009),

Gene: Bowden_15 Start: 9501, Stop: 9998, Start Num: 4

Candidate Starts for Bowden_15:

(Start: 4 @9501 has 106 MA's), (9, 9561), (10, 9570), (12, 9600), (18, 9714), (21, 9783), (23, 9801),

Gene: Brataylor_15 Start: 9546, Stop: 10049, Start Num: 4

Candidate Starts for Brataylor_15:

(Start: 4 @9546 has 106 MA's), (16, 9753), (26, 9861), (27, 9888), (28, 9894), (29, 9945), (31, 9972),

Gene: BroPlease_15 Start: 9718, Stop: 10221, Start Num: 4

Candidate Starts for BroPlease_15:

(Start: 4 @9718 has 106 MA's), (8, 9775), (16, 9925), (18, 9931), (19, 9991), (28, 10066), (31, 10144),

Gene: BryanRecycles_15 Start: 9740, Stop: 10243, Start Num: 4

Candidate Starts for BryanRecycles_15:

(Start: 4 @9740 has 106 MA's), (5, 9770), (10, 9809), (14, 9878), (19, 10013), (24, 10049), (26, 10055), (27, 10082), (28, 10088), (29, 10139), (31, 10166),

Gene: Caelum_15 Start: 9377, Stop: 9874, Start Num: 4

Candidate Starts for Caelum_15:

(1, 8885), (Start: 4 @9377 has 106 MA's), (9, 9437), (18, 9590), (19, 9650), (20, 9656),

Gene: Caliburn_14 Start: 9557, Stop: 10060, Start Num: 4

Candidate Starts for Caliburn_14:

(Start: 4 @9557 has 106 MA's), (5, 9587), (10, 9626), (14, 9695), (19, 9830), (24, 9866), (26, 9872), (27, 9899), (28, 9905), (29, 9956), (31, 9983),

Gene: Celery_17 Start: 9591, Stop: 10094, Start Num: 4

Candidate Starts for Celery_17:

(Start: 4 @9591 has 106 MA's), (6, 9630), (10, 9660), (17, 9801), (31, 10017),

Gene: Celeste_14 Start: 9544, Stop: 10047, Start Num: 4

Candidate Starts for Celeste_14:

(Start: 4 @9544 has 106 MA's), (16, 9751), (26, 9859), (27, 9886), (28, 9892), (29, 9943), (31, 9970),

Gene: Celia_14 Start: 9861, Stop: 10364, Start Num: 4

Candidate Starts for Celia_14:

(Start: 4 @9861 has 106 MA's), (9, 9921), (10, 9930), (11, 9954), (12, 9960), (16, 10068), (18, 10074), (21, 10143), (26, 10176), (27, 10203), (29, 10260), (31, 10287),

Gene: Chucky_14 Start: 9541, Stop: 10044, Start Num: 4

Candidate Starts for Chucky_14:

(Start: 4 @9541 has 106 MA's), (16, 9748), (26, 9856), (27, 9883), (28, 9889), (29, 9940), (31, 9967),

Gene: Conan_15 Start: 9343, Stop: 9846, Start Num: 4

Candidate Starts for Conan_15:

(Start: 4 @9343 has 106 MA's), (6, 9382), (10, 9412), (17, 9553), (27, 9685), (31, 9769),

Gene: Danzina_15 Start: 9748, Stop: 10251, Start Num: 4

Candidate Starts for Danzina_15:

(Start: 4 @9748 has 106 MA's), (16, 9955), (26, 10063), (27, 10090), (28, 10096), (29, 10147), (31, 10174),

Gene: Dattran_15 Start: 9543, Stop: 10046, Start Num: 4

Candidate Starts for Dattran_15:

(Start: 4 @9543 has 106 MA's), (16, 9750), (26, 9858), (27, 9885), (28, 9891), (29, 9942), (31, 9969),

Gene: Daudau_14 Start: 9488, Stop: 9985, Start Num: 4

Candidate Starts for Daudau_14:

(Start: 4 @9488 has 106 MA's), (5, 9518), (9, 9548), (10, 9557), (24, 9797), (29, 9887),

Gene: Dexers_13 Start: 9339, Stop: 9842, Start Num: 4

Candidate Starts for Dexers_13:

(Start: 4 @9339 has 106 MA's), (6, 9378), (10, 9408), (12, 9438), (17, 9549), (27, 9681), (31, 9765),

Gene: Diane_14 Start: 9405, Stop: 9902, Start Num: 4

Candidate Starts for Diane_14:

(Start: 4 @9405 has 106 MA's), (9, 9465), (12, 9504), (18, 9618), (21, 9687), (26, 9720), (29, 9804),

Gene: Dwayne_14 Start: 9540, Stop: 10043, Start Num: 4

Candidate Starts for Dwayne_14:

(3, 9459), (Start: 4 @9540 has 106 MA's), (16, 9747), (26, 9855), (27, 9882), (28, 9888), (29, 9939), (31, 9966),

Gene: ELB20_13 Start: 9516, Stop: 10013, Start Num: 4

Candidate Starts for ELB20_13:

(Start: 4 @9516 has 106 MA's), (9, 9576), (10, 9585), (14, 9654), (16, 9723), (22, 9801),

Gene: Eddasa_15 Start: 9740, Stop: 10243, Start Num: 4

Candidate Starts for Eddasa_15:

(Start: 4 @9740 has 106 MA's), (5, 9770), (10, 9809), (14, 9878), (19, 10013), (24, 10049), (26, 10055), (27, 10082), (28, 10088), (29, 10139), (31, 10166),

Gene: Ejemplo_14 Start: 9543, Stop: 10046, Start Num: 4

Candidate Starts for Ejemplo_14:

(Start: 4 @9543 has 106 MA's), (24, 9852), (26, 9858), (27, 9885), (28, 9891), (29, 9942), (31, 9969),

Gene: ElGato_15 Start: 9346, Stop: 9849, Start Num: 4

Candidate Starts for ElGato_15:

(Start: 4 @9346 has 106 MA's), (6, 9385), (10, 9415), (17, 9556), (27, 9688), (31, 9772),

Gene: Emaanora_16 Start: 9540, Stop: 10043, Start Num: 4

Candidate Starts for Emaanora_16:

(3, 9459), (Start: 4 @9540 has 106 MA's), (16, 9747), (26, 9855), (27, 9882), (28, 9888), (29, 9939), (31, 9966),

Gene: EnochSoames_15 Start: 9736, Stop: 10239, Start Num: 4

Candidate Starts for EnochSoames_15:

(Start: 4 @9736 has 106 MA's), (5, 9766), (10, 9805), (14, 9874), (19, 10009), (26, 10051), (27, 10078), (28, 10084), (29, 10135), (31, 10162),

Gene: Esperer_14 Start: 9577, Stop: 10080, Start Num: 4

Candidate Starts for Esperer_14:

(Start: 4 @9577 has 106 MA's), (5, 9607), (10, 9646), (14, 9715), (19, 9850), (24, 9886), (26, 9892), (27, 9919), (28, 9925), (29, 9976), (31, 10003),

Gene: GirlDinner_14 Start: 9406, Stop: 9903, Start Num: 4

Candidate Starts for GirlDinner_14:

(Start: 4 @9406 has 106 MA's), (12, 9505), (14, 9544), (18, 9619), (25, 9718),

Gene: Goby_14 Start: 9546, Stop: 10049, Start Num: 4

Candidate Starts for Goby_14:

(Start: 4 @9546 has 106 MA's), (16, 9753), (26, 9861), (27, 9888), (28, 9894), (29, 9945), (31, 9972),

Gene: Godpower_15 Start: 9561, Stop: 10064, Start Num: 4

Candidate Starts for Godpower_15:

(Start: 4 @9561 has 106 MA's), (16, 9768), (26, 9876), (27, 9903), (28, 9909), (29, 9960), (31, 9987),

Gene: GreenWeasel_16 Start: 9727, Stop: 10230, Start Num: 4

Candidate Starts for GreenWeasel_16:

(Start: 4 @9727 has 106 MA's), (8, 9784), (16, 9934), (18, 9940), (19, 10000), (28, 10075), (31, 10153),

Gene: Haizum_14 Start: 9435, Stop: 9932, Start Num: 4

Candidate Starts for Haizum_14:

(Start: 4 @9435 has 106 MA's), (9, 9495), (12, 9534), (18, 9648), (21, 9717), (26, 9750), (29, 9834),

Gene: Hank144_15 Start: 9675, Stop: 10175, Start Num: 4

Candidate Starts for Hank144_15:

(Start: 4 @9675 has 106 MA's), (12, 9774), (18, 9888), (22, 9960), (25, 9987), (31, 10101),

Gene: Hippo_14 Start: 9540, Stop: 10043, Start Num: 4

Candidate Starts for Hippo_14:

(3, 9459), (Start: 4 @9540 has 106 MA's), (16, 9747), (26, 9855), (27, 9882), (28, 9888), (29, 9939), (31, 9966),

Gene: Hydra_16 Start: 10105, Stop: 10608, Start Num: 4

Candidate Starts for Hydra_16:

(Start: 4 @10105 has 106 MA's), (5, 10135), (10, 10174), (14, 10243), (19, 10378), (24, 10414), (26, 10420), (27, 10447), (28, 10453), (29, 10504), (31, 10531),

Gene: Indigo_14 Start: 9577, Stop: 10080, Start Num: 4

Candidate Starts for Indigo_14:

(Start: 4 @9577 has 106 MA's), (5, 9607), (10, 9646), (14, 9715), (19, 9850), (24, 9886), (26, 9892), (27, 9919), (28, 9925), (29, 9976), (31, 10003),

Gene: Issmi_15 Start: 9706, Stop: 10203, Start Num: 4

Candidate Starts for Issmi_15:

(Start: 4 @9706 has 106 MA's), (7, 9754), (9, 9766), (18, 9919), (21, 9988), (26, 10021), (31, 10132),

Gene: Itza_14 Start: 9784, Stop: 10287, Start Num: 4

Candidate Starts for Itza_14:

(Start: 4 @9784 has 106 MA's), (9, 9844), (10, 9853), (11, 9877), (12, 9883), (16, 9991), (18, 9997), (21, 10066), (26, 10099), (27, 10126), (29, 10183), (31, 10210),

Gene: Izzy_15 Start: 9787, Stop: 10290, Start Num: 4

Candidate Starts for Izzy_15:

(Start: 4 @9787 has 106 MA's), (5, 9817), (10, 9856), (14, 9925), (19, 10060), (24, 10096), (26, 10102), (27, 10129), (28, 10135), (29, 10186), (31, 10213),

Gene: Janus_15 Start: 9744, Stop: 10241, Start Num: 4

Candidate Starts for Janus_15:

(Start: 4 @9744 has 106 MA's), (12, 9843), (14, 9882), (18, 9957), (25, 10056),

Gene: Jash_15 Start: 9740, Stop: 10243, Start Num: 4

Candidate Starts for Jash_15:

(Start: 4 @9740 has 106 MA's), (5, 9770), (10, 9809), (14, 9878), (19, 10013), (24, 10049), (26, 10055), (27, 10082), (28, 10088), (29, 10139), (31, 10166),

Gene: Jevington_16 Start: 10032, Stop: 10529, Start Num: 4

Candidate Starts for Jevington_16:

(Start: 4 @10032 has 106 MA's), (9, 10092), (10, 10101), (12, 10131), (21, 10314),

Gene: Kaine_14 Start: 9339, Stop: 9842, Start Num: 4

Candidate Starts for Kaine_14:

(Start: 4 @9339 has 106 MA's), (6, 9378), (10, 9408), (12, 9438), (17, 9549), (27, 9681), (31, 9765),

Gene: Katalie_15 Start: 9816, Stop: 10319, Start Num: 4

Candidate Starts for Katalie_15:

(Start: 4 @9816 has 106 MA's), (6, 9855), (19, 10089), (26, 10131), (27, 10158), (28, 10164), (29, 10215), (31, 10242),

Gene: Lannister_15 Start: 9564, Stop: 10067, Start Num: 4

Candidate Starts for Lannister_15:

(Start: 4 @9564 has 106 MA's), (13, 9672), (16, 9771), (27, 9906), (28, 9912), (29, 9963), (31, 9990),

Gene: Legacy_14 Start: 9548, Stop: 10051, Start Num: 4

Candidate Starts for Legacy_14:

(Start: 4 @9548 has 106 MA's), (5, 9578), (10, 9617), (14, 9686), (19, 9821), (24, 9857), (26, 9863), (27, 9890), (28, 9896), (29, 9947), (31, 9974),

Gene: Leviticus_14 Start: 9577, Stop: 10080, Start Num: 4

Candidate Starts for Leviticus_14:

(Start: 4 @9577 has 106 MA's), (5, 9607), (10, 9646), (14, 9715), (19, 9850), (24, 9886), (26, 9892), (27, 9919), (28, 9925), (29, 9976), (31, 10003),

Gene: Lika_14 Start: 9562, Stop: 10065, Start Num: 4

Candidate Starts for Lika_14:

(Start: 4 @9562 has 106 MA's), (16, 9769), (26, 9877), (27, 9904), (28, 9910), (29, 9961), (31, 9988),

Gene: Loofah_15 Start: 9547, Stop: 10044, Start Num: 4
Candidate Starts for Loofah_15:
(Start: 4 @9547 has 106 MA's), (9, 9607), (10, 9616), (14, 9685), (16, 9754), (19, 9820), (22, 9832),

Gene: Lorelei_14 Start: 9534, Stop: 10037, Start Num: 4
Candidate Starts for Lorelei_14:
(Start: 4 @9534 has 106 MA's), (16, 9741), (26, 9849), (27, 9876), (28, 9882), (29, 9933), (31, 9960),

Gene: Maneekul_14 Start: 9542, Stop: 10045, Start Num: 4
Candidate Starts for Maneekul_14:
(Start: 4 @9542 has 106 MA's), (24, 9851), (26, 9857), (27, 9884), (28, 9890), (29, 9941), (31, 9968),

Gene: Marav_17 Start: 10382, Stop: 10879, Start Num: 4
Candidate Starts for Marav_17:
(Start: 4 @10382 has 106 MA's), (7, 10430), (9, 10442), (12, 10481), (21, 10664), (30, 10796), (31, 10808),

Gene: Nabi_14 Start: 9534, Stop: 10037, Start Num: 4
Candidate Starts for Nabi_14:
(Start: 4 @9534 has 106 MA's), (16, 9741), (26, 9849), (27, 9876), (28, 9882), (29, 9933), (31, 9960),

Gene: Nanodon_16 Start: 9736, Stop: 10239, Start Num: 4
Candidate Starts for Nanodon_16:
(Start: 4 @9736 has 106 MA's), (16, 9943), (26, 10051), (27, 10078), (28, 10084), (29, 10135), (31, 10162),

Gene: Nerdos_14 Start: 9577, Stop: 10080, Start Num: 4
Candidate Starts for Nerdos_14:
(Start: 4 @9577 has 106 MA's), (5, 9607), (10, 9646), (14, 9715), (19, 9850), (24, 9886), (26, 9892), (27, 9919), (28, 9925), (29, 9976), (31, 10003),

Gene: Nishikigoi_14 Start: 9435, Stop: 9932, Start Num: 4
Candidate Starts for Nishikigoi_14:
(Start: 4 @9435 has 106 MA's), (9, 9495), (12, 9534), (18, 9648), (21, 9717), (26, 9750), (29, 9834),

Gene: Oliynyk_15 Start: 9740, Stop: 10243, Start Num: 4
Candidate Starts for Oliynyk_15:
(Start: 4 @9740 has 106 MA's), (5, 9770), (10, 9809), (14, 9878), (19, 10013), (24, 10049), (26, 10055), (27, 10082), (28, 10088), (29, 10139), (31, 10166),

Gene: Omar_15 Start: 9669, Stop: 10166, Start Num: 4
Candidate Starts for Omar_15:
(Start: 4 @9669 has 106 MA's), (9, 9729), (12, 9768), (18, 9882), (21, 9951), (26, 9984), (31, 10095),

Gene: Ozzie_14 Start: 9557, Stop: 10060, Start Num: 4
Candidate Starts for Ozzie_14:
(Start: 4 @9557 has 106 MA's), (5, 9587), (10, 9626), (14, 9695), (19, 9830), (24, 9866), (26, 9872), (27, 9899), (28, 9905), (29, 9956), (31, 9983),

Gene: OzzyJ_15 Start: 9534, Stop: 10037, Start Num: 4
Candidate Starts for OzzyJ_15:
(Start: 4 @9534 has 106 MA's), (16, 9741), (26, 9849), (27, 9876), (28, 9882), (29, 9933), (31, 9960),

Gene: Pablito_14 Start: 9405, Stop: 9902, Start Num: 4
Candidate Starts for Pablito_14:
(3, 9321), (Start: 4 @9405 has 106 MA's), (10, 9474), (12, 9504), (14, 9543), (18, 9618), (21, 9687),

Gene: Paedore_14 Start: 9547, Stop: 10044, Start Num: 4
Candidate Starts for Paedore_14:
(Start: 4 @9547 has 106 MA's), (9, 9607), (10, 9616), (14, 9685), (16, 9754), (19, 9820), (22, 9832),

Gene: Paolo_16 Start: 10047, Stop: 10544, Start Num: 4
Candidate Starts for Paolo_16:
(2, 9681), (Start: 4 @10047 has 106 MA's), (9, 10107), (12, 10146), (21, 10329),

Gene: Pavo_15 Start: 9616, Stop: 10119, Start Num: 4
Candidate Starts for Pavo_15:
(Start: 4 @9616 has 106 MA's), (6, 9655), (10, 9685), (17, 9826), (27, 9958), (31, 10042),

Gene: Phettuccine_14 Start: 9577, Stop: 10080, Start Num: 4
Candidate Starts for Phettuccine_14:
(Start: 4 @9577 has 106 MA's), (5, 9607), (10, 9646), (14, 9715), (19, 9850), (24, 9886), (26, 9892),
(27, 9919), (28, 9925), (29, 9976), (31, 10003),

Gene: Provolone_15 Start: 9346, Stop: 9849, Start Num: 4
Candidate Starts for Provolone_15:
(Start: 4 @9346 has 106 MA's), (6, 9385), (10, 9415), (17, 9556), (27, 9688), (31, 9772),

Gene: Puginator_16 Start: 10005, Stop: 10502, Start Num: 4
Candidate Starts for Puginator_16:
(Start: 4 @10005 has 106 MA's), (9, 10065), (12, 10104), (21, 10287), (30, 10419), (31, 10431),

Gene: R4_14 Start: 9527, Stop: 10024, Start Num: 4
Candidate Starts for R4_14:
(Start: 4 @9527 has 106 MA's), (9, 9587), (10, 9596), (14, 9665), (16, 9734), (22, 9812),

Gene: Rana_14 Start: 9534, Stop: 10037, Start Num: 4
Candidate Starts for Rana_14:
(Start: 4 @9534 has 106 MA's), (16, 9741), (26, 9849), (27, 9876), (28, 9882), (29, 9933), (31, 9960),

Gene: RedBear_16 Start: 9816, Stop: 10319, Start Num: 4
Candidate Starts for RedBear_16:
(Start: 4 @9816 has 106 MA's), (6, 9855), (19, 10089), (26, 10131), (27, 10158), (28, 10164), (29,
10215), (31, 10242),

Gene: Rusticus_15 Start: 9740, Stop: 10243, Start Num: 4
Candidate Starts for Rusticus_15:
(Start: 4 @9740 has 106 MA's), (5, 9770), (10, 9809), (14, 9878), (19, 10013), (24, 10049), (26, 10055),
(27, 10082), (28, 10088), (29, 10139), (31, 10166),

Gene: Saftant_14 Start: 9638, Stop: 10141, Start Num: 4
Candidate Starts for Saftant_14:
(3, 9557), (Start: 4 @9638 has 106 MA's), (5, 9668), (12, 9737), (19, 9911), (20, 9917), (26, 9953), (27,
9980), (31, 10064),

Gene: SarahRose_14 Start: 9540, Stop: 10043, Start Num: 4
Candidate Starts for SarahRose_14:
(Start: 4 @9540 has 106 MA's), (16, 9747), (26, 9855), (27, 9882), (28, 9888), (29, 9939), (31, 9966),

Gene: Snorlax_14 Start: 9540, Stop: 10043, Start Num: 4
Candidate Starts for Snorlax_14:
(3, 9459), (Start: 4 @9540 has 106 MA's), (16, 9747), (26, 9855), (27, 9882), (28, 9888), (29, 9939), (31, 9966),

Gene: South40_15 Start: 9816, Stop: 10319, Start Num: 4
Candidate Starts for South40_15:
(Start: 4 @9816 has 106 MA's), (6, 9855), (19, 10089), (26, 10131), (27, 10158), (28, 10164), (29, 10215), (31, 10242),

Gene: Speedwell_19 Start: 11362, Stop: 11865, Start Num: 4
Candidate Starts for Speedwell_19:
(Start: 4 @11362 has 106 MA's), (12, 11461), (19, 11635), (26, 11677), (27, 11704), (31, 11788),

Gene: SqueakyClean_15 Start: 9670, Stop: 10167, Start Num: 4
Candidate Starts for SqueakyClean_15:
(Start: 4 @9670 has 106 MA's), (12, 9769), (14, 9808), (18, 9883), (25, 9982),

Gene: Sujidade_15 Start: 9838, Stop: 10341, Start Num: 4
Candidate Starts for Sujidade_15:
(Start: 4 @9838 has 106 MA's), (16, 10045), (26, 10153), (27, 10180), (28, 10186), (29, 10237), (31, 10264),

Gene: SunsetPointe_14 Start: 9567, Stop: 10070, Start Num: 4
Candidate Starts for SunsetPointe_14:
(Start: 4 @9567 has 106 MA's), (5, 9597), (10, 9636), (14, 9705), (19, 9840), (24, 9876), (26, 9882), (27, 9909), (28, 9915), (29, 9966), (31, 9993),

Gene: Superstar_17 Start: 10563, Stop: 11060, Start Num: 4
Candidate Starts for Superstar_17:
(Start: 4 @10563 has 106 MA's), (9, 10623), (18, 10776), (21, 10845), (26, 10878),

Gene: TagePhighter_15 Start: 9540, Stop: 10043, Start Num: 4
Candidate Starts for TagePhighter_15:
(Start: 4 @9540 has 106 MA's), (16, 9747), (26, 9855), (27, 9882), (28, 9888), (29, 9939), (31, 9966),

Gene: Tefunt_14 Start: 9435, Stop: 9932, Start Num: 4
Candidate Starts for Tefunt_14:
(Start: 4 @9435 has 106 MA's), (9, 9495), (12, 9534), (18, 9648), (21, 9717), (26, 9750), (29, 9834),

Gene: Thestral_15 Start: 9504, Stop: 10001, Start Num: 4
Candidate Starts for Thestral_15:
(Start: 4 @9504 has 106 MA's), (9, 9564), (12, 9603), (18, 9717), (21, 9786),

Gene: TinaBelcher_14 Start: 9452, Stop: 9949, Start Num: 4
Candidate Starts for TinaBelcher_14:
(Start: 4 @9452 has 106 MA's), (9, 9512), (10, 9521), (12, 9551), (18, 9665), (21, 9734), (23, 9752),

Gene: Toma_14 Start: 9546, Stop: 10049, Start Num: 4

Candidate Starts for Toma_14:

(Start: 4 @9546 has 106 MA's), (16, 9753), (26, 9861), (27, 9888), (28, 9894), (29, 9945), (31, 9972),

Gene: Triste_14 Start: 9534, Stop: 10037, Start Num: 4

Candidate Starts for Triste_14:

(Start: 4 @9534 has 106 MA's), (16, 9741), (26, 9849), (27, 9876), (28, 9882), (29, 9933), (31, 9960),

Gene: Triumph_16 Start: 9459, Stop: 9956, Start Num: 4

Candidate Starts for Triumph_16:

(Start: 4 @9459 has 106 MA's), (12, 9558), (14, 9597), (18, 9672), (25, 9771),

Gene: TrvxScott_13 Start: 9453, Stop: 9950, Start Num: 4

Candidate Starts for TrvxScott_13:

(Start: 4 @9453 has 106 MA's), (9, 9513), (10, 9522), (12, 9552), (18, 9666), (21, 9735),

Gene: TuanPN_14 Start: 9543, Stop: 10046, Start Num: 4

Candidate Starts for TuanPN_14:

(Start: 4 @9543 has 106 MA's), (24, 9852), (26, 9858), (27, 9885), (28, 9891), (29, 9942), (31, 9969),

Gene: Unstoppable_14 Start: 9568, Stop: 10071, Start Num: 4

Candidate Starts for Unstoppable_14:

(Start: 4 @9568 has 106 MA's), (5, 9598), (10, 9637), (14, 9706), (19, 9841), (24, 9877), (26, 9883), (27, 9910), (28, 9916), (29, 9967), (31, 9994),

Gene: Urza_14 Start: 9796, Stop: 10299, Start Num: 4

Candidate Starts for Urza_14:

(Start: 4 @9796 has 106 MA's), (9, 9856), (10, 9865), (11, 9889), (12, 9895), (16, 10003), (18, 10009), (21, 10078), (26, 10111), (27, 10138), (29, 10195), (31, 10222),

Gene: Vanseggelen_18 Start: 9273, Stop: 9776, Start Num: 4

Candidate Starts for Vanseggelen_18:

(Start: 4 @9273 has 106 MA's), (6, 9312), (10, 9342), (17, 9483), (31, 9699),

Gene: Verabelle_15 Start: 9620, Stop: 10123, Start Num: 4

Candidate Starts for Verabelle_15:

(Start: 4 @9620 has 106 MA's), (5, 9650), (6, 9659), (17, 9830), (19, 9893), (31, 10046),

Gene: Verse_14 Start: 9736, Stop: 10239, Start Num: 4

Candidate Starts for Verse_14:

(Start: 4 @9736 has 106 MA's), (5, 9766), (6, 9775), (17, 9946), (27, 10078), (31, 10162),

Gene: VieEnRose_14 Start: 9866, Stop: 10369, Start Num: 4

Candidate Starts for VieEnRose_14:

(Start: 4 @9866 has 106 MA's), (9, 9926), (11, 9959), (12, 9965), (16, 10073), (18, 10079), (21, 10148), (26, 10181), (27, 10208), (29, 10265), (31, 10292),

Gene: Werner_14 Start: 9541, Stop: 10044, Start Num: 4

Candidate Starts for Werner_14:

(3, 9460), (Start: 4 @9541 has 106 MA's), (16, 9748), (26, 9856), (27, 9883), (28, 9889), (29, 9940), (31, 9967),

Gene: Whatever_14 Start: 9541, Stop: 10044, Start Num: 4

Candidate Starts for Whatever_14:

(Start: 4 @9541 has 106 MA's), (16, 9748), (26, 9856), (27, 9883), (28, 9889), (29, 9940), (31, 9967),

Gene: Yasdni1_14 Start: 9539, Stop: 10042, Start Num: 4

Candidate Starts for Yasdni1_14:

(Start: 4 @9539 has 106 MA's), (24, 9848), (26, 9854), (27, 9881), (28, 9887), (29, 9938), (31, 9965),

Gene: Yosif_15 Start: 10000, Stop: 10503, Start Num: 4

Candidate Starts for Yosif_15:

(Start: 4 @10000 has 106 MA's), (5, 10030), (12, 10099), (15, 10168), (26, 10315), (27, 10342), (31, 10426), (32, 10444),

Gene: Zainub_16 Start: 10005, Stop: 10502, Start Num: 4

Candidate Starts for Zainub_16:

(Start: 4 @10005 has 106 MA's), (9, 10065), (12, 10104), (21, 10287),

Gene: Zemlya_15 Start: 9554, Stop: 10057, Start Num: 4

Candidate Starts for Zemlya_15:

(Start: 4 @9554 has 106 MA's), (16, 9761), (26, 9869), (27, 9896), (28, 9902), (29, 9953), (31, 9980),

Gene: phiCAM_15 Start: 11402, Stop: 11905, Start Num: 4

Candidate Starts for phiCAM_15:

(Start: 4 @11402 has 106 MA's), (6, 11441), (10, 11471), (17, 11612), (33, 11894),

Gene: phiHau3_16 Start: 9695, Stop: 10198, Start Num: 4

Candidate Starts for phiHau3_16:

(Start: 4 @9695 has 106 MA's), (16, 9902), (18, 9908), (19, 9968), (28, 10043), (31, 10121),