





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 304864 Report

This analysis was run 06/08/26 on database version 649.

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 304864 has 109 members, 4 are drafts.

Phages represented in each track:

- Track 1 : Kittykat\_19, Preamble\_19
- Track 2 : Makoto\_19, OurGirlNessie\_19
- Track 3 : Albanese\_23, Lakshmi\_23, Nubia\_23, Oxyntrius\_23
- Track 4 : GreenHearts\_23
- Track 5 : Immaculata\_23, Potatoes\_23, Cholula\_23
- Track 6 : PitaDog\_19, CristinaYang\_19, LilStuart\_19, Nancia\_19, Bodacious\_19, ChewChew\_19
- Track 7 : BigMack\_19
- Track 8 : AustinPowers\_19, HunterDalle\_19, Vulture\_19
- Track 9 : EstebanJulior\_19, MamaPearl\_19
- Track 10 : Glenn\_23, Korra\_24, Dino\_23, Zorro\_23
- Track 11 : Sergei\_19, KingBob\_19, Herb\_19, Temper16\_19, Maria1952\_19, Daiboju\_19
- Track 12 : RAP15\_23, Jumboset\_23, MeganNoll\_23, Savage2526\_23, BrotherBLo\_23
- Track 13 : OMalley\_19, Eunoia\_19, Aledel\_19, Chridison\_19, Rivovina\_19, Supakev\_19
- Track 14 : TattModd\_23
- Track 15 : Moki\_19, Huckleberry\_19, HeadNerd\_19, Bennie\_19
- Track 16 : Greenhouse\_23
- Track 17 : Rozby\_23, Scuttle\_23
- Track 18 : Lasagna\_19
- Track 19 : Kalizoi\_23
- Track 20 : Litotes\_23
- Track 21 : CallieOMalley\_23
- Track 22 : Fluke\_23
- Track 23 : RcigaStruga\_23, Huntingdon\_23
- Track 24 : Urla\_19
- Track 25 : Graynor\_23
- Track 26 : Wawa\_23
- Track 27 : MrBoss\_23
- Track 28 : Pterodactyl\_19, Christian\_19, Lucy\_19, Lennox\_19, WonderBoy\_19
- Track 29 : Canowicakte\_23, Suppi\_23

- Track 30 : Riverdale\_23, Beethoven\_23
- Track 31 : Carpal\_23, MrGloopy\_23
- Track 32 : DrRobert\_19
- Track 33 : DreamTeam\_19, Gisselle\_19
- Track 34 : Pumancara\_19
- Track 35 : Misaeng\_23
- Track 36 : PartyCup\_23
- Track 37 : PinkFriday\_19
- Track 38 : AppleCider\_23
- Track 39 : Vallejo\_23
- Track 40 : Joann\_23
- Track 41 : Wayne\_23
- Track 42 : LazerLemon\_31
- Track 43 : Intolerant\_30
- Track 44 : Crosby\_31
- Track 45 : Microdon\_30
- Track 46 : JackieB\_30
- Track 47 : Henoccus\_31
- Track 48 : Bogota\_31
- Track 49 : Araceli\_31
- Track 50 : Marky\_31
- Track 51 : Stuff\_31
- Track 52 : UNTPL\_31
- Track 53 : Shynx\_31
- Track 54 : Frankenweenie\_130
- Track 55 : JustBecause\_118
- Track 56 : Nirvana\_125
- Track 57 : Satis\_120, Quantum\_119, Sarkar\_128, EhyElimayoE\_121, Kradal\_120
- Track 58 : Kela\_119
- Track 59 : pZL12\_42c
- Track 60 : Wollypog\_22

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

The start number called the most often in the published annotations is 39, it was called in 84 of the 105 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Albanese\_23, Aledel\_19, AppleCider\_23, AustinPowers\_19, Beethoven\_23, Bennie\_19, BigMack\_19, Bodacious\_19, BrotherBLo\_23, CallieOMalley\_23, Canowicakte\_23, Carpal\_23, ChewChew\_19, Cholula\_23, Chridison\_19, Christian\_19, CristinaYang\_19, Daiboju\_19, Dino\_23, DrRobert\_19, DreamTeam\_19, EstebanJulior\_19, Eunoia\_19, Fluke\_23, Gisselle\_19, Glenn\_23, Graynor\_23, GreenHearts\_23, Greenhouse\_23, HeadNerd\_19, Herb\_19, Huckleberry\_19, HunterDalle\_19, Huntingdon\_23, Immaculata\_23, Joann\_23, Jumboset\_23, Kalizoi\_23, KingBob\_19, Kittykat\_19, Korra\_24, Lakshmi\_23, Lasagna\_19, Lennox\_19, LilStuart\_19, Litotes\_23, Lucy\_19, Makoto\_19, MamaPearl\_19, Maria1952\_19, MeganNoll\_23, Misaeng\_23, Moki\_19, MrBoss\_23, MrGloopy\_23, Nancia\_19, Nubia\_23, OMalley\_19, OurGirlNessie\_19, Oxyfrius\_23, PartyCup\_23, PinkFriday\_19, PitaDog\_19, Potatoes\_23, Preamble\_19, Pterodactyl\_19,

Pumancara\_19, RAP15\_23, RcigaStruga\_23, Riovina\_19, Riverdale\_23, Rozby\_23, Savage2526\_23, Scuttle\_23, Sergei\_19, Supakev\_19, Suppi\_23, TattModd\_23, Temper16\_19, Urla\_19, Vallejo\_23, Vulture\_19, Wawa\_23, Wayne\_23, WonderBoy\_19, Zorro\_23,

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

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

- Araceli\_31, Bogota\_31, Crosby\_31, EhyElimayoE\_121, Frankenweenie\_130, Henoccus\_31, Intolerant\_30, JackieB\_30, JustBecause\_118, Kela\_119, Kradal\_120, LazerLemon\_31, Marky\_31, Microdon\_30, Nirvana\_125, Quantum\_119, Sarkar\_128, Satis\_120, Shynx\_31, Stuff\_31, UNTPL\_31, Wollypog\_22, pZL12\_42c,

### Summary by start number:

Start 34:

- Found in 1 of 109 ( 0.9% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: pZL12\_42c (singleton),

Start 35:

- Found in 8 of 109 ( 7.3% ) of genes in pham
- Manual Annotations of this start: 1 of 105
- Called 12.5% of time when present
- Phage (with cluster) where this start called: Stuff\_31 (BH),

Start 36:

- Found in 8 of 109 ( 7.3% ) of genes in pham
- Manual Annotations of this start: 2 of 105
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Crosby\_31 (BH), UNTPL\_31 (BH),

Start 37:

- Found in 21 of 109 ( 19.3% ) of genes in pham
- Manual Annotations of this start: 17 of 105
- Called 85.7% of time when present
- Phage (with cluster) where this start called: Araceli\_31 (BH), Bogota\_31 (BH), EhyElimayoE\_121 (BM), Frankenweenie\_130 (BM), Henoccus\_31 (BH), Intolerant\_30 (BH), JackieB\_30 (BH), JustBecause\_118 (BM), Kela\_119 (BM), Kradal\_120 (BM), LazerLemon\_31 (BH), Marky\_31 (BH), Microdon\_30 (BH), Nirvana\_125 (BM), Quantum\_119 (BM), Sarkar\_128 (BM), Satis\_120 (BM), Shynx\_31 (BH),

Start 38:

- Found in 1 of 109 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 105
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Wollypog\_22 (singleton),

Start 39:

- Found in 86 of 109 ( 78.9% ) of genes in pham

- Manual Annotations of this start: 84 of 105
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Albanese\_23 (AK), Aledel\_19 (AK), AppleCider\_23 (AK), AustinPowers\_19 (AK), Beethoven\_23 (AK), Bennie\_19 (AK), BigMack\_19 (AK), Bodacious\_19 (AK), BrotherBlo\_23 (AK), CallieOMalley\_23 (AK), Canowicakte\_23 (AK), Carpal\_23 (AK), ChewChew\_19 (AK), Cholula\_23 (AK), Chridison\_19 (AK), Christian\_19 (AK), CristinaYang\_19 (AK), Daiboju\_19 (AK), Dino\_23 (AK), DrRobert\_19 (AK), DreamTeam\_19 (AK), EstebanJulior\_19 (AK), Eunoia\_19 (AK), Fluke\_23 (AK), Gisselle\_19 (AK), Glenn\_23 (AK), Graynor\_23 (AK), GreenHearts\_23 (AK), Greenhouse\_23 (AK), HeadNerd\_19 (AK), Herb\_19 (AK), Huckleberry\_19 (AK), HunterDalle\_19 (AK), Huntingdon\_23 (AK), Immaculata\_23 (AK), Joann\_23 (AK), Jumboset\_23 (AK), Kalizoi\_23 (AK), KingBob\_19 (AK), Kittykat\_19 (AK), Korra\_24 (AK), Lakshmi\_23 (AK), Lasagna\_19 (AK), Lennox\_19 (AK), LilStuart\_19 (AK), Litotes\_23 (AK), Lucy\_19 (AK), Makoto\_19 (AK), MamaPearl\_19 (AK), Maria1952\_19 (AK), MeganNoll\_23 (AK), Misaeng\_23 (AK), Moki\_19 (AK), MrBoss\_23 (AK), MrGloopy\_23 (AK), Nancia\_19 (AK), Nubia\_23 (AK), OMalley\_19 (AK), OurGirlNessie\_19 (AK), Oxynfrius\_23 (AK), PartyCup\_23 (AK), PinkFriday\_19 (AK), PitaDog\_19 (AK), Potatoes\_23 (AK), Preamble\_19 (AK), Pterodactyl\_19 (AK), Pumancara\_19 (AK), RAP15\_23 (AK), RcigaStruga\_23 (AK), Rivovina\_19 (AK), Riverdale\_23 (AK), Rozby\_23 (AK), Savage2526\_23 (AK), Scuttle\_23 (AK), Sergei\_19 (AK), Supakev\_19 (AK), Suppi\_23 (AK), TattModd\_23 (AK), Temper16\_19 (AK), Urla\_19 (AK), Vallejo\_23 (AK), Vulture\_19 (AK), Wawa\_23 (AK), Wayne\_23 (AK), WonderBoy\_19 (AK), Zorro\_23 (AK),

### Summary by clusters:

There are 4 clusters represented in this pham: BM, AK, BH, singleton,

Info for manual annotations of cluster AK:

- Start number 39 was manually annotated 84 times for cluster AK.

Info for manual annotations of cluster BH:

- Start number 35 was manually annotated 1 time for cluster BH.
- Start number 36 was manually annotated 2 times for cluster BH.
- Start number 37 was manually annotated 9 times for cluster BH.

Info for manual annotations of cluster BM:

- Start number 37 was manually annotated 8 times for cluster BM.

### Gene Information:

Gene: Albanese\_23 Start: 19329, Stop: 19769, Start Num: 39

Candidate Starts for Albanese\_23:

(13, 19065), (14, 19095), (15, 19107), (17, 19125), (23, 19203), (26, 19212), (27, 19218), (29, 19230), (Start: 39 @19329 has 84 MA's), (44, 19380), (59, 19494), (60, 19500), (65, 19521), (69, 19557), (80, 19617), (91, 19680), (92, 19683), (95, 19707), (100, 19740),

Gene: Aledel\_19 Start: 17655, Stop: 18098, Start Num: 39

Candidate Starts for Aledel\_19:

(12, 17385), (13, 17391), (20, 17490), (29, 17556), (Start: 39 @17655 has 84 MA's), (44, 17706), (45, 17712), (47, 17724), (69, 17883), (72, 17901), (86, 17985), (90, 18003), (92, 18009),

Gene: AppleCider\_23 Start: 19272, Stop: 19721, Start Num: 39

Candidate Starts for AppleCider\_23:

(25, 19152), (29, 19173), (31, 19203), (33, 19227), (Start: 39 @19272 has 84 MA's), (44, 19323), (52, 19392), (69, 19500), (72, 19518), (81, 19566), (82, 19569), (85, 19602), (88, 19620), (95, 19656), (96, 19659),

Gene: Araceli\_31 Start: 26097, Stop: 26549, Start Num: 37

Candidate Starts for Araceli\_31:

(1, 24528), (2, 24540), (4, 25173), (6, 25461), (10, 25818), (24, 25998), (Start: 37 @26097 has 17 MA's), (54, 26259), (60, 26292), (63, 26307), (65, 26313), (67, 26328), (71, 26358), (81, 26421), (84, 26451), (85, 26457), (88, 26475), (96, 26514), (98, 26523),

Gene: AustinPowers\_19 Start: 17656, Stop: 18099, Start Num: 39

Candidate Starts for AustinPowers\_19:

(12, 17386), (13, 17392), (20, 17491), (29, 17557), (Start: 39 @17656 has 84 MA's), (44, 17707), (45, 17713), (47, 17725), (69, 17884), (72, 17902), (84, 17974), (86, 17986), (90, 18004), (92, 18010),

Gene: Beethoven\_23 Start: 19209, Stop: 19658, Start Num: 39

Candidate Starts for Beethoven\_23:

(Start: 39 @19209 has 84 MA's), (44, 19260), (54, 19347), (64, 19398), (69, 19437), (72, 19455), (81, 19503), (85, 19539), (88, 19557), (92, 19569), (95, 19593), (96, 19596),

Gene: Bennie\_19 Start: 17667, Stop: 18116, Start Num: 39

Candidate Starts for Bennie\_19:

(13, 17403), (15, 17445), (16, 17448), (18, 17481), (29, 17568), (30, 17592), (Start: 39 @17667 has 84 MA's), (44, 17718), (51, 17781), (52, 17787), (61, 17841), (64, 17856), (69, 17895), (70, 17901), (72, 17913), (81, 17961), (85, 17997), (88, 18015), (91, 18024), (92, 18027), (95, 18051), (96, 18054),

Gene: BigMack\_19 Start: 17655, Stop: 18104, Start Num: 39

Candidate Starts for BigMack\_19:

(12, 17385), (29, 17556), (30, 17580), (31, 17586), (32, 17598), (Start: 39 @17655 has 84 MA's), (44, 17706), (51, 17769), (54, 17793), (61, 17829), (69, 17883), (72, 17901), (73, 17910), (81, 17949), (85, 17985), (88, 18003), (91, 18012), (95, 18039), (96, 18042),

Gene: Bodacious\_19 Start: 17674, Stop: 18117, Start Num: 39

Candidate Starts for Bodacious\_19:

(12, 17404), (15, 17452), (18, 17488), (25, 17554), (29, 17575), (32, 17617), (Start: 39 @17674 has 84 MA's), (44, 17725), (45, 17731), (46, 17734), (54, 17812), (57, 17827), (60, 17845), (69, 17902), (85, 17998), (90, 18022), (91, 18025), (92, 18028), (95, 18052),

Gene: Bogota\_31 Start: 26235, Stop: 26687, Start Num: 37

Candidate Starts for Bogota\_31:

(1, 24645), (4, 25290), (5, 25521), (6, 25578), (7, 25662), (10, 25953), (24, 26136), (Start: 35 @26226 has 1 MA's), (Start: 36 @26232 has 2 MA's), (Start: 37 @26235 has 17 MA's), (58, 26421), (60, 26430), (63, 26445), (65, 26451), (71, 26496), (77, 26538), (84, 26589), (85, 26595), (88, 26613), (96, 26652),

Gene: BrotherBLo\_23 Start: 19215, Stop: 19664, Start Num: 39

Candidate Starts for BrotherBLo\_23:

(Start: 39 @19215 has 84 MA's), (44, 19266), (51, 19329), (54, 19353), (56, 19362), (64, 19404), (69, 19443), (72, 19461), (81, 19509), (85, 19545), (92, 19575), (95, 19599), (96, 19602),

Gene: CallieOMalley\_23 Start: 19272, Stop: 19721, Start Num: 39

Candidate Starts for CallieOMalley\_23:

(13, 19008), (25, 19152), (29, 19173), (31, 19203), (Start: 39 @19272 has 84 MA's), (44, 19323), (45, 19329), (52, 19392), (69, 19500), (72, 19518), (81, 19566), (85, 19602), (88, 19620), (95, 19656), (96, 19659),

Gene: Canowicakte\_23 Start: 19307, Stop: 19756, Start Num: 39

Candidate Starts for Canowicakte\_23:

(13, 19043), (25, 19187), (29, 19208), (31, 19238), (Start: 39 @19307 has 84 MA's), (44, 19358), (45, 19364), (51, 19421), (52, 19427), (69, 19535), (72, 19553), (81, 19601), (82, 19604), (85, 19637), (88, 19655), (95, 19691), (96, 19694),

Gene: Carpal\_23 Start: 19216, Stop: 19665, Start Num: 39

Candidate Starts for Carpal\_23:

(Start: 39 @19216 has 84 MA's), (44, 19267), (54, 19354), (56, 19363), (62, 19399), (64, 19405), (69, 19444), (72, 19462), (81, 19510), (85, 19546), (91, 19573), (92, 19576), (95, 19600), (96, 19603),

Gene: ChewChew\_19 Start: 17673, Stop: 18116, Start Num: 39

Candidate Starts for ChewChew\_19:

(12, 17403), (15, 17451), (18, 17487), (25, 17553), (29, 17574), (32, 17616), (Start: 39 @17673 has 84 MA's), (44, 17724), (45, 17730), (46, 17733), (54, 17811), (57, 17826), (60, 17844), (69, 17901), (85, 17997), (90, 18021), (91, 18024), (92, 18027), (95, 18051),

Gene: Cholula\_23 Start: 19261, Stop: 19710, Start Num: 39

Candidate Starts for Cholula\_23:

(Start: 39 @19261 has 84 MA's), (44, 19312), (54, 19399), (64, 19450), (69, 19489), (72, 19507), (81, 19555), (85, 19591), (92, 19621), (95, 19645), (96, 19648),

Gene: Chridison\_19 Start: 17656, Stop: 18099, Start Num: 39

Candidate Starts for Chridison\_19:

(12, 17386), (13, 17392), (20, 17491), (29, 17557), (Start: 39 @17656 has 84 MA's), (44, 17707), (45, 17713), (47, 17725), (69, 17884), (72, 17902), (86, 17986), (90, 18004), (92, 18010),

Gene: Christian\_19 Start: 17674, Stop: 18117, Start Num: 39

Candidate Starts for Christian\_19:

(12, 17404), (15, 17452), (18, 17488), (25, 17554), (29, 17575), (32, 17617), (Start: 39 @17674 has 84 MA's), (44, 17725), (45, 17731), (46, 17734), (54, 17812), (60, 17845), (69, 17902), (85, 17998), (90, 18022), (91, 18025), (92, 18028), (95, 18052),

Gene: CristinaYang\_19 Start: 17674, Stop: 18117, Start Num: 39

Candidate Starts for CristinaYang\_19:

(12, 17404), (15, 17452), (18, 17488), (25, 17554), (29, 17575), (32, 17617), (Start: 39 @17674 has 84 MA's), (44, 17725), (45, 17731), (46, 17734), (54, 17812), (57, 17827), (60, 17845), (69, 17902), (85, 17998), (90, 18022), (91, 18025), (92, 18028), (95, 18052),

Gene: Crosby\_31 Start: 26221, Stop: 26676, Start Num: 36

Candidate Starts for Crosby\_31:

(5, 25510), (6, 25570), (10, 25942), (11, 25954), (19, 26074), (24, 26125), (Start: 35 @26215 has 1 MA's), (Start: 36 @26221 has 2 MA's), (Start: 37 @26224 has 17 MA's), (42, 26284), (60, 26419), (63, 26434), (65, 26440), (71, 26485), (88, 26602), (96, 26641),

Gene: Daiboju\_19 Start: 17670, Stop: 18113, Start Num: 39

Candidate Starts for Daiboju\_19:

(12, 17400), (15, 17448), (25, 17550), (27, 17559), (Start: 39 @17670 has 84 MA's), (44, 17721), (47, 17739), (55, 17811), (69, 17898), (72, 17916), (81, 17964), (86, 18000), (90, 18018),

Gene: Dino\_23 Start: 19214, Stop: 19663, Start Num: 39

Candidate Starts for Dino\_23:

(Start: 39 @19214 has 84 MA's), (44, 19265), (54, 19352), (56, 19361), (64, 19403), (69, 19442), (72, 19460), (81, 19508), (85, 19544), (91, 19571), (92, 19574), (95, 19598), (96, 19601),

Gene: DrRobert\_19 Start: 17674, Stop: 18117, Start Num: 39

Candidate Starts for DrRobert\_19:

(15, 17452), (18, 17488), (23, 17548), (25, 17554), (29, 17575), (32, 17617), (Start: 39 @17674 has 84 MA's), (44, 17725), (45, 17731), (46, 17734), (54, 17812), (60, 17845), (69, 17902), (85, 17998), (90, 18022), (91, 18025), (92, 18028), (95, 18052),

Gene: DreamTeam\_19 Start: 17707, Stop: 18156, Start Num: 39

Candidate Starts for DreamTeam\_19:

(Start: 39 @17707 has 84 MA's), (51, 17821), (53, 17836), (56, 17854), (69, 17935), (70, 17941), (72, 17953), (81, 18001), (85, 18037), (88, 18055), (91, 18064), (92, 18067), (95, 18091), (96, 18094),

Gene: EhyElimayoE\_121 Start: 79011, Stop: 79445, Start Num: 37

Candidate Starts for EhyElimayoE\_121:

(9, 78627), (22, 78894), (28, 78927), (Start: 37 @79011 has 17 MA's), (59, 79185), (76, 79293), (79, 79311), (86, 79359), (89, 79374), (96, 79410),

Gene: EstebanJulior\_19 Start: 17672, Stop: 18121, Start Num: 39

Candidate Starts for EstebanJulior\_19:

(Start: 39 @17672 has 84 MA's), (44, 17723), (61, 17846), (69, 17900), (72, 17918), (81, 17966), (85, 18002), (91, 18029), (92, 18032),

Gene: Eunoia\_19 Start: 17655, Stop: 18098, Start Num: 39

Candidate Starts for Eunoia\_19:

(12, 17385), (13, 17391), (20, 17490), (29, 17556), (Start: 39 @17655 has 84 MA's), (44, 17706), (45, 17712), (47, 17724), (69, 17883), (72, 17901), (86, 17985), (90, 18003), (92, 18009),

Gene: Fluke\_23 Start: 19257, Stop: 19706, Start Num: 39

Candidate Starts for Fluke\_23:

(Start: 39 @19257 has 84 MA's), (44, 19308), (54, 19395), (64, 19446), (69, 19485), (72, 19503), (85, 19587), (91, 19614), (92, 19617), (95, 19641), (96, 19644),

Gene: Frankenweenie\_130 Start: 83927, Stop: 84361, Start Num: 37

Candidate Starts for Frankenweenie\_130:

(Start: 37 @83927 has 17 MA's), (49, 84050), (73, 84197), (96, 84326),

Gene: Gisselle\_19 Start: 17707, Stop: 18156, Start Num: 39

Candidate Starts for Gisselle\_19:

(Start: 39 @17707 has 84 MA's), (51, 17821), (53, 17836), (56, 17854), (69, 17935), (70, 17941), (72, 17953), (81, 18001), (85, 18037), (88, 18055), (91, 18064), (92, 18067), (95, 18091), (96, 18094),

Gene: Glenn\_23 Start: 19266, Stop: 19715, Start Num: 39

Candidate Starts for Glenn\_23:

(Start: 39 @19266 has 84 MA's), (44, 19317), (54, 19404), (56, 19413), (64, 19455), (69, 19494), (72, 19512), (81, 19560), (85, 19596), (91, 19623), (92, 19626), (95, 19650), (96, 19653),

Gene: Graynor\_23 Start: 19293, Stop: 19742, Start Num: 39

Candidate Starts for Graynor\_23:

(25, 19173), (29, 19194), (31, 19224), (Start: 39 @19293 has 84 MA's), (44, 19344), (52, 19413), (69, 19521), (72, 19539), (81, 19587), (82, 19590), (85, 19623), (88, 19641), (95, 19677), (96, 19680),

Gene: GreenHearts\_23 Start: 19376, Stop: 19825, Start Num: 39

Candidate Starts for GreenHearts\_23:

(13, 19112), (15, 19154), (17, 19172), (26, 19259), (27, 19265), (29, 19277), (31, 19307), (Start: 39 @19376 has 84 MA's), (41, 19406), (44, 19427), (51, 19490), (69, 19604), (72, 19622), (73, 19631), (88, 19724), (91, 19733), (92, 19736), (95, 19760), (96, 19763),

Gene: Greenhouse\_23 Start: 19300, Stop: 19749, Start Num: 39

Candidate Starts for Greenhouse\_23:

(13, 19036), (15, 19078), (17, 19096), (29, 19201), (31, 19231), (Start: 39 @19300 has 84 MA's), (41, 19330), (43, 19336), (44, 19351), (51, 19414), (69, 19528), (72, 19546), (73, 19555), (88, 19648), (91, 19657), (92, 19660), (95, 19684), (96, 19687),

Gene: HeadNerd\_19 Start: 17667, Stop: 18116, Start Num: 39

Candidate Starts for HeadNerd\_19:

(13, 17403), (15, 17445), (16, 17448), (18, 17481), (29, 17568), (30, 17592), (Start: 39 @17667 has 84 MA's), (44, 17718), (51, 17781), (52, 17787), (61, 17841), (64, 17856), (69, 17895), (70, 17901), (72, 17913), (81, 17961), (85, 17997), (88, 18015), (91, 18024), (92, 18027), (95, 18051), (96, 18054),

Gene: Henococcus\_31 Start: 26107, Stop: 26559, Start Num: 37

Candidate Starts for Henococcus\_31:

(1, 24538), (2, 24550), (4, 25183), (6, 25471), (24, 26008), (Start: 37 @26107 has 17 MA's), (54, 26269), (60, 26302), (63, 26317), (65, 26323), (67, 26338), (71, 26368), (81, 26431), (84, 26461), (85, 26467), (88, 26485), (96, 26524), (98, 26533),

Gene: Herb\_19 Start: 17670, Stop: 18113, Start Num: 39

Candidate Starts for Herb\_19:

(12, 17400), (15, 17448), (25, 17550), (27, 17559), (Start: 39 @17670 has 84 MA's), (44, 17721), (47, 17739), (55, 17811), (69, 17898), (72, 17916), (81, 17964), (86, 18000), (90, 18018),

Gene: Huckleberry\_19 Start: 17667, Stop: 18116, Start Num: 39

Candidate Starts for Huckleberry\_19:

(13, 17403), (15, 17445), (16, 17448), (18, 17481), (29, 17568), (30, 17592), (Start: 39 @17667 has 84 MA's), (44, 17718), (51, 17781), (52, 17787), (61, 17841), (64, 17856), (69, 17895), (70, 17901), (72, 17913), (81, 17961), (85, 17997), (88, 18015), (91, 18024), (92, 18027), (95, 18051), (96, 18054),

Gene: HunterDalle\_19 Start: 17655, Stop: 18098, Start Num: 39

Candidate Starts for HunterDalle\_19:

(12, 17385), (13, 17391), (20, 17490), (29, 17556), (Start: 39 @17655 has 84 MA's), (44, 17706), (45, 17712), (47, 17724), (69, 17883), (72, 17901), (84, 17973), (86, 17985), (90, 18003), (92, 18009),

Gene: Huntingdon\_23 Start: 19268, Stop: 19717, Start Num: 39

Candidate Starts for Huntingdon\_23:

(13, 19004), (29, 19169), (Start: 39 @19268 has 84 MA's), (51, 19382), (69, 19496), (72, 19514), (75, 19532), (81, 19562), (82, 19565), (85, 19598), (88, 19616), (91, 19625), (92, 19628), (95, 19652), (100, 19685),

Gene: Immaculata\_23 Start: 19260, Stop: 19709, Start Num: 39

Candidate Starts for Immaculata\_23:

(Start: 39 @19260 has 84 MA's), (44, 19311), (54, 19398), (64, 19449), (69, 19488), (72, 19506), (81, 19554), (85, 19590), (92, 19620), (95, 19644), (96, 19647),

Gene: Intolerant\_30 Start: 26098, Stop: 26550, Start Num: 37

Candidate Starts for Intolerant\_30:

(19, 25948), (24, 25999), (Start: 35 @26089 has 1 MA's), (Start: 36 @26095 has 2 MA's), (Start: 37 @26098 has 17 MA's), (43, 26161), (58, 26284), (60, 26293), (63, 26308), (65, 26314), (71, 26359), (77, 26401), (85, 26458), (88, 26476), (96, 26515),

Gene: JackieB\_30 Start: 25962, Stop: 26414, Start Num: 37

Candidate Starts for JackieB\_30:

(6, 25326), (7, 25410), (10, 25683), (24, 25863), (Start: 37 @25962 has 17 MA's), (54, 26124), (60, 26157), (63, 26172), (65, 26178), (71, 26223), (81, 26286), (84, 26316), (85, 26322), (88, 26340), (96, 26379), (98, 26388),

Gene: Joann\_23 Start: 19280, Stop: 19720, Start Num: 39

Candidate Starts for Joann\_23:

(26, 19163), (27, 19169), (29, 19181), (Start: 39 @19280 has 84 MA's), (44, 19331), (52, 19400), (54, 19418), (59, 19445), (60, 19451), (65, 19472), (69, 19508), (80, 19568), (91, 19631), (92, 19634), (95, 19658), (100, 19691),

Gene: Jumboset\_23 Start: 19209, Stop: 19658, Start Num: 39

Candidate Starts for Jumboset\_23:

(Start: 39 @19209 has 84 MA's), (44, 19260), (51, 19323), (54, 19347), (56, 19356), (64, 19398), (69, 19437), (72, 19455), (81, 19503), (85, 19539), (92, 19569), (95, 19593), (96, 19596),

Gene: JustBecause\_118 Start: 78079, Stop: 78513, Start Num: 37

Candidate Starts for JustBecause\_118:

(22, 77962), (28, 77995), (Start: 37 @78079 has 17 MA's), (45, 78157), (96, 78478),

Gene: Kalizoi\_23 Start: 19208, Stop: 19657, Start Num: 39

Candidate Starts for Kalizoi\_23:

(Start: 39 @19208 has 84 MA's), (44, 19259), (54, 19346), (56, 19355), (64, 19397), (69, 19436), (72, 19454), (81, 19502), (85, 19538), (92, 19568), (95, 19592), (96, 19595),

Gene: Kela\_119 Start: 77959, Stop: 78393, Start Num: 37

Candidate Starts for Kela\_119:

(22, 77842), (28, 77875), (Start: 37 @77959 has 17 MA's), (45, 78037), (66, 78163), (96, 78358),

Gene: KingBob\_19 Start: 17670, Stop: 18113, Start Num: 39

Candidate Starts for KingBob\_19:

(12, 17400), (15, 17448), (25, 17550), (27, 17559), (Start: 39 @17670 has 84 MA's), (44, 17721), (47, 17739), (55, 17811), (69, 17898), (72, 17916), (81, 17964), (86, 18000), (90, 18018),

Gene: Kittykat\_19 Start: 17691, Stop: 18140, Start Num: 39

Candidate Starts for Kittykat\_19:

(Start: 39 @17691 has 84 MA's), (51, 17805), (53, 17820), (56, 17838), (61, 17865), (69, 17919), (70, 17925), (72, 17937), (81, 17985), (85, 18021), (88, 18039), (91, 18048), (92, 18051), (95, 18075), (96, 18078),

Gene: Korra\_24 Start: 19214, Stop: 19663, Start Num: 39

Candidate Starts for Korra\_24:

(Start: 39 @19214 has 84 MA's), (44, 19265), (54, 19352), (56, 19361), (64, 19403), (69, 19442), (72, 19460), (81, 19508), (85, 19544), (91, 19571), (92, 19574), (95, 19598), (96, 19601),

Gene: Kradal\_120 Start: 79008, Stop: 79442, Start Num: 37

Candidate Starts for Kradal\_120:

(9, 78624), (22, 78891), (28, 78924), (Start: 37 @79008 has 17 MA's), (59, 79182), (76, 79290), (79, 79308), (86, 79356), (89, 79371), (96, 79407),

Gene: Lakshmi\_23 Start: 19305, Stop: 19745, Start Num: 39

Candidate Starts for Lakshmi\_23:

(13, 19041), (14, 19071), (15, 19083), (17, 19101), (23, 19179), (26, 19188), (27, 19194), (29, 19206), (Start: 39 @19305 has 84 MA's), (44, 19356), (59, 19470), (60, 19476), (65, 19497), (69, 19533), (80, 19593), (91, 19656), (92, 19659), (95, 19683), (100, 19716),

Gene: Lasagna\_19 Start: 17674, Stop: 18117, Start Num: 39

Candidate Starts for Lasagna\_19:

(25, 17554), (29, 17575), (32, 17617), (Start: 39 @17674 has 84 MA's), (44, 17725), (45, 17731), (46, 17734), (54, 17812), (60, 17845), (69, 17902), (85, 17998), (90, 18022), (91, 18025), (92, 18028), (95, 18052),

Gene: LazerLemon\_31 Start: 26614, Stop: 27063, Start Num: 37

Candidate Starts for LazerLemon\_31:

(5, 25897), (7, 26041), (10, 26332), (Start: 35 @26605 has 1 MA's), (Start: 36 @26611 has 2 MA's), (Start: 37 @26614 has 17 MA's), (54, 26776), (60, 26809), (61, 26812), (63, 26824), (65, 26830), (68, 26860), (71, 26875), (81, 26938), (88, 26992), (95, 27028), (96, 27031),

Gene: Lennox\_19 Start: 17662, Stop: 18105, Start Num: 39

Candidate Starts for Lennox\_19:

(12, 17392), (15, 17440), (18, 17476), (25, 17542), (29, 17563), (32, 17605), (Start: 39 @17662 has 84 MA's), (44, 17713), (45, 17719), (46, 17722), (54, 17800), (60, 17833), (69, 17890), (85, 17986), (90, 18010), (91, 18013), (92, 18016), (95, 18040),

Gene: LilStuart\_19 Start: 17662, Stop: 18105, Start Num: 39

Candidate Starts for LilStuart\_19:

(12, 17392), (15, 17440), (18, 17476), (25, 17542), (29, 17563), (32, 17605), (Start: 39 @17662 has 84 MA's), (44, 17713), (45, 17719), (46, 17722), (54, 17800), (57, 17815), (60, 17833), (69, 17890), (85, 17986), (90, 18010), (91, 18013), (92, 18016), (95, 18040),

Gene: Litotes\_23 Start: 19257, Stop: 19706, Start Num: 39

Candidate Starts for Litotes\_23:

(25, 19137), (29, 19158), (31, 19188), (Start: 39 @19257 has 84 MA's), (44, 19308), (45, 19314), (51, 19371), (52, 19377), (69, 19485), (72, 19503), (81, 19551), (82, 19554), (85, 19587), (88, 19605), (95, 19641), (96, 19644),

Gene: Lucy\_19 Start: 17654, Stop: 18097, Start Num: 39

Candidate Starts for Lucy\_19:

(12, 17384), (15, 17432), (18, 17468), (25, 17534), (29, 17555), (32, 17597), (Start: 39 @17654 has 84 MA's), (44, 17705), (45, 17711), (46, 17714), (54, 17792), (60, 17825), (69, 17882), (85, 17978), (90, 18002), (91, 18005), (92, 18008), (95, 18032),

Gene: Makoto\_19 Start: 17675, Stop: 18118, Start Num: 39

Candidate Starts for Makoto\_19:

(12, 17405), (15, 17453), (18, 17489), (23, 17549), (25, 17555), (29, 17576), (32, 17618), (Start: 39 @17675 has 84 MA's), (44, 17726), (45, 17732), (46, 17735), (54, 17813), (60, 17846), (69, 17903), (85, 17999), (90, 18023), (91, 18026), (92, 18029), (95, 18053),

Gene: MamaPearl\_19 Start: 17672, Stop: 18121, Start Num: 39

Candidate Starts for MamaPearl\_19:

(Start: 39 @17672 has 84 MA's), (44, 17723), (61, 17846), (69, 17900), (72, 17918), (81, 17966), (85, 18002), (91, 18029), (92, 18032),

Gene: Maria1952\_19 Start: 17670, Stop: 18113, Start Num: 39

Candidate Starts for Maria1952\_19:

(12, 17400), (15, 17448), (25, 17550), (27, 17559), (Start: 39 @17670 has 84 MA's), (44, 17721), (47, 17739), (55, 17811), (69, 17898), (72, 17916), (81, 17964), (86, 18000), (90, 18018),

Gene: Marky\_31 Start: 25965, Stop: 26429, Start Num: 37

Candidate Starts for Marky\_31:

(Start: 37 @25965 has 17 MA's), (43, 26028), (60, 26160), (65, 26181), (71, 26226), (83, 26295), (88, 26343), (96, 26382),

Gene: MeganNoll\_23 Start: 19266, Stop: 19715, Start Num: 39

Candidate Starts for MeganNoll\_23:

(Start: 39 @19266 has 84 MA's), (44, 19317), (51, 19380), (54, 19404), (56, 19413), (64, 19455), (69, 19494), (72, 19512), (81, 19560), (85, 19596), (92, 19626), (95, 19650), (96, 19653),

Gene: Microdon\_30 Start: 25921, Stop: 26373, Start Num: 37

Candidate Starts for Microdon\_30:

(6, 25276), (7, 25360), (8, 25474), (21, 25798), (24, 25822), (Start: 35 @25912 has 1 MA's), (Start: 36 @25918 has 2 MA's), (Start: 37 @25921 has 17 MA's), (60, 26116), (63, 26131), (65, 26137), (68, 26167), (71, 26182), (88, 26299), (96, 26338),

Gene: Misaeng\_23 Start: 19350, Stop: 19799, Start Num: 39

Candidate Starts for Misaeng\_23:

(26, 19233), (29, 19251), (Start: 39 @19350 has 84 MA's), (41, 19380), (42, 19383), (44, 19401), (48, 19428), (51, 19464), (52, 19470), (64, 19539), (69, 19578), (72, 19596), (81, 19644), (88, 19698), (92, 19710), (95, 19734), (96, 19737),

Gene: Moki\_19 Start: 17667, Stop: 18116, Start Num: 39

Candidate Starts for Moki\_19:

(13, 17403), (15, 17445), (16, 17448), (18, 17481), (29, 17568), (30, 17592), (Start: 39 @17667 has 84 MA's), (44, 17718), (51, 17781), (52, 17787), (61, 17841), (64, 17856), (69, 17895), (70, 17901), (72, 17913), (81, 17961), (85, 17997), (88, 18015), (91, 18024), (92, 18027), (95, 18051), (96, 18054),

Gene: MrBoss\_23 Start: 19257, Stop: 19706, Start Num: 39

Candidate Starts for MrBoss\_23:

(13, 18993), (25, 19137), (29, 19158), (31, 19188), (Start: 39 @19257 has 84 MA's), (44, 19308), (52, 19377), (64, 19446), (69, 19485), (72, 19503), (81, 19551), (82, 19554), (85, 19587), (88, 19605), (95, 19641), (96, 19644),

Gene: MrGloopy\_23 Start: 19200, Stop: 19649, Start Num: 39

Candidate Starts for MrGloopy\_23:

(Start: 39 @19200 has 84 MA's), (44, 19251), (54, 19338), (56, 19347), (62, 19383), (64, 19389), (69, 19428), (72, 19446), (81, 19494), (85, 19530), (91, 19557), (92, 19560), (95, 19584), (96, 19587),

Gene: Nancia\_19 Start: 17674, Stop: 18117, Start Num: 39

Candidate Starts for Nancia\_19:

(12, 17404), (15, 17452), (18, 17488), (25, 17554), (29, 17575), (32, 17617), (Start: 39 @17674 has 84 MA's), (44, 17725), (45, 17731), (46, 17734), (54, 17812), (57, 17827), (60, 17845), (69, 17902), (85, 17998), (90, 18022), (91, 18025), (92, 18028), (95, 18052),

Gene: Nirvana\_125 Start: 82324, Stop: 82758, Start Num: 37

Candidate Starts for Nirvana\_125:

(Start: 37 @82324 has 17 MA's), (50, 82453), (73, 82594), (96, 82723),

Gene: Nubia\_23 Start: 19265, Stop: 19705, Start Num: 39

Candidate Starts for Nubia\_23:

(13, 19001), (14, 19031), (15, 19043), (17, 19061), (23, 19139), (26, 19148), (27, 19154), (29, 19166), (Start: 39 @19265 has 84 MA's), (44, 19316), (59, 19430), (60, 19436), (65, 19457), (69, 19493), (80, 19553), (91, 19616), (92, 19619), (95, 19643), (100, 19676),

Gene: OMalley\_19 Start: 17655, Stop: 18098, Start Num: 39

Candidate Starts for OMalley\_19:

(12, 17385), (13, 17391), (20, 17490), (29, 17556), (Start: 39 @17655 has 84 MA's), (44, 17706), (45, 17712), (47, 17724), (69, 17883), (72, 17901), (86, 17985), (90, 18003), (92, 18009),

Gene: OurGirlNessie\_19 Start: 17654, Stop: 18097, Start Num: 39

Candidate Starts for OurGirlNessie\_19:

(12, 17384), (15, 17432), (18, 17468), (23, 17528), (25, 17534), (29, 17555), (32, 17597), (Start: 39 @17654 has 84 MA's), (44, 17705), (45, 17711), (46, 17714), (54, 17792), (60, 17825), (69, 17882), (85, 17978), (90, 18002), (91, 18005), (92, 18008), (95, 18032),

Gene: Oxynfrius\_23 Start: 19278, Stop: 19718, Start Num: 39

Candidate Starts for Oxynfrius\_23:

(13, 19014), (14, 19044), (15, 19056), (17, 19074), (23, 19152), (26, 19161), (27, 19167), (29, 19179), (Start: 39 @19278 has 84 MA's), (44, 19329), (59, 19443), (60, 19449), (65, 19470), (69, 19506), (80, 19566), (91, 19629), (92, 19632), (95, 19656), (100, 19689),

Gene: PartyCup\_23 Start: 19304, Stop: 19753, Start Num: 39

Candidate Starts for PartyCup\_23:

(25, 19184), (29, 19205), (31, 19235), (Start: 39 @19304 has 84 MA's), (44, 19355), (45, 19361), (52, 19424), (69, 19532), (72, 19550), (81, 19598), (82, 19601), (85, 19634), (88, 19652), (95, 19688), (96, 19691),

Gene: PinkFriday\_19 Start: 17691, Stop: 18134, Start Num: 39

Candidate Starts for PinkFriday\_19:

(Start: 39 @17691 has 84 MA's), (43, 17727), (44, 17742), (47, 17760), (69, 17919), (72, 17937), (78, 17976), (81, 17985), (86, 18021), (90, 18039), (95, 18069),

Gene: PitaDog\_19 Start: 17665, Stop: 18108, Start Num: 39

Candidate Starts for PitaDog\_19:

(12, 17395), (15, 17443), (18, 17479), (25, 17545), (29, 17566), (32, 17608), (Start: 39 @17665 has 84 MA's), (44, 17716), (45, 17722), (46, 17725), (54, 17803), (57, 17818), (60, 17836), (69, 17893), (85, 17989), (90, 18013), (91, 18016), (92, 18019), (95, 18043),

Gene: Potatoes\_23 Start: 19261, Stop: 19710, Start Num: 39

Candidate Starts for Potatoes\_23:

(Start: 39 @19261 has 84 MA's), (44, 19312), (54, 19399), (64, 19450), (69, 19489), (72, 19507), (81, 19555), (85, 19591), (92, 19621), (95, 19645), (96, 19648),

Gene: Preamble\_19 Start: 17668, Stop: 18117, Start Num: 39

Candidate Starts for Preamble\_19:

(Start: 39 @17668 has 84 MA's), (51, 17782), (53, 17797), (56, 17815), (61, 17842), (69, 17896), (70, 17902), (72, 17914), (81, 17962), (85, 17998), (88, 18016), (91, 18025), (92, 18028), (95, 18052), (96, 18055),

Gene: Pterodactyl\_19 Start: 17655, Stop: 18098, Start Num: 39

Candidate Starts for Pterodactyl\_19:

(12, 17385), (15, 17433), (18, 17469), (25, 17535), (29, 17556), (32, 17598), (Start: 39 @17655 has 84 MA's), (44, 17706), (45, 17712), (46, 17715), (54, 17793), (60, 17826), (69, 17883), (85, 17979), (90, 18003), (91, 18006), (92, 18009), (95, 18033),

Gene: Pumancara\_19 Start: 17673, Stop: 18116, Start Num: 39

Candidate Starts for Pumancara\_19:

(15, 17451), (25, 17553), (27, 17562), (Start: 39 @17673 has 84 MA's), (43, 17709), (44, 17724), (47, 17742), (69, 17901), (72, 17919), (78, 17958), (81, 17967), (86, 18003), (90, 18021), (95, 18051),

Gene: Quantum\_119 Start: 79008, Stop: 79442, Start Num: 37

Candidate Starts for Quantum\_119:

(9, 78624), (22, 78891), (28, 78924), (Start: 37 @79008 has 17 MA's), (59, 79182), (76, 79290), (79, 79308), (86, 79356), (89, 79371), (96, 79407),

Gene: RAP15\_23 Start: 19266, Stop: 19715, Start Num: 39

Candidate Starts for RAP15\_23:

(Start: 39 @19266 has 84 MA's), (44, 19317), (51, 19380), (54, 19404), (56, 19413), (64, 19455), (69, 19494), (72, 19512), (81, 19560), (85, 19596), (92, 19626), (95, 19650), (96, 19653),

Gene: RcigaStruga\_23 Start: 19268, Stop: 19717, Start Num: 39

Candidate Starts for RcigaStruga\_23:

(13, 19004), (29, 19169), (Start: 39 @19268 has 84 MA's), (51, 19382), (69, 19496), (72, 19514), (75, 19532), (81, 19562), (82, 19565), (85, 19598), (88, 19616), (91, 19625), (92, 19628), (95, 19652), (100, 19685),

Gene: Riovina\_19 Start: 17655, Stop: 18098, Start Num: 39

Candidate Starts for Riovina\_19:

(12, 17385), (13, 17391), (20, 17490), (29, 17556), (Start: 39 @17655 has 84 MA's), (44, 17706), (45, 17712), (47, 17724), (69, 17883), (72, 17901), (86, 17985), (90, 18003), (92, 18009),

Gene: Riverdale\_23 Start: 19196, Stop: 19645, Start Num: 39

Candidate Starts for Riverdale\_23:

(Start: 39 @19196 has 84 MA's), (44, 19247), (54, 19334), (64, 19385), (69, 19424), (72, 19442), (81, 19490), (85, 19526), (88, 19544), (92, 19556), (95, 19580), (96, 19583),

Gene: Rozby\_23 Start: 19197, Stop: 19646, Start Num: 39

Candidate Starts for Rozby\_23:

(Start: 39 @19197 has 84 MA's), (44, 19248), (54, 19335), (64, 19386), (69, 19425), (72, 19443), (81, 19491), (85, 19527), (91, 19554), (92, 19557), (95, 19581), (96, 19584),

Gene: Sarkar\_128 Start: 79008, Stop: 79442, Start Num: 37

Candidate Starts for Sarkar\_128:

(9, 78624), (22, 78891), (28, 78924), (Start: 37 @79008 has 17 MA's), (59, 79182), (76, 79290), (79, 79308), (86, 79356), (89, 79371), (96, 79407),

Gene: Satis\_120 Start: 79004, Stop: 79438, Start Num: 37

Candidate Starts for Satis\_120:

(9, 78620), (22, 78887), (28, 78920), (Start: 37 @79004 has 17 MA's), (59, 79178), (76, 79286), (79, 79304), (86, 79352), (89, 79367), (96, 79403),

Gene: Savage2526\_23 Start: 19260, Stop: 19709, Start Num: 39

Candidate Starts for Savage2526\_23:

(Start: 39 @19260 has 84 MA's), (44, 19311), (51, 19374), (54, 19398), (56, 19407), (64, 19449), (69, 19488), (72, 19506), (81, 19554), (85, 19590), (92, 19620), (95, 19644), (96, 19647),

Gene: Scuttle\_23 Start: 19265, Stop: 19714, Start Num: 39

Candidate Starts for Scuttle\_23:

(Start: 39 @19265 has 84 MA's), (44, 19316), (54, 19403), (64, 19454), (69, 19493), (72, 19511), (81, 19559), (85, 19595), (91, 19622), (92, 19625), (95, 19649), (96, 19652),

Gene: Sergei\_19 Start: 17670, Stop: 18113, Start Num: 39

Candidate Starts for Sergei\_19:

(12, 17400), (15, 17448), (25, 17550), (27, 17559), (Start: 39 @17670 has 84 MA's), (44, 17721), (47, 17739), (55, 17811), (69, 17898), (72, 17916), (81, 17964), (86, 18000), (90, 18018),

Gene: Shynx\_31 Start: 26374, Stop: 26826, Start Num: 37

Candidate Starts for Shynx\_31:

(6, 25720), (7, 25804), (10, 26092), (19, 26224), (24, 26275), (Start: 35 @26365 has 1 MA's), (Start: 36 @26371 has 2 MA's), (Start: 37 @26374 has 17 MA's), (43, 26437), (58, 26560), (60, 26569), (63, 26584), (65, 26590), (71, 26635), (77, 26677), (85, 26734), (88, 26752), (96, 26791),

Gene: Stuff\_31 Start: 26387, Stop: 26848, Start Num: 35

Candidate Starts for Stuff\_31:

(1, 24806), (3, 25421), (4, 25451), (5, 25682), (6, 25739), (7, 25823), (10, 26114), (24, 26297), (Start: 35 @26387 has 1 MA's), (Start: 36 @26393 has 2 MA's), (Start: 37 @26396 has 17 MA's), (58, 26582), (60, 26591), (63, 26606), (65, 26612), (71, 26657), (77, 26699), (85, 26756), (88, 26774), (96, 26813),

Gene: Supakev\_19 Start: 17657, Stop: 18100, Start Num: 39

Candidate Starts for Supakev\_19:

(12, 17387), (13, 17393), (20, 17492), (29, 17558), (Start: 39 @17657 has 84 MA's), (44, 17708), (45, 17714), (47, 17726), (69, 17885), (72, 17903), (86, 17987), (90, 18005), (92, 18011),

Gene: Suppi\_23 Start: 19307, Stop: 19756, Start Num: 39

Candidate Starts for Suppi\_23:

(13, 19043), (25, 19187), (29, 19208), (31, 19238), (Start: 39 @19307 has 84 MA's), (44, 19358), (45, 19364), (51, 19421), (52, 19427), (69, 19535), (72, 19553), (81, 19601), (82, 19604), (85, 19637), (88, 19655), (95, 19691), (96, 19694),

Gene: TattModd\_23 Start: 19259, Stop: 19708, Start Num: 39

Candidate Starts for TattModd\_23:

(Start: 39 @19259 has 84 MA's), (44, 19310), (54, 19397), (56, 19406), (62, 19442), (64, 19448), (69, 19487), (72, 19505), (81, 19553), (85, 19589), (92, 19619), (95, 19643), (96, 19646),

Gene: Temper16\_19 Start: 17670, Stop: 18113, Start Num: 39

Candidate Starts for Temper16\_19:

(12, 17400), (15, 17448), (25, 17550), (27, 17559), (Start: 39 @17670 has 84 MA's), (44, 17721), (47, 17739), (55, 17811), (69, 17898), (72, 17916), (81, 17964), (86, 18000), (90, 18018),

Gene: UNTPL\_31 Start: 26213, Stop: 26668, Start Num: 36

Candidate Starts for UNTPL\_31:

(10, 25934), (24, 26117), (Start: 35 @26207 has 1 MA's), (Start: 36 @26213 has 2 MA's), (Start: 37 @26216 has 17 MA's), (54, 26378), (60, 26411), (63, 26426), (65, 26432), (71, 26477), (77, 26519), (84, 26570), (85, 26576), (88, 26594), (96, 26633),

Gene: Urla\_19 Start: 17674, Stop: 18123, Start Num: 39

Candidate Starts for Urla\_19:

(Start: 39 @17674 has 84 MA's), (61, 17848), (69, 17902), (72, 17920), (81, 17968), (85, 18004), (91, 18031), (92, 18034),

Gene: Vallejo\_23 Start: 19198, Stop: 19647, Start Num: 39

Candidate Starts for Vallejo\_23:

(Start: 39 @19198 has 84 MA's), (44, 19249), (54, 19336), (56, 19345), (64, 19387), (69, 19426), (72, 19444), (81, 19492), (85, 19528), (88, 19546), (91, 19555), (92, 19558), (95, 19582), (96, 19585),

Gene: Vulture\_19 Start: 17655, Stop: 18098, Start Num: 39

Candidate Starts for Vulture\_19:

(12, 17385), (13, 17391), (20, 17490), (29, 17556), (Start: 39 @17655 has 84 MA's), (44, 17706), (45, 17712), (47, 17724), (69, 17883), (72, 17901), (84, 17973), (86, 17985), (90, 18003), (92, 18009),

Gene: Wawa\_23 Start: 19235, Stop: 19684, Start Num: 39

Candidate Starts for Wawa\_23:

(Start: 39 @19235 has 84 MA's), (44, 19286), (54, 19373), (56, 19382), (64, 19424), (69, 19463), (72, 19481), (81, 19529), (91, 19592), (92, 19595), (95, 19619), (96, 19622),

Gene: Wayne\_23 Start: 19353, Stop: 19802, Start Num: 39

Candidate Starts for Wayne\_23:

(25, 19233), (29, 19254), (31, 19284), (Start: 39 @19353 has 84 MA's), (44, 19404), (45, 19410), (52, 19473), (69, 19581), (72, 19599), (81, 19647), (85, 19683), (88, 19701), (95, 19737), (96, 19740),

Gene: Wollypog\_22 Start: 20463, Stop: 20921, Start Num: 38

Candidate Starts for Wollypog\_22:

(Start: 38 @20463 has 1 MA's), (46, 20529), (56, 20613), (74, 20727), (87, 20802), (93, 20829), (94, 20835), (95, 20844), (99, 20868),

Gene: WonderBoy\_19 Start: 17655, Stop: 18098, Start Num: 39

Candidate Starts for WonderBoy\_19:

(12, 17385), (15, 17433), (18, 17469), (25, 17535), (29, 17556), (32, 17598), (Start: 39 @17655 has 84 MA's), (44, 17706), (45, 17712), (46, 17715), (54, 17793), (60, 17826), (69, 17883), (85, 17979), (90, 18003), (91, 18006), (92, 18009), (95, 18033),

Gene: Zorro\_23 Start: 19214, Stop: 19663, Start Num: 39

Candidate Starts for Zorro\_23:

(Start: 39 @19214 has 84 MA's), (44, 19265), (54, 19352), (56, 19361), (64, 19403), (69, 19442), (72, 19460), (81, 19508), (85, 19544), (91, 19571), (92, 19574), (95, 19598), (96, 19601),

Gene: pZL12\_42c Start: 31108, Stop: 30641, Start Num: 34

Candidate Starts for pZL12\_42c:

(28, 31177), (34, 31108), (40, 31048), (91, 30715), (97, 30676),

