



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 304958 Report

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

Pham number 304958 has 78 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Laurie\_32
- Track 2 : Gspu1\_25
- Track 3 : LordVader\_20
- Track 4 : MilanaBonita\_19, Akhila\_19
- Track 5 : Ms6\_18
- Track 6 : Okabe\_20
- Track 7 : Babsiella\_21, HC\_21
- Track 8 : QueenHazel\_21
- Track 9 : Xula\_20
- Track 10 : Bluvara\_21
- Track 11 : Diminimus\_31, Dulcita\_31, Auspice\_30, Izel\_31
- Track 12 : Glaske16\_31
- Track 13 : Bongo\_30, TyDawg\_30, IPhane7\_30, FreakyGoo\_31, TpudiCK\_31, LilhomieP\_29
- Track 14 : SlimJimmy\_29
- Track 15 : Bricole\_30, PegLeg\_30
- Track 16 : KleverKiS\_30
- Track 17 : Skinny\_31
- Track 18 : Spinach\_20, BabeRuth\_20, ShrimpFriedEgg\_20, Hanako\_20, Nenae\_20, Redi\_20, PhancyPhin\_20, Purgamenstris\_20
- Track 19 : Snekmaggedon\_20, Jamie19\_20, SpongeBob\_20
- Track 20 : Rebel\_20
- Track 21 : Majeke\_21, Brusacoram\_21, Mangethe\_21, Thespis\_21
- Track 22 : StevieRay\_21
- Track 23 : Camster\_21, PeanutPie\_21, Arib1\_21, Bhagsy\_21
- Track 24 : Sonah\_21, HUHilltop\_21, Chubbello\_21, Kari\_21, Vidya\_21, Ksquared\_21, Phegasus\_21, FirstPlacePfu\_21, Juniormint\_21, Fishburne\_21, Jebeks\_21, Etoile\_21, Polkaroo\_21, Techage\_21, Langerak\_21, GaloreK\_21, Zilizebeth\_21, Donovan\_21, Necropolis\_21
- Track 25 : Bunnies\_21, Bartholomew\_21
- Track 26 : Venti\_21
- Track 27 : Malithi\_21
- Track 28 : GreaseLightnin\_21
- Track 29 : Jung\_21
- Track 30 : Taptic\_24
- Track 31 : Argie\_25
- Track 32 : Cepens\_24, Megabear\_24

### **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 32 of the 66 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Arib1\_21, Babsiella\_21, Bartholomew\_21, Bhagsy\_21, Bluvara\_21, Brusacoram\_21, Bunnies\_21, Camster\_21, Chubbello\_21, Donovan\_21, Etoile\_21, FirstPlacePfu\_21, Fishburne\_21, GaloreK\_21, HC\_21, HUHilltop\_21, Jebeks\_21, Jung\_21, Juniormint\_21, Kari\_21, Ksquared\_21, Langerak\_21, Majeke\_21, Malithi\_21, Mangethe\_21, Necropolis\_21, Okabe\_20, PeanutPie\_21, Phegasus\_21, Polkaroo\_21, QueenHazel\_21, Sonah\_21, StevieRay\_21, Techage\_21, Thespis\_21, Venti\_21, Vidya\_21, Xula\_20, Zilizebeth\_21,

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:

- Akhila\_19, Argie\_25, Auspice\_30, BabeRuth\_20, Bongo\_30, Bricole\_30, Cepens\_24, Diminimus\_31, Dulcita\_31, FreakyGoo\_31, Glaske16\_31, GreaseLightnin\_21, Gsput1\_25, Hanako\_20, IPhane7\_30, Izel\_31, Jamie19\_20, KleverKiS\_30, Laurie\_32, LilhomieP\_29, LordVader\_20, Megabear\_24, MilanaBonita\_19, Ms6\_18, Nenae\_20, PegLeg\_30, PhancyPhin\_20, Purgamenstris\_20, Rebel\_20, Redi\_20, ShrimpFriedEgg\_20, Skinny\_31, SlimJimmy\_29, Snekmaggon\_20, Spinach\_20, SpongeBob\_20, Taptic\_24, TpudiCK\_31, TyDawg\_30,

### **Summary by start number:**

Start 3:

- Found in 14 of 78 ( 17.9% ) of genes in pham
- Manual Annotations of this start: 13 of 66
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BabeRuth\_20 (N), GreaseLightnin\_21 (P1), Hanako\_20 (N), Jamie19\_20 (N), Ms6\_18 (F1), Nenae\_20 (N), PhancyPhin\_20 (N), Purgamenstris\_20 (N), Rebel\_20 (N), Redi\_20 (N), ShrimpFriedEgg\_20 (N), Snekmaggon\_20 (N), Spinach\_20 (N), SpongeBob\_20 (N),

Start 4:

- Found in 39 of 78 ( 50.0% ) of genes in pham
- Manual Annotations of this start: 32 of 66
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arib1\_21 (P1), Babsiella\_21 (I1), Bartholomew\_21 (P1), Bhagsy\_21 (P1), Bluvara\_21 (I3), Brusacoram\_21 (P1), Bunnies\_21 (P1), Camster\_21 (P1), Chubbello\_21 (P1), Donovan\_21 (P1), Etoile\_21 (P1), FirstPlacePfu\_21 (P1), Fishburne\_21 (P1), GaloreK\_21 (P1), HC\_21 (I1), HUHilltop\_21 (P1), Jebeks\_21 (P1), Jung\_21 (P1), Juniormint\_21 (P1), Kari\_21 (P1), Ksquared\_21 (P1), Langerak\_21 (P1), Majeke\_21 (P1), Malithi\_21 (P1), Mangethe\_21 (P1), Necropolis\_21 (P1), Okabe\_20 (F8), PeanutPie\_21 (P1),

Phegasus\_21 (P1), Polkaroo\_21 (P1), QueenHazel\_21 (I1), Sonah\_21 (P1), StevieRay\_21 (P1), Techage\_21 (P1), Thespis\_21 (P1), Venti\_21 (P1), Vidya\_21 (P1), Xula\_20 (I1), Zilizebeth\_21 (P1),

Start 5:

- Found in 3 of 78 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 2 of 66
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Akhila\_19 (F1), LordVader\_20 (F), MilanaBonita\_19 (F1),

Start 6:

- Found in 39 of 78 ( 50.0% ) of genes in pham
- Manual Annotations of this start: 14 of 66
- Called 41.0% of time when present
- Phage (with cluster) where this start called: Auspice\_30 (M1), Bongo\_30 (M1), Bricole\_30 (M1), Diminimus\_31 (M1), Dulcita\_31 (M1), FreakyGoo\_31 (M1), Glaske16\_31 (M1), IPhane7\_30 (M1), Izel\_31 (M1), KleverKiS\_30 (M1), LilhomieP\_29 (M1), PegLeg\_30 (M1), Skinny\_31 (M1), SlimJimmy\_29 (M1), TpudiCK\_31 (M1), TyDawg\_30 (M1),

Start 20:

- Found in 1 of 78 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 1 of 66
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Laurie\_32 (B2),

Start 21:

- Found in 4 of 78 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 4 of 66
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Argie\_25 (W), Cepens\_24 (W), Megabear\_24 (W), Taptic\_24 (W),

Start 48:

- Found in 1 of 78 ( 1.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gspu1\_25 (CU2),

### **Summary by clusters:**

There are 11 clusters represented in this pham: F1, P1, B2, F, I1, I3, N, F8, M1, W, CU2,

Info for manual annotations of cluster B2:

- Start number 20 was manually annotated 1 time for cluster B2.

Info for manual annotations of cluster F1:

- Start number 5 was manually annotated 2 times for cluster F1.

Info for manual annotations of cluster I1:

- Start number 4 was manually annotated 4 times for cluster I1.

Info for manual annotations of cluster M1:

- Start number 6 was manually annotated 14 times for cluster M1.

Info for manual annotations of cluster N:

- Start number 3 was manually annotated 12 times for cluster N.

Info for manual annotations of cluster P1:

- Start number 3 was manually annotated 1 time for cluster P1.
- Start number 4 was manually annotated 28 times for cluster P1.

Info for manual annotations of cluster W:

- Start number 21 was manually annotated 4 times for cluster W.

### **Gene Information:**

Gene: Akhila\_19 Start: 18067, Stop: 20265, Start Num: 5

Candidate Starts for Akhila\_19:

(2, 18055), (Start: 5 @18067 has 2 MA's), (8, 18088), (10, 18109), (14, 18148), (19, 18217), (22, 18226), (23, 18229), (28, 18280), (31, 18295), (39, 18370), (51, 18505), (53, 18517), (57, 18538), (64, 18571), (76, 18718), (83, 18781), (88, 18820), (89, 18844), (93, 18859), (94, 18868), (99, 18895), (100, 18898), (101, 18901), (106, 18970), (109, 18991), (111, 18997), (115, 19033), (117, 19051), (143, 19327), (149, 19393), (151, 19411), (153, 19429), (162, 19588), (183, 19714), (195, 19855), (196, 19870), (197, 19921), (202, 19948), (203, 19969), (219, 20071), (221, 20086), (223, 20092), (231, 20137), (234, 20155), (235, 20161), (240, 20224),

Gene: Argie\_25 Start: 27496, Stop: 29625, Start Num: 21

Candidate Starts for Argie\_25:

(Start: 21 @27496 has 4 MA's), (29, 27565), (34, 27598), (36, 27619), (43, 27676), (46, 27706), (47, 27724), (58, 27817), (59, 27820), (66, 27874), (74, 27958), (80, 27994), (82, 28015), (87, 28063), (91, 28102), (100, 28156), (103, 28210), (105, 28222), (107, 28246), (110, 28270), (112, 28282), (114, 28297), (116, 28312), (119, 28354), (126, 28435), (143, 28606), (149, 28672), (151, 28690), (153, 28708), (162, 28867), (165, 28894), (168, 28912), (171, 28939), (173, 28975), (175, 28993), (176, 28999), (178, 29026), (179, 29032), (185, 29074), (196, 29215), (197, 29266), (216, 29410), (222, 29446), (223, 29449), (230, 29497), (234, 29521), (237, 29557), (238, 29560), (239, 29569), (242, 29605), (243, 29620),

Gene: Arib1\_21 Start: 19044, Stop: 21305, Start Num: 4

Candidate Starts for Arib1\_21:

(Start: 4 @19044 has 32 MA's), (23, 19197), (51, 19470), (53, 19482), (57, 19503), (62, 19527), (68, 19602), (75, 19674), (79, 19704), (83, 19740), (89, 19803), (93, 19818), (98, 19845), (99, 19851), (106, 19926), (109, 19950), (111, 19956), (117, 20010), (118, 20016), (143, 20286), (149, 20352), (151, 20370), (153, 20388), (162, 20547), (165, 20574), (168, 20592), (171, 20619), (173, 20655), (175, 20673), (176, 20679), (178, 20706), (179, 20712), (185, 20754), (196, 20895), (197, 20946), (216, 21090), (222, 21126), (223, 21129), (230, 21177), (234, 21201), (237, 21237), (238, 21240), (239, 21249), (242, 21285), (243, 21300),

Gene: Auspice\_30 Start: 24622, Stop: 26973, Start Num: 6

Candidate Starts for Auspice\_30:

(Start: 6 @24622 has 14 MA's), (15, 24742), (17, 24757), (26, 24829), (28, 24850), (30, 24862), (33, 24889), (35, 24898), (51, 25084), (63, 25147), (68, 25216), (71, 25243), (79, 25318), (81, 25339), (100, 25474), (106, 25555), (108, 25570), (109, 25579), (111, 25585), (124, 25708), (137, 25864), (140, 25882), (141, 25897), (149, 25981), (151, 25999), (152, 26008), (153, 26017), (161, 26164), (162, 26176), (169, 26242), (173, 26284), (176, 26308), (179, 26341), (187, 26395), (190, 26434), (192, 26446), (199, 26578), (204, 26623), (218, 26749), (222, 26773), (224, 26782), (226, 26791), (227, 26803), (229, 26815), (230, 26830), (237, 26890), (244, 26959),

Gene: BabeRuth\_20 Start: 17560, Stop: 19866, Start Num: 3

Candidate Starts for BabeRuth\_20:

(1, 17548), (Start: 3 @17560 has 13 MA's), (7, 17572), (18, 17683), (22, 17707), (23, 17710), (24, 17719), (51, 17992), (53, 18004), (57, 18025), (65, 18070), (76, 18205), (81, 18253), (83, 18268), (86, 18289), (88, 18307), (89, 18331), (93, 18346), (94, 18355), (99, 18382), (101, 18388), (103, 18433), (106, 18457), (108, 18469), (109, 18478), (111, 18484), (115, 18520), (117, 18538), (124, 18607), (130, 18697), (139, 18772), (143, 18814), (150, 18895), (151, 18898), (153, 18916), (156, 18982), (161, 19063), (162, 19075), (165, 19102), (167, 19117), (168, 19120), (173, 19183), (174, 19192), (176, 19207), (184, 19273), (191, 19336), (192, 19345), (194, 19399), (197, 19471), (200, 19492), (205, 19528), (206, 19534), (208, 19546), (209, 19549), (212, 19588), (218, 19651), (220, 19660), (223, 19678),

Gene: Babsiella\_21 Start: 19025, Stop: 21313, Start Num: 4

Candidate Starts for Babsiella\_21:

(Start: 4 @19025 has 32 MA's), (8, 19049), (16, 19160), (18, 19169), (23, 19196), (39, 19343), (51, 19478), (53, 19490), (57, 19511), (62, 19535), (68, 19610), (75, 19682), (79, 19712), (83, 19748), (89, 19811), (93, 19826), (98, 19853), (99, 19859), (100, 19862), (106, 19934), (109, 19958), (111, 19964), (117, 20018), (118, 20024), (143, 20294), (149, 20360), (151, 20378), (153, 20396), (162, 20555), (165, 20582), (168, 20600), (171, 20627), (173, 20663), (175, 20681), (176, 20687), (178, 20714), (179, 20720), (185, 20762), (196, 20903), (197, 20954), (216, 21098), (222, 21134), (223, 21137), (230, 21185), (234, 21209), (237, 21245), (238, 21248), (239, 21257), (242, 21293), (243, 21308),

Gene: Bartholomew\_21 Start: 19038, Stop: 21299, Start Num: 4

Candidate Starts for Bartholomew\_21:

(Start: 4 @19038 has 32 MA's), (Start: 6 @19047 has 14 MA's), (23, 19191), (51, 19464), (53, 19476), (57, 19497), (62, 19521), (68, 19596), (75, 19668), (79, 19698), (83, 19734), (89, 19797), (93, 19812), (98, 19839), (99, 19845), (106, 19920), (109, 19944), (111, 19950), (117, 20004), (118, 20010), (143, 20280), (149, 20346), (153, 20382), (162, 20541), (165, 20568), (168, 20586), (171, 20613), (173, 20649), (175, 20667), (176, 20673), (178, 20700), (179, 20706), (185, 20748), (196, 20889), (197, 20940), (216, 21084), (222, 21120), (223, 21123), (230, 21171), (234, 21195), (237, 21231), (238, 21234), (239, 21243), (242, 21279), (243, 21294),

Gene: Bhagsy\_21 Start: 19045, Stop: 21306, Start Num: 4

Candidate Starts for Bhagsy\_21:

(Start: 4 @19045 has 32 MA's), (23, 19198), (51, 19471), (53, 19483), (57, 19504), (62, 19528), (68, 19603), (75, 19675), (79, 19705), (83, 19741), (89, 19804), (93, 19819), (98, 19846), (99, 19852), (106, 19927), (109, 19951), (111, 19957), (117, 20011), (118, 20017), (143, 20287), (149, 20353), (151, 20371), (153, 20389), (162, 20548), (165, 20575), (168, 20593), (171, 20620), (173, 20656), (175, 20674), (176, 20680), (178, 20707), (179, 20713), (185, 20755), (196, 20896), (197, 20947), (216, 21091), (222, 21127), (223, 21130), (230, 21178), (234, 21202), (237, 21238), (238, 21241), (239, 21250), (242, 21286), (243, 21301),

Gene: Bluvara\_21 Start: 19092, Stop: 21380, Start Num: 4

Candidate Starts for Bluvara\_21:

(Start: 4 @19092 has 32 MA's), (8, 19116), (16, 19227), (18, 19236), (23, 19263), (39, 19410), (51, 19545), (53, 19557), (57, 19578), (62, 19602), (68, 19677), (75, 19749), (79, 19779), (83, 19815), (89, 19878), (93, 19893), (98, 19920), (99, 19926), (100, 19929), (106, 20001), (109, 20025), (111, 20031), (117, 20085), (118, 20091), (143, 20361), (149, 20427), (151, 20445), (153, 20463), (162, 20622), (165, 20649), (168, 20667), (171, 20694), (173, 20730), (175, 20748), (176, 20754), (178, 20781), (179, 20787), (185, 20829), (196, 20970), (197, 21021), (216, 21165), (222, 21201), (223, 21204), (230, 21252), (234, 21276), (237, 21312), (238, 21315), (239, 21324), (242, 21360), (243, 21375),

Gene: Bongo\_30 Start: 24622, Stop: 26973, Start Num: 6

Candidate Starts for Bongo\_30:

(Start: 6 @24622 has 14 MA's), (15, 24742), (17, 24757), (26, 24829), (28, 24850), (30, 24862), (33, 24889), (35, 24898), (51, 25084), (63, 25147), (68, 25216), (71, 25243), (78, 25315), (79, 25318), (81, 25339), (100, 25474), (106, 25555), (108, 25570), (109, 25579), (111, 25585), (124, 25708), (137, 25864), (140, 25882), (141, 25897), (149, 25981), (151, 25999), (152, 26008), (153, 26017), (161, 26164), (162, 26176), (169, 26242), (173, 26284), (176, 26308), (179, 26341), (187, 26395), (190, 26434), (192, 26446), (199, 26578), (204, 26623), (218, 26749), (222, 26773), (224, 26782), (226, 26791), (227, 26803), (229, 26815), (230, 26830), (237, 26890), (244, 26959),

Gene: Bricole\_30 Start: 24608, Stop: 26959, Start Num: 6

Candidate Starts for Bricole\_30:

(Start: 6 @24608 has 14 MA's), (15, 24728), (17, 24743), (26, 24815), (28, 24836), (30, 24848), (33, 24875), (35, 24884), (51, 25070), (63, 25133), (68, 25202), (71, 25229), (78, 25301), (79, 25304), (81, 25325), (100, 25460), (106, 25541), (108, 25556), (109, 25565), (111, 25571), (124, 25694), (137, 25850), (140, 25868), (141, 25883), (149, 25967), (151, 25985), (152, 25994), (161, 26150), (162, 26162), (169, 26228), (173, 26270), (176, 26294), (179, 26327), (187, 26381), (190, 26420), (192, 26432), (199, 26564), (204, 26609), (218, 26735), (222, 26759), (224, 26768), (226, 26777), (227, 26789), (229, 26801), (230, 26816), (237, 26876), (244, 26945),

Gene: Brusacoram\_21 Start: 19038, Stop: 21299, Start Num: 4

Candidate Starts for Brusacoram\_21:

(Start: 4 @19038 has 32 MA's), (23, 19191), (51, 19464), (53, 19476), (57, 19497), (62, 19521), (68, 19596), (75, 19668), (79, 19698), (83, 19734), (89, 19797), (93, 19812), (98, 19839), (99, 19845), (106, 19920), (109, 19944), (111, 19950), (113, 19962), (117, 20004), (118, 20010), (143, 20280), (149, 20346), (151, 20364), (153, 20382), (162, 20541), (165, 20568), (168, 20586), (171, 20613), (173, 20649), (175, 20667), (176, 20673), (178, 20700), (179, 20706), (185, 20748), (196, 20889), (197, 20940), (216, 21084), (222, 21120), (223, 21123), (230, 21171), (234, 21195), (237, 21231), (238, 21234), (239, 21243), (242, 21279), (243, 21294),

Gene: Bunnies\_21 Start: 19060, Stop: 21321, Start Num: 4

Candidate Starts for Bunnies\_21:

(Start: 4 @19060 has 32 MA's), (Start: 6 @19069 has 14 MA's), (23, 19213), (51, 19486), (53, 19498), (57, 19519), (62, 19543), (68, 19618), (75, 19690), (79, 19720), (83, 19756), (89, 19819), (93, 19834), (98, 19861), (99, 19867), (106, 19942), (109, 19966), (111, 19972), (117, 20026), (118, 20032), (143, 20302), (149, 20368), (153, 20404), (162, 20563), (165, 20590), (168, 20608), (171, 20635), (173, 20671), (175, 20689), (176, 20695), (178, 20722), (179, 20728), (185, 20770), (196, 20911), (197, 20962), (216, 21106), (222, 21142), (223, 21145), (230, 21193), (234, 21217), (237, 21253), (238, 21256), (239, 21265), (242, 21301), (243, 21316),

Gene: Camster\_21 Start: 19039, Stop: 21300, Start Num: 4

Candidate Starts for Camster\_21:

(Start: 4 @19039 has 32 MA's), (23, 19192), (51, 19465), (53, 19477), (57, 19498), (62, 19522), (68, 19597), (75, 19669), (79, 19699), (83, 19735), (89, 19798), (93, 19813), (98, 19840), (99, 19846), (106,

19921), (109, 19945), (111, 19951), (117, 20005), (118, 20011), (143, 20281), (149, 20347), (151, 20365), (153, 20383), (162, 20542), (165, 20569), (168, 20587), (171, 20614), (173, 20650), (175, 20668), (176, 20674), (178, 20701), (179, 20707), (185, 20749), (196, 20890), (197, 20941), (216, 21085), (222, 21121), (223, 21124), (230, 21172), (234, 21196), (237, 21232), (238, 21235), (239, 21244), (242, 21280), (243, 21295),

Gene: Cepens\_24 Start: 27217, Stop: 29346, Start Num: 21

Candidate Starts for Cepens\_24:

(Start: 21 @27217 has 4 MA's), (29, 27286), (34, 27319), (36, 27340), (43, 27397), (46, 27427), (47, 27445), (58, 27538), (59, 27541), (66, 27595), (74, 27679), (80, 27715), (81, 27733), (82, 27736), (87, 27784), (91, 27823), (96, 27859), (100, 27877), (103, 27931), (105, 27943), (107, 27967), (110, 27991), (112, 28003), (114, 28018), (116, 28033), (119, 28075), (125, 28132), (126, 28156), (143, 28327), (149, 28393), (151, 28411), (153, 28429), (162, 28588), (165, 28615), (168, 28633), (171, 28660), (173, 28696), (175, 28714), (176, 28720), (178, 28747), (179, 28753), (185, 28795), (196, 28936), (197, 28987), (216, 29131), (222, 29167), (223, 29170), (230, 29218), (234, 29242), (237, 29278), (238, 29281), (239, 29290), (242, 29326), (243, 29341),

Gene: Chubbello\_21 Start: 19037, Stop: 21298, Start Num: 4

Candidate Starts for Chubbello\_21:

(Start: 4 @19037 has 32 MA's), (Start: 6 @19046 has 14 MA's), (23, 19190), (51, 19463), (53, 19475), (57, 19496), (62, 19520), (68, 19595), (75, 19667), (79, 19697), (83, 19733), (89, 19796), (93, 19811), (98, 19838), (99, 19844), (106, 19919), (109, 19943), (111, 19949), (117, 20003), (118, 20009), (143, 20279), (149, 20345), (151, 20363), (153, 20381), (162, 20540), (165, 20567), (168, 20585), (171, 20612), (173, 20648), (175, 20666), (176, 20672), (178, 20699), (179, 20705), (185, 20747), (196, 20888), (197, 20939), (216, 21083), (222, 21119), (223, 21122), (230, 21170), (234, 21194), (237, 21230), (238, 21233), (239, 21242), (242, 21278), (243, 21293),

Gene: Diminimus\_31 Start: 24621, Stop: 26972, Start Num: 6

Candidate Starts for Diminimus\_31:

(Start: 6 @24621 has 14 MA's), (15, 24741), (17, 24756), (26, 24828), (28, 24849), (30, 24861), (33, 24888), (35, 24897), (51, 25083), (63, 25146), (68, 25215), (71, 25242), (79, 25317), (81, 25338), (100, 25473), (106, 25554), (108, 25569), (109, 25578), (111, 25584), (124, 25707), (137, 25863), (140, 25881), (141, 25896), (149, 25980), (151, 25998), (152, 26007), (153, 26016), (161, 26163), (162, 26175), (169, 26241), (173, 26283), (176, 26307), (179, 26340), (187, 26394), (190, 26433), (192, 26445), (199, 26577), (204, 26622), (218, 26748), (222, 26772), (224, 26781), (226, 26790), (227, 26802), (229, 26814), (230, 26829), (237, 26889), (244, 26958),

Gene: Donovan\_21 Start: 19027, Stop: 21288, Start Num: 4

Candidate Starts for Donovan\_21:

(Start: 4 @19027 has 32 MA's), (Start: 6 @19036 has 14 MA's), (23, 19180), (51, 19453), (53, 19465), (57, 19486), (62, 19510), (68, 19585), (75, 19657), (79, 19687), (83, 19723), (89, 19786), (93, 19801), (98, 19828), (99, 19834), (106, 19909), (109, 19933), (111, 19939), (117, 19993), (118, 19999), (143, 20269), (149, 20335), (151, 20353), (153, 20371), (162, 20530), (165, 20557), (168, 20575), (171, 20602), (173, 20638), (175, 20656), (176, 20662), (178, 20689), (179, 20695), (185, 20737), (196, 20878), (197, 20929), (216, 21073), (222, 21109), (223, 21112), (230, 21160), (234, 21184), (237, 21220), (238, 21223), (239, 21232), (242, 21268), (243, 21283),

Gene: Dulcita\_31 Start: 24621, Stop: 26972, Start Num: 6

Candidate Starts for Dulcita\_31:

(Start: 6 @24621 has 14 MA's), (15, 24741), (17, 24756), (26, 24828), (28, 24849), (30, 24861), (33, 24888), (35, 24897), (51, 25083), (63, 25146), (68, 25215), (71, 25242), (79, 25317), (81, 25338), (100, 25473), (106, 25554), (108, 25569), (109, 25578), (111, 25584), (124, 25707), (137, 25863), (140, 25881), (141, 25896), (149, 25980), (151, 25998), (152, 26007), (153, 26016), (161, 26163), (162,

26175), (169, 26241), (173, 26283), (176, 26307), (179, 26340), (187, 26394), (190, 26433), (192, 26445), (199, 26577), (204, 26622), (218, 26748), (222, 26772), (224, 26781), (226, 26790), (227, 26802), (229, 26814), (230, 26829), (237, 26889), (244, 26958),

Gene: Etoile\_21 Start: 19038, Stop: 21299, Start Num: 4

Candidate Starts for Etoile\_21:

(Start: 4 @19038 has 32 MA's), (Start: 6 @19047 has 14 MA's), (23, 19191), (51, 19464), (53, 19476), (57, 19497), (62, 19521), (68, 19596), (75, 19668), (79, 19698), (83, 19734), (89, 19797), (93, 19812), (98, 19839), (99, 19845), (106, 19920), (109, 19944), (111, 19950), (117, 20004), (118, 20010), (143, 20280), (149, 20346), (151, 20364), (153, 20382), (162, 20541), (165, 20568), (168, 20586), (171, 20613), (173, 20649), (175, 20667), (176, 20673), (178, 20700), (179, 20706), (185, 20748), (196, 20889), (197, 20940), (216, 21084), (222, 21120), (223, 21123), (230, 21171), (234, 21195), (237, 21231), (238, 21234), (239, 21243), (242, 21279), (243, 21294),

Gene: FirstPlacePfu\_21 Start: 19038, Stop: 21299, Start Num: 4

Candidate Starts for FirstPlacePfu\_21:

(Start: 4 @19038 has 32 MA's), (Start: 6 @19047 has 14 MA's), (23, 19191), (51, 19464), (53, 19476), (57, 19497), (62, 19521), (68, 19596), (75, 19668), (79, 19698), (83, 19734), (89, 19797), (93, 19812), (98, 19839), (99, 19845), (106, 19920), (109, 19944), (111, 19950), (117, 20004), (118, 20010), (143, 20280), (149, 20346), (151, 20364), (153, 20382), (162, 20541), (165, 20568), (168, 20586), (171, 20613), (173, 20649), (175, 20667), (176, 20673), (178, 20700), (179, 20706), (185, 20748), (196, 20889), (197, 20940), (216, 21084), (222, 21120), (223, 21123), (230, 21171), (234, 21195), (237, 21231), (238, 21234), (239, 21243), (242, 21279), (243, 21294),

Gene: Fishburne\_21 Start: 19038, Stop: 21299, Start Num: 4

Candidate Starts for Fishburne\_21:

(Start: 4 @19038 has 32 MA's), (Start: 6 @19047 has 14 MA's), (23, 19191), (51, 19464), (53, 19476), (57, 19497), (62, 19521), (68, 19596), (75, 19668), (79, 19698), (83, 19734), (89, 19797), (93, 19812), (98, 19839), (99, 19845), (106, 19920), (109, 19944), (111, 19950), (117, 20004), (118, 20010), (143, 20280), (149, 20346), (151, 20364), (153, 20382), (162, 20541), (165, 20568), (168, 20586), (171, 20613), (173, 20649), (175, 20667), (176, 20673), (178, 20700), (179, 20706), (185, 20748), (196, 20889), (197, 20940), (216, 21084), (222, 21120), (223, 21123), (230, 21171), (234, 21195), (237, 21231), (238, 21234), (239, 21243), (242, 21279), (243, 21294),

Gene: FreakyGoo\_31 Start: 24622, Stop: 26973, Start Num: 6

Candidate Starts for FreakyGoo\_31:

(Start: 6 @24622 has 14 MA's), (15, 24742), (17, 24757), (26, 24829), (28, 24850), (30, 24862), (33, 24889), (35, 24898), (51, 25084), (63, 25147), (68, 25216), (71, 25243), (78, 25315), (79, 25318), (81, 25339), (100, 25474), (106, 25555), (108, 25570), (109, 25579), (111, 25585), (124, 25708), (137, 25864), (140, 25882), (141, 25897), (149, 25981), (151, 25999), (152, 26008), (153, 26017), (161, 26164), (162, 26176), (169, 26242), (173, 26284), (176, 26308), (179, 26341), (187, 26395), (190, 26434), (192, 26446), (199, 26578), (204, 26623), (218, 26749), (222, 26773), (224, 26782), (226, 26791), (227, 26803), (229, 26815), (230, 26830), (237, 26890), (244, 26959),

Gene: GaloreK\_21 Start: 19034, Stop: 21295, Start Num: 4

Candidate Starts for GaloreK\_21:

(Start: 4 @19034 has 32 MA's), (Start: 6 @19043 has 14 MA's), (23, 19187), (51, 19460), (53, 19472), (57, 19493), (62, 19517), (68, 19592), (75, 19664), (79, 19694), (83, 19730), (89, 19793), (93, 19808), (98, 19835), (99, 19841), (106, 19916), (109, 19940), (111, 19946), (117, 20000), (118, 20006), (143, 20276), (149, 20342), (151, 20360), (153, 20378), (162, 20537), (165, 20564), (168, 20582), (171, 20609), (173, 20645), (175, 20663), (176, 20669), (178, 20696), (179, 20702), (185, 20744), (196, 20885), (197, 20936), (216, 21080), (222, 21116), (223, 21119), (230, 21167), (234, 21191), (237, 21227), (238, 21230), (239, 21239), (242, 21275), (243, 21290),

Gene: Glaske16\_31 Start: 24621, Stop: 26972, Start Num: 6

Candidate Starts for Glaske16\_31:

(Start: 6 @24621 has 14 MA's), (15, 24741), (17, 24756), (26, 24828), (28, 24849), (30, 24861), (33, 24888), (35, 24897), (51, 25083), (63, 25146), (68, 25215), (71, 25242), (79, 25317), (81, 25338), (100, 25473), (106, 25554), (108, 25569), (109, 25578), (111, 25584), (124, 25707), (137, 25863), (140, 25881), (141, 25896), (149, 25980), (151, 25998), (152, 26007), (161, 26163), (162, 26175), (169, 26241), (173, 26283), (176, 26307), (179, 26340), (187, 26394), (190, 26433), (192, 26445), (199, 26577), (204, 26622), (218, 26748), (222, 26772), (224, 26781), (226, 26790), (227, 26802), (229, 26814), (230, 26829), (237, 26889), (244, 26958),

Gene: GreaseLightnin\_21 Start: 19044, Stop: 21344, Start Num: 3

Candidate Starts for GreaseLightnin\_21:

(Start: 3 @19044 has 13 MA's), (7, 19053), (23, 19197), (51, 19470), (53, 19482), (57, 19503), (76, 19683), (81, 19731), (83, 19746), (84, 19761), (86, 19767), (88, 19785), (89, 19809), (93, 19824), (94, 19833), (99, 19860), (101, 19866), (103, 19911), (106, 19935), (108, 19947), (109, 19956), (111, 19962), (115, 19998), (117, 20016), (139, 20250), (143, 20292), (149, 20358), (151, 20376), (153, 20394), (162, 20553), (165, 20580), (167, 20595), (168, 20598), (173, 20661), (174, 20670), (176, 20685), (184, 20751), (191, 20814), (192, 20823), (197, 20949), (200, 20970), (205, 21006), (206, 21012), (208, 21024), (209, 21027), (212, 21066), (218, 21129), (220, 21138), (223, 21156),

Gene: Gspu1\_25 Start: 19933, Stop: 21690, Start Num: 48

Candidate Starts for Gspu1\_25:

(48, 19933), (56, 19987), (59, 20002), (66, 20056), (67, 20080), (69, 20098), (72, 20131), (77, 20194), (81, 20218), (85, 20248), (90, 20302), (92, 20305), (95, 20332), (102, 20374), (106, 20428), (115, 20488), (120, 20536), (122, 20551), (123, 20566), (127, 20626), (128, 20659), (129, 20665), (131, 20671), (133, 20680), (134, 20683), (135, 20710), (138, 20740), (142, 20773), (144, 20785), (145, 20803), (150, 20860), (156, 20947), (160, 21019), (163, 21049), (170, 21067), (173, 21082), (180, 21148), (182, 21163), (184, 21172), (193, 21256), (201, 21394), (211, 21487), (225, 21592), (232, 21637),

Gene: HC\_21 Start: 19081, Stop: 21369, Start Num: 4

Candidate Starts for HC\_21:

(Start: 4 @19081 has 32 MA's), (8, 19105), (16, 19216), (18, 19225), (23, 19252), (39, 19399), (51, 19534), (53, 19546), (57, 19567), (62, 19591), (68, 19666), (75, 19738), (79, 19768), (83, 19804), (89, 19867), (93, 19882), (98, 19909), (99, 19915), (100, 19918), (106, 19990), (109, 20014), (111, 20020), (117, 20074), (118, 20080), (143, 20350), (149, 20416), (151, 20434), (153, 20452), (162, 20611), (165, 20638), (168, 20656), (171, 20683), (173, 20719), (175, 20737), (176, 20743), (178, 20770), (179, 20776), (185, 20818), (196, 20959), (197, 21010), (216, 21154), (222, 21190), (223, 21193), (230, 21241), (234, 21265), (237, 21301), (238, 21304), (239, 21313), (242, 21349), (243, 21364),

Gene: HUHilltop\_21 Start: 19038, Stop: 21299, Start Num: 4

Candidate Starts for HUHilltop\_21:

(Start: 4 @19038 has 32 MA's), (Start: 6 @19047 has 14 MA's), (23, 19191), (51, 19464), (53, 19476), (57, 19497), (62, 19521), (68, 19596), (75, 19668), (79, 19698), (83, 19734), (89, 19797), (93, 19812), (98, 19839), (99, 19845), (106, 19920), (109, 19944), (111, 19950), (117, 20004), (118, 20010), (143, 20280), (149, 20346), (151, 20364), (153, 20382), (162, 20541), (165, 20568), (168, 20586), (171, 20613), (173, 20649), (175, 20667), (176, 20673), (178, 20700), (179, 20706), (185, 20748), (196, 20889), (197, 20940), (216, 21084), (222, 21120), (223, 21123), (230, 21171), (234, 21195), (237, 21231), (238, 21234), (239, 21243), (242, 21279), (243, 21294),

Gene: Hanako\_20 Start: 17560, Stop: 19866, Start Num: 3

Candidate Starts for Hanako\_20:

(1, 17548), (Start: 3 @17560 has 13 MA's), (7, 17572), (18, 17683), (22, 17707), (23, 17710), (24, 17719), (51, 17992), (53, 18004), (57, 18025), (65, 18070), (76, 18205), (81, 18253), (83, 18268), (86, 18289), (88, 18307), (89, 18331), (93, 18346), (94, 18355), (99, 18382), (101, 18388), (103, 18433), (106, 18457), (108, 18469), (109, 18478), (111, 18484), (115, 18520), (117, 18538), (124, 18607), (130, 18697), (139, 18772), (143, 18814), (150, 18895), (151, 18898), (153, 18916), (156, 18982), (161, 19063), (162, 19075), (165, 19102), (167, 19117), (168, 19120), (173, 19183), (174, 19192), (176, 19207), (184, 19273), (191, 19336), (192, 19345), (194, 19399), (197, 19471), (200, 19492), (205, 19528), (206, 19534), (208, 19546), (209, 19549), (212, 19588), (218, 19651), (220, 19660), (223, 19678),

Gene: IPhone7\_30 Start: 24622, Stop: 26973, Start Num: 6

Candidate Starts for IPhone7\_30:

(Start: 6 @24622 has 14 MA's), (15, 24742), (17, 24757), (26, 24829), (28, 24850), (30, 24862), (33, 24889), (35, 24898), (51, 25084), (63, 25147), (68, 25216), (71, 25243), (78, 25315), (79, 25318), (81, 25339), (100, 25474), (106, 25555), (108, 25570), (109, 25579), (111, 25585), (124, 25708), (137, 25864), (140, 25882), (141, 25897), (149, 25981), (151, 25999), (152, 26008), (153, 26017), (161, 26164), (162, 26176), (169, 26242), (173, 26284), (176, 26308), (179, 26341), (187, 26395), (190, 26434), (192, 26446), (199, 26578), (204, 26623), (218, 26749), (222, 26773), (224, 26782), (226, 26791), (227, 26803), (229, 26815), (230, 26830), (237, 26890), (244, 26959),

Gene: Izel\_31 Start: 24621, Stop: 26972, Start Num: 6

Candidate Starts for Izel\_31:

(Start: 6 @24621 has 14 MA's), (15, 24741), (17, 24756), (26, 24828), (28, 24849), (30, 24861), (33, 24888), (35, 24897), (51, 25083), (63, 25146), (68, 25215), (71, 25242), (79, 25317), (81, 25338), (100, 25473), (106, 25554), (108, 25569), (109, 25578), (111, 25584), (124, 25707), (137, 25863), (140, 25881), (141, 25896), (149, 25980), (151, 25998), (152, 26007), (153, 26016), (161, 26163), (162, 26175), (169, 26241), (173, 26283), (176, 26307), (179, 26340), (187, 26394), (190, 26433), (192, 26445), (199, 26577), (204, 26622), (218, 26748), (222, 26772), (224, 26781), (226, 26790), (227, 26802), (229, 26814), (230, 26829), (237, 26889), (244, 26958),

Gene: Jamie19\_20 Start: 17560, Stop: 19866, Start Num: 3

Candidate Starts for Jamie19\_20:

(1, 17548), (Start: 3 @17560 has 13 MA's), (7, 17572), (18, 17683), (22, 17707), (23, 17710), (24, 17719), (45, 17920), (51, 17992), (53, 18004), (57, 18025), (60, 18037), (76, 18205), (81, 18253), (83, 18268), (86, 18289), (87, 18304), (89, 18331), (93, 18346), (94, 18355), (99, 18382), (101, 18388), (103, 18433), (104, 18442), (106, 18457), (108, 18469), (109, 18478), (111, 18484), (112, 18493), (115, 18520), (117, 18538), (124, 18607), (130, 18697), (143, 18814), (149, 18880), (151, 18898), (153, 18916), (161, 19063), (162, 19075), (165, 19102), (167, 19117), (168, 19120), (173, 19183), (174, 19192), (176, 19207), (184, 19273), (191, 19336), (192, 19345), (194, 19399), (197, 19471), (200, 19492), (205, 19528), (206, 19534), (208, 19546), (209, 19549), (212, 19588), (218, 19651), (220, 19660), (223, 19678),

Gene: Jebeks\_21 Start: 19023, Stop: 21284, Start Num: 4

Candidate Starts for Jebeks\_21:

(Start: 4 @19023 has 32 MA's), (Start: 6 @19032 has 14 MA's), (23, 19176), (51, 19449), (53, 19461), (57, 19482), (62, 19506), (68, 19581), (75, 19653), (79, 19683), (83, 19719), (89, 19782), (93, 19797), (98, 19824), (99, 19830), (106, 19905), (109, 19929), (111, 19935), (117, 19989), (118, 19995), (143, 20265), (149, 20331), (151, 20349), (153, 20367), (162, 20526), (165, 20553), (168, 20571), (171, 20598), (173, 20634), (175, 20652), (176, 20658), (178, 20685), (179, 20691), (185, 20733), (196, 20874), (197, 20925), (216, 21069), (222, 21105), (223, 21108), (230, 21156), (234, 21180), (237, 21216), (238, 21219), (239, 21228), (242, 21264), (243, 21279),

Gene: Jung\_21 Start: 18964, Stop: 21225, Start Num: 4

Candidate Starts for Jung\_21:

(Start: 4 @18964 has 32 MA's), (Start: 6 @18973 has 14 MA's), (23, 19117), (51, 19390), (53, 19402), (57, 19423), (61, 19444), (68, 19522), (75, 19594), (79, 19624), (83, 19660), (89, 19723), (93, 19738), (99, 19771), (100, 19774), (106, 19846), (109, 19870), (111, 19876), (117, 19930), (118, 19936), (143, 20206), (149, 20272), (151, 20290), (153, 20308), (162, 20467), (168, 20512), (171, 20539), (173, 20575), (175, 20593), (176, 20599), (178, 20626), (179, 20632), (185, 20674), (196, 20815), (197, 20866), (216, 21010), (222, 21046), (223, 21049), (230, 21097), (234, 21121), (237, 21157), (238, 21160), (239, 21169), (242, 21205), (243, 21220),

Gene: Juniormint\_21 Start: 19064, Stop: 21325, Start Num: 4

Candidate Starts for Juniormint\_21:

(Start: 4 @19064 has 32 MA's), (Start: 6 @19073 has 14 MA's), (23, 19217), (51, 19490), (53, 19502), (57, 19523), (62, 19547), (68, 19622), (75, 19694), (79, 19724), (83, 19760), (89, 19823), (93, 19838), (98, 19865), (99, 19871), (106, 19946), (109, 19970), (111, 19976), (117, 20030), (118, 20036), (143, 20306), (149, 20372), (151, 20390), (153, 20408), (162, 20567), (165, 20594), (168, 20612), (171, 20639), (173, 20675), (175, 20693), (176, 20699), (178, 20726), (179, 20732), (185, 20774), (196, 20915), (197, 20966), (216, 21110), (222, 21146), (223, 21149), (230, 21197), (234, 21221), (237, 21257), (238, 21260), (239, 21269), (242, 21305), (243, 21320),

Gene: Kari\_21 Start: 19038, Stop: 21299, Start Num: 4

Candidate Starts for Kari\_21:

(Start: 4 @19038 has 32 MA's), (Start: 6 @19047 has 14 MA's), (23, 19191), (51, 19464), (53, 19476), (57, 19497), (62, 19521), (68, 19596), (75, 19668), (79, 19698), (83, 19734), (89, 19797), (93, 19812), (98, 19839), (99, 19845), (106, 19920), (109, 19944), (111, 19950), (117, 20004), (118, 20010), (143, 20280), (149, 20346), (151, 20364), (153, 20382), (162, 20541), (165, 20568), (168, 20586), (171, 20613), (173, 20649), (175, 20667), (176, 20673), (178, 20700), (179, 20706), (185, 20748), (196, 20889), (197, 20940), (216, 21084), (222, 21120), (223, 21123), (230, 21171), (234, 21195), (237, 21231), (238, 21234), (239, 21243), (242, 21279), (243, 21294),

Gene: KleverKiS\_30 Start: 24605, Stop: 26953, Start Num: 6

Candidate Starts for KleverKiS\_30:

(Start: 6 @24605 has 14 MA's), (15, 24725), (17, 24740), (26, 24812), (28, 24833), (30, 24845), (33, 24872), (35, 24881), (38, 24911), (40, 24938), (42, 24965), (50, 25061), (51, 25067), (55, 25091), (65, 25145), (71, 25226), (78, 25298), (79, 25301), (81, 25322), (100, 25457), (101, 25460), (106, 25538), (111, 25565), (115, 25601), (116, 25604), (118, 25625), (132, 25790), (136, 25826), (137, 25844), (141, 25877), (149, 25961), (151, 25979), (152, 25988), (161, 26144), (162, 26156), (169, 26222), (173, 26264), (176, 26288), (179, 26321), (187, 26375), (190, 26414), (192, 26426), (199, 26558), (204, 26603), (218, 26729), (222, 26753), (224, 26762), (226, 26771), (227, 26783), (229, 26795), (230, 26810), (237, 26870), (244, 26939),

Gene: Ksquared\_21 Start: 19060, Stop: 21321, Start Num: 4

Candidate Starts for Ksquared\_21:

(Start: 4 @19060 has 32 MA's), (Start: 6 @19069 has 14 MA's), (23, 19213), (51, 19486), (53, 19498), (57, 19519), (62, 19543), (68, 19618), (75, 19690), (79, 19720), (83, 19756), (89, 19819), (93, 19834), (98, 19861), (99, 19867), (106, 19942), (109, 19966), (111, 19972), (117, 20026), (118, 20032), (143, 20302), (149, 20368), (151, 20386), (153, 20404), (162, 20563), (165, 20590), (168, 20608), (171, 20635), (173, 20671), (175, 20689), (176, 20695), (178, 20722), (179, 20728), (185, 20770), (196, 20911), (197, 20962), (216, 21106), (222, 21142), (223, 21145), (230, 21193), (234, 21217), (237, 21253), (238, 21256), (239, 21265), (242, 21301), (243, 21316),

Gene: Langerak\_21 Start: 19022, Stop: 21283, Start Num: 4

Candidate Starts for Langerak\_21:

(Start: 4 @19022 has 32 MA's), (Start: 6 @19031 has 14 MA's), (23, 19175), (51, 19448), (53, 19460), (57, 19481), (62, 19505), (68, 19580), (75, 19652), (79, 19682), (83, 19718), (89, 19781), (93, 19796), (98, 19823), (99, 19829), (106, 19904), (109, 19928), (111, 19934), (117, 19988), (118, 19994), (143, 20264), (149, 20330), (151, 20348), (153, 20366), (162, 20525), (165, 20552), (168, 20570), (171, 20597), (173, 20633), (175, 20651), (176, 20657), (178, 20684), (179, 20690), (185, 20732), (196, 20873), (197, 20924), (216, 21068), (222, 21104), (223, 21107), (230, 21155), (234, 21179), (237, 21215), (238, 21218), (239, 21227), (242, 21263), (243, 21278),

Gene: Laurie\_32 Start: 29962, Stop: 32097, Start Num: 20

Candidate Starts for Laurie\_32:

(Start: 20 @29962 has 1 MA's), (27, 30016), (32, 30055), (34, 30073), (37, 30100), (40, 30124), (41, 30127), (44, 30160), (54, 30268), (58, 30289), (59, 30292), (66, 30346), (73, 30406), (74, 30430), (80, 30466), (84, 30514), (87, 30535), (91, 30574), (97, 30613), (100, 30628), (103, 30682), (105, 30694), (107, 30718), (110, 30742), (112, 30754), (114, 30769), (116, 30784), (119, 30826), (121, 30844), (125, 30883), (126, 30907), (143, 31078), (149, 31144), (151, 31162), (153, 31180), (162, 31339), (165, 31366), (168, 31384), (171, 31411), (173, 31447), (175, 31465), (176, 31471), (178, 31498), (179, 31504), (185, 31546), (196, 31687), (197, 31738), (216, 31882), (222, 31918), (223, 31921), (230, 31969), (234, 31993), (237, 32029), (238, 32032), (239, 32041), (242, 32077), (243, 32092),

Gene: LilhomieP\_29 Start: 24622, Stop: 26973, Start Num: 6

Candidate Starts for LilhomieP\_29:

(Start: 6 @24622 has 14 MA's), (15, 24742), (17, 24757), (26, 24829), (28, 24850), (30, 24862), (33, 24889), (35, 24898), (51, 25084), (63, 25147), (68, 25216), (71, 25243), (78, 25315), (79, 25318), (81, 25339), (100, 25474), (106, 25555), (108, 25570), (109, 25579), (111, 25585), (124, 25708), (137, 25864), (140, 25882), (141, 25897), (149, 25981), (151, 25999), (152, 26008), (153, 26017), (161, 26164), (162, 26176), (169, 26242), (173, 26284), (176, 26308), (179, 26341), (187, 26395), (190, 26434), (192, 26446), (199, 26578), (204, 26623), (218, 26749), (222, 26773), (224, 26782), (226, 26791), (227, 26803), (229, 26815), (230, 26830), (237, 26890), (244, 26959),

Gene: LordVader\_20 Start: 17314, Stop: 19476, Start Num: 5

Candidate Starts for LordVader\_20:

(Start: 5 @17314 has 2 MA's), (8, 17335), (10, 17356), (14, 17395), (19, 17464), (22, 17473), (23, 17476), (25, 17494), (28, 17527), (31, 17542), (45, 17644), (49, 17701), (52, 17725), (64, 17782), (76, 17929), (81, 17977), (83, 17992), (86, 18013), (89, 18055), (93, 18070), (94, 18079), (99, 18106), (101, 18112), (106, 18181), (109, 18202), (111, 18208), (112, 18217), (115, 18244), (143, 18538), (146, 18565), (149, 18604), (151, 18622), (153, 18640), (157, 18733), (176, 18865), (183, 18925), (197, 19132), (202, 19159), (203, 19180), (213, 19243), (219, 19282), (222, 19300), (231, 19348), (234, 19366), (235, 19372),

Gene: Majeke\_21 Start: 19044, Stop: 21305, Start Num: 4

Candidate Starts for Majeke\_21:

(Start: 4 @19044 has 32 MA's), (23, 19197), (51, 19470), (53, 19482), (57, 19503), (62, 19527), (68, 19602), (75, 19674), (79, 19704), (83, 19740), (89, 19803), (93, 19818), (98, 19845), (99, 19851), (106, 19926), (109, 19950), (111, 19956), (113, 19968), (117, 20010), (118, 20016), (143, 20286), (149, 20352), (151, 20370), (153, 20388), (162, 20547), (165, 20574), (168, 20592), (171, 20619), (173, 20655), (175, 20673), (176, 20679), (178, 20706), (179, 20712), (185, 20754), (196, 20895), (197, 20946), (216, 21090), (222, 21126), (223, 21129), (230, 21177), (234, 21201), (237, 21237), (238, 21240), (239, 21249), (242, 21285), (243, 21300),

Gene: Malithi\_21 Start: 18963, Stop: 21224, Start Num: 4

Candidate Starts for Malithi\_21:

(Start: 4 @18963 has 32 MA's), (Start: 6 @18972 has 14 MA's), (23, 19116), (50, 19383), (51, 19389), (53, 19401), (57, 19422), (62, 19446), (68, 19521), (75, 19593), (79, 19623), (83, 19659), (89, 19722),

(93, 19737), (98, 19764), (99, 19770), (106, 19845), (109, 19869), (111, 19875), (117, 19929), (118, 19935), (143, 20205), (149, 20271), (151, 20289), (153, 20307), (162, 20466), (165, 20493), (168, 20511), (171, 20538), (173, 20574), (175, 20592), (176, 20598), (178, 20625), (179, 20631), (185, 20673), (196, 20814), (197, 20865), (216, 21009), (222, 21045), (223, 21048), (230, 21096), (234, 21120), (237, 21156), (238, 21159), (239, 21168), (242, 21204), (243, 21219),

Gene: Mangethe\_21 Start: 19044, Stop: 21305, Start Num: 4

Candidate Starts for Mangethe\_21:

(Start: 4 @19044 has 32 MA's), (23, 19197), (51, 19470), (53, 19482), (57, 19503), (62, 19527), (68, 19602), (75, 19674), (79, 19704), (83, 19740), (89, 19803), (93, 19818), (98, 19845), (99, 19851), (106, 19926), (109, 19950), (111, 19956), (113, 19968), (117, 20010), (118, 20016), (143, 20286), (149, 20352), (151, 20370), (153, 20388), (162, 20547), (165, 20574), (168, 20592), (171, 20619), (173, 20655), (175, 20673), (176, 20679), (178, 20706), (179, 20712), (185, 20754), (196, 20895), (197, 20946), (216, 21090), (222, 21126), (223, 21129), (230, 21177), (234, 21201), (237, 21237), (238, 21240), (239, 21249), (242, 21285), (243, 21300),

Gene: Megabear\_24 Start: 27160, Stop: 29289, Start Num: 21

Candidate Starts for Megabear\_24:

(Start: 21 @27160 has 4 MA's), (29, 27229), (34, 27262), (36, 27283), (43, 27340), (46, 27370), (47, 27388), (58, 27481), (59, 27484), (66, 27538), (74, 27622), (80, 27658), (81, 27676), (82, 27679), (87, 27727), (91, 27766), (96, 27802), (100, 27820), (103, 27874), (105, 27886), (107, 27910), (110, 27934), (112, 27946), (114, 27961), (116, 27976), (119, 28018), (125, 28075), (126, 28099), (143, 28270), (149, 28336), (151, 28354), (153, 28372), (162, 28531), (165, 28558), (168, 28576), (171, 28603), (173, 28639), (175, 28657), (176, 28663), (178, 28690), (179, 28696), (185, 28738), (196, 28879), (197, 28930), (216, 29074), (222, 29110), (223, 29113), (230, 29161), (234, 29185), (237, 29221), (238, 29224), (239, 29233), (242, 29269), (243, 29284),

Gene: MilanaBonita\_19 Start: 18067, Stop: 20265, Start Num: 5

Candidate Starts for MilanaBonita\_19:

(2, 18055), (Start: 5 @18067 has 2 MA's), (8, 18088), (10, 18109), (14, 18148), (19, 18217), (22, 18226), (23, 18229), (28, 18280), (31, 18295), (39, 18370), (51, 18505), (53, 18517), (57, 18538), (64, 18571), (76, 18718), (83, 18781), (88, 18820), (89, 18844), (93, 18859), (94, 18868), (99, 18895), (100, 18898), (101, 18901), (106, 18970), (109, 18991), (111, 18997), (115, 19033), (117, 19051), (143, 19327), (149, 19393), (151, 19411), (153, 19429), (162, 19588), (183, 19714), (195, 19855), (196, 19870), (197, 19921), (202, 19948), (203, 19969), (219, 20071), (221, 20086), (223, 20092), (231, 20137), (234, 20155), (235, 20161), (240, 20224),

Gene: Ms6\_18 Start: 17407, Stop: 19719, Start Num: 3

Candidate Starts for Ms6\_18:

(1, 17395), (Start: 3 @17407 has 13 MA's), (7, 17428), (9, 17449), (12, 17488), (19, 17557), (22, 17566), (23, 17569), (28, 17620), (31, 17635), (39, 17710), (51, 17845), (53, 17857), (57, 17878), (64, 17911), (76, 18058), (81, 18106), (83, 18121), (86, 18142), (87, 18157), (89, 18184), (93, 18199), (94, 18208), (99, 18235), (101, 18241), (103, 18286), (104, 18295), (106, 18310), (108, 18322), (109, 18331), (111, 18337), (112, 18346), (115, 18373), (117, 18391), (124, 18460), (130, 18550), (143, 18667), (149, 18733), (151, 18751), (153, 18769), (161, 18916), (162, 18928), (165, 18955), (167, 18970), (168, 18973), (173, 19036), (174, 19045), (176, 19060), (184, 19126), (191, 19189), (192, 19198), (194, 19252), (197, 19324), (200, 19345), (205, 19381), (206, 19387), (208, 19399), (209, 19402), (212, 19441), (218, 19504), (220, 19513), (223, 19531),

Gene: Necropolis\_21 Start: 19038, Stop: 21299, Start Num: 4

Candidate Starts for Necropolis\_21:

(Start: 4 @19038 has 32 MA's), (Start: 6 @19047 has 14 MA's), (23, 19191), (51, 19464), (53, 19476), (57, 19497), (62, 19521), (68, 19596), (75, 19668), (79, 19698), (83, 19734), (89, 19797), (93, 19812),

(98, 19839), (99, 19845), (106, 19920), (109, 19944), (111, 19950), (117, 20004), (118, 20010), (143, 20280), (149, 20346), (151, 20364), (153, 20382), (162, 20541), (165, 20568), (168, 20586), (171, 20613), (173, 20649), (175, 20667), (176, 20673), (178, 20700), (179, 20706), (185, 20748), (196, 20889), (197, 20940), (216, 21084), (222, 21120), (223, 21123), (230, 21171), (234, 21195), (237, 21231), (238, 21234), (239, 21243), (242, 21279), (243, 21294),

Gene: Nenae\_20 Start: 17560, Stop: 19866, Start Num: 3

Candidate Starts for Nenae\_20:

(1, 17548), (Start: 3 @17560 has 13 MA's), (7, 17572), (18, 17683), (22, 17707), (23, 17710), (24, 17719), (51, 17992), (53, 18004), (57, 18025), (65, 18070), (76, 18205), (81, 18253), (83, 18268), (86, 18289), (88, 18307), (89, 18331), (93, 18346), (94, 18355), (99, 18382), (101, 18388), (103, 18433), (106, 18457), (108, 18469), (109, 18478), (111, 18484), (115, 18520), (117, 18538), (124, 18607), (130, 18697), (139, 18772), (143, 18814), (150, 18895), (151, 18898), (153, 18916), (156, 18982), (161, 19063), (162, 19075), (165, 19102), (167, 19117), (168, 19120), (173, 19183), (174, 19192), (176, 19207), (184, 19273), (191, 19336), (192, 19345), (194, 19399), (197, 19471), (200, 19492), (205, 19528), (206, 19534), (208, 19546), (209, 19549), (212, 19588), (218, 19651), (220, 19660), (223, 19678),

Gene: Okabe\_20 Start: 18189, Stop: 20462, Start Num: 4

Candidate Starts for Okabe\_20:

(Start: 4 @18189 has 32 MA's), (8, 18210), (10, 18231), (13, 18270), (19, 18339), (22, 18348), (23, 18351), (25, 18369), (28, 18402), (39, 18492), (51, 18627), (53, 18639), (57, 18660), (62, 18684), (68, 18759), (75, 18831), (79, 18861), (83, 18897), (89, 18960), (93, 18975), (98, 19002), (99, 19008), (106, 19083), (109, 19107), (111, 19113), (117, 19167), (118, 19173), (143, 19443), (149, 19509), (153, 19545), (162, 19704), (165, 19731), (168, 19749), (171, 19776), (173, 19812), (175, 19830), (176, 19836), (178, 19863), (179, 19869), (185, 19911), (196, 20052), (197, 20103), (216, 20247), (222, 20283), (223, 20286), (230, 20334), (234, 20358), (237, 20394), (238, 20397), (239, 20406), (242, 20442), (243, 20457),

Gene: PeanutPie\_21 Start: 19045, Stop: 21306, Start Num: 4

Candidate Starts for PeanutPie\_21:

(Start: 4 @19045 has 32 MA's), (23, 19198), (51, 19471), (53, 19483), (57, 19504), (62, 19528), (68, 19603), (75, 19675), (79, 19705), (83, 19741), (89, 19804), (93, 19819), (98, 19846), (99, 19852), (106, 19927), (109, 19951), (111, 19957), (117, 20011), (118, 20017), (143, 20287), (149, 20353), (151, 20371), (153, 20389), (162, 20548), (165, 20575), (168, 20593), (171, 20620), (173, 20656), (175, 20674), (176, 20680), (178, 20707), (179, 20713), (185, 20755), (196, 20896), (197, 20947), (216, 21091), (222, 21127), (223, 21130), (230, 21178), (234, 21202), (237, 21238), (238, 21241), (239, 21250), (242, 21286), (243, 21301),

Gene: PegLeg\_30 Start: 24621, Stop: 26972, Start Num: 6

Candidate Starts for PegLeg\_30:

(Start: 6 @24621 has 14 MA's), (15, 24741), (17, 24756), (26, 24828), (28, 24849), (30, 24861), (33, 24888), (35, 24897), (51, 25083), (63, 25146), (68, 25215), (71, 25242), (78, 25314), (79, 25317), (81, 25338), (100, 25473), (106, 25554), (108, 25569), (109, 25578), (111, 25584), (124, 25707), (137, 25863), (140, 25881), (141, 25896), (149, 25980), (151, 25998), (152, 26007), (161, 26163), (162, 26175), (169, 26241), (173, 26283), (176, 26307), (179, 26340), (187, 26394), (190, 26433), (192, 26445), (199, 26577), (204, 26622), (218, 26748), (222, 26772), (224, 26781), (226, 26790), (227, 26802), (229, 26814), (230, 26829), (237, 26889), (244, 26958),

Gene: PhancyPhin\_20 Start: 17557, Stop: 19863, Start Num: 3

Candidate Starts for PhancyPhin\_20:

(1, 17545), (Start: 3 @17557 has 13 MA's), (7, 17569), (18, 17680), (22, 17704), (23, 17707), (24, 17716), (51, 17989), (53, 18001), (57, 18022), (65, 18067), (76, 18202), (81, 18250), (83, 18265), (86,

18286), (88, 18304), (89, 18328), (93, 18343), (94, 18352), (99, 18379), (101, 18385), (103, 18430), (106, 18454), (108, 18466), (109, 18475), (111, 18481), (115, 18517), (117, 18535), (124, 18604), (130, 18694), (139, 18769), (143, 18811), (150, 18892), (151, 18895), (153, 18913), (156, 18979), (161, 19060), (162, 19072), (165, 19099), (167, 19114), (168, 19117), (173, 19180), (174, 19189), (176, 19204), (184, 19270), (191, 19333), (192, 19342), (194, 19396), (197, 19468), (200, 19489), (205, 19525), (206, 19531), (208, 19543), (209, 19546), (212, 19585), (218, 19648), (220, 19657), (223, 19675),

Gene: Phegasus\_21 Start: 19044, Stop: 21305, Start Num: 4

Candidate Starts for Phegasus\_21:

(Start: 4 @19044 has 32 MA's), (Start: 6 @19053 has 14 MA's), (23, 19197), (51, 19470), (53, 19482), (57, 19503), (62, 19527), (68, 19602), (75, 19674), (79, 19704), (83, 19740), (89, 19803), (93, 19818), (98, 19845), (99, 19851), (106, 19926), (109, 19950), (111, 19956), (117, 20010), (118, 20016), (143, 20286), (149, 20352), (151, 20370), (153, 20388), (162, 20547), (165, 20574), (168, 20592), (171, 20619), (173, 20655), (175, 20673), (176, 20679), (178, 20706), (179, 20712), (185, 20754), (196, 20895), (197, 20946), (216, 21090), (222, 21126), (223, 21129), (230, 21177), (234, 21201), (237, 21237), (238, 21240), (239, 21249), (242, 21285), (243, 21300),

Gene: Polkaroo\_21 Start: 19054, Stop: 21315, Start Num: 4

Candidate Starts for Polkaroo\_21:

(Start: 4 @19054 has 32 MA's), (Start: 6 @19063 has 14 MA's), (23, 19207), (51, 19480), (53, 19492), (57, 19513), (62, 19537), (68, 19612), (75, 19684), (79, 19714), (83, 19750), (89, 19813), (93, 19828), (98, 19855), (99, 19861), (106, 19936), (109, 19960), (111, 19966), (117, 20020), (118, 20026), (143, 20296), (149, 20362), (151, 20380), (153, 20398), (162, 20557), (165, 20584), (168, 20602), (171, 20629), (173, 20665), (175, 20683), (176, 20689), (178, 20716), (179, 20722), (185, 20764), (196, 20905), (197, 20956), (216, 21100), (222, 21136), (223, 21139), (230, 21187), (234, 21211), (237, 21247), (238, 21250), (239, 21259), (242, 21295), (243, 21310),

Gene: Purgamenstris\_20 Start: 17560, Stop: 19866, Start Num: 3

Candidate Starts for Purgamenstris\_20:

(1, 17548), (Start: 3 @17560 has 13 MA's), (7, 17572), (18, 17683), (22, 17707), (23, 17710), (24, 17719), (51, 17992), (53, 18004), (57, 18025), (65, 18070), (76, 18205), (81, 18253), (83, 18268), (86, 18289), (88, 18307), (89, 18331), (93, 18346), (94, 18355), (99, 18382), (101, 18388), (103, 18433), (106, 18457), (108, 18469), (109, 18478), (111, 18484), (115, 18520), (117, 18538), (124, 18607), (130, 18697), (139, 18772), (143, 18814), (150, 18895), (151, 18898), (153, 18916), (156, 18982), (161, 19063), (162, 19075), (165, 19102), (167, 19117), (168, 19120), (173, 19183), (174, 19192), (176, 19207), (184, 19273), (191, 19336), (192, 19345), (194, 19399), (197, 19471), (200, 19492), (205, 19528), (206, 19534), (208, 19546), (209, 19549), (212, 19588), (218, 19651), (220, 19660), (223, 19678),

Gene: QueenHazel\_21 Start: 19085, Stop: 21412, Start Num: 4

Candidate Starts for QueenHazel\_21:

(Start: 4 @19085 has 32 MA's), (8, 19109), (11, 19145), (16, 19220), (18, 19229), (23, 19256), (39, 19403), (51, 19538), (53, 19550), (57, 19571), (64, 19604), (76, 19751), (83, 19814), (88, 19853), (89, 19877), (93, 19892), (94, 19901), (99, 19928), (100, 19931), (101, 19934), (106, 20003), (109, 20024), (111, 20030), (115, 20066), (117, 20084), (143, 20360), (146, 20387), (149, 20426), (151, 20444), (162, 20621), (169, 20687), (173, 20729), (174, 20738), (176, 20753), (184, 20819), (191, 20882), (192, 20891), (197, 21017), (200, 21038), (205, 21074), (206, 21080), (208, 21092), (209, 21095), (212, 21134), (218, 21197), (220, 21206), (223, 21224),

Gene: Rebel\_20 Start: 17557, Stop: 19857, Start Num: 3

Candidate Starts for Rebel\_20:

(1, 17545), (Start: 3 @17557 has 13 MA's), (7, 17569), (18, 17680), (22, 17704), (23, 17707), (24, 17716), (51, 17989), (53, 18001), (57, 18022), (62, 18046), (68, 18121), (75, 18193), (79, 18223), (83, 18259), (89, 18322), (93, 18337), (98, 18364), (99, 18370), (100, 18373), (106, 18445), (109, 18469), (111, 18475), (117, 18529), (118, 18535), (143, 18805), (149, 18871), (151, 18889), (153, 18907), (162, 19066), (165, 19093), (167, 19108), (168, 19111), (173, 19174), (174, 19183), (176, 19198), (184, 19264), (191, 19327), (192, 19336), (194, 19390), (197, 19462), (200, 19483), (205, 19519), (206, 19525), (208, 19537), (209, 19540), (212, 19579), (218, 19642), (220, 19651), (223, 19669),

Gene: Redi\_20 Start: 17560, Stop: 19866, Start Num: 3

Candidate Starts for Redi\_20:

(1, 17548), (Start: 3 @17560 has 13 MA's), (7, 17572), (18, 17683), (22, 17707), (23, 17710), (24, 17719), (51, 17992), (53, 18004), (57, 18025), (65, 18070), (76, 18205), (81, 18253), (83, 18268), (86, 18289), (88, 18307), (89, 18331), (93, 18346), (94, 18355), (99, 18382), (101, 18388), (103, 18433), (106, 18457), (108, 18469), (109, 18478), (111, 18484), (115, 18520), (117, 18538), (124, 18607), (130, 18697), (139, 18772), (143, 18814), (150, 18895), (151, 18898), (153, 18916), (156, 18982), (161, 19063), (162, 19075), (165, 19102), (167, 19117), (168, 19120), (173, 19183), (174, 19192), (176, 19207), (184, 19273), (191, 19336), (192, 19345), (194, 19399), (197, 19471), (200, 19492), (205, 19528), (206, 19534), (208, 19546), (209, 19549), (212, 19588), (218, 19651), (220, 19660), (223, 19678),

Gene: ShrimpFriedEgg\_20 Start: 17560, Stop: 19866, Start Num: 3

Candidate Starts for ShrimpFriedEgg\_20:

(1, 17548), (Start: 3 @17560 has 13 MA's), (7, 17572), (18, 17683), (22, 17707), (23, 17710), (24, 17719), (51, 17992), (53, 18004), (57, 18025), (65, 18070), (76, 18205), (81, 18253), (83, 18268), (86, 18289), (88, 18307), (89, 18331), (93, 18346), (94, 18355), (99, 18382), (101, 18388), (103, 18433), (106, 18457), (108, 18469), (109, 18478), (111, 18484), (115, 18520), (117, 18538), (124, 18607), (130, 18697), (139, 18772), (143, 18814), (150, 18895), (151, 18898), (153, 18916), (156, 18982), (161, 19063), (162, 19075), (165, 19102), (167, 19117), (168, 19120), (173, 19183), (174, 19192), (176, 19207), (184, 19273), (191, 19336), (192, 19345), (194, 19399), (197, 19471), (200, 19492), (205, 19528), (206, 19534), (208, 19546), (209, 19549), (212, 19588), (218, 19651), (220, 19660), (223, 19678),

Gene: Skinny\_31 Start: 24622, Stop: 27432, Start Num: 6

Candidate Starts for Skinny\_31:

(Start: 6 @24622 has 14 MA's), (15, 24742), (17, 24757), (26, 24829), (28, 24850), (30, 24862), (33, 24889), (35, 24898), (51, 25084), (63, 25147), (68, 25216), (71, 25243), (78, 25315), (79, 25318), (81, 25339), (100, 25474), (106, 25555), (108, 25570), (109, 25579), (111, 25585), (124, 25708), (137, 25864), (140, 25882), (141, 25897), (143, 25915), (145, 25939), (146, 25942), (147, 25963), (148, 25984), (151, 26008), (154, 26029), (155, 26038), (157, 26119), (158, 26146), (159, 26161), (164, 26236), (166, 26242), (169, 26278), (172, 26305), (177, 26365), (181, 26389), (186, 26425), (188, 26434), (189, 26452), (194, 26554), (198, 26632), (204, 26683), (207, 26707), (210, 26722), (214, 26767), (215, 26782), (217, 26809), (218, 26818), (222, 26842), (224, 26851), (228, 26881), (233, 26923), (236, 26947), (241, 27022), (245, 27076), (246, 27100), (247, 27148), (248, 27166), (249, 27184), (250, 27196), (251, 27232), (252, 27271), (253, 27298), (254, 27334), (255, 27352), (256, 27388), (257, 27394), (258, 27424),

Gene: SlimJimmy\_29 Start: 24608, Stop: 26956, Start Num: 6

Candidate Starts for SlimJimmy\_29:

(Start: 6 @24608 has 14 MA's), (15, 24728), (17, 24743), (26, 24815), (28, 24836), (30, 24848), (33, 24875), (35, 24884), (38, 24914), (40, 24941), (42, 24968), (50, 25064), (51, 25070), (55, 25094), (65, 25148), (70, 25211), (71, 25229), (78, 25301), (79, 25304), (81, 25325), (100, 25460), (101, 25463), (106, 25541), (111, 25568), (115, 25604), (116, 25607), (118, 25628), (132, 25793), (136, 25829), (137, 25847), (141, 25880), (149, 25964), (151, 25982), (152, 25991), (153, 26000), (161, 26147),

(162, 26159), (169, 26225), (173, 26267), (176, 26291), (179, 26324), (187, 26378), (190, 26417), (192, 26429), (199, 26561), (204, 26606), (218, 26732), (222, 26756), (224, 26765), (226, 26774), (227, 26786), (229, 26798), (230, 26813), (237, 26873), (244, 26942),

Gene: Snekmaggedon\_20 Start: 17560, Stop: 19866, Start Num: 3

Candidate Starts for Snekmaggedon\_20:

(1, 17548), (Start: 3 @17560 has 13 MA's), (7, 17572), (18, 17683), (22, 17707), (23, 17710), (24, 17719), (45, 17920), (51, 17992), (53, 18004), (57, 18025), (60, 18037), (76, 18205), (81, 18253), (83, 18268), (86, 18289), (87, 18304), (89, 18331), (93, 18346), (94, 18355), (99, 18382), (101, 18388), (103, 18433), (104, 18442), (106, 18457), (108, 18469), (109, 18478), (111, 18484), (112, 18493), (115, 18520), (117, 18538), (124, 18607), (130, 18697), (143, 18814), (149, 18880), (151, 18898), (153, 18916), (161, 19063), (162, 19075), (165, 19102), (167, 19117), (168, 19120), (173, 19183), (174, 19192), (176, 19207), (184, 19273), (191, 19336), (192, 19345), (194, 19399), (197, 19471), (200, 19492), (205, 19528), (206, 19534), (208, 19546), (209, 19549), (212, 19588), (218, 19651), (220, 19660), (223, 19678),

Gene: Sonah\_21 Start: 19028, Stop: 21289, Start Num: 4

Candidate Starts for Sonah\_21:

(Start: 4 @19028 has 32 MA's), (Start: 6 @19037 has 14 MA's), (23, 19181), (51, 19454), (53, 19466), (57, 19487), (62, 19511), (68, 19586), (75, 19658), (79, 19688), (83, 19724), (89, 19787), (93, 19802), (98, 19829), (99, 19835), (106, 19910), (109, 19934), (111, 19940), (117, 19994), (118, 20000), (143, 20270), (149, 20336), (151, 20354), (153, 20372), (162, 20531), (165, 20558), (168, 20576), (171, 20603), (173, 20639), (175, 20657), (176, 20663), (178, 20690), (179, 20696), (185, 20738), (196, 20879), (197, 20930), (216, 21074), (222, 21110), (223, 21113), (230, 21161), (234, 21185), (237, 21221), (238, 21224), (239, 21233), (242, 21269), (243, 21284),

Gene: Spinach\_20 Start: 17560, Stop: 19866, Start Num: 3

Candidate Starts for Spinach\_20:

(1, 17548), (Start: 3 @17560 has 13 MA's), (7, 17572), (18, 17683), (22, 17707), (23, 17710), (24, 17719), (51, 17992), (53, 18004), (57, 18025), (65, 18070), (76, 18205), (81, 18253), (83, 18268), (86, 18289), (88, 18307), (89, 18331), (93, 18346), (94, 18355), (99, 18382), (101, 18388), (103, 18433), (106, 18457), (108, 18469), (109, 18478), (111, 18484), (115, 18520), (117, 18538), (124, 18607), (130, 18697), (139, 18772), (143, 18814), (150, 18895), (151, 18898), (153, 18916), (156, 18982), (161, 19063), (162, 19075), (165, 19102), (167, 19117), (168, 19120), (173, 19183), (174, 19192), (176, 19207), (184, 19273), (191, 19336), (192, 19345), (194, 19399), (197, 19471), (200, 19492), (205, 19528), (206, 19534), (208, 19546), (209, 19549), (212, 19588), (218, 19651), (220, 19660), (223, 19678),

Gene: SpongeBob\_20 Start: 17560, Stop: 19866, Start Num: 3

Candidate Starts for SpongeBob\_20:

(1, 17548), (Start: 3 @17560 has 13 MA's), (7, 17572), (18, 17683), (22, 17707), (23, 17710), (24, 17719), (45, 17920), (51, 17992), (53, 18004), (57, 18025), (60, 18037), (76, 18205), (81, 18253), (83, 18268), (86, 18289), (87, 18304), (89, 18331), (93, 18346), (94, 18355), (99, 18382), (101, 18388), (103, 18433), (104, 18442), (106, 18457), (108, 18469), (109, 18478), (111, 18484), (112, 18493), (115, 18520), (117, 18538), (124, 18607), (130, 18697), (143, 18814), (149, 18880), (151, 18898), (153, 18916), (161, 19063), (162, 19075), (165, 19102), (167, 19117), (168, 19120), (173, 19183), (174, 19192), (176, 19207), (184, 19273), (191, 19336), (192, 19345), (194, 19399), (197, 19471), (200, 19492), (205, 19528), (206, 19534), (208, 19546), (209, 19549), (212, 19588), (218, 19651), (220, 19660), (223, 19678),

Gene: StevieRay\_21 Start: 19029, Stop: 21290, Start Num: 4

Candidate Starts for StevieRay\_21:

(Start: 4 @19029 has 32 MA's), (23, 19182), (51, 19455), (53, 19467), (57, 19488), (62, 19512), (65, 19533), (68, 19587), (75, 19659), (79, 19689), (83, 19725), (89, 19788), (93, 19803), (98, 19830), (99, 19836), (106, 19911), (109, 19935), (111, 19941), (117, 19995), (118, 20001), (143, 20271), (149, 20337), (151, 20355), (153, 20373), (162, 20532), (165, 20559), (168, 20577), (171, 20604), (173, 20640), (175, 20658), (176, 20664), (178, 20691), (179, 20697), (185, 20739), (196, 20880), (197, 20931), (216, 21075), (222, 21111), (223, 21114), (230, 21162), (234, 21186), (237, 21222), (238, 21225), (239, 21234), (242, 21270), (243, 21285),

Gene: Taptic\_24 Start: 27160, Stop: 29289, Start Num: 21

Candidate Starts for Taptic\_24:

(Start: 21 @27160 has 4 MA's), (29, 27229), (34, 27262), (36, 27283), (43, 27340), (46, 27370), (47, 27388), (58, 27481), (59, 27484), (74, 27622), (80, 27658), (82, 27679), (84, 27706), (87, 27727), (91, 27766), (100, 27820), (103, 27874), (105, 27886), (107, 27910), (110, 27934), (112, 27946), (114, 27961), (116, 27976), (119, 28018), (125, 28075), (126, 28099), (143, 28270), (149, 28336), (151, 28354), (153, 28372), (162, 28531), (165, 28558), (168, 28576), (171, 28603), (173, 28639), (175, 28657), (176, 28663), (178, 28690), (179, 28696), (185, 28738), (196, 28879), (197, 28930), (216, 29074), (222, 29110), (223, 29113), (230, 29161), (234, 29185), (237, 29221), (238, 29224), (239, 29233), (242, 29269), (243, 29284),

Gene: Techage\_21 Start: 19029, Stop: 21290, Start Num: 4

Candidate Starts for Techage\_21:

(Start: 4 @19029 has 32 MA's), (Start: 6 @19038 has 14 MA's), (23, 19182), (51, 19455), (53, 19467), (57, 19488), (62, 19512), (68, 19587), (75, 19659), (79, 19689), (83, 19725), (89, 19788), (93, 19803), (98, 19830), (99, 19836), (106, 19911), (109, 19935), (111, 19941), (117, 19995), (118, 20001), (143, 20271), (149, 20337), (151, 20355), (153, 20373), (162, 20532), (165, 20559), (168, 20577), (171, 20604), (173, 20640), (175, 20658), (176, 20664), (178, 20691), (179, 20697), (185, 20739), (196, 20880), (197, 20931), (216, 21075), (222, 21111), (223, 21114), (230, 21162), (234, 21186), (237, 21222), (238, 21225), (239, 21234), (242, 21270), (243, 21285),

Gene: Thespis\_21 Start: 19038, Stop: 21299, Start Num: 4

Candidate Starts for Thespis\_21:

(Start: 4 @19038 has 32 MA's), (23, 19191), (51, 19464), (53, 19476), (57, 19497), (62, 19521), (68, 19596), (75, 19668), (79, 19698), (83, 19734), (89, 19797), (93, 19812), (98, 19839), (99, 19845), (106, 19920), (109, 19944), (111, 19950), (113, 19962), (117, 20004), (118, 20010), (143, 20280), (149, 20346), (151, 20364), (153, 20382), (162, 20541), (165, 20568), (168, 20586), (171, 20613), (173, 20649), (175, 20667), (176, 20673), (178, 20700), (179, 20706), (185, 20748), (196, 20889), (197, 20940), (216, 21084), (222, 21120), (223, 21123), (230, 21171), (234, 21195), (237, 21231), (238, 21234), (239, 21243), (242, 21279), (243, 21294),

Gene: TpudiCK\_31 Start: 24621, Stop: 26972, Start Num: 6

Candidate Starts for TpudiCK\_31:

(Start: 6 @24621 has 14 MA's), (15, 24741), (17, 24756), (26, 24828), (28, 24849), (30, 24861), (33, 24888), (35, 24897), (51, 25083), (63, 25146), (68, 25215), (71, 25242), (78, 25314), (79, 25317), (81, 25338), (100, 25473), (106, 25554), (108, 25569), (109, 25578), (111, 25584), (124, 25707), (137, 25863), (140, 25881), (141, 25896), (149, 25980), (151, 25998), (152, 26007), (153, 26016), (161, 26163), (162, 26175), (169, 26241), (173, 26283), (176, 26307), (179, 26340), (187, 26394), (190, 26433), (192, 26445), (199, 26577), (204, 26622), (218, 26748), (222, 26772), (224, 26781), (226, 26790), (227, 26802), (229, 26814), (230, 26829), (237, 26889), (244, 26958),

Gene: TyDawg\_30 Start: 24622, Stop: 26973, Start Num: 6

Candidate Starts for TyDawg\_30:

(Start: 6 @24622 has 14 MA's), (15, 24742), (17, 24757), (26, 24829), (28, 24850), (30, 24862), (33, 24889), (35, 24898), (51, 25084), (63, 25147), (68, 25216), (71, 25243), (78, 25315), (79, 25318), (81,

25339), (100, 25474), (106, 25555), (108, 25570), (109, 25579), (111, 25585), (124, 25708), (137, 25864), (140, 25882), (141, 25897), (149, 25981), (151, 25999), (152, 26008), (153, 26017), (161, 26164), (162, 26176), (169, 26242), (173, 26284), (176, 26308), (179, 26341), (187, 26395), (190, 26434), (192, 26446), (199, 26578), (204, 26623), (218, 26749), (222, 26773), (224, 26782), (226, 26791), (227, 26803), (229, 26815), (230, 26830), (237, 26890), (244, 26959),

Gene: Venti\_21 Start: 19038, Stop: 21299, Start Num: 4

Candidate Starts for Venti\_21:

(Start: 4 @19038 has 32 MA's), (23, 19191), (51, 19464), (53, 19476), (57, 19497), (62, 19521), (68, 19596), (75, 19668), (79, 19698), (89, 19797), (93, 19812), (98, 19839), (99, 19845), (106, 19920), (109, 19944), (111, 19950), (117, 20004), (118, 20010), (143, 20280), (149, 20346), (151, 20364), (153, 20382), (162, 20541), (165, 20568), (168, 20586), (171, 20613), (173, 20649), (175, 20667), (176, 20673), (178, 20700), (179, 20706), (185, 20748), (196, 20889), (197, 20940), (216, 21084), (222, 21120), (223, 21123), (230, 21171), (234, 21195), (237, 21231), (238, 21234), (239, 21243), (242, 21279), (243, 21294),

Gene: Vidya\_21 Start: 19038, Stop: 21299, Start Num: 4

Candidate Starts for Vidya\_21:

(Start: 4 @19038 has 32 MA's), (Start: 6 @19047 has 14 MA's), (23, 19191), (51, 19464), (53, 19476), (57, 19497), (62, 19521), (68, 19596), (75, 19668), (79, 19698), (83, 19734), (89, 19797), (93, 19812), (98, 19839), (99, 19845), (106, 19920), (109, 19944), (111, 19950), (117, 20004), (118, 20010), (143, 20280), (149, 20346), (151, 20364), (153, 20382), (162, 20541), (165, 20568), (168, 20586), (171, 20613), (173, 20649), (175, 20667), (176, 20673), (178, 20700), (179, 20706), (185, 20748), (196, 20889), (197, 20940), (216, 21084), (222, 21120), (223, 21123), (230, 21171), (234, 21195), (237, 21231), (238, 21234), (239, 21243), (242, 21279), (243, 21294),

Gene: Xula\_20 Start: 18717, Stop: 20930, Start Num: 4

Candidate Starts for Xula\_20:

(Start: 4 @18717 has 32 MA's), (8, 18741), (11, 18777), (16, 18852), (18, 18861), (23, 18888), (39, 19035), (51, 19170), (53, 19182), (57, 19203), (64, 19236), (76, 19383), (83, 19446), (88, 19485), (89, 19509), (93, 19524), (94, 19533), (99, 19560), (100, 19563), (101, 19566), (106, 19635), (109, 19656), (111, 19662), (115, 19698), (117, 19716), (143, 19992), (146, 20019), (149, 20058), (151, 20076), (176, 20319), (183, 20379), (195, 20520), (197, 20586), (202, 20613), (203, 20634), (219, 20736), (222, 20754), (231, 20802), (234, 20820), (235, 20826),

Gene: Zilizebeth\_21 Start: 19038, Stop: 21299, Start Num: 4

Candidate Starts for Zilizebeth\_21:

(Start: 4 @19038 has 32 MA's), (Start: 6 @19047 has 14 MA's), (23, 19191), (51, 19464), (53, 19476), (57, 19497), (62, 19521), (68, 19596), (75, 19668), (79, 19698), (83, 19734), (89, 19797), (93, 19812), (98, 19839), (99, 19845), (106, 19920), (109, 19944), (111, 19950), (117, 20004), (118, 20010), (143, 20280), (149, 20346), (151, 20364), (153, 20382), (162, 20541), (165, 20568), (168, 20586), (171, 20613), (173, 20649), (175, 20667), (176, 20673), (178, 20700), (179, 20706), (185, 20748), (196, 20889), (197, 20940), (216, 21084), (222, 21120), (223, 21123), (230, 21171), (234, 21195), (237, 21231), (238, 21234), (239, 21243), (242, 21279), (243, 21294),