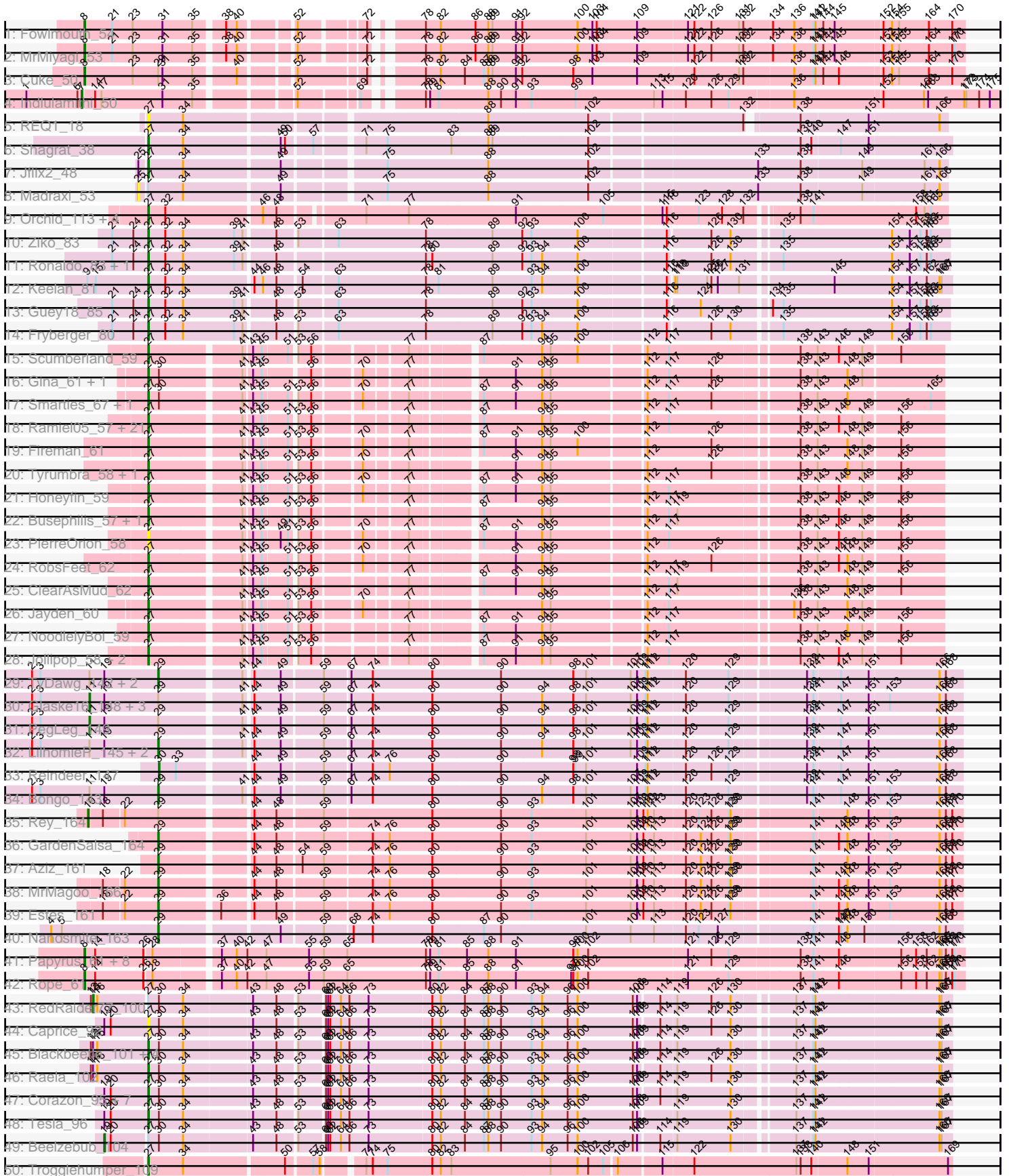


Pham 160246



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 160246 Report

This analysis was run 04/28/24 on database version 559.

Pham number 160246 has 108 members, 10 are drafts.

Phages represented in each track:

- Track 1 : Fowlmouth\_54
- Track 2 : MrMiyagi\_53
- Track 3 : Cuke\_50
- Track 4 : Indlulamithi\_50
- Track 5 : REQ1\_18
- Track 6 : Shagrat\_38
- Track 7 : Jflix2\_48
- Track 8 : Madraxi\_53
- Track 9 : Orchid\_113, Kampe\_114, RobinSparkles\_123, Gibbles\_116, PatrickStar\_114
- Track 10 : Ziko\_83
- Track 11 : Ronaldo\_83, Volt\_83
- Track 12 : Keelan\_81
- Track 13 : Guey18\_85
- Track 14 : Fryberger\_80
- Track 15 : Scumberland\_59
- Track 16 : Gina\_61, Teamocil\_61
- Track 17 : Smarties\_67, Ariadne\_67
- Track 18 : Ramiel05\_57, Kowalski\_57, Selwyn23\_59, Crisis\_59, Hermeonysus\_57, Quhwah\_62, Antares\_58, Jefe\_58, Ganandorf\_57, Piperis\_59, Cranjis\_59, EarickHC\_59, KaiHaiDragon\_59, LittleFortune\_60, Phorgeous\_58, Onika\_57, Yeti\_58, PiperSansNom\_59, BrazzalePHS\_57, CrazyRich\_57, Pulchra\_60, Savannah\_57
- Track 19 : Fireman\_61
- Track 20 : Tyumbra\_58, Metamorphoo\_61
- Track 21 : Honeyfin\_59
- Track 22 : Busephilis\_57, Phrancesco\_58
- Track 23 : PierreOrion\_58
- Track 24 : RobsFeet\_62
- Track 25 : ClearAsMud\_62
- Track 26 : Jayden\_60
- Track 27 : NoodlelyBoi\_59
- Track 28 : Jollipop\_58, Shotgun\_58, Paschalis\_58
- Track 29 : TyDawg\_142, Auspice\_149, IPhane7\_146
- Track 30 : Glaske16\_148, Dulcita\_146, Skinny\_152, Diminimus\_146
- Track 31 : PegLeg\_149
- Track 32 : LilhomieP\_145, Bricole\_151, SlimJimmy\_146

- Track 33 : Reindeer\_147
- Track 34 : Bongo\_143
- Track 35 : Rey\_164
- Track 36 : GardenSalsa\_164
- Track 37 : Aziz\_161
- Track 38 : MrMagoo\_166
- Track 39 : Estes\_161
- Track 40 : Nanosmite\_163
- Track 41 : Papyrus\_61, Riparian\_63, Zenon\_62, Candle\_59, Yelo\_60, Send513\_61, Weiss13\_60, MontyDev\_61, Nilo\_63
- Track 42 : Rope\_61
- Track 43 : RedRaider77\_100
- Track 44 : Caprice\_92
- Track 45 : Blackbeetle\_101, Poise\_101, MosMoris\_96, JoieB\_101, Gattaca\_99
- Track 46 : Raela\_102
- Track 47 : Corazon\_95, LittleLaf\_98, Lilbit\_98, Huphlepuuff\_102, Pringar\_96, VasuNzinga\_98, Clarkson\_101, Marvin\_94
- Track 48 : Tesla\_96
- Track 49 : Beelzebub\_104
- Track 50 : Trogglehumper\_109

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

The start number called the most often in the published annotations is 27, it was called in 65 of the 98 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Antares\_58, Ariadne\_67, Blackbeetle\_101, BrazzalePHS\_57, Busephillis\_57, Caprice\_92, Clarkson\_101, ClearAsMud\_62, Corazon\_95, Cranjjs\_59, CrazyRich\_57, Crisis\_59, EarickHC\_59, Fireman\_61, Fryberger\_80, Ganandorf\_57, Gattaca\_99, Gibbles\_116, Gina\_61, Guey18\_85, Hermeonysus\_57, Honeyfin\_59, Huphlepuuff\_102, Jayden\_60, Jefe\_58, Jflix2\_48, JoieB\_101, Jollipop\_58, KaiHaiDragon\_59, Kampe\_114, Keelan\_81, Kowalski\_57, Lilbit\_98, LittleFortune\_60, LittleLaf\_98, Marvin\_94, Metamorphoo\_61, MosMoris\_96, NoodlelyBoi\_59, Onika\_57, Orchid\_113, Paschalis\_58, PatrickStar\_114, Phorgeous\_58, Phrancesco\_58, PierreOrion\_58, PiperSansNom\_59, Piperis\_59, Poise\_101, Pringar\_96, Pulchra\_60, Quhwah\_62, REQ1\_18, Raela\_102, Ramiel05\_57, RobinSparkles\_123, RobsFeet\_62, Ronaldo\_83, Savannah\_57, Scumberland\_59, Selwyn23\_59, Shagrat\_38, Shotgun\_58, Smarties\_67, Teamocil\_61, Tesla\_96, Trogglehumper\_109, Tyrumbra\_58, VasuNzinga\_98, Volt\_83, Yeti\_58, Ziko\_83,

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

- Beelzebub\_104, Madraxi\_53, RedRaider77\_100,

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

- Auspice\_149, Aziz\_161, Bongo\_143, Bricole\_151, Candle\_59, Cuke\_50, Diminimus\_146, Dulcita\_146, Estes\_161, Fowlmouth\_54, GardenSalsa\_164, Glaske16\_148, IPhane7\_146, Indlulamithi\_50, LilhomieP\_145, MontyDev\_61, MrMagoo\_166, MrMiyagi\_53, Nanosmite\_163, Nilo\_63, Papyrus\_61, PegLeg\_149, Reindeer\_147, Rey\_164, Riparian\_63, Rope\_61, Send513\_61, Skinny\_152,

SlimJimmy\_146, TyDawg\_142, Weiss13\_60, Yelo\_60, Zenon\_62,

**Summary by start number:**

Start 7:

- Found in 1 of 108 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Indlulamithi\_50 (AC),

Start 8:

- Found in 13 of 108 ( 12.0% ) of genes in pham
- Manual Annotations of this start: 11 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Candle\_59 (R), Cuke\_50 (AC), Fowlmouth\_54 (AC), MontyDev\_61 (R), MrMiyagi\_53 (AC), Nilo\_63 (R), Papyrus\_61 (R), Riparian\_63 (R), Rope\_61 (R), Send513\_61 (R), Weiss13\_60 (R), Yelo\_60 (R), Zenon\_62 (R),

Start 10:

- Found in 1 of 108 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 98
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rey\_164 (M2),

Start 11:

- Found in 12 of 108 ( 11.1% ) of genes in pham
- Manual Annotations of this start: 5 of 98
- Called 41.7% of time when present
- Phage (with cluster) where this start called: Diminimus\_146 (M1), Dulcita\_146 (M1), Glaske16\_148 (M1), PegLeg\_149 (M1), Skinny\_152 (M1),

Start 13:

- Found in 7 of 108 ( 6.5% ) of genes in pham
- Manual Annotations of this start: 1 of 98
- Called 14.3% of time when present
- Phage (with cluster) where this start called: RedRaider77\_100 (S),

Start 19:

- Found in 23 of 108 ( 21.3% ) of genes in pham
- Manual Annotations of this start: 1 of 98
- Called 4.3% of time when present
- Phage (with cluster) where this start called: Beelzebub\_104 (S),

Start 25:

- Found in 2 of 108 ( 1.9% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Madraxi\_53 (CF),

Start 27:

- Found in 75 of 108 ( 69.4% ) of genes in pham
- Manual Annotations of this start: 65 of 98

- Called 96.0% of time when present
- Phage (with cluster) where this start called: Antares\_58 (EC), Ariadne\_67 (EC), Blackbeetle\_101 (S), BrazzalePHS\_57 (EC), Busephilis\_57 (EC), Caprice\_92 (S), Clarkson\_101 (S), ClearAsMud\_62 (EC), Corazon\_95 (S), Cranjis\_59 (EC), CrazyRich\_57 (EC), Crisis\_59 (EC), EarickHC\_59 (EC), Fireman\_61 (EC), Fryberger\_80 (DP), Ganandorf\_57 (EC), Gattaca\_99 (S), Gibbles\_116 (CX), Gina\_61 (EC), Guey18\_85 (DP), Hermeonysus\_57 (EC), Honeyfin\_59 (EC), Huphlepuuff\_102 (S), Jayden\_60 (EC), Jefe\_58 (EC), Jflix2\_48 (CF), JoieB\_101 (S), Jollipop\_58 (EC), KaiHaiDragon\_59 (EC), Kampe\_114 (CX), Keelan\_81 (DP), Kowalski\_57 (EC), Lilbit\_98 (S), LittleFortune\_60 (EC), LittleLaf\_98 (S), Marvin\_94 (S), Metamorphoo\_61 (EC), MosMoris\_96 (S), NoodlelyBoi\_59 (EC), Onika\_57 (EC), Orchid\_113 (CX), Paschalis\_58 (EC), PatrickStar\_114 (CX), Phorgeous\_58 (EC), Phrancesco\_58 (EC), PierreOrion\_58 (EC), PiperSansNom\_59 (EC), Piperis\_59 (EC), Poise\_101 (S), Pringar\_96 (S), Pulchra\_60 (EC), Quhwah\_62 (EC), REQ1\_18 (CF), Raela\_102 (S), Ramiel05\_57 (EC), RobinSparkles\_123 (CX), RobsFeet\_62 (EC), Ronaldo\_83 (DP), Savannah\_57 (EC), Scumberland\_59 (EC), Selwyn23\_59 (EC), Shagrat\_38 (CF), Shotgun\_58 (EC), Smarties\_67 (EC), Teamocil\_61 (EC), Tesla\_96 (S), Trogglehumper\_109 (singleton), Tyumbra\_58 (EC), VasuNzinga\_98 (S), Volt\_83 (DP), Yeti\_58 (EC), Ziko\_83 (DP),

#### Start 29:

- Found in 19 of 108 ( 17.6% ) of genes in pham
- Manual Annotations of this start: 12 of 98
- Called 63.2% of time when present
- Phage (with cluster) where this start called: Auspice\_149 (M1), Aziz\_161 (M2), Bongo\_143 (M1), Bricole\_151 (M1), Estes\_161 (M2), GardenSalsa\_164 (M2), IPhane7\_146 (M1), LilhomieP\_145 (M1), MrMagoo\_166 (M2), Nanosmite\_163 (M3), SlimJimmy\_146 (M1), TyDawg\_142 (M1),

#### Start 30:

- Found in 23 of 108 ( 21.3% ) of genes in pham
- Manual Annotations of this start: 1 of 98
- Called 4.3% of time when present
- Phage (with cluster) where this start called: Reindeer\_147 (M1),

### Summary by clusters:

There are 11 clusters represented in this pham: AC, CF, EC, singleton, S, CX, M1, M3, M2, R, DP,

Info for manual annotations of cluster AC:

- Start number 7 was manually annotated 1 time for cluster AC.
- Start number 8 was manually annotated 3 times for cluster AC.

Info for manual annotations of cluster CF:

- Start number 27 was manually annotated 2 times for cluster CF.

Info for manual annotations of cluster CX:

- Start number 27 was manually annotated 5 times for cluster CX.

Info for manual annotations of cluster DP:

- Start number 27 was manually annotated 6 times for cluster DP.

Info for manual annotations of cluster EC:

- Start number 27 was manually annotated 37 times for cluster EC.

Info for manual annotations of cluster M1:

- Start number 11 was manually annotated 5 times for cluster M1.
- Start number 29 was manually annotated 7 times for cluster M1.
- Start number 30 was manually annotated 1 time for cluster M1.

Info for manual annotations of cluster M2:

- Start number 10 was manually annotated 1 time for cluster M2.
- Start number 29 was manually annotated 4 times for cluster M2.

Info for manual annotations of cluster M3:

- Start number 29 was manually annotated 1 time for cluster M3.

Info for manual annotations of cluster R:

- Start number 8 was manually annotated 8 times for cluster R.

Info for manual annotations of cluster S:

- Start number 13 was manually annotated 1 time for cluster S.
- Start number 19 was manually annotated 1 time for cluster S.
- Start number 27 was manually annotated 14 times for cluster S.

### **Gene Information:**

Gene: Antares\_58 Start: 37535, Stop: 38530, Start Num: 27

Candidate Starts for Antares\_58:

(Start: 27 @37535 has 65 MA's), (41, 37655), (43, 37664), (45, 37676), (51, 37709), (53, 37715), (56, 37733), (77, 37844), (87, 37925), (94, 38003), (95, 38015), (112, 38138), (117, 38168), (138, 38339), (143, 38360), (146, 38390), (149, 38423), (156, 38471),

Gene: Ariadne\_67 Start: 39139, Stop: 40134, Start Num: 27

Candidate Starts for Ariadne\_67:

(Start: 27 @39139 has 65 MA's), (Start: 30 @39154 has 1 MA's), (41, 39259), (43, 39268), (45, 39280), (51, 39313), (53, 39319), (56, 39337), (70, 39394), (77, 39448), (87, 39529), (91, 39571), (94, 39607), (95, 39619), (112, 39742), (117, 39772), (126, 39832), (138, 39943), (143, 39964), (148, 40006), (165, 40117),

Gene: Auspice\_149 Start: 75730, Stop: 74657, Start Num: 29

Candidate Starts for Auspice\_149:

(2, 75907), (3, 75895), (Start: 11 @75826 has 5 MA's), (Start: 19 @75805 has 1 MA's), (Start: 29 @75730 has 12 MA's), (41, 75625), (44, 75616), (49, 75580), (59, 75526), (67, 75493), (74, 75463), (80, 75379), (90, 75283), (98, 75184), (101, 75166), (107, 75103), (109, 75094), (111, 75082), (112, 75079), (120, 75028), (129, 74968), (139, 74869), (141, 74860), (147, 74824), (151, 74785), (166, 74689), (168, 74680),

Gene: Aziz\_161 Start: 77655, Stop: 76582, Start Num: 29

Candidate Starts for Aziz\_161:

(Start: 29 @77655 has 12 MA's), (44, 77541), (48, 77511), (54, 77481), (59, 77451), (74, 77388), (76, 77364), (80, 77304), (90, 77208), (93, 77166), (101, 77091), (107, 77028), (109, 77019), (110, 77010), (113, 76995), (120, 76953), (124, 76932), (126, 76917), (129, 76893), (130, 76890), (141, 76785),

(148, 76740), (151, 76710), (153, 76683), (166, 76614), (168, 76605), (170, 76596),

Gene: Beelzebub\_104 Start: 58128, Stop: 57004, Start Num: 19

Candidate Starts for Beelzebub\_104:

(Start: 19 @58128 has 1 MA's), (20, 58119), (Start: 27 @58074 has 65 MA's), (Start: 30 @58059 has 1 MA's), (34, 58026), (43, 57933), (48, 57900), (53, 57876), (60, 57843), (61, 57840), (62, 57837), (64, 57822), (66, 57810), (73, 57783), (80, 57696), (82, 57684), (84, 57651), (87, 57624), (88, 57618), (90, 57600), (93, 57558), (94, 57543), (96, 57507), (100, 57495), (108, 57417), (109, 57411), (114, 57384), (119, 57363), (130, 57288), (137, 57213), (141, 57192), (142, 57189), (166, 57021), (167, 57018),

Gene: Blackbeetle\_101 Start: 57574, Stop: 56504, Start Num: 27

Candidate Starts for Blackbeetle\_101:

(12, 57646), (Start: 13 @57643 has 1 MA's), (16, 57637), (Start: 27 @57574 has 65 MA's), (Start: 30 @57559 has 1 MA's), (34, 57526), (43, 57433), (48, 57400), (53, 57376), (60, 57343), (61, 57340), (62, 57337), (64, 57322), (66, 57310), (73, 57283), (80, 57196), (82, 57184), (84, 57151), (87, 57124), (88, 57118), (90, 57100), (93, 57058), (94, 57043), (96, 57007), (100, 56995), (108, 56917), (109, 56911), (114, 56884), (119, 56863), (130, 56788), (137, 56713), (141, 56692), (142, 56689), (166, 56521), (167, 56518),

Gene: Bongo\_143 Start: 74587, Stop: 73514, Start Num: 29

Candidate Starts for Bongo\_143:

(2, 74764), (3, 74752), (Start: 11 @74683 has 5 MA's), (Start: 19 @74662 has 1 MA's), (Start: 29 @74587 has 12 MA's), (41, 74482), (44, 74473), (49, 74437), (59, 74383), (67, 74350), (74, 74320), (80, 74236), (90, 74140), (94, 74083), (98, 74041), (101, 74023), (107, 73960), (109, 73951), (111, 73939), (112, 73936), (120, 73885), (129, 73825), (139, 73726), (141, 73717), (147, 73681), (151, 73642), (153, 73615), (166, 73546), (168, 73537),

Gene: BrazzalePHS\_57 Start: 37331, Stop: 38326, Start Num: 27

Candidate Starts for BrazzalePHS\_57:

(Start: 27 @37331 has 65 MA's), (41, 37451), (43, 37460), (45, 37472), (51, 37505), (53, 37511), (56, 37529), (77, 37640), (87, 37721), (94, 37799), (95, 37811), (112, 37934), (117, 37964), (138, 38135), (143, 38156), (146, 38186), (149, 38219), (156, 38267),

Gene: Bricole\_151 Start: 75493, Stop: 74420, Start Num: 29

Candidate Starts for Bricole\_151:

(2, 75670), (3, 75658), (Start: 11 @75589 has 5 MA's), (Start: 19 @75568 has 1 MA's), (Start: 29 @75493 has 12 MA's), (41, 75388), (44, 75379), (49, 75343), (59, 75289), (67, 75256), (74, 75226), (80, 75142), (90, 75046), (94, 74989), (98, 74947), (101, 74929), (107, 74866), (109, 74857), (111, 74845), (112, 74842), (120, 74791), (129, 74731), (139, 74632), (141, 74623), (147, 74587), (151, 74548), (166, 74452), (168, 74443),

Gene: Busephilis\_57 Start: 37241, Stop: 38236, Start Num: 27

Candidate Starts for Busephilis\_57:

(Start: 27 @37241 has 65 MA's), (41, 37361), (43, 37370), (45, 37382), (51, 37415), (53, 37421), (56, 37439), (77, 37550), (87, 37631), (94, 37709), (95, 37721), (112, 37844), (117, 37874), (119, 37886), (138, 38045), (143, 38066), (146, 38096), (149, 38129), (156, 38177),

Gene: Candle\_59 Start: 44716, Stop: 45912, Start Num: 8

Candidate Starts for Candle\_59:

(Start: 8 @44716 has 11 MA's), (14, 44731), (26, 44797), (28, 44806), (37, 44887), (40, 44908), (42, 44923), (47, 44950), (55, 45010), (59, 45031), (65, 45064), (78, 45175), (79, 45181), (81, 45193), (85, 45232), (88, 45262), (91, 45301), (98, 45379), (100, 45385), (102, 45400), (121, 45538), (126, 45571), (129, 45595), (138, 45688), (141, 45706), (146, 45739), (156, 45823), (158, 45844), (162, 45859),

(166, 45877), (167, 45880), (168, 45886), (170, 45895), (171, 45898),

Gene: Caprice\_92 Start: 57512, Stop: 56442, Start Num: 27

Candidate Starts for Caprice\_92:

(Start: 19 @57566 has 1 MA's), (20, 57557), (Start: 27 @57512 has 65 MA's), (Start: 30 @57497 has 1 MA's), (34, 57464), (43, 57371), (48, 57338), (53, 57314), (60, 57281), (61, 57278), (62, 57275), (64, 57260), (66, 57248), (73, 57221), (80, 57134), (82, 57122), (84, 57089), (87, 57062), (88, 57056), (90, 57038), (93, 56996), (94, 56981), (96, 56945), (100, 56933), (108, 56855), (109, 56849), (114, 56822), (119, 56801), (126, 56753), (130, 56726), (137, 56651), (141, 56630), (142, 56627), (166, 56459), (167, 56456),

Gene: Clarkson\_101 Start: 57755, Stop: 56685, Start Num: 27

Candidate Starts for Clarkson\_101:

(Start: 19 @57809 has 1 MA's), (20, 57800), (Start: 27 @57755 has 65 MA's), (Start: 30 @57740 has 1 MA's), (34, 57707), (43, 57614), (48, 57581), (53, 57557), (60, 57524), (61, 57521), (62, 57518), (64, 57503), (66, 57491), (73, 57464), (80, 57377), (82, 57365), (84, 57332), (87, 57305), (88, 57299), (90, 57281), (93, 57239), (94, 57224), (96, 57188), (100, 57176), (108, 57098), (109, 57092), (114, 57065), (119, 57044), (130, 56969), (137, 56894), (141, 56873), (142, 56870), (166, 56702), (167, 56699),

Gene: ClearAsMud\_62 Start: 37812, Stop: 38807, Start Num: 27

Candidate Starts for ClearAsMud\_62:

(Start: 27 @37812 has 65 MA's), (41, 37932), (43, 37941), (45, 37953), (51, 37986), (53, 37992), (56, 38010), (77, 38121), (87, 38202), (91, 38244), (94, 38280), (95, 38292), (112, 38415), (117, 38445), (119, 38457), (138, 38616), (143, 38637), (148, 38679), (149, 38700), (156, 38748),

Gene: Corazon\_95 Start: 57949, Stop: 56879, Start Num: 27

Candidate Starts for Corazon\_95:

(Start: 19 @58003 has 1 MA's), (20, 57994), (Start: 27 @57949 has 65 MA's), (Start: 30 @57934 has 1 MA's), (34, 57901), (43, 57808), (48, 57775), (53, 57751), (60, 57718), (61, 57715), (62, 57712), (64, 57697), (66, 57685), (73, 57658), (80, 57571), (82, 57559), (84, 57526), (87, 57499), (88, 57493), (90, 57475), (93, 57433), (94, 57418), (96, 57382), (100, 57370), (108, 57292), (109, 57286), (114, 57259), (119, 57238), (130, 57163), (137, 57088), (141, 57067), (142, 57064), (166, 56896), (167, 56893),

Gene: Cranjis\_59 Start: 37490, Stop: 38485, Start Num: 27

Candidate Starts for Cranjis\_59:

(Start: 27 @37490 has 65 MA's), (41, 37610), (43, 37619), (45, 37631), (51, 37664), (53, 37670), (56, 37688), (77, 37799), (87, 37880), (94, 37958), (95, 37970), (112, 38093), (117, 38123), (138, 38294), (143, 38315), (146, 38345), (149, 38378), (156, 38426),

Gene: CrazyRich\_57 Start: 37299, Stop: 38294, Start Num: 27

Candidate Starts for CrazyRich\_57:

(Start: 27 @37299 has 65 MA's), (41, 37419), (43, 37428), (45, 37440), (51, 37473), (53, 37479), (56, 37497), (77, 37608), (87, 37689), (94, 37767), (95, 37779), (112, 37902), (117, 37932), (138, 38103), (143, 38124), (146, 38154), (149, 38187), (156, 38235),

Gene: Crisis\_59 Start: 37290, Stop: 38285, Start Num: 27

Candidate Starts for Crisis\_59:

(Start: 27 @37290 has 65 MA's), (41, 37410), (43, 37419), (45, 37431), (51, 37464), (53, 37470), (56, 37488), (77, 37599), (87, 37680), (94, 37758), (95, 37770), (112, 37893), (117, 37923), (138, 38094), (143, 38115), (146, 38145), (149, 38178), (156, 38226),

Gene: Cuke\_50 Start: 34724, Stop: 35866, Start Num: 8

Candidate Starts for Cuke\_50:



(Start: 8 @34724 has 11 MA's), (23, 34790), (Start: 29 @34826 has 12 MA's), (31, 34832), (35, 34874), (40, 34925), (52, 34988), (72, 35075), (78, 35126), (82, 35147), (84, 35180), (87, 35207), (88, 35213), (89, 35219), (91, 35252), (92, 35261), (98, 35330), (103, 35357), (109, 35420), (122, 35498), (131, 35561), (132, 35567), (136, 35636), (141, 35663), (142, 35666), (144, 35675), (146, 35696), (152, 35753), (154, 35765), (155, 35774), (164, 35816), (170, 35849),

Gene: Diminimus\_146 Start: 74499, Stop: 73330, Start Num: 11

Candidate Starts for Diminimus\_146:

(2, 74580), (3, 74568), (Start: 11 @74499 has 5 MA's), (Start: 19 @74478 has 1 MA's), (Start: 29 @74403 has 12 MA's), (41, 74298), (44, 74289), (49, 74253), (59, 74199), (67, 74166), (74, 74136), (80, 74052), (90, 73956), (94, 73899), (98, 73857), (101, 73839), (107, 73776), (109, 73767), (111, 73755), (112, 73752), (120, 73701), (129, 73641), (139, 73542), (141, 73533), (147, 73497), (151, 73458), (153, 73431), (166, 73362), (168, 73353),

Gene: Dulcita\_146 Start: 74500, Stop: 73331, Start Num: 11

Candidate Starts for Dulcita\_146:

(2, 74581), (3, 74569), (Start: 11 @74500 has 5 MA's), (Start: 19 @74479 has 1 MA's), (Start: 29 @74404 has 12 MA's), (41, 74299), (44, 74290), (49, 74254), (59, 74200), (67, 74167), (74, 74137), (80, 74053), (90, 73957), (94, 73900), (98, 73858), (101, 73840), (107, 73777), (109, 73768), (111, 73756), (112, 73753), (120, 73702), (129, 73642), (139, 73543), (141, 73534), (147, 73498), (151, 73459), (153, 73432), (166, 73363), (168, 73354),

Gene: EarickHC\_59 Start: 37213, Stop: 38208, Start Num: 27

Candidate Starts for EarickHC\_59:

(Start: 27 @37213 has 65 MA's), (41, 37333), (43, 37342), (45, 37354), (51, 37387), (53, 37393), (56, 37411), (77, 37522), (87, 37603), (94, 37681), (95, 37693), (112, 37816), (117, 37846), (138, 38017), (143, 38038), (146, 38068), (149, 38101), (156, 38149),

Gene: Estes\_161 Start: 77859, Stop: 76786, Start Num: 29

Candidate Starts for Estes\_161:

(18, 77931), (22, 77904), (Start: 29 @77859 has 12 MA's), (36, 77784), (44, 77745), (48, 77715), (59, 77655), (74, 77592), (76, 77568), (80, 77508), (90, 77412), (93, 77370), (101, 77295), (107, 77232), (109, 77223), (110, 77214), (113, 77199), (120, 77157), (124, 77136), (126, 77121), (129, 77097), (130, 77094), (141, 76989), (146, 76956), (148, 76944), (151, 76914), (153, 76887), (166, 76818), (168, 76809), (170, 76800),

Gene: Fireman\_61 Start: 39216, Stop: 40211, Start Num: 27

Candidate Starts for Fireman\_61:

(Start: 27 @39216 has 65 MA's), (41, 39336), (43, 39345), (45, 39357), (51, 39390), (53, 39396), (56, 39414), (70, 39471), (77, 39525), (87, 39606), (91, 39648), (94, 39684), (95, 39696), (100, 39732), (112, 39819), (126, 39909), (138, 40020), (143, 40041), (148, 40083), (149, 40104), (156, 40152),

Gene: Fowlmouth\_54 Start: 38133, Stop: 39266, Start Num: 8

Candidate Starts for Fowlmouth\_54:

(Start: 8 @38133 has 11 MA's), (21, 38172), (23, 38199), (31, 38241), (35, 38283), (38, 38319), (40, 38334), (52, 38397), (72, 38475), (78, 38526), (82, 38547), (86, 38595), (88, 38613), (89, 38619), (91, 38652), (92, 38661), (100, 38736), (103, 38757), (104, 38763), (109, 38820), (121, 38889), (122, 38898), (126, 38922), (131, 38961), (132, 38967), (134, 39006), (136, 39036), (141, 39063), (142, 39066), (144, 39075), (145, 39090), (152, 39153), (154, 39165), (155, 39174), (164, 39216), (170, 39249),

Gene: Fryberger\_80 Start: 42863, Stop: 41793, Start Num: 27

Candidate Starts for Fryberger\_80:

(21, 42908), (24, 42878), (Start: 27 @42863 has 65 MA's), (32, 42839), (34, 42815), (39, 42743), (41, 42731), (48, 42692), (53, 42668), (63, 42617), (78, 42494), (89, 42401), (92, 42359), (93, 42347), (94, 42332), (100, 42284), (116, 42167), (126, 42110), (130, 42083), (135, 42023), (154, 41873), (157, 41849), (159, 41834), (162, 41825), (165, 41819),

Gene: Ganandorf\_57 Start: 37323, Stop: 38318, Start Num: 27

Candidate Starts for Ganandorf\_57:

(Start: 27 @37323 has 65 MA's), (41, 37443), (43, 37452), (45, 37464), (51, 37497), (53, 37503), (56, 37521), (77, 37632), (87, 37713), (94, 37791), (95, 37803), (112, 37926), (117, 37956), (138, 38127), (143, 38148), (146, 38178), (149, 38211), (156, 38259),

Gene: GardenSalsa\_164 Start: 78536, Stop: 77463, Start Num: 29

Candidate Starts for GardenSalsa\_164:

(Start: 29 @78536 has 12 MA's), (44, 78422), (48, 78392), (59, 78332), (74, 78269), (76, 78245), (80, 78185), (90, 78089), (93, 78047), (101, 77972), (107, 77909), (109, 77900), (110, 77891), (113, 77876), (120, 77834), (124, 77813), (126, 77798), (129, 77774), (130, 77771), (141, 77666), (146, 77633), (148, 77621), (151, 77591), (153, 77564), (166, 77495), (168, 77486), (170, 77477),

Gene: Gattaca\_99 Start: 57986, Stop: 56916, Start Num: 27

Candidate Starts for Gattaca\_99:

(12, 58058), (Start: 13 @58055 has 1 MA's), (16, 58049), (Start: 27 @57986 has 65 MA's), (Start: 30 @57971 has 1 MA's), (34, 57938), (43, 57845), (48, 57812), (53, 57788), (60, 57755), (61, 57752), (62, 57749), (64, 57734), (66, 57722), (73, 57695), (80, 57608), (82, 57596), (84, 57563), (87, 57536), (88, 57530), (90, 57512), (93, 57470), (94, 57455), (96, 57419), (100, 57407), (108, 57329), (109, 57323), (114, 57296), (119, 57275), (130, 57200), (137, 57125), (141, 57104), (142, 57101), (166, 56933), (167, 56930),

Gene: Gibbles\_116 Start: 78724, Stop: 77663, Start Num: 27

Candidate Starts for Gibbles\_116:

(Start: 27 @78724 has 65 MA's), (32, 78700), (46, 78571), (48, 78553), (71, 78448), (77, 78388), (91, 78238), (105, 78118), (115, 78040), (116, 78034), (123, 77992), (128, 77959), (132, 77929), (138, 77866), (141, 77848), (158, 77707), (161, 77695), (165, 77686),

Gene: Gina\_61 Start: 37315, Stop: 38310, Start Num: 27

Candidate Starts for Gina\_61:

(Start: 27 @37315 has 65 MA's), (Start: 30 @37330 has 1 MA's), (41, 37435), (43, 37444), (45, 37456), (56, 37513), (70, 37570), (77, 37624), (91, 37747), (94, 37783), (95, 37795), (112, 37918), (117, 37948), (126, 38008), (138, 38119), (143, 38140), (148, 38182), (149, 38203),

Gene: Glaske16\_148 Start: 75618, Stop: 74449, Start Num: 11

Candidate Starts for Glaske16\_148:

(2, 75699), (3, 75687), (Start: 11 @75618 has 5 MA's), (Start: 19 @75597 has 1 MA's), (Start: 29 @75522 has 12 MA's), (41, 75417), (44, 75408), (49, 75372), (59, 75318), (67, 75285), (74, 75255), (80, 75171), (90, 75075), (94, 75018), (98, 74976), (101, 74958), (107, 74895), (109, 74886), (111, 74874), (112, 74871), (120, 74820), (129, 74760), (139, 74661), (141, 74652), (147, 74616), (151, 74577), (153, 74550), (166, 74481), (168, 74472),

Gene: Guey18\_85 Start: 44196, Stop: 43126, Start Num: 27

Candidate Starts for Guey18\_85:

(21, 44241), (24, 44211), (Start: 27 @44196 has 65 MA's), (32, 44172), (34, 44148), (39, 44076), (41, 44064), (48, 44025), (53, 44001), (63, 43950), (78, 43827), (89, 43734), (92, 43692), (93, 43680), (100, 43617), (116, 43500), (124, 43458), (134, 43371), (135, 43356), (154, 43206), (157, 43182), (159, 43167), (162, 43158), (165, 43152),

Gene: Hermeonysus\_57 Start: 37219, Stop: 38214, Start Num: 27

Candidate Starts for Hermeonysus\_57:

(Start: 27 @37219 has 65 MA's), (41, 37339), (43, 37348), (45, 37360), (51, 37393), (53, 37399), (56, 37417), (77, 37528), (87, 37609), (94, 37687), (95, 37699), (112, 37822), (117, 37852), (138, 38023), (143, 38044), (146, 38074), (149, 38107), (156, 38155),

Gene: Honeyfin\_59 Start: 37511, Stop: 38506, Start Num: 27

Candidate Starts for Honeyfin\_59:

(Start: 27 @37511 has 65 MA's), (41, 37631), (43, 37640), (45, 37652), (51, 37685), (53, 37691), (56, 37709), (70, 37766), (77, 37820), (87, 37901), (91, 37943), (94, 37979), (95, 37991), (112, 38114), (117, 38144), (138, 38315), (143, 38336), (146, 38366), (149, 38399), (156, 38447),

Gene: Huphlepuuff\_102 Start: 57560, Stop: 56490, Start Num: 27

Candidate Starts for Huphlepuuff\_102:

(Start: 19 @57614 has 1 MA's), (20, 57605), (Start: 27 @57560 has 65 MA's), (Start: 30 @57545 has 1 MA's), (34, 57512), (43, 57419), (48, 57386), (53, 57362), (60, 57329), (61, 57326), (62, 57323), (64, 57308), (66, 57296), (73, 57269), (80, 57182), (82, 57170), (84, 57137), (87, 57110), (88, 57104), (90, 57086), (93, 57044), (94, 57029), (96, 56993), (100, 56981), (108, 56903), (109, 56897), (114, 56870), (119, 56849), (130, 56774), (137, 56699), (141, 56678), (142, 56675), (166, 56507), (167, 56504),

Gene: IPhane7\_146 Start: 75346, Stop: 74273, Start Num: 29

Candidate Starts for IPhane7\_146:

(2, 75523), (3, 75511), (Start: 11 @75442 has 5 MA's), (Start: 19 @75421 has 1 MA's), (Start: 29 @75346 has 12 MA's), (41, 75241), (44, 75232), (49, 75196), (59, 75142), (67, 75109), (74, 75079), (80, 74995), (90, 74899), (98, 74800), (101, 74782), (107, 74719), (109, 74710), (111, 74698), (112, 74695), (120, 74644), (129, 74584), (139, 74485), (141, 74476), (147, 74440), (151, 74401), (166, 74305), (168, 74296),

Gene: Indlulamithi\_50 Start: 39104, Stop: 40291, Start Num: 7

Candidate Starts for Indlulamithi\_50:

(1, 39026), (6, 39098), (Start: 7 @39104 has 1 MA's), (14, 39119), (17, 39128), (31, 39212), (35, 39254), (52, 39371), (69, 39443), (78, 39503), (79, 39509), (81, 39521), (88, 39590), (90, 39608), (91, 39629), (93, 39650), (99, 39710), (113, 39821), (115, 39833), (120, 39863), (126, 39899), (129, 39923), (136, 40010), (152, 40130), (160, 40184), (163, 40190), (172, 40241), (173, 40244), (174, 40262), (175, 40277),

Gene: Jayden\_60 Start: 37996, Stop: 38991, Start Num: 27

Candidate Starts for Jayden\_60:

(Start: 27 @37996 has 65 MA's), (41, 38116), (43, 38125), (45, 38137), (51, 38170), (53, 38176), (56, 38194), (70, 38251), (77, 38305), (94, 38464), (95, 38476), (112, 38599), (117, 38629), (136, 38791), (138, 38800), (143, 38821), (148, 38863), (149, 38884),

Gene: Jefe\_58 Start: 37277, Stop: 38272, Start Num: 27

Candidate Starts for Jefe\_58:

(Start: 27 @37277 has 65 MA's), (41, 37397), (43, 37406), (45, 37418), (51, 37451), (53, 37457), (56, 37475), (77, 37586), (87, 37667), (94, 37745), (95, 37757), (112, 37880), (117, 37910), (138, 38081), (143, 38102), (146, 38132), (149, 38165), (156, 38213),

Gene: Jflix2\_48 Start: 34302, Stop: 33235, Start Num: 27

Candidate Starts for Jflix2\_48:

(25, 34311), (Start: 27 @34302 has 65 MA's), (34, 34254), (49, 34125), (75, 33999), (88, 33858), (102, 33720), (133, 33495), (138, 33435), (149, 33351), (161, 33267), (166, 33246),

Gene: JoieB\_101 Start: 58161, Stop: 57091, Start Num: 27

Candidate Starts for JoieB\_101:

(12, 58233), (Start: 13 @58230 has 1 MA's), (16, 58224), (Start: 27 @58161 has 65 MA's), (Start: 30 @58146 has 1 MA's), (34, 58113), (43, 58020), (48, 57987), (53, 57963), (60, 57930), (61, 57927), (62, 57924), (64, 57909), (66, 57897), (73, 57870), (80, 57783), (82, 57771), (84, 57738), (87, 57711), (88, 57705), (90, 57687), (93, 57645), (94, 57630), (96, 57594), (100, 57582), (108, 57504), (109, 57498), (114, 57471), (119, 57450), (130, 57375), (137, 57300), (141, 57279), (142, 57276), (166, 57108), (167, 57105),

Gene: Jollipop\_58 Start: 37692, Stop: 38687, Start Num: 27

Candidate Starts for Jollipop\_58:

(Start: 27 @37692 has 65 MA's), (41, 37812), (43, 37821), (45, 37833), (51, 37866), (53, 37872), (56, 37890), (77, 38001), (87, 38082), (91, 38124), (94, 38160), (95, 38172), (112, 38295), (117, 38325), (138, 38496), (143, 38517), (146, 38547), (149, 38580), (156, 38628),

Gene: KaiHaiDragon\_59 Start: 37213, Stop: 38208, Start Num: 27

Candidate Starts for KaiHaiDragon\_59:

(Start: 27 @37213 has 65 MA's), (41, 37333), (43, 37342), (45, 37354), (51, 37387), (53, 37393), (56, 37411), (77, 37522), (87, 37603), (94, 37681), (95, 37693), (112, 37816), (117, 37846), (138, 38017), (143, 38038), (146, 38068), (149, 38101), (156, 38149),

Gene: Kampe\_114 Start: 77930, Stop: 76869, Start Num: 27

Candidate Starts for Kampe\_114:

(Start: 27 @77930 has 65 MA's), (32, 77906), (46, 77777), (48, 77759), (71, 77654), (77, 77594), (91, 77444), (105, 77324), (115, 77246), (116, 77240), (123, 77198), (128, 77165), (132, 77135), (138, 77072), (141, 77054), (158, 76913), (161, 76901), (165, 76892),

Gene: Keelan\_81 Start: 43600, Stop: 42530, Start Num: 27

Candidate Starts for Keelan\_81:

(9, 43678), (15, 43666), (Start: 27 @43600 has 65 MA's), (32, 43576), (34, 43552), (44, 43459), (46, 43447), (48, 43429), (54, 43399), (63, 43354), (78, 43231), (81, 43213), (89, 43138), (93, 43084), (94, 43069), (100, 43021), (116, 42907), (118, 42901), (119, 42898), (125, 42856), (126, 42850), (127, 42841), (131, 42811), (145, 42694), (154, 42613), (157, 42589), (162, 42565), (166, 42547), (167, 42544),

Gene: Kowalski\_57 Start: 37326, Stop: 38321, Start Num: 27

Candidate Starts for Kowalski\_57:

(Start: 27 @37326 has 65 MA's), (41, 37446), (43, 37455), (45, 37467), (51, 37500), (53, 37506), (56, 37524), (77, 37635), (87, 37716), (94, 37794), (95, 37806), (112, 37929), (117, 37959), (138, 38130), (143, 38151), (146, 38181), (149, 38214), (156, 38262),

Gene: Lilbit\_98 Start: 58120, Stop: 57050, Start Num: 27

Candidate Starts for Lilbit\_98:

(Start: 19 @58174 has 1 MA's), (20, 58165), (Start: 27 @58120 has 65 MA's), (Start: 30 @58105 has 1 MA's), (34, 58072), (43, 57979), (48, 57946), (53, 57922), (60, 57889), (61, 57886), (62, 57883), (64, 57868), (66, 57856), (73, 57829), (80, 57742), (82, 57730), (84, 57697), (87, 57670), (88, 57664), (90, 57646), (93, 57604), (94, 57589), (96, 57553), (100, 57541), (108, 57463), (109, 57457), (114, 57430), (119, 57409), (130, 57334), (137, 57259), (141, 57238), (142, 57235), (166, 57067), (167, 57064),

Gene: LilhomieP\_145 Start: 75433, Stop: 74360, Start Num: 29

Candidate Starts for LilhomieP\_145:

(2, 75610), (3, 75598), (Start: 11 @75529 has 5 MA's), (Start: 19 @75508 has 1 MA's), (Start: 29 @75433 has 12 MA's), (41, 75328), (44, 75319), (49, 75283), (59, 75229), (67, 75196), (74, 75166), (80, 75082), (90, 74986), (94, 74929), (98, 74887), (101, 74869), (107, 74806), (109, 74797), (111, 74785), (112, 74782), (120, 74731), (129, 74671), (139, 74572), (141, 74563), (147, 74527), (151, 74488), (166, 74392), (168, 74383),

Gene: LittleFortune\_60 Start: 37582, Stop: 38577, Start Num: 27

Candidate Starts for LittleFortune\_60:

(Start: 27 @37582 has 65 MA's), (41, 37702), (43, 37711), (45, 37723), (51, 37756), (53, 37762), (56, 37780), (77, 37891), (87, 37972), (94, 38050), (95, 38062), (112, 38185), (117, 38215), (138, 38386), (143, 38407), (146, 38437), (149, 38470), (156, 38518),

Gene: LittleLaf\_98 Start: 57849, Stop: 56779, Start Num: 27

Candidate Starts for LittleLaf\_98:

(Start: 19 @57903 has 1 MA's), (20, 57894), (Start: 27 @57849 has 65 MA's), (Start: 30 @57834 has 1 MA's), (34, 57801), (43, 57708), (48, 57675), (53, 57651), (60, 57618), (61, 57615), (62, 57612), (64, 57597), (66, 57585), (73, 57558), (80, 57471), (82, 57459), (84, 57426), (87, 57399), (88, 57393), (90, 57375), (93, 57333), (94, 57318), (96, 57282), (100, 57270), (108, 57192), (109, 57186), (114, 57159), (119, 57138), (130, 57063), (137, 56988), (141, 56967), (142, 56964), (166, 56796), (167, 56793),

Gene: Madraxi\_53 Start: 37049, Stop: 35973, Start Num: 25

Candidate Starts for Madraxi\_53:

(25, 37049), (Start: 27 @37040 has 65 MA's), (34, 36992), (49, 36863), (75, 36737), (88, 36596), (102, 36458), (133, 36233), (138, 36173), (149, 36089), (161, 36005), (166, 35984),

Gene: Marvin\_94 Start: 57642, Stop: 56572, Start Num: 27

Candidate Starts for Marvin\_94:

(Start: 19 @57696 has 1 MA's), (20, 57687), (Start: 27 @57642 has 65 MA's), (Start: 30 @57627 has 1 MA's), (34, 57594), (43, 57501), (48, 57468), (53, 57444), (60, 57411), (61, 57408), (62, 57405), (64, 57390), (66, 57378), (73, 57351), (80, 57264), (82, 57252), (84, 57219), (87, 57192), (88, 57186), (90, 57168), (93, 57126), (94, 57111), (96, 57075), (100, 57063), (108, 56985), (109, 56979), (114, 56952), (119, 56931), (130, 56856), (137, 56781), (141, 56760), (142, 56757), (166, 56589), (167, 56586),

Gene: Metamorphoo\_61 Start: 38510, Stop: 39505, Start Num: 27

Candidate Starts for Metamorphoo\_61:

(Start: 27 @38510 has 65 MA's), (41, 38630), (43, 38639), (45, 38651), (51, 38684), (53, 38690), (56, 38708), (70, 38765), (77, 38819), (91, 38942), (94, 38978), (95, 38990), (112, 39113), (126, 39203), (138, 39314), (143, 39335), (148, 39377), (149, 39398), (156, 39446),

Gene: MontyDev\_61 Start: 44363, Stop: 45559, Start Num: 8

Candidate Starts for MontyDev\_61:

(Start: 8 @44363 has 11 MA's), (14, 44378), (26, 44444), (28, 44453), (37, 44534), (40, 44555), (42, 44570), (47, 44597), (55, 44657), (59, 44678), (65, 44711), (78, 44822), (79, 44828), (81, 44840), (85, 44879), (88, 44909), (91, 44948), (98, 45026), (100, 45032), (102, 45047), (121, 45185), (126, 45218), (129, 45242), (138, 45335), (141, 45353), (146, 45386), (156, 45470), (158, 45491), (162, 45506), (166, 45524), (167, 45527), (168, 45533), (170, 45542), (171, 45545),

Gene: MosMoris\_96 Start: 57992, Stop: 56922, Start Num: 27

Candidate Starts for MosMoris\_96:

(12, 58064), (Start: 13 @58061 has 1 MA's), (16, 58055), (Start: 27 @57992 has 65 MA's), (Start: 30 @57977 has 1 MA's), (34, 57944), (43, 57851), (48, 57818), (53, 57794), (60, 57761), (61, 57758), (62, 57755), (64, 57740), (66, 57728), (73, 57701), (80, 57614), (82, 57602), (84, 57569), (87, 57542), (88, 57536), (90, 57518), (93, 57476), (94, 57461), (96, 57425), (100, 57413), (108, 57335), (109,

57329), (114, 57302), (119, 57281), (130, 57206), (137, 57131), (141, 57110), (142, 57107), (166, 56939), (167, 56936),

Gene: MrMagoo\_166 Start: 78537, Stop: 77464, Start Num: 29

Candidate Starts for MrMagoo\_166:

(18, 78609), (22, 78582), (Start: 29 @78537 has 12 MA's), (44, 78423), (48, 78393), (59, 78333), (74, 78270), (76, 78246), (80, 78186), (90, 78090), (93, 78048), (101, 77973), (107, 77910), (109, 77901), (110, 77892), (113, 77877), (120, 77835), (124, 77814), (126, 77799), (129, 77775), (130, 77772), (141, 77667), (146, 77634), (148, 77622), (151, 77592), (153, 77565), (166, 77496), (168, 77487), (170, 77478),

Gene: MrMiyagi\_53 Start: 38517, Stop: 39650, Start Num: 8

Candidate Starts for MrMiyagi\_53:

(Start: 8 @38517 has 11 MA's), (21, 38556), (23, 38583), (31, 38625), (35, 38667), (38, 38703), (40, 38718), (52, 38781), (72, 38859), (78, 38910), (82, 38931), (86, 38979), (88, 38997), (89, 39003), (91, 39036), (92, 39045), (100, 39120), (103, 39141), (104, 39147), (109, 39204), (121, 39273), (122, 39282), (126, 39306), (131, 39345), (132, 39351), (134, 39390), (136, 39420), (141, 39447), (142, 39450), (144, 39459), (145, 39474), (152, 39537), (154, 39549), (155, 39558), (164, 39600), (170, 39633), (171, 39636),

Gene: Nanosmite\_163 Start: 77987, Stop: 76914, Start Num: 29

Candidate Starts for Nanosmite\_163:

(4, 78134), (5, 78119), (Start: 29 @77987 has 12 MA's), (49, 77837), (59, 77783), (68, 77747), (74, 77720), (80, 77636), (87, 77564), (90, 77540), (101, 77423), (107, 77360), (113, 77327), (120, 77285), (123, 77267), (127, 77240), (141, 77117), (146, 77084), (147, 77081), (148, 77072), (150, 77048), (166, 76946), (168, 76937),

Gene: Nilo\_63 Start: 44715, Stop: 45911, Start Num: 8

Candidate Starts for Nilo\_63:

(Start: 8 @44715 has 11 MA's), (14, 44730), (26, 44796), (28, 44805), (37, 44886), (40, 44907), (42, 44922), (47, 44949), (55, 45009), (59, 45030), (65, 45063), (78, 45174), (79, 45180), (81, 45192), (85, 45231), (88, 45261), (91, 45300), (98, 45378), (100, 45384), (102, 45399), (121, 45537), (126, 45570), (129, 45594), (138, 45687), (141, 45705), (146, 45738), (156, 45822), (158, 45843), (162, 45858), (166, 45876), (167, 45879), (168, 45885), (170, 45894), (171, 45897),

Gene: NoodlelyBoi\_59 Start: 38103, Stop: 39098, Start Num: 27

Candidate Starts for NoodlelyBoi\_59:

(Start: 27 @38103 has 65 MA's), (41, 38223), (43, 38232), (45, 38244), (51, 38277), (53, 38283), (56, 38301), (77, 38412), (87, 38493), (91, 38535), (94, 38571), (95, 38583), (112, 38706), (117, 38736), (138, 38907), (143, 38928), (148, 38970), (149, 38991), (156, 39039),

Gene: Onika\_57 Start: 37301, Stop: 38296, Start Num: 27

Candidate Starts for Onika\_57:

(Start: 27 @37301 has 65 MA's), (41, 37421), (43, 37430), (45, 37442), (51, 37475), (53, 37481), (56, 37499), (77, 37610), (87, 37691), (94, 37769), (95, 37781), (112, 37904), (117, 37934), (138, 38105), (143, 38126), (146, 38156), (149, 38189), (156, 38237),

Gene: Orchid\_113 Start: 77931, Stop: 76870, Start Num: 27

Candidate Starts for Orchid\_113:

(Start: 27 @77931 has 65 MA's), (32, 77907), (46, 77778), (48, 77760), (71, 77655), (77, 77595), (91, 77445), (105, 77325), (115, 77247), (116, 77241), (123, 77199), (128, 77166), (132, 77136), (138, 77073), (141, 77055), (158, 76914), (161, 76902), (165, 76893),

Gene: Papyrus\_61 Start: 44571, Stop: 45767, Start Num: 8

Candidate Starts for Papyrus\_61:

(Start: 8 @44571 has 11 MA's), (14, 44586), (26, 44652), (28, 44661), (37, 44742), (40, 44763), (42, 44778), (47, 44805), (55, 44865), (59, 44886), (65, 44919), (78, 45030), (79, 45036), (81, 45048), (85, 45087), (88, 45117), (91, 45156), (98, 45234), (100, 45240), (102, 45255), (121, 45393), (126, 45426), (129, 45450), (138, 45543), (141, 45561), (146, 45594), (156, 45678), (158, 45699), (162, 45714), (166, 45732), (167, 45735), (168, 45741), (170, 45750), (171, 45753),

Gene: Paschalis\_58 Start: 37308, Stop: 38303, Start Num: 27

Candidate Starts for Paschalis\_58:

(Start: 27 @37308 has 65 MA's), (41, 37428), (43, 37437), (45, 37449), (51, 37482), (53, 37488), (56, 37506), (77, 37617), (87, 37698), (91, 37740), (94, 37776), (95, 37788), (112, 37911), (117, 37941), (138, 38112), (143, 38133), (146, 38163), (149, 38196), (156, 38244),

Gene: PatrickStar\_114 Start: 78010, Stop: 76949, Start Num: 27

Candidate Starts for PatrickStar\_114:

(Start: 27 @78010 has 65 MA's), (32, 77986), (46, 77857), (48, 77839), (71, 77734), (77, 77674), (91, 77524), (105, 77404), (115, 77326), (116, 77320), (123, 77278), (128, 77245), (132, 77215), (138, 77152), (141, 77134), (158, 76993), (161, 76981), (165, 76972),

Gene: PegLeg\_149 Start: 75413, Stop: 74244, Start Num: 11

Candidate Starts for PegLeg\_149:

(2, 75494), (3, 75482), (Start: 11 @75413 has 5 MA's), (Start: 19 @75392 has 1 MA's), (Start: 29 @75317 has 12 MA's), (41, 75212), (44, 75203), (49, 75167), (59, 75113), (67, 75080), (74, 75050), (80, 74966), (90, 74870), (94, 74813), (98, 74771), (101, 74753), (107, 74690), (109, 74681), (111, 74669), (112, 74666), (120, 74615), (129, 74555), (139, 74456), (141, 74447), (147, 74411), (151, 74372), (166, 74276), (168, 74267),

Gene: Phorgeous\_58 Start: 37142, Stop: 38137, Start Num: 27

Candidate Starts for Phorgeous\_58:

(Start: 27 @37142 has 65 MA's), (41, 37262), (43, 37271), (45, 37283), (51, 37316), (53, 37322), (56, 37340), (77, 37451), (87, 37532), (94, 37610), (95, 37622), (112, 37745), (117, 37775), (138, 37946), (143, 37967), (146, 37997), (149, 38030), (156, 38078),

Gene: Phrancesco\_58 Start: 37431, Stop: 38426, Start Num: 27

Candidate Starts for Phrancesco\_58:

(Start: 27 @37431 has 65 MA's), (41, 37551), (43, 37560), (45, 37572), (51, 37605), (53, 37611), (56, 37629), (77, 37740), (87, 37821), (94, 37899), (95, 37911), (112, 38034), (117, 38064), (119, 38076), (138, 38235), (143, 38256), (146, 38286), (149, 38319), (156, 38367),

Gene: PierreOrion\_58 Start: 37551, Stop: 38546, Start Num: 27

Candidate Starts for PierreOrion\_58:

(Start: 27 @37551 has 65 MA's), (41, 37671), (43, 37680), (45, 37692), (49, 37716), (51, 37725), (53, 37731), (56, 37749), (70, 37806), (77, 37860), (87, 37941), (91, 37983), (94, 38019), (95, 38031), (112, 38154), (117, 38184), (138, 38355), (143, 38376), (146, 38406), (149, 38439), (156, 38487),

Gene: PiperSansNom\_59 Start: 37615, Stop: 38610, Start Num: 27

Candidate Starts for PiperSansNom\_59:

(Start: 27 @37615 has 65 MA's), (41, 37735), (43, 37744), (45, 37756), (51, 37789), (53, 37795), (56, 37813), (77, 37924), (87, 38005), (94, 38083), (95, 38095), (112, 38218), (117, 38248), (138, 38419), (143, 38440), (146, 38470), (149, 38503), (156, 38551),

Gene: Piperis\_59 Start: 37265, Stop: 38260, Start Num: 27

Candidate Starts for Piperis\_59:

(Start: 27 @37265 has 65 MA's), (41, 37385), (43, 37394), (45, 37406), (51, 37439), (53, 37445), (56, 37463), (77, 37574), (87, 37655), (94, 37733), (95, 37745), (112, 37868), (117, 37898), (138, 38069), (143, 38090), (146, 38120), (149, 38153), (156, 38201),

Gene: Poise\_101 Start: 57574, Stop: 56504, Start Num: 27

Candidate Starts for Poise\_101:

(12, 57646), (Start: 13 @57643 has 1 MA's), (16, 57637), (Start: 27 @57574 has 65 MA's), (Start: 30 @57559 has 1 MA's), (34, 57526), (43, 57433), (48, 57400), (53, 57376), (60, 57343), (61, 57340), (62, 57337), (64, 57322), (66, 57310), (73, 57283), (80, 57196), (82, 57184), (84, 57151), (87, 57124), (88, 57118), (90, 57100), (93, 57058), (94, 57043), (96, 57007), (100, 56995), (108, 56917), (109, 56911), (114, 56884), (119, 56863), (130, 56788), (137, 56713), (141, 56692), (142, 56689), (166, 56521), (167, 56518),

Gene: Pringar\_96 Start: 57361, Stop: 56291, Start Num: 27

Candidate Starts for Pringar\_96:

(Start: 19 @57415 has 1 MA's), (20, 57406), (Start: 27 @57361 has 65 MA's), (Start: 30 @57346 has 1 MA's), (34, 57313), (43, 57220), (48, 57187), (53, 57163), (60, 57130), (61, 57127), (62, 57124), (64, 57109), (66, 57097), (73, 57070), (80, 56983), (82, 56971), (84, 56938), (87, 56911), (88, 56905), (90, 56887), (93, 56845), (94, 56830), (96, 56794), (100, 56782), (108, 56704), (109, 56698), (114, 56671), (119, 56650), (130, 56575), (137, 56500), (141, 56479), (142, 56476), (166, 56308), (167, 56305),

Gene: Pulchra\_60 Start: 37662, Stop: 38657, Start Num: 27

Candidate Starts for Pulchra\_60:

(Start: 27 @37662 has 65 MA's), (41, 37782), (43, 37791), (45, 37803), (51, 37836), (53, 37842), (56, 37860), (77, 37971), (87, 38052), (94, 38130), (95, 38142), (112, 38265), (117, 38295), (138, 38466), (143, 38487), (146, 38517), (149, 38550), (156, 38598),

Gene: Quhwah\_62 Start: 37923, Stop: 38918, Start Num: 27

Candidate Starts for Quhwah\_62:

(Start: 27 @37923 has 65 MA's), (41, 38043), (43, 38052), (45, 38064), (51, 38097), (53, 38103), (56, 38121), (77, 38232), (87, 38313), (94, 38391), (95, 38403), (112, 38526), (117, 38556), (138, 38727), (143, 38748), (146, 38778), (149, 38811), (156, 38859),

Gene: REQ1\_18 Start: 6081, Stop: 5032, Start Num: 27

Candidate Starts for REQ1\_18:

(Start: 27 @6081 has 65 MA's), (34, 6033), (88, 5637), (102, 5499), (132, 5295), (138, 5232), (151, 5139), (166, 5043),

Gene: Raela\_102 Start: 58129, Stop: 57059, Start Num: 27

Candidate Starts for Raela\_102:

(12, 58201), (Start: 13 @58198 has 1 MA's), (16, 58192), (Start: 27 @58129 has 65 MA's), (Start: 30 @58114 has 1 MA's), (34, 58081), (43, 57988), (48, 57955), (53, 57931), (60, 57898), (61, 57895), (62, 57892), (64, 57877), (66, 57865), (73, 57838), (80, 57751), (82, 57739), (84, 57706), (87, 57679), (88, 57673), (90, 57655), (93, 57613), (94, 57598), (96, 57562), (100, 57550), (108, 57472), (109, 57466), (114, 57439), (119, 57418), (126, 57370), (130, 57343), (137, 57268), (141, 57247), (142, 57244), (166, 57076), (167, 57073),

Gene: Ramiel05\_57 Start: 37326, Stop: 38321, Start Num: 27

Candidate Starts for Ramiel05\_57:

(Start: 27 @37326 has 65 MA's), (41, 37446), (43, 37455), (45, 37467), (51, 37500), (53, 37506), (56, 37524), (77, 37635), (87, 37716), (94, 37794), (95, 37806), (112, 37929), (117, 37959), (138, 38130), (143, 38151), (146, 38181), (149, 38214), (156, 38262),



Gene: RedRaider77\_100 Start: 57591, Stop: 56452, Start Num: 13

Candidate Starts for RedRaider77\_100:

(12, 57594), (Start: 13 @57591 has 1 MA's), (16, 57585), (Start: 27 @57522 has 65 MA's), (Start: 30 @57507 has 1 MA's), (34, 57474), (43, 57381), (48, 57348), (53, 57324), (60, 57291), (61, 57288), (62, 57285), (64, 57270), (66, 57258), (73, 57231), (80, 57144), (82, 57132), (84, 57099), (87, 57072), (88, 57066), (90, 57048), (93, 57006), (94, 56991), (96, 56955), (100, 56943), (108, 56865), (109, 56859), (114, 56832), (119, 56811), (126, 56763), (130, 56736), (137, 56661), (141, 56640), (142, 56637), (166, 56469), (167, 56466),

Gene: Reindeer\_147 Start: 76556, Stop: 75483, Start Num: 30

Candidate Starts for Reindeer\_147:

(Start: 30 @76556 has 1 MA's), (33, 76532), (44, 76442), (49, 76406), (59, 76352), (67, 76319), (74, 76289), (76, 76265), (80, 76205), (90, 76109), (98, 76010), (99, 76007), (101, 75992), (109, 75920), (111, 75908), (112, 75905), (120, 75854), (126, 75818), (129, 75794), (139, 75695), (141, 75686), (147, 75650), (151, 75611), (166, 75515), (168, 75506),

Gene: Rey\_164 Start: 77837, Stop: 76674, Start Num: 10

Candidate Starts for Rey\_164:

(Start: 10 @77837 has 1 MA's), (18, 77819), (22, 77792), (Start: 29 @77747 has 12 MA's), (44, 77633), (48, 77603), (59, 77543), (80, 77396), (90, 77300), (93, 77258), (101, 77183), (107, 77120), (109, 77111), (110, 77102), (112, 77096), (113, 77087), (120, 77045), (123, 77027), (126, 77009), (129, 76985), (130, 76982), (141, 76877), (148, 76832), (151, 76802), (153, 76775), (166, 76706), (168, 76697), (170, 76688),

Gene: Riparian\_63 Start: 44163, Stop: 45359, Start Num: 8

Candidate Starts for Riparian\_63:

(Start: 8 @44163 has 11 MA's), (14, 44178), (26, 44244), (28, 44253), (37, 44334), (40, 44355), (42, 44370), (47, 44397), (55, 44457), (59, 44478), (65, 44511), (78, 44622), (79, 44628), (81, 44640), (85, 44679), (88, 44709), (91, 44748), (98, 44826), (100, 44832), (102, 44847), (121, 44985), (126, 45018), (129, 45042), (138, 45135), (141, 45153), (146, 45186), (156, 45270), (158, 45291), (162, 45306), (166, 45324), (167, 45327), (168, 45333), (170, 45342), (171, 45345),

Gene: RobinSparkles\_123 Start: 79116, Stop: 78055, Start Num: 27

Candidate Starts for RobinSparkles\_123:

(Start: 27 @79116 has 65 MA's), (32, 79092), (46, 78963), (48, 78945), (71, 78840), (77, 78780), (91, 78630), (105, 78510), (115, 78432), (116, 78426), (123, 78384), (128, 78351), (132, 78321), (138, 78258), (141, 78240), (158, 78099), (161, 78087), (165, 78078),

Gene: RobsFeet\_62 Start: 38777, Stop: 39772, Start Num: 27

Candidate Starts for RobsFeet\_62:

(Start: 27 @38777 has 65 MA's), (41, 38897), (43, 38906), (45, 38918), (51, 38951), (53, 38957), (56, 38975), (70, 39032), (77, 39086), (91, 39209), (94, 39245), (95, 39257), (112, 39380), (126, 39470), (138, 39581), (143, 39602), (146, 39632), (148, 39644), (149, 39665), (156, 39713),

Gene: Ronaldo\_83 Start: 43764, Stop: 42694, Start Num: 27

Candidate Starts for Ronaldo\_83:

(21, 43809), (24, 43779), (Start: 27 @43764 has 65 MA's), (32, 43740), (34, 43716), (39, 43644), (41, 43632), (48, 43593), (78, 43395), (80, 43386), (89, 43302), (92, 43260), (93, 43248), (94, 43233), (100, 43185), (116, 43068), (126, 43011), (130, 42984), (135, 42924), (154, 42774), (157, 42750), (159, 42735), (162, 42726), (165, 42720),

Gene: Rope\_61 Start: 44561, Stop: 45757, Start Num: 8

Candidate Starts for Rope\_61:

(Start: 8 @44561 has 11 MA's), (14, 44576), (26, 44642), (28, 44651), (37, 44732), (40, 44753), (42, 44768), (47, 44795), (55, 44855), (59, 44876), (65, 44909), (78, 45020), (79, 45026), (81, 45038), (85, 45077), (88, 45107), (91, 45146), (97, 45221), (98, 45224), (100, 45230), (102, 45245), (121, 45383), (129, 45440), (138, 45533), (141, 45551), (146, 45584), (156, 45668), (158, 45689), (162, 45704), (166, 45722), (167, 45725), (168, 45731), (170, 45740), (171, 45743),

Gene: Savannah\_57 Start: 37353, Stop: 38348, Start Num: 27

Candidate Starts for Savannah\_57:

(Start: 27 @37353 has 65 MA's), (41, 37473), (43, 37482), (45, 37494), (51, 37527), (53, 37533), (56, 37551), (77, 37662), (87, 37743), (94, 37821), (95, 37833), (112, 37956), (117, 37986), (138, 38157), (143, 38178), (146, 38208), (149, 38241), (156, 38289),

Gene: Scumberland\_59 Start: 37548, Stop: 38543, Start Num: 27

Candidate Starts for Scumberland\_59:

(Start: 27 @37548 has 65 MA's), (41, 37668), (43, 37677), (45, 37689), (51, 37722), (53, 37728), (56, 37746), (77, 37857), (87, 37938), (94, 38016), (95, 38028), (100, 38064), (112, 38151), (117, 38181), (138, 38352), (143, 38373), (146, 38403), (149, 38436), (156, 38484),

Gene: Selwyn23\_59 Start: 37496, Stop: 38491, Start Num: 27

Candidate Starts for Selwyn23\_59:

(Start: 27 @37496 has 65 MA's), (41, 37616), (43, 37625), (45, 37637), (51, 37670), (53, 37676), (56, 37694), (77, 37805), (87, 37886), (94, 37964), (95, 37976), (112, 38099), (117, 38129), (138, 38300), (143, 38321), (146, 38351), (149, 38384), (156, 38432),

Gene: Send513\_61 Start: 44696, Stop: 45892, Start Num: 8

Candidate Starts for Send513\_61:

(Start: 8 @44696 has 11 MA's), (14, 44711), (26, 44777), (28, 44786), (37, 44867), (40, 44888), (42, 44903), (47, 44930), (55, 44990), (59, 45011), (65, 45044), (78, 45155), (79, 45161), (81, 45173), (85, 45212), (88, 45242), (91, 45281), (98, 45359), (100, 45365), (102, 45380), (121, 45518), (126, 45551), (129, 45575), (138, 45668), (141, 45686), (146, 45719), (156, 45803), (158, 45824), (162, 45839), (166, 45857), (167, 45860), (168, 45866), (170, 45875), (171, 45878),

Gene: Shagrat\_38 Start: 31485, Stop: 30412, Start Num: 27

Candidate Starts for Shagrat\_38:

(Start: 27 @31485 has 65 MA's), (34, 31437), (49, 31308), (50, 31302), (57, 31269), (71, 31212), (75, 31182), (83, 31092), (88, 31041), (89, 31035), (102, 30903), (138, 30618), (140, 30603), (147, 30564), (151, 30525),

Gene: Shotgun\_58 Start: 37229, Stop: 38224, Start Num: 27

Candidate Starts for Shotgun\_58:

(Start: 27 @37229 has 65 MA's), (41, 37349), (43, 37358), (45, 37370), (51, 37403), (53, 37409), (56, 37427), (77, 37538), (87, 37619), (91, 37661), (94, 37697), (95, 37709), (112, 37832), (117, 37862), (138, 38033), (143, 38054), (146, 38084), (149, 38117), (156, 38165),

Gene: Skinny\_152 Start: 76530, Stop: 75361, Start Num: 11

Candidate Starts for Skinny\_152:

(2, 76611), (3, 76599), (Start: 11 @76530 has 5 MA's), (Start: 19 @76509 has 1 MA's), (Start: 29 @76434 has 12 MA's), (41, 76329), (44, 76320), (49, 76284), (59, 76230), (67, 76197), (74, 76167), (80, 76083), (90, 75987), (94, 75930), (98, 75888), (101, 75870), (107, 75807), (109, 75798), (111, 75786), (112, 75783), (120, 75732), (129, 75672), (139, 75573), (141, 75564), (147, 75528), (151, 75489), (153, 75462), (166, 75393), (168, 75384),

Gene: SlimJimmy\_146 Start: 75904, Stop: 74831, Start Num: 29

Candidate Starts for SlimJimmy\_146:

(2, 76081), (3, 76069), (Start: 11 @76000 has 5 MA's), (Start: 19 @75979 has 1 MA's), (Start: 29 @75904 has 12 MA's), (41, 75799), (44, 75790), (49, 75754), (59, 75700), (67, 75667), (74, 75637), (80, 75553), (90, 75457), (94, 75400), (98, 75358), (101, 75340), (107, 75277), (109, 75268), (111, 75256), (112, 75253), (120, 75202), (129, 75142), (139, 75043), (141, 75034), (147, 74998), (151, 74959), (166, 74863), (168, 74854),

Gene: Smarties\_67 Start: 39139, Stop: 40134, Start Num: 27

Candidate Starts for Smarties\_67:

(Start: 27 @39139 has 65 MA's), (Start: 30 @39154 has 1 MA's), (41, 39259), (43, 39268), (45, 39280), (51, 39313), (53, 39319), (56, 39337), (70, 39394), (77, 39448), (87, 39529), (91, 39571), (94, 39607), (95, 39619), (112, 39742), (117, 39772), (126, 39832), (138, 39943), (143, 39964), (148, 40006), (165, 40117),

Gene: Teamocil\_61 Start: 37414, Stop: 38409, Start Num: 27

Candidate Starts for Teamocil\_61:

(Start: 27 @37414 has 65 MA's), (Start: 30 @37429 has 1 MA's), (41, 37534), (43, 37543), (45, 37555), (56, 37612), (70, 37669), (77, 37723), (91, 37846), (94, 37882), (95, 37894), (112, 38017), (117, 38047), (126, 38107), (138, 38218), (143, 38239), (148, 38281), (149, 38302),

Gene: Tesla\_96 Start: 57368, Stop: 56298, Start Num: 27

Candidate Starts for Tesla\_96:

(Start: 19 @57422 has 1 MA's), (20, 57413), (Start: 27 @57368 has 65 MA's), (Start: 30 @57353 has 1 MA's), (34, 57320), (43, 57227), (48, 57194), (53, 57170), (60, 57137), (61, 57134), (62, 57131), (64, 57116), (66, 57104), (73, 57077), (80, 56990), (82, 56978), (84, 56945), (87, 56918), (88, 56912), (90, 56894), (93, 56852), (94, 56837), (96, 56801), (100, 56789), (108, 56711), (109, 56705), (119, 56657), (130, 56582), (137, 56507), (141, 56486), (142, 56483), (166, 56315), (167, 56312),

Gene: Trogglehumper\_109 Start: 75166, Stop: 74096, Start Num: 27

Candidate Starts for Trogglehumper\_109:

(Start: 27 @75166 has 65 MA's), (34, 75118), (50, 74983), (57, 74950), (58, 74941), (71, 74893), (74, 74884), (75, 74863), (80, 74800), (82, 74788), (83, 74773), (95, 74635), (100, 74599), (102, 74584), (105, 74563), (106, 74548), (115, 74491), (122, 74449), (137, 74308), (138, 74302), (140, 74287), (148, 74239), (151, 74209), (169, 74101),

Gene: TyDawg\_142 Start: 75349, Stop: 74276, Start Num: 29

Candidate Starts for TyDawg\_142:

(2, 75526), (3, 75514), (Start: 11 @75445 has 5 MA's), (Start: 19 @75424 has 1 MA's), (Start: 29 @75349 has 12 MA's), (41, 75244), (44, 75235), (49, 75199), (59, 75145), (67, 75112), (74, 75082), (80, 74998), (90, 74902), (98, 74803), (101, 74785), (107, 74722), (109, 74713), (111, 74701), (112, 74698), (120, 74647), (129, 74587), (139, 74488), (141, 74479), (147, 74443), (151, 74404), (166, 74308), (168, 74299),

Gene: Tyrumbra\_58 Start: 38636, Stop: 39631, Start Num: 27

Candidate Starts for Tyrumbra\_58:

(Start: 27 @38636 has 65 MA's), (41, 38756), (43, 38765), (45, 38777), (51, 38810), (53, 38816), (56, 38834), (70, 38891), (77, 38945), (91, 39068), (94, 39104), (95, 39116), (112, 39239), (126, 39329), (138, 39440), (143, 39461), (148, 39503), (149, 39524), (156, 39572),

Gene: VasuNzinga\_98 Start: 57452, Stop: 56382, Start Num: 27

Candidate Starts for VasuNzinga\_98:

(Start: 19 @57506 has 1 MA's), (20, 57497), (Start: 27 @57452 has 65 MA's), (Start: 30 @57437 has 1 MA's), (34, 57404), (43, 57311), (48, 57278), (53, 57254), (60, 57221), (61, 57218), (62, 57215), (64, 57200), (66, 57188), (73, 57161), (80, 57074), (82, 57062), (84, 57029), (87, 57002), (88, 56996), (90, 56978), (93, 56936), (94, 56921), (96, 56885), (100, 56873), (108, 56795), (109, 56789), (114, 56762), (119, 56741), (130, 56666), (137, 56591), (141, 56570), (142, 56567), (166, 56399), (167, 56396),

Gene: Volt\_83 Start: 43928, Stop: 42858, Start Num: 27

Candidate Starts for Volt\_83:

(21, 43973), (24, 43943), (Start: 27 @43928 has 65 MA's), (32, 43904), (34, 43880), (39, 43808), (41, 43796), (48, 43757), (78, 43559), (80, 43550), (89, 43466), (92, 43424), (93, 43412), (94, 43397), (100, 43349), (116, 43232), (126, 43175), (130, 43148), (135, 43088), (154, 42938), (157, 42914), (159, 42899), (162, 42890), (165, 42884),

Gene: Weiss13\_60 Start: 44400, Stop: 45596, Start Num: 8

Candidate Starts for Weiss13\_60:

(Start: 8 @44400 has 11 MA's), (14, 44415), (26, 44481), (28, 44490), (37, 44571), (40, 44592), (42, 44607), (47, 44634), (55, 44694), (59, 44715), (65, 44748), (78, 44859), (79, 44865), (81, 44877), (85, 44916), (88, 44946), (91, 44985), (98, 45063), (100, 45069), (102, 45084), (121, 45222), (126, 45255), (129, 45279), (138, 45372), (141, 45390), (146, 45423), (156, 45507), (158, 45528), (162, 45543), (166, 45561), (167, 45564), (168, 45570), (170, 45579), (171, 45582),

Gene: Yelo\_60 Start: 44779, Stop: 45975, Start Num: 8

Candidate Starts for Yelo\_60:

(Start: 8 @44779 has 11 MA's), (14, 44794), (26, 44860), (28, 44869), (37, 44950), (40, 44971), (42, 44986), (47, 45013), (55, 45073), (59, 45094), (65, 45127), (78, 45238), (79, 45244), (81, 45256), (85, 45295), (88, 45325), (91, 45364), (98, 45442), (100, 45448), (102, 45463), (121, 45601), (126, 45634), (129, 45658), (138, 45751), (141, 45769), (146, 45802), (156, 45886), (158, 45907), (162, 45922), (166, 45940), (167, 45943), (168, 45949), (170, 45958), (171, 45961),

Gene: Yeti\_58 Start: 37298, Stop: 38293, Start Num: 27

Candidate Starts for Yeti\_58:

(Start: 27 @37298 has 65 MA's), (41, 37418), (43, 37427), (45, 37439), (51, 37472), (53, 37478), (56, 37496), (77, 37607), (87, 37688), (94, 37766), (95, 37778), (112, 37901), (117, 37931), (138, 38102), (143, 38123), (146, 38153), (149, 38186), (156, 38234),

Gene: Zenon\_62 Start: 44725, Stop: 45921, Start Num: 8

Candidate Starts for Zenon\_62:

(Start: 8 @44725 has 11 MA's), (14, 44740), (26, 44806), (28, 44815), (37, 44896), (40, 44917), (42, 44932), (47, 44959), (55, 45019), (59, 45040), (65, 45073), (78, 45184), (79, 45190), (81, 45202), (85, 45241), (88, 45271), (91, 45310), (98, 45388), (100, 45394), (102, 45409), (121, 45547), (126, 45580), (129, 45604), (138, 45697), (141, 45715), (146, 45748), (156, 45832), (158, 45853), (162, 45868), (166, 45886), (167, 45889), (168, 45895), (170, 45904), (171, 45907),

Gene: Ziko\_83 Start: 43750, Stop: 42680, Start Num: 27

Candidate Starts for Ziko\_83:

(21, 43795), (24, 43765), (Start: 27 @43750 has 65 MA's), (32, 43726), (34, 43702), (39, 43630), (41, 43618), (48, 43579), (53, 43555), (63, 43504), (78, 43381), (89, 43288), (92, 43246), (93, 43234), (100, 43171), (116, 43054), (126, 42997), (130, 42970), (135, 42910), (154, 42760), (157, 42736), (159, 42721), (162, 42712), (165, 42706),