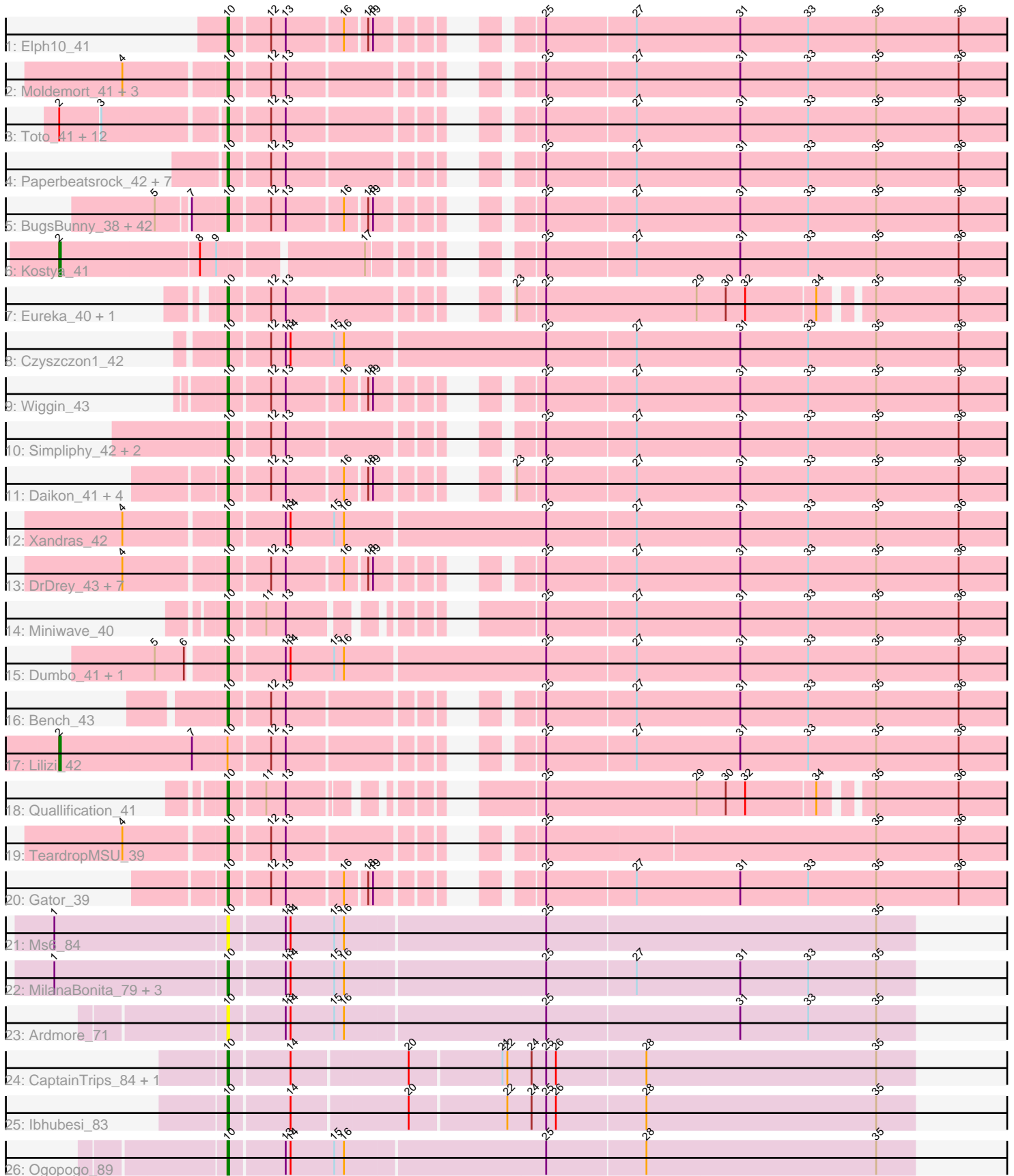


# Pham 192453



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 192453 Report

This analysis was run 11/02/24 on database version 579.

Pham number 192453 has 109 members, 7 are drafts.

Phages represented in each track:

- Track 1 : Elph10\_41
- Track 2 : Moldemort\_41, MadamMonkfish\_41, OrionPax\_42, AmericanBeauty\_42
- Track 3 : Toto\_41, ABCat\_40, BilboSwaggins\_41, Marshmallow\_41, IHOP\_40, Tuco\_43, CrystalP\_42, Myrale\_42, ShamWow\_42, StellaBean\_40, Phaja\_40, BaboJay\_40, Inca\_39
- Track 4 : Paperbeatsrock\_42, SophKB\_40, BadStone\_41, Tarkin\_42, NelitzaMV\_40, Dusk\_41, Pharsalus\_41, Henry\_42
- Track 5 : BugsBunny\_38, MPhalcon\_39, Cactus\_41, Icee\_39, Argent26\_42, GooberAzure\_42, Asriel\_39, HufflyPuff\_39, Goldilocks\_41, StolenFromERC\_42, Gage\_42, Murphy\_41, NoSleep\_41, Nala\_40, Stank\_43, xkcd\_41, MISSy\_39, Adnama\_43, Gemini\_43, Palpatine\_40, Lilac\_42, Nimrod\_40, Rakim\_41, Kimchi\_42, Barbarian\_39, Phaux\_39, FireRed\_40, Thresher\_42, Misfit\_40, Maxxinista\_41, Murica\_39, Command613\_41, Terminus\_40, Sotrice96\_40, GoldenSpark\_42, PhatBacter\_40, Stark\_41, RiverMonster\_40, Bask21\_40, Policronamos\_41, Hoonter\_42, TBrady12\_42, Cjw1\_41
- Track 6 : Kostya\_41
- Track 7 : Eureka\_40, Goku\_40
- Track 8 : Czyszczo1\_42
- Track 9 : Wiggin\_43
- Track 10 : Simpliphy\_42, Saints25\_42, Highbury\_42
- Track 11 : Daikon\_41, Traaww1\_38, Glexan\_39, Balomoji\_40, Harella\_41
- Track 12 : Xandras\_42
- Track 13 : DrDrey\_43, Phrux\_41, HanKaySha\_42, JeTaime\_43, 244\_44, Hopey\_43, Filch\_43, Pumpkin\_44
- Track 14 : Miniwave\_40
- Track 15 : Dumbo\_41, Easy2Say\_42
- Track 16 : Bench\_43
- Track 17 : Lilizi\_42
- Track 18 : Quallification\_41
- Track 19 : TeardropMSU\_39
- Track 20 : Gator\_39
- Track 21 : Ms6\_84
- Track 22 : MilanaBonita\_79, Kumao\_61, Akhila\_80, Fruitloop\_85
- Track 23 : Ardmore\_71
- Track 24 : CaptainTrips\_84, MinionDave\_80
- Track 25 : lbhubesi\_83
- Track 26 : Ogopogo\_89

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

The start number called the most often in the published annotations is 10, it was called in 100 of the 102 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 244\_44, ABCat\_40, Adnama\_43, Akhila\_80, AmericanBeauty\_42, Ardmores\_71, Argent26\_42, Asriel\_39, BaboJay\_40, BadStone\_41, Balomoji\_40, Barbarian\_39, Bask21\_40, Bench\_43, BilboSwaggins\_41, BugsBunny\_38, Cactus\_41, CaptainTrips\_84, Cjw1\_41, Command613\_41, CrystalP\_42, Czyszczonek\_42, Daikon\_41, DrDrey\_43, Dumbo\_41, Dusk\_41, Easy2Say\_42, Elph10\_41, Eureka\_40, Filch\_43, FireRed\_40, Fruitloop\_85, Gage\_42, Gator\_39, Gemini\_43, Glexan\_39, Goku\_40, GoldenSpark\_42, Goldilocks\_41, GooberAzure\_42, HanKaySha\_42, Harella\_41, Henry\_42, Highbury\_42, Hoonter\_42, Hopey\_43, HufflyPuff\_39, IHOP\_40, Ibhubesi\_83, Icee\_39, Inca\_39, JeTaime\_43, Kimchi\_42, Kumao\_61, Lilac\_42, MISSy\_39, MPhalcon\_39, MadamMonkfish\_41, Marshmallow\_41, Maxxinista\_41, MilanaBonita\_79, MinionDave\_80, Miniwave\_40, Misfit\_40, Moldemort\_41, Ms6\_84, Murica\_39, Murphy\_41, Myrale\_42, Nala\_40, NelitzaMV\_40, Nimrod\_40, NoSleep\_41, Ogopogo\_89, OrionPax\_42, Palpatine\_40, Paperbeatsrock\_42, Phaja\_40, Pharsalus\_41, PhatBacter\_40, Phaux\_39, Phrux\_41, Policronamos\_41, Pumpkin\_44, Quallification\_41, Rakim\_41, RiverMonster\_40, Saints25\_42, ShamWow\_42, Simpliphy\_42, SophKB\_40, Sotrice96\_40, Stank\_43, Stark\_41, StellaBean\_40, StolenFromERC\_42, TBrady12\_42, Tarkin\_42, TeardropMSU\_39, Terminus\_40, Thresher\_42, Toto\_41, Traaww1\_38, Tuco\_43, Wiggins\_43, Xandras\_42, xkcd\_41,

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

- Lilizi\_42,

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

- Kostya\_41,

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

Start 2:

- Found in 15 of 109 ( 13.8% ) of genes in pham
- Manual Annotations of this start: 2 of 102
- Called 13.3% of time when present
- Phage (with cluster) where this start called: Kostya\_41 (E), Lilizi\_42 (E),

Start 10:

- Found in 108 of 109 ( 99.1% ) of genes in pham
- Manual Annotations of this start: 100 of 102
- Called 99.1% of time when present
- Phage (with cluster) where this start called: 244\_44 (E), ABCat\_40 (E), Adnama\_43 (E), Akhila\_80 (F1), AmericanBeauty\_42 (E), Ardmores\_71 (F1), Argent26\_42 (E), Asriel\_39 (E), BaboJay\_40 (E), BadStone\_41 (E), Balomoji\_40 (E), Barbarian\_39 (E), Bask21\_40 (E), Bench\_43 (E), BilboSwaggins\_41 (E), BugsBunny\_38 (E), Cactus\_41 (E), CaptainTrips\_84 (F1), Cjw1\_41 (E), Command613\_41 (E), CrystalP\_42 (E),

Czyszczone1\_42 (E), Daikon\_41 (E), DrDrey\_43 (E), Dumbo\_41 (E), Dusk\_41 (E), Easy2Say\_42 (E), Elph10\_41 (E), Eureka\_40 (E), Filch\_43 (E), FireRed\_40 (E), Fruitloop\_85 (F1), Gage\_42 (E), Gator\_39 (E), Gemini\_43 (E), Glexan\_39 (E), Goku\_40 (E), GoldenSpark\_42 (E), Goldilocks\_41 (E), GooberAzure\_42 (E), HanKaySha\_42 (E), Harella\_41 (E), Henry\_42 (E), Highbury\_42 (E), Hoonter\_42 (E), Hopey\_43 (E), HufflyPuff\_39 (E), IHOP\_40 (E), Ibhubesi\_83 (F1), Icee\_39 (E), Inca\_39 (E), JeTaime\_43 (E), Kimchi\_42 (E), Kumao\_61 (singleton), Lilac\_42 (E), MISSy\_39 (E), MPhalcon\_39 (E), MadamMonkfish\_41 (E), Marshmallow\_41 (E), Maxxinista\_41 (E), MilanaBonita\_79 (F1), MinionDave\_80 (F1), Miniwave\_40 (E), Misfit\_40 (E), Moldemort\_41 (E), Ms6\_84 (F1), Murica\_39 (E), Murphy\_41 (E), Myrale\_42 (E), Nala\_40 (E), NelitzaMV\_40 (E), Nimrod\_40 (E), NoSleep\_41 (E), Ogoopogo\_89 (F1), OrionPax\_42 (E), Palpatine\_40 (E), Paperbeatsrock\_42 (E), Phaja\_40 (E), Pharsalus\_41 (E), PhatBacter\_40 (E), Phaux\_39 (E), Phrux\_41 (E), Policronamos\_41 (E), Pumpkin\_44 (E), Qualification\_41 (E), Rakim\_41 (E), RiverMonster\_40 (E), Saints25\_42 (E), ShamWow\_42 (E), Simpliphy\_42 (E), SophKB\_40 (E), Sotrice96\_40 (E), Stank\_43 (E), Stark\_41 (E), StellaBean\_40 (E), StolenFromERC\_42 (E), TBrady12\_42 (E), Tarkin\_42 (E), TeardropMSU\_39 (E), Terminus\_40 (E), Thresher\_42 (E), Toto\_41 (E), Traaww1\_38 (E), Tuco\_43 (E), Wiggins\_43 (E), Xandras\_42 (E), xkcd\_41 (E),

### Summary by clusters:

There are 3 clusters represented in this pham: F1, singleton, E,

Info for manual annotations of cluster E:

- Start number 2 was manually annotated 2 times for cluster E.
- Start number 10 was manually annotated 92 times for cluster E.

Info for manual annotations of cluster F1:

- Start number 10 was manually annotated 7 times for cluster F1.

### Gene Information:

Gene: 244\_44 Start: 35171, Stop: 34707, Start Num: 10

Candidate Starts for 244\_44:

(4, 35231), (Start: 10 @35171 has 100 MA's), (12, 35147), (13, 35138), (16, 35105), (18, 35093), (19, 35090), (25, 35027), (27, 34973), (31, 34910), (33, 34868), (35, 34826), (36, 34775),

Gene: ABCat\_40 Start: 35339, Stop: 34872, Start Num: 10

Candidate Starts for ABCat\_40:

(Start: 2 @35432 has 2 MA's), (3, 35408), (Start: 10 @35339 has 100 MA's), (12, 35315), (13, 35306), (25, 35192), (27, 35138), (31, 35075), (33, 35033), (35, 34991), (36, 34940),

Gene: Adnama\_43 Start: 35176, Stop: 34712, Start Num: 10

Candidate Starts for Adnama\_43:

(5, 35215), (7, 35197), (Start: 10 @35176 has 100 MA's), (12, 35152), (13, 35143), (16, 35110), (18, 35098), (19, 35095), (25, 35032), (27, 34978), (31, 34915), (33, 34873), (35, 34831), (36, 34780),

Gene: Akhila\_80 Start: 48623, Stop: 49036, Start Num: 10

Candidate Starts for Akhila\_80:

(1, 48518), (Start: 10 @48623 has 100 MA's), (13, 48656), (14, 48659), (15, 48686), (16, 48692), (25, 48812), (27, 48866), (31, 48929), (33, 48971), (35, 49013),

Gene: AmericanBeauty\_42 Start: 34659, Stop: 34192, Start Num: 10

Candidate Starts for AmericanBeauty\_42:

(4, 34719), (Start: 10 @34659 has 100 MA's), (12, 34635), (13, 34626), (25, 34512), (27, 34458), (31, 34395), (33, 34353), (35, 34311), (36, 34260),

Gene: Ardmore\_71 Start: 44747, Stop: 45160, Start Num: 10

Candidate Starts for Ardmore\_71:

(Start: 10 @44747 has 100 MA's), (13, 44780), (14, 44783), (15, 44810), (16, 44816), (25, 44936), (31, 45053), (33, 45095), (35, 45137),

Gene: Argent26\_42 Start: 34659, Stop: 34195, Start Num: 10

Candidate Starts for Argent26\_42:

(5, 34698), (7, 34680), (Start: 10 @34659 has 100 MA's), (12, 34635), (13, 34626), (16, 34593), (18, 34581), (19, 34578), (25, 34515), (27, 34461), (31, 34398), (33, 34356), (35, 34314), (36, 34263),

Gene: Asriel\_39 Start: 33513, Stop: 33049, Start Num: 10

Candidate Starts for Asriel\_39:

(5, 33552), (7, 33534), (Start: 10 @33513 has 100 MA's), (12, 33489), (13, 33480), (16, 33447), (18, 33435), (19, 33432), (25, 33369), (27, 33315), (31, 33252), (33, 33210), (35, 33168), (36, 33117),

Gene: BaboJay\_40 Start: 34740, Stop: 34270, Start Num: 10

Candidate Starts for BaboJay\_40:

(Start: 2 @34833 has 2 MA's), (3, 34809), (Start: 10 @34740 has 100 MA's), (12, 34713), (13, 34704), (25, 34590), (27, 34536), (31, 34473), (33, 34431), (35, 34389), (36, 34338),

Gene: BadStone\_41 Start: 35477, Stop: 35010, Start Num: 10

Candidate Starts for BadStone\_41:

(Start: 10 @35477 has 100 MA's), (12, 35453), (13, 35444), (25, 35330), (27, 35276), (31, 35213), (33, 35171), (35, 35129), (36, 35078),

Gene: Balomoji\_40 Start: 35070, Stop: 34606, Start Num: 10

Candidate Starts for Balomoji\_40:

(Start: 10 @35070 has 100 MA's), (12, 35046), (13, 35037), (16, 35004), (18, 34992), (19, 34989), (23, 34941), (25, 34926), (27, 34872), (31, 34809), (33, 34767), (35, 34725), (36, 34674),

Gene: Barbarian\_39 Start: 33513, Stop: 33049, Start Num: 10

Candidate Starts for Barbarian\_39:

(5, 33552), (7, 33534), (Start: 10 @33513 has 100 MA's), (12, 33489), (13, 33480), (16, 33447), (18, 33435), (19, 33432), (25, 33369), (27, 33315), (31, 33252), (33, 33210), (35, 33168), (36, 33117),

Gene: Bask21\_40 Start: 33847, Stop: 33383, Start Num: 10

Candidate Starts for Bask21\_40:

(5, 33886), (7, 33868), (Start: 10 @33847 has 100 MA's), (12, 33823), (13, 33814), (16, 33781), (18, 33769), (19, 33766), (25, 33703), (27, 33649), (31, 33586), (33, 33544), (35, 33502), (36, 33451),

Gene: Bench\_43 Start: 34755, Stop: 34288, Start Num: 10

Candidate Starts for Bench\_43:

(Start: 10 @34755 has 100 MA's), (12, 34731), (13, 34722), (25, 34608), (27, 34554), (31, 34491), (33, 34449), (35, 34407), (36, 34356),

Gene: BilboSwaggins\_41 Start: 35347, Stop: 34880, Start Num: 10

Candidate Starts for BilboSwaggins\_41:

(Start: 2 @35440 has 2 MA's), (3, 35416), (Start: 10 @35347 has 100 MA's), (12, 35323), (13, 35314), (25, 35200), (27, 35146), (31, 35083), (33, 35041), (35, 34999), (36, 34948),

Gene: BugsBunny\_38 Start: 34241, Stop: 33777, Start Num: 10

Candidate Starts for BugsBunny\_38:

(5, 34280), (7, 34262), (Start: 10 @34241 has 100 MA's), (12, 34217), (13, 34208), (16, 34175), (18, 34163), (19, 34160), (25, 34097), (27, 34043), (31, 33980), (33, 33938), (35, 33896), (36, 33845),

Gene: Cactus\_41 Start: 33880, Stop: 33416, Start Num: 10

Candidate Starts for Cactus\_41:

(5, 33919), (7, 33901), (Start: 10 @33880 has 100 MA's), (12, 33856), (13, 33847), (16, 33814), (18, 33802), (19, 33799), (25, 33736), (27, 33682), (31, 33619), (33, 33577), (35, 33535), (36, 33484),

Gene: CaptainTrips\_84 Start: 49276, Stop: 49686, Start Num: 10

Candidate Starts for CaptainTrips\_84:

(Start: 10 @49276 has 100 MA's), (14, 49312), (20, 49381), (21, 49435), (22, 49438), (24, 49453), (25, 49462), (26, 49468), (28, 49522), (35, 49663),

Gene: Cjw1\_41 Start: 35651, Stop: 35187, Start Num: 10

Candidate Starts for Cjw1\_41:

(5, 35690), (7, 35672), (Start: 10 @35651 has 100 MA's), (12, 35627), (13, 35618), (16, 35585), (18, 35573), (19, 35570), (25, 35507), (27, 35453), (31, 35390), (33, 35348), (35, 35306), (36, 35255),

Gene: Command613\_41 Start: 34919, Stop: 34455, Start Num: 10

Candidate Starts for Command613\_41:

(5, 34958), (7, 34940), (Start: 10 @34919 has 100 MA's), (12, 34895), (13, 34886), (16, 34853), (18, 34841), (19, 34838), (25, 34775), (27, 34721), (31, 34658), (33, 34616), (35, 34574), (36, 34523),

Gene: CrystalP\_42 Start: 35347, Stop: 34880, Start Num: 10

Candidate Starts for CrystalP\_42:

(Start: 2 @35440 has 2 MA's), (3, 35416), (Start: 10 @35347 has 100 MA's), (12, 35323), (13, 35314), (25, 35200), (27, 35146), (31, 35083), (33, 35041), (35, 34999), (36, 34948),

Gene: Czyszczone1\_42 Start: 34681, Stop: 34172, Start Num: 10

Candidate Starts for Czyszczone1\_42:

(Start: 10 @34681 has 100 MA's), (12, 34657), (13, 34648), (14, 34645), (15, 34618), (16, 34612), (25, 34492), (27, 34438), (31, 34375), (33, 34333), (35, 34291), (36, 34240),

Gene: Daikon\_41 Start: 35091, Stop: 34627, Start Num: 10

Candidate Starts for Daikon\_41:

(Start: 10 @35091 has 100 MA's), (12, 35067), (13, 35058), (16, 35025), (18, 35013), (19, 35010), (23, 34962), (25, 34947), (27, 34893), (31, 34830), (33, 34788), (35, 34746), (36, 34695),

Gene: DrDrey\_43 Start: 35973, Stop: 35509, Start Num: 10

Candidate Starts for DrDrey\_43:

(4, 36033), (Start: 10 @35973 has 100 MA's), (12, 35949), (13, 35940), (16, 35907), (18, 35895), (19, 35892), (25, 35829), (27, 35775), (31, 35712), (33, 35670), (35, 35628), (36, 35577),

Gene: Dumbo\_41 Start: 34403, Stop: 33894, Start Num: 10

Candidate Starts for Dumbo\_41:

(5, 34442), (6, 34424), (Start: 10 @34403 has 100 MA's), (13, 34370), (14, 34367), (15, 34340), (16, 34334), (25, 34214), (27, 34160), (31, 34097), (33, 34055), (35, 34013), (36, 33962),

Gene: Dusk\_41 Start: 35137, Stop: 34670, Start Num: 10

Candidate Starts for Dusk\_41:

(Start: 10 @35137 has 100 MA's), (12, 35113), (13, 35104), (25, 34990), (27, 34936), (31, 34873), (33, 34831), (35, 34789), (36, 34738),

Gene: Easy2Say\_42 Start: 35947, Stop: 35438, Start Num: 10

Candidate Starts for Easy2Say\_42:

(5, 35986), (6, 35968), (Start: 10 @35947 has 100 MA's), (13, 35914), (14, 35911), (15, 35884), (16, 35878), (25, 35758), (27, 35704), (31, 35641), (33, 35599), (35, 35557), (36, 35506),

Gene: Elph10\_41 Start: 34122, Stop: 33658, Start Num: 10

Candidate Starts for Elph10\_41:

(Start: 10 @34122 has 100 MA's), (12, 34098), (13, 34089), (16, 34056), (18, 34044), (19, 34041), (25, 33978), (27, 33924), (31, 33861), (33, 33819), (35, 33777), (36, 33726),

Gene: Eureka\_40 Start: 34965, Stop: 34495, Start Num: 10

Candidate Starts for Eureka\_40:

(Start: 10 @34965 has 100 MA's), (12, 34941), (13, 34932), (23, 34833), (25, 34818), (29, 34725), (30, 34707), (32, 34695), (34, 34653), (35, 34629), (36, 34578),

Gene: Filch\_43 Start: 34650, Stop: 34186, Start Num: 10

Candidate Starts for Filch\_43:

(4, 34710), (Start: 10 @34650 has 100 MA's), (12, 34626), (13, 34617), (16, 34584), (18, 34572), (19, 34569), (25, 34506), (27, 34452), (31, 34389), (33, 34347), (35, 34305), (36, 34254),

Gene: FireRed\_40 Start: 34680, Stop: 34216, Start Num: 10

Candidate Starts for FireRed\_40:

(5, 34719), (7, 34701), (Start: 10 @34680 has 100 MA's), (12, 34656), (13, 34647), (16, 34614), (18, 34602), (19, 34599), (25, 34536), (27, 34482), (31, 34419), (33, 34377), (35, 34335), (36, 34284),

Gene: Fruitloop\_85 Start: 51126, Stop: 51539, Start Num: 10

Candidate Starts for Fruitloop\_85:

(1, 51021), (Start: 10 @51126 has 100 MA's), (13, 51159), (14, 51162), (15, 51189), (16, 51195), (25, 51315), (27, 51369), (31, 51432), (33, 51474), (35, 51516),

Gene: Gage\_42 Start: 34659, Stop: 34195, Start Num: 10

Candidate Starts for Gage\_42:

(5, 34698), (7, 34680), (Start: 10 @34659 has 100 MA's), (12, 34635), (13, 34626), (16, 34593), (18, 34581), (19, 34578), (25, 34515), (27, 34461), (31, 34398), (33, 34356), (35, 34314), (36, 34263),

Gene: Gator\_39 Start: 34961, Stop: 34497, Start Num: 10

Candidate Starts for Gator\_39:

(Start: 10 @34961 has 100 MA's), (12, 34937), (13, 34928), (16, 34895), (18, 34883), (19, 34880), (25, 34817), (27, 34763), (31, 34700), (33, 34658), (35, 34616), (36, 34565),

Gene: Gemini\_43 Start: 35176, Stop: 34712, Start Num: 10

Candidate Starts for Gemini\_43:

(5, 35215), (7, 35197), (Start: 10 @35176 has 100 MA's), (12, 35152), (13, 35143), (16, 35110), (18, 35098), (19, 35095), (25, 35032), (27, 34978), (31, 34915), (33, 34873), (35, 34831), (36, 34780),

Gene: Glexan\_39 Start: 34949, Stop: 34485, Start Num: 10

Candidate Starts for Glexan\_39:

(Start: 10 @34949 has 100 MA's), (12, 34925), (13, 34916), (16, 34883), (18, 34871), (19, 34868), (23, 34820), (25, 34805), (27, 34751), (31, 34688), (33, 34646), (35, 34604), (36, 34553),

Gene: Goku\_40 Start: 34694, Stop: 34224, Start Num: 10

Candidate Starts for Goku\_40:

(Start: 10 @34694 has 100 MA's), (12, 34670), (13, 34661), (23, 34562), (25, 34547), (29, 34454), (30, 34436), (32, 34424), (34, 34382), (35, 34358), (36, 34307),

Gene: GoldenSpark\_42 Start: 34659, Stop: 34195, Start Num: 10

Candidate Starts for GoldenSpark\_42:

(5, 34698), (7, 34680), (Start: 10 @34659 has 100 MA's), (12, 34635), (13, 34626), (16, 34593), (18, 34581), (19, 34578), (25, 34515), (27, 34461), (31, 34398), (33, 34356), (35, 34314), (36, 34263),

Gene: Goldilocks\_41 Start: 34161, Stop: 33697, Start Num: 10

Candidate Starts for Goldilocks\_41:

(5, 34200), (7, 34182), (Start: 10 @34161 has 100 MA's), (12, 34137), (13, 34128), (16, 34095), (18, 34083), (19, 34080), (25, 34017), (27, 33963), (31, 33900), (33, 33858), (35, 33816), (36, 33765),

Gene: GooberAzure\_42 Start: 34659, Stop: 34195, Start Num: 10

Candidate Starts for GooberAzure\_42:

(5, 34698), (7, 34680), (Start: 10 @34659 has 100 MA's), (12, 34635), (13, 34626), (16, 34593), (18, 34581), (19, 34578), (25, 34515), (27, 34461), (31, 34398), (33, 34356), (35, 34314), (36, 34263),

Gene: HanKaySha\_42 Start: 34633, Stop: 34169, Start Num: 10

Candidate Starts for HanKaySha\_42:

(4, 34693), (Start: 10 @34633 has 100 MA's), (12, 34609), (13, 34600), (16, 34567), (18, 34555), (19, 34552), (25, 34489), (27, 34435), (31, 34372), (33, 34330), (35, 34288), (36, 34237),

Gene: Harella\_41 Start: 35465, Stop: 35001, Start Num: 10

Candidate Starts for Harella\_41:

(Start: 10 @35465 has 100 MA's), (12, 35441), (13, 35432), (16, 35399), (18, 35387), (19, 35384), (23, 35336), (25, 35321), (27, 35267), (31, 35204), (33, 35162), (35, 35120), (36, 35069),

Gene: Henry\_42 Start: 35356, Stop: 34889, Start Num: 10

Candidate Starts for Henry\_42:

(Start: 10 @35356 has 100 MA's), (12, 35332), (13, 35323), (25, 35209), (27, 35155), (31, 35092), (33, 35050), (35, 35008), (36, 34957),

Gene: Highbury\_42 Start: 34424, Stop: 33957, Start Num: 10

Candidate Starts for Highbury\_42:

(Start: 10 @34424 has 100 MA's), (12, 34400), (13, 34391), (25, 34277), (27, 34223), (31, 34160), (33, 34118), (35, 34076), (36, 34025),

Gene: Hoonter\_42 Start: 34659, Stop: 34195, Start Num: 10

Candidate Starts for Hoonter\_42:

(5, 34698), (7, 34680), (Start: 10 @34659 has 100 MA's), (12, 34635), (13, 34626), (16, 34593), (18, 34581), (19, 34578), (25, 34515), (27, 34461), (31, 34398), (33, 34356), (35, 34314), (36, 34263),

Gene: Hokey\_43 Start: 35168, Stop: 34704, Start Num: 10

Candidate Starts for Hokey\_43:



(4, 35228), (Start: 10 @35168 has 100 MA's), (12, 35144), (13, 35135), (16, 35102), (18, 35090), (19, 35087), (25, 35024), (27, 34970), (31, 34907), (33, 34865), (35, 34823), (36, 34772),

Gene: HufflyPuff\_39 Start: 34636, Stop: 34172, Start Num: 10

Candidate Starts for HufflyPuff\_39:

(5, 34675), (7, 34657), (Start: 10 @34636 has 100 MA's), (12, 34612), (13, 34603), (16, 34570), (18, 34558), (19, 34555), (25, 34492), (27, 34438), (31, 34375), (33, 34333), (35, 34291), (36, 34240),

Gene: IHOP\_40 Start: 34911, Stop: 34444, Start Num: 10

Candidate Starts for IHOP\_40:

(Start: 2 @35004 has 2 MA's), (3, 34980), (Start: 10 @34911 has 100 MA's), (12, 34887), (13, 34878), (25, 34764), (27, 34710), (31, 34647), (33, 34605), (35, 34563), (36, 34512),

Gene: lbhubesi\_83 Start: 48014, Stop: 48424, Start Num: 10

Candidate Starts for lbhubesi\_83:

(Start: 10 @48014 has 100 MA's), (14, 48050), (20, 48119), (22, 48176), (24, 48191), (25, 48200), (26, 48206), (28, 48260), (35, 48401),

Gene: Icee\_39 Start: 34327, Stop: 33863, Start Num: 10

Candidate Starts for Icee\_39:

(5, 34366), (7, 34348), (Start: 10 @34327 has 100 MA's), (12, 34303), (13, 34294), (16, 34261), (18, 34249), (19, 34246), (25, 34183), (27, 34129), (31, 34066), (33, 34024), (35, 33982), (36, 33931),

Gene: Inca\_39 Start: 33436, Stop: 32969, Start Num: 10

Candidate Starts for Inca\_39:

(Start: 2 @33529 has 2 MA's), (3, 33505), (Start: 10 @33436 has 100 MA's), (12, 33412), (13, 33403), (25, 33289), (27, 33235), (31, 33172), (33, 33130), (35, 33088), (36, 33037),

Gene: JeTaime\_43 Start: 35692, Stop: 35228, Start Num: 10

Candidate Starts for JeTaime\_43:

(4, 35752), (Start: 10 @35692 has 100 MA's), (12, 35668), (13, 35659), (16, 35626), (18, 35614), (19, 35611), (25, 35548), (27, 35494), (31, 35431), (33, 35389), (35, 35347), (36, 35296),

Gene: Kimchi\_42 Start: 34662, Stop: 34198, Start Num: 10

Candidate Starts for Kimchi\_42:

(5, 34701), (7, 34683), (Start: 10 @34662 has 100 MA's), (12, 34638), (13, 34629), (16, 34596), (18, 34584), (19, 34581), (25, 34518), (27, 34464), (31, 34401), (33, 34359), (35, 34317), (36, 34266),

Gene: Kostya\_41 Start: 34766, Stop: 34206, Start Num: 2

Candidate Starts for Kostya\_41:

(Start: 2 @34766 has 2 MA's), (8, 34682), (9, 34673), (17, 34592), (25, 34526), (27, 34472), (31, 34409), (33, 34367), (35, 34325), (36, 34274),

Gene: Kumao\_61 Start: 43622, Stop: 44035, Start Num: 10

Candidate Starts for Kumao\_61:

(1, 43517), (Start: 10 @43622 has 100 MA's), (13, 43655), (14, 43658), (15, 43685), (16, 43691), (25, 43811), (27, 43865), (31, 43928), (33, 43970), (35, 44012),

Gene: Lilac\_42 Start: 34149, Stop: 33685, Start Num: 10

Candidate Starts for Lilac\_42:

(5, 34188), (7, 34170), (Start: 10 @34149 has 100 MA's), (12, 34125), (13, 34116), (16, 34083), (18, 34071), (19, 34068), (25, 34005), (27, 33951), (31, 33888), (33, 33846), (35, 33804), (36, 33753),

Gene: Lilizi\_42 Start: 34462, Stop: 33893, Start Num: 2

Candidate Starts for Lilizi\_42:

(Start: 2 @34462 has 2 MA's), (7, 34381), (Start: 10 @34360 has 100 MA's), (12, 34336), (13, 34327), (25, 34213), (27, 34159), (31, 34096), (33, 34054), (35, 34012), (36, 33961),

Gene: MISSy\_39 Start: 34165, Stop: 33701, Start Num: 10

Candidate Starts for MISSy\_39:

(5, 34204), (7, 34186), (Start: 10 @34165 has 100 MA's), (12, 34141), (13, 34132), (16, 34099), (18, 34087), (19, 34084), (25, 34021), (27, 33967), (31, 33904), (33, 33862), (35, 33820), (36, 33769),

Gene: MPhalcon\_39 Start: 34158, Stop: 33694, Start Num: 10

Candidate Starts for MPhalcon\_39:

(5, 34197), (7, 34179), (Start: 10 @34158 has 100 MA's), (12, 34134), (13, 34125), (16, 34092), (18, 34080), (19, 34077), (25, 34014), (27, 33960), (31, 33897), (33, 33855), (35, 33813), (36, 33762),

Gene: MadamMonkfish\_41 Start: 34185, Stop: 33718, Start Num: 10

Candidate Starts for MadamMonkfish\_41:

(4, 34245), (Start: 10 @34185 has 100 MA's), (12, 34161), (13, 34152), (25, 34038), (27, 33984), (31, 33921), (33, 33879), (35, 33837), (36, 33786),

Gene: Marshmallow\_41 Start: 35345, Stop: 34878, Start Num: 10

Candidate Starts for Marshmallow\_41:

(Start: 2 @35438 has 2 MA's), (3, 35414), (Start: 10 @35345 has 100 MA's), (12, 35321), (13, 35312), (25, 35198), (27, 35144), (31, 35081), (33, 35039), (35, 34997), (36, 34946),

Gene: Maxxinista\_41 Start: 34119, Stop: 33655, Start Num: 10

Candidate Starts for Maxxinista\_41:

(5, 34158), (7, 34140), (Start: 10 @34119 has 100 MA's), (12, 34095), (13, 34086), (16, 34053), (18, 34041), (19, 34038), (25, 33975), (27, 33921), (31, 33858), (33, 33816), (35, 33774), (36, 33723),

Gene: MilanaBonita\_79 Start: 48623, Stop: 49036, Start Num: 10

Candidate Starts for MilanaBonita\_79:

(1, 48518), (Start: 10 @48623 has 100 MA's), (13, 48656), (14, 48659), (15, 48686), (16, 48692), (25, 48812), (27, 48866), (31, 48929), (33, 48971), (35, 49013),

Gene: MinionDave\_80 Start: 49276, Stop: 49686, Start Num: 10

Candidate Starts for MinionDave\_80:

(Start: 10 @49276 has 100 MA's), (14, 49312), (20, 49381), (21, 49435), (22, 49438), (24, 49453), (25, 49462), (26, 49468), (28, 49522), (35, 49663),

Gene: Miniwave\_40 Start: 34863, Stop: 34402, Start Num: 10

Candidate Starts for Miniwave\_40:

(Start: 10 @34863 has 100 MA's), (11, 34842), (13, 34830), (25, 34722), (27, 34668), (31, 34605), (33, 34563), (35, 34521), (36, 34470),

Gene: Misfit\_40 Start: 34739, Stop: 34275, Start Num: 10

Candidate Starts for Misfit\_40:

(5, 34778), (7, 34760), (Start: 10 @34739 has 100 MA's), (12, 34715), (13, 34706), (16, 34673), (18, 34661), (19, 34658), (25, 34595), (27, 34541), (31, 34478), (33, 34436), (35, 34394), (36, 34343),

Gene: Moldemort\_41 Start: 34414, Stop: 33947, Start Num: 10

Candidate Starts for Moldemort\_41:

(4, 34474), (Start: 10 @34414 has 100 MA's), (12, 34390), (13, 34381), (25, 34267), (27, 34213), (31, 34150), (33, 34108), (35, 34066), (36, 34015),

Gene: Ms6\_84 Start: 46316, Stop: 46729, Start Num: 10

Candidate Starts for Ms6\_84:

(1, 46211), (Start: 10 @46316 has 100 MA's), (13, 46349), (14, 46352), (15, 46379), (16, 46385), (25, 46505), (35, 46706),

Gene: Murica\_39 Start: 34636, Stop: 34172, Start Num: 10

Candidate Starts for Murica\_39:

(5, 34675), (7, 34657), (Start: 10 @34636 has 100 MA's), (12, 34612), (13, 34603), (16, 34570), (18, 34558), (19, 34555), (25, 34492), (27, 34438), (31, 34375), (33, 34333), (35, 34291), (36, 34240),

Gene: Murphy\_41 Start: 34631, Stop: 34167, Start Num: 10

Candidate Starts for Murphy\_41:

(5, 34670), (7, 34652), (Start: 10 @34631 has 100 MA's), (12, 34607), (13, 34598), (16, 34565), (18, 34553), (19, 34550), (25, 34487), (27, 34433), (31, 34370), (33, 34328), (35, 34286), (36, 34235),

Gene: Myrale\_42 Start: 35210, Stop: 34743, Start Num: 10

Candidate Starts for Myrale\_42:

(Start: 2 @35303 has 2 MA's), (3, 35279), (Start: 10 @35210 has 100 MA's), (12, 35186), (13, 35177), (25, 35063), (27, 35009), (31, 34946), (33, 34904), (35, 34862), (36, 34811),

Gene: Nala\_40 Start: 34670, Stop: 34206, Start Num: 10

Candidate Starts for Nala\_40:

(5, 34709), (7, 34691), (Start: 10 @34670 has 100 MA's), (12, 34646), (13, 34637), (16, 34604), (18, 34592), (19, 34589), (25, 34526), (27, 34472), (31, 34409), (33, 34367), (35, 34325), (36, 34274),

Gene: NelitzaMV\_40 Start: 34723, Stop: 34256, Start Num: 10

Candidate Starts for NelitzaMV\_40:

(Start: 10 @34723 has 100 MA's), (12, 34699), (13, 34690), (25, 34576), (27, 34522), (31, 34459), (33, 34417), (35, 34375), (36, 34324),

Gene: Nimrod\_40 Start: 34894, Stop: 34430, Start Num: 10

Candidate Starts for Nimrod\_40:

(5, 34933), (7, 34915), (Start: 10 @34894 has 100 MA's), (12, 34870), (13, 34861), (16, 34828), (18, 34816), (19, 34813), (25, 34750), (27, 34696), (31, 34633), (33, 34591), (35, 34549), (36, 34498),

Gene: NoSleep\_41 Start: 34391, Stop: 33927, Start Num: 10

Candidate Starts for NoSleep\_41:

(5, 34430), (7, 34412), (Start: 10 @34391 has 100 MA's), (12, 34367), (13, 34358), (16, 34325), (18, 34313), (19, 34310), (25, 34247), (27, 34193), (31, 34130), (33, 34088), (35, 34046), (36, 33995),

Gene: Ogopogo\_89 Start: 49435, Stop: 49848, Start Num: 10

Candidate Starts for Ogopogo\_89:

(Start: 10 @49435 has 100 MA's), (13, 49468), (14, 49471), (15, 49498), (16, 49504), (25, 49624), (28, 49684), (35, 49825),

Gene: OrionPax\_42 Start: 34639, Stop: 34172, Start Num: 10

Candidate Starts for OrionPax\_42:

(4, 34699), (Start: 10 @34639 has 100 MA's), (12, 34615), (13, 34606), (25, 34492), (27, 34438), (31, 34375), (33, 34333), (35, 34291), (36, 34240),

Gene: Palpatine\_40 Start: 34666, Stop: 34202, Start Num: 10

Candidate Starts for Palpatine\_40:

(5, 34705), (7, 34687), (Start: 10 @34666 has 100 MA's), (12, 34642), (13, 34633), (16, 34600), (18, 34588), (19, 34585), (25, 34522), (27, 34468), (31, 34405), (33, 34363), (35, 34321), (36, 34270),

Gene: Paperbeatsrock\_42 Start: 35652, Stop: 35185, Start Num: 10

Candidate Starts for Paperbeatsrock\_42:

(Start: 10 @35652 has 100 MA's), (12, 35628), (13, 35619), (25, 35505), (27, 35451), (31, 35388), (33, 35346), (35, 35304), (36, 35253),

Gene: Phaja\_40 Start: 34910, Stop: 34443, Start Num: 10

Candidate Starts for Phaja\_40:

(Start: 2 @35003 has 2 MA's), (3, 34979), (Start: 10 @34910 has 100 MA's), (12, 34886), (13, 34877), (25, 34763), (27, 34709), (31, 34646), (33, 34604), (35, 34562), (36, 34511),

Gene: Pharsalus\_41 Start: 35452, Stop: 34985, Start Num: 10

Candidate Starts for Pharsalus\_41:

(Start: 10 @35452 has 100 MA's), (12, 35428), (13, 35419), (25, 35305), (27, 35251), (31, 35188), (33, 35146), (35, 35104), (36, 35053),

Gene: PhatBacter\_40 Start: 34680, Stop: 34216, Start Num: 10

Candidate Starts for PhatBacter\_40:

(5, 34719), (7, 34701), (Start: 10 @34680 has 100 MA's), (12, 34656), (13, 34647), (16, 34614), (18, 34602), (19, 34599), (25, 34536), (27, 34482), (31, 34419), (33, 34377), (35, 34335), (36, 34284),

Gene: Phaux\_39 Start: 34678, Stop: 34214, Start Num: 10

Candidate Starts for Phaux\_39:

(5, 34717), (7, 34699), (Start: 10 @34678 has 100 MA's), (12, 34654), (13, 34645), (16, 34612), (18, 34600), (19, 34597), (25, 34534), (27, 34480), (31, 34417), (33, 34375), (35, 34333), (36, 34282),

Gene: Phrux\_41 Start: 34632, Stop: 34168, Start Num: 10

Candidate Starts for Phrux\_41:

(4, 34692), (Start: 10 @34632 has 100 MA's), (12, 34608), (13, 34599), (16, 34566), (18, 34554), (19, 34551), (25, 34488), (27, 34434), (31, 34371), (33, 34329), (35, 34287), (36, 34236),

Gene: Policronamos\_41 Start: 34678, Stop: 34214, Start Num: 10

Candidate Starts for Policronamos\_41:

(5, 34717), (7, 34699), (Start: 10 @34678 has 100 MA's), (12, 34654), (13, 34645), (16, 34612), (18, 34600), (19, 34597), (25, 34534), (27, 34480), (31, 34417), (33, 34375), (35, 34333), (36, 34282),

Gene: Pumpkin\_44 Start: 35558, Stop: 35094, Start Num: 10

Candidate Starts for Pumpkin\_44:

(4, 35618), (Start: 10 @35558 has 100 MA's), (12, 35534), (13, 35525), (16, 35492), (18, 35480), (19, 35477), (25, 35414), (27, 35360), (31, 35297), (33, 35255), (35, 35213), (36, 35162),

Gene: Quallification\_41 Start: 34860, Stop: 34411, Start Num: 10

Candidate Starts for Quallification\_41:

(Start: 10 @34860 has 100 MA's), (11, 34839), (13, 34827), (25, 34719), (29, 34626), (30, 34608), (32, 34596), (34, 34554), (35, 34530), (36, 34479),

Gene: Rakim\_41 Start: 34775, Stop: 34311, Start Num: 10

Candidate Starts for Rakim\_41:

(5, 34814), (7, 34796), (Start: 10 @34775 has 100 MA's), (12, 34751), (13, 34742), (16, 34709), (18, 34697), (19, 34694), (25, 34631), (27, 34577), (31, 34514), (33, 34472), (35, 34430), (36, 34379),

Gene: RiverMonster\_40 Start: 34407, Stop: 33943, Start Num: 10

Candidate Starts for RiverMonster\_40:

(5, 34446), (7, 34428), (Start: 10 @34407 has 100 MA's), (12, 34383), (13, 34374), (16, 34341), (18, 34329), (19, 34326), (25, 34263), (27, 34209), (31, 34146), (33, 34104), (35, 34062), (36, 34011),

Gene: Saints25\_42 Start: 34424, Stop: 33957, Start Num: 10

Candidate Starts for Saints25\_42:

(Start: 10 @34424 has 100 MA's), (12, 34400), (13, 34391), (25, 34277), (27, 34223), (31, 34160), (33, 34118), (35, 34076), (36, 34025),

Gene: ShamWow\_42 Start: 35347, Stop: 34880, Start Num: 10

Candidate Starts for ShamWow\_42:

(Start: 2 @35440 has 2 MA's), (3, 35416), (Start: 10 @35347 has 100 MA's), (12, 35323), (13, 35314), (25, 35200), (27, 35146), (31, 35083), (33, 35041), (35, 34999), (36, 34948),

Gene: Simpliphy\_42 Start: 34499, Stop: 34032, Start Num: 10

Candidate Starts for Simpliphy\_42:

(Start: 10 @34499 has 100 MA's), (12, 34475), (13, 34466), (25, 34352), (27, 34298), (31, 34235), (33, 34193), (35, 34151), (36, 34100),

Gene: SophKB\_40 Start: 34671, Stop: 34204, Start Num: 10

Candidate Starts for SophKB\_40:

(Start: 10 @34671 has 100 MA's), (12, 34647), (13, 34638), (25, 34524), (27, 34470), (31, 34407), (33, 34365), (35, 34323), (36, 34272),

Gene: Sotrice96\_40 Start: 34623, Stop: 34159, Start Num: 10

Candidate Starts for Sotrice96\_40:

(5, 34662), (7, 34644), (Start: 10 @34623 has 100 MA's), (12, 34599), (13, 34590), (16, 34557), (18, 34545), (19, 34542), (25, 34479), (27, 34425), (31, 34362), (33, 34320), (35, 34278), (36, 34227),

Gene: Stank\_43 Start: 35175, Stop: 34711, Start Num: 10

Candidate Starts for Stank\_43:

(5, 35214), (7, 35196), (Start: 10 @35175 has 100 MA's), (12, 35151), (13, 35142), (16, 35109), (18, 35097), (19, 35094), (25, 35031), (27, 34977), (31, 34914), (33, 34872), (35, 34830), (36, 34779),

Gene: Stark\_41 Start: 34410, Stop: 33946, Start Num: 10

Candidate Starts for Stark\_41:

(5, 34449), (7, 34431), (Start: 10 @34410 has 100 MA's), (12, 34386), (13, 34377), (16, 34344), (18, 34332), (19, 34329), (25, 34266), (27, 34212), (31, 34149), (33, 34107), (35, 34065), (36, 34014),

Gene: StellaBean\_40 Start: 34671, Stop: 34204, Start Num: 10

Candidate Starts for StellaBean\_40:

(Start: 2 @34764 has 2 MA's), (3, 34740), (Start: 10 @34671 has 100 MA's), (12, 34647), (13, 34638), (25, 34524), (27, 34470), (31, 34407), (33, 34365), (35, 34323), (36, 34272),

Gene: StolenFromERC\_42 Start: 34659, Stop: 34195, Start Num: 10

Candidate Starts for StolenFromERC\_42:

(5, 34698), (7, 34680), (Start: 10 @34659 has 100 MA's), (12, 34635), (13, 34626), (16, 34593), (18, 34581), (19, 34578), (25, 34515), (27, 34461), (31, 34398), (33, 34356), (35, 34314), (36, 34263),

Gene: TBrady12\_42 Start: 34659, Stop: 34195, Start Num: 10

Candidate Starts for TBrady12\_42:

(5, 34698), (7, 34680), (Start: 10 @34659 has 100 MA's), (12, 34635), (13, 34626), (16, 34593), (18, 34581), (19, 34578), (25, 34515), (27, 34461), (31, 34398), (33, 34356), (35, 34314), (36, 34263),

Gene: Tarkin\_42 Start: 35661, Stop: 35194, Start Num: 10

Candidate Starts for Tarkin\_42:

(Start: 10 @35661 has 100 MA's), (12, 35637), (13, 35628), (25, 35514), (27, 35460), (31, 35397), (33, 35355), (35, 35313), (36, 35262),

Gene: TeardropMSU\_39 Start: 34571, Stop: 34104, Start Num: 10

Candidate Starts for TeardropMSU\_39:

(4, 34631), (Start: 10 @34571 has 100 MA's), (12, 34547), (13, 34538), (25, 34424), (35, 34223), (36, 34172),

Gene: Terminus\_40 Start: 34739, Stop: 34275, Start Num: 10

Candidate Starts for Terminus\_40:

(5, 34778), (7, 34760), (Start: 10 @34739 has 100 MA's), (12, 34715), (13, 34706), (16, 34673), (18, 34661), (19, 34658), (25, 34595), (27, 34541), (31, 34478), (33, 34436), (35, 34394), (36, 34343),

Gene: Thresher\_42 Start: 35645, Stop: 35181, Start Num: 10

Candidate Starts for Thresher\_42:

(5, 35684), (7, 35666), (Start: 10 @35645 has 100 MA's), (12, 35621), (13, 35612), (16, 35579), (18, 35567), (19, 35564), (25, 35501), (27, 35447), (31, 35384), (33, 35342), (35, 35300), (36, 35249),

Gene: Toto\_41 Start: 35347, Stop: 34880, Start Num: 10

Candidate Starts for Toto\_41:

(Start: 2 @35440 has 2 MA's), (3, 35416), (Start: 10 @35347 has 100 MA's), (12, 35323), (13, 35314), (25, 35200), (27, 35146), (31, 35083), (33, 35041), (35, 34999), (36, 34948),

Gene: Traaww1\_38 Start: 34290, Stop: 33826, Start Num: 10

Candidate Starts for Traaww1\_38:

(Start: 10 @34290 has 100 MA's), (12, 34266), (13, 34257), (16, 34224), (18, 34212), (19, 34209), (23, 34161), (25, 34146), (27, 34092), (31, 34029), (33, 33987), (35, 33945), (36, 33894),

Gene: Tuco\_43 Start: 35855, Stop: 35388, Start Num: 10

Candidate Starts for Tuco\_43:

(Start: 2 @35948 has 2 MA's), (3, 35924), (Start: 10 @35855 has 100 MA's), (12, 35831), (13, 35822), (25, 35708), (27, 35654), (31, 35591), (33, 35549), (35, 35507), (36, 35456),

Gene: Wiggin\_43 Start: 35173, Stop: 34709, Start Num: 10

Candidate Starts for Wiggin\_43:

(Start: 10 @35173 has 100 MA's), (12, 35149), (13, 35140), (16, 35107), (18, 35095), (19, 35092), (25, 35029), (27, 34975), (31, 34912), (33, 34870), (35, 34828), (36, 34777),

Gene: Xandras\_42 Start: 34687, Stop: 34178, Start Num: 10

Candidate Starts for Xandras\_42:

(4, 34747), (Start: 10 @34687 has 100 MA's), (13, 34654), (14, 34651), (15, 34624), (16, 34618), (25, 34498), (27, 34444), (31, 34381), (33, 34339), (35, 34297), (36, 34246),

Gene: xkcd\_41 Start: 34821, Stop: 34357, Start Num: 10

Candidate Starts for xkcd\_41:

(5, 34860), (7, 34842), (Start: 10 @34821 has 100 MA's), (12, 34797), (13, 34788), (16, 34755), (18, 34743), (19, 34740), (25, 34677), (27, 34623), (31, 34560), (33, 34518), (35, 34476), (36, 34425),