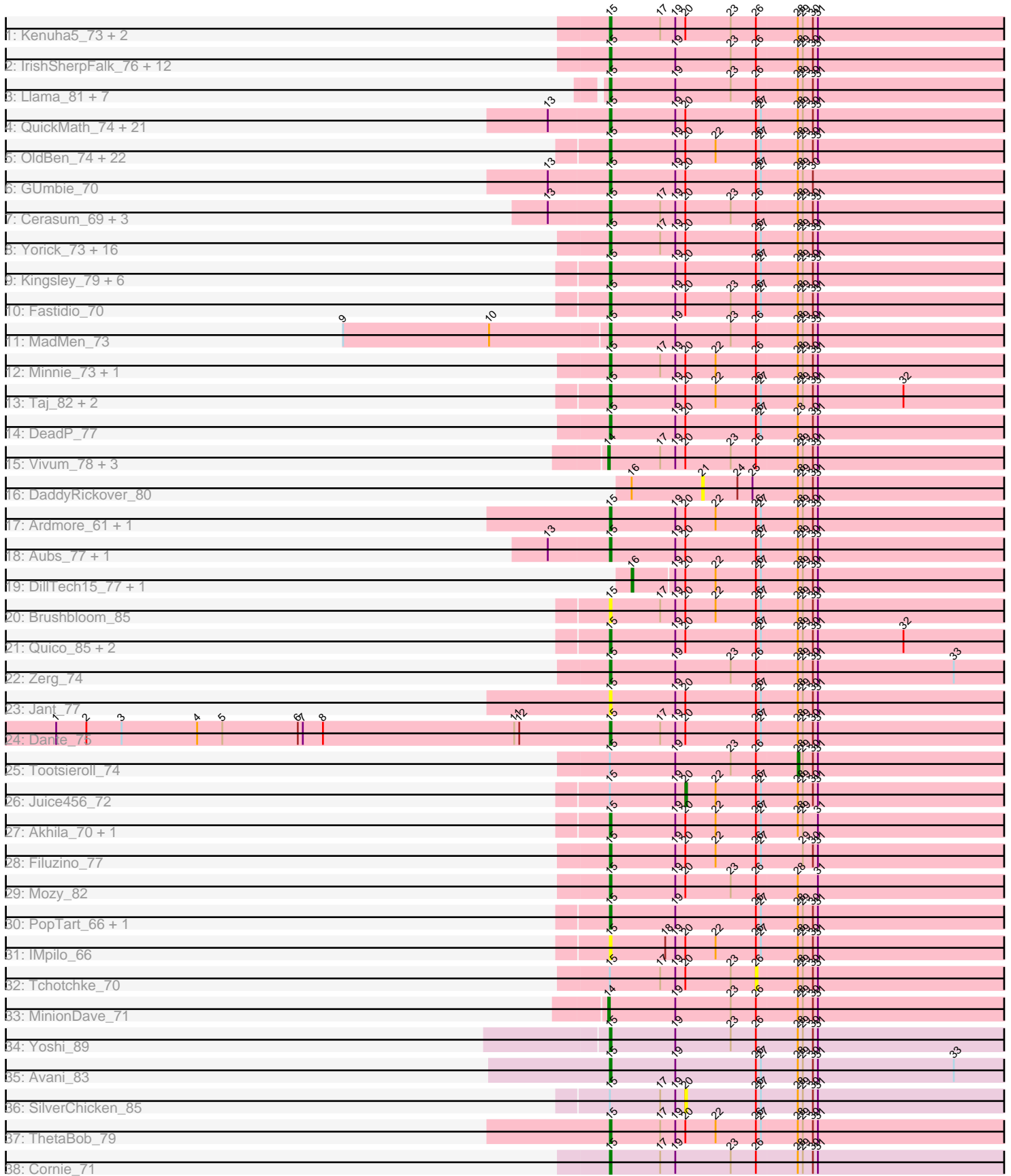


Pham 219500



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 219500 Report

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

Pham number 219500 has 140 members, 14 are drafts.

Phages represented in each track:

- Track 1 : Kenuha5\_73, Gandolph\_74, SuperGrey\_76
- Track 2 : IrishSherpFalk\_76, Latretium\_72, Squirty\_77, Byougenkin\_74, Bubbles123\_71, Marker\_76, XFactor\_71, DoRead\_80, Rita\_82, Ibhuesi\_73, Whouxphf\_72, Tweety\_76, WillSterrel\_76
- Track 3 : Llama\_81, Ochi17\_80, Seabastian\_82, AlpineSix\_81, OfUltron\_82, Jinglebell\_81, Modragons\_79, Wachhund\_75
- Track 4 : QuickMath\_74, DRBy19\_79, Soul22\_79, Kimberlium\_75, Zizzle\_78, Jabbawokkie\_85, Jarcob\_75, Mattes\_77, Saal\_75, Clifton\_68, Lizziana\_80, IbOuu\_73, MulchExplorer\_77, Blarby\_84, Spoonbill\_73, Philus\_78, Veteran\_68, OlympiaSaint\_75, Gorge\_77, James\_76, Firehouse51\_72, Zapner\_84
- Track 5 : OldBen\_74, JoeyJr\_77, JalFarm20\_84, KingMidas\_76, PHappiness\_77, Harley\_75, Polka14\_81, Nimbo\_69, Geralt\_70, Leperchaun\_75, Daenerys\_76, Doomphist\_80, KristaRAM\_74, Inventum\_75, RedBird\_78, Seagreen\_77, Dorothy\_78, Poenanya\_80, Empress\_75, RitaG\_77, Deb65\_70, Scottish\_75, Sassafras\_78
- Track 6 : GUmbie\_70
- Track 7 : Cerasum\_69, Brookers\_70, BigPhil\_69, Coco12\_72
- Track 8 : Yorick\_73, DirtMcgirt\_73, UncleRicky\_73, EleanorGeorge\_78, Burwell21\_72, Llij\_70, Lorde\_74, Flathead\_75, Blexus\_72, Leozinho\_75, Martik\_77, Pippy\_72, Drago\_71, Enby\_75, Maravista\_77, ShroomBoi\_76, Phatniss\_71
- Track 9 : Kingsley\_79, SiSi\_72, SG4\_73, Shauna1\_75, LittleShirley\_76, Phanphagia\_74, Whatsapiecost\_70
- Track 10 : Fastidio\_70
- Track 11 : MadMen\_73
- Track 12 : Minnie\_73, Sandalphon\_71
- Track 13 : Taj\_82, Wee\_81, Ms6\_74
- Track 14 : DeadP\_77
- Track 15 : Vivum\_78, DotProduct\_72, Totinger\_72, GigiOuiOui\_70
- Track 16 : DaddyRickover\_80
- Track 17 : Ardmore\_61, Chuckly\_73
- Track 18 : Aubs\_77, Guppsters\_70
- Track 19 : DillTech15\_77, Ogopogo\_81
- Track 20 : Brushbloom\_85
- Track 21 : Quico\_85, Girafales\_85, Florinda\_88
- Track 22 : Zerg\_74
- Track 23 : Jant\_77
- Track 24 : Dante\_75

- Track 25 : Tootsieroll\_74
- Track 26 : Juice456\_72
- Track 27 : Akhila\_70, MilanaBonita\_69
- Track 28 : Filuzino\_77
- Track 29 : Mozy\_82
- Track 30 : PopTart\_66, SassyB\_66
- Track 31 : IMpilo\_66
- Track 32 : Tchotchke\_70
- Track 33 : MinionDave\_71
- Track 34 : Yoshi\_89
- Track 35 : Avani\_83
- Track 36 : SilverChicken\_85
- Track 37 : ThetaBob\_79
- Track 38 : Cornie\_71

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

The start number called the most often in the published annotations is 15, it was called in 118 of the 126 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Akhila\_70, AlpineSix\_81, Ardmore\_61, Aubs\_77, Avani\_83, BigPhil\_69, Blarby\_84, Blexus\_72, Brookers\_70, Brushbloom\_85, Bubbles123\_71, Burwell21\_72, Byougenkin\_74, Cerasum\_69, Chuckly\_73, Clifton\_68, Coco12\_72, Cornie\_71, DRBy19\_79, Daenerys\_76, Dante\_75, DeadP\_77, Deb65\_70, DirtMcgirt\_73, DoRead\_80, Doomphist\_80, Dorothy\_78, Drago\_71, EleanorGeorge\_78, Empress\_75, Enby\_75, Fastidio\_70, Filuzino\_77, Firehouse51\_72, Flathead\_75, Florinda\_88, GUmbe\_70, Gandalph\_74, Geralt\_70, Girafales\_85, Gorge\_77, Guppsters\_70, Harley\_75, IMpilo\_66, IbOuu\_73, Ibhubesi\_73, Inventum\_75, IrishSherpFalk\_76, Jabbawokkie\_85, JalFarm20\_84, James\_76, Jant\_77, Jarcob\_75, Jinglebell\_81, JoeyJr\_77, Kenuha5\_73, Kimberlium\_75, KingMidas\_76, Kingsley\_79, KristaRAM\_74, Latretium\_72, Leozinho\_75, Leperchaun\_75, LittleShirley\_76, Lizziana\_80, Llama\_81, Llij\_70, Lorde\_74, MadMen\_73, Maravista\_77, Marker\_76, Martik\_77, Mattes\_77, MilanaBonita\_69, Minnie\_73, Modragons\_79, Mozy\_82, Ms6\_74, MulchExplorer\_77, Nimbo\_69, Ochi17\_80, OfUltron\_82, OldBen\_74, OlympiaSaint\_75, PHappiness\_77, Phanphagia\_74, Phatniss\_71, Philus\_78, Pippy\_72, Poenanya\_80, Polka14\_81, PopTart\_66, QuickMath\_74, Quico\_85, RedBird\_78, RitaG\_77, Rita\_82, SG4\_73, Saal\_75, Sandalphon\_71, Sassafras\_78, SassyB\_66, Scottish\_75, Seabastian\_82, Seagreen\_77, Shauna1\_75, ShroomBoi\_76, SiSi\_72, Soul22\_79, Spoonbill\_73, Squirty\_77, SuperGrey\_76, Taj\_82, ThetaBob\_79, Tweety\_76, UncleRicky\_73, Veteran\_68, Wachhund\_75, Wee\_81, Whatsapiecost\_70, Whouxphf\_72, WillSterrel\_76, XFactor\_71, Yorick\_73, Yoshi\_89, Zapner\_84, Zerg\_74, Zizzle\_78,

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

- Juice456\_72, SilverChicken\_85, Tchotchke\_70, Tootsieroll\_74,

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

- DaddyRickover\_80, DillTech15\_77, DotProduct\_72, GigiOuiOui\_70, MinionDave\_71, Ogotogo\_81, Totinger\_72, Vivum\_78,

## Summary by start number:

### Start 14:

- Found in 5 of 140 ( 3.6% ) of genes in pham
- Manual Annotations of this start: 4 of 126
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DotProduct\_72 (F1), GigiOuiOui\_70 (F1), MinionDave\_71 (F1), Totinger\_72 (F1), Vivum\_78 (F1),

### Start 15:

- Found in 132 of 140 ( 94.3% ) of genes in pham
- Manual Annotations of this start: 118 of 126
- Called 97.0% of time when present
- Phage (with cluster) where this start called: Akhila\_70 (F1), AlpineSix\_81 (F1), Ardmore\_61 (F1), Aubs\_77 (F1), Avani\_83 (F2), BigPhil\_69 (F1), Blarby\_84 (F), Blexus\_72 (F1), Brookers\_70 (F1), Brushbloom\_85 (F1), Bubbles123\_71 (F1), Burwell21\_72 (F1), Byougenkin\_74 (F1), Cerasum\_69 (F1), Chuckly\_73 (F1), Clifton\_68 (F1), Coco12\_72 (F1), Cornie\_71 (F5), DRBy19\_79 (F1), Daenerys\_76 (F1), Dante\_75 (F1), DeadP\_77 (F1), Deb65\_70 (F1), DirtMcgirt\_73 (F1), DoRead\_80 (F1), Doomphist\_80 (F1), Dorothy\_78 (F1), Drago\_71 (F1), EleanorGeorge\_78 (F1), Empress\_75 (F1), Enby\_75 (F1), Fastidio\_70 (F1), Filuzino\_77 (F1), Firehouse51\_72 (F1), Flathead\_75 (F1), Florinda\_88 (F1), GUmble\_70 (F1), Gandalph\_74 (F1), Geralt\_70 (F1), Girafales\_85 (F1), Gorge\_77 (F1), Guppsters\_70 (F1), Harley\_75 (F1), IMpilo\_66 (F1), IbOuu\_73 (F1), Ibhubesi\_73 (F1), Inventum\_75 (F1), IrishSherpFalk\_76 (F1), Jabbawokkie\_85 (F2), JalFarm20\_84 (F1), James\_76 (F1), Jant\_77 (F1), Jarcob\_75 (F1), Jinglebell\_81 (F1), JoeyJr\_77 (F1), Kenuha5\_73 (F1), Kimberlium\_75 (F1), KingMidas\_76 (F1), Kingsley\_79 (F1), KristaRAM\_74 (F1), Latretium\_72 (F1), Leozinho\_75 (F1), Leperchaun\_75 (F1), LittleShirley\_76 (F1), Lizziana\_80 (F1), Llama\_81 (F1), Llij\_70 (F1), Lorde\_74 (F1), MadMen\_73 (F1), Maravista\_77 (F1), Marker\_76 (F1), Martik\_77 (F1), Mattes\_77 (F1), MilanaBonita\_69 (F1), Minnie\_73 (F1), Modragons\_79 (F1), Mozy\_82 (F1), Ms6\_74 (F1), MulchExplorer\_77 (F1), Nimbo\_69 (F1), Ochi17\_80 (F1), OfUltron\_82 (F1), OldBen\_74 (F1), OlympiaSaint\_75 (F1), PHappiness\_77 (F1), Phanphagia\_74 (F1), Phatniss\_71 (F1), Philus\_78 (F1), Pippy\_72 (F1), Poenanya\_80 (F1), Polka14\_81 (F1), PopTart\_66 (F1), QuickMath\_74 (F1), Quico\_85 (F1), RedBird\_78 (F1), RitaG\_77 (F1), Rita\_82 (F1), SG4\_73 (F1), Saal\_75 (F1), Sandalphon\_71 (F1), Sassafras\_78 (F1), SassyB\_66 (F1), Scottish\_75 (F1), Seabastian\_82 (F1), Seagreen\_77 (F1), Shauna1\_75 (F1), ShroomBoi\_76 (F1), SiSi\_72 (F1), Soul22\_79 (F2), Spoonbill\_73 (F1), Squirty\_77 (F3), SuperGrey\_76 (F1), Taj\_82 (F1), ThetaBob\_79 (F4), Tweety\_76 (F1), UncleRicky\_73 (F1), Veteran\_68 (F1), Wachhund\_75 (F1), Wee\_81 (F1), Whatsapiecost\_70 (F1), Whouxphf\_72 (F1), WillSterrel\_76 (F1), XFactor\_71 (F1), Yorick\_73 (F1), Yoshi\_89 (F2), Zapner\_84 (F2), Zerg\_74 (F1), Zizzle\_78 (F1),

### Start 16:

- Found in 3 of 140 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 2 of 126
- Called 66.7% of time when present
- Phage (with cluster) where this start called: DillTech15\_77 (F1), Ogopogo\_81 (F1),

### Start 20:

- Found in 109 of 140 ( 77.9% ) of genes in pham

- Manual Annotations of this start: 1 of 126
- Called 1.8% of time when present
- Phage (with cluster) where this start called: Juice456\_72 (F1), SilverChicken\_85 (F2),

Start 21:

- Found in 1 of 140 ( 0.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DaddyRickover\_80 (F1),

Start 26:

- Found in 139 of 140 ( 99.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 0.7% of time when present
- Phage (with cluster) where this start called: Tchotchke\_70 (F1),

Start 28:

- Found in 139 of 140 ( 99.3% ) of genes in pham
- Manual Annotations of this start: 1 of 126
- Called 0.7% of time when present
- Phage (with cluster) where this start called: Tootsieroll\_74 (F1),

### **Summary by clusters:**

There are 6 clusters represented in this pham: F1, F2, F3, F4, F5, F,

Info for manual annotations of cluster F1:

- Start number 14 was manually annotated 4 times for cluster F1.
- Start number 15 was manually annotated 110 times for cluster F1.
- Start number 16 was manually annotated 2 times for cluster F1.
- Start number 20 was manually annotated 1 time for cluster F1.
- Start number 28 was manually annotated 1 time for cluster F1.

Info for manual annotations of cluster F2:

- Start number 15 was manually annotated 5 times for cluster F2.

Info for manual annotations of cluster F3:

- Start number 15 was manually annotated 1 time for cluster F3.

Info for manual annotations of cluster F4:

- Start number 15 was manually annotated 1 time for cluster F4.

Info for manual annotations of cluster F5:

- Start number 15 was manually annotated 1 time for cluster F5.

### **Gene Information:**

Gene: Akhila\_70 Start: 45997, Stop: 46260, Start Num: 15

Candidate Starts for Akhila\_70:

(Start: 15 @45997 has 118 MA's), (19, 46036), (Start: 20 @46042 has 1 MA's), (22, 46060), (26, 46084), (27, 46087), (Start: 28 @46108 has 1 MA's), (29, 46111), (31, 46120),

Gene: AlpineSix\_81 Start: 48210, Stop: 48473, Start Num: 15

Candidate Starts for AlpineSix\_81:

(Start: 15 @48210 has 118 MA's), (19, 48249), (23, 48282), (26, 48297), (Start: 28 @48321 has 1 MA's), (29, 48324), (30, 48330), (31, 48333),

Gene: Ardmore\_61 Start: 42203, Stop: 42466, Start Num: 15

Candidate Starts for Ardmore\_61:

(Start: 15 @42203 has 118 MA's), (19, 42242), (Start: 20 @42248 has 1 MA's), (22, 42266), (26, 42290), (27, 42293), (Start: 28 @42314 has 1 MA's), (29, 42317), (30, 42323), (31, 42326),

Gene: Aubs\_77 Start: 48345, Stop: 48608, Start Num: 15

Candidate Starts for Aubs\_77:

(13, 48309), (Start: 15 @48345 has 118 MA's), (19, 48384), (Start: 20 @48390 has 1 MA's), (26, 48432), (27, 48435), (Start: 28 @48456 has 1 MA's), (29, 48459), (30, 48465), (31, 48468),

Gene: Avani\_83 Start: 45436, Stop: 45696, Start Num: 15

Candidate Starts for Avani\_83:

(Start: 15 @45436 has 118 MA's), (19, 45475), (26, 45523), (27, 45526), (Start: 28 @45547 has 1 MA's), (29, 45550), (30, 45556), (31, 45559), (33, 45640),

Gene: BigPhil\_69 Start: 43418, Stop: 43681, Start Num: 15

Candidate Starts for BigPhil\_69:

(13, 43382), (Start: 15 @43418 has 118 MA's), (17, 43448), (19, 43457), (Start: 20 @43463 has 1 MA's), (23, 43490), (26, 43505), (Start: 28 @43529 has 1 MA's), (29, 43532), (30, 43538), (31, 43541),

Gene: Blarby\_84 Start: 46350, Stop: 46613, Start Num: 15

Candidate Starts for Blarby\_84:

(13, 46314), (Start: 15 @46350 has 118 MA's), (19, 46389), (Start: 20 @46395 has 1 MA's), (26, 46437), (27, 46440), (Start: 28 @46461 has 1 MA's), (29, 46464), (30, 46470), (31, 46473),

Gene: Blexus\_72 Start: 47780, Stop: 48040, Start Num: 15

Candidate Starts for Blexus\_72:

(Start: 15 @47780 has 118 MA's), (17, 47810), (19, 47819), (Start: 20 @47825 has 1 MA's), (26, 47867), (27, 47870), (Start: 28 @47891 has 1 MA's), (29, 47894), (30, 47900), (31, 47903),

Gene: Brookers\_70 Start: 46369, Stop: 46632, Start Num: 15

Candidate Starts for Brookers\_70:

(13, 46333), (Start: 15 @46369 has 118 MA's), (17, 46399), (19, 46408), (Start: 20 @46414 has 1 MA's), (23, 46441), (26, 46456), (Start: 28 @46480 has 1 MA's), (29, 46483), (30, 46489), (31, 46492),

Gene: Brushbloom\_85 Start: 49136, Stop: 49399, Start Num: 15

Candidate Starts for Brushbloom\_85:

(Start: 15 @49136 has 118 MA's), (17, 49166), (19, 49175), (Start: 20 @49181 has 1 MA's), (22, 49199), (26, 49223), (27, 49226), (Start: 28 @49247 has 1 MA's), (29, 49250), (30, 49256), (31, 49259),

Gene: Bubbles123\_71 Start: 47407, Stop: 47667, Start Num: 15

Candidate Starts for Bubbles123\_71:

(Start: 15 @47407 has 118 MA's), (19, 47446), (23, 47479), (26, 47494), (Start: 28 @47518 has 1 MA's), (29, 47521), (30, 47527), (31, 47530),

Gene: Burwell21\_72 Start: 47228, Stop: 47491, Start Num: 15

Candidate Starts for Burwell21\_72:

(Start: 15 @47228 has 118 MA's), (17, 47258), (19, 47267), (Start: 20 @47273 has 1 MA's), (26, 47315), (27, 47318), (Start: 28 @47339 has 1 MA's), (29, 47342), (30, 47348), (31, 47351),

Gene: Byougenkin\_74 Start: 45276, Stop: 45536, Start Num: 15

Candidate Starts for Byougenkin\_74:

(Start: 15 @45276 has 118 MA's), (19, 45315), (23, 45348), (26, 45363), (Start: 28 @45387 has 1 MA's), (29, 45390), (30, 45396), (31, 45399),

Gene: Cerasum\_69 Start: 43436, Stop: 43699, Start Num: 15

Candidate Starts for Cerasum\_69:

(13, 43400), (Start: 15 @43436 has 118 MA's), (17, 43466), (19, 43475), (Start: 20 @43481 has 1 MA's), (23, 43508), (26, 43523), (Start: 28 @43547 has 1 MA's), (29, 43550), (30, 43556), (31, 43559),

Gene: Chuckly\_73 Start: 44774, Stop: 45043, Start Num: 15

Candidate Starts for Chuckly\_73:

(Start: 15 @44774 has 118 MA's), (19, 44813), (Start: 20 @44819 has 1 MA's), (22, 44837), (26, 44861), (27, 44864), (Start: 28 @44885 has 1 MA's), (29, 44888), (30, 44894), (31, 44897),

Gene: Clifton\_68 Start: 45729, Stop: 45998, Start Num: 15

Candidate Starts for Clifton\_68:

(13, 45693), (Start: 15 @45729 has 118 MA's), (19, 45768), (Start: 20 @45774 has 1 MA's), (26, 45816), (27, 45819), (Start: 28 @45840 has 1 MA's), (29, 45843), (30, 45849), (31, 45852),

Gene: Coco12\_72 Start: 47493, Stop: 47756, Start Num: 15

Candidate Starts for Coco12\_72:

(13, 47457), (Start: 15 @47493 has 118 MA's), (17, 47523), (19, 47532), (Start: 20 @47538 has 1 MA's), (23, 47565), (26, 47580), (Start: 28 @47604 has 1 MA's), (29, 47607), (30, 47613), (31, 47616),

Gene: Cornie\_71 Start: 45997, Stop: 46260, Start Num: 15

Candidate Starts for Cornie\_71:

(Start: 15 @45997 has 118 MA's), (17, 46027), (19, 46036), (23, 46069), (26, 46084), (Start: 28 @46108 has 1 MA's), (29, 46111), (30, 46117), (31, 46120),

Gene: DRBy19\_79 Start: 49458, Stop: 49727, Start Num: 15

Candidate Starts for DRBy19\_79:

(13, 49422), (Start: 15 @49458 has 118 MA's), (19, 49497), (Start: 20 @49503 has 1 MA's), (26, 49545), (27, 49548), (Start: 28 @49569 has 1 MA's), (29, 49572), (30, 49578), (31, 49581),

Gene: DaddyRickover\_80 Start: 49400, Stop: 49606, Start Num: 21

Candidate Starts for DaddyRickover\_80:

(Start: 16 @49358 has 2 MA's), (21, 49400), (24, 49421), (25, 49430), (Start: 28 @49457 has 1 MA's), (29, 49460), (30, 49466), (31, 49469),

Gene: Daenerys\_76 Start: 48942, Stop: 49205, Start Num: 15

Candidate Starts for Daenerys\_76:

(Start: 15 @48942 has 118 MA's), (19, 48981), (Start: 20 @48987 has 1 MA's), (22, 49005), (26, 49029), (27, 49032), (Start: 28 @49053 has 1 MA's), (29, 49056), (30, 49062), (31, 49065),

Gene: Dante\_75 Start: 49464, Stop: 49727, Start Num: 15

Candidate Starts for Dante\_75:

(1, 49134), (2, 49152), (3, 49173), (4, 49218), (5, 49233), (6, 49278), (7, 49281), (8, 49293), (11, 49407), (12, 49410), (Start: 15 @49464 has 118 MA's), (17, 49494), (19, 49503), (Start: 20 @49509 has 1 MA's), (26, 49551), (27, 49554), (Start: 28 @49575 has 1 MA's), (29, 49578), (30, 49584), (31, 49587),

Gene: DeadP\_77 Start: 46561, Stop: 46824, Start Num: 15

Candidate Starts for DeadP\_77:

(Start: 15 @46561 has 118 MA's), (19, 46600), (Start: 20 @46606 has 1 MA's), (26, 46648), (27, 46651), (Start: 28 @46672 has 1 MA's), (30, 46681), (31, 46684),

Gene: Deb65\_70 Start: 46664, Stop: 46927, Start Num: 15

Candidate Starts for Deb65\_70:

(Start: 15 @46664 has 118 MA's), (19, 46703), (Start: 20 @46709 has 1 MA's), (22, 46727), (26, 46751), (27, 46754), (Start: 28 @46775 has 1 MA's), (29, 46778), (30, 46784), (31, 46787),

Gene: DillTech15\_77 Start: 46271, Stop: 46519, Start Num: 16

Candidate Starts for DillTech15\_77:

(Start: 16 @46271 has 2 MA's), (19, 46295), (Start: 20 @46301 has 1 MA's), (22, 46319), (26, 46343), (27, 46346), (Start: 28 @46367 has 1 MA's), (29, 46370), (30, 46376), (31, 46379),

Gene: DirtMcgirt\_73 Start: 44667, Stop: 44927, Start Num: 15

Candidate Starts for DirtMcgirt\_73:

(Start: 15 @44667 has 118 MA's), (17, 44697), (19, 44706), (Start: 20 @44712 has 1 MA's), (26, 44754), (27, 44757), (Start: 28 @44778 has 1 MA's), (29, 44781), (30, 44787), (31, 44790),

Gene: DoRead\_80 Start: 46011, Stop: 46274, Start Num: 15

Candidate Starts for DoRead\_80:

(Start: 15 @46011 has 118 MA's), (19, 46050), (23, 46083), (26, 46098), (Start: 28 @46122 has 1 MA's), (29, 46125), (30, 46131), (31, 46134),

Gene: Doomphist\_80 Start: 48755, Stop: 49015, Start Num: 15

Candidate Starts for Doomphist\_80:

(Start: 15 @48755 has 118 MA's), (19, 48794), (Start: 20 @48800 has 1 MA's), (22, 48818), (26, 48842), (27, 48845), (Start: 28 @48866 has 1 MA's), (29, 48869), (30, 48875), (31, 48878),

Gene: Dorothy\_78 Start: 49393, Stop: 49656, Start Num: 15

Candidate Starts for Dorothy\_78:

(Start: 15 @49393 has 118 MA's), (19, 49432), (Start: 20 @49438 has 1 MA's), (22, 49456), (26, 49480), (27, 49483), (Start: 28 @49504 has 1 MA's), (29, 49507), (30, 49513), (31, 49516),

Gene: DotProduct\_72 Start: 46308, Stop: 46571, Start Num: 14

Candidate Starts for DotProduct\_72:

(Start: 14 @46308 has 4 MA's), (17, 46338), (19, 46347), (Start: 20 @46353 has 1 MA's), (23, 46380), (26, 46395), (Start: 28 @46419 has 1 MA's), (29, 46422), (30, 46428), (31, 46431),

Gene: Drago\_71 Start: 44670, Stop: 44930, Start Num: 15

Candidate Starts for Drago\_71:

(Start: 15 @44670 has 118 MA's), (17, 44700), (19, 44709), (Start: 20 @44715 has 1 MA's), (26, 44757), (27, 44760), (Start: 28 @44781 has 1 MA's), (29, 44784), (30, 44790), (31, 44793),

Gene: EleanorGeorge\_78 Start: 48348, Stop: 48611, Start Num: 15

Candidate Starts for EleanorGeorge\_78:



(Start: 15 @48348 has 118 MA's), (17, 48378), (19, 48387), (Start: 20 @48393 has 1 MA's), (26, 48435), (27, 48438), (Start: 28 @48459 has 1 MA's), (29, 48462), (30, 48468), (31, 48471),

Gene: Empress\_75 Start: 47566, Stop: 47826, Start Num: 15

Candidate Starts for Empress\_75:

(Start: 15 @47566 has 118 MA's), (19, 47605), (Start: 20 @47611 has 1 MA's), (22, 47629), (26, 47653), (27, 47656), (Start: 28 @47677 has 1 MA's), (29, 47680), (30, 47686), (31, 47689),

Gene: Enby\_75 Start: 44946, Stop: 45206, Start Num: 15

Candidate Starts for Enby\_75:

(Start: 15 @44946 has 118 MA's), (17, 44976), (19, 44985), (Start: 20 @44991 has 1 MA's), (26, 45033), (27, 45036), (Start: 28 @45057 has 1 MA's), (29, 45060), (30, 45066), (31, 45069),

Gene: Fastidio\_70 Start: 43064, Stop: 43327, Start Num: 15

Candidate Starts for Fastidio\_70:

(Start: 15 @43064 has 118 MA's), (19, 43103), (Start: 20 @43109 has 1 MA's), (23, 43136), (26, 43151), (27, 43154), (Start: 28 @43175 has 1 MA's), (29, 43178), (30, 43184), (31, 43187),

Gene: Filuzino\_77 Start: 49292, Stop: 49555, Start Num: 15

Candidate Starts for Filuzino\_77:

(Start: 15 @49292 has 118 MA's), (19, 49331), (Start: 20 @49337 has 1 MA's), (22, 49355), (26, 49379), (27, 49382), (29, 49406), (30, 49412), (31, 49415),

Gene: Firehouse51\_72 Start: 48557, Stop: 48820, Start Num: 15

Candidate Starts for Firehouse51\_72:

(13, 48521), (Start: 15 @48557 has 118 MA's), (19, 48596), (Start: 20 @48602 has 1 MA's), (26, 48644), (27, 48647), (Start: 28 @48668 has 1 MA's), (29, 48671), (30, 48677), (31, 48680),

Gene: Flathead\_75 Start: 47006, Stop: 47269, Start Num: 15

Candidate Starts for Flathead\_75:

(Start: 15 @47006 has 118 MA's), (17, 47036), (19, 47045), (Start: 20 @47051 has 1 MA's), (26, 47093), (27, 47096), (Start: 28 @47117 has 1 MA's), (29, 47120), (30, 47126), (31, 47129),

Gene: Florinda\_88 Start: 50208, Stop: 50471, Start Num: 15

Candidate Starts for Florinda\_88:

(Start: 15 @50208 has 118 MA's), (19, 50247), (Start: 20 @50253 has 1 MA's), (26, 50295), (27, 50298), (Start: 28 @50319 has 1 MA's), (29, 50322), (30, 50328), (31, 50331), (32, 50382),

Gene: GUmbie\_70 Start: 46728, Stop: 46991, Start Num: 15

Candidate Starts for GUmbie\_70:

(13, 46692), (Start: 15 @46728 has 118 MA's), (19, 46767), (Start: 20 @46773 has 1 MA's), (26, 46815), (27, 46818), (Start: 28 @46839 has 1 MA's), (29, 46842), (30, 46848),

Gene: Gandalph\_74 Start: 44756, Stop: 45019, Start Num: 15

Candidate Starts for Gandalph\_74:

(Start: 15 @44756 has 118 MA's), (17, 44786), (19, 44795), (Start: 20 @44801 has 1 MA's), (23, 44828), (26, 44843), (Start: 28 @44867 has 1 MA's), (29, 44870), (30, 44876), (31, 44879),

Gene: Geralt\_70 Start: 46662, Stop: 46925, Start Num: 15

Candidate Starts for Geralt\_70:

(Start: 15 @46662 has 118 MA's), (19, 46701), (Start: 20 @46707 has 1 MA's), (22, 46725), (26, 46749), (27, 46752), (Start: 28 @46773 has 1 MA's), (29, 46776), (30, 46782), (31, 46785),

Gene: GigiOuiOui\_70 Start: 46399, Stop: 46662, Start Num: 14

Candidate Starts for GigiOuiOui\_70:

(Start: 14 @46399 has 4 MA's), (17, 46429), (19, 46438), (Start: 20 @46444 has 1 MA's), (23, 46471), (26, 46486), (Start: 28 @46510 has 1 MA's), (29, 46513), (30, 46519), (31, 46522),

Gene: Girafales\_85 Start: 49813, Stop: 50076, Start Num: 15

Candidate Starts for Girafales\_85:

(Start: 15 @49813 has 118 MA's), (19, 49852), (Start: 20 @49858 has 1 MA's), (26, 49900), (27, 49903), (Start: 28 @49924 has 1 MA's), (29, 49927), (30, 49933), (31, 49936), (32, 49987),

Gene: Gorge\_77 Start: 48668, Stop: 48937, Start Num: 15

Candidate Starts for Gorge\_77:

(13, 48632), (Start: 15 @48668 has 118 MA's), (19, 48707), (Start: 20 @48713 has 1 MA's), (26, 48755), (27, 48758), (Start: 28 @48779 has 1 MA's), (29, 48782), (30, 48788), (31, 48791),

Gene: Guppsters\_70 Start: 45099, Stop: 45362, Start Num: 15

Candidate Starts for Guppsters\_70:

(13, 45063), (Start: 15 @45099 has 118 MA's), (19, 45138), (Start: 20 @45144 has 1 MA's), (26, 45186), (27, 45189), (Start: 28 @45210 has 1 MA's), (29, 45213), (30, 45219), (31, 45222),

Gene: Harley\_75 Start: 46896, Stop: 47156, Start Num: 15

Candidate Starts for Harley\_75:

(Start: 15 @46896 has 118 MA's), (19, 46935), (Start: 20 @46941 has 1 MA's), (22, 46959), (26, 46983), (27, 46986), (Start: 28 @47007 has 1 MA's), (29, 47010), (30, 47016), (31, 47019),

Gene: IMpilo\_66 Start: 43421, Stop: 43684, Start Num: 15

Candidate Starts for IMpilo\_66:

(Start: 15 @43421 has 118 MA's), (18, 43454), (19, 43460), (Start: 20 @43466 has 1 MA's), (22, 43484), (26, 43508), (27, 43511), (Start: 28 @43532 has 1 MA's), (29, 43535), (30, 43541), (31, 43544),

Gene: lbOuu\_73 Start: 45535, Stop: 45804, Start Num: 15

Candidate Starts for lbOuu\_73:

(13, 45499), (Start: 15 @45535 has 118 MA's), (19, 45574), (Start: 20 @45580 has 1 MA's), (26, 45622), (27, 45625), (Start: 28 @45646 has 1 MA's), (29, 45649), (30, 45655), (31, 45658),

Gene: lbhubesi\_73 Start: 45070, Stop: 45330, Start Num: 15

Candidate Starts for lbhubesi\_73:

(Start: 15 @45070 has 118 MA's), (19, 45109), (23, 45142), (26, 45157), (Start: 28 @45181 has 1 MA's), (29, 45184), (30, 45190), (31, 45193),

Gene: Inventum\_75 Start: 47578, Stop: 47841, Start Num: 15

Candidate Starts for Inventum\_75:

(Start: 15 @47578 has 118 MA's), (19, 47617), (Start: 20 @47623 has 1 MA's), (22, 47641), (26, 47665), (27, 47668), (Start: 28 @47689 has 1 MA's), (29, 47692), (30, 47698), (31, 47701),

Gene: IrishSherpFalk\_76 Start: 48130, Stop: 48390, Start Num: 15

Candidate Starts for IrishSherpFalk\_76:

(Start: 15 @48130 has 118 MA's), (19, 48169), (23, 48202), (26, 48217), (Start: 28 @48241 has 1 MA's), (29, 48244), (30, 48250), (31, 48253),

Gene: Jabbawokkie\_85 Start: 46270, Stop: 46533, Start Num: 15

Candidate Starts for Jabbawokkie\_85:

(13, 46234), (Start: 15 @46270 has 118 MA's), (19, 46309), (Start: 20 @46315 has 1 MA's), (26, 46357), (27, 46360), (Start: 28 @46381 has 1 MA's), (29, 46384), (30, 46390), (31, 46393),

Gene: JalFarm20\_84 Start: 48356, Stop: 48619, Start Num: 15

Candidate Starts for JalFarm20\_84:

(Start: 15 @48356 has 118 MA's), (19, 48395), (Start: 20 @48401 has 1 MA's), (22, 48419), (26, 48443), (27, 48446), (Start: 28 @48467 has 1 MA's), (29, 48470), (30, 48476), (31, 48479),

Gene: James\_76 Start: 48793, Stop: 49062, Start Num: 15

Candidate Starts for James\_76:

(13, 48757), (Start: 15 @48793 has 118 MA's), (19, 48832), (Start: 20 @48838 has 1 MA's), (26, 48880), (27, 48883), (Start: 28 @48904 has 1 MA's), (29, 48907), (30, 48913), (31, 48916),

Gene: Jant\_77 Start: 46286, Stop: 46549, Start Num: 15

Candidate Starts for Jant\_77:

(Start: 15 @46286 has 118 MA's), (19, 46325), (Start: 20 @46331 has 1 MA's), (26, 46373), (27, 46376), (Start: 28 @46397 has 1 MA's), (29, 46400), (30, 46406), (31, 46409),

Gene: Jacob\_75 Start: 48390, Stop: 48659, Start Num: 15

Candidate Starts for Jacob\_75:

(13, 48354), (Start: 15 @48390 has 118 MA's), (19, 48429), (Start: 20 @48435 has 1 MA's), (26, 48477), (27, 48480), (Start: 28 @48501 has 1 MA's), (29, 48504), (30, 48510), (31, 48513),

Gene: Jinglebell\_81 Start: 48209, Stop: 48472, Start Num: 15

Candidate Starts for Jinglebell\_81:

(Start: 15 @48209 has 118 MA's), (19, 48248), (23, 48281), (26, 48296), (Start: 28 @48320 has 1 MA's), (29, 48323), (30, 48329), (31, 48332),

Gene: JoeyJr\_77 Start: 48567, Stop: 48830, Start Num: 15

Candidate Starts for JoeyJr\_77:

(Start: 15 @48567 has 118 MA's), (19, 48606), (Start: 20 @48612 has 1 MA's), (22, 48630), (26, 48654), (27, 48657), (Start: 28 @48678 has 1 MA's), (29, 48681), (30, 48687), (31, 48690),

Gene: Juice456\_72 Start: 46357, Stop: 46575, Start Num: 20

Candidate Starts for Juice456\_72:

(Start: 15 @46312 has 118 MA's), (19, 46351), (Start: 20 @46357 has 1 MA's), (22, 46375), (26, 46399), (27, 46402), (Start: 28 @46423 has 1 MA's), (29, 46426), (30, 46432), (31, 46435),

Gene: Kenuha5\_73 Start: 48117, Stop: 48380, Start Num: 15

Candidate Starts for Kenuha5\_73:

(Start: 15 @48117 has 118 MA's), (17, 48147), (19, 48156), (Start: 20 @48162 has 1 MA's), (23, 48189), (26, 48204), (Start: 28 @48228 has 1 MA's), (29, 48231), (30, 48237), (31, 48240),

Gene: Kimberlium\_75 Start: 46441, Stop: 46704, Start Num: 15

Candidate Starts for Kimberlium\_75:

(13, 46405), (Start: 15 @46441 has 118 MA's), (19, 46480), (Start: 20 @46486 has 1 MA's), (26, 46528), (27, 46531), (Start: 28 @46552 has 1 MA's), (29, 46555), (30, 46561), (31, 46564),

Gene: KingMidas\_76 Start: 47981, Stop: 48241, Start Num: 15

Candidate Starts for KingMidas\_76:

(Start: 15 @47981 has 118 MA's), (19, 48020), (Start: 20 @48026 has 1 MA's), (22, 48044), (26, 48068), (27, 48071), (Start: 28 @48092 has 1 MA's), (29, 48095), (30, 48101), (31, 48104),

Gene: Kingsley\_79 Start: 49818, Stop: 50081, Start Num: 15

Candidate Starts for Kingsley\_79:

(Start: 15 @49818 has 118 MA's), (19, 49857), (Start: 20 @49863 has 1 MA's), (26, 49905), (27, 49908), (Start: 28 @49929 has 1 MA's), (29, 49932), (30, 49938), (31, 49941),

Gene: KristaRAM\_74 Start: 46681, Stop: 46944, Start Num: 15

Candidate Starts for KristaRAM\_74:

(Start: 15 @46681 has 118 MA's), (19, 46720), (Start: 20 @46726 has 1 MA's), (22, 46744), (26, 46768), (27, 46771), (Start: 28 @46792 has 1 MA's), (29, 46795), (30, 46801), (31, 46804),

Gene: Latretium\_72 Start: 45212, Stop: 45475, Start Num: 15

Candidate Starts for Latretium\_72:

(Start: 15 @45212 has 118 MA's), (19, 45251), (23, 45284), (26, 45299), (Start: 28 @45323 has 1 MA's), (29, 45326), (30, 45332), (31, 45335),

Gene: Leozinho\_75 Start: 45465, Stop: 45725, Start Num: 15

Candidate Starts for Leozinho\_75:

(Start: 15 @45465 has 118 MA's), (17, 45495), (19, 45504), (Start: 20 @45510 has 1 MA's), (26, 45552), (27, 45555), (Start: 28 @45576 has 1 MA's), (29, 45579), (30, 45585), (31, 45588),

Gene: Leperchaun\_75 Start: 47801, Stop: 48064, Start Num: 15

Candidate Starts for Leperchaun\_75:

(Start: 15 @47801 has 118 MA's), (19, 47840), (Start: 20 @47846 has 1 MA's), (22, 47864), (26, 47888), (27, 47891), (Start: 28 @47912 has 1 MA's), (29, 47915), (30, 47921), (31, 47924),

Gene: LittleShirley\_76 Start: 46737, Stop: 47000, Start Num: 15

Candidate Starts for LittleShirley\_76:

(Start: 15 @46737 has 118 MA's), (19, 46776), (Start: 20 @46782 has 1 MA's), (26, 46824), (27, 46827), (Start: 28 @46848 has 1 MA's), (29, 46851), (30, 46857), (31, 46860),

Gene: Lizziana\_80 Start: 49116, Stop: 49385, Start Num: 15

Candidate Starts for Lizziana\_80:

(13, 49080), (Start: 15 @49116 has 118 MA's), (19, 49155), (Start: 20 @49161 has 1 MA's), (26, 49203), (27, 49206), (Start: 28 @49227 has 1 MA's), (29, 49230), (30, 49236), (31, 49239),

Gene: Llama\_81 Start: 48065, Stop: 48328, Start Num: 15

Candidate Starts for Llama\_81:

(Start: 15 @48065 has 118 MA's), (19, 48104), (23, 48137), (26, 48152), (Start: 28 @48176 has 1 MA's), (29, 48179), (30, 48185), (31, 48188),

Gene: Llij\_70 Start: 44824, Stop: 45084, Start Num: 15

Candidate Starts for Llij\_70:

(Start: 15 @44824 has 118 MA's), (17, 44854), (19, 44863), (Start: 20 @44869 has 1 MA's), (26, 44911), (27, 44914), (Start: 28 @44935 has 1 MA's), (29, 44938), (30, 44944), (31, 44947),

Gene: Lorde\_74 Start: 44111, Stop: 44371, Start Num: 15

Candidate Starts for Lorde\_74:

(Start: 15 @44111 has 118 MA's), (17, 44141), (19, 44150), (Start: 20 @44156 has 1 MA's), (26, 44198), (27, 44201), (Start: 28 @44222 has 1 MA's), (29, 44225), (30, 44231), (31, 44234),

Gene: MadMen\_73 Start: 46044, Stop: 46307, Start Num: 15

Candidate Starts for MadMen\_73:

(9, 45888), (10, 45975), (Start: 15 @46044 has 118 MA's), (19, 46083), (23, 46116), (26, 46131), (Start: 28 @46155 has 1 MA's), (29, 46158), (30, 46164), (31, 46167),

Gene: Maravista\_77 Start: 50144, Stop: 50407, Start Num: 15

Candidate Starts for Maravista\_77:

(Start: 15 @50144 has 118 MA's), (17, 50174), (19, 50183), (Start: 20 @50189 has 1 MA's), (26, 50231), (27, 50234), (Start: 28 @50255 has 1 MA's), (29, 50258), (30, 50264), (31, 50267),

Gene: Marker\_76 Start: 46631, Stop: 46891, Start Num: 15

Candidate Starts for Marker\_76:

(Start: 15 @46631 has 118 MA's), (19, 46670), (23, 46703), (26, 46718), (Start: 28 @46742 has 1 MA's), (29, 46745), (30, 46751), (31, 46754),

Gene: Martik\_77 Start: 49625, Stop: 49885, Start Num: 15

Candidate Starts for Martik\_77:

(Start: 15 @49625 has 118 MA's), (17, 49655), (19, 49664), (Start: 20 @49670 has 1 MA's), (26, 49712), (27, 49715), (Start: 28 @49736 has 1 MA's), (29, 49739), (30, 49745), (31, 49748),

Gene: Mattes\_77 Start: 48793, Stop: 49062, Start Num: 15

Candidate Starts for Mattes\_77:

(13, 48757), (Start: 15 @48793 has 118 MA's), (19, 48832), (Start: 20 @48838 has 1 MA's), (26, 48880), (27, 48883), (Start: 28 @48904 has 1 MA's), (29, 48907), (30, 48913), (31, 48916),

Gene: MilanaBonita\_69 Start: 45997, Stop: 46260, Start Num: 15

Candidate Starts for MilanaBonita\_69:

(Start: 15 @45997 has 118 MA's), (19, 46036), (Start: 20 @46042 has 1 MA's), (22, 46060), (26, 46084), (27, 46087), (Start: 28 @46108 has 1 MA's), (29, 46111), (31, 46120),

Gene: MinionDave\_71 Start: 47066, Stop: 47329, Start Num: 14

Candidate Starts for MinionDave\_71:

(Start: 14 @47066 has 4 MA's), (19, 47105), (23, 47138), (26, 47153), (Start: 28 @47177 has 1 MA's), (29, 47180), (30, 47186), (31, 47189),

Gene: Minnie\_73 Start: 49177, Stop: 49440, Start Num: 15

Candidate Starts for Minnie\_73:

(Start: 15 @49177 has 118 MA's), (17, 49207), (19, 49216), (Start: 20 @49222 has 1 MA's), (22, 49240), (26, 49264), (Start: 28 @49288 has 1 MA's), (29, 49291), (30, 49297), (31, 49300),

Gene: Modragons\_79 Start: 48053, Stop: 48316, Start Num: 15

Candidate Starts for Modragons\_79:

(Start: 15 @48053 has 118 MA's), (19, 48092), (23, 48125), (26, 48140), (Start: 28 @48164 has 1 MA's), (29, 48167), (30, 48173), (31, 48176),

Gene: Mozy\_82 Start: 46888, Stop: 47151, Start Num: 15

Candidate Starts for Mozy\_82:

(Start: 15 @46888 has 118 MA's), (19, 46927), (Start: 20 @46933 has 1 MA's), (23, 46960), (26, 46975), (Start: 28 @46999 has 1 MA's), (31, 47011),

Gene: Ms6\_74 Start: 43560, Stop: 43823, Start Num: 15

Candidate Starts for Ms6\_74:

(Start: 15 @43560 has 118 MA's), (19, 43599), (Start: 20 @43605 has 1 MA's), (22, 43623), (26, 43647), (27, 43650), (Start: 28 @43671 has 1 MA's), (29, 43674), (30, 43680), (31, 43683), (32, 43734),

Gene: MulchExplorer\_77 Start: 46440, Stop: 46703, Start Num: 15

Candidate Starts for MulchExplorer\_77:

(13, 46404), (Start: 15 @46440 has 118 MA's), (19, 46479), (Start: 20 @46485 has 1 MA's), (26, 46527), (27, 46530), (Start: 28 @46551 has 1 MA's), (29, 46554), (30, 46560), (31, 46563),

Gene: Nimbo\_69 Start: 46665, Stop: 46928, Start Num: 15

Candidate Starts for Nimbo\_69:

(Start: 15 @46665 has 118 MA's), (19, 46704), (Start: 20 @46710 has 1 MA's), (22, 46728), (26, 46752), (27, 46755), (Start: 28 @46776 has 1 MA's), (29, 46779), (30, 46785), (31, 46788),

Gene: Ochi17\_80 Start: 47660, Stop: 47923, Start Num: 15

Candidate Starts for Ochi17\_80:

(Start: 15 @47660 has 118 MA's), (19, 47699), (23, 47732), (26, 47747), (Start: 28 @47771 has 1 MA's), (29, 47774), (30, 47780), (31, 47783),

Gene: OfUltron\_82 Start: 48209, Stop: 48472, Start Num: 15

Candidate Starts for OfUltron\_82:

(Start: 15 @48209 has 118 MA's), (19, 48248), (23, 48281), (26, 48296), (Start: 28 @48320 has 1 MA's), (29, 48323), (30, 48329), (31, 48332),

Gene: Ogopogo\_81 Start: 47195, Stop: 47443, Start Num: 16

Candidate Starts for Ogopogo\_81:

(Start: 16 @47195 has 2 MA's), (19, 47219), (Start: 20 @47225 has 1 MA's), (22, 47243), (26, 47267), (27, 47270), (Start: 28 @47291 has 1 MA's), (29, 47294), (30, 47300), (31, 47303),

Gene: OldBen\_74 Start: 48057, Stop: 48320, Start Num: 15

Candidate Starts for OldBen\_74:

(Start: 15 @48057 has 118 MA's), (19, 48096), (Start: 20 @48102 has 1 MA's), (22, 48120), (26, 48144), (27, 48147), (Start: 28 @48168 has 1 MA's), (29, 48171), (30, 48177), (31, 48180),

Gene: OlympiaSaint\_75 Start: 47735, Stop: 48004, Start Num: 15

Candidate Starts for OlympiaSaint\_75:

(13, 47699), (Start: 15 @47735 has 118 MA's), (19, 47774), (Start: 20 @47780 has 1 MA's), (26, 47822), (27, 47825), (Start: 28 @47846 has 1 MA's), (29, 47849), (30, 47855), (31, 47858),

Gene: PHappiness\_77 Start: 48886, Stop: 49149, Start Num: 15

Candidate Starts for PHappiness\_77:

(Start: 15 @48886 has 118 MA's), (19, 48925), (Start: 20 @48931 has 1 MA's), (22, 48949), (26, 48973), (27, 48976), (Start: 28 @48997 has 1 MA's), (29, 49000), (30, 49006), (31, 49009),

Gene: Phanphagia\_74 Start: 47614, Stop: 47877, Start Num: 15

Candidate Starts for Phanphagia\_74:

(Start: 15 @47614 has 118 MA's), (19, 47653), (Start: 20 @47659 has 1 MA's), (26, 47701), (27, 47704), (Start: 28 @47725 has 1 MA's), (29, 47728), (30, 47734), (31, 47737),

Gene: Phatniss\_71 Start: 45919, Stop: 46179, Start Num: 15

Candidate Starts for Phatniss\_71:

(Start: 15 @45919 has 118 MA's), (17, 45949), (19, 45958), (Start: 20 @45964 has 1 MA's), (26, 46006), (27, 46009), (Start: 28 @46030 has 1 MA's), (29, 46033), (30, 46039), (31, 46042),

Gene: Philus\_78 Start: 49434, Stop: 49703, Start Num: 15

Candidate Starts for Philus\_78:

(13, 49398), (Start: 15 @49434 has 118 MA's), (19, 49473), (Start: 20 @49479 has 1 MA's), (26, 49521), (27, 49524), (Start: 28 @49545 has 1 MA's), (29, 49548), (30, 49554), (31, 49557),

Gene: Pippy\_72 Start: 46520, Stop: 46780, Start Num: 15

Candidate Starts for Pippy\_72:

(Start: 15 @46520 has 118 MA's), (17, 46550), (19, 46559), (Start: 20 @46565 has 1 MA's), (26, 46607), (27, 46610), (Start: 28 @46631 has 1 MA's), (29, 46634), (30, 46640), (31, 46643),

Gene: Poenanya\_80 Start: 48755, Stop: 49015, Start Num: 15

Candidate Starts for Poenanya\_80:

(Start: 15 @48755 has 118 MA's), (19, 48794), (Start: 20 @48800 has 1 MA's), (22, 48818), (26, 48842), (27, 48845), (Start: 28 @48866 has 1 MA's), (29, 48869), (30, 48875), (31, 48878),

Gene: Polka14\_81 Start: 49545, Stop: 49805, Start Num: 15

Candidate Starts for Polka14\_81:

(Start: 15 @49545 has 118 MA's), (19, 49584), (Start: 20 @49590 has 1 MA's), (22, 49608), (26, 49632), (27, 49635), (Start: 28 @49656 has 1 MA's), (29, 49659), (30, 49665), (31, 49668),

Gene: PopTart\_66 Start: 44400, Stop: 44669, Start Num: 15

Candidate Starts for PopTart\_66:

(Start: 15 @44400 has 118 MA's), (19, 44439), (26, 44487), (27, 44490), (Start: 28 @44511 has 1 MA's), (29, 44514), (30, 44520), (31, 44523),

Gene: QuickMath\_74 Start: 46664, Stop: 46927, Start Num: 15

Candidate Starts for QuickMath\_74:

(13, 46628), (Start: 15 @46664 has 118 MA's), (19, 46703), (Start: 20 @46709 has 1 MA's), (26, 46751), (27, 46754), (Start: 28 @46775 has 1 MA's), (29, 46778), (30, 46784), (31, 46787),

Gene: Quico\_85 Start: 50028, Stop: 50291, Start Num: 15

Candidate Starts for Quico\_85:

(Start: 15 @50028 has 118 MA's), (19, 50067), (Start: 20 @50073 has 1 MA's), (26, 50115), (27, 50118), (Start: 28 @50139 has 1 MA's), (29, 50142), (30, 50148), (31, 50151), (32, 50202),

Gene: RedBird\_78 Start: 49260, Stop: 49523, Start Num: 15

Candidate Starts for RedBird\_78:

(Start: 15 @49260 has 118 MA's), (19, 49299), (Start: 20 @49305 has 1 MA's), (22, 49323), (26, 49347), (27, 49350), (Start: 28 @49371 has 1 MA's), (29, 49374), (30, 49380), (31, 49383),

Gene: Rita\_82 Start: 49678, Stop: 49941, Start Num: 15

Candidate Starts for Rita\_82:

(Start: 15 @49678 has 118 MA's), (19, 49717), (23, 49750), (26, 49765), (Start: 28 @49789 has 1 MA's), (29, 49792), (30, 49798), (31, 49801),

Gene: RitaG\_77 Start: 48688, Stop: 48951, Start Num: 15

Candidate Starts for RitaG\_77:

(Start: 15 @48688 has 118 MA's), (19, 48727), (Start: 20 @48733 has 1 MA's), (22, 48751), (26, 48775), (27, 48778), (Start: 28 @48799 has 1 MA's), (29, 48802), (30, 48808), (31, 48811),

Gene: SG4\_73 Start: 46463, Stop: 46726, Start Num: 15

Candidate Starts for SG4\_73:

(Start: 15 @46463 has 118 MA's), (19, 46502), (Start: 20 @46508 has 1 MA's), (26, 46550), (27, 46553), (Start: 28 @46574 has 1 MA's), (29, 46577), (30, 46583), (31, 46586),

Gene: Saal\_75 Start: 48487, Stop: 48756, Start Num: 15

Candidate Starts for Saal\_75:

(13, 48451), (Start: 15 @48487 has 118 MA's), (19, 48526), (Start: 20 @48532 has 1 MA's), (26, 48574), (27, 48577), (Start: 28 @48598 has 1 MA's), (29, 48601), (30, 48607), (31, 48610),

Gene: Sandalphon\_71 Start: 47162, Stop: 47425, Start Num: 15

Candidate Starts for Sandalphon\_71:

(Start: 15 @47162 has 118 MA's), (17, 47192), (19, 47201), (Start: 20 @47207 has 1 MA's), (22, 47225), (26, 47249), (Start: 28 @47273 has 1 MA's), (29, 47276), (30, 47282), (31, 47285),

Gene: Sassafras\_78 Start: 47577, Stop: 47840, Start Num: 15

Candidate Starts for Sassafras\_78:

(Start: 15 @47577 has 118 MA's), (19, 47616), (Start: 20 @47622 has 1 MA's), (22, 47640), (26, 47664), (27, 47667), (Start: 28 @47688 has 1 MA's), (29, 47691), (30, 47697), (31, 47700),

Gene: SassyB\_66 Start: 44400, Stop: 44669, Start Num: 15

Candidate Starts for SassyB\_66:

(Start: 15 @44400 has 118 MA's), (19, 44439), (26, 44487), (27, 44490), (Start: 28 @44511 has 1 MA's), (29, 44514), (30, 44520), (31, 44523),

Gene: Scottish\_75 Start: 47236, Stop: 47496, Start Num: 15

Candidate Starts for Scottish\_75:

(Start: 15 @47236 has 118 MA's), (19, 47275), (Start: 20 @47281 has 1 MA's), (22, 47299), (26, 47323), (27, 47326), (Start: 28 @47347 has 1 MA's), (29, 47350), (30, 47356), (31, 47359),

Gene: Seabastian\_82 Start: 48210, Stop: 48473, Start Num: 15

Candidate Starts for Seabastian\_82:

(Start: 15 @48210 has 118 MA's), (19, 48249), (23, 48282), (26, 48297), (Start: 28 @48321 has 1 MA's), (29, 48324), (30, 48330), (31, 48333),

Gene: Seagreen\_77 Start: 48510, Stop: 48773, Start Num: 15

Candidate Starts for Seagreen\_77:

(Start: 15 @48510 has 118 MA's), (19, 48549), (Start: 20 @48555 has 1 MA's), (22, 48573), (26, 48597), (27, 48600), (Start: 28 @48621 has 1 MA's), (29, 48624), (30, 48630), (31, 48633),

Gene: Shauna1\_75 Start: 47864, Stop: 48127, Start Num: 15

Candidate Starts for Shauna1\_75:

(Start: 15 @47864 has 118 MA's), (19, 47903), (Start: 20 @47909 has 1 MA's), (26, 47951), (27, 47954), (Start: 28 @47975 has 1 MA's), (29, 47978), (30, 47984), (31, 47987),

Gene: ShroomBoi\_76 Start: 47619, Stop: 47882, Start Num: 15

Candidate Starts for ShroomBoi\_76:

(Start: 15 @47619 has 118 MA's), (17, 47649), (19, 47658), (Start: 20 @47664 has 1 MA's), (26, 47706), (27, 47709), (Start: 28 @47730 has 1 MA's), (29, 47733), (30, 47739), (31, 47742),

Gene: SiSi\_72 Start: 46694, Stop: 46957, Start Num: 15

Candidate Starts for SiSi\_72:

(Start: 15 @46694 has 118 MA's), (19, 46733), (Start: 20 @46739 has 1 MA's), (26, 46781), (27, 46784), (Start: 28 @46805 has 1 MA's), (29, 46808), (30, 46814), (31, 46817),

Gene: SilverChicken\_85 Start: 47600, Stop: 47818, Start Num: 20

Candidate Starts for SilverChicken\_85:



(Start: 15 @47555 has 118 MA's), (17, 47585), (19, 47594), (Start: 20 @47600 has 1 MA's), (26, 47642), (27, 47645), (Start: 28 @47666 has 1 MA's), (29, 47669), (30, 47675), (31, 47678),

Gene: Soul22\_79 Start: 46222, Stop: 46485, Start Num: 15

Candidate Starts for Soul22\_79:

(13, 46186), (Start: 15 @46222 has 118 MA's), (19, 46261), (Start: 20 @46267 has 1 MA's), (26, 46309), (27, 46312), (Start: 28 @46333 has 1 MA's), (29, 46336), (30, 46342), (31, 46345),

Gene: Spoonbill\_73 Start: 45779, Stop: 46048, Start Num: 15

Candidate Starts for Spoonbill\_73:

(13, 45743), (Start: 15 @45779 has 118 MA's), (19, 45818), (Start: 20 @45824 has 1 MA's), (26, 45866), (27, 45869), (Start: 28 @45890 has 1 MA's), (29, 45893), (30, 45899), (31, 45902),

Gene: Squirty\_77 Start: 50791, Stop: 51054, Start Num: 15

Candidate Starts for Squirty\_77:

(Start: 15 @50791 has 118 MA's), (19, 50830), (23, 50863), (26, 50878), (Start: 28 @50902 has 1 MA's), (29, 50905), (30, 50911), (31, 50914),

Gene: SuperGrey\_76 Start: 49600, Stop: 49863, Start Num: 15

Candidate Starts for SuperGrey\_76:

(Start: 15 @49600 has 118 MA's), (17, 49630), (19, 49639), (Start: 20 @49645 has 1 MA's), (23, 49672), (26, 49687), (Start: 28 @49711 has 1 MA's), (29, 49714), (30, 49720), (31, 49723),

Gene: Taj\_82 Start: 49318, Stop: 49581, Start Num: 15

Candidate Starts for Taj\_82:

(Start: 15 @49318 has 118 MA's), (19, 49357), (Start: 20 @49363 has 1 MA's), (22, 49381), (26, 49405), (27, 49408), (Start: 28 @49429 has 1 MA's), (29, 49432), (30, 49438), (31, 49441), (32, 49492),

Gene: Tchotchke\_70 Start: 46294, Stop: 46467, Start Num: 26

Candidate Starts for Tchotchke\_70:

(Start: 15 @46207 has 118 MA's), (17, 46237), (19, 46246), (Start: 20 @46252 has 1 MA's), (23, 46279), (26, 46294), (Start: 28 @46318 has 1 MA's), (29, 46321), (30, 46327), (31, 46330),

Gene: ThetaBob\_79 Start: 47510, Stop: 47773, Start Num: 15

Candidate Starts for ThetaBob\_79:

(Start: 15 @47510 has 118 MA's), (17, 47540), (19, 47549), (Start: 20 @47555 has 1 MA's), (22, 47573), (26, 47597), (27, 47600), (Start: 28 @47621 has 1 MA's), (29, 47624), (30, 47630), (31, 47633),

Gene: Tootsieroll\_74 Start: 48828, Stop: 48977, Start Num: 28

Candidate Starts for Tootsieroll\_74:

(Start: 15 @48717 has 118 MA's), (19, 48756), (23, 48789), (26, 48804), (Start: 28 @48828 has 1 MA's), (29, 48831), (30, 48837), (31, 48840),

Gene: Totinger\_72 Start: 45814, Stop: 46077, Start Num: 14

Candidate Starts for Totinger\_72:

(Start: 14 @45814 has 4 MA's), (17, 45844), (19, 45853), (Start: 20 @45859 has 1 MA's), (23, 45886), (26, 45901), (Start: 28 @45925 has 1 MA's), (29, 45928), (30, 45934), (31, 45937),

Gene: Tweety\_76 Start: 48310, Stop: 48573, Start Num: 15

Candidate Starts for Tweety\_76:

(Start: 15 @48310 has 118 MA's), (19, 48349), (23, 48382), (26, 48397), (Start: 28 @48421 has 1 MA's), (29, 48424), (30, 48430), (31, 48433),

Gene: UncleRicky\_73 Start: 46167, Stop: 46427, Start Num: 15

Candidate Starts for UncleRicky\_73:

(Start: 15 @46167 has 118 MA's), (17, 46197), (19, 46206), (Start: 20 @46212 has 1 MA's), (26, 46254), (27, 46257), (Start: 28 @46278 has 1 MA's), (29, 46281), (30, 46287), (31, 46290),

Gene: Veteran\_68 Start: 46574, Stop: 46837, Start Num: 15

Candidate Starts for Veteran\_68:

(13, 46538), (Start: 15 @46574 has 118 MA's), (19, 46613), (Start: 20 @46619 has 1 MA's), (26, 46661), (27, 46664), (Start: 28 @46685 has 1 MA's), (29, 46688), (30, 46694), (31, 46697),

Gene: Vivum\_78 Start: 49443, Stop: 49706, Start Num: 14

Candidate Starts for Vivum\_78:

(Start: 14 @49443 has 4 MA's), (17, 49473), (19, 49482), (Start: 20 @49488 has 1 MA's), (23, 49515), (26, 49530), (Start: 28 @49554 has 1 MA's), (29, 49557), (30, 49563), (31, 49566),

Gene: Wachhund\_75 Start: 45262, Stop: 45531, Start Num: 15

Candidate Starts for Wachhund\_75:

(Start: 15 @45262 has 118 MA's), (19, 45301), (23, 45334), (26, 45349), (Start: 28 @45373 has 1 MA's), (29, 45376), (30, 45382), (31, 45385),

Gene: Wee\_81 Start: 49394, Stop: 49657, Start Num: 15

Candidate Starts for Wee\_81:

(Start: 15 @49394 has 118 MA's), (19, 49433), (Start: 20 @49439 has 1 MA's), (22, 49457), (26, 49481), (27, 49484), (Start: 28 @49505 has 1 MA's), (29, 49508), (30, 49514), (31, 49517), (32, 49568),

Gene: Whatsapiecost\_70 Start: 43202, Stop: 43465, Start Num: 15

Candidate Starts for Whatsapiecost\_70:

(Start: 15 @43202 has 118 MA's), (19, 43241), (Start: 20 @43247 has 1 MA's), (26, 43289), (27, 43292), (Start: 28 @43313 has 1 MA's), (29, 43316), (30, 43322), (31, 43325),

Gene: Whouxphf\_72 Start: 47287, Stop: 47550, Start Num: 15

Candidate Starts for Whouxphf\_72:

(Start: 15 @47287 has 118 MA's), (19, 47326), (23, 47359), (26, 47374), (Start: 28 @47398 has 1 MA's), (29, 47401), (30, 47407), (31, 47410),

Gene: WillSterrel\_76 Start: 48163, Stop: 48423, Start Num: 15

Candidate Starts for WillSterrel\_76:

(Start: 15 @48163 has 118 MA's), (19, 48202), (23, 48235), (26, 48250), (Start: 28 @48274 has 1 MA's), (29, 48277), (30, 48283), (31, 48286),

Gene: XFactor\_71 Start: 46580, Stop: 46843, Start Num: 15

Candidate Starts for XFactor\_71:

(Start: 15 @46580 has 118 MA's), (19, 46619), (23, 46652), (26, 46667), (Start: 28 @46691 has 1 MA's), (29, 46694), (30, 46700), (31, 46703),

Gene: Yorick\_73 Start: 48700, Stop: 48960, Start Num: 15

Candidate Starts for Yorick\_73:

(Start: 15 @48700 has 118 MA's), (17, 48730), (19, 48739), (Start: 20 @48745 has 1 MA's), (26, 48787), (27, 48790), (Start: 28 @48811 has 1 MA's), (29, 48814), (30, 48820), (31, 48823),

Gene: Yoshi\_89 Start: 48568, Stop: 48831, Start Num: 15

Candidate Starts for Yoshi\_89:

(Start: 15 @48568 has 118 MA's), (19, 48607), (23, 48640), (26, 48655), (Start: 28 @48679 has 1 MA's), (29, 48682), (30, 48688), (31, 48691),

Gene: Zapner\_84 Start: 46364, Stop: 46627, Start Num: 15

Candidate Starts for Zapner\_84:

(13, 46328), (Start: 15 @46364 has 118 MA's), (19, 46403), (Start: 20 @46409 has 1 MA's), (26, 46451), (27, 46454), (Start: 28 @46475 has 1 MA's), (29, 46478), (30, 46484), (31, 46487),

Gene: Zerg\_74 Start: 47425, Stop: 47688, Start Num: 15

Candidate Starts for Zerg\_74:

(Start: 15 @47425 has 118 MA's), (19, 47464), (23, 47497), (26, 47512), (Start: 28 @47536 has 1 MA's), (29, 47539), (30, 47545), (31, 47548), (33, 47629),

Gene: Zizzle\_78 Start: 48816, Stop: 49079, Start Num: 15

Candidate Starts for Zizzle\_78:

(13, 48780), (Start: 15 @48816 has 118 MA's), (19, 48855), (Start: 20 @48861 has 1 MA's), (26, 48903), (27, 48906), (Start: 28 @48927 has 1 MA's), (29, 48930), (30, 48936), (31, 48939),