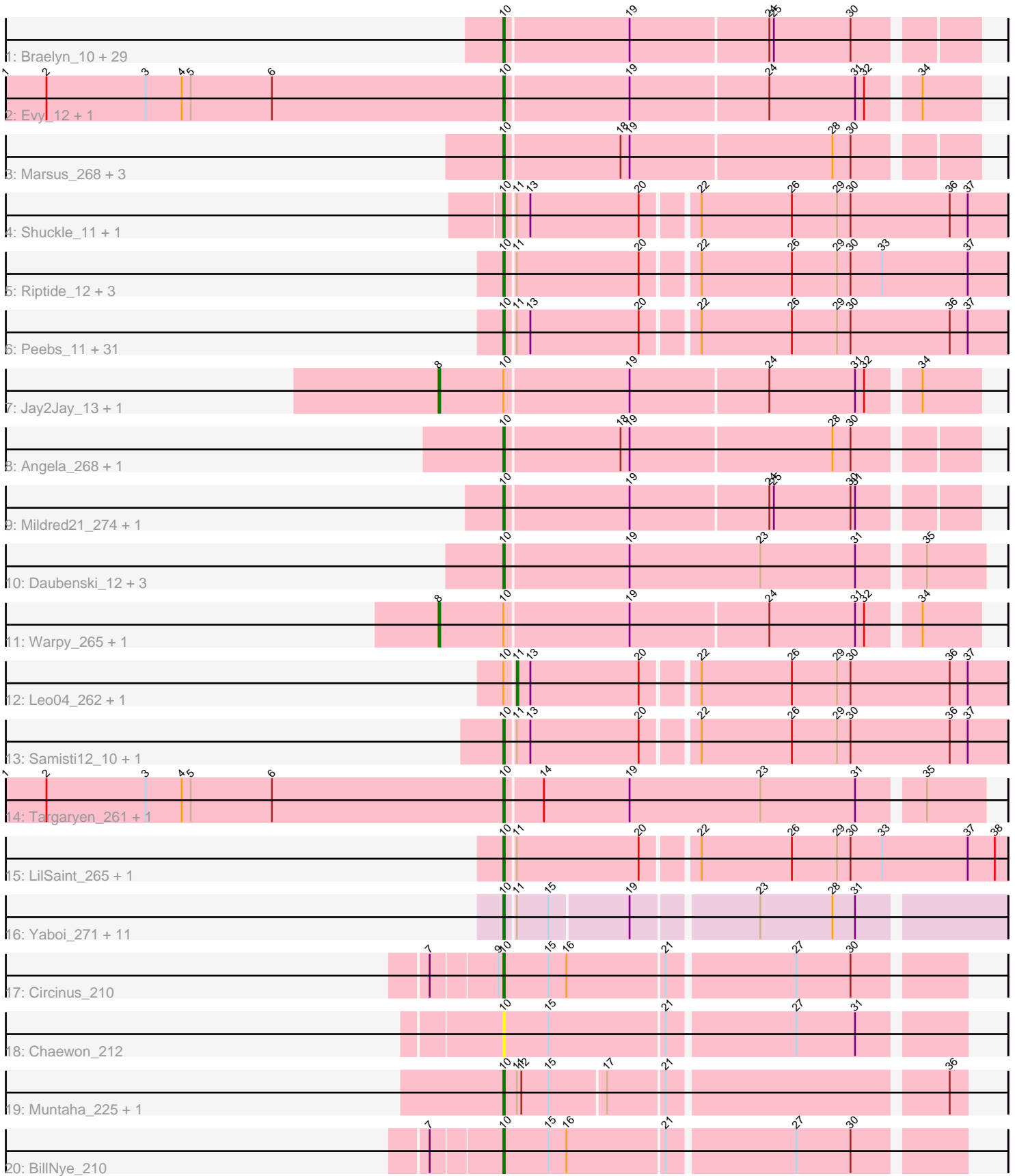


Pham 304862



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 304862 Report

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

Pham number 304862 has 111 members, 5 are drafts.

Phages represented in each track:

- Track 1 : Braelyn\_10, LilMartin\_263, Navo\_251, Bartholomune\_10, WhereRU\_9, WhereRU\_258, MulchMansion\_11, FreddyDRoo\_10, PinkiePie\_10, Persimmon\_260, Paradiddles\_10, Persimmon\_9, LilMartin\_11, Eliot67\_261, Davielle\_9, Braelyn\_255, Bartholomune\_260, Liandry\_259, MulchMansion\_267, Liandry\_10, NootNoot\_255, Paradiddles\_251, NootNoot\_10, Squillium\_10, Eliot67\_10, Davielle\_258, PinkiePie\_260, FreddyDRoo\_263, Navo\_9, Squillium\_262
- Track 2 : Evy\_12, Evy\_250
- Track 3 : Marsus\_268, Bmoc\_266, Marsus\_11, Bmoc\_10
- Track 4 : Shuckle\_11, Shuckle\_259
- Track 5 : Riptide\_12, Riptide\_267, Anedea\_11, Anedea\_276
- Track 6 : Peebs\_11, Sushi23\_262, Cursive\_263, Watermoore\_258, Larnav\_11, HangryHippo\_259, Lululemon\_257, Scheme\_265, Peebs\_258, Pepperwood\_12, Coogler\_11, BlueOtter\_259, Tribute\_11, Cursive\_9, HangryHippo\_11, Cross\_259, PacManQ\_10, EGole\_265, Sushi23\_12, PacManQ\_257, Larnav\_261, Teutsch\_11, Pepperwood\_261, Coogler\_257, Watermoore\_11, Tribute\_257, Teutsch\_258, EGole\_11, Cross\_11, Scheme\_12, BlueOtter\_11, Lululemon\_10
- Track 7 : Jay2Jay\_13, Jay2Jay\_268
- Track 8 : Angela\_268, Angela\_11
- Track 9 : Mildred21\_274, Mildred21\_11
- Track 10 : Daubenski\_12, Cadmus\_259, Daubenski\_256, Cadmus\_11
- Track 11 : Warpy\_265, Warpy\_13
- Track 12 : Leo04\_262, Leo04\_11
- Track 13 : Samisti12\_10, Samisti12\_261
- Track 14 : Targaryen\_261, Targaryen\_10
- Track 15 : LilSaint\_265, LilSaint\_12
- Track 16 : Yaboi\_271, Sollertia\_10, Genie2\_10, BoomerJR\_10, AngryGiraffe\_10, Stanimal\_10, Stanimal\_265, BoomerJR\_265, Genie2\_265, Yaboi\_10, AngryGiraffe\_266, Sollertia\_266
- Track 17 : Circinus\_210
- Track 18 : Chaewon\_212
- Track 19 : Muntaha\_225, Wakanda\_221
- Track 20 : BillNye\_210

**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 106 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Anedea\_11, Anedea\_276, Angela\_11, Angela\_268, AngryGiraffe\_10, AngryGiraffe\_266, Bartholomune\_10, Bartholomune\_260, BillNye\_210, BlueOtter\_11, BlueOtter\_259, Bmoc\_10, Bmoc\_266, BoomerJR\_10, BoomerJR\_265, Braelyn\_10, Braelyn\_255, Cadmus\_11, Cadmus\_259, Chaewon\_212, Circinus\_210, Coogler\_11, Coogler\_257, Cross\_11, Cross\_259, Cursive\_263, Cursive\_9, Daubenski\_12, Daubenski\_256, Davielle\_258, Davielle\_9, EGole\_11, EGole\_265, Eliot67\_10, Eliot67\_261, Evy\_12, Evy\_250, FreddyDRoo\_10, FreddyDRoo\_263, Genie2\_10, Genie2\_265, HangryHippo\_11, HangryHippo\_259, Larnav\_11, Larnav\_261, Liandry\_10, Liandry\_259, LilMartin\_11, LilMartin\_263, LilSaint\_12, LilSaint\_265, Lululemon\_10, Lululemon\_257, Marsus\_11, Marsus\_268, Mildred21\_11, Mildred21\_274, MulchMansion\_11, MulchMansion\_267, Muntaha\_225, Navo\_251, Navo\_9, NootNoot\_10, NootNoot\_255, PacManQ\_10, PacManQ\_257, Paradiddles\_10, Paradiddles\_251, Peebs\_11, Peebs\_258, Pepperwood\_12, Pepperwood\_261, Persimmon\_260, Persimmon\_9, PinkiePie\_10, PinkiePie\_260, Riptide\_12, Riptide\_267, Samisti12\_10, Samisti12\_261, Scheme\_12, Scheme\_265, Shuckle\_11, Shuckle\_259, Sollertia\_10, Sollertia\_266, Squillium\_10, Squillium\_262, Stanimal\_10, Stanimal\_265, Sushi23\_12, Sushi23\_262, Targaryen\_10, Targaryen\_261, Teutsch\_11, Teutsch\_258, Tribute\_11, Tribute\_257, Wakanda\_221, Watermoore\_11, Watermoore\_258, WhereRU\_258, WhereRU\_9, Yaboi\_10, Yaboi\_271,

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

- Jay2Jay\_13, Jay2Jay\_268, Leo04\_11, Leo04\_262, Warpy\_13, Warpy\_265,

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

- 

### Summary by start number:

Start 8:

- Found in 4 of 111 ( 3.6% ) of genes in pham
- Manual Annotations of this start: 4 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jay2Jay\_13 (BE1), Jay2Jay\_268 (BE1), Warpy\_13 (BE1), Warpy\_265 (BE1),

Start 10:

- Found in 111 of 111 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 100 of 106
- Called 94.6% of time when present
- Phage (with cluster) where this start called: Anedea\_11 (BE1), Anedea\_276 (BE1), Angela\_11 (BE1), Angela\_268 (BE1), AngryGiraffe\_10 (BE2), AngryGiraffe\_266 (BE2), Bartholomune\_10 (BE1), Bartholomune\_260 (BE1), BillNye\_210 (BK2), BlueOtter\_11 (BE1), BlueOtter\_259 (BE1), Bmoc\_10 (BE1), Bmoc\_266 (BE1), BoomerJR\_10 (BE2), BoomerJR\_265 (BE2), Braelyn\_10 (BE1), Braelyn\_255 (BE1), Cadmus\_11 (BE1), Cadmus\_259 (BE1), Chaewon\_212 (BK2), Circinus\_210 (BK2), Coogler\_11 (BE1), Coogler\_257 (BE1), Cross\_11 (BE1), Cross\_259 (BE1), Cursive\_263 (BE1), Cursive\_9 (BE1), Daubenski\_12 (BE1), Daubenski\_256 (BE1),

Davielle\_258 (BE1), Davielle\_9 (BE1), EGole\_11 (BE1), EGole\_265 (BE1), Eliot67\_10 (BE1), Eliot67\_261 (BE1), Evy\_12 (BE1), Evy\_250 (BE1), FreddyDRoo\_10 (BE1), FreddyDRoo\_263 (BE1), Genie2\_10 (BE2), Genie2\_265 (BE2), HangryHippo\_11 (BE1), HangryHippo\_259 (BE1), Larnav\_11 (BE1), Larnav\_261 (BE1), Liandry\_10 (BE1), Liandry\_259 (BE1), LilMartin\_11 (BE1), LilMartin\_263 (BE1), LilSaint\_12 (BE1), LilSaint\_265 (BE1), Lululemon\_10 (BE1), Lululemon\_257 (BE1), Marsus\_11 (BE1), Marsus\_268 (BE1), Mildred21\_11 (BE1), Mildred21\_274 (BE1), MulchMansion\_11 (BE1), MulchMansion\_267 (BE1), Muntaha\_225 (BK2), Navo\_251 (BE1), Navo\_9 (BE1), NootNoot\_10 (BE1), NootNoot\_255 (BE1), PacManQ\_10 (BE1), PacManQ\_257 (BE1), Paradiddles\_10 (BE1), Paradiddles\_251 (BE1), Peebs\_11 (BE1), Peebs\_258 (BE1), Pepperwood\_12 (BE1), Pepperwood\_261 (BE1), Persimmon\_260 (BE1), Persimmon\_9 (BE1), PinkiePie\_10 (BE1), PinkiePie\_260 (BE1), Riptide\_12 (BE1), Riptide\_267 (BE1), Samisti12\_10 (BE1), Samisti12\_261 (BE1), Scheme\_12 (BE1), Scheme\_265 (BE1), Shuckle\_11 (BE1), Shuckle\_259 (BE1), Sollertia\_10 (BE2), Sollertia\_266 (BE2), Squillium\_10 (BE1), Squillium\_262 (BE1), Stanimal\_10 (BE2), Stanimal\_265 (BE2), Sushi23\_12 (BE1), Sushi23\_262 (BE1), Targaryen\_10 (BE1), Targaryen\_261 (BE1), Teutsch\_11 (BE1), Teutsch\_258 (BE1), Tribute\_11 (BE1), Tribute\_257 (BE1), Wakanda\_221 (BK2), Watermoore\_11 (BE1), Watermoore\_258 (BE1), WhereRU\_258 (BE1), WhereRU\_9 (BE1), Yaboi\_10 (BE2), Yaboi\_271 (BE2),

Start 11:

- Found in 58 of 111 ( 52.3% ) of genes in pham
- Manual Annotations of this start: 2 of 106
- Called 3.4% of time when present
- Phage (with cluster) where this start called: Leo04\_11 (BE1), Leo04\_262 (BE1),

### **Summary by clusters:**

There are 3 clusters represented in this pham: BE2, BE1, BK2,

Info for manual annotations of cluster BE1:

- Start number 8 was manually annotated 4 times for cluster BE1.
- Start number 10 was manually annotated 84 times for cluster BE1.
- Start number 11 was manually annotated 2 times for cluster BE1.

Info for manual annotations of cluster BE2:

- Start number 10 was manually annotated 12 times for cluster BE2.

Info for manual annotations of cluster BK2:

- Start number 10 was manually annotated 4 times for cluster BK2.

### **Gene Information:**

Gene: Anedea\_11 Start: 6493, Stop: 6170, Start Num: 10

Candidate Starts for Anedea\_11:

(Start: 10 @6493 has 100 MA's), (Start: 11 @6487 has 2 MA's), (20, 6406), (22, 6373), (26, 6313), (29, 6283), (30, 6274), (33, 6253), (37, 6196),

Gene: Anedea\_276 Start: 129542, Stop: 129219, Start Num: 10

Candidate Starts for Anedea\_276:

(Start: 10 @129542 has 100 MA's), (Start: 11 @129536 has 2 MA's), (20, 129455), (22, 129422), (26, 129362), (29, 129332), (30, 129323), (33, 129302), (37, 129245),

Gene: Angela\_268 Start: 129119, Stop: 128820, Start Num: 10

Candidate Starts for Angela\_268:

(Start: 10 @129119 has 100 MA's), (18, 129044), (19, 129038), (28, 128906), (30, 128894),

Gene: Angela\_11 Start: 6716, Stop: 6417, Start Num: 10

Candidate Starts for Angela\_11:

(Start: 10 @6716 has 100 MA's), (18, 6641), (19, 6635), (28, 6503), (30, 6491),

Gene: AngryGiraffe\_10 Start: 5615, Stop: 5304, Start Num: 10

Candidate Starts for AngryGiraffe\_10:

(Start: 10 @5615 has 100 MA's), (Start: 11 @5609 has 2 MA's), (15, 5588), (19, 5537), (23, 5459), (28, 5411), (31, 5396),

Gene: AngryGiraffe\_266 Start: 123958, Stop: 123647, Start Num: 10

Candidate Starts for AngryGiraffe\_266:

(Start: 10 @123958 has 100 MA's), (Start: 11 @123952 has 2 MA's), (15, 123931), (19, 123880), (23, 123802), (28, 123754), (31, 123739),

Gene: Bartholomune\_10 Start: 6043, Stop: 5744, Start Num: 10

Candidate Starts for Bartholomune\_10:

(Start: 10 @6043 has 100 MA's), (19, 5962), (24, 5872), (25, 5869), (30, 5818),

Gene: Bartholomune\_260 Start: 127142, Stop: 126843, Start Num: 10

Candidate Starts for Bartholomune\_260:

(Start: 10 @127142 has 100 MA's), (19, 127061), (24, 126971), (25, 126968), (30, 126917),

Gene: BillNye\_210 Start: 109627, Stop: 109917, Start Num: 10

Candidate Starts for BillNye\_210:

(7, 109582), (Start: 10 @109627 has 100 MA's), (15, 109657), (16, 109669), (21, 109732), (27, 109813), (30, 109849),

Gene: BlueOtter\_259 Start: 127448, Stop: 127125, Start Num: 10

Candidate Starts for BlueOtter\_259:

(Start: 10 @127448 has 100 MA's), (Start: 11 @127442 has 2 MA's), (13, 127433), (20, 127361), (22, 127328), (26, 127268), (29, 127238), (30, 127229), (36, 127163), (37, 127151),

Gene: BlueOtter\_11 Start: 6361, Stop: 6038, Start Num: 10

Candidate Starts for BlueOtter\_11:

(Start: 10 @6361 has 100 MA's), (Start: 11 @6355 has 2 MA's), (13, 6346), (20, 6274), (22, 6241), (26, 6181), (29, 6151), (30, 6142), (36, 6076), (37, 6064),

Gene: Bmoc\_266 Start: 128418, Stop: 128119, Start Num: 10

Candidate Starts for Bmoc\_266:

(Start: 10 @128418 has 100 MA's), (18, 128343), (19, 128337), (28, 128205), (30, 128193),

Gene: Bmoc\_10 Start: 6596, Stop: 6297, Start Num: 10

Candidate Starts for Bmoc\_10:

(Start: 10 @6596 has 100 MA's), (18, 6521), (19, 6515), (28, 6383), (30, 6371),

Gene: BoomerJR\_10 Start: 5615, Stop: 5304, Start Num: 10

Candidate Starts for BoomerJR\_10:

(Start: 10 @5615 has 100 MA's), (Start: 11 @5609 has 2 MA's), (15, 5588), (19, 5537), (23, 5459), (28, 5411), (31, 5396),

Gene: BoomerJR\_265 Start: 124403, Stop: 124092, Start Num: 10

Candidate Starts for BoomerJR\_265:

(Start: 10 @124403 has 100 MA's), (Start: 11 @124397 has 2 MA's), (15, 124376), (19, 124325), (23, 124247), (28, 124199), (31, 124184),

Gene: Braelyn\_10 Start: 6055, Stop: 5756, Start Num: 10

Candidate Starts for Braelyn\_10:

(Start: 10 @6055 has 100 MA's), (19, 5974), (24, 5884), (25, 5881), (30, 5830),

Gene: Braelyn\_255 Start: 126465, Stop: 126166, Start Num: 10

Candidate Starts for Braelyn\_255:

(Start: 10 @126465 has 100 MA's), (19, 126384), (24, 126294), (25, 126291), (30, 126240),

Gene: Cadmus\_259 Start: 129067, Stop: 128759, Start Num: 10

Candidate Starts for Cadmus\_259:

(Start: 10 @129067 has 100 MA's), (19, 128986), (23, 128899), (31, 128836), (35, 128797),

Gene: Cadmus\_11 Start: 6586, Stop: 6278, Start Num: 10

Candidate Starts for Cadmus\_11:

(Start: 10 @6586 has 100 MA's), (19, 6505), (23, 6418), (31, 6355), (35, 6316),

Gene: Chaewon\_212 Start: 109768, Stop: 110058, Start Num: 10

Candidate Starts for Chaewon\_212:

(Start: 10 @109768 has 100 MA's), (15, 109798), (21, 109873), (27, 109954), (31, 109993),

Gene: Circinus\_210 Start: 109217, Stop: 109507, Start Num: 10

Candidate Starts for Circinus\_210:

(7, 109172), (9, 109214), (Start: 10 @109217 has 100 MA's), (15, 109247), (16, 109259), (21, 109322), (27, 109403), (30, 109439),

Gene: Coogler\_11 Start: 6361, Stop: 6038, Start Num: 10

Candidate Starts for Coogler\_11:

(Start: 10 @6361 has 100 MA's), (Start: 11 @6355 has 2 MA's), (13, 6346), (20, 6274), (22, 6241), (26, 6181), (29, 6151), (30, 6142), (36, 6076), (37, 6064),

Gene: Coogler\_257 Start: 127873, Stop: 127550, Start Num: 10

Candidate Starts for Coogler\_257:

(Start: 10 @127873 has 100 MA's), (Start: 11 @127867 has 2 MA's), (13, 127858), (20, 127786), (22, 127753), (26, 127693), (29, 127663), (30, 127654), (36, 127588), (37, 127576),

Gene: Cross\_259 Start: 128093, Stop: 127770, Start Num: 10

Candidate Starts for Cross\_259:

(Start: 10 @128093 has 100 MA's), (Start: 11 @128087 has 2 MA's), (13, 128078), (20, 128006), (22, 127973), (26, 127913), (29, 127883), (30, 127874), (36, 127808), (37, 127796),

Gene: Cross\_11 Start: 6361, Stop: 6038, Start Num: 10

Candidate Starts for Cross\_11:

(Start: 10 @6361 has 100 MA's), (Start: 11 @6355 has 2 MA's), (13, 6346), (20, 6274), (22, 6241), (26, 6181), (29, 6151), (30, 6142), (36, 6076), (37, 6064),

Gene: Cursive\_263 Start: 127188, Stop: 126865, Start Num: 10

Candidate Starts for Cursive\_263:

(Start: 10 @127188 has 100 MA's), (Start: 11 @127182 has 2 MA's), (13, 127173), (20, 127101), (22, 127068), (26, 127008), (29, 126978), (30, 126969), (36, 126903), (37, 126891),

Gene: Cursive\_9 Start: 5179, Stop: 4856, Start Num: 10

Candidate Starts for Cursive\_9:

(Start: 10 @5179 has 100 MA's), (Start: 11 @5173 has 2 MA's), (13, 5164), (20, 5092), (22, 5059), (26, 4999), (29, 4969), (30, 4960), (36, 4894), (37, 4882),

Gene: Daubenski\_12 Start: 6584, Stop: 6276, Start Num: 10

Candidate Starts for Daubenski\_12:

(Start: 10 @6584 has 100 MA's), (19, 6503), (23, 6416), (31, 6353), (35, 6314),

Gene: Daubenski\_256 Start: 128960, Stop: 128652, Start Num: 10

Candidate Starts for Daubenski\_256:

(Start: 10 @128960 has 100 MA's), (19, 128879), (23, 128792), (31, 128729), (35, 128690),

Gene: Davielle\_9 Start: 5841, Stop: 5542, Start Num: 10

Candidate Starts for Davielle\_9:

(Start: 10 @5841 has 100 MA's), (19, 5760), (24, 5670), (25, 5667), (30, 5616),

Gene: Davielle\_258 Start: 127001, Stop: 126702, Start Num: 10

Candidate Starts for Davielle\_258:

(Start: 10 @127001 has 100 MA's), (19, 126920), (24, 126830), (25, 126827), (30, 126776),

Gene: EGole\_265 Start: 131094, Stop: 130771, Start Num: 10

Candidate Starts for EGole\_265:

(Start: 10 @131094 has 100 MA's), (Start: 11 @131088 has 2 MA's), (13, 131079), (20, 131007), (22, 130974), (26, 130914), (29, 130884), (30, 130875), (36, 130809), (37, 130797),

Gene: EGole\_11 Start: 6782, Stop: 6459, Start Num: 10

Candidate Starts for EGole\_11:

(Start: 10 @6782 has 100 MA's), (Start: 11 @6776 has 2 MA's), (13, 6767), (20, 6695), (22, 6662), (26, 6602), (29, 6572), (30, 6563), (36, 6497), (37, 6485),

Gene: Eliot67\_261 Start: 126857, Stop: 126558, Start Num: 10

Candidate Starts for Eliot67\_261:

(Start: 10 @126857 has 100 MA's), (19, 126776), (24, 126686), (25, 126683), (30, 126632),

Gene: Eliot67\_10 Start: 6043, Stop: 5744, Start Num: 10

Candidate Starts for Eliot67\_10:

(Start: 10 @6043 has 100 MA's), (19, 5962), (24, 5872), (25, 5869), (30, 5818),

Gene: Evy\_12 Start: 6669, Stop: 6367, Start Num: 10

Candidate Starts for Evy\_12:

(1, 6999), (2, 6972), (3, 6906), (4, 6882), (5, 6876), (6, 6822), (Start: 10 @6669 has 100 MA's), (19, 6588), (24, 6498), (31, 6441), (32, 6435), (34, 6405),

Gene: Evy\_250 Start: 128398, Stop: 128096, Start Num: 10

Candidate Starts for Evy\_250:

(1, 128728), (2, 128701), (3, 128635), (4, 128611), (5, 128605), (6, 128551), (Start: 10 @128398 has 100 MA's), (19, 128317), (24, 128227), (31, 128170), (32, 128164), (34, 128134),

Gene: FreddyDRoo\_10 Start: 6043, Stop: 5744, Start Num: 10

Candidate Starts for FreddyDRoo\_10:

(Start: 10 @6043 has 100 MA's), (19, 5962), (24, 5872), (25, 5869), (30, 5818),

Gene: FreddyDRoo\_263 Start: 126857, Stop: 126558, Start Num: 10

Candidate Starts for FreddyDRoo\_263:

(Start: 10 @126857 has 100 MA's), (19, 126776), (24, 126686), (25, 126683), (30, 126632),

Gene: Genie2\_10 Start: 5615, Stop: 5304, Start Num: 10

Candidate Starts for Genie2\_10:

(Start: 10 @5615 has 100 MA's), (Start: 11 @5609 has 2 MA's), (15, 5588), (19, 5537), (23, 5459), (28, 5411), (31, 5396),

Gene: Genie2\_265 Start: 124516, Stop: 124205, Start Num: 10

Candidate Starts for Genie2\_265:

(Start: 10 @124516 has 100 MA's), (Start: 11 @124510 has 2 MA's), (15, 124489), (19, 124438), (23, 124360), (28, 124312), (31, 124297),

Gene: HangryHippo\_259 Start: 127448, Stop: 127125, Start Num: 10

Candidate Starts for HangryHippo\_259:

(Start: 10 @127448 has 100 MA's), (Start: 11 @127442 has 2 MA's), (13, 127433), (20, 127361), (22, 127328), (26, 127268), (29, 127238), (30, 127229), (36, 127163), (37, 127151),

Gene: HangryHippo\_11 Start: 6361, Stop: 6038, Start Num: 10

Candidate Starts for HangryHippo\_11:

(Start: 10 @6361 has 100 MA's), (Start: 11 @6355 has 2 MA's), (13, 6346), (20, 6274), (22, 6241), (26, 6181), (29, 6151), (30, 6142), (36, 6076), (37, 6064),

Gene: Jay2Jay\_13 Start: 6415, Stop: 6071, Start Num: 8

Candidate Starts for Jay2Jay\_13:

(Start: 8 @6415 has 4 MA's), (Start: 10 @6373 has 100 MA's), (19, 6292), (24, 6202), (31, 6145), (32, 6139), (34, 6109),

Gene: Jay2Jay\_268 Start: 128508, Stop: 128164, Start Num: 8

Candidate Starts for Jay2Jay\_268:

(Start: 8 @128508 has 4 MA's), (Start: 10 @128466 has 100 MA's), (19, 128385), (24, 128295), (31, 128238), (32, 128232), (34, 128202),

Gene: Larnav\_11 Start: 6361, Stop: 6038, Start Num: 10

Candidate Starts for Larnav\_11:

(Start: 10 @6361 has 100 MA's), (Start: 11 @6355 has 2 MA's), (13, 6346), (20, 6274), (22, 6241), (26, 6181), (29, 6151), (30, 6142), (36, 6076), (37, 6064),

Gene: Larnav\_261 Start: 128366, Stop: 128043, Start Num: 10

Candidate Starts for Larnav\_261:

(Start: 10 @128366 has 100 MA's), (Start: 11 @128360 has 2 MA's), (13, 128351), (20, 128279), (22, 128246), (26, 128186), (29, 128156), (30, 128147), (36, 128081), (37, 128069),

Gene: Leo04\_262 Start: 128472, Stop: 128155, Start Num: 11

Candidate Starts for Leo04\_262:

(Start: 10 @128478 has 100 MA's), (Start: 11 @128472 has 2 MA's), (13, 128463), (20, 128391), (22, 128358), (26, 128298), (29, 128268), (30, 128259), (36, 128193), (37, 128181),

Gene: Leo04\_11 Start: 6354, Stop: 6037, Start Num: 11

Candidate Starts for Leo04\_11:

(Start: 10 @6360 has 100 MA's), (Start: 11 @6354 has 2 MA's), (13, 6345), (20, 6273), (22, 6240), (26, 6180), (29, 6150), (30, 6141), (36, 6075), (37, 6063),

Gene: Liandry\_259 Start: 127564, Stop: 127265, Start Num: 10

Candidate Starts for Liandry\_259:

(Start: 10 @127564 has 100 MA's), (19, 127483), (24, 127393), (25, 127390), (30, 127339),

Gene: Liandry\_10 Start: 6043, Stop: 5744, Start Num: 10

Candidate Starts for Liandry\_10:

(Start: 10 @6043 has 100 MA's), (19, 5962), (24, 5872), (25, 5869), (30, 5818),

Gene: LilMartin\_263 Start: 128036, Stop: 127737, Start Num: 10

Candidate Starts for LilMartin\_263:

(Start: 10 @128036 has 100 MA's), (19, 127955), (24, 127865), (25, 127862), (30, 127811),

Gene: LilMartin\_11 Start: 6692, Stop: 6393, Start Num: 10

Candidate Starts for LilMartin\_11:

(Start: 10 @6692 has 100 MA's), (19, 6611), (24, 6521), (25, 6518), (30, 6467),

Gene: LilSaint\_265 Start: 128356, Stop: 128033, Start Num: 10

Candidate Starts for LilSaint\_265:

(Start: 10 @128356 has 100 MA's), (Start: 11 @128350 has 2 MA's), (20, 128269), (22, 128236), (26, 128176), (29, 128146), (30, 128137), (33, 128116), (37, 128059), (38, 128041),

Gene: LilSaint\_12 Start: 6506, Stop: 6183, Start Num: 10

Candidate Starts for LilSaint\_12:

(Start: 10 @6506 has 100 MA's), (Start: 11 @6500 has 2 MA's), (20, 6419), (22, 6386), (26, 6326), (29, 6296), (30, 6287), (33, 6266), (37, 6209), (38, 6191),

Gene: Lululemon\_257 Start: 126633, Stop: 126310, Start Num: 10

Candidate Starts for Lululemon\_257:

(Start: 10 @126633 has 100 MA's), (Start: 11 @126627 has 2 MA's), (13, 126618), (20, 126546), (22, 126513), (26, 126453), (29, 126423), (30, 126414), (36, 126348), (37, 126336),

Gene: Lululemon\_10 Start: 5741, Stop: 5418, Start Num: 10

Candidate Starts for Lululemon\_10:

(Start: 10 @5741 has 100 MA's), (Start: 11 @5735 has 2 MA's), (13, 5726), (20, 5654), (22, 5621), (26, 5561), (29, 5531), (30, 5522), (36, 5456), (37, 5444),

Gene: Marsus\_268 Start: 130400, Stop: 130101, Start Num: 10

Candidate Starts for Marsus\_268:

(Start: 10 @130400 has 100 MA's), (18, 130325), (19, 130319), (28, 130187), (30, 130175),

Gene: Marsus\_11 Start: 6696, Stop: 6397, Start Num: 10

Candidate Starts for Marsus\_11:

(Start: 10 @6696 has 100 MA's), (18, 6621), (19, 6615), (28, 6483), (30, 6471),

Gene: Mildred21\_274 Start: 127436, Stop: 127137, Start Num: 10

Candidate Starts for Mildred21\_274:

(Start: 10 @127436 has 100 MA's), (19, 127355), (24, 127265), (25, 127262), (30, 127211), (31, 127208),

Gene: Mildred21\_11 Start: 6278, Stop: 5979, Start Num: 10

Candidate Starts for Mildred21\_11:

(Start: 10 @6278 has 100 MA's), (19, 6197), (24, 6107), (25, 6104), (30, 6053), (31, 6050),

Gene: MulchMansion\_11 Start: 6692, Stop: 6393, Start Num: 10

Candidate Starts for MulchMansion\_11:

(Start: 10 @6692 has 100 MA's), (19, 6611), (24, 6521), (25, 6518), (30, 6467),

Gene: MulchMansion\_267 Start: 129670, Stop: 129371, Start Num: 10

Candidate Starts for MulchMansion\_267:

(Start: 10 @129670 has 100 MA's), (19, 129589), (24, 129499), (25, 129496), (30, 129445),

Gene: Muntaha\_225 Start: 109742, Stop: 110029, Start Num: 10

Candidate Starts for Muntaha\_225:

(Start: 10 @109742 has 100 MA's), (Start: 11 @109751 has 2 MA's), (12, 109754), (15, 109772), (17, 109808), (21, 109844), (36, 110018),

Gene: Navo\_251 Start: 125466, Stop: 125167, Start Num: 10

Candidate Starts for Navo\_251:

(Start: 10 @125466 has 100 MA's), (19, 125385), (24, 125295), (25, 125292), (30, 125241),

Gene: Navo\_9 Start: 5841, Stop: 5542, Start Num: 10

Candidate Starts for Navo\_9:

(Start: 10 @5841 has 100 MA's), (19, 5760), (24, 5670), (25, 5667), (30, 5616),

Gene: NootNoot\_255 Start: 126352, Stop: 126053, Start Num: 10

Candidate Starts for NootNoot\_255:

(Start: 10 @126352 has 100 MA's), (19, 126271), (24, 126181), (25, 126178), (30, 126127),

Gene: NootNoot\_10 Start: 6053, Stop: 5754, Start Num: 10

Candidate Starts for NootNoot\_10:

(Start: 10 @6053 has 100 MA's), (19, 5972), (24, 5882), (25, 5879), (30, 5828),

Gene: PacManQ\_10 Start: 5741, Stop: 5418, Start Num: 10

Candidate Starts for PacManQ\_10:

(Start: 10 @5741 has 100 MA's), (Start: 11 @5735 has 2 MA's), (13, 5726), (20, 5654), (22, 5621), (26, 5561), (29, 5531), (30, 5522), (36, 5456), (37, 5444),

Gene: PacManQ\_257 Start: 126633, Stop: 126310, Start Num: 10

Candidate Starts for PacManQ\_257:

(Start: 10 @126633 has 100 MA's), (Start: 11 @126627 has 2 MA's), (13, 126618), (20, 126546), (22, 126513), (26, 126453), (29, 126423), (30, 126414), (36, 126348), (37, 126336),

Gene: Paradiddles\_10 Start: 6043, Stop: 5744, Start Num: 10

Candidate Starts for Paradiddles\_10:

(Start: 10 @6043 has 100 MA's), (19, 5962), (24, 5872), (25, 5869), (30, 5818),

Gene: Paradiddles\_251 Start: 128751, Stop: 128452, Start Num: 10

Candidate Starts for Paradiddles\_251:

(Start: 10 @128751 has 100 MA's), (19, 128670), (24, 128580), (25, 128577), (30, 128526),

Gene: Peebs\_11 Start: 6360, Stop: 6037, Start Num: 10

Candidate Starts for Peebs\_11:

(Start: 10 @6360 has 100 MA's), (Start: 11 @6354 has 2 MA's), (13, 6345), (20, 6273), (22, 6240), (26, 6180), (29, 6150), (30, 6141), (36, 6075), (37, 6063),

Gene: Peebs\_258 Start: 128335, Stop: 128012, Start Num: 10

Candidate Starts for Peebs\_258:

(Start: 10 @128335 has 100 MA's), (Start: 11 @128329 has 2 MA's), (13, 128320), (20, 128248), (22, 128215), (26, 128155), (29, 128125), (30, 128116), (36, 128050), (37, 128038),

Gene: Pepperwood\_12 Start: 6515, Stop: 6192, Start Num: 10

Candidate Starts for Pepperwood\_12:

(Start: 10 @6515 has 100 MA's), (Start: 11 @6509 has 2 MA's), (13, 6500), (20, 6428), (22, 6395), (26, 6335), (29, 6305), (30, 6296), (36, 6230), (37, 6218),

Gene: Pepperwood\_261 Start: 128300, Stop: 127977, Start Num: 10

Candidate Starts for Pepperwood\_261:

(Start: 10 @128300 has 100 MA's), (Start: 11 @128294 has 2 MA's), (13, 128285), (20, 128213), (22, 128180), (26, 128120), (29, 128090), (30, 128081), (36, 128015), (37, 128003),

Gene: Persimmon\_260 Start: 126652, Stop: 126353, Start Num: 10

Candidate Starts for Persimmon\_260:

(Start: 10 @126652 has 100 MA's), (19, 126571), (24, 126481), (25, 126478), (30, 126427),

Gene: Persimmon\_9 Start: 5841, Stop: 5542, Start Num: 10

Candidate Starts for Persimmon\_9:

(Start: 10 @5841 has 100 MA's), (19, 5760), (24, 5670), (25, 5667), (30, 5616),

Gene: PinkiePie\_10 Start: 6043, Stop: 5744, Start Num: 10

Candidate Starts for PinkiePie\_10:

(Start: 10 @6043 has 100 MA's), (19, 5962), (24, 5872), (25, 5869), (30, 5818),

Gene: PinkiePie\_260 Start: 127564, Stop: 127265, Start Num: 10

Candidate Starts for PinkiePie\_260:

(Start: 10 @127564 has 100 MA's), (19, 127483), (24, 127393), (25, 127390), (30, 127339),

Gene: Riptide\_12 Start: 6772, Stop: 6449, Start Num: 10

Candidate Starts for Riptide\_12:

(Start: 10 @6772 has 100 MA's), (Start: 11 @6766 has 2 MA's), (20, 6685), (22, 6652), (26, 6592), (29, 6562), (30, 6553), (33, 6532), (37, 6475),

Gene: Riptide\_267 Start: 128224, Stop: 127901, Start Num: 10

Candidate Starts for Riptide\_267:

(Start: 10 @128224 has 100 MA's), (Start: 11 @128218 has 2 MA's), (20, 128137), (22, 128104), (26, 128044), (29, 128014), (30, 128005), (33, 127984), (37, 127927),

Gene: Samisti12\_10 Start: 6360, Stop: 6037, Start Num: 10

Candidate Starts for Samisti12\_10:

(Start: 10 @6360 has 100 MA's), (Start: 11 @6354 has 2 MA's), (13, 6345), (20, 6273), (22, 6240), (26, 6180), (29, 6150), (30, 6141), (36, 6075), (37, 6063),

Gene: Samisti12\_261 Start: 129404, Stop: 129081, Start Num: 10

Candidate Starts for Samisti12\_261:

(Start: 10 @129404 has 100 MA's), (Start: 11 @129398 has 2 MA's), (13, 129389), (20, 129317), (22, 129284), (26, 129224), (29, 129194), (30, 129185), (36, 129119), (37, 129107),

Gene: Scheme\_265 Start: 129710, Stop: 129387, Start Num: 10

Candidate Starts for Scheme\_265:

(Start: 10 @129710 has 100 MA's), (Start: 11 @129704 has 2 MA's), (13, 129695), (20, 129623), (22, 129590), (26, 129530), (29, 129500), (30, 129491), (36, 129425), (37, 129413),

Gene: Scheme\_12 Start: 6515, Stop: 6192, Start Num: 10

Candidate Starts for Scheme\_12:

(Start: 10 @6515 has 100 MA's), (Start: 11 @6509 has 2 MA's), (13, 6500), (20, 6428), (22, 6395), (26, 6335), (29, 6305), (30, 6296), (36, 6230), (37, 6218),

Gene: Shuckle\_11 Start: 6805, Stop: 6482, Start Num: 10

Candidate Starts for Shuckle\_11:

(Start: 10 @6805 has 100 MA's), (Start: 11 @6799 has 2 MA's), (13, 6790), (20, 6718), (22, 6685), (26, 6625), (29, 6595), (30, 6586), (36, 6520), (37, 6508),

Gene: Shuckle\_259 Start: 129438, Stop: 129115, Start Num: 10

Candidate Starts for Shuckle\_259:

(Start: 10 @129438 has 100 MA's), (Start: 11 @129432 has 2 MA's), (13, 129423), (20, 129351), (22, 129318), (26, 129258), (29, 129228), (30, 129219), (36, 129153), (37, 129141),

Gene: Sollertia\_10 Start: 5615, Stop: 5304, Start Num: 10

Candidate Starts for Sollertia\_10:

(Start: 10 @5615 has 100 MA's), (Start: 11 @5609 has 2 MA's), (15, 5588), (19, 5537), (23, 5459), (28, 5411), (31, 5396),

Gene: Sollertia\_266 Start: 124505, Stop: 124194, Start Num: 10

Candidate Starts for Sollertia\_266:

(Start: 10 @124505 has 100 MA's), (Start: 11 @124499 has 2 MA's), (15, 124478), (19, 124427), (23, 124349), (28, 124301), (31, 124286),

Gene: Squillium\_10 Start: 6043, Stop: 5744, Start Num: 10

Candidate Starts for Squillium\_10:

(Start: 10 @6043 has 100 MA's), (19, 5962), (24, 5872), (25, 5869), (30, 5818),

Gene: Squillium\_262 Start: 127567, Stop: 127268, Start Num: 10

Candidate Starts for Squillium\_262:

(Start: 10 @127567 has 100 MA's), (19, 127486), (24, 127396), (25, 127393), (30, 127342),

Gene: Stanimal\_10 Start: 5615, Stop: 5304, Start Num: 10

Candidate Starts for Stanimal\_10:

(Start: 10 @5615 has 100 MA's), (Start: 11 @5609 has 2 MA's), (15, 5588), (19, 5537), (23, 5459), (28, 5411), (31, 5396),

Gene: Stanimal\_265 Start: 124889, Stop: 124578, Start Num: 10

Candidate Starts for Stanimal\_265:

(Start: 10 @124889 has 100 MA's), (Start: 11 @124883 has 2 MA's), (15, 124862), (19, 124811), (23, 124733), (28, 124685), (31, 124670),

Gene: Sushi23\_262 Start: 129204, Stop: 128881, Start Num: 10

Candidate Starts for Sushi23\_262:

(Start: 10 @129204 has 100 MA's), (Start: 11 @129198 has 2 MA's), (13, 129189), (20, 129117), (22, 129084), (26, 129024), (29, 128994), (30, 128985), (36, 128919), (37, 128907),

Gene: Sushi23\_12 Start: 6361, Stop: 6038, Start Num: 10

Candidate Starts for Sushi23\_12:

(Start: 10 @6361 has 100 MA's), (Start: 11 @6355 has 2 MA's), (13, 6346), (20, 6274), (22, 6241), (26, 6181), (29, 6151), (30, 6142), (36, 6076), (37, 6064),

Gene: Targaryen\_261 Start: 130341, Stop: 130033, Start Num: 10

Candidate Starts for Targaryen\_261:

(1, 130671), (2, 130644), (3, 130578), (4, 130554), (5, 130548), (6, 130494), (Start: 10 @130341 has 100 MA's), (14, 130317), (19, 130260), (23, 130173), (31, 130110), (35, 130071),

Gene: Targaryen\_10 Start: 6665, Stop: 6357, Start Num: 10

Candidate Starts for Targaryen\_10:

(1, 6995), (2, 6968), (3, 6902), (4, 6878), (5, 6872), (6, 6818), (Start: 10 @6665 has 100 MA's), (14, 6641), (19, 6584), (23, 6497), (31, 6434), (35, 6395),

Gene: Teutsch\_11 Start: 6362, Stop: 6039, Start Num: 10

Candidate Starts for Teutsch\_11:

(Start: 10 @6362 has 100 MA's), (Start: 11 @6356 has 2 MA's), (13, 6347), (20, 6275), (22, 6242), (26, 6182), (29, 6152), (30, 6143), (36, 6077), (37, 6065),

Gene: Teutsch\_258 Start: 128571, Stop: 128248, Start Num: 10

Candidate Starts for Teutsch\_258:

(Start: 10 @128571 has 100 MA's), (Start: 11 @128565 has 2 MA's), (13, 128556), (20, 128484), (22, 128451), (26, 128391), (29, 128361), (30, 128352), (36, 128286), (37, 128274),

Gene: Tribute\_11 Start: 6361, Stop: 6038, Start Num: 10

Candidate Starts for Tribute\_11:

(Start: 10 @6361 has 100 MA's), (Start: 11 @6355 has 2 MA's), (13, 6346), (20, 6274), (22, 6241), (26, 6181), (29, 6151), (30, 6142), (36, 6076), (37, 6064),

Gene: Tribute\_257 Start: 128905, Stop: 128582, Start Num: 10

Candidate Starts for Tribute\_257:

(Start: 10 @128905 has 100 MA's), (Start: 11 @128899 has 2 MA's), (13, 128890), (20, 128818), (22, 128785), (26, 128725), (29, 128695), (30, 128686), (36, 128620), (37, 128608),

Gene: Wakanda\_221 Start: 108728, Stop: 109015, Start Num: 10

Candidate Starts for Wakanda\_221:

(Start: 10 @108728 has 100 MA's), (Start: 11 @108737 has 2 MA's), (12, 108740), (15, 108758), (17, 108794), (21, 108830), (36, 109004),

Gene: Warpy\_265 Start: 127974, Stop: 127630, Start Num: 8

Candidate Starts for Warpy\_265:

(Start: 8 @127974 has 4 MA's), (Start: 10 @127932 has 100 MA's), (19, 127851), (24, 127761), (31, 127704), (32, 127698), (34, 127668),

Gene: Warpy\_13 Start: 6436, Stop: 6092, Start Num: 8

Candidate Starts for Warpy\_13:

(Start: 8 @6436 has 4 MA's), (Start: 10 @6394 has 100 MA's), (19, 6313), (24, 6223), (31, 6166), (32, 6160), (34, 6130),

Gene: Watermoore\_258 Start: 128958, Stop: 128635, Start Num: 10

Candidate Starts for Watermoore\_258:

(Start: 10 @128958 has 100 MA's), (Start: 11 @128952 has 2 MA's), (13, 128943), (20, 128871), (22, 128838), (26, 128778), (29, 128748), (30, 128739), (36, 128673), (37, 128661),

Gene: Watermoore\_11 Start: 6362, Stop: 6039, Start Num: 10

Candidate Starts for Watermoore\_11:

(Start: 10 @6362 has 100 MA's), (Start: 11 @6356 has 2 MA's), (13, 6347), (20, 6275), (22, 6242), (26, 6182), (29, 6152), (30, 6143), (36, 6077), (37, 6065),

Gene: WhereRU\_9 Start: 5841, Stop: 5542, Start Num: 10

Candidate Starts for WhereRU\_9:

(Start: 10 @5841 has 100 MA's), (19, 5760), (24, 5670), (25, 5667), (30, 5616),

Gene: WhereRU\_258 Start: 126986, Stop: 126687, Start Num: 10

Candidate Starts for WhereRU\_258:

(Start: 10 @126986 has 100 MA's), (19, 126905), (24, 126815), (25, 126812), (30, 126761),

Gene: Yaboi\_271 Start: 124433, Stop: 124122, Start Num: 10

Candidate Starts for Yaboi\_271:

(Start: 10 @124433 has 100 MA's), (Start: 11 @124427 has 2 MA's), (15, 124406), (19, 124355), (23, 124277), (28, 124229), (31, 124214),

Gene: Yaboi\_10 Start: 5615, Stop: 5304, Start Num: 10

Candidate Starts for Yaboi\_10:

(Start: 10 @5615 has 100 MA's), (Start: 11 @5609 has 2 MA's), (15, 5588), (19, 5537), (23, 5459), (28, 5411), (31, 5396),