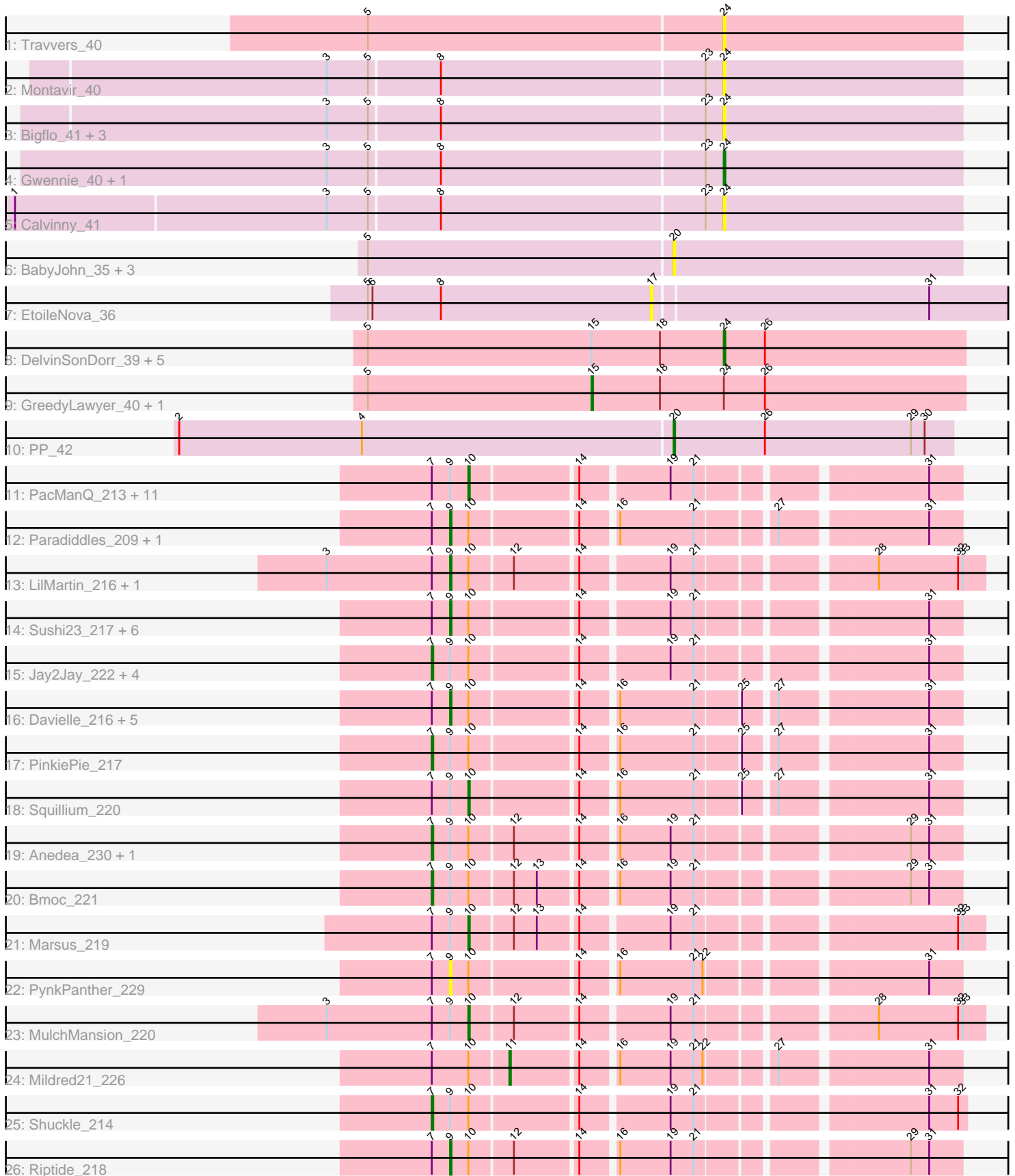


Pham 311571



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 311571 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311571 has 68 members, 19 are drafts.

Phages represented in each track:

- Track 1 : Travvers\_40
- Track 2 : Montavir\_40
- Track 3 : Bigflo\_41, ClownCar\_41, Croquant\_42, Iowa\_41
- Track 4 : Gwennie\_40, Colbster\_41
- Track 5 : Calvinny\_41
- Track 6 : BabyJohn\_35, Chiqui\_35, DropBear\_36, Zarafa\_36
- Track 7 : EtoileNova\_36
- Track 8 : DelvinSonDorr\_39, Garak\_41, Candra\_40, EricB\_40, Pmask\_40, SuperCallie99\_40
- Track 9 : GreedyLawyer\_40, DaVinci\_40
- Track 10 : PP\_42
- Track 11 : PacManQ\_213, EGole\_220, WashU\_219, BlueOtter\_215, Evy\_207, HangryHippo\_215, Cross\_216, Lululemon\_213, Teutsch\_216, Peebs\_214, Pepperwood\_217, ArianaSWT\_228
- Track 12 : Paradiddles\_209, NootNoot\_214
- Track 13 : LilMartin\_216, Angela\_219
- Track 14 : Sushi23\_217, Cursive\_219, Samisti12\_221, Watermoore\_216, Larnav\_216, Tribute\_213, Scheme\_220
- Track 15 : Jay2Jay\_222, Coogler\_214, Targaryen\_216, Leo04\_217, Warpy\_220
- Track 16 : Davielle\_216, Bartholomune\_217, Persimmon\_220, WhereRU\_216, Navo\_211, Braelyn\_213
- Track 17 : PinkiePie\_217
- Track 18 : Squillium\_220
- Track 19 : Anedea\_230, LilSaint\_218
- Track 20 : Bmoc\_221
- Track 21 : Marsus\_219
- Track 22 : PynkPanther\_229
- Track 23 : MulchMansion\_220
- Track 24 : Mildred21\_226
- Track 25 : Shuckle\_214
- Track 26 : Riptide\_218

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

The start number called the most often in the published annotations is 9, it was called in 18 of the 49 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Angela\_219, Bartholomune\_217, Braelyn\_213, Cursive\_219, Davielle\_216, Larnav\_216, LilMartin\_216, Navo\_211, NootNoot\_214, Paradiddles\_209, Persimmon\_220, PynkPanther\_229, Riptide\_218, Samisti12\_221, Scheme\_220, Sushi23\_217, Tribute\_213, Watermoore\_216, WhereRU\_216,

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

- Anedea\_230, ArianaSWT\_228, BlueOtter\_215, Bmoc\_221, Coogler\_214, Cross\_216, EGole\_220, Evy\_207, HangryHippo\_215, Jay2Jay\_222, Leo04\_217, LilSaint\_218, Lululemon\_213, Marsus\_219, MulchMansion\_220, PacManQ\_213, Peebs\_214, Pepperwood\_217, PinkiePie\_217, Shuckle\_214, Squillium\_220, Targaryen\_216, Teutsch\_216, Warpy\_220, WashU\_219,

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

- BabyJohn\_35, Bigflo\_41, Calvinny\_41, Candra\_40, Chiqui\_35, ClownCar\_41, Colbster\_41, Croquant\_42, DaVinci\_40, DelvinSonDorr\_39, DropBear\_36, EricB\_40, EtoileNova\_36, Garak\_41, GreedyLawyer\_40, Gwennie\_40, Lowa\_41, Mildred21\_226, Montavir\_40, PP\_42, Pmask\_40, SuperCallie99\_40, Travvers\_40, Zarafa\_36,

### Summary by start number:

Start 7:

- Found in 45 of 68 ( 66.2% ) of genes in pham
- Manual Annotations of this start: 10 of 49
- Called 22.2% of time when present
- Phage (with cluster) where this start called: Anedea\_230 (BE1), Bmoc\_221 (BE1), Coogler\_214 (BE1), Jay2Jay\_222 (BE1), Leo04\_217 (BE1), LilSaint\_218 (BE1), PinkiePie\_217 (BE1), Shuckle\_214 (BE1), Targaryen\_216 (BE1), Warpy\_220 (BE1),

Start 9:

- Found in 44 of 68 ( 64.7% ) of genes in pham
- Manual Annotations of this start: 18 of 49
- Called 43.2% of time when present
- Phage (with cluster) where this start called: Angela\_219 (BE1), Bartholomune\_217 (BE1), Braelyn\_213 (BE1), Cursive\_219 (BE1), Davielle\_216 (BE1), Larnav\_216 (BE1), LilMartin\_216 (BE1), Navo\_211 (BE1), NootNoot\_214 (BE1), Paradiddles\_209 (BE1), Persimmon\_220 (BE1), PynkPanther\_229 (BE1), Riptide\_218 (BE1), Samisti12\_221 (BE1), Scheme\_220 (BE1), Sushi23\_217 (BE1), Tribute\_213 (BE1), Watermoore\_216 (BE1), WhereRU\_216 (BE1),

Start 10:

- Found in 45 of 68 ( 66.2% ) of genes in pham
- Manual Annotations of this start: 13 of 49
- Called 33.3% of time when present
- Phage (with cluster) where this start called: ArianaSWT\_228 (BE1), BlueOtter\_215 (BE1), Cross\_216 (BE1), EGole\_220 (BE1), Evy\_207 (BE1), HangryHippo\_215 (BE1), Lululemon\_213 (BE1), Marsus\_219 (BE1), MulchMansion\_220 (BE1), PacManQ\_213 (BE1), Peebs\_214 (BE1), Pepperwood\_217 (BE1), Squillium\_220 (BE1), Teutsch\_216 (BE1), WashU\_219 (BE1),

Start 11:

- Found in 1 of 68 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Mildred21\_226 (BE1),

Start 15:

- Found in 8 of 68 ( 11.8% ) of genes in pham
- Manual Annotations of this start: 2 of 49
- Called 25.0% of time when present
- Phage (with cluster) where this start called: DaVinci\_40 (A6), GreedyLawyer\_40 (A6),

Start 17:

- Found in 1 of 68 ( 1.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: EtoileNova\_36 (A3),

Start 20:

- Found in 5 of 68 ( 7.4% ) of genes in pham
- Manual Annotations of this start: 1 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BabyJohn\_35 (A3), Chiqui\_35 (A3), DropBear\_36 (A3), PP\_42 (A7), Zarafa\_36 (A3),

Start 24:

- Found in 17 of 68 ( 25.0% ) of genes in pham
- Manual Annotations of this start: 4 of 49
- Called 88.2% of time when present
- Phage (with cluster) where this start called: Bigflo\_41 (A3), Calvinny\_41 (A3), Candra\_40 (A6), ClownCar\_41 (A3), Colbster\_41 (A3), Croquant\_42 (A3), DelvinSonDorr\_39 (A6), EricB\_40 (A6), Garak\_41 (A6), Gwennie\_40 (A3), Lowa\_41 (A3), Montavir\_40 (A3), Pmask\_40 (A6), SuperCallie99\_40 (A6), Travvers\_40 (A2),

**Summary by clusters:**

There are 5 clusters represented in this pham: A3, BE1, A2, A7, A6,

Info for manual annotations of cluster A3:

- Start number 24 was manually annotated 1 time for cluster A3.

Info for manual annotations of cluster A6:

- Start number 15 was manually annotated 2 times for cluster A6.
- Start number 24 was manually annotated 3 times for cluster A6.

Info for manual annotations of cluster A7:

- Start number 20 was manually annotated 1 time for cluster A7.

Info for manual annotations of cluster BE1:

- Start number 7 was manually annotated 10 times for cluster BE1.

- Start number 9 was manually annotated 18 times for cluster BE1.
- Start number 10 was manually annotated 13 times for cluster BE1.
- Start number 11 was manually annotated 1 time for cluster BE1.

### **Gene Information:**

Gene: Anedea\_230 Start: 109729, Stop: 110043, Start Num: 7

Candidate Starts for Anedea\_230:

(Start: 7 @109729 has 10 MA's), (Start: 9 @109741 has 18 MA's), (Start: 10 @109753 has 13 MA's), (12, 109780), (14, 109819), (16, 109840), (19, 109873), (21, 109888), (29, 110011), (31, 110023),

Gene: Angela\_219 Start: 107471, Stop: 107788, Start Num: 9

Candidate Starts for Angela\_219:

(3, 107390), (Start: 7 @107459 has 10 MA's), (Start: 9 @107471 has 18 MA's), (Start: 10 @107483 has 13 MA's), (12, 107510), (14, 107549), (19, 107603), (21, 107618), (28, 107720), (32, 107771), (33, 107774),

Gene: ArianaSWT\_228 Start: 109601, Stop: 109891, Start Num: 10

Candidate Starts for ArianaSWT\_228:

(Start: 7 @109577 has 10 MA's), (Start: 9 @109589 has 18 MA's), (Start: 10 @109601 has 13 MA's), (14, 109667), (19, 109721), (21, 109736), (31, 109871),

Gene: BabyJohn\_35 Start: 27894, Stop: 27706, Start Num: 20

Candidate Starts for BabyJohn\_35:

(5, 28092), (Start: 20 @27894 has 1 MA's),

Gene: Bartholomune\_217 Start: 107720, Stop: 108022, Start Num: 9

Candidate Starts for Bartholomune\_217:

(Start: 7 @107708 has 10 MA's), (Start: 9 @107720 has 18 MA's), (Start: 10 @107732 has 13 MA's), (14, 107798), (16, 107819), (21, 107867), (25, 107894), (27, 107912), (31, 108002),

Gene: Bigflo\_41 Start: 28347, Stop: 28192, Start Num: 24

Candidate Starts for Bigflo\_41:

(3, 28602), (5, 28575), (8, 28530), (23, 28359), (Start: 24 @28347 has 4 MA's),

Gene: BlueOtter\_215 Start: 107854, Stop: 108144, Start Num: 10

Candidate Starts for BlueOtter\_215:

(Start: 7 @107830 has 10 MA's), (Start: 9 @107842 has 18 MA's), (Start: 10 @107854 has 13 MA's), (14, 107920), (19, 107974), (21, 107989), (31, 108124),

Gene: Bmoc\_221 Start: 107925, Stop: 108239, Start Num: 7

Candidate Starts for Bmoc\_221:

(Start: 7 @107925 has 10 MA's), (Start: 9 @107937 has 18 MA's), (Start: 10 @107949 has 13 MA's), (12, 107976), (13, 107991), (14, 108015), (16, 108036), (19, 108069), (21, 108084), (29, 108207), (31, 108219),

Gene: Braelyn\_213 Start: 107367, Stop: 107669, Start Num: 9

Candidate Starts for Braelyn\_213:

(Start: 7 @107355 has 10 MA's), (Start: 9 @107367 has 18 MA's), (Start: 10 @107379 has 13 MA's), (14, 107445), (16, 107466), (21, 107514), (25, 107541), (27, 107559), (31, 107649),

Gene: Calvinny\_41 Start: 28173, Stop: 28018, Start Num: 24  
Candidate Starts for Calvinny\_41:  
(1, 28629), (3, 28428), (5, 28401), (8, 28356), (23, 28185), (Start: 24 @28173 has 4 MA's),

Gene: Candra\_40 Start: 26418, Stop: 26260, Start Num: 24  
Candidate Starts for Candra\_40:  
(5, 26652), (Start: 15 @26505 has 2 MA's), (18, 26460), (Start: 24 @26418 has 4 MA's), (26, 26391),

Gene: Chiqui\_35 Start: 27903, Stop: 27715, Start Num: 20  
Candidate Starts for Chiqui\_35:  
(5, 28101), (Start: 20 @27903 has 1 MA's),

Gene: ClownCar\_41 Start: 28165, Stop: 28010, Start Num: 24  
Candidate Starts for ClownCar\_41:  
(3, 28420), (5, 28393), (8, 28348), (23, 28177), (Start: 24 @28165 has 4 MA's),

Gene: Colbster\_41 Start: 28348, Stop: 28193, Start Num: 24  
Candidate Starts for Colbster\_41:  
(3, 28603), (5, 28576), (8, 28531), (23, 28360), (Start: 24 @28348 has 4 MA's),

Gene: Coogler\_214 Start: 108255, Stop: 108569, Start Num: 7  
Candidate Starts for Coogler\_214:  
(Start: 7 @108255 has 10 MA's), (Start: 9 @108267 has 18 MA's), (Start: 10 @108279 has 13 MA's),  
(14, 108345), (19, 108399), (21, 108414), (31, 108549),

Gene: Croquant\_42 Start: 28346, Stop: 28191, Start Num: 24  
Candidate Starts for Croquant\_42:  
(3, 28601), (5, 28574), (8, 28529), (23, 28358), (Start: 24 @28346 has 4 MA's),

Gene: Cross\_216 Start: 108499, Stop: 108789, Start Num: 10  
Candidate Starts for Cross\_216:  
(Start: 7 @108475 has 10 MA's), (Start: 9 @108487 has 18 MA's), (Start: 10 @108499 has 13 MA's),  
(14, 108565), (19, 108619), (21, 108634), (31, 108769),

Gene: Cursive\_219 Start: 108171, Stop: 108473, Start Num: 9  
Candidate Starts for Cursive\_219:  
(Start: 7 @108159 has 10 MA's), (Start: 9 @108171 has 18 MA's), (Start: 10 @108183 has 13 MA's),  
(14, 108249), (19, 108303), (21, 108318), (31, 108453),

Gene: DaVinci\_40 Start: 26470, Stop: 26225, Start Num: 15  
Candidate Starts for DaVinci\_40:  
(5, 26617), (Start: 15 @26470 has 2 MA's), (18, 26425), (Start: 24 @26383 has 4 MA's), (26, 26356),

Gene: Davielle\_216 Start: 107765, Stop: 108067, Start Num: 9  
Candidate Starts for Davielle\_216:  
(Start: 7 @107753 has 10 MA's), (Start: 9 @107765 has 18 MA's), (Start: 10 @107777 has 13 MA's),  
(14, 107843), (16, 107864), (21, 107912), (25, 107939), (27, 107957), (31, 108047),

Gene: DelvinSonDorr\_39 Start: 26378, Stop: 26220, Start Num: 24  
Candidate Starts for DelvinSonDorr\_39:  
(5, 26612), (Start: 15 @26465 has 2 MA's), (18, 26420), (Start: 24 @26378 has 4 MA's), (26, 26351),

Gene: DropBear\_36 Start: 27668, Stop: 27480, Start Num: 20

Candidate Starts for DropBear\_36:  
(5, 27866), (Start: 20 @27668 has 1 MA's),

Gene: EGole\_220 Start: 110229, Stop: 110519, Start Num: 10  
Candidate Starts for EGole\_220:  
(Start: 7 @110205 has 10 MA's), (Start: 9 @110217 has 18 MA's), (Start: 10 @110229 has 13 MA's),  
(14, 110295), (19, 110349), (21, 110364), (31, 110499),

Gene: EricB\_40 Start: 26375, Stop: 26217, Start Num: 24  
Candidate Starts for EricB\_40:  
(5, 26609), (Start: 15 @26462 has 2 MA's), (18, 26417), (Start: 24 @26375 has 4 MA's), (26, 26348),

Gene: EtoileNova\_36 Start: 27630, Stop: 27385, Start Num: 17  
Candidate Starts for EtoileNova\_36:  
(5, 27816), (6, 27813), (8, 27768), (17, 27630), (31, 27453),

Gene: Evy\_207 Start: 108670, Stop: 108960, Start Num: 10  
Candidate Starts for Evy\_207:  
(Start: 7 @108646 has 10 MA's), (Start: 9 @108658 has 18 MA's), (Start: 10 @108670 has 13 MA's),  
(14, 108736), (19, 108790), (21, 108805), (31, 108940),

Gene: Garak\_41 Start: 26383, Stop: 26225, Start Num: 24  
Candidate Starts for Garak\_41:  
(5, 26617), (Start: 15 @26470 has 2 MA's), (18, 26425), (Start: 24 @26383 has 4 MA's), (26, 26356),

Gene: GreedyLawyer\_40 Start: 26469, Stop: 26224, Start Num: 15  
Candidate Starts for GreedyLawyer\_40:  
(5, 26616), (Start: 15 @26469 has 2 MA's), (18, 26424), (Start: 24 @26382 has 4 MA's), (26, 26355),

Gene: Gwennie\_40 Start: 28348, Stop: 28193, Start Num: 24  
Candidate Starts for Gwennie\_40:  
(3, 28603), (5, 28576), (8, 28531), (23, 28360), (Start: 24 @28348 has 4 MA's),

Gene: HangryHippo\_215 Start: 107854, Stop: 108144, Start Num: 10  
Candidate Starts for HangryHippo\_215:  
(Start: 7 @107830 has 10 MA's), (Start: 9 @107842 has 18 MA's), (Start: 10 @107854 has 13 MA's),  
(14, 107920), (19, 107974), (21, 107989), (31, 108124),

Gene: Jay2Jay\_222 Start: 108801, Stop: 109115, Start Num: 7  
Candidate Starts for Jay2Jay\_222:  
(Start: 7 @108801 has 10 MA's), (Start: 9 @108813 has 18 MA's), (Start: 10 @108825 has 13 MA's),  
(14, 108891), (19, 108945), (21, 108960), (31, 109095),

Gene: Larnav\_216 Start: 108336, Stop: 108638, Start Num: 9  
Candidate Starts for Larnav\_216:  
(Start: 7 @108324 has 10 MA's), (Start: 9 @108336 has 18 MA's), (Start: 10 @108348 has 13 MA's),  
(14, 108414), (19, 108468), (21, 108483), (31, 108618),

Gene: Leo04\_217 Start: 108856, Stop: 109170, Start Num: 7  
Candidate Starts for Leo04\_217:  
(Start: 7 @108856 has 10 MA's), (Start: 9 @108868 has 18 MA's), (Start: 10 @108880 has 13 MA's),  
(14, 108946), (19, 109000), (21, 109015), (31, 109150),

Gene: LilMartin\_216 Start: 106835, Stop: 107152, Start Num: 9

Candidate Starts for LilMartin\_216:

(3, 106754), (Start: 7 @106823 has 10 MA's), (Start: 9 @106835 has 18 MA's), (Start: 10 @106847 has 13 MA's), (12, 106874), (14, 106913), (19, 106967), (21, 106982), (28, 107084), (32, 107135), (33, 107138),

Gene: LilSaint\_218 Start: 108101, Stop: 108415, Start Num: 7

Candidate Starts for LilSaint\_218:

(Start: 7 @108101 has 10 MA's), (Start: 9 @108113 has 18 MA's), (Start: 10 @108125 has 13 MA's), (12, 108152), (14, 108191), (16, 108212), (19, 108245), (21, 108260), (29, 108383), (31, 108395),

Gene: Lowa\_41 Start: 28340, Stop: 28185, Start Num: 24

Candidate Starts for Lowa\_41:

(3, 28595), (5, 28568), (8, 28523), (23, 28352), (Start: 24 @28340 has 4 MA's),

Gene: Lululemon\_213 Start: 107235, Stop: 107525, Start Num: 10

Candidate Starts for Lululemon\_213:

(Start: 7 @107211 has 10 MA's), (Start: 9 @107223 has 18 MA's), (Start: 10 @107235 has 13 MA's), (14, 107301), (19, 107355), (21, 107370), (31, 107505),

Gene: Marsus\_219 Start: 108512, Stop: 108817, Start Num: 10

Candidate Starts for Marsus\_219:

(Start: 7 @108488 has 10 MA's), (Start: 9 @108500 has 18 MA's), (Start: 10 @108512 has 13 MA's), (12, 108539), (13, 108554), (14, 108578), (19, 108632), (21, 108647), (32, 108800), (33, 108803),

Gene: Mildred21\_226 Start: 106654, Stop: 106920, Start Num: 11

Candidate Starts for Mildred21\_226:

(Start: 7 @106606 has 10 MA's), (Start: 10 @106630 has 13 MA's), (Start: 11 @106654 has 1 MA's), (14, 106696), (16, 106717), (19, 106750), (21, 106765), (22, 106771), (27, 106810), (31, 106900),

Gene: Montavir\_40 Start: 28348, Stop: 28193, Start Num: 24

Candidate Starts for Montavir\_40:

(3, 28603), (5, 28576), (8, 28531), (23, 28360), (Start: 24 @28348 has 4 MA's),

Gene: MulchMansion\_220 Start: 108481, Stop: 108786, Start Num: 10

Candidate Starts for MulchMansion\_220:

(3, 108388), (Start: 7 @108457 has 10 MA's), (Start: 9 @108469 has 18 MA's), (Start: 10 @108481 has 13 MA's), (12, 108508), (14, 108547), (19, 108601), (21, 108616), (28, 108718), (32, 108769), (33, 108772),

Gene: Navo\_211 Start: 106571, Stop: 106873, Start Num: 9

Candidate Starts for Navo\_211:

(Start: 7 @106559 has 10 MA's), (Start: 9 @106571 has 18 MA's), (Start: 10 @106583 has 13 MA's), (14, 106649), (16, 106670), (21, 106718), (25, 106745), (27, 106763), (31, 106853),

Gene: NootNoot\_214 Start: 107088, Stop: 107390, Start Num: 9

Candidate Starts for NootNoot\_214:

(Start: 7 @107076 has 10 MA's), (Start: 9 @107088 has 18 MA's), (Start: 10 @107100 has 13 MA's), (14, 107166), (16, 107187), (21, 107235), (27, 107280), (31, 107370),

Gene: PP\_42 Start: 32157, Stop: 31975, Start Num: 20

Candidate Starts for PP\_42:

(2, 32478), (4, 32358), (Start: 20 @32157 has 1 MA's), (26, 32097), (29, 32001), (30, 31992),

Gene: PacManQ\_213 Start: 107235, Stop: 107525, Start Num: 10  
Candidate Starts for PacManQ\_213:  
(Start: 7 @107211 has 10 MA's), (Start: 9 @107223 has 18 MA's), (Start: 10 @107235 has 13 MA's),  
(14, 107301), (19, 107355), (21, 107370), (31, 107505),

Gene: Paradiddles\_209 Start: 109463, Stop: 109765, Start Num: 9  
Candidate Starts for Paradiddles\_209:  
(Start: 7 @109451 has 10 MA's), (Start: 9 @109463 has 18 MA's), (Start: 10 @109475 has 13 MA's),  
(14, 109541), (16, 109562), (21, 109610), (27, 109655), (31, 109745),

Gene: Peebs\_214 Start: 108319, Stop: 108609, Start Num: 10  
Candidate Starts for Peebs\_214:  
(Start: 7 @108295 has 10 MA's), (Start: 9 @108307 has 18 MA's), (Start: 10 @108319 has 13 MA's),  
(14, 108385), (19, 108439), (21, 108454), (31, 108589),

Gene: Pepperwood\_217 Start: 108551, Stop: 108841, Start Num: 10  
Candidate Starts for Pepperwood\_217:  
(Start: 7 @108527 has 10 MA's), (Start: 9 @108539 has 18 MA's), (Start: 10 @108551 has 13 MA's),  
(14, 108617), (19, 108671), (21, 108686), (31, 108821),

Gene: Persimmon\_220 Start: 107589, Stop: 107891, Start Num: 9  
Candidate Starts for Persimmon\_220:  
(Start: 7 @107577 has 10 MA's), (Start: 9 @107589 has 18 MA's), (Start: 10 @107601 has 13 MA's),  
(14, 107667), (16, 107688), (21, 107736), (25, 107763), (27, 107781), (31, 107871),

Gene: PinkiePie\_217 Start: 108231, Stop: 108545, Start Num: 7  
Candidate Starts for PinkiePie\_217:  
(Start: 7 @108231 has 10 MA's), (Start: 9 @108243 has 18 MA's), (Start: 10 @108255 has 13 MA's),  
(14, 108321), (16, 108342), (21, 108390), (25, 108417), (27, 108435), (31, 108525),

Gene: Pmask\_40 Start: 26376, Stop: 26218, Start Num: 24  
Candidate Starts for Pmask\_40:  
(5, 26610), (Start: 15 @26463 has 2 MA's), (18, 26418), (Start: 24 @26376 has 4 MA's), (26, 26349),

Gene: PynkPanther\_229 Start: 108441, Stop: 108743, Start Num: 9  
Candidate Starts for PynkPanther\_229:  
(Start: 7 @108429 has 10 MA's), (Start: 9 @108441 has 18 MA's), (Start: 10 @108453 has 13 MA's),  
(14, 108519), (16, 108540), (21, 108588), (22, 108594), (31, 108723),

Gene: Riptide\_218 Start: 107271, Stop: 107573, Start Num: 9  
Candidate Starts for Riptide\_218:  
(Start: 7 @107259 has 10 MA's), (Start: 9 @107271 has 18 MA's), (Start: 10 @107283 has 13 MA's),  
(12, 107310), (14, 107349), (16, 107370), (19, 107403), (21, 107418), (29, 107541), (31, 107553),

Gene: Samisti12\_221 Start: 110133, Stop: 110435, Start Num: 9  
Candidate Starts for Samisti12\_221:  
(Start: 7 @110121 has 10 MA's), (Start: 9 @110133 has 18 MA's), (Start: 10 @110145 has 13 MA's),  
(14, 110211), (19, 110265), (21, 110280), (31, 110415),

Gene: Scheme\_220 Start: 109778, Stop: 110080, Start Num: 9  
Candidate Starts for Scheme\_220:

(Start: 7 @109766 has 10 MA's), (Start: 9 @109778 has 18 MA's), (Start: 10 @109790 has 13 MA's), (14, 109856), (19, 109910), (21, 109925), (31, 110060),

Gene: Shuckle\_214 Start: 108488, Stop: 108805, Start Num: 7

Candidate Starts for Shuckle\_214:

(Start: 7 @108488 has 10 MA's), (Start: 9 @108500 has 18 MA's), (Start: 10 @108512 has 13 MA's), (14, 108578), (19, 108632), (21, 108647), (31, 108782), (32, 108800),

Gene: Squillium\_220 Start: 108257, Stop: 108547, Start Num: 10

Candidate Starts for Squillium\_220:

(Start: 7 @108233 has 10 MA's), (Start: 9 @108245 has 18 MA's), (Start: 10 @108257 has 13 MA's), (14, 108323), (16, 108344), (21, 108392), (25, 108419), (27, 108437), (31, 108527),

Gene: SuperCallie99\_40 Start: 26374, Stop: 26216, Start Num: 24

Candidate Starts for SuperCallie99\_40:

(5, 26608), (Start: 15 @26461 has 2 MA's), (18, 26416), (Start: 24 @26374 has 4 MA's), (26, 26347),

Gene: Sushi23\_217 Start: 109173, Stop: 109475, Start Num: 9

Candidate Starts for Sushi23\_217:

(Start: 7 @109161 has 10 MA's), (Start: 9 @109173 has 18 MA's), (Start: 10 @109185 has 13 MA's), (14, 109251), (19, 109305), (21, 109320), (31, 109455),

Gene: Targaryen\_216 Start: 109330, Stop: 109644, Start Num: 7

Candidate Starts for Targaryen\_216:

(Start: 7 @109330 has 10 MA's), (Start: 9 @109342 has 18 MA's), (Start: 10 @109354 has 13 MA's), (14, 109420), (19, 109474), (21, 109489), (31, 109624),

Gene: Teutsch\_216 Start: 108974, Stop: 109264, Start Num: 10

Candidate Starts for Teutsch\_216:

(Start: 7 @108950 has 10 MA's), (Start: 9 @108962 has 18 MA's), (Start: 10 @108974 has 13 MA's), (14, 109040), (19, 109094), (21, 109109), (31, 109244),

Gene: Travvers\_40 Start: 27752, Stop: 27597, Start Num: 24

Candidate Starts for Travvers\_40:

(5, 27983), (Start: 24 @27752 has 4 MA's),

Gene: Tribute\_213 Start: 109127, Stop: 109429, Start Num: 9

Candidate Starts for Tribute\_213:

(Start: 7 @109115 has 10 MA's), (Start: 9 @109127 has 18 MA's), (Start: 10 @109139 has 13 MA's), (14, 109205), (19, 109259), (21, 109274), (31, 109409),

Gene: Warpy\_220 Start: 108239, Stop: 108553, Start Num: 7

Candidate Starts for Warpy\_220:

(Start: 7 @108239 has 10 MA's), (Start: 9 @108251 has 18 MA's), (Start: 10 @108263 has 13 MA's), (14, 108329), (19, 108383), (21, 108398), (31, 108533),

Gene: WashU\_219 Start: 108765, Stop: 109055, Start Num: 10

Candidate Starts for WashU\_219:

(Start: 7 @108741 has 10 MA's), (Start: 9 @108753 has 18 MA's), (Start: 10 @108765 has 13 MA's), (14, 108831), (19, 108885), (21, 108900), (31, 109035),

Gene: Watermoore\_216 Start: 109485, Stop: 109787, Start Num: 9

Candidate Starts for Watermoore\_216:

(Start: 7 @109473 has 10 MA's), (Start: 9 @109485 has 18 MA's), (Start: 10 @109497 has 13 MA's),  
(14, 109563), (19, 109617), (21, 109632), (31, 109767),

Gene: WhereRU\_216 Start: 107768, Stop: 108070, Start Num: 9

Candidate Starts for WhereRU\_216:

(Start: 7 @107756 has 10 MA's), (Start: 9 @107768 has 18 MA's), (Start: 10 @107780 has 13 MA's),  
(14, 107846), (16, 107867), (21, 107915), (25, 107942), (27, 107960), (31, 108050),

Gene: Zarafa\_36 Start: 27670, Stop: 27482, Start Num: 20

Candidate Starts for Zarafa\_36:

(5, 27868), (Start: 20 @27670 has 1 MA's),