



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 287822 Report

This analysis was run 03/28/26 on database version 641.

Pham number 287822 has 83 members, 4 are drafts.

Phages represented in each track:

- Track 1 : Larnav\_40, Watermoore\_39, Sushi23\_40, Cursive\_37, Shuckle\_38, Peebs\_39, Cross\_40, Pepperwood\_40, Coogler\_40, Scheme\_40, Teutsch\_39, BlueOtter\_40, Leo04\_40, HangryHippo\_40, PacManQ\_39, Samisti12\_39
- Track 2 : Mildred21\_38
- Track 3 : Evy\_40
- Track 4 : Navo\_36, Paradiddles\_34, Davielle\_35, WhereRU\_35, Liandry\_37, FreddyDRoo\_36, Eliot67\_36, PinkiePie\_36, Squillium\_37
- Track 5 : LilSaint\_39
- Track 6 : Jay2Jay\_42
- Track 7 : Braelyn\_37
- Track 8 : Anedea\_37, Riptide\_37
- Track 9 : Marsus\_37
- Track 10 : EGole\_40
- Track 11 : Warpy\_42
- Track 12 : LilMartin\_37, MulchMansion\_37, Angela\_37
- Track 13 : Persimmon\_34, Bartholomune\_37, NootNoot\_34
- Track 14 : Cadmus\_38, Daubenski\_41
- Track 15 : Lululemon\_39
- Track 16 : Bmoc\_37
- Track 17 : Tribute\_38
- Track 18 : Targaryen\_39
- Track 19 : Bordeaux\_39, SaltySpittoon\_41, Brizzy\_40, Spilled\_41, Amabiko\_41, PumpkinSpice\_40, MindFlayer\_39, AcciDwight\_45, IchabodCrane\_38, Birchlyn\_38, TomSawyer\_39, CeilingFan\_40, Starbow\_39, JimJam\_41, Battuta\_39, KentuckyRacer\_41, Karimac\_40, Jollison\_40, Spelly\_41, Rikishi\_41, Quaran19\_41, Gibbi\_44, Wipeout\_38
- Track 20 : Genie2\_41, BoomerJR\_41, Stanimal\_41, Yaboi\_41, Sollertia\_41, AngryGiraffe\_40
- Track 21 : Tomas\_43
- Track 22 : Elmer\_42, Wofford\_39
- Track 23 : Mugiwara\_40
- Track 24 : Enygma\_38
- Track 25 : LukeCage\_40, StarPlatinum\_40

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

The start number called the most often in the published annotations is 7, it was called in 75 of the 79 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AcciDwight\_45, Amabiko\_41, Anedea\_37, Angela\_37, AngryGiraffe\_40, Bartholomune\_37, Battuta\_39, Birchlyn\_38, BlueOtter\_40, BoomerJR\_41, Bordeaux\_39, Braelyn\_37, Brizzy\_40, Cadmus\_38, CeilingFan\_40, Coogler\_40, Cross\_40, Cursive\_37, Daubenski\_41, Davielle\_35, EGole\_40, Eliot67\_36, Elmer\_42, Enigma\_38, Evy\_40, FreddyDRoo\_36, Genie2\_41, Gibbi\_44, HangryHippo\_40, IchabodCrane\_38, JimJam\_41, Jollison\_40, Karimac\_40, KentuckyRacer\_41, Larnav\_40, Leo04\_40, Liandry\_37, LilMartin\_37, LukeCage\_40, Lululemon\_39, Marsus\_37, Mildred21\_38, MindFlayer\_39, Mugiwara\_40, MulchMansion\_37, Navo\_36, NootNoot\_34, PacManQ\_39, Paradiddles\_34, Peebs\_39, Pepperwood\_40, Persimmon\_34, PinkiePie\_36, PumpkinSpice\_40, Quarant19\_41, Rikishi\_41, Riptide\_37, SaltySpittoon\_41, Samisti12\_39, Scheme\_40, Shuckle\_38, Sollertia\_41, Spelly\_41, Spilled\_41, Squillium\_37, Stanimal\_41, StarPlatinum\_40, Starbow\_39, Sushi23\_40, Targaryen\_39, Teutsch\_39, TomSawyer\_39, Tomas\_43, Tribute\_38, Watermoore\_39, WhereRU\_35, Wipeout\_38, Wofford\_39, Yaboi\_41,

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

- Jay2Jay\_42, Warpy\_42,

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

- Bmoc\_37, LilSaint\_39,

### Summary by start number:

Start 5:

- Found in 25 of 83 ( 30.1% ) of genes in pham
- Manual Annotations of this start: 1 of 79
- Called 4.0% of time when present
- Phage (with cluster) where this start called: LilSaint\_39 (BE1),

Start 6:

- Found in 40 of 83 ( 48.2% ) of genes in pham
- Manual Annotations of this start: 2 of 79
- Called 5.0% of time when present
- Phage (with cluster) where this start called: Jay2Jay\_42 (BE1), Warpy\_42 (BE1),

Start 7:

- Found in 81 of 83 ( 97.6% ) of genes in pham
- Manual Annotations of this start: 75 of 79
- Called 97.5% of time when present
- Phage (with cluster) where this start called: AcciDwight\_45 (BE2), Amabiko\_41 (BE2), Anedea\_37 (BE1), Angela\_37 (BE1), AngryGiraffe\_40 (BE2), Bartholomune\_37 (BE1), Battuta\_39 (BE2), Birchlyn\_38 (BE2), BlueOtter\_40 (BE1), BoomerJR\_41 (BE2), Bordeaux\_39 (BE2), Braelyn\_37 (BE1), Brizzy\_40 (BE2), Cadmus\_38 (BE1), CeilingFan\_40 (BE2), Coogler\_40 (BE1), Cross\_40 (BE1), Cursive\_37 (BE1), Daubenski\_41 (BE1), Davielle\_35 (BE1), EGole\_40 (BE1), Eliot67\_36 (BE1), Elmer\_42 (BE2), Enigma\_38 (BE2), Evy\_40 (BE1), FreddyDRoo\_36 (BE1), Genie2\_41 (BE2), Gibbi\_44 (BE2), HangryHippo\_40 (BE1), IchabodCrane\_38 (BE2), JimJam\_41 (BE2), Jollison\_40 (BE2), Karimac\_40 (BE2),

KentuckyRacer\_41 (BE2), Larnav\_40 (BE1), Leo04\_40 (BE1), Liandry\_37 (BE1), LilMartin\_37 (BE1), LukeCage\_40 (BE2), Lululemon\_39 (BE1), Marsus\_37 (BE1), Mildred21\_38 (BE1), MindFlayer\_39 (BE2), Mugiwara\_40 (BE2), MulchMansion\_37 (BE1), Navo\_36 (BE1), NootNoot\_34 (BE1), PacManQ\_39 (BE1), Paradiddles\_34 (BE1), Peebs\_39 (BE1), Pepperwood\_40 (BE1), Persimmon\_34 (BE1), PinkiePie\_36 (BE1), PumpkinSpice\_40 (BE2), Quarant19\_41 (BE2), Rikishi\_41 (BE2), Riptide\_37 (BE1), SaltySpittoon\_41 (BE2), Samisti12\_39 (BE1), Scheme\_40 (BE1), Shuckle\_38 (BE1), Sollertia\_41 (BE2), Spelly\_41 (BE2), Spilled\_41 (BE2), Squillium\_37 (BE1), Stanimal\_41 (BE2), StarPlatinum\_40 (BE2), Starbow\_39 (BE2), Sushi23\_40 (BE1), Targaryen\_39 (BE1), Teutsch\_39 (BE1), TomSawyer\_39 (BE2), Tomas\_43 (BE2), Tribute\_38 (BE1), Watermoore\_39 (BE1), WhereRU\_35 (BE1), Wipeout\_38 (BE2), Wofford\_39 (BE2), Yaboi\_41 (BE2),

Start 8:

- Found in 2 of 83 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 1 of 79
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Bmoc\_37 (BE1),

### **Summary by clusters:**

There are 2 clusters represented in this pham: BE2, BE1,

Info for manual annotations of cluster BE1:

- Start number 5 was manually annotated 1 time for cluster BE1.
- Start number 6 was manually annotated 2 times for cluster BE1.
- Start number 7 was manually annotated 41 times for cluster BE1.
- Start number 8 was manually annotated 1 time for cluster BE1.

Info for manual annotations of cluster BE2:

- Start number 7 was manually annotated 34 times for cluster BE2.

### **Gene Information:**

Gene: AcciDwight\_45 Start: 17607, Stop: 17062, Start Num: 7

Candidate Starts for AcciDwight\_45:

(2, 17649), (Start: 7 @17607 has 75 MA's), (9, 17595), (10, 17574), (15, 17520), (19, 17445), (22, 17415), (26, 17391), (35, 17196),

Gene: Amabiko\_41 Start: 17652, Stop: 17107, Start Num: 7

Candidate Starts for Amabiko\_41:

(2, 17694), (Start: 7 @17652 has 75 MA's), (9, 17640), (10, 17619), (15, 17565), (19, 17490), (22, 17460), (26, 17436), (35, 17241),

Gene: Anedea\_37 Start: 16674, Stop: 16126, Start Num: 7

Candidate Starts for Anedea\_37:

(Start: 5 @16701 has 1 MA's), (Start: 6 @16686 has 2 MA's), (Start: 7 @16674 has 75 MA's), (9, 16662), (14, 16596), (16, 16572), (25, 16446), (28, 16431), (35, 16257),

Gene: Angela\_37 Start: 16562, Stop: 16026, Start Num: 7

Candidate Starts for Angela\_37:

(Start: 7 @16562 has 75 MA's), (9, 16550), (14, 16484), (16, 16460), (27, 16334), (30, 16280), (35, 16157), (38, 16058),

Gene: AngryGiraffe\_40 Start: 17449, Stop: 16904, Start Num: 7

Candidate Starts for AngryGiraffe\_40:

(2, 17491), (Start: 7 @17449 has 75 MA's), (9, 17437), (15, 17362), (20, 17284), (22, 17257), (26, 17233), (35, 17038),

Gene: Bartholomune\_37 Start: 16300, Stop: 15761, Start Num: 7

Candidate Starts for Bartholomune\_37:

(Start: 6 @16312 has 2 MA's), (Start: 7 @16300 has 75 MA's), (9, 16288), (25, 16081), (35, 15892), (37, 15835),

Gene: Battuta\_39 Start: 17628, Stop: 17083, Start Num: 7

Candidate Starts for Battuta\_39:

(2, 17670), (Start: 7 @17628 has 75 MA's), (9, 17616), (10, 17595), (15, 17541), (19, 17466), (22, 17436), (26, 17412), (35, 17217),

Gene: Birchlyn\_38 Start: 15509, Stop: 14964, Start Num: 7

Candidate Starts for Birchlyn\_38:

(2, 15551), (Start: 7 @15509 has 75 MA's), (9, 15497), (10, 15476), (15, 15422), (19, 15347), (22, 15317), (26, 15293), (35, 15098),

Gene: BlueOtter\_40 Start: 17946, Stop: 17398, Start Num: 7

Candidate Starts for BlueOtter\_40:

(Start: 5 @17973 has 1 MA's), (Start: 6 @17958 has 2 MA's), (Start: 7 @17946 has 75 MA's), (9, 17934), (12, 17895), (14, 17868), (16, 17844), (25, 17718), (28, 17703), (35, 17529), (36, 17484), (37, 17472),

Gene: Bmoc\_37 Start: 16809, Stop: 16282, Start Num: 8

Candidate Starts for Bmoc\_37:

(Start: 5 @16839 has 1 MA's), (Start: 8 @16809 has 1 MA's), (18, 16680), (27, 16590), (30, 16536), (31, 16512), (33, 16467), (34, 16428), (35, 16413),

Gene: BoomerJR\_41 Start: 17449, Stop: 16904, Start Num: 7

Candidate Starts for BoomerJR\_41:

(2, 17491), (Start: 7 @17449 has 75 MA's), (9, 17437), (15, 17362), (20, 17284), (22, 17257), (26, 17233), (35, 17038),

Gene: Bordeaux\_39 Start: 17643, Stop: 17098, Start Num: 7

Candidate Starts for Bordeaux\_39:

(2, 17685), (Start: 7 @17643 has 75 MA's), (9, 17631), (10, 17610), (15, 17556), (19, 17481), (22, 17451), (26, 17427), (35, 17232),

Gene: Braelyn\_37 Start: 16693, Stop: 16154, Start Num: 7

Candidate Starts for Braelyn\_37:

(Start: 6 @16705 has 2 MA's), (Start: 7 @16693 has 75 MA's), (9, 16681), (17, 16570), (25, 16474), (35, 16285), (37, 16228),

Gene: Brizzy\_40 Start: 17302, Stop: 16757, Start Num: 7

Candidate Starts for Brizzy\_40:

(2, 17344), (Start: 7 @17302 has 75 MA's), (9, 17290), (10, 17269), (15, 17215), (19, 17140), (22, 17110), (26, 17086), (35, 16891),

Gene: Cadmus\_38 Start: 17427, Stop: 16891, Start Num: 7

Candidate Starts for Cadmus\_38:

(Start: 5 @17454 has 1 MA's), (Start: 6 @17439 has 2 MA's), (Start: 7 @17427 has 75 MA's), (9, 17415), (25, 17211), (28, 17196), (31, 17121), (35, 17022),

Gene: CeilingFan\_40 Start: 17403, Stop: 16858, Start Num: 7

Candidate Starts for CeilingFan\_40:

(2, 17445), (Start: 7 @17403 has 75 MA's), (9, 17391), (10, 17370), (15, 17316), (19, 17241), (22, 17211), (26, 17187), (35, 16992),

Gene: Coogler\_40 Start: 17935, Stop: 17387, Start Num: 7

Candidate Starts for Coogler\_40:

(Start: 5 @17962 has 1 MA's), (Start: 6 @17947 has 2 MA's), (Start: 7 @17935 has 75 MA's), (9, 17923), (12, 17884), (14, 17857), (16, 17833), (25, 17707), (28, 17692), (35, 17518), (36, 17473), (37, 17461),

Gene: Cross\_40 Start: 17947, Stop: 17399, Start Num: 7

Candidate Starts for Cross\_40:

(Start: 5 @17974 has 1 MA's), (Start: 6 @17959 has 2 MA's), (Start: 7 @17947 has 75 MA's), (9, 17935), (12, 17896), (14, 17869), (16, 17845), (25, 17719), (28, 17704), (35, 17530), (36, 17485), (37, 17473),

Gene: Cursive\_37 Start: 16764, Stop: 16216, Start Num: 7

Candidate Starts for Cursive\_37:

(Start: 5 @16791 has 1 MA's), (Start: 6 @16776 has 2 MA's), (Start: 7 @16764 has 75 MA's), (9, 16752), (12, 16713), (14, 16686), (16, 16662), (25, 16536), (28, 16521), (35, 16347), (36, 16302), (37, 16290),

Gene: Daubenski\_41 Start: 18191, Stop: 17655, Start Num: 7

Candidate Starts for Daubenski\_41:

(Start: 5 @18218 has 1 MA's), (Start: 6 @18203 has 2 MA's), (Start: 7 @18191 has 75 MA's), (9, 18179), (25, 17975), (28, 17960), (31, 17885), (35, 17786),

Gene: Davielle\_35 Start: 15984, Stop: 15445, Start Num: 7

Candidate Starts for Davielle\_35:

(Start: 6 @15996 has 2 MA's), (Start: 7 @15984 has 75 MA's), (9, 15972), (12, 15933), (25, 15765), (35, 15576), (37, 15519),

Gene: EGole\_40 Start: 18846, Stop: 18292, Start Num: 7

Candidate Starts for EGole\_40:

(Start: 5 @18873 has 1 MA's), (Start: 6 @18858 has 2 MA's), (Start: 7 @18846 has 75 MA's), (9, 18834), (14, 18768), (16, 18744), (25, 18612), (28, 18597), (35, 18423), (36, 18378),

Gene: Eliot67\_36 Start: 16298, Stop: 15759, Start Num: 7

Candidate Starts for Eliot67\_36:

(Start: 6 @16310 has 2 MA's), (Start: 7 @16298 has 75 MA's), (9, 16286), (12, 16247), (25, 16079), (35, 15890), (37, 15833),

Gene: Elmer\_42 Start: 18521, Stop: 17967, Start Num: 7

Candidate Starts for Elmer\_42:

(Start: 7 @18521 has 75 MA's), (9, 18509), (10, 18488), (15, 18434), (23, 18317), (24, 18311), (35, 18101),

Gene: Enygma\_38 Start: 16815, Stop: 16273, Start Num: 7

Candidate Starts for Enygma\_38:

(Start: 7 @16815 has 75 MA's), (9, 16803), (10, 16782), (15, 16728), (19, 16653), (22, 16623), (26, 16599), (32, 16503), (35, 16407), (37, 16350),

Gene: Evy\_40 Start: 17788, Stop: 17264, Start Num: 7

Candidate Starts for Evy\_40:

(Start: 6 @17800 has 2 MA's), (Start: 7 @17788 has 75 MA's), (9, 17776), (14, 17710), (16, 17686), (17, 17668), (21, 17602), (25, 17584), (29, 17557), (33, 17449), (35, 17395),

Gene: FreddyDRoo\_36 Start: 16298, Stop: 15759, Start Num: 7

Candidate Starts for FreddyDRoo\_36:

(Start: 6 @16310 has 2 MA's), (Start: 7 @16298 has 75 MA's), (9, 16286), (12, 16247), (25, 16079), (35, 15890), (37, 15833),

Gene: Genie2\_41 Start: 17452, Stop: 16907, Start Num: 7

Candidate Starts for Genie2\_41:

(2, 17494), (Start: 7 @17452 has 75 MA's), (9, 17440), (15, 17365), (20, 17287), (22, 17260), (26, 17236), (35, 17041),

Gene: Gibbi\_44 Start: 17263, Stop: 16718, Start Num: 7

Candidate Starts for Gibbi\_44:

(2, 17305), (Start: 7 @17263 has 75 MA's), (9, 17251), (10, 17230), (15, 17176), (19, 17101), (22, 17071), (26, 17047), (35, 16852),

Gene: HangryHippo\_40 Start: 17946, Stop: 17398, Start Num: 7

Candidate Starts for HangryHippo\_40:

(Start: 5 @17973 has 1 MA's), (Start: 6 @17958 has 2 MA's), (Start: 7 @17946 has 75 MA's), (9, 17934), (12, 17895), (14, 17868), (16, 17844), (25, 17718), (28, 17703), (35, 17529), (36, 17484), (37, 17472),

Gene: IchabodCrane\_38 Start: 17355, Stop: 16810, Start Num: 7

Candidate Starts for IchabodCrane\_38:

(2, 17397), (Start: 7 @17355 has 75 MA's), (9, 17343), (10, 17322), (15, 17268), (19, 17193), (22, 17163), (26, 17139), (35, 16944),

Gene: Jay2Jay\_42 Start: 17989, Stop: 17453, Start Num: 6

Candidate Starts for Jay2Jay\_42:

(Start: 6 @17989 has 2 MA's), (Start: 7 @17977 has 75 MA's), (9, 17965), (14, 17899), (16, 17875), (17, 17857), (25, 17773), (29, 17746), (33, 17638), (35, 17584), (37, 17527),

Gene: JimJam\_41 Start: 17591, Stop: 17046, Start Num: 7

Candidate Starts for JimJam\_41:

(2, 17633), (Start: 7 @17591 has 75 MA's), (9, 17579), (10, 17558), (15, 17504), (19, 17429), (22, 17399), (26, 17375), (35, 17180),

Gene: Jollison\_40 Start: 17609, Stop: 17064, Start Num: 7

Candidate Starts for Jollison\_40:

(2, 17651), (Start: 7 @17609 has 75 MA's), (9, 17597), (10, 17576), (15, 17522), (19, 17447), (22, 17417), (26, 17393), (35, 17198),

Gene: Karimac\_40 Start: 17758, Stop: 17213, Start Num: 7

Candidate Starts for Karimac\_40:

(2, 17800), (Start: 7 @17758 has 75 MA's), (9, 17746), (10, 17725), (15, 17671), (19, 17596), (22, 17566), (26, 17542), (35, 17347),

Gene: KentuckyRacer\_41 Start: 17404, Stop: 16859, Start Num: 7

Candidate Starts for KentuckyRacer\_41:

(2, 17446), (Start: 7 @17404 has 75 MA's), (9, 17392), (10, 17371), (15, 17317), (19, 17242), (22, 17212), (26, 17188), (35, 16993),

Gene: Larnav\_40 Start: 17894, Stop: 17346, Start Num: 7

Candidate Starts for Larnav\_40:

(Start: 5 @17921 has 1 MA's), (Start: 6 @17906 has 2 MA's), (Start: 7 @17894 has 75 MA's), (9, 17882), (12, 17843), (14, 17816), (16, 17792), (25, 17666), (28, 17651), (35, 17477), (36, 17432), (37, 17420),

Gene: Leo04\_40 Start: 17945, Stop: 17397, Start Num: 7

Candidate Starts for Leo04\_40:

(Start: 5 @17972 has 1 MA's), (Start: 6 @17957 has 2 MA's), (Start: 7 @17945 has 75 MA's), (9, 17933), (12, 17894), (14, 17867), (16, 17843), (25, 17717), (28, 17702), (35, 17528), (36, 17483), (37, 17471),

Gene: Liandry\_37 Start: 16297, Stop: 15758, Start Num: 7

Candidate Starts for Liandry\_37:

(Start: 6 @16309 has 2 MA's), (Start: 7 @16297 has 75 MA's), (9, 16285), (12, 16246), (25, 16078), (35, 15889), (37, 15832),

Gene: LilMartin\_37 Start: 16509, Stop: 15973, Start Num: 7

Candidate Starts for LilMartin\_37:

(Start: 7 @16509 has 75 MA's), (9, 16497), (14, 16431), (16, 16407), (27, 16281), (30, 16227), (35, 16104), (38, 16005),

Gene: LilSaint\_39 Start: 16738, Stop: 16181, Start Num: 5

Candidate Starts for LilSaint\_39:

(Start: 5 @16738 has 1 MA's), (Start: 8 @16708 has 1 MA's), (17, 16597), (18, 16579), (27, 16489), (34, 16327), (35, 16312),

Gene: LukeCage\_40 Start: 17395, Stop: 16850, Start Num: 7

Candidate Starts for LukeCage\_40:

(2, 17437), (Start: 7 @17395 has 75 MA's), (10, 17362), (11, 17350), (15, 17308), (19, 17233), (22, 17203), (26, 17179), (35, 16984),

Gene: Lululemon\_39 Start: 17326, Stop: 16778, Start Num: 7

Candidate Starts for Lululemon\_39:

(Start: 5 @17353 has 1 MA's), (Start: 6 @17338 has 2 MA's), (Start: 7 @17326 has 75 MA's), (9, 17314), (12, 17275), (16, 17224), (25, 17098), (28, 17083), (35, 16909), (36, 16864), (37, 16852),

Gene: Marsus\_37 Start: 16373, Stop: 15837, Start Num: 7

Candidate Starts for Marsus\_37:

(Start: 7 @16373 has 75 MA's), (9, 16361), (14, 16295), (16, 16271), (27, 16145), (35, 15968), (37, 15911),

Gene: Mildred21\_38 Start: 16663, Stop: 16070, Start Num: 7

Candidate Starts for Mildred21\_38:

(1, 16753), (3, 16708), (Start: 7 @16663 has 75 MA's), (35, 16204),

Gene: MindFlayer\_39 Start: 17262, Stop: 16717, Start Num: 7

Candidate Starts for MindFlayer\_39:

(2, 17304), (Start: 7 @17262 has 75 MA's), (9, 17250), (10, 17229), (15, 17175), (19, 17100), (22, 17070), (26, 17046), (35, 16851),

Gene: Mugiwara\_40 Start: 17308, Stop: 16763, Start Num: 7

Candidate Starts for Mugiwara\_40:

(4, 17335), (Start: 7 @17308 has 75 MA's), (9, 17296), (10, 17275), (13, 17251), (15, 17221), (22, 17116), (26, 17092), (35, 16897),

Gene: MulchMansion\_37 Start: 16510, Stop: 15974, Start Num: 7

Candidate Starts for MulchMansion\_37:

(Start: 7 @16510 has 75 MA's), (9, 16498), (14, 16432), (16, 16408), (27, 16282), (30, 16228), (35, 16105), (38, 16006),

Gene: Navo\_36 Start: 16456, Stop: 15917, Start Num: 7

Candidate Starts for Navo\_36:

(Start: 6 @16468 has 2 MA's), (Start: 7 @16456 has 75 MA's), (9, 16444), (12, 16405), (25, 16237), (35, 16048), (37, 15991),

Gene: NootNoot\_34 Start: 15479, Stop: 14940, Start Num: 7

Candidate Starts for NootNoot\_34:

(Start: 6 @15491 has 2 MA's), (Start: 7 @15479 has 75 MA's), (9, 15467), (25, 15260), (35, 15071), (37, 15014),

Gene: PacManQ\_39 Start: 17326, Stop: 16778, Start Num: 7

Candidate Starts for PacManQ\_39:

(Start: 5 @17353 has 1 MA's), (Start: 6 @17338 has 2 MA's), (Start: 7 @17326 has 75 MA's), (9, 17314), (12, 17275), (14, 17248), (16, 17224), (25, 17098), (28, 17083), (35, 16909), (36, 16864), (37, 16852),

Gene: Paradiddles\_34 Start: 15470, Stop: 14931, Start Num: 7

Candidate Starts for Paradiddles\_34:

(Start: 6 @15482 has 2 MA's), (Start: 7 @15470 has 75 MA's), (9, 15458), (12, 15419), (25, 15251), (35, 15062), (37, 15005),

Gene: Peebs\_39 Start: 17645, Stop: 17097, Start Num: 7

Candidate Starts for Peebs\_39:

(Start: 5 @17672 has 1 MA's), (Start: 6 @17657 has 2 MA's), (Start: 7 @17645 has 75 MA's), (9, 17633), (12, 17594), (14, 17567), (16, 17543), (25, 17417), (28, 17402), (35, 17228), (36, 17183), (37, 17171),

Gene: Pepperwood\_40 Start: 17818, Stop: 17270, Start Num: 7

Candidate Starts for Pepperwood\_40:

(Start: 5 @17845 has 1 MA's), (Start: 6 @17830 has 2 MA's), (Start: 7 @17818 has 75 MA's), (9, 17806), (12, 17767), (14, 17740), (16, 17716), (25, 17590), (28, 17575), (35, 17401), (36, 17356), (37, 17344),

Gene: Persimmon\_34 Start: 15527, Stop: 14988, Start Num: 7

Candidate Starts for Persimmon\_34:

(Start: 6 @15539 has 2 MA's), (Start: 7 @15527 has 75 MA's), (9, 15515), (25, 15308), (35, 15119), (37, 15062),

Gene: PinkiePie\_36 Start: 16298, Stop: 15759, Start Num: 7

Candidate Starts for PinkiePie\_36:

(Start: 6 @16310 has 2 MA's), (Start: 7 @16298 has 75 MA's), (9, 16286), (12, 16247), (25, 16079), (35, 15890), (37, 15833),

Gene: PumpkinSpice\_40 Start: 17652, Stop: 17107, Start Num: 7

Candidate Starts for PumpkinSpice\_40:

(2, 17694), (Start: 7 @17652 has 75 MA's), (9, 17640), (10, 17619), (15, 17565), (19, 17490), (22, 17460), (26, 17436), (35, 17241),

Gene: Quaran19\_41 Start: 17643, Stop: 17098, Start Num: 7

Candidate Starts for Quaran19\_41:

(2, 17685), (Start: 7 @17643 has 75 MA's), (9, 17631), (10, 17610), (15, 17556), (19, 17481), (22, 17451), (26, 17427), (35, 17232),

Gene: Rikishi\_41 Start: 17558, Stop: 17013, Start Num: 7

Candidate Starts for Rikishi\_41:

(2, 17600), (Start: 7 @17558 has 75 MA's), (9, 17546), (10, 17525), (15, 17471), (19, 17396), (22, 17366), (26, 17342), (35, 17147),

Gene: Riptide\_37 Start: 16400, Stop: 15852, Start Num: 7

Candidate Starts for Riptide\_37:

(Start: 5 @16427 has 1 MA's), (Start: 6 @16412 has 2 MA's), (Start: 7 @16400 has 75 MA's), (9, 16388), (14, 16322), (16, 16298), (25, 16172), (28, 16157), (35, 15983),

Gene: SaltySpittoon\_41 Start: 17652, Stop: 17107, Start Num: 7

Candidate Starts for SaltySpittoon\_41:

(2, 17694), (Start: 7 @17652 has 75 MA's), (9, 17640), (10, 17619), (15, 17565), (19, 17490), (22, 17460), (26, 17436), (35, 17241),

Gene: Samisti12\_39 Start: 18415, Stop: 17867, Start Num: 7

Candidate Starts for Samisti12\_39:

(Start: 5 @18442 has 1 MA's), (Start: 6 @18427 has 2 MA's), (Start: 7 @18415 has 75 MA's), (9, 18403), (12, 18364), (14, 18337), (16, 18313), (25, 18187), (28, 18172), (35, 17998), (36, 17953), (37, 17941),

Gene: Scheme\_40 Start: 17829, Stop: 17281, Start Num: 7

Candidate Starts for Scheme\_40:

(Start: 5 @17856 has 1 MA's), (Start: 6 @17841 has 2 MA's), (Start: 7 @17829 has 75 MA's), (9, 17817), (12, 17778), (14, 17751), (16, 17727), (25, 17601), (28, 17586), (35, 17412), (36, 17367), (37, 17355),

Gene: Shuckle\_38 Start: 18098, Stop: 17550, Start Num: 7

Candidate Starts for Shuckle\_38:

(Start: 5 @18125 has 1 MA's), (Start: 6 @18110 has 2 MA's), (Start: 7 @18098 has 75 MA's), (9, 18086), (12, 18047), (14, 18020), (16, 17996), (25, 17870), (28, 17855), (35, 17681), (36, 17636), (37, 17624),

Gene: Sollertia\_41 Start: 17452, Stop: 16907, Start Num: 7

Candidate Starts for Sollertia\_41:

(2, 17494), (Start: 7 @17452 has 75 MA's), (9, 17440), (15, 17365), (20, 17287), (22, 17260), (26, 17236), (35, 17041),

Gene: Spelly\_41 Start: 17607, Stop: 17062, Start Num: 7

Candidate Starts for Spelly\_41:

(2, 17649), (Start: 7 @17607 has 75 MA's), (9, 17595), (10, 17574), (15, 17520), (19, 17445), (22, 17415), (26, 17391), (35, 17196),

Gene: Spilled\_41 Start: 17361, Stop: 16816, Start Num: 7

Candidate Starts for Spilled\_41:

(2, 17403), (Start: 7 @17361 has 75 MA's), (9, 17349), (10, 17328), (15, 17274), (19, 17199), (22, 17169), (26, 17145), (35, 16950),

Gene: Squillium\_37 Start: 16297, Stop: 15758, Start Num: 7

Candidate Starts for Squillium\_37:

(Start: 6 @16309 has 2 MA's), (Start: 7 @16297 has 75 MA's), (9, 16285), (12, 16246), (25, 16078), (35, 15889), (37, 15832),

Gene: Stanimal\_41 Start: 17452, Stop: 16907, Start Num: 7

Candidate Starts for Stanimal\_41:

(2, 17494), (Start: 7 @17452 has 75 MA's), (9, 17440), (15, 17365), (20, 17287), (22, 17260), (26, 17236), (35, 17041),

Gene: StarPlatinum\_40 Start: 17451, Stop: 16906, Start Num: 7

Candidate Starts for StarPlatinum\_40:

(2, 17493), (Start: 7 @17451 has 75 MA's), (10, 17418), (11, 17406), (15, 17364), (19, 17289), (22, 17259), (26, 17235), (35, 17040),

Gene: Starbow\_39 Start: 17628, Stop: 17083, Start Num: 7

Candidate Starts for Starbow\_39:

(2, 17670), (Start: 7 @17628 has 75 MA's), (9, 17616), (10, 17595), (15, 17541), (19, 17466), (22, 17436), (26, 17412), (35, 17217),

Gene: Sushi23\_40 Start: 18041, Stop: 17493, Start Num: 7

Candidate Starts for Sushi23\_40:

(Start: 5 @18068 has 1 MA's), (Start: 6 @18053 has 2 MA's), (Start: 7 @18041 has 75 MA's), (9, 18029), (12, 17990), (14, 17963), (16, 17939), (25, 17813), (28, 17798), (35, 17624), (36, 17579), (37, 17567),

Gene: Targaryen\_39 Start: 18535, Stop: 18011, Start Num: 7

Candidate Starts for Targaryen\_39:

(Start: 6 @18547 has 2 MA's), (Start: 7 @18535 has 75 MA's), (9, 18523), (14, 18457), (16, 18433), (17, 18415), (25, 18331), (29, 18304), (33, 18196), (35, 18142),

Gene: Teutsch\_39 Start: 17734, Stop: 17186, Start Num: 7

Candidate Starts for Teutsch\_39:

(Start: 5 @17761 has 1 MA's), (Start: 6 @17746 has 2 MA's), (Start: 7 @17734 has 75 MA's), (9, 17722), (12, 17683), (14, 17656), (16, 17632), (25, 17506), (28, 17491), (35, 17317), (36, 17272), (37, 17260),

Gene: TomSawyer\_39 Start: 17246, Stop: 16701, Start Num: 7

Candidate Starts for TomSawyer\_39:

(2, 17288), (Start: 7 @17246 has 75 MA's), (9, 17234), (10, 17213), (15, 17159), (19, 17084), (22, 17054), (26, 17030), (35, 16835),

Gene: Tomas\_43 Start: 19506, Stop: 18931, Start Num: 7

Candidate Starts for Tomas\_43:

(Start: 7 @19506 has 75 MA's), (9, 19494), (24, 19290), (26, 19260), (32, 19161), (34, 19080), (35, 19065),

Gene: Tribute\_38 Start: 17512, Stop: 16964, Start Num: 7

Candidate Starts for Tribute\_38:

(Start: 5 @17539 has 1 MA's), (Start: 6 @17524 has 2 MA's), (Start: 7 @17512 has 75 MA's), (9, 17500), (14, 17434), (16, 17410), (25, 17284), (28, 17269), (35, 17095), (36, 17050), (37, 17038),

Gene: Warpy\_42 Start: 18009, Stop: 17473, Start Num: 6

Candidate Starts for Warpy\_42:

(Start: 6 @18009 has 2 MA's), (Start: 7 @17997 has 75 MA's), (9, 17985), (14, 17919), (16, 17895), (17, 17877), (21, 17811), (25, 17793), (29, 17766), (33, 17658), (35, 17604), (36, 17559), (37, 17547),

Gene: Watermoore\_39 Start: 17947, Stop: 17399, Start Num: 7

Candidate Starts for Watermoore\_39:

(Start: 5 @17974 has 1 MA's), (Start: 6 @17959 has 2 MA's), (Start: 7 @17947 has 75 MA's), (9, 17935), (12, 17896), (14, 17869), (16, 17845), (25, 17719), (28, 17704), (35, 17530), (36, 17485), (37, 17473),

Gene: WhereRU\_35 Start: 15984, Stop: 15445, Start Num: 7

Candidate Starts for WhereRU\_35:

(Start: 6 @15996 has 2 MA's), (Start: 7 @15984 has 75 MA's), (9, 15972), (12, 15933), (25, 15765), (35, 15576), (37, 15519),

Gene: Wipeout\_38 Start: 17268, Stop: 16723, Start Num: 7

Candidate Starts for Wipeout\_38:

(2, 17310), (Start: 7 @17268 has 75 MA's), (9, 17256), (10, 17235), (15, 17181), (19, 17106), (22, 17076), (26, 17052), (35, 16857),

Gene: Wofford\_39 Start: 17999, Stop: 17445, Start Num: 7

Candidate Starts for Wofford\_39:

(Start: 7 @17999 has 75 MA's), (9, 17987), (10, 17966), (15, 17912), (23, 17795), (24, 17789), (35, 17579),

Gene: Yaboi\_41 Start: 17428, Stop: 16883, Start Num: 7

Candidate Starts for Yaboi\_41:

(2, 17470), (Start: 7 @17428 has 75 MA's), (9, 17416), (15, 17341), (20, 17263), (22, 17236), (26, 17212), (35, 17017),