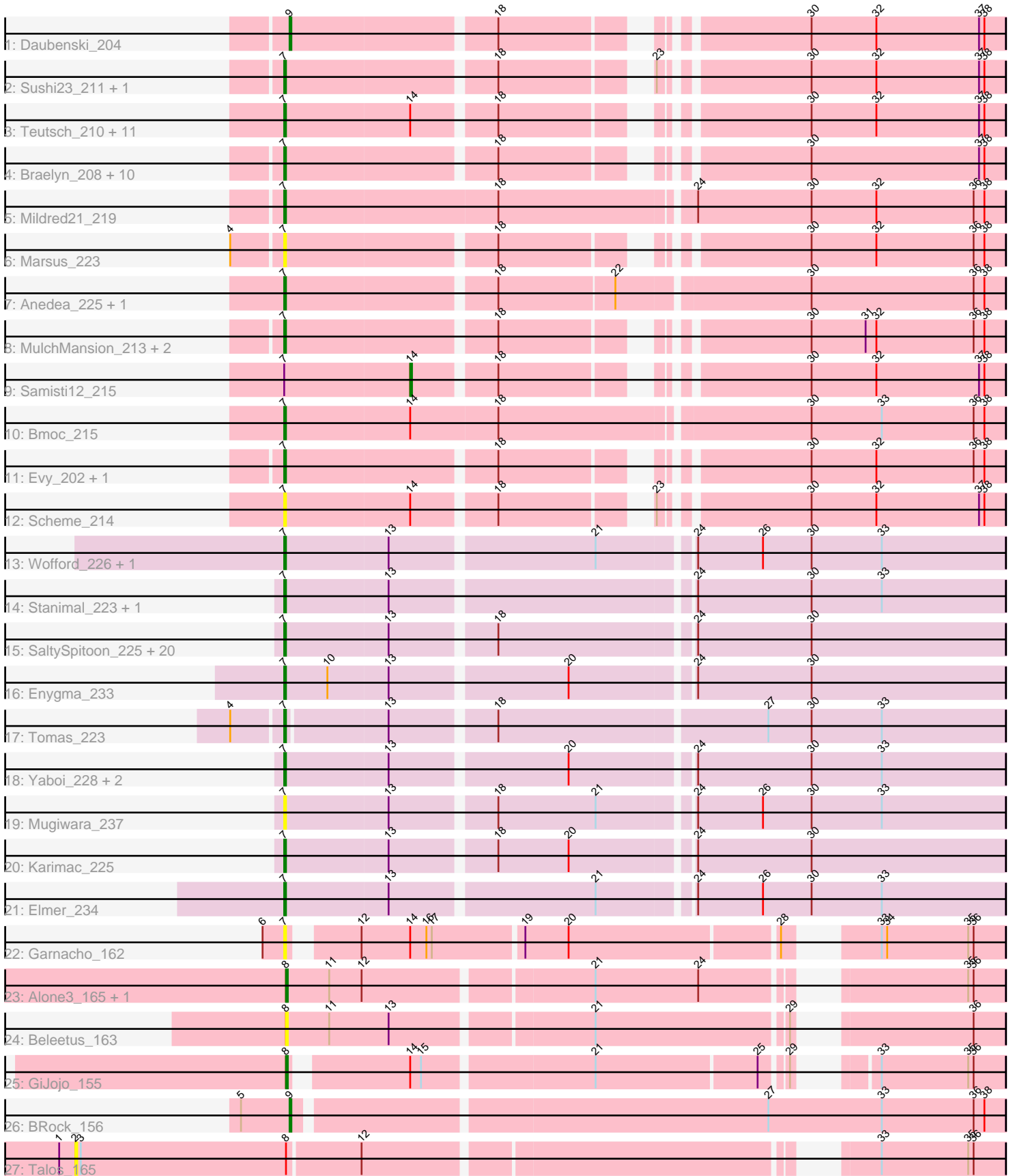


# Pham 216100



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 216100 Report

This analysis was run 02/22/25 on database version 588.

Pham number 216100 has 78 members, 10 are drafts.

Phages represented in each track:

- Track 1 : Daubenski\_204
- Track 2 : Sushi23\_211, Pepperwood\_211
- Track 3 : Deutsch\_210, EGole\_214, HangryHippo\_209, Lululemon\_208, Larnav\_210, Cursive\_213, Watermoore\_210, PacManQ\_208, BlueOtter\_209, Leo04\_212, Peebs\_208, Cross\_210
- Track 4 : Braelyn\_208, Navo\_206, Squillum\_214, Bartholomune\_212, Shuckle\_213, Liandry\_211, Paradiddles\_203, WhereRU\_211, Persimmon\_214, NootNoot\_208, PinkiePie\_211
- Track 5 : Mildred21\_219
- Track 6 : Marsus\_223
- Track 7 : Anedea\_225, Riptide\_218
- Track 8 : MulchMansion\_213, Angela\_212, LilMartin\_209
- Track 9 : Samisti12\_215
- Track 10 : Bmoc\_215
- Track 11 : Evy\_202, Targaryen\_210
- Track 12 : Scheme\_214
- Track 13 : Wofford\_226, StarPlatinum\_233
- Track 14 : Stanimal\_223, BoomerJR\_223
- Track 15 : SaltySpitoon\_225, Starbow\_222, TomSawyer\_229, JimJam\_232, KentuckyRacer\_231, Jollison\_222, LukeCage\_229, IchabodCrane\_219, Bordeaux\_223, Birchlyn\_224, Spelly\_230, Battuta\_223, Amabiko\_229, Spilled\_232, Gibbi\_233, Quaran19\_225, CeilingFan\_229, Wipeout\_216, PumpkinSpice\_228, MindFlayer\_218, Rikishi\_233
- Track 16 : Enygma\_233
- Track 17 : Tomas\_223
- Track 18 : Yaboi\_228, Sollertia\_224, Genie2\_223
- Track 19 : Mugiwara\_237
- Track 20 : Karimac\_225
- Track 21 : Elmer\_234
- Track 22 : Garnacho\_162
- Track 23 : Alone3\_165, LuckySocke\_163
- Track 24 : Beleetus\_163
- Track 25 : GiJojo\_155
- Track 26 : BRock\_156
- Track 27 : Talos\_165

## **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 62 of the 68 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Amabiko\_229, Anedea\_225, Angela\_212, Bartholomune\_212, Battuta\_223, Birchlyn\_224, BlueOtter\_209, Bmoc\_215, BoomerJR\_223, Bordeaux\_223, Braelyn\_208, CeilingFan\_229, Cross\_210, Cursive\_213, EGole\_214, Elmer\_234, Enygma\_233, Evy\_202, Garnacho\_162, Genie2\_223, Gibbi\_233, HangryHippo\_209, IchabodCrane\_219, JimJam\_232, Jollison\_222, Karimac\_225, KentuckyRacer\_231, Larnav\_210, Leo04\_212, Liandry\_211, LilMartin\_209, LukeCage\_229, Lululemon\_208, Marsus\_223, Mildred21\_219, MindFlayer\_218, Mugiwara\_237, MulchMansion\_213, Navo\_206, NootNoot\_208, PacManQ\_208, Paradiddles\_203, Peebs\_208, Pepperwood\_211, Persimmon\_214, PinkiePie\_211, PumpkinSpice\_228, Quarant19\_225, Rikishi\_233, Riptide\_218, SaltySpittoon\_225, Scheme\_214, Shuckle\_213, Sollertia\_224, Spelly\_230, Spilled\_232, Squillium\_214, Stanimal\_223, StarPlatinum\_233, Starbow\_222, Sushi23\_211, Targaryen\_210, Teutsch\_210, TomSawyer\_229, Tomas\_223, Watermoore\_210, WhereRU\_211, Wipeout\_216, Wofford\_226, Yaboi\_228,

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

- Samisti12\_215,

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

- Alone3\_165, BRock\_156, Beleetus\_163, Daubenski\_204, GiJojo\_155, LuckySocke\_163, Talos\_165,

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

Start 2:

- Found in 1 of 78 ( 1.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Talos\_165 (BS),

Start 7:

- Found in 71 of 78 ( 91.0% ) of genes in pham
- Manual Annotations of this start: 62 of 68
- Called 98.6% of time when present
- Phage (with cluster) where this start called: Amabiko\_229 (BE2), Anedea\_225 (BE1), Angela\_212 (BE1), Bartholomune\_212 (BE1), Battuta\_223 (BE2), Birchlyn\_224 (BE2), BlueOtter\_209 (BE1), Bmoc\_215 (BE1), BoomerJR\_223 (BE2), Bordeaux\_223 (BE2), Braelyn\_208 (BE1), CeilingFan\_229 (BE2), Cross\_210 (BE1), Cursive\_213 (BE1), EGole\_214 (BE1), Elmer\_234 (BE2), Enygma\_233 (BE2), Evy\_202 (BE1), Garnacho\_162 (BS), Genie2\_223 (BE2), Gibbi\_233 (BE2), HangryHippo\_209 (BE1), IchabodCrane\_219 (BE2), JimJam\_232 (BE2), Jollison\_222 (BE2), Karimac\_225 (BE2), KentuckyRacer\_231 (BE2), Larnav\_210 (BE1), Leo04\_212 (BE1), Liandry\_211 (BE1), LilMartin\_209 (BE1), LukeCage\_229 (BE2), Lululemon\_208 (BE1), Marsus\_223 (BE1), Mildred21\_219 (BE1), MindFlayer\_218 (BE2), Mugiwara\_237 (BE2), MulchMansion\_213 (BE1), Navo\_206 (BE1), NootNoot\_208 (BE1), PacManQ\_208 (BE1), Paradiddles\_203 (BE1), Peebs\_208

(BE1), Pepperwood\_211 (BE1), Persimmon\_214 (BE1), PinkiePie\_211 (BE1), PumpkinSpice\_228 (BE2), Quaran19\_225 (BE2), Rikishi\_233 (BE2), Riptide\_218 (BE1), SaltySpittoon\_225 (BE2), Scheme\_214 (BE1), Shuckle\_213 (BE1), Sollertia\_224 (BE2), Spelly\_230 (BE2), Spilled\_232 (BE2), Squillium\_214 (BE1), Stanimal\_223 (BE2), StarPlatinum\_233 (BE2), Starbow\_222 (BE2), Sushi23\_211 (BE1), Targaryen\_210 (BE1), Teutsch\_210 (BE1), TomSawyer\_229 (BE2), Tomas\_223 (BE2), Watermoore\_210 (BE1), WhereRU\_211 (BE1), Wipeout\_216 (BE2), Wofford\_226 (BE2), Yaboi\_228 (BE2),

#### Start 8:

- Found in 5 of 78 ( 6.4% ) of genes in pham
- Manual Annotations of this start: 3 of 68
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Alone3\_165 (BS), Beleetus\_163 (BS), GiJojo\_155 (BS), LuckySocke\_163 (BS),

#### Start 9:

- Found in 2 of 78 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 2 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BRock\_156 (BS), Daubenski\_204 (BE1),

#### Start 14:

- Found in 17 of 78 ( 21.8% ) of genes in pham
- Manual Annotations of this start: 1 of 68
- Called 5.9% of time when present
- Phage (with cluster) where this start called: Samisti12\_215 (BE1),

### **Summary by clusters:**

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

#### Info for manual annotations of cluster BE1:

- Start number 7 was manually annotated 32 times for cluster BE1.
- Start number 9 was manually annotated 1 time for cluster BE1.
- Start number 14 was manually annotated 1 time for cluster BE1.

#### Info for manual annotations of cluster BE2:

- Start number 7 was manually annotated 30 times for cluster BE2.

#### Info for manual annotations of cluster BS:

- Start number 8 was manually annotated 3 times for cluster BS.
- Start number 9 was manually annotated 1 time for cluster BS.

### **Gene Information:**

Gene: Alone3\_165 Start: 87981, Stop: 88337, Start Num: 8

Candidate Starts for Alone3\_165:

(Start: 8 @87981 has 3 MA's), (11, 88005), (12, 88023), (21, 88143), (24, 88200), (35, 88317), (36, 88320),

Gene: Amabiko\_229 Start: 107451, Stop: 107834, Start Num: 7  
Candidate Starts for Amabiko\_229:  
(Start: 7 @107451 has 62 MA's), (13, 107508), (18, 107562), (24, 107664), (30, 107727),

Gene: Anedea\_225 Start: 108387, Stop: 108770, Start Num: 7  
Candidate Starts for Anedea\_225:  
(Start: 7 @108387 has 62 MA's), (18, 108498), (22, 108561), (30, 108663), (36, 108753), (38, 108759),

Gene: Angela\_212 Start: 105457, Stop: 105816, Start Num: 7  
Candidate Starts for Angela\_212:  
(Start: 7 @105457 has 62 MA's), (18, 105568), (30, 105709), (31, 105739), (32, 105745), (36, 105799),  
(38, 105805),

Gene: BRock\_156 Start: 83013, Stop: 83396, Start Num: 9  
Candidate Starts for BRock\_156:  
(5, 82986), (Start: 9 @83013 has 2 MA's), (27, 83265), (33, 83328), (36, 83379), (38, 83385),

Gene: Bartholomune\_212 Start: 106018, Stop: 106377, Start Num: 7  
Candidate Starts for Bartholomune\_212:  
(Start: 7 @106018 has 62 MA's), (18, 106129), (30, 106270), (37, 106363), (38, 106366),

Gene: Battuta\_223 Start: 106766, Stop: 107149, Start Num: 7  
Candidate Starts for Battuta\_223:  
(Start: 7 @106766 has 62 MA's), (13, 106823), (18, 106877), (24, 106979), (30, 107042),

Gene: Beleetus\_163 Start: 86450, Stop: 86806, Start Num: 8  
Candidate Starts for Beleetus\_163:  
(Start: 8 @86450 has 3 MA's), (11, 86474), (13, 86507), (21, 86612), (29, 86714), (36, 86789),

Gene: Birchlyn\_224 Start: 104699, Stop: 105082, Start Num: 7  
Candidate Starts for Birchlyn\_224:  
(Start: 7 @104699 has 62 MA's), (13, 104756), (18, 104810), (24, 104912), (30, 104975),

Gene: BlueOtter\_209 Start: 106161, Stop: 106520, Start Num: 7  
Candidate Starts for BlueOtter\_209:  
(Start: 7 @106161 has 62 MA's), (Start: 14 @106230 has 1 MA's), (18, 106272), (30, 106413), (32,  
106449), (37, 106506), (38, 106509),

Gene: Bmoc\_215 Start: 106273, Stop: 106662, Start Num: 7  
Candidate Starts for Bmoc\_215:  
(Start: 7 @106273 has 62 MA's), (Start: 14 @106342 has 1 MA's), (18, 106390), (30, 106555), (33,  
106594), (36, 106645), (38, 106651),

Gene: BoomerJR\_223 Start: 107769, Stop: 108152, Start Num: 7  
Candidate Starts for BoomerJR\_223:  
(Start: 7 @107769 has 62 MA's), (13, 107826), (24, 107982), (30, 108045), (33, 108084),

Gene: Bordeaux\_223 Start: 107349, Stop: 107732, Start Num: 7  
Candidate Starts for Bordeaux\_223:  
(Start: 7 @107349 has 62 MA's), (13, 107406), (18, 107460), (24, 107562), (30, 107625),

Gene: Braelyn\_208 Start: 105665, Stop: 106024, Start Num: 7  
Candidate Starts for Braelyn\_208:

(Start: 7 @105665 has 62 MA's), (18, 105776), (30, 105917), (37, 106010), (38, 106013),

Gene: CeilingFan\_229 Start: 108144, Stop: 108527, Start Num: 7

Candidate Starts for CeilingFan\_229:

(Start: 7 @108144 has 62 MA's), (13, 108201), (18, 108255), (24, 108357), (30, 108420),

Gene: Cross\_210 Start: 106806, Stop: 107165, Start Num: 7

Candidate Starts for Cross\_210:

(Start: 7 @106806 has 62 MA's), (Start: 14 @106875 has 1 MA's), (18, 106917), (30, 107058), (32, 107094), (37, 107151), (38, 107154),

Gene: Cursive\_213 Start: 106490, Stop: 106849, Start Num: 7

Candidate Starts for Cursive\_213:

(Start: 7 @106490 has 62 MA's), (Start: 14 @106559 has 1 MA's), (18, 106601), (30, 106742), (32, 106778), (37, 106835), (38, 106838),

Gene: Daubenski\_204 Start: 106854, Stop: 107210, Start Num: 9

Candidate Starts for Daubenski\_204:

(Start: 9 @106854 has 2 MA's), (18, 106962), (30, 107103), (32, 107139), (37, 107196), (38, 107199),

Gene: EGole\_214 Start: 108503, Stop: 108862, Start Num: 7

Candidate Starts for EGole\_214:

(Start: 7 @108503 has 62 MA's), (Start: 14 @108572 has 1 MA's), (18, 108614), (30, 108755), (32, 108791), (37, 108848), (38, 108851),

Gene: Elmer\_234 Start: 111093, Stop: 111476, Start Num: 7

Candidate Starts for Elmer\_234:

(Start: 7 @111093 has 62 MA's), (13, 111150), (21, 111258), (24, 111306), (26, 111342), (30, 111369), (33, 111408),

Gene: Enygma\_233 Start: 110553, Stop: 110936, Start Num: 7

Candidate Starts for Enygma\_233:

(Start: 7 @110553 has 62 MA's), (10, 110577), (13, 110610), (20, 110703), (24, 110766), (30, 110829),

Gene: Evy\_202 Start: 106956, Stop: 107315, Start Num: 7

Candidate Starts for Evy\_202:

(Start: 7 @106956 has 62 MA's), (18, 107067), (30, 107208), (32, 107244), (36, 107298), (38, 107304),

Gene: Garnacho\_162 Start: 86421, Stop: 86771, Start Num: 7

Candidate Starts for Garnacho\_162:

(6, 86409), (Start: 7 @86421 has 62 MA's), (12, 86451), (Start: 14 @86478 has 1 MA's), (16, 86487), (17, 86490), (19, 86538), (20, 86562), (28, 86673), (33, 86703), (34, 86706), (35, 86751), (36, 86754),

Gene: Genie2\_223 Start: 107894, Stop: 108277, Start Num: 7

Candidate Starts for Genie2\_223:

(Start: 7 @107894 has 62 MA's), (13, 107951), (20, 108044), (24, 108107), (30, 108170), (33, 108209),

Gene: GiJojo\_155 Start: 87356, Stop: 87697, Start Num: 8

Candidate Starts for GiJojo\_155:

(Start: 8 @87356 has 3 MA's), (Start: 14 @87413 has 1 MA's), (15, 87419), (21, 87509), (25, 87596), (29, 87608), (33, 87629), (35, 87677), (36, 87680),

Gene: Gibbi\_233 Start: 107637, Stop: 108020, Start Num: 7

Candidate Starts for Gibbi\_233:

(Start: 7 @107637 has 62 MA's), (13, 107694), (18, 107748), (24, 107850), (30, 107913),

Gene: HangryHippo\_209 Start: 106161, Stop: 106520, Start Num: 7

Candidate Starts for HangryHippo\_209:

(Start: 7 @106161 has 62 MA's), (Start: 14 @106230 has 1 MA's), (18, 106272), (30, 106413), (32, 106449), (37, 106506), (38, 106509),

Gene: IchabodCrane\_219 Start: 107152, Stop: 107535, Start Num: 7

Candidate Starts for IchabodCrane\_219:

(Start: 7 @107152 has 62 MA's), (13, 107209), (18, 107263), (24, 107365), (30, 107428),

Gene: JimJam\_232 Start: 109073, Stop: 109456, Start Num: 7

Candidate Starts for JimJam\_232:

(Start: 7 @109073 has 62 MA's), (13, 109130), (18, 109184), (24, 109286), (30, 109349),

Gene: Jollison\_222 Start: 107283, Stop: 107666, Start Num: 7

Candidate Starts for Jollison\_222:

(Start: 7 @107283 has 62 MA's), (13, 107340), (18, 107394), (24, 107496), (30, 107559),

Gene: Karimac\_225 Start: 107468, Stop: 107851, Start Num: 7

Candidate Starts for Karimac\_225:

(Start: 7 @107468 has 62 MA's), (13, 107525), (18, 107579), (20, 107618), (24, 107681), (30, 107744),

Gene: KentuckyRacer\_231 Start: 108988, Stop: 109371, Start Num: 7

Candidate Starts for KentuckyRacer\_231:

(Start: 7 @108988 has 62 MA's), (13, 109045), (18, 109099), (24, 109201), (30, 109264),

Gene: Larnav\_210 Start: 106622, Stop: 106981, Start Num: 7

Candidate Starts for Larnav\_210:

(Start: 7 @106622 has 62 MA's), (Start: 14 @106691 has 1 MA's), (18, 106733), (30, 106874), (32, 106910), (37, 106967), (38, 106970),

Gene: Leo04\_212 Start: 107187, Stop: 107546, Start Num: 7

Candidate Starts for Leo04\_212:

(Start: 7 @107187 has 62 MA's), (Start: 14 @107256 has 1 MA's), (18, 107298), (30, 107439), (32, 107475), (37, 107532), (38, 107535),

Gene: Liandry\_211 Start: 106261, Stop: 106620, Start Num: 7

Candidate Starts for Liandry\_211:

(Start: 7 @106261 has 62 MA's), (18, 106372), (30, 106513), (37, 106606), (38, 106609),

Gene: LilMartin\_209 Start: 104821, Stop: 105180, Start Num: 7

Candidate Starts for LilMartin\_209:

(Start: 7 @104821 has 62 MA's), (18, 104932), (30, 105073), (31, 105103), (32, 105109), (36, 105163), (38, 105169),

Gene: LuckySocke\_163 Start: 86486, Stop: 86842, Start Num: 8

Candidate Starts for LuckySocke\_163:

(Start: 8 @86486 has 3 MA's), (11, 86510), (12, 86528), (21, 86648), (24, 86705), (35, 86822), (36, 86825),

Gene: LukeCage\_229 Start: 109747, Stop: 110130, Start Num: 7

Candidate Starts for LukeCage\_229:

(Start: 7 @109747 has 62 MA's), (13, 109804), (18, 109858), (24, 109960), (30, 110023),

Gene: Lululemon\_208 Start: 105542, Stop: 105901, Start Num: 7

Candidate Starts for Lululemon\_208:

(Start: 7 @105542 has 62 MA's), (Start: 14 @105611 has 1 MA's), (18, 105653), (30, 105794), (32, 105830), (37, 105887), (38, 105890),

Gene: Marsus\_223 Start: 106565, Stop: 106924, Start Num: 7

Candidate Starts for Marsus\_223:

(4, 106538), (Start: 7 @106565 has 62 MA's), (18, 106676), (30, 106817), (32, 106853), (36, 106907), (38, 106913),

Gene: Mildred21\_219 Start: 104587, Stop: 104976, Start Num: 7

Candidate Starts for Mildred21\_219:

(Start: 7 @104587 has 62 MA's), (18, 104704), (24, 104806), (30, 104869), (32, 104905), (36, 104959), (38, 104965),

Gene: MindFlayer\_218 Start: 106668, Stop: 107051, Start Num: 7

Candidate Starts for MindFlayer\_218:

(Start: 7 @106668 has 62 MA's), (13, 106725), (18, 106779), (24, 106881), (30, 106944),

Gene: Mugiwara\_237 Start: 110247, Stop: 110630, Start Num: 7

Candidate Starts for Mugiwara\_237:

(Start: 7 @110247 has 62 MA's), (13, 110304), (18, 110358), (21, 110412), (24, 110460), (26, 110496), (30, 110523), (33, 110562),

Gene: MulchMansion\_213 Start: 106455, Stop: 106814, Start Num: 7

Candidate Starts for MulchMansion\_213:

(Start: 7 @106455 has 62 MA's), (18, 106566), (30, 106707), (31, 106737), (32, 106743), (36, 106797), (38, 106803),

Gene: Navo\_206 Start: 104869, Stop: 105228, Start Num: 7

Candidate Starts for Navo\_206:

(Start: 7 @104869 has 62 MA's), (18, 104980), (30, 105121), (37, 105214), (38, 105217),

Gene: NootNoot\_208 Start: 105073, Stop: 105432, Start Num: 7

Candidate Starts for NootNoot\_208:

(Start: 7 @105073 has 62 MA's), (18, 105184), (30, 105325), (37, 105418), (38, 105421),

Gene: PacManQ\_208 Start: 105542, Stop: 105901, Start Num: 7

Candidate Starts for PacManQ\_208:

(Start: 7 @105542 has 62 MA's), (Start: 14 @105611 has 1 MA's), (18, 105653), (30, 105794), (32, 105830), (37, 105887), (38, 105890),

Gene: Paradiddles\_203 Start: 107448, Stop: 107807, Start Num: 7

Candidate Starts for Paradiddles\_203:

(Start: 7 @107448 has 62 MA's), (18, 107559), (30, 107700), (37, 107793), (38, 107796),

Gene: Peebs\_208 Start: 106593, Stop: 106952, Start Num: 7

Candidate Starts for Peebs\_208:

(Start: 7 @106593 has 62 MA's), (Start: 14 @106662 has 1 MA's), (18, 106704), (30, 106845), (32, 106881), (37, 106938), (38, 106941),



Gene: Pepperwood\_211 Start: 106825, Stop: 107184, Start Num: 7  
Candidate Starts for Pepperwood\_211:  
(Start: 7 @106825 has 62 MA's), (18, 106936), (23, 107005), (30, 107077), (32, 107113), (37, 107170),  
(38, 107173),

Gene: Persimmon\_214 Start: 105887, Stop: 106246, Start Num: 7  
Candidate Starts for Persimmon\_214:  
(Start: 7 @105887 has 62 MA's), (18, 105998), (30, 106139), (37, 106232), (38, 106235),

Gene: PinkiePie\_211 Start: 106261, Stop: 106620, Start Num: 7  
Candidate Starts for PinkiePie\_211:  
(Start: 7 @106261 has 62 MA's), (18, 106372), (30, 106513), (37, 106606), (38, 106609),

Gene: PumpkinSpice\_228 Start: 107889, Stop: 108272, Start Num: 7  
Candidate Starts for PumpkinSpice\_228:  
(Start: 7 @107889 has 62 MA's), (13, 107946), (18, 108000), (24, 108102), (30, 108165),

Gene: Quaran19\_225 Start: 107330, Stop: 107713, Start Num: 7  
Candidate Starts for Quaran19\_225:  
(Start: 7 @107330 has 62 MA's), (13, 107387), (18, 107441), (24, 107543), (30, 107606),

Gene: Rikishi\_233 Start: 107611, Stop: 107994, Start Num: 7  
Candidate Starts for Rikishi\_233:  
(Start: 7 @107611 has 62 MA's), (13, 107668), (18, 107722), (24, 107824), (30, 107887),

Gene: Riptide\_218 Start: 105917, Stop: 106300, Start Num: 7  
Candidate Starts for Riptide\_218:  
(Start: 7 @105917 has 62 MA's), (18, 106028), (22, 106091), (30, 106193), (36, 106283), (38, 106289),

Gene: SaltySpittoon\_225 Start: 106872, Stop: 107255, Start Num: 7  
Candidate Starts for SaltySpittoon\_225:  
(Start: 7 @106872 has 62 MA's), (13, 106929), (18, 106983), (24, 107085), (30, 107148),

Gene: Samisti12\_215 Start: 108521, Stop: 108811, Start Num: 14  
Candidate Starts for Samisti12\_215:  
(Start: 7 @108452 has 62 MA's), (Start: 14 @108521 has 1 MA's), (18, 108563), (30, 108704), (32,  
108740), (37, 108797), (38, 108800),

Gene: Scheme\_214 Start: 108097, Stop: 108456, Start Num: 7  
Candidate Starts for Scheme\_214:  
(Start: 7 @108097 has 62 MA's), (Start: 14 @108166 has 1 MA's), (18, 108208), (23, 108277), (30,  
108349), (32, 108385), (37, 108442), (38, 108445),

Gene: Shuckle\_213 Start: 106819, Stop: 107178, Start Num: 7  
Candidate Starts for Shuckle\_213:  
(Start: 7 @106819 has 62 MA's), (18, 106930), (30, 107071), (37, 107164), (38, 107167),

Gene: Sollertia\_224 Start: 107883, Stop: 108266, Start Num: 7  
Candidate Starts for Sollertia\_224:  
(Start: 7 @107883 has 62 MA's), (13, 107940), (20, 108033), (24, 108096), (30, 108159), (33, 108198),

Gene: Spelly\_230 Start: 106801, Stop: 107184, Start Num: 7

Candidate Starts for Spelly\_230:  
(Start: 7 @106801 has 62 MA's), (13, 106858), (18, 106912), (24, 107014), (30, 107077),

Gene: Spilled\_232 Start: 108005, Stop: 108388, Start Num: 7  
Candidate Starts for Spilled\_232:  
(Start: 7 @108005 has 62 MA's), (13, 108062), (18, 108116), (24, 108218), (30, 108281),

Gene: Squillium\_214 Start: 106263, Stop: 106622, Start Num: 7  
Candidate Starts for Squillium\_214:  
(Start: 7 @106263 has 62 MA's), (18, 106374), (30, 106515), (37, 106608), (38, 106611),

Gene: Stanimal\_223 Start: 108255, Stop: 108638, Start Num: 7  
Candidate Starts for Stanimal\_223:  
(Start: 7 @108255 has 62 MA's), (13, 108312), (24, 108468), (30, 108531), (33, 108570),

Gene: StarPlatinum\_233 Start: 109978, Stop: 110361, Start Num: 7  
Candidate Starts for StarPlatinum\_233:  
(Start: 7 @109978 has 62 MA's), (13, 110035), (21, 110143), (24, 110191), (26, 110227), (30, 110254),  
(33, 110293),

Gene: Starbow\_222 Start: 106845, Stop: 107228, Start Num: 7  
Candidate Starts for Starbow\_222:  
(Start: 7 @106845 has 62 MA's), (13, 106902), (18, 106956), (24, 107058), (30, 107121),

Gene: Sushi23\_211 Start: 107459, Stop: 107818, Start Num: 7  
Candidate Starts for Sushi23\_211:  
(Start: 7 @107459 has 62 MA's), (18, 107570), (23, 107639), (30, 107711), (32, 107747), (37, 107804),  
(38, 107807),

Gene: Talos\_165 Start: 86388, Stop: 86858, Start Num: 2  
Candidate Starts for Talos\_165:  
(1, 86379), (2, 86388), (3, 86391), (Start: 8 @86505 has 3 MA's), (12, 86544), (33, 86790), (35, 86838),  
(36, 86841),

Gene: Targaryen\_210 Start: 107640, Stop: 107999, Start Num: 7  
Candidate Starts for Targaryen\_210:  
(Start: 7 @107640 has 62 MA's), (18, 107751), (30, 107892), (32, 107928), (36, 107982), (38, 107988),

Gene: Teutsch\_210 Start: 107281, Stop: 107640, Start Num: 7  
Candidate Starts for Teutsch\_210:  
(Start: 7 @107281 has 62 MA's), (Start: 14 @107350 has 1 MA's), (18, 107392), (30, 107533), (32,  
107569), (37, 107626), (38, 107629),

Gene: TomSawyer\_229 Start: 109316, Stop: 109699, Start Num: 7  
Candidate Starts for TomSawyer\_229:  
(Start: 7 @109316 has 62 MA's), (13, 109373), (18, 109427), (24, 109529), (30, 109592),

Gene: Tomas\_223 Start: 108257, Stop: 108640, Start Num: 7  
Candidate Starts for Tomas\_223:  
(4, 108230), (Start: 7 @108257 has 62 MA's), (13, 108311), (18, 108365), (27, 108509), (30, 108533),  
(33, 108572),

Gene: Watermoore\_210 Start: 107804, Stop: 108163, Start Num: 7

Candidate Starts for Watermoore\_210:

(Start: 7 @107804 has 62 MA's), (Start: 14 @107873 has 1 MA's), (18, 107915), (30, 108056), (32, 108092), (37, 108149), (38, 108152),

Gene: WhereRU\_211 Start: 106066, Stop: 106425, Start Num: 7

Candidate Starts for WhereRU\_211:

(Start: 7 @106066 has 62 MA's), (18, 106177), (30, 106318), (37, 106411), (38, 106414),

Gene: Wipeout\_216 Start: 108268, Stop: 108651, Start Num: 7

Candidate Starts for Wipeout\_216:

(Start: 7 @108268 has 62 MA's), (13, 108325), (18, 108379), (24, 108481), (30, 108544),

Gene: Wofford\_226 Start: 110959, Stop: 111342, Start Num: 7

Candidate Starts for Wofford\_226:

(Start: 7 @110959 has 62 MA's), (13, 111016), (21, 111124), (24, 111172), (26, 111208), (30, 111235), (33, 111274),

Gene: Yaboi\_228 Start: 107818, Stop: 108201, Start Num: 7

Candidate Starts for Yaboi\_228:

(Start: 7 @107818 has 62 MA's), (13, 107875), (20, 107968), (24, 108031), (30, 108094), (33, 108133),