



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 292701 Report

This analysis was run 04/18/26 on database version 643.

Pham number 292701 has 91 members, 7 are drafts.

Phages represented in each track:

- Track 1 : Cadmus\_195, Cursive\_199
- Track 2 : Teutsch\_197, Pepperwood\_197, Samisti12\_201, Sushi23\_198, Tribute\_195, Peebs\_195
- Track 3 : Liandry\_197, Bartholomune\_198, PinkiePie\_197, Eliot67\_198, Squillium\_200, FreddyDRoo\_200
- Track 4 : NootNoot\_194
- Track 5 : Leo04\_199
- Track 6 : Quarant19\_209, Spilled\_216, Rikishi\_210, Bordeaux\_207, SaltySpittoon\_209, Wipeout\_200, Battuta\_207, Starbow\_206, KentuckyRacer\_215, AcciDwight\_217, PumpkinSpice\_212, CeilingFan\_213, Karimac\_210, JimJam\_216, Brizzy\_208
- Track 7 : LukeCage\_212
- Track 8 : Birchlyn\_208, IchabodCrane\_204, Gibbi\_217, Amabiko\_213, TomSawyer\_213, MindFlayer\_202
- Track 9 : Mugiwara\_215
- Track 10 : StarPlatinum\_216
- Track 11 : Wofford\_208
- Track 12 : AngryGiraffe\_206, Sollertia\_208, BoomerJR\_206, Yaboi\_212
- Track 13 : Tomas\_206
- Track 14 : Genie2\_206, Stanimal\_207
- Track 15 : Enygma\_216
- Track 16 : Elmer\_216
- Track 17 : Spelly\_214
- Track 18 : Jollison\_207
- Track 19 : Beuffert\_145
- Track 20 : Jada\_154, Emma1919\_156, MeganTheeKilla\_152, Maupel\_156, DeluluLabubu\_159, Gilson\_155, Forrest\_157
- Track 21 : Beuffert\_247
- Track 22 : Maupel\_253, Francob\_254, Gilson\_250
- Track 23 : Faust\_145, SeresaTree\_146
- Track 24 : Stigma\_245
- Track 25 : Westy\_153, Belfort\_151, Comrade\_148, Karp\_145, Stigma\_149
- Track 26 : Phredrick\_155
- Track 27 : Phredrick\_255, Emma1919\_250, MeganTheeKilla\_251
- Track 28 : SparkleGoddess\_247, Westy\_249, Karp\_247, Belfort\_248
- Track 29 : Limpid\_146, Annadreamy\_139, Blueeyedbeauty\_148
- Track 30 : Moab\_150

- Track 31 : Francob\_154
- Track 32 : Sham\_147
- Track 33 : TunaTartare\_152
- Track 34 : Kenrey\_158
- Track 35 : SparkleGoddess\_150
- Track 36 : Wakanda\_186, Muntaha\_187

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

The start number called the most often in the published annotations is 15, it was called in 33 of the 84 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AcciDwight\_217, Amabiko\_213, AngryGiraffe\_206, Battuta\_207, Birchlyn\_208, BoomerJR\_206, Bordeaux\_207, Brizzy\_208, CeilingFan\_213, Elmer\_216, Enygma\_216, Genie2\_206, Gibbi\_217, IchabodCrane\_204, JimJam\_216, Jollison\_207, Karimac\_210, KentuckyRacer\_215, LukeCage\_212, MindFlayer\_202, Moab\_150, Mugiwara\_215, PumpkinSpice\_212, Quaran19\_209, Rikishi\_210, SaltySpitoon\_209, Sollertia\_208, Spelly\_214, Spilled\_216, Stanimal\_207, Starbow\_206, TomSawyer\_213, Tomas\_206, Wipeout\_200, Yaboi\_212,

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

- StarPlatinum\_216, Wofford\_208,

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

- Annadreamy\_139, Bartholomune\_198, Belfort\_151, Belfort\_248, Beuffert\_145, Beuffert\_247, Blueeyedbeauty\_148, Cadmus\_195, Comrade\_148, Cursive\_199, DeluluLabubu\_159, Eliot67\_198, Emma1919\_156, Emma1919\_250, Faust\_145, Forrest\_157, Francob\_154, Francob\_254, FreddyDRoo\_200, Gilson\_155, Gilson\_250, Jada\_154, Karp\_145, Karp\_247, Kenrey\_158, Leo04\_199, Liandry\_197, Limpid\_146, Maupel\_156, Maupel\_253, MeganTheeKilla\_152, MeganTheeKilla\_251, Muntaha\_187, NootNoot\_194, Peebs\_195, Pepperwood\_197, Phredrick\_155, Phredrick\_255, PinkiePie\_197, Samisti12\_201, SeresaTree\_146, Sham\_147, SparkleGoddess\_150, SparkleGoddess\_247, Squillium\_200, Stigma\_149, Stigma\_245, Sushi23\_198, Teutsch\_197, Tribute\_195, TunaTartare\_152, Wakanda\_186, Westy\_153, Westy\_249,

**Summary by start number:**

Start 5:

- Found in 1 of 91 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 84
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Beuffert\_247 (BK1),

Start 6:

- Found in 11 of 91 ( 12.1% ) of genes in pham
- Manual Annotations of this start: 10 of 84
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Belfort\_248 (BK1), Emma1919\_250 (BK1), Francob\_254 (BK1), Gilson\_250 (BK1), Karp\_247 (BK1), Maupel\_253 (BK1), MeganTheeKilla\_251 (BK1), Phredrick\_255 (BK1), SparkleGoddess\_247 (BK1), Stigma\_245 (BK1), Westy\_249 (BK1),

Start 7:

- Found in 2 of 91 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 2 of 84
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Muntaha\_187 (BK2), Wakanda\_186 (BK2),

Start 10:

- Found in 16 of 91 ( 17.6% ) of genes in pham
- Manual Annotations of this start: 14 of 84
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bartholomune\_198 (BE1), Cadmus\_195 (BE1), Cursive\_199 (BE1), Elliot67\_198 (BE1), FreddyDRoo\_200 (BE1), Leo04\_199 (BE1), Liandry\_197 (BE1), NootNoot\_194 (BE1), Peebs\_195 (BE1), Pepperwood\_197 (BE1), PinkiePie\_197 (BE1), Samisti12\_201 (BE1), Squillium\_200 (BE1), Sushi23\_198 (BE1), Teutsch\_197 (BE1), Tribute\_195 (BE1),

Start 12:

- Found in 8 of 91 ( 8.8% ) of genes in pham
- Manual Annotations of this start: 7 of 84
- Called 87.5% of time when present
- Phage (with cluster) where this start called: Belfort\_151 (BK1), Comrade\_148 (BK1), Karp\_145 (BK1), Phredrick\_155 (BK1), SparkleGoddess\_150 (BK1), Stigma\_149 (BK1), Westy\_153 (BK1),

Start 13:

- Found in 8 of 91 ( 8.8% ) of genes in pham
- Manual Annotations of this start: 7 of 84
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Annadreamy\_139 (BK1), Beuffert\_145 (BK1), Blueeyedbeauty\_148 (BK1), Faust\_145 (BK1), Limpid\_146 (BK1), SeresaTree\_146 (BK1), Sham\_147 (BK1), TunaTartare\_152 (BK1),

Start 14:

- Found in 14 of 91 ( 15.4% ) of genes in pham
- Manual Annotations of this start: 8 of 84
- Called 64.3% of time when present
- Phage (with cluster) where this start called: DeluluLabubu\_159 (BK1), Emma1919\_156 (BK1), Forrest\_157 (BK1), Francob\_154 (BK1), Gilson\_155 (BK1), Jada\_154 (BK1), Maupel\_156 (BK1), MeganTheeKilla\_152 (BK1), Wofford\_208 (BE2),

Start 15:

- Found in 37 of 91 ( 40.7% ) of genes in pham
- Manual Annotations of this start: 33 of 84
- Called 94.6% of time when present
- Phage (with cluster) where this start called: AcciDwight\_217 (BE2), Amabiko\_213 (BE2), AngryGiraffe\_206 (BE2), Battuta\_207 (BE2), Birchlyn\_208 (BE2),

BoomerJR\_206 (BE2), Bordeaux\_207 (BE2), Brizzy\_208 (BE2), CeilingFan\_213 (BE2), Elmer\_216 (BE2), Enygma\_216 (BE2), Genie2\_206 (BE2), Gibbi\_217 (BE2), IchabodCrane\_204 (BE2), JimJam\_216 (BE2), Jollison\_207 (BE2), Karimac\_210 (BE2), KentuckyRacer\_215 (BE2), LukeCage\_212 (BE2), MindFlayer\_202 (BE2), Moab\_150 (BK1), Mugiwara\_215 (BE2), PumpkinSpice\_212 (BE2), Quaran19\_209 (BE2), Rikishi\_210 (BE2), SaltySpittoon\_209 (BE2), Sollertia\_208 (BE2), Spelly\_214 (BE2), Spilled\_216 (BE2), Stanimal\_207 (BE2), Starbow\_206 (BE2), TomSawyer\_213 (BE2), Tomas\_206 (BE2), Wipeout\_200 (BE2), Yaboi\_212 (BE2),

Start 16:

- Found in 9 of 91 ( 9.9% ) of genes in pham
- Manual Annotations of this start: 2 of 84
- Called 22.2% of time when present
- Phage (with cluster) where this start called: Kenrey\_158 (BK1), StarPlatinum\_216 (BE2),

### **Summary by clusters:**

There are 4 clusters represented in this pham: BE2, BE1, BK1, BK2,

Info for manual annotations of cluster BE1:

- Start number 10 was manually annotated 14 times for cluster BE1.

Info for manual annotations of cluster BE2:

- Start number 14 was manually annotated 1 time for cluster BE2.
- Start number 15 was manually annotated 32 times for cluster BE2.
- Start number 16 was manually annotated 1 time for cluster BE2.

Info for manual annotations of cluster BK1:

- Start number 5 was manually annotated 1 time for cluster BK1.
- Start number 6 was manually annotated 10 times for cluster BK1.
- Start number 12 was manually annotated 7 times for cluster BK1.
- Start number 13 was manually annotated 7 times for cluster BK1.
- Start number 14 was manually annotated 7 times for cluster BK1.
- Start number 15 was manually annotated 1 time for cluster BK1.
- Start number 16 was manually annotated 1 time for cluster BK1.

Info for manual annotations of cluster BK2:

- Start number 7 was manually annotated 2 times for cluster BK2.

### **Gene Information:**

Gene: AcciDwight\_217 Start: 104281, Stop: 104514, Start Num: 15

Candidate Starts for AcciDwight\_217:

(Start: 15 @104281 has 33 MA's), (24, 104332), (31, 104359), (42, 104428), (48, 104458),

Gene: Amabiko\_213 Start: 104099, Stop: 104332, Start Num: 15

Candidate Starts for Amabiko\_213:

(Start: 15 @104099 has 33 MA's), (24, 104150), (30, 104174), (31, 104177), (42, 104246), (48, 104276),

Gene: AngryGiraffe\_206 Start: 103693, Stop: 103905, Start Num: 15  
Candidate Starts for AngryGiraffe\_206:  
(Start: 14 @103690 has 8 MA's), (Start: 15 @103693 has 33 MA's), (Start: 16 @103696 has 2 MA's),  
(29, 103759), (42, 103840), (48, 103870),

Gene: Annadreamy\_139 Start: 79179, Stop: 79391, Start Num: 13  
Candidate Starts for Annadreamy\_139:  
(Start: 13 @79179 has 7 MA's), (19, 79209),

Gene: Bartholomune\_198 Start: 103045, Stop: 103350, Start Num: 10  
Candidate Starts for Bartholomune\_198:  
(Start: 10 @103045 has 14 MA's), (41, 103249), (44, 103267),

Gene: Battuta\_207 Start: 103415, Stop: 103648, Start Num: 15  
Candidate Starts for Battuta\_207:  
(Start: 15 @103415 has 33 MA's), (24, 103466), (31, 103493), (42, 103562), (48, 103592),

Gene: Belfort\_151 Start: 84987, Stop: 85211, Start Num: 12  
Candidate Starts for Belfort\_151:  
(Start: 12 @84987 has 7 MA's), (26, 85056), (34, 85086), (39, 85110), (46, 85179), (47, 85185),

Gene: Belfort\_248 Start: 118324, Stop: 118575, Start Num: 6  
Candidate Starts for Belfort\_248:  
(Start: 6 @118324 has 10 MA's), (18, 118381),

Gene: Beuffert\_145 Start: 83733, Stop: 83945, Start Num: 13  
Candidate Starts for Beuffert\_145:  
(Start: 13 @83733 has 7 MA's), (19, 83763), (35, 83841),

Gene: Beuffert\_247 Start: 118782, Stop: 119036, Start Num: 5  
Candidate Starts for Beuffert\_247:  
(3, 118764), (Start: 5 @118782 has 1 MA's), (18, 118839), (22, 118866), (39, 118932), (45, 118998),

Gene: Birchlyn\_208 Start: 101347, Stop: 101580, Start Num: 15  
Candidate Starts for Birchlyn\_208:  
(Start: 15 @101347 has 33 MA's), (24, 101398), (30, 101422), (31, 101425), (42, 101494), (48,  
101524),

Gene: Blueeyedbeauty\_148 Start: 83607, Stop: 83819, Start Num: 13  
Candidate Starts for Blueeyedbeauty\_148:  
(Start: 13 @83607 has 7 MA's), (19, 83637),

Gene: BoomerJR\_206 Start: 104126, Stop: 104338, Start Num: 15  
Candidate Starts for BoomerJR\_206:  
(Start: 14 @104123 has 8 MA's), (Start: 15 @104126 has 33 MA's), (Start: 16 @104129 has 2 MA's),  
(29, 104192), (42, 104273), (48, 104303),

Gene: Bordeaux\_207 Start: 103998, Stop: 104231, Start Num: 15  
Candidate Starts for Bordeaux\_207:  
(Start: 15 @103998 has 33 MA's), (24, 104049), (31, 104076), (42, 104145), (48, 104175),

Gene: Brizzy\_208 Start: 104534, Stop: 104767, Start Num: 15  
Candidate Starts for Brizzy\_208:

(Start: 15 @104534 has 33 MA's), (24, 104585), (31, 104612), (42, 104681), (48, 104711),

Gene: Cadmus\_195 Start: 104364, Stop: 104648, Start Num: 10

Candidate Starts for Cadmus\_195:

(Start: 10 @104364 has 14 MA's), (17, 104397), (21, 104424), (28, 104460), (42, 104553), (44, 104565),

Gene: CeilingFan\_213 Start: 104792, Stop: 105025, Start Num: 15

Candidate Starts for CeilingFan\_213:

(Start: 15 @104792 has 33 MA's), (24, 104843), (31, 104870), (42, 104939), (48, 104969),

Gene: Comrade\_148 Start: 85186, Stop: 85410, Start Num: 12

Candidate Starts for Comrade\_148:

(Start: 12 @85186 has 7 MA's), (26, 85255), (34, 85285), (39, 85309), (46, 85378), (47, 85384),

Gene: Cursive\_199 Start: 103712, Stop: 103996, Start Num: 10

Candidate Starts for Cursive\_199:

(Start: 10 @103712 has 14 MA's), (17, 103745), (21, 103772), (28, 103808), (42, 103901), (44, 103913),

Gene: DeluluLabubu\_159 Start: 86657, Stop: 86878, Start Num: 14

Candidate Starts for DeluluLabubu\_159:

(Start: 14 @86657 has 8 MA's), (20, 86699), (26, 86723), (29, 86732), (36, 86768), (47, 86852),

Gene: Eliot67\_198 Start: 102657, Stop: 102962, Start Num: 10

Candidate Starts for Eliot67\_198:

(Start: 10 @102657 has 14 MA's), (41, 102861), (44, 102879),

Gene: Elmer\_216 Start: 107116, Stop: 107349, Start Num: 15

Candidate Starts for Elmer\_216:

(Start: 14 @107113 has 8 MA's), (Start: 15 @107116 has 33 MA's), (41, 107260), (48, 107296),

Gene: Emma1919\_156 Start: 84605, Stop: 84826, Start Num: 14

Candidate Starts for Emma1919\_156:

(Start: 14 @84605 has 8 MA's), (20, 84647), (26, 84671), (29, 84680), (36, 84716), (47, 84800),

Gene: Emma1919\_250 Start: 117485, Stop: 117736, Start Num: 6

Candidate Starts for Emma1919\_250:

(Start: 6 @117485 has 10 MA's), (18, 117542), (43, 117686), (50, 117725),

Gene: Enygma\_216 Start: 106936, Stop: 107202, Start Num: 15

Candidate Starts for Enygma\_216:

(4, 106879), (Start: 15 @106936 has 33 MA's), (34, 107044), (41, 107110),

Gene: Faust\_145 Start: 84581, Stop: 84808, Start Num: 13

Candidate Starts for Faust\_145:

(Start: 13 @84581 has 7 MA's), (35, 84689),

Gene: Forrest\_157 Start: 85699, Stop: 85920, Start Num: 14

Candidate Starts for Forrest\_157:

(Start: 14 @85699 has 8 MA's), (20, 85741), (26, 85765), (29, 85774), (36, 85810), (47, 85894),

Gene: Francob\_254 Start: 118980, Stop: 119231, Start Num: 6

Candidate Starts for Francob\_254:

(Start: 6 @118980 has 10 MA's), (18, 119037), (50, 119220),

Gene: Francob\_154 Start: 85123, Stop: 85344, Start Num: 14

Candidate Starts for Francob\_154:

(Start: 14 @85123 has 8 MA's), (20, 85165), (24, 85183), (50, 85333),

Gene: FreddyDRoo\_200 Start: 102657, Stop: 102962, Start Num: 10

Candidate Starts for FreddyDRoo\_200:

(Start: 10 @102657 has 14 MA's), (41, 102861), (44, 102879),

Gene: Genie2\_206 Start: 104240, Stop: 104476, Start Num: 15

Candidate Starts for Genie2\_206:

(Start: 15 @104240 has 33 MA's), (23, 104285), (37, 104336), (42, 104390), (48, 104420),

Gene: Gibbi\_217 Start: 104285, Stop: 104518, Start Num: 15

Candidate Starts for Gibbi\_217:

(Start: 15 @104285 has 33 MA's), (24, 104336), (30, 104360), (31, 104363), (42, 104432), (48, 104462),

Gene: Gilson\_155 Start: 84567, Stop: 84788, Start Num: 14

Candidate Starts for Gilson\_155:

(Start: 14 @84567 has 8 MA's), (20, 84609), (26, 84633), (29, 84642), (36, 84678), (47, 84762),

Gene: Gilson\_250 Start: 118245, Stop: 118496, Start Num: 6

Candidate Starts for Gilson\_250:

(Start: 6 @118245 has 10 MA's), (18, 118302), (50, 118485),

Gene: IchabodCrane\_204 Start: 103800, Stop: 104033, Start Num: 15

Candidate Starts for IchabodCrane\_204:

(Start: 15 @103800 has 33 MA's), (24, 103851), (30, 103875), (31, 103878), (42, 103947), (48, 103977),

Gene: Jada\_154 Start: 84396, Stop: 84617, Start Num: 14

Candidate Starts for Jada\_154:

(Start: 14 @84396 has 8 MA's), (20, 84438), (26, 84462), (29, 84471), (36, 84507), (47, 84591),

Gene: JimJam\_216 Start: 105721, Stop: 105954, Start Num: 15

Candidate Starts for JimJam\_216:

(Start: 15 @105721 has 33 MA's), (24, 105772), (31, 105799), (42, 105868), (48, 105898),

Gene: Jollison\_207 Start: 103931, Stop: 104164, Start Num: 15

Candidate Starts for Jollison\_207:

(Start: 15 @103931 has 33 MA's), (24, 103982), (31, 104009), (42, 104078), (48, 104108),

Gene: Karimac\_210 Start: 104125, Stop: 104358, Start Num: 15

Candidate Starts for Karimac\_210:

(Start: 15 @104125 has 33 MA's), (24, 104176), (31, 104203), (42, 104272), (48, 104302),

Gene: Karp\_145 Start: 84414, Stop: 84638, Start Num: 12

Candidate Starts for Karp\_145:

(Start: 12 @84414 has 7 MA's), (26, 84483), (34, 84513), (39, 84537), (46, 84606), (47, 84612),

Gene: Karp\_247 Start: 119922, Stop: 120173, Start Num: 6

Candidate Starts for Karp\_247:

(Start: 6 @119922 has 10 MA's), (18, 119979),

Gene: Kenrey\_158 Start: 85728, Stop: 85943, Start Num: 16

Candidate Starts for Kenrey\_158:

(Start: 12 @85719 has 7 MA's), (Start: 16 @85728 has 2 MA's), (20, 85764), (26, 85788), (29, 85797), (46, 85911), (47, 85917),

Gene: KentuckyRacer\_215 Start: 105636, Stop: 105869, Start Num: 15

Candidate Starts for KentuckyRacer\_215:

(Start: 15 @105636 has 33 MA's), (24, 105687), (31, 105714), (42, 105783), (48, 105813),

Gene: Leo04\_199 Start: 104671, Stop: 104976, Start Num: 10

Candidate Starts for Leo04\_199:

(Start: 10 @104671 has 14 MA's), (33, 104800), (38, 104824), (41, 104875), (44, 104893), (51, 104938),

Gene: Liandry\_197 Start: 103364, Stop: 103669, Start Num: 10

Candidate Starts for Liandry\_197:

(Start: 10 @103364 has 14 MA's), (41, 103568), (44, 103586),

Gene: Limpid\_146 Start: 84480, Stop: 84692, Start Num: 13

Candidate Starts for Limpid\_146:

(Start: 13 @84480 has 7 MA's), (19, 84510),

Gene: LukeCage\_212 Start: 105748, Stop: 105954, Start Num: 15

Candidate Starts for LukeCage\_212:

(Start: 15 @105748 has 33 MA's), (Start: 16 @105751 has 2 MA's), (41, 105883), (42, 105889), (48, 105919), (49, 105922),

Gene: Maupel\_253 Start: 117438, Stop: 117689, Start Num: 6

Candidate Starts for Maupel\_253:

(Start: 6 @117438 has 10 MA's), (18, 117495), (50, 117678),

Gene: Maupel\_156 Start: 84567, Stop: 84788, Start Num: 14

Candidate Starts for Maupel\_156:

(Start: 14 @84567 has 8 MA's), (20, 84609), (26, 84633), (29, 84642), (36, 84678), (47, 84762),

Gene: MeganTheeKilla\_152 Start: 83918, Stop: 84139, Start Num: 14

Candidate Starts for MeganTheeKilla\_152:

(Start: 14 @83918 has 8 MA's), (20, 83960), (26, 83984), (29, 83993), (36, 84029), (47, 84113),

Gene: MeganTheeKilla\_251 Start: 117644, Stop: 117895, Start Num: 6

Candidate Starts for MeganTheeKilla\_251:

(Start: 6 @117644 has 10 MA's), (18, 117701), (43, 117845), (50, 117884),

Gene: MindFlayer\_202 Start: 103316, Stop: 103549, Start Num: 15

Candidate Starts for MindFlayer\_202:

(Start: 15 @103316 has 33 MA's), (24, 103367), (30, 103391), (31, 103394), (42, 103463), (48, 103493),

Gene: Moab\_150 Start: 86203, Stop: 86421, Start Num: 15

Candidate Starts for Moab\_150:  
(1, 86080), (11, 86188), (Start: 15 @86203 has 33 MA's), (31, 86284),

Gene: Mugiwara\_215 Start: 106245, Stop: 106478, Start Num: 15  
Candidate Starts for Mugiwara\_215:  
(Start: 15 @106245 has 33 MA's), (Start: 16 @106248 has 2 MA's), (24, 106296), (31, 106323), (42, 106392), (48, 106422),

Gene: Muntaha\_187 Start: 96355, Stop: 96612, Start Num: 7  
Candidate Starts for Muntaha\_187:  
(Start: 7 @96355 has 2 MA's), (41, 96550), (45, 96574), (50, 96601),

Gene: NootNoot\_194 Start: 102153, Stop: 102458, Start Num: 10  
Candidate Starts for NootNoot\_194:  
(Start: 10 @102153 has 14 MA's), (27, 102249), (32, 102276), (41, 102357), (44, 102375),

Gene: Peebs\_195 Start: 103953, Stop: 104258, Start Num: 10  
Candidate Starts for Peebs\_195:  
(Start: 10 @103953 has 14 MA's), (33, 104082), (37, 104103), (38, 104106), (41, 104157), (44, 104175), (51, 104220),

Gene: Pepperwood\_197 Start: 103911, Stop: 104216, Start Num: 10  
Candidate Starts for Pepperwood\_197:  
(Start: 10 @103911 has 14 MA's), (33, 104040), (37, 104061), (38, 104064), (41, 104115), (44, 104133), (51, 104178),

Gene: Phredrick\_155 Start: 84063, Stop: 84287, Start Num: 12  
Candidate Starts for Phredrick\_155:  
(Start: 12 @84063 has 7 MA's), (Start: 16 @84072 has 2 MA's), (20, 84108), (26, 84132), (46, 84255), (47, 84261),

Gene: Phredrick\_255 Start: 118327, Stop: 118578, Start Num: 6  
Candidate Starts for Phredrick\_255:  
(Start: 6 @118327 has 10 MA's), (18, 118384), (43, 118528), (50, 118567),

Gene: PinkiePie\_197 Start: 103364, Stop: 103669, Start Num: 10  
Candidate Starts for PinkiePie\_197:  
(Start: 10 @103364 has 14 MA's), (41, 103568), (44, 103586),

Gene: PumpkinSpice\_212 Start: 104537, Stop: 104770, Start Num: 15  
Candidate Starts for PumpkinSpice\_212:  
(Start: 15 @104537 has 33 MA's), (24, 104588), (31, 104615), (42, 104684), (48, 104714),

Gene: Quaran19\_209 Start: 103978, Stop: 104211, Start Num: 15  
Candidate Starts for Quaran19\_209:  
(Start: 15 @103978 has 33 MA's), (24, 104029), (31, 104056), (42, 104125), (48, 104155),

Gene: Rikishi\_210 Start: 104259, Stop: 104492, Start Num: 15  
Candidate Starts for Rikishi\_210:  
(Start: 15 @104259 has 33 MA's), (24, 104310), (31, 104337), (42, 104406), (48, 104436),

Gene: SaltySpittoon\_209 Start: 103520, Stop: 103753, Start Num: 15  
Candidate Starts for SaltySpittoon\_209:

(Start: 15 @103520 has 33 MA's), (24, 103571), (31, 103598), (42, 103667), (48, 103697),

Gene: Samisti12\_201 Start: 105535, Stop: 105840, Start Num: 10

Candidate Starts for Samisti12\_201:

(Start: 10 @105535 has 14 MA's), (33, 105664), (37, 105685), (38, 105688), (41, 105739), (44, 105757), (51, 105802),

Gene: SeresaTree\_146 Start: 83963, Stop: 84190, Start Num: 13

Candidate Starts for SeresaTree\_146:

(Start: 13 @83963 has 7 MA's), (35, 84071),

Gene: Sham\_147 Start: 86459, Stop: 86677, Start Num: 13

Candidate Starts for Sham\_147:

(2, 86372), (8, 86432), (Start: 13 @86459 has 7 MA's), (25, 86519), (32, 86546), (40, 86591), (47, 86654),

Gene: Sollertia\_208 Start: 104240, Stop: 104452, Start Num: 15

Candidate Starts for Sollertia\_208:

(Start: 14 @104237 has 8 MA's), (Start: 15 @104240 has 33 MA's), (Start: 16 @104243 has 2 MA's), (29, 104306), (42, 104387), (48, 104417),

Gene: SparkleGoddess\_247 Start: 119197, Stop: 119448, Start Num: 6

Candidate Starts for SparkleGoddess\_247:

(Start: 6 @119197 has 10 MA's), (18, 119254),

Gene: SparkleGoddess\_150 Start: 85233, Stop: 85457, Start Num: 12

Candidate Starts for SparkleGoddess\_150:

(Start: 12 @85233 has 7 MA's), (26, 85302), (34, 85332), (46, 85425), (47, 85431),

Gene: Spelly\_214 Start: 103449, Stop: 103682, Start Num: 15

Candidate Starts for Spelly\_214:

(Start: 15 @103449 has 33 MA's), (24, 103500), (42, 103596), (48, 103626),

Gene: Spilled\_216 Start: 104653, Stop: 104886, Start Num: 15

Candidate Starts for Spilled\_216:

(Start: 15 @104653 has 33 MA's), (24, 104704), (31, 104731), (42, 104800), (48, 104830),

Gene: Squillium\_200 Start: 103366, Stop: 103671, Start Num: 10

Candidate Starts for Squillium\_200:

(Start: 10 @103366 has 14 MA's), (41, 103570), (44, 103588),

Gene: Stanimal\_207 Start: 104601, Stop: 104837, Start Num: 15

Candidate Starts for Stanimal\_207:

(Start: 15 @104601 has 33 MA's), (23, 104646), (37, 104697), (42, 104751), (48, 104781),

Gene: StarPlatinum\_216 Start: 106260, Stop: 106463, Start Num: 16

Candidate Starts for StarPlatinum\_216:

(Start: 15 @106257 has 33 MA's), (Start: 16 @106260 has 2 MA's), (42, 106398), (48, 106428), (49, 106431),

Gene: Starbow\_206 Start: 103493, Stop: 103726, Start Num: 15

Candidate Starts for Starbow\_206:

(Start: 15 @103493 has 33 MA's), (24, 103544), (31, 103571), (42, 103640), (48, 103670),

Gene: Stigma\_245 Start: 118909, Stop: 119160, Start Num: 6

Candidate Starts for Stigma\_245:

(Start: 6 @118909 has 10 MA's), (18, 118966), (23, 118996),

Gene: Stigma\_149 Start: 85631, Stop: 85855, Start Num: 12

Candidate Starts for Stigma\_149:

(Start: 12 @85631 has 7 MA's), (26, 85700), (34, 85730), (39, 85754), (46, 85823), (47, 85829),

Gene: Sushi23\_198 Start: 105017, Stop: 105322, Start Num: 10

Candidate Starts for Sushi23\_198:

(Start: 10 @105017 has 14 MA's), (33, 105146), (37, 105167), (38, 105170), (41, 105221), (44, 105239), (51, 105284),

Gene: Teutsch\_197 Start: 104632, Stop: 104937, Start Num: 10

Candidate Starts for Teutsch\_197:

(Start: 10 @104632 has 14 MA's), (33, 104761), (37, 104782), (38, 104785), (41, 104836), (44, 104854), (51, 104899),

Gene: TomSawyer\_213 Start: 105964, Stop: 106197, Start Num: 15

Candidate Starts for TomSawyer\_213:

(Start: 15 @105964 has 33 MA's), (24, 106015), (30, 106039), (31, 106042), (42, 106111), (48, 106141),

Gene: Tomas\_206 Start: 104664, Stop: 104903, Start Num: 15

Candidate Starts for Tomas\_206:

(9, 104634), (Start: 15 @104664 has 33 MA's), (27, 104727), (31, 104745), (41, 104811), (42, 104817),

Gene: Tribute\_195 Start: 104482, Stop: 104787, Start Num: 10

Candidate Starts for Tribute\_195:

(Start: 10 @104482 has 14 MA's), (33, 104611), (37, 104632), (38, 104635), (41, 104686), (44, 104704), (51, 104749),

Gene: TunaTartare\_152 Start: 87717, Stop: 87929, Start Num: 13

Candidate Starts for TunaTartare\_152:

(9, 87693), (Start: 13 @87717 has 7 MA's),

Gene: Wakanda\_186 Start: 96416, Stop: 96673, Start Num: 7

Candidate Starts for Wakanda\_186:

(Start: 7 @96416 has 2 MA's), (41, 96611), (45, 96635), (50, 96662),

Gene: Westy\_153 Start: 85946, Stop: 86170, Start Num: 12

Candidate Starts for Westy\_153:

(Start: 12 @85946 has 7 MA's), (26, 86015), (34, 86045), (39, 86069), (46, 86138), (47, 86144),

Gene: Westy\_249 Start: 119727, Stop: 119978, Start Num: 6

Candidate Starts for Westy\_249:

(Start: 6 @119727 has 10 MA's), (18, 119784),

Gene: Wipeout\_200 Start: 104916, Stop: 105149, Start Num: 15

Candidate Starts for Wipeout\_200:

(Start: 15 @104916 has 33 MA's), (24, 104967), (31, 104994), (42, 105063), (48, 105093),

Gene: Wofford\_208 Start: 106981, Stop: 107217, Start Num: 14

Candidate Starts for Wofford\_208:

(Start: 14 @106981 has 8 MA's), (Start: 15 @106984 has 33 MA's), (41, 107128), (48, 107164),

Gene: Yaboi\_212 Start: 104175, Stop: 104387, Start Num: 15

Candidate Starts for Yaboi\_212:

(Start: 14 @104172 has 8 MA's), (Start: 15 @104175 has 33 MA's), (Start: 16 @104178 has 2 MA's),  
(29, 104241), (42, 104322), (48, 104352),