

Pham 169963



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 169963 Report

This analysis was run 07/09/24 on database version 566.

Pham number 169963 has 68 members, 11 are drafts.

Phages represented in each track:

- Track 1 : NootNoot\_169
- Track 2 : PinkiePie\_170, Bartholomune\_172, Squillium\_173, Liandry\_172
- Track 3 : Samisti12\_174, EGole\_174, Cross\_172, Peebs\_170, Sushi23\_172, Teutsch\_171, Leo04\_173, Watermoore\_171, Cursive\_171, Tribute\_170, Pepperwood\_171
- Track 4 : LilMartin\_169, Angela\_171, MulchMansion\_170
- Track 5 : Braelyn\_173, Paradiddles\_166, Navo\_170
- Track 6 : Evy\_166
- Track 7 : Lululemon\_175, Larnav\_181, PacManQ\_175, HangryHippo\_175, BlueOtter\_175
- Track 8 : Anedea\_175
- Track 9 : Persimmon\_173, WhereRU\_177
- Track 10 : Bmoc\_175
- Track 11 : Targaryen\_172, Jay2Jay\_178
- Track 12 : Warpy\_176
- Track 13 : Mildred21\_180
- Track 14 : Daubenski\_166
- Track 15 : Tomas\_176
- Track 16 : Genie2\_178, BoomerJR\_178
- Track 17 : Spelly\_185, Birchlyn\_181, KentuckyRacer\_191, PumpkinSpice\_184, Starbow\_180, Gibbi\_190, Battuta\_182, JimJam\_188, Quarant19\_182, Wipeout\_175, Jollison\_186, SaltySpittoon\_182, IchabodCrane\_177, Amabiko\_185, TomSawyer\_186, Bordeaux\_181
- Track 18 : Karimac\_182, Spilled\_187
- Track 19 : Elmer\_195
- Track 20 : Stanimal\_177, Yaboi\_181, Sollertia\_178
- Track 21 : MindFlayer\_176
- Track 22 : Enygma\_186
- Track 23 : Mugiwara\_188
- Track 24 : Wofford\_181
- Track 25 : StarPlatinum\_189, LukeCage\_181

***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 32 of the 57 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Anedea\_175, Angela\_171, Bartholomune\_172, Bmoc\_175, Braelyn\_173, Cross\_172, Cursive\_171, Daubenski\_166, EGole\_174, Jay2Jay\_178, Leo04\_173, Liandry\_172, LilMartin\_169, Mildred21\_180, MulchMansion\_170, Navo\_170, Paradiddles\_166, Peebs\_170, Pepperwood\_171, Persimmon\_173, PinkiePie\_170, Samisti12\_174, Sollertia\_178, Squillium\_173, Stanimal\_177, Sushi23\_172, Targaryen\_172, Teutsch\_171, Tribute\_170, Warpy\_176, Watermoore\_171, WhereRU\_177, Yaboi\_181,

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

- BlueOtter\_175, BoomerJR\_178, Elmer\_195, Evy\_166, Genie2\_178, HangryHippo\_175, Larnav\_181, Lululemon\_175, NootNoot\_169, PacManQ\_175, Tomas\_176, Wofford\_181,

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

- Amabiko\_185, Battuta\_182, Birchlyn\_181, Bordeaux\_181, Enygma\_186, Gibbi\_190, IchabodCrane\_177, JimJam\_188, Jollison\_186, Karimac\_182, KentuckyRacer\_191, LukeCage\_181, MindFlayer\_176, Mugiwara\_188, PumpkinSpice\_184, Quaran19\_182, SaltySpitoon\_182, Spelly\_185, Spilled\_187, StarPlatinum\_189, Starbow\_180, TomSawyer\_186, Wipeout\_175,

### Summary by start number:

Start 2:

- Found in 35 of 68 ( 51.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 14.3% of time when present
- Phage (with cluster) where this start called: BlueOtter\_175 (BE1), HangryHippo\_175 (BE1), Larnav\_181 (BE1), Lululemon\_175 (BE1), PacManQ\_175 (BE1),

Start 4:

- Found in 32 of 68 ( 47.1% ) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 3.1% of time when present
- Phage (with cluster) where this start called: Evy\_166 (BE1),

Start 6:

- Found in 68 of 68 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 7 of 57
- Called 10.3% of time when present
- Phage (with cluster) where this start called: BoomerJR\_178 (BE2), Enygma\_186 (BE2), Genie2\_178 (BE2), LukeCage\_181 (BE2), MindFlayer\_176 (BE2), NootNoot\_169 (BE1), StarPlatinum\_189 (BE2),

Start 7:

- Found in 45 of 68 ( 66.2% ) of genes in pham
- Manual Annotations of this start: 32 of 57
- Called 73.3% of time when present
- Phage (with cluster) where this start called: Anedea\_175 (BE1), Angela\_171 (BE1), Bartholomune\_172 (BE1), Bmoc\_175 (BE1), Braelyn\_173 (BE1), Cross\_172 (BE1),

Cursive\_171 (BE1), Daubenski\_166 (BE1), EGole\_174 (BE1), Jay2Jay\_178 (BE1), Leo04\_173 (BE1), Liandry\_172 (BE1), LilMartin\_169 (BE1), Mildred21\_180 (BE1), MulchMansion\_170 (BE1), Navo\_170 (BE1), Paradiddles\_166 (BE1), Peebs\_170 (BE1), Pepperwood\_171 (BE1), Persimmon\_173 (BE1), PinkiePie\_170 (BE1), Samisti12\_174 (BE1), Sollertia\_178 (BE2), Squillium\_173 (BE1), Stanimal\_177 (BE2), Sushi23\_172 (BE1), Targaryen\_172 (BE1), Teutsch\_171 (BE1), Tribute\_170 (BE1), Warpy\_176 (BE1), Watermoore\_171 (BE1), WhereRU\_177 (BE1), Yaboi\_181 (BE2),

Start 8:

- Found in 2 of 68 ( 2.9% ) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Tomas\_176 (BE2),

Start 9:

- Found in 6 of 68 ( 8.8% ) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Elmer\_195 (BE2), Wofford\_181 (BE2),

Start 12:

- Found in 23 of 68 ( 33.8% ) of genes in pham
- Manual Annotations of this start: 15 of 57
- Called 82.6% of time when present
- Phage (with cluster) where this start called: Amabiko\_185 (BE2), Battuta\_182 (BE2), Birchlyn\_181 (BE2), Bordeaux\_181 (BE2), Gibbi\_190 (BE2), IchabodCrane\_177 (BE2), JimJam\_188 (BE2), Jollison\_186 (BE2), Karimac\_182 (BE2), KentuckyRacer\_191 (BE2), Mugiwara\_188 (BE2), PumpkinSpice\_184 (BE2), Quaran19\_182 (BE2), SaltySpittoon\_182 (BE2), Spelly\_185 (BE2), Spilled\_187 (BE2), Starbow\_180 (BE2), TomSawyer\_186 (BE2), Wipeout\_175 (BE2),

### **Summary by clusters:**

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

Info for manual annotations of cluster BE1:

- Start number 4 was manually annotated 1 time for cluster BE1.
- Start number 6 was manually annotated 1 time for cluster BE1.
- Start number 7 was manually annotated 29 times for cluster BE1.

Info for manual annotations of cluster BE2:

- Start number 6 was manually annotated 6 times for cluster BE2.
- Start number 7 was manually annotated 3 times for cluster BE2.
- Start number 8 was manually annotated 1 time for cluster BE2.
- Start number 9 was manually annotated 1 time for cluster BE2.
- Start number 12 was manually annotated 15 times for cluster BE2.

### **Gene Information:**

Gene: Amabiko\_185 Start: 95064, Stop: 95360, Start Num: 12

Candidate Starts for Amabiko\_185:

(Start: 6 @95028 has 7 MA's), (Start: 12 @95064 has 15 MA's), (14, 95130), (15, 95139), (17, 95184), (19, 95214),

Gene: Anedea\_175 Start: 94252, Stop: 94572, Start Num: 7

Candidate Starts for Anedea\_175:

(Start: 6 @94243 has 7 MA's), (Start: 7 @94252 has 32 MA's), (16, 94387),

Gene: Angela\_171 Start: 93836, Stop: 94156, Start Num: 7

Candidate Starts for Angela\_171:

(Start: 6 @93827 has 7 MA's), (Start: 7 @93836 has 32 MA's), (15, 93941), (16, 93971), (18, 93995), (24, 94073),

Gene: Bartholomune\_172 Start: 93699, Stop: 94022, Start Num: 7

Candidate Starts for Bartholomune\_172:

(2, 93648), (Start: 4 @93660 has 1 MA's), (Start: 6 @93690 has 7 MA's), (Start: 7 @93699 has 32 MA's), (16, 93837), (17, 93852),

Gene: Battuta\_182 Start: 94846, Stop: 95142, Start Num: 12

Candidate Starts for Battuta\_182:

(Start: 6 @94810 has 7 MA's), (Start: 12 @94846 has 15 MA's), (14, 94912), (15, 94921), (17, 94966), (19, 94996),

Gene: Birchlyn\_181 Start: 92703, Stop: 92999, Start Num: 12

Candidate Starts for Birchlyn\_181:

(Start: 6 @92667 has 7 MA's), (Start: 12 @92703 has 15 MA's), (14, 92769), (15, 92778), (17, 92823), (19, 92853),

Gene: BlueOtter\_175 Start: 94859, Stop: 95230, Start Num: 2

Candidate Starts for BlueOtter\_175:

(2, 94859), (Start: 4 @94871 has 1 MA's), (Start: 6 @94901 has 7 MA's), (Start: 7 @94910 has 32 MA's), (14, 95006), (16, 95045), (18, 95069),

Gene: Bmoc\_175 Start: 94581, Stop: 94901, Start Num: 7

Candidate Starts for Bmoc\_175:

(Start: 6 @94572 has 7 MA's), (Start: 7 @94581 has 32 MA's), (16, 94716), (24, 94818),

Gene: BoomerJR\_178 Start: 94666, Stop: 94992, Start Num: 6

Candidate Starts for BoomerJR\_178:

(1, 94618), (3, 94624), (5, 94636), (Start: 6 @94666 has 7 MA's), (Start: 7 @94675 has 32 MA's), (11, 94699), (16, 94804), (21, 94879), (25, 94930), (26, 94945),

Gene: Bordeaux\_181 Start: 95353, Stop: 95649, Start Num: 12

Candidate Starts for Bordeaux\_181:

(Start: 6 @95317 has 7 MA's), (Start: 12 @95353 has 15 MA's), (14, 95419), (15, 95428), (17, 95473), (19, 95503),

Gene: Braelyn\_173 Start: 94759, Stop: 95082, Start Num: 7

Candidate Starts for Braelyn\_173:

(2, 94708), (Start: 4 @94720 has 1 MA's), (Start: 6 @94750 has 7 MA's), (Start: 7 @94759 has 32 MA's), (Start: 9 @94768 has 1 MA's), (16, 94897), (17, 94912),

Gene: Cross\_172 Start: 95555, Stop: 95875, Start Num: 7

Candidate Starts for Cross\_172:

(2, 95504), (Start: 4 @95516 has 1 MA's), (Start: 6 @95546 has 7 MA's), (Start: 7 @95555 has 32 MA's), (14, 95651), (16, 95690), (18, 95714),

Gene: Cursive\_171 Start: 93764, Stop: 94084, Start Num: 7

Candidate Starts for Cursive\_171:

(2, 93713), (Start: 4 @93725 has 1 MA's), (Start: 6 @93755 has 7 MA's), (Start: 7 @93764 has 32 MA's), (14, 93860), (16, 93899), (18, 93923),

Gene: Daubenski\_166 Start: 95477, Stop: 95803, Start Num: 7

Candidate Starts for Daubenski\_166:

(2, 95426), (Start: 4 @95438 has 1 MA's), (Start: 6 @95468 has 7 MA's), (Start: 7 @95477 has 32 MA's), (15, 95582), (20, 95669), (28, 95786),

Gene: EGole\_174 Start: 96572, Stop: 96892, Start Num: 7

Candidate Starts for EGole\_174:

(2, 96521), (Start: 4 @96533 has 1 MA's), (Start: 6 @96563 has 7 MA's), (Start: 7 @96572 has 32 MA's), (14, 96668), (16, 96707), (18, 96731),

Gene: Elmer\_195 Start: 98217, Stop: 98528, Start Num: 9

Candidate Starts for Elmer\_195:

(2, 98157), (Start: 6 @98199 has 7 MA's), (Start: 7 @98208 has 32 MA's), (Start: 9 @98217 has 1 MA's), (11, 98232), (15, 98310), (16, 98340), (21, 98415),

Gene: Enygma\_186 Start: 97654, Stop: 97986, Start Num: 6

Candidate Starts for Enygma\_186:

(Start: 6 @97654 has 7 MA's), (Start: 12 @97690 has 15 MA's), (15, 97765),

Gene: Evy\_166 Start: 94943, Stop: 95302, Start Num: 4

Candidate Starts for Evy\_166:

(2, 94931), (Start: 4 @94943 has 1 MA's), (Start: 6 @94973 has 7 MA's), (Start: 7 @94982 has 32 MA's), (14, 95078), (16, 95117),

Gene: Genie2\_178 Start: 94780, Stop: 95106, Start Num: 6

Candidate Starts for Genie2\_178:

(1, 94732), (3, 94738), (5, 94750), (Start: 6 @94780 has 7 MA's), (Start: 7 @94789 has 32 MA's), (11, 94813), (16, 94918), (21, 94993), (25, 95044), (26, 95059),

Gene: Gibbi\_190 Start: 95641, Stop: 95937, Start Num: 12

Candidate Starts for Gibbi\_190:

(Start: 6 @95605 has 7 MA's), (Start: 12 @95641 has 15 MA's), (14, 95707), (15, 95716), (17, 95761), (19, 95791),

Gene: HangryHippo\_175 Start: 94859, Stop: 95230, Start Num: 2

Candidate Starts for HangryHippo\_175:

(2, 94859), (Start: 4 @94871 has 1 MA's), (Start: 6 @94901 has 7 MA's), (Start: 7 @94910 has 32 MA's), (14, 95006), (16, 95045), (18, 95069),

Gene: IchabodCrane\_177 Start: 94765, Stop: 95061, Start Num: 12

Candidate Starts for IchabodCrane\_177:

(Start: 6 @94729 has 7 MA's), (Start: 12 @94765 has 15 MA's), (14, 94831), (15, 94840), (17, 94885), (19, 94915),

Gene: Jay2Jay\_178 Start: 95781, Stop: 96101, Start Num: 7  
Candidate Starts for Jay2Jay\_178:  
(2, 95730), (Start: 4 @95742 has 1 MA's), (Start: 6 @95772 has 7 MA's), (Start: 7 @95781 has 32 MA's), (14, 95877), (16, 95916),

Gene: JimJam\_188 Start: 96686, Stop: 96982, Start Num: 12  
Candidate Starts for JimJam\_188:  
(Start: 6 @96650 has 7 MA's), (Start: 12 @96686 has 15 MA's), (14, 96752), (15, 96761), (17, 96806), (19, 96836),

Gene: Jollison\_186 Start: 95287, Stop: 95583, Start Num: 12  
Candidate Starts for Jollison\_186:  
(Start: 6 @95251 has 7 MA's), (Start: 12 @95287 has 15 MA's), (14, 95353), (15, 95362), (17, 95407), (19, 95437),

Gene: Karimac\_182 Start: 95481, Stop: 95777, Start Num: 12  
Candidate Starts for Karimac\_182:  
(Start: 6 @95445 has 7 MA's), (Start: 12 @95481 has 15 MA's), (15, 95556), (17, 95601), (19, 95631),

Gene: KentuckyRacer\_191 Start: 96432, Stop: 96728, Start Num: 12  
Candidate Starts for KentuckyRacer\_191:  
(Start: 6 @96396 has 7 MA's), (Start: 12 @96432 has 15 MA's), (14, 96498), (15, 96507), (17, 96552), (19, 96582),

Gene: Larnav\_181 Start: 95478, Stop: 95849, Start Num: 2  
Candidate Starts for Larnav\_181:  
(2, 95478), (Start: 4 @95490 has 1 MA's), (Start: 6 @95520 has 7 MA's), (Start: 7 @95529 has 32 MA's), (14, 95625), (16, 95664), (18, 95688),

Gene: Leo04\_173 Start: 95410, Stop: 95730, Start Num: 7  
Candidate Starts for Leo04\_173:  
(2, 95359), (Start: 4 @95371 has 1 MA's), (Start: 6 @95401 has 7 MA's), (Start: 7 @95410 has 32 MA's), (14, 95506), (16, 95545), (18, 95569),

Gene: Liandry\_172 Start: 94442, Stop: 94765, Start Num: 7  
Candidate Starts for Liandry\_172:  
(2, 94391), (Start: 4 @94403 has 1 MA's), (Start: 6 @94433 has 7 MA's), (Start: 7 @94442 has 32 MA's), (16, 94580), (17, 94595),

Gene: LilMartin\_169 Start: 93455, Stop: 93775, Start Num: 7  
Candidate Starts for LilMartin\_169:  
(Start: 6 @93446 has 7 MA's), (Start: 7 @93455 has 32 MA's), (15, 93560), (16, 93590), (18, 93614), (24, 93692),

Gene: LukeCage\_181 Start: 96206, Stop: 96538, Start Num: 6  
Candidate Starts for LukeCage\_181:  
(Start: 6 @96206 has 7 MA's), (Start: 12 @96242 has 15 MA's), (15, 96317), (16, 96347), (17, 96362),

Gene: Lululemon\_175 Start: 94240, Stop: 94611, Start Num: 2  
Candidate Starts for Lululemon\_175:  
(2, 94240), (Start: 4 @94252 has 1 MA's), (Start: 6 @94282 has 7 MA's), (Start: 7 @94291 has 32 MA's), (14, 94387), (16, 94426), (18, 94450),

Gene: Mildred21\_180 Start: 93826, Stop: 94146, Start Num: 7  
Candidate Starts for Mildred21\_180:  
(2, 93775), (Start: 4 @93787 has 1 MA's), (Start: 6 @93817 has 7 MA's), (Start: 7 @93826 has 32 MA's), (15, 93931), (16, 93961),

Gene: MindFlayer\_176 Start: 94636, Stop: 94968, Start Num: 6  
Candidate Starts for MindFlayer\_176:  
(Start: 6 @94636 has 7 MA's), (Start: 12 @94672 has 15 MA's), (14, 94738), (15, 94747), (17, 94792), (19, 94822),

Gene: Mugiwara\_188 Start: 96069, Stop: 96365, Start Num: 12  
Candidate Starts for Mugiwara\_188:  
(Start: 6 @96033 has 7 MA's), (Start: 12 @96069 has 15 MA's), (15, 96144), (16, 96174), (22, 96252),

Gene: MulchMansion\_170 Start: 94098, Stop: 94418, Start Num: 7  
Candidate Starts for MulchMansion\_170:  
(Start: 6 @94089 has 7 MA's), (Start: 7 @94098 has 32 MA's), (15, 94203), (16, 94233), (18, 94257), (24, 94335),

Gene: Navo\_170 Start: 94140, Stop: 94463, Start Num: 7  
Candidate Starts for Navo\_170:  
(2, 94089), (Start: 4 @94101 has 1 MA's), (Start: 6 @94131 has 7 MA's), (Start: 7 @94140 has 32 MA's), (Start: 9 @94149 has 1 MA's), (16, 94278), (17, 94293),

Gene: NootNoot\_169 Start: 93493, Stop: 93825, Start Num: 6  
Candidate Starts for NootNoot\_169:  
(2, 93451), (Start: 4 @93463 has 1 MA's), (Start: 6 @93493 has 7 MA's), (Start: 7 @93502 has 32 MA's), (Start: 9 @93511 has 1 MA's), (16, 93640), (17, 93655),

Gene: PacManQ\_175 Start: 94240, Stop: 94611, Start Num: 2  
Candidate Starts for PacManQ\_175:  
(2, 94240), (Start: 4 @94252 has 1 MA's), (Start: 6 @94282 has 7 MA's), (Start: 7 @94291 has 32 MA's), (14, 94387), (16, 94426), (18, 94450),

Gene: Paradiddles\_166 Start: 95805, Stop: 96128, Start Num: 7  
Candidate Starts for Paradiddles\_166:  
(2, 95754), (Start: 4 @95766 has 1 MA's), (Start: 6 @95796 has 7 MA's), (Start: 7 @95805 has 32 MA's), (Start: 9 @95814 has 1 MA's), (16, 95943), (17, 95958),

Gene: Peebs\_170 Start: 95232, Stop: 95552, Start Num: 7  
Candidate Starts for Peebs\_170:  
(2, 95181), (Start: 4 @95193 has 1 MA's), (Start: 6 @95223 has 7 MA's), (Start: 7 @95232 has 32 MA's), (14, 95328), (16, 95367), (18, 95391),

Gene: Pepperwood\_171 Start: 95176, Stop: 95496, Start Num: 7  
Candidate Starts for Pepperwood\_171:  
(2, 95125), (Start: 4 @95137 has 1 MA's), (Start: 6 @95167 has 7 MA's), (Start: 7 @95176 has 32 MA's), (14, 95272), (16, 95311), (18, 95335),

Gene: Persimmon\_173 Start: 93674, Stop: 93997, Start Num: 7  
Candidate Starts for Persimmon\_173:  
(2, 93623), (Start: 4 @93635 has 1 MA's), (Start: 6 @93665 has 7 MA's), (Start: 7 @93674 has 32 MA's), (15, 93782), (16, 93812), (17, 93827), (18, 93836),



Gene: PinkiePie\_170 Start: 94442, Stop: 94765, Start Num: 7  
Candidate Starts for PinkiePie\_170:  
(2, 94391), (Start: 4 @94403 has 1 MA's), (Start: 6 @94433 has 7 MA's), (Start: 7 @94442 has 32 MA's), (16, 94580), (17, 94595),

Gene: PumpkinSpice\_184 Start: 95893, Stop: 96189, Start Num: 12  
Candidate Starts for PumpkinSpice\_184:  
(Start: 6 @95857 has 7 MA's), (Start: 12 @95893 has 15 MA's), (14, 95959), (15, 95968), (17, 96013), (19, 96043),

Gene: Quaran19\_182 Start: 95332, Stop: 95628, Start Num: 12  
Candidate Starts for Quaran19\_182:  
(Start: 6 @95296 has 7 MA's), (Start: 12 @95332 has 15 MA's), (14, 95398), (15, 95407), (17, 95452), (19, 95482),

Gene: SaltySpittoon\_182 Start: 94876, Stop: 95172, Start Num: 12  
Candidate Starts for SaltySpittoon\_182:  
(Start: 6 @94840 has 7 MA's), (Start: 12 @94876 has 15 MA's), (14, 94942), (15, 94951), (17, 94996), (19, 95026),

Gene: Samisti12\_174 Start: 96616, Stop: 96936, Start Num: 7  
Candidate Starts for Samisti12\_174:  
(2, 96565), (Start: 4 @96577 has 1 MA's), (Start: 6 @96607 has 7 MA's), (Start: 7 @96616 has 32 MA's), (14, 96712), (16, 96751), (18, 96775),

Gene: Sollertia\_178 Start: 94789, Stop: 95106, Start Num: 7  
Candidate Starts for Sollertia\_178:  
(1, 94732), (3, 94738), (5, 94750), (Start: 6 @94780 has 7 MA's), (Start: 7 @94789 has 32 MA's), (11, 94813), (16, 94918), (21, 94993), (25, 95044), (26, 95059),

Gene: Spelly\_185 Start: 94805, Stop: 95101, Start Num: 12  
Candidate Starts for Spelly\_185:  
(Start: 6 @94769 has 7 MA's), (Start: 12 @94805 has 15 MA's), (14, 94871), (15, 94880), (17, 94925), (19, 94955),

Gene: Spilled\_187 Start: 95618, Stop: 95914, Start Num: 12  
Candidate Starts for Spilled\_187:  
(Start: 6 @95582 has 7 MA's), (Start: 12 @95618 has 15 MA's), (15, 95693), (17, 95738), (19, 95768),

Gene: Squillium\_173 Start: 94444, Stop: 94767, Start Num: 7  
Candidate Starts for Squillium\_173:  
(2, 94393), (Start: 4 @94405 has 1 MA's), (Start: 6 @94435 has 7 MA's), (Start: 7 @94444 has 32 MA's), (16, 94582), (17, 94597),

Gene: Stanimal\_177 Start: 95150, Stop: 95467, Start Num: 7  
Candidate Starts for Stanimal\_177:  
(1, 95093), (3, 95099), (5, 95111), (Start: 6 @95141 has 7 MA's), (Start: 7 @95150 has 32 MA's), (11, 95174), (16, 95279), (21, 95354), (25, 95405), (26, 95420),

Gene: StarPlatinum\_189 Start: 97255, Stop: 97587, Start Num: 6  
Candidate Starts for StarPlatinum\_189:  
(Start: 6 @97255 has 7 MA's), (Start: 12 @97291 has 15 MA's), (15, 97366), (16, 97396), (17, 97411),

Gene: Starbow\_180 Start: 94849, Stop: 95145, Start Num: 12

Candidate Starts for Starbow\_180:

(Start: 6 @94813 has 7 MA's), (Start: 12 @94849 has 15 MA's), (14, 94915), (15, 94924), (17, 94969), (19, 94999),

Gene: Sushi23\_172 Start: 95590, Stop: 95910, Start Num: 7

Candidate Starts for Sushi23\_172:

(2, 95539), (Start: 4 @95551 has 1 MA's), (Start: 6 @95581 has 7 MA's), (Start: 7 @95590 has 32 MA's), (14, 95686), (16, 95725), (18, 95749),

Gene: Targaryen\_172 Start: 96191, Stop: 96511, Start Num: 7

Candidate Starts for Targaryen\_172:

(2, 96140), (Start: 4 @96152 has 1 MA's), (Start: 6 @96182 has 7 MA's), (Start: 7 @96191 has 32 MA's), (14, 96287), (16, 96326),

Gene: Teutsch\_171 Start: 95714, Stop: 96034, Start Num: 7

Candidate Starts for Teutsch\_171:

(2, 95663), (Start: 4 @95675 has 1 MA's), (Start: 6 @95705 has 7 MA's), (Start: 7 @95714 has 32 MA's), (14, 95810), (16, 95849), (18, 95873),

Gene: TomSawyer\_186 Start: 96537, Stop: 96833, Start Num: 12

Candidate Starts for TomSawyer\_186:

(Start: 6 @96501 has 7 MA's), (Start: 12 @96537 has 15 MA's), (14, 96603), (15, 96612), (17, 96657), (19, 96687),

Gene: Tomas\_176 Start: 95090, Stop: 95428, Start Num: 8

Candidate Starts for Tomas\_176:

(2, 95030), (Start: 6 @95075 has 7 MA's), (Start: 7 @95084 has 32 MA's), (Start: 8 @95090 has 1 MA's), (10, 95099), (13, 95180), (16, 95237), (23, 95321),

Gene: Tribute\_170 Start: 95731, Stop: 96051, Start Num: 7

Candidate Starts for Tribute\_170:

(2, 95680), (Start: 4 @95692 has 1 MA's), (Start: 6 @95722 has 7 MA's), (Start: 7 @95731 has 32 MA's), (14, 95827), (16, 95866), (18, 95890),

Gene: Warpy\_176 Start: 95260, Stop: 95580, Start Num: 7

Candidate Starts for Warpy\_176:

(2, 95209), (Start: 4 @95221 has 1 MA's), (Start: 6 @95251 has 7 MA's), (Start: 7 @95260 has 32 MA's), (Start: 8 @95266 has 1 MA's), (14, 95356), (16, 95395),

Gene: Watermoore\_171 Start: 96126, Stop: 96446, Start Num: 7

Candidate Starts for Watermoore\_171:

(2, 96075), (Start: 4 @96087 has 1 MA's), (Start: 6 @96117 has 7 MA's), (Start: 7 @96126 has 32 MA's), (14, 96222), (16, 96261), (18, 96285),

Gene: WhereRU\_177 Start: 94426, Stop: 94749, Start Num: 7

Candidate Starts for WhereRU\_177:

(2, 94375), (Start: 4 @94387 has 1 MA's), (Start: 6 @94417 has 7 MA's), (Start: 7 @94426 has 32 MA's), (15, 94534), (16, 94564), (17, 94579), (18, 94588),

Gene: Wipeout\_175 Start: 95881, Stop: 96177, Start Num: 12

Candidate Starts for Wipeout\_175:

(Start: 6 @95845 has 7 MA's), (Start: 12 @95881 has 15 MA's), (14, 95947), (15, 95956), (17, 96001), (19, 96031),

Gene: Wofford\_181 Start: 98176, Stop: 98487, Start Num: 9

Candidate Starts for Wofford\_181:

(2, 98116), (Start: 6 @98158 has 7 MA's), (Start: 7 @98167 has 32 MA's), (Start: 9 @98176 has 1 MA's), (11, 98191), (15, 98269), (16, 98299), (21, 98374), (27, 98443),

Gene: Yaboi\_181 Start: 94724, Stop: 95041, Start Num: 7

Candidate Starts for Yaboi\_181:

(1, 94667), (3, 94673), (5, 94685), (Start: 6 @94715 has 7 MA's), (Start: 7 @94724 has 32 MA's), (11, 94748), (16, 94853), (21, 94928), (25, 94979), (26, 94994),