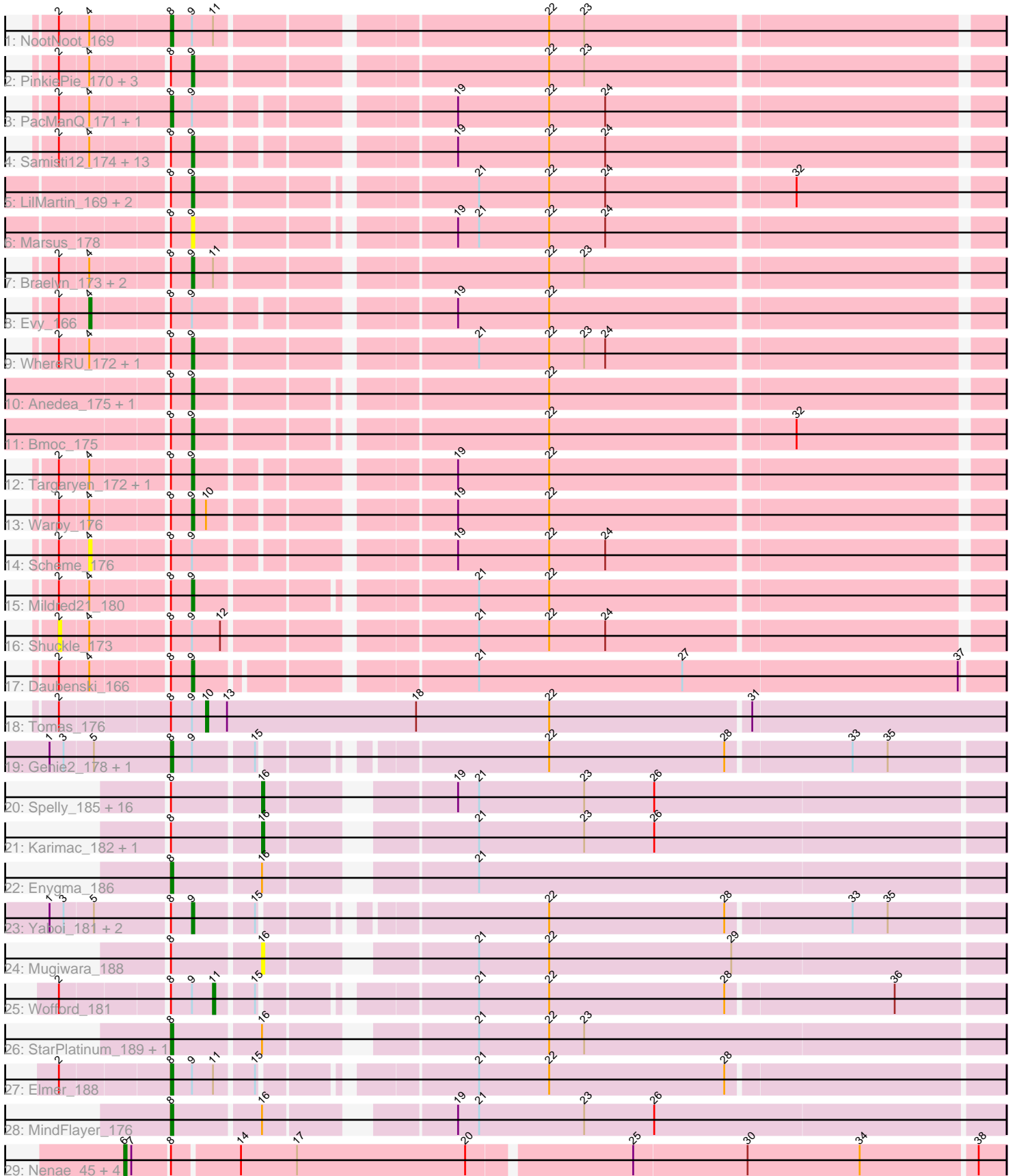


Pham 202890



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 202890 Report

This analysis was run 01/18/25 on database version 583.

Pham number 202890 has 78 members, 7 are drafts.

Phages represented in each track:

- Track 1 : NootNoot\_169
- Track 2 : PinkiePie\_170, Bartholomune\_172, Squillium\_173, Liandry\_172
- Track 3 : PacManQ\_171, Lululemon\_171
- Track 4 : Samisti12\_174, BlueOtter\_171, EGole\_174, Cross\_172, Peebs\_170, HangryHippo\_171, Sushi23\_172, Teutsch\_171, Leo04\_173, Watermoore\_171, Cursive\_171, Tribute\_170, Pepperwood\_171, Larnav\_172
- Track 5 : LilMartin\_169, Angela\_171, MulchMansion\_170
- Track 6 : Marsus\_178
- Track 7 : Braelyn\_173, Paradiddles\_166, Navo\_170
- Track 8 : Evy\_166
- Track 9 : WhereRU\_172, Persimmon\_173
- Track 10 : Anedea\_175, Riptide\_172
- Track 11 : Bmoc\_175
- Track 12 : Targaryen\_172, Jay2Jay\_178
- Track 13 : Warpy\_176
- Track 14 : Scheme\_176
- Track 15 : Mildred21\_180
- Track 16 : Shuckle\_173
- Track 17 : Daubenski\_166
- Track 18 : Tomas\_176
- Track 19 : Genie2\_178, BoomerJR\_178
- Track 20 : Spelly\_185, KentuckyRacer\_186, PumpkinSpice\_184, Birchlyn\_181, Bordeaux\_181, Starbow\_180, Rikishi\_189, Gibbi\_190, JimJam\_188, Quaran19\_182, Wipeout\_175, SaltySpittoon\_182, IchabodCrane\_177, Jollison\_180, Battuta\_182, Amabiko\_185, TomSawyer\_186
- Track 21 : Karimac\_182, Spilled\_187
- Track 22 : Enygma\_186
- Track 23 : Yaboi\_181, Sollertia\_178, Stanimal\_177
- Track 24 : Mugiwara\_188
- Track 25 : Wofford\_181
- Track 26 : StarPlatinum\_189, LukeCage\_181
- Track 27 : Elmer\_188
- Track 28 : MindFlayer\_176
- Track 29 : Nenae\_45, Redi\_45, Hanako\_45, ShrimpFriedEgg\_45, PhancyPhin\_45

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

The start number called the most often in the published annotations is 9, it was called in 36 of the 71 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

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

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

- BoomerJR\_178, Elmer\_188, Evy\_166, Genie2\_178, Lululemon\_171, NootNoot\_169, PacManQ\_171, Scheme\_176, Shuckle\_173, 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, Hanako\_45, IchabodCrane\_177, JimJam\_188, Jollison\_180, Karimac\_182, KentuckyRacer\_186, LukeCage\_181, MindFlayer\_176, Mugiwara\_188, Nенаe\_45, PhancyPhin\_45, PumpkinSpice\_184, Quarant19\_182, Redi\_45, Rikishi\_189, SaltySpittoon\_182, ShrimpFriedEgg\_45, Spelly\_185, Spilled\_187, StarPlatinum\_189, Starbow\_180, TomSawyer\_186, Wipeout\_175,

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

Start 2:

- Found in 37 of 78 ( 47.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 2.7% of time when present
- Phage (with cluster) where this start called: Shuckle\_173 (BE1),

Start 4:

- Found in 34 of 78 ( 43.6% ) of genes in pham
- Manual Annotations of this start: 1 of 71
- Called 5.9% of time when present
- Phage (with cluster) where this start called: Evy\_166 (BE1), Scheme\_176 (BE1),

Start 6:

- Found in 5 of 78 ( 6.4% ) of genes in pham
- Manual Annotations of this start: 5 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hanako\_45 (N), Nенаe\_45 (N), PhancyPhin\_45 (N), Redi\_45 (N), ShrimpFriedEgg\_45 (N),

Start 8:

- Found in 78 of 78 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 10 of 71

- Called 12.8% of time when present
- Phage (with cluster) where this start called: BoomerJR\_178 (BE2), Elmer\_188 (BE2), Enygma\_186 (BE2), Genie2\_178 (BE2), LukeCage\_181 (BE2), Lululemon\_171 (BE1), MindFlayer\_176 (BE2), NootNoot\_169 (BE1), PacManQ\_171 (BE1), StarPlatinum\_189 (BE2),

#### Start 9:

- Found in 49 of 78 ( 62.8% ) of genes in pham
- Manual Annotations of this start: 36 of 71
- Called 77.6% of time when present
- Phage (with cluster) where this start called: Anedea\_175 (BE1), Angela\_171 (BE1), Bartholomune\_172 (BE1), BlueOtter\_171 (BE1), Bmoc\_175 (BE1), Braelyn\_173 (BE1), Cross\_172 (BE1), Cursive\_171 (BE1), Daubenski\_166 (BE1), EGole\_174 (BE1), HangryHippo\_171 (BE1), Jay2Jay\_178 (BE1), Larnav\_172 (BE1), Leo04\_173 (BE1), Liandry\_172 (BE1), LilMartin\_169 (BE1), Marsus\_178 (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), Riptide\_172 (BE1), Samisti12\_174 (BE1), Sollertia\_178 (BE2), Squillum\_173 (BE1), Stanimal\_177 (BE2), Sushi23\_172 (BE1), Targaryen\_172 (BE1), Teutsch\_171 (BE1), Tribute\_170 (BE1), Warpy\_176 (BE1), Watermoore\_171 (BE1), WhereRU\_172 (BE1), Yaboi\_181 (BE2),

#### Start 10:

- Found in 2 of 78 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 1 of 71
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Tomas\_176 (BE2),

#### Start 11:

- Found in 6 of 78 ( 7.7% ) of genes in pham
- Manual Annotations of this start: 1 of 71
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Wofford\_181 (BE2),

#### Start 16:

- Found in 24 of 78 ( 30.8% ) of genes in pham
- Manual Annotations of this start: 17 of 71
- Called 83.3% 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\_180 (BE2), Karimac\_182 (BE2), KentuckyRacer\_186 (BE2), Mugiwara\_188 (BE2), PumpkinSpice\_184 (BE2), Quaran19\_182 (BE2), Rikishi\_189 (BE2), SaltySpittoon\_182 (BE2), Spelly\_185 (BE2), Spilled\_187 (BE2), Starbow\_180 (BE2), TomSawyer\_186 (BE2), Wipeout\_175 (BE2),

### Summary by clusters:

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

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

- Start number 4 was manually annotated 1 time for cluster BE1.
- Start number 8 was manually annotated 3 times for cluster BE1.
- Start number 9 was manually annotated 33 times for cluster BE1.

Info for manual annotations of cluster BE2:

- Start number 8 was manually annotated 7 times for cluster BE2.
- Start number 9 was manually annotated 3 times for cluster BE2.
- Start number 10 was manually annotated 1 time for cluster BE2.
- Start number 11 was manually annotated 1 time for cluster BE2.
- Start number 16 was manually annotated 17 times for cluster BE2.

Info for manual annotations of cluster N:

- Start number 6 was manually annotated 5 times for cluster N.

**Gene Information:**

Gene: Amabiko\_185 Start: 95064, Stop: 95360, Start Num: 16

Candidate Starts for Amabiko\_185:

(Start: 8 @95028 has 10 MA's), (Start: 16 @95064 has 17 MA's), (19, 95130), (21, 95139), (23, 95184), (26, 95214),

Gene: Anedea\_175 Start: 94252, Stop: 94572, Start Num: 9

Candidate Starts for Anedea\_175:

(Start: 8 @94243 has 10 MA's), (Start: 9 @94252 has 36 MA's), (22, 94387),

Gene: Angela\_171 Start: 93836, Stop: 94156, Start Num: 9

Candidate Starts for Angela\_171:

(Start: 8 @93827 has 10 MA's), (Start: 9 @93836 has 36 MA's), (21, 93941), (22, 93971), (24, 93995), (32, 94073),

Gene: Bartholomune\_172 Start: 93699, Stop: 94022, Start Num: 9

Candidate Starts for Bartholomune\_172:

(2, 93648), (Start: 4 @93660 has 1 MA's), (Start: 8 @93690 has 10 MA's), (Start: 9 @93699 has 36 MA's), (22, 93837), (23, 93852),

Gene: Battuta\_182 Start: 94846, Stop: 95142, Start Num: 16

Candidate Starts for Battuta\_182:

(Start: 8 @94810 has 10 MA's), (Start: 16 @94846 has 17 MA's), (19, 94912), (21, 94921), (23, 94966), (26, 94996),

Gene: Birchlyn\_181 Start: 92703, Stop: 92999, Start Num: 16

Candidate Starts for Birchlyn\_181:

(Start: 8 @92667 has 10 MA's), (Start: 16 @92703 has 17 MA's), (19, 92769), (21, 92778), (23, 92823), (26, 92853),

Gene: BlueOtter\_171 Start: 94910, Stop: 95230, Start Num: 9

Candidate Starts for BlueOtter\_171:

(2, 94859), (Start: 4 @94871 has 1 MA's), (Start: 8 @94901 has 10 MA's), (Start: 9 @94910 has 36 MA's), (19, 95006), (22, 95045), (24, 95069),

Gene: Bmoc\_175 Start: 94581, Stop: 94901, Start Num: 9

Candidate Starts for Bmoc\_175:

(Start: 8 @94572 has 10 MA's), (Start: 9 @94581 has 36 MA's), (22, 94716), (32, 94818),

Gene: BoomerJR\_178 Start: 94666, Stop: 94992, Start Num: 8

Candidate Starts for BoomerJR\_178:

(1, 94618), (3, 94624), (5, 94636), (Start: 8 @94666 has 10 MA's), (Start: 9 @94675 has 36 MA's), (15, 94699), (22, 94804), (28, 94879), (33, 94930), (35, 94945),

Gene: Bordeaux\_181 Start: 95353, Stop: 95649, Start Num: 16

Candidate Starts for Bordeaux\_181:

(Start: 8 @95317 has 10 MA's), (Start: 16 @95353 has 17 MA's), (19, 95419), (21, 95428), (23, 95473), (26, 95503),

Gene: Braelyn\_173 Start: 94759, Stop: 95082, Start Num: 9

Candidate Starts for Braelyn\_173:

(2, 94708), (Start: 4 @94720 has 1 MA's), (Start: 8 @94750 has 10 MA's), (Start: 9 @94759 has 36 MA's), (Start: 11 @94768 has 1 MA's), (22, 94897), (23, 94912),

Gene: Cross\_172 Start: 95555, Stop: 95875, Start Num: 9

Candidate Starts for Cross\_172:

(2, 95504), (Start: 4 @95516 has 1 MA's), (Start: 8 @95546 has 10 MA's), (Start: 9 @95555 has 36 MA's), (19, 95651), (22, 95690), (24, 95714),

Gene: Cursive\_171 Start: 93764, Stop: 94084, Start Num: 9

Candidate Starts for Cursive\_171:

(2, 93713), (Start: 4 @93725 has 1 MA's), (Start: 8 @93755 has 10 MA's), (Start: 9 @93764 has 36 MA's), (19, 93860), (22, 93899), (24, 93923),

Gene: Daubenski\_166 Start: 95477, Stop: 95803, Start Num: 9

Candidate Starts for Daubenski\_166:

(2, 95426), (Start: 4 @95438 has 1 MA's), (Start: 8 @95468 has 10 MA's), (Start: 9 @95477 has 36 MA's), (21, 95582), (27, 95669), (37, 95786),

Gene: EGole\_174 Start: 96572, Stop: 96892, Start Num: 9

Candidate Starts for EGole\_174:

(2, 96521), (Start: 4 @96533 has 1 MA's), (Start: 8 @96563 has 10 MA's), (Start: 9 @96572 has 36 MA's), (19, 96668), (22, 96707), (24, 96731),

Gene: Elmer\_188 Start: 98199, Stop: 98528, Start Num: 8

Candidate Starts for Elmer\_188:

(2, 98157), (Start: 8 @98199 has 10 MA's), (Start: 9 @98208 has 36 MA's), (Start: 11 @98217 has 1 MA's), (15, 98232), (21, 98310), (22, 98340), (28, 98415),

Gene: Enygma\_186 Start: 97654, Stop: 97986, Start Num: 8

Candidate Starts for Enygma\_186:

(Start: 8 @97654 has 10 MA's), (Start: 16 @97690 has 17 MA's), (21, 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: 8 @94973 has 10 MA's), (Start: 9 @94982 has 36 MA's), (19, 95078), (22, 95117),

Gene: Genie2\_178 Start: 94780, Stop: 95106, Start Num: 8

Candidate Starts for Genie2\_178:

(1, 94732), (3, 94738), (5, 94750), (Start: 8 @94780 has 10 MA's), (Start: 9 @94789 has 36 MA's), (15, 94813), (22, 94918), (28, 94993), (33, 95044), (35, 95059),

Gene: Gibbi\_190 Start: 95641, Stop: 95937, Start Num: 16

Candidate Starts for Gibbi\_190:

(Start: 8 @95605 has 10 MA's), (Start: 16 @95641 has 17 MA's), (19, 95707), (21, 95716), (23, 95761), (26, 95791),

Gene: Hanako\_45 Start: 31703, Stop: 32065, Start Num: 6

Candidate Starts for Hanako\_45:

(Start: 6 @31703 has 5 MA's), (7, 31706), (Start: 8 @31721 has 10 MA's), (14, 31748), (17, 31772), (20, 31844), (25, 31910), (30, 31958), (34, 32006), (38, 32054),

Gene: HangryHippo\_171 Start: 94910, Stop: 95230, Start Num: 9

Candidate Starts for HangryHippo\_171:

(2, 94859), (Start: 4 @94871 has 1 MA's), (Start: 8 @94901 has 10 MA's), (Start: 9 @94910 has 36 MA's), (19, 95006), (22, 95045), (24, 95069),

Gene: IchabodCrane\_177 Start: 94765, Stop: 95061, Start Num: 16

Candidate Starts for IchabodCrane\_177:

(Start: 8 @94729 has 10 MA's), (Start: 16 @94765 has 17 MA's), (19, 94831), (21, 94840), (23, 94885), (26, 94915),

Gene: Jay2Jay\_178 Start: 95781, Stop: 96101, Start Num: 9

Candidate Starts for Jay2Jay\_178:

(2, 95730), (Start: 4 @95742 has 1 MA's), (Start: 8 @95772 has 10 MA's), (Start: 9 @95781 has 36 MA's), (19, 95877), (22, 95916),

Gene: JimJam\_188 Start: 96686, Stop: 96982, Start Num: 16

Candidate Starts for JimJam\_188:

(Start: 8 @96650 has 10 MA's), (Start: 16 @96686 has 17 MA's), (19, 96752), (21, 96761), (23, 96806), (26, 96836),

Gene: Jollison\_180 Start: 95287, Stop: 95583, Start Num: 16

Candidate Starts for Jollison\_180:

(Start: 8 @95251 has 10 MA's), (Start: 16 @95287 has 17 MA's), (19, 95353), (21, 95362), (23, 95407), (26, 95437),

Gene: Karimac\_182 Start: 95481, Stop: 95777, Start Num: 16

Candidate Starts for Karimac\_182:

(Start: 8 @95445 has 10 MA's), (Start: 16 @95481 has 17 MA's), (21, 95556), (23, 95601), (26, 95631),

Gene: KentuckyRacer\_186 Start: 96432, Stop: 96728, Start Num: 16

Candidate Starts for KentuckyRacer\_186:

(Start: 8 @96396 has 10 MA's), (Start: 16 @96432 has 17 MA's), (19, 96498), (21, 96507), (23, 96552), (26, 96582),

Gene: Larnav\_172 Start: 95529, Stop: 95849, Start Num: 9

Candidate Starts for Larnav\_172:

(2, 95478), (Start: 4 @95490 has 1 MA's), (Start: 8 @95520 has 10 MA's), (Start: 9 @95529 has 36 MA's), (19, 95625), (22, 95664), (24, 95688),

Gene: Leo04\_173 Start: 95410, Stop: 95730, Start Num: 9

Candidate Starts for Leo04\_173:

(2, 95359), (Start: 4 @95371 has 1 MA's), (Start: 8 @95401 has 10 MA's), (Start: 9 @95410 has 36 MA's), (19, 95506), (22, 95545), (24, 95569),

Gene: Liandry\_172 Start: 94442, Stop: 94765, Start Num: 9

Candidate Starts for Liandry\_172:

(2, 94391), (Start: 4 @94403 has 1 MA's), (Start: 8 @94433 has 10 MA's), (Start: 9 @94442 has 36 MA's), (22, 94580), (23, 94595),

Gene: LilMartin\_169 Start: 93455, Stop: 93775, Start Num: 9

Candidate Starts for LilMartin\_169:

(Start: 8 @93446 has 10 MA's), (Start: 9 @93455 has 36 MA's), (21, 93560), (22, 93590), (24, 93614), (32, 93692),

Gene: LukeCage\_181 Start: 96206, Stop: 96538, Start Num: 8

Candidate Starts for LukeCage\_181:

(Start: 8 @96206 has 10 MA's), (Start: 16 @96242 has 17 MA's), (21, 96317), (22, 96347), (23, 96362),

Gene: Lululemon\_171 Start: 94282, Stop: 94611, Start Num: 8

Candidate Starts for Lululemon\_171:

(2, 94240), (Start: 4 @94252 has 1 MA's), (Start: 8 @94282 has 10 MA's), (Start: 9 @94291 has 36 MA's), (19, 94387), (22, 94426), (24, 94450),

Gene: Marsus\_178 Start: 94098, Stop: 94418, Start Num: 9

Candidate Starts for Marsus\_178:

(Start: 8 @94089 has 10 MA's), (Start: 9 @94098 has 36 MA's), (19, 94194), (21, 94203), (22, 94233), (24, 94257),

Gene: Mildred21\_180 Start: 93826, Stop: 94146, Start Num: 9

Candidate Starts for Mildred21\_180:

(2, 93775), (Start: 4 @93787 has 1 MA's), (Start: 8 @93817 has 10 MA's), (Start: 9 @93826 has 36 MA's), (21, 93931), (22, 93961),

Gene: MindFlayer\_176 Start: 94636, Stop: 94968, Start Num: 8

Candidate Starts for MindFlayer\_176:

(Start: 8 @94636 has 10 MA's), (Start: 16 @94672 has 17 MA's), (19, 94738), (21, 94747), (23, 94792), (26, 94822),

Gene: Mugiwara\_188 Start: 96069, Stop: 96365, Start Num: 16

Candidate Starts for Mugiwara\_188:

(Start: 8 @96033 has 10 MA's), (Start: 16 @96069 has 17 MA's), (21, 96144), (22, 96174), (29, 96252),

Gene: MulchMansion\_170 Start: 94098, Stop: 94418, Start Num: 9

Candidate Starts for MulchMansion\_170:

(Start: 8 @94089 has 10 MA's), (Start: 9 @94098 has 36 MA's), (21, 94203), (22, 94233), (24, 94257), (32, 94335),

Gene: Navo\_170 Start: 94140, Stop: 94463, Start Num: 9

Candidate Starts for Navo\_170:

(2, 94089), (Start: 4 @94101 has 1 MA's), (Start: 8 @94131 has 10 MA's), (Start: 9 @94140 has 36 MA's), (Start: 11 @94149 has 1 MA's), (22, 94278), (23, 94293),

Gene: Nenae\_45 Start: 31706, Stop: 32068, Start Num: 6

Candidate Starts for Nenae\_45:



(Start: 6 @31706 has 5 MA's), (7, 31709), (Start: 8 @31724 has 10 MA's), (14, 31751), (17, 31775), (20, 31847), (25, 31913), (30, 31961), (34, 32009), (38, 32057),

Gene: NootNoot\_169 Start: 93493, Stop: 93825, Start Num: 8

Candidate Starts for NootNoot\_169:

(2, 93451), (Start: 4 @93463 has 1 MA's), (Start: 8 @93493 has 10 MA's), (Start: 9 @93502 has 36 MA's), (Start: 11 @93511 has 1 MA's), (22, 93640), (23, 93655),

Gene: PacManQ\_171 Start: 94282, Stop: 94611, Start Num: 8

Candidate Starts for PacManQ\_171:

(2, 94240), (Start: 4 @94252 has 1 MA's), (Start: 8 @94282 has 10 MA's), (Start: 9 @94291 has 36 MA's), (19, 94387), (22, 94426), (24, 94450),

Gene: Paradiddles\_166 Start: 95805, Stop: 96128, Start Num: 9

Candidate Starts for Paradiddles\_166:

(2, 95754), (Start: 4 @95766 has 1 MA's), (Start: 8 @95796 has 10 MA's), (Start: 9 @95805 has 36 MA's), (Start: 11 @95814 has 1 MA's), (22, 95943), (23, 95958),

Gene: Peebs\_170 Start: 95232, Stop: 95552, Start Num: 9

Candidate Starts for Peebs\_170:

(2, 95181), (Start: 4 @95193 has 1 MA's), (Start: 8 @95223 has 10 MA's), (Start: 9 @95232 has 36 MA's), (19, 95328), (22, 95367), (24, 95391),

Gene: Pepperwood\_171 Start: 95176, Stop: 95496, Start Num: 9

Candidate Starts for Pepperwood\_171:

(2, 95125), (Start: 4 @95137 has 1 MA's), (Start: 8 @95167 has 10 MA's), (Start: 9 @95176 has 36 MA's), (19, 95272), (22, 95311), (24, 95335),

Gene: Persimmon\_173 Start: 93674, Stop: 93997, Start Num: 9

Candidate Starts for Persimmon\_173:

(2, 93623), (Start: 4 @93635 has 1 MA's), (Start: 8 @93665 has 10 MA's), (Start: 9 @93674 has 36 MA's), (21, 93782), (22, 93812), (23, 93827), (24, 93836),

Gene: PhancyPhin\_45 Start: 31700, Stop: 32062, Start Num: 6

Candidate Starts for PhancyPhin\_45:

(Start: 6 @31700 has 5 MA's), (7, 31703), (Start: 8 @31718 has 10 MA's), (14, 31745), (17, 31769), (20, 31841), (25, 31907), (30, 31955), (34, 32003), (38, 32051),

Gene: PinkiePie\_170 Start: 94442, Stop: 94765, Start Num: 9

Candidate Starts for PinkiePie\_170:

(2, 94391), (Start: 4 @94403 has 1 MA's), (Start: 8 @94433 has 10 MA's), (Start: 9 @94442 has 36 MA's), (22, 94580), (23, 94595),

Gene: PumpkinSpice\_184 Start: 95893, Stop: 96189, Start Num: 16

Candidate Starts for PumpkinSpice\_184:

(Start: 8 @95857 has 10 MA's), (Start: 16 @95893 has 17 MA's), (19, 95959), (21, 95968), (23, 96013), (26, 96043),

Gene: Quaran19\_182 Start: 95332, Stop: 95628, Start Num: 16

Candidate Starts for Quaran19\_182:

(Start: 8 @95296 has 10 MA's), (Start: 16 @95332 has 17 MA's), (19, 95398), (21, 95407), (23, 95452), (26, 95482),

Gene: Redi\_45 Start: 31703, Stop: 32065, Start Num: 6

Candidate Starts for Redi\_45:

(Start: 6 @31703 has 5 MA's), (7, 31706), (Start: 8 @31721 has 10 MA's), (14, 31748), (17, 31772), (20, 31844), (25, 31910), (30, 31958), (34, 32006), (38, 32054),

Gene: Rikishi\_189 Start: 95445, Stop: 95741, Start Num: 16

Candidate Starts for Rikishi\_189:

(Start: 8 @95409 has 10 MA's), (Start: 16 @95445 has 17 MA's), (19, 95511), (21, 95520), (23, 95565), (26, 95595),

Gene: Riptide\_172 Start: 92891, Stop: 93211, Start Num: 9

Candidate Starts for Riptide\_172:

(Start: 8 @92882 has 10 MA's), (Start: 9 @92891 has 36 MA's), (22, 93026),

Gene: SaltySpittoon\_182 Start: 94876, Stop: 95172, Start Num: 16

Candidate Starts for SaltySpittoon\_182:

(Start: 8 @94840 has 10 MA's), (Start: 16 @94876 has 17 MA's), (19, 94942), (21, 94951), (23, 94996), (26, 95026),

Gene: Samisti12\_174 Start: 96616, Stop: 96936, Start Num: 9

Candidate Starts for Samisti12\_174:

(2, 96565), (Start: 4 @96577 has 1 MA's), (Start: 8 @96607 has 10 MA's), (Start: 9 @96616 has 36 MA's), (19, 96712), (22, 96751), (24, 96775),

Gene: Scheme\_176 Start: 96758, Stop: 97117, Start Num: 4

Candidate Starts for Scheme\_176:

(2, 96746), (Start: 4 @96758 has 1 MA's), (Start: 8 @96788 has 10 MA's), (Start: 9 @96797 has 36 MA's), (19, 96893), (22, 96932), (24, 96956),

Gene: ShrimpFriedEgg\_45 Start: 31703, Stop: 32065, Start Num: 6

Candidate Starts for ShrimpFriedEgg\_45:

(Start: 6 @31703 has 5 MA's), (7, 31706), (Start: 8 @31721 has 10 MA's), (14, 31748), (17, 31772), (20, 31844), (25, 31910), (30, 31958), (34, 32006), (38, 32054),

Gene: Shuckle\_173 Start: 94783, Stop: 95157, Start Num: 2

Candidate Starts for Shuckle\_173:

(2, 94783), (Start: 4 @94795 has 1 MA's), (Start: 8 @94825 has 10 MA's), (Start: 9 @94834 has 36 MA's), (12, 94846), (21, 94942), (22, 94972), (24, 94996),

Gene: Sollertia\_178 Start: 94789, Stop: 95106, Start Num: 9

Candidate Starts for Sollertia\_178:

(1, 94732), (3, 94738), (5, 94750), (Start: 8 @94780 has 10 MA's), (Start: 9 @94789 has 36 MA's), (15, 94813), (22, 94918), (28, 94993), (33, 95044), (35, 95059),

Gene: Spelly\_185 Start: 94805, Stop: 95101, Start Num: 16

Candidate Starts for Spelly\_185:

(Start: 8 @94769 has 10 MA's), (Start: 16 @94805 has 17 MA's), (19, 94871), (21, 94880), (23, 94925), (26, 94955),

Gene: Spilled\_187 Start: 95618, Stop: 95914, Start Num: 16

Candidate Starts for Spilled\_187:

(Start: 8 @95582 has 10 MA's), (Start: 16 @95618 has 17 MA's), (21, 95693), (23, 95738), (26, 95768),

Gene: Squillium\_173 Start: 94444, Stop: 94767, Start Num: 9

Candidate Starts for Squillium\_173:

(2, 94393), (Start: 4 @94405 has 1 MA's), (Start: 8 @94435 has 10 MA's), (Start: 9 @94444 has 36 MA's), (22, 94582), (23, 94597),

Gene: Stanimal\_177 Start: 95150, Stop: 95467, Start Num: 9

Candidate Starts for Stanimal\_177:

(1, 95093), (3, 95099), (5, 95111), (Start: 8 @95141 has 10 MA's), (Start: 9 @95150 has 36 MA's), (15, 95174), (22, 95279), (28, 95354), (33, 95405), (35, 95420),

Gene: StarPlatinum\_189 Start: 97255, Stop: 97587, Start Num: 8

Candidate Starts for StarPlatinum\_189:

(Start: 8 @97255 has 10 MA's), (Start: 16 @97291 has 17 MA's), (21, 97366), (22, 97396), (23, 97411),

Gene: Starbow\_180 Start: 94849, Stop: 95145, Start Num: 16

Candidate Starts for Starbow\_180:

(Start: 8 @94813 has 10 MA's), (Start: 16 @94849 has 17 MA's), (19, 94915), (21, 94924), (23, 94969), (26, 94999),

Gene: Sushi23\_172 Start: 95590, Stop: 95910, Start Num: 9

Candidate Starts for Sushi23\_172:

(2, 95539), (Start: 4 @95551 has 1 MA's), (Start: 8 @95581 has 10 MA's), (Start: 9 @95590 has 36 MA's), (19, 95686), (22, 95725), (24, 95749),

Gene: Targaryen\_172 Start: 96191, Stop: 96511, Start Num: 9

Candidate Starts for Targaryen\_172:

(2, 96140), (Start: 4 @96152 has 1 MA's), (Start: 8 @96182 has 10 MA's), (Start: 9 @96191 has 36 MA's), (19, 96287), (22, 96326),

Gene: Teutsch\_171 Start: 95714, Stop: 96034, Start Num: 9

Candidate Starts for Teutsch\_171:

(2, 95663), (Start: 4 @95675 has 1 MA's), (Start: 8 @95705 has 10 MA's), (Start: 9 @95714 has 36 MA's), (19, 95810), (22, 95849), (24, 95873),

Gene: TomSawyer\_186 Start: 96537, Stop: 96833, Start Num: 16

Candidate Starts for TomSawyer\_186:

(Start: 8 @96501 has 10 MA's), (Start: 16 @96537 has 17 MA's), (19, 96603), (21, 96612), (23, 96657), (26, 96687),

Gene: Tomas\_176 Start: 95090, Stop: 95428, Start Num: 10

Candidate Starts for Tomas\_176:

(2, 95030), (Start: 8 @95075 has 10 MA's), (Start: 9 @95084 has 36 MA's), (Start: 10 @95090 has 1 MA's), (13, 95099), (18, 95180), (22, 95237), (31, 95321),

Gene: Tribute\_170 Start: 95731, Stop: 96051, Start Num: 9

Candidate Starts for Tribute\_170:

(2, 95680), (Start: 4 @95692 has 1 MA's), (Start: 8 @95722 has 10 MA's), (Start: 9 @95731 has 36 MA's), (19, 95827), (22, 95866), (24, 95890),

Gene: Warpy\_176 Start: 95260, Stop: 95580, Start Num: 9

Candidate Starts for Warpy\_176:

(2, 95209), (Start: 4 @95221 has 1 MA's), (Start: 8 @95251 has 10 MA's), (Start: 9 @95260 has 36 MA's), (Start: 10 @95266 has 1 MA's), (19, 95356), (22, 95395),

Gene: Watermoore\_171 Start: 96126, Stop: 96446, Start Num: 9

Candidate Starts for Watermoore\_171:

(2, 96075), (Start: 4 @96087 has 1 MA's), (Start: 8 @96117 has 10 MA's), (Start: 9 @96126 has 36 MA's), (19, 96222), (22, 96261), (24, 96285),

Gene: WhereRU\_172 Start: 94426, Stop: 94749, Start Num: 9

Candidate Starts for WhereRU\_172:

(2, 94375), (Start: 4 @94387 has 1 MA's), (Start: 8 @94417 has 10 MA's), (Start: 9 @94426 has 36 MA's), (21, 94534), (22, 94564), (23, 94579), (24, 94588),

Gene: Wipeout\_175 Start: 95881, Stop: 96177, Start Num: 16

Candidate Starts for Wipeout\_175:

(Start: 8 @95845 has 10 MA's), (Start: 16 @95881 has 17 MA's), (19, 95947), (21, 95956), (23, 96001), (26, 96031),

Gene: Wofford\_181 Start: 98176, Stop: 98487, Start Num: 11

Candidate Starts for Wofford\_181:

(2, 98116), (Start: 8 @98158 has 10 MA's), (Start: 9 @98167 has 36 MA's), (Start: 11 @98176 has 1 MA's), (15, 98191), (21, 98269), (22, 98299), (28, 98374), (36, 98443),

Gene: Yaboi\_181 Start: 94724, Stop: 95041, Start Num: 9

Candidate Starts for Yaboi\_181:

(1, 94667), (3, 94673), (5, 94685), (Start: 8 @94715 has 10 MA's), (Start: 9 @94724 has 36 MA's), (15, 94748), (22, 94853), (28, 94928), (33, 94979), (35, 94994),