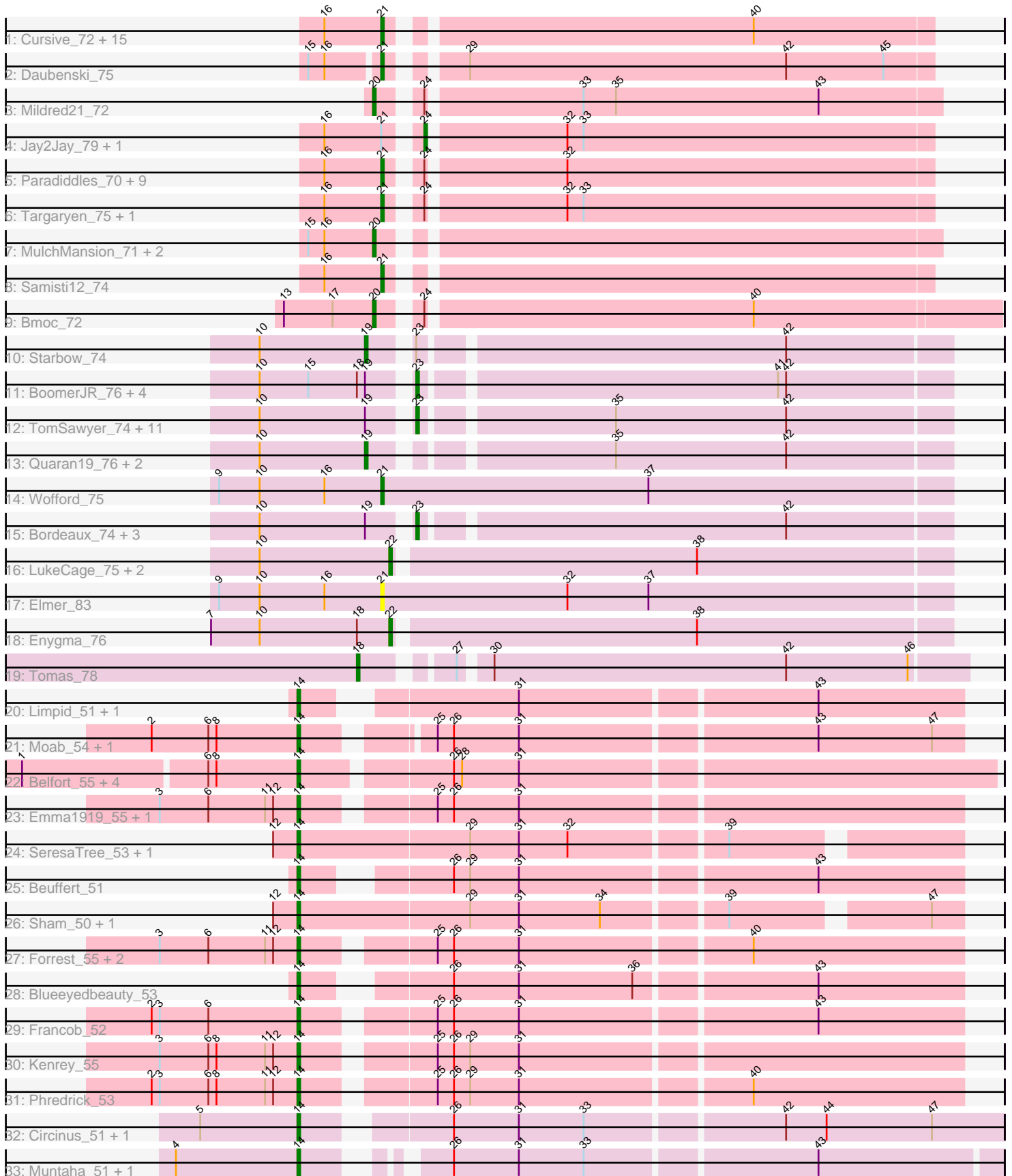


# Pham 141158



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 141158 Report

This analysis was run 04/28/24 on database version 559.

Pham number 141158 has 96 members, 15 are drafts.

Phages represented in each track:

- Track 1 : Cursive\_72, Larnav\_79, EGole\_75, HangryHippo\_76, PacManQ\_75, Watermoore\_74, BlueOtter\_76, Anedea\_73, Peebs\_73, Leo04\_75, Deutsch\_74, Cross\_74, Lululemon\_75, Pepperwood\_74, Sushi23\_74, Tribute\_72
- Track 2 : Daubenski\_75
- Track 3 : Mildred21\_72
- Track 4 : Jay2Jay\_79, Warpy\_78
- Track 5 : Paradiddles\_70, Braelyn\_73, NootNoot\_70, Persimmon\_70, Squillium\_73, Navo\_74, WhereRU\_73, Liandry\_73, Bartholomune\_72, PinkiePie\_72
- Track 6 : Targaryen\_75, Evy\_75
- Track 7 : MulchMansion\_71, LilMartin\_71, Angela\_71
- Track 8 : Samisti12\_74
- Track 9 : Bmoc\_72
- Track 10 : Starbow\_74
- Track 11 : BoomerJR\_76, Sollertia\_76, Genie2\_76, Yaboi\_76, Stanimal\_76
- Track 12 : TomSawyer\_74, Birchlyn\_73, CeilingFan\_78, SaltySpittoon\_76, Gibbi\_80, Spelly\_76, Karimac\_75, Amabiko\_76, JimJam\_76, PumpkinSpice\_75, MindFlayer\_74, Wipeout\_74
- Track 13 : Quarant19\_76, Jollison\_81, KentuckyRacer\_80
- Track 14 : Wofford\_75
- Track 15 : Bordeaux\_74, Spilled\_77, Battuta\_74, IchabodCrane\_73
- Track 16 : LukeCage\_75, StarPlatinum\_76, Mugiware\_77
- Track 17 : Elmer\_83
- Track 18 : Enygma\_76
- Track 19 : Tomas\_78
- Track 20 : Limpid\_51, Annadreamy\_51
- Track 21 : Moab\_54, Patelgo\_54
- Track 22 : Belfort\_55, Karp\_52, Comrade\_54, SparkleGoddess\_54, Stigma\_53
- Track 23 : Emma1919\_55, Gilson\_54
- Track 24 : SeresaTree\_53, Faust\_54
- Track 25 : Beuffert\_51
- Track 26 : Sham\_50, TunaTartare\_52
- Track 27 : Forrest\_55, MeganTheeKilla\_52, Jada\_53
- Track 28 : Blueeyedbeauty\_53
- Track 29 : Francob\_52
- Track 30 : Kenrey\_55
- Track 31 : Phredrick\_53
- Track 32 : Circinus\_51, BillNye\_50

- Track 33 : Muntaha\_51, Wakanda\_50

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

The start number called the most often in the published annotations is 14, it was called in 26 of the 81 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Annadreamy\_51, Belfort\_55, Beuffert\_51, BillNye\_50, Blueeyedbeauty\_53, Circinus\_51, Comrade\_54, Emma1919\_55, Faust\_54, Forrest\_55, Francob\_52, Gilson\_54, Jada\_53, Karp\_52, Kenrey\_55, Limpid\_51, MeganTheeKilla\_52, Moab\_54, Muntaha\_51, Patelgo\_54, Phredrick\_53, SeresaTree\_53, Sham\_50, SparkleGoddess\_54, Stigma\_53, TunaTartare\_52, Wakanda\_50,

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

- 

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

- Amabiko\_76, Anedea\_73, Angela\_71, Bartholomune\_72, Battuta\_74, Birchlyn\_73, BlueOtter\_76, Bmoc\_72, BoomerJR\_76, Bordeaux\_74, Braelyn\_73, CeilingFan\_78, Cross\_74, Cursive\_72, Daubenski\_75, EGole\_75, Elmer\_83, Enygma\_76, Evy\_75, Genie2\_76, Gibbi\_80, HangryHippo\_76, IchabodCrane\_73, Jay2Jay\_79, JimJam\_76, Jollison\_81, Karimac\_75, KentuckyRacer\_80, Larnav\_79, Leo04\_75, Liandry\_73, LilMartin\_71, LukeCage\_75, Lululemon\_75, Mildred21\_72, MindFlayer\_74, Mugiwara\_77, MulchMansion\_71, Navo\_74, NootNoot\_70, PacManQ\_75, Paradiddles\_70, Peebs\_73, Pepperwood\_74, Persimmon\_70, PinkiePie\_72, PumpkinSpice\_75, Quarant19\_76, SaltySpittoon\_76, Samisti12\_74, Sollertia\_76, Spelly\_76, Spilled\_77, Squillium\_73, Stanimal\_76, StarPlatinum\_76, Starbow\_74, Sushi23\_74, Targaryen\_75, Teutsch\_74, TomSawyer\_74, Tomas\_78, Tribute\_72, Warpy\_78, Watermoore\_74, WhereRU\_73, Wipeout\_74, Wofford\_75, Yaboi\_76,

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

Start 14:

- Found in 27 of 96 ( 28.1% ) of genes in pham
- Manual Annotations of this start: 26 of 81
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Annadreamy\_51 (BK1), Belfort\_55 (BK1), Beuffert\_51 (BK1), BillNye\_50 (BK2), Blueeyedbeauty\_53 (BK1), Circinus\_51 (BK2), Comrade\_54 (BK1), Emma1919\_55 (BK1), Faust\_54 (BK1), Forrest\_55 (BK1), Francob\_52 (BK1), Gilson\_54 (BK1), Jada\_53 (BK1), Karp\_52 (BK1), Kenrey\_55 (BK1), Limpid\_51 (BK1), MeganTheeKilla\_52 (BK1), Moab\_54 (BK1), Muntaha\_51 (BK2), Patelgo\_54 (BK1), Phredrick\_53 (BK1), SeresaTree\_53 (BK1), Sham\_50 (BK1), SparkleGoddess\_54 (BK1), Stigma\_53 (BK1), TunaTartare\_52 (BK1), Wakanda\_50 (BK2),

Start 18:

- Found in 7 of 96 ( 7.3% ) of genes in pham
- Manual Annotations of this start: 1 of 81
- Called 14.3% of time when present

- Phage (with cluster) where this start called: Tomas\_78 (BE2),

#### Start 19:

- Found in 25 of 96 ( 26.0% ) of genes in pham
- Manual Annotations of this start: 2 of 81
- Called 16.0% of time when present
- Phage (with cluster) where this start called: Jollison\_81 (BE2), KentuckyRacer\_80 (BE2), Quarant19\_76 (BE2), Starbow\_74 (BE2),

#### Start 20:

- Found in 5 of 96 ( 5.2% ) of genes in pham
- Manual Annotations of this start: 5 of 81
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Angela\_71 (BE1), Bmoc\_72 (BE1), LilMartin\_71 (BE1), Mildred21\_72 (BE1), MulchMansion\_71 (BE1),

#### Start 21:

- Found in 34 of 96 ( 35.4% ) of genes in pham
- Manual Annotations of this start: 23 of 81
- Called 94.1% of time when present
- Phage (with cluster) where this start called: Anedea\_73 (BE1), Bartholomune\_72 (BE1), BlueOtter\_76 (BE1), Braelyn\_73 (BE1), Cross\_74 (BE1), Cursive\_72 (BE1), Daubenski\_75 (BE1), EGole\_75 (BE1), Elmer\_83 (BE2), Evy\_75 (BE1), HangryHippo\_76 (BE1), Larnav\_79 (BE1), Leo04\_75 (BE1), Liandry\_73 (BE1), Lululemon\_75 (BE1), Navo\_74 (BE1), NootNoot\_70 (BE1), PacManQ\_75 (BE1), Paradiddles\_70 (BE1), Peebs\_73 (BE1), Pepperwood\_74 (BE1), Persimmon\_70 (BE1), PinkiePie\_72 (BE1), Samisti12\_74 (BE1), Squillium\_73 (BE1), Sushi23\_74 (BE1), Targaryen\_75 (BE1), Teutsch\_74 (BE1), Tribute\_72 (BE1), Watermoore\_74 (BE1), WhereRU\_73 (BE1), Wofford\_75 (BE2),

#### Start 22:

- Found in 4 of 96 ( 4.2% ) of genes in pham
- Manual Annotations of this start: 3 of 81
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Enyigma\_76 (BE2), LukeCage\_75 (BE2), Mugiwara\_77 (BE2), StarPlatinum\_76 (BE2),

#### Start 23:

- Found in 22 of 96 ( 22.9% ) of genes in pham
- Manual Annotations of this start: 19 of 81
- Called 95.5% of time when present
- Phage (with cluster) where this start called: Amabiko\_76 (BE2), Battuta\_74 (BE2), Birchlyn\_73 (BE2), BoomerJR\_76 (BE2), Bordeaux\_74 (BE2), CeilingFan\_78 (BE2), Genie2\_76 (BE2), Gibbi\_80 (BE2), IchabodCrane\_73 (BE2), JimJam\_76 (BE2), Karimac\_75 (BE2), MindFlayer\_74 (BE2), PumpkinSpice\_75 (BE2), SaltySpittoon\_76 (BE2), Sollertia\_76 (BE2), Spelly\_76 (BE2), Spilled\_77 (BE2), Stanimal\_76 (BE2), TomSawyer\_74 (BE2), Wipeout\_74 (BE2), Yaboi\_76 (BE2),

#### Start 24:

- Found in 16 of 96 ( 16.7% ) of genes in pham
- Manual Annotations of this start: 2 of 81
- Called 12.5% of time when present
- Phage (with cluster) where this start called: Jay2Jay\_79 (BE1), Warpy\_78 (BE1),

## Summary by clusters:

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

Info for manual annotations of cluster BE1:

- Start number 20 was manually annotated 5 times for cluster BE1.
- Start number 21 was manually annotated 22 times for cluster BE1.
- Start number 24 was manually annotated 2 times for cluster BE1.

Info for manual annotations of cluster BE2:

- Start number 18 was manually annotated 1 time for cluster BE2.
- Start number 19 was manually annotated 2 times for cluster BE2.
- Start number 21 was manually annotated 1 time for cluster BE2.
- Start number 22 was manually annotated 3 times for cluster BE2.
- Start number 23 was manually annotated 19 times for cluster BE2.

Info for manual annotations of cluster BK1:

- Start number 14 was manually annotated 22 times for cluster BK1.

Info for manual annotations of cluster BK2:

- Start number 14 was manually annotated 4 times for cluster BK2.

## Gene Information:

Gene: Amabiko\_76 Start: 54427, Stop: 54615, Start Num: 23

Candidate Starts for Amabiko\_76:

(10, 54376), (Start: 19 @54415 has 2 MA's), (Start: 23 @54427 has 19 MA's), (35, 54493), (42, 54556),

Gene: Anedea\_73 Start: 53993, Stop: 54184, Start Num: 21

Candidate Starts for Anedea\_73:

(16, 53972), (Start: 21 @53993 has 23 MA's), (40, 54119),

Gene: Angela\_71 Start: 53445, Stop: 53642, Start Num: 20

Candidate Starts for Angela\_71:

(15, 53421), (16, 53427), (Start: 20 @53445 has 5 MA's),

Gene: Annadreamy\_51 Start: 43372, Stop: 43596, Start Num: 14

Candidate Starts for Annadreamy\_51:

(Start: 14 @43372 has 26 MA's), (31, 43438), (43, 43543),

Gene: Bartholomune\_72 Start: 53812, Stop: 54003, Start Num: 21

Candidate Starts for Bartholomune\_72:

(16, 53791), (Start: 21 @53812 has 23 MA's), (Start: 24 @53821 has 2 MA's), (32, 53869),

Gene: Battuta\_74 Start: 54401, Stop: 54589, Start Num: 23

Candidate Starts for Battuta\_74:

(10, 54350), (Start: 19 @54389 has 2 MA's), (Start: 23 @54401 has 19 MA's), (42, 54530),

Gene: Belfort\_55 Start: 45887, Stop: 46132, Start Num: 14

Candidate Starts for Belfort\_55:

(1, 45788), (6, 45854), (8, 45857), (Start: 14 @45887 has 26 MA's), (26, 45938), (28, 45941), (31, 45962),

Gene: Beuffert\_51 Start: 44510, Stop: 44734, Start Num: 14

Candidate Starts for Beuffert\_51:

(Start: 14 @44510 has 26 MA's), (26, 44552), (29, 44558), (31, 44576), (43, 44681),

Gene: BillNye\_50 Start: 47336, Stop: 47578, Start Num: 14

Candidate Starts for BillNye\_50:

(5, 47300), (Start: 14 @47336 has 26 MA's), (26, 47381), (31, 47405), (33, 47429), (42, 47498), (44, 47513), (47, 47552),

Gene: Birchlyn\_73 Start: 52284, Stop: 52472, Start Num: 23

Candidate Starts for Birchlyn\_73:

(10, 52233), (Start: 19 @52272 has 2 MA's), (Start: 23 @52284 has 19 MA's), (35, 52350), (42, 52413),

Gene: BlueOtter\_76 Start: 55186, Stop: 55377, Start Num: 21

Candidate Starts for BlueOtter\_76:

(16, 55165), (Start: 21 @55186 has 23 MA's), (40, 55312),

Gene: Blueeyedbeauty\_53 Start: 43884, Stop: 44108, Start Num: 14

Candidate Starts for Blueeyedbeauty\_53:

(Start: 14 @43884 has 26 MA's), (26, 43926), (31, 43950), (36, 43992), (43, 44055),

Gene: Bmoc\_72 Start: 53803, Stop: 54021, Start Num: 20

Candidate Starts for Bmoc\_72:

(13, 53770), (17, 53788), (Start: 20 @53803 has 5 MA's), (Start: 24 @53815 has 2 MA's), (40, 53932),

Gene: BoomerJR\_76 Start: 54267, Stop: 54455, Start Num: 23

Candidate Starts for BoomerJR\_76:

(10, 54216), (15, 54234), (Start: 18 @54252 has 1 MA's), (Start: 19 @54255 has 2 MA's), (Start: 23 @54267 has 19 MA's), (41, 54393), (42, 54396),

Gene: Bordeaux\_74 Start: 54556, Stop: 54744, Start Num: 23

Candidate Starts for Bordeaux\_74:

(10, 54505), (Start: 19 @54544 has 2 MA's), (Start: 23 @54556 has 19 MA's), (42, 54685),

Gene: Braelyn\_73 Start: 54579, Stop: 54770, Start Num: 21

Candidate Starts for Braelyn\_73:

(16, 54558), (Start: 21 @54579 has 23 MA's), (Start: 24 @54588 has 2 MA's), (32, 54636),

Gene: CeilingFan\_78 Start: 54316, Stop: 54504, Start Num: 23

Candidate Starts for CeilingFan\_78:

(10, 54265), (Start: 19 @54304 has 2 MA's), (Start: 23 @54316 has 19 MA's), (35, 54382), (42, 54445),

Gene: Circinus\_51 Start: 47475, Stop: 47717, Start Num: 14

Candidate Starts for Circinus\_51:

(5, 47439), (Start: 14 @47475 has 26 MA's), (26, 47520), (31, 47544), (33, 47568), (42, 47637), (44, 47652), (47, 47691),

Gene: Comrade\_54 Start: 45503, Stop: 45748, Start Num: 14

Candidate Starts for Comrade\_54:

(1, 45404), (6, 45470), (8, 45473), (Start: 14 @45503 has 26 MA's), (26, 45554), (28, 45557), (31, 45578),

Gene: Cross\_74 Start: 55187, Stop: 55378, Start Num: 21

Candidate Starts for Cross\_74:

(16, 55166), (Start: 21 @55187 has 23 MA's), (40, 55313),

Gene: Cursive\_72 Start: 54712, Stop: 54903, Start Num: 21

Candidate Starts for Cursive\_72:

(16, 54691), (Start: 21 @54712 has 23 MA's), (40, 54838),

Gene: Daubenski\_75 Start: 54922, Stop: 55113, Start Num: 21

Candidate Starts for Daubenski\_75:

(15, 54898), (16, 54904), (Start: 21 @54922 has 23 MA's), (29, 54943), (42, 55060), (45, 55096),

Gene: EGole\_75 Start: 56133, Stop: 56324, Start Num: 21

Candidate Starts for EGole\_75:

(16, 56112), (Start: 21 @56133 has 23 MA's), (40, 56259),

Gene: Elmer\_83 Start: 55487, Stop: 55696, Start Num: 21

Candidate Starts for Elmer\_83:

(9, 55427), (10, 55442), (16, 55466), (Start: 21 @55487 has 23 MA's), (32, 55556), (37, 55586),

Gene: Emma1919\_55 Start: 44300, Stop: 44530, Start Num: 14

Candidate Starts for Emma1919\_55:

(3, 44249), (6, 44267), (11, 44288), (12, 44291), (Start: 14 @44300 has 26 MA's), (25, 44342), (26, 44348), (31, 44372),

Gene: Enygma\_76 Start: 56198, Stop: 56398, Start Num: 22

Candidate Starts for Enygma\_76:

(7, 56132), (10, 56150), (Start: 18 @56186 has 1 MA's), (Start: 22 @56198 has 3 MA's), (38, 56306),

Gene: Evy\_75 Start: 55080, Stop: 55271, Start Num: 21

Candidate Starts for Evy\_75:

(16, 55059), (Start: 21 @55080 has 23 MA's), (Start: 24 @55089 has 2 MA's), (32, 55137), (33, 55143),

Gene: Faust\_54 Start: 45437, Stop: 45667, Start Num: 14

Candidate Starts for Faust\_54:

(12, 45428), (Start: 14 @45437 has 26 MA's), (29, 45500), (31, 45518), (32, 45536), (39, 45590),

Gene: Forrest\_55 Start: 44997, Stop: 45227, Start Num: 14

Candidate Starts for Forrest\_55:

(3, 44946), (6, 44964), (11, 44985), (12, 44988), (Start: 14 @44997 has 26 MA's), (25, 45039), (26, 45045), (31, 45069), (40, 45150),

Gene: Francob\_52 Start: 44361, Stop: 44591, Start Num: 14

Candidate Starts for Francob\_52:

(2, 44307), (3, 44310), (6, 44328), (Start: 14 @44361 has 26 MA's), (25, 44403), (26, 44409), (31, 44433), (43, 44538),

Gene: Genie2\_76 Start: 54381, Stop: 54569, Start Num: 23

Candidate Starts for Genie2\_76:

(10, 54330), (15, 54348), (Start: 18 @54366 has 1 MA's), (Start: 19 @54369 has 2 MA's), (Start: 23 @54381 has 19 MA's), (41, 54507), (42, 54510),

Gene: Gibbi\_80 Start: 54539, Stop: 54727, Start Num: 23

Candidate Starts for Gibbi\_80:

(10, 54488), (Start: 19 @54527 has 2 MA's), (Start: 23 @54539 has 19 MA's), (35, 54605), (42, 54668),

Gene: Gilson\_54 Start: 44253, Stop: 44483, Start Num: 14

Candidate Starts for Gilson\_54:

(3, 44202), (6, 44220), (11, 44241), (12, 44244), (Start: 14 @44253 has 26 MA's), (25, 44295), (26, 44301), (31, 44325),

Gene: HangryHippo\_76 Start: 55186, Stop: 55377, Start Num: 21

Candidate Starts for HangryHippo\_76:

(16, 55165), (Start: 21 @55186 has 23 MA's), (40, 55312),

Gene: IchabodCrane\_73 Start: 54128, Stop: 54316, Start Num: 23

Candidate Starts for IchabodCrane\_73:

(10, 54077), (Start: 19 @54116 has 2 MA's), (Start: 23 @54128 has 19 MA's), (42, 54257),

Gene: Jada\_53 Start: 44179, Stop: 44409, Start Num: 14

Candidate Starts for Jada\_53:

(3, 44128), (6, 44146), (11, 44167), (12, 44170), (Start: 14 @44179 has 26 MA's), (25, 44221), (26, 44227), (31, 44251), (40, 44332),

Gene: Jay2Jay\_79 Start: 55942, Stop: 56124, Start Num: 24

Candidate Starts for Jay2Jay\_79:

(16, 55912), (Start: 21 @55933 has 23 MA's), (Start: 24 @55942 has 2 MA's), (32, 55990), (33, 55996),

Gene: JimJam\_76 Start: 54502, Stop: 54690, Start Num: 23

Candidate Starts for JimJam\_76:

(10, 54451), (Start: 19 @54490 has 2 MA's), (Start: 23 @54502 has 19 MA's), (35, 54568), (42, 54631),

Gene: Jollison\_81 Start: 54372, Stop: 54572, Start Num: 19

Candidate Starts for Jollison\_81:

(10, 54333), (Start: 19 @54372 has 2 MA's), (35, 54450), (42, 54513),

Gene: Karimac\_75 Start: 54533, Stop: 54721, Start Num: 23

Candidate Starts for Karimac\_75:

(10, 54482), (Start: 19 @54521 has 2 MA's), (Start: 23 @54533 has 19 MA's), (35, 54599), (42, 54662),

Gene: Karp\_52 Start: 45102, Stop: 45347, Start Num: 14

Candidate Starts for Karp\_52:

(1, 45003), (6, 45069), (8, 45072), (Start: 14 @45102 has 26 MA's), (26, 45153), (28, 45156), (31, 45177),

Gene: Kenrey\_55 Start: 44448, Stop: 44678, Start Num: 14



Candidate Starts for Kenrey\_55:

(3, 44397), (6, 44415), (8, 44418), (11, 44436), (12, 44439), (Start: 14 @44448 has 26 MA's), (25, 44490), (26, 44496), (29, 44502), (31, 44520),

Gene: KentuckyRacer\_80 Start: 54305, Stop: 54505, Start Num: 19

Candidate Starts for KentuckyRacer\_80:

(10, 54266), (Start: 19 @54305 has 2 MA's), (35, 54383), (42, 54446),

Gene: Larnav\_79 Start: 55171, Stop: 55362, Start Num: 21

Candidate Starts for Larnav\_79:

(16, 55150), (Start: 21 @55171 has 23 MA's), (40, 55297),

Gene: Leo04\_75 Start: 55686, Stop: 55877, Start Num: 21

Candidate Starts for Leo04\_75:

(16, 55665), (Start: 21 @55686 has 23 MA's), (40, 55812),

Gene: Liandry\_73 Start: 54561, Stop: 54752, Start Num: 21

Candidate Starts for Liandry\_73:

(16, 54540), (Start: 21 @54561 has 23 MA's), (Start: 24 @54570 has 2 MA's), (32, 54618),

Gene: LilMartin\_71 Start: 53393, Stop: 53590, Start Num: 20

Candidate Starts for LilMartin\_71:

(15, 53369), (16, 53375), (Start: 20 @53393 has 5 MA's),

Gene: Limpid\_51 Start: 43371, Stop: 43595, Start Num: 14

Candidate Starts for Limpid\_51:

(Start: 14 @43371 has 26 MA's), (31, 43437), (43, 43542),

Gene: LukeCage\_75 Start: 54284, Stop: 54484, Start Num: 22

Candidate Starts for LukeCage\_75:

(10, 54236), (Start: 22 @54284 has 3 MA's), (38, 54392),

Gene: Lululemon\_75 Start: 54567, Stop: 54758, Start Num: 21

Candidate Starts for Lululemon\_75:

(16, 54546), (Start: 21 @54567 has 23 MA's), (40, 54693),

Gene: MeganTheeKilla\_52 Start: 43614, Stop: 43844, Start Num: 14

Candidate Starts for MeganTheeKilla\_52:

(3, 43563), (6, 43581), (11, 43602), (12, 43605), (Start: 14 @43614 has 26 MA's), (25, 43656), (26, 43662), (31, 43686), (40, 43767),

Gene: Mildred21\_72 Start: 53597, Stop: 53794, Start Num: 20

Candidate Starts for Mildred21\_72:

(Start: 20 @53597 has 5 MA's), (Start: 24 @53609 has 2 MA's), (33, 53663), (35, 53675), (43, 53750),

Gene: MindFlayer\_74 Start: 54035, Stop: 54223, Start Num: 23

Candidate Starts for MindFlayer\_74:

(10, 53984), (Start: 19 @54023 has 2 MA's), (Start: 23 @54035 has 19 MA's), (35, 54101), (42, 54164),

Gene: Moab\_54 Start: 45473, Stop: 45700, Start Num: 14

Candidate Starts for Moab\_54:

(2, 45419), (6, 45440), (8, 45443), (Start: 14 @45473 has 26 MA's), (25, 45512), (26, 45518), (31, 45542), (43, 45647), (47, 45689),

Gene: Mugiwara\_77 Start: 54783, Stop: 54983, Start Num: 22

Candidate Starts for Mugiwara\_77:

(10, 54735), (Start: 22 @54783 has 3 MA's), (38, 54891),

Gene: MulchMansion\_71 Start: 53393, Stop: 53590, Start Num: 20

Candidate Starts for MulchMansion\_71:

(15, 53369), (16, 53375), (Start: 20 @53393 has 5 MA's),

Gene: Muntaha\_51 Start: 45723, Stop: 45953, Start Num: 14

Candidate Starts for Muntaha\_51:

(4, 45678), (Start: 14 @45723 has 26 MA's), (26, 45759), (31, 45783), (33, 45807), (43, 45888),

Gene: Navo\_74 Start: 54483, Stop: 54674, Start Num: 21

Candidate Starts for Navo\_74:

(16, 54462), (Start: 21 @54483 has 23 MA's), (Start: 24 @54492 has 2 MA's), (32, 54540),

Gene: NootNoot\_70 Start: 53475, Stop: 53666, Start Num: 21

Candidate Starts for NootNoot\_70:

(16, 53454), (Start: 21 @53475 has 23 MA's), (Start: 24 @53484 has 2 MA's), (32, 53532),

Gene: PacManQ\_75 Start: 54567, Stop: 54758, Start Num: 21

Candidate Starts for PacManQ\_75:

(16, 54546), (Start: 21 @54567 has 23 MA's), (40, 54693),

Gene: Paradiddles\_70 Start: 53739, Stop: 53930, Start Num: 21

Candidate Starts for Paradiddles\_70:

(16, 53718), (Start: 21 @53739 has 23 MA's), (Start: 24 @53748 has 2 MA's), (32, 53796),

Gene: Patelgo\_54 Start: 45660, Stop: 45887, Start Num: 14

Candidate Starts for Patelgo\_54:

(2, 45606), (6, 45627), (8, 45630), (Start: 14 @45660 has 26 MA's), (25, 45699), (26, 45705), (31, 45729), (43, 45834), (47, 45876),

Gene: Peebs\_73 Start: 54921, Stop: 55112, Start Num: 21

Candidate Starts for Peebs\_73:

(16, 54900), (Start: 21 @54921 has 23 MA's), (40, 55047),

Gene: Pepperwood\_74 Start: 55054, Stop: 55245, Start Num: 21

Candidate Starts for Pepperwood\_74:

(16, 55033), (Start: 21 @55054 has 23 MA's), (40, 55180),

Gene: Persimmon\_70 Start: 53408, Stop: 53599, Start Num: 21

Candidate Starts for Persimmon\_70:

(16, 53387), (Start: 21 @53408 has 23 MA's), (Start: 24 @53417 has 2 MA's), (32, 53465),

Gene: Phredrick\_53 Start: 43519, Stop: 43749, Start Num: 14

Candidate Starts for Phredrick\_53:

(2, 43465), (3, 43468), (6, 43486), (8, 43489), (11, 43507), (12, 43510), (Start: 14 @43519 has 26 MA's), (25, 43561), (26, 43567), (29, 43573), (31, 43591), (40, 43672),

Gene: PinkiePie\_72 Start: 54561, Stop: 54752, Start Num: 21

Candidate Starts for PinkiePie\_72:

(16, 54540), (Start: 21 @54561 has 23 MA's), (Start: 24 @54570 has 2 MA's), (32, 54618),

Gene: PumpkinSpice\_75 Start: 54427, Stop: 54615, Start Num: 23

Candidate Starts for PumpkinSpice\_75:

(10, 54376), (Start: 19 @54415 has 2 MA's), (Start: 23 @54427 has 19 MA's), (35, 54493), (42, 54556),

Gene: Quaran19\_76 Start: 54406, Stop: 54606, Start Num: 19

Candidate Starts for Quaran19\_76:

(10, 54367), (Start: 19 @54406 has 2 MA's), (35, 54484), (42, 54547),

Gene: SaltySpittoon\_76 Start: 54427, Stop: 54615, Start Num: 23

Candidate Starts for SaltySpittoon\_76:

(10, 54376), (Start: 19 @54415 has 2 MA's), (Start: 23 @54427 has 19 MA's), (35, 54493), (42, 54556),

Gene: Samisti12\_74 Start: 56364, Stop: 56555, Start Num: 21

Candidate Starts for Samisti12\_74:

(16, 56343), (Start: 21 @56364 has 23 MA's),

Gene: SeresaTree\_53 Start: 44827, Stop: 45057, Start Num: 14

Candidate Starts for SeresaTree\_53:

(12, 44818), (Start: 14 @44827 has 26 MA's), (29, 44890), (31, 44908), (32, 44926), (39, 44980),

Gene: Sham\_50 Start: 45368, Stop: 45598, Start Num: 14

Candidate Starts for Sham\_50:

(12, 45359), (Start: 14 @45368 has 26 MA's), (29, 45431), (31, 45449), (34, 45479), (39, 45521), (47, 45587),

Gene: Sollertia\_76 Start: 54381, Stop: 54569, Start Num: 23

Candidate Starts for Sollertia\_76:

(10, 54330), (15, 54348), (Start: 18 @54366 has 1 MA's), (Start: 19 @54369 has 2 MA's), (Start: 23 @54381 has 19 MA's), (41, 54507), (42, 54510),

Gene: SparkleGoddess\_54 Start: 45504, Stop: 45749, Start Num: 14

Candidate Starts for SparkleGoddess\_54:

(1, 45405), (6, 45471), (8, 45474), (Start: 14 @45504 has 26 MA's), (26, 45555), (28, 45558), (31, 45579),

Gene: Spelly\_76 Start: 54382, Stop: 54570, Start Num: 23

Candidate Starts for Spelly\_76:

(10, 54331), (Start: 19 @54370 has 2 MA's), (Start: 23 @54382 has 19 MA's), (35, 54448), (42, 54511),

Gene: Spilled\_77 Start: 54499, Stop: 54687, Start Num: 23

Candidate Starts for Spilled\_77:

(10, 54448), (Start: 19 @54487 has 2 MA's), (Start: 23 @54499 has 19 MA's), (42, 54628),

Gene: Squillium\_73 Start: 54562, Stop: 54753, Start Num: 21

Candidate Starts for Squillium\_73:

(16, 54541), (Start: 21 @54562 has 23 MA's), (Start: 24 @54571 has 2 MA's), (32, 54619),

Gene: Stanimal\_76 Start: 54270, Stop: 54458, Start Num: 23

Candidate Starts for Stanimal\_76:

(10, 54219), (15, 54237), (Start: 18 @54255 has 1 MA's), (Start: 19 @54258 has 2 MA's), (Start: 23 @54270 has 19 MA's), (41, 54396), (42, 54399),

Gene: StarPlatinum\_76 Start: 54924, Stop: 55124, Start Num: 22

Candidate Starts for StarPlatinum\_76:

(10, 54876), (Start: 22 @54924 has 3 MA's), (38, 55032),

Gene: Starbow\_74 Start: 54391, Stop: 54591, Start Num: 19

Candidate Starts for Starbow\_74:

(10, 54352), (Start: 19 @54391 has 2 MA's), (Start: 23 @54403 has 19 MA's), (42, 54532),

Gene: Stigma\_53 Start: 45518, Stop: 45763, Start Num: 14

Candidate Starts for Stigma\_53:

(1, 45419), (6, 45485), (8, 45488), (Start: 14 @45518 has 26 MA's), (26, 45569), (28, 45572), (31, 45593),

Gene: Sushi23\_74 Start: 55279, Stop: 55470, Start Num: 21

Candidate Starts for Sushi23\_74:

(16, 55258), (Start: 21 @55279 has 23 MA's), (40, 55405),

Gene: Targaryen\_75 Start: 55982, Stop: 56173, Start Num: 21

Candidate Starts for Targaryen\_75:

(16, 55961), (Start: 21 @55982 has 23 MA's), (Start: 24 @55991 has 2 MA's), (32, 56039), (33, 56045),

Gene: Teutsch\_74 Start: 55542, Stop: 55733, Start Num: 21

Candidate Starts for Teutsch\_74:

(16, 55521), (Start: 21 @55542 has 23 MA's), (40, 55668),

Gene: TomSawyer\_74 Start: 54021, Stop: 54209, Start Num: 23

Candidate Starts for TomSawyer\_74:

(10, 53970), (Start: 19 @54009 has 2 MA's), (Start: 23 @54021 has 19 MA's), (35, 54087), (42, 54150),

Gene: Tomas\_78 Start: 56737, Stop: 56946, Start Num: 18

Candidate Starts for Tomas\_78:

(Start: 18 @56737 has 1 MA's), (27, 56764), (30, 56773), (42, 56881), (46, 56926),

Gene: Tribute\_72 Start: 54748, Stop: 54939, Start Num: 21

Candidate Starts for Tribute\_72:

(16, 54727), (Start: 21 @54748 has 23 MA's), (40, 54874),

Gene: TunaTartare\_52 Start: 45671, Stop: 45901, Start Num: 14

Candidate Starts for TunaTartare\_52:

(12, 45662), (Start: 14 @45671 has 26 MA's), (29, 45734), (31, 45752), (34, 45782), (39, 45824), (47, 45890),

Gene: Wakanda\_50 Start: 45660, Stop: 45890, Start Num: 14

Candidate Starts for Wakanda\_50:

(4, 45615), (Start: 14 @45660 has 26 MA's), (26, 45696), (31, 45720), (33, 45744), (43, 45825),

Gene: Warpy\_78 Start: 55455, Stop: 55637, Start Num: 24

Candidate Starts for Warpy\_78:

(16, 55425), (Start: 21 @55446 has 23 MA's), (Start: 24 @55455 has 2 MA's), (32, 55503), (33, 55509),

Gene: Watermoore\_74 Start: 55758, Stop: 55949, Start Num: 21

Candidate Starts for Watermoore\_74:

(16, 55737), (Start: 21 @55758 has 23 MA's), (40, 55884),

Gene: WhereRU\_73 Start: 53999, Stop: 54190, Start Num: 21

Candidate Starts for WhereRU\_73:

(16, 53978), (Start: 21 @53999 has 23 MA's), (Start: 24 @54008 has 2 MA's), (32, 54056),

Gene: Wipeout\_74 Start: 54772, Stop: 54960, Start Num: 23

Candidate Starts for Wipeout\_74:

(10, 54721), (Start: 19 @54760 has 2 MA's), (Start: 23 @54772 has 19 MA's), (35, 54838), (42, 54901),

Gene: Wofford\_75 Start: 55450, Stop: 55659, Start Num: 21

Candidate Starts for Wofford\_75:

(9, 55390), (10, 55405), (16, 55429), (Start: 21 @55450 has 23 MA's), (37, 55549),

Gene: Yaboi\_76 Start: 54358, Stop: 54546, Start Num: 23

Candidate Starts for Yaboi\_76:

(10, 54307), (15, 54325), (Start: 18 @54343 has 1 MA's), (Start: 19 @54346 has 2 MA's), (Start: 23 @54358 has 19 MA's), (41, 54484), (42, 54487),