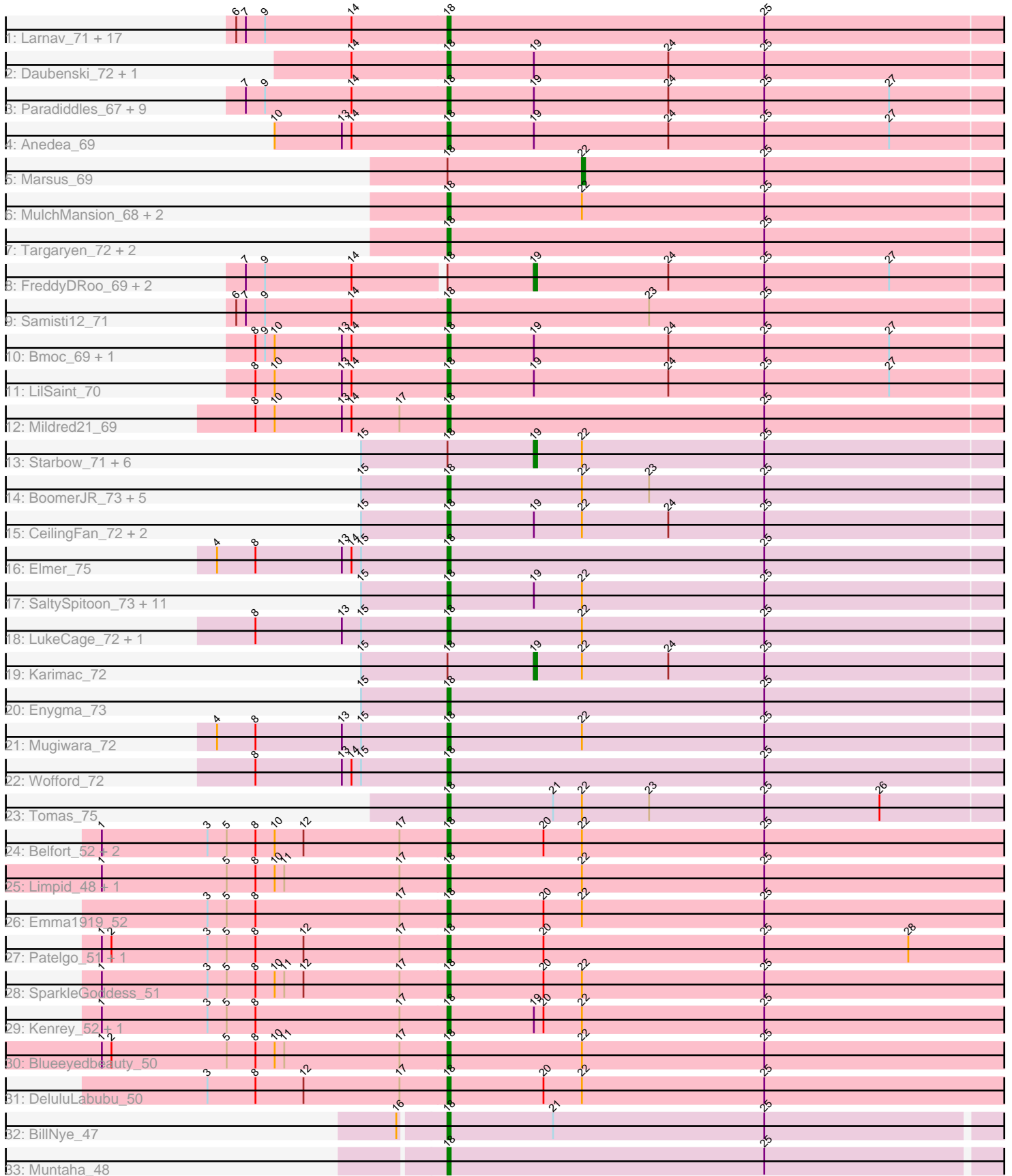


# Pham 304888



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 304888 Report

This analysis was run 06/08/26 on database version 649.

Pham number 304888 has 97 members, 4 are drafts.

Phages represented in each track:

- Track 1 : Larnav\_71, EGole\_72, Cursive\_69, HangryHippo\_71, Coogler\_71, Watermoore\_71, BlueOtter\_71, Tribute\_69, PacManQ\_70, Leo04\_72, Teutsch\_71, Scheme\_72, Cross\_71, Pepperwood\_71, Sushi23\_71, Lululemon\_70, Peebs\_70, Shuckle\_69
- Track 2 : Daubenski\_72, Cadmus\_69
- Track 3 : Paradiddles\_67, Braelyn\_70, Persimmon\_67, Squillium\_70, Navo\_69, Bartholomune\_69, Davielle\_68, PinkiePie\_69, Liandry\_70, WhereRU\_68
- Track 4 : Anedea\_69
- Track 5 : Marsus\_69
- Track 6 : MulchMansion\_68, LilMartin\_68, Angela\_68
- Track 7 : Targaryen\_72, Evy\_72, Warpy\_75
- Track 8 : FreddyDRoo\_69, NootNoot\_67, Eliot67\_69
- Track 9 : Samisti12\_71
- Track 10 : Bmoc\_69, Riptide\_68
- Track 11 : LilSaint\_70
- Track 12 : Mildred21\_69
- Track 13 : Starbow\_71, Battuta\_71, Quaran19\_73, Birchlyn\_70, Bordeaux\_71, Gibbi\_77, Amabiko\_73
- Track 14 : BoomerJR\_73, AngryGiraffe\_72, Stanimal\_73, Sollertia\_73, Genie2\_73, Yaboi\_73
- Track 15 : CeilingFan\_72, IchabodCrane\_70, Brizzy\_72
- Track 16 : Elmer\_75
- Track 17 : SaltySpitoon\_73, Spelly\_73, TomSawyer\_71, Spilled\_74, KentuckyRacer\_73, JimJam\_73, PumpkinSpice\_72, AcciDwight\_77, Rikishi\_73, Jollison\_72, MindFlayer\_71, Wipeout\_71
- Track 18 : LukeCage\_72, StarPlatinum\_73
- Track 19 : Karimac\_72
- Track 20 : Enygma\_73
- Track 21 : Mugiwara\_72
- Track 22 : Wofford\_72
- Track 23 : Tomas\_75
- Track 24 : Belfort\_52, Westy\_51, Comrade\_51
- Track 25 : Limpid\_48, Annadreamy\_48
- Track 26 : Emma1919\_52
- Track 27 : Patelgo\_51, Moab\_51
- Track 28 : SparkleGoddess\_51
- Track 29 : Kenrey\_52, Phredrick\_50

- Track 30 : Blueeyedbeauty\_50
- Track 31 : DeluluLabubu\_50
- Track 32 : BillNye\_47
- Track 33 : Muntaha\_48

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

The start number called the most often in the published annotations is 18, it was called in 84 of the 93 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AcciDwight\_77, Anedea\_69, Angela\_68, AngryGiraffe\_72, Annadreamy\_48, Bartholomune\_69, Belfort\_52, BillNye\_47, BlueOtter\_71, Blueeyedbeauty\_50, Bmoc\_69, BoomerJR\_73, Braelyn\_70, Brizzy\_72, Cadmus\_69, CeilingFan\_72, Comrade\_51, Coogler\_71, Cross\_71, Cursive\_69, Daubenski\_72, Davielle\_68, DeluluLabubu\_50, EGole\_72, Elmer\_75, Emma1919\_52, Enygma\_73, Evy\_72, Genie2\_73, HangryHippo\_71, IchabodCrane\_70, JimJam\_73, Jollison\_72, Kenrey\_52, KentuckyRacer\_73, Larnav\_71, Leo04\_72, Liandry\_70, LilMartin\_68, LilSaint\_70, Limpid\_48, LukeCage\_72, Lululemon\_70, Mildred21\_69, MindFlayer\_71, Moab\_51, Mugiwara\_72, MulchMansion\_68, Muntaha\_48, Navo\_69, PacManQ\_70, Paradiddles\_67, Patelgo\_51, Peebs\_70, Pepperwood\_71, Persimmon\_67, Phredrick\_50, PinkiePie\_69, PumpkinSpice\_72, Rikishi\_73, Riptide\_68, SaltySpittoon\_73, Samisti12\_71, Scheme\_72, Shuckle\_69, Sollertia\_73, SparkleGoddess\_51, Spelly\_73, Spilled\_74, Squillium\_70, Stanimal\_73, StarPlatinum\_73, Sushi23\_71, Targaryen\_72, Teutsch\_71, TomSawyer\_71, Tomas\_75, Tribute\_69, Warpy\_75, Watermoore\_71, Westy\_51, WhereRU\_68, Wipeout\_71, Wofford\_72, Yaboi\_73,

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

- Amabiko\_73, Battuta\_71, Birchlyn\_70, Bordeaux\_71, Eliot67\_69, FreddyDRoo\_69, Gibbi\_77, Karimac\_72, Marsus\_69, NootNoot\_67, Quarant19\_73, Starbow\_71,

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

- 

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

Start 18:

- Found in 97 of 97 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 84 of 93
- Called 87.6% of time when present
- Phage (with cluster) where this start called: AcciDwight\_77 (BE2), Anedea\_69 (BE1), Angela\_68 (BE1), AngryGiraffe\_72 (BE2), Annadreamy\_48 (BK1), Bartholomune\_69 (BE1), Belfort\_52 (BK1), BillNye\_47 (BK2), BlueOtter\_71 (BE1), Blueeyedbeauty\_50 (BK1), Bmoc\_69 (BE1), BoomerJR\_73 (BE2), Braelyn\_70 (BE1), Brizzy\_72 (BE2), Cadmus\_69 (BE1), CeilingFan\_72 (BE2), Comrade\_51 (BK1), Coogler\_71 (BE1), Cross\_71 (BE1), Cursive\_69 (BE1), Daubenski\_72 (BE1), Davielle\_68 (BE1), DeluluLabubu\_50 (BK1), EGole\_72 (BE1), Elmer\_75 (BE2), Emma1919\_52 (BK1), Enygma\_73 (BE2), Evy\_72 (BE1), Genie2\_73 (BE2), HangryHippo\_71 (BE1), IchabodCrane\_70 (BE2), JimJam\_73 (BE2), Jollison\_72

(BE2), Kenrey\_52 (BK1), KentuckyRacer\_73 (BE2), Larnav\_71 (BE1), Leo04\_72 (BE1), Liandry\_70 (BE1), LilMartin\_68 (BE1), LilSaint\_70 (BE1), Limpid\_48 (BK1), LukeCage\_72 (BE2), Lululemon\_70 (BE1), Mildred21\_69 (BE1), MindFlayer\_71 (BE2), Moab\_51 (BK1), Mugiwara\_72 (BE2), MulchMansion\_68 (BE1), Muntaha\_48 (BK2), Navo\_69 (BE1), PacManQ\_70 (BE1), Paradiddles\_67 (BE1), Patelgo\_51 (BK1), Peebs\_70 (BE1), Pepperwood\_71 (BE1), Persimmon\_67 (BE1), Phredrick\_50 (BK1), PinkiePie\_69 (BE1), PumpkinSpice\_72 (BE2), Rikishi\_73 (BE2), Riptide\_68 (BE1), SaltySpittoon\_73 (BE2), Samisti12\_71 (BE1), Scheme\_72 (BE1), Shuckle\_69 (BE1), Sollertia\_73 (BE2), SparkleGoddess\_51 (BK1), Spelly\_73 (BE2), Spilled\_74 (BE2), Squillum\_70 (BE1), Stanimal\_73 (BE2), StarPlatinum\_73 (BE2), Sushi23\_71 (BE1), Targaryen\_72 (BE1), Teutsch\_71 (BE1), TomSawyer\_71 (BE2), Tomas\_75 (BE2), Tribute\_69 (BE1), Warpy\_75 (BE1), Watermoore\_71 (BE1), Westy\_51 (BK1), WhereRU\_68 (BE1), Wipeout\_71 (BE2), Wofford\_72 (BE2), Yaboi\_73 (BE2),

Start 19:

- Found in 44 of 97 ( 45.4% ) of genes in pham
- Manual Annotations of this start: 8 of 93
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Amabiko\_73 (BE2), Battuta\_71 (BE2), Birchlyn\_70 (BE2), Bordeaux\_71 (BE2), Eliot67\_69 (BE1), FreddyDRoo\_69 (BE1), Gibbi\_77 (BE2), Karimac\_72 (BE2), NootNoot\_67 (BE1), Quarant19\_73 (BE2), Starbow\_71 (BE2),

Start 22:

- Found in 48 of 97 ( 49.5% ) of genes in pham
- Manual Annotations of this start: 1 of 93
- Called 2.1% of time when present
- Phage (with cluster) where this start called: Marsus\_69 (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 18 was manually annotated 42 times for cluster BE1.
- Start number 19 was manually annotated 1 time for cluster BE1.
- Start number 22 was manually annotated 1 time for cluster BE1.

Info for manual annotations of cluster BE2:

- Start number 18 was manually annotated 27 times for cluster BE2.
- Start number 19 was manually annotated 7 times for cluster BE2.

Info for manual annotations of cluster BK1:

- Start number 18 was manually annotated 13 times for cluster BK1.

Info for manual annotations of cluster BK2:

- Start number 18 was manually annotated 2 times for cluster BK2.

### **Gene Information:**

Gene: AcciDwight\_77 Start: 53322, Stop: 53501, Start Num: 18

Candidate Starts for AcciDwight\_77:

(15, 53295), (Start: 18 @53322 has 84 MA's), (Start: 19 @53349 has 8 MA's), (Start: 22 @53364 has 1 MA's), (25, 53421),

Gene: Amabiko\_73 Start: 53394, Stop: 53546, Start Num: 19

Candidate Starts for Amabiko\_73:

(15, 53340), (Start: 18 @53367 has 84 MA's), (Start: 19 @53394 has 8 MA's), (Start: 22 @53409 has 1 MA's), (25, 53466),

Gene: Anedea\_69 Start: 52939, Stop: 53118, Start Num: 18

Candidate Starts for Anedea\_69:

(10, 52885), (13, 52906), (14, 52909), (Start: 18 @52939 has 84 MA's), (Start: 19 @52966 has 8 MA's), (24, 53008), (25, 53038), (27, 53077),

Gene: Angela\_68 Start: 52399, Stop: 52578, Start Num: 18

Candidate Starts for Angela\_68:

(Start: 18 @52399 has 84 MA's), (Start: 22 @52441 has 1 MA's), (25, 52498),

Gene: AngryGiraffe\_72 Start: 53330, Stop: 53509, Start Num: 18

Candidate Starts for AngryGiraffe\_72:

(15, 53303), (Start: 18 @53330 has 84 MA's), (Start: 22 @53372 has 1 MA's), (23, 53393), (25, 53429),

Gene: Annadreamy\_48 Start: 42410, Stop: 42601, Start Num: 18

Candidate Starts for Annadreamy\_48:

(1, 42305), (5, 42344), (8, 42353), (10, 42359), (11, 42362), (17, 42398), (Start: 18 @42410 has 84 MA's), (Start: 22 @42452 has 1 MA's), (25, 42509),

Gene: Bartholomune\_69 Start: 52765, Stop: 52944, Start Num: 18

Candidate Starts for Bartholomune\_69:

(7, 52705), (9, 52711), (14, 52738), (Start: 18 @52765 has 84 MA's), (Start: 19 @52792 has 8 MA's), (24, 52834), (25, 52864), (27, 52903),

Gene: Battuta\_71 Start: 53368, Stop: 53520, Start Num: 19

Candidate Starts for Battuta\_71:

(15, 53314), (Start: 18 @53341 has 84 MA's), (Start: 19 @53368 has 8 MA's), (Start: 22 @53383 has 1 MA's), (25, 53440),

Gene: Belfort\_52 Start: 44931, Stop: 45122, Start Num: 18

Candidate Starts for Belfort\_52:

(1, 44826), (3, 44859), (5, 44865), (8, 44874), (10, 44880), (12, 44889), (17, 44919), (Start: 18 @44931 has 84 MA's), (20, 44961), (Start: 22 @44973 has 1 MA's), (25, 45030),

Gene: BillNye\_47 Start: 46338, Stop: 46523, Start Num: 18

Candidate Starts for BillNye\_47:

(16, 46329), (Start: 18 @46338 has 84 MA's), (21, 46371), (25, 46437),

Gene: Birchlyn\_70 Start: 51251, Stop: 51403, Start Num: 19

Candidate Starts for Birchlyn\_70:

(15, 51197), (Start: 18 @51224 has 84 MA's), (Start: 19 @51251 has 8 MA's), (Start: 22 @51266 has 1 MA's), (25, 51323),

Gene: BlueOtter\_71 Start: 54139, Stop: 54318, Start Num: 18

Candidate Starts for BlueOtter\_71:

(6, 54076), (7, 54079), (9, 54085), (14, 54112), (Start: 18 @54139 has 84 MA's), (25, 54238),

Gene: Blueeyedbeauty\_50 Start: 42922, Stop: 43113, Start Num: 18

Candidate Starts for Blueeyedbeauty\_50:

(1, 42817), (2, 42820), (5, 42856), (8, 42865), (10, 42871), (11, 42874), (17, 42910), (Start: 18 @42922 has 84 MA's), (Start: 22 @42964 has 1 MA's), (25, 43021),

Gene: Bmoc\_69 Start: 52743, Stop: 52922, Start Num: 18

Candidate Starts for Bmoc\_69:

(8, 52683), (9, 52686), (10, 52689), (13, 52710), (14, 52713), (Start: 18 @52743 has 84 MA's), (Start: 19 @52770 has 8 MA's), (24, 52812), (25, 52842), (27, 52881),

Gene: BoomerJR\_73 Start: 53219, Stop: 53398, Start Num: 18

Candidate Starts for BoomerJR\_73:

(15, 53192), (Start: 18 @53219 has 84 MA's), (Start: 22 @53261 has 1 MA's), (23, 53282), (25, 53318),

Gene: Bordeaux\_71 Start: 53523, Stop: 53675, Start Num: 19

Candidate Starts for Bordeaux\_71:

(15, 53469), (Start: 18 @53496 has 84 MA's), (Start: 19 @53523 has 8 MA's), (Start: 22 @53538 has 1 MA's), (25, 53595),

Gene: Braelyn\_70 Start: 53532, Stop: 53711, Start Num: 18

Candidate Starts for Braelyn\_70:

(7, 53472), (9, 53478), (14, 53505), (Start: 18 @53532 has 84 MA's), (Start: 19 @53559 has 8 MA's), (24, 53601), (25, 53631), (27, 53670),

Gene: Brizzy\_72 Start: 53015, Stop: 53194, Start Num: 18

Candidate Starts for Brizzy\_72:

(15, 52988), (Start: 18 @53015 has 84 MA's), (Start: 19 @53042 has 8 MA's), (Start: 22 @53057 has 1 MA's), (24, 53084), (25, 53114),

Gene: Cadmus\_69 Start: 53149, Stop: 53328, Start Num: 18

Candidate Starts for Cadmus\_69:

(14, 53122), (Start: 18 @53149 has 84 MA's), (Start: 19 @53176 has 8 MA's), (24, 53218), (25, 53248),

Gene: CeilingFan\_72 Start: 53256, Stop: 53435, Start Num: 18

Candidate Starts for CeilingFan\_72:

(15, 53229), (Start: 18 @53256 has 84 MA's), (Start: 19 @53283 has 8 MA's), (Start: 22 @53298 has 1 MA's), (24, 53325), (25, 53355),

Gene: Comrade\_51 Start: 44547, Stop: 44738, Start Num: 18

Candidate Starts for Comrade\_51:

(1, 44442), (3, 44475), (5, 44481), (8, 44490), (10, 44496), (12, 44505), (17, 44535), (Start: 18 @44547 has 84 MA's), (20, 44577), (Start: 22 @44589 has 1 MA's), (25, 44646),

Gene: Coogler\_71 Start: 54165, Stop: 54344, Start Num: 18

Candidate Starts for Coogler\_71:

(6, 54102), (7, 54105), (9, 54111), (14, 54138), (Start: 18 @54165 has 84 MA's), (25, 54264),

Gene: Cross\_71 Start: 54140, Stop: 54319, Start Num: 18

Candidate Starts for Cross\_71:

(6, 54077), (7, 54080), (9, 54086), (14, 54113), (Start: 18 @54140 has 84 MA's), (25, 54239),

Gene: Cursive\_69 Start: 53665, Stop: 53844, Start Num: 18

Candidate Starts for Cursive\_69:

(6, 53602), (7, 53605), (9, 53611), (14, 53638), (Start: 18 @53665 has 84 MA's), (25, 53764),

Gene: Daubenski\_72 Start: 53913, Stop: 54092, Start Num: 18

Candidate Starts for Daubenski\_72:

(14, 53886), (Start: 18 @53913 has 84 MA's), (Start: 19 @53940 has 8 MA's), (24, 53982), (25, 54012),

Gene: Davielle\_68 Start: 52952, Stop: 53131, Start Num: 18

Candidate Starts for Davielle\_68:

(7, 52892), (9, 52898), (14, 52925), (Start: 18 @52952 has 84 MA's), (Start: 19 @52979 has 8 MA's), (24, 53021), (25, 53051), (27, 53090),

Gene: DeluluLabubu\_50 Start: 42661, Stop: 42852, Start Num: 18

Candidate Starts for DeluluLabubu\_50:

(3, 42589), (8, 42604), (12, 42619), (17, 42649), (Start: 18 @42661 has 84 MA's), (20, 42691), (Start: 22 @42703 has 1 MA's), (25, 42760),

Gene: EGole\_72 Start: 55086, Stop: 55265, Start Num: 18

Candidate Starts for EGole\_72:

(6, 55023), (7, 55026), (9, 55032), (14, 55059), (Start: 18 @55086 has 84 MA's), (25, 55185),

Gene: Eliot67\_69 Start: 52834, Stop: 52986, Start Num: 19

Candidate Starts for Eliot67\_69:

(7, 52747), (9, 52753), (14, 52780), (Start: 18 @52807 has 84 MA's), (Start: 19 @52834 has 8 MA's), (24, 52876), (25, 52906), (27, 52945),

Gene: Elmer\_75 Start: 54434, Stop: 54613, Start Num: 18

Candidate Starts for Elmer\_75:

(4, 54362), (8, 54374), (13, 54401), (14, 54404), (15, 54407), (Start: 18 @54434 has 84 MA's), (25, 54533),

Gene: Emma1919\_52 Start: 43344, Stop: 43535, Start Num: 18

Candidate Starts for Emma1919\_52:

(3, 43272), (5, 43278), (8, 43287), (17, 43332), (Start: 18 @43344 has 84 MA's), (20, 43374), (Start: 22 @43386 has 1 MA's), (25, 43443),

Gene: Enygma\_73 Start: 55159, Stop: 55338, Start Num: 18

Candidate Starts for Enygma\_73:

(15, 55132), (Start: 18 @55159 has 84 MA's), (25, 55258),

Gene: Evy\_72 Start: 54034, Stop: 54213, Start Num: 18

Candidate Starts for Evy\_72:

(Start: 18 @54034 has 84 MA's), (25, 54133),

Gene: FreddyDRoo\_69 Start: 52834, Stop: 52986, Start Num: 19

Candidate Starts for FreddyDRoo\_69:

(7, 52747), (9, 52753), (14, 52780), (Start: 18 @52807 has 84 MA's), (Start: 19 @52834 has 8 MA's), (24, 52876), (25, 52906), (27, 52945),

Gene: Genie2\_73 Start: 53333, Stop: 53512, Start Num: 18

Candidate Starts for Genie2\_73:

(15, 53306), (Start: 18 @53333 has 84 MA's), (Start: 22 @53375 has 1 MA's), (23, 53396), (25, 53432),

Gene: Gibbi\_77 Start: 53506, Stop: 53658, Start Num: 19

Candidate Starts for Gibbi\_77:

(15, 53452), (Start: 18 @53479 has 84 MA's), (Start: 19 @53506 has 8 MA's), (Start: 22 @53521 has 1 MA's), (25, 53578),

Gene: HangryHippo\_71 Start: 54139, Stop: 54318, Start Num: 18

Candidate Starts for HangryHippo\_71:

(6, 54076), (7, 54079), (9, 54085), (14, 54112), (Start: 18 @54139 has 84 MA's), (25, 54238),

Gene: IchabodCrane\_70 Start: 53068, Stop: 53247, Start Num: 18

Candidate Starts for IchabodCrane\_70:

(15, 53041), (Start: 18 @53068 has 84 MA's), (Start: 19 @53095 has 8 MA's), (Start: 22 @53110 has 1 MA's), (24, 53137), (25, 53167),

Gene: JimJam\_73 Start: 53442, Stop: 53621, Start Num: 18

Candidate Starts for JimJam\_73:

(15, 53415), (Start: 18 @53442 has 84 MA's), (Start: 19 @53469 has 8 MA's), (Start: 22 @53484 has 1 MA's), (25, 53541),

Gene: Jollison\_72 Start: 53324, Stop: 53503, Start Num: 18

Candidate Starts for Jollison\_72:

(15, 53297), (Start: 18 @53324 has 84 MA's), (Start: 19 @53351 has 8 MA's), (Start: 22 @53366 has 1 MA's), (25, 53423),

Gene: Karimac\_72 Start: 53500, Stop: 53652, Start Num: 19

Candidate Starts for Karimac\_72:

(15, 53446), (Start: 18 @53473 has 84 MA's), (Start: 19 @53500 has 8 MA's), (Start: 22 @53515 has 1 MA's), (24, 53542), (25, 53572),

Gene: Kenrey\_52 Start: 43492, Stop: 43683, Start Num: 18

Candidate Starts for Kenrey\_52:

(1, 43387), (3, 43420), (5, 43426), (8, 43435), (17, 43480), (Start: 18 @43492 has 84 MA's), (Start: 19 @43519 has 8 MA's), (20, 43522), (Start: 22 @43534 has 1 MA's), (25, 43591),

Gene: KentuckyRacer\_73 Start: 53257, Stop: 53436, Start Num: 18

Candidate Starts for KentuckyRacer\_73:

(15, 53230), (Start: 18 @53257 has 84 MA's), (Start: 19 @53284 has 8 MA's), (Start: 22 @53299 has 1 MA's), (25, 53356),

Gene: Larnav\_71 Start: 54124, Stop: 54303, Start Num: 18

Candidate Starts for Larnav\_71:

(6, 54061), (7, 54064), (9, 54070), (14, 54097), (Start: 18 @54124 has 84 MA's), (25, 54223),

Gene: Leo04\_72 Start: 54639, Stop: 54818, Start Num: 18

Candidate Starts for Leo04\_72:

(6, 54576), (7, 54579), (9, 54585), (14, 54612), (Start: 18 @54639 has 84 MA's), (25, 54738),

Gene: Liandry\_70 Start: 53514, Stop: 53693, Start Num: 18

Candidate Starts for Liandry\_70:

(7, 53454), (9, 53460), (14, 53487), (Start: 18 @53514 has 84 MA's), (Start: 19 @53541 has 8 MA's), (24, 53583), (25, 53613), (27, 53652),

Gene: LilMartin\_68 Start: 52347, Stop: 52526, Start Num: 18  
Candidate Starts for LilMartin\_68:  
(Start: 18 @52347 has 84 MA's), (Start: 22 @52389 has 1 MA's), (25, 52446),

Gene: LilSaint\_70 Start: 52611, Stop: 52790, Start Num: 18  
Candidate Starts for LilSaint\_70:  
(8, 52551), (10, 52557), (13, 52578), (14, 52581), (Start: 18 @52611 has 84 MA's), (Start: 19 @52638 has 8 MA's), (24, 52680), (25, 52710), (27, 52749),

Gene: Limpid\_48 Start: 42409, Stop: 42600, Start Num: 18  
Candidate Starts for Limpid\_48:  
(1, 42304), (5, 42343), (8, 42352), (10, 42358), (11, 42361), (17, 42397), (Start: 18 @42409 has 84 MA's), (Start: 22 @42451 has 1 MA's), (25, 42508),

Gene: LukeCage\_72 Start: 53227, Stop: 53406, Start Num: 18  
Candidate Starts for LukeCage\_72:  
(8, 53167), (13, 53194), (15, 53200), (Start: 18 @53227 has 84 MA's), (Start: 22 @53269 has 1 MA's), (25, 53326),

Gene: Lululemon\_70 Start: 53520, Stop: 53699, Start Num: 18  
Candidate Starts for Lululemon\_70:  
(6, 53457), (7, 53460), (9, 53466), (14, 53493), (Start: 18 @53520 has 84 MA's), (25, 53619),

Gene: Marsus\_69 Start: 52661, Stop: 52798, Start Num: 22  
Candidate Starts for Marsus\_69:  
(Start: 18 @52619 has 84 MA's), (Start: 22 @52661 has 1 MA's), (25, 52718),

Gene: Mildred21\_69 Start: 52544, Stop: 52723, Start Num: 18  
Candidate Starts for Mildred21\_69:  
(8, 52484), (10, 52490), (13, 52511), (14, 52514), (17, 52529), (Start: 18 @52544 has 84 MA's), (25, 52643),

Gene: MindFlayer\_71 Start: 52975, Stop: 53154, Start Num: 18  
Candidate Starts for MindFlayer\_71:  
(15, 52948), (Start: 18 @52975 has 84 MA's), (Start: 19 @53002 has 8 MA's), (Start: 22 @53017 has 1 MA's), (25, 53074),

Gene: Moab\_51 Start: 44517, Stop: 44708, Start Num: 18  
Candidate Starts for Moab\_51:  
(1, 44412), (2, 44415), (3, 44445), (5, 44451), (8, 44460), (12, 44475), (17, 44505), (Start: 18 @44517 has 84 MA's), (20, 44547), (25, 44616), (28, 44661),

Gene: Mugiwara\_72 Start: 53726, Stop: 53905, Start Num: 18  
Candidate Starts for Mugiwara\_72:  
(4, 53654), (8, 53666), (13, 53693), (15, 53699), (Start: 18 @53726 has 84 MA's), (Start: 22 @53768 has 1 MA's), (25, 53825),

Gene: MulchMansion\_68 Start: 52347, Stop: 52526, Start Num: 18  
Candidate Starts for MulchMansion\_68:  
(Start: 18 @52347 has 84 MA's), (Start: 22 @52389 has 1 MA's), (25, 52446),

Gene: Muntaha\_48 Start: 44734, Stop: 44919, Start Num: 18  
Candidate Starts for Muntaha\_48:

(Start: 18 @44734 has 84 MA's), (25, 44833),

Gene: Navo\_69 Start: 53436, Stop: 53615, Start Num: 18

Candidate Starts for Navo\_69:

(7, 53376), (9, 53382), (14, 53409), (Start: 18 @53436 has 84 MA's), (Start: 19 @53463 has 8 MA's), (24, 53505), (25, 53535), (27, 53574),

Gene: NootNoot\_67 Start: 52455, Stop: 52607, Start Num: 19

Candidate Starts for NootNoot\_67:

(7, 52368), (9, 52374), (14, 52401), (Start: 18 @52428 has 84 MA's), (Start: 19 @52455 has 8 MA's), (24, 52497), (25, 52527), (27, 52566),

Gene: PacManQ\_70 Start: 53520, Stop: 53699, Start Num: 18

Candidate Starts for PacManQ\_70:

(6, 53457), (7, 53460), (9, 53466), (14, 53493), (Start: 18 @53520 has 84 MA's), (25, 53619),

Gene: Paradiddles\_67 Start: 52692, Stop: 52871, Start Num: 18

Candidate Starts for Paradiddles\_67:

(7, 52632), (9, 52638), (14, 52665), (Start: 18 @52692 has 84 MA's), (Start: 19 @52719 has 8 MA's), (24, 52761), (25, 52791), (27, 52830),

Gene: Patelgo\_51 Start: 44704, Stop: 44895, Start Num: 18

Candidate Starts for Patelgo\_51:

(1, 44599), (2, 44602), (3, 44632), (5, 44638), (8, 44647), (12, 44662), (17, 44692), (Start: 18 @44704 has 84 MA's), (20, 44734), (25, 44803), (28, 44848),

Gene: Peebs\_70 Start: 53874, Stop: 54053, Start Num: 18

Candidate Starts for Peebs\_70:

(6, 53811), (7, 53814), (9, 53820), (14, 53847), (Start: 18 @53874 has 84 MA's), (25, 53973),

Gene: Pepperwood\_71 Start: 54007, Stop: 54186, Start Num: 18

Candidate Starts for Pepperwood\_71:

(6, 53944), (7, 53947), (9, 53953), (14, 53980), (Start: 18 @54007 has 84 MA's), (25, 54106),

Gene: Persimmon\_67 Start: 52361, Stop: 52540, Start Num: 18

Candidate Starts for Persimmon\_67:

(7, 52301), (9, 52307), (14, 52334), (Start: 18 @52361 has 84 MA's), (Start: 19 @52388 has 8 MA's), (24, 52430), (25, 52460), (27, 52499),

Gene: Phredrick\_50 Start: 42563, Stop: 42754, Start Num: 18

Candidate Starts for Phredrick\_50:

(1, 42458), (3, 42491), (5, 42497), (8, 42506), (17, 42551), (Start: 18 @42563 has 84 MA's), (Start: 19 @42590 has 8 MA's), (20, 42593), (Start: 22 @42605 has 1 MA's), (25, 42662),

Gene: PinkiePie\_69 Start: 53514, Stop: 53693, Start Num: 18

Candidate Starts for PinkiePie\_69:

(7, 53454), (9, 53460), (14, 53487), (Start: 18 @53514 has 84 MA's), (Start: 19 @53541 has 8 MA's), (24, 53583), (25, 53613), (27, 53652),

Gene: PumpkinSpice\_72 Start: 53367, Stop: 53546, Start Num: 18

Candidate Starts for PumpkinSpice\_72:

(15, 53340), (Start: 18 @53367 has 84 MA's), (Start: 19 @53394 has 8 MA's), (Start: 22 @53409 has 1 MA's), (25, 53466),

Gene: Quaran19\_73 Start: 53385, Stop: 53537, Start Num: 19

Candidate Starts for Quaran19\_73:

(15, 53331), (Start: 18 @53358 has 84 MA's), (Start: 19 @53385 has 8 MA's), (Start: 22 @53400 has 1 MA's), (25, 53457),

Gene: Rikishi\_73 Start: 53273, Stop: 53452, Start Num: 18

Candidate Starts for Rikishi\_73:

(15, 53246), (Start: 18 @53273 has 84 MA's), (Start: 19 @53300 has 8 MA's), (Start: 22 @53315 has 1 MA's), (25, 53372),

Gene: Riptide\_68 Start: 52161, Stop: 52340, Start Num: 18

Candidate Starts for Riptide\_68:

(8, 52101), (9, 52104), (10, 52107), (13, 52128), (14, 52131), (Start: 18 @52161 has 84 MA's), (Start: 19 @52188 has 8 MA's), (24, 52230), (25, 52260), (27, 52299),

Gene: SaltySpittoon\_73 Start: 53367, Stop: 53546, Start Num: 18

Candidate Starts for SaltySpittoon\_73:

(15, 53340), (Start: 18 @53367 has 84 MA's), (Start: 19 @53394 has 8 MA's), (Start: 22 @53409 has 1 MA's), (25, 53466),

Gene: Samisti12\_71 Start: 55317, Stop: 55496, Start Num: 18

Candidate Starts for Samisti12\_71:

(6, 55254), (7, 55257), (9, 55263), (14, 55290), (Start: 18 @55317 has 84 MA's), (23, 55380), (25, 55416),

Gene: Scheme\_72 Start: 54721, Stop: 54900, Start Num: 18

Candidate Starts for Scheme\_72:

(6, 54658), (7, 54661), (9, 54667), (14, 54694), (Start: 18 @54721 has 84 MA's), (25, 54820),

Gene: Shuckle\_69 Start: 54331, Stop: 54510, Start Num: 18

Candidate Starts for Shuckle\_69:

(6, 54268), (7, 54271), (9, 54277), (14, 54304), (Start: 18 @54331 has 84 MA's), (25, 54430),

Gene: Sollertia\_73 Start: 53333, Stop: 53512, Start Num: 18

Candidate Starts for Sollertia\_73:

(15, 53306), (Start: 18 @53333 has 84 MA's), (Start: 22 @53375 has 1 MA's), (23, 53396), (25, 53432),

Gene: SparkleGoddess\_51 Start: 44548, Stop: 44739, Start Num: 18

Candidate Starts for SparkleGoddess\_51:

(1, 44443), (3, 44476), (5, 44482), (8, 44491), (10, 44497), (11, 44500), (12, 44506), (17, 44536), (Start: 18 @44548 has 84 MA's), (20, 44578), (Start: 22 @44590 has 1 MA's), (25, 44647),

Gene: Spelly\_73 Start: 53322, Stop: 53501, Start Num: 18

Candidate Starts for Spelly\_73:

(15, 53295), (Start: 18 @53322 has 84 MA's), (Start: 19 @53349 has 8 MA's), (Start: 22 @53364 has 1 MA's), (25, 53421),

Gene: Spilled\_74 Start: 53439, Stop: 53618, Start Num: 18

Candidate Starts for Spilled\_74:

(15, 53412), (Start: 18 @53439 has 84 MA's), (Start: 19 @53466 has 8 MA's), (Start: 22 @53481 has 1 MA's), (25, 53538),

Gene: Squillium\_70 Start: 53515, Stop: 53694, Start Num: 18

Candidate Starts for Squillium\_70:

(7, 53455), (9, 53461), (14, 53488), (Start: 18 @53515 has 84 MA's), (Start: 19 @53542 has 8 MA's), (24, 53584), (25, 53614), (27, 53653),

Gene: Stanimal\_73 Start: 53222, Stop: 53401, Start Num: 18

Candidate Starts for Stanimal\_73:

(15, 53195), (Start: 18 @53222 has 84 MA's), (Start: 22 @53264 has 1 MA's), (23, 53285), (25, 53321),

Gene: StarPlatinum\_73 Start: 53867, Stop: 54046, Start Num: 18

Candidate Starts for StarPlatinum\_73:

(8, 53807), (13, 53834), (15, 53840), (Start: 18 @53867 has 84 MA's), (Start: 22 @53909 has 1 MA's), (25, 53966),

Gene: Starbow\_71 Start: 53370, Stop: 53522, Start Num: 19

Candidate Starts for Starbow\_71:

(15, 53316), (Start: 18 @53343 has 84 MA's), (Start: 19 @53370 has 8 MA's), (Start: 22 @53385 has 1 MA's), (25, 53442),

Gene: Sushi23\_71 Start: 54232, Stop: 54411, Start Num: 18

Candidate Starts for Sushi23\_71:

(6, 54169), (7, 54172), (9, 54178), (14, 54205), (Start: 18 @54232 has 84 MA's), (25, 54331),

Gene: Targaryen\_72 Start: 54936, Stop: 55115, Start Num: 18

Candidate Starts for Targaryen\_72:

(Start: 18 @54936 has 84 MA's), (25, 55035),

Gene: Teutsch\_71 Start: 54495, Stop: 54674, Start Num: 18

Candidate Starts for Teutsch\_71:

(6, 54432), (7, 54435), (9, 54441), (14, 54468), (Start: 18 @54495 has 84 MA's), (25, 54594),

Gene: TomSawyer\_71 Start: 52961, Stop: 53140, Start Num: 18

Candidate Starts for TomSawyer\_71:

(15, 52934), (Start: 18 @52961 has 84 MA's), (Start: 19 @52988 has 8 MA's), (Start: 22 @53003 has 1 MA's), (25, 53060),

Gene: Tomas\_75 Start: 55682, Stop: 55861, Start Num: 18

Candidate Starts for Tomas\_75:

(Start: 18 @55682 has 84 MA's), (21, 55715), (Start: 22 @55724 has 1 MA's), (23, 55745), (25, 55781), (26, 55817),

Gene: Tribute\_69 Start: 53701, Stop: 53880, Start Num: 18

Candidate Starts for Tribute\_69:

(6, 53638), (7, 53641), (9, 53647), (14, 53674), (Start: 18 @53701 has 84 MA's), (25, 53800),

Gene: Warpy\_75 Start: 54400, Stop: 54579, Start Num: 18

Candidate Starts for Warpy\_75:

(Start: 18 @54400 has 84 MA's), (25, 54499),

Gene: Watermoore\_71 Start: 54711, Stop: 54890, Start Num: 18

Candidate Starts for Watermoore\_71:

(6, 54648), (7, 54651), (9, 54657), (14, 54684), (Start: 18 @54711 has 84 MA's), (25, 54810),

Gene: Westy\_51 Start: 44549, Stop: 44740, Start Num: 18

Candidate Starts for Westy\_51:

(1, 44444), (3, 44477), (5, 44483), (8, 44492), (10, 44498), (12, 44507), (17, 44537), (Start: 18 @44549 has 84 MA's), (20, 44579), (Start: 22 @44591 has 1 MA's), (25, 44648),

Gene: WhereRU\_68 Start: 52952, Stop: 53131, Start Num: 18

Candidate Starts for WhereRU\_68:

(7, 52892), (9, 52898), (14, 52925), (Start: 18 @52952 has 84 MA's), (Start: 19 @52979 has 8 MA's), (24, 53021), (25, 53051), (27, 53090),

Gene: Wipeout\_71 Start: 53712, Stop: 53891, Start Num: 18

Candidate Starts for Wipeout\_71:

(15, 53685), (Start: 18 @53712 has 84 MA's), (Start: 19 @53739 has 8 MA's), (Start: 22 @53754 has 1 MA's), (25, 53811),

Gene: Wofford\_72 Start: 54397, Stop: 54576, Start Num: 18

Candidate Starts for Wofford\_72:

(8, 54337), (13, 54364), (14, 54367), (15, 54370), (Start: 18 @54397 has 84 MA's), (25, 54496),

Gene: Yaboi\_73 Start: 53310, Stop: 53489, Start Num: 18

Candidate Starts for Yaboi\_73:

(15, 53283), (Start: 18 @53310 has 84 MA's), (Start: 22 @53352 has 1 MA's), (23, 53373), (25, 53409),