

# Pham 192462



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 192462 Report

This analysis was run 11/02/24 on database version 579.

Pham number 192462 has 97 members, 5 are drafts.

Phages represented in each track:

- Track 1 : BlueOtter\_67, Cursive\_65, Pepperwood\_67, Leo04\_68, HangryHippo\_67, Tribute\_65, Watermoore\_67, Teutsch\_67, Cross\_67, Samisti12\_67, Scheme\_68, Lululemon\_66, Larnav\_67, Sushi23\_67, PacManQ\_66, EGole\_68
- Track 2 : Paradiddles\_63, Evy\_68, Targaryen\_68, NootNoot\_63, Braelyn\_66, Persimmon\_63, Navo\_65, Bartholomune\_65, PinkiePie\_65, Squillum\_66, Liandry\_66, WhereRU\_64
- Track 3 : Jay2Jay\_72, Warpy\_71
- Track 4 : Anedea\_65
- Track 5 : MulchMansion\_64, LilMartin\_64, Angela\_64
- Track 6 : Bmoc\_65
- Track 7 : Peebs\_66
- Track 8 : Daubenski\_68
- Track 9 : Mildred21\_65
- Track 10 : MindFlayer\_67, CeilingFan\_71, Wipeout\_67, Bordeaux\_67, Battuta\_67, Birchlyn\_66, SaltySpittoon\_69, Karimac\_68, Amabiko\_69, Gibbi\_73, Spilled\_70, TomSawyer\_67, Spelly\_69, IchabodCrane\_66, JimJam\_69, PumpkinSpice\_68, KentuckyRacer\_69, Jollison\_68, Starbow\_67, Quarant19\_69
- Track 11 : Elmer\_71, Wofford\_68
- Track 12 : Genie2\_69, Stanimal\_69, Sollertia\_69, Yaboi\_69, Mugiwarara\_70, BoomerJR\_69
- Track 13 : StarPlatinum\_69
- Track 14 : LukeCage\_68
- Track 15 : Enygma\_69
- Track 16 : Tomas\_71
- Track 17 : Limpid\_44, Blueeyedbeauty\_46, Annadreamy\_44
- Track 18 : Belfort\_48, Stigma\_47, Karp\_46, Comrade\_47, SparkleGoddess\_47
- Track 19 : Emma1919\_48, Forrest\_48, Gilson\_48, MeganTheeKilla\_46, Jada\_46
- Track 20 : Faust\_47, SeresaTree\_46
- Track 21 : Patelgo\_47, Moab\_47
- Track 22 : Beuffert\_45
- Track 23 : Sham\_44
- Track 24 : Phredrick\_46, Kenrey\_48
- Track 25 : Francob\_46
- Track 26 : TunaTartare\_46
- Track 27 : Circinus\_44, BillNye\_42
- Track 28 : Wakanda\_43, Muntaha\_43

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

The start number called the most often in the published annotations is 1, it was called in 89 of the 92 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Amabiko\_69, Anedea\_65, Angela\_64, Annadreamy\_44, Bartholomune\_65, Battuta\_67, Belfort\_48, Beuffert\_45, BillNye\_42, Birchlyn\_66, BlueOtter\_67, Blueeyedbeauty\_46, Bmoc\_65, BoomerJR\_69, Bordeaux\_67, Braelyn\_66, CeilingFan\_71, Circinus\_44, Comrade\_47, Cross\_67, Cursive\_65, Daubenski\_68, EGole\_68, Elmer\_71, Emma1919\_48, Enygma\_69, Evy\_68, Faust\_47, Forrest\_48, Francob\_46, Genie2\_69, Gibbi\_73, Gilson\_48, HangryHippo\_67, IchabodCrane\_66, Jada\_46, JimJam\_69, Jollison\_68, Karimac\_68, Karp\_46, Kenrey\_48, KentuckyRacer\_69, Larnav\_67, Leo04\_68, Liandry\_66, LilMartin\_64, Limpid\_44, LukeCage\_68, Lululemon\_66, MeganTheeKilla\_46, Mildred21\_65, MindFlayer\_67, Moab\_47, Mugiwara\_70, MulchMansion\_64, Muntaha\_43, Navo\_65, NootNoot\_63, PacManQ\_66, Paradiddles\_63, Patelgo\_47, Pepperwood\_67, Persimmon\_63, Phredrick\_46, PinkiePie\_65, PumpkinSpice\_68, Quaran19\_69, SaltySpittoon\_69, Samisti12\_67, Scheme\_68, SeresaTree\_46, Sham\_44, Sollertia\_69, SparkleGoddess\_47, Spelly\_69, Spilled\_70, Squillium\_66, Stanimal\_69, StarPlatinum\_69, Starbow\_67, Stigma\_47, Sushi23\_67, Targaryen\_68, Teutsch\_67, TomSawyer\_67, Tomas\_71, Tribute\_65, TunaTartare\_46, Wakanda\_43, Watermoore\_67, WhereRU\_64, Wipeout\_67, Wofford\_68, Yaboi\_69,

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

- Jay2Jay\_72, Peebs\_66, Warpy\_71,

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

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

Start 1:

- Found in 97 of 97 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 89 of 92
- Called 96.9% of time when present
- Phage (with cluster) where this start called: Amabiko\_69 (BE2), Anedea\_65 (BE1), Angela\_64 (BE1), Annadreamy\_44 (BK1), Bartholomune\_65 (BE1), Battuta\_67 (BE2), Belfort\_48 (BK1), Beuffert\_45 (BK1), BillNye\_42 (BK2), Birchlyn\_66 (BE2), BlueOtter\_67 (BE1), Blueeyedbeauty\_46 (BK1), Bmoc\_65 (BE1), BoomerJR\_69 (BE2), Bordeaux\_67 (BE2), Braelyn\_66 (BE1), CeilingFan\_71 (BE2), Circinus\_44 (BK2), Comrade\_47 (BK1), Cross\_67 (BE1), Cursive\_65 (BE1), Daubenski\_68 (BE1), EGole\_68 (BE1), Elmer\_71 (BE2), Emma1919\_48 (BK1), Enygma\_69 (BE2), Evy\_68 (BE1), Faust\_47 (BK1), Forrest\_48 (BK1), Francob\_46 (BK1), Genie2\_69 (BE2), Gibbi\_73 (BE2), Gilson\_48 (BK1), HangryHippo\_67 (BE1), IchabodCrane\_66 (BE2), Jada\_46 (BK1), JimJam\_69 (BE2), Jollison\_68 (BE2), Karimac\_68 (BE2), Karp\_46 (BK1), Kenrey\_48 (BK1), KentuckyRacer\_69 (BE2), Larnav\_67 (BE1), Leo04\_68 (BE1), Liandry\_66 (BE1), LilMartin\_64 (BE1), Limpid\_44 (BK1), LukeCage\_68 (BE2), Lululemon\_66 (BE1), MeganTheeKilla\_46 (BK1), Mildred21\_65 (BE1), MindFlayer\_67 (BE2), Moab\_47 (BK1), Mugiwara\_70 (BE2), MulchMansion\_64

(BE1), Muntaha\_43 (BK2), Navo\_65 (BE1), NootNoot\_63 (BE1), PacManQ\_66 (BE1), Paradiddles\_63 (BE1), Patelgo\_47 (BK1), Pepperwood\_67 (BE1), Persimmon\_63 (BE1), Phredrick\_46 (BK1), PinkiePie\_65 (BE1), PumpkinSpice\_68 (BE2), Quarant19\_69 (BE2), SaltySpittoon\_69 (BE2), Samisti12\_67 (BE1), Scheme\_68 (BE1), SeresaTree\_46 (BK1), Sham\_44 (BK1), Sollertia\_69 (BE2), SparkleGoddess\_47 (BK1), Spelly\_69 (BE2), Spilled\_70 (BE2), Squillum\_66 (BE1), Stanimal\_69 (BE2), StarPlatinum\_69 (BE2), Starbow\_67 (BE2), Stigma\_47 (BK1), Sushi23\_67 (BE1), Targaryen\_68 (BE1), Teutsch\_67 (BE1), TomSawyer\_67 (BE2), Tomas\_71 (BE2), Tribute\_65 (BE1), TunaTartare\_46 (BK1), Wakanda\_43 (BK2), Watermoore\_67 (BE1), WhereRU\_64 (BE1), Wipeout\_67 (BE2), Wofford\_68 (BE2), Yaboi\_69 (BE2),

Start 3:

- Found in 97 of 97 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 3 of 92
- Called 3.1% of time when present
- Phage (with cluster) where this start called: Jay2Jay\_72 (BE1), Peebs\_66 (BE1), Warpy\_71 (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 1 was manually annotated 34 times for cluster BE1.
- Start number 3 was manually annotated 3 times for cluster BE1.

Info for manual annotations of cluster BE2:

- Start number 1 was manually annotated 29 times for cluster BE2.

Info for manual annotations of cluster BK1:

- Start number 1 was manually annotated 22 times for cluster BK1.

Info for manual annotations of cluster BK2:

- Start number 1 was manually annotated 4 times for cluster BK2.

### **Gene Information:**

Gene: Amabiko\_69 Start: 51552, Stop: 51992, Start Num: 1

Candidate Starts for Amabiko\_69:

(Start: 1 @51552 has 89 MA's), (Start: 3 @51624 has 3 MA's), (4, 51663), (8, 51714), (11, 51792), (25, 51909),

Gene: Anedea\_65 Start: 51126, Stop: 51566, Start Num: 1

Candidate Starts for Anedea\_65:

(Start: 1 @51126 has 89 MA's), (Start: 3 @51198 has 3 MA's), (8, 51288), (29, 51534),

Gene: Angela\_64 Start: 50587, Stop: 51027, Start Num: 1

Candidate Starts for Angela\_64:

(Start: 1 @50587 has 89 MA's), (Start: 3 @50659 has 3 MA's), (8, 50749), (9, 50761), (25, 50944),

Gene: Annadreamy\_44 Start: 40388, Stop: 40828, Start Num: 1  
Candidate Starts for Annadreamy\_44:  
(Start: 1 @40388 has 89 MA's), (2, 40451), (Start: 3 @40460 has 3 MA's), (5, 40502), (24, 40745),  
(33, 40817),

Gene: Bartholomune\_65 Start: 50852, Stop: 51292, Start Num: 1  
Candidate Starts for Bartholomune\_65:  
(Start: 1 @50852 has 89 MA's), (Start: 3 @50924 has 3 MA's), (8, 51014), (29, 51260),

Gene: Battuta\_67 Start: 51526, Stop: 51966, Start Num: 1  
Candidate Starts for Battuta\_67:  
(Start: 1 @51526 has 89 MA's), (Start: 3 @51598 has 3 MA's), (4, 51637), (8, 51688), (11, 51766),  
(25, 51883),

Gene: Belfort\_48 Start: 42904, Stop: 43344, Start Num: 1  
Candidate Starts for Belfort\_48:  
(Start: 1 @42904 has 89 MA's), (2, 42967), (Start: 3 @42976 has 3 MA's), (26, 43282), (27, 43300),  
(33, 43333),

Gene: Beuffert\_45 Start: 41529, Stop: 41969, Start Num: 1  
Candidate Starts for Beuffert\_45:  
(Start: 1 @41529 has 89 MA's), (2, 41592), (Start: 3 @41601 has 3 MA's), (5, 41643), (24, 41886),  
(33, 41958),

Gene: BillNye\_42 Start: 43787, Stop: 44230, Start Num: 1  
Candidate Starts for BillNye\_42:  
(Start: 1 @43787 has 89 MA's), (2, 43850), (Start: 3 @43859 has 3 MA's), (18, 44084), (33, 44219),

Gene: Birchlyn\_66 Start: 49409, Stop: 49849, Start Num: 1  
Candidate Starts for Birchlyn\_66:  
(Start: 1 @49409 has 89 MA's), (Start: 3 @49481 has 3 MA's), (4, 49520), (8, 49571), (11, 49649),  
(25, 49766),

Gene: BlueOtter\_67 Start: 52232, Stop: 52672, Start Num: 1  
Candidate Starts for BlueOtter\_67:  
(Start: 1 @52232 has 89 MA's), (Start: 3 @52304 has 3 MA's), (8, 52394), (10, 52448), (29, 52640),

Gene: Blueeyedbeauty\_46 Start: 40900, Stop: 41340, Start Num: 1  
Candidate Starts for Blueeyedbeauty\_46:  
(Start: 1 @40900 has 89 MA's), (2, 40963), (Start: 3 @40972 has 3 MA's), (5, 41014), (24, 41257),  
(33, 41329),

Gene: Bmoc\_65 Start: 50930, Stop: 51370, Start Num: 1  
Candidate Starts for Bmoc\_65:  
(Start: 1 @50930 has 89 MA's), (Start: 3 @51002 has 3 MA's), (8, 51092), (25, 51287), (29, 51338),

Gene: BoomerJR\_69 Start: 51406, Stop: 51846, Start Num: 1  
Candidate Starts for BoomerJR\_69:  
(Start: 1 @51406 has 89 MA's), (Start: 3 @51478 has 3 MA's), (7, 51559), (8, 51568), (25, 51763),

Gene: Bordeaux\_67 Start: 51681, Stop: 52121, Start Num: 1  
Candidate Starts for Bordeaux\_67:

(Start: 1 @51681 has 89 MA's), (Start: 3 @51753 has 3 MA's), (4, 51792), (8, 51843), (11, 51921), (25, 52038),

Gene: Braelyn\_66 Start: 51619, Stop: 52059, Start Num: 1

Candidate Starts for Braelyn\_66:

(Start: 1 @51619 has 89 MA's), (Start: 3 @51691 has 3 MA's), (8, 51781), (29, 52027),

Gene: CeilingFan\_71 Start: 51441, Stop: 51881, Start Num: 1

Candidate Starts for CeilingFan\_71:

(Start: 1 @51441 has 89 MA's), (Start: 3 @51513 has 3 MA's), (4, 51552), (8, 51603), (11, 51681), (25, 51798),

Gene: Circinus\_44 Start: 43926, Stop: 44369, Start Num: 1

Candidate Starts for Circinus\_44:

(Start: 1 @43926 has 89 MA's), (2, 43989), (Start: 3 @43998 has 3 MA's), (18, 44223), (33, 44358),

Gene: Comrade\_47 Start: 42519, Stop: 42959, Start Num: 1

Candidate Starts for Comrade\_47:

(Start: 1 @42519 has 89 MA's), (2, 42582), (Start: 3 @42591 has 3 MA's), (26, 42897), (27, 42915), (33, 42948),

Gene: Cross\_67 Start: 52233, Stop: 52673, Start Num: 1

Candidate Starts for Cross\_67:

(Start: 1 @52233 has 89 MA's), (Start: 3 @52305 has 3 MA's), (8, 52395), (10, 52449), (29, 52641),

Gene: Cursive\_65 Start: 51758, Stop: 52198, Start Num: 1

Candidate Starts for Cursive\_65:

(Start: 1 @51758 has 89 MA's), (Start: 3 @51830 has 3 MA's), (8, 51920), (10, 51974), (29, 52166),

Gene: Daubenski\_68 Start: 51999, Stop: 52439, Start Num: 1

Candidate Starts for Daubenski\_68:

(Start: 1 @51999 has 89 MA's), (Start: 3 @52071 has 3 MA's), (8, 52161), (13, 52257), (21, 52314),

Gene: EGole\_68 Start: 53179, Stop: 53619, Start Num: 1

Candidate Starts for EGole\_68:

(Start: 1 @53179 has 89 MA's), (Start: 3 @53251 has 3 MA's), (8, 53341), (10, 53395), (29, 53587),

Gene: Elmer\_71 Start: 52619, Stop: 53059, Start Num: 1

Candidate Starts for Elmer\_71:

(Start: 1 @52619 has 89 MA's), (Start: 3 @52691 has 3 MA's), (8, 52781), (14, 52880), (18, 52913), (31, 53033),

Gene: Emma1919\_48 Start: 41309, Stop: 41749, Start Num: 1

Candidate Starts for Emma1919\_48:

(Start: 1 @41309 has 89 MA's), (2, 41372), (Start: 3 @41381 has 3 MA's), (5, 41423), (24, 41666), (27, 41705), (33, 41738),

Gene: Enygma\_69 Start: 53344, Stop: 53784, Start Num: 1

Candidate Starts for Enygma\_69:

(Start: 1 @53344 has 89 MA's), (Start: 3 @53416 has 3 MA's), (8, 53506), (16, 53617), (25, 53701),

Gene: Evy\_68 Start: 52222, Stop: 52662, Start Num: 1

Candidate Starts for Evy\_68:

(Start: 1 @52222 has 89 MA's), (Start: 3 @52294 has 3 MA's), (8, 52384), (29, 52630),

Gene: Faust\_47 Start: 41832, Stop: 42272, Start Num: 1

Candidate Starts for Faust\_47:

(Start: 1 @41832 has 89 MA's), (2, 41895), (Start: 3 @41904 has 3 MA's), (18, 42126), (22, 42165), (23, 42186), (28, 42231), (33, 42261),

Gene: Forrest\_48 Start: 41444, Stop: 41884, Start Num: 1

Candidate Starts for Forrest\_48:

(Start: 1 @41444 has 89 MA's), (2, 41507), (Start: 3 @41516 has 3 MA's), (5, 41558), (24, 41801), (27, 41840), (33, 41873),

Gene: Francob\_46 Start: 41379, Stop: 41819, Start Num: 1

Candidate Starts for Francob\_46:

(Start: 1 @41379 has 89 MA's), (2, 41442), (Start: 3 @41451 has 3 MA's), (5, 41493), (26, 41757), (33, 41808),

Gene: Genie2\_69 Start: 51520, Stop: 51960, Start Num: 1

Candidate Starts for Genie2\_69:

(Start: 1 @51520 has 89 MA's), (Start: 3 @51592 has 3 MA's), (7, 51673), (8, 51682), (25, 51877),

Gene: Gibbi\_73 Start: 51664, Stop: 52104, Start Num: 1

Candidate Starts for Gibbi\_73:

(Start: 1 @51664 has 89 MA's), (Start: 3 @51736 has 3 MA's), (4, 51775), (8, 51826), (11, 51904), (25, 52021),

Gene: Gilson\_48 Start: 41262, Stop: 41702, Start Num: 1

Candidate Starts for Gilson\_48:

(Start: 1 @41262 has 89 MA's), (2, 41325), (Start: 3 @41334 has 3 MA's), (5, 41376), (24, 41619), (27, 41658), (33, 41691),

Gene: HangryHippo\_67 Start: 52232, Stop: 52672, Start Num: 1

Candidate Starts for HangryHippo\_67:

(Start: 1 @52232 has 89 MA's), (Start: 3 @52304 has 3 MA's), (8, 52394), (10, 52448), (29, 52640),

Gene: IchabodCrane\_66 Start: 51253, Stop: 51693, Start Num: 1

Candidate Starts for IchabodCrane\_66:

(Start: 1 @51253 has 89 MA's), (Start: 3 @51325 has 3 MA's), (4, 51364), (8, 51415), (11, 51493), (25, 51610),

Gene: Jada\_46 Start: 40626, Stop: 41066, Start Num: 1

Candidate Starts for Jada\_46:

(Start: 1 @40626 has 89 MA's), (2, 40689), (Start: 3 @40698 has 3 MA's), (5, 40740), (24, 40983), (27, 41022), (33, 41055),

Gene: Jay2Jay\_72 Start: 53147, Stop: 53515, Start Num: 3

Candidate Starts for Jay2Jay\_72:

(Start: 1 @53075 has 89 MA's), (Start: 3 @53147 has 3 MA's), (8, 53237), (29, 53483),

Gene: JimJam\_69 Start: 51627, Stop: 52067, Start Num: 1

Candidate Starts for JimJam\_69:

(Start: 1 @51627 has 89 MA's), (Start: 3 @51699 has 3 MA's), (4, 51738), (8, 51789), (11, 51867), (25, 51984),

Gene: Jollison\_68 Start: 51509, Stop: 51949, Start Num: 1

Candidate Starts for Jollison\_68:

(Start: 1 @51509 has 89 MA's), (Start: 3 @51581 has 3 MA's), (4, 51620), (8, 51671), (11, 51749), (25, 51866),

Gene: Karimac\_68 Start: 51658, Stop: 52098, Start Num: 1

Candidate Starts for Karimac\_68:

(Start: 1 @51658 has 89 MA's), (Start: 3 @51730 has 3 MA's), (4, 51769), (8, 51820), (11, 51898), (25, 52015),

Gene: Karp\_46 Start: 42119, Stop: 42559, Start Num: 1

Candidate Starts for Karp\_46:

(Start: 1 @42119 has 89 MA's), (2, 42182), (Start: 3 @42191 has 3 MA's), (26, 42497), (27, 42515), (33, 42548),

Gene: Kenrey\_48 Start: 41454, Stop: 41894, Start Num: 1

Candidate Starts for Kenrey\_48:

(Start: 1 @41454 has 89 MA's), (2, 41517), (Start: 3 @41526 has 3 MA's), (5, 41568), (15, 41724), (24, 41811), (27, 41850), (33, 41883),

Gene: KentuckyRacer\_69 Start: 51442, Stop: 51882, Start Num: 1

Candidate Starts for KentuckyRacer\_69:

(Start: 1 @51442 has 89 MA's), (Start: 3 @51514 has 3 MA's), (4, 51553), (8, 51604), (11, 51682), (25, 51799),

Gene: Larnav\_67 Start: 52217, Stop: 52657, Start Num: 1

Candidate Starts for Larnav\_67:

(Start: 1 @52217 has 89 MA's), (Start: 3 @52289 has 3 MA's), (8, 52379), (10, 52433), (29, 52625),

Gene: Leo04\_68 Start: 52732, Stop: 53172, Start Num: 1

Candidate Starts for Leo04\_68:

(Start: 1 @52732 has 89 MA's), (Start: 3 @52804 has 3 MA's), (8, 52894), (10, 52948), (29, 53140),

Gene: Liandry\_66 Start: 51601, Stop: 52041, Start Num: 1

Candidate Starts for Liandry\_66:

(Start: 1 @51601 has 89 MA's), (Start: 3 @51673 has 3 MA's), (8, 51763), (29, 52009),

Gene: LilMartin\_64 Start: 50535, Stop: 50975, Start Num: 1

Candidate Starts for LilMartin\_64:

(Start: 1 @50535 has 89 MA's), (Start: 3 @50607 has 3 MA's), (8, 50697), (9, 50709), (25, 50892),

Gene: Limpid\_44 Start: 40387, Stop: 40827, Start Num: 1

Candidate Starts for Limpid\_44:

(Start: 1 @40387 has 89 MA's), (2, 40450), (Start: 3 @40459 has 3 MA's), (5, 40501), (24, 40744), (33, 40816),

Gene: LukeCage\_68 Start: 51412, Stop: 51852, Start Num: 1

Candidate Starts for LukeCage\_68:

(Start: 1 @51412 has 89 MA's), (Start: 3 @51484 has 3 MA's), (7, 51565), (8, 51574), (11, 51652), (14, 51673), (21, 51727), (25, 51769),

Gene: Lululemon\_66 Start: 51613, Stop: 52053, Start Num: 1



Candidate Starts for Lululemon\_66:

(Start: 1 @51613 has 89 MA's), (Start: 3 @51685 has 3 MA's), (8, 51775), (10, 51829), (29, 52021),

Gene: MeganTheeKilla\_46 Start: 40623, Stop: 41063, Start Num: 1

Candidate Starts for MeganTheeKilla\_46:

(Start: 1 @40623 has 89 MA's), (2, 40686), (Start: 3 @40695 has 3 MA's), (5, 40737), (24, 40980), (27, 41019), (33, 41052),

Gene: Mildred21\_65 Start: 50731, Stop: 51171, Start Num: 1

Candidate Starts for Mildred21\_65:

(Start: 1 @50731 has 89 MA's), (Start: 3 @50803 has 3 MA's), (8, 50893), (25, 51088), (29, 51139),

Gene: MindFlayer\_67 Start: 51160, Stop: 51600, Start Num: 1

Candidate Starts for MindFlayer\_67:

(Start: 1 @51160 has 89 MA's), (Start: 3 @51232 has 3 MA's), (4, 51271), (8, 51322), (11, 51400), (25, 51517),

Gene: Moab\_47 Start: 42493, Stop: 42933, Start Num: 1

Candidate Starts for Moab\_47:

(Start: 1 @42493 has 89 MA's), (2, 42556), (Start: 3 @42565 has 3 MA's), (5, 42607), (33, 42922),

Gene: Mugiwara\_70 Start: 51911, Stop: 52351, Start Num: 1

Candidate Starts for Mugiwara\_70:

(Start: 1 @51911 has 89 MA's), (Start: 3 @51983 has 3 MA's), (7, 52064), (8, 52073), (25, 52268),

Gene: MulchMansion\_64 Start: 50535, Stop: 50975, Start Num: 1

Candidate Starts for MulchMansion\_64:

(Start: 1 @50535 has 89 MA's), (Start: 3 @50607 has 3 MA's), (8, 50697), (9, 50709), (25, 50892),

Gene: Muntaha\_43 Start: 42199, Stop: 42639, Start Num: 1

Candidate Starts for Muntaha\_43:

(Start: 1 @42199 has 89 MA's), (2, 42262), (Start: 3 @42271 has 3 MA's), (5, 42313), (6, 42334), (12, 42454), (18, 42493), (19, 42499), (23, 42553), (33, 42628),

Gene: Navo\_65 Start: 51523, Stop: 51963, Start Num: 1

Candidate Starts for Navo\_65:

(Start: 1 @51523 has 89 MA's), (Start: 3 @51595 has 3 MA's), (8, 51685), (29, 51931),

Gene: NootNoot\_63 Start: 50515, Stop: 50955, Start Num: 1

Candidate Starts for NootNoot\_63:

(Start: 1 @50515 has 89 MA's), (Start: 3 @50587 has 3 MA's), (8, 50677), (29, 50923),

Gene: PacManQ\_66 Start: 51613, Stop: 52053, Start Num: 1

Candidate Starts for PacManQ\_66:

(Start: 1 @51613 has 89 MA's), (Start: 3 @51685 has 3 MA's), (8, 51775), (10, 51829), (29, 52021),

Gene: Paradiddles\_63 Start: 50779, Stop: 51219, Start Num: 1

Candidate Starts for Paradiddles\_63:

(Start: 1 @50779 has 89 MA's), (Start: 3 @50851 has 3 MA's), (8, 50941), (29, 51187),

Gene: Patelgo\_47 Start: 42680, Stop: 43120, Start Num: 1

Candidate Starts for Patelgo\_47:

(Start: 1 @42680 has 89 MA's), (2, 42743), (Start: 3 @42752 has 3 MA's), (5, 42794), (33, 43109),

Gene: Peebs\_66 Start: 52039, Stop: 52407, Start Num: 3

Candidate Starts for Peebs\_66:

(Start: 1 @51967 has 89 MA's), (Start: 3 @52039 has 3 MA's), (8, 52129), (10, 52183), (29, 52375),

Gene: Pepperwood\_67 Start: 52100, Stop: 52540, Start Num: 1

Candidate Starts for Pepperwood\_67:

(Start: 1 @52100 has 89 MA's), (Start: 3 @52172 has 3 MA's), (8, 52262), (10, 52316), (29, 52508),

Gene: Persimmon\_63 Start: 50448, Stop: 50888, Start Num: 1

Candidate Starts for Persimmon\_63:

(Start: 1 @50448 has 89 MA's), (Start: 3 @50520 has 3 MA's), (8, 50610), (29, 50856),

Gene: Phredrick\_46 Start: 40525, Stop: 40965, Start Num: 1

Candidate Starts for Phredrick\_46:

(Start: 1 @40525 has 89 MA's), (2, 40588), (Start: 3 @40597 has 3 MA's), (5, 40639), (15, 40795), (24, 40882), (27, 40921), (33, 40954),

Gene: PinkiePie\_65 Start: 51601, Stop: 52041, Start Num: 1

Candidate Starts for PinkiePie\_65:

(Start: 1 @51601 has 89 MA's), (Start: 3 @51673 has 3 MA's), (8, 51763), (29, 52009),

Gene: PumpkinSpice\_68 Start: 51552, Stop: 51992, Start Num: 1

Candidate Starts for PumpkinSpice\_68:

(Start: 1 @51552 has 89 MA's), (Start: 3 @51624 has 3 MA's), (4, 51663), (8, 51714), (11, 51792), (25, 51909),

Gene: Quaran19\_69 Start: 51543, Stop: 51983, Start Num: 1

Candidate Starts for Quaran19\_69:

(Start: 1 @51543 has 89 MA's), (Start: 3 @51615 has 3 MA's), (4, 51654), (8, 51705), (11, 51783), (25, 51900),

Gene: SaltySpittoon\_69 Start: 51552, Stop: 51992, Start Num: 1

Candidate Starts for SaltySpittoon\_69:

(Start: 1 @51552 has 89 MA's), (Start: 3 @51624 has 3 MA's), (4, 51663), (8, 51714), (11, 51792), (25, 51909),

Gene: Samisti12\_67 Start: 53407, Stop: 53847, Start Num: 1

Candidate Starts for Samisti12\_67:

(Start: 1 @53407 has 89 MA's), (Start: 3 @53479 has 3 MA's), (8, 53569), (10, 53623), (29, 53815),

Gene: Scheme\_68 Start: 52814, Stop: 53254, Start Num: 1

Candidate Starts for Scheme\_68:

(Start: 1 @52814 has 89 MA's), (Start: 3 @52886 has 3 MA's), (8, 52976), (10, 53030), (29, 53222),

Gene: SeresaTree\_46 Start: 41222, Stop: 41662, Start Num: 1

Candidate Starts for SeresaTree\_46:

(Start: 1 @41222 has 89 MA's), (2, 41285), (Start: 3 @41294 has 3 MA's), (18, 41516), (22, 41555), (23, 41576), (28, 41621), (33, 41651),

Gene: Sham\_44 Start: 42386, Stop: 42826, Start Num: 1

Candidate Starts for Sham\_44:

(Start: 1 @42386 has 89 MA's), (Start: 3 @42458 has 3 MA's), (5, 42500), (18, 42680), (33, 42815),

Gene: Sollertia\_69 Start: 51520, Stop: 51960, Start Num: 1

Candidate Starts for Sollertia\_69:

(Start: 1 @51520 has 89 MA's), (Start: 3 @51592 has 3 MA's), (7, 51673), (8, 51682), (25, 51877),

Gene: SparkleGoddess\_47 Start: 42521, Stop: 42961, Start Num: 1

Candidate Starts for SparkleGoddess\_47:

(Start: 1 @42521 has 89 MA's), (2, 42584), (Start: 3 @42593 has 3 MA's), (26, 42899), (27, 42917), (33, 42950),

Gene: Spelly\_69 Start: 51507, Stop: 51947, Start Num: 1

Candidate Starts for Spelly\_69:

(Start: 1 @51507 has 89 MA's), (Start: 3 @51579 has 3 MA's), (4, 51618), (8, 51669), (11, 51747), (25, 51864),

Gene: Spilled\_70 Start: 51624, Stop: 52064, Start Num: 1

Candidate Starts for Spilled\_70:

(Start: 1 @51624 has 89 MA's), (Start: 3 @51696 has 3 MA's), (4, 51735), (8, 51786), (11, 51864), (25, 51981),

Gene: Squillium\_66 Start: 51602, Stop: 52042, Start Num: 1

Candidate Starts for Squillium\_66:

(Start: 1 @51602 has 89 MA's), (Start: 3 @51674 has 3 MA's), (8, 51764), (29, 52010),

Gene: Stanimal\_69 Start: 51409, Stop: 51849, Start Num: 1

Candidate Starts for Stanimal\_69:

(Start: 1 @51409 has 89 MA's), (Start: 3 @51481 has 3 MA's), (7, 51562), (8, 51571), (25, 51766),

Gene: StarPlatinum\_69 Start: 52052, Stop: 52492, Start Num: 1

Candidate Starts for StarPlatinum\_69:

(Start: 1 @52052 has 89 MA's), (Start: 3 @52124 has 3 MA's), (7, 52205), (8, 52214), (11, 52292), (14, 52313), (25, 52409),

Gene: Starbow\_67 Start: 51528, Stop: 51968, Start Num: 1

Candidate Starts for Starbow\_67:

(Start: 1 @51528 has 89 MA's), (Start: 3 @51600 has 3 MA's), (4, 51639), (8, 51690), (11, 51768), (25, 51885),

Gene: Stigma\_47 Start: 42534, Stop: 42974, Start Num: 1

Candidate Starts for Stigma\_47:

(Start: 1 @42534 has 89 MA's), (2, 42597), (Start: 3 @42606 has 3 MA's), (26, 42912), (27, 42930), (33, 42963),

Gene: Sushi23\_67 Start: 52325, Stop: 52765, Start Num: 1

Candidate Starts for Sushi23\_67:

(Start: 1 @52325 has 89 MA's), (Start: 3 @52397 has 3 MA's), (8, 52487), (10, 52541), (29, 52733),

Gene: Targaryen\_68 Start: 53124, Stop: 53564, Start Num: 1

Candidate Starts for Targaryen\_68:

(Start: 1 @53124 has 89 MA's), (Start: 3 @53196 has 3 MA's), (8, 53286), (29, 53532),

Gene: Teutsch\_67 Start: 52588, Stop: 53028, Start Num: 1

Candidate Starts for Teutsch\_67:

(Start: 1 @52588 has 89 MA's), (Start: 3 @52660 has 3 MA's), (8, 52750), (10, 52804), (29, 52996),

Gene: TomSawyer\_67 Start: 51146, Stop: 51586, Start Num: 1

Candidate Starts for TomSawyer\_67:

(Start: 1 @51146 has 89 MA's), (Start: 3 @51218 has 3 MA's), (4, 51257), (8, 51308), (11, 51386), (25, 51503),

Gene: Tomas\_71 Start: 53866, Stop: 54306, Start Num: 1

Candidate Starts for Tomas\_71:

(Start: 1 @53866 has 89 MA's), (Start: 3 @53938 has 3 MA's), (8, 54028), (17, 54142), (20, 54169), (25, 54223), (30, 54277), (32, 54289),

Gene: Tribute\_65 Start: 51794, Stop: 52234, Start Num: 1

Candidate Starts for Tribute\_65:

(Start: 1 @51794 has 89 MA's), (Start: 3 @51866 has 3 MA's), (8, 51956), (10, 52010), (29, 52202),

Gene: TunaTartare\_46 Start: 42684, Stop: 43124, Start Num: 1

Candidate Starts for TunaTartare\_46:

(Start: 1 @42684 has 89 MA's), (2, 42747), (Start: 3 @42756 has 3 MA's), (5, 42798), (18, 42978), (19, 42984), (26, 43062), (33, 43113),

Gene: Wakanda\_43 Start: 42137, Stop: 42577, Start Num: 1

Candidate Starts for Wakanda\_43:

(Start: 1 @42137 has 89 MA's), (2, 42200), (Start: 3 @42209 has 3 MA's), (5, 42251), (6, 42272), (12, 42392), (18, 42431), (19, 42437), (23, 42491), (33, 42566),

Gene: Warpy\_71 Start: 52660, Stop: 53028, Start Num: 3

Candidate Starts for Warpy\_71:

(Start: 1 @52588 has 89 MA's), (Start: 3 @52660 has 3 MA's), (8, 52750), (29, 52996),

Gene: Watermoore\_67 Start: 52804, Stop: 53244, Start Num: 1

Candidate Starts for Watermoore\_67:

(Start: 1 @52804 has 89 MA's), (Start: 3 @52876 has 3 MA's), (8, 52966), (10, 53020), (29, 53212),

Gene: WhereRU\_64 Start: 51039, Stop: 51479, Start Num: 1

Candidate Starts for WhereRU\_64:

(Start: 1 @51039 has 89 MA's), (Start: 3 @51111 has 3 MA's), (8, 51201), (29, 51447),

Gene: Wipeout\_67 Start: 51897, Stop: 52337, Start Num: 1

Candidate Starts for Wipeout\_67:

(Start: 1 @51897 has 89 MA's), (Start: 3 @51969 has 3 MA's), (4, 52008), (8, 52059), (11, 52137), (25, 52254),

Gene: Wofford\_68 Start: 52582, Stop: 53022, Start Num: 1

Candidate Starts for Wofford\_68:

(Start: 1 @52582 has 89 MA's), (Start: 3 @52654 has 3 MA's), (8, 52744), (14, 52843), (18, 52876), (31, 52996),

Gene: Yaboi\_69 Start: 51497, Stop: 51937, Start Num: 1

Candidate Starts for Yaboi\_69:

(Start: 1 @51497 has 89 MA's), (Start: 3 @51569 has 3 MA's), (7, 51650), (8, 51659), (25, 51854),