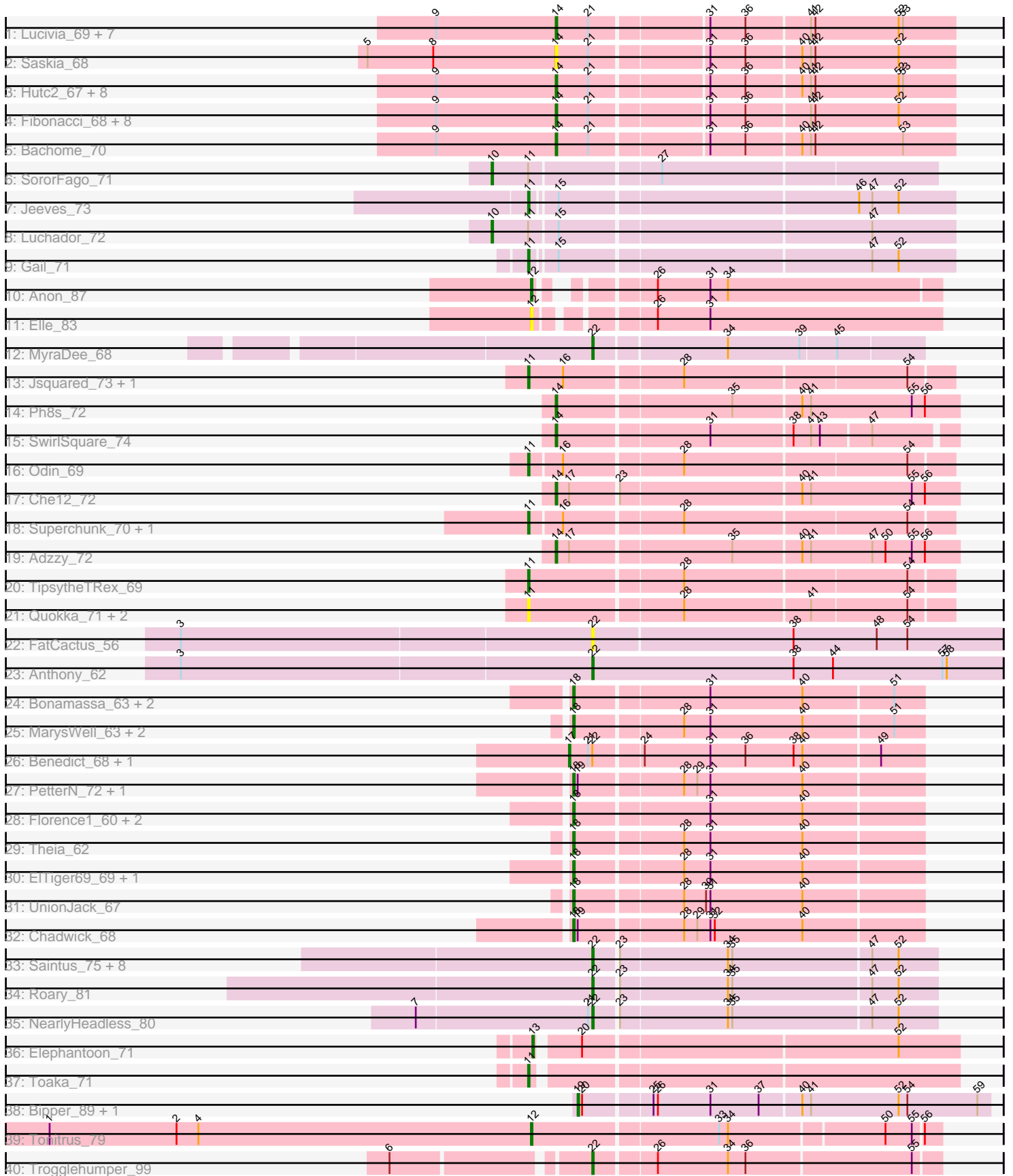


Pham 311483



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 311483 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311483 has 85 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Lucivia\_69, Orange\_67, Flaverint\_69, Sham4\_68, Timothy\_68, Munch\_68, Aneem\_69, Bowtie\_69
- Track 2 : Saskia\_68
- Track 3 : Hutc2\_67, Petersenfast\_66, Jabith\_69, Insomnia\_69, TinyTimmy\_68, Kimba\_67, Wolpertinger\_66, Bud\_67, Joselito\_69
- Track 4 : Fibonacci\_68, Mulciber\_67, Salz\_67, Snape\_68, Ebony\_68, Gilberta\_69, Et2Brutus\_67, MaCh\_68, Mabel\_68
- Track 5 : Bachome\_70
- Track 6 : SororFago\_71
- Track 7 : Jeeves\_73
- Track 8 : Luchador\_72
- Track 9 : Gail\_71
- Track 10 : Anon\_87
- Track 11 : Elle\_83
- Track 12 : MyraDee\_68
- Track 13 : Jsquared\_73, Serenity\_73
- Track 14 : Ph8s\_72
- Track 15 : SwirlSquare\_74
- Track 16 : Odin\_69
- Track 17 : Che12\_72
- Track 18 : Superchunk\_70, Caraxes\_71
- Track 19 : Adzzy\_72
- Track 20 : TopsytheTRex\_69
- Track 21 : Quokka\_71, MajorMajor\_71, Bradman\_72
- Track 22 : FatCactus\_56
- Track 23 : Anthony\_62
- Track 24 : Bonamassa\_63, George\_60, Milcery\_63
- Track 25 : MarysWell\_63, Micasa\_63, Dublin\_63
- Track 26 : Benedict\_68, Airmid\_67
- Track 27 : PetterN\_72, Scorpio\_68
- Track 28 : Florence1\_60, Tarynearal\_62, Florence4\_62
- Track 29 : Theia\_62
- Track 30 : EITiger69\_69, Naca\_66
- Track 31 : UnionJack\_67
- Track 32 : Chadwick\_68
- Track 33 : Saintus\_75, Danforth\_80, Stephig9\_78, Caitlin\_78, Groundhog\_77, Expelliarmus\_76, Astro\_79, Dixon\_78, Smeadley\_79

- Track 34 : Roary\_81
- Track 35 : NearlyHeadless\_80
- Track 36 : Elephantoon\_71
- Track 37 : Toaka\_71
- Track 38 : Bipper\_89, Cracklewink\_90
- Track 39 : Tonitrus\_79
- Track 40 : Trogglehumper\_99

**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 28 of the 73 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adzzy\_72, Aneem\_69, Bachome\_70, Bowtie\_69, Bud\_67, Che12\_72, Ebony\_68, Et2Brutus\_67, Fibonacci\_68, Flaverint\_69, Gilberta\_69, Hutc2\_67, Insomnia\_69, Jabith\_69, Joselito\_69, Kimba\_67, Lucivia\_69, MaCh\_68, Mabel\_68, Mulciber\_67, Munch\_68, Orange\_67, Petersenfast\_66, Ph8s\_72, Salz\_67, Saskia\_68, Sham4\_68, Snape\_68, SwirlSquare\_74, Timothy\_68, TinyTimmy\_68, Wolpertinger\_66,

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

- 

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

- Airmid\_67, Anon\_87, Anthony\_62, Astro\_79, Benedict\_68, Bipper\_89, Bonamassa\_63, Bradman\_72, Caitlin\_78, Caraxes\_71, Chadwick\_68, Cracklewink\_90, Danforth\_80, Dixon\_78, Dublin\_63, ElTiger69\_69, Elephantoon\_71, Elle\_83, Expelliarmus\_76, FatCactus\_56, Florence1\_60, Florence4\_62, Gail\_71, George\_60, Groundhog\_77, Jeeves\_73, Jsquared\_73, Luchador\_72, MajorMajor\_71, MarysWell\_63, Micasa\_63, Milcery\_63, MyraDee\_68, Naca\_66, NearlyHeadless\_80, Odin\_69, PetterN\_72, Quokka\_71, Roary\_81, Saintus\_75, Scorpia\_68, Serenity\_73, Smeadley\_79, SororFago\_71, Stephig9\_78, Superchunk\_70, Tarynearal\_62, Theia\_62, TopsytheTRex\_69, Toaka\_71, Tonitrus\_79, Trogglehumper\_99, UnionJack\_67,

**Summary by start number:**

Start 10:

- Found in 2 of 85 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 2 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Luchador\_72 (A14), SororFago\_71 (A14),

Start 11:

- Found in 14 of 85 ( 16.5% ) of genes in pham
- Manual Annotations of this start: 8 of 73
- Called 85.7% of time when present
- Phage (with cluster) where this start called: Bradman\_72 (A2), Caraxes\_71 (A2), Gail\_71 (A14), Jeeves\_73 (A14), Jsquared\_73 (A2), MajorMajor\_71 (A2), Odin\_69

(A2), Quokka\_71 (A2), Serenity\_73 (A2), Superchunk\_70 (A2), TipsytheTRex\_69 (A2), Toaka\_71 (A9),

Start 12:

- Found in 3 of 85 ( 3.5% ) of genes in pham
- Manual Annotations of this start: 2 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anon\_87 (A15), Elle\_83 (A15), Tonitrus\_79 (singleton),

Start 13:

- Found in 1 of 85 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Elephantoon\_71 (A9),

Start 14:

- Found in 32 of 85 ( 37.6% ) of genes in pham
- Manual Annotations of this start: 28 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Adzzy\_72 (A2), Aneem\_69 (A11), Bachome\_70 (A11), Bowtie\_69 (A11), Bud\_67 (A11), Che12\_72 (A2), Ebony\_68 (A11), Et2Brutus\_67 (A11), Fibonacci\_68 (A11), Flaverint\_69 (A11), Gilberta\_69 (A11), Hutc2\_67 (A11), Insomnia\_69 (A11), Jabith\_69 (A11), Joselito\_69 (A11), Kimba\_67 (A11), Lucivia\_69 (A11), MaCh\_68 (A11), Mabel\_68 (A11), Mulciber\_67 (A11), Munch\_68 (A11), Orange\_67 (A11), Petersenfast\_66 (A11), Ph8s\_72 (A2), Salz\_67 (A11), Saskia\_68 (A11), Sham4\_68 (A11), Snape\_68 (A11), SwirlSquare\_74 (A2), Timothy\_68 (A11), TinyTimmy\_68 (A11), Wolpertinger\_66 (A11),

Start 17:

- Found in 4 of 85 ( 4.7% ) of genes in pham
- Manual Annotations of this start: 2 of 73
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Airmid\_67 (A5), Benedict\_68 (A5),

Start 18:

- Found in 16 of 85 ( 18.8% ) of genes in pham
- Manual Annotations of this start: 14 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bonamassa\_63 (A5), Chadwick\_68 (A5), Dublin\_63 (A5), ElTiger69\_69 (A5), Florence1\_60 (A5), Florence4\_62 (A5), George\_60 (A5), MarysWell\_63 (A5), Micasa\_63 (A5), Milcery\_63 (A5), Naca\_66 (A5), PetterN\_72 (A5), Scorpia\_68 (A5), Tarynearal\_62 (A5), Theia\_62 (A5), UnionJack\_67 (A5),

Start 19:

- Found in 5 of 85 ( 5.9% ) of genes in pham
- Manual Annotations of this start: 2 of 73
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Bipper\_89 (Y), Cracklewink\_90 (Y),

Start 22:

- Found in 17 of 85 ( 20.0% ) of genes in pham

- Manual Annotations of this start: 14 of 73
- Called 88.2% of time when present
- Phage (with cluster) where this start called: Anthony\_62 (A20), Astro\_79 (A8), Caitlin\_78 (A8), Danforth\_80 (A8), Dixon\_78 (A8), Expelliarmus\_76 (A8), FatCactus\_56 (A20), Groundhog\_77 (A8), MyraDee\_68 (A18), NearlyHeadless\_80 (A8), Roary\_81 (A8), Saintus\_75 (A8), Smeadley\_79 (A8), Stephig9\_78 (A8), Trogglehumper\_99 (singleton),

### **Summary by clusters:**

There are 11 clusters represented in this pham: A15, A14, singleton, A20, A11, A18, Y, A2, A5, A9, A8,

Info for manual annotations of cluster A11:

- Start number 14 was manually annotated 24 times for cluster A11.

Info for manual annotations of cluster A14:

- Start number 10 was manually annotated 2 times for cluster A14.
- Start number 11 was manually annotated 2 times for cluster A14.

Info for manual annotations of cluster A15:

- Start number 12 was manually annotated 1 time for cluster A15.

Info for manual annotations of cluster A18:

- Start number 22 was manually annotated 1 time for cluster A18.

Info for manual annotations of cluster A2:

- Start number 11 was manually annotated 5 times for cluster A2.
- Start number 14 was manually annotated 4 times for cluster A2.

Info for manual annotations of cluster A20:

- Start number 22 was manually annotated 1 time for cluster A20.

Info for manual annotations of cluster A5:

- Start number 17 was manually annotated 2 times for cluster A5.
- Start number 18 was manually annotated 14 times for cluster A5.

Info for manual annotations of cluster A8:

- Start number 22 was manually annotated 11 times for cluster A8.

Info for manual annotations of cluster A9:

- Start number 11 was manually annotated 1 time for cluster A9.
- Start number 13 was manually annotated 1 time for cluster A9.

Info for manual annotations of cluster Y:

- Start number 19 was manually annotated 2 times for cluster Y.

### **Gene Information:**

Gene: Adzzy\_72 Start: 41570, Stop: 41304, Start Num: 14

Candidate Starts for Adzzy\_72:

(Start: 14 @41570 has 28 MA's), (Start: 17 @41561 has 2 MA's), (35, 41456), (40, 41411), (41, 41405), (47, 41363), (50, 41354), (55, 41336), (56, 41327),

Gene: Airmid\_67 Start: 42203, Stop: 41970, Start Num: 17

Candidate Starts for Airmid\_67:

(Start: 17 @42203 has 2 MA's), (21, 42191), (Start: 22 @42188 has 14 MA's), (24, 42158), (31, 42113), (36, 42089), (38, 42056), (40, 42050), (49, 41999),

Gene: Aneem\_69 Start: 41746, Stop: 41486, Start Num: 14

Candidate Starts for Aneem\_69:

(9, 41827), (Start: 14 @41746 has 28 MA's), (21, 41725), (31, 41650), (36, 41626), (41, 41584), (42, 41581), (52, 41524), (53, 41521),

Gene: Anon\_87 Start: 47141, Stop: 46893, Start Num: 12

Candidate Starts for Anon\_87:

(Start: 12 @47141 has 2 MA's), (26, 47084), (31, 47048), (34, 47036),

Gene: Anthony\_62 Start: 39800, Stop: 39519, Start Num: 22

Candidate Starts for Anthony\_62:

(3, 40076), (Start: 22 @39800 has 14 MA's), (38, 39662), (44, 39635), (57, 39560), (58, 39557),

Gene: Astro\_79 Start: 43758, Stop: 43531, Start Num: 22

Candidate Starts for Astro\_79:

(Start: 22 @43758 has 14 MA's), (23, 43743), (34, 43671), (35, 43668), (47, 43575), (52, 43557),

Gene: Bachome\_70 Start: 41742, Stop: 41482, Start Num: 14

Candidate Starts for Bachome\_70:

(9, 41823), (Start: 14 @41742 has 28 MA's), (21, 41721), (31, 41646), (36, 41622), (40, 41586), (41, 41580), (42, 41577), (53, 41517),

Gene: Benedict\_68 Start: 41935, Stop: 41702, Start Num: 17

Candidate Starts for Benedict\_68:

(Start: 17 @41935 has 2 MA's), (21, 41923), (Start: 22 @41920 has 14 MA's), (24, 41890), (31, 41845), (36, 41821), (38, 41788), (40, 41782), (49, 41731),

Gene: Bipper\_89 Start: 57383, Stop: 57655, Start Num: 19

Candidate Starts for Bipper\_89:

(Start: 19 @57383 has 2 MA's), (20, 57386), (25, 57428), (26, 57431), (31, 57467), (37, 57500), (40, 57527), (41, 57533), (52, 57593), (54, 57599), (59, 57647),

Gene: Bonamassa\_63 Start: 41386, Stop: 41156, Start Num: 18

Candidate Starts for Bonamassa\_63:

(Start: 18 @41386 has 14 MA's), (31, 41299), (40, 41236), (51, 41176),

Gene: Bowtie\_69 Start: 41753, Stop: 41493, Start Num: 14

Candidate Starts for Bowtie\_69:

(9, 41834), (Start: 14 @41753 has 28 MA's), (21, 41732), (31, 41657), (36, 41633), (41, 41591), (42, 41588), (52, 41531), (53, 41528),

Gene: Bradman\_72 Start: 42151, Stop: 41876, Start Num: 11

Candidate Starts for Bradman\_72:

(Start: 11 @42151 has 8 MA's), (28, 42052), (41, 41968), (54, 41905),

Gene: Bud\_67 Start: 41300, Stop: 41040, Start Num: 14

Candidate Starts for Bud\_67:

(9, 41381), (Start: 14 @41300 has 28 MA's), (21, 41279), (31, 41204), (36, 41180), (40, 41144), (41, 41138), (42, 41135), (52, 41078), (53, 41075),

Gene: Caitlin\_78 Start: 43450, Stop: 43223, Start Num: 22

Candidate Starts for Caitlin\_78:

(Start: 22 @43450 has 14 MA's), (23, 43435), (34, 43363), (35, 43360), (47, 43267), (52, 43249),

Gene: Caraxes\_71 Start: 41338, Stop: 41066, Start Num: 11

Candidate Starts for Caraxes\_71:

(Start: 11 @41338 has 8 MA's), (16, 41317), (28, 41242), (54, 41095),

Gene: Chadwick\_68 Start: 41682, Stop: 41452, Start Num: 18

Candidate Starts for Chadwick\_68:

(Start: 18 @41682 has 14 MA's), (Start: 19 @41679 has 2 MA's), (28, 41613), (29, 41604), (31, 41595), (32, 41592), (40, 41532),

Gene: Che12\_72 Start: 41454, Stop: 41188, Start Num: 14

Candidate Starts for Che12\_72:

(Start: 14 @41454 has 28 MA's), (Start: 17 @41445 has 2 MA's), (23, 41415), (40, 41295), (41, 41289), (55, 41220), (56, 41211),

Gene: Cracklewink\_90 Start: 56578, Stop: 56850, Start Num: 19

Candidate Starts for Cracklewink\_90:

(Start: 19 @56578 has 2 MA's), (20, 56581), (25, 56623), (26, 56626), (31, 56662), (37, 56695), (40, 56722), (41, 56728), (52, 56788), (54, 56794), (59, 56842),

Gene: Danforth\_80 Start: 43835, Stop: 43608, Start Num: 22

Candidate Starts for Danforth\_80:

(Start: 22 @43835 has 14 MA's), (23, 43820), (34, 43748), (35, 43745), (47, 43652), (52, 43634),

Gene: Dixon\_78 Start: 43317, Stop: 43090, Start Num: 22

Candidate Starts for Dixon\_78:

(Start: 22 @43317 has 14 MA's), (23, 43302), (34, 43230), (35, 43227), (47, 43134), (52, 43116),

Gene: Dublin\_63 Start: 41343, Stop: 41113, Start Num: 18

Candidate Starts for Dublin\_63:

(Start: 18 @41343 has 14 MA's), (28, 41274), (31, 41256), (40, 41193), (51, 41133),

Gene: Ebony\_68 Start: 41317, Stop: 41057, Start Num: 14

Candidate Starts for Ebony\_68:

(9, 41398), (Start: 14 @41317 has 28 MA's), (21, 41296), (31, 41221), (36, 41197), (41, 41155), (42, 41152), (52, 41095),

Gene: EITiger69\_69 Start: 42424, Stop: 42194, Start Num: 18

Candidate Starts for EITiger69\_69:

(Start: 18 @42424 has 14 MA's), (28, 42355), (31, 42337), (40, 42274),

Gene: Elephantoon\_71 Start: 42028, Stop: 41756, Start Num: 13

Candidate Starts for Elephantoon\_71:

(Start: 13 @42028 has 1 MA's), (20, 42004), (52, 41797),

Gene: Elle\_83 Start: 46131, Stop: 45871, Start Num: 12

Candidate Starts for Elle\_83:

(Start: 12 @46131 has 2 MA's), (26, 46065), (31, 46029),

Gene: Et2Brutus\_67 Start: 41280, Stop: 41020, Start Num: 14

Candidate Starts for Et2Brutus\_67:

(9, 41361), (Start: 14 @41280 has 28 MA's), (21, 41259), (31, 41184), (36, 41160), (41, 41118), (42, 41115), (52, 41058),

Gene: Expelliarmus\_76 Start: 43531, Stop: 43304, Start Num: 22

Candidate Starts for Expelliarmus\_76:

(Start: 22 @43531 has 14 MA's), (23, 43516), (34, 43444), (35, 43441), (47, 43348), (52, 43330),

Gene: FatCactus\_56 Start: 38730, Stop: 38452, Start Num: 22

Candidate Starts for FatCactus\_56:

(3, 39006), (Start: 22 @38730 has 14 MA's), (38, 38595), (48, 38538), (54, 38517),

Gene: Fibonacci\_68 Start: 41286, Stop: 41026, Start Num: 14

Candidate Starts for Fibonacci\_68:

(9, 41367), (Start: 14 @41286 has 28 MA's), (21, 41265), (31, 41190), (36, 41166), (41, 41124), (42, 41121), (52, 41064),

Gene: Flaverint\_69 Start: 41744, Stop: 41484, Start Num: 14

Candidate Starts for Flaverint\_69:

(9, 41825), (Start: 14 @41744 has 28 MA's), (21, 41723), (31, 41648), (36, 41624), (41, 41582), (42, 41579), (52, 41522), (53, 41519),

Gene: Florence1\_60 Start: 40898, Stop: 40668, Start Num: 18

Candidate Starts for Florence1\_60:

(Start: 18 @40898 has 14 MA's), (31, 40811), (40, 40748),

Gene: Florence4\_62 Start: 40898, Stop: 40668, Start Num: 18

Candidate Starts for Florence4\_62:

(Start: 18 @40898 has 14 MA's), (31, 40811), (40, 40748),

Gene: Gail\_71 Start: 43173, Stop: 42898, Start Num: 11

Candidate Starts for Gail\_71:

(Start: 11 @43173 has 8 MA's), (15, 43158), (47, 42954), (52, 42936),

Gene: George\_60 Start: 41130, Stop: 40900, Start Num: 18

Candidate Starts for George\_60:

(Start: 18 @41130 has 14 MA's), (31, 41043), (40, 40980), (51, 40920),

Gene: Gilberta\_69 Start: 41737, Stop: 41477, Start Num: 14

Candidate Starts for Gilberta\_69:

(9, 41818), (Start: 14 @41737 has 28 MA's), (21, 41716), (31, 41641), (36, 41617), (41, 41575), (42, 41572), (52, 41515),

Gene: Groundhog\_77 Start: 43587, Stop: 43366, Start Num: 22

Candidate Starts for Groundhog\_77:

(Start: 22 @43587 has 14 MA's), (23, 43572), (34, 43500), (35, 43497), (47, 43404), (52, 43386),

Gene: Hutc2\_67 Start: 41286, Stop: 41026, Start Num: 14

Candidate Starts for Hutc2\_67:

(9, 41367), (Start: 14 @41286 has 28 MA's), (21, 41265), (31, 41190), (36, 41166), (40, 41130), (41, 41124), (42, 41121), (52, 41064), (53, 41061),

Gene: Insomnia\_69 Start: 41725, Stop: 41465, Start Num: 14

Candidate Starts for Insomnia\_69:

(9, 41806), (Start: 14 @41725 has 28 MA's), (21, 41704), (31, 41629), (36, 41605), (40, 41569), (41, 41563), (42, 41560), (52, 41503), (53, 41500),

Gene: Jabith\_69 Start: 41742, Stop: 41482, Start Num: 14

Candidate Starts for Jabith\_69:

(9, 41823), (Start: 14 @41742 has 28 MA's), (21, 41721), (31, 41646), (36, 41622), (40, 41586), (41, 41580), (42, 41577), (52, 41520), (53, 41517),

Gene: Jeeves\_73 Start: 42154, Stop: 41879, Start Num: 11

Candidate Starts for Jeeves\_73:

(Start: 11 @42154 has 8 MA's), (15, 42139), (46, 41944), (47, 41935), (52, 41917),

Gene: Joselito\_69 Start: 41762, Stop: 41502, Start Num: 14

Candidate Starts for Joselito\_69:

(9, 41843), (Start: 14 @41762 has 28 MA's), (21, 41741), (31, 41666), (36, 41642), (40, 41606), (41, 41600), (42, 41597), (52, 41540), (53, 41537),

Gene: Jsquared\_73 Start: 42281, Stop: 42006, Start Num: 11

Candidate Starts for Jsquared\_73:

(Start: 11 @42281 has 8 MA's), (16, 42257), (28, 42182), (54, 42035),

Gene: Kimba\_67 Start: 41262, Stop: 41002, Start Num: 14

Candidate Starts for Kimba\_67:

(9, 41343), (Start: 14 @41262 has 28 MA's), (21, 41241), (31, 41166), (36, 41142), (40, 41106), (41, 41100), (42, 41097), (52, 41040), (53, 41037),

Gene: Luchador\_72 Start: 43662, Stop: 43360, Start Num: 10

Candidate Starts for Luchador\_72:

(Start: 10 @43662 has 2 MA's), (Start: 11 @43638 has 8 MA's), (15, 43620), (47, 43416),

Gene: Lucivia\_69 Start: 41795, Stop: 41535, Start Num: 14

Candidate Starts for Lucivia\_69:

(9, 41876), (Start: 14 @41795 has 28 MA's), (21, 41774), (31, 41699), (36, 41675), (41, 41633), (42, 41630), (52, 41573), (53, 41570),

Gene: MaCh\_68 Start: 41741, Stop: 41481, Start Num: 14

Candidate Starts for MaCh\_68:

(9, 41822), (Start: 14 @41741 has 28 MA's), (21, 41720), (31, 41645), (36, 41621), (41, 41579), (42, 41576), (52, 41519),

Gene: Mabel\_68 Start: 41742, Stop: 41482, Start Num: 14

Candidate Starts for Mabel\_68:

(9, 41823), (Start: 14 @41742 has 28 MA's), (21, 41721), (31, 41646), (36, 41622), (41, 41580), (42, 41577), (52, 41520),

Gene: MajorMajor\_71 Start: 42151, Stop: 41876, Start Num: 11

Candidate Starts for MajorMajor\_71:

(Start: 11 @42151 has 8 MA's), (28, 42052), (41, 41968), (54, 41905),

Gene: MarysWell\_63 Start: 41586, Stop: 41356, Start Num: 18

Candidate Starts for MarysWell\_63:

(Start: 18 @41586 has 14 MA's), (28, 41517), (31, 41499), (40, 41436), (51, 41376),

Gene: Micasa\_63 Start: 41308, Stop: 41078, Start Num: 18

Candidate Starts for Micasa\_63:

(Start: 18 @41308 has 14 MA's), (28, 41239), (31, 41221), (40, 41158), (51, 41098),

Gene: Milcery\_63 Start: 41098, Stop: 40868, Start Num: 18

Candidate Starts for Milcery\_63:

(Start: 18 @41098 has 14 MA's), (31, 41011), (40, 40948), (51, 40888),

Gene: Mulciber\_67 Start: 41283, Stop: 41023, Start Num: 14

Candidate Starts for Mulciber\_67:

(9, 41364), (Start: 14 @41283 has 28 MA's), (21, 41262), (31, 41187), (36, 41163), (41, 41121), (42, 41118), (52, 41061),

Gene: Munch\_68 Start: 41746, Stop: 41486, Start Num: 14

Candidate Starts for Munch\_68:

(9, 41827), (Start: 14 @41746 has 28 MA's), (21, 41725), (31, 41650), (36, 41626), (41, 41584), (42, 41581), (52, 41524), (53, 41521),

Gene: MyraDee\_68 Start: 40150, Stop: 39935, Start Num: 22

Candidate Starts for MyraDee\_68:

(Start: 22 @40150 has 14 MA's), (34, 40063), (39, 40015), (45, 39991),

Gene: Naca\_66 Start: 42496, Stop: 42266, Start Num: 18

Candidate Starts for Naca\_66:

(Start: 18 @42496 has 14 MA's), (28, 42427), (31, 42409), (40, 42346),

Gene: NearlyHeadless\_80 Start: 43601, Stop: 43374, Start Num: 22

Candidate Starts for NearlyHeadless\_80:

(7, 43718), (21, 43604), (Start: 22 @43601 has 14 MA's), (23, 43586), (34, 43514), (35, 43511), (47, 43418), (52, 43400),

Gene: Odin\_69 Start: 41725, Stop: 41453, Start Num: 11

Candidate Starts for Odin\_69:

(Start: 11 @41725 has 8 MA's), (16, 41704), (28, 41629), (54, 41482),

Gene: Orange\_67 Start: 41295, Stop: 41035, Start Num: 14

Candidate Starts for Orange\_67:

(9, 41376), (Start: 14 @41295 has 28 MA's), (21, 41274), (31, 41199), (36, 41175), (41, 41133), (42, 41130), (52, 41073), (53, 41070),

Gene: Petersenfast\_66 Start: 41294, Stop: 41034, Start Num: 14

Candidate Starts for Petersenfast\_66:

(9, 41375), (Start: 14 @41294 has 28 MA's), (21, 41273), (31, 41198), (36, 41174), (40, 41138), (41, 41132), (42, 41129), (52, 41072), (53, 41069),

Gene: PetterN\_72 Start: 42468, Stop: 42238, Start Num: 18

Candidate Starts for PetterN\_72:

(Start: 18 @42468 has 14 MA's), (Start: 19 @42465 has 2 MA's), (28, 42399), (29, 42390), (31, 42381), (40, 42318),

Gene: Ph8s\_72 Start: 41787, Stop: 41521, Start Num: 14

Candidate Starts for Ph8s\_72:

(Start: 14 @41787 has 28 MA's), (35, 41673), (40, 41628), (41, 41622), (55, 41553), (56, 41544),

Gene: Quokka\_71 Start: 42151, Stop: 41876, Start Num: 11

Candidate Starts for Quokka\_71:

(Start: 11 @42151 has 8 MA's), (28, 42052), (41, 41968), (54, 41905),

Gene: Roary\_81 Start: 43837, Stop: 43610, Start Num: 22

Candidate Starts for Roary\_81:

(Start: 22 @43837 has 14 MA's), (23, 43822), (34, 43750), (35, 43747), (47, 43654), (52, 43636),

Gene: Saintus\_75 Start: 40485, Stop: 40258, Start Num: 22

Candidate Starts for Saintus\_75:

(Start: 22 @40485 has 14 MA's), (23, 40470), (34, 40398), (35, 40395), (47, 40302), (52, 40284),

Gene: Salz\_67 Start: 41209, Stop: 40949, Start Num: 14

Candidate Starts for Salz\_67:

(9, 41290), (Start: 14 @41209 has 28 MA's), (21, 41188), (31, 41113), (36, 41089), (41, 41047), (42, 41044), (52, 40987),

Gene: Saskia\_68 Start: 41293, Stop: 41033, Start Num: 14

Candidate Starts for Saskia\_68:

(5, 41422), (8, 41377), (Start: 14 @41293 has 28 MA's), (21, 41272), (31, 41197), (36, 41173), (40, 41137), (41, 41131), (42, 41128), (52, 41071),

Gene: Scorpia\_68 Start: 42039, Stop: 41809, Start Num: 18

Candidate Starts for Scorpia\_68:

(Start: 18 @42039 has 14 MA's), (Start: 19 @42036 has 2 MA's), (28, 41970), (29, 41961), (31, 41952), (40, 41889),

Gene: Serenity\_73 Start: 42348, Stop: 42073, Start Num: 11

Candidate Starts for Serenity\_73:

(Start: 11 @42348 has 8 MA's), (16, 42324), (28, 42249), (54, 42102),

Gene: Sham4\_68 Start: 41293, Stop: 41033, Start Num: 14

Candidate Starts for Sham4\_68:

(9, 41374), (Start: 14 @41293 has 28 MA's), (21, 41272), (31, 41197), (36, 41173), (41, 41131), (42, 41128), (52, 41071), (53, 41068),

Gene: Smeadley\_79 Start: 43653, Stop: 43426, Start Num: 22

Candidate Starts for Smeadley\_79:

(Start: 22 @43653 has 14 MA's), (23, 43638), (34, 43566), (35, 43563), (47, 43470), (52, 43452),

Gene: Snape\_68 Start: 41285, Stop: 41025, Start Num: 14

Candidate Starts for Snape\_68:

(9, 41366), (Start: 14 @41285 has 28 MA's), (21, 41264), (31, 41189), (36, 41165), (41, 41123), (42, 41120), (52, 41063),

Gene: SororFago\_71 Start: 43379, Stop: 43092, Start Num: 10

Candidate Starts for SororFago\_71:

(Start: 10 @43379 has 2 MA's), (Start: 11 @43355 has 8 MA's), (27, 43274),

Gene: Stephig9\_78 Start: 43592, Stop: 43365, Start Num: 22

Candidate Starts for Stephig9\_78:

(Start: 22 @43592 has 14 MA's), (23, 43577), (34, 43505), (35, 43502), (47, 43409), (52, 43391),

Gene: Superchunk\_70 Start: 41338, Stop: 41066, Start Num: 11

Candidate Starts for Superchunk\_70:

(Start: 11 @41338 has 8 MA's), (16, 41317), (28, 41242), (54, 41095),

Gene: SwirlSquare\_74 Start: 42056, Stop: 41799, Start Num: 14

Candidate Starts for SwirlSquare\_74:

(Start: 14 @42056 has 28 MA's), (31, 41957), (38, 41903), (41, 41891), (43, 41885), (47, 41852),

Gene: Tarynearal\_62 Start: 41084, Stop: 40854, Start Num: 18

Candidate Starts for Tarynearal\_62:

(Start: 18 @41084 has 14 MA's), (31, 40997), (40, 40934),

Gene: Theia\_62 Start: 41570, Stop: 41340, Start Num: 18

Candidate Starts for Theia\_62:

(Start: 18 @41570 has 14 MA's), (28, 41501), (31, 41483), (40, 41420),

Gene: Timothy\_68 Start: 41262, Stop: 41002, Start Num: 14

Candidate Starts for Timothy\_68:

(9, 41343), (Start: 14 @41262 has 28 MA's), (21, 41241), (31, 41166), (36, 41142), (41, 41100), (42, 41097), (52, 41040), (53, 41037),

Gene: TinyTimmy\_68 Start: 41255, Stop: 40995, Start Num: 14

Candidate Starts for TinyTimmy\_68:

(9, 41336), (Start: 14 @41255 has 28 MA's), (21, 41234), (31, 41159), (36, 41135), (40, 41099), (41, 41093), (42, 41090), (52, 41033), (53, 41030),

Gene: TipsytheTRex\_69 Start: 42350, Stop: 42075, Start Num: 11

Candidate Starts for TipsytheTRex\_69:

(Start: 11 @42350 has 8 MA's), (28, 42251), (54, 42104),

Gene: Toaka\_71 Start: 42411, Stop: 42136, Start Num: 11

Candidate Starts for Toaka\_71:

(Start: 11 @42411 has 8 MA's),

Gene: Tonitrus\_79 Start: 55218, Stop: 55484, Start Num: 12

Candidate Starts for Tonitrus\_79:

(1, 54888), (2, 54975), (4, 54990), (Start: 12 @55218 has 2 MA's), (33, 55341), (34, 55347), (50, 55449), (55, 55467), (56, 55473),

Gene: Trogglehumper\_99 Start: 71065, Stop: 70838, Start Num: 22

Candidate Starts for Trogglehumper\_99:

(6, 71179), (Start: 22 @71065 has 14 MA's), (26, 71026), (34, 70978), (36, 70966), (55, 70855),

Gene: UnionJack\_67 Start: 41521, Stop: 41291, Start Num: 18

Candidate Starts for UnionJack\_67:

(Start: 18 @41521 has 14 MA's), (28, 41452), (30, 41437), (31, 41434), (40, 41371),

Gene: Wolpertinger\_66 Start: 41294, Stop: 41034, Start Num: 14

Candidate Starts for Wolpertinger\_66:

(9, 41375), (Start: 14 @41294 has 28 MA's), (21, 41273), (31, 41198), (36, 41174), (40, 41138), (41, 41132), (42, 41129), (52, 41072), (53, 41069),