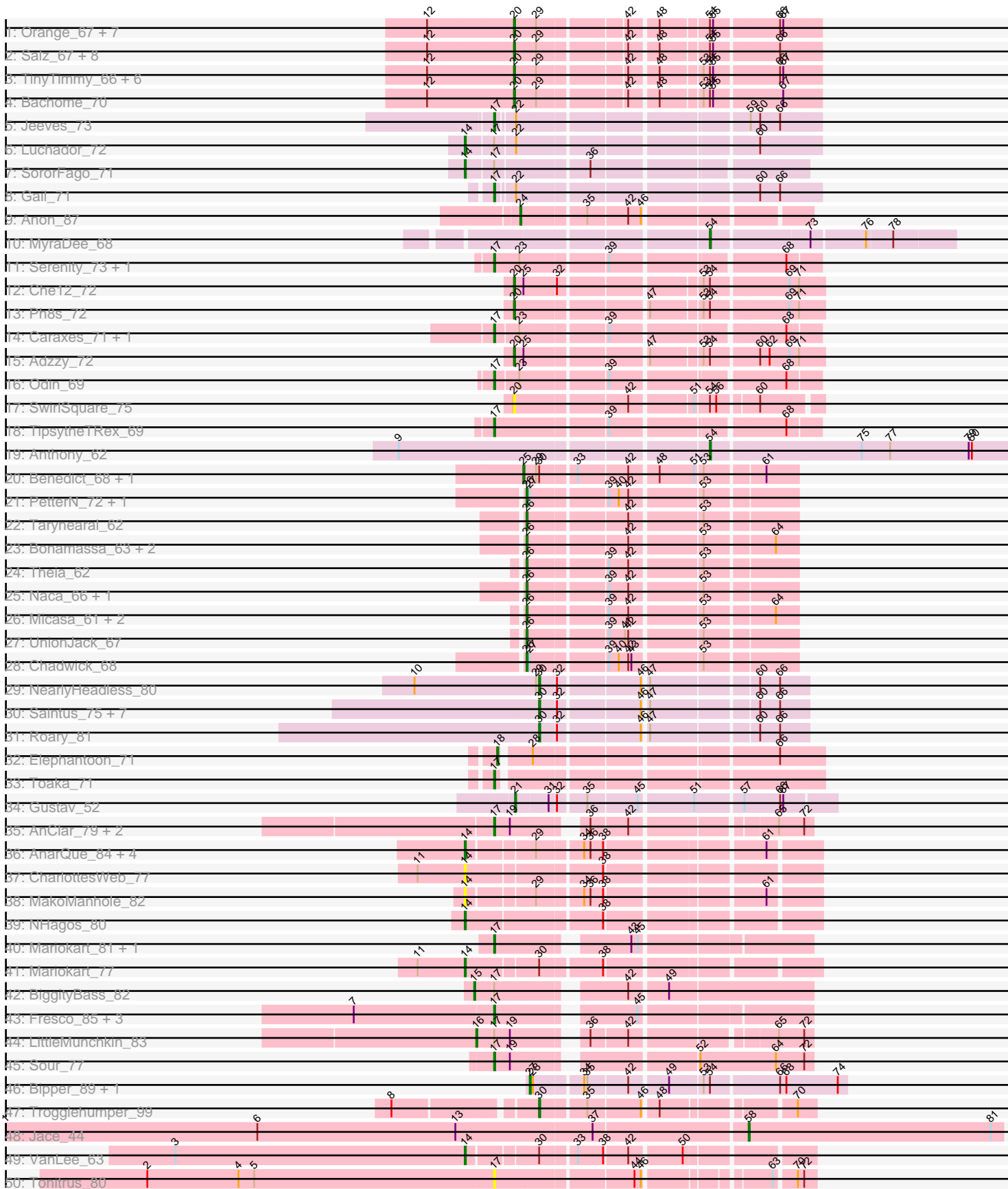


Pham 154617



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 154617 Report

This analysis was run 04/12/24 on database version 558.

Pham number 154617 has 98 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Orange_67, Bowtie_69, Sham4_68, Timothy_68, Flaverint_69, Lucivia_69, Munch_68, Aneem_69
- Track 2 : Salz_67, Gilberta_69, Et2Brutus_67, Mabel_68, Fibonacci_68, Mulciber_67, Snape_68, Ebony_68, MaCh_68
- Track 3 : TinyTimmy_66, Bud_67, Hutc2_67, Insomnia_67, Joselito_69, Petersenfast_66, Jabith_69
- Track 4 : Bachome_70
- Track 5 : Jeeves_73
- Track 6 : Luchador_72
- Track 7 : SororFago_71
- Track 8 : Gail_71
- Track 9 : Anon_87
- Track 10 : MyraDee_68
- Track 11 : Serenity_73, Jsquared_73
- Track 12 : Che12_72
- Track 13 : Ph8s_72
- Track 14 : Caraxes_71, Superchunk_70
- Track 15 : Adzzy_72
- Track 16 : Odin_69
- Track 17 : SwirlSquare_75
- Track 18 : TipsytheTRex_69
- Track 19 : Anthony_62
- Track 20 : Benedict_68, Airmid_67
- Track 21 : PetterN_72, Scorpia_68
- Track 22 : Tarynearal_62
- Track 23 : Bonamassa_63, George_60, Milcery_63
- Track 24 : Theia_62
- Track 25 : Naca_66, EITiger69_69
- Track 26 : Micasa_61, MarysWell_63, Dublin_63
- Track 27 : UnionJack_67
- Track 28 : Chadwick_68
- Track 29 : NearlyHeadless_80
- Track 30 : Saintus_75, Expelliarmus_76, Stepfig9_78, Astro_79, Danforth_80, Groundhog_77, Dixon_78, Smeadley_79
- Track 31 : Roary_81
- Track 32 : Elephantoon_71
- Track 33 : Toaka_71

- Track 34 : Gustav_52
- Track 35 : AnClar_79, Sisko_82, Yago84_81
- Track 36 : AnarQue_84, CloverMinnie_82, Wooper_84, CaiB_83, MossRose_82
- Track 37 : CharlottesWeb_77
- Track 38 : MakoManhole_82
- Track 39 : NHagos_80
- Track 40 : Mariokart_81, CharlottesWeb_81
- Track 41 : Mariokart_77
- Track 42 : BiggityBass_82
- Track 43 : Fresco_85, Axumite_85, Shatter_85, Ligma_85
- Track 44 : LittleMunchkin_83
- Track 45 : Sour_77
- Track 46 : Bipper_89, Cracklewink_90
- Track 47 : Trogglehumper_99
- Track 48 : Jace_44
- Track 49 : VanLee_63
- Track 50 : Tonitrus_80

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

The start number called the most often in the published annotations is 20, it was called in 25 of the 86 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_67, Jabith_69, Joselito_69, Lucivia_69, MaCh_68, Mabel_68, Mulciber_67, Munch_68, Orange_67, Petersenfast_66, Ph8s_72, Salz_67, Sham4_68, Snape_68, SwirlSquare_75, Timothy_68, TinyTimmy_66,

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

-

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

- Airmid_67, AnClar_79, AnarQue_84, Anon_87, Anthony_62, Astro_79, Axumite_85, Benedict_68, BiggityBass_82, Bipper_89, Bonamassa_63, CaiB_83, Caraxes_71, Chadwick_68, CharlottesWeb_77, CharlottesWeb_81, CloverMinnie_82, Cracklewink_90, Danforth_80, Dixon_78, Dublin_63, ElTiger69_69, Elephantoon_71, Expelliarmus_76, Fresco_85, Gail_71, George_60, Groundhog_77, Gustav_52, Jace_44, Jeeves_73, Jsquared_73, Ligma_85, LittleMunchkin_83, Luchador_72, MakoManhole_82, Mariokart_77, Mariokart_81, MarysWell_63, Micasa_61, Milcery_63, MossRose_82, MyraDee_68, NHagos_80, Naca_66, NearlyHeadless_80, Odin_69, PetterN_72, Roary_81, Saintus_75, Scorpia_68, Serenity_73, Shatter_85, Sisko_82, Smeadley_79, SororFago_71, Sour_77, Stephig9_78, Superchunk_70, Tarynearal_62, Theia_62, TopsytheTRex_69, Toaka_71, Tonitrus_80, Trogglehumper_99, UnionJack_67, VanLee_63, Wooper_84, Yago84_81,

Summary by start number:

Start 14:

- Found in 12 of 98 (12.2%) of genes in pham
- Manual Annotations of this start: 10 of 86
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AnarQue_84 (DR), CaiB_83 (DR), CharlottesWeb_77 (DR), CloverMinnie_82 (DR), Luchador_72 (A14), MakoManhole_82 (DR), Mariokart_77 (DR), MossRose_82 (DR), NHagos_80 (DR), SororFago_71 (A14), VanLee_63 (singleton), Wooper_84 (DR),

Start 15:

- Found in 1 of 98 (1.0%) of genes in pham
- Manual Annotations of this start: 1 of 86
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BiggityBass_82 (DR),

Start 16:

- Found in 1 of 98 (1.0%) of genes in pham
- Manual Annotations of this start: 1 of 86
- Called 100.0% of time when present
- Phage (with cluster) where this start called: LittleMunchkin_83 (DR),

Start 17:

- Found in 24 of 98 (24.5%) of genes in pham
- Manual Annotations of this start: 15 of 86
- Called 83.3% of time when present
- Phage (with cluster) where this start called: AnClar_79 (DR), Axumite_85 (DR), Caraxes_71 (A2), CharlottesWeb_81 (DR), Fresco_85 (DR), Gail_71 (A14), Jeeves_73 (A14), Jsquared_73 (A2), Ligma_85 (DR), Mariokart_81 (DR), Odin_69 (A2), Serenity_73 (A2), Shatter_85 (DR), Sisko_82 (DR), Sour_77 (DR), Superchunk_70 (A2), TipsytheTRex_69 (A2), Toaka_71 (A9), Tonitrus_80 (singleton), Yago84_81 (DR),

Start 18:

- Found in 1 of 98 (1.0%) of genes in pham
- Manual Annotations of this start: 1 of 86
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Elephantoon_71 (A9),

Start 20:

- Found in 29 of 98 (29.6%) of genes in pham
- Manual Annotations of this start: 25 of 86
- 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_67 (A11), Jabith_69 (A11), Joselito_69 (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), Sham4_68 (A11), Snape_68 (A11), SwirlSquare_75 (A2), Timothy_68 (A11), TinyTimmy_66 (A11),

Start 21:

- Found in 1 of 98 (1.0%) of genes in pham

- Manual Annotations of this start: 1 of 86
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gustav_52 (CD),

Start 24:

- Found in 1 of 98 (1.0%) of genes in pham
- Manual Annotations of this start: 1 of 86
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anon_87 (A15),

Start 25:

- Found in 4 of 98 (4.1%) of genes in pham
- Manual Annotations of this start: 2 of 86
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Airmid_67 (A5), Benedict_68 (A5),

Start 26:

- Found in 14 of 98 (14.3%) of genes in pham
- Manual Annotations of this start: 13 of 86
- 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), George_60 (A5), MarysWell_63 (A5), Micasa_61 (A5), Milcery_63 (A5), Naca_66 (A5), PetterN_72 (A5), Scorpia_68 (A5), Tarynearal_62 (A5), Theia_62 (A5), UnionJack_67 (A5),

Start 27:

- Found in 5 of 98 (5.1%) of genes in pham
- Manual Annotations of this start: 2 of 86
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Bipper_89 (Y), Cracklewink_90 (Y),

Start 30:

- Found in 15 of 98 (15.3%) of genes in pham
- Manual Annotations of this start: 11 of 86
- Called 73.3% of time when present
- Phage (with cluster) where this start called: Astro_79 (A8), Danforth_80 (A8), Dixon_78 (A8), Expelliarmus_76 (A8), Groundhog_77 (A8), NearlyHeadless_80 (A8), Roary_81 (A8), Saintus_75 (A8), Smeadley_79 (A8), Stephig9_78 (A8), Trogglehumper_99 (singleton),

Start 54:

- Found in 33 of 98 (33.7%) of genes in pham
- Manual Annotations of this start: 2 of 86
- Called 6.1% of time when present
- Phage (with cluster) where this start called: Anthony_62 (A20), MyraDee_68 (A18),

Start 58:

- Found in 1 of 98 (1.0%) of genes in pham
- Manual Annotations of this start: 1 of 86
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jace_44 (singleton),

Summary by clusters:

There are 13 clusters represented in this pham: A15, A14, singleton, A20, A11, A18, CD, A9, A2, A5, Y, A8, DR,

Info for manual annotations of cluster A11:

- Start number 20 was manually annotated 22 times for cluster A11.

Info for manual annotations of cluster A14:

- Start number 14 was manually annotated 2 times for cluster A14.
- Start number 17 was manually annotated 2 times for cluster A14.

Info for manual annotations of cluster A15:

- Start number 24 was manually annotated 1 time for cluster A15.

Info for manual annotations of cluster A18:

- Start number 54 was manually annotated 1 time for cluster A18.

Info for manual annotations of cluster A2:

- Start number 17 was manually annotated 5 times for cluster A2.
- Start number 20 was manually annotated 3 times for cluster A2.

Info for manual annotations of cluster A20:

- Start number 54 was manually annotated 1 time for cluster A20.

Info for manual annotations of cluster A5:

- Start number 25 was manually annotated 2 times for cluster A5.
- Start number 26 was manually annotated 13 times for cluster A5.

Info for manual annotations of cluster A8:

- Start number 30 was manually annotated 10 times for cluster A8.

Info for manual annotations of cluster A9:

- Start number 17 was manually annotated 1 time for cluster A9.
- Start number 18 was manually annotated 1 time for cluster A9.

Info for manual annotations of cluster CD:

- Start number 21 was manually annotated 1 time for cluster CD.

Info for manual annotations of cluster DR:

- Start number 14 was manually annotated 7 times for cluster DR.
- Start number 15 was manually annotated 1 time for cluster DR.
- Start number 16 was manually annotated 1 time for cluster DR.
- Start number 17 was manually annotated 7 times for cluster DR.

Info for manual annotations of cluster Y:

- Start number 27 was manually annotated 2 times for cluster Y.

Gene Information:

Gene: Adzzy_72 Start: 41570, Stop: 41304, Start Num: 20

Candidate Starts for Adzzy_72:

(Start: 20 @41570 has 25 MA's), (Start: 25 @41561 has 2 MA's), (47, 41456), (53, 41411), (Start: 54 @41405 has 2 MA's), (60, 41363), (62, 41354), (69, 41336), (71, 41327),

Gene: Airmid_67 Start: 42203, Stop: 41970, Start Num: 25

Candidate Starts for Airmid_67:

(Start: 25 @42203 has 2 MA's), (29, 42191), (Start: 30 @42188 has 11 MA's), (33, 42158), (42, 42113), (48, 42089), (51, 42056), (53, 42050), (61, 41999),

Gene: AnClar_79 Start: 61333, Stop: 61076, Start Num: 17

Candidate Starts for AnClar_79:

(Start: 17 @61333 has 15 MA's), (19, 61318), (36, 61264), (42, 61231), (65, 61108), (72, 61084),

Gene: AnarQue_84 Start: 61315, Stop: 61019, Start Num: 14

Candidate Starts for AnarQue_84:

(Start: 14 @61315 has 10 MA's), (29, 61258), (34, 61219), (36, 61213), (38, 61201), (61, 61066),

Gene: Aneem_69 Start: 41746, Stop: 41486, Start Num: 20

Candidate Starts for Aneem_69:

(12, 41827), (Start: 20 @41746 has 25 MA's), (29, 41725), (42, 41650), (48, 41626), (Start: 54 @41584 has 2 MA's), (55, 41581), (66, 41524), (67, 41521),

Gene: Anon_87 Start: 47141, Stop: 46893, Start Num: 24

Candidate Starts for Anon_87:

(Start: 24 @47141 has 1 MA's), (35, 47084), (42, 47048), (46, 47036),

Gene: Anthony_62 Start: 39800, Stop: 39519, Start Num: 54

Candidate Starts for Anthony_62:

(9, 40076), (Start: 54 @39800 has 2 MA's), (75, 39662), (77, 39635), (79, 39560), (80, 39557),

Gene: Astro_79 Start: 43758, Stop: 43531, Start Num: 30

Candidate Starts for Astro_79:

(Start: 30 @43758 has 11 MA's), (32, 43743), (46, 43671), (47, 43668), (60, 43575), (66, 43557),

Gene: Axumite_85 Start: 61188, Stop: 60922, Start Num: 17

Candidate Starts for Axumite_85:

(7, 61320), (Start: 17 @61188 has 15 MA's), (45, 61074),

Gene: Bachome_70 Start: 41742, Stop: 41482, Start Num: 20

Candidate Starts for Bachome_70:

(12, 41823), (Start: 20 @41742 has 25 MA's), (29, 41721), (42, 41646), (48, 41622), (53, 41586), (Start: 54 @41580 has 2 MA's), (55, 41577), (67, 41517),

Gene: Benedict_68 Start: 41935, Stop: 41702, Start Num: 25

Candidate Starts for Benedict_68:

(Start: 25 @41935 has 2 MA's), (29, 41923), (Start: 30 @41920 has 11 MA's), (33, 41890), (42, 41845), (48, 41821), (51, 41788), (53, 41782), (61, 41731),

Gene: BiggityBass_82 Start: 62678, Stop: 62391, Start Num: 15

Candidate Starts for BiggityBass_82:

(Start: 15 @62678 has 1 MA's), (Start: 17 @62663 has 15 MA's), (42, 62558), (49, 62525),

Gene: Bipper_89 Start: 57383, Stop: 57655, Start Num: 27

Candidate Starts for Bipper_89:

(Start: 27 @57383 has 2 MA's), (28, 57386), (34, 57428), (35, 57431), (42, 57467), (49, 57500), (53, 57527), (Start: 54 @57533 has 2 MA's), (66, 57593), (68, 57599), (74, 57647),

Gene: Bonamassa_63 Start: 41386, Stop: 41156, Start Num: 26
Candidate Starts for Bonamassa_63:
(Start: 26 @41386 has 13 MA's), (42, 41299), (53, 41236), (64, 41176),

Gene: Bowtie_69 Start: 41753, Stop: 41493, Start Num: 20
Candidate Starts for Bowtie_69:
(12, 41834), (Start: 20 @41753 has 25 MA's), (29, 41732), (42, 41657), (48, 41633), (Start: 54 @41591 has 2 MA's), (55, 41588), (66, 41531), (67, 41528),

Gene: Bud_67 Start: 41300, Stop: 41040, Start Num: 20
Candidate Starts for Bud_67:
(12, 41381), (Start: 20 @41300 has 25 MA's), (29, 41279), (42, 41204), (48, 41180), (53, 41144), (Start: 54 @41138 has 2 MA's), (55, 41135), (66, 41078), (67, 41075),

Gene: CaiB_83 Start: 61113, Stop: 60817, Start Num: 14
Candidate Starts for CaiB_83:
(Start: 14 @61113 has 10 MA's), (29, 61056), (34, 61017), (36, 61011), (38, 60999), (61, 60864),

Gene: Caraxes_71 Start: 41338, Stop: 41066, Start Num: 17
Candidate Starts for Caraxes_71:
(Start: 17 @41338 has 15 MA's), (23, 41317), (39, 41242), (68, 41095),

Gene: Chadwick_68 Start: 41682, Stop: 41452, Start Num: 26
Candidate Starts for Chadwick_68:
(Start: 26 @41682 has 13 MA's), (Start: 27 @41679 has 2 MA's), (39, 41613), (40, 41604), (42, 41595), (43, 41592), (53, 41532),

Gene: CharlottesWeb_77 Start: 58341, Stop: 58042, Start Num: 14
Candidate Starts for CharlottesWeb_77:
(11, 58386), (Start: 14 @58341 has 10 MA's), (38, 58224),

Gene: CharlottesWeb_81 Start: 59991, Stop: 59725, Start Num: 17
Candidate Starts for CharlottesWeb_81:
(Start: 17 @59991 has 15 MA's), (43, 59883), (45, 59877),

Gene: Che12_72 Start: 41454, Stop: 41188, Start Num: 20
Candidate Starts for Che12_72:
(Start: 20 @41454 has 25 MA's), (Start: 25 @41445 has 2 MA's), (32, 41415), (53, 41295), (Start: 54 @41289 has 2 MA's), (69, 41220), (71, 41211),

Gene: CloverMinnie_82 Start: 60591, Stop: 60295, Start Num: 14
Candidate Starts for CloverMinnie_82:
(Start: 14 @60591 has 10 MA's), (29, 60534), (34, 60495), (36, 60489), (38, 60477), (61, 60342),

Gene: Cracklewink_90 Start: 56578, Stop: 56850, Start Num: 27
Candidate Starts for Cracklewink_90:
(Start: 27 @56578 has 2 MA's), (28, 56581), (34, 56623), (35, 56626), (42, 56662), (49, 56695), (53, 56722), (Start: 54 @56728 has 2 MA's), (66, 56788), (68, 56794), (74, 56842),

Gene: Danforth_80 Start: 43835, Stop: 43608, Start Num: 30

Candidate Starts for Danforth_80:

(Start: 30 @43835 has 11 MA's), (32, 43820), (46, 43748), (47, 43745), (60, 43652), (66, 43634),

Gene: Dixon_78 Start: 43317, Stop: 43090, Start Num: 30

Candidate Starts for Dixon_78:

(Start: 30 @43317 has 11 MA's), (32, 43302), (46, 43230), (47, 43227), (60, 43134), (66, 43116),

Gene: Dublin_63 Start: 41343, Stop: 41113, Start Num: 26

Candidate Starts for Dublin_63:

(Start: 26 @41343 has 13 MA's), (39, 41274), (42, 41256), (53, 41193), (64, 41133),

Gene: Ebony_68 Start: 41317, Stop: 41057, Start Num: 20

Candidate Starts for Ebony_68:

(12, 41398), (Start: 20 @41317 has 25 MA's), (29, 41296), (42, 41221), (48, 41197), (Start: 54 @41155 has 2 MA's), (55, 41152), (66, 41095),

Gene: EITiger69_69 Start: 42424, Stop: 42194, Start Num: 26

Candidate Starts for EITiger69_69:

(Start: 26 @42424 has 13 MA's), (39, 42355), (42, 42337), (53, 42274),

Gene: Elephantoon_71 Start: 42028, Stop: 41756, Start Num: 18

Candidate Starts for Elephantoon_71:

(Start: 18 @42028 has 1 MA's), (28, 42004), (66, 41797),

Gene: Et2Brutus_67 Start: 41280, Stop: 41020, Start Num: 20

Candidate Starts for Et2Brutus_67:

(12, 41361), (Start: 20 @41280 has 25 MA's), (29, 41259), (42, 41184), (48, 41160), (Start: 54 @41118 has 2 MA's), (55, 41115), (66, 41058),

Gene: Expelliarmus_76 Start: 43531, Stop: 43304, Start Num: 30

Candidate Starts for Expelliarmus_76:

(Start: 30 @43531 has 11 MA's), (32, 43516), (46, 43444), (47, 43441), (60, 43348), (66, 43330),

Gene: Fibonacci_68 Start: 41286, Stop: 41026, Start Num: 20

Candidate Starts for Fibonacci_68:

(12, 41367), (Start: 20 @41286 has 25 MA's), (29, 41265), (42, 41190), (48, 41166), (Start: 54 @41124 has 2 MA's), (55, 41121), (66, 41064),

Gene: Flaverint_69 Start: 41744, Stop: 41484, Start Num: 20

Candidate Starts for Flaverint_69:

(12, 41825), (Start: 20 @41744 has 25 MA's), (29, 41723), (42, 41648), (48, 41624), (Start: 54 @41582 has 2 MA's), (55, 41579), (66, 41522), (67, 41519),

Gene: Fresco_85 Start: 61194, Stop: 60928, Start Num: 17

Candidate Starts for Fresco_85:

(7, 61326), (Start: 17 @61194 has 15 MA's), (45, 61080),

Gene: Gail_71 Start: 43173, Stop: 42898, Start Num: 17

Candidate Starts for Gail_71:

(Start: 17 @43173 has 15 MA's), (22, 43158), (60, 42954), (66, 42936),

Gene: George_60 Start: 41130, Stop: 40900, Start Num: 26

Candidate Starts for George_60:

(Start: 26 @41130 has 13 MA's), (42, 41043), (53, 40980), (64, 40920),

Gene: Gilberta_69 Start: 41737, Stop: 41477, Start Num: 20

Candidate Starts for Gilberta_69:

(12, 41818), (Start: 20 @41737 has 25 MA's), (29, 41716), (42, 41641), (48, 41617), (Start: 54 @41575 has 2 MA's), (55, 41572), (66, 41515),

Gene: Groundhog_77 Start: 43587, Stop: 43366, Start Num: 30

Candidate Starts for Groundhog_77:

(Start: 30 @43587 has 11 MA's), (32, 43572), (46, 43500), (47, 43497), (60, 43404), (66, 43386),

Gene: Gustav_52 Start: 37684, Stop: 37406, Start Num: 21

Candidate Starts for Gustav_52:

(Start: 21 @37684 has 1 MA's), (31, 37654), (32, 37648), (35, 37624), (45, 37579), (51, 37531), (57, 37489), (66, 37456), (67, 37453),

Gene: Hutc2_67 Start: 41286, Stop: 41026, Start Num: 20

Candidate Starts for Hutc2_67:

(12, 41367), (Start: 20 @41286 has 25 MA's), (29, 41265), (42, 41190), (48, 41166), (53, 41130), (Start: 54 @41124 has 2 MA's), (55, 41121), (66, 41064), (67, 41061),

Gene: Insomnia_67 Start: 41725, Stop: 41465, Start Num: 20

Candidate Starts for Insomnia_67:

(12, 41806), (Start: 20 @41725 has 25 MA's), (29, 41704), (42, 41629), (48, 41605), (53, 41569), (Start: 54 @41563 has 2 MA's), (55, 41560), (66, 41503), (67, 41500),

Gene: Jabith_69 Start: 41742, Stop: 41482, Start Num: 20

Candidate Starts for Jabith_69:

(12, 41823), (Start: 20 @41742 has 25 MA's), (29, 41721), (42, 41646), (48, 41622), (53, 41586), (Start: 54 @41580 has 2 MA's), (55, 41577), (66, 41520), (67, 41517),

Gene: Jace_44 Start: 31248, Stop: 31490, Start Num: 58

Candidate Starts for Jace_44:

(1, 30549), (6, 30789), (13, 30978), (37, 31107), (Start: 58 @31248 has 1 MA's), (81, 31479),

Gene: Jeeves_73 Start: 42154, Stop: 41879, Start Num: 17

Candidate Starts for Jeeves_73:

(Start: 17 @42154 has 15 MA's), (22, 42139), (59, 41944), (60, 41935), (66, 41917),

Gene: Joselito_69 Start: 41762, Stop: 41502, Start Num: 20

Candidate Starts for Joselito_69:

(12, 41843), (Start: 20 @41762 has 25 MA's), (29, 41741), (42, 41666), (48, 41642), (53, 41606), (Start: 54 @41600 has 2 MA's), (55, 41597), (66, 41540), (67, 41537),

Gene: Jsquared_73 Start: 42281, Stop: 42006, Start Num: 17

Candidate Starts for Jsquared_73:

(Start: 17 @42281 has 15 MA's), (23, 42257), (39, 42182), (68, 42035),

Gene: Ligma_85 Start: 61188, Stop: 60922, Start Num: 17

Candidate Starts for Ligma_85:

(7, 61320), (Start: 17 @61188 has 15 MA's), (45, 61074),

Gene: LittleMunchkin_83 Start: 62693, Stop: 62421, Start Num: 16

Candidate Starts for LittleMunchkin_83:

(Start: 16 @62693 has 1 MA's), (Start: 17 @62678 has 15 MA's), (19, 62663), (36, 62609), (42, 62576), (65, 62453), (72, 62429),

Gene: Luchador_72 Start: 43662, Stop: 43360, Start Num: 14

Candidate Starts for Luchador_72:

(Start: 14 @43662 has 10 MA's), (Start: 17 @43638 has 15 MA's), (22, 43620), (60, 43416),

Gene: Lucivia_69 Start: 41795, Stop: 41535, Start Num: 20

Candidate Starts for Lucivia_69:

(12, 41876), (Start: 20 @41795 has 25 MA's), (29, 41774), (42, 41699), (48, 41675), (Start: 54 @41633 has 2 MA's), (55, 41630), (66, 41573), (67, 41570),

Gene: MaCh_68 Start: 41741, Stop: 41481, Start Num: 20

Candidate Starts for MaCh_68:

(12, 41822), (Start: 20 @41741 has 25 MA's), (29, 41720), (42, 41645), (48, 41621), (Start: 54 @41579 has 2 MA's), (55, 41576), (66, 41519),

Gene: Mabel_68 Start: 41742, Stop: 41482, Start Num: 20

Candidate Starts for Mabel_68:

(12, 41823), (Start: 20 @41742 has 25 MA's), (29, 41721), (42, 41646), (48, 41622), (Start: 54 @41580 has 2 MA's), (55, 41577), (66, 41520),

Gene: MakoManhole_82 Start: 61086, Stop: 60790, Start Num: 14

Candidate Starts for MakoManhole_82:

(Start: 14 @61086 has 10 MA's), (29, 61029), (34, 60990), (36, 60984), (38, 60972), (61, 60837),

Gene: Mariokart_81 Start: 60229, Stop: 59963, Start Num: 17

Candidate Starts for Mariokart_81:

(Start: 17 @60229 has 15 MA's), (43, 60121), (45, 60115),

Gene: Mariokart_77 Start: 58579, Stop: 58280, Start Num: 14

Candidate Starts for Mariokart_77:

(11, 58624), (Start: 14 @58579 has 10 MA's), (Start: 30 @58516 has 11 MA's), (38, 58462),

Gene: MarysWell_63 Start: 41586, Stop: 41356, Start Num: 26

Candidate Starts for MarysWell_63:

(Start: 26 @41586 has 13 MA's), (39, 41517), (42, 41499), (53, 41436), (64, 41376),

Gene: Micasa_61 Start: 41308, Stop: 41078, Start Num: 26

Candidate Starts for Micasa_61:

(Start: 26 @41308 has 13 MA's), (39, 41239), (42, 41221), (53, 41158), (64, 41098),

Gene: Milcery_63 Start: 41098, Stop: 40868, Start Num: 26

Candidate Starts for Milcery_63:

(Start: 26 @41098 has 13 MA's), (42, 41011), (53, 40948), (64, 40888),

Gene: MossRose_82 Start: 60565, Stop: 60269, Start Num: 14

Candidate Starts for MossRose_82:

(Start: 14 @60565 has 10 MA's), (29, 60508), (34, 60469), (36, 60463), (38, 60451), (61, 60316),

Gene: Mulciber_67 Start: 41283, Stop: 41023, Start Num: 20

Candidate Starts for Mulciber_67:

(12, 41364), (Start: 20 @41283 has 25 MA's), (29, 41262), (42, 41187), (48, 41163), (Start: 54 @41121 has 2 MA's), (55, 41118), (66, 41061),

Gene: Munch_68 Start: 41746, Stop: 41486, Start Num: 20

Candidate Starts for Munch_68:

(12, 41827), (Start: 20 @41746 has 25 MA's), (29, 41725), (42, 41650), (48, 41626), (Start: 54 @41584 has 2 MA's), (55, 41581), (66, 41524), (67, 41521),

Gene: MyraDee_68 Start: 40150, Stop: 39935, Start Num: 54

Candidate Starts for MyraDee_68:

(Start: 54 @40150 has 2 MA's), (73, 40063), (76, 40015), (78, 39991),

Gene: NHagos_80 Start: 59095, Stop: 58793, Start Num: 14

Candidate Starts for NHagos_80:

(Start: 14 @59095 has 10 MA's), (38, 58975),

Gene: Naca_66 Start: 42496, Stop: 42266, Start Num: 26

Candidate Starts for Naca_66:

(Start: 26 @42496 has 13 MA's), (39, 42427), (42, 42409), (53, 42346),

Gene: NearlyHeadless_80 Start: 43601, Stop: 43374, Start Num: 30

Candidate Starts for NearlyHeadless_80:

(10, 43718), (29, 43604), (Start: 30 @43601 has 11 MA's), (32, 43586), (46, 43514), (47, 43511), (60, 43418), (66, 43400),

Gene: Odin_69 Start: 41725, Stop: 41453, Start Num: 17

Candidate Starts for Odin_69:

(Start: 17 @41725 has 15 MA's), (23, 41704), (39, 41629), (68, 41482),

Gene: Orange_67 Start: 41295, Stop: 41035, Start Num: 20

Candidate Starts for Orange_67:

(12, 41376), (Start: 20 @41295 has 25 MA's), (29, 41274), (42, 41199), (48, 41175), (Start: 54 @41133 has 2 MA's), (55, 41130), (66, 41073), (67, 41070),

Gene: Petersenfast_66 Start: 41294, Stop: 41034, Start Num: 20

Candidate Starts for Petersenfast_66:

(12, 41375), (Start: 20 @41294 has 25 MA's), (29, 41273), (42, 41198), (48, 41174), (53, 41138), (Start: 54 @41132 has 2 MA's), (55, 41129), (66, 41072), (67, 41069),

Gene: PetterN_72 Start: 42468, Stop: 42238, Start Num: 26

Candidate Starts for PetterN_72:

(Start: 26 @42468 has 13 MA's), (Start: 27 @42465 has 2 MA's), (39, 42399), (40, 42390), (42, 42381), (53, 42318),

Gene: Ph8s_72 Start: 41787, Stop: 41521, Start Num: 20

Candidate Starts for Ph8s_72:

(Start: 20 @41787 has 25 MA's), (47, 41673), (53, 41628), (Start: 54 @41622 has 2 MA's), (69, 41553), (71, 41544),

Gene: Roary_81 Start: 43837, Stop: 43610, Start Num: 30

Candidate Starts for Roary_81:

(Start: 30 @43837 has 11 MA's), (32, 43822), (46, 43750), (47, 43747), (60, 43654), (66, 43636),

Gene: Saintus_75 Start: 40485, Stop: 40258, Start Num: 30
Candidate Starts for Saintus_75:
(Start: 30 @40485 has 11 MA's), (32, 40470), (46, 40398), (47, 40395), (60, 40302), (66, 40284),

Gene: Salz_67 Start: 41209, Stop: 40949, Start Num: 20
Candidate Starts for Salz_67:
(12, 41290), (Start: 20 @41209 has 25 MA's), (29, 41188), (42, 41113), (48, 41089), (Start: 54 @41047 has 2 MA's), (55, 41044), (66, 40987),

Gene: Scorpia_68 Start: 42039, Stop: 41809, Start Num: 26
Candidate Starts for Scorpia_68:
(Start: 26 @42039 has 13 MA's), (Start: 27 @42036 has 2 MA's), (39, 41970), (40, 41961), (42, 41952), (53, 41889),

Gene: Serenity_73 Start: 42348, Stop: 42073, Start Num: 17
Candidate Starts for Serenity_73:
(Start: 17 @42348 has 15 MA's), (23, 42324), (39, 42249), (68, 42102),

Gene: Sham4_68 Start: 41293, Stop: 41033, Start Num: 20
Candidate Starts for Sham4_68:
(12, 41374), (Start: 20 @41293 has 25 MA's), (29, 41272), (42, 41197), (48, 41173), (Start: 54 @41131 has 2 MA's), (55, 41128), (66, 41071), (67, 41068),

Gene: Shatter_85 Start: 61188, Stop: 60922, Start Num: 17
Candidate Starts for Shatter_85:
(7, 61320), (Start: 17 @61188 has 15 MA's), (45, 61074),

Gene: Sisko_82 Start: 61674, Stop: 61402, Start Num: 17
Candidate Starts for Sisko_82:
(Start: 17 @61674 has 15 MA's), (19, 61659), (36, 61590), (42, 61557), (65, 61434), (72, 61410),

Gene: Smeadley_79 Start: 43653, Stop: 43426, Start Num: 30
Candidate Starts for Smeadley_79:
(Start: 30 @43653 has 11 MA's), (32, 43638), (46, 43566), (47, 43563), (60, 43470), (66, 43452),

Gene: Snape_68 Start: 41285, Stop: 41025, Start Num: 20
Candidate Starts for Snape_68:
(12, 41366), (Start: 20 @41285 has 25 MA's), (29, 41264), (42, 41189), (48, 41165), (Start: 54 @41123 has 2 MA's), (55, 41120), (66, 41063),

Gene: SororFago_71 Start: 43379, Stop: 43092, Start Num: 14
Candidate Starts for SororFago_71:
(Start: 14 @43379 has 10 MA's), (Start: 17 @43355 has 15 MA's), (36, 43274),

Gene: Sour_77 Start: 61148, Stop: 60876, Start Num: 17
Candidate Starts for Sour_77:
(Start: 17 @61148 has 15 MA's), (19, 61133), (52, 60983), (64, 60911), (72, 60884),

Gene: Stephig9_78 Start: 43592, Stop: 43365, Start Num: 30
Candidate Starts for Stephig9_78:
(Start: 30 @43592 has 11 MA's), (32, 43577), (46, 43505), (47, 43502), (60, 43409), (66, 43391),

Gene: Superchunk_70 Start: 41338, Stop: 41066, Start Num: 17

Candidate Starts for Superchunk_70:
(Start: 17 @41338 has 15 MA's), (23, 41317), (39, 41242), (68, 41095),

Gene: SwirlSquare_75 Start: 42056, Stop: 41799, Start Num: 20
Candidate Starts for SwirlSquare_75:
(Start: 20 @42056 has 25 MA's), (42, 41957), (51, 41903), (Start: 54 @41891 has 2 MA's), (56, 41885), (60, 41852),

Gene: Tarynearal_62 Start: 41084, Stop: 40854, Start Num: 26
Candidate Starts for Tarynearal_62:
(Start: 26 @41084 has 13 MA's), (42, 40997), (53, 40934),

Gene: Theia_62 Start: 41570, Stop: 41340, Start Num: 26
Candidate Starts for Theia_62:
(Start: 26 @41570 has 13 MA's), (39, 41501), (42, 41483), (53, 41420),

Gene: Timothy_68 Start: 41262, Stop: 41002, Start Num: 20
Candidate Starts for Timothy_68:
(12, 41343), (Start: 20 @41262 has 25 MA's), (29, 41241), (42, 41166), (48, 41142), (Start: 54 @41100 has 2 MA's), (55, 41097), (66, 41040), (67, 41037),

Gene: TinyTimmy_66 Start: 41255, Stop: 40995, Start Num: 20
Candidate Starts for TinyTimmy_66:
(12, 41336), (Start: 20 @41255 has 25 MA's), (29, 41234), (42, 41159), (48, 41135), (53, 41099), (Start: 54 @41093 has 2 MA's), (55, 41090), (66, 41033), (67, 41030),

Gene: TipsytheTRex_69 Start: 42350, Stop: 42075, Start Num: 17
Candidate Starts for TipsytheTRex_69:
(Start: 17 @42350 has 15 MA's), (39, 42251), (68, 42104),

Gene: Toaka_71 Start: 42411, Stop: 42136, Start Num: 17
Candidate Starts for Toaka_71:
(Start: 17 @42411 has 15 MA's),

Gene: Tonitrus_80 Start: 55218, Stop: 55484, Start Num: 17
Candidate Starts for Tonitrus_80:
(2, 54888), (4, 54975), (5, 54990), (Start: 17 @55218 has 15 MA's), (44, 55341), (46, 55347), (63, 55449), (70, 55467), (72, 55473),

Gene: Trogglehumper_99 Start: 71065, Stop: 70838, Start Num: 30
Candidate Starts for Trogglehumper_99:
(8, 71179), (Start: 30 @71065 has 11 MA's), (35, 71026), (46, 70978), (48, 70966), (70, 70855),

Gene: UnionJack_67 Start: 41521, Stop: 41291, Start Num: 26
Candidate Starts for UnionJack_67:
(Start: 26 @41521 has 13 MA's), (39, 41452), (41, 41437), (42, 41434), (53, 41371),

Gene: VanLee_63 Start: 40991, Stop: 41281, Start Num: 14
Candidate Starts for VanLee_63:
(3, 40715), (Start: 14 @40991 has 10 MA's), (Start: 30 @41051 has 11 MA's), (33, 41081), (38, 41105), (42, 41126), (50, 41171),

Gene: Wooper_84 Start: 60648, Stop: 60352, Start Num: 14

Candidate Starts for Wooper_84:

(Start: 14 @60648 has 10 MA's), (29, 60591), (34, 60552), (36, 60546), (38, 60534), (61, 60399),

Gene: Yago84_81 Start: 61367, Stop: 61110, Start Num: 17

Candidate Starts for Yago84_81:

(Start: 17 @61367 has 15 MA's), (19, 61352), (36, 61298), (42, 61265), (65, 61142), (72, 61118),