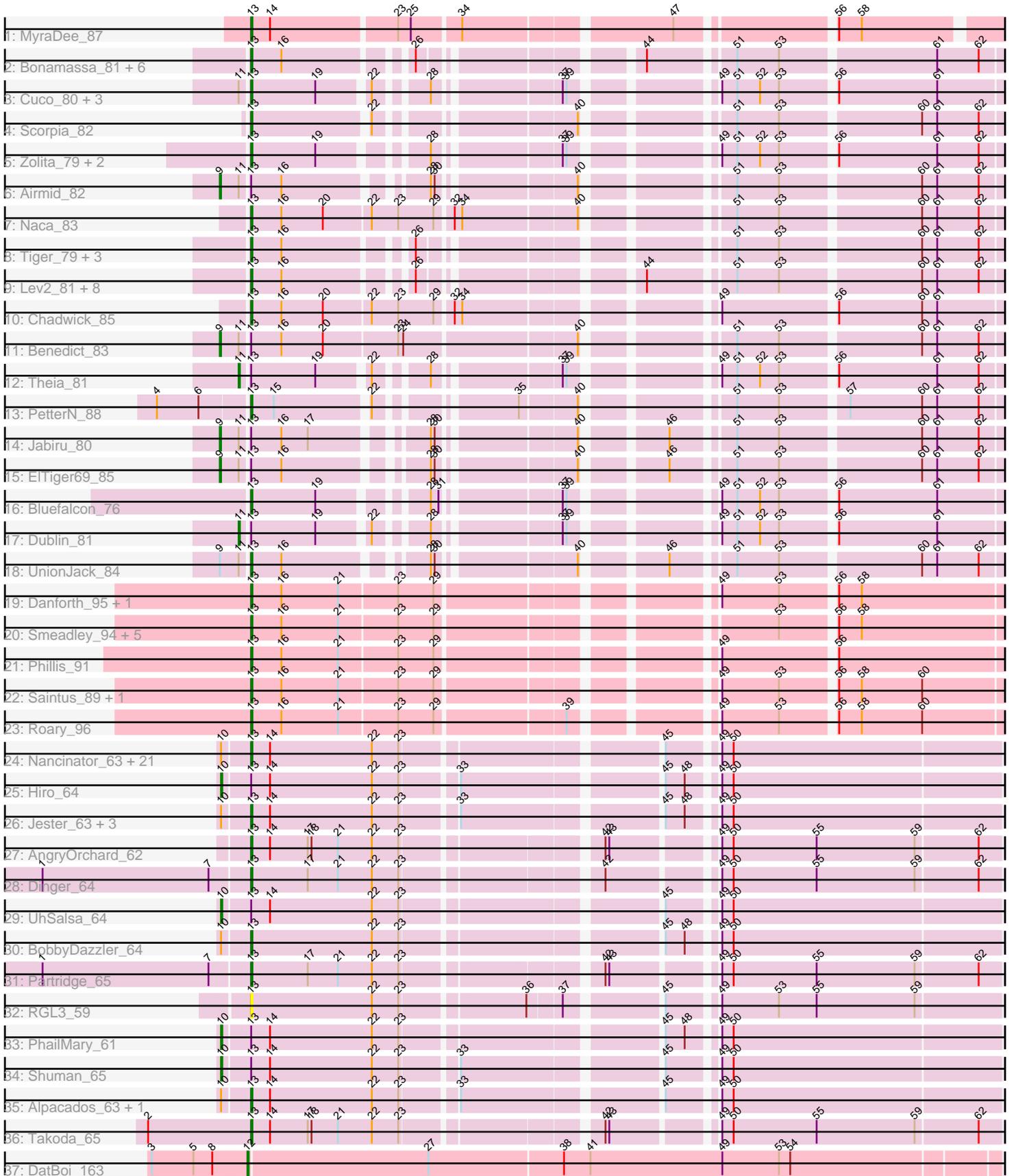


Pham 291042



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 291042 Report

This analysis was run 03/28/26 on database version 641.

Pham number 291042 has 91 members, 6 are drafts.

Phages represented in each track:

- Track 1 : MyraDee_87
- Track 2 : Bonamassa_81, Micasa_82, George_75, HuhtaEnerson15_79, LittleCherry_79, Milcery_79, Tarynearal_81
- Track 3 : Cuco_80, MarysWell_81, Coog_78, Midas2_78
- Track 4 : Scorpio_82
- Track 5 : Zolita_79, Ghoulboy_81, SydNat_80
- Track 6 : Airmid_82
- Track 7 : Naca_83
- Track 8 : Tiger_79, Phlorence_79, AgentM_80, Conspiracy_81
- Track 9 : Lev2_81, PickleBack_82, ForGetIt_82, Jovo_79, Florence1_79, Discoknowium_78, Prinasse11_80, Twigg_79, Aragog_81
- Track 10 : Chadwick_85
- Track 11 : Benedict_83
- Track 12 : Theia_81
- Track 13 : PetterN_88
- Track 14 : Jabiru_80
- Track 15 : EITiger69_85
- Track 16 : Bluefalcon_76
- Track 17 : Dublin_81
- Track 18 : UnionJack_84
- Track 19 : Danforth_95, Stephig9_95
- Track 20 : Smeadley_94, Expelliarmus_91, Dixon_93, Caitlin_92, Groundhog_91, Astro_93
- Track 21 : Phillis_91
- Track 22 : Saintus_89, NearlyHeadless_95
- Track 23 : Roary_96
- Track 24 : Nancinator_63, RexFury_63, Espica_65, Naiad_63, Gollum_64, Bonanza_65, Belenaria_65, Natosaleda_63, Alatin_63, Bradshaw_64, Rasputin_64, Swann_64, RER2_58, CosmicSans_64, Rhodalysa_64, AppleCloud_61, Krishelle_64, TWAMP_64, Yogi_65, StCroix_63, Lillie_64, Erik_64
- Track 25 : Hiro_64
- Track 26 : Jester_63, Yoncess_63, Harlequin_64, Bryce_63
- Track 27 : AngryOrchard_62
- Track 28 : Dinger_64
- Track 29 : UhSalsa_64
- Track 30 : BobbyDazzler_64
- Track 31 : Partridge_65

- Track 32 : RGL3_59
- Track 33 : PhailMary_61
- Track 34 : Shuman_65
- Track 35 : Alpacados_63, Phrankenstein_64
- Track 36 : Takoda_65
- Track 37 : DatBoi_163

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

The start number called the most often in the published annotations is 13, it was called in 74 of the 85 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AgentM_80, Alatin_63, Alpacados_63, AngryOrchard_62, AppleCloud_61, Aragog_81, Astro_93, Belenaria_65, Bluefalcon_76, BobbyDazzler_64, Bonamassa_81, Bonanza_65, Bradshaw_64, Bryce_63, Caitlin_92, Chadwick_85, Conspiracy_81, Coog_78, CosmicSans_64, Cuco_80, Danforth_95, Dinger_64, Discoknowium_78, Dixon_93, Erik_64, Espica_65, Expelliarmus_91, Florence1_79, ForGetIt_82, George_75, Ghoulboy_81, Gollum_64, Groundhog_91, Harlequin_64, HuhtaEnerson15_79, Jester_63, Jovo_79, Krishelle_64, Lev2_81, Lillie_64, LittleCherry_79, MarysWell_81, Micasa_82, Midas2_78, Milcery_79, MyraDee_87, Naca_83, Naiad_63, Nancinator_63, Natosaleda_63, NearlyHeadless_95, Partridge_65, PetterN_88, Phillis_91, Phlorence_79, Phrankenstein_64, PickleBack_82, Prinasha11_80, RER2_58, RGL3_59, Rasputin_64, RexFury_63, Rhodalysa_64, Roary_96, Saintus_89, Scorpia_82, Smeadley_94, StCroix_63, StepHig9_95, Swann_64, SydNat_80, TWAMP_64, Takoda_65, Tarynearal_81, Tiger_79, Twigg_79, UnionJack_84, Yogi_65, Yoncess_63, Zolita_79,

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

- Airmid_82, Benedict_83, Dublin_81, EITiger69_85, Hiro_64, Jabiru_80, PhailMary_61, Shuman_65, Theia_81, UhSalsa_64,

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

- DatBoi_163,

Summary by start number:

Start 9:

- Found in 5 of 91 (5.5%) of genes in pham
- Manual Annotations of this start: 4 of 85
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Airmid_82 (A5), Benedict_83 (A5), EITiger69_85 (A5), Jabiru_80 (A5),

Start 10:

- Found in 33 of 91 (36.3%) of genes in pham
- Manual Annotations of this start: 4 of 85
- Called 12.1% of time when present
- Phage (with cluster) where this start called: Hiro_64 (CA), PhailMary_61 (CA), Shuman_65 (CA), UhSalsa_64 (CA),

Start 11:

- Found in 11 of 91 (12.1%) of genes in pham
- Manual Annotations of this start: 2 of 85
- Called 18.2% of time when present
- Phage (with cluster) where this start called: Dublin_81 (A5), Theia_81 (A5),

Start 12:

- Found in 1 of 91 (1.1%) of genes in pham
- Manual Annotations of this start: 1 of 85
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DatBoi_163 (DL),

Start 13:

- Found in 90 of 91 (98.9%) of genes in pham
- Manual Annotations of this start: 74 of 85
- Called 88.9% of time when present
- Phage (with cluster) where this start called: AgentM_80 (A5), Alatin_63 (CA), Alpacados_63 (CA), AngryOrchard_62 (CA), AppleCloud_61 (CA), Aragog_81 (A5), Astro_93 (A8), Belenaria_65 (CA), Bluefalcon_76 (A5), BobbyDazzler_64 (CA), Bonamassa_81 (A5), Bonanza_65 (CA), Bradshaw_64 (CA), Bryce_63 (CA), Caitlin_92 (A8), Chadwick_85 (A5), Conspiracy_81 (A5), Coog_78 (A5), CosmicSans_64 (CA), Cuco_80 (A5), Danforth_95 (A8), Dinger_64 (CA), Discoknowium_78 (A5), Dixon_93 (A8), Erik_64 (CA), Espica_65 (CA), Expelliarmus_91 (A8), Florence1_79 (A5), ForGetIt_82 (A5), George_75 (A5), Ghoulyboy_81 (A5), Gollum_64 (CA), Groundhog_91 (A8), Harlequin_64 (CA), HuhtaEnerson15_79 (A5), Jester_63 (CA), Jovo_79 (A5), Krishelle_64 (CA), Lev2_81 (A5), Lillie_64 (CA), LittleCherry_79 (A5), MarysWell_81 (A5), Micasa_82 (A5), Midas2_78 (A5), Milcery_79 (A5), MyraDee_87 (A18), Naca_83 (A5), Naiad_63 (CA), Nancinator_63 (CA), Natosaleda_63 (CA), NearlyHeadless_95 (A8), Partridge_65 (CA), PetterN_88 (A5), Phillis_91 (A8), Phlorence_79 (A5), Phrankenstien_64 (CA), PickleBack_82 (A5), Prinash11_80 (A5), RER2_58 (CA), RGL3_59 (CA), Rasputin_64 (CA), RexFury_63 (CA), Rhodalysa_64 (CA), Roary_96 (A8), Saintus_89 (A8), Scorpia_82 (A5), Smeadley_94 (A8), StCroix_63 (CA), StepHig9_95 (A8), Swann_64 (CA), SydNat_80 (A5), TWAMP_64 (CA), Takoda_65 (CA), Tarynearl_81 (A5), Tiger_79 (A5), Twigg_79 (A5), UnionJack_84 (A5), Yogi_65 (CA), Yoncess_63 (CA), Zolita_79 (A5),

Summary by clusters:

There are 5 clusters represented in this pham: A8, CA, A5, A18, DL,

Info for manual annotations of cluster A18:

- Start number 13 was manually annotated 1 time for cluster A18.

Info for manual annotations of cluster A5:

- Start number 9 was manually annotated 4 times for cluster A5.
- Start number 11 was manually annotated 2 times for cluster A5.
- Start number 13 was manually annotated 30 times for cluster A5.

Info for manual annotations of cluster A8:

- Start number 13 was manually annotated 11 times for cluster A8.

Info for manual annotations of cluster CA:

- Start number 10 was manually annotated 4 times for cluster CA.
- Start number 13 was manually annotated 32 times for cluster CA.

Info for manual annotations of cluster DL:

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

Gene Information:

Gene: AgentM_80 Start: 46929, Stop: 46414, Start Num: 13

Candidate Starts for AgentM_80:

(Start: 13 @46929 has 74 MA's), (16, 46905), (26, 46818), (51, 46614), (53, 46581), (60, 46476), (61, 46464), (62, 46431),

Gene: Airmid_82 Start: 47299, Stop: 46763, Start Num: 9

Candidate Starts for Airmid_82:

(Start: 9 @47299 has 4 MA's), (Start: 11 @47284 has 2 MA's), (Start: 13 @47278 has 74 MA's), (16, 47254), (28, 47158), (30, 47155), (40, 47059), (51, 46963), (53, 46930), (60, 46825), (61, 46813), (62, 46780),

Gene: Alatin_63 Start: 43109, Stop: 42558, Start Num: 13

Candidate Starts for Alatin_63:

(Start: 10 @43130 has 4 MA's), (Start: 13 @43109 has 74 MA's), (14, 43094), (22, 43013), (23, 42992), (45, 42809), (49, 42776), (50, 42767),

Gene: Alpacados_63 Start: 42932, Stop: 42381, Start Num: 13

Candidate Starts for Alpacados_63:

(Start: 10 @42953 has 4 MA's), (Start: 13 @42932 has 74 MA's), (14, 42917), (22, 42836), (23, 42815), (33, 42776), (45, 42632), (49, 42599), (50, 42590),

Gene: AngryOrchard_62 Start: 43154, Stop: 42606, Start Num: 13

Candidate Starts for AngryOrchard_62:

(Start: 13 @43154 has 74 MA's), (14, 43139), (17, 43109), (18, 43106), (21, 43085), (22, 43058), (23, 43037), (42, 42899), (43, 42896), (49, 42824), (50, 42815), (55, 42749), (59, 42671), (62, 42623),

Gene: AppleCloud_61 Start: 42826, Stop: 42275, Start Num: 13

Candidate Starts for AppleCloud_61:

(Start: 10 @42847 has 4 MA's), (Start: 13 @42826 has 74 MA's), (14, 42811), (22, 42730), (23, 42709), (45, 42526), (49, 42493), (50, 42484),

Gene: Aragog_81 Start: 47226, Stop: 46711, Start Num: 13

Candidate Starts for Aragog_81:

(Start: 13 @47226 has 74 MA's), (16, 47202), (26, 47115), (44, 46971), (51, 46911), (53, 46878), (60, 46773), (61, 46761), (62, 46728),

Gene: Astro_93 Start: 48792, Stop: 48250, Start Num: 13

Candidate Starts for Astro_93:

(Start: 13 @48792 has 74 MA's), (16, 48768), (21, 48723), (23, 48678), (29, 48651), (53, 48417), (56, 48378), (58, 48360),

Gene: Belenaria_65 Start: 42974, Stop: 42423, Start Num: 13

Candidate Starts for Belenaria_65:

(Start: 10 @42995 has 4 MA's), (Start: 13 @42974 has 74 MA's), (14, 42959), (22, 42878), (23, 42857), (45, 42674), (49, 42641), (50, 42632),

Gene: Benedict_83 Start: 47142, Stop: 46579, Start Num: 9

Candidate Starts for Benedict_83:

(Start: 9 @47142 has 4 MA's), (Start: 11 @47127 has 2 MA's), (Start: 13 @47121 has 74 MA's), (16, 47097), (20, 47064), (23, 47007), (24, 47004), (40, 46875), (51, 46779), (53, 46746), (60, 46641), (61, 46629), (62, 46596),

Gene: Bluefalcon_76 Start: 47511, Stop: 46996, Start Num: 13

Candidate Starts for Bluefalcon_76:

(Start: 13 @47511 has 74 MA's), (19, 47460), (28, 47391), (31, 47385), (37, 47304), (39, 47301), (49, 47208), (51, 47196), (52, 47178), (53, 47163), (56, 47124), (61, 47046),

Gene: BobbyDazzler_64 Start: 43080, Stop: 42529, Start Num: 13

Candidate Starts for BobbyDazzler_64:

(Start: 10 @43101 has 4 MA's), (Start: 13 @43080 has 74 MA's), (22, 42984), (23, 42963), (45, 42780), (48, 42765), (49, 42747), (50, 42738),

Gene: Bonamassa_81 Start: 47268, Stop: 46753, Start Num: 13

Candidate Starts for Bonamassa_81:

(Start: 13 @47268 has 74 MA's), (16, 47244), (26, 47157), (44, 47013), (51, 46953), (53, 46920), (61, 46803), (62, 46770),

Gene: Bonanza_65 Start: 43384, Stop: 42833, Start Num: 13

Candidate Starts for Bonanza_65:

(Start: 10 @43405 has 4 MA's), (Start: 13 @43384 has 74 MA's), (14, 43369), (22, 43288), (23, 43267), (45, 43084), (49, 43051), (50, 43042),

Gene: Bradshaw_64 Start: 43042, Stop: 42491, Start Num: 13

Candidate Starts for Bradshaw_64:

(Start: 10 @43063 has 4 MA's), (Start: 13 @43042 has 74 MA's), (14, 43027), (22, 42946), (23, 42925), (45, 42742), (49, 42709), (50, 42700),

Gene: Bryce_63 Start: 42788, Stop: 42237, Start Num: 13

Candidate Starts for Bryce_63:

(Start: 10 @42809 has 4 MA's), (Start: 13 @42788 has 74 MA's), (14, 42773), (22, 42692), (23, 42671), (33, 42632), (45, 42488), (48, 42473), (49, 42455), (50, 42446),

Gene: Caitlin_92 Start: 48484, Stop: 47942, Start Num: 13

Candidate Starts for Caitlin_92:

(Start: 13 @48484 has 74 MA's), (16, 48460), (21, 48415), (23, 48370), (29, 48343), (53, 48109), (56, 48070), (58, 48052),

Gene: Chadwick_85 Start: 47186, Stop: 46644, Start Num: 13

Candidate Starts for Chadwick_85:

(Start: 13 @47186 has 74 MA's), (16, 47162), (20, 47129), (22, 47093), (23, 47072), (29, 47045), (32, 47033), (34, 47027), (49, 46856), (56, 46772), (60, 46706), (61, 46694),

Gene: Conspiracy_81 Start: 47169, Stop: 46654, Start Num: 13

Candidate Starts for Conspiracy_81:

(Start: 13 @47169 has 74 MA's), (16, 47145), (26, 47058), (51, 46854), (53, 46821), (60, 46716), (61, 46704), (62, 46671),

Gene: Coog_78 Start: 47307, Stop: 46792, Start Num: 13

Candidate Starts for Coog_78:

(Start: 11 @47313 has 2 MA's), (Start: 13 @47307 has 74 MA's), (19, 47256), (22, 47220), (28, 47187), (37, 47100), (39, 47097), (49, 47004), (51, 46992), (52, 46974), (53, 46959), (56, 46920), (61, 46842),

Gene: CosmicSans_64 Start: 43033, Stop: 42482, Start Num: 13

Candidate Starts for CosmicSans_64:

(Start: 10 @43054 has 4 MA's), (Start: 13 @43033 has 74 MA's), (14, 43018), (22, 42937), (23, 42916), (45, 42733), (49, 42700), (50, 42691),

Gene: Cuco_80 Start: 47167, Stop: 46652, Start Num: 13

Candidate Starts for Cuco_80:

(Start: 11 @47173 has 2 MA's), (Start: 13 @47167 has 74 MA's), (19, 47116), (22, 47080), (28, 47047), (37, 46960), (39, 46957), (49, 46864), (51, 46852), (52, 46834), (53, 46819), (56, 46780), (61, 46702),

Gene: Danforth_95 Start: 48946, Stop: 48404, Start Num: 13

Candidate Starts for Danforth_95:

(Start: 13 @48946 has 74 MA's), (16, 48922), (21, 48877), (23, 48832), (29, 48805), (49, 48616), (53, 48571), (56, 48532), (58, 48514),

Gene: DatBoi_163 Start: 88717, Stop: 88133, Start Num: 12

Candidate Starts for DatBoi_163:

(3, 88792), (5, 88759), (8, 88744), (Start: 12 @88717 has 1 MA's), (27, 88576), (38, 88471), (41, 88450), (49, 88345), (53, 88300), (54, 88291),

Gene: Dinger_64 Start: 43172, Stop: 42624, Start Num: 13

Candidate Starts for Dinger_64:

(1, 43334), (7, 43202), (Start: 13 @43172 has 74 MA's), (17, 43127), (21, 43103), (22, 43076), (23, 43055), (42, 42917), (49, 42842), (50, 42833), (55, 42767), (59, 42689), (62, 42641),

Gene: Discoknowium_78 Start: 46686, Stop: 46171, Start Num: 13

Candidate Starts for Discoknowium_78:

(Start: 13 @46686 has 74 MA's), (16, 46662), (26, 46575), (44, 46431), (51, 46371), (53, 46338), (60, 46233), (61, 46221), (62, 46188),

Gene: Dixon_93 Start: 48351, Stop: 47809, Start Num: 13

Candidate Starts for Dixon_93:

(Start: 13 @48351 has 74 MA's), (16, 48327), (21, 48282), (23, 48237), (29, 48210), (53, 47976), (56, 47937), (58, 47919),

Gene: Dublin_81 Start: 47445, Stop: 46924, Start Num: 11

Candidate Starts for Dublin_81:

(Start: 11 @47445 has 2 MA's), (Start: 13 @47439 has 74 MA's), (19, 47388), (22, 47352), (28, 47319), (37, 47232), (39, 47229), (49, 47136), (51, 47124), (52, 47106), (53, 47091), (56, 47052), (61, 46974),

Gene: EITiger69_85 Start: 47563, Stop: 47027, Start Num: 9

Candidate Starts for EITiger69_85:

(Start: 9 @47563 has 4 MA's), (Start: 11 @47548 has 2 MA's), (Start: 13 @47542 has 74 MA's), (16, 47518), (28, 47422), (30, 47419), (40, 47323), (46, 47269), (51, 47227), (53, 47194), (60, 47089), (61, 47077), (62, 47044),

Gene: Erik_64 Start: 42864, Stop: 42313, Start Num: 13

Candidate Starts for Erik_64:

(Start: 10 @42885 has 4 MA's), (Start: 13 @42864 has 74 MA's), (14, 42849), (22, 42768), (23, 42747), (45, 42564), (49, 42531), (50, 42522),

Gene: Espica_65 Start: 42974, Stop: 42423, Start Num: 13

Candidate Starts for Espica_65:

(Start: 10 @42995 has 4 MA's), (Start: 13 @42974 has 74 MA's), (14, 42959), (22, 42878), (23, 42857), (45, 42674), (49, 42641), (50, 42632),

Gene: Expelliarmus_91 Start: 48565, Stop: 48023, Start Num: 13

Candidate Starts for Expelliarmus_91:

(Start: 13 @48565 has 74 MA's), (16, 48541), (21, 48496), (23, 48451), (29, 48424), (53, 48190), (56, 48151), (58, 48133),

Gene: Florence1_79 Start: 47057, Stop: 46542, Start Num: 13

Candidate Starts for Florence1_79:

(Start: 13 @47057 has 74 MA's), (16, 47033), (26, 46946), (44, 46802), (51, 46742), (53, 46709), (60, 46604), (61, 46592), (62, 46559),

Gene: ForGetIt_82 Start: 47476, Stop: 46961, Start Num: 13

Candidate Starts for ForGetIt_82:

(Start: 13 @47476 has 74 MA's), (16, 47452), (26, 47365), (44, 47221), (51, 47161), (53, 47128), (60, 47023), (61, 47011), (62, 46978),

Gene: George_75 Start: 47439, Stop: 46924, Start Num: 13

Candidate Starts for George_75:

(Start: 13 @47439 has 74 MA's), (16, 47415), (26, 47328), (44, 47184), (51, 47124), (53, 47091), (61, 46974), (62, 46941),

Gene: Ghouboy_81 Start: 47442, Stop: 46927, Start Num: 13

Candidate Starts for Ghouboy_81:

(Start: 13 @47442 has 74 MA's), (19, 47391), (28, 47322), (37, 47235), (39, 47232), (49, 47139), (51, 47127), (52, 47109), (53, 47094), (56, 47055), (61, 46977), (62, 46944),

Gene: Gollum_64 Start: 42975, Stop: 42424, Start Num: 13

Candidate Starts for Gollum_64:

(Start: 10 @42996 has 4 MA's), (Start: 13 @42975 has 74 MA's), (14, 42960), (22, 42879), (23, 42858), (45, 42675), (49, 42642), (50, 42633),

Gene: Groundhog_91 Start: 48621, Stop: 48079, Start Num: 13

Candidate Starts for Groundhog_91:

(Start: 13 @48621 has 74 MA's), (16, 48597), (21, 48552), (23, 48507), (29, 48480), (53, 48246), (56, 48207), (58, 48189),

Gene: Harlequin_64 Start: 42823, Stop: 42272, Start Num: 13

Candidate Starts for Harlequin_64:

(Start: 10 @42844 has 4 MA's), (Start: 13 @42823 has 74 MA's), (14, 42808), (22, 42727), (23, 42706), (33, 42667), (45, 42523), (48, 42508), (49, 42490), (50, 42481),

Gene: Hiro_64 Start: 43315, Stop: 42743, Start Num: 10

Candidate Starts for Hiro_64:

(Start: 10 @43315 has 4 MA's), (Start: 13 @43294 has 74 MA's), (14, 43279), (22, 43198), (23, 43177), (33, 43138), (45, 42994), (48, 42979), (49, 42961), (50, 42952),

Gene: HuhtaEnerson15_79 Start: 47200, Stop: 46685, Start Num: 13

Candidate Starts for HuhtaEnerson15_79:

(Start: 13 @47200 has 74 MA's), (16, 47176), (26, 47089), (44, 46945), (51, 46885), (53, 46852), (61, 46735), (62, 46702),

Gene: Jabiru_80 Start: 46717, Stop: 46181, Start Num: 9

Candidate Starts for Jabiru_80:

(Start: 9 @46717 has 4 MA's), (Start: 11 @46702 has 2 MA's), (Start: 13 @46696 has 74 MA's), (16, 46672), (17, 46651), (28, 46576), (30, 46573), (40, 46477), (46, 46423), (51, 46381), (53, 46348), (60, 46243), (61, 46231), (62, 46198),

Gene: Jester_63 Start: 42754, Stop: 42203, Start Num: 13

Candidate Starts for Jester_63:

(Start: 10 @42775 has 4 MA's), (Start: 13 @42754 has 74 MA's), (14, 42739), (22, 42658), (23, 42637), (33, 42598), (45, 42454), (48, 42439), (49, 42421), (50, 42412),

Gene: Jovo_79 Start: 47732, Stop: 47217, Start Num: 13

Candidate Starts for Jovo_79:

(Start: 13 @47732 has 74 MA's), (16, 47708), (26, 47621), (44, 47477), (51, 47417), (53, 47384), (60, 47279), (61, 47267), (62, 47234),

Gene: Krishelle_64 Start: 43402, Stop: 42851, Start Num: 13

Candidate Starts for Krishelle_64:

(Start: 10 @43423 has 4 MA's), (Start: 13 @43402 has 74 MA's), (14, 43387), (22, 43306), (23, 43285), (45, 43102), (49, 43069), (50, 43060),

Gene: Lev2_81 Start: 47085, Stop: 46570, Start Num: 13

Candidate Starts for Lev2_81:

(Start: 13 @47085 has 74 MA's), (16, 47061), (26, 46974), (44, 46830), (51, 46770), (53, 46737), (60, 46632), (61, 46620), (62, 46587),

Gene: Lillie_64 Start: 43033, Stop: 42482, Start Num: 13

Candidate Starts for Lillie_64:

(Start: 10 @43054 has 4 MA's), (Start: 13 @43033 has 74 MA's), (14, 43018), (22, 42937), (23, 42916), (45, 42733), (49, 42700), (50, 42691),

Gene: LittleCherry_79 Start: 46791, Stop: 46276, Start Num: 13

Candidate Starts for LittleCherry_79:

(Start: 13 @46791 has 74 MA's), (16, 46767), (26, 46680), (44, 46536), (51, 46476), (53, 46443), (61, 46326), (62, 46293),

Gene: MarysWell_81 Start: 47682, Stop: 47167, Start Num: 13

Candidate Starts for MarysWell_81:

(Start: 11 @47688 has 2 MA's), (Start: 13 @47682 has 74 MA's), (19, 47631), (22, 47595), (28, 47562), (37, 47475), (39, 47472), (49, 47379), (51, 47367), (52, 47349), (53, 47334), (56, 47295), (61, 47217),

Gene: Micasa_82 Start: 47456, Stop: 46941, Start Num: 13

Candidate Starts for Micasa_82:

(Start: 13 @47456 has 74 MA's), (16, 47432), (26, 47345), (44, 47201), (51, 47141), (53, 47108), (61, 46991), (62, 46958),

Gene: Midas2_78 Start: 47307, Stop: 46792, Start Num: 13

Candidate Starts for Midas2_78:

(Start: 11 @47313 has 2 MA's), (Start: 13 @47307 has 74 MA's), (19, 47256), (22, 47220), (28, 47187), (37, 47100), (39, 47097), (49, 47004), (51, 46992), (52, 46974), (53, 46959), (56, 46920), (61, 46842),

Gene: Milcery_79 Start: 47085, Stop: 46570, Start Num: 13

Candidate Starts for Milcery_79:

(Start: 13 @47085 has 74 MA's), (16, 47061), (26, 46974), (44, 46830), (51, 46770), (53, 46737), (61, 46620), (62, 46587),

Gene: MyraDee_87 Start: 47060, Stop: 46521, Start Num: 13

Candidate Starts for MyraDee_87:

(Start: 13 @47060 has 74 MA's), (14, 47045), (23, 46949), (25, 46940), (34, 46904), (47, 46751), (56, 46640), (58, 46622),

Gene: Naca_83 Start: 47759, Stop: 47217, Start Num: 13

Candidate Starts for Naca_83:

(Start: 13 @47759 has 74 MA's), (16, 47735), (20, 47702), (22, 47666), (23, 47645), (29, 47618), (32, 47606), (34, 47600), (40, 47513), (51, 47417), (53, 47384), (60, 47279), (61, 47267), (62, 47234),

Gene: Naiad_63 Start: 43055, Stop: 42504, Start Num: 13

Candidate Starts for Naiad_63:

(Start: 10 @43076 has 4 MA's), (Start: 13 @43055 has 74 MA's), (14, 43040), (22, 42959), (23, 42938), (45, 42755), (49, 42722), (50, 42713),

Gene: Nancinator_63 Start: 42372, Stop: 41821, Start Num: 13

Candidate Starts for Nancinator_63:

(Start: 10 @42393 has 4 MA's), (Start: 13 @42372 has 74 MA's), (14, 42357), (22, 42276), (23, 42255), (45, 42072), (49, 42039), (50, 42030),

Gene: Natosaleda_63 Start: 42973, Stop: 42422, Start Num: 13

Candidate Starts for Natosaleda_63:

(Start: 10 @42994 has 4 MA's), (Start: 13 @42973 has 74 MA's), (14, 42958), (22, 42877), (23, 42856), (45, 42673), (49, 42640), (50, 42631),

Gene: NearlyHeadless_95 Start: 48683, Stop: 48141, Start Num: 13

Candidate Starts for NearlyHeadless_95:

(Start: 13 @48683 has 74 MA's), (16, 48659), (21, 48614), (23, 48569), (29, 48542), (49, 48353), (53, 48308), (56, 48269), (58, 48251), (60, 48203),

Gene: Partridge_65 Start: 43518, Stop: 42970, Start Num: 13

Candidate Starts for Partridge_65:

(1, 43680), (7, 43548), (Start: 13 @43518 has 74 MA's), (17, 43473), (21, 43449), (22, 43422), (23, 43401), (42, 43263), (43, 43260), (49, 43188), (50, 43179), (55, 43113), (59, 43035), (62, 42987),

Gene: PetterN_88 Start: 47519, Stop: 47004, Start Num: 13

Candidate Starts for PetterN_88:

(4, 47588), (6, 47555), (Start: 13 @47519 has 74 MA's), (15, 47501), (22, 47432), (35, 47342), (40, 47300), (51, 47204), (53, 47171), (57, 47123), (60, 47066), (61, 47054), (62, 47021),

Gene: PhailMary_61 Start: 42071, Stop: 41499, Start Num: 10

Candidate Starts for PhailMary_61:

(Start: 10 @42071 has 4 MA's), (Start: 13 @42050 has 74 MA's), (14, 42035), (22, 41954), (23, 41933), (45, 41750), (48, 41735), (49, 41717), (50, 41708),

Gene: Phillis_91 Start: 47696, Stop: 47154, Start Num: 13

Candidate Starts for Phillis_91:

(Start: 13 @47696 has 74 MA's), (16, 47672), (21, 47627), (23, 47582), (29, 47555), (49, 47366), (56, 47282),

Gene: Phlorence_79 Start: 46829, Stop: 46314, Start Num: 13

Candidate Starts for Phlorence_79:

(Start: 13 @46829 has 74 MA's), (16, 46805), (26, 46718), (51, 46514), (53, 46481), (60, 46376), (61, 46364), (62, 46331),

Gene: Phrankenstein_64 Start: 42979, Stop: 42428, Start Num: 13

Candidate Starts for Phrankenstein_64:

(Start: 10 @43000 has 4 MA's), (Start: 13 @42979 has 74 MA's), (14, 42964), (22, 42883), (23, 42862), (33, 42823), (45, 42679), (49, 42646), (50, 42637),

Gene: PickleBack_82 Start: 47283, Stop: 46768, Start Num: 13

Candidate Starts for PickleBack_82:

(Start: 13 @47283 has 74 MA's), (16, 47259), (26, 47172), (44, 47028), (51, 46968), (53, 46935), (60, 46830), (61, 46818), (62, 46785),

Gene: Prin Ashe11_80 Start: 47295, Stop: 46783, Start Num: 13

Candidate Starts for Prin Ashe11_80:

(Start: 13 @47295 has 74 MA's), (16, 47271), (26, 47184), (44, 47040), (51, 46980), (53, 46947), (60, 46842), (61, 46830), (62, 46797),

Gene: RER2_58 Start: 39905, Stop: 39354, Start Num: 13

Candidate Starts for RER2_58:

(Start: 10 @39926 has 4 MA's), (Start: 13 @39905 has 74 MA's), (14, 39890), (22, 39809), (23, 39788), (45, 39605), (49, 39572), (50, 39563),

Gene: RGL3_59 Start: 41481, Stop: 40933, Start Num: 13

Candidate Starts for RGL3_59:

(Start: 13 @41481 has 74 MA's), (22, 41385), (23, 41364), (36, 41274), (37, 41250), (45, 41184), (49, 41151), (53, 41106), (55, 41076), (59, 40998),

Gene: Rasputin_64 Start: 43003, Stop: 42452, Start Num: 13

Candidate Starts for Rasputin_64:

(Start: 10 @43024 has 4 MA's), (Start: 13 @43003 has 74 MA's), (14, 42988), (22, 42907), (23, 42886), (45, 42703), (49, 42670), (50, 42661),

Gene: RexFury_63 Start: 43063, Stop: 42512, Start Num: 13

Candidate Starts for RexFury_63:

(Start: 10 @43084 has 4 MA's), (Start: 13 @43063 has 74 MA's), (14, 43048), (22, 42967), (23, 42946), (45, 42763), (49, 42730), (50, 42721),

Gene: Rhodalysa_64 Start: 43033, Stop: 42482, Start Num: 13

Candidate Starts for Rhodalysa_64:

(Start: 10 @43054 has 4 MA's), (Start: 13 @43033 has 74 MA's), (14, 43018), (22, 42937), (23, 42916), (45, 42733), (49, 42700), (50, 42691),

Gene: Roary_96 Start: 48820, Stop: 48278, Start Num: 13

Candidate Starts for Roary_96:

(Start: 13 @48820 has 74 MA's), (16, 48796), (21, 48751), (23, 48706), (29, 48679), (39, 48583), (49, 48490), (53, 48445), (56, 48406), (58, 48388), (60, 48340),

Gene: Saintus_89 Start: 45548, Stop: 45006, Start Num: 13

Candidate Starts for Saintus_89:

(Start: 13 @45548 has 74 MA's), (16, 45524), (21, 45479), (23, 45434), (29, 45407), (49, 45218), (53, 45173), (56, 45134), (58, 45116), (60, 45068),

Gene: Scorpia_82 Start: 47090, Stop: 46575, Start Num: 13

Candidate Starts for Scorpia_82:

(Start: 13 @47090 has 74 MA's), (22, 47003), (40, 46871), (51, 46775), (53, 46742), (60, 46637), (61, 46625), (62, 46592),

Gene: Shuman_65 Start: 43005, Stop: 42433, Start Num: 10

Candidate Starts for Shuman_65:

(Start: 10 @43005 has 4 MA's), (Start: 13 @42984 has 74 MA's), (14, 42969), (22, 42888), (23, 42867), (33, 42828), (45, 42684), (49, 42651), (50, 42642),

Gene: Smeadley_94 Start: 48687, Stop: 48145, Start Num: 13

Candidate Starts for Smeadley_94:

(Start: 13 @48687 has 74 MA's), (16, 48663), (21, 48618), (23, 48573), (29, 48546), (53, 48312), (56, 48273), (58, 48255),

Gene: StCroix_63 Start: 43055, Stop: 42504, Start Num: 13

Candidate Starts for StCroix_63:

(Start: 10 @43076 has 4 MA's), (Start: 13 @43055 has 74 MA's), (14, 43040), (22, 42959), (23, 42938), (45, 42755), (49, 42722), (50, 42713),

Gene: Stephig9_95 Start: 49038, Stop: 48496, Start Num: 13

Candidate Starts for Stephig9_95:

(Start: 13 @49038 has 74 MA's), (16, 49014), (21, 48969), (23, 48924), (29, 48897), (49, 48708), (53, 48663), (56, 48624), (58, 48606),

Gene: Swann_64 Start: 43031, Stop: 42480, Start Num: 13

Candidate Starts for Swann_64:

(Start: 10 @43052 has 4 MA's), (Start: 13 @43031 has 74 MA's), (14, 43016), (22, 42935), (23, 42914), (45, 42731), (49, 42698), (50, 42689),

Gene: SydNat_80 Start: 47451, Stop: 46936, Start Num: 13

Candidate Starts for SydNat_80:

(Start: 13 @47451 has 74 MA's), (19, 47400), (28, 47331), (37, 47244), (39, 47241), (49, 47148), (51, 47136), (52, 47118), (53, 47103), (56, 47064), (61, 46986), (62, 46953),

Gene: TWAMP_64 Start: 43033, Stop: 42482, Start Num: 13

Candidate Starts for TWAMP_64:

(Start: 10 @43054 has 4 MA's), (Start: 13 @43033 has 74 MA's), (14, 43018), (22, 42937), (23, 42916), (45, 42733), (49, 42700), (50, 42691),

Gene: Takoda_65 Start: 43208, Stop: 42660, Start Num: 13

Candidate Starts for Takoda_65:

(2, 43289), (Start: 13 @43208 has 74 MA's), (14, 43193), (17, 43163), (18, 43160), (21, 43139), (22, 43112), (23, 43091), (42, 42953), (43, 42950), (49, 42878), (50, 42869), (55, 42803), (59, 42725), (62, 42677),

Gene: Tarynearal_81 Start: 47239, Stop: 46724, Start Num: 13

Candidate Starts for Tarynearal_81:

(Start: 13 @47239 has 74 MA's), (16, 47215), (26, 47128), (44, 46984), (51, 46924), (53, 46891), (61, 46774), (62, 46741),

Gene: Theia_81 Start: 47799, Stop: 47278, Start Num: 11

Candidate Starts for Theia_81:

(Start: 11 @47799 has 2 MA's), (Start: 13 @47793 has 74 MA's), (19, 47742), (22, 47706), (28, 47673), (37, 47586), (39, 47583), (49, 47490), (51, 47478), (52, 47460), (53, 47445), (56, 47406), (61, 47328), (62, 47295),

Gene: Tiger_79 Start: 46750, Stop: 46235, Start Num: 13

Candidate Starts for Tiger_79:

(Start: 13 @46750 has 74 MA's), (16, 46726), (26, 46639), (51, 46435), (53, 46402), (60, 46297), (61, 46285), (62, 46252),

Gene: Twigg_79 Start: 47205, Stop: 46693, Start Num: 13

Candidate Starts for Twigg_79:

(Start: 13 @47205 has 74 MA's), (16, 47181), (26, 47094), (44, 46950), (51, 46890), (53, 46857), (60, 46752), (61, 46740), (62, 46707),

Gene: UhSalsa_64 Start: 42995, Stop: 42423, Start Num: 10

Candidate Starts for UhSalsa_64:

(Start: 10 @42995 has 4 MA's), (Start: 13 @42974 has 74 MA's), (14, 42959), (22, 42878), (23, 42857), (45, 42674), (49, 42641), (50, 42632),

Gene: UnionJack_84 Start: 46923, Stop: 46408, Start Num: 13

Candidate Starts for UnionJack_84:

(Start: 9 @46944 has 4 MA's), (Start: 11 @46929 has 2 MA's), (Start: 13 @46923 has 74 MA's), (16, 46899), (28, 46803), (30, 46800), (40, 46704), (46, 46650), (51, 46608), (53, 46575), (60, 46470), (61, 46458), (62, 46425),

Gene: Yogi_65 Start: 43384, Stop: 42833, Start Num: 13

Candidate Starts for Yogi_65:

(Start: 10 @43405 has 4 MA's), (Start: 13 @43384 has 74 MA's), (14, 43369), (22, 43288), (23, 43267), (45, 43084), (49, 43051), (50, 43042),

Gene: Yoncess_63 Start: 42791, Stop: 42240, Start Num: 13

Candidate Starts for Yoncess_63:

(Start: 10 @42812 has 4 MA's), (Start: 13 @42791 has 74 MA's), (14, 42776), (22, 42695), (23, 42674), (33, 42635), (45, 42491), (48, 42476), (49, 42458), (50, 42449),

Gene: Zolita_79 Start: 47434, Stop: 46919, Start Num: 13

Candidate Starts for Zolita_79:

(Start: 13 @47434 has 74 MA's), (19, 47383), (28, 47314), (37, 47227), (39, 47224), (49, 47131), (51, 47119), (52, 47101), (53, 47086), (56, 47047), (61, 46969), (62, 46936),