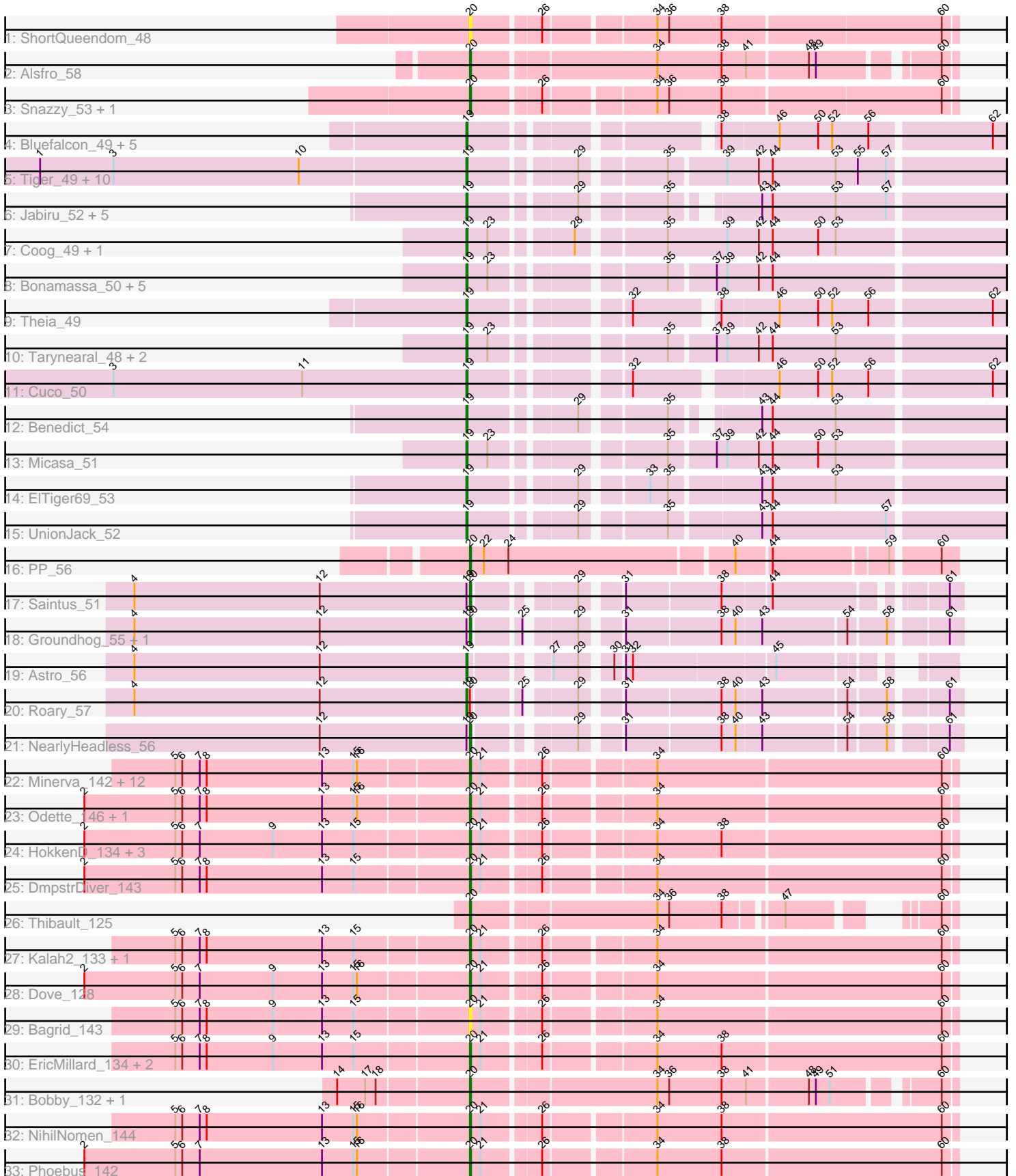


Pham 214210



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 214210 Report

This analysis was run 02/22/25 on database version 588.

Pham number 214210 has 83 members, 7 are drafts.

Phages represented in each track:

- Track 1 : ShortQueendom_48
- Track 2 : Alsfro_58
- Track 3 : Snazzy_53, GMonster_51
- Track 4 : Bluefalcon_49, MarysWell_50, Ghouboy_53, SydNat_53, Dublin_50, Zolita_52
- Track 5 : Tiger_49, AgentM_49, Aragog_49, Phlorence_48, ForGetIt_50, Discoknowium_48, PickleBack_50, Jovo_50, Lev2_50, Conspiracy_50, Archetta_49
- Track 6 : Jabiru_52, Airmid_51, Chadwick_54, Scorpia_55, Naca_51, PetterN_55
- Track 7 : Coog_49, Midas2_49
- Track 8 : Bonamassa_50, George_48, Twigg_50, Prinasha11_50, LittleCherry_50, HuhtaEnerson15_50
- Track 9 : Theia_49
- Track 10 : Tarynearal_48, Swirley_52, Milcery_50
- Track 11 : Cuco_50
- Track 12 : Benedict_54
- Track 13 : Micasa_51
- Track 14 : EITiger69_53
- Track 15 : UnionJack_52
- Track 16 : PP_56
- Track 17 : Saintus_51
- Track 18 : Groundhog_55, Danforth_56
- Track 19 : Astro_56
- Track 20 : Roary_57
- Track 21 : NearlyHeadless_56
- Track 22 : Minerva_142, JuicyJay_138, Beem_144, Dallas_143, Optimus_133, Hughesyang_141, Klein_140, Pound_130, Ejimix_135, Halley_144, Constella_136, Zelink_137, Bombitas_130
- Track 23 : Odette_146, Wanda_142
- Track 24 : HokkenD_134, ThreeRngTarjay_137, Redno2_134, Yeet_135
- Track 25 : DmpstrDiver_143
- Track 26 : Thibault_125
- Track 27 : Kalah2_133, Schatzie_138
- Track 28 : Dove_128
- Track 29 : Bagrid_143
- Track 30 : EricMillard_134, BAKA_142, Duke13_138
- Track 31 : Bobby_132, Marleymoo_125
- Track 32 : NihilNomen_144

- Track 33 : Phoebus_142

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

The start number called the most often in the published annotations is 19, it was called in 40 of the 76 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AgentM_49, Airmid_51, Aragog_49, Archetta_49, Astro_56, Benedict_54, Bluefalcon_49, Bonamassa_50, Chadwick_54, Conspiracy_50, Coog_49, Cuco_50, Discoknowium_48, Dublin_50, ElTiger69_53, ForGetIt_50, George_48, Ghouboy_53, HuhtaEnerson15_50, Jabiru_52, Jovo_50, Lev2_50, LittleCherry_50, MarysWell_50, Micasa_51, Midas2_49, Milcery_50, Naca_51, PetterN_55, Phlorence_48, PickleBack_50, Prinashe11_50, Roary_57, Scorpia_55, Swirley_52, SydNat_53, Tarynearal_48, Theia_49, Tiger_49, Twigg_50, UnionJack_52, Zolita_52,

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

- Danforth_56, Groundhog_55, NearlyHeadless_56, Saintus_51,

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

- Alsfro_58, BAKA_142, Bagrid_143, Beem_144, Bobby_132, Bombitas_130, Constella_136, Dallas_143, DmpstrDiver_143, Dove_128, Duke13_138, Ejimix_135, EricMillard_134, GMonster_51, Halley_144, HokkenD_134, Hughesyang_141, JuicyJay_138, Kalah2_133, Klein_140, Marleymoo_125, Minerva_142, NihilNomen_144, Odette_146, Optimus_133, PP_56, Phoebus_142, Pound_130, Redno2_134, Schatzie_138, ShortQueendom_48, Snazzy_53, Thibault_125, ThreeRngTarjay_137, Wanda_142, Yeet_135, Zelink_137,

Summary by start number:

Start 19:

- Found in 46 of 83 (55.4%) of genes in pham
- Manual Annotations of this start: 40 of 76
- Called 91.3% of time when present
- Phage (with cluster) where this start called: AgentM_49 (A5), Airmid_51 (A5), Aragog_49 (A5), Archetta_49 (A5), Astro_56 (A8), Benedict_54 (A5), Bluefalcon_49 (A5), Bonamassa_50 (A5), Chadwick_54 (A5), Conspiracy_50 (A5), Coog_49 (A5), Cuco_50 (A5), Discoknowium_48 (A5), Dublin_50 (A5), ElTiger69_53 (A5), ForGetIt_50 (A5), George_48 (A5), Ghouboy_53 (A5), HuhtaEnerson15_50 (A5), Jabiru_52 (A5), Jovo_50 (A5), Lev2_50 (A5), LittleCherry_50 (A5), MarysWell_50 (A5), Micasa_51 (A5), Midas2_49 (A5), Milcery_50 (A5), Naca_51 (A5), PetterN_55 (A5), Phlorence_48 (A5), PickleBack_50 (A5), Prinashe11_50 (A5), Roary_57 (A8), Scorpia_55 (A5), Swirley_52 (A5), SydNat_53 (A5), Tarynearal_48 (A5), Theia_49 (A5), Tiger_49 (A5), Twigg_50 (A5), UnionJack_52 (A5), Zolita_52 (A5),

Start 20:

- Found in 42 of 83 (50.6%) of genes in pham
- Manual Annotations of this start: 36 of 76
- Called 97.6% of time when present

- Phage (with cluster) where this start called: Alsfro_58 (A1), BAKA_142 (J), Bagrid_143 (J), Beem_144 (J), Bobby_132 (J), Bombitas_130 (J), Constella_136 (J), Dallas_143 (J), Danforth_56 (A8), DmpstrDiver_143 (J), Dove_128 (J), Duke13_138 (J), Ejimix_135 (J), EricMillard_134 (J), GMonster_51 (A1), Groundhog_55 (A8), Halley_144 (J), HokkenD_134 (J), Hughesyang_141 (J), JuicyJay_138 (J), Kalah2_133 (J), Klein_140 (J), Marleymoo_125 (J), Minerva_142 (J), NearlyHeadless_56 (A8), NihilNomen_144 (J), Odette_146 (J), Optimus_133 (J), PP_56 (A7), Phoebus_142 (J), Pound_130 (J), Redno2_134 (J), Saintus_51 (A8), Schatzie_138 (J), ShortQueendom_48 (A1), Snazzy_53 (A1), Thibault_125 (J), ThreeRngTarjay_137 (J), Wanda_142 (J), Yeet_135 (J), Zelink_137 (J),

Summary by clusters:

There are 5 clusters represented in this pham: A1, A8, J, A5, A7,

Info for manual annotations of cluster A1:

- Start number 20 was manually annotated 2 times for cluster A1.

Info for manual annotations of cluster A5:

- Start number 19 was manually annotated 38 times for cluster A5.

Info for manual annotations of cluster A7:

- Start number 20 was manually annotated 1 time for cluster A7.

Info for manual annotations of cluster A8:

- Start number 19 was manually annotated 2 times for cluster A8.

- Start number 20 was manually annotated 4 times for cluster A8.

Info for manual annotations of cluster J:

- Start number 20 was manually annotated 29 times for cluster J.

Gene Information:

Gene: AgentM_49 Start: 36924, Stop: 36505, Start Num: 19

Candidate Starts for AgentM_49:

(1, 37287), (3, 37224), (10, 37065), (Start: 19 @36924 has 40 MA's), (29, 36843), (35, 36780), (39, 36735), (42, 36708), (44, 36696), (53, 36642), (55, 36624), (57, 36600),

Gene: Airmid_51 Start: 37065, Stop: 36664, Start Num: 19

Candidate Starts for Airmid_51:

(Start: 19 @37065 has 40 MA's), (29, 36984), (35, 36921), (43, 36864), (44, 36855), (53, 36801), (57, 36759),

Gene: Alsfro_58 Start: 38822, Stop: 38445, Start Num: 20

Candidate Starts for Alsfro_58:

(Start: 20 @38822 has 36 MA's), (34, 38672), (38, 38618), (41, 38597), (48, 38549), (49, 38543), (60, 38456),

Gene: Aragog_49 Start: 36944, Stop: 36525, Start Num: 19

Candidate Starts for Aragog_49:

(1, 37307), (3, 37244), (10, 37085), (Start: 19 @36944 has 40 MA's), (29, 36863), (35, 36800), (39, 36755), (42, 36728), (44, 36716), (53, 36662), (55, 36644), (57, 36620),

Gene: Archetta_49 Start: 37354, Stop: 36935, Start Num: 19

Candidate Starts for Archetta_49:

(1, 37717), (3, 37654), (10, 37495), (Start: 19 @37354 has 40 MA's), (29, 37273), (35, 37210), (39, 37165), (42, 37138), (44, 37126), (53, 37072), (55, 37054), (57, 37030),

Gene: Astro_56 Start: 36909, Stop: 36574, Start Num: 19

Candidate Starts for Astro_56:

(4, 37194), (12, 37035), (Start: 19 @36909 has 40 MA's), (27, 36855), (29, 36834), (30, 36813), (31, 36807), (32, 36801), (45, 36687),

Gene: BAKA_142 Start: 75397, Stop: 75786, Start Num: 20

Candidate Starts for BAKA_142:

(5, 75151), (6, 75157), (7, 75172), (8, 75178), (9, 75235), (13, 75277), (15, 75304), (Start: 20 @75397 has 36 MA's), (21, 75406), (26, 75451), (34, 75538), (38, 75592), (60, 75775),

Gene: Bagrid_143 Start: 76092, Stop: 76481, Start Num: 20

Candidate Starts for Bagrid_143:

(5, 75846), (6, 75852), (7, 75867), (8, 75873), (9, 75930), (13, 75972), (15, 75999), (Start: 20 @76092 has 36 MA's), (21, 76101), (26, 76146), (34, 76233), (60, 76470),

Gene: Beem_144 Start: 76995, Stop: 77384, Start Num: 20

Candidate Starts for Beem_144:

(5, 76749), (6, 76755), (7, 76770), (8, 76776), (13, 76875), (15, 76902), (16, 76905), (Start: 20 @76995 has 36 MA's), (21, 77004), (26, 77049), (34, 77136), (60, 77373),

Gene: Benedict_54 Start: 37313, Stop: 36912, Start Num: 19

Candidate Starts for Benedict_54:

(Start: 19 @37313 has 40 MA's), (29, 37232), (35, 37169), (43, 37112), (44, 37103), (53, 37049),

Gene: Bluefalcon_49 Start: 37490, Stop: 37080, Start Num: 19

Candidate Starts for Bluefalcon_49:

(Start: 19 @37490 has 40 MA's), (38, 37313), (46, 37265), (50, 37232), (52, 37220), (56, 37190), (62, 37091),

Gene: Bobby_132 Start: 76850, Stop: 77227, Start Num: 20

Candidate Starts for Bobby_132:

(14, 76742), (17, 76766), (18, 76775), (Start: 20 @76850 has 36 MA's), (34, 77000), (36, 77009), (38, 77054), (41, 77075), (48, 77123), (49, 77129), (51, 77141), (60, 77216),

Gene: Bombitas_130 Start: 74406, Stop: 74795, Start Num: 20

Candidate Starts for Bombitas_130:

(5, 74160), (6, 74166), (7, 74181), (8, 74187), (13, 74286), (15, 74313), (16, 74316), (Start: 20 @74406 has 36 MA's), (21, 74415), (26, 74460), (34, 74547), (60, 74784),

Gene: Bonamassa_50 Start: 37367, Stop: 36948, Start Num: 19

Candidate Starts for Bonamassa_50:

(Start: 19 @37367 has 40 MA's), (23, 37349), (35, 37223), (37, 37187), (39, 37178), (42, 37151), (44, 37139),

Gene: Chadwick_54 Start: 37154, Stop: 36753, Start Num: 19

Candidate Starts for Chadwick_54:

(Start: 19 @37154 has 40 MA's), (29, 37073), (35, 37010), (43, 36953), (44, 36944), (53, 36890), (57, 36848),

Gene: Conspiracy_50 Start: 37166, Stop: 36747, Start Num: 19

Candidate Starts for Conspiracy_50:

(1, 37529), (3, 37466), (10, 37307), (Start: 19 @37166 has 40 MA's), (29, 37085), (35, 37022), (39, 36977), (42, 36950), (44, 36938), (53, 36884), (55, 36866), (57, 36842),

Gene: Constella_136 Start: 75648, Stop: 76037, Start Num: 20

Candidate Starts for Constella_136:

(5, 75402), (6, 75408), (7, 75423), (8, 75429), (13, 75528), (15, 75555), (16, 75558), (Start: 20 @75648 has 36 MA's), (21, 75657), (26, 75702), (34, 75789), (60, 76026),

Gene: Coog_49 Start: 37357, Stop: 36932, Start Num: 19

Candidate Starts for Coog_49:

(Start: 19 @37357 has 40 MA's), (23, 37339), (28, 37279), (35, 37213), (39, 37162), (42, 37135), (44, 37123), (50, 37084), (53, 37069),

Gene: Cuco_50 Start: 37214, Stop: 36804, Start Num: 19

Candidate Starts for Cuco_50:

(3, 37517), (11, 37355), (Start: 19 @37214 has 40 MA's), (32, 37100), (46, 36989), (50, 36956), (52, 36944), (56, 36914), (62, 36815),

Gene: Dallas_143 Start: 76462, Stop: 76851, Start Num: 20

Candidate Starts for Dallas_143:

(5, 76216), (6, 76222), (7, 76237), (8, 76243), (13, 76342), (15, 76369), (16, 76372), (Start: 20 @76462 has 36 MA's), (21, 76471), (26, 76516), (34, 76603), (60, 76840),

Gene: Danforth_56 Start: 36969, Stop: 36607, Start Num: 20

Candidate Starts for Danforth_56:

(4, 37257), (12, 37098), (Start: 19 @36972 has 40 MA's), (Start: 20 @36969 has 36 MA's), (25, 36933), (29, 36897), (31, 36870), (38, 36792), (40, 36780), (43, 36759), (54, 36690), (58, 36660), (61, 36618),

Gene: Discoknowium_48 Start: 36833, Stop: 36414, Start Num: 19

Candidate Starts for Discoknowium_48:

(1, 37196), (3, 37133), (10, 36974), (Start: 19 @36833 has 40 MA's), (29, 36752), (35, 36689), (39, 36644), (42, 36617), (44, 36605), (53, 36551), (55, 36533), (57, 36509),

Gene: DmpstrDiver_143 Start: 76381, Stop: 76770, Start Num: 20

Candidate Starts for DmpstrDiver_143:

(2, 76057), (5, 76135), (6, 76141), (7, 76156), (8, 76162), (13, 76261), (15, 76288), (Start: 20 @76381 has 36 MA's), (21, 76390), (26, 76435), (34, 76522), (60, 76759),

Gene: Dove_128 Start: 71980, Stop: 72369, Start Num: 20

Candidate Starts for Dove_128:

(2, 71656), (5, 71734), (6, 71740), (7, 71755), (9, 71818), (13, 71860), (15, 71887), (16, 71890), (Start: 20 @71980 has 36 MA's), (21, 71989), (26, 72034), (34, 72121), (60, 72358),

Gene: Dublin_50 Start: 37326, Stop: 36916, Start Num: 19

Candidate Starts for Dublin_50:

(Start: 19 @37326 has 40 MA's), (38, 37149), (46, 37101), (50, 37068), (52, 37056), (56, 37026), (62, 36927),

Gene: Duke13_138 Start: 73682, Stop: 74071, Start Num: 20

Candidate Starts for Duke13_138:

(5, 73436), (6, 73442), (7, 73457), (8, 73463), (9, 73520), (13, 73562), (15, 73589), (Start: 20 @73682 has 36 MA's), (21, 73691), (26, 73736), (34, 73823), (38, 73877), (60, 74060),

Gene: Ejimix_135 Start: 76530, Stop: 76919, Start Num: 20

Candidate Starts for Ejimix_135:

(5, 76284), (6, 76290), (7, 76305), (8, 76311), (13, 76410), (15, 76437), (16, 76440), (Start: 20 @76530 has 36 MA's), (21, 76539), (26, 76584), (34, 76671), (60, 76908),

Gene: EITiger69_53 Start: 37289, Stop: 36873, Start Num: 19

Candidate Starts for EITiger69_53:

(Start: 19 @37289 has 40 MA's), (29, 37208), (33, 37160), (35, 37145), (43, 37073), (44, 37064), (53, 37010),

Gene: EricMillard_134 Start: 75034, Stop: 75423, Start Num: 20

Candidate Starts for EricMillard_134:

(5, 74788), (6, 74794), (7, 74809), (8, 74815), (9, 74872), (13, 74914), (15, 74941), (Start: 20 @75034 has 36 MA's), (21, 75043), (26, 75088), (34, 75175), (38, 75229), (60, 75412),

Gene: ForGetIt_50 Start: 37191, Stop: 36772, Start Num: 19

Candidate Starts for ForGetIt_50:

(1, 37554), (3, 37491), (10, 37332), (Start: 19 @37191 has 40 MA's), (29, 37110), (35, 37047), (39, 37002), (42, 36975), (44, 36963), (53, 36909), (55, 36891), (57, 36867),

Gene: GMonster_51 Start: 37212, Stop: 36826, Start Num: 20

Candidate Starts for GMonster_51:

(Start: 20 @37212 has 36 MA's), (26, 37158), (34, 37071), (36, 37062), (38, 37017), (60, 36837),

Gene: George_48 Start: 37264, Stop: 36845, Start Num: 19

Candidate Starts for George_48:

(Start: 19 @37264 has 40 MA's), (23, 37246), (35, 37120), (37, 37084), (39, 37075), (42, 37048), (44, 37036),

Gene: Ghouboy_53 Start: 38061, Stop: 37651, Start Num: 19

Candidate Starts for Ghouboy_53:

(Start: 19 @38061 has 40 MA's), (38, 37884), (46, 37836), (50, 37803), (52, 37791), (56, 37761), (62, 37662),

Gene: Groundhog_55 Start: 36884, Stop: 36522, Start Num: 20

Candidate Starts for Groundhog_55:

(4, 37172), (12, 37013), (Start: 19 @36887 has 40 MA's), (Start: 20 @36884 has 36 MA's), (25, 36848), (29, 36812), (31, 36785), (38, 36707), (40, 36695), (43, 36674), (54, 36605), (58, 36575), (61, 36533),

Gene: Halley_144 Start: 76846, Stop: 77235, Start Num: 20

Candidate Starts for Halley_144:

(5, 76600), (6, 76606), (7, 76621), (8, 76627), (13, 76726), (15, 76753), (16, 76756), (Start: 20 @76846 has 36 MA's), (21, 76855), (26, 76900), (34, 76987), (60, 77224),

Gene: HokkenD_134 Start: 75730, Stop: 76119, Start Num: 20

Candidate Starts for HokkenD_134:

(2, 75406), (5, 75484), (6, 75490), (7, 75505), (9, 75568), (13, 75610), (15, 75637), (Start: 20 @75730 has 36 MA's), (21, 75739), (26, 75784), (34, 75871), (38, 75925), (60, 76108),

Gene: Hughesyang_141 Start: 76616, Stop: 77005, Start Num: 20

Candidate Starts for Hughesyang_141:

(5, 76370), (6, 76376), (7, 76391), (8, 76397), (13, 76496), (15, 76523), (16, 76526), (Start: 20 @76616 has 36 MA's), (21, 76625), (26, 76670), (34, 76757), (60, 76994),

Gene: HuhtaEnerson15_50 Start: 37261, Stop: 36842, Start Num: 19

Candidate Starts for HuhtaEnerson15_50:

(Start: 19 @37261 has 40 MA's), (23, 37243), (35, 37117), (37, 37081), (39, 37072), (42, 37045), (44, 37033),

Gene: Jabiru_52 Start: 37168, Stop: 36767, Start Num: 19

Candidate Starts for Jabiru_52:

(Start: 19 @37168 has 40 MA's), (29, 37087), (35, 37024), (43, 36967), (44, 36958), (53, 36904), (57, 36862),

Gene: Jovo_50 Start: 37447, Stop: 37028, Start Num: 19

Candidate Starts for Jovo_50:

(1, 37810), (3, 37747), (10, 37588), (Start: 19 @37447 has 40 MA's), (29, 37366), (35, 37303), (39, 37258), (42, 37231), (44, 37219), (53, 37165), (55, 37147), (57, 37123),

Gene: JuicyJay_138 Start: 78131, Stop: 78520, Start Num: 20

Candidate Starts for JuicyJay_138:

(5, 77885), (6, 77891), (7, 77906), (8, 77912), (13, 78011), (15, 78038), (16, 78041), (Start: 20 @78131 has 36 MA's), (21, 78140), (26, 78185), (34, 78272), (60, 78509),

Gene: Kalah2_133 Start: 75737, Stop: 76126, Start Num: 20

Candidate Starts for Kalah2_133:

(5, 75491), (6, 75497), (7, 75512), (8, 75518), (13, 75617), (15, 75644), (Start: 20 @75737 has 36 MA's), (21, 75746), (26, 75791), (34, 75878), (60, 76115),

Gene: Klein_140 Start: 74339, Stop: 74728, Start Num: 20

Candidate Starts for Klein_140:

(5, 74093), (6, 74099), (7, 74114), (8, 74120), (13, 74219), (15, 74246), (16, 74249), (Start: 20 @74339 has 36 MA's), (21, 74348), (26, 74393), (34, 74480), (60, 74717),

Gene: Lev2_50 Start: 37079, Stop: 36660, Start Num: 19

Candidate Starts for Lev2_50:

(1, 37442), (3, 37379), (10, 37220), (Start: 19 @37079 has 40 MA's), (29, 36998), (35, 36935), (39, 36890), (42, 36863), (44, 36851), (53, 36797), (55, 36779), (57, 36755),

Gene: LittleCherry_50 Start: 37281, Stop: 36862, Start Num: 19

Candidate Starts for LittleCherry_50:

(Start: 19 @37281 has 40 MA's), (23, 37263), (35, 37137), (37, 37101), (39, 37092), (42, 37065), (44, 37053),

Gene: Marleymoo_125 Start: 72596, Stop: 72973, Start Num: 20

Candidate Starts for Marleymoo_125:

(14, 72488), (17, 72512), (18, 72521), (Start: 20 @72596 has 36 MA's), (34, 72746), (36, 72755), (38, 72800), (41, 72821), (48, 72869), (49, 72875), (51, 72887), (60, 72962),

Gene: MarysWell_50 Start: 37569, Stop: 37159, Start Num: 19

Candidate Starts for MarysWell_50:

(Start: 19 @37569 has 40 MA's), (38, 37392), (46, 37344), (50, 37311), (52, 37299), (56, 37269), (62, 37170),

Gene: Micasa_51 Start: 37449, Stop: 37030, Start Num: 19

Candidate Starts for Micasa_51:

(Start: 19 @37449 has 40 MA's), (23, 37431), (35, 37305), (37, 37269), (39, 37260), (42, 37233), (44, 37221), (50, 37182), (53, 37167),

Gene: Midas2_49 Start: 37357, Stop: 36932, Start Num: 19

Candidate Starts for Midas2_49:

(Start: 19 @37357 has 40 MA's), (23, 37339), (28, 37279), (35, 37213), (39, 37162), (42, 37135), (44, 37123), (50, 37084), (53, 37069),

Gene: Milcery_50 Start: 37232, Stop: 36813, Start Num: 19

Candidate Starts for Milcery_50:

(Start: 19 @37232 has 40 MA's), (23, 37214), (35, 37088), (37, 37052), (39, 37043), (42, 37016), (44, 37004), (53, 36950),

Gene: Minerva_142 Start: 75788, Stop: 76177, Start Num: 20

Candidate Starts for Minerva_142:

(5, 75542), (6, 75548), (7, 75563), (8, 75569), (13, 75668), (15, 75695), (16, 75698), (Start: 20 @75788 has 36 MA's), (21, 75797), (26, 75842), (34, 75929), (60, 76166),

Gene: Naca_51 Start: 37707, Stop: 37306, Start Num: 19

Candidate Starts for Naca_51:

(Start: 19 @37707 has 40 MA's), (29, 37626), (35, 37563), (43, 37506), (44, 37497), (53, 37443), (57, 37401),

Gene: NearlyHeadless_56 Start: 36735, Stop: 36373, Start Num: 20

Candidate Starts for NearlyHeadless_56:

(12, 36864), (Start: 19 @36738 has 40 MA's), (Start: 20 @36735 has 36 MA's), (29, 36663), (31, 36636), (38, 36558), (40, 36546), (43, 36525), (54, 36456), (58, 36426), (61, 36384),

Gene: NihilNomen_144 Start: 76076, Stop: 76465, Start Num: 20

Candidate Starts for NihilNomen_144:

(5, 75830), (6, 75836), (7, 75851), (8, 75857), (13, 75956), (15, 75983), (16, 75986), (Start: 20 @76076 has 36 MA's), (21, 76085), (26, 76130), (34, 76217), (38, 76271), (60, 76454),

Gene: Odette_146 Start: 78219, Stop: 78608, Start Num: 20

Candidate Starts for Odette_146:

(2, 77895), (5, 77973), (6, 77979), (7, 77994), (8, 78000), (13, 78099), (15, 78126), (16, 78129), (Start: 20 @78219 has 36 MA's), (21, 78228), (26, 78273), (34, 78360), (60, 78597),

Gene: Optimus_133 Start: 73356, Stop: 73745, Start Num: 20

Candidate Starts for Optimus_133:

(5, 73110), (6, 73116), (7, 73131), (8, 73137), (13, 73236), (15, 73263), (16, 73266), (Start: 20 @73356 has 36 MA's), (21, 73365), (26, 73410), (34, 73497), (60, 73734),

Gene: PP_56 Start: 41604, Stop: 41218, Start Num: 20

Candidate Starts for PP_56:

(Start: 20 @41604 has 36 MA's), (22, 41592), (24, 41571), (40, 41388), (44, 41361), (59, 41268), (60, 41232),

Gene: PetterN_55 Start: 37322, Stop: 36921, Start Num: 19

Candidate Starts for PetterN_55:

(Start: 19 @37322 has 40 MA's), (29, 37241), (35, 37178), (43, 37121), (44, 37112), (53, 37058), (57, 37016),

Gene: Phlorence_48 Start: 36824, Stop: 36405, Start Num: 19

Candidate Starts for Phlorence_48:

(1, 37187), (3, 37124), (10, 36965), (Start: 19 @36824 has 40 MA's), (29, 36743), (35, 36680), (39, 36635), (42, 36608), (44, 36596), (53, 36542), (55, 36524), (57, 36500),

Gene: Phoebus_142 Start: 77970, Stop: 78359, Start Num: 20

Candidate Starts for Phoebus_142:

(2, 77646), (5, 77724), (6, 77730), (7, 77745), (13, 77850), (15, 77877), (16, 77880), (Start: 20 @77970 has 36 MA's), (21, 77979), (26, 78024), (34, 78111), (38, 78165), (60, 78348),

Gene: PickleBack_50 Start: 37071, Stop: 36652, Start Num: 19

Candidate Starts for PickleBack_50:

(1, 37434), (3, 37371), (10, 37212), (Start: 19 @37071 has 40 MA's), (29, 36990), (35, 36927), (39, 36882), (42, 36855), (44, 36843), (53, 36789), (55, 36771), (57, 36747),

Gene: Pound_130 Start: 74668, Stop: 75057, Start Num: 20

Candidate Starts for Pound_130:

(5, 74422), (6, 74428), (7, 74443), (8, 74449), (13, 74548), (15, 74575), (16, 74578), (Start: 20 @74668 has 36 MA's), (21, 74677), (26, 74722), (34, 74809), (60, 75046),

Gene: Prin Ashe11_50 Start: 37140, Stop: 36715, Start Num: 19

Candidate Starts for Prin Ashe11_50:

(Start: 19 @37140 has 40 MA's), (23, 37122), (35, 36996), (37, 36954), (39, 36945), (42, 36918), (44, 36906),

Gene: Redno2_134 Start: 73358, Stop: 73747, Start Num: 20

Candidate Starts for Redno2_134:

(2, 73034), (5, 73112), (6, 73118), (7, 73133), (9, 73196), (13, 73238), (15, 73265), (Start: 20 @73358 has 36 MA's), (21, 73367), (26, 73412), (34, 73499), (38, 73553), (60, 73736),

Gene: Roary_57 Start: 36957, Stop: 36592, Start Num: 19

Candidate Starts for Roary_57:

(4, 37242), (12, 37083), (Start: 19 @36957 has 40 MA's), (Start: 20 @36954 has 36 MA's), (25, 36918), (29, 36882), (31, 36855), (38, 36777), (40, 36765), (43, 36744), (54, 36675), (58, 36645), (61, 36603),

Gene: Saintus_51 Start: 33622, Stop: 33272, Start Num: 20

Candidate Starts for Saintus_51:

(4, 33910), (12, 33751), (Start: 19 @33625 has 40 MA's), (Start: 20 @33622 has 36 MA's), (29, 33550), (31, 33523), (38, 33445), (44, 33406), (61, 33283),

Gene: Schatzie_138 Start: 76638, Stop: 77027, Start Num: 20

Candidate Starts for Schatzie_138:

(5, 76392), (6, 76398), (7, 76413), (8, 76419), (13, 76518), (15, 76545), (Start: 20 @76638 has 36 MA's), (21, 76647), (26, 76692), (34, 76779), (60, 77016),

Gene: Scorpia_55 Start: 37381, Stop: 36980, Start Num: 19
Candidate Starts for Scorpia_55:
(Start: 19 @37381 has 40 MA's), (29, 37300), (35, 37237), (43, 37180), (44, 37171), (53, 37117), (57, 37075),

Gene: ShortQueendom_48 Start: 35685, Stop: 35299, Start Num: 20
Candidate Starts for ShortQueendom_48:
(Start: 20 @35685 has 36 MA's), (26, 35631), (34, 35544), (36, 35535), (38, 35490), (60, 35310),

Gene: Snazzy_53 Start: 38294, Stop: 37908, Start Num: 20
Candidate Starts for Snazzy_53:
(Start: 20 @38294 has 36 MA's), (26, 38240), (34, 38153), (36, 38144), (38, 38099), (60, 37919),

Gene: Swirley_52 Start: 37437, Stop: 37018, Start Num: 19
Candidate Starts for Swirley_52:
(Start: 19 @37437 has 40 MA's), (23, 37419), (35, 37293), (37, 37257), (39, 37248), (42, 37221), (44, 37209), (53, 37155),

Gene: SydNat_53 Start: 38070, Stop: 37660, Start Num: 19
Candidate Starts for SydNat_53:
(Start: 19 @38070 has 40 MA's), (38, 37893), (46, 37845), (50, 37812), (52, 37800), (56, 37770), (62, 37671),

Gene: Tarynearal_48 Start: 36879, Stop: 36460, Start Num: 19
Candidate Starts for Tarynearal_48:
(Start: 19 @36879 has 40 MA's), (23, 36861), (35, 36735), (37, 36699), (39, 36690), (42, 36663), (44, 36651), (53, 36597),

Gene: Theia_49 Start: 37547, Stop: 37137, Start Num: 19
Candidate Starts for Theia_49:
(Start: 19 @37547 has 40 MA's), (32, 37433), (38, 37370), (46, 37322), (50, 37289), (52, 37277), (56, 37247), (62, 37148),

Gene: Thibault_125 Start: 73030, Stop: 73368, Start Num: 20
Candidate Starts for Thibault_125:
(Start: 20 @73030 has 36 MA's), (34, 73180), (36, 73189), (38, 73234), (47, 73273), (60, 73357),

Gene: ThreeRngTarjay_137 Start: 76561, Stop: 76950, Start Num: 20
Candidate Starts for ThreeRngTarjay_137:
(2, 76237), (5, 76315), (6, 76321), (7, 76336), (9, 76399), (13, 76441), (15, 76468), (Start: 20 @76561 has 36 MA's), (21, 76570), (26, 76615), (34, 76702), (38, 76756), (60, 76939),

Gene: Tiger_49 Start: 36745, Stop: 36326, Start Num: 19
Candidate Starts for Tiger_49:
(1, 37108), (3, 37045), (10, 36886), (Start: 19 @36745 has 40 MA's), (29, 36664), (35, 36601), (39, 36556), (42, 36529), (44, 36517), (53, 36463), (55, 36445), (57, 36421),

Gene: Twigg_50 Start: 37082, Stop: 36657, Start Num: 19
Candidate Starts for Twigg_50:
(Start: 19 @37082 has 40 MA's), (23, 37064), (35, 36938), (37, 36896), (39, 36887), (42, 36860), (44, 36848),

Gene: UnionJack_52 Start: 36886, Stop: 36470, Start Num: 19

Candidate Starts for UnionJack_52:

(Start: 19 @36886 has 40 MA's), (29, 36805), (35, 36742), (43, 36670), (44, 36661), (57, 36565),

Gene: Wanda_142 Start: 74268, Stop: 74657, Start Num: 20

Candidate Starts for Wanda_142:

(2, 73944), (5, 74022), (6, 74028), (7, 74043), (8, 74049), (13, 74148), (15, 74175), (16, 74178), (Start: 20 @74268 has 36 MA's), (21, 74277), (26, 74322), (34, 74409), (60, 74646),

Gene: Yeet_135 Start: 75759, Stop: 76148, Start Num: 20

Candidate Starts for Yeet_135:

(2, 75435), (5, 75513), (6, 75519), (7, 75534), (9, 75597), (13, 75639), (15, 75666), (Start: 20 @75759 has 36 MA's), (21, 75768), (26, 75813), (34, 75900), (38, 75954), (60, 76137),

Gene: Zelink_137 Start: 77080, Stop: 77469, Start Num: 20

Candidate Starts for Zelink_137:

(5, 76834), (6, 76840), (7, 76855), (8, 76861), (13, 76960), (15, 76987), (16, 76990), (Start: 20 @77080 has 36 MA's), (21, 77089), (26, 77134), (34, 77221), (60, 77458),

Gene: Zolita_52 Start: 38074, Stop: 37664, Start Num: 19

Candidate Starts for Zolita_52:

(Start: 19 @38074 has 40 MA's), (38, 37897), (46, 37849), (50, 37816), (52, 37804), (56, 37774), (62, 37675),