

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 161791 Report

This analysis was run 04/28/24 on database version 559.

Pham number 161791 has 80 members, 18 are drafts.

Phages represented in each track:

- Track 1 : PacManQ_219, Leo04_219, Lululemon_218, HangryHippo_220, Cross_218, Larnav_225, Peebs_216, Samisti12_223, BlueOtter_220, Watermoore_218, Cursive_221
- Track 2 : Navo_221, Bartholomune_219, Persimmon_222, NootNoot_216, Liandry_219, Squillium_222, PinkiePie_219
- Track 3 : EGole_222
- Track 4 : LilMartin_218, MulchMansion_222, Angela_221
- Track 5 : Paradiddles_211, WhereRU_225, Braelyn_215
- Track 6 : Mildred21_228
- Track 7 : Jay2Jay_224, Targaryen_218, Evy_209, Warpy_222
- Track 8 : Sushi23_219, Pepperwood_219, Tribute_215
- Track 9 : Bmoc_223
- Track 10 : Daubenski_212
- Track 11 : Deutsch_218
- Track 12 : Anedea_231
- Track 13 : Tomas_231
- Track 14 : Kenrey_174
- Track 15 : Beuffert_160
- Track 16 : SparkleGoddess_166, Karp_161, Stigma_165, Belfort_167, Comrade_164
- Track 17 : Forrest_173, Jada_170
- Track 18 : Gilson_170, Emma1919_171
- Track 19 : Moab_168, Patelgo_169
- Track 20 : Blueeyedbeauty_162
- Track 21 : Limpid_161, Annadreamy_154
- Track 22 : Sham_160
- Track 23 : TunaTartare_166
- Track 24 : SeresaTree_162, Faust_160
- Track 25 : Phredrick_172
- Track 26 : MeganTheeKilla_170
- Track 27 : Francob_169
- Track 28 : BillNye_131, Circinus_132
- Track 29 : Wakanda_138
- Track 30 : Muntaha_139
- Track 31 : Peregrin_117
- Track 32 : Grayson_118
- Track 33 : Weasels2_120

- Track 34 : Trina_157
- Track 35 : NiceHouse_135
- Track 36 : Dorin_120, Francesca_123
- Track 37 : Bloom_168, Mimi_171, Talia1610_168, Racecar_166
- Track 38 : Atuin_161
- Track 39 : DunneganBoMo_159
- Track 40 : Patbob_163
- Track 41 : SJReid_168

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

The start number called the most often in the published annotations is 23, it was called in 31 of the 62 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Anedea_231, Angela_221, Bartholomune_219, BlueOtter_220, Bmoc_223, Braelyn_215, Cross_218, Cursive_221, Daubenski_212, EGole_222, Evy_209, HangryHippo_220, Jay2Jay_224, Larnav_225, Leo04_219, Liandry_219, LilMartin_218, Lululemon_218, Mildred21_228, MulchMansion_222, Navo_221, NootNoot_216, PacManQ_219, Paradiddles_211, Peebs_216, Pepperwood_219, Persimmon_222, PinkiePie_219, Samisti12_223, Sham_160, Squillium_222, Sushi23_219, Targaryen_218, Teutsch_218, Tomas_231, Tribute_215, Warpy_222, Watermoore_218, WhereRU_225,

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

- BillNye_131, Circinus_132,

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

- Annadreamy_154, Atuin_161, Belfort_167, Beuffert_160, Bloom_168, Blueeyedbeauty_162, Comrade_164, Dorin_120, DunneganBoMo_159, Emma1919_171, Faust_160, Forrest_173, Francesca_123, Francob_169, Gilson_170, Grayson_118, Jada_170, Karp_161, Kenrey_174, Limpid_161, MeganTheeKilla_170, Mimi_171, Moab_168, Muntaha_139, NiceHouse_135, Patbob_163, Patelgo_169, Peregrin_117, Phredrick_172, Racecar_166, SJReid_168, SeresaTree_162, SparkleGoddess_166, Stigma_165, Talia1610_168, Trina_157, TunaTartare_166, Wakanda_138, Weasels2_120,

Summary by start number:

Start 17:

- Found in 2 of 80 (2.5%) of genes in pham
- Manual Annotations of this start: 2 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BillNye_131 (BK2), Circinus_132 (BK2),

Start 23:

- Found in 41 of 80 (51.2%) of genes in pham
- Manual Annotations of this start: 31 of 62
- Called 95.1% of time when present

- Phage (with cluster) where this start called: Anedea_231 (BE1), Angela_221 (BE1), Bartholomune_219 (BE1), BlueOtter_220 (BE1), Bmoc_223 (BE1), Braelyn_215 (BE1), Cross_218 (BE1), Cursive_221 (BE1), Daubenski_212 (BE1), EGole_222 (BE1), Evy_209 (BE1), HangryHippo_220 (BE1), Jay2Jay_224 (BE1), Larnav_225 (BE1), Leo04_219 (BE1), Liandry_219 (BE1), LiiMartin_218 (BE1), Lululemon_218 (BE1), Mildred21_228 (BE1), MulchMansion_222 (BE1), Navo_221 (BE1), NootNoot_216 (BE1), PacManQ_219 (BE1), Paradiddles_211 (BE1), Peebs_216 (BE1), Pepperwood_219 (BE1), Persimmon_222 (BE1), PinkiePie_219 (BE1), Samisti12_223 (BE1), Sham_160 (BK1), Squillium_222 (BE1), Sushi23_219 (BE1), Targaryen_218 (BE1), Teutsch_218 (BE1), Tomas_231 (BE2), Tribute_215 (BE1), Warpy_222 (BE1), Watermoore_218 (BE1), WhereRU_225 (BE1),

Start 24:

- Found in 9 of 80 (11.2%) of genes in pham
- Manual Annotations of this start: 8 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Annadreamy_154 (BK1), Beuffert_160 (BK1), Blueeyedbeauty_162 (BK1), Faust_160 (BK1), Limpid_161 (BK1), Muntaha_139 (BK2), SeresaTree_162 (BK1), TunaTartare_166 (BK1), Wakanda_138 (BK2),

Start 25:

- Found in 15 of 80 (18.8%) of genes in pham
- Manual Annotations of this start: 6 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Atuin_161 (FC), Bloom_168 (FC), Dorin_120 (CG), DunneganBoMo_159 (FC), Francesca_123 (CG), Grayson_118 (CB), Mimi_171 (FC), NiceHouse_135 (CE), Patbob_163 (FC), Peregrin_117 (CB), Racecar_166 (FC), SJReid_168 (FC), Talia1610_168 (FC), Trina_157 (CE), Weasels2_120 (CB),

Start 26:

- Found in 14 of 80 (17.5%) of genes in pham
- Manual Annotations of this start: 14 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Belfort_167 (BK1), Comrade_164 (BK1), Emma1919_171 (BK1), Forrest_173 (BK1), Gilson_170 (BK1), Jada_170 (BK1), Karp_161 (BK1), Kenrey_174 (BK1), MeganTheeKilla_170 (BK1), Moab_168 (BK1), Patelgo_169 (BK1), Phredrick_172 (BK1), SparkleGoddess_166 (BK1), Stigma_165 (BK1),

Start 27:

- Found in 1 of 80 (1.2%) of genes in pham
- Manual Annotations of this start: 1 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Francob_169 (BK1),

Summary by clusters:

There are 8 clusters represented in this pham: CB, CG, CE, FC, BK1, BK2, BE2, BE1,

Info for manual annotations of cluster BE1:

- Start number 23 was manually annotated 29 times for cluster BE1.

Info for manual annotations of cluster BE2:

- Start number 23 was manually annotated 1 time for cluster BE2.

Info for manual annotations of cluster BK1:

- Start number 23 was manually annotated 1 time for cluster BK1.
- Start number 24 was manually annotated 6 times for cluster BK1.
- Start number 26 was manually annotated 14 times for cluster BK1.
- Start number 27 was manually annotated 1 time for cluster BK1.

Info for manual annotations of cluster BK2:

- Start number 17 was manually annotated 2 times for cluster BK2.
- Start number 24 was manually annotated 2 times for cluster BK2.

Info for manual annotations of cluster CB:

- Start number 25 was manually annotated 3 times for cluster CB.

Info for manual annotations of cluster CE:

- Start number 25 was manually annotated 2 times for cluster CE.

Info for manual annotations of cluster FC:

- Start number 25 was manually annotated 1 time for cluster FC.

Gene Information:

Gene: Anedea_231 Start: 111995, Stop: 112969, Start Num: 23

Candidate Starts for Anedea_231:

(22, 111986), (Start: 23 @111995 has 31 MA's), (36, 112067), (57, 112202), (58, 112208), (89, 112568), (90, 112574), (93, 112607), (100, 112688), (131, 112886), (134, 112898),

Gene: Angela_221 Start: 109751, Stop: 110782, Start Num: 23

Candidate Starts for Angela_221:

(12, 109682), (13, 109688), (15, 109697), (20, 109715), (Start: 23 @109751 has 31 MA's), (36, 109823), (44, 109877), (48, 109898), (58, 109964), (77, 110177), (84, 110264), (90, 110312), (93, 110345), (109, 110522), (116, 110594), (120, 110630), (134, 110711),

Gene: Annadreamy_154 Start: 85058, Stop: 85987, Start Num: 24

Candidate Starts for Annadreamy_154:

(Start: 24 @85058 has 8 MA's), (35, 85121), (36, 85133), (41, 85181), (70, 85397), (79, 85502), (83, 85556), (89, 85610), (90, 85616), (101, 85745), (104, 85781), (106, 85802), (121, 85907), (132, 85940),

Gene: Atuin_161 Start: 109227, Stop: 110180, Start Num: 25

Candidate Starts for Atuin_161:

(Start: 25 @109227 has 6 MA's), (56, 109419), (63, 109497), (68, 109554), (90, 109785), (96, 109884), (101, 109911), (112, 110013),

Gene: Bartholomune_219 Start: 109980, Stop: 110945, Start Num: 23

Candidate Starts for Bartholomune_219:

(Start: 23 @109980 has 31 MA's), (36, 110052), (61, 110229), (84, 110481), (89, 110523), (90, 110529), (93, 110562), (94, 110580), (95, 110628), (100, 110643), (111, 110757), (119, 110826), (127, 110853), (131, 110862), (133, 110871),

Gene: Belfort_167 Start: 91008, Stop: 92018, Start Num: 26

Candidate Starts for Belfort_167:

(Start: 26 @91008 has 14 MA's), (36, 91077), (60, 91233), (90, 91554), (101, 91683), (104, 91719), (130, 91926), (133, 91938),

Gene: Beuffert_160 Start: 89147, Stop: 90076, Start Num: 24

Candidate Starts for Beuffert_160:

(11, 89072), (Start: 24 @89147 has 8 MA's), (35, 89210), (36, 89222), (57, 89357), (79, 89591), (83, 89645), (90, 89705), (104, 89870), (106, 89891), (111, 89927), (121, 89996), (132, 90029),

Gene: BillNye_131 Start: 80702, Stop: 81835, Start Num: 17

Candidate Starts for BillNye_131:

(Start: 17 @80702 has 2 MA's), (Start: 23 @80747 has 31 MA's), (36, 80825), (48, 80900), (61, 81002), (64, 81026), (71, 81092), (90, 81305), (99, 81416), (104, 81470), (122, 81644), (141, 81755), (142, 81773),

Gene: Bloom_168 Start: 110490, Stop: 111422, Start Num: 25

Candidate Starts for Bloom_168:

(Start: 25 @110490 has 6 MA's), (46, 110628), (66, 110778), (68, 110817), (79, 110940), (90, 111051), (95, 111156), (97, 111162), (102, 111189), (103, 111195), (104, 111222),

Gene: BlueOtter_220 Start: 110101, Stop: 111066, Start Num: 23

Candidate Starts for BlueOtter_220:

(Start: 23 @110101 has 31 MA's), (36, 110173), (60, 110329), (88, 110641), (90, 110650), (93, 110683), (111, 110878), (119, 110947), (131, 110983), (133, 110992), (134, 110995),

Gene: Blueeyedbeauty_162 Start: 88815, Stop: 89744, Start Num: 24

Candidate Starts for Blueeyedbeauty_162:

(3, 88683), (4, 88689), (7, 88710), (8, 88716), (10, 88734), (11, 88740), (Start: 24 @88815 has 8 MA's), (35, 88878), (36, 88890), (57, 89025), (70, 89154), (79, 89259), (83, 89313), (90, 89373), (101, 89502), (104, 89538), (106, 89559), (121, 89664), (132, 89697),

Gene: Bmoc_223 Start: 110200, Stop: 111180, Start Num: 23

Candidate Starts for Bmoc_223:

(11, 110125), (15, 110146), (Start: 23 @110200 has 31 MA's), (36, 110272), (48, 110347), (54, 110368), (57, 110407), (58, 110413), (90, 110749), (91, 110764), (93, 110782), (131, 111097), (134, 111109),

Gene: Braelyn_215 Start: 109627, Stop: 110592, Start Num: 23

Candidate Starts for Braelyn_215:

(Start: 23 @109627 has 31 MA's), (36, 109699), (61, 109876), (84, 110128), (89, 110170), (90, 110176), (93, 110209), (95, 110275), (100, 110290), (111, 110404), (119, 110473), (127, 110500), (131, 110509), (133, 110518),

Gene: Circinus_132 Start: 80670, Stop: 81803, Start Num: 17

Candidate Starts for Circinus_132:

(Start: 17 @80670 has 2 MA's), (Start: 23 @80715 has 31 MA's), (36, 80793), (48, 80868), (61, 80970), (64, 80994), (71, 81060), (90, 81273), (99, 81384), (104, 81438), (122, 81612), (141, 81723), (142, 81741),

Gene: Comrade_164 Start: 91210, Stop: 92220, Start Num: 26

Candidate Starts for Comrade_164:

(Start: 26 @91210 has 14 MA's), (36, 91279), (60, 91435), (90, 91756), (101, 91885), (104, 91921), (130, 92128), (133, 92140),

Gene: Cross_218 Start: 110746, Stop: 111711, Start Num: 23

Candidate Starts for Cross_218:

(Start: 23 @110746 has 31 MA's), (36, 110818), (60, 110974), (88, 111286), (90, 111295), (93, 111328), (111, 111523), (119, 111592), (131, 111628), (133, 111637), (134, 111640),

Gene: Cursive_221 Start: 110430, Stop: 111395, Start Num: 23

Candidate Starts for Cursive_221:

(Start: 23 @110430 has 31 MA's), (36, 110502), (60, 110658), (88, 110970), (90, 110979), (93, 111012), (111, 111207), (119, 111276), (131, 111312), (133, 111321), (134, 111324),

Gene: Daubenski_212 Start: 110817, Stop: 111794, Start Num: 23

Candidate Starts for Daubenski_212:

(9, 110739), (Start: 23 @110817 has 31 MA's), (36, 110889), (37, 110895), (47, 110961), (60, 111045), (84, 111318), (90, 111366), (100, 111480), (117, 111645), (131, 111711), (134, 111723),

Gene: Dorin_120 Start: 80878, Stop: 81957, Start Num: 25

Candidate Starts for Dorin_120:

(Start: 25 @80878 has 6 MA's), (32, 80926), (39, 80974), (40, 80989), (41, 80995), (45, 81013), (51, 81049), (59, 81121), (65, 81172), (71, 81232), (75, 81292), (90, 81439), (96, 81547), (99, 81556), (103, 81583), (104, 81610), (123, 81790), (126, 81814), (136, 81865),

Gene: DunneganBoMo_159 Start: 106136, Stop: 107074, Start Num: 25

Candidate Starts for DunneganBoMo_159:

(Start: 25 @106136 has 6 MA's), (56, 106331), (63, 106409), (88, 106688), (90, 106697), (105, 106877), (114, 106943), (118, 106979),

Gene: EGole_222 Start: 112476, Stop: 113450, Start Num: 23

Candidate Starts for EGole_222:

(Start: 23 @112476 has 31 MA's), (36, 112548), (60, 112704), (80, 112923), (88, 113016), (90, 113025), (125, 113340), (131, 113367), (134, 113379),

Gene: Emma1919_171 Start: 89918, Stop: 90925, Start Num: 26

Candidate Starts for Emma1919_171:

(Start: 26 @89918 has 14 MA's), (30, 89939), (36, 89987), (61, 90164), (88, 90455), (90, 90464), (101, 90593), (104, 90629), (105, 90647), (108, 90659), (129, 90830), (130, 90833),

Gene: Evy_209 Start: 110921, Stop: 111886, Start Num: 23

Candidate Starts for Evy_209:

(Start: 23 @110921 has 31 MA's), (36, 110993), (60, 111149), (79, 111362), (80, 111368), (90, 111470), (93, 111503), (113, 111710), (119, 111767), (127, 111794), (131, 111803), (133, 111812),

Gene: Faust_160 Start: 90385, Stop: 91368, Start Num: 24

Candidate Starts for Faust_160:

(Start: 24 @90385 has 8 MA's), (36, 90460), (41, 90508), (90, 90943), (104, 91108), (107, 91132),

Gene: Forrest_173 Start: 91510, Stop: 92523, Start Num: 26

Candidate Starts for Forrest_173:

(Start: 26 @91510 has 14 MA's), (30, 91531), (36, 91579), (61, 91756), (90, 92056), (104, 92221), (108, 92251), (129, 92428), (130, 92431),

Gene: Francesca_123 Start: 81793, Stop: 82872, Start Num: 25

Candidate Starts for Francesca_123:

(Start: 25 @81793 has 6 MA's), (32, 81841), (39, 81889), (40, 81904), (41, 81910), (45, 81928), (51, 81964), (59, 82036), (65, 82087), (71, 82147), (75, 82207), (90, 82354), (96, 82462), (99, 82471), (103, 82498), (104, 82525), (123, 82705), (126, 82729), (136, 82780),

Gene: Francob_169 Start: 90421, Stop: 91428, Start Num: 27

Candidate Starts for Francob_169:

(14, 90358), (15, 90361), (Start: 27 @90421 has 1 MA's), (30, 90442), (36, 90490), (42, 90541), (47, 90562), (67, 90703), (79, 90859), (90, 90967), (101, 91096), (104, 91132), (105, 91150), (129, 91336), (130, 91339),

Gene: Gilson_170 Start: 89880, Stop: 90887, Start Num: 26

Candidate Starts for Gilson_170:

(Start: 26 @89880 has 14 MA's), (30, 89901), (36, 89949), (61, 90126), (88, 90417), (90, 90426), (101, 90555), (104, 90591), (105, 90609), (108, 90621), (129, 90792), (130, 90795),

Gene: Grayson_118 Start: 74391, Stop: 75455, Start Num: 25

Candidate Starts for Grayson_118:

(Start: 25 @74391 has 6 MA's), (72, 74775), (85, 74898), (90, 74946), (96, 75045), (101, 75072), (104, 75105), (135, 75312), (138, 75348),

Gene: HangryHippo_220 Start: 110101, Stop: 111066, Start Num: 23

Candidate Starts for HangryHippo_220:

(Start: 23 @110101 has 31 MA's), (36, 110173), (60, 110329), (88, 110641), (90, 110650), (93, 110683), (111, 110878), (119, 110947), (131, 110983), (133, 110992), (134, 110995),

Gene: Jada_170 Start: 90206, Stop: 91219, Start Num: 26

Candidate Starts for Jada_170:

(Start: 26 @90206 has 14 MA's), (30, 90227), (36, 90275), (61, 90452), (90, 90752), (104, 90917), (108, 90947), (129, 91124), (130, 91127),

Gene: Jay2Jay_224 Start: 111076, Stop: 112041, Start Num: 23

Candidate Starts for Jay2Jay_224:

(Start: 23 @111076 has 31 MA's), (36, 111148), (60, 111304), (79, 111517), (80, 111523), (90, 111625), (93, 111658), (113, 111865), (119, 111922), (127, 111949), (131, 111958), (133, 111967),

Gene: Karp_161 Start: 90434, Stop: 91444, Start Num: 26

Candidate Starts for Karp_161:

(Start: 26 @90434 has 14 MA's), (36, 90503), (60, 90659), (90, 90980), (101, 91109), (104, 91145), (130, 91352), (133, 91364),

Gene: Kenrey_174 Start: 91221, Stop: 92234, Start Num: 26

Candidate Starts for Kenrey_174:

(Start: 26 @91221 has 14 MA's), (30, 91242), (36, 91290), (90, 91767), (104, 91932), (108, 91962), (129, 92139), (130, 92142),

Gene: Larnav_225 Start: 110595, Stop: 111560, Start Num: 23

Candidate Starts for Larnav_225:

(Start: 23 @110595 has 31 MA's), (36, 110667), (60, 110823), (88, 111135), (90, 111144), (93, 111177), (111, 111372), (119, 111441), (131, 111477), (133, 111486), (134, 111489),

Gene: Leo04_219 Start: 111127, Stop: 112092, Start Num: 23

Candidate Starts for Leo04_219:

(Start: 23 @111127 has 31 MA's), (36, 111199), (60, 111355), (88, 111667), (90, 111676), (93, 111709), (111, 111904), (119, 111973), (131, 112009), (133, 112018), (134, 112021),

Gene: Liandry_219 Start: 110503, Stop: 111468, Start Num: 23

Candidate Starts for Liandry_219:

(Start: 23 @110503 has 31 MA's), (36, 110575), (61, 110752), (84, 111004), (89, 111046), (90, 111052), (93, 111085), (94, 111103), (95, 111151), (100, 111166), (111, 111280), (119, 111349), (127, 111376), (131, 111385), (133, 111394),

Gene: LilMartin_218 Start: 109115, Stop: 110146, Start Num: 23

Candidate Starts for LilMartin_218:

(12, 109046), (13, 109052), (15, 109061), (20, 109079), (Start: 23 @109115 has 31 MA's), (36, 109187), (44, 109241), (48, 109262), (58, 109328), (77, 109541), (84, 109628), (90, 109676), (93, 109709), (109, 109886), (116, 109958), (120, 109994), (134, 110075),

Gene: Limpid_161 Start: 90371, Stop: 91300, Start Num: 24

Candidate Starts for Limpid_161:

(Start: 24 @90371 has 8 MA's), (35, 90434), (36, 90446), (41, 90494), (70, 90710), (79, 90815), (83, 90869), (89, 90923), (90, 90929), (101, 91058), (104, 91094), (106, 91115), (121, 91220), (132, 91253),

Gene: Lululemon_218 Start: 109482, Stop: 110447, Start Num: 23

Candidate Starts for Lululemon_218:

(Start: 23 @109482 has 31 MA's), (36, 109554), (60, 109710), (88, 110022), (90, 110031), (93, 110064), (111, 110259), (119, 110328), (131, 110364), (133, 110373), (134, 110376),

Gene: MeganTheeKilla_170 Start: 89949, Stop: 90956, Start Num: 26

Candidate Starts for MeganTheeKilla_170:

(Start: 26 @89949 has 14 MA's), (30, 89970), (36, 90018), (61, 90195), (90, 90495), (101, 90624), (104, 90660), (105, 90678), (108, 90690), (129, 90861), (130, 90864),

Gene: Mildred21_228 Start: 108870, Stop: 109850, Start Num: 23

Candidate Starts for Mildred21_228:

(Start: 23 @108870 has 31 MA's), (33, 108924), (36, 108942), (48, 109017), (55, 109041), (57, 109077), (58, 109083), (68, 109188), (81, 109317), (90, 109419), (110, 109641), (117, 109707), (124, 109737), (128, 109761), (131, 109767),

Gene: Mimi_171 Start: 110115, Stop: 111047, Start Num: 25

Candidate Starts for Mimi_171:

(Start: 25 @110115 has 6 MA's), (46, 110253), (66, 110403), (68, 110442), (79, 110565), (90, 110676), (95, 110781), (97, 110787), (102, 110814), (103, 110820), (104, 110847),

Gene: Moab_168 Start: 92420, Stop: 93433, Start Num: 26

Candidate Starts for Moab_168:

(14, 92360), (15, 92363), (Start: 26 @92420 has 14 MA's), (36, 92489), (42, 92540), (90, 92966), (101, 93095), (104, 93131), (105, 93149), (108, 93161), (130, 93344),

Gene: MulchMansion_222 Start: 110749, Stop: 111780, Start Num: 23

Candidate Starts for MulchMansion_222:

(12, 110680), (13, 110686), (15, 110695), (20, 110713), (Start: 23 @110749 has 31 MA's), (36, 110821), (44, 110875), (48, 110896), (58, 110962), (77, 111175), (84, 111262), (90, 111310), (93, 111343), (109, 111520), (116, 111592), (120, 111628), (134, 111709),

Gene: Muntaha_139 Start: 79684, Stop: 80793, Start Num: 24

Candidate Starts for Muntaha_139:

(22, 79672), (Start: 24 @79684 has 8 MA's), (34, 79738), (35, 79741), (36, 79753), (37, 79759), (58, 79894), (71, 80020), (89, 80230), (90, 80236), (98, 80344), (104, 80401), (117, 80533), (139, 80695), (141, 80713),

Gene: Navo_221 Start: 108831, Stop: 109796, Start Num: 23

Candidate Starts for Navo_221:

(Start: 23 @108831 has 31 MA's), (36, 108903), (61, 109080), (84, 109332), (89, 109374), (90, 109380), (93, 109413), (94, 109431), (95, 109479), (100, 109494), (111, 109608), (119, 109677), (127, 109704), (131, 109713), (133, 109722),

Gene: NiceHouse_135 Start: 88021, Stop: 88899, Start Num: 25

Candidate Starts for NiceHouse_135:

(13, 87952), (16, 87964), (18, 87970), (19, 87976), (Start: 25 @88021 has 6 MA's), (29, 88036), (31, 88063), (49, 88174), (53, 88192), (74, 88429), (76, 88459), (82, 88492), (86, 88543), (87, 88552), (90, 88582), (94, 88633),

Gene: NootNoot_216 Start: 109348, Stop: 110313, Start Num: 23

Candidate Starts for NootNoot_216:

(Start: 23 @109348 has 31 MA's), (36, 109420), (61, 109597), (84, 109849), (89, 109891), (90, 109897), (93, 109930), (94, 109948), (95, 109996), (100, 110011), (111, 110125), (119, 110194), (127, 110221), (131, 110230), (133, 110239),

Gene: PacManQ_219 Start: 109482, Stop: 110447, Start Num: 23

Candidate Starts for PacManQ_219:

(Start: 23 @109482 has 31 MA's), (36, 109554), (60, 109710), (88, 110022), (90, 110031), (93, 110064), (111, 110259), (119, 110328), (131, 110364), (133, 110373), (134, 110376),

Gene: Paradiddles_211 Start: 111723, Stop: 112688, Start Num: 23

Candidate Starts for Paradiddles_211:

(Start: 23 @111723 has 31 MA's), (36, 111795), (61, 111972), (84, 112224), (89, 112266), (90, 112272), (93, 112305), (95, 112371), (100, 112386), (111, 112500), (119, 112569), (127, 112596), (131, 112605), (133, 112614),

Gene: Patbob_163 Start: 110620, Stop: 111552, Start Num: 25

Candidate Starts for Patbob_163:

(Start: 25 @110620 has 6 MA's), (46, 110758), (66, 110908), (68, 110947), (79, 111070), (90, 111181), (91, 111196), (95, 111286), (97, 111292), (102, 111319), (103, 111325), (104, 111352),

Gene: Patelgo_169 Start: 92898, Stop: 93911, Start Num: 26

Candidate Starts for Patelgo_169:

(14, 92838), (15, 92841), (Start: 26 @92898 has 14 MA's), (36, 92967), (42, 93018), (90, 93444), (101, 93573), (104, 93609), (105, 93627), (108, 93639), (130, 93822),

Gene: Peebs_216 Start: 110566, Stop: 111531, Start Num: 23

Candidate Starts for Peebs_216:

(Start: 23 @110566 has 31 MA's), (36, 110638), (60, 110794), (88, 111106), (90, 111115), (93, 111148), (111, 111343), (119, 111412), (131, 111448), (133, 111457), (134, 111460),

Gene: Pepperwood_219 Start: 110798, Stop: 111763, Start Num: 23

Candidate Starts for Pepperwood_219:

(Start: 23 @110798 has 31 MA's), (36, 110870), (60, 111026), (88, 111338), (90, 111347), (93, 111380), (111, 111575), (119, 111644), (127, 111671), (131, 111680), (133, 111689), (134, 111692),

Gene: Peregrin_117 Start: 74368, Stop: 75456, Start Num: 25

Candidate Starts for Peregrin_117:

(Start: 25 @74368 has 6 MA's), (72, 74752), (73, 74755), (90, 74923), (104, 75082), (135, 75313),

Gene: Persimmon_222 Start: 109849, Stop: 110814, Start Num: 23

Candidate Starts for Persimmon_222:

(Start: 23 @109849 has 31 MA's), (36, 109921), (61, 110098), (84, 110350), (89, 110392), (90, 110398), (93, 110431), (94, 110449), (95, 110497), (100, 110512), (111, 110626), (119, 110695), (127, 110722), (131, 110731), (133, 110740),

Gene: Phredrick_172 Start: 89845, Stop: 90858, Start Num: 26

Candidate Starts for Phredrick_172:

(Start: 26 @89845 has 14 MA's), (30, 89866), (36, 89914), (90, 90391), (104, 90556), (105, 90574), (108, 90586), (129, 90763), (130, 90766),

Gene: PinkiePie_219 Start: 110503, Stop: 111468, Start Num: 23

Candidate Starts for PinkiePie_219:

(Start: 23 @110503 has 31 MA's), (36, 110575), (61, 110752), (84, 111004), (89, 111046), (90, 111052), (93, 111085), (94, 111103), (95, 111151), (100, 111166), (111, 111280), (119, 111349), (127, 111376), (131, 111385), (133, 111394),

Gene: Racecar_166 Start: 111081, Stop: 112013, Start Num: 25

Candidate Starts for Racecar_166:

(Start: 25 @111081 has 6 MA's), (46, 111219), (66, 111369), (68, 111408), (79, 111531), (90, 111642), (95, 111747), (97, 111753), (102, 111780), (103, 111786), (104, 111813),

Gene: SJReid_168 Start: 100899, Stop: 101945, Start Num: 25

Candidate Starts for SJReid_168:

(Start: 25 @100899 has 6 MA's), (28, 100905), (38, 100992), (54, 101073), (56, 101091), (58, 101118), (66, 101187), (73, 101277), (77, 101331), (90, 101457), (92, 101487), (102, 101589),

Gene: Samisti12_223 Start: 112392, Stop: 113357, Start Num: 23

Candidate Starts for Samisti12_223:

(Start: 23 @112392 has 31 MA's), (36, 112464), (60, 112620), (88, 112932), (90, 112941), (93, 112974), (111, 113169), (119, 113238), (131, 113274), (133, 113283), (134, 113286),

Gene: SeresaTree_162 Start: 89767, Stop: 90750, Start Num: 24

Candidate Starts for SeresaTree_162:

(Start: 24 @89767 has 8 MA's), (36, 89842), (41, 89890), (90, 90325), (104, 90490), (107, 90514),

Gene: Sham_160 Start: 91368, Stop: 92348, Start Num: 23

Candidate Starts for Sham_160:

(Start: 23 @91368 has 31 MA's), (36, 91446), (41, 91494), (90, 91935), (98, 92043), (101, 92064), (104, 92100), (137, 92289),

Gene: SparkleGoddess_166 Start: 91221, Stop: 92228, Start Num: 26

Candidate Starts for SparkleGoddess_166:

(Start: 26 @91221 has 14 MA's), (36, 91290), (60, 91446), (90, 91767), (101, 91896), (104, 91932), (130, 92136), (133, 92148),

Gene: Squillium_222 Start: 110505, Stop: 111470, Start Num: 23

Candidate Starts for Squillium_222:

(Start: 23 @110505 has 31 MA's), (36, 110577), (61, 110754), (84, 111006), (89, 111048), (90, 111054), (93, 111087), (94, 111105), (95, 111153), (100, 111168), (111, 111282), (119, 111351), (127, 111378), (131, 111387), (133, 111396),

Gene: Stigma_165 Start: 91655, Stop: 92665, Start Num: 26

Candidate Starts for Stigma_165:

(Start: 26 @91655 has 14 MA's), (36, 91724), (60, 91880), (90, 92201), (101, 92330), (104, 92366), (130, 92573), (133, 92585),

Gene: Sushi23_219 Start: 111432, Stop: 112397, Start Num: 23

Candidate Starts for Sushi23_219:

(Start: 23 @111432 has 31 MA's), (36, 111504), (60, 111660), (88, 111972), (90, 111981), (93, 112014), (111, 112209), (119, 112278), (127, 112305), (131, 112314), (133, 112323), (134, 112326),

Gene: Talia1610_168 Start: 110492, Stop: 111424, Start Num: 25

Candidate Starts for Talia1610_168:

(Start: 25 @110492 has 6 MA's), (46, 110630), (66, 110780), (68, 110819), (79, 110942), (90, 111053), (95, 111158), (97, 111164), (102, 111191), (103, 111197), (104, 111224),

Gene: Targaryen_218 Start: 111605, Stop: 112570, Start Num: 23

Candidate Starts for Targaryen_218:

(Start: 23 @111605 has 31 MA's), (36, 111677), (60, 111833), (79, 112046), (80, 112052), (90, 112154), (93, 112187), (113, 112394), (119, 112451), (127, 112478), (131, 112487), (133, 112496),

Gene: Teutsch_218 Start: 111221, Stop: 112186, Start Num: 23

Candidate Starts for Teutsch_218:

(Start: 23 @111221 has 31 MA's), (36, 111293), (60, 111449), (88, 111761), (90, 111770), (93, 111803), (100, 111884), (111, 111998), (119, 112067), (127, 112094), (131, 112103), (133, 112112), (134, 112115),

Gene: Tomas_231 Start: 112309, Stop: 113268, Start Num: 23

Candidate Starts for Tomas_231:

(1, 112177), (2, 112183), (3, 112186), (5, 112204), (6, 112207), (7, 112213), (9, 112231), (11, 112243), (20, 112279), (21, 112285), (Start: 23 @112309 has 31 MA's), (33, 112363), (58, 112522), (61, 112558), (90, 112858), (131, 113185), (134, 113197),

Gene: Tribute_215 Start: 111386, Stop: 112351, Start Num: 23

Candidate Starts for Tribute_215:

(Start: 23 @111386 has 31 MA's), (36, 111458), (60, 111614), (88, 111926), (90, 111935), (93, 111968), (111, 112163), (119, 112232), (127, 112259), (131, 112268), (133, 112277), (134, 112280),

Gene: Trina_157 Start: 95691, Stop: 96605, Start Num: 25

Candidate Starts for Trina_157:

(Start: 25 @95691 has 6 MA's), (36, 95757), (43, 95808), (50, 95841), (62, 95949), (69, 96009), (72, 96057), (90, 96246), (115, 96513),

Gene: TunaTartare_166 Start: 92604, Stop: 93599, Start Num: 24

Candidate Starts for TunaTartare_166:

(Start: 24 @92604 has 8 MA's), (36, 92679), (41, 92727), (78, 93048), (90, 93168), (101, 93297), (104, 93333),

Gene: Wakanda_138 Start: 79625, Stop: 80734, Start Num: 24

Candidate Starts for Wakanda_138:

(22, 79613), (Start: 24 @79625 has 8 MA's), (34, 79679), (35, 79682), (36, 79694), (37, 79700), (58, 79835), (71, 79961), (89, 80171), (90, 80177), (98, 80285), (104, 80342), (117, 80474), (139, 80636),

Gene: Warpy_222 Start: 110514, Stop: 111479, Start Num: 23

Candidate Starts for Warpy_222:

(Start: 23 @110514 has 31 MA's), (36, 110586), (60, 110742), (79, 110955), (80, 110961), (90, 111063), (93, 111096), (113, 111303), (119, 111360), (127, 111387), (131, 111396), (133, 111405),

Gene: Watermoore_218 Start: 111744, Stop: 112709, Start Num: 23

Candidate Starts for Watermoore_218:

(Start: 23 @111744 has 31 MA's), (36, 111816), (60, 111972), (88, 112284), (90, 112293), (93, 112326), (111, 112521), (119, 112590), (131, 112626), (133, 112635), (134, 112638),

Gene: Weasels2_120 Start: 75722, Stop: 76783, Start Num: 25

Candidate Starts for Weasels2_120:

(Start: 25 @75722 has 6 MA's), (52, 75887), (72, 76106), (90, 76277), (103, 76412), (104, 76436), (140, 76697),

Gene: WhereRU_225 Start: 110028, Stop: 110993, Start Num: 23

Candidate Starts for WhereRU_225:

(Start: 23 @110028 has 31 MA's), (36, 110100), (61, 110277), (84, 110529), (89, 110571), (90, 110577), (93, 110610), (95, 110676), (100, 110691), (111, 110805), (119, 110874), (127, 110901), (131, 110910), (133, 110919),