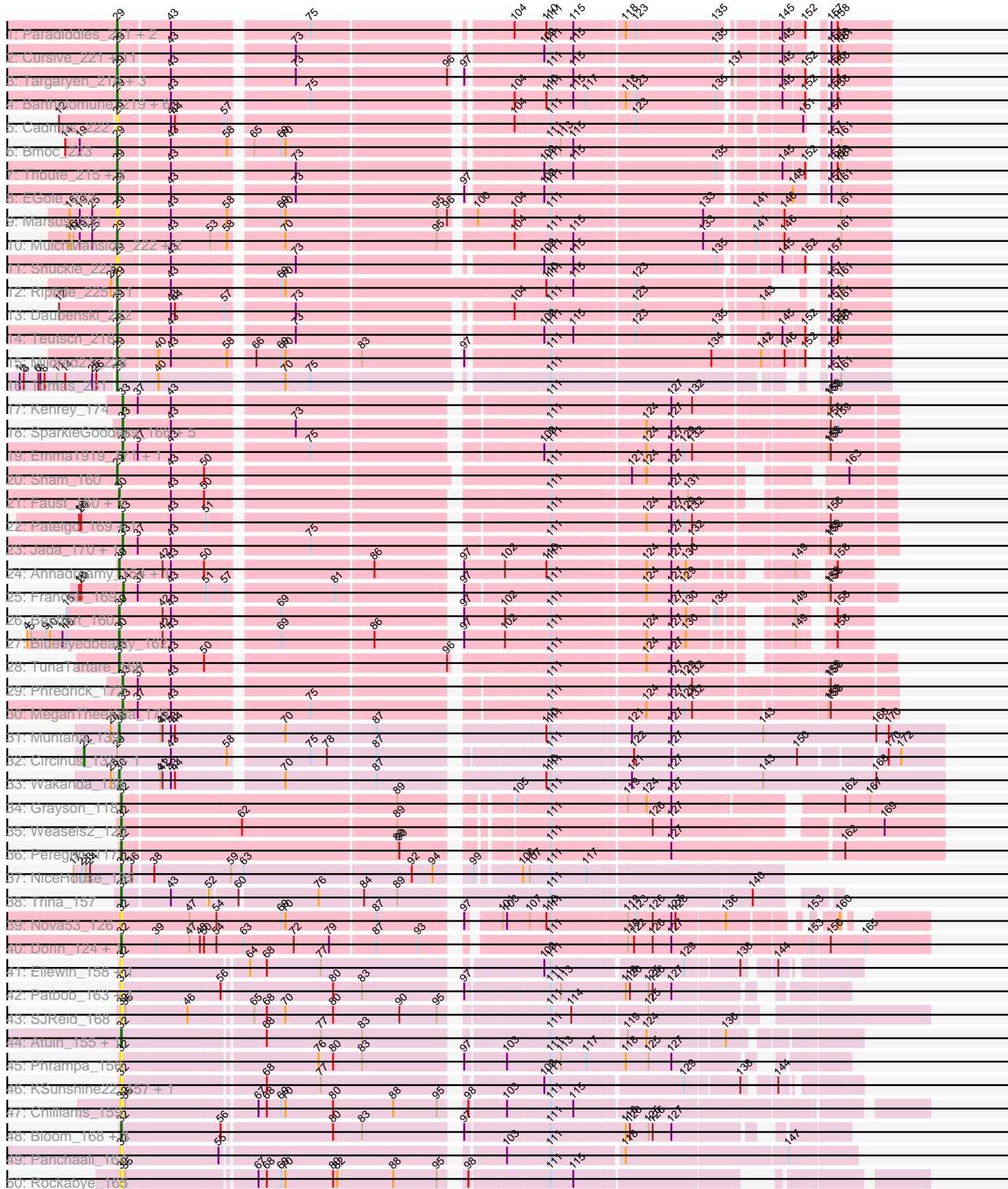
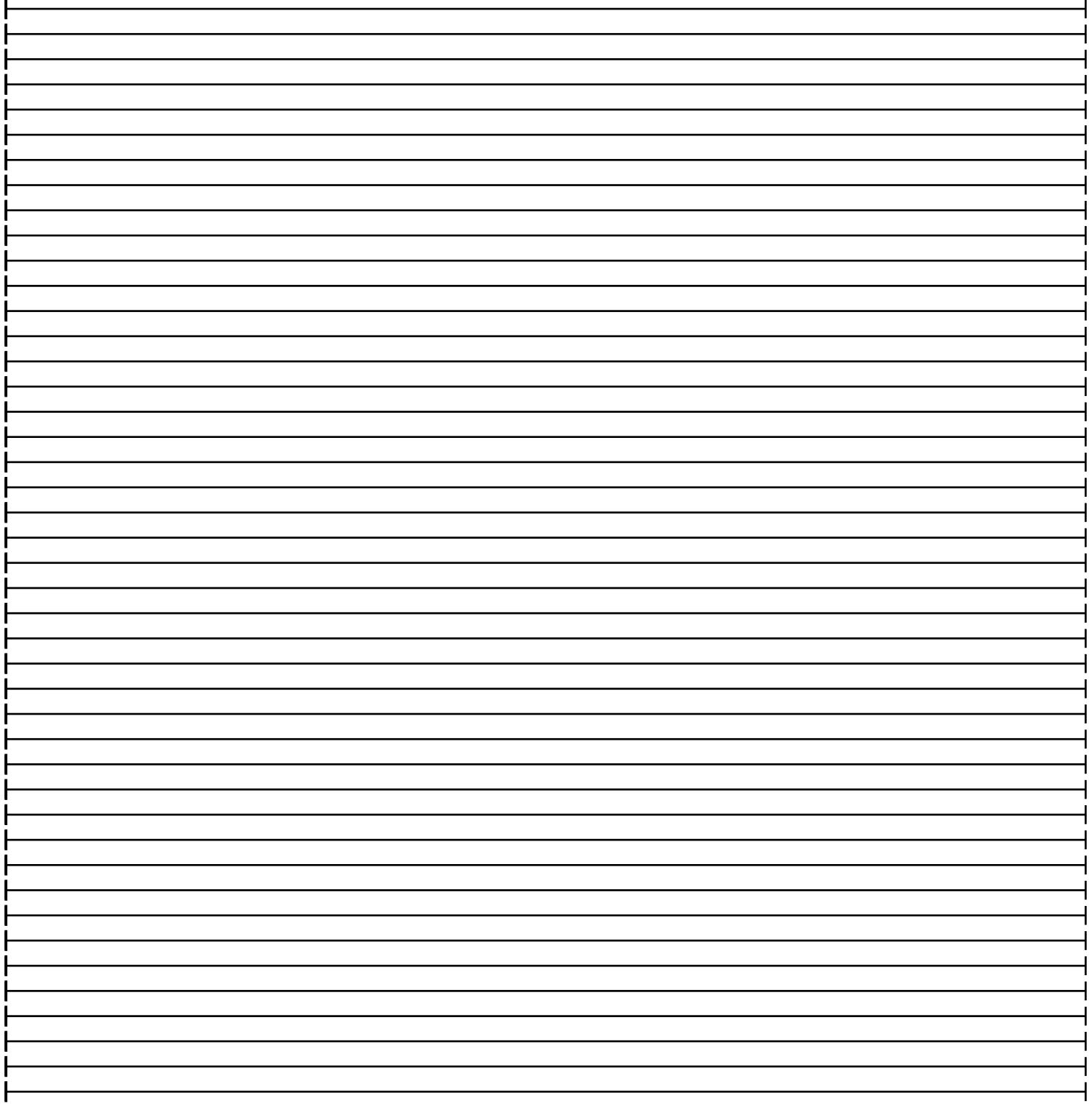
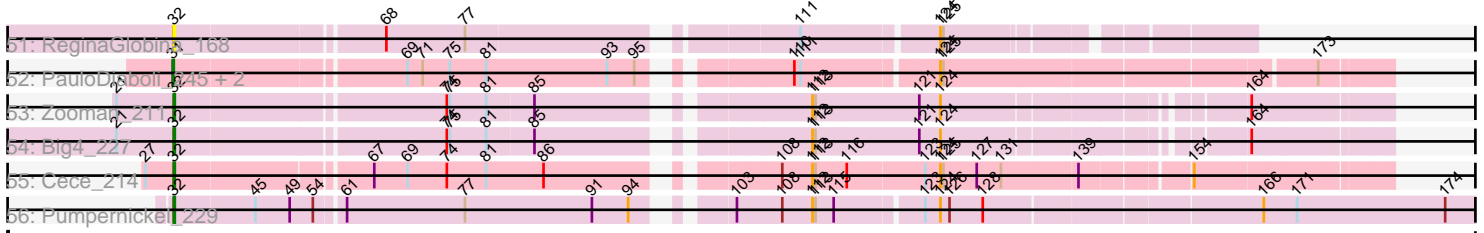


Pham 224454



Pham 224454



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 224454 Report

This analysis was run 03/28/25 on database version 593.

Pham number 224454 has 104 members, 23 are drafts.

Phages represented in each track:

- Track 1 : Paradiddles_211, WhereRU_218, Braelyn_215
- Track 2 : Cursive_221, PacManQ_215, Lululemon_215, HangryHippo_217, Watermoore_218, BlueOtter_217, Peebs_216, Samisti12_223, Scheme_222, Leo04_219, Cross_218, Larnav_218
- Track 3 : Targaryen_218, Evy_209, Jay2Jay_224, Warpy_222
- Track 4 : Bartholomune_219, Persimmon_222, PinkiePie_219, NootNoot_216, Navo_213, Liandry_219, Squillium_222
- Track 5 : Cadmus_222
- Track 6 : Bmoc_223
- Track 7 : Tribute_215, Sushi23_219, Pepperwood_219
- Track 8 : EGole_222
- Track 9 : Marsus_231
- Track 10 : MulchMansion_222, LilMartin_218, Angela_221
- Track 11 : Shuckle_221
- Track 12 : Riptide_225, Anedea_232
- Track 13 : Daubenski_212
- Track 14 : Deutsch_218
- Track 15 : Mildred21_228
- Track 16 : Tomas_231
- Track 17 : Kenrey_174
- Track 18 : SparkleGoddess_166, Karp_161, Stigma_165, Comrade_164, Belfort_167, Westy_168
- Track 19 : Emma1919_171, Gilson_170
- Track 20 : Sham_160
- Track 21 : Faust_160, SeresaTree_162
- Track 22 : Patelgo_169, Moab_168
- Track 23 : Jada_170, Forrest_173
- Track 24 : Annadreamy_154, Limpid_161
- Track 25 : Francob_169
- Track 26 : Beuffert_160
- Track 27 : Blueeyedbeauty_162
- Track 28 : TunaTartare_166
- Track 29 : Phredrick_172
- Track 30 : MeganTheeKilla_170
- Track 31 : Muntaha_139
- Track 32 : Circinus_132, BillNye_131
- Track 33 : Wakanda_138

- Track 34 : Grayson_118
- Track 35 : Weasels2_120
- Track 36 : Peregrin_117
- Track 37 : NiceHouse_135
- Track 38 : Trina_157
- Track 39 : Nova53_126
- Track 40 : Dorin_124, Francesca_124
- Track 41 : Ellewin_158, WaddleDee_158
- Track 42 : Patbob_163, GoldenEssence_151
- Track 43 : SJReid_168
- Track 44 : Atuin_155, LeoJr_165
- Track 45 : Phrampa_156
- Track 46 : KSunshine22_157, DunneganBoMo_159
- Track 47 : Chilliams_159
- Track 48 : Bloom_168, Talia1610_165, Racecar_166, Mimi_165
- Track 49 : Panchaali_164
- Track 50 : Rockabye_165
- Track 51 : ReginaGlobina_168
- Track 52 : PauloDiaboli_245, Dodo_243, A3Wally_245
- Track 53 : Zooman_211
- Track 54 : Big4_227
- Track 55 : Cece_214
- Track 56 : Pumpernickel_229

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

The start number called the most often in the published annotations is 29, it was called in 39 of the 81 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Anedeaa_232, Angela_221, Bartholomune_219, BlueOtter_217, Bmoc_223, Braelyn_215, Cadmus_222, Cross_218, Cursive_221, Daubenski_212, EGole_222, Evy_209, HangryHippo_217, Jay2Jay_224, Larnav_218, Leo04_219, Liandry_219, LilMartin_218, Lululemon_215, Marsus_231, Mildred21_228, MulchMansion_222, Navo_213, NootNoot_216, PacManQ_215, Paradiddles_211, Peebs_216, Pepperwood_219, Persimmon_222, PinkiePie_219, Riptide_225, Samisti12_223, Scheme_222, Sham_160, Shuckle_221, Squillium_222, Sushi23_219, Targaryen_218, Teutsch_218, Tomas_231, Tribute_215, Warpy_222, Watermoore_218, WhereRU_218,

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:

- A3Wally_245, Annadreamy_154, Atuin_155, Belfort_167, Beuffert_160, Big4_227, Bloom_168, Blueeyedbeauty_162, Cece_214, Chilliams_159, Comrade_164, Dodo_243, Dorin_124, DunneganBoMo_159, Ellewin_158, Emma1919_171, Faust_160, Forrest_173, Francesca_124, Francob_169, Gilson_170, GoldenEssence_151, Grayson_118, Jada_170, KSunshine22_157, Karp_161, Kenrey_174, LeoJr_165, Limpid_161, MeganTheeKilla_170, Mimi_165, Moab_168,

Muntaha_139, NiceHouse_135, Nova53_126, Panchaali_164, Patbob_163, Patelgo_169, PauloDiaboli_245, Peregrin_117, Phrampa_156, Phredrick_172, Pumpnickel_229, Racecar_166, ReginaGlobina_168, Rockabye_165, SJReid_168, SeresaTree_162, SparkleGoddess_166, Stigma_165, Talia1610_165, Trina_157, TunaTartare_166, WaddleDee_158, Wakanda_138, Weasels2_120, Westy_168, Zooman_211,

Summary by start number:

Start 22:

- Found in 2 of 104 (1.9%) of genes in pham
- Manual Annotations of this start: 2 of 81
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BillNye_131 (BK2), Circinus_132 (BK2),

Start 29:

- Found in 46 of 104 (44.2%) of genes in pham
- Manual Annotations of this start: 39 of 81
- Called 95.7% of time when present
- Phage (with cluster) where this start called: Anedea_232 (BE1), Angela_221 (BE1), Bartholomune_219 (BE1), BlueOtter_217 (BE1), Bmoc_223 (BE1), Braelyn_215 (BE1), Cadmus_222 (BE1), Cross_218 (BE1), Cursive_221 (BE1), Daubenski_212 (BE1), EGole_222 (BE1), Evy_209 (BE1), HangryHippo_217 (BE1), Jay2Jay_224 (BE1), Larnav_218 (BE1), Leo04_219 (BE1), Liandry_219 (BE1), LilMartin_218 (BE1), Lululemon_215 (BE1), Marsus_231 (BE1), Mildred21_228 (BE1), MulchMansion_222 (BE1), Navo_213 (BE1), NootNoot_216 (BE1), PacManQ_215 (BE1), Paradiddles_211 (BE1), Peebs_216 (BE1), Pepperwood_219 (BE1), Persimmon_222 (BE1), PinkiePie_219 (BE1), Riptide_225 (BE1), Samisti12_223 (BE1), Scheme_222 (BE1), Sham_160 (BK1), Shuckle_221 (BE1), 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_218 (BE1),

Start 30:

- Found in 9 of 104 (8.7%) of genes in pham
- Manual Annotations of this start: 8 of 81
- 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 31:

- Found in 3 of 104 (2.9%) of genes in pham
- Manual Annotations of this start: 2 of 81
- Called 100.0% of time when present
- Phage (with cluster) where this start called: A3Wally_245 (GD1), Dodo_243 (GD1), PauloDiaboli_245 (GD1),

Start 32:

- Found in 30 of 104 (28.8%) of genes in pham
- Manual Annotations of this start: 15 of 81
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Atuin_155 (FC), Big4_227 (GD2), Bloom_168 (FC), Cece_214 (GD3), Chilliams_159 (FC), Dorin_124 (CG), DunneganBoMo_159 (FC), Ellewin_158 (FC), Francesca_124 (CG), GoldenEssence_151 (FC), Grayson_118 (CB), KSunshine22_157 (FC), LeoJr_165 (FC), Mimi_165 (FC), NiceHouse_135 (CE), Nova53_126 (CG), Panchaali_164 (FC), Patbob_163 (FC), Peregrin_117 (CB), Phrampa_156 (FC), Pumpernickel_229 (GD4), Racecar_166 (FC), ReginaGlobina_168 (FC), Rockabye_165 (FC), SJReid_168 (FC), Talia1610_165 (FC), Trina_157 (CE), WaddleDee_158 (FC), Weasels2_120 (CB), Zooman_211 (GD2),

Start 33:

- Found in 15 of 104 (14.4%) of genes in pham
- Manual Annotations of this start: 14 of 81
- 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), Westy_168 (BK1),

Start 34:

- Found in 1 of 104 (1.0%) of genes in pham
- Manual Annotations of this start: 1 of 81
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Francob_169 (BK1),

Summary by clusters:

There are 12 clusters represented in this pham: GD1, GD2, GD3, GD4, CB, CG, CE, FC, BK1, BK2, BE2, BE1,

Info for manual annotations of cluster BE1:

- Start number 29 was manually annotated 37 times for cluster BE1.

Info for manual annotations of cluster BE2:

- Start number 29 was manually annotated 1 time for cluster BE2.

Info for manual annotations of cluster BK1:

- Start number 29 was manually annotated 1 time for cluster BK1.
- Start number 30 was manually annotated 6 times for cluster BK1.
- Start number 33 was manually annotated 14 times for cluster BK1.
- Start number 34 was manually annotated 1 time for cluster BK1.

Info for manual annotations of cluster BK2:

- Start number 22 was manually annotated 2 times for cluster BK2.
- Start number 30 was manually annotated 2 times for cluster BK2.

Info for manual annotations of cluster CB:

- Start number 32 was manually annotated 3 times for cluster CB.

Info for manual annotations of cluster CE:

- Start number 32 was manually annotated 2 times for cluster CE.

Info for manual annotations of cluster CG:

- Start number 32 was manually annotated 2 times for cluster CG.

Info for manual annotations of cluster FC:

- Start number 32 was manually annotated 4 times for cluster FC.

Info for manual annotations of cluster GD1:

- Start number 31 was manually annotated 2 times for cluster GD1.

Info for manual annotations of cluster GD2:

- Start number 32 was manually annotated 2 times for cluster GD2.

Info for manual annotations of cluster GD3:

- Start number 32 was manually annotated 1 time for cluster GD3.

Info for manual annotations of cluster GD4:

- Start number 32 was manually annotated 1 time for cluster GD4.

Gene Information:

Gene: A3Wally_245 Start: 136573, Stop: 137667, Start Num: 31

Candidate Starts for A3Wally_245:

(Start: 31 @136573 has 2 MA's), (69, 136786), (71, 136801), (75, 136828), (81, 136864), (93, 136984), (95, 137011), (110, 137122), (111, 137128), (124, 137254), (125, 137257), (173, 137602),

Gene: Anedea_232 Start: 111995, Stop: 112969, Start Num: 29

Candidate Starts for Anedea_232:

(28, 111986), (Start: 29 @111995 has 39 MA's), (43, 112067), (69, 112202), (70, 112208), (110, 112568), (111, 112574), (115, 112607), (123, 112688), (157, 112886), (161, 112898),

Gene: Angela_221 Start: 109751, Stop: 110782, Start Num: 29

Candidate Starts for Angela_221:

(16, 109682), (17, 109688), (19, 109697), (25, 109715), (Start: 29 @109751 has 39 MA's), (43, 109823), (53, 109877), (58, 109898), (70, 109964), (95, 110177), (104, 110264), (111, 110312), (115, 110345), (133, 110522), (141, 110594), (146, 110630), (161, 110711),

Gene: Annadreamy_154 Start: 85058, Stop: 85987, Start Num: 30

Candidate Starts for Annadreamy_154:

(Start: 30 @85058 has 8 MA's), (42, 85121), (43, 85133), (50, 85181), (86, 85397), (97, 85502), (102, 85556), (110, 85610), (111, 85616), (124, 85745), (127, 85781), (130, 85802), (149, 85907), (158, 85940),

Gene: Atuin_155 Start: 109227, Stop: 110180, Start Num: 32

Candidate Starts for Atuin_155:

(Start: 32 @109227 has 15 MA's), (68, 109419), (77, 109497), (83, 109554), (111, 109785), (119, 109884), (124, 109911), (136, 110013),

Gene: Bartholomune_219 Start: 109980, Stop: 110945, Start Num: 29

Candidate Starts for Bartholomune_219:

(Start: 29 @109980 has 39 MA's), (43, 110052), (75, 110229), (104, 110481), (110, 110523), (111, 110529), (115, 110562), (117, 110580), (118, 110628), (123, 110643), (135, 110757), (145, 110826),

(152, 110853), (157, 110862), (158, 110871),

Gene: Belfort_167 Start: 91008, Stop: 92018, Start Num: 33

Candidate Starts for Belfort_167:

(Start: 33 @91008 has 14 MA's), (43, 91077), (73, 91233), (111, 91554), (124, 91683), (127, 91719), (156, 91926), (159, 91938),

Gene: Beuffert_160 Start: 89147, Stop: 90076, Start Num: 30

Candidate Starts for Beuffert_160:

(15, 89072), (Start: 30 @89147 has 8 MA's), (42, 89210), (43, 89222), (69, 89357), (97, 89591), (102, 89645), (111, 89705), (127, 89870), (130, 89891), (135, 89927), (149, 89996), (158, 90029),

Gene: Big4_227 Start: 130843, Stop: 131916, Start Num: 32

Candidate Starts for Big4_227:

(21, 130786), (Start: 32 @130843 has 15 MA's), (74, 131098), (75, 131101), (81, 131137), (85, 131182), (112, 131410), (113, 131413), (121, 131515), (124, 131536), (164, 131791),

Gene: BillNye_131 Start: 80702, Stop: 81835, Start Num: 22

Candidate Starts for BillNye_131:

(Start: 22 @80702 has 2 MA's), (Start: 29 @80747 has 39 MA's), (43, 80825), (58, 80900), (75, 81002), (78, 81026), (87, 81092), (111, 81305), (122, 81416), (127, 81470), (150, 81644), (170, 81755), (172, 81773),

Gene: Bloom_168 Start: 110490, Stop: 111422, Start Num: 32

Candidate Starts for Bloom_168:

(Start: 32 @110490 has 15 MA's), (56, 110628), (80, 110778), (83, 110817), (97, 110940), (111, 111051), (118, 111156), (120, 111162), (125, 111189), (126, 111195), (127, 111222),

Gene: BlueOtter_217 Start: 110101, Stop: 111066, Start Num: 29

Candidate Starts for BlueOtter_217:

(Start: 29 @110101 has 39 MA's), (43, 110173), (73, 110329), (109, 110641), (111, 110650), (115, 110683), (135, 110878), (145, 110947), (157, 110983), (158, 110992), (161, 110995),

Gene: Blueeyedbeauty_162 Start: 88815, Stop: 89744, Start Num: 30

Candidate Starts for Blueeyedbeauty_162:

(4, 88683), (5, 88689), (9, 88710), (10, 88716), (13, 88734), (15, 88740), (Start: 30 @88815 has 8 MA's), (42, 88878), (43, 88890), (69, 89025), (86, 89154), (97, 89259), (102, 89313), (111, 89373), (124, 89502), (127, 89538), (130, 89559), (149, 89664), (158, 89697),

Gene: Bmoc_223 Start: 110200, Stop: 111180, Start Num: 29

Candidate Starts for Bmoc_223:

(14, 110125), (19, 110146), (Start: 29 @110200 has 39 MA's), (43, 110272), (58, 110347), (65, 110368), (69, 110407), (70, 110413), (111, 110749), (113, 110764), (115, 110782), (157, 111097), (161, 111109),

Gene: Braelyn_215 Start: 109627, Stop: 110592, Start Num: 29

Candidate Starts for Braelyn_215:

(Start: 29 @109627 has 39 MA's), (43, 109699), (75, 109876), (104, 110128), (110, 110170), (111, 110176), (115, 110209), (118, 110275), (123, 110290), (135, 110404), (145, 110473), (152, 110500), (157, 110509), (158, 110518),

Gene: Cadmus_222 Start: 110922, Stop: 111893, Start Num: 29

Candidate Starts for Cadmus_222:

(12, 110844), (Start: 29 @110922 has 39 MA's), (43, 110994), (44, 111000), (57, 111066), (104, 111423), (111, 111471), (123, 111585), (151, 111798), (157, 111810),

Gene: Cece_214 Start: 131006, Stop: 132100, Start Num: 32

Candidate Starts for Cece_214:

(27, 130982), (Start: 32 @131006 has 15 MA's), (67, 131186), (69, 131219), (74, 131258), (81, 131297), (86, 131354), (108, 131543), (112, 131573), (113, 131576), (116, 131606), (123, 131681), (124, 131696), (125, 131699), (127, 131732), (131, 131756), (139, 131828), (154, 131921),

Gene: Chilliams_159 Start: 100299, Stop: 101354, Start Num: 32

Candidate Starts for Chilliams_159:

(Start: 32 @100299 has 15 MA's), (35, 100305), (67, 100479), (68, 100491), (69, 100512), (70, 100518), (80, 100587), (88, 100668), (95, 100731), (98, 100752), (103, 100800), (111, 100857), (115, 100890),

Gene: Circinus_132 Start: 80670, Stop: 81803, Start Num: 22

Candidate Starts for Circinus_132:

(Start: 22 @80670 has 2 MA's), (Start: 29 @80715 has 39 MA's), (43, 80793), (58, 80868), (75, 80970), (78, 80994), (87, 81060), (111, 81273), (122, 81384), (127, 81438), (150, 81612), (170, 81723), (172, 81741),

Gene: Comrade_164 Start: 91210, Stop: 92220, Start Num: 33

Candidate Starts for Comrade_164:

(Start: 33 @91210 has 14 MA's), (43, 91279), (73, 91435), (111, 91756), (124, 91885), (127, 91921), (156, 92128), (159, 92140),

Gene: Cross_218 Start: 110746, Stop: 111711, Start Num: 29

Candidate Starts for Cross_218:

(Start: 29 @110746 has 39 MA's), (43, 110818), (73, 110974), (109, 111286), (111, 111295), (115, 111328), (135, 111523), (145, 111592), (157, 111628), (158, 111637), (161, 111640),

Gene: Cursive_221 Start: 110430, Stop: 111395, Start Num: 29

Candidate Starts for Cursive_221:

(Start: 29 @110430 has 39 MA's), (43, 110502), (73, 110658), (109, 110970), (111, 110979), (115, 111012), (135, 111207), (145, 111276), (157, 111312), (158, 111321), (161, 111324),

Gene: Daubenski_212 Start: 110817, Stop: 111794, Start Num: 29

Candidate Starts for Daubenski_212:

(12, 110739), (Start: 29 @110817 has 39 MA's), (43, 110889), (44, 110895), (57, 110961), (73, 111045), (104, 111318), (111, 111366), (123, 111480), (143, 111645), (157, 111711), (161, 111723),

Gene: Dodo_243 Start: 136257, Stop: 137351, Start Num: 31

Candidate Starts for Dodo_243:

(Start: 31 @136257 has 2 MA's), (69, 136470), (71, 136485), (75, 136512), (81, 136548), (93, 136668), (95, 136695), (110, 136806), (111, 136812), (124, 136938), (125, 136941), (173, 137286),

Gene: Dorin_124 Start: 80878, Stop: 81957, Start Num: 32

Candidate Starts for Dorin_124:

(Start: 32 @80878 has 15 MA's), (39, 80926), (47, 80974), (48, 80989), (50, 80995), (54, 81013), (63, 81049), (72, 81121), (79, 81172), (87, 81232), (93, 81292), (111, 81439), (119, 81547), (122, 81556), (126, 81583), (127, 81610), (153, 81790), (156, 81814), (165, 81865),

Gene: DunneganBoMo_159 Start: 106136, Stop: 107074, Start Num: 32

Candidate Starts for DunneganBoMo_159:

(Start: 32 @106136 has 15 MA's), (68, 106331), (77, 106409), (109, 106688), (111, 106697), (129, 106877), (138, 106943), (144, 106979),

Gene: EGole_222 Start: 112476, Stop: 113450, Start Num: 29

Candidate Starts for EGole_222:

(Start: 29 @112476 has 39 MA's), (43, 112548), (73, 112704), (97, 112923), (109, 113016), (111, 113025), (148, 113340), (157, 113367), (161, 113379),

Gene: Ellewin_158 Start: 106240, Stop: 107178, Start Num: 32

Candidate Starts for Ellewin_158:

(Start: 32 @106240 has 15 MA's), (64, 106411), (68, 106435), (77, 106513), (109, 106792), (111, 106801), (129, 106981), (138, 107047), (144, 107083),

Gene: Emma1919_171 Start: 89918, Stop: 90925, Start Num: 33

Candidate Starts for Emma1919_171:

(Start: 33 @89918 has 14 MA's), (37, 89939), (43, 89987), (75, 90164), (109, 90455), (111, 90464), (124, 90593), (127, 90629), (129, 90647), (132, 90659), (155, 90830), (156, 90833),

Gene: Evy_209 Start: 110921, Stop: 111886, Start Num: 29

Candidate Starts for Evy_209:

(Start: 29 @110921 has 39 MA's), (43, 110993), (73, 111149), (96, 111362), (97, 111368), (111, 111470), (115, 111503), (137, 111710), (145, 111767), (152, 111794), (157, 111803), (158, 111812),

Gene: Faust_160 Start: 90385, Stop: 91368, Start Num: 30

Candidate Starts for Faust_160:

(Start: 30 @90385 has 8 MA's), (43, 90460), (50, 90508), (111, 90943), (127, 91108), (131, 91132),

Gene: Forrest_173 Start: 91510, Stop: 92523, Start Num: 33

Candidate Starts for Forrest_173:

(Start: 33 @91510 has 14 MA's), (37, 91531), (43, 91579), (75, 91756), (111, 92056), (127, 92221), (132, 92251), (155, 92428), (156, 92431),

Gene: Francesca_124 Start: 81793, Stop: 82872, Start Num: 32

Candidate Starts for Francesca_124:

(Start: 32 @81793 has 15 MA's), (39, 81841), (47, 81889), (48, 81904), (50, 81910), (54, 81928), (63, 81964), (72, 82036), (79, 82087), (87, 82147), (93, 82207), (111, 82354), (119, 82462), (122, 82471), (126, 82498), (127, 82525), (153, 82705), (156, 82729), (165, 82780),

Gene: Francob_169 Start: 90421, Stop: 91428, Start Num: 34

Candidate Starts for Francob_169:

(18, 90358), (20, 90361), (Start: 34 @90421 has 1 MA's), (37, 90442), (43, 90490), (51, 90541), (57, 90562), (81, 90703), (97, 90859), (111, 90967), (124, 91096), (127, 91132), (129, 91150), (155, 91336), (156, 91339),

Gene: Gilson_170 Start: 89880, Stop: 90887, Start Num: 33

Candidate Starts for Gilson_170:

(Start: 33 @89880 has 14 MA's), (37, 89901), (43, 89949), (75, 90126), (109, 90417), (111, 90426), (124, 90555), (127, 90591), (129, 90609), (132, 90621), (155, 90792), (156, 90795),

Gene: GoldenEssence_151 Start: 103906, Stop: 104838, Start Num: 32

Candidate Starts for GoldenEssence_151:

(Start: 32 @103906 has 15 MA's), (56, 104044), (80, 104194), (83, 104233), (97, 104356), (111, 104467), (113, 104482), (118, 104572), (120, 104578), (125, 104605), (126, 104611), (127, 104638),

Gene: Grayson_118 Start: 74391, Stop: 75455, Start Num: 32

Candidate Starts for Grayson_118:

(Start: 32 @74391 has 15 MA's), (89, 74775), (105, 74898), (111, 74946), (119, 75045), (124, 75072), (127, 75105), (162, 75312), (167, 75348),

Gene: HangryHippo_217 Start: 110101, Stop: 111066, Start Num: 29

Candidate Starts for HangryHippo_217:

(Start: 29 @110101 has 39 MA's), (43, 110173), (73, 110329), (109, 110641), (111, 110650), (115, 110683), (135, 110878), (145, 110947), (157, 110983), (158, 110992), (161, 110995),

Gene: Jada_170 Start: 90206, Stop: 91219, Start Num: 33

Candidate Starts for Jada_170:

(Start: 33 @90206 has 14 MA's), (37, 90227), (43, 90275), (75, 90452), (111, 90752), (127, 90917), (132, 90947), (155, 91124), (156, 91127),

Gene: Jay2Jay_224 Start: 111076, Stop: 112041, Start Num: 29

Candidate Starts for Jay2Jay_224:

(Start: 29 @111076 has 39 MA's), (43, 111148), (73, 111304), (96, 111517), (97, 111523), (111, 111625), (115, 111658), (137, 111865), (145, 111922), (152, 111949), (157, 111958), (158, 111967),

Gene: KSunshine22_157 Start: 107199, Stop: 108137, Start Num: 32

Candidate Starts for KSunshine22_157:

(Start: 32 @107199 has 15 MA's), (68, 107394), (77, 107472), (109, 107751), (111, 107760), (129, 107940), (138, 108006), (144, 108042),

Gene: Karp_161 Start: 90434, Stop: 91444, Start Num: 33

Candidate Starts for Karp_161:

(Start: 33 @90434 has 14 MA's), (43, 90503), (73, 90659), (111, 90980), (124, 91109), (127, 91145), (156, 91352), (159, 91364),

Gene: Kenrey_174 Start: 91221, Stop: 92234, Start Num: 33

Candidate Starts for Kenrey_174:

(Start: 33 @91221 has 14 MA's), (37, 91242), (43, 91290), (111, 91767), (127, 91932), (132, 91962), (155, 92139), (156, 92142),

Gene: Larnav_218 Start: 110595, Stop: 111560, Start Num: 29

Candidate Starts for Larnav_218:

(Start: 29 @110595 has 39 MA's), (43, 110667), (73, 110823), (109, 111135), (111, 111144), (115, 111177), (135, 111372), (145, 111441), (157, 111477), (158, 111486), (161, 111489),

Gene: Leo04_219 Start: 111127, Stop: 112092, Start Num: 29

Candidate Starts for Leo04_219:

(Start: 29 @111127 has 39 MA's), (43, 111199), (73, 111355), (109, 111667), (111, 111676), (115, 111709), (135, 111904), (145, 111973), (157, 112009), (158, 112018), (161, 112021),

Gene: LeoJr_165 Start: 109835, Stop: 110788, Start Num: 32

Candidate Starts for LeoJr_165:

(Start: 32 @109835 has 15 MA's), (68, 110027), (77, 110105), (83, 110162), (111, 110393), (119, 110492), (124, 110519), (136, 110621),

Gene: Liandry_219 Start: 110503, Stop: 111468, Start Num: 29

Candidate Starts for Liandry_219:

(Start: 29 @110503 has 39 MA's), (43, 110575), (75, 110752), (104, 111004), (110, 111046), (111, 111052), (115, 111085), (117, 111103), (118, 111151), (123, 111166), (135, 111280), (145, 111349), (152, 111376), (157, 111385), (158, 111394),

Gene: LilMartin_218 Start: 109115, Stop: 110146, Start Num: 29

Candidate Starts for LilMartin_218:

(16, 109046), (17, 109052), (19, 109061), (25, 109079), (Start: 29 @109115 has 39 MA's), (43, 109187), (53, 109241), (58, 109262), (70, 109328), (95, 109541), (104, 109628), (111, 109676), (115, 109709), (133, 109886), (141, 109958), (146, 109994), (161, 110075),

Gene: Limpid_161 Start: 90371, Stop: 91300, Start Num: 30

Candidate Starts for Limpid_161:

(Start: 30 @90371 has 8 MA's), (42, 90434), (43, 90446), (50, 90494), (86, 90710), (97, 90815), (102, 90869), (110, 90923), (111, 90929), (124, 91058), (127, 91094), (130, 91115), (149, 91220), (158, 91253),

Gene: Lululemon_215 Start: 109482, Stop: 110447, Start Num: 29

Candidate Starts for Lululemon_215:

(Start: 29 @109482 has 39 MA's), (43, 109554), (73, 109710), (109, 110022), (111, 110031), (115, 110064), (135, 110259), (145, 110328), (157, 110364), (158, 110373), (161, 110376),

Gene: Marsus_231 Start: 110780, Stop: 111811, Start Num: 29

Candidate Starts for Marsus_231:

(16, 110711), (19, 110726), (25, 110744), (Start: 29 @110780 has 39 MA's), (43, 110852), (58, 110927), (69, 110987), (70, 110993), (95, 111206), (96, 111221), (100, 111248), (104, 111293), (111, 111341), (133, 111551), (141, 111623), (146, 111659), (161, 111740),

Gene: MeganTheeKilla_170 Start: 89949, Stop: 90956, Start Num: 33

Candidate Starts for MeganTheeKilla_170:

(Start: 33 @89949 has 14 MA's), (37, 89970), (43, 90018), (75, 90195), (111, 90495), (124, 90624), (127, 90660), (129, 90678), (132, 90690), (155, 90861), (156, 90864),

Gene: Mildred21_228 Start: 108870, Stop: 109850, Start Num: 29

Candidate Starts for Mildred21_228:

(Start: 29 @108870 has 39 MA's), (40, 108924), (43, 108942), (58, 109017), (66, 109041), (69, 109077), (70, 109083), (83, 109188), (97, 109317), (111, 109419), (134, 109641), (142, 109707), (146, 109737), (152, 109761), (157, 109767),

Gene: Mimi_165 Start: 110115, Stop: 111047, Start Num: 32

Candidate Starts for Mimi_165:

(Start: 32 @110115 has 15 MA's), (56, 110253), (80, 110403), (83, 110442), (97, 110565), (111, 110676), (118, 110781), (120, 110787), (125, 110814), (126, 110820), (127, 110847),

Gene: Moab_168 Start: 92420, Stop: 93433, Start Num: 33

Candidate Starts for Moab_168:

(18, 92360), (20, 92363), (Start: 33 @92420 has 14 MA's), (43, 92489), (51, 92540), (111, 92966), (124, 93095), (127, 93131), (129, 93149), (132, 93161), (156, 93344),

Gene: MulchMansion_222 Start: 110749, Stop: 111780, Start Num: 29

Candidate Starts for MulchMansion_222:

(16, 110680), (17, 110686), (19, 110695), (25, 110713), (Start: 29 @110749 has 39 MA's), (43, 110821), (53, 110875), (58, 110896), (70, 110962), (95, 111175), (104, 111262), (111, 111310), (115, 111343), (133, 111520), (141, 111592), (146, 111628), (161, 111709),

Gene: Muntaha_139 Start: 79684, Stop: 80793, Start Num: 30

Candidate Starts for Muntaha_139:

(28, 79672), (Start: 30 @79684 has 8 MA's), (41, 79738), (42, 79741), (43, 79753), (44, 79759), (70, 79894), (87, 80020), (110, 80230), (111, 80236), (121, 80344), (127, 80401), (143, 80533), (168, 80695), (170, 80713),

Gene: Navo_213 Start: 108831, Stop: 109796, Start Num: 29

Candidate Starts for Navo_213:

(Start: 29 @108831 has 39 MA's), (43, 108903), (75, 109080), (104, 109332), (110, 109374), (111, 109380), (115, 109413), (117, 109431), (118, 109479), (123, 109494), (135, 109608), (145, 109677), (152, 109704), (157, 109713), (158, 109722),

Gene: NiceHouse_135 Start: 88021, Stop: 88899, Start Num: 32

Candidate Starts for NiceHouse_135:

(17, 87952), (21, 87964), (23, 87970), (24, 87976), (Start: 32 @88021 has 15 MA's), (36, 88036), (38, 88063), (59, 88174), (63, 88192), (92, 88429), (94, 88459), (99, 88492), (106, 88543), (107, 88552), (111, 88582), (117, 88633),

Gene: NootNoot_216 Start: 109348, Stop: 110313, Start Num: 29

Candidate Starts for NootNoot_216:

(Start: 29 @109348 has 39 MA's), (43, 109420), (75, 109597), (104, 109849), (110, 109891), (111, 109897), (115, 109930), (117, 109948), (118, 109996), (123, 110011), (135, 110125), (145, 110194), (152, 110221), (157, 110230), (158, 110239),

Gene: Nova53_126 Start: 82372, Stop: 83373, Start Num: 32

Candidate Starts for Nova53_126:

(Start: 32 @82372 has 15 MA's), (47, 82468), (54, 82507), (69, 82597), (70, 82603), (87, 82726), (97, 82828), (101, 82867), (103, 82873), (107, 82906), (110, 82930), (111, 82936), (119, 83041), (123, 83053), (126, 83077), (127, 83104), (128, 83110), (136, 83173), (153, 83257), (160, 83284),

Gene: PacManQ_215 Start: 109482, Stop: 110447, Start Num: 29

Candidate Starts for PacManQ_215:

(Start: 29 @109482 has 39 MA's), (43, 109554), (73, 109710), (109, 110022), (111, 110031), (115, 110064), (135, 110259), (145, 110328), (157, 110364), (158, 110373), (161, 110376),

Gene: Panchaali_164 Start: 106936, Stop: 107907, Start Num: 32

Candidate Starts for Panchaali_164:

(Start: 32 @106936 has 15 MA's), (55, 107071), (103, 107434), (111, 107491), (118, 107587), (147, 107812),

Gene: Paradiddles_211 Start: 111723, Stop: 112688, Start Num: 29

Candidate Starts for Paradiddles_211:

(Start: 29 @111723 has 39 MA's), (43, 111795), (75, 111972), (104, 112224), (110, 112266), (111, 112272), (115, 112305), (118, 112371), (123, 112386), (135, 112500), (145, 112569), (152, 112596), (157, 112605), (158, 112614),

Gene: Patbob_163 Start: 110620, Stop: 111552, Start Num: 32

Candidate Starts for Patbob_163:

(Start: 32 @110620 has 15 MA's), (56, 110758), (80, 110908), (83, 110947), (97, 111070), (111, 111181), (113, 111196), (118, 111286), (120, 111292), (125, 111319), (126, 111325), (127, 111352),

Gene: Patelgo_169 Start: 92898, Stop: 93911, Start Num: 33

Candidate Starts for Patelgo_169:

(18, 92838), (20, 92841), (Start: 33 @92898 has 14 MA's), (43, 92967), (51, 93018), (111, 93444), (124, 93573), (127, 93609), (129, 93627), (132, 93639), (156, 93822),

Gene: PauloDiaboli_245 Start: 133773, Stop: 134867, Start Num: 31

Candidate Starts for PauloDiaboli_245:

(Start: 31 @133773 has 2 MA's), (69, 133986), (71, 134001), (75, 134028), (81, 134064), (93, 134184), (95, 134211), (110, 134322), (111, 134328), (124, 134454), (125, 134457), (173, 134802),

Gene: Peebs_216 Start: 110566, Stop: 111531, Start Num: 29

Candidate Starts for Peebs_216:

(Start: 29 @110566 has 39 MA's), (43, 110638), (73, 110794), (109, 111106), (111, 111115), (115, 111148), (135, 111343), (145, 111412), (157, 111448), (158, 111457), (161, 111460),

Gene: Pepperwood_219 Start: 110798, Stop: 111763, Start Num: 29

Candidate Starts for Pepperwood_219:

(Start: 29 @110798 has 39 MA's), (43, 110870), (73, 111026), (109, 111338), (111, 111347), (115, 111380), (135, 111575), (145, 111644), (152, 111671), (157, 111680), (158, 111689), (161, 111692),

Gene: Peregrin_117 Start: 74368, Stop: 75456, Start Num: 32

Candidate Starts for Peregrin_117:

(Start: 32 @74368 has 15 MA's), (89, 74752), (90, 74755), (111, 74923), (127, 75082), (162, 75313),

Gene: Persimmon_222 Start: 109849, Stop: 110814, Start Num: 29

Candidate Starts for Persimmon_222:

(Start: 29 @109849 has 39 MA's), (43, 109921), (75, 110098), (104, 110350), (110, 110392), (111, 110398), (115, 110431), (117, 110449), (118, 110497), (123, 110512), (135, 110626), (145, 110695), (152, 110722), (157, 110731), (158, 110740),

Gene: Phrampa_156 Start: 111690, Stop: 112622, Start Num: 32

Candidate Starts for Phrampa_156:

(Start: 32 @111690 has 15 MA's), (76, 111957), (80, 111978), (83, 112017), (97, 112140), (103, 112194), (111, 112251), (113, 112266), (117, 112302), (118, 112356), (125, 112389), (127, 112422),

Gene: Phredrick_172 Start: 89845, Stop: 90858, Start Num: 33

Candidate Starts for Phredrick_172:

(Start: 33 @89845 has 14 MA's), (37, 89866), (43, 89914), (111, 90391), (127, 90556), (129, 90574), (132, 90586), (155, 90763), (156, 90766),

Gene: PinkiePie_219 Start: 110503, Stop: 111468, Start Num: 29

Candidate Starts for PinkiePie_219:

(Start: 29 @110503 has 39 MA's), (43, 110575), (75, 110752), (104, 111004), (110, 111046), (111, 111052), (115, 111085), (117, 111103), (118, 111151), (123, 111166), (135, 111280), (145, 111349), (152, 111376), (157, 111385), (158, 111394),

Gene: Pumpernickel_229 Start: 135524, Stop: 136747, Start Num: 32

Candidate Starts for Pumpernickel_229:

(Start: 32 @135524 has 15 MA's), (45, 135602), (49, 135635), (54, 135656), (61, 135680), (77, 135797), (91, 135923), (94, 135959), (103, 136022), (108, 136064), (112, 136094), (113, 136097),

(115, 136115), (123, 136193), (124, 136208), (126, 136217), (128, 136250), (166, 136508), (171, 136541), (174, 136688),

Gene: Racecar_166 Start: 111081, Stop: 112013, Start Num: 32

Candidate Starts for Racecar_166:

(Start: 32 @111081 has 15 MA's), (56, 111219), (80, 111369), (83, 111408), (97, 111531), (111, 111642), (118, 111747), (120, 111753), (125, 111780), (126, 111786), (127, 111813),

Gene: ReginaGlobina_168 Start: 111109, Stop: 112062, Start Num: 32

Candidate Starts for ReginaGlobina_168:

(Start: 32 @111109 has 15 MA's), (68, 111301), (77, 111379), (111, 111667), (124, 111793), (125, 111796),

Gene: Riptide_225 Start: 109525, Stop: 110499, Start Num: 29

Candidate Starts for Riptide_225:

(28, 109516), (Start: 29 @109525 has 39 MA's), (43, 109597), (69, 109732), (70, 109738), (110, 110098), (111, 110104), (115, 110137), (123, 110218), (157, 110416), (161, 110428),

Gene: Rockabye_165 Start: 101877, Stop: 102878, Start Num: 32

Candidate Starts for Rockabye_165:

(Start: 32 @101877 has 15 MA's), (35, 101883), (67, 102057), (68, 102069), (69, 102090), (70, 102096), (80, 102165), (82, 102171), (88, 102246), (95, 102309), (98, 102330), (111, 102435), (115, 102468),

Gene: SJReid_168 Start: 100899, Stop: 101945, Start Num: 32

Candidate Starts for SJReid_168:

(Start: 32 @100899 has 15 MA's), (35, 100905), (46, 100992), (65, 101073), (68, 101091), (70, 101118), (80, 101187), (90, 101277), (95, 101331), (111, 101457), (114, 101487), (125, 101589),

Gene: Samisti12_223 Start: 112392, Stop: 113357, Start Num: 29

Candidate Starts for Samisti12_223:

(Start: 29 @112392 has 39 MA's), (43, 112464), (73, 112620), (109, 112932), (111, 112941), (115, 112974), (135, 113169), (145, 113238), (157, 113274), (158, 113283), (161, 113286),

Gene: Scheme_222 Start: 112037, Stop: 113002, Start Num: 29

Candidate Starts for Scheme_222:

(Start: 29 @112037 has 39 MA's), (43, 112109), (73, 112265), (109, 112577), (111, 112586), (115, 112619), (135, 112814), (145, 112883), (157, 112919), (158, 112928), (161, 112931),

Gene: SeresaTree_162 Start: 89767, Stop: 90750, Start Num: 30

Candidate Starts for SeresaTree_162:

(Start: 30 @89767 has 8 MA's), (43, 89842), (50, 89890), (111, 90325), (127, 90490), (131, 90514),

Gene: Sham_160 Start: 91368, Stop: 92348, Start Num: 29

Candidate Starts for Sham_160:

(Start: 29 @91368 has 39 MA's), (43, 91446), (50, 91494), (111, 91935), (121, 92043), (124, 92064), (127, 92100), (163, 92289),

Gene: Shuckle_221 Start: 110925, Stop: 111890, Start Num: 29

Candidate Starts for Shuckle_221:

(Start: 29 @110925 has 39 MA's), (43, 110997), (73, 111153), (109, 111465), (111, 111474), (115, 111507), (135, 111702), (145, 111771), (152, 111798), (157, 111807),

Gene: SparkleGoddess_166 Start: 91221, Stop: 92228, Start Num: 33

Candidate Starts for SparkleGoddess_166:

(Start: 33 @91221 has 14 MA's), (43, 91290), (73, 91446), (111, 91767), (124, 91896), (127, 91932), (156, 92136), (159, 92148),

Gene: Squillium_222 Start: 110505, Stop: 111470, Start Num: 29

Candidate Starts for Squillium_222:

(Start: 29 @110505 has 39 MA's), (43, 110577), (75, 110754), (104, 111006), (110, 111048), (111, 111054), (115, 111087), (117, 111105), (118, 111153), (123, 111168), (135, 111282), (145, 111351), (152, 111378), (157, 111387), (158, 111396),

Gene: Stigma_165 Start: 91655, Stop: 92665, Start Num: 33

Candidate Starts for Stigma_165:

(Start: 33 @91655 has 14 MA's), (43, 91724), (73, 91880), (111, 92201), (124, 92330), (127, 92366), (156, 92573), (159, 92585),

Gene: Sushi23_219 Start: 111432, Stop: 112397, Start Num: 29

Candidate Starts for Sushi23_219:

(Start: 29 @111432 has 39 MA's), (43, 111504), (73, 111660), (109, 111972), (111, 111981), (115, 112014), (135, 112209), (145, 112278), (152, 112305), (157, 112314), (158, 112323), (161, 112326),

Gene: Talia1610_165 Start: 110492, Stop: 111424, Start Num: 32

Candidate Starts for Talia1610_165:

(Start: 32 @110492 has 15 MA's), (56, 110630), (80, 110780), (83, 110819), (97, 110942), (111, 111053), (118, 111158), (120, 111164), (125, 111191), (126, 111197), (127, 111224),

Gene: Targaryen_218 Start: 111605, Stop: 112570, Start Num: 29

Candidate Starts for Targaryen_218:

(Start: 29 @111605 has 39 MA's), (43, 111677), (73, 111833), (96, 112046), (97, 112052), (111, 112154), (115, 112187), (137, 112394), (145, 112451), (152, 112478), (157, 112487), (158, 112496),

Gene: Teutsch_218 Start: 111221, Stop: 112186, Start Num: 29

Candidate Starts for Teutsch_218:

(Start: 29 @111221 has 39 MA's), (43, 111293), (73, 111449), (109, 111761), (111, 111770), (115, 111803), (123, 111884), (135, 111998), (145, 112067), (152, 112094), (157, 112103), (158, 112112), (161, 112115),

Gene: Tomas_231 Start: 112309, Stop: 113268, Start Num: 29

Candidate Starts for Tomas_231:

(1, 112177), (2, 112183), (3, 112186), (6, 112204), (7, 112207), (8, 112213), (11, 112231), (14, 112243), (25, 112279), (26, 112285), (Start: 29 @112309 has 39 MA's), (40, 112363), (70, 112522), (75, 112558), (111, 112858), (157, 113185), (161, 113197),

Gene: Tribute_215 Start: 111386, Stop: 112351, Start Num: 29

Candidate Starts for Tribute_215:

(Start: 29 @111386 has 39 MA's), (43, 111458), (73, 111614), (109, 111926), (111, 111935), (115, 111968), (135, 112163), (145, 112232), (152, 112259), (157, 112268), (158, 112277), (161, 112280),

Gene: Trina_157 Start: 95691, Stop: 96605, Start Num: 32

Candidate Starts for Trina_157:

(Start: 32 @95691 has 15 MA's), (43, 95757), (52, 95808), (60, 95841), (76, 95949), (84, 96009), (89, 96057), (111, 96246), (140, 96513),

Gene: TunaTartare_166 Start: 92604, Stop: 93599, Start Num: 30
Candidate Starts for TunaTartare_166:
(Start: 30 @92604 has 8 MA's), (43, 92679), (50, 92727), (96, 93048), (111, 93168), (124, 93297),
(127, 93333),

Gene: WaddleDee_158 Start: 105322, Stop: 106260, Start Num: 32
Candidate Starts for WaddleDee_158:
(Start: 32 @105322 has 15 MA's), (64, 105493), (68, 105517), (77, 105595), (109, 105874), (111,
105883), (129, 106063), (138, 106129), (144, 106165),

Gene: Wakanda_138 Start: 79625, Stop: 80734, Start Num: 30
Candidate Starts for Wakanda_138:
(28, 79613), (Start: 30 @79625 has 8 MA's), (41, 79679), (42, 79682), (43, 79694), (44, 79700), (70,
79835), (87, 79961), (110, 80171), (111, 80177), (121, 80285), (127, 80342), (143, 80474), (168,
80636),

Gene: Warpy_222 Start: 110514, Stop: 111479, Start Num: 29
Candidate Starts for Warpy_222:
(Start: 29 @110514 has 39 MA's), (43, 110586), (73, 110742), (96, 110955), (97, 110961), (111,
111063), (115, 111096), (137, 111303), (145, 111360), (152, 111387), (157, 111396), (158, 111405),

Gene: Watermoore_218 Start: 111744, Stop: 112709, Start Num: 29
Candidate Starts for Watermoore_218:
(Start: 29 @111744 has 39 MA's), (43, 111816), (73, 111972), (109, 112284), (111, 112293), (115,
112326), (135, 112521), (145, 112590), (157, 112626), (158, 112635), (161, 112638),

Gene: Weasels2_120 Start: 75722, Stop: 76783, Start Num: 32
Candidate Starts for Weasels2_120:
(Start: 32 @75722 has 15 MA's), (62, 75887), (89, 76106), (111, 76277), (126, 76412), (127, 76436),
(169, 76697),

Gene: Westy_168 Start: 91970, Stop: 92977, Start Num: 33
Candidate Starts for Westy_168:
(Start: 33 @91970 has 14 MA's), (43, 92039), (73, 92195), (111, 92516), (124, 92645), (127, 92681),
(156, 92885), (159, 92897),

Gene: WhereRU_218 Start: 110028, Stop: 110993, Start Num: 29
Candidate Starts for WhereRU_218:
(Start: 29 @110028 has 39 MA's), (43, 110100), (75, 110277), (104, 110529), (110, 110571), (111,
110577), (115, 110610), (118, 110676), (123, 110691), (135, 110805), (145, 110874), (152, 110901),
(157, 110910), (158, 110919),

Gene: Zooman_211 Start: 129709, Stop: 130782, Start Num: 32
Candidate Starts for Zooman_211:
(21, 129652), (Start: 32 @129709 has 15 MA's), (74, 129964), (75, 129967), (81, 130003), (85,
130048), (112, 130276), (113, 130279), (121, 130381), (124, 130402), (164, 130657),