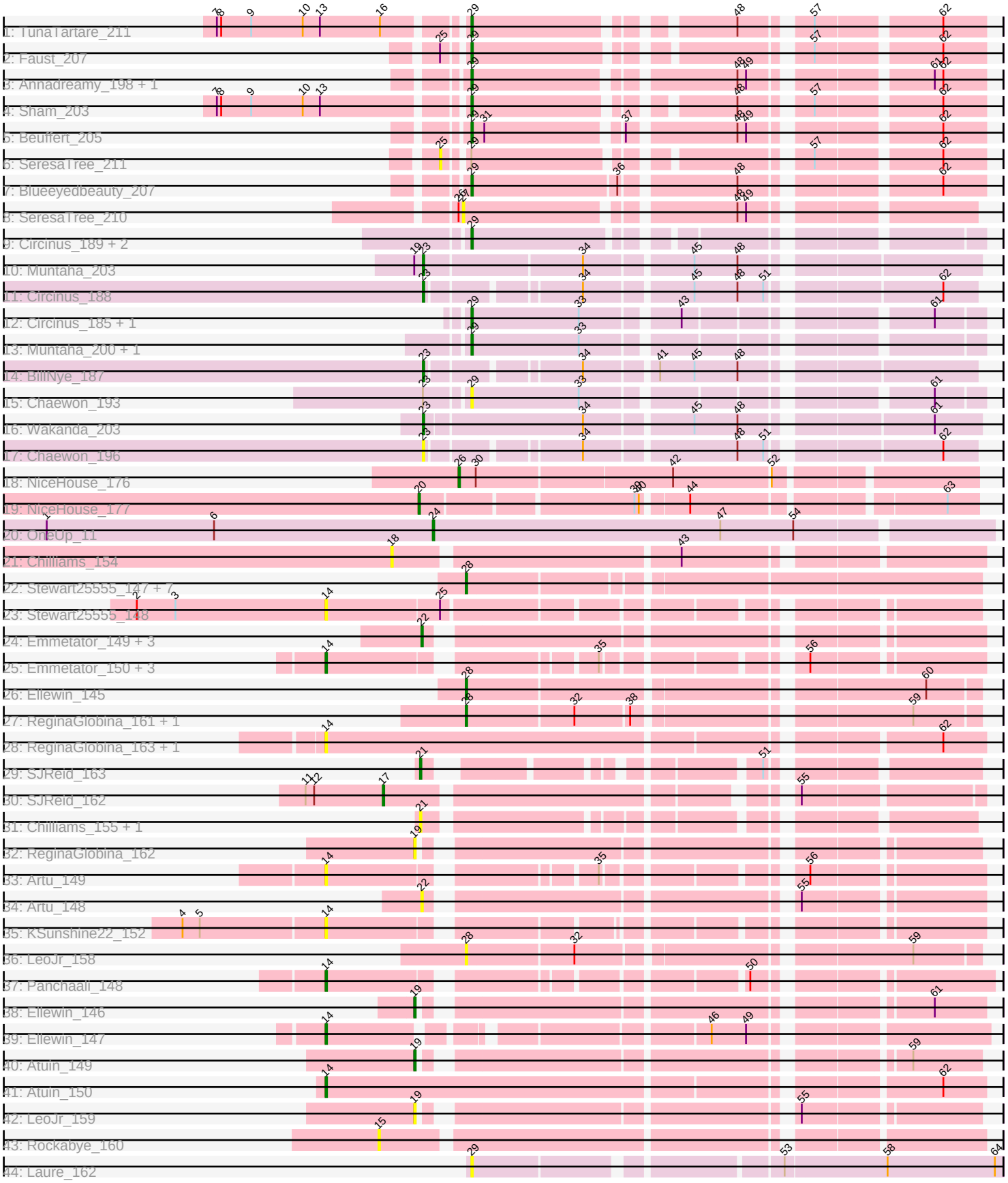
Pham 311594


1: TunaTartare_211
2: Faust_207
3: Annadreamy_198 + 1
4: Sham_203
5: Beuffert_205
6: SeresaTree_211
7: Blueeyedbeauty_207
8: SeresaTree_210
9: Circinus_189 + 2
10: Muntaha_203
11: Circinus_188
12: Circinus_185 + 1
13: Muntaha_200 + 1
14: BillNye_187
15: Chaewon_193
16: Wakanda_203
17: Chaewon_196
18: NiceHouse_176
19: NiceHouse_177
20: OneUp_11
21: Chilliams_154
22: Stewart25555_147 + 7
23: Stewart25555_148
24: Emmetator_149 + 3
25: Emmetator_150 + 3
26: Ellewin_145
27: ReginaGlobina_161 + 1
28: ReginaGlobina_163 + 1
29: SJReid_163
30: SJReid_162
31: Chilliams_155 + 1
32: ReginaGlobina_162
33: Artu_149
34: Artu_148
35: KSunshine22_152
36: LeoJr_158
37: Panchaali_148
38: Ellewin_146
39: Ellewin_147
40: Atuin_149
41: Atuin_150
42: LeoJr_159
43: Rockabye_160
44: Laure_162

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 311594 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311594 has 65 members, 29 are drafts.

Phages represented in each track:
- Track 1 : TunaTartare_211
- Track 2 : Faust_207
- Track 3 : Annadreamy_198, Limpid_205
- Track 4 : Sham_203
- Track 5 : Beuffert_205
- Track 6 : SeresaTree_211
- Track 7 : Blueeyedbeauty_207
- Track 8 : SeresaTree_210
- Track 9 : Circinus_189, BillNye_188, Chaewon_197
- Track 10 : Muntaha_203
- Track 11 : Circinus_188
- Track 12 : Circinus_185, BillNye_184
- Track 13 : Muntaha_200, Wakanda_200
- Track 14 : BillNye_187
- Track 15 : Chaewon_193
- Track 16 : Wakanda_203
- Track 17 : Chaewon_196
- Track 18 : NiceHouse_176
- Track 19 : NiceHouse_177
- Track 20 : OneUp_11
- Track 21 : Chilliams_154
- Track 22 : Stewart25555_147, Emmetator_148, DunneganBoMo_145, Artu_147, KSunshine22_151, BooTeria_154, WaddleDee_141, Panchaali_147
- Track 23 : Stewart25555_148
- Track 24 : Emmetator_149, WaddleDee_142, BooTeria_155, DunneganBoMo_146
- Track 25 : Emmetator_150, WaddleDee_143, BooTeria_156, DunneganBoMo_147
- Track 26 : Ellewin_145
- Track 27 : ReginaGlobina_161, Atuin_148
- Track 28 : ReginaGlobina_163, LeoJr_160
- Track 29 : SJReid_163
- Track 30 : SJReid_162
- Track 31 : Chilliams_155, Rockabye_161
- Track 32 : ReginaGlobina_162
- Track 33 : Artu_149
- Track 34 : Artu_148
- Track 35 : KSunshine22_152
- Track 36 : LeoJr_158

• Track 37 : Panchaali_148
• Track 38 : Ellewin_146
• Track 39 : Ellewin_147
• Track 40 : Atuin_149
• Track 41 : Atuin_150
• Track 42 : LeoJr_159
• Track 43 : Rockabye_160
• Track 44 : Laure_162

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 13 of the 36 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Annadreamy_198, Beuffert_205, BillNye_184, BillNye_188, Blueeyedbeauty_207, Chaewon_193, Chaewon_197, Circinus_185, Circinus_189, Faust_207, Laure_162, Limpid_205, Muntaha_200, Sham_203, TunaTartare_211, Wakanda_200,

Genes that have the "Most Annotated" start but do not call it:
• SeresaTree_211,

Genes that do not have the "Most Annotated" start:
• Artu_147, Artu_148, Artu_149, Atuin_148, Atuin_149, Atuin_150, BillNye_187, BooTeria_154, BooTeria_155, BooTeria_156, Chaewon_196, Chilliams_154, Chilliams_155, Circinus_188, DunneganBoMo_145, DunneganBoMo_146, DunneganBoMo_147, Ellewin_145, Ellewin_146, Ellewin_147, Emmetator_148, Emmetator_149, Emmetator_150, KSunshine22_151, KSunshine22_152, LeoJr_158, LeoJr_159, LeoJr_160, Muntaha_203, NiceHouse_176, NiceHouse_177, OneUp_11, Panchaali_147, Panchaali_148, ReginaGlobina_161, ReginaGlobina_162, ReginaGlobina_163, Rockabye_160, Rockabye_161, SJReid_162, SJReid_163, SeresaTree_210, Stewart25555_147, Stewart25555_148, WaddleDee_141, WaddleDee_142, WaddleDee_143, Wakanda_203,

Summary by start number:

Start 14:
• Found in 12 of 65 (18.5%) of genes in pham
• Manual Annotations of this start: 5 of 36
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Artu_149 (FC), Atuin_150 (FC), BooTeria_156 (FC), DunneganBoMo_147 (FC), Ellewin_147 (FC), Emmetator_150 (FC), KSunshine22_152 (FC), LeoJr_160 (FC), Panchaali_148 (FC), ReginaGlobina_163 (FC), Stewart25555_148 (FC), WaddleDee_143 (FC),

Start 15:
• Found in 1 of 65 (1.5%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Rockabye_160 (FC),

Start 17:
• Found in 1 of 65 (1.5%) of genes in pham
• Manual Annotations of this start: 1 of 36
• Called 100.0% of time when present
• Phage (with cluster) where this start called: SJReid_162 (FC),

Start 18:
• Found in 1 of 65 (1.5%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Chilliams_154 (FC),

Start 19:
• Found in 5 of 65 (7.7%) of genes in pham
• Manual Annotations of this start: 2 of 36
• Called 80.0% of time when present
• Phage (with cluster) where this start called: Atuin_149 (FC), Ellewin_146 (FC), LeoJr_159 (FC), ReginaGlobina_162 (FC),

Start 20:
• Found in 1 of 65 (1.5%) of genes in pham
• Manual Annotations of this start: 1 of 36
• Called 100.0% of time when present
• Phage (with cluster) where this start called: NiceHouse_177 (CE),

Start 21:
• Found in 3 of 65 (4.6%) of genes in pham
• Manual Annotations of this start: 1 of 36
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Chilliams_155 (FC), Rockabye_161 (FC), SJReid_163 (FC),

Start 22:
• Found in 5 of 65 (7.7%) of genes in pham
• Manual Annotations of this start: 2 of 36
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Artu_148 (FC), BooTeria_155 (FC), DunneganBoMo_146 (FC), Emmetator_149 (FC), WaddleDee_142 (FC),

Start 23:
• Found in 6 of 65 (9.2%) of genes in pham
• Manual Annotations of this start: 4 of 36
• Called 83.3% of time when present
• Phage (with cluster) where this start called: BillNye_187 (BK2), Chaewon_196 (BK2), Circinus_188 (BK2), Muntaha_203 (BK2), Wakanda_203 (BK2),

Start 24:
• Found in 1 of 65 (1.5%) of genes in pham
• Manual Annotations of this start: 1 of 36
• Called 100.0% of time when present
• Phage (with cluster) where this start called: OneUp_11 (CQ2),

Start 25:
• Found in 3 of 65 (4.6%) of genes in pham
• No Manual Annotations of this start.
• Called 33.3% of time when present
• Phage (with cluster) where this start called: SeresaTree_211 (BK1),

Start 26:
• Found in 2 of 65 (3.1%) of genes in pham
• Manual Annotations of this start: 1 of 36
• Called 50.0% of time when present
• Phage (with cluster) where this start called: NiceHouse_176 (CE),

Start 27:
• Found in 1 of 65 (1.5%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: SeresaTree_210 (BK1),

Start 28:
• Found in 12 of 65 (18.5%) of genes in pham
• Manual Annotations of this start: 5 of 36
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Artu_147 (FC), Atuin_148 (FC), BooTeria_154 (FC), DunneganBoMo_145 (FC), Ellewin_145 (FC), Emmetator_148 (FC), KSunshine22_151 (FC), LeoJr_158 (FC), Panchaali_147 (FC), ReginaGlobina_161 (FC), Stewart25555_147 (FC), WaddleDee_141 (FC),

Start 29:
• Found in 17 of 65 (26.2%) of genes in pham
• Manual Annotations of this start: 13 of 36
• Called 94.1% of time when present
• Phage (with cluster) where this start called: Annadreamy_198 (BK1), Beuffert_205 (BK1), BillNye_184 (BK2), BillNye_188 (BK2), Blueeyedbeauty_207 (BK1), Chaewon_193 (BK2), Chaewon_197 (BK2), Circinus_185 (BK2), Circinus_189 (BK2), Faust_207 (BK1), Laure_162 (UNK), Limpid_205 (BK1), Muntaha_200 (BK2), Sham_203 (BK1), TunaTartare_211 (BK1), Wakanda_200 (BK2),

Summary by clusters:

There are 6 clusters represented in this pham: CE, FC, BK1, BK2, CQ2, UNK,

Info for manual annotations of cluster BK1:
•Start number 29 was manually annotated 7 times for cluster BK1.

Info for manual annotations of cluster BK2:
•Start number 23 was manually annotated 4 times for cluster BK2.
•Start number 29 was manually annotated 6 times for cluster BK2.

Info for manual annotations of cluster CE:
•Start number 20 was manually annotated 1 time for cluster CE.
•Start number 26 was manually annotated 1 time for cluster CE.

Info for manual annotations of cluster CQ2:

•Start number 24 was manually annotated 1 time for cluster CQ2.

Info for manual annotations of cluster FC:
•Start number 14 was manually annotated 5 times for cluster FC.
•Start number 17 was manually annotated 1 time for cluster FC.
•Start number 19 was manually annotated 2 times for cluster FC.
•Start number 21 was manually annotated 1 time for cluster FC.
•Start number 22 was manually annotated 2 times for cluster FC.
•Start number 28 was manually annotated 5 times for cluster FC.

Gene Information:

Gene: Annadreamy_198 Start: 100559, Stop: 100870, Start Num: 29
Candidate Starts for Annadreamy_198:
(Start: 29 @100559 has 13 MA's), (48, 100724), (49, 100730), (61, 100835), (62, 100841),

Gene: Artu_149 Start: 102382, Stop: 102765, Start Num: 14
Candidate Starts for Artu_149:
(Start: 14 @102382 has 5 MA's), (35, 102544), (56, 102655),

Gene: Artu_148 Start: 102038, Stop: 102379, Start Num: 22
Candidate Starts for Artu_148:
(Start: 22 @102038 has 2 MA's), (55, 102263),

Gene: Artu_147 Start: 101698, Stop: 102027, Start Num: 28
Candidate Starts for Artu_147:
(Start: 28 @101698 has 5 MA's),

Gene: Atuin_149 Start: 104650, Stop: 104988, Start Num: 19
Candidate Starts for Atuin_149:
(Start: 19 @104650 has 2 MA's), (59, 104941),

Gene: Atuin_148 Start: 104321, Stop: 104644, Start Num: 28
Candidate Starts for Atuin_148:
(Start: 28 @104321 has 5 MA's), (32, 104393), (38, 104429), (59, 104600),

Gene: Atuin_150 Start: 104992, Stop: 105420, Start Num: 14
Candidate Starts for Atuin_150:
(Start: 14 @104992 has 5 MA's), (62, 105391),

Gene: Beuffert_205 Start: 104551, Stop: 104862, Start Num: 29
Candidate Starts for Beuffert_205:
(Start: 29 @104551 has 13 MA's), (31, 104560), (37, 104647), (48, 104716), (49, 104722), (62, 104833),

Gene: BillNye_184 Start: 100624, Stop: 100935, Start Num: 29
Candidate Starts for BillNye_184:
(Start: 29 @100624 has 13 MA's), (33, 100699), (43, 100759), (61, 100903),

Gene: BillNye_187 Start: 101461, Stop: 101799, Start Num: 23

Candidate Starts for BillNye_187:
(Start: 23 @101461 has 4 MA's), (34, 101554), (41, 101599), (45, 101623), (48, 101653),

Gene: BillNye_188 Start: 101849, Stop: 102151, Start Num: 29
Candidate Starts for BillNye_188:
(Start: 29 @101849 has 13 MA's),

Gene: Blueeyedbeauty_207 Start: 104279, Stop: 104596, Start Num: 29
Candidate Starts for Blueeyedbeauty_207:
(Start: 29 @104279 has 13 MA's), (36, 104378), (48, 104450), (62, 104567),

Gene: BooTeria_154 Start: 101992, Stop: 102321, Start Num: 28
Candidate Starts for BooTeria_154:
(Start: 28 @101992 has 5 MA's),

Gene: BooTeria_156 Start: 102675, Stop: 103058, Start Num: 14
Candidate Starts for BooTeria_156:
(Start: 14 @102675 has 5 MA's), (35, 102837), (56, 102948),

Gene: BooTeria_155 Start: 102332, Stop: 102673, Start Num: 22
Candidate Starts for BooTeria_155:
(Start: 22 @102332 has 2 MA's),

Gene: Chaewon_193 Start: 102351, Stop: 102662, Start Num: 29
Candidate Starts for Chaewon_193:
(Start: 23 @102324 has 4 MA's), (Start: 29 @102351 has 13 MA's), (33, 102426), (61, 102630),

Gene: Chaewon_197 Start: 103586, Stop: 103888, Start Num: 29
Candidate Starts for Chaewon_197:
(Start: 29 @103586 has 13 MA's),

Gene: Chaewon_196 Start: 103198, Stop: 103536, Start Num: 23
Candidate Starts for Chaewon_196:
(Start: 23 @103198 has 4 MA's), (34, 103291), (48, 103390), (51, 103408), (62, 103513),

Gene: Chilliams_154 Start: 95980, Stop: 96354, Start Num: 18
Candidate Starts for Chilliams_154:
(18, 95980), (43, 96166),

Gene: Chilliams_155 Start: 96358, Stop: 96678, Start Num: 21
Candidate Starts for Chilliams_155:
(Start: 21 @96358 has 1 MA's),

Gene: Circinus_189 Start: 101656, Stop: 101958, Start Num: 29
Candidate Starts for Circinus_189:
(Start: 29 @101656 has 13 MA's),

Gene: Circinus_188 Start: 101268, Stop: 101606, Start Num: 23
Candidate Starts for Circinus_188:
(Start: 23 @101268 has 4 MA's), (34, 101361), (45, 101430), (48, 101460), (51, 101478), (62, 101583),

Gene: Circinus_185 Start: 100431, Stop: 100742, Start Num: 29
Candidate Starts for Circinus_185:

(Start: 29 @100431 has 13 MA's), (33, 100506), (43, 100566), (61, 100710),

Gene: DunneganBoMo_145 Start: 101261, Stop: 101590, Start Num: 28
Candidate Starts for DunneganBoMo_145:
(Start: 28 @101261 has 5 MA's),

Gene: DunneganBoMo_146 Start: 101601, Stop: 101942, Start Num: 22
Candidate Starts for DunneganBoMo_146:
(Start: 22 @101601 has 2 MA's),

Gene: DunneganBoMo_147 Start: 101944, Stop: 102327, Start Num: 14
Candidate Starts for DunneganBoMo_147:
(Start: 14 @101944 has 5 MA's), (35, 102106), (56, 102217),

Gene: Ellewin_145 Start: 101365, Stop: 101691, Start Num: 28
Candidate Starts for Ellewin_145:
(Start: 28 @101365 has 5 MA's), (60, 101656),

Gene: Ellewin_146 Start: 101696, Stop: 102037, Start Num: 19
Candidate Starts for Ellewin_146:
(Start: 19 @101696 has 2 MA's), (61, 102002),

Gene: Ellewin_147 Start: 102039, Stop: 102437, Start Num: 14
Candidate Starts for Ellewin_147:
(Start: 14 @102039 has 5 MA's), (46, 102267), (49, 102291),

Gene: Emmetator_149 Start: 101914, Stop: 102255, Start Num: 22
Candidate Starts for Emmetator_149:
(Start: 22 @101914 has 2 MA's),

Gene: Emmetator_150 Start: 102257, Stop: 102640, Start Num: 14
Candidate Starts for Emmetator_150:
(Start: 14 @102257 has 5 MA's), (35, 102419), (56, 102530),

Gene: Emmetator_148 Start: 101571, Stop: 101903, Start Num: 28
Candidate Starts for Emmetator_148:
(Start: 28 @101571 has 5 MA's),

Gene: Faust_207 Start: 105783, Stop: 106088, Start Num: 29
Candidate Starts for Faust_207:
(25, 105771), (Start: 29 @105783 has 13 MA's), (57, 105981), (62, 106059),

Gene: KSunshine22_151 Start: 102661, Stop: 102990, Start Num: 28
Candidate Starts for KSunshine22_151:
(Start: 28 @102661 has 5 MA's),

Gene: KSunshine22_152 Start: 103001, Stop: 103387, Start Num: 14
Candidate Starts for KSunshine22_152:
(4, 102905), (5, 102917), (Start: 14 @103001 has 5 MA's),

Gene: Laure_162 Start: 98082, Stop: 98423, Start Num: 29
Candidate Starts for Laure_162:
(Start: 29 @98082 has 13 MA's), (53, 98274), (58, 98343), (64, 98418),

Gene: LeoJr_158 Start: 104920, Stop: 105243, Start Num: 28
Candidate Starts for LeoJr_158:
(Start: 28 @104920 has 5 MA's), (32, 104992), (59, 105199),

Gene: LeoJr_160 Start: 105590, Stop: 106018, Start Num: 14
Candidate Starts for LeoJr_160:
(Start: 14 @105590 has 5 MA's), (62, 105989),

Gene: LeoJr_159 Start: 105249, Stop: 105587, Start Num: 19
Candidate Starts for LeoJr_159:
(Start: 19 @105249 has 2 MA's), (55, 105474),

Gene: Limpid_205 Start: 105872, Stop: 106183, Start Num: 29
Candidate Starts for Limpid_205:
(Start: 29 @105872 has 13 MA's), (48, 106037), (49, 106043), (61, 106148), (62, 106154),

Gene: Muntaha_203 Start: 101500, Stop: 101853, Start Num: 23
Candidate Starts for Muntaha_203:
(Start: 19 @101494 has 2 MA's), (Start: 23 @101500 has 4 MA's), (34, 101605), (45, 101674), (48, 101704),

Gene: Muntaha_200 Start: 100611, Stop: 100922, Start Num: 29
Candidate Starts for Muntaha_200:
(Start: 29 @100611 has 13 MA's), (33, 100686),

Gene: NiceHouse_176 Start: 100180, Stop: 100518, Start Num: 26
Candidate Starts for NiceHouse_176:
(Start: 26 @100180 has 1 MA's), (30, 100192), (42, 100324), (52, 100390),

Gene: NiceHouse_177 Start: 100519, Stop: 100866, Start Num: 20
Candidate Starts for NiceHouse_177:
(Start: 20 @100519 has 1 MA's), (39, 100657), (40, 100660), (44, 100687), (63, 100846),

Gene: OneUp_11 Start: 3220, Stop: 3600, Start Num: 24
Candidate Starts for OneUp_11:
(1, 2950), (6, 3067), (Start: 24 @3220 has 1 MA's), (47, 3421), (54, 3472),

Gene: Panchaali_148 Start: 102119, Stop: 102511, Start Num: 14
Candidate Starts for Panchaali_148:
(Start: 14 @102119 has 5 MA's), (50, 102368),

Gene: Panchaali_147 Start: 101776, Stop: 102108, Start Num: 28
Candidate Starts for Panchaali_147:
(Start: 28 @101776 has 5 MA's),

Gene: ReginaGlobina_161 Start: 106194, Stop: 106517, Start Num: 28
Candidate Starts for ReginaGlobina_161:
(Start: 28 @106194 has 5 MA's), (32, 106266), (38, 106302), (59, 106473),

Gene: ReginaGlobina_163 Start: 106864, Stop: 107292, Start Num: 14
Candidate Starts for ReginaGlobina_163:
(Start: 14 @106864 has 5 MA's), (62, 107263),

Gene: ReginaGlobina_162 Start: 106523, Stop: 106861, Start Num: 19
Candidate Starts for ReginaGlobina_162:
(Start: 19 @106523 has 2 MA's),

Gene: Rockabye_161 Start: 97934, Stop: 98251, Start Num: 21
Candidate Starts for Rockabye_161:
(Start: 21 @97934 has 1 MA's),

Gene: Rockabye_160 Start: 97547, Stop: 97930, Start Num: 15
Candidate Starts for Rockabye_160:
(15, 97547),

Gene: SJReid_163 Start: 96973, Stop: 97275, Start Num: 21
Candidate Starts for SJReid_163:
(Start: 21 @96973 has 1 MA's), (51, 97150),

Gene: SJReid_162 Start: 96607, Stop: 96969, Start Num: 17
Candidate Starts for SJReid_162:
(11, 96553), (12, 96559), (Start: 17 @96607 has 1 MA's), (55, 96853),

Gene: SeresaTree_211 Start: 105756, Stop: 106073, Start Num: 25
Candidate Starts for SeresaTree_211:
(25, 105756), (Start: 29 @105768 has 13 MA's), (57, 105966), (62, 106044),

Gene: SeresaTree_210 Start: 105448, Stop: 105759, Start Num: 27
Candidate Starts for SeresaTree_210:
(Start: 26 @105445 has 1 MA's), (27, 105448), (48, 105619), (49, 105625),

Gene: Sham_203 Start: 106846, Stop: 107148, Start Num: 29
Candidate Starts for Sham_203:
(7, 106684), (8, 106687), (9, 106708), (10, 106744), (13, 106756), (Start: 29 @106846 has 13 MA's), (48, 107002), (57, 107041), (62, 107119),

Gene: Stewart25555_147 Start: 102928, Stop: 103263, Start Num: 28
Candidate Starts for Stewart25555_147:
(Start: 28 @102928 has 5 MA's),

Gene: Stewart25555_148 Start: 103275, Stop: 103673, Start Num: 14
Candidate Starts for Stewart25555_148:
(2, 103143), (3, 103170), (Start: 14 @103275 has 5 MA's), (25, 103353),

Gene: TunaTartare_211 Start: 109144, Stop: 109446, Start Num: 29
Candidate Starts for TunaTartare_211:
(7, 108982), (8, 108985), (9, 109006), (10, 109042), (13, 109054), (16, 109096), (Start: 29 @109144 has 13 MA's), (48, 109300), (57, 109339), (62, 109417),

Gene: WaddleDee_143 Start: 101130, Stop: 101513, Start Num: 14
Candidate Starts for WaddleDee_143:
(Start: 14 @101130 has 5 MA's), (35, 101292), (56, 101403),

Gene: WaddleDee_142 Start: 100787, Stop: 101128, Start Num: 22
Candidate Starts for WaddleDee_142:

(Start: 22 @100787 has 2 MA's),

Gene: WaddleDee_141 Start: 100447, Stop: 100776, Start Num: 28
Candidate Starts for WaddleDee_141:
(Start: 28 @100447 has 5 MA's),

Gene: Wakanda_203 Start: 101737, Stop: 102090, Start Num: 23
Candidate Starts for Wakanda_203:
(Start: 23 @101737 has 4 MA's), (34, 101842), (45, 101911), (48, 101941), (61, 102058),

Gene: Wakanda_200 Start: 100892, Stop: 101203, Start Num: 29
Candidate Starts for Wakanda_200:
(Start: 29 @100892 has 13 MA's), (33, 100967),