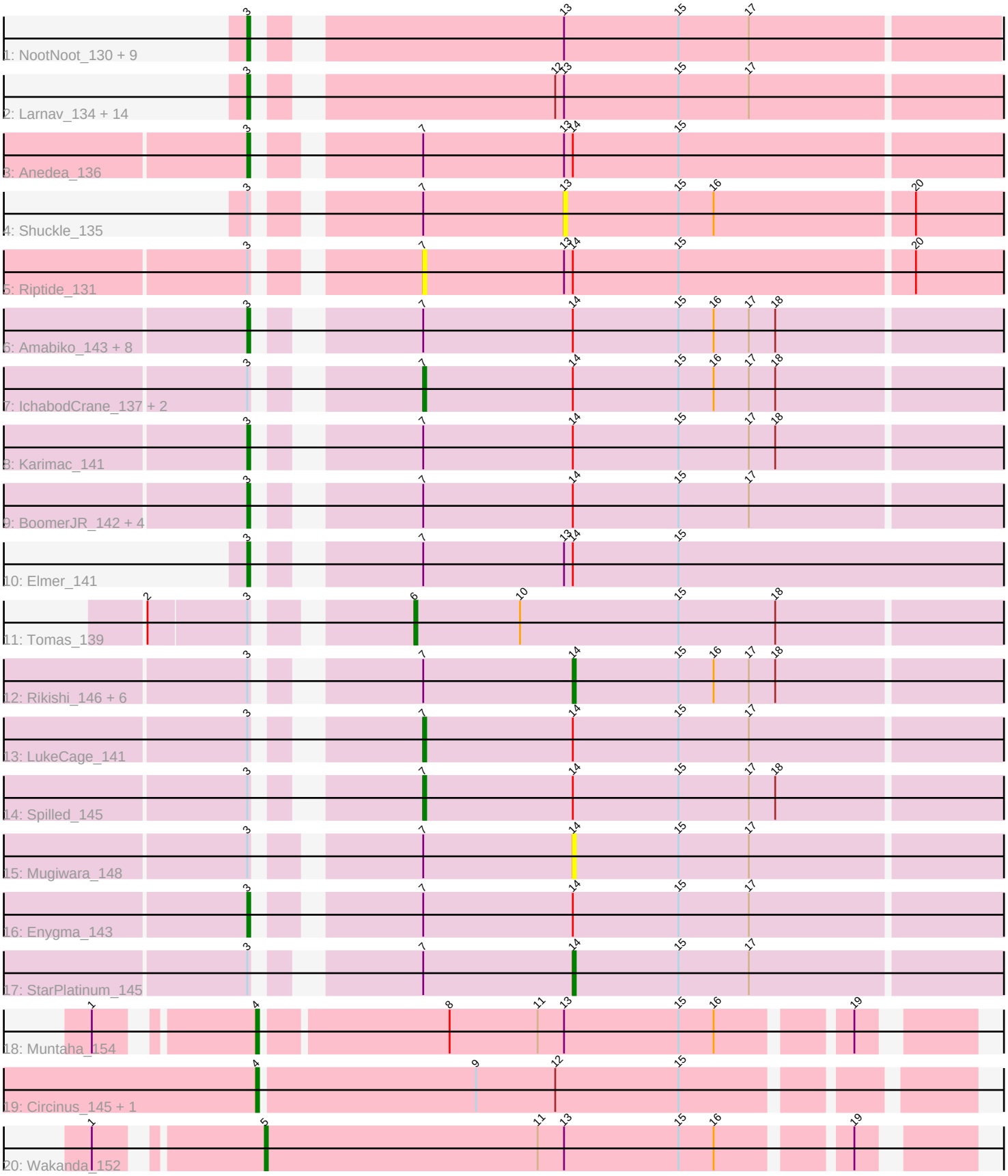
Pham 216158


1: NootNoot_130 + 9
2: Larnav_134 + 14
3: Anedea_136
4: Shuckle_135
5: Riptide_131
6: Amabiko_143 + 8
7: IchabodCrane_137 + 2
8: Karimac_141
9: BoomerJR_142 + 4
10: Elmer_141
11: Tomas_139
12: Rikishi_146 + 6
13: LukeCage_141
14: Spilled_145
15: Mugiwara_148
16: Enygma_143
17: StarPlatinum_145
18: Muntaha_154
19: Circinus_145 + 1
20: Wakanda_152

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 216158 Report

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

Pham number 216158 has 64 members, 6 are drafts.

Phages represented in each track:
• Track 1 : NootNoot_130, Braelyn_134, WhereRU_132, PinkiePie_130, Liandry_133, Bartholomune_133, Paradiddles_129, Persimmon_133, Navo_131, Squillium_133
• Track 2 : Larnav_134, Teutsch_133, Samisti12_135, HangryHippo_133, Watermoore_133, Pepperwood_133, BlueOtter_133, Leo04_135, Tribute_133, PacManQ_133, Scheme_135, Peebs_132, Cross_134, Lululemon_133, Sushi23_133
• Track 3 : Anedea_136
• Track 4 : Shuckle_135
• Track 5 : Riptide_131
• Track 6 : Amabiko_143, CeilingFan_142, PumpkinSpice_144, Jollison_141, SaltySpitoon_142, KentuckyRacer_144, Quaran19_142, Birchlyn_141, JimJam_145
• Track 7 : IchabodCrane_137, MindFlayer_138, Wipeout_136
• Track 8 : Karimac_141
• Track 9 : BoomerJR_142, Yaboi_141, Stanimal_140, Genie2_142, Sollertia_141
• Track 10 : Elmer_141
• Track 11 : Tomas_139
• Track 12 : Rikishi_146, Spelly_144, TomSawyer_143, Starbow_140, Gibbi_148, Bordeaux_141, Battuta_141
• Track 13 : LukeCage_141
• Track 14 : Spilled_145
• Track 15 : Mugiwara_148
• Track 16 : Enygma_143
• Track 17 : StarPlatinum_145
• Track 18 : Muntaha_154
• Track 19 : Circinus_145, BillNye_144
• Track 20 : Wakanda_152

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

The start number called the most often in the published annotations is 3, it was called in 42 of the 58 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Amabiko_143, Anedea_136, Bartholomune_133, Birchlyn_141, BlueOtter_133, BoomerJR_142, Braelyn_134, CeilingFan_142, Cross_134, Elmer_141,

Enygma_143, Genie2_142, HangryHippo_133, JimJam_145, Jollison_141, Karimac_141, KentuckyRacer_144, Larnav_134, Leo04_135, Liandry_133, Lululemon_133, Navo_131, NootNoot_130, PacManQ_133, Paradiddles_129, Peebs_132, Pepperwood_133, Persimmon_133, PinkiePie_130, PumpkinSpice_144, Quaran19_142, SaltySpitoon_142, Samisti12_135, Scheme_135, Sollertia_141, Squillium_133, Stanimal_140, Sushi23_133, Teutsch_133, Tribute_133, Watermoore_133, WhereRU_132, Yaboi_141,

Genes that have the "Most Annotated" start but do not call it:
• Battuta_141, Bordeaux_141, Gibbi_148, IchabodCrane_137, LukeCage_141, MindFlayer_138, Mugiwara_148, Rikishi_146, Riptide_131, Shuckle_135, Spelly_144, Spilled_145, StarPlatinum_145, Starbow_140, TomSawyer_143, Tomas_139, Wipeout_136,

Genes that do not have the "Most Annotated" start:
• BillNye_144, Circinus_145, Muntaha_154, Wakanda_152,

Summary by start number:

Start 3:
• Found in 60 of 64 (93.8%) of genes in pham
• Manual Annotations of this start: 42 of 58
• Called 71.7% of time when present
• Phage (with cluster) where this start called: Amabiko_143 (BE2), Anedea_136 (BE1), Bartholomune_133 (BE1), Birchlyn_141 (BE2), BlueOtter_133 (BE1), BoomerJR_142 (BE2), Braelyn_134 (BE1), CeilingFan_142 (BE2), Cross_134 (BE1), Elmer_141 (BE2), Enygma_143 (BE2), Genie2_142 (BE2), HangryHippo_133 (BE1), JimJam_145 (BE2), Jollison_141 (BE2), Karimac_141 (BE2), KentuckyRacer_144 (BE2), Larnav_134 (BE1), Leo04_135 (BE1), Liandry_133 (BE1), Lululemon_133 (BE1), Navo_131 (BE1), NootNoot_130 (BE1), PacManQ_133 (BE1), Paradiddles_129 (BE1), Peebs_132 (BE1), Pepperwood_133 (BE1), Persimmon_133 (BE1), PinkiePie_130 (BE1), PumpkinSpice_144 (BE2), Quaran19_142 (BE2), SaltySpitoon_142 (BE2), Samisti12_135 (BE1), Scheme_135 (BE1), Sollertia_141 (BE2), Squillium_133 (BE1), Stanimal_140 (BE2), Sushi23_133 (BE1), Teutsch_133 (BE1), Tribute_133 (BE1), Watermoore_133 (BE1), WhereRU_132 (BE1), Yaboi_141 (BE2),

Start 4:
• Found in 3 of 64 (4.7%) of genes in pham
• Manual Annotations of this start: 3 of 58
• Called 100.0% of time when present
• Phage (with cluster) where this start called: BillNye_144 (BK2), Circinus_145 (BK2), Muntaha_154 (BK2),

Start 5:
• Found in 1 of 64 (1.6%) of genes in pham
• Manual Annotations of this start: 1 of 58
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Wakanda_152 (BK2),

Start 6:
• Found in 1 of 64 (1.6%) of genes in pham
• Manual Annotations of this start: 1 of 58

• Called 100.0% of time when present
• Phage (with cluster) where this start called: Tomas_139 (BE2),

Start 7:
• Found in 34 of 64 (53.1%) of genes in pham
• Manual Annotations of this start: 5 of 58
• Called 17.6% of time when present
• Phage (with cluster) where this start called: IchabodCrane_137 (BE2), LukeCage_141 (BE2), MindFlayer_138 (BE2), Riptide_131 (BE1), Spilled_145 (BE2), Wipeout_136 (BE2),

Start 13:
• Found in 31 of 64 (48.4%) of genes in pham
• No Manual Annotations of this start.
• Called 3.2% of time when present
• Phage (with cluster) where this start called: Shuckle_135 (BE1),

Start 14:
• Found in 33 of 64 (51.6%) of genes in pham
• Manual Annotations of this start: 6 of 58
• Called 27.3% of time when present
• Phage (with cluster) where this start called: Battuta_141 (BE2), Bordeaux_141 (BE2), Gibbi_148 (BE2), Mugiwara_148 (BE2), Rikishi_146 (BE2), Spelly_144 (BE2), StarPlatinum_145 (BE2), Starbow_140 (BE2), TomSawyer_143 (BE2),

Summary by clusters:

There are 3 clusters represented in this pham: BE2, BE1, BK2,

Info for manual annotations of cluster BE1:
•Start number 3 was manually annotated 25 times for cluster BE1.

Info for manual annotations of cluster BE2:
•Start number 3 was manually annotated 17 times for cluster BE2.
•Start number 6 was manually annotated 1 time for cluster BE2.
•Start number 7 was manually annotated 5 times for cluster BE2.
•Start number 14 was manually annotated 6 times for cluster BE2.

Info for manual annotations of cluster BK2:
•Start number 4 was manually annotated 3 times for cluster BK2.
•Start number 5 was manually annotated 1 time for cluster BK2.

Gene Information:

Gene: Amabiko_143 Start: 85395, Stop: 85643, Start Num: 3
Candidate Starts for Amabiko_143:
(Start: 3 @85395 has 42 MA's), (Start: 7 @85437 has 5 MA's), (Start: 14 @85488 has 6 MA's), (15, 85524), (16, 85536), (17, 85548), (18, 85557),

Gene: Anedea_136 Start: 83625, Stop: 83885, Start Num: 3
Candidate Starts for Anedea_136:

(Start: 3 @83625 has 42 MA's), (Start: 7 @83670 has 5 MA's), (13, 83718), (Start: 14 @83721 has 6 MA's), (15, 83757),

Gene: Bartholomune_133 Start: 83929, Stop: 84177, Start Num: 3
Candidate Starts for Bartholomune_133:
(Start: 3 @83929 has 42 MA's), (13, 84019), (15, 84058), (17, 84082),

Gene: Battuta_141 Start: 85461, Stop: 85616, Start Num: 14
Candidate Starts for Battuta_141:
(Start: 3 @85368 has 42 MA's), (Start: 7 @85410 has 5 MA's), (Start: 14 @85461 has 6 MA's), (15, 85497), (16, 85509), (17, 85521), (18, 85530),

Gene: BillNye_144 Start: 86005, Stop: 86232, Start Num: 4
Candidate Starts for BillNye_144:
(Start: 4 @86005 has 3 MA's), (9, 86077), (12, 86104), (15, 86146),

Gene: Birchlyn_141 Start: 83255, Stop: 83503, Start Num: 3
Candidate Starts for Birchlyn_141:
(Start: 3 @83255 has 42 MA's), (Start: 7 @83297 has 5 MA's), (Start: 14 @83348 has 6 MA's), (15, 83384), (16, 83396), (17, 83408), (18, 83417),

Gene: BlueOtter_133 Start: 86163, Stop: 86414, Start Num: 3
Candidate Starts for BlueOtter_133:
(Start: 3 @86163 has 42 MA's), (12, 86250), (13, 86253), (15, 86292), (17, 86316),

Gene: BoomerJR_142 Start: 85736, Stop: 85984, Start Num: 3
Candidate Starts for BoomerJR_142:
(Start: 3 @85736 has 42 MA's), (Start: 7 @85778 has 5 MA's), (Start: 14 @85829 has 6 MA's), (15, 85865), (17, 85889),

Gene: Bordeaux_141 Start: 85616, Stop: 85771, Start Num: 14
Candidate Starts for Bordeaux_141:
(Start: 3 @85523 has 42 MA's), (Start: 7 @85565 has 5 MA's), (Start: 14 @85616 has 6 MA's), (15, 85652), (16, 85664), (17, 85676), (18, 85685),

Gene: Braelyn_134 Start: 84800, Stop: 85048, Start Num: 3
Candidate Starts for Braelyn_134:
(Start: 3 @84800 has 42 MA's), (13, 84890), (15, 84929), (17, 84953),

Gene: CeilingFan_142 Start: 85286, Stop: 85534, Start Num: 3
Candidate Starts for CeilingFan_142:
(Start: 3 @85286 has 42 MA's), (Start: 7 @85328 has 5 MA's), (Start: 14 @85379 has 6 MA's), (15, 85415), (16, 85427), (17, 85439), (18, 85448),

Gene: Circinus_145 Start: 85973, Stop: 86200, Start Num: 4
Candidate Starts for Circinus_145:
(Start: 4 @85973 has 3 MA's), (9, 86045), (12, 86072), (15, 86114),

Gene: Cross_134 Start: 86164, Stop: 86415, Start Num: 3
Candidate Starts for Cross_134:
(Start: 3 @86164 has 42 MA's), (12, 86251), (13, 86254), (15, 86293), (17, 86317),

Gene: Elmer_141 Start: 86761, Stop: 87012, Start Num: 3

Candidate Starts for Elmer_141:
(Start: 3 @86761 has 42 MA's), (Start: 7 @86803 has 5 MA's), (13, 86851), (Start: 14 @86854 has 6 MA's), (15, 86890),

Gene: Enygma_143 Start: 87204, Stop: 87455, Start Num: 3
Candidate Starts for Enygma_143:
(Start: 3 @87204 has 42 MA's), (Start: 7 @87249 has 5 MA's), (Start: 14 @87300 has 6 MA's), (15, 87336), (17, 87360),

Gene: Genie2_142 Start: 85850, Stop: 86098, Start Num: 3
Candidate Starts for Genie2_142:
(Start: 3 @85850 has 42 MA's), (Start: 7 @85892 has 5 MA's), (Start: 14 @85943 has 6 MA's), (15, 85979), (17, 86003),

Gene: Gibbi_148 Start: 85600, Stop: 85755, Start Num: 14
Candidate Starts for Gibbi_148:
(Start: 3 @85507 has 42 MA's), (Start: 7 @85549 has 5 MA's), (Start: 14 @85600 has 6 MA's), (15, 85636), (16, 85648), (17, 85660), (18, 85669),

Gene: HangryHippo_133 Start: 86163, Stop: 86414, Start Num: 3
Candidate Starts for HangryHippo_133:
(Start: 3 @86163 has 42 MA's), (12, 86250), (13, 86253), (15, 86292), (17, 86316),

Gene: IchabodCrane_137 Start: 85138, Stop: 85344, Start Num: 7
Candidate Starts for IchabodCrane_137:
(Start: 3 @85096 has 42 MA's), (Start: 7 @85138 has 5 MA's), (Start: 14 @85189 has 6 MA's), (15, 85225), (16, 85237), (17, 85249), (18, 85258),

Gene: JimJam_145 Start: 85917, Stop: 86165, Start Num: 3
Candidate Starts for JimJam_145:
(Start: 3 @85917 has 42 MA's), (Start: 7 @85959 has 5 MA's), (Start: 14 @86010 has 6 MA's), (15, 86046), (16, 86058), (17, 86070), (18, 86079),

Gene: Jollison_141 Start: 85351, Stop: 85599, Start Num: 3
Candidate Starts for Jollison_141:
(Start: 3 @85351 has 42 MA's), (Start: 7 @85393 has 5 MA's), (Start: 14 @85444 has 6 MA's), (15, 85480), (16, 85492), (17, 85504), (18, 85513),

Gene: Karimac_141 Start: 85634, Stop: 85882, Start Num: 3
Candidate Starts for Karimac_141:
(Start: 3 @85634 has 42 MA's), (Start: 7 @85676 has 5 MA's), (Start: 14 @85727 has 6 MA's), (15, 85763), (17, 85787), (18, 85796),

Gene: KentuckyRacer_144 Start: 85782, Stop: 86030, Start Num: 3
Candidate Starts for KentuckyRacer_144:
(Start: 3 @85782 has 42 MA's), (Start: 7 @85824 has 5 MA's), (Start: 14 @85875 has 6 MA's), (15, 85911), (16, 85923), (17, 85935), (18, 85944),

Gene: Larnav_134 Start: 86147, Stop: 86398, Start Num: 3
Candidate Starts for Larnav_134:
(Start: 3 @86147 has 42 MA's), (12, 86234), (13, 86237), (15, 86276), (17, 86300),

Gene: Leo04_135 Start: 86663, Stop: 86914, Start Num: 3

Candidate Starts for Leo04_135:
(Start: 3 @86663 has 42 MA's), (12, 86750), (13, 86753), (15, 86792), (17, 86816),

Gene: Liandry_133 Start: 84672, Stop: 84920, Start Num: 3
Candidate Starts for Liandry_133:
(Start: 3 @84672 has 42 MA's), (13, 84762), (15, 84801), (17, 84825),

Gene: LukeCage_141 Start: 86461, Stop: 86667, Start Num: 7
Candidate Starts for LukeCage_141:
(Start: 3 @86419 has 42 MA's), (Start: 7 @86461 has 5 MA's), (Start: 14 @86512 has 6 MA's), (15, 86548), (17, 86572),

Gene: Lululemon_133 Start: 85544, Stop: 85795, Start Num: 3
Candidate Starts for Lululemon_133:
(Start: 3 @85544 has 42 MA's), (12, 85631), (13, 85634), (15, 85673), (17, 85697),

Gene: MindFlayer_138 Start: 85045, Stop: 85251, Start Num: 7
Candidate Starts for MindFlayer_138:
(Start: 3 @85003 has 42 MA's), (Start: 7 @85045 has 5 MA's), (Start: 14 @85096 has 6 MA's), (15, 85132), (16, 85144), (17, 85156), (18, 85165),

Gene: Mugiwara_148 Start: 86337, Stop: 86492, Start Num: 14
Candidate Starts for Mugiwara_148:
(Start: 3 @86241 has 42 MA's), (Start: 7 @86286 has 5 MA's), (Start: 14 @86337 has 6 MA's), (15, 86373), (17, 86397),

Gene: Muntaha_154 Start: 85280, Stop: 85501, Start Num: 4
Candidate Starts for Muntaha_154:
(1, 85235), (Start: 4 @85280 has 3 MA's), (8, 85340), (11, 85370), (13, 85379), (15, 85418), (16, 85430), (19, 85469),

Gene: Navo_131 Start: 84462, Stop: 84710, Start Num: 3
Candidate Starts for Navo_131:
(Start: 3 @84462 has 42 MA's), (13, 84552), (15, 84591), (17, 84615),

Gene: NootNoot_130 Start: 83571, Stop: 83819, Start Num: 3
Candidate Starts for NootNoot_130:
(Start: 3 @83571 has 42 MA's), (13, 83661), (15, 83700), (17, 83724),

Gene: PacManQ_133 Start: 85544, Stop: 85795, Start Num: 3
Candidate Starts for PacManQ_133:
(Start: 3 @85544 has 42 MA's), (12, 85631), (13, 85634), (15, 85673), (17, 85697),

Gene: Paradiddles_129 Start: 85869, Stop: 86117, Start Num: 3
Candidate Starts for Paradiddles_129:
(Start: 3 @85869 has 42 MA's), (13, 85959), (15, 85998), (17, 86022),

Gene: Peebs_132 Start: 85960, Stop: 86211, Start Num: 3
Candidate Starts for Peebs_132:
(Start: 3 @85960 has 42 MA's), (12, 86047), (13, 86050), (15, 86089), (17, 86113),

Gene: Pepperwood_133 Start: 86090, Stop: 86341, Start Num: 3
Candidate Starts for Pepperwood_133:

(Start: 3 @86090 has 42 MA's), (12, 86177), (13, 86180), (15, 86219), (17, 86243),

Gene: Persimmon_133 Start: 83505, Stop: 83753, Start Num: 3
Candidate Starts for Persimmon_133:
(Start: 3 @83505 has 42 MA's), (13, 83595), (15, 83634), (17, 83658),

Gene: PinkiePie_130 Start: 84672, Stop: 84920, Start Num: 3
Candidate Starts for PinkiePie_130:
(Start: 3 @84672 has 42 MA's), (13, 84762), (15, 84801), (17, 84825),

Gene: PumpkinSpice_144 Start: 85959, Stop: 86207, Start Num: 3
Candidate Starts for PumpkinSpice_144:
(Start: 3 @85959 has 42 MA's), (Start: 7 @86001 has 5 MA's), (Start: 14 @86052 has 6 MA's), (15, 86088), (16, 86100), (17, 86112), (18, 86121),

Gene: Quaran19_142 Start: 85385, Stop: 85633, Start Num: 3
Candidate Starts for Quaran19_142:
(Start: 3 @85385 has 42 MA's), (Start: 7 @85427 has 5 MA's), (Start: 14 @85478 has 6 MA's), (15, 85514), (16, 85526), (17, 85538), (18, 85547),

Gene: Rikishi_146 Start: 85394, Stop: 85549, Start Num: 14
Candidate Starts for Rikishi_146:
(Start: 3 @85301 has 42 MA's), (Start: 7 @85343 has 5 MA's), (Start: 14 @85394 has 6 MA's), (15, 85430), (16, 85442), (17, 85454), (18, 85463),

Gene: Riptide_131 Start: 82510, Stop: 82725, Start Num: 7
Candidate Starts for Riptide_131:
(Start: 3 @82465 has 42 MA's), (Start: 7 @82510 has 5 MA's), (13, 82558), (Start: 14 @82561 has 6 MA's), (15, 82597), (20, 82675),

Gene: SaltySpitoon_142 Start: 85398, Stop: 85646, Start Num: 3
Candidate Starts for SaltySpitoon_142:
(Start: 3 @85398 has 42 MA's), (Start: 7 @85440 has 5 MA's), (Start: 14 @85491 has 6 MA's), (15, 85527), (16, 85539), (17, 85551), (18, 85560),

Gene: Samisti12_135 Start: 87342, Stop: 87593, Start Num: 3
Candidate Starts for Samisti12_135:
(Start: 3 @87342 has 42 MA's), (12, 87429), (13, 87432), (15, 87471), (17, 87495),

Gene: Scheme_135 Start: 86745, Stop: 86996, Start Num: 3
Candidate Starts for Scheme_135:
(Start: 3 @86745 has 42 MA's), (12, 86832), (13, 86835), (15, 86874), (17, 86898),

Gene: Shuckle_135 Start: 85275, Stop: 85442, Start Num: 13
Candidate Starts for Shuckle_135:
(Start: 3 @85182 has 42 MA's), (Start: 7 @85227 has 5 MA's), (13, 85275), (15, 85314), (16, 85326), (20, 85392),

Gene: Sollertia_141 Start: 85850, Stop: 86098, Start Num: 3
Candidate Starts for Sollertia_141:
(Start: 3 @85850 has 42 MA's), (Start: 7 @85892 has 5 MA's), (Start: 14 @85943 has 6 MA's), (15, 85979), (17, 86003),

Gene: Spelly_144 Start: 85443, Stop: 85598, Start Num: 14
Candidate Starts for Spelly_144:
(Start: 3 @85350 has 42 MA's), (Start: 7 @85392 has 5 MA's), (Start: 14 @85443 has 6 MA's), (15, 85479), (16, 85491), (17, 85503), (18, 85512),

Gene: Spilled_145 Start: 85510, Stop: 85716, Start Num: 7
Candidate Starts for Spilled_145:
(Start: 3 @85468 has 42 MA's), (Start: 7 @85510 has 5 MA's), (Start: 14 @85561 has 6 MA's), (15, 85597), (17, 85621), (18, 85630),

Gene: Squillium_133 Start: 84674, Stop: 84922, Start Num: 3
Candidate Starts for Squillium_133:
(Start: 3 @84674 has 42 MA's), (13, 84764), (15, 84803), (17, 84827),

Gene: Stanimal_140 Start: 85739, Stop: 85987, Start Num: 3
Candidate Starts for Stanimal_140:
(Start: 3 @85739 has 42 MA's), (Start: 7 @85781 has 5 MA's), (Start: 14 @85832 has 6 MA's), (15, 85868), (17, 85892),

Gene: StarPlatinum_145 Start: 86955, Stop: 87110, Start Num: 14
Candidate Starts for StarPlatinum_145:
(Start: 3 @86862 has 42 MA's), (Start: 7 @86904 has 5 MA's), (Start: 14 @86955 has 6 MA's), (15, 86991), (17, 87015),

Gene: Starbow_140 Start: 85463, Stop: 85618, Start Num: 14
Candidate Starts for Starbow_140:
(Start: 3 @85370 has 42 MA's), (Start: 7 @85412 has 5 MA's), (Start: 14 @85463 has 6 MA's), (15, 85499), (16, 85511), (17, 85523), (18, 85532),

Gene: Sushi23_133 Start: 86316, Stop: 86567, Start Num: 3
Candidate Starts for Sushi23_133:
(Start: 3 @86316 has 42 MA's), (12, 86403), (13, 86406), (15, 86445), (17, 86469),

Gene: Teutsch_133 Start: 86521, Stop: 86772, Start Num: 3
Candidate Starts for Teutsch_133:
(Start: 3 @86521 has 42 MA's), (12, 86608), (13, 86611), (15, 86650), (17, 86674),

Gene: TomSawyer_143 Start: 85509, Stop: 85664, Start Num: 14
Candidate Starts for TomSawyer_143:
(Start: 3 @85416 has 42 MA's), (Start: 7 @85458 has 5 MA's), (Start: 14 @85509 has 6 MA's), (15, 85545), (16, 85557), (17, 85569), (18, 85578),

Gene: Tomas_139 Start: 87574, Stop: 87783, Start Num: 6
Candidate Starts for Tomas_139:
(2, 87499), (Start: 3 @87532 has 42 MA's), (Start: 6 @87574 has 1 MA's), (10, 87610), (15, 87664), (18, 87697),

Gene: Tribute_133 Start: 86508, Stop: 86759, Start Num: 3
Candidate Starts for Tribute_133:
(Start: 3 @86508 has 42 MA's), (12, 86595), (13, 86598), (15, 86637), (17, 86661),

Gene: Wakanda_152 Start: 84956, Stop: 85180, Start Num: 5
Candidate Starts for Wakanda_152:

(1, 84908), (Start: 5 @84956 has 1 MA's), (11, 85049), (13, 85058), (15, 85097), (16, 85109), (19, 85148),

Gene: Watermoore_133 Start: 86735, Stop: 86986, Start Num: 3
Candidate Starts for Watermoore_133:
(Start: 3 @86735 has 42 MA's), (12, 86822), (13, 86825), (15, 86864), (17, 86888),

Gene: WhereRU_132 Start: 84257, Stop: 84505, Start Num: 3
Candidate Starts for WhereRU_132:
(Start: 3 @84257 has 42 MA's), (13, 84347), (15, 84386), (17, 84410),

Gene: Wipeout_136 Start: 85782, Stop: 85988, Start Num: 7
Candidate Starts for Wipeout_136:
(Start: 3 @85740 has 42 MA's), (Start: 7 @85782 has 5 MA's), (Start: 14 @85833 has 6 MA's), (15, 85869), (16, 85881), (17, 85893), (18, 85902),

Gene: Yaboi_141 Start: 85312, Stop: 85560, Start Num: 3
Candidate Starts for Yaboi_141:
(Start: 3 @85312 has 42 MA's), (Start: 7 @85354 has 5 MA's), (Start: 14 @85405 has 6 MA's), (15, 85441), (17, 85465),