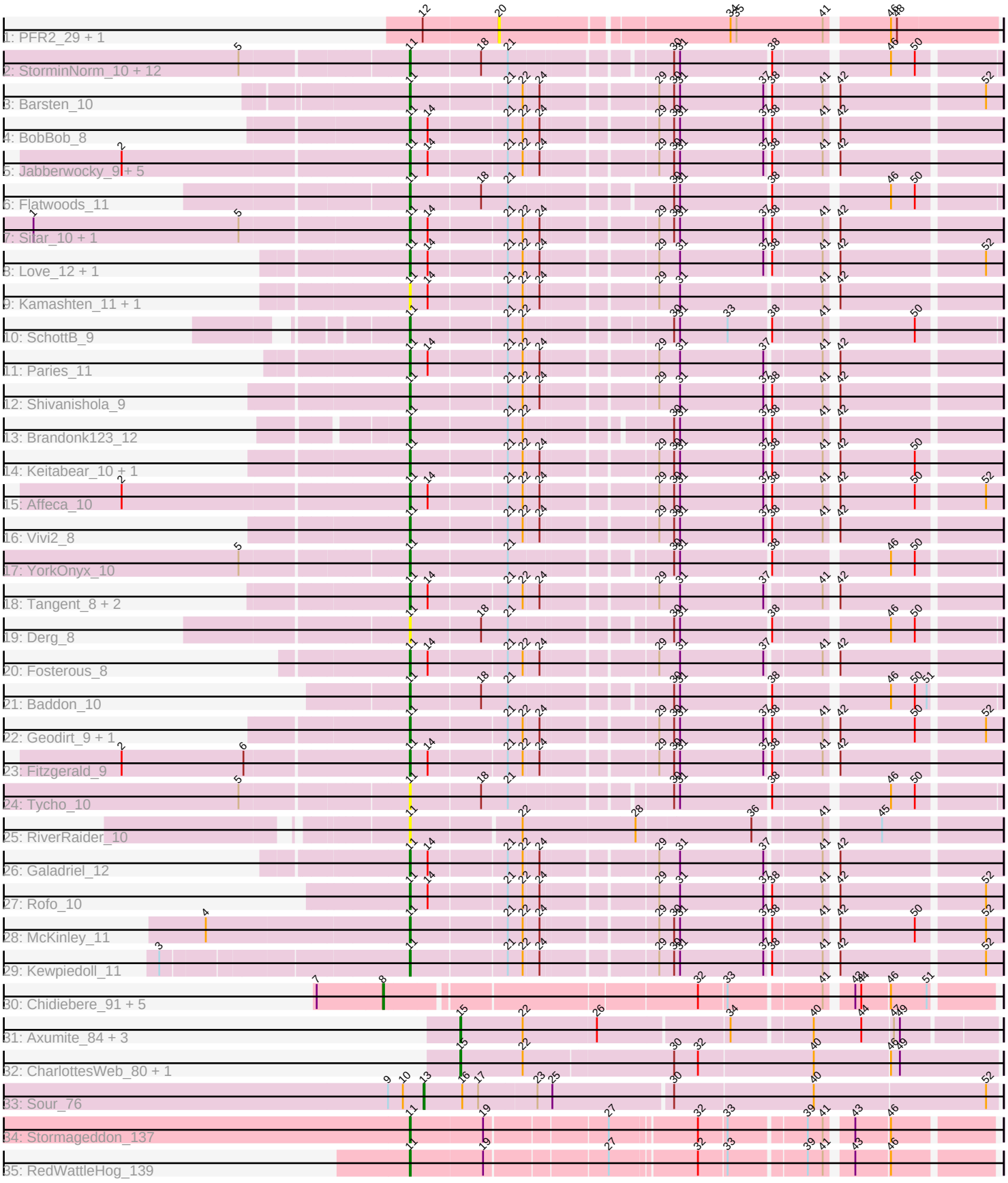
Pham 163591


1: PFR2_29 + 1
2: StorminNorm_10 + 12
3: Barsten_10
4: BobBob_8
5: Jabberwocky_9 + 5
6: Flatwoods_11
7: Silar_10 + 1
8: Love_12 + 1
9: Kamashten_11 + 1
10: SchottB_9
11: Paries_11
12: Shivanishola_9
13: Brandonk123_12
14: Keitabear_10 + 1
15: Affeca_10
16: Vivi2_8
17: YorkOnyx_10
18: Tangent_8 + 2
19: Derg_8
20: Fosterous_8
21: Baddon_10
22: Geodirt_9 + 1
23: Fitzgerald_9
24: Tycho_10
25: RiverRaider_10
26: Galadriel_12
27: Rofo_10
28: McKinley_11
29: Kewpiedoll_11
30: Chidiebere_91 + 5
31: Axumite_84 + 3
32: CharlottesWeb_80 + 1
33: Sour_76
34: Stormageddon_137
35: RedWattleHog_139

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 163591 Report

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

Pham number 163591 has 69 members, 17 are drafts.

Phages represented in each track:
• Track 1 : PFR2_29, PFR1_27
• Track 2 : StorminNorm_10, Baumdotcom_10, Tangerine_10, Kroos_10, Ribeye_11, LilHam_8, JKSyngboy_9, Bizzy_11, Saronaya_10, Kwobi_10, Gaea_10, Ashertheman_10, Gustavo_10
• Track 3 : Barsten_10
• Track 4 : BobBob_8
• Track 5 : Jabberwocky_9, Ailee_10, Sanjuju_9, Angelicage_10, Sedona_11, Bibwit_10
• Track 6 : Flatwoods_11
• Track 7 : Sitar_10, Lennon_10
• Track 8 : Love_12, MoontowerMania_9
• Track 9 : Kamashten_11, Thing3_11
• Track 10 : SchottB_9
• Track 11 : Paries_11
• Track 12 : Shivanishola_9
• Track 13 : Brandonk123_12
• Track 14 : Keitabear_10, Stultus_9
• Track 15 : Affeca_10
• Track 16 : Vivi2_8
• Track 17 : YorkOnyx_10
• Track 18 : Tangent_8, Charming_8, Nordenberg_5
• Track 19 : Derg_8
• Track 20 : Fosterous_8
• Track 21 : Baddon_10
• Track 22 : Geodirt_9, ChadMasterC_9
• Track 23 : Fitzgerald_9
• Track 24 : Tycho_10
• Track 25 : RiverRaider_10
• Track 26 : Galadriel_12
• Track 27 : Rofo_10
• Track 28 : McKinley_11
• Track 29 : Kewpiedoll_11
• Track 30 : Chidiebere_91, Pakusa_87, Schomber_89, Aloki_86, Hanem_90, Kabocha_92
• Track 31 : Axumite_84, Fresco_84, Shatter_84, Ligma_84
• Track 32 : CharlottesWeb_80, Mariokart_80
• Track 33 : Sour_76

• Track 34 : Stormageddon_137
• Track 35 : RedWattleHog_139

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

The start number called the most often in the published annotations is 11, it was called in 44 of the 52 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Affeca_10, Ailee_10, Angelicage_10, Ashertheman_10, Baddon_10, Barsten_10, Baumdotcom_10, Bibwit_10, Bizzy_11, BobBob_8, Brandonk123_12, ChadMasterC_9, Charming_8, Derg_8, Fitzgerald_9, Flatwoods_11, Fosterous_8, Gaea_10, Galadriel_12, Geodirt_9, Gustavo_10, JKSyngboy_9, Jabberwocky_9, Kamashten_11, Keitabear_10, Kewpiedoll_11, Kroos_10, Kwobi_10, Lennon_10, LilHam_8, Love_12, McKinley_11, MoontowerMania_9, Nordenberg_5, Paries_11, RedWattleHog_139, Ribeye_11, RiverRaider_10, Rofo_10, Sanjuju_9, Saronaya_10, SchottB_9, Sedona_11, Shivanishola_9, Sitar_10, Stormageddon_137, StorminNorm_10, Stultus_9, Tangent_8, Tangerine_10, Thing3_11, Tycho_10, Vivi2_8, YorkOnyx_10,

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

Genes that do not have the "Most Annotated" start:
• Aloki_86, Axumite_84, CharlottesWeb_80, Chidiebere_91, Fresco_84, Hanem_90, Kabocha_92, Ligma_84, Mariokart_80, PFR1_27, PFR2_29, Pakusa_87, Schomber_89, Shatter_84, Sour_76,

Summary by start number:

Start 8:
• Found in 6 of 69 (8.7%) of genes in pham
• Manual Annotations of this start: 4 of 52
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Aloki_86 (DQ), Chidiebere_91 (DQ), Hanem_90 (DQ), Kabocha_92 (DQ), Pakusa_87 (DQ), Schomber_89 (DQ),

Start 11:
• Found in 54 of 69 (78.3%) of genes in pham
• Manual Annotations of this start: 44 of 52
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Affeca_10 (DE1), Ailee_10 (DE1), Angelicage_10 (DE1), Ashertheman_10 (DE1), Baddon_10 (DE1), Barsten_10 (DE1), Baumdotcom_10 (DE1), Bibwit_10 (DE1), Bizzy_11 (DE1), BobBob_8 (DE1), Brandonk123_12 (DE1), ChadMasterC_9 (DE1), Charming_8 (DE1), Derg_8 (DE1), Fitzgerald_9 (DE1), Flatwoods_11 (DE1), Fosterous_8 (DE1), Gaea_10 (DE1), Galadriel_12 (DE1), Geodirt_9 (DE1), Gustavo_10 (DE1), JKSyngboy_9 (DE1), Jabberwocky_9 (DE1), Kamashten_11 (DE1), Keitabear_10 (DE1), Kewpiedoll_11 (DE1), Kroos_10 (DE1), Kwobi_10 (DE1), Lennon_10 (DE1), LilHam_8 (DE1), Love_12 (DE1), McKinley_11 (DE1), MoontowerMania_9 (DE1), Nordenberg_5

(DE1), Paries_11 (DE1), RedWattleHog_139 (DX), Ribeye_11 (DE1), RiverRaider_10 (DE1), Rofo_10 (DE1), Sanjuju_9 (DE1), Saronaya_10 (DE1), SchottB_9 (DE1), Sedona_11 (DE1), Shivanishola_9 (DE1), Sitar_10 (DE1), Stormageddon_137 (DX), StorminNorm_10 (DE1), Stultus_9 (DE1), Tangent_8 (DE1), Tangerine_10 (DE1), Thing3_11 (DE1), Tycho_10 (DE1), Vivi2_8 (DE1), YorkOnyx_10 (DE1),

Start 13:
• Found in 1 of 69 (1.4%) of genes in pham
• Manual Annotations of this start: 1 of 52
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Sour_76 (DR),

Start 15:
• Found in 6 of 69 (8.7%) of genes in pham
• Manual Annotations of this start: 3 of 52
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Axumite_84 (DR), CharlottesWeb_80 (DR), Fresco_84 (DR), Ligma_84 (DR), Mariokart_80 (DR), Shatter_84 (DR),

Start 20:
• Found in 2 of 69 (2.9%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: PFR1_27 (BX), PFR2_29 (BX),

Summary by clusters:

There are 5 clusters represented in this pham: DE1, DR, BX, DX, DQ,

Info for manual annotations of cluster DE1:
•Start number 11 was manually annotated 42 times for cluster DE1.

Info for manual annotations of cluster DQ:
•Start number 8 was manually annotated 4 times for cluster DQ.

Info for manual annotations of cluster DR:
•Start number 13 was manually annotated 1 time for cluster DR.
•Start number 15 was manually annotated 3 times for cluster DR.

Info for manual annotations of cluster DX:
•Start number 11 was manually annotated 2 times for cluster DX.

Gene Information:

Gene: Affeca_10 Start: 5721, Stop: 6263, Start Num: 11
Candidate Starts for Affeca_10:
(2, 5442), (Start: 11 @5721 has 44 MA's), (14, 5739), (21, 5814), (22, 5829), (24, 5844), (29, 5946), (30, 5961), (31, 5967), (37, 6051), (38, 6054), (41, 6102), (42, 6108), (50, 6183), (52, 6246),

Gene: Ailee_10 Start: 6574, Stop: 7116, Start Num: 11

Candidate Starts for Ailee_10:
(2, 6295), (Start: 11 @6574 has 44 MA's), (14, 6592), (21, 6667), (22, 6682), (24, 6697), (29, 6799), (30, 6814), (31, 6820), (37, 6904), (38, 6907), (41, 6955), (42, 6961),

Gene: Aloki_86 Start: 67872, Stop: 68426, Start Num: 8
Candidate Starts for Aloki_86:
(7, 67806), (Start: 8 @67872 has 4 MA's), (32, 68163), (33, 68190), (41, 68277), (43, 68298), (44, 68304), (46, 68331), (51, 68367),

Gene: Angelicage_10 Start: 6141, Stop: 6683, Start Num: 11
Candidate Starts for Angelicage_10:
(2, 5862), (Start: 11 @6141 has 44 MA's), (14, 6159), (21, 6234), (22, 6249), (24, 6264), (29, 6366), (30, 6381), (31, 6387), (37, 6471), (38, 6474), (41, 6522), (42, 6528),

Gene: Ashertheman_10 Start: 5336, Stop: 5872, Start Num: 11
Candidate Starts for Ashertheman_10:
(5, 5180), (Start: 11 @5336 has 44 MA's), (18, 5405), (21, 5432), (30, 5573), (31, 5579), (38, 5666), (46, 5771), (50, 5795),

Gene: Axumite_84 Start: 60888, Stop: 60379, Start Num: 15
Candidate Starts for Axumite_84:
(Start: 15 @60888 has 3 MA's), (22, 60825), (26, 60753), (34, 60627), (40, 60552), (44, 60504), (47, 60474), (49, 60468),

Gene: Baddon_10 Start: 6045, Stop: 6581, Start Num: 11
Candidate Starts for Baddon_10:
(Start: 11 @6045 has 44 MA's), (18, 6114), (21, 6141), (30, 6282), (31, 6288), (38, 6375), (46, 6480), (50, 6504), (51, 6516),

Gene: Barsten_10 Start: 5370, Stop: 5912, Start Num: 11
Candidate Starts for Barsten_10:
(Start: 11 @5370 has 44 MA's), (21, 5463), (22, 5478), (24, 5493), (29, 5595), (30, 5610), (31, 5616), (37, 5700), (38, 5703), (41, 5751), (42, 5757), (52, 5895),

Gene: Baumdotcom_10 Start: 5359, Stop: 5895, Start Num: 11
Candidate Starts for Baumdotcom_10:
(5, 5203), (Start: 11 @5359 has 44 MA's), (18, 5428), (21, 5455), (30, 5596), (31, 5602), (38, 5689), (46, 5794), (50, 5818),

Gene: Bibwit_10 Start: 6407, Stop: 6949, Start Num: 11
Candidate Starts for Bibwit_10:
(2, 6128), (Start: 11 @6407 has 44 MA's), (14, 6425), (21, 6500), (22, 6515), (24, 6530), (29, 6632), (30, 6647), (31, 6653), (37, 6737), (38, 6740), (41, 6788), (42, 6794),

Gene: Bizzy_11 Start: 5533, Stop: 6069, Start Num: 11
Candidate Starts for Bizzy_11:
(5, 5377), (Start: 11 @5533 has 44 MA's), (18, 5602), (21, 5629), (30, 5770), (31, 5776), (38, 5863), (46, 5968), (50, 5992),

Gene: BobBob_8 Start: 5063, Stop: 5605, Start Num: 11
Candidate Starts for BobBob_8:
(Start: 11 @5063 has 44 MA's), (14, 5081), (21, 5156), (22, 5171), (24, 5186), (29, 5288), (30, 5303), (31, 5309), (37, 5393), (38, 5396), (41, 5444), (42, 5450),

Gene: Brandonk123_12 Start: 6057, Stop: 6596, Start Num: 11
Candidate Starts for Brandonk123_12:
(Start: 11 @6057 has 44 MA's), (21, 6153), (22, 6168), (30, 6294), (31, 6300), (37, 6384), (38, 6387), (41, 6435), (42, 6441),

Gene: ChadMasterC_9 Start: 5642, Stop: 6184, Start Num: 11
Candidate Starts for ChadMasterC_9:
(Start: 11 @5642 has 44 MA's), (21, 5735), (22, 5750), (24, 5765), (29, 5867), (30, 5882), (31, 5888), (37, 5972), (38, 5975), (41, 6023), (42, 6029), (50, 6104), (52, 6167),

Gene: CharlottesWeb_80 Start: 59691, Stop: 59161, Start Num: 15
Candidate Starts for CharlottesWeb_80:
(Start: 15 @59691 has 3 MA's), (22, 59628), (30, 59481), (32, 59457), (40, 59343), (46, 59268), (49, 59259),

Gene: Charming_8 Start: 5065, Stop: 5607, Start Num: 11
Candidate Starts for Charming_8:
(Start: 11 @5065 has 44 MA's), (14, 5083), (21, 5158), (22, 5173), (24, 5188), (29, 5290), (31, 5311), (37, 5395), (41, 5446), (42, 5452),

Gene: Chidiebere_91 Start: 68405, Stop: 68959, Start Num: 8
Candidate Starts for Chidiebere_91:
(7, 68339), (Start: 8 @68405 has 4 MA's), (32, 68696), (33, 68723), (41, 68810), (43, 68831), (44, 68837), (46, 68864), (51, 68900),

Gene: Derg_8 Start: 4663, Stop: 5199, Start Num: 11
Candidate Starts for Derg_8:
(Start: 11 @4663 has 44 MA's), (18, 4732), (21, 4759), (30, 4900), (31, 4906), (38, 4993), (46, 5098), (50, 5122),

Gene: Fitzgerald_9 Start: 5991, Stop: 6533, Start Num: 11
Candidate Starts for Fitzgerald_9:
(2, 5712), (6, 5835), (Start: 11 @5991 has 44 MA's), (14, 6009), (21, 6084), (22, 6099), (24, 6114), (29, 6216), (30, 6231), (31, 6237), (37, 6321), (38, 6324), (41, 6372), (42, 6378),

Gene: Flatwoods_11 Start: 5532, Stop: 6071, Start Num: 11
Candidate Starts for Flatwoods_11:
(Start: 11 @5532 has 44 MA's), (18, 5601), (21, 5628), (30, 5772), (31, 5778), (38, 5865), (46, 5970), (50, 5994),

Gene: Fosterous_8 Start: 5063, Stop: 5605, Start Num: 11
Candidate Starts for Fosterous_8:
(Start: 11 @5063 has 44 MA's), (14, 5081), (21, 5156), (22, 5171), (24, 5186), (29, 5288), (31, 5309), (37, 5393), (41, 5444), (42, 5450),

Gene: Fresco_84 Start: 60894, Stop: 60385, Start Num: 15
Candidate Starts for Fresco_84:
(Start: 15 @60894 has 3 MA's), (22, 60831), (26, 60759), (34, 60633), (40, 60558), (44, 60510), (47, 60480), (49, 60474),

Gene: Gaea_10 Start: 5339, Stop: 5875, Start Num: 11
Candidate Starts for Gaea_10:

(5, 5183), (Start: 11 @5339 has 44 MA's), (18, 5408), (21, 5435), (30, 5576), (31, 5582), (38, 5669), (46, 5774), (50, 5798),

Gene: Galadriel_12 Start: 5831, Stop: 6373, Start Num: 11
Candidate Starts for Galadriel_12:
(Start: 11 @5831 has 44 MA's), (14, 5849), (21, 5924), (22, 5939), (24, 5954), (29, 6056), (31, 6077), (37, 6161), (41, 6212), (42, 6218),

Gene: Geodirt_9 Start: 5682, Stop: 6224, Start Num: 11
Candidate Starts for Geodirt_9:
(Start: 11 @5682 has 44 MA's), (21, 5775), (22, 5790), (24, 5805), (29, 5907), (30, 5922), (31, 5928), (37, 6012), (38, 6015), (41, 6063), (42, 6069), (50, 6144), (52, 6207),

Gene: Gustavo_10 Start: 5336, Stop: 5872, Start Num: 11
Candidate Starts for Gustavo_10:
(5, 5180), (Start: 11 @5336 has 44 MA's), (18, 5405), (21, 5432), (30, 5573), (31, 5579), (38, 5666), (46, 5771), (50, 5795),

Gene: Hanem_90 Start: 67872, Stop: 68426, Start Num: 8
Candidate Starts for Hanem_90:
(7, 67806), (Start: 8 @67872 has 4 MA's), (32, 68163), (33, 68190), (41, 68277), (43, 68298), (44, 68304), (46, 68331), (51, 68367),

Gene: JKSyngboy_9 Start: 5847, Stop: 6383, Start Num: 11
Candidate Starts for JKSyngboy_9:
(5, 5691), (Start: 11 @5847 has 44 MA's), (18, 5916), (21, 5943), (30, 6084), (31, 6090), (38, 6177), (46, 6282), (50, 6306),

Gene: Jabberwocky_9 Start: 5993, Stop: 6535, Start Num: 11
Candidate Starts for Jabberwocky_9:
(2, 5714), (Start: 11 @5993 has 44 MA's), (14, 6011), (21, 6086), (22, 6101), (24, 6116), (29, 6218), (30, 6233), (31, 6239), (37, 6323), (38, 6326), (41, 6374), (42, 6380),

Gene: Kabocha_92 Start: 69218, Stop: 69772, Start Num: 8
Candidate Starts for Kabocha_92:
(7, 69152), (Start: 8 @69218 has 4 MA's), (32, 69509), (33, 69536), (41, 69623), (43, 69644), (44, 69650), (46, 69677), (51, 69713),

Gene: Kamashten_11 Start: 6152, Stop: 6694, Start Num: 11
Candidate Starts for Kamashten_11:
(Start: 11 @6152 has 44 MA's), (14, 6170), (21, 6245), (22, 6260), (24, 6275), (29, 6377), (31, 6398), (41, 6533), (42, 6539),

Gene: Keitabear_10 Start: 7048, Stop: 7590, Start Num: 11
Candidate Starts for Keitabear_10:
(Start: 11 @7048 has 44 MA's), (21, 7141), (22, 7156), (24, 7171), (29, 7273), (30, 7288), (31, 7294), (37, 7378), (38, 7381), (41, 7429), (42, 7435), (50, 7510),

Gene: Kewpiedoll_11 Start: 5563, Stop: 6105, Start Num: 11
Candidate Starts for Kewpiedoll_11:
(3, 5332), (Start: 11 @5563 has 44 MA's), (21, 5656), (22, 5671), (24, 5686), (29, 5788), (30, 5803), (31, 5809), (37, 5893), (38, 5896), (41, 5944), (42, 5950), (52, 6088),

Gene: Kroos_10 Start: 5500, Stop: 6036, Start Num: 11
Candidate Starts for Kroos_10:
(5, 5344), (Start: 11 @5500 has 44 MA's), (18, 5569), (21, 5596), (30, 5737), (31, 5743), (38, 5830), (46, 5935), (50, 5959),

Gene: Kwobi_10 Start: 5339, Stop: 5875, Start Num: 11
Candidate Starts for Kwobi_10:
(5, 5183), (Start: 11 @5339 has 44 MA's), (18, 5408), (21, 5435), (30, 5576), (31, 5582), (38, 5669), (46, 5774), (50, 5798),

Gene: Lennon_10 Start: 6257, Stop: 6799, Start Num: 11
Candidate Starts for Lennon_10:
(1, 5891), (5, 6098), (Start: 11 @6257 has 44 MA's), (14, 6275), (21, 6350), (22, 6365), (24, 6380), (29, 6482), (30, 6497), (31, 6503), (37, 6587), (38, 6590), (41, 6638), (42, 6644),

Gene: Ligma_84 Start: 60888, Stop: 60379, Start Num: 15
Candidate Starts for Ligma_84:
(Start: 15 @60888 has 3 MA's), (22, 60825), (26, 60753), (34, 60627), (40, 60552), (44, 60504), (47, 60474), (49, 60468),

Gene: LilHam_8 Start: 4655, Stop: 5191, Start Num: 11
Candidate Starts for LilHam_8:
(5, 4499), (Start: 11 @4655 has 44 MA's), (18, 4724), (21, 4751), (30, 4892), (31, 4898), (38, 4985), (46, 5090), (50, 5114),

Gene: Love_12 Start: 6151, Stop: 6693, Start Num: 11
Candidate Starts for Love_12:
(Start: 11 @6151 has 44 MA's), (14, 6169), (21, 6244), (22, 6259), (24, 6274), (29, 6376), (31, 6397), (37, 6481), (38, 6484), (41, 6532), (42, 6538), (52, 6676),

Gene: Mariokart_80 Start: 59929, Stop: 59399, Start Num: 15
Candidate Starts for Mariokart_80:
(Start: 15 @59929 has 3 MA's), (22, 59866), (30, 59719), (32, 59695), (40, 59581), (46, 59506), (49, 59497),

Gene: McKinley_11 Start: 6510, Stop: 7052, Start Num: 11
Candidate Starts for McKinley_11:
(4, 6312), (Start: 11 @6510 has 44 MA's), (21, 6603), (22, 6618), (24, 6633), (29, 6735), (30, 6750), (31, 6756), (37, 6840), (38, 6843), (41, 6891), (42, 6897), (50, 6972), (52, 7035),

Gene: MoontowerMania_9 Start: 5550, Stop: 6092, Start Num: 11
Candidate Starts for MoontowerMania_9:
(Start: 11 @5550 has 44 MA's), (14, 5568), (21, 5643), (22, 5658), (24, 5673), (29, 5775), (31, 5796), (37, 5880), (38, 5883), (41, 5931), (42, 5937), (52, 6075),

Gene: Nordenberg_5 Start: 3685, Stop: 4227, Start Num: 11
Candidate Starts for Nordenberg_5:
(Start: 11 @3685 has 44 MA's), (14, 3703), (21, 3778), (22, 3793), (24, 3808), (29, 3910), (31, 3931), (37, 4015), (41, 4066), (42, 4072),

Gene: PFR1_27 Start: 22984, Stop: 22514, Start Num: 20
Candidate Starts for PFR1_27:
(12, 23059), (20, 22984), (34, 22768), (35, 22762), (41, 22675), (46, 22618), (48, 22612),

Gene: PFR2_29 Start: 24553, Stop: 24083, Start Num: 20
Candidate Starts for PFR2_29:
(12, 24628), (20, 24553), (34, 24337), (35, 24331), (41, 24244), (46, 24187), (48, 24181),

Gene: Pakusa_87 Start: 67598, Stop: 68152, Start Num: 8
Candidate Starts for Pakusa_87:
(7, 67532), (Start: 8 @67598 has 4 MA's), (32, 67889), (33, 67916), (41, 68003), (43, 68024), (44, 68030), (46, 68057), (51, 68093),

Gene: Paries_11 Start: 5833, Stop: 6375, Start Num: 11
Candidate Starts for Paries_11:
(Start: 11 @5833 has 44 MA's), (14, 5851), (21, 5926), (22, 5941), (24, 5956), (29, 6058), (31, 6079), (37, 6163), (41, 6214), (42, 6220),

Gene: RedWattleHog_139 Start: 98356, Stop: 98886, Start Num: 11
Candidate Starts for RedWattleHog_139:
(Start: 11 @98356 has 44 MA's), (19, 98428), (27, 98542), (32, 98623), (33, 98650), (39, 98722), (41, 98737), (43, 98758), (46, 98791),

Gene: Ribeye_11 Start: 5534, Stop: 6070, Start Num: 11
Candidate Starts for Ribeye_11:
(5, 5378), (Start: 11 @5534 has 44 MA's), (18, 5603), (21, 5630), (30, 5771), (31, 5777), (38, 5864), (46, 5969), (50, 5993),

Gene: RiverRaider_10 Start: 4913, Stop: 5464, Start Num: 11
Candidate Starts for RiverRaider_10:
(Start: 11 @4913 has 44 MA's), (22, 5018), (28, 5129), (36, 5240), (41, 5303), (45, 5351),

Gene: Rofo_10 Start: 6082, Stop: 6624, Start Num: 11
Candidate Starts for Rofo_10:
(Start: 11 @6082 has 44 MA's), (14, 6100), (21, 6175), (22, 6190), (24, 6205), (29, 6307), (31, 6328), (37, 6412), (38, 6415), (41, 6463), (42, 6469), (52, 6607),

Gene: Sanjuju_9 Start: 6031, Stop: 6573, Start Num: 11
Candidate Starts for Sanjuju_9:
(2, 5752), (Start: 11 @6031 has 44 MA's), (14, 6049), (21, 6124), (22, 6139), (24, 6154), (29, 6256), (30, 6271), (31, 6277), (37, 6361), (38, 6364), (41, 6412), (42, 6418),

Gene: Saronaya_10 Start: 5336, Stop: 5872, Start Num: 11
Candidate Starts for Saronaya_10:
(5, 5180), (Start: 11 @5336 has 44 MA's), (18, 5405), (21, 5432), (30, 5573), (31, 5579), (38, 5666), (46, 5771), (50, 5795),

Gene: Schomber_89 Start: 67606, Stop: 68160, Start Num: 8
Candidate Starts for Schomber_89:
(7, 67540), (Start: 8 @67606 has 4 MA's), (32, 67897), (33, 67924), (41, 68011), (43, 68032), (44, 68038), (46, 68065), (51, 68101),

Gene: SchottB_9 Start: 5513, Stop: 6049, Start Num: 11
Candidate Starts for SchottB_9:
(Start: 11 @5513 has 44 MA's), (21, 5606), (22, 5621), (30, 5750), (31, 5756), (33, 5804), (38, 5843), (41, 5891), (50, 5972),

Gene: Sedona_11 Start: 7049, Stop: 7591, Start Num: 11
Candidate Starts for Sedona_11:
(2, 6770), (Start: 11 @7049 has 44 MA's), (14, 7067), (21, 7142), (22, 7157), (24, 7172), (29, 7274), (30, 7289), (31, 7295), (37, 7379), (38, 7382), (41, 7430), (42, 7436),

Gene: Shatter_84 Start: 60888, Stop: 60379, Start Num: 15
Candidate Starts for Shatter_84:
(Start: 15 @60888 has 3 MA's), (22, 60825), (26, 60753), (34, 60627), (40, 60552), (44, 60504), (47, 60474), (49, 60468),

Gene: Shivanishola_9 Start: 6091, Stop: 6633, Start Num: 11
Candidate Starts for Shivanishola_9:
(Start: 11 @6091 has 44 MA's), (21, 6184), (22, 6199), (24, 6214), (29, 6316), (31, 6337), (37, 6421), (38, 6424), (41, 6472), (42, 6478),

Gene: Sitar_10 Start: 6257, Stop: 6799, Start Num: 11
Candidate Starts for Sitar_10:
(1, 5891), (5, 6098), (Start: 11 @6257 has 44 MA's), (14, 6275), (21, 6350), (22, 6365), (24, 6380), (29, 6482), (30, 6497), (31, 6503), (37, 6587), (38, 6590), (41, 6638), (42, 6644),

Gene: Sour_76 Start: 60678, Stop: 60115, Start Num: 13
Candidate Starts for Sour_76:
(9, 60714), (10, 60699), (Start: 13 @60678 has 1 MA's), (16, 60639), (17, 60624), (23, 60567), (25, 60552), (30, 60435), (40, 60297), (52, 60126),

Gene: Stormageddon_137 Start: 98077, Stop: 98607, Start Num: 11
Candidate Starts for Stormageddon_137:
(Start: 11 @98077 has 44 MA's), (19, 98149), (27, 98263), (32, 98344), (33, 98371), (39, 98443), (41, 98458), (43, 98479), (46, 98512),

Gene: StorminNorm_10 Start: 5339, Stop: 5875, Start Num: 11
Candidate Starts for StorminNorm_10:
(5, 5183), (Start: 11 @5339 has 44 MA's), (18, 5408), (21, 5435), (30, 5576), (31, 5582), (38, 5669), (46, 5774), (50, 5798),

Gene: Stultus_9 Start: 6081, Stop: 6623, Start Num: 11
Candidate Starts for Stultus_9:
(Start: 11 @6081 has 44 MA's), (21, 6174), (22, 6189), (24, 6204), (29, 6306), (30, 6321), (31, 6327), (37, 6411), (38, 6414), (41, 6462), (42, 6468), (50, 6543),

Gene: Tangent_8 Start: 5065, Stop: 5607, Start Num: 11
Candidate Starts for Tangent_8:
(Start: 11 @5065 has 44 MA's), (14, 5083), (21, 5158), (22, 5173), (24, 5188), (29, 5290), (31, 5311), (37, 5395), (41, 5446), (42, 5452),

Gene: Tangerine_10 Start: 5348, Stop: 5884, Start Num: 11
Candidate Starts for Tangerine_10:
(5, 5192), (Start: 11 @5348 has 44 MA's), (18, 5417), (21, 5444), (30, 5585), (31, 5591), (38, 5678), (46, 5783), (50, 5807),

Gene: Thing3_11 Start: 6152, Stop: 6694, Start Num: 11
Candidate Starts for Thing3_11:

(Start: 11 @6152 has 44 MA's), (14, 6170), (21, 6245), (22, 6260), (24, 6275), (29, 6377), (31, 6398), (41, 6533), (42, 6539),

Gene: Tycho_10 Start: 5348, Stop: 5884, Start Num: 11
Candidate Starts for Tycho_10:
(5, 5192), (Start: 11 @5348 has 44 MA's), (18, 5417), (21, 5444), (30, 5585), (31, 5591), (38, 5678), (46, 5783), (50, 5807),

Gene: Vivi2_8 Start: 5070, Stop: 5612, Start Num: 11
Candidate Starts for Vivi2_8:
(Start: 11 @5070 has 44 MA's), (21, 5163), (22, 5178), (24, 5193), (29, 5295), (30, 5310), (31, 5316), (37, 5400), (38, 5403), (41, 5451), (42, 5457),

Gene: YorkOnyx_10 Start: 5297, Stop: 5833, Start Num: 11
Candidate Starts for YorkOnyx_10:
(5, 5141), (Start: 11 @5297 has 44 MA's), (21, 5393), (30, 5534), (31, 5540), (38, 5627), (46, 5732), (50, 5756),