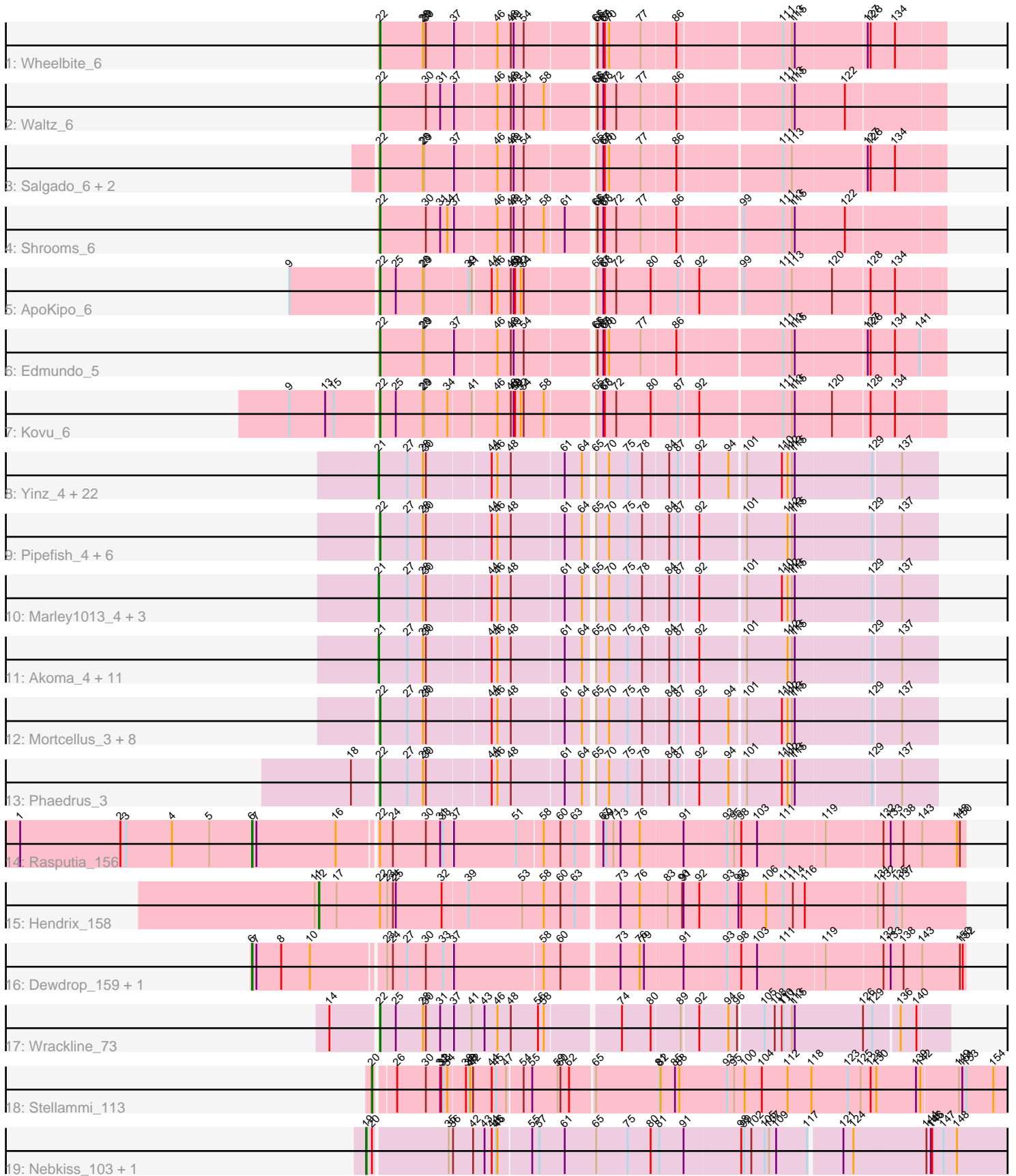


Pham 308533



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 308533 Report

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

Pham number 308533 has 73 members, 5 are drafts.

Phages represented in each track:

- Track 1 : Wheelbite_6
- Track 2 : Waltz_6
- Track 3 : Salgado_6, Laroye_6, LiSara_6
- Track 4 : Shrooms_6
- Track 5 : ApoKipo_6
- Track 6 : Edmundo_5
- Track 7 : Kovu_6
- Track 8 : Yinz_4, Phlyer_4, Audrey_4, Chandler_4, Baloo_4, Briakila_4, Athena_4, HarveySr_4, Abinghost_4, Chalmers_4, Devonte_4, SynergyX_4, RomaT_4, RagingRooster_4, ChaChing_4, Mulaychimus_4, SlippinJimmy_4, Nozo_4, SwainyDoc_4, Heathcliff_4, Compostia_4, Shenandoah_4, OrangeOswald_4
- Track 9 : Pipefish_4, Olivio_3, Philly_3, Halfpint_3, Kamiyu_4, LestyG_4, TinyTerror_4
- Track 10 : Marley1013_4, Obutu_4, Neos5_4, Morty007_4
- Track 11 : Akoma_4, Rita1961_4, Corofin_4, Deenasa_4, Gervas_4, Marlia_4, MmasiCarm_4, Yahalom_4, Tydolla_4, Gadjet_4, Daisy_4, Bernardo_4
- Track 12 : Mortcellus_3, Casbah_3, GlenHope_4, Phayeta_3, Glubnar_4, Chentzyk_3, Jackstina_3, Kronus_3, Ben11_3
- Track 13 : Phaedrus_3
- Track 14 : Rasputia_156
- Track 15 : Hendrix_158
- Track 16 : Dewdrop_159, Leaf_159
- Track 17 : Wrackline_73
- Track 18 : Stellammi_113
- Track 19 : Nebkiss_103, Gaia_103

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

The start number called the most often in the published annotations is 21, it was called in 35 of the 68 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abinghost_4, Akoma_4, Athena_4, Audrey_4, Baloo_4, Bernardo_4, Briakila_4, ChaChing_4, Chalmers_4, Chandler_4, Compostia_4, Corofin_4, Daisy_4,

Deenasa_4, Devonte_4, Gadget_4, Gervas_4, HarveySr_4, Heathcliff_4, Marley1013_4, Marlia_4, MmasiCarm_4, Morty007_4, Mulaychimus_4, Neos5_4, Nozo_4, Obutu_4, OrangeOswald_4, Phlyer_4, RagingRooster_4, Rita1961_4, RomaT_4, Shenandoah_4, SlippinJimmy_4, SwainyDoc_4, SynergyX_4, Tydolla_4, Yahalom_4, Yinz_4,

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

-

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

- ApoKipo_6, Ben11_3, Casbah_3, Chentzyk_3, Dewdrop_159, Edmundo_5, Gaia_103, GlenHope_4, Glubnar_4, Halfpint_3, Hendrix_158, Jackstina_3, Kamiyu_4, Kovu_6, Kronus_3, Laroye_6, Leaf_159, LestyG_4, LiSara_6, Mortcellus_3, Nebkiss_103, Olivio_3, Phaedrus_3, Phayeta_3, Philly_3, Pipefish_4, Rasputia_156, Salgado_6, Shrooms_6, Stellammi_113, TinyTerror_4, Waltz_6, Wheelbite_6, Wrackline_73,

Summary by start number:

Start 6:

- Found in 3 of 73 (4.1%) of genes in pham
- Manual Annotations of this start: 3 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dewdrop_159 (GC), Leaf_159 (GC), Rasputia_156 (GC),

Start 12:

- Found in 1 of 73 (1.4%) of genes in pham
- Manual Annotations of this start: 1 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hendrix_158 (GC),

Start 19:

- Found in 2 of 73 (2.7%) of genes in pham
- Manual Annotations of this start: 2 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gaia_103 (X), Nebkiss_103 (X),

Start 20:

- Found in 3 of 73 (4.1%) of genes in pham
- Manual Annotations of this start: 1 of 68
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Stellammi_113 (UNK),

Start 21:

- Found in 39 of 73 (53.4%) of genes in pham
- Manual Annotations of this start: 35 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abinghost_4 (B3), Akoma_4 (B3), Athena_4 (B3), Audrey_4 (B3), Baloo_4 (B3), Bernardo_4 (B3), Briakila_4 (B3), ChaChing_4 (B3), Chalmers_4 (B3), Chandler_4 (B3), Compostia_4 (B3), Corofin_4 (B3), Daisy_4 (B3), Deenasa_4 (B3), Devonte_4 (B3), Gadget_4 (B3), Gervas_4 (B3), HarveySr_4 (B3), Heathcliff_4 (B3), Marley1013_4 (B3), Marlia_4 (B3),

MmasiCarm_4 (B3), Morty007_4 (B3), Mulaychimus_4 (B3), Neos5_4 (B3), Nozo_4 (B3), Obutu_4 (B3), OrangeOswald_4 (B3), Phlyer_4 (B3), RagingRooster_4 (B3), Rita1961_4 (B3), RomaT_4 (B3), Shenandoah_4 (B3), SlippinJimmy_4 (B3), SwainyDoc_4 (B3), SynergyX_4 (B3), Tydolla_4 (B3), Yahalom_4 (B3), Yinz_4 (B3),

Start 22:

- Found in 29 of 73 (39.7%) of genes in pham
- Manual Annotations of this start: 26 of 68
- Called 93.1% of time when present
- Phage (with cluster) where this start called: ApoKipo_6 (AL), Ben11_3 (B3), Casbah_3 (B3), Chentzyk_3 (B3), Edmundo_5 (AL), GlenHope_4 (B3), Glubnar_4 (B3), Halfpint_3 (B3), Jackstina_3 (B3), Kamiyu_4 (B3), Kovu_6 (AL), Kronus_3 (B3), Laroye_6 (AL), LestyG_4 (B3), LiSara_6 (AL), Mortcellus_3 (B3), Olivio_3 (B3), Phaedrus_3 (B3), Phayeta_3 (B3), Philly_3 (B3), Pipefish_4 (B3), Salgado_6 (AL), Shrooms_6 (AL), TinyTerror_4 (B3), Waltz_6 (AL), Wheelbite_6 (AL), Wrackline_73 (GF),

Summary by clusters:

There are 6 clusters represented in this pham: AL, GF, GC, B3, X, UNK,

Info for manual annotations of cluster AL:

- Start number 22 was manually annotated 9 times for cluster AL.

Info for manual annotations of cluster B3:

- Start number 21 was manually annotated 35 times for cluster B3.
- Start number 22 was manually annotated 16 times for cluster B3.

Info for manual annotations of cluster GC:

- Start number 6 was manually annotated 3 times for cluster GC.
- Start number 12 was manually annotated 1 time for cluster GC.

Info for manual annotations of cluster GF:

- Start number 22 was manually annotated 1 time for cluster GF.

Info for manual annotations of cluster UNK:

- Start number 20 was manually annotated 1 time for cluster UNK.

Info for manual annotations of cluster X:

- Start number 19 was manually annotated 2 times for cluster X.

Gene Information:

Gene: Abinghost_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Abinghost_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Akoma_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Akoma_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (101, 1771), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: ApoKipo_6 Start: 3832, Stop: 4923, Start Num: 22

Candidate Starts for ApoKipo_6:

(9, 3652), (Start: 22 @3832 has 26 MA's), (25, 3865), (28, 3919), (29, 3922), (39, 4006), (41, 4012), (44, 4048), (46, 4060), (48, 4087), (49, 4093), (50, 4096), (52, 4108), (54, 4114), (65, 4243), (67, 4258), (68, 4261), (72, 4285), (80, 4354), (87, 4405), (92, 4444), (99, 4525), (111, 4606), (113, 4624), (120, 4702), (128, 4777), (134, 4828),

Gene: Athena_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Athena_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Audrey_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Audrey_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Baloo_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Baloo_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Ben11_3 Start: 917, Stop: 1999, Start Num: 22

Candidate Starts for Ben11_3:

(Start: 22 @917 has 26 MA's), (27, 974), (28, 1004), (30, 1010), (44, 1136), (46, 1148), (48, 1175), (61, 1280), (64, 1316), (65, 1331), (70, 1358), (75, 1394), (78, 1424), (84, 1475), (87, 1493), (92, 1532), (94, 1589), (101, 1619), (110, 1691), (112, 1703), (113, 1712), (115, 1718), (129, 1868), (137, 1925),

Gene: Bernardo_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Bernardo_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (101, 1771), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Briakila_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Briakila_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Casbah_3 Start: 917, Stop: 1999, Start Num: 22

Candidate Starts for Casbah_3:

(Start: 22 @917 has 26 MA's), (27, 974), (28, 1004), (30, 1010), (44, 1136), (46, 1148), (48, 1175), (61, 1280), (64, 1316), (65, 1331), (70, 1358), (75, 1394), (78, 1424), (84, 1475), (87, 1493), (92, 1532), (94, 1589), (101, 1619), (110, 1691), (112, 1703), (113, 1712), (115, 1718), (129, 1868), (137, 1925),

Gene: ChaChing_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for ChaChing_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Chalmers_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Chalmers_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Chandler_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Chandler_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Chentzyk_3 Start: 917, Stop: 1999, Start Num: 22

Candidate Starts for Chentzyk_3:

(Start: 22 @917 has 26 MA's), (27, 974), (28, 1004), (30, 1010), (44, 1136), (46, 1148), (48, 1175), (61, 1280), (64, 1316), (65, 1331), (70, 1358), (75, 1394), (78, 1424), (84, 1475), (87, 1493), (92, 1532), (94, 1589), (101, 1619), (110, 1691), (112, 1703), (113, 1712), (115, 1718), (129, 1868), (137, 1925),

Gene: Compostia_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Compostia_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Corofin_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Corofin_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (101, 1771), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Daisy_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Daisy_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (101, 1771), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Deenasa_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Deenasa_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (101, 1771), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Devonte_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Devonte_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Dewdrop_159 Start: 93986, Stop: 95401, Start Num: 6

Candidate Starts for Dewdrop_159:

(Start: 6 @93986 has 3 MA's), (7, 93995), (8, 94046), (10, 94106), (23, 94250), (24, 94262), (27, 94292), (30, 94331), (33, 94367), (37, 94385), (58, 94565), (60, 94598), (73, 94709), (76, 94745), (79, 94754), (91, 94832), (93, 94919), (98, 94949), (103, 94982), (111, 95036), (119, 95117), (132, 95231), (133, 95246), (138, 95273), (143, 95312), (150, 95390), (152, 95396),

Gene: Edmundo_5 Start: 4121, Stop: 5212, Start Num: 22

Candidate Starts for Edmundo_5:

(Start: 22 @4121 has 26 MA's), (28, 4208), (29, 4211), (37, 4268), (46, 4349), (48, 4376), (49, 4382), (54, 4403), (65, 4532), (66, 4535), (67, 4547), (68, 4550), (70, 4559), (77, 4622), (86, 4691), (111, 4895), (113, 4913), (115, 4919), (127, 5060), (128, 5066), (134, 5117), (141, 5165),

Gene: Gadget_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Gadget_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (101, 1771), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Gaia_103 Start: 59268, Stop: 60608, Start Num: 19

Candidate Starts for Gaia_103:

(Start: 19 @59268 has 2 MA's), (Start: 20 @59280 has 1 MA's), (35, 59427), (36, 59436), (42, 59478), (43, 59502), (44, 59517), (45, 59526), (46, 59529), (55, 59595), (57, 59610), (61, 59661), (65, 59724), (75, 59790), (80, 59838), (81, 59856), (91, 59907), (98, 60024), (99, 60030), (102, 60045), (105, 60072), (107, 60081), (109, 60096), (117, 60159), (121, 60222), (124, 60243), (144, 60393), (145, 60402), (146, 60405), (147, 60429), (148, 60456),

Gene: Gervas_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Gervas_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (101, 1771), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: GlenHope_4 Start: 1072, Stop: 2154, Start Num: 22

Candidate Starts for GlenHope_4:

(Start: 22 @1072 has 26 MA's), (27, 1129), (28, 1159), (30, 1165), (44, 1291), (46, 1303), (48, 1330), (61, 1435), (64, 1471), (65, 1486), (70, 1513), (75, 1549), (78, 1579), (84, 1630), (87, 1648), (92, 1687), (94, 1744), (101, 1774), (110, 1846), (112, 1858), (113, 1867), (115, 1873), (129, 2023), (137, 2080),

Gene: Glubnar_4 Start: 1072, Stop: 2154, Start Num: 22

Candidate Starts for Glubnar_4:

(Start: 22 @1072 has 26 MA's), (27, 1129), (28, 1159), (30, 1165), (44, 1291), (46, 1303), (48, 1330), (61, 1435), (64, 1471), (65, 1486), (70, 1513), (75, 1549), (78, 1579), (84, 1630), (87, 1648), (92, 1687), (94, 1744), (101, 1774), (110, 1846), (112, 1858), (113, 1867), (115, 1873), (129, 2023), (137, 2080),

Gene: Halfpint_3 Start: 917, Stop: 1999, Start Num: 22

Candidate Starts for Halfpint_3:

(Start: 22 @917 has 26 MA's), (27, 974), (28, 1004), (30, 1010), (44, 1136), (46, 1148), (48, 1175), (61, 1280), (64, 1316), (65, 1331), (70, 1358), (75, 1394), (78, 1424), (84, 1475), (87, 1493), (92, 1532), (101, 1619), (112, 1703), (113, 1712), (115, 1718), (129, 1868), (137, 1925),

Gene: HarveySr_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for HarveySr_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Heathcliff_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Heathcliff_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Hendrix_158 Start: 96461, Stop: 97753, Start Num: 12

Candidate Starts for Hendrix_158:

(11, 96452), (Start: 12 @96461 has 1 MA's), (17, 96497), (Start: 22 @96587 has 26 MA's), (23, 96602), (24, 96614), (25, 96620), (32, 96716), (39, 96767), (53, 96878), (58, 96923), (60, 96956), (63, 96986), (73, 97067), (76, 97103), (83, 97157), (90, 97187), (91, 97190), (92, 97223), (93, 97277), (97, 97301), (98, 97307), (106, 97358), (111, 97394), (114, 97412), (116, 97436), (131, 97580), (132, 97592), (135, 97619), (137, 97631),

Gene: Jackstina_3 Start: 958, Stop: 2040, Start Num: 22

Candidate Starts for Jackstina_3:

(Start: 22 @958 has 26 MA's), (27, 1015), (28, 1045), (30, 1051), (44, 1177), (46, 1189), (48, 1216), (61, 1321), (64, 1357), (65, 1372), (70, 1399), (75, 1435), (78, 1465), (84, 1516), (87, 1534), (92, 1573), (94, 1630), (101, 1660), (110, 1732), (112, 1744), (113, 1753), (115, 1759), (129, 1909), (137, 1966),

Gene: Kamiyu_4 Start: 1072, Stop: 2154, Start Num: 22

Candidate Starts for Kamiyu_4:

(Start: 22 @1072 has 26 MA's), (27, 1129), (28, 1159), (30, 1165), (44, 1291), (46, 1303), (48, 1330), (61, 1435), (64, 1471), (65, 1486), (70, 1513), (75, 1549), (78, 1579), (84, 1630), (87, 1648), (92, 1687), (101, 1774), (112, 1858), (113, 1867), (115, 1873), (129, 2023), (137, 2080),

Gene: Kovu_6 Start: 4075, Stop: 5169, Start Num: 22

Candidate Starts for Kovu_6:

(9, 3895), (13, 3970), (15, 3988), (Start: 22 @4075 has 26 MA's), (25, 4108), (28, 4162), (29, 4165), (34, 4213), (41, 4255), (46, 4303), (48, 4330), (49, 4336), (50, 4339), (52, 4351), (54, 4357), (58, 4399), (65, 4486), (67, 4501), (68, 4504), (72, 4528), (80, 4597), (87, 4648), (92, 4687), (111, 4849), (113, 4867), (115, 4873), (120, 4945), (128, 5020), (134, 5071),

Gene: Kronus_3 Start: 917, Stop: 1999, Start Num: 22

Candidate Starts for Kronus_3:

(Start: 22 @917 has 26 MA's), (27, 974), (28, 1004), (30, 1010), (44, 1136), (46, 1148), (48, 1175), (61, 1280), (64, 1316), (65, 1331), (70, 1358), (75, 1394), (78, 1424), (84, 1475), (87, 1493), (92, 1532), (94, 1589), (101, 1619), (110, 1691), (112, 1703), (113, 1712), (115, 1718), (129, 1868), (137, 1925),

Gene: Laroye_6 Start: 3899, Stop: 4990, Start Num: 22

Candidate Starts for Laroye_6:

(Start: 22 @3899 has 26 MA's), (28, 3986), (29, 3989), (37, 4046), (46, 4127), (48, 4154), (49, 4160), (54, 4181), (65, 4310), (67, 4325), (68, 4328), (70, 4337), (77, 4400), (86, 4469), (111, 4673), (113, 4691), (127, 4838), (128, 4844), (134, 4895),

Gene: Leaf_159 Start: 93917, Stop: 95332, Start Num: 6

Candidate Starts for Leaf_159:

(Start: 6 @93917 has 3 MA's), (7, 93926), (8, 93977), (10, 94037), (23, 94181), (24, 94193), (27, 94223), (30, 94262), (33, 94298), (37, 94316), (58, 94496), (60, 94529), (73, 94640), (76, 94676), (79, 94685), (91, 94763), (93, 94850), (98, 94880), (103, 94913), (111, 94967), (119, 95048), (132, 95162), (133, 95177), (138, 95204), (143, 95243), (150, 95321), (152, 95327),

Gene: LestyG_4 Start: 1072, Stop: 2154, Start Num: 22

Candidate Starts for LestyG_4:

(Start: 22 @1072 has 26 MA's), (27, 1129), (28, 1159), (30, 1165), (44, 1291), (46, 1303), (48, 1330), (61, 1435), (64, 1471), (65, 1486), (70, 1513), (75, 1549), (78, 1579), (84, 1630), (87, 1648), (92, 1687), (101, 1774), (112, 1858), (113, 1867), (115, 1873), (129, 2023), (137, 2080),

Gene: LiSara_6 Start: 3930, Stop: 5021, Start Num: 22

Candidate Starts for LiSara_6:

(Start: 22 @3930 has 26 MA's), (28, 4017), (29, 4020), (37, 4077), (46, 4158), (48, 4185), (49, 4191), (54, 4212), (65, 4341), (67, 4356), (68, 4359), (70, 4368), (77, 4431), (86, 4500), (111, 4704), (113, 4722), (127, 4869), (128, 4875), (134, 4926),

Gene: Marley1013_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Marley1013_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Marlia_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Marlia_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (101, 1771), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: MmasiCarm_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for MmasiCarm_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (101, 1771), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Mortcellus_3 Start: 917, Stop: 1999, Start Num: 22

Candidate Starts for Mortcellus_3:

(Start: 22 @917 has 26 MA's), (27, 974), (28, 1004), (30, 1010), (44, 1136), (46, 1148), (48, 1175), (61, 1280), (64, 1316), (65, 1331), (70, 1358), (75, 1394), (78, 1424), (84, 1475), (87, 1493), (92, 1532), (94, 1589), (101, 1619), (110, 1691), (112, 1703), (113, 1712), (115, 1718), (129, 1868), (137, 1925),

Gene: Morty007_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Morty007_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Mulaychimus_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Mulaychimus_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Nebkiss_103 Start: 58194, Stop: 59534, Start Num: 19

Candidate Starts for Nebkiss_103:

(Start: 19 @58194 has 2 MA's), (Start: 20 @58206 has 1 MA's), (35, 58353), (36, 58362), (42, 58404), (43, 58428), (44, 58443), (45, 58452), (46, 58455), (55, 58521), (57, 58536), (61, 58587), (65, 58650), (75, 58716), (80, 58764), (81, 58782), (91, 58833), (98, 58950), (99, 58956), (102, 58971), (105, 58998), (107, 59007), (109, 59022), (117, 59085), (121, 59148), (124, 59169), (144, 59319), (145, 59328), (146, 59331), (147, 59355), (148, 59382),

Gene: Neos5_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Neos5_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Nozo_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Nozo_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Obutu_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Obutu_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Olivio_3 Start: 917, Stop: 1999, Start Num: 22

Candidate Starts for Olivio_3:

(Start: 22 @917 has 26 MA's), (27, 974), (28, 1004), (30, 1010), (44, 1136), (46, 1148), (48, 1175), (61, 1280), (64, 1316), (65, 1331), (70, 1358), (75, 1394), (78, 1424), (84, 1475), (87, 1493), (92, 1532), (101, 1619), (112, 1703), (113, 1712), (115, 1718), (129, 1868), (137, 1925),

Gene: OrangeOswald_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for OrangeOswald_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Phaedrus_3 Start: 958, Stop: 2040, Start Num: 22

Candidate Starts for Phaedrus_3:

(18, 910), (Start: 22 @958 has 26 MA's), (27, 1015), (28, 1045), (30, 1051), (44, 1177), (46, 1189), (48, 1216), (61, 1321), (64, 1357), (65, 1372), (70, 1399), (75, 1435), (78, 1465), (84, 1516), (87, 1534), (92, 1573), (94, 1630), (101, 1660), (110, 1732), (112, 1744), (113, 1753), (115, 1759), (129, 1909), (137, 1966),

Gene: Phayeta_3 Start: 917, Stop: 1999, Start Num: 22

Candidate Starts for Phayeta_3:

(Start: 22 @917 has 26 MA's), (27, 974), (28, 1004), (30, 1010), (44, 1136), (46, 1148), (48, 1175), (61, 1280), (64, 1316), (65, 1331), (70, 1358), (75, 1394), (78, 1424), (84, 1475), (87, 1493), (92, 1532), (94, 1589), (101, 1619), (110, 1691), (112, 1703), (113, 1712), (115, 1718), (129, 1868), (137, 1925),

Gene: Philly_3 Start: 958, Stop: 2040, Start Num: 22

Candidate Starts for Philly_3:

(Start: 22 @958 has 26 MA's), (27, 1015), (28, 1045), (30, 1051), (44, 1177), (46, 1189), (48, 1216), (61, 1321), (64, 1357), (65, 1372), (70, 1399), (75, 1435), (78, 1465), (84, 1516), (87, 1534), (92, 1573), (101, 1660), (112, 1744), (113, 1753), (115, 1759), (129, 1909), (137, 1966),

Gene: Phlyer_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Phlyer_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Pipefish_4 Start: 1174, Stop: 2256, Start Num: 22

Candidate Starts for Pipefish_4:

(Start: 22 @1174 has 26 MA's), (27, 1231), (28, 1261), (30, 1267), (44, 1393), (46, 1405), (48, 1432), (61, 1537), (64, 1573), (65, 1588), (70, 1615), (75, 1651), (78, 1681), (84, 1732), (87, 1750), (92, 1789), (101, 1876), (112, 1960), (113, 1969), (115, 1975), (129, 2125), (137, 2182),

Gene: RagingRooster_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for RagingRooster_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Rasputia_156 Start: 95687, Stop: 97096, Start Num: 6

Candidate Starts for Rasputia_156:

(1, 95201), (2, 95411), (3, 95423), (4, 95519), (5, 95597), (Start: 6 @95687 has 3 MA's), (7, 95696), (16, 95855), (Start: 22 @95930 has 26 MA's), (24, 95957), (30, 96026), (31, 96056), (33, 96062), (37, 96080), (51, 96209), (58, 96260), (60, 96293), (63, 96323), (67, 96368), (69, 96374), (71, 96389), (73, 96404), (76, 96440), (91, 96527), (93, 96614), (95, 96629), (98, 96644), (103, 96677), (111, 96731), (119, 96812), (132, 96926), (133, 96941), (138, 96968), (143, 97007), (148, 97079), (150, 97085),

Gene: Rita1961_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Rita1961_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (101, 1771), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: RomaT_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for RomaT_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Salgado_6 Start: 3907, Stop: 4998, Start Num: 22

Candidate Starts for Salgado_6:

(Start: 22 @3907 has 26 MA's), (28, 3994), (29, 3997), (37, 4054), (46, 4135), (48, 4162), (49, 4168), (54, 4189), (65, 4318), (67, 4333), (68, 4336), (70, 4345), (77, 4408), (86, 4477), (111, 4681), (113, 4699), (127, 4846), (128, 4852), (134, 4903),

Gene: Shenandoah_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Shenandoah_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Shrooms_6 Start: 3960, Stop: 5051, Start Num: 22

Candidate Starts for Shrooms_6:

(Start: 22 @3960 has 26 MA's), (30, 4053), (31, 4083), (34, 4098), (37, 4107), (46, 4188), (48, 4215), (49, 4221), (54, 4242), (58, 4284), (61, 4320), (65, 4371), (66, 4374), (67, 4386), (68, 4389), (72, 4413), (77, 4461), (86, 4530), (99, 4653), (111, 4734), (113, 4752), (115, 4758), (122, 4857),

Gene: SlippinJimmy_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for SlippinJimmy_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Stellammi_113 Start: 55638, Stop: 56909, Start Num: 20

Candidate Starts for Stellammi_113:

(Start: 20 @55638 has 1 MA's), (26, 55674), (30, 55731), (31, 55761), (32, 55764), (33, 55767), (34, 55776), (38, 55809), (39, 55815), (40, 55818), (42, 55824), (44, 55863), (45, 55872), (47, 55893), (54, 55923), (55, 55941), (59, 55992), (60, 55998), (62, 56016), (65, 56064), (81, 56196), (82, 56199), (85, 56229), (88, 56238), (93, 56337), (95, 56352), (100, 56373), (104, 56409), (112, 56463), (118, 56511), (123, 56586), (125, 56613), (128, 56634), (130, 56646), (139, 56727), (142, 56736), (149, 56811), (151, 56817), (153, 56826), (154, 56877),

Gene: SwainyDoc_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for SwainyDoc_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: SynergyX_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for SynergyX_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: TinyTerror_4 Start: 1072, Stop: 2154, Start Num: 22

Candidate Starts for TinyTerror_4:

(Start: 22 @1072 has 26 MA's), (27, 1129), (28, 1159), (30, 1165), (44, 1291), (46, 1303), (48, 1330), (61, 1435), (64, 1471), (65, 1486), (70, 1513), (75, 1549), (78, 1579), (84, 1630), (87, 1648), (92, 1687), (101, 1774), (112, 1858), (113, 1867), (115, 1873), (129, 2023), (137, 2080),

Gene: Tydolla_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Tydolla_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (101, 1771), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Waltz_6 Start: 4048, Stop: 5139, Start Num: 22

Candidate Starts for Waltz_6:

(Start: 22 @4048 has 26 MA's), (30, 4141), (31, 4171), (37, 4195), (46, 4276), (48, 4303), (49, 4309), (54, 4330), (58, 4372), (65, 4459), (66, 4462), (67, 4474), (68, 4477), (72, 4501), (77, 4549), (86, 4618), (111, 4822), (113, 4840), (115, 4846), (122, 4945),

Gene: Wheelbite_6 Start: 3998, Stop: 5089, Start Num: 22

Candidate Starts for Wheelbite_6:

(Start: 22 @3998 has 26 MA's), (28, 4085), (29, 4088), (30, 4091), (37, 4145), (46, 4226), (48, 4253), (49, 4259), (54, 4280), (65, 4409), (66, 4412), (67, 4424), (68, 4427), (70, 4436), (77, 4499), (86, 4568), (111, 4772), (113, 4790), (115, 4796), (127, 4937), (128, 4943), (134, 4994),

Gene: Wrackline_73 Start: 38478, Stop: 39587, Start Num: 22

Candidate Starts for Wrackline_73:

(14, 38385), (Start: 22 @38478 has 26 MA's), (25, 38511), (28, 38565), (30, 38571), (31, 38601), (37, 38625), (41, 38658), (43, 38685), (46, 38712), (48, 38739), (56, 38796), (58, 38808), (74, 38949), (80, 39006), (89, 39063), (92, 39096), (94, 39153), (96, 39171), (105, 39219), (108, 39240), (110, 39255), (111, 39258), (113, 39276), (115, 39282), (126, 39423), (129, 39441), (136, 39492), (140, 39522),

Gene: Yahalom_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Yahalom_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (101, 1771), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),

Gene: Yinz_4 Start: 1069, Stop: 2151, Start Num: 21

Candidate Starts for Yinz_4:

(Start: 21 @1069 has 35 MA's), (27, 1126), (28, 1156), (30, 1162), (44, 1288), (46, 1300), (48, 1327), (61, 1432), (64, 1468), (65, 1483), (70, 1510), (75, 1546), (78, 1576), (84, 1627), (87, 1645), (92, 1684), (94, 1741), (101, 1771), (110, 1843), (112, 1855), (113, 1864), (115, 1870), (129, 2020), (137, 2077),