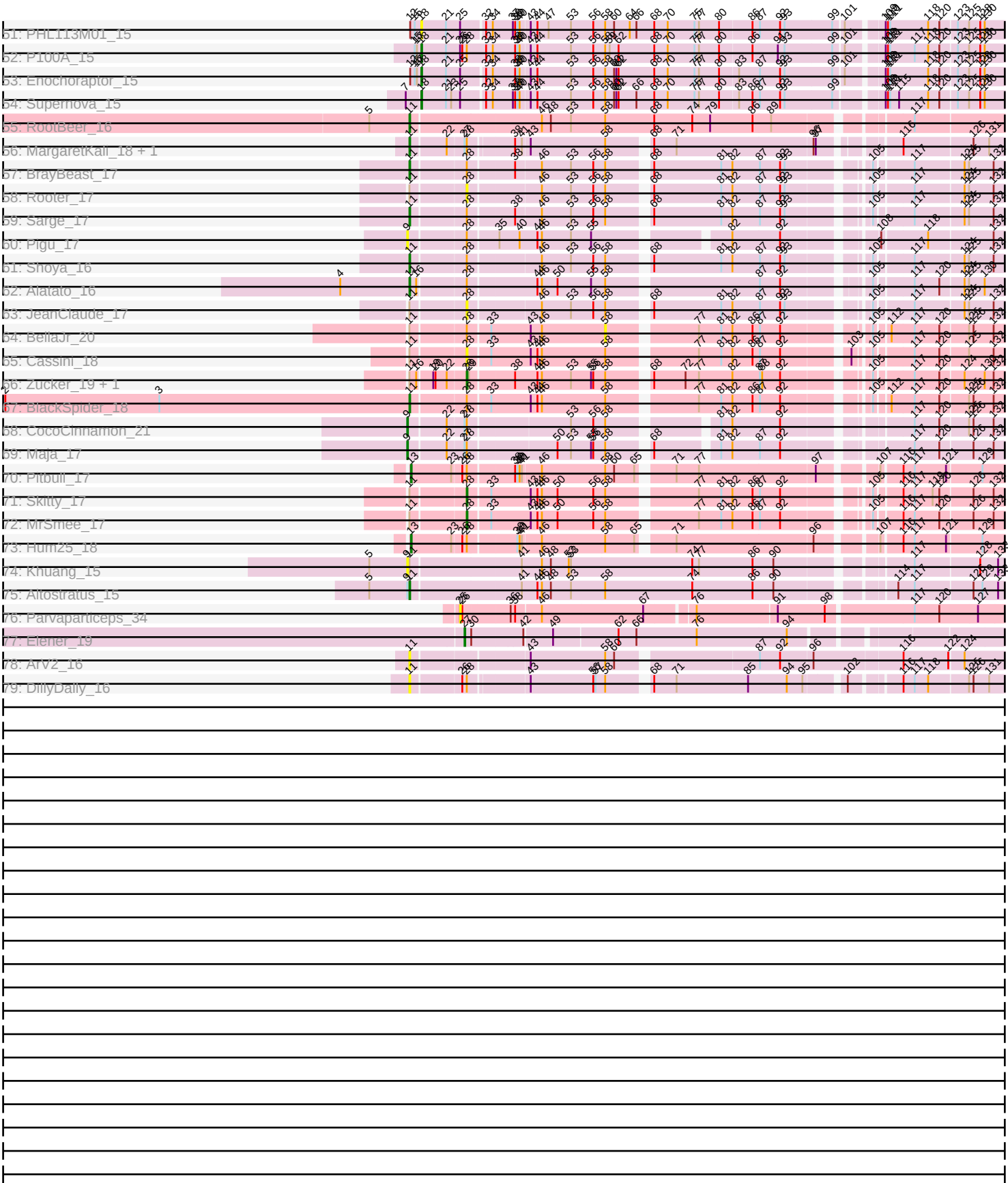


Zoomed Pham 280327

[illegible]

Zoomed Pham 280327



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 280327 Report

This analysis was run 02/07/26 on database version 634.

Pham number 280327 has 86 members, 22 are drafts.

Phages represented in each track:

- Track 1 : AbbyDaisy_18
- Track 2 : Raqqa_18
- Track 3 : Keiki_15
- Track 4 : Kubed_15
- Track 5 : Attacne_15
- Track 6 : P106M_15, P106I_15, P106C_15, P106L_15, P106A_15
- Track 7 : P9.1_15
- Track 8 : MEAK_15
- Track 9 : LilBandit_15
- Track 10 : PHL067M10_15
- Track 11 : Solid_15
- Track 12 : Ouroboros_15
- Track 13 : Cota_15
- Track 14 : P14.4_15
- Track 15 : MrAK_15
- Track 16 : Procrass1_15
- Track 17 : PAS50_15
- Track 18 : PHL114L00_15
- Track 19 : SKKY_15
- Track 20 : ATCC29399BT_15
- Track 21 : PA6_15
- Track 22 : PHL037M02_15
- Track 23 : Enoki_15
- Track 24 : ATCC29399BC_15, P107C_15
- Track 25 : Leviosa_15
- Track 26 : P104B_15
- Track 27 : BruceLethal_15
- Track 28 : PHL060L00_15
- Track 29 : Rileysaurus_15
- Track 30 : PHL111M01_15
- Track 31 : P100.1_15
- Track 32 : Wizzo_15
- Track 33 : Moyashi_15
- Track 34 : P108C_15
- Track 35 : QueenBey_15
- Track 36 : Pirate_15
- Track 37 : Aquarius_15

- Track 38 : PHL010M04_15
- Track 39 : PHL112N00_15
- Track 40 : P105_15
- Track 41 : DrParker_15
- Track 42 : P107A_15
- Track 43 : Lauchelly_15
- Track 44 : PHL071N05_15
- Track 45 : P101A_15
- Track 46 : P100D_15
- Track 47 : P1.1_15
- Track 48 : PAD20_15
- Track 49 : Stormborn_15
- Track 50 : P104A_15
- Track 51 : PHL113M01_15
- Track 52 : P100A_15
- Track 53 : Enochoraptor_15
- Track 54 : Supernova_15
- Track 55 : RootBeer_16
- Track 56 : MargaretKali_18, Kumotta_18
- Track 57 : BrayBeast_17
- Track 58 : Rooter_17
- Track 59 : Sarge_17
- Track 60 : Pigu_17
- Track 61 : Shoya_16
- Track 62 : Alatato_16
- Track 63 : JeanClaude_17
- Track 64 : BellaJr_20
- Track 65 : Cassini_18
- Track 66 : Zucker_19, Bauer_20
- Track 67 : BlackSpider_18
- Track 68 : CocoCinnamon_21
- Track 69 : Maja_17
- Track 70 : Pitbull_17
- Track 71 : Skitty_17
- Track 72 : MrSmee_17
- Track 73 : Hum25_18
- Track 74 : Khuang_15
- Track 75 : Altostratus_15
- Track 76 : Parvaparticeps_34
- Track 77 : Elener_19
- Track 78 : ArV2_16
- Track 79 : DillyDally_16

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

The start number called the most often in the published annotations is 18, it was called in 44 of the 64 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ATCC29399BC_15, ATCC29399BT_15, Aquarius_15, Attacne_15, BruceLethal_15, Cota_15, DrParker_15, Enochoraptor_15, Enoki_15, Keiki_15, Kubed_15, Lauchelly_15, Leviosa_15, LilBandit_15, MEAK_15, Moyashi_15, MrAK_15, Ouroboros_15, P1.1_15, P100.1_15, P100A_15, P100D_15, P101A_15, P104A_15, P104B_15, P105_15, P106A_15, P106C_15, P106I_15, P106L_15, P106M_15, P107A_15, P107C_15, P14.4_15, P9.1_15, PA6_15, PAD20_15, PAS50_15, PHL010M04_15, PHL037M02_15, PHL060L00_15, PHL067M10_15, PHL071N05_15, PHL111M01_15, PHL112N00_15, PHL113M01_15, PHL114L00_15, Pirate_15, Procrass1_15, QueenBey_15, Rileysaurus_15, SKKY_15, Solid_15, Stormborn_15, Supernova_15, Wizzo_15,

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

- P108C_15,

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

- AbbyDaisy_18, Alatato_16, Altostratus_15, ArV2_16, Bauer_20, BellaJr_20, BlackSpider_18, BrayBeast_17, Cassini_18, CocoCinnamon_21, DillyDally_16, Elener_19, Hum25_18, JeanClaude_17, Khuang_15, Kumotta_18, Maja_17, MargaretKali_18, MrSmee_17, Parvaparticeps_34, Pigu_17, Pitbull_17, Raqqa_18, RootBeer_16, Rooter_17, Sarge_17, Shoya_16, Skitty_17, Zucker_19,

Summary by start number:

Start 6:

- Found in 2 of 86 (2.3%) of genes in pham
- Manual Annotations of this start: 1 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AbbyDaisy_18 (AY), Raqqa_18 (AY),

Start 9:

- Found in 5 of 86 (5.8%) of genes in pham
- Manual Annotations of this start: 2 of 64
- Called 80.0% of time when present
- Phage (with cluster) where this start called: CocoCinnamon_21 (FO), Khuang_15 (FS), Maja_17 (FO), Pigu_17 (FB),

Start 11:

- Found in 21 of 86 (24.4%) of genes in pham
- Manual Annotations of this start: 9 of 64
- Called 52.4% of time when present
- Phage (with cluster) where this start called: Alatato_16 (FB), Altostratus_15 (FS), ArV2_16 (singleton), BlackSpider_18 (FN), BrayBeast_17 (FB), DillyDally_16 (singleton), Kumotta_18 (FB), MargaretKali_18 (FB), RootBeer_16 (FA), Sarge_17 (FB), Shoya_16 (FB),

Start 13:

- Found in 2 of 86 (2.3%) of genes in pham
- Manual Annotations of this start: 2 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hum25_18 (FQ), Pitbull_17 (FQ),

Start 15:

- Found in 50 of 86 (58.1%) of genes in pham

- Manual Annotations of this start: 1 of 64
- Called 2.0% of time when present
- Phage (with cluster) where this start called: P108C_15 (BU),

Start 18:

- Found in 57 of 86 (66.3%) of genes in pham
- Manual Annotations of this start: 44 of 64
- Called 98.2% of time when present
- Phage (with cluster) where this start called: ATCC29399BC_15 (BU), ATCC29399BT_15 (BU), Aquarius_15 (BU), Attacne_15 (BU), BruceLethal_15 (BU), Cota_15 (BU), DrParker_15 (BU), Enochoraptor_15 (BU), Enoki_15 (BU), Keiki_15 (BU), Kubed_15 (BU), Lauchelly_15 (BU), Leviosa_15 (BU), LilBandit_15 (BU), MEAK_15 (BU), Moyashi_15 (BU), MrAK_15 (BU), Ouroboros_15 (BU), P1.1_15 (BU), P100.1_15 (BU), P100A_15 (BU), P100D_15 (BU), P101A_15 (BU), P104A_15 (BU), P104B_15 (BU), P105_15 (BU), P106A_15 (BU), P106C_15 (BU), P106I_15 (BU), P106L_15 (BU), P106M_15 (BU), P107A_15 (BU), P107C_15 (BU), P14.4_15 (BU), P9.1_15 (BU), PA6_15 (BU), PAD20_15 (BU), PAS50_15 (BU), PHL010M04_15 (BU), PHL037M02_15 (BU), PHL060L00_15 (BU), PHL067M10_15 (BU), PHL071N05_15 (BU), PHL111M01_15 (BU), PHL112N00_15 (BU), PHL113M01_15 (BU), PHL114L00_15 (BU), Pirate_15 (BU), Procrass1_15 (BU), QueenBey_15 (BU), Rileysaurus_15 (BU), SKKY_15 (BU), Solid_15 (BU), Stormborn_15 (BU), Supernova_15 (BU), Wizzo_15 (BU),

Start 25:

- Found in 58 of 86 (67.4%) of genes in pham
- No Manual Annotations of this start.
- Called 1.7% of time when present
- Phage (with cluster) where this start called: Parvaparticeps_34 (UNK),

Start 27:

- Found in 5 of 86 (5.8%) of genes in pham
- Manual Annotations of this start: 1 of 64
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Elener_19 (singleton),

Start 28:

- Found in 46 of 86 (53.5%) of genes in pham
- Manual Annotations of this start: 4 of 64
- Called 15.2% of time when present
- Phage (with cluster) where this start called: Bauer_20 (FN), Cassini_18 (FN), JeanClaude_17 (FB), MrSmee_17 (FQ), Rooter_17 (FB), Skitty_17 (FQ), Zucker_19 (FN),

Start 58:

- Found in 80 of 86 (93.0%) of genes in pham
- No Manual Annotations of this start.
- Called 1.2% of time when present
- Phage (with cluster) where this start called: BellaJr_20 (FN),

Summary by clusters:

There are 10 clusters represented in this pham: FQ, singleton, FS, FA, BU, FB, AY, UNK, FN, FO,

Info for manual annotations of cluster AY:

- Start number 6 was manually annotated 1 time for cluster AY.

Info for manual annotations of cluster BU:

- Start number 15 was manually annotated 1 time for cluster BU.
- Start number 18 was manually annotated 44 times for cluster BU.

Info for manual annotations of cluster FA:

- Start number 11 was manually annotated 1 time for cluster FA.

Info for manual annotations of cluster FB:

- Start number 11 was manually annotated 6 times for cluster FB.

Info for manual annotations of cluster FN:

- Start number 11 was manually annotated 1 time for cluster FN.
- Start number 28 was manually annotated 2 times for cluster FN.

Info for manual annotations of cluster FO:

- Start number 9 was manually annotated 2 times for cluster FO.

Info for manual annotations of cluster FQ:

- Start number 13 was manually annotated 2 times for cluster FQ.
- Start number 28 was manually annotated 2 times for cluster FQ.

Info for manual annotations of cluster FS:

- Start number 11 was manually annotated 1 time for cluster FS.

Gene Information:

Gene: ATCC29399BC_15 Start: 11283, Stop: 12224, Start Num: 18

Candidate Starts for ATCC29399BC_15:

(12, 11268), (Start: 15 @11274 has 1 MA's), (17, 11277), (Start: 18 @11283 has 44 MA's), (21, 11316), (23, 11322), (25, 11334), (32, 11361), (34, 11370), (38, 11400), (39, 11403), (40, 11406), (43, 11418), (44, 11427), (47, 11442), (53, 11472), (56, 11502), (58, 11517), (61, 11532), (62, 11535), (68, 11583), (70, 11601), (75, 11637), (77, 11643), (80, 11670), (81, 11673), (83, 11694), (86, 11712), (87, 11721), (91, 11745), (93, 11754), (99, 11817), (101, 11829), (109, 11871), (110, 11874), (111, 11877), (120, 11943), (123, 11964), (125, 11979), (128, 11994), (130, 12000), (151, 12072), (153, 12075), (156, 12093), (157, 12096), (159, 12105), (161, 12153), (163, 12165), (164, 12174), (166, 12183), (168, 12189), (169, 12195), (172, 12210),

Gene: ATCC29399BT_15 Start: 11281, Stop: 12228, Start Num: 18

Candidate Starts for ATCC29399BT_15:

(Start: 15 @11272 has 1 MA's), (Start: 18 @11281 has 44 MA's), (21, 11314), (23, 11320), (25, 11332), (Start: 28 @11341 has 4 MA's), (34, 11374), (38, 11404), (39, 11407), (40, 11410), (43, 11422), (46, 11437), (47, 11446), (53, 11476), (56, 11506), (58, 11521), (60, 11533), (61, 11536), (62, 11539), (70, 11605), (75, 11641), (77, 11647), (80, 11674), (81, 11677), (87, 11725), (91, 11749), (93, 11758), (101, 11833), (110, 11878), (111, 11881), (113, 11884), (120, 11947), (123, 11968), (125, 11983), (128, 11998), (130, 12004), (151, 12076), (153, 12079), (156, 12097), (157, 12100), (161, 12157), (163, 12169), (164, 12178), (168, 12193), (169, 12199), (172, 12214),

Gene: AbbyDaisy_18 Start: 14442, Stop: 15422, Start Num: 6

Candidate Starts for AbbyDaisy_18:

(Start: 6 @14442 has 1 MA's), (38, 14571), (43, 14589), (45, 14601), (53, 14643), (54, 14661), (68, 14736), (96, 14943), (100, 14970), (104, 15006), (120, 15105), (124, 15135), (126, 15147), (131, 15168), (137, 15198), (140, 15231), (147, 15258), (158, 15300), (161, 15351), (163, 15363),

Gene: Alatato_16 Start: 12479, Stop: 13390, Start Num: 11

Candidate Starts for Alatato_16:

(4, 12392), (Start: 11 @12479 has 9 MA's), (16, 12488), (Start: 28 @12548 has 4 MA's), (44, 12635), (46, 12641), (50, 12662), (55, 12707), (58, 12725), (87, 12914), (92, 12941), (105, 13034), (117, 13079), (120, 13112), (124, 13142), (125, 13148), (130, 13169), (146, 13229), (163, 13331), (167, 13352),

Gene: Altostratus_15 Start: 12904, Stop: 13848, Start Num: 11

Candidate Starts for Altostratus_15:

(5, 12850), (Start: 9 @12901 has 2 MA's), (Start: 11 @12904 has 9 MA's), (41, 13045), (44, 13066), (46, 13072), (48, 13084), (53, 13111), (58, 13156), (74, 13273), (86, 13354), (90, 13381), (114, 13516), (117, 13537), (126, 13612), (129, 13624), (133, 13645), (153, 13702), (156, 13720),

Gene: Aquarius_15 Start: 11300, Stop: 12247, Start Num: 18

Candidate Starts for Aquarius_15:

(12, 11285), (Start: 15 @11291 has 1 MA's), (17, 11294), (Start: 18 @11300 has 44 MA's), (21, 11333), (25, 11351), (26, 11354), (Start: 28 @11360 has 4 MA's), (32, 11384), (34, 11393), (38, 11423), (39, 11426), (40, 11429), (43, 11441), (44, 11450), (53, 11495), (56, 11525), (58, 11540), (61, 11555), (62, 11558), (68, 11606), (70, 11624), (75, 11660), (77, 11666), (80, 11693), (81, 11696), (83, 11717), (87, 11744), (92, 11771), (93, 11777), (99, 11840), (101, 11852), (109, 11894), (110, 11897), (111, 11900), (117, 11933), (118, 11951), (120, 11966), (125, 12002), (128, 12017), (130, 12023), (149, 12092), (151, 12095), (153, 12098), (156, 12116), (157, 12119), (159, 12128), (161, 12176), (163, 12188), (164, 12197), (168, 12212), (169, 12218), (172, 12233),

Gene: ArV2_16 Start: 12791, Stop: 13762, Start Num: 11

Candidate Starts for ArV2_16:

(Start: 11 @12791 has 9 MA's), (43, 12935), (58, 13034), (60, 13046), (87, 13220), (92, 13247), (96, 13289), (116, 13403), (122, 13463), (124, 13481), (137, 13544), (143, 13592), (147, 13604), (163, 13703),

Gene: Attacne_15 Start: 11286, Stop: 12227, Start Num: 18

Candidate Starts for Attacne_15:

(14, 11277), (Start: 15 @11280 has 1 MA's), (Start: 18 @11286 has 44 MA's), (21, 11319), (25, 11337), (32, 11364), (34, 11373), (38, 11403), (39, 11406), (40, 11409), (43, 11421), (53, 11475), (56, 11505), (58, 11520), (60, 11532), (61, 11535), (62, 11538), (68, 11586), (70, 11604), (75, 11640), (77, 11646), (80, 11673), (81, 11676), (86, 11715), (87, 11724), (91, 11748), (93, 11757), (99, 11820), (101, 11832), (109, 11874), (110, 11877), (111, 11880), (118, 11931), (120, 11946), (123, 11967), (125, 11982), (128, 11997), (130, 12003), (151, 12075), (153, 12078), (156, 12096), (157, 12099), (159, 12108), (161, 12156), (163, 12168), (164, 12177), (168, 12192), (169, 12198), (172, 12213),

Gene: Bauer_20 Start: 15182, Stop: 16024, Start Num: 28

Candidate Starts for Bauer_20:

(Start: 11 @15113 has 9 MA's), (16, 15122), (19, 15140), (20, 15143), (22, 15158), (Start: 28 @15182 has 4 MA's), (29, 15185), (38, 15239), (44, 15269), (46, 15275), (53, 15314), (55, 15341), (56, 15344), (58, 15359), (68, 15407), (72, 15449), (77, 15467), (82, 15512), (87, 15548), (88, 15551), (92, 15575), (105, 15668), (117, 15713), (120, 15746), (124, 15776), (130, 15803), (132, 15815), (135, 15836),

(146, 15863), (155, 15893), (160, 15947), (161, 15953), (163, 15965),

Gene: BellaJr_20 Start: 16170, Stop: 16835, Start Num: 58

Candidate Starts for BellaJr_20:

(Start: 11 @15924 has 9 MA's), (Start: 28 @15993 has 4 MA's), (33, 16020), (43, 16071), (46, 16086), (58, 16170), (77, 16278), (81, 16308), (82, 16323), (86, 16350), (87, 16359), (92, 16386), (105, 16479), (112, 16494), (117, 16524), (120, 16557), (125, 16593), (126, 16599), (132, 16626), (136, 16653), (146, 16674), (154, 16698), (155, 16704), (158, 16716), (161, 16764), (162, 16770), (163, 16776),

Gene: BlackSpider_18 Start: 14770, Stop: 15681, Start Num: 11

Candidate Starts for BlackSpider_18:

(1, 14101), (2, 14233), (3, 14440), (Start: 11 @14770 has 9 MA's), (Start: 28 @14839 has 4 MA's), (33, 14866), (43, 14917), (44, 14926), (46, 14932), (58, 15016), (77, 15124), (81, 15154), (82, 15169), (86, 15196), (87, 15205), (92, 15232), (105, 15325), (112, 15340), (117, 15370), (120, 15403), (125, 15439), (126, 15445), (132, 15472), (136, 15499), (154, 15544), (155, 15550), (158, 15562), (161, 15610), (162, 15616), (163, 15622),

Gene: BrayBeast_17 Start: 13162, Stop: 14070, Start Num: 11

Candidate Starts for BrayBeast_17:

(Start: 11 @13162 has 9 MA's), (Start: 28 @13231 has 4 MA's), (38, 13288), (46, 13321), (53, 13360), (56, 13390), (58, 13405), (68, 13453), (81, 13543), (82, 13558), (87, 13594), (92, 13621), (93, 13627), (105, 13714), (117, 13759), (124, 13822), (125, 13828), (132, 13861), (136, 13888), (146, 13909), (154, 13933), (155, 13939), (158, 13951), (160, 13993), (161, 13999), (162, 14005), (163, 14011),

Gene: BruceLethal_15 Start: 11290, Stop: 12237, Start Num: 18

Candidate Starts for BruceLethal_15:

(Start: 11 @11275 has 9 MA's), (Start: 15 @11281 has 1 MA's), (Start: 18 @11290 has 44 MA's), (21, 11323), (25, 11341), (26, 11344), (Start: 28 @11350 has 4 MA's), (32, 11374), (34, 11383), (38, 11413), (43, 11431), (44, 11440), (53, 11485), (56, 11515), (58, 11530), (60, 11542), (62, 11548), (68, 11596), (70, 11614), (73, 11641), (75, 11650), (77, 11656), (80, 11683), (83, 11707), (91, 11758), (93, 11767), (99, 11830), (101, 11842), (109, 11884), (110, 11887), (111, 11890), (118, 11941), (120, 11956), (123, 11977), (125, 11992), (128, 12007), (130, 12013), (151, 12085), (153, 12088), (156, 12106), (157, 12109), (159, 12118), (161, 12166), (163, 12178), (164, 12187), (168, 12202), (169, 12208), (172, 12223),

Gene: Cassini_18 Start: 15074, Stop: 15916, Start Num: 28

Candidate Starts for Cassini_18:

(Start: 11 @15005 has 9 MA's), (Start: 28 @15074 has 4 MA's), (33, 15101), (43, 15152), (44, 15161), (46, 15167), (58, 15251), (77, 15359), (81, 15389), (82, 15404), (86, 15431), (87, 15440), (92, 15467), (103, 15545), (105, 15560), (117, 15605), (120, 15638), (125, 15674), (132, 15707), (136, 15734), (146, 15755), (154, 15779), (155, 15785), (158, 15797), (160, 15839), (161, 15845), (162, 15851), (163, 15857), (170, 15890),

Gene: CocoCinnamon_21 Start: 14814, Stop: 15716, Start Num: 9

Candidate Starts for CocoCinnamon_21:

(Start: 9 @14814 has 2 MA's), (22, 14862), (Start: 27 @14883 has 1 MA's), (Start: 28 @14886 has 4 MA's), (53, 15015), (56, 15045), (58, 15060), (81, 15183), (82, 15198), (92, 15261), (117, 15405), (120, 15438), (125, 15474), (126, 15480), (132, 15507), (146, 15555), (161, 15645), (163, 15657),

Gene: Cota_15 Start: 11295, Stop: 12242, Start Num: 18

Candidate Starts for Cota_15:

(12, 11280), (Start: 15 @11286 has 1 MA's), (Start: 18 @11295 has 44 MA's), (21, 11328), (25, 11346), (26, 11349), (Start: 28 @11355 has 4 MA's), (32, 11379), (34, 11388), (38, 11418), (39, 11421), (40,

11424), (43, 11436), (46, 11451), (47, 11460), (53, 11490), (56, 11520), (58, 11535), (60, 11547), (61, 11550), (62, 11553), (68, 11601), (70, 11619), (75, 11655), (77, 11661), (80, 11688), (83, 11712), (87, 11739), (91, 11763), (93, 11772), (99, 11835), (109, 11889), (110, 11892), (111, 11895), (115, 11907), (118, 11946), (120, 11961), (121, 11970), (123, 11982), (125, 11997), (128, 12012), (130, 12018), (151, 12090), (153, 12093), (156, 12111), (157, 12114), (159, 12123), (161, 12171), (163, 12183), (164, 12192), (168, 12207), (169, 12213), (172, 12228),

Gene: DillyDally_16 Start: 13389, Stop: 14372, Start Num: 11

Candidate Starts for DillyDally_16:

(Start: 11 @13389 has 9 MA's), (26, 13452), (Start: 28 @13458 has 4 MA's), (43, 13530), (56, 13614), (57, 13617), (58, 13629), (68, 13677), (71, 13707), (85, 13803), (94, 13854), (95, 13875), (102, 13920), (116, 13977), (117, 13992), (118, 14010), (125, 14061), (126, 14067), (131, 14088), (142, 14175), (145, 14190), (150, 14217), (166, 14331),

Gene: DrParker_15 Start: 11327, Stop: 12268, Start Num: 18

Candidate Starts for DrParker_15:

(7, 11306), (Start: 15 @11318 has 1 MA's), (17, 11321), (Start: 18 @11327 has 44 MA's), (21, 11360), (25, 11378), (32, 11405), (34, 11414), (37, 11441), (38, 11444), (39, 11447), (40, 11450), (43, 11462), (44, 11471), (47, 11486), (53, 11516), (56, 11546), (58, 11561), (59, 11567), (60, 11573), (61, 11576), (62, 11579), (68, 11627), (70, 11645), (77, 11687), (80, 11714), (86, 11756), (87, 11765), (92, 11792), (93, 11798), (99, 11861), (101, 11873), (109, 11915), (110, 11918), (118, 11972), (120, 11987), (123, 12008), (125, 12023), (128, 12038), (130, 12044), (133, 12062), (156, 12137), (157, 12140), (159, 12149), (161, 12197), (163, 12209), (164, 12218), (168, 12233), (169, 12239), (172, 12254),

Gene: Elener_19 Start: 15583, Stop: 16464, Start Num: 27

Candidate Starts for Elener_19:

(Start: 27 @15583 has 1 MA's), (30, 15592), (42, 15658), (49, 15694), (62, 15778), (66, 15802), (76, 15883), (94, 16003), (145, 16288), (155, 16333),

Gene: Enochoraptor_15 Start: 11298, Stop: 12239, Start Num: 18

Candidate Starts for Enochoraptor_15:

(12, 11283), (Start: 15 @11289 has 1 MA's), (17, 11292), (Start: 18 @11298 has 44 MA's), (21, 11331), (25, 11349), (32, 11376), (34, 11385), (38, 11415), (39, 11418), (40, 11421), (43, 11433), (44, 11442), (53, 11487), (56, 11517), (58, 11532), (60, 11544), (61, 11547), (62, 11550), (68, 11598), (70, 11616), (75, 11652), (77, 11658), (80, 11685), (83, 11709), (87, 11736), (92, 11763), (93, 11769), (99, 11832), (101, 11844), (109, 11886), (110, 11889), (111, 11892), (118, 11943), (120, 11958), (123, 11979), (125, 11994), (128, 12009), (130, 12015), (151, 12087), (153, 12090), (156, 12108), (157, 12111), (159, 12120), (161, 12168), (163, 12180), (164, 12189), (168, 12204), (169, 12210), (172, 12225),

Gene: Enoki_15 Start: 11280, Stop: 12221, Start Num: 18

Candidate Starts for Enoki_15:

(7, 11262), (Start: 18 @11280 has 44 MA's), (21, 11313), (23, 11319), (25, 11331), (32, 11358), (34, 11367), (38, 11397), (39, 11400), (40, 11403), (43, 11415), (44, 11424), (47, 11439), (53, 11469), (56, 11499), (58, 11514), (60, 11526), (61, 11529), (62, 11532), (63, 11541), (66, 11556), (68, 11580), (70, 11598), (75, 11634), (77, 11640), (80, 11667), (81, 11670), (83, 11691), (87, 11718), (91, 11742), (93, 11751), (99, 11814), (101, 11826), (109, 11868), (110, 11871), (111, 11874), (115, 11886), (118, 11925), (120, 11940), (123, 11961), (125, 11976), (128, 11991), (130, 11997), (151, 12069), (153, 12072), (156, 12090), (157, 12093), (159, 12102), (161, 12150), (163, 12162), (164, 12171), (168, 12186), (169, 12192), (172, 12207),

Gene: Hum25_18 Start: 12574, Stop: 13560, Start Num: 13

Candidate Starts for Hum25_18:

(Start: 13 @12574 has 2 MA's), (23, 12628), (26, 12640), (Start: 28 @12646 has 4 MA's), (39, 12706), (40, 12709), (41, 12712), (46, 12736), (58, 12820), (65, 12859), (71, 12898), (96, 13078), (107, 13144), (116, 13168), (117, 13183), (121, 13225), (129, 13270), (144, 13372), (147, 13396), (164, 13510), (171, 13540),

Gene: JeanClaude_17 Start: 13138, Stop: 13977, Start Num: 28

Candidate Starts for JeanClaude_17:

(Start: 11 @13069 has 9 MA's), (Start: 28 @13138 has 4 MA's), (46, 13228), (53, 13267), (56, 13297), (58, 13312), (68, 13360), (81, 13450), (82, 13465), (87, 13501), (92, 13528), (93, 13534), (105, 13621), (117, 13666), (124, 13729), (125, 13735), (132, 13768), (136, 13795), (154, 13840), (155, 13846), (158, 13858), (161, 13906), (162, 13912), (163, 13918),

Gene: Keiki_15 Start: 11295, Stop: 12242, Start Num: 18

Candidate Starts for Keiki_15:

(12, 11280), (Start: 15 @11286 has 1 MA's), (Start: 18 @11295 has 44 MA's), (21, 11328), (25, 11346), (26, 11349), (Start: 28 @11355 has 4 MA's), (32, 11379), (34, 11388), (38, 11418), (39, 11421), (40, 11424), (43, 11436), (46, 11451), (47, 11460), (53, 11490), (56, 11520), (58, 11535), (60, 11547), (61, 11550), (62, 11553), (67, 11586), (68, 11601), (70, 11619), (75, 11655), (77, 11661), (80, 11688), (83, 11712), (87, 11739), (92, 11766), (93, 11772), (99, 11835), (101, 11847), (109, 11889), (110, 11892), (111, 11895), (118, 11946), (120, 11961), (123, 11982), (125, 11997), (126, 12003), (128, 12012), (130, 12018), (151, 12090), (153, 12093), (156, 12111), (157, 12114), (159, 12123), (161, 12171), (163, 12183), (164, 12192), (168, 12207), (169, 12213), (172, 12228),

Gene: Khuang_15 Start: 13016, Stop: 13963, Start Num: 9

Candidate Starts for Khuang_15:

(5, 12965), (Start: 9 @13016 has 2 MA's), (Start: 11 @13019 has 9 MA's), (41, 13160), (46, 13187), (48, 13199), (52, 13223), (53, 13226), (74, 13388), (77, 13397), (86, 13469), (90, 13496), (117, 13652), (128, 13736), (133, 13760), (154, 13826), (156, 13835), (173, 13952), (174, 13958),

Gene: Kubed_15 Start: 11291, Stop: 12232, Start Num: 18

Candidate Starts for Kubed_15:

(Start: 15 @11282 has 1 MA's), (Start: 18 @11291 has 44 MA's), (21, 11324), (23, 11330), (25, 11342), (32, 11369), (34, 11378), (38, 11408), (39, 11411), (40, 11414), (43, 11426), (44, 11435), (47, 11450), (53, 11480), (56, 11510), (58, 11525), (61, 11540), (62, 11543), (70, 11609), (73, 11636), (75, 11645), (77, 11651), (80, 11678), (87, 11729), (91, 11753), (93, 11762), (99, 11825), (101, 11837), (110, 11882), (111, 11885), (118, 11936), (120, 11951), (123, 11972), (125, 11987), (128, 12002), (151, 12080), (153, 12083), (156, 12101), (157, 12104), (161, 12161), (163, 12173), (164, 12182), (168, 12197), (172, 12218),

Gene: Kumotta_18 Start: 14074, Stop: 15051, Start Num: 11

Candidate Starts for Kumotta_18:

(Start: 11 @14074 has 9 MA's), (22, 14119), (Start: 27 @14140 has 1 MA's), (Start: 28 @14143 has 4 MA's), (38, 14197), (41, 14206), (43, 14215), (58, 14314), (68, 14362), (71, 14392), (96, 14572), (97, 14575), (116, 14659), (126, 14749), (131, 14770), (136, 14803), (139, 14839), (141, 14848), (152, 14902), (154, 14914), (165, 15007), (169, 15022), (171, 15031),

Gene: Lauchelly_15 Start: 11298, Stop: 12245, Start Num: 18

Candidate Starts for Lauchelly_15:

(Start: 15 @11289 has 1 MA's), (17, 11292), (Start: 18 @11298 has 44 MA's), (21, 11331), (25, 11349), (26, 11352), (Start: 28 @11358 has 4 MA's), (32, 11382), (34, 11391), (38, 11421), (39, 11424), (40, 11427), (43, 11439), (44, 11448), (47, 11463), (53, 11493), (56, 11523), (58, 11538), (59, 11544), (62, 11556), (68, 11604), (70, 11622), (73, 11649), (75, 11658), (77, 11664), (80, 11691), (83, 11715), (87, 11742), (91, 11766), (93, 11775), (99, 11838), (101, 11850), (109, 11892), (110, 11895), (111, 11898),

(118, 11949), (120, 11964), (123, 11985), (125, 12000), (128, 12015), (130, 12021), (151, 12093), (153, 12096), (156, 12114), (157, 12117), (161, 12174), (163, 12186), (164, 12195), (168, 12210), (169, 12216), (172, 12231),

Gene: Leviosa_15 Start: 11312, Stop: 12259, Start Num: 18

Candidate Starts for Leviosa_15:

(12, 11297), (Start: 15 @11303 has 1 MA's), (Start: 18 @11312 has 44 MA's), (21, 11345), (25, 11363), (26, 11366), (Start: 28 @11372 has 4 MA's), (32, 11396), (34, 11405), (38, 11435), (39, 11438), (40, 11441), (43, 11453), (44, 11462), (53, 11507), (56, 11537), (58, 11552), (60, 11564), (62, 11570), (68, 11618), (70, 11636), (73, 11663), (75, 11672), (77, 11678), (80, 11705), (87, 11756), (91, 11780), (93, 11789), (99, 11852), (101, 11864), (109, 11906), (110, 11909), (111, 11912), (118, 11963), (120, 11978), (123, 11999), (125, 12014), (128, 12029), (130, 12035), (151, 12107), (153, 12110), (156, 12128), (157, 12131), (159, 12140), (161, 12188), (163, 12200), (164, 12209), (168, 12224), (169, 12230), (172, 12245),

Gene: LilBandit_15 Start: 11296, Stop: 12243, Start Num: 18

Candidate Starts for LilBandit_15:

(12, 11281), (Start: 15 @11287 has 1 MA's), (Start: 18 @11296 has 44 MA's), (21, 11329), (25, 11347), (26, 11350), (Start: 28 @11356 has 4 MA's), (32, 11380), (34, 11389), (38, 11419), (39, 11422), (40, 11425), (43, 11437), (44, 11446), (53, 11491), (56, 11521), (58, 11536), (60, 11548), (62, 11554), (68, 11602), (70, 11620), (73, 11647), (75, 11656), (77, 11662), (80, 11689), (86, 11731), (87, 11740), (91, 11764), (93, 11773), (99, 11836), (101, 11848), (109, 11890), (110, 11893), (111, 11896), (117, 11929), (118, 11947), (120, 11962), (123, 11983), (125, 11998), (128, 12013), (130, 12019), (151, 12091), (153, 12094), (156, 12112), (157, 12115), (159, 12124), (161, 12172), (163, 12184), (164, 12193), (168, 12208), (169, 12214), (172, 12229),

Gene: MEAK_15 Start: 11282, Stop: 12229, Start Num: 18

Candidate Starts for MEAK_15:

(Start: 15 @11273 has 1 MA's), (17, 11276), (Start: 18 @11282 has 44 MA's), (21, 11315), (25, 11333), (26, 11336), (Start: 28 @11342 has 4 MA's), (32, 11366), (34, 11375), (38, 11405), (39, 11408), (40, 11411), (44, 11432), (53, 11477), (56, 11507), (58, 11522), (60, 11534), (61, 11537), (62, 11540), (68, 11588), (70, 11606), (75, 11642), (77, 11648), (80, 11675), (83, 11699), (87, 11726), (92, 11753), (93, 11759), (99, 11822), (101, 11834), (109, 11876), (110, 11879), (111, 11882), (117, 11915), (118, 11933), (120, 11948), (123, 11969), (125, 11984), (128, 11999), (130, 12005), (151, 12077), (153, 12080), (156, 12098), (157, 12101), (159, 12110), (161, 12158), (163, 12170), (164, 12179), (168, 12194), (169, 12200), (172, 12215),

Gene: Maja_17 Start: 13790, Stop: 14692, Start Num: 9

Candidate Starts for Maja_17:

(Start: 9 @13790 has 2 MA's), (22, 13838), (Start: 27 @13859 has 1 MA's), (Start: 28 @13862 has 4 MA's), (50, 13973), (53, 13991), (55, 14018), (56, 14021), (58, 14036), (68, 14084), (81, 14159), (82, 14174), (87, 14210), (92, 14237), (117, 14381), (120, 14414), (126, 14456), (132, 14483), (146, 14531), (158, 14573), (161, 14621), (163, 14633),

Gene: MargaretKali_18 Start: 13709, Stop: 14686, Start Num: 11

Candidate Starts for MargaretKali_18:

(Start: 11 @13709 has 9 MA's), (22, 13754), (Start: 27 @13775 has 1 MA's), (Start: 28 @13778 has 4 MA's), (38, 13832), (41, 13841), (43, 13850), (58, 13949), (68, 13997), (71, 14027), (96, 14207), (97, 14210), (116, 14294), (126, 14384), (131, 14405), (136, 14438), (139, 14474), (141, 14483), (152, 14537), (154, 14549), (165, 14642), (169, 14657), (171, 14666),

Gene: Moyashi_15 Start: 11324, Stop: 12265, Start Num: 18

Candidate Starts for Moyashi_15:

(10, 11309), (14, 11315), (Start: 15 @11318 has 1 MA's), (Start: 18 @11324 has 44 MA's), (21, 11357), (23, 11363), (25, 11375), (32, 11402), (34, 11411), (37, 11438), (38, 11441), (39, 11444), (40, 11447), (43, 11459), (44, 11468), (53, 11513), (56, 11543), (58, 11558), (59, 11564), (60, 11570), (61, 11573), (62, 11576), (66, 11600), (68, 11624), (70, 11642), (75, 11678), (77, 11684), (80, 11711), (83, 11735), (87, 11762), (92, 11789), (93, 11795), (99, 11858), (101, 11870), (109, 11912), (110, 11915), (115, 11930), (118, 11969), (120, 11984), (123, 12005), (125, 12020), (128, 12035), (130, 12041), (151, 12113), (153, 12116), (156, 12134), (157, 12137), (159, 12146), (161, 12194), (163, 12206), (164, 12215), (168, 12230), (169, 12236), (172, 12251),

Gene: MrAK_15 Start: 11335, Stop: 12276, Start Num: 18

Candidate Starts for MrAK_15:

(7, 11317), (Start: 18 @11335 has 44 MA's), (21, 11368), (23, 11374), (25, 11386), (32, 11413), (34, 11422), (38, 11452), (39, 11455), (40, 11458), (43, 11470), (44, 11479), (47, 11494), (51, 11518), (53, 11524), (56, 11554), (58, 11569), (60, 11581), (62, 11587), (68, 11635), (70, 11653), (75, 11689), (77, 11695), (80, 11722), (81, 11725), (83, 11746), (87, 11773), (91, 11797), (93, 11806), (99, 11869), (109, 11923), (110, 11926), (118, 11980), (120, 11995), (123, 12016), (125, 12031), (128, 12046), (130, 12052), (151, 12124), (153, 12127), (156, 12145), (157, 12148), (159, 12157), (161, 12205), (163, 12217), (164, 12226), (168, 12241), (169, 12247), (172, 12262),

Gene: MrSmee_17 Start: 12921, Stop: 13763, Start Num: 28

Candidate Starts for MrSmee_17:

(Start: 11 @12852 has 9 MA's), (Start: 28 @12921 has 4 MA's), (33, 12948), (43, 12999), (44, 13008), (46, 13014), (50, 13035), (56, 13083), (58, 13098), (77, 13206), (81, 13236), (82, 13251), (86, 13278), (87, 13287), (92, 13314), (105, 13407), (116, 13437), (117, 13452), (120, 13485), (126, 13527), (132, 13554), (146, 13602), (160, 13686), (161, 13692), (162, 13698), (163, 13704),

Gene: Ouroboros_15 Start: 11284, Stop: 12231, Start Num: 18

Candidate Starts for Ouroboros_15:

(8, 11266), (Start: 18 @11284 has 44 MA's), (25, 11335), (26, 11338), (Start: 28 @11344 has 4 MA's), (32, 11368), (34, 11377), (38, 11407), (39, 11410), (40, 11413), (43, 11425), (44, 11434), (53, 11479), (56, 11509), (58, 11524), (60, 11536), (62, 11542), (68, 11590), (70, 11608), (73, 11635), (75, 11644), (77, 11650), (80, 11677), (91, 11752), (93, 11761), (101, 11836), (109, 11878), (110, 11881), (111, 11884), (118, 11935), (120, 11950), (123, 11971), (125, 11986), (128, 12001), (130, 12007), (151, 12079), (153, 12082), (156, 12100), (157, 12103), (159, 12112), (161, 12160), (163, 12172), (164, 12181), (168, 12196), (169, 12202), (172, 12217),

Gene: P1.1_15 Start: 11293, Stop: 12234, Start Num: 18

Candidate Starts for P1.1_15:

(12, 11278), (Start: 15 @11284 has 1 MA's), (17, 11287), (Start: 18 @11293 has 44 MA's), (21, 11326), (23, 11332), (25, 11344), (32, 11371), (34, 11380), (38, 11410), (39, 11413), (40, 11416), (43, 11428), (44, 11437), (53, 11482), (56, 11512), (58, 11527), (60, 11539), (61, 11542), (62, 11545), (66, 11569), (68, 11593), (70, 11611), (75, 11647), (77, 11653), (80, 11680), (81, 11683), (86, 11722), (87, 11731), (92, 11758), (93, 11764), (99, 11827), (101, 11839), (109, 11881), (110, 11884), (111, 11887), (118, 11938), (120, 11953), (123, 11974), (125, 11989), (128, 12004), (130, 12010), (151, 12082), (153, 12085), (156, 12103), (157, 12106), (159, 12115), (161, 12163), (163, 12175), (164, 12184), (168, 12199), (169, 12205), (172, 12220),

Gene: P100.1_15 Start: 11300, Stop: 12241, Start Num: 18

Candidate Starts for P100.1_15:

(Start: 15 @11291 has 1 MA's), (Start: 18 @11300 has 44 MA's), (21, 11333), (25, 11351), (32, 11378), (34, 11387), (37, 11414), (38, 11417), (39, 11420), (40, 11423), (43, 11435), (44, 11444), (47, 11459), (53, 11489), (56, 11519), (58, 11534), (62, 11552), (64, 11567), (66, 11576), (68, 11600), (70, 11618), (77, 11660), (80, 11687), (86, 11729), (87, 11738), (92, 11765), (93, 11771), (99, 11834), (101, 11846),

(109, 11888), (110, 11891), (115, 11906), (118, 11945), (120, 11960), (123, 11981), (125, 11996), (128, 12011), (130, 12017), (151, 12089), (153, 12092), (156, 12110), (157, 12113), (159, 12122), (161, 12170), (163, 12182), (164, 12191), (168, 12206), (169, 12212), (172, 12227),

Gene: P100A_15 Start: 11295, Stop: 12242, Start Num: 18

Candidate Starts for P100A_15:

(Start: 15 @11286 has 1 MA's), (17, 11289), (Start: 18 @11295 has 44 MA's), (21, 11328), (25, 11346), (26, 11349), (Start: 28 @11355 has 4 MA's), (32, 11379), (34, 11388), (38, 11418), (39, 11421), (40, 11424), (43, 11436), (44, 11445), (53, 11490), (56, 11520), (58, 11535), (59, 11541), (62, 11553), (68, 11601), (70, 11619), (75, 11655), (77, 11661), (80, 11688), (86, 11730), (91, 11763), (93, 11772), (99, 11835), (101, 11847), (109, 11889), (110, 11892), (111, 11895), (117, 11928), (118, 11946), (120, 11961), (123, 11982), (125, 11997), (128, 12012), (130, 12018), (151, 12090), (153, 12093), (156, 12111), (157, 12114), (161, 12171), (163, 12183), (164, 12192), (168, 12207), (169, 12213), (172, 12228),

Gene: P100D_15 Start: 11296, Stop: 12237, Start Num: 18

Candidate Starts for P100D_15:

(12, 11281), (Start: 15 @11287 has 1 MA's), (17, 11290), (Start: 18 @11296 has 44 MA's), (21, 11329), (23, 11335), (25, 11347), (32, 11374), (34, 11383), (38, 11413), (39, 11416), (40, 11419), (43, 11431), (44, 11440), (47, 11455), (53, 11485), (56, 11515), (58, 11530), (60, 11542), (61, 11545), (62, 11548), (68, 11596), (70, 11614), (73, 11641), (75, 11650), (77, 11656), (80, 11683), (81, 11686), (86, 11725), (87, 11734), (91, 11758), (93, 11767), (99, 11830), (101, 11842), (109, 11884), (110, 11887), (111, 11890), (118, 11941), (120, 11956), (123, 11977), (125, 11992), (128, 12007), (130, 12013), (151, 12085), (153, 12088), (156, 12106), (157, 12109), (159, 12118), (161, 12166), (163, 12178), (164, 12187), (168, 12202), (169, 12208), (172, 12223),

Gene: P101A_15 Start: 11308, Stop: 12249, Start Num: 18

Candidate Starts for P101A_15:

(14, 11296), (Start: 15 @11299 has 1 MA's), (Start: 18 @11308 has 44 MA's), (21, 11341), (25, 11359), (32, 11386), (34, 11395), (37, 11422), (38, 11425), (39, 11428), (40, 11431), (43, 11443), (44, 11452), (47, 11467), (53, 11497), (56, 11527), (58, 11542), (62, 11560), (64, 11575), (66, 11584), (68, 11608), (70, 11626), (77, 11668), (80, 11695), (86, 11737), (87, 11746), (92, 11773), (93, 11779), (99, 11842), (101, 11854), (109, 11896), (110, 11899), (115, 11914), (118, 11953), (120, 11968), (123, 11989), (125, 12004), (128, 12019), (130, 12025), (151, 12097), (153, 12100), (156, 12118), (157, 12121), (159, 12130), (161, 12178), (163, 12190), (164, 12199), (168, 12214), (169, 12220), (172, 12235),

Gene: P104A_15 Start: 11279, Stop: 12226, Start Num: 18

Candidate Starts for P104A_15:

(12, 11264), (Start: 15 @11270 has 1 MA's), (Start: 18 @11279 has 44 MA's), (21, 11312), (25, 11330), (26, 11333), (Start: 28 @11339 has 4 MA's), (32, 11363), (34, 11372), (38, 11402), (39, 11405), (40, 11408), (43, 11420), (46, 11435), (47, 11444), (53, 11474), (56, 11504), (58, 11519), (59, 11525), (60, 11531), (61, 11534), (62, 11537), (66, 11561), (68, 11585), (70, 11603), (73, 11630), (75, 11639), (77, 11645), (80, 11672), (81, 11675), (83, 11696), (87, 11723), (92, 11750), (93, 11756), (99, 11819), (101, 11831), (109, 11873), (110, 11876), (111, 11879), (115, 11891), (118, 11930), (120, 11945), (123, 11966), (125, 11981), (128, 11996), (130, 12002), (151, 12074), (153, 12077), (156, 12095), (157, 12098), (159, 12107), (161, 12155), (163, 12167), (164, 12176), (168, 12191), (169, 12197), (172, 12212),

Gene: P104B_15 Start: 11296, Stop: 12243, Start Num: 18

Candidate Starts for P104B_15:

(12, 11281), (Start: 15 @11287 has 1 MA's), (17, 11290), (Start: 18 @11296 has 44 MA's), (21, 11329), (23, 11335), (25, 11347), (26, 11350), (Start: 28 @11356 has 4 MA's), (32, 11380), (34, 11389), (38, 11419), (39, 11422), (40, 11425), (43, 11437), (44, 11446), (46, 11452), (53, 11491), (56, 11521), (58,

(11536), (60, 11548), (61, 11551), (62, 11554), (68, 11602), (70, 11620), (73, 11647), (75, 11656), (80, 11689), (83, 11713), (87, 11740), (91, 11764), (93, 11773), (99, 11836), (101, 11848), (109, 11890), (110, 11893), (111, 11896), (118, 11947), (120, 11962), (123, 11983), (125, 11998), (128, 12013), (130, 12019), (151, 12091), (153, 12094), (156, 12112), (157, 12115), (159, 12124), (161, 12172), (163, 12184), (164, 12193), (168, 12208), (169, 12214), (172, 12229),

Gene: P105_15 Start: 11205, Stop: 12146, Start Num: 18

Candidate Starts for P105_15:

(7, 11187), (Start: 18 @11205 has 44 MA's), (21, 11238), (23, 11244), (25, 11256), (32, 11283), (34, 11292), (38, 11322), (39, 11325), (40, 11328), (43, 11340), (44, 11349), (47, 11364), (53, 11394), (56, 11424), (58, 11439), (60, 11451), (61, 11454), (62, 11457), (66, 11481), (68, 11505), (70, 11523), (75, 11559), (77, 11565), (80, 11592), (81, 11595), (83, 11616), (86, 11634), (87, 11643), (92, 11670), (93, 11676), (99, 11739), (101, 11751), (109, 11793), (110, 11796), (111, 11799), (115, 11811), (118, 11850), (120, 11865), (123, 11886), (125, 11901), (128, 11916), (130, 11922), (151, 11994), (156, 12015), (157, 12018), (159, 12027), (161, 12075), (163, 12087), (164, 12096), (168, 12111), (169, 12117), (172, 12132),

Gene: P106A_15 Start: 11324, Stop: 12271, Start Num: 18

Candidate Starts for P106A_15:

(12, 11309), (Start: 15 @11315 has 1 MA's), (17, 11318), (Start: 18 @11324 has 44 MA's), (21, 11357), (25, 11375), (26, 11378), (32, 11408), (34, 11417), (37, 11444), (38, 11447), (39, 11450), (40, 11453), (43, 11465), (44, 11474), (53, 11519), (56, 11549), (58, 11564), (61, 11579), (62, 11582), (66, 11606), (68, 11630), (70, 11648), (77, 11690), (80, 11717), (86, 11759), (87, 11768), (92, 11795), (93, 11801), (99, 11864), (101, 11876), (109, 11918), (110, 11921), (111, 11924), (118, 11975), (120, 11990), (121, 11999), (125, 12026), (128, 12041), (130, 12047), (151, 12119), (153, 12122), (156, 12140), (157, 12143), (159, 12152), (161, 12200), (163, 12212), (164, 12221), (168, 12236), (169, 12242), (172, 12257),

Gene: P106C_15 Start: 11324, Stop: 12271, Start Num: 18

Candidate Starts for P106C_15:

(12, 11309), (Start: 15 @11315 has 1 MA's), (17, 11318), (Start: 18 @11324 has 44 MA's), (21, 11357), (25, 11375), (26, 11378), (32, 11408), (34, 11417), (37, 11444), (38, 11447), (39, 11450), (40, 11453), (43, 11465), (44, 11474), (53, 11519), (56, 11549), (58, 11564), (61, 11579), (62, 11582), (66, 11606), (68, 11630), (70, 11648), (77, 11690), (80, 11717), (86, 11759), (87, 11768), (92, 11795), (93, 11801), (99, 11864), (101, 11876), (109, 11918), (110, 11921), (111, 11924), (118, 11975), (120, 11990), (121, 11999), (125, 12026), (128, 12041), (130, 12047), (151, 12119), (153, 12122), (156, 12140), (157, 12143), (159, 12152), (161, 12200), (163, 12212), (164, 12221), (168, 12236), (169, 12242), (172, 12257),

Gene: P106I_15 Start: 11324, Stop: 12271, Start Num: 18

Candidate Starts for P106I_15:

(12, 11309), (Start: 15 @11315 has 1 MA's), (17, 11318), (Start: 18 @11324 has 44 MA's), (21, 11357), (25, 11375), (26, 11378), (32, 11408), (34, 11417), (37, 11444), (38, 11447), (39, 11450), (40, 11453), (43, 11465), (44, 11474), (53, 11519), (56, 11549), (58, 11564), (61, 11579), (62, 11582), (66, 11606), (68, 11630), (70, 11648), (77, 11690), (80, 11717), (86, 11759), (87, 11768), (92, 11795), (93, 11801), (99, 11864), (101, 11876), (109, 11918), (110, 11921), (111, 11924), (118, 11975), (120, 11990), (121, 11999), (125, 12026), (128, 12041), (130, 12047), (151, 12119), (153, 12122), (156, 12140), (157, 12143), (159, 12152), (161, 12200), (163, 12212), (164, 12221), (168, 12236), (169, 12242), (172, 12257),

Gene: P106L_15 Start: 11324, Stop: 12271, Start Num: 18

Candidate Starts for P106L_15:

(12, 11309), (Start: 15 @11315 has 1 MA's), (17, 11318), (Start: 18 @11324 has 44 MA's), (21, 11357), (25, 11375), (26, 11378), (32, 11408), (34, 11417), (37, 11444), (38, 11447), (39, 11450), (40, 11453), (43, 11465), (44, 11474), (53, 11519), (56, 11549), (58, 11564), (61, 11579), (62, 11582), (66, 11606), (68, 11630), (70, 11648), (77, 11690), (80, 11717), (86, 11759), (87, 11768), (92, 11795), (93, 11801), (99, 11864), (101, 11876), (109, 11918), (110, 11921), (111, 11924), (118, 11975), (120, 11990), (121, 11999), (125, 12026), (128, 12041), (130, 12047), (151, 12119), (153, 12122), (156, 12140), (157, 12143), (159, 12152), (161, 12200), (163, 12212), (164, 12221), (168, 12236), (169, 12242), (172, 12257),

Gene: P106M_15 Start: 11324, Stop: 12271, Start Num: 18

Candidate Starts for P106M_15:

(12, 11309), (Start: 15 @11315 has 1 MA's), (17, 11318), (Start: 18 @11324 has 44 MA's), (21, 11357), (25, 11375), (26, 11378), (32, 11408), (34, 11417), (37, 11444), (38, 11447), (39, 11450), (40, 11453), (43, 11465), (44, 11474), (53, 11519), (56, 11549), (58, 11564), (61, 11579), (62, 11582), (66, 11606), (68, 11630), (70, 11648), (77, 11690), (80, 11717), (86, 11759), (87, 11768), (92, 11795), (93, 11801), (99, 11864), (101, 11876), (109, 11918), (110, 11921), (111, 11924), (118, 11975), (120, 11990), (121, 11999), (125, 12026), (128, 12041), (130, 12047), (151, 12119), (153, 12122), (156, 12140), (157, 12143), (159, 12152), (161, 12200), (163, 12212), (164, 12221), (168, 12236), (169, 12242), (172, 12257),

Gene: P107A_15 Start: 11301, Stop: 12248, Start Num: 18

Candidate Starts for P107A_15:

(Start: 15 @11292 has 1 MA's), (Start: 18 @11301 has 44 MA's), (21, 11334), (25, 11352), (26, 11355), (Start: 28 @11361 has 4 MA's), (32, 11385), (34, 11394), (38, 11424), (39, 11427), (40, 11430), (43, 11442), (44, 11451), (56, 11526), (58, 11541), (59, 11547), (62, 11559), (68, 11607), (70, 11625), (73, 11652), (75, 11661), (77, 11667), (80, 11694), (91, 11769), (93, 11778), (99, 11841), (101, 11853), (109, 11895), (110, 11898), (111, 11901), (118, 11952), (120, 11967), (123, 11988), (125, 12003), (128, 12018), (130, 12024), (151, 12096), (153, 12099), (156, 12117), (157, 12120), (161, 12177), (163, 12189), (164, 12198), (168, 12213), (169, 12219), (172, 12234),

Gene: P107C_15 Start: 11283, Stop: 12224, Start Num: 18

Candidate Starts for P107C_15:

(12, 11268), (Start: 15 @11274 has 1 MA's), (17, 11277), (Start: 18 @11283 has 44 MA's), (21, 11316), (23, 11322), (25, 11334), (32, 11361), (34, 11370), (38, 11400), (39, 11403), (40, 11406), (43, 11418), (44, 11427), (47, 11442), (53, 11472), (56, 11502), (58, 11517), (61, 11532), (62, 11535), (68, 11583), (70, 11601), (75, 11637), (77, 11643), (80, 11670), (81, 11673), (83, 11694), (86, 11712), (87, 11721), (91, 11745), (93, 11754), (99, 11817), (101, 11829), (109, 11871), (110, 11874), (111, 11877), (120, 11943), (123, 11964), (125, 11979), (128, 11994), (130, 12000), (151, 12072), (153, 12075), (156, 12093), (157, 12096), (159, 12105), (161, 12153), (163, 12165), (164, 12174), (166, 12183), (168, 12189), (169, 12195), (172, 12210),

Gene: P108C_15 Start: 11282, Stop: 12232, Start Num: 15

Candidate Starts for P108C_15:

(12, 11276), (Start: 15 @11282 has 1 MA's), (17, 11285), (Start: 18 @11291 has 44 MA's), (21, 11324), (25, 11342), (32, 11369), (34, 11378), (38, 11408), (39, 11411), (40, 11414), (43, 11426), (44, 11435), (47, 11450), (53, 11480), (56, 11510), (58, 11525), (59, 11531), (62, 11543), (68, 11591), (70, 11609), (75, 11645), (77, 11651), (80, 11678), (86, 11720), (87, 11729), (92, 11756), (93, 11762), (99, 11825), (101, 11837), (109, 11879), (110, 11882), (111, 11885), (117, 11918), (118, 11936), (120, 11951), (121, 11960), (125, 11987), (128, 12002), (130, 12008), (151, 12080), (153, 12083), (156, 12101), (157, 12104), (159, 12113), (161, 12161), (163, 12173), (164, 12182), (168, 12197), (169, 12203), (172, 12218),

Gene: P14.4_15 Start: 11291, Stop: 12238, Start Num: 18

Candidate Starts for P14.4_15:

(12, 11276), (Start: 15 @11282 has 1 MA's), (Start: 18 @11291 has 44 MA's), (21, 11324), (25, 11342), (26, 11345), (Start: 28 @11351 has 4 MA's), (32, 11375), (34, 11384), (38, 11414), (39, 11417), (40, 11420), (43, 11432), (44, 11441), (53, 11486), (56, 11516), (58, 11531), (59, 11537), (60, 11543), (61, 11546), (68, 11597), (70, 11615), (73, 11642), (75, 11651), (77, 11657), (80, 11684), (81, 11687), (83, 11708), (87, 11735), (91, 11759), (93, 11768), (99, 11831), (101, 11843), (109, 11885), (110, 11888), (111, 11891), (118, 11942), (120, 11957), (123, 11978), (125, 11993), (128, 12008), (130, 12014), (151, 12086), (153, 12089), (156, 12107), (157, 12110), (159, 12119), (161, 12167), (163, 12179), (168, 12203), (169, 12209), (172, 12224),

Gene: P9.1_15 Start: 11286, Stop: 12233, Start Num: 18

Candidate Starts for P9.1_15:

(12, 11271), (Start: 15 @11277 has 1 MA's), (17, 11280), (Start: 18 @11286 has 44 MA's), (21, 11319), (23, 11325), (25, 11337), (26, 11340), (Start: 28 @11346 has 4 MA's), (32, 11370), (38, 11409), (39, 11412), (40, 11415), (43, 11427), (44, 11436), (53, 11481), (56, 11511), (58, 11526), (59, 11532), (60, 11538), (61, 11541), (62, 11544), (68, 11592), (70, 11610), (73, 11637), (75, 11646), (80, 11679), (81, 11682), (83, 11703), (87, 11730), (92, 11757), (93, 11763), (99, 11826), (101, 11838), (109, 11880), (110, 11883), (111, 11886), (118, 11937), (120, 11952), (121, 11961), (125, 11988), (128, 12003), (130, 12009), (151, 12081), (153, 12084), (156, 12102), (157, 12105), (159, 12114), (161, 12162), (163, 12174), (164, 12183), (168, 12198), (169, 12204), (172, 12219),

Gene: PA6_15 Start: 11315, Stop: 12262, Start Num: 18

Candidate Starts for PA6_15:

(7, 11294), (Start: 15 @11306 has 1 MA's), (17, 11309), (Start: 18 @11315 has 44 MA's), (21, 11348), (23, 11354), (25, 11366), (Start: 28 @11375 has 4 MA's), (29, 11378), (32, 11399), (34, 11408), (38, 11438), (39, 11441), (40, 11444), (43, 11456), (46, 11471), (47, 11480), (53, 11510), (56, 11540), (58, 11555), (59, 11561), (60, 11567), (61, 11570), (62, 11573), (66, 11597), (68, 11621), (70, 11639), (73, 11666), (75, 11675), (77, 11681), (80, 11708), (81, 11711), (87, 11759), (92, 11786), (93, 11792), (99, 11855), (101, 11867), (109, 11909), (110, 11912), (115, 11927), (118, 11966), (120, 11981), (123, 12002), (125, 12017), (128, 12032), (130, 12038), (151, 12110), (153, 12113), (156, 12131), (157, 12134), (159, 12143), (161, 12191), (163, 12203), (164, 12212), (168, 12227), (169, 12233), (172, 12248),

Gene: PAD20_15 Start: 11289, Stop: 12230, Start Num: 18

Candidate Starts for PAD20_15:

(12, 11274), (Start: 15 @11280 has 1 MA's), (17, 11283), (Start: 18 @11289 has 44 MA's), (21, 11322), (23, 11328), (25, 11340), (32, 11367), (34, 11376), (38, 11406), (39, 11409), (40, 11412), (43, 11424), (47, 11448), (53, 11478), (56, 11508), (58, 11523), (60, 11535), (61, 11538), (62, 11541), (66, 11565), (68, 11589), (70, 11607), (73, 11634), (75, 11643), (77, 11649), (80, 11676), (83, 11700), (87, 11727), (92, 11754), (93, 11760), (99, 11823), (101, 11835), (109, 11877), (110, 11880), (111, 11883), (118, 11934), (120, 11949), (123, 11970), (125, 11985), (130, 12006), (151, 12078), (153, 12081), (156, 12099), (157, 12102), (159, 12111), (161, 12159), (163, 12171), (168, 12195), (169, 12201), (172, 12216),

Gene: PAS50_15 Start: 11298, Stop: 12239, Start Num: 18

Candidate Starts for PAS50_15:

(Start: 15 @11289 has 1 MA's), (Start: 18 @11298 has 44 MA's), (21, 11331), (25, 11349), (32, 11376), (34, 11385), (37, 11412), (38, 11415), (39, 11418), (40, 11421), (43, 11433), (44, 11442), (47, 11457), (53, 11487), (56, 11517), (58, 11532), (62, 11550), (64, 11565), (66, 11574), (68, 11598), (70, 11616), (77, 11658), (80, 11685), (86, 11727), (87, 11736), (92, 11763), (93, 11769), (99, 11832), (101, 11844), (109, 11886), (110, 11889), (111, 11892), (117, 11925), (118, 11943), (120, 11958), (121, 11967), (125, 11994), (128, 12009), (130, 12015), (151, 12087), (153, 12090), (156, 12108), (157, 12111), (159, 12120), (161, 12168), (163, 12180), (164, 12189), (168, 12204), (169, 12210), (172, 12225),

Gene: PHL010M04_15 Start: 11286, Stop: 12233, Start Num: 18

Candidate Starts for PHL010M04_15:

(12, 11271), (Start: 15 @11277 has 1 MA's), (17, 11280), (Start: 18 @11286 has 44 MA's), (21, 11319), (25, 11337), (26, 11340), (Start: 28 @11346 has 4 MA's), (32, 11370), (34, 11379), (38, 11409), (39, 11412), (40, 11415), (43, 11427), (44, 11436), (47, 11451), (53, 11481), (56, 11511), (58, 11526), (59, 11532), (61, 11541), (68, 11592), (70, 11610), (73, 11637), (75, 11646), (77, 11652), (80, 11679), (83, 11703), (87, 11730), (91, 11754), (93, 11763), (99, 11826), (101, 11838), (109, 11880), (110, 11883), (111, 11886), (118, 11937), (120, 11952), (123, 11973), (125, 11988), (128, 12003), (130, 12009), (151, 12081), (153, 12084), (156, 12102), (157, 12105), (159, 12114), (161, 12162), (163, 12174), (164, 12183), (168, 12198), (169, 12204), (172, 12219),

Gene: PHL037M02_15 Start: 11301, Stop: 12242, Start Num: 18

Candidate Starts for PHL037M02_15:

(7, 11283), (Start: 18 @11301 has 44 MA's), (21, 11334), (23, 11340), (25, 11352), (32, 11379), (34, 11388), (37, 11415), (38, 11418), (39, 11421), (40, 11424), (43, 11436), (44, 11445), (53, 11490), (56, 11520), (58, 11535), (59, 11541), (60, 11547), (61, 11550), (62, 11553), (66, 11577), (68, 11601), (70, 11619), (77, 11661), (80, 11688), (81, 11691), (83, 11712), (91, 11763), (93, 11772), (99, 11835), (101, 11847), (109, 11889), (110, 11892), (111, 11895), (118, 11946), (120, 11961), (123, 11982), (125, 11997), (128, 12012), (130, 12018), (151, 12090), (153, 12093), (156, 12111), (157, 12114), (161, 12171), (163, 12183), (164, 12192), (168, 12207), (169, 12213), (172, 12228),

Gene: PHL060L00_15 Start: 11302, Stop: 12249, Start Num: 18

Candidate Starts for PHL060L00_15:

(12, 11287), (Start: 15 @11293 has 1 MA's), (Start: 18 @11302 has 44 MA's), (21, 11335), (25, 11353), (26, 11356), (Start: 28 @11362 has 4 MA's), (32, 11386), (34, 11395), (38, 11425), (39, 11428), (40, 11431), (43, 11443), (44, 11452), (46, 11458), (47, 11467), (53, 11497), (56, 11527), (58, 11542), (62, 11560), (68, 11608), (70, 11626), (77, 11668), (80, 11695), (83, 11719), (87, 11746), (92, 11773), (93, 11779), (99, 11842), (109, 11896), (110, 11899), (111, 11902), (117, 11935), (118, 11953), (120, 11968), (123, 11989), (125, 12004), (128, 12019), (130, 12025), (151, 12097), (153, 12100), (156, 12118), (157, 12121), (161, 12178), (163, 12190), (164, 12199), (168, 12214), (169, 12220), (172, 12235),

Gene: PHL067M10_15 Start: 11269, Stop: 12210, Start Num: 18

Candidate Starts for PHL067M10_15:

(12, 11254), (Start: 15 @11260 has 1 MA's), (17, 11263), (Start: 18 @11269 has 44 MA's), (21, 11302), (25, 11320), (31, 11338), (32, 11347), (34, 11356), (38, 11386), (39, 11389), (40, 11392), (43, 11404), (44, 11413), (47, 11428), (53, 11458), (56, 11488), (58, 11503), (60, 11515), (61, 11518), (62, 11521), (66, 11545), (68, 11569), (70, 11587), (75, 11623), (77, 11629), (80, 11656), (81, 11659), (83, 11680), (87, 11707), (92, 11734), (93, 11740), (99, 11803), (101, 11815), (109, 11857), (110, 11860), (111, 11863), (118, 11914), (120, 11929), (123, 11950), (125, 11965), (128, 11980), (130, 11986), (151, 12058), (153, 12061), (156, 12079), (157, 12082), (159, 12091), (161, 12139), (163, 12151), (164, 12160), (168, 12175), (169, 12181), (172, 12196),

Gene: PHL071N05_15 Start: 11297, Stop: 12238, Start Num: 18

Candidate Starts for PHL071N05_15:

(12, 11282), (Start: 15 @11288 has 1 MA's), (Start: 18 @11297 has 44 MA's), (21, 11330), (23, 11336), (25, 11348), (32, 11375), (34, 11384), (38, 11414), (39, 11417), (40, 11420), (43, 11432), (44, 11441), (47, 11456), (53, 11486), (56, 11516), (58, 11531), (62, 11549), (68, 11597), (70, 11615), (75, 11651), (77, 11657), (80, 11684), (84, 11717), (92, 11762), (93, 11768), (99, 11831), (101, 11843), (109, 11885), (110, 11888), (111, 11891), (120, 11957), (123, 11978), (125, 11993), (128, 12008), (130, 12014), (151, 12086), (153, 12089), (156, 12107), (157, 12110), (159, 12119), (161, 12167), (163, 12179), (164, 12188), (168, 12203), (169, 12209), (172, 12224),

Gene: PHL111M01_15 Start: 11287, Stop: 12234, Start Num: 18

Candidate Starts for PHL111M01_15:

(Start: 15 @11278 has 1 MA's), (17, 11281), (Start: 18 @11287 has 44 MA's), (21, 11320), (25, 11338), (26, 11341), (Start: 28 @11347 has 4 MA's), (32, 11371), (34, 11380), (38, 11410), (39, 11413), (40, 11416), (43, 11428), (47, 11452), (53, 11482), (56, 11512), (58, 11527), (60, 11539), (61, 11542), (62, 11545), (68, 11593), (70, 11611), (75, 11647), (77, 11653), (80, 11680), (87, 11731), (91, 11755), (93, 11764), (99, 11827), (101, 11839), (109, 11881), (110, 11884), (111, 11887), (118, 11938), (120, 11953), (123, 11974), (125, 11989), (128, 12004), (130, 12010), (151, 12082), (153, 12085), (156, 12103), (157, 12106), (159, 12115), (161, 12163), (163, 12175), (164, 12184), (168, 12199), (169, 12205), (172, 12220),

Gene: PHL112N00_15 Start: 11284, Stop: 12231, Start Num: 18

Candidate Starts for PHL112N00_15:

(Start: 15 @11275 has 1 MA's), (Start: 18 @11284 has 44 MA's), (21, 11317), (23, 11323), (25, 11335), (Start: 28 @11344 has 4 MA's), (34, 11377), (38, 11407), (39, 11410), (40, 11413), (43, 11425), (44, 11434), (47, 11449), (53, 11479), (56, 11509), (58, 11524), (60, 11536), (61, 11539), (62, 11542), (68, 11590), (70, 11608), (75, 11644), (77, 11650), (80, 11677), (81, 11680), (87, 11728), (92, 11755), (93, 11761), (99, 11824), (109, 11878), (110, 11881), (111, 11884), (117, 11917), (118, 11935), (120, 11950), (123, 11971), (125, 11986), (128, 12001), (130, 12007), (151, 12079), (153, 12082), (156, 12100), (157, 12103), (159, 12112), (161, 12160), (163, 12172), (164, 12181), (168, 12196), (169, 12202), (172, 12217),

Gene: PHL113M01_15 Start: 11311, Stop: 12252, Start Num: 18

Candidate Starts for PHL113M01_15:

(12, 11296), (Start: 15 @11302 has 1 MA's), (Start: 18 @11311 has 44 MA's), (21, 11344), (25, 11362), (32, 11389), (34, 11398), (37, 11425), (38, 11428), (39, 11431), (40, 11434), (43, 11446), (44, 11455), (47, 11470), (53, 11500), (56, 11530), (58, 11545), (60, 11557), (64, 11578), (66, 11587), (68, 11611), (70, 11629), (75, 11665), (77, 11671), (80, 11698), (86, 11740), (87, 11749), (92, 11776), (93, 11782), (99, 11845), (101, 11857), (109, 11899), (110, 11902), (111, 11905), (118, 11956), (120, 11971), (123, 11992), (125, 12007), (128, 12022), (130, 12028), (151, 12100), (153, 12103), (156, 12121), (157, 12124), (159, 12133), (161, 12181), (163, 12193), (164, 12202), (168, 12217), (169, 12223), (172, 12238),

Gene: PHL114L00_15 Start: 11289, Stop: 12236, Start Num: 18

Candidate Starts for PHL114L00_15:

(Start: 15 @11280 has 1 MA's), (Start: 18 @11289 has 44 MA's), (21, 11322), (25, 11340), (26, 11343), (Start: 28 @11349 has 4 MA's), (32, 11373), (34, 11382), (38, 11412), (39, 11415), (40, 11418), (43, 11430), (47, 11454), (53, 11484), (56, 11514), (58, 11529), (60, 11541), (61, 11544), (62, 11547), (66, 11571), (68, 11595), (70, 11613), (73, 11640), (75, 11649), (80, 11682), (81, 11685), (83, 11706), (87, 11733), (92, 11760), (93, 11766), (99, 11829), (101, 11841), (109, 11883), (110, 11886), (111, 11889), (118, 11940), (120, 11955), (123, 11976), (125, 11991), (128, 12006), (130, 12012), (151, 12084), (153, 12087), (156, 12105), (157, 12108), (161, 12165), (163, 12177), (164, 12186), (168, 12201), (169, 12207), (172, 12222),

Gene: Parvaparticeps_34 Start: 24373, Stop: 23477, Start Num: 25

Candidate Starts for Parvaparticeps_34:

(25, 24373), (26, 24370), (36, 24310), (38, 24304), (46, 24274), (67, 24139), (76, 24079), (91, 23974), (98, 23911), (117, 23800), (120, 23767), (127, 23716), (134, 23680), (138, 23665), (148, 23632),

Gene: Pigu_17 Start: 12876, Stop: 13781, Start Num: 9

Candidate Starts for Pigu_17:

(Start: 9 @12876 has 2 MA's), (Start: 28 @12948 has 4 MA's), (35, 12984), (40, 13011), (44, 13035), (46, 13041), (53, 13080), (55, 13107), (82, 13263), (92, 13326), (108, 13431), (118, 13488), (132, 13572), (146, 13620), (161, 13710), (162, 13716), (163, 13722),

Gene: Pirate_15 Start: 11280, Stop: 12227, Start Num: 18

Candidate Starts for Pirate_15:

(12, 11265), (Start: 15 @11271 has 1 MA's), (17, 11274), (Start: 18 @11280 has 44 MA's), (21, 11313), (25, 11331), (26, 11334), (32, 11364), (34, 11373), (38, 11403), (39, 11406), (40, 11409), (43, 11421), (44, 11430), (53, 11475), (56, 11505), (58, 11520), (60, 11532), (61, 11535), (62, 11538), (67, 11571), (68, 11586), (70, 11604), (75, 11640), (77, 11646), (80, 11673), (83, 11697), (87, 11724), (92, 11751), (93, 11757), (99, 11820), (101, 11832), (109, 11874), (110, 11877), (111, 11880), (118, 11931), (120, 11946), (123, 11967), (125, 11982), (128, 11997), (130, 12003), (151, 12075), (153, 12078), (156, 12096), (157, 12099), (159, 12108), (161, 12156), (163, 12168), (164, 12177), (168, 12192), (169, 12198), (172, 12213),

Gene: Pitbull_17 Start: 12204, Stop: 13190, Start Num: 13

Candidate Starts for Pitbull_17:

(Start: 13 @12204 has 2 MA's), (23, 12258), (26, 12270), (Start: 28 @12276 has 4 MA's), (38, 12333), (39, 12336), (40, 12339), (41, 12342), (46, 12366), (58, 12450), (60, 12462), (65, 12489), (71, 12528), (77, 12558), (97, 12711), (107, 12774), (116, 12798), (117, 12813), (121, 12855), (129, 12900), (144, 13002), (147, 13026), (164, 13140), (171, 13170),

Gene: Procrass1_15 Start: 11294, Stop: 12235, Start Num: 18

Candidate Starts for Procrass1_15:

(12, 11279), (Start: 15 @11285 has 1 MA's), (17, 11288), (Start: 18 @11294 has 44 MA's), (21, 11327), (25, 11345), (32, 11372), (34, 11381), (38, 11411), (39, 11414), (40, 11417), (43, 11429), (44, 11438), (47, 11453), (53, 11483), (56, 11513), (58, 11528), (60, 11540), (61, 11543), (62, 11546), (68, 11594), (70, 11612), (75, 11648), (77, 11654), (80, 11681), (83, 11705), (86, 11723), (87, 11732), (92, 11759), (93, 11765), (99, 11828), (101, 11840), (109, 11882), (110, 11885), (111, 11888), (117, 11921), (118, 11939), (120, 11954), (123, 11975), (125, 11990), (128, 12005), (130, 12011), (151, 12083), (153, 12086), (156, 12104), (157, 12107), (159, 12116), (161, 12164), (163, 12176), (164, 12185), (168, 12200), (169, 12206), (172, 12221),

Gene: QueenBey_15 Start: 11288, Stop: 12235, Start Num: 18

Candidate Starts for QueenBey_15:

(12, 11273), (Start: 15 @11279 has 1 MA's), (Start: 18 @11288 has 44 MA's), (21, 11321), (23, 11327), (25, 11339), (26, 11342), (Start: 28 @11348 has 4 MA's), (32, 11372), (34, 11381), (38, 11411), (39, 11414), (40, 11417), (43, 11429), (44, 11438), (53, 11483), (56, 11513), (58, 11528), (59, 11534), (61, 11543), (68, 11594), (70, 11612), (73, 11639), (75, 11648), (77, 11654), (80, 11681), (83, 11705), (87, 11732), (91, 11756), (93, 11765), (99, 11828), (109, 11882), (110, 11885), (111, 11888), (118, 11939), (120, 11954), (123, 11975), (125, 11990), (128, 12005), (130, 12011), (151, 12083), (153, 12086), (156, 12104), (157, 12107), (159, 12116), (161, 12164), (163, 12176), (164, 12185), (168, 12200), (169, 12206), (172, 12221),

Gene: Raqqa_18 Start: 14740, Stop: 15720, Start Num: 6

Candidate Starts for Raqqa_18:

(Start: 6 @14740 has 1 MA's), (38, 14869), (43, 14887), (45, 14899), (53, 14941), (54, 14959), (60, 14998), (62, 15004), (68, 15034), (78, 15097), (96, 15241), (100, 15268), (104, 15304), (120, 15403), (124, 15433), (126, 15445), (131, 15466), (137, 15496), (140, 15529), (147, 15556), (158, 15598), (161, 15649), (163, 15661),

Gene: Rileysaurus_15 Start: 11284, Stop: 12231, Start Num: 18

Candidate Starts for Rileysaurus_15:

(Start: 15 @11275 has 1 MA's), (17, 11278), (Start: 18 @11284 has 44 MA's), (21, 11317), (25, 11335), (26, 11338), (Start: 28 @11344 has 4 MA's), (32, 11368), (34, 11377), (38, 11407), (39, 11410), (40, 11413), (43, 11425), (44, 11434), (53, 11479), (56, 11509), (58, 11524), (59, 11530), (62, 11542), (70, 11608), (73, 11635), (75, 11644), (77, 11650), (80, 11677), (87, 11728), (91, 11752), (93, 11761), (99, 11824), (101, 11836), (109, 11878), (110, 11881), (111, 11884), (118, 11935), (120, 11950), (123, 11971), (125, 11986), (128, 12001), (130, 12007), (151, 12079), (153, 12082), (156, 12100), (157, 12103), (159, 12112), (161, 12160), (163, 12172), (164, 12181), (168, 12196), (169, 12202), (172, 12217),

Gene: RootBeer_16 Start: 13240, Stop: 14184, Start Num: 11

Candidate Starts for RootBeer_16:

(5, 13192), (Start: 11 @13240 has 9 MA's), (46, 13408), (48, 13420), (53, 13447), (58, 13492), (68, 13558), (74, 13609), (79, 13633), (86, 13690), (89, 13714), (117, 13873), (156, 14056), (161, 14113),

Gene: Rooter_17 Start: 12775, Stop: 13614, Start Num: 28

Candidate Starts for Rooter_17:

(Start: 11 @12706 has 9 MA's), (Start: 28 @12775 has 4 MA's), (46, 12865), (53, 12904), (56, 12934), (58, 12949), (68, 12997), (81, 13087), (82, 13102), (87, 13138), (92, 13165), (93, 13171), (105, 13258), (117, 13303), (124, 13366), (125, 13372), (132, 13405), (136, 13432), (146, 13453), (154, 13477), (155, 13483), (158, 13495), (161, 13543), (162, 13549), (163, 13555),

Gene: SKKY_15 Start: 11329, Stop: 12270, Start Num: 18

Candidate Starts for SKKY_15:

(7, 11311), (Start: 18 @11329 has 44 MA's), (21, 11362), (23, 11368), (25, 11380), (32, 11407), (34, 11416), (38, 11446), (39, 11449), (40, 11452), (43, 11464), (44, 11473), (47, 11488), (53, 11518), (56, 11548), (58, 11563), (60, 11575), (62, 11581), (66, 11605), (68, 11629), (70, 11647), (75, 11683), (77, 11689), (80, 11716), (81, 11719), (83, 11740), (87, 11767), (91, 11791), (93, 11800), (99, 11863), (109, 11917), (110, 11920), (115, 11935), (118, 11974), (120, 11989), (123, 12010), (125, 12025), (128, 12040), (130, 12046), (151, 12118), (153, 12121), (156, 12139), (157, 12142), (159, 12151), (161, 12199), (163, 12211), (164, 12220), (168, 12235), (169, 12241), (172, 12256),

Gene: Sarge_17 Start: 13073, Stop: 13981, Start Num: 11

Candidate Starts for Sarge_17:

(Start: 11 @13073 has 9 MA's), (Start: 28 @13142 has 4 MA's), (38, 13199), (46, 13232), (53, 13271), (56, 13301), (58, 13316), (68, 13364), (81, 13454), (82, 13469), (87, 13505), (92, 13532), (93, 13538), (105, 13625), (117, 13670), (124, 13733), (125, 13739), (132, 13772), (136, 13799), (146, 13820), (154, 13844), (155, 13850), (158, 13862), (161, 13910), (162, 13916), (163, 13922),

Gene: Shoya_16 Start: 12709, Stop: 13617, Start Num: 11

Candidate Starts for Shoya_16:

(Start: 11 @12709 has 9 MA's), (Start: 28 @12778 has 4 MA's), (46, 12868), (53, 12907), (56, 12937), (58, 12952), (68, 13000), (81, 13090), (82, 13105), (87, 13141), (92, 13168), (93, 13174), (105, 13261), (117, 13306), (124, 13369), (125, 13375), (132, 13408), (136, 13435), (146, 13456), (154, 13480), (155, 13486), (158, 13498), (161, 13546), (162, 13552), (163, 13558),

Gene: Skitty_17 Start: 12921, Stop: 13763, Start Num: 28

Candidate Starts for Skitty_17:

(Start: 11 @12852 has 9 MA's), (Start: 28 @12921 has 4 MA's), (33, 12948), (43, 12999), (44, 13008), (46, 13014), (50, 13035), (56, 13083), (58, 13098), (77, 13206), (81, 13236), (82, 13251), (86, 13278), (87, 13287), (92, 13314), (105, 13407), (116, 13437), (117, 13452), (119, 13476), (120, 13485), (126, 13527), (132, 13554), (146, 13602), (161, 13692), (162, 13698), (163, 13704),

Gene: Solid_15 Start: 11283, Stop: 12224, Start Num: 18

Candidate Starts for Solid_15:

(12, 11268), (Start: 15 @11274 has 1 MA's), (17, 11277), (Start: 18 @11283 has 44 MA's), (21, 11316), (23, 11322), (24, 11331), (25, 11334), (32, 11361), (34, 11370), (38, 11400), (39, 11403), (40, 11406), (43, 11418), (44, 11427), (46, 11433), (53, 11472), (56, 11502), (58, 11517), (60, 11529), (61, 11532), (62, 11535), (68, 11583), (70, 11601), (75, 11637), (77, 11643), (80, 11670), (81, 11673), (83, 11694), (87, 11721), (91, 11745), (93, 11754), (101, 11829), (109, 11871), (110, 11874), (111, 11877), (115, 11889), (118, 11928), (120, 11943), (123, 11964), (125, 11979), (128, 11994), (130, 12000), (133, 12018), (151, 12072), (153, 12075), (156, 12093), (157, 12096), (161, 12153), (163, 12165), (164, 12174), (168, 12189), (169, 12195), (172, 12210),

Gene: Stormborn_15 Start: 11299, Stop: 12246, Start Num: 18

Candidate Starts for Stormborn_15:

(Start: 15 @11290 has 1 MA's), (17, 11293), (Start: 18 @11299 has 44 MA's), (21, 11332), (25, 11350), (26, 11353), (Start: 28 @11359 has 4 MA's), (32, 11383), (34, 11392), (38, 11422), (39, 11425), (40, 11428), (43, 11440), (44, 11449), (46, 11455), (53, 11494), (56, 11524), (58, 11539), (59, 11545), (62, 11557), (68, 11605), (70, 11623), (75, 11659), (77, 11665), (80, 11692), (83, 11716), (87, 11743), (92, 11770), (93, 11776), (99, 11839), (101, 11851), (109, 11893), (110, 11896), (111, 11899), (118, 11950), (120, 11965), (121, 11974), (123, 11986), (125, 12001), (130, 12022), (151, 12094), (153, 12097), (156, 12115), (157, 12118), (161, 12175), (163, 12187), (164, 12196), (168, 12211), (169, 12217), (172, 12232),

Gene: Supernova_15 Start: 11301, Stop: 12242, Start Num: 18

Candidate Starts for Supernova_15:

(7, 11283), (Start: 18 @11301 has 44 MA's), (21, 11334), (23, 11340), (25, 11352), (32, 11379), (34, 11388), (37, 11415), (38, 11418), (39, 11421), (40, 11424), (43, 11436), (44, 11445), (53, 11490), (56, 11520), (58, 11535), (60, 11547), (61, 11550), (62, 11553), (66, 11577), (68, 11601), (70, 11619), (75, 11655), (77, 11661), (80, 11688), (83, 11712), (86, 11730), (87, 11739), (92, 11766), (93, 11772), (99, 11835), (109, 11889), (110, 11892), (111, 11895), (115, 11907), (118, 11946), (120, 11961), (123, 11982), (125, 11997), (128, 12012), (130, 12018), (151, 12090), (153, 12093), (156, 12111), (157, 12114), (159, 12123), (161, 12171), (163, 12183), (164, 12192), (168, 12207), (169, 12213), (172, 12228),

Gene: Wizzo_15 Start: 11316, Stop: 12257, Start Num: 18

Candidate Starts for Wizzo_15:

(Start: 15 @11307 has 1 MA's), (17, 11310), (Start: 18 @11316 has 44 MA's), (21, 11349), (23, 11355), (25, 11367), (32, 11394), (34, 11403), (38, 11433), (39, 11436), (40, 11439), (53, 11505), (56, 11535), (58, 11550), (60, 11562), (61, 11565), (62, 11568), (66, 11592), (68, 11616), (69, 11631), (70, 11634), (75, 11670), (77, 11676), (80, 11703), (81, 11706), (87, 11754), (91, 11778), (92, 11781), (93, 11787), (99, 11850), (101, 11862), (106, 11892), (109, 11904), (110, 11907), (111, 11910), (118, 11961), (120, 11976), (123, 11997), (125, 12012), (128, 12027), (130, 12033), (151, 12105), (153, 12108), (156, 12126), (157, 12129), (159, 12138), (161, 12186), (163, 12198), (164, 12207), (167, 12219), (168, 12222), (169, 12228), (172, 12243),

Gene: Zucker_19 Start: 14495, Stop: 15337, Start Num: 28

Candidate Starts for Zucker_19:

(Start: 11 @14426 has 9 MA's), (16, 14435), (19, 14453), (20, 14456), (22, 14471), (Start: 28 @14495 has 4 MA's), (29, 14498), (38, 14552), (44, 14582), (46, 14588), (53, 14627), (55, 14654), (56, 14657), (58, 14672), (68, 14720), (72, 14762), (77, 14780), (82, 14825), (87, 14861), (88, 14864), (92, 14888), (105, 14981), (117, 15026), (120, 15059), (124, 15089), (130, 15116), (132, 15128), (135, 15149), (146, 15176), (155, 15206), (160, 15260), (161, 15266), (163, 15278),