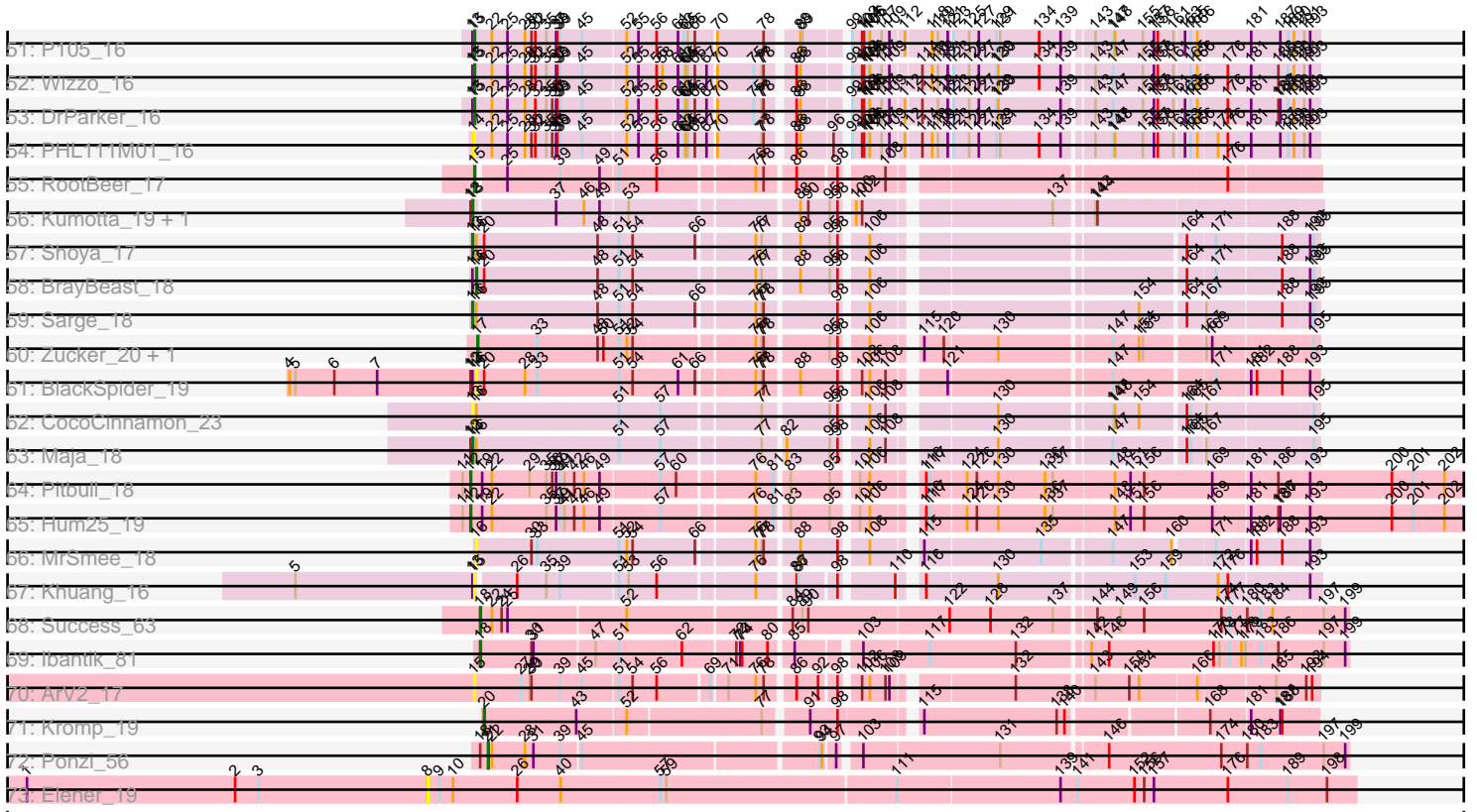


Pham 196471



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 196471 Report

This analysis was run 12/09/24 on database version 580.

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 196471 has 80 members, 21 are drafts.

Phages represented in each track:

- Track 1 : AbbyDaisy_19
- Track 2 : Raqqa_19
- Track 3 : P107A_16
- Track 4 : QueenBey_16
- Track 5 : Keiki_16, Pirate_16
- Track 6 : Procrass1_16
- Track 7 : Kubed_16
- Track 8 : Attacne_16
- Track 9 : Lauchelly_16
- Track 10 : P100.1_16
- Track 11 : P106L_16, P106C_16, P106I_16, P106M_16
- Track 12 : Enochoraptor_16
- Track 13 : PHL071N05_16
- Track 14 : PA6_16
- Track 15 : PHL112N00_16
- Track 16 : PHL114L00_16
- Track 17 : Moyashi_16
- Track 18 : P100D_16
- Track 19 : P101A_16
- Track 20 : P1.1_16
- Track 21 : P108C_16
- Track 22 : Ouroboros_16
- Track 23 : PAD20_16
- Track 24 : MEAK_16
- Track 25 : P107C_16, ATCC29399BC_16
- Track 26 : Stormborn_16
- Track 27 : PHL113M01_16
- Track 28 : Rileysaurus_16
- Track 29 : P104A_16
- Track 30 : LilBandit_16
- Track 31 : PAS50_16
- Track 32 : PHL067M10_16
- Track 33 : SKKY_16

- Track 34 : P106A_16
- Track 35 : Enoki_16
- Track 36 : Solid_16
- Track 37 : P100A_16
- Track 38 : PHL037M02_16
- Track 39 : MrAK_16
- Track 40 : Leviosa_16
- Track 41 : P9.1_16
- Track 42 : Aquarius_16
- Track 43 : PHL010M04_16
- Track 44 : P104B_16
- Track 45 : ATCC29399BT_16
- Track 46 : BruceLethal_16
- Track 47 : Supernova_16
- Track 48 : Cota_16
- Track 49 : PHL060L00_16
- Track 50 : P14.4_16
- Track 51 : P105_16
- Track 52 : Wizzo_16
- Track 53 : DrParker_16
- Track 54 : PHL111M01_16
- Track 55 : RootBeer_17
- Track 56 : Kumotta_19, MargaretKali_19
- Track 57 : Shoya_17
- Track 58 : BrayBeast_18
- Track 59 : Sarge_18
- Track 60 : Zucker_20, Bauer_21
- Track 61 : BlackSpider_19
- Track 62 : CocoCinnamon_23
- Track 63 : Maja_18
- Track 64 : Pitbull_18
- Track 65 : Hum25_19
- Track 66 : MrSmee_18
- Track 67 : Khuang_16
- Track 68 : Success_63
- Track 69 : lbantik_81
- Track 70 : ArV2_17
- Track 71 : Kromp_19
- Track 72 : Ponzi_56
- Track 73 : Elener_19

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

The start number called the most often in the published annotations is 15, it was called in 41 of the 59 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ATCC29399BC_16, ATCC29399BT_16, AbbyDaisy_19, Aquarius_16, ArV2_17, Attacne_16, BruceLethal_16, Cota_16, DrParker_16, Enochoraptor_16, Enoki_16, Keiki_16, Khuang_16, Kubed_16, Lauchelly_16, Leviosa_16, MEAK_16,

Moyashi_16, MrAK_16, Ouroboros_16, P100.1_16, P100A_16, P100D_16, P101A_16, P104A_16, P104B_16, P105_16, P106A_16, P106C_16, P106I_16, P106L_16, P106M_16, P107A_16, P107C_16, P108C_16, PA6_16, PAD20_16, PAS50_16, PHL037M02_16, Pirate_16, Procrass1_16, QueenBey_16, Raqqa_19, Rileysaurus_16, RootBeer_17, SKKY_16, Solid_16, Stormborn_16, Supernova_16, Wizzo_16,

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

- LilBandit_16, P1.1_16, P14.4_16, P9.1_16, PHL010M04_16, PHL060L00_16, PHL067M10_16, PHL071N05_16, PHL112N00_16, PHL113M01_16, PHL114L00_16,

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

- Bauer_21, BlackSpider_19, BrayBeast_18, CocoCinnamon_23, Elener_19, Hum25_19, Ibantik_81, Kromp_19, Kumotta_19, Maja_18, MargaretKali_19, MrSme_18, PHL111M01_16, Pitbull_18, Ponzi_56, Sarge_18, Shoya_17, Success_63, Zucker_20,

Summary by start number:

Start 8:

- Found in 1 of 80 (1.2%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Elener_19 (singleton),

Start 12:

- Found in 8 of 80 (10.0%) of genes in pham
- Manual Annotations of this start: 2 of 59
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Hum25_19 (FQ), Pitbull_18 (FQ),

Start 13:

- Found in 52 of 80 (65.0%) of genes in pham
- Manual Annotations of this start: 9 of 59
- Called 32.7% of time when present
- Phage (with cluster) where this start called: CocoCinnamon_23 (FO), Kumotta_19 (FB), LilBandit_16 (BU), Maja_18 (FO), MargaretKali_19 (FB), P1.1_16 (BU), P14.4_16 (BU), P9.1_16 (BU), PHL010M04_16 (BU), PHL060L00_16 (BU), PHL067M10_16 (BU), PHL071N05_16 (BU), PHL112N00_16 (BU), PHL113M01_16 (BU), PHL114L00_16 (BU), Sarge_18 (FB), Shoya_17 (FB),

Start 14:

- Found in 1 of 80 (1.2%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: PHL111M01_16 (BU),

Start 15:

- Found in 61 of 80 (76.2%) of genes in pham
- Manual Annotations of this start: 41 of 59
- Called 82.0% of time when present

- Phage (with cluster) where this start called: ATCC29399BC_16 (BU), ATCC29399BT_16 (BU), AbbyDaisy_19 (AY), Aquarius_16 (BU), ArV2_17 (singleton), Attacne_16 (BU), BruceLethal_16 (BU), Cota_16 (BU), DrParker_16 (BU), Enochoraptor_16 (BU), Enoki_16 (BU), Keiki_16 (BU), Khuang_16 (UNK), Kubed_16 (BU), Lauchelly_16 (BU), Leviosa_16 (BU), MEAK_16 (BU), Moyashi_16 (BU), MrAK_16 (BU), Ouroboros_16 (BU), P100.1_16 (BU), P100A_16 (BU), P100D_16 (BU), P101A_16 (BU), P104A_16 (BU), P104B_16 (BU), P105_16 (BU), P106A_16 (BU), P106C_16 (BU), P106I_16 (BU), P106L_16 (BU), P106M_16 (BU), P107A_16 (BU), P107C_16 (BU), P108C_16 (BU), PA6_16 (BU), PAD20_16 (BU), PAS50_16 (BU), PHL037M02_16 (BU), Pirate_16 (BU), Procrass1_16 (BU), QueenBey_16 (BU), Raqqa_19 (AY), Rileysaurus_16 (BU), RootBeer_17 (FA), SKKY_16 (BU), Solid_16 (BU), Stormborn_16 (BU), Supernova_16 (BU), Wizzo_16 (BU),

Start 16:

- Found in 7 of 80 (8.8%) of genes in pham
- Manual Annotations of this start: 1 of 59
- Called 42.9% of time when present
- Phage (with cluster) where this start called: BlackSpider_19 (FN), BrayBeast_18 (FB), MrSmee_18 (UNK),

Start 17:

- Found in 2 of 80 (2.5%) of genes in pham
- Manual Annotations of this start: 2 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bauer_21 (FN), Zucker_20 (FN),

Start 18:

- Found in 3 of 80 (3.8%) of genes in pham
- Manual Annotations of this start: 2 of 59
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Ibantik_81 (singleton), Success_63 (singleton),

Start 20:

- Found in 4 of 80 (5.0%) of genes in pham
- Manual Annotations of this start: 1 of 59
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Kromp_19 (singleton),

Start 21:

- Found in 1 of 80 (1.2%) of genes in pham
- Manual Annotations of this start: 1 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ponzi_56 (singleton),

Summary by clusters:

There are 9 clusters represented in this pham: FQ, singleton, FA, BU, FB, AY, UNK, FN, FO,

Info for manual annotations of cluster AY:

- Start number 15 was manually annotated 1 time for cluster AY.

Info for manual annotations of cluster BU:

- Start number 13 was manually annotated 4 times for cluster BU.
- Start number 15 was manually annotated 39 times for cluster BU.

Info for manual annotations of cluster FA:

- Start number 15 was manually annotated 1 time for cluster FA.

Info for manual annotations of cluster FB:

- Start number 13 was manually annotated 4 times for cluster FB.
- Start number 16 was manually annotated 1 time for cluster FB.

Info for manual annotations of cluster FN:

- Start number 17 was manually annotated 2 times for cluster FN.

Info for manual annotations of cluster FO:

- Start number 13 was manually annotated 1 time for cluster FO.

Info for manual annotations of cluster FQ:

- Start number 12 was manually annotated 2 times for cluster FQ.

Gene Information:

Gene: ATCC29399BC_16 Start: 12232, Stop: 13389, Start Num: 15

Candidate Starts for ATCC29399BC_16:

(Start: 13 @12229 has 9 MA's), (Start: 15 @12232 has 41 MA's), (22, 12259), (25, 12283), (28, 12310), (30, 12316), (32, 12322), (35, 12337), (37, 12352), (38, 12355), (39, 12358), (45, 12388), (52, 12451), (56, 12493), (61, 12526), (63, 12535), (65, 12541), (66, 12550), (67, 12568), (68, 12571), (77, 12643), (78, 12646), (86, 12679), (88, 12685), (96, 12730), (99, 12742), (102, 12757), (105, 12766), (106, 12769), (107, 12784), (109, 12796), (115, 12838), (118, 12850), (119, 12859), (121, 12874), (123, 12877), (125, 12901), (127, 12916), (129, 12943), (130, 12946), (134, 13003), (139, 13036), (143, 13072), (147, 13099), (155, 13141), (157, 13156), (158, 13159), (161, 13183), (163, 13195), (165, 13204), (166, 13210), (176, 13252), (181, 13288), (187, 13333), (189, 13345), (190, 13354), (191, 13366), (193, 13375),

Gene: ATCC29399BT_16 Start: 12235, Stop: 13392, Start Num: 15

Candidate Starts for ATCC29399BT_16:

(Start: 15 @12235 has 41 MA's), (22, 12262), (25, 12286), (32, 12325), (35, 12340), (37, 12355), (38, 12358), (39, 12361), (45, 12391), (52, 12454), (56, 12496), (61, 12529), (63, 12538), (64, 12541), (65, 12544), (66, 12553), (67, 12571), (68, 12574), (75, 12634), (77, 12646), (78, 12649), (86, 12682), (88, 12688), (99, 12745), (102, 12760), (104, 12763), (105, 12769), (106, 12772), (107, 12787), (109, 12799), (113, 12820), (114, 12838), (115, 12841), (118, 12853), (119, 12862), (123, 12880), (125, 12904), (127, 12919), (129, 12946), (134, 13006), (139, 13039), (143, 13075), (147, 13102), (155, 13144), (157, 13159), (158, 13162), (161, 13186), (163, 13198), (166, 13213), (172, 13240), (176, 13255), (181, 13291), (187, 13336), (190, 13357), (191, 13369), (193, 13378),

Gene: AbbyDaisy_19 Start: 15422, Stop: 16528, Start Num: 15

Candidate Starts for AbbyDaisy_19:

(Start: 12 @15416 has 2 MA's), (Start: 15 @15422 has 41 MA's), (23, 15452), (28, 15500), (32, 15512), (34, 15524), (51, 15629), (56, 15680), (76, 15806), (78, 15818), (93, 15887), (108, 15959),

(162, 16334), (175, 16394), (190, 16493),

Gene: Aquarius_16 Start: 12255, Stop: 13412, Start Num: 15

Candidate Starts for Aquarius_16:

(Start: 13 @12252 has 9 MA's), (Start: 15 @12255 has 41 MA's), (22, 12282), (25, 12306), (28, 12333), (30, 12339), (32, 12345), (35, 12360), (37, 12375), (38, 12378), (39, 12381), (45, 12411), (52, 12474), (54, 12483), (55, 12492), (56, 12516), (61, 12549), (63, 12558), (64, 12561), (65, 12564), (66, 12573), (67, 12591), (70, 12600), (75, 12654), (77, 12666), (78, 12669), (86, 12702), (88, 12708), (96, 12753), (99, 12765), (102, 12780), (104, 12783), (105, 12789), (106, 12792), (107, 12807), (109, 12819), (114, 12858), (115, 12861), (118, 12873), (119, 12882), (121, 12897), (123, 12900), (125, 12924), (127, 12939), (129, 12966), (130, 12969), (134, 13026), (139, 13059), (143, 13095), (147, 13122), (155, 13164), (157, 13179), (158, 13182), (161, 13206), (163, 13218), (165, 13227), (166, 13233), (172, 13260), (176, 13275), (181, 13311), (186, 13353), (187, 13356), (189, 13368), (190, 13377), (191, 13389), (193, 13398),

Gene: ArV2_17 Start: 13763, Stop: 14869, Start Num: 15

Candidate Starts for ArV2_17:

(Start: 15 @13763 has 41 MA's), (27, 13835), (29, 13844), (30, 13847), (39, 13889), (45, 13919), (51, 13970), (54, 13991), (56, 14021), (69, 14093), (71, 14108), (76, 14147), (78, 14159), (86, 14192), (92, 14225), (98, 14246), (102, 14267), (106, 14279), (108, 14300), (109, 14306), (132, 14462), (143, 14564), (150, 14609), (154, 14624), (166, 14699), (185, 14807), (192, 14849), (194, 14858),

Gene: Attacne_16 Start: 12235, Stop: 13392, Start Num: 15

Candidate Starts for Attacne_16:

(Start: 15 @12235 has 41 MA's), (22, 12262), (25, 12286), (28, 12313), (30, 12319), (32, 12325), (35, 12340), (36, 12349), (37, 12355), (38, 12358), (39, 12361), (45, 12391), (52, 12454), (55, 12472), (56, 12496), (61, 12529), (63, 12538), (64, 12541), (65, 12544), (66, 12553), (67, 12571), (75, 12634), (77, 12646), (78, 12649), (86, 12682), (88, 12688), (99, 12745), (102, 12760), (104, 12763), (105, 12769), (106, 12772), (107, 12787), (109, 12799), (115, 12841), (118, 12853), (119, 12862), (121, 12877), (123, 12880), (125, 12904), (127, 12919), (129, 12946), (131, 12952), (134, 13006), (139, 13039), (143, 13075), (147, 13102), (155, 13144), (157, 13159), (158, 13162), (161, 13186), (163, 13198), (165, 13207), (166, 13213), (172, 13240), (176, 13255), (181, 13291), (186, 13333), (187, 13336), (190, 13357), (191, 13369), (193, 13378),

Gene: Bauer_21 Start: 16040, Stop: 17158, Start Num: 17

Candidate Starts for Bauer_21:

(Start: 17 @16040 has 2 MA's), (33, 16127), (48, 16214), (50, 16223), (51, 16247), (52, 16259), (54, 16268), (76, 16430), (77, 16439), (78, 16442), (95, 16526), (98, 16538), (106, 16571), (115, 16622), (120, 16652), (130, 16730), (147, 16880), (154, 16916), (155, 16922), (167, 16994), (169, 17003), (195, 17150),

Gene: BlackSpider_19 Start: 15684, Stop: 16802, Start Num: 16

Candidate Starts for BlackSpider_19:

(4, 15396), (5, 15405), (6, 15465), (7, 15531), (Start: 12 @15675 has 2 MA's), (Start: 13 @15678 has 9 MA's), (Start: 16 @15684 has 1 MA's), (Start: 20 @15693 has 1 MA's), (28, 15756), (33, 15771), (51, 15891), (54, 15912), (61, 15978), (66, 16002), (76, 16074), (77, 16083), (78, 16086), (88, 16128), (98, 16182), (102, 16203), (106, 16215), (108, 16236), (121, 16302), (147, 16524), (171, 16653), (181, 16701), (182, 16710), (188, 16749), (193, 16788),

Gene: BrayBeast_18 Start: 14080, Stop: 15198, Start Num: 16

Candidate Starts for BrayBeast_18:

(Start: 13 @14074 has 9 MA's), (Start: 16 @14080 has 1 MA's), (Start: 20 @14089 has 1 MA's), (48, 14254), (51, 14287), (54, 14308), (76, 14470), (77, 14479), (88, 14524), (95, 14566), (98, 14578),

(106, 14611), (164, 15013), (171, 15049), (188, 15145), (193, 15184), (195, 15190),

Gene: BruceLethal_16 Start: 12244, Stop: 13401, Start Num: 15

Candidate Starts for BruceLethal_16:

(Start: 15 @12244 has 41 MA's), (22, 12271), (25, 12295), (30, 12328), (32, 12334), (35, 12349), (37, 12364), (38, 12367), (39, 12370), (45, 12400), (52, 12463), (54, 12472), (56, 12505), (61, 12538), (63, 12547), (64, 12550), (65, 12553), (67, 12580), (75, 12643), (77, 12655), (78, 12658), (86, 12691), (88, 12697), (96, 12742), (99, 12754), (102, 12769), (104, 12772), (105, 12778), (106, 12781), (107, 12796), (109, 12808), (113, 12829), (115, 12850), (118, 12862), (119, 12871), (121, 12886), (123, 12889), (125, 12913), (127, 12928), (129, 12955), (134, 13015), (139, 13048), (143, 13084), (147, 13111), (149, 13123), (155, 13153), (157, 13168), (158, 13171), (161, 13195), (163, 13207), (165, 13216), (166, 13222), (176, 13264), (181, 13300), (190, 13366), (191, 13378), (193, 13387),

Gene: CocoCinnamon_23 Start: 15713, Stop: 16837, Start Num: 13

Candidate Starts for CocoCinnamon_23:

(Start: 13 @15713 has 9 MA's), (Start: 16 @15719 has 1 MA's), (51, 15926), (57, 15986), (77, 16118), (95, 16205), (98, 16217), (106, 16250), (108, 16271), (130, 16409), (147, 16559), (148, 16562), (154, 16595), (164, 16652), (165, 16658), (167, 16673), (195, 16829),

Gene: Cota_16 Start: 12250, Stop: 13407, Start Num: 15

Candidate Starts for Cota_16:

(Start: 13 @12247 has 9 MA's), (Start: 15 @12250 has 41 MA's), (22, 12277), (25, 12301), (28, 12328), (30, 12334), (32, 12340), (35, 12355), (37, 12370), (38, 12373), (39, 12376), (45, 12406), (52, 12469), (55, 12487), (56, 12511), (61, 12544), (63, 12553), (65, 12559), (66, 12568), (67, 12586), (70, 12595), (75, 12649), (78, 12664), (88, 12703), (89, 12706), (96, 12748), (99, 12760), (102, 12775), (104, 12778), (105, 12784), (106, 12787), (107, 12802), (109, 12814), (112, 12832), (118, 12868), (119, 12877), (121, 12892), (123, 12895), (125, 12919), (127, 12934), (129, 12961), (130, 12964), (134, 13021), (139, 13054), (143, 13090), (147, 13117), (155, 13159), (157, 13174), (158, 13177), (161, 13201), (165, 13222), (166, 13228), (176, 13270), (181, 13306), (186, 13348), (190, 13372), (191, 13384), (193, 13393),

Gene: DrParker_16 Start: 12276, Stop: 13433, Start Num: 15

Candidate Starts for DrParker_16:

(Start: 13 @12273 has 9 MA's), (Start: 15 @12276 has 41 MA's), (22, 12303), (25, 12327), (28, 12354), (32, 12366), (35, 12381), (36, 12390), (37, 12396), (38, 12399), (39, 12402), (45, 12432), (52, 12495), (55, 12513), (56, 12537), (61, 12570), (63, 12579), (64, 12582), (65, 12585), (66, 12594), (67, 12612), (70, 12621), (75, 12675), (77, 12687), (78, 12690), (86, 12723), (88, 12729), (99, 12786), (102, 12801), (104, 12804), (105, 12810), (106, 12813), (107, 12828), (109, 12840), (112, 12858), (114, 12879), (119, 12903), (121, 12918), (123, 12921), (125, 12945), (127, 12960), (129, 12987), (130, 12990), (139, 13080), (143, 13116), (147, 13143), (155, 13185), (157, 13200), (158, 13203), (161, 13227), (163, 13239), (165, 13248), (166, 13254), (176, 13296), (181, 13332), (186, 13374), (187, 13377), (189, 13389), (190, 13398), (191, 13410), (193, 13419),

Gene: Elener_19 Start: 16464, Stop: 17870, Start Num: 8

Candidate Starts for Elener_19:

(1, 15846), (2, 16167), (3, 16203), (8, 16464), (9, 16482), (10, 16503), (26, 16602), (40, 16668), (57, 16821), (59, 16830), (111, 17175), (139, 17415), (141, 17442), (152, 17529), (156, 17544), (157, 17559), (176, 17673), (189, 17766), (198, 17826),

Gene: Enochoraptor_16 Start: 12247, Stop: 13404, Start Num: 15

Candidate Starts for Enochoraptor_16:

(Start: 13 @12244 has 9 MA's), (Start: 15 @12247 has 41 MA's), (22, 12274), (25, 12298), (28, 12325), (32, 12337), (35, 12352), (37, 12367), (38, 12370), (45, 12403), (52, 12466), (54, 12475), (56,

12508), (61, 12541), (63, 12550), (64, 12553), (65, 12556), (66, 12565), (67, 12583), (68, 12586), (75, 12646), (77, 12658), (78, 12661), (86, 12694), (88, 12700), (96, 12745), (99, 12757), (104, 12775), (105, 12781), (106, 12784), (107, 12799), (109, 12811), (114, 12850), (118, 12865), (119, 12874), (121, 12889), (123, 12892), (125, 12916), (129, 12958), (130, 12961), (131, 12964), (134, 13018), (139, 13051), (143, 13087), (147, 13114), (148, 13117), (155, 13156), (157, 13171), (158, 13174), (161, 13198), (163, 13210), (165, 13219), (166, 13225), (172, 13252), (176, 13267), (181, 13303), (186, 13345), (187, 13348), (189, 13360), (190, 13369), (191, 13381), (193, 13390),

Gene: Enoki_16 Start: 12229, Stop: 13386, Start Num: 15

Candidate Starts for Enoki_16:

(Start: 13 @12226 has 9 MA's), (Start: 15 @12229 has 41 MA's), (22, 12256), (25, 12280), (28, 12307), (30, 12313), (32, 12319), (35, 12334), (37, 12349), (38, 12352), (39, 12355), (45, 12385), (52, 12448), (55, 12466), (56, 12490), (61, 12523), (63, 12532), (65, 12538), (66, 12547), (67, 12565), (70, 12574), (78, 12643), (86, 12676), (88, 12682), (99, 12739), (102, 12754), (104, 12757), (105, 12763), (106, 12766), (107, 12781), (109, 12793), (114, 12832), (115, 12835), (118, 12847), (119, 12856), (121, 12871), (123, 12874), (125, 12898), (127, 12913), (129, 12940), (130, 12943), (134, 13000), (139, 13033), (143, 13069), (147, 13096), (148, 13099), (155, 13138), (157, 13153), (158, 13156), (161, 13180), (163, 13192), (165, 13201), (166, 13207), (181, 13285), (186, 13327), (189, 13342), (190, 13351), (191, 13363), (193, 13372),

Gene: Hum25_19 Start: 13554, Stop: 15002, Start Num: 12

Candidate Starts for Hum25_19:

(11, 13542), (Start: 12 @13554 has 2 MA's), (19, 13569), (22, 13584), (35, 13662), (37, 13677), (39, 13683), (41, 13689), (42, 13704), (46, 13716), (49, 13740), (57, 13824), (76, 13947), (81, 13974), (83, 13989), (95, 14046), (101, 14076), (106, 14091), (116, 14145), (117, 14151), (124, 14202), (126, 14217), (130, 14250), (136, 14316), (137, 14328), (148, 14415), (151, 14436), (156, 14457), (169, 14556), (181, 14610), (186, 14649), (187, 14652), (193, 14694), (200, 14820), (201, 14853), (202, 14901),

Gene: lbantik_81 Start: 42960, Stop: 44192, Start Num: 18

Candidate Starts for lbantik_81:

(Start: 18 @42960 has 2 MA's), (30, 43035), (31, 43038), (47, 43125), (51, 43161), (62, 43257), (72, 43329), (73, 43335), (74, 43338), (80, 43374), (85, 43404), (103, 43485), (117, 43578), (132, 43707), (142, 43803), (146, 43830), (170, 43989), (173, 43998), (177, 44013), (178, 44031), (179, 44037), (183, 44061), (186, 44088), (197, 44154), (199, 44187),

Gene: Keiki_16 Start: 12250, Stop: 13407, Start Num: 15

Candidate Starts for Keiki_16:

(Start: 15 @12250 has 41 MA's), (22, 12277), (25, 12301), (30, 12334), (32, 12340), (35, 12355), (37, 12370), (38, 12373), (39, 12376), (45, 12406), (52, 12469), (54, 12478), (56, 12511), (61, 12544), (63, 12553), (64, 12556), (65, 12559), (66, 12568), (67, 12586), (68, 12589), (75, 12649), (77, 12661), (78, 12664), (88, 12703), (89, 12706), (96, 12748), (99, 12760), (102, 12775), (104, 12778), (105, 12784), (106, 12787), (107, 12802), (109, 12814), (113, 12835), (115, 12856), (118, 12868), (119, 12877), (121, 12892), (123, 12895), (125, 12919), (127, 12934), (129, 12961), (134, 13021), (139, 13054), (143, 13090), (147, 13117), (155, 13159), (157, 13174), (158, 13177), (161, 13201), (163, 13213), (166, 13228), (176, 13270), (181, 13306), (186, 13348), (187, 13351), (190, 13372), (191, 13384), (193, 13393),

Gene: Khuang_16 Start: 13963, Stop: 15075, Start Num: 15

Candidate Starts for Khuang_16:

(5, 13687), (Start: 13 @13960 has 9 MA's), (Start: 15 @13963 has 41 MA's), (26, 14017), (35, 14056), (39, 14077), (51, 14158), (53, 14173), (56, 14212), (76, 14341), (86, 14389), (87, 14392), (98, 14443), (110, 14512), (116, 14530), (130, 14635), (153, 14815), (159, 14857), (172, 14929), (176, 14944),

(193, 15058),

Gene: Kromp_19 Start: 17084, Stop: 18241, Start Num: 20

Candidate Starts for Kromp_19:

(Start: 20 @17084 has 1 MA's), (43, 17225), (52, 17294), (77, 17492), (91, 17549), (98, 17588), (115, 17687), (138, 17888), (140, 17900), (168, 18083), (181, 18140), (187, 18185), (188, 18188),

Gene: Kubed_16 Start: 12239, Stop: 13396, Start Num: 15

Candidate Starts for Kubed_16:

(Start: 15 @12239 has 41 MA's), (22, 12266), (25, 12290), (28, 12317), (32, 12329), (35, 12344), (37, 12359), (38, 12362), (39, 12365), (45, 12395), (49, 12422), (52, 12458), (54, 12467), (56, 12500), (61, 12533), (63, 12542), (64, 12545), (65, 12548), (66, 12557), (75, 12638), (77, 12650), (78, 12653), (86, 12686), (88, 12692), (99, 12749), (102, 12764), (104, 12767), (105, 12773), (106, 12776), (107, 12791), (114, 12842), (115, 12845), (118, 12857), (119, 12866), (121, 12881), (123, 12884), (125, 12908), (127, 12923), (129, 12950), (131, 12956), (133, 13001), (139, 13043), (143, 13079), (145, 13085), (147, 13106), (148, 13109), (155, 13148), (157, 13163), (158, 13166), (160, 13187), (161, 13190), (163, 13202), (166, 13217), (172, 13244), (176, 13259), (181, 13295), (186, 13337), (187, 13340), (190, 13361), (191, 13373), (193, 13382),

Gene: Kumotta_19 Start: 15048, Stop: 16172, Start Num: 13

Candidate Starts for Kumotta_19:

(Start: 12 @15045 has 2 MA's), (Start: 13 @15048 has 9 MA's), (37, 15162), (46, 15201), (49, 15225), (53, 15264), (88, 15489), (90, 15501), (95, 15531), (98, 15543), (100, 15555), (102, 15564), (137, 15813), (143, 15861), (144, 15864),

Gene: Lauchelly_16 Start: 12253, Stop: 13410, Start Num: 15

Candidate Starts for Lauchelly_16:

(Start: 13 @12250 has 9 MA's), (Start: 15 @12253 has 41 MA's), (22, 12280), (25, 12304), (30, 12337), (32, 12343), (35, 12358), (37, 12373), (38, 12376), (39, 12379), (45, 12409), (52, 12472), (54, 12481), (55, 12490), (56, 12514), (61, 12547), (63, 12556), (64, 12559), (65, 12562), (66, 12571), (67, 12589), (68, 12592), (77, 12664), (78, 12667), (86, 12700), (88, 12706), (104, 12781), (105, 12787), (106, 12790), (107, 12805), (109, 12817), (114, 12856), (115, 12859), (118, 12871), (119, 12880), (121, 12895), (123, 12898), (125, 12922), (127, 12937), (129, 12964), (134, 13024), (139, 13057), (143, 13093), (147, 13120), (148, 13123), (155, 13162), (157, 13177), (158, 13180), (161, 13204), (163, 13216), (166, 13231), (176, 13273), (181, 13309), (186, 13351), (187, 13354), (189, 13366), (190, 13375), (191, 13387), (193, 13396),

Gene: Leviosa_16 Start: 12267, Stop: 13424, Start Num: 15

Candidate Starts for Leviosa_16:

(Start: 15 @12267 has 41 MA's), (22, 12294), (25, 12318), (30, 12351), (32, 12357), (35, 12372), (37, 12387), (38, 12390), (39, 12393), (45, 12423), (52, 12486), (56, 12528), (61, 12561), (63, 12570), (64, 12573), (65, 12576), (67, 12603), (68, 12606), (77, 12678), (78, 12681), (86, 12714), (88, 12720), (96, 12765), (99, 12777), (104, 12795), (105, 12801), (106, 12804), (107, 12819), (109, 12831), (114, 12870), (115, 12873), (118, 12885), (119, 12894), (121, 12909), (123, 12912), (125, 12936), (127, 12951), (129, 12978), (130, 12981), (134, 13038), (139, 13071), (143, 13107), (147, 13134), (148, 13137), (155, 13176), (157, 13191), (158, 13194), (161, 13218), (163, 13230), (166, 13245), (172, 13272), (176, 13287), (181, 13323), (186, 13365), (187, 13368), (190, 13389), (191, 13401),

Gene: LilBandit_16 Start: 12248, Stop: 13408, Start Num: 13

Candidate Starts for LilBandit_16:

(Start: 13 @12248 has 9 MA's), (Start: 15 @12251 has 41 MA's), (22, 12278), (25, 12302), (28, 12329), (30, 12335), (32, 12341), (37, 12371), (38, 12374), (39, 12377), (45, 12407), (52, 12470), (54, 12479), (55, 12488), (56, 12512), (61, 12545), (63, 12554), (64, 12557), (65, 12560), (66, 12569), (67,

12587), (70, 12596), (75, 12650), (77, 12662), (78, 12665), (86, 12698), (88, 12704), (96, 12749), (99, 12761), (102, 12776), (104, 12779), (105, 12785), (106, 12788), (107, 12803), (109, 12815), (114, 12854), (115, 12857), (118, 12869), (119, 12878), (121, 12893), (123, 12896), (125, 12920), (127, 12935), (129, 12962), (130, 12965), (139, 13055), (143, 13091), (147, 13118), (155, 13160), (157, 13175), (158, 13178), (161, 13202), (163, 13214), (165, 13223), (166, 13229), (176, 13271), (186, 13349), (189, 13364), (190, 13373), (191, 13385), (193, 13394),

Gene: MEAK_16 Start: 12237, Stop: 13394, Start Num: 15

Candidate Starts for MEAK_16:

(Start: 13 @12234 has 9 MA's), (Start: 15 @12237 has 41 MA's), (22, 12264), (25, 12288), (28, 12315), (30, 12321), (32, 12327), (35, 12342), (37, 12357), (38, 12360), (39, 12363), (45, 12393), (52, 12456), (54, 12465), (56, 12498), (61, 12531), (63, 12540), (65, 12546), (66, 12555), (67, 12573), (68, 12576), (70, 12582), (75, 12636), (77, 12648), (78, 12651), (86, 12684), (88, 12690), (99, 12747), (102, 12762), (104, 12765), (105, 12771), (106, 12774), (107, 12789), (109, 12801), (113, 12822), (114, 12840), (115, 12843), (118, 12855), (119, 12864), (121, 12879), (123, 12882), (125, 12906), (127, 12921), (129, 12948), (130, 12951), (134, 13008), (139, 13041), (143, 13077), (147, 13104), (155, 13146), (157, 13161), (158, 13164), (161, 13188), (163, 13200), (165, 13209), (166, 13215), (176, 13257), (181, 13293), (187, 13338), (190, 13359), (193, 13380),

Gene: Maja_18 Start: 14689, Stop: 15813, Start Num: 13

Candidate Starts for Maja_18:

(Start: 12 @14686 has 2 MA's), (Start: 13 @14689 has 9 MA's), (Start: 16 @14695 has 1 MA's), (51, 14902), (57, 14962), (77, 15094), (82, 15121), (95, 15181), (98, 15193), (106, 15226), (108, 15247), (130, 15385), (147, 15535), (164, 15628), (165, 15634), (167, 15649), (195, 15805),

Gene: MargaretKali_19 Start: 14683, Stop: 15807, Start Num: 13

Candidate Starts for MargaretKali_19:

(Start: 12 @14680 has 2 MA's), (Start: 13 @14683 has 9 MA's), (37, 14797), (46, 14836), (49, 14860), (53, 14899), (88, 15124), (90, 15136), (95, 15166), (98, 15178), (100, 15190), (102, 15199), (137, 15448), (143, 15496), (144, 15499),

Gene: Moyashi_16 Start: 12273, Stop: 13430, Start Num: 15

Candidate Starts for Moyashi_16:

(Start: 13 @12270 has 9 MA's), (Start: 15 @12273 has 41 MA's), (22, 12300), (25, 12324), (28, 12351), (32, 12363), (35, 12378), (36, 12387), (37, 12393), (38, 12396), (39, 12399), (45, 12429), (52, 12492), (55, 12510), (56, 12534), (61, 12567), (63, 12576), (65, 12582), (66, 12591), (70, 12618), (78, 12687), (88, 12726), (89, 12729), (99, 12783), (102, 12798), (104, 12801), (105, 12807), (106, 12810), (107, 12825), (109, 12837), (112, 12855), (118, 12891), (119, 12900), (121, 12915), (123, 12918), (125, 12942), (127, 12957), (129, 12984), (131, 12990), (134, 13044), (139, 13077), (143, 13113), (147, 13140), (148, 13143), (155, 13182), (157, 13197), (158, 13200), (161, 13224), (163, 13236), (165, 13245), (166, 13251), (176, 13293), (181, 13329), (187, 13374), (189, 13386), (190, 13395), (191, 13407), (193, 13416), (196, 13425),

Gene: MrAK_16 Start: 12284, Stop: 13441, Start Num: 15

Candidate Starts for MrAK_16:

(Start: 13 @12281 has 9 MA's), (Start: 15 @12284 has 41 MA's), (22, 12311), (25, 12335), (28, 12362), (30, 12368), (32, 12374), (35, 12389), (36, 12398), (37, 12404), (38, 12407), (39, 12410), (45, 12440), (52, 12503), (55, 12521), (56, 12545), (61, 12578), (63, 12587), (65, 12593), (66, 12602), (70, 12629), (78, 12698), (88, 12737), (89, 12740), (99, 12794), (102, 12809), (104, 12812), (105, 12818), (106, 12821), (107, 12836), (109, 12848), (112, 12866), (118, 12902), (119, 12911), (121, 12926), (123, 12929), (125, 12953), (127, 12968), (129, 12995), (131, 13001), (134, 13055), (139, 13088), (143, 13124), (147, 13151), (148, 13154), (155, 13193), (157, 13208), (158, 13211), (161, 13235), (163, 13247), (165, 13256), (166, 13262), (176, 13304), (181, 13340), (187, 13385), (189, 13397),

(190, 13406), (191, 13418), (193, 13427),

Gene: MrSmee_18 Start: 13774, Stop: 14892, Start Num: 16

Candidate Starts for MrSmee_18:

(Start: 16 @13774 has 1 MA's), (30, 13852), (33, 13861), (51, 13981), (52, 13993), (54, 14002), (66, 14092), (76, 14164), (77, 14173), (78, 14176), (88, 14218), (98, 14272), (106, 14305), (115, 14356), (135, 14524), (147, 14614), (160, 14695), (171, 14743), (181, 14791), (182, 14800), (188, 14839), (193, 14878),

Gene: Ouroboros_16 Start: 12239, Stop: 13396, Start Num: 15

Candidate Starts for Ouroboros_16:

(Start: 15 @12239 has 41 MA's), (22, 12266), (25, 12290), (28, 12317), (30, 12323), (32, 12329), (35, 12344), (37, 12359), (38, 12362), (39, 12365), (45, 12395), (52, 12458), (54, 12467), (56, 12500), (61, 12533), (63, 12542), (64, 12545), (65, 12548), (66, 12557), (67, 12575), (68, 12578), (75, 12638), (77, 12650), (78, 12653), (86, 12686), (88, 12692), (89, 12695), (96, 12737), (99, 12749), (102, 12764), (104, 12767), (105, 12773), (106, 12776), (107, 12791), (109, 12803), (113, 12824), (115, 12845), (118, 12857), (119, 12866), (121, 12881), (123, 12884), (125, 12908), (127, 12923), (129, 12950), (134, 13010), (139, 13043), (143, 13079), (147, 13106), (155, 13148), (157, 13163), (161, 13190), (163, 13202), (166, 13217), (172, 13244), (176, 13259), (181, 13295), (186, 13337), (190, 13361), (191, 13373),

Gene: P1.1_16 Start: 12239, Stop: 13399, Start Num: 13

Candidate Starts for P1.1_16:

(Start: 13 @12239 has 9 MA's), (Start: 15 @12242 has 41 MA's), (22, 12269), (25, 12293), (28, 12320), (30, 12326), (32, 12332), (35, 12347), (37, 12362), (38, 12365), (39, 12368), (45, 12398), (52, 12461), (55, 12479), (56, 12503), (61, 12536), (63, 12545), (65, 12551), (66, 12560), (67, 12578), (70, 12587), (75, 12641), (77, 12653), (78, 12656), (86, 12689), (88, 12695), (96, 12740), (99, 12752), (102, 12767), (104, 12770), (105, 12776), (106, 12779), (107, 12794), (109, 12806), (114, 12845), (115, 12848), (118, 12860), (119, 12869), (121, 12884), (123, 12887), (125, 12911), (127, 12926), (129, 12953), (130, 12956), (134, 13013), (139, 13046), (143, 13082), (147, 13109), (148, 13112), (155, 13151), (157, 13166), (158, 13169), (161, 13193), (165, 13214), (166, 13220), (176, 13262), (181, 13298), (187, 13343), (189, 13355), (190, 13364), (193, 13385),

Gene: P100.1_16 Start: 12249, Stop: 13406, Start Num: 15

Candidate Starts for P100.1_16:

(Start: 13 @12246 has 9 MA's), (Start: 15 @12249 has 41 MA's), (22, 12276), (25, 12300), (28, 12327), (32, 12339), (35, 12354), (36, 12363), (37, 12369), (38, 12372), (39, 12375), (44, 12402), (45, 12405), (52, 12468), (55, 12486), (56, 12510), (61, 12543), (63, 12552), (64, 12555), (65, 12558), (66, 12567), (67, 12585), (70, 12594), (77, 12660), (78, 12663), (86, 12696), (88, 12702), (99, 12759), (104, 12777), (105, 12783), (106, 12786), (107, 12801), (109, 12813), (112, 12831), (114, 12852), (119, 12876), (121, 12891), (123, 12894), (125, 12918), (127, 12933), (129, 12960), (130, 12963), (134, 13020), (139, 13053), (143, 13089), (147, 13116), (155, 13158), (157, 13173), (158, 13176), (161, 13200), (163, 13212), (165, 13221), (166, 13227), (176, 13269), (181, 13305), (186, 13347), (187, 13350), (189, 13362), (190, 13371), (191, 13383), (193, 13392),

Gene: P100A_16 Start: 12249, Stop: 13406, Start Num: 15

Candidate Starts for P100A_16:

(Start: 15 @12249 has 41 MA's), (22, 12276), (25, 12300), (30, 12333), (32, 12339), (35, 12354), (37, 12369), (38, 12372), (39, 12375), (45, 12405), (48, 12429), (52, 12468), (54, 12477), (56, 12510), (61, 12543), (63, 12552), (65, 12558), (66, 12567), (67, 12585), (68, 12588), (75, 12648), (77, 12660), (78, 12663), (86, 12696), (88, 12702), (89, 12705), (96, 12747), (99, 12759), (104, 12777), (107, 12801), (109, 12813), (115, 12855), (119, 12876), (121, 12891), (123, 12894), (125, 12918), (127, 12933), (129, 12960), (134, 13020), (139, 13053), (143, 13089), (147, 13116), (148, 13119), (155, 13158),

(157, 13173), (158, 13176), (161, 13200), (166, 13227), (172, 13254), (176, 13269), (181, 13305), (187, 13350), (190, 13371), (191, 13383), (193, 13392),

Gene: P100D_16 Start: 12245, Stop: 13402, Start Num: 15

Candidate Starts for P100D_16:

(Start: 13 @12242 has 9 MA's), (Start: 15 @12245 has 41 MA's), (22, 12272), (25, 12296), (28, 12323), (30, 12329), (32, 12335), (35, 12350), (37, 12365), (38, 12368), (39, 12371), (45, 12401), (52, 12464), (55, 12482), (56, 12506), (61, 12539), (63, 12548), (65, 12554), (66, 12563), (67, 12581), (70, 12590), (75, 12644), (77, 12656), (78, 12659), (86, 12692), (88, 12698), (96, 12743), (99, 12755), (104, 12773), (105, 12779), (106, 12782), (107, 12797), (109, 12809), (113, 12830), (114, 12848), (115, 12851), (118, 12863), (119, 12872), (121, 12887), (123, 12890), (125, 12914), (127, 12929), (129, 12956), (130, 12959), (134, 13016), (139, 13049), (143, 13085), (147, 13112), (155, 13154), (157, 13169), (158, 13172), (161, 13196), (163, 13208), (165, 13217), (166, 13223), (176, 13265), (181, 13301), (186, 13343), (190, 13367), (191, 13379), (193, 13388),

Gene: P101A_16 Start: 12257, Stop: 13414, Start Num: 15

Candidate Starts for P101A_16:

(Start: 13 @12254 has 9 MA's), (Start: 15 @12257 has 41 MA's), (22, 12284), (25, 12308), (28, 12335), (30, 12341), (32, 12347), (35, 12362), (37, 12377), (38, 12380), (39, 12383), (45, 12413), (52, 12476), (55, 12494), (56, 12518), (61, 12551), (63, 12560), (64, 12563), (65, 12566), (66, 12575), (67, 12593), (70, 12602), (77, 12668), (78, 12671), (86, 12704), (88, 12710), (99, 12767), (102, 12782), (104, 12785), (105, 12791), (106, 12794), (107, 12809), (109, 12821), (112, 12839), (114, 12860), (119, 12884), (121, 12899), (123, 12902), (125, 12926), (127, 12941), (129, 12968), (130, 12971), (139, 13061), (143, 13097), (147, 13124), (155, 13166), (157, 13181), (158, 13184), (161, 13208), (163, 13220), (165, 13229), (166, 13235), (176, 13277), (181, 13313), (186, 13355), (187, 13358), (189, 13370), (190, 13379), (191, 13391), (193, 13400),

Gene: P104A_16 Start: 12234, Stop: 13391, Start Num: 15

Candidate Starts for P104A_16:

(Start: 15 @12234 has 41 MA's), (22, 12261), (25, 12285), (30, 12318), (32, 12324), (35, 12339), (37, 12354), (38, 12357), (39, 12360), (45, 12390), (52, 12453), (55, 12471), (56, 12495), (61, 12528), (63, 12537), (65, 12543), (66, 12552), (67, 12570), (70, 12579), (77, 12645), (78, 12648), (86, 12681), (88, 12687), (99, 12744), (102, 12759), (104, 12762), (105, 12768), (106, 12771), (107, 12786), (109, 12798), (114, 12837), (115, 12840), (118, 12852), (119, 12861), (121, 12876), (123, 12879), (125, 12903), (127, 12918), (129, 12945), (130, 12948), (134, 13005), (139, 13038), (143, 13074), (147, 13101), (148, 13104), (155, 13143), (157, 13158), (158, 13161), (161, 13185), (166, 13212), (172, 13239), (176, 13254), (181, 13290), (186, 13332), (190, 13356), (191, 13368), (193, 13377),

Gene: P104B_16 Start: 12251, Stop: 13408, Start Num: 15

Candidate Starts for P104B_16:

(Start: 13 @12248 has 9 MA's), (Start: 15 @12251 has 41 MA's), (22, 12278), (25, 12302), (28, 12329), (30, 12335), (32, 12341), (35, 12356), (37, 12371), (38, 12374), (39, 12377), (45, 12407), (52, 12470), (54, 12479), (55, 12488), (56, 12512), (61, 12545), (63, 12554), (65, 12560), (66, 12569), (67, 12587), (70, 12596), (77, 12662), (78, 12665), (86, 12698), (88, 12704), (96, 12749), (102, 12776), (104, 12779), (105, 12785), (106, 12788), (107, 12803), (109, 12815), (114, 12854), (118, 12869), (119, 12878), (121, 12893), (123, 12896), (125, 12920), (127, 12935), (129, 12962), (130, 12965), (134, 13022), (139, 13055), (147, 13118), (155, 13160), (157, 13175), (158, 13178), (161, 13202), (163, 13214), (165, 13223), (166, 13229), (172, 13256), (176, 13271), (181, 13307), (187, 13352), (190, 13373), (191, 13385), (193, 13394),

Gene: P105_16 Start: 12154, Stop: 13311, Start Num: 15

Candidate Starts for P105_16:

(Start: 13 @12151 has 9 MA's), (Start: 15 @12154 has 41 MA's), (22, 12181), (25, 12205), (28, 12232), (30, 12238), (32, 12244), (35, 12259), (37, 12274), (38, 12277), (39, 12280), (45, 12310), (52, 12373), (55, 12391), (56, 12415), (61, 12448), (63, 12457), (65, 12463), (66, 12472), (70, 12499), (78, 12568), (88, 12607), (89, 12610), (99, 12664), (102, 12679), (104, 12682), (105, 12688), (106, 12691), (107, 12706), (109, 12718), (112, 12736), (118, 12772), (119, 12781), (121, 12796), (123, 12799), (125, 12823), (127, 12838), (129, 12865), (131, 12871), (134, 12925), (139, 12958), (143, 12994), (147, 13021), (148, 13024), (155, 13063), (157, 13078), (158, 13081), (161, 13105), (163, 13117), (165, 13126), (166, 13132), (181, 13210), (187, 13255), (189, 13267), (190, 13276), (191, 13288), (193, 13297),

Gene: P106A_16 Start: 12279, Stop: 13436, Start Num: 15

Candidate Starts for P106A_16:

(Start: 13 @12276 has 9 MA's), (Start: 15 @12279 has 41 MA's), (22, 12306), (25, 12330), (28, 12357), (32, 12369), (35, 12384), (36, 12393), (37, 12399), (38, 12402), (39, 12405), (45, 12435), (52, 12498), (55, 12516), (56, 12540), (61, 12573), (63, 12582), (64, 12585), (65, 12588), (66, 12597), (67, 12615), (70, 12624), (75, 12678), (77, 12690), (78, 12693), (86, 12726), (88, 12732), (99, 12789), (102, 12804), (104, 12807), (105, 12813), (106, 12816), (107, 12831), (109, 12843), (112, 12861), (114, 12882), (118, 12897), (119, 12906), (121, 12921), (123, 12924), (125, 12948), (127, 12963), (129, 12990), (130, 12993), (139, 13083), (143, 13119), (147, 13146), (155, 13188), (157, 13203), (158, 13206), (161, 13230), (165, 13251), (166, 13257), (172, 13284), (176, 13299), (181, 13335), (187, 13380), (190, 13401), (191, 13413), (193, 13422),

Gene: P106C_16 Start: 12279, Stop: 13436, Start Num: 15

Candidate Starts for P106C_16:

(Start: 13 @12276 has 9 MA's), (Start: 15 @12279 has 41 MA's), (22, 12306), (25, 12330), (28, 12357), (32, 12369), (35, 12384), (36, 12393), (37, 12399), (38, 12402), (39, 12405), (45, 12435), (52, 12498), (55, 12516), (56, 12540), (61, 12573), (63, 12582), (64, 12585), (65, 12588), (66, 12597), (67, 12615), (70, 12624), (75, 12678), (77, 12690), (78, 12693), (86, 12726), (88, 12732), (99, 12789), (102, 12804), (104, 12807), (105, 12813), (106, 12816), (107, 12831), (109, 12843), (112, 12861), (114, 12882), (118, 12897), (119, 12906), (121, 12921), (123, 12924), (125, 12948), (127, 12963), (129, 12990), (130, 12993), (139, 13083), (143, 13119), (147, 13146), (155, 13188), (157, 13203), (158, 13206), (161, 13230), (165, 13251), (166, 13257), (172, 13284), (176, 13299), (181, 13335), (187, 13380), (189, 13392), (190, 13401), (191, 13413), (193, 13422),

Gene: P106I_16 Start: 12279, Stop: 13436, Start Num: 15

Candidate Starts for P106I_16:

(Start: 13 @12276 has 9 MA's), (Start: 15 @12279 has 41 MA's), (22, 12306), (25, 12330), (28, 12357), (32, 12369), (35, 12384), (36, 12393), (37, 12399), (38, 12402), (39, 12405), (45, 12435), (52, 12498), (55, 12516), (56, 12540), (61, 12573), (63, 12582), (64, 12585), (65, 12588), (66, 12597), (67, 12615), (70, 12624), (75, 12678), (77, 12690), (78, 12693), (86, 12726), (88, 12732), (99, 12789), (102, 12804), (104, 12807), (105, 12813), (106, 12816), (107, 12831), (109, 12843), (112, 12861), (114, 12882), (118, 12897), (119, 12906), (121, 12921), (123, 12924), (125, 12948), (127, 12963), (129, 12990), (130, 12993), (139, 13083), (143, 13119), (147, 13146), (155, 13188), (157, 13203), (158, 13206), (161, 13230), (165, 13251), (166, 13257), (172, 13284), (176, 13299), (181, 13335), (187, 13380), (189, 13392), (190, 13401), (191, 13413), (193, 13422),

Gene: P106L_16 Start: 12279, Stop: 13436, Start Num: 15

Candidate Starts for P106L_16:

(Start: 13 @12276 has 9 MA's), (Start: 15 @12279 has 41 MA's), (22, 12306), (25, 12330), (28, 12357), (32, 12369), (35, 12384), (36, 12393), (37, 12399), (38, 12402), (39, 12405), (45, 12435), (52, 12498), (55, 12516), (56, 12540), (61, 12573), (63, 12582), (64, 12585), (65, 12588), (66, 12597), (67, 12615), (70, 12624), (75, 12678), (77, 12690), (78, 12693), (86, 12726), (88, 12732), (99, 12789), (102, 12804), (104, 12807), (105, 12813), (106, 12816), (107, 12831), (109, 12843), (112, 12861),

(114, 12882), (118, 12897), (119, 12906), (121, 12921), (123, 12924), (125, 12948), (127, 12963), (129, 12990), (130, 12993), (139, 13083), (143, 13119), (147, 13146), (155, 13188), (157, 13203), (158, 13206), (161, 13230), (165, 13251), (166, 13257), (172, 13284), (176, 13299), (181, 13335), (187, 13380), (189, 13392), (190, 13401), (191, 13413), (193, 13422),

Gene: P106M_16 Start: 12279, Stop: 13436, Start Num: 15

Candidate Starts for P106M_16:

(Start: 13 @12276 has 9 MA's), (Start: 15 @12279 has 41 MA's), (22, 12306), (25, 12330), (28, 12357), (32, 12369), (35, 12384), (36, 12393), (37, 12399), (38, 12402), (39, 12405), (45, 12435), (52, 12498), (55, 12516), (56, 12540), (61, 12573), (63, 12582), (64, 12585), (65, 12588), (66, 12597), (67, 12615), (70, 12624), (75, 12678), (77, 12690), (78, 12693), (86, 12726), (88, 12732), (99, 12789), (102, 12804), (104, 12807), (105, 12813), (106, 12816), (107, 12831), (109, 12843), (112, 12861), (114, 12882), (118, 12897), (119, 12906), (121, 12921), (123, 12924), (125, 12948), (127, 12963), (129, 12990), (130, 12993), (139, 13083), (143, 13119), (147, 13146), (155, 13188), (157, 13203), (158, 13206), (161, 13230), (165, 13251), (166, 13257), (172, 13284), (176, 13299), (181, 13335), (187, 13380), (189, 13392), (190, 13401), (191, 13413), (193, 13422),

Gene: P107A_16 Start: 12255, Stop: 13412, Start Num: 15

Candidate Starts for P107A_16:

(Start: 15 @12255 has 41 MA's), (22, 12282), (25, 12306), (28, 12333), (30, 12339), (32, 12345), (35, 12360), (37, 12375), (38, 12378), (39, 12381), (45, 12411), (52, 12474), (54, 12483), (55, 12492), (56, 12516), (61, 12549), (63, 12558), (64, 12561), (65, 12564), (66, 12573), (67, 12591), (68, 12594), (77, 12666), (78, 12669), (86, 12702), (88, 12708), (99, 12765), (104, 12783), (105, 12789), (106, 12792), (107, 12807), (109, 12819), (113, 12840), (115, 12861), (118, 12873), (119, 12882), (121, 12897), (123, 12900), (125, 12924), (127, 12939), (129, 12966), (130, 12969), (134, 13026), (139, 13059), (143, 13095), (147, 13122), (148, 13125), (155, 13164), (157, 13179), (158, 13182), (161, 13206), (163, 13218), (166, 13233), (172, 13260), (176, 13275), (181, 13311), (187, 13356), (190, 13377), (191, 13389), (193, 13398),

Gene: P107C_16 Start: 12232, Stop: 13389, Start Num: 15

Candidate Starts for P107C_16:

(Start: 13 @12229 has 9 MA's), (Start: 15 @12232 has 41 MA's), (22, 12259), (25, 12283), (28, 12310), (30, 12316), (32, 12322), (35, 12337), (37, 12352), (38, 12355), (39, 12358), (45, 12388), (52, 12451), (56, 12493), (61, 12526), (63, 12535), (65, 12541), (66, 12550), (67, 12568), (68, 12571), (77, 12643), (78, 12646), (86, 12679), (88, 12685), (96, 12730), (99, 12742), (102, 12757), (105, 12766), (106, 12769), (107, 12784), (109, 12796), (115, 12838), (118, 12850), (119, 12859), (121, 12874), (123, 12877), (125, 12901), (127, 12916), (129, 12943), (130, 12946), (134, 13003), (139, 13036), (143, 13072), (147, 13099), (155, 13141), (157, 13156), (158, 13159), (161, 13183), (163, 13195), (165, 13204), (166, 13210), (176, 13252), (181, 13288), (187, 13333), (189, 13345), (190, 13354), (191, 13366), (193, 13375),

Gene: P108C_16 Start: 12240, Stop: 13397, Start Num: 15

Candidate Starts for P108C_16:

(Start: 13 @12237 has 9 MA's), (Start: 15 @12240 has 41 MA's), (22, 12267), (25, 12291), (30, 12324), (32, 12330), (35, 12345), (37, 12360), (38, 12363), (39, 12366), (45, 12396), (52, 12459), (55, 12477), (56, 12501), (61, 12534), (63, 12543), (64, 12546), (65, 12549), (66, 12558), (67, 12576), (70, 12585), (75, 12639), (77, 12651), (78, 12654), (86, 12687), (88, 12693), (99, 12750), (102, 12765), (104, 12768), (105, 12774), (107, 12792), (109, 12804), (112, 12822), (114, 12843), (118, 12858), (119, 12867), (121, 12882), (123, 12885), (125, 12909), (127, 12924), (129, 12951), (130, 12954), (139, 13044), (143, 13080), (147, 13107), (155, 13149), (157, 13164), (158, 13167), (161, 13191), (163, 13203), (166, 13218), (176, 13260), (181, 13296), (186, 13338), (187, 13341), (189, 13353), (190, 13362), (191, 13374), (193, 13383),

Gene: P14.4_16 Start: 12243, Stop: 13403, Start Num: 13

Candidate Starts for P14.4_16:

(Start: 13 @12243 has 9 MA's), (Start: 15 @12246 has 41 MA's), (22, 12273), (25, 12297), (28, 12324), (30, 12330), (32, 12336), (35, 12351), (37, 12366), (38, 12369), (39, 12372), (45, 12402), (52, 12465), (55, 12483), (56, 12507), (61, 12540), (63, 12549), (64, 12552), (65, 12555), (66, 12564), (67, 12582), (70, 12591), (75, 12645), (77, 12657), (78, 12660), (86, 12693), (88, 12699), (96, 12744), (99, 12756), (102, 12771), (104, 12774), (105, 12780), (106, 12783), (107, 12798), (109, 12810), (114, 12849), (115, 12852), (118, 12864), (119, 12873), (121, 12888), (123, 12891), (125, 12915), (127, 12930), (129, 12957), (130, 12960), (134, 13017), (143, 13086), (147, 13113), (148, 13116), (155, 13155), (157, 13170), (158, 13173), (161, 13197), (165, 13218), (166, 13224), (176, 13266), (181, 13302), (186, 13344), (189, 13359), (190, 13368), (191, 13380), (193, 13389),

Gene: P9.1_16 Start: 12238, Stop: 13398, Start Num: 13

Candidate Starts for P9.1_16:

(Start: 13 @12238 has 9 MA's), (Start: 15 @12241 has 41 MA's), (22, 12268), (25, 12292), (28, 12319), (32, 12331), (35, 12346), (36, 12355), (37, 12361), (38, 12364), (39, 12367), (45, 12397), (52, 12460), (55, 12478), (56, 12502), (61, 12535), (63, 12544), (65, 12550), (66, 12559), (67, 12577), (70, 12586), (77, 12652), (78, 12655), (79, 12658), (86, 12688), (88, 12694), (96, 12739), (99, 12751), (102, 12766), (104, 12769), (105, 12775), (106, 12778), (107, 12793), (109, 12805), (114, 12844), (118, 12859), (119, 12868), (121, 12883), (123, 12886), (125, 12910), (127, 12925), (129, 12952), (130, 12955), (139, 13045), (143, 13081), (147, 13108), (148, 13111), (155, 13150), (157, 13165), (158, 13168), (161, 13192), (166, 13219), (176, 13261), (181, 13297), (186, 13339), (189, 13354), (190, 13363), (191, 13375), (193, 13384),

Gene: PA6_16 Start: 12270, Stop: 13427, Start Num: 15

Candidate Starts for PA6_16:

(Start: 13 @12267 has 9 MA's), (Start: 15 @12270 has 41 MA's), (22, 12297), (25, 12321), (28, 12348), (30, 12354), (32, 12360), (35, 12375), (36, 12384), (37, 12390), (38, 12393), (39, 12396), (45, 12426), (52, 12489), (54, 12498), (55, 12507), (56, 12531), (61, 12564), (63, 12573), (64, 12576), (65, 12579), (66, 12588), (67, 12606), (70, 12615), (77, 12681), (78, 12684), (86, 12717), (88, 12723), (96, 12768), (99, 12780), (102, 12795), (104, 12798), (105, 12804), (106, 12807), (107, 12822), (109, 12834), (114, 12873), (115, 12876), (118, 12888), (119, 12897), (121, 12912), (123, 12915), (125, 12939), (127, 12954), (129, 12981), (130, 12984), (134, 13041), (139, 13074), (143, 13110), (147, 13137), (148, 13140), (155, 13179), (157, 13194), (158, 13197), (161, 13221), (165, 13242), (166, 13248), (172, 13275), (176, 13290), (181, 13326), (187, 13371), (189, 13383), (190, 13392), (191, 13404), (193, 13413),

Gene: PAD20_16 Start: 12238, Stop: 13395, Start Num: 15

Candidate Starts for PAD20_16:

(Start: 13 @12235 has 9 MA's), (Start: 15 @12238 has 41 MA's), (22, 12265), (25, 12289), (28, 12316), (30, 12322), (32, 12328), (35, 12343), (37, 12358), (38, 12361), (39, 12364), (45, 12394), (52, 12457), (55, 12475), (56, 12499), (61, 12532), (63, 12541), (64, 12544), (65, 12547), (66, 12556), (67, 12574), (70, 12583), (77, 12649), (86, 12685), (88, 12691), (96, 12736), (99, 12748), (102, 12763), (104, 12766), (105, 12772), (106, 12775), (107, 12790), (109, 12802), (114, 12841), (118, 12856), (119, 12865), (121, 12880), (123, 12883), (125, 12907), (127, 12922), (129, 12949), (130, 12952), (134, 13009), (139, 13042), (143, 13078), (147, 13105), (155, 13147), (157, 13162), (158, 13165), (161, 13189), (163, 13201), (165, 13210), (166, 13216), (176, 13258), (181, 13294), (187, 13339), (189, 13351), (190, 13360), (191, 13372), (193, 13381),

Gene: PAS50_16 Start: 12247, Stop: 13404, Start Num: 15

Candidate Starts for PAS50_16:

(Start: 13 @12244 has 9 MA's), (Start: 15 @12247 has 41 MA's), (22, 12274), (25, 12298), (28, 12325), (30, 12331), (32, 12337), (35, 12352), (37, 12367), (38, 12370), (39, 12373), (45, 12403), (52,

12466), (55, 12484), (56, 12508), (61, 12541), (63, 12550), (64, 12553), (65, 12556), (66, 12565), (67, 12583), (70, 12592), (77, 12658), (78, 12661), (88, 12700), (99, 12757), (102, 12772), (104, 12775), (105, 12781), (106, 12784), (107, 12799), (109, 12811), (112, 12829), (114, 12850), (119, 12874), (121, 12889), (123, 12892), (125, 12916), (127, 12931), (129, 12958), (130, 12961), (139, 13051), (143, 13087), (147, 13114), (155, 13156), (157, 13171), (158, 13174), (161, 13198), (163, 13210), (165, 13219), (166, 13225), (176, 13267), (181, 13303), (186, 13345), (187, 13348), (190, 13369), (191, 13381), (193, 13390),

Gene: PHL010M04_16 Start: 12238, Stop: 13398, Start Num: 13

Candidate Starts for PHL010M04_16:

(Start: 13 @12238 has 9 MA's), (Start: 15 @12241 has 41 MA's), (22, 12268), (25, 12292), (30, 12325), (32, 12331), (35, 12346), (37, 12361), (38, 12364), (39, 12367), (45, 12397), (52, 12460), (54, 12469), (55, 12478), (56, 12502), (61, 12535), (63, 12544), (64, 12547), (65, 12550), (66, 12559), (67, 12577), (68, 12580), (77, 12652), (78, 12655), (88, 12694), (96, 12739), (99, 12751), (102, 12766), (104, 12769), (105, 12775), (106, 12778), (107, 12793), (109, 12805), (113, 12826), (115, 12847), (118, 12859), (119, 12868), (121, 12883), (123, 12886), (125, 12910), (127, 12925), (129, 12952), (134, 13012), (139, 13045), (143, 13081), (147, 13108), (148, 13111), (155, 13150), (157, 13165), (158, 13168), (161, 13192), (163, 13204), (165, 13213), (166, 13219), (176, 13261), (181, 13297), (187, 13342), (189, 13354), (190, 13363), (191, 13375), (193, 13384),

Gene: PHL037M02_16 Start: 12249, Stop: 13406, Start Num: 15

Candidate Starts for PHL037M02_16:

(Start: 15 @12249 has 41 MA's), (22, 12276), (25, 12300), (30, 12333), (32, 12339), (35, 12354), (37, 12369), (38, 12372), (39, 12375), (45, 12405), (52, 12468), (54, 12477), (56, 12510), (61, 12543), (63, 12552), (64, 12555), (65, 12558), (67, 12585), (68, 12588), (77, 12660), (78, 12663), (86, 12696), (88, 12702), (96, 12747), (99, 12759), (102, 12774), (104, 12777), (107, 12801), (109, 12813), (115, 12855), (119, 12876), (121, 12891), (123, 12894), (125, 12918), (127, 12933), (129, 12960), (134, 13020), (139, 13053), (143, 13089), (147, 13116), (148, 13119), (155, 13158), (157, 13173), (158, 13176), (161, 13200), (163, 13212), (165, 13221), (166, 13227), (176, 13269), (181, 13305), (186, 13347), (187, 13350), (189, 13362), (190, 13371), (191, 13383), (193, 13392),

Gene: PHL060L00_16 Start: 12254, Stop: 13414, Start Num: 13

Candidate Starts for PHL060L00_16:

(Start: 13 @12254 has 9 MA's), (Start: 15 @12257 has 41 MA's), (22, 12284), (25, 12308), (28, 12335), (30, 12341), (32, 12347), (35, 12362), (36, 12371), (37, 12377), (38, 12380), (39, 12383), (44, 12410), (45, 12413), (52, 12476), (55, 12494), (56, 12518), (61, 12551), (63, 12560), (64, 12563), (65, 12566), (66, 12575), (67, 12593), (70, 12602), (77, 12668), (78, 12671), (86, 12704), (88, 12710), (96, 12755), (99, 12767), (104, 12785), (105, 12791), (106, 12794), (107, 12809), (109, 12821), (114, 12860), (115, 12863), (118, 12875), (119, 12884), (121, 12899), (123, 12902), (125, 12926), (127, 12941), (129, 12968), (130, 12971), (134, 13028), (139, 13061), (143, 13097), (147, 13124), (148, 13127), (149, 13136), (155, 13166), (157, 13181), (158, 13184), (161, 13208), (163, 13220), (165, 13229), (176, 13277), (181, 13313), (186, 13355), (187, 13358), (189, 13370), (190, 13379), (191, 13391), (193, 13400),

Gene: PHL067M10_16 Start: 12215, Stop: 13375, Start Num: 13

Candidate Starts for PHL067M10_16:

(Start: 13 @12215 has 9 MA's), (Start: 15 @12218 has 41 MA's), (22, 12245), (25, 12269), (28, 12296), (32, 12308), (35, 12323), (37, 12338), (38, 12341), (39, 12344), (45, 12374), (52, 12437), (55, 12455), (56, 12479), (61, 12512), (63, 12521), (64, 12524), (65, 12527), (66, 12536), (67, 12554), (68, 12557), (70, 12563), (77, 12629), (78, 12632), (86, 12665), (88, 12671), (99, 12728), (102, 12743), (104, 12746), (105, 12752), (106, 12755), (107, 12770), (109, 12782), (114, 12821), (118, 12836), (119, 12845), (121, 12860), (123, 12863), (125, 12887), (127, 12902), (129, 12929), (130, 12932), (139, 13022), (143, 13058), (147, 13085), (148, 13088), (155, 13127), (157, 13142), (158, 13145),

(161, 13169), (163, 13181), (165, 13190), (166, 13196), (176, 13238), (181, 13274), (186, 13316), (187, 13319), (189, 13331), (190, 13340), (191, 13352), (193, 13361),

Gene: PHL071N05_16 Start: 12243, Stop: 13403, Start Num: 13

Candidate Starts for PHL071N05_16:

(Start: 13 @12243 has 9 MA's), (Start: 15 @12246 has 41 MA's), (22, 12273), (25, 12297), (28, 12324), (30, 12330), (32, 12336), (35, 12351), (37, 12366), (38, 12369), (39, 12372), (45, 12402), (52, 12465), (55, 12483), (56, 12507), (61, 12540), (63, 12549), (64, 12552), (65, 12555), (66, 12564), (67, 12582), (68, 12585), (75, 12645), (77, 12657), (78, 12660), (86, 12693), (88, 12699), (96, 12744), (99, 12756), (104, 12774), (105, 12780), (106, 12783), (107, 12798), (109, 12810), (112, 12828), (113, 12831), (114, 12849), (115, 12852), (118, 12864), (119, 12873), (121, 12888), (123, 12891), (125, 12915), (127, 12930), (129, 12957), (130, 12960), (134, 13017), (139, 13050), (143, 13086), (147, 13113), (148, 13116), (155, 13155), (157, 13170), (158, 13173), (161, 13197), (163, 13209), (165, 13218), (166, 13224), (176, 13266), (181, 13302), (186, 13344), (187, 13347), (189, 13359), (190, 13368), (191, 13380), (193, 13389),

Gene: PHL111M01_16 Start: 12241, Stop: 13398, Start Num: 14

Candidate Starts for PHL111M01_16:

(14, 12241), (22, 12268), (25, 12292), (28, 12319), (30, 12325), (32, 12331), (35, 12346), (36, 12355), (37, 12361), (38, 12364), (39, 12367), (45, 12397), (52, 12460), (55, 12478), (56, 12502), (61, 12535), (63, 12544), (64, 12547), (65, 12550), (66, 12559), (67, 12577), (70, 12586), (77, 12652), (78, 12655), (86, 12688), (88, 12694), (96, 12739), (99, 12751), (102, 12766), (104, 12769), (105, 12775), (106, 12778), (107, 12793), (109, 12805), (112, 12823), (114, 12844), (118, 12859), (119, 12868), (121, 12883), (123, 12886), (125, 12910), (127, 12925), (129, 12952), (131, 12958), (134, 13012), (139, 13045), (143, 13081), (147, 13108), (148, 13111), (155, 13150), (157, 13165), (158, 13168), (161, 13192), (163, 13204), (165, 13213), (166, 13219), (172, 13246), (176, 13261), (181, 13297), (187, 13342), (189, 13354), (190, 13363), (191, 13375), (193, 13384),

Gene: PHL112N00_16 Start: 12236, Stop: 13396, Start Num: 13

Candidate Starts for PHL112N00_16:

(Start: 13 @12236 has 9 MA's), (Start: 15 @12239 has 41 MA's), (22, 12266), (25, 12290), (28, 12317), (30, 12323), (32, 12329), (35, 12344), (37, 12359), (38, 12362), (39, 12365), (42, 12386), (45, 12395), (52, 12458), (55, 12476), (56, 12500), (61, 12533), (63, 12542), (64, 12545), (65, 12548), (66, 12557), (67, 12575), (68, 12578), (70, 12584), (75, 12638), (77, 12650), (78, 12653), (86, 12686), (88, 12692), (96, 12737), (99, 12749), (102, 12764), (104, 12767), (105, 12773), (106, 12776), (107, 12791), (109, 12803), (113, 12824), (114, 12842), (115, 12845), (118, 12857), (119, 12866), (121, 12881), (123, 12884), (125, 12908), (127, 12923), (129, 12950), (130, 12953), (134, 13010), (139, 13043), (143, 13079), (147, 13106), (155, 13148), (157, 13163), (158, 13166), (161, 13190), (163, 13202), (165, 13211), (166, 13217), (172, 13244), (176, 13259), (181, 13295), (187, 13340), (189, 13352), (190, 13361), (191, 13373), (193, 13382),

Gene: PHL113M01_16 Start: 12257, Stop: 13417, Start Num: 13

Candidate Starts for PHL113M01_16:

(Start: 13 @12257 has 9 MA's), (Start: 15 @12260 has 41 MA's), (22, 12287), (25, 12311), (28, 12338), (30, 12344), (32, 12350), (35, 12365), (37, 12380), (38, 12383), (39, 12386), (45, 12416), (52, 12479), (54, 12488), (55, 12497), (56, 12521), (61, 12554), (63, 12563), (65, 12569), (66, 12578), (67, 12596), (70, 12605), (77, 12671), (78, 12674), (86, 12707), (88, 12713), (96, 12758), (99, 12770), (102, 12785), (104, 12788), (105, 12794), (106, 12797), (107, 12812), (109, 12824), (114, 12863), (118, 12878), (119, 12887), (121, 12902), (123, 12905), (125, 12929), (127, 12944), (129, 12971), (130, 12974), (134, 13031), (139, 13064), (143, 13100), (147, 13127), (155, 13169), (157, 13184), (158, 13187), (161, 13211), (163, 13223), (165, 13232), (166, 13238), (176, 13280), (181, 13316), (187, 13361), (189, 13373), (190, 13382), (191, 13394), (193, 13403),

Gene: PHL114L00_16 Start: 12241, Stop: 13401, Start Num: 13

Candidate Starts for PHL114L00_16:

(Start: 13 @12241 has 9 MA's), (Start: 15 @12244 has 41 MA's), (22, 12271), (25, 12295), (28, 12322), (30, 12328), (32, 12334), (35, 12349), (38, 12367), (45, 12400), (52, 12463), (54, 12472), (56, 12505), (61, 12538), (63, 12547), (65, 12553), (66, 12562), (68, 12583), (77, 12655), (78, 12658), (86, 12691), (88, 12697), (89, 12700), (96, 12742), (99, 12754), (102, 12769), (104, 12772), (105, 12778), (106, 12781), (107, 12796), (109, 12808), (115, 12850), (118, 12862), (121, 12886), (123, 12889), (125, 12913), (127, 12928), (129, 12955), (131, 12961), (134, 13015), (139, 13048), (143, 13084), (147, 13111), (148, 13114), (155, 13153), (157, 13168), (158, 13171), (161, 13195), (165, 13216), (166, 13222), (176, 13264), (181, 13300), (186, 13342), (190, 13366), (191, 13378), (193, 13387),

Gene: Pirate_16 Start: 12235, Stop: 13392, Start Num: 15

Candidate Starts for Pirate_16:

(Start: 15 @12235 has 41 MA's), (22, 12262), (25, 12286), (30, 12319), (32, 12325), (35, 12340), (37, 12355), (38, 12358), (39, 12361), (45, 12391), (52, 12454), (54, 12463), (56, 12496), (61, 12529), (63, 12538), (64, 12541), (65, 12544), (66, 12553), (67, 12571), (68, 12574), (75, 12634), (77, 12646), (78, 12649), (88, 12688), (89, 12691), (96, 12733), (99, 12745), (102, 12760), (104, 12763), (105, 12769), (106, 12772), (107, 12787), (109, 12799), (113, 12820), (115, 12841), (118, 12853), (119, 12862), (121, 12877), (123, 12880), (125, 12904), (127, 12919), (129, 12946), (134, 13006), (139, 13039), (143, 13075), (147, 13102), (155, 13144), (157, 13159), (158, 13162), (161, 13186), (163, 13198), (166, 13213), (176, 13255), (181, 13291), (186, 13333), (187, 13336), (190, 13357), (191, 13369), (193, 13378),

Gene: Pitbull_18 Start: 13184, Stop: 14632, Start Num: 12

Candidate Starts for Pitbull_18:

(11, 13172), (Start: 12 @13184 has 2 MA's), (19, 13199), (22, 13214), (29, 13268), (35, 13292), (36, 13301), (37, 13307), (39, 13313), (41, 13319), (42, 13334), (46, 13346), (49, 13370), (57, 13454), (60, 13478), (76, 13577), (81, 13604), (83, 13619), (95, 13676), (101, 13706), (106, 13721), (116, 13775), (117, 13781), (124, 13832), (126, 13847), (130, 13880), (136, 13946), (137, 13958), (148, 14045), (151, 14066), (156, 14087), (169, 14186), (181, 14240), (186, 14279), (193, 14324), (200, 14450), (201, 14483), (202, 14531),

Gene: Ponzi_56 Start: 37563, Stop: 38783, Start Num: 21

Candidate Starts for Ponzi_56:

(Start: 18 @37551 has 2 MA's), (Start: 21 @37563 has 1 MA's), (22, 37569), (28, 37620), (31, 37629), (39, 37668), (45, 37695), (93, 38034), (94, 38037), (97, 38052), (103, 38076), (131, 38277), (146, 38421), (174, 38592), (180, 38631), (183, 38652), (197, 38745), (199, 38778),

Gene: Procrass1_16 Start: 12243, Stop: 13400, Start Num: 15

Candidate Starts for Procrass1_16:

(Start: 13 @12240 has 9 MA's), (Start: 15 @12243 has 41 MA's), (22, 12270), (25, 12294), (28, 12321), (30, 12327), (32, 12333), (35, 12348), (36, 12357), (37, 12363), (38, 12366), (39, 12369), (45, 12399), (52, 12462), (54, 12471), (56, 12504), (61, 12537), (63, 12546), (65, 12552), (66, 12561), (67, 12579), (68, 12582), (70, 12588), (75, 12642), (77, 12654), (78, 12657), (86, 12690), (88, 12696), (99, 12753), (102, 12768), (104, 12771), (105, 12777), (106, 12780), (107, 12795), (109, 12807), (114, 12846), (118, 12861), (119, 12870), (121, 12885), (123, 12888), (125, 12912), (127, 12927), (129, 12954), (130, 12957), (134, 13014), (139, 13047), (143, 13083), (147, 13110), (148, 13113), (149, 13122), (155, 13152), (157, 13167), (158, 13170), (161, 13194), (165, 13215), (166, 13221), (176, 13263), (181, 13299), (186, 13341), (189, 13356), (190, 13365), (191, 13377), (193, 13386),

Gene: QueenBey_16 Start: 12243, Stop: 13400, Start Num: 15

Candidate Starts for QueenBey_16:

(Start: 13 @12240 has 9 MA's), (Start: 15 @12243 has 41 MA's), (22, 12270), (25, 12294), (30, 12327), (32, 12333), (35, 12348), (37, 12363), (38, 12366), (39, 12369), (45, 12399), (52, 12462), (54, 12471), (55, 12480), (56, 12504), (61, 12537), (63, 12546), (64, 12549), (65, 12552), (66, 12561), (67, 12579), (68, 12582), (75, 12642), (77, 12654), (78, 12657), (88, 12696), (89, 12699), (96, 12741), (99, 12753), (104, 12771), (105, 12777), (106, 12780), (107, 12795), (109, 12807), (113, 12828), (115, 12849), (118, 12861), (119, 12870), (121, 12885), (123, 12888), (125, 12912), (127, 12927), (129, 12954), (134, 13014), (139, 13047), (143, 13083), (147, 13110), (148, 13113), (155, 13152), (157, 13167), (158, 13170), (161, 13194), (165, 13215), (166, 13221), (176, 13263), (181, 13299), (186, 13341), (187, 13344), (189, 13356), (190, 13365), (191, 13377), (193, 13386),

Gene: Raqqa_19 Start: 15720, Stop: 16826, Start Num: 15

Candidate Starts for Raqqa_19:

(Start: 12 @15714 has 2 MA's), (Start: 15 @15720 has 41 MA's), (23, 15750), (28, 15798), (32, 15810), (34, 15822), (51, 15927), (56, 15978), (61, 16011), (76, 16104), (78, 16116), (93, 16185), (108, 16257), (143, 16521), (162, 16632), (190, 16791),

Gene: Rileysaurus_16 Start: 12238, Stop: 13395, Start Num: 15

Candidate Starts for Rileysaurus_16:

(Start: 15 @12238 has 41 MA's), (22, 12265), (25, 12289), (30, 12322), (32, 12328), (35, 12343), (37, 12358), (38, 12361), (39, 12364), (45, 12394), (52, 12457), (54, 12466), (56, 12499), (61, 12532), (63, 12541), (64, 12544), (65, 12547), (66, 12556), (67, 12574), (68, 12577), (75, 12637), (77, 12649), (78, 12652), (86, 12685), (88, 12691), (89, 12694), (96, 12736), (99, 12748), (104, 12766), (105, 12772), (106, 12775), (107, 12790), (109, 12802), (114, 12841), (115, 12844), (118, 12856), (119, 12865), (121, 12880), (123, 12883), (125, 12907), (127, 12922), (129, 12949), (134, 13009), (139, 13042), (143, 13078), (147, 13105), (148, 13108), (155, 13147), (157, 13162), (158, 13165), (161, 13189), (163, 13201), (166, 13216), (172, 13243), (176, 13258), (181, 13294), (187, 13339), (190, 13360), (191, 13372), (193, 13381),

Gene: RootBeer_17 Start: 14184, Stop: 15296, Start Num: 15

Candidate Starts for RootBeer_17:

(Start: 15 @14184 has 41 MA's), (25, 14223), (39, 14298), (49, 14355), (51, 14379), (56, 14433), (76, 14562), (78, 14574), (86, 14610), (98, 14664), (108, 14718), (176, 15165),

Gene: SKKY_16 Start: 12278, Stop: 13435, Start Num: 15

Candidate Starts for SKKY_16:

(Start: 13 @12275 has 9 MA's), (Start: 15 @12278 has 41 MA's), (22, 12305), (25, 12329), (28, 12356), (32, 12368), (35, 12383), (36, 12392), (37, 12398), (38, 12401), (39, 12404), (45, 12434), (52, 12497), (55, 12515), (56, 12539), (61, 12572), (63, 12581), (65, 12587), (66, 12596), (70, 12623), (78, 12692), (88, 12731), (89, 12734), (99, 12788), (102, 12803), (104, 12806), (105, 12812), (106, 12815), (107, 12830), (109, 12842), (112, 12860), (118, 12896), (119, 12905), (121, 12920), (123, 12923), (125, 12947), (127, 12962), (129, 12989), (131, 12995), (134, 13049), (139, 13082), (143, 13118), (147, 13145), (148, 13148), (155, 13187), (157, 13202), (158, 13205), (161, 13229), (165, 13250), (166, 13256), (176, 13298), (181, 13334), (187, 13379), (189, 13391), (190, 13400), (191, 13412), (193, 13421),

Gene: Sarge_18 Start: 13985, Stop: 15109, Start Num: 13

Candidate Starts for Sarge_18:

(Start: 13 @13985 has 9 MA's), (Start: 16 @13991 has 1 MA's), (48, 14165), (51, 14198), (54, 14219), (66, 14309), (76, 14381), (77, 14390), (78, 14393), (98, 14489), (106, 14522), (154, 14867), (164, 14924), (167, 14945), (188, 15056), (193, 15095), (195, 15101),

Gene: Shoya_17 Start: 13621, Stop: 14745, Start Num: 13

Candidate Starts for Shoya_17:

(Start: 13 @13621 has 9 MA's), (Start: 16 @13627 has 1 MA's), (Start: 20 @13636 has 1 MA's), (48, 13801), (51, 13834), (54, 13855), (66, 13945), (76, 14017), (77, 14026), (88, 14071), (95, 14113), (98, 14125), (106, 14158), (164, 14560), (171, 14596), (188, 14692), (193, 14731), (195, 14737),

Gene: Solid_16 Start: 12232, Stop: 13389, Start Num: 15

Candidate Starts for Solid_16:

(Start: 13 @12229 has 9 MA's), (Start: 15 @12232 has 41 MA's), (22, 12259), (25, 12283), (28, 12310), (30, 12316), (32, 12322), (35, 12337), (37, 12352), (38, 12355), (39, 12358), (45, 12388), (52, 12451), (56, 12493), (61, 12526), (63, 12535), (64, 12538), (65, 12541), (66, 12550), (67, 12568), (70, 12577), (75, 12631), (77, 12643), (78, 12646), (86, 12679), (88, 12685), (96, 12730), (99, 12742), (102, 12757), (104, 12760), (105, 12766), (106, 12769), (107, 12784), (109, 12796), (114, 12835), (115, 12838), (118, 12850), (119, 12859), (121, 12874), (123, 12877), (125, 12901), (127, 12916), (129, 12943), (130, 12946), (134, 13003), (139, 13036), (143, 13072), (147, 13099), (157, 13156), (158, 13159), (161, 13183), (165, 13204), (166, 13210), (172, 13237), (176, 13252), (181, 13288), (187, 13333), (189, 13345), (190, 13354), (191, 13366), (193, 13375),

Gene: Stormborn_16 Start: 12254, Stop: 13411, Start Num: 15

Candidate Starts for Stormborn_16:

(Start: 13 @12251 has 9 MA's), (Start: 15 @12254 has 41 MA's), (22, 12281), (25, 12305), (28, 12332), (30, 12338), (32, 12344), (35, 12359), (37, 12374), (38, 12377), (39, 12380), (45, 12410), (52, 12473), (54, 12482), (56, 12515), (61, 12548), (63, 12557), (64, 12560), (65, 12563), (66, 12572), (67, 12590), (77, 12665), (78, 12668), (86, 12701), (88, 12707), (96, 12752), (99, 12764), (102, 12779), (104, 12782), (107, 12806), (109, 12818), (115, 12860), (119, 12881), (121, 12896), (123, 12899), (125, 12923), (127, 12938), (129, 12965), (134, 13025), (139, 13058), (143, 13094), (147, 13121), (148, 13124), (155, 13163), (157, 13178), (158, 13181), (161, 13205), (163, 13217), (165, 13226), (166, 13232), (176, 13274), (181, 13310), (186, 13352), (190, 13376), (191, 13388), (193, 13397),

Gene: Success_63 Start: 39166, Stop: 40425, Start Num: 18

Candidate Starts for Success_63:

(Start: 18 @39166 has 2 MA's), (22, 39184), (24, 39199), (25, 39208), (52, 39379), (84, 39610), (89, 39625), (90, 39634), (122, 39841), (128, 39904), (137, 39994), (144, 40045), (149, 40081), (156, 40117), (174, 40234), (177, 40246), (180, 40273), (183, 40294), (184, 40312), (197, 40387), (199, 40420),

Gene: Supernova_16 Start: 12250, Stop: 13407, Start Num: 15

Candidate Starts for Supernova_16:

(Start: 13 @12247 has 9 MA's), (Start: 15 @12250 has 41 MA's), (22, 12277), (25, 12301), (28, 12328), (30, 12334), (32, 12340), (35, 12355), (36, 12364), (37, 12370), (38, 12373), (39, 12376), (45, 12406), (52, 12469), (56, 12511), (61, 12544), (63, 12553), (65, 12559), (66, 12568), (70, 12595), (78, 12664), (88, 12703), (89, 12706), (99, 12760), (102, 12775), (104, 12778), (105, 12784), (106, 12787), (107, 12802), (109, 12814), (112, 12832), (118, 12868), (119, 12877), (121, 12892), (123, 12895), (125, 12919), (127, 12934), (129, 12961), (131, 12967), (134, 13021), (139, 13054), (143, 13090), (147, 13117), (148, 13120), (155, 13159), (157, 13174), (161, 13201), (163, 13213), (165, 13222), (166, 13228), (172, 13255), (176, 13270), (181, 13306), (187, 13351), (189, 13363), (190, 13372), (191, 13384), (193, 13393),

Gene: Wizzo_16 Start: 12265, Stop: 13422, Start Num: 15

Candidate Starts for Wizzo_16:

(Start: 13 @12262 has 9 MA's), (Start: 15 @12265 has 41 MA's), (22, 12292), (25, 12316), (28, 12343), (30, 12349), (32, 12355), (35, 12370), (37, 12385), (38, 12388), (39, 12391), (45, 12421), (52, 12484), (55, 12502), (56, 12526), (58, 12535), (61, 12559), (63, 12568), (64, 12571), (65, 12574), (66, 12583), (67, 12601), (70, 12610), (75, 12664), (77, 12676), (78, 12679), (86, 12712), (88, 12718), (99, 12775), (102, 12790), (104, 12793), (105, 12799), (106, 12802), (107, 12817), (109, 12829), (114,

12868), (118, 12883), (119, 12892), (121, 12907), (123, 12910), (125, 12934), (127, 12949), (129, 12976), (130, 12979), (134, 13036), (139, 13069), (143, 13105), (147, 13132), (155, 13174), (157, 13189), (158, 13192), (161, 13216), (165, 13237), (166, 13243), (176, 13285), (181, 13321), (186, 13363), (189, 13378), (190, 13387), (191, 13399), (193, 13408),

Gene: Zucker_20 Start: 15353, Stop: 16471, Start Num: 17

Candidate Starts for Zucker_20:

(Start: 17 @15353 has 2 MA's), (33, 15440), (48, 15527), (50, 15536), (51, 15560), (52, 15572), (54, 15581), (76, 15743), (77, 15752), (78, 15755), (95, 15839), (98, 15851), (106, 15884), (115, 15935), (120, 15965), (130, 16043), (147, 16193), (154, 16229), (155, 16235), (167, 16307), (169, 16316), (195, 16463),