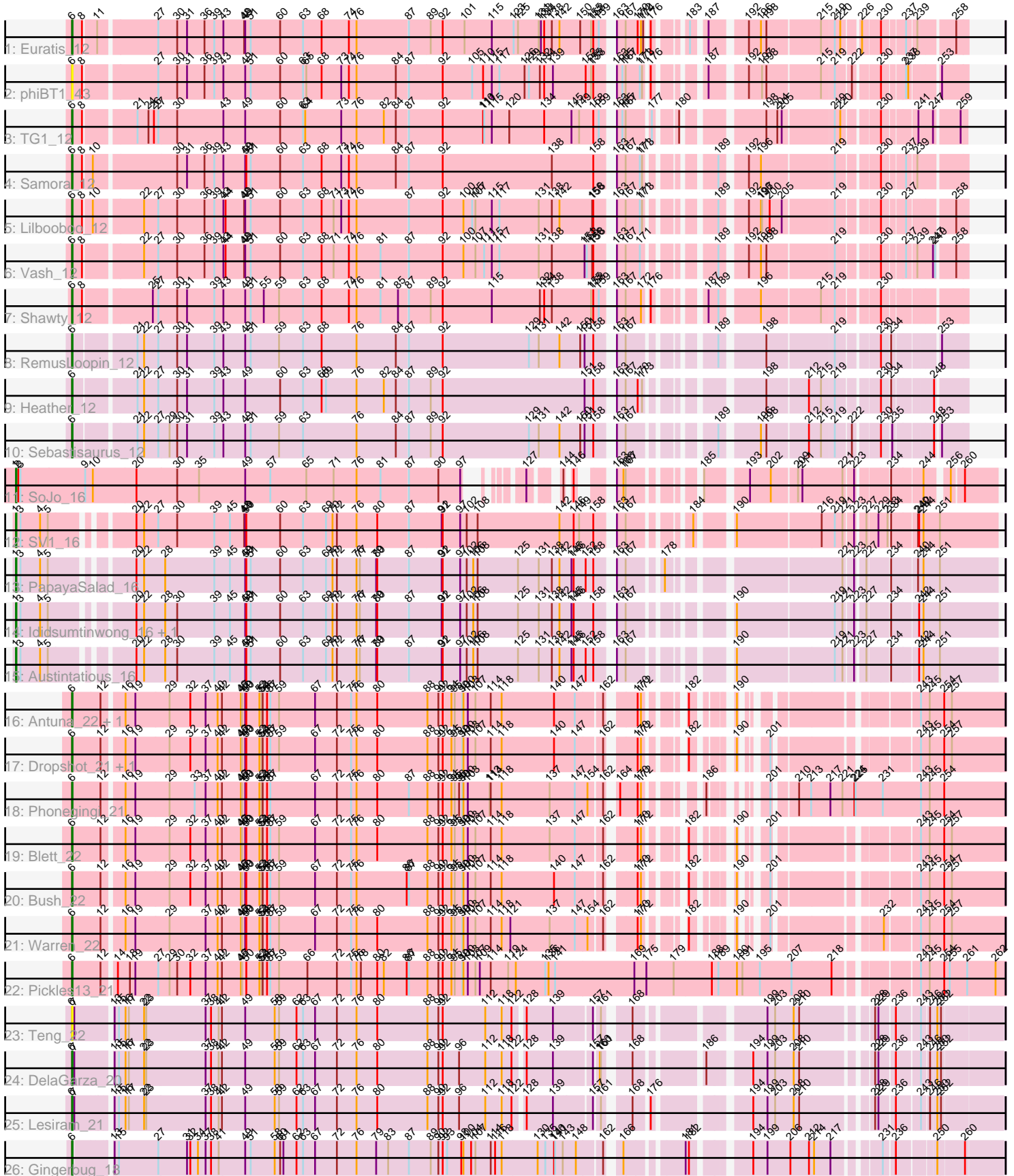


Pham 192758



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 192758 Report

This analysis was run 11/02/24 on database version 579.

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 192758 has 29 members, 2 are drafts.

Phages represented in each track:

- Track 1 : Euratis_12
- Track 2 : phiBT1_43
- Track 3 : TG1_12
- Track 4 : Samora_12
- Track 5 : Lilbooboo_12
- Track 6 : Vash_12
- Track 7 : Shawty_12
- Track 8 : RemusLoopin_12
- Track 9 : Heather_12
- Track 10 : Sebastisaurus_12
- Track 11 : SoJo_16
- Track 12 : SV1_16
- Track 13 : PapayaSalad_16
- Track 14 : Ididsumtinwong_16, Bioscum_16
- Track 15 : Austintatious_16
- Track 16 : Antuna_22, MenE_22
- Track 17 : Dropshot_21, Appa_21
- Track 18 : Phonegingi_21
- Track 19 : Blett_22
- Track 20 : Bush_22
- Track 21 : Warren_22
- Track 22 : Pickles13_21
- Track 23 : Teng_22
- Track 24 : DelaGarza_20
- Track 25 : Lesiram_21
- Track 26 : Gingerbug_18

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

The start number called the most often in the published annotations is 6, it was called in 21 of the 27 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• Antuna_22, Appa_21, Blett_22, Bush_22, DelaGarza_20, Dropshot_21, Euratis_12, Gingerbug_18, Heather_12, Lesiram_21, Lilbooboo_12, MenE_22, Phonegingi_21, Pickles13_21, RemusLoopin_12, Samora_12, Sebastisaurus_12, Shawty_12, TG1_12, Teng_22, Vash_12, Warren_22, phiBT1_43,

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

•

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

• Austintatious_16, Bioscum_16, Ididsumtinwong_16, PapayaSalad_16, SV1_16, SoJo_16,

Summary by start number:

Start 1:

• Found in 6 of 29 (20.7%) of genes in pham
• Manual Annotations of this start: 6 of 27
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Austintatious_16 (BC3), Bioscum_16 (BC3), Ididsumtinwong_16 (BC3), PapayaSalad_16 (BC3), SV1_16 (BC1), SoJo_16 (BC1),

Start 6:

• Found in 23 of 29 (79.3%) of genes in pham
• Manual Annotations of this start: 21 of 27
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Antuna_22 (GA), Appa_21 (GA), Blett_22 (GA), Bush_22 (GA), DelaGarza_20 (GF), Dropshot_21 (GA), Euratis_12 (BB1), Gingerbug_18 (GF), Heather_12 (BB2), Lesiram_21 (GF), Lilbooboo_12 (BB1), MenE_22 (GA), Phonegingi_21 (GA), Pickles13_21 (GA), RemusLoopin_12 (BB2), Samora_12 (BB1), Sebastisaurus_12 (BB2), Shawty_12 (BB1), TG1_12 (BB1), Teng_22 (GF), Vash_12 (BB1), Warren_22 (GA), phiBT1_43 (BB1),

Summary by clusters:

There are 6 clusters represented in this pham: BC1, GF, GA, BB2, BB1, BC3,

Info for manual annotations of cluster BB1:

• Start number 6 was manually annotated 6 times for cluster BB1.

Info for manual annotations of cluster BB2:

• Start number 6 was manually annotated 3 times for cluster BB2.

Info for manual annotations of cluster BC1:

• Start number 1 was manually annotated 2 times for cluster BC1.

Info for manual annotations of cluster BC3:

• Start number 1 was manually annotated 4 times for cluster BC3.

Info for manual annotations of cluster GA:

- Start number 6 was manually annotated 9 times for cluster GA.

Info for manual annotations of cluster GF:

- Start number 6 was manually annotated 3 times for cluster GF.

Gene Information:

Gene: Antuna_22 Start: 11505, Stop: 13703, Start Num: 6

Candidate Starts for Antuna_22:

(Start: 6 @11505 has 21 MA's), (12, 11580), (16, 11631), (19, 11658), (29, 11751), (32, 11808), (37, 11850), (40, 11883), (42, 11895), (46, 11946), (47, 11949), (49, 11958), (50, 11961), (52, 11997), (53, 12003), (54, 12006), (56, 12018), (57, 12027), (59, 12051), (67, 12150), (72, 12210), (75, 12249), (76, 12264), (80, 12321), (88, 12459), (90, 12489), (92, 12501), (94, 12525), (95, 12534), (99, 12555), (100, 12558), (103, 12570), (107, 12588), (114, 12630), (118, 12660), (140, 12801), (147, 12858), (162, 12924), (170, 12984), (172, 12993), (182, 13056), (190, 13122), (243, 13473), (245, 13497), (254, 13536), (257, 13557),

Gene: Appa_21 Start: 11367, Stop: 13565, Start Num: 6

Candidate Starts for Appa_21:

(Start: 6 @11367 has 21 MA's), (12, 11442), (16, 11493), (19, 11520), (29, 11613), (32, 11670), (37, 11712), (40, 11745), (42, 11757), (46, 11808), (47, 11811), (49, 11820), (50, 11823), (52, 11859), (53, 11865), (54, 11868), (56, 11880), (57, 11889), (59, 11913), (67, 12012), (72, 12072), (75, 12111), (76, 12126), (80, 12183), (88, 12321), (90, 12351), (92, 12363), (94, 12387), (95, 12396), (99, 12417), (100, 12420), (103, 12432), (107, 12450), (114, 12492), (118, 12522), (140, 12663), (147, 12720), (162, 12786), (170, 12846), (172, 12855), (182, 12918), (190, 12984), (201, 13017), (243, 13335), (245, 13359), (254, 13398), (257, 13419),

Gene: Austintatious_16 Start: 9780, Stop: 12197, Start Num: 1

Candidate Starts for Austintatious_16:

(Start: 1 @9780 has 6 MA's), (3, 9792), (4, 9846), (5, 9867), (20, 10041), (22, 10062), (28, 10119), (30, 10152), (39, 10254), (45, 10296), (49, 10338), (50, 10341), (51, 10353), (60, 10431), (63, 10494), (69, 10557), (70, 10575), (72, 10587), (76, 10641), (77, 10650), (79, 10695), (80, 10698), (87, 10779), (91, 10866), (92, 10869), (97, 10917), (102, 10935), (106, 10953), (108, 10965), (125, 11076), (131, 11133), (138, 11169), (142, 11190), (145, 11223), (146, 11229), (152, 11262), (158, 11283), (163, 11316), (167, 11340), (190, 11538), (219, 11796), (221, 11817), (223, 11841), (227, 11862), (234, 11916), (242, 11982), (244, 11994), (251, 12039),

Gene: Bioscum_16 Start: 9816, Stop: 12233, Start Num: 1

Candidate Starts for Bioscum_16:

(Start: 1 @9816 has 6 MA's), (3, 9828), (4, 9882), (5, 9903), (20, 10077), (22, 10098), (28, 10155), (30, 10188), (39, 10290), (45, 10332), (49, 10374), (50, 10377), (51, 10389), (60, 10467), (63, 10530), (69, 10593), (70, 10611), (72, 10623), (76, 10677), (77, 10686), (79, 10731), (80, 10734), (87, 10815), (91, 10902), (92, 10905), (97, 10953), (102, 10971), (106, 10989), (108, 11001), (125, 11112), (131, 11169), (138, 11205), (142, 11226), (145, 11259), (146, 11265), (158, 11319), (163, 11352), (167, 11376), (190, 11574), (219, 11832), (221, 11853), (223, 11877), (227, 11898), (234, 11952), (242, 12018), (244, 12030), (251, 12075),

Gene: Blett_22 Start: 11520, Stop: 13718, Start Num: 6

Candidate Starts for Blett_22:

(Start: 6 @11520 has 21 MA's), (12, 11595), (16, 11646), (19, 11673), (29, 11766), (32, 11823), (37, 11865), (40, 11898), (42, 11910), (46, 11961), (47, 11964), (49, 11973), (50, 11976), (52, 12012), (53, 12018), (54, 12021), (56, 12033), (57, 12042), (59, 12066), (67, 12165), (72, 12225), (75, 12264), (76, 12279), (80, 12336), (88, 12474), (90, 12504), (92, 12516), (94, 12540), (95, 12549), (99, 12570), (100, 12573), (103, 12585), (107, 12603), (114, 12645), (118, 12675), (137, 12804), (147, 12873), (162, 12939), (170, 12999), (172, 13008), (182, 13071), (190, 13137), (201, 13170), (243, 13488), (245, 13512), (254, 13551), (257, 13572),

Gene: Bush_22 Start: 11501, Stop: 13699, Start Num: 6

Candidate Starts for Bush_22:

(Start: 6 @11501 has 21 MA's), (12, 11576), (16, 11627), (19, 11654), (29, 11747), (32, 11804), (37, 11846), (40, 11879), (42, 11891), (46, 11942), (47, 11945), (49, 11954), (50, 11957), (52, 11993), (53, 11999), (54, 12002), (56, 12014), (57, 12023), (59, 12047), (67, 12146), (72, 12206), (75, 12245), (76, 12260), (86, 12398), (87, 12404), (88, 12455), (90, 12485), (92, 12497), (94, 12521), (95, 12530), (99, 12551), (100, 12554), (103, 12566), (107, 12584), (114, 12626), (118, 12656), (140, 12797), (147, 12854), (162, 12920), (170, 12980), (172, 12989), (182, 13052), (190, 13118), (201, 13151), (243, 13469), (245, 13493), (254, 13532), (257, 13553),

Gene: DelaGarza_20 Start: 12031, Stop: 14265, Start Num: 6

Candidate Starts for DelaGarza_20:

(Start: 6 @12031 has 21 MA's), (7, 12037), (13, 12118), (15, 12130), (16, 12148), (17, 12157), (22, 12199), (23, 12205), (37, 12367), (38, 12382), (41, 12403), (42, 12412), (49, 12475), (58, 12556), (59, 12568), (62, 12616), (63, 12634), (67, 12667), (72, 12727), (76, 12781), (80, 12838), (88, 12976), (90, 13006), (92, 13018), (96, 13063), (112, 13132), (118, 13171), (122, 13195), (128, 13216), (139, 13282), (157, 13372), (160, 13381), (161, 13384), (168, 13435), (186, 13579), (194, 13675), (199, 13711), (203, 13732), (208, 13783), (210, 13798), (228, 13963), (229, 13972), (236, 14008), (243, 14065), (246, 14083), (250, 14098), (252, 14107),

Gene: Dropshot_21 Start: 11367, Stop: 13565, Start Num: 6

Candidate Starts for Dropshot_21:

(Start: 6 @11367 has 21 MA's), (12, 11442), (16, 11493), (19, 11520), (29, 11613), (32, 11670), (37, 11712), (40, 11745), (42, 11757), (46, 11808), (47, 11811), (49, 11820), (50, 11823), (52, 11859), (53, 11865), (54, 11868), (56, 11880), (57, 11889), (59, 11913), (67, 12012), (72, 12072), (75, 12111), (76, 12126), (80, 12183), (88, 12321), (90, 12351), (92, 12363), (94, 12387), (95, 12396), (99, 12417), (100, 12420), (103, 12432), (107, 12450), (114, 12492), (118, 12522), (140, 12663), (147, 12720), (162, 12786), (170, 12846), (172, 12855), (182, 12918), (190, 12984), (201, 13017), (243, 13335), (245, 13359), (254, 13398), (257, 13419),

Gene: Euratis_12 Start: 8185, Stop: 10374, Start Num: 6

Candidate Starts for Euratis_12:

(Start: 6 @8185 has 21 MA's), (8, 8212), (11, 8242), (27, 8392), (30, 8443), (31, 8470), (36, 8518), (39, 8545), (43, 8569), (48, 8626), (49, 8629), (51, 8644), (60, 8722), (63, 8785), (68, 8836), (74, 8911), (76, 8932), (87, 9070), (89, 9127), (92, 9160), (101, 9220), (115, 9295), (123, 9355), (125, 9367), (131, 9424), (133, 9430), (134, 9439), (138, 9460), (142, 9481), (150, 9538), (155, 9568), (158, 9574), (159, 9589), (163, 9607), (167, 9631), (170, 9664), (172, 9673), (174, 9679), (176, 9685), (183, 9748), (187, 9778), (192, 9862), (196, 9895), (198, 9907), (215, 10048), (219, 10081), (220, 10093), (226, 10132), (230, 10177), (237, 10231), (239, 10255), (258, 10342),

Gene: Gingerbug_18 Start: 11192, Stop: 13474, Start Num: 6

Candidate Starts for Gingerbug_18:

(Start: 6 @11192 has 21 MA's), (13, 11273), (15, 11285), (27, 11393), (31, 11471), (32, 11480), (34, 11501), (37, 11522), (38, 11537), (41, 11558), (49, 11630), (51, 11645), (58, 11711), (60, 11726), (61, 11735), (62, 11771), (63, 11789), (67, 11822), (72, 11882), (76, 11936), (79, 11990), (83, 12023), (87,

12080), (89, 12140), (90, 12161), (92, 12173), (93, 12185), (98, 12224), (100, 12230), (104, 12251), (107, 12260), (114, 12302), (116, 12314), (118, 12332), (130, 12428), (135, 12449), (140, 12473), (141, 12476), (143, 12497), (148, 12533), (162, 12596), (166, 12620), (181, 12752), (182, 12761), (194, 12884), (199, 12920), (206, 12983), (212, 13034), (214, 13046), (217, 13091), (231, 13190), (236, 13217), (250, 13307), (260, 13376),

Gene: Heather_12 Start: 8215, Stop: 10404, Start Num: 6

Candidate Starts for Heather_12:

(Start: 6 @8215 has 21 MA's), (21, 8365), (22, 8383), (27, 8422), (30, 8473), (31, 8500), (39, 8575), (43, 8599), (49, 8659), (60, 8752), (63, 8815), (68, 8866), (69, 8878), (76, 8962), (82, 9037), (84, 9070), (87, 9100), (89, 9157), (92, 9190), (151, 9580), (158, 9604), (163, 9637), (167, 9661), (170, 9694), (173, 9706), (198, 9937), (212, 10045), (215, 10078), (219, 10111), (230, 10207), (234, 10228), (248, 10324),

Gene: Ididsumtinwong_16 Start: 9816, Stop: 12233, Start Num: 1

Candidate Starts for Ididsumtinwong_16:

(Start: 1 @9816 has 6 MA's), (3, 9828), (4, 9882), (5, 9903), (20, 10077), (22, 10098), (28, 10155), (30, 10188), (39, 10290), (45, 10332), (49, 10374), (50, 10377), (51, 10389), (60, 10467), (63, 10530), (69, 10593), (70, 10611), (72, 10623), (76, 10677), (77, 10686), (79, 10731), (80, 10734), (87, 10815), (91, 10902), (92, 10905), (97, 10953), (102, 10971), (106, 10989), (108, 11001), (125, 11112), (131, 11169), (138, 11205), (142, 11226), (145, 11259), (146, 11265), (158, 11319), (163, 11352), (167, 11376), (190, 11574), (219, 11832), (221, 11853), (223, 11877), (227, 11898), (234, 11952), (242, 12018), (244, 12030), (251, 12075),

Gene: Lesiram_21 Start: 12001, Stop: 14235, Start Num: 6

Candidate Starts for Lesiram_21:

(Start: 6 @12001 has 21 MA's), (7, 12007), (13, 12088), (15, 12100), (16, 12118), (17, 12127), (22, 12169), (23, 12175), (37, 12337), (38, 12352), (41, 12373), (42, 12382), (49, 12445), (58, 12526), (59, 12538), (62, 12586), (63, 12604), (67, 12637), (72, 12697), (76, 12751), (80, 12808), (88, 12946), (90, 12976), (92, 12988), (96, 13033), (112, 13102), (118, 13141), (122, 13165), (128, 13186), (139, 13252), (157, 13342), (161, 13354), (168, 13405), (176, 13438), (194, 13645), (199, 13681), (203, 13702), (208, 13753), (210, 13768), (228, 13933), (229, 13942), (236, 13978), (243, 14035), (246, 14053), (250, 14068), (252, 14077),

Gene: Lilbooboo_12 Start: 8195, Stop: 10384, Start Num: 6

Candidate Starts for Lilbooboo_12:

(Start: 6 @8195 has 21 MA's), (8, 8222), (10, 8240), (22, 8363), (27, 8402), (30, 8453), (36, 8528), (39, 8555), (43, 8579), (44, 8585), (48, 8636), (49, 8639), (51, 8654), (60, 8732), (63, 8795), (68, 8846), (71, 8879), (73, 8900), (74, 8921), (76, 8942), (87, 9080), (92, 9170), (100, 9227), (105, 9251), (107, 9260), (115, 9305), (117, 9326), (131, 9434), (138, 9470), (142, 9491), (156, 9581), (158, 9584), (163, 9617), (167, 9641), (171, 9680), (173, 9686), (189, 9815), (192, 9872), (196, 9905), (197, 9908), (200, 9926), (205, 9959), (219, 10091), (230, 10187), (237, 10241), (258, 10352),

Gene: MenE_22 Start: 11635, Stop: 13833, Start Num: 6

Candidate Starts for MenE_22:

(Start: 6 @11635 has 21 MA's), (12, 11710), (16, 11761), (19, 11788), (29, 11881), (32, 11938), (37, 11980), (40, 12013), (42, 12025), (46, 12076), (47, 12079), (49, 12088), (50, 12091), (52, 12127), (53, 12133), (54, 12136), (56, 12148), (57, 12157), (59, 12181), (67, 12280), (72, 12340), (75, 12379), (76, 12394), (80, 12451), (88, 12589), (90, 12619), (92, 12631), (94, 12655), (95, 12664), (99, 12685), (100, 12688), (103, 12700), (107, 12718), (114, 12760), (118, 12790), (140, 12931), (147, 12988), (162, 13054), (170, 13114), (172, 13123), (182, 13186), (190, 13252), (243, 13603), (245, 13627), (254, 13666), (257, 13687),

Gene: PapayaSalad_16 Start: 9786, Stop: 12203, Start Num: 1

Candidate Starts for PapayaSalad_16:

(Start: 1 @9786 has 6 MA's), (3, 9798), (4, 9852), (5, 9873), (20, 10047), (22, 10068), (28, 10125), (39, 10260), (45, 10302), (49, 10344), (50, 10347), (51, 10359), (60, 10437), (63, 10500), (69, 10563), (70, 10581), (72, 10593), (76, 10647), (77, 10656), (79, 10701), (80, 10704), (87, 10785), (91, 10872), (92, 10875), (97, 10923), (102, 10941), (106, 10959), (108, 10971), (125, 11082), (131, 11139), (138, 11175), (142, 11196), (145, 11229), (146, 11235), (152, 11268), (158, 11289), (163, 11322), (167, 11346), (178, 11421), (221, 11823), (223, 11847), (227, 11868), (234, 11922), (240, 11985), (244, 12000), (251, 12045),

Gene: Phonegingi_21 Start: 11365, Stop: 13626, Start Num: 6

Candidate Starts for Phonegingi_21:

(Start: 6 @11365 has 21 MA's), (12, 11440), (16, 11491), (19, 11518), (29, 11611), (33, 11680), (37, 11710), (40, 11743), (42, 11755), (46, 11806), (47, 11809), (49, 11818), (50, 11821), (52, 11857), (53, 11863), (54, 11866), (56, 11878), (57, 11887), (67, 12010), (72, 12070), (75, 12109), (76, 12124), (80, 12181), (87, 12268), (88, 12319), (90, 12349), (92, 12361), (94, 12385), (95, 12394), (96, 12406), (99, 12415), (100, 12418), (103, 12430), (113, 12487), (114, 12490), (118, 12520), (137, 12649), (147, 12718), (154, 12751), (162, 12784), (164, 12799), (170, 12844), (172, 12853), (186, 12943), (201, 13015), (210, 13063), (213, 13096), (217, 13147), (221, 13180), (224, 13213), (225, 13216), (231, 13291), (243, 13396), (245, 13420), (254, 13459),

Gene: Pickles13_21 Start: 11528, Stop: 13990, Start Num: 6

Candidate Starts for Pickles13_21:

(Start: 6 @11528 has 21 MA's), (12, 11603), (14, 11633), (18, 11666), (19, 11681), (27, 11744), (29, 11774), (30, 11795), (32, 11831), (37, 11873), (40, 11906), (42, 11918), (46, 11969), (47, 11972), (50, 11984), (52, 12020), (53, 12026), (54, 12029), (56, 12041), (57, 12050), (59, 12074), (66, 12152), (72, 12233), (75, 12272), (76, 12287), (78, 12299), (80, 12344), (82, 12362), (86, 12425), (87, 12431), (88, 12482), (90, 12512), (92, 12524), (94, 12548), (95, 12557), (99, 12578), (100, 12581), (103, 12593), (107, 12611), (109, 12623), (114, 12653), (119, 12701), (124, 12719), (135, 12800), (136, 12809), (141, 12827), (169, 13043), (175, 13076), (179, 13151), (188, 13253), (189, 13271), (190, 13322), (191, 13337), (195, 13385), (207, 13469), (218, 13577), (243, 13760), (245, 13784), (254, 13823), (255, 13838), (261, 13886), (262, 13964),

Gene: RemusLoopin_12 Start: 8193, Stop: 10382, Start Num: 6

Candidate Starts for RemusLoopin_12:

(Start: 6 @8193 has 21 MA's), (21, 8343), (22, 8361), (27, 8400), (30, 8451), (31, 8478), (39, 8553), (43, 8577), (49, 8637), (51, 8652), (59, 8727), (63, 8793), (68, 8844), (76, 8940), (84, 9048), (87, 9078), (92, 9168), (129, 9405), (131, 9432), (142, 9489), (150, 9546), (151, 9558), (158, 9582), (163, 9615), (167, 9639), (189, 9813), (198, 9915), (219, 10089), (230, 10185), (234, 10206), (253, 10311),

Gene: SV1_16 Start: 10022, Stop: 12439, Start Num: 1

Candidate Starts for SV1_16:

(Start: 1 @10022 has 6 MA's), (3, 10034), (4, 10088), (5, 10109), (20, 10283), (22, 10304), (27, 10343), (30, 10394), (39, 10496), (45, 10538), (48, 10577), (49, 10580), (50, 10583), (60, 10673), (63, 10736), (69, 10799), (70, 10817), (72, 10829), (76, 10883), (80, 10940), (87, 11021), (91, 11108), (92, 11111), (97, 11159), (102, 11177), (108, 11207), (142, 11432), (146, 11471), (149, 11486), (158, 11525), (163, 11558), (167, 11582), (184, 11708), (190, 11780), (216, 12002), (219, 12038), (221, 12059), (223, 12083), (227, 12104), (229, 12131), (233, 12155), (234, 12158), (240, 12221), (242, 12224), (244, 12236), (251, 12281),

Gene: Samora_12 Start: 8227, Stop: 10419, Start Num: 6

Candidate Starts for Samora_12:

(Start: 6 @8227 has 21 MA's), (8, 8254), (10, 8272), (30, 8485), (31, 8512), (36, 8560), (39, 8587), (43, 8611), (49, 8671), (50, 8674), (51, 8686), (60, 8764), (63, 8827), (68, 8878), (73, 8932), (74, 8953), (76, 8974), (84, 9082), (87, 9112), (92, 9202), (138, 9502), (158, 9616), (163, 9649), (167, 9673), (171, 9712), (173, 9718), (189, 9847), (192, 9904), (196, 9937), (219, 10123), (230, 10219), (237, 10273), (239, 10297),

Gene: Sebastisaurus_12 Start: 8219, Stop: 10408, Start Num: 6

Candidate Starts for Sebastisaurus_12:

(Start: 6 @8219 has 21 MA's), (21, 8369), (22, 8387), (27, 8426), (29, 8456), (30, 8477), (31, 8504), (39, 8579), (43, 8603), (49, 8663), (51, 8678), (59, 8753), (63, 8819), (76, 8966), (84, 9074), (87, 9104), (89, 9161), (92, 9194), (129, 9431), (131, 9458), (142, 9515), (150, 9572), (151, 9584), (158, 9608), (163, 9641), (167, 9665), (189, 9839), (196, 9929), (198, 9941), (212, 10049), (215, 10082), (219, 10115), (222, 10151), (230, 10211), (235, 10235), (248, 10328), (253, 10337),

Gene: Shawty_12 Start: 8222, Stop: 10411, Start Num: 6

Candidate Starts for Shawty_12:

(Start: 6 @8222 has 21 MA's), (8, 8249), (25, 8414), (27, 8429), (30, 8480), (31, 8507), (39, 8582), (43, 8606), (49, 8666), (51, 8681), (55, 8717), (59, 8756), (63, 8822), (68, 8873), (74, 8948), (76, 8969), (81, 9035), (85, 9083), (87, 9107), (89, 9164), (92, 9197), (115, 9332), (132, 9464), (134, 9476), (138, 9497), (155, 9605), (158, 9611), (159, 9626), (163, 9644), (167, 9668), (172, 9710), (176, 9722), (187, 9815), (189, 9842), (196, 9932), (215, 10085), (219, 10118), (230, 10214),

Gene: SoJo_16 Start: 10050, Stop: 12278, Start Num: 1

Candidate Starts for SoJo_16:

(Start: 1 @10050 has 6 MA's), (2, 10056), (3, 10062), (9, 10239), (10, 10260), (20, 10377), (30, 10488), (35, 10548), (49, 10674), (57, 10743), (65, 10839), (71, 10914), (76, 10977), (81, 11043), (87, 11115), (90, 11193), (97, 11253), (127, 11319), (144, 11373), (146, 11382), (163, 11427), (166, 11445), (167, 11451), (185, 11586), (193, 11685), (202, 11742), (209, 11808), (211, 11820), (221, 11928), (223, 11952), (234, 12027), (244, 12108), (256, 12159), (260, 12189),

Gene: TG1_12 Start: 8190, Stop: 10379, Start Num: 6

Candidate Starts for TG1_12:

(Start: 6 @8190 has 21 MA's), (8, 8217), (21, 8340), (24, 8370), (26, 8385), (27, 8397), (30, 8448), (43, 8574), (49, 8634), (60, 8727), (63, 8790), (64, 8796), (73, 8895), (76, 8937), (82, 9012), (84, 9045), (87, 9075), (92, 9165), (110, 9276), (111, 9279), (115, 9300), (120, 9348), (134, 9444), (145, 9519), (149, 9540), (158, 9579), (159, 9594), (163, 9612), (165, 9627), (167, 9636), (177, 9693), (180, 9741), (198, 9912), (204, 9942), (205, 9954), (219, 10086), (220, 10098), (230, 10182), (241, 10263), (247, 10299), (259, 10362),

Gene: Teng_22 Start: 12028, Stop: 14262, Start Num: 6

Candidate Starts for Teng_22:

(Start: 6 @12028 has 21 MA's), (7, 12034), (13, 12115), (15, 12127), (16, 12145), (17, 12154), (22, 12196), (23, 12202), (37, 12364), (38, 12379), (41, 12400), (42, 12409), (49, 12472), (58, 12553), (59, 12565), (62, 12613), (63, 12631), (67, 12664), (72, 12724), (76, 12778), (80, 12835), (88, 12973), (90, 13003), (92, 13015), (112, 13129), (118, 13168), (122, 13192), (128, 13213), (139, 13279), (157, 13369), (161, 13381), (168, 13432), (199, 13708), (203, 13729), (208, 13780), (210, 13795), (228, 13960), (229, 13969), (236, 14005), (243, 14062), (246, 14080), (250, 14095), (252, 14104),

Gene: Vash_12 Start: 8200, Stop: 10392, Start Num: 6

Candidate Starts for Vash_12:

(Start: 6 @8200 has 21 MA's), (8, 8227), (22, 8368), (27, 8407), (30, 8458), (36, 8533), (39, 8560), (43, 8584), (44, 8590), (48, 8641), (49, 8644), (51, 8659), (60, 8737), (63, 8800), (68, 8851), (71, 8884), (74, 8926), (76, 8947), (81, 9013), (87, 9085), (92, 9175), (100, 9232), (107, 9265), (111, 9289), (115,

9310), (117, 9331), (131, 9439), (138, 9475), (151, 9565), (153, 9571), (156, 9586), (158, 9589), (163, 9622), (167, 9646), (171, 9685), (189, 9820), (192, 9877), (196, 9910), (198, 9922), (219, 10096), (230, 10192), (237, 10246), (239, 10270), (247, 10309), (249, 10315), (258, 10360),

Gene: Warren_22 Start: 11565, Stop: 13763, Start Num: 6

Candidate Starts for Warren_22:

(Start: 6 @11565 has 21 MA's), (12, 11640), (16, 11691), (19, 11718), (29, 11811), (37, 11910), (40, 11943), (42, 11955), (46, 12006), (47, 12009), (49, 12018), (50, 12021), (52, 12057), (53, 12063), (54, 12066), (56, 12078), (57, 12087), (59, 12111), (67, 12210), (72, 12270), (75, 12309), (76, 12324), (80, 12381), (88, 12519), (90, 12549), (92, 12561), (94, 12585), (95, 12594), (99, 12615), (100, 12618), (103, 12630), (107, 12648), (114, 12690), (118, 12720), (121, 12744), (137, 12849), (147, 12918), (154, 12951), (162, 12984), (170, 13044), (172, 13053), (182, 13116), (190, 13182), (201, 13215), (232, 13452), (243, 13533), (245, 13557), (254, 13596), (257, 13617),

Gene: phiBT1_43 Start: 8225, Stop: 10414, Start Num: 6

Candidate Starts for phiBT1_43:

(Start: 6 @8225 has 21 MA's), (8, 8252), (27, 8432), (30, 8483), (31, 8510), (36, 8558), (39, 8585), (43, 8609), (49, 8669), (51, 8684), (60, 8762), (63, 8825), (65, 8834), (68, 8876), (73, 8930), (74, 8951), (76, 8972), (84, 9080), (87, 9110), (92, 9200), (105, 9281), (110, 9311), (115, 9335), (117, 9356), (126, 9425), (129, 9437), (132, 9467), (134, 9479), (139, 9503), (152, 9593), (155, 9608), (158, 9614), (163, 9647), (165, 9662), (167, 9671), (171, 9710), (173, 9716), (176, 9725), (187, 9818), (192, 9902), (197, 9938), (198, 9947), (215, 10088), (219, 10121), (222, 10157), (230, 10217), (237, 10271), (238, 10277), (253, 10343),