

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 216340 Report

This analysis was run 02/22/25 on database version 588.

Pham number 216340 has 39 members, 14 are drafts.

Phages represented in each track:

- Track 1 : Tubberson_16
- Track 2 : SoJo_16
- Track 3 : Linayshia_19, Rasovi_19, Htur_19
- Track 4 : Typher_21
- Track 5 : Johann_20, Goodman_20
- Track 6 : SBlackberry_19
- Track 7 : TurboVicky_19
- Track 8 : Cicada_21
- Track 9 : PermaG_20
- Track 10 : Jera_20
- Track 11 : Zanella_19
- Track 12 : Olympi_20
- Track 13 : Antuna_22, Violeta_23, Losacky_24, MenE_22
- Track 14 : Dropshot_21, Appa_21
- Track 15 : Phingu_24
- Track 16 : Carrillo_23
- Track 17 : Blett_22
- Track 18 : Phonegingi_21
- Track 19 : Jakelyne_24
- Track 20 : PhillyJawn_22
- Track 21 : Bush_22
- Track 22 : Warren_22
- Track 23 : CookieDog_22
- Track 24 : Guzman_23
- Track 25 : Pickles13_21
- Track 26 : Teng_22
- Track 27 : DelaGarza_20
- Track 28 : Lesiram_21
- Track 29 : Gingerbug_18
- Track 30 : Wrackline_26
- Track 31 : Parvarticeps_35
- Track 32 : Ball_14

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

The start number called the most often in the published annotations is 2, it was called in 12 of the 25 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Antuna_22, Appa_21, Blett_22, Bush_22, Carrillo_23, CookieDog_22, DelaGarza_20, Dropshot_21, Gingerbug_18, Guzman_23, Jakelyne_24, Lesiram_21, Losacky_24, MenE_22, Parvuparticeps_35, PhillyJawn_22, Phingu_24, Phonegingi_21, Pickles13_21, Teng_22, Violeta_23, Warren_22, Wrackline_26,

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

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

- Ball_14, Cicada_21, Goodman_20, Htur_19, Jera_20, Johann_20, Linayshia_19, Olympi_20, PermaG_20, Rasovi_19, SBlackberry_19, SoJo_16, Tubberson_16, TurboVicky_19, Typher_21, Zanella_19,

Summary by start number:

Start 1:

- Found in 1 of 39 (2.6%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ball_14 (singleton),

Start 2:

- Found in 23 of 39 (59.0%) of genes in pham
- Manual Annotations of this start: 12 of 25
- 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), Carrillo_23 (GA), CookieDog_22 (GA), DelaGarza_20 (GF), Dropshot_21 (GA), Gingerbug_18 (GF), Guzman_23 (GA), Jakelyne_24 (GA), Lesiram_21 (GF), Losacky_24 (GA), MenE_22 (GA), Parvuparticeps_35 (UNK), PhillyJawn_22 (GA), Phingu_24 (GA), Phonegingi_21 (GA), Pickles13_21 (GA), Teng_22 (GF), Violeta_23 (GA), Warren_22 (GA), Wrackline_26 (GF),

Start 6:

- Found in 3 of 39 (7.7%) of genes in pham
- Manual Annotations of this start: 2 of 25
- Called 66.7% of time when present
- Phage (with cluster) where this start called: SoJo_16 (BC1), Tubberson_16 (BC1),

Start 26:

- Found in 30 of 39 (76.9%) of genes in pham
- Manual Annotations of this start: 11 of 25
- Called 43.3% of time when present
- Phage (with cluster) where this start called: Cicada_21 (EJ), Goodman_20 (EJ), Htur_19 (EJ), Jera_20 (EJ), Johann_20 (EJ), Linayshia_19 (EJ), Olympi_20 (EJ), PermaG_20 (EJ), Rasovi_19 (EJ), SBlackberry_19 (EJ), TurboVicky_19 (EJ), Typher_21 (EJ), Zanella_19 (EJ),

Summary by clusters:

There are 6 clusters represented in this pham: singleton, EJ, GF, GA, UNK, BC1,

Info for manual annotations of cluster BC1:

- Start number 6 was manually annotated 2 times for cluster BC1.

Info for manual annotations of cluster EJ:

- Start number 26 was manually annotated 11 times for cluster EJ.

Info for manual annotations of cluster GA:

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

Info for manual annotations of cluster GF:

- Start number 2 was manually annotated 3 times for cluster GF.

Gene Information:

Gene: Antuna_22 Start: 11505, Stop: 13703, Start Num: 2

Candidate Starts for Antuna_22:

(Start: 2 @11505 has 12 MA's), (8, 11580), (15, 11631), (19, 11658), (Start: 26 @11751 has 11 MA's), (32, 11808), (35, 11850), (37, 11883), (39, 11895), (45, 11946), (46, 11949), (47, 11958), (48, 11961), (51, 11997), (52, 12003), (53, 12006), (55, 12018), (56, 12027), (58, 12051), (67, 12150), (71, 12210), (74, 12249), (75, 12264), (78, 12321), (92, 12459), (94, 12489), (95, 12501), (98, 12525), (100, 12534), (104, 12555), (105, 12558), (109, 12570), (111, 12588), (117, 12630), (124, 12660), (141, 12801), (148, 12858), (155, 12924), (166, 12984), (167, 12993), (181, 13056), (191, 13122), (242, 13473), (246, 13497), (249, 13536), (251, 13557),

Gene: Appa_21 Start: 11367, Stop: 13565, Start Num: 2

Candidate Starts for Appa_21:

(Start: 2 @11367 has 12 MA's), (8, 11442), (15, 11493), (19, 11520), (Start: 26 @11613 has 11 MA's), (32, 11670), (35, 11712), (37, 11745), (39, 11757), (45, 11808), (46, 11811), (47, 11820), (48, 11823), (51, 11859), (52, 11865), (53, 11868), (55, 11880), (56, 11889), (58, 11913), (67, 12012), (71, 12072), (74, 12111), (75, 12126), (78, 12183), (92, 12321), (94, 12351), (95, 12363), (98, 12387), (100, 12396), (104, 12417), (105, 12420), (109, 12432), (111, 12450), (117, 12492), (124, 12522), (141, 12663), (148, 12720), (155, 12786), (166, 12846), (167, 12855), (181, 12918), (191, 12984), (202, 13017), (242, 13335), (246, 13359), (249, 13398), (251, 13419),

Gene: Ball_14 Start: 9578, Stop: 12361, Start Num: 1

Candidate Starts for Ball_14:

(1, 9578), (5, 9626), (Start: 6 @9668 has 2 MA's), (13, 9725), (20, 9767), (23, 9794), (24, 9815), (28, 9878), (37, 9989), (40, 10004), (45, 10052), (47, 10064), (50, 10094), (62, 10187), (63, 10205), (64, 10223), (71, 10316), (74, 10355), (75, 10370), (79, 10430), (112, 10685), (125, 10751), (129, 10778), (132, 10790), (133, 10802), (134, 10817), (139, 10871), (140, 10874), (142, 10889), (145, 10910), (149, 10946), (155, 11009), (160, 11042), (162, 11057), (178, 11177), (180, 11201), (190, 11342), (193, 11372), (206, 11483), (209, 11504), (217, 11582), (218, 11591), (219, 11603), (221, 11615), (223, 11648), (228, 11684), (231, 11714), (236, 11780), (240, 11834), (252, 11957), (256, 11999), (258, 12017), (262, 12143), (263, 12170), (264, 12305),

Gene: Blett_22 Start: 11520, Stop: 13718, Start Num: 2

Candidate Starts for Blett_22:

(Start: 2 @11520 has 12 MA's), (8, 11595), (15, 11646), (19, 11673), (Start: 26 @11766 has 11 MA's), (32, 11823), (35, 11865), (37, 11898), (39, 11910), (45, 11961), (46, 11964), (47, 11973), (48, 11976), (51, 12012), (52, 12018), (53, 12021), (55, 12033), (56, 12042), (58, 12066), (67, 12165), (71, 12225), (74, 12264), (75, 12279), (78, 12336), (92, 12474), (94, 12504), (95, 12516), (98, 12540), (100, 12549), (104, 12570), (105, 12573), (109, 12585), (111, 12603), (117, 12645), (124, 12675), (140, 12804), (148, 12873), (155, 12939), (166, 12999), (167, 13008), (181, 13071), (191, 13137), (202, 13170), (242, 13488), (246, 13512), (249, 13551), (251, 13572),

Gene: Bush_22 Start: 11501, Stop: 13699, Start Num: 2

Candidate Starts for Bush_22:

(Start: 2 @11501 has 12 MA's), (8, 11576), (15, 11627), (19, 11654), (Start: 26 @11747 has 11 MA's), (32, 11804), (35, 11846), (37, 11879), (39, 11891), (45, 11942), (46, 11945), (47, 11954), (48, 11957), (51, 11993), (52, 11999), (53, 12002), (55, 12014), (56, 12023), (58, 12047), (67, 12146), (71, 12206), (74, 12245), (75, 12260), (87, 12398), (88, 12404), (92, 12455), (94, 12485), (95, 12497), (98, 12521), (100, 12530), (104, 12551), (105, 12554), (109, 12566), (111, 12584), (117, 12626), (124, 12656), (141, 12797), (148, 12854), (155, 12920), (166, 12980), (167, 12989), (181, 13052), (191, 13118), (202, 13151), (242, 13469), (246, 13493), (249, 13532), (251, 13553),

Gene: Carrillo_23 Start: 11474, Stop: 13672, Start Num: 2

Candidate Starts for Carrillo_23:

(Start: 2 @11474 has 12 MA's), (8, 11549), (15, 11600), (19, 11627), (Start: 26 @11720 has 11 MA's), (32, 11777), (35, 11819), (37, 11852), (39, 11864), (45, 11915), (46, 11918), (47, 11927), (48, 11930), (51, 11966), (52, 11972), (53, 11975), (55, 11987), (56, 11996), (58, 12020), (67, 12119), (71, 12179), (74, 12218), (75, 12233), (78, 12290), (92, 12428), (94, 12458), (95, 12470), (98, 12494), (100, 12503), (104, 12524), (105, 12527), (109, 12539), (111, 12557), (117, 12599), (124, 12629), (141, 12770), (148, 12827), (155, 12893), (166, 12953), (167, 12962), (181, 13025), (191, 13091), (211, 13172), (242, 13442), (246, 13466), (249, 13505), (251, 13526),

Gene: Cicada_21 Start: 13577, Stop: 15565, Start Num: 26

Candidate Starts for Cicada_21:

(Start: 26 @13577 has 11 MA's), (30, 13616), (41, 13727), (42, 13742), (44, 13754), (66, 13946), (68, 13970), (72, 14012), (78, 14102), (86, 14153), (90, 14219), (99, 14300), (101, 14315), (108, 14339), (118, 14402), (123, 14426), (137, 14528), (140, 14552), (148, 14621), (153, 14654), (181, 14852), (184, 14879), (187, 14897), (193, 14951), (199, 14999), (200, 15011), (201, 15017), (209, 15083), (210, 15095), (232, 15272), (235, 15308), (239, 15338), (247, 15398), (259, 15539),

Gene: CookieDog_22 Start: 11501, Stop: 13699, Start Num: 2

Candidate Starts for CookieDog_22:

(Start: 2 @11501 has 12 MA's), (8, 11576), (15, 11627), (19, 11654), (Start: 26 @11747 has 11 MA's), (35, 11846), (37, 11879), (39, 11891), (45, 11942), (46, 11945), (47, 11954), (48, 11957), (51, 11993), (52, 11999), (53, 12002), (55, 12014), (56, 12023), (58, 12047), (67, 12146), (71, 12206), (74, 12245), (75, 12260), (87, 12398), (88, 12404), (92, 12455), (94, 12485), (95, 12497), (98, 12521), (100, 12530), (104, 12551), (105, 12554), (109, 12566), (111, 12584), (117, 12626), (124, 12656), (141, 12797), (148, 12854), (155, 12920), (166, 12980), (167, 12989), (181, 13052), (191, 13118), (211, 13199), (242, 13469), (246, 13493), (249, 13532), (251, 13553),

Gene: DelaGarza_20 Start: 12031, Stop: 14265, Start Num: 2

Candidate Starts for DelaGarza_20:

(Start: 2 @12031 has 12 MA's), (3, 12037), (10, 12118), (11, 12130), (15, 12148), (16, 12157), (21, 12199), (22, 12205), (35, 12367), (36, 12382), (38, 12403), (39, 12412), (47, 12475), (57, 12556), (58, 12568), (63, 12616), (64, 12634), (67, 12667), (71, 12727), (75, 12781), (78, 12838), (92, 12976), (94, 13006), (95, 13018), (102, 13063), (114, 13132), (122, 13171), (126, 13195), (131, 13216), (137, 13282), (149, 13372), (151, 13381), (152, 13384), (158, 13435), (189, 13579), (195, 13675), (200,

13711), (204, 13732), (209, 13783), (211, 13798), (230, 13963), (232, 13972), (235, 14008), (242, 14065), (245, 14083), (247, 14098), (248, 14107),

Gene: Dropshot_21 Start: 11367, Stop: 13565, Start Num: 2

Candidate Starts for Dropshot_21:

(Start: 2 @11367 has 12 MA's), (8, 11442), (15, 11493), (19, 11520), (Start: 26 @11613 has 11 MA's), (32, 11670), (35, 11712), (37, 11745), (39, 11757), (45, 11808), (46, 11811), (47, 11820), (48, 11823), (51, 11859), (52, 11865), (53, 11868), (55, 11880), (56, 11889), (58, 11913), (67, 12012), (71, 12072), (74, 12111), (75, 12126), (78, 12183), (92, 12321), (94, 12351), (95, 12363), (98, 12387), (100, 12396), (104, 12417), (105, 12420), (109, 12432), (111, 12450), (117, 12492), (124, 12522), (141, 12663), (148, 12720), (155, 12786), (166, 12846), (167, 12855), (181, 12918), (191, 12984), (202, 13017), (242, 13335), (246, 13359), (249, 13398), (251, 13419),

Gene: Gingerbug_18 Start: 11192, Stop: 13474, Start Num: 2

Candidate Starts for Gingerbug_18:

(Start: 2 @11192 has 12 MA's), (10, 11273), (11, 11285), (25, 11393), (31, 11471), (32, 11480), (34, 11501), (35, 11522), (36, 11537), (38, 11558), (47, 11630), (49, 11645), (57, 11711), (59, 11726), (60, 11735), (63, 11771), (64, 11789), (67, 11822), (71, 11882), (75, 11936), (77, 11990), (84, 12023), (88, 12080), (93, 12140), (94, 12161), (95, 12173), (96, 12185), (103, 12224), (105, 12230), (110, 12251), (111, 12260), (117, 12302), (119, 12314), (124, 12332), (135, 12428), (138, 12449), (141, 12473), (142, 12476), (145, 12497), (149, 12533), (155, 12596), (159, 12620), (176, 12752), (182, 12761), (195, 12884), (200, 12920), (207, 12983), (214, 13034), (216, 13046), (219, 13091), (233, 13190), (235, 13217), (247, 13307), (255, 13376),

Gene: Goodman_20 Start: 13490, Stop: 15478, Start Num: 26

Candidate Starts for Goodman_20:

(18, 13391), (Start: 26 @13490 has 11 MA's), (41, 13640), (42, 13655), (44, 13667), (66, 13859), (68, 13883), (72, 13925), (78, 14015), (86, 14066), (90, 14132), (99, 14213), (101, 14228), (108, 14252), (123, 14339), (137, 14441), (140, 14465), (148, 14534), (153, 14567), (181, 14765), (184, 14792), (187, 14810), (193, 14864), (199, 14912), (200, 14924), (201, 14930), (209, 14996), (210, 15008), (211, 15011), (232, 15185), (235, 15221), (239, 15251), (247, 15311), (259, 15452),

Gene: Guzman_23 Start: 11782, Stop: 13980, Start Num: 2

Candidate Starts for Guzman_23:

(Start: 2 @11782 has 12 MA's), (8, 11857), (15, 11908), (19, 11935), (Start: 26 @12028 has 11 MA's), (32, 12085), (35, 12127), (37, 12160), (39, 12172), (45, 12223), (46, 12226), (47, 12235), (48, 12238), (51, 12274), (52, 12280), (53, 12283), (55, 12295), (56, 12304), (58, 12328), (67, 12427), (71, 12487), (74, 12526), (75, 12541), (78, 12598), (92, 12736), (94, 12766), (95, 12778), (98, 12802), (100, 12811), (104, 12832), (105, 12835), (109, 12847), (111, 12865), (117, 12907), (124, 12937), (141, 13078), (148, 13135), (155, 13201), (166, 13261), (167, 13270), (181, 13333), (191, 13399), (211, 13480), (235, 13693), (242, 13750), (246, 13774), (249, 13813), (251, 13834),

Gene: Htur_19 Start: 13514, Stop: 15508, Start Num: 26

Candidate Starts for Htur_19:

(Start: 26 @13514 has 11 MA's), (30, 13553), (41, 13664), (42, 13679), (44, 13691), (59, 13805), (66, 13883), (68, 13907), (78, 14039), (86, 14090), (90, 14156), (101, 14252), (123, 14363), (140, 14489), (147, 14549), (150, 14573), (153, 14591), (155, 14624), (176, 14771), (181, 14789), (186, 14822), (188, 14837), (194, 14903), (214, 15062), (215, 15068), (216, 15074), (222, 15152), (224, 15167), (232, 15209), (239, 15275), (248, 15344), (259, 15482),

Gene: Jakelyne_24 Start: 11520, Stop: 13781, Start Num: 2

Candidate Starts for Jakelyne_24:

(Start: 2 @11520 has 12 MA's), (8, 11595), (15, 11646), (19, 11673), (Start: 26 @11766 has 11 MA's), (32, 11823), (35, 11865), (37, 11898), (39, 11910), (45, 11961), (46, 11964), (47, 11973), (48, 11976), (51, 12012), (52, 12018), (53, 12021), (55, 12033), (56, 12042), (58, 12066), (67, 12165), (71, 12225), (74, 12264), (75, 12279), (78, 12336), (92, 12474), (94, 12504), (95, 12516), (98, 12540), (100, 12549), (104, 12570), (105, 12573), (109, 12585), (111, 12603), (117, 12645), (124, 12675), (140, 12804), (148, 12873), (153, 12906), (155, 12939), (166, 12999), (167, 13008), (173, 13038), (184, 13098), (202, 13170), (211, 13218), (215, 13251), (219, 13302), (222, 13335), (225, 13368), (226, 13371), (233, 13446), (241, 13545), (242, 13551), (246, 13575), (249, 13614), (251, 13635),

Gene: Jera_20 Start: 12587, Stop: 14575, Start Num: 26

Candidate Starts for Jera_20:

(Start: 26 @12587 has 11 MA's), (30, 12626), (41, 12737), (42, 12752), (44, 12764), (66, 12956), (68, 12980), (86, 13163), (90, 13229), (101, 13325), (108, 13349), (123, 13436), (137, 13538), (140, 13562), (148, 13631), (153, 13664), (155, 13697), (170, 13829), (184, 13889), (191, 13940), (199, 14009), (200, 14021), (201, 14027), (232, 14282), (239, 14348), (247, 14408), (259, 14549),

Gene: Johann_20 Start: 13490, Stop: 15478, Start Num: 26

Candidate Starts for Johann_20:

(18, 13391), (Start: 26 @13490 has 11 MA's), (41, 13640), (42, 13655), (44, 13667), (66, 13859), (68, 13883), (72, 13925), (78, 14015), (86, 14066), (90, 14132), (99, 14213), (101, 14228), (108, 14252), (123, 14339), (137, 14441), (140, 14465), (148, 14534), (153, 14567), (181, 14765), (184, 14792), (187, 14810), (193, 14864), (199, 14912), (200, 14924), (201, 14930), (209, 14996), (210, 15008), (211, 15011), (232, 15185), (235, 15221), (239, 15251), (247, 15311), (259, 15452),

Gene: Lesiram_21 Start: 12001, Stop: 14235, Start Num: 2

Candidate Starts for Lesiram_21:

(Start: 2 @12001 has 12 MA's), (3, 12007), (10, 12088), (11, 12100), (15, 12118), (16, 12127), (21, 12169), (22, 12175), (35, 12337), (36, 12352), (38, 12373), (39, 12382), (47, 12445), (57, 12526), (58, 12538), (63, 12586), (64, 12604), (67, 12637), (71, 12697), (75, 12751), (78, 12808), (92, 12946), (94, 12976), (95, 12988), (102, 13033), (114, 13102), (122, 13141), (126, 13165), (131, 13186), (137, 13252), (149, 13342), (152, 13354), (158, 13405), (162, 13438), (195, 13645), (200, 13681), (204, 13702), (209, 13753), (211, 13768), (230, 13933), (232, 13942), (235, 13978), (242, 14035), (245, 14053), (247, 14068), (248, 14077),

Gene: Linayshia_19 Start: 13506, Stop: 15500, Start Num: 26

Candidate Starts for Linayshia_19:

(Start: 26 @13506 has 11 MA's), (30, 13545), (41, 13656), (42, 13671), (44, 13683), (59, 13797), (66, 13875), (68, 13899), (78, 14031), (86, 14082), (90, 14148), (101, 14244), (123, 14355), (140, 14481), (147, 14541), (150, 14565), (153, 14583), (155, 14616), (176, 14763), (181, 14781), (186, 14814), (188, 14829), (194, 14895), (214, 15054), (215, 15060), (216, 15066), (222, 15144), (224, 15159), (232, 15201), (239, 15267), (248, 15336), (259, 15474),

Gene: Losacky_24 Start: 11647, Stop: 13845, Start Num: 2

Candidate Starts for Losacky_24:

(Start: 2 @11647 has 12 MA's), (8, 11722), (15, 11773), (19, 11800), (Start: 26 @11893 has 11 MA's), (32, 11950), (35, 11992), (37, 12025), (39, 12037), (45, 12088), (46, 12091), (47, 12100), (48, 12103), (51, 12139), (52, 12145), (53, 12148), (55, 12160), (56, 12169), (58, 12193), (67, 12292), (71, 12352), (74, 12391), (75, 12406), (78, 12463), (92, 12601), (94, 12631), (95, 12643), (98, 12667), (100, 12676), (104, 12697), (105, 12700), (109, 12712), (111, 12730), (117, 12772), (124, 12802), (141, 12943), (148, 13000), (155, 13066), (166, 13126), (167, 13135), (181, 13198), (191, 13264), (242, 13615), (246, 13639), (249, 13678), (251, 13699),

Gene: MenE_22 Start: 11635, Stop: 13833, Start Num: 2

Candidate Starts for MenE_22:

(Start: 2 @11635 has 12 MA's), (8, 11710), (15, 11761), (19, 11788), (Start: 26 @11881 has 11 MA's), (32, 11938), (35, 11980), (37, 12013), (39, 12025), (45, 12076), (46, 12079), (47, 12088), (48, 12091), (51, 12127), (52, 12133), (53, 12136), (55, 12148), (56, 12157), (58, 12181), (67, 12280), (71, 12340), (74, 12379), (75, 12394), (78, 12451), (92, 12589), (94, 12619), (95, 12631), (98, 12655), (100, 12664), (104, 12685), (105, 12688), (109, 12700), (111, 12718), (117, 12760), (124, 12790), (141, 12931), (148, 12988), (155, 13054), (166, 13114), (167, 13123), (181, 13186), (191, 13252), (242, 13603), (246, 13627), (249, 13666), (251, 13687),

Gene: Olympi_20 Start: 13480, Stop: 15465, Start Num: 26

Candidate Starts for Olympi_20:

(18, 13381), (Start: 26 @13480 has 11 MA's), (41, 13630), (42, 13645), (44, 13657), (66, 13849), (68, 13873), (72, 13915), (78, 14005), (86, 14056), (90, 14122), (99, 14203), (115, 14293), (119, 14314), (123, 14329), (140, 14455), (148, 14524), (153, 14557), (181, 14755), (184, 14782), (187, 14800), (193, 14854), (199, 14902), (200, 14914), (201, 14920), (209, 14986), (210, 14998), (211, 15001), (232, 15175), (235, 15211), (239, 15241), (247, 15301), (259, 15439),

Gene: Parvaparticeps_35 Start: 26694, Stop: 24370, Start Num: 2

Candidate Starts for Parvaparticeps_35:

(Start: 2 @26694 has 12 MA's), (14, 26571), (15, 26568), (21, 26517), (24, 26490), (25, 26478), (33, 26379), (34, 26370), (35, 26349), (39, 26304), (47, 26241), (48, 26238), (53, 26193), (60, 26136), (62, 26118), (64, 26082), (69, 26019), (71, 25989), (75, 25935), (97, 25680), (106, 25638), (109, 25629), (118, 25566), (119, 25557), (120, 25551), (121, 25548), (132, 25494), (139, 25401), (145, 25362), (146, 25350), (148, 25329), (156, 25269), (163, 25248), (169, 25185), (174, 25158), (185, 25074), (191, 25020), (198, 24954), (220, 24765), (229, 24702), (230, 24687), (233, 24669), (234, 24666), (235, 24642), (243, 24573), (247, 24552), (254, 24468), (257, 24435), (260, 24402),

Gene: PermaG_20 Start: 13551, Stop: 15539, Start Num: 26

Candidate Starts for PermaG_20:

(Start: 26 @13551 has 11 MA's), (30, 13590), (41, 13701), (42, 13716), (44, 13728), (66, 13920), (68, 13944), (72, 13986), (78, 14076), (81, 14085), (86, 14127), (90, 14193), (99, 14274), (101, 14289), (108, 14313), (119, 14385), (123, 14400), (137, 14502), (140, 14526), (148, 14595), (153, 14628), (160, 14694), (181, 14826), (184, 14853), (193, 14925), (196, 14958), (200, 14985), (201, 14991), (205, 15024), (232, 15246), (235, 15282), (239, 15312), (247, 15372), (259, 15513),

Gene: PhillyJawn_22 Start: 11367, Stop: 13565, Start Num: 2

Candidate Starts for PhillyJawn_22:

(Start: 2 @11367 has 12 MA's), (8, 11442), (15, 11493), (19, 11520), (Start: 26 @11613 has 11 MA's), (32, 11670), (35, 11712), (37, 11745), (39, 11757), (45, 11808), (46, 11811), (47, 11820), (48, 11823), (51, 11859), (52, 11865), (53, 11868), (55, 11880), (56, 11889), (58, 11913), (67, 12012), (71, 12072), (74, 12111), (75, 12126), (78, 12183), (92, 12321), (94, 12351), (95, 12363), (98, 12387), (100, 12396), (104, 12417), (105, 12420), (109, 12432), (111, 12450), (141, 12663), (148, 12720), (155, 12786), (166, 12846), (167, 12855), (181, 12918), (191, 12984), (202, 13017), (242, 13335), (246, 13359), (249, 13398), (251, 13419),

Gene: Phingu_24 Start: 11523, Stop: 13784, Start Num: 2

Candidate Starts for Phingu_24:

(Start: 2 @11523 has 12 MA's), (8, 11598), (15, 11649), (19, 11676), (Start: 26 @11769 has 11 MA's), (32, 11826), (35, 11868), (37, 11901), (39, 11913), (45, 11964), (46, 11967), (47, 11976), (48, 11979), (51, 12015), (52, 12021), (53, 12024), (55, 12036), (56, 12045), (58, 12069), (67, 12168), (71, 12228), (74, 12267), (75, 12282), (78, 12339), (92, 12477), (94, 12507), (95, 12519), (98, 12543), (100, 12552), (104, 12573), (105, 12576), (109, 12588), (111, 12606), (117, 12648), (124, 12678), (142, 12822), (148, 12876), (155, 12942), (166, 13002), (167, 13011), (181, 13074), (184, 13101), (202, 13173),

(211, 13221), (215, 13254), (219, 13305), (222, 13338), (225, 13371), (226, 13374), (233, 13449),
(241, 13548), (242, 13554), (246, 13578), (249, 13617), (251, 13638),

Gene: Phonegingi_21 Start: 11365, Stop: 13626, Start Num: 2

Candidate Starts for Phonegingi_21:

(Start: 2 @11365 has 12 MA's), (8, 11440), (15, 11491), (19, 11518), (Start: 26 @11611 has 11 MA's),
(33, 11680), (35, 11710), (37, 11743), (39, 11755), (45, 11806), (46, 11809), (47, 11818), (48, 11821),
(51, 11857), (52, 11863), (53, 11866), (55, 11878), (56, 11887), (67, 12010), (71, 12070), (74, 12109),
(75, 12124), (78, 12181), (88, 12268), (92, 12319), (94, 12349), (95, 12361), (98, 12385), (100, 12394),
(102, 12406), (104, 12415), (105, 12418), (109, 12430), (116, 12487), (117, 12490), (124, 12520),
(140, 12649), (148, 12718), (153, 12751), (155, 12784), (162, 12799), (166, 12844), (167, 12853),
(184, 12943), (202, 13015), (211, 13063), (215, 13096), (219, 13147), (222, 13180), (225, 13213),
(226, 13216), (233, 13291), (242, 13396), (246, 13420), (249, 13459),

Gene: Pickles13_21 Start: 11528, Stop: 13990, Start Num: 2

Candidate Starts for Pickles13_21:

(Start: 2 @11528 has 12 MA's), (8, 11603), (12, 11633), (17, 11666), (19, 11681), (25, 11744), (Start:
26 @11774 has 11 MA's), (28, 11795), (32, 11831), (35, 11873), (37, 11906), (39, 11918), (45, 11969),
(46, 11972), (48, 11984), (51, 12020), (52, 12026), (53, 12029), (55, 12041), (56, 12050), (58, 12074),
(65, 12152), (71, 12233), (74, 12272), (75, 12287), (76, 12299), (78, 12344), (83, 12362), (87, 12425),
(88, 12431), (92, 12482), (94, 12512), (95, 12524), (98, 12548), (100, 12557), (104, 12578), (105,
12581), (109, 12593), (111, 12611), (112, 12623), (117, 12653), (126, 12701), (130, 12719), (138,
12800), (139, 12809), (142, 12827), (165, 13043), (168, 13076), (179, 13151), (186, 13253), (189,
13271), (191, 13322), (192, 13337), (197, 13385), (208, 13469), (220, 13577), (242, 13760), (246,
13784), (249, 13823), (250, 13838), (255, 13886), (261, 13964),

Gene: Rasovi_19 Start: 13514, Stop: 15508, Start Num: 26

Candidate Starts for Rasovi_19:

(Start: 26 @13514 has 11 MA's), (30, 13553), (41, 13664), (42, 13679), (44, 13691), (59, 13805), (66,
13883), (68, 13907), (78, 14039), (86, 14090), (90, 14156), (101, 14252), (123, 14363), (140, 14489),
(147, 14549), (150, 14573), (153, 14591), (155, 14624), (176, 14771), (181, 14789), (186, 14822),
(188, 14837), (194, 14903), (214, 15062), (215, 15068), (216, 15074), (222, 15152), (224, 15167),
(232, 15209), (239, 15275), (248, 15344), (259, 15482),

Gene: SBlackberry_19 Start: 13346, Stop: 15334, Start Num: 26

Candidate Starts for SBlackberry_19:

(Start: 26 @13346 has 11 MA's), (30, 13385), (41, 13496), (42, 13511), (44, 13523), (66, 13715), (68,
13739), (86, 13922), (90, 13988), (101, 14084), (108, 14108), (123, 14195), (137, 14297), (140,
14321), (148, 14390), (153, 14423), (170, 14588), (181, 14621), (184, 14648), (187, 14666), (199,
14768), (200, 14780), (201, 14786), (211, 14867), (232, 15041), (239, 15107), (247, 15167), (248,
15176), (259, 15308),

Gene: SoJo_16 Start: 10050, Stop: 12278, Start Num: 6

Candidate Starts for SoJo_16:

(Start: 6 @10050 has 2 MA's), (7, 10056), (9, 10062), (27, 10239), (29, 10260), (39, 10377), (54,
10488), (61, 10548), (70, 10674), (75, 10743), (85, 10839), (89, 10914), (95, 10977), (107, 11043),
(118, 11115), (132, 11193), (136, 11253), (144, 11319), (150, 11373), (152, 11382), (154, 11427),
(157, 11445), (161, 11451), (183, 11586), (194, 11685), (203, 11742), (210, 11808), (212, 11820),
(222, 11928), (227, 11952), (237, 12027), (246, 12108), (251, 12159), (253, 12189),

Gene: Teng_22 Start: 12028, Stop: 14262, Start Num: 2

Candidate Starts for Teng_22:

(Start: 2 @12028 has 12 MA's), (3, 12034), (10, 12115), (11, 12127), (15, 12145), (16, 12154), (21, 12196), (22, 12202), (35, 12364), (36, 12379), (38, 12400), (39, 12409), (47, 12472), (57, 12553), (58, 12565), (63, 12613), (64, 12631), (67, 12664), (71, 12724), (75, 12778), (78, 12835), (92, 12973), (94, 13003), (95, 13015), (114, 13129), (122, 13168), (126, 13192), (131, 13213), (137, 13279), (149, 13369), (152, 13381), (158, 13432), (200, 13708), (204, 13729), (209, 13780), (211, 13795), (230, 13960), (232, 13969), (235, 14005), (242, 14062), (245, 14080), (247, 14095), (248, 14104),

Gene: Tubberson_16 Start: 10050, Stop: 12278, Start Num: 6

Candidate Starts for Tubberson_16:

(Start: 6 @10050 has 2 MA's), (7, 10056), (9, 10062), (27, 10239), (29, 10260), (39, 10377), (54, 10488), (61, 10548), (70, 10674), (75, 10743), (80, 10806), (85, 10839), (89, 10914), (95, 10977), (107, 11043), (118, 11115), (132, 11193), (136, 11253), (144, 11319), (150, 11373), (152, 11382), (154, 11427), (157, 11445), (161, 11451), (183, 11586), (194, 11685), (203, 11742), (210, 11808), (212, 11820), (222, 11928), (227, 11952), (237, 12027), (246, 12108), (251, 12159), (253, 12189),

Gene: TurboVicky_19 Start: 13340, Stop: 15328, Start Num: 26

Candidate Starts for TurboVicky_19:

(Start: 26 @13340 has 11 MA's), (30, 13379), (41, 13490), (42, 13505), (44, 13517), (66, 13709), (68, 13733), (72, 13775), (86, 13916), (90, 13982), (101, 14078), (123, 14189), (137, 14291), (140, 14315), (148, 14384), (153, 14417), (170, 14582), (183, 14630), (184, 14642), (187, 14660), (199, 14762), (200, 14774), (201, 14780), (232, 15035), (239, 15101), (247, 15161), (259, 15302),

Gene: Typher_21 Start: 13470, Stop: 15458, Start Num: 26

Candidate Starts for Typher_21:

(Start: 26 @13470 has 11 MA's), (30, 13509), (41, 13620), (42, 13635), (44, 13647), (66, 13839), (68, 13863), (72, 13905), (86, 14046), (90, 14112), (101, 14208), (123, 14319), (137, 14421), (140, 14445), (148, 14514), (153, 14547), (170, 14712), (181, 14745), (183, 14760), (184, 14772), (187, 14790), (200, 14904), (201, 14910), (232, 15165), (239, 15231), (247, 15291), (259, 15432),

Gene: Violeta_23 Start: 11465, Stop: 13663, Start Num: 2

Candidate Starts for Violeta_23:

(Start: 2 @11465 has 12 MA's), (8, 11540), (15, 11591), (19, 11618), (Start: 26 @11711 has 11 MA's), (32, 11768), (35, 11810), (37, 11843), (39, 11855), (45, 11906), (46, 11909), (47, 11918), (48, 11921), (51, 11957), (52, 11963), (53, 11966), (55, 11978), (56, 11987), (58, 12011), (67, 12110), (71, 12170), (74, 12209), (75, 12224), (78, 12281), (92, 12419), (94, 12449), (95, 12461), (98, 12485), (100, 12494), (104, 12515), (105, 12518), (109, 12530), (111, 12548), (117, 12590), (124, 12620), (141, 12761), (148, 12818), (155, 12884), (166, 12944), (167, 12953), (181, 13016), (191, 13082), (242, 13433), (246, 13457), (249, 13496), (251, 13517),

Gene: Warren_22 Start: 11565, Stop: 13763, Start Num: 2

Candidate Starts for Warren_22:

(Start: 2 @11565 has 12 MA's), (8, 11640), (15, 11691), (19, 11718), (Start: 26 @11811 has 11 MA's), (35, 11910), (37, 11943), (39, 11955), (45, 12006), (46, 12009), (47, 12018), (48, 12021), (51, 12057), (52, 12063), (53, 12066), (55, 12078), (56, 12087), (58, 12111), (67, 12210), (71, 12270), (74, 12309), (75, 12324), (78, 12381), (92, 12519), (94, 12549), (95, 12561), (98, 12585), (100, 12594), (104, 12615), (105, 12618), (109, 12630), (111, 12648), (117, 12690), (124, 12720), (127, 12744), (140, 12849), (148, 12918), (153, 12951), (155, 12984), (166, 13044), (167, 13053), (181, 13116), (191, 13182), (202, 13215), (234, 13452), (242, 13533), (246, 13557), (249, 13596), (251, 13617),

Gene: Wrackline_26 Start: 12677, Stop: 15094, Start Num: 2

Candidate Starts for Wrackline_26:

(Start: 2 @12677 has 12 MA's), (4, 12695), (10, 12758), (11, 12770), (22, 12845), (24, 12866), (25, 12878), (31, 12956), (35, 13007), (36, 13022), (38, 13043), (39, 13052), (43, 13079), (45, 13103), (46,

13106), (47, 13115), (56, 13184), (57, 13196), (63, 13256), (64, 13274), (65, 13286), (67, 13307), (69, 13337), (71, 13367), (73, 13382), (75, 13421), (82, 13490), (84, 13508), (90, 13598), (91, 13604), (93, 13625), (94, 13646), (95, 13658), (102, 13703), (103, 13709), (104, 13712), (110, 13736), (111, 13745), (113, 13760), (119, 13799), (124, 13817), (128, 13847), (137, 13922), (138, 13934), (141, 13958), (142, 13961), (143, 13964), (145, 13982), (153, 14048), (160, 14114), (164, 14159), (171, 14237), (172, 14246), (175, 14261), (177, 14279), (184, 14372), (205, 14576), (206, 14588), (213, 14642), (214, 14651), (215, 14657), (219, 14708), (233, 14807), (238, 14852), (242, 14891), (244, 14906), (247, 14924), (248, 14933),

Gene: Zanella_19 Start: 13343, Stop: 15331, Start Num: 26

Candidate Starts for Zanella_19:

(Start: 26 @13343 has 11 MA's), (30, 13382), (41, 13493), (42, 13508), (44, 13520), (66, 13712), (68, 13736), (86, 13919), (90, 13985), (101, 14081), (108, 14105), (123, 14192), (137, 14294), (140, 14318), (148, 14387), (153, 14420), (170, 14585), (183, 14633), (184, 14645), (187, 14663), (199, 14765), (200, 14777), (201, 14783), (232, 15038), (239, 15104), (247, 15164), (259, 15305),