

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 309093 Report

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

Pham number 309093 has 27 members, 1 are drafts.

Phages represented in each track:

- Track 1 : Aikoy_36, Onyinye_37, Leopard_36
- Track 2 : BigMama_25, Penelope2018_27, Mopey_27
- Track 3 : Visconti_27, Nova_27, Troll4_27, Delton_27
- Track 4 : Prager_27, Helpful_28
- Track 5 : KandZ_27
- Track 6 : Gumball_26, SirHarley_26
- Track 7 : SuperheroCarly_27
- Track 8 : WaldoWhy_28, PLOT_28, Erk16_27, Chill_28, Adjutor_28, Thoth_27, PBI1_27
- Track 9 : Butterscotch_27
- Track 10 : Giuseppe_27
- Track 11 : Phalaborwa_27
- Track 12 : Hawkeye_29

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

The start number called the most often in the published annotations is 1, it was called in 26 of the 26 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adjutor_28, Aikoy_36, BigMama_25, Butterscotch_27, Chill_28, Delton_27, Erk16_27, Giuseppe_27, Gumball_26, Hawkeye_29, Helpful_28, KandZ_27, Leopard_36, Mopey_27, Nova_27, Onyinye_37, PBI1_27, PLOT_28, Penelope2018_27, Phalaborwa_27, Prager_27, SirHarley_26, SuperheroCarly_27, Thoth_27, Troll4_27, Visconti_27, WaldoWhy_28,

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

-

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

-

Summary by start number:

Start 1:

- Found in 27 of 27 (100.0%) of genes in pham
- Manual Annotations of this start: 26 of 26
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Adjutor_28 (D1), Aikoy_36 (AE), BigMama_25 (D1), Butterscotch_27 (D1), Chill_28 (D1), Delton_27 (D1), Erk16_27 (D1), Giuseppe_27 (D1), Gumball_26 (D1), Hawkeye_29 (D2), Helpful_28 (D1), KandZ_27 (D1), Leopard_36 (AE), Mopey_27 (D1), Nova_27 (D1), Onyinye_37 (AE), PBI1_27 (D1), PLOT_28 (D1), Penelope2018_27 (D1), Phalaborwa_27 (D1), Prager_27 (D1), SirHarley_26 (D1), SuperheroCarly_27 (D1), Thoth_27 (D1), Troll4_27 (D1), Visconti_27 (D1), WaldoWhy_28 (D1),

Summary by clusters:

There are 3 clusters represented in this pham: D2, AE, D1,

Info for manual annotations of cluster AE:

- Start number 1 was manually annotated 3 times for cluster AE.

Info for manual annotations of cluster D1:

- Start number 1 was manually annotated 22 times for cluster D1.

Info for manual annotations of cluster D2:

- Start number 1 was manually annotated 1 time for cluster D2.

Gene Information:

Gene: Adjutor_28 Start: 16322, Stop: 21094, Start Num: 1

Candidate Starts for Adjutor_28:

(Start: 1 @16322 has 26 MA's), (2, 16406), (3, 16415), (4, 16502), (17, 16931), (23, 17042), (25, 17063), (26, 17072), (29, 17171), (30, 17201), (33, 17258), (37, 17363), (41, 17474), (42, 17480), (46, 17558), (49, 17654), (51, 17780), (53, 17804), (54, 17810), (58, 17840), (59, 17864), (60, 17873), (62, 17948), (64, 18038), (71, 18086), (72, 18092), (74, 18101), (82, 18269), (83, 18284), (86, 18350), (92, 18440), (95, 18470), (99, 18575), (100, 18578), (102, 18632), (103, 18644), (106, 18665), (113, 18761), (116, 18830), (117, 18839), (125, 19004), (134, 19328), (137, 19433), (139, 19523), (144, 19691), (145, 19709), (148, 19898), (156, 20039), (157, 20051), (158, 20069), (159, 20168), (167, 20303), (169, 20348), (170, 20363), (172, 20384), (174, 20432), (179, 20546), (182, 20606), (184, 20678), (186, 20726), (190, 20816), (192, 20840), (197, 20996), (199, 21032), (200, 21044), (202, 21056), (203, 21074),

Gene: Aikoy_36 Start: 22129, Stop: 27354, Start Num: 1

Candidate Starts for Aikoy_36:

(Start: 1 @22129 has 26 MA's), (2, 22213), (5, 22354), (6, 22399), (7, 22483), (8, 22507), (10, 22648), (11, 22657), (12, 22666), (13, 22669), (14, 22672), (16, 22714), (19, 22792), (24, 22834), (26, 22855), (27, 22888), (28, 22930), (31, 22996), (32, 23005), (34, 23053), (36, 23077), (38, 23200), (39, 23209), (40, 23212), (41, 23254), (44, 23299), (45, 23326), (47, 23380), (61, 23710), (63, 23788), (66, 23830), (68, 23866), (70, 23884), (73, 23896), (80, 24082), (84, 24160), (88, 24235), (90, 24259), (93, 24334), (94, 24346), (97, 24424), (98, 24445), (102, 24529), (107, 24616), (108, 24628), (111, 24667), (115, 24715), (118, 24835), (119, 24868), (121, 24916), (122, 24925), (124, 24940), (126, 25039), (130, 25300), (132, 25360), (133, 25375), (138, 25600), (142, 25756), (143, 25780), (149, 26095), (150, 26128), (152, 26212), (154, 26221), (159, 26377), (160, 26380), (161, 26383), (162, 26428), (164,

26479), (166, 26515), (171, 26617), (173, 26662), (176, 26743), (177, 26746), (178, 26752), (180, 26794), (181, 26845), (182, 26848), (183, 26866), (185, 26935), (187, 26992), (188, 27004), (189, 27028), (191, 27085), (193, 27103), (194, 27157), (196, 27247), (198, 27286), (199, 27289), (200, 27301), (204, 27337),

Gene: BigMama_25 Start: 16398, Stop: 21170, Start Num: 1

Candidate Starts for BigMama_25:

(Start: 1 @16398 has 26 MA's), (2, 16482), (3, 16491), (4, 16578), (17, 17007), (23, 17118), (25, 17139), (26, 17148), (29, 17247), (30, 17277), (33, 17334), (37, 17439), (41, 17550), (42, 17556), (46, 17634), (48, 17721), (49, 17730), (51, 17856), (53, 17880), (54, 17886), (57, 17904), (58, 17916), (59, 17940), (60, 17949), (62, 18024), (64, 18114), (71, 18162), (72, 18168), (74, 18177), (82, 18345), (83, 18360), (86, 18426), (92, 18516), (95, 18546), (99, 18651), (100, 18654), (102, 18708), (103, 18720), (106, 18741), (113, 18837), (116, 18906), (117, 18915), (125, 19080), (134, 19404), (137, 19509), (139, 19599), (144, 19767), (145, 19785), (148, 19974), (156, 20115), (157, 20127), (158, 20145), (159, 20244), (167, 20379), (169, 20424), (170, 20439), (172, 20460), (174, 20508), (179, 20622), (182, 20682), (184, 20754), (186, 20802), (190, 20892), (192, 20916), (197, 21072), (199, 21108), (200, 21120), (202, 21132), (203, 21150),

Gene: Butterscotch_27 Start: 16382, Stop: 21154, Start Num: 1

Candidate Starts for Butterscotch_27:

(Start: 1 @16382 has 26 MA's), (2, 16466), (3, 16475), (4, 16562), (15, 16973), (17, 16991), (23, 17102), (25, 17123), (26, 17132), (29, 17231), (30, 17261), (33, 17318), (37, 17423), (41, 17534), (42, 17540), (46, 17618), (49, 17714), (51, 17840), (53, 17864), (54, 17870), (58, 17900), (59, 17924), (60, 17933), (62, 18008), (64, 18098), (71, 18146), (72, 18152), (74, 18161), (82, 18329), (83, 18344), (86, 18410), (92, 18500), (95, 18530), (99, 18635), (100, 18638), (102, 18692), (103, 18704), (106, 18725), (113, 18821), (116, 18890), (117, 18899), (125, 19064), (134, 19388), (137, 19493), (139, 19583), (144, 19751), (145, 19769), (148, 19958), (156, 20099), (157, 20111), (158, 20129), (159, 20228), (167, 20363), (169, 20408), (170, 20423), (172, 20444), (174, 20492), (179, 20606), (182, 20666), (184, 20738), (186, 20786), (190, 20876), (192, 20900), (197, 21056), (199, 21092), (200, 21104), (202, 21116), (203, 21134),

Gene: Chill_28 Start: 16388, Stop: 21160, Start Num: 1

Candidate Starts for Chill_28:

(Start: 1 @16388 has 26 MA's), (2, 16472), (3, 16481), (4, 16568), (17, 16997), (23, 17108), (25, 17129), (26, 17138), (29, 17237), (30, 17267), (33, 17324), (37, 17429), (41, 17540), (42, 17546), (46, 17624), (49, 17720), (51, 17846), (53, 17870), (54, 17876), (58, 17906), (59, 17930), (60, 17939), (62, 18014), (64, 18104), (71, 18152), (72, 18158), (74, 18167), (82, 18335), (83, 18350), (86, 18416), (92, 18506), (95, 18536), (99, 18641), (100, 18644), (102, 18698), (103, 18710), (106, 18731), (113, 18827), (116, 18896), (117, 18905), (125, 19070), (134, 19394), (137, 19499), (139, 19589), (144, 19757), (145, 19775), (148, 19964), (156, 20105), (157, 20117), (158, 20135), (159, 20234), (167, 20369), (169, 20414), (170, 20429), (172, 20450), (174, 20498), (179, 20612), (182, 20672), (184, 20744), (186, 20792), (190, 20882), (192, 20906), (197, 21062), (199, 21098), (200, 21110), (202, 21122), (203, 21140),

Gene: Delton_27 Start: 16394, Stop: 21166, Start Num: 1

Candidate Starts for Delton_27:

(Start: 1 @16394 has 26 MA's), (2, 16478), (3, 16487), (4, 16574), (17, 17003), (23, 17114), (25, 17135), (26, 17144), (29, 17243), (30, 17273), (33, 17330), (37, 17435), (41, 17546), (42, 17552), (46, 17630), (49, 17726), (51, 17852), (53, 17876), (54, 17882), (58, 17912), (59, 17936), (60, 17945), (62, 18020), (64, 18110), (71, 18158), (72, 18164), (74, 18173), (82, 18341), (83, 18356), (86, 18422), (92, 18512), (95, 18542), (99, 18647), (100, 18650), (102, 18704), (103, 18716), (106, 18737), (113, 18833), (116, 18902), (117, 18911), (125, 19076), (134, 19400), (137, 19505), (139, 19595), (144, 19763), (145, 19781), (148, 19970), (156, 20111), (157, 20123), (158, 20141), (159, 20240), (167,

20375), (169, 20420), (170, 20435), (172, 20456), (174, 20504), (179, 20618), (182, 20678), (184, 20750), (186, 20798), (190, 20888), (192, 20912), (197, 21068), (199, 21104), (200, 21116), (201, 21125), (202, 21128), (203, 21146),

Gene: Erk16_27 Start: 16385, Stop: 21157, Start Num: 1

Candidate Starts for Erk16_27:

(Start: 1 @16385 has 26 MA's), (2, 16469), (3, 16478), (4, 16565), (17, 16994), (23, 17105), (25, 17126), (26, 17135), (29, 17234), (30, 17264), (33, 17321), (37, 17426), (41, 17537), (42, 17543), (46, 17621), (49, 17717), (51, 17843), (53, 17867), (54, 17873), (58, 17903), (59, 17927), (60, 17936), (62, 18011), (64, 18101), (71, 18149), (72, 18155), (74, 18164), (82, 18332), (83, 18347), (86, 18413), (92, 18503), (95, 18533), (99, 18638), (100, 18641), (102, 18695), (103, 18707), (106, 18728), (113, 18824), (116, 18893), (117, 18902), (125, 19067), (134, 19391), (137, 19496), (139, 19586), (144, 19754), (145, 19772), (148, 19961), (156, 20102), (157, 20114), (158, 20132), (159, 20231), (167, 20366), (169, 20411), (170, 20426), (172, 20447), (174, 20495), (179, 20609), (182, 20669), (184, 20741), (186, 20789), (190, 20879), (192, 20903), (197, 21059), (199, 21095), (200, 21107), (202, 21119), (203, 21137),

Gene: Giuseppe_27 Start: 16374, Stop: 21146, Start Num: 1

Candidate Starts for Giuseppe_27:

(Start: 1 @16374 has 26 MA's), (2, 16458), (3, 16467), (4, 16554), (15, 16965), (17, 16983), (23, 17094), (25, 17115), (26, 17124), (29, 17223), (30, 17253), (33, 17310), (37, 17415), (41, 17526), (42, 17532), (46, 17610), (49, 17706), (51, 17832), (53, 17856), (54, 17862), (58, 17892), (59, 17916), (60, 17925), (62, 18000), (64, 18090), (71, 18138), (72, 18144), (74, 18153), (82, 18321), (83, 18336), (86, 18402), (92, 18492), (95, 18522), (99, 18627), (100, 18630), (102, 18684), (103, 18696), (106, 18717), (113, 18813), (116, 18882), (117, 18891), (125, 19056), (134, 19380), (137, 19485), (139, 19575), (144, 19743), (145, 19761), (148, 19950), (156, 20091), (157, 20103), (158, 20121), (159, 20220), (167, 20355), (169, 20400), (170, 20415), (172, 20436), (174, 20484), (179, 20598), (182, 20658), (184, 20730), (186, 20778), (190, 20868), (192, 20892), (197, 21048), (199, 21084), (200, 21096), (201, 21105), (202, 21108), (203, 21126),

Gene: Gumball_26 Start: 16332, Stop: 21104, Start Num: 1

Candidate Starts for Gumball_26:

(Start: 1 @16332 has 26 MA's), (2, 16416), (3, 16425), (4, 16512), (17, 16941), (23, 17052), (25, 17073), (26, 17082), (29, 17181), (30, 17211), (33, 17268), (37, 17373), (41, 17484), (42, 17490), (46, 17568), (49, 17664), (51, 17790), (53, 17814), (54, 17820), (58, 17850), (59, 17874), (60, 17883), (62, 17958), (64, 18048), (65, 18057), (67, 18078), (82, 18279), (83, 18294), (86, 18360), (87, 18369), (92, 18450), (95, 18480), (99, 18585), (100, 18588), (102, 18642), (103, 18654), (106, 18675), (113, 18771), (116, 18840), (117, 18849), (125, 19014), (134, 19338), (137, 19443), (139, 19533), (144, 19701), (145, 19719), (148, 19908), (156, 20049), (157, 20061), (158, 20079), (159, 20178), (167, 20313), (169, 20358), (170, 20373), (172, 20394), (174, 20442), (179, 20556), (182, 20616), (184, 20688), (186, 20736), (190, 20826), (192, 20850), (197, 21006), (199, 21042), (200, 21054), (201, 21063), (202, 21066), (203, 21084),

Gene: Hawkeye_29 Start: 16262, Stop: 21133, Start Num: 1

Candidate Starts for Hawkeye_29:

(Start: 1 @16262 has 26 MA's), (2, 16346), (9, 16682), (18, 16928), (20, 16958), (21, 16976), (22, 16979), (28, 17099), (29, 17120), (35, 17234), (37, 17312), (38, 17369), (41, 17423), (43, 17444), (46, 17507), (50, 17618), (51, 17729), (52, 17735), (56, 17768), (78, 18155), (79, 18197), (81, 18206), (83, 18233), (91, 18368), (96, 18434), (100, 18527), (101, 18548), (104, 18599), (106, 18614), (107, 18647), (109, 18677), (114, 18728), (116, 18779), (127, 19070), (128, 19148), (129, 19187), (131, 19226), (135, 19430), (136, 19439), (137, 19445), (140, 19562), (141, 19592), (144, 19712), (145, 19730), (147, 19868), (148, 19919), (151, 20024), (152, 20042), (155, 20054), (159, 20201), (163, 20285), (167, 20336), (168, 20360), (174, 20465), (175, 20483), (179, 20579), (182, 20639), (186,

20765), (190, 20855), (195, 20969), (197, 21035), (199, 21071), (200, 21083), (202, 21095), (203, 21113),

Gene: Helpful_28 Start: 16382, Stop: 21154, Start Num: 1

Candidate Starts for Helpful_28:

(Start: 1 @16382 has 26 MA's), (2, 16466), (3, 16475), (4, 16562), (17, 16991), (23, 17102), (25, 17123), (26, 17132), (29, 17231), (30, 17261), (33, 17318), (37, 17423), (41, 17534), (42, 17540), (46, 17618), (49, 17714), (51, 17840), (53, 17864), (54, 17870), (57, 17888), (58, 17900), (59, 17924), (60, 17933), (62, 18008), (64, 18098), (71, 18146), (72, 18152), (74, 18161), (82, 18329), (83, 18344), (86, 18410), (92, 18500), (95, 18530), (99, 18635), (100, 18638), (102, 18692), (103, 18704), (106, 18725), (113, 18821), (116, 18890), (117, 18899), (125, 19064), (134, 19388), (137, 19493), (139, 19583), (144, 19751), (145, 19769), (148, 19958), (156, 20099), (157, 20111), (158, 20129), (159, 20228), (167, 20363), (169, 20408), (170, 20423), (172, 20444), (174, 20492), (179, 20606), (182, 20666), (184, 20738), (186, 20786), (190, 20876), (192, 20900), (197, 21056), (199, 21092), (200, 21104), (202, 21116), (203, 21134),

Gene: KandZ_27 Start: 16482, Stop: 21254, Start Num: 1

Candidate Starts for KandZ_27:

(Start: 1 @16482 has 26 MA's), (2, 16566), (3, 16575), (4, 16662), (17, 17091), (23, 17202), (25, 17223), (26, 17232), (29, 17331), (30, 17361), (33, 17418), (37, 17523), (41, 17634), (42, 17640), (46, 17718), (49, 17814), (51, 17940), (53, 17964), (54, 17970), (58, 18000), (59, 18024), (60, 18033), (62, 18108), (64, 18198), (69, 18240), (71, 18246), (72, 18252), (74, 18261), (82, 18429), (83, 18444), (86, 18510), (92, 18600), (95, 18630), (99, 18735), (100, 18738), (102, 18792), (103, 18804), (106, 18825), (113, 18921), (116, 18990), (117, 18999), (125, 19164), (134, 19488), (137, 19593), (139, 19683), (144, 19851), (145, 19869), (148, 20058), (156, 20199), (157, 20211), (158, 20229), (159, 20328), (167, 20463), (169, 20508), (170, 20523), (172, 20544), (174, 20592), (179, 20706), (182, 20766), (184, 20838), (186, 20886), (190, 20976), (192, 21000), (197, 21156), (199, 21192), (200, 21204), (201, 21213), (202, 21216), (203, 21234),

Gene: Leopard_36 Start: 22417, Stop: 27642, Start Num: 1

Candidate Starts for Leopard_36:

(Start: 1 @22417 has 26 MA's), (2, 22501), (5, 22642), (6, 22687), (7, 22771), (8, 22795), (10, 22936), (11, 22945), (12, 22954), (13, 22957), (14, 22960), (16, 23002), (19, 23080), (24, 23122), (26, 23143), (27, 23176), (28, 23218), (31, 23284), (32, 23293), (34, 23341), (36, 23365), (38, 23488), (39, 23497), (40, 23500), (41, 23542), (44, 23587), (45, 23614), (47, 23668), (61, 23998), (63, 24076), (66, 24118), (68, 24154), (70, 24172), (73, 24184), (80, 24370), (84, 24448), (88, 24523), (90, 24547), (93, 24622), (94, 24634), (97, 24712), (98, 24733), (102, 24817), (107, 24904), (108, 24916), (111, 24955), (115, 25003), (118, 25123), (119, 25156), (121, 25204), (122, 25213), (124, 25228), (126, 25327), (130, 25588), (132, 25648), (133, 25663), (138, 25888), (142, 26044), (143, 26068), (149, 26383), (150, 26416), (152, 26500), (154, 26509), (159, 26665), (160, 26668), (161, 26671), (162, 26716), (164, 26767), (166, 26803), (171, 26905), (173, 26950), (176, 27031), (177, 27034), (178, 27040), (180, 27082), (181, 27133), (182, 27136), (183, 27154), (185, 27223), (187, 27280), (188, 27292), (189, 27316), (191, 27373), (193, 27391), (194, 27445), (196, 27535), (198, 27574), (199, 27577), (200, 27589), (204, 27625),

Gene: Mopey_27 Start: 16382, Stop: 21154, Start Num: 1

Candidate Starts for Mopey_27:

(Start: 1 @16382 has 26 MA's), (2, 16466), (3, 16475), (4, 16562), (17, 16991), (23, 17102), (25, 17123), (26, 17132), (29, 17231), (30, 17261), (33, 17318), (37, 17423), (41, 17534), (42, 17540), (46, 17618), (48, 17705), (49, 17714), (51, 17840), (53, 17864), (54, 17870), (57, 17888), (58, 17900), (59, 17924), (60, 17933), (62, 18008), (64, 18098), (71, 18146), (72, 18152), (74, 18161), (82, 18329), (83, 18344), (86, 18410), (92, 18500), (95, 18530), (99, 18635), (100, 18638), (102, 18692), (103, 18704), (106, 18725), (113, 18821), (116, 18890), (117, 18899), (125, 19064), (134, 19388), (137, 19493),

(139, 19583), (144, 19751), (145, 19769), (148, 19958), (156, 20099), (157, 20111), (158, 20129), (159, 20228), (167, 20363), (169, 20408), (170, 20423), (172, 20444), (174, 20492), (179, 20606), (182, 20666), (184, 20738), (186, 20786), (190, 20876), (192, 20900), (197, 21056), (199, 21092), (200, 21104), (202, 21116), (203, 21134),

Gene: Nova_27 Start: 16809, Stop: 21581, Start Num: 1

Candidate Starts for Nova_27:

(Start: 1 @16809 has 26 MA's), (2, 16893), (3, 16902), (4, 16989), (17, 17418), (23, 17529), (25, 17550), (26, 17559), (29, 17658), (30, 17688), (33, 17745), (37, 17850), (41, 17961), (42, 17967), (46, 18045), (49, 18141), (51, 18267), (53, 18291), (54, 18297), (58, 18327), (59, 18351), (60, 18360), (62, 18435), (64, 18525), (71, 18573), (72, 18579), (74, 18588), (82, 18756), (83, 18771), (86, 18837), (92, 18927), (95, 18957), (99, 19062), (100, 19065), (102, 19119), (103, 19131), (106, 19152), (113, 19248), (116, 19317), (117, 19326), (125, 19491), (134, 19815), (137, 19920), (139, 20010), (144, 20178), (145, 20196), (148, 20385), (156, 20526), (157, 20538), (158, 20556), (159, 20655), (167, 20790), (169, 20835), (170, 20850), (172, 20871), (174, 20919), (179, 21033), (182, 21093), (184, 21165), (186, 21213), (190, 21303), (192, 21327), (197, 21483), (199, 21519), (200, 21531), (201, 21540), (202, 21543), (203, 21561),

Gene: Onyinye_37 Start: 22296, Stop: 27521, Start Num: 1

Candidate Starts for Onyinye_37:

(Start: 1 @22296 has 26 MA's), (2, 22380), (5, 22521), (6, 22566), (7, 22650), (8, 22674), (10, 22815), (11, 22824), (12, 22833), (13, 22836), (14, 22839), (16, 22881), (19, 22959), (24, 23001), (26, 23022), (27, 23055), (28, 23097), (31, 23163), (32, 23172), (34, 23220), (36, 23244), (38, 23367), (39, 23376), (40, 23379), (41, 23421), (44, 23466), (45, 23493), (47, 23547), (61, 23877), (63, 23955), (66, 23997), (68, 24033), (70, 24051), (73, 24063), (80, 24249), (84, 24327), (88, 24402), (90, 24426), (93, 24501), (94, 24513), (97, 24591), (98, 24612), (102, 24696), (107, 24783), (108, 24795), (111, 24834), (115, 24882), (118, 25002), (119, 25035), (121, 25083), (122, 25092), (124, 25107), (126, 25206), (130, 25467), (132, 25527), (133, 25542), (138, 25767), (142, 25923), (143, 25947), (149, 26262), (150, 26295), (152, 26379), (154, 26388), (159, 26544), (160, 26547), (161, 26550), (162, 26595), (164, 26646), (166, 26682), (171, 26784), (173, 26829), (176, 26910), (177, 26913), (178, 26919), (180, 26961), (181, 27012), (182, 27015), (183, 27033), (185, 27102), (187, 27159), (188, 27171), (189, 27195), (191, 27252), (193, 27270), (194, 27324), (196, 27414), (198, 27453), (199, 27456), (200, 27468), (204, 27504),

Gene: PBI1_27 Start: 16313, Stop: 21085, Start Num: 1

Candidate Starts for PBI1_27:

(Start: 1 @16313 has 26 MA's), (2, 16397), (3, 16406), (4, 16493), (17, 16922), (23, 17033), (25, 17054), (26, 17063), (29, 17162), (30, 17192), (33, 17249), (37, 17354), (41, 17465), (42, 17471), (46, 17549), (49, 17645), (51, 17771), (53, 17795), (54, 17801), (58, 17831), (59, 17855), (60, 17864), (62, 17939), (64, 18029), (71, 18077), (72, 18083), (74, 18092), (82, 18260), (83, 18275), (86, 18341), (92, 18431), (95, 18461), (99, 18566), (100, 18569), (102, 18623), (103, 18635), (106, 18656), (113, 18752), (116, 18821), (117, 18830), (125, 18995), (134, 19319), (137, 19424), (139, 19514), (144, 19682), (145, 19700), (148, 19889), (156, 20030), (157, 20042), (158, 20060), (159, 20159), (167, 20294), (169, 20339), (170, 20354), (172, 20375), (174, 20423), (179, 20537), (182, 20597), (184, 20669), (186, 20717), (190, 20807), (192, 20831), (197, 20987), (199, 21023), (200, 21035), (202, 21047), (203, 21065),

Gene: PLOT_28 Start: 16385, Stop: 21157, Start Num: 1

Candidate Starts for PLOT_28:

(Start: 1 @16385 has 26 MA's), (2, 16469), (3, 16478), (4, 16565), (17, 16994), (23, 17105), (25, 17126), (26, 17135), (29, 17234), (30, 17264), (33, 17321), (37, 17426), (41, 17537), (42, 17543), (46, 17621), (49, 17717), (51, 17843), (53, 17867), (54, 17873), (58, 17903), (59, 17927), (60, 17936), (62, 18011), (64, 18101), (71, 18149), (72, 18155), (74, 18164), (82, 18332), (83, 18347), (86, 18413), (92,

18503), (95, 18533), (99, 18638), (100, 18641), (102, 18695), (103, 18707), (106, 18728), (113, 18824), (116, 18893), (117, 18902), (125, 19067), (134, 19391), (137, 19496), (139, 19586), (144, 19754), (145, 19772), (148, 19961), (156, 20102), (157, 20114), (158, 20132), (159, 20231), (167, 20366), (169, 20411), (170, 20426), (172, 20447), (174, 20495), (179, 20609), (182, 20669), (184, 20741), (186, 20789), (190, 20879), (192, 20903), (197, 21059), (199, 21095), (200, 21107), (202, 21119), (203, 21137),

Gene: Penelope2018_27 Start: 16382, Stop: 21154, Start Num: 1

Candidate Starts for Penelope2018_27:

(Start: 1 @16382 has 26 MA's), (2, 16466), (3, 16475), (4, 16562), (17, 16991), (23, 17102), (25, 17123), (26, 17132), (29, 17231), (30, 17261), (33, 17318), (37, 17423), (41, 17534), (42, 17540), (46, 17618), (48, 17705), (49, 17714), (51, 17840), (53, 17864), (54, 17870), (57, 17888), (58, 17900), (59, 17924), (60, 17933), (62, 18008), (64, 18098), (71, 18146), (72, 18152), (74, 18161), (82, 18329), (83, 18344), (86, 18410), (92, 18500), (95, 18530), (99, 18635), (100, 18638), (102, 18692), (103, 18704), (106, 18725), (113, 18821), (116, 18890), (117, 18899), (125, 19064), (134, 19388), (137, 19493), (139, 19583), (144, 19751), (145, 19769), (148, 19958), (156, 20099), (157, 20111), (158, 20129), (159, 20228), (167, 20363), (169, 20408), (170, 20423), (172, 20444), (174, 20492), (179, 20606), (182, 20666), (184, 20738), (186, 20786), (190, 20876), (192, 20900), (197, 21056), (199, 21092), (200, 21104), (202, 21116), (203, 21134),

Gene: Phalaborwa_27 Start: 16415, Stop: 21181, Start Num: 1

Candidate Starts for Phalaborwa_27:

(Start: 1 @16415 has 26 MA's), (2, 16499), (3, 16508), (4, 16595), (17, 17024), (25, 17156), (26, 17165), (29, 17264), (30, 17294), (33, 17351), (37, 17456), (41, 17567), (42, 17573), (46, 17651), (48, 17738), (49, 17747), (51, 17873), (53, 17897), (54, 17903), (55, 17909), (59, 17957), (60, 17966), (62, 18041), (71, 18179), (75, 18209), (76, 18218), (77, 18224), (82, 18362), (83, 18377), (85, 18440), (87, 18452), (89, 18464), (92, 18533), (95, 18563), (99, 18668), (100, 18671), (102, 18725), (103, 18737), (106, 18758), (110, 18824), (112, 18851), (113, 18854), (116, 18923), (117, 18932), (120, 19028), (123, 19049), (125, 19097), (134, 19421), (137, 19520), (144, 19778), (145, 19796), (146, 19802), (148, 19985), (153, 20108), (156, 20126), (157, 20138), (158, 20156), (159, 20255), (165, 20360), (167, 20390), (169, 20435), (170, 20450), (172, 20471), (174, 20519), (179, 20633), (182, 20693), (184, 20765), (186, 20813), (190, 20903), (192, 20927), (197, 21083), (199, 21119), (200, 21131), (201, 21140), (202, 21143), (203, 21161),

Gene: Prager_27 Start: 16394, Stop: 21166, Start Num: 1

Candidate Starts for Prager_27:

(Start: 1 @16394 has 26 MA's), (2, 16478), (3, 16487), (4, 16574), (17, 17003), (23, 17114), (25, 17135), (26, 17144), (29, 17243), (30, 17273), (33, 17330), (37, 17435), (41, 17546), (42, 17552), (46, 17630), (49, 17726), (51, 17852), (53, 17876), (54, 17882), (57, 17900), (58, 17912), (59, 17936), (60, 17945), (62, 18020), (64, 18110), (71, 18158), (72, 18164), (74, 18173), (82, 18341), (83, 18356), (86, 18422), (92, 18512), (95, 18542), (99, 18647), (100, 18650), (102, 18704), (103, 18716), (106, 18737), (113, 18833), (116, 18902), (117, 18911), (125, 19076), (134, 19400), (137, 19505), (139, 19595), (144, 19763), (145, 19781), (148, 19970), (156, 20111), (157, 20123), (158, 20141), (159, 20240), (167, 20375), (169, 20420), (170, 20435), (172, 20456), (174, 20504), (179, 20618), (182, 20678), (184, 20750), (186, 20798), (190, 20888), (192, 20912), (197, 21068), (199, 21104), (200, 21116), (202, 21128), (203, 21146),

Gene: SirHarley_26 Start: 16314, Stop: 21086, Start Num: 1

Candidate Starts for SirHarley_26:

(Start: 1 @16314 has 26 MA's), (2, 16398), (3, 16407), (4, 16494), (17, 16923), (23, 17034), (25, 17055), (26, 17064), (29, 17163), (30, 17193), (33, 17250), (37, 17355), (41, 17466), (42, 17472), (46, 17550), (49, 17646), (51, 17772), (53, 17796), (54, 17802), (58, 17832), (59, 17856), (60, 17865), (62, 17940), (64, 18030), (65, 18039), (67, 18060), (82, 18261), (83, 18276), (86, 18342), (87, 18351), (92,

18432), (95, 18462), (99, 18567), (100, 18570), (102, 18624), (103, 18636), (106, 18657), (113, 18753), (116, 18822), (117, 18831), (125, 18996), (134, 19320), (137, 19425), (139, 19515), (144, 19683), (145, 19701), (148, 19890), (156, 20031), (157, 20043), (158, 20061), (159, 20160), (167, 20295), (169, 20340), (170, 20355), (172, 20376), (174, 20424), (179, 20538), (182, 20598), (184, 20670), (186, 20718), (190, 20808), (192, 20832), (197, 20988), (199, 21024), (200, 21036), (201, 21045), (202, 21048), (203, 21066),

Gene: SuperheroCarly_27 Start: 16244, Stop: 21016, Start Num: 1

Candidate Starts for SuperheroCarly_27:

(Start: 1 @16244 has 26 MA's), (2, 16328), (3, 16337), (4, 16424), (17, 16853), (23, 16964), (25, 16985), (26, 16994), (29, 17093), (30, 17123), (33, 17180), (37, 17285), (41, 17396), (42, 17402), (46, 17480), (49, 17576), (51, 17702), (53, 17726), (54, 17732), (58, 17762), (59, 17786), (60, 17795), (62, 17870), (64, 17960), (71, 18008), (72, 18014), (74, 18023), (82, 18191), (83, 18206), (86, 18272), (92, 18362), (95, 18392), (99, 18497), (100, 18500), (102, 18554), (103, 18566), (105, 18575), (106, 18587), (113, 18683), (116, 18752), (117, 18761), (125, 18926), (134, 19250), (137, 19355), (139, 19445), (144, 19613), (145, 19631), (148, 19820), (156, 19961), (157, 19973), (158, 19991), (159, 20090), (167, 20225), (169, 20270), (170, 20285), (172, 20306), (174, 20354), (179, 20468), (182, 20528), (184, 20600), (186, 20648), (190, 20738), (192, 20762), (197, 20918), (199, 20954), (200, 20966), (202, 20978), (203, 20996),

Gene: Thoth_27 Start: 16379, Stop: 21151, Start Num: 1

Candidate Starts for Thoth_27:

(Start: 1 @16379 has 26 MA's), (2, 16463), (3, 16472), (4, 16559), (17, 16988), (23, 17099), (25, 17120), (26, 17129), (29, 17228), (30, 17258), (33, 17315), (37, 17420), (41, 17531), (42, 17537), (46, 17615), (49, 17711), (51, 17837), (53, 17861), (54, 17867), (58, 17897), (59, 17921), (60, 17930), (62, 18005), (64, 18095), (71, 18143), (72, 18149), (74, 18158), (82, 18326), (83, 18341), (86, 18407), (92, 18497), (95, 18527), (99, 18632), (100, 18635), (102, 18689), (103, 18701), (106, 18722), (113, 18818), (116, 18887), (117, 18896), (125, 19061), (134, 19385), (137, 19490), (139, 19580), (144, 19748), (145, 19766), (148, 19955), (156, 20096), (157, 20108), (158, 20126), (159, 20225), (167, 20360), (169, 20405), (170, 20420), (172, 20441), (174, 20489), (179, 20603), (182, 20663), (184, 20735), (186, 20783), (190, 20873), (192, 20897), (197, 21053), (199, 21089), (200, 21101), (202, 21113), (203, 21131),

Gene: Troll4_27 Start: 16383, Stop: 21155, Start Num: 1

Candidate Starts for Troll4_27:

(Start: 1 @16383 has 26 MA's), (2, 16467), (3, 16476), (4, 16563), (17, 16992), (23, 17103), (25, 17124), (26, 17133), (29, 17232), (30, 17262), (33, 17319), (37, 17424), (41, 17535), (42, 17541), (46, 17619), (49, 17715), (51, 17841), (53, 17865), (54, 17871), (58, 17901), (59, 17925), (60, 17934), (62, 18009), (64, 18099), (71, 18147), (72, 18153), (74, 18162), (82, 18330), (83, 18345), (86, 18411), (92, 18501), (95, 18531), (99, 18636), (100, 18639), (102, 18693), (103, 18705), (106, 18726), (113, 18822), (116, 18891), (117, 18900), (125, 19065), (134, 19389), (137, 19494), (139, 19584), (144, 19752), (145, 19770), (148, 19959), (156, 20100), (157, 20112), (158, 20130), (159, 20229), (167, 20364), (169, 20409), (170, 20424), (172, 20445), (174, 20493), (179, 20607), (182, 20667), (184, 20739), (186, 20787), (190, 20877), (192, 20901), (197, 21057), (199, 21093), (200, 21105), (201, 21114), (202, 21117), (203, 21135),

Gene: Visconti_27 Start: 16392, Stop: 21164, Start Num: 1

Candidate Starts for Visconti_27:

(Start: 1 @16392 has 26 MA's), (2, 16476), (3, 16485), (4, 16572), (17, 17001), (23, 17112), (25, 17133), (26, 17142), (29, 17241), (30, 17271), (33, 17328), (37, 17433), (41, 17544), (42, 17550), (46, 17628), (49, 17724), (51, 17850), (53, 17874), (54, 17880), (58, 17910), (59, 17934), (60, 17943), (62, 18018), (64, 18108), (71, 18156), (72, 18162), (74, 18171), (82, 18339), (83, 18354), (86, 18420), (92, 18510), (95, 18540), (99, 18645), (100, 18648), (102, 18702), (103, 18714), (106, 18735), (113,

18831), (116, 18900), (117, 18909), (125, 19074), (134, 19398), (137, 19503), (139, 19593), (144, 19761), (145, 19779), (148, 19968), (156, 20109), (157, 20121), (158, 20139), (159, 20238), (167, 20373), (169, 20418), (170, 20433), (172, 20454), (174, 20502), (179, 20616), (182, 20676), (184, 20748), (186, 20796), (190, 20886), (192, 20910), (197, 21066), (199, 21102), (200, 21114), (201, 21123), (202, 21126), (203, 21144),

Gene: WaldoWhy_28 Start: 16388, Stop: 21160, Start Num: 1

Candidate Starts for WaldoWhy_28:

(Start: 1 @16388 has 26 MA's), (2, 16472), (3, 16481), (4, 16568), (17, 16997), (23, 17108), (25, 17129), (26, 17138), (29, 17237), (30, 17267), (33, 17324), (37, 17429), (41, 17540), (42, 17546), (46, 17624), (49, 17720), (51, 17846), (53, 17870), (54, 17876), (58, 17906), (59, 17930), (60, 17939), (62, 18014), (64, 18104), (71, 18152), (72, 18158), (74, 18167), (82, 18335), (83, 18350), (86, 18416), (92, 18506), (95, 18536), (99, 18641), (100, 18644), (102, 18698), (103, 18710), (106, 18731), (113, 18827), (116, 18896), (117, 18905), (125, 19070), (134, 19394), (137, 19499), (139, 19589), (144, 19757), (145, 19775), (148, 19964), (156, 20105), (157, 20117), (158, 20135), (159, 20234), (167, 20369), (169, 20414), (170, 20429), (172, 20450), (174, 20498), (179, 20612), (182, 20672), (184, 20744), (186, 20792), (190, 20882), (192, 20906), (197, 21062), (199, 21098), (200, 21110), (202, 21122), (203, 21140),