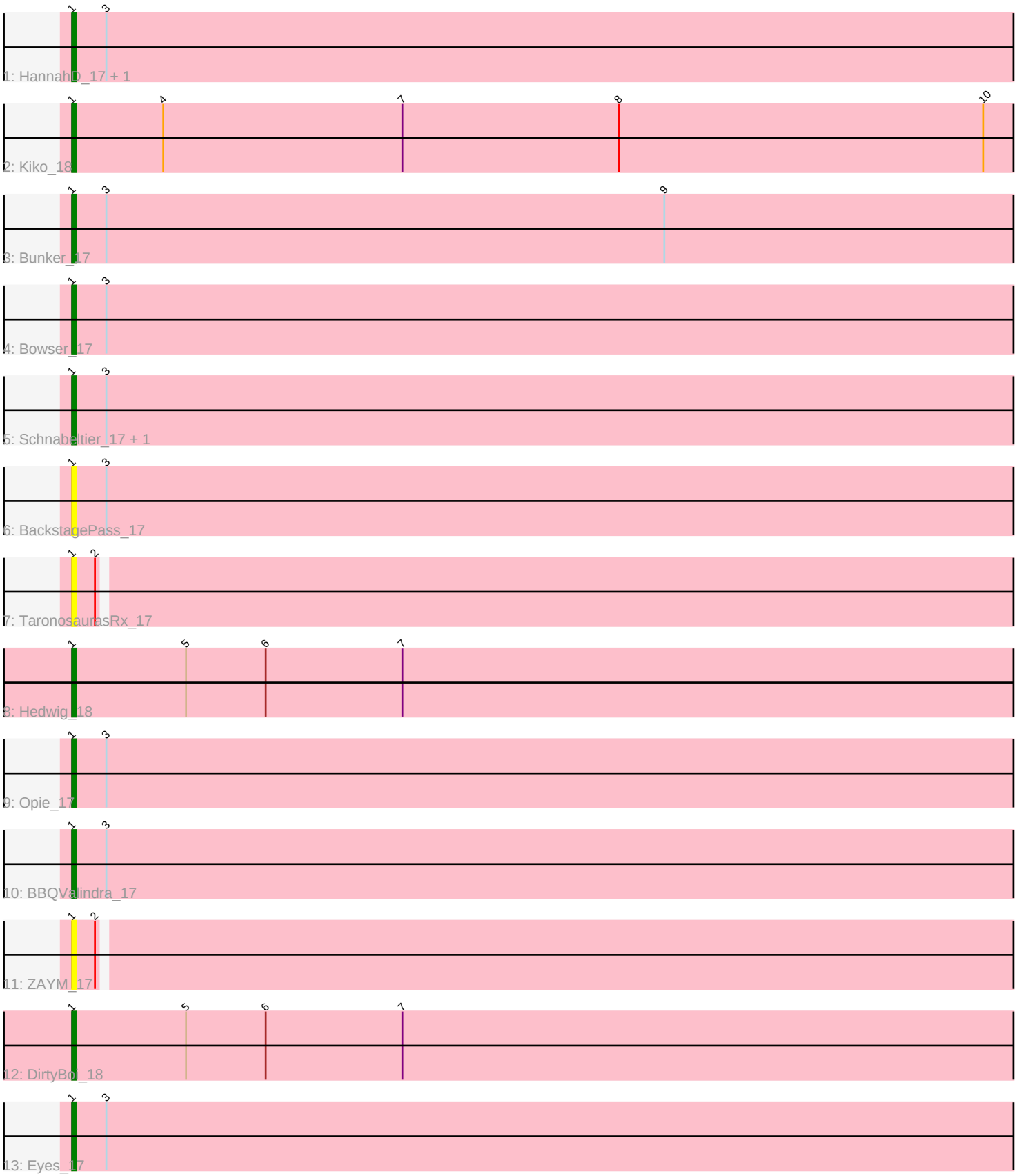
Zoomed Pham 203415



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 203415 Report

This analysis was run 01/18/25 on database version 583.

Pham number 203415 has 15 members, 3 are drafts.

Phages represented in each track:
• Track 1 : HannahD_17, GEazy_17
• Track 2 : Kiko_18
• Track 3 : Bunker_17
• Track 4 : Bowser_17
• Track 5 : Schnabeltier_17, MagicMan_17
• Track 6 : BackstagePass_17
• Track 7 : TaronosaurasRx_17
• Track 8 : Hedwig_18
• Track 9 : Opie_17
• Track 10 : BBQValindra_17
• Track 11 : ZAYM_17
• Track 12 : DirtyBoi_18
• Track 13 : Eyes_17

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 12 of the 12 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• BBQValindra_17, BackstagePass_17, Bowser_17, Bunker_17, DirtyBoi_18, Eyes_17, GEazy_17, HannahD_17, Hedwig_18, Kiko_18, MagicMan_17, Opie_17, Schnabeltier_17, TaronosaurasRx_17, ZAYM_17,

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 15 of 15 (100.0%) of genes in pham

• Manual Annotations of this start: 12 of 12
• Called 100.0% of time when present
• Phage (with cluster) where this start called: BBQValindra_17 (DB), BackstagePass_17 (DB), Bowser_17 (DB), Bunker_17 (DB), DirtyBoi_18 (DB), Eyes_17 (DB), GEazy_17 (DB), HannahD_17 (DB), Hedwig_18 (DB), Kiko_18 (DB), MagicMan_17 (DB), Opie_17 (DB), Schnabeltier_17 (DB), TaronosaurasRx_17 (DB), ZAYM_17 (DB),

Summary by clusters:

There is one cluster represented in this pham: DB

Info for manual annotations of cluster DB:
•Start number 1 was manually annotated 12 times for cluster DB.

Gene Information:

Gene: BBQValindra_17 Start: 10583, Stop: 15709, Start Num: 1
Candidate Starts for BBQValindra_17:
(Start: 1 @10583 has 12 MA's), (3, 10592), (13, 10865), (14, 10874), (15, 10904), (21, 10970), (33, 11126), (35, 11144), (43, 11297), (45, 11339), (47, 11426), (50, 11618), (55, 11735), (57, 11774), (58, 11858), (59, 11867), (60, 11891), (61, 11900), (62, 11909), (63, 11942), (64, 11954), (65, 11978), (67, 12023), (68, 12032), (69, 12068), (73, 12104), (74, 12116), (75, 12134), (77, 12170), (81, 12293), (85, 12335), (87, 12359), (92, 12470), (93, 12473), (94, 12476), (96, 12491), (99, 12545), (101, 12584), (109, 12665), (112, 12680), (114, 12701), (115, 12716), (116, 12728), (117, 12764), (120, 12800), (129, 12962), (136, 13019), (141, 13031), (142, 13034), (144, 13067), (145, 13073), (146, 13085), (150, 13160), (151, 13166), (152, 13172), (153, 13193), (154, 13196), (155, 13199), (159, 13262), (160, 13298), (162, 13313), (163, 13337), (165, 13352), (166, 13355), (169, 13415), (170, 13514), (171, 13556), (173, 13634), (177, 13703), (178, 13721), (180, 13829), (181, 13832), (182, 13838), (183, 13856), (184, 13859), (185, 13880), (186, 13898), (187, 13901), (188, 13910), (191, 14015), (192, 14045), (193, 14063), (194, 14069), (199, 14129), (202, 14189), (204, 14237), (205, 14267), (208, 14315), (210, 14327), (212, 14387), (217, 14444), (218, 14462), (219, 14507), (220, 14534), (221, 14552), (222, 14582), (223, 14591), (225, 14630), (226, 14636), (227, 14645), (234, 14804), (235, 14846), (240, 15038), (241, 15041), (242, 15098), (243, 15107), (244, 15119), (245, 15140), (250, 15353), (251, 15392), (253, 15461), (254, 15515), (258, 15668), (260, 15692),

Gene: BackstagePass_17 Start: 10561, Stop: 15849, Start Num: 1
Candidate Starts for BackstagePass_17:
(Start: 1 @10561 has 12 MA's), (3, 10570), (13, 10843), (14, 10852), (15, 10882), (20, 10945), (22, 10957), (23, 10972), (26, 10999), (32, 11083), (33, 11104), (36, 11131), (37, 11143), (43, 11275), (45, 11317), (46, 11371), (47, 11404), (52, 11605), (54, 11683), (58, 11836), (60, 11869), (61, 11878), (62, 11887), (63, 11920), (64, 11932), (65, 11956), (67, 12001), (70, 12055), (72, 12079), (73, 12082), (74, 12094), (75, 12112), (77, 12148), (81, 12271), (85, 12313), (92, 12448), (94, 12454), (96, 12469), (100, 12559), (101, 12562), (104, 12586), (106, 12613), (110, 12646), (112, 12658), (114, 12679), (116, 12706), (120, 12778), (130, 12949), (131, 12952), (132, 12964), (133, 12973), (137, 13057), (139, 13102), (144, 13174), (146, 13192), (147, 13225), (148, 13237), (151, 13273), (155, 13306), (158, 13357), (160, 13405), (163, 13444), (165, 13459), (166, 13462), (167, 13468), (168, 13513), (170, 13621), (171, 13663), (173, 13741), (176, 13765), (177, 13810), (180, 13933), (181, 13936), (184, 13963), (185, 13984), (186, 14002), (187, 14005), (188, 14014), (191, 14119), (194, 14173), (206, 14398), (207, 14434), (212, 14524), (214, 14566), (219, 14647), (220, 14674), (221, 14692), (223, 14731), (225, 14770), (226, 14776), (227, 14785), (234, 14944), (235, 14986), (240, 15178), (241,

15181), (243, 15247), (244, 15259), (245, 15280), (246, 15283), (250, 15493), (251, 15532), (253, 15601), (254, 15655), (258, 15808),

Gene: Bowser_17 Start: 10588, Stop: 15702, Start Num: 1
Candidate Starts for Bowser_17:
(Start: 1 @10588 has 12 MA's), (3, 10597), (13, 10870), (14, 10879), (15, 10909), (16, 10918), (21, 10975), (29, 11038), (32, 11110), (33, 11131), (35, 11149), (43, 11302), (45, 11344), (46, 11398), (51, 11626), (55, 11740), (57, 11779), (58, 11863), (60, 11896), (61, 11905), (62, 11914), (63, 11947), (64, 11959), (65, 11983), (67, 12028), (69, 12073), (73, 12109), (74, 12121), (75, 12139), (77, 12175), (81, 12298), (82, 12322), (85, 12340), (92, 12475), (94, 12481), (95, 12493), (96, 12496), (99, 12550), (101, 12589), (103, 12610), (104, 12613), (105, 12631), (106, 12640), (112, 12685), (114, 12706), (116, 12733), (121, 12811), (129, 12967), (136, 13024), (141, 13036), (142, 13039), (144, 13072), (146, 13090), (150, 13165), (151, 13171), (152, 13177), (153, 13198), (154, 13201), (155, 13204), (159, 13267), (160, 13303), (162, 13318), (163, 13342), (165, 13357), (166, 13360), (167, 13366), (168, 13411), (169, 13420), (170, 13519), (171, 13561), (174, 13645), (177, 13708), (178, 13726), (180, 13834), (182, 13843), (183, 13861), (184, 13864), (186, 13903), (187, 13906), (188, 13915), (192, 14050), (194, 14074), (202, 14194), (203, 14239), (205, 14272), (208, 14320), (210, 14332), (212, 14392), (219, 14512), (220, 14539), (221, 14557), (225, 14635), (226, 14641), (227, 14650), (232, 14770), (234, 14809), (235, 14851), (236, 14944), (240, 15037), (241, 15040), (242, 15097), (243, 15106), (244, 15118), (245, 15139), (248, 15244), (250, 15352), (251, 15391), (253, 15460), (254, 15514), (258, 15664),

Gene: Bunker_17 Start: 10580, Stop: 15829, Start Num: 1
Candidate Starts for Bunker_17:
(Start: 1 @10580 has 12 MA's), (3, 10589), (9, 10736), (13, 10862), (14, 10871), (17, 10934), (18, 10940), (19, 10946), (21, 10967), (23, 10991), (27, 11021), (29, 11030), (33, 11123), (34, 11135), (35, 11141), (43, 11294), (45, 11336), (46, 11390), (47, 11423), (52, 11624), (58, 11855), (60, 11888), (61, 11897), (62, 11906), (63, 11939), (64, 11951), (65, 11975), (67, 12020), (68, 12029), (73, 12101), (74, 12113), (75, 12131), (77, 12167), (81, 12290), (82, 12314), (90, 12431), (92, 12467), (94, 12473), (96, 12488), (99, 12542), (101, 12581), (103, 12602), (104, 12605), (105, 12623), (106, 12632), (112, 12677), (113, 12695), (114, 12698), (116, 12725), (121, 12803), (130, 12968), (132, 12983), (133, 12992), (137, 13076), (143, 13187), (144, 13193), (145, 13199), (147, 13244), (148, 13256), (151, 13292), (152, 13298), (153, 13319), (155, 13325), (156, 13331), (158, 13376), (159, 13388), (160, 13424), (163, 13463), (165, 13478), (166, 13481), (167, 13487), (168, 13532), (171, 13682), (173, 13760), (174, 13766), (177, 13832), (178, 13850), (180, 13958), (181, 13961), (183, 13985), (184, 13988), (186, 14027), (187, 14030), (188, 14039), (189, 14087), (192, 14174), (194, 14198), (199, 14258), (202, 14318), (205, 14396), (208, 14444), (210, 14456), (212, 14516), (219, 14633), (220, 14660), (225, 14756), (226, 14762), (227, 14771), (234, 14930), (235, 14972), (243, 15230), (244, 15242), (245, 15263), (246, 15266), (247, 15284), (250, 15476), (251, 15515), (254, 15638), (258, 15788), (260, 15812),

Gene: DirtyBoi_18 Start: 11005, Stop: 16017, Start Num: 1
Candidate Starts for DirtyBoi_18:
(Start: 1 @11005 has 12 MA's), (5, 11035), (6, 11056), (7, 11092), (14, 11296), (15, 11326), (22, 11401), (31, 11506), (35, 11566), (40, 11644), (41, 11647), (43, 11719), (45, 11761), (47, 11848), (58, 12277), (60, 12310), (62, 12328), (64, 12373), (65, 12397), (67, 12442), (68, 12451), (69, 12487), (70, 12496), (72, 12520), (74, 12535), (75, 12553), (79, 12640), (80, 12694), (81, 12712), (88, 12787), (89, 12817), (92, 12889), (94, 12895), (96, 12910), (99, 12964), (104, 13027), (105, 13045), (107, 13072), (109, 13084), (112, 13099), (114, 13120), (122, 13240), (124, 13267), (125, 13300), (127, 13339), (128, 13354), (129, 13402), (132, 13426), (134, 13456), (137, 13519), (139, 13564), (140, 13567), (144, 13636), (149, 13708), (150, 13729), (151, 13735), (152, 13741), (154, 13765), (155, 13768), (157, 13789), (158, 13819), (159, 13831), (160, 13867), (165, 13921), (166, 13924), (167, 13930), (168, 13975), (169, 13984), (171, 14125), (172, 14158), (173, 14203), (174, 14209), (175, 14221),

(177, 14272), (179, 14356), (181, 14380), (183, 14404), (184, 14407), (188, 14458), (190, 14506), (192, 14593), (194, 14617), (195, 14629), (196, 14650), (199, 14677), (203, 14782), (205, 14815), (208, 14863), (210, 14875), (213, 14947), (215, 14956), (229, 15112), (233, 15142), (238, 15334), (245, 15454), (246, 15457), (249, 15601), (250, 15664), (254, 15826), (255, 15838), (256, 15895), (257, 15970), (258, 15976), (261, 16006), (262, 16009),

Gene: Eyes_17 Start: 10596, Stop: 15716, Start Num: 1
Candidate Starts for Eyes_17:
(Start: 1 @10596 has 12 MA's), (3, 10605), (11, 10848), (13, 10878), (14, 10887), (15, 10917), (18, 10956), (21, 10983), (33, 11139), (35, 11157), (43, 11310), (45, 11352), (46, 11406), (50, 11631), (51, 11634), (53, 11670), (55, 11748), (57, 11787), (58, 11871), (60, 11904), (61, 11913), (62, 11922), (63, 11955), (64, 11967), (65, 11991), (67, 12036), (68, 12045), (69, 12081), (73, 12117), (74, 12129), (75, 12147), (77, 12183), (78, 12192), (81, 12306), (85, 12348), (92, 12483), (93, 12486), (94, 12489), (96, 12504), (99, 12558), (101, 12597), (109, 12678), (112, 12693), (114, 12714), (117, 12777), (120, 12813), (129, 12975), (136, 13032), (141, 13044), (142, 13047), (144, 13080), (146, 13098), (150, 13173), (151, 13179), (152, 13185), (153, 13206), (154, 13209), (155, 13212), (159, 13275), (160, 13311), (162, 13326), (163, 13350), (165, 13365), (166, 13368), (167, 13374), (169, 13428), (170, 13527), (171, 13569), (173, 13647), (177, 13716), (178, 13734), (180, 13842), (181, 13845), (183, 13869), (184, 13872), (185, 13893), (187, 13914), (188, 13923), (192, 14058), (194, 14082), (199, 14142), (202, 14202), (203, 14247), (205, 14280), (208, 14328), (210, 14340), (212, 14400), (220, 14550), (221, 14568), (225, 14646), (226, 14652), (227, 14661), (228, 14688), (232, 14781), (234, 14820), (235, 14862), (237, 15015), (240, 15048), (241, 15051), (242, 15108), (243, 15117), (244, 15129), (245, 15150), (247, 15171), (250, 15363), (251, 15402), (253, 15471), (254, 15525), (258, 15678),

Gene: GEazy_17 Start: 10605, Stop: 15728, Start Num: 1
Candidate Starts for GEazy_17:
(Start: 1 @10605 has 12 MA's), (3, 10614), (13, 10887), (14, 10896), (15, 10926), (29, 11055), (35, 11166), (39, 11223), (45, 11361), (46, 11415), (47, 11448), (52, 11649), (53, 11679), (55, 11757), (56, 11775), (57, 11796), (58, 11880), (60, 11913), (61, 11922), (62, 11931), (63, 11964), (64, 11976), (65, 12000), (67, 12045), (68, 12054), (69, 12090), (70, 12099), (73, 12126), (74, 12138), (75, 12156), (77, 12192), (81, 12315), (85, 12357), (92, 12492), (93, 12495), (94, 12498), (96, 12513), (99, 12567), (101, 12606), (109, 12687), (112, 12702), (114, 12723), (115, 12738), (116, 12750), (117, 12786), (120, 12822), (129, 12984), (136, 13041), (141, 13053), (142, 13056), (144, 13089), (146, 13107), (150, 13182), (151, 13188), (152, 13194), (153, 13215), (154, 13218), (155, 13221), (159, 13284), (160, 13320), (162, 13335), (163, 13359), (165, 13374), (166, 13377), (169, 13437), (170, 13536), (171, 13578), (173, 13656), (177, 13725), (178, 13743), (180, 13851), (183, 13878), (184, 13881), (186, 13920), (187, 13923), (188, 13932), (189, 13980), (192, 14067), (194, 14091), (199, 14151), (202, 14211), (205, 14289), (208, 14337), (210, 14349), (212, 14409), (214, 14451), (219, 14532), (220, 14559), (221, 14577), (222, 14607), (225, 14655), (226, 14661), (227, 14670), (231, 14718), (232, 14790), (234, 14829), (235, 14871), (240, 15057), (241, 15060), (242, 15117), (243, 15126), (244, 15138), (245, 15159), (250, 15372), (251, 15411), (253, 15480), (254, 15534), (256, 15606), (258, 15687), (260, 15711),

Gene: HannahD_17 Start: 10605, Stop: 15728, Start Num: 1
Candidate Starts for HannahD_17:
(Start: 1 @10605 has 12 MA's), (3, 10614), (13, 10887), (14, 10896), (15, 10926), (29, 11055), (35, 11166), (39, 11223), (45, 11361), (46, 11415), (47, 11448), (52, 11649), (53, 11679), (55, 11757), (56, 11775), (57, 11796), (58, 11880), (60, 11913), (61, 11922), (62, 11931), (63, 11964), (64, 11976), (65, 12000), (67, 12045), (68, 12054), (69, 12090), (70, 12099), (73, 12126), (74, 12138), (75, 12156), (77, 12192), (81, 12315), (85, 12357), (92, 12492), (93, 12495), (94, 12498), (96, 12513), (99, 12567), (101, 12606), (109, 12687), (112, 12702), (114, 12723), (115, 12738), (116, 12750), (117, 12786), (120, 12822), (129, 12984), (136, 13041), (141, 13053), (142, 13056), (144, 13089), (146, 13107), (150,

13182), (151, 13188), (152, 13194), (153, 13215), (154, 13218), (155, 13221), (159, 13284), (160, 13320), (162, 13335), (163, 13359), (165, 13374), (166, 13377), (169, 13437), (170, 13536), (171, 13578), (173, 13656), (177, 13725), (178, 13743), (180, 13851), (183, 13878), (184, 13881), (186, 13920), (187, 13923), (188, 13932), (189, 13980), (192, 14067), (194, 14091), (199, 14151), (202, 14211), (205, 14289), (208, 14337), (210, 14349), (212, 14409), (214, 14451), (219, 14532), (220, 14559), (221, 14577), (222, 14607), (225, 14655), (226, 14661), (227, 14670), (231, 14718), (232, 14790), (234, 14829), (235, 14871), (240, 15057), (241, 15060), (242, 15117), (243, 15126), (244, 15138), (245, 15159), (250, 15372), (251, 15411), (253, 15480), (254, 15534), (256, 15606), (258, 15687), (260, 15711),

Gene: Hedwig_18 Start: 11001, Stop: 16013, Start Num: 1
Candidate Starts for Hedwig_18:
(Start: 1 @11001 has 12 MA's), (5, 11031), (6, 11052), (7, 11088), (14, 11292), (15, 11322), (22, 11397), (31, 11502), (35, 11562), (40, 11640), (41, 11643), (43, 11715), (45, 11757), (47, 11844), (58, 12273), (59, 12282), (60, 12306), (62, 12324), (64, 12369), (65, 12393), (67, 12438), (68, 12447), (69, 12483), (70, 12492), (72, 12516), (74, 12531), (75, 12549), (76, 12573), (79, 12636), (80, 12690), (81, 12708), (88, 12783), (89, 12813), (92, 12885), (94, 12891), (96, 12906), (97, 12927), (99, 12960), (104, 13023), (105, 13041), (107, 13068), (109, 13080), (112, 13095), (114, 13116), (122, 13236), (124, 13263), (125, 13296), (127, 13335), (128, 13350), (129, 13398), (132, 13422), (134, 13452), (137, 13515), (139, 13560), (140, 13563), (144, 13632), (149, 13704), (150, 13725), (151, 13731), (152, 13737), (154, 13761), (155, 13764), (157, 13785), (158, 13815), (159, 13827), (160, 13863), (165, 13917), (166, 13920), (167, 13926), (168, 13971), (169, 13980), (171, 14121), (172, 14154), (173, 14199), (174, 14205), (175, 14217), (177, 14268), (179, 14352), (181, 14376), (183, 14400), (184, 14403), (188, 14454), (190, 14502), (192, 14589), (194, 14613), (195, 14625), (196, 14646), (199, 14673), (203, 14778), (205, 14811), (208, 14859), (210, 14871), (213, 14943), (215, 14952), (229, 15108), (233, 15138), (238, 15330), (245, 15450), (246, 15453), (249, 15597), (250, 15660), (254, 15822), (255, 15834), (256, 15891), (257, 15966), (258, 15972), (261, 16002), (262, 16005),

Gene: Kiko_18 Start: 10875, Stop: 15764, Start Num: 1
Candidate Starts for Kiko_18:
(Start: 1 @10875 has 12 MA's), (4, 10899), (7, 10962), (8, 11019), (10, 11115), (11, 11127), (12, 11142), (14, 11166), (15, 11196), (25, 11307), (26, 11313), (27, 11316), (28, 11322), (29, 11325), (30, 11337), (31, 11376), (33, 11418), (34, 11430), (38, 11490), (42, 11523), (43, 11589), (44, 11610), (45, 11631), (46, 11685), (47, 11718), (49, 11835), (50, 11910), (52, 11919), (53, 11949), (55, 12027), (58, 12147), (61, 12189), (62, 12198), (63, 12231), (64, 12243), (65, 12267), (66, 12276), (68, 12321), (69, 12357), (70, 12366), (71, 12384), (75, 12423), (77, 12459), (78, 12468), (79, 12510), (81, 12582), (86, 12645), (90, 12723), (91, 12756), (92, 12759), (94, 12765), (96, 12780), (97, 12801), (98, 12831), (99, 12834), (102, 12876), (106, 12924), (107, 12942), (108, 12948), (111, 12963), (112, 12969), (113, 12987), (114, 12990), (116, 13017), (118, 13065), (119, 13074), (122, 13110), (123, 13113), (125, 13170), (126, 13200), (128, 13224), (129, 13272), (132, 13296), (133, 13305), (134, 13326), (138, 13416), (143, 13500), (144, 13506), (158, 13557), (160, 13605), (162, 13620), (163, 13644), (164, 13656), (165, 13659), (166, 13662), (167, 13668), (168, 13713), (169, 13722), (171, 13863), (172, 13896), (173, 13941), (180, 14136), (181, 14139), (182, 14145), (186, 14205), (188, 14217), (191, 14322), (194, 14376), (197, 14412), (199, 14436), (209, 14637), (216, 14727), (224, 14844), (229, 14886), (239, 15093), (241, 15102), (243, 15168), (245, 15201), (250, 15411), (254, 15573), (255, 15585), (256, 15642), (259, 15726), (261, 15753),

Gene: MagicMan_17 Start: 10932, Stop: 16046, Start Num: 1
Candidate Starts for MagicMan_17:
(Start: 1 @10932 has 12 MA's), (3, 10941), (13, 11214), (14, 11223), (15, 11253), (16, 11262), (21, 11319), (29, 11382), (32, 11454), (33, 11475), (35, 11493), (43, 11646), (45, 11688), (46, 11742), (47, 11775), (50, 11967), (51, 11970), (53, 12006), (55, 12084), (57, 12123), (58, 12207), (60, 12240), (61, 12249), (62, 12258), (63, 12291), (64, 12303), (65, 12327), (67, 12372), (68, 12381), (69, 12417), (70,

12426), (73, 12453), (74, 12465), (75, 12483), (77, 12519), (81, 12642), (85, 12684), (92, 12819), (93, 12822), (94, 12825), (96, 12840), (99, 12894), (101, 12933), (107, 13002), (109, 13014), (112, 13029), (114, 13050), (115, 13065), (116, 13077), (117, 13113), (120, 13149), (129, 13311), (136, 13368), (141, 13380), (142, 13383), (144, 13416), (150, 13509), (151, 13515), (152, 13521), (153, 13542), (154, 13545), (155, 13548), (159, 13611), (160, 13647), (162, 13662), (163, 13686), (165, 13701), (166, 13704), (167, 13710), (169, 13764), (170, 13863), (171, 13905), (173, 13983), (176, 14007), (177, 14052), (180, 14178), (182, 14187), (183, 14205), (184, 14208), (186, 14247), (187, 14250), (188, 14259), (194, 14418), (202, 14538), (205, 14616), (208, 14664), (210, 14676), (212, 14736), (219, 14853), (220, 14880), (221, 14898), (225, 14976), (226, 14982), (227, 14991), (228, 15018), (232, 15111), (234, 15150), (235, 15192), (237, 15345), (240, 15378), (241, 15381), (242, 15438), (243, 15447), (244, 15459), (245, 15480), (247, 15501), (250, 15693), (251, 15732), (253, 15801), (254, 15855), (258, 16008),

Gene: Opie_17 Start: 10940, Stop: 16069, Start Num: 1
Candidate Starts for Opie_17:
(Start: 1 @10940 has 12 MA's), (3, 10949), (13, 11222), (14, 11231), (21, 11327), (24, 11369), (29, 11390), (33, 11483), (35, 11501), (45, 11696), (48, 11855), (50, 11975), (51, 11978), (53, 12014), (55, 12092), (58, 12215), (60, 12248), (61, 12257), (62, 12266), (63, 12299), (64, 12311), (65, 12335), (67, 12380), (69, 12425), (73, 12461), (74, 12473), (75, 12491), (77, 12527), (81, 12650), (85, 12692), (92, 12827), (93, 12830), (94, 12833), (96, 12848), (99, 12902), (101, 12941), (109, 13022), (112, 13037), (114, 13058), (115, 13073), (116, 13085), (117, 13121), (120, 13157), (129, 13319), (135, 13352), (136, 13376), (141, 13388), (142, 13391), (144, 13424), (146, 13442), (151, 13523), (152, 13529), (153, 13550), (154, 13553), (155, 13556), (160, 13655), (162, 13670), (163, 13694), (165, 13709), (166, 13712), (167, 13718), (169, 13772), (170, 13871), (171, 13913), (172, 13946), (173, 13991), (176, 14015), (177, 14060), (178, 14078), (180, 14186), (184, 14216), (186, 14255), (187, 14258), (188, 14267), (200, 14516), (201, 14540), (208, 14684), (211, 14708), (212, 14759), (219, 14876), (220, 14903), (221, 14921), (225, 14999), (226, 15005), (227, 15014), (228, 15041), (232, 15134), (234, 15173), (235, 15215), (237, 15368), (240, 15401), (241, 15404), (242, 15461), (243, 15470), (244, 15482), (245, 15503), (247, 15524), (250, 15716), (251, 15755), (252, 15821), (253, 15824), (254, 15878), (258, 16031),

Gene: Schnabeltier_17 Start: 10933, Stop: 16047, Start Num: 1
Candidate Starts for Schnabeltier_17:
(Start: 1 @10933 has 12 MA's), (3, 10942), (13, 11215), (14, 11224), (15, 11254), (16, 11263), (21, 11320), (29, 11383), (32, 11455), (33, 11476), (35, 11494), (43, 11647), (45, 11689), (46, 11743), (47, 11776), (50, 11968), (51, 11971), (53, 12007), (55, 12085), (57, 12124), (58, 12208), (60, 12241), (61, 12250), (62, 12259), (63, 12292), (64, 12304), (65, 12328), (67, 12373), (68, 12382), (69, 12418), (70, 12427), (73, 12454), (74, 12466), (75, 12484), (77, 12520), (81, 12643), (85, 12685), (92, 12820), (93, 12823), (94, 12826), (96, 12841), (99, 12895), (101, 12934), (107, 13003), (109, 13015), (112, 13030), (114, 13051), (115, 13066), (116, 13078), (117, 13114), (120, 13150), (129, 13312), (136, 13369), (141, 13381), (142, 13384), (144, 13417), (150, 13510), (151, 13516), (152, 13522), (153, 13543), (154, 13546), (155, 13549), (159, 13612), (160, 13648), (162, 13663), (163, 13687), (165, 13702), (166, 13705), (167, 13711), (169, 13765), (170, 13864), (171, 13906), (173, 13984), (176, 14008), (177, 14053), (180, 14179), (182, 14188), (183, 14206), (184, 14209), (186, 14248), (187, 14251), (188, 14260), (194, 14419), (202, 14539), (205, 14617), (208, 14665), (210, 14677), (212, 14737), (219, 14854), (220, 14881), (221, 14899), (225, 14977), (226, 14983), (227, 14992), (228, 15019), (232, 15112), (234, 15151), (235, 15193), (237, 15346), (240, 15379), (241, 15382), (242, 15439), (243, 15448), (244, 15460), (245, 15481), (247, 15502), (250, 15694), (251, 15733), (253, 15802), (254, 15856), (258, 16009),

Gene: TaronosaurasRx_17 Start: 10940, Stop: 16063, Start Num: 1
Candidate Starts for TaronosaurasRx_17:

(Start: 1 @10940 has 12 MA's), (2, 10946), (13, 11219), (14, 11228), (16, 11267), (21, 11324), (29, 11387), (33, 11480), (35, 11498), (43, 11651), (45, 11693), (47, 11780), (50, 11972), (51, 11975), (53, 12011), (54, 12059), (58, 12212), (60, 12245), (61, 12254), (62, 12263), (63, 12296), (64, 12308), (65, 12332), (67, 12377), (68, 12386), (70, 12431), (73, 12458), (74, 12470), (75, 12488), (81, 12647), (82, 12671), (83, 12680), (84, 12683), (92, 12824), (93, 12827), (94, 12830), (95, 12842), (96, 12845), (99, 12899), (101, 12938), (112, 13034), (114, 13055), (115, 13070), (116, 13082), (120, 13154), (129, 13316), (136, 13373), (141, 13385), (142, 13388), (144, 13421), (150, 13514), (151, 13520), (152, 13526), (153, 13547), (154, 13550), (155, 13553), (157, 13574), (158, 13604), (160, 13652), (161, 13658), (162, 13667), (163, 13691), (165, 13706), (166, 13709), (167, 13715), (168, 13760), (169, 13769), (170, 13868), (171, 13910), (172, 13943), (173, 13988), (176, 14012), (177, 14057), (178, 14075), (184, 14213), (185, 14234), (186, 14252), (187, 14255), (188, 14264), (198, 14495), (200, 14513), (201, 14537), (208, 14681), (211, 14705), (212, 14756), (220, 14900), (221, 14918), (223, 14957), (225, 14996), (226, 15002), (227, 15011), (230, 15053), (232, 15131), (234, 15170), (236, 15305), (240, 15398), (241, 15401), (242, 15458), (243, 15467), (244, 15479), (245, 15500), (250, 15713), (251, 15752), (253, 15821), (254, 15875), (258, 16025),

Gene: ZAYM_17 Start: 10932, Stop: 16055, Start Num: 1
Candidate Starts for ZAYM_17:
(Start: 1 @10932 has 12 MA's), (2, 10938), (13, 11211), (14, 11220), (16, 11259), (21, 11316), (29, 11379), (33, 11472), (35, 11490), (43, 11643), (45, 11685), (47, 11772), (50, 11964), (51, 11967), (53, 12003), (54, 12051), (58, 12204), (60, 12237), (61, 12246), (62, 12255), (63, 12288), (64, 12300), (65, 12324), (67, 12369), (68, 12378), (73, 12450), (74, 12462), (75, 12480), (81, 12639), (82, 12663), (83, 12672), (84, 12675), (92, 12816), (93, 12819), (94, 12822), (96, 12837), (99, 12891), (101, 12930), (112, 13026), (114, 13047), (115, 13062), (116, 13074), (120, 13146), (129, 13308), (136, 13365), (141, 13377), (142, 13380), (144, 13413), (150, 13506), (151, 13512), (152, 13518), (153, 13539), (154, 13542), (155, 13545), (157, 13566), (158, 13596), (160, 13644), (161, 13650), (162, 13659), (163, 13683), (165, 13698), (166, 13701), (167, 13707), (168, 13752), (169, 13761), (170, 13860), (171, 13902), (172, 13935), (173, 13980), (176, 14004), (177, 14049), (178, 14067), (184, 14205), (185, 14226), (186, 14244), (187, 14247), (188, 14256), (198, 14487), (200, 14505), (201, 14529), (208, 14673), (211, 14697), (212, 14748), (220, 14892), (221, 14910), (223, 14949), (225, 14988), (226, 14994), (227, 15003), (230, 15045), (232, 15123), (234, 15162), (236, 15297), (240, 15390), (241, 15393), (242, 15450), (243, 15459), (244, 15471), (245, 15492), (250, 15705), (251, 15744), (253, 15813), (254, 15867), (258, 16017),