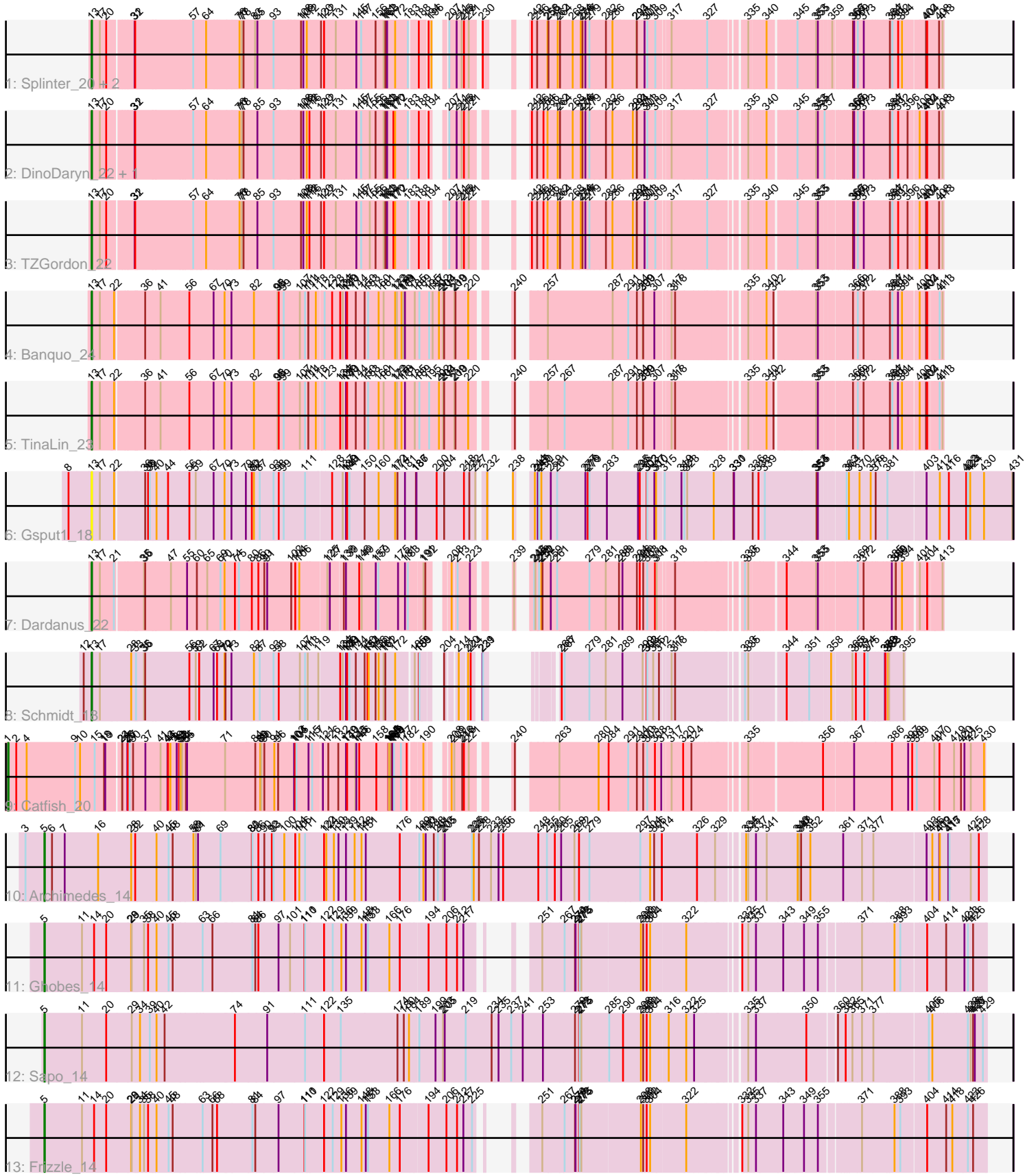


Pham 223489



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 223489 Report

This analysis was run 03/28/25 on database version 593.

Pham number 223489 has 16 members, 1 are drafts.

Phages represented in each track:

- Track 1 : Splinter\_20, Goib\_21, Vendetta\_20
- Track 2 : DinoDaryn\_22, Huffy\_22
- Track 3 : TZGordon\_22
- Track 4 : Banquo\_24
- Track 5 : TinaLin\_23
- Track 6 : Gspu1\_18
- Track 7 : Dardanus\_22
- Track 8 : Schmidt\_18
- Track 9 : Catfish\_20
- Track 10 : Archimedes\_14
- Track 11 : Ghobes\_14
- Track 12 : Sapo\_14
- Track 13 : Frizzle\_14

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

The start number called the most often in the published annotations is 13, it was called in 10 of the 15 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Banquo\_24, Dardanus\_22, DinoDaryn\_22, Goib\_21, Gspu1\_18, Huffy\_22, Schmidt\_18, Splinter\_20, TZGordon\_22, TinaLin\_23, Vendetta\_20,

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

- 

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

- Archimedes\_14, Catfish\_20, Frizzle\_14, Ghobes\_14, Sapo\_14,

### **Summary by start number:**

Start 1:

- Found in 1 of 16 ( 6.2% ) of genes in pham
- Manual Annotations of this start: 1 of 15

- Called 100.0% of time when present
- Phage (with cluster) where this start called: Catfish\_20 (CU5),

Start 5:

- Found in 4 of 16 ( 25.0% ) of genes in pham
- Manual Annotations of this start: 4 of 15
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Archimedes\_14 (DA), Frizzle\_14 (DA), Ghobes\_14 (DA), Sapo\_14 (DA),

Start 13:

- Found in 11 of 16 ( 68.8% ) of genes in pham
- Manual Annotations of this start: 10 of 15
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Banquo\_24 (CU1), Dardanus\_22 (CU3), DinoDaryn\_22 (CU1), Goib\_21 (CU1), Gspu1\_18 (CU2), Huff\_22 (CU1), Schmidt\_18 (CU4), Splinter\_20 (CU1), TZGordon\_22 (CU1), TinaLin\_23 (CU1), Vendetta\_20 (CU1),

### **Summary by clusters:**

There are 6 clusters represented in this pham: CU5, CU4, CU3, CU2, CU1, DA,

Info for manual annotations of cluster CU1:

- Start number 13 was manually annotated 8 times for cluster CU1.

Info for manual annotations of cluster CU3:

- Start number 13 was manually annotated 1 time for cluster CU3.

Info for manual annotations of cluster CU4:

- Start number 13 was manually annotated 1 time for cluster CU4.

Info for manual annotations of cluster CU5:

- Start number 1 was manually annotated 1 time for cluster CU5.

Info for manual annotations of cluster DA:

- Start number 5 was manually annotated 4 times for cluster DA.

### **Gene Information:**

Gene: Archimedes\_14 Start: 9058, Stop: 13707, Start Num: 5

Candidate Starts for Archimedes\_14:

(3, 8959), (Start: 5 @9058 has 4 MA's), (6, 9097), (7, 9163), (16, 9337), (28, 9505), (32, 9526), (40, 9631), (45, 9694), (48, 9715), (58, 9820), (59, 9832), (61, 9841), (69, 9952), (80, 10108), (81, 10111), (86, 10141), (90, 10171), (92, 10210), (93, 10219), (100, 10273), (104, 10327), (106, 10348), (111, 10378), (122, 10474), (124, 10486), (130, 10525), (133, 10549), (139, 10588), (142, 10633), (148, 10669), (151, 10690), (176, 10861), (189, 10945), (190, 10966), (193, 10978), (198, 11020), (201, 11041), (203, 11068), (205, 11077), (225, 11218), (226, 11227), (228, 11254), (233, 11317), (235, 11356), (236, 11380), (248, 11563), (255, 11608), (260, 11641), (265, 11671), (269, 11737), (272, 11761), (279, 11815), (297, 12073), (304, 12124), (306, 12145), (314, 12184), (326, 12358), (329,

12433), (334, 12529), (335, 12535), (337, 12562), (341, 12616), (346, 12763), (347, 12772), (348, 12781), (352, 12829), (361, 13000), (371, 13090), (377, 13144), (403, 13405), (406, 13435), (409, 13471), (412, 13474), (415, 13516), (417, 13522), (425, 13627), (428, 13669),

Gene: Banquo\_24 Start: 13267, Stop: 16992, Start Num: 13

Candidate Starts for Banquo\_24:

(Start: 13 @13267 has 10 MA's), (17, 13309), (22, 13375), (36, 13510), (41, 13588), (56, 13735), (67, 13852), (70, 13906), (73, 13939), (82, 14053), (95, 14170), (98, 14176), (99, 14200), (107, 14284), (111, 14311), (114, 14326), (118, 14365), (123, 14398), (128, 14431), (134, 14473), (137, 14482), (139, 14497), (140, 14503), (144, 14548), (150, 14593), (153, 14611), (160, 14665), (161, 14689), (172, 14749), (173, 14758), (178, 14776), (179, 14785), (181, 14794), (185, 14845), (189, 14869), (195, 14920), (197, 14938), (202, 14971), (203, 14992), (204, 14998), (209, 15049), (210, 15055), (220, 15118), (240, 15202), (257, 15292), (287, 15610), (291, 15685), (294, 15730), (299, 15757), (300, 15760), (307, 15814), (317, 15868), (318, 15886), (335, 16162), (340, 16237), (342, 16267), (353, 16438), (355, 16447), (366, 16591), (369, 16612), (372, 16636), (384, 16753), (387, 16765), (391, 16792), (394, 16810), (400, 16885), (402, 16912), (404, 16918), (411, 16972), (413, 16987),

Gene: Catfish\_20 Start: 13330, Stop: 17619, Start Num: 1

Candidate Starts for Catfish\_20:

(Start: 1 @13330 has 1 MA's), (2, 13372), (4, 13426), (9, 13678), (10, 13702), (15, 13777), (18, 13819), (19, 13825), (23, 13879), (24, 13882), (25, 13903), (26, 13906), (27, 13915), (30, 13933), (37, 13996), (41, 14074), (43, 14110), (44, 14113), (46, 14125), (49, 14155), (50, 14167), (51, 14173), (52, 14176), (53, 14182), (54, 14200), (55, 14206), (71, 14386), (84, 14536), (88, 14560), (89, 14566), (90, 14581), (94, 14632), (96, 14650), (103, 14725), (104, 14728), (105, 14734), (115, 14794), (117, 14812), (121, 14857), (126, 14878), (132, 14929), (139, 14959), (140, 14965), (143, 15001), (145, 15007), (146, 15022), (158, 15106), (164, 15166), (165, 15169), (166, 15172), (167, 15178), (168, 15184), (169, 15190), (171, 15196), (177, 15232), (182, 15259), (190, 15316), (208, 15376), (209, 15388), (216, 15427), (218, 15436), (221, 15460), (240, 15541), (263, 15682), (280, 15886), (284, 15934), (291, 16024), (294, 16069), (300, 16099), (303, 16120), (308, 16156), (313, 16180), (317, 16207), (320, 16261), (324, 16300), (335, 16501), (356, 16819), (367, 16951), (386, 17146), (397, 17227), (398, 17248), (399, 17272), (407, 17362), (410, 17389), (419, 17464), (420, 17500), (421, 17512), (425, 17545), (430, 17614),

Gene: Dardanus\_22 Start: 12248, Stop: 15838, Start Num: 13

Candidate Starts for Dardanus\_22:

(Start: 13 @12248 has 10 MA's), (17, 12290), (21, 12356), (35, 12485), (36, 12491), (47, 12623), (55, 12707), (60, 12758), (65, 12812), (69, 12881), (70, 12902), (74, 12950), (75, 12971), (80, 13037), (86, 13070), (90, 13100), (91, 13115), (102, 13238), (104, 13256), (106, 13277), (125, 13403), (127, 13415), (138, 13469), (139, 13478), (146, 13541), (149, 13553), (157, 13619), (159, 13631), (175, 13727), (181, 13760), (183, 13775), (191, 13832), (192, 13841), (208, 13901), (213, 13919), (223, 13979), (239, 14042), (243, 14066), (245, 14072), (249, 14090), (250, 14102), (252, 14108), (259, 14150), (261, 14183), (279, 14348), (281, 14426), (288, 14495), (289, 14513), (294, 14579), (296, 14594), (300, 14609), (303, 14630), (308, 14666), (311, 14675), (318, 14735), (333, 14999), (335, 15011), (344, 15158), (353, 15290), (355, 15299), (369, 15464), (372, 15488), (385, 15614), (389, 15632), (390, 15635), (394, 15662), (401, 15731), (404, 15764), (413, 15833),

Gene: DinoDaryn\_22 Start: 12409, Stop: 15867, Start Num: 13

Candidate Starts for DinoDaryn\_22:

(Start: 13 @12409 has 10 MA's), (17, 12451), (20, 12484), (31, 12589), (32, 12592), (57, 12877), (64, 12928), (76, 13084), (77, 13096), (78, 13105), (85, 13171), (93, 13252), (108, 13381), (109, 13390), (112, 13408), (116, 13420), (120, 13468), (122, 13483), (131, 13531), (145, 13618), (147, 13642), (155, 13681), (156, 13705), (161, 13741), (162, 13750), (163, 13759), (170, 13792), (172, 13801), (183, 13858), (188, 13885), (194, 13915), (207, 13948), (211, 13984), (215, 14008), (218, 14020),

(221, 14044), (242, 14137), (246, 14164), (254, 14197), (256, 14218), (262, 14260), (264, 14272), (268, 14335), (274, 14368), (276, 14377), (277, 14392), (279, 14410), (282, 14488), (286, 14515), (292, 14614), (293, 14632), (294, 14635), (301, 14668), (303, 14677), (309, 14713), (317, 14761), (327, 14920), (335, 15055), (340, 15130), (345, 15229), (353, 15325), (355, 15334), (357, 15361), (366, 15466), (367, 15472), (369, 15487), (373, 15511), (384, 15628), (387, 15640), (392, 15667), (396, 15712), (400, 15760), (402, 15787), (404, 15793), (408, 15847), (413, 15862),

Gene: Frizzle\_14 Start: 9174, Stop: 13496, Start Num: 5

Candidate Starts for Frizzle\_14:

(Start: 5 @9174 has 4 MA's), (11, 9369), (14, 9432), (20, 9495), (28, 9621), (29, 9624), (34, 9663), (35, 9684), (38, 9705), (40, 9747), (45, 9810), (48, 9831), (63, 9978), (66, 10026), (68, 10050), (81, 10227), (84, 10242), (97, 10359), (110, 10491), (111, 10494), (122, 10590), (129, 10635), (136, 10680), (139, 10704), (148, 10785), (151, 10806), (153, 10818), (166, 10929), (176, 10977), (194, 11109), (206, 11202), (212, 11256), (217, 11289), (225, 11334), (251, 11439), (267, 11541), (270, 11595), (271, 11598), (272, 11616), (273, 11619), (275, 11628), (298, 11928), (300, 11937), (302, 11955), (304, 11973), (322, 12147), (332, 12351), (335, 12375), (337, 12402), (343, 12540), (349, 12630), (355, 12702), (371, 12885), (388, 13047), (393, 13077), (404, 13203), (414, 13296), (418, 13323), (423, 13401), (426, 13428),

Gene: Ghobes\_14 Start: 9172, Stop: 13494, Start Num: 5

Candidate Starts for Ghobes\_14:

(Start: 5 @9172 has 4 MA's), (11, 9367), (14, 9430), (20, 9493), (28, 9619), (29, 9622), (35, 9682), (38, 9703), (40, 9745), (45, 9808), (48, 9829), (63, 9976), (66, 10024), (81, 10225), (84, 10240), (86, 10255), (97, 10357), (101, 10417), (110, 10489), (111, 10492), (122, 10588), (129, 10633), (136, 10678), (139, 10702), (148, 10783), (151, 10804), (153, 10816), (166, 10927), (176, 10975), (194, 11107), (206, 11200), (212, 11254), (217, 11287), (251, 11437), (267, 11539), (270, 11593), (271, 11596), (272, 11614), (273, 11617), (275, 11626), (298, 11926), (300, 11935), (302, 11953), (304, 11971), (322, 12145), (332, 12349), (335, 12373), (337, 12400), (343, 12538), (349, 12628), (355, 12700), (371, 12883), (388, 13045), (393, 13075), (404, 13201), (414, 13294), (421, 13381), (423, 13399), (426, 13426),

Gene: Goib\_21 Start: 12184, Stop: 15645, Start Num: 13

Candidate Starts for Goib\_21:

(Start: 13 @12184 has 10 MA's), (17, 12226), (20, 12259), (31, 12364), (32, 12367), (57, 12652), (64, 12703), (76, 12859), (77, 12871), (78, 12880), (83, 12934), (85, 12946), (93, 13027), (108, 13156), (109, 13165), (112, 13183), (120, 13243), (122, 13258), (131, 13306), (145, 13393), (147, 13417), (156, 13480), (161, 13516), (162, 13525), (163, 13534), (172, 13576), (183, 13633), (188, 13660), (194, 13690), (196, 13705), (207, 13723), (211, 13759), (215, 13783), (218, 13795), (221, 13819), (230, 13858), (242, 13912), (246, 13939), (256, 13993), (258, 13996), (262, 14035), (264, 14047), (268, 14110), (274, 14143), (276, 14152), (277, 14167), (279, 14185), (282, 14263), (286, 14290), (293, 14407), (294, 14410), (301, 14443), (303, 14452), (309, 14488), (317, 14536), (327, 14695), (335, 14830), (340, 14905), (345, 15007), (353, 15103), (355, 15112), (359, 15169), (366, 15244), (367, 15250), (369, 15265), (373, 15289), (384, 15406), (387, 15418), (392, 15445), (394, 15463), (402, 15565), (404, 15571), (408, 15625), (413, 15640),

Gene: Gspu1\_18 Start: 10609, Stop: 14904, Start Num: 13

Candidate Starts for Gspu1\_18:

(8, 10492), (Start: 13 @10609 has 10 MA's), (17, 10651), (22, 10717), (36, 10852), (38, 10867), (39, 10876), (40, 10909), (44, 10969), (56, 11077), (59, 11110), (67, 11194), (70, 11248), (73, 11281), (79, 11356), (80, 11386), (82, 11395), (87, 11422), (93, 11494), (98, 11518), (99, 11542), (111, 11653), (128, 11773), (137, 11824), (139, 11839), (140, 11845), (141, 11857), (150, 11935), (160, 12007), (172, 12091), (174, 12103), (181, 12136), (186, 12193), (187, 12196), (200, 12301), (204, 12340), (218, 12442), (222, 12469), (227, 12493), (232, 12520), (238, 12526), (244, 12559), (247, 12574),

(249, 12580), (250, 12592), (259, 12640), (261, 12673), (277, 12817), (278, 12829), (279, 12838), (283, 12922), (295, 13069), (296, 13078), (302, 13111), (303, 13114), (307, 13147), (310, 13156), (315, 13189), (319, 13270), (321, 13285), (323, 13300), (328, 13438), (330, 13540), (331, 13543), (336, 13639), (338, 13669), (339, 13702), (353, 13951), (354, 13954), (355, 13960), (363, 14080), (364, 14092), (370, 14143), (376, 14191), (378, 14215), (381, 14275), (403, 14461), (412, 14530), (416, 14575), (422, 14659), (423, 14668), (424, 14680), (430, 14752), (431, 14899),

Gene: Huffy\_22 Start: 12409, Stop: 15867, Start Num: 13

Candidate Starts for Huffy\_22:

(Start: 13 @12409 has 10 MA's), (17, 12451), (20, 12484), (31, 12589), (32, 12592), (57, 12877), (64, 12928), (76, 13084), (77, 13096), (78, 13105), (85, 13171), (93, 13252), (108, 13381), (109, 13390), (112, 13408), (116, 13420), (120, 13468), (122, 13483), (131, 13531), (145, 13618), (147, 13642), (155, 13681), (156, 13705), (161, 13741), (162, 13750), (163, 13759), (170, 13792), (172, 13801), (183, 13858), (188, 13885), (194, 13915), (207, 13948), (211, 13984), (215, 14008), (218, 14020), (221, 14044), (242, 14137), (246, 14164), (254, 14197), (256, 14218), (262, 14260), (264, 14272), (268, 14335), (274, 14368), (276, 14377), (277, 14392), (279, 14410), (282, 14488), (286, 14515), (292, 14614), (293, 14632), (294, 14635), (301, 14668), (303, 14677), (309, 14713), (317, 14761), (327, 14920), (335, 15055), (340, 15130), (345, 15229), (353, 15325), (355, 15334), (357, 15361), (366, 15466), (367, 15472), (369, 15487), (373, 15511), (384, 15628), (387, 15640), (392, 15667), (396, 15712), (400, 15760), (402, 15787), (404, 15793), (408, 15847), (413, 15862),

Gene: Sapo\_14 Start: 9155, Stop: 13762, Start Num: 5

Candidate Starts for Sapo\_14:

(Start: 5 @9155 has 4 MA's), (11, 9350), (20, 9476), (29, 9605), (34, 9644), (39, 9695), (40, 9728), (42, 9770), (74, 10118), (91, 10283), (111, 10475), (122, 10571), (135, 10658), (174, 10952), (180, 10979), (184, 11006), (189, 11042), (199, 11126), (203, 11165), (205, 11174), (219, 11282), (234, 11417), (235, 11453), (237, 11519), (241, 11579), (253, 11684), (270, 11837), (272, 11858), (273, 11861), (275, 11870), (285, 12005), (290, 12077), (298, 12170), (300, 12179), (302, 12197), (304, 12215), (316, 12302), (322, 12389), (325, 12425), (335, 12617), (337, 12644), (350, 12902), (360, 13037), (362, 13073), (365, 13103), (371, 13148), (377, 13202), (405, 13475), (406, 13493), (423, 13664), (425, 13679), (426, 13691), (427, 13700), (429, 13742),

Gene: Schmidt\_18 Start: 10553, Stop: 13858, Start Num: 13

Candidate Starts for Schmidt\_18:

(12, 10511), (Start: 13 @10553 has 10 MA's), (17, 10595), (28, 10739), (33, 10763), (35, 10802), (36, 10808), (56, 11033), (59, 11066), (62, 11081), (67, 11150), (68, 11168), (70, 11204), (72, 11207), (73, 11237), (82, 11351), (87, 11378), (93, 11450), (98, 11474), (107, 11582), (111, 11609), (113, 11621), (119, 11675), (134, 11771), (137, 11780), (139, 11795), (140, 11801), (141, 11813), (144, 11846), (150, 11891), (152, 11906), (154, 11912), (156, 11948), (160, 11963), (161, 11987), (162, 11996), (172, 12038), (185, 12095), (188, 12107), (189, 12110), (204, 12164), (214, 12200), (220, 12236), (224, 12248), (229, 12260), (231, 12263), (266, 12362), (267, 12377), (279, 12506), (281, 12584), (289, 12671), (299, 12773), (302, 12794), (303, 12797), (305, 12824), (312, 12854), (317, 12893), (318, 12911), (333, 13175), (335, 13187), (344, 13331), (351, 13424), (358, 13520), (365, 13613), (368, 13631), (374, 13667), (375, 13682), (379, 13763), (380, 13766), (382, 13778), (383, 13784), (395, 13853),

Gene: Splinter\_20 Start: 12184, Stop: 15645, Start Num: 13

Candidate Starts for Splinter\_20:

(Start: 13 @12184 has 10 MA's), (17, 12226), (20, 12259), (31, 12364), (32, 12367), (57, 12652), (64, 12703), (76, 12859), (77, 12871), (78, 12880), (83, 12934), (85, 12946), (93, 13027), (108, 13156), (109, 13165), (112, 13183), (120, 13243), (122, 13258), (131, 13306), (145, 13393), (147, 13417), (156, 13480), (161, 13516), (162, 13525), (163, 13534), (172, 13576), (183, 13633), (188, 13660), (194, 13690), (196, 13705), (207, 13723), (211, 13759), (215, 13783), (218, 13795), (221, 13819),

(230, 13858), (242, 13912), (246, 13939), (256, 13993), (258, 13996), (262, 14035), (264, 14047), (268, 14110), (274, 14143), (276, 14152), (277, 14167), (279, 14185), (282, 14263), (286, 14290), (293, 14407), (294, 14410), (301, 14443), (303, 14452), (309, 14488), (317, 14536), (327, 14695), (335, 14830), (340, 14905), (345, 15007), (353, 15103), (355, 15112), (359, 15169), (366, 15244), (367, 15250), (369, 15265), (373, 15289), (384, 15406), (387, 15418), (392, 15445), (394, 15463), (402, 15565), (404, 15571), (408, 15625), (413, 15640),

Gene: TZGordon\_22 Start: 12326, Stop: 15784, Start Num: 13

Candidate Starts for TZGordon\_22:

(Start: 13 @12326 has 10 MA's), (17, 12368), (20, 12401), (31, 12506), (32, 12509), (57, 12794), (64, 12845), (76, 13001), (77, 13013), (78, 13022), (85, 13088), (93, 13169), (108, 13298), (109, 13307), (112, 13325), (116, 13337), (120, 13385), (122, 13400), (131, 13448), (145, 13535), (147, 13559), (155, 13598), (156, 13622), (161, 13658), (162, 13667), (163, 13676), (170, 13709), (172, 13718), (183, 13775), (188, 13802), (194, 13832), (207, 13865), (211, 13901), (215, 13925), (218, 13937), (221, 13961), (242, 14054), (246, 14081), (254, 14114), (256, 14135), (262, 14177), (264, 14189), (268, 14252), (274, 14285), (276, 14294), (277, 14309), (279, 14327), (282, 14405), (286, 14432), (292, 14531), (293, 14549), (294, 14552), (301, 14585), (303, 14594), (309, 14630), (317, 14678), (327, 14837), (335, 14972), (340, 15047), (345, 15146), (353, 15242), (355, 15251), (366, 15383), (367, 15389), (369, 15404), (373, 15428), (384, 15545), (387, 15557), (392, 15584), (396, 15629), (400, 15677), (402, 15704), (404, 15710), (408, 15764), (413, 15779),

Gene: TinaLin\_23 Start: 12891, Stop: 16616, Start Num: 13

Candidate Starts for TinaLin\_23:

(Start: 13 @12891 has 10 MA's), (17, 12933), (22, 12999), (36, 13134), (41, 13212), (56, 13359), (67, 13476), (70, 13530), (73, 13563), (82, 13677), (95, 13794), (98, 13800), (99, 13824), (107, 13908), (111, 13935), (114, 13950), (118, 13989), (123, 14022), (134, 14097), (137, 14106), (139, 14121), (140, 14127), (144, 14172), (150, 14217), (153, 14235), (160, 14289), (161, 14313), (172, 14373), (173, 14382), (178, 14400), (181, 14418), (185, 14469), (189, 14493), (195, 14544), (202, 14595), (203, 14616), (204, 14622), (209, 14673), (210, 14679), (220, 14742), (240, 14826), (257, 14916), (267, 14994), (287, 15234), (291, 15309), (294, 15354), (299, 15381), (300, 15384), (307, 15438), (317, 15492), (318, 15510), (335, 15786), (340, 15861), (342, 15891), (353, 16062), (355, 16071), (366, 16215), (369, 16236), (372, 16260), (384, 16377), (387, 16389), (391, 16416), (394, 16434), (400, 16509), (402, 16536), (404, 16542), (411, 16596), (413, 16611),

Gene: Vendetta\_20 Start: 12184, Stop: 15645, Start Num: 13

Candidate Starts for Vendetta\_20:

(Start: 13 @12184 has 10 MA's), (17, 12226), (20, 12259), (31, 12364), (32, 12367), (57, 12652), (64, 12703), (76, 12859), (77, 12871), (78, 12880), (83, 12934), (85, 12946), (93, 13027), (108, 13156), (109, 13165), (112, 13183), (120, 13243), (122, 13258), (131, 13306), (145, 13393), (147, 13417), (156, 13480), (161, 13516), (162, 13525), (163, 13534), (172, 13576), (183, 13633), (188, 13660), (194, 13690), (196, 13705), (207, 13723), (211, 13759), (215, 13783), (218, 13795), (221, 13819), (230, 13858), (242, 13912), (246, 13939), (256, 13993), (258, 13996), (262, 14035), (264, 14047), (268, 14110), (274, 14143), (276, 14152), (277, 14167), (279, 14185), (282, 14263), (286, 14290), (293, 14407), (294, 14410), (301, 14443), (303, 14452), (309, 14488), (317, 14536), (327, 14695), (335, 14830), (340, 14905), (345, 15007), (353, 15103), (355, 15112), (359, 15169), (366, 15244), (367, 15250), (369, 15265), (373, 15289), (384, 15406), (387, 15418), (392, 15445), (394, 15463), (402, 15565), (404, 15571), (408, 15625), (413, 15640),