

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 291449 Report

This analysis was run 03/28/26 on database version 641.

Pham number 291449 has 27 members, 16 are drafts.

Phages represented in each track:

- Track 1 : Alok_i_22, Chidiebere_23, Mikronejon_22, EmoNemo_22, Hanem_23, Pakusa_22, Kabocha_24, Twin_22
- Track 2 : DalanDe_18
- Track 3 : FlyingTortilla_22
- Track 4 : Gray_23
- Track 5 : Farrylious_21, Argena_22
- Track 6 : Toneprano_22, Amoonguss_22, MintFritos_22
- Track 7 : Beted_22, Lenoshki_22
- Track 8 : Schomber_22
- Track 9 : Thales_18
- Track 10 : ChisanaKitsune_19
- Track 11 : ScarletRaider_22
- Track 12 : GMA6_11
- Track 13 : UBSmoodge_24
- Track 14 : FruityLoops_21
- Track 15 : Oogie_22
- Track 16 : Cantare_7

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 9 of the 11 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alok_i_22, Amoonguss_22, Argena_22, Beted_22, Chidiebere_23, ChisanaKitsune_19, DalanDe_18, EmoNemo_22, Farrylious_21, FlyingTortilla_22, FruityLoops_21, GMA6_11, Hanem_23, Kabocha_24, Lenoshki_22, Mikronejon_22, MintFritos_22, Oogie_22, Pakusa_22, ScarletRaider_22, Schomber_22, Thales_18, Toneprano_22, Twin_22, UBSmoodge_24,

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

- Gray_23,

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

- Cantare_7,

Summary by start number:

Start 1:

- Found in 23 of 27 (85.2%) of genes in pham
- Manual Annotations of this start: 1 of 11
- Called 4.3% of time when present
- Phage (with cluster) where this start called: Gray_23 (DQ),

Start 2:

- Found in 26 of 27 (96.3%) of genes in pham
- Manual Annotations of this start: 9 of 11
- Called 96.2% of time when present
- Phage (with cluster) where this start called: Aloki_22 (DQ), Amoonguss_22 (DQ), Argena_22 (DQ), Beted_22 (DQ), Chidiebere_23 (DQ), ChisanaKitsune_19 (DQ), DalanDe_18 (DQ), EmoNemo_22 (DQ), Farrylious_21 (DQ), FlyingTortilla_22 (DQ), FruityLoops_21 (DQ), GMA6_11 (DQ), Hanem_23 (DQ), Kabocha_24 (DQ), Lenoshki_22 (DQ), Mikronejon_22 (DQ), MintFritos_22 (DQ), Oogie_22 (DQ), Pakusa_22 (DQ), ScarletRaider_22 (DQ), Schomber_22 (DQ), Thales_18 (DQ), Toneprano_22 (DQ), Twin_22 (DQ), UBSmoodge_24 (DQ),

Start 3:

- Found in 1 of 27 (3.7%) of genes in pham
- Manual Annotations of this start: 1 of 11
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cantare_7 (singleton),

Summary by clusters:

There are 2 clusters represented in this pham: singleton, DQ,

Info for manual annotations of cluster DQ:

- Start number 1 was manually annotated 1 time for cluster DQ.
- Start number 2 was manually annotated 9 times for cluster DQ.

Gene Information:

Gene: Aloki_22 Start: 9181, Stop: 11841, Start Num: 2

Candidate Starts for Aloki_22:

(Start: 1 @9166 has 1 MA's), (Start: 2 @9181 has 9 MA's), (9, 9286), (10, 9304), (14, 9373), (20, 9463), (21, 9478), (22, 9487), (26, 9586), (27, 9589), (33, 9631), (34, 9643), (37, 9673), (40, 9706), (41, 9718), (42, 9733), (45, 9748), (48, 9781), (49, 9793), (50, 9811), (54, 9877), (60, 9949), (61, 9955), (62, 9973), (67, 10042), (72, 10096), (73, 10099), (76, 10168), (82, 10237), (86, 10315), (94, 10453), (96, 10468), (101, 10534), (109, 10633), (111, 10660), (118, 10804), (119, 10822), (120, 10846), (125, 10876), (126, 10879), (127, 10891), (128, 10900), (131, 10957), (133, 11008), (138, 11035), (139, 11041), (141, 11056), (144, 11098), (146, 11116), (149, 11134), (153, 11179), (155, 11209), (156, 11218), (157, 11230), (158, 11242), (162, 11284), (167, 11344), (168, 11347), (172, 11395), (173, 11398), (174, 11407), (177, 11440), (178, 11461), (180, 11503), (181, 11512), (182, 11572), (185, 11605), (186, 11635), (189, 11731), (192, 11770), (194, 11827),

Gene: Amoonguss_22 Start: 9184, Stop: 11844, Start Num: 2

Candidate Starts for Amoonguss_22:

(Start: 1 @9169 has 1 MA's), (Start: 2 @9184 has 9 MA's), (9, 9289), (10, 9307), (14, 9376), (20, 9466), (21, 9481), (22, 9490), (26, 9589), (27, 9592), (33, 9634), (34, 9646), (37, 9676), (40, 9709), (41, 9721), (42, 9736), (45, 9751), (48, 9784), (49, 9796), (50, 9814), (54, 9880), (60, 9952), (61, 9958), (62, 9976), (67, 10045), (72, 10099), (73, 10102), (76, 10171), (82, 10240), (86, 10318), (94, 10456), (96, 10471), (101, 10537), (109, 10636), (110, 10645), (111, 10663), (119, 10825), (120, 10849), (125, 10879), (126, 10882), (127, 10894), (128, 10903), (131, 10960), (133, 11011), (138, 11038), (139, 11044), (141, 11059), (144, 11101), (146, 11119), (149, 11137), (153, 11182), (155, 11212), (156, 11221), (157, 11233), (158, 11245), (162, 11287), (167, 11347), (168, 11350), (172, 11398), (173, 11401), (174, 11410), (177, 11443), (178, 11464), (180, 11506), (181, 11515), (182, 11575), (185, 11608), (186, 11638), (189, 11734), (192, 11773), (194, 11830),

Gene: Argenta_22 Start: 9181, Stop: 11841, Start Num: 2

Candidate Starts for Argenta_22:

(Start: 1 @9166 has 1 MA's), (Start: 2 @9181 has 9 MA's), (9, 9286), (10, 9304), (14, 9373), (20, 9463), (21, 9478), (22, 9487), (26, 9586), (27, 9589), (33, 9631), (34, 9643), (37, 9673), (40, 9706), (41, 9718), (42, 9733), (45, 9748), (48, 9781), (49, 9793), (50, 9811), (54, 9877), (60, 9949), (61, 9955), (62, 9973), (67, 10042), (72, 10096), (73, 10099), (76, 10168), (82, 10237), (86, 10315), (94, 10453), (96, 10468), (101, 10534), (109, 10633), (110, 10642), (111, 10660), (118, 10804), (119, 10822), (120, 10846), (125, 10876), (126, 10879), (127, 10891), (128, 10900), (131, 10957), (133, 11008), (138, 11035), (139, 11041), (141, 11056), (144, 11098), (146, 11116), (149, 11134), (153, 11179), (155, 11209), (156, 11218), (157, 11230), (158, 11242), (162, 11284), (167, 11344), (168, 11347), (172, 11395), (173, 11398), (174, 11407), (177, 11440), (178, 11461), (180, 11503), (181, 11512), (182, 11572), (185, 11605), (186, 11635), (189, 11731), (192, 11770), (194, 11827),

Gene: Beted_22 Start: 8807, Stop: 11467, Start Num: 2

Candidate Starts for Beted_22:

(Start: 1 @8792 has 1 MA's), (Start: 2 @8807 has 9 MA's), (9, 8912), (10, 8930), (14, 8999), (20, 9089), (21, 9104), (22, 9113), (26, 9212), (27, 9215), (33, 9257), (34, 9269), (37, 9299), (40, 9332), (41, 9344), (42, 9359), (45, 9374), (48, 9407), (49, 9419), (50, 9437), (54, 9503), (60, 9575), (61, 9581), (62, 9599), (67, 9668), (72, 9722), (73, 9725), (76, 9794), (82, 9863), (86, 9941), (94, 10079), (96, 10094), (109, 10259), (111, 10286), (119, 10448), (120, 10472), (125, 10502), (126, 10505), (127, 10517), (128, 10526), (131, 10583), (133, 10634), (138, 10661), (139, 10667), (141, 10682), (144, 10724), (146, 10742), (149, 10760), (153, 10805), (155, 10835), (156, 10844), (157, 10856), (158, 10868), (162, 10910), (163, 10916), (167, 10970), (168, 10973), (172, 11021), (173, 11024), (174, 11033), (177, 11066), (178, 11087), (180, 11129), (181, 11138), (182, 11198), (185, 11231), (186, 11261), (188, 11321), (189, 11357), (190, 11360), (192, 11396), (194, 11453),

Gene: Cantare_7 Start: 3960, Stop: 6341, Start Num: 3

Candidate Starts for Cantare_7:

(Start: 3 @3960 has 1 MA's), (4, 3969), (5, 3978), (6, 4023), (7, 4032), (10, 4083), (12, 4131), (15, 4182), (29, 4380), (30, 4386), (36, 4431), (38, 4455), (44, 4509), (47, 4536), (54, 4644), (63, 4752), (64, 4758), (69, 4830), (70, 4833), (72, 4857), (73, 4860), (74, 4911), (75, 4920), (76, 4929), (79, 4962), (81, 4983), (84, 5028), (85, 5040), (89, 5160), (93, 5211), (96, 5226), (97, 5244), (98, 5247), (102, 5280), (103, 5301), (104, 5310), (113, 5445), (117, 5493), (122, 5580), (124, 5601), (129, 5640), (130, 5655), (132, 5682), (135, 5742), (137, 5748), (140, 5772), (142, 5802), (143, 5829), (146, 5850), (150, 5901), (159, 6006), (169, 6102), (170, 6117), (171, 6120), (174, 6162),

Gene: Chidiebere_23 Start: 9181, Stop: 11841, Start Num: 2

Candidate Starts for Chidiebere_23:

(Start: 1 @9166 has 1 MA's), (Start: 2 @9181 has 9 MA's), (9, 9286), (10, 9304), (14, 9373), (20, 9463), (21, 9478), (22, 9487), (26, 9586), (27, 9589), (33, 9631), (34, 9643), (37, 9673), (40, 9706), (41,

9718), (42, 9733), (45, 9748), (48, 9781), (49, 9793), (50, 9811), (54, 9877), (60, 9949), (61, 9955), (62, 9973), (67, 10042), (72, 10096), (73, 10099), (76, 10168), (82, 10237), (86, 10315), (94, 10453), (96, 10468), (101, 10534), (109, 10633), (111, 10660), (118, 10804), (119, 10822), (120, 10846), (125, 10876), (126, 10879), (127, 10891), (128, 10900), (131, 10957), (133, 11008), (138, 11035), (139, 11041), (141, 11056), (144, 11098), (146, 11116), (149, 11134), (153, 11179), (155, 11209), (156, 11218), (157, 11230), (158, 11242), (162, 11284), (167, 11344), (168, 11347), (172, 11395), (173, 11398), (174, 11407), (177, 11440), (178, 11461), (180, 11503), (181, 11512), (182, 11572), (185, 11605), (186, 11635), (189, 11731), (192, 11770), (194, 11827),

Gene: ChisanaKitsune_19 Start: 7882, Stop: 10536, Start Num: 2

Candidate Starts for ChisanaKitsune_19:

(Start: 1 @7867 has 1 MA's), (Start: 2 @7882 has 9 MA's), (9, 7987), (10, 8005), (14, 8074), (20, 8164), (21, 8179), (26, 8287), (27, 8290), (33, 8332), (34, 8344), (37, 8374), (40, 8407), (41, 8419), (42, 8434), (45, 8449), (48, 8482), (49, 8494), (50, 8512), (54, 8578), (60, 8650), (61, 8656), (62, 8674), (67, 8743), (72, 8797), (73, 8800), (76, 8869), (82, 8938), (86, 9016), (94, 9154), (96, 9169), (109, 9334), (111, 9361), (119, 9517), (120, 9541), (125, 9571), (126, 9574), (127, 9586), (128, 9595), (131, 9652), (133, 9703), (139, 9736), (141, 9751), (144, 9793), (146, 9811), (149, 9829), (153, 9874), (155, 9904), (156, 9913), (157, 9925), (158, 9937), (162, 9979), (163, 9985), (167, 10039), (168, 10042), (172, 10090), (173, 10093), (174, 10102), (177, 10135), (178, 10156), (180, 10198), (181, 10207), (182, 10267), (185, 10300), (186, 10330), (189, 10426), (190, 10429), (192, 10465), (194, 10522),

Gene: DalanDe_18 Start: 8687, Stop: 11458, Start Num: 2

Candidate Starts for DalanDe_18:

(Start: 2 @8687 has 9 MA's), (5, 8711), (9, 8789), (11, 8822), (12, 8855), (13, 8861), (16, 8912), (17, 8921), (18, 8927), (24, 9056), (25, 9080), (34, 9140), (37, 9170), (39, 9188), (43, 9233), (46, 9260), (48, 9278), (49, 9290), (50, 9308), (51, 9332), (52, 9350), (53, 9353), (54, 9374), (55, 9377), (57, 9386), (62, 9470), (64, 9494), (65, 9503), (66, 9524), (67, 9539), (68, 9542), (71, 9581), (73, 9596), (76, 9665), (77, 9668), (80, 9707), (82, 9734), (83, 9758), (85, 9776), (87, 9833), (90, 9911), (91, 9944), (92, 9950), (95, 9965), (96, 9968), (98, 9989), (100, 10025), (105, 10085), (106, 10091), (107, 10106), (108, 10112), (112, 10184), (116, 10259), (118, 10334), (123, 10391), (125, 10406), (126, 10409), (128, 10430), (139, 10559), (141, 10574), (145, 10646), (147, 10688), (152, 10760), (157, 10826), (158, 10838), (161, 10871), (163, 10886), (164, 10904), (165, 10910), (172, 10991), (174, 11003), (176, 11027), (177, 11036), (179, 11078), (183, 11186), (184, 11189), (187, 11249), (189, 11324), (193, 11417), (194, 11420),

Gene: EmoNemo_22 Start: 9181, Stop: 11841, Start Num: 2

Candidate Starts for EmoNemo_22:

(Start: 1 @9166 has 1 MA's), (Start: 2 @9181 has 9 MA's), (9, 9286), (10, 9304), (14, 9373), (20, 9463), (21, 9478), (22, 9487), (26, 9586), (27, 9589), (33, 9631), (34, 9643), (37, 9673), (40, 9706), (41, 9718), (42, 9733), (45, 9748), (48, 9781), (49, 9793), (50, 9811), (54, 9877), (60, 9949), (61, 9955), (62, 9973), (67, 10042), (72, 10096), (73, 10099), (76, 10168), (82, 10237), (86, 10315), (94, 10453), (96, 10468), (101, 10534), (109, 10633), (111, 10660), (118, 10804), (119, 10822), (120, 10846), (125, 10876), (126, 10879), (127, 10891), (128, 10900), (131, 10957), (133, 11008), (138, 11035), (139, 11041), (141, 11056), (144, 11098), (146, 11116), (149, 11134), (153, 11179), (155, 11209), (156, 11218), (157, 11230), (158, 11242), (162, 11284), (167, 11344), (168, 11347), (172, 11395), (173, 11398), (174, 11407), (177, 11440), (178, 11461), (180, 11503), (181, 11512), (182, 11572), (185, 11605), (186, 11635), (189, 11731), (192, 11770), (194, 11827),

Gene: Farrylious_21 Start: 8934, Stop: 11594, Start Num: 2

Candidate Starts for Farrylious_21:

(Start: 1 @8919 has 1 MA's), (Start: 2 @8934 has 9 MA's), (9, 9039), (10, 9057), (14, 9126), (20, 9216), (21, 9231), (22, 9240), (26, 9339), (27, 9342), (33, 9384), (34, 9396), (37, 9426), (40, 9459), (41, 9471), (42, 9486), (45, 9501), (48, 9534), (49, 9546), (50, 9564), (54, 9630), (60, 9702), (61, 9708), (62,

9726), (67, 9795), (72, 9849), (73, 9852), (76, 9921), (82, 9990), (86, 10068), (94, 10206), (96, 10221), (101, 10287), (109, 10386), (110, 10395), (111, 10413), (118, 10557), (119, 10575), (120, 10599), (125, 10629), (126, 10632), (127, 10644), (128, 10653), (131, 10710), (133, 10761), (138, 10788), (139, 10794), (141, 10809), (144, 10851), (146, 10869), (149, 10887), (153, 10932), (155, 10962), (156, 10971), (157, 10983), (158, 10995), (162, 11037), (167, 11097), (168, 11100), (172, 11148), (173, 11151), (174, 11160), (177, 11193), (178, 11214), (180, 11256), (181, 11265), (182, 11325), (185, 11358), (186, 11388), (189, 11484), (192, 11523), (194, 11580),

Gene: FlyingTortilla_22 Start: 10228, Stop: 12855, Start Num: 2

Candidate Starts for FlyingTortilla_22:

(Start: 1 @10213 has 1 MA's), (Start: 2 @10228 has 9 MA's), (8, 10315), (9, 10330), (11, 10363), (14, 10417), (16, 10453), (19, 10489), (21, 10522), (22, 10531), (25, 10624), (26, 10630), (32, 10672), (33, 10675), (37, 10717), (40, 10750), (48, 10825), (49, 10837), (50, 10855), (54, 10921), (57, 10933), (61, 10999), (62, 11017), (73, 11143), (76, 11212), (82, 11281), (83, 11305), (86, 11359), (92, 11494), (94, 11497), (96, 11512), (111, 11704), (118, 11824), (119, 11842), (125, 11896), (128, 11920), (133, 12022), (134, 12025), (136, 12037), (141, 12070), (153, 12193), (154, 12220), (156, 12232), (157, 12244), (158, 12256), (162, 12298), (168, 12361), (172, 12409), (173, 12412), (174, 12421), (175, 12427), (177, 12454), (181, 12526), (184, 12607), (186, 12649), (188, 12709), (189, 12745), (190, 12748), (192, 12784), (194, 12841),

Gene: FruityLoops_21 Start: 10233, Stop: 12860, Start Num: 2

Candidate Starts for FruityLoops_21:

(Start: 1 @10218 has 1 MA's), (Start: 2 @10233 has 9 MA's), (8, 10320), (9, 10335), (11, 10368), (14, 10422), (16, 10458), (19, 10494), (21, 10527), (22, 10536), (26, 10635), (32, 10677), (33, 10680), (37, 10722), (40, 10755), (48, 10830), (49, 10842), (50, 10860), (54, 10926), (55, 10929), (57, 10938), (61, 11004), (62, 11022), (73, 11148), (76, 11217), (82, 11286), (83, 11310), (86, 11364), (92, 11499), (94, 11502), (96, 11517), (111, 11709), (118, 11829), (119, 11847), (125, 11901), (128, 11925), (133, 12027), (134, 12030), (136, 12042), (141, 12075), (153, 12198), (154, 12225), (156, 12237), (157, 12249), (158, 12261), (162, 12303), (168, 12366), (172, 12414), (173, 12417), (174, 12426), (175, 12432), (177, 12459), (181, 12531), (184, 12612), (186, 12654), (188, 12714), (189, 12750), (190, 12753), (192, 12789), (194, 12846),

Gene: GMA6_11 Start: 5324, Stop: 7891, Start Num: 2

Candidate Starts for GMA6_11:

(Start: 2 @5324 has 9 MA's), (9, 5423), (11, 5456), (12, 5489), (13, 5495), (14, 5510), (16, 5546), (18, 5561), (20, 5597), (22, 5621), (23, 5663), (24, 5690), (26, 5720), (27, 5723), (28, 5744), (31, 5759), (34, 5777), (35, 5780), (37, 5807), (39, 5825), (40, 5840), (41, 5852), (42, 5867), (49, 5927), (54, 6011), (56, 6017), (58, 6035), (62, 6107), (65, 6140), (72, 6230), (73, 6233), (78, 6329), (88, 6527), (94, 6587), (99, 6626), (107, 6743), (114, 6824), (118, 6839), (119, 6857), (121, 6884), (128, 6935), (148, 7169), (151, 7199), (157, 7277), (158, 7289), (160, 7310), (164, 7355), (166, 7382), (173, 7445), (178, 7508), (181, 7559), (182, 7619), (186, 7682), (187, 7703), (189, 7778), (191, 7796), (194, 7874),

Gene: Gray_23 Start: 9166, Stop: 11841, Start Num: 1

Candidate Starts for Gray_23:

(Start: 1 @9166 has 1 MA's), (Start: 2 @9181 has 9 MA's), (9, 9286), (10, 9304), (14, 9373), (20, 9463), (21, 9478), (22, 9487), (26, 9586), (27, 9589), (33, 9631), (34, 9643), (37, 9673), (40, 9706), (41, 9718), (42, 9733), (45, 9748), (48, 9781), (49, 9793), (50, 9811), (54, 9877), (60, 9949), (61, 9955), (62, 9973), (67, 10042), (72, 10096), (73, 10099), (76, 10168), (82, 10237), (86, 10315), (94, 10453), (96, 10468), (101, 10534), (109, 10633), (111, 10660), (118, 10804), (119, 10822), (120, 10846), (125, 10876), (126, 10879), (127, 10891), (128, 10900), (131, 10957), (133, 11008), (138, 11035), (139, 11041), (141, 11056), (144, 11098), (146, 11116), (149, 11134), (153, 11179), (155, 11209), (156, 11218), (157, 11230), (158, 11242), (162, 11284), (167, 11344), (168, 11347), (172, 11395), (173, 11398), (174, 11407), (177, 11440), (178, 11461), (180, 11503), (181, 11512), (182, 11572), (185,

11605), (186, 11635), (189, 11731), (192, 11770), (194, 11827),

Gene: Hanem_23 Start: 9181, Stop: 11841, Start Num: 2

Candidate Starts for Hanem_23:

(Start: 1 @9166 has 1 MA's), (Start: 2 @9181 has 9 MA's), (9, 9286), (10, 9304), (14, 9373), (20, 9463), (21, 9478), (22, 9487), (26, 9586), (27, 9589), (33, 9631), (34, 9643), (37, 9673), (40, 9706), (41, 9718), (42, 9733), (45, 9748), (48, 9781), (49, 9793), (50, 9811), (54, 9877), (60, 9949), (61, 9955), (62, 9973), (67, 10042), (72, 10096), (73, 10099), (76, 10168), (82, 10237), (86, 10315), (94, 10453), (96, 10468), (101, 10534), (109, 10633), (111, 10660), (118, 10804), (119, 10822), (120, 10846), (125, 10876), (126, 10879), (127, 10891), (128, 10900), (131, 10957), (133, 11008), (138, 11035), (139, 11041), (141, 11056), (144, 11098), (146, 11116), (149, 11134), (153, 11179), (155, 11209), (156, 11218), (157, 11230), (158, 11242), (162, 11284), (167, 11344), (168, 11347), (172, 11395), (173, 11398), (174, 11407), (177, 11440), (178, 11461), (180, 11503), (181, 11512), (182, 11572), (185, 11605), (186, 11635), (189, 11731), (192, 11770), (194, 11827),

Gene: Kabocha_24 Start: 9994, Stop: 12654, Start Num: 2

Candidate Starts for Kabocha_24:

(Start: 1 @9979 has 1 MA's), (Start: 2 @9994 has 9 MA's), (9, 10099), (10, 10117), (14, 10186), (20, 10276), (21, 10291), (22, 10300), (26, 10399), (27, 10402), (33, 10444), (34, 10456), (37, 10486), (40, 10519), (41, 10531), (42, 10546), (45, 10561), (48, 10594), (49, 10606), (50, 10624), (54, 10690), (60, 10762), (61, 10768), (62, 10786), (67, 10855), (72, 10909), (73, 10912), (76, 10981), (82, 11050), (86, 11128), (94, 11266), (96, 11281), (101, 11347), (109, 11446), (111, 11473), (118, 11617), (119, 11635), (120, 11659), (125, 11689), (126, 11692), (127, 11704), (128, 11713), (131, 11770), (133, 11821), (138, 11848), (139, 11854), (141, 11869), (144, 11911), (146, 11929), (149, 11947), (153, 11992), (155, 12022), (156, 12031), (157, 12043), (158, 12055), (162, 12097), (167, 12157), (168, 12160), (172, 12208), (173, 12211), (174, 12220), (177, 12253), (178, 12274), (180, 12316), (181, 12325), (182, 12385), (185, 12418), (186, 12448), (189, 12544), (192, 12583), (194, 12640),

Gene: Lenoshki_22 Start: 8807, Stop: 11467, Start Num: 2

Candidate Starts for Lenoshki_22:

(Start: 1 @8792 has 1 MA's), (Start: 2 @8807 has 9 MA's), (9, 8912), (10, 8930), (14, 8999), (20, 9089), (21, 9104), (22, 9113), (26, 9212), (27, 9215), (33, 9257), (34, 9269), (37, 9299), (40, 9332), (41, 9344), (42, 9359), (45, 9374), (48, 9407), (49, 9419), (50, 9437), (54, 9503), (60, 9575), (61, 9581), (62, 9599), (67, 9668), (72, 9722), (73, 9725), (76, 9794), (82, 9863), (86, 9941), (94, 10079), (96, 10094), (109, 10259), (111, 10286), (119, 10448), (120, 10472), (125, 10502), (126, 10505), (127, 10517), (128, 10526), (131, 10583), (133, 10634), (138, 10661), (139, 10667), (141, 10682), (144, 10724), (146, 10742), (149, 10760), (153, 10805), (155, 10835), (156, 10844), (157, 10856), (158, 10868), (162, 10910), (163, 10916), (167, 10970), (168, 10973), (172, 11021), (173, 11024), (174, 11033), (177, 11066), (178, 11087), (180, 11129), (181, 11138), (182, 11198), (185, 11231), (186, 11261), (188, 11321), (189, 11357), (190, 11360), (192, 11396), (194, 11453),

Gene: Mikronejon_22 Start: 9181, Stop: 11841, Start Num: 2

Candidate Starts for Mikronejon_22:

(Start: 1 @9166 has 1 MA's), (Start: 2 @9181 has 9 MA's), (9, 9286), (10, 9304), (14, 9373), (20, 9463), (21, 9478), (22, 9487), (26, 9586), (27, 9589), (33, 9631), (34, 9643), (37, 9673), (40, 9706), (41, 9718), (42, 9733), (45, 9748), (48, 9781), (49, 9793), (50, 9811), (54, 9877), (60, 9949), (61, 9955), (62, 9973), (67, 10042), (72, 10096), (73, 10099), (76, 10168), (82, 10237), (86, 10315), (94, 10453), (96, 10468), (101, 10534), (109, 10633), (111, 10660), (118, 10804), (119, 10822), (120, 10846), (125, 10876), (126, 10879), (127, 10891), (128, 10900), (131, 10957), (133, 11008), (138, 11035), (139, 11041), (141, 11056), (144, 11098), (146, 11116), (149, 11134), (153, 11179), (155, 11209), (156, 11218), (157, 11230), (158, 11242), (162, 11284), (167, 11344), (168, 11347), (172, 11395), (173, 11398), (174, 11407), (177, 11440), (178, 11461), (180, 11503), (181, 11512), (182, 11572), (185, 11605), (186, 11635), (189, 11731), (192, 11770), (194, 11827),

Gene: MintFritos_22 Start: 9181, Stop: 11841, Start Num: 2

Candidate Starts for MintFritos_22:

(Start: 1 @9166 has 1 MA's), (Start: 2 @9181 has 9 MA's), (9, 9286), (10, 9304), (14, 9373), (20, 9463), (21, 9478), (22, 9487), (26, 9586), (27, 9589), (33, 9631), (34, 9643), (37, 9673), (40, 9706), (41, 9718), (42, 9733), (45, 9748), (48, 9781), (49, 9793), (50, 9811), (54, 9877), (60, 9949), (61, 9955), (62, 9973), (67, 10042), (72, 10096), (73, 10099), (76, 10168), (82, 10237), (86, 10315), (94, 10453), (96, 10468), (101, 10534), (109, 10633), (110, 10642), (111, 10660), (119, 10822), (120, 10846), (125, 10876), (126, 10879), (127, 10891), (128, 10900), (131, 10957), (133, 11008), (138, 11035), (139, 11041), (141, 11056), (144, 11098), (146, 11116), (149, 11134), (153, 11179), (155, 11209), (156, 11218), (157, 11230), (158, 11242), (162, 11284), (167, 11344), (168, 11347), (172, 11395), (173, 11398), (174, 11407), (177, 11440), (178, 11461), (180, 11503), (181, 11512), (182, 11572), (185, 11605), (186, 11635), (189, 11731), (192, 11770), (194, 11827),

Gene: Oogie_22 Start: 8833, Stop: 11493, Start Num: 2

Candidate Starts for Oogie_22:

(Start: 1 @8818 has 1 MA's), (Start: 2 @8833 has 9 MA's), (9, 8938), (14, 9025), (20, 9115), (21, 9130), (22, 9139), (26, 9238), (27, 9241), (33, 9283), (34, 9295), (37, 9325), (40, 9358), (41, 9370), (42, 9385), (45, 9400), (48, 9433), (49, 9445), (50, 9463), (54, 9529), (60, 9601), (61, 9607), (62, 9625), (67, 9694), (72, 9748), (73, 9751), (76, 9820), (82, 9889), (86, 9967), (94, 10105), (96, 10120), (109, 10285), (111, 10312), (119, 10474), (120, 10498), (125, 10528), (126, 10531), (127, 10543), (128, 10552), (131, 10609), (133, 10660), (138, 10687), (139, 10693), (141, 10708), (144, 10750), (146, 10768), (149, 10786), (153, 10831), (155, 10861), (156, 10870), (157, 10882), (158, 10894), (162, 10936), (163, 10942), (167, 10996), (168, 10999), (172, 11047), (173, 11050), (174, 11059), (177, 11092), (178, 11113), (180, 11155), (181, 11164), (182, 11224), (185, 11257), (186, 11287), (188, 11347), (189, 11383), (190, 11386), (192, 11422), (194, 11479),

Gene: Pakusa_22 Start: 8923, Stop: 11583, Start Num: 2

Candidate Starts for Pakusa_22:

(Start: 1 @8908 has 1 MA's), (Start: 2 @8923 has 9 MA's), (9, 9028), (10, 9046), (14, 9115), (20, 9205), (21, 9220), (22, 9229), (26, 9328), (27, 9331), (33, 9373), (34, 9385), (37, 9415), (40, 9448), (41, 9460), (42, 9475), (45, 9490), (48, 9523), (49, 9535), (50, 9553), (54, 9619), (60, 9691), (61, 9697), (62, 9715), (67, 9784), (72, 9838), (73, 9841), (76, 9910), (82, 9979), (86, 10057), (94, 10195), (96, 10210), (101, 10276), (109, 10375), (111, 10402), (118, 10546), (119, 10564), (120, 10588), (125, 10618), (126, 10621), (127, 10633), (128, 10642), (131, 10699), (133, 10750), (138, 10777), (139, 10783), (141, 10798), (144, 10840), (146, 10858), (149, 10876), (153, 10921), (155, 10951), (156, 10960), (157, 10972), (158, 10984), (162, 11026), (167, 11086), (168, 11089), (172, 11137), (173, 11140), (174, 11149), (177, 11182), (178, 11203), (180, 11245), (181, 11254), (182, 11314), (185, 11347), (186, 11377), (189, 11473), (192, 11512), (194, 11569),

Gene: ScarletRaider_22 Start: 10255, Stop: 12882, Start Num: 2

Candidate Starts for ScarletRaider_22:

(Start: 1 @10240 has 1 MA's), (Start: 2 @10255 has 9 MA's), (8, 10342), (9, 10357), (11, 10390), (14, 10444), (16, 10480), (19, 10516), (21, 10549), (22, 10558), (25, 10651), (26, 10657), (32, 10699), (33, 10702), (37, 10744), (40, 10777), (48, 10852), (49, 10864), (50, 10882), (54, 10948), (57, 10960), (61, 11026), (62, 11044), (73, 11170), (76, 11239), (82, 11308), (83, 11332), (86, 11386), (92, 11521), (94, 11524), (96, 11539), (111, 11731), (115, 11809), (118, 11851), (119, 11869), (125, 11923), (128, 11947), (133, 12049), (134, 12052), (136, 12064), (141, 12097), (149, 12175), (153, 12220), (154, 12247), (156, 12259), (157, 12271), (158, 12283), (162, 12325), (168, 12388), (172, 12436), (173, 12439), (174, 12448), (175, 12454), (177, 12481), (181, 12553), (184, 12634), (186, 12676), (189, 12772), (190, 12775), (192, 12811), (194, 12868),

Gene: Schomber_22 Start: 8931, Stop: 11591, Start Num: 2

Candidate Starts for Schomber_22:

(Start: 1 @8916 has 1 MA's), (Start: 2 @8931 has 9 MA's), (9, 9036), (10, 9054), (14, 9123), (20, 9213), (21, 9228), (22, 9237), (26, 9336), (27, 9339), (33, 9381), (34, 9393), (37, 9423), (40, 9456), (41, 9468), (42, 9483), (45, 9498), (48, 9531), (49, 9543), (50, 9561), (54, 9627), (60, 9699), (61, 9705), (62, 9723), (67, 9792), (72, 9846), (73, 9849), (76, 9918), (82, 9987), (86, 10065), (94, 10203), (96, 10218), (101, 10284), (109, 10383), (110, 10392), (111, 10410), (118, 10554), (119, 10572), (120, 10596), (125, 10626), (126, 10629), (127, 10641), (128, 10650), (131, 10707), (133, 10758), (138, 10785), (139, 10791), (141, 10806), (144, 10848), (146, 10866), (149, 10884), (153, 10929), (155, 10959), (156, 10968), (157, 10980), (158, 10992), (162, 11034), (167, 11094), (168, 11097), (172, 11145), (173, 11148), (174, 11157), (177, 11190), (178, 11211), (180, 11253), (181, 11262), (182, 11322), (185, 11355), (186, 11385), (188, 11445), (189, 11481), (192, 11520), (194, 11577),

Gene: Thales_18 Start: 8025, Stop: 10796, Start Num: 2

Candidate Starts for Thales_18:

(Start: 2 @8025 has 9 MA's), (5, 8049), (9, 8127), (11, 8160), (12, 8193), (13, 8199), (16, 8250), (17, 8259), (18, 8265), (22, 8325), (24, 8394), (25, 8418), (34, 8478), (37, 8508), (39, 8526), (42, 8568), (43, 8571), (46, 8598), (48, 8616), (49, 8628), (50, 8646), (51, 8670), (53, 8691), (54, 8712), (55, 8715), (59, 8760), (62, 8808), (64, 8832), (65, 8841), (66, 8862), (67, 8877), (68, 8880), (73, 8934), (76, 9003), (77, 9006), (80, 9045), (83, 9096), (85, 9114), (87, 9171), (90, 9249), (95, 9303), (96, 9306), (98, 9327), (100, 9363), (105, 9423), (106, 9429), (107, 9444), (108, 9450), (112, 9522), (116, 9597), (118, 9672), (123, 9729), (125, 9744), (126, 9747), (128, 9768), (139, 9897), (141, 9912), (145, 9984), (147, 10026), (152, 10098), (157, 10164), (158, 10176), (161, 10209), (163, 10224), (164, 10242), (165, 10248), (172, 10329), (174, 10341), (176, 10365), (177, 10374), (179, 10416), (183, 10524), (184, 10527), (187, 10587), (189, 10662), (193, 10755), (194, 10758),

Gene: Toneprano_22 Start: 9181, Stop: 11841, Start Num: 2

Candidate Starts for Toneprano_22:

(Start: 1 @9166 has 1 MA's), (Start: 2 @9181 has 9 MA's), (9, 9286), (10, 9304), (14, 9373), (20, 9463), (21, 9478), (22, 9487), (26, 9586), (27, 9589), (33, 9631), (34, 9643), (37, 9673), (40, 9706), (41, 9718), (42, 9733), (45, 9748), (48, 9781), (49, 9793), (50, 9811), (54, 9877), (60, 9949), (61, 9955), (62, 9973), (67, 10042), (72, 10096), (73, 10099), (76, 10168), (82, 10237), (86, 10315), (94, 10453), (96, 10468), (101, 10534), (109, 10633), (110, 10642), (111, 10660), (119, 10822), (120, 10846), (125, 10876), (126, 10879), (127, 10891), (128, 10900), (131, 10957), (133, 11008), (138, 11035), (139, 11041), (141, 11056), (144, 11098), (146, 11116), (149, 11134), (153, 11179), (155, 11209), (156, 11218), (157, 11230), (158, 11242), (162, 11284), (167, 11344), (168, 11347), (172, 11395), (173, 11398), (174, 11407), (177, 11440), (178, 11461), (180, 11503), (181, 11512), (182, 11572), (185, 11605), (186, 11635), (189, 11731), (192, 11770), (194, 11827),

Gene: Twin_22 Start: 9181, Stop: 11841, Start Num: 2

Candidate Starts for Twin_22:

(Start: 1 @9166 has 1 MA's), (Start: 2 @9181 has 9 MA's), (9, 9286), (10, 9304), (14, 9373), (20, 9463), (21, 9478), (22, 9487), (26, 9586), (27, 9589), (33, 9631), (34, 9643), (37, 9673), (40, 9706), (41, 9718), (42, 9733), (45, 9748), (48, 9781), (49, 9793), (50, 9811), (54, 9877), (60, 9949), (61, 9955), (62, 9973), (67, 10042), (72, 10096), (73, 10099), (76, 10168), (82, 10237), (86, 10315), (94, 10453), (96, 10468), (101, 10534), (109, 10633), (111, 10660), (118, 10804), (119, 10822), (120, 10846), (125, 10876), (126, 10879), (127, 10891), (128, 10900), (131, 10957), (133, 11008), (138, 11035), (139, 11041), (141, 11056), (144, 11098), (146, 11116), (149, 11134), (153, 11179), (155, 11209), (156, 11218), (157, 11230), (158, 11242), (162, 11284), (167, 11344), (168, 11347), (172, 11395), (173, 11398), (174, 11407), (177, 11440), (178, 11461), (180, 11503), (181, 11512), (182, 11572), (185, 11605), (186, 11635), (189, 11731), (192, 11770), (194, 11827),

Gene: UBSmoodge_24 Start: 10724, Stop: 13351, Start Num: 2

Candidate Starts for UBSmoodge_24:

(Start: 1 @10709 has 1 MA's), (Start: 2 @10724 has 9 MA's), (8, 10811), (9, 10826), (11, 10859), (14, 10913), (16, 10949), (19, 10985), (21, 11018), (22, 11027), (25, 11120), (26, 11126), (32, 11168), (33, 11171), (37, 11213), (40, 11246), (48, 11321), (49, 11333), (50, 11351), (54, 11417), (55, 11420), (57, 11429), (61, 11495), (62, 11513), (73, 11639), (76, 11708), (82, 11777), (83, 11801), (86, 11855), (92, 11990), (94, 11993), (96, 12008), (111, 12200), (118, 12320), (119, 12338), (125, 12392), (128, 12416), (133, 12518), (134, 12521), (136, 12533), (141, 12566), (149, 12644), (153, 12689), (154, 12716), (156, 12728), (157, 12740), (158, 12752), (162, 12794), (168, 12857), (172, 12905), (173, 12908), (174, 12917), (175, 12923), (177, 12950), (178, 12971), (181, 13022), (184, 13103), (186, 13145), (189, 13241), (192, 13280), (194, 13337),