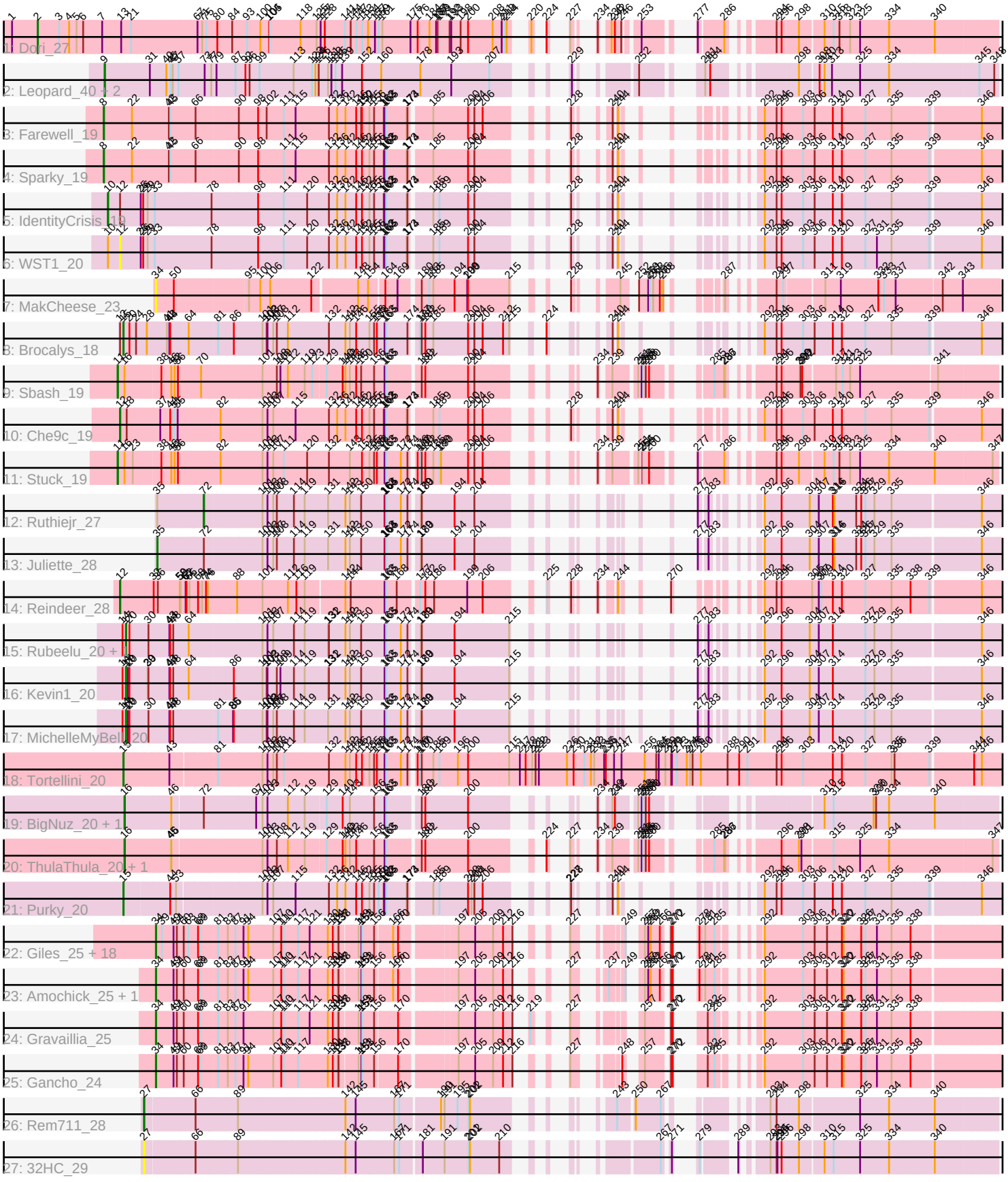
Pham 344089


1: Dori_27
2: Leopard_40 + 2
3: Farewell_19
4: Sparky_19
5: IdentityCrisis_19
6: WST1_20
7: MakCheese_23
8: Brocalys_18
9: Sbash_19
10: Che9c_19
11: Stuck_19
12: Ruthiejr_27
13: Juliette_28
14: Reindeer_28
15: Rubeelu_20 + 1
16: Kevin1_20
17: MichelleMyBell_20
18: Tortellini_20
19: BigNuz_20 + 1
20: ThulaThula_20 + 1
21: Purky_20
22: Giles_25 + 18
23: Amochick_25 + 1
24: Gravaillia_25
25: Gancho_24
26: Rem711_28
27: 32HC_29

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 344089 Report

This analysis was run 11/14/26 on database version 672.

Pham number 344089 has 51 members, 3 are drafts.

Phages represented in each track:
- Track 1 : Dori_27
- Track 2 : Leopard_40, Onyinye_41, Aikoy_40
- Track 3 : Farewell_19
- Track 4 : Sparky_19
- Track 5 : IdentityCrisis_19
- Track 6 : WST1_20
- Track 7 : MakCheese_23
- Track 8 : Brocalys_18
- Track 9 : Sbash_19
- Track 10 : Che9c_19
- Track 11 : Stuck_19
- Track 12 : Ruthiejr_27
- Track 13 : Juliette_28
- Track 14 : Reindeer_28
- Track 15 : Rubeelu_20, Butters_20
- Track 16 : Kevin1_20
- Track 17 : MichelleMyBell_20
- Track 18 : Tortellini_20
- Track 19 : BigNuz_20, Nazo_20
- Track 20 : ThulaThula_20, Phayonce_20
- Track 21 : Purky_20
- Track 22 : Giles_25, HH92_25, Forge_25, OBUpride_25, Dewey_25, Wishmaker_25, LilHazelnut_25, Luna22_25, Ubuntu_25, Hail_25, Luke_25, Kinbote_25, Evanesce_25, BloominB_25, Hadrien_25, Webster2_25, DeepSoil15_25, Amymech_25, Ein37_25
- Track 23 : Amochick_25, Daegal_26
- Track 24 : Gravaillia_25
- Track 25 : Gancho_24
- Track 26 : Rem711_28
- Track 27 : 32HC_29

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

The start number called the most often in the published annotations is 34, it was called in 23 of the 48 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Amochick_25, Amymech_25, BloominB_25, Daegal_26, DeepSoil15_25, Dewey_25, Ein37_25, Evanesce_25, Forge_25, Gancho_24, Giles_25, Gravaillia_25, HH92_25, Hadrien_25, Hail_25, Kinbote_25, LilHazelnut_25, Luke_25, Luna22_25, MakCheese_23, OBUpride_25, Ubuntu_25, Webster2_25, Wishmaker_25,

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

Genes that do not have the "Most Annotated" start:
• 32HC_29, Aikoy_40, BigNuz_20, Brocalys_18, Butters_20, Che9c_19, Dori_27, Farewell_19, IdentityCrisis_19, Juliette_28, Kevin1_20, Leopard_40, MichelleMyBell_20, Nazo_20, Onyinye_41, Phayonce_20, Purky_20, Reindeer_28, Rem711_28, Rubeelu_20, Ruthiejr_27, Sbash_19, Sparky_19, Stuck_19, ThulaThula_20, Tortellini_20, WST1_20,

Summary by start number:

Start 2:
• Found in 1 of 51 (2.0%) of genes in pham
• Manual Annotations of this start: 1 of 48
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Dori_27 (AD),

Start 8:
• Found in 2 of 51 (3.9%) of genes in pham
• Manual Annotations of this start: 2 of 48
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Farewell_19 (AF), Sparky_19 (AF),

Start 9:
• Found in 3 of 51 (5.9%) of genes in pham
• Manual Annotations of this start: 3 of 48
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Aikoy_40 (AE), Leopard_40 (AE), Onyinye_41 (AE),

Start 10:
• Found in 2 of 51 (3.9%) of genes in pham
• Manual Annotations of this start: 1 of 48
• Called 50.0% of time when present
• Phage (with cluster) where this start called: IdentityCrisis_19 (AJ),

Start 11:
• Found in 2 of 51 (3.9%) of genes in pham
• Manual Annotations of this start: 2 of 48
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Sbash_19 (I2), Stuck_19 (I2),

Start 12:

• Found in 5 of 51 (9.8%) of genes in pham
• Manual Annotations of this start: 2 of 48
• Called 60.0% of time when present
• Phage (with cluster) where this start called: Che9c_19 (I2), Reindeer_28 (M1), WST1_20 (AJ),

Start 15:
• Found in 3 of 51 (5.9%) of genes in pham
• Manual Annotations of this start: 3 of 48
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Brocalys_18 (F1), Purky_20 (P6), Tortellini_20 (P2),

Start 16:
• Found in 6 of 51 (11.8%) of genes in pham
• Manual Annotations of this start: 4 of 48
• Called 66.7% of time when present
• Phage (with cluster) where this start called: BigNuz_20 (P4), Nazo_20 (P4), Phayonce_20 (P5), ThulaThula_20 (P5),

Start 17:
• Found in 4 of 51 (7.8%) of genes in pham
• Manual Annotations of this start: 4 of 48
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Butters_20 (N), Kevin1_20 (N), MichelleMyBell_20 (N), Rubeelu_20 (N),

Start 27:
• Found in 2 of 51 (3.9%) of genes in pham
• Manual Annotations of this start: 1 of 48
• Called 100.0% of time when present
• Phage (with cluster) where this start called: 32HC_29 (Z), Rem711_28 (Z),

Start 34:
• Found in 24 of 51 (47.1%) of genes in pham
• Manual Annotations of this start: 23 of 48
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Amochick_25 (Q), Amymech_25 (Q), BloominB_25 (Q), Daegal_26 (Q), DeepSoil15_25 (Q), Dewey_25 (Q), Ein37_25 (Q), Evanesce_25 (Q), Forge_25 (Q), Gancho_24 (Q), Giles_25 (Q), Gravaillia_25 (Q), HH92_25 (Q), Hadrien_25 (Q), Hail_25 (Q), Kinbote_25 (Q), LilHazelnut_25 (Q), Luke_25 (Q), Luna22_25 (Q), MakCheese_23 (DW), OBUpride_25 (Q), Ubuntu_25 (Q), Webster2_25 (Q), Wishmaker_25 (Q),

Start 35:
• Found in 2 of 51 (3.9%) of genes in pham
• Manual Annotations of this start: 1 of 48
• Called 50.0% of time when present
• Phage (with cluster) where this start called: Juliette_28 (K4),

Start 72:
• Found in 4 of 51 (7.8%) of genes in pham
• Manual Annotations of this start: 1 of 48

• Called 25.0% of time when present
• Phage (with cluster) where this start called: Ruthiejr_27 (K4),

Summary by clusters:

There are 16 clusters represented in this pham: P2, F1, I2, AE, AD, P4, P5, AJ, N, Q, M1, AF, K4, DW, Z, P6,

Info for manual annotations of cluster AD:
•Start number 2 was manually annotated 1 time for cluster AD.

Info for manual annotations of cluster AE:
•Start number 9 was manually annotated 3 times for cluster AE.

Info for manual annotations of cluster AF:
•Start number 8 was manually annotated 2 times for cluster AF.

Info for manual annotations of cluster AJ:
•Start number 10 was manually annotated 1 time for cluster AJ.

Info for manual annotations of cluster F1:
•Start number 15 was manually annotated 1 time for cluster F1.

Info for manual annotations of cluster I2:
•Start number 11 was manually annotated 2 times for cluster I2.
•Start number 12 was manually annotated 1 time for cluster I2.

Info for manual annotations of cluster K4:
•Start number 35 was manually annotated 1 time for cluster K4.
•Start number 72 was manually annotated 1 time for cluster K4.

Info for manual annotations of cluster M1:
•Start number 12 was manually annotated 1 time for cluster M1.

Info for manual annotations of cluster N:
•Start number 17 was manually annotated 4 times for cluster N.

Info for manual annotations of cluster P2:
•Start number 15 was manually annotated 1 time for cluster P2.

Info for manual annotations of cluster P4:
•Start number 16 was manually annotated 2 times for cluster P4.

Info for manual annotations of cluster P5:
•Start number 16 was manually annotated 2 times for cluster P5.

Info for manual annotations of cluster P6:
•Start number 15 was manually annotated 1 time for cluster P6.

Info for manual annotations of cluster Q:
•Start number 34 was manually annotated 23 times for cluster Q.

Info for manual annotations of cluster Z:
•Start number 27 was manually annotated 1 time for cluster Z.

Gene Information:

Gene: 32HC_29 Start: 22389, Stop: 24797, Start Num: 27
Candidate Starts for 32HC_29:
(Start: 27 @22389 has 1 MA's), (66, 22560), (89, 22695), (142, 23058), (145, 23094), (167, 23226), (171, 23244), (181, 23310), (191, 23382), (201, 23460), (202, 23463), (210, 23562), (267, 23823), (271, 23841), (279, 23856), (289, 23940), (293, 24009), (294, 24030), (295, 24033), (296, 24048), (298, 24105), (310, 24186), (315, 24219), (325, 24315), (334, 24417), (340, 24576),

Gene: Aikoy_40 Start: 29919, Stop: 32537, Start Num: 9
Candidate Starts for Aikoy_40:
(Start: 9 @29919 has 3 MA's), (31, 30078), (40, 30132), (45, 30147), (47, 30153), (57, 30174), (73, 30267), (77, 30291), (79, 30306), (87, 30372), (92, 30408), (96, 30423), (99, 30459), (113, 30567), (123, 30630), (124, 30642), (126, 30654), (131, 30684), (133, 30696), (135, 30711), (139, 30735), (152, 30807), (160, 30876), (178, 31017), (193, 31125), (207, 31257), (229, 31368), (252, 31479), (281, 31608), (284, 31626), (298, 31851), (308, 31914), (310, 31932), (313, 31959), (325, 32058), (334, 32160), (345, 32469), (348, 32523),

Gene: Amochick_25 Start: 20859, Stop: 23123, Start Num: 34
Candidate Starts for Amochick_25:
(Start: 34 @20859 has 23 MA's), (49, 20919), (54, 20931), (60, 20955), (68, 21003), (69, 21006), (81, 21060), (83, 21087), (87, 21111), (91, 21138), (94, 21150), (107, 21216), (110, 21237), (111, 21246), (117, 21291), (121, 21333), (130, 21390), (134, 21402), (137, 21420), (138, 21423), (149, 21480), (151, 21489), (153, 21492), (156, 21531), (166, 21582), (170, 21600), (197, 21765), (205, 21819), (209, 21876), (212, 21909), (216, 21942), (227, 21978), (237, 22038), (249, 22080), (257, 22101), (259, 22113), (262, 22122), (266, 22155), (270, 22173), (272, 22179), (278, 22188), (281, 22209), (285, 22242), (292, 22308), (303, 22446), (306, 22488), (312, 22533), (320, 22587), (322, 22593), (326, 22656), (327, 22668), (331, 22707), (335, 22758), (338, 22821),

Gene: Amymech_25 Start: 20853, Stop: 23117, Start Num: 34
Candidate Starts for Amymech_25:
(Start: 34 @20853 has 23 MA's), (39, 20871), (49, 20913), (54, 20925), (60, 20949), (63, 20964), (68, 20997), (69, 21000), (81, 21054), (83, 21081), (87, 21105), (91, 21132), (94, 21144), (107, 21210), (110, 21231), (111, 21240), (117, 21285), (121, 21327), (130, 21384), (134, 21396), (137, 21414), (138, 21417), (149, 21474), (151, 21483), (153, 21486), (156, 21525), (166, 21576), (170, 21594), (197, 21759), (205, 21813), (209, 21870), (212, 21903), (216, 21936), (227, 21972), (249, 22074), (257, 22095), (259, 22107), (262, 22116), (266, 22149), (270, 22167), (272, 22173), (278, 22182), (281, 22203), (285, 22236), (292, 22302), (303, 22440), (306, 22482), (312, 22527), (320, 22581), (322, 22587), (326, 22650), (327, 22662), (331, 22701), (335, 22752), (338, 22815),

Gene: BigNuz_20 Start: 18782, Stop: 21163, Start Num: 16
Candidate Starts for BigNuz_20:
(Start: 16 @18782 has 4 MA's), (46, 18935), (Start: 72 @19028 has 1 MA's), (97, 19187), (101, 19208), (103, 19220), (112, 19286), (119, 19340), (129, 19412), (140, 19457), (143, 19478), (156, 19556), (163, 19589), (165, 19595), (180, 19694), (182, 19703), (200, 19841), (234, 20024), (239, 20051), (242, 20060), (251, 20111), (253, 20123), (255, 20129), (258, 20138), (260, 20150), (310, 20552), (315, 20585), (328, 20729), (330, 20738), (334, 20783), (340, 20942),

Gene: BloominB_25 Start: 20853, Stop: 23117, Start Num: 34
Candidate Starts for BloominB_25:
(Start: 34 @20853 has 23 MA's), (39, 20871), (49, 20913), (54, 20925), (60, 20949), (63, 20964), (68, 20997), (69, 21000), (81, 21054), (83, 21081), (87, 21105), (91, 21132), (94, 21144), (107, 21210), (110, 21231), (111, 21240), (117, 21285), (121, 21327), (130, 21384), (134, 21396), (137, 21414), (138, 21417), (149, 21474), (151, 21483), (153, 21486), (156, 21525), (166, 21576), (170, 21594), (197, 21759), (205, 21813), (209, 21870), (212, 21903), (216, 21936), (227, 21972), (249, 22074), (257, 22095), (259, 22107), (262, 22116), (266, 22149), (270, 22167), (272, 22173), (278, 22182), (281, 22203), (285, 22236), (292, 22302), (303, 22440), (306, 22482), (312, 22527), (320, 22581), (322, 22587), (326, 22650), (327, 22662), (331, 22701), (335, 22752), (338, 22815),

Gene: Brocalys_18 Start: 17383, Stop: 19617, Start Num: 15
Candidate Starts for Brocalys_18:
(Start: 12 @17371 has 2 MA's), (Start: 15 @17383 has 3 MA's), (20, 17404), (24, 17425), (28, 17464), (41, 17533), (43, 17542), (44, 17545), (64, 17596), (81, 17686), (86, 17731), (101, 17821), (102, 17830), (103, 17833), (107, 17854), (108, 17866), (112, 17899), (132, 18034), (142, 18082), (143, 18097), (146, 18118), (155, 18160), (156, 18175), (158, 18184), (163, 18211), (165, 18217), (174, 18286), (177, 18307), (180, 18313), (182, 18322), (185, 18349), (200, 18460), (204, 18481), (206, 18505), (212, 18571), (215, 18592), (224, 18610), (240, 18661), (244, 18667), (292, 18790), (294, 18832), (296, 18850), (303, 18928), (306, 18970), (314, 19036), (320, 19069), (327, 19150), (335, 19240), (339, 19369), (346, 19537),

Gene: Butters_20 Start: 17523, Stop: 19739, Start Num: 17
Candidate Starts for Butters_20:
(14, 17511), (Start: 17 @17523 has 4 MA's), (20, 17535), (30, 17601), (43, 17670), (44, 17673), (48, 17682), (64, 17730), (101, 17955), (103, 17967), (107, 17988), (114, 18051), (119, 18087), (131, 18165), (132, 18168), (142, 18216), (143, 18231), (150, 18267), (163, 18342), (165, 18348), (172, 18393), (174, 18417), (179, 18444), (180, 18447), (194, 18549), (215, 18726), (277, 18834), (283, 18858), (292, 18924), (296, 18984), (304, 19086), (307, 19119), (314, 19170), (327, 19284), (329, 19314), (335, 19374), (346, 19671),

Gene: Che9c_19 Start: 18477, Stop: 20729, Start Num: 12
Candidate Starts for Che9c_19:
(Start: 12 @18477 has 2 MA's), (18, 18501), (37, 18615), (44, 18651), (51, 18663), (55, 18675), (82, 18807), (101, 18933), (103, 18945), (107, 18966), (115, 19035), (132, 19146), (136, 19170), (142, 19194), (146, 19230), (152, 19248), (155, 19272), (156, 19287), (162, 19320), (163, 19323), (165, 19329), (173, 19395), (174, 19398), (185, 19461), (189, 19479), (200, 19572), (204, 19593), (206, 19617), (228, 19737), (240, 19773), (244, 19779), (292, 19902), (294, 19944), (296, 19962), (303, 20040), (306, 20082), (314, 20148), (320, 20181), (327, 20262), (335, 20352), (339, 20481), (346, 20649),

Gene: Daegal_26 Start: 21147, Stop: 23411, Start Num: 34
Candidate Starts for Daegal_26:
(Start: 34 @21147 has 23 MA's), (49, 21207), (54, 21219), (60, 21243), (68, 21291), (69, 21294), (81, 21348), (83, 21375), (87, 21399), (91, 21426), (94, 21438), (107, 21504), (110, 21525), (111, 21534), (117, 21579), (121, 21621), (130, 21678), (134, 21690), (137, 21708), (138, 21711), (149, 21768), (151, 21777), (153, 21780), (156, 21819), (166, 21870), (170, 21888), (197, 22053), (205, 22107), (209, 22164), (212, 22197), (216, 22230), (227, 22266), (237, 22326), (249, 22368), (257, 22389), (259, 22401), (262, 22410), (266, 22443), (270, 22461), (272, 22467), (278, 22476), (281, 22497), (285, 22530), (292, 22596), (303, 22734), (306, 22776), (312, 22821), (320, 22875), (322, 22881), (326, 22944), (327, 22956), (331, 22995), (335, 23046), (338, 23109),

Gene: DeepSoil15_25 Start: 20853, Stop: 23117, Start Num: 34

Candidate Starts for DeepSoil15_25:
(Start: 34 @20853 has 23 MA's), (39, 20871), (49, 20913), (54, 20925), (60, 20949), (63, 20964), (68, 20997), (69, 21000), (81, 21054), (83, 21081), (87, 21105), (91, 21132), (94, 21144), (107, 21210), (110, 21231), (111, 21240), (117, 21285), (121, 21327), (130, 21384), (134, 21396), (137, 21414), (138, 21417), (149, 21474), (151, 21483), (153, 21486), (156, 21525), (166, 21576), (170, 21594), (197, 21759), (205, 21813), (209, 21870), (212, 21903), (216, 21936), (227, 21972), (249, 22074), (257, 22095), (259, 22107), (262, 22116), (266, 22149), (270, 22167), (272, 22173), (278, 22182), (281, 22203), (285, 22236), (292, 22302), (303, 22440), (306, 22482), (312, 22527), (320, 22581), (322, 22587), (326, 22650), (327, 22662), (331, 22701), (335, 22752), (338, 22815),

Gene: Dewey_25 Start: 20853, Stop: 23117, Start Num: 34
Candidate Starts for Dewey_25:
(Start: 34 @20853 has 23 MA's), (39, 20871), (49, 20913), (54, 20925), (60, 20949), (63, 20964), (68, 20997), (69, 21000), (81, 21054), (83, 21081), (87, 21105), (91, 21132), (94, 21144), (107, 21210), (110, 21231), (111, 21240), (117, 21285), (121, 21327), (130, 21384), (134, 21396), (137, 21414), (138, 21417), (149, 21474), (151, 21483), (153, 21486), (156, 21525), (166, 21576), (170, 21594), (197, 21759), (205, 21813), (209, 21870), (212, 21903), (216, 21936), (227, 21972), (249, 22074), (257, 22095), (259, 22107), (262, 22116), (266, 22149), (270, 22167), (272, 22173), (278, 22182), (281, 22203), (285, 22236), (292, 22302), (303, 22440), (306, 22482), (312, 22527), (320, 22581), (322, 22587), (326, 22650), (327, 22662), (331, 22701), (335, 22752), (338, 22815),

Gene: Dori_27 Start: 25587, Stop: 28415, Start Num: 2
Candidate Starts for Dori_27:
(1, 25494), (Start: 2 @25587 has 1 MA's), (3, 25665), (4, 25701), (5, 25728), (6, 25752), (7, 25821), (13, 25890), (21, 25926), (67, 26160), (71, 26172), (75, 26187), (80, 26223), (84, 26265), (93, 26319), (100, 26367), (104, 26397), (105, 26400), (118, 26508), (125, 26562), (127, 26577), (128, 26592), (141, 26661), (144, 26682), (147, 26703), (153, 26721), (154, 26742), (157, 26766), (159, 26778), (161, 26790), (175, 26892), (176, 26916), (184, 26955), (187, 26979), (188, 26985), (189, 26991), (192, 27027), (193, 27033), (198, 27063), (200, 27090), (208, 27174), (211, 27207), (213, 27216), (214, 27225), (220, 27249), (224, 27258), (227, 27270), (234, 27291), (238, 27315), (242, 27327), (246, 27339), (253, 27378), (277, 27474), (286, 27546), (294, 27651), (296, 27669), (298, 27726), (310, 27807), (315, 27840), (318, 27861), (323, 27900), (325, 27933), (334, 28035), (340, 28194),

Gene: Ein37_25 Start: 20853, Stop: 23117, Start Num: 34
Candidate Starts for Ein37_25:
(Start: 34 @20853 has 23 MA's), (39, 20871), (49, 20913), (54, 20925), (60, 20949), (63, 20964), (68, 20997), (69, 21000), (81, 21054), (83, 21081), (87, 21105), (91, 21132), (94, 21144), (107, 21210), (110, 21231), (111, 21240), (117, 21285), (121, 21327), (130, 21384), (134, 21396), (137, 21414), (138, 21417), (149, 21474), (151, 21483), (153, 21486), (156, 21525), (166, 21576), (170, 21594), (197, 21759), (205, 21813), (209, 21870), (212, 21903), (216, 21936), (227, 21972), (249, 22074), (257, 22095), (259, 22107), (262, 22116), (266, 22149), (270, 22167), (272, 22173), (278, 22182), (281, 22203), (285, 22236), (292, 22302), (303, 22440), (306, 22482), (312, 22527), (320, 22581), (322, 22587), (326, 22650), (327, 22662), (331, 22701), (335, 22752), (338, 22815),

Gene: Evanesce_25 Start: 20853, Stop: 23117, Start Num: 34
Candidate Starts for Evanesce_25:
(Start: 34 @20853 has 23 MA's), (39, 20871), (49, 20913), (54, 20925), (60, 20949), (63, 20964), (68, 20997), (69, 21000), (81, 21054), (83, 21081), (87, 21105), (91, 21132), (94, 21144), (107, 21210), (110, 21231), (111, 21240), (117, 21285), (121, 21327), (130, 21384), (134, 21396), (137, 21414), (138, 21417), (149, 21474), (151, 21483), (153, 21486), (156, 21525), (166, 21576), (170, 21594), (197, 21759), (205, 21813), (209, 21870), (212, 21903), (216, 21936), (227, 21972), (249, 22074), (257, 22095), (259, 22107), (262, 22116), (266, 22149), (270, 22167), (272, 22173), (278, 22182), (281, 22203), (285, 22236), (292, 22302), (303, 22440), (306, 22482), (312, 22527), (320, 22581),

(322, 22587), (326, 22650), (327, 22662), (331, 22701), (335, 22752), (338, 22815),

Gene: Farewell_19 Start: 19297, Stop: 21606, Start Num: 8
Candidate Starts for Farewell_19:
(Start: 8 @19297 has 2 MA's), (22, 19396), (42, 19525), (45, 19531), (66, 19609), (90, 19738), (98, 19795), (102, 19819), (111, 19876), (115, 19912), (132, 20023), (136, 20047), (142, 20071), (146, 20107), (150, 20122), (152, 20125), (155, 20149), (156, 20164), (162, 20197), (163, 20200), (165, 20206), (173, 20272), (174, 20275), (185, 20338), (200, 20449), (204, 20470), (206, 20494), (228, 20614), (240, 20650), (244, 20656), (292, 20779), (294, 20821), (296, 20839), (303, 20917), (306, 20959), (314, 21025), (320, 21058), (327, 21139), (335, 21229), (339, 21358), (346, 21526),

Gene: Forge_25 Start: 20853, Stop: 23117, Start Num: 34
Candidate Starts for Forge_25:
(Start: 34 @20853 has 23 MA's), (39, 20871), (49, 20913), (54, 20925), (60, 20949), (63, 20964), (68, 20997), (69, 21000), (81, 21054), (83, 21081), (87, 21105), (91, 21132), (94, 21144), (107, 21210), (110, 21231), (111, 21240), (117, 21285), (121, 21327), (130, 21384), (134, 21396), (137, 21414), (138, 21417), (149, 21474), (151, 21483), (153, 21486), (156, 21525), (166, 21576), (170, 21594), (197, 21759), (205, 21813), (209, 21870), (212, 21903), (216, 21936), (227, 21972), (249, 22074), (257, 22095), (259, 22107), (262, 22116), (266, 22149), (270, 22167), (272, 22173), (278, 22182), (281, 22203), (285, 22236), (292, 22302), (303, 22440), (306, 22482), (312, 22527), (320, 22581), (322, 22587), (326, 22650), (327, 22662), (331, 22701), (335, 22752), (338, 22815),

Gene: Gancho_24 Start: 20577, Stop: 22841, Start Num: 34
Candidate Starts for Gancho_24:
(Start: 34 @20577 has 23 MA's), (49, 20637), (54, 20649), (60, 20673), (68, 20721), (69, 20724), (81, 20778), (83, 20805), (87, 20829), (91, 20856), (94, 20868), (107, 20934), (110, 20955), (111, 20964), (117, 21009), (130, 21108), (134, 21120), (137, 21138), (138, 21141), (149, 21198), (151, 21207), (153, 21210), (156, 21249), (170, 21318), (197, 21483), (205, 21537), (209, 21594), (212, 21627), (216, 21660), (227, 21696), (248, 21786), (257, 21819), (270, 21891), (272, 21897), (282, 21936), (285, 21960), (292, 22026), (303, 22164), (306, 22206), (312, 22251), (320, 22305), (322, 22311), (326, 22374), (327, 22386), (331, 22425), (335, 22476), (338, 22539),

Gene: Giles_25 Start: 20853, Stop: 23117, Start Num: 34
Candidate Starts for Giles_25:
(Start: 34 @20853 has 23 MA's), (39, 20871), (49, 20913), (54, 20925), (60, 20949), (63, 20964), (68, 20997), (69, 21000), (81, 21054), (83, 21081), (87, 21105), (91, 21132), (94, 21144), (107, 21210), (110, 21231), (111, 21240), (117, 21285), (121, 21327), (130, 21384), (134, 21396), (137, 21414), (138, 21417), (149, 21474), (151, 21483), (153, 21486), (156, 21525), (166, 21576), (170, 21594), (197, 21759), (205, 21813), (209, 21870), (212, 21903), (216, 21936), (227, 21972), (249, 22074), (257, 22095), (259, 22107), (262, 22116), (266, 22149), (270, 22167), (272, 22173), (278, 22182), (281, 22203), (285, 22236), (292, 22302), (303, 22440), (306, 22482), (312, 22527), (320, 22581), (322, 22587), (326, 22650), (327, 22662), (331, 22701), (335, 22752), (338, 22815),

Gene: Gravaillia_25 Start: 20583, Stop: 22847, Start Num: 34
Candidate Starts for Gravaillia_25:
(Start: 34 @20583 has 23 MA's), (49, 20643), (54, 20655), (60, 20679), (68, 20727), (69, 20730), (81, 20784), (83, 20811), (87, 20835), (91, 20862), (107, 20940), (110, 20961), (111, 20970), (117, 21015), (121, 21057), (130, 21114), (134, 21126), (137, 21144), (138, 21147), (149, 21204), (151, 21213), (153, 21216), (156, 21255), (170, 21324), (197, 21489), (205, 21543), (209, 21600), (212, 21633), (216, 21666), (219, 21672), (227, 21702), (257, 21825), (270, 21897), (272, 21903), (282, 21942), (285, 21966), (292, 22032), (303, 22170), (306, 22212), (312, 22257), (320, 22311), (322, 22317), (326, 22380), (327, 22392), (331, 22431), (335, 22482), (338, 22545),

Gene: HH92_25 Start: 20853, Stop: 23117, Start Num: 34
Candidate Starts for HH92_25:
(Start: 34 @20853 has 23 MA's), (39, 20871), (49, 20913), (54, 20925), (60, 20949), (63, 20964), (68, 20997), (69, 21000), (81, 21054), (83, 21081), (87, 21105), (91, 21132), (94, 21144), (107, 21210), (110, 21231), (111, 21240), (117, 21285), (121, 21327), (130, 21384), (134, 21396), (137, 21414), (138, 21417), (149, 21474), (151, 21483), (153, 21486), (156, 21525), (166, 21576), (170, 21594), (197, 21759), (205, 21813), (209, 21870), (212, 21903), (216, 21936), (227, 21972), (249, 22074), (257, 22095), (259, 22107), (262, 22116), (266, 22149), (270, 22167), (272, 22173), (278, 22182), (281, 22203), (285, 22236), (292, 22302), (303, 22440), (306, 22482), (312, 22527), (320, 22581), (322, 22587), (326, 22650), (327, 22662), (331, 22701), (335, 22752), (338, 22815),

Gene: Hadrien_25 Start: 20853, Stop: 23117, Start Num: 34
Candidate Starts for Hadrien_25:
(Start: 34 @20853 has 23 MA's), (39, 20871), (49, 20913), (54, 20925), (60, 20949), (63, 20964), (68, 20997), (69, 21000), (81, 21054), (83, 21081), (87, 21105), (91, 21132), (94, 21144), (107, 21210), (110, 21231), (111, 21240), (117, 21285), (121, 21327), (130, 21384), (134, 21396), (137, 21414), (138, 21417), (149, 21474), (151, 21483), (153, 21486), (156, 21525), (166, 21576), (170, 21594), (197, 21759), (205, 21813), (209, 21870), (212, 21903), (216, 21936), (227, 21972), (249, 22074), (257, 22095), (259, 22107), (262, 22116), (266, 22149), (270, 22167), (272, 22173), (278, 22182), (281, 22203), (285, 22236), (292, 22302), (303, 22440), (306, 22482), (312, 22527), (320, 22581), (322, 22587), (326, 22650), (327, 22662), (331, 22701), (335, 22752), (338, 22815),

Gene: Hail_25 Start: 20853, Stop: 23117, Start Num: 34
Candidate Starts for Hail_25:
(Start: 34 @20853 has 23 MA's), (39, 20871), (49, 20913), (54, 20925), (60, 20949), (63, 20964), (68, 20997), (69, 21000), (81, 21054), (83, 21081), (87, 21105), (91, 21132), (94, 21144), (107, 21210), (110, 21231), (111, 21240), (117, 21285), (121, 21327), (130, 21384), (134, 21396), (137, 21414), (138, 21417), (149, 21474), (151, 21483), (153, 21486), (156, 21525), (166, 21576), (170, 21594), (197, 21759), (205, 21813), (209, 21870), (212, 21903), (216, 21936), (227, 21972), (249, 22074), (257, 22095), (259, 22107), (262, 22116), (266, 22149), (270, 22167), (272, 22173), (278, 22182), (281, 22203), (285, 22236), (292, 22302), (303, 22440), (306, 22482), (312, 22527), (320, 22581), (322, 22587), (326, 22650), (327, 22662), (331, 22701), (335, 22752), (338, 22815),

Gene: IdentityCrisis_19 Start: 16453, Stop: 18753, Start Num: 10
Candidate Starts for IdentityCrisis_19:
(Start: 10 @16453 has 1 MA's), (Start: 12 @16495 has 2 MA's), (25, 16564), (26, 16573), (29, 16588), (33, 16612), (78, 16804), (98, 16942), (111, 17023), (120, 17098), (132, 17170), (136, 17194), (142, 17218), (146, 17254), (152, 17272), (155, 17296), (156, 17311), (162, 17344), (163, 17347), (165, 17353), (173, 17419), (174, 17422), (185, 17485), (189, 17503), (200, 17596), (204, 17617), (228, 17761), (240, 17797), (244, 17803), (292, 17926), (294, 17968), (296, 17986), (303, 18064), (306, 18106), (314, 18172), (320, 18205), (327, 18286), (335, 18376), (339, 18505), (346, 18673),

Gene: Juliette_28 Start: 22173, Stop: 24272, Start Num: 35
Candidate Starts for Juliette_28:
(Start: 35 @22173 has 1 MA's), (Start: 72 @22308 has 1 MA's), (101, 22488), (103, 22500), (107, 22521), (108, 22533), (114, 22584), (119, 22620), (131, 22698), (142, 22749), (143, 22764), (150, 22800), (163, 22875), (164, 22878), (165, 22881), (172, 22926), (174, 22950), (179, 22977), (180, 22980), (194, 23082), (204, 23148), (277, 23367), (283, 23391), (292, 23457), (296, 23517), (304, 23619), (307, 23652), (314, 23703), (316, 23709), (324, 23787), (326, 23805), (327, 23817), (329, 23847), (335, 23907), (346, 24204),

Gene: Kevin1_20 Start: 17524, Stop: 19740, Start Num: 17
Candidate Starts for Kevin1_20:

(14, 17512), (Start: 17 @17524 has 4 MA's), (19, 17530), (20, 17536), (29, 17599), (30, 17602), (43, 17671), (44, 17674), (48, 17683), (64, 17731), (86, 17866), (101, 17956), (102, 17965), (103, 17968), (108, 18001), (109, 18010), (114, 18052), (119, 18088), (131, 18166), (132, 18169), (142, 18217), (143, 18232), (150, 18268), (163, 18343), (165, 18349), (172, 18394), (174, 18418), (179, 18445), (180, 18448), (194, 18550), (215, 18727), (277, 18835), (283, 18859), (292, 18925), (296, 18985), (304, 19087), (307, 19120), (314, 19171), (327, 19285), (329, 19315), (335, 19375), (346, 19672),

Gene: Kinbote_25 Start: 20853, Stop: 23117, Start Num: 34
Candidate Starts for Kinbote_25:
(Start: 34 @20853 has 23 MA's), (39, 20871), (49, 20913), (54, 20925), (60, 20949), (63, 20964), (68, 20997), (69, 21000), (81, 21054), (83, 21081), (87, 21105), (91, 21132), (94, 21144), (107, 21210), (110, 21231), (111, 21240), (117, 21285), (121, 21327), (130, 21384), (134, 21396), (137, 21414), (138, 21417), (149, 21474), (151, 21483), (153, 21486), (156, 21525), (166, 21576), (170, 21594), (197, 21759), (205, 21813), (209, 21870), (212, 21903), (216, 21936), (227, 21972), (249, 22074), (257, 22095), (259, 22107), (262, 22116), (266, 22149), (270, 22167), (272, 22173), (278, 22182), (281, 22203), (285, 22236), (292, 22302), (303, 22440), (306, 22482), (312, 22527), (320, 22581), (322, 22587), (326, 22650), (327, 22662), (331, 22701), (335, 22752), (338, 22815),

Gene: Leopard_40 Start: 30207, Stop: 32825, Start Num: 9
Candidate Starts for Leopard_40:
(Start: 9 @30207 has 3 MA's), (31, 30366), (40, 30420), (45, 30435), (47, 30441), (57, 30462), (73, 30555), (77, 30579), (79, 30594), (87, 30660), (92, 30696), (96, 30711), (99, 30747), (113, 30855), (123, 30918), (124, 30930), (126, 30942), (131, 30972), (133, 30984), (135, 30999), (139, 31023), (152, 31095), (160, 31164), (178, 31305), (193, 31413), (207, 31545), (229, 31656), (252, 31767), (281, 31896), (284, 31914), (298, 32139), (308, 32202), (310, 32220), (313, 32247), (325, 32346), (334, 32448), (345, 32757), (348, 32811),

Gene: LilHazelnut_25 Start: 20853, Stop: 23117, Start Num: 34
Candidate Starts for LilHazelnut_25:
(Start: 34 @20853 has 23 MA's), (39, 20871), (49, 20913), (54, 20925), (60, 20949), (63, 20964), (68, 20997), (69, 21000), (81, 21054), (83, 21081), (87, 21105), (91, 21132), (94, 21144), (107, 21210), (110, 21231), (111, 21240), (117, 21285), (121, 21327), (130, 21384), (134, 21396), (137, 21414), (138, 21417), (149, 21474), (151, 21483), (153, 21486), (156, 21525), (166, 21576), (170, 21594), (197, 21759), (205, 21813), (209, 21870), (212, 21903), (216, 21936), (227, 21972), (249, 22074), (257, 22095), (259, 22107), (262, 22116), (266, 22149), (270, 22167), (272, 22173), (278, 22182), (281, 22203), (285, 22236), (292, 22302), (303, 22440), (306, 22482), (312, 22527), (320, 22581), (322, 22587), (326, 22650), (327, 22662), (331, 22701), (335, 22752), (338, 22815),

Gene: Luke_25 Start: 20853, Stop: 23117, Start Num: 34
Candidate Starts for Luke_25:
(Start: 34 @20853 has 23 MA's), (39, 20871), (49, 20913), (54, 20925), (60, 20949), (63, 20964), (68, 20997), (69, 21000), (81, 21054), (83, 21081), (87, 21105), (91, 21132), (94, 21144), (107, 21210), (110, 21231), (111, 21240), (117, 21285), (121, 21327), (130, 21384), (134, 21396), (137, 21414), (138, 21417), (149, 21474), (151, 21483), (153, 21486), (156, 21525), (166, 21576), (170, 21594), (197, 21759), (205, 21813), (209, 21870), (212, 21903), (216, 21936), (227, 21972), (249, 22074), (257, 22095), (259, 22107), (262, 22116), (266, 22149), (270, 22167), (272, 22173), (278, 22182), (281, 22203), (285, 22236), (292, 22302), (303, 22440), (306, 22482), (312, 22527), (320, 22581), (322, 22587), (326, 22650), (327, 22662), (331, 22701), (335, 22752), (338, 22815),

Gene: Luna22_25 Start: 20853, Stop: 23117, Start Num: 34
Candidate Starts for Luna22_25:
(Start: 34 @20853 has 23 MA's), (39, 20871), (49, 20913), (54, 20925), (60, 20949), (63, 20964), (68, 20997), (69, 21000), (81, 21054), (83, 21081), (87, 21105), (91, 21132), (94, 21144), (107, 21210),

(110, 21231), (111, 21240), (117, 21285), (121, 21327), (130, 21384), (134, 21396), (137, 21414), (138, 21417), (149, 21474), (151, 21483), (153, 21486), (156, 21525), (166, 21576), (170, 21594), (197, 21759), (205, 21813), (209, 21870), (212, 21903), (216, 21936), (227, 21972), (249, 22074), (257, 22095), (259, 22107), (262, 22116), (266, 22149), (270, 22167), (272, 22173), (278, 22182), (281, 22203), (285, 22236), (292, 22302), (303, 22440), (306, 22482), (312, 22527), (320, 22581), (322, 22587), (326, 22650), (327, 22662), (331, 22701), (335, 22752), (338, 22815),

Gene: MakCheese_23 Start: 19321, Stop: 21606, Start Num: 34
Candidate Starts for MakCheese_23:
(Start: 34 @19321 has 23 MA's), (50, 19381), (95, 19624), (100, 19663), (106, 19696), (122, 19837), (148, 19972), (154, 20008), (164, 20059), (169, 20098), (180, 20161), (183, 20185), (185, 20200), (194, 20266), (199, 20308), (200, 20311), (215, 20443), (228, 20476), (245, 20548), (252, 20578), (259, 20611), (261, 20617), (263, 20629), (266, 20653), (268, 20665), (287, 20740), (294, 20833), (297, 20857), (311, 20989), (319, 21043), (332, 21175), (333, 21196), (337, 21238), (342, 21400), (343, 21472),

Gene: MichelleMyBell_20 Start: 17554, Stop: 19770, Start Num: 17
Candidate Starts for MichelleMyBell_20:
(14, 17542), (Start: 17 @17554 has 4 MA's), (19, 17560), (20, 17566), (30, 17632), (43, 17701), (44, 17704), (48, 17713), (81, 17851), (85, 17893), (86, 17896), (101, 17986), (102, 17995), (103, 17998), (107, 18019), (108, 18031), (114, 18082), (119, 18118), (131, 18196), (142, 18247), (143, 18262), (150, 18298), (163, 18373), (165, 18379), (172, 18424), (174, 18448), (179, 18475), (180, 18478), (194, 18580), (215, 18757), (277, 18865), (283, 18889), (292, 18955), (296, 19015), (304, 19117), (307, 19150), (314, 19201), (327, 19315), (329, 19345), (335, 19405), (346, 19702),

Gene: Nazo_20 Start: 18782, Stop: 21163, Start Num: 16
Candidate Starts for Nazo_20:
(Start: 16 @18782 has 4 MA's), (46, 18935), (Start: 72 @19028 has 1 MA's), (97, 19187), (101, 19208), (103, 19220), (112, 19286), (119, 19340), (129, 19412), (140, 19457), (143, 19478), (156, 19556), (163, 19589), (165, 19595), (180, 19694), (182, 19703), (200, 19841), (234, 20024), (239, 20051), (242, 20060), (251, 20111), (253, 20123), (255, 20129), (258, 20138), (260, 20150), (310, 20552), (315, 20585), (328, 20729), (330, 20738), (334, 20783), (340, 20942),

Gene: OBUpride_25 Start: 20847, Stop: 23111, Start Num: 34
Candidate Starts for OBUpride_25:
(Start: 34 @20847 has 23 MA's), (39, 20865), (49, 20907), (54, 20919), (60, 20943), (63, 20958), (68, 20991), (69, 20994), (81, 21048), (83, 21075), (87, 21099), (91, 21126), (94, 21138), (107, 21204), (110, 21225), (111, 21234), (117, 21279), (121, 21321), (130, 21378), (134, 21390), (137, 21408), (138, 21411), (149, 21468), (151, 21477), (153, 21480), (156, 21519), (166, 21570), (170, 21588), (197, 21753), (205, 21807), (209, 21864), (212, 21897), (216, 21930), (227, 21966), (249, 22068), (257, 22089), (259, 22101), (262, 22110), (266, 22143), (270, 22161), (272, 22167), (278, 22176), (281, 22197), (285, 22230), (292, 22296), (303, 22434), (306, 22476), (312, 22521), (320, 22575), (322, 22581), (326, 22644), (327, 22656), (331, 22695), (335, 22746), (338, 22809),

Gene: Onyinye_41 Start: 30086, Stop: 32719, Start Num: 9
Candidate Starts for Onyinye_41:
(Start: 9 @30086 has 3 MA's), (31, 30245), (40, 30299), (45, 30314), (47, 30320), (57, 30341), (73, 30434), (77, 30458), (79, 30473), (87, 30539), (92, 30575), (96, 30590), (99, 30626), (113, 30734), (123, 30797), (124, 30809), (126, 30821), (131, 30851), (133, 30863), (135, 30878), (139, 30902), (152, 30974), (160, 31043), (178, 31184), (193, 31292), (207, 31424), (229, 31535), (252, 31646), (281, 31775), (284, 31793), (298, 32018), (308, 32081), (310, 32099), (313, 32126), (325, 32225), (334, 32327), (345, 32636), (348, 32690),

Gene: Phayonce_20 Start: 18734, Stop: 21115, Start Num: 16
Candidate Starts for Phayonce_20:
(Start: 16 @18734 has 4 MA's), (45, 18884), (46, 18887), (101, 19160), (103, 19172), (108, 19205), (112, 19238), (119, 19292), (129, 19364), (140, 19409), (142, 19415), (143, 19430), (146, 19451), (156, 19508), (163, 19541), (165, 19547), (180, 19646), (182, 19655), (200, 19793), (224, 19943), (227, 19955), (234, 19976), (239, 20003), (251, 20063), (253, 20075), (255, 20081), (258, 20090), (260, 20102), (285, 20213), (286, 20243), (287, 20246), (296, 20366), (298, 20423), (301, 20432), (315, 20537), (325, 20633), (334, 20735), (347, 21095),

Gene: Purky_20 Start: 18624, Stop: 20846, Start Num: 15
Candidate Starts for Purky_20:
(Start: 15 @18624 has 3 MA's), (44, 18777), (53, 18795), (101, 19050), (103, 19062), (107, 19083), (115, 19152), (132, 19263), (136, 19287), (142, 19311), (146, 19347), (152, 19365), (155, 19389), (156, 19404), (159, 19419), (162, 19437), (163, 19440), (165, 19446), (173, 19512), (174, 19515), (185, 19578), (189, 19596), (200, 19689), (203, 19701), (204, 19710), (206, 19734), (227, 19851), (228, 19854), (240, 19890), (244, 19896), (292, 20019), (294, 20061), (296, 20079), (303, 20157), (306, 20199), (314, 20265), (320, 20298), (327, 20379), (335, 20469), (339, 20598), (346, 20766),

Gene: Reindeer_28 Start: 24446, Stop: 26686, Start Num: 12
Candidate Starts for Reindeer_28:
(Start: 12 @24446 has 2 MA's), (32, 24566), (36, 24581), (58, 24653), (59, 24656), (61, 24674), (62, 24677), (65, 24686), (68, 24713), (71, 24722), (74, 24734), (76, 24740), (88, 24830), (101, 24908), (112, 24986), (116, 25013), (119, 25040), (142, 25163), (144, 25181), (163, 25289), (165, 25295), (168, 25325), (177, 25388), (182, 25403), (186, 25433), (199, 25538), (206, 25586), (225, 25694), (228, 25706), (234, 25724), (244, 25748), (270, 25772), (292, 25871), (294, 25913), (296, 25931), (305, 26042), (307, 26066), (309, 26075), (314, 26117), (320, 26150), (327, 26231), (335, 26321), (338, 26384), (339, 26450), (346, 26618),

Gene: Rem711_28 Start: 22439, Stop: 24847, Start Num: 27
Candidate Starts for Rem711_28:
(Start: 27 @22439 has 1 MA's), (66, 22610), (89, 22745), (142, 23108), (145, 23144), (167, 23276), (171, 23294), (190, 23420), (191, 23432), (195, 23474), (201, 23510), (202, 23513), (243, 23738), (250, 23783), (267, 23873), (293, 24059), (294, 24080), (298, 24155), (325, 24365), (334, 24467), (340, 24626),

Gene: Rubeelu_20 Start: 17523, Stop: 19739, Start Num: 17
Candidate Starts for Rubeelu_20:
(14, 17511), (Start: 17 @17523 has 4 MA's), (20, 17535), (30, 17601), (43, 17670), (44, 17673), (48, 17682), (64, 17730), (101, 17955), (103, 17967), (107, 17988), (114, 18051), (119, 18087), (131, 18165), (132, 18168), (142, 18216), (143, 18231), (150, 18267), (163, 18342), (165, 18348), (172, 18393), (174, 18417), (179, 18444), (180, 18447), (194, 18549), (215, 18726), (277, 18834), (283, 18858), (292, 18924), (296, 18984), (304, 19086), (307, 19119), (314, 19170), (327, 19284), (329, 19314), (335, 19374), (346, 19671),

Gene: Ruthiejr_27 Start: 22039, Stop: 24003, Start Num: 72
Candidate Starts for Ruthiejr_27:
(Start: 35 @21904 has 1 MA's), (Start: 72 @22039 has 1 MA's), (101, 22219), (103, 22231), (107, 22252), (108, 22264), (114, 22315), (119, 22351), (131, 22429), (142, 22480), (143, 22495), (150, 22531), (163, 22606), (164, 22609), (165, 22612), (172, 22657), (174, 22681), (179, 22708), (180, 22711), (194, 22813), (204, 22879), (277, 23098), (283, 23122), (292, 23188), (296, 23248), (304, 23350), (307, 23383), (314, 23434), (316, 23440), (324, 23518), (326, 23536), (327, 23548), (329, 23578), (335, 23638), (346, 23935),

Gene: Sbash_19 Start: 18307, Stop: 20691, Start Num: 11
Candidate Starts for Sbash_19:
(Start: 11 @18307 has 2 MA's), (Start: 16 @18331 has 4 MA's), (38, 18445), (46, 18481), (52, 18493), (56, 18505), (70, 18574), (101, 18763), (108, 18808), (109, 18817), (112, 18841), (119, 18895), (123, 18922), (129, 18967), (140, 19012), (142, 19018), (143, 19033), (146, 19054), (150, 19069), (156, 19111), (163, 19144), (165, 19150), (180, 19249), (182, 19258), (200, 19396), (204, 19417), (234, 19579), (239, 19606), (251, 19666), (253, 19678), (255, 19684), (258, 19693), (260, 19705), (285, 19816), (286, 19846), (287, 19849), (294, 19951), (296, 19969), (299, 20029), (300, 20032), (302, 20038), (317, 20140), (321, 20164), (323, 20191), (325, 20224), (341, 20482),

Gene: Sparky_19 Start: 19298, Stop: 21607, Start Num: 8
Candidate Starts for Sparky_19:
(Start: 8 @19298 has 2 MA's), (22, 19397), (42, 19526), (45, 19532), (66, 19610), (90, 19739), (98, 19796), (111, 19877), (115, 19913), (132, 20024), (136, 20048), (142, 20072), (146, 20108), (152, 20126), (155, 20150), (156, 20165), (162, 20198), (163, 20201), (165, 20207), (173, 20273), (174, 20276), (185, 20339), (200, 20450), (204, 20471), (228, 20615), (240, 20651), (244, 20657), (292, 20780), (294, 20822), (296, 20840), (303, 20918), (306, 20960), (314, 21026), (320, 21059), (327, 21140), (335, 21230), (339, 21359), (346, 21527),

Gene: Stuck_19 Start: 18474, Stop: 20888, Start Num: 11
Candidate Starts for Stuck_19:
(Start: 11 @18474 has 2 MA's), (Start: 16 @18498 has 4 MA's), (23, 18525), (38, 18612), (46, 18648), (52, 18660), (56, 18672), (82, 18804), (101, 18930), (103, 18942), (107, 18963), (111, 18996), (120, 19071), (132, 19143), (143, 19206), (152, 19245), (155, 19269), (156, 19284), (158, 19293), (163, 19320), (165, 19326), (172, 19371), (174, 19395), (176, 19407), (177, 19416), (180, 19422), (182, 19431), (185, 19458), (189, 19476), (190, 19482), (200, 19569), (204, 19590), (206, 19614), (234, 19752), (239, 19779), (251, 19839), (254, 19854), (255, 19857), (260, 19878), (277, 19947), (286, 20019), (294, 20124), (296, 20142), (298, 20199), (310, 20280), (315, 20313), (318, 20334), (323, 20373), (325, 20406), (334, 20508), (340, 20667), (347, 20868),

Gene: ThulaThula_20 Start: 18740, Stop: 21121, Start Num: 16
Candidate Starts for ThulaThula_20:
(Start: 16 @18740 has 4 MA's), (45, 18890), (46, 18893), (101, 19166), (103, 19178), (108, 19211), (112, 19244), (119, 19298), (129, 19370), (140, 19415), (142, 19421), (143, 19436), (146, 19457), (156, 19514), (163, 19547), (165, 19553), (180, 19652), (182, 19661), (200, 19799), (224, 19949), (227, 19961), (234, 19982), (239, 20009), (251, 20069), (253, 20081), (255, 20087), (258, 20096), (260, 20108), (285, 20219), (286, 20249), (287, 20252), (296, 20372), (298, 20429), (301, 20438), (315, 20543), (325, 20639), (334, 20741), (347, 21101),

Gene: Tortellini_20 Start: 18641, Stop: 21592, Start Num: 15
Candidate Starts for Tortellini_20:
(Start: 15 @18641 has 3 MA's), (43, 18791), (81, 18932), (101, 19067), (103, 19079), (107, 19100), (108, 19112), (111, 19133), (132, 19280), (142, 19328), (143, 19343), (146, 19364), (152, 19382), (155, 19406), (156, 19421), (158, 19430), (163, 19457), (165, 19463), (172, 19508), (174, 19532), (176, 19544), (177, 19553), (180, 19559), (185, 19595), (189, 19613), (196, 19673), (200, 19706), (215, 19838), (217, 19877), (218, 19898), (221, 19922), (222, 19934), (223, 19946), (226, 20048), (230, 20072), (231, 20111), (232, 20135), (233, 20147), (235, 20183), (236, 20189), (241, 20219), (247, 20246), (256, 20330), (264, 20372), (265, 20381), (269, 20405), (270, 20426), (271, 20429), (273, 20447), (274, 20483), (275, 20495), (276, 20504), (280, 20534), (288, 20630), (290, 20672), (291, 20702), (294, 20807), (296, 20825), (303, 20903), (314, 21011), (320, 21044), (327, 21125), (335, 21215), (336, 21224), (339, 21344), (344, 21485), (346, 21512),

Gene: Ubuntu_25 Start: 20853, Stop: 23117, Start Num: 34

Candidate Starts for Ubuntu_25:
(Start: 34 @20853 has 23 MA's), (39, 20871), (49, 20913), (54, 20925), (60, 20949), (63, 20964), (68, 20997), (69, 21000), (81, 21054), (83, 21081), (87, 21105), (91, 21132), (94, 21144), (107, 21210), (110, 21231), (111, 21240), (117, 21285), (121, 21327), (130, 21384), (134, 21396), (137, 21414), (138, 21417), (149, 21474), (151, 21483), (153, 21486), (156, 21525), (166, 21576), (170, 21594), (197, 21759), (205, 21813), (209, 21870), (212, 21903), (216, 21936), (227, 21972), (249, 22074), (257, 22095), (259, 22107), (262, 22116), (266, 22149), (270, 22167), (272, 22173), (278, 22182), (281, 22203), (285, 22236), (292, 22302), (303, 22440), (306, 22482), (312, 22527), (320, 22581), (322, 22587), (326, 22650), (327, 22662), (331, 22701), (335, 22752), (338, 22815),

Gene: WST1_20 Start: 16507, Stop: 18765, Start Num: 12
Candidate Starts for WST1_20:
(Start: 10 @16465 has 1 MA's), (Start: 12 @16507 has 2 MA's), (25, 16576), (26, 16585), (29, 16600), (33, 16624), (78, 16816), (98, 16954), (111, 17035), (120, 17110), (132, 17182), (136, 17206), (142, 17230), (146, 17266), (152, 17284), (155, 17308), (156, 17323), (162, 17356), (163, 17359), (165, 17365), (173, 17431), (174, 17434), (185, 17497), (189, 17515), (200, 17608), (204, 17629), (228, 17773), (240, 17809), (244, 17815), (292, 17938), (294, 17980), (296, 17998), (303, 18076), (306, 18118), (314, 18184), (320, 18217), (327, 18298), (331, 18337), (335, 18388), (339, 18517), (346, 18685),

Gene: Webster2_25 Start: 20853, Stop: 23117, Start Num: 34
Candidate Starts for Webster2_25:
(Start: 34 @20853 has 23 MA's), (39, 20871), (49, 20913), (54, 20925), (60, 20949), (63, 20964), (68, 20997), (69, 21000), (81, 21054), (83, 21081), (87, 21105), (91, 21132), (94, 21144), (107, 21210), (110, 21231), (111, 21240), (117, 21285), (121, 21327), (130, 21384), (134, 21396), (137, 21414), (138, 21417), (149, 21474), (151, 21483), (153, 21486), (156, 21525), (166, 21576), (170, 21594), (197, 21759), (205, 21813), (209, 21870), (212, 21903), (216, 21936), (227, 21972), (249, 22074), (257, 22095), (259, 22107), (262, 22116), (266, 22149), (270, 22167), (272, 22173), (278, 22182), (281, 22203), (285, 22236), (292, 22302), (303, 22440), (306, 22482), (312, 22527), (320, 22581), (322, 22587), (326, 22650), (327, 22662), (331, 22701), (335, 22752), (338, 22815),

Gene: Wishmaker_25 Start: 20853, Stop: 23117, Start Num: 34
Candidate Starts for Wishmaker_25:
(Start: 34 @20853 has 23 MA's), (39, 20871), (49, 20913), (54, 20925), (60, 20949), (63, 20964), (68, 20997), (69, 21000), (81, 21054), (83, 21081), (87, 21105), (91, 21132), (94, 21144), (107, 21210), (110, 21231), (111, 21240), (117, 21285), (121, 21327), (130, 21384), (134, 21396), (137, 21414), (138, 21417), (149, 21474), (151, 21483), (153, 21486), (156, 21525), (166, 21576), (170, 21594), (197, 21759), (205, 21813), (209, 21870), (212, 21903), (216, 21936), (227, 21972), (249, 22074), (257, 22095), (259, 22107), (262, 22116), (266, 22149), (270, 22167), (272, 22173), (278, 22182), (281, 22203), (285, 22236), (292, 22302), (303, 22440), (306, 22482), (312, 22527), (320, 22581), (322, 22587), (326, 22650), (327, 22662), (331, 22701), (335, 22752), (338, 22815),