

Pham 308629

1: WashU_120 + 5	21	22	51	74	86	108	123	135	145	162	167	173	185	189	197	200	228	236	242						
2: Watermoore_115 + 7	21	22	51	74	80	86	91	108	123	135	145	162	167	173	185	189	197	200	207	228	236	242			
3: Paradiddles_113	21	22	36	69	74	80	86	91	108	123	135	145	162	167	173	185	189	197	200	216	228	236	242		
4: Jay2Jay_121	21	22	51	74	86	108	123	135	145	162	167	173	185	189	197	200	216	228	236	242					
5: Larnav_116 + 1	21	22	51	74	78	86	88	108	123	135	151	162	167	173	185	188	197	200	216	228	236	242			
6: Cadmus_116 + 1	21	22	51	74	86	86	94	108	123	135	146	162	167	173	185	189	197	200	223	228	236	242			
7: Tribute_114 + 1	21	22	36	69	74	80	86	91	108	123	135	145	162	167	173	185	189	197	200	240	228	236	242		
8: Targaryen_117 + 1	21	22	36	74	86	86	94	108	123	135	146	162	167	173	185	189	197	200	228	236	242				
9: EGole_119	21	22	36	69	74	80	86	91	108	123	135	145	162	167	173	185	189	197	200	212	228	236	242		
10: Warpy_120	21	22	36	64	74	80	86	91	108	127	136	146	162	167	173	185	189	197	200	210	216	228	236	242	250
11: Tomas_123	22	39	39	53	64	73	96	96	104	115	129	140	153	164	181	184	211	213	219	230	246	250			
12: OlinDD_38 + 1	22	39	39	53	64	73	96	96	104	115	129	140	153	164	181	184	211	213	225	229	246	250			
13: Pioneer3_38 + 3	22	39	39	53	64	73	96	96	104	115	129	144	153	164	180	184	211	213	225	229	246	250			
14: Rowlf_26	22	26	31	61	72	79	87	106	106	134	146	153	163	178	185	188	211	211	225	234	244	250	261		
15: Phinky_36	22	21	32	55	101	143	143	143	143	143	143	143	143	143	143	143	193	201	211	225	234	244	250	261	
16: Alex44_47 + 1	22	21	32	55	101	143	143	143	143	143	143	143	143	143	143	143	193	201	211	225	234	244	250	261	
17: LilyLou_48	22	21	32	55	92	101	143	143	143	143	143	143	143	143	143	143	193	201	211	225	234	244	250	261	
18: Stormbreaker_47	15	21	32	55	101	143	143	143	143	143	143	143	143	143	143	143	193	201	211	225	234	244	250	261	
19: Unphazed_47	15	21	32	55	101	143	143	143	143	143	143	143	143	143	143	143	193	201	211	225	234	244	250	261	
20: ArMaVven_46	15	21	34	55	79	87	106	106	142	142	142	142	142	142	142	142	193	201	211	225	234	244	250	261	
21: Xitlalli_45	15	21	34	55	79	87	106	106	142	142	142	142	142	142	142	142	193	201	211	225	234	244	250	261	
22: Corn21_46	15	21	34	55	79	87	106	106	142	142	142	142	142	142	142	142	193	201	211	225	234	244	250	261	
23: TownLake_45	15	21	32	55	101	143	143	143	143	143	143	143	143	143	143	143	193	201	211	225	234	244	250	261	
24: Dashyla_46 + 1	15	21	32	55	101	143	143	143	143	143	143	143	143	143	143	143	193	201	211	225	234	244	250	261	
25: Birdfeeder_45	15	21	32	55	101	143	143	143	143	143	143	143	143	143	143	143	193	201	211	225	234	244	250	261	
26: Phogo_47	15	21	34	55	79	87	106	106	142	142	142	142	142	142	142	142	193	201	211	225	234	244	250	261	
27: BlueRugrat_46	15	21	34	55	79	87	106	106	142	142	142	142	142	142	142	142	193	201	211	225	234	244	250	261	
28: Conditioner_46	15	21	34	55	79	87	106	106	142	142	142	142	142	142	142	142	193	201	211	225	234	244	250	261	
29: LesNorah_47	15	21	34	55	79	87	106	106	142	142	142	142	142	142	142	142	193	201	211	225	234	244	250	261	
30: Fede_46	15	21	34	55	79	87	106	106	142	142	142	142	142	142	142	142	193	201	211	225	234	244	250	261	
31: Kosier_46	11	12	14	51	66	79	89	103	128	134	146	156	163	169	181	187	188	208	212	220	230	240	250	263	267
32: PauloDiaboli_237	11	12	14	51	66	79	89	103	128	134	146	156	163	169	181	187	188	208	212	220	230	240	250	263	267
33: Dodo_232	10	20	35	66	72	84	95	103	128	134	146	156	163	169	186	194	208	212	221	231	239	251	263	267	
34: A3Wally_238	10	20	35	66	72	84	95	103	128	134	146	156	163	169	186	194	208	212	221	231	239	251	263	267	
35: A3Wally_236	10	20	35	66	72	84	95	103	128	134	146	156	163	169	186	194	208	212	221	231	239	251	263	267	
36: Dodo_233	10	20	35	66	72	84	95	103	128	134	146	156	163	169	186	194	208	212	221	231	239	251	263	267	
37: Erasmago_225	10	20	35	66	72	84	95	103	128	134	146	156	163	169	186	194	208	212	221	231	239	251	263	267	
38: Erasmago_227	10	20	35	66	72	84	95	103	128	134	146	156	163	169	186	194	208	212	221	231	239	251	263	267	
39: Big4_219	10	20	35	66	72	84	95	103	128	134	146	156	163	169	186	194	208	212	221	231	239	251	263	267	
40: Pumpnickel_220	10	20	35	66	72	84	95	103	128	134	146	156	163	169	186	194	208	212	221	231	239	251	263	267	
41: JrWilcox_79	10	20	35	66	72	84	95	103	128	134	146	156	163	169	186	194	208	212	221	231	239	251	263	267	

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 308629 Report

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

Pham number 308629 has 63 members, 6 are drafts.

Phages represented in each track:

- Track 1 : WashU_120, Samisti12_117, Pepperwood_116, Scheme_117, Peebs_114, Sushi23_115
- Track 2 : Watermoore_115, HangryHippo_116, ArianaSWT_121, BlueOtter_116, Leo04_117, PacManQ_115, Cross_116, Lululemon_115
- Track 3 : Paradiddles_113
- Track 4 : Jay2Jay_121
- Track 5 : Larnav_116, Coogler_116
- Track 6 : Cadmus_116, Daubenski_119
- Track 7 : Tribute_114, Teutsch_116
- Track 8 : Targaryen_117, Evy_114
- Track 9 : EGole_119
- Track 10 : Warpy_120
- Track 11 : Tomas_123
- Track 12 : OlinDD_38, Hortus1_38
- Track 13 : Pioneer3_38, Tandem_38, Platte_38, Alleb_39
- Track 14 : Rowlf_26
- Track 15 : Phinky_36
- Track 16 : Alex44_47, DumpQuist_46
- Track 17 : LilyLou_48
- Track 18 : Stormbreaker_47
- Track 19 : Unphazed_47
- Track 20 : ArMaWen_46
- Track 21 : Xitlalli_45
- Track 22 : Corn21_46
- Track 23 : TownLake_45
- Track 24 : Dashyla_46, SwissCheezer_46
- Track 25 : Birdfeeder_45
- Track 26 : Phogo_47
- Track 27 : BlueRugrat_46
- Track 28 : Conditioner_46
- Track 29 : LesNorah_47
- Track 30 : Fede_46
- Track 31 : Kosier_46
- Track 32 : PauloDiaboli_237
- Track 33 : Dodo_232
- Track 34 : A3Wally_238
- Track 35 : A3Wally_236

- Track 36 : Dodo_233
- Track 37 : Erasmago_225
- Track 38 : Erasmago_227
- Track 39 : Big4_219
- Track 40 : Pumpernickel_220
- Track 41 : JrWilcox_79

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

The start number called the most often in the published annotations is 17, it was called in 45 of the 57 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- A3Wally_236, Alex44_47, ArMaWen_46, ArianaSWT_121, Birdfeeder_45, BlueOtter_116, BlueRugrat_46, Cadmus_116, Conditioner_46, Coogler_116, Corn21_46, Cross_116, Dashyla_46, Daubenski_119, Dodo_232, DumpQuist_46, EGole_119, Erasmago_225, Evy_114, Fede_46, HangryHippo_116, Jay2Jay_121, JrWilcox_79, Kosier_46, Larnav_116, Leo04_117, LesNorah_47, LilyLou_48, Lululemon_115, PacManQ_115, Paradiddles_113, Peebs_114, Pepperwood_116, Phinky_36, Phogo_47, Rowlf_26, Samisti12_117, Scheme_117, Stormbreaker_47, Sushi23_115, SwissCheezer_46, Targaryen_117, Teutsch_116, TownLake_45, Tribute_114, Unphazed_47, Warpy_120, WashU_120, Watermoore_115, Xitlalli_45,

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

- Tomas_123,

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

- A3Wally_238, Alleb_39, Big4_219, Dodo_233, Erasmago_227, Hortus1_38, OlinDD_38, PauloDiaboli_237, Pioneer3_38, Platte_38, Pumpernickel_220, Tandem_38,

Summary by start number:

Start 2:

- Found in 2 of 63 (3.2%) of genes in pham
- Manual Annotations of this start: 2 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Big4_219 (GD2), PauloDiaboli_237 (GD1),

Start 17:

- Found in 51 of 63 (81.0%) of genes in pham
- Manual Annotations of this start: 45 of 57
- Called 98.0% of time when present
- Phage (with cluster) where this start called: A3Wally_236 (GD1), Alex44_47 (EK1), ArMaWen_46 (EK1), ArianaSWT_121 (BE1), Birdfeeder_45 (EK1), BlueOtter_116 (BE1), BlueRugrat_46 (EK1), Cadmus_116 (BE1), Conditioner_46 (EK1), Coogler_116 (BE1), Corn21_46 (EK1), Cross_116 (BE1), Dashyla_46 (EK1), Daubenski_119 (BE1), Dodo_232 (GD1), DumpQuist_46 (EK1), EGole_119 (BE1), Erasmago_225 (GD2), Evy_114 (BE1), Fede_46 (EK2), HangryHippo_116 (BE1),

Jay2Jay_121 (BE1), JrWilcox_79 (GL), Kosier_46 (EK2), Larnav_116 (BE1), Leo04_117 (BE1), LesNorah_47 (EK1), LilyLou_48 (EK1), Lululemon_115 (BE1), PacManQ_115 (BE1), Paradiddles_113 (BE1), Peebs_114 (BE1), Pepperwood_116 (BE1), Phinky_36 (EG), Phogo_47 (EK1), Rowlf_26 (EG), Samisti12_117 (BE1), Scheme_117 (BE1), Stormbreaker_47 (EK1), Sushi23_115 (BE1), SwissCheezer_46 (EK1), Targaryen_117 (BE1), Deutsch_116 (BE1), TownLake_45 (EK1), Tribute_114 (BE1), Unphazed_47 (EK1), Warpy_120 (BE1), WashU_120 (BE1), Watermoore_115 (BE1), Xitlalli_45 (EK1),

Start 19:

- Found in 1 of 63 (1.6%) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dodo_233 (GD1),

Start 20:

- Found in 2 of 63 (3.2%) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: A3Wally_238 (GD1), Erasmago_227 (GD2),

Start 22:

- Found in 6 of 63 (9.5%) of genes in pham
- Manual Annotations of this start: 6 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alleb_39 (ED1), Hortus1_38 (ED1), OlinDD_38 (ED1), Pioneer3_38 (ED1), Platte_38 (ED1), Tandem_38 (ED1),

Start 32:

- Found in 28 of 63 (44.4%) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 3.6% of time when present
- Phage (with cluster) where this start called: Tomas_123 (BE2),

Start 48:

- Found in 1 of 63 (1.6%) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Pumpernickel_220 (GD4),

Summary by clusters:

There are 10 clusters represented in this pham: GD1, GD2, BE1, GD4, EG, ED1, BE2, GL, EK2, EK1,

Info for manual annotations of cluster BE1:

- Start number 17 was manually annotated 24 times for cluster BE1.

Info for manual annotations of cluster BE2:

- Start number 32 was manually annotated 1 time for cluster BE2.

Info for manual annotations of cluster ED1:

- Start number 22 was manually annotated 6 times for cluster ED1.

Info for manual annotations of cluster EG:

- Start number 17 was manually annotated 2 times for cluster EG.

Info for manual annotations of cluster EK1:

- Start number 17 was manually annotated 15 times for cluster EK1.

Info for manual annotations of cluster EK2:

- Start number 17 was manually annotated 2 times for cluster EK2.

Info for manual annotations of cluster GD1:

- Start number 2 was manually annotated 1 time for cluster GD1.
- Start number 17 was manually annotated 2 times for cluster GD1.
- Start number 19 was manually annotated 1 time for cluster GD1.
- Start number 20 was manually annotated 1 time for cluster GD1.

Info for manual annotations of cluster GD2:

- Start number 2 was manually annotated 1 time for cluster GD2.

Info for manual annotations of cluster GD4:

- Start number 48 was manually annotated 1 time for cluster GD4.

Gene Information:

Gene: A3Wally_238 Start: 128961, Stop: 130955, Start Num: 20

Candidate Starts for A3Wally_238:

(18, 128952), (Start: 20 @128961 has 1 MA's), (34, 129060), (38, 129069), (43, 129099), (52, 129156), (53, 129159), (72, 129291), (112, 129684), (113, 129690), (119, 129699), (129, 129738), (141, 129849), (155, 129912), (175, 130074), (186, 130194), (211, 130446), (212, 130473), (221, 130569), (246, 130842), (248, 130848), (255, 130908),

Gene: A3Wally_236 Start: 126651, Stop: 128846, Start Num: 17

Candidate Starts for A3Wally_236:

(Start: 17 @126651 has 45 MA's), (29, 126735), (45, 126801), (61, 126912), (63, 126933), (65, 126939), (84, 127122), (90, 127179), (95, 127209), (103, 127302), (126, 127434), (134, 127479), (146, 127572), (156, 127614), (163, 127683), (168, 127716), (169, 127728), (184, 127833), (185, 127836), (194, 128010), (208, 128139), (220, 128262), (222, 128268), (225, 128298), (231, 128475), (239, 128523), (244, 128556), (251, 128601), (263, 128700), (264, 128715),

Gene: Alex44_47 Start: 46450, Stop: 48459, Start Num: 17

Candidate Starts for Alex44_47:

(Start: 17 @46450 has 45 MA's), (27, 46519), (35, 46564), (42, 46600), (55, 46669), (107, 47095), (114, 47164), (118, 47170), (120, 47176), (122, 47182), (125, 47200), (132, 47233), (133, 47239), (142, 47320), (149, 47350), (154, 47377), (158, 47410), (159, 47413), (166, 47467), (168, 47485), (169, 47497), (180, 47578), (181, 47587), (185, 47605), (190, 47734), (193, 47770), (201, 47881), (211, 47923), (218, 48028), (222, 48046), (225, 48076), (237, 48286), (239, 48301), (244, 48334),

Gene: Alleb_39 Start: 18932, Stop: 20884, Start Num: 22

Candidate Starts for Alleb_39:

(Start: 22 @18932 has 6 MA's), (39, 19034), (46, 19076), (50, 19103), (59, 19154), (62, 19169), (67, 19202), (68, 19208), (73, 19244), (98, 19466), (100, 19475), (102, 19508), (105, 19532), (111, 19607), (115, 19622), (117, 19625), (121, 19637), (129, 19667), (140, 19769), (164, 19910), (165, 19916), (168, 19937), (170, 19952), (172, 19970), (174, 19976), (175, 19979), (177, 20000), (184, 20042), (187, 20111), (192, 20195), (194, 20207), (211, 20351), (213, 20390), (225, 20504), (229, 20594), (246, 20768), (248, 20774), (256, 20843), (259, 20852),

Gene: ArMaWen_46 Start: 45993, Stop: 48002, Start Num: 17

Candidate Starts for ArMaWen_46:

(Start: 17 @45993 has 45 MA's), (27, 46062), (35, 46107), (42, 46143), (55, 46212), (107, 46638), (114, 46707), (118, 46713), (120, 46719), (122, 46725), (125, 46743), (132, 46776), (133, 46782), (142, 46863), (149, 46893), (154, 46920), (158, 46953), (159, 46956), (168, 47028), (169, 47040), (180, 47121), (185, 47148), (190, 47277), (193, 47313), (211, 47466), (218, 47571), (222, 47589), (237, 47829), (239, 47844), (244, 47877),

Gene: ArianaSWT_121 Start: 78290, Stop: 80245, Start Num: 17

Candidate Starts for ArianaSWT_121:

(Start: 17 @78290 has 45 MA's), (21, 78308), (Start: 32 @78401 has 1 MA's), (51, 78503), (74, 78680), (86, 78791), (94, 78851), (108, 78986), (123, 79064), (127, 79082), (131, 79109), (135, 79154), (140, 79190), (145, 79217), (160, 79313), (162, 79340), (167, 79373), (173, 79427), (179, 79460), (185, 79499), (189, 79595), (194, 79661), (197, 79694), (200, 79733), (228, 80012), (236, 80147), (242, 80192),

Gene: Big4_219 Start: 122421, Stop: 125168, Start Num: 2

Candidate Starts for Big4_219:

(1, 122346), (Start: 2 @122421 has 2 MA's), (4, 122514), (5, 122529), (6, 122532), (7, 122538), (8, 122574), (9, 122598), (10, 122844), (11, 122856), (13, 122964), (24, 123111), (Start: 32 @123195 has 1 MA's), (54, 123300), (99, 123684), (104, 123729), (106, 123735), (134, 123912), (142, 123984), (147, 124008), (150, 124020), (157, 124074), (159, 124080), (165, 124131), (169, 124164), (183, 124266), (187, 124341), (191, 124431), (193, 124440), (195, 124452), (196, 124479), (205, 124584), (211, 124596), (220, 124713), (227, 124794), (240, 124983), (252, 125070), (256, 125094),

Gene: Birdfeeder_45 Start: 46199, Stop: 48208, Start Num: 17

Candidate Starts for Birdfeeder_45:

(15, 46121), (Start: 17 @46199 has 45 MA's), (33, 46307), (42, 46349), (55, 46418), (107, 46844), (114, 46913), (118, 46919), (122, 46931), (125, 46949), (132, 46982), (133, 46988), (142, 47069), (158, 47159), (159, 47162), (168, 47234), (169, 47246), (180, 47327), (185, 47354), (190, 47483), (193, 47519), (194, 47528), (203, 47639), (206, 47663), (211, 47672), (218, 47777), (222, 47795), (225, 47825), (230, 47939), (239, 48050), (244, 48083),

Gene: BlueOtter_116 Start: 78327, Stop: 80282, Start Num: 17

Candidate Starts for BlueOtter_116:

(Start: 17 @78327 has 45 MA's), (21, 78345), (Start: 32 @78438 has 1 MA's), (51, 78540), (74, 78717), (86, 78828), (94, 78888), (108, 79023), (123, 79101), (127, 79119), (131, 79146), (135, 79191), (140, 79227), (145, 79254), (160, 79350), (162, 79377), (167, 79410), (173, 79464), (179, 79497), (185, 79536), (189, 79632), (194, 79698), (197, 79731), (200, 79770), (228, 80049), (236, 80184), (242, 80229),

Gene: BlueRugrat_46 Start: 46423, Stop: 48441, Start Num: 17

Candidate Starts for BlueRugrat_46:

(15, 46345), (Start: 17 @46423 has 45 MA's), (34, 46528), (45, 46570), (87, 46924), (106, 47071), (114, 47146), (118, 47152), (120, 47158), (122, 47164), (125, 47182), (132, 47215), (133, 47221), (142, 47302), (149, 47332), (154, 47359), (158, 47392), (159, 47395), (169, 47479), (171, 47488),

(180, 47560), (185, 47587), (190, 47716), (193, 47752), (211, 47905), (218, 48010), (222, 48028), (225, 48058), (237, 48268), (239, 48283), (244, 48316),

Gene: Cadmus_116 Start: 77218, Stop: 79173, Start Num: 17

Candidate Starts for Cadmus_116:

(Start: 17 @77218 has 45 MA's), (21, 77236), (Start: 32 @77329 has 1 MA's), (74, 77608), (78, 77650), (86, 77719), (91, 77767), (93, 77773), (108, 77914), (123, 77992), (127, 78010), (130, 78022), (131, 78037), (135, 78082), (151, 78169), (160, 78241), (162, 78268), (167, 78301), (179, 78388), (185, 78427), (188, 78508), (189, 78523), (197, 78622), (200, 78661), (219, 78841), (221, 78850), (226, 78898), (228, 78940), (236, 79075), (242, 79120),

Gene: Conditioner_46 Start: 46496, Stop: 48514, Start Num: 17

Candidate Starts for Conditioner_46:

(15, 46418), (Start: 17 @46496 has 45 MA's), (37, 46607), (79, 46922), (87, 46997), (106, 47144), (114, 47219), (120, 47231), (122, 47237), (125, 47255), (132, 47288), (133, 47294), (142, 47375), (158, 47465), (159, 47468), (168, 47540), (169, 47552), (180, 47633), (185, 47660), (190, 47789), (193, 47825), (201, 47936), (211, 47978), (218, 48083), (222, 48101), (225, 48131), (237, 48341), (239, 48356), (244, 48389),

Gene: Coogler_116 Start: 78352, Stop: 80307, Start Num: 17

Candidate Starts for Coogler_116:

(Start: 17 @78352 has 45 MA's), (21, 78370), (Start: 32 @78463 has 1 MA's), (51, 78565), (74, 78742), (86, 78853), (108, 79048), (123, 79126), (127, 79144), (131, 79171), (135, 79216), (140, 79252), (145, 79279), (160, 79375), (162, 79402), (167, 79435), (173, 79489), (179, 79522), (185, 79561), (189, 79657), (194, 79723), (197, 79756), (200, 79795), (216, 79948), (228, 80074), (236, 80209), (242, 80254),

Gene: Corn21_46 Start: 46501, Stop: 48519, Start Num: 17

Candidate Starts for Corn21_46:

(15, 46423), (Start: 17 @46501 has 45 MA's), (34, 46606), (79, 46927), (87, 47002), (106, 47149), (114, 47224), (120, 47236), (122, 47242), (125, 47260), (132, 47293), (133, 47299), (142, 47380), (158, 47470), (159, 47473), (168, 47545), (169, 47557), (180, 47638), (185, 47665), (190, 47794), (193, 47830), (211, 47983), (218, 48088), (222, 48106), (225, 48136), (237, 48346), (239, 48361), (244, 48394),

Gene: Cross_116 Start: 78328, Stop: 80283, Start Num: 17

Candidate Starts for Cross_116:

(Start: 17 @78328 has 45 MA's), (21, 78346), (Start: 32 @78439 has 1 MA's), (51, 78541), (74, 78718), (86, 78829), (94, 78889), (108, 79024), (123, 79102), (127, 79120), (131, 79147), (135, 79192), (140, 79228), (145, 79255), (160, 79351), (162, 79378), (167, 79411), (173, 79465), (179, 79498), (185, 79537), (189, 79633), (194, 79699), (197, 79732), (200, 79771), (228, 80050), (236, 80185), (242, 80230),

Gene: Dashyla_46 Start: 46124, Stop: 48133, Start Num: 17

Candidate Starts for Dashyla_46:

(Start: 17 @46124 has 45 MA's), (27, 46193), (35, 46238), (42, 46274), (55, 46343), (107, 46769), (114, 46838), (118, 46844), (120, 46850), (122, 46856), (125, 46874), (132, 46907), (133, 46913), (142, 46994), (149, 47024), (154, 47051), (158, 47084), (159, 47087), (168, 47159), (169, 47171), (180, 47252), (185, 47279), (190, 47408), (193, 47444), (211, 47597), (218, 47702), (222, 47720), (234, 47948), (237, 47960), (244, 48008), (247, 48023),

Gene: Daubenski_119 Start: 78455, Stop: 80410, Start Num: 17

Candidate Starts for Daubenski_119:

(Start: 17 @78455 has 45 MA's), (21, 78473), (Start: 32 @78566 has 1 MA's), (74, 78845), (78, 78887), (86, 78956), (91, 79004), (93, 79010), (108, 79151), (123, 79229), (127, 79247), (130, 79259), (131, 79274), (135, 79319), (151, 79406), (160, 79478), (162, 79505), (167, 79538), (179, 79625), (185, 79664), (188, 79745), (189, 79760), (197, 79859), (200, 79898), (219, 80078), (221, 80087), (226, 80135), (228, 80177), (236, 80312), (242, 80357),

Gene: Dodo_232 Start: 126453, Stop: 128636, Start Num: 17

Candidate Starts for Dodo_232:

(Start: 17 @126453 has 45 MA's), (29, 126537), (45, 126603), (61, 126714), (63, 126735), (65, 126741), (84, 126924), (90, 126981), (95, 127011), (103, 127104), (134, 127281), (146, 127374), (156, 127416), (163, 127485), (168, 127518), (169, 127530), (184, 127635), (185, 127638), (208, 127941), (220, 128064), (222, 128070), (225, 128100), (231, 128277), (239, 128325), (244, 128358), (251, 128403), (263, 128502), (267, 128595),

Gene: Dodo_233 Start: 128645, Stop: 130639, Start Num: 19

Candidate Starts for Dodo_233:

(Start: 19 @128645 has 1 MA's), (34, 128744), (38, 128753), (43, 128783), (49, 128813), (52, 128840), (53, 128843), (72, 128975), (112, 129368), (113, 129374), (119, 129383), (129, 129422), (141, 129533), (148, 129557), (155, 129596), (175, 129758), (177, 129779), (186, 129878), (211, 130130), (212, 130157), (221, 130253), (246, 130526), (248, 130532), (255, 130592),

Gene: DumpQuist_46 Start: 45978, Stop: 47987, Start Num: 17

Candidate Starts for DumpQuist_46:

(Start: 17 @45978 has 45 MA's), (27, 46047), (35, 46092), (42, 46128), (55, 46197), (107, 46623), (114, 46692), (118, 46698), (120, 46704), (122, 46710), (125, 46728), (132, 46761), (133, 46767), (142, 46848), (149, 46878), (154, 46905), (158, 46938), (159, 46941), (166, 46995), (168, 47013), (169, 47025), (180, 47106), (181, 47115), (185, 47133), (190, 47262), (193, 47298), (201, 47409), (211, 47451), (218, 47556), (222, 47574), (225, 47604), (237, 47814), (239, 47829), (244, 47862),

Gene: EGole_119 Start: 79172, Stop: 81127, Start Num: 17

Candidate Starts for EGole_119:

(Start: 17 @79172 has 45 MA's), (21, 79190), (Start: 32 @79283 has 1 MA's), (51, 79385), (56, 79400), (74, 79562), (86, 79673), (94, 79733), (108, 79868), (123, 79946), (127, 79964), (131, 79991), (135, 80036), (140, 80072), (145, 80099), (160, 80195), (167, 80255), (173, 80309), (179, 80342), (185, 80381), (189, 80477), (197, 80576), (200, 80615), (228, 80894), (236, 81029), (242, 81074),

Gene: Erasmago_225 Start: 121003, Stop: 123288, Start Num: 17

Candidate Starts for Erasmago_225:

(Start: 17 @121003 has 45 MA's), (25, 121036), (58, 121249), (61, 121264), (63, 121285), (84, 121474), (114, 121747), (146, 121924), (163, 122035), (168, 122068), (169, 122080), (180, 122161), (184, 122185), (185, 122188), (194, 122362), (208, 122491), (220, 122614), (222, 122620), (231, 122827), (239, 122875), (240, 122881), (244, 122908), (251, 122953), (262, 123067), (263, 123145), (264, 123160), (265, 123190), (266, 123199), (267, 123238),

Gene: Erasmago_227 Start: 123403, Stop: 125394, Start Num: 20

Candidate Starts for Erasmago_227:

(Start: 20 @123403 has 1 MA's), (28, 123466), (38, 123508), (41, 123526), (47, 123562), (49, 123568), (78, 123811), (113, 124129), (129, 124177), (161, 124396), (177, 124534), (194, 124741), (209, 124882), (220, 125005), (221, 125008), (233, 125203), (246, 125281), (248, 125287), (259, 125362),

Gene: Evy_114 Start: 78155, Stop: 80107, Start Num: 17

Candidate Starts for Evy_114:

(Start: 17 @78155 has 45 MA's), (21, 78173), (Start: 32 @78266 has 1 MA's), (51, 78368), (56, 78383), (69, 78479), (74, 78542), (75, 78557), (78, 78584), (80, 78587), (86, 78653), (91, 78701), (108, 78848), (124, 78932), (127, 78944), (130, 78956), (131, 78971), (135, 79016), (143, 79070), (151, 79103), (160, 79175), (162, 79202), (178, 79319), (179, 79322), (185, 79361), (189, 79457), (197, 79556), (200, 79595), (220, 79781), (228, 79874), (236, 80009), (242, 80054),

Gene: Fede_46 Start: 46938, Stop: 48926, Start Num: 17

Candidate Starts for Fede_46:

(Start: 17 @46938 has 45 MA's), (23, 46959), (31, 47034), (40, 47073), (60, 47196), (65, 47229), (66, 47235), (79, 47358), (89, 47439), (120, 47655), (128, 47688), (138, 47763), (142, 47799), (152, 47841), (156, 47862), (158, 47889), (165, 47943), (169, 47976), (180, 48057), (183, 48078), (185, 48084), (187, 48153), (192, 48246), (194, 48258), (196, 48288), (202, 48369), (211, 48399), (220, 48516), (225, 48552), (232, 48735), (241, 48798), (244, 48810),

Gene: HangryHippo_116 Start: 78327, Stop: 80282, Start Num: 17

Candidate Starts for HangryHippo_116:

(Start: 17 @78327 has 45 MA's), (21, 78345), (Start: 32 @78438 has 1 MA's), (51, 78540), (74, 78717), (86, 78828), (94, 78888), (108, 79023), (123, 79101), (127, 79119), (131, 79146), (135, 79191), (140, 79227), (145, 79254), (160, 79350), (162, 79377), (167, 79410), (173, 79464), (179, 79497), (185, 79536), (189, 79632), (194, 79698), (197, 79731), (200, 79770), (228, 80049), (236, 80184), (242, 80229),

Gene: Hortus1_38 Start: 18946, Stop: 20874, Start Num: 22

Candidate Starts for Hortus1_38:

(Start: 22 @18946 has 6 MA's), (39, 19048), (46, 19090), (50, 19117), (59, 19168), (62, 19183), (67, 19216), (68, 19222), (73, 19258), (98, 19480), (100, 19489), (102, 19522), (105, 19546), (111, 19621), (115, 19636), (117, 19639), (121, 19651), (129, 19681), (140, 19783), (164, 19924), (165, 19930), (168, 19951), (170, 19966), (172, 19984), (174, 19990), (175, 19993), (177, 20014), (184, 20056), (187, 20125), (192, 20209), (194, 20221), (211, 20365), (213, 20404), (219, 20476), (233, 20680), (246, 20758), (248, 20764), (253, 20812), (256, 20833), (259, 20842),

Gene: Jay2Jay_121 Start: 79098, Stop: 81050, Start Num: 17

Candidate Starts for Jay2Jay_121:

(Start: 17 @79098 has 45 MA's), (21, 79116), (Start: 32 @79209 has 1 MA's), (51, 79311), (56, 79326), (69, 79422), (74, 79485), (75, 79500), (80, 79530), (86, 79596), (91, 79644), (108, 79791), (122, 79863), (124, 79875), (127, 79887), (130, 79899), (131, 79914), (135, 79959), (143, 80013), (151, 80046), (160, 80118), (162, 80145), (178, 80262), (179, 80265), (185, 80304), (189, 80400), (197, 80499), (200, 80538), (228, 80817), (236, 80952), (242, 80997),

Gene: JrWilcox_79 Start: 43075, Stop: 45771, Start Num: 17

Candidate Starts for JrWilcox_79:

(Start: 17 @43075 has 45 MA's), (36, 43183), (70, 43387), (76, 43474), (77, 43495), (82, 43510), (85, 43549), (110, 43795), (118, 43816), (125, 43846), (134, 43894), (169, 44143), (174, 44182), (180, 44224), (181, 44233), (182, 44242), (185, 44251), (194, 44425), (199, 44482), (208, 44563), (211, 44569), (220, 44686), (221, 44689), (222, 44692), (224, 44716), (235, 44914), (239, 44938), (244, 44971), (268, 45535), (269, 45697),

Gene: Kosier_46 Start: 46882, Stop: 48870, Start Num: 17

Candidate Starts for Kosier_46:

(Start: 17 @46882 has 45 MA's), (23, 46903), (31, 46978), (40, 47017), (60, 47140), (65, 47173), (66, 47179), (79, 47302), (89, 47383), (120, 47599), (128, 47632), (138, 47707), (142, 47743), (152, 47785), (156, 47806), (158, 47833), (165, 47887), (169, 47920), (180, 48001), (183, 48022), (185, 48028), (187, 48097), (192, 48190), (194, 48202), (196, 48232), (202, 48313), (211, 48343), (220,

48460), (225, 48496), (232, 48679), (241, 48742), (244, 48754),

Gene: Larnav_116 Start: 78311, Stop: 80266, Start Num: 17

Candidate Starts for Larnav_116:

(Start: 17 @78311 has 45 MA's), (21, 78329), (Start: 32 @78422 has 1 MA's), (51, 78524), (74, 78701), (86, 78812), (108, 79007), (123, 79085), (127, 79103), (131, 79130), (135, 79175), (140, 79211), (145, 79238), (160, 79334), (162, 79361), (167, 79394), (173, 79448), (179, 79481), (185, 79520), (189, 79616), (194, 79682), (197, 79715), (200, 79754), (216, 79907), (228, 80033), (236, 80168), (242, 80213),

Gene: Leo04_117 Start: 78827, Stop: 80782, Start Num: 17

Candidate Starts for Leo04_117:

(Start: 17 @78827 has 45 MA's), (21, 78845), (Start: 32 @78938 has 1 MA's), (51, 79040), (74, 79217), (86, 79328), (94, 79388), (108, 79523), (123, 79601), (127, 79619), (131, 79646), (135, 79691), (140, 79727), (145, 79754), (160, 79850), (162, 79877), (167, 79910), (173, 79964), (179, 79997), (185, 80036), (189, 80132), (194, 80198), (197, 80231), (200, 80270), (228, 80549), (236, 80684), (242, 80729),

Gene: LesNorah_47 Start: 46820, Stop: 48838, Start Num: 17

Candidate Starts for LesNorah_47:

(15, 46742), (Start: 17 @46820 has 45 MA's), (45, 46967), (79, 47246), (87, 47321), (88, 47324), (106, 47468), (114, 47543), (120, 47555), (122, 47561), (125, 47579), (132, 47612), (133, 47618), (142, 47699), (158, 47789), (159, 47792), (168, 47864), (169, 47876), (180, 47957), (181, 47966), (185, 47984), (190, 48113), (193, 48149), (201, 48260), (211, 48302), (218, 48407), (222, 48425), (225, 48455), (237, 48665), (239, 48680), (244, 48713),

Gene: LilyLou_48 Start: 46442, Stop: 48451, Start Num: 17

Candidate Starts for LilyLou_48:

(Start: 17 @46442 has 45 MA's), (27, 46511), (35, 46556), (42, 46592), (55, 46661), (114, 47156), (118, 47162), (120, 47168), (122, 47174), (125, 47192), (132, 47225), (133, 47231), (142, 47312), (149, 47342), (158, 47402), (159, 47405), (168, 47477), (169, 47489), (180, 47570), (185, 47597), (190, 47726), (193, 47762), (211, 47915), (218, 48020), (222, 48038), (225, 48068), (230, 48182), (234, 48266), (237, 48278), (239, 48293), (244, 48326), (247, 48341),

Gene: Lululemon_115 Start: 77708, Stop: 79663, Start Num: 17

Candidate Starts for Lululemon_115:

(Start: 17 @77708 has 45 MA's), (21, 77726), (Start: 32 @77819 has 1 MA's), (51, 77921), (74, 78098), (86, 78209), (94, 78269), (108, 78404), (123, 78482), (127, 78500), (131, 78527), (135, 78572), (140, 78608), (145, 78635), (160, 78731), (162, 78758), (167, 78791), (173, 78845), (179, 78878), (185, 78917), (189, 79013), (194, 79079), (197, 79112), (200, 79151), (228, 79430), (236, 79565), (242, 79610),

Gene: OlinDD_38 Start: 18945, Stop: 20873, Start Num: 22

Candidate Starts for OlinDD_38:

(Start: 22 @18945 has 6 MA's), (39, 19047), (46, 19089), (50, 19116), (59, 19167), (62, 19182), (67, 19215), (68, 19221), (73, 19257), (98, 19479), (100, 19488), (102, 19521), (105, 19545), (111, 19620), (115, 19635), (117, 19638), (121, 19650), (129, 19680), (140, 19782), (164, 19923), (165, 19929), (168, 19950), (170, 19965), (172, 19983), (174, 19989), (175, 19992), (177, 20013), (184, 20055), (187, 20124), (192, 20208), (194, 20220), (211, 20364), (213, 20403), (219, 20475), (233, 20679), (246, 20757), (248, 20763), (253, 20811), (256, 20832), (259, 20841),

Gene: PacManQ_115 Start: 77708, Stop: 79663, Start Num: 17

Candidate Starts for PacManQ_115:

(Start: 17 @77708 has 45 MA's), (21, 77726), (Start: 32 @77819 has 1 MA's), (51, 77921), (74, 78098), (86, 78209), (94, 78269), (108, 78404), (123, 78482), (127, 78500), (131, 78527), (135, 78572), (140, 78608), (145, 78635), (160, 78731), (162, 78758), (167, 78791), (173, 78845), (179, 78878), (185, 78917), (189, 79013), (194, 79079), (197, 79112), (200, 79151), (228, 79430), (236, 79565), (242, 79610),

Gene: Paradiddles_113 Start: 77732, Stop: 79684, Start Num: 17

Candidate Starts for Paradiddles_113:

(Start: 17 @77732 has 45 MA's), (21, 77750), (Start: 32 @77843 has 1 MA's), (51, 77945), (74, 78119), (75, 78134), (80, 78164), (86, 78230), (91, 78278), (108, 78425), (124, 78509), (127, 78521), (130, 78533), (131, 78548), (135, 78593), (140, 78629), (143, 78647), (151, 78680), (160, 78752), (162, 78779), (178, 78896), (179, 78899), (185, 78938), (189, 79034), (192, 79088), (197, 79133), (200, 79172), (207, 79235), (219, 79352), (220, 79358), (228, 79451), (236, 79586), (242, 79631),

Gene: PauloDiaboli_237 Start: 125216, Stop: 127957, Start Num: 2

Candidate Starts for PauloDiaboli_237:

(1, 125141), (Start: 2 @125216 has 2 MA's), (3, 125279), (4, 125309), (5, 125324), (6, 125327), (7, 125333), (8, 125369), (9, 125393), (11, 125651), (12, 125717), (14, 125774), (57, 126125), (66, 126179), (134, 126704), (137, 126737), (165, 126923), (169, 126956), (181, 127046), (187, 127133), (193, 127229), (198, 127289), (209, 127382), (211, 127385), (217, 127487), (220, 127502), (240, 127772), (252, 127859), (254, 127874), (256, 127883),

Gene: Peebs_114 Start: 78124, Stop: 80079, Start Num: 17

Candidate Starts for Peebs_114:

(Start: 17 @78124 has 45 MA's), (21, 78142), (Start: 32 @78235 has 1 MA's), (51, 78337), (74, 78514), (86, 78625), (108, 78820), (123, 78898), (127, 78916), (131, 78943), (135, 78988), (140, 79024), (145, 79051), (160, 79147), (162, 79174), (167, 79207), (173, 79261), (179, 79294), (185, 79333), (189, 79429), (194, 79495), (197, 79528), (200, 79567), (228, 79846), (236, 79981), (242, 80026),

Gene: Pepperwood_116 Start: 78255, Stop: 80210, Start Num: 17

Candidate Starts for Pepperwood_116:

(Start: 17 @78255 has 45 MA's), (21, 78273), (Start: 32 @78366 has 1 MA's), (51, 78468), (74, 78645), (86, 78756), (108, 78951), (123, 79029), (127, 79047), (131, 79074), (135, 79119), (140, 79155), (145, 79182), (160, 79278), (162, 79305), (167, 79338), (173, 79392), (179, 79425), (185, 79464), (189, 79560), (194, 79626), (197, 79659), (200, 79698), (228, 79977), (236, 80112), (242, 80157),

Gene: Phinky_36 Start: 19775, Stop: 21835, Start Num: 17

Candidate Starts for Phinky_36:

(Start: 17 @19775 has 45 MA's), (26, 19838), (37, 19889), (61, 20036), (71, 20114), (72, 20120), (79, 20204), (87, 20279), (102, 20408), (106, 20438), (109, 20495), (114, 20522), (116, 20525), (134, 20606), (146, 20699), (153, 20726), (169, 20855), (176, 20909), (181, 20945), (185, 20963), (192, 21125), (194, 21137), (214, 21347), (218, 21377), (220, 21389), (221, 21392), (235, 21626), (237, 21635), (238, 21638), (239, 21650), (240, 21656), (243, 21680), (244, 21683), (249, 21713), (254, 21761), (257, 21770), (261, 21809),

Gene: Phogo_47 Start: 46270, Stop: 48279, Start Num: 17

Candidate Starts for Phogo_47:

(Start: 17 @46270 has 45 MA's), (27, 46339), (35, 46384), (42, 46420), (55, 46489), (107, 46915), (114, 46984), (118, 46990), (120, 46996), (122, 47002), (125, 47020), (132, 47053), (133, 47059), (142, 47140), (149, 47170), (154, 47197), (158, 47230), (159, 47233), (168, 47305), (169, 47317), (180, 47398), (185, 47425), (190, 47554), (193, 47590), (211, 47743), (218, 47848), (222, 47866), (234, 48094), (237, 48106), (239, 48121), (244, 48154), (247, 48169),

Gene: Pioneer3_38 Start: 18929, Stop: 20881, Start Num: 22

Candidate Starts for Pioneer3_38:

(Start: 22 @18929 has 6 MA's), (39, 19031), (46, 19073), (50, 19100), (59, 19151), (62, 19166), (67, 19199), (68, 19205), (73, 19241), (98, 19463), (100, 19472), (102, 19505), (105, 19529), (111, 19604), (115, 19619), (117, 19622), (121, 19634), (129, 19664), (140, 19766), (164, 19907), (165, 19913), (168, 19934), (170, 19949), (172, 19967), (174, 19973), (175, 19976), (177, 19997), (184, 20039), (187, 20108), (192, 20192), (194, 20204), (211, 20348), (213, 20387), (225, 20501), (229, 20591), (246, 20765), (248, 20771), (256, 20840), (259, 20849),

Gene: Platte_38 Start: 18714, Stop: 20666, Start Num: 22

Candidate Starts for Platte_38:

(Start: 22 @18714 has 6 MA's), (39, 18816), (46, 18858), (50, 18885), (59, 18936), (62, 18951), (67, 18984), (68, 18990), (73, 19026), (98, 19248), (100, 19257), (102, 19290), (105, 19314), (111, 19389), (115, 19404), (117, 19407), (121, 19419), (129, 19449), (140, 19551), (164, 19692), (165, 19698), (168, 19719), (170, 19734), (172, 19752), (174, 19758), (175, 19761), (177, 19782), (184, 19824), (187, 19893), (192, 19977), (194, 19989), (211, 20133), (213, 20172), (225, 20286), (229, 20376), (246, 20550), (248, 20556), (256, 20625), (259, 20634),

Gene: Pumpernickel_220 Start: 126461, Stop: 128344, Start Num: 48

Candidate Starts for Pumpernickel_220:

(16, 126284), (30, 126377), (44, 126437), (Start: 48 @126461 has 1 MA's), (81, 126707), (83, 126719), (87, 126776), (97, 126842), (98, 126860), (108, 126947), (118, 127007), (126, 127040), (134, 127091), (146, 127184), (163, 127298), (165, 127310), (169, 127343), (181, 127433), (187, 127520), (191, 127610), (195, 127631), (196, 127658), (198, 127679), (205, 127763), (211, 127775), (220, 127892), (236, 128132), (252, 128246), (256, 128270), (258, 128276),

Gene: Rowlf_26 Start: 18355, Stop: 20409, Start Num: 17

Candidate Starts for Rowlf_26:

(Start: 17 @18355 has 45 MA's), (61, 18616), (96, 18925), (101, 18976), (104, 19012), (132, 19171), (134, 19186), (144, 19270), (169, 19435), (176, 19489), (180, 19516), (192, 19705), (194, 19717), (211, 19852), (218, 19957), (220, 19969), (221, 19972), (222, 19975), (241, 20251), (243, 20260), (244, 20263), (253, 20323), (254, 20335), (260, 20353), (261, 20383),

Gene: Samisti12_117 Start: 79503, Stop: 81458, Start Num: 17

Candidate Starts for Samisti12_117:

(Start: 17 @79503 has 45 MA's), (21, 79521), (Start: 32 @79614 has 1 MA's), (51, 79716), (74, 79893), (86, 80004), (108, 80199), (123, 80277), (127, 80295), (131, 80322), (135, 80367), (140, 80403), (145, 80430), (160, 80526), (162, 80553), (167, 80586), (173, 80640), (179, 80673), (185, 80712), (189, 80808), (194, 80874), (197, 80907), (200, 80946), (228, 81225), (236, 81360), (242, 81405),

Gene: Scheme_117 Start: 78909, Stop: 80864, Start Num: 17

Candidate Starts for Scheme_117:

(Start: 17 @78909 has 45 MA's), (21, 78927), (Start: 32 @79020 has 1 MA's), (51, 79122), (74, 79299), (86, 79410), (108, 79605), (123, 79683), (127, 79701), (131, 79728), (135, 79773), (140, 79809), (145, 79836), (160, 79932), (162, 79959), (167, 79992), (173, 80046), (179, 80079), (185, 80118), (189, 80214), (194, 80280), (197, 80313), (200, 80352), (228, 80631), (236, 80766), (242, 80811),

Gene: Stormbreaker_47 Start: 46358, Stop: 48367, Start Num: 17

Candidate Starts for Stormbreaker_47:

(Start: 17 @46358 has 45 MA's), (35, 46472), (42, 46508), (55, 46577), (92, 46895), (107, 47003), (114, 47072), (118, 47078), (120, 47084), (122, 47090), (125, 47108), (132, 47141), (133, 47147), (142, 47228), (149, 47258), (154, 47285), (158, 47318), (159, 47321), (166, 47375), (168, 47393), (169, 47405), (180, 47486), (181, 47495), (185, 47513), (190, 47642), (193, 47678), (201, 47789),

(211, 47831), (218, 47936), (222, 47954), (225, 47984), (237, 48194), (239, 48209), (244, 48242),

Gene: Sushi23_115 Start: 78480, Stop: 80435, Start Num: 17

Candidate Starts for Sushi23_115:

(Start: 17 @78480 has 45 MA's), (21, 78498), (Start: 32 @78591 has 1 MA's), (51, 78693), (74, 78870), (86, 78981), (108, 79176), (123, 79254), (127, 79272), (131, 79299), (135, 79344), (140, 79380), (145, 79407), (160, 79503), (162, 79530), (167, 79563), (173, 79617), (179, 79650), (185, 79689), (189, 79785), (194, 79851), (197, 79884), (200, 79923), (228, 80202), (236, 80337), (242, 80382),

Gene: SwissCheezer_46 Start: 46010, Stop: 48019, Start Num: 17

Candidate Starts for SwissCheezer_46:

(Start: 17 @46010 has 45 MA's), (27, 46079), (35, 46124), (42, 46160), (55, 46229), (107, 46655), (114, 46724), (118, 46730), (120, 46736), (122, 46742), (125, 46760), (132, 46793), (133, 46799), (142, 46880), (149, 46910), (154, 46937), (158, 46970), (159, 46973), (168, 47045), (169, 47057), (180, 47138), (185, 47165), (190, 47294), (193, 47330), (211, 47483), (218, 47588), (222, 47606), (234, 47834), (237, 47846), (244, 47894), (247, 47909),

Gene: Tandem_38 Start: 18868, Stop: 20820, Start Num: 22

Candidate Starts for Tandem_38:

(Start: 22 @18868 has 6 MA's), (39, 18970), (46, 19012), (50, 19039), (59, 19090), (62, 19105), (67, 19138), (68, 19144), (73, 19180), (98, 19402), (100, 19411), (102, 19444), (105, 19468), (111, 19543), (115, 19558), (117, 19561), (121, 19573), (129, 19603), (140, 19705), (164, 19846), (165, 19852), (168, 19873), (170, 19888), (172, 19906), (174, 19912), (175, 19915), (177, 19936), (184, 19978), (187, 20047), (192, 20131), (194, 20143), (211, 20287), (213, 20326), (225, 20440), (229, 20530), (246, 20704), (248, 20710), (256, 20779), (259, 20788),

Gene: Targaryen_117 Start: 79142, Stop: 81094, Start Num: 17

Candidate Starts for Targaryen_117:

(Start: 17 @79142 has 45 MA's), (21, 79160), (Start: 32 @79253 has 1 MA's), (51, 79355), (56, 79370), (69, 79466), (74, 79529), (75, 79544), (78, 79571), (80, 79574), (86, 79640), (91, 79688), (108, 79835), (124, 79919), (127, 79931), (130, 79943), (131, 79958), (135, 80003), (143, 80057), (151, 80090), (160, 80162), (162, 80189), (178, 80306), (179, 80309), (185, 80348), (189, 80444), (197, 80543), (200, 80582), (220, 80768), (228, 80861), (236, 80996), (242, 81041),

Gene: Teutsch_116 Start: 78683, Stop: 80638, Start Num: 17

Candidate Starts for Teutsch_116:

(Start: 17 @78683 has 45 MA's), (21, 78701), (Start: 32 @78794 has 1 MA's), (51, 78896), (74, 79073), (86, 79184), (94, 79244), (108, 79379), (123, 79457), (127, 79475), (131, 79502), (135, 79547), (140, 79583), (145, 79610), (160, 79706), (162, 79733), (167, 79766), (173, 79820), (179, 79853), (185, 79892), (189, 79988), (194, 80054), (197, 80087), (200, 80126), (223, 80321), (228, 80405), (236, 80540), (242, 80585),

Gene: Tomas_123 Start: 80228, Stop: 82078, Start Num: 32

Candidate Starts for Tomas_123:

(Start: 17 @80117 has 45 MA's), (21, 80135), (29, 80210), (Start: 32 @80228 has 1 MA's), (64, 80414), (74, 80504), (78, 80546), (80, 80549), (86, 80615), (108, 80810), (127, 80906), (136, 80981), (139, 81008), (140, 81014), (160, 81143), (162, 81170), (178, 81287), (185, 81329), (197, 81524), (200, 81563), (204, 81602), (210, 81632), (215, 81710), (219, 81743), (228, 81842), (231, 81953), (236, 81980), (242, 82025), (245, 82037), (250, 82073),

Gene: TownLake_45 Start: 46110, Stop: 48128, Start Num: 17

Candidate Starts for TownLake_45:

(15, 46032), (Start: 17 @46110 has 45 MA's), (37, 46221), (79, 46536), (87, 46611), (106, 46758), (114, 46833), (120, 46845), (122, 46851), (125, 46869), (132, 46902), (133, 46908), (142, 46989), (154, 47046), (158, 47079), (159, 47082), (168, 47154), (169, 47166), (180, 47247), (185, 47274), (190, 47403), (193, 47439), (201, 47550), (211, 47592), (218, 47697), (222, 47715), (225, 47745), (237, 47955), (239, 47970), (244, 48003),

Gene: Tribute_114 Start: 78366, Stop: 80321, Start Num: 17

Candidate Starts for Tribute_114:

(Start: 17 @78366 has 45 MA's), (21, 78384), (Start: 32 @78477 has 1 MA's), (51, 78579), (74, 78756), (86, 78867), (94, 78927), (108, 79062), (123, 79140), (127, 79158), (131, 79185), (135, 79230), (140, 79266), (145, 79293), (160, 79389), (162, 79416), (167, 79449), (173, 79503), (179, 79536), (185, 79575), (189, 79671), (194, 79737), (197, 79770), (200, 79809), (223, 80004), (228, 80088), (236, 80223), (242, 80268),

Gene: Unphazed_47 Start: 46227, Stop: 48236, Start Num: 17

Candidate Starts for Unphazed_47:

(15, 46149), (Start: 17 @46227 has 45 MA's), (33, 46335), (42, 46377), (55, 46446), (107, 46872), (114, 46941), (118, 46947), (122, 46959), (125, 46977), (132, 47010), (133, 47016), (142, 47097), (158, 47187), (159, 47190), (168, 47262), (169, 47274), (180, 47355), (185, 47382), (190, 47511), (193, 47547), (194, 47556), (203, 47667), (206, 47691), (211, 47700), (218, 47805), (222, 47823), (225, 47853), (230, 47967), (234, 48051), (244, 48111),

Gene: Warpy_120 Start: 78605, Stop: 80557, Start Num: 17

Candidate Starts for Warpy_120:

(Start: 17 @78605 has 45 MA's), (21, 78623), (Start: 32 @78716 has 1 MA's), (51, 78818), (56, 78833), (69, 78929), (74, 78992), (75, 79007), (80, 79037), (86, 79103), (91, 79151), (108, 79298), (122, 79370), (124, 79382), (127, 79394), (130, 79406), (131, 79421), (135, 79466), (143, 79520), (151, 79553), (160, 79625), (162, 79652), (178, 79769), (179, 79772), (185, 79811), (189, 79907), (197, 80006), (200, 80045), (212, 80138), (228, 80324), (236, 80459), (242, 80504),

Gene: WashU_120 Start: 78697, Stop: 80652, Start Num: 17

Candidate Starts for WashU_120:

(Start: 17 @78697 has 45 MA's), (21, 78715), (Start: 32 @78808 has 1 MA's), (51, 78910), (74, 79087), (86, 79198), (108, 79393), (123, 79471), (127, 79489), (131, 79516), (135, 79561), (140, 79597), (145, 79624), (160, 79720), (162, 79747), (167, 79780), (173, 79834), (179, 79867), (185, 79906), (189, 80002), (194, 80068), (197, 80101), (200, 80140), (228, 80419), (236, 80554), (242, 80599),

Gene: Watermoore_115 Start: 78899, Stop: 80854, Start Num: 17

Candidate Starts for Watermoore_115:

(Start: 17 @78899 has 45 MA's), (21, 78917), (Start: 32 @79010 has 1 MA's), (51, 79112), (74, 79289), (86, 79400), (94, 79460), (108, 79595), (123, 79673), (127, 79691), (131, 79718), (135, 79763), (140, 79799), (145, 79826), (160, 79922), (162, 79949), (167, 79982), (173, 80036), (179, 80069), (185, 80108), (189, 80204), (194, 80270), (197, 80303), (200, 80342), (228, 80621), (236, 80756), (242, 80801),

Gene: Xitlalli_45 Start: 46228, Stop: 48246, Start Num: 17

Candidate Starts for Xitlalli_45:

(15, 46150), (Start: 17 @46228 has 45 MA's), (34, 46333), (45, 46375), (79, 46654), (87, 46729), (106, 46876), (114, 46951), (118, 46957), (120, 46963), (122, 46969), (125, 46987), (132, 47020), (133, 47026), (142, 47107), (154, 47164), (158, 47197), (159, 47200), (168, 47272), (169, 47284), (180, 47365), (185, 47392), (190, 47521), (193, 47557), (201, 47668), (211, 47710), (218, 47815), (222, 47833), (225, 47863), (237, 48073), (239, 48088), (244, 48121),