

Pham 212648

1: Auxilium_5 + 5	131	36	41	49	59	73	78	82	99	101	114	122	125	128							
2: Bhageatrice_7	13	24	33	41	59	78	84	90	92	99	101	107	110	119	122	128	130				
3: MUWow_4	131	36	41	49	59	73	78	82	99	101	114	122	124	128							
4: BenchScraper_5	131	36	41	49	59	73	78	82	99	101	106	128	129								
5: Persistence_4	13	24	33	41	59	78	84	90	92	99	101	106	128	132							
6: BlueShadow_5 + 5	131	36	41	49	59	73	78	82	99	101	114	122	128								
7: EvePickles_5	13	24	33	41	59	78	84	90	92	99	101	106	114	122	128	130					
8: Gorpy_5 + 1	13	24	33	41	59	78	84	90	92	99	101	106	128	132							
9: Faja_5	131	36	41	49	59	73	78	82	99	101	114	122	128								
10: SpicyFrank_5	131	36	41	49	59	73	78	82	99	101	114	122	128	130							
11: Globfish_5	131	36	41	49	59	73	78	82	99	101	114	122	128	130							
12: Hestia_4	13	24	33	41	59	78	84	90	92	99	101	107	114	119	122	128					
13: JellyBread_5	13	24	33	41	59	78	84	90	92	99	101	110	114	119	122	128					
14: Isolde_5	131	36	41	49	59	73	78	82	99	101	114	122	124	128							
15: Shukran_5	13	24	33	41	59	78	84	90	92	99	101	114	119	122	128						
16: Windest_5 + 1	131	36	41	49	59	78	86	90	92	99	101	114	122	129							
17: Phrank15_4	13	24	33	41	59	78	84	90	92	99	101	107	116	122	128						
18: ThayneTheZag_5	131	36	41	49	59	73	78	82	99	101	114	122	128								
19: Lawnathon_5	131	36	41	49	59	73	78	82	99	101	114	122	128								
20: Sashimi_6	131	36	41	49	59	73	78	82	99	101	106	128	129								
21: Anekin_4	131	26	36	41	59	59	78	84	90	96	99	101	107	112	119	128					
22: Seahorse_6	13	24	33	41	48	72	78	86	90	92	99	101	107	116	122	128					
23: YoungHarleezy_5	13	24	33	41	72	78	86	90	92	99	101	116	122	128							
24: Tiff81_6	14	28	32	42	53	62	62	72	78	85	92	99	103	107	120						
25: Dubu_4	0	29	30	43	41	59	68	78	85	92	99	103	107	108	113	120					
26: Nesbitt_4	10	25	35	43	50	59	68	78	85	92	99	104	105	108	113	120					
27: Rowa_4	0	29	30	41	59	68	78	85	92	99	103	107	108	117	120						
28: AbbeyMikolon_4	13	19	20	40	52	73	78	99	104	115	128	131	133								
29: Eileen_4 + 2	13	19	26	42	52	73	78	99	101	115	128	131	133								
30: GlobiWarming_4	13	19	26	42	52	73	78	99	101	115	128	131	133								
31: KayMoney_4	13	19	30	42	52	60	69	73	78	101	115	128	131	133							
32: Constance_4 + 2	13	19	26	42	52	60	69	73	78	101	115	128	131	133							
33: ChuckDuck_4	13	19	26	42	52	60	69	73	78	101	115	128	131	133							
34: Bridgette_4	13	19	26	42	52	60	69	73	78	101	115	128	131	133							
35: Karkharias_4	13	19	30	40	52	72	78	99	101	115	128	131	133								
36: FosterFrank_4	13	19	26	40	41	52	72	78	99	101	115	128	131	133							
37: Pucara_4	1	2	4	5	6	8	13	19	26	30	40	41	52	72	78	99	101	115	128	131	133
38: Hum25_4	10	19	36	39	43	58	62	63	73	78	83	91	95	98	102	104	108	112	120	123	
39: Kromp_4	13	36	54	63	72	78	81	91	95	98	104	108	111	121							
40: Sleepyhead_4	13	36	54	63	72	78	81	91	95	98	104	108	111	121							

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 212648 Report

This analysis was run 02/22/25 on database version 588.

Pham number 212648 has 56 members, 22 are drafts.

Phages represented in each track:

- Track 1 : Auxilium_5, Richie_5, AdaS_5, BillyTP_5, Raffaella_5, CookieBear_5
- Track 2 : Bhageatrice_7
- Track 3 : MUWow_4
- Track 4 : BenchScraper_5
- Track 5 : Persistence_4
- Track 6 : BlueShadow_5, MidnightRain_5, RadFad_5, Aikyam_5, Hillester_5, MaterMagnus_5
- Track 7 : EvePickles_5
- Track 8 : Gorpy_5, Sakai_5
- Track 9 : Faja_5
- Track 10 : SpicyFrank_5
- Track 11 : Globfish_5
- Track 12 : Hestia_4
- Track 13 : JellyBread_5
- Track 14 : Isolde_5
- Track 15 : Shukran_5
- Track 16 : Windest_5, Vopal_5
- Track 17 : Phrank15_4
- Track 18 : ThayneTheZag_5
- Track 19 : Lawnathon_5
- Track 20 : Sashimi_6
- Track 21 : Anekin_4
- Track 22 : Seahorse_6
- Track 23 : YoungHarleezy_5
- Track 24 : Tiff81_6
- Track 25 : Dubu_4
- Track 26 : Nesbitt_4
- Track 27 : Rowa_4
- Track 28 : AbbeyMikolon_4
- Track 29 : Eileen_4, Peas_4, HotPotato_4
- Track 30 : GlobiWarming_4
- Track 31 : KayMoney_4
- Track 32 : Constance_4, PeggyLeg03_4, Judy_4
- Track 33 : ChuckDuck_4
- Track 34 : Bridgette_4
- Track 35 : Karkharias_4
- Track 36 : FosterFrank_4

- Track 37 : Pucara_4
- Track 38 : Hum25_4
- Track 39 : Kromp_4
- Track 40 : Sleepyhead_4

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

The start number called the most often in the published annotations is 13, it was called in 27 of the 34 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AdaS_5, Aikyam_5, Anekin_4, Auxilium_5, BenchScraper_5, Bhageatrice_7, BillyTP_5, BlueShadow_5, Bridgette_4, ChuckDuck_4, Constance_4, CookieBear_5, Eileen_4, EvePickles_5, Faja_5, FosterFrank_4, Globfish_5, GlobiWarming_4, Gorpy_5, Hestia_4, Hillester_5, HotPotato_4, Isolde_5, JellyBread_5, Judy_4, Karkharias_4, KayMoney_4, Lawnathon_5, MUWow_4, MaterMagnus_5, MidnightRain_5, Peas_4, PeggyLeg03_4, Persistence_4, Phrank15_4, Pucara_4, RadFad_5, Raphaella_5, Richie_5, Sakai_5, Sashimi_6, Shukran_5, Sleepyhead_4, SpicyFrank_5, ThayneTheZag_5, Tiff81_6, Vopal_5, Windest_5, YoungHarleezy_5,

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

- Seahorse_6,

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

- AbbeyMikolon_4, Dubu_4, Hum25_4, Kromp_4, Nesbitt_4, Rowa_4,

Summary by start number:

Start 9:

- Found in 2 of 56 (3.6%) of genes in pham
- Manual Annotations of this start: 2 of 34
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AbbeyMikolon_4 (BL), Nesbitt_4 (BL),

Start 10:

- Found in 4 of 56 (7.1%) of genes in pham
- Manual Annotations of this start: 3 of 34
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Kromp_4 (singleton), Rowa_4 (BL), Seahorse_6 (AY),

Start 12:

- Found in 1 of 56 (1.8%) of genes in pham
- Manual Annotations of this start: 1 of 34
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hum25_4 (FQ),

Start 13:

- Found in 50 of 56 (89.3%) of genes in pham
- Manual Annotations of this start: 27 of 34

- Called 98.0% of time when present
- Phage (with cluster) where this start called: AdaS_5 (AY), Aikyam_5 (AY), Anekin_4 (AY), Auxilium_5 (AY), BenchScraper_5 (AY), Bhageatrice_7 (AY), BillyTP_5 (AY), BlueShadow_5 (AY), Bridgette_4 (FA), ChuckDuck_4 (FA), Constance_4 (FA), CookieBear_5 (AY), Eileen_4 (FA), EvePickles_5 (AY), Faja_5 (AY), FosterFrank_4 (FA), Globfish_5 (AY), GlobiWarming_4 (FA), Gorpy_5 (AY), Hestia_4 (AY), Hillester_5 (AY), HotPotato_4 (FA), Isolde_5 (AY), JellyBread_5 (AY), Judy_4 (FA), Karkharias_4 (FA), KayMoney_4 (FA), Lawnathon_5 (AY), MUWow_4 (AY), MaterMagnus_5 (AY), MidnightRain_5 (AY), Peas_4 (FA), PeggyLeg03_4 (FA), Persistence_4 (AY), Phrank15_4 (AY), Pucara_4 (FA), RadFad_5 (AY), Raphaella_5 (AY), Richie_5 (AY), Sakai_5 (AY), Sashimi_6 (AY), Shukran_5 (AY), Sleepyhead_4 (singleton), SpicyFrank_5 (AY), ThayneTheZag_5 (AY), Tiff81_6 (AY), Vopal_5 (AY), Windest_5 (AY), YoungHarleezy_5 (AY),

Start 14:

- Found in 1 of 56 (1.8%) of genes in pham
- Manual Annotations of this start: 1 of 34
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dubu_4 (BJ),

Summary by clusters:

There are 6 clusters represented in this pham: FQ, singleton, BL, BJ, FA, AY,

Info for manual annotations of cluster AY:

- Start number 10 was manually annotated 1 time for cluster AY.
- Start number 13 was manually annotated 17 times for cluster AY.

Info for manual annotations of cluster BJ:

- Start number 14 was manually annotated 1 time for cluster BJ.

Info for manual annotations of cluster BL:

- Start number 9 was manually annotated 2 times for cluster BL.
- Start number 10 was manually annotated 1 time for cluster BL.

Info for manual annotations of cluster FA:

- Start number 13 was manually annotated 9 times for cluster FA.

Info for manual annotations of cluster FQ:

- Start number 12 was manually annotated 1 time for cluster FQ.

Gene Information:

Gene: AbbeyMikolon_4 Start: 3796, Stop: 4842, Start Num: 9

Candidate Starts for AbbeyMikolon_4:

(Start: 9 @3796 has 2 MA's), (29, 3976), (39, 4033), (43, 4069), (47, 4108), (60, 4216), (61, 4222), (63, 4231), (64, 4234), (66, 4249), (74, 4309), (76, 4330), (78, 4345), (79, 4348), (85, 4444), (87, 4453), (92, 4507), (95, 4549), (96, 4558), (97, 4576), (98, 4585), (100, 4594), (101, 4615), (102, 4624), (103, 4630), (107, 4651), (109, 4696), (117, 4735),

Gene: AdaS_5 Start: 3615, Stop: 4829, Start Num: 13

Candidate Starts for AdaS_5:

(Start: 13 @3615 has 27 MA's), (17, 3633), (19, 3651), (20, 3660), (35, 3765), (36, 3774), (47, 3861), (49, 3885), (56, 3918), (59, 3963), (73, 4056), (77, 4089), (78, 4095), (82, 4131), (99, 4350), (101, 4368), (114, 4491), (122, 4602), (125, 4626), (128, 4671),

Gene: Aikyam_5 Start: 3608, Stop: 4822, Start Num: 13

Candidate Starts for Aikyam_5:

(Start: 13 @3608 has 27 MA's), (19, 3644), (21, 3665), (22, 3668), (24, 3686), (33, 3746), (35, 3758), (36, 3767), (37, 3773), (47, 3854), (59, 3956), (76, 4073), (78, 4088), (84, 4184), (86, 4190), (90, 4232), (92, 4262), (99, 4343), (101, 4361), (106, 4376), (128, 4664), (132, 4760),

Gene: Anekin_4 Start: 3683, Stop: 4900, Start Num: 13

Candidate Starts for Anekin_4:

(Start: 13 @3683 has 27 MA's), (17, 3701), (19, 3719), (20, 3728), (35, 3833), (36, 3842), (47, 3929), (49, 3953), (56, 3986), (59, 4031), (62, 4049), (72, 4094), (73, 4124), (78, 4163), (84, 4259), (90, 4307), (92, 4337), (98, 4415), (99, 4418), (101, 4436), (106, 4451), (126, 4712), (128, 4739), (129, 4760),

Gene: Auxilium_5 Start: 3615, Stop: 4829, Start Num: 13

Candidate Starts for Auxilium_5:

(Start: 13 @3615 has 27 MA's), (17, 3633), (19, 3651), (20, 3660), (35, 3765), (36, 3774), (47, 3861), (49, 3885), (56, 3918), (59, 3963), (73, 4056), (77, 4089), (78, 4095), (82, 4131), (99, 4350), (101, 4368), (114, 4491), (122, 4602), (125, 4626), (128, 4671),

Gene: BenchScraper_5 Start: 3615, Stop: 4829, Start Num: 13

Candidate Starts for BenchScraper_5:

(Start: 13 @3615 has 27 MA's), (17, 3633), (19, 3651), (20, 3660), (35, 3765), (36, 3774), (47, 3861), (49, 3885), (56, 3918), (59, 3963), (73, 4056), (77, 4089), (78, 4095), (82, 4131), (99, 4350), (101, 4368), (114, 4491), (122, 4602), (124, 4623), (128, 4671),

Gene: Bhageatrice_7 Start: 4810, Stop: 6024, Start Num: 13

Candidate Starts for Bhageatrice_7:

(Start: 13 @4810 has 27 MA's), (19, 4846), (20, 4855), (24, 4888), (33, 4948), (35, 4960), (36, 4969), (44, 5032), (47, 5056), (48, 5068), (72, 5221), (78, 5290), (84, 5386), (86, 5392), (90, 5434), (92, 5464), (99, 5545), (101, 5563), (116, 5695), (122, 5797), (128, 5866), (130, 5917),

Gene: BillyTP_5 Start: 3609, Stop: 4823, Start Num: 13

Candidate Starts for BillyTP_5:

(Start: 13 @3609 has 27 MA's), (17, 3627), (19, 3645), (20, 3654), (35, 3759), (36, 3768), (47, 3855), (49, 3879), (56, 3912), (59, 3957), (73, 4050), (77, 4083), (78, 4089), (82, 4125), (99, 4344), (101, 4362), (114, 4485), (122, 4596), (125, 4620), (128, 4665),

Gene: BlueShadow_5 Start: 3608, Stop: 4822, Start Num: 13

Candidate Starts for BlueShadow_5:

(Start: 13 @3608 has 27 MA's), (19, 3644), (21, 3665), (22, 3668), (24, 3686), (33, 3746), (35, 3758), (36, 3767), (37, 3773), (47, 3854), (59, 3956), (76, 4073), (78, 4088), (84, 4184), (86, 4190), (90, 4232), (92, 4262), (99, 4343), (101, 4361), (106, 4376), (128, 4664), (132, 4760),

Gene: Bridgette_4 Start: 3744, Stop: 4985, Start Num: 13

Candidate Starts for Bridgette_4:

(Start: 13 @3744 has 27 MA's), (19, 3780), (60, 4098), (67, 4137), (70, 4149), (73, 4185), (77, 4218), (78, 4224), (101, 4497), (115, 4662), (128, 4833), (129, 4854), (131, 4896), (132, 4923), (133, 4947),

Gene: ChuckDuck_4 Start: 3747, Stop: 4946, Start Num: 13

Candidate Starts for ChuckDuck_4:

(Start: 13 @3747 has 27 MA's), (19, 3783), (26, 3837), (42, 3942), (47, 3993), (52, 4038), (73, 4188), (77, 4221), (78, 4227), (99, 4482), (101, 4500), (115, 4623), (128, 4794), (129, 4815), (131, 4857), (132, 4884), (133, 4908),

Gene: Constance_4 Start: 3745, Stop: 4986, Start Num: 13

Candidate Starts for Constance_4:

(Start: 13 @3745 has 27 MA's), (19, 3781), (30, 3865), (60, 4099), (67, 4138), (70, 4150), (73, 4186), (77, 4219), (78, 4225), (101, 4498), (115, 4663), (128, 4834), (129, 4855), (131, 4897), (132, 4924), (133, 4948),

Gene: CookieBear_5 Start: 3615, Stop: 4829, Start Num: 13

Candidate Starts for CookieBear_5:

(Start: 13 @3615 has 27 MA's), (17, 3633), (19, 3651), (20, 3660), (35, 3765), (36, 3774), (47, 3861), (49, 3885), (56, 3918), (59, 3963), (73, 4056), (77, 4089), (78, 4095), (82, 4131), (99, 4350), (101, 4368), (114, 4491), (122, 4602), (125, 4626), (128, 4671),

Gene: Dubu_4 Start: 3635, Stop: 4543, Start Num: 14

Candidate Starts for Dubu_4:

(11, 3629), (Start: 14 @3635 has 1 MA's), (28, 3743), (42, 3833), (53, 3923), (62, 3995), (67, 4022), (72, 4040), (74, 4076), (77, 4106), (79, 4115), (85, 4211), (92, 4274), (99, 4355), (101, 4373), (103, 4388), (107, 4409), (120, 4460),

Gene: Eileen_4 Start: 3747, Stop: 4946, Start Num: 13

Candidate Starts for Eileen_4:

(Start: 13 @3747 has 27 MA's), (19, 3783), (30, 3867), (40, 3924), (52, 4038), (73, 4188), (77, 4221), (78, 4227), (99, 4482), (101, 4500), (115, 4623), (128, 4794), (129, 4815), (131, 4857), (132, 4884), (133, 4908),

Gene: EvePickles_5 Start: 3615, Stop: 4829, Start Num: 13

Candidate Starts for EvePickles_5:

(Start: 13 @3615 has 27 MA's), (17, 3633), (19, 3651), (20, 3660), (35, 3765), (36, 3774), (47, 3861), (49, 3885), (56, 3918), (59, 3963), (73, 4056), (77, 4089), (78, 4095), (82, 4131), (99, 4350), (101, 4368), (114, 4491), (122, 4602), (128, 4671),

Gene: Faja_5 Start: 3608, Stop: 4822, Start Num: 13

Candidate Starts for Faja_5:

(Start: 13 @3608 has 27 MA's), (19, 3644), (21, 3665), (22, 3668), (24, 3686), (33, 3746), (35, 3758), (36, 3767), (37, 3773), (47, 3854), (59, 3956), (76, 4073), (78, 4088), (84, 4184), (86, 4190), (90, 4232), (92, 4262), (101, 4361), (106, 4376), (128, 4664), (132, 4760),

Gene: FosterFrank_4 Start: 3747, Stop: 4946, Start Num: 13

Candidate Starts for FosterFrank_4:

(Start: 13 @3747 has 27 MA's), (19, 3783), (30, 3867), (40, 3924), (52, 4038), (72, 4158), (73, 4188), (77, 4221), (78, 4227), (98, 4479), (99, 4482), (101, 4500), (115, 4623), (128, 4794), (129, 4815), (131, 4857), (132, 4884),

Gene: Globfish_5 Start: 3615, Stop: 4829, Start Num: 13

Candidate Starts for Globfish_5:

(Start: 13 @3615 has 27 MA's), (17, 3633), (19, 3651), (20, 3660), (35, 3765), (36, 3774), (47, 3861), (49, 3885), (56, 3918), (59, 3963), (73, 4056), (77, 4089), (78, 4095), (82, 4131), (90, 4239), (99, 4350), (101, 4368), (122, 4602), (128, 4671), (130, 4722),

Gene: GlobiWarming_4 Start: 3741, Stop: 4940, Start Num: 13

Candidate Starts for GlobiWarming_4:

(Start: 13 @3741 has 27 MA's), (19, 3777), (22, 3801), (26, 3831), (42, 3936), (52, 4032), (73, 4182), (77, 4215), (78, 4221), (99, 4476), (101, 4494), (128, 4788), (129, 4809), (131, 4851), (132, 4878), (133, 4902),

Gene: Gorpy_5 Start: 3609, Stop: 4823, Start Num: 13

Candidate Starts for Gorpy_5:

(Start: 13 @3609 has 27 MA's), (19, 3645), (21, 3666), (22, 3669), (24, 3687), (33, 3747), (35, 3759), (36, 3768), (37, 3774), (47, 3855), (59, 3957), (73, 4050), (77, 4083), (78, 4089), (94, 4287), (99, 4344), (101, 4362), (106, 4377), (112, 4467), (114, 4485), (122, 4596), (128, 4665), (130, 4716),

Gene: Hestia_4 Start: 3687, Stop: 4901, Start Num: 13

Candidate Starts for Hestia_4:

(Start: 13 @3687 has 27 MA's), (17, 3705), (19, 3723), (20, 3732), (35, 3837), (36, 3846), (47, 3933), (49, 3957), (56, 3990), (59, 4035), (73, 4128), (77, 4161), (78, 4167), (90, 4311), (99, 4422), (101, 4440), (114, 4563), (122, 4674), (128, 4743),

Gene: Hillester_5 Start: 3608, Stop: 4822, Start Num: 13

Candidate Starts for Hillester_5:

(Start: 13 @3608 has 27 MA's), (19, 3644), (21, 3665), (22, 3668), (24, 3686), (33, 3746), (35, 3758), (36, 3767), (37, 3773), (47, 3854), (59, 3956), (76, 4073), (78, 4088), (84, 4184), (86, 4190), (90, 4232), (92, 4262), (99, 4343), (101, 4361), (106, 4376), (128, 4664), (132, 4760),

Gene: HotPotato_4 Start: 3747, Stop: 4946, Start Num: 13

Candidate Starts for HotPotato_4:

(Start: 13 @3747 has 27 MA's), (19, 3783), (30, 3867), (40, 3924), (52, 4038), (73, 4188), (77, 4221), (78, 4227), (99, 4482), (101, 4500), (115, 4623), (128, 4794), (129, 4815), (131, 4857), (132, 4884), (133, 4908),

Gene: Hum25_4 Start: 3436, Stop: 4440, Start Num: 12

Candidate Starts for Hum25_4:

(Start: 10 @3433 has 3 MA's), (Start: 12 @3436 has 1 MA's), (15, 3445), (19, 3475), (23, 3502), (34, 3586), (35, 3589), (41, 3625), (42, 3634), (46, 3679), (51, 3727), (55, 3742), (57, 3757), (61, 3802), (71, 3850), (72, 3853), (73, 3883), (75, 3904), (78, 3922), (80, 3952), (92, 4087), (97, 4159), (98, 4168), (104, 4228), (109, 4279), (112, 4312), (120, 4360),

Gene: Isolde_5 Start: 3614, Stop: 4828, Start Num: 13

Candidate Starts for Isolde_5:

(Start: 13 @3614 has 27 MA's), (19, 3650), (20, 3659), (21, 3671), (22, 3674), (24, 3692), (27, 3710), (33, 3752), (35, 3764), (36, 3773), (37, 3779), (47, 3860), (59, 3962), (78, 4094), (84, 4190), (89, 4235), (92, 4268), (98, 4346), (99, 4349), (101, 4367), (110, 4442), (119, 4520), (122, 4601), (128, 4670),

Gene: JellyBread_5 Start: 3608, Stop: 4822, Start Num: 13

Candidate Starts for JellyBread_5:

(Start: 13 @3608 has 27 MA's), (19, 3644), (21, 3665), (22, 3668), (24, 3686), (33, 3746), (35, 3758), (36, 3767), (37, 3773), (47, 3854), (59, 3956), (76, 4073), (78, 4088), (84, 4184), (90, 4232), (92, 4262), (99, 4343), (101, 4361), (107, 4379), (119, 4514), (122, 4595), (128, 4664),

Gene: Judy_4 Start: 3744, Stop: 4985, Start Num: 13

Candidate Starts for Judy_4:

(Start: 13 @3744 has 27 MA's), (19, 3780), (30, 3864), (60, 4098), (67, 4137), (70, 4149), (73, 4185), (77, 4218), (78, 4224), (101, 4497), (115, 4662), (128, 4833), (129, 4854), (131, 4896), (132, 4923),

(133, 4947),

Gene: Karkharias_4 Start: 3747, Stop: 4946, Start Num: 13

Candidate Starts for Karkharias_4:

(7, 3627), (8, 3675), (Start: 13 @3747 has 27 MA's), (19, 3783), (26, 3837), (42, 3942), (52, 4038), (73, 4188), (77, 4221), (78, 4227), (99, 4482), (101, 4500), (115, 4623), (128, 4794), (129, 4815), (131, 4857), (132, 4884), (133, 4908),

Gene: KayMoney_4 Start: 3747, Stop: 4946, Start Num: 13

Candidate Starts for KayMoney_4:

(Start: 13 @3747 has 27 MA's), (19, 3783), (26, 3837), (42, 3942), (47, 3993), (52, 4038), (72, 4158), (73, 4188), (77, 4221), (78, 4227), (99, 4482), (101, 4500), (115, 4623), (128, 4794), (129, 4815), (131, 4857), (132, 4884),

Gene: Kromp_4 Start: 3866, Stop: 4882, Start Num: 10

Candidate Starts for Kromp_4:

(Start: 10 @3866 has 3 MA's), (19, 3908), (32, 4010), (35, 4025), (39, 4046), (43, 4082), (58, 4199), (62, 4241), (66, 4262), (67, 4268), (73, 4316), (74, 4322), (76, 4343), (79, 4361), (83, 4406), (101, 4619), (102, 4628), (120, 4799), (123, 4877),

Gene: Lawnathon_5 Start: 3616, Stop: 4830, Start Num: 13

Candidate Starts for Lawnathon_5:

(Start: 13 @3616 has 27 MA's), (17, 3634), (19, 3652), (20, 3661), (35, 3766), (36, 3775), (47, 3862), (49, 3886), (56, 3919), (59, 3964), (73, 4057), (77, 4090), (78, 4096), (82, 4132), (90, 4240), (99, 4351), (101, 4369), (122, 4603), (128, 4672),

Gene: MUWow_4 Start: 3687, Stop: 4901, Start Num: 13

Candidate Starts for MUWow_4:

(Start: 13 @3687 has 27 MA's), (19, 3723), (20, 3732), (24, 3765), (33, 3825), (35, 3837), (36, 3846), (47, 3933), (59, 4035), (76, 4152), (78, 4167), (84, 4263), (90, 4311), (92, 4341), (99, 4422), (101, 4440), (107, 4458), (110, 4515), (119, 4593), (122, 4674), (128, 4743),

Gene: MaterMagnus_5 Start: 3608, Stop: 4822, Start Num: 13

Candidate Starts for MaterMagnus_5:

(Start: 13 @3608 has 27 MA's), (19, 3644), (21, 3665), (22, 3668), (24, 3686), (33, 3746), (35, 3758), (36, 3767), (37, 3773), (47, 3854), (59, 3956), (76, 4073), (78, 4088), (84, 4184), (86, 4190), (90, 4232), (92, 4262), (99, 4343), (101, 4361), (106, 4376), (128, 4664), (132, 4760),

Gene: MidnightRain_5 Start: 3608, Stop: 4822, Start Num: 13

Candidate Starts for MidnightRain_5:

(Start: 13 @3608 has 27 MA's), (19, 3644), (21, 3665), (22, 3668), (24, 3686), (33, 3746), (35, 3758), (36, 3767), (37, 3773), (47, 3854), (59, 3956), (76, 4073), (78, 4088), (84, 4184), (86, 4190), (90, 4232), (92, 4262), (99, 4343), (101, 4361), (106, 4376), (128, 4664), (132, 4760),

Gene: Nesbitt_4 Start: 3796, Stop: 4842, Start Num: 9

Candidate Starts for Nesbitt_4:

(Start: 9 @3796 has 2 MA's), (29, 3976), (39, 4033), (43, 4069), (47, 4108), (60, 4216), (61, 4222), (63, 4231), (64, 4234), (66, 4249), (74, 4309), (76, 4330), (78, 4345), (79, 4348), (85, 4444), (87, 4453), (92, 4507), (95, 4549), (96, 4558), (97, 4576), (100, 4594), (101, 4615), (102, 4624), (103, 4630), (107, 4651), (109, 4696),

Gene: Peas_4 Start: 3747, Stop: 4946, Start Num: 13

Candidate Starts for Peas_4:

(Start: 13 @3747 has 27 MA's), (19, 3783), (30, 3867), (40, 3924), (52, 4038), (73, 4188), (77, 4221), (78, 4227), (99, 4482), (101, 4500), (115, 4623), (128, 4794), (129, 4815), (131, 4857), (132, 4884), (133, 4908),

Gene: PeggyLeg03_4 Start: 3745, Stop: 4986, Start Num: 13

Candidate Starts for PeggyLeg03_4:

(Start: 13 @3745 has 27 MA's), (19, 3781), (30, 3865), (60, 4099), (67, 4138), (70, 4150), (73, 4186), (77, 4219), (78, 4225), (101, 4498), (115, 4663), (128, 4834), (129, 4855), (131, 4897), (132, 4924), (133, 4948),

Gene: Persistence_4 Start: 3686, Stop: 4900, Start Num: 13

Candidate Starts for Persistence_4:

(Start: 13 @3686 has 27 MA's), (17, 3704), (19, 3722), (21, 3743), (22, 3746), (24, 3764), (33, 3824), (35, 3836), (36, 3845), (37, 3851), (44, 3908), (47, 3932), (59, 4034), (62, 4052), (72, 4097), (78, 4166), (84, 4262), (90, 4310), (92, 4340), (98, 4418), (99, 4421), (101, 4439), (106, 4454), (126, 4715), (128, 4742), (129, 4763),

Gene: Phrank15_4 Start: 3687, Stop: 4901, Start Num: 13

Candidate Starts for Phrank15_4:

(Start: 13 @3687 has 27 MA's), (17, 3705), (19, 3723), (20, 3732), (35, 3837), (36, 3846), (47, 3933), (49, 3957), (56, 3990), (59, 4035), (77, 4161), (78, 4167), (86, 4269), (90, 4311), (92, 4341), (99, 4422), (101, 4440), (112, 4545), (114, 4563), (122, 4674), (128, 4743), (129, 4764),

Gene: Pucara_4 Start: 3749, Stop: 4948, Start Num: 13

Candidate Starts for Pucara_4:

(1, 2786), (2, 2807), (3, 2867), (4, 3005), (5, 3176), (6, 3539), (8, 3680), (Start: 13 @3749 has 27 MA's), (19, 3785), (26, 3839), (42, 3944), (47, 3995), (52, 4040), (73, 4190), (77, 4223), (78, 4229), (99, 4484), (101, 4502), (115, 4625), (128, 4796), (129, 4817), (131, 4859), (132, 4886), (133, 4910),

Gene: RadFad_5 Start: 3608, Stop: 4822, Start Num: 13

Candidate Starts for RadFad_5:

(Start: 13 @3608 has 27 MA's), (19, 3644), (21, 3665), (22, 3668), (24, 3686), (33, 3746), (35, 3758), (36, 3767), (37, 3773), (47, 3854), (59, 3956), (76, 4073), (78, 4088), (84, 4184), (86, 4190), (90, 4232), (92, 4262), (99, 4343), (101, 4361), (106, 4376), (128, 4664), (132, 4760),

Gene: Raphaella_5 Start: 3615, Stop: 4829, Start Num: 13

Candidate Starts for Raphaella_5:

(Start: 13 @3615 has 27 MA's), (17, 3633), (19, 3651), (20, 3660), (35, 3765), (36, 3774), (47, 3861), (49, 3885), (56, 3918), (59, 3963), (73, 4056), (77, 4089), (78, 4095), (82, 4131), (99, 4350), (101, 4368), (114, 4491), (122, 4602), (125, 4626), (128, 4671),

Gene: Richie_5 Start: 3615, Stop: 4829, Start Num: 13

Candidate Starts for Richie_5:

(Start: 13 @3615 has 27 MA's), (17, 3633), (19, 3651), (20, 3660), (35, 3765), (36, 3774), (47, 3861), (49, 3885), (56, 3918), (59, 3963), (73, 4056), (77, 4089), (78, 4095), (82, 4131), (99, 4350), (101, 4368), (114, 4491), (122, 4602), (125, 4626), (128, 4671),

Gene: Rowa_4 Start: 3720, Stop: 4694, Start Num: 10

Candidate Starts for Rowa_4:

(Start: 10 @3720 has 3 MA's), (16, 3738), (18, 3759), (19, 3762), (25, 3816), (35, 3879), (42, 3924), (43, 3936), (45, 3966), (47, 3975), (49, 3999), (50, 4005), (59, 4077), (65, 4107), (66, 4116), (74, 4176), (76, 4197), (77, 4206), (78, 4212), (85, 4311), (87, 4320), (92, 4374), (98, 4452), (101, 4473), (105, 4500), (113, 4563), (118, 4593), (120, 4611),

Gene: Sakai_5 Start: 3609, Stop: 4823, Start Num: 13

Candidate Starts for Sakai_5:

(Start: 13 @3609 has 27 MA's), (19, 3645), (21, 3666), (22, 3669), (24, 3687), (33, 3747), (35, 3759), (36, 3768), (37, 3774), (47, 3855), (59, 3957), (73, 4050), (77, 4083), (78, 4089), (94, 4287), (99, 4344), (101, 4362), (106, 4377), (112, 4467), (114, 4485), (122, 4596), (128, 4665), (130, 4716),

Gene: Sashimi_6 Start: 3777, Stop: 4991, Start Num: 13

Candidate Starts for Sashimi_6:

(Start: 13 @3777 has 27 MA's), (17, 3795), (19, 3813), (20, 3822), (35, 3927), (36, 3936), (47, 4023), (49, 4047), (56, 4080), (59, 4125), (73, 4218), (77, 4251), (78, 4257), (82, 4293), (90, 4401), (92, 4431), (99, 4512), (101, 4530), (114, 4653), (122, 4764), (128, 4833),

Gene: Seahorse_6 Start: 3775, Stop: 4995, Start Num: 10

Candidate Starts for Seahorse_6:

(Start: 10 @3775 has 3 MA's), (Start: 13 @3781 has 27 MA's), (17, 3799), (19, 3817), (24, 3859), (26, 3871), (31, 3910), (32, 3916), (36, 3940), (44, 4003), (47, 4027), (56, 4084), (59, 4129), (62, 4147), (76, 4246), (77, 4255), (78, 4261), (79, 4264), (86, 4363), (88, 4378), (90, 4405), (96, 4486), (99, 4516), (101, 4534), (107, 4552), (112, 4639), (116, 4666), (119, 4687), (126, 4810), (128, 4837),

Gene: Shukran_5 Start: 3614, Stop: 4828, Start Num: 13

Candidate Starts for Shukran_5:

(Start: 13 @3614 has 27 MA's), (17, 3632), (19, 3650), (35, 3764), (36, 3773), (47, 3860), (49, 3884), (56, 3917), (59, 3962), (73, 4055), (77, 4088), (78, 4094), (90, 4238), (99, 4349), (101, 4367), (114, 4490), (122, 4601), (124, 4622), (128, 4670),

Gene: Sleepyhead_4 Start: 3350, Stop: 4345, Start Num: 13

Candidate Starts for Sleepyhead_4:

(Start: 13 @3350 has 27 MA's), (35, 3512), (38, 3530), (54, 3656), (68, 3755), (69, 3758), (71, 3767), (74, 3806), (78, 3839), (81, 3872), (91, 3977), (93, 4010), (98, 4073), (104, 4124), (108, 4175), (111, 4211), (121, 4280),

Gene: SpicyFrank_5 Start: 3615, Stop: 4829, Start Num: 13

Candidate Starts for SpicyFrank_5:

(Start: 13 @3615 has 27 MA's), (17, 3633), (19, 3651), (20, 3660), (35, 3765), (36, 3774), (47, 3861), (49, 3885), (56, 3918), (59, 3963), (73, 4056), (77, 4089), (78, 4095), (82, 4131), (90, 4239), (99, 4350), (101, 4368), (114, 4491), (122, 4602), (128, 4671),

Gene: ThayneTheZag_5 Start: 3612, Stop: 4826, Start Num: 13

Candidate Starts for ThayneTheZag_5:

(Start: 13 @3612 has 27 MA's), (19, 3648), (20, 3657), (22, 3672), (24, 3690), (28, 3717), (33, 3750), (35, 3762), (36, 3771), (44, 3834), (47, 3858), (69, 4011), (78, 4092), (79, 4095), (84, 4188), (90, 4236), (92, 4266), (99, 4347), (101, 4365), (107, 4383), (116, 4497), (122, 4599), (128, 4668),

Gene: Tiff81_6 Start: 3773, Stop: 4987, Start Num: 13

Candidate Starts for Tiff81_6:

(Start: 13 @3773 has 27 MA's), (17, 3791), (19, 3809), (20, 3818), (24, 3851), (33, 3911), (35, 3923), (36, 3932), (44, 3995), (47, 4019), (72, 4184), (78, 4253), (84, 4349), (86, 4355), (90, 4397), (92, 4427), (99, 4508), (101, 4526), (116, 4658), (122, 4760), (127, 4817), (128, 4829),

Gene: Vopal_5 Start: 3614, Stop: 4828, Start Num: 13

Candidate Starts for Vopal_5:

(Start: 13 @3614 has 27 MA's), (19, 3650), (21, 3671), (22, 3674), (24, 3692), (33, 3752), (35, 3764), (36, 3773), (37, 3779), (47, 3860), (59, 3962), (78, 4094), (84, 4190), (89, 4235), (90, 4238), (92, 4268), (98, 4346), (99, 4349), (101, 4367), (119, 4520), (122, 4601), (128, 4670),

Gene: Windest_5 Start: 3614, Stop: 4828, Start Num: 13

Candidate Starts for Windest_5:

(Start: 13 @3614 has 27 MA's), (19, 3650), (21, 3671), (22, 3674), (24, 3692), (33, 3752), (35, 3764), (36, 3773), (37, 3779), (47, 3860), (59, 3962), (78, 4094), (84, 4190), (89, 4235), (90, 4238), (92, 4268), (98, 4346), (99, 4349), (101, 4367), (119, 4520), (122, 4601), (128, 4670),

Gene: YoungHarleezy_5 Start: 3613, Stop: 4827, Start Num: 13

Candidate Starts for YoungHarleezy_5:

(Start: 13 @3613 has 27 MA's), (19, 3649), (20, 3658), (24, 3691), (33, 3751), (35, 3763), (36, 3772), (44, 3835), (47, 3859), (48, 3871), (72, 4024), (78, 4093), (84, 4189), (86, 4195), (90, 4237), (92, 4267), (99, 4348), (101, 4366), (116, 4498), (122, 4600), (128, 4669),