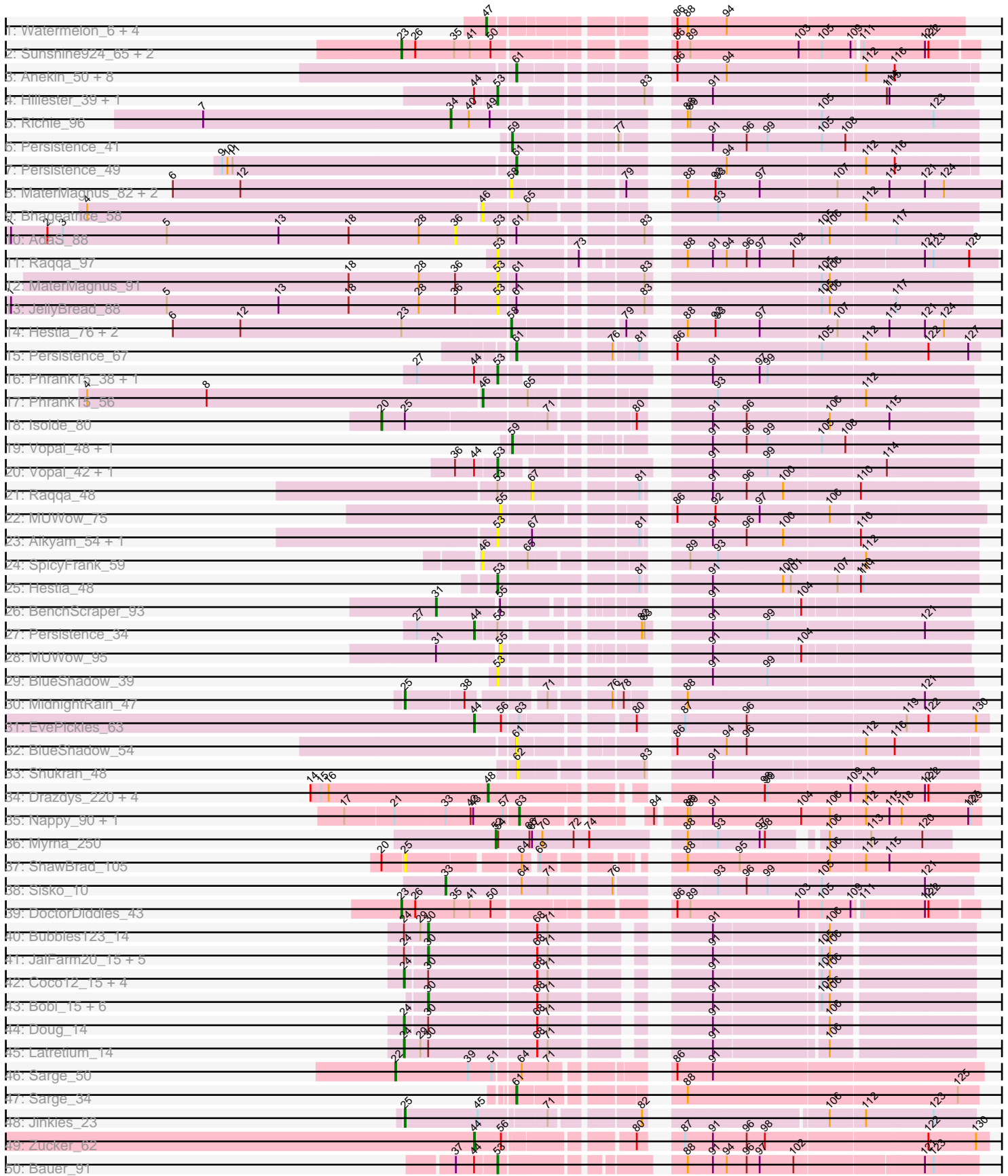
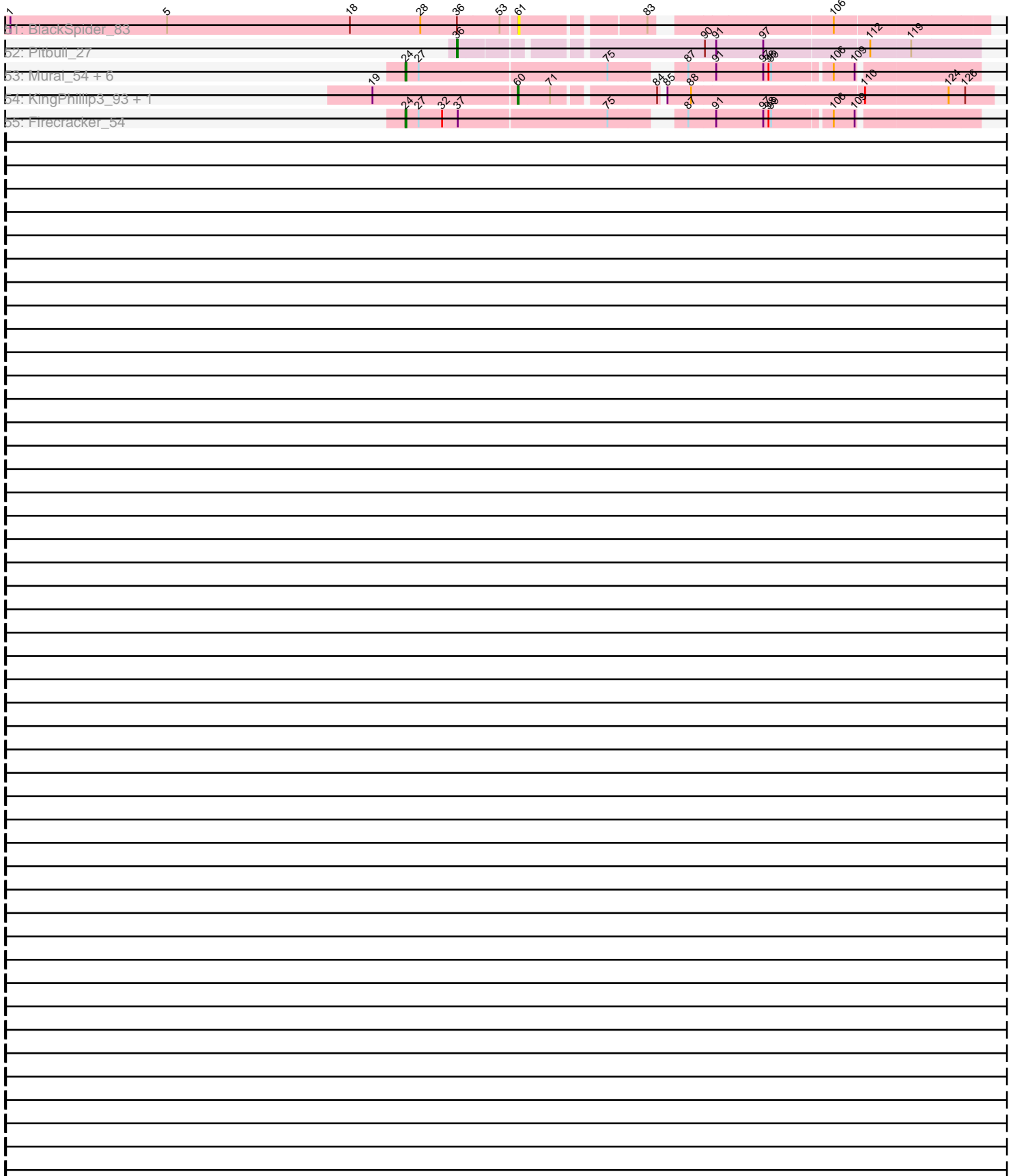


Pham 216017



Pham 216017



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 216017 Report

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

Pham number 216017 has 105 members, 28 are drafts.

Phages represented in each track:

- Track 1 : Watermelon_6, Trouble_4, Tripl3t_5, Peterson_6, Alsfro_7
- Track 2 : Sunshine924_65, Holt_44, Flabslab_17
- Track 3 : Anekin_50, BillyTP_55, Faja_54, RadFad_57, BenchScraper_52, Raqqa_45, Vopal_56, Hillester_57, MidnightRain_57
- Track 4 : Hillester_39, RadFad_39
- Track 5 : Richie_96
- Track 6 : Persistence_41
- Track 7 : Persistence_49
- Track 8 : MaterMagnus_82, BlueShadow_87, Aikyam_81
- Track 9 : Bhageatrice_58
- Track 10 : AdaS_88
- Track 11 : Raqqa_97
- Track 12 : MaterMagnus_91
- Track 13 : JellyBread_88
- Track 14 : Hestia_76, BillyTP_83, Lawnathon_82
- Track 15 : Persistence_67
- Track 16 : Phrank15_38, Windest_39
- Track 17 : Phrank15_56
- Track 18 : Isolde_80
- Track 19 : Vopal_48, Tiff81_42
- Track 20 : Vopal_42, BillyTP_41
- Track 21 : Raqqa_48
- Track 22 : MUWow_75
- Track 23 : Aikyam_54, MaterMagnus_56
- Track 24 : SpicyFrank_59
- Track 25 : Hestia_48
- Track 26 : BenchScraper_93
- Track 27 : Persistence_34
- Track 28 : MUWow_95
- Track 29 : BlueShadow_39
- Track 30 : MidnightRain_47
- Track 31 : EvePickles_63
- Track 32 : BlueShadow_54
- Track 33 : Shukran_48
- Track 34 : Drazdys_220, ShiaLabeouf_219, Nappy_223, Ading_223, Jemmno_221
- Track 35 : Nappy_90, Cane17_77
- Track 36 : Myrna_250

- Track 37 : ShawBrad_105
- Track 38 : Sisko_10
- Track 39 : DoctorDiddles_43
- Track 40 : Bubbles123_14
- Track 41 : JalFarm20_15, Alexphander_15, Polka14_14, DaWorst_15, OwlsT2W_15, Phasih_14
- Track 42 : Coco12_15, Job42_15, Minnie_14, BuzzLyseyear_15, SuperGrey_14
- Track 43 : Bobi_15, Wee_14, Phatniss_14, Sandalphon_14, Rialto_15, Firehouse51_14, Moonbeam_14
- Track 44 : Doug_14
- Track 45 : Latretium_14
- Track 46 : Sarge_50
- Track 47 : Sarge_34
- Track 48 : Jinkies_23
- Track 49 : Zucker_62
- Track 50 : Bauer_91
- Track 51 : BlackSpider_83
- Track 52 : Pitbull_27
- Track 53 : Murai_54, Corndog_56, Smooch_56, YungJamal_57, Ashwin_55, Vorrps_53, Mori_53
- Track 54 : KingPhillip3_93, Bora_94
- Track 55 : Firecracker_54

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

The start number called the most often in the published annotations is 24, it was called in 15 of the 77 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Ashwin_55, BuzzLyseyear_15, Coco12_15, Corndog_56, Doug_14, Firecracker_54, Job42_15, Latretium_14, Minnie_14, Mori_53, Murai_54, Smooch_56, SuperGrey_14, Vorrps_53, YungJamal_57,

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

- Alexphander_15, Bubbles123_14, DaWorst_15, JalFarm20_15, OwlsT2W_15, Phasih_14, Polka14_14,

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

- AdaS_88, Ading_223, Aikyam_54, Aikyam_81, Alsfro_7, Anekin_50, Bauer_91, BenchScraper_52, BenchScraper_93, Bhageatrice_58, BillyTP_41, BillyTP_55, BillyTP_83, BlackSpider_83, BlueShadow_39, BlueShadow_54, BlueShadow_87, Bobi_15, Bora_94, Cane17_77, DoctorDiddles_43, Drazdys_220, EvePickles_63, Faja_54, Firehouse51_14, Flabslab_17, Hestia_48, Hestia_76, Hillester_39, Hillester_57, Holt_44, Isolde_80, JellyBread_88, Jemmno_221, Jinkies_23, KingPhillip3_93, Lawnathon_82, MUWow_75, MUWow_95, MaterMagnus_56, MaterMagnus_82, MaterMagnus_91, MidnightRain_47, MidnightRain_57, Moonbeam_14, Myrna_250, Nappy_223, Nappy_90, Persistence_34, Persistence_41, Persistence_49, Persistence_67, Peterson_6, Phatniss_14, Phrank15_38, Phrank15_56, Pitbull_27, RadFad_39, RadFad_57, Raqqa_45, Raqqa_48, Raqqa_97, Rialto_15, Richie_96, Sandalphon_14, Sarge_34, Sarge_50,

ShawBrad_105, ShiaLabeouf_219, Shukran_48, Sisko_10, SpicyFrank_59, Sunshine924_65, Tiff81_42, Tripl3t_5, Trouble_4, Vopal_42, Vopal_48, Vopal_56, Watermelon_6, Wee_14, Windest_39, Zucker_62,

Summary by start number:

Start 20:

- Found in 2 of 105 (1.9%) of genes in pham
- Manual Annotations of this start: 1 of 77
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Isolde_80 (AY),

Start 22:

- Found in 1 of 105 (1.0%) of genes in pham
- Manual Annotations of this start: 1 of 77
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sarge_50 (FB),

Start 23:

- Found in 7 of 105 (6.7%) of genes in pham
- Manual Annotations of this start: 4 of 77
- Called 57.1% of time when present
- Phage (with cluster) where this start called: DoctorDiddles_43 (E), Flabslab_17 (C1), Holt_44 (E), Sunshine924_65 (A1),

Start 24:

- Found in 22 of 105 (21.0%) of genes in pham
- Manual Annotations of this start: 15 of 77
- Called 68.2% of time when present
- Phage (with cluster) where this start called: Ashwin_55 (O), BuzzLyseyear_15 (F1), Coco12_15 (F1), Corndog_56 (O), Doug_14 (F1), Firecracker_54 (O), Job42_15 (F1), Latretium_14 (F1), Minnie_14 (F1), Mori_53 (O), Murai_54 (O), Smooch_56 (O), SuperGrey_14 (F1), Vorrps_53 (O), YungJamal_57 (O),

Start 25:

- Found in 4 of 105 (3.8%) of genes in pham
- Manual Annotations of this start: 2 of 77
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Jinkies_23 (FL), MidnightRain_47 (AY), ShawBrad_105 (DN1),

Start 30:

- Found in 21 of 105 (20.0%) of genes in pham
- Manual Annotations of this start: 14 of 77
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Alexphander_15 (F1), Bobi_15 (F1), Bubbles123_14 (F1), DaWorst_15 (F1), Firehouse51_14 (F1), JalFarm20_15 (F1), Moonbeam_14 (F1), OwlsT2W_15 (F1), Phasih_14 (F1), Phatniss_14 (F1), Polka14_14 (F1), Rialto_15 (F1), Sandalphon_14 (F1), Wee_14 (F1),

Start 31:

- Found in 2 of 105 (1.9%) of genes in pham
- Manual Annotations of this start: 1 of 77

- Called 50.0% of time when present
- Phage (with cluster) where this start called: BenchScraper_93 (AY),

Start 33:

- Found in 3 of 105 (2.9%) of genes in pham
- Manual Annotations of this start: 1 of 77
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Sisko_10 (DR),

Start 34:

- Found in 1 of 105 (1.0%) of genes in pham
- Manual Annotations of this start: 1 of 77
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Richie_96 (AY),

Start 36:

- Found in 7 of 105 (6.7%) of genes in pham
- Manual Annotations of this start: 1 of 77
- Called 28.6% of time when present
- Phage (with cluster) where this start called: AdaS_88 (AY), Pitbull_27 (FQ),

Start 44:

- Found in 10 of 105 (9.5%) of genes in pham
- Manual Annotations of this start: 3 of 77
- Called 30.0% of time when present
- Phage (with cluster) where this start called: EvePickles_63 (AY), Persistence_34 (AY), Zucker_62 (FN),

Start 46:

- Found in 3 of 105 (2.9%) of genes in pham
- Manual Annotations of this start: 1 of 77
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bhageatrice_58 (AY), Phrank15_56 (AY), SpicyFrank_59 (AY),

Start 47:

- Found in 5 of 105 (4.8%) of genes in pham
- Manual Annotations of this start: 5 of 77
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alsfro_7 (A1), Peterson_6 (A1), Trip13t_5 (A1), Trouble_4 (A1), Watermelon_6 (A1),

Start 48:

- Found in 5 of 105 (4.8%) of genes in pham
- Manual Annotations of this start: 5 of 77
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ading_223 (C1), Drazdys_220 (C1), Jemmno_221 (C1), Nappy_223 (C1), ShiaLabeouf_219 (C1),

Start 52:

- Found in 1 of 105 (1.0%) of genes in pham
- Manual Annotations of this start: 1 of 77
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Myrna_250 (C2),

Start 53:

- Found in 18 of 105 (17.1%) of genes in pham
- Manual Annotations of this start: 5 of 77
- Called 77.8% of time when present
- Phage (with cluster) where this start called: Aikyam_54 (AY), Bauer_91 (FN), BillyTP_41 (AY), BlueShadow_39 (AY), Hestia_48 (AY), Hillester_39 (AY), JellyBread_88 (AY), MaterMagnus_56 (AY), MaterMagnus_91 (AY), Phrank15_38 (AY), RadFad_39 (AY), Raqqa_97 (AY), Vopal_42 (AY), Windest_39 (AY),

Start 55:

- Found in 3 of 105 (2.9%) of genes in pham
- No Manual Annotations of this start.
- Called 66.7% of time when present
- Phage (with cluster) where this start called: MUWow_75 (AY), MUWow_95 (AY),

Start 58:

- Found in 6 of 105 (5.7%) of genes in pham
- Manual Annotations of this start: 2 of 77
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aikyam_81 (AY), BillyTP_83 (AY), BlueShadow_87 (AY), Hestia_76 (AY), Lawnathon_82 (AY), MaterMagnus_82 (AY),

Start 59:

- Found in 3 of 105 (2.9%) of genes in pham
- Manual Annotations of this start: 2 of 77
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Persistence_41 (AY), Tiff81_42 (AY), Vopal_48 (AY),

Start 60:

- Found in 2 of 105 (1.9%) of genes in pham
- Manual Annotations of this start: 1 of 77
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bora_94 (O), KingPhillip3_93 (O),

Start 61:

- Found in 17 of 105 (16.2%) of genes in pham
- Manual Annotations of this start: 9 of 77
- Called 82.4% of time when present
- Phage (with cluster) where this start called: Anekin_50 (AY), BenchScraper_52 (AY), BillyTP_55 (AY), BlackSpider_83 (FN), BlueShadow_54 (AY), Faja_54 (AY), Hillester_57 (AY), MidnightRain_57 (AY), Persistence_49 (AY), Persistence_67 (AY), RadFad_57 (AY), Raqqa_45 (AY), Sarge_34 (FB), Vopal_56 (AY),

Start 62:

- Found in 1 of 105 (1.0%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Shukran_48 (AY),

Start 63:

- Found in 3 of 105 (2.9%) of genes in pham
- Manual Annotations of this start: 2 of 77
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Cane17_77 (C1), Nappy_90 (C1),

Start 67:

- Found in 4 of 105 (3.8%) of genes in pham
- No Manual Annotations of this start.
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Raqqa_48 (AY),

Summary by clusters:

There are 13 clusters represented in this pham: F1, E, FQ, FL, O, A1, FB, DN1, AY, C2, C1, DR, FN,

Info for manual annotations of cluster A1:

- Start number 23 was manually annotated 1 time for cluster A1.
- Start number 47 was manually annotated 5 times for cluster A1.

Info for manual annotations of cluster AY:

- Start number 20 was manually annotated 1 time for cluster AY.
- Start number 25 was manually annotated 1 time for cluster AY.
- Start number 31 was manually annotated 1 time for cluster AY.
- Start number 34 was manually annotated 1 time for cluster AY.
- Start number 44 was manually annotated 2 times for cluster AY.
- Start number 46 was manually annotated 1 time for cluster AY.
- Start number 53 was manually annotated 4 times for cluster AY.
- Start number 58 was manually annotated 2 times for cluster AY.
- Start number 59 was manually annotated 2 times for cluster AY.
- Start number 61 was manually annotated 8 times for cluster AY.

Info for manual annotations of cluster C1:

- Start number 23 was manually annotated 1 time for cluster C1.
- Start number 48 was manually annotated 5 times for cluster C1.
- Start number 63 was manually annotated 2 times for cluster C1.

Info for manual annotations of cluster C2:

- Start number 52 was manually annotated 1 time for cluster C2.

Info for manual annotations of cluster DR:

- Start number 33 was manually annotated 1 time for cluster DR.

Info for manual annotations of cluster E:

- Start number 23 was manually annotated 2 times for cluster E.

Info for manual annotations of cluster F1:

- Start number 24 was manually annotated 7 times for cluster F1.
- Start number 30 was manually annotated 14 times for cluster F1.

Info for manual annotations of cluster FB:

- Start number 22 was manually annotated 1 time for cluster FB.

- Start number 61 was manually annotated 1 time for cluster FB.

Info for manual annotations of cluster FL:

- Start number 25 was manually annotated 1 time for cluster FL.

Info for manual annotations of cluster FN:

- Start number 44 was manually annotated 1 time for cluster FN.
- Start number 53 was manually annotated 1 time for cluster FN.

Info for manual annotations of cluster FQ:

- Start number 36 was manually annotated 1 time for cluster FQ.

Info for manual annotations of cluster O:

- Start number 24 was manually annotated 8 times for cluster O.
- Start number 60 was manually annotated 1 time for cluster O.

Gene Information:

Gene: AdaS_88 Start: 48465, Stop: 48998, Start Num: 36

Candidate Starts for AdaS_88:

(1, 47952), (2, 47994), (3, 48012), (5, 48132), (13, 48261), (18, 48342), (28, 48423), (Start: 36 @48465 has 1 MA's), (Start: 53 @48513 has 5 MA's), (Start: 61 @48531 has 9 MA's), (83, 48660), (105, 48834), (106, 48843), (117, 48915),

Gene: Ading_223 Start: 126625, Stop: 127119, Start Num: 48

Candidate Starts for Ading_223:

(14, 126424), (15, 126436), (16, 126445), (Start: 48 @126625 has 5 MA's), (98, 126883), (99, 126886), (109, 126979), (112, 126994), (121, 127060), (122, 127063),

Gene: Aikyam_54 Start: 31109, Stop: 31600, Start Num: 53

Candidate Starts for Aikyam_54:

(Start: 53 @31109 has 5 MA's), (67, 31145), (81, 31256), (91, 31307), (96, 31343), (100, 31385), (110, 31469),

Gene: Aikyam_81 Start: 44887, Stop: 45402, Start Num: 58

Candidate Starts for Aikyam_81:

(6, 44503), (12, 44581), (Start: 58 @44887 has 2 MA's), (79, 44995), (88, 45037), (92, 45067), (93, 45070), (97, 45115), (107, 45202), (115, 45259), (121, 45298), (124, 45319),

Gene: Alexphander_15 Start: 9340, Stop: 9879, Start Num: 30

Candidate Starts for Alexphander_15:

(Start: 24 @9319 has 15 MA's), (Start: 30 @9340 has 14 MA's), (68, 9457), (71, 9469), (91, 9601), (105, 9715), (106, 9724),

Gene: Alsfro_7 Start: 2250, Stop: 2729, Start Num: 47

Candidate Starts for Alsfro_7:

(Start: 47 @2250 has 5 MA's), (86, 2409), (88, 2421), (94, 2463),

Gene: Anekin_50 Start: 31927, Stop: 32388, Start Num: 61

Candidate Starts for Anekin_50:

(Start: 61 @31927 has 9 MA's), (86, 32059), (94, 32113), (112, 32266), (116, 32299),

Gene: Ashwin_55 Start: 26608, Stop: 27207, Start Num: 24

Candidate Starts for Ashwin_55:

(Start: 24 @26608 has 15 MA's), (27, 26623), (75, 26833), (87, 26896), (91, 26926), (97, 26980), (98, 26986), (99, 26989), (106, 27052), (109, 27076),

Gene: Bauer_91 Start: 48793, Stop: 49275, Start Num: 53

Candidate Starts for Bauer_91:

(37, 48748), (Start: 44 @48769 has 3 MA's), (Start: 53 @48793 has 5 MA's), (88, 48958), (91, 48985), (94, 49000), (96, 49021), (97, 49036), (102, 49075), (121, 49216), (123, 49225),

Gene: BenchScraper_52 Start: 31813, Stop: 32274, Start Num: 61

Candidate Starts for BenchScraper_52:

(Start: 61 @31813 has 9 MA's), (86, 31945), (94, 31999), (112, 32152), (116, 32185),

Gene: BenchScraper_93 Start: 49693, Stop: 50208, Start Num: 31

Candidate Starts for BenchScraper_93:

(Start: 31 @49693 has 1 MA's), (55, 49759), (91, 49933), (104, 50029),

Gene: Bhageatrice_58 Start: 34427, Stop: 34927, Start Num: 46

Candidate Starts for Bhageatrice_58:

(4, 33977), (Start: 46 @34427 has 1 MA's), (65, 34475), (93, 34640), (112, 34802),

Gene: BillyTP_55 Start: 33684, Stop: 34145, Start Num: 61

Candidate Starts for BillyTP_55:

(Start: 61 @33684 has 9 MA's), (86, 33816), (94, 33870), (112, 34023), (116, 34056),

Gene: BillyTP_83 Start: 47477, Stop: 47989, Start Num: 58

Candidate Starts for BillyTP_83:

(6, 47093), (12, 47171), (Start: 23 @47357 has 4 MA's), (Start: 58 @47477 has 2 MA's), (79, 47585), (88, 47627), (92, 47657), (93, 47660), (97, 47705), (107, 47792), (115, 47849), (121, 47888), (124, 47909),

Gene: BillyTP_41 Start: 27467, Stop: 27946, Start Num: 53

Candidate Starts for BillyTP_41:

(Start: 36 @27422 has 1 MA's), (Start: 44 @27443 has 3 MA's), (Start: 53 @27467 has 5 MA's), (91, 27659), (99, 27719), (114, 27851),

Gene: BlackSpider_83 Start: 48806, Stop: 49288, Start Num: 61

Candidate Starts for BlackSpider_83:

(1, 48227), (5, 48407), (18, 48617), (28, 48698), (Start: 36 @48740 has 1 MA's), (Start: 53 @48788 has 5 MA's), (Start: 61 @48806 has 9 MA's), (83, 48935), (106, 49118),

Gene: BlueShadow_87 Start: 46732, Stop: 47244, Start Num: 58

Candidate Starts for BlueShadow_87:

(6, 46348), (12, 46426), (Start: 58 @46732 has 2 MA's), (79, 46840), (88, 46882), (92, 46912), (93, 46915), (97, 46960), (107, 47047), (115, 47104), (121, 47143), (124, 47164),

Gene: BlueShadow_39 Start: 26032, Stop: 26511, Start Num: 53

Candidate Starts for BlueShadow_39:

(Start: 53 @26032 has 5 MA's), (91, 26224), (99, 26284),

Gene: BlueShadow_54 Start: 32474, Stop: 32935, Start Num: 61

Candidate Starts for BlueShadow_54:

(Start: 61 @32474 has 9 MA's), (86, 32606), (94, 32660), (96, 32681), (112, 32813), (116, 32846),

Gene: Bobi_15 Start: 9361, Stop: 9900, Start Num: 30

Candidate Starts for Bobi_15:

(Start: 30 @9361 has 14 MA's), (68, 9478), (71, 9490), (91, 9622), (105, 9736), (106, 9745),

Gene: Bora_94 Start: 59313, Stop: 58804, Start Num: 60

Candidate Starts for Bora_94:

(19, 59475), (Start: 60 @59313 has 1 MA's), (71, 59277), (84, 59169), (85, 59166), (88, 59139), (110, 58947), (124, 58854), (126, 58836),

Gene: Bubbles123_14 Start: 9517, Stop: 10056, Start Num: 30

Candidate Starts for Bubbles123_14:

(Start: 24 @9490 has 15 MA's), (29, 9508), (Start: 30 @9517 has 14 MA's), (68, 9634), (71, 9646), (91, 9778), (106, 9901),

Gene: BuzzLyseyear_15 Start: 9319, Stop: 9879, Start Num: 24

Candidate Starts for BuzzLyseyear_15:

(Start: 24 @9319 has 15 MA's), (Start: 30 @9340 has 14 MA's), (68, 9457), (71, 9469), (91, 9601), (105, 9715), (106, 9724),

Gene: Cane17_77 Start: 32003, Stop: 32473, Start Num: 63

Candidate Starts for Cane17_77:

(17, 31814), (21, 31868), (Start: 33 @31925 has 1 MA's), (42, 31952), (43, 31955), (57, 31988), (Start: 63 @32003 has 2 MA's), (84, 32117), (88, 32147), (89, 32150), (91, 32174), (104, 32276), (106, 32306), (112, 32345), (115, 32372), (118, 32384), (127, 32459), (129, 32462),

Gene: Coco12_15 Start: 9318, Stop: 9878, Start Num: 24

Candidate Starts for Coco12_15:

(Start: 24 @9318 has 15 MA's), (Start: 30 @9339 has 14 MA's), (68, 9456), (71, 9468), (91, 9600), (105, 9714), (106, 9723),

Gene: Corndog_56 Start: 27158, Stop: 27757, Start Num: 24

Candidate Starts for Corndog_56:

(Start: 24 @27158 has 15 MA's), (27, 27173), (75, 27383), (87, 27446), (91, 27476), (97, 27530), (98, 27536), (99, 27539), (106, 27602), (109, 27626),

Gene: DaWorst_15 Start: 9345, Stop: 9884, Start Num: 30

Candidate Starts for DaWorst_15:

(Start: 24 @9324 has 15 MA's), (Start: 30 @9345 has 14 MA's), (68, 9462), (71, 9474), (91, 9606), (105, 9720), (106, 9729),

Gene: DoctorDiddles_43 Start: 34776, Stop: 34189, Start Num: 23

Candidate Starts for DoctorDiddles_43:

(Start: 23 @34776 has 4 MA's), (26, 34761), (35, 34716), (41, 34698), (50, 34674), (86, 34515), (89, 34500), (103, 34377), (105, 34353), (109, 34320), (111, 34314), (121, 34245), (122, 34242),

Gene: Doug_14 Start: 9472, Stop: 10032, Start Num: 24

Candidate Starts for Doug_14:

(Start: 24 @9472 has 15 MA's), (Start: 30 @9493 has 14 MA's), (68, 9610), (71, 9622), (91, 9754), (106, 9877),

Gene: Drazdys_220 Start: 125724, Stop: 126218, Start Num: 48

Candidate Starts for Drazdys_220:

(14, 125523), (15, 125535), (16, 125544), (Start: 48 @125724 has 5 MA's), (98, 125982), (99, 125985), (109, 126078), (112, 126093), (121, 126159), (122, 126162),

Gene: EvePickles_63 Start: 35612, Stop: 36130, Start Num: 44

Candidate Starts for EvePickles_63:

(Start: 44 @35612 has 3 MA's), (56, 35642), (Start: 63 @35657 has 2 MA's), (80, 35768), (87, 35795), (96, 35861), (119, 36038), (122, 36062), (130, 36116),

Gene: Faja_54 Start: 33652, Stop: 34113, Start Num: 61

Candidate Starts for Faja_54:

(Start: 61 @33652 has 9 MA's), (86, 33784), (94, 33838), (112, 33991), (116, 34024),

Gene: Firecracker_54 Start: 26311, Stop: 26910, Start Num: 24

Candidate Starts for Firecracker_54:

(Start: 24 @26311 has 15 MA's), (27, 26326), (32, 26353), (37, 26371), (75, 26536), (87, 26599), (91, 26629), (97, 26683), (98, 26689), (99, 26692), (106, 26755), (109, 26779),

Gene: Firehouse51_14 Start: 9532, Stop: 10071, Start Num: 30

Candidate Starts for Firehouse51_14:

(Start: 30 @9532 has 14 MA's), (68, 9649), (71, 9661), (91, 9793), (105, 9907), (106, 9916),

Gene: Flabslab_17 Start: 5449, Stop: 6036, Start Num: 23

Candidate Starts for Flabslab_17:

(Start: 23 @5449 has 4 MA's), (26, 5464), (35, 5509), (41, 5527), (50, 5551), (86, 5710), (89, 5725), (103, 5848), (105, 5872), (109, 5905), (111, 5911), (121, 5980), (122, 5983),

Gene: Hestia_76 Start: 44223, Stop: 44738, Start Num: 58

Candidate Starts for Hestia_76:

(6, 43839), (12, 43917), (Start: 23 @44103 has 4 MA's), (Start: 58 @44223 has 2 MA's), (79, 44331), (88, 44373), (92, 44403), (93, 44406), (97, 44451), (107, 44538), (115, 44595), (121, 44634), (124, 44655),

Gene: Hestia_48 Start: 30332, Stop: 30823, Start Num: 53

Candidate Starts for Hestia_48:

(Start: 53 @30332 has 5 MA's), (81, 30479), (91, 30530), (100, 30608), (101, 30617), (107, 30668), (110, 30692), (111, 30695),

Gene: Hillester_39 Start: 26218, Stop: 26697, Start Num: 53

Candidate Starts for Hillester_39:

(Start: 44 @26194 has 3 MA's), (Start: 53 @26218 has 5 MA's), (83, 26356), (91, 26410), (114, 26602), (115, 26605),

Gene: Hillester_57 Start: 33410, Stop: 33871, Start Num: 61

Candidate Starts for Hillester_57:

(Start: 61 @33410 has 9 MA's), (86, 33542), (94, 33596), (112, 33749), (116, 33782),

Gene: Holt_44 Start: 34891, Stop: 34304, Start Num: 23

Candidate Starts for Holt_44:

(Start: 23 @34891 has 4 MA's), (26, 34876), (35, 34831), (41, 34813), (50, 34789), (86, 34630), (89, 34615), (103, 34492), (105, 34468), (109, 34435), (111, 34429), (121, 34360), (122, 34357),

Gene: Isolde_80 Start: 46237, Stop: 46845, Start Num: 20

Candidate Starts for Isolde_80:

(Start: 20 @46237 has 1 MA's), (Start: 25 @46264 has 2 MA's), (71, 46420), (80, 46501), (91, 46558), (96, 46594), (106, 46687), (115, 46753),

Gene: JalFarm20_15 Start: 9339, Stop: 9878, Start Num: 30

Candidate Starts for JalFarm20_15:

(Start: 24 @9318 has 15 MA's), (Start: 30 @9339 has 14 MA's), (68, 9456), (71, 9468), (91, 9600), (105, 9714), (106, 9723),

Gene: JellyBread_88 Start: 51228, Stop: 51713, Start Num: 53

Candidate Starts for JellyBread_88:

(1, 50667), (5, 50847), (13, 50976), (18, 51057), (28, 51138), (Start: 36 @51180 has 1 MA's), (Start: 53 @51228 has 5 MA's), (Start: 61 @51246 has 9 MA's), (83, 51375), (105, 51549), (106, 51558), (117, 51630),

Gene: Jemmno_221 Start: 124633, Stop: 125127, Start Num: 48

Candidate Starts for Jemmno_221:

(14, 124432), (15, 124444), (16, 124453), (Start: 48 @124633 has 5 MA's), (98, 124891), (99, 124894), (109, 124987), (112, 125002), (121, 125068), (122, 125071),

Gene: Jinkies_23 Start: 19784, Stop: 19203, Start Num: 25

Candidate Starts for Jinkies_23:

(Start: 25 @19784 has 2 MA's), (45, 19700), (71, 19628), (82, 19538), (106, 19364), (112, 19325), (123, 19250),

Gene: Job42_15 Start: 9341, Stop: 9901, Start Num: 24

Candidate Starts for Job42_15:

(Start: 24 @9341 has 15 MA's), (Start: 30 @9362 has 14 MA's), (68, 9479), (71, 9491), (91, 9623), (105, 9737), (106, 9746),

Gene: KingPhillip3_93 Start: 59234, Stop: 58725, Start Num: 60

Candidate Starts for KingPhillip3_93:

(19, 59396), (Start: 60 @59234 has 1 MA's), (71, 59198), (84, 59090), (85, 59087), (88, 59060), (110, 58868), (124, 58775), (126, 58757),

Gene: Latretium_14 Start: 9454, Stop: 10020, Start Num: 24

Candidate Starts for Latretium_14:

(Start: 24 @9454 has 15 MA's), (29, 9472), (Start: 30 @9481 has 14 MA's), (68, 9598), (71, 9610), (91, 9742), (106, 9865),

Gene: Lawnathon_82 Start: 46589, Stop: 47101, Start Num: 58

Candidate Starts for Lawnathon_82:

(6, 46205), (12, 46283), (Start: 23 @46469 has 4 MA's), (Start: 58 @46589 has 2 MA's), (79, 46697), (88, 46739), (92, 46769), (93, 46772), (97, 46817), (107, 46904), (115, 46961), (121, 47000), (124, 47021),

Gene: MUWow_75 Start: 40648, Stop: 41133, Start Num: 55

Candidate Starts for MUWow_75:

(55, 40648), (86, 40795), (92, 40837), (97, 40885), (106, 40963),

Gene: MUWow_95 Start: 53176, Stop: 53625, Start Num: 55

Candidate Starts for MUWow_95:

(Start: 31 @53110 has 1 MA's), (55, 53176), (91, 53350), (104, 53446),

Gene: MaterMagnus_82 Start: 47059, Stop: 47574, Start Num: 58

Candidate Starts for MaterMagnus_82:

(6, 46675), (12, 46753), (Start: 58 @47059 has 2 MA's), (79, 47167), (88, 47209), (92, 47239), (93, 47242), (97, 47287), (107, 47374), (115, 47431), (121, 47470), (124, 47491),

Gene: MaterMagnus_91 Start: 51277, Stop: 51762, Start Num: 53

Candidate Starts for MaterMagnus_91:

(18, 51106), (28, 51187), (Start: 36 @51229 has 1 MA's), (Start: 53 @51277 has 5 MA's), (Start: 61 @51295 has 9 MA's), (83, 51424), (105, 51598), (106, 51607),

Gene: MaterMagnus_56 Start: 33281, Stop: 33772, Start Num: 53

Candidate Starts for MaterMagnus_56:

(Start: 53 @33281 has 5 MA's), (67, 33317), (81, 33428), (91, 33479), (96, 33515), (100, 33557), (110, 33641),

Gene: MidnightRain_47 Start: 30287, Stop: 29718, Start Num: 25

Candidate Starts for MidnightRain_47:

(Start: 25 @30287 has 2 MA's), (38, 30221), (71, 30149), (76, 30089), (78, 30080), (88, 30038), (121, 29777),

Gene: MidnightRain_57 Start: 33591, Stop: 34052, Start Num: 61

Candidate Starts for MidnightRain_57:

(Start: 61 @33591 has 9 MA's), (86, 33723), (94, 33777), (112, 33930), (116, 33963),

Gene: Minnie_14 Start: 9482, Stop: 10042, Start Num: 24

Candidate Starts for Minnie_14:

(Start: 24 @9482 has 15 MA's), (Start: 30 @9503 has 14 MA's), (68, 9620), (71, 9632), (91, 9764), (105, 9878), (106, 9887),

Gene: Moonbeam_14 Start: 9494, Stop: 10033, Start Num: 30

Candidate Starts for Moonbeam_14:

(Start: 30 @9494 has 14 MA's), (68, 9611), (71, 9623), (91, 9755), (105, 9869), (106, 9878),

Gene: Mori_53 Start: 26286, Stop: 26885, Start Num: 24

Candidate Starts for Mori_53:

(Start: 24 @26286 has 15 MA's), (27, 26301), (75, 26511), (87, 26574), (91, 26604), (97, 26658), (98, 26664), (99, 26667), (106, 26730), (109, 26754),

Gene: Murai_54 Start: 26476, Stop: 27075, Start Num: 24

Candidate Starts for Murai_54:

(Start: 24 @26476 has 15 MA's), (27, 26491), (75, 26701), (87, 26764), (91, 26794), (97, 26848), (98, 26854), (99, 26857), (106, 26920), (109, 26944),

Gene: Myrna_250 Start: 152417, Stop: 152881, Start Num: 52

Candidate Starts for Myrna_250:

(Start: 52 @152417 has 1 MA's), (54, 152420), (66, 152456), (67, 152459), (70, 152471), (72, 152507), (74, 152525), (88, 152612), (93, 152645), (97, 152690), (98, 152696), (106, 152747), (113, 152792), (120, 152849),

Gene: Nappy_90 Start: 35968, Stop: 36438, Start Num: 63

Candidate Starts for Nappy_90:

(17, 35779), (21, 35833), (Start: 33 @35890 has 1 MA's), (42, 35917), (43, 35920), (57, 35953), (Start: 63 @35968 has 2 MA's), (84, 36082), (88, 36112), (89, 36115), (91, 36139), (104, 36241), (106, 36271), (112, 36310), (115, 36337), (118, 36349), (127, 36424), (129, 36427),

Gene: Nappy_223 Start: 126433, Stop: 126927, Start Num: 48

Candidate Starts for Nappy_223:

(14, 126232), (15, 126244), (16, 126253), (Start: 48 @126433 has 5 MA's), (98, 126691), (99, 126694), (109, 126787), (112, 126802), (121, 126868), (122, 126871),

Gene: OwlsT2W_15 Start: 9352, Stop: 9891, Start Num: 30

Candidate Starts for OwlsT2W_15:

(Start: 24 @9331 has 15 MA's), (Start: 30 @9352 has 14 MA's), (68, 9469), (71, 9481), (91, 9613), (105, 9727), (106, 9736),

Gene: Persistence_41 Start: 28068, Stop: 28532, Start Num: 59

Candidate Starts for Persistence_41:

(Start: 59 @28068 has 2 MA's), (77, 28164), (91, 28236), (96, 28272), (99, 28296), (105, 28359), (108, 28386),

Gene: Persistence_49 Start: 31206, Stop: 31667, Start Num: 61

Candidate Starts for Persistence_49:

(9, 30876), (10, 30882), (11, 30888), (Start: 61 @31206 has 9 MA's), (94, 31392), (112, 31545), (116, 31578),

Gene: Persistence_67 Start: 37115, Stop: 37588, Start Num: 61

Candidate Starts for Persistence_67:

(Start: 61 @37115 has 9 MA's), (76, 37217), (81, 37241), (86, 37256), (105, 37415), (112, 37463), (122, 37532), (127, 37577),

Gene: Persistence_34 Start: 24603, Stop: 25106, Start Num: 44

Candidate Starts for Persistence_34:

(27, 24537), (Start: 44 @24603 has 3 MA's), (Start: 53 @24627 has 5 MA's), (82, 24762), (83, 24765), (91, 24819), (99, 24879), (121, 25053),

Gene: Peterson_6 Start: 3021, Stop: 3500, Start Num: 47

Candidate Starts for Peterson_6:

(Start: 47 @3021 has 5 MA's), (86, 3180), (88, 3192), (94, 3234),

Gene: Phasih_14 Start: 9525, Stop: 10064, Start Num: 30

Candidate Starts for Phasih_14:

(Start: 24 @9504 has 15 MA's), (Start: 30 @9525 has 14 MA's), (68, 9642), (71, 9654), (91, 9786), (105, 9900), (106, 9909),

Gene: Phatniss_14 Start: 9487, Stop: 10026, Start Num: 30

Candidate Starts for Phatniss_14:

(Start: 30 @9487 has 14 MA's), (68, 9604), (71, 9616), (91, 9748), (105, 9862), (106, 9871),

Gene: Phrank15_38 Start: 25579, Stop: 26058, Start Num: 53

Candidate Starts for Phrank15_38:

(27, 25489), (Start: 44 @25555 has 3 MA's), (Start: 53 @25579 has 5 MA's), (91, 25771), (97, 25822), (99, 25831),

Gene: Phrank15_56 Start: 32976, Stop: 33476, Start Num: 46

Candidate Starts for Phrank15_56:

(4, 32526), (8, 32664), (Start: 46 @32976 has 1 MA's), (65, 33024), (93, 33189), (112, 33351),

Gene: Pitbull_27 Start: 21048, Stop: 21602, Start Num: 36

Candidate Starts for Pitbull_27:

(Start: 36 @21048 has 1 MA's), (90, 21300), (91, 21312), (97, 21363), (112, 21480), (119, 21525),

Gene: Polka14_14 Start: 9487, Stop: 10026, Start Num: 30

Candidate Starts for Polka14_14:

(Start: 24 @9466 has 15 MA's), (Start: 30 @9487 has 14 MA's), (68, 9604), (71, 9616), (91, 9748), (105, 9862), (106, 9871),

Gene: RadFad_57 Start: 33410, Stop: 33871, Start Num: 61

Candidate Starts for RadFad_57:

(Start: 61 @33410 has 9 MA's), (86, 33542), (94, 33596), (112, 33749), (116, 33782),

Gene: RadFad_39 Start: 26218, Stop: 26697, Start Num: 53

Candidate Starts for RadFad_39:

(Start: 44 @26194 has 3 MA's), (Start: 53 @26218 has 5 MA's), (83, 26356), (91, 26410), (114, 26602), (115, 26605),

Gene: Raqqa_97 Start: 52473, Stop: 52976, Start Num: 53

Candidate Starts for Raqqa_97:

(Start: 53 @52473 has 5 MA's), (73, 52554), (88, 52638), (91, 52665), (94, 52680), (96, 52701), (97, 52716), (102, 52755), (121, 52896), (123, 52905), (128, 52944),

Gene: Raqqa_45 Start: 29275, Stop: 29736, Start Num: 61

Candidate Starts for Raqqa_45:

(Start: 61 @29275 has 9 MA's), (86, 29407), (94, 29461), (112, 29614), (116, 29647),

Gene: Raqqa_48 Start: 30332, Stop: 30787, Start Num: 67

Candidate Starts for Raqqa_48:

(Start: 53 @30296 has 5 MA's), (67, 30332), (81, 30443), (91, 30494), (96, 30530), (100, 30572), (110, 30656),

Gene: Rialto_15 Start: 9346, Stop: 9885, Start Num: 30

Candidate Starts for Rialto_15:

(Start: 30 @9346 has 14 MA's), (68, 9463), (71, 9475), (91, 9607), (105, 9721), (106, 9730),

Gene: Richie_96 Start: 52435, Stop: 52971, Start Num: 34

Candidate Starts for Richie_96:

(7, 52150), (Start: 34 @52435 has 1 MA's), (40, 52456), (49, 52480), (88, 52651), (89, 52654), (105, 52798), (123, 52921),

Gene: Sandalphon_14 Start: 9504, Stop: 10043, Start Num: 30

Candidate Starts for Sandalphon_14:

(Start: 30 @9504 has 14 MA's), (68, 9621), (71, 9633), (91, 9765), (105, 9879), (106, 9888),

Gene: Sarge_50 Start: 29604, Stop: 30206, Start Num: 22

Candidate Starts for Sarge_50:

(Start: 22 @29604 has 1 MA's), (39, 29688), (51, 29715), (64, 29742), (71, 29772), (86, 29868), (91, 29907),

Gene: Sarge_34 Start: 24292, Stop: 24756, Start Num: 61

Candidate Starts for Sarge_34:

(Start: 61 @24292 has 9 MA's), (88, 24436), (125, 24733),

Gene: ShawBrad_105 Start: 53519, Stop: 54079, Start Num: 25

Candidate Starts for ShawBrad_105:

(Start: 20 @53495 has 1 MA's), (Start: 25 @53519 has 2 MA's), (64, 53639), (69, 53651), (88, 53759), (95, 53816), (106, 53915), (112, 53954), (115, 53981),

Gene: ShiaLabeouf_219 Start: 124687, Stop: 125181, Start Num: 48

Candidate Starts for ShiaLabeouf_219:

(14, 124486), (15, 124498), (16, 124507), (Start: 48 @124687 has 5 MA's), (98, 124945), (99, 124948), (109, 125041), (112, 125056), (121, 125122), (122, 125125),

Gene: Shukran_48 Start: 30453, Stop: 30917, Start Num: 62

Candidate Starts for Shukran_48:

(62, 30453), (83, 30579), (91, 30627),

Gene: Sisko_10 Start: 10106, Stop: 9555, Start Num: 33

Candidate Starts for Sisko_10:

(Start: 33 @10106 has 1 MA's), (64, 10022), (71, 9992), (76, 9926), (93, 9839), (96, 9806), (99, 9782), (105, 9722), (121, 9608),

Gene: Smooch_56 Start: 27829, Stop: 28428, Start Num: 24

Candidate Starts for Smooch_56:

(Start: 24 @27829 has 15 MA's), (27, 27844), (75, 28054), (87, 28117), (91, 28147), (97, 28201), (98, 28207), (99, 28210), (106, 28273), (109, 28297),

Gene: SpicyFrank_59 Start: 33886, Stop: 34386, Start Num: 46

Candidate Starts for SpicyFrank_59:

(Start: 46 @33886 has 1 MA's), (65, 33934), (89, 34069), (93, 34099), (112, 34261),

Gene: Sunshine924_65 Start: 41214, Stop: 40627, Start Num: 23

Candidate Starts for Sunshine924_65:

(Start: 23 @41214 has 4 MA's), (26, 41199), (35, 41154), (41, 41136), (50, 41112), (86, 40953), (89, 40938), (103, 40815), (105, 40791), (109, 40758), (111, 40752), (121, 40683), (122, 40680),

Gene: SuperGrey_14 Start: 9478, Stop: 10038, Start Num: 24

Candidate Starts for SuperGrey_14:

(Start: 24 @9478 has 15 MA's), (Start: 30 @9499 has 14 MA's), (68, 9616), (71, 9628), (91, 9760), (105, 9874), (106, 9883),

Gene: Tiff81_42 Start: 27360, Stop: 27824, Start Num: 59

Candidate Starts for Tiff81_42:

(Start: 59 @27360 has 2 MA's), (91, 27528), (96, 27564), (99, 27588), (105, 27651), (108, 27678),

Gene: Tripl3t_5 Start: 2428, Stop: 2907, Start Num: 47

Candidate Starts for Tripl3t_5:

(Start: 47 @2428 has 5 MA's), (86, 2587), (88, 2599), (94, 2641),

Gene: Trouble_4 Start: 2065, Stop: 2544, Start Num: 47

Candidate Starts for Trouble_4:

(Start: 47 @2065 has 5 MA's), (86, 2224), (88, 2236), (94, 2278),

Gene: Vopal_48 Start: 32400, Stop: 32864, Start Num: 59
Candidate Starts for Vopal_48:
(Start: 59 @32400 has 2 MA's), (91, 32568), (96, 32604), (99, 32628), (105, 32691), (108, 32718),

Gene: Vopal_42 Start: 29036, Stop: 29515, Start Num: 53
Candidate Starts for Vopal_42:
(Start: 36 @28991 has 1 MA's), (Start: 44 @29012 has 3 MA's), (Start: 53 @29036 has 5 MA's), (91, 29228), (99, 29288), (114, 29420),

Gene: Vopal_56 Start: 35307, Stop: 35768, Start Num: 61
Candidate Starts for Vopal_56:
(Start: 61 @35307 has 9 MA's), (86, 35439), (94, 35493), (112, 35646), (116, 35679),

Gene: Vorrps_53 Start: 26287, Stop: 26886, Start Num: 24
Candidate Starts for Vorrps_53:
(Start: 24 @26287 has 15 MA's), (27, 26302), (75, 26512), (87, 26575), (91, 26605), (97, 26659), (98, 26665), (99, 26668), (106, 26731), (109, 26755),

Gene: Watermelon_6 Start: 2607, Stop: 3086, Start Num: 47
Candidate Starts for Watermelon_6:
(Start: 47 @2607 has 5 MA's), (86, 2766), (88, 2778), (94, 2820),

Gene: Wee_14 Start: 9531, Stop: 10070, Start Num: 30
Candidate Starts for Wee_14:
(Start: 30 @9531 has 14 MA's), (68, 9648), (71, 9660), (91, 9792), (105, 9906), (106, 9915),

Gene: Windest_39 Start: 25056, Stop: 25535, Start Num: 53
Candidate Starts for Windest_39:
(27, 24966), (Start: 44 @25032 has 3 MA's), (Start: 53 @25056 has 5 MA's), (91, 25248), (97, 25299), (99, 25308),

Gene: YungJamal_57 Start: 27006, Stop: 27605, Start Num: 24
Candidate Starts for YungJamal_57:
(Start: 24 @27006 has 15 MA's), (27, 27021), (75, 27231), (87, 27294), (91, 27324), (97, 27378), (98, 27384), (99, 27387), (106, 27450), (109, 27474),

Gene: Zucker_62 Start: 35518, Stop: 36036, Start Num: 44
Candidate Starts for Zucker_62:
(Start: 44 @35518 has 3 MA's), (56, 35548), (80, 35674), (87, 35701), (91, 35731), (96, 35767), (98, 35788), (122, 35968), (130, 36022),