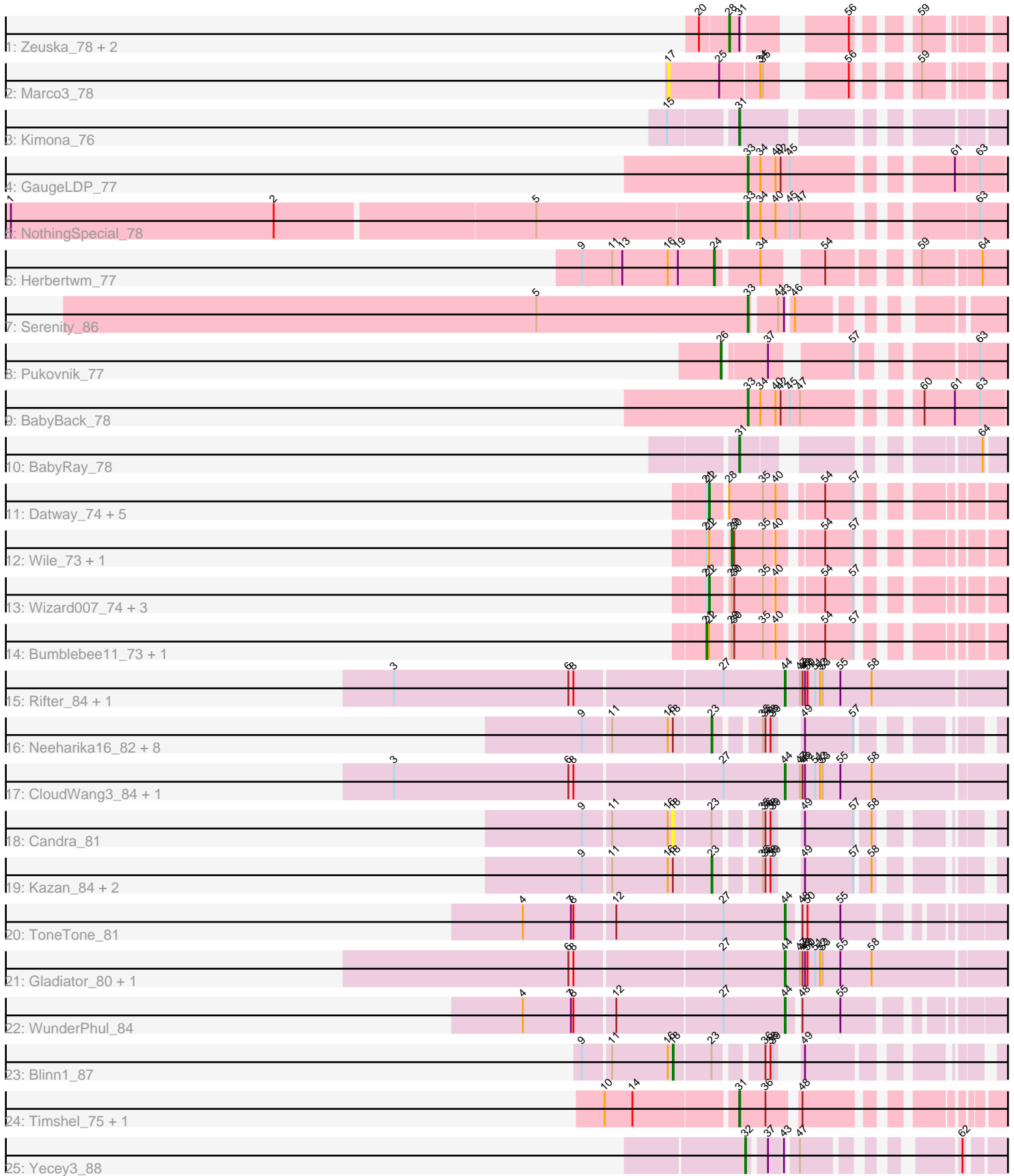


Pham 216245



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 216245 Report

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

Pham number 216245 has 51 members, 2 are drafts.

Phages represented in each track:

- Track 1 : Zeuska_78, Jorgensen_83, JC27_77
- Track 2 : Marco3_78
- Track 3 : Kimona_76
- Track 4 : GaugeLDP_77
- Track 5 : NothingSpecial_78
- Track 6 : Herbertwm_77
- Track 7 : Serenity_86
- Track 8 : Pukovnik_77
- Track 9 : BabyBack_78
- Track 10 : BabyRay_78
- Track 11 : Datway_74, AbbysRanger_74, Perplexer_74, Backyardigan_72, PetiteSangsue_74, Xena_73
- Track 12 : Wile_73, Badger_73
- Track 13 : Wizard007_74, Cici_74, Katalie136_74, Achebe_73
- Track 14 : Bumblebee11_73, Morpher26_74
- Track 15 : Rifter_84, Hammer_84
- Track 16 : Neeharika16_82, Cookiedough_83, Hoot_78, McFly_83, DaVinci_81, GreedyLawyer_77, BABullseye_76, Dorothea_83, Kipper29_83
- Track 17 : CloudWang3_84, Hexamo_83
- Track 18 : Candra_81
- Track 19 : Kazan_84, VohminGhazi_83, SmellyB_83
- Track 20 : ToneTone_81
- Track 21 : Gladiator_80, Gruunaga_83
- Track 22 : WunderPhul_84
- Track 23 : Blinn1_87
- Track 24 : Timshel_75, DroogsArmy_74
- Track 25 : Yecey3_88

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

The start number called the most often in the published annotations is 23, it was called in 12 of the 49 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• BABullseye_76, Cookiedough_83, DaVinci_81, Dorothea_83, GreedyLawyer_77, Hoot_78, Kazan_84, Kipper29_83, McFly_83, Neeharika16_82, SmellyB_83, VohminGhazi_83,

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

• Blinn1_87, Candra_81,

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

• AbbysRanger_74, Achebe_73, BabyBack_78, BabyRay_78, Backyardigan_72, Badger_73, Bumblebee11_73, Cici_74, CloudWang3_84, Datway_74, DroogsArmy_74, GaugeLDP_77, Gladiator_80, Gruunaga_83, Hammer_84, Herbertwm_77, Hexamo_83, JC27_77, Jorgensen_83, Katalie136_74, Kimona_76, Marco3_78, Morpher26_74, NothingSpecial_78, Perplexer_74, PetiteSangsue_74, Pukovnik_77, Rifter_84, Serenity_86, Timshel_75, ToneTone_81, Wile_73, Wizard007_74, WunderPhul_84, Xena_73, Yecey3_88, Zeuska_78,

Summary by start number:

Start 17:

- Found in 1 of 51 (2.0%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Marco3_78 (A1),

Start 18:

- Found in 14 of 51 (27.5%) of genes in pham
- Manual Annotations of this start: 1 of 49
- Called 14.3% of time when present
- Phage (with cluster) where this start called: Blinn1_87 (A6), Candra_81 (A6),

Start 21:

- Found in 14 of 51 (27.5%) of genes in pham
- Manual Annotations of this start: 2 of 49
- Called 14.3% of time when present
- Phage (with cluster) where this start called: Bumblebee11_73 (A4), Morpher26_74 (A4),

Start 22:

- Found in 14 of 51 (27.5%) of genes in pham
- Manual Annotations of this start: 10 of 49
- Called 71.4% of time when present
- Phage (with cluster) where this start called: AbbysRanger_74 (A4), Achebe_73 (A4), Backyardigan_72 (A4), Cici_74 (A4), Datway_74 (A4), Katalie136_74 (A4), Perplexer_74 (A4), PetiteSangsue_74 (A4), Wizard007_74 (A4), Xena_73 (A4),

Start 23:

- Found in 14 of 51 (27.5%) of genes in pham
- Manual Annotations of this start: 12 of 49
- Called 85.7% of time when present
- Phage (with cluster) where this start called: BABullseye_76 (A6), Cookiedough_83 (A6), DaVinci_81 (A6), Dorothea_83 (A6), GreedyLawyer_77 (A6), Hoot_78 (A6), Kazan_84 (A6), Kipper29_83 (A6), McFly_83 (A6), Neeharika16_82 (A6), SmellyB_83 (A6), VohminGhazi_83 (A6),

Start 24:

- Found in 1 of 51 (2.0%) of genes in pham
- Manual Annotations of this start: 1 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Herbertwm_77 (A2),

Start 26:

- Found in 1 of 51 (2.0%) of genes in pham
- Manual Annotations of this start: 1 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Pukovnik_77 (A2),

Start 28:

- Found in 9 of 51 (17.6%) of genes in pham
- Manual Annotations of this start: 3 of 49
- Called 33.3% of time when present
- Phage (with cluster) where this start called: JC27_77 (A1), Jorgensen_83 (A1), Zeuska_78 (A1),

Start 29:

- Found in 8 of 51 (15.7%) of genes in pham
- Manual Annotations of this start: 2 of 49
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Badger_73 (A4), Wile_73 (A4),

Start 31:

- Found in 7 of 51 (13.7%) of genes in pham
- Manual Annotations of this start: 4 of 49
- Called 57.1% of time when present
- Phage (with cluster) where this start called: BabyRay_78 (A3), DroogsArmy_74 (A7), Kimona_76 (A19), Timshel_75 (A7),

Start 32:

- Found in 1 of 51 (2.0%) of genes in pham
- Manual Annotations of this start: 1 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Yecey3_88 (A9),

Start 33:

- Found in 4 of 51 (7.8%) of genes in pham
- Manual Annotations of this start: 4 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BabyBack_78 (A2), GaugeLDP_77 (A2), NothingSpecial_78 (A2), Serenity_86 (A2),

Start 44:

- Found in 8 of 51 (15.7%) of genes in pham
- Manual Annotations of this start: 8 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CloudWang3_84 (A6), Gladiator_80 (A6), Gruunaga_83 (A6), Hammer_84 (A6), Hexamo_83 (A6), Rifter_84 (A6), ToneTone_81 (A6), WunderPhul_84 (A6),

Summary by clusters:

There are 8 clusters represented in this pham: A19, A1, A3, A2, A4, A7, A6, A9,

Info for manual annotations of cluster A1:

- Start number 28 was manually annotated 3 times for cluster A1.

Info for manual annotations of cluster A19:

- Start number 31 was manually annotated 1 time for cluster A19.

Info for manual annotations of cluster A2:

- Start number 24 was manually annotated 1 time for cluster A2.
- Start number 26 was manually annotated 1 time for cluster A2.
- Start number 33 was manually annotated 4 times for cluster A2.

Info for manual annotations of cluster A3:

- Start number 31 was manually annotated 1 time for cluster A3.

Info for manual annotations of cluster A4:

- Start number 21 was manually annotated 2 times for cluster A4.
- Start number 22 was manually annotated 10 times for cluster A4.
- Start number 29 was manually annotated 2 times for cluster A4.

Info for manual annotations of cluster A6:

- Start number 18 was manually annotated 1 time for cluster A6.
- Start number 23 was manually annotated 12 times for cluster A6.
- Start number 44 was manually annotated 8 times for cluster A6.

Info for manual annotations of cluster A7:

- Start number 31 was manually annotated 2 times for cluster A7.

Info for manual annotations of cluster A9:

- Start number 32 was manually annotated 1 time for cluster A9.

Gene Information:

Gene: AbbysRanger_74 Start: 45728, Stop: 45411, Start Num: 22

Candidate Starts for AbbysRanger_74:

(Start: 21 @45731 has 2 MA's), (Start: 22 @45728 has 10 MA's), (Start: 28 @45713 has 3 MA's), (35, 45677), (40, 45662), (54, 45623), (57, 45590),

Gene: Achebe_73 Start: 45705, Stop: 45394, Start Num: 22

Candidate Starts for Achebe_73:

(Start: 21 @45708 has 2 MA's), (Start: 22 @45705 has 10 MA's), (Start: 29 @45687 has 2 MA's), (30, 45684), (35, 45654), (40, 45642), (54, 45603), (57, 45570),

Gene: BABullseye_76 Start: 43895, Stop: 43605, Start Num: 23

Candidate Starts for BABullseye_76:

(9, 44039), (11, 44009), (16, 43943), (Start: 18 @43937 has 1 MA's), (Start: 23 @43895 has 12 MA's), (35, 43853), (36, 43850), (38, 43844), (39, 43841), (49, 43832), (57, 43775),

Gene: BabyBack_78 Start: 47102, Stop: 46782, Start Num: 33

Candidate Starts for BabyBack_78:

(Start: 33 @47102 has 4 MA's), (34, 47087), (40, 47069), (42, 47063), (45, 47054), (47, 47042), (60, 46934), (61, 46898), (63, 46868),

Gene: BabyRay_78 Start: 45607, Stop: 45326, Start Num: 31

Candidate Starts for BabyRay_78:

(Start: 31 @45607 has 4 MA's), (64, 45406),

Gene: Backyardigan_72 Start: 45744, Stop: 45427, Start Num: 22

Candidate Starts for Backyardigan_72:

(Start: 21 @45747 has 2 MA's), (Start: 22 @45744 has 10 MA's), (Start: 28 @45729 has 3 MA's), (35, 45693), (40, 45678), (54, 45639), (57, 45606),

Gene: Badger_73 Start: 45691, Stop: 45395, Start Num: 29

Candidate Starts for Badger_73:

(Start: 21 @45712 has 2 MA's), (Start: 22 @45709 has 10 MA's), (Start: 29 @45691 has 2 MA's), (30, 45688), (35, 45658), (40, 45646), (54, 45607), (57, 45574),

Gene: Blinn1_87 Start: 46595, Stop: 46263, Start Num: 18

Candidate Starts for Blinn1_87:

(9, 46697), (11, 46667), (16, 46601), (Start: 18 @46595 has 1 MA's), (Start: 23 @46553 has 12 MA's), (36, 46508), (38, 46502), (39, 46499), (49, 46490),

Gene: Bumblebee11_73 Start: 45711, Stop: 45397, Start Num: 21

Candidate Starts for Bumblebee11_73:

(Start: 21 @45711 has 2 MA's), (Start: 22 @45708 has 10 MA's), (Start: 29 @45690 has 2 MA's), (30, 45687), (35, 45657), (40, 45645), (54, 45606), (57, 45573),

Gene: Candra_81 Start: 45632, Stop: 45300, Start Num: 18

Candidate Starts for Candra_81:

(9, 45734), (11, 45704), (16, 45638), (Start: 18 @45632 has 1 MA's), (Start: 23 @45590 has 12 MA's), (35, 45548), (36, 45545), (38, 45539), (39, 45536), (49, 45527), (57, 45470), (58, 45455),

Gene: Cici_74 Start: 45723, Stop: 45412, Start Num: 22

Candidate Starts for Cici_74:

(Start: 21 @45726 has 2 MA's), (Start: 22 @45723 has 10 MA's), (Start: 29 @45705 has 2 MA's), (30, 45702), (35, 45672), (40, 45660), (54, 45621), (57, 45588),

Gene: CloudWang3_84 Start: 46008, Stop: 45697, Start Num: 44

Candidate Starts for CloudWang3_84:

(3, 46461), (6, 46254), (8, 46248), (27, 46080), (Start: 44 @46008 has 8 MA's), (47, 45990), (48, 45987), (49, 45984), (51, 45972), (52, 45966), (53, 45963), (55, 45942), (58, 45906),

Gene: Cookiedough_83 Start: 46208, Stop: 45918, Start Num: 23

Candidate Starts for Cookiedough_83:

(9, 46352), (11, 46322), (16, 46256), (Start: 18 @46250 has 1 MA's), (Start: 23 @46208 has 12 MA's), (35, 46166), (36, 46163), (38, 46157), (39, 46154), (49, 46145), (57, 46088),

Gene: DaVinci_81 Start: 44955, Stop: 44665, Start Num: 23

Candidate Starts for DaVinci_81:

(9, 45099), (11, 45069), (16, 45003), (Start: 18 @44997 has 1 MA's), (Start: 23 @44955 has 12 MA's), (35, 44913), (36, 44910), (38, 44904), (39, 44901), (49, 44892), (57, 44835),

Gene: Datway_74 Start: 45727, Stop: 45410, Start Num: 22

Candidate Starts for Datway_74:

(Start: 21 @45730 has 2 MA's), (Start: 22 @45727 has 10 MA's), (Start: 28 @45712 has 3 MA's), (35, 45676), (40, 45661), (54, 45622), (57, 45589),

Gene: Dorothea_83 Start: 46201, Stop: 45911, Start Num: 23

Candidate Starts for Dorothea_83:

(9, 46345), (11, 46315), (16, 46249), (Start: 18 @46243 has 1 MA's), (Start: 23 @46201 has 12 MA's), (35, 46159), (36, 46156), (38, 46150), (39, 46147), (49, 46138), (57, 46081),

Gene: DroogsArmy_74 Start: 48703, Stop: 48410, Start Num: 31

Candidate Starts for DroogsArmy_74:

(10, 48850), (14, 48817), (Start: 31 @48703 has 4 MA's), (36, 48673), (48, 48643),

Gene: GaugeLDP_77 Start: 46661, Stop: 46341, Start Num: 33

Candidate Starts for GaugeLDP_77:

(Start: 33 @46661 has 4 MA's), (34, 46646), (40, 46628), (42, 46622), (45, 46613), (61, 46457), (63, 46430),

Gene: Gladiator_80 Start: 45664, Stop: 45353, Start Num: 44

Candidate Starts for Gladiator_80:

(6, 45910), (8, 45904), (27, 45736), (Start: 44 @45664 has 8 MA's), (47, 45646), (48, 45643), (49, 45640), (50, 45637), (51, 45628), (52, 45622), (53, 45619), (55, 45598), (58, 45562),

Gene: GreedyLawyer_77 Start: 45520, Stop: 45230, Start Num: 23

Candidate Starts for GreedyLawyer_77:

(9, 45664), (11, 45634), (16, 45568), (Start: 18 @45562 has 1 MA's), (Start: 23 @45520 has 12 MA's), (35, 45478), (36, 45475), (38, 45469), (39, 45466), (49, 45457), (57, 45400),

Gene: Gruunaga_83 Start: 45619, Stop: 45308, Start Num: 44

Candidate Starts for Gruunaga_83:

(6, 45865), (8, 45859), (27, 45691), (Start: 44 @45619 has 8 MA's), (47, 45601), (48, 45598), (49, 45595), (50, 45592), (51, 45583), (52, 45577), (53, 45574), (55, 45553), (58, 45517),

Gene: Hammer_84 Start: 45326, Stop: 45015, Start Num: 44

Candidate Starts for Hammer_84:

(3, 45779), (6, 45572), (8, 45566), (27, 45398), (Start: 44 @45326 has 8 MA's), (47, 45308), (48, 45305), (49, 45302), (50, 45299), (51, 45290), (52, 45284), (53, 45281), (55, 45260), (58, 45224),

Gene: Herbertwm_77 Start: 46431, Stop: 46096, Start Num: 24

Candidate Starts for Herbertwm_77:

(9, 46587), (11, 46551), (13, 46539), (16, 46485), (19, 46473), (Start: 24 @46431 has 1 MA's), (34, 46386), (54, 46332), (59, 46251), (64, 46188),

Gene: Hexamo_83 Start: 45494, Stop: 45183, Start Num: 44

Candidate Starts for Hexamo_83:

(3, 45947), (6, 45740), (8, 45734), (27, 45566), (Start: 44 @45494 has 8 MA's), (47, 45476), (48, 45473), (49, 45470), (51, 45458), (52, 45452), (53, 45449), (55, 45428), (58, 45392),

Gene: Hoot_78 Start: 43405, Stop: 43115, Start Num: 23

Candidate Starts for Hoot_78:

(9, 43549), (11, 43519), (16, 43453), (Start: 18 @43447 has 1 MA's), (Start: 23 @43405 has 12 MA's), (35, 43363), (36, 43360), (38, 43354), (39, 43351), (49, 43342), (57, 43285),

Gene: JC27_77 Start: 46703, Stop: 46419, Start Num: 28

Candidate Starts for JC27_77:

(20, 46733), (Start: 28 @46703 has 3 MA's), (Start: 31 @46691 has 4 MA's), (56, 46601), (59, 46550),

Gene: Jorgensen_83 Start: 48562, Stop: 48278, Start Num: 28

Candidate Starts for Jorgensen_83:

(20, 48592), (Start: 28 @48562 has 3 MA's), (Start: 31 @48550 has 4 MA's), (56, 48460), (59, 48409),

Gene: Katalie136_74 Start: 45708, Stop: 45397, Start Num: 22

Candidate Starts for Katalie136_74:

(Start: 21 @45711 has 2 MA's), (Start: 22 @45708 has 10 MA's), (Start: 29 @45690 has 2 MA's), (30, 45687), (35, 45657), (40, 45645), (54, 45606), (57, 45573),

Gene: Kazan_84 Start: 45560, Stop: 45270, Start Num: 23

Candidate Starts for Kazan_84:

(9, 45704), (11, 45674), (16, 45608), (Start: 18 @45602 has 1 MA's), (Start: 23 @45560 has 12 MA's), (35, 45518), (36, 45515), (38, 45509), (39, 45506), (49, 45497), (57, 45440), (58, 45425),

Gene: Kimona_76 Start: 44739, Stop: 44437, Start Num: 31

Candidate Starts for Kimona_76:

(15, 44811), (Start: 31 @44739 has 4 MA's),

Gene: Kipper29_83 Start: 45573, Stop: 45283, Start Num: 23

Candidate Starts for Kipper29_83:

(9, 45717), (11, 45687), (16, 45621), (Start: 18 @45615 has 1 MA's), (Start: 23 @45573 has 12 MA's), (35, 45531), (36, 45528), (38, 45522), (39, 45519), (49, 45510), (57, 45453),

Gene: Marco3_78 Start: 48563, Stop: 48204, Start Num: 17

Candidate Starts for Marco3_78:

(17, 48563), (25, 48503), (34, 48458), (35, 48455), (56, 48386), (59, 48335),

Gene: McFly_83 Start: 45909, Stop: 45619, Start Num: 23

Candidate Starts for McFly_83:

(9, 46053), (11, 46023), (16, 45957), (Start: 18 @45951 has 1 MA's), (Start: 23 @45909 has 12 MA's), (35, 45867), (36, 45864), (38, 45858), (39, 45855), (49, 45846), (57, 45789),

Gene: Morpher26_74 Start: 45732, Stop: 45418, Start Num: 21

Candidate Starts for Morpher26_74:

(Start: 21 @45732 has 2 MA's), (Start: 22 @45729 has 10 MA's), (Start: 29 @45711 has 2 MA's), (30, 45708), (35, 45678), (40, 45666), (54, 45627), (57, 45594),

Gene: Neeharika16_82 Start: 45659, Stop: 45369, Start Num: 23

Candidate Starts for Neeharika16_82:

(9, 45803), (11, 45773), (16, 45707), (Start: 18 @45701 has 1 MA's), (Start: 23 @45659 has 12 MA's), (35, 45617), (36, 45614), (38, 45608), (39, 45605), (49, 45596), (57, 45539),

Gene: NothingSpecial_78 Start: 47348, Stop: 47028, Start Num: 33

Candidate Starts for NothingSpecial_78:

(1, 48203), (2, 47891), (5, 47591), (Start: 33 @47348 has 4 MA's), (34, 47333), (40, 47315), (45, 47300), (47, 47288), (63, 47120),

Gene: Perplexer_74 Start: 45711, Stop: 45394, Start Num: 22

Candidate Starts for Perplexer_74:

(Start: 21 @45714 has 2 MA's), (Start: 22 @45711 has 10 MA's), (Start: 28 @45696 has 3 MA's), (35, 45660), (40, 45645), (54, 45606), (57, 45573),

Gene: PetiteSangsue_74 Start: 45714, Stop: 45397, Start Num: 22

Candidate Starts for PetiteSangsue_74:

(Start: 21 @45717 has 2 MA's), (Start: 22 @45714 has 10 MA's), (Start: 28 @45699 has 3 MA's), (35, 45663), (40, 45648), (54, 45609), (57, 45576),

Gene: Pukovnik_77 Start: 47566, Stop: 47252, Start Num: 26

Candidate Starts for Pukovnik_77:

(Start: 26 @47566 has 1 MA's), (37, 47524), (57, 47446), (63, 47344),

Gene: Rifter_84 Start: 45121, Stop: 44810, Start Num: 44

Candidate Starts for Rifter_84:

(3, 45574), (6, 45367), (8, 45361), (27, 45193), (Start: 44 @45121 has 8 MA's), (47, 45103), (48, 45100), (49, 45097), (50, 45094), (51, 45085), (52, 45079), (53, 45076), (55, 45055), (58, 45019),

Gene: Serenity_86 Start: 46855, Stop: 46580, Start Num: 33

Candidate Starts for Serenity_86:

(5, 47104), (Start: 33 @46855 has 4 MA's), (41, 46828), (43, 46822), (46, 46816),

Gene: SmellyB_83 Start: 45554, Stop: 45264, Start Num: 23

Candidate Starts for SmellyB_83:

(9, 45698), (11, 45668), (16, 45602), (Start: 18 @45596 has 1 MA's), (Start: 23 @45554 has 12 MA's), (35, 45512), (36, 45509), (38, 45503), (39, 45500), (49, 45491), (57, 45434), (58, 45419),

Gene: Timshel_75 Start: 48520, Stop: 48227, Start Num: 31

Candidate Starts for Timshel_75:

(10, 48667), (14, 48634), (Start: 31 @48520 has 4 MA's), (36, 48490), (48, 48460),

Gene: ToneTone_81 Start: 45501, Stop: 45238, Start Num: 44

Candidate Starts for ToneTone_81:

(4, 45801), (7, 45744), (8, 45741), (12, 45696), (27, 45573), (Start: 44 @45501 has 8 MA's), (48, 45489), (50, 45483), (55, 45444),

Gene: VohminGhazi_83 Start: 45555, Stop: 45265, Start Num: 23

Candidate Starts for VohminGhazi_83:

(9, 45699), (11, 45669), (16, 45603), (Start: 18 @45597 has 1 MA's), (Start: 23 @45555 has 12 MA's), (35, 45513), (36, 45510), (38, 45504), (39, 45501), (49, 45492), (57, 45435), (58, 45420),

Gene: Wile_73 Start: 45720, Stop: 45427, Start Num: 29

Candidate Starts for Wile_73:

(Start: 21 @45741 has 2 MA's), (Start: 22 @45738 has 10 MA's), (Start: 29 @45720 has 2 MA's), (30, 45717), (35, 45687), (40, 45675), (54, 45636), (57, 45603),

Gene: Wizard007_74 Start: 45464, Stop: 45153, Start Num: 22

Candidate Starts for Wizard007_74:

(Start: 21 @45467 has 2 MA's), (Start: 22 @45464 has 10 MA's), (Start: 29 @45446 has 2 MA's), (30, 45443), (35, 45413), (40, 45401), (54, 45362), (57, 45329),

Gene: WunderPhul_84 Start: 45570, Stop: 45307, Start Num: 44

Candidate Starts for WunderPhul_84:

(4, 45870), (7, 45813), (8, 45810), (12, 45765), (27, 45642), (Start: 44 @45570 has 8 MA's), (48, 45558), (55, 45513),

Gene: Xena_73 Start: 45735, Stop: 45418, Start Num: 22

Candidate Starts for Xena_73:

(Start: 21 @45738 has 2 MA's), (Start: 22 @45735 has 10 MA's), (Start: 28 @45720 has 3 MA's), (35, 45684), (40, 45669), (54, 45630), (57, 45597),

Gene: Yecey3_88 Start: 47683, Stop: 47417, Start Num: 32

Candidate Starts for Yecey3_88:

(Start: 32 @47683 has 1 MA's), (37, 47665), (43, 47650), (47, 47638), (62, 47509),

Gene: Zeuska_78 Start: 48397, Stop: 48113, Start Num: 28

Candidate Starts for Zeuska_78:

(20, 48427), (Start: 28 @48397 has 3 MA's), (Start: 31 @48385 has 4 MA's), (56, 48295), (59, 48244),