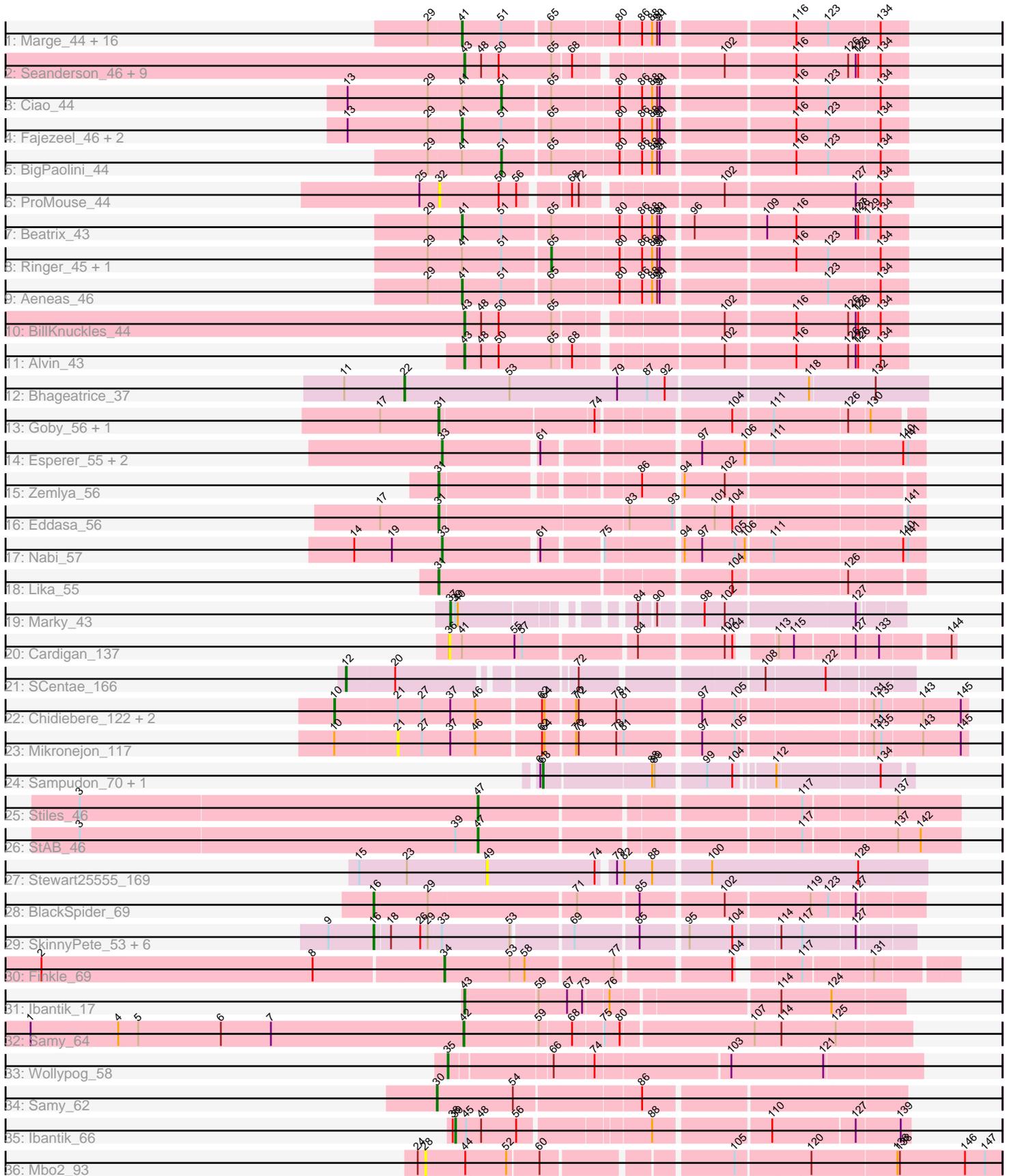# Pham 291110

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 291110 Report

This analysis was run 03/28/26 on database version 641.

Pham number 291110 has 76 members, 6 are drafts.

Phages represented in each track:
• Track 1 : Marge_44, StrongArm_43, Niza_46, Smairt_46, Dexes_44, Eyeball_45, TheloniousMonk_45, Fenn_45, Slagathor_46, Bexan_42, Naira_45, Bones_44, Licorice_47, Ruotula_47, Rajelicia_45, Sagefire_47, Arcanine_45
• Track 2 : Seanderson_46, ILeeKay_48, IgnatiusPatJac_43, Marco3_46, Fushigi_42, Petruchio_44, Kykar_44, BluSpix_41, Ajay_44, Trouble_45
• Track 3 : Ciao_44
• Track 4 : Fajezeel_46, Greg_46, Pippin_46
• Track 5 : BigPaolini_44
• Track 6 : ProMouse_44
• Track 7 : Beatrix_43
• Track 8 : Ringer_45, Teodoridan_42
• Track 9 : Aeneas_46
• Track 10 : BillKnuckles_44
• Track 11 : Alvin_43
• Track 12 : Bhageatrice_37
• Track 13 : Goby_56, Toma_56
• Track 14 : Esperer_55, Leviticus_55, Hydra_56
• Track 15 : Zemlya_56
• Track 16 : Eddasa_56
• Track 17 : Nabi_57
• Track 18 : Lika_55
• Track 19 : Marky_43
• Track 20 : Cardigan_137
• Track 21 : SCentae_166
• Track 22 : Chidiebere_122, Schomber_120, Kabocha_123
• Track 23 : Mikronejon_117
• Track 24 : Sampudon_70, Jalebi_69
• Track 25 : Stiles_46
• Track 26 : StAB_46
• Track 27 : Stewart25555_169
• Track 28 : BlackSpider_69
• Track 29 : SkinnyPete_53, Aloeri_75, DocMcStuffins_74, ChickenDinner_74, TootsiePop_72, Misha28_72, Awesomesauce_74
• Track 30 : Finkle_69
• Track 31 : Ibantik_17
• Track 32 : Samy_64
• Track 33 : Wollypog_58

- Track 34 : Samy_62
- Track 35 : Ibantik_66
- Track 36 : Mbo2_93

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

The start number called the most often in the published annotations is 41, it was called in 22 of the 70 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
- Aeneas_46, Arcanine_45, Beatrix_43, Bexan_42, Bones_44, Dexes_44, Eyeball_45, Fajezeel_46, Fenn_45, Greg_46, Licorice_47, Marge_44, Naira_45, Niza_46, Pippin_46, Rajelicia_45, Ruotula_47, Sagefire_47, Slagathor_46, Smairt_46, StrongArm_43, TheloniousMonk_45,

Genes that have the "Most Annotated" start but do not call it:
- BigPaolini_44, Cardigan_137, Ciao_44, Ringer_45, Teodoridan_42,

Genes that do not have the "Most Annotated" start:
- Ajay_44, Aloeri_75, Alvin_43, Awesomesauce_74, Bhageatrice_37, BillKnuckles_44, BlackSpider_69, BluSpix_41, ChickenDinner_74, Chidiebere_122, DocMcStuffins_74, Eddasa_56, Esperer_55, Finkle_69, Fushigi_42, Goby_56, Hydra_56, ILeeKay_48, Ibantik_17, Ibantik_66, IgnatiusPatJac_43, Jalebi_69, Kabocha_123, Kykar_44, Leviticus_55, Lika_55, Marco3_46, Marky_43, Mbo2_93, Mikronejon_117, Misha28_72, Nabi_57, Petruchio_44, ProMouse_44, SCentae_166, Sampudon_70, Samy_62, Samy_64, Schomber_120, Seanderson_46, SkinnyPete_53, StAB_46, Stewart25555_169, Stiles_46, Toma_56, TootsiePop_72, Trouble_45, Wollypog_58, Zemlya_56,

Summary by start number:

Start 10:
- Found in 4 of 76 (5.3%) of genes in pham
- Manual Annotations of this start: 3 of 70
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Chidiebere_122 (DQ), Kabocha_123 (DQ), Schomber_120 (DQ),

Start 12:
- Found in 1 of 76 (1.3%) of genes in pham
- Manual Annotations of this start: 1 of 70
- Called 100.0% of time when present
- Phage (with cluster) where this start called: SCentae_166 (DO),

Start 16:
- Found in 8 of 76 (10.5%) of genes in pham
- Manual Annotations of this start: 8 of 70
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aloeri_75 (F1), Awesomesauce_74 (F1), BlackSpider_69 (FN), ChickenDinner_74 (F1), DocMcStuffins_74 (F1), Misha28_72

(F1), SkinnyPete_53 (N), TootsiePop_72 (F1),

Start 21:
• Found in 4 of 76 (5.3%) of genes in pham
• No Manual Annotations of this start.
• Called 25.0% of time when present
• Phage (with cluster) where this start called: Mikronejon_117 (DQ),

Start 22:
• Found in 1 of 76 (1.3%) of genes in pham
• Manual Annotations of this start: 1 of 70
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Bhageatrice_37 (AY),

Start 28:
• Found in 1 of 76 (1.3%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Mbo2_93 (singleton),

Start 30:
• Found in 1 of 76 (1.3%) of genes in pham
• Manual Annotations of this start: 1 of 70
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Samy_62 (singleton),

Start 31:
• Found in 5 of 76 (6.6%) of genes in pham
• Manual Annotations of this start: 5 of 70
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Eddasa_56 (BD1), Goby_56 (BD1),
Lika_55 (BD1), Toma_56 (BD1), Zemlya_56 (BD1),

Start 32:
• Found in 1 of 76 (1.3%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: ProMouse_44 (A1),

Start 33:
• Found in 11 of 76 (14.5%) of genes in pham
• Manual Annotations of this start: 4 of 70
• Called 36.4% of time when present
• Phage (with cluster) where this start called: Esperer_55 (BD1), Hydra_56 (BD1),
Leviticus_55 (BD1), Nabi_57 (BD1),

Start 34:
• Found in 1 of 76 (1.3%) of genes in pham
• Manual Annotations of this start: 1 of 70
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Finkle_69 (singleton),

Start 35:

- Found in 1 of 76 (1.3%) of genes in pham
- Manual Annotations of this start: 1 of 70
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Wollypog_58 (singleton),

Start 36:
- Found in 1 of 76 (1.3%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cardigan_137 (DD),

Start 37:
- Found in 5 of 76 (6.6%) of genes in pham
- Manual Annotations of this start: 1 of 70
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Marky_43 (BH),

Start 39:
- Found in 3 of 76 (3.9%) of genes in pham
- Manual Annotations of this start: 1 of 70
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Ibantik_66 (singleton),

Start 41:
- Found in 27 of 76 (35.5%) of genes in pham
- Manual Annotations of this start: 22 of 70
- Called 81.5% of time when present
- Phage (with cluster) where this start called: Aeneas_46 (A1), Arcanine_45 (A1), Beatrix_43 (A1), Bexan_42 (A1), Bones_44 (A1), Dexes_44 (A1), Eyeball_45 (A1), Fajezeel_46 (A1), Fenn_45 (A1), Greg_46 (A1), Licorice_47 (A1), Marge_44 (A1), Naira_45 (A1), Niza_46 (A1), Pippin_46 (A1), Rajelicia_45 (A1), Ruotula_47 (A1), Sagefire_47 (A1), Slagathor_46 (A1), Smairt_46 (A1), StrongArm_43 (A1), TheloniousMonk_45 (A1),

Start 42:
- Found in 1 of 76 (1.3%) of genes in pham
- Manual Annotations of this start: 1 of 70
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Samy_64 (singleton),

Start 43:
- Found in 13 of 76 (17.1%) of genes in pham
- Manual Annotations of this start: 13 of 70
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ajay_44 (A1), Alvin_43 (A1), BillKnuckles_44 (A1), BluSpix_41 (A1), Fushigi_42 (A1), ILeeKay_48 (A1), Ibantik_17 (singleton), IgnatiusPatJac_43 (A1), Kykar_44 (A1), Marco3_46 (A1), Petruchio_44 (A1), Seanderson_46 (A1), Trouble_45 (A1),

Start 47:
- Found in 2 of 76 (2.6%) of genes in pham
- Manual Annotations of this start: 2 of 70
- Called 100.0% of time when present

• Phage (with cluster) where this start called: StAB_46 (EP), Stiles_46 (EP),

Start 49:
• Found in 1 of 76 (1.3%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Stewart25555_169 (FC),

Start 51:
• Found in 26 of 76 (34.2%) of genes in pham
• Manual Annotations of this start: 2 of 70
• Called 7.7% of time when present
• Phage (with cluster) where this start called: BigPaolini_44 (A1), Ciao_44 (A1),

Start 63:
• Found in 2 of 76 (2.6%) of genes in pham
• Manual Annotations of this start: 2 of 70
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Jalebi_69 (DV), Sampudon_70 (DV),

Start 65:
• Found in 38 of 76 (50.0%) of genes in pham
• Manual Annotations of this start: 1 of 70
• Called 5.3% of time when present
• Phage (with cluster) where this start called: Ringer_45 (A1), Teodoridan_42 (A1),

Summary by clusters:

There are 14 clusters represented in this pham: F1, singleton, DO, DD, BH, N, A1, AY, FC, BD1, DV, EP, FN, DQ,

Info for manual annotations of cluster A1:
•Start number 41 was manually annotated 22 times for cluster A1.
•Start number 43 was manually annotated 12 times for cluster A1.
•Start number 51 was manually annotated 2 times for cluster A1.
•Start number 65 was manually annotated 1 time for cluster A1.

Info for manual annotations of cluster AY:
•Start number 22 was manually annotated 1 time for cluster AY.

Info for manual annotations of cluster BD1:
•Start number 31 was manually annotated 5 times for cluster BD1.
•Start number 33 was manually annotated 4 times for cluster BD1.

Info for manual annotations of cluster BH:
•Start number 37 was manually annotated 1 time for cluster BH.

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

Info for manual annotations of cluster DQ:
•Start number 10 was manually annotated 3 times for cluster DQ.

Info for manual annotations of cluster DV:
•Start number 63 was manually annotated 2 times for cluster DV.

Info for manual annotations of cluster EP:
•Start number 47 was manually annotated 2 times for cluster EP.

Info for manual annotations of cluster F1:
•Start number 16 was manually annotated 6 times for cluster F1.

Info for manual annotations of cluster FN:
•Start number 16 was manually annotated 1 time for cluster FN.

Info for manual annotations of cluster N:
•Start number 16 was manually annotated 1 time for cluster N.

Gene Information:

Gene: Aeneas_46 Start: 33206, Stop: 32721, Start Num: 41
Candidate Starts for Aeneas_46:
(29, 33245), (Start: 41 @33206 has 22 MA's), (Start: 51 @33164 has 2 MA's), (Start: 65 @33110 has 1 MA's), (80, 33035), (86, 33011), (88, 32999), (90, 32993), (91, 32990), (123, 32807), (134, 32750),

Gene: Ajay_44 Start: 32810, Stop: 32334, Start Num: 43
Candidate Starts for Ajay_44:
(Start: 43 @32810 has 13 MA's), (48, 32792), (50, 32771), (Start: 65 @32708 has 1 MA's), (68, 32687), (102, 32534), (116, 32456), (126, 32399), (127, 32390), (128, 32387), (134, 32363),

Gene: Aloeri_75 Start: 46126, Stop: 46713, Start Num: 16
Candidate Starts for Aloeri_75:
(9, 46072), (Start: 16 @46126 has 8 MA's), (18, 46144), (26, 46177), (29, 46186), (Start: 33 @46201 has 4 MA's), (53, 46282), (69, 46348), (85, 46420), (95, 46471), (104, 46522), (114, 46573), (117, 46597), (127, 46654),

Gene: Alvin_43 Start: 33331, Stop: 32855, Start Num: 43
Candidate Starts for Alvin_43:
(Start: 43 @33331 has 13 MA's), (48, 33313), (50, 33292), (Start: 65 @33229 has 1 MA's), (68, 33208), (102, 33055), (116, 32977), (126, 32920), (127, 32911), (128, 32908), (134, 32884),

Gene: Arcanine_45 Start: 32773, Stop: 32288, Start Num: 41
Candidate Starts for Arcanine_45:
(29, 32812), (Start: 41 @32773 has 22 MA's), (Start: 51 @32731 has 2 MA's), (Start: 65 @32677 has 1 MA's), (80, 32602), (86, 32578), (88, 32566), (90, 32560), (91, 32557), (116, 32410), (123, 32374), (134, 32317),

Gene: Awesomesauce_74 Start: 45209, Stop: 45796, Start Num: 16
Candidate Starts for Awesomesauce_74:
(9, 45155), (Start: 16 @45209 has 8 MA's), (18, 45227), (26, 45260), (29, 45269), (Start: 33 @45284 has 4 MA's), (53, 45365), (69, 45431), (85, 45503), (95, 45554), (104, 45605), (114, 45656), (117, 45680), (127, 45737),

Gene: Beatrix_43 Start: 34176, Stop: 33691, Start Num: 41
Candidate Starts for Beatrix_43:
(29, 34215), (Start: 41 @34176 has 22 MA's), (Start: 51 @34134 has 2 MA's), (Start: 65 @34080 has 1
MA's), (80, 34005), (86, 33981), (88, 33969), (90, 33963), (91, 33960), (96, 33927), (109, 33846), (116,
33813), (127, 33747), (128, 33744), (129, 33735), (134, 33720),

Gene: Bexan_42 Start: 33854, Stop: 33369, Start Num: 41
Candidate Starts for Bexan_42:
(29, 33893), (Start: 41 @33854 has 22 MA's), (Start: 51 @33812 has 2 MA's), (Start: 65 @33758 has 1
MA's), (80, 33683), (86, 33659), (88, 33647), (90, 33641), (91, 33638), (116, 33491), (123, 33455),
(134, 33398),

Gene: Bhageatrice_37 Start: 26729, Stop: 27340, Start Num: 22
Candidate Starts for Bhageatrice_37:
(11, 26657), (Start: 22 @26729 has 1 MA's), (53, 26855), (79, 26984), (87, 27020), (92, 27041), (118,
27203), (132, 27278),

Gene: BigPaolini_44 Start: 31801, Stop: 31358, Start Num: 51
Candidate Starts for BigPaolini_44:
(29, 31882), (Start: 41 @31843 has 22 MA's), (Start: 51 @31801 has 2 MA's), (Start: 65 @31747 has 1
MA's), (80, 31672), (86, 31648), (88, 31636), (90, 31630), (91, 31627), (116, 31480), (123, 31444),
(134, 31387),

Gene: BillKnuckles_44 Start: 33515, Stop: 33039, Start Num: 43
Candidate Starts for BillKnuckles_44:
(Start: 43 @33515 has 13 MA's), (48, 33497), (50, 33476), (Start: 65 @33413 has 1 MA's), (102,
33239), (116, 33161), (126, 33104), (127, 33095), (128, 33092), (134, 33068),

Gene: BlackSpider_69 Start: 42752, Stop: 43360, Start Num: 16
Candidate Starts for BlackSpider_69:
(Start: 16 @42752 has 8 MA's), (29, 42815), (71, 42986), (85, 43055), (102, 43148), (119, 43241),
(123, 43259), (127, 43289),

Gene: BluSpix_41 Start: 28937, Stop: 28461, Start Num: 43
Candidate Starts for BluSpix_41:
(Start: 43 @28937 has 13 MA's), (48, 28919), (50, 28898), (Start: 65 @28835 has 1 MA's), (68, 28814),
(102, 28661), (116, 28583), (126, 28526), (127, 28517), (128, 28514), (134, 28490),

Gene: Bones_44 Start: 33339, Stop: 32854, Start Num: 41
Candidate Starts for Bones_44:
(29, 33378), (Start: 41 @33339 has 22 MA's), (Start: 51 @33297 has 2 MA's), (Start: 65 @33243 has 1
MA's), (80, 33168), (86, 33144), (88, 33132), (90, 33126), (91, 33123), (116, 32976), (123, 32940),
(134, 32883),

Gene: Cardigan_137 Start: 77101, Stop: 77631, Start Num: 36
Candidate Starts for Cardigan_137:
(36, 77101), (Start: 41 @77116 has 22 MA's), (55, 77179), (57, 77188), (84, 77311), (102, 77404),
(104, 77413), (113, 77446), (115, 77464), (127, 77530), (133, 77551), (144, 77626),

Gene: ChickenDinner_74 Start: 46126, Stop: 46713, Start Num: 16
Candidate Starts for ChickenDinner_74:

(9, 46072), (Start: 16 @46126 has 8 MA's), (18, 46144), (26, 46177), (29, 46186), (Start: 33 @46201 has 4 MA's), (53, 46282), (69, 46348), (85, 46420), (95, 46471), (104, 46522), (114, 46573), (117, 46597), (127, 46654),

Gene: Chidiebere_122 Start: 85918, Stop: 86616, Start Num: 10
Candidate Starts for Chidiebere_122:
(Start: 10 @85918 has 3 MA's), (21, 85990), (27, 86017), (Start: 37 @86050 has 1 MA's), (46, 86080), (62, 86152), (64, 86155), (70, 86188), (72, 86191), (78, 86236), (81, 86245), (97, 86326), (105, 86365), (131, 86509), (135, 86518), (143, 86563), (145, 86608),

Gene: Ciao_44 Start: 32944, Stop: 32501, Start Num: 51
Candidate Starts for Ciao_44:
(13, 33121), (29, 33025), (Start: 41 @32986 has 22 MA's), (Start: 51 @32944 has 2 MA's), (Start: 65 @32890 has 1 MA's), (80, 32815), (86, 32791), (88, 32779), (90, 32773), (91, 32770), (116, 32623), (123, 32587), (134, 32530),

Gene: Dexes_44 Start: 33602, Stop: 33117, Start Num: 41
Candidate Starts for Dexes_44:
(29, 33641), (Start: 41 @33602 has 22 MA's), (Start: 51 @33560 has 2 MA's), (Start: 65 @33506 has 1 MA's), (80, 33431), (86, 33407), (88, 33395), (90, 33389), (91, 33386), (116, 33239), (123, 33203), (134, 33146),

Gene: DocMcStuffins_74 Start: 46126, Stop: 46713, Start Num: 16
Candidate Starts for DocMcStuffins_74:
(9, 46072), (Start: 16 @46126 has 8 MA's), (18, 46144), (26, 46177), (29, 46186), (Start: 33 @46201 has 4 MA's), (53, 46282), (69, 46348), (85, 46420), (95, 46471), (104, 46522), (114, 46573), (117, 46597), (127, 46654),

Gene: Eddasa_56 Start: 41265, Stop: 40723, Start Num: 31
Candidate Starts for Eddasa_56:
(17, 41334), (Start: 31 @41265 has 5 MA's), (83, 41046), (93, 40995), (101, 40953), (104, 40932), (141, 40743),

Gene: Esperer_55 Start: 40815, Stop: 40285, Start Num: 33
Candidate Starts for Esperer_55:
(Start: 33 @40815 has 4 MA's), (61, 40707), (97, 40539), (106, 40488), (111, 40458), (140, 40311), (141, 40305),

Gene: Eyeball_45 Start: 33249, Stop: 32764, Start Num: 41
Candidate Starts for Eyeball_45:
(29, 33288), (Start: 41 @33249 has 22 MA's), (Start: 51 @33207 has 2 MA's), (Start: 65 @33153 has 1 MA's), (80, 33078), (86, 33054), (88, 33042), (90, 33036), (91, 33033), (116, 32886), (123, 32850), (134, 32793),

Gene: Fajezeel_46 Start: 33359, Stop: 32874, Start Num: 41
Candidate Starts for Fajezeel_46:
(13, 33494), (29, 33398), (Start: 41 @33359 has 22 MA's), (Start: 51 @33317 has 2 MA's), (Start: 65 @33263 has 1 MA's), (80, 33188), (86, 33164), (88, 33152), (90, 33146), (91, 33143), (116, 32996), (123, 32960), (134, 32903),

Gene: Fenn_45 Start: 34680, Stop: 34195, Start Num: 41
Candidate Starts for Fenn_45:

(29, 34719), (Start: 41 @34680 has 22 MA's), (Start: 51 @34638 has 2 MA's), (Start: 65 @34584 has 1 MA's), (80, 34509), (86, 34485), (88, 34473), (90, 34467), (91, 34464), (116, 34317), (123, 34281), (134, 34224),

Gene: Finkle_69 Start: 42637, Stop: 43176, Start Num: 34
Candidate Starts for Finkle_69:
(2, 42163), (8, 42487), (Start: 34 @42637 has 1 MA's), (53, 42715), (58, 42733), (77, 42832), (104, 42955), (117, 43015), (131, 43087),

Gene: Fushigi_42 Start: 30914, Stop: 30438, Start Num: 43
Candidate Starts for Fushigi_42:
(Start: 43 @30914 has 13 MA's), (48, 30896), (50, 30875), (Start: 65 @30812 has 1 MA's), (68, 30791), (102, 30638), (116, 30560), (126, 30503), (127, 30494), (128, 30491), (134, 30467),

Gene: Goby_56 Start: 42305, Stop: 41778, Start Num: 31
Candidate Starts for Goby_56:
(17, 42374), (Start: 31 @42305 has 5 MA's), (74, 42131), (104, 41987), (111, 41942), (126, 41858), (130, 41834),

Gene: Greg_46 Start: 33359, Stop: 32874, Start Num: 41
Candidate Starts for Greg_46:
(13, 33494), (29, 33398), (Start: 41 @33359 has 22 MA's), (Start: 51 @33317 has 2 MA's), (Start: 65 @33263 has 1 MA's), (80, 33188), (86, 33164), (88, 33152), (90, 33146), (91, 33143), (116, 32996), (123, 32960), (134, 32903),

Gene: Hydra_56 Start: 41651, Stop: 41121, Start Num: 33
Candidate Starts for Hydra_56:
(Start: 33 @41651 has 4 MA's), (61, 41543), (97, 41375), (106, 41324), (111, 41294), (140, 41147), (141, 41141),

Gene: ILeeKay_48 Start: 33858, Stop: 33382, Start Num: 43
Candidate Starts for ILeeKay_48:
(Start: 43 @33858 has 13 MA's), (48, 33840), (50, 33819), (Start: 65 @33756 has 1 MA's), (68, 33735), (102, 33582), (116, 33504), (126, 33447), (127, 33438), (128, 33435), (134, 33411),

Gene: Ibantik_17 Start: 6683, Stop: 6195, Start Num: 43
Candidate Starts for Ibantik_17:
(Start: 43 @6683 has 13 MA's), (59, 6599), (67, 6566), (73, 6548), (76, 6521), (114, 6335), (124, 6278),

Gene: Ibantik_66 Start: 28032, Stop: 28526, Start Num: 39
Candidate Starts for Ibantik_66:
(38, 28029), (Start: 39 @28032 has 1 MA's), (45, 28044), (48, 28062), (56, 28104), (88, 28245), (110, 28374), (127, 28464), (139, 28515),

Gene: IgnatiusPatJac_43 Start: 32882, Stop: 32406, Start Num: 43
Candidate Starts for IgnatiusPatJac_43:
(Start: 43 @32882 has 13 MA's), (48, 32864), (50, 32843), (Start: 65 @32780 has 1 MA's), (68, 32759), (102, 32606), (116, 32528), (126, 32471), (127, 32462), (128, 32459), (134, 32435),

Gene: Jalebi_69 Start: 49016, Stop: 49408, Start Num: 63
Candidate Starts for Jalebi_69:
(61, 49013), (Start: 63 @49016 has 2 MA's), (88, 49139), (89, 49142), (99, 49196), (104, 49226), (112, 49262), (134, 49376),

Gene: Kabocha_123 Start: 86731, Stop: 87429, Start Num: 10
Candidate Starts for Kabocha_123:
(Start: 10 @86731 has 3 MA's), (21, 86803), (27, 86830), (Start: 37 @86863 has 1 MA's), (46, 86893), (62, 86965), (64, 86968), (70, 87001), (72, 87004), (78, 87049), (81, 87058), (97, 87139), (105, 87178), (131, 87322), (135, 87331), (143, 87376), (145, 87421),

Gene: Kykar_44 Start: 32934, Stop: 32458, Start Num: 43
Candidate Starts for Kykar_44:
(Start: 43 @32934 has 13 MA's), (48, 32916), (50, 32895), (Start: 65 @32832 has 1 MA's), (68, 32811), (102, 32658), (116, 32580), (126, 32523), (127, 32514), (128, 32511), (134, 32487),

Gene: Leviticus_55 Start: 41002, Stop: 40472, Start Num: 33
Candidate Starts for Leviticus_55:
(Start: 33 @41002 has 4 MA's), (61, 40894), (97, 40726), (106, 40675), (111, 40645), (140, 40498), (141, 40492),

Gene: Licorice_47 Start: 34445, Stop: 33960, Start Num: 41
Candidate Starts for Licorice_47:
(29, 34484), (Start: 41 @34445 has 22 MA's), (Start: 51 @34403 has 2 MA's), (Start: 65 @34349 has 1 MA's), (80, 34274), (86, 34250), (88, 34238), (90, 34232), (91, 34229), (116, 34082), (123, 34046), (134, 33989),

Gene: Lika_55 Start: 42316, Stop: 41774, Start Num: 31
Candidate Starts for Lika_55:
(Start: 31 @42316 has 5 MA's), (104, 41986), (126, 41857),

Gene: Marco3_46 Start: 33679, Stop: 33203, Start Num: 43
Candidate Starts for Marco3_46:
(Start: 43 @33679 has 13 MA's), (48, 33661), (50, 33640), (Start: 65 @33577 has 1 MA's), (68, 33556), (102, 33403), (116, 33325), (126, 33268), (127, 33259), (128, 33256), (134, 33232),

Gene: Marge_44 Start: 33477, Stop: 32992, Start Num: 41
Candidate Starts for Marge_44:
(29, 33516), (Start: 41 @33477 has 22 MA's), (Start: 51 @33435 has 2 MA's), (Start: 65 @33381 has 1 MA's), (80, 33306), (86, 33282), (88, 33270), (90, 33264), (91, 33261), (116, 33114), (123, 33078), (134, 33021),

Gene: Marky_43 Start: 31173, Stop: 31622, Start Num: 37
Candidate Starts for Marky_43:
(Start: 37 @31173 has 1 MA's), (Start: 39 @31179 has 1 MA's), (40, 31182), (84, 31344), (90, 31359), (98, 31404), (102, 31428), (127, 31572),

Gene: Mbo2_93 Start: 66190, Stop: 65546, Start Num: 28
Candidate Starts for Mbo2_93:
(24, 66199), (28, 66190), (44, 66142), (52, 66094), (60, 66058), (105, 65854), (120, 65770), (136, 65671), (138, 65668), (146, 65590), (147, 65566),

Gene: Mikronejon_117 Start: 85340, Stop: 85966, Start Num: 21
Candidate Starts for Mikronejon_117:
(Start: 10 @85268 has 3 MA's), (21, 85340), (27, 85367), (Start: 37 @85400 has 1 MA's), (46, 85430), (62, 85502), (64, 85505), (70, 85538), (72, 85541), (78, 85586), (81, 85595), (97, 85676), (105, 85715), (131, 85859), (135, 85868), (143, 85913), (145, 85958),

Gene: Misha28_72 Start: 45214, Stop: 45801, Start Num: 16
Candidate Starts for Misha28_72:
(9, 45160), (Start: 16 @45214 has 8 MA's), (18, 45232), (26, 45265), (29, 45274), (Start: 33 @45289 has 4 MA's), (53, 45370), (69, 45436), (85, 45508), (95, 45559), (104, 45610), (114, 45661), (117, 45685), (127, 45742),

Gene: Nabi_57 Start: 42255, Stop: 41725, Start Num: 33
Candidate Starts for Nabi_57:
(14, 42360), (19, 42315), (Start: 33 @42255 has 4 MA's), (61, 42147), (75, 42084), (94, 42000), (97, 41979), (105, 41940), (106, 41928), (111, 41898), (140, 41751), (141, 41745),

Gene: Naira_45 Start: 34727, Stop: 34242, Start Num: 41
Candidate Starts for Naira_45:
(29, 34766), (Start: 41 @34727 has 22 MA's), (Start: 51 @34685 has 2 MA's), (Start: 65 @34631 has 1 MA's), (80, 34556), (86, 34532), (88, 34520), (90, 34514), (91, 34511), (116, 34364), (123, 34328), (134, 34271),

Gene: Niza_46 Start: 34104, Stop: 33619, Start Num: 41
Candidate Starts for Niza_46:
(29, 34143), (Start: 41 @34104 has 22 MA's), (Start: 51 @34062 has 2 MA's), (Start: 65 @34008 has 1 MA's), (80, 33933), (86, 33909), (88, 33897), (90, 33891), (91, 33888), (116, 33741), (123, 33705), (134, 33648),

Gene: Petruchio_44 Start: 32947, Stop: 32471, Start Num: 43
Candidate Starts for Petruchio_44:
(Start: 43 @32947 has 13 MA's), (48, 32929), (50, 32908), (Start: 65 @32845 has 1 MA's), (68, 32824), (102, 32671), (116, 32593), (126, 32536), (127, 32527), (128, 32524), (134, 32500),

Gene: Pippin_46 Start: 33403, Stop: 32918, Start Num: 41
Candidate Starts for Pippin_46:
(13, 33538), (29, 33442), (Start: 41 @33403 has 22 MA's), (Start: 51 @33361 has 2 MA's), (Start: 65 @33307 has 1 MA's), (80, 33232), (86, 33208), (88, 33196), (90, 33190), (91, 33187), (116, 33040), (123, 33004), (134, 32947),

Gene: ProMouse_44 Start: 33305, Stop: 32802, Start Num: 32
Candidate Starts for ProMouse_44:
(25, 33329), (32, 33305), (50, 33236), (56, 33215), (68, 33164), (72, 33158), (102, 33011), (127, 32867), (134, 32840),

Gene: Rajelicia_45 Start: 33435, Stop: 32950, Start Num: 41
Candidate Starts for Rajelicia_45:
(29, 33474), (Start: 41 @33435 has 22 MA's), (Start: 51 @33393 has 2 MA's), (Start: 65 @33339 has 1 MA's), (80, 33264), (86, 33240), (88, 33228), (90, 33222), (91, 33219), (116, 33072), (123, 33036), (134, 32979),

Gene: Ringer_45 Start: 33671, Stop: 33282, Start Num: 65
Candidate Starts for Ringer_45:
(29, 33806), (Start: 41 @33767 has 22 MA's), (Start: 51 @33725 has 2 MA's), (Start: 65 @33671 has 1 MA's), (80, 33596), (86, 33572), (88, 33560), (90, 33554), (91, 33551), (116, 33404), (123, 33368), (134, 33311),

Gene: Ruotula_47 Start: 34572, Stop: 34078, Start Num: 41

Candidate Starts for Ruotula_47:
(29, 34611), (Start: 41 @34572 has 22 MA's), (Start: 51 @34530 has 2 MA's), (Start: 65 @34476 has 1 MA's), (80, 34401), (86, 34377), (88, 34365), (90, 34359), (91, 34356), (116, 34200), (123, 34164), (134, 34107),

Gene: SCentae_166 Start: 121636, Stop: 122217, Start Num: 12
Candidate Starts for SCentae_166:
(Start: 12 @121636 has 1 MA's), (20, 121693), (72, 121873), (108, 122059), (122, 122125),

Gene: Sagefire_47 Start: 34321, Stop: 33836, Start Num: 41
Candidate Starts for Sagefire_47:
(29, 34360), (Start: 41 @34321 has 22 MA's), (Start: 51 @34279 has 2 MA's), (Start: 65 @34225 has 1 MA's), (80, 34150), (86, 34126), (88, 34114), (90, 34108), (91, 34105), (116, 33958), (123, 33922), (134, 33865),

Gene: Sampudon_70 Start: 49016, Stop: 49408, Start Num: 63
Candidate Starts for Sampudon_70:
(61, 49013), (Start: 63 @49016 has 2 MA's), (88, 49139), (89, 49142), (99, 49196), (104, 49226), (112, 49262), (134, 49376),

Gene: Samy_64 Start: 40970, Stop: 41473, Start Num: 42
Candidate Starts for Samy_64:
(1, 40451), (4, 40556), (5, 40580), (6, 40679), (7, 40739), (Start: 42 @40970 has 1 MA's), (59, 41057), (68, 41093), (75, 41126), (80, 41144), (107, 41297), (114, 41327), (125, 41390),

Gene: Samy_62 Start: 37969, Stop: 38490, Start Num: 30
Candidate Starts for Samy_62:
(Start: 30 @37969 has 1 MA's), (54, 38059), (86, 38200),

Gene: Schomber_120 Start: 85119, Stop: 85817, Start Num: 10
Candidate Starts for Schomber_120:
(Start: 10 @85119 has 3 MA's), (21, 85191), (27, 85218), (Start: 37 @85251 has 1 MA's), (46, 85281), (62, 85353), (64, 85356), (70, 85389), (72, 85392), (78, 85437), (81, 85446), (97, 85527), (105, 85566), (131, 85710), (135, 85719), (143, 85764), (145, 85809),

Gene: Seanderson_46 Start: 33923, Stop: 33447, Start Num: 43
Candidate Starts for Seanderson_46:
(Start: 43 @33923 has 13 MA's), (48, 33905), (50, 33884), (Start: 65 @33821 has 1 MA's), (68, 33800), (102, 33647), (116, 33569), (126, 33512), (127, 33503), (128, 33500), (134, 33476),

Gene: SkinnyPete_53 Start: 35995, Stop: 36582, Start Num: 16
Candidate Starts for SkinnyPete_53:
(9, 35941), (Start: 16 @35995 has 8 MA's), (18, 36013), (26, 36046), (29, 36055), (Start: 33 @36070 has 4 MA's), (53, 36151), (69, 36217), (85, 36289), (95, 36340), (104, 36391), (114, 36442), (117, 36466), (127, 36523),

Gene: Slagathor_46 Start: 33360, Stop: 32875, Start Num: 41
Candidate Starts for Slagathor_46:
(29, 33399), (Start: 41 @33360 has 22 MA's), (Start: 51 @33318 has 2 MA's), (Start: 65 @33264 has 1 MA's), (80, 33189), (86, 33165), (88, 33153), (90, 33147), (91, 33144), (116, 32997), (123, 32961), (134, 32904),

Gene: Smairt_46 Start: 33659, Stop: 33174, Start Num: 41

Candidate Starts for Smairt_46:
(29, 33698), (Start: 41 @33659 has 22 MA's), (Start: 51 @33617 has 2 MA's), (Start: 65 @33563 has 1 MA's), (80, 33488), (86, 33464), (88, 33452), (90, 33446), (91, 33443), (116, 33296), (123, 33260), (134, 33203),

Gene: StAB_46 Start: 35820, Stop: 36344, Start Num: 47
Candidate Starts for StAB_46:
(3, 35346), (Start: 39 @35793 has 1 MA's), (Start: 47 @35820 has 2 MA's), (117, 36168), (137, 36270), (142, 36297),

Gene: Stewart25555_169 Start: 117773, Stop: 118273, Start Num: 49
Candidate Starts for Stewart25555_169:
(15, 117620), (23, 117677), (49, 117773), (74, 117902), (79, 117917), (82, 117926), (88, 117959), (100, 118022), (128, 118193),

Gene: Stiles_46 Start: 35275, Stop: 35799, Start Num: 47
Candidate Starts for Stiles_46:
(3, 34801), (Start: 47 @35275 has 2 MA's), (117, 35623), (137, 35725),

Gene: StrongArm_43 Start: 33982, Stop: 33497, Start Num: 41
Candidate Starts for StrongArm_43:
(29, 34021), (Start: 41 @33982 has 22 MA's), (Start: 51 @33940 has 2 MA's), (Start: 65 @33886 has 1 MA's), (80, 33811), (86, 33787), (88, 33775), (90, 33769), (91, 33766), (116, 33619), (123, 33583), (134, 33526),

Gene: Teodoridan_42 Start: 32338, Stop: 31949, Start Num: 65
Candidate Starts for Teodoridan_42:
(29, 32473), (Start: 41 @32434 has 22 MA's), (Start: 51 @32392 has 2 MA's), (Start: 65 @32338 has 1 MA's), (80, 32263), (86, 32239), (88, 32227), (90, 32221), (91, 32218), (116, 32071), (123, 32035), (134, 31978),

Gene: TheloniousMonk_45 Start: 34368, Stop: 33883, Start Num: 41
Candidate Starts for TheloniousMonk_45:
(29, 34407), (Start: 41 @34368 has 22 MA's), (Start: 51 @34326 has 2 MA's), (Start: 65 @34272 has 1 MA's), (80, 34197), (86, 34173), (88, 34161), (90, 34155), (91, 34152), (116, 34005), (123, 33969), (134, 33912),

Gene: Toma_56 Start: 42308, Stop: 41778, Start Num: 31
Candidate Starts for Toma_56:
(17, 42377), (Start: 31 @42308 has 5 MA's), (74, 42131), (104, 41987), (111, 41942), (126, 41858), (130, 41834),

Gene: TootsiePop_72 Start: 45214, Stop: 45801, Start Num: 16
Candidate Starts for TootsiePop_72:
(9, 45160), (Start: 16 @45214 has 8 MA's), (18, 45232), (26, 45265), (29, 45274), (Start: 33 @45289 has 4 MA's), (53, 45370), (69, 45436), (85, 45508), (95, 45559), (104, 45610), (114, 45661), (117, 45685), (127, 45742),

Gene: Trouble_45 Start: 34048, Stop: 33572, Start Num: 43
Candidate Starts for Trouble_45:
(Start: 43 @34048 has 13 MA's), (48, 34030), (50, 34009), (Start: 65 @33946 has 1 MA's), (68, 33925), (102, 33772), (116, 33694), (126, 33637), (127, 33628), (128, 33625), (134, 33601),

Gene: Wollypog_58 Start: 43704, Stop: 44234, Start Num: 35
Candidate Starts for Wollypog_58:
(Start: 35 @43704 has 1 MA's), (66, 43818), (74, 43863), (103, 44016), (121, 44124),

Gene: Zemlya_56 Start: 42043, Stop: 41525, Start Num: 31
Candidate Starts for Zemlya_56:
(Start: 31 @42043 has 5 MA's), (86, 41836), (94, 41794), (102, 41746),