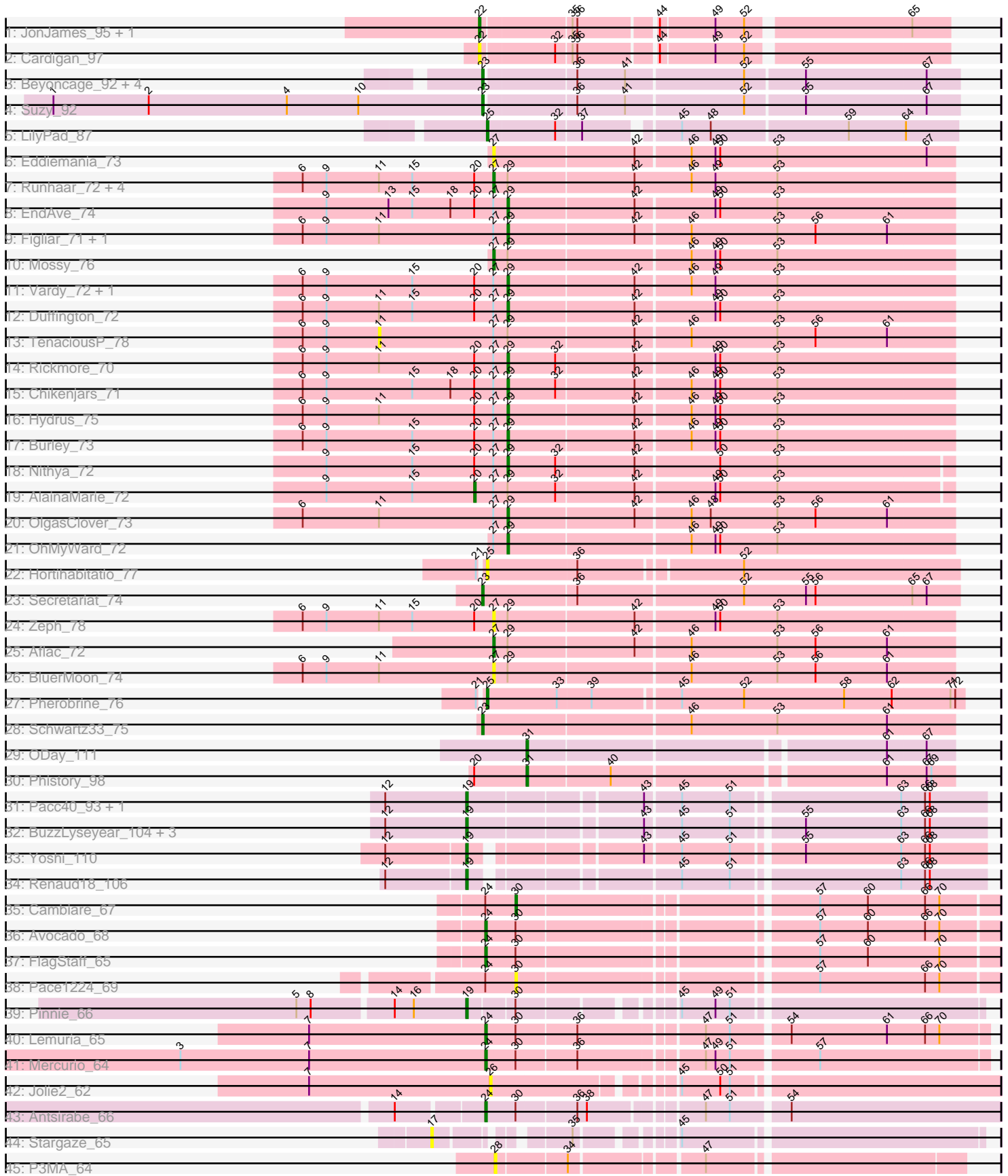


Pham 163022



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 163022 Report

This analysis was run 04/28/24 on database version 559.

Pham number 163022 has 60 members, 11 are drafts.

Phages represented in each track:

- Track 1 : JonJames_95, Yvonnetastic_93
- Track 2 : Cardigan_97
- Track 3 : Beyoncage_92, Djokovic_92, BiteSize_92, Madi_91, Terapin_93
- Track 4 : Suzy_92
- Track 5 : LilyPad_87
- Track 6 : Eddiemania_73
- Track 7 : Runhaar_72, Madvan_71, Phepper_74, Untouchable_75, Nadmeg_74
- Track 8 : EndAve_74
- Track 9 : Figliar_71, Jodelie19_71
- Track 10 : Mossy_76
- Track 11 : Vardy_72, Kenosha_72
- Track 12 : Duffington_72
- Track 13 : TenaciousP_78
- Track 14 : Rickmore_70
- Track 15 : Chikenjars_71
- Track 16 : Hydrus_75
- Track 17 : Burley_73
- Track 18 : Nithya_72
- Track 19 : AlainaMarie_72
- Track 20 : OlgasClover_73
- Track 21 : OhMyWard_72
- Track 22 : Hortihabitatio_77
- Track 23 : Secretariat_74
- Track 24 : Zeph_78
- Track 25 : Aflac_72
- Track 26 : BluerMoon_74
- Track 27 : Pherobrine_76
- Track 28 : Schwartz33_75
- Track 29 : ODay_111
- Track 30 : Phistory_98
- Track 31 : Pacc40_93, BlueCrab_98
- Track 32 : BuzzLyseyear_104, Demsculpinboyz_111, LunaBlu_102, Galactic_99
- Track 33 : Yoshi_110
- Track 34 : Renaud18_106
- Track 35 : Cambiare_67
- Track 36 : Avocado_68
- Track 37 : FlagStaff_65

- Track 38 : Pace1224_69
- Track 39 : Pinnie_66
- Track 40 : Lemuria_65
- Track 41 : Mercurio_64
- Track 42 : Jolie2_62
- Track 43 : Antsirabe_66
- Track 44 : Stargaze_65
- Track 45 : P3MA_64

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

The start number called the most often in the published annotations is 29, it was called in 13 of the 49 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Burley_73, Chikenjars_71, Duffington_72, EndAve_74, Figliar_71, Hydrus_75, Jodelie19_71, Kenosha_72, Nithya_72, OhMyWard_72, OlgasClover_73, Rickmore_70, Vardy_72,

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

- Aflac_72, AlainaMarie_72, BluerMoon_74, Madvan_71, Mossy_76, Nadmeg_74, Phepper_74, Runhaar_72, TenaciousP_78, Untouchable_75, Zeph_78,

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

- Antsirabe_66, Avocado_68, Beyoncage_92, BiteSize_92, BlueCrab_98, BuzzLyseyear_104, Cambiare_67, Cardigan_97, Demsculpinboyz_111, Djokovic_92, Eddiemania_73, FlagStaff_65, Galactic_99, Hortihabitatio_77, Jolie2_62, JonJames_95, Lemuria_65, LilyPad_87, LunaBlu_102, Madi_91, Mercurio_64, ODay_111, P3MA_64, Pacc40_93, Pace1224_69, Pherobrine_76, Phistory_98, Pinnie_66, Renaud18_106, Schwartz33_75, Secretariat_74, Stargaze_65, Suzy_92, Terapin_93, Yoshi_110, Yvonnestic_93,

Summary by start number:

Start 11:

- Found in 14 of 60 (23.3%) of genes in pham
- No Manual Annotations of this start.
- Called 7.1% of time when present
- Phage (with cluster) where this start called: TenaciousP_78 (DJ),

Start 17:

- Found in 1 of 60 (1.7%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Stargaze_65 (G5),

Start 19:

- Found in 9 of 60 (15.0%) of genes in pham
- Manual Annotations of this start: 9 of 49
- Called 100.0% of time when present

- Phage (with cluster) where this start called: BlueCrab_98 (F1), BuzzLyseyear_104 (F1), Demsculpinboyz_111 (F2), Galactic_99 (F1), LunaBlu_102 (F1), Pacc40_93 (F1), Pinnie_66 (G3), Renaud18_106 (F4), Yoshi_110 (F2),

Start 20:

- Found in 17 of 60 (28.3%) of genes in pham
- Manual Annotations of this start: 1 of 49
- Called 5.9% of time when present
- Phage (with cluster) where this start called: AlainaMarie_72 (DJ),

Start 22:

- Found in 3 of 60 (5.0%) of genes in pham
- Manual Annotations of this start: 2 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cardigan_97 (DD), JonJames_95 (DD), Yvonnestic_93 (DD),

Start 23:

- Found in 8 of 60 (13.3%) 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: Beyoncage_92 (DG1), BiteSize_92 (DG1), Djokovic_92 (DG1), Madi_91 (DG1), Schwartz33_75 (DJ), Secretariat_74 (DJ), Suzy_92 (DG1), Terapin_93 (DG1),

Start 24:

- Found in 7 of 60 (11.7%) of genes in pham
- Manual Annotations of this start: 5 of 49
- Called 71.4% of time when present
- Phage (with cluster) where this start called: Antsirabe_66 (G5), Avocado_68 (G2), FlagStaff_65 (G2), Lemuria_65 (G4), Mercurio_64 (G4),

Start 25:

- Found in 3 of 60 (5.0%) of genes in pham
- Manual Annotations of this start: 2 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hortihabitatio_77 (DJ), LilyPad_87 (DG1), Pherobrine_76 (DJ),

Start 26:

- Found in 1 of 60 (1.7%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jolie2_62 (G4),

Start 27:

- Found in 25 of 60 (41.7%) of genes in pham
- Manual Annotations of this start: 6 of 49
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Aflac_72 (DJ), BluerMoon_74 (DJ), Eddiemania_73 (DJ), Madvan_71 (DJ), Mossy_76 (DJ), Nadmeg_74 (DJ), Phepper_74 (DJ), Runhaar_72 (DJ), Untouchable_75 (DJ), Zeph_78 (DJ),

Start 28:

- Found in 1 of 60 (1.7%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: P3MA_64 (UNK),

Start 29:

- Found in 24 of 60 (40.0%) of genes in pham
- Manual Annotations of this start: 13 of 49
- Called 54.2% of time when present
- Phage (with cluster) where this start called: Burley_73 (DJ), Chikenjars_71 (DJ), Duffington_72 (DJ), EndAve_74 (DJ), Figliar_71 (DJ), Hydrus_75 (DJ), Jodelie19_71 (DJ), Kenosha_72 (DJ), Nithya_72 (DJ), OhMyWard_72 (DJ), OlgasClover_73 (DJ), Rickmore_70 (DJ), Vardy_72 (DJ),

Start 30:

- Found in 8 of 60 (13.3%) of genes in pham
- Manual Annotations of this start: 1 of 49
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Cambiare_67 (G2), Pace1224_69 (G2),

Start 31:

- Found in 2 of 60 (3.3%) of genes in pham
- Manual Annotations of this start: 2 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ODay_111 (DN), Phistory_98 (DN1),

Summary by clusters:

There are 13 clusters represented in this pham: DN, F1, G5, G4, DJ, G2, F4, DD, F2, DG1, DN1, G3, UNK,

Info for manual annotations of cluster DD:

- Start number 22 was manually annotated 2 times for cluster DD.

Info for manual annotations of cluster DG1:

- Start number 23 was manually annotated 6 times for cluster DG1.
- Start number 25 was manually annotated 1 time for cluster DG1.

Info for manual annotations of cluster DJ:

- Start number 20 was manually annotated 1 time for cluster DJ.
- Start number 23 was manually annotated 2 times for cluster DJ.
- Start number 25 was manually annotated 1 time for cluster DJ.
- Start number 27 was manually annotated 6 times for cluster DJ.
- Start number 29 was manually annotated 13 times for cluster DJ.

Info for manual annotations of cluster DN:

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

Info for manual annotations of cluster DN1:

- Start number 31 was manually annotated 1 time for cluster DN1.

Info for manual annotations of cluster F1:

- Start number 19 was manually annotated 5 times for cluster F1.

Info for manual annotations of cluster F2:

- Start number 19 was manually annotated 2 times for cluster F2.

Info for manual annotations of cluster F4:

- Start number 19 was manually annotated 1 time for cluster F4.

Info for manual annotations of cluster G2:

- Start number 24 was manually annotated 2 times for cluster G2.
- Start number 30 was manually annotated 1 time for cluster G2.

Info for manual annotations of cluster G3:

- Start number 19 was manually annotated 1 time for cluster G3.

Info for manual annotations of cluster G4:

- Start number 24 was manually annotated 2 times for cluster G4.

Info for manual annotations of cluster G5:

- Start number 24 was manually annotated 1 time for cluster G5.

Gene Information:

Gene: Aflac_72 Start: 50484, Stop: 50768, Start Num: 27

Candidate Starts for Aflac_72:

(Start: 27 @50484 has 6 MA's), (Start: 29 @50493 has 13 MA's), (42, 50571), (46, 50604), (53, 50658), (56, 50682), (61, 50727),

Gene: AlainaMarie_72 Start: 50513, Stop: 50806, Start Num: 20

Candidate Starts for AlainaMarie_72:

(9, 50420), (15, 50474), (Start: 20 @50513 has 1 MA's), (Start: 27 @50525 has 6 MA's), (Start: 29 @50534 has 13 MA's), (32, 50564), (42, 50612), (49, 50660), (50, 50663), (53, 50699),

Gene: Antsirabe_66 Start: 44402, Stop: 44704, Start Num: 24

Candidate Starts for Antsirabe_66:

(14, 44351), (Start: 24 @44402 has 5 MA's), (Start: 30 @44420 has 1 MA's), (36, 44456), (38, 44462), (47, 44525), (51, 44540), (54, 44573),

Gene: Avocado_68 Start: 45054, Stop: 45353, Start Num: 24

Candidate Starts for Avocado_68:

(Start: 24 @45054 has 5 MA's), (Start: 30 @45072 has 1 MA's), (57, 45243), (60, 45273), (66, 45309), (70, 45318),

Gene: Beyoncage_92 Start: 64575, Stop: 64862, Start Num: 23

Candidate Starts for Beyoncage_92:

(Start: 23 @64575 has 8 MA's), (36, 64629), (41, 64659), (52, 64731), (55, 64767), (67, 64842),

Gene: BiteSize_92 Start: 64661, Stop: 64948, Start Num: 23

Candidate Starts for BiteSize_92:

(Start: 23 @64661 has 8 MA's), (36, 64715), (41, 64745), (52, 64817), (55, 64853), (67, 64928),

Gene: BlueCrab_98 Start: 54257, Stop: 54562, Start Num: 19

Candidate Starts for BlueCrab_98:

(12, 54206), (Start: 19 @54257 has 9 MA's), (43, 54359), (45, 54380), (51, 54410), (63, 54509), (66, 54524), (68, 54527),

Gene: BluerMoon_74 Start: 50436, Stop: 50720, Start Num: 27

Candidate Starts for BluerMoon_74:

(6, 50316), (9, 50331), (11, 50364), (Start: 27 @50436 has 6 MA's), (Start: 29 @50445 has 13 MA's), (46, 50556), (53, 50610), (56, 50634), (61, 50679),

Gene: Burley_73 Start: 49982, Stop: 50257, Start Num: 29

Candidate Starts for Burley_73:

(6, 49853), (9, 49868), (15, 49922), (Start: 20 @49961 has 1 MA's), (Start: 27 @49973 has 6 MA's), (Start: 29 @49982 has 13 MA's), (42, 50060), (46, 50093), (49, 50108), (50, 50111), (53, 50147),

Gene: BuzzLyseyear_104 Start: 55865, Stop: 56170, Start Num: 19

Candidate Starts for BuzzLyseyear_104:

(12, 55814), (Start: 19 @55865 has 9 MA's), (43, 55967), (45, 55988), (51, 56018), (55, 56057), (63, 56117), (66, 56132), (68, 56135),

Gene: Cambiare_67 Start: 44844, Stop: 45125, Start Num: 30

Candidate Starts for Cambiare_67:

(Start: 24 @44826 has 5 MA's), (Start: 30 @44844 has 1 MA's), (57, 45015), (60, 45045), (66, 45081), (70, 45090),

Gene: Cardigan_97 Start: 57586, Stop: 57858, Start Num: 22

Candidate Starts for Cardigan_97:

(Start: 22 @57586 has 2 MA's), (32, 57631), (35, 57640), (36, 57643), (44, 57688), (49, 57721), (52, 57739),

Gene: Chikenjars_71 Start: 50566, Stop: 50841, Start Num: 29

Candidate Starts for Chikenjars_71:

(6, 50437), (9, 50452), (15, 50506), (18, 50530), (Start: 20 @50545 has 1 MA's), (Start: 27 @50557 has 6 MA's), (Start: 29 @50566 has 13 MA's), (32, 50596), (42, 50644), (46, 50677), (49, 50692), (50, 50695), (53, 50731),

Gene: Demsculpinboyz_111 Start: 53565, Stop: 53870, Start Num: 19

Candidate Starts for Demsculpinboyz_111:

(12, 53514), (Start: 19 @53565 has 9 MA's), (43, 53667), (45, 53688), (51, 53718), (55, 53757), (63, 53817), (66, 53832), (68, 53835),

Gene: Djokovic_92 Start: 64574, Stop: 64861, Start Num: 23

Candidate Starts for Djokovic_92:

(Start: 23 @64574 has 8 MA's), (36, 64628), (41, 64658), (52, 64730), (55, 64766), (67, 64841),

Gene: Duffington_72 Start: 50499, Stop: 50774, Start Num: 29

Candidate Starts for Duffington_72:

(6, 50370), (9, 50385), (11, 50418), (15, 50439), (Start: 20 @50478 has 1 MA's), (Start: 27 @50490 has 6 MA's), (Start: 29 @50499 has 13 MA's), (42, 50577), (49, 50625), (50, 50628), (53, 50664),

Gene: Eddiemania_73 Start: 51191, Stop: 51475, Start Num: 27

Candidate Starts for Eddiemania_73:

(Start: 27 @51191 has 6 MA's), (42, 51278), (46, 51311), (49, 51326), (50, 51329), (53, 51365), (67, 51458),

Gene: EndAve_74 Start: 50721, Stop: 50996, Start Num: 29

Candidate Starts for EndAve_74:

(9, 50607), (13, 50646), (15, 50661), (18, 50685), (Start: 20 @50700 has 1 MA's), (Start: 27 @50712 has 6 MA's), (Start: 29 @50721 has 13 MA's), (42, 50799), (49, 50847), (50, 50850), (53, 50886),

Gene: Figliar_71 Start: 50562, Stop: 50837, Start Num: 29

Candidate Starts for Figliar_71:

(6, 50433), (9, 50448), (11, 50481), (Start: 27 @50553 has 6 MA's), (Start: 29 @50562 has 13 MA's), (42, 50640), (46, 50673), (53, 50727), (56, 50751), (61, 50796),

Gene: FlagStaff_65 Start: 44241, Stop: 44540, Start Num: 24

Candidate Starts for FlagStaff_65:

(Start: 24 @44241 has 5 MA's), (Start: 30 @44259 has 1 MA's), (57, 44430), (60, 44460), (70, 44505),

Gene: Galactic_99 Start: 52952, Stop: 53257, Start Num: 19

Candidate Starts for Galactic_99:

(12, 52901), (Start: 19 @52952 has 9 MA's), (43, 53054), (45, 53075), (51, 53105), (55, 53144), (63, 53204), (66, 53219), (68, 53222),

Gene: Hortihabitatio_77 Start: 51747, Stop: 52031, Start Num: 25

Candidate Starts for Hortihabitatio_77:

(21, 51744), (Start: 25 @51747 has 2 MA's), (36, 51801), (52, 51897),

Gene: Hydrus_75 Start: 51147, Stop: 51422, Start Num: 29

Candidate Starts for Hydrus_75:

(6, 51018), (9, 51033), (11, 51066), (Start: 20 @51126 has 1 MA's), (Start: 27 @51138 has 6 MA's), (Start: 29 @51147 has 13 MA's), (42, 51225), (46, 51258), (49, 51273), (50, 51276), (53, 51312),

Gene: Jodelie19_71 Start: 51729, Stop: 52004, Start Num: 29

Candidate Starts for Jodelie19_71:

(6, 51600), (9, 51615), (11, 51648), (Start: 27 @51720 has 6 MA's), (Start: 29 @51729 has 13 MA's), (42, 51807), (46, 51840), (53, 51894), (56, 51918), (61, 51963),

Gene: Jolie2_62 Start: 43752, Stop: 44042, Start Num: 26

Candidate Starts for Jolie2_62:

(7, 43638), (26, 43752), (45, 43851), (50, 43875), (51, 43881),

Gene: JonJames_95 Start: 57779, Stop: 58051, Start Num: 22

Candidate Starts for JonJames_95:

(Start: 22 @57779 has 2 MA's), (35, 57833), (36, 57836), (44, 57881), (49, 57914), (52, 57932), (65, 58028),

Gene: Kenosha_72 Start: 50573, Stop: 50848, Start Num: 29

Candidate Starts for Kenosha_72:

(6, 50444), (9, 50459), (15, 50513), (Start: 20 @50552 has 1 MA's), (Start: 27 @50564 has 6 MA's), (Start: 29 @50573 has 13 MA's), (42, 50651), (46, 50684), (49, 50699), (53, 50738),

Gene: Lemuria_65 Start: 44438, Stop: 44734, Start Num: 24

Candidate Starts for Lemuria_65:

(7, 44327), (Start: 24 @44438 has 5 MA's), (Start: 30 @44456 has 1 MA's), (36, 44492), (47, 44564), (51, 44579), (54, 44612), (61, 44672), (66, 44696), (70, 44705),

Gene: LilyPad_87 Start: 62474, Stop: 62752, Start Num: 25

Candidate Starts for LilyPad_87:

(Start: 25 @62474 has 2 MA's), (32, 62516), (37, 62531), (45, 62582), (48, 62600), (59, 62684), (64, 62720),

Gene: LunaBlu_102 Start: 54438, Stop: 54743, Start Num: 19

Candidate Starts for LunaBlu_102:

(12, 54387), (Start: 19 @54438 has 9 MA's), (43, 54540), (45, 54561), (51, 54591), (55, 54630), (63, 54690), (66, 54705), (68, 54708),

Gene: Madi_91 Start: 64405, Stop: 64692, Start Num: 23

Candidate Starts for Madi_91:

(Start: 23 @64405 has 8 MA's), (36, 64459), (41, 64489), (52, 64561), (55, 64597), (67, 64672),

Gene: Madvan_71 Start: 50026, Stop: 50313, Start Num: 27

Candidate Starts for Madvan_71:

(6, 49906), (9, 49921), (11, 49954), (15, 49975), (Start: 20 @50014 has 1 MA's), (Start: 27 @50026 has 6 MA's), (Start: 29 @50035 has 13 MA's), (42, 50113), (46, 50149), (49, 50164), (53, 50203),

Gene: Mercurio_64 Start: 44317, Stop: 44613, Start Num: 24

Candidate Starts for Mercurio_64:

(3, 44125), (7, 44206), (Start: 24 @44317 has 5 MA's), (Start: 30 @44335 has 1 MA's), (36, 44371), (47, 44443), (49, 44449), (51, 44458), (57, 44509),

Gene: Mossy_76 Start: 52047, Stop: 52331, Start Num: 27

Candidate Starts for Mossy_76:

(Start: 27 @52047 has 6 MA's), (Start: 29 @52056 has 13 MA's), (46, 52167), (49, 52182), (50, 52185), (53, 52221),

Gene: Nadmeg_74 Start: 51255, Stop: 51542, Start Num: 27

Candidate Starts for Nadmeg_74:

(6, 51135), (9, 51150), (11, 51183), (15, 51204), (Start: 20 @51243 has 1 MA's), (Start: 27 @51255 has 6 MA's), (Start: 29 @51264 has 13 MA's), (42, 51342), (46, 51378), (49, 51393), (53, 51432),

Gene: Nithya_72 Start: 50422, Stop: 50694, Start Num: 29

Candidate Starts for Nithya_72:

(9, 50308), (15, 50362), (Start: 20 @50401 has 1 MA's), (Start: 27 @50413 has 6 MA's), (Start: 29 @50422 has 13 MA's), (32, 50452), (42, 50500), (50, 50551), (53, 50587),

Gene: ODay_111 Start: 56224, Stop: 56478, Start Num: 31

Candidate Starts for ODay_111:

(Start: 31 @56224 has 2 MA's), (61, 56437), (67, 56461),

Gene: OhMyWard_72 Start: 51815, Stop: 52090, Start Num: 29

Candidate Starts for OhMyWard_72:

(Start: 27 @51806 has 6 MA's), (Start: 29 @51815 has 13 MA's), (46, 51926), (49, 51941), (50, 51944), (53, 51980),

Gene: OlgasClover_73 Start: 51071, Stop: 51346, Start Num: 29

Candidate Starts for OlgasClover_73:

(6, 50942), (11, 50990), (Start: 27 @51062 has 6 MA's), (Start: 29 @51071 has 13 MA's), (42, 51149), (46, 51182), (48, 51194), (53, 51236), (56, 51260), (61, 51305),

Gene: P3MA_64 Start: 40899, Stop: 41168, Start Num: 28

Candidate Starts for P3MA_64:

(28, 40899), (34, 40941), (47, 41016),

Gene: Pacc40_93 Start: 54213, Stop: 54518, Start Num: 19

Candidate Starts for Pacc40_93:

(12, 54162), (Start: 19 @54213 has 9 MA's), (43, 54315), (45, 54336), (51, 54366), (63, 54465), (66, 54480), (68, 54483),

Gene: Pace1224_69 Start: 44505, Stop: 44786, Start Num: 30

Candidate Starts for Pace1224_69:

(Start: 24 @44487 has 5 MA's), (Start: 30 @44505 has 1 MA's), (57, 44676), (66, 44742), (70, 44751),

Gene: Phepper_74 Start: 50268, Stop: 50555, Start Num: 27

Candidate Starts for Phepper_74:

(6, 50148), (9, 50163), (11, 50196), (15, 50217), (Start: 20 @50256 has 1 MA's), (Start: 27 @50268 has 6 MA's), (Start: 29 @50277 has 13 MA's), (42, 50355), (46, 50391), (49, 50406), (53, 50445),

Gene: Pherobrine_76 Start: 51791, Stop: 52081, Start Num: 25

Candidate Starts for Pherobrine_76:

(21, 51788), (Start: 25 @51791 has 2 MA's), (33, 51833), (39, 51854), (45, 51905), (52, 51944), (58, 52007), (62, 52037), (71, 52073), (72, 52076),

Gene: Phistory_98 Start: 50737, Stop: 50991, Start Num: 31

Candidate Starts for Phistory_98:

(Start: 20 @50704 has 1 MA's), (Start: 31 @50737 has 2 MA's), (40, 50788), (61, 50950), (67, 50974), (69, 50977),

Gene: Pinnie_66 Start: 44520, Stop: 44807, Start Num: 19

Candidate Starts for Pinnie_66:

(5, 44418), (8, 44427), (14, 44475), (16, 44487), (Start: 19 @44520 has 9 MA's), (Start: 30 @44547 has 1 MA's), (45, 44628), (49, 44649), (51, 44658),

Gene: Renaud18_106 Start: 54206, Stop: 54502, Start Num: 19

Candidate Starts for Renaud18_106:

(12, 54158), (Start: 19 @54206 has 9 MA's), (45, 54320), (51, 54350), (63, 54449), (66, 54464), (68, 54467),

Gene: Rickmore_70 Start: 48938, Stop: 49213, Start Num: 29

Candidate Starts for Rickmore_70:

(6, 48809), (9, 48824), (11, 48857), (Start: 20 @48917 has 1 MA's), (Start: 27 @48929 has 6 MA's), (Start: 29 @48938 has 13 MA's), (32, 48968), (42, 49016), (49, 49064), (50, 49067), (53, 49103),

Gene: Runhaar_72 Start: 50077, Stop: 50364, Start Num: 27

Candidate Starts for Runhaar_72:

(6, 49957), (9, 49972), (11, 50005), (15, 50026), (Start: 20 @50065 has 1 MA's), (Start: 27 @50077 has 6 MA's), (Start: 29 @50086 has 13 MA's), (42, 50164), (46, 50200), (49, 50215), (53, 50254),

Gene: Schwartz33_75 Start: 50629, Stop: 50919, Start Num: 23

Candidate Starts for Schwartz33_75:

(Start: 23 @50629 has 8 MA's), (46, 50755), (53, 50809), (61, 50878),

Gene: Secretariat_74 Start: 49976, Stop: 50269, Start Num: 23

Candidate Starts for Secretariat_74:

(Start: 23 @49976 has 8 MA's), (36, 50033), (52, 50135), (55, 50174), (56, 50180), (65, 50240), (67, 50249),

Gene: Stargaze_65 Start: 44854, Stop: 45147, Start Num: 17

Candidate Starts for Stargaze_65:

(17, 44854), (35, 44920), (45, 44968),

Gene: Suzy_92 Start: 65322, Stop: 65609, Start Num: 23

Candidate Starts for Suzy_92:

(1, 65052), (2, 65112), (4, 65199), (10, 65244), (Start: 23 @65322 has 8 MA's), (36, 65376), (41, 65406), (52, 65478), (55, 65514), (67, 65589),

Gene: TenaciousP_78 Start: 51610, Stop: 51966, Start Num: 11

Candidate Starts for TenaciousP_78:

(6, 51562), (9, 51577), (11, 51610), (Start: 27 @51682 has 6 MA's), (Start: 29 @51691 has 13 MA's), (42, 51769), (46, 51802), (53, 51856), (56, 51880), (61, 51925),

Gene: Terapin_93 Start: 64576, Stop: 64863, Start Num: 23

Candidate Starts for Terapin_93:

(Start: 23 @64576 has 8 MA's), (36, 64630), (41, 64660), (52, 64732), (55, 64768), (67, 64843),

Gene: Untouchable_75 Start: 51265, Stop: 51552, Start Num: 27

Candidate Starts for Untouchable_75:

(6, 51145), (9, 51160), (11, 51193), (15, 51214), (Start: 20 @51253 has 1 MA's), (Start: 27 @51265 has 6 MA's), (Start: 29 @51274 has 13 MA's), (42, 51352), (46, 51388), (49, 51403), (53, 51442),

Gene: Vardy_72 Start: 49976, Stop: 50251, Start Num: 29

Candidate Starts for Vardy_72:

(6, 49847), (9, 49862), (15, 49916), (Start: 20 @49955 has 1 MA's), (Start: 27 @49967 has 6 MA's), (Start: 29 @49976 has 13 MA's), (42, 50054), (46, 50087), (49, 50102), (53, 50141),

Gene: Yoshi_110 Start: 54848, Stop: 55144, Start Num: 19

Candidate Starts for Yoshi_110:

(12, 54800), (Start: 19 @54848 has 9 MA's), (43, 54941), (45, 54962), (51, 54992), (55, 55031), (63, 55091), (66, 55106), (68, 55109),

Gene: Yvonnetastic_93 Start: 55321, Stop: 55593, Start Num: 22

Candidate Starts for Yvonnetastic_93:

(Start: 22 @55321 has 2 MA's), (35, 55375), (36, 55378), (44, 55423), (49, 55456), (52, 55474), (65, 55570),

Gene: Zeph_78 Start: 51105, Stop: 51389, Start Num: 27

Candidate Starts for Zeph_78:

(6, 50985), (9, 51000), (11, 51033), (15, 51054), (Start: 20 @51093 has 1 MA's), (Start: 27 @51105 has 6 MA's), (Start: 29 @51114 has 13 MA's), (42, 51192), (49, 51240), (50, 51243), (53, 51279),