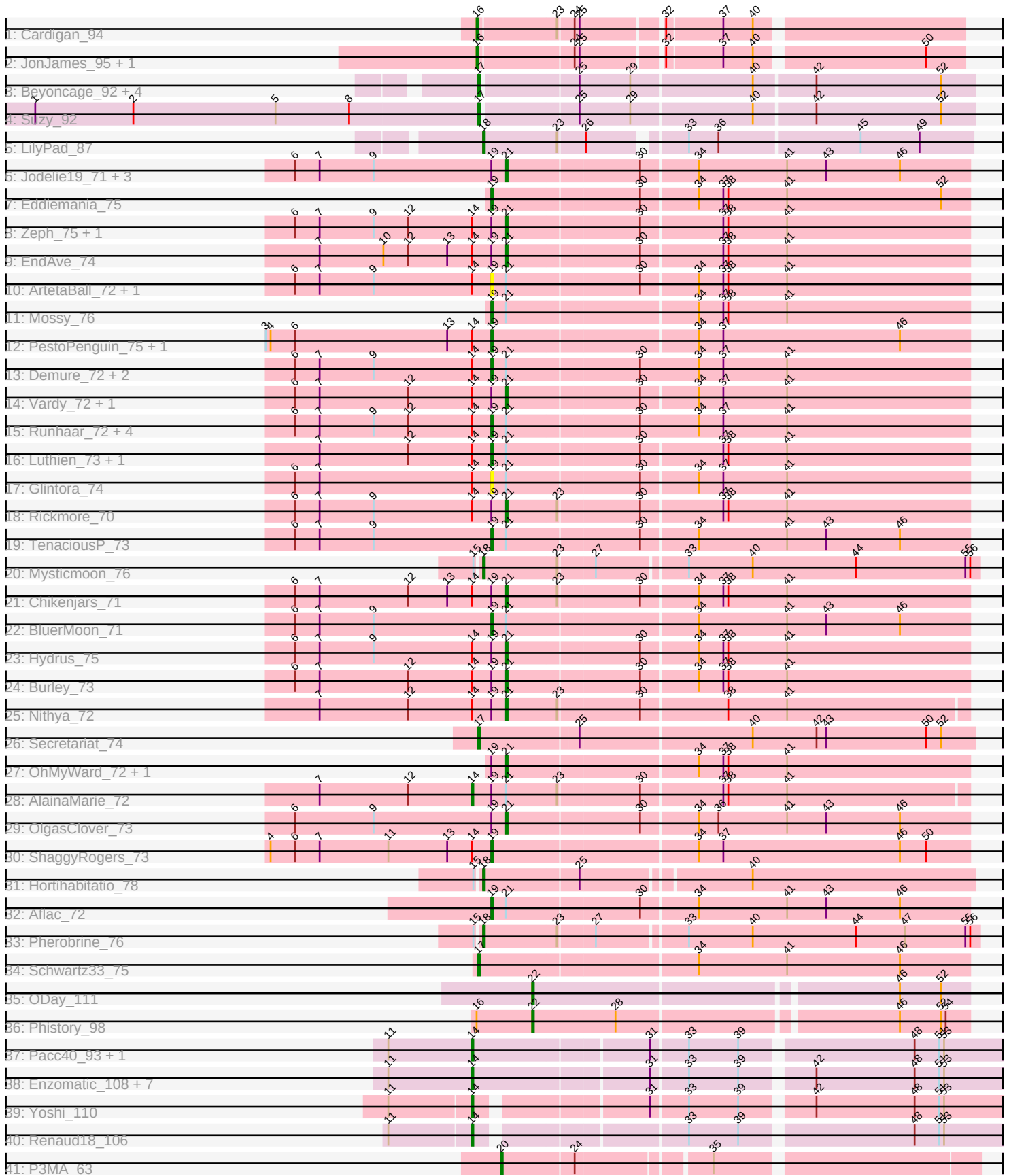


Pham 328942



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 328942 Report

This analysis was run 09/05/26 on database version 662.

Pham number 328942 has 69 members, 10 are drafts.

Phages represented in each track:

- Track 1 : Cardigan_94
- Track 2 : JonJames_95, Yvonnetastic_93
- Track 3 : Beyoncage_92, Madi_91, Djokovic_92, BiteSize_92, Terapin_93
- Track 4 : Suzy_92
- Track 5 : LilyPad_87
- Track 6 : Jodelie19_71, Tonaltzin_71, Figliar_71, MajinBuu_73
- Track 7 : Eddiemania_75
- Track 8 : Zeph_75, Duffington_72
- Track 9 : EndAve_74
- Track 10 : ArtetaBall_72, Dialga_74
- Track 11 : Mossy_76
- Track 12 : PestoPenguin_75, BetterYeti_73
- Track 13 : Demure_72, CWormy_71, Arataki_72
- Track 14 : Vardy_72, Kenosha_72
- Track 15 : Runhaar_72, Phepper_74, Untouchable_75, Nadmeg_74, Madvan_73
- Track 16 : Luthien_73, Citrus_72
- Track 17 : Glintora_74
- Track 18 : Rickmore_70
- Track 19 : TenaciousP_73
- Track 20 : Mysticmoon_76
- Track 21 : Chickenjars_71
- Track 22 : BluerMoon_71
- Track 23 : Hydrus_75
- Track 24 : Burley_73
- Track 25 : Nithya_72
- Track 26 : Secretariat_74
- Track 27 : OhMyWard_72, Blanky_73
- Track 28 : AlainaMarie_72
- Track 29 : OlgasClover_73
- Track 30 : ShaggyRogers_73
- Track 31 : Hortihabitatio_78
- Track 32 : Aflac_72
- Track 33 : Pherobrine_76
- Track 34 : Schwartz33_75
- Track 35 : ODay_111
- Track 36 : Phistory_98
- Track 37 : Pacc40_93, BlueCrab_98

- Track 38 : Enzomatic_108, BuzzLyseyear_104, Polo2Bam_107, Demsculpinboyz_111, LunaBlu_102, SeaLumen_104, Galactic_99, NewHope4_103
- Track 39 : Yoshi_110
- Track 40 : Renaud18_106
- Track 41 : P3MA_63

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

The start number called the most often in the published annotations is 21, it was called in 16 of the 59 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Blanky_73, Burley_73, Chickenjars_71, Duffington_72, EndAve_74, Figliar_71, Hydrus_75, Jodelie19_71, Kenosha_72, MajinBuu_73, Nithya_72, OhMyWard_72, OlgasClover_73, Rickmore_70, Tonaltzin_71, Vardy_72, Zeph_75,

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

- Aflac_72, AlainaMarie_72, Arataki_72, ArtetaBall_72, BluerMoon_71, CWormy_71, Citrus_72, Demure_72, Dialga_74, Glintora_74, Luthien_73, Madvan_73, Mossy_76, Nadmeg_74, Phepper_74, Runhaar_72, TenaciousP_73, Untouchable_75,

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

- BetterYeti_73, Beyoncage_92, BiteSize_92, BlueCrab_98, BuzzLyseyear_104, Cardigan_94, Demsculpinboyz_111, Djokovic_92, Eddiemania_75, Enzomatic_108, Galactic_99, Hortihabitatio_78, JonJames_95, LilyPad_87, LunaBlu_102, Madi_91, Mysticmoon_76, NewHope4_103, ODay_111, P3MA_63, Pacc40_93, PestoPenguin_75, Pherobrine_76, Phistory_98, Polo2Bam_107, Renaud18_106, Schwartz33_75, SeaLumen_104, Secretariat_74, ShaggyRogers_73, Suzy_92, Terapin_93, Yoshi_110, Yvonnestic_93,

Summary by start number:

Start 14:

- Found in 39 of 69 (56.5%) of genes in pham
- Manual Annotations of this start: 10 of 59
- Called 33.3% of time when present
- Phage (with cluster) where this start called: AlainaMarie_72 (DJ), BlueCrab_98 (F1), BuzzLyseyear_104 (F1), Demsculpinboyz_111 (F2), Enzomatic_108 (F1), Galactic_99 (F1), LunaBlu_102 (F1), NewHope4_103 (F1), Pacc40_93 (F1), Polo2Bam_107 (F1), Renaud18_106 (F4), SeaLumen_104 (F1), Yoshi_110 (F2),

Start 16:

- Found in 4 of 69 (5.8%) of genes in pham
- Manual Annotations of this start: 3 of 59
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Cardigan_94 (DD), JonJames_95 (DD), Yvonnestic_93 (DD),

Start 17:

- Found in 8 of 69 (11.6%) of genes in pham

- Manual Annotations of this start: 8 of 59
- 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 18:

- Found in 4 of 69 (5.8%) of genes in pham
- Manual Annotations of this start: 4 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hortihabitatio_78 (DJ), LilyPad_87 (DG1), Mysticmoon_76 (DJ), Pherobrine_76 (DJ),

Start 19:

- Found in 39 of 69 (56.5%) of genes in pham
- Manual Annotations of this start: 15 of 59
- Called 53.8% of time when present
- Phage (with cluster) where this start called: Aflac_72 (DJ), Arataki_72 (DJ), ArtetaBall_72 (DJ), BetterYeti_73 (DJ), BluerMoon_71 (DJ), CWormy_71 (DJ), Citrus_72 (DJ), Demure_72 (DJ), Dialga_74 (DJ), Eddiemania_75 (DJ), Glintora_74 (DJ), Luthien_73 (DJ), Madvan_73 (DJ), Mossy_76 (DJ), Nadmeg_74 (DJ), PestoPenguin_75 (DJ), Phepper_74 (DJ), Runhaar_72 (DJ), ShaggyRogers_73 (DJ), TenaciousP_73 (DJ), Untouchable_75 (DJ),

Start 20:

- Found in 1 of 69 (1.4%) of genes in pham
- Manual Annotations of this start: 1 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: P3MA_63 (singleton),

Start 21:

- Found in 35 of 69 (50.7%) of genes in pham
- Manual Annotations of this start: 16 of 59
- Called 48.6% of time when present
- Phage (with cluster) where this start called: Blanky_73 (DJ), Burley_73 (DJ), Chickenjars_71 (DJ), Duffington_72 (DJ), EndAve_74 (DJ), Figliar_71 (DJ), Hydrus_75 (DJ), Jodelie19_71 (DJ), Kenosha_72 (DJ), MajinBuu_73 (DJ), Nithya_72 (DJ), OhMyWard_72 (DJ), OlgasClover_73 (DJ), Rickmore_70 (DJ), Tonaltzin_71 (DJ), Vardy_72 (DJ), Zeph_75 (DJ),

Start 22:

- Found in 2 of 69 (2.9%) of genes in pham
- Manual Annotations of this start: 2 of 59
- 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 9 clusters represented in this pham: DN, F1, F2, F4, DD, singleton, DG1, DN1, DJ,

Info for manual annotations of cluster DD:

- Start number 16 was manually annotated 3 times for cluster DD.

Info for manual annotations of cluster DG1:

- Start number 17 was manually annotated 6 times for cluster DG1.
- Start number 18 was manually annotated 1 time for cluster DG1.

Info for manual annotations of cluster DJ:

- Start number 14 was manually annotated 1 time for cluster DJ.
- Start number 17 was manually annotated 2 times for cluster DJ.
- Start number 18 was manually annotated 3 times for cluster DJ.
- Start number 19 was manually annotated 15 times for cluster DJ.
- Start number 21 was manually annotated 16 times for cluster DJ.

Info for manual annotations of cluster DN:

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

Info for manual annotations of cluster DN1:

- Start number 22 was manually annotated 1 time for cluster DN1.

Info for manual annotations of cluster F1:

- Start number 14 was manually annotated 6 times for cluster F1.

Info for manual annotations of cluster F2:

- Start number 14 was manually annotated 2 times for cluster F2.

Info for manual annotations of cluster F4:

- Start number 14 was manually annotated 1 time for cluster F4.

Gene Information:

Gene: Aflac_72 Start: 50484, Stop: 50768, Start Num: 19

Candidate Starts for Aflac_72:

(Start: 19 @50484 has 15 MA's), (Start: 21 @50493 has 16 MA's), (30, 50571), (34, 50604), (41, 50658), (43, 50682), (46, 50727),

Gene: AlainaMarie_72 Start: 50513, Stop: 50806, Start Num: 14

Candidate Starts for AlainaMarie_72:

(7, 50420), (12, 50474), (Start: 14 @50513 has 10 MA's), (Start: 19 @50525 has 15 MA's), (Start: 21 @50534 has 16 MA's), (23, 50564), (30, 50612), (37, 50660), (38, 50663), (41, 50699),

Gene: Arataki_72 Start: 49954, Stop: 50241, Start Num: 19

Candidate Starts for Arataki_72:

(6, 49834), (7, 49849), (9, 49882), (Start: 14 @49942 has 10 MA's), (Start: 19 @49954 has 15 MA's), (Start: 21 @49963 has 16 MA's), (30, 50041), (34, 50077), (37, 50092), (41, 50131),

Gene: ArtetaBall_72 Start: 50517, Stop: 50801, Start Num: 19

Candidate Starts for ArtetaBall_72:

(6, 50397), (7, 50412), (9, 50445), (Start: 14 @50505 has 10 MA's), (Start: 19 @50517 has 15 MA's), (Start: 21 @50526 has 16 MA's), (30, 50604), (34, 50637), (37, 50652), (38, 50655), (41, 50691),

Gene: BetterYeti_73 Start: 50326, Stop: 50610, Start Num: 19

Candidate Starts for BetterYeti_73:

(3, 50188), (4, 50191), (6, 50206), (13, 50299), (Start: 14 @50314 has 10 MA's), (Start: 19 @50326 has 15 MA's), (34, 50446), (37, 50461), (46, 50569),

Gene: Beyoncage_92 Start: 64575, Stop: 64862, Start Num: 17

Candidate Starts for Beyoncage_92:

(Start: 17 @64575 has 8 MA's), (25, 64629), (29, 64659), (40, 64731), (42, 64767), (52, 64842),

Gene: BiteSize_92 Start: 64661, Stop: 64948, Start Num: 17

Candidate Starts for BiteSize_92:

(Start: 17 @64661 has 8 MA's), (25, 64715), (29, 64745), (40, 64817), (42, 64853), (52, 64928),

Gene: Blanky_73 Start: 51844, Stop: 52119, Start Num: 21

Candidate Starts for Blanky_73:

(Start: 19 @51835 has 15 MA's), (Start: 21 @51844 has 16 MA's), (34, 51955), (37, 51970), (38, 51973), (41, 52009),

Gene: BlueCrab_98 Start: 54257, Stop: 54562, Start Num: 14

Candidate Starts for BlueCrab_98:

(11, 54206), (Start: 14 @54257 has 10 MA's), (31, 54359), (33, 54380), (39, 54410), (48, 54509), (51, 54524), (53, 54527),

Gene: BluerMoon_71 Start: 50436, Stop: 50720, Start Num: 19

Candidate Starts for BluerMoon_71:

(6, 50316), (7, 50331), (9, 50364), (Start: 19 @50436 has 15 MA's), (Start: 21 @50445 has 16 MA's), (34, 50556), (41, 50610), (43, 50634), (46, 50679),

Gene: Burley_73 Start: 49982, Stop: 50257, Start Num: 21

Candidate Starts for Burley_73:

(6, 49853), (7, 49868), (12, 49922), (Start: 14 @49961 has 10 MA's), (Start: 19 @49973 has 15 MA's), (Start: 21 @49982 has 16 MA's), (30, 50060), (34, 50093), (37, 50108), (38, 50111), (41, 50147),

Gene: BuzzLyseyear_104 Start: 55865, Stop: 56170, Start Num: 14

Candidate Starts for BuzzLyseyear_104:

(11, 55814), (Start: 14 @55865 has 10 MA's), (31, 55967), (33, 55988), (39, 56018), (42, 56057), (48, 56117), (51, 56132), (53, 56135),

Gene: CWormy_71 Start: 49931, Stop: 50218, Start Num: 19

Candidate Starts for CWormy_71:

(6, 49811), (7, 49826), (9, 49859), (Start: 14 @49919 has 10 MA's), (Start: 19 @49931 has 15 MA's), (Start: 21 @49940 has 16 MA's), (30, 50018), (34, 50054), (37, 50069), (41, 50108),

Gene: Cardigan_94 Start: 57586, Stop: 57858, Start Num: 16

Candidate Starts for Cardigan_94:

(Start: 16 @57586 has 3 MA's), (23, 57631), (24, 57640), (25, 57643), (32, 57688), (37, 57721), (40, 57739),

Gene: Chikenjars_71 Start: 50566, Stop: 50841, Start Num: 21

Candidate Starts for Chikenjars_71:

(6, 50437), (7, 50452), (12, 50506), (13, 50530), (Start: 14 @50545 has 10 MA's), (Start: 19 @50557 has 15 MA's), (Start: 21 @50566 has 16 MA's), (23, 50596), (30, 50644), (34, 50677), (37, 50692), (38, 50695), (41, 50731),

Gene: Citrus_72 Start: 50818, Stop: 51102, Start Num: 19

Candidate Starts for Citrus_72:

(7, 50713), (12, 50767), (Start: 14 @50806 has 10 MA's), (Start: 19 @50818 has 15 MA's), (Start: 21 @50827 has 16 MA's), (30, 50905), (37, 50953), (38, 50956), (41, 50992),

Gene: Demsculpinboyz_111 Start: 53565, Stop: 53870, Start Num: 14

Candidate Starts for Demsculpinboyz_111:

(11, 53514), (Start: 14 @53565 has 10 MA's), (31, 53667), (33, 53688), (39, 53718), (42, 53757), (48, 53817), (51, 53832), (53, 53835),

Gene: Demure_72 Start: 49954, Stop: 50241, Start Num: 19

Candidate Starts for Demure_72:

(6, 49834), (7, 49849), (9, 49882), (Start: 14 @49942 has 10 MA's), (Start: 19 @49954 has 15 MA's), (Start: 21 @49963 has 16 MA's), (30, 50041), (34, 50077), (37, 50092), (41, 50131),

Gene: Dialga_74 Start: 50536, Stop: 50820, Start Num: 19

Candidate Starts for Dialga_74:

(6, 50416), (7, 50431), (9, 50464), (Start: 14 @50524 has 10 MA's), (Start: 19 @50536 has 15 MA's), (Start: 21 @50545 has 16 MA's), (30, 50623), (34, 50656), (37, 50671), (38, 50674), (41, 50710),

Gene: Djokovic_92 Start: 64574, Stop: 64861, Start Num: 17

Candidate Starts for Djokovic_92:

(Start: 17 @64574 has 8 MA's), (25, 64628), (29, 64658), (40, 64730), (42, 64766), (52, 64841),

Gene: Duffington_72 Start: 50499, Stop: 50774, Start Num: 21

Candidate Starts for Duffington_72:

(6, 50370), (7, 50385), (9, 50418), (12, 50439), (Start: 14 @50478 has 10 MA's), (Start: 19 @50490 has 15 MA's), (Start: 21 @50499 has 16 MA's), (30, 50577), (37, 50625), (38, 50628), (41, 50664),

Gene: Eddiemania_75 Start: 51191, Stop: 51475, Start Num: 19

Candidate Starts for Eddiemania_75:

(Start: 19 @51191 has 15 MA's), (30, 51278), (34, 51311), (37, 51326), (38, 51329), (41, 51365), (52, 51458),

Gene: EndAve_74 Start: 50721, Stop: 50996, Start Num: 21

Candidate Starts for EndAve_74:

(7, 50607), (10, 50646), (12, 50661), (13, 50685), (Start: 14 @50700 has 10 MA's), (Start: 19 @50712 has 15 MA's), (Start: 21 @50721 has 16 MA's), (30, 50799), (37, 50847), (38, 50850), (41, 50886),

Gene: Enzomatic_108 Start: 52418, Stop: 52723, Start Num: 14

Candidate Starts for Enzomatic_108:

(11, 52367), (Start: 14 @52418 has 10 MA's), (31, 52520), (33, 52541), (39, 52571), (42, 52610), (48, 52670), (51, 52685), (53, 52688),

Gene: Figliar_71 Start: 50562, Stop: 50837, Start Num: 21

Candidate Starts for Figliar_71:

(6, 50433), (7, 50448), (9, 50481), (Start: 19 @50553 has 15 MA's), (Start: 21 @50562 has 16 MA's), (30, 50640), (34, 50673), (41, 50727), (43, 50751), (46, 50796),

Gene: Galactic_99 Start: 52952, Stop: 53257, Start Num: 14

Candidate Starts for Galactic_99:

(11, 52901), (Start: 14 @52952 has 10 MA's), (31, 53054), (33, 53075), (39, 53105), (42, 53144), (48, 53204), (51, 53219), (53, 53222),

Gene: Glintora_74 Start: 51145, Stop: 51429, Start Num: 19

Candidate Starts for Glintora_74:

(6, 51025), (7, 51040), (Start: 14 @51133 has 10 MA's), (Start: 19 @51145 has 15 MA's), (Start: 21 @51154 has 16 MA's), (30, 51232), (34, 51265), (37, 51280), (41, 51319),

Gene: Hortihabitatio_78 Start: 51747, Stop: 52031, Start Num: 18

Candidate Starts for Hortihabitatio_78:

(15, 51744), (Start: 18 @51747 has 4 MA's), (25, 51801), (40, 51897),

Gene: Hydrus_75 Start: 51147, Stop: 51422, Start Num: 21

Candidate Starts for Hydrus_75:

(6, 51018), (7, 51033), (9, 51066), (Start: 14 @51126 has 10 MA's), (Start: 19 @51138 has 15 MA's), (Start: 21 @51147 has 16 MA's), (30, 51225), (34, 51258), (37, 51273), (38, 51276), (41, 51312),

Gene: Jodelie19_71 Start: 51729, Stop: 52004, Start Num: 21

Candidate Starts for Jodelie19_71:

(6, 51600), (7, 51615), (9, 51648), (Start: 19 @51720 has 15 MA's), (Start: 21 @51729 has 16 MA's), (30, 51807), (34, 51840), (41, 51894), (43, 51918), (46, 51963),

Gene: JonJames_95 Start: 57779, Stop: 58051, Start Num: 16

Candidate Starts for JonJames_95:

(Start: 16 @57779 has 3 MA's), (24, 57833), (25, 57836), (32, 57881), (37, 57914), (40, 57932), (50, 58028),

Gene: Kenosha_72 Start: 50573, Stop: 50848, Start Num: 21

Candidate Starts for Kenosha_72:

(6, 50444), (7, 50459), (12, 50513), (Start: 14 @50552 has 10 MA's), (Start: 19 @50564 has 15 MA's), (Start: 21 @50573 has 16 MA's), (30, 50651), (34, 50684), (37, 50699), (41, 50738),

Gene: LilyPad_87 Start: 62474, Stop: 62752, Start Num: 18

Candidate Starts for LilyPad_87:

(Start: 18 @62474 has 4 MA's), (23, 62516), (26, 62531), (33, 62582), (36, 62600), (45, 62684), (49, 62720),

Gene: LunaBlu_102 Start: 54438, Stop: 54743, Start Num: 14

Candidate Starts for LunaBlu_102:

(11, 54387), (Start: 14 @54438 has 10 MA's), (31, 54540), (33, 54561), (39, 54591), (42, 54630), (48, 54690), (51, 54705), (53, 54708),

Gene: Luthien_73 Start: 50707, Stop: 50991, Start Num: 19

Candidate Starts for Luthien_73:

(7, 50602), (12, 50656), (Start: 14 @50695 has 10 MA's), (Start: 19 @50707 has 15 MA's), (Start: 21 @50716 has 16 MA's), (30, 50794), (37, 50842), (38, 50845), (41, 50881),

Gene: Madi_91 Start: 64405, Stop: 64692, Start Num: 17

Candidate Starts for Madi_91:

(Start: 17 @64405 has 8 MA's), (25, 64459), (29, 64489), (40, 64561), (42, 64597), (52, 64672),

Gene: Madvan_73 Start: 50026, Stop: 50313, Start Num: 19

Candidate Starts for Madvan_73:

(6, 49906), (7, 49921), (9, 49954), (12, 49975), (Start: 14 @50014 has 10 MA's), (Start: 19 @50026 has 15 MA's), (Start: 21 @50035 has 16 MA's), (30, 50113), (34, 50149), (37, 50164), (41, 50203),

Gene: MajinBuu_73 Start: 50944, Stop: 51219, Start Num: 21

Candidate Starts for MajinBuu_73:

(6, 50815), (7, 50830), (9, 50863), (Start: 19 @50935 has 15 MA's), (Start: 21 @50944 has 16 MA's), (30, 51022), (34, 51055), (41, 51109), (43, 51133), (46, 51178),

Gene: Mossy_76 Start: 52047, Stop: 52331, Start Num: 19

Candidate Starts for Mossy_76:

(Start: 19 @52047 has 15 MA's), (Start: 21 @52056 has 16 MA's), (34, 52167), (37, 52182), (38, 52185), (41, 52221),

Gene: Mysticmoon_76 Start: 51736, Stop: 52026, Start Num: 18

Candidate Starts for Mysticmoon_76:

(15, 51733), (Start: 18 @51736 has 4 MA's), (23, 51778), (27, 51799), (33, 51850), (40, 51889), (44, 51952), (55, 52018), (56, 52021),

Gene: Nadmeg_74 Start: 51255, Stop: 51542, Start Num: 19

Candidate Starts for Nadmeg_74:

(6, 51135), (7, 51150), (9, 51183), (12, 51204), (Start: 14 @51243 has 10 MA's), (Start: 19 @51255 has 15 MA's), (Start: 21 @51264 has 16 MA's), (30, 51342), (34, 51378), (37, 51393), (41, 51432),

Gene: NewHope4_103 Start: 52564, Stop: 52869, Start Num: 14

Candidate Starts for NewHope4_103:

(11, 52513), (Start: 14 @52564 has 10 MA's), (31, 52666), (33, 52687), (39, 52717), (42, 52756), (48, 52816), (51, 52831), (53, 52834),

Gene: Nithya_72 Start: 50422, Stop: 50694, Start Num: 21

Candidate Starts for Nithya_72:

(7, 50308), (12, 50362), (Start: 14 @50401 has 10 MA's), (Start: 19 @50413 has 15 MA's), (Start: 21 @50422 has 16 MA's), (23, 50452), (30, 50500), (38, 50551), (41, 50587),

Gene: ODay_111 Start: 56224, Stop: 56478, Start Num: 22

Candidate Starts for ODay_111:

(Start: 22 @56224 has 2 MA's), (46, 56437), (52, 56461),

Gene: OhMyWard_72 Start: 51815, Stop: 52090, Start Num: 21

Candidate Starts for OhMyWard_72:

(Start: 19 @51806 has 15 MA's), (Start: 21 @51815 has 16 MA's), (34, 51926), (37, 51941), (38, 51944), (41, 51980),

Gene: OlgasClover_73 Start: 51071, Stop: 51346, Start Num: 21

Candidate Starts for OlgasClover_73:

(6, 50942), (9, 50990), (Start: 19 @51062 has 15 MA's), (Start: 21 @51071 has 16 MA's), (30, 51149), (34, 51182), (36, 51194), (41, 51236), (43, 51260), (46, 51305),

Gene: P3MA_63 Start: 40816, Stop: 41085, Start Num: 20

Candidate Starts for P3MA_63:

(Start: 20 @40816 has 1 MA's), (24, 40858), (35, 40933),

Gene: Pacc40_93 Start: 54213, Stop: 54518, Start Num: 14

Candidate Starts for Pacc40_93:

(11, 54162), (Start: 14 @54213 has 10 MA's), (31, 54315), (33, 54336), (39, 54366), (48, 54465), (51, 54480), (53, 54483),

Gene: PestoPenguin_75 Start: 50327, Stop: 50611, Start Num: 19
Candidate Starts for PestoPenguin_75:
(3, 50189), (4, 50192), (6, 50207), (13, 50300), (Start: 14 @50315 has 10 MA's), (Start: 19 @50327 has 15 MA's), (34, 50447), (37, 50462), (46, 50570),

Gene: Phepper_74 Start: 50268, Stop: 50555, Start Num: 19
Candidate Starts for Phepper_74:
(6, 50148), (7, 50163), (9, 50196), (12, 50217), (Start: 14 @50256 has 10 MA's), (Start: 19 @50268 has 15 MA's), (Start: 21 @50277 has 16 MA's), (30, 50355), (34, 50391), (37, 50406), (41, 50445),

Gene: Pherobrine_76 Start: 51791, Stop: 52081, Start Num: 18
Candidate Starts for Pherobrine_76:
(15, 51788), (Start: 18 @51791 has 4 MA's), (23, 51833), (27, 51854), (33, 51905), (40, 51944), (44, 52007), (47, 52037), (55, 52073), (56, 52076),

Gene: Phistory_98 Start: 50737, Stop: 50991, Start Num: 22
Candidate Starts for Phistory_98:
(Start: 16 @50704 has 3 MA's), (Start: 22 @50737 has 2 MA's), (28, 50788), (46, 50950), (52, 50974), (54, 50977),

Gene: Polo2Bam_107 Start: 52418, Stop: 52723, Start Num: 14
Candidate Starts for Polo2Bam_107:
(11, 52367), (Start: 14 @52418 has 10 MA's), (31, 52520), (33, 52541), (39, 52571), (42, 52610), (48, 52670), (51, 52685), (53, 52688),

Gene: Renaud18_106 Start: 54206, Stop: 54502, Start Num: 14
Candidate Starts for Renaud18_106:
(11, 54158), (Start: 14 @54206 has 10 MA's), (33, 54320), (39, 54350), (48, 54449), (51, 54464), (53, 54467),

Gene: Rickmore_70 Start: 48938, Stop: 49213, Start Num: 21
Candidate Starts for Rickmore_70:
(6, 48809), (7, 48824), (9, 48857), (Start: 14 @48917 has 10 MA's), (Start: 19 @48929 has 15 MA's), (Start: 21 @48938 has 16 MA's), (23, 48968), (30, 49016), (37, 49064), (38, 49067), (41, 49103),

Gene: Runhaar_72 Start: 50077, Stop: 50364, Start Num: 19
Candidate Starts for Runhaar_72:
(6, 49957), (7, 49972), (9, 50005), (12, 50026), (Start: 14 @50065 has 10 MA's), (Start: 19 @50077 has 15 MA's), (Start: 21 @50086 has 16 MA's), (30, 50164), (34, 50200), (37, 50215), (41, 50254),

Gene: Schwartz33_75 Start: 50629, Stop: 50919, Start Num: 17
Candidate Starts for Schwartz33_75:
(Start: 17 @50629 has 8 MA's), (34, 50755), (41, 50809), (46, 50878),

Gene: SeaLumen_104 Start: 52418, Stop: 52723, Start Num: 14
Candidate Starts for SeaLumen_104:
(11, 52367), (Start: 14 @52418 has 10 MA's), (31, 52520), (33, 52541), (39, 52571), (42, 52610), (48, 52670), (51, 52685), (53, 52688),

Gene: Secretariat_74 Start: 49976, Stop: 50269, Start Num: 17
Candidate Starts for Secretariat_74:
(Start: 17 @49976 has 8 MA's), (25, 50033), (40, 50135), (42, 50174), (43, 50180), (50, 50240), (52, 50249),

Gene: ShaggyRogers_73 Start: 50061, Stop: 50345, Start Num: 19

Candidate Starts for ShaggyRogers_73:

(4, 49926), (6, 49941), (7, 49956), (11, 49998), (13, 50034), (Start: 14 @50049 has 10 MA's), (Start: 19 @50061 has 15 MA's), (34, 50181), (37, 50196), (46, 50304), (50, 50319),

Gene: Suzy_92 Start: 65322, Stop: 65609, Start Num: 17

Candidate Starts for Suzy_92:

(1, 65052), (2, 65112), (5, 65199), (8, 65244), (Start: 17 @65322 has 8 MA's), (25, 65376), (29, 65406), (40, 65478), (42, 65514), (52, 65589),

Gene: TenaciousP_73 Start: 51682, Stop: 51966, Start Num: 19

Candidate Starts for TenaciousP_73:

(6, 51562), (7, 51577), (9, 51610), (Start: 19 @51682 has 15 MA's), (Start: 21 @51691 has 16 MA's), (30, 51769), (34, 51802), (41, 51856), (43, 51880), (46, 51925),

Gene: Terapin_93 Start: 64576, Stop: 64863, Start Num: 17

Candidate Starts for Terapin_93:

(Start: 17 @64576 has 8 MA's), (25, 64630), (29, 64660), (40, 64732), (42, 64768), (52, 64843),

Gene: Tonaltzin_71 Start: 50261, Stop: 50524, Start Num: 21

Candidate Starts for Tonaltzin_71:

(6, 50132), (7, 50147), (9, 50180), (Start: 19 @50252 has 15 MA's), (Start: 21 @50261 has 16 MA's), (30, 50339), (34, 50372), (41, 50426), (43, 50450), (46, 50495),

Gene: Untouchable_75 Start: 51265, Stop: 51552, Start Num: 19

Candidate Starts for Untouchable_75:

(6, 51145), (7, 51160), (9, 51193), (12, 51214), (Start: 14 @51253 has 10 MA's), (Start: 19 @51265 has 15 MA's), (Start: 21 @51274 has 16 MA's), (30, 51352), (34, 51388), (37, 51403), (41, 51442),

Gene: Vardy_72 Start: 49976, Stop: 50251, Start Num: 21

Candidate Starts for Vardy_72:

(6, 49847), (7, 49862), (12, 49916), (Start: 14 @49955 has 10 MA's), (Start: 19 @49967 has 15 MA's), (Start: 21 @49976 has 16 MA's), (30, 50054), (34, 50087), (37, 50102), (41, 50141),

Gene: Yoshi_110 Start: 54848, Stop: 55144, Start Num: 14

Candidate Starts for Yoshi_110:

(11, 54800), (Start: 14 @54848 has 10 MA's), (31, 54941), (33, 54962), (39, 54992), (42, 55031), (48, 55091), (51, 55106), (53, 55109),

Gene: Yvonnetastic_93 Start: 55321, Stop: 55593, Start Num: 16

Candidate Starts for Yvonnetastic_93:

(Start: 16 @55321 has 3 MA's), (24, 55375), (25, 55378), (32, 55423), (37, 55456), (40, 55474), (50, 55570),

Gene: Zeph_75 Start: 51114, Stop: 51389, Start Num: 21

Candidate Starts for Zeph_75:

(6, 50985), (7, 51000), (9, 51033), (12, 51054), (Start: 14 @51093 has 10 MA's), (Start: 19 @51105 has 15 MA's), (Start: 21 @51114 has 16 MA's), (30, 51192), (37, 51240), (38, 51243), (41, 51279),