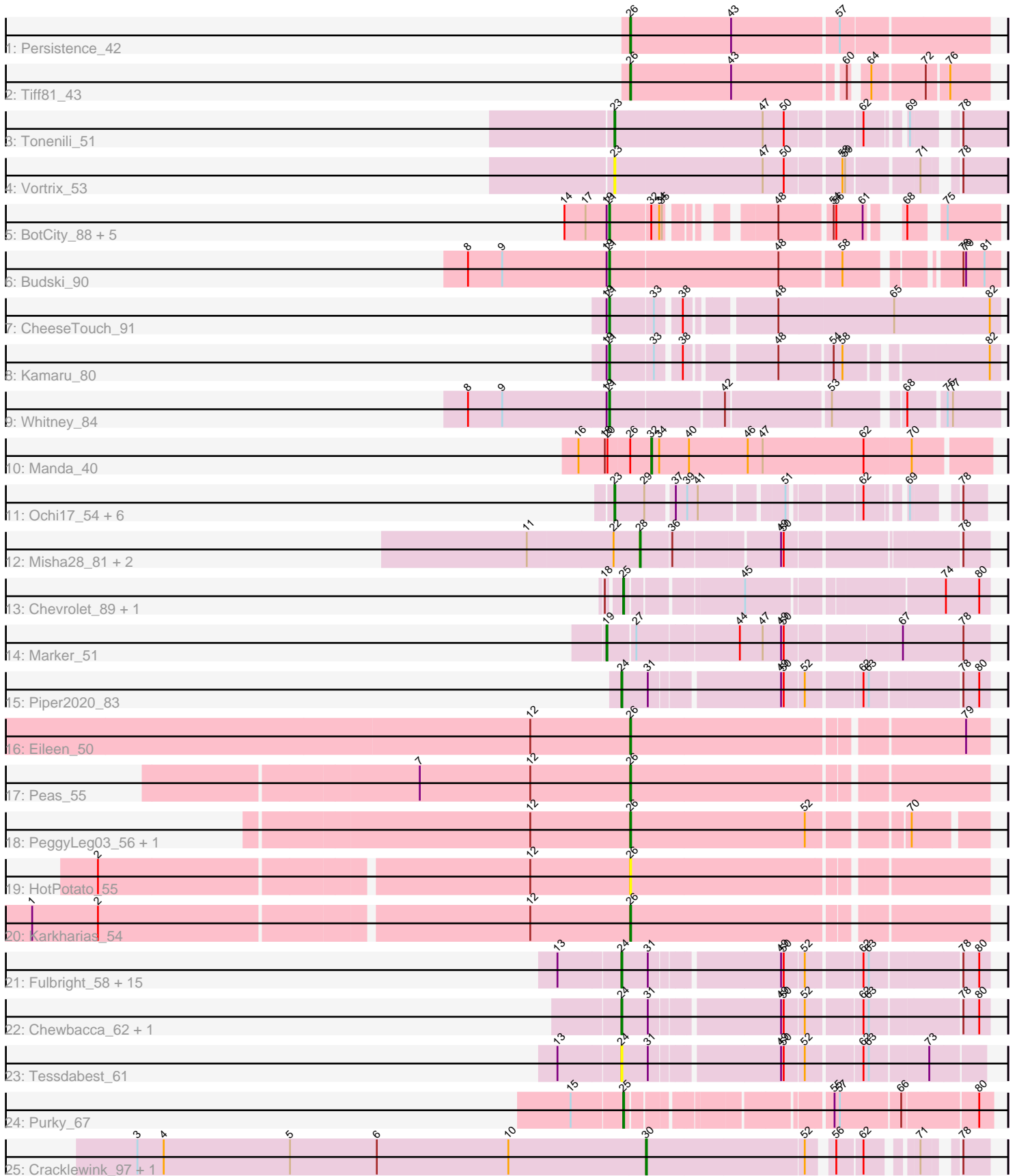


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Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. 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 294771 Report

This analysis was run 04/18/26 on database version 643.

Pham number 294771 has 57 members, 4 are drafts.

Phages represented in each track:

- Track 1 : Persistence\_42
- Track 2 : Tiff81\_43
- Track 3 : Tonenili\_51
- Track 4 : Vortrix\_53
- Track 5 : BotCity\_88, Lutum\_87, Kenna\_81, BENtherdunthat\_86, Getalong\_89, Phabuloso\_93
- Track 6 : Budski\_90
- Track 7 : CheeseTouch\_91
- Track 8 : Kamaru\_80
- Track 9 : Whitney\_84
- Track 10 : Manda\_40
- Track 11 : Ochi17\_54, AlpineSix\_56, Sebastian\_56, OfUltron\_56, Jinglebell\_56, Modragons\_55, Llama\_56
- Track 12 : Misha28\_81, Awesomesauce\_81, TootsiePop\_81
- Track 13 : Chevrolet\_89, ArcusAngelus\_86
- Track 14 : Marker\_51
- Track 15 : Piper2020\_83
- Track 16 : Eileen\_50
- Track 17 : Peas\_55
- Track 18 : PeggyLeg03\_56, Pucara\_53
- Track 19 : HotPotato\_55
- Track 20 : Karkharias\_54
- Track 21 : Fulbright\_58, Melville\_65, Duplicity\_58, Frankie\_78, Parmesanjohn\_60, Schnauzer\_61, Pipsqueaks\_61, Silvy\_56, Philonius\_60, Smurph\_60, Aggie\_56, Gex\_61, Xerxes\_60, Phloss\_58, Carcharodon\_60, Silvafighter\_61
- Track 22 : Chewbacca\_62, FirstPlacePfu\_61
- Track 23 : Tessdabest\_61
- Track 24 : Purky\_67
- Track 25 : Cracklewink\_97, Bipper\_97

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

The start number called the most often in the published annotations is 24, it was called in 19 of the 53 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aggie\_56, Carcharodon\_60, Chewbacca\_62, Duplicity\_58, FirstPlacePfu\_61, Frankie\_78, Fulbright\_58, Gex\_61, Melville\_65, Parmesanjohn\_60, Philonius\_60, Phloss\_58, Piper2020\_83, Pipsqueaks\_61, Schnauzer\_61, Silvafighter\_61, Silvy\_56, Smurph\_60, Tessdabest\_61, Xerxes\_60,

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

- 

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

- AlpineSix\_56, ArcusAngelus\_86, Awesomesauce\_81, BENtherdunthat\_86, Bipper\_97, BotCity\_88, Budski\_90, CheeseTouch\_91, Chevrolet\_89, Cracklewink\_97, Eileen\_50, Getalong\_89, HotPotato\_55, Jinglebell\_56, Kamaru\_80, Karkharias\_54, Kenna\_81, Llama\_56, Lutum\_87, Manda\_40, Marker\_51, Misha28\_81, Modragons\_55, Ochi17\_54, OfUltron\_56, Peas\_55, PeggyLeg03\_56, Persistence\_42, Phabuloso\_93, Pucara\_53, Purky\_67, Seabastian\_56, Tiff81\_43, Tonenili\_51, TootsiePop\_81, Vortrix\_53, Whitney\_84,

### Summary by start number:

Start 19:

- Found in 11 of 57 ( 19.3% ) of genes in pham
- Manual Annotations of this start: 1 of 53
- Called 9.1% of time when present
- Phage (with cluster) where this start called: Marker\_51 (F1),

Start 21:

- Found in 10 of 57 ( 17.5% ) of genes in pham
- Manual Annotations of this start: 10 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BENtherdunthat\_86 (DN1), BotCity\_88 (DN), Budski\_90 (DN), CheeseTouch\_91 (DN1), Getalong\_89 (DN1), Kamaru\_80 (DN1), Kenna\_81 (DN1), Lutum\_87 (DN1), Phabuloso\_93 (DN1), Whitney\_84 (DN1),

Start 23:

- Found in 9 of 57 ( 15.8% ) of genes in pham
- Manual Annotations of this start: 8 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AlpineSix\_56 (F1), Jinglebell\_56 (F1), Llama\_56 (F1), Modragons\_55 (F1), Ochi17\_54 (F1), OfUltron\_56 (F1), Seabastian\_56 (F1), Tonenili\_51 (C1), Vortrix\_53 (C1),

Start 24:

- Found in 20 of 57 ( 35.1% ) of genes in pham
- Manual Annotations of this start: 19 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aggie\_56 (N), Carcharodon\_60 (N), Chewbacca\_62 (N), Duplicity\_58 (N), FirstPlacePfu\_61 (P1), Frankie\_78 (F1), Fulbright\_58 (N), Gex\_61 (N), Melville\_65 (N), Parmesanjohn\_60 (N), Philonius\_60 (N), Phloss\_58 (N), Piper2020\_83 (F1), Pipsqueaks\_61 (N), Schnauzer\_61 (N), Silvafighter\_61 (N), Silvy\_56 (N), Smurph\_60 (N), Tessdabest\_61 (N), Xerxes\_60 (N),

Start 25:

- Found in 3 of 57 ( 5.3% ) of genes in pham
- Manual Annotations of this start: 3 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ArcusAngelus\_86 (F1), Chevrolet\_89 (F1), Purky\_67 (P6),

Start 26:

- Found in 9 of 57 ( 15.8% ) of genes in pham
- Manual Annotations of this start: 6 of 53
- Called 88.9% of time when present
- Phage (with cluster) where this start called: Eileen\_50 (FA), HotPotato\_55 (FA), Karkharias\_54 (FA), Peas\_55 (FA), PeggyLeg03\_56 (FA), Persistence\_42 (AY), Pucara\_53 (FA), Tiff81\_43 (AY),

Start 28:

- Found in 3 of 57 ( 5.3% ) of genes in pham
- Manual Annotations of this start: 3 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Awesomesauce\_81 (F1), Misha28\_81 (F1), TootsiePop\_81 (F1),

Start 30:

- Found in 2 of 57 ( 3.5% ) of genes in pham
- Manual Annotations of this start: 2 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bipper\_97 (Y), Cracklewink\_97 (Y),

Start 32:

- Found in 7 of 57 ( 12.3% ) of genes in pham
- Manual Annotations of this start: 1 of 53
- Called 14.3% of time when present
- Phage (with cluster) where this start called: Manda\_40 (E),

**Summary by clusters:**

There are 11 clusters represented in this pham: DN, F1, P1, P6, N, FA, AY, DN1, Y, E, C1,

Info for manual annotations of cluster AY:

- Start number 26 was manually annotated 2 times for cluster AY.

Info for manual annotations of cluster C1:

- Start number 23 was manually annotated 1 time for cluster C1.

Info for manual annotations of cluster DN:

- Start number 21 was manually annotated 2 times for cluster DN.

Info for manual annotations of cluster DN1:

- Start number 21 was manually annotated 8 times for cluster DN1.

Info for manual annotations of cluster E:

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

Info for manual annotations of cluster F1:

- Start number 19 was manually annotated 1 time for cluster F1.
- Start number 23 was manually annotated 7 times for cluster F1.
- Start number 24 was manually annotated 2 times for cluster F1.
- Start number 25 was manually annotated 2 times for cluster F1.
- Start number 28 was manually annotated 3 times for cluster F1.

Info for manual annotations of cluster FA:

- Start number 26 was manually annotated 4 times for cluster FA.

Info for manual annotations of cluster N:

- Start number 24 was manually annotated 16 times for cluster N.

Info for manual annotations of cluster P1:

- Start number 24 was manually annotated 1 time for cluster P1.

Info for manual annotations of cluster P6:

- Start number 25 was manually annotated 1 time for cluster P6.

Info for manual annotations of cluster Y:

- Start number 30 was manually annotated 2 times for cluster Y.

### ***Gene Information:***

Gene: Aggie\_56 Start: 38873, Stop: 39247, Start Num: 24

Candidate Starts for Aggie\_56:

(13, 38804), (Start: 24 @38873 has 19 MA's), (31, 38903), (49, 39035), (50, 39038), (52, 39059), (62, 39116), (63, 39122), (78, 39218), (80, 39236),

Gene: AlpineSix\_56 Start: 38900, Stop: 39235, Start Num: 23

Candidate Starts for AlpineSix\_56:

(Start: 23 @38900 has 8 MA's), (29, 38933), (37, 38960), (39, 38972), (41, 38984), (51, 39068), (62, 39134), (69, 39170), (78, 39209),

Gene: ArcusAngelus\_86 Start: 50829, Stop: 51188, Start Num: 25

Candidate Starts for ArcusAngelus\_86:

(18, 50814), (Start: 25 @50829 has 3 MA's), (45, 50943), (74, 51141), (80, 51177),

Gene: Awesomesauce\_81 Start: 49905, Stop: 50261, Start Num: 28

Candidate Starts for Awesomesauce\_81:

(11, 49779), (22, 49875), (Start: 28 @49905 has 3 MA's), (36, 49938), (49, 50049), (50, 50052), (78, 50232),

Gene: BENtherdunthat\_86 Start: 47569, Stop: 47898, Start Num: 21

Candidate Starts for BENtherdunthat\_86:

(14, 47518), (17, 47542), (Start: 19 @47566 has 1 MA's), (Start: 21 @47569 has 10 MA's), (Start: 32 @47614 has 1 MA's), (34, 47623), (35, 47626), (48, 47707), (54, 47761), (56, 47764), (61, 47794), (68, 47812), (75, 47839),

Gene: Bipper\_97 Start: 61646, Stop: 61966, Start Num: 30

Candidate Starts for Bipper\_97:

(3, 61067), (4, 61097), (5, 61241), (6, 61340), (10, 61490), (Start: 30 @61646 has 2 MA's), (52, 61820), (56, 61841), (62, 61868), (71, 61910), (78, 61937),

Gene: BotCity\_88 Start: 49098, Stop: 49427, Start Num: 21

Candidate Starts for BotCity\_88:

(14, 49047), (17, 49071), (Start: 19 @49095 has 1 MA's), (Start: 21 @49098 has 10 MA's), (Start: 32 @49143 has 1 MA's), (34, 49152), (35, 49155), (48, 49236), (54, 49290), (56, 49293), (61, 49323), (68, 49341), (75, 49368),

Gene: Budski\_90 Start: 49904, Stop: 50302, Start Num: 21

Candidate Starts for Budski\_90:

(8, 49745), (9, 49784), (Start: 19 @49901 has 1 MA's), (Start: 21 @49904 has 10 MA's), (48, 50090), (58, 50156), (78, 50261), (79, 50264), (81, 50285),

Gene: Carcharodon\_60 Start: 38217, Stop: 38591, Start Num: 24

Candidate Starts for Carcharodon\_60:

(13, 38148), (Start: 24 @38217 has 19 MA's), (31, 38247), (49, 38379), (50, 38382), (52, 38403), (62, 38460), (63, 38466), (78, 38562), (80, 38580),

Gene: CheeseTouch\_91 Start: 45223, Stop: 45627, Start Num: 21

Candidate Starts for CheeseTouch\_91:

(Start: 19 @45220 has 1 MA's), (Start: 21 @45223 has 10 MA's), (33, 45271), (38, 45295), (48, 45379), (65, 45508), (82, 45616),

Gene: Chevrolet\_89 Start: 50830, Stop: 51189, Start Num: 25

Candidate Starts for Chevrolet\_89:

(18, 50815), (Start: 25 @50830 has 3 MA's), (45, 50944), (74, 51142), (80, 51178),

Gene: Chewbacca\_62 Start: 38112, Stop: 38486, Start Num: 24

Candidate Starts for Chewbacca\_62:

(Start: 24 @38112 has 19 MA's), (31, 38142), (49, 38274), (50, 38277), (52, 38298), (62, 38355), (63, 38361), (78, 38457), (80, 38475),

Gene: Cracklewink\_97 Start: 60881, Stop: 61201, Start Num: 30

Candidate Starts for Cracklewink\_97:

(3, 60302), (4, 60332), (5, 60476), (6, 60575), (10, 60725), (Start: 30 @60881 has 2 MA's), (52, 61055), (56, 61076), (62, 61103), (71, 61145), (78, 61172),

Gene: Duplicity\_58 Start: 37474, Stop: 37848, Start Num: 24

Candidate Starts for Duplicity\_58:

(13, 37405), (Start: 24 @37474 has 19 MA's), (31, 37504), (49, 37636), (50, 37639), (52, 37660), (62, 37717), (63, 37723), (78, 37819), (80, 37837),

Gene: Eileen\_50 Start: 33209, Stop: 33589, Start Num: 26

Candidate Starts for Eileen\_50:

(12, 33095), (Start: 26 @33209 has 6 MA's), (79, 33563),

Gene: FirstPlacePfu\_61 Start: 38017, Stop: 38391, Start Num: 24

Candidate Starts for FirstPlacePfu\_61:

(Start: 24 @38017 has 19 MA's), (31, 38047), (49, 38179), (50, 38182), (52, 38203), (62, 38260), (63, 38266), (78, 38362), (80, 38380),

Gene: Frankie\_78 Start: 46606, Stop: 46980, Start Num: 24

Candidate Starts for Frankie\_78:

(13, 46537), (Start: 24 @46606 has 19 MA's), (31, 46636), (49, 46768), (50, 46771), (52, 46792), (62, 46849), (63, 46855), (78, 46951), (80, 46969),

Gene: Fulbright\_58 Start: 36911, Stop: 37285, Start Num: 24

Candidate Starts for Fulbright\_58:

(13, 36842), (Start: 24 @36911 has 19 MA's), (31, 36941), (49, 37073), (50, 37076), (52, 37097), (62, 37154), (63, 37160), (78, 37256), (80, 37274),

Gene: Getalong\_89 Start: 50024, Stop: 50353, Start Num: 21

Candidate Starts for Getalong\_89:

(14, 49973), (17, 49997), (Start: 19 @50021 has 1 MA's), (Start: 21 @50024 has 10 MA's), (Start: 32 @50069 has 1 MA's), (34, 50078), (35, 50081), (48, 50162), (54, 50216), (56, 50219), (61, 50249), (68, 50267), (75, 50294),

Gene: Gex\_61 Start: 38233, Stop: 38607, Start Num: 24

Candidate Starts for Gex\_61:

(13, 38164), (Start: 24 @38233 has 19 MA's), (31, 38263), (49, 38395), (50, 38398), (52, 38419), (62, 38476), (63, 38482), (78, 38578), (80, 38596),

Gene: HotPotato\_55 Start: 35870, Stop: 36250, Start Num: 26

Candidate Starts for HotPotato\_55:

(2, 35288), (12, 35756), (Start: 26 @35870 has 6 MA's),

Gene: Jinglebell\_56 Start: 38899, Stop: 39234, Start Num: 23

Candidate Starts for Jinglebell\_56:

(Start: 23 @38899 has 8 MA's), (29, 38932), (37, 38959), (39, 38971), (41, 38983), (51, 39067), (62, 39133), (69, 39169), (78, 39208),

Gene: Kamaru\_80 Start: 46524, Stop: 46901, Start Num: 21

Candidate Starts for Kamaru\_80:

(Start: 19 @46521 has 1 MA's), (Start: 21 @46524 has 10 MA's), (33, 46572), (38, 46596), (48, 46680), (54, 46737), (58, 46746), (82, 46890),

Gene: Karkharias\_54 Start: 35360, Stop: 35740, Start Num: 26

Candidate Starts for Karkharias\_54:

(1, 34703), (2, 34778), (12, 35246), (Start: 26 @35360 has 6 MA's),

Gene: Kenna\_81 Start: 46842, Stop: 47171, Start Num: 21

Candidate Starts for Kenna\_81:

(14, 46791), (17, 46815), (Start: 19 @46839 has 1 MA's), (Start: 21 @46842 has 10 MA's), (Start: 32 @46887 has 1 MA's), (34, 46896), (35, 46899), (48, 46980), (54, 47034), (56, 47037), (61, 47067), (68, 47085), (75, 47112),

Gene: Llama\_56 Start: 38897, Stop: 39232, Start Num: 23

Candidate Starts for Llama\_56:

(Start: 23 @38897 has 8 MA's), (29, 38930), (37, 38957), (39, 38969), (41, 38981), (51, 39065), (62, 39131), (69, 39167), (78, 39206),

Gene: Lutum\_87 Start: 48004, Stop: 48333, Start Num: 21

Candidate Starts for Lutum\_87:

(14, 47953), (17, 47977), (Start: 19 @48001 has 1 MA's), (Start: 21 @48004 has 10 MA's), (Start: 32 @48049 has 1 MA's), (34, 48058), (35, 48061), (48, 48142), (54, 48196), (56, 48199), (61, 48229), (68, 48247), (75, 48274),

Gene: Manda\_40 Start: 34836, Stop: 34465, Start Num: 32

Candidate Starts for Manda\_40:

(16, 34917), (18, 34887), (20, 34884), (Start: 26 @34860 has 6 MA's), (Start: 32 @34836 has 1 MA's), (34, 34827), (40, 34794), (46, 34728), (47, 34713), (62, 34599), (70, 34548),

Gene: Marker\_51 Start: 36567, Stop: 36971, Start Num: 19

Candidate Starts for Marker\_51:

(Start: 19 @36567 has 1 MA's), (27, 36597), (44, 36705), (47, 36729), (49, 36750), (50, 36753), (67, 36873), (78, 36942),

Gene: Melville\_65 Start: 37788, Stop: 38162, Start Num: 24

Candidate Starts for Melville\_65:

(13, 37719), (Start: 24 @37788 has 19 MA's), (31, 37818), (49, 37950), (50, 37953), (52, 37974), (62, 38031), (63, 38037), (78, 38133), (80, 38151),

Gene: Misha28\_81 Start: 50604, Stop: 50960, Start Num: 28

Candidate Starts for Misha28\_81:

(11, 50478), (22, 50574), (Start: 28 @50604 has 3 MA's), (36, 50637), (49, 50748), (50, 50751), (78, 50931),

Gene: Modragons\_55 Start: 38743, Stop: 39078, Start Num: 23

Candidate Starts for Modragons\_55:

(Start: 23 @38743 has 8 MA's), (29, 38776), (37, 38803), (39, 38815), (41, 38827), (51, 38911), (62, 38977), (69, 39013), (78, 39052),

Gene: Ochi17\_54 Start: 38350, Stop: 38685, Start Num: 23

Candidate Starts for Ochi17\_54:

(Start: 23 @38350 has 8 MA's), (29, 38383), (37, 38410), (39, 38422), (41, 38434), (51, 38518), (62, 38584), (69, 38620), (78, 38659),

Gene: OfUltron\_56 Start: 38899, Stop: 39234, Start Num: 23

Candidate Starts for OfUltron\_56:

(Start: 23 @38899 has 8 MA's), (29, 38932), (37, 38959), (39, 38971), (41, 38983), (51, 39067), (62, 39133), (69, 39169), (78, 39208),

Gene: Parmesanjohn\_60 Start: 38237, Stop: 38611, Start Num: 24

Candidate Starts for Parmesanjohn\_60:

(13, 38168), (Start: 24 @38237 has 19 MA's), (31, 38267), (49, 38399), (50, 38402), (52, 38423), (62, 38480), (63, 38486), (78, 38582), (80, 38600),

Gene: Peas\_55 Start: 37101, Stop: 37481, Start Num: 26

Candidate Starts for Peas\_55:

(7, 36861), (12, 36987), (Start: 26 @37101 has 6 MA's),

Gene: PeggyLeg03\_56 Start: 35841, Stop: 36212, Start Num: 26

Candidate Starts for PeggyLeg03\_56:

(12, 35727), (Start: 26 @35841 has 6 MA's), (52, 36039), (70, 36135),

Gene: Persistence\_42 Start: 28529, Stop: 28921, Start Num: 26

Candidate Starts for Persistence\_42:

(Start: 26 @28529 has 6 MA's), (43, 28643), (57, 28760),

Gene: Phabuloso\_93 Start: 49496, Stop: 49825, Start Num: 21

Candidate Starts for Phabuloso\_93:

(14, 49445), (17, 49469), (Start: 19 @49493 has 1 MA's), (Start: 21 @49496 has 10 MA's), (Start: 32 @49541 has 1 MA's), (34, 49550), (35, 49553), (48, 49634), (54, 49688), (56, 49691), (61, 49721), (68, 49739), (75, 49766),

Gene: Philonius\_60 Start: 38402, Stop: 38776, Start Num: 24

Candidate Starts for Philonius\_60:

(13, 38333), (Start: 24 @38402 has 19 MA's), (31, 38432), (49, 38564), (50, 38567), (52, 38588), (62, 38645), (63, 38651), (78, 38747), (80, 38765),

Gene: Phloss\_58 Start: 37644, Stop: 38018, Start Num: 24

Candidate Starts for Phloss\_58:

(13, 37575), (Start: 24 @37644 has 19 MA's), (31, 37674), (49, 37806), (50, 37809), (52, 37830), (62, 37887), (63, 37893), (78, 37989), (80, 38007),

Gene: Piper2020\_83 Start: 51001, Stop: 51375, Start Num: 24

Candidate Starts for Piper2020\_83:

(Start: 24 @51001 has 19 MA's), (31, 51031), (49, 51163), (50, 51166), (52, 51187), (62, 51244), (63, 51250), (78, 51346), (80, 51364),

Gene: Pipsqueaks\_61 Start: 38215, Stop: 38589, Start Num: 24

Candidate Starts for Pipsqueaks\_61:

(13, 38146), (Start: 24 @38215 has 19 MA's), (31, 38245), (49, 38377), (50, 38380), (52, 38401), (62, 38458), (63, 38464), (78, 38560), (80, 38578),

Gene: Pucara\_53 Start: 35446, Stop: 35817, Start Num: 26

Candidate Starts for Pucara\_53:

(12, 35332), (Start: 26 @35446 has 6 MA's), (52, 35644), (70, 35740),

Gene: Purky\_67 Start: 42925, Stop: 43284, Start Num: 25

Candidate Starts for Purky\_67:

(15, 42868), (Start: 25 @42925 has 3 MA's), (55, 43117), (57, 43123), (66, 43189), (80, 43270),

Gene: Schnauzer\_61 Start: 38237, Stop: 38611, Start Num: 24

Candidate Starts for Schnauzer\_61:

(13, 38168), (Start: 24 @38237 has 19 MA's), (31, 38267), (49, 38399), (50, 38402), (52, 38423), (62, 38480), (63, 38486), (78, 38582), (80, 38600),

Gene: Seabastian\_56 Start: 38900, Stop: 39235, Start Num: 23

Candidate Starts for Seabastian\_56:

(Start: 23 @38900 has 8 MA's), (29, 38933), (37, 38960), (39, 38972), (41, 38984), (51, 39068), (62, 39134), (69, 39170), (78, 39209),

Gene: Silvafighter\_61 Start: 37780, Stop: 38154, Start Num: 24

Candidate Starts for Silvafighter\_61:

(13, 37711), (Start: 24 @37780 has 19 MA's), (31, 37810), (49, 37942), (50, 37945), (52, 37966), (62, 38023), (63, 38029), (78, 38125), (80, 38143),

Gene: Silvy\_56 Start: 38873, Stop: 39247, Start Num: 24

Candidate Starts for Silvy\_56:

(13, 38804), (Start: 24 @38873 has 19 MA's), (31, 38903), (49, 39035), (50, 39038), (52, 39059), (62, 39116), (63, 39122), (78, 39218), (80, 39236),

Gene: Smurph\_60 Start: 38237, Stop: 38611, Start Num: 24

Candidate Starts for Smurph\_60:

(13, 38168), (Start: 24 @38237 has 19 MA's), (31, 38267), (49, 38399), (50, 38402), (52, 38423), (62, 38480), (63, 38486), (78, 38582), (80, 38600),

Gene: Tessdabest\_61 Start: 38370, Stop: 38741, Start Num: 24

Candidate Starts for Tessdabest\_61:

(13, 38301), (Start: 24 @38370 has 19 MA's), (31, 38400), (49, 38532), (50, 38535), (52, 38556), (62, 38613), (63, 38619), (73, 38682),

Gene: Tiff81\_43 Start: 27821, Stop: 28186, Start Num: 26

Candidate Starts for Tiff81\_43:

(Start: 26 @27821 has 6 MA's), (43, 27935), (60, 28052), (64, 28067), (72, 28121), (76, 28142),

Gene: Tonenili\_51 Start: 16033, Stop: 16419, Start Num: 23

Candidate Starts for Tonenili\_51:

(Start: 23 @16033 has 8 MA's), (47, 16195), (50, 16219), (62, 16294), (69, 16330), (78, 16369),

Gene: TootsiePop\_81 Start: 50604, Stop: 50960, Start Num: 28

Candidate Starts for TootsiePop\_81:

(11, 50478), (22, 50574), (Start: 28 @50604 has 3 MA's), (36, 50637), (49, 50748), (50, 50751), (78, 50931),

Gene: Vortrix\_53 Start: 16317, Stop: 16712, Start Num: 23

Candidate Starts for Vortrix\_53:

(Start: 23 @16317 has 8 MA's), (47, 16479), (50, 16503), (58, 16560), (59, 16563), (71, 16635), (78, 16662),

Gene: Whitney\_84 Start: 49207, Stop: 49602, Start Num: 21

Candidate Starts for Whitney\_84:

(8, 49048), (9, 49087), (Start: 19 @49204 has 1 MA's), (Start: 21 @49207 has 10 MA's), (42, 49327), (53, 49435), (68, 49504), (75, 49543), (77, 49549),

Gene: Xerxes\_60 Start: 38234, Stop: 38608, Start Num: 24

Candidate Starts for Xerxes\_60:

(13, 38165), (Start: 24 @38234 has 19 MA's), (31, 38264), (49, 38396), (50, 38399), (52, 38420), (62, 38477), (63, 38483), (78, 38579), (80, 38597),