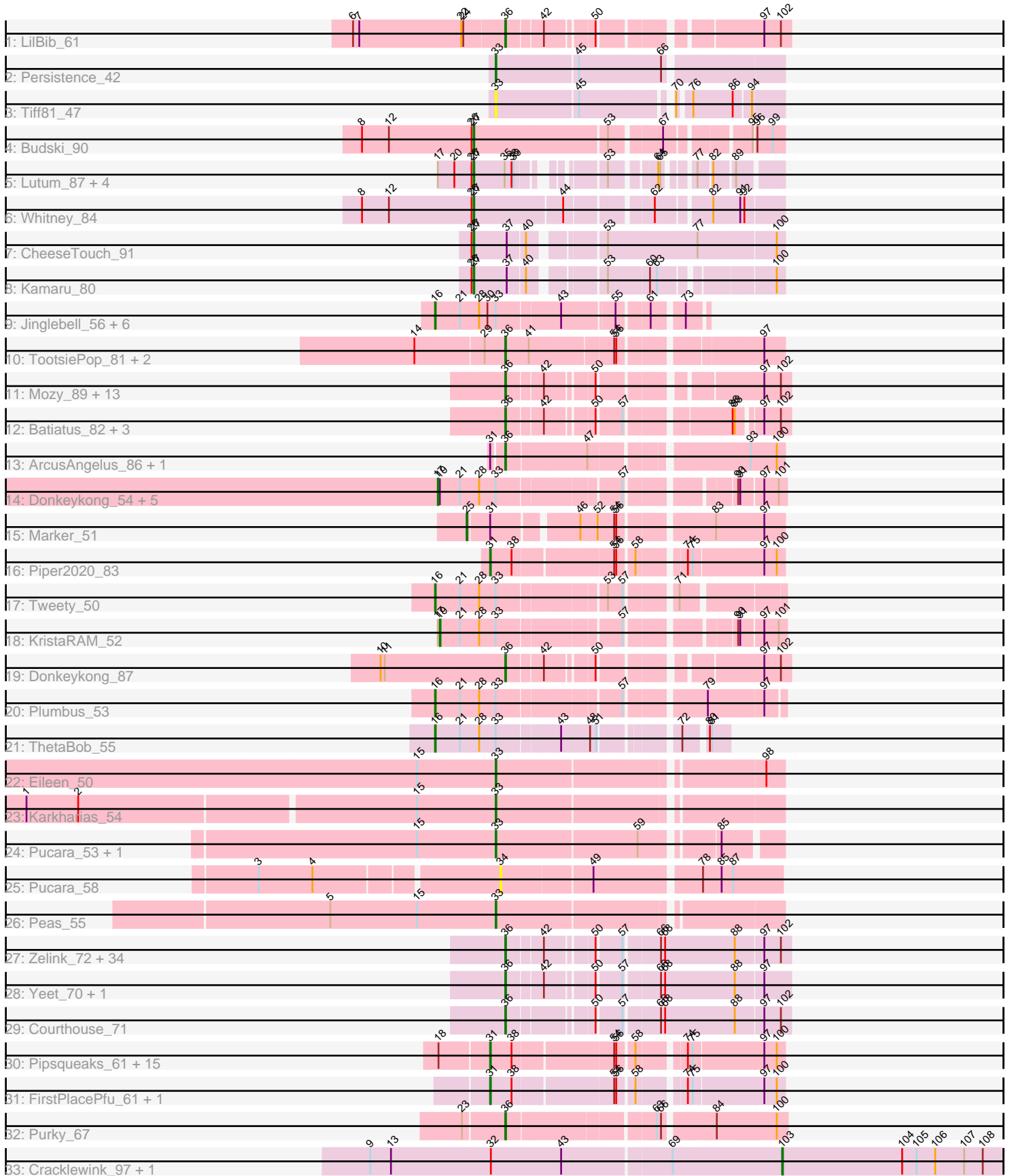


# Pham 196386



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 196386 Report

This analysis was run 12/09/24 on database version 580.

Pham number 196386 has 120 members, 7 are drafts.

Phages represented in each track:

- Track 1 : LilBib\_61
- Track 2 : Persistence\_42
- Track 3 : Tiff81\_47
- Track 4 : Budski\_90
- Track 5 : Lutum\_87, Kenna\_81, BENtherdunthat\_86, Phabuloso\_93, Getalong\_89
- Track 6 : Whitney\_84
- Track 7 : CheeseTouch\_91
- Track 8 : Kamaru\_80
- Track 9 : Jinglebell\_56, Modragons\_55, Ochi17\_54, Llama\_56, AlpineSix\_56, Seabastian\_56, OfUltron\_56
- Track 10 : TootsiePop\_81, Misha28\_81, Awesomesauce\_81
- Track 11 : Mozy\_89, MadMen\_88, LunaBlu\_85, Velveteen\_76, KristaRAM\_80, Cerasum\_76, Sarma624\_81, Soul22\_83, BigPhil\_75, Kingsley\_86, Ogotopogo\_88, Coco12\_79, Bipolar\_85, LittleE\_76
- Track 12 : Batiatus\_82, Ms6\_83, Akhila\_79, MilanaBonita\_78
- Track 13 : ArcusAngelus\_86, Chevrolet\_89
- Track 14 : Donkeykong\_54, Shauna1\_48, Phanphagia\_48, Bipolar\_50, SuperGrey\_53, JalFarm20\_61
- Track 15 : Marker\_51
- Track 16 : Piper2020\_83
- Track 17 : Tweety\_50
- Track 18 : KristaRAM\_52
- Track 19 : Donkeykong\_87
- Track 20 : Plumbus\_53
- Track 21 : ThetaBob\_55
- Track 22 : Eileen\_50
- Track 23 : Karkharias\_54
- Track 24 : Pucara\_53, PeggyLeg03\_56
- Track 25 : Pucara\_58
- Track 26 : Peas\_55
- Track 27 : Zelink\_72, Superphikiman\_72, BadAgartude\_18, Bagrid\_73, EricMillard\_73, Schatzie\_69, Daikon\_43, Kalah2\_69, Redno2\_71, Ejimix\_74, DmpstrDiver\_74, Squint\_75, Beem\_74, Cali\_18, Sprinklers\_17, NihilNomen\_75, Traaww1\_39, Flypotenuse\_37, JuicyJay\_73, Phoebus\_77, Che8\_87, Glexan\_40, Dallas\_73, HokkenD\_67, Odette\_73, ThreeRngTarjay\_72, Porcelain\_74, Balomoji\_41, Gator\_40, Hughesyang\_73, MiaZeal\_75, Lucky2013\_72, Halley\_76, Ariel\_74, Harella\_42

- Track 28 : Yeet\_70, Marker\_88
- Track 29 : Courthouse\_71
- Track 30 : Pipsqueaks\_61, Fulbright\_58, Frankie\_78, Carcharodon\_60, Schnauzer\_61, Silvy\_56, Philonius\_60, Silvafighter\_61, Xerxes\_60, Parmesanjohn\_60, Smurph\_60, Melville\_65, Duplicity\_58, Aggie\_56, Phloss\_58, Gex\_61
- Track 31 : FirstPlacePfu\_61, Chewbacca\_62
- Track 32 : Purky\_67
- Track 33 : 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 36, it was called in 60 of the 113 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Akhila\_79, ArcusAngelus\_86, Ariel\_74, Awesomesauce\_81, BadAgartude\_18, Bagrid\_73, Balomoji\_41, Batiatus\_82, Beem\_74, BigPhil\_75, Bipolar\_85, Cali\_18, Cerasum\_76, Che8\_87, Chevrolet\_89, Coco12\_79, Courthouse\_71, Daikon\_43, Dallas\_73, DmpstrDiver\_74, Donkeykong\_87, Ejimix\_74, EricMillard\_73, Flypotenuse\_37, Gator\_40, Glexan\_40, Halley\_76, Harella\_42, HokkenD\_67, Hughesyang\_73, JuicyJay\_73, Kalah2\_69, Kingsley\_86, KristaRAM\_80, LilBib\_61, LittleE\_76, Lucky2013\_72, LunaBlu\_85, MadMen\_88, Marker\_88, MiaZeal\_75, MilanaBonita\_78, Misha28\_81, Mozy\_89, Ms6\_83, NihilNomen\_75, Odette\_73, Ogopogo\_88, Phoebus\_77, Porcelain\_74, Purky\_67, Redno2\_71, Sarma624\_81, Schatzie\_69, Soul22\_83, Sprinklers\_17, Squint\_75, Superphikiman\_72, ThreeRngTarjay\_72, TootsiePop\_81, Traaww1\_39, Velveteen\_76, Yeet\_70, Zelink\_72,

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

- 

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

- Aggie\_56, AlpineSix\_56, BENtherdunthat\_86, Bipolar\_50, Bipper\_97, Budski\_90, Carcharodon\_60, CheeseTouch\_91, Chewbacca\_62, Cracklewink\_97, Donkeykong\_54, Duplicity\_58, Eileen\_50, FirstPlacePfu\_61, Frankie\_78, Fulbright\_58, Getalong\_89, Gex\_61, JalFarm20\_61, Jinglebell\_56, Kamaru\_80, Karkharias\_54, Kenna\_81, KristaRAM\_52, Llama\_56, Lutum\_87, Marker\_51, Melville\_65, Modragons\_55, Ochi17\_54, OfUltron\_56, Parmesanjohn\_60, Peas\_55, PeggyLeg03\_56, Persistence\_42, Phabuloso\_93, Phanphagia\_48, Philonius\_60, Phloss\_58, Piper2020\_83, Pipsqueaks\_61, Plumbus\_53, Pucara\_53, Pucara\_58, Schnauzer\_61, Sebastian\_56, Shauna1\_48, Silvafighter\_61, Silvy\_56, Smurph\_60, SuperGrey\_53, ThetaBob\_55, Tiff81\_47, Tweety\_50, Whitney\_84, Xerxes\_60,

### **Summary by start number:**

Start 16:

- Found in 10 of 120 ( 8.3% ) of genes in pham
- Manual Annotations of this start: 10 of 113
- 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), Plumbus\_53 (F1), Sebastian\_56 (F1), ThetaBob\_55 (F4), Tweety\_50 (F1),

#### Start 17:

- Found in 12 of 120 ( 10.0% ) of genes in pham
- Manual Annotations of this start: 6 of 113
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Bipolar\_50 (F1), Donkeykong\_54 (F1), JalFarm20\_61 (F1), Phanphagia\_48 (F1), Shauna1\_48 (F1), SuperGrey\_53 (F1),

#### Start 19:

- Found in 7 of 120 ( 5.8% ) of genes in pham
- Manual Annotations of this start: 1 of 113
- Called 14.3% of time when present
- Phage (with cluster) where this start called: KristaRAM\_52 (F1),

#### Start 25:

- Found in 1 of 120 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 113
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Marker\_51 (F1),

#### Start 27:

- Found in 9 of 120 ( 7.5% ) of genes in pham
- Manual Annotations of this start: 9 of 113
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BENtherdunthat\_86 (DN1), 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 31:

- Found in 22 of 120 ( 18.3% ) of genes in pham
- Manual Annotations of this start: 19 of 113
- Called 86.4% 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), Xerxes\_60 (N),

#### Start 33:

- Found in 24 of 120 ( 20.0% ) of genes in pham
- Manual Annotations of this start: 5 of 113
- Called 29.2% of time when present
- Phage (with cluster) where this start called: Eileen\_50 (FA), Karkharias\_54 (FA), Peas\_55 (FA), PeggyLeg03\_56 (FA), Persistence\_42 (AY), Pucara\_53 (FA), Tiff81\_47 (AY),

#### Start 34:

- Found in 1 of 120 ( 0.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Pucara\_58 (FA),

Start 36:

- Found in 64 of 120 ( 53.3% ) of genes in pham
- Manual Annotations of this start: 60 of 113
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Akhila\_79 (F1), ArcusAngelus\_86 (F1), Ariel\_74 (J), Awesomesauce\_81 (F1), BadAgartude\_18 (C1), Bagrid\_73 (J), Balomoji\_41 (E), Batiatus\_82 (F1), Beem\_74 (J), BigPhil\_75 (F1), Bipolar\_85 (F1), Cali\_18 (C1), Cerasum\_76 (F1), Che8\_87 (F1), Chevrolet\_89 (F1), Coco12\_79 (F1), Courthouse\_71 (J), Daikon\_43 (E), Dallas\_73 (J), DmpstrDiver\_74 (J), Donkeykong\_87 (F1), Ejimix\_74 (J), EricMillard\_73 (J), Flypotenuse\_37 (E), Gator\_40 (E), Glexan\_40 (E), Halley\_76 (J), Harella\_42 (E), HokkenD\_67 (J), Hughesyang\_73 (J), JuicyJay\_73 (J), Kalah2\_69 (J), Kingsley\_86 (F1), KristaRAM\_80 (F1), LilBib\_61 (A1), LittleE\_76 (J), Lucky2013\_72 (J), LunaBlu\_85 (F1), MadMen\_88 (F1), Marker\_88 (F1), MiaZeal\_75 (J), MilanaBonita\_78 (F1), Misha28\_81 (F1), Mozy\_89 (F1), Ms6\_83 (F1), NihilNomen\_75 (J), Odette\_73 (J), Ogopogo\_88 (F1), Phoebus\_77 (J), Porcelain\_74 (J), Purky\_67 (P6), Redno2\_71 (J), Sarma624\_81 (F1), Schatzie\_69 (J), Soul22\_83 (F2), Sprinklers\_17 (C1), Squint\_75 (J), Superphikiman\_72 (J), ThreeRngTarjay\_72 (J), TootsiePop\_81 (F1), Traaww1\_39 (E), Velveteen\_76 (F1), Yeet\_70 (J), Zelink\_72 (J),

Start 103:

- Found in 2 of 120 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 2 of 113
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bipper\_97 (Y), Cracklewink\_97 (Y),

### Summary by clusters:

There are 15 clusters represented in this pham: DN, F1, F2, P1, E, F4, J, N, A1, FA, DN1, AY, P6, C1, Y,

Info for manual annotations of cluster A1:

- Start number 36 was manually annotated 1 time for cluster A1.

Info for manual annotations of cluster AY:

- Start number 33 was manually annotated 1 time for cluster AY.

Info for manual annotations of cluster C1:

- Start number 36 was manually annotated 3 times for cluster C1.

Info for manual annotations of cluster DN:

- Start number 27 was manually annotated 1 time for cluster DN.

Info for manual annotations of cluster DN1:

- Start number 27 was manually annotated 8 times for cluster DN1.

Info for manual annotations of cluster E:

- Start number 36 was manually annotated 6 times for cluster E.

Info for manual annotations of cluster F1:

- Start number 16 was manually annotated 9 times for cluster F1.

- Start number 17 was manually annotated 6 times for cluster F1.
- Start number 19 was manually annotated 1 time for cluster F1.
- Start number 25 was manually annotated 1 time for cluster F1.
- Start number 31 was manually annotated 2 times for cluster F1.
- Start number 36 was manually annotated 23 times for cluster F1.

Info for manual annotations of cluster F2:

- Start number 36 was manually annotated 1 time for cluster F2.

Info for manual annotations of cluster F4:

- Start number 16 was manually annotated 1 time for cluster F4.

Info for manual annotations of cluster FA:

- Start number 33 was manually annotated 4 times for cluster FA.

Info for manual annotations of cluster J:

- Start number 36 was manually annotated 25 times for cluster J.

Info for manual annotations of cluster N:

- Start number 31 was manually annotated 16 times for cluster N.

Info for manual annotations of cluster P1:

- Start number 31 was manually annotated 1 time for cluster P1.

Info for manual annotations of cluster P6:

- Start number 36 was manually annotated 1 time for cluster P6.

Info for manual annotations of cluster Y:

- Start number 103 was manually annotated 2 times for cluster Y.

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

Gene: Aggie\_56 Start: 38873, Stop: 39247, Start Num: 31

Candidate Starts for Aggie\_56:

(18, 38804), (Start: 31 @38873 has 19 MA's), (38, 38903), (54, 39035), (56, 39038), (58, 39059), (74, 39116), (75, 39122), (97, 39218), (100, 39236),

Gene: Akhila\_79 Start: 48285, Stop: 48626, Start Num: 36

Candidate Starts for Akhila\_79:

(Start: 36 @48285 has 60 MA's), (42, 48333), (50, 48393), (57, 48426), (86, 48555), (88, 48558), (97, 48588), (102, 48612),

Gene: AlpineSix\_56 Start: 38900, Stop: 39235, Start Num: 16

Candidate Starts for AlpineSix\_56:

(Start: 16 @38900 has 10 MA's), (21, 38933), (28, 38960), (30, 38972), (Start: 33 @38984 has 5 MA's), (43, 39068), (55, 39134), (61, 39170), (73, 39209),

Gene: ArcusAngelus\_86 Start: 50829, Stop: 51188, Start Num: 36

Candidate Starts for ArcusAngelus\_86:

(Start: 31 @50814 has 19 MA's), (Start: 36 @50829 has 60 MA's), (47, 50943), (93, 51141), (100, 51177),

Gene: Ariel\_74 Start: 47072, Stop: 46704, Start Num: 36

Candidate Starts for Ariel\_74:

(Start: 36 @47072 has 60 MA's), (42, 47024), (50, 46964), (57, 46931), (66, 46886), (68, 46880), (88, 46781), (97, 46742), (102, 46718),

Gene: Awesomesauce\_81 Start: 49905, Stop: 50261, Start Num: 36

Candidate Starts for Awesomesauce\_81:

(14, 49779), (29, 49875), (Start: 36 @49905 has 60 MA's), (41, 49938), (54, 50049), (56, 50052), (97, 50232),

Gene: BENtherdunthat\_86 Start: 47569, Stop: 47898, Start Num: 27

Candidate Starts for BENtherdunthat\_86:

(Start: 17 @47518 has 6 MA's), (20, 47542), (26, 47566), (Start: 27 @47569 has 9 MA's), (35, 47614), (38, 47623), (39, 47626), (53, 47707), (64, 47761), (65, 47764), (77, 47794), (82, 47812), (89, 47839),

Gene: BadAgartude\_18 Start: 5785, Stop: 6153, Start Num: 36

Candidate Starts for BadAgartude\_18:

(Start: 36 @5785 has 60 MA's), (42, 5833), (50, 5893), (57, 5926), (66, 5971), (68, 5977), (88, 6076), (97, 6115), (102, 6139),

Gene: Bagrid\_73 Start: 50489, Stop: 50121, Start Num: 36

Candidate Starts for Bagrid\_73:

(Start: 36 @50489 has 60 MA's), (42, 50441), (50, 50381), (57, 50348), (66, 50303), (68, 50297), (88, 50198), (97, 50159), (102, 50135),

Gene: Balomoji\_41 Start: 35435, Stop: 35067, Start Num: 36

Candidate Starts for Balomoji\_41:

(Start: 36 @35435 has 60 MA's), (42, 35387), (50, 35327), (57, 35294), (66, 35249), (68, 35243), (88, 35144), (97, 35105), (102, 35081),

Gene: Batiatus\_82 Start: 49370, Stop: 49711, Start Num: 36

Candidate Starts for Batiatus\_82:

(Start: 36 @49370 has 60 MA's), (42, 49418), (50, 49478), (57, 49511), (86, 49640), (88, 49643), (97, 49673), (102, 49697),

Gene: Beem\_74 Start: 51349, Stop: 50981, Start Num: 36

Candidate Starts for Beem\_74:

(Start: 36 @51349 has 60 MA's), (42, 51301), (50, 51241), (57, 51208), (66, 51163), (68, 51157), (88, 51058), (97, 51019), (102, 50995),

Gene: BigPhil\_75 Start: 45204, Stop: 45548, Start Num: 36

Candidate Starts for BigPhil\_75:

(Start: 36 @45204 has 60 MA's), (42, 45252), (50, 45312), (97, 45510), (102, 45534),

Gene: Bipolar\_50 Start: 37100, Stop: 37534, Start Num: 17

Candidate Starts for Bipolar\_50:

(Start: 17 @37100 has 6 MA's), (Start: 19 @37103 has 1 MA's), (21, 37130), (28, 37157), (Start: 33 @37181 has 5 MA's), (57, 37340), (90, 37469), (91, 37472), (97, 37502), (101, 37523),

Gene: Bipolar\_85 Start: 50898, Stop: 51242, Start Num: 36

Candidate Starts for Bipolar\_85:

(Start: 36 @50898 has 60 MA's), (42, 50946), (50, 51006), (97, 51204), (102, 51228),

Gene: Bipper\_97 Start: 61646, Stop: 61966, Start Num: 103

Candidate Starts for Bipper\_97:

(9, 61067), (13, 61097), (32, 61241), (43, 61340), (69, 61490), (Start: 103 @61646 has 2 MA's), (104, 61820), (105, 61841), (106, 61868), (107, 61910), (108, 61937),

Gene: Budski\_90 Start: 49904, Stop: 50302, Start Num: 27

Candidate Starts for Budski\_90:

(8, 49745), (12, 49784), (26, 49901), (Start: 27 @49904 has 9 MA's), (53, 50090), (67, 50156), (95, 50261), (96, 50264), (99, 50285),

Gene: Cali\_18 Start: 6761, Stop: 7129, Start Num: 36

Candidate Starts for Cali\_18:

(Start: 36 @6761 has 60 MA's), (42, 6809), (50, 6869), (57, 6902), (66, 6947), (68, 6953), (88, 7052), (97, 7091), (102, 7115),

Gene: Carcharodon\_60 Start: 38217, Stop: 38591, Start Num: 31

Candidate Starts for Carcharodon\_60:

(18, 38148), (Start: 31 @38217 has 19 MA's), (38, 38247), (54, 38379), (56, 38382), (58, 38403), (74, 38460), (75, 38466), (97, 38562), (100, 38580),

Gene: Cerasum\_76 Start: 45222, Stop: 45566, Start Num: 36

Candidate Starts for Cerasum\_76:

(Start: 36 @45222 has 60 MA's), (42, 45270), (50, 45330), (97, 45528), (102, 45552),

Gene: Che8\_87 Start: 50151, Stop: 50519, Start Num: 36

Candidate Starts for Che8\_87:

(Start: 36 @50151 has 60 MA's), (42, 50199), (50, 50259), (57, 50292), (66, 50337), (68, 50343), (88, 50442), (97, 50481), (102, 50505),

Gene: CheeseTouch\_91 Start: 45223, Stop: 45627, Start Num: 27

Candidate Starts for CheeseTouch\_91:

(26, 45220), (Start: 27 @45223 has 9 MA's), (37, 45271), (40, 45295), (53, 45379), (77, 45508), (100, 45616),

Gene: Chevrolet\_89 Start: 50830, Stop: 51189, Start Num: 36

Candidate Starts for Chevrolet\_89:

(Start: 31 @50815 has 19 MA's), (Start: 36 @50830 has 60 MA's), (47, 50944), (93, 51142), (100, 51178),

Gene: Chewbacca\_62 Start: 38112, Stop: 38486, Start Num: 31

Candidate Starts for Chewbacca\_62:

(Start: 31 @38112 has 19 MA's), (38, 38142), (54, 38274), (56, 38277), (58, 38298), (74, 38355), (75, 38361), (97, 38457), (100, 38475),

Gene: Coco12\_79 Start: 49279, Stop: 49623, Start Num: 36

Candidate Starts for Coco12\_79:

(Start: 36 @49279 has 60 MA's), (42, 49327), (50, 49387), (97, 49585), (102, 49609),

Gene: Courthouse\_71 Start: 46710, Stop: 46342, Start Num: 36

Candidate Starts for Courthouse\_71:

(Start: 36 @46710 has 60 MA's), (50, 46602), (57, 46569), (66, 46524), (68, 46518), (88, 46419), (97, 46380), (102, 46356),



Gene: Cracklewink\_97 Start: 60881, Stop: 61201, Start Num: 103

Candidate Starts for Cracklewink\_97:

(9, 60302), (13, 60332), (32, 60476), (43, 60575), (69, 60725), (Start: 103 @60881 has 2 MA's), (104, 61055), (105, 61076), (106, 61103), (107, 61145), (108, 61172),

Gene: Daikon\_43 Start: 35456, Stop: 35088, Start Num: 36

Candidate Starts for Daikon\_43:

(Start: 36 @35456 has 60 MA's), (42, 35408), (50, 35348), (57, 35315), (66, 35270), (68, 35264), (88, 35165), (97, 35126), (102, 35102),

Gene: Dallas\_73 Start: 50270, Stop: 49902, Start Num: 36

Candidate Starts for Dallas\_73:

(Start: 36 @50270 has 60 MA's), (42, 50222), (50, 50162), (57, 50129), (66, 50084), (68, 50078), (88, 49979), (97, 49940), (102, 49916),

Gene: DmpstrDiver\_74 Start: 50697, Stop: 50329, Start Num: 36

Candidate Starts for DmpstrDiver\_74:

(Start: 36 @50697 has 60 MA's), (42, 50649), (50, 50589), (57, 50556), (66, 50511), (68, 50505), (88, 50406), (97, 50367), (102, 50343),

Gene: Donkeykong\_54 Start: 39346, Stop: 39780, Start Num: 17

Candidate Starts for Donkeykong\_54:

(Start: 17 @39346 has 6 MA's), (Start: 19 @39349 has 1 MA's), (21, 39376), (28, 39403), (Start: 33 @39427 has 5 MA's), (57, 39586), (90, 39715), (91, 39718), (97, 39748), (101, 39769),

Gene: Donkeykong\_87 Start: 51001, Stop: 51345, Start Num: 36

Candidate Starts for Donkeykong\_87:

(10, 50827), (11, 50833), (Start: 36 @51001 has 60 MA's), (42, 51049), (50, 51109), (97, 51307), (102, 51331),

Gene: Duplicity\_58 Start: 37474, Stop: 37848, Start Num: 31

Candidate Starts for Duplicity\_58:

(18, 37405), (Start: 31 @37474 has 19 MA's), (38, 37504), (54, 37636), (56, 37639), (58, 37660), (74, 37717), (75, 37723), (97, 37819), (100, 37837),

Gene: Eileen\_50 Start: 33209, Stop: 33589, Start Num: 33

Candidate Starts for Eileen\_50:

(15, 33095), (Start: 33 @33209 has 5 MA's), (98, 33563),

Gene: Ejimix\_74 Start: 52138, Stop: 51770, Start Num: 36

Candidate Starts for Ejimix\_74:

(Start: 36 @52138 has 60 MA's), (42, 52090), (50, 52030), (57, 51997), (66, 51952), (68, 51946), (88, 51847), (97, 51808), (102, 51784),

Gene: EricMillard\_73 Start: 51342, Stop: 50974, Start Num: 36

Candidate Starts for EricMillard\_73:

(Start: 36 @51342 has 60 MA's), (42, 51294), (50, 51234), (57, 51201), (66, 51156), (68, 51150), (88, 51051), (97, 51012), (102, 50988),

Gene: FirstPlacePfu\_61 Start: 38017, Stop: 38391, Start Num: 31

Candidate Starts for FirstPlacePfu\_61:

(Start: 31 @38017 has 19 MA's), (38, 38047), (54, 38179), (56, 38182), (58, 38203), (74, 38260), (75, 38266), (97, 38362), (100, 38380),

Gene: Flypotenuse\_37 Start: 34187, Stop: 33819, Start Num: 36

Candidate Starts for Flypotenuse\_37:

(Start: 36 @34187 has 60 MA's), (42, 34139), (50, 34079), (57, 34046), (66, 34001), (68, 33995), (88, 33896), (97, 33857), (102, 33833),

Gene: Frankie\_78 Start: 46606, Stop: 46980, Start Num: 31

Candidate Starts for Frankie\_78:

(18, 46537), (Start: 31 @46606 has 19 MA's), (38, 46636), (54, 46768), (56, 46771), (58, 46792), (74, 46849), (75, 46855), (97, 46951), (100, 46969),

Gene: Fulbright\_58 Start: 36911, Stop: 37285, Start Num: 31

Candidate Starts for Fulbright\_58:

(18, 36842), (Start: 31 @36911 has 19 MA's), (38, 36941), (54, 37073), (56, 37076), (58, 37097), (74, 37154), (75, 37160), (97, 37256), (100, 37274),

Gene: Gator\_40 Start: 35326, Stop: 34958, Start Num: 36

Candidate Starts for Gator\_40:

(Start: 36 @35326 has 60 MA's), (42, 35278), (50, 35218), (57, 35185), (66, 35140), (68, 35134), (88, 35035), (97, 34996), (102, 34972),

Gene: Getalong\_89 Start: 50024, Stop: 50353, Start Num: 27

Candidate Starts for Getalong\_89:

(Start: 17 @49973 has 6 MA's), (20, 49997), (26, 50021), (Start: 27 @50024 has 9 MA's), (35, 50069), (38, 50078), (39, 50081), (53, 50162), (64, 50216), (65, 50219), (77, 50249), (82, 50267), (89, 50294),

Gene: Gex\_61 Start: 38233, Stop: 38607, Start Num: 31

Candidate Starts for Gex\_61:

(18, 38164), (Start: 31 @38233 has 19 MA's), (38, 38263), (54, 38395), (56, 38398), (58, 38419), (74, 38476), (75, 38482), (97, 38578), (100, 38596),

Gene: Glexan\_40 Start: 35314, Stop: 34946, Start Num: 36

Candidate Starts for Glexan\_40:

(Start: 36 @35314 has 60 MA's), (42, 35266), (50, 35206), (57, 35173), (66, 35128), (68, 35122), (88, 35023), (97, 34984), (102, 34960),

Gene: Halley\_76 Start: 51349, Stop: 50981, Start Num: 36

Candidate Starts for Halley\_76:

(Start: 36 @51349 has 60 MA's), (42, 51301), (50, 51241), (57, 51208), (66, 51163), (68, 51157), (88, 51058), (97, 51019), (102, 50995),

Gene: Harella\_42 Start: 35830, Stop: 35462, Start Num: 36

Candidate Starts for Harella\_42:

(Start: 36 @35830 has 60 MA's), (42, 35782), (50, 35722), (57, 35689), (66, 35644), (68, 35638), (88, 35539), (97, 35500), (102, 35476),

Gene: HokkenD\_67 Start: 49618, Stop: 49250, Start Num: 36

Candidate Starts for HokkenD\_67:

(Start: 36 @49618 has 60 MA's), (42, 49570), (50, 49510), (57, 49477), (66, 49432), (68, 49426), (88, 49327), (97, 49288), (102, 49264),

Gene: Hughesyang\_73 Start: 51308, Stop: 50940, Start Num: 36  
Candidate Starts for Hughesyang\_73:  
(Start: 36 @51308 has 60 MA's), (42, 51260), (50, 51200), (57, 51167), (66, 51122), (68, 51116), (88, 51017), (97, 50978), (102, 50954),

Gene: JalFarm20\_61 Start: 39841, Stop: 40275, Start Num: 17  
Candidate Starts for JalFarm20\_61:  
(Start: 17 @39841 has 6 MA's), (Start: 19 @39844 has 1 MA's), (21, 39871), (28, 39898), (Start: 33 @39922 has 5 MA's), (57, 40081), (90, 40210), (91, 40213), (97, 40243), (101, 40264),

Gene: Jinglebell\_56 Start: 38899, Stop: 39234, Start Num: 16  
Candidate Starts for Jinglebell\_56:  
(Start: 16 @38899 has 10 MA's), (21, 38932), (28, 38959), (30, 38971), (Start: 33 @38983 has 5 MA's), (43, 39067), (55, 39133), (61, 39169), (73, 39208),

Gene: JuicyJay\_73 Start: 52483, Stop: 52115, Start Num: 36  
Candidate Starts for JuicyJay\_73:  
(Start: 36 @52483 has 60 MA's), (42, 52435), (50, 52375), (57, 52342), (66, 52297), (68, 52291), (88, 52192), (97, 52153), (102, 52129),

Gene: Kalah2\_69 Start: 50642, Stop: 50274, Start Num: 36  
Candidate Starts for Kalah2\_69:  
(Start: 36 @50642 has 60 MA's), (42, 50594), (50, 50534), (57, 50501), (66, 50456), (68, 50450), (88, 50351), (97, 50312), (102, 50288),

Gene: Kamaru\_80 Start: 46524, Stop: 46901, Start Num: 27  
Candidate Starts for Kamaru\_80:  
(26, 46521), (Start: 27 @46524 has 9 MA's), (37, 46572), (40, 46596), (53, 46680), (60, 46737), (63, 46746), (100, 46890),

Gene: Karkharias\_54 Start: 35360, Stop: 35740, Start Num: 33  
Candidate Starts for Karkharias\_54:  
(1, 34703), (2, 34778), (15, 35246), (Start: 33 @35360 has 5 MA's),

Gene: Kenna\_81 Start: 46842, Stop: 47171, Start Num: 27  
Candidate Starts for Kenna\_81:  
(Start: 17 @46791 has 6 MA's), (20, 46815), (26, 46839), (Start: 27 @46842 has 9 MA's), (35, 46887), (38, 46896), (39, 46899), (53, 46980), (64, 47034), (65, 47037), (77, 47067), (82, 47085), (89, 47112),

Gene: Kingsley\_86 Start: 51886, Stop: 52230, Start Num: 36  
Candidate Starts for Kingsley\_86:  
(Start: 36 @51886 has 60 MA's), (42, 51934), (50, 51994), (97, 52192), (102, 52216),

Gene: KristaRAM\_80 Start: 48204, Stop: 48548, Start Num: 36  
Candidate Starts for KristaRAM\_80:  
(Start: 36 @48204 has 60 MA's), (42, 48252), (50, 48312), (97, 48510), (102, 48534),

Gene: KristaRAM\_52 Start: 38472, Stop: 38903, Start Num: 19  
Candidate Starts for KristaRAM\_52:  
(Start: 17 @38469 has 6 MA's), (Start: 19 @38472 has 1 MA's), (21, 38499), (28, 38526), (Start: 33 @38550 has 5 MA's), (57, 38709), (90, 38838), (91, 38841), (97, 38871), (101, 38892),

Gene: LilBib\_61 Start: 42376, Stop: 42032, Start Num: 36

Candidate Starts for LilBib\_61:

(6, 42586), (7, 42577), (22, 42433), (24, 42430), (Start: 36 @42376 has 60 MA's), (42, 42328), (50, 42268), (97, 42070), (102, 42046),

Gene: LittleE\_76 Start: 50154, Stop: 49810, Start Num: 36

Candidate Starts for LittleE\_76:

(Start: 36 @50154 has 60 MA's), (42, 50106), (50, 50046), (97, 49848), (102, 49824),

Gene: Llama\_56 Start: 38897, Stop: 39232, Start Num: 16

Candidate Starts for Llama\_56:

(Start: 16 @38897 has 10 MA's), (21, 38930), (28, 38957), (30, 38969), (Start: 33 @38981 has 5 MA's), (43, 39065), (55, 39131), (61, 39167), (73, 39206),

Gene: Lucky2013\_72 Start: 47088, Stop: 46720, Start Num: 36

Candidate Starts for Lucky2013\_72:

(Start: 36 @47088 has 60 MA's), (42, 47040), (50, 46980), (57, 46947), (66, 46902), (68, 46896), (88, 46797), (97, 46758), (102, 46734),

Gene: LunaBlu\_85 Start: 49751, Stop: 50095, Start Num: 36

Candidate Starts for LunaBlu\_85:

(Start: 36 @49751 has 60 MA's), (42, 49799), (50, 49859), (97, 50057), (102, 50081),

Gene: Lutum\_87 Start: 48004, Stop: 48333, Start Num: 27

Candidate Starts for Lutum\_87:

(Start: 17 @47953 has 6 MA's), (20, 47977), (26, 48001), (Start: 27 @48004 has 9 MA's), (35, 48049), (38, 48058), (39, 48061), (53, 48142), (64, 48196), (65, 48199), (77, 48229), (82, 48247), (89, 48274),

Gene: MadMen\_88 Start: 49877, Stop: 50221, Start Num: 36

Candidate Starts for MadMen\_88:

(Start: 36 @49877 has 60 MA's), (42, 49925), (50, 49985), (97, 50183), (102, 50207),

Gene: Marker\_51 Start: 36567, Stop: 36971, Start Num: 25

Candidate Starts for Marker\_51:

(Start: 25 @36567 has 1 MA's), (Start: 31 @36597 has 19 MA's), (46, 36705), (52, 36729), (54, 36750), (56, 36753), (83, 36873), (97, 36942),

Gene: Marker\_88 Start: 49677, Stop: 50045, Start Num: 36

Candidate Starts for Marker\_88:

(Start: 36 @49677 has 60 MA's), (42, 49725), (50, 49785), (57, 49818), (66, 49863), (68, 49869), (88, 49968), (97, 50007),

Gene: Melville\_65 Start: 37788, Stop: 38162, Start Num: 31

Candidate Starts for Melville\_65:

(18, 37719), (Start: 31 @37788 has 19 MA's), (38, 37818), (54, 37950), (56, 37953), (58, 37974), (74, 38031), (75, 38037), (97, 38133), (100, 38151),

Gene: MiaZeal\_75 Start: 47744, Stop: 47376, Start Num: 36

Candidate Starts for MiaZeal\_75:

(Start: 36 @47744 has 60 MA's), (42, 47696), (50, 47636), (57, 47603), (66, 47558), (68, 47552), (88, 47453), (97, 47414), (102, 47390),

Gene: MilanaBonita\_78 Start: 48285, Stop: 48626, Start Num: 36

Candidate Starts for MilanaBonita\_78:

(Start: 36 @48285 has 60 MA's), (42, 48333), (50, 48393), (57, 48426), (86, 48555), (88, 48558), (97, 48588), (102, 48612),

Gene: Misha28\_81 Start: 50604, Stop: 50960, Start Num: 36

Candidate Starts for Misha28\_81:

(14, 50478), (29, 50574), (Start: 36 @50604 has 60 MA's), (41, 50637), (54, 50748), (56, 50751), (97, 50931),

Gene: Modragons\_55 Start: 38743, Stop: 39078, Start Num: 16

Candidate Starts for Modragons\_55:

(Start: 16 @38743 has 10 MA's), (21, 38776), (28, 38803), (30, 38815), (Start: 33 @38827 has 5 MA's), (43, 38911), (55, 38977), (61, 39013), (73, 39052),

Gene: Mozy\_89 Start: 48614, Stop: 48958, Start Num: 36

Candidate Starts for Mozy\_89:

(Start: 36 @48614 has 60 MA's), (42, 48662), (50, 48722), (97, 48920), (102, 48944),

Gene: Ms6\_83 Start: 45978, Stop: 46319, Start Num: 36

Candidate Starts for Ms6\_83:

(Start: 36 @45978 has 60 MA's), (42, 46026), (50, 46086), (57, 46119), (86, 46248), (88, 46251), (97, 46281), (102, 46305),

Gene: NihilNomen\_75 Start: 51436, Stop: 51068, Start Num: 36

Candidate Starts for NihilNomen\_75:

(Start: 36 @51436 has 60 MA's), (42, 51388), (50, 51328), (57, 51295), (66, 51250), (68, 51244), (88, 51145), (97, 51106), (102, 51082),

Gene: Ochi17\_54 Start: 38350, Stop: 38685, Start Num: 16

Candidate Starts for Ochi17\_54:

(Start: 16 @38350 has 10 MA's), (21, 38383), (28, 38410), (30, 38422), (Start: 33 @38434 has 5 MA's), (43, 38518), (55, 38584), (61, 38620), (73, 38659),

Gene: Odette\_73 Start: 50479, Stop: 50111, Start Num: 36

Candidate Starts for Odette\_73:

(Start: 36 @50479 has 60 MA's), (42, 50431), (50, 50371), (57, 50338), (66, 50293), (68, 50287), (88, 50188), (97, 50149), (102, 50125),

Gene: OfUltron\_56 Start: 38899, Stop: 39234, Start Num: 16

Candidate Starts for OfUltron\_56:

(Start: 16 @38899 has 10 MA's), (21, 38932), (28, 38959), (30, 38971), (Start: 33 @38983 has 5 MA's), (43, 39067), (55, 39133), (61, 39169), (73, 39208),

Gene: Ogopogo\_88 Start: 49094, Stop: 49438, Start Num: 36

Candidate Starts for Ogopogo\_88:

(Start: 36 @49094 has 60 MA's), (42, 49142), (50, 49202), (97, 49400), (102, 49424),

Gene: Parmesanjohn\_60 Start: 38237, Stop: 38611, Start Num: 31

Candidate Starts for Parmesanjohn\_60:

(18, 38168), (Start: 31 @38237 has 19 MA's), (38, 38267), (54, 38399), (56, 38402), (58, 38423), (74, 38480), (75, 38486), (97, 38582), (100, 38600),

Gene: Peas\_55 Start: 37101, Stop: 37481, Start Num: 33

Candidate Starts for Peas\_55:

(5, 36861), (15, 36987), (Start: 33 @37101 has 5 MA's),

Gene: PeggyLeg03\_56 Start: 35841, Stop: 36212, Start Num: 33  
Candidate Starts for PeggyLeg03\_56:  
(15, 35727), (Start: 33 @35841 has 5 MA's), (59, 36039), (85, 36135),

Gene: Persistence\_42 Start: 28529, Stop: 28921, Start Num: 33  
Candidate Starts for Persistence\_42:  
(Start: 33 @28529 has 5 MA's), (45, 28643), (66, 28760),

Gene: Phabuloso\_93 Start: 49496, Stop: 49825, Start Num: 27  
Candidate Starts for Phabuloso\_93:  
(Start: 17 @49445 has 6 MA's), (20, 49469), (26, 49493), (Start: 27 @49496 has 9 MA's), (35, 49541),  
(38, 49550), (39, 49553), (53, 49634), (64, 49688), (65, 49691), (77, 49721), (82, 49739), (89, 49766),

Gene: Phanphagia\_48 Start: 36801, Stop: 37235, Start Num: 17  
Candidate Starts for Phanphagia\_48:  
(Start: 17 @36801 has 6 MA's), (Start: 19 @36804 has 1 MA's), (21, 36831), (28, 36858), (Start: 33  
@36882 has 5 MA's), (57, 37041), (90, 37170), (91, 37173), (97, 37203), (101, 37224),

Gene: Philonius\_60 Start: 38402, Stop: 38776, Start Num: 31  
Candidate Starts for Philonius\_60:  
(18, 38333), (Start: 31 @38402 has 19 MA's), (38, 38432), (54, 38564), (56, 38567), (58, 38588), (74,  
38645), (75, 38651), (97, 38747), (100, 38765),

Gene: Phloss\_58 Start: 37644, Stop: 38018, Start Num: 31  
Candidate Starts for Phloss\_58:  
(18, 37575), (Start: 31 @37644 has 19 MA's), (38, 37674), (54, 37806), (56, 37809), (58, 37830), (74,  
37887), (75, 37893), (97, 37989), (100, 38007),

Gene: Phoebus\_77 Start: 52618, Stop: 52250, Start Num: 36  
Candidate Starts for Phoebus\_77:  
(Start: 36 @52618 has 60 MA's), (42, 52570), (50, 52510), (57, 52477), (66, 52432), (68, 52426), (88,  
52327), (97, 52288), (102, 52264),

Gene: Piper2020\_83 Start: 51001, Stop: 51375, Start Num: 31  
Candidate Starts for Piper2020\_83:  
(Start: 31 @51001 has 19 MA's), (38, 51031), (54, 51163), (56, 51166), (58, 51187), (74, 51244), (75,  
51250), (97, 51346), (100, 51364),

Gene: Pipsqueaks\_61 Start: 38215, Stop: 38589, Start Num: 31  
Candidate Starts for Pipsqueaks\_61:  
(18, 38146), (Start: 31 @38215 has 19 MA's), (38, 38245), (54, 38377), (56, 38380), (58, 38401), (74,  
38458), (75, 38464), (97, 38560), (100, 38578),

Gene: Plumbus\_53 Start: 37073, Stop: 37519, Start Num: 16  
Candidate Starts for Plumbus\_53:  
(Start: 16 @37073 has 10 MA's), (21, 37106), (28, 37133), (Start: 33 @37157 has 5 MA's), (57,  
37316), (79, 37415), (97, 37493),

Gene: Porcelain\_74 Start: 47744, Stop: 47376, Start Num: 36  
Candidate Starts for Porcelain\_74:

(Start: 36 @47744 has 60 MA's), (42, 47696), (50, 47636), (57, 47603), (66, 47558), (68, 47552), (88, 47453), (97, 47414), (102, 47390),

Gene: Pucara\_53 Start: 35446, Stop: 35817, Start Num: 33

Candidate Starts for Pucara\_53:

(15, 35332), (Start: 33 @35446 has 5 MA's), (59, 35644), (85, 35740),

Gene: Pucara\_58 Start: 39657, Stop: 40034, Start Num: 34

Candidate Starts for Pucara\_58:

(3, 39330), (4, 39408), (34, 39657), (49, 39780), (78, 39921), (85, 39948), (87, 39963),

Gene: Purky\_67 Start: 42925, Stop: 43284, Start Num: 36

Candidate Starts for Purky\_67:

(23, 42868), (Start: 36 @42925 has 60 MA's), (63, 43117), (66, 43123), (84, 43189), (100, 43270),

Gene: Redno2\_71 Start: 48232, Stop: 47864, Start Num: 36

Candidate Starts for Redno2\_71:

(Start: 36 @48232 has 60 MA's), (42, 48184), (50, 48124), (57, 48091), (66, 48046), (68, 48040), (88, 47941), (97, 47902), (102, 47878),

Gene: Sarma624\_81 Start: 45898, Stop: 46242, Start Num: 36

Candidate Starts for Sarma624\_81:

(Start: 36 @45898 has 60 MA's), (42, 45946), (50, 46006), (97, 46204), (102, 46228),

Gene: Schatzie\_69 Start: 50226, Stop: 49858, Start Num: 36

Candidate Starts for Schatzie\_69:

(Start: 36 @50226 has 60 MA's), (42, 50178), (50, 50118), (57, 50085), (66, 50040), (68, 50034), (88, 49935), (97, 49896), (102, 49872),

Gene: Schnauzer\_61 Start: 38237, Stop: 38611, Start Num: 31

Candidate Starts for Schnauzer\_61:

(18, 38168), (Start: 31 @38237 has 19 MA's), (38, 38267), (54, 38399), (56, 38402), (58, 38423), (74, 38480), (75, 38486), (97, 38582), (100, 38600),

Gene: Seabastian\_56 Start: 38900, Stop: 39235, Start Num: 16

Candidate Starts for Seabastian\_56:

(Start: 16 @38900 has 10 MA's), (21, 38933), (28, 38960), (30, 38972), (Start: 33 @38984 has 5 MA's), (43, 39068), (55, 39134), (61, 39170), (73, 39209),

Gene: Shauna1\_48 Start: 36782, Stop: 37216, Start Num: 17

Candidate Starts for Shauna1\_48:

(Start: 17 @36782 has 6 MA's), (Start: 19 @36785 has 1 MA's), (21, 36812), (28, 36839), (Start: 33 @36863 has 5 MA's), (57, 37022), (90, 37151), (91, 37154), (97, 37184), (101, 37205),

Gene: Silvafighter\_61 Start: 37780, Stop: 38154, Start Num: 31

Candidate Starts for Silvafighter\_61:

(18, 37711), (Start: 31 @37780 has 19 MA's), (38, 37810), (54, 37942), (56, 37945), (58, 37966), (74, 38023), (75, 38029), (97, 38125), (100, 38143),

Gene: Silvy\_56 Start: 38873, Stop: 39247, Start Num: 31

Candidate Starts for Silvy\_56:

(18, 38804), (Start: 31 @38873 has 19 MA's), (38, 38903), (54, 39035), (56, 39038), (58, 39059), (74, 39116), (75, 39122), (97, 39218), (100, 39236),

Gene: Smurph\_60 Start: 38237, Stop: 38611, Start Num: 31

Candidate Starts for Smurph\_60:

(18, 38168), (Start: 31 @38237 has 19 MA's), (38, 38267), (54, 38399), (56, 38402), (58, 38423), (74, 38480), (75, 38486), (97, 38582), (100, 38600),

Gene: Soul22\_83 Start: 47464, Stop: 47808, Start Num: 36

Candidate Starts for Soul22\_83:

(Start: 36 @47464 has 60 MA's), (42, 47512), (50, 47572), (97, 47770), (102, 47794),

Gene: Sprinklers\_17 Start: 5187, Stop: 5555, Start Num: 36

Candidate Starts for Sprinklers\_17:

(Start: 36 @5187 has 60 MA's), (42, 5235), (50, 5295), (57, 5328), (66, 5373), (68, 5379), (88, 5478), (97, 5517), (102, 5541),

Gene: Squint\_75 Start: 47863, Stop: 47495, Start Num: 36

Candidate Starts for Squint\_75:

(Start: 36 @47863 has 60 MA's), (42, 47815), (50, 47755), (57, 47722), (66, 47677), (68, 47671), (88, 47572), (97, 47533), (102, 47509),

Gene: SuperGrey\_53 Start: 38208, Stop: 38642, Start Num: 17

Candidate Starts for SuperGrey\_53:

(Start: 17 @38208 has 6 MA's), (Start: 19 @38211 has 1 MA's), (21, 38238), (28, 38265), (Start: 33 @38289 has 5 MA's), (57, 38448), (90, 38577), (91, 38580), (97, 38610), (101, 38631),

Gene: Superphikiman\_72 Start: 46954, Stop: 46586, Start Num: 36

Candidate Starts for Superphikiman\_72:

(Start: 36 @46954 has 60 MA's), (42, 46906), (50, 46846), (57, 46813), (66, 46768), (68, 46762), (88, 46663), (97, 46624), (102, 46600),

Gene: ThetaBob\_55 Start: 37062, Stop: 37427, Start Num: 16

Candidate Starts for ThetaBob\_55:

(Start: 16 @37062 has 10 MA's), (21, 37095), (28, 37122), (Start: 33 @37146 has 5 MA's), (43, 37230), (48, 37269), (51, 37278), (72, 37371), (80, 37398), (81, 37401),

Gene: ThreeRngTarjay\_72 Start: 51510, Stop: 51142, Start Num: 36

Candidate Starts for ThreeRngTarjay\_72:

(Start: 36 @51510 has 60 MA's), (42, 51462), (50, 51402), (57, 51369), (66, 51324), (68, 51318), (88, 51219), (97, 51180), (102, 51156),

Gene: Tiff81\_47 Start: 27821, Stop: 28186, Start Num: 33

Candidate Starts for Tiff81\_47:

(Start: 33 @27821 has 5 MA's), (45, 27935), (70, 28052), (76, 28067), (86, 28121), (94, 28142),

Gene: TootsiePop\_81 Start: 50604, Stop: 50960, Start Num: 36

Candidate Starts for TootsiePop\_81:

(14, 50478), (29, 50574), (Start: 36 @50604 has 60 MA's), (41, 50637), (54, 50748), (56, 50751), (97, 50931),

Gene: Traaww1\_39 Start: 34655, Stop: 34287, Start Num: 36

Candidate Starts for Traaww1\_39:

(Start: 36 @34655 has 60 MA's), (42, 34607), (50, 34547), (57, 34514), (66, 34469), (68, 34463), (88, 34364), (97, 34325), (102, 34301),



Gene: Tweety\_50 Start: 37155, Stop: 37592, Start Num: 16

Candidate Starts for Tweety\_50:

(Start: 16 @37155 has 10 MA's), (21, 37188), (28, 37215), (Start: 33 @37239 has 5 MA's), (53, 37377), (57, 37398), (71, 37458),

Gene: Velveteen\_76 Start: 45898, Stop: 46242, Start Num: 36

Candidate Starts for Velveteen\_76:

(Start: 36 @45898 has 60 MA's), (42, 45946), (50, 46006), (97, 46204), (102, 46228),

Gene: Whitney\_84 Start: 49207, Stop: 49602, Start Num: 27

Candidate Starts for Whitney\_84:

(8, 49048), (12, 49087), (26, 49204), (Start: 27 @49207 has 9 MA's), (44, 49327), (62, 49435), (82, 49504), (91, 49543), (92, 49549),

Gene: Xerxes\_60 Start: 38234, Stop: 38608, Start Num: 31

Candidate Starts for Xerxes\_60:

(18, 38165), (Start: 31 @38234 has 19 MA's), (38, 38264), (54, 38396), (56, 38399), (58, 38420), (74, 38477), (75, 38483), (97, 38579), (100, 38597),

Gene: Yeet\_70 Start: 49727, Stop: 49359, Start Num: 36

Candidate Starts for Yeet\_70:

(Start: 36 @49727 has 60 MA's), (42, 49679), (50, 49619), (57, 49586), (66, 49541), (68, 49535), (88, 49436), (97, 49397),

Gene: Zelink\_72 Start: 51822, Stop: 51454, Start Num: 36

Candidate Starts for Zelink\_72:

(Start: 36 @51822 has 60 MA's), (42, 51774), (50, 51714), (57, 51681), (66, 51636), (68, 51630), (88, 51531), (97, 51492), (102, 51468),