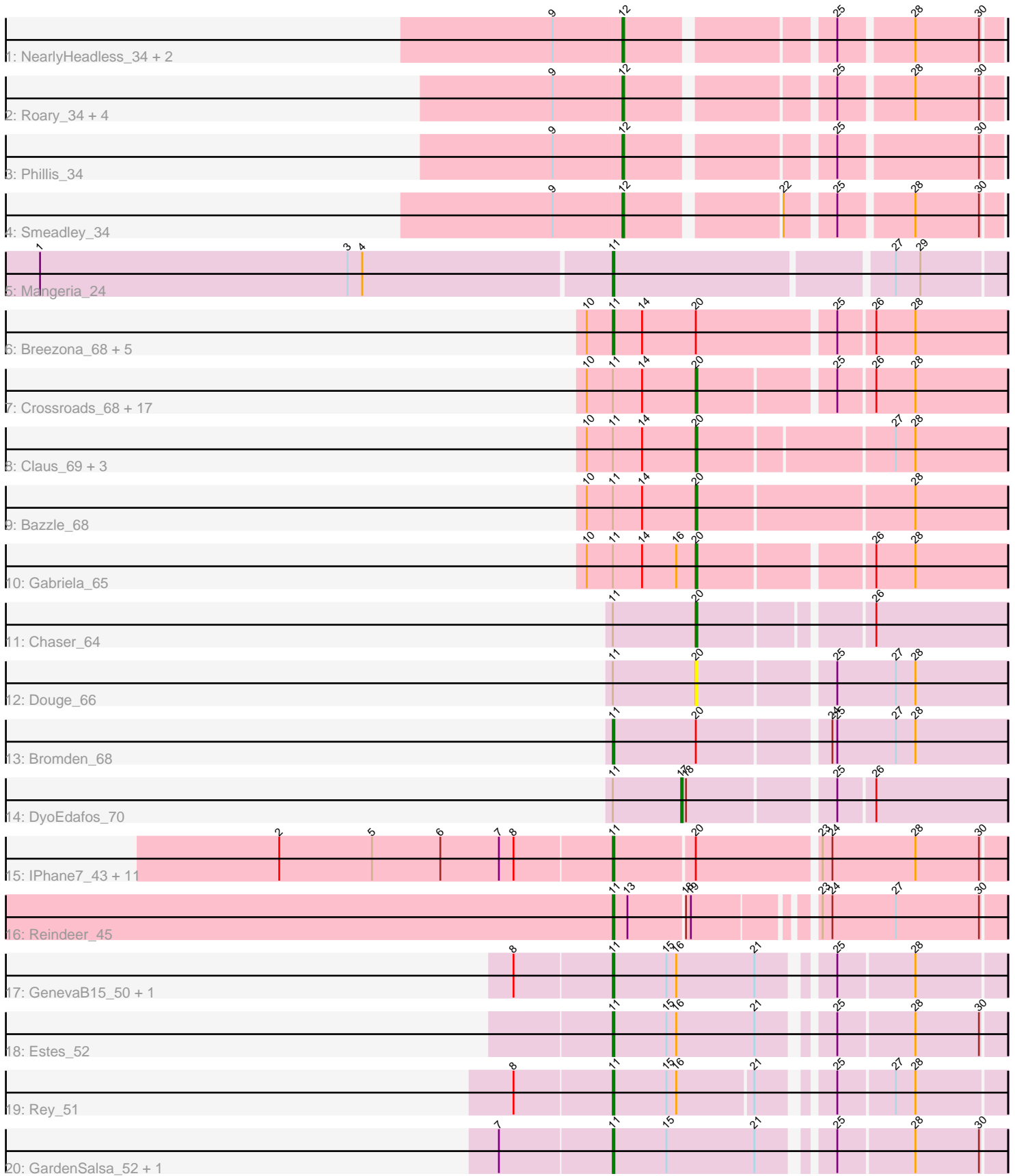


# Pham 163606



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 163606 Report

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

Pham number 163606 has 64 members, 5 are drafts.

Phages represented in each track:

- Track 1 : NearlyHeadless\_34, Groundhog\_33, Astro\_34
- Track 2 : Roary\_34, Stephig9\_34, Danforth\_33, Dixon\_34, Expelliarmus\_33
- Track 3 : Phillis\_34
- Track 4 : Smeadley\_34
- Track 5 : Mangeria\_24
- Track 6 : Breezona\_68, Faith1\_68, Miley16\_68, DrSeegs\_68, Winky\_68, Netyap\_69
- Track 7 : Crossroads\_68, Finemlucis\_68, Vetrrix\_68, Lewan\_69, BigCheese\_68, Kahlid\_68, BobsGarage\_68, Gardann\_69, Nicholasp3\_68, Hafay\_70, MkaliMitinis3\_69, Loadrie\_67, Wilder\_69, Wigglewiggle\_68, Itos\_67, Zakai\_69, Rumpelstiltskin\_67, LilDestine\_68
- Track 8 : Claus\_69, ZhongYanYuan\_67, Tourach\_67, Baoshan\_66
- Track 9 : Bazzle\_68
- Track 10 : Gabriela\_65
- Track 11 : Chaser\_64
- Track 12 : Douge\_66
- Track 13 : Bromden\_68
- Track 14 : DyoEdafos\_70
- Track 15 : IPhone7\_43, SlimJimmy\_42, PegLeg\_43, Auspice\_43, Diminimus\_44, TyDawg\_43, Dulcita\_44, Bricole\_43, LilhomieP\_42, Bongo\_43, Glaske16\_44, Skinny\_44
- Track 16 : Reindeer\_45
- Track 17 : GenevaB15\_50, Aziz\_50
- Track 18 : Estes\_52
- Track 19 : Rey\_51
- Track 20 : GardenSalsa\_52, MrMagoo\_52

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

The start number called the most often in the published annotations is 11, it was called in 27 of the 59 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Auspice\_43, Aziz\_50, Bongo\_43, Breezona\_68, Bricole\_43, Bromden\_68, Diminimus\_44, DrSeegs\_68, Dulcita\_44, Estes\_52, Faith1\_68, GardenSalsa\_52,

GenevaB15\_50, Glaske16\_44, IPhane7\_43, LilhomieP\_42, Mangeria\_24, Miley16\_68, MrMagoo\_52, Netyap\_69, PegLeg\_43, Reindeer\_45, Rey\_51, Skinny\_44, SlimJimmy\_42, TyDawg\_43, Winky\_68,

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

- Baoshan\_66, Bazzle\_68, BigCheese\_68, BobsGarage\_68, Chaser\_64, Claus\_69, Crossroads\_68, Douge\_66, DyoEdafos\_70, Finemlucis\_68, Gabriela\_65, Gardann\_69, Hafay\_70, Itos\_67, Kahlid\_68, Lewan\_69, LilDestine\_68, Loadrie\_67, MkaliMitinis3\_69, Nicholasp3\_68, Rumpelstiltskin\_67, Tourach\_67, Vetrix\_68, Wigglewiggles\_68, Wilder\_69, Zakai\_69, ZhongYanYuan\_67,

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

- Astro\_34, Danforth\_33, Dixon\_34, Expelliarmus\_33, Groundhog\_33, NearlyHeadless\_34, Phillis\_34, Roary\_34, Smeadley\_34, Stephig9\_34,

### Summary by start number:

Start 11:

- Found in 54 of 64 ( 84.4% ) of genes in pham
- Manual Annotations of this start: 27 of 59
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Auspice\_43 (M1), Aziz\_50 (M2), Bongo\_43 (M1), Breezona\_68 (L2), Bricole\_43 (M1), Bromden\_68 (L4), Diminimus\_44 (M1), DrSeegs\_68 (L2), Dulcita\_44 (M1), Estes\_52 (M2), Faith1\_68 (L2), GardenSalsa\_52 (M2), GenevaB15\_50 (M2), Glaske16\_44 (M1), IPhane7\_43 (M1), LilhomieP\_42 (M1), Mangeria\_24 (C1), Miley16\_68 (L2), MrMagoo\_52 (M2), Netyap\_69 (L2), PegLeg\_43 (M1), Reindeer\_45 (M1), Rey\_51 (M2), Skinny\_44 (M1), SlimJimmy\_42 (M1), TyDawg\_43 (M1), Winky\_68 (L2),

Start 12:

- Found in 10 of 64 ( 15.6% ) of genes in pham
- Manual Annotations of this start: 10 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Astro\_34 (A8), Danforth\_33 (A8), Dixon\_34 (A8), Expelliarmus\_33 (A8), Groundhog\_33 (A8), NearlyHeadless\_34 (A8), Phillis\_34 (A8), Roary\_34 (A8), Smeadley\_34 (A8), Stephig9\_34 (A8),

Start 17:

- Found in 1 of 64 ( 1.6% ) 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: DyoEdafos\_70 (L4),

Start 20:

- Found in 45 of 64 ( 70.3% ) of genes in pham
- Manual Annotations of this start: 21 of 59
- Called 57.8% of time when present
- Phage (with cluster) where this start called: Baoshan\_66 (L2), Bazzle\_68 (L2), BigCheese\_68 (L2), BobsGarage\_68 (L2), Chaser\_64 (L4), Claus\_69 (L2), Crossroads\_68 (L2), Douge\_66 (L4), Finemlucis\_68 (L2), Gabriela\_65 (L2), Gardann\_69 (L2), Hafay\_70 (L2), Itos\_67 (L2), Kahlid\_68 (L2), Lewan\_69 (L2), LilDestine\_68 (L2), Loadrie\_67 (L2), MkaliMitinis3\_69 (L2), Nicholasp3\_68 (L2), Rumpelstiltskin\_67 (L2), Tourach\_67 (L2), Vetrix\_68 (L2), Wigglewiggles\_68 (L2),

Wilder\_69 (L2), Zakai\_69 (L2), ZhongYanYuan\_67 (L2),

### **Summary by clusters:**

There are 6 clusters represented in this pham: L2, L4, M1, M2, A8, C1,

Info for manual annotations of cluster A8:

- Start number 12 was manually annotated 10 times for cluster A8.

Info for manual annotations of cluster C1:

- Start number 11 was manually annotated 1 time for cluster C1.

Info for manual annotations of cluster L2:

- Start number 11 was manually annotated 6 times for cluster L2.
- Start number 20 was manually annotated 20 times for cluster L2.

Info for manual annotations of cluster L4:

- Start number 11 was manually annotated 1 time for cluster L4.
- Start number 17 was manually annotated 1 time for cluster L4.
- Start number 20 was manually annotated 1 time for cluster L4.

Info for manual annotations of cluster M1:

- Start number 11 was manually annotated 13 times for cluster M1.

Info for manual annotations of cluster M2:

- Start number 11 was manually annotated 6 times for cluster M2.

### **Gene Information:**

Gene: Astro\_34 Start: 26685, Stop: 26479, Start Num: 12

Candidate Starts for Astro\_34:

(9, 26727), (Start: 12 @26685 has 10 MA's), (25, 26571), (28, 26529), (30, 26490),

Gene: Auspice\_43 Start: 34226, Stop: 33996, Start Num: 11

Candidate Starts for Auspice\_43:

(2, 34427), (5, 34370), (6, 34328), (7, 34292), (8, 34283), (Start: 11 @34226 has 27 MA's), (Start: 20 @34178 has 21 MA's), (23, 34106), (24, 34100), (28, 34049), (30, 34010),

Gene: Aziz\_50 Start: 36169, Stop: 35948, Start Num: 11

Candidate Starts for Aziz\_50:

(8, 36226), (Start: 11 @36169 has 27 MA's), (15, 36136), (16, 36130), (21, 36082), (25, 36046), (28, 36001),

Gene: Baoshan\_66 Start: 46667, Stop: 46849, Start Num: 20

Candidate Starts for Baoshan\_66:

(10, 46601), (Start: 11 @46616 has 27 MA's), (14, 46634), (Start: 20 @46667 has 21 MA's), (27, 46781), (28, 46793),

Gene: Bazzle\_68 Start: 47062, Stop: 47247, Start Num: 20

Candidate Starts for Bazzle\_68:

(10, 46996), (Start: 11 @47011 has 27 MA's), (14, 47029), (Start: 20 @47062 has 21 MA's), (28, 47191),

Gene: BigCheese\_68 Start: 46724, Stop: 46906, Start Num: 20

Candidate Starts for BigCheese\_68:

(10, 46658), (Start: 11 @46673 has 27 MA's), (14, 46691), (Start: 20 @46724 has 21 MA's), (25, 46805), (26, 46826), (28, 46850),

Gene: BobsGarage\_68 Start: 46724, Stop: 46906, Start Num: 20

Candidate Starts for BobsGarage\_68:

(10, 46658), (Start: 11 @46673 has 27 MA's), (14, 46691), (Start: 20 @46724 has 21 MA's), (25, 46805), (26, 46826), (28, 46850),

Gene: Bongo\_43 Start: 34226, Stop: 33996, Start Num: 11

Candidate Starts for Bongo\_43:

(2, 34427), (5, 34370), (6, 34328), (7, 34292), (8, 34283), (Start: 11 @34226 has 27 MA's), (Start: 20 @34178 has 21 MA's), (23, 34106), (24, 34100), (28, 34049), (30, 34010),

Gene: Breezona\_68 Start: 46673, Stop: 46906, Start Num: 11

Candidate Starts for Breezona\_68:

(10, 46658), (Start: 11 @46673 has 27 MA's), (14, 46691), (Start: 20 @46724 has 21 MA's), (25, 46805), (26, 46826), (28, 46850),

Gene: Bricole\_43 Start: 34212, Stop: 33982, Start Num: 11

Candidate Starts for Bricole\_43:

(2, 34413), (5, 34356), (6, 34314), (7, 34278), (8, 34269), (Start: 11 @34212 has 27 MA's), (Start: 20 @34164 has 21 MA's), (23, 34092), (24, 34086), (28, 34035), (30, 33996),

Gene: Bromden\_68 Start: 46608, Stop: 46841, Start Num: 11

Candidate Starts for Bromden\_68:

(Start: 11 @46608 has 27 MA's), (Start: 20 @46659 has 21 MA's), (24, 46734), (25, 46737), (27, 46773), (28, 46785),

Gene: Chaser\_64 Start: 45401, Stop: 45577, Start Num: 20

Candidate Starts for Chaser\_64:

(Start: 11 @45350 has 27 MA's), (Start: 20 @45401 has 21 MA's), (26, 45497),

Gene: Claus\_69 Start: 46805, Stop: 46987, Start Num: 20

Candidate Starts for Claus\_69:

(10, 46739), (Start: 11 @46754 has 27 MA's), (14, 46772), (Start: 20 @46805 has 21 MA's), (27, 46919), (28, 46931),

Gene: Crossroads\_68 Start: 46802, Stop: 46981, Start Num: 20

Candidate Starts for Crossroads\_68:

(10, 46736), (Start: 11 @46751 has 27 MA's), (14, 46769), (Start: 20 @46802 has 21 MA's), (25, 46880), (26, 46901), (28, 46925),

Gene: Danforth\_33 Start: 26570, Stop: 26364, Start Num: 12

Candidate Starts for Danforth\_33:

(9, 26612), (Start: 12 @26570 has 10 MA's), (25, 26456), (28, 26414), (30, 26375),

Gene: Diminimus\_44 Start: 34225, Stop: 33995, Start Num: 11

Candidate Starts for Diminimus\_44:

(2, 34426), (5, 34369), (6, 34327), (7, 34291), (8, 34282), (Start: 11 @34225 has 27 MA's), (Start: 20 @34177 has 21 MA's), (23, 34105), (24, 34099), (28, 34048), (30, 34009),

Gene: Dixon\_34 Start: 26679, Stop: 26473, Start Num: 12

Candidate Starts for Dixon\_34:

(9, 26721), (Start: 12 @26679 has 10 MA's), (25, 26565), (28, 26523), (30, 26484),

Gene: Douge\_66 Start: 45395, Stop: 45577, Start Num: 20

Candidate Starts for Douge\_66:

(Start: 11 @45344 has 27 MA's), (Start: 20 @45395 has 21 MA's), (25, 45473), (27, 45509), (28, 45521),

Gene: DrSeegs\_68 Start: 46673, Stop: 46906, Start Num: 11

Candidate Starts for DrSeegs\_68:

(10, 46658), (Start: 11 @46673 has 27 MA's), (14, 46691), (Start: 20 @46724 has 21 MA's), (25, 46805), (26, 46826), (28, 46850),

Gene: Dulcita\_44 Start: 34226, Stop: 33996, Start Num: 11

Candidate Starts for Dulcita\_44:

(2, 34427), (5, 34370), (6, 34328), (7, 34292), (8, 34283), (Start: 11 @34226 has 27 MA's), (Start: 20 @34178 has 21 MA's), (23, 34106), (24, 34100), (28, 34049), (30, 34010),

Gene: DyoEdafos\_70 Start: 45881, Stop: 46069, Start Num: 17

Candidate Starts for DyoEdafos\_70:

(Start: 11 @45839 has 27 MA's), (Start: 17 @45881 has 1 MA's), (18, 45884), (25, 45968), (26, 45989),

Gene: Estes\_52 Start: 36435, Stop: 36214, Start Num: 11

Candidate Starts for Estes\_52:

(Start: 11 @36435 has 27 MA's), (15, 36402), (16, 36396), (21, 36348), (25, 36312), (28, 36267), (30, 36228),

Gene: Expelliarmus\_33 Start: 26556, Stop: 26350, Start Num: 12

Candidate Starts for Expelliarmus\_33:

(9, 26598), (Start: 12 @26556 has 10 MA's), (25, 26442), (28, 26400), (30, 26361),

Gene: Faith1\_68 Start: 46673, Stop: 46906, Start Num: 11

Candidate Starts for Faith1\_68:

(10, 46658), (Start: 11 @46673 has 27 MA's), (14, 46691), (Start: 20 @46724 has 21 MA's), (25, 46805), (26, 46826), (28, 46850),

Gene: Finemlucis\_68 Start: 47045, Stop: 47227, Start Num: 20

Candidate Starts for Finemlucis\_68:

(10, 46979), (Start: 11 @46994 has 27 MA's), (14, 47012), (Start: 20 @47045 has 21 MA's), (25, 47126), (26, 47147), (28, 47171),

Gene: Gabriela\_65 Start: 45174, Stop: 45353, Start Num: 20

Candidate Starts for Gabriela\_65:

(10, 45108), (Start: 11 @45123 has 27 MA's), (14, 45141), (16, 45162), (Start: 20 @45174 has 21 MA's), (26, 45273), (28, 45297),

Gene: Gardann\_69 Start: 46760, Stop: 46939, Start Num: 20

Candidate Starts for Gardann\_69:

(10, 46694), (Start: 11 @46709 has 27 MA's), (14, 46727), (Start: 20 @46760 has 21 MA's), (25, 46838), (26, 46859), (28, 46883),

Gene: GardenSalsa\_52 Start: 36533, Stop: 36312, Start Num: 11

Candidate Starts for GardenSalsa\_52:

(7, 36599), (Start: 11 @36533 has 27 MA's), (15, 36500), (21, 36446), (25, 36410), (28, 36365), (30, 36326),

Gene: GenevaB15\_50 Start: 36169, Stop: 35948, Start Num: 11

Candidate Starts for GenevaB15\_50:

(8, 36226), (Start: 11 @36169 has 27 MA's), (15, 36136), (16, 36130), (21, 36082), (25, 36046), (28, 36001),

Gene: Glaske16\_44 Start: 34225, Stop: 33995, Start Num: 11

Candidate Starts for Glaske16\_44:

(2, 34426), (5, 34369), (6, 34327), (7, 34291), (8, 34282), (Start: 11 @34225 has 27 MA's), (Start: 20 @34177 has 21 MA's), (23, 34105), (24, 34099), (28, 34048), (30, 34009),

Gene: Groundhog\_33 Start: 26650, Stop: 26444, Start Num: 12

Candidate Starts for Groundhog\_33:

(9, 26692), (Start: 12 @26650 has 10 MA's), (25, 26536), (28, 26494), (30, 26455),

Gene: Hafay\_70 Start: 46828, Stop: 47010, Start Num: 20

Candidate Starts for Hafay\_70:

(10, 46762), (Start: 11 @46777 has 27 MA's), (14, 46795), (Start: 20 @46828 has 21 MA's), (25, 46909), (26, 46930), (28, 46954),

Gene: IPHane7\_43 Start: 34226, Stop: 33996, Start Num: 11

Candidate Starts for IPHane7\_43:

(2, 34427), (5, 34370), (6, 34328), (7, 34292), (8, 34283), (Start: 11 @34226 has 27 MA's), (Start: 20 @34178 has 21 MA's), (23, 34106), (24, 34100), (28, 34049), (30, 34010),

Gene: Itos\_67 Start: 45630, Stop: 45812, Start Num: 20

Candidate Starts for Itos\_67:

(10, 45564), (Start: 11 @45579 has 27 MA's), (14, 45597), (Start: 20 @45630 has 21 MA's), (25, 45711), (26, 45732), (28, 45756),

Gene: Kahlid\_68 Start: 46730, Stop: 46912, Start Num: 20

Candidate Starts for Kahlid\_68:

(10, 46664), (Start: 11 @46679 has 27 MA's), (14, 46697), (Start: 20 @46730 has 21 MA's), (25, 46811), (26, 46832), (28, 46856),

Gene: Lewan\_69 Start: 46784, Stop: 46963, Start Num: 20

Candidate Starts for Lewan\_69:

(10, 46718), (Start: 11 @46733 has 27 MA's), (14, 46751), (Start: 20 @46784 has 21 MA's), (25, 46862), (26, 46883), (28, 46907),

Gene: LilDestine\_68 Start: 46757, Stop: 46939, Start Num: 20

Candidate Starts for LilDestine\_68:

(10, 46691), (Start: 11 @46706 has 27 MA's), (14, 46724), (Start: 20 @46757 has 21 MA's), (25, 46838), (26, 46859), (28, 46883),

Gene: LilhomieP\_42 Start: 34226, Stop: 33996, Start Num: 11

Candidate Starts for LilhomieP\_42:

(2, 34427), (5, 34370), (6, 34328), (7, 34292), (8, 34283), (Start: 11 @34226 has 27 MA's), (Start: 20 @34178 has 21 MA's), (23, 34106), (24, 34100), (28, 34049), (30, 34010),

Gene: Loadrie\_67 Start: 46812, Stop: 46991, Start Num: 20

Candidate Starts for Loadrie\_67:

(10, 46746), (Start: 11 @46761 has 27 MA's), (14, 46779), (Start: 20 @46812 has 21 MA's), (25, 46890), (26, 46911), (28, 46935),

Gene: Mangeria\_24 Start: 7917, Stop: 8144, Start Num: 11

Candidate Starts for Mangeria\_24:

(1, 7569), (3, 7758), (4, 7767), (Start: 11 @7917 has 27 MA's), (27, 8079), (29, 8094),

Gene: Miley16\_68 Start: 46673, Stop: 46906, Start Num: 11

Candidate Starts for Miley16\_68:

(10, 46658), (Start: 11 @46673 has 27 MA's), (14, 46691), (Start: 20 @46724 has 21 MA's), (25, 46805), (26, 46826), (28, 46850),

Gene: MkaliMitinis3\_69 Start: 46796, Stop: 46975, Start Num: 20

Candidate Starts for MkaliMitinis3\_69:

(10, 46730), (Start: 11 @46745 has 27 MA's), (14, 46763), (Start: 20 @46796 has 21 MA's), (25, 46874), (26, 46895), (28, 46919),

Gene: MrMagoo\_52 Start: 36533, Stop: 36312, Start Num: 11

Candidate Starts for MrMagoo\_52:

(7, 36599), (Start: 11 @36533 has 27 MA's), (15, 36500), (21, 36446), (25, 36410), (28, 36365), (30, 36326),

Gene: NearlyHeadless\_34 Start: 26609, Stop: 26403, Start Num: 12

Candidate Starts for NearlyHeadless\_34:

(9, 26651), (Start: 12 @26609 has 10 MA's), (25, 26495), (28, 26453), (30, 26414),

Gene: Netyap\_69 Start: 46674, Stop: 46907, Start Num: 11

Candidate Starts for Netyap\_69:

(10, 46659), (Start: 11 @46674 has 27 MA's), (14, 46692), (Start: 20 @46725 has 21 MA's), (25, 46806), (26, 46827), (28, 46851),

Gene: Nicholasp3\_68 Start: 46760, Stop: 46939, Start Num: 20

Candidate Starts for Nicholasp3\_68:

(10, 46694), (Start: 11 @46709 has 27 MA's), (14, 46727), (Start: 20 @46760 has 21 MA's), (25, 46838), (26, 46859), (28, 46883),

Gene: PegLeg\_43 Start: 34225, Stop: 33995, Start Num: 11

Candidate Starts for PegLeg\_43:

(2, 34426), (5, 34369), (6, 34327), (7, 34291), (8, 34282), (Start: 11 @34225 has 27 MA's), (Start: 20 @34177 has 21 MA's), (23, 34105), (24, 34099), (28, 34048), (30, 34009),

Gene: Phillis\_34 Start: 26635, Stop: 26429, Start Num: 12

Candidate Starts for Phillis\_34:

(9, 26677), (Start: 12 @26635 has 10 MA's), (25, 26521), (30, 26440),

Gene: Reindeer\_45 Start: 35434, Stop: 35216, Start Num: 11

Candidate Starts for Reindeer\_45:



(Start: 11 @35434 has 27 MA's), (13, 35425), (18, 35392), (19, 35389), (23, 35326), (24, 35320), (27, 35281), (30, 35230),

Gene: Rey\_51 Start: 36466, Stop: 36248, Start Num: 11

Candidate Starts for Rey\_51:

(8, 36523), (Start: 11 @36466 has 27 MA's), (15, 36433), (16, 36427), (21, 36382), (25, 36346), (27, 36313), (28, 36301),

Gene: Roary\_34 Start: 26555, Stop: 26349, Start Num: 12

Candidate Starts for Roary\_34:

(9, 26597), (Start: 12 @26555 has 10 MA's), (25, 26441), (28, 26399), (30, 26360),

Gene: Rumpelstiltskin\_67 Start: 46153, Stop: 46332, Start Num: 20

Candidate Starts for Rumpelstiltskin\_67:

(10, 46087), (Start: 11 @46102 has 27 MA's), (14, 46120), (Start: 20 @46153 has 21 MA's), (25, 46231), (26, 46252), (28, 46276),

Gene: Skinny\_44 Start: 34655, Stop: 34425, Start Num: 11

Candidate Starts for Skinny\_44:

(2, 34856), (5, 34799), (6, 34757), (7, 34721), (8, 34712), (Start: 11 @34655 has 27 MA's), (Start: 20 @34607 has 21 MA's), (23, 34535), (24, 34529), (28, 34478), (30, 34439),

Gene: SlimJimmy\_42 Start: 34209, Stop: 33979, Start Num: 11

Candidate Starts for SlimJimmy\_42:

(2, 34410), (5, 34353), (6, 34311), (7, 34275), (8, 34266), (Start: 11 @34209 has 27 MA's), (Start: 20 @34161 has 21 MA's), (23, 34089), (24, 34083), (28, 34032), (30, 33993),

Gene: Smeadley\_34 Start: 26678, Stop: 26472, Start Num: 12

Candidate Starts for Smeadley\_34:

(9, 26720), (Start: 12 @26678 has 10 MA's), (22, 26591), (25, 26564), (28, 26522), (30, 26483),

Gene: Stephig9\_34 Start: 26583, Stop: 26377, Start Num: 12

Candidate Starts for Stephig9\_34:

(9, 26625), (Start: 12 @26583 has 10 MA's), (25, 26469), (28, 26427), (30, 26388),

Gene: Tourach\_67 Start: 46806, Stop: 46988, Start Num: 20

Candidate Starts for Tourach\_67:

(10, 46740), (Start: 11 @46755 has 27 MA's), (14, 46773), (Start: 20 @46806 has 21 MA's), (27, 46920), (28, 46932),

Gene: TyDawg\_43 Start: 34226, Stop: 33996, Start Num: 11

Candidate Starts for TyDawg\_43:

(2, 34427), (5, 34370), (6, 34328), (7, 34292), (8, 34283), (Start: 11 @34226 has 27 MA's), (Start: 20 @34178 has 21 MA's), (23, 34106), (24, 34100), (28, 34049), (30, 34010),

Gene: Vetric\_68 Start: 46764, Stop: 46946, Start Num: 20

Candidate Starts for Vetric\_68:

(10, 46698), (Start: 11 @46713 has 27 MA's), (14, 46731), (Start: 20 @46764 has 21 MA's), (25, 46845), (26, 46866), (28, 46890),

Gene: Wigglewigg\_68 Start: 46784, Stop: 46963, Start Num: 20

Candidate Starts for Wigglewigg\_68:

(10, 46718), (Start: 11 @46733 has 27 MA's), (14, 46751), (Start: 20 @46784 has 21 MA's), (25, 46862), (26, 46883), (28, 46907),

Gene: Wilder\_69 Start: 46730, Stop: 46912, Start Num: 20

Candidate Starts for Wilder\_69:

(10, 46664), (Start: 11 @46679 has 27 MA's), (14, 46697), (Start: 20 @46730 has 21 MA's), (25, 46811), (26, 46832), (28, 46856),

Gene: Winky\_68 Start: 46673, Stop: 46906, Start Num: 11

Candidate Starts for Winky\_68:

(10, 46658), (Start: 11 @46673 has 27 MA's), (14, 46691), (Start: 20 @46724 has 21 MA's), (25, 46805), (26, 46826), (28, 46850),

Gene: Zakai\_69 Start: 47050, Stop: 47232, Start Num: 20

Candidate Starts for Zakai\_69:

(10, 46984), (Start: 11 @46999 has 27 MA's), (14, 47017), (Start: 20 @47050 has 21 MA's), (25, 47131), (26, 47152), (28, 47176),

Gene: ZhongYanYuan\_67 Start: 46619, Stop: 46801, Start Num: 20

Candidate Starts for ZhongYanYuan\_67:

(10, 46553), (Start: 11 @46568 has 27 MA's), (14, 46586), (Start: 20 @46619 has 21 MA's), (27, 46733), (28, 46745),