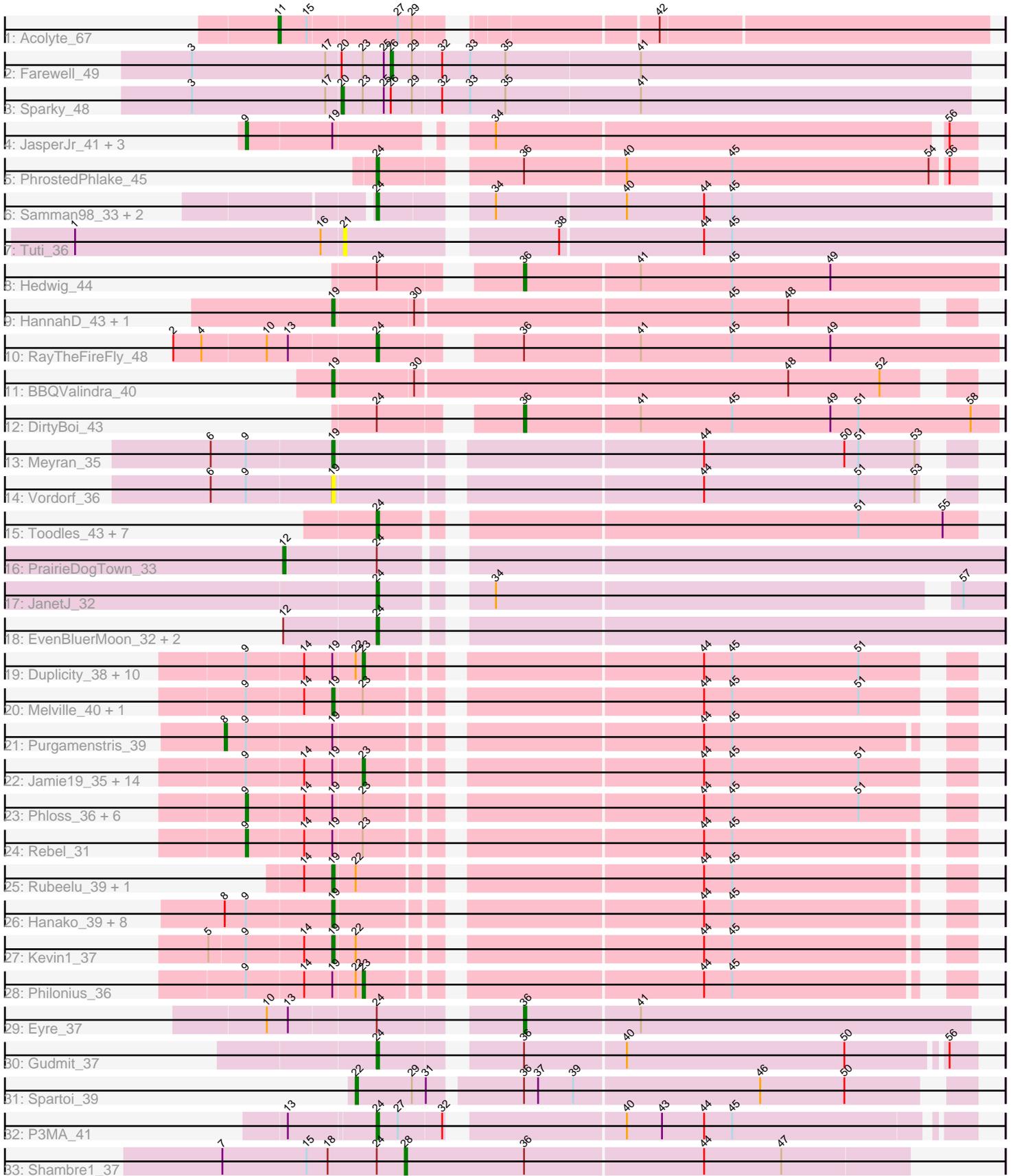


Pham 291051



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 291051 Report

This analysis was run 03/28/26 on database version 641.

Pham number 291051 has 88 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Acolyte\_67
- Track 2 : Farewell\_49
- Track 3 : Sparky\_48
- Track 4 : JasperJr\_41, Walrus\_42, Hitter\_44, Guacamole\_41
- Track 5 : PhrostedPhlake\_45
- Track 6 : Samman98\_33, Dolores\_34, WinkNick\_35
- Track 7 : Tuti\_36
- Track 8 : Hedwig\_44
- Track 9 : HannahD\_43, GEazy\_45
- Track 10 : RayTheFireFly\_48
- Track 11 : BBQValindra\_40
- Track 12 : DirtyBoi\_43
- Track 13 : Meyran\_35
- Track 14 : Vordorf\_36
- Track 15 : Toodles\_43, Nandita\_44, Donatella\_42, Ryan\_44, BigSherm\_42, Lenoxika\_44, Yonex\_44, ToastyOats\_46
- Track 16 : PrairieDogTown\_33
- Track 17 : JanetJ\_32
- Track 18 : EvenBluerMoon\_32, Aoka\_33, Hereford\_48
- Track 19 : Duplicity\_38, Tapioca\_39, Cubone\_38, Silvy\_36, Charlie\_36, Tessdabest\_39, Gex\_38, Journey\_36, Aggie\_36, Scitech\_35, Xeno\_35
- Track 20 : Melville\_40, Shweta\_35
- Track 21 : Purgamenstris\_39
- Track 22 : Jamie19\_35, Phrann\_39, Silvafighter\_39, Parmesanjohn\_38, Panchino\_34, Smurph\_38, EGUicorn\_36, Magsby\_38, SpongeBob\_35, MichelleMyBell\_36, Pipsqueaks\_38, Snekmaggon\_35, SkinnyPete\_33, Fulbright\_37, Xerxes\_38
- Track 23 : Phloss\_36, Andies\_35, Chewbacca\_39, Tortoise12\_36, Schnauzer\_38, Bosection6\_36, Carcharodon\_38
- Track 24 : Rebel\_31
- Track 25 : Rubeelu\_39, Butters\_39
- Track 26 : Hanako\_39, PhancyPhin\_39, BabeRuth\_40, Impisi\_41, Redi\_39, Spinach\_39, Nenae\_39, Raymond7\_33, ShrimpFriedEgg\_39
- Track 27 : Kevin1\_37
- Track 28 : Philonius\_36
- Track 29 : Eyre\_37
- Track 30 : Gudmit\_37

- Track 31 : Spartoi\_39
- Track 32 : P3MA\_41
- Track 33 : Shambre1\_37

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

The start number called the most often in the published annotations is 23, it was called in 24 of the 76 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aggie\_36, Charlie\_36, Cubone\_38, Duplicity\_38, EGUnicorn\_36, Fulbright\_37, Gex\_38, Jamie19\_35, Journey\_36, Magsby\_38, MichelleMyBell\_36, Panchino\_34, Parmesanjohn\_38, Philonius\_36, Phrann\_39, Pipsqueaks\_38, Scitech\_35, Silvafighter\_39, Silvy\_36, SkinnyPete\_33, Smurph\_38, Snekmaggedon\_35, SpongeBob\_35, Tapioca\_39, Tessdabest\_39, Xeno\_35, Xerxes\_38,

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

- Andies\_35, Bosection6\_36, Carcharodon\_38, Chewbacca\_39, Farewell\_49, Melville\_40, Phloss\_36, Rebel\_31, Schnauzer\_38, Shweta\_35, Sparky\_48, Tortoise12\_36,

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

- Acolyte\_67, Aoka\_33, BBQValindra\_40, BabeRuth\_40, BigSherm\_42, Butters\_39, DirtyBoi\_43, Dolores\_34, Donatella\_42, EvenBluerMoon\_32, Eyre\_37, GEazy\_45, Guacamole\_41, Gudmit\_37, Hanako\_39, HannahD\_43, Hedwig\_44, Hereford\_48, Hitter\_44, Impisi\_41, JanetJ\_32, JasperJr\_41, Kevin1\_37, Lenoxika\_44, Meyran\_35, Nandita\_44, Nenae\_39, P3MA\_41, PhancyPhin\_39, PhrostedPhlake\_45, PrairieDogTown\_33, Purgamenstris\_39, RayTheFireFly\_48, Raymond7\_33, Redi\_39, Rubeelu\_39, Ryan\_44, Samman98\_33, Shambre1\_37, ShrimpFriedEgg\_39, Spartoi\_39, Spinach\_39, ToastyOats\_46, Toodles\_43, Tuti\_36, Vordorf\_36, Walrus\_42, WinkNick\_35, Yonex\_44,

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

Start 8:

- Found in 10 of 88 ( 11.4% ) of genes in pham
- Manual Annotations of this start: 1 of 76
- Called 10.0% of time when present
- Phage (with cluster) where this start called: Purgamenstris\_39 (N),

Start 9:

- Found in 54 of 88 ( 61.4% ) of genes in pham
- Manual Annotations of this start: 12 of 76
- Called 22.2% of time when present
- Phage (with cluster) where this start called: Andies\_35 (N), Bosection6\_36 (N), Carcharodon\_38 (N), Chewbacca\_39 (N), Guacamole\_41 (CV), Hitter\_44 (CV), JasperJr\_41 (CV), Phloss\_36 (N), Rebel\_31 (N), Schnauzer\_38 (N), Tortoise12\_36 (N), Walrus\_42 (CV),

Start 11:

- Found in 1 of 88 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 76
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acolyte\_67 (A2),

#### Start 12:

- Found in 4 of 88 ( 4.5% ) of genes in pham
- Manual Annotations of this start: 1 of 76
- Called 25.0% of time when present
- Phage (with cluster) where this start called: PrairieDogTown\_33 (FO),

#### Start 19:

- Found in 59 of 88 ( 67.0% ) of genes in pham
- Manual Annotations of this start: 17 of 76
- Called 32.2% of time when present
- Phage (with cluster) where this start called: BBQValindra\_40 (DB), BabeRuth\_40 (N), Butters\_39 (N), GEazy\_45 (DB), Hanako\_39 (N), HannahD\_43 (DB), Impisi\_41 (N), Kevin1\_37 (N), Melville\_40 (N), Meyran\_35 (DT), Nenae\_39 (N), PhancyPhin\_39 (N), Raymond7\_33 (N), Redi\_39 (N), Rubeelu\_39 (N), ShrimpFriedEgg\_39 (N), Shweta\_35 (N), Spinach\_39 (N), Vordorf\_36 (DT),

#### Start 20:

- Found in 2 of 88 ( 2.3% ) of genes in pham
- Manual Annotations of this start: 1 of 76
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Sparky\_48 (AF),

#### Start 21:

- Found in 1 of 88 ( 1.1% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Tuti\_36 (CZ4),

#### Start 22:

- Found in 16 of 88 ( 18.2% ) of genes in pham
- Manual Annotations of this start: 1 of 76
- Called 6.2% of time when present
- Phage (with cluster) where this start called: Spartoi\_39 (singleton),

#### Start 23:

- Found in 39 of 88 ( 44.3% ) of genes in pham
- Manual Annotations of this start: 24 of 76
- Called 69.2% of time when present
- Phage (with cluster) where this start called: Aggie\_36 (N), Charlie\_36 (N), Cubone\_38 (N), Duplicity\_38 (N), EGUnicorn\_36 (N), Fulbright\_37 (N), Gex\_38 (N), Jamie19\_35 (N), Journey\_36 (N), Magsby\_38 (N), MichelleMyBell\_36 (N), Panchino\_34 (N), Parmesanjohn\_38 (N), Philonius\_36 (N), Phrann\_39 (N), Pipsqueaks\_38 (N), Scitech\_35 (N), Silvafighter\_39 (N), Silvy\_36 (N), SkinnyPete\_33 (N), Smurph\_38 (N), Snekmaggon\_35 (N), SpongeBob\_35 (N), Tapioca\_39 (N), Tessdabest\_39 (N), Xeno\_35 (N), Xerxes\_38 (N),

#### Start 24:

- Found in 24 of 88 ( 27.3% ) of genes in pham

- Manual Annotations of this start: 13 of 76
- Called 79.2% of time when present
- Phage (with cluster) where this start called: Aoka\_33 (FO), BigSherm\_42 (FF), Dolores\_34 (CZ4), Donatella\_42 (FF), EvenBluerMoon\_32 (FO), Gudmit\_37 (singleton), Hereford\_48 (FO), JanetJ\_32 (FO), Lenoxika\_44 (FF), Nandita\_44 (FF), P3MA\_41 (singleton), PhrostedPhlake\_45 (CV), RayTheFireFly\_48 (DB), Ryan\_44 (FF), Samman98\_33 (CZ4), ToastyOats\_46 (FF), Toodles\_43 (FF), WinkNick\_35 (CZ4), Yonex\_44 (FF),

Start 26:

- Found in 2 of 88 ( 2.3% ) of genes in pham
- Manual Annotations of this start: 1 of 76
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Farewell\_49 (AF),

Start 28:

- Found in 1 of 88 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 76
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Shambre1\_37 (singleton),

Start 36:

- Found in 8 of 88 ( 9.1% ) of genes in pham
- Manual Annotations of this start: 3 of 76
- Called 37.5% of time when present
- Phage (with cluster) where this start called: DirtyBoi\_43 (DB), Eyre\_37 (singleton), Hedwig\_44 (DB),

### **Summary by clusters:**

There are 10 clusters represented in this pham: singleton, AF, DB, CZ4, N, A2, FF, DT, CV, FO,

Info for manual annotations of cluster A2:

- Start number 11 was manually annotated 1 time for cluster A2.

Info for manual annotations of cluster AF:

- Start number 20 was manually annotated 1 time for cluster AF.
- Start number 26 was manually annotated 1 time for cluster AF.

Info for manual annotations of cluster CV:

- Start number 9 was manually annotated 4 times for cluster CV.
- Start number 24 was manually annotated 1 time for cluster CV.

Info for manual annotations of cluster CZ4:

- Start number 24 was manually annotated 3 times for cluster CZ4.

Info for manual annotations of cluster DB:

- Start number 19 was manually annotated 3 times for cluster DB.
- Start number 24 was manually annotated 1 time for cluster DB.
- Start number 36 was manually annotated 2 times for cluster DB.

Info for manual annotations of cluster DT:

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

Info for manual annotations of cluster FF:

- Start number 24 was manually annotated 3 times for cluster FF.

Info for manual annotations of cluster FO:

- Start number 12 was manually annotated 1 time for cluster FO.
- Start number 24 was manually annotated 3 times for cluster FO.

Info for manual annotations of cluster N:

- Start number 8 was manually annotated 1 time for cluster N.
- Start number 9 was manually annotated 8 times for cluster N.
- Start number 19 was manually annotated 13 times for cluster N.
- Start number 23 was manually annotated 24 times for cluster N.

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

Gene: Acolyte\_67 Start: 43619, Stop: 43897, Start Num: 11

Candidate Starts for Acolyte\_67:

(Start: 11 @43619 has 1 MA's), (15, 43631), (27, 43667), (29, 43673), (42, 43760),

Gene: Aggie\_36 Start: 27900, Stop: 28133, Start Num: 23

Candidate Starts for Aggie\_36:

(Start: 9 @27852 has 12 MA's), (14, 27876), (Start: 19 @27888 has 17 MA's), (Start: 22 @27897 has 1 MA's), (Start: 23 @27900 has 24 MA's), (44, 28029), (45, 28041), (51, 28095),

Gene: Andies\_35 Start: 28370, Stop: 28651, Start Num: 9

Candidate Starts for Andies\_35:

(Start: 9 @28370 has 12 MA's), (14, 28394), (Start: 19 @28406 has 17 MA's), (Start: 23 @28418 has 24 MA's), (44, 28547), (45, 28559), (51, 28613),

Gene: Aoka\_33 Start: 26261, Stop: 26512, Start Num: 24

Candidate Starts for Aoka\_33:

(Start: 12 @26222 has 1 MA's), (Start: 24 @26261 has 13 MA's),

Gene: BBQValindra\_40 Start: 33028, Stop: 33285, Start Num: 19

Candidate Starts for BBQValindra\_40:

(Start: 19 @33028 has 17 MA's), (30, 33061), (48, 33217), (52, 33256),

Gene: BabeRuth\_40 Start: 29534, Stop: 29776, Start Num: 19

Candidate Starts for BabeRuth\_40:

(Start: 8 @29489 has 1 MA's), (Start: 9 @29498 has 12 MA's), (Start: 19 @29534 has 17 MA's), (44, 29675), (45, 29687),

Gene: BigSherm\_42 Start: 29987, Stop: 30226, Start Num: 24

Candidate Starts for BigSherm\_42:

(Start: 24 @29987 has 13 MA's), (51, 30176), (55, 30212),

Gene: Bosection6\_36 Start: 27873, Stop: 28154, Start Num: 9

Candidate Starts for Bosection6\_36:

(Start: 9 @27873 has 12 MA's), (14, 27897), (Start: 19 @27909 has 17 MA's), (Start: 23 @27921 has 24 MA's), (44, 28050), (45, 28062), (51, 28116),

Gene: Butters\_39 Start: 29960, Stop: 30202, Start Num: 19

Candidate Starts for Butters\_39:

(14, 29948), (Start: 19 @29960 has 17 MA's), (Start: 22 @29969 has 1 MA's), (44, 30101), (45, 30113),

Gene: Carcharodon\_38 Start: 29181, Stop: 29462, Start Num: 9

Candidate Starts for Carcharodon\_38:

(Start: 9 @29181 has 12 MA's), (14, 29205), (Start: 19 @29217 has 17 MA's), (Start: 23 @29229 has 24 MA's), (44, 29358), (45, 29370), (51, 29424),

Gene: Charlie\_36 Start: 27920, Stop: 28153, Start Num: 23

Candidate Starts for Charlie\_36:

(Start: 9 @27872 has 12 MA's), (14, 27896), (Start: 19 @27908 has 17 MA's), (Start: 22 @27917 has 1 MA's), (Start: 23 @27920 has 24 MA's), (44, 28049), (45, 28061), (51, 28115),

Gene: Chewbacca\_39 Start: 29181, Stop: 29462, Start Num: 9

Candidate Starts for Chewbacca\_39:

(Start: 9 @29181 has 12 MA's), (14, 29205), (Start: 19 @29217 has 17 MA's), (Start: 23 @29229 has 24 MA's), (44, 29358), (45, 29370), (51, 29424),

Gene: Cubone\_38 Start: 27942, Stop: 28175, Start Num: 23

Candidate Starts for Cubone\_38:

(Start: 9 @27894 has 12 MA's), (14, 27918), (Start: 19 @27930 has 17 MA's), (Start: 22 @27939 has 1 MA's), (Start: 23 @27942 has 24 MA's), (44, 28071), (45, 28083), (51, 28137),

Gene: DirtyBoi\_43 Start: 31965, Stop: 32165, Start Num: 36

Candidate Starts for DirtyBoi\_43:

(Start: 24 @31917 has 13 MA's), (Start: 36 @31965 has 3 MA's), (41, 32013), (45, 32052), (49, 32094), (51, 32106), (58, 32154),

Gene: Dolores\_34 Start: 27272, Stop: 27024, Start Num: 24

Candidate Starts for Dolores\_34:

(Start: 24 @27272 has 13 MA's), (34, 27233), (40, 27179), (44, 27146), (45, 27134),

Gene: Donatella\_42 Start: 30460, Stop: 30699, Start Num: 24

Candidate Starts for Donatella\_42:

(Start: 24 @30460 has 13 MA's), (51, 30649), (55, 30685),

Gene: Duplicity\_38 Start: 29238, Stop: 29471, Start Num: 23

Candidate Starts for Duplicity\_38:

(Start: 9 @29190 has 12 MA's), (14, 29214), (Start: 19 @29226 has 17 MA's), (Start: 22 @29235 has 1 MA's), (Start: 23 @29238 has 24 MA's), (44, 29367), (45, 29379), (51, 29433),

Gene: EGUunicorn\_36 Start: 27921, Stop: 28154, Start Num: 23

Candidate Starts for EGUunicorn\_36:

(Start: 9 @27873 has 12 MA's), (14, 27897), (Start: 19 @27909 has 17 MA's), (Start: 23 @27921 has 24 MA's), (44, 28050), (45, 28062), (51, 28116),

Gene: EvenBluerMoon\_32 Start: 26499, Stop: 26750, Start Num: 24

Candidate Starts for EvenBluerMoon\_32:

(Start: 12 @26460 has 1 MA's), (Start: 24 @26499 has 13 MA's),

Gene: Eyre\_37 Start: 28147, Stop: 28335, Start Num: 36

Candidate Starts for Eyre\_37:

(10, 28051), (13, 28060), (Start: 24 @28096 has 13 MA's), (Start: 36 @28147 has 3 MA's), (41, 28195),

Gene: Farewell\_49 Start: 36104, Stop: 36349, Start Num: 26

Candidate Starts for Farewell\_49:

(3, 36020), (17, 36077), (Start: 20 @36083 has 1 MA's), (Start: 23 @36092 has 24 MA's), (25, 36101),  
(Start: 26 @36104 has 1 MA's), (29, 36113), (32, 36125), (33, 36137), (35, 36152), (41, 36209),

Gene: Fulbright\_37 Start: 28318, Stop: 28551, Start Num: 23

Candidate Starts for Fulbright\_37:

(Start: 9 @28270 has 12 MA's), (14, 28294), (Start: 19 @28306 has 17 MA's), (Start: 23 @28318 has  
24 MA's), (44, 28447), (45, 28459), (51, 28513),

Gene: GEazy\_45 Start: 32607, Stop: 32864, Start Num: 19

Candidate Starts for GEazy\_45:

(Start: 19 @32607 has 17 MA's), (30, 32640), (45, 32772), (48, 32796),

Gene: Gex\_38 Start: 29245, Stop: 29478, Start Num: 23

Candidate Starts for Gex\_38:

(Start: 9 @29197 has 12 MA's), (14, 29221), (Start: 19 @29233 has 17 MA's), (Start: 22 @29242 has 1  
MA's), (Start: 23 @29245 has 24 MA's), (44, 29374), (45, 29386), (51, 29440),

Gene: Guacamole\_41 Start: 33011, Stop: 33295, Start Num: 9

Candidate Starts for Guacamole\_41:

(Start: 9 @33011 has 12 MA's), (Start: 19 @33047 has 17 MA's), (34, 33098), (56, 33284),

Gene: Gudmit\_37 Start: 27130, Stop: 27366, Start Num: 24

Candidate Starts for Gudmit\_37:

(Start: 24 @27130 has 13 MA's), (Start: 36 @27181 has 3 MA's), (40, 27223), (50, 27316), (56, 27355),

Gene: Hanako\_39 Start: 29533, Stop: 29775, Start Num: 19

Candidate Starts for Hanako\_39:

(Start: 8 @29488 has 1 MA's), (Start: 9 @29497 has 12 MA's), (Start: 19 @29533 has 17 MA's), (44,  
29674), (45, 29686),

Gene: HannahD\_43 Start: 31974, Stop: 32231, Start Num: 19

Candidate Starts for HannahD\_43:

(Start: 19 @31974 has 17 MA's), (30, 32007), (45, 32139), (48, 32163),

Gene: Hedwig\_44 Start: 32388, Stop: 32588, Start Num: 36

Candidate Starts for Hedwig\_44:

(Start: 24 @32340 has 13 MA's), (Start: 36 @32388 has 3 MA's), (41, 32436), (45, 32475), (49, 32517),

Gene: Hereford\_48 Start: 26333, Stop: 26584, Start Num: 24

Candidate Starts for Hereford\_48:

(Start: 12 @26294 has 1 MA's), (Start: 24 @26333 has 13 MA's),

Gene: Hitter\_44 Start: 32655, Stop: 32939, Start Num: 9

Candidate Starts for Hitter\_44:

(Start: 9 @32655 has 12 MA's), (Start: 19 @32691 has 17 MA's), (34, 32742), (56, 32928),

Gene: Impisi\_41 Start: 30089, Stop: 30331, Start Num: 19

Candidate Starts for Impisi\_41:

(Start: 8 @30044 has 1 MA's), (Start: 9 @30053 has 12 MA's), (Start: 19 @30089 has 17 MA's), (44, 30230), (45, 30242),

Gene: Jamie19\_35 Start: 28299, Stop: 28532, Start Num: 23

Candidate Starts for Jamie19\_35:

(Start: 9 @28251 has 12 MA's), (14, 28275), (Start: 19 @28287 has 17 MA's), (Start: 23 @28299 has 24 MA's), (44, 28428), (45, 28440), (51, 28494),

Gene: JanetJ\_32 Start: 26887, Stop: 27126, Start Num: 24

Candidate Starts for JanetJ\_32:

(Start: 24 @26887 has 13 MA's), (34, 26923), (57, 27109),

Gene: JasperJr\_41 Start: 33011, Stop: 33295, Start Num: 9

Candidate Starts for JasperJr\_41:

(Start: 9 @33011 has 12 MA's), (Start: 19 @33047 has 17 MA's), (34, 33098), (56, 33284),

Gene: Journey\_36 Start: 27920, Stop: 28153, Start Num: 23

Candidate Starts for Journey\_36:

(Start: 9 @27872 has 12 MA's), (14, 27896), (Start: 19 @27908 has 17 MA's), (Start: 22 @27917 has 1 MA's), (Start: 23 @27920 has 24 MA's), (44, 28049), (45, 28061), (51, 28115),

Gene: Kevin1\_37 Start: 29139, Stop: 29381, Start Num: 19

Candidate Starts for Kevin1\_37:

(5, 29088), (Start: 9 @29103 has 12 MA's), (14, 29127), (Start: 19 @29139 has 17 MA's), (Start: 22 @29148 has 1 MA's), (44, 29280), (45, 29292),

Gene: Lenoxika\_44 Start: 30350, Stop: 30589, Start Num: 24

Candidate Starts for Lenoxika\_44:

(Start: 24 @30350 has 13 MA's), (51, 30539), (55, 30575),

Gene: Magsby\_38 Start: 29246, Stop: 29479, Start Num: 23

Candidate Starts for Magsby\_38:

(Start: 9 @29198 has 12 MA's), (14, 29222), (Start: 19 @29234 has 17 MA's), (Start: 23 @29246 has 24 MA's), (44, 29375), (45, 29387), (51, 29441),

Gene: Melville\_40 Start: 29218, Stop: 29463, Start Num: 19

Candidate Starts for Melville\_40:

(Start: 9 @29182 has 12 MA's), (14, 29206), (Start: 19 @29218 has 17 MA's), (Start: 23 @29230 has 24 MA's), (44, 29359), (45, 29371), (51, 29425),

Gene: Meyran\_35 Start: 31028, Stop: 31276, Start Num: 19

Candidate Starts for Meyran\_35:

(6, 30977), (Start: 9 @30992 has 12 MA's), (Start: 19 @31028 has 17 MA's), (44, 31172), (50, 31232), (51, 31238), (53, 31262),

Gene: MichelleMyBell\_36 Start: 28237, Stop: 28470, Start Num: 23

Candidate Starts for MichelleMyBell\_36:

(Start: 9 @28189 has 12 MA's), (14, 28213), (Start: 19 @28225 has 17 MA's), (Start: 23 @28237 has 24 MA's), (44, 28366), (45, 28378), (51, 28432),

Gene: Nandita\_44 Start: 30213, Stop: 30452, Start Num: 24

Candidate Starts for Nandita\_44:  
(Start: 24 @30213 has 13 MA's), (51, 30402), (55, 30438),

Gene: Nенаe\_39 Start: 29536, Stop: 29778, Start Num: 19  
Candidate Starts for Nенаe\_39:  
(Start: 8 @29491 has 1 MA's), (Start: 9 @29500 has 12 MA's), (Start: 19 @29536 has 17 MA's), (44, 29677), (45, 29689),

Gene: P3MA\_41 Start: 31039, Stop: 31272, Start Num: 24  
Candidate Starts for P3MA\_41:  
(13, 31003), (Start: 24 @31039 has 13 MA's), (27, 31048), (32, 31066), (40, 31132), (43, 31147), (44, 31165), (45, 31177),

Gene: Panchino\_34 Start: 29645, Stop: 29878, Start Num: 23  
Candidate Starts for Panchino\_34:  
(Start: 9 @29597 has 12 MA's), (14, 29621), (Start: 19 @29633 has 17 MA's), (Start: 23 @29645 has 24 MA's), (44, 29774), (45, 29786), (51, 29840),

Gene: Parmesanjohn\_38 Start: 29249, Stop: 29482, Start Num: 23  
Candidate Starts for Parmesanjohn\_38:  
(Start: 9 @29201 has 12 MA's), (14, 29225), (Start: 19 @29237 has 17 MA's), (Start: 23 @29249 has 24 MA's), (44, 29378), (45, 29390), (51, 29444),

Gene: PhancyPhin\_39 Start: 29530, Stop: 29772, Start Num: 19  
Candidate Starts for PhancyPhin\_39:  
(Start: 8 @29485 has 1 MA's), (Start: 9 @29494 has 12 MA's), (Start: 19 @29530 has 17 MA's), (44, 29671), (45, 29683),

Gene: Philonius\_36 Start: 27911, Stop: 28141, Start Num: 23  
Candidate Starts for Philonius\_36:  
(Start: 9 @27863 has 12 MA's), (14, 27887), (Start: 19 @27899 has 17 MA's), (Start: 22 @27908 has 1 MA's), (Start: 23 @27911 has 24 MA's), (44, 28040), (45, 28052),

Gene: Phloss\_36 Start: 28608, Stop: 28889, Start Num: 9  
Candidate Starts for Phloss\_36:  
(Start: 9 @28608 has 12 MA's), (14, 28632), (Start: 19 @28644 has 17 MA's), (Start: 23 @28656 has 24 MA's), (44, 28785), (45, 28797), (51, 28851),

Gene: Phrann\_39 Start: 30325, Stop: 30558, Start Num: 23  
Candidate Starts for Phrann\_39:  
(Start: 9 @30277 has 12 MA's), (14, 30301), (Start: 19 @30313 has 17 MA's), (Start: 23 @30325 has 24 MA's), (44, 30454), (45, 30466), (51, 30520),

Gene: PhrostedPhlake\_45 Start: 32973, Stop: 33212, Start Num: 24  
Candidate Starts for PhrostedPhlake\_45:  
(Start: 24 @32973 has 13 MA's), (Start: 36 @33024 has 3 MA's), (40, 33066), (45, 33111), (54, 33195), (56, 33201),

Gene: Pipsqueaks\_38 Start: 29226, Stop: 29459, Start Num: 23  
Candidate Starts for Pipsqueaks\_38:  
(Start: 9 @29178 has 12 MA's), (14, 29202), (Start: 19 @29214 has 17 MA's), (Start: 23 @29226 has 24 MA's), (44, 29355), (45, 29367), (51, 29421),

Gene: PrairieDogTown\_33 Start: 26462, Stop: 26752, Start Num: 12

Candidate Starts for PrairieDogTown\_33:

(Start: 12 @26462 has 1 MA's), (Start: 24 @26501 has 13 MA's),

Gene: Purgamenstris\_39 Start: 29489, Stop: 29776, Start Num: 8

Candidate Starts for Purgamenstris\_39:

(Start: 8 @29489 has 1 MA's), (Start: 9 @29498 has 12 MA's), (Start: 19 @29534 has 17 MA's), (44, 29675), (45, 29687),

Gene: RayTheFireFly\_48 Start: 33514, Stop: 33762, Start Num: 24

Candidate Starts for RayTheFireFly\_48:

(2, 33430), (4, 33442), (10, 33469), (13, 33478), (Start: 24 @33514 has 13 MA's), (Start: 36 @33562 has 3 MA's), (41, 33610), (45, 33649), (49, 33691),

Gene: Raymond7\_33 Start: 29346, Stop: 29588, Start Num: 19

Candidate Starts for Raymond7\_33:

(Start: 8 @29301 has 1 MA's), (Start: 9 @29310 has 12 MA's), (Start: 19 @29346 has 17 MA's), (44, 29487), (45, 29499),

Gene: Rebel\_31 Start: 25628, Stop: 25906, Start Num: 9

Candidate Starts for Rebel\_31:

(Start: 9 @25628 has 12 MA's), (14, 25652), (Start: 19 @25664 has 17 MA's), (Start: 23 @25676 has 24 MA's), (44, 25805), (45, 25817),

Gene: Redi\_39 Start: 29533, Stop: 29775, Start Num: 19

Candidate Starts for Redi\_39:

(Start: 8 @29488 has 1 MA's), (Start: 9 @29497 has 12 MA's), (Start: 19 @29533 has 17 MA's), (44, 29674), (45, 29686),

Gene: Rubeelu\_39 Start: 29960, Stop: 30202, Start Num: 19

Candidate Starts for Rubeelu\_39:

(14, 29948), (Start: 19 @29960 has 17 MA's), (Start: 22 @29969 has 1 MA's), (44, 30101), (45, 30113),

Gene: Ryan\_44 Start: 30762, Stop: 31001, Start Num: 24

Candidate Starts for Ryan\_44:

(Start: 24 @30762 has 13 MA's), (51, 30951), (55, 30987),

Gene: Samman98\_33 Start: 26503, Stop: 26255, Start Num: 24

Candidate Starts for Samman98\_33:

(Start: 24 @26503 has 13 MA's), (34, 26464), (40, 26410), (44, 26377), (45, 26365),

Gene: Schnauzer\_38 Start: 29201, Stop: 29482, Start Num: 9

Candidate Starts for Schnauzer\_38:

(Start: 9 @29201 has 12 MA's), (14, 29225), (Start: 19 @29237 has 17 MA's), (Start: 23 @29249 has 24 MA's), (44, 29378), (45, 29390), (51, 29444),

Gene: Scitech\_35 Start: 27097, Stop: 27330, Start Num: 23

Candidate Starts for Scitech\_35:

(Start: 9 @27049 has 12 MA's), (14, 27073), (Start: 19 @27085 has 17 MA's), (Start: 22 @27094 has 1 MA's), (Start: 23 @27097 has 24 MA's), (44, 27226), (45, 27238), (51, 27292),

Gene: Shambre1\_37 Start: 25536, Stop: 25748, Start Num: 28

Candidate Starts for Shambre1\_37:

(7, 25458), (15, 25494), (18, 25503), (Start: 24 @25524 has 13 MA's), (Start: 28 @25536 has 1 MA's), (Start: 36 @25587 has 3 MA's), (44, 25662), (47, 25695),

Gene: ShrimpFriedEgg\_39 Start: 29533, Stop: 29775, Start Num: 19

Candidate Starts for ShrimpFriedEgg\_39:

(Start: 8 @29488 has 1 MA's), (Start: 9 @29497 has 12 MA's), (Start: 19 @29533 has 17 MA's), (44, 29674), (45, 29686),

Gene: Shweta\_35 Start: 28417, Stop: 28662, Start Num: 19

Candidate Starts for Shweta\_35:

(Start: 9 @28381 has 12 MA's), (14, 28405), (Start: 19 @28417 has 17 MA's), (Start: 23 @28429 has 24 MA's), (44, 28558), (45, 28570), (51, 28624),

Gene: Silvafighter\_39 Start: 29222, Stop: 29455, Start Num: 23

Candidate Starts for Silvafighter\_39:

(Start: 9 @29174 has 12 MA's), (14, 29198), (Start: 19 @29210 has 17 MA's), (Start: 23 @29222 has 24 MA's), (44, 29351), (45, 29363), (51, 29417),

Gene: Silvy\_36 Start: 27900, Stop: 28133, Start Num: 23

Candidate Starts for Silvy\_36:

(Start: 9 @27852 has 12 MA's), (14, 27876), (Start: 19 @27888 has 17 MA's), (Start: 22 @27897 has 1 MA's), (Start: 23 @27900 has 24 MA's), (44, 28029), (45, 28041), (51, 28095),

Gene: SkinnyPete\_33 Start: 26960, Stop: 27193, Start Num: 23

Candidate Starts for SkinnyPete\_33:

(Start: 9 @26912 has 12 MA's), (14, 26936), (Start: 19 @26948 has 17 MA's), (Start: 23 @26960 has 24 MA's), (44, 27089), (45, 27101), (51, 27155),

Gene: Smurph\_38 Start: 29249, Stop: 29482, Start Num: 23

Candidate Starts for Smurph\_38:

(Start: 9 @29201 has 12 MA's), (14, 29225), (Start: 19 @29237 has 17 MA's), (Start: 23 @29249 has 24 MA's), (44, 29378), (45, 29390), (51, 29444),

Gene: Snekmaggedon\_35 Start: 28299, Stop: 28532, Start Num: 23

Candidate Starts for Snekmaggedon\_35:

(Start: 9 @28251 has 12 MA's), (14, 28275), (Start: 19 @28287 has 17 MA's), (Start: 23 @28299 has 24 MA's), (44, 28428), (45, 28440), (51, 28494),

Gene: Sparky\_48 Start: 36514, Stop: 36780, Start Num: 20

Candidate Starts for Sparky\_48:

(3, 36451), (17, 36508), (Start: 20 @36514 has 1 MA's), (Start: 23 @36523 has 24 MA's), (25, 36532), (Start: 26 @36535 has 1 MA's), (29, 36544), (32, 36556), (33, 36568), (35, 36583), (41, 36640),

Gene: Spartoi\_39 Start: 26733, Stop: 26978, Start Num: 22

Candidate Starts for Spartoi\_39:

(Start: 22 @26733 has 1 MA's), (29, 26757), (31, 26763), (Start: 36 @26799 has 3 MA's), (37, 26805), (39, 26820), (46, 26898), (50, 26934),

Gene: Spinach\_39 Start: 29533, Stop: 29775, Start Num: 19

Candidate Starts for Spinach\_39:

(Start: 8 @29488 has 1 MA's), (Start: 9 @29497 has 12 MA's), (Start: 19 @29533 has 17 MA's), (44, 29674), (45, 29686),

Gene: SpongeBob\_35 Start: 28299, Stop: 28532, Start Num: 23

Candidate Starts for SpongeBob\_35:

(Start: 9 @28251 has 12 MA's), (14, 28275), (Start: 19 @28287 has 17 MA's), (Start: 23 @28299 has 24 MA's), (44, 28428), (45, 28440), (51, 28494),

Gene: Tapioca\_39 Start: 29215, Stop: 29448, Start Num: 23

Candidate Starts for Tapioca\_39:

(Start: 9 @29167 has 12 MA's), (14, 29191), (Start: 19 @29203 has 17 MA's), (Start: 22 @29212 has 1 MA's), (Start: 23 @29215 has 24 MA's), (44, 29344), (45, 29356), (51, 29410),

Gene: Tessdabest\_39 Start: 29246, Stop: 29479, Start Num: 23

Candidate Starts for Tessdabest\_39:

(Start: 9 @29198 has 12 MA's), (14, 29222), (Start: 19 @29234 has 17 MA's), (Start: 22 @29243 has 1 MA's), (Start: 23 @29246 has 24 MA's), (44, 29375), (45, 29387), (51, 29441),

Gene: ToastyOats\_46 Start: 30537, Stop: 30776, Start Num: 24

Candidate Starts for ToastyOats\_46:

(Start: 24 @30537 has 13 MA's), (51, 30726), (55, 30762),

Gene: Toodles\_43 Start: 31153, Stop: 31392, Start Num: 24

Candidate Starts for Toodles\_43:

(Start: 24 @31153 has 13 MA's), (51, 31342), (55, 31378),

Gene: Tortoise12\_36 Start: 27884, Stop: 28165, Start Num: 9

Candidate Starts for Tortoise12\_36:

(Start: 9 @27884 has 12 MA's), (14, 27908), (Start: 19 @27920 has 17 MA's), (Start: 23 @27932 has 24 MA's), (44, 28061), (45, 28073), (51, 28127),

Gene: Tuti\_36 Start: 27865, Stop: 27596, Start Num: 21

Candidate Starts for Tuti\_36:

(1, 27979), (16, 27874), (21, 27865), (38, 27784), (44, 27724), (45, 27712),

Gene: Vordorf\_36 Start: 30303, Stop: 30551, Start Num: 19

Candidate Starts for Vordorf\_36:

(6, 30252), (Start: 9 @30267 has 12 MA's), (Start: 19 @30303 has 17 MA's), (44, 30447), (51, 30513), (53, 30537),

Gene: Walrus\_42 Start: 32790, Stop: 33074, Start Num: 9

Candidate Starts for Walrus\_42:

(Start: 9 @32790 has 12 MA's), (Start: 19 @32826 has 17 MA's), (34, 32877), (56, 33063),

Gene: WinkNick\_35 Start: 27195, Stop: 26947, Start Num: 24

Candidate Starts for WinkNick\_35:

(Start: 24 @27195 has 13 MA's), (34, 27156), (40, 27102), (44, 27069), (45, 27057),

Gene: Xeno\_35 Start: 27686, Stop: 27919, Start Num: 23

Candidate Starts for Xeno\_35:

(Start: 9 @27638 has 12 MA's), (14, 27662), (Start: 19 @27674 has 17 MA's), (Start: 22 @27683 has 1 MA's), (Start: 23 @27686 has 24 MA's), (44, 27815), (45, 27827), (51, 27881),

Gene: Xerxes\_38 Start: 29246, Stop: 29479, Start Num: 23

Candidate Starts for Xerxes\_38:

(Start: 9 @29198 has 12 MA's), (14, 29222), (Start: 19 @29234 has 17 MA's), (Start: 23 @29246 has 24 MA's), (44, 29375), (45, 29387), (51, 29441),

Gene: Yonex\_44 Start: 30762, Stop: 31001, Start Num: 24

Candidate Starts for Yonex\_44:

(Start: 24 @30762 has 13 MA's), (51, 30951), (55, 30987),