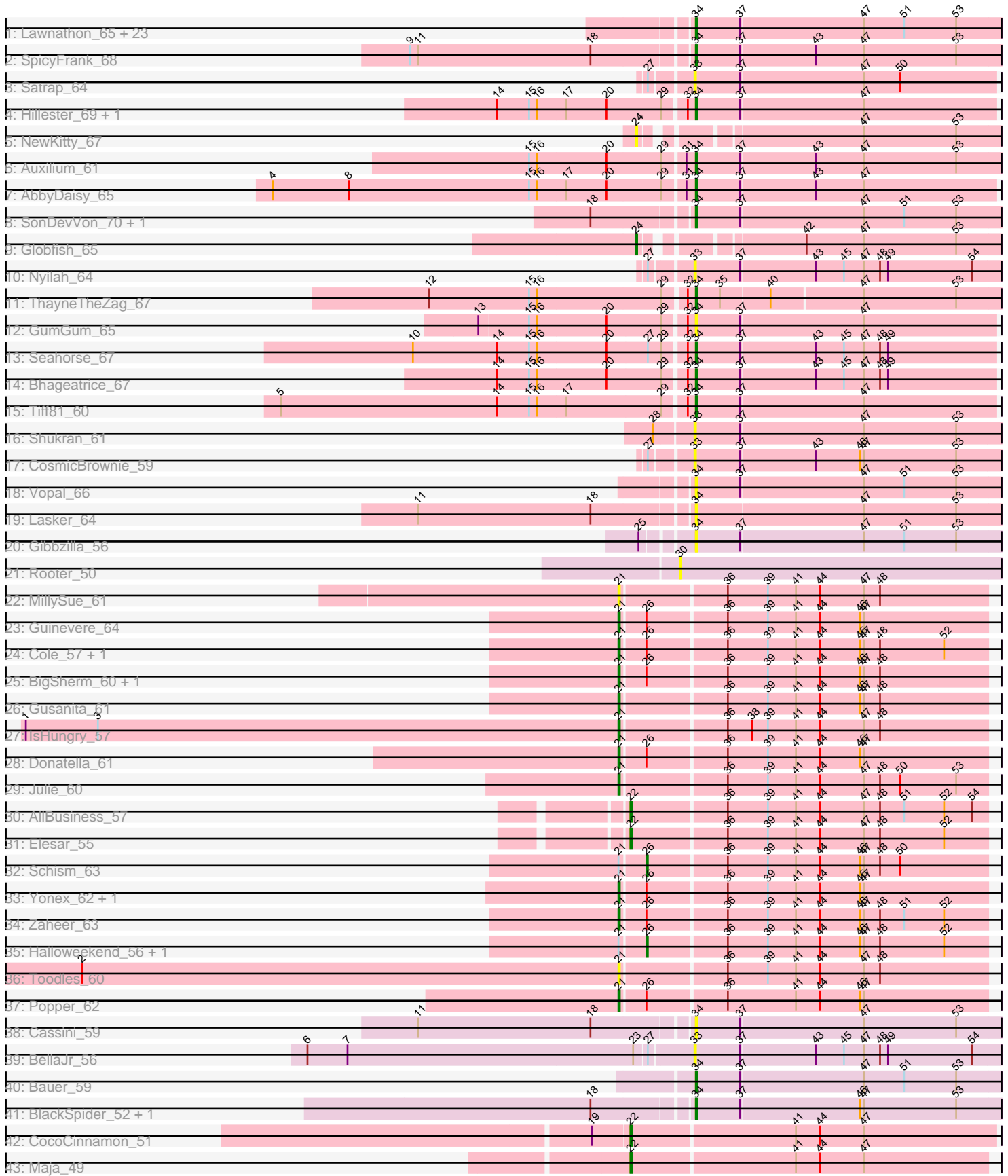


Pham 304974



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 304974 Report

This analysis was run 06/08/26 on database version 649.

Pham number 304974 has 73 members, 22 are drafts.

Phages represented in each track:

- Track 1 : Lawnathon\_65, Phrank15\_65, Kabloowy\_64, JellyBread\_61, Faja\_64, CookieBear\_64, Sporco\_68, MurphyJoseph\_61, BlueShadow\_64, Gorpy\_64, YoungHarleezy\_64, MidnightRain\_68, BasketStar\_66, Isolde\_63, Aikyam\_63, AdaS\_60, MaterMagnus\_65, Raphaella\_63, Windest\_66, BenchScraper\_63, Mapleville\_60, BillyTP\_66, MUWow\_64, Sakai\_63
- Track 2 : SpicyFrank\_68
- Track 3 : Satrap\_64
- Track 4 : Hillester\_69, RadFad\_69
- Track 5 : NewKitty\_67
- Track 6 : Auxilium\_61
- Track 7 : AbbyDaisy\_65
- Track 8 : SonDevVon\_70, Richie\_68
- Track 9 : Globfish\_65
- Track 10 : Nyilah\_64
- Track 11 : ThayneTheZag\_67
- Track 12 : GumGum\_65
- Track 13 : Seahorse\_67
- Track 14 : Bhageatrice\_67
- Track 15 : Tiff81\_60
- Track 16 : Shukran\_61
- Track 17 : CosmicBrownie\_59
- Track 18 : Vopal\_66
- Track 19 : Lasker\_64
- Track 20 : Gibbzilla\_56
- Track 21 : Rooter\_50
- Track 22 : MillySue\_61
- Track 23 : Guinevere\_64
- Track 24 : Cole\_57, QuinnAvery\_63
- Track 25 : BigSherm\_60, GoodLuckBabe\_63
- Track 26 : Gusanita\_61
- Track 27 : IsHungry\_57
- Track 28 : Donatella\_61
- Track 29 : Julie\_60
- Track 30 : AllBusiness\_57
- Track 31 : Elesar\_55
- Track 32 : Schism\_63
- Track 33 : Yonex\_62, Ryan\_62

- Track 34 : Zaheer\_63
- Track 35 : Halloween\_56, Saintcarr\_60
- Track 36 : Toodles\_60
- Track 37 : Popper\_62
- Track 38 : Cassini\_59
- Track 39 : BellaJr\_56
- Track 40 : Bauer\_59
- Track 41 : BlackSpider\_52, Anekin\_66
- Track 42 : CocoCinnamon\_51
- Track 43 : Maja\_49

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

The start number called the most often in the published annotations is 34, it was called in 32 of the 51 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AbbyDaisy\_65, AdaS\_60, Aikyam\_63, Anekin\_66, Auxilium\_61, BasketStar\_66, Bauer\_59, BenchScraper\_63, Bhageatrice\_67, BillyTP\_66, BlackSpider\_52, BlueShadow\_64, Cassini\_59, CookieBear\_64, Faja\_64, Gibbzilla\_56, Gorpy\_64, GumGum\_65, Hillester\_69, Isolde\_63, JellyBread\_61, Kabloowy\_64, Lasker\_64, Lawnathon\_65, MUWow\_64, Mapleville\_60, MaterMagnus\_65, MidnightRain\_68, MurphyJoseph\_61, Phrank15\_65, RadFad\_69, Raphaella\_63, Richie\_68, Sakai\_63, Seahorse\_67, SonDevVon\_70, SpicyFrank\_68, Sporco\_68, ThayneTheZag\_67, Tiff81\_60, Vopal\_66, Windest\_66, YoungHarleezy\_64,

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

- 

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

- AllBusiness\_57, BellaJr\_56, BigSherm\_60, CocoCinnamon\_51, Cole\_57, CosmicBrownie\_59, Donatella\_61, Elesar\_55, Globfish\_65, GoodLuckBabe\_63, Guinevere\_64, Gusanita\_61, Halloween\_56, IsHungry\_57, Julie\_60, Maja\_49, MillySue\_61, NewKitty\_67, Nyilah\_64, Popper\_62, QuinnAvery\_63, Rooter\_50, Ryan\_62, Saintcarr\_60, Satrap\_64, Schism\_63, Shukran\_61, Toodles\_60, Yonex\_62, Zaheer\_63,

**Summary by start number:**

Start 21:

- Found in 18 of 73 ( 24.7% ) of genes in pham
- Manual Annotations of this start: 12 of 51
- Called 83.3% of time when present
- Phage (with cluster) where this start called: BigSherm\_60 (FF), Cole\_57 (FF), Donatella\_61 (FF), GoodLuckBabe\_63 (FF), Guinevere\_64 (FF), Gusanita\_61 (FF), IsHungry\_57 (FF), Julie\_60 (FF), MillySue\_61 (FF), Popper\_62 (FF), QuinnAvery\_63 (FF), Ryan\_62 (FF), Toodles\_60 (FF), Yonex\_62 (FF), Zaheer\_63 (FF),

Start 22:

- Found in 4 of 73 ( 5.5% ) of genes in pham

- Manual Annotations of this start: 4 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AllBusiness\_57 (FF), CocoCinnamon\_51 (FO), Elesar\_55 (FF), Maja\_49 (FO),

#### Start 24:

- Found in 2 of 73 ( 2.7% ) of genes in pham
- Manual Annotations of this start: 1 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Globfish\_65 (AY), NewKitty\_67 (AY),

#### Start 26:

- Found in 13 of 73 ( 17.8% ) of genes in pham
- Manual Annotations of this start: 2 of 51
- Called 23.1% of time when present
- Phage (with cluster) where this start called: Halloweekend\_56 (FF), Saintcarr\_60 (FF), Schism\_63 (FF),

#### Start 30:

- Found in 1 of 73 ( 1.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rooter\_50 (FB),

#### Start 33:

- Found in 5 of 73 ( 6.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BellaJr\_56 (FN), CosmicBrownie\_59 (AY), Nyilah\_64 (AY), Satrap\_64 (AY), Shukran\_61 (AY),

#### Start 34:

- Found in 43 of 73 ( 58.9% ) of genes in pham
- Manual Annotations of this start: 32 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AbbyDaisy\_65 (AY), AdaS\_60 (AY), Aikyam\_63 (AY), Anekin\_66 (AY), Auxilium\_61 (AY), BasketStar\_66 (AY), Bauer\_59 (FN), BenchScraper\_63 (AY), Bhageatrice\_67 (AY), BillyTP\_66 (AY), BlackSpider\_52 (FN), BlueShadow\_64 (AY), Cassini\_59 (FN), CookieBear\_64 (AY), Faja\_64 (AY), Gibbzilla\_56 (FB), Gorpy\_64 (AY), GumGum\_65 (AY), Hillester\_69 (AY), Isolde\_63 (AY), JellyBread\_61 (AY), Kabloowy\_64 (AY), Lasker\_64 (AY), Lawnathon\_65 (AY), MUWow\_64 (AY), Mapleville\_60 (AY), MaterMagnus\_65 (AY), MidnightRain\_68 (AY), MurphyJoseph\_61 (AY), Phrank15\_65 (AY), RadFad\_69 (AY), Raphaella\_63 (AY), Richie\_68 (AY), Sakai\_63 (AY), Seahorse\_67 (AY), SonDevVon\_70 (AY), SpicyFrank\_68 (AY), Sporco\_68 (AY), ThayneTheZag\_67 (AY), Tiff81\_60 (AY), Vopal\_66 (AY), Windest\_66 (AY), YoungHarleezy\_64 (AY),

### Summary by clusters:

There are 5 clusters represented in this pham: AY, FB, FN, FF, FO,

Info for manual annotations of cluster AY:

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

- Start number 34 was manually annotated 30 times for cluster AY.

Info for manual annotations of cluster FF:

- Start number 21 was manually annotated 12 times for cluster FF.
- Start number 22 was manually annotated 2 times for cluster FF.
- Start number 26 was manually annotated 2 times for cluster FF.

Info for manual annotations of cluster FN:

- Start number 34 was manually annotated 2 times for cluster FN.

Info for manual annotations of cluster FO:

- Start number 22 was manually annotated 2 times for cluster FO.

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

Gene: AbbyDaisy\_65 Start: 35452, Stop: 35673, Start Num: 34

Candidate Starts for AbbyDaisy\_65:

(4, 35143), (8, 35200), (15, 35335), (16, 35341), (17, 35362), (20, 35392), (29, 35431), (31, 35446), (Start: 34 @35452 has 32 MA's), (37, 35485), (43, 35539), (47, 35575),

Gene: AdaS\_60 Start: 32812, Stop: 33036, Start Num: 34

Candidate Starts for AdaS\_60:

(Start: 34 @32812 has 32 MA's), (37, 32845), (47, 32935), (51, 32965), (53, 33004),

Gene: Aikyam\_63 Start: 33131, Stop: 33355, Start Num: 34

Candidate Starts for Aikyam\_63:

(Start: 34 @33131 has 32 MA's), (37, 33164), (47, 33254), (51, 33284), (53, 33323),

Gene: AllBusiness\_57 Start: 38932, Stop: 39195, Start Num: 22

Candidate Starts for AllBusiness\_57:

(Start: 22 @38932 has 4 MA's), (36, 39001), (39, 39031), (41, 39052), (44, 39070), (47, 39103), (48, 39115), (51, 39133), (52, 39163), (54, 39184),

Gene: Anekin\_66 Start: 35586, Stop: 35810, Start Num: 34

Candidate Starts for Anekin\_66:

(18, 35517), (Start: 34 @35586 has 32 MA's), (37, 35619), (46, 35706), (47, 35709), (53, 35778),

Gene: Auxilium\_61 Start: 32424, Stop: 32648, Start Num: 34

Candidate Starts for Auxilium\_61:

(15, 32307), (16, 32313), (20, 32364), (29, 32403), (31, 32418), (Start: 34 @32424 has 32 MA's), (37, 32457), (43, 32511), (47, 32547), (53, 32616),

Gene: BasketStar\_66 Start: 35482, Stop: 35706, Start Num: 34

Candidate Starts for BasketStar\_66:

(Start: 34 @35482 has 32 MA's), (37, 35515), (47, 35605), (51, 35635), (53, 35674),

Gene: Bauer\_59 Start: 33224, Stop: 33448, Start Num: 34

Candidate Starts for Bauer\_59:

(Start: 34 @33224 has 32 MA's), (37, 33257), (47, 33347), (51, 33377), (53, 33416),

Gene: BellaJr\_56 Start: 33595, Stop: 33819, Start Num: 33

Candidate Starts for BellaJr\_56:

(6, 33313), (7, 33343), (23, 33556), (27, 33565), (33, 33595), (37, 33628), (43, 33682), (45, 33703), (47, 33718), (48, 33730), (49, 33736), (54, 33799),

Gene: BenchScraper\_63 Start: 34323, Stop: 34547, Start Num: 34

Candidate Starts for BenchScraper\_63:

(Start: 34 @34323 has 32 MA's), (37, 34356), (47, 34446), (51, 34476), (53, 34515),

Gene: Bhageatrice\_67 Start: 37265, Stop: 37486, Start Num: 34

Candidate Starts for Bhageatrice\_67:

(14, 37124), (15, 37148), (16, 37154), (20, 37205), (29, 37244), (32, 37259), (Start: 34 @37265 has 32 MA's), (37, 37298), (43, 37352), (45, 37373), (47, 37388), (48, 37400), (49, 37406),

Gene: BigSherm\_60 Start: 37503, Stop: 37772, Start Num: 21

Candidate Starts for BigSherm\_60:

(Start: 21 @37503 has 12 MA's), (Start: 26 @37521 has 2 MA's), (36, 37578), (39, 37608), (41, 37629), (44, 37647), (46, 37677), (47, 37680), (48, 37692),

Gene: BillyTP\_66 Start: 36178, Stop: 36402, Start Num: 34

Candidate Starts for BillyTP\_66:

(Start: 34 @36178 has 32 MA's), (37, 36211), (47, 36301), (51, 36331), (53, 36370),

Gene: BlackSpider\_52 Start: 31839, Stop: 32063, Start Num: 34

Candidate Starts for BlackSpider\_52:

(18, 31770), (Start: 34 @31839 has 32 MA's), (37, 31872), (46, 31959), (47, 31962), (53, 32031),

Gene: BlueShadow\_64 Start: 34968, Stop: 35192, Start Num: 34

Candidate Starts for BlueShadow\_64:

(Start: 34 @34968 has 32 MA's), (37, 35001), (47, 35091), (51, 35121), (53, 35160),

Gene: Cassini\_59 Start: 33679, Stop: 33903, Start Num: 34

Candidate Starts for Cassini\_59:

(11, 33481), (18, 33610), (Start: 34 @33679 has 32 MA's), (37, 33712), (47, 33802), (53, 33871),

Gene: CocoCinnamon\_51 Start: 32603, Stop: 32872, Start Num: 22

Candidate Starts for CocoCinnamon\_51:

(19, 32576), (Start: 22 @32603 has 4 MA's), (41, 32723), (44, 32741), (47, 32774),

Gene: Cole\_57 Start: 37556, Stop: 37825, Start Num: 21

Candidate Starts for Cole\_57:

(Start: 21 @37556 has 12 MA's), (Start: 26 @37574 has 2 MA's), (36, 37631), (39, 37661), (41, 37682), (44, 37700), (46, 37730), (47, 37733), (48, 37745), (52, 37793),

Gene: CookieBear\_64 Start: 34562, Stop: 34786, Start Num: 34

Candidate Starts for CookieBear\_64:

(Start: 34 @34562 has 32 MA's), (37, 34595), (47, 34685), (51, 34715), (53, 34754),

Gene: CosmicBrownie\_59 Start: 33320, Stop: 33544, Start Num: 33

Candidate Starts for CosmicBrownie\_59:

(27, 33293), (33, 33320), (37, 33353), (43, 33407), (46, 33440), (47, 33443), (53, 33512),

Gene: Donatella\_61 Start: 38470, Stop: 38739, Start Num: 21

Candidate Starts for Donatella\_61:

(Start: 21 @38470 has 12 MA's), (Start: 26 @38488 has 2 MA's), (36, 38545), (39, 38575), (41, 38596), (44, 38614), (46, 38644), (47, 38647),

Gene: Elesar\_55 Start: 38817, Stop: 39080, Start Num: 22

Candidate Starts for Elesar\_55:

(Start: 22 @38817 has 4 MA's), (36, 38886), (39, 38916), (41, 38937), (44, 38955), (47, 38988), (48, 39000), (52, 39048),

Gene: Faja\_64 Start: 35937, Stop: 36161, Start Num: 34

Candidate Starts for Faja\_64:

(Start: 34 @35937 has 32 MA's), (37, 35970), (47, 36060), (51, 36090), (53, 36129),

Gene: Gibbzilla\_56 Start: 30129, Stop: 30353, Start Num: 34

Candidate Starts for Gibbzilla\_56:

(25, 30096), (Start: 34 @30129 has 32 MA's), (37, 30162), (47, 30252), (51, 30282), (53, 30321),

Gene: Globfish\_65 Start: 35155, Stop: 35400, Start Num: 24

Candidate Starts for Globfish\_65:

(Start: 24 @35155 has 1 MA's), (42, 35257), (47, 35299), (53, 35368),

Gene: GoodLuckBabe\_63 Start: 38150, Stop: 38419, Start Num: 21

Candidate Starts for GoodLuckBabe\_63:

(Start: 21 @38150 has 12 MA's), (Start: 26 @38168 has 2 MA's), (36, 38225), (39, 38255), (41, 38276), (44, 38294), (46, 38324), (47, 38327), (48, 38339),

Gene: Gorpy\_64 Start: 35554, Stop: 35778, Start Num: 34

Candidate Starts for Gorpy\_64:

(Start: 34 @35554 has 32 MA's), (37, 35587), (47, 35677), (51, 35707), (53, 35746),

Gene: Guinevere\_64 Start: 38127, Stop: 38396, Start Num: 21

Candidate Starts for Guinevere\_64:

(Start: 21 @38127 has 12 MA's), (Start: 26 @38145 has 2 MA's), (36, 38202), (39, 38232), (41, 38253), (44, 38271), (46, 38301), (47, 38304),

Gene: GumGum\_65 Start: 34578, Stop: 34799, Start Num: 34

Candidate Starts for GumGum\_65:

(13, 34425), (15, 34461), (16, 34467), (20, 34518), (29, 34557), (32, 34572), (Start: 34 @34578 has 32 MA's), (37, 34611), (47, 34701),

Gene: Gusanita\_61 Start: 38513, Stop: 38782, Start Num: 21

Candidate Starts for Gusanita\_61:

(Start: 21 @38513 has 12 MA's), (36, 38588), (39, 38618), (41, 38639), (44, 38657), (46, 38687), (47, 38690), (48, 38702),

Gene: Halloweekend\_56 Start: 37657, Stop: 37908, Start Num: 26

Candidate Starts for Halloweekend\_56:

(Start: 21 @37639 has 12 MA's), (Start: 26 @37657 has 2 MA's), (36, 37714), (39, 37744), (41, 37765), (44, 37783), (46, 37813), (47, 37816), (48, 37828), (52, 37876),

Gene: Hillester\_69 Start: 36029, Stop: 36250, Start Num: 34

Candidate Starts for Hillester\_69:

(14, 35888), (15, 35912), (16, 35918), (17, 35939), (20, 35969), (29, 36008), (32, 36023), (Start: 34 @36029 has 32 MA's), (37, 36062), (47, 36152),

Gene: IsHungry\_57 Start: 36577, Stop: 36846, Start Num: 21

Candidate Starts for IsHungry\_57:

(1, 36133), (3, 36187), (Start: 21 @36577 has 12 MA's), (36, 36652), (38, 36670), (39, 36682), (41, 36703), (44, 36721), (47, 36754), (48, 36766),

Gene: Isolde\_63 Start: 34231, Stop: 34455, Start Num: 34

Candidate Starts for Isolde\_63:

(Start: 34 @34231 has 32 MA's), (37, 34264), (47, 34354), (51, 34384), (53, 34423),

Gene: JellyBread\_61 Start: 33583, Stop: 33807, Start Num: 34

Candidate Starts for JellyBread\_61:

(Start: 34 @33583 has 32 MA's), (37, 33616), (47, 33706), (51, 33736), (53, 33775),

Gene: Julie\_60 Start: 38233, Stop: 38502, Start Num: 21

Candidate Starts for Julie\_60:

(Start: 21 @38233 has 12 MA's), (36, 38308), (39, 38338), (41, 38359), (44, 38377), (47, 38410), (48, 38422), (50, 38437), (53, 38479),

Gene: Kabloowy\_64 Start: 35503, Stop: 35727, Start Num: 34

Candidate Starts for Kabloowy\_64:

(Start: 34 @35503 has 32 MA's), (37, 35536), (47, 35626), (51, 35656), (53, 35695),

Gene: Lasker\_64 Start: 35063, Stop: 35287, Start Num: 34

Candidate Starts for Lasker\_64:

(11, 34865), (18, 34994), (Start: 34 @35063 has 32 MA's), (47, 35186), (53, 35255),

Gene: Lawnathon\_65 Start: 34723, Stop: 34947, Start Num: 34

Candidate Starts for Lawnathon\_65:

(Start: 34 @34723 has 32 MA's), (37, 34756), (47, 34846), (51, 34876), (53, 34915),

Gene: MUWow\_64 Start: 34898, Stop: 35122, Start Num: 34

Candidate Starts for MUWow\_64:

(Start: 34 @34898 has 32 MA's), (37, 34931), (47, 35021), (51, 35051), (53, 35090),

Gene: Maja\_49 Start: 33108, Stop: 33371, Start Num: 22

Candidate Starts for Maja\_49:

(Start: 22 @33108 has 4 MA's), (41, 33228), (44, 33246), (47, 33279),

Gene: Mapleville\_60 Start: 34042, Stop: 34266, Start Num: 34

Candidate Starts for Mapleville\_60:

(Start: 34 @34042 has 32 MA's), (37, 34075), (47, 34165), (51, 34195), (53, 34234),

Gene: MaterMagnus\_65 Start: 35303, Stop: 35527, Start Num: 34

Candidate Starts for MaterMagnus\_65:

(Start: 34 @35303 has 32 MA's), (37, 35336), (47, 35426), (51, 35456), (53, 35495),

Gene: MidnightRain\_68 Start: 36072, Stop: 36296, Start Num: 34

Candidate Starts for MidnightRain\_68:

(Start: 34 @36072 has 32 MA's), (37, 36105), (47, 36195), (51, 36225), (53, 36264),

Gene: MillySue\_61 Start: 37847, Stop: 38116, Start Num: 21  
Candidate Starts for MillySue\_61:  
(Start: 21 @37847 has 12 MA's), (36, 37922), (39, 37952), (41, 37973), (44, 37991), (47, 38024), (48, 38036),

Gene: MurphyJoseph\_61 Start: 33801, Stop: 34025, Start Num: 34  
Candidate Starts for MurphyJoseph\_61:  
(Start: 34 @33801 has 32 MA's), (37, 33834), (47, 33924), (51, 33954), (53, 33993),

Gene: NewKitty\_67 Start: 34809, Stop: 35054, Start Num: 24  
Candidate Starts for NewKitty\_67:  
(Start: 24 @34809 has 1 MA's), (47, 34953), (53, 35022),

Gene: Nyilah\_64 Start: 33476, Stop: 33700, Start Num: 33  
Candidate Starts for Nyilah\_64:  
(27, 33449), (33, 33476), (37, 33509), (43, 33563), (45, 33584), (47, 33599), (48, 33611), (49, 33617), (54, 33680),

Gene: Phrank15\_65 Start: 34854, Stop: 35078, Start Num: 34  
Candidate Starts for Phrank15\_65:  
(Start: 34 @34854 has 32 MA's), (37, 34887), (47, 34977), (51, 35007), (53, 35046),

Gene: Popper\_62 Start: 37772, Stop: 38041, Start Num: 21  
Candidate Starts for Popper\_62:  
(Start: 21 @37772 has 12 MA's), (Start: 26 @37790 has 2 MA's), (36, 37847), (41, 37898), (44, 37916), (46, 37946), (47, 37949),

Gene: QuinnAvery\_63 Start: 39177, Stop: 39446, Start Num: 21  
Candidate Starts for QuinnAvery\_63:  
(Start: 21 @39177 has 12 MA's), (Start: 26 @39195 has 2 MA's), (36, 39252), (39, 39282), (41, 39303), (44, 39321), (46, 39351), (47, 39354), (48, 39366), (52, 39414),

Gene: RadFad\_69 Start: 36029, Stop: 36250, Start Num: 34  
Candidate Starts for RadFad\_69:  
(14, 35888), (15, 35912), (16, 35918), (17, 35939), (20, 35969), (29, 36008), (32, 36023), (Start: 34 @36029 has 32 MA's), (37, 36062), (47, 36152),

Gene: Raphaella\_63 Start: 34421, Stop: 34645, Start Num: 34  
Candidate Starts for Raphaella\_63:  
(Start: 34 @34421 has 32 MA's), (37, 34454), (47, 34544), (51, 34574), (53, 34613),

Gene: Richie\_68 Start: 36226, Stop: 36450, Start Num: 34  
Candidate Starts for Richie\_68:  
(18, 36157), (Start: 34 @36226 has 32 MA's), (37, 36259), (47, 36349), (51, 36379), (53, 36418),

Gene: Rooter\_50 Start: 28729, Stop: 28968, Start Num: 30  
Candidate Starts for Rooter\_50:  
(30, 28729),

Gene: Ryan\_62 Start: 38945, Stop: 39214, Start Num: 21  
Candidate Starts for Ryan\_62:  
(Start: 21 @38945 has 12 MA's), (Start: 26 @38963 has 2 MA's), (36, 39020), (39, 39050), (41, 39071), (44, 39089), (46, 39119), (47, 39122),

Gene: Saintcarr\_60 Start: 38672, Stop: 38923, Start Num: 26

Candidate Starts for Saintcarr\_60:

(Start: 21 @38654 has 12 MA's), (Start: 26 @38672 has 2 MA's), (36, 38729), (39, 38759), (41, 38780), (44, 38798), (46, 38828), (47, 38831), (48, 38843), (52, 38891),

Gene: Sakai\_63 Start: 34265, Stop: 34489, Start Num: 34

Candidate Starts for Sakai\_63:

(Start: 34 @34265 has 32 MA's), (37, 34298), (47, 34388), (51, 34418), (53, 34457),

Gene: Satrap\_64 Start: 34695, Stop: 34916, Start Num: 33

Candidate Starts for Satrap\_64:

(27, 34668), (33, 34695), (37, 34728), (47, 34818), (50, 34845),

Gene: Schism\_63 Start: 38985, Stop: 39236, Start Num: 26

Candidate Starts for Schism\_63:

(Start: 21 @38967 has 12 MA's), (Start: 26 @38985 has 2 MA's), (36, 39042), (39, 39072), (41, 39093), (44, 39111), (46, 39141), (47, 39144), (48, 39156), (50, 39171),

Gene: Seahorse\_67 Start: 36536, Stop: 36757, Start Num: 34

Candidate Starts for Seahorse\_67:

(10, 36332), (14, 36395), (15, 36419), (16, 36425), (20, 36476), (27, 36506), (29, 36515), (32, 36530), (Start: 34 @36536 has 32 MA's), (37, 36569), (43, 36623), (45, 36644), (47, 36659), (48, 36671), (49, 36677),

Gene: Shukran\_61 Start: 33238, Stop: 33462, Start Num: 33

Candidate Starts for Shukran\_61:

(28, 33211), (33, 33238), (37, 33271), (47, 33361), (53, 33430),

Gene: SonDevVon\_70 Start: 35574, Stop: 35798, Start Num: 34

Candidate Starts for SonDevVon\_70:

(18, 35505), (Start: 34 @35574 has 32 MA's), (37, 35607), (47, 35697), (51, 35727), (53, 35766),

Gene: SpicyFrank\_68 Start: 35824, Stop: 36048, Start Num: 34

Candidate Starts for SpicyFrank\_68:

(9, 35620), (11, 35626), (18, 35755), (Start: 34 @35824 has 32 MA's), (37, 35857), (43, 35911), (47, 35947), (53, 36016),

Gene: Sporco\_68 Start: 35849, Stop: 36073, Start Num: 34

Candidate Starts for Sporco\_68:

(Start: 34 @35849 has 32 MA's), (37, 35882), (47, 35972), (51, 36002), (53, 36041),

Gene: ThayneTheZag\_67 Start: 34703, Stop: 34924, Start Num: 34

Candidate Starts for ThayneTheZag\_67:

(12, 34511), (15, 34586), (16, 34592), (29, 34682), (32, 34697), (Start: 34 @34703 has 32 MA's), (35, 34721), (40, 34757), (47, 34823), (53, 34892),

Gene: Tiff81\_60 Start: 32949, Stop: 33170, Start Num: 34

Candidate Starts for Tiff81\_60:

(5, 32646), (14, 32808), (15, 32832), (16, 32838), (17, 32859), (29, 32928), (32, 32943), (Start: 34 @32949 has 32 MA's), (37, 32982), (47, 33072),

Gene: Toodles\_60 Start: 38966, Stop: 39235, Start Num: 21

Candidate Starts for Toodles\_60:

(2, 38564), (Start: 21 @38966 has 12 MA's), (36, 39041), (39, 39071), (41, 39092), (44, 39110), (47, 39143), (48, 39155),

Gene: Vopal\_66 Start: 37754, Stop: 37978, Start Num: 34

Candidate Starts for Vopal\_66:

(Start: 34 @37754 has 32 MA's), (37, 37787), (47, 37877), (51, 37907), (53, 37946),

Gene: Windest\_66 Start: 33781, Stop: 34005, Start Num: 34

Candidate Starts for Windest\_66:

(Start: 34 @33781 has 32 MA's), (37, 33814), (47, 33904), (51, 33934), (53, 33973),

Gene: Yonex\_62 Start: 38945, Stop: 39214, Start Num: 21

Candidate Starts for Yonex\_62:

(Start: 21 @38945 has 12 MA's), (Start: 26 @38963 has 2 MA's), (36, 39020), (39, 39050), (41, 39071), (44, 39089), (46, 39119), (47, 39122),

Gene: YoungHarleezy\_64 Start: 34960, Stop: 35184, Start Num: 34

Candidate Starts for YoungHarleezy\_64:

(Start: 34 @34960 has 32 MA's), (37, 34993), (47, 35083), (51, 35113), (53, 35152),

Gene: Zaheer\_63 Start: 39067, Stop: 39336, Start Num: 21

Candidate Starts for Zaheer\_63:

(Start: 21 @39067 has 12 MA's), (Start: 26 @39085 has 2 MA's), (36, 39142), (39, 39172), (41, 39193), (44, 39211), (46, 39241), (47, 39244), (48, 39256), (51, 39274), (52, 39304),