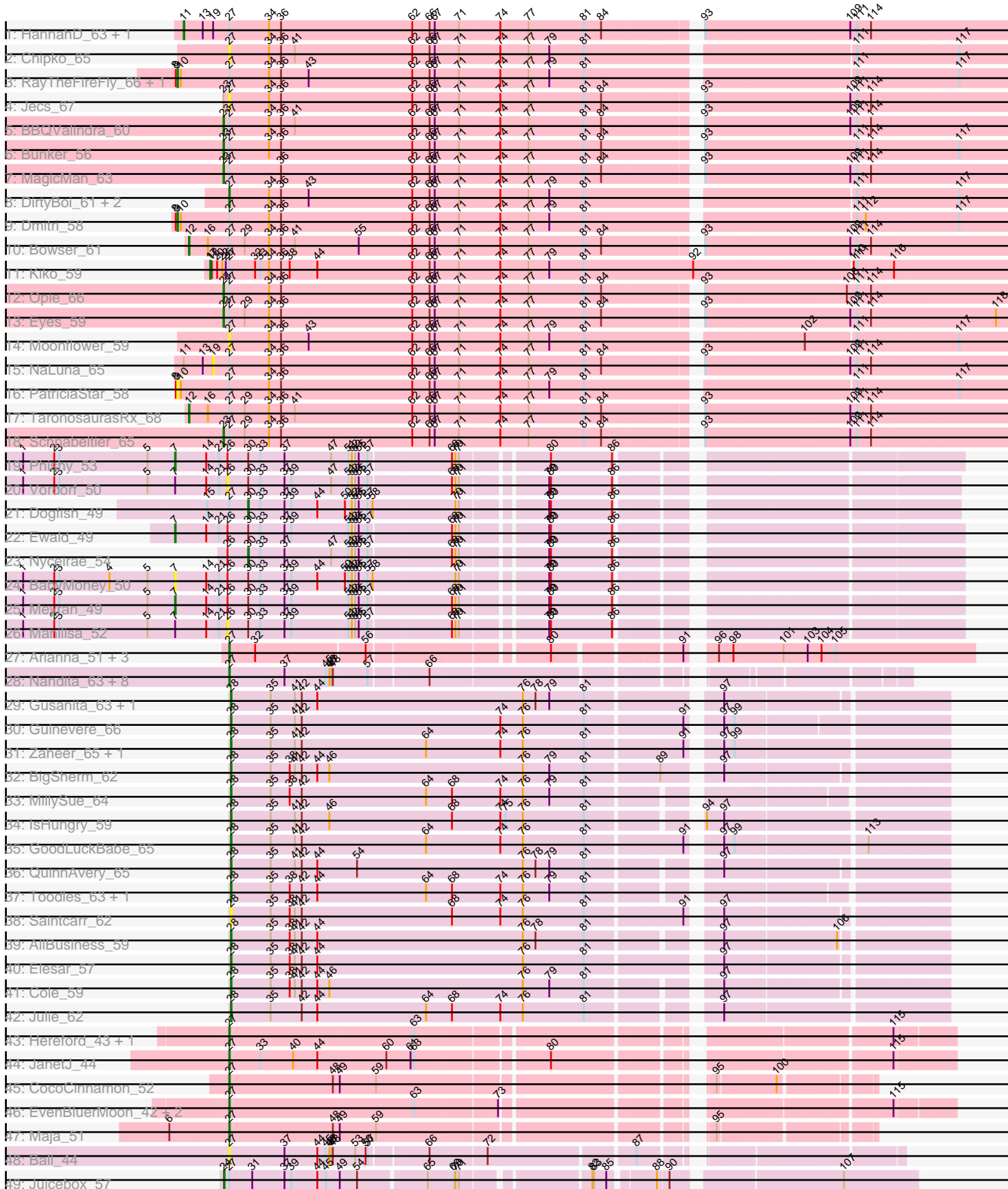


Pham 311555



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 311555 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311555 has 70 members, 14 are drafts.

Phages represented in each track:

- Track 1 : HannahD\_63, GEazy\_66
- Track 2 : Chipko\_65
- Track 3 : RayTheFireFly\_66, Hedwig\_63
- Track 4 : Jecs\_67
- Track 5 : BBQValindra\_60
- Track 6 : Bunker\_56
- Track 7 : MagicMan\_63
- Track 8 : DirtyBoi\_61, Doggs\_57, Coriander\_59
- Track 9 : Dmitri\_58
- Track 10 : Bowser\_61
- Track 11 : Kiko\_59
- Track 12 : Opie\_66
- Track 13 : Eyes\_59
- Track 14 : Moonflower\_59
- Track 15 : NaLuna\_65
- Track 16 : PatriciaStar\_58
- Track 17 : TaronosaurusRx\_68
- Track 18 : Schnabeltier\_65
- Track 19 : Phishy\_53
- Track 20 : Vordorf\_50
- Track 21 : Dogfish\_49
- Track 22 : Ewald\_49
- Track 23 : Nyceirae\_54
- Track 24 : BabyMoney\_50
- Track 25 : Meyran\_49
- Track 26 : Manilisa\_52
- Track 27 : Arianna\_51, Poushou\_51, TouchMeNot\_51, Colleen\_51
- Track 28 : Nandita\_63, Donatella\_63, Dirdigger\_60, Yonex\_64, Kihatsu\_64, Ryan\_64, Lenoxika\_60, ToastyOats\_64, Ichiang\_60
- Track 29 : Gusanita\_63, Schism\_66
- Track 30 : Guinevere\_66
- Track 31 : Zaheer\_65, Halloweekend\_58
- Track 32 : BigSherm\_62
- Track 33 : MillySue\_64
- Track 34 : IsHungry\_59
- Track 35 : GoodLuckBabe\_65
- Track 36 : QuinnAvery\_65

- Track 37 : Toodles\_63, Popper\_64
- Track 38 : Saintcarr\_62
- Track 39 : AllBusiness\_59
- Track 40 : Elesar\_57
- Track 41 : Cole\_59
- Track 42 : Julie\_62
- Track 43 : Hereford\_43, Aoka\_46
- Track 44 : JanetJ\_44
- Track 45 : CocoCinnamon\_52
- Track 46 : EvenBluerMoon\_42, PrairieDogTown\_43, Morrey\_65
- Track 47 : Maja\_51
- Track 48 : Ball\_44
- Track 49 : Juicebox\_57

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

The start number called the most often in the published annotations is 27, it was called in 20 of the 56 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aoka\_46, Arianna\_51, Ball\_44, Chipko\_65, CocoCinnamon\_52, Colleen\_51, Coriander\_59, Dirdigger\_60, DirtyBoi\_61, Doggs\_57, Donatella\_63, EvenBluerMoon\_42, Hereford\_43, Ichiang\_60, JanetJ\_44, Jecs\_67, Kihatsu\_64, Lenoxika\_60, Maja\_51, Moonflower\_59, Morrey\_65, Nandita\_63, Poushou\_51, PrairieDogTown\_43, Ryan\_64, ToastyOats\_64, TouchMeNot\_51, Yonex\_64,

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

- BBQValindra\_60, Bowser\_61, Bunker\_56, Dmitri\_58, Dogfish\_49, Eyes\_59, GEazy\_66, HannahD\_63, Hedwig\_63, Juicebox\_57, Kiko\_59, MagicMan\_63, NaLuna\_65, Opie\_66, PatriciaStar\_58, RayTheFireFly\_66, Schnabeltier\_65, TaronosaurusRx\_68,

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

- AllBusiness\_59, BabyMoney\_50, BigSherm\_62, Cole\_59, Elesar\_57, Ewald\_49, GoodLuckBabe\_65, Guinevere\_66, Gusanita\_63, Halloweekend\_58, IsHungry\_59, Julie\_62, Manilisa\_52, Meyran\_49, MillySue\_64, Nyceirae\_54, Phishy\_53, Popper\_64, QuinnAvery\_65, Saintcarr\_62, Schism\_66, Toodles\_63, Vordorf\_50, Zaheer\_65,

**Summary by start number:**

Start 7:

- Found in 6 of 70 ( 8.6% ) of genes in pham
- Manual Annotations of this start: 3 of 56
- Called 66.7% of time when present
- Phage (with cluster) where this start called: BabyMoney\_50 (DT), Ewald\_49 (DT), Meyran\_49 (DT), Phishy\_53 (DT),

Start 9:

- Found in 4 of 70 ( 5.7% ) of genes in pham

- Manual Annotations of this start: 3 of 56
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dmitri\_58 (DB), Hedwig\_63 (DB), PatriciaStar\_58 (DB), RayTheFireFly\_66 (DB),

#### Start 11:

- Found in 3 of 70 ( 4.3% ) of genes in pham
- Manual Annotations of this start: 2 of 56
- Called 66.7% of time when present
- Phage (with cluster) where this start called: GEazy\_66 (DB), HannahD\_63 (DB),

#### Start 12:

- Found in 2 of 70 ( 2.9% ) of genes in pham
- Manual Annotations of this start: 2 of 56
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bowser\_61 (DB), TaronosaurusRx\_68 (DB),

#### Start 17:

- Found in 1 of 70 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 56
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kiko\_59 (DB),

#### Start 19:

- Found in 3 of 70 ( 4.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 33.3% of time when present
- Phage (with cluster) where this start called: NaLuna\_65 (DB),

#### Start 23:

- Found in 7 of 70 ( 10.0% ) of genes in pham
- Manual Annotations of this start: 6 of 56
- Called 85.7% of time when present
- Phage (with cluster) where this start called: BBQValindra\_60 (DB), Bunker\_56 (DB), Eyes\_59 (DB), MagicMan\_63 (DB), Opie\_66 (DB), Schnabeltier\_65 (DB),

#### Start 24:

- Found in 1 of 70 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 56
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Juicebox\_57 (singleton),

#### Start 26:

- Found in 7 of 70 ( 10.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 28.6% of time when present
- Phage (with cluster) where this start called: Manilisa\_52 (DT), Vordorf\_50 (DT),

#### Start 27:

- Found in 46 of 70 ( 65.7% ) of genes in pham
- Manual Annotations of this start: 20 of 56
- Called 60.9% of time when present

- Phage (with cluster) where this start called: Aoka\_46 (FO), Arianna\_51 (EO), Ball\_44 (singleton), Chipko\_65 (DB), CocoCinnamon\_52 (FO), Colleen\_51 (EO), Coriander\_59 (DB), DirtDigger\_60 (FF), DirtyBoi\_61 (DB), Doggs\_57 (DB), Donatella\_63 (FF), EvenBluerMoon\_42 (FO), Hereford\_43 (FO), Ichiang\_60 (FF), JanetJ\_44 (FO), Jecs\_67 (DB), Kihatsu\_64 (FF), Lenoxika\_60 (FF), Maja\_51 (FO), Moonflower\_59 (DB), Morrey\_65 (FO), Nandita\_63 (FF), Poushou\_51 (EO), PrairieDogTown\_43 (FO), Ryan\_64 (FF), ToastyOats\_64 (FF), TouchMeNot\_51 (EO), Yonex\_64 (FF),

#### Start 28:

- Found in 17 of 70 ( 24.3% ) of genes in pham
- Manual Annotations of this start: 16 of 56
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AllBusiness\_59 (FF), BigSherm\_62 (FF), Cole\_59 (FF), Elesar\_57 (FF), GoodLuckBabe\_65 (FF), Guinevere\_66 (FF), Gusanita\_63 (FF), Halloween\_58 (FF), IsHungry\_59 (FF), Julie\_62 (FF), MillySue\_64 (FF), Popper\_64 (FF), QuinnAvery\_65 (FF), Saintcarr\_62 (FF), Schism\_66 (FF), Toodles\_63 (FF), Zaheer\_65 (FF),

#### Start 30:

- Found in 8 of 70 ( 11.4% ) of genes in pham
- Manual Annotations of this start: 2 of 56
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Dogfish\_49 (DT), Nyceirae\_54 (DT),

### Summary by clusters:

There are 6 clusters represented in this pham: singleton, DB, EO, FF, DT, FO,

#### Info for manual annotations of cluster DB:

- Start number 9 was manually annotated 3 times for cluster DB.
- Start number 11 was manually annotated 2 times for cluster DB.
- Start number 12 was manually annotated 2 times for cluster DB.
- Start number 17 was manually annotated 1 time for cluster DB.
- Start number 23 was manually annotated 6 times for cluster DB.
- Start number 27 was manually annotated 3 times for cluster DB.

#### Info for manual annotations of cluster DT:

- Start number 7 was manually annotated 3 times for cluster DT.
- Start number 30 was manually annotated 2 times for cluster DT.

#### Info for manual annotations of cluster EO:

- Start number 27 was manually annotated 4 times for cluster EO.

#### Info for manual annotations of cluster FF:

- Start number 27 was manually annotated 6 times for cluster FF.
- Start number 28 was manually annotated 16 times for cluster FF.

#### Info for manual annotations of cluster FO:

- Start number 27 was manually annotated 7 times for cluster FO.

### **Gene Information:**

Gene: AllBusiness\_59 Start: 39516, Stop: 40670, Start Num: 28

Candidate Starts for AllBusiness\_59:

(Start: 28 @39516 has 16 MA's), (35, 39585), (38, 39618), (41, 39627), (42, 39639), (44, 39666), (76, 40023), (78, 40044), (81, 40128), (97, 40314), (106, 40497),

Gene: Aoka\_46 Start: 32046, Stop: 33164, Start Num: 27

Candidate Starts for Aoka\_46:

(Start: 27 @32046 has 20 MA's), (63, 32361), (115, 33066),

Gene: Arianna\_51 Start: 38056, Stop: 39219, Start Num: 27

Candidate Starts for Arianna\_51:

(Start: 27 @38056 has 20 MA's), (32, 38101), (56, 38287), (80, 38563), (91, 38755), (96, 38782), (98, 38806), (101, 38890), (103, 38929), (104, 38953), (105, 38977),

Gene: BBQValindra\_60 Start: 42714, Stop: 44075, Start Num: 23

Candidate Starts for BBQValindra\_60:

(Start: 23 @42714 has 6 MA's), (Start: 27 @42723 has 20 MA's), (34, 42792), (36, 42813), (41, 42837), (62, 43041), (66, 43071), (67, 43080), (71, 43122), (74, 43191), (77, 43239), (81, 43335), (84, 43365), (93, 43506), (109, 43752), (111, 43764), (114, 43788),

Gene: BabyMoney\_50 Start: 37319, Stop: 38551, Start Num: 7

Candidate Starts for BabyMoney\_50:

(1, 37058), (2, 37112), (3, 37121), (4, 37208), (5, 37274), (Start: 7 @37319 has 3 MA's), (14, 37373), (21, 37394), (26, 37409), (Start: 30 @37442 has 2 MA's), (33, 37463), (37, 37505), (39, 37517), (44, 37562), (50, 37607), (51, 37613), (52, 37619), (53, 37625), (55, 37631), (57, 37646), (58, 37655), (70, 37787), (71, 37793), (79, 37922), (80, 37925), (86, 38030),

Gene: Ball\_44 Start: 31651, Stop: 32676, Start Num: 27

Candidate Starts for Ball\_44:

(Start: 27 @31651 has 20 MA's), (37, 31744), (44, 31801), (45, 31816), (46, 31822), (47, 31825), (48, 31828), (53, 31861), (56, 31879), (57, 31882), (66, 31975), (72, 32068), (87, 32302),

Gene: BigSherm\_62 Start: 38249, Stop: 39415, Start Num: 28

Candidate Starts for BigSherm\_62:

(Start: 28 @38249 has 16 MA's), (35, 38318), (38, 38351), (41, 38360), (42, 38372), (44, 38399), (46, 38420), (76, 38756), (79, 38801), (81, 38861), (89, 38981), (97, 39059),

Gene: Bowser\_61 Start: 42021, Stop: 43442, Start Num: 12

Candidate Starts for Bowser\_61:

(Start: 12 @42021 has 2 MA's), (16, 42054), (Start: 27 @42090 has 20 MA's), (29, 42117), (34, 42159), (36, 42180), (41, 42204), (55, 42315), (62, 42408), (66, 42438), (67, 42447), (71, 42489), (74, 42558), (77, 42606), (81, 42702), (84, 42732), (93, 42873), (109, 43119), (111, 43131), (114, 43155),

Gene: Bunker\_56 Start: 41096, Stop: 42487, Start Num: 23

Candidate Starts for Bunker\_56:

(Start: 23 @41096 has 6 MA's), (Start: 27 @41105 has 20 MA's), (34, 41174), (36, 41195), (62, 41423), (66, 41453), (67, 41462), (71, 41504), (74, 41573), (77, 41621), (81, 41717), (84, 41747), (93, 41888), (111, 42146), (114, 42170), (117, 42317),

Gene: Chipko\_65 Start: 41629, Stop: 42987, Start Num: 27

Candidate Starts for Chipko\_65:

(Start: 27 @41629 has 20 MA's), (34, 41698), (36, 41719), (41, 41743), (62, 41947), (66, 41977), (67, 41986), (71, 42028), (74, 42097), (77, 42145), (79, 42181), (81, 42241), (111, 42673), (117, 42844),

Gene: CocoCinnamon\_52 Start: 32925, Stop: 33902, Start Num: 27

Candidate Starts for CocoCinnamon\_52:

(Start: 27 @32925 has 20 MA's), (48, 33105), (49, 33114), (59, 33177), (95, 33675), (100, 33762),

Gene: Cole\_59 Start: 38308, Stop: 39462, Start Num: 28

Candidate Starts for Cole\_59:

(Start: 28 @38308 has 16 MA's), (35, 38377), (38, 38410), (41, 38419), (42, 38431), (44, 38458), (46, 38479), (76, 38815), (79, 38860), (81, 38920), (97, 39106),

Gene: Colleen\_51 Start: 38056, Stop: 39219, Start Num: 27

Candidate Starts for Colleen\_51:

(Start: 27 @38056 has 20 MA's), (32, 38101), (56, 38287), (80, 38563), (91, 38755), (96, 38782), (98, 38806), (101, 38890), (103, 38929), (104, 38953), (105, 38977),

Gene: Coriander\_59 Start: 40707, Stop: 42065, Start Num: 27

Candidate Starts for Coriander\_59:

(Start: 27 @40707 has 20 MA's), (34, 40776), (36, 40797), (43, 40845), (62, 41025), (66, 41055), (67, 41064), (71, 41106), (74, 41175), (77, 41223), (79, 41259), (81, 41319), (111, 41751), (117, 41922),

Gene: Dirtdigger\_60 Start: 38872, Stop: 39894, Start Num: 27

Candidate Starts for Dirtdigger\_60:

(Start: 27 @38872 has 20 MA's), (37, 38965), (45, 39037), (46, 39043), (47, 39046), (48, 39049), (57, 39103), (66, 39196),

Gene: DirtyBoi\_61 Start: 39455, Stop: 40813, Start Num: 27

Candidate Starts for DirtyBoi\_61:

(Start: 27 @39455 has 20 MA's), (34, 39524), (36, 39545), (43, 39593), (62, 39773), (66, 39803), (67, 39812), (71, 39854), (74, 39923), (77, 39971), (79, 40007), (81, 40067), (111, 40499), (117, 40670),

Gene: Dmitri\_58 Start: 41853, Stop: 43298, Start Num: 9

Candidate Starts for Dmitri\_58:

(8, 41850), (Start: 9 @41853 has 3 MA's), (10, 41859), (Start: 27 @41940 has 20 MA's), (34, 42009), (36, 42030), (62, 42258), (66, 42288), (67, 42297), (71, 42339), (74, 42408), (77, 42456), (79, 42492), (81, 42552), (111, 42984), (112, 42999), (117, 43155),

Gene: Dogfish\_49 Start: 36865, Stop: 37968, Start Num: 30

Candidate Starts for Dogfish\_49:

(15, 36796), (Start: 27 @36832 has 20 MA's), (Start: 30 @36865 has 2 MA's), (33, 36886), (37, 36928), (39, 36940), (44, 36985), (50, 37030), (52, 37042), (53, 37048), (55, 37054), (57, 37069), (58, 37078), (70, 37210), (71, 37216), (79, 37345), (80, 37348), (86, 37453),

Gene: Doggs\_57 Start: 41040, Stop: 42398, Start Num: 27

Candidate Starts for Doggs\_57:

(Start: 27 @41040 has 20 MA's), (34, 41109), (36, 41130), (43, 41178), (62, 41358), (66, 41388), (67, 41397), (71, 41439), (74, 41508), (77, 41556), (79, 41592), (81, 41652), (111, 42084), (117, 42255),

Gene: Donatella\_63 Start: 39063, Stop: 40085, Start Num: 27

Candidate Starts for Donatella\_63:

(Start: 27 @39063 has 20 MA's), (37, 39156), (45, 39228), (46, 39234), (47, 39237), (48, 39240), (57, 39294), (66, 39387),

Gene: Elesar\_57 Start: 39401, Stop: 40567, Start Num: 28

Candidate Starts for Elesar\_57:

(Start: 28 @39401 has 16 MA's), (35, 39470), (38, 39503), (41, 39512), (42, 39524), (44, 39551), (76, 39908), (81, 40013), (97, 40211),

Gene: EvenBluerMoon\_42 Start: 31418, Stop: 32536, Start Num: 27

Candidate Starts for EvenBluerMoon\_42:

(Start: 27 @31418 has 20 MA's), (63, 31733), (73, 31871), (115, 32438),

Gene: Ewald\_49 Start: 36559, Stop: 37788, Start Num: 7

Candidate Starts for Ewald\_49:

(Start: 7 @36559 has 3 MA's), (14, 36613), (21, 36634), (26, 36649), (Start: 30 @36682 has 2 MA's), (33, 36703), (37, 36745), (39, 36757), (51, 36853), (52, 36859), (53, 36865), (55, 36871), (57, 36886), (68, 37018), (70, 37024), (71, 37030), (79, 37159), (80, 37162), (86, 37267),

Gene: Eyes\_59 Start: 42425, Stop: 43786, Start Num: 23

Candidate Starts for Eyes\_59:

(Start: 23 @42425 has 6 MA's), (Start: 27 @42434 has 20 MA's), (29, 42461), (34, 42503), (36, 42524), (62, 42752), (66, 42782), (67, 42791), (71, 42833), (74, 42902), (77, 42950), (81, 43046), (84, 43076), (93, 43217), (109, 43463), (111, 43475), (114, 43499), (118, 43709),

Gene: GEazy\_66 Start: 42215, Stop: 43645, Start Num: 11

Candidate Starts for GEazy\_66:

(Start: 11 @42215 has 2 MA's), (13, 42248), (19, 42266), (Start: 27 @42293 has 20 MA's), (34, 42362), (36, 42383), (62, 42611), (66, 42641), (67, 42650), (71, 42692), (74, 42761), (77, 42809), (81, 42905), (84, 42935), (93, 43076), (109, 43322), (111, 43334), (114, 43358),

Gene: GoodLuckBabe\_65 Start: 38791, Stop: 39960, Start Num: 28

Candidate Starts for GoodLuckBabe\_65:

(Start: 28 @38791 has 16 MA's), (35, 38860), (41, 38902), (42, 38914), (64, 39130), (74, 39259), (76, 39298), (81, 39403), (91, 39562), (97, 39601), (99, 39619), (113, 39823),

Gene: Guinevere\_66 Start: 38873, Stop: 40036, Start Num: 28

Candidate Starts for Guinevere\_66:

(Start: 28 @38873 has 16 MA's), (35, 38942), (41, 38984), (42, 38996), (74, 39341), (76, 39380), (81, 39485), (91, 39644), (97, 39683), (99, 39701),

Gene: Gusanita\_63 Start: 39103, Stop: 40269, Start Num: 28

Candidate Starts for Gusanita\_63:

(Start: 28 @39103 has 16 MA's), (35, 39172), (41, 39214), (42, 39226), (44, 39253), (76, 39610), (78, 39631), (79, 39655), (81, 39715), (97, 39913),

Gene: Halloweekend\_58 Start: 38382, Stop: 39551, Start Num: 28

Candidate Starts for Halloweekend\_58:

(Start: 28 @38382 has 16 MA's), (35, 38451), (41, 38493), (42, 38505), (64, 38721), (74, 38850), (76, 38889), (81, 38994), (91, 39153), (97, 39192), (99, 39210),

Gene: HannahD\_63 Start: 41582, Stop: 43012, Start Num: 11

Candidate Starts for HannahD\_63:

(Start: 11 @41582 has 2 MA's), (13, 41615), (19, 41633), (Start: 27 @41660 has 20 MA's), (34, 41729), (36, 41750), (62, 41978), (66, 42008), (67, 42017), (71, 42059), (74, 42128), (77, 42176), (81, 42272), (84, 42302), (93, 42443), (109, 42689), (111, 42701), (114, 42725),

Gene: Hedwig\_63 Start: 40287, Stop: 41729, Start Num: 9

Candidate Starts for Hedwig\_63:

(8, 40284), (Start: 9 @40287 has 3 MA's), (10, 40293), (Start: 27 @40374 has 20 MA's), (34, 40443), (36, 40464), (43, 40512), (62, 40692), (66, 40722), (67, 40731), (71, 40773), (74, 40842), (77, 40890), (79, 40926), (81, 40986), (111, 41418), (117, 41589),

Gene: Hereford\_43 Start: 31162, Stop: 32280, Start Num: 27

Candidate Starts for Hereford\_43:

(Start: 27 @31162 has 20 MA's), (63, 31477), (115, 32182),

Gene: Ichiang\_60 Start: 38423, Stop: 39445, Start Num: 27

Candidate Starts for Ichiang\_60:

(Start: 27 @38423 has 20 MA's), (37, 38516), (45, 38588), (46, 38594), (47, 38597), (48, 38600), (57, 38654), (66, 38747),

Gene: IsHungry\_59 Start: 37191, Stop: 38348, Start Num: 28

Candidate Starts for IsHungry\_59:

(Start: 28 @37191 has 16 MA's), (35, 37260), (41, 37302), (42, 37314), (46, 37362), (68, 37575), (74, 37659), (75, 37668), (76, 37698), (81, 37803), (94, 37962), (97, 37989),

Gene: JanetJ\_44 Start: 32563, Stop: 33687, Start Num: 27

Candidate Starts for JanetJ\_44:

(Start: 27 @32563 has 20 MA's), (33, 32617), (40, 32674), (44, 32716), (60, 32833), (61, 32872), (63, 32878), (80, 33091), (115, 33583),

Gene: Jecs\_67 Start: 43876, Stop: 45228, Start Num: 27

Candidate Starts for Jecs\_67:

(Start: 23 @43867 has 6 MA's), (Start: 27 @43876 has 20 MA's), (34, 43945), (36, 43966), (62, 44194), (66, 44224), (67, 44233), (71, 44275), (74, 44344), (77, 44392), (81, 44488), (84, 44518), (93, 44659), (109, 44905), (111, 44917), (114, 44941),

Gene: Juicebox\_57 Start: 38635, Stop: 39720, Start Num: 24

Candidate Starts for Juicebox\_57:

(Start: 24 @38635 has 1 MA's), (Start: 27 @38644 has 20 MA's), (31, 38683), (37, 38737), (39, 38749), (44, 38794), (45, 38809), (49, 38830), (54, 38860), (65, 38971), (69, 39013), (70, 39016), (71, 39022), (82, 39217), (83, 39220), (85, 39241), (88, 39310), (90, 39328), (107, 39592),

Gene: Julie\_62 Start: 38820, Stop: 39977, Start Num: 28

Candidate Starts for Julie\_62:

(Start: 28 @38820 has 16 MA's), (35, 38889), (42, 38943), (44, 38970), (64, 39159), (68, 39204), (74, 39288), (76, 39327), (81, 39432), (97, 39618),

Gene: Kihatsu\_64 Start: 39971, Stop: 40993, Start Num: 27

Candidate Starts for Kihatsu\_64:

(Start: 27 @39971 has 20 MA's), (37, 40064), (45, 40136), (46, 40142), (47, 40145), (48, 40148), (57, 40202), (66, 40295),

Gene: Kiko\_59 Start: 40009, Stop: 41421, Start Num: 17

Candidate Starts for Kiko\_59:

(Start: 17 @40009 has 1 MA's), (18, 40012), (20, 40021), (22, 40030), (25, 40036), (Start: 27 @40042 has 20 MA's), (32, 40087), (33, 40096), (34, 40111), (36, 40132), (38, 40147), (44, 40195), (62, 40360), (66, 40390), (67, 40399), (71, 40441), (74, 40510), (77, 40558), (79, 40594), (81, 40654), (92, 40843),

(110, 41104), (111, 41110), (116, 41170),

Gene: Lenoxika\_60 Start: 38298, Stop: 39320, Start Num: 27

Candidate Starts for Lenoxika\_60:

(Start: 27 @38298 has 20 MA's), (37, 38391), (45, 38463), (46, 38469), (47, 38472), (48, 38475), (57, 38529), (66, 38622),

Gene: MagicMan\_63 Start: 43151, Stop: 44515, Start Num: 23

Candidate Starts for MagicMan\_63:

(Start: 23 @43151 has 6 MA's), (Start: 27 @43160 has 20 MA's), (36, 43250), (62, 43478), (66, 43508), (67, 43517), (71, 43559), (74, 43628), (77, 43676), (81, 43772), (84, 43802), (93, 43943), (109, 44189), (111, 44201), (114, 44225),

Gene: Maja\_51 Start: 33550, Stop: 34527, Start Num: 27

Candidate Starts for Maja\_51:

(6, 33448), (Start: 27 @33550 has 20 MA's), (48, 33730), (49, 33739), (59, 33802), (95, 34300),

Gene: Manilisa\_52 Start: 37821, Stop: 38960, Start Num: 26

Candidate Starts for Manilisa\_52:

(1, 37470), (2, 37524), (3, 37533), (5, 37686), (Start: 7 @37731 has 3 MA's), (14, 37785), (21, 37806), (26, 37821), (Start: 30 @37854 has 2 MA's), (33, 37875), (37, 37917), (39, 37929), (51, 38025), (52, 38031), (53, 38037), (55, 38043), (57, 38058), (68, 38190), (70, 38196), (71, 38202), (79, 38331), (80, 38334), (86, 38439),

Gene: Meyran\_49 Start: 37660, Stop: 38889, Start Num: 7

Candidate Starts for Meyran\_49:

(1, 37399), (2, 37453), (3, 37462), (5, 37615), (Start: 7 @37660 has 3 MA's), (14, 37714), (21, 37735), (26, 37750), (Start: 30 @37783 has 2 MA's), (33, 37804), (37, 37846), (39, 37858), (51, 37954), (52, 37960), (53, 37966), (55, 37972), (57, 37987), (68, 38119), (70, 38125), (71, 38131), (79, 38260), (80, 38263), (86, 38368),

Gene: MillySue\_64 Start: 38437, Stop: 39585, Start Num: 28

Candidate Starts for MillySue\_64:

(Start: 28 @38437 has 16 MA's), (35, 38506), (38, 38539), (42, 38560), (64, 38776), (68, 38821), (74, 38905), (76, 38944), (79, 38989), (81, 39049),

Gene: Moonflower\_59 Start: 41479, Stop: 42837, Start Num: 27

Candidate Starts for Moonflower\_59:

(Start: 27 @41479 has 20 MA's), (34, 41548), (36, 41569), (43, 41617), (62, 41797), (66, 41827), (67, 41836), (71, 41878), (74, 41947), (77, 41995), (79, 42031), (81, 42091), (102, 42442), (111, 42523), (117, 42694),

Gene: Morrey\_65 Start: 31420, Stop: 32538, Start Num: 27

Candidate Starts for Morrey\_65:

(Start: 27 @31420 has 20 MA's), (63, 31735), (73, 31873), (115, 32440),

Gene: NaLuna\_65 Start: 41633, Stop: 43012, Start Num: 19

Candidate Starts for NaLuna\_65:

(Start: 11 @41582 has 2 MA's), (13, 41615), (19, 41633), (Start: 27 @41660 has 20 MA's), (34, 41729), (36, 41750), (62, 41978), (66, 42008), (67, 42017), (71, 42059), (74, 42128), (77, 42176), (81, 42272), (84, 42302), (93, 42443), (109, 42689), (111, 42701), (114, 42725),

Gene: Nandita\_63 Start: 38985, Stop: 40007, Start Num: 27

Candidate Starts for Nandita\_63:

(Start: 27 @38985 has 20 MA's), (37, 39078), (45, 39150), (46, 39156), (47, 39159), (48, 39162), (57, 39216), (66, 39309),

Gene: Nyceirae\_54 Start: 37807, Stop: 38916, Start Num: 30

Candidate Starts for Nyceirae\_54:

(26, 37774), (Start: 30 @37807 has 2 MA's), (33, 37828), (37, 37870), (47, 37951), (51, 37978), (52, 37984), (53, 37990), (55, 37996), (57, 38011), (68, 38143), (70, 38149), (71, 38155), (79, 38284), (80, 38287), (86, 38392),

Gene: Opie\_66 Start: 43275, Stop: 44636, Start Num: 23

Candidate Starts for Opie\_66:

(Start: 23 @43275 has 6 MA's), (Start: 27 @43284 has 20 MA's), (34, 43353), (36, 43374), (62, 43602), (66, 43632), (67, 43641), (71, 43683), (74, 43752), (77, 43800), (81, 43896), (84, 43926), (93, 44067), (108, 44307), (111, 44325), (114, 44349),

Gene: PatriciaStar\_58 Start: 41490, Stop: 42935, Start Num: 9

Candidate Starts for PatriciaStar\_58:

(8, 41487), (Start: 9 @41490 has 3 MA's), (10, 41496), (Start: 27 @41577 has 20 MA's), (34, 41646), (36, 41667), (62, 41895), (66, 41925), (67, 41934), (71, 41976), (74, 42045), (77, 42093), (79, 42129), (81, 42189), (111, 42621), (117, 42792),

Gene: Phishy\_53 Start: 38633, Stop: 39862, Start Num: 7

Candidate Starts for Phishy\_53:

(1, 38372), (2, 38426), (3, 38435), (5, 38588), (Start: 7 @38633 has 3 MA's), (14, 38687), (21, 38708), (26, 38723), (Start: 30 @38756 has 2 MA's), (33, 38777), (37, 38819), (47, 38900), (51, 38927), (52, 38933), (53, 38939), (55, 38945), (57, 38960), (68, 39092), (70, 39098), (71, 39104), (80, 39236), (86, 39341),

Gene: Popper\_64 Start: 38422, Stop: 39570, Start Num: 28

Candidate Starts for Popper\_64:

(Start: 28 @38422 has 16 MA's), (35, 38491), (38, 38524), (42, 38545), (44, 38572), (64, 38761), (68, 38806), (74, 38890), (76, 38929), (79, 38974), (81, 39034),

Gene: Poushou\_51 Start: 37885, Stop: 39048, Start Num: 27

Candidate Starts for Poushou\_51:

(Start: 27 @37885 has 20 MA's), (32, 37930), (56, 38116), (80, 38392), (91, 38584), (96, 38611), (98, 38635), (101, 38719), (103, 38758), (104, 38782), (105, 38806),

Gene: PrairieDogTown\_43 Start: 31420, Stop: 32538, Start Num: 27

Candidate Starts for PrairieDogTown\_43:

(Start: 27 @31420 has 20 MA's), (63, 31735), (73, 31873), (115, 32440),

Gene: QuinnAvery\_65 Start: 39767, Stop: 40921, Start Num: 28

Candidate Starts for QuinnAvery\_65:

(Start: 28 @39767 has 16 MA's), (35, 39836), (41, 39878), (42, 39890), (44, 39917), (54, 39986), (76, 40274), (78, 40295), (79, 40319), (81, 40379), (97, 40565),

Gene: RayTheFireFly\_66 Start: 41744, Stop: 43189, Start Num: 9

Candidate Starts for RayTheFireFly\_66:

(8, 41741), (Start: 9 @41744 has 3 MA's), (10, 41750), (Start: 27 @41831 has 20 MA's), (34, 41900), (36, 41921), (43, 41969), (62, 42149), (66, 42179), (67, 42188), (71, 42230), (74, 42299), (77, 42347), (79, 42383), (81, 42443), (111, 42875), (117, 43046),

Gene: Ryan\_64 Start: 39538, Stop: 40560, Start Num: 27

Candidate Starts for Ryan\_64:

(Start: 27 @39538 has 20 MA's), (37, 39631), (45, 39703), (46, 39709), (47, 39712), (48, 39715), (57, 39769), (66, 39862),

Gene: Saintcarr\_62 Start: 39397, Stop: 40563, Start Num: 28

Candidate Starts for Saintcarr\_62:

(Start: 28 @39397 has 16 MA's), (35, 39466), (38, 39499), (41, 39508), (42, 39520), (68, 39781), (74, 39865), (76, 39904), (81, 40009), (91, 40168), (97, 40207),

Gene: Schism\_66 Start: 39832, Stop: 40998, Start Num: 28

Candidate Starts for Schism\_66:

(Start: 28 @39832 has 16 MA's), (35, 39901), (41, 39943), (42, 39955), (44, 39982), (76, 40339), (78, 40360), (79, 40384), (81, 40444), (97, 40642),

Gene: Schnabeltier\_65 Start: 42563, Stop: 43924, Start Num: 23

Candidate Starts for Schnabeltier\_65:

(Start: 23 @42563 has 6 MA's), (Start: 27 @42572 has 20 MA's), (29, 42599), (34, 42641), (36, 42662), (62, 42890), (66, 42920), (67, 42929), (71, 42971), (74, 43040), (77, 43088), (81, 43184), (84, 43214), (93, 43355), (109, 43601), (111, 43613), (114, 43637),

Gene: TaronosaurusRx\_68 Start: 42626, Stop: 44047, Start Num: 12

Candidate Starts for TaronosaurusRx\_68:

(Start: 12 @42626 has 2 MA's), (16, 42659), (Start: 27 @42695 has 20 MA's), (29, 42722), (34, 42764), (36, 42785), (41, 42809), (62, 43013), (66, 43043), (67, 43052), (71, 43094), (74, 43163), (77, 43211), (81, 43307), (84, 43337), (93, 43478), (109, 43724), (111, 43736), (114, 43760),

Gene: ToastyOats\_64 Start: 38718, Stop: 39740, Start Num: 27

Candidate Starts for ToastyOats\_64:

(Start: 27 @38718 has 20 MA's), (37, 38811), (45, 38883), (46, 38889), (47, 38892), (48, 38895), (57, 38949), (66, 39042),

Gene: Toodles\_63 Start: 39508, Stop: 40656, Start Num: 28

Candidate Starts for Toodles\_63:

(Start: 28 @39508 has 16 MA's), (35, 39577), (38, 39610), (42, 39631), (44, 39658), (64, 39847), (68, 39892), (74, 39976), (76, 40015), (79, 40060), (81, 40120),

Gene: TouchMeNot\_51 Start: 38058, Stop: 39221, Start Num: 27

Candidate Starts for TouchMeNot\_51:

(Start: 27 @38058 has 20 MA's), (32, 38103), (56, 38289), (80, 38565), (91, 38757), (96, 38784), (98, 38808), (101, 38892), (103, 38931), (104, 38955), (105, 38979),

Gene: Vordorf\_50 Start: 37013, Stop: 38146, Start Num: 26

Candidate Starts for Vordorf\_50:

(1, 36662), (2, 36716), (3, 36725), (5, 36878), (Start: 7 @36923 has 3 MA's), (14, 36977), (21, 36998), (26, 37013), (Start: 30 @37046 has 2 MA's), (33, 37067), (37, 37109), (39, 37121), (47, 37190), (51, 37217), (52, 37223), (53, 37229), (55, 37235), (57, 37250), (68, 37382), (70, 37388), (71, 37394), (79, 37523), (80, 37526), (86, 37631),

Gene: Yonex\_64 Start: 39538, Stop: 40560, Start Num: 27

Candidate Starts for Yonex\_64:

(Start: 27 @39538 has 20 MA's), (37, 39631), (45, 39703), (46, 39709), (47, 39712), (48, 39715), (57, 39769), (66, 39862),

Gene: Zaheer\_65 Start: 39810, Stop: 40979, Start Num: 28

Candidate Starts for Zaheer\_65:

(Start: 28 @39810 has 16 MA's), (35, 39879), (41, 39921), (42, 39933), (64, 40149), (74, 40278), (76, 40317), (81, 40422), (91, 40581), (97, 40620), (99, 40638),