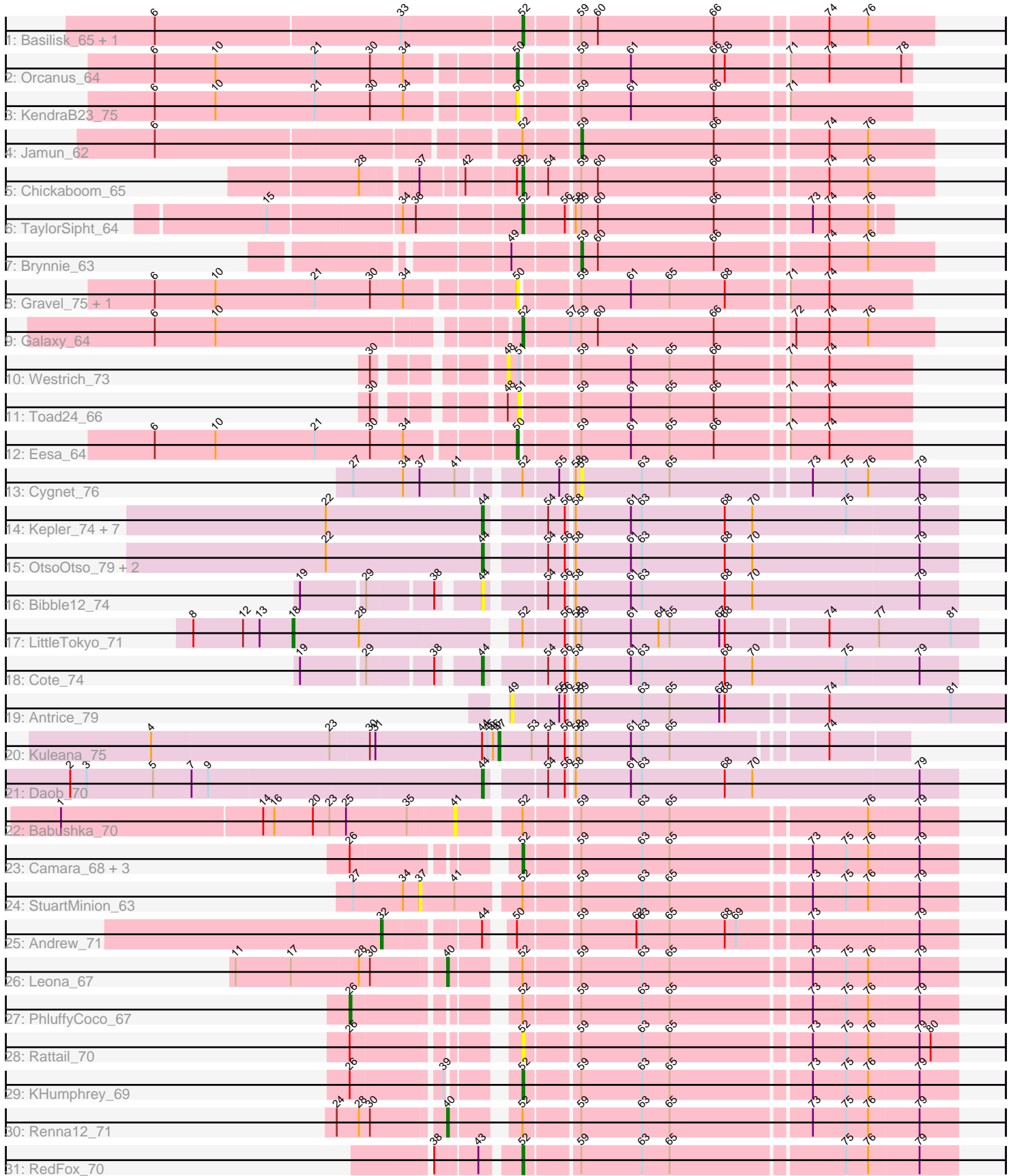


Pham 214403



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 214403 Report

This analysis was run 02/22/25 on database version 588.

Pham number 214403 has 45 members, 18 are drafts.

Phages represented in each track:

- Track 1 : Basilisk\_65, Ruchi\_63
- Track 2 : Orcanus\_64
- Track 3 : KendraB23\_75
- Track 4 : Jamun\_62
- Track 5 : Chickaboom\_65
- Track 6 : TaylorSipht\_64
- Track 7 : Brynnie\_63
- Track 8 : Gravel\_75, Pelletreau\_75
- Track 9 : Galaxy\_64
- Track 10 : Westrich\_73
- Track 11 : Toad24\_66
- Track 12 : Eesa\_64
- Track 13 : Cygnet\_76
- Track 14 : Kepler\_74, Jerole\_78, Amelia\_70, Coral\_71, Bedetta\_74, Melons\_72, Lunar\_72, Colusalem\_71
- Track 15 : OtsoOtso\_79, HannahPhantana\_71, Polka\_70
- Track 16 : Bibble12\_74
- Track 17 : LittleTokyo\_71
- Track 18 : Cote\_74
- Track 19 : Antrice\_79
- Track 20 : Kuleana\_75
- Track 21 : Daob\_70
- Track 22 : Babushka\_70
- Track 23 : Camara\_68, AmiCi24\_67, Atlantica\_70, Juno112\_68
- Track 24 : StuartMinion\_63
- Track 25 : Andrew\_71
- Track 26 : Leona\_67
- Track 27 : PhluffyCoco\_67
- Track 28 : Rattail\_70
- Track 29 : KHumphrey\_69
- Track 30 : Renna12\_71
- Track 31 : RedFox\_70

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

The start number called the most often in the published annotations is 44, it was called in 9 of the 27 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Amelia\_70, Bedetta\_74, Bibble12\_74, Colusalem\_71, Coral\_71, Cote\_74, Daob\_70, HannahPhantana\_71, Jerole\_78, Kepler\_74, Lunar\_72, Melons\_72, OtsoOtso\_79, Polka\_70,

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

- Andrew\_71, Kuleana\_75,

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

- AmiCi24\_67, Antrice\_79, Atlantica\_70, Babushka\_70, Basilisk\_65, Brynnie\_63, Camara\_68, Chickaboom\_65, Cygnet\_76, Eesa\_64, Galaxy\_64, Gravel\_75, Jamun\_62, Juno112\_68, KHumphrey\_69, KendraB23\_75, Leona\_67, LittleTokyo\_71, Orcanus\_64, Pelletreau\_75, PhluffyCoco\_67, Rattail\_70, RedFox\_70, Renna12\_71, Ruchi\_63, StuartMinion\_63, TaylorSipht\_64, Toad24\_66, Westrich\_73,

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

Start 18:

- Found in 1 of 45 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 1 of 27
- Called 100.0% of time when present
- Phage (with cluster) where this start called: LittleTokyo\_71 (AS2),

Start 26:

- Found in 7 of 45 ( 15.6% ) of genes in pham
- Manual Annotations of this start: 1 of 27
- Called 14.3% of time when present
- Phage (with cluster) where this start called: PhluffyCoco\_67 (AS3),

Start 32:

- Found in 1 of 45 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 1 of 27
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Andrew\_71 (AS3),

Start 37:

- Found in 3 of 45 ( 6.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 33.3% of time when present
- Phage (with cluster) where this start called: StuartMinion\_63 (AS3),

Start 40:

- Found in 2 of 45 ( 4.4% ) of genes in pham
- Manual Annotations of this start: 2 of 27
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Leona\_67 (AS3), Renna12\_71 (AS3),

Start 41:

- Found in 3 of 45 ( 6.7% ) of genes in pham

- No Manual Annotations of this start.
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Babushka\_70 (AS3),

#### Start 44:

- Found in 16 of 45 ( 35.6% ) of genes in pham
- Manual Annotations of this start: 9 of 27
- Called 87.5% of time when present
- Phage (with cluster) where this start called: Amelia\_70 (AS2), Bedetta\_74 (AS2), Bible12\_74 (AS2), Colusalem\_71 (AS2), Coral\_71 (AS2), Cote\_74 (AS2), Daob\_70 (AS2), HannahPhantana\_71 (AS2), Jerole\_78 (AS2), Kepler\_74 (AS2), Lunar\_72 (AS2), Melons\_72 (AS2), OtsoOtso\_79 (AS2), Polka\_70 (AS2),

#### Start 47:

- Found in 1 of 45 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 1 of 27
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kuleana\_75 (AS2),

#### Start 48:

- Found in 2 of 45 ( 4.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Westrich\_73 (AS1),

#### Start 49:

- Found in 2 of 45 ( 4.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Antrice\_79 (AS2),

#### Start 50:

- Found in 7 of 45 ( 15.6% ) of genes in pham
- Manual Annotations of this start: 2 of 27
- Called 71.4% of time when present
- Phage (with cluster) where this start called: Eesa\_64 (AS1), Gravel\_75 (AS1), KendraB23\_75 (AS1), Orcanus\_64 (AS1), Pelletreau\_75 (AS1),

#### Start 51:

- Found in 2 of 45 ( 4.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Toad24\_66 (AS1),

#### Start 52:

- Found in 20 of 45 ( 44.4% ) of genes in pham
- Manual Annotations of this start: 8 of 27
- Called 60.0% of time when present
- Phage (with cluster) where this start called: AmiCi24\_67 (AS3), Atlantica\_70 (AS3), Basilisk\_65 (AS1), Camara\_68 (AS3), Chickaboom\_65 (AS1), Galaxy\_64 (AS1), Juno112\_68 (AS3), KHumphrey\_69 (AS3), Rattail\_70 (AS3), RedFox\_70 (AS3), Ruchi\_63 (AS1), TaylorSipht\_64 (AS1),

Start 59:

- Found in 31 of 45 ( 68.9% ) of genes in pham
- Manual Annotations of this start: 2 of 27
- Called 9.7% of time when present
- Phage (with cluster) where this start called: Brynnie\_63 (AS1), Cygnet\_76 (AS2), Jamun\_62 (AS1),

### **Summary by clusters:**

There are 3 clusters represented in this pham: AS3, AS2, AS1,

Info for manual annotations of cluster AS1:

- Start number 50 was manually annotated 2 times for cluster AS1.
- Start number 52 was manually annotated 5 times for cluster AS1.
- Start number 59 was manually annotated 2 times for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 18 was manually annotated 1 time for cluster AS2.
- Start number 44 was manually annotated 9 times for cluster AS2.
- Start number 47 was manually annotated 1 time for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 26 was manually annotated 1 time for cluster AS3.
- Start number 32 was manually annotated 1 time for cluster AS3.
- Start number 40 was manually annotated 2 times for cluster AS3.
- Start number 52 was manually annotated 3 times for cluster AS3.

### **Gene Information:**

Gene: Amelia\_70 Start: 37346, Stop: 37591, Start Num: 44

Candidate Starts for Amelia\_70:

(22, 37262), (Start: 44 @37346 has 9 MA's), (54, 37373), (56, 37382), (58, 37385), (61, 37415), (63, 37421), (68, 37466), (70, 37481), (75, 37532), (79, 37571),

Gene: AmiCi24\_67 Start: 37633, Stop: 37857, Start Num: 52

Candidate Starts for AmiCi24\_67:

(Start: 26 @37561 has 1 MA's), (Start: 52 @37633 has 8 MA's), (Start: 59 @37660 has 2 MA's), (63, 37693), (65, 37708), (73, 37780), (75, 37798), (76, 37810), (79, 37837),

Gene: Andrew\_71 Start: 37949, Stop: 38230, Start Num: 32

Candidate Starts for Andrew\_71:

(Start: 32 @37949 has 1 MA's), (Start: 44 @37994 has 9 MA's), (Start: 50 @38003 has 2 MA's), (Start: 59 @38033 has 2 MA's), (62, 38063), (63, 38066), (65, 38081), (68, 38111), (69, 38117), (73, 38153), (79, 38210),

Gene: Antrice\_79 Start: 38347, Stop: 38604, Start Num: 49

Candidate Starts for Antrice\_79:

(49, 38347), (55, 38371), (56, 38374), (58, 38377), (Start: 59 @38380 has 2 MA's), (63, 38413), (65, 38428), (67, 38455), (68, 38458), (74, 38509), (81, 38575),

Gene: Atlantica\_70 Start: 37635, Stop: 37859, Start Num: 52

Candidate Starts for Atlantica\_70:

(Start: 26 @37563 has 1 MA's), (Start: 52 @37635 has 8 MA's), (Start: 59 @37662 has 2 MA's), (63, 37695), (65, 37710), (73, 37782), (75, 37800), (76, 37812), (79, 37839),

Gene: Babushka\_70 Start: 37513, Stop: 37767, Start Num: 41

Candidate Starts for Babushka\_70:

(1, 37303), (14, 37411), (16, 37417), (20, 37438), (23, 37447), (25, 37456), (35, 37489), (41, 37513), (Start: 52 @37543 has 8 MA's), (Start: 59 @37570 has 2 MA's), (63, 37603), (65, 37618), (76, 37720), (79, 37747),

Gene: Basilisk\_65 Start: 37815, Stop: 38027, Start Num: 52

Candidate Starts for Basilisk\_65:

(6, 37620), (33, 37752), (Start: 52 @37815 has 8 MA's), (Start: 59 @37842 has 2 MA's), (60, 37851), (66, 37914), (74, 37971), (76, 37992),

Gene: Bedetta\_74 Start: 37509, Stop: 37754, Start Num: 44

Candidate Starts for Bedetta\_74:

(22, 37425), (Start: 44 @37509 has 9 MA's), (54, 37536), (56, 37545), (58, 37548), (61, 37578), (63, 37584), (68, 37629), (70, 37644), (75, 37695), (79, 37734),

Gene: Bible12\_74 Start: 37919, Stop: 38164, Start Num: 44

Candidate Starts for Bible12\_74:

(19, 37838), (29, 37871), (38, 37904), (Start: 44 @37919 has 9 MA's), (54, 37946), (56, 37955), (58, 37958), (61, 37988), (63, 37994), (68, 38039), (70, 38054), (79, 38144),

Gene: Brynnie\_63 Start: 37788, Stop: 37973, Start Num: 59

Candidate Starts for Brynnie\_63:

(49, 37755), (Start: 59 @37788 has 2 MA's), (60, 37797), (66, 37860), (74, 37917), (76, 37938),

Gene: Camara\_68 Start: 37526, Stop: 37750, Start Num: 52

Candidate Starts for Camara\_68:

(Start: 26 @37454 has 1 MA's), (Start: 52 @37526 has 8 MA's), (Start: 59 @37553 has 2 MA's), (63, 37586), (65, 37601), (73, 37673), (75, 37691), (76, 37703), (79, 37730),

Gene: Chickaboom\_65 Start: 37923, Stop: 38135, Start Num: 52

Candidate Starts for Chickaboom\_65:

(28, 37848), (37, 37875), (42, 37896), (Start: 50 @37920 has 2 MA's), (Start: 52 @37923 has 8 MA's), (54, 37935), (Start: 59 @37950 has 2 MA's), (60, 37959), (66, 38022), (74, 38079), (76, 38100),

Gene: Colusalem\_71 Start: 37323, Stop: 37568, Start Num: 44

Candidate Starts for Colusalem\_71:

(22, 37239), (Start: 44 @37323 has 9 MA's), (54, 37350), (56, 37359), (58, 37362), (61, 37392), (63, 37398), (68, 37443), (70, 37458), (75, 37509), (79, 37548),

Gene: Coral\_71 Start: 37538, Stop: 37783, Start Num: 44

Candidate Starts for Coral\_71:

(22, 37454), (Start: 44 @37538 has 9 MA's), (54, 37565), (56, 37574), (58, 37577), (61, 37607), (63, 37613), (68, 37658), (70, 37673), (75, 37724), (79, 37763),

Gene: Cote\_74 Start: 38262, Stop: 38507, Start Num: 44

Candidate Starts for Cote\_74:

(19, 38181), (29, 38214), (38, 38247), (Start: 44 @38262 has 9 MA's), (54, 38289), (56, 38298), (58, 38301), (61, 38331), (63, 38337), (68, 38382), (70, 38397), (75, 38448), (79, 38487),

Gene: Cygnet\_76 Start: 38682, Stop: 38879, Start Num: 59

Candidate Starts for Cygnet\_76:

(27, 38574), (34, 38601), (37, 38610), (41, 38628), (Start: 52 @38655 has 8 MA's), (55, 38673), (58, 38679), (Start: 59 @38682 has 2 MA's), (63, 38715), (65, 38730), (73, 38802), (75, 38820), (76, 38832), (79, 38859),

Gene: Daob\_70 Start: 37188, Stop: 37433, Start Num: 44

Candidate Starts for Daob\_70:

(2, 36969), (3, 36978), (5, 37014), (7, 37035), (9, 37044), (Start: 44 @37188 has 9 MA's), (54, 37215), (56, 37224), (58, 37227), (61, 37257), (63, 37263), (68, 37308), (70, 37323), (79, 37413),

Gene: Eesa\_64 Start: 39050, Stop: 39250, Start Num: 50

Candidate Starts for Eesa\_64:

(6, 38861), (10, 38894), (21, 38948), (30, 38978), (34, 38996), (Start: 50 @39050 has 2 MA's), (Start: 59 @39077 has 2 MA's), (61, 39104), (65, 39125), (66, 39149), (71, 39185), (74, 39206),

Gene: Galaxy\_64 Start: 36960, Stop: 37175, Start Num: 52

Candidate Starts for Galaxy\_64:

(6, 36777), (10, 36810), (Start: 52 @36960 has 8 MA's), (57, 36984), (Start: 59 @36990 has 2 MA's), (60, 36999), (66, 37062), (72, 37101), (74, 37119), (76, 37140),

Gene: Gravel\_75 Start: 39306, Stop: 39506, Start Num: 50

Candidate Starts for Gravel\_75:

(6, 39117), (10, 39150), (21, 39204), (30, 39234), (34, 39252), (Start: 50 @39306 has 2 MA's), (Start: 59 @39333 has 2 MA's), (61, 39360), (65, 39381), (68, 39411), (71, 39441), (74, 39462),

Gene: HannahPhantana\_71 Start: 37341, Stop: 37586, Start Num: 44

Candidate Starts for HannahPhantana\_71:

(22, 37257), (Start: 44 @37341 has 9 MA's), (54, 37368), (56, 37377), (58, 37380), (61, 37410), (63, 37416), (68, 37461), (70, 37476), (79, 37566),

Gene: Jamun\_62 Start: 38028, Stop: 38213, Start Num: 59

Candidate Starts for Jamun\_62:

(6, 37818), (Start: 52 @38001 has 8 MA's), (Start: 59 @38028 has 2 MA's), (66, 38100), (74, 38157), (76, 38178),

Gene: Jerole\_78 Start: 37465, Stop: 37710, Start Num: 44

Candidate Starts for Jerole\_78:

(22, 37381), (Start: 44 @37465 has 9 MA's), (54, 37492), (56, 37501), (58, 37504), (61, 37534), (63, 37540), (68, 37585), (70, 37600), (75, 37651), (79, 37690),

Gene: Juno112\_68 Start: 37637, Stop: 37861, Start Num: 52

Candidate Starts for Juno112\_68:

(Start: 26 @37565 has 1 MA's), (Start: 52 @37637 has 8 MA's), (Start: 59 @37664 has 2 MA's), (63, 37697), (65, 37712), (73, 37784), (75, 37802), (76, 37814), (79, 37841),

Gene: KHumphrey\_69 Start: 37510, Stop: 37734, Start Num: 52

Candidate Starts for KHumphrey\_69:

(Start: 26 @37438 has 1 MA's), (39, 37483), (Start: 52 @37510 has 8 MA's), (Start: 59 @37537 has 2 MA's), (63, 37570), (65, 37585), (73, 37657), (75, 37675), (76, 37687), (79, 37714),

Gene: KendraB23\_75 Start: 39011, Stop: 39211, Start Num: 50

Candidate Starts for KendraB23\_75:

(6, 38822), (10, 38855), (21, 38909), (30, 38939), (34, 38957), (Start: 50 @39011 has 2 MA's), (Start: 59 @39038 has 2 MA's), (61, 39065), (66, 39110), (71, 39146),

Gene: Kepler\_74 Start: 37670, Stop: 37915, Start Num: 44

Candidate Starts for Kepler\_74:

(22, 37586), (Start: 44 @37670 has 9 MA's), (54, 37697), (56, 37706), (58, 37709), (61, 37739), (63, 37745), (68, 37790), (70, 37805), (75, 37856), (79, 37895),

Gene: Kuleana\_75 Start: 38064, Stop: 38273, Start Num: 47

Candidate Starts for Kuleana\_75:

(4, 37878), (23, 37974), (30, 37995), (31, 37998), (Start: 44 @38055 has 9 MA's), (45, 38058), (46, 38061), (Start: 47 @38064 has 1 MA's), (53, 38082), (54, 38091), (56, 38100), (58, 38103), (Start: 59 @38106 has 2 MA's), (61, 38133), (63, 38139), (65, 38154), (74, 38232),

Gene: Leona\_67 Start: 37757, Stop: 38008, Start Num: 40

Candidate Starts for Leona\_67:

(11, 37649), (17, 37679), (28, 37715), (30, 37721), (Start: 40 @37757 has 2 MA's), (Start: 52 @37784 has 8 MA's), (Start: 59 @37811 has 2 MA's), (63, 37844), (65, 37859), (73, 37931), (75, 37949), (76, 37961), (79, 37988),

Gene: LittleTokyo\_71 Start: 37065, Stop: 37412, Start Num: 18

Candidate Starts for LittleTokyo\_71:

(8, 37011), (12, 37038), (13, 37047), (Start: 18 @37065 has 1 MA's), (28, 37101), (Start: 52 @37176 has 8 MA's), (56, 37197), (58, 37200), (Start: 59 @37203 has 2 MA's), (61, 37230), (64, 37245), (65, 37251), (67, 37278), (68, 37281), (74, 37332), (77, 37359), (81, 37398),

Gene: Lunar\_72 Start: 37670, Stop: 37915, Start Num: 44

Candidate Starts for Lunar\_72:

(22, 37586), (Start: 44 @37670 has 9 MA's), (54, 37697), (56, 37706), (58, 37709), (61, 37739), (63, 37745), (68, 37790), (70, 37805), (75, 37856), (79, 37895),

Gene: Melons\_72 Start: 37679, Stop: 37924, Start Num: 44

Candidate Starts for Melons\_72:

(22, 37595), (Start: 44 @37679 has 9 MA's), (54, 37706), (56, 37715), (58, 37718), (61, 37748), (63, 37754), (68, 37799), (70, 37814), (75, 37865), (79, 37904),

Gene: Orcanus\_64 Start: 38537, Stop: 38737, Start Num: 50

Candidate Starts for Orcanus\_64:

(6, 38348), (10, 38381), (21, 38435), (30, 38465), (34, 38483), (Start: 50 @38537 has 2 MA's), (Start: 59 @38564 has 2 MA's), (61, 38591), (66, 38636), (68, 38642), (71, 38672), (74, 38693), (78, 38732),

Gene: OtsoOtso\_79 Start: 37295, Stop: 37540, Start Num: 44

Candidate Starts for OtsoOtso\_79:

(22, 37211), (Start: 44 @37295 has 9 MA's), (54, 37322), (56, 37331), (58, 37334), (61, 37364), (63, 37370), (68, 37415), (70, 37430), (79, 37520),

Gene: Pelletreau\_75 Start: 39306, Stop: 39506, Start Num: 50

Candidate Starts for Pelletreau\_75:

(6, 39117), (10, 39150), (21, 39204), (30, 39234), (34, 39252), (Start: 50 @39306 has 2 MA's), (Start: 59 @39333 has 2 MA's), (61, 39360), (65, 39381), (68, 39411), (71, 39441), (74, 39462),

Gene: PhluffyCoco\_67 Start: 37664, Stop: 37960, Start Num: 26



Candidate Starts for PhluffyCoco\_67:

(Start: 26 @37664 has 1 MA's), (Start: 52 @37736 has 8 MA's), (Start: 59 @37763 has 2 MA's), (63, 37796), (65, 37811), (73, 37883), (75, 37901), (76, 37913), (79, 37940),

Gene: Polka\_70 Start: 37295, Stop: 37540, Start Num: 44

Candidate Starts for Polka\_70:

(22, 37211), (Start: 44 @37295 has 9 MA's), (54, 37322), (56, 37331), (58, 37334), (61, 37364), (63, 37370), (68, 37415), (70, 37430), (79, 37520),

Gene: Rattail\_70 Start: 38032, Stop: 38256, Start Num: 52

Candidate Starts for Rattail\_70:

(Start: 26 @37960 has 1 MA's), (Start: 52 @38032 has 8 MA's), (Start: 59 @38059 has 2 MA's), (63, 38092), (65, 38107), (73, 38179), (75, 38197), (76, 38209), (79, 38236), (80, 38242),

Gene: RedFox\_70 Start: 37895, Stop: 38119, Start Num: 52

Candidate Starts for RedFox\_70:

(38, 37856), (43, 37877), (Start: 52 @37895 has 8 MA's), (Start: 59 @37922 has 2 MA's), (63, 37955), (65, 37970), (75, 38060), (76, 38072), (79, 38099),

Gene: Renna12\_71 Start: 38335, Stop: 38586, Start Num: 40

Candidate Starts for Renna12\_71:

(24, 38281), (28, 38293), (30, 38299), (Start: 40 @38335 has 2 MA's), (Start: 52 @38362 has 8 MA's), (Start: 59 @38389 has 2 MA's), (63, 38422), (65, 38437), (73, 38509), (75, 38527), (76, 38539), (79, 38566),

Gene: Ruchi\_63 Start: 37737, Stop: 37949, Start Num: 52

Candidate Starts for Ruchi\_63:

(6, 37542), (33, 37674), (Start: 52 @37737 has 8 MA's), (Start: 59 @37764 has 2 MA's), (60, 37773), (66, 37836), (74, 37893), (76, 37914),

Gene: StuartMinion\_63 Start: 34325, Stop: 34597, Start Num: 37

Candidate Starts for StuartMinion\_63:

(27, 34289), (34, 34316), (37, 34325), (41, 34343), (Start: 52 @34373 has 8 MA's), (Start: 59 @34400 has 2 MA's), (63, 34433), (65, 34448), (73, 34520), (75, 34538), (76, 34550), (79, 34577),

Gene: TaylorSipht\_64 Start: 38271, Stop: 38459, Start Num: 52

Candidate Starts for TaylorSipht\_64:

(15, 38142), (34, 38211), (36, 38217), (Start: 52 @38271 has 8 MA's), (56, 38292), (58, 38295), (Start: 59 @38298 has 2 MA's), (60, 38307), (66, 38370), (73, 38418), (74, 38427), (76, 38448),

Gene: Toad24\_66 Start: 39066, Stop: 39266, Start Num: 51

Candidate Starts for Toad24\_66:

(30, 39006), (48, 39060), (51, 39066), (Start: 59 @39093 has 2 MA's), (61, 39120), (65, 39141), (66, 39165), (71, 39201), (74, 39222),

Gene: Westrich\_73 Start: 39227, Stop: 39433, Start Num: 48

Candidate Starts for Westrich\_73:

(30, 39173), (48, 39227), (51, 39233), (Start: 59 @39260 has 2 MA's), (61, 39287), (65, 39308), (66, 39332), (71, 39368), (74, 39389),