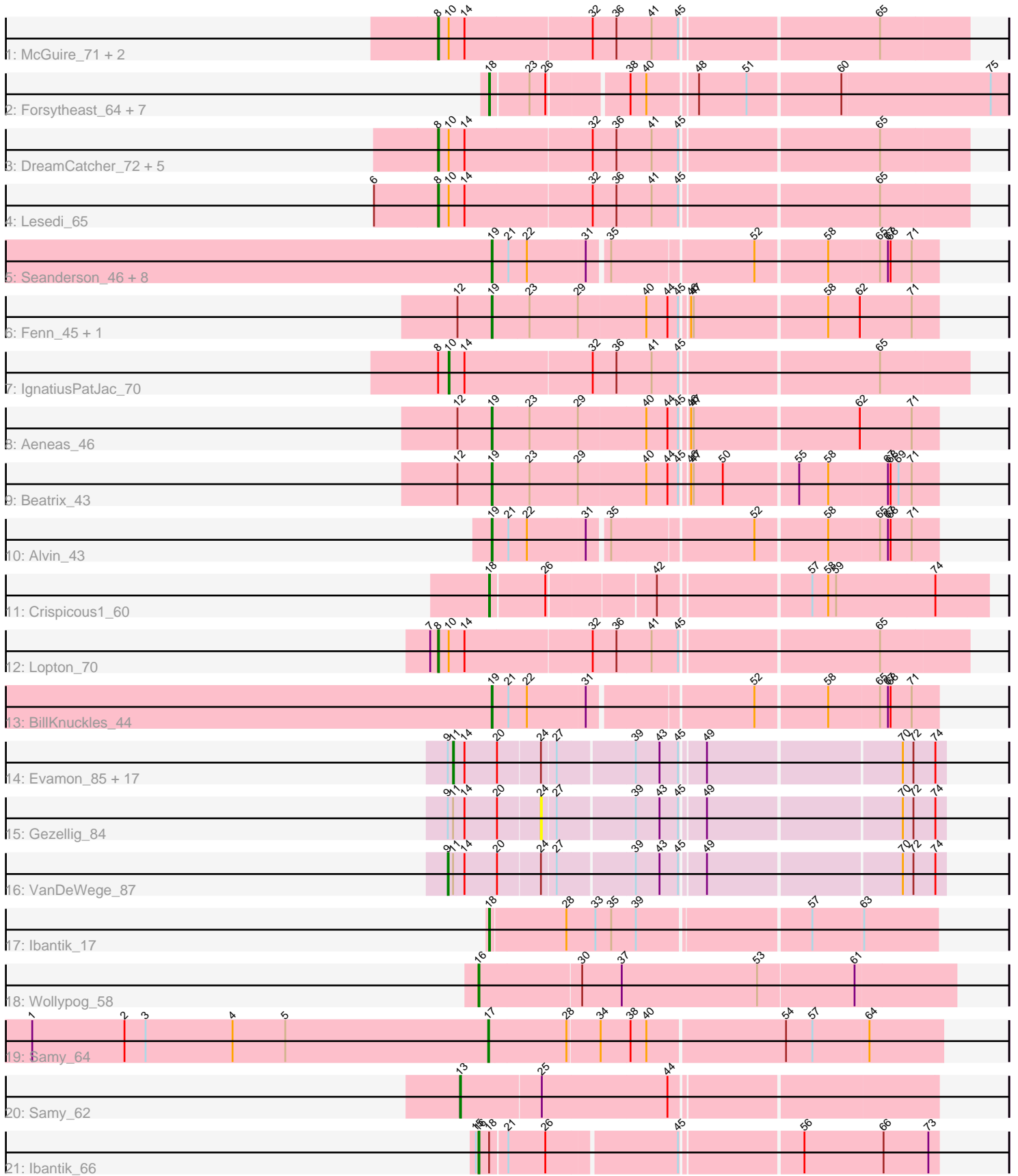


# Pham 157871



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 157871 Report

This analysis was run 04/13/24 on database version 558.

Pham number 157871 has 61 members, 3 are drafts.

Phages represented in each track:

- Track 1 : McGuire\_71, Squee\_73, Ichabod\_74
- Track 2 : Forsytheast\_64, SpikeBT\_61, AFIS\_59, Moose\_64, NEHalo\_60, Bruns\_64, SwissCheese\_66, GageAP\_64
- Track 3 : DreamCatcher\_72, AFIS\_66, SarFire\_70, Thor\_70, GrecoEtereo\_71, Snazzy\_68
- Track 4 : Lesedi\_65
- Track 5 : Seanderson\_46, ILeeKay\_48, IgnatiusPatJac\_43, Petruccio\_44, Kykar\_44, Fushigi\_42, BluSpix\_42, Ajay\_44, Trouble\_45
- Track 6 : Fenn\_45, Naira\_45
- Track 7 : IgnatiusPatJac\_70
- Track 8 : Aeneas\_46
- Track 9 : Beatrix\_43
- Track 10 : Alvin\_43
- Track 11 : Crispicous1\_60
- Track 12 : Lopton\_70
- Track 13 : BillKnuckles\_44
- Track 14 : Evamon\_85, Arri\_85, PullumCavea\_83, Shinji\_84, SmokingBunny\_86, TillyBobJoe\_83, KimmyK\_83, Savbucketdawg\_80, Twister6\_84, Togo\_85, Salvador\_85, Wizard\_80, Phlop\_82, Valary\_86, RogerDodger\_88, Portcullis\_85, Fireball\_88, PinkCoffee\_86
- Track 15 : Gezellig\_84
- Track 16 : VanDeWege\_87
- Track 17 : Ibantik\_17
- Track 18 : Wollypog\_58
- Track 19 : Samy\_64
- Track 20 : Samy\_62
- Track 21 : Ibantik\_66

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

The start number called the most often in the published annotations is 11, it was called in 17 of the 58 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Arri\_85, Evamon\_85, Fireball\_88, KimmyK\_83, Phlop\_82, PinkCoffee\_86, Portcullis\_85, PullumCavea\_83, RogerDodger\_88, Salvador\_85, Savbucketdawg\_80, Shinji\_84, SmokingBunny\_86, TillyBobJoe\_83, Togo\_85, Twister6\_84, Valary\_86, Wizard\_80,

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

- Gezellig\_84, VanDeWege\_87,

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

- AFIS\_59, AFIS\_66, Aeneas\_46, Ajay\_44, Alvin\_43, Beatrix\_43, BillKnuckles\_44, BluSpix\_42, Bruns\_64, Crispicous1\_60, DreamCatcher\_72, Fenn\_45, Forsytheast\_64, Fushigi\_42, GageAP\_64, GrecoEtereo\_71, ILeeKay\_48, Ibantik\_17, Ibantik\_66, Ichabod\_74, IgnatiusPatJac\_43, IgnatiusPatJac\_70, Kykar\_44, Lesedi\_65, Lopton\_70, McGuire\_71, Moose\_64, NEHalo\_60, Naira\_45, Petruccio\_44, Samy\_62, Samy\_64, SarFire\_70, Seanderson\_46, Snazzy\_68, SpikeBT\_61, Squee\_73, SwissCheese\_66, Thor\_70, Trouble\_45, Wollypog\_58,

### Summary by start number:

Start 8:

- Found in 12 of 61 ( 19.7% ) of genes in pham
- Manual Annotations of this start: 11 of 58
- Called 91.7% of time when present
- Phage (with cluster) where this start called: AFIS\_66 (A1), DreamCatcher\_72 (A1), GrecoEtereo\_71 (A1), Ichabod\_74 (A1), Lesedi\_65 (A1), Lopton\_70 (A1), McGuire\_71 (A1), SarFire\_70 (A1), Snazzy\_68 (A1), Squee\_73 (A1), Thor\_70 (A1),

Start 9:

- Found in 20 of 61 ( 32.8% ) of genes in pham
- Manual Annotations of this start: 1 of 58
- Called 5.0% of time when present
- Phage (with cluster) where this start called: VanDeWege\_87 (DC1),

Start 10:

- Found in 12 of 61 ( 19.7% ) of genes in pham
- Manual Annotations of this start: 1 of 58
- Called 8.3% of time when present
- Phage (with cluster) where this start called: IgnatiusPatJac\_70 (A1),

Start 11:

- Found in 20 of 61 ( 32.8% ) of genes in pham
- Manual Annotations of this start: 17 of 58
- Called 90.0% of time when present
- Phage (with cluster) where this start called: Arri\_85 (DC1), Evamon\_85 (DC1), Fireball\_88 (DC1), KimmyK\_83 (DC1), Phlop\_82 (DC1), PinkCoffee\_86 (DC1), Portcullis\_85 (DC1), PullumCavea\_83 (DC1), RogerDodger\_88 (DC1), Salvador\_85 (DC1), Savbucketdawg\_80 (DC1), Shinji\_84 (DC1), SmokingBunny\_86 (DC1), TillyBobJoe\_83 (DC1), Togo\_85 (DC1), Twister6\_84 (DC1), Valary\_86 (DC1), Wizard\_80 (DC1),

Start 13:

- Found in 1 of 61 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 58

- Called 100.0% of time when present
- Phage (with cluster) where this start called: Samy\_62 (singleton),

Start 16:

- Found in 2 of 61 ( 3.3% ) of genes in pham
- Manual Annotations of this start: 2 of 58
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ibantik\_66 (singleton), Wollypog\_58 (singleton),

Start 17:

- Found in 1 of 61 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 58
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Samy\_64 (singleton),

Start 18:

- Found in 11 of 61 ( 18.0% ) of genes in pham
- Manual Annotations of this start: 10 of 58
- Called 90.9% of time when present
- Phage (with cluster) where this start called: AFIS\_59 (A1), Bruns\_64 (A1), Crispicous1\_60 (A1), Forsytheast\_64 (A1), GageAP\_64 (A1), Ibantik\_17 (singleton), Moose\_64 (A1), NEHalo\_60 (A1), SpikeBT\_61 (A1), SwissCheese\_66 (A1),

Start 19:

- Found in 15 of 61 ( 24.6% ) of genes in pham
- Manual Annotations of this start: 14 of 58
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aeneas\_46 (A1), Ajay\_44 (A1), Alvin\_43 (A1), Beatrix\_43 (A1), BillKnuckles\_44 (A1), BluSpix\_42 (A1), Fenn\_45 (A1), Fushigi\_42 (A1), ILeeKay\_48 (A1), IgnatiusPatJac\_43 (A1), Kykar\_44 (A1), Naira\_45 (A1), Petruccio\_44 (A1), Seanderson\_46 (A1), Trouble\_45 (A1),

Start 24:

- Found in 20 of 61 ( 32.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 5.0% of time when present
- Phage (with cluster) where this start called: Gezellig\_84 (DC1),

### **Summary by clusters:**

There are 3 clusters represented in this pham: A1, singleton, DC1,

Info for manual annotations of cluster A1:

- Start number 8 was manually annotated 11 times for cluster A1.
- Start number 10 was manually annotated 1 time for cluster A1.
- Start number 18 was manually annotated 9 times for cluster A1.
- Start number 19 was manually annotated 14 times for cluster A1.

Info for manual annotations of cluster DC1:

- Start number 9 was manually annotated 1 time for cluster DC1.
- Start number 11 was manually annotated 17 times for cluster DC1.

**Gene Information:**

Gene: AFIS\_66 Start: 43840, Stop: 43262, Start Num: 8

Candidate Starts for AFIS\_66:

(Start: 8 @43840 has 11 MA's), (Start: 10 @43828 has 1 MA's), (14, 43810), (32, 43669), (36, 43642), (41, 43603), (45, 43573), (65, 43360),

Gene: AFIS\_59 Start: 40536, Stop: 39979, Start Num: 18

Candidate Starts for AFIS\_59:

(Start: 18 @40536 has 10 MA's), (23, 40494), (26, 40476), (38, 40392), (40, 40374), (48, 40323), (51, 40269), (60, 40167), (75, 39999),

Gene: Aeneas\_46 Start: 33206, Stop: 32721, Start Num: 19

Candidate Starts for Aeneas\_46:

(12, 33245), (Start: 19 @33206 has 14 MA's), (23, 33164), (29, 33110), (40, 33035), (44, 33011), (45, 32999), (46, 32993), (47, 32990), (62, 32807), (71, 32750),

Gene: Ajay\_44 Start: 32810, Stop: 32334, Start Num: 19

Candidate Starts for Ajay\_44:

(Start: 19 @32810 has 14 MA's), (21, 32792), (22, 32771), (31, 32708), (35, 32687), (52, 32534), (58, 32456), (65, 32399), (67, 32390), (68, 32387), (71, 32363),

Gene: Alvin\_43 Start: 33331, Stop: 32855, Start Num: 19

Candidate Starts for Alvin\_43:

(Start: 19 @33331 has 14 MA's), (21, 33313), (22, 33292), (31, 33229), (35, 33208), (52, 33055), (58, 32977), (65, 32920), (67, 32911), (68, 32908), (71, 32884),

Gene: Arri\_85 Start: 56022, Stop: 55507, Start Num: 11

Candidate Starts for Arri\_85:

(Start: 9 @56028 has 1 MA's), (Start: 11 @56022 has 17 MA's), (14, 56010), (20, 55974), (24, 55929), (27, 55914), (39, 55836), (43, 55809), (45, 55788), (49, 55764), (70, 55554), (72, 55542), (74, 55518),

Gene: Beatrix\_43 Start: 34176, Stop: 33691, Start Num: 19

Candidate Starts for Beatrix\_43:

(12, 34215), (Start: 19 @34176 has 14 MA's), (23, 34134), (29, 34080), (40, 34005), (44, 33981), (45, 33969), (46, 33963), (47, 33960), (50, 33927), (55, 33846), (58, 33813), (67, 33747), (68, 33744), (69, 33735), (71, 33720),

Gene: BillKnuckles\_44 Start: 33515, Stop: 33039, Start Num: 19

Candidate Starts for BillKnuckles\_44:

(Start: 19 @33515 has 14 MA's), (21, 33497), (22, 33476), (31, 33413), (52, 33239), (58, 33161), (65, 33104), (67, 33095), (68, 33092), (71, 33068),

Gene: BluSpix\_42 Start: 28937, Stop: 28461, Start Num: 19

Candidate Starts for BluSpix\_42:

(Start: 19 @28937 has 14 MA's), (21, 28919), (22, 28898), (31, 28835), (35, 28814), (52, 28661), (58, 28583), (65, 28526), (67, 28517), (68, 28514), (71, 28490),

Gene: Bruns\_64 Start: 41012, Stop: 40455, Start Num: 18

Candidate Starts for Bruns\_64:

(Start: 18 @41012 has 10 MA's), (23, 40970), (26, 40952), (38, 40868), (40, 40850), (48, 40799), (51, 40745), (60, 40643), (75, 40475),

Gene: Crispicous1\_60 Start: 40522, Stop: 39992, Start Num: 18

Candidate Starts for Crispicous1\_60:

(Start: 18 @40522 has 10 MA's), (26, 40462), (42, 40348), (57, 40186), (58, 40168), (59, 40159), (74, 40051),

Gene: DreamCatcher\_72 Start: 44845, Stop: 44267, Start Num: 8

Candidate Starts for DreamCatcher\_72:

(Start: 8 @44845 has 11 MA's), (Start: 10 @44833 has 1 MA's), (14, 44815), (32, 44674), (36, 44647), (41, 44608), (45, 44578), (65, 44365),

Gene: Evamon\_85 Start: 55834, Stop: 55319, Start Num: 11

Candidate Starts for Evamon\_85:

(Start: 9 @55840 has 1 MA's), (Start: 11 @55834 has 17 MA's), (14, 55822), (20, 55786), (24, 55741), (27, 55726), (39, 55648), (43, 55621), (45, 55600), (49, 55576), (70, 55366), (72, 55354), (74, 55330),

Gene: Fenn\_45 Start: 34680, Stop: 34195, Start Num: 19

Candidate Starts for Fenn\_45:

(12, 34719), (Start: 19 @34680 has 14 MA's), (23, 34638), (29, 34584), (40, 34509), (44, 34485), (45, 34473), (46, 34467), (47, 34464), (58, 34317), (62, 34281), (71, 34224),

Gene: Fireball\_88 Start: 56296, Stop: 55781, Start Num: 11

Candidate Starts for Fireball\_88:

(Start: 9 @56302 has 1 MA's), (Start: 11 @56296 has 17 MA's), (14, 56284), (20, 56248), (24, 56203), (27, 56188), (39, 56110), (43, 56083), (45, 56062), (49, 56038), (70, 55828), (72, 55816), (74, 55792),

Gene: Forsytheast\_64 Start: 41180, Stop: 40623, Start Num: 18

Candidate Starts for Forsytheast\_64:

(Start: 18 @41180 has 10 MA's), (23, 41138), (26, 41120), (38, 41036), (40, 41018), (48, 40967), (51, 40913), (60, 40811), (75, 40643),

Gene: Fushigi\_42 Start: 30914, Stop: 30438, Start Num: 19

Candidate Starts for Fushigi\_42:

(Start: 19 @30914 has 14 MA's), (21, 30896), (22, 30875), (31, 30812), (35, 30791), (52, 30638), (58, 30560), (65, 30503), (67, 30494), (68, 30491), (71, 30467),

Gene: GageAP\_64 Start: 42203, Stop: 41646, Start Num: 18

Candidate Starts for GageAP\_64:

(Start: 18 @42203 has 10 MA's), (23, 42161), (26, 42143), (38, 42059), (40, 42041), (48, 41990), (51, 41936), (60, 41834), (75, 41666),

Gene: Gezellig\_84 Start: 55587, Stop: 55165, Start Num: 24

Candidate Starts for Gezellig\_84:

(Start: 9 @55686 has 1 MA's), (Start: 11 @55680 has 17 MA's), (14, 55668), (20, 55632), (24, 55587), (27, 55572), (39, 55494), (43, 55467), (45, 55446), (49, 55422), (70, 55212), (72, 55200), (74, 55176),

Gene: GrecoEtereo\_71 Start: 44625, Stop: 44047, Start Num: 8

Candidate Starts for GrecoEtereo\_71:

(Start: 8 @44625 has 11 MA's), (Start: 10 @44613 has 1 MA's), (14, 44595), (32, 44454), (36, 44427), (41, 44388), (45, 44358), (65, 44145),

Gene: ILeeKay\_48 Start: 33858, Stop: 33382, Start Num: 19

Candidate Starts for ILeeKay\_48:

(Start: 19 @33858 has 14 MA's), (21, 33840), (22, 33819), (31, 33756), (35, 33735), (52, 33582), (58, 33504), (65, 33447), (67, 33438), (68, 33435), (71, 33411),

Gene: Ibantik\_17 Start: 6683, Stop: 6195, Start Num: 18

Candidate Starts for Ibantik\_17:

(Start: 18 @6683 has 10 MA's), (28, 6599), (33, 6566), (35, 6548), (39, 6521), (57, 6335), (63, 6278),

Gene: Ibantik\_66 Start: 28032, Stop: 28526, Start Num: 16

Candidate Starts for Ibantik\_66:

(15, 28029), (Start: 16 @28032 has 2 MA's), (Start: 18 @28044 has 10 MA's), (21, 28062), (26, 28104), (45, 28245), (56, 28374), (66, 28464), (73, 28515),

Gene: Ichabod\_74 Start: 45654, Stop: 45076, Start Num: 8

Candidate Starts for Ichabod\_74:

(Start: 8 @45654 has 11 MA's), (Start: 10 @45642 has 1 MA's), (14, 45624), (32, 45483), (36, 45456), (41, 45417), (45, 45387), (65, 45174),

Gene: IgnatiusPatJac\_70 Start: 44214, Stop: 43648, Start Num: 10

Candidate Starts for IgnatiusPatJac\_70:

(Start: 8 @44226 has 11 MA's), (Start: 10 @44214 has 1 MA's), (14, 44196), (32, 44055), (36, 44028), (41, 43989), (45, 43959), (65, 43746),

Gene: IgnatiusPatJac\_43 Start: 32882, Stop: 32406, Start Num: 19

Candidate Starts for IgnatiusPatJac\_43:

(Start: 19 @32882 has 14 MA's), (21, 32864), (22, 32843), (31, 32780), (35, 32759), (52, 32606), (58, 32528), (65, 32471), (67, 32462), (68, 32459), (71, 32435),

Gene: KimmyK\_83 Start: 56127, Stop: 55612, Start Num: 11

Candidate Starts for KimmyK\_83:

(Start: 9 @56133 has 1 MA's), (Start: 11 @56127 has 17 MA's), (14, 56115), (20, 56079), (24, 56034), (27, 56019), (39, 55941), (43, 55914), (45, 55893), (49, 55869), (70, 55659), (72, 55647), (74, 55623),

Gene: Kykar\_44 Start: 32934, Stop: 32458, Start Num: 19

Candidate Starts for Kykar\_44:

(Start: 19 @32934 has 14 MA's), (21, 32916), (22, 32895), (31, 32832), (35, 32811), (52, 32658), (58, 32580), (65, 32523), (67, 32514), (68, 32511), (71, 32487),

Gene: Lesedi\_65 Start: 42530, Stop: 41952, Start Num: 8

Candidate Starts for Lesedi\_65:

(6, 42602), (Start: 8 @42530 has 11 MA's), (Start: 10 @42518 has 1 MA's), (14, 42500), (32, 42359), (36, 42332), (41, 42293), (45, 42263), (65, 42050),

Gene: Lopton\_70 Start: 46302, Stop: 45724, Start Num: 8

Candidate Starts for Lopton\_70:

(7, 46311), (Start: 8 @46302 has 11 MA's), (Start: 10 @46290 has 1 MA's), (14, 46272), (32, 46131), (36, 46104), (41, 46065), (45, 46035), (65, 45822),

Gene: McGuire\_71 Start: 44174, Stop: 43596, Start Num: 8

Candidate Starts for McGuire\_71:

(Start: 8 @44174 has 11 MA's), (Start: 10 @44162 has 1 MA's), (14, 44144), (32, 44003), (36, 43976), (41, 43937), (45, 43907), (65, 43694),

Gene: Moose\_64 Start: 41180, Stop: 40623, Start Num: 18

Candidate Starts for Moose\_64:

(Start: 18 @41180 has 10 MA's), (23, 41138), (26, 41120), (38, 41036), (40, 41018), (48, 40967), (51, 40913), (60, 40811), (75, 40643),

Gene: NEHalo\_60 Start: 41604, Stop: 41047, Start Num: 18

Candidate Starts for NEHalo\_60:

(Start: 18 @41604 has 10 MA's), (23, 41562), (26, 41544), (38, 41460), (40, 41442), (48, 41391), (51, 41337), (60, 41235), (75, 41067),

Gene: Naira\_45 Start: 34727, Stop: 34242, Start Num: 19

Candidate Starts for Naira\_45:

(12, 34766), (Start: 19 @34727 has 14 MA's), (23, 34685), (29, 34631), (40, 34556), (44, 34532), (45, 34520), (46, 34514), (47, 34511), (58, 34364), (62, 34328), (71, 34271),

Gene: Petruccio\_44 Start: 32947, Stop: 32471, Start Num: 19

Candidate Starts for Petruccio\_44:

(Start: 19 @32947 has 14 MA's), (21, 32929), (22, 32908), (31, 32845), (35, 32824), (52, 32671), (58, 32593), (65, 32536), (67, 32527), (68, 32524), (71, 32500),

Gene: Phlop\_82 Start: 55730, Stop: 55215, Start Num: 11

Candidate Starts for Phlop\_82:

(Start: 9 @55736 has 1 MA's), (Start: 11 @55730 has 17 MA's), (14, 55718), (20, 55682), (24, 55637), (27, 55622), (39, 55544), (43, 55517), (45, 55496), (49, 55472), (70, 55262), (72, 55250), (74, 55226),

Gene: PinkCoffee\_86 Start: 55594, Stop: 55079, Start Num: 11

Candidate Starts for PinkCoffee\_86:

(Start: 9 @55600 has 1 MA's), (Start: 11 @55594 has 17 MA's), (14, 55582), (20, 55546), (24, 55501), (27, 55486), (39, 55408), (43, 55381), (45, 55360), (49, 55336), (70, 55126), (72, 55114), (74, 55090),

Gene: Portcullis\_85 Start: 55736, Stop: 55221, Start Num: 11

Candidate Starts for Portcullis\_85:

(Start: 9 @55742 has 1 MA's), (Start: 11 @55736 has 17 MA's), (14, 55724), (20, 55688), (24, 55643), (27, 55628), (39, 55550), (43, 55523), (45, 55502), (49, 55478), (70, 55268), (72, 55256), (74, 55232),

Gene: PullumCavea\_83 Start: 55907, Stop: 55392, Start Num: 11

Candidate Starts for PullumCavea\_83:

(Start: 9 @55913 has 1 MA's), (Start: 11 @55907 has 17 MA's), (14, 55895), (20, 55859), (24, 55814), (27, 55799), (39, 55721), (43, 55694), (45, 55673), (49, 55649), (70, 55439), (72, 55427), (74, 55403),

Gene: RogerDodger\_88 Start: 56495, Stop: 55980, Start Num: 11

Candidate Starts for RogerDodger\_88:

(Start: 9 @56501 has 1 MA's), (Start: 11 @56495 has 17 MA's), (14, 56483), (20, 56447), (24, 56402), (27, 56387), (39, 56309), (43, 56282), (45, 56261), (49, 56237), (70, 56027), (72, 56015), (74, 55991),

Gene: Salvador\_85 Start: 55832, Stop: 55317, Start Num: 11

Candidate Starts for Salvador\_85:

(Start: 9 @55838 has 1 MA's), (Start: 11 @55832 has 17 MA's), (14, 55820), (20, 55784), (24, 55739), (27, 55724), (39, 55646), (43, 55619), (45, 55598), (49, 55574), (70, 55364), (72, 55352), (74, 55328),

Gene: Samy\_64 Start: 40970, Stop: 41473, Start Num: 17

Candidate Starts for Samy\_64:



(1, 40451), (2, 40556), (3, 40580), (4, 40679), (5, 40739), (Start: 17 @40970 has 1 MA's), (28, 41057), (34, 41093), (38, 41126), (40, 41144), (54, 41297), (57, 41327), (64, 41390),

Gene: Samy\_62 Start: 37969, Stop: 38490, Start Num: 13

Candidate Starts for Samy\_62:

(Start: 13 @37969 has 1 MA's), (25, 38059), (44, 38200),

Gene: SarFire\_70 Start: 44563, Stop: 43985, Start Num: 8

Candidate Starts for SarFire\_70:

(Start: 8 @44563 has 11 MA's), (Start: 10 @44551 has 1 MA's), (14, 44533), (32, 44392), (36, 44365), (41, 44326), (45, 44296), (65, 44083),

Gene: Savbucketdawg\_80 Start: 55174, Stop: 54659, Start Num: 11

Candidate Starts for Savbucketdawg\_80:

(Start: 9 @55180 has 1 MA's), (Start: 11 @55174 has 17 MA's), (14, 55162), (20, 55126), (24, 55081), (27, 55066), (39, 54988), (43, 54961), (45, 54940), (49, 54916), (70, 54706), (72, 54694), (74, 54670),

Gene: Seanderson\_46 Start: 33923, Stop: 33447, Start Num: 19

Candidate Starts for Seanderson\_46:

(Start: 19 @33923 has 14 MA's), (21, 33905), (22, 33884), (31, 33821), (35, 33800), (52, 33647), (58, 33569), (65, 33512), (67, 33503), (68, 33500), (71, 33476),

Gene: Shinji\_84 Start: 55913, Stop: 55398, Start Num: 11

Candidate Starts for Shinji\_84:

(Start: 9 @55919 has 1 MA's), (Start: 11 @55913 has 17 MA's), (14, 55901), (20, 55865), (24, 55820), (27, 55805), (39, 55727), (43, 55700), (45, 55679), (49, 55655), (70, 55445), (72, 55433), (74, 55409),

Gene: SmokingBunny\_86 Start: 56828, Stop: 56313, Start Num: 11

Candidate Starts for SmokingBunny\_86:

(Start: 9 @56834 has 1 MA's), (Start: 11 @56828 has 17 MA's), (14, 56816), (20, 56780), (24, 56735), (27, 56720), (39, 56642), (43, 56615), (45, 56594), (49, 56570), (70, 56360), (72, 56348), (74, 56324),

Gene: Snazzy\_68 Start: 43855, Stop: 43277, Start Num: 8

Candidate Starts for Snazzy\_68:

(Start: 8 @43855 has 11 MA's), (Start: 10 @43843 has 1 MA's), (14, 43825), (32, 43684), (36, 43657), (41, 43618), (45, 43588), (65, 43375),

Gene: SpikeBT\_61 Start: 41461, Stop: 40904, Start Num: 18

Candidate Starts for SpikeBT\_61:

(Start: 18 @41461 has 10 MA's), (23, 41419), (26, 41401), (38, 41317), (40, 41299), (48, 41248), (51, 41194), (60, 41092), (75, 40924),

Gene: Squee\_73 Start: 44893, Stop: 44315, Start Num: 8

Candidate Starts for Squee\_73:

(Start: 8 @44893 has 11 MA's), (Start: 10 @44881 has 1 MA's), (14, 44863), (32, 44722), (36, 44695), (41, 44656), (45, 44626), (65, 44413),

Gene: SwissCheese\_66 Start: 41680, Stop: 41123, Start Num: 18

Candidate Starts for SwissCheese\_66:

(Start: 18 @41680 has 10 MA's), (23, 41638), (26, 41620), (38, 41536), (40, 41518), (48, 41467), (51, 41413), (60, 41311), (75, 41143),

Gene: Thor\_70 Start: 43921, Stop: 43343, Start Num: 8

Candidate Starts for Thor\_70:

(Start: 8 @43921 has 11 MA's), (Start: 10 @43909 has 1 MA's), (14, 43891), (32, 43750), (36, 43723), (41, 43684), (45, 43654), (65, 43441),

Gene: TillyBobJoe\_83 Start: 55714, Stop: 55199, Start Num: 11

Candidate Starts for TillyBobJoe\_83:

(Start: 9 @55720 has 1 MA's), (Start: 11 @55714 has 17 MA's), (14, 55702), (20, 55666), (24, 55621), (27, 55606), (39, 55528), (43, 55501), (45, 55480), (49, 55456), (70, 55246), (72, 55234), (74, 55210),

Gene: Togo\_85 Start: 56828, Stop: 56313, Start Num: 11

Candidate Starts for Togo\_85:

(Start: 9 @56834 has 1 MA's), (Start: 11 @56828 has 17 MA's), (14, 56816), (20, 56780), (24, 56735), (27, 56720), (39, 56642), (43, 56615), (45, 56594), (49, 56570), (70, 56360), (72, 56348), (74, 56324),

Gene: Trouble\_45 Start: 34048, Stop: 33572, Start Num: 19

Candidate Starts for Trouble\_45:

(Start: 19 @34048 has 14 MA's), (21, 34030), (22, 34009), (31, 33946), (35, 33925), (52, 33772), (58, 33694), (65, 33637), (67, 33628), (68, 33625), (71, 33601),

Gene: Twister6\_84 Start: 55177, Stop: 54662, Start Num: 11

Candidate Starts for Twister6\_84:

(Start: 9 @55183 has 1 MA's), (Start: 11 @55177 has 17 MA's), (14, 55165), (20, 55129), (24, 55084), (27, 55069), (39, 54991), (43, 54964), (45, 54943), (49, 54919), (70, 54709), (72, 54697), (74, 54673),

Gene: Valary\_86 Start: 56820, Stop: 56305, Start Num: 11

Candidate Starts for Valary\_86:

(Start: 9 @56826 has 1 MA's), (Start: 11 @56820 has 17 MA's), (14, 56808), (20, 56772), (24, 56727), (27, 56712), (39, 56634), (43, 56607), (45, 56586), (49, 56562), (70, 56352), (72, 56340), (74, 56316),

Gene: VanDeWege\_87 Start: 56351, Stop: 55830, Start Num: 9

Candidate Starts for VanDeWege\_87:

(Start: 9 @56351 has 1 MA's), (Start: 11 @56345 has 17 MA's), (14, 56333), (20, 56297), (24, 56252), (27, 56237), (39, 56159), (43, 56132), (45, 56111), (49, 56087), (70, 55877), (72, 55865), (74, 55841),

Gene: Wizard\_80 Start: 55680, Stop: 55165, Start Num: 11

Candidate Starts for Wizard\_80:

(Start: 9 @55686 has 1 MA's), (Start: 11 @55680 has 17 MA's), (14, 55668), (20, 55632), (24, 55587), (27, 55572), (39, 55494), (43, 55467), (45, 55446), (49, 55422), (70, 55212), (72, 55200), (74, 55176),

Gene: Wollypog\_58 Start: 43704, Stop: 44234, Start Num: 16

Candidate Starts for Wollypog\_58:

(Start: 16 @43704 has 2 MA's), (30, 43818), (37, 43863), (53, 44016), (61, 44124),