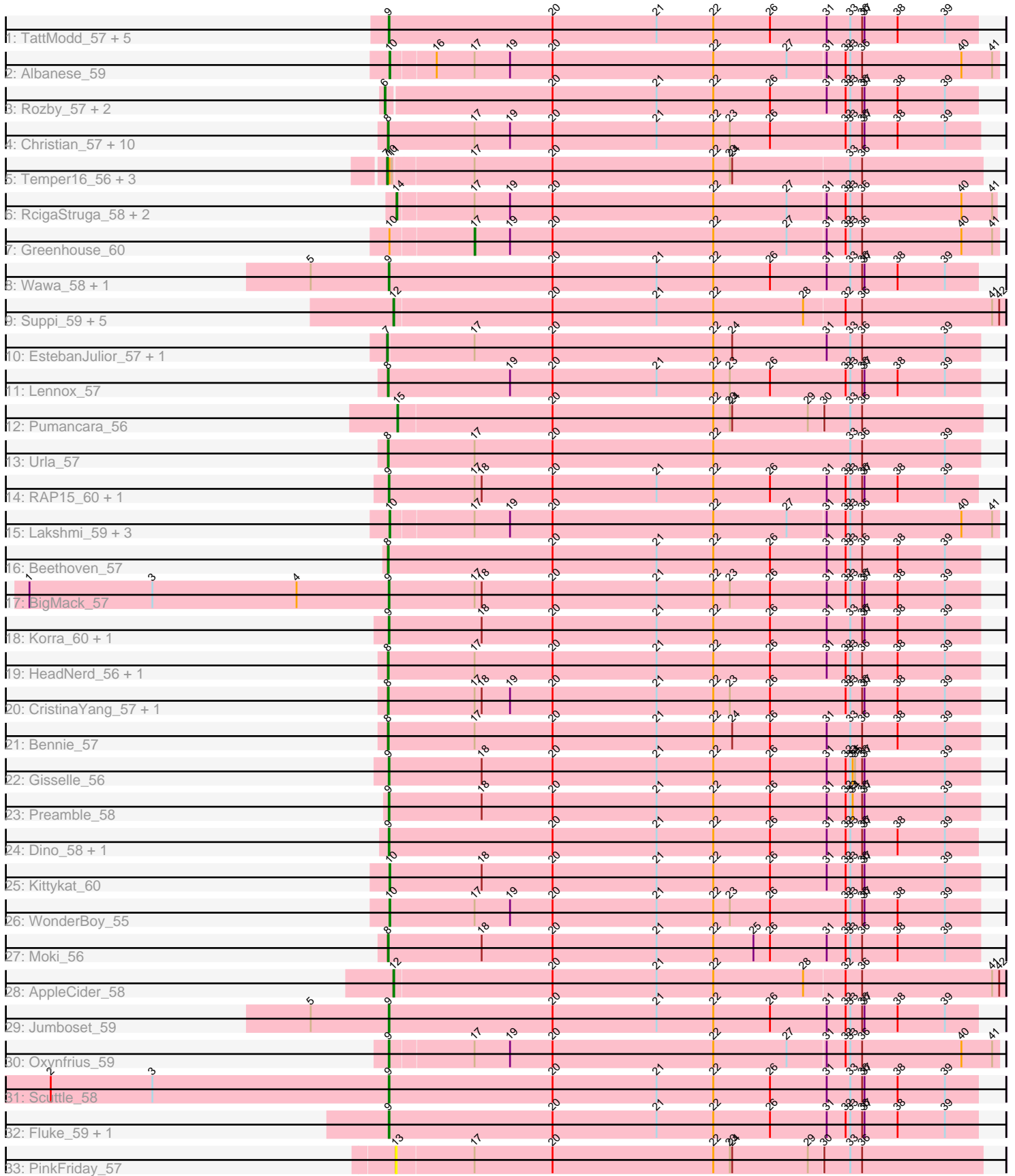


# Pham 163583



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 163583 Report

This analysis was run 04/28/24 on database version 559.

Pham number 163583 has 71 members, 3 are drafts.

Phages represented in each track:

- Track 1 : TattModd\_57, Cholula\_58, BrotherBLo\_58, Potatoes\_58, Immaculata\_58, Kalizoi\_59
- Track 2 : Albanese\_59
- Track 3 : Rozby\_57, Riverdale\_58, Savage2526\_58
- Track 4 : Christian\_57, PitaDog\_57, ChewChew\_57, Bodacious\_57, Makoto\_56, Lasagna\_55, OurGirlNessie\_55, DrRobert\_55, LilStuart\_56, Nancia\_57, Lucy\_56
- Track 5 : Temper16\_56, Maria1952\_55, Herb\_56, Daiboju\_56
- Track 6 : RcigaStruga\_58, Huntingdon\_58, Misaeng\_57
- Track 7 : Greenhouse\_60
- Track 8 : Wawa\_58, Vallejo\_58
- Track 9 : Suppi\_59, Litotes\_58, CallieOMalley\_59, Canowicakte\_59, Wayne\_61, PartyCup\_64
- Track 10 : EstebanJulior\_57, MamaPearl\_57
- Track 11 : Lennox\_57
- Track 12 : Pumancara\_56
- Track 13 : Urla\_57
- Track 14 : RAP15\_60, MeganNoll\_59
- Track 15 : Lakshmi\_59, Joann\_60, GreenHearts\_60, Nubia\_59
- Track 16 : Beethoven\_57
- Track 17 : BigMack\_57
- Track 18 : Korra\_60, Glenn\_60
- Track 19 : HeadNerd\_56, Huckleberry\_56
- Track 20 : CristinaYang\_57, Pterodactyl\_57
- Track 21 : Bennie\_57
- Track 22 : Gisselle\_56
- Track 23 : Preamble\_58
- Track 24 : Dino\_58, Zorro\_58
- Track 25 : Kittykat\_60
- Track 26 : WonderBoy\_55
- Track 27 : Moki\_56
- Track 28 : AppleCider\_58
- Track 29 : Jumboset\_59
- Track 30 : Oxynfrius\_59
- Track 31 : Scuttle\_58
- Track 32 : Fluke\_59, MrGloopy\_59
- Track 33 : PinkFriday\_57

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

The start number called the most often in the published annotations is 9, it was called in 21 of the 68 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- BigMack\_57, BrotherBLo\_58, Cholula\_58, Dino\_58, Fluke\_59, Gisselle\_56, Glenn\_60, Immaculata\_58, Jumboset\_59, Kalizoi\_59, Korra\_60, MeganNoll\_59, MrGloopy\_59, Oxynfrius\_59, Potatoes\_58, Preamble\_58, RAP15\_60, Scuttle\_58, TattModd\_57, Vallejo\_58, Wawa\_58, Zorro\_58,

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

- 

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

- Albanese\_59, AppleCider\_58, Beethoven\_57, Bennie\_57, Bodacious\_57, CallieOMalley\_59, Canowicakte\_59, ChewChew\_57, Christian\_57, CristinaYang\_57, Daiboju\_56, DrRobert\_55, EstebanJulior\_57, GreenHearts\_60, Greenhouse\_60, HeadNerd\_56, Herb\_56, Huckleberry\_56, Huntingdon\_58, Joann\_60, Kittykat\_60, Lakshmi\_59, Lasagna\_55, Lennox\_57, LilStuart\_56, Litotes\_58, Lucy\_56, Makoto\_56, MamaPearl\_57, Maria1952\_55, Misaeng\_57, Moki\_56, Nancia\_57, Nubia\_59, OurGirlNessie\_55, PartyCup\_64, PinkFriday\_57, PitaDog\_57, Pterodactyl\_57, Pumancara\_56, RcigaStruga\_58, Riverdale\_58, Rozby\_57, Savage2526\_58, Suppi\_59, Temper16\_56, Urla\_57, Wayne\_61, WonderBoy\_55,

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

Start 6:

- Found in 3 of 71 ( 4.2% ) of genes in pham
- Manual Annotations of this start: 3 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Riverdale\_58 (AK), Rozby\_57 (AK), Savage2526\_58 (AK),

Start 7:

- Found in 6 of 71 ( 8.5% ) of genes in pham
- Manual Annotations of this start: 6 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Daiboju\_56 (AK), EstebanJulior\_57 (AK), Herb\_56 (AK), MamaPearl\_57 (AK), Maria1952\_55 (AK), Temper16\_56 (AK),

Start 8:

- Found in 20 of 71 ( 28.2% ) of genes in pham
- Manual Annotations of this start: 20 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Beethoven\_57 (AK), Bennie\_57 (AK), Bodacious\_57 (AK), ChewChew\_57 (AK), Christian\_57 (AK), CristinaYang\_57 (AK), DrRobert\_55 (AK), HeadNerd\_56 (AK), Huckleberry\_56 (AK), Lasagna\_55 (AK), Lennox\_57 (AK), LilStuart\_56 (AK), Lucy\_56 (AK), Makoto\_56 (AK), Moki\_56 (AK), Nancia\_57 (AK), OurGirlNessie\_55 (AK), PitaDog\_57 (AK), Pterodactyl\_57 (AK),

Urla\_57 (AK),

Start 9:

- Found in 22 of 71 ( 31.0% ) of genes in pham
- Manual Annotations of this start: 21 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BigMack\_57 (AK), BrotherBLo\_58 (AK), Cholula\_58 (AK), Dino\_58 (AK), Fluke\_59 (AK), Gisselle\_56 (AK), Glenn\_60 (AK), Immaculata\_58 (AK), Jumboset\_59 (AK), Kalizoi\_59 (AK), Korra\_60 (AK), MeganNoll\_59 (AK), MrGloopy\_59 (AK), Oxynfrius\_59 (AK), Potatoes\_58 (AK), Preamble\_58 (AK), RAP15\_60 (AK), Scuttle\_58 (AK), TattModd\_57 (AK), Vallejo\_58 (AK), Wawa\_58 (AK), Zorro\_58 (AK),

Start 10:

- Found in 12 of 71 ( 16.9% ) of genes in pham
- Manual Annotations of this start: 7 of 68
- Called 58.3% of time when present
- Phage (with cluster) where this start called: Albanese\_59 (AK), GreenHearts\_60 (AK), Joann\_60 (AK), Kittykat\_60 (AK), Lakshmi\_59 (AK), Nubia\_59 (AK), WonderBoy\_55 (AK),

Start 12:

- Found in 7 of 71 ( 9.9% ) of genes in pham
- Manual Annotations of this start: 6 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AppleCider\_58 (AK), CallieOMalley\_59 (AK), Canowicakte\_59 (AK), Litotes\_58 (AK), PartyCup\_64 (AK), Suppi\_59 (AK), Wayne\_61 (AK),

Start 13:

- Found in 1 of 71 ( 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: PinkFriday\_57 (AK),

Start 14:

- Found in 3 of 71 ( 4.2% ) of genes in pham
- Manual Annotations of this start: 3 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Huntingdon\_58 (AK), Misaeng\_57 (AK), RcigaStruga\_58 (AK),

Start 15:

- Found in 1 of 71 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Pumancara\_56 (AK),

Start 17:

- Found in 38 of 71 ( 53.5% ) of genes in pham
- Manual Annotations of this start: 1 of 68
- Called 2.6% of time when present
- Phage (with cluster) where this start called: Greenhouse\_60 (AK),

## Summary by clusters:

There is one cluster represented in this pham: AK

Info for manual annotations of cluster AK:

- Start number 6 was manually annotated 3 times for cluster AK.
- Start number 7 was manually annotated 6 times for cluster AK.
- Start number 8 was manually annotated 20 times for cluster AK.
- Start number 9 was manually annotated 21 times for cluster AK.
- Start number 10 was manually annotated 7 times for cluster AK.
- Start number 12 was manually annotated 6 times for cluster AK.
- Start number 14 was manually annotated 3 times for cluster AK.
- Start number 15 was manually annotated 1 time for cluster AK.
- Start number 17 was manually annotated 1 time for cluster AK.

### **Gene Information:**

Gene: Albanese\_59 Start: 42452, Stop: 43216, Start Num: 10

Candidate Starts for Albanese\_59:

(Start: 10 @42452 has 7 MA's), (16, 42506), (Start: 17 @42554 has 1 MA's), (19, 42599), (20, 42653), (22, 42857), (27, 42950), (31, 42998), (32, 43022), (33, 43028), (36, 43043), (40, 43169), (41, 43208),

Gene: AppleCider\_58 Start: 42009, Stop: 42779, Start Num: 12

Candidate Starts for AppleCider\_58:

(Start: 12 @42009 has 6 MA's), (20, 42207), (21, 42339), (22, 42411), (28, 42525), (32, 42576), (36, 42597), (41, 42762), (42, 42771),

Gene: Beethoven\_57 Start: 41725, Stop: 42474, Start Num: 8

Candidate Starts for Beethoven\_57:

(Start: 8 @41725 has 20 MA's), (20, 41932), (21, 42064), (22, 42136), (26, 42208), (31, 42280), (32, 42304), (33, 42310), (36, 42325), (38, 42370), (39, 42430),

Gene: Bennie\_57 Start: 40865, Stop: 41614, Start Num: 8

Candidate Starts for Bennie\_57:

(Start: 8 @40865 has 20 MA's), (Start: 17 @40973 has 1 MA's), (20, 41072), (21, 41204), (22, 41276), (24, 41300), (26, 41348), (31, 41420), (33, 41450), (36, 41465), (38, 41510), (39, 41570),

Gene: BigMack\_57 Start: 41314, Stop: 42063, Start Num: 9

Candidate Starts for BigMack\_57:

(1, 40858), (3, 41014), (4, 41197), (Start: 9 @41314 has 21 MA's), (Start: 17 @41422 has 1 MA's), (18, 41431), (20, 41521), (21, 41653), (22, 41725), (23, 41746), (26, 41797), (31, 41869), (32, 41893), (33, 41899), (36, 41914), (37, 41917), (38, 41959), (39, 42019),

Gene: Bodacious\_57 Start: 41287, Stop: 42036, Start Num: 8

Candidate Starts for Bodacious\_57:

(Start: 8 @41287 has 20 MA's), (Start: 17 @41395 has 1 MA's), (19, 41440), (20, 41494), (21, 41626), (22, 41698), (23, 41719), (26, 41770), (32, 41866), (33, 41872), (36, 41887), (37, 41890), (38, 41932), (39, 41992),

Gene: BrotherBLo\_58 Start: 41971, Stop: 42717, Start Num: 9

Candidate Starts for BrotherBLo\_58:

(Start: 9 @41971 has 21 MA's), (20, 42178), (21, 42310), (22, 42382), (26, 42454), (31, 42526), (33, 42556), (36, 42571), (37, 42574), (38, 42616), (39, 42676),

Gene: CallieOMalley\_59 Start: 42197, Stop: 42967, Start Num: 12

Candidate Starts for CallieOMalley\_59:

(Start: 12 @42197 has 6 MA's), (20, 42395), (21, 42527), (22, 42599), (28, 42713), (32, 42764), (36, 42785), (41, 42950), (42, 42959),

Gene: Canowicakte\_59 Start: 42249, Stop: 43019, Start Num: 12

Candidate Starts for Canowicakte\_59:

(Start: 12 @42249 has 6 MA's), (20, 42447), (21, 42579), (22, 42651), (28, 42765), (32, 42816), (36, 42837), (41, 43002), (42, 43011),

Gene: ChewChew\_57 Start: 41417, Stop: 42166, Start Num: 8

Candidate Starts for ChewChew\_57:

(Start: 8 @41417 has 20 MA's), (Start: 17 @41525 has 1 MA's), (19, 41570), (20, 41624), (21, 41756), (22, 41828), (23, 41849), (26, 41900), (32, 41996), (33, 42002), (36, 42017), (37, 42020), (38, 42062), (39, 42122),

Gene: Cholula\_58 Start: 41981, Stop: 42727, Start Num: 9

Candidate Starts for Cholula\_58:

(Start: 9 @41981 has 21 MA's), (20, 42188), (21, 42320), (22, 42392), (26, 42464), (31, 42536), (33, 42566), (36, 42581), (37, 42584), (38, 42626), (39, 42686),

Gene: Christian\_57 Start: 41129, Stop: 41878, Start Num: 8

Candidate Starts for Christian\_57:

(Start: 8 @41129 has 20 MA's), (Start: 17 @41237 has 1 MA's), (19, 41282), (20, 41336), (21, 41468), (22, 41540), (23, 41561), (26, 41612), (32, 41708), (33, 41714), (36, 41729), (37, 41732), (38, 41774), (39, 41834),

Gene: CristinaYang\_57 Start: 41414, Stop: 42163, Start Num: 8

Candidate Starts for CristinaYang\_57:

(Start: 8 @41414 has 20 MA's), (Start: 17 @41522 has 1 MA's), (18, 41531), (19, 41567), (20, 41621), (21, 41753), (22, 41825), (23, 41846), (26, 41897), (32, 41993), (33, 41999), (36, 42014), (37, 42017), (38, 42059), (39, 42119),

Gene: Daiboju\_56 Start: 42005, Stop: 42748, Start Num: 7

Candidate Starts for Daiboju\_56:

(Start: 7 @42005 has 6 MA's), (Start: 10 @42008 has 7 MA's), (11, 42011), (Start: 17 @42107 has 1 MA's), (20, 42206), (22, 42410), (23, 42431), (24, 42434), (33, 42581), (36, 42596),

Gene: Dino\_58 Start: 41884, Stop: 42630, Start Num: 9

Candidate Starts for Dino\_58:

(Start: 9 @41884 has 21 MA's), (20, 42091), (21, 42223), (22, 42295), (26, 42367), (31, 42439), (32, 42463), (33, 42469), (36, 42484), (37, 42487), (38, 42529), (39, 42589),

Gene: DrRobert\_55 Start: 40648, Stop: 41397, Start Num: 8

Candidate Starts for DrRobert\_55:

(Start: 8 @40648 has 20 MA's), (Start: 17 @40756 has 1 MA's), (19, 40801), (20, 40855), (21, 40987), (22, 41059), (23, 41080), (26, 41131), (32, 41227), (33, 41233), (36, 41248), (37, 41251), (38, 41293), (39, 41353),

Gene: EstebanJulior\_57 Start: 41807, Stop: 42556, Start Num: 7

Candidate Starts for EstebanJulior\_57:

(Start: 7 @41807 has 6 MA's), (Start: 17 @41915 has 1 MA's), (20, 42014), (22, 42218), (24, 42242), (31, 42362), (33, 42392), (36, 42407), (39, 42512),

Gene: Fluke\_59 Start: 42342, Stop: 43088, Start Num: 9

Candidate Starts for Fluke\_59:

(Start: 9 @42342 has 21 MA's), (20, 42549), (21, 42681), (22, 42753), (26, 42825), (31, 42897), (32, 42921), (33, 42927), (36, 42942), (37, 42945), (38, 42987), (39, 43047),

Gene: Gisselle\_56 Start: 41030, Stop: 41779, Start Num: 9

Candidate Starts for Gisselle\_56:

(Start: 9 @41030 has 21 MA's), (18, 41147), (20, 41237), (21, 41369), (22, 41441), (26, 41513), (31, 41585), (32, 41609), (33, 41615), (34, 41618), (35, 41621), (36, 41630), (37, 41633), (39, 41735),

Gene: Glenn\_60 Start: 42803, Stop: 43552, Start Num: 9

Candidate Starts for Glenn\_60:

(Start: 9 @42803 has 21 MA's), (18, 42920), (20, 43010), (21, 43142), (22, 43214), (26, 43286), (31, 43358), (33, 43388), (36, 43403), (37, 43406), (38, 43448), (39, 43508),

Gene: GreenHearts\_60 Start: 42770, Stop: 43534, Start Num: 10

Candidate Starts for GreenHearts\_60:

(Start: 10 @42770 has 7 MA's), (Start: 17 @42872 has 1 MA's), (19, 42917), (20, 42971), (22, 43175), (27, 43268), (31, 43316), (32, 43340), (33, 43346), (36, 43361), (40, 43487), (41, 43526),

Gene: Greenhouse\_60 Start: 42621, Stop: 43283, Start Num: 17

Candidate Starts for Greenhouse\_60:

(Start: 10 @42519 has 7 MA's), (Start: 17 @42621 has 1 MA's), (19, 42666), (20, 42720), (22, 42924), (27, 43017), (31, 43065), (32, 43089), (33, 43095), (36, 43110), (40, 43236), (41, 43275),

Gene: HeadNerd\_56 Start: 40759, Stop: 41508, Start Num: 8

Candidate Starts for HeadNerd\_56:

(Start: 8 @40759 has 20 MA's), (Start: 17 @40867 has 1 MA's), (20, 40966), (21, 41098), (22, 41170), (26, 41242), (31, 41314), (32, 41338), (33, 41344), (36, 41359), (38, 41404), (39, 41464),

Gene: Herb\_56 Start: 42004, Stop: 42747, Start Num: 7

Candidate Starts for Herb\_56:

(Start: 7 @42004 has 6 MA's), (Start: 10 @42007 has 7 MA's), (11, 42010), (Start: 17 @42106 has 1 MA's), (20, 42205), (22, 42409), (23, 42430), (24, 42433), (33, 42580), (36, 42595),

Gene: Huckleberry\_56 Start: 40763, Stop: 41512, Start Num: 8

Candidate Starts for Huckleberry\_56:

(Start: 8 @40763 has 20 MA's), (Start: 17 @40871 has 1 MA's), (20, 40970), (21, 41102), (22, 41174), (26, 41246), (31, 41318), (32, 41342), (33, 41348), (36, 41363), (38, 41408), (39, 41468),

Gene: Huntingdon\_58 Start: 42287, Stop: 43039, Start Num: 14

Candidate Starts for Huntingdon\_58:

(Start: 14 @42287 has 3 MA's), (Start: 17 @42380 has 1 MA's), (19, 42425), (20, 42479), (22, 42683), (27, 42776), (31, 42824), (32, 42848), (33, 42854), (36, 42869), (40, 42995), (41, 43034),

Gene: Immaculata\_58 Start: 41981, Stop: 42727, Start Num: 9

Candidate Starts for Immaculata\_58:

(Start: 9 @41981 has 21 MA's), (20, 42188), (21, 42320), (22, 42392), (26, 42464), (31, 42536), (33, 42566), (36, 42581), (37, 42584), (38, 42626), (39, 42686),

Gene: Joann\_60 Start: 42521, Stop: 43285, Start Num: 10

Candidate Starts for Joann\_60:

(Start: 10 @42521 has 7 MA's), (Start: 17 @42623 has 1 MA's), (19, 42668), (20, 42722), (22, 42926), (27, 43019), (31, 43067), (32, 43091), (33, 43097), (36, 43112), (40, 43238), (41, 43277),

Gene: Jumboset\_59 Start: 42310, Stop: 43056, Start Num: 9

Candidate Starts for Jumboset\_59:

(5, 42211), (Start: 9 @42310 has 21 MA's), (20, 42517), (21, 42649), (22, 42721), (26, 42793), (31, 42865), (32, 42889), (33, 42895), (36, 42910), (37, 42913), (38, 42955), (39, 43015),

Gene: Kalizoi\_59 Start: 41838, Stop: 42584, Start Num: 9

Candidate Starts for Kalizoi\_59:

(Start: 9 @41838 has 21 MA's), (20, 42045), (21, 42177), (22, 42249), (26, 42321), (31, 42393), (33, 42423), (36, 42438), (37, 42441), (38, 42483), (39, 42543),

Gene: Kittykat\_60 Start: 41544, Stop: 42293, Start Num: 10

Candidate Starts for Kittykat\_60:

(Start: 10 @41544 has 7 MA's), (18, 41661), (20, 41751), (21, 41883), (22, 41955), (26, 42027), (31, 42099), (32, 42123), (33, 42129), (36, 42144), (37, 42147), (39, 42249),

Gene: Korra\_60 Start: 42077, Stop: 42826, Start Num: 9

Candidate Starts for Korra\_60:

(Start: 9 @42077 has 21 MA's), (18, 42194), (20, 42284), (21, 42416), (22, 42488), (26, 42560), (31, 42632), (33, 42662), (36, 42677), (37, 42680), (38, 42722), (39, 42782),

Gene: Lakshmi\_59 Start: 42540, Stop: 43304, Start Num: 10

Candidate Starts for Lakshmi\_59:

(Start: 10 @42540 has 7 MA's), (Start: 17 @42642 has 1 MA's), (19, 42687), (20, 42741), (22, 42945), (27, 43038), (31, 43086), (32, 43110), (33, 43116), (36, 43131), (40, 43257), (41, 43296),

Gene: Lasagna\_55 Start: 40650, Stop: 41399, Start Num: 8

Candidate Starts for Lasagna\_55:

(Start: 8 @40650 has 20 MA's), (Start: 17 @40758 has 1 MA's), (19, 40803), (20, 40857), (21, 40989), (22, 41061), (23, 41082), (26, 41133), (32, 41229), (33, 41235), (36, 41250), (37, 41253), (38, 41295), (39, 41355),

Gene: Lennox\_57 Start: 41135, Stop: 41884, Start Num: 8

Candidate Starts for Lennox\_57:

(Start: 8 @41135 has 20 MA's), (19, 41288), (20, 41342), (21, 41474), (22, 41546), (23, 41567), (26, 41618), (32, 41714), (33, 41720), (36, 41735), (37, 41738), (38, 41780), (39, 41840),

Gene: LilStuart\_56 Start: 40998, Stop: 41747, Start Num: 8

Candidate Starts for LilStuart\_56:

(Start: 8 @40998 has 20 MA's), (Start: 17 @41106 has 1 MA's), (19, 41151), (20, 41205), (21, 41337), (22, 41409), (23, 41430), (26, 41481), (32, 41577), (33, 41583), (36, 41598), (37, 41601), (38, 41643), (39, 41703),

Gene: Litotes\_58 Start: 41796, Stop: 42566, Start Num: 12

Candidate Starts for Litotes\_58:



(Start: 12 @41796 has 6 MA's), (20, 41994), (21, 42126), (22, 42198), (28, 42312), (32, 42363), (36, 42384), (41, 42549), (42, 42558),

Gene: Lucy\_56 Start: 40993, Stop: 41742, Start Num: 8

Candidate Starts for Lucy\_56:

(Start: 8 @40993 has 20 MA's), (Start: 17 @41101 has 1 MA's), (19, 41146), (20, 41200), (21, 41332), (22, 41404), (23, 41425), (26, 41476), (32, 41572), (33, 41578), (36, 41593), (37, 41596), (38, 41638), (39, 41698),

Gene: Makoto\_56 Start: 40891, Stop: 41640, Start Num: 8

Candidate Starts for Makoto\_56:

(Start: 8 @40891 has 20 MA's), (Start: 17 @40999 has 1 MA's), (19, 41044), (20, 41098), (21, 41230), (22, 41302), (23, 41323), (26, 41374), (32, 41470), (33, 41476), (36, 41491), (37, 41494), (38, 41536), (39, 41596),

Gene: MamaPearl\_57 Start: 41807, Stop: 42556, Start Num: 7

Candidate Starts for MamaPearl\_57:

(Start: 7 @41807 has 6 MA's), (Start: 17 @41915 has 1 MA's), (20, 42014), (22, 42218), (24, 42242), (31, 42362), (33, 42392), (36, 42407), (39, 42512),

Gene: Maria1952\_55 Start: 42004, Stop: 42747, Start Num: 7

Candidate Starts for Maria1952\_55:

(Start: 7 @42004 has 6 MA's), (Start: 10 @42007 has 7 MA's), (11, 42010), (Start: 17 @42106 has 1 MA's), (20, 42205), (22, 42409), (23, 42430), (24, 42433), (33, 42580), (36, 42595),

Gene: MeganNoll\_59 Start: 42579, Stop: 43325, Start Num: 9

Candidate Starts for MeganNoll\_59:

(Start: 9 @42579 has 21 MA's), (Start: 17 @42687 has 1 MA's), (18, 42696), (20, 42786), (21, 42918), (22, 42990), (26, 43062), (31, 43134), (32, 43158), (33, 43164), (36, 43179), (37, 43182), (38, 43224), (39, 43284),

Gene: Misaeng\_57 Start: 42213, Stop: 42965, Start Num: 14

Candidate Starts for Misaeng\_57:

(Start: 14 @42213 has 3 MA's), (Start: 17 @42306 has 1 MA's), (19, 42351), (20, 42405), (22, 42609), (27, 42702), (31, 42750), (32, 42774), (33, 42780), (36, 42795), (40, 42921), (41, 42960),

Gene: Moki\_56 Start: 40952, Stop: 41701, Start Num: 8

Candidate Starts for Moki\_56:

(Start: 8 @40952 has 20 MA's), (18, 41069), (20, 41159), (21, 41291), (22, 41363), (25, 41414), (26, 41435), (31, 41507), (32, 41531), (33, 41537), (36, 41552), (38, 41597), (39, 41657),

Gene: MrGloopy\_59 Start: 42231, Stop: 42977, Start Num: 9

Candidate Starts for MrGloopy\_59:

(Start: 9 @42231 has 21 MA's), (20, 42438), (21, 42570), (22, 42642), (26, 42714), (31, 42786), (32, 42810), (33, 42816), (36, 42831), (37, 42834), (38, 42876), (39, 42936),

Gene: Nancia\_57 Start: 41286, Stop: 42035, Start Num: 8

Candidate Starts for Nancia\_57:

(Start: 8 @41286 has 20 MA's), (Start: 17 @41394 has 1 MA's), (19, 41439), (20, 41493), (21, 41625), (22, 41697), (23, 41718), (26, 41769), (32, 41865), (33, 41871), (36, 41886), (37, 41889), (38, 41931), (39, 41991),

Gene: Nubia\_59 Start: 42383, Stop: 43147, Start Num: 10

Candidate Starts for Nubia\_59:

(Start: 10 @42383 has 7 MA's), (Start: 17 @42485 has 1 MA's), (19, 42530), (20, 42584), (22, 42788), (27, 42881), (31, 42929), (32, 42953), (33, 42959), (36, 42974), (40, 43100), (41, 43139),

Gene: OurGirlNessie\_55 Start: 40615, Stop: 41364, Start Num: 8

Candidate Starts for OurGirlNessie\_55:

(Start: 8 @40615 has 20 MA's), (Start: 17 @40723 has 1 MA's), (19, 40768), (20, 40822), (21, 40954), (22, 41026), (23, 41047), (26, 41098), (32, 41194), (33, 41200), (36, 41215), (37, 41218), (38, 41260), (39, 41320),

Gene: Oxynfrius\_59 Start: 42501, Stop: 43265, Start Num: 9

Candidate Starts for Oxynfrius\_59:

(Start: 9 @42501 has 21 MA's), (Start: 17 @42603 has 1 MA's), (19, 42648), (20, 42702), (22, 42906), (27, 42999), (31, 43047), (32, 43071), (33, 43077), (36, 43092), (40, 43218), (41, 43257),

Gene: PartyCup\_64 Start: 42444, Stop: 43214, Start Num: 12

Candidate Starts for PartyCup\_64:

(Start: 12 @42444 has 6 MA's), (20, 42642), (21, 42774), (22, 42846), (28, 42960), (32, 43011), (36, 43032), (41, 43197), (42, 43206),

Gene: PinkFriday\_57 Start: 41263, Stop: 41997, Start Num: 13

Candidate Starts for PinkFriday\_57:

(13, 41263), (Start: 17 @41356 has 1 MA's), (20, 41455), (22, 41659), (23, 41680), (24, 41683), (29, 41779), (30, 41797), (33, 41830), (36, 41845),

Gene: PitaDog\_57 Start: 41011, Stop: 41760, Start Num: 8

Candidate Starts for PitaDog\_57:

(Start: 8 @41011 has 20 MA's), (Start: 17 @41119 has 1 MA's), (19, 41164), (20, 41218), (21, 41350), (22, 41422), (23, 41443), (26, 41494), (32, 41590), (33, 41596), (36, 41611), (37, 41614), (38, 41656), (39, 41716),

Gene: Potatoes\_58 Start: 41981, Stop: 42727, Start Num: 9

Candidate Starts for Potatoes\_58:

(Start: 9 @41981 has 21 MA's), (20, 42188), (21, 42320), (22, 42392), (26, 42464), (31, 42536), (33, 42566), (36, 42581), (37, 42584), (38, 42626), (39, 42686),

Gene: Preamble\_58 Start: 41202, Stop: 41951, Start Num: 9

Candidate Starts for Preamble\_58:

(Start: 9 @41202 has 21 MA's), (18, 41319), (20, 41409), (21, 41541), (22, 41613), (26, 41685), (31, 41757), (32, 41781), (33, 41787), (34, 41790), (36, 41802), (37, 41805), (39, 41907),

Gene: Pterodactyl\_57 Start: 41252, Stop: 42001, Start Num: 8

Candidate Starts for Pterodactyl\_57:

(Start: 8 @41252 has 20 MA's), (Start: 17 @41360 has 1 MA's), (18, 41369), (19, 41405), (20, 41459), (21, 41591), (22, 41663), (23, 41684), (26, 41735), (32, 41831), (33, 41837), (36, 41852), (37, 41855), (38, 41897), (39, 41957),

Gene: Pumancara\_56 Start: 40927, Stop: 41661, Start Num: 15

Candidate Starts for Pumancara\_56:

(Start: 15 @40927 has 1 MA's), (20, 41119), (22, 41323), (23, 41344), (24, 41347), (29, 41443), (30, 41461), (33, 41494), (36, 41509),

Gene: RAP15\_60 Start: 42580, Stop: 43326, Start Num: 9

Candidate Starts for RAP15\_60:

(Start: 9 @42580 has 21 MA's), (Start: 17 @42688 has 1 MA's), (18, 42697), (20, 42787), (21, 42919), (22, 42991), (26, 43063), (31, 43135), (32, 43159), (33, 43165), (36, 43180), (37, 43183), (38, 43225), (39, 43285),

Gene: RcigaStruga\_58 Start: 42287, Stop: 43039, Start Num: 14

Candidate Starts for RcigaStruga\_58:

(Start: 14 @42287 has 3 MA's), (Start: 17 @42380 has 1 MA's), (19, 42425), (20, 42479), (22, 42683), (27, 42776), (31, 42824), (32, 42848), (33, 42854), (36, 42869), (40, 42995), (41, 43034),

Gene: Riverdale\_58 Start: 41921, Stop: 42667, Start Num: 6

Candidate Starts for Riverdale\_58:

(Start: 6 @41921 has 3 MA's), (20, 42128), (21, 42260), (22, 42332), (26, 42404), (31, 42476), (32, 42500), (33, 42506), (36, 42521), (37, 42524), (38, 42566), (39, 42626),

Gene: Rozby\_57 Start: 41725, Stop: 42471, Start Num: 6

Candidate Starts for Rozby\_57:

(Start: 6 @41725 has 3 MA's), (20, 41932), (21, 42064), (22, 42136), (26, 42208), (31, 42280), (32, 42304), (33, 42310), (36, 42325), (37, 42328), (38, 42370), (39, 42430),

Gene: Savage2526\_58 Start: 41948, Stop: 42694, Start Num: 6

Candidate Starts for Savage2526\_58:

(Start: 6 @41948 has 3 MA's), (20, 42155), (21, 42287), (22, 42359), (26, 42431), (31, 42503), (32, 42527), (33, 42533), (36, 42548), (37, 42551), (38, 42593), (39, 42653),

Gene: Scuttle\_58 Start: 42259, Stop: 43005, Start Num: 9

Candidate Starts for Scuttle\_58:

(2, 41830), (3, 41959), (Start: 9 @42259 has 21 MA's), (20, 42466), (21, 42598), (22, 42670), (26, 42742), (31, 42814), (33, 42844), (36, 42859), (37, 42862), (38, 42904), (39, 42964),

Gene: Suppi\_59 Start: 42249, Stop: 43019, Start Num: 12

Candidate Starts for Suppi\_59:

(Start: 12 @42249 has 6 MA's), (20, 42447), (21, 42579), (22, 42651), (28, 42765), (32, 42816), (36, 42837), (41, 43002), (42, 43011),

Gene: TattModd\_57 Start: 41866, Stop: 42612, Start Num: 9

Candidate Starts for TattModd\_57:

(Start: 9 @41866 has 21 MA's), (20, 42073), (21, 42205), (22, 42277), (26, 42349), (31, 42421), (33, 42451), (36, 42466), (37, 42469), (38, 42511), (39, 42571),

Gene: Temper16\_56 Start: 42005, Stop: 42748, Start Num: 7

Candidate Starts for Temper16\_56:

(Start: 7 @42005 has 6 MA's), (Start: 10 @42008 has 7 MA's), (11, 42011), (Start: 17 @42107 has 1 MA's), (20, 42206), (22, 42410), (23, 42431), (24, 42434), (33, 42581), (36, 42596),

Gene: Urla\_57 Start: 41952, Stop: 42701, Start Num: 8

Candidate Starts for Urla\_57:

(Start: 8 @41952 has 20 MA's), (Start: 17 @42060 has 1 MA's), (20, 42159), (22, 42363), (33, 42537), (36, 42552), (39, 42657),

Gene: Vallejo\_58 Start: 41928, Stop: 42674, Start Num: 9

Candidate Starts for Vallejo\_58:

(5, 41829), (Start: 9 @41928 has 21 MA's), (20, 42135), (21, 42267), (22, 42339), (26, 42411), (31, 42483), (33, 42513), (36, 42528), (37, 42531), (38, 42573), (39, 42633),

Gene: Wawa\_58 Start: 42171, Stop: 42917, Start Num: 9

Candidate Starts for Wawa\_58:

(5, 42072), (Start: 9 @42171 has 21 MA's), (20, 42378), (21, 42510), (22, 42582), (26, 42654), (31, 42726), (33, 42756), (36, 42771), (37, 42774), (38, 42816), (39, 42876),

Gene: Wayne\_61 Start: 42706, Stop: 43476, Start Num: 12

Candidate Starts for Wayne\_61:

(Start: 12 @42706 has 6 MA's), (20, 42904), (21, 43036), (22, 43108), (28, 43222), (32, 43273), (36, 43294), (41, 43459), (42, 43468),

Gene: WonderBoy\_55 Start: 40719, Stop: 41468, Start Num: 10

Candidate Starts for WonderBoy\_55:

(Start: 10 @40719 has 7 MA's), (Start: 17 @40827 has 1 MA's), (19, 40872), (20, 40926), (21, 41058), (22, 41130), (23, 41151), (26, 41202), (32, 41298), (33, 41304), (36, 41319), (37, 41322), (38, 41364), (39, 41424),

Gene: Zorro\_58 Start: 41884, Stop: 42630, Start Num: 9

Candidate Starts for Zorro\_58:

(Start: 9 @41884 has 21 MA's), (20, 42091), (21, 42223), (22, 42295), (26, 42367), (31, 42439), (32, 42463), (33, 42469), (36, 42484), (37, 42487), (38, 42529), (39, 42589),