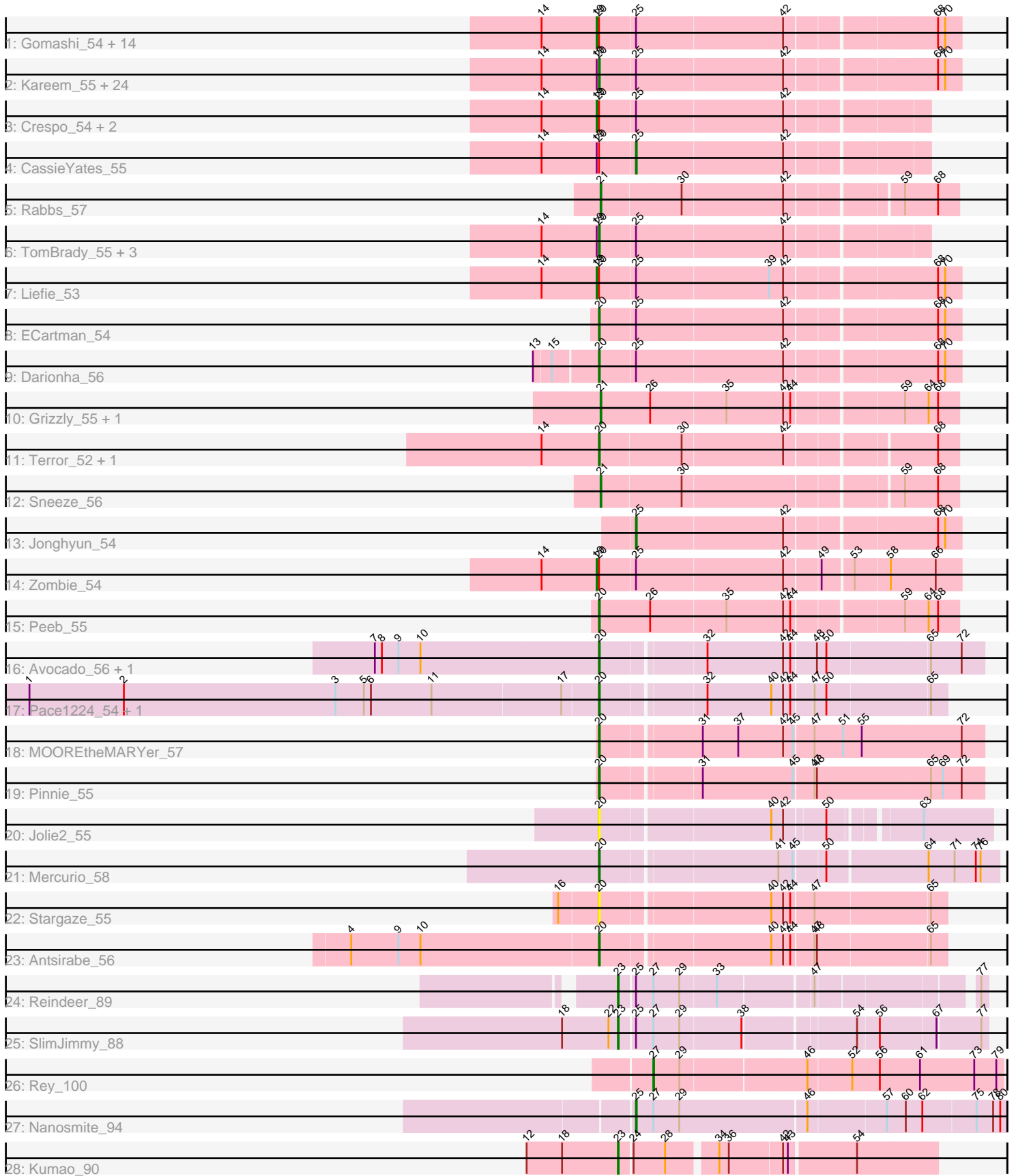


# Pham 192527



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 192527 Report

This analysis was run 11/02/24 on database version 579.

Pham number 192527 has 75 members, 6 are drafts.

Phages represented in each track:

- Track 1 : Gomashi\_54, BPs\_54, Frosty24\_54, PinkYoshi\_55, Angel\_54, BruceB\_54, CLED96\_55, Aroostook\_56, Avrafan\_54, OctaviousRex\_54, Hope\_54, Gideon\_56, Jane\_55, Annihilator\_54, Phreak\_56
- Track 2 : Kareem\_55, Periodt\_56, JorRay\_55, Coleslaw\_55, Chance64\_56, Marmie\_56, Mowgli\_56, Sweets\_54, Kasen3\_55, Sizemore\_55, ZoMa\_53, Wendigo\_53, DMoney\_54, Camri\_55, GoldenAsh\_54, Olga\_55, Schiebel\_54, LouisV14\_57, Cherrybomb426\_55, BQuat\_55, Renaissance\_55, Plagueis\_56, Hotshotbaby7\_56, AzulaCat\_53, Jolene\_55
- Track 3 : Crespo\_54, Cedasite\_55, Remy19\_55
- Track 4 : CassieYates\_55
- Track 5 : Rabbs\_57
- Track 6 : TomBrady\_55, ShaboiShabazz\_54, Maliketh\_53, Phish\_54
- Track 7 : Liefie\_53
- Track 8 : ECartman\_54
- Track 9 : Darionha\_56
- Track 10 : Grizzly\_55, Barkley26\_53
- Track 11 : Terror\_52, Taheera\_52
- Track 12 : Sneeze\_56
- Track 13 : Jonghyun\_54
- Track 14 : Zombie\_54
- Track 15 : Peeb\_55
- Track 16 : Avocado\_56, Cambiare\_55
- Track 17 : Pace1224\_54, FlagStaff\_53
- Track 18 : MOOREtheMARYer\_57
- Track 19 : Pinnie\_55
- Track 20 : Jolie2\_55
- Track 21 : Mercurio\_58
- Track 22 : Stargaze\_55
- Track 23 : Antsirabe\_56
- Track 24 : Reindeer\_89
- Track 25 : SlimJimmy\_88
- Track 26 : Rey\_100
- Track 27 : Nanosmite\_94
- Track 28 : Kumao\_90

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

The start number called the most often in the published annotations is 20, it was called in 38 of the 69 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Antsirabe\_56, Avocado\_56, AzulaCat\_53, BQuat\_55, Cambiare\_55, Camri\_55, Chance64\_56, Cherrybomb426\_55, Coleslaw\_55, DMoney\_54, Darionha\_56, ECartman\_54, FlagStaff\_53, GoldenAsh\_54, Hotshotbaby7\_56, Jolene\_55, Jolie2\_55, JorRay\_55, Kareem\_55, Kasen3\_55, LouisV14\_57, MOOREtheMARYer\_57, Maliketh\_53, Marmie\_56, Mercurio\_58, Mowgli\_56, Olga\_55, Pace1224\_54, Peeb\_55, Periodt\_56, Phish\_54, Pinnie\_55, Plagueis\_56, Renaissance\_55, Schiebel\_54, ShaboiShabazz\_54, Sizemore\_55, Stargaze\_55, Sweets\_54, Taheera\_52, Terror\_52, TomBrady\_55, Wendigo\_53, ZoMa\_53,

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

- Angel\_54, Annihilator\_54, Aroostook\_56, Avrafan\_54, BPs\_54, BruceB\_54, CLED96\_55, CassieYates\_55, Cedasite\_55, Crespo\_54, Frosty24\_54, Gideon\_56, Gomashi\_54, Hope\_54, Jane\_55, Liefie\_53, OctaviousRex\_54, Phreak\_56, PinkYoshi\_55, Remy19\_55, Zombie\_54,

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

- Barkley26\_53, Grizzly\_55, Jonghyun\_54, Kumao\_90, Nanosmite\_94, Rabbs\_57, Reindeer\_89, Rey\_100, SlimJimmy\_88, Sneeze\_56,

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

Start 19:

- Found in 50 of 75 ( 66.7% ) of genes in pham
- Manual Annotations of this start: 20 of 69
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Angel\_54 (G1), Annihilator\_54 (G1), Aroostook\_56 (G1), Avrafan\_54 (G1), BPs\_54 (G1), BruceB\_54 (G1), CLED96\_55 (G1), Cedasite\_55 (G1), Crespo\_54 (G1), Frosty24\_54 (G1), Gideon\_56 (G1), Gomashi\_54 (G1), Hope\_54 (G1), Jane\_55 (G1), Liefie\_53 (G1), OctaviousRex\_54 (G1), Phreak\_56 (G1), PinkYoshi\_55 (G1), Remy19\_55 (G1), Zombie\_54 (G1),

Start 20:

- Found in 65 of 75 ( 86.7% ) of genes in pham
- Manual Annotations of this start: 38 of 69
- Called 67.7% of time when present
- Phage (with cluster) where this start called: Antsirabe\_56 (G5), Avocado\_56 (G2), AzulaCat\_53 (G1), BQuat\_55 (G1), Cambiare\_55 (G2), Camri\_55 (G1), Chance64\_56 (G1), Cherrybomb426\_55 (G1), Coleslaw\_55 (G1), DMoney\_54 (G1), Darionha\_56 (G1), ECartman\_54 (G1), FlagStaff\_53 (G2), GoldenAsh\_54 (G1), Hotshotbaby7\_56 (G1), Jolene\_55 (G1), Jolie2\_55 (G4), JorRay\_55 (G1), Kareem\_55 (G1), Kasen3\_55 (G1), LouisV14\_57 (G1), MOOREtheMARYer\_57 (G3), Maliketh\_53 (G1), Marmie\_56 (G1), Mercurio\_58 (G4), Mowgli\_56 (G1), Olga\_55 (G1), Pace1224\_54 (G2), Peeb\_55 (G1), Periodt\_56 (G1), Phish\_54 (G1), Pinnie\_55 (G3), Plagueis\_56 (G1), Renaissance\_55 (G1), Schiebel\_54 (G1), ShaboiShabazz\_54 (G1), Sizemore\_55 (G1), Stargaze\_55 (G5), Sweets\_54 (G1), Taheera\_52 (G1), Terror\_52 (G1), TomBrady\_55 (G1), Wendigo\_53 (G1), ZoMa\_53

(G1),

Start 21:

- Found in 4 of 75 ( 5.3% ) of genes in pham
- Manual Annotations of this start: 4 of 69
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Barkley26\_53 (G1), Grizzly\_55 (G1), Rabbs\_57 (G1), Sneeze\_56 (G1),

Start 23:

- Found in 3 of 75 ( 4.0% ) of genes in pham
- Manual Annotations of this start: 3 of 69
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kumao\_90 (singleton), Reindeer\_89 (M1), SlimJimmy\_88 (M1),

Start 25:

- Found in 56 of 75 ( 74.7% ) of genes in pham
- Manual Annotations of this start: 3 of 69
- Called 5.4% of time when present
- Phage (with cluster) where this start called: CassieYates\_55 (G1), Jonghyun\_54 (G1), Nanosmite\_94 (M3),

Start 27:

- Found in 4 of 75 ( 5.3% ) of genes in pham
- Manual Annotations of this start: 1 of 69
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Rey\_100 (M2),

### **Summary by clusters:**

There are 9 clusters represented in this pham: G5, G4, G3, G2, G1, singleton, M1, M3, M2,

Info for manual annotations of cluster G1:

- Start number 19 was manually annotated 20 times for cluster G1.
- Start number 20 was manually annotated 31 times for cluster G1.
- Start number 21 was manually annotated 4 times for cluster G1.
- Start number 25 was manually annotated 2 times for cluster G1.

Info for manual annotations of cluster G2:

- Start number 20 was manually annotated 3 times for cluster G2.

Info for manual annotations of cluster G3:

- Start number 20 was manually annotated 2 times for cluster G3.

Info for manual annotations of cluster G4:

- Start number 20 was manually annotated 1 time for cluster G4.

Info for manual annotations of cluster G5:

- Start number 20 was manually annotated 1 time for cluster G5.

Info for manual annotations of cluster M1:

- Start number 23 was manually annotated 2 times for cluster M1.

Info for manual annotations of cluster M2:

- Start number 27 was manually annotated 1 time for cluster M2.

Info for manual annotations of cluster M3:

- Start number 25 was manually annotated 1 time for cluster M3.

### **Gene Information:**

Gene: Angel\_54 Start: 38188, Stop: 38616, Start Num: 19

Candidate Starts for Angel\_54:

(14, 38119), (Start: 19 @38188 has 20 MA's), (Start: 20 @38191 has 38 MA's), (Start: 25 @38230 has 3 MA's), (42, 38413), (68, 38587), (70, 38596),

Gene: Annihilator\_54 Start: 38194, Stop: 38622, Start Num: 19

Candidate Starts for Annihilator\_54:

(14, 38125), (Start: 19 @38194 has 20 MA's), (Start: 20 @38197 has 38 MA's), (Start: 25 @38236 has 3 MA's), (42, 38419), (68, 38593), (70, 38602),

Gene: Antsirabe\_56 Start: 40315, Stop: 40722, Start Num: 20

Candidate Starts for Antsirabe\_56:

(4, 40006), (9, 40066), (10, 40093), (Start: 20 @40315 has 38 MA's), (40, 40513), (42, 40528), (44, 40537), (47, 40564), (48, 40567), (65, 40702),

Gene: Aroostook\_56 Start: 38650, Stop: 39078, Start Num: 19

Candidate Starts for Aroostook\_56:

(14, 38581), (Start: 19 @38650 has 20 MA's), (Start: 20 @38653 has 38 MA's), (Start: 25 @38692 has 3 MA's), (42, 38875), (68, 39049), (70, 39058),

Gene: Avocado\_56 Start: 40702, Stop: 41154, Start Num: 20

Candidate Starts for Avocado\_56:

(7, 40420), (8, 40429), (9, 40450), (10, 40477), (Start: 20 @40702 has 38 MA's), (32, 40819), (42, 40915), (44, 40924), (48, 40954), (50, 40966), (65, 41089), (72, 41128),

Gene: Avrafan\_54 Start: 38203, Stop: 38631, Start Num: 19

Candidate Starts for Avrafan\_54:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428), (68, 38602), (70, 38611),

Gene: AzulaCat\_53 Start: 38206, Stop: 38631, Start Num: 20

Candidate Starts for AzulaCat\_53:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428), (68, 38602), (70, 38611),

Gene: BPs\_54 Start: 38203, Stop: 38631, Start Num: 19

Candidate Starts for BPs\_54:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428), (68, 38602), (70, 38611),

Gene: BQuat\_55 Start: 38643, Stop: 39068, Start Num: 20

Candidate Starts for BQuat\_55:

(14, 38571), (Start: 19 @38640 has 20 MA's), (Start: 20 @38643 has 38 MA's), (Start: 25 @38682 has 3 MA's), (42, 38865), (68, 39039), (70, 39048),

Gene: Barkley26\_53 Start: 37997, Stop: 38425, Start Num: 21

Candidate Starts for Barkley26\_53:

(Start: 21 @37997 has 4 MA's), (26, 38057), (35, 38150), (42, 38222), (44, 38231), (59, 38360), (64, 38387), (68, 38399),

Gene: BruceB\_54 Start: 38203, Stop: 38631, Start Num: 19

Candidate Starts for BruceB\_54:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428), (68, 38602), (70, 38611),

Gene: CLED96\_55 Start: 38203, Stop: 38631, Start Num: 19

Candidate Starts for CLED96\_55:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428), (68, 38602), (70, 38611),

Gene: Cambiare\_55 Start: 40502, Stop: 40954, Start Num: 20

Candidate Starts for Cambiare\_55:

(7, 40220), (8, 40229), (9, 40250), (10, 40277), (Start: 20 @40502 has 38 MA's), (32, 40619), (42, 40715), (44, 40724), (48, 40754), (50, 40766), (65, 40889), (72, 40928),

Gene: Camri\_55 Start: 38206, Stop: 38631, Start Num: 20

Candidate Starts for Camri\_55:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428), (68, 38602), (70, 38611),

Gene: CassieYates\_55 Start: 38245, Stop: 38589, Start Num: 25

Candidate Starts for CassieYates\_55:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428),

Gene: Cedasite\_55 Start: 38203, Stop: 38589, Start Num: 19

Candidate Starts for Cedasite\_55:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428),

Gene: Chance64\_56 Start: 38653, Stop: 39078, Start Num: 20

Candidate Starts for Chance64\_56:

(14, 38581), (Start: 19 @38650 has 20 MA's), (Start: 20 @38653 has 38 MA's), (Start: 25 @38692 has 3 MA's), (42, 38875), (68, 39049), (70, 39058),

Gene: Cherrybomb426\_55 Start: 38206, Stop: 38631, Start Num: 20

Candidate Starts for Cherrybomb426\_55:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428), (68, 38602), (70, 38611),

Gene: Coleslaw\_55 Start: 38643, Stop: 39068, Start Num: 20

Candidate Starts for Coleslaw\_55:

(14, 38571), (Start: 19 @38640 has 20 MA's), (Start: 20 @38643 has 38 MA's), (Start: 25 @38682 has 3 MA's), (42, 38865), (68, 39039), (70, 39048),

Gene: Crespo\_54 Start: 38204, Stop: 38590, Start Num: 19

Candidate Starts for Crespo\_54:

(14, 38135), (Start: 19 @38204 has 20 MA's), (Start: 20 @38207 has 38 MA's), (Start: 25 @38246 has 3 MA's), (42, 38429),

Gene: DMoney\_54 Start: 38206, Stop: 38631, Start Num: 20

Candidate Starts for DMoney\_54:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428), (68, 38602), (70, 38611),

Gene: Darionha\_56 Start: 38648, Stop: 39076, Start Num: 20

Candidate Starts for Darionha\_56:

(13, 38573), (15, 38594), (Start: 20 @38648 has 38 MA's), (Start: 25 @38690 has 3 MA's), (42, 38873), (68, 39047), (70, 39056),

Gene: ECartman\_54 Start: 38651, Stop: 39076, Start Num: 20

Candidate Starts for ECartman\_54:

(Start: 20 @38651 has 38 MA's), (Start: 25 @38690 has 3 MA's), (42, 38873), (68, 39047), (70, 39056),

Gene: FlagStaff\_53 Start: 39294, Stop: 39698, Start Num: 20

Candidate Starts for FlagStaff\_53:

(1, 38580), (2, 38700), (3, 38967), (5, 39003), (6, 39012), (11, 39087), (17, 39249), (Start: 20 @39294 has 38 MA's), (32, 39411), (40, 39492), (42, 39507), (44, 39516), (47, 39540), (50, 39555), (65, 39678),

Gene: Frosty24\_54 Start: 38203, Stop: 38631, Start Num: 19

Candidate Starts for Frosty24\_54:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428), (68, 38602), (70, 38611),

Gene: Gideon\_56 Start: 38650, Stop: 39078, Start Num: 19

Candidate Starts for Gideon\_56:

(14, 38581), (Start: 19 @38650 has 20 MA's), (Start: 20 @38653 has 38 MA's), (Start: 25 @38692 has 3 MA's), (42, 38875), (68, 39049), (70, 39058),

Gene: GoldenAsh\_54 Start: 38191, Stop: 38616, Start Num: 20

Candidate Starts for GoldenAsh\_54:

(14, 38119), (Start: 19 @38188 has 20 MA's), (Start: 20 @38191 has 38 MA's), (Start: 25 @38230 has 3 MA's), (42, 38413), (68, 38587), (70, 38596),

Gene: Gomashi\_54 Start: 38204, Stop: 38632, Start Num: 19

Candidate Starts for Gomashi\_54:

(14, 38135), (Start: 19 @38204 has 20 MA's), (Start: 20 @38207 has 38 MA's), (Start: 25 @38246 has 3 MA's), (42, 38429), (68, 38603), (70, 38612),

Gene: Grizzly\_55 Start: 38520, Stop: 38948, Start Num: 21

Candidate Starts for Grizzly\_55:

(Start: 21 @38520 has 4 MA's), (26, 38580), (35, 38673), (42, 38745), (44, 38754), (59, 38883), (64, 38910), (68, 38922),

Gene: Hope\_54 Start: 38203, Stop: 38631, Start Num: 19

Candidate Starts for Hope\_54:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428), (68, 38602), (70, 38611),

Gene: Hotshotbaby7\_56 Start: 38653, Stop: 39078, Start Num: 20

Candidate Starts for Hotshotbaby7\_56:

(14, 38581), (Start: 19 @38650 has 20 MA's), (Start: 20 @38653 has 38 MA's), (Start: 25 @38692 has 3 MA's), (42, 38875), (68, 39049), (70, 39058),

Gene: Jane\_55 Start: 38203, Stop: 38631, Start Num: 19

Candidate Starts for Jane\_55:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428), (68, 38602), (70, 38611),

Gene: Jolene\_55 Start: 38608, Stop: 39033, Start Num: 20

Candidate Starts for Jolene\_55:

(14, 38536), (Start: 19 @38605 has 20 MA's), (Start: 20 @38608 has 38 MA's), (Start: 25 @38647 has 3 MA's), (42, 38830), (68, 39004), (70, 39013),

Gene: Jolie2\_55 Start: 39823, Stop: 40269, Start Num: 20

Candidate Starts for Jolie2\_55:

(Start: 20 @39823 has 38 MA's), (40, 40024), (42, 40039), (50, 40087), (63, 40183),

Gene: Jonghyun\_54 Start: 38693, Stop: 39079, Start Num: 25

Candidate Starts for Jonghyun\_54:

(Start: 25 @38693 has 3 MA's), (42, 38876), (68, 39050), (70, 39059),

Gene: JorRay\_55 Start: 38206, Stop: 38631, Start Num: 20

Candidate Starts for JorRay\_55:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428), (68, 38602), (70, 38611),

Gene: Kareem\_55 Start: 38206, Stop: 38631, Start Num: 20

Candidate Starts for Kareem\_55:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428), (68, 38602), (70, 38611),

Gene: Kasen3\_55 Start: 38192, Stop: 38617, Start Num: 20

Candidate Starts for Kasen3\_55:

(14, 38120), (Start: 19 @38189 has 20 MA's), (Start: 20 @38192 has 38 MA's), (Start: 25 @38231 has 3 MA's), (42, 38414), (68, 38588), (70, 38597),

Gene: Kumao\_90 Start: 56662, Stop: 57039, Start Num: 23

Candidate Starts for Kumao\_90:

(12, 56548), (18, 56593), (Start: 23 @56662 has 3 MA's), (24, 56677), (28, 56716), (34, 56773), (36, 56785), (42, 56851), (43, 56857), (54, 56938),

Gene: Liefie\_53 Start: 38314, Stop: 38742, Start Num: 19

Candidate Starts for Liefie\_53:

(14, 38245), (Start: 19 @38314 has 20 MA's), (Start: 20 @38317 has 38 MA's), (Start: 25 @38356 has 3 MA's), (39, 38521), (42, 38539), (68, 38713), (70, 38722),

Gene: LouisV14\_57 Start: 40471, Stop: 40896, Start Num: 20



Candidate Starts for LouisV14\_57:

(14, 40399), (Start: 19 @40468 has 20 MA's), (Start: 20 @40471 has 38 MA's), (Start: 25 @40510 has 3 MA's), (42, 40693), (68, 40867), (70, 40876),

Gene: MOOREtheMARYer\_57 Start: 40183, Stop: 40644, Start Num: 20

Candidate Starts for MOOREtheMARYer\_57:

(Start: 20 @40183 has 38 MA's), (31, 40297), (37, 40342), (42, 40399), (45, 40411), (47, 40435), (51, 40471), (55, 40495), (72, 40618),

Gene: Maliketh\_53 Start: 38206, Stop: 38589, Start Num: 20

Candidate Starts for Maliketh\_53:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428),

Gene: Marmie\_56 Start: 38652, Stop: 39077, Start Num: 20

Candidate Starts for Marmie\_56:

(14, 38580), (Start: 19 @38649 has 20 MA's), (Start: 20 @38652 has 38 MA's), (Start: 25 @38691 has 3 MA's), (42, 38874), (68, 39048), (70, 39057),

Gene: Mercurio\_58 Start: 41946, Stop: 42416, Start Num: 20

Candidate Starts for Mercurio\_58:

(Start: 20 @41946 has 38 MA's), (41, 42153), (45, 42171), (50, 42207), (64, 42327), (71, 42360), (74, 42387), (76, 42393),

Gene: Mowgli\_56 Start: 38652, Stop: 39077, Start Num: 20

Candidate Starts for Mowgli\_56:

(14, 38580), (Start: 19 @38649 has 20 MA's), (Start: 20 @38652 has 38 MA's), (Start: 25 @38691 has 3 MA's), (42, 38874), (68, 39048), (70, 39057),

Gene: Nanosmite\_94 Start: 55068, Stop: 55520, Start Num: 25

Candidate Starts for Nanosmite\_94:

(Start: 25 @55068 has 3 MA's), (Start: 27 @55089 has 1 MA's), (29, 55122), (46, 55278), (57, 55371), (60, 55395), (62, 55416), (75, 55482), (78, 55503), (80, 55512),

Gene: OctaviousRex\_54 Start: 38203, Stop: 38631, Start Num: 19

Candidate Starts for OctaviousRex\_54:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428), (68, 38602), (70, 38611),

Gene: Olga\_55 Start: 38206, Stop: 38631, Start Num: 20

Candidate Starts for Olga\_55:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428), (68, 38602), (70, 38611),

Gene: Pace1224\_54 Start: 39323, Stop: 39727, Start Num: 20

Candidate Starts for Pace1224\_54:

(1, 38609), (2, 38729), (3, 38996), (5, 39032), (6, 39041), (11, 39116), (17, 39278), (Start: 20 @39323 has 38 MA's), (32, 39440), (40, 39521), (42, 39536), (44, 39545), (47, 39569), (50, 39584), (65, 39707),

Gene: Peeb\_55 Start: 38644, Stop: 39072, Start Num: 20

Candidate Starts for Peeb\_55:

(Start: 20 @38644 has 38 MA's), (26, 38704), (35, 38797), (42, 38869), (44, 38878), (59, 39007), (64, 39034), (68, 39046),

Gene: Periodt\_56 Start: 39044, Stop: 39469, Start Num: 20

Candidate Starts for Periodt\_56:

(14, 38972), (Start: 19 @39041 has 20 MA's), (Start: 20 @39044 has 38 MA's), (Start: 25 @39083 has 3 MA's), (42, 39266), (68, 39440), (70, 39449),

Gene: Phish\_54 Start: 38206, Stop: 38589, Start Num: 20

Candidate Starts for Phish\_54:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428),

Gene: Phreak\_56 Start: 38648, Stop: 39076, Start Num: 19

Candidate Starts for Phreak\_56:

(14, 38579), (Start: 19 @38648 has 20 MA's), (Start: 20 @38651 has 38 MA's), (Start: 25 @38690 has 3 MA's), (42, 38873), (68, 39047), (70, 39056),

Gene: PinkYoshi\_55 Start: 38194, Stop: 38622, Start Num: 19

Candidate Starts for PinkYoshi\_55:

(14, 38125), (Start: 19 @38194 has 20 MA's), (Start: 20 @38197 has 38 MA's), (Start: 25 @38236 has 3 MA's), (42, 38419), (68, 38593), (70, 38602),

Gene: Pinnie\_55 Start: 40300, Stop: 40758, Start Num: 20

Candidate Starts for Pinnie\_55:

(Start: 20 @40300 has 38 MA's), (31, 40411), (45, 40525), (47, 40549), (48, 40552), (65, 40693), (69, 40708), (72, 40732),

Gene: Plagueis\_56 Start: 38472, Stop: 38897, Start Num: 20

Candidate Starts for Plagueis\_56:

(14, 38400), (Start: 19 @38469 has 20 MA's), (Start: 20 @38472 has 38 MA's), (Start: 25 @38511 has 3 MA's), (42, 38694), (68, 38868), (70, 38877),

Gene: Rabbs\_57 Start: 38635, Stop: 39054, Start Num: 21

Candidate Starts for Rabbs\_57:

(Start: 21 @38635 has 4 MA's), (30, 38731), (42, 38857), (59, 38989), (68, 39028),

Gene: Reindeer\_89 Start: 54768, Stop: 55172, Start Num: 23

Candidate Starts for Reindeer\_89:

(Start: 23 @54768 has 3 MA's), (Start: 25 @54786 has 3 MA's), (Start: 27 @54807 has 1 MA's), (29, 54840), (33, 54885), (47, 54990), (77, 55164),

Gene: Remy19\_55 Start: 38203, Stop: 38589, Start Num: 19

Candidate Starts for Remy19\_55:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428),

Gene: Renaissance\_55 Start: 38206, Stop: 38631, Start Num: 20

Candidate Starts for Renaissance\_55:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428), (68, 38602), (70, 38611),

Gene: Rey\_100 Start: 55491, Stop: 55916, Start Num: 27

Candidate Starts for Rey\_100:

(Start: 27 @55491 has 1 MA's), (29, 55524), (46, 55674), (52, 55728), (56, 55761), (61, 55812), (73, 55881), (79, 55908),

Gene: Schiebel\_54 Start: 38191, Stop: 38616, Start Num: 20

Candidate Starts for Schiebel\_54:

(14, 38119), (Start: 19 @38188 has 20 MA's), (Start: 20 @38191 has 38 MA's), (Start: 25 @38230 has 3 MA's), (42, 38413), (68, 38587), (70, 38596),

Gene: ShaboiShabazz\_54 Start: 38206, Stop: 38589, Start Num: 20

Candidate Starts for ShaboiShabazz\_54:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428),

Gene: Sizemore\_55 Start: 38192, Stop: 38617, Start Num: 20

Candidate Starts for Sizemore\_55:

(14, 38120), (Start: 19 @38189 has 20 MA's), (Start: 20 @38192 has 38 MA's), (Start: 25 @38231 has 3 MA's), (42, 38414), (68, 38588), (70, 38597),

Gene: SlimJimmy\_88 Start: 54385, Stop: 54810, Start Num: 23

Candidate Starts for SlimJimmy\_88:

(18, 54316), (22, 54373), (Start: 23 @54385 has 3 MA's), (Start: 25 @54403 has 3 MA's), (Start: 27 @54424 has 1 MA's), (29, 54457), (38, 54532), (54, 54658), (56, 54682), (67, 54751), (77, 54802),

Gene: Sneeze\_56 Start: 38634, Stop: 39053, Start Num: 21

Candidate Starts for Sneeze\_56:

(Start: 21 @38634 has 4 MA's), (30, 38730), (59, 38988), (68, 39027),

Gene: Stargaze\_55 Start: 39897, Stop: 40304, Start Num: 20

Candidate Starts for Stargaze\_55:

(16, 39849), (Start: 20 @39897 has 38 MA's), (40, 40095), (42, 40110), (44, 40119), (47, 40146), (65, 40284),

Gene: Sweets\_54 Start: 38201, Stop: 38626, Start Num: 20

Candidate Starts for Sweets\_54:

(14, 38129), (Start: 19 @38198 has 20 MA's), (Start: 20 @38201 has 38 MA's), (Start: 25 @38240 has 3 MA's), (42, 38423), (68, 38597), (70, 38606),

Gene: Taheera\_52 Start: 37532, Stop: 37951, Start Num: 20

Candidate Starts for Taheera\_52:

(14, 37460), (Start: 20 @37532 has 38 MA's), (30, 37628), (42, 37754), (68, 37925),

Gene: Terror\_52 Start: 37532, Stop: 37951, Start Num: 20

Candidate Starts for Terror\_52:

(14, 37460), (Start: 20 @37532 has 38 MA's), (30, 37628), (42, 37754), (68, 37925),

Gene: TomBrady\_55 Start: 38207, Stop: 38590, Start Num: 20

Candidate Starts for TomBrady\_55:

(14, 38135), (Start: 19 @38204 has 20 MA's), (Start: 20 @38207 has 38 MA's), (Start: 25 @38246 has 3 MA's), (42, 38429),

Gene: Wendigo\_53 Start: 38206, Stop: 38631, Start Num: 20

Candidate Starts for Wendigo\_53:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428), (68, 38602), (70, 38611),

Gene: ZoMa\_53 Start: 38206, Stop: 38631, Start Num: 20

Candidate Starts for ZoMa\_53:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428), (68, 38602), (70, 38611),

Gene: Zombie\_54 Start: 38203, Stop: 38631, Start Num: 19

Candidate Starts for Zombie\_54:

(14, 38134), (Start: 19 @38203 has 20 MA's), (Start: 20 @38206 has 38 MA's), (Start: 25 @38245 has 3 MA's), (42, 38428), (49, 38470), (53, 38506), (58, 38545), (66, 38599),