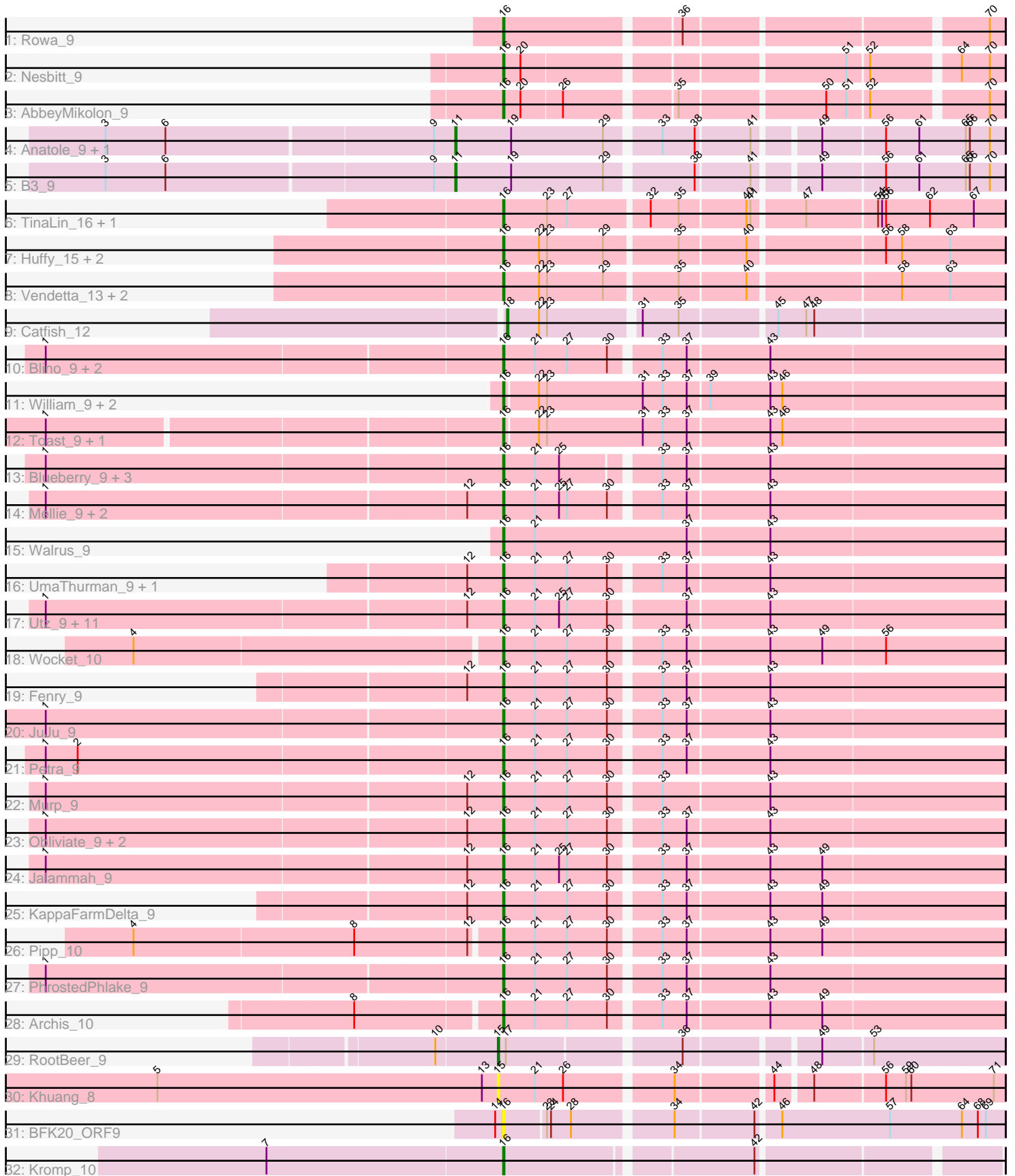


# Pham 194017



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 194017 Report

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

Pham number 194017 has 62 members, 3 are drafts.

Phages represented in each track:

- Track 1 : Rowa\_9
- Track 2 : Nesbitt\_9
- Track 3 : AbbeyMikolon\_9
- Track 4 : Anatole\_9, E1\_9
- Track 5 : B3\_9
- Track 6 : TinaLin\_16, Banquo\_17
- Track 7 : Huffy\_15, TZGordon\_15, DinoDaryn\_15
- Track 8 : Vendetta\_13, Goib\_14, Splinter\_13
- Track 9 : Catfish\_12
- Track 10 : Blino\_9, Frokostdame\_9, CarolAnn\_9
- Track 11 : William\_9, PrincePatrick\_9, Fairfaxidum\_9
- Track 12 : Toast\_9, PCoral7\_9
- Track 13 : Blueberry\_9, Azula\_9, MissRona\_9, Gambino\_9
- Track 14 : Mellie\_9, Malachai\_9, Begonia\_9
- Track 15 : Walrus\_9
- Track 16 : UmaThurman\_9, Samba\_9
- Track 17 : Utz\_9, Delian\_9, Lysidious\_9, MintFen\_9, CaptainKirk2\_9, BlingBling\_9, Guacamole\_9, Zarbodnamra\_9, Barco\_9, JasperJr\_9, Hitter\_9, Melba\_9
- Track 18 : Wocket\_10
- Track 19 : Fenry\_9
- Track 20 : JuJu\_9
- Track 21 : Petra\_9
- Track 22 : Murp\_9
- Track 23 : Obliviate\_9, Wisp\_9, ZiggyZoo\_9
- Track 24 : Jalammah\_9
- Track 25 : KappaFarmDelta\_9
- Track 26 : Pipp\_10
- Track 27 : PhrostedPhlake\_9
- Track 28 : Archis\_10
- Track 29 : RootBeer\_9
- Track 30 : Khuang\_8
- Track 31 : BFK20\_ORF9
- Track 32 : Kromp\_10

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

The start number called the most often in the published annotations is 16, it was called in 54 of the 59 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AbbeyMikolon\_9, Archis\_10, Azula\_9, BFK20\_ORF9, Banquo\_17, Barco\_9, Begonia\_9, BlingBling\_9, Blino\_9, Blueberry\_9, CaptainKirk2\_9, CarolAnn\_9, Delian\_9, DinoDaryn\_15, Fairfaxidum\_9, Fenry\_9, Frokostdame\_9, Gambino\_9, Goib\_14, Guacamole\_9, Hitter\_9, Huffy\_15, Jalammah\_9, JasperJr\_9, JuJu\_9, KappaFarmDelta\_9, Kromp\_10, Lysidious\_9, Malachai\_9, Melba\_9, Mellie\_9, MintFen\_9, MissRona\_9, Murp\_9, Nesbitt\_9, Obliviate\_9, PCoral7\_9, Petra\_9, PhrostedPhlake\_9, Pipp\_10, PrincePatrick\_9, Rowa\_9, Samba\_9, Splinter\_13, TZGordon\_15, TinaLin\_16, Toast\_9, UmaThurman\_9, Utz\_9, Vendetta\_13, Walrus\_9, William\_9, Wisp\_9, Wocket\_10, Zarbodnamra\_9, ZiggyZoo\_9,

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

- 

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

- Anatole\_9, B3\_9, Catfish\_12, E1\_9, Khuang\_8, RootBeer\_9,

### Summary by start number:

Start 11:

- Found in 3 of 62 ( 4.8% ) of genes in pham
- Manual Annotations of this start: 3 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anatole\_9 (BV), B3\_9 (BV), E1\_9 (BV),

Start 15:

- Found in 2 of 62 ( 3.2% ) of genes in pham
- Manual Annotations of this start: 1 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Khuang\_8 (UNK), RootBeer\_9 (FA),

Start 16:

- Found in 56 of 62 ( 90.3% ) of genes in pham
- Manual Annotations of this start: 54 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AbbeyMikolon\_9 (BL), Archis\_10 (CV), Azula\_9 (CV), BFK20\_ORF9 (singleton), Banquo\_17 (CU1), Barco\_9 (CV), Begonia\_9 (CV), BlingBling\_9 (CV), Blino\_9 (CV), Blueberry\_9 (CV), CaptainKirk2\_9 (CV), CarolAnn\_9 (CV), Delian\_9 (CV), DinoDaryn\_15 (CU1), Fairfaxidum\_9 (CV), Fenry\_9 (CV), Frokostdame\_9 (CV), Gambino\_9 (CV), Goib\_14 (CU1), Guacamole\_9 (CV), Hitter\_9 (CV), Huffy\_15 (CU1), Jalammah\_9 (CV), JasperJr\_9 (CV), JuJu\_9 (CV), KappaFarmDelta\_9 (CV), Kromp\_10 (singleton), Lysidious\_9 (CV), Malachai\_9 (CV), Melba\_9 (CV), Mellie\_9 (CV), MintFen\_9 (CV), MissRona\_9 (CV), Murp\_9 (CV), Nesbitt\_9 (BL), Obliviate\_9 (CV), PCoral7\_9 (CV), Petra\_9 (CV), PhrostedPhlake\_9 (CV), Pipp\_10 (CV), PrincePatrick\_9 (CV), Rowa\_9 (BL), Samba\_9 (CV), Splinter\_13 (CU1), TZGordon\_15 (CU1), TinaLin\_16 (CU1), Toast\_9 (CV), UmaThurman\_9 (CV), Utz\_9 (CV), Vendetta\_13 (CU1), Walrus\_9 (CV), William\_9 (CV), Wisp\_9 (CV), Wocket\_10 (CV), Zarbodnamra\_9 (CV), ZiggyZoo\_9 (CV),

Start 18:

- Found in 1 of 62 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Catfish\_12 (CU5),

### **Summary by clusters:**

There are 8 clusters represented in this pham: CU5, CU1, BL, singleton, FA, BV, UNK, CV,

Info for manual annotations of cluster BL:

- Start number 16 was manually annotated 3 times for cluster BL.

Info for manual annotations of cluster BV:

- Start number 11 was manually annotated 3 times for cluster BV.

Info for manual annotations of cluster CU1:

- Start number 16 was manually annotated 8 times for cluster CU1.

Info for manual annotations of cluster CU5:

- Start number 18 was manually annotated 1 time for cluster CU5.

Info for manual annotations of cluster CV:

- Start number 16 was manually annotated 42 times for cluster CV.

Info for manual annotations of cluster FA:

- Start number 15 was manually annotated 1 time for cluster FA.

### **Gene Information:**

Gene: AbbeyMikolon\_9 Start: 7191, Stop: 7532, Start Num: 16

Candidate Starts for AbbeyMikolon\_9:

(Start: 16 @7191 has 54 MA's), (20, 7203), (26, 7233), (35, 7308), (50, 7410), (51, 7425), (52, 7440), (70, 7521),

Gene: Anatole\_9 Start: 6977, Stop: 7360, Start Num: 11

Candidate Starts for Anatole\_9:

(3, 6722), (6, 6767), (9, 6962), (Start: 11 @6977 has 3 MA's), (19, 7019), (29, 7088), (33, 7124), (38, 7148), (41, 7187), (49, 7229), (56, 7274), (61, 7298), (65, 7331), (66, 7334), (70, 7349),

Gene: Archis\_10 Start: 7171, Stop: 7533, Start Num: 16

Candidate Starts for Archis\_10:

(8, 7069), (Start: 16 @7171 has 54 MA's), (21, 7195), (27, 7219), (30, 7249), (33, 7282), (37, 7300), (43, 7360), (49, 7399),

Gene: Azula\_9 Start: 6835, Stop: 7194, Start Num: 16

Candidate Starts for Azula\_9:

(1, 6499), (Start: 16 @6835 has 54 MA's), (21, 6859), (25, 6877), (33, 6943), (37, 6961), (43, 7021),

Gene: B3\_9 Start: 6977, Stop: 7360, Start Num: 11

Candidate Starts for B3\_9:

(3, 6722), (6, 6767), (9, 6962), (Start: 11 @6977 has 3 MA's), (19, 7019), (29, 7088), (38, 7148), (41, 7187), (49, 7229), (56, 7274), (61, 7298), (65, 7331), (66, 7334), (70, 7349),

Gene: BFK20\_ORF9 Start: 6860, Stop: 7216, Start Num: 16

Candidate Starts for BFK20\_ORF9:

(14, 6854), (Start: 16 @6860 has 54 MA's), (23, 6890), (24, 6893), (28, 6908), (34, 6977), (42, 7034), (46, 7049), (57, 7130), (64, 7184), (68, 7196), (69, 7202),

Gene: Banquo\_17 Start: 10497, Stop: 10856, Start Num: 16

Candidate Starts for Banquo\_17:

(Start: 16 @10497 has 54 MA's), (23, 10530), (27, 10545), (32, 10602), (35, 10623), (40, 10671), (41, 10674), (47, 10710), (54, 10761), (55, 10764), (56, 10767), (62, 10800), (67, 10833),

Gene: Barco\_9 Start: 6959, Stop: 7321, Start Num: 16

Candidate Starts for Barco\_9:

(1, 6623), (12, 6932), (Start: 16 @6959 has 54 MA's), (21, 6983), (25, 7001), (27, 7007), (30, 7037), (37, 7088), (43, 7148),

Gene: Begonia\_9 Start: 6962, Stop: 7324, Start Num: 16

Candidate Starts for Begonia\_9:

(1, 6626), (12, 6935), (Start: 16 @6962 has 54 MA's), (21, 6986), (25, 7004), (27, 7010), (30, 7040), (33, 7073), (37, 7091), (43, 7151),

Gene: BlingBling\_9 Start: 6959, Stop: 7321, Start Num: 16

Candidate Starts for BlingBling\_9:

(1, 6623), (12, 6932), (Start: 16 @6959 has 54 MA's), (21, 6983), (25, 7001), (27, 7007), (30, 7037), (37, 7088), (43, 7148),

Gene: Blino\_9 Start: 6859, Stop: 7221, Start Num: 16

Candidate Starts for Blino\_9:

(1, 6523), (Start: 16 @6859 has 54 MA's), (21, 6883), (27, 6907), (30, 6937), (33, 6970), (37, 6988), (43, 7048),

Gene: Blueberry\_9 Start: 6835, Stop: 7194, Start Num: 16

Candidate Starts for Blueberry\_9:

(1, 6499), (Start: 16 @6835 has 54 MA's), (21, 6859), (25, 6877), (33, 6943), (37, 6961), (43, 7021),

Gene: CaptainKirk2\_9 Start: 6959, Stop: 7321, Start Num: 16

Candidate Starts for CaptainKirk2\_9:

(1, 6623), (12, 6932), (Start: 16 @6959 has 54 MA's), (21, 6983), (25, 7001), (27, 7007), (30, 7037), (37, 7088), (43, 7148),

Gene: CarolAnn\_9 Start: 6858, Stop: 7220, Start Num: 16

Candidate Starts for CarolAnn\_9:

(1, 6522), (Start: 16 @6858 has 54 MA's), (21, 6882), (27, 6906), (30, 6936), (33, 6969), (37, 6987), (43, 7047),

Gene: Catfish\_12 Start: 8464, Stop: 8817, Start Num: 18

Candidate Starts for Catfish\_12:

(Start: 18 @8464 has 1 MA's), (22, 8488), (23, 8494), (31, 8557), (35, 8584), (45, 8650), (47, 8671), (48, 8677),

Gene: Delian\_9 Start: 6959, Stop: 7321, Start Num: 16

Candidate Starts for Delian\_9:

(1, 6623), (12, 6932), (Start: 16 @6959 has 54 MA's), (21, 6983), (25, 7001), (27, 7007), (30, 7037), (37, 7088), (43, 7148),

Gene: DinoDaryn\_15 Start: 9631, Stop: 9990, Start Num: 16

Candidate Starts for DinoDaryn\_15:

(Start: 16 @9631 has 54 MA's), (22, 9658), (23, 9664), (29, 9706), (35, 9757), (40, 9805), (56, 9901), (58, 9913), (63, 9949),

Gene: E1\_9 Start: 6977, Stop: 7360, Start Num: 11

Candidate Starts for E1\_9:

(3, 6722), (6, 6767), (9, 6962), (Start: 11 @6977 has 3 MA's), (19, 7019), (29, 7088), (33, 7124), (38, 7148), (41, 7187), (49, 7229), (56, 7274), (61, 7298), (65, 7331), (66, 7334), (70, 7349),

Gene: Fairfaxidum\_9 Start: 6937, Stop: 7305, Start Num: 16

Candidate Starts for Fairfaxidum\_9:

(Start: 16 @6937 has 54 MA's), (22, 6961), (23, 6967), (31, 7039), (33, 7054), (37, 7072), (39, 7087), (43, 7132), (46, 7141),

Gene: Fenry\_9 Start: 6968, Stop: 7330, Start Num: 16

Candidate Starts for Fenry\_9:

(12, 6941), (Start: 16 @6968 has 54 MA's), (21, 6992), (27, 7016), (30, 7046), (33, 7079), (37, 7097), (43, 7157),

Gene: Frokostdame\_9 Start: 6954, Stop: 7316, Start Num: 16

Candidate Starts for Frokostdame\_9:

(1, 6618), (Start: 16 @6954 has 54 MA's), (21, 6978), (27, 7002), (30, 7032), (33, 7065), (37, 7083), (43, 7143),

Gene: Gambino\_9 Start: 6835, Stop: 7194, Start Num: 16

Candidate Starts for Gambino\_9:

(1, 6499), (Start: 16 @6835 has 54 MA's), (21, 6859), (25, 6877), (33, 6943), (37, 6961), (43, 7021),

Gene: Goib\_14 Start: 9406, Stop: 9765, Start Num: 16

Candidate Starts for Goib\_14:

(Start: 16 @9406 has 54 MA's), (22, 9433), (23, 9439), (29, 9481), (35, 9532), (40, 9580), (58, 9688), (63, 9724),

Gene: Guacamole\_9 Start: 6963, Stop: 7325, Start Num: 16

Candidate Starts for Guacamole\_9:

(1, 6627), (12, 6936), (Start: 16 @6963 has 54 MA's), (21, 6987), (25, 7005), (27, 7011), (30, 7041), (37, 7092), (43, 7152),

Gene: Hitter\_9 Start: 6959, Stop: 7321, Start Num: 16

Candidate Starts for Hitter\_9:

(1, 6623), (12, 6932), (Start: 16 @6959 has 54 MA's), (21, 6983), (25, 7001), (27, 7007), (30, 7037), (37, 7088), (43, 7148),

Gene: Huffy\_15 Start: 9631, Stop: 9990, Start Num: 16

Candidate Starts for Huffy\_15:

(Start: 16 @9631 has 54 MA's), (22, 9658), (23, 9664), (29, 9706), (35, 9757), (40, 9805), (56, 9901), (58, 9913), (63, 9949),

Gene: Jalammah\_9 Start: 6959, Stop: 7321, Start Num: 16

Candidate Starts for Jalammah\_9:

(1, 6623), (12, 6932), (Start: 16 @6959 has 54 MA's), (21, 6983), (25, 7001), (27, 7007), (30, 7037), (33, 7070), (37, 7088), (43, 7148), (49, 7187),

Gene: JasperJr\_9 Start: 6963, Stop: 7325, Start Num: 16

Candidate Starts for JasperJr\_9:

(1, 6627), (12, 6936), (Start: 16 @6963 has 54 MA's), (21, 6987), (25, 7005), (27, 7011), (30, 7041), (37, 7092), (43, 7152),

Gene: JuJu\_9 Start: 6884, Stop: 7246, Start Num: 16

Candidate Starts for JuJu\_9:

(1, 6548), (Start: 16 @6884 has 54 MA's), (21, 6908), (27, 6932), (30, 6962), (33, 6995), (37, 7013), (43, 7073),

Gene: KappaFarmDelta\_9 Start: 6997, Stop: 7359, Start Num: 16

Candidate Starts for KappaFarmDelta\_9:

(12, 6970), (Start: 16 @6997 has 54 MA's), (21, 7021), (27, 7045), (30, 7075), (33, 7108), (37, 7126), (43, 7186), (49, 7225),

Gene: Khuang\_8 Start: 6379, Stop: 6729, Start Num: 15

Candidate Starts for Khuang\_8:

(5, 6124), (13, 6367), (Start: 15 @6379 has 1 MA's), (21, 6406), (26, 6427), (34, 6502), (44, 6568), (48, 6592), (56, 6643), (59, 6658), (60, 6661), (71, 6721),

Gene: Kromp\_10 Start: 8334, Stop: 8675, Start Num: 16

Candidate Starts for Kromp\_10:

(7, 8160), (Start: 16 @8334 has 54 MA's), (42, 8508),

Gene: Lysidious\_9 Start: 6959, Stop: 7321, Start Num: 16

Candidate Starts for Lysidious\_9:

(1, 6623), (12, 6932), (Start: 16 @6959 has 54 MA's), (21, 6983), (25, 7001), (27, 7007), (30, 7037), (37, 7088), (43, 7148),

Gene: Malachai\_9 Start: 6962, Stop: 7324, Start Num: 16

Candidate Starts for Malachai\_9:

(1, 6626), (12, 6935), (Start: 16 @6962 has 54 MA's), (21, 6986), (25, 7004), (27, 7010), (30, 7040), (33, 7073), (37, 7091), (43, 7151),

Gene: Melba\_9 Start: 6959, Stop: 7321, Start Num: 16

Candidate Starts for Melba\_9:

(1, 6623), (12, 6932), (Start: 16 @6959 has 54 MA's), (21, 6983), (25, 7001), (27, 7007), (30, 7037), (37, 7088), (43, 7148),

Gene: Mellie\_9 Start: 6959, Stop: 7321, Start Num: 16

Candidate Starts for Mellie\_9:

(1, 6623), (12, 6932), (Start: 16 @6959 has 54 MA's), (21, 6983), (25, 7001), (27, 7007), (30, 7037), (33, 7070), (37, 7088), (43, 7148),

Gene: MintFen\_9 Start: 6959, Stop: 7321, Start Num: 16

Candidate Starts for MintFen\_9:

(1, 6623), (12, 6932), (Start: 16 @6959 has 54 MA's), (21, 6983), (25, 7001), (27, 7007), (30, 7037), (37, 7088), (43, 7148),

Gene: MissRona\_9 Start: 6835, Stop: 7194, Start Num: 16

Candidate Starts for MissRona\_9:

(1, 6499), (Start: 16 @6835 has 54 MA's), (21, 6859), (25, 6877), (33, 6943), (37, 6961), (43, 7021),

Gene: Murp\_9 Start: 7000, Stop: 7362, Start Num: 16

Candidate Starts for Murp\_9:

(1, 6664), (12, 6973), (Start: 16 @7000 has 54 MA's), (21, 7024), (27, 7048), (30, 7078), (33, 7111), (43, 7189),

Gene: Nesbitt\_9 Start: 7263, Stop: 7604, Start Num: 16

Candidate Starts for Nesbitt\_9:

(Start: 16 @7263 has 54 MA's), (20, 7275), (51, 7497), (52, 7512), (64, 7572), (70, 7593),

Gene: Obliviate\_9 Start: 6983, Stop: 7345, Start Num: 16

Candidate Starts for Obliviate\_9:

(1, 6647), (12, 6956), (Start: 16 @6983 has 54 MA's), (21, 7007), (27, 7031), (30, 7061), (33, 7094), (37, 7112), (43, 7172),

Gene: PCoral7\_9 Start: 6937, Stop: 7305, Start Num: 16

Candidate Starts for PCoral7\_9:

(1, 6607), (Start: 16 @6937 has 54 MA's), (22, 6961), (23, 6967), (31, 7039), (33, 7054), (37, 7072), (43, 7132), (46, 7141),

Gene: Petra\_9 Start: 6865, Stop: 7227, Start Num: 16

Candidate Starts for Petra\_9:

(1, 6529), (2, 6553), (Start: 16 @6865 has 54 MA's), (21, 6889), (27, 6913), (30, 6943), (33, 6976), (37, 6994), (43, 7054),

Gene: PhrostedPhlake\_9 Start: 7040, Stop: 7402, Start Num: 16

Candidate Starts for PhrostedPhlake\_9:

(1, 6704), (Start: 16 @7040 has 54 MA's), (21, 7064), (27, 7088), (30, 7118), (33, 7151), (37, 7169), (43, 7229),

Gene: Pipp\_10 Start: 7195, Stop: 7557, Start Num: 16

Candidate Starts for Pipp\_10:

(4, 6931), (8, 7093), (12, 7174), (Start: 16 @7195 has 54 MA's), (21, 7219), (27, 7243), (30, 7273), (33, 7306), (37, 7324), (43, 7384), (49, 7423),

Gene: PrincePatrick\_9 Start: 6938, Stop: 7306, Start Num: 16

Candidate Starts for PrincePatrick\_9:

(Start: 16 @6938 has 54 MA's), (22, 6962), (23, 6968), (31, 7040), (33, 7055), (37, 7073), (39, 7088), (43, 7133), (46, 7142),

Gene: RootBeer\_9 Start: 6513, Stop: 6860, Start Num: 15

Candidate Starts for RootBeer\_9:

(10, 6468), (Start: 15 @6513 has 1 MA's), (17, 6519), (36, 6639), (49, 6729), (53, 6765),

Gene: Rowa\_9 Start: 7020, Stop: 7364, Start Num: 16



Candidate Starts for Rowa\_9:

(Start: 16 @7020 has 54 MA's), (36, 7143), (70, 7353),

Gene: Samba\_9 Start: 6960, Stop: 7322, Start Num: 16

Candidate Starts for Samba\_9:

(12, 6933), (Start: 16 @6960 has 54 MA's), (21, 6984), (27, 7008), (30, 7038), (33, 7071), (37, 7089), (43, 7149),

Gene: Splinter\_13 Start: 9406, Stop: 9765, Start Num: 16

Candidate Starts for Splinter\_13:

(Start: 16 @9406 has 54 MA's), (22, 9433), (23, 9439), (29, 9481), (35, 9532), (40, 9580), (58, 9688), (63, 9724),

Gene: TZGordon\_15 Start: 9548, Stop: 9907, Start Num: 16

Candidate Starts for TZGordon\_15:

(Start: 16 @9548 has 54 MA's), (22, 9575), (23, 9581), (29, 9623), (35, 9674), (40, 9722), (56, 9818), (58, 9830), (63, 9866),

Gene: TinaLin\_16 Start: 10120, Stop: 10479, Start Num: 16

Candidate Starts for TinaLin\_16:

(Start: 16 @10120 has 54 MA's), (23, 10153), (27, 10168), (32, 10225), (35, 10246), (40, 10294), (41, 10297), (47, 10333), (54, 10384), (55, 10387), (56, 10390), (62, 10423), (67, 10456),

Gene: Toast\_9 Start: 6937, Stop: 7305, Start Num: 16

Candidate Starts for Toast\_9:

(1, 6607), (Start: 16 @6937 has 54 MA's), (22, 6961), (23, 6967), (31, 7039), (33, 7054), (37, 7072), (43, 7132), (46, 7141),

Gene: UmaThurman\_9 Start: 6959, Stop: 7321, Start Num: 16

Candidate Starts for UmaThurman\_9:

(12, 6932), (Start: 16 @6959 has 54 MA's), (21, 6983), (27, 7007), (30, 7037), (33, 7070), (37, 7088), (43, 7148),

Gene: Utz\_9 Start: 6959, Stop: 7321, Start Num: 16

Candidate Starts for Utz\_9:

(1, 6623), (12, 6932), (Start: 16 @6959 has 54 MA's), (21, 6983), (25, 7001), (27, 7007), (30, 7037), (37, 7088), (43, 7148),

Gene: Vendetta\_13 Start: 9406, Stop: 9765, Start Num: 16

Candidate Starts for Vendetta\_13:

(Start: 16 @9406 has 54 MA's), (22, 9433), (23, 9439), (29, 9481), (35, 9532), (40, 9580), (58, 9688), (63, 9724),

Gene: Walrus\_9 Start: 6871, Stop: 7242, Start Num: 16

Candidate Starts for Walrus\_9:

(Start: 16 @6871 has 54 MA's), (21, 6895), (37, 7009), (43, 7069),

Gene: William\_9 Start: 6952, Stop: 7320, Start Num: 16

Candidate Starts for William\_9:

(Start: 16 @6952 has 54 MA's), (22, 6976), (23, 6982), (31, 7054), (33, 7069), (37, 7087), (39, 7102), (43, 7147), (46, 7156),

Gene: Wisp\_9 Start: 6959, Stop: 7321, Start Num: 16

Candidate Starts for Wisp\_9:

(1, 6623), (12, 6932), (Start: 16 @6959 has 54 MA's), (21, 6983), (27, 7007), (30, 7037), (33, 7070), (37, 7088), (43, 7148),

Gene: Wocket\_10 Start: 7236, Stop: 7598, Start Num: 16

Candidate Starts for Wocket\_10:

(4, 6972), (Start: 16 @7236 has 54 MA's), (21, 7260), (27, 7284), (30, 7314), (33, 7347), (37, 7365), (43, 7425), (49, 7464), (56, 7509),

Gene: Zarbodnamra\_9 Start: 6958, Stop: 7320, Start Num: 16

Candidate Starts for Zarbodnamra\_9:

(1, 6622), (12, 6931), (Start: 16 @6958 has 54 MA's), (21, 6982), (25, 7000), (27, 7006), (30, 7036), (37, 7087), (43, 7147),

Gene: ZiggyZoo\_9 Start: 6983, Stop: 7345, Start Num: 16

Candidate Starts for ZiggyZoo\_9:

(1, 6647), (12, 6956), (Start: 16 @6983 has 54 MA's), (21, 7007), (27, 7031), (30, 7061), (33, 7094), (37, 7112), (43, 7172),