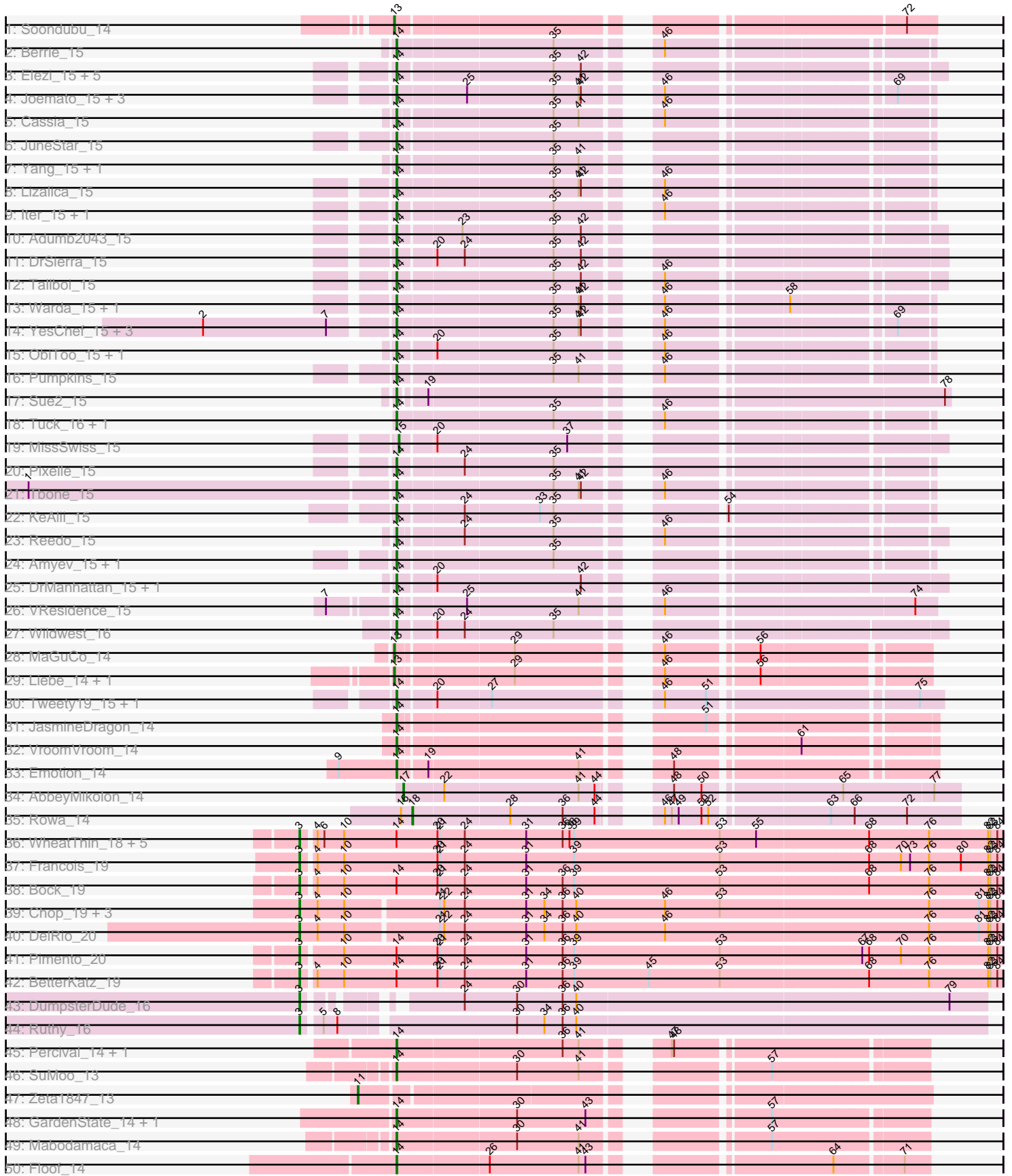


Pham 196467





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 196467 Report

This analysis was run 12/09/24 on database version 580.

Pham number 196467 has 85 members, 0 are drafts.

Phages represented in each track:

- Track 1 : Soondubu\_14
- Track 2 : Berrie\_15
- Track 3 : Elezi\_15, Nitro\_15, Asa16\_15, Eraser\_15, London\_15, Niobe\_15
- Track 4 : Joemato\_15, Cyan\_15, Kaylissa\_15, JohnDoe\_15
- Track 5 : Cassia\_15
- Track 6 : JuneStar\_15
- Track 7 : Yang\_15, TforTroy\_15
- Track 8 : Lizalica\_15
- Track 9 : Iter\_15, Ascela\_15
- Track 10 : Adumb2043\_15
- Track 11 : DrSierra\_15
- Track 12 : Tallboi\_15
- Track 13 : Warda\_15, Mudpuppy\_15
- Track 14 : YesChef\_15, Tutumahutu\_15, Powerpuff\_15, Lego\_15
- Track 15 : ObiToo\_15, Crewmate\_16
- Track 16 : Pumpkins\_15
- Track 17 : Sue2\_15
- Track 18 : Tuck\_16, Janeemi\_16
- Track 19 : MissSwiss\_15
- Track 20 : Pixelle\_15
- Track 21 : Tbone\_15
- Track 22 : KeAlii\_15
- Track 23 : Reedo\_15
- Track 24 : Amyev\_15, Phives\_16
- Track 25 : DrManhattan\_15, Adolin\_14
- Track 26 : VResidence\_15
- Track 27 : Wildwest\_16
- Track 28 : MaGuCo\_14
- Track 29 : Liebe\_14, Maureen\_14
- Track 30 : Tweety19\_15, Snek\_15
- Track 31 : JasmineDragon\_14
- Track 32 : VroomVroom\_14
- Track 33 : Emotion\_14
- Track 34 : AbbeyMikolon\_14
- Track 35 : Rowa\_14
- Track 36 : WheatThin\_18, Nadeem\_19, Brylie\_19, Parada\_19, Mulch\_19, NancyRae\_19

- Track 37 : Francois\_19
- Track 38 : Bock\_19
- Track 39 : Chop\_19, Hamood\_19, GrandSlam\_19, Ayotoya\_19
- Track 40 : DelRio\_20
- Track 41 : Pimento\_20
- Track 42 : BetterKatz\_19
- Track 43 : DumpsterDude\_16
- Track 44 : Ruthy\_16
- Track 45 : Percival\_14, Gretchen\_14
- Track 46 : SuMoo\_13
- Track 47 : Zeta1847\_13
- Track 48 : GardenState\_14, IAmGroot\_14
- Track 49 : Mabodamaca\_14
- Track 50 : Floof\_14
- Track 51 : UtzChips\_13, Barnstormer\_13
- Track 52 : Honk\_13
- Track 53 : Cen1621\_13
- Track 54 : Caron\_13

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

The start number called the most often in the published annotations is 14, it was called in 58 of the 85 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adolin\_14, Adumb2043\_15, Amyev\_15, Asa16\_15, Ascela\_15, Barnstormer\_13, Berrie\_15, Caron\_13, Cassia\_15, Crewmate\_16, Cyan\_15, DrManhattan\_15, DrSierra\_15, Elezi\_15, Emotion\_14, Eraser\_15, Floof\_14, GardenState\_14, Gretchen\_14, IAmGroot\_14, Iter\_15, Janeemi\_16, JasmineDragon\_14, Joemato\_15, JohnDoe\_15, JuneStar\_15, Kaylissa\_15, KeAlii\_15, Lego\_15, Lizalica\_15, London\_15, Mabodamaca\_14, Mudpuppy\_15, Niobe\_15, Nitro\_15, ObiToo\_15, Percival\_14, Phives\_16, Pixelle\_15, Powerpuff\_15, Pumpkins\_15, Reedo\_15, Snek\_15, SuMoo\_13, Sue2\_15, Tallboi\_15, Tbone\_15, TforTroy\_15, Tuck\_16, Tutumahutu\_15, Tweety19\_15, UtzChips\_13, VResidence\_15, VroomVroom\_14, Warda\_15, Wildwest\_16, Yang\_15, YesChef\_15,

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

- BetterKatz\_19, Bock\_19, Brylie\_19, Mulch\_19, Nadeem\_19, NancyRae\_19, Parada\_19, Pimento\_20, WheatThin\_18,

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

- AbbeyMikolon\_14, Ayotoya\_19, Cen1621\_13, Chop\_19, DelRio\_20, DumpsterDude\_16, Francois\_19, GrandSlam\_19, Hamood\_19, Honk\_13, Liebe\_14, MaGuCo\_14, Maureen\_14, MissSwiss\_15, Rowa\_14, Ruthy\_16, Soondubu\_14, Zeta1847\_13,

**Summary by start number:**

Start 3:

- Found in 17 of 85 ( 20.0% ) of genes in pham

- Manual Annotations of this start: 17 of 85
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ayotoya\_19 (DI), BetterKatz\_19 (DI), Bock\_19 (DI), Brylie\_19 (DI), Chop\_19 (DI), DelRio\_20 (DI), DumpsterDude\_16 (DW), Francois\_19 (DI), GrandSlam\_19 (DI), Hamood\_19 (DI), Mulch\_19 (DI), Nadeem\_19 (DI), NancyRae\_19 (DI), Parada\_19 (DI), Pimento\_20 (DI), Ruthy\_16 (DW), WheatThin\_18 (DI),

#### Start 11:

- Found in 1 of 85 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 85
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Zeta1847\_13 (EH),

#### Start 12:

- Found in 2 of 85 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 2 of 85
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cen1621\_13 (EH), Honk\_13 (EH),

#### Start 13:

- Found in 4 of 85 ( 4.7% ) of genes in pham
- Manual Annotations of this start: 4 of 85
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Liebe\_14 (AZ2), MaGuCo\_14 (AZ2), Maureen\_14 (AZ2), Soondubu\_14 (AZ),

#### Start 14:

- Found in 67 of 85 ( 78.8% ) of genes in pham
- Manual Annotations of this start: 58 of 85
- Called 86.6% of time when present
- Phage (with cluster) where this start called: Adolin\_14 (AZ1), Adumb2043\_15 (AZ1), Amyev\_15 (AZ1), Asa16\_15 (AZ1), Ascela\_15 (AZ1), Barnstormer\_13 (EH), Berrie\_15 (AZ1), Caron\_13 (EH), Cassia\_15 (AZ1), Crewmate\_16 (AZ1), Cyan\_15 (AZ1), DrManhattan\_15 (AZ1), DrSierra\_15 (AZ1), Elezi\_15 (AZ1), Emotion\_14 (AZ4), Eraser\_15 (AZ1), Floof\_14 (EH), GardenState\_14 (EH), Gretchen\_14 (EH), IAmGroot\_14 (EH), Iter\_15 (AZ1), Janeemi\_16 (AZ1), JasmineDragon\_14 (AZ4), Joemato\_15 (AZ1), JohnDoe\_15 (AZ1), JuneStar\_15 (AZ1), Kaylissa\_15 (AZ1), KeAlii\_15 (AZ1), Lego\_15 (AZ1), Lizalica\_15 (AZ1), London\_15 (AZ1), Mabodamaca\_14 (EH), Mudpuppy\_15 (AZ1), Niobe\_15 (AZ1), Nitro\_15 (AZ1), ObiToo\_15 (AZ1), Percival\_14 (EH), Phives\_16 (AZ1), Pixelle\_15 (AZ1), Powerpuff\_15 (AZ1), Pumpkins\_15 (AZ1), Reedo\_15 (AZ1), Snek\_15 (AZ3), SuMoo\_13 (EH), Sue2\_15 (AZ1), Tallboi\_15 (AZ1), Tbone\_15 (AZ1), TforTroy\_15 (AZ1), Tuck\_16 (AZ1), Tutumahutu\_15 (AZ1), Tweety19\_15 (AZ3), UtzChips\_13 (EH), VResidence\_15 (AZ1), VroomVroom\_14 (AZ4), Warda\_15 (AZ1), Wildwest\_16 (AZ1), Yang\_15 (AZ1), YesChef\_15 (AZ1),

#### Start 15:

- Found in 1 of 85 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 85
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MissSwiss\_15 (AZ1),

Start 17:

- Found in 1 of 85 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 85
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AbbeyMikolon\_14 (BL),

Start 18:

- Found in 1 of 85 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 85
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rowa\_14 (BL),

**Summary by clusters:**

There are 9 clusters represented in this pham: AZ, EH, DI, BL, AZ1, DW, AZ2, AZ3, AZ4,

Info for manual annotations of cluster AZ:

- Start number 13 was manually annotated 1 time for cluster AZ.

Info for manual annotations of cluster AZ1:

- Start number 14 was manually annotated 43 times for cluster AZ1.
- Start number 15 was manually annotated 1 time for cluster AZ1.

Info for manual annotations of cluster AZ2:

- Start number 13 was manually annotated 3 times for cluster AZ2.

Info for manual annotations of cluster AZ3:

- Start number 14 was manually annotated 2 times for cluster AZ3.

Info for manual annotations of cluster AZ4:

- Start number 14 was manually annotated 3 times for cluster AZ4.

Info for manual annotations of cluster BL:

- Start number 17 was manually annotated 1 time for cluster BL.
- Start number 18 was manually annotated 1 time for cluster BL.

Info for manual annotations of cluster DI:

- Start number 3 was manually annotated 15 times for cluster DI.

Info for manual annotations of cluster DW:

- Start number 3 was manually annotated 2 times for cluster DW.

Info for manual annotations of cluster EH:

- Start number 11 was manually annotated 1 time for cluster EH.
- Start number 12 was manually annotated 2 times for cluster EH.
- Start number 14 was manually annotated 10 times for cluster EH.

**Gene Information:**

Gene: AbbeyMikolon\_14 Start: 8843, Stop: 9489, Start Num: 17

Candidate Starts for AbbeyMikolon\_14:

(Start: 17 @8843 has 1 MA's), (22, 8894), (41, 9068), (44, 9089), (48, 9140), (50, 9173), (65, 9338), (77, 9455),

Gene: Adolin\_14 Start: 10098, Stop: 10726, Start Num: 14

Candidate Starts for Adolin\_14:

(Start: 14 @10098 has 58 MA's), (20, 10143), (42, 10329),

Gene: Adumb2043\_15 Start: 10120, Stop: 10736, Start Num: 14

Candidate Starts for Adumb2043\_15:

(Start: 14 @10120 has 58 MA's), (23, 10198), (35, 10315), (42, 10351),

Gene: Amyev\_15 Start: 10132, Stop: 10733, Start Num: 14

Candidate Starts for Amyev\_15:

(Start: 14 @10132 has 58 MA's), (35, 10327),

Gene: Asa16\_15 Start: 10090, Stop: 10706, Start Num: 14

Candidate Starts for Asa16\_15:

(Start: 14 @10090 has 58 MA's), (35, 10285), (42, 10321),

Gene: Ascela\_15 Start: 10125, Stop: 10726, Start Num: 14

Candidate Starts for Ascela\_15:

(Start: 14 @10125 has 58 MA's), (35, 10320), (46, 10416),

Gene: Ayotoya\_19 Start: 10919, Stop: 11826, Start Num: 3

Candidate Starts for Ayotoya\_19:

(Start: 3 @10919 has 17 MA's), (4, 10943), (10, 10976), (21, 11093), (22, 11099), (24, 11126), (31, 11207), (34, 11231), (36, 11255), (40, 11273), (46, 11390), (53, 11462), (76, 11732), (81, 11795), (82, 11807), (83, 11810), (84, 11819),

Gene: Barnstormer\_13 Start: 9304, Stop: 9917, Start Num: 14

Candidate Starts for Barnstormer\_13:

(Start: 14 @9304 has 58 MA's), (57, 9724), (62, 9796),

Gene: Berrie\_15 Start: 10094, Stop: 10698, Start Num: 14

Candidate Starts for Berrie\_15:

(Start: 14 @10094 has 58 MA's), (35, 10292), (46, 10388),

Gene: BetterKatz\_19 Start: 10860, Stop: 11764, Start Num: 3

Candidate Starts for BetterKatz\_19:

(Start: 3 @10860 has 17 MA's), (4, 10875), (10, 10908), (Start: 14 @10977 has 58 MA's), (20, 11031), (21, 11034), (24, 11067), (31, 11148), (36, 11196), (39, 11211), (45, 11310), (53, 11403), (68, 11592), (76, 11670), (82, 11745), (83, 11748), (84, 11757),

Gene: Bock\_19 Start: 10610, Stop: 11514, Start Num: 3

Candidate Starts for Bock\_19:

(Start: 3 @10610 has 17 MA's), (4, 10625), (10, 10658), (Start: 14 @10727 has 58 MA's), (20, 10781), (21, 10784), (24, 10817), (31, 10898), (36, 10946), (39, 10961), (53, 11153), (68, 11342), (76, 11420), (82, 11495), (83, 11498), (84, 11507),

Gene: Brylie\_19 Start: 10607, Stop: 11511, Start Num: 3

Candidate Starts for Brylie\_19:

(Start: 3 @10607 has 17 MA's), (4, 10622), (6, 10631), (10, 10655), (Start: 14 @10724 has 58 MA's), (20, 10778), (21, 10781), (24, 10814), (31, 10895), (36, 10943), (38, 10952), (39, 10958), (53, 11150), (55, 11198), (68, 11339), (76, 11417), (82, 11492), (83, 11495), (84, 11504),

Gene: Caron\_13 Start: 9346, Stop: 9959, Start Num: 14

Candidate Starts for Caron\_13:

(Start: 14 @9346 has 58 MA's), (62, 9838),

Gene: Cassia\_15 Start: 10208, Stop: 10809, Start Num: 14

Candidate Starts for Cassia\_15:

(Start: 14 @10208 has 58 MA's), (35, 10400), (41, 10433), (46, 10496),

Gene: Cen1621\_13 Start: 8442, Stop: 9049, Start Num: 12

Candidate Starts for Cen1621\_13:

(Start: 12 @8442 has 2 MA's), (24, 8526), (42, 8676), (46, 8736), (59, 8883), (60, 8892),

Gene: Chop\_19 Start: 10667, Stop: 11574, Start Num: 3

Candidate Starts for Chop\_19:

(Start: 3 @10667 has 17 MA's), (4, 10691), (10, 10724), (21, 10841), (22, 10847), (24, 10874), (31, 10955), (34, 10979), (36, 11003), (40, 11021), (46, 11138), (53, 11210), (76, 11480), (81, 11543), (82, 11555), (83, 11558), (84, 11567),

Gene: Crewmate\_16 Start: 10566, Stop: 11167, Start Num: 14

Candidate Starts for Crewmate\_16:

(Start: 14 @10566 has 58 MA's), (20, 10611), (35, 10761), (46, 10857),

Gene: Cyan\_15 Start: 10113, Stop: 10717, Start Num: 14

Candidate Starts for Cyan\_15:

(Start: 14 @10113 has 58 MA's), (25, 10200), (35, 10311), (41, 10344), (42, 10347), (46, 10407), (69, 10674),

Gene: DelRio\_20 Start: 11141, Stop: 12048, Start Num: 3

Candidate Starts for DelRio\_20:

(Start: 3 @11141 has 17 MA's), (4, 11165), (10, 11198), (21, 11315), (22, 11321), (24, 11348), (31, 11429), (34, 11453), (36, 11477), (40, 11495), (46, 11612), (76, 11954), (81, 12017), (82, 12029), (83, 12032), (84, 12041),

Gene: DrManhattan\_15 Start: 10088, Stop: 10716, Start Num: 14

Candidate Starts for DrManhattan\_15:

(Start: 14 @10088 has 58 MA's), (20, 10133), (42, 10319),

Gene: DrSierra\_15 Start: 10119, Stop: 10744, Start Num: 14

Candidate Starts for DrSierra\_15:

(Start: 14 @10119 has 58 MA's), (20, 10164), (24, 10200), (35, 10314), (42, 10350),

Gene: DumpsterDude\_16 Start: 9345, Stop: 10174, Start Num: 3

Candidate Starts for DumpsterDude\_16:

(Start: 3 @9345 has 17 MA's), (24, 9495), (30, 9564), (36, 9624), (40, 9642), (79, 10125),

Gene: Elezi\_15 Start: 10091, Stop: 10707, Start Num: 14

Candidate Starts for Elezi\_15:

(Start: 14 @10091 has 58 MA's), (35, 10286), (42, 10322),



Gene: Emotion\_14 Start: 8425, Stop: 9035, Start Num: 14  
Candidate Starts for Emotion\_14:  
(9, 8359), (Start: 14 @8425 has 58 MA's), (19, 8458), (41, 8650), (48, 8725),

Gene: Eraser\_15 Start: 10091, Stop: 10707, Start Num: 14  
Candidate Starts for Eraser\_15:  
(Start: 14 @10091 has 58 MA's), (35, 10286), (42, 10322),

Gene: Floop\_14 Start: 8909, Stop: 9522, Start Num: 14  
Candidate Starts for Floop\_14:  
(Start: 14 @8909 has 58 MA's), (26, 9026), (41, 9143), (43, 9152), (64, 9410), (71, 9491),

Gene: Francois\_19 Start: 10624, Stop: 11528, Start Num: 3  
Candidate Starts for Francois\_19:  
(Start: 3 @10624 has 17 MA's), (4, 10639), (10, 10672), (20, 10795), (21, 10798), (24, 10831), (31, 10912), (39, 10975), (53, 11167), (68, 11356), (70, 11398), (73, 11410), (76, 11434), (80, 11473), (82, 11509), (83, 11512), (84, 11521),

Gene: GardenState\_14 Start: 9573, Stop: 10186, Start Num: 14  
Candidate Starts for GardenState\_14:  
(Start: 14 @9573 has 58 MA's), (30, 9726), (43, 9816), (57, 9993),

Gene: GrandSlam\_19 Start: 10667, Stop: 11574, Start Num: 3  
Candidate Starts for GrandSlam\_19:  
(Start: 3 @10667 has 17 MA's), (4, 10691), (10, 10724), (21, 10841), (22, 10847), (24, 10874), (31, 10955), (34, 10979), (36, 11003), (40, 11021), (46, 11138), (53, 11210), (76, 11480), (81, 11543), (82, 11555), (83, 11558), (84, 11567),

Gene: Gretchen\_14 Start: 10435, Stop: 11048, Start Num: 14  
Candidate Starts for Gretchen\_14:  
(Start: 14 @10435 has 58 MA's), (36, 10648), (41, 10669), (47, 10741), (48, 10744),

Gene: Hamood\_19 Start: 10667, Stop: 11574, Start Num: 3  
Candidate Starts for Hamood\_19:  
(Start: 3 @10667 has 17 MA's), (4, 10691), (10, 10724), (21, 10841), (22, 10847), (24, 10874), (31, 10955), (34, 10979), (36, 11003), (40, 11021), (46, 11138), (53, 11210), (76, 11480), (81, 11543), (82, 11555), (83, 11558), (84, 11567),

Gene: Honk\_13 Start: 8396, Stop: 9000, Start Num: 12  
Candidate Starts for Honk\_13:  
(Start: 12 @8396 has 2 MA's), (32, 8558), (46, 8687),

Gene: IAmGroot\_14 Start: 10217, Stop: 10830, Start Num: 14  
Candidate Starts for IAmGroot\_14:  
(Start: 14 @10217 has 58 MA's), (30, 10370), (43, 10460), (57, 10637),

Gene: Iter\_15 Start: 10125, Stop: 10726, Start Num: 14  
Candidate Starts for Iter\_15:  
(Start: 14 @10125 has 58 MA's), (35, 10320), (46, 10416),

Gene: Janeemi\_16 Start: 11204, Stop: 11808, Start Num: 14  
Candidate Starts for Janeemi\_16:  
(Start: 14 @11204 has 58 MA's), (35, 11402), (46, 11498),

Gene: JasmineDragon\_14 Start: 8354, Stop: 8961, Start Num: 14  
Candidate Starts for JasmineDragon\_14:  
(Start: 14 @8354 has 58 MA's), (51, 8696),

Gene: Joemato\_15 Start: 10113, Stop: 10717, Start Num: 14  
Candidate Starts for Joemato\_15:  
(Start: 14 @10113 has 58 MA's), (25, 10200), (35, 10311), (41, 10344), (42, 10347), (46, 10407), (69, 10674),

Gene: JohnDoe\_15 Start: 10108, Stop: 10712, Start Num: 14  
Candidate Starts for JohnDoe\_15:  
(Start: 14 @10108 has 58 MA's), (25, 10195), (35, 10306), (41, 10339), (42, 10342), (46, 10402), (69, 10669),

Gene: JuneStar\_15 Start: 10206, Stop: 10807, Start Num: 14  
Candidate Starts for JuneStar\_15:  
(Start: 14 @10206 has 58 MA's), (35, 10398),

Gene: Kaylissa\_15 Start: 10114, Stop: 10718, Start Num: 14  
Candidate Starts for Kaylissa\_15:  
(Start: 14 @10114 has 58 MA's), (25, 10201), (35, 10312), (41, 10345), (42, 10348), (46, 10408), (69, 10675),

Gene: KeAlii\_15 Start: 10157, Stop: 10758, Start Num: 14  
Candidate Starts for KeAlii\_15:  
(Start: 14 @10157 has 58 MA's), (24, 10238), (33, 10334), (35, 10352), (54, 10520),

Gene: Lego\_15 Start: 10113, Stop: 10717, Start Num: 14  
Candidate Starts for Lego\_15:  
(2, 9882), (7, 10044), (Start: 14 @10113 has 58 MA's), (35, 10311), (41, 10344), (42, 10347), (46, 10407), (69, 10674),

Gene: Liebe\_14 Start: 8595, Stop: 9193, Start Num: 13  
Candidate Starts for Liebe\_14:  
(Start: 13 @8595 has 4 MA's), (29, 8739), (46, 8886), (56, 8994),

Gene: Lizalica\_15 Start: 10098, Stop: 10702, Start Num: 14  
Candidate Starts for Lizalica\_15:  
(Start: 14 @10098 has 58 MA's), (35, 10296), (41, 10329), (42, 10332), (46, 10392),

Gene: London\_15 Start: 10091, Stop: 10707, Start Num: 14  
Candidate Starts for London\_15:  
(Start: 14 @10091 has 58 MA's), (35, 10286), (42, 10322),

Gene: MaGuCo\_14 Start: 8529, Stop: 9127, Start Num: 13  
Candidate Starts for MaGuCo\_14:  
(Start: 13 @8529 has 4 MA's), (29, 8673), (46, 8820), (56, 8928),

Gene: Mabodamaca\_14 Start: 9642, Stop: 10255, Start Num: 14  
Candidate Starts for Mabodamaca\_14:  
(Start: 14 @9642 has 58 MA's), (30, 9795), (41, 9876), (57, 10062),

Gene: Maureen\_14 Start: 8595, Stop: 9193, Start Num: 13

Candidate Starts for Maureen\_14:

(Start: 13 @8595 has 4 MA's), (29, 8739), (46, 8886), (56, 8994),

Gene: MissSwiss\_15 Start: 10094, Stop: 10716, Start Num: 15

Candidate Starts for MissSwiss\_15:

(Start: 15 @10094 has 1 MA's), (20, 10136), (37, 10304),

Gene: Mudpuppy\_15 Start: 10112, Stop: 10716, Start Num: 14

Candidate Starts for Mudpuppy\_15:

(Start: 14 @10112 has 58 MA's), (35, 10310), (41, 10343), (42, 10346), (46, 10406), (58, 10550),

Gene: Mulch\_19 Start: 10607, Stop: 11511, Start Num: 3

Candidate Starts for Mulch\_19:

(Start: 3 @10607 has 17 MA's), (4, 10622), (6, 10631), (10, 10655), (Start: 14 @10724 has 58 MA's), (20, 10778), (21, 10781), (24, 10814), (31, 10895), (36, 10943), (38, 10952), (39, 10958), (53, 11150), (55, 11198), (68, 11339), (76, 11417), (82, 11492), (83, 11495), (84, 11504),

Gene: Nadeem\_19 Start: 10607, Stop: 11511, Start Num: 3

Candidate Starts for Nadeem\_19:

(Start: 3 @10607 has 17 MA's), (4, 10622), (6, 10631), (10, 10655), (Start: 14 @10724 has 58 MA's), (20, 10778), (21, 10781), (24, 10814), (31, 10895), (36, 10943), (38, 10952), (39, 10958), (53, 11150), (55, 11198), (68, 11339), (76, 11417), (82, 11492), (83, 11495), (84, 11504),

Gene: NancyRae\_19 Start: 10607, Stop: 11511, Start Num: 3

Candidate Starts for NancyRae\_19:

(Start: 3 @10607 has 17 MA's), (4, 10622), (6, 10631), (10, 10655), (Start: 14 @10724 has 58 MA's), (20, 10778), (21, 10781), (24, 10814), (31, 10895), (36, 10943), (38, 10952), (39, 10958), (53, 11150), (55, 11198), (68, 11339), (76, 11417), (82, 11492), (83, 11495), (84, 11504),

Gene: Niobe\_15 Start: 10091, Stop: 10707, Start Num: 14

Candidate Starts for Niobe\_15:

(Start: 14 @10091 has 58 MA's), (35, 10286), (42, 10322),

Gene: Nitro\_15 Start: 10114, Stop: 10715, Start Num: 14

Candidate Starts for Nitro\_15:

(Start: 14 @10114 has 58 MA's), (35, 10309), (42, 10345),

Gene: ObiToo\_15 Start: 10303, Stop: 10904, Start Num: 14

Candidate Starts for ObiToo\_15:

(Start: 14 @10303 has 58 MA's), (20, 10348), (35, 10498), (46, 10594),

Gene: Parada\_19 Start: 10607, Stop: 11511, Start Num: 3

Candidate Starts for Parada\_19:

(Start: 3 @10607 has 17 MA's), (4, 10622), (6, 10631), (10, 10655), (Start: 14 @10724 has 58 MA's), (20, 10778), (21, 10781), (24, 10814), (31, 10895), (36, 10943), (38, 10952), (39, 10958), (53, 11150), (55, 11198), (68, 11339), (76, 11417), (82, 11492), (83, 11495), (84, 11504),

Gene: Percival\_14 Start: 10269, Stop: 10882, Start Num: 14

Candidate Starts for Percival\_14:

(Start: 14 @10269 has 58 MA's), (36, 10482), (41, 10503), (47, 10575), (48, 10578),

Gene: Phives\_16 Start: 11192, Stop: 11793, Start Num: 14

Candidate Starts for Phives\_16:  
(Start: 14 @11192 has 58 MA's), (35, 11387),

Gene: Pimento\_20 Start: 10811, Stop: 11715, Start Num: 3  
Candidate Starts for Pimento\_20:  
(Start: 3 @10811 has 17 MA's), (10, 10859), (Start: 14 @10928 has 58 MA's), (20, 10982), (21, 10985), (24, 11018), (31, 11099), (36, 11147), (39, 11162), (53, 11354), (67, 11537), (68, 11543), (70, 11585), (76, 11621), (82, 11696), (83, 11699), (84, 11708),

Gene: Pixelle\_15 Start: 10135, Stop: 10736, Start Num: 14  
Candidate Starts for Pixelle\_15:  
(Start: 14 @10135 has 58 MA's), (24, 10216), (35, 10330),

Gene: Powerpuff\_15 Start: 10164, Stop: 10768, Start Num: 14  
Candidate Starts for Powerpuff\_15:  
(2, 9933), (7, 10095), (Start: 14 @10164 has 58 MA's), (35, 10362), (41, 10395), (42, 10398), (46, 10458), (69, 10725),

Gene: Pumpkins\_15 Start: 10215, Stop: 10819, Start Num: 14  
Candidate Starts for Pumpkins\_15:  
(Start: 14 @10215 has 58 MA's), (35, 10410), (41, 10443), (46, 10506),

Gene: Reedo\_15 Start: 10171, Stop: 10784, Start Num: 14  
Candidate Starts for Reedo\_15:  
(Start: 14 @10171 has 58 MA's), (24, 10249), (35, 10363), (46, 10459),

Gene: Rowa\_14 Start: 8677, Stop: 9314, Start Num: 18  
Candidate Starts for Rowa\_14:  
(16, 8662), (Start: 18 @8677 has 1 MA's), (28, 8800), (36, 8869), (44, 8911), (46, 8950), (47, 8959), (49, 8968), (50, 8995), (52, 9004), (63, 9145), (66, 9175), (72, 9244),

Gene: Ruthy\_16 Start: 9419, Stop: 10284, Start Num: 3  
Candidate Starts for Ruthy\_16:  
(Start: 3 @9419 has 17 MA's), (5, 9440), (8, 9458), (30, 9674), (34, 9710), (36, 9734), (40, 9752),

Gene: Snek\_15 Start: 9207, Stop: 9826, Start Num: 14  
Candidate Starts for Snek\_15:  
(Start: 14 @9207 has 58 MA's), (20, 9252), (27, 9321), (46, 9498), (51, 9552), (75, 9795),

Gene: Soondubu\_14 Start: 10020, Stop: 10639, Start Num: 13  
Candidate Starts for Soondubu\_14:  
(Start: 13 @10020 has 4 MA's), (72, 10602),

Gene: SuMoo\_13 Start: 8599, Stop: 9212, Start Num: 14  
Candidate Starts for SuMoo\_13:  
(Start: 14 @8599 has 58 MA's), (30, 8752), (41, 8833), (57, 9019),

Gene: Sue2\_15 Start: 10128, Stop: 10759, Start Num: 14  
Candidate Starts for Sue2\_15:  
(Start: 14 @10128 has 58 MA's), (19, 10158), (78, 10752),

Gene: Tallboi\_15 Start: 10118, Stop: 10734, Start Num: 14  
Candidate Starts for Tallboi\_15:

(Start: 14 @10118 has 58 MA's), (35, 10313), (42, 10349), (46, 10409),

Gene: Tbone\_15 Start: 10117, Stop: 10721, Start Num: 14

Candidate Starts for Tbone\_15:

(1, 9646), (Start: 14 @10117 has 58 MA's), (35, 10315), (41, 10348), (42, 10351), (46, 10411),

Gene: TforTroy\_15 Start: 10233, Stop: 10837, Start Num: 14

Candidate Starts for TforTroy\_15:

(Start: 14 @10233 has 58 MA's), (35, 10428), (41, 10461),

Gene: Tuck\_16 Start: 11156, Stop: 11760, Start Num: 14

Candidate Starts for Tuck\_16:

(Start: 14 @11156 has 58 MA's), (35, 11354), (46, 11450),

Gene: Tutumahutu\_15 Start: 10164, Stop: 10768, Start Num: 14

Candidate Starts for Tutumahutu\_15:

(2, 9933), (7, 10095), (Start: 14 @10164 has 58 MA's), (35, 10362), (41, 10395), (42, 10398), (46, 10458), (69, 10725),

Gene: Tweety19\_15 Start: 9206, Stop: 9825, Start Num: 14

Candidate Starts for Tweety19\_15:

(Start: 14 @9206 has 58 MA's), (20, 9251), (27, 9320), (46, 9497), (51, 9551), (75, 9794),

Gene: UtzChips\_13 Start: 9292, Stop: 9905, Start Num: 14

Candidate Starts for UtzChips\_13:

(Start: 14 @9292 has 58 MA's), (57, 9712), (62, 9784),

Gene: VResidence\_15 Start: 10200, Stop: 10816, Start Num: 14

Candidate Starts for VResidence\_15:

(7, 10125), (Start: 14 @10200 has 58 MA's), (25, 10281), (41, 10425), (46, 10488), (74, 10788),

Gene: VroomVroom\_14 Start: 8366, Stop: 8973, Start Num: 14

Candidate Starts for VroomVroom\_14:

(Start: 14 @8366 has 58 MA's), (61, 8813),

Gene: Warda\_15 Start: 10109, Stop: 10713, Start Num: 14

Candidate Starts for Warda\_15:

(Start: 14 @10109 has 58 MA's), (35, 10307), (41, 10340), (42, 10343), (46, 10403), (58, 10547),

Gene: WheatThin\_18 Start: 10607, Stop: 11511, Start Num: 3

Candidate Starts for WheatThin\_18:

(Start: 3 @10607 has 17 MA's), (4, 10622), (6, 10631), (10, 10655), (Start: 14 @10724 has 58 MA's), (20, 10778), (21, 10781), (24, 10814), (31, 10895), (36, 10943), (38, 10952), (39, 10958), (53, 11150), (55, 11198), (68, 11339), (76, 11417), (82, 11492), (83, 11495), (84, 11504),

Gene: Wildwest\_16 Start: 11039, Stop: 11667, Start Num: 14

Candidate Starts for Wildwest\_16:

(Start: 14 @11039 has 58 MA's), (20, 11084), (24, 11120), (35, 11234),

Gene: Yang\_15 Start: 10203, Stop: 10807, Start Num: 14

Candidate Starts for Yang\_15:

(Start: 14 @10203 has 58 MA's), (35, 10398), (41, 10431),

Gene: YesChef\_15 Start: 10164, Stop: 10768, Start Num: 14

Candidate Starts for YesChef\_15:

(2, 9933), (7, 10095), (Start: 14 @10164 has 58 MA's), (35, 10362), (41, 10395), (42, 10398), (46, 10458), (69, 10725),

Gene: Zeta1847\_13 Start: 8400, Stop: 9055, Start Num: 11

Candidate Starts for Zeta1847\_13:

(Start: 11 @8400 has 1 MA's),