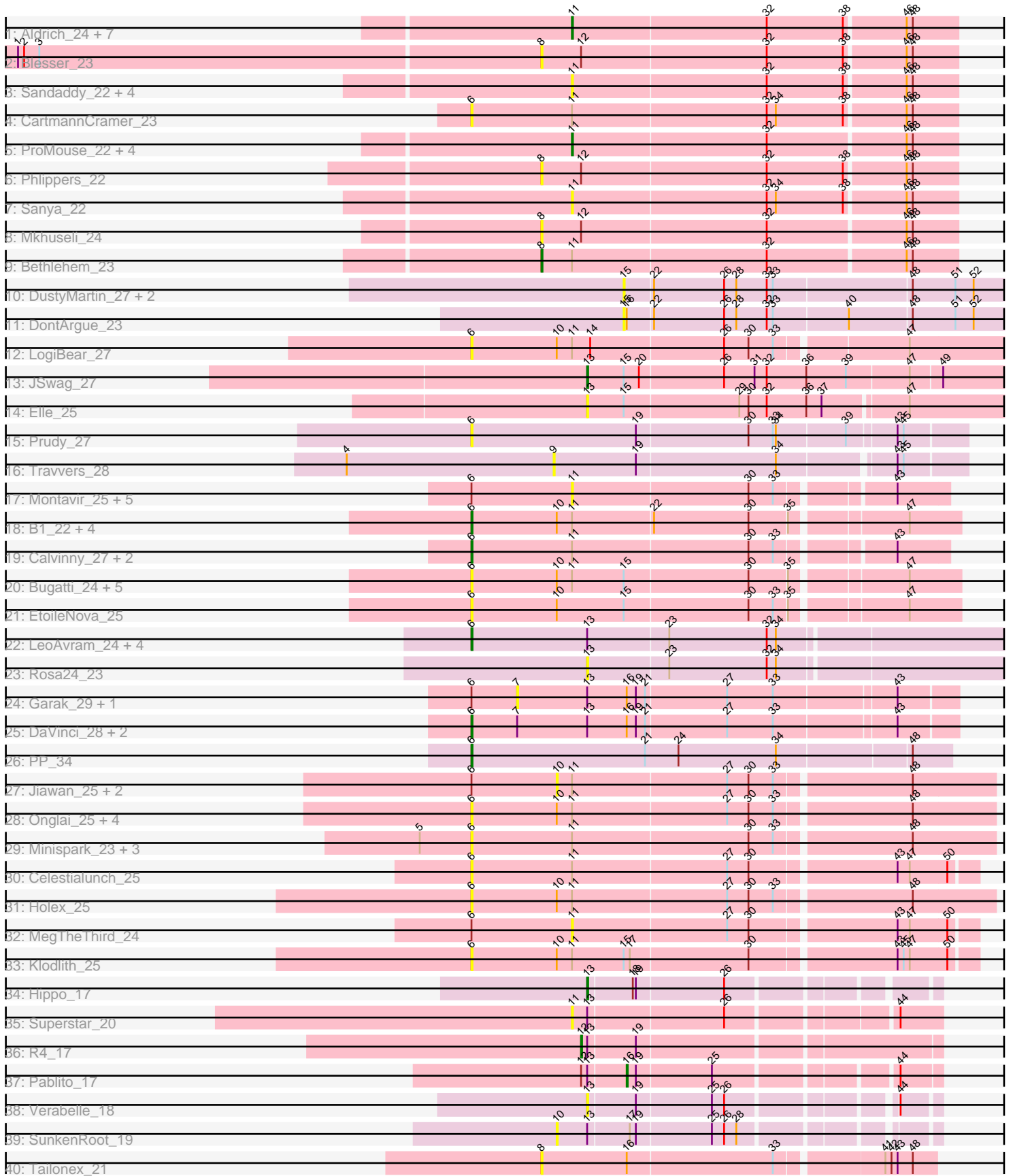


Pham 311461



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 311461 Report

This analysis was run 06/27/26 on database version 652.

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 311461 has 89 members, 70 are drafts.

Phages represented in each track:

- Track 1 : Aldrich\_24, StewieG\_22, BK1\_21, Inyanga\_22, DirtDevil\_24, A6\_21, Iqorha\_22, CatBus\_24
- Track 2 : Blesser\_23
- Track 3 : Sandaddy\_22, Blackflame\_23, Teodoridan\_21, Whitspit\_24, Gachnar\_23
- Track 4 : CartmannCramer\_23
- Track 5 : ProMouse\_22, Aeneas\_25, Puppet\_23, U2\_23, PhrostyMug\_23
- Track 6 : Phlippers\_22
- Track 7 : Sanya\_22
- Track 8 : Mkhuseleli\_24
- Track 9 : Bethlehem\_23
- Track 10 : DustyMartin\_27, Rowdy\_27, Shapes\_27
- Track 11 : DontArgue\_23
- Track 12 : LogiBear\_27
- Track 13 : JSwag\_27
- Track 14 : Elle\_25
- Track 15 : Prudy\_27
- Track 16 : Travvers\_28
- Track 17 : Montavir\_25, ClownCar\_27, Croquant\_27, Lova\_26, Bigflo\_26, Gwennie\_25
- Track 18 : B1\_22, Roimos\_24, Kachowdy\_24, BabyJohn\_23, Chiqui\_23
- Track 19 : Calvinny\_27, Anubis\_28, Bxz2\_25
- Track 20 : Bugatti\_24, Clammy\_24, Zarafa\_24, SaturnRing\_24, DropBear\_24, Marchesa\_24
- Track 21 : EtoileNova\_25
- Track 22 : LeoAvram\_24, Kingmustik0402\_24, RockieBear\_23, KekoraPapaka\_23, NorthStar\_24
- Track 23 : Rosa24\_23
- Track 24 : Garak\_29, Candra\_28
- Track 25 : DaVinci\_28, Kazan\_28, DelvinSonDorr\_27
- Track 26 : PP\_34
- Track 27 : Jiawan\_25, RyeScarlet\_27, EdogawaKiddo\_24
- Track 28 : Onglai\_25, Lilleskat\_24, Ayanochan\_27, Sachima\_24, Hanray\_25
- Track 29 : Minispark\_23, WorldCup\_23, Bellris\_23, CogOmlette\_23

- Track 30 : Celestiallunch\_25
- Track 31 : Holecx\_25
- Track 32 : MegTheThird\_24
- Track 33 : Klodlith\_25
- Track 34 : Hippo\_17
- Track 35 : Superstar\_20
- Track 36 : R4\_17
- Track 37 : Pablito\_17
- Track 38 : Verabelle\_18
- Track 39 : SunkenRoot\_19
- Track 40 : Tailonex\_21

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

The start number called the most often in the published annotations is 6, it was called in 9 of the 19 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Anubis\_28, Ayanochan\_27, B1\_22, BabyJohn\_23, Bellris\_23, Bugatti\_24, Bxz2\_25, Calvinny\_27, CartmannCramer\_23, Celestiallunch\_25, Chiqui\_23, Clammy\_24, CogOmlette\_23, DaVinci\_28, DelvinSonDorr\_27, DropBear\_24, EtoileNova\_25, Hanray\_25, Holecx\_25, Kachowdy\_24, Kazan\_28, KekoraPapaka\_23, Kingmustik0402\_24, Klodlith\_25, LeoAvram\_24, Lilleskat\_24, LogiBear\_27, Marchesa\_24, Minispark\_23, NorthStar\_24, Onglai\_25, PP\_34, Prudy\_27, RockieBear\_23, Roimos\_24, Sachima\_24, SaturnRing\_24, WorldCup\_23, Zarafa\_24,

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

- Bigflo\_26, Candra\_28, ClownCar\_27, Croquant\_27, EdogawaKiddo\_24, Garak\_29, Gwennie\_25, Jiawan\_25, Lova\_26, MegTheThird\_24, Montavir\_25, RyeScarlet\_27,

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

- A6\_21, Aeneas\_25, Aldrich\_24, BK1\_21, Bethlehem\_23, Blackflame\_23, Blesser\_23, CatBus\_24, DirtDevil\_24, DontArgue\_23, DustyMartin\_27, Elle\_25, Gachnar\_23, Hippo\_17, Inyanga\_22, Iqorha\_22, JSwag\_27, Mkhusele\_24, Pablito\_17, Phlippers\_22, PhrostyMug\_23, ProMouse\_22, Puppet\_23, R4\_17, Rosa24\_23, Rowdy\_27, Sandaddy\_22, Sanya\_22, Shapes\_27, StewieG\_22, SunkenRoot\_19, Superstar\_20, Tailonex\_21, Teodoridan\_21, Travvers\_28, U2\_23, Verabelle\_18, Whitspit\_24,

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

Start 6:

- Found in 51 of 89 ( 57.3% ) of genes in pham
- Manual Annotations of this start: 9 of 19
- Called 76.5% of time when present
- Phage (with cluster) where this start called: Anubis\_28 (A3), Ayanochan\_27 (A9), B1\_22 (A3), BabyJohn\_23 (A3), Bellris\_23 (A9), Bugatti\_24 (A3), Bxz2\_25 (A3), Calvinny\_27 (A3), CartmannCramer\_23 (A1), Celestiallunch\_25 (A9), Chiqui\_23 (A3), Clammy\_24 (A3), CogOmlette\_23 (A9), DaVinci\_28 (A6), DelvinSonDorr\_27 (A6), DropBear\_24 (A3), EtoileNova\_25 (A3), Hanray\_25 (A9), Holecx\_25 (A9),

Kachowdy\_24 (A3), Kazan\_28 (A6), KekoraPapaka\_23 (A4), Kingmustik0402\_24 (A4), Klodlith\_25 (A9), LeoAvram\_24 (A4), Lilleskat\_24 (A9), LogiBear\_27 (A15), Marchesa\_24 (A3), Minispark\_23 (A9), NorthStar\_24 (A4), Onglai\_25 (A9), PP\_34 (A7), Prudy\_27 (A2), RockieBear\_23 (A4), Roimos\_24 (A3), Sachima\_24 (A9), SaturnRing\_24 (A3), WorldCup\_23 (A9), Zarafa\_24 (A3),

Start 7:

- Found in 5 of 89 ( 5.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Candra\_28 (A6), Garak\_29 (A6),

Start 8:

- Found in 5 of 89 ( 5.6% ) of genes in pham
- Manual Annotations of this start: 1 of 19
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bethlehem\_23 (A1), Blesser\_23 (A1), Mkhuseleli\_24 (A1), Phlippers\_22 (A1), Tailonex\_21 (singleton),

Start 9:

- Found in 1 of 89 ( 1.1% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Travvers\_28 (A2),

Start 10:

- Found in 24 of 89 ( 27.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 16.7% of time when present
- Phage (with cluster) where this start called: EdogawaKiddo\_24 (A9), Jiawan\_25 (A9), RyeScarlet\_27 (A9), SunkenRoot\_19 (BD3),

Start 11:

- Found in 59 of 89 ( 66.3% ) of genes in pham
- Manual Annotations of this start: 5 of 19
- Called 45.8% of time when present
- Phage (with cluster) where this start called: A6\_21 (A1), Aeneas\_25 (A1), Aldrich\_24 (A1), BK1\_21 (A1), Bigflo\_26 (A3), Blackflame\_23 (A1), CatBus\_24 (A1), ClownCar\_27 (A3), Croquant\_27 (A3), DirtDevil\_24 (A1), Gachnar\_23 (A1), Gwennie\_25 (A3), Inyanga\_22 (A1), Iqorha\_22 (A1), Lowa\_26 (A3), MegTheThird\_24 (A9), Montavir\_25 (A3), PhrostyMug\_23 (A1), ProMouse\_22 (A1), Puppet\_23 (A1), Sandaddy\_22 (A1), Sanya\_22 (A1), StewieG\_22 (A1), Superstar\_20 (BD2), Teodoridan\_21 (A1), U2\_23 (A1), Whitspit\_24 (A1),

Start 12:

- Found in 5 of 89 ( 5.6% ) of genes in pham
- Manual Annotations of this start: 1 of 19
- Called 20.0% of time when present
- Phage (with cluster) where this start called: R4\_17 (BD2),

Start 13:

- Found in 19 of 89 ( 21.3% ) of genes in pham
- Manual Annotations of this start: 2 of 19

- Called 26.3% of time when present
- Phage (with cluster) where this start called: Elle\_25 (A15), Hippo\_17 (BD1), JSwag\_27 (A15), Rosa24\_23 (A4), Verabelle\_18 (BD3),

Start 15:

- Found in 14 of 89 ( 15.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 28.6% of time when present
- Phage (with cluster) where this start called: DontArgue\_23 (A10), DustyMartin\_27 (A10), Rowdy\_27 (A10), Shapes\_27 (A10),

Start 16:

- Found in 8 of 89 ( 9.0% ) of genes in pham
- Manual Annotations of this start: 1 of 19
- Called 12.5% of time when present
- Phage (with cluster) where this start called: Pablito\_17 (BD2),

### **Summary by clusters:**

There are 13 clusters represented in this pham: A15, A7, singleton, A10, A6, A1, A3, A2, BD1, A4, BD3, BD2, A9,

Info for manual annotations of cluster A1:

- Start number 8 was manually annotated 1 time for cluster A1.
- Start number 11 was manually annotated 5 times for cluster A1.

Info for manual annotations of cluster A15:

- Start number 13 was manually annotated 1 time for cluster A15.

Info for manual annotations of cluster A3:

- Start number 6 was manually annotated 3 times for cluster A3.

Info for manual annotations of cluster A4:

- Start number 6 was manually annotated 3 times for cluster A4.

Info for manual annotations of cluster A6:

- Start number 6 was manually annotated 2 times for cluster A6.

Info for manual annotations of cluster A7:

- Start number 6 was manually annotated 1 time for cluster A7.

Info for manual annotations of cluster BD1:

- Start number 13 was manually annotated 1 time for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 12 was manually annotated 1 time for cluster BD2.
- Start number 16 was manually annotated 1 time for cluster BD2.

**Gene Information:**

Gene: A6\_21 Start: 15547, Stop: 15918, Start Num: 11

Candidate Starts for A6\_21:

(Start: 11 @15547 has 5 MA's), (32, 15736), (38, 15811), (46, 15868), (48, 15874),

Gene: Aeneas\_25 Start: 16311, Stop: 16682, Start Num: 11

Candidate Starts for Aeneas\_25:

(Start: 11 @16311 has 5 MA's), (32, 16500), (46, 16632), (48, 16638),

Gene: Aldrich\_24 Start: 16812, Stop: 17183, Start Num: 11

Candidate Starts for Aldrich\_24:

(Start: 11 @16812 has 5 MA's), (32, 17001), (38, 17076), (46, 17133), (48, 17139),

Gene: Anubis\_28 Start: 15419, Stop: 15865, Start Num: 6

Candidate Starts for Anubis\_28:

(Start: 6 @15419 has 9 MA's), (Start: 11 @15518 has 5 MA's), (30, 15689), (33, 15713), (43, 15815),

Gene: Ayanochan\_27 Start: 16994, Stop: 17494, Start Num: 6

Candidate Starts for Ayanochan\_27:

(Start: 6 @16994 has 9 MA's), (10, 17078), (Start: 11 @17093 has 5 MA's), (27, 17243), (30, 17264), (33, 17288), (48, 17414),

Gene: B1\_22 Start: 14712, Stop: 15173, Start Num: 6

Candidate Starts for B1\_22:

(Start: 6 @14712 has 9 MA's), (10, 14796), (Start: 11 @14811 has 5 MA's), (22, 14889), (30, 14982), (35, 15018), (47, 15123),

Gene: BK1\_21 Start: 15547, Stop: 15918, Start Num: 11

Candidate Starts for BK1\_21:

(Start: 11 @15547 has 5 MA's), (32, 15736), (38, 15811), (46, 15868), (48, 15874),

Gene: BabyJohn\_23 Start: 15302, Stop: 15763, Start Num: 6

Candidate Starts for BabyJohn\_23:

(Start: 6 @15302 has 9 MA's), (10, 15386), (Start: 11 @15401 has 5 MA's), (22, 15479), (30, 15572), (35, 15608), (47, 15713),

Gene: Bellris\_23 Start: 15039, Stop: 15539, Start Num: 6

Candidate Starts for Bellris\_23:

(5, 14988), (Start: 6 @15039 has 9 MA's), (Start: 11 @15138 has 5 MA's), (30, 15309), (33, 15333), (48, 15459),

Gene: Bethlehem\_23 Start: 17213, Stop: 17614, Start Num: 8

Candidate Starts for Bethlehem\_23:

(Start: 8 @17213 has 1 MA's), (Start: 11 @17243 has 5 MA's), (32, 17432), (46, 17564), (48, 17570),

Gene: Bigflo\_26 Start: 15631, Stop: 15978, Start Num: 11

Candidate Starts for Bigflo\_26:

(Start: 6 @15532 has 9 MA's), (Start: 11 @15631 has 5 MA's), (30, 15802), (33, 15826), (43, 15928),

Gene: Blackflame\_23 Start: 15998, Stop: 16369, Start Num: 11

Candidate Starts for Blackflame\_23:

(Start: 11 @15998 has 5 MA's), (32, 16187), (38, 16262), (46, 16319), (48, 16325),

Gene: Blesser\_23 Start: 16246, Stop: 16647, Start Num: 8

Candidate Starts for Blesser\_23:

(1, 15736), (2, 15742), (3, 15757), (Start: 8 @16246 has 1 MA's), (Start: 12 @16285 has 1 MA's), (32, 16465), (38, 16540), (46, 16597), (48, 16603),

Gene: Bugatti\_24 Start: 15033, Stop: 15494, Start Num: 6

Candidate Starts for Bugatti\_24:

(Start: 6 @15033 has 9 MA's), (10, 15117), (Start: 11 @15132 has 5 MA's), (15, 15183), (30, 15303), (35, 15339), (47, 15444),

Gene: Bxz2\_25 Start: 15627, Stop: 16073, Start Num: 6

Candidate Starts for Bxz2\_25:

(Start: 6 @15627 has 9 MA's), (Start: 11 @15726 has 5 MA's), (30, 15897), (33, 15921), (43, 16023),

Gene: Calvinny\_27 Start: 15611, Stop: 16057, Start Num: 6

Candidate Starts for Calvinny\_27:

(Start: 6 @15611 has 9 MA's), (Start: 11 @15710 has 5 MA's), (30, 15881), (33, 15905), (43, 16007),

Gene: Candra\_28 Start: 16359, Stop: 16778, Start Num: 7

Candidate Starts for Candra\_28:

(Start: 6 @16314 has 9 MA's), (7, 16359), (Start: 13 @16428 has 2 MA's), (Start: 16 @16467 has 1 MA's), (19, 16476), (21, 16485), (27, 16563), (33, 16608), (43, 16722),

Gene: CartmannCramer\_23 Start: 17708, Stop: 18178, Start Num: 6

Candidate Starts for CartmannCramer\_23:

(Start: 6 @17708 has 9 MA's), (Start: 11 @17807 has 5 MA's), (32, 17996), (34, 18005), (38, 18071), (46, 18128), (48, 18134),

Gene: CatBus\_24 Start: 17004, Stop: 17375, Start Num: 11

Candidate Starts for CatBus\_24:

(Start: 11 @17004 has 5 MA's), (32, 17193), (38, 17268), (46, 17325), (48, 17331),

Gene: Celestiallunch\_25 Start: 15084, Stop: 15563, Start Num: 6

Candidate Starts for Celestiallunch\_25:

(Start: 6 @15084 has 9 MA's), (Start: 11 @15183 has 5 MA's), (27, 15333), (30, 15354), (43, 15489), (47, 15501), (50, 15537),

Gene: Chiqui\_23 Start: 15302, Stop: 15763, Start Num: 6

Candidate Starts for Chiqui\_23:

(Start: 6 @15302 has 9 MA's), (10, 15386), (Start: 11 @15401 has 5 MA's), (22, 15479), (30, 15572), (35, 15608), (47, 15713),

Gene: Clammy\_24 Start: 15033, Stop: 15494, Start Num: 6

Candidate Starts for Clammy\_24:

(Start: 6 @15033 has 9 MA's), (10, 15117), (Start: 11 @15132 has 5 MA's), (15, 15183), (30, 15303), (35, 15339), (47, 15444),

Gene: ClownCar\_27 Start: 15702, Stop: 16049, Start Num: 11

Candidate Starts for ClownCar\_27:

(Start: 6 @15603 has 9 MA's), (Start: 11 @15702 has 5 MA's), (30, 15873), (33, 15897), (43, 15999),

Gene: CogOmlette\_23 Start: 15039, Stop: 15539, Start Num: 6

Candidate Starts for CogOmlette\_23:

(5, 14988), (Start: 6 @15039 has 9 MA's), (Start: 11 @15138 has 5 MA's), (30, 15309), (33, 15333), (48, 15459),

Gene: Croquant\_27 Start: 15630, Stop: 15977, Start Num: 11

Candidate Starts for Croquant\_27:

(Start: 6 @15531 has 9 MA's), (Start: 11 @15630 has 5 MA's), (30, 15801), (33, 15825), (43, 15927),

Gene: DaVinci\_28 Start: 16279, Stop: 16743, Start Num: 6

Candidate Starts for DaVinci\_28:

(Start: 6 @16279 has 9 MA's), (7, 16324), (Start: 13 @16393 has 2 MA's), (Start: 16 @16432 has 1 MA's), (19, 16441), (21, 16450), (27, 16528), (33, 16573), (43, 16687),

Gene: DelvinSonDorr\_27 Start: 16271, Stop: 16735, Start Num: 6

Candidate Starts for DelvinSonDorr\_27:

(Start: 6 @16271 has 9 MA's), (7, 16316), (Start: 13 @16385 has 2 MA's), (Start: 16 @16424 has 1 MA's), (19, 16433), (21, 16442), (27, 16520), (33, 16565), (43, 16679),

Gene: DirtDevil\_24 Start: 16812, Stop: 17183, Start Num: 11

Candidate Starts for DirtDevil\_24:

(Start: 11 @16812 has 5 MA's), (32, 17001), (38, 17076), (46, 17133), (48, 17139),

Gene: DontArgue\_23 Start: 13643, Stop: 14041, Start Num: 15

Candidate Starts for DontArgue\_23:

(15, 13643), (Start: 16 @13646 has 1 MA's), (22, 13670), (26, 13739), (28, 13751), (32, 13781), (33, 13787), (40, 13856), (48, 13916), (51, 13958), (52, 13976),

Gene: DropBear\_24 Start: 15093, Stop: 15554, Start Num: 6

Candidate Starts for DropBear\_24:

(Start: 6 @15093 has 9 MA's), (10, 15177), (Start: 11 @15192 has 5 MA's), (15, 15243), (30, 15363), (35, 15399), (47, 15504),

Gene: DustyMartin\_27 Start: 15449, Stop: 15850, Start Num: 15

Candidate Starts for DustyMartin\_27:

(15, 15449), (22, 15476), (26, 15545), (28, 15557), (32, 15587), (33, 15593), (48, 15725), (51, 15767), (52, 15785),

Gene: EdogawaKiddo\_24 Start: 17045, Stop: 17461, Start Num: 10

Candidate Starts for EdogawaKiddo\_24:

(Start: 6 @16961 has 9 MA's), (10, 17045), (Start: 11 @17060 has 5 MA's), (27, 17210), (30, 17231), (33, 17255), (48, 17381),

Gene: Elle\_25 Start: 15065, Stop: 15514, Start Num: 13

Candidate Starts for Elle\_25:

(Start: 13 @15065 has 2 MA's), (15, 15101), (29, 15212), (30, 15221), (32, 15239), (36, 15278), (37, 15293), (47, 15371),

Gene: EtoileNova\_25 Start: 15586, Stop: 16047, Start Num: 6

Candidate Starts for EtoileNova\_25:

(Start: 6 @15586 has 9 MA's), (10, 15670), (15, 15736), (30, 15856), (33, 15880), (35, 15892), (47, 15997),

Gene: Gachnar\_23 Start: 16002, Stop: 16373, Start Num: 11

Candidate Starts for Gachnar\_23:

(Start: 11 @16002 has 5 MA's), (32, 16191), (38, 16266), (46, 16323), (48, 16329),

Gene: Garak\_29 Start: 16321, Stop: 16740, Start Num: 7

Candidate Starts for Garak\_29:

(Start: 6 @16276 has 9 MA's), (7, 16321), (Start: 13 @16390 has 2 MA's), (Start: 16 @16429 has 1 MA's), (19, 16438), (21, 16447), (27, 16525), (33, 16570), (43, 16684),

Gene: Gwennie\_25 Start: 15632, Stop: 15979, Start Num: 11

Candidate Starts for Gwennie\_25:

(Start: 6 @15533 has 9 MA's), (Start: 11 @15632 has 5 MA's), (30, 15803), (33, 15827), (43, 15929),

Gene: Hanray\_25 Start: 16965, Stop: 17465, Start Num: 6

Candidate Starts for Hanray\_25:

(Start: 6 @16965 has 9 MA's), (10, 17049), (Start: 11 @17064 has 5 MA's), (27, 17214), (30, 17235), (33, 17259), (48, 17385),

Gene: Hippo\_17 Start: 11334, Stop: 11642, Start Num: 13

Candidate Starts for Hippo\_17:

(Start: 13 @11334 has 2 MA's), (18, 11376), (19, 11379), (26, 11463),

Gene: Holec\_25 Start: 16965, Stop: 17465, Start Num: 6

Candidate Starts for Holec\_25:

(Start: 6 @16965 has 9 MA's), (10, 17049), (Start: 11 @17064 has 5 MA's), (27, 17214), (30, 17235), (33, 17259), (48, 17385),

Gene: Inyanga\_22 Start: 15755, Stop: 16126, Start Num: 11

Candidate Starts for Inyanga\_22:

(Start: 11 @15755 has 5 MA's), (32, 15944), (38, 16019), (46, 16076), (48, 16082),

Gene: Iqorha\_22 Start: 15754, Stop: 16125, Start Num: 11

Candidate Starts for Iqorha\_22:

(Start: 11 @15754 has 5 MA's), (32, 15943), (38, 16018), (46, 16075), (48, 16081),

Gene: JSwag\_27 Start: 15383, Stop: 15838, Start Num: 13

Candidate Starts for JSwag\_27:

(Start: 13 @15383 has 2 MA's), (15, 15419), (20, 15434), (26, 15515), (31, 15545), (32, 15557), (36, 15596), (39, 15635), (47, 15695), (49, 15725),

Gene: Jiawan\_25 Start: 17081, Stop: 17497, Start Num: 10

Candidate Starts for Jiawan\_25:

(Start: 6 @16997 has 9 MA's), (10, 17081), (Start: 11 @17096 has 5 MA's), (27, 17246), (30, 17267), (33, 17291), (48, 17417),

Gene: Kachowdy\_24 Start: 15086, Stop: 15547, Start Num: 6

Candidate Starts for Kachowdy\_24:

(Start: 6 @15086 has 9 MA's), (10, 15170), (Start: 11 @15185 has 5 MA's), (22, 15263), (30, 15356), (35, 15392), (47, 15497),

Gene: Kazan\_28 Start: 16284, Stop: 16748, Start Num: 6

Candidate Starts for Kazan\_28:

(Start: 6 @16284 has 9 MA's), (7, 16329), (Start: 13 @16398 has 2 MA's), (Start: 16 @16437 has 1 MA's), (19, 16446), (21, 16455), (27, 16533), (33, 16578), (43, 16692),

Gene: KekoraPapaka\_23 Start: 15421, Stop: 15966, Start Num: 6  
Candidate Starts for KekoraPapaka\_23:  
(Start: 6 @15421 has 9 MA's), (Start: 13 @15535 has 2 MA's), (23, 15613), (32, 15709), (34, 15718),

Gene: Kingmustik0402\_24 Start: 15413, Stop: 15958, Start Num: 6  
Candidate Starts for Kingmustik0402\_24:  
(Start: 6 @15413 has 9 MA's), (Start: 13 @15527 has 2 MA's), (23, 15605), (32, 15701), (34, 15710),

Gene: Klodlith\_25 Start: 15093, Stop: 15572, Start Num: 6  
Candidate Starts for Klodlith\_25:  
(Start: 6 @15093 has 9 MA's), (10, 15177), (Start: 11 @15192 has 5 MA's), (15, 15243), (17, 15249),  
(30, 15363), (43, 15498), (45, 15504), (47, 15510), (50, 15546),

Gene: LeoAvram\_24 Start: 15418, Stop: 15963, Start Num: 6  
Candidate Starts for LeoAvram\_24:  
(Start: 6 @15418 has 9 MA's), (Start: 13 @15532 has 2 MA's), (23, 15610), (32, 15706), (34, 15715),

Gene: Lilleskat\_24 Start: 16961, Stop: 17461, Start Num: 6  
Candidate Starts for Lilleskat\_24:  
(Start: 6 @16961 has 9 MA's), (10, 17045), (Start: 11 @17060 has 5 MA's), (27, 17210), (30, 17231),  
(33, 17255), (48, 17381),

Gene: LogiBear\_27 Start: 16020, Stop: 16553, Start Num: 6  
Candidate Starts for LogiBear\_27:  
(Start: 6 @16020 has 9 MA's), (10, 16104), (Start: 11 @16119 has 5 MA's), (14, 16137), (26, 16266),  
(30, 16290), (33, 16314), (47, 16434),

Gene: Lowa\_26 Start: 15624, Stop: 15971, Start Num: 11  
Candidate Starts for Lowa\_26:  
(Start: 6 @15525 has 9 MA's), (Start: 11 @15624 has 5 MA's), (30, 15795), (33, 15819), (43, 15921),

Gene: Marchesa\_24 Start: 15084, Stop: 15545, Start Num: 6  
Candidate Starts for Marchesa\_24:  
(Start: 6 @15084 has 9 MA's), (10, 15168), (Start: 11 @15183 has 5 MA's), (15, 15234), (30, 15354),  
(35, 15390), (47, 15495),

Gene: MegTheThird\_24 Start: 15183, Stop: 15563, Start Num: 11  
Candidate Starts for MegTheThird\_24:  
(Start: 6 @15084 has 9 MA's), (Start: 11 @15183 has 5 MA's), (27, 15333), (30, 15354), (43, 15489),  
(47, 15501), (50, 15537),

Gene: Minispark\_23 Start: 15039, Stop: 15539, Start Num: 6  
Candidate Starts for Minispark\_23:  
(5, 14988), (Start: 6 @15039 has 9 MA's), (Start: 11 @15138 has 5 MA's), (30, 15309), (33, 15333),  
(48, 15459),

Gene: Mkhuseli\_24 Start: 16008, Stop: 16409, Start Num: 8  
Candidate Starts for Mkhuseli\_24:  
(Start: 8 @16008 has 1 MA's), (Start: 12 @16047 has 1 MA's), (32, 16227), (46, 16359), (48, 16365),

Gene: Montavir\_25 Start: 15632, Stop: 15979, Start Num: 11  
Candidate Starts for Montavir\_25:

(Start: 6 @15533 has 9 MA's), (Start: 11 @15632 has 5 MA's), (30, 15803), (33, 15827), (43, 15929),

Gene: NorthStar\_24 Start: 15421, Stop: 15966, Start Num: 6

Candidate Starts for NorthStar\_24:

(Start: 6 @15421 has 9 MA's), (Start: 13 @15535 has 2 MA's), (23, 15613), (32, 15709), (34, 15718),

Gene: Onglai\_25 Start: 15295, Stop: 15795, Start Num: 6

Candidate Starts for Onglai\_25:

(Start: 6 @15295 has 9 MA's), (10, 15379), (Start: 11 @15394 has 5 MA's), (27, 15544), (30, 15565), (33, 15589), (48, 15715),

Gene: PP\_34 Start: 21309, Stop: 21773, Start Num: 6

Candidate Starts for PP\_34:

(Start: 6 @21309 has 9 MA's), (21, 21480), (24, 21513), (34, 21609), (48, 21735),

Gene: Pablito\_17 Start: 11212, Stop: 11490, Start Num: 16

Candidate Starts for Pablito\_17:

(Start: 12 @11170 has 1 MA's), (Start: 13 @11176 has 2 MA's), (Start: 16 @11212 has 1 MA's), (19, 11221), (25, 11293), (44, 11452),

Gene: Phlippers\_22 Start: 16908, Stop: 17309, Start Num: 8

Candidate Starts for Phlippers\_22:

(Start: 8 @16908 has 1 MA's), (Start: 12 @16947 has 1 MA's), (32, 17127), (38, 17202), (46, 17259), (48, 17265),

Gene: PhrostyMug\_23 Start: 16015, Stop: 16386, Start Num: 11

Candidate Starts for PhrostyMug\_23:

(Start: 11 @16015 has 5 MA's), (32, 16204), (46, 16336), (48, 16342),

Gene: ProMouse\_22 Start: 16469, Stop: 16840, Start Num: 11

Candidate Starts for ProMouse\_22:

(Start: 11 @16469 has 5 MA's), (32, 16658), (46, 16790), (48, 16796),

Gene: Prudy\_27 Start: 17973, Stop: 18446, Start Num: 6

Candidate Starts for Prudy\_27:

(Start: 6 @17973 has 9 MA's), (19, 18135), (30, 18243), (33, 18267), (34, 18270), (39, 18336), (43, 18381), (45, 18387),

Gene: Puppet\_23 Start: 16019, Stop: 16390, Start Num: 11

Candidate Starts for Puppet\_23:

(Start: 11 @16019 has 5 MA's), (32, 16208), (46, 16340), (48, 16346),

Gene: R4\_17 Start: 11302, Stop: 11634, Start Num: 12

Candidate Starts for R4\_17:

(Start: 12 @11302 has 1 MA's), (Start: 13 @11308 has 2 MA's), (19, 11353),

Gene: RockieBear\_23 Start: 15421, Stop: 15966, Start Num: 6

Candidate Starts for RockieBear\_23:

(Start: 6 @15421 has 9 MA's), (Start: 13 @15535 has 2 MA's), (23, 15613), (32, 15709), (34, 15718),

Gene: Roimos\_24 Start: 15002, Stop: 15463, Start Num: 6

Candidate Starts for Roimos\_24:

(Start: 6 @15002 has 9 MA's), (10, 15086), (Start: 11 @15101 has 5 MA's), (22, 15179), (30, 15272), (35, 15308), (47, 15413),

Gene: Rosa24\_23 Start: 15507, Stop: 15938, Start Num: 13

Candidate Starts for Rosa24\_23:

(Start: 13 @15507 has 2 MA's), (23, 15585), (32, 15681), (34, 15690),

Gene: Rowdy\_27 Start: 15449, Stop: 15850, Start Num: 15

Candidate Starts for Rowdy\_27:

(15, 15449), (22, 15476), (26, 15545), (28, 15557), (32, 15587), (33, 15593), (48, 15725), (51, 15767), (52, 15785),

Gene: RyeScarlet\_27 Start: 17049, Stop: 17465, Start Num: 10

Candidate Starts for RyeScarlet\_27:

(Start: 6 @16965 has 9 MA's), (10, 17049), (Start: 11 @17064 has 5 MA's), (27, 17214), (30, 17235), (33, 17259), (48, 17385),

Gene: Sachima\_24 Start: 16961, Stop: 17461, Start Num: 6

Candidate Starts for Sachima\_24:

(Start: 6 @16961 has 9 MA's), (10, 17045), (Start: 11 @17060 has 5 MA's), (27, 17210), (30, 17231), (33, 17255), (48, 17381),

Gene: Sandaddy\_22 Start: 15945, Stop: 16316, Start Num: 11

Candidate Starts for Sandaddy\_22:

(Start: 11 @15945 has 5 MA's), (32, 16134), (38, 16209), (46, 16266), (48, 16272),

Gene: Sanya\_22 Start: 16607, Stop: 16978, Start Num: 11

Candidate Starts for Sanya\_22:

(Start: 11 @16607 has 5 MA's), (32, 16796), (34, 16805), (38, 16871), (46, 16928), (48, 16934),

Gene: SaturnRing\_24 Start: 15033, Stop: 15494, Start Num: 6

Candidate Starts for SaturnRing\_24:

(Start: 6 @15033 has 9 MA's), (10, 15117), (Start: 11 @15132 has 5 MA's), (15, 15183), (30, 15303), (35, 15339), (47, 15444),

Gene: Shapes\_27 Start: 15449, Stop: 15850, Start Num: 15

Candidate Starts for Shapes\_27:

(15, 15449), (22, 15476), (26, 15545), (28, 15557), (32, 15587), (33, 15593), (48, 15725), (51, 15767), (52, 15785),

Gene: StewieG\_22 Start: 15788, Stop: 16159, Start Num: 11

Candidate Starts for StewieG\_22:

(Start: 11 @15788 has 5 MA's), (32, 15977), (38, 16052), (46, 16109), (48, 16115),

Gene: SunkenRoot\_19 Start: 11508, Stop: 11843, Start Num: 10

Candidate Starts for SunkenRoot\_19:

(10, 11508), (Start: 13 @11538 has 2 MA's), (17, 11577), (19, 11583), (25, 11655), (26, 11667), (28, 11679),

Gene: Superstar\_20 Start: 12332, Stop: 12667, Start Num: 11

Candidate Starts for Superstar\_20:

(Start: 11 @12332 has 5 MA's), (Start: 13 @12347 has 2 MA's), (26, 12476), (44, 12626),

Gene: Tailonex\_21 Start: 14580, Stop: 14951, Start Num: 8  
Candidate Starts for Tailonex\_21:  
(Start: 8 @14580 has 1 MA's), (Start: 16 @14664 has 1 MA's), (33, 14805), (41, 14901), (42, 14907),  
(43, 14913), (48, 14928),

Gene: Teodoridan\_21 Start: 15353, Stop: 15724, Start Num: 11  
Candidate Starts for Teodoridan\_21:  
(Start: 11 @15353 has 5 MA's), (32, 15542), (38, 15617), (46, 15674), (48, 15680),

Gene: Travvers\_28 Start: 16132, Stop: 16518, Start Num: 9  
Candidate Starts for Travvers\_28:  
(4, 15928), (9, 16132), (19, 16213), (34, 16348), (43, 16453), (45, 16459),

Gene: U2\_23 Start: 16127, Stop: 16498, Start Num: 11  
Candidate Starts for U2\_23:  
(Start: 11 @16127 has 5 MA's), (32, 16316), (46, 16448), (48, 16454),

Gene: Verabelle\_18 Start: 11240, Stop: 11545, Start Num: 13  
Candidate Starts for Verabelle\_18:  
(Start: 13 @11240 has 2 MA's), (19, 11285), (25, 11357), (26, 11369), (44, 11510),

Gene: Whitspit\_24 Start: 16630, Stop: 17001, Start Num: 11  
Candidate Starts for Whitspit\_24:  
(Start: 11 @16630 has 5 MA's), (32, 16819), (38, 16894), (46, 16951), (48, 16957),

Gene: WorldCup\_23 Start: 15039, Stop: 15539, Start Num: 6  
Candidate Starts for WorldCup\_23:  
(5, 14988), (Start: 6 @15039 has 9 MA's), (Start: 11 @15138 has 5 MA's), (30, 15309), (33, 15333),  
(48, 15459),

Gene: Zarafa\_24 Start: 15095, Stop: 15556, Start Num: 6  
Candidate Starts for Zarafa\_24:  
(Start: 6 @15095 has 9 MA's), (10, 15179), (Start: 11 @15194 has 5 MA's), (15, 15245), (30, 15365),  
(35, 15401), (47, 15506),