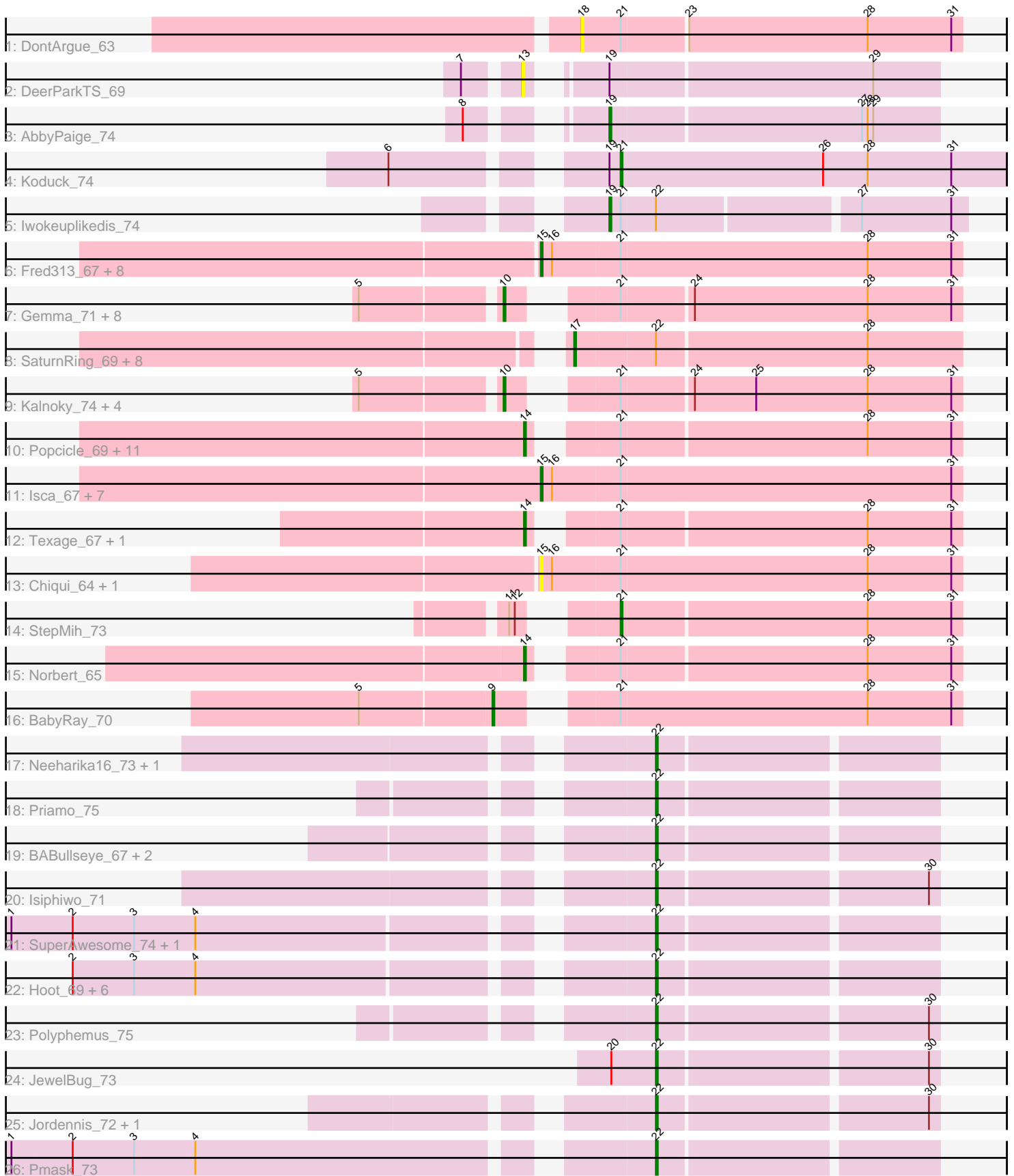


Pham 294643



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 294643 Report

This analysis was run 04/18/26 on database version 643.

Pham number 294643 has 85 members, 17 are drafts.

Phages represented in each track:

- Track 1 : DontArgue\_63
- Track 2 : DeerParkTS\_69
- Track 3 : AbbyPaige\_74
- Track 4 : Koduck\_74
- Track 5 : Iwokeuplikedis\_74
- Track 6 : Fred313\_67, Heathen\_69, Kachowdy\_67, DropBear\_67, Scout\_68, HelDan\_69, Roimos\_67, Zarafa\_67, Marchesa\_67
- Track 7 : Gemma\_71, HaveUMetTed\_74, Calvinny\_71, PurpleHaze\_73, PhishRPhriends\_70, ClownCar\_71, OlanP\_72, Heliosoles\_71, Manu\_73
- Track 8 : SaturnRing\_69, BlueBird\_72, Bugatti\_69, Idleandcovert\_70, TNguyen7\_70, Puppy\_70, Clammy\_69, Pistachio\_69, Giroux\_72
- Track 9 : Kalnok\_74, Marius\_74, JeppNRM\_74, ACFishhook\_71, Pawn\_72
- Track 10 : Popcicle\_69, Margo\_69, Hookmount\_69, Caviar\_69, Pocahontas\_68, Panamaxus\_67, QuinnKiro\_68, EtoileNova\_67, Lambert1\_69, ResDef\_67, Todacoro\_69, Veracruz\_66
- Track 11 : Isca\_67, MA5\_69, B1\_61, Phantastic\_71, MK4\_69, Rockstar\_68, JF2\_67, JF4\_67
- Track 12 : Texage\_67, Noella\_69
- Track 13 : Chiqui\_64, BabyJohn\_64
- Track 14 : StepMih\_73
- Track 15 : Norbert\_65
- Track 16 : BabyRay\_70
- Track 17 : Neeharika16\_73, SuperCallie99\_71
- Track 18 : Priamo\_75
- Track 19 : BABullseye\_67, McFly\_75, Dorothea\_74
- Track 20 : Isiphiwo\_71
- Track 21 : SuperAwesome\_74, DelvinSonDorr\_70
- Track 22 : Hoot\_69, Kipper29\_74, EricB\_73, Candra\_72, VohminGhazi\_74, Chartreuse\_73, DaVinci\_72
- Track 23 : Polyphemus\_75
- Track 24 : JewelBug\_73
- Track 25 : Jordennis\_72, Newrala\_73
- Track 26 : Pmask\_73

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

The start number called the most often in the published annotations is 22, it was called in 19 of the 68 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- BABullseye\_67, Candra\_72, Chartreuse\_73, DaVinci\_72, DelvinSonDorr\_70, Dorothea\_74, EricB\_73, Hoot\_69, Isiphiwo\_71, JewelBug\_73, Jordennis\_72, Kipper29\_74, McFly\_75, Neeharika16\_73, Newrala\_73, Pmask\_73, Polyphemus\_75, Priamo\_75, SuperAwesome\_74, SuperCallie99\_71, VohminGhazi\_74,

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

- BlueBird\_72, Bugatti\_69, Clammy\_69, Giroux\_72, Idleandcovert\_70, Iwokeuplikedis\_74, Pistachio\_69, Puppy\_70, SaturnRing\_69, TNguyen7\_70,

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

- ACFishhook\_71, AbbyPaige\_74, B1\_61, BabyJohn\_64, BabyRay\_70, Calvinny\_71, Caviar\_69, Chiqui\_64, ClownCar\_71, DeerParkTS\_69, DontArgue\_63, DropBear\_67, EtoileNova\_67, Fred313\_67, Gemma\_71, HaveUMetTed\_74, Heathen\_69, HelDan\_69, Heliosoles\_71, Hookmount\_69, Isca\_67, JF2\_67, JF4\_67, JeppNRM\_74, Kachowdy\_67, Kalnoky\_74, Koduck\_74, Lambert1\_69, MA5\_69, MK4\_69, Manu\_73, Marchesa\_67, Margo\_69, Marius\_74, Noella\_69, Norbert\_65, OlanP\_72, Panamaxus\_67, Pawn\_72, Phantastic\_71, PhishRPhriends\_70, Pocahontas\_68, Popcicle\_69, PurpleHaze\_73, QuinnKiro\_68, ResDef\_67, Rockstar\_68, Roimos\_67, Scout\_68, StepMih\_73, Texage\_67, Todacoro\_69, Veracruz\_66, Zarafa\_67,

### Summary by start number:

Start 9:

- Found in 1 of 85 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BabyRay\_70 (A3),

Start 10:

- Found in 14 of 85 ( 16.5% ) of genes in pham
- Manual Annotations of this start: 12 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ACFishhook\_71 (A3), Calvinny\_71 (A3), ClownCar\_71 (A3), Gemma\_71 (A3), HaveUMetTed\_74 (A3), Heliosoles\_71 (A3), JeppNRM\_74 (A3), Kalnoky\_74 (A3), Manu\_73 (A3), Marius\_74 (A3), OlanP\_72 (A3), Pawn\_72 (A3), PhishRPhriends\_70 (A3), PurpleHaze\_73 (A3),

Start 13:

- Found in 1 of 85 ( 1.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DeerParkTS\_69 (A2),

Start 14:

- Found in 15 of 85 ( 17.6% ) of genes in pham
- Manual Annotations of this start: 14 of 68
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Caviar\_69 (A3), EtoileNova\_67 (A3), Hookmount\_69 (A3), Lambert1\_69 (A3), Margo\_69 (A3), Noella\_69 (A3), Norbert\_65 (A3), Panamaxus\_67 (A3), Pocahontas\_68 (A3), Popcicle\_69 (A3), QuinnKiro\_68 (A3), ResDef\_67 (A3), Texage\_67 (A3), Todacoro\_69 (A3), Veracruz\_66 (A3),

#### Start 15:

- Found in 19 of 85 ( 22.4% ) of genes in pham
- Manual Annotations of this start: 12 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: B1\_61 (A3), BabyJohn\_64 (A3), Chiqui\_64 (A3), DropBear\_67 (A3), Fred313\_67 (A3), Heathen\_69 (A3), HelDan\_69 (A3), Isca\_67 (A3), JF2\_67 (A3), JF4\_67 (A3), Kachowdy\_67 (A3), MA5\_69 (A3), MK4\_69 (A3), Marchesa\_67 (A3), Phantastic\_71 (A3), Rockstar\_68 (A3), Roimos\_67 (A3), Scout\_68 (A3), Zarafa\_67 (A3),

#### Start 17:

- Found in 9 of 85 ( 10.6% ) of genes in pham
- Manual Annotations of this start: 6 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BlueBird\_72 (A3), Bugatti\_69 (A3), Clammy\_69 (A3), Giroux\_72 (A3), Idleandcovert\_70 (A3), Pistachio\_69 (A3), Puppy\_70 (A3), SaturnRing\_69 (A3), TNguyen7\_70 (A3),

#### Start 18:

- Found in 1 of 85 ( 1.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DontArgue\_63 (A10),

#### Start 19:

- Found in 4 of 85 ( 4.7% ) of genes in pham
- Manual Annotations of this start: 2 of 68
- Called 50.0% of time when present
- Phage (with cluster) where this start called: AbbyPaige\_74 (A2), Iwokeuplikedis\_74 (A2),

#### Start 21:

- Found in 53 of 85 ( 62.4% ) of genes in pham
- Manual Annotations of this start: 2 of 68
- Called 3.8% of time when present
- Phage (with cluster) where this start called: Koduck\_74 (A2), StepMih\_73 (A3),

#### Start 22:

- Found in 31 of 85 ( 36.5% ) of genes in pham
- Manual Annotations of this start: 19 of 68
- Called 67.7% of time when present
- Phage (with cluster) where this start called: BABullseye\_67 (A6), Candra\_72 (A6), Chartreuse\_73 (A6), DaVinci\_72 (A6), DelvinSonDorr\_70 (A6), Dorothea\_74 (A6), EricB\_73 (A6), Hoot\_69 (A6), Isiphiwo\_71 (A6), JewelBug\_73 (A6), Jordennis\_72 (A6), Kipper29\_74 (A6), McFly\_75 (A6), Neeharika16\_73 (A6), Newwala\_73 (A6), Pmask\_73 (A6), Polyphemus\_75 (A6), Priamo\_75 (A6), SuperAwesome\_74 (A6), SuperCallie99\_71 (A6), VohminGhazi\_74 (A6),

## Summary by clusters:

There are 4 clusters represented in this pham: A3, A2, A10, A6,

Info for manual annotations of cluster A2:

- Start number 19 was manually annotated 2 times for cluster A2.
- Start number 21 was manually annotated 1 time for cluster A2.

Info for manual annotations of cluster A3:

- Start number 9 was manually annotated 1 time for cluster A3.
- Start number 10 was manually annotated 12 times for cluster A3.
- Start number 14 was manually annotated 14 times for cluster A3.
- Start number 15 was manually annotated 12 times for cluster A3.
- Start number 17 was manually annotated 6 times for cluster A3.
- Start number 21 was manually annotated 1 time for cluster A3.

Info for manual annotations of cluster A6:

- Start number 22 was manually annotated 19 times for cluster A6.

## Gene Information:

Gene: ACFishhook\_71 Start: 42736, Stop: 42518, Start Num: 10

Candidate Starts for ACFishhook\_71:

(5, 42805), (Start: 10 @42736 has 12 MA's), (Start: 21 @42697 has 2 MA's), (24, 42661), (25, 42628), (28, 42568), (31, 42523),

Gene: AbbyPaige\_74 Start: 43716, Stop: 43543, Start Num: 19

Candidate Starts for AbbyPaige\_74:

(8, 43767), (Start: 19 @43716 has 2 MA's), (27, 43584), (28, 43581), (29, 43578),

Gene: B1\_61 Start: 40764, Stop: 40540, Start Num: 15

Candidate Starts for B1\_61:

(Start: 15 @40764 has 12 MA's), (16, 40758), (Start: 21 @40722 has 2 MA's), (31, 40545),

Gene: BABullseye\_67 Start: 40157, Stop: 40014, Start Num: 22

Candidate Starts for BABullseye\_67:

(Start: 22 @40157 has 19 MA's),

Gene: BabyJohn\_64 Start: 42591, Stop: 42367, Start Num: 15

Candidate Starts for BabyJohn\_64:

(Start: 15 @42591 has 12 MA's), (16, 42585), (Start: 21 @42549 has 2 MA's), (28, 42417), (31, 42372),

Gene: BabyRay\_70 Start: 42572, Stop: 42345, Start Num: 9

Candidate Starts for BabyRay\_70:

(5, 42641), (Start: 9 @42572 has 1 MA's), (Start: 21 @42527 has 2 MA's), (28, 42395), (31, 42350),

Gene: BlueBird\_72 Start: 42595, Stop: 42392, Start Num: 17

Candidate Starts for BlueBird\_72:

(Start: 17 @42595 has 6 MA's), (Start: 22 @42553 has 19 MA's), (28, 42442),

Gene: Bugatti\_69 Start: 42595, Stop: 42392, Start Num: 17  
Candidate Starts for Bugatti\_69:  
(Start: 17 @42595 has 6 MA's), (Start: 22 @42553 has 19 MA's), (28, 42442),

Gene: Calvinny\_71 Start: 42664, Stop: 42446, Start Num: 10  
Candidate Starts for Calvinny\_71:  
(5, 42733), (Start: 10 @42664 has 12 MA's), (Start: 21 @42625 has 2 MA's), (24, 42589), (28, 42496),  
(31, 42451),

Gene: Candra\_72 Start: 41853, Stop: 41710, Start Num: 22  
Candidate Starts for Candra\_72:  
(2, 42138), (3, 42105), (4, 42072), (Start: 22 @41853 has 19 MA's),

Gene: Caviar\_69 Start: 42560, Stop: 42348, Start Num: 14  
Candidate Starts for Caviar\_69:  
(Start: 14 @42560 has 14 MA's), (Start: 21 @42527 has 2 MA's), (28, 42398), (31, 42353),

Gene: Chartreuse\_73 Start: 41164, Stop: 41021, Start Num: 22  
Candidate Starts for Chartreuse\_73:  
(2, 41449), (3, 41416), (4, 41383), (Start: 22 @41164 has 19 MA's),

Gene: Chiqui\_64 Start: 42600, Stop: 42376, Start Num: 15  
Candidate Starts for Chiqui\_64:  
(Start: 15 @42600 has 12 MA's), (16, 42594), (Start: 21 @42558 has 2 MA's), (28, 42426), (31, 42381),

Gene: Clammy\_69 Start: 42595, Stop: 42392, Start Num: 17  
Candidate Starts for Clammy\_69:  
(Start: 17 @42595 has 6 MA's), (Start: 22 @42553 has 19 MA's), (28, 42442),

Gene: ClownCar\_71 Start: 42657, Stop: 42439, Start Num: 10  
Candidate Starts for ClownCar\_71:  
(5, 42726), (Start: 10 @42657 has 12 MA's), (Start: 21 @42618 has 2 MA's), (24, 42582), (28, 42489),  
(31, 42444),

Gene: DaVinci\_72 Start: 41218, Stop: 41075, Start Num: 22  
Candidate Starts for DaVinci\_72:  
(2, 41503), (3, 41470), (4, 41437), (Start: 22 @41218 has 19 MA's),

Gene: DeerParkTS\_69 Start: 42438, Stop: 42238, Start Num: 13  
Candidate Starts for DeerParkTS\_69:  
(7, 42462), (13, 42438), (Start: 19 @42411 has 2 MA's), (29, 42273),

Gene: DelvinSonDorr\_70 Start: 41873, Stop: 41730, Start Num: 22  
Candidate Starts for DelvinSonDorr\_70:  
(1, 42191), (2, 42158), (3, 42125), (4, 42092), (Start: 22 @41873 has 19 MA's),

Gene: DontArgue\_63 Start: 40833, Stop: 40633, Start Num: 18  
Candidate Starts for DontArgue\_63:  
(18, 40833), (Start: 21 @40812 has 2 MA's), (23, 40779), (28, 40683), (31, 40638),

Gene: Dorothea\_74 Start: 42463, Stop: 42320, Start Num: 22  
Candidate Starts for Dorothea\_74:  
(Start: 22 @42463 has 19 MA's),

Gene: DropBear\_67 Start: 42515, Stop: 42291, Start Num: 15

Candidate Starts for DropBear\_67:

(Start: 15 @42515 has 12 MA's), (16, 42509), (Start: 21 @42473 has 2 MA's), (28, 42341), (31, 42296),

Gene: EricB\_73 Start: 41810, Stop: 41667, Start Num: 22

Candidate Starts for EricB\_73:

(2, 42095), (3, 42062), (4, 42029), (Start: 22 @41810 has 19 MA's),

Gene: EtoileNova\_67 Start: 42564, Stop: 42352, Start Num: 14

Candidate Starts for EtoileNova\_67:

(Start: 14 @42564 has 14 MA's), (Start: 21 @42531 has 2 MA's), (28, 42402), (31, 42357),

Gene: Fred313\_67 Start: 42209, Stop: 41985, Start Num: 15

Candidate Starts for Fred313\_67:

(Start: 15 @42209 has 12 MA's), (16, 42203), (Start: 21 @42167 has 2 MA's), (28, 42035), (31, 41990),

Gene: Gemma\_71 Start: 42660, Stop: 42442, Start Num: 10

Candidate Starts for Gemma\_71:

(5, 42729), (Start: 10 @42660 has 12 MA's), (Start: 21 @42621 has 2 MA's), (24, 42585), (28, 42492), (31, 42447),

Gene: Giroux\_72 Start: 42594, Stop: 42391, Start Num: 17

Candidate Starts for Giroux\_72:

(Start: 17 @42594 has 6 MA's), (Start: 22 @42552 has 19 MA's), (28, 42441),

Gene: HaveUMetTed\_74 Start: 42649, Stop: 42431, Start Num: 10

Candidate Starts for HaveUMetTed\_74:

(5, 42718), (Start: 10 @42649 has 12 MA's), (Start: 21 @42610 has 2 MA's), (24, 42574), (28, 42481), (31, 42436),

Gene: Heathen\_69 Start: 42304, Stop: 42080, Start Num: 15

Candidate Starts for Heathen\_69:

(Start: 15 @42304 has 12 MA's), (16, 42298), (Start: 21 @42262 has 2 MA's), (28, 42130), (31, 42085),

Gene: HelDan\_69 Start: 42520, Stop: 42296, Start Num: 15

Candidate Starts for HelDan\_69:

(Start: 15 @42520 has 12 MA's), (16, 42514), (Start: 21 @42478 has 2 MA's), (28, 42346), (31, 42301),

Gene: Heliosoles\_71 Start: 42667, Stop: 42449, Start Num: 10

Candidate Starts for Heliosoles\_71:

(5, 42736), (Start: 10 @42667 has 12 MA's), (Start: 21 @42628 has 2 MA's), (24, 42592), (28, 42499), (31, 42454),

Gene: Hookmount\_69 Start: 42561, Stop: 42349, Start Num: 14

Candidate Starts for Hookmount\_69:

(Start: 14 @42561 has 14 MA's), (Start: 21 @42528 has 2 MA's), (28, 42399), (31, 42354),

Gene: Hoot\_69 Start: 39668, Stop: 39525, Start Num: 22

Candidate Starts for Hoot\_69:

(2, 39953), (3, 39920), (4, 39887), (Start: 22 @39668 has 19 MA's),

Gene: Idleandcovert\_70 Start: 42595, Stop: 42392, Start Num: 17

Candidate Starts for Idleandcovert\_70:

(Start: 17 @42595 has 6 MA's), (Start: 22 @42553 has 19 MA's), (28, 42442),

Gene: Isca\_67 Start: 42069, Stop: 41845, Start Num: 15

Candidate Starts for Isca\_67:

(Start: 15 @42069 has 12 MA's), (16, 42063), (Start: 21 @42027 has 2 MA's), (31, 41850),

Gene: Isiphiwo\_71 Start: 41832, Stop: 41689, Start Num: 22

Candidate Starts for Isiphiwo\_71:

(Start: 22 @41832 has 19 MA's), (30, 41694),

Gene: Iwokeuplikedis\_74 Start: 43821, Stop: 43639, Start Num: 19

Candidate Starts for Iwokeuplikedis\_74:

(Start: 19 @43821 has 2 MA's), (Start: 21 @43815 has 2 MA's), (Start: 22 @43797 has 19 MA's), (27, 43695), (31, 43647),

Gene: JF2\_67 Start: 40764, Stop: 40540, Start Num: 15

Candidate Starts for JF2\_67:

(Start: 15 @40764 has 12 MA's), (16, 40758), (Start: 21 @40722 has 2 MA's), (31, 40545),

Gene: JF4\_67 Start: 40764, Stop: 40540, Start Num: 15

Candidate Starts for JF4\_67:

(Start: 15 @40764 has 12 MA's), (16, 40758), (Start: 21 @40722 has 2 MA's), (31, 40545),

Gene: JeppNRM\_74 Start: 42665, Stop: 42447, Start Num: 10

Candidate Starts for JeppNRM\_74:

(5, 42734), (Start: 10 @42665 has 12 MA's), (Start: 21 @42626 has 2 MA's), (24, 42590), (25, 42557), (28, 42497), (31, 42452),

Gene: JewelBug\_73 Start: 42554, Stop: 42411, Start Num: 22

Candidate Starts for JewelBug\_73:

(20, 42578), (Start: 22 @42554 has 19 MA's), (30, 42416),

Gene: Jordennis\_72 Start: 42048, Stop: 41905, Start Num: 22

Candidate Starts for Jordennis\_72:

(Start: 22 @42048 has 19 MA's), (30, 41910),

Gene: Kachowdy\_67 Start: 42556, Stop: 42332, Start Num: 15

Candidate Starts for Kachowdy\_67:

(Start: 15 @42556 has 12 MA's), (16, 42550), (Start: 21 @42514 has 2 MA's), (28, 42382), (31, 42337),

Gene: Kalnoky\_74 Start: 42661, Stop: 42443, Start Num: 10

Candidate Starts for Kalnoky\_74:

(5, 42730), (Start: 10 @42661 has 12 MA's), (Start: 21 @42622 has 2 MA's), (24, 42586), (25, 42553), (28, 42493), (31, 42448),

Gene: Kipper29\_74 Start: 41836, Stop: 41693, Start Num: 22

Candidate Starts for Kipper29\_74:

(2, 42121), (3, 42088), (4, 42055), (Start: 22 @41836 has 19 MA's),

Gene: Koduck\_74 Start: 42710, Stop: 42504, Start Num: 21

Candidate Starts for Koduck\_74:

(6, 42809), (Start: 19 @42716 has 2 MA's), (Start: 21 @42710 has 2 MA's), (26, 42602), (28, 42578), (31, 42533),

Gene: Lambert1\_69 Start: 42560, Stop: 42348, Start Num: 14

Candidate Starts for Lambert1\_69:

(Start: 14 @42560 has 14 MA's), (Start: 21 @42527 has 2 MA's), (28, 42398), (31, 42353),

Gene: MA5\_69 Start: 41973, Stop: 41749, Start Num: 15

Candidate Starts for MA5\_69:

(Start: 15 @41973 has 12 MA's), (16, 41967), (Start: 21 @41931 has 2 MA's), (31, 41754),

Gene: MK4\_69 Start: 42048, Stop: 41824, Start Num: 15

Candidate Starts for MK4\_69:

(Start: 15 @42048 has 12 MA's), (16, 42042), (Start: 21 @42006 has 2 MA's), (31, 41829),

Gene: Manu\_73 Start: 42664, Stop: 42446, Start Num: 10

Candidate Starts for Manu\_73:

(5, 42733), (Start: 10 @42664 has 12 MA's), (Start: 21 @42625 has 2 MA's), (24, 42589), (28, 42496), (31, 42451),

Gene: Marchesa\_67 Start: 42506, Stop: 42282, Start Num: 15

Candidate Starts for Marchesa\_67:

(Start: 15 @42506 has 12 MA's), (16, 42500), (Start: 21 @42464 has 2 MA's), (28, 42332), (31, 42287),

Gene: Margo\_69 Start: 42586, Stop: 42374, Start Num: 14

Candidate Starts for Margo\_69:

(Start: 14 @42586 has 14 MA's), (Start: 21 @42553 has 2 MA's), (28, 42424), (31, 42379),

Gene: Marius\_74 Start: 42661, Stop: 42443, Start Num: 10

Candidate Starts for Marius\_74:

(5, 42730), (Start: 10 @42661 has 12 MA's), (Start: 21 @42622 has 2 MA's), (24, 42586), (25, 42553), (28, 42493), (31, 42448),

Gene: McFly\_75 Start: 42451, Stop: 42308, Start Num: 22

Candidate Starts for McFly\_75:

(Start: 22 @42451 has 19 MA's),

Gene: Neeharika16\_73 Start: 41917, Stop: 41774, Start Num: 22

Candidate Starts for Neeharika16\_73:

(Start: 22 @41917 has 19 MA's),

Gene: Newrala\_73 Start: 42257, Stop: 42114, Start Num: 22

Candidate Starts for Newrala\_73:

(Start: 22 @42257 has 19 MA's), (30, 42119),

Gene: Noella\_69 Start: 42561, Stop: 42349, Start Num: 14

Candidate Starts for Noella\_69:

(Start: 14 @42561 has 14 MA's), (Start: 21 @42528 has 2 MA's), (28, 42399), (31, 42354),

Gene: Norbert\_65 Start: 42560, Stop: 42348, Start Num: 14

Candidate Starts for Norbert\_65:

(Start: 14 @42560 has 14 MA's), (Start: 21 @42527 has 2 MA's), (28, 42398), (31, 42353),

Gene: OlanP\_72 Start: 42837, Stop: 42619, Start Num: 10

Candidate Starts for OlanP\_72:

(5, 42906), (Start: 10 @42837 has 12 MA's), (Start: 21 @42798 has 2 MA's), (24, 42762), (28, 42669), (31, 42624),

Gene: Panamaxus\_67 Start: 42560, Stop: 42348, Start Num: 14

Candidate Starts for Panamaxus\_67:

(Start: 14 @42560 has 14 MA's), (Start: 21 @42527 has 2 MA's), (28, 42398), (31, 42353),

Gene: Pawn\_72 Start: 42668, Stop: 42450, Start Num: 10

Candidate Starts for Pawn\_72:

(5, 42737), (Start: 10 @42668 has 12 MA's), (Start: 21 @42629 has 2 MA's), (24, 42593), (25, 42560), (28, 42500), (31, 42455),

Gene: Phantastic\_71 Start: 42234, Stop: 42010, Start Num: 15

Candidate Starts for Phantastic\_71:

(Start: 15 @42234 has 12 MA's), (16, 42228), (Start: 21 @42192 has 2 MA's), (31, 42015),

Gene: PhishRPhriends\_70 Start: 41845, Stop: 41627, Start Num: 10

Candidate Starts for PhishRPhriends\_70:

(5, 41914), (Start: 10 @41845 has 12 MA's), (Start: 21 @41806 has 2 MA's), (24, 41770), (28, 41677), (31, 41632),

Gene: Pistachio\_69 Start: 42142, Stop: 41939, Start Num: 17

Candidate Starts for Pistachio\_69:

(Start: 17 @42142 has 6 MA's), (Start: 22 @42100 has 19 MA's), (28, 41989),

Gene: Pmask\_73 Start: 42453, Stop: 42310, Start Num: 22

Candidate Starts for Pmask\_73:

(1, 42774), (2, 42741), (3, 42708), (4, 42675), (Start: 22 @42453 has 19 MA's),

Gene: Pocahontas\_68 Start: 42557, Stop: 42345, Start Num: 14

Candidate Starts for Pocahontas\_68:

(Start: 14 @42557 has 14 MA's), (Start: 21 @42524 has 2 MA's), (28, 42395), (31, 42350),

Gene: Polyphemus\_75 Start: 42640, Stop: 42497, Start Num: 22

Candidate Starts for Polyphemus\_75:

(Start: 22 @42640 has 19 MA's), (30, 42502),

Gene: Popsicle\_69 Start: 42557, Stop: 42345, Start Num: 14

Candidate Starts for Popsicle\_69:

(Start: 14 @42557 has 14 MA's), (Start: 21 @42524 has 2 MA's), (28, 42395), (31, 42350),

Gene: Priamo\_75 Start: 42118, Stop: 41975, Start Num: 22

Candidate Starts for Priamo\_75:

(Start: 22 @42118 has 19 MA's),

Gene: Puppy\_70 Start: 42214, Stop: 42011, Start Num: 17

Candidate Starts for Puppy\_70:

(Start: 17 @42214 has 6 MA's), (Start: 22 @42172 has 19 MA's), (28, 42061),

Gene: PurpleHaze\_73 Start: 42663, Stop: 42445, Start Num: 10

Candidate Starts for PurpleHaze\_73:

(5, 42732), (Start: 10 @42663 has 12 MA's), (Start: 21 @42624 has 2 MA's), (24, 42588), (28, 42495), (31, 42450),

Gene: QuinnKiro\_68 Start: 42560, Stop: 42348, Start Num: 14

Candidate Starts for QuinnKiro\_68:

(Start: 14 @42560 has 14 MA's), (Start: 21 @42527 has 2 MA's), (28, 42398), (31, 42353),

Gene: ResDef\_67 Start: 42560, Stop: 42348, Start Num: 14

Candidate Starts for ResDef\_67:

(Start: 14 @42560 has 14 MA's), (Start: 21 @42527 has 2 MA's), (28, 42398), (31, 42353),

Gene: Rockstar\_68 Start: 42057, Stop: 41833, Start Num: 15

Candidate Starts for Rockstar\_68:

(Start: 15 @42057 has 12 MA's), (16, 42051), (Start: 21 @42015 has 2 MA's), (31, 41838),

Gene: Roimos\_67 Start: 42436, Stop: 42212, Start Num: 15

Candidate Starts for Roimos\_67:

(Start: 15 @42436 has 12 MA's), (16, 42430), (Start: 21 @42394 has 2 MA's), (28, 42262), (31, 42217),

Gene: SaturnRing\_69 Start: 42595, Stop: 42392, Start Num: 17

Candidate Starts for SaturnRing\_69:

(Start: 17 @42595 has 6 MA's), (Start: 22 @42553 has 19 MA's), (28, 42442),

Gene: Scout\_68 Start: 41767, Stop: 41543, Start Num: 15

Candidate Starts for Scout\_68:

(Start: 15 @41767 has 12 MA's), (16, 41761), (Start: 21 @41725 has 2 MA's), (28, 41593), (31, 41548),

Gene: StepMih\_73 Start: 42802, Stop: 42623, Start Num: 21

Candidate Starts for StepMih\_73:

(11, 42838), (12, 42835), (Start: 21 @42802 has 2 MA's), (28, 42673), (31, 42628),

Gene: SuperAwesome\_74 Start: 42495, Stop: 42352, Start Num: 22

Candidate Starts for SuperAwesome\_74:

(1, 42813), (2, 42780), (3, 42747), (4, 42714), (Start: 22 @42495 has 19 MA's),

Gene: SuperCallie99\_71 Start: 42337, Stop: 42194, Start Num: 22

Candidate Starts for SuperCallie99\_71:

(Start: 22 @42337 has 19 MA's),

Gene: TNguyen7\_70 Start: 42555, Stop: 42352, Start Num: 17

Candidate Starts for TNguyen7\_70:

(Start: 17 @42555 has 6 MA's), (Start: 22 @42513 has 19 MA's), (28, 42402),

Gene: Texage\_67 Start: 42561, Stop: 42349, Start Num: 14

Candidate Starts for Texage\_67:

(Start: 14 @42561 has 14 MA's), (Start: 21 @42528 has 2 MA's), (28, 42399), (31, 42354),

Gene: Todacoro\_69 Start: 42560, Stop: 42348, Start Num: 14

Candidate Starts for Todacoro\_69:

(Start: 14 @42560 has 14 MA's), (Start: 21 @42527 has 2 MA's), (28, 42398), (31, 42353),

Gene: Veracruz\_66 Start: 42560, Stop: 42348, Start Num: 14

Candidate Starts for Veracruz\_66:

(Start: 14 @42560 has 14 MA's), (Start: 21 @42527 has 2 MA's), (28, 42398), (31, 42353),

Gene: VohminGhazi\_74 Start: 41818, Stop: 41675, Start Num: 22

Candidate Starts for VohminGhazi\_74:

(2, 42103), (3, 42070), (4, 42037), (Start: 22 @41818 has 19 MA's),

Gene: Zarafa\_67 Start: 42529, Stop: 42305, Start Num: 15

Candidate Starts for Zarafa\_67:

(Start: 15 @42529 has 12 MA's), (16, 42523), (Start: 21 @42487 has 2 MA's), (28, 42355), (31, 42310),