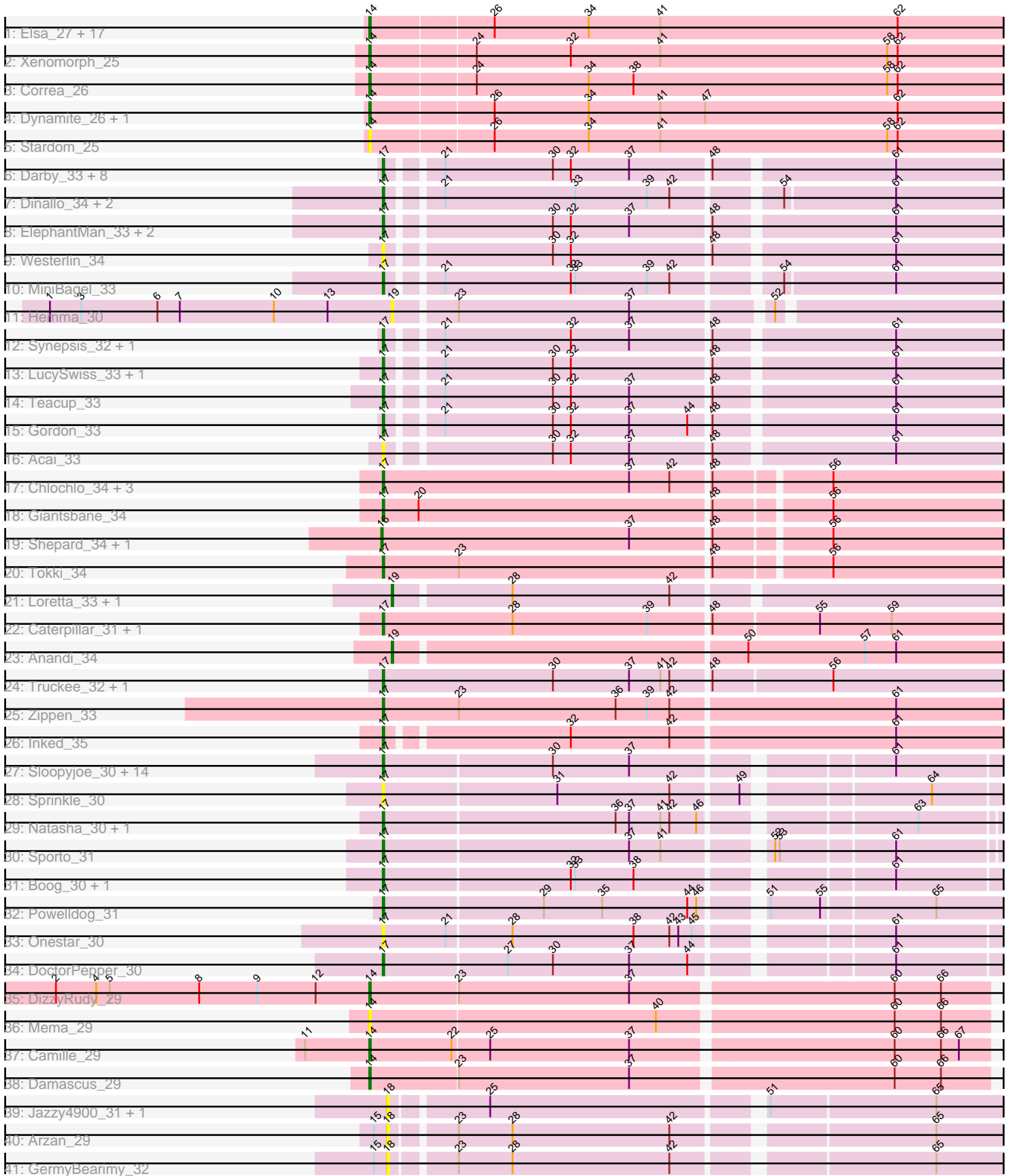


Pham 304889



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 304889 Report

This analysis was run 06/08/26 on database version 649.

Pham number 304889 has 97 members, 18 are drafts.

Phages represented in each track:

- Track 1 : Elsa\_27, Mooshroom\_26, BenitoAntonio\_27, Circum\_27, KeaneyLin\_25, GoCrazy\_25, Kardesai\_25, Hankly\_25, Bowling\_27, Arcadia\_27, YoshiYama\_26, Mudcat\_26, Tribby\_27, Nason\_27, Cheesy\_27, JEGGS\_26, Benllo\_25, Heisenberger\_26
- Track 2 : Xenomorph\_25
- Track 3 : Correa\_26
- Track 4 : Dynamite\_26, NapoleonB\_26
- Track 5 : Stardom\_25
- Track 6 : Darby\_33, Nivinsha\_33, AreFloNak\_33, CastorTray\_35, ScienceWizSam\_35, Issa\_33, Trustiboi\_34, DevitoJr\_33, Tatanka\_33
- Track 7 : Dinallo\_34, CapnMurica\_33, Tenno\_34
- Track 8 : ElephantMan\_33, Brunswick\_33, Niktson\_33
- Track 9 : Westerlin\_34
- Track 10 : MiniBagel\_33
- Track 11 : Hemma\_30
- Track 12 : Synopsis\_32, Breylor17\_34
- Track 13 : LucySwiss\_33, Nightmare\_34
- Track 14 : Teacup\_33
- Track 15 : Gordon\_33
- Track 16 : Acai\_33
- Track 17 : Chlochlo\_34, Phaby\_34, Tipton\_34, Bouchard\_34
- Track 18 : Giantsbane\_34
- Track 19 : Shepard\_34, LilHuddy\_34
- Track 20 : Tokki\_34
- Track 21 : Loretta\_33, Ingrid\_33
- Track 22 : Caterpillar\_31, MediumFry\_31
- Track 23 : Anandi\_34
- Track 24 : Truckee\_32, Makai\_33
- Track 25 : Zippen\_33
- Track 26 : Inked\_35
- Track 27 : Sloopyjoe\_30, Spain\_30, ProfFrink\_30, StarLord\_30, Shiba\_30, Salk\_30, Egad\_30, Stayer\_30, BronxBay\_30, Raunak\_31, Michelle\_30, MrAaronian\_30, Djungelskog\_30, Jeremy4pt0\_30, Linda\_30
- Track 28 : Sprinkle\_30
- Track 29 : Natasha\_30, RustyBoy\_30
- Track 30 : Sporto\_31
- Track 31 : Boog\_30, HerbBucket\_29

- Track 32 : Powelldog\_31
- Track 33 : Onestar\_30
- Track 34 : DoctorPepper\_30
- Track 35 : DizzyRudy\_29
- Track 36 : Mema\_29
- Track 37 : Camille\_29
- Track 38 : Damascus\_29
- Track 39 : Jazzy4900\_31, Sunny4976\_30
- Track 40 : Arzan\_29
- Track 41 : GermyBearimy\_32

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

The start number called the most often in the published annotations is 17, it was called in 50 of the 79 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acai\_33, AreFloNak\_33, Boog\_30, Bouchard\_34, Breylor17\_34, BronxBay\_30, Brunswick\_33, CapnMurica\_33, CastorTray\_35, Caterpillar\_31, Chlochlo\_34, Darby\_33, DevitoJr\_33, Dinallo\_34, Djungelskog\_30, DoctorPepper\_30, Egad\_30, ElephantMan\_33, Giantsbane\_34, Gordon\_33, HerbBucket\_29, Inked\_35, Issa\_33, Jeremy4pt0\_30, Linda\_30, LucySwiss\_33, Makai\_33, MediumFry\_31, Michelle\_30, MiniBagel\_33, MrAaronian\_30, Natasha\_30, Nightmare\_34, Niktson\_33, Nivinsha\_33, Onestar\_30, Phaby\_34, Powelldog\_31, ProfFrink\_30, Raunak\_31, RustyBoy\_30, Salk\_30, ScienceWizSam\_35, Shiba\_30, Sloopyjoe\_30, Spain\_30, Sporto\_31, Sprinkle\_30, StarLord\_30, Stayer\_30, Synepsis\_32, Tatanka\_33, Teacup\_33, Tenno\_34, Tipton\_34, Tokki\_34, Truckee\_32, Trustiboi\_34, Westerlin\_34, Zippen\_33,

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

- 

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

- Anandi\_34, Arcadia\_27, Arzan\_29, BenitoAntonio\_27, Benllo\_25, Bowling\_27, Camille\_29, Cheesy\_27, Circum\_27, Correa\_26, Damascus\_29, DizzyRudy\_29, Dynamite\_26, Elsa\_27, GermyBearimy\_32, GoCrazy\_25, Hankly\_25, Heisenberger\_26, Hemma\_30, Ingrid\_33, JEGGS\_26, Jazzy4900\_31, Kardesai\_25, KeaneyLin\_25, LilHuddy\_34, Loretta\_33, Mema\_29, Mooshroom\_26, Mudcat\_26, NapoleonB\_26, Nason\_27, Shepard\_34, Stardom\_25, Sunny4976\_30, Tribby\_27, Xenomorph\_25, YoshiYama\_26,

**Summary by start number:**

Start 14:

- Found in 27 of 97 ( 27.8% ) of genes in pham
- Manual Annotations of this start: 24 of 79
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arcadia\_27 (AM), BenitoAntonio\_27 (AM), Benllo\_25 (AM), Bowling\_27 (AM), Camille\_29 (EL), Cheesy\_27 (AM), Circum\_27 (AM), Correa\_26 (AM), Damascus\_29 (EL), DizzyRudy\_29 (EL),

Dynamite\_26 (AM), Elsa\_27 (AM), GoCrazy\_25 (AM), Hankly\_25 (AM), Heisenberger\_26 (AM), JEGGS\_26 (AM), Kardesai\_25 (AM), KeaneyLin\_25 (AM), Mema\_29 (EL), Mooshroom\_26 (AM), Mudcat\_26 (AM), NapoleonB\_26 (AM), Nason\_27 (AM), Stardom\_25 (AM), Tribby\_27 (AM), Xenomorph\_25 (AM), YoshiYama\_26 (AM),

Start 16:

- Found in 2 of 97 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 2 of 79
- Called 100.0% of time when present
- Phage (with cluster) where this start called: LilHuddy\_34 (AU2), Shepard\_34 (AU2),

Start 17:

- Found in 60 of 97 ( 61.9% ) of genes in pham
- Manual Annotations of this start: 50 of 79
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acai\_33 (AU1), AreFloNak\_33 (AU1), Boog\_30 (AW), Bouchard\_34 (AU2), Breylor17\_34 (AU1), BronxBay\_30 (AW), Brunswick\_33 (AU1), CapnMurica\_33 (AU1), CastorTray\_35 (AU1), Caterpillar\_31 (AU4), Chlochlo\_34 (AU2), Darby\_33 (AU1), DevitoJr\_33 (AU1), Dinallo\_34 (AU1), Djungelskog\_30 (AW), DoctorPepper\_30 (AW), Egad\_30 (AW), ElephantMan\_33 (AU1), Giantsbane\_34 (AU2), Gordon\_33 (AU1), HerbBucket\_29 (AW), Inked\_35 (AU7), Issa\_33 (AU1), Jeremy4pt0\_30 (AW), Linda\_30 (AW), LucySwiss\_33 (AU1), Makai\_33 (AU5), MediumFry\_31 (AU4), Michelle\_30 (AW), MiniBagel\_33 (AU1), MrAaronian\_30 (AW), Natasha\_30 (AW), Nightmare\_34 (AU1), Niktson\_33 (AU1), Nivinsha\_33 (AU1), Onestar\_30 (AW), Phaby\_34 (AU2), Powelldog\_31 (AW), ProfFrink\_30 (AW), Raunak\_31 (AW), RustyBoy\_30 (AW), Salk\_30 (AW), ScienceWizSam\_35 (AU1), Shiba\_30 (AW), Sloopypjoe\_30 (AW), Spain\_30 (AW), Sporto\_31 (AW), Sprinkle\_30 (AW), StarLord\_30 (AW), Stayer\_30 (AW), Synopsis\_32 (AU1), Tatanka\_33 (AU1), Teacup\_33 (AU1), Tenno\_34 (AU1), Tipton\_34 (AU2), Tokki\_34 (AU2), Truckee\_32 (AU5), Trustiboi\_34 (AU1), Westerlin\_34 (AU1), Zippen\_33 (AU7),

Start 18:

- Found in 4 of 97 ( 4.1% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arzan\_29 (FI), GermyBearimy\_32 (FI), Jazzy4900\_31 (FI), Sunny4976\_30 (FI),

Start 19:

- Found in 4 of 97 ( 4.1% ) of genes in pham
- Manual Annotations of this start: 3 of 79
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anandi\_34 (AU4), Hemma\_30 (AU1), Ingrid\_33 (AU3), Loretta\_33 (AU3),

### Summary by clusters:

There are 10 clusters represented in this pham: EL, AU7, AM, AU1, AU3, AU2, AU5, AU4, AW, FI,

Info for manual annotations of cluster AM:

- Start number 14 was manually annotated 21 times for cluster AM.

Info for manual annotations of cluster AU1:

- Start number 17 was manually annotated 19 times for cluster AU1.

Info for manual annotations of cluster AU2:

- Start number 16 was manually annotated 2 times for cluster AU2.
- Start number 17 was manually annotated 6 times for cluster AU2.

Info for manual annotations of cluster AU3:

- Start number 19 was manually annotated 2 times for cluster AU3.

Info for manual annotations of cluster AU4:

- Start number 17 was manually annotated 2 times for cluster AU4.
- Start number 19 was manually annotated 1 time for cluster AU4.

Info for manual annotations of cluster AU5:

- Start number 17 was manually annotated 2 times for cluster AU5.

Info for manual annotations of cluster AU7:

- Start number 17 was manually annotated 2 times for cluster AU7.

Info for manual annotations of cluster AW:

- Start number 17 was manually annotated 19 times for cluster AW.

Info for manual annotations of cluster EL:

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

### ***Gene Information:***

Gene: Acai\_33 Start: 28488, Stop: 28880, Start Num: 17

Candidate Starts for Acai\_33:

(Start: 17 @28488 has 50 MA's), (30, 28590), (32, 28602), (37, 28641), (48, 28692), (61, 28806),

Gene: Anandi\_34 Start: 29026, Stop: 29427, Start Num: 19

Candidate Starts for Anandi\_34:

(Start: 19 @29026 has 3 MA's), (50, 29254), (57, 29332), (61, 29353),

Gene: Arcadia\_27 Start: 24836, Stop: 25252, Start Num: 14

Candidate Starts for Arcadia\_27:

(Start: 14 @24836 has 24 MA's), (26, 24914), (34, 24977), (41, 25025), (62, 25181),

Gene: AreFloNak\_33 Start: 28429, Stop: 28821, Start Num: 17

Candidate Starts for AreFloNak\_33:

(Start: 17 @28429 has 50 MA's), (21, 28459), (30, 28531), (32, 28543), (37, 28582), (48, 28633), (61, 28747),

Gene: Arzan\_29 Start: 25708, Stop: 26094, Start Num: 18

Candidate Starts for Arzan\_29:

(15, 25699), (18, 25708), (23, 25747), (28, 25783), (42, 25888), (65, 26047),

Gene: BenitoAntonio\_27 Start: 24452, Stop: 24868, Start Num: 14  
Candidate Starts for BenitoAntonio\_27:  
(Start: 14 @24452 has 24 MA's), (26, 24530), (34, 24593), (41, 24641), (62, 24797),

Gene: Benllo\_25 Start: 24736, Stop: 25152, Start Num: 14  
Candidate Starts for Benllo\_25:  
(Start: 14 @24736 has 24 MA's), (26, 24814), (34, 24877), (41, 24925), (62, 25081),

Gene: Boog\_30 Start: 25583, Stop: 25972, Start Num: 17  
Candidate Starts for Boog\_30:  
(Start: 17 @25583 has 50 MA's), (32, 25706), (33, 25709), (38, 25748), (61, 25901),

Gene: Bouchard\_34 Start: 28632, Stop: 29036, Start Num: 17  
Candidate Starts for Bouchard\_34:  
(Start: 17 @28632 has 50 MA's), (37, 28797), (42, 28824), (48, 28848), (56, 28920),

Gene: Bowling\_27 Start: 24550, Stop: 24966, Start Num: 14  
Candidate Starts for Bowling\_27:  
(Start: 14 @24550 has 24 MA's), (26, 24628), (34, 24691), (41, 24739), (62, 24895),

Gene: Breylor17\_34 Start: 29035, Stop: 29427, Start Num: 17  
Candidate Starts for Breylor17\_34:  
(Start: 17 @29035 has 50 MA's), (21, 29065), (32, 29149), (37, 29188), (48, 29239), (61, 29353),

Gene: BronxBay\_30 Start: 25582, Stop: 25971, Start Num: 17  
Candidate Starts for BronxBay\_30:  
(Start: 17 @25582 has 50 MA's), (30, 25693), (37, 25744), (61, 25900),

Gene: Brunswick\_33 Start: 28500, Stop: 28892, Start Num: 17  
Candidate Starts for Brunswick\_33:  
(Start: 17 @28500 has 50 MA's), (30, 28602), (32, 28614), (37, 28653), (48, 28704), (61, 28818),

Gene: Camille\_29 Start: 23493, Stop: 23894, Start Num: 14  
Candidate Starts for Camille\_29:  
(11, 23451), (Start: 14 @23493 has 24 MA's), (22, 23547), (25, 23571), (37, 23664), (60, 23832), (66, 23862), (67, 23874),

Gene: CapnMurica\_33 Start: 29586, Stop: 29975, Start Num: 17  
Candidate Starts for CapnMurica\_33:  
(Start: 17 @29586 has 50 MA's), (21, 29616), (33, 29703), (39, 29751), (42, 29766), (54, 29829), (61, 29901),

Gene: CastorTray\_35 Start: 28893, Stop: 29285, Start Num: 17  
Candidate Starts for CastorTray\_35:  
(Start: 17 @28893 has 50 MA's), (21, 28923), (30, 28995), (32, 29007), (37, 29046), (48, 29097), (61, 29211),

Gene: Caterpillar\_31 Start: 27666, Stop: 28076, Start Num: 17  
Candidate Starts for Caterpillar\_31:  
(Start: 17 @27666 has 50 MA's), (28, 27753), (39, 27843), (48, 27882), (55, 27951), (59, 27999),

Gene: Cheesy\_27 Start: 24551, Stop: 24967, Start Num: 14

Candidate Starts for Cheesy\_27:

(Start: 14 @24551 has 24 MA's), (26, 24629), (34, 24692), (41, 24740), (62, 24896),

Gene: Chlochlo\_34 Start: 28668, Stop: 29072, Start Num: 17

Candidate Starts for Chlochlo\_34:

(Start: 17 @28668 has 50 MA's), (37, 28833), (42, 28860), (48, 28884), (56, 28956),

Gene: Circum\_27 Start: 24558, Stop: 24974, Start Num: 14

Candidate Starts for Circum\_27:

(Start: 14 @24558 has 24 MA's), (26, 24636), (34, 24699), (41, 24747), (62, 24903),

Gene: Correa\_26 Start: 24066, Stop: 24482, Start Num: 14

Candidate Starts for Correa\_26:

(Start: 14 @24066 has 24 MA's), (24, 24132), (34, 24207), (38, 24237), (58, 24405), (62, 24411),

Gene: Damascus\_29 Start: 24399, Stop: 24800, Start Num: 14

Candidate Starts for Damascus\_29:

(Start: 14 @24399 has 24 MA's), (23, 24456), (37, 24570), (60, 24738), (66, 24768),

Gene: Darby\_33 Start: 28339, Stop: 28731, Start Num: 17

Candidate Starts for Darby\_33:

(Start: 17 @28339 has 50 MA's), (21, 28369), (30, 28441), (32, 28453), (37, 28492), (48, 28543), (61, 28657),

Gene: DevitoJr\_33 Start: 28510, Stop: 28902, Start Num: 17

Candidate Starts for DevitoJr\_33:

(Start: 17 @28510 has 50 MA's), (21, 28540), (30, 28612), (32, 28624), (37, 28663), (48, 28714), (61, 28828),

Gene: Dinallo\_34 Start: 29574, Stop: 29963, Start Num: 17

Candidate Starts for Dinallo\_34:

(Start: 17 @29574 has 50 MA's), (21, 29604), (33, 29691), (39, 29739), (42, 29754), (54, 29817), (61, 29889),

Gene: DizzyRudy\_29 Start: 24315, Stop: 24716, Start Num: 14

Candidate Starts for DizzyRudy\_29:

(2, 24105), (4, 24132), (5, 24141), (8, 24201), (9, 24240), (12, 24279), (Start: 14 @24315 has 24 MA's), (23, 24372), (37, 24486), (60, 24654), (66, 24684),

Gene: Djungelskog\_30 Start: 25582, Stop: 25971, Start Num: 17

Candidate Starts for Djungelskog\_30:

(Start: 17 @25582 has 50 MA's), (30, 25693), (37, 25744), (61, 25900),

Gene: DoctorPepper\_30 Start: 25582, Stop: 25971, Start Num: 17

Candidate Starts for DoctorPepper\_30:

(Start: 17 @25582 has 50 MA's), (27, 25663), (30, 25693), (37, 25744), (44, 25783), (61, 25900),

Gene: Dynamite\_26 Start: 24359, Stop: 24775, Start Num: 14

Candidate Starts for Dynamite\_26:

(Start: 14 @24359 has 24 MA's), (26, 24437), (34, 24500), (41, 24548), (47, 24578), (62, 24704),

Gene: Egad\_30 Start: 25583, Stop: 25972, Start Num: 17

Candidate Starts for Egad\_30:

(Start: 17 @25583 has 50 MA's), (30, 25694), (37, 25745), (61, 25901),

Gene: ElephantMan\_33 Start: 29040, Stop: 29432, Start Num: 17

Candidate Starts for ElephantMan\_33:

(Start: 17 @29040 has 50 MA's), (30, 29142), (32, 29154), (37, 29193), (48, 29244), (61, 29358),

Gene: Elsa\_27 Start: 24836, Stop: 25252, Start Num: 14

Candidate Starts for Elsa\_27:

(Start: 14 @24836 has 24 MA's), (26, 24914), (34, 24977), (41, 25025), (62, 25181),

Gene: GermyBearimy\_32 Start: 26139, Stop: 26525, Start Num: 18

Candidate Starts for GermyBearimy\_32:

(15, 26130), (18, 26139), (23, 26178), (28, 26214), (42, 26319), (65, 26478),

Gene: Giantsbane\_34 Start: 27528, Stop: 27932, Start Num: 17

Candidate Starts for Giantsbane\_34:

(Start: 17 @27528 has 50 MA's), (20, 27552), (48, 27744), (56, 27816),

Gene: GoCrazy\_25 Start: 24359, Stop: 24775, Start Num: 14

Candidate Starts for GoCrazy\_25:

(Start: 14 @24359 has 24 MA's), (26, 24437), (34, 24500), (41, 24548), (62, 24704),

Gene: Gordon\_33 Start: 29615, Stop: 30010, Start Num: 17

Candidate Starts for Gordon\_33:

(Start: 17 @29615 has 50 MA's), (21, 29645), (30, 29717), (32, 29729), (37, 29768), (44, 29807), (48, 29819), (61, 29933),

Gene: Hankly\_25 Start: 23581, Stop: 23997, Start Num: 14

Candidate Starts for Hankly\_25:

(Start: 14 @23581 has 24 MA's), (26, 23659), (34, 23722), (41, 23770), (62, 23926),

Gene: Heisenberger\_26 Start: 24229, Stop: 24645, Start Num: 14

Candidate Starts for Heisenberger\_26:

(Start: 14 @24229 has 24 MA's), (26, 24307), (34, 24370), (41, 24418), (62, 24574),

Gene: Hemma\_30 Start: 24951, Stop: 25334, Start Num: 19

Candidate Starts for Hemma\_30:

(1, 24723), (3, 24744), (6, 24795), (7, 24810), (10, 24873), (13, 24909), (Start: 19 @24951 has 3 MA's), (23, 24990), (37, 25104), (52, 25188),

Gene: HerbBucket\_29 Start: 25583, Stop: 25972, Start Num: 17

Candidate Starts for HerbBucket\_29:

(Start: 17 @25583 has 50 MA's), (32, 25706), (33, 25709), (38, 25748), (61, 25901),

Gene: Ingrid\_33 Start: 28232, Stop: 28624, Start Num: 19

Candidate Starts for Ingrid\_33:

(Start: 19 @28232 has 3 MA's), (28, 28307), (42, 28412),

Gene: Inked\_35 Start: 29245, Stop: 29646, Start Num: 17

Candidate Starts for Inked\_35:

(Start: 17 @29245 has 50 MA's), (32, 29359), (42, 29425), (61, 29572),

Gene: Issa\_33 Start: 28319, Stop: 28711, Start Num: 17

Candidate Starts for Issa\_33:

(Start: 17 @28319 has 50 MA's), (21, 28349), (30, 28421), (32, 28433), (37, 28472), (48, 28523), (61, 28637),

Gene: JEGGS\_26 Start: 24283, Stop: 24699, Start Num: 14

Candidate Starts for JEGGS\_26:

(Start: 14 @24283 has 24 MA's), (26, 24361), (34, 24424), (41, 24472), (62, 24628),

Gene: Jazzy4900\_31 Start: 26962, Stop: 27348, Start Num: 18

Candidate Starts for Jazzy4900\_31:

(18, 26962), (25, 27022), (51, 27193), (65, 27301),

Gene: Jeremy4pt0\_30 Start: 25582, Stop: 25971, Start Num: 17

Candidate Starts for Jeremy4pt0\_30:

(Start: 17 @25582 has 50 MA's), (30, 25693), (37, 25744), (61, 25900),

Gene: Kardesai\_25 Start: 23962, Stop: 24378, Start Num: 14

Candidate Starts for Kardesai\_25:

(Start: 14 @23962 has 24 MA's), (26, 24040), (34, 24103), (41, 24151), (62, 24307),

Gene: KeaneyLin\_25 Start: 24359, Stop: 24775, Start Num: 14

Candidate Starts for KeaneyLin\_25:

(Start: 14 @24359 has 24 MA's), (26, 24437), (34, 24500), (41, 24548), (62, 24704),

Gene: LilHuddy\_34 Start: 28688, Stop: 29092, Start Num: 16

Candidate Starts for LilHuddy\_34:

(Start: 16 @28688 has 2 MA's), (37, 28853), (48, 28904), (56, 28976),

Gene: Linda\_30 Start: 25582, Stop: 25971, Start Num: 17

Candidate Starts for Linda\_30:

(Start: 17 @25582 has 50 MA's), (30, 25693), (37, 25744), (61, 25900),

Gene: Loretta\_33 Start: 28232, Stop: 28624, Start Num: 19

Candidate Starts for Loretta\_33:

(Start: 19 @28232 has 3 MA's), (28, 28307), (42, 28412),

Gene: LucySwiss\_33 Start: 28343, Stop: 28735, Start Num: 17

Candidate Starts for LucySwiss\_33:

(Start: 17 @28343 has 50 MA's), (21, 28373), (30, 28445), (32, 28457), (48, 28547), (61, 28661),

Gene: Makai\_33 Start: 28464, Stop: 28874, Start Num: 17

Candidate Starts for Makai\_33:

(Start: 17 @28464 has 50 MA's), (30, 28578), (37, 28629), (41, 28650), (42, 28656), (48, 28680), (56, 28758),

Gene: MediumFry\_31 Start: 27668, Stop: 28078, Start Num: 17

Candidate Starts for MediumFry\_31:

(Start: 17 @27668 has 50 MA's), (28, 27755), (39, 27845), (48, 27884), (55, 27953), (59, 28001),

Gene: Mema\_29 Start: 26609, Stop: 27010, Start Num: 14

Candidate Starts for Mema\_29:

(Start: 14 @26609 has 24 MA's), (40, 26798), (60, 26948), (66, 26978),

Gene: Michelle\_30 Start: 25582, Stop: 25971, Start Num: 17  
Candidate Starts for Michelle\_30:  
(Start: 17 @25582 has 50 MA's), (30, 25693), (37, 25744), (61, 25900),

Gene: MiniBagel\_33 Start: 29565, Stop: 29954, Start Num: 17  
Candidate Starts for MiniBagel\_33:  
(Start: 17 @29565 has 50 MA's), (21, 29595), (32, 29679), (33, 29682), (39, 29730), (42, 29745), (54, 29808), (61, 29880),

Gene: Mooshroom\_26 Start: 23962, Stop: 24378, Start Num: 14  
Candidate Starts for Mooshroom\_26:  
(Start: 14 @23962 has 24 MA's), (26, 24040), (34, 24103), (41, 24151), (62, 24307),

Gene: MrAaronian\_30 Start: 25582, Stop: 25971, Start Num: 17  
Candidate Starts for MrAaronian\_30:  
(Start: 17 @25582 has 50 MA's), (30, 25693), (37, 25744), (61, 25900),

Gene: Mudcat\_26 Start: 26260, Stop: 26676, Start Num: 14  
Candidate Starts for Mudcat\_26:  
(Start: 14 @26260 has 24 MA's), (26, 26338), (34, 26401), (41, 26449), (62, 26605),

Gene: NapoleonB\_26 Start: 24359, Stop: 24775, Start Num: 14  
Candidate Starts for NapoleonB\_26:  
(Start: 14 @24359 has 24 MA's), (26, 24437), (34, 24500), (41, 24548), (47, 24578), (62, 24704),

Gene: Nason\_27 Start: 24836, Stop: 25252, Start Num: 14  
Candidate Starts for Nason\_27:  
(Start: 14 @24836 has 24 MA's), (26, 24914), (34, 24977), (41, 25025), (62, 25181),

Gene: Natasha\_30 Start: 25024, Stop: 25410, Start Num: 17  
Candidate Starts for Natasha\_30:  
(Start: 17 @25024 has 50 MA's), (36, 25177), (37, 25186), (41, 25207), (42, 25213), (46, 25231), (63, 25357),

Gene: Nightmare\_34 Start: 28878, Stop: 29270, Start Num: 17  
Candidate Starts for Nightmare\_34:  
(Start: 17 @28878 has 50 MA's), (21, 28908), (30, 28980), (32, 28992), (48, 29082), (61, 29196),

Gene: Niktson\_33 Start: 29040, Stop: 29432, Start Num: 17  
Candidate Starts for Niktson\_33:  
(Start: 17 @29040 has 50 MA's), (30, 29142), (32, 29154), (37, 29193), (48, 29244), (61, 29358),

Gene: Nivinsha\_33 Start: 28429, Stop: 28821, Start Num: 17  
Candidate Starts for Nivinsha\_33:  
(Start: 17 @28429 has 50 MA's), (21, 28459), (30, 28531), (32, 28543), (37, 28582), (48, 28633), (61, 28747),

Gene: Onestar\_30 Start: 25365, Stop: 25754, Start Num: 17  
Candidate Starts for Onestar\_30:  
(Start: 17 @25365 has 50 MA's), (21, 25407), (28, 25449), (38, 25530), (42, 25554), (43, 25560), (45, 25569), (61, 25683),

Gene: Phaby\_34 Start: 28643, Stop: 29047, Start Num: 17

Candidate Starts for Phaby\_34:

(Start: 17 @28643 has 50 MA's), (37, 28808), (42, 28835), (48, 28859), (56, 28931),

Gene: Powelldog\_31 Start: 25284, Stop: 25676, Start Num: 17

Candidate Starts for Powelldog\_31:

(Start: 17 @25284 has 50 MA's), (29, 25389), (35, 25428), (44, 25485), (46, 25491), (51, 25524), (55, 25557), (65, 25629),

Gene: ProfFrink\_30 Start: 25582, Stop: 25971, Start Num: 17

Candidate Starts for ProfFrink\_30:

(Start: 17 @25582 has 50 MA's), (30, 25693), (37, 25744), (61, 25900),

Gene: Raunak\_31 Start: 25582, Stop: 25971, Start Num: 17

Candidate Starts for Raunak\_31:

(Start: 17 @25582 has 50 MA's), (30, 25693), (37, 25744), (61, 25900),

Gene: RustyBoy\_30 Start: 25006, Stop: 25392, Start Num: 17

Candidate Starts for RustyBoy\_30:

(Start: 17 @25006 has 50 MA's), (36, 25159), (37, 25168), (41, 25189), (42, 25195), (46, 25213), (63, 25339),

Gene: Salk\_30 Start: 25582, Stop: 25971, Start Num: 17

Candidate Starts for Salk\_30:

(Start: 17 @25582 has 50 MA's), (30, 25693), (37, 25744), (61, 25900),

Gene: ScienceWizSam\_35 Start: 28830, Stop: 29222, Start Num: 17

Candidate Starts for ScienceWizSam\_35:

(Start: 17 @28830 has 50 MA's), (21, 28860), (30, 28932), (32, 28944), (37, 28983), (48, 29034), (61, 29148),

Gene: Shepard\_34 Start: 28685, Stop: 29089, Start Num: 16

Candidate Starts for Shepard\_34:

(Start: 16 @28685 has 2 MA's), (37, 28850), (48, 28901), (56, 28973),

Gene: Shiba\_30 Start: 25582, Stop: 25971, Start Num: 17

Candidate Starts for Shiba\_30:

(Start: 17 @25582 has 50 MA's), (30, 25693), (37, 25744), (61, 25900),

Gene: Sloopyjoe\_30 Start: 25583, Stop: 25972, Start Num: 17

Candidate Starts for Sloopyjoe\_30:

(Start: 17 @25583 has 50 MA's), (30, 25694), (37, 25745), (61, 25901),

Gene: Spain\_30 Start: 25582, Stop: 25971, Start Num: 17

Candidate Starts for Spain\_30:

(Start: 17 @25582 has 50 MA's), (30, 25693), (37, 25744), (61, 25900),

Gene: Sporto\_31 Start: 26752, Stop: 27138, Start Num: 17

Candidate Starts for Sporto\_31:

(Start: 17 @26752 has 50 MA's), (37, 26914), (41, 26935), (52, 26995), (53, 26998), (61, 27070),

Gene: Sprinkle\_30 Start: 25726, Stop: 26115, Start Num: 17

Candidate Starts for Sprinkle\_30:

(Start: 17 @25726 has 50 MA's), (31, 25840), (42, 25915), (49, 25957), (64, 26068),

Gene: StarLord\_30 Start: 25583, Stop: 25972, Start Num: 17  
Candidate Starts for StarLord\_30:  
(Start: 17 @25583 has 50 MA's), (30, 25694), (37, 25745), (61, 25901),

Gene: Stardom\_25 Start: 23818, Stop: 24234, Start Num: 14  
Candidate Starts for Stardom\_25:  
(Start: 14 @23818 has 24 MA's), (26, 23896), (34, 23959), (41, 24007), (58, 24157), (62, 24163),

Gene: Stayer\_30 Start: 25582, Stop: 25971, Start Num: 17  
Candidate Starts for Stayer\_30:  
(Start: 17 @25582 has 50 MA's), (30, 25693), (37, 25744), (61, 25900),

Gene: Sunny4976\_30 Start: 26962, Stop: 27348, Start Num: 18  
Candidate Starts for Sunny4976\_30:  
(18, 26962), (25, 27022), (51, 27193), (65, 27301),

Gene: Synopsis\_32 Start: 28493, Stop: 28885, Start Num: 17  
Candidate Starts for Synopsis\_32:  
(Start: 17 @28493 has 50 MA's), (21, 28523), (32, 28607), (37, 28646), (48, 28697), (61, 28811),

Gene: Tatanka\_33 Start: 28977, Stop: 29369, Start Num: 17  
Candidate Starts for Tatanka\_33:  
(Start: 17 @28977 has 50 MA's), (21, 29007), (30, 29079), (32, 29091), (37, 29130), (48, 29181), (61, 29295),

Gene: Teacup\_33 Start: 28347, Stop: 28739, Start Num: 17  
Candidate Starts for Teacup\_33:  
(Start: 17 @28347 has 50 MA's), (21, 28377), (30, 28449), (32, 28461), (37, 28500), (48, 28551), (61, 28665),

Gene: Tenno\_34 Start: 29574, Stop: 29963, Start Num: 17  
Candidate Starts for Tenno\_34:  
(Start: 17 @29574 has 50 MA's), (21, 29604), (33, 29691), (39, 29739), (42, 29754), (54, 29817), (61, 29889),

Gene: Tipton\_34 Start: 28704, Stop: 29108, Start Num: 17  
Candidate Starts for Tipton\_34:  
(Start: 17 @28704 has 50 MA's), (37, 28869), (42, 28896), (48, 28920), (56, 28992),

Gene: Tokki\_34 Start: 28659, Stop: 29063, Start Num: 17  
Candidate Starts for Tokki\_34:  
(Start: 17 @28659 has 50 MA's), (23, 28710), (48, 28875), (56, 28947),

Gene: Tribby\_27 Start: 24551, Stop: 24967, Start Num: 14  
Candidate Starts for Tribby\_27:  
(Start: 14 @24551 has 24 MA's), (26, 24629), (34, 24692), (41, 24740), (62, 24896),

Gene: Truckee\_32 Start: 28509, Stop: 28919, Start Num: 17  
Candidate Starts for Truckee\_32:  
(Start: 17 @28509 has 50 MA's), (30, 28623), (37, 28674), (41, 28695), (42, 28701), (48, 28725), (56, 28803),

Gene: Trustiboi\_34 Start: 29046, Stop: 29438, Start Num: 17

Candidate Starts for Trustiboi\_34:

(Start: 17 @29046 has 50 MA's), (21, 29076), (30, 29148), (32, 29160), (37, 29199), (48, 29250), (61, 29364),

Gene: Westerlin\_34 Start: 30157, Stop: 30549, Start Num: 17

Candidate Starts for Westerlin\_34:

(Start: 17 @30157 has 50 MA's), (30, 30259), (32, 30271), (48, 30361), (61, 30475),

Gene: Xenomorph\_25 Start: 24569, Stop: 24985, Start Num: 14

Candidate Starts for Xenomorph\_25:

(Start: 14 @24569 has 24 MA's), (24, 24635), (32, 24698), (41, 24758), (58, 24908), (62, 24914),

Gene: YoshiYama\_26 Start: 24600, Stop: 25016, Start Num: 14

Candidate Starts for YoshiYama\_26:

(Start: 14 @24600 has 24 MA's), (26, 24678), (34, 24741), (41, 24789), (62, 24945),

Gene: Zippen\_33 Start: 28824, Stop: 29237, Start Num: 17

Candidate Starts for Zippen\_33:

(Start: 17 @28824 has 50 MA's), (23, 28875), (36, 28980), (39, 29001), (42, 29016), (61, 29163),