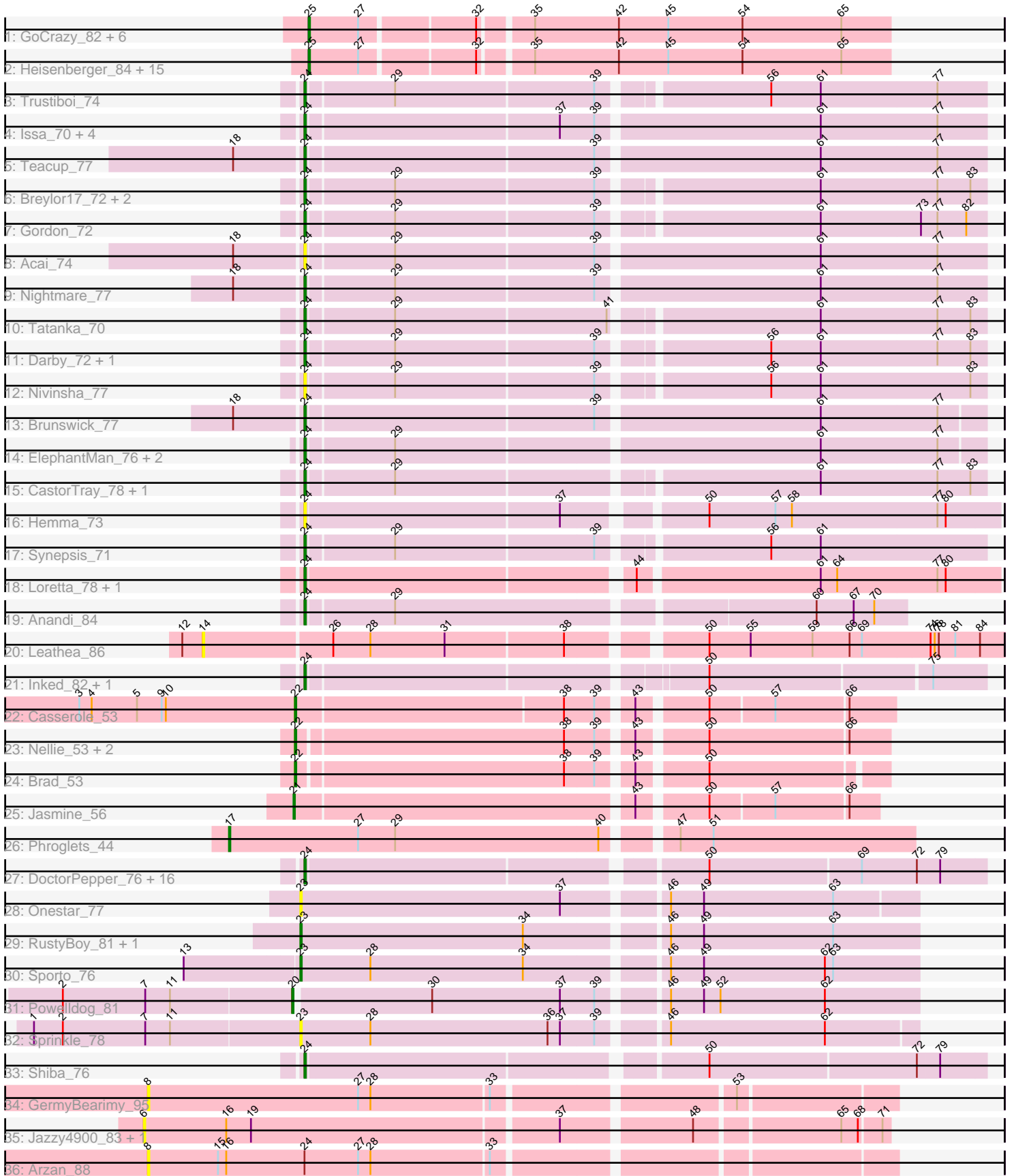


# Pham 311467



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 311467 Report

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

Pham number 311467 has 89 members, 18 are drafts.

Phages represented in each track:

- Track 1 : GoCrazy\_82, KeaneyLin\_82, Bowling\_87, Xenomorph\_80, Benllo\_82, BenitoAntonio\_85, Cheesy\_86
- Track 2 : Heisenberger\_84, Hankly\_85, Mudcat\_81, Kardesai\_85, Elsa\_85, Correa\_83, Arcadia\_85, Circum\_85, Nason\_85, Dynamite\_85, NapoleonB\_86, Tribby\_87, Mooshroom\_86, YoshiYama\_86, JEGGS\_84, Stardom\_84
- Track 3 : Trustiboi\_74
- Track 4 : Issa\_70, Tenno\_75, Dinallo\_70, CapnMurica\_72, MiniBagel\_76
- Track 5 : Teacup\_77
- Track 6 : Breylor17\_72, DevitoJr\_75, Westerlin\_73
- Track 7 : Gordon\_72
- Track 8 : Acai\_74
- Track 9 : Nightmare\_77
- Track 10 : Tatanka\_70
- Track 11 : Darby\_72, AreFloNak\_80
- Track 12 : Nivinsha\_77
- Track 13 : Brunswick\_77
- Track 14 : ElephantMan\_76, LucySwiss\_76, Niktson\_76
- Track 15 : CastorTray\_78, ScienceWizSam\_77
- Track 16 : Hemma\_73
- Track 17 : Synopsis\_71
- Track 18 : Loretta\_78, Ingrid\_82
- Track 19 : Anandi\_84
- Track 20 : Leathea\_86
- Track 21 : Inked\_82, Zippen\_82
- Track 22 : Casserole\_53
- Track 23 : Nellie\_53, Adat\_53, GurgleFerb\_53
- Track 24 : Brad\_53
- Track 25 : Jasmine\_56
- Track 26 : Phroglets\_44
- Track 27 : DoctorPepper\_76, Raunak\_78, Michelle\_77, Salk\_77, MrAaronian\_77, HerbBucket\_76, Djungelskog\_76, Spain\_77, Linda\_77, Jeremy4pt0\_76, StarLord\_77, Sloopyjoe\_77, ProfFrink\_77, Egad\_77, Stayer\_77, Boog\_76, BronxBay\_77
- Track 28 : Onestar\_77
- Track 29 : RustyBoy\_81, Natasha\_80
- Track 30 : Sporto\_76
- Track 31 : PowellDog\_81
- Track 32 : Sprinkle\_78

- Track 33 : Shiba\_76
- Track 34 : GermyBearimy\_95
- Track 35 : Jazzy4900\_83, Sunny4976\_82
- Track 36 : Arzan\_88

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

The start number called the most often in the published annotations is 24, it was called in 39 of the 71 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acai\_74, Anandi\_84, AreFloNak\_80, Boog\_76, Breylor17\_72, BronxBay\_77, Brunswick\_77, CapnMurica\_72, CastorTray\_78, Darby\_72, DevitoJr\_75, Dinallo\_70, Djungelskog\_76, DoctorPepper\_76, Egad\_77, ElephantMan\_76, Gordon\_72, Hemma\_73, HerbBucket\_76, Ingrid\_82, Inked\_82, Issa\_70, Jeremy4pt0\_76, Linda\_77, Loretta\_78, LucySwiss\_76, Michelle\_77, MiniBagel\_76, MrAaronian\_77, Nightmare\_77, Niktson\_76, Nivinsha\_77, ProfFrink\_77, Raunak\_78, Salk\_77, ScienceWizSam\_77, Shiba\_76, Sloopyjoe\_77, Spain\_77, StarLord\_77, Stayer\_77, Synopsis\_71, Tatanka\_70, Teacup\_77, Tenno\_75, Trustiboi\_74, Westerlin\_73, Zippen\_82,

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

- Arzan\_88,

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

- Adat\_53, Arcadia\_85, BenitoAntonio\_85, Benllo\_82, Bowling\_87, Brad\_53, Casserole\_53, Cheesy\_86, Circum\_85, Correa\_83, Dynamite\_85, Elsa\_85, GermyBearimy\_95, GoCrazy\_82, GurgleFerb\_53, Hankly\_85, Heisenberger\_84, JEGGS\_84, Jasmine\_56, Jazzy4900\_83, Kardesai\_85, KeaneyLin\_82, Leatheia\_86, Mooshroom\_86, Mudcat\_81, NapoleonB\_86, Nason\_85, Natasha\_80, Nellie\_53, Onestar\_77, Phroglets\_44, Powellldog\_81, RustyBoy\_81, Sporto\_76, Sprinkle\_78, Stardom\_84, Sunny4976\_82, Tribby\_87, Xenomorph\_80, YoshiYama\_86,

**Summary by start number:**

Start 6:

- Found in 2 of 89 ( 2.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jazzy4900\_83 (FI), Sunny4976\_82 (FI),

Start 8:

- Found in 2 of 89 ( 2.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arzan\_88 (FI), GermyBearimy\_95 (FI),

Start 14:

- 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: Leathea\_86 (AU6),

Start 17:

- Found in 1 of 89 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Phroglets\_44 (AV),

Start 20:

- Found in 1 of 89 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Powelldog\_81 (AW),

Start 21:

- Found in 1 of 89 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jasmine\_56 (AV),

Start 22:

- Found in 5 of 89 ( 5.6% ) of genes in pham
- Manual Annotations of this start: 5 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Adat\_53 (AV), Brad\_53 (AV), Casserole\_53 (AV), GurgleFerb\_53 (AV), Nellie\_53 (AV),

Start 23:

- Found in 5 of 89 ( 5.6% ) of genes in pham
- Manual Annotations of this start: 3 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Natasha\_80 (AW), Onestar\_77 (AW), RustyBoy\_81 (AW), Sporto\_76 (AW), Sprinkle\_78 (AW),

Start 24:

- Found in 49 of 89 ( 55.1% ) of genes in pham
- Manual Annotations of this start: 39 of 71
- Called 98.0% of time when present
- Phage (with cluster) where this start called: Acai\_74 (AU1), Anandi\_84 (AU4), AreFloNak\_80 (AU1), Boog\_76 (AW), Breylor17\_72 (AU1), BronxBay\_77 (AW), Brunswick\_77 (AU1), CapnMurica\_72 (AU1), CastorTray\_78 (AU1), Darby\_72 (AU1), DevitoJr\_75 (AU1), Dinallo\_70 (AU1), Djungelskog\_76 (AW), DoctorPepper\_76 (AW), Egad\_77 (AW), ElephantMan\_76 (AU1), Gordon\_72 (AU1), Hemma\_73 (AU1), HerbBucket\_76 (AW), Ingrid\_82 (AU3), Inked\_82 (AU7), Issa\_70 (AU1), Jeremy4pt0\_76 (AW), Linda\_77 (AW), Loretta\_78 (AU3), LucySwiss\_76 (AU1), Michelle\_77 (AW), MiniBagel\_76 (AU1), MrAaronian\_77 (AW), Nightmare\_77 (AU1), Niktson\_76 (AU1), Nivinsha\_77 (AU1), ProfFrink\_77 (AW), Raunak\_78 (AW), Salk\_77 (AW), ScienceWizSam\_77 (AU1), Shiba\_76 (AW), Sloopyjoe\_77 (AW), Spain\_77 (AW), StarLord\_77 (AW), Stayer\_77 (AW), Synopsis\_71 (AU1), Tatanka\_70 (AU1), Teacup\_77 (AU1), Tenno\_75 (AU1), Trustiboi\_74 (AU1), Westerlin\_73 (AU1), Zippen\_82 (AU7),

#### Start 25:

- Found in 23 of 89 ( 25.8% ) of genes in pham
- Manual Annotations of this start: 21 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arcadia\_85 (AM), BenitoAntonio\_85 (AM), Benllo\_82 (AM), Bowling\_87 (AM), Cheesy\_86 (AM), Circum\_85 (AM), Correa\_83 (AM), Dynamite\_85 (AM), Elsa\_85 (AM), GoCrazy\_82 (AM), Hankly\_85 (AM), Heisenberger\_84 (AM), JEGGS\_84 (AM), Kardesai\_85 (AM), KeaneyLin\_82 (AM), Mooshroom\_86 (AM), Mudcat\_81 (AM), NapoleonB\_86 (AM), Nason\_85 (AM), Stardom\_84 (AM), Tribby\_87 (AM), Xenomorph\_80 (AM), YoshiYama\_86 (AM),

#### Summary by clusters:

There are 9 clusters represented in this pham: AW, AU6, AM, AU1, AU3, AU4, AU7, AV, FI,

Info for manual annotations of cluster AM:

- Start number 25 was manually annotated 21 times for cluster AM.

Info for manual annotations of cluster AU1:

- Start number 24 was manually annotated 19 times for cluster AU1.

Info for manual annotations of cluster AU3:

- Start number 24 was manually annotated 2 times for cluster AU3.

Info for manual annotations of cluster AU4:

- Start number 24 was manually annotated 1 time for cluster AU4.

Info for manual annotations of cluster AU7:

- Start number 24 was manually annotated 2 times for cluster AU7.

Info for manual annotations of cluster AV:

- Start number 17 was manually annotated 1 time for cluster AV.
- Start number 21 was manually annotated 1 time for cluster AV.
- Start number 22 was manually annotated 5 times for cluster AV.

Info for manual annotations of cluster AW:

- Start number 20 was manually annotated 1 time for cluster AW.
- Start number 23 was manually annotated 3 times for cluster AW.
- Start number 24 was manually annotated 15 times for cluster AW.

#### Gene Information:

Gene: Acai\_74 Start: 50191, Stop: 50667, Start Num: 24

Candidate Starts for Acai\_74:

(18, 50143), (Start: 24 @50191 has 39 MA's), (29, 50251), (39, 50392), (61, 50548), (77, 50632),

Gene: Adat\_53 Start: 43182, Stop: 42778, Start Num: 22

Candidate Starts for Adat\_53:

(Start: 22 @43182 has 5 MA's), (38, 42993), (39, 42972), (43, 42951), (50, 42906), (66, 42807),

Gene: Anandi\_84 Start: 50714, Stop: 51127, Start Num: 24

Candidate Starts for Anandi\_84:

(Start: 24 @50714 has 39 MA's), (29, 50774), (60, 51062), (67, 51089), (70, 51104),

Gene: Arcadia\_85 Start: 50574, Stop: 50978, Start Num: 25

Candidate Starts for Arcadia\_85:

(Start: 25 @50574 has 21 MA's), (27, 50610), (32, 50688), (35, 50721), (42, 50781), (45, 50817), (54, 50871), (65, 50943),

Gene: AreFloNak\_80 Start: 50058, Stop: 50525, Start Num: 24

Candidate Starts for AreFloNak\_80:

(Start: 24 @50058 has 39 MA's), (29, 50118), (39, 50259), (56, 50370), (61, 50406), (77, 50490), (83, 50514),

Gene: Arzan\_88 Start: 51953, Stop: 52468, Start Num: 8

Candidate Starts for Arzan\_88:

(8, 51953), (15, 52004), (16, 52010), (Start: 24 @52067 has 39 MA's), (27, 52106), (28, 52115), (33, 52199),

Gene: BenitoAntonio\_85 Start: 50151, Stop: 50555, Start Num: 25

Candidate Starts for BenitoAntonio\_85:

(Start: 25 @50151 has 21 MA's), (27, 50187), (32, 50265), (35, 50298), (42, 50358), (45, 50394), (54, 50448), (65, 50520),

Gene: Benllo\_82 Start: 50469, Stop: 50873, Start Num: 25

Candidate Starts for Benllo\_82:

(Start: 25 @50469 has 21 MA's), (27, 50505), (32, 50583), (35, 50616), (42, 50676), (45, 50712), (54, 50766), (65, 50838),

Gene: Boog\_76 Start: 47985, Stop: 48449, Start Num: 24

Candidate Starts for Boog\_76:

(Start: 24 @47985 has 39 MA's), (50, 48255), (69, 48363), (72, 48402), (79, 48417),

Gene: Bowling\_87 Start: 50927, Stop: 51331, Start Num: 25

Candidate Starts for Bowling\_87:

(Start: 25 @50927 has 21 MA's), (27, 50963), (32, 51041), (35, 51074), (42, 51134), (45, 51170), (54, 51224), (65, 51296),

Gene: Brad\_53 Start: 43174, Stop: 42776, Start Num: 22

Candidate Starts for Brad\_53:

(Start: 22 @43174 has 5 MA's), (38, 42985), (39, 42964), (43, 42943), (50, 42898),

Gene: Breylor17\_72 Start: 50448, Stop: 50915, Start Num: 24

Candidate Starts for Breylor17\_72:

(Start: 24 @50448 has 39 MA's), (29, 50508), (39, 50649), (61, 50796), (77, 50880), (83, 50904),

Gene: BronxBay\_77 Start: 48274, Stop: 48738, Start Num: 24

Candidate Starts for BronxBay\_77:

(Start: 24 @48274 has 39 MA's), (50, 48544), (69, 48652), (72, 48691), (79, 48706),

Gene: Brunswick\_77 Start: 50186, Stop: 50659, Start Num: 24

Candidate Starts for Brunswick\_77:

(18, 50138), (Start: 24 @50186 has 39 MA's), (39, 50387), (61, 50543), (77, 50627),

Gene: CapnMurica\_72 Start: 50515, Stop: 50991, Start Num: 24

Candidate Starts for CapnMurica\_72:

(Start: 24 @50515 has 39 MA's), (37, 50692), (39, 50716), (61, 50872), (77, 50956),

Gene: Casserole\_53 Start: 44279, Stop: 43875, Start Num: 22

Candidate Starts for Casserole\_53:

(3, 44435), (4, 44426), (5, 44393), (9, 44375), (10, 44372), (Start: 22 @44279 has 5 MA's), (38, 44090), (39, 44069), (43, 44048), (50, 44003), (57, 43958), (66, 43907),

Gene: CastorTray\_78 Start: 50576, Stop: 51043, Start Num: 24

Candidate Starts for CastorTray\_78:

(Start: 24 @50576 has 39 MA's), (29, 50636), (61, 50924), (77, 51008), (83, 51032),

Gene: Cheesy\_86 Start: 50366, Stop: 50770, Start Num: 25

Candidate Starts for Cheesy\_86:

(Start: 25 @50366 has 21 MA's), (27, 50402), (32, 50480), (35, 50513), (42, 50573), (45, 50609), (54, 50663), (65, 50735),

Gene: Circum\_85 Start: 50423, Stop: 50827, Start Num: 25

Candidate Starts for Circum\_85:

(Start: 25 @50423 has 21 MA's), (27, 50459), (32, 50537), (35, 50570), (42, 50630), (45, 50666), (54, 50720), (65, 50792),

Gene: Correa\_83 Start: 49923, Stop: 50327, Start Num: 25

Candidate Starts for Correa\_83:

(Start: 25 @49923 has 21 MA's), (27, 49959), (32, 50037), (35, 50070), (42, 50130), (45, 50166), (54, 50220), (65, 50292),

Gene: Darby\_72 Start: 49622, Stop: 50089, Start Num: 24

Candidate Starts for Darby\_72:

(Start: 24 @49622 has 39 MA's), (29, 49682), (39, 49823), (56, 49934), (61, 49970), (77, 50054), (83, 50078),

Gene: DevitoJr\_75 Start: 50004, Stop: 50471, Start Num: 24

Candidate Starts for DevitoJr\_75:

(Start: 24 @50004 has 39 MA's), (29, 50064), (39, 50205), (61, 50352), (77, 50436), (83, 50460),

Gene: Dinallo\_70 Start: 50761, Stop: 51237, Start Num: 24

Candidate Starts for Dinallo\_70:

(Start: 24 @50761 has 39 MA's), (37, 50938), (39, 50962), (61, 51118), (77, 51202),

Gene: Djungelskog\_76 Start: 48276, Stop: 48740, Start Num: 24

Candidate Starts for Djungelskog\_76:

(Start: 24 @48276 has 39 MA's), (50, 48546), (69, 48654), (72, 48693), (79, 48708),

Gene: DoctorPepper\_76 Start: 47969, Stop: 48433, Start Num: 24

Candidate Starts for DoctorPepper\_76:

(Start: 24 @47969 has 39 MA's), (50, 48239), (69, 48347), (72, 48386), (79, 48401),

Gene: Dynamite\_85 Start: 49942, Stop: 50346, Start Num: 25

Candidate Starts for Dynamite\_85:

(Start: 25 @49942 has 21 MA's), (27, 49978), (32, 50056), (35, 50089), (42, 50149), (45, 50185), (54, 50239), (65, 50311),

Gene: Egad\_77 Start: 48243, Stop: 48707, Start Num: 24

Candidate Starts for Egad\_77:

(Start: 24 @48243 has 39 MA's), (50, 48513), (69, 48621), (72, 48660), (79, 48675),

Gene: ElephantMan\_76 Start: 50779, Stop: 51252, Start Num: 24

Candidate Starts for ElephantMan\_76:

(Start: 24 @50779 has 39 MA's), (29, 50839), (61, 51136), (77, 51220),

Gene: Elsa\_85 Start: 50574, Stop: 50978, Start Num: 25

Candidate Starts for Elsa\_85:

(Start: 25 @50574 has 21 MA's), (27, 50610), (32, 50688), (35, 50721), (42, 50781), (45, 50817), (54, 50871), (65, 50943),

Gene: GermyBearimy\_95 Start: 52960, Stop: 53475, Start Num: 8

Candidate Starts for GermyBearimy\_95:

(8, 52960), (27, 53113), (28, 53122), (33, 53206), (53, 53365),

Gene: GoCrazy\_82 Start: 49202, Stop: 49606, Start Num: 25

Candidate Starts for GoCrazy\_82:

(Start: 25 @49202 has 21 MA's), (27, 49238), (32, 49316), (35, 49349), (42, 49409), (45, 49445), (54, 49499), (65, 49571),

Gene: Gordon\_72 Start: 50418, Stop: 50885, Start Num: 24

Candidate Starts for Gordon\_72:

(Start: 24 @50418 has 39 MA's), (29, 50478), (39, 50619), (61, 50766), (73, 50838), (77, 50850), (82, 50871),

Gene: GurgleFerb\_53 Start: 43181, Stop: 42777, Start Num: 22

Candidate Starts for GurgleFerb\_53:

(Start: 22 @43181 has 5 MA's), (38, 42992), (39, 42971), (43, 42950), (50, 42905), (66, 42806),

Gene: Hankly\_85 Start: 49580, Stop: 49984, Start Num: 25

Candidate Starts for Hankly\_85:

(Start: 25 @49580 has 21 MA's), (27, 49616), (32, 49694), (35, 49727), (42, 49787), (45, 49823), (54, 49877), (65, 49949),

Gene: Heisenberger\_84 Start: 49831, Stop: 50235, Start Num: 25

Candidate Starts for Heisenberger\_84:

(Start: 25 @49831 has 21 MA's), (27, 49867), (32, 49945), (35, 49978), (42, 50038), (45, 50074), (54, 50128), (65, 50200),

Gene: Hemma\_73 Start: 47826, Stop: 48302, Start Num: 24

Candidate Starts for Hemma\_73:

(Start: 24 @47826 has 39 MA's), (37, 48006), (50, 48093), (57, 48141), (58, 48153), (77, 48258), (80, 48264),

Gene: HerbBucket\_76 Start: 47969, Stop: 48433, Start Num: 24

Candidate Starts for HerbBucket\_76:

(Start: 24 @47969 has 39 MA's), (50, 48239), (69, 48347), (72, 48386), (79, 48401),

Gene: Ingrid\_82 Start: 50381, Stop: 50857, Start Num: 24  
Candidate Starts for Ingrid\_82:  
(Start: 24 @50381 has 39 MA's), (44, 50603), (61, 50729), (64, 50741), (77, 50813), (80, 50819),

Gene: Inked\_82 Start: 51097, Stop: 51561, Start Num: 24  
Candidate Starts for Inked\_82:  
(Start: 24 @51097 has 39 MA's), (50, 51367), (75, 51523),

Gene: Issa\_70 Start: 49586, Stop: 50062, Start Num: 24  
Candidate Starts for Issa\_70:  
(Start: 24 @49586 has 39 MA's), (37, 49763), (39, 49787), (61, 49943), (77, 50027),

Gene: JEGGS\_84 Start: 49910, Stop: 50314, Start Num: 25  
Candidate Starts for JEGGS\_84:  
(Start: 25 @49910 has 21 MA's), (27, 49946), (32, 50024), (35, 50057), (42, 50117), (45, 50153), (54, 50207), (65, 50279),

Gene: Jasmine\_56 Start: 44695, Stop: 44300, Start Num: 21  
Candidate Starts for Jasmine\_56:  
(Start: 21 @44695 has 1 MA's), (43, 44461), (50, 44416), (57, 44371), (66, 44320),

Gene: Jazzy4900\_83 Start: 51980, Stop: 52492, Start Num: 6  
Candidate Starts for Jazzy4900\_83:  
(6, 51980), (16, 52040), (19, 52058), (37, 52274), (48, 52361), (65, 52460), (68, 52472), (71, 52487),

Gene: Jeremy4pt0\_76 Start: 47961, Stop: 48425, Start Num: 24  
Candidate Starts for Jeremy4pt0\_76:  
(Start: 24 @47961 has 39 MA's), (50, 48231), (69, 48339), (72, 48378), (79, 48393),

Gene: Kardesai\_85 Start: 49517, Stop: 49921, Start Num: 25  
Candidate Starts for Kardesai\_85:  
(Start: 25 @49517 has 21 MA's), (27, 49553), (32, 49631), (35, 49664), (42, 49724), (45, 49760), (54, 49814), (65, 49886),

Gene: KeaneyLin\_82 Start: 49645, Stop: 50049, Start Num: 25  
Candidate Starts for KeaneyLin\_82:  
(Start: 25 @49645 has 21 MA's), (27, 49681), (32, 49759), (35, 49792), (42, 49852), (45, 49888), (54, 49942), (65, 50014),

Gene: Leathea\_86 Start: 48939, Stop: 49490, Start Num: 14  
Candidate Starts for Leathea\_86:  
(12, 48924), (14, 48939), (26, 49029), (28, 49056), (31, 49110), (38, 49194), (50, 49278), (55, 49308), (59, 49353), (66, 49380), (69, 49389), (74, 49437), (76, 49440), (78, 49443), (81, 49455), (84, 49473),

Gene: Linda\_77 Start: 48256, Stop: 48720, Start Num: 24  
Candidate Starts for Linda\_77:  
(Start: 24 @48256 has 39 MA's), (50, 48526), (69, 48634), (72, 48673), (79, 48688),

Gene: Loretta\_78 Start: 50381, Stop: 50857, Start Num: 24  
Candidate Starts for Loretta\_78:  
(Start: 24 @50381 has 39 MA's), (44, 50603), (61, 50729), (64, 50741), (77, 50813), (80, 50819),

Gene: LucySwiss\_76 Start: 49844, Stop: 50320, Start Num: 24  
Candidate Starts for LucySwiss\_76:  
(Start: 24 @49844 has 39 MA's), (29, 49904), (61, 50201), (77, 50285),

Gene: Michelle\_77 Start: 48273, Stop: 48737, Start Num: 24  
Candidate Starts for Michelle\_77:  
(Start: 24 @48273 has 39 MA's), (50, 48543), (69, 48651), (72, 48690), (79, 48705),

Gene: MiniBagel\_76 Start: 50519, Stop: 50995, Start Num: 24  
Candidate Starts for MiniBagel\_76:  
(Start: 24 @50519 has 39 MA's), (37, 50696), (39, 50720), (61, 50876), (77, 50960),

Gene: Mooshroom\_86 Start: 49517, Stop: 49921, Start Num: 25  
Candidate Starts for Mooshroom\_86:  
(Start: 25 @49517 has 21 MA's), (27, 49553), (32, 49631), (35, 49664), (42, 49724), (45, 49760), (54, 49814), (65, 49886),

Gene: MrAaronian\_77 Start: 48273, Stop: 48737, Start Num: 24  
Candidate Starts for MrAaronian\_77:  
(Start: 24 @48273 has 39 MA's), (50, 48543), (69, 48651), (72, 48690), (79, 48705),

Gene: Mudcat\_81 Start: 51268, Stop: 51672, Start Num: 25  
Candidate Starts for Mudcat\_81:  
(Start: 25 @51268 has 21 MA's), (27, 51304), (32, 51382), (35, 51415), (42, 51475), (45, 51511), (54, 51565), (65, 51637),

Gene: NapoleonB\_86 Start: 49942, Stop: 50346, Start Num: 25  
Candidate Starts for NapoleonB\_86:  
(Start: 25 @49942 has 21 MA's), (27, 49978), (32, 50056), (35, 50089), (42, 50149), (45, 50185), (54, 50239), (65, 50311),

Gene: Nason\_85 Start: 50574, Stop: 50978, Start Num: 25  
Candidate Starts for Nason\_85:  
(Start: 25 @50574 has 21 MA's), (27, 50610), (32, 50688), (35, 50721), (42, 50781), (45, 50817), (54, 50871), (65, 50943),

Gene: Natasha\_80 Start: 48586, Stop: 49020, Start Num: 23  
Candidate Starts for Natasha\_80:  
(Start: 23 @48586 has 3 MA's), (34, 48748), (46, 48841), (49, 48865), (63, 48958),

Gene: Nellie\_53 Start: 43182, Stop: 42778, Start Num: 22  
Candidate Starts for Nellie\_53:  
(Start: 22 @43182 has 5 MA's), (38, 42993), (39, 42972), (43, 42951), (50, 42906), (66, 42807),

Gene: Nightmare\_77 Start: 50946, Stop: 51422, Start Num: 24  
Candidate Starts for Nightmare\_77:  
(18, 50898), (Start: 24 @50946 has 39 MA's), (29, 51006), (39, 51147), (61, 51303), (77, 51387),

Gene: Niktson\_76 Start: 50779, Stop: 51252, Start Num: 24  
Candidate Starts for Niktson\_76:  
(Start: 24 @50779 has 39 MA's), (29, 50839), (61, 51136), (77, 51220),

Gene: Nivinsha\_77 Start: 50059, Stop: 50526, Start Num: 24

Candidate Starts for Nivinsha\_77:

(Start: 24 @50059 has 39 MA's), (29, 50119), (39, 50260), (56, 50371), (61, 50407), (83, 50515),

Gene: Onestar\_77 Start: 48716, Stop: 49147, Start Num: 23

Candidate Starts for Onestar\_77:

(Start: 23 @48716 has 3 MA's), (37, 48905), (46, 48971), (49, 48995), (63, 49088),

Gene: Phroglets\_44 Start: 39189, Stop: 38710, Start Num: 17

Candidate Starts for Phroglets\_44:

(Start: 17 @39189 has 1 MA's), (27, 39096), (29, 39069), (40, 38922), (47, 38880), (51, 38856),

Gene: Powelldog\_81 Start: 49417, Stop: 49851, Start Num: 20

Candidate Starts for Powelldog\_81:

(2, 49252), (7, 49312), (11, 49330), (Start: 20 @49417 has 1 MA's), (30, 49513), (37, 49606), (39, 49630), (46, 49672), (49, 49696), (52, 49708), (62, 49783),

Gene: ProfFrink\_77 Start: 48242, Stop: 48706, Start Num: 24

Candidate Starts for ProfFrink\_77:

(Start: 24 @48242 has 39 MA's), (50, 48512), (69, 48620), (72, 48659), (79, 48674),

Gene: Raunak\_78 Start: 47952, Stop: 48416, Start Num: 24

Candidate Starts for Raunak\_78:

(Start: 24 @47952 has 39 MA's), (50, 48222), (69, 48330), (72, 48369), (79, 48384),

Gene: RustyBoy\_81 Start: 48785, Stop: 49219, Start Num: 23

Candidate Starts for RustyBoy\_81:

(Start: 23 @48785 has 3 MA's), (34, 48947), (46, 49040), (49, 49064), (63, 49157),

Gene: Salk\_77 Start: 48256, Stop: 48720, Start Num: 24

Candidate Starts for Salk\_77:

(Start: 24 @48256 has 39 MA's), (50, 48526), (69, 48634), (72, 48673), (79, 48688),

Gene: ScienceWizSam\_77 Start: 50177, Stop: 50644, Start Num: 24

Candidate Starts for ScienceWizSam\_77:

(Start: 24 @50177 has 39 MA's), (29, 50237), (61, 50525), (77, 50609), (83, 50633),

Gene: Shiba\_76 Start: 47968, Stop: 48432, Start Num: 24

Candidate Starts for Shiba\_76:

(Start: 24 @47968 has 39 MA's), (50, 48238), (72, 48385), (79, 48400),

Gene: Sloopyjoe\_77 Start: 48275, Stop: 48739, Start Num: 24

Candidate Starts for Sloopyjoe\_77:

(Start: 24 @48275 has 39 MA's), (50, 48545), (69, 48653), (72, 48692), (79, 48707),

Gene: Spain\_77 Start: 48273, Stop: 48737, Start Num: 24

Candidate Starts for Spain\_77:

(Start: 24 @48273 has 39 MA's), (50, 48543), (69, 48651), (72, 48690), (79, 48705),

Gene: Sporto\_76 Start: 49277, Stop: 49711, Start Num: 23

Candidate Starts for Sporto\_76:

(13, 49196), (Start: 23 @49277 has 3 MA's), (28, 49328), (34, 49439), (46, 49532), (49, 49556), (62, 49643), (63, 49649),

Gene: Sprinkle\_78 Start: 49214, Stop: 49645, Start Num: 23

Candidate Starts for Sprinkle\_78:

(1, 49022), (2, 49043), (7, 49103), (11, 49121), (Start: 23 @49214 has 3 MA's), (28, 49265), (36, 49394), (37, 49403), (39, 49427), (46, 49469), (62, 49580),

Gene: StarLord\_77 Start: 48268, Stop: 48732, Start Num: 24

Candidate Starts for StarLord\_77:

(Start: 24 @48268 has 39 MA's), (50, 48538), (69, 48646), (72, 48685), (79, 48700),

Gene: Stardom\_84 Start: 49332, Stop: 49736, Start Num: 25

Candidate Starts for Stardom\_84:

(Start: 25 @49332 has 21 MA's), (27, 49368), (32, 49446), (35, 49479), (42, 49539), (45, 49575), (54, 49629), (65, 49701),

Gene: Stayer\_77 Start: 48271, Stop: 48735, Start Num: 24

Candidate Starts for Stayer\_77:

(Start: 24 @48271 has 39 MA's), (50, 48541), (69, 48649), (72, 48688), (79, 48703),

Gene: Sunny4976\_82 Start: 51980, Stop: 52492, Start Num: 6

Candidate Starts for Sunny4976\_82:

(6, 51980), (16, 52040), (19, 52058), (37, 52274), (48, 52361), (65, 52460), (68, 52472), (71, 52487),

Gene: Synopsis\_71 Start: 49985, Stop: 50452, Start Num: 24

Candidate Starts for Synopsis\_71:

(Start: 24 @49985 has 39 MA's), (29, 50045), (39, 50186), (56, 50297), (61, 50333),

Gene: Tatanka\_70 Start: 50163, Stop: 50630, Start Num: 24

Candidate Starts for Tatanka\_70:

(Start: 24 @50163 has 39 MA's), (29, 50223), (41, 50373), (61, 50511), (77, 50595), (83, 50619),

Gene: Teacup\_77 Start: 50837, Stop: 51313, Start Num: 24

Candidate Starts for Teacup\_77:

(18, 50789), (Start: 24 @50837 has 39 MA's), (39, 51038), (61, 51194), (77, 51278),

Gene: Tenno\_75 Start: 50552, Stop: 51028, Start Num: 24

Candidate Starts for Tenno\_75:

(Start: 24 @50552 has 39 MA's), (37, 50729), (39, 50753), (61, 50909), (77, 50993),

Gene: Tribby\_87 Start: 50701, Stop: 51105, Start Num: 25

Candidate Starts for Tribby\_87:

(Start: 25 @50701 has 21 MA's), (27, 50737), (32, 50815), (35, 50848), (42, 50908), (45, 50944), (54, 50998), (65, 51070),

Gene: Trustiboi\_74 Start: 50266, Stop: 50733, Start Num: 24

Candidate Starts for Trustiboi\_74:

(Start: 24 @50266 has 39 MA's), (29, 50326), (39, 50467), (56, 50578), (61, 50614), (77, 50698),

Gene: Westerlin\_73 Start: 51185, Stop: 51652, Start Num: 24

Candidate Starts for Westerlin\_73:

(Start: 24 @51185 has 39 MA's), (29, 51245), (39, 51386), (61, 51533), (77, 51617), (83, 51641),

Gene: Xenomorph\_80 Start: 50228, Stop: 50632, Start Num: 25

Candidate Starts for Xenomorph\_80:

(Start: 25 @50228 has 21 MA's), (27, 50264), (32, 50342), (35, 50375), (42, 50435), (45, 50471), (54, 50525), (65, 50597),

Gene: YoshiYama\_86 Start: 50980, Stop: 51384, Start Num: 25

Candidate Starts for YoshiYama\_86:

(Start: 25 @50980 has 21 MA's), (27, 51016), (32, 51094), (35, 51127), (42, 51187), (45, 51223), (54, 51277), (65, 51349),

Gene: Zippen\_82 Start: 50971, Stop: 51435, Start Num: 24

Candidate Starts for Zippen\_82:

(Start: 24 @50971 has 39 MA's), (50, 51241), (75, 51397),