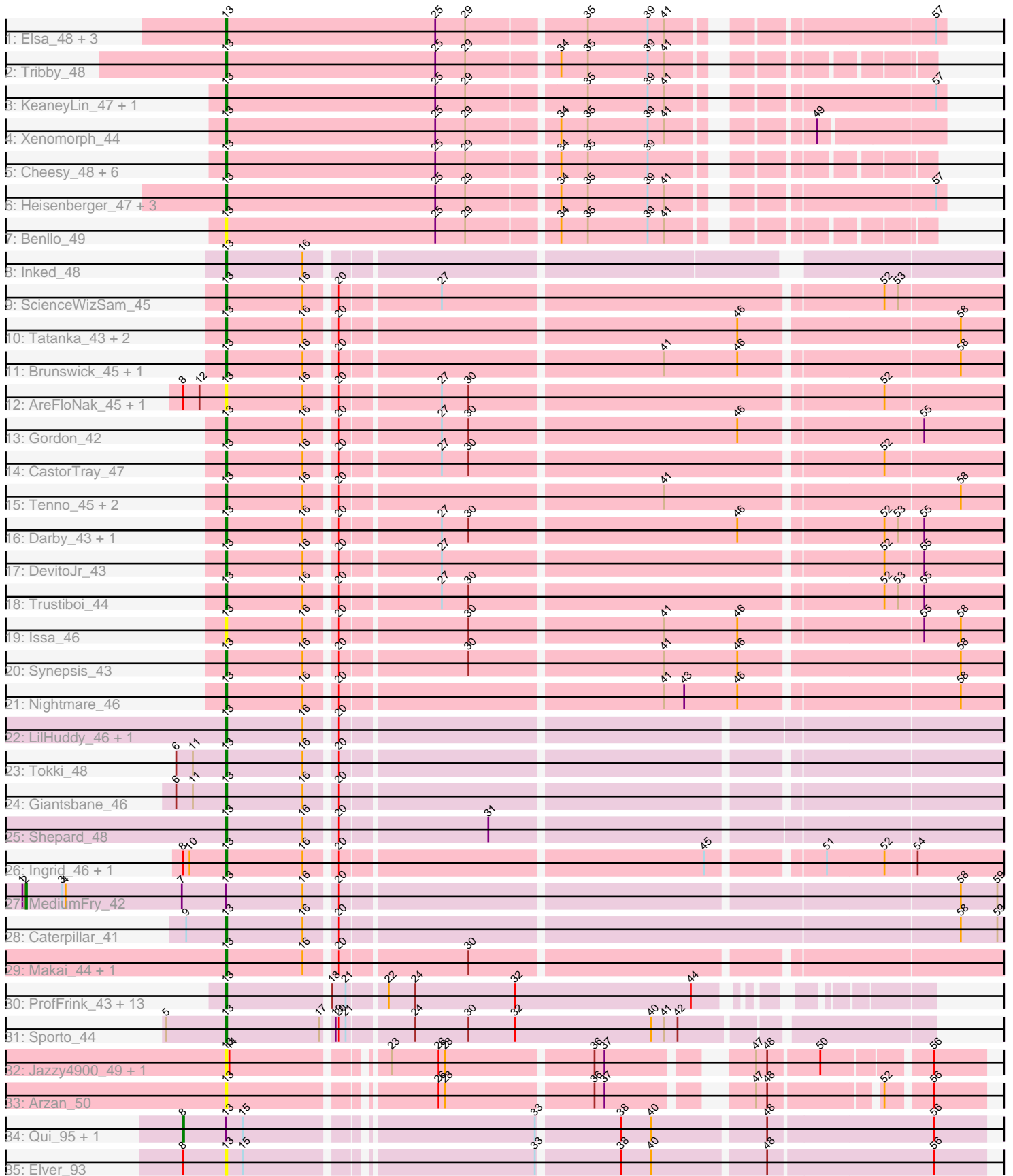


# Pham 196496



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 196496 Report

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

Pham number 196496 has 73 members, 9 are drafts.

Phages represented in each track:

- Track 1 : Elsa\_48, Arcadia\_48, Nason\_48, Circum\_50
- Track 2 : Tribby\_48
- Track 3 : KeaneyLin\_47, GoCrazy\_47
- Track 4 : Xenomorph\_44
- Track 5 : Cheesy\_48, Mooshroom\_50, Kardesai\_49, NapoleonB\_48, Dynamite\_48, Hankly\_47, BenitoAntonio\_48
- Track 6 : Heisenberger\_47, Correa\_46, Mudcat\_45, JEGGS\_47
- Track 7 : Benllo\_49
- Track 8 : Inked\_48
- Track 9 : ScienceWizSam\_45
- Track 10 : Tatanka\_43, ElephantMan\_44, Niktson\_44
- Track 11 : Brunswick\_45, Teacup\_45
- Track 12 : AreFloNak\_45, Nivinsha\_45
- Track 13 : Gordon\_42
- Track 14 : CastorTray\_47
- Track 15 : Tenno\_45, CapnMurica\_42, MiniBagel\_44
- Track 16 : Darby\_43, Breylor17\_45
- Track 17 : DevitoJr\_43
- Track 18 : Trustiboi\_44
- Track 19 : Issa\_46
- Track 20 : Synopsis\_43
- Track 21 : Nightmare\_46
- Track 22 : LilHuddy\_46, Phaby\_46
- Track 23 : Tokki\_48
- Track 24 : Giantsbane\_46
- Track 25 : Shepard\_48
- Track 26 : Ingrid\_46, Loretta\_46
- Track 27 : MediumFry\_42
- Track 28 : Caterpillar\_41
- Track 29 : Makai\_44, Truckee\_42
- Track 30 : ProfFrink\_43, Egad\_43, Sloopyjoe\_43, Raunak\_46, Linda\_43, StarLord\_43, Shiba\_42, Michelle\_43, Stayer\_43, MrAaronian\_43, BronxBay\_43, DoctorPepper\_42, Djungelskog\_43, Salk\_43
- Track 31 : Sporto\_44
- Track 32 : Jazzy4900\_49, Sunny4976\_48
- Track 33 : Arzan\_50
- Track 34 : Qui\_95, Paella\_95

- Track 35 : Elver\_93

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

The start number called the most often in the published annotations is 13, it was called in 61 of the 64 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Arcadia\_48, AreFloNak\_45, Arzan\_50, BenitoAntonio\_48, Benllo\_49, Breylor17\_45, BronxBay\_43, Brunswick\_45, CapnMurica\_42, CastorTray\_47, Caterpillar\_41, Cheesy\_48, Circum\_50, Correa\_46, Darby\_43, DevitoJr\_43, Djungelskog\_43, DoctorPepper\_42, Dynamite\_48, Egad\_43, ElephantMan\_44, Elsa\_48, Elver\_93, Giantsbane\_46, GoCrazy\_47, Gordon\_42, Hankly\_47, Heisenberger\_47, Ingrid\_46, Inked\_48, Issa\_46, JEGGS\_47, Jazzy4900\_49, Kardesai\_49, KeaneyLin\_47, LilHuddy\_46, Linda\_43, Loretta\_46, Makai\_44, Michelle\_43, MiniBagel\_44, Mooshroom\_50, MrAaronian\_43, Mudcat\_45, NapoleonB\_48, Nason\_48, Nightmare\_46, Niktson\_44, Nivinsha\_45, Phaby\_46, ProfFrink\_43, Raunak\_46, Salk\_43, ScienceWizSam\_45, Shepard\_48, Shiba\_42, Sloopyjoe\_43, Sporto\_44, StarLord\_43, Stayer\_43, Sunny4976\_48, Synopsis\_43, Tatanka\_43, Teacup\_45, Tenno\_45, Tokki\_48, Tribby\_48, Truckee\_42, Trustiboi\_44, Xenomorph\_44,

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

- MediumFry\_42, Paella\_95, Qui\_95,

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

- 

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

Start 2:

- Found in 1 of 73 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MediumFry\_42 (AU4),

Start 8:

- Found in 7 of 73 ( 9.6% ) of genes in pham
- Manual Annotations of this start: 2 of 64
- Called 28.6% of time when present
- Phage (with cluster) where this start called: Paella\_95 (FK), Qui\_95 (FK),

Start 13:

- Found in 73 of 73 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 61 of 64
- Called 95.9% of time when present
- Phage (with cluster) where this start called: Arcadia\_48 (AM), AreFloNak\_45 (AU1), Arzan\_50 (FI), BenitoAntonio\_48 (AM), Benllo\_49 (AM), Breylor17\_45 (AU1), BronxBay\_43 (AW), Brunswick\_45 (AU1), CapnMurica\_42 (AU1), CastorTray\_47 (AU1), Caterpillar\_41 (AU4), Cheesy\_48 (AM), Circum\_50 (AM), Correa\_46 (AM), Darby\_43 (AU1), DevitoJr\_43 (AU1), Djungelskog\_43 (AW), DoctorPepper\_42 (AW),

Dynamite\_48 (AM), Egad\_43 (AW), ElephantMan\_44 (AU1), Elsa\_48 (AM), Elver\_93 (FK), Giantsbane\_46 (AU2), GoCrazy\_47 (AM), Gordon\_42 (AU1), Hankly\_47 (AM), Heisenberger\_47 (AM), Ingrid\_46 (AU3), Inked\_48 (AU), Issa\_46 (AU1), JEGGS\_47 (AM), Jazzy4900\_49 (FI), Kardesai\_49 (AM), KeaneyLin\_47 (AM), LilHuddy\_46 (AU2), Linda\_43 (AW), Loretta\_46 (AU3), Makai\_44 (AU5), Michelle\_43 (AW), MiniBagel\_44 (AU1), Mooshroom\_50 (AM), MrAaronian\_43 (AW), Mudcat\_45 (AM), NapoleonB\_48 (AM), Nason\_48 (AM), Nightmare\_46 (AU1), Niktson\_44 (AU1), Nivinsha\_45 (AU1), Phaby\_46 (AU2), ProfFrink\_43 (AW), Raunak\_46 (AW), Salk\_43 (AW), ScienceWizSam\_45 (AU1), Shepard\_48 (AU2), Shiba\_42 (AW), Sloopyjoe\_43 (AW), Sporto\_44 (AW), StarLord\_43 (AW), Stayer\_43 (AW), Sunny4976\_48 (FI), Synopsis\_43 (AU1), Tatanka\_43 (AU1), Teacup\_45 (AU1), Tenno\_45 (AU1), Tokki\_48 (AU2), Tribby\_48 (AM), Truckee\_42 (AU5), Trustiboi\_44 (AU1), Xenomorph\_44 (AM),

### **Summary by clusters:**

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

Info for manual annotations of cluster AM:

- Start number 13 was manually annotated 19 times for cluster AM.

Info for manual annotations of cluster AU:

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

Info for manual annotations of cluster AU1:

- Start number 13 was manually annotated 17 times for cluster AU1.

Info for manual annotations of cluster AU2:

- Start number 13 was manually annotated 5 times for cluster AU2.

Info for manual annotations of cluster AU3:

- Start number 13 was manually annotated 2 times for cluster AU3.

Info for manual annotations of cluster AU4:

- Start number 2 was manually annotated 1 time for cluster AU4.
- Start number 13 was manually annotated 1 time for cluster AU4.

Info for manual annotations of cluster AU5:

- Start number 13 was manually annotated 2 times for cluster AU5.

Info for manual annotations of cluster AW:

- Start number 13 was manually annotated 14 times for cluster AW.

Info for manual annotations of cluster FK:

- Start number 8 was manually annotated 2 times for cluster FK.

### **Gene Information:**

Gene: Arcadia\_48 Start: 31859, Stop: 32455, Start Num: 13

Candidate Starts for Arcadia\_48:

(Start: 13 @31859 has 61 MA's), (25, 32048), (29, 32075), (35, 32174), (39, 32228), (41, 32243), (57, 32447),

Gene: AreFloNak\_45 Start: 33292, Stop: 33951, Start Num: 13

Candidate Starts for AreFloNak\_45:

(Start: 8 @33253 has 2 MA's), (12, 33268), (Start: 13 @33292 has 61 MA's), (16, 33361), (20, 33385), (27, 33469), (30, 33493), (52, 33847),

Gene: Arzan\_50 Start: 33168, Stop: 33752, Start Num: 13

Candidate Starts for Arzan\_50:

(Start: 13 @33168 has 61 MA's), (26, 33333), (28, 33339), (36, 33465), (37, 33474), (47, 33576), (48, 33585), (52, 33672), (56, 33708),

Gene: BenitoAntonio\_48 Start: 31423, Stop: 31992, Start Num: 13

Candidate Starts for BenitoAntonio\_48:

(Start: 13 @31423 has 61 MA's), (25, 31612), (29, 31639), (34, 31714), (35, 31738), (39, 31792),

Gene: Benllo\_49 Start: 32107, Stop: 32676, Start Num: 13

Candidate Starts for Benllo\_49:

(Start: 13 @32107 has 61 MA's), (25, 32296), (29, 32323), (34, 32398), (35, 32422), (39, 32476), (41, 32491),

Gene: Breylor17\_45 Start: 34090, Stop: 34749, Start Num: 13

Candidate Starts for Breylor17\_45:

(Start: 13 @34090 has 61 MA's), (16, 34159), (20, 34183), (27, 34267), (30, 34291), (46, 34525), (52, 34645), (53, 34657), (55, 34678),

Gene: BronxBay\_43 Start: 30995, Stop: 31555, Start Num: 13

Candidate Starts for BronxBay\_43:

(Start: 13 @30995 has 61 MA's), (18, 31082), (21, 31094), (22, 31124), (24, 31148), (32, 31238), (44, 31397),

Gene: Brunswick\_45 Start: 33172, Stop: 33831, Start Num: 13

Candidate Starts for Brunswick\_45:

(Start: 13 @33172 has 61 MA's), (16, 33241), (20, 33265), (41, 33541), (46, 33607), (58, 33793),

Gene: CapnMurica\_42 Start: 34070, Stop: 34729, Start Num: 13

Candidate Starts for CapnMurica\_42:

(Start: 13 @34070 has 61 MA's), (16, 34139), (20, 34163), (41, 34439), (58, 34691),

Gene: CastorTray\_47 Start: 33900, Stop: 34559, Start Num: 13

Candidate Starts for CastorTray\_47:

(Start: 13 @33900 has 61 MA's), (16, 33969), (20, 33993), (27, 34077), (30, 34101), (52, 34455),

Gene: Caterpillar\_41 Start: 32360, Stop: 33028, Start Num: 13

Candidate Starts for Caterpillar\_41:

(9, 32324), (Start: 13 @32360 has 61 MA's), (16, 32429), (20, 32453), (58, 32990), (59, 33023),

Gene: Cheesy\_48 Start: 31608, Stop: 32177, Start Num: 13

Candidate Starts for Cheesy\_48:

(Start: 13 @31608 has 61 MA's), (25, 31797), (29, 31824), (34, 31899), (35, 31923), (39, 31977),

Gene: Circum\_50 Start: 32270, Stop: 32866, Start Num: 13

Candidate Starts for Circum\_50:

(Start: 13 @32270 has 61 MA's), (25, 32459), (29, 32486), (35, 32585), (39, 32639), (41, 32654), (57, 32858),

Gene: Correa\_46 Start: 30727, Stop: 31323, Start Num: 13

Candidate Starts for Correa\_46:

(Start: 13 @30727 has 61 MA's), (25, 30916), (29, 30943), (34, 31018), (35, 31042), (39, 31096), (41, 31111), (57, 31315),

Gene: Darby\_43 Start: 33072, Stop: 33731, Start Num: 13

Candidate Starts for Darby\_43:

(Start: 13 @33072 has 61 MA's), (16, 33141), (20, 33165), (27, 33249), (30, 33273), (46, 33507), (52, 33627), (53, 33639), (55, 33660),

Gene: DevitoJr\_43 Start: 33260, Stop: 33919, Start Num: 13

Candidate Starts for DevitoJr\_43:

(Start: 13 @33260 has 61 MA's), (16, 33329), (20, 33353), (27, 33437), (52, 33815), (55, 33848),

Gene: Djungelskog\_43 Start: 30994, Stop: 31554, Start Num: 13

Candidate Starts for Djungelskog\_43:

(Start: 13 @30994 has 61 MA's), (18, 31081), (21, 31093), (22, 31123), (24, 31147), (32, 31237), (44, 31396),

Gene: DoctorPepper\_42 Start: 30699, Stop: 31259, Start Num: 13

Candidate Starts for DoctorPepper\_42:

(Start: 13 @30699 has 61 MA's), (18, 30786), (21, 30798), (22, 30828), (24, 30852), (32, 30942), (44, 31101),

Gene: Dynamite\_48 Start: 31823, Stop: 32392, Start Num: 13

Candidate Starts for Dynamite\_48:

(Start: 13 @31823 has 61 MA's), (25, 32012), (29, 32039), (34, 32114), (35, 32138), (39, 32192),

Gene: Egad\_43 Start: 30996, Stop: 31556, Start Num: 13

Candidate Starts for Egad\_43:

(Start: 13 @30996 has 61 MA's), (18, 31083), (21, 31095), (22, 31125), (24, 31149), (32, 31239), (44, 31398),

Gene: ElephantMan\_44 Start: 33745, Stop: 34404, Start Num: 13

Candidate Starts for ElephantMan\_44:

(Start: 13 @33745 has 61 MA's), (16, 33814), (20, 33838), (46, 34180), (58, 34366),

Gene: Elsa\_48 Start: 31859, Stop: 32455, Start Num: 13

Candidate Starts for Elsa\_48:

(Start: 13 @31859 has 61 MA's), (25, 32048), (29, 32075), (35, 32174), (39, 32228), (41, 32243), (57, 32447),

Gene: Elver\_93 Start: 52898, Stop: 53530, Start Num: 13

Candidate Starts for Elver\_93:

(Start: 8 @52859 has 2 MA's), (Start: 13 @52898 has 61 MA's), (15, 52913), (33, 53150), (38, 53219), (40, 53246), (48, 53342), (56, 53486),

Gene: Giantsbane\_46 Start: 32465, Stop: 33115, Start Num: 13

Candidate Starts for Giantsbane\_46:

(6, 32420), (11, 32435), (Start: 13 @32465 has 61 MA's), (16, 32534), (20, 32558),

Gene: GoCrazy\_47 Start: 31735, Stop: 32331, Start Num: 13

Candidate Starts for GoCrazy\_47:

(Start: 13 @31735 has 61 MA's), (25, 31924), (29, 31951), (35, 32050), (39, 32104), (41, 32119), (57, 32323),

Gene: Gordon\_42 Start: 33925, Stop: 34584, Start Num: 13

Candidate Starts for Gordon\_42:

(Start: 13 @33925 has 61 MA's), (16, 33994), (20, 34018), (27, 34102), (30, 34126), (46, 34360), (55, 34513),

Gene: Hankly\_47 Start: 31036, Stop: 31605, Start Num: 13

Candidate Starts for Hankly\_47:

(Start: 13 @31036 has 61 MA's), (25, 31225), (29, 31252), (34, 31327), (35, 31351), (39, 31405),

Gene: Heisenberger\_47 Start: 31299, Stop: 31895, Start Num: 13

Candidate Starts for Heisenberger\_47:

(Start: 13 @31299 has 61 MA's), (25, 31488), (29, 31515), (34, 31590), (35, 31614), (39, 31668), (41, 31683), (57, 31887),

Gene: Ingrid\_46 Start: 33203, Stop: 33853, Start Num: 13

Candidate Starts for Ingrid\_46:

(Start: 8 @33164 has 2 MA's), (10, 33170), (Start: 13 @33203 has 61 MA's), (16, 33272), (20, 33296), (45, 33608), (51, 33698), (52, 33749), (54, 33776),

Gene: Inked\_48 Start: 34345, Stop: 34989, Start Num: 13

Candidate Starts for Inked\_48:

(Start: 13 @34345 has 61 MA's), (16, 34414),

Gene: Issa\_46 Start: 33364, Stop: 34023, Start Num: 13

Candidate Starts for Issa\_46:

(Start: 13 @33364 has 61 MA's), (16, 33433), (20, 33457), (30, 33565), (41, 33733), (46, 33799), (55, 33952), (58, 33985),

Gene: JEGGS\_47 Start: 31353, Stop: 31949, Start Num: 13

Candidate Starts for JEGGS\_47:

(Start: 13 @31353 has 61 MA's), (25, 31542), (29, 31569), (34, 31644), (35, 31668), (39, 31722), (41, 31737), (57, 31941),

Gene: Jazzy4900\_49 Start: 33968, Stop: 34558, Start Num: 13

Candidate Starts for Jazzy4900\_49:

(Start: 13 @33968 has 61 MA's), (14, 33971), (23, 34091), (26, 34133), (28, 34139), (36, 34265), (37, 34274), (47, 34376), (48, 34385), (50, 34427), (56, 34514),

Gene: Kardesai\_49 Start: 32007, Stop: 32576, Start Num: 13

Candidate Starts for Kardesai\_49:

(Start: 13 @32007 has 61 MA's), (25, 32196), (29, 32223), (34, 32298), (35, 32322), (39, 32376),

Gene: KeaneyLin\_47 Start: 31735, Stop: 32331, Start Num: 13

Candidate Starts for KeaneyLin\_47:

(Start: 13 @31735 has 61 MA's), (25, 31924), (29, 31951), (35, 32050), (39, 32104), (41, 32119), (57, 32323),

Gene: LilHuddy\_46 Start: 33411, Stop: 34067, Start Num: 13

Candidate Starts for LilHuddy\_46:

(Start: 13 @33411 has 61 MA's), (16, 33480), (20, 33504),

Gene: Linda\_43 Start: 30992, Stop: 31552, Start Num: 13

Candidate Starts for Linda\_43:

(Start: 13 @30992 has 61 MA's), (18, 31079), (21, 31091), (22, 31121), (24, 31145), (32, 31235), (44, 31394),

Gene: Loretta\_46 Start: 33203, Stop: 33853, Start Num: 13

Candidate Starts for Loretta\_46:

(Start: 8 @33164 has 2 MA's), (10, 33170), (Start: 13 @33203 has 61 MA's), (16, 33272), (20, 33296), (45, 33608), (51, 33698), (52, 33749), (54, 33776),

Gene: Makai\_44 Start: 33397, Stop: 34047, Start Num: 13

Candidate Starts for Makai\_44:

(Start: 13 @33397 has 61 MA's), (16, 33466), (20, 33490), (30, 33598),

Gene: MediumFry\_42 Start: 32492, Stop: 33331, Start Num: 2

Candidate Starts for MediumFry\_42:

(1, 32489), (Start: 2 @32492 has 1 MA's), (3, 32525), (4, 32528), (7, 32633), (Start: 13 @32672 has 61 MA's), (16, 32741), (20, 32765), (58, 33293), (59, 33326),

Gene: Michelle\_43 Start: 30994, Stop: 31554, Start Num: 13

Candidate Starts for Michelle\_43:

(Start: 13 @30994 has 61 MA's), (18, 31081), (21, 31093), (22, 31123), (24, 31147), (32, 31237), (44, 31396),

Gene: MiniBagel\_44 Start: 34052, Stop: 34711, Start Num: 13

Candidate Starts for MiniBagel\_44:

(Start: 13 @34052 has 61 MA's), (16, 34121), (20, 34145), (41, 34421), (58, 34673),

Gene: Mooshroom\_50 Start: 32007, Stop: 32576, Start Num: 13

Candidate Starts for Mooshroom\_50:

(Start: 13 @32007 has 61 MA's), (25, 32196), (29, 32223), (34, 32298), (35, 32322), (39, 32376),

Gene: MrAaronian\_43 Start: 30994, Stop: 31554, Start Num: 13

Candidate Starts for MrAaronian\_43:

(Start: 13 @30994 has 61 MA's), (18, 31081), (21, 31093), (22, 31123), (24, 31147), (32, 31237), (44, 31396),

Gene: Mudcat\_45 Start: 32712, Stop: 33308, Start Num: 13

Candidate Starts for Mudcat\_45:

(Start: 13 @32712 has 61 MA's), (25, 32901), (29, 32928), (34, 33003), (35, 33027), (39, 33081), (41, 33096), (57, 33300),

Gene: NapoleonB\_48 Start: 31823, Stop: 32392, Start Num: 13

Candidate Starts for NapoleonB\_48:

(Start: 13 @31823 has 61 MA's), (25, 32012), (29, 32039), (34, 32114), (35, 32138), (39, 32192),



Gene: Nason\_48 Start: 31859, Stop: 32455, Start Num: 13  
Candidate Starts for Nason\_48:  
(Start: 13 @31859 has 61 MA's), (25, 32048), (29, 32075), (35, 32174), (39, 32228), (41, 32243), (57, 32447),

Gene: Nightmare\_46 Start: 34312, Stop: 34971, Start Num: 13  
Candidate Starts for Nightmare\_46:  
(Start: 13 @34312 has 61 MA's), (16, 34381), (20, 34405), (41, 34681), (43, 34699), (46, 34747), (58, 34933),

Gene: Niktson\_44 Start: 33745, Stop: 34404, Start Num: 13  
Candidate Starts for Niktson\_44:  
(Start: 13 @33745 has 61 MA's), (16, 33814), (20, 33838), (46, 34180), (58, 34366),

Gene: Nivinsha\_45 Start: 33292, Stop: 33951, Start Num: 13  
Candidate Starts for Nivinsha\_45:  
(Start: 8 @33253 has 2 MA's), (12, 33268), (Start: 13 @33292 has 61 MA's), (16, 33361), (20, 33385), (27, 33469), (30, 33493), (52, 33847),

Gene: Paella\_95 Start: 53449, Stop: 54120, Start Num: 8  
Candidate Starts for Paella\_95:  
(Start: 8 @53449 has 2 MA's), (Start: 13 @53488 has 61 MA's), (15, 53503), (33, 53740), (38, 53809), (40, 53836), (48, 53932), (56, 54076),

Gene: Phaby\_46 Start: 33645, Stop: 34295, Start Num: 13  
Candidate Starts for Phaby\_46:  
(Start: 13 @33645 has 61 MA's), (16, 33714), (20, 33738),

Gene: ProfFrink\_43 Start: 30995, Stop: 31555, Start Num: 13  
Candidate Starts for ProfFrink\_43:  
(Start: 13 @30995 has 61 MA's), (18, 31082), (21, 31094), (22, 31124), (24, 31148), (32, 31238), (44, 31397),

Gene: Qui\_95 Start: 53449, Stop: 54120, Start Num: 8  
Candidate Starts for Qui\_95:  
(Start: 8 @53449 has 2 MA's), (Start: 13 @53488 has 61 MA's), (15, 53503), (33, 53740), (38, 53809), (40, 53836), (48, 53932), (56, 54076),

Gene: Raunak\_46 Start: 30692, Stop: 31252, Start Num: 13  
Candidate Starts for Raunak\_46:  
(Start: 13 @30692 has 61 MA's), (18, 30779), (21, 30791), (22, 30821), (24, 30845), (32, 30935), (44, 31094),

Gene: Salk\_43 Start: 30992, Stop: 31552, Start Num: 13  
Candidate Starts for Salk\_43:  
(Start: 13 @30992 has 61 MA's), (18, 31079), (21, 31091), (22, 31121), (24, 31145), (32, 31235), (44, 31394),

Gene: ScienceWizSam\_45 Start: 33402, Stop: 34061, Start Num: 13  
Candidate Starts for ScienceWizSam\_45:  
(Start: 13 @33402 has 61 MA's), (16, 33471), (20, 33495), (27, 33579), (52, 33957), (53, 33969),

Gene: Shepard\_48 Start: 33483, Stop: 34139, Start Num: 13

Candidate Starts for Shepard\_48:

(Start: 13 @33483 has 61 MA's), (16, 33552), (20, 33576), (31, 33702),

Gene: Shiba\_42 Start: 30692, Stop: 31252, Start Num: 13

Candidate Starts for Shiba\_42:

(Start: 13 @30692 has 61 MA's), (18, 30779), (21, 30791), (22, 30821), (24, 30845), (32, 30935), (44, 31094),

Gene: Sloopyjoe\_43 Start: 30996, Stop: 31556, Start Num: 13

Candidate Starts for Sloopyjoe\_43:

(Start: 13 @30996 has 61 MA's), (18, 31083), (21, 31095), (22, 31125), (24, 31149), (32, 31239), (44, 31398),

Gene: Sporto\_44 Start: 32458, Stop: 33057, Start Num: 13

Candidate Starts for Sporto\_44:

(5, 32404), (Start: 13 @32458 has 61 MA's), (17, 32542), (19, 32548), (20, 32551), (21, 32557), (24, 32611), (30, 32659), (32, 32701), (40, 32824), (41, 32836), (42, 32848),

Gene: StarLord\_43 Start: 30995, Stop: 31555, Start Num: 13

Candidate Starts for StarLord\_43:

(Start: 13 @30995 has 61 MA's), (18, 31082), (21, 31094), (22, 31124), (24, 31148), (32, 31238), (44, 31397),

Gene: Stayer\_43 Start: 30992, Stop: 31552, Start Num: 13

Candidate Starts for Stayer\_43:

(Start: 13 @30992 has 61 MA's), (18, 31079), (21, 31091), (22, 31121), (24, 31145), (32, 31235), (44, 31394),

Gene: Sunny4976\_48 Start: 33968, Stop: 34558, Start Num: 13

Candidate Starts for Sunny4976\_48:

(Start: 13 @33968 has 61 MA's), (14, 33971), (23, 34091), (26, 34133), (28, 34139), (36, 34265), (37, 34274), (47, 34376), (48, 34385), (50, 34427), (56, 34514),

Gene: Synopsis\_43 Start: 33411, Stop: 34073, Start Num: 13

Candidate Starts for Synopsis\_43:

(Start: 13 @33411 has 61 MA's), (16, 33480), (20, 33504), (30, 33612), (41, 33780), (46, 33846), (58, 34035),

Gene: Tatanka\_43 Start: 33581, Stop: 34243, Start Num: 13

Candidate Starts for Tatanka\_43:

(Start: 13 @33581 has 61 MA's), (16, 33650), (20, 33674), (46, 34016), (58, 34205),

Gene: Teacup\_45 Start: 33771, Stop: 34433, Start Num: 13

Candidate Starts for Teacup\_45:

(Start: 13 @33771 has 61 MA's), (16, 33840), (20, 33864), (41, 34140), (46, 34206), (58, 34395),

Gene: Tenno\_45 Start: 34060, Stop: 34719, Start Num: 13

Candidate Starts for Tenno\_45:

(Start: 13 @34060 has 61 MA's), (16, 34129), (20, 34153), (41, 34429), (58, 34681),

Gene: Tokki\_48 Start: 33269, Stop: 33919, Start Num: 13

Candidate Starts for Tokki\_48:

(6, 33224), (11, 33239), (Start: 13 @33269 has 61 MA's), (16, 33338), (20, 33362),

Gene: Tribby\_48 Start: 31560, Stop: 32129, Start Num: 13

Candidate Starts for Tribby\_48:

(Start: 13 @31560 has 61 MA's), (25, 31749), (29, 31776), (34, 31851), (35, 31875), (39, 31929), (41, 31944),

Gene: Truckee\_42 Start: 33185, Stop: 33835, Start Num: 13

Candidate Starts for Truckee\_42:

(Start: 13 @33185 has 61 MA's), (16, 33254), (20, 33278), (30, 33386),

Gene: Trustiboi\_44 Start: 33620, Stop: 34279, Start Num: 13

Candidate Starts for Trustiboi\_44:

(Start: 13 @33620 has 61 MA's), (16, 33689), (20, 33713), (27, 33797), (30, 33821), (52, 34175), (53, 34187), (55, 34208),

Gene: Xenomorph\_44 Start: 31272, Stop: 31862, Start Num: 13

Candidate Starts for Xenomorph\_44:

(Start: 13 @31272 has 61 MA's), (25, 31461), (29, 31488), (34, 31563), (35, 31587), (39, 31641), (41, 31656), (49, 31755),