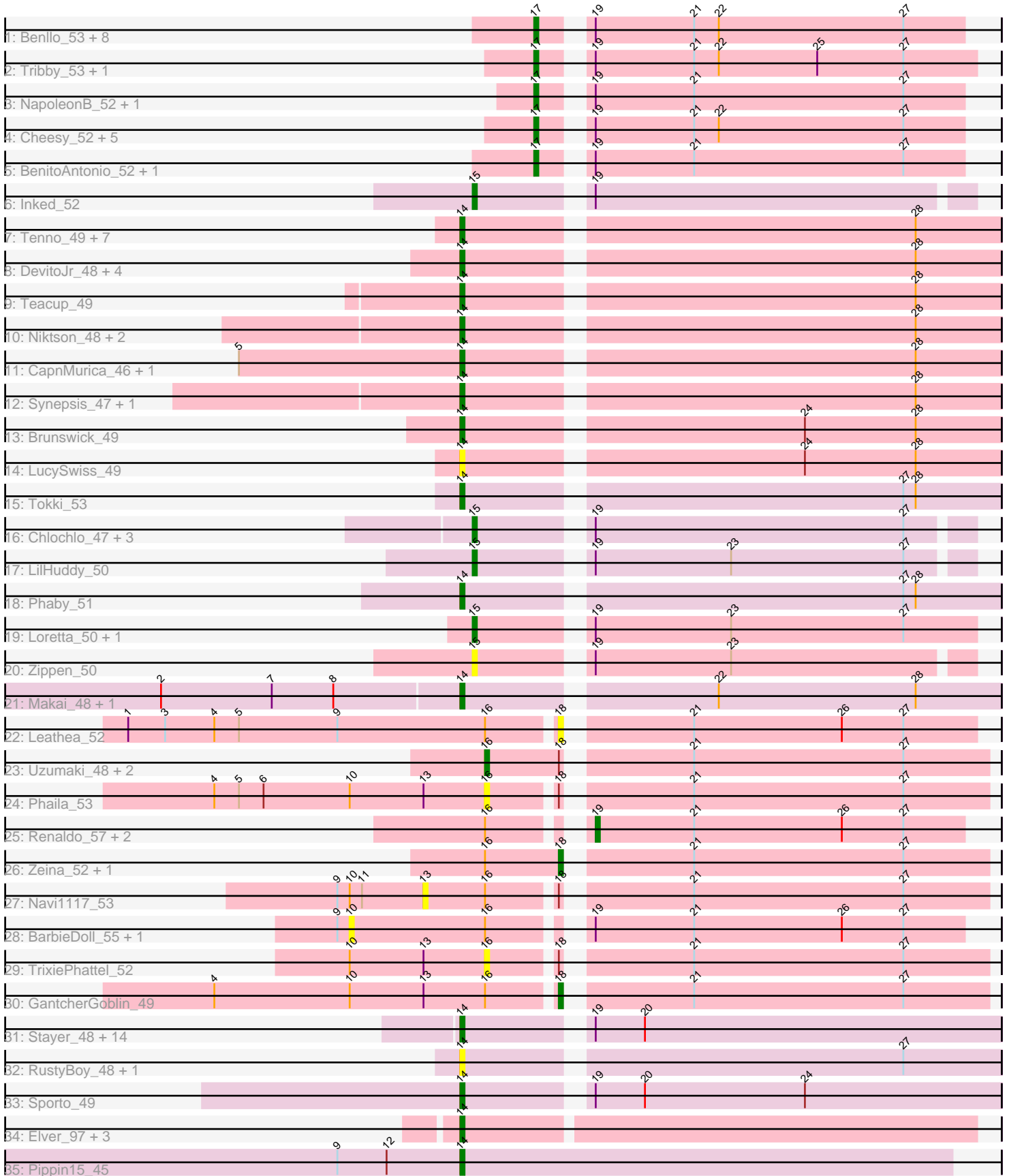


Pham 202839



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 202839 Report

This analysis was run 01/18/25 on database version 583.

Pham number 202839 has 95 members, 26 are drafts.

Phages represented in each track:

- Track 1 : Benllo\_53, JEGGS\_51, GoCrazy\_51, Hankly\_51, Heisenberger\_51, Mudcat\_49, KeaneyLin\_51, Circum\_54, Mooshroom\_54
- Track 2 : Tribby\_53, Xenomorph\_49
- Track 3 : NapoleonB\_52, Dynamite\_52
- Track 4 : Cheesy\_52, Elsa\_52, Arcadia\_52, Correa\_50, Bowling\_51, Nason\_52
- Track 5 : BenitoAntonio\_52, Kardesai\_53
- Track 6 : Inked\_52
- Track 7 : Tenno\_49, Trustiboi\_48, Acai\_49, Caterpillar\_45, Issa\_49, Darby\_47, Breylor17\_48, CastorTray\_51
- Track 8 : DevitoJr\_48, Nivinsha\_50, Tatanka\_46, ScienceWizSam\_49, AreFloNak\_51
- Track 9 : Teacup\_49
- Track 10 : Niktson\_48, ElephantMan\_48, Nightmare\_50
- Track 11 : CapnMurica\_46, MiniBagel\_48
- Track 12 : Synopsis\_47, MediumFry\_46
- Track 13 : Brunswick\_49
- Track 14 : LucySwiss\_49
- Track 15 : Tokki\_53
- Track 16 : Chlochlo\_47, Bouchard\_48, Shepard\_51, Giantsbane\_49
- Track 17 : LilHuddy\_50
- Track 18 : Phaby\_51
- Track 19 : Loretta\_50, Ingrid\_50
- Track 20 : Zippen\_50
- Track 21 : Makai\_48, Truckee\_46
- Track 22 : Leathea\_52
- Track 23 : Uzumaki\_48, KevinMinion\_51, Tenney120\_53
- Track 24 : Phaila\_53
- Track 25 : Renaldo\_57, Kinny\_55, Lewando\_54
- Track 26 : Zeina\_52, Argan\_49
- Track 27 : Navi1117\_53
- Track 28 : BarbieDoll\_55, Biscute\_54
- Track 29 : TrixiePhattel\_52
- Track 30 : GantcherGoblin\_49
- Track 31 : Stayer\_48, ProfFrink\_48, Sloopyjoe\_48, Linda\_48, Michelle\_48, Djungelskog\_48, Egad\_48, Boog\_49, BronxBay\_48, Raunak\_51, Salk\_48, StarLord\_48, Shiba\_47, MrAaronian\_48, DoctorPepper\_47
- Track 32 : RustyBoy\_48, Natasha\_48

- Track 33 : Sporto\_49
- Track 34 : Elver\_97, Gandionco\_95, Paella\_99, Qui\_99
- Track 35 : Pippin15\_45

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

The start number called the most often in the published annotations is 14, it was called in 39 of the 69 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acai\_49, AreFloNak\_51, Boog\_49, Breylor17\_48, BronxBay\_48, Brunswick\_49, CapnMurica\_46, CastorTray\_51, Caterpillar\_45, Darby\_47, DevitoJr\_48, Djungelskog\_48, DoctorPepper\_47, Egad\_48, ElephantMan\_48, Elver\_97, Gandionco\_95, Issa\_49, Linda\_48, LucySwiss\_49, Makai\_48, MediumFry\_46, Michelle\_48, MiniBagel\_48, MrAaronian\_48, Natasha\_48, Nightmare\_50, Niktson\_48, Nivinsha\_50, Paella\_99, Phaby\_51, Pippin15\_45, ProfFrink\_48, Qui\_99, Raunak\_51, RustyBoy\_48, Salk\_48, ScienceWizSam\_49, Shiba\_47, Sloopyjoe\_48, Sporto\_49, StarLord\_48, Stayer\_48, Synepsis\_47, Tatanka\_46, Teacup\_49, Tenno\_49, Tokki\_53, Truckee\_46, Trustiboi\_48,

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

- 

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

- Arcadia\_52, Argan\_49, BarbieDoll\_55, BenitoAntonio\_52, Benllo\_53, Biscute\_54, Bouchard\_48, Bowling\_51, Cheesy\_52, Chlochlo\_47, Circum\_54, Correa\_50, Dynamite\_52, Elsa\_52, GantcherGoblin\_49, Giantsbane\_49, GoCrazy\_51, Hankly\_51, Heisenberger\_51, Ingrid\_50, Inked\_52, JEGGS\_51, Kardesai\_53, KeaneyLin\_51, KevinMinion\_51, Kinny\_55, Leathea\_52, Lewando\_54, LilHuddy\_50, Loretta\_50, Mooshroom\_54, Mudcat\_49, NapoleonB\_52, Nason\_52, Navi1117\_53, Phaila\_53, Renaldo\_57, Shepard\_51, Tenney120\_53, Tribby\_53, TrixiePhattel\_52, Uzumaki\_48, Xenomorph\_49, Zeina\_52, Zippen\_50,

**Summary by start number:**

Start 10:

- Found in 6 of 95 ( 6.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 33.3% of time when present
- Phage (with cluster) where this start called: BarbieDoll\_55 (AU6), Biscute\_54 (AU6),

Start 13:

- Found in 4 of 95 ( 4.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Navi1117\_53 (AU6),

Start 14:

- Found in 50 of 95 ( 52.6% ) of genes in pham
- Manual Annotations of this start: 39 of 69

- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acai\_49 (AU1), AreFloNak\_51 (AU1), Boog\_49 (AW), Breylor17\_48 (AU1), BronxBay\_48 (AW), Brunswick\_49 (AU1), CapnMurica\_46 (AU1), CastorTray\_51 (AU1), Caterpillar\_45 (AU4), Darby\_47 (AU1), DevitoJr\_48 (AU1), Djungelskog\_48 (AW), DoctorPepper\_47 (AW), Egad\_48 (AW), ElephantMan\_48 (AU1), Elver\_97 (FK), Gandionco\_95 (FK), Issa\_49 (AU1), Linda\_48 (AW), LucySwiss\_49 (AU1), Makai\_48 (AU5), MediumFry\_46 (AU4), Michelle\_48 (AW), MiniBagel\_48 (AU1), MrAaronian\_48 (AW), Natasha\_48 (AW), Nightmare\_50 (AU1), Niktson\_48 (AU1), Nivinsha\_50 (AU1), Paella\_99 (FK), Phaby\_51 (AU2), Pippin15\_45 (JA), ProfFrink\_48 (AW), Qui\_99 (FK), Raunak\_51 (AW), RustyBoy\_48 (AW), Salk\_48 (AW), ScienceWizSam\_49 (AU1), Shiba\_47 (AW), Sloopyjoe\_48 (AW), Sporto\_49 (AW), StarLord\_48 (AW), Stayer\_48 (AW), Synepsis\_47 (AU1), Tatanka\_46 (AU1), Teacup\_49 (AU1), Tenno\_49 (AU1), Tokki\_53 (AU2), Truckee\_46 (AU5), Trustiboi\_48 (AU1),

#### Start 15:

- Found in 9 of 95 ( 9.5% ) of genes in pham
- Manual Annotations of this start: 6 of 69
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bouchard\_48 (AU2), Chlochlo\_47 (AU2), Giantsbane\_49 (AU2), Ingrid\_50 (AU3), Inked\_52 (AU), LilHuddy\_50 (AU2), Loretta\_50 (AU3), Shepard\_51 (AU2), Zippen\_50 (AU3),

#### Start 16:

- Found in 15 of 95 ( 15.8% ) of genes in pham
- Manual Annotations of this start: 1 of 69
- Called 33.3% of time when present
- Phage (with cluster) where this start called: KevinMinion\_51 (AU6), Phaila\_53 (AU6), Tenney120\_53 (AU6), TrixiePhattel\_52 (AU6), Uzumaki\_48 (AU6),

#### Start 17:

- Found in 21 of 95 ( 22.1% ) of genes in pham
- Manual Annotations of this start: 19 of 69
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arcadia\_52 (AM), BenitoAntonio\_52 (AM), Benllo\_53 (AM), Bowling\_51 (AM), Cheesy\_52 (AM), Circum\_54 (AM), Correa\_50 (AM), Dynamite\_52 (AM), Elsa\_52 (AM), GoCrazy\_51 (AM), Hankly\_51 (AM), Heisenberger\_51 (AM), JEGGS\_51 (AM), Kardesai\_53 (AM), KeaneyLin\_51 (AM), Mooshroom\_54 (AM), Mudcat\_49 (AM), NapoleonB\_52 (AM), Nason\_52 (AM), Tribby\_53 (AM), Xenomorph\_49 (AM),

#### Start 18:

- Found in 10 of 95 ( 10.5% ) of genes in pham
- Manual Annotations of this start: 3 of 69
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Argan\_49 (AU6), GantcherGoblin\_49 (AU6), Leathea\_52 (AU6), Zeina\_52 (AU6),

#### Start 19:

- Found in 51 of 95 ( 53.7% ) of genes in pham
- Manual Annotations of this start: 1 of 69
- Called 5.9% of time when present

- Phage (with cluster) where this start called: Kinny\_55 (AU6), Lewando\_54 (AU6), Renaldo\_57 (AU6),

### **Summary by clusters:**

There are 11 clusters represented in this pham: AM, AU1, AU3, AU2, AU5, AU4, AW, AU6, AU, FK, JA,

Info for manual annotations of cluster AM:

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

Info for manual annotations of cluster AU:

- Start number 15 was manually annotated 1 time for cluster AU.

Info for manual annotations of cluster AU1:

- Start number 14 was manually annotated 16 times for cluster AU1.

Info for manual annotations of cluster AU2:

- Start number 14 was manually annotated 2 times for cluster AU2.
- Start number 15 was manually annotated 3 times for cluster AU2.

Info for manual annotations of cluster AU3:

- Start number 15 was manually annotated 2 times for cluster AU3.

Info for manual annotations of cluster AU4:

- Start number 14 was manually annotated 2 times for cluster AU4.

Info for manual annotations of cluster AU5:

- Start number 14 was manually annotated 2 times for cluster AU5.

Info for manual annotations of cluster AU6:

- Start number 16 was manually annotated 1 time for cluster AU6.
- Start number 18 was manually annotated 3 times for cluster AU6.
- Start number 19 was manually annotated 1 time for cluster AU6.

Info for manual annotations of cluster AW:

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

Info for manual annotations of cluster FK:

- Start number 14 was manually annotated 2 times for cluster FK.

Info for manual annotations of cluster JA:

- Start number 14 was manually annotated 1 time for cluster JA.

### **Gene Information:**

Gene: Acai\_49 Start: 34862, Stop: 34987, Start Num: 14

Candidate Starts for Acai\_49:

(Start: 14 @34862 has 39 MA's), (28, 34967),

Gene: Arcadia\_52 Start: 33235, Stop: 33333, Start Num: 17

Candidate Starts for Arcadia\_52:

(Start: 17 @33235 has 19 MA's), (Start: 19 @33244 has 1 MA's), (21, 33268), (22, 33274), (27, 33319),

Gene: AreFloNak\_51 Start: 34832, Stop: 34957, Start Num: 14

Candidate Starts for AreFloNak\_51:

(Start: 14 @34832 has 39 MA's), (28, 34937),

Gene: Argan\_49 Start: 33254, Stop: 33352, Start Num: 18

Candidate Starts for Argan\_49:

(Start: 16 @33236 has 1 MA's), (Start: 18 @33254 has 3 MA's), (21, 33281), (27, 33332),

Gene: BarbieDoll\_55 Start: 34950, Stop: 35090, Start Num: 10

Candidate Starts for BarbieDoll\_55:

(9, 34947), (10, 34950), (Start: 16 @34983 has 1 MA's), (Start: 19 @35001 has 1 MA's), (21, 35025), (26, 35061), (27, 35076),

Gene: BenitoAntonio\_52 Start: 32772, Stop: 32870, Start Num: 17

Candidate Starts for BenitoAntonio\_52:

(Start: 17 @32772 has 19 MA's), (Start: 19 @32781 has 1 MA's), (21, 32805), (27, 32856),

Gene: Benllo\_53 Start: 33450, Stop: 33548, Start Num: 17

Candidate Starts for Benllo\_53:

(Start: 17 @33450 has 19 MA's), (Start: 19 @33459 has 1 MA's), (21, 33483), (22, 33489), (27, 33534),

Gene: Biscute\_54 Start: 34602, Stop: 34742, Start Num: 10

Candidate Starts for Biscute\_54:

(9, 34599), (10, 34602), (Start: 16 @34635 has 1 MA's), (Start: 19 @34653 has 1 MA's), (21, 34677), (26, 34713), (27, 34728),

Gene: Boog\_49 Start: 32283, Stop: 32408, Start Num: 14

Candidate Starts for Boog\_49:

(Start: 14 @32283 has 39 MA's), (Start: 19 @32310 has 1 MA's), (20, 32322),

Gene: Bouchard\_48 Start: 34781, Stop: 34894, Start Num: 15

Candidate Starts for Bouchard\_48:

(Start: 15 @34781 has 6 MA's), (Start: 19 @34805 has 1 MA's), (27, 34880),

Gene: Bowling\_51 Start: 32980, Stop: 33078, Start Num: 17

Candidate Starts for Bowling\_51:

(Start: 17 @32980 has 19 MA's), (Start: 19 @32989 has 1 MA's), (21, 33013), (22, 33019), (27, 33064),

Gene: Breylor17\_48 Start: 35423, Stop: 35548, Start Num: 14

Candidate Starts for Breylor17\_48:

(Start: 14 @35423 has 39 MA's), (28, 35528),

Gene: BronxBay\_48 Start: 32581, Stop: 32706, Start Num: 14

Candidate Starts for BronxBay\_48:

(Start: 14 @32581 has 39 MA's), (Start: 19 @32608 has 1 MA's), (20, 32620),

Gene: Brunswick\_49 Start: 34716, Stop: 34841, Start Num: 14

Candidate Starts for Brunswick\_49:

(Start: 14 @34716 has 39 MA's), (24, 34794), (28, 34821),

Gene: CapnMurica\_46 Start: 35616, Stop: 35741, Start Num: 14  
Candidate Starts for CapnMurica\_46:  
(5, 35562), (Start: 14 @35616 has 39 MA's), (28, 35721),

Gene: CastorTray\_51 Start: 35487, Stop: 35612, Start Num: 14  
Candidate Starts for CastorTray\_51:  
(Start: 14 @35487 has 39 MA's), (28, 35592),

Gene: Caterpillar\_45 Start: 33882, Stop: 34007, Start Num: 14  
Candidate Starts for Caterpillar\_45:  
(Start: 14 @33882 has 39 MA's), (28, 33987),

Gene: Cheesy\_52 Start: 32956, Stop: 33054, Start Num: 17  
Candidate Starts for Cheesy\_52:  
(Start: 17 @32956 has 19 MA's), (Start: 19 @32965 has 1 MA's), (21, 32989), (22, 32995), (27, 33040),

Gene: Chlochlo\_47 Start: 34525, Stop: 34638, Start Num: 15  
Candidate Starts for Chlochlo\_47:  
(Start: 15 @34525 has 6 MA's), (Start: 19 @34549 has 1 MA's), (27, 34624),

Gene: Circum\_54 Start: 33641, Stop: 33739, Start Num: 17  
Candidate Starts for Circum\_54:  
(Start: 17 @33641 has 19 MA's), (Start: 19 @33650 has 1 MA's), (21, 33674), (22, 33680), (27, 33725),

Gene: Correa\_50 Start: 32102, Stop: 32200, Start Num: 17  
Candidate Starts for Correa\_50:  
(Start: 17 @32102 has 19 MA's), (Start: 19 @32111 has 1 MA's), (21, 32135), (22, 32141), (27, 32186),

Gene: Darby\_47 Start: 34661, Stop: 34786, Start Num: 14  
Candidate Starts for Darby\_47:  
(Start: 14 @34661 has 39 MA's), (28, 34766),

Gene: DevitoJr\_48 Start: 35053, Stop: 35178, Start Num: 14  
Candidate Starts for DevitoJr\_48:  
(Start: 14 @35053 has 39 MA's), (28, 35158),

Gene: Djungelskog\_48 Start: 32580, Stop: 32705, Start Num: 14  
Candidate Starts for Djungelskog\_48:  
(Start: 14 @32580 has 39 MA's), (Start: 19 @32607 has 1 MA's), (20, 32619),

Gene: DoctorPepper\_47 Start: 32285, Stop: 32410, Start Num: 14  
Candidate Starts for DoctorPepper\_47:  
(Start: 14 @32285 has 39 MA's), (Start: 19 @32312 has 1 MA's), (20, 32324),

Gene: Dynamite\_52 Start: 33165, Stop: 33263, Start Num: 17  
Candidate Starts for Dynamite\_52:  
(Start: 17 @33165 has 19 MA's), (Start: 19 @33174 has 1 MA's), (21, 33198), (27, 33249),

Gene: Egad\_48 Start: 32582, Stop: 32707, Start Num: 14  
Candidate Starts for Egad\_48:  
(Start: 14 @32582 has 39 MA's), (Start: 19 @32609 has 1 MA's), (20, 32621),

Gene: ElephantMan\_48 Start: 35339, Stop: 35464, Start Num: 14

Candidate Starts for ElephantMan\_48:  
(Start: 14 @35339 has 39 MA's), (28, 35444),

Gene: Elsa\_52 Start: 33235, Stop: 33333, Start Num: 17  
Candidate Starts for Elsa\_52:  
(Start: 17 @33235 has 19 MA's), (Start: 19 @33244 has 1 MA's), (21, 33268), (22, 33274), (27, 33319),

Gene: Elver\_97 Start: 54542, Stop: 54664, Start Num: 14  
Candidate Starts for Elver\_97:  
(Start: 14 @54542 has 39 MA's),

Gene: Gandionco\_95 Start: 53398, Stop: 53520, Start Num: 14  
Candidate Starts for Gandionco\_95:  
(Start: 14 @53398 has 39 MA's),

Gene: GantcherGoblin\_49 Start: 33332, Stop: 33430, Start Num: 18  
Candidate Starts for GantcherGoblin\_49:  
(4, 33251), (10, 33284), (13, 33302), (Start: 16 @33317 has 1 MA's), (Start: 18 @33332 has 3 MA's),  
(21, 33359), (27, 33410),

Gene: Giantsbane\_49 Start: 33708, Stop: 33821, Start Num: 15  
Candidate Starts for Giantsbane\_49:  
(Start: 15 @33708 has 6 MA's), (Start: 19 @33732 has 1 MA's), (27, 33807),

Gene: GoCrazy\_51 Start: 33106, Stop: 33204, Start Num: 17  
Candidate Starts for GoCrazy\_51:  
(Start: 17 @33106 has 19 MA's), (Start: 19 @33115 has 1 MA's), (21, 33139), (22, 33145), (27, 33190),

Gene: Hankly\_51 Start: 32380, Stop: 32478, Start Num: 17  
Candidate Starts for Hankly\_51:  
(Start: 17 @32380 has 19 MA's), (Start: 19 @32389 has 1 MA's), (21, 32413), (22, 32419), (27, 32464),

Gene: Heisenberger\_51 Start: 32661, Stop: 32759, Start Num: 17  
Candidate Starts for Heisenberger\_51:  
(Start: 17 @32661 has 19 MA's), (Start: 19 @32670 has 1 MA's), (21, 32694), (22, 32700), (27, 32745),

Gene: Ingrid\_50 Start: 34682, Stop: 34798, Start Num: 15  
Candidate Starts for Ingrid\_50:  
(Start: 15 @34682 has 6 MA's), (Start: 19 @34706 has 1 MA's), (23, 34739), (27, 34781),

Gene: Inked\_52 Start: 35810, Stop: 35923, Start Num: 15  
Candidate Starts for Inked\_52:  
(Start: 15 @35810 has 6 MA's), (Start: 19 @35834 has 1 MA's),

Gene: Issa\_49 Start: 34704, Stop: 34829, Start Num: 14  
Candidate Starts for Issa\_49:  
(Start: 14 @34704 has 39 MA's), (28, 34809),

Gene: JEGGS\_51 Start: 32716, Stop: 32814, Start Num: 17  
Candidate Starts for JEGGS\_51:  
(Start: 17 @32716 has 19 MA's), (Start: 19 @32725 has 1 MA's), (21, 32749), (22, 32755), (27, 32800),

Gene: Kardesai\_53 Start: 33350, Stop: 33448, Start Num: 17



Candidate Starts for Kardesai\_53:

(Start: 17 @33350 has 19 MA's), (Start: 19 @33359 has 1 MA's), (21, 33383), (27, 33434),

Gene: KeaneyLin\_51 Start: 33106, Stop: 33204, Start Num: 17

Candidate Starts for KeaneyLin\_51:

(Start: 17 @33106 has 19 MA's), (Start: 19 @33115 has 1 MA's), (21, 33139), (22, 33145), (27, 33190),

Gene: KevinMinion\_51 Start: 34187, Stop: 34303, Start Num: 16

Candidate Starts for KevinMinion\_51:

(Start: 16 @34187 has 1 MA's), (Start: 18 @34205 has 3 MA's), (21, 34232), (27, 34283),

Gene: Kinny\_55 Start: 35496, Stop: 35585, Start Num: 19

Candidate Starts for Kinny\_55:

(Start: 16 @35478 has 1 MA's), (Start: 19 @35496 has 1 MA's), (21, 35520), (26, 35556), (27, 35571),

Gene: Leathea\_52 Start: 33428, Stop: 33523, Start Num: 18

Candidate Starts for Leathea\_52:

(1, 33326), (3, 33335), (4, 33347), (5, 33353), (9, 33377), (Start: 16 @33413 has 1 MA's), (Start: 18 @33428 has 3 MA's), (21, 33455), (26, 33491), (27, 33506),

Gene: Lewando\_54 Start: 35003, Stop: 35092, Start Num: 19

Candidate Starts for Lewando\_54:

(Start: 16 @34985 has 1 MA's), (Start: 19 @35003 has 1 MA's), (21, 35027), (26, 35063), (27, 35078),

Gene: LilHuddy\_50 Start: 34898, Stop: 35011, Start Num: 15

Candidate Starts for LilHuddy\_50:

(Start: 15 @34898 has 6 MA's), (Start: 19 @34922 has 1 MA's), (23, 34955), (27, 34997),

Gene: Linda\_48 Start: 32578, Stop: 32703, Start Num: 14

Candidate Starts for Linda\_48:

(Start: 14 @32578 has 39 MA's), (Start: 19 @32605 has 1 MA's), (20, 32617),

Gene: Loretta\_50 Start: 34682, Stop: 34798, Start Num: 15

Candidate Starts for Loretta\_50:

(Start: 15 @34682 has 6 MA's), (Start: 19 @34706 has 1 MA's), (23, 34739), (27, 34781),

Gene: LucySwiss\_49 Start: 34506, Stop: 34631, Start Num: 14

Candidate Starts for LucySwiss\_49:

(Start: 14 @34506 has 39 MA's), (24, 34584), (28, 34611),

Gene: Makai\_48 Start: 34863, Stop: 34988, Start Num: 14

Candidate Starts for Makai\_48:

(2, 34791), (7, 34818), (8, 34833), (Start: 14 @34863 has 39 MA's), (22, 34920), (28, 34968),

Gene: MediumFry\_46 Start: 34186, Stop: 34311, Start Num: 14

Candidate Starts for MediumFry\_46:

(Start: 14 @34186 has 39 MA's), (28, 34291),

Gene: Michelle\_48 Start: 32580, Stop: 32705, Start Num: 14

Candidate Starts for Michelle\_48:

(Start: 14 @32580 has 39 MA's), (Start: 19 @32607 has 1 MA's), (20, 32619),

Gene: MiniBagel\_48 Start: 35598, Stop: 35723, Start Num: 14

Candidate Starts for MiniBagel\_48:  
(5, 35544), (Start: 14 @35598 has 39 MA's), (28, 35703),

Gene: Mooshroom\_54 Start: 33350, Stop: 33448, Start Num: 17  
Candidate Starts for Mooshroom\_54:  
(Start: 17 @33350 has 19 MA's), (Start: 19 @33359 has 1 MA's), (21, 33383), (22, 33389), (27, 33434),

Gene: MrAaronian\_48 Start: 32580, Stop: 32705, Start Num: 14  
Candidate Starts for MrAaronian\_48:  
(Start: 14 @32580 has 39 MA's), (Start: 19 @32607 has 1 MA's), (20, 32619),

Gene: Mudcat\_49 Start: 34074, Stop: 34172, Start Num: 17  
Candidate Starts for Mudcat\_49:  
(Start: 17 @34074 has 19 MA's), (Start: 19 @34083 has 1 MA's), (21, 34107), (22, 34113), (27, 34158),

Gene: NapoleonB\_52 Start: 33165, Stop: 33263, Start Num: 17  
Candidate Starts for NapoleonB\_52:  
(Start: 17 @33165 has 19 MA's), (Start: 19 @33174 has 1 MA's), (21, 33198), (27, 33249),

Gene: Nason\_52 Start: 33235, Stop: 33333, Start Num: 17  
Candidate Starts for Nason\_52:  
(Start: 17 @33235 has 19 MA's), (Start: 19 @33244 has 1 MA's), (21, 33268), (22, 33274), (27, 33319),

Gene: Natasha\_48 Start: 32374, Stop: 32499, Start Num: 14  
Candidate Starts for Natasha\_48:  
(Start: 14 @32374 has 39 MA's), (27, 32476),

Gene: Navi1117\_53 Start: 34014, Stop: 34142, Start Num: 13  
Candidate Starts for Navi1117\_53:  
(9, 33993), (10, 33996), (11, 33999), (13, 34014), (Start: 16 @34029 has 1 MA's), (Start: 18 @34044 has 3 MA's), (21, 34071), (27, 34122),

Gene: Nightmare\_50 Start: 35895, Stop: 36020, Start Num: 14  
Candidate Starts for Nightmare\_50:  
(Start: 14 @35895 has 39 MA's), (28, 36000),

Gene: Niktson\_48 Start: 35339, Stop: 35464, Start Num: 14  
Candidate Starts for Niktson\_48:  
(Start: 14 @35339 has 39 MA's), (28, 35444),

Gene: Nivinsha\_50 Start: 34832, Stop: 34957, Start Num: 14  
Candidate Starts for Nivinsha\_50:  
(Start: 14 @34832 has 39 MA's), (28, 34937),

Gene: Paella\_99 Start: 55132, Stop: 55254, Start Num: 14  
Candidate Starts for Paella\_99:  
(Start: 14 @55132 has 39 MA's),

Gene: Phaby\_51 Start: 35428, Stop: 35553, Start Num: 14  
Candidate Starts for Phaby\_51:  
(Start: 14 @35428 has 39 MA's), (27, 35530), (28, 35533),

Gene: Phaila\_53 Start: 33410, Stop: 33523, Start Num: 16

Candidate Starts for Phaila\_53:

(4, 33344), (5, 33350), (6, 33356), (10, 33377), (13, 33395), (Start: 16 @33410 has 1 MA's), (Start: 18 @33425 has 3 MA's), (21, 33452), (27, 33503),

Gene: Pippin15\_45 Start: 31372, Stop: 31491, Start Num: 14

Candidate Starts for Pippin15\_45:

(9, 31342), (12, 31354), (Start: 14 @31372 has 39 MA's),

Gene: ProfFrink\_48 Start: 32581, Stop: 32706, Start Num: 14

Candidate Starts for ProfFrink\_48:

(Start: 14 @32581 has 39 MA's), (Start: 19 @32608 has 1 MA's), (20, 32620),

Gene: Qui\_99 Start: 55132, Stop: 55254, Start Num: 14

Candidate Starts for Qui\_99:

(Start: 14 @55132 has 39 MA's),

Gene: Raunak\_51 Start: 32278, Stop: 32403, Start Num: 14

Candidate Starts for Raunak\_51:

(Start: 14 @32278 has 39 MA's), (Start: 19 @32305 has 1 MA's), (20, 32317),

Gene: Renaldo\_57 Start: 35312, Stop: 35401, Start Num: 19

Candidate Starts for Renaldo\_57:

(Start: 16 @35294 has 1 MA's), (Start: 19 @35312 has 1 MA's), (21, 35336), (26, 35372), (27, 35387),

Gene: RustyBoy\_48 Start: 32355, Stop: 32480, Start Num: 14

Candidate Starts for RustyBoy\_48:

(Start: 14 @32355 has 39 MA's), (27, 32457),

Gene: Salk\_48 Start: 32578, Stop: 32703, Start Num: 14

Candidate Starts for Salk\_48:

(Start: 14 @32578 has 39 MA's), (Start: 19 @32605 has 1 MA's), (20, 32617),

Gene: ScienceWizSam\_49 Start: 34940, Stop: 35065, Start Num: 14

Candidate Starts for ScienceWizSam\_49:

(Start: 14 @34940 has 39 MA's), (28, 35045),

Gene: Shepard\_51 Start: 34739, Stop: 34852, Start Num: 15

Candidate Starts for Shepard\_51:

(Start: 15 @34739 has 6 MA's), (Start: 19 @34763 has 1 MA's), (27, 34838),

Gene: Shiba\_47 Start: 32278, Stop: 32403, Start Num: 14

Candidate Starts for Shiba\_47:

(Start: 14 @32278 has 39 MA's), (Start: 19 @32305 has 1 MA's), (20, 32317),

Gene: Sloopyjoe\_48 Start: 32582, Stop: 32707, Start Num: 14

Candidate Starts for Sloopyjoe\_48:

(Start: 14 @32582 has 39 MA's), (Start: 19 @32609 has 1 MA's), (20, 32621),

Gene: Sporto\_49 Start: 34042, Stop: 34167, Start Num: 14

Candidate Starts for Sporto\_49:

(Start: 14 @34042 has 39 MA's), (Start: 19 @34069 has 1 MA's), (20, 34081), (24, 34120),

Gene: StarLord\_48 Start: 32581, Stop: 32706, Start Num: 14

Candidate Starts for StarLord\_48:

(Start: 14 @32581 has 39 MA's), (Start: 19 @32608 has 1 MA's), (20, 32620),

Gene: Stayer\_48 Start: 32578, Stop: 32703, Start Num: 14

Candidate Starts for Stayer\_48:

(Start: 14 @32578 has 39 MA's), (Start: 19 @32605 has 1 MA's), (20, 32617),

Gene: Synopsis\_47 Start: 35008, Stop: 35133, Start Num: 14

Candidate Starts for Synopsis\_47:

(Start: 14 @35008 has 39 MA's), (28, 35113),

Gene: Tatanka\_46 Start: 35128, Stop: 35253, Start Num: 14

Candidate Starts for Tatanka\_46:

(Start: 14 @35128 has 39 MA's), (28, 35233),

Gene: Teacup\_49 Start: 35368, Stop: 35493, Start Num: 14

Candidate Starts for Teacup\_49:

(Start: 14 @35368 has 39 MA's), (28, 35473),

Gene: Tenney120\_53 Start: 33971, Stop: 34087, Start Num: 16

Candidate Starts for Tenney120\_53:

(Start: 16 @33971 has 1 MA's), (Start: 18 @33989 has 3 MA's), (21, 34016), (27, 34067),

Gene: Tenno\_49 Start: 35671, Stop: 35796, Start Num: 14

Candidate Starts for Tenno\_49:

(Start: 14 @35671 has 39 MA's), (28, 35776),

Gene: Tokki\_53 Start: 35062, Stop: 35187, Start Num: 14

Candidate Starts for Tokki\_53:

(Start: 14 @35062 has 39 MA's), (27, 35164), (28, 35167),

Gene: Tribby\_53 Start: 33173, Stop: 33274, Start Num: 17

Candidate Starts for Tribby\_53:

(Start: 17 @33173 has 19 MA's), (Start: 19 @33182 has 1 MA's), (21, 33206), (22, 33212), (25, 33236), (27, 33257),

Gene: TrixiePhattel\_52 Start: 33437, Stop: 33550, Start Num: 16

Candidate Starts for TrixiePhattel\_52:

(10, 33404), (13, 33422), (Start: 16 @33437 has 1 MA's), (Start: 18 @33452 has 3 MA's), (21, 33479), (27, 33530),

Gene: Truckee\_46 Start: 34653, Stop: 34778, Start Num: 14

Candidate Starts for Truckee\_46:

(2, 34581), (7, 34608), (8, 34623), (Start: 14 @34653 has 39 MA's), (22, 34710), (28, 34758),

Gene: Trustiboi\_48 Start: 35209, Stop: 35334, Start Num: 14

Candidate Starts for Trustiboi\_48:

(Start: 14 @35209 has 39 MA's), (28, 35314),

Gene: Uzumaki\_48 Start: 33429, Stop: 33545, Start Num: 16

Candidate Starts for Uzumaki\_48:

(Start: 16 @33429 has 1 MA's), (Start: 18 @33447 has 3 MA's), (21, 33474), (27, 33525),

Gene: Xenomorph\_49 Start: 32906, Stop: 33004, Start Num: 17

Candidate Starts for Xenomorph\_49:

(Start: 17 @32906 has 19 MA's), (Start: 19 @32915 has 1 MA's), (21, 32939), (22, 32945), (25, 32969), (27, 32990),

Gene: Zeina\_52 Start: 33997, Stop: 34095, Start Num: 18

Candidate Starts for Zeina\_52:

(Start: 16 @33979 has 1 MA's), (Start: 18 @33997 has 3 MA's), (21, 34024), (27, 34075),

Gene: Zippen\_50 Start: 35509, Stop: 35622, Start Num: 15

Candidate Starts for Zippen\_50:

(Start: 15 @35509 has 6 MA's), (Start: 19 @35533 has 1 MA's), (23, 35566),