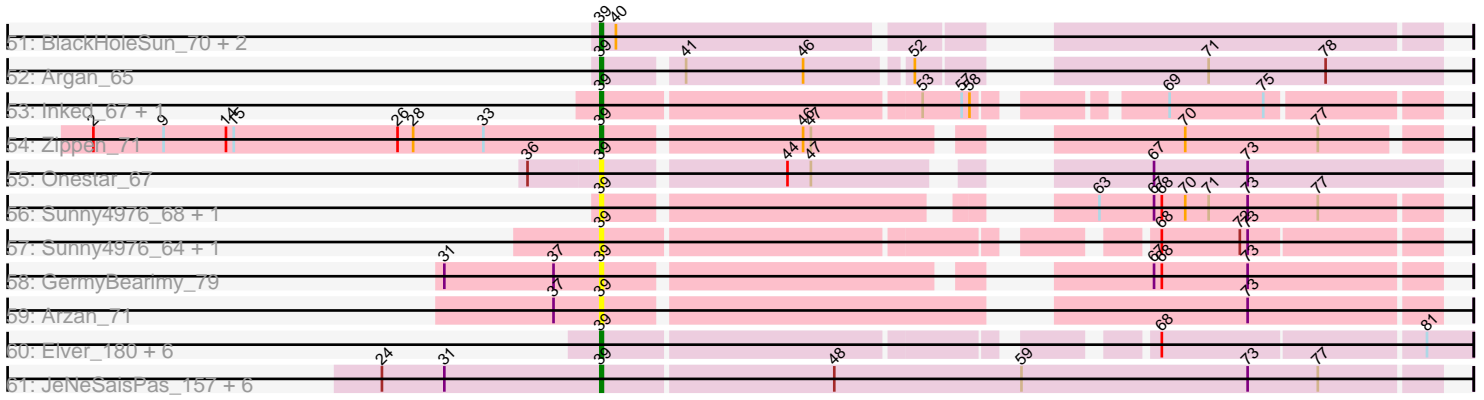




Pham 304817



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 304817 Report

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

Pham number 304817 has 126 members, 35 are drafts.

Phages represented in each track:

- Track 1 : MiniBagel\_61
- Track 2 : Tenno\_62, CapnMurica\_59, Dinallo\_60, Issa\_60
- Track 3 : ScienceWizSam\_62
- Track 4 : ScienceWizSam\_67, Gordon\_63, Tatanka\_61, Breylor17\_65, Nightmare\_67, Nivinsha\_69, DevitoJr\_65, Synepsis\_64, AreFloNak\_69
- Track 5 : Hemma\_65
- Track 6 : Trustiboi\_61, Darby\_60, Breylor17\_61, Nivinsha\_63, CastorTray\_65, Synepsis\_60, DevitoJr\_61, AreFloNak\_64
- Track 7 : Trustiboi\_65, Darby\_64, Westerlin\_65
- Track 8 : Acai\_66
- Track 9 : Tenno\_66
- Track 10 : CastorTray\_69
- Track 11 : Brunswick\_67
- Track 12 : Hemma\_60
- Track 13 : Tatanka\_58
- Track 14 : Dinallo\_64
- Track 15 : LucySwiss\_66
- Track 16 : MiniBagel\_65
- Track 17 : Niktson\_66, ElephantMan\_66
- Track 18 : Teacup\_67
- Track 19 : Issa\_64
- Track 20 : CapnMurica\_63
- Track 21 : LilHuddy\_70
- Track 22 : Tipton\_71, Bouchard\_70, Chlochlo\_70, Tokki\_75
- Track 23 : Bouchard\_65, LilHuddy\_66, Chlochlo\_65, Phaby\_67, Shepard\_67, Tokki\_70, Tipton\_66
- Track 24 : Giantsbane\_69
- Track 25 : Giantsbane\_65
- Track 26 : Phaby\_71
- Track 27 : Shepard\_71
- Track 28 : Ingrid\_72, Loretta\_69
- Track 29 : Ingrid\_68, Loretta\_65
- Track 30 : MediumFry\_62
- Track 31 : Anandi\_73
- Track 32 : Anandi\_69
- Track 33 : MediumFry\_66
- Track 34 : Caterpillar\_61

- Track 35 : Caterpillar\_65
- Track 36 : Makai\_65, Nightmare\_63, Gordon\_59, Truckee\_63, Brunswick\_62, LucySwiss\_61, Niktson\_61, Westerlin\_61, ElephantMan\_61, Acai\_61, Teacup\_62
- Track 37 : Truckee\_68, Makai\_70
- Track 38 : Phaila\_68, Zeina\_70
- Track 39 : Renaldo\_76
- Track 40 : Navi1117\_70, KevinMinion\_66
- Track 41 : BarbieDoll\_72, Biscute\_68, Kinny\_71
- Track 42 : Leathea\_68
- Track 43 : Muglass\_70
- Track 44 : Mardi\_68
- Track 45 : Tenney120\_69
- Track 46 : Uzumaki\_65, GantcherGoblin\_66
- Track 47 : TrixiePhattel\_69
- Track 48 : Altjira\_70
- Track 49 : Barbonzobean\_74
- Track 50 : Lewando\_71
- Track 51 : BlackHoleSun\_70, Stardrop\_68, PoeMe\_68
- Track 52 : Argan\_65
- Track 53 : Inked\_67, Zippen\_67
- Track 54 : Zippen\_71
- Track 55 : Onestar\_67
- Track 56 : Sunny4976\_68, Jazzy4900\_69
- Track 57 : Sunny4976\_64, Jazzy4900\_65
- Track 58 : GermyBearimy\_79
- Track 59 : Arzan\_71
- Track 60 : Elver\_180, Paella\_181, Kureo\_178, Gandionco\_179, Qui\_181, Marianna39\_178, JeNeSaisPas\_175
- Track 61 : JeNeSaisPas\_157, Paella\_164, Elver\_164, Gandionco\_160, Qui\_164, Marianna39\_160, Kureo\_159

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

The start number called the most often in the published annotations is 39, it was called in 91 of the 91 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acai\_61, Acai\_66, Altjira\_70, Anandi\_69, Anandi\_73, AreFloNak\_64, AreFloNak\_69, Argan\_65, Arzan\_71, BarbieDoll\_72, Barbonzobean\_74, Biscute\_68, BlackHoleSun\_70, Bouchard\_65, Bouchard\_70, Breylor17\_61, Breylor17\_65, Brunswick\_62, Brunswick\_67, CapnMurica\_59, CapnMurica\_63, CastorTray\_65, CastorTray\_69, Caterpillar\_61, Caterpillar\_65, Chlochlo\_65, Chlochlo\_70, Darby\_60, Darby\_64, DevitoJr\_61, DevitoJr\_65, Dinallo\_60, Dinallo\_64, ElephantMan\_61, ElephantMan\_66, Elver\_164, Elver\_180, Gandionco\_160, Gandionco\_179, GantcherGoblin\_66, GermyBearimy\_79, Giantsbane\_65, Giantsbane\_69, Gordon\_59, Gordon\_63, Hemma\_60, Hemma\_65, Ingrid\_68, Ingrid\_72, Inked\_67, Issa\_60, Issa\_64, Jazzy4900\_65, Jazzy4900\_69, JeNeSaisPas\_157, JeNeSaisPas\_175, KevinMinion\_66, Kinny\_71, Kureo\_159, Kureo\_178, Leathea\_68, Lewando\_71, LilHuddy\_66, LilHuddy\_70, Loretta\_65, Loretta\_69, LucySwiss\_61, LucySwiss\_66, Makai\_65, Makai\_70, Mardi\_68, Marianna39\_160, Marianna39\_178,

MediumFry\_62, MediumFry\_66, MiniBagel\_61, MiniBagel\_65, Navi1117\_70, Nightmare\_63, Nightmare\_67, Niktson\_61, Niktson\_66, Nivinsha\_63, Nivinsha\_69, Onestar\_67, Paella\_164, Paella\_181, Phaby\_67, Phaby\_71, Phaila\_68, PoeMe\_68, Qui\_164, Qui\_181, Renaldo\_76, ScienceWizSam\_62, ScienceWizSam\_67, Shepard\_67, Shepard\_71, Stardrop\_68, Sunny4976\_64, Sunny4976\_68, Synepsis\_60, Synepsis\_64, Tatanka\_58, Tatanka\_61, Teacup\_62, Teacup\_67, Tenney120\_69, Tenno\_62, Tenno\_66, Tipton\_66, Tipton\_71, Tokki\_70, Tokki\_75, TrixiePhattel\_69, Truckee\_63, Truckee\_68, Trustiboi\_61, Trustiboi\_65, Uzumaki\_65, Westerlin\_61, Westerlin\_65, Zeina\_70, Zippen\_67, Zippen\_71,

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

- Muglass\_70,

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

- 

### Summary by start number:

Start 39:

- Found in 126 of 126 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 91 of 91
- Called 99.2% of time when present
- Phage (with cluster) where this start called: Acai\_61 (AU1), Acai\_66 (AU1), Altjira\_70 (AU6), Anandi\_69 (AU4), Anandi\_73 (AU4), AreFloNak\_64 (AU1), AreFloNak\_69 (AU1), Argan\_65 (AU6), Arzan\_71 (FI), BarbieDoll\_72 (AU6), Barbonzobean\_74 (AU6), Biscute\_68 (AU6), BlackHoleSun\_70 (AU6), Bouchard\_65 (AU2), Bouchard\_70 (AU2), Breylor17\_61 (AU1), Breylor17\_65 (AU1), Brunswick\_62 (AU1), Brunswick\_67 (AU1), CapnMurica\_59 (AU1), CapnMurica\_63 (AU1), CastorTray\_65 (AU1), CastorTray\_69 (AU1), Caterpillar\_61 (AU4), Caterpillar\_65 (AU4), Chlochlo\_65 (AU2), Chlochlo\_70 (AU2), Darby\_60 (AU1), Darby\_64 (AU1), DevitoJr\_61 (AU1), DevitoJr\_65 (AU1), Dinallo\_60 (AU1), Dinallo\_64 (AU1), ElephantMan\_61 (AU1), ElephantMan\_66 (AU1), Elver\_164 (FK), Elver\_180 (FK), Gandionco\_160 (FK), Gandionco\_179 (FK), GantcherGoblin\_66 (AU6), GermyBearimy\_79 (FI), Giantsbane\_65 (AU2), Giantsbane\_69 (AU2), Gordon\_59 (AU1), Gordon\_63 (AU1), Hemma\_60 (AU1), Hemma\_65 (AU1), Ingrid\_68 (AU3), Ingrid\_72 (AU3), Inked\_67 (AU7), Issa\_60 (AU1), Issa\_64 (AU1), Jazzy4900\_65 (FI), Jazzy4900\_69 (FI), JeNeSaisPas\_157 (FK), JeNeSaisPas\_175 (FK), KevinMinion\_66 (AU6), Kinny\_71 (AU6), Kureo\_159 (FK), Kureo\_178 (FK), Leathea\_68 (AU6), Lewando\_71 (AU6), LilHuddy\_66 (AU2), LilHuddy\_70 (AU2), Loretta\_65 (AU3), Loretta\_69 (AU3), LucySwiss\_61 (AU1), LucySwiss\_66 (AU1), Makai\_65 (AU5), Makai\_70 (AU5), Mardi\_68 (AU6), Marianna39\_160 (FK), Marianna39\_178 (FK), MediumFry\_62 (AU4), MediumFry\_66 (AU4), MiniBagel\_61 (AU1), MiniBagel\_65 (AU1), Navi1117\_70 (AU6), Nightmare\_63 (AU1), Nightmare\_67 (AU1), Niktson\_61 (AU1), Niktson\_66 (AU1), Nivinsha\_63 (AU1), Nivinsha\_69 (AU1), Onestar\_67 (AW), Paella\_164 (FK), Paella\_181 (FK), Phaby\_67 (AU2), Phaby\_71 (AU2), Phaila\_68 (AU6), PoeMe\_68 (AU6), Qui\_164 (FK), Qui\_181 (FK), Renaldo\_76 (AU6), ScienceWizSam\_62 (AU1), ScienceWizSam\_67 (AU1), Shepard\_67 (AU2), Shepard\_71 (AU2), Stardrop\_68 (AU6), Sunny4976\_64 (FI), Sunny4976\_68 (FI), Synepsis\_60 (AU1), Synepsis\_64 (AU1), Tatanka\_58 (AU1), Tatanka\_61 (AU1), Teacup\_62 (AU1), Teacup\_67 (AU1), Tenney120\_69 (AU6), Tenno\_62 (AU1), Tenno\_66 (AU1), Tipton\_66 (AU2), Tipton\_71 (AU2), Tokki\_70 (AU2), Tokki\_75 (AU2), TrixiePhattel\_69 (AU6), Truckee\_63 (AU5), Truckee\_68 (AU5), Trustiboi\_61 (AU1), Trustiboi\_65 (AU1), Uzumaki\_65 (AU6), Westerlin\_61 (AU1), Westerlin\_65

(AU1), Zeina\_70 (AU6), Zippen\_67 (AU7), Zippen\_71 (AU7),

Start 41:

- Found in 17 of 126 ( 13.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 5.9% of time when present
- Phage (with cluster) where this start called: Muglass\_70 (AU6),

### **Summary by clusters:**

There are 10 clusters represented in this pham: AW, AU1, AU3, AU2, AU5, AU4, AU7, AU6, FI, FK,

Info for manual annotations of cluster AU1:

- Start number 39 was manually annotated 38 times for cluster AU1.

Info for manual annotations of cluster AU2:

- Start number 39 was manually annotated 16 times for cluster AU2.

Info for manual annotations of cluster AU3:

- Start number 39 was manually annotated 4 times for cluster AU3.

Info for manual annotations of cluster AU4:

- Start number 39 was manually annotated 6 times for cluster AU4.

Info for manual annotations of cluster AU5:

- Start number 39 was manually annotated 4 times for cluster AU5.

Info for manual annotations of cluster AU6:

- Start number 39 was manually annotated 14 times for cluster AU6.

Info for manual annotations of cluster AU7:

- Start number 39 was manually annotated 3 times for cluster AU7.

Info for manual annotations of cluster FK:

- Start number 39 was manually annotated 6 times for cluster FK.

### **Gene Information:**

Gene: Acai\_66 Start: 45783, Stop: 46046, Start Num: 39

Candidate Starts for Acai\_66:

(1, 45588), (11, 45633), (12, 45636), (15, 45645), (18, 45663), (19, 45666), (22, 45687), (23, 45690), (28, 45714), (Start: 39 @45783 has 91 MA's), (77, 46005), (79, 46020),

Gene: Acai\_61 Start: 44047, Stop: 44346, Start Num: 39

Candidate Starts for Acai\_61:

(Start: 39 @44047 has 91 MA's), (57, 44179), (58, 44182), (74, 44281),

Gene: Altjira\_70 Start: 44243, Stop: 44527, Start Num: 39

Candidate Starts for Altjira\_70:  
(Start: 39 @44243 has 91 MA's), (41, 44270), (55, 44363),

Gene: Anandi\_73 Start: 46264, Stop: 46551, Start Num: 39  
Candidate Starts for Anandi\_73:  
(1, 46090), (11, 46132), (21, 46183), (23, 46189), (27, 46210), (34, 46228), (37, 46252), (Start: 39 @46264 has 91 MA's), (51, 46378),

Gene: Anandi\_69 Start: 44709, Stop: 44999, Start Num: 39  
Candidate Starts for Anandi\_69:  
(Start: 39 @44709 has 91 MA's), (41, 44739), (47, 44787), (53, 44826), (57, 44841), (58, 44844),

Gene: AreFloNak\_64 Start: 44018, Stop: 44311, Start Num: 39  
Candidate Starts for AreFloNak\_64:  
(Start: 39 @44018 has 91 MA's), (58, 44156),

Gene: AreFloNak\_69 Start: 45830, Stop: 46093, Start Num: 39  
Candidate Starts for AreFloNak\_69:  
(Start: 39 @45830 has 91 MA's), (48, 45908), (79, 46067),

Gene: Argan\_65 Start: 42966, Stop: 43247, Start Num: 39  
Candidate Starts for Argan\_65:  
(Start: 39 @42966 has 91 MA's), (41, 42993), (46, 43038), (52, 43074), (71, 43158), (78, 43203),

Gene: Arzan\_71 Start: 45586, Stop: 45873, Start Num: 39  
Candidate Starts for Arzan\_71:  
(37, 45568), (Start: 39 @45586 has 91 MA's), (73, 45802),

Gene: BarbieDoll\_72 Start: 44655, Stop: 44960, Start Num: 39  
Candidate Starts for BarbieDoll\_72:  
(Start: 39 @44655 has 91 MA's), (41, 44685), (45, 44727), (66, 44853), (79, 44931),

Gene: Barbonzobean\_74 Start: 44903, Stop: 45208, Start Num: 39  
Candidate Starts for Barbonzobean\_74:  
(Start: 39 @44903 has 91 MA's), (45, 44975), (54, 45023),

Gene: Biscute\_68 Start: 44307, Stop: 44612, Start Num: 39  
Candidate Starts for Biscute\_68:  
(Start: 39 @44307 has 91 MA's), (41, 44337), (45, 44379), (66, 44505), (79, 44583),

Gene: BlackHoleSun\_70 Start: 43081, Stop: 43365, Start Num: 39  
Candidate Starts for BlackHoleSun\_70:  
(Start: 39 @43081 has 91 MA's), (40, 43087),

Gene: Bouchard\_65 Start: 44672, Stop: 44965, Start Num: 39  
Candidate Starts for Bouchard\_65:  
(Start: 39 @44672 has 91 MA's),

Gene: Bouchard\_70 Start: 46435, Stop: 46707, Start Num: 39  
Candidate Starts for Bouchard\_70:  
(Start: 39 @46435 has 91 MA's), (70, 46615),

Gene: Breylor17\_61 Start: 44593, Stop: 44886, Start Num: 39

Candidate Starts for Breylor17\_61:  
(Start: 39 @44593 has 91 MA's), (58, 44731),

Gene: Breylor17\_65 Start: 46223, Stop: 46486, Start Num: 39  
Candidate Starts for Breylor17\_65:  
(Start: 39 @46223 has 91 MA's), (48, 46301), (79, 46460),

Gene: Brunswick\_62 Start: 43890, Stop: 44189, Start Num: 39  
Candidate Starts for Brunswick\_62:  
(Start: 39 @43890 has 91 MA's), (57, 44022), (58, 44025), (74, 44124),

Gene: Brunswick\_67 Start: 45626, Stop: 45928, Start Num: 39  
Candidate Starts for Brunswick\_67:  
(1, 45431), (4, 45440), (7, 45455), (15, 45488), (23, 45533), (28, 45557), (29, 45560), (Start: 39 @45626 has 91 MA's), (56, 45755),

Gene: CapnMurica\_59 Start: 44782, Stop: 45072, Start Num: 39  
Candidate Starts for CapnMurica\_59:  
(Start: 39 @44782 has 91 MA's), (57, 44914), (58, 44917),

Gene: CapnMurica\_63 Start: 46364, Stop: 46666, Start Num: 39  
Candidate Starts for CapnMurica\_63:  
(1, 46172), (11, 46217), (12, 46220), (15, 46229), (28, 46298), (Start: 39 @46364 has 91 MA's), (56, 46493),

Gene: CastorTray\_69 Start: 46412, Stop: 46675, Start Num: 39  
Candidate Starts for CastorTray\_69:  
(6, 46238), (8, 46244), (9, 46247), (25, 46334), (30, 46349), (Start: 39 @46412 has 91 MA's), (48, 46490), (79, 46649),

Gene: CastorTray\_65 Start: 44782, Stop: 45075, Start Num: 39  
Candidate Starts for CastorTray\_65:  
(Start: 39 @44782 has 91 MA's), (58, 44920),

Gene: Caterpillar\_61 Start: 43710, Stop: 44000, Start Num: 39  
Candidate Starts for Caterpillar\_61:  
(Start: 39 @43710 has 91 MA's), (53, 43827), (57, 43842), (58, 43845),

Gene: Caterpillar\_65 Start: 45261, Stop: 45530, Start Num: 39  
Candidate Starts for Caterpillar\_65:  
(1, 45066), (7, 45090), (23, 45165), (26, 45183), (28, 45189), (33, 45216), (Start: 39 @45261 has 91 MA's), (48, 45345), (51, 45375),

Gene: Chlochlo\_65 Start: 44198, Stop: 44491, Start Num: 39  
Candidate Starts for Chlochlo\_65:  
(Start: 39 @44198 has 91 MA's),

Gene: Chlochlo\_70 Start: 45962, Stop: 46234, Start Num: 39  
Candidate Starts for Chlochlo\_70:  
(Start: 39 @45962 has 91 MA's), (70, 46142),

Gene: Darby\_60 Start: 43828, Stop: 44121, Start Num: 39  
Candidate Starts for Darby\_60:

(Start: 39 @43828 has 91 MA's), (58, 43966),

Gene: Darby\_64 Start: 45407, Stop: 45670, Start Num: 39

Candidate Starts for Darby\_64:

(Start: 39 @45407 has 91 MA's), (48, 45485), (63, 45545), (79, 45644),

Gene: DevitoJr\_65 Start: 45793, Stop: 46056, Start Num: 39

Candidate Starts for DevitoJr\_65:

(Start: 39 @45793 has 91 MA's), (48, 45871), (79, 46030),

Gene: DevitoJr\_61 Start: 44214, Stop: 44507, Start Num: 39

Candidate Starts for DevitoJr\_61:

(Start: 39 @44214 has 91 MA's), (58, 44352),

Gene: Dinallo\_64 Start: 46677, Stop: 46940, Start Num: 39

Candidate Starts for Dinallo\_64:

(1, 46482), (11, 46527), (12, 46530), (18, 46557), (19, 46560), (22, 46581), (27, 46605), (28, 46608),

(Start: 39 @46677 has 91 MA's), (77, 46899), (79, 46914),

Gene: Dinallo\_60 Start: 45092, Stop: 45382, Start Num: 39

Candidate Starts for Dinallo\_60:

(Start: 39 @45092 has 91 MA's), (57, 45224), (58, 45227),

Gene: ElephantMan\_66 Start: 46256, Stop: 46558, Start Num: 39

Candidate Starts for ElephantMan\_66:

(1, 46061), (11, 46106), (12, 46109), (15, 46118), (18, 46136), (21, 46157), (22, 46160), (23, 46163),

(28, 46187), (Start: 39 @46256 has 91 MA's), (56, 46385),

Gene: ElephantMan\_61 Start: 44520, Stop: 44819, Start Num: 39

Candidate Starts for ElephantMan\_61:

(Start: 39 @44520 has 91 MA's), (57, 44652), (58, 44655), (74, 44754),

Gene: Elver\_180 Start: 88404, Stop: 88703, Start Num: 39

Candidate Starts for Elver\_180:

(Start: 39 @88404 has 91 MA's), (68, 88590), (81, 88686),

Gene: Elver\_164 Start: 81584, Stop: 81901, Start Num: 39

Candidate Starts for Elver\_164:

(24, 81500), (31, 81524), (Start: 39 @81584 has 91 MA's), (48, 81671), (59, 81743), (73, 81830), (77, 81857),

Gene: Gandionco\_179 Start: 87798, Stop: 88097, Start Num: 39

Candidate Starts for Gandionco\_179:

(Start: 39 @87798 has 91 MA's), (68, 87984), (81, 88080),

Gene: Gandionco\_160 Start: 80664, Stop: 80981, Start Num: 39

Candidate Starts for Gandionco\_160:

(24, 80580), (31, 80604), (Start: 39 @80664 has 91 MA's), (48, 80751), (59, 80823), (73, 80910), (77, 80937),

Gene: GantcherGoblin\_66 Start: 43022, Stop: 43303, Start Num: 39

Candidate Starts for GantcherGoblin\_66:

(Start: 39 @43022 has 91 MA's), (40, 43028), (41, 43049), (46, 43094), (52, 43130), (78, 43259),

Gene: GermyBearimy\_79 Start: 47156, Stop: 47434, Start Num: 39  
Candidate Starts for GermyBearimy\_79:  
(31, 47096), (37, 47138), (Start: 39 @47156 has 91 MA's), (67, 47327), (68, 47330), (73, 47363),

Gene: Giantsbane\_69 Start: 44963, Stop: 45232, Start Num: 39  
Candidate Starts for Giantsbane\_69:  
(Start: 39 @44963 has 91 MA's), (49, 45056), (70, 45140), (79, 45206),

Gene: Giantsbane\_65 Start: 43403, Stop: 43696, Start Num: 39  
Candidate Starts for Giantsbane\_65:  
(Start: 39 @43403 has 91 MA's), (41, 43433),

Gene: Gordon\_63 Start: 46285, Stop: 46548, Start Num: 39  
Candidate Starts for Gordon\_63:  
(Start: 39 @46285 has 91 MA's), (48, 46363), (79, 46522),

Gene: Gordon\_59 Start: 44700, Stop: 44999, Start Num: 39  
Candidate Starts for Gordon\_59:  
(Start: 39 @44700 has 91 MA's), (57, 44832), (58, 44835), (74, 44934),

Gene: Hemma\_65 Start: 43443, Stop: 43751, Start Num: 39  
Candidate Starts for Hemma\_65:  
(Start: 39 @43443 has 91 MA's), (43, 43500), (65, 43638), (71, 43665), (76, 43701), (80, 43725),

Gene: Hemma\_60 Start: 41293, Stop: 41586, Start Num: 39  
Candidate Starts for Hemma\_60:  
(Start: 39 @41293 has 91 MA's), (50, 41407), (57, 41428), (61, 41455),

Gene: Ingrid\_72 Start: 46231, Stop: 46503, Start Num: 39  
Candidate Starts for Ingrid\_72:  
(Start: 39 @46231 has 91 MA's), (46, 46303), (70, 46411), (79, 46477),

Gene: Ingrid\_68 Start: 44584, Stop: 44877, Start Num: 39  
Candidate Starts for Ingrid\_68:  
(Start: 39 @44584 has 91 MA's), (57, 44719), (61, 44746),

Gene: Inked\_67 Start: 45260, Stop: 45550, Start Num: 39  
Candidate Starts for Inked\_67:  
(Start: 39 @45260 has 91 MA's), (53, 45377), (57, 45392), (58, 45395), (69, 45452), (75, 45488),

Gene: Issa\_64 Start: 45459, Stop: 45722, Start Num: 39  
Candidate Starts for Issa\_64:  
(1, 45267), (11, 45312), (12, 45315), (15, 45324), (28, 45393), (Start: 39 @45459 has 91 MA's), (77, 45681), (79, 45696),

Gene: Issa\_60 Start: 43876, Stop: 44166, Start Num: 39  
Candidate Starts for Issa\_60:  
(Start: 39 @43876 has 91 MA's), (57, 44008), (58, 44011),

Gene: Jazzy4900\_65 Start: 44572, Stop: 44859, Start Num: 39  
Candidate Starts for Jazzy4900\_65:  
(Start: 39 @44572 has 91 MA's), (68, 44758), (72, 44788), (73, 44791),

Gene: Jazzy4900\_69 Start: 46463, Stop: 46738, Start Num: 39

Candidate Starts for Jazzy4900\_69:

(Start: 39 @46463 has 91 MA's), (63, 46610), (67, 46631), (68, 46634), (70, 46643), (71, 46652), (73, 46667), (77, 46694),

Gene: JeNeSaisPas\_157 Start: 81260, Stop: 81577, Start Num: 39

Candidate Starts for JeNeSaisPas\_157:

(24, 81176), (31, 81200), (Start: 39 @81260 has 91 MA's), (48, 81347), (59, 81419), (73, 81506), (77, 81533),

Gene: JeNeSaisPas\_175 Start: 88525, Stop: 88824, Start Num: 39

Candidate Starts for JeNeSaisPas\_175:

(Start: 39 @88525 has 91 MA's), (68, 88711), (81, 88807),

Gene: KevinMinion\_66 Start: 43917, Stop: 44198, Start Num: 39

Candidate Starts for KevinMinion\_66:

(Start: 39 @43917 has 91 MA's), (41, 43944), (52, 44025), (62, 44064), (64, 44079), (71, 44109), (78, 44154),

Gene: Kinny\_71 Start: 45135, Stop: 45440, Start Num: 39

Candidate Starts for Kinny\_71:

(Start: 39 @45135 has 91 MA's), (41, 45165), (45, 45207), (66, 45333), (79, 45411),

Gene: Kureo\_178 Start: 87235, Stop: 87534, Start Num: 39

Candidate Starts for Kureo\_178:

(Start: 39 @87235 has 91 MA's), (68, 87421), (81, 87517),

Gene: Kureo\_159 Start: 80759, Stop: 81076, Start Num: 39

Candidate Starts for Kureo\_159:

(24, 80675), (31, 80699), (Start: 39 @80759 has 91 MA's), (48, 80846), (59, 80918), (73, 81005), (77, 81032),

Gene: Leathea\_68 Start: 42920, Stop: 43210, Start Num: 39

Candidate Starts for Leathea\_68:

(Start: 39 @42920 has 91 MA's), (44, 42989), (73, 43139),

Gene: Lewando\_71 Start: 44727, Stop: 45032, Start Num: 39

Candidate Starts for Lewando\_71:

(Start: 39 @44727 has 91 MA's), (45, 44799), (66, 44925), (79, 45003),

Gene: LilHuddy\_70 Start: 46088, Stop: 46360, Start Num: 39

Candidate Starts for LilHuddy\_70:

(Start: 39 @46088 has 91 MA's), (70, 46268),

Gene: LilHuddy\_66 Start: 44510, Stop: 44803, Start Num: 39

Candidate Starts for LilHuddy\_66:

(Start: 39 @44510 has 91 MA's),

Gene: Loretta\_69 Start: 46231, Stop: 46503, Start Num: 39

Candidate Starts for Loretta\_69:

(Start: 39 @46231 has 91 MA's), (46, 46303), (70, 46411), (79, 46477),

Gene: Loretta\_65 Start: 44584, Stop: 44877, Start Num: 39  
Candidate Starts for Loretta\_65:  
(Start: 39 @44584 has 91 MA's), (57, 44719), (61, 44746),

Gene: LucySwiss\_66 Start: 45401, Stop: 45664, Start Num: 39  
Candidate Starts for LucySwiss\_66:  
(Start: 39 @45401 has 91 MA's), (77, 45623), (79, 45638),

Gene: LucySwiss\_61 Start: 43671, Stop: 43970, Start Num: 39  
Candidate Starts for LucySwiss\_61:  
(Start: 39 @43671 has 91 MA's), (57, 43803), (58, 43806), (74, 43905),

Gene: Makai\_65 Start: 44655, Stop: 44951, Start Num: 39  
Candidate Starts for Makai\_65:  
(Start: 39 @44655 has 91 MA's), (57, 44787), (58, 44790), (74, 44886),

Gene: Makai\_70 Start: 46375, Stop: 46647, Start Num: 39  
Candidate Starts for Makai\_70:  
(Start: 39 @46375 has 91 MA's), (70, 46555), (77, 46606),

Gene: Mardi\_68 Start: 43484, Stop: 43768, Start Num: 39  
Candidate Starts for Mardi\_68:  
(Start: 39 @43484 has 91 MA's), (41, 43511), (64, 43649), (78, 43724),

Gene: Marianna39\_160 Start: 81269, Stop: 81586, Start Num: 39  
Candidate Starts for Marianna39\_160:  
(24, 81185), (31, 81209), (Start: 39 @81269 has 91 MA's), (48, 81356), (59, 81428), (73, 81515), (77, 81542),

Gene: Marianna39\_178 Start: 88401, Stop: 88700, Start Num: 39  
Candidate Starts for Marianna39\_178:  
(Start: 39 @88401 has 91 MA's), (68, 88587), (81, 88683),

Gene: MediumFry\_62 Start: 44006, Stop: 44296, Start Num: 39  
Candidate Starts for MediumFry\_62:  
(Start: 39 @44006 has 91 MA's), (53, 44123), (57, 44138), (58, 44141),

Gene: MediumFry\_66 Start: 45539, Stop: 45841, Start Num: 39  
Candidate Starts for MediumFry\_66:  
(1, 45362), (4, 45371), (11, 45404), (22, 45458), (26, 45479), (Start: 39 @45539 has 91 MA's),

Gene: MiniBagel\_61 Start: 44764, Stop: 45063, Start Num: 39  
Candidate Starts for MiniBagel\_61:  
(Start: 39 @44764 has 91 MA's), (57, 44896), (74, 44998),

Gene: MiniBagel\_65 Start: 46355, Stop: 46624, Start Num: 39  
Candidate Starts for MiniBagel\_65:  
(3, 46163), (5, 46172), (10, 46196), (13, 46208), (14, 46211), (16, 46217), (17, 46220), (30, 46289),  
(Start: 39 @46355 has 91 MA's), (70, 46532),

Gene: Muglass\_70 Start: 44241, Stop: 44516, Start Num: 41  
Candidate Starts for Muglass\_70:  
(Start: 39 @44211 has 91 MA's), (41, 44241), (45, 44283), (66, 44409), (79, 44487),

Gene: Navi1117\_70 Start: 43926, Stop: 44207, Start Num: 39  
Candidate Starts for Navi1117\_70:  
(Start: 39 @43926 has 91 MA's), (41, 43953), (52, 44034), (62, 44073), (64, 44088), (71, 44118), (78, 44163),

Gene: Nightmare\_63 Start: 45062, Stop: 45361, Start Num: 39  
Candidate Starts for Nightmare\_63:  
(Start: 39 @45062 has 91 MA's), (57, 45194), (58, 45197), (74, 45296),

Gene: Nightmare\_67 Start: 46698, Stop: 46961, Start Num: 39  
Candidate Starts for Nightmare\_67:  
(Start: 39 @46698 has 91 MA's), (48, 46776), (79, 46935),

Gene: Niktson\_61 Start: 44520, Stop: 44819, Start Num: 39  
Candidate Starts for Niktson\_61:  
(Start: 39 @44520 has 91 MA's), (57, 44652), (58, 44655), (74, 44754),

Gene: Niktson\_66 Start: 46256, Stop: 46558, Start Num: 39  
Candidate Starts for Niktson\_66:  
(1, 46061), (11, 46106), (12, 46109), (15, 46118), (18, 46136), (21, 46157), (22, 46160), (23, 46163), (28, 46187), (Start: 39 @46256 has 91 MA's), (56, 46385),

Gene: Nivinsha\_63 Start: 44018, Stop: 44311, Start Num: 39  
Candidate Starts for Nivinsha\_63:  
(Start: 39 @44018 has 91 MA's), (58, 44156),

Gene: Nivinsha\_69 Start: 45830, Stop: 46093, Start Num: 39  
Candidate Starts for Nivinsha\_69:  
(Start: 39 @45830 has 91 MA's), (48, 45908), (79, 46067),

Gene: Onestar\_67 Start: 44130, Stop: 44408, Start Num: 39  
Candidate Starts for Onestar\_67:  
(36, 44103), (Start: 39 @44130 has 91 MA's), (44, 44196), (47, 44205), (67, 44298), (73, 44334),

Gene: Paella\_181 Start: 89280, Stop: 89579, Start Num: 39  
Candidate Starts for Paella\_181:  
(Start: 39 @89280 has 91 MA's), (68, 89466), (81, 89562),

Gene: Paella\_164 Start: 82455, Stop: 82772, Start Num: 39  
Candidate Starts for Paella\_164:  
(24, 82371), (31, 82395), (Start: 39 @82455 has 91 MA's), (48, 82542), (59, 82614), (73, 82701), (77, 82728),

Gene: Phaby\_67 Start: 45074, Stop: 45367, Start Num: 39  
Candidate Starts for Phaby\_67:  
(Start: 39 @45074 has 91 MA's),

Gene: Phaby\_71 Start: 46619, Stop: 46891, Start Num: 39  
Candidate Starts for Phaby\_71:  
(Start: 39 @46619 has 91 MA's), (70, 46799), (79, 46865),

Gene: Phaila\_68 Start: 43149, Stop: 43433, Start Num: 39

Candidate Starts for Phaila\_68:  
(Start: 39 @43149 has 91 MA's), (41, 43176), (64, 43314),

Gene: PoeMe\_68 Start: 43634, Stop: 43918, Start Num: 39  
Candidate Starts for PoeMe\_68:  
(Start: 39 @43634 has 91 MA's), (40, 43640),

Gene: Qui\_181 Start: 89277, Stop: 89576, Start Num: 39  
Candidate Starts for Qui\_181:  
(Start: 39 @89277 has 91 MA's), (68, 89463), (81, 89559),

Gene: Qui\_164 Start: 82455, Stop: 82772, Start Num: 39  
Candidate Starts for Qui\_164:  
(24, 82371), (31, 82395), (Start: 39 @82455 has 91 MA's), (48, 82542), (59, 82614), (73, 82701), (77, 82728),

Gene: Renaldo\_76 Start: 45093, Stop: 45398, Start Num: 39  
Candidate Starts for Renaldo\_76:  
(Start: 39 @45093 has 91 MA's), (45, 45165), (66, 45291), (79, 45369),

Gene: ScienceWizSam\_62 Start: 44180, Stop: 44473, Start Num: 39  
Candidate Starts for ScienceWizSam\_62:  
(Start: 39 @44180 has 91 MA's), (58, 44318),

Gene: ScienceWizSam\_67 Start: 45992, Stop: 46255, Start Num: 39  
Candidate Starts for ScienceWizSam\_67:  
(Start: 39 @45992 has 91 MA's), (48, 46070), (79, 46229),

Gene: Shepard\_71 Start: 45944, Stop: 46213, Start Num: 39  
Candidate Starts for Shepard\_71:  
(Start: 39 @45944 has 91 MA's), (70, 46121),

Gene: Shepard\_67 Start: 44369, Stop: 44662, Start Num: 39  
Candidate Starts for Shepard\_67:  
(Start: 39 @44369 has 91 MA's),

Gene: Stardrop\_68 Start: 43736, Stop: 44020, Start Num: 39  
Candidate Starts for Stardrop\_68:  
(Start: 39 @43736 has 91 MA's), (40, 43742),

Gene: Sunny4976\_68 Start: 46463, Stop: 46738, Start Num: 39  
Candidate Starts for Sunny4976\_68:  
(Start: 39 @46463 has 91 MA's), (63, 46610), (67, 46631), (68, 46634), (70, 46643), (71, 46652), (73, 46667), (77, 46694),

Gene: Sunny4976\_64 Start: 44572, Stop: 44859, Start Num: 39  
Candidate Starts for Sunny4976\_64:  
(Start: 39 @44572 has 91 MA's), (68, 44758), (72, 44788), (73, 44791),

Gene: Synopsis\_64 Start: 45760, Stop: 46023, Start Num: 39  
Candidate Starts for Synopsis\_64:  
(Start: 39 @45760 has 91 MA's), (48, 45838), (79, 45997),

Gene: Synepsis\_60 Start: 44184, Stop: 44477, Start Num: 39  
Candidate Starts for Synepsis\_60:  
(Start: 39 @44184 has 91 MA's), (58, 44322),

Gene: Tatanka\_61 Start: 45896, Stop: 46159, Start Num: 39  
Candidate Starts for Tatanka\_61:  
(Start: 39 @45896 has 91 MA's), (48, 45974), (79, 46133),

Gene: Tatanka\_58 Start: 44317, Stop: 44610, Start Num: 39  
Candidate Starts for Tatanka\_58:  
(Start: 39 @44317 has 91 MA's), (58, 44455), (60, 44467),

Gene: Teacup\_62 Start: 44599, Stop: 44898, Start Num: 39  
Candidate Starts for Teacup\_62:  
(Start: 39 @44599 has 91 MA's), (57, 44731), (58, 44734), (74, 44833),

Gene: Teacup\_67 Start: 46335, Stop: 46598, Start Num: 39  
Candidate Starts for Teacup\_67:  
(1, 46140), (11, 46185), (12, 46188), (15, 46197), (18, 46215), (21, 46236), (22, 46239), (28, 46266),  
(Start: 39 @46335 has 91 MA's), (77, 46557), (79, 46572),

Gene: Tenney120\_69 Start: 43682, Stop: 43963, Start Num: 39  
Candidate Starts for Tenney120\_69:  
(Start: 39 @43682 has 91 MA's), (41, 43709), (46, 43754), (52, 43790), (78, 43919),

Gene: Tenno\_62 Start: 44837, Stop: 45127, Start Num: 39  
Candidate Starts for Tenno\_62:  
(Start: 39 @44837 has 91 MA's), (57, 44969), (58, 44972),

Gene: Tenno\_66 Start: 46419, Stop: 46703, Start Num: 39  
Candidate Starts for Tenno\_66:  
(1, 46227), (4, 46236), (11, 46272), (12, 46275), (15, 46284), (18, 46302), (22, 46326), (Start: 39 @46419 has 91 MA's), (78, 46662),

Gene: Tipton\_71 Start: 46456, Stop: 46728, Start Num: 39  
Candidate Starts for Tipton\_71:  
(Start: 39 @46456 has 91 MA's), (70, 46636),

Gene: Tipton\_66 Start: 44692, Stop: 44985, Start Num: 39  
Candidate Starts for Tipton\_66:  
(Start: 39 @44692 has 91 MA's),

Gene: Tokki\_70 Start: 44723, Stop: 45016, Start Num: 39  
Candidate Starts for Tokki\_70:  
(Start: 39 @44723 has 91 MA's),

Gene: Tokki\_75 Start: 46487, Stop: 46759, Start Num: 39  
Candidate Starts for Tokki\_75:  
(Start: 39 @46487 has 91 MA's), (70, 46667),

Gene: TrixiePhattel\_69 Start: 43311, Stop: 43595, Start Num: 39  
Candidate Starts for TrixiePhattel\_69:

(20, 43206), (21, 43209), (25, 43230), (29, 43242), (32, 43260), (35, 43281), (38, 43296), (Start: 39 @43311 has 91 MA's), (41, 43338), (42, 43356), (64, 43476),

Gene: Truckee\_63 Start: 44439, Stop: 44735, Start Num: 39  
Candidate Starts for Truckee\_63:  
(Start: 39 @44439 has 91 MA's), (57, 44571), (58, 44574), (74, 44670),

Gene: Truckee\_68 Start: 46153, Stop: 46425, Start Num: 39  
Candidate Starts for Truckee\_68:  
(Start: 39 @46153 has 91 MA's), (70, 46333), (77, 46384),

Gene: Trustiboi\_61 Start: 44439, Stop: 44732, Start Num: 39  
Candidate Starts for Trustiboi\_61:  
(Start: 39 @44439 has 91 MA's), (58, 44577),

Gene: Trustiboi\_65 Start: 46015, Stop: 46278, Start Num: 39  
Candidate Starts for Trustiboi\_65:  
(Start: 39 @46015 has 91 MA's), (48, 46093), (63, 46153), (79, 46252),

Gene: Uzumaki\_65 Start: 43123, Stop: 43404, Start Num: 39  
Candidate Starts for Uzumaki\_65:  
(Start: 39 @43123 has 91 MA's), (40, 43129), (41, 43150), (46, 43195), (52, 43231), (78, 43360),

Gene: Westerlin\_65 Start: 47104, Stop: 47367, Start Num: 39  
Candidate Starts for Westerlin\_65:  
(Start: 39 @47104 has 91 MA's), (48, 47182), (63, 47242), (79, 47341),

Gene: Westerlin\_61 Start: 45519, Stop: 45818, Start Num: 39  
Candidate Starts for Westerlin\_61:  
(Start: 39 @45519 has 91 MA's), (57, 45651), (58, 45654), (74, 45753),

Gene: Zeina\_70 Start: 43817, Stop: 44101, Start Num: 39  
Candidate Starts for Zeina\_70:  
(Start: 39 @43817 has 91 MA's), (41, 43844), (64, 43982),

Gene: Zippen\_67 Start: 45128, Stop: 45418, Start Num: 39  
Candidate Starts for Zippen\_67:  
(Start: 39 @45128 has 91 MA's), (53, 45245), (57, 45260), (58, 45263), (69, 45320), (75, 45356),

Gene: Zippen\_71 Start: 46707, Stop: 46982, Start Num: 39  
Candidate Starts for Zippen\_71:  
(2, 46512), (9, 46539), (14, 46563), (15, 46566), (26, 46629), (28, 46635), (33, 46662), (Start: 39 @46707 has 91 MA's), (46, 46779), (47, 46782), (70, 46890), (77, 46941),