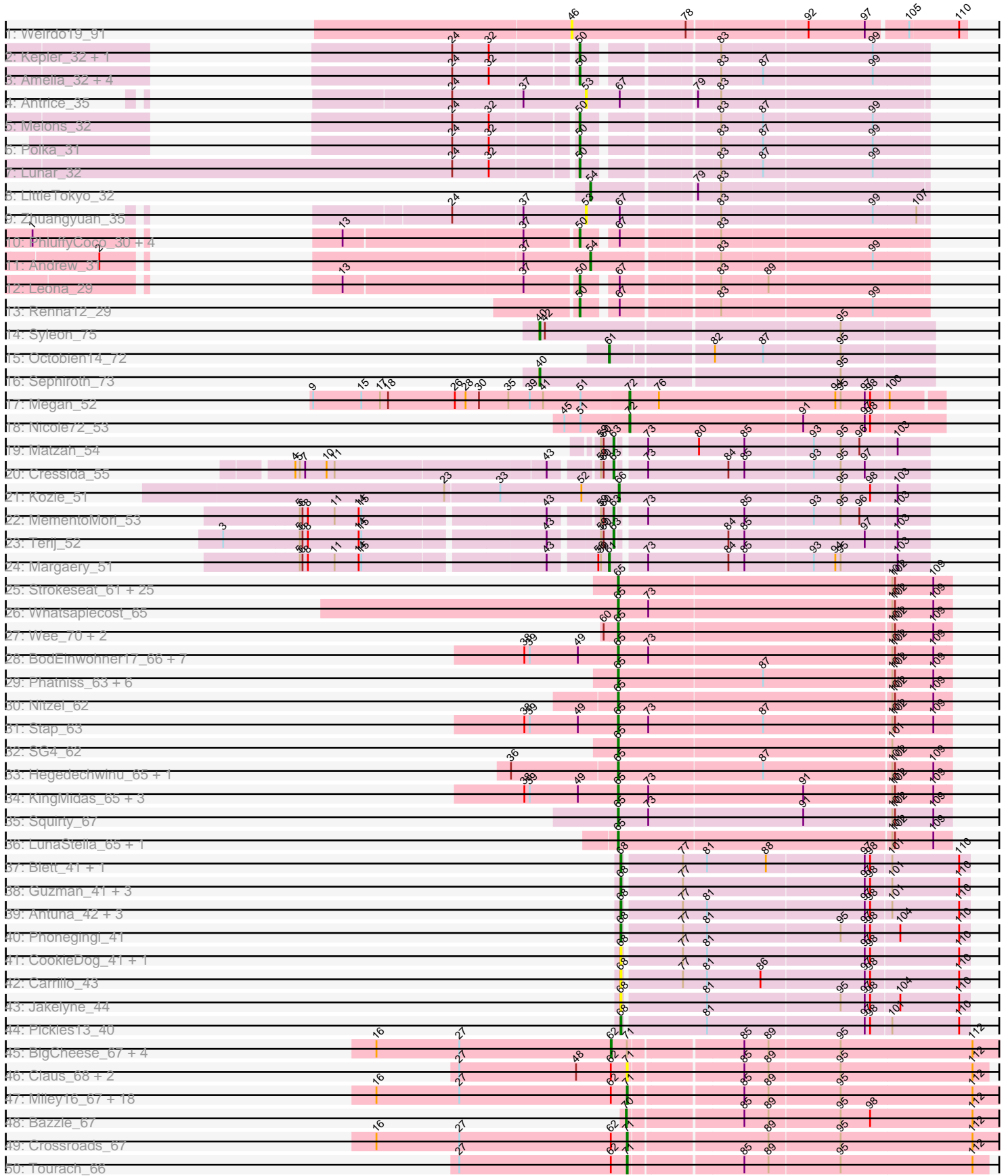
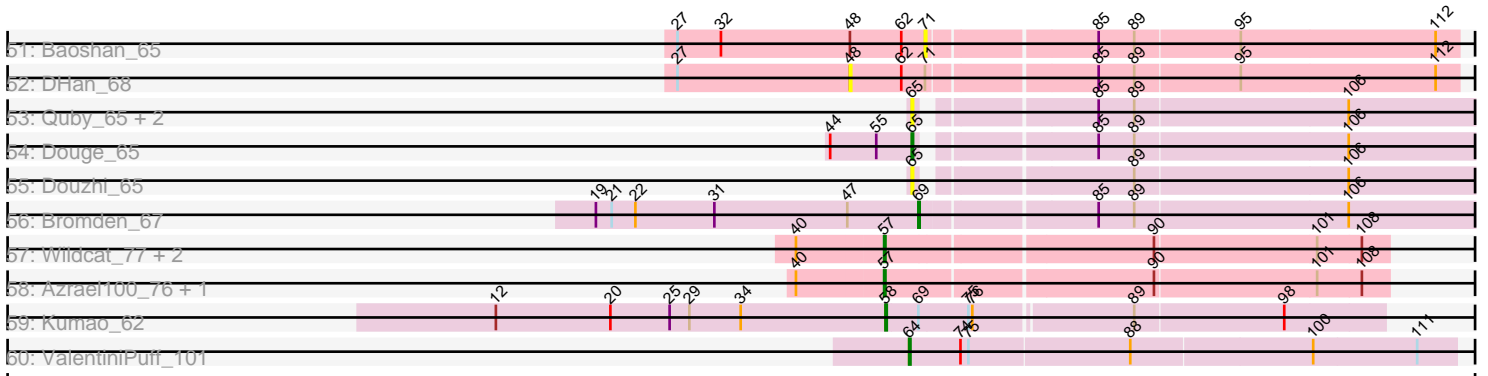


Pham 202737



Pham 202737



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 202737 Report

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

Pham number 202737 has 151 members, 27 are drafts.

Phages represented in each track:

- Track 1 : Weirdo19\_91
- Track 2 : Kepler\_32, Daob\_33
- Track 3 : Amelia\_32, HannahPhantana\_32, Cote\_33, Coral\_31, Bedetta\_34
- Track 4 : Antrice\_35
- Track 5 : Melons\_32
- Track 6 : Polka\_31
- Track 7 : Lunar\_32
- Track 8 : LittleTokyo\_32
- Track 9 : Zhuangyuan\_35
- Track 10 : PhluffyCoco\_30, RedFox\_30, Glotell\_32, Juno112\_29, AmiCi24\_29
- Track 11 : Andrew\_31
- Track 12 : Leona\_29
- Track 13 : Renna12\_29
- Track 14 : Syleon\_75
- Track 15 : Octobien14\_72
- Track 16 : Sephiroth\_73
- Track 17 : Megan\_52
- Track 18 : Nicole72\_53
- Track 19 : Matzah\_54
- Track 20 : Cressida\_55
- Track 21 : Kozie\_51
- Track 22 : MementoMori\_53
- Track 23 : Terij\_52
- Track 24 : Margaery\_51
- Track 25 : Strokeseat\_61, Melissauren88\_63, WillSterrel\_66, Plumbus\_68, Ovechkin\_65, DotProduct\_60, Donkeykong\_68, SassyB\_59, Phalconet\_63, Florinda\_76, Girafales\_73, Ms6\_62, IrishSherpFalk\_66, Flathead\_66, PopTart\_59, Spartacus\_67, Seagreen\_64, Filuzino\_63, Shauna1\_63, Phanphagia\_61, DLane\_60, StAnnes\_63, Rialto\_70, Hlubikazi\_61, Quico\_73, Mandlovu\_61
- Track 26 : Whatsapiecost\_65
- Track 27 : Wee\_70, DeadP\_72, Taj\_70
- Track 28 : BodEinwohner17\_66, Scottish\_64, IbOuu\_67, Geralt\_60, Deb65\_60, Empress\_64, Nimbo\_59, OldBen\_63
- Track 29 : Phatniss\_63, Llij\_61, DirtMcgirt\_64, Enby\_66, Lorde\_65, UncleRicky\_64, Drago\_62
- Track 30 : Nitzel\_62
- Track 31 : Stap\_63

- Track 32 : SG4\_62
- Track 33 : Hegedechwinu\_65, Gandalph\_68
- Track 34 : KingMidas\_65, Sassafra\_64, RedBird\_64, Dorothy\_64
- Track 35 : Squirty\_67
- Track 36 : LunaStella\_65, TChen\_67
- Track 37 : Blett\_41, Bush\_42
- Track 38 : Guzman\_41, Appa\_41, Losacky\_44, PhillyJawn\_42
- Track 39 : Antuna\_42, Warren\_41, Dropshot\_41, MenE\_42
- Track 40 : Phonegingi\_41
- Track 41 : CookieDog\_41, Phingu\_44
- Track 42 : Carrillo\_43
- Track 43 : Jakelyne\_44
- Track 44 : Pickles13\_40
- Track 45 : BigCheese\_67, Lewan\_68, BobsGarage\_67, Nicholasp3\_67, Vetrix\_67
- Track 46 : Claus\_68, ZhongYanYuan\_66, DanBing\_68
- Track 47 : Miley16\_67, Wigglewiggle\_67, Gabriela\_64, Zakai\_68, Finemlucis\_67, GuuelaD\_66, Gardann\_68, MkaliMitinis3\_68, Breezona\_67, Underpass\_59, Sarshaun\_68, Itos\_66, LilDestine\_67, Rumpelstiltskin\_66, Wilder\_68, Loadrie\_66, Kahlid\_67, Hafay\_69, Winky\_67
- Track 48 : Bazzle\_67
- Track 49 : Crossroads\_67
- Track 50 : Tourach\_66
- Track 51 : Baoshan\_65
- Track 52 : DHan\_68
- Track 53 : Quby\_65, PYPDinur\_63, FarmResident\_67
- Track 54 : Douge\_65
- Track 55 : Douzhi\_65
- Track 56 : Bromden\_67
- Track 57 : Wildcat\_77, MaryV\_77, EniyanLRS\_168
- Track 58 : Azrael100\_76, Cosmo\_77
- Track 59 : Kumao\_62
- Track 60 : ValentiniPuff\_101

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

The start number called the most often in the published annotations is 65, it was called in 56 of the 124 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- BodEinwohner17\_66, DLane\_60, DeadP\_72, Deb65\_60, DirtMcgirt\_64, Donkeykong\_68, Dorothy\_64, DotProduct\_60, Douge\_65, Douzhi\_65, Drago\_62, Empress\_64, Enby\_66, FarmResident\_67, Filuzino\_63, Flathead\_66, Florinda\_76, Gandalph\_68, Geralt\_60, Girafales\_73, Hegedechwinu\_65, Hlubikazi\_61, IbOuu\_67, IrishSherpFalk\_66, KingMidas\_65, Llij\_61, Lorde\_65, LunaStella\_65, Mandlovu\_61, Melissauren88\_63, Ms6\_62, Nimbo\_59, Nitzel\_62, OldBen\_63, Ovechkin\_65, PYPDinur\_63, Phalconet\_63, Phanphagia\_61, Phatniss\_63, Plumbus\_68, PopTart\_59, Quby\_65, Quico\_73, RedBird\_64, Rialto\_70, SG4\_62, Sassafra\_64, SassyB\_59, Scottish\_64, Seagreen\_64, Shauna1\_63, Spartacus\_67, Squirty\_67, StAnnes\_63, Stap\_63, Strokeseat\_61, TChen\_67, Taj\_70, UncleRicky\_64, Wee\_70, Whatsapiecost\_65, WillSterrel\_66,

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

- 

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

- Amelia\_32, AmiCi24\_29, Andrew\_31, Antrice\_35, Antuna\_42, Appa\_41, Azrael100\_76, Baoshan\_65, Bazzle\_67, Bedetta\_34, BigCheese\_67, Blett\_41, BobsGarage\_67, Breezona\_67, Bromden\_67, Bush\_42, Carrillo\_43, Claus\_68, CookieDog\_41, Coral\_31, Cosmo\_77, Cote\_33, Cressida\_55, Crossroads\_67, DHan\_68, DanBing\_68, Daob\_33, Dropshot\_41, EniyanLRS\_168, Finemlucis\_67, Gabriela\_64, Gardann\_68, Glotell\_32, GuuelaD\_66, Guzman\_41, Hafay\_69, HannahPhantana\_32, Itos\_66, Jakelyne\_44, Juno112\_29, Kahlid\_67, Kepler\_32, Kozie\_51, Kumao\_62, Leona\_29, Lewan\_68, LilDestine\_67, LittleTokyo\_32, Loadrie\_66, Losacky\_44, Lunar\_32, Margaery\_51, MaryV\_77, Matzah\_54, Megan\_52, Melons\_32, MementoMori\_53, MenE\_42, Miley16\_67, MkaliMitinis3\_68, Nicholasp3\_67, Nicole72\_53, Octobien14\_72, PhillyJawn\_42, Phingu\_44, PhluffyCoco\_30, Phonegingi\_41, Pickles13\_40, Polka\_31, RedFox\_30, Renna12\_29, Rumpelstiltskin\_66, Sarshaun\_68, Sephiroth\_73, Syleon\_75, Terij\_52, Tourach\_66, Underpass\_59, ValentiniPuff\_101, Vetrrix\_67, Warren\_41, Weirido19\_91, Wigglewiggie\_67, Wildcat\_77, Wilder\_68, Winky\_67, Zakai\_68, ZhongYanYuan\_66, Zhuangyuan\_35,

### Summary by start number:

Start 40:

- Found in 7 of 151 ( 4.6% ) of genes in pham
- Manual Annotations of this start: 2 of 124
- Called 28.6% of time when present
- Phage (with cluster) where this start called: Sephiroth\_73 (DU1), Syleon\_75 (DU1),

Start 46:

- Found in 1 of 151 ( 0.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Weirido19\_91 (AH),

Start 48:

- Found in 5 of 151 ( 3.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 20.0% of time when present
- Phage (with cluster) where this start called: DHan\_68 (L2),

Start 50:

- Found in 17 of 151 ( 11.3% ) of genes in pham
- Manual Annotations of this start: 14 of 124
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amelia\_32 (AS2), AmiCi24\_29 (AS3), Bedetta\_34 (AS2), Coral\_31 (AS2), Cote\_33 (AS2), Daob\_33 (AS2), Glotell\_32 (AS3), HannahPhantana\_32 (AS2), Juno112\_29 (AS3), Kepler\_32 (AS2), Leona\_29 (AS3), Lunar\_32 (AS2), Melons\_32 (AS2), PhluffyCoco\_30 (AS3), Polka\_31 (AS2), RedFox\_30 (AS3), Renna12\_29 (AS3),

Start 53:

- Found in 2 of 151 ( 1.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Antrice\_35 (AS2), Zhuangyuan\_35 (AS2),

Start 54:

- Found in 2 of 151 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 2 of 124
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Andrew\_31 (AS3), LittleTokyo\_32 (AS2),

Start 57:

- Found in 5 of 151 ( 3.3% ) of genes in pham
- Manual Annotations of this start: 5 of 124
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Azrael100\_76 (V), Cosmo\_77 (V), EniyanLRS\_168 (V), MaryV\_77 (V), Wildcat\_77 (V),

Start 58:

- Found in 1 of 151 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 124
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kumao\_62 (singleton),

Start 61:

- Found in 2 of 151 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 2 of 124
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Margaery\_51 (EI), Octobien14\_72 (DU1),

Start 62:

- Found in 31 of 151 ( 20.5% ) of genes in pham
- Manual Annotations of this start: 5 of 124
- Called 16.1% of time when present
- Phage (with cluster) where this start called: BigCheese\_67 (L2), BobsGarage\_67 (L2), Lewan\_68 (L2), Nicholasp3\_67 (L2), Vetrix\_67 (L2),

Start 63:

- Found in 4 of 151 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 4 of 124
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cressida\_55 (EI), Matzah\_54 (EI), MementoMori\_53 (EI), Terij\_52 (EI),

Start 64:

- Found in 1 of 151 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 124
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ValentiniPuff\_101 (singleton),

Start 65:

- Found in 62 of 151 ( 41.1% ) of genes in pham
- Manual Annotations of this start: 56 of 124
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BodEinwohner17\_66 (F1), DLane\_60 (F1), DeadP\_72 (F1), Deb65\_60 (F1), DirtMcgirt\_64 (F1), Donkeykong\_68 (F1), Dorothy\_64 (F1), DotProduct\_60 (F1), Douge\_65 (L4), Douzhi\_65 (L4), Drago\_62 (F1), Empress\_64 (F1), Enby\_66 (F1), FarmResident\_67 (L4), Filuzino\_63 (F1), Flathead\_66 (F1), Florinda\_76 (F1), Gandalph\_68 (F1), Geralt\_60 (F1), Girafales\_73 (F1), Hegedechwinu\_65 (F1), Hlubikazi\_61 (F1), IbOuu\_67 (F1), IrishSherpFalk\_66 (F1), KingMidas\_65 (F1), Llij\_61 (F1), Lorde\_65 (F1), LunaStella\_65 (F4), Mandlovu\_61 (F1), Melissauren88\_63 (F1), Ms6\_62 (F1), Nimbo\_59 (F1), Nitzel\_62 (F1), OldBen\_63 (F1), Ovechkin\_65 (F1), PYPDinur\_63 (L4), Phalconet\_63 (F1), Phanphagia\_61 (F1), Phatniss\_63 (F1), Plumbus\_68 (F1), PopTart\_59 (F1), Quby\_65 (L4), Quico\_73 (F1), RedBird\_64 (F1), Rialto\_70 (F1), SG4\_62 (F1), Sassafras\_64 (F1), SassyB\_59 (F1), Scottish\_64 (F1), Seagreen\_64 (F1), Shauna1\_63 (F1), Spartacus\_67 (F1), Squirty\_67 (F3), StAnnes\_63 (F1), Stap\_63 (F1), Strokeseat\_61 (F1), TChen\_67 (F4), Taj\_70 (F1), UncleRicky\_64 (F1), Wee\_70 (F1), Whatsapiecost\_65 (F1), WillSterrel\_66 (F1),

#### Start 66:

- Found in 1 of 151 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 124
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kozie\_51 (EI),

#### Start 68:

- Found in 16 of 151 ( 10.6% ) of genes in pham
- Manual Annotations of this start: 9 of 124
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Antuna\_42 (GA), Appa\_41 (GA), Blett\_41 (GA), Bush\_42 (GA), Carrillo\_43 (GA), CookieDog\_41 (GA), Dropshot\_41 (GA), Guzman\_41 (GA), Jakelyne\_44 (GA), Losacky\_44 (GA), MenE\_42 (GA), PhillyJawn\_42 (GA), Phingu\_44 (GA), Phonegingi\_41 (GA), Pickles13\_40 (GA), Warren\_41 (GA),

#### Start 69:

- Found in 2 of 151 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 1 of 124
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Bromden\_67 (L4),

#### Start 70:

- Found in 1 of 151 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 124
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bazzle\_67 (L2),

#### Start 71:

- Found in 31 of 151 ( 20.5% ) of genes in pham
- Manual Annotations of this start: 18 of 124
- Called 80.6% of time when present
- Phage (with cluster) where this start called: Baoshan\_65 (L2), Breezona\_67 (L2), Claus\_68 (L2), Crossroads\_67 (L2), DanBing\_68 (L2), Finemlucis\_67 (L2),

Gabriela\_64 (L2), Gardann\_68 (L2), GuuelaD\_66 (L2), Hafay\_69 (L2), Itos\_66 (L2), Kahlid\_67 (L2), LilDestine\_67 (L2), Loadrie\_66 (L2), Miley16\_67 (L2), MkaliMitinis3\_68 (L2), Rumpelstiltskin\_66 (L2), Sarshaun\_68 (L2), Tourach\_66 (L2), Underpass\_59 (L2), Wigglewiggle\_67 (L2), Wilder\_68 (L2), Winky\_67 (L2), Zakai\_68 (L2), ZhongYanYuan\_66 (L2),

Start 72:

- Found in 2 of 151 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 2 of 124
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Megan\_52 (EC), Nicole72\_53 (EC),

### **Summary by clusters:**

There are 14 clusters represented in this pham: AS3, F1, singleton, F3, EI, AS2, AH, F4, EC, L4, L2, GA, V, DU1,

Info for manual annotations of cluster AS2:

- Start number 50 was manually annotated 9 times for cluster AS2.
- Start number 54 was manually annotated 1 time for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 50 was manually annotated 5 times for cluster AS3.
- Start number 54 was manually annotated 1 time for cluster AS3.

Info for manual annotations of cluster DU1:

- Start number 40 was manually annotated 2 times for cluster DU1.
- Start number 61 was manually annotated 1 time for cluster DU1.

Info for manual annotations of cluster EC:

- Start number 72 was manually annotated 2 times for cluster EC.

Info for manual annotations of cluster EI:

- Start number 61 was manually annotated 1 time for cluster EI.
- Start number 63 was manually annotated 4 times for cluster EI.
- Start number 66 was manually annotated 1 time for cluster EI.

Info for manual annotations of cluster F1:

- Start number 65 was manually annotated 52 times for cluster F1.

Info for manual annotations of cluster F3:

- Start number 65 was manually annotated 1 time for cluster F3.

Info for manual annotations of cluster F4:

- Start number 65 was manually annotated 2 times for cluster F4.

Info for manual annotations of cluster GA:

- Start number 68 was manually annotated 9 times for cluster GA.

Info for manual annotations of cluster L2:

- Start number 62 was manually annotated 5 times for cluster L2.
- Start number 70 was manually annotated 1 time for cluster L2.



- Start number 71 was manually annotated 18 times for cluster L2.

Info for manual annotations of cluster L4:

- Start number 65 was manually annotated 1 time for cluster L4.
- Start number 69 was manually annotated 1 time for cluster L4.

Info for manual annotations of cluster V:

- Start number 57 was manually annotated 5 times for cluster V.

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

Gene: Amelia\_32 Start: 21518, Stop: 21165, Start Num: 50

Candidate Starts for Amelia\_32:

(24, 21644), (32, 21605), (Start: 50 @21518 has 14 MA's), (83, 21389), (87, 21344), (99, 21224),

Gene: AmiCi24\_29 Start: 20870, Stop: 20517, Start Num: 50

Candidate Starts for AmiCi24\_29:

(1, 21272), (13, 21122), (37, 20927), (Start: 50 @20870 has 14 MA's), (67, 20837), (83, 20741),

Gene: Andrew\_31 Start: 20815, Stop: 20462, Start Num: 54

Candidate Starts for Andrew\_31:

(2, 21166), (37, 20890), (Start: 54 @20815 has 2 MA's), (83, 20686), (99, 20521),

Gene: Antrice\_35 Start: 22599, Stop: 22243, Start Num: 53

Candidate Starts for Antrice\_35:

(24, 22743), (37, 22668), (53, 22599), (67, 22563), (79, 22491), (83, 22467),

Gene: Antuna\_42 Start: 25698, Stop: 26075, Start Num: 68

Candidate Starts for Antuna\_42:

(Start: 68 @25698 has 9 MA's), (77, 25761), (81, 25788), (97, 25962), (98, 25968), (101, 25989), (110, 26064),

Gene: Appa\_41 Start: 25620, Stop: 25997, Start Num: 68

Candidate Starts for Appa\_41:

(Start: 68 @25620 has 9 MA's), (77, 25683), (97, 25884), (98, 25890), (101, 25911), (110, 25986),

Gene: Azrael100\_76 Start: 48787, Stop: 49152, Start Num: 57

Candidate Starts for Azrael100\_76:

(Start: 40 @48724 has 2 MA's), (Start: 57 @48787 has 5 MA's), (90, 48979), (101, 49099), (108, 49132),

Gene: Baoshan\_65 Start: 46306, Stop: 46692, Start Num: 71

Candidate Starts for Baoshan\_65:

(27, 46120), (32, 46153), (48, 46249), (Start: 62 @46288 has 5 MA's), (Start: 71 @46306 has 18 MA's), (85, 46423), (89, 46450), (95, 46528), (112, 46675),

Gene: Bazzle\_67 Start: 46701, Stop: 47099, Start Num: 70

Candidate Starts for Bazzle\_67:

(Start: 70 @46701 has 1 MA's), (85, 46818), (89, 46845), (95, 46923), (98, 46956), (112, 47070),

Gene: Bedetta\_34 Start: 21656, Stop: 21303, Start Num: 50

Candidate Starts for Bedetta\_34:

(24, 21782), (32, 21743), (Start: 50 @21656 has 14 MA's), (83, 21527), (87, 21482), (99, 21362),

Gene: BigCheese\_67 Start: 46345, Stop: 46764, Start Num: 62

Candidate Starts for BigCheese\_67:

(16, 46084), (27, 46177), (Start: 62 @46345 has 5 MA's), (Start: 71 @46363 has 18 MA's), (85, 46480), (89, 46507), (95, 46585), (112, 46732),

Gene: Blett\_41 Start: 25800, Stop: 26177, Start Num: 68

Candidate Starts for Blett\_41:

(Start: 68 @25800 has 9 MA's), (77, 25863), (81, 25890), (88, 25956), (97, 26064), (98, 26070), (101, 26091), (110, 26166),

Gene: BobsGarage\_67 Start: 46345, Stop: 46764, Start Num: 62

Candidate Starts for BobsGarage\_67:

(16, 46084), (27, 46177), (Start: 62 @46345 has 5 MA's), (Start: 71 @46363 has 18 MA's), (85, 46480), (89, 46507), (95, 46585), (112, 46732),

Gene: BodEinwohner17\_66 Start: 42524, Stop: 42886, Start Num: 65

Candidate Starts for BodEinwohner17\_66:

(38, 42419), (39, 42425), (49, 42479), (Start: 65 @42524 has 56 MA's), (73, 42557), (101, 42824), (102, 42827), (109, 42869),

Gene: Breezona\_67 Start: 46363, Stop: 46764, Start Num: 71

Candidate Starts for Breezona\_67:

(16, 46084), (27, 46177), (Start: 62 @46345 has 5 MA's), (Start: 71 @46363 has 18 MA's), (85, 46480), (89, 46507), (95, 46585), (112, 46732),

Gene: Bromden\_67 Start: 46292, Stop: 46696, Start Num: 69

Candidate Starts for Bromden\_67:

(19, 46049), (21, 46061), (22, 46079), (31, 46139), (47, 46238), (Start: 69 @46292 has 1 MA's), (85, 46415), (89, 46442), (106, 46601),

Gene: Bush\_42 Start: 25748, Stop: 26125, Start Num: 68

Candidate Starts for Bush\_42:

(Start: 68 @25748 has 9 MA's), (77, 25811), (81, 25838), (88, 25904), (97, 26012), (98, 26018), (101, 26039), (110, 26114),

Gene: Carrillo\_43 Start: 25721, Stop: 26098, Start Num: 68

Candidate Starts for Carrillo\_43:

(Start: 68 @25721 has 9 MA's), (77, 25784), (81, 25811), (86, 25871), (97, 25985), (98, 25991), (110, 26087),

Gene: Claus\_68 Start: 46444, Stop: 46830, Start Num: 71

Candidate Starts for Claus\_68:

(27, 46258), (48, 46387), (Start: 62 @46426 has 5 MA's), (Start: 71 @46444 has 18 MA's), (85, 46561), (89, 46588), (95, 46666), (112, 46813),

Gene: CookieDog\_41 Start: 25721, Stop: 26098, Start Num: 68

Candidate Starts for CookieDog\_41:

(Start: 68 @25721 has 9 MA's), (77, 25784), (81, 25811), (97, 25985), (98, 25991), (110, 26087),

Gene: Coral\_31 Start: 21357, Stop: 21004, Start Num: 50

Candidate Starts for Coral\_31:

(24, 21483), (32, 21444), (Start: 50 @21357 has 14 MA's), (83, 21228), (87, 21183), (99, 21063),

Gene: Cosmo\_77 Start: 48788, Stop: 49153, Start Num: 57

Candidate Starts for Cosmo\_77:

(Start: 40 @48725 has 2 MA's), (Start: 57 @48788 has 5 MA's), (90, 48980), (101, 49100), (108, 49133),

Gene: Cote\_33 Start: 21834, Stop: 21481, Start Num: 50

Candidate Starts for Cote\_33:

(24, 21960), (32, 21921), (Start: 50 @21834 has 14 MA's), (83, 21705), (87, 21660), (99, 21540),

Gene: Cressida\_55 Start: 36599, Stop: 36934, Start Num: 63

Candidate Starts for Cressida\_55:

(4, 36272), (5, 36275), (7, 36281), (10, 36305), (11, 36314), (43, 36542), (59, 36587), (60, 36590), (Start: 63 @36599 has 4 MA's), (73, 36626), (84, 36716), (85, 36734), (93, 36809), (95, 36839), (97, 36866),

Gene: Crossroads\_67 Start: 46441, Stop: 46839, Start Num: 71

Candidate Starts for Crossroads\_67:

(16, 46162), (27, 46255), (Start: 62 @46423 has 5 MA's), (Start: 71 @46441 has 18 MA's), (89, 46585), (95, 46663), (112, 46810),

Gene: DHan\_68 Start: 46287, Stop: 46730, Start Num: 48

Candidate Starts for DHan\_68:

(27, 46158), (48, 46287), (Start: 62 @46326 has 5 MA's), (Start: 71 @46344 has 18 MA's), (85, 46461), (89, 46488), (95, 46566), (112, 46713),

Gene: DLane\_60 Start: 40555, Stop: 40917, Start Num: 65

Candidate Starts for DLane\_60:

(Start: 65 @40555 has 56 MA's), (101, 40855), (102, 40858), (109, 40900),

Gene: DanBing\_68 Start: 46313, Stop: 46699, Start Num: 71

Candidate Starts for DanBing\_68:

(27, 46127), (48, 46256), (Start: 62 @46295 has 5 MA's), (Start: 71 @46313 has 18 MA's), (85, 46430), (89, 46457), (95, 46535), (112, 46682),

Gene: Daob\_33 Start: 21852, Stop: 21499, Start Num: 50

Candidate Starts for Daob\_33:

(24, 21978), (32, 21939), (Start: 50 @21852 has 14 MA's), (83, 21723), (99, 21558),

Gene: DeadP\_72 Start: 44907, Stop: 45269, Start Num: 65

Candidate Starts for DeadP\_72:

(60, 44892), (Start: 65 @44907 has 56 MA's), (101, 45207), (102, 45210), (109, 45252),

Gene: Deb65\_60 Start: 41299, Stop: 41661, Start Num: 65

Candidate Starts for Deb65\_60:

(38, 41194), (39, 41200), (49, 41254), (Start: 65 @41299 has 56 MA's), (73, 41332), (101, 41599), (102, 41602), (109, 41644),

Gene: DirtMcgirt\_64 Start: 40554, Stop: 40916, Start Num: 65

Candidate Starts for DirtMcgirt\_64:

(Start: 65 @40554 has 56 MA's), (87, 40713), (101, 40854), (102, 40857), (109, 40899),

Gene: Donkeykong\_68 Start: 44468, Stop: 44830, Start Num: 65  
Candidate Starts for Donkeykong\_68:  
(Start: 65 @44468 has 56 MA's), (101, 44768), (102, 44771), (109, 44813),

Gene: Dorothy\_64 Start: 42261, Stop: 42623, Start Num: 65  
Candidate Starts for Dorothy\_64:  
(38, 42156), (39, 42162), (49, 42216), (Start: 65 @42261 has 56 MA's), (73, 42294), (91, 42465), (101, 42561), (102, 42564), (109, 42606),

Gene: DotProduct\_60 Start: 40802, Stop: 41164, Start Num: 65  
Candidate Starts for DotProduct\_60:  
(Start: 65 @40802 has 56 MA's), (101, 41102), (102, 41105), (109, 41147),

Gene: Douge\_65 Start: 45034, Stop: 45432, Start Num: 65  
Candidate Starts for Douge\_65:  
(44, 44974), (55, 45007), (Start: 65 @45034 has 56 MA's), (85, 45151), (89, 45178), (106, 45337),

Gene: Douzhi\_65 Start: 45087, Stop: 45485, Start Num: 65  
Candidate Starts for Douzhi\_65:  
(Start: 65 @45087 has 56 MA's), (89, 45231), (106, 45390),

Gene: Drago\_62 Start: 40557, Stop: 40919, Start Num: 65  
Candidate Starts for Drago\_62:  
(Start: 65 @40557 has 56 MA's), (87, 40716), (101, 40857), (102, 40860), (109, 40902),

Gene: Dropshot\_41 Start: 25455, Stop: 25832, Start Num: 68  
Candidate Starts for Dropshot\_41:  
(Start: 68 @25455 has 9 MA's), (77, 25518), (81, 25545), (97, 25719), (98, 25725), (101, 25746), (110, 25821),

Gene: Empress\_64 Start: 42743, Stop: 43105, Start Num: 65  
Candidate Starts for Empress\_64:  
(38, 42638), (39, 42644), (49, 42698), (Start: 65 @42743 has 56 MA's), (73, 42776), (101, 43043), (102, 43046), (109, 43088),

Gene: Enby\_66 Start: 40833, Stop: 41195, Start Num: 65  
Candidate Starts for Enby\_66:  
(Start: 65 @40833 has 56 MA's), (87, 40992), (101, 41133), (102, 41136), (109, 41178),

Gene: EniyanLRS\_168 Start: 48527, Stop: 48892, Start Num: 57  
Candidate Starts for EniyanLRS\_168:  
(Start: 40 @48464 has 2 MA's), (Start: 57 @48527 has 5 MA's), (90, 48719), (101, 48839), (108, 48872),

Gene: FarmResident\_67 Start: 45043, Stop: 45441, Start Num: 65  
Candidate Starts for FarmResident\_67:  
(Start: 65 @45043 has 56 MA's), (85, 45160), (89, 45187), (106, 45346),

Gene: Filuzino\_63 Start: 40860, Stop: 41222, Start Num: 65  
Candidate Starts for Filuzino\_63:  
(Start: 65 @40860 has 56 MA's), (101, 41160), (102, 41163), (109, 41205),

Gene: Finemlucis\_67 Start: 46684, Stop: 47085, Start Num: 71

Candidate Starts for Finemlucis\_67:

(16, 46405), (27, 46498), (Start: 62 @46666 has 5 MA's), (Start: 71 @46684 has 18 MA's), (85, 46801), (89, 46828), (95, 46906), (112, 47053),

Gene: Flathead\_66 Start: 42514, Stop: 42876, Start Num: 65

Candidate Starts for Flathead\_66:

(Start: 65 @42514 has 56 MA's), (101, 42814), (102, 42817), (109, 42859),

Gene: Florinda\_76 Start: 43974, Stop: 44336, Start Num: 65

Candidate Starts for Florinda\_76:

(Start: 65 @43974 has 56 MA's), (101, 44274), (102, 44277), (109, 44319),

Gene: Gabriela\_64 Start: 44813, Stop: 45211, Start Num: 71

Candidate Starts for Gabriela\_64:

(16, 44534), (27, 44627), (Start: 62 @44795 has 5 MA's), (Start: 71 @44813 has 18 MA's), (85, 44930), (89, 44957), (95, 45035), (112, 45182),

Gene: Gandalph\_68 Start: 42720, Stop: 43082, Start Num: 65

Candidate Starts for Gandalph\_68:

(36, 42603), (Start: 65 @42720 has 56 MA's), (87, 42879), (101, 43020), (102, 43023), (109, 43065),

Gene: Gardann\_68 Start: 46399, Stop: 46797, Start Num: 71

Candidate Starts for Gardann\_68:

(16, 46120), (27, 46213), (Start: 62 @46381 has 5 MA's), (Start: 71 @46399 has 18 MA's), (85, 46516), (89, 46543), (95, 46621), (112, 46768),

Gene: Geralt\_60 Start: 41298, Stop: 41660, Start Num: 65

Candidate Starts for Geralt\_60:

(38, 41193), (39, 41199), (49, 41253), (Start: 65 @41298 has 56 MA's), (73, 41331), (101, 41598), (102, 41601), (109, 41643),

Gene: Girafales\_73 Start: 43765, Stop: 44127, Start Num: 65

Candidate Starts for Girafales\_73:

(Start: 65 @43765 has 56 MA's), (101, 44065), (102, 44068), (109, 44110),

Gene: Glotell\_32 Start: 21028, Stop: 20675, Start Num: 50

Candidate Starts for Glotell\_32:

(1, 21430), (13, 21280), (37, 21085), (Start: 50 @21028 has 14 MA's), (67, 20995), (83, 20899),

Gene: GuuelaD\_66 Start: 46478, Stop: 46879, Start Num: 71

Candidate Starts for GuuelaD\_66:

(16, 46199), (27, 46292), (Start: 62 @46460 has 5 MA's), (Start: 71 @46478 has 18 MA's), (85, 46595), (89, 46622), (95, 46700), (112, 46847),

Gene: Guzman\_41 Start: 25719, Stop: 26096, Start Num: 68

Candidate Starts for Guzman\_41:

(Start: 68 @25719 has 9 MA's), (77, 25782), (97, 25983), (98, 25989), (101, 26010), (110, 26085),

Gene: Hafay\_69 Start: 46467, Stop: 46868, Start Num: 71

Candidate Starts for Hafay\_69:

(16, 46188), (27, 46281), (Start: 62 @46449 has 5 MA's), (Start: 71 @46467 has 18 MA's), (85, 46584), (89, 46611), (95, 46689), (112, 46836),

Gene: HannahPhantana\_32 Start: 21514, Stop: 21161, Start Num: 50  
Candidate Starts for HannahPhantana\_32:  
(24, 21640), (32, 21601), (Start: 50 @21514 has 14 MA's), (83, 21385), (87, 21340), (99, 21220),

Gene: Hegedechwinu\_65 Start: 41510, Stop: 41872, Start Num: 65  
Candidate Starts for Hegedechwinu\_65:  
(36, 41393), (Start: 65 @41510 has 56 MA's), (87, 41669), (101, 41810), (102, 41813), (109, 41855),

Gene: Hlubikazi\_61 Start: 39912, Stop: 40274, Start Num: 65  
Candidate Starts for Hlubikazi\_61:  
(Start: 65 @39912 has 56 MA's), (101, 40212), (102, 40215), (109, 40257),

Gene: IbOuu\_67 Start: 43348, Stop: 43710, Start Num: 65  
Candidate Starts for IbOuu\_67:  
(38, 43243), (39, 43249), (49, 43303), (Start: 65 @43348 has 56 MA's), (73, 43381), (101, 43648),  
(102, 43651), (109, 43693),

Gene: IrishSherpFalk\_66 Start: 43547, Stop: 43909, Start Num: 65  
Candidate Starts for IrishSherpFalk\_66:  
(Start: 65 @43547 has 56 MA's), (101, 43847), (102, 43850), (109, 43892),

Gene: Itos\_66 Start: 45269, Stop: 45670, Start Num: 71  
Candidate Starts for Itos\_66:  
(16, 44990), (27, 45083), (Start: 62 @45251 has 5 MA's), (Start: 71 @45269 has 18 MA's), (85, 45386),  
(89, 45413), (95, 45491), (112, 45638),

Gene: Jakelyne\_44 Start: 25830, Stop: 26207, Start Num: 68  
Candidate Starts for Jakelyne\_44:  
(Start: 68 @25830 has 9 MA's), (81, 25920), (95, 26067), (97, 26094), (98, 26100), (104, 26130), (110,  
26196),

Gene: Juno112\_29 Start: 20872, Stop: 20519, Start Num: 50  
Candidate Starts for Juno112\_29:  
(1, 21274), (13, 21124), (37, 20929), (Start: 50 @20872 has 14 MA's), (67, 20839), (83, 20743),

Gene: Kahlid\_67 Start: 46369, Stop: 46770, Start Num: 71  
Candidate Starts for Kahlid\_67:  
(16, 46090), (27, 46183), (Start: 62 @46351 has 5 MA's), (Start: 71 @46369 has 18 MA's), (85, 46486),  
(89, 46513), (95, 46591), (112, 46738),

Gene: Kepler\_32 Start: 21801, Stop: 21448, Start Num: 50  
Candidate Starts for Kepler\_32:  
(24, 21927), (32, 21888), (Start: 50 @21801 has 14 MA's), (83, 21672), (99, 21507),

Gene: KingMidas\_65 Start: 43159, Stop: 43521, Start Num: 65  
Candidate Starts for KingMidas\_65:  
(38, 43054), (39, 43060), (49, 43114), (Start: 65 @43159 has 56 MA's), (73, 43192), (91, 43363), (101,  
43459), (102, 43462), (109, 43504),

Gene: Kozie\_51 Start: 36191, Stop: 36532, Start Num: 66  
Candidate Starts for Kozie\_51:

(23, 35999), (33, 36059), (52, 36149), (Start: 66 @36191 has 1 MA's), (95, 36437), (98, 36470), (103, 36497),

Gene: Kumao\_62 Start: 44058, Stop: 44420, Start Num: 58

Candidate Starts for Kumao\_62:

(12, 43764), (20, 43851), (25, 43896), (29, 43911), (34, 43950), (Start: 58 @44058 has 1 MA's), (Start: 69 @44082 has 1 MA's), (75, 44118), (76, 44121), (89, 44235), (98, 44346),

Gene: Leona\_29 Start: 20943, Stop: 20590, Start Num: 50

Candidate Starts for Leona\_29:

(13, 21195), (37, 21000), (Start: 50 @20943 has 14 MA's), (67, 20910), (83, 20814), (89, 20763),

Gene: Lewan\_68 Start: 46405, Stop: 46821, Start Num: 62

Candidate Starts for Lewan\_68:

(16, 46144), (27, 46237), (Start: 62 @46405 has 5 MA's), (Start: 71 @46423 has 18 MA's), (85, 46540), (89, 46567), (95, 46645), (112, 46792),

Gene: LilDestine\_67 Start: 46396, Stop: 46797, Start Num: 71

Candidate Starts for LilDestine\_67:

(16, 46117), (27, 46210), (Start: 62 @46378 has 5 MA's), (Start: 71 @46396 has 18 MA's), (85, 46513), (89, 46540), (95, 46618), (112, 46765),

Gene: LittleTokyo\_32 Start: 21633, Stop: 21280, Start Num: 54

Candidate Starts for LittleTokyo\_32:

(Start: 54 @21633 has 2 MA's), (79, 21528), (83, 21504),

Gene: Llij\_61 Start: 40711, Stop: 41073, Start Num: 65

Candidate Starts for Llij\_61:

(Start: 65 @40711 has 56 MA's), (87, 40870), (101, 41011), (102, 41014), (109, 41056),

Gene: Loadrie\_66 Start: 46451, Stop: 46849, Start Num: 71

Candidate Starts for Loadrie\_66:

(16, 46172), (27, 46265), (Start: 62 @46433 has 5 MA's), (Start: 71 @46451 has 18 MA's), (85, 46568), (89, 46595), (95, 46673), (112, 46820),

Gene: Lorde\_65 Start: 39998, Stop: 40360, Start Num: 65

Candidate Starts for Lorde\_65:

(Start: 65 @39998 has 56 MA's), (87, 40157), (101, 40298), (102, 40301), (109, 40343),

Gene: Losacky\_44 Start: 25840, Stop: 26217, Start Num: 68

Candidate Starts for Losacky\_44:

(Start: 68 @25840 has 9 MA's), (77, 25903), (97, 26104), (98, 26110), (101, 26131), (110, 26206),

Gene: LunaStella\_65 Start: 42568, Stop: 42930, Start Num: 65

Candidate Starts for LunaStella\_65:

(Start: 65 @42568 has 56 MA's), (101, 42868), (102, 42871), (109, 42913),

Gene: Lunar\_32 Start: 21502, Stop: 21149, Start Num: 50

Candidate Starts for Lunar\_32:

(24, 21628), (32, 21589), (Start: 50 @21502 has 14 MA's), (83, 21373), (87, 21328), (99, 21208),

Gene: Mandlovu\_61 Start: 39854, Stop: 40216, Start Num: 65

Candidate Starts for Mandlovu\_61:

(Start: 65 @39854 has 56 MA's), (101, 40154), (102, 40157), (109, 40199),

Gene: Margaery\_51 Start: 36177, Stop: 36518, Start Num: 61

Candidate Starts for Margaery\_51:

(5, 35859), (6, 35862), (8, 35868), (11, 35898), (14, 35925), (15, 35928), (43, 36120), (56, 36165), (59, 36168), (Start: 61 @36177 has 2 MA's), (73, 36210), (84, 36300), (85, 36318), (93, 36393), (94, 36417), (95, 36423), (103, 36483),

Gene: MaryV\_77 Start: 48609, Stop: 48974, Start Num: 57

Candidate Starts for MaryV\_77:

(Start: 40 @48546 has 2 MA's), (Start: 57 @48609 has 5 MA's), (90, 48801), (101, 48921), (108, 48954),

Gene: Matzah\_54 Start: 37029, Stop: 37364, Start Num: 63

Candidate Starts for Matzah\_54:

(59, 37017), (60, 37020), (Start: 63 @37029 has 4 MA's), (73, 37056), (80, 37113), (85, 37164), (93, 37239), (95, 37269), (96, 37290), (103, 37329),

Gene: Megan\_52 Start: 39265, Stop: 39606, Start Num: 72

Candidate Starts for Megan\_52:

(9, 38917), (15, 38971), (17, 38992), (18, 39001), (26, 39076), (28, 39088), (30, 39103), (35, 39136), (39, 39160), (41, 39175), (51, 39217), (Start: 72 @39265 has 2 MA's), (76, 39298), (94, 39493), (95, 39499), (97, 39526), (98, 39532), (100, 39550),

Gene: Melissauren88\_63 Start: 41372, Stop: 41734, Start Num: 65

Candidate Starts for Melissauren88\_63:

(Start: 65 @41372 has 56 MA's), (101, 41672), (102, 41675), (109, 41717),

Gene: Melons\_32 Start: 21502, Stop: 21149, Start Num: 50

Candidate Starts for Melons\_32:

(24, 21628), (32, 21589), (Start: 50 @21502 has 14 MA's), (83, 21373), (87, 21328), (99, 21208),

Gene: MementoMori\_53 Start: 36606, Stop: 36941, Start Num: 63

Candidate Starts for MementoMori\_53:

(5, 36288), (6, 36291), (8, 36297), (11, 36327), (14, 36354), (15, 36357), (43, 36549), (59, 36594), (60, 36597), (Start: 63 @36606 has 4 MA's), (73, 36633), (85, 36741), (93, 36816), (95, 36846), (96, 36867), (103, 36906),

Gene: MenE\_42 Start: 25720, Stop: 26097, Start Num: 68

Candidate Starts for MenE\_42:

(Start: 68 @25720 has 9 MA's), (77, 25783), (81, 25810), (97, 25984), (98, 25990), (101, 26011), (110, 26086),

Gene: Miley16\_67 Start: 46363, Stop: 46764, Start Num: 71

Candidate Starts for Miley16\_67:

(16, 46084), (27, 46177), (Start: 62 @46345 has 5 MA's), (Start: 71 @46363 has 18 MA's), (85, 46480), (89, 46507), (95, 46585), (112, 46732),

Gene: MkaliMitinis3\_68 Start: 46435, Stop: 46833, Start Num: 71

Candidate Starts for MkaliMitinis3\_68:

(16, 46156), (27, 46249), (Start: 62 @46417 has 5 MA's), (Start: 71 @46435 has 18 MA's), (85, 46552), (89, 46579), (95, 46657), (112, 46804),



Gene: Ms6\_62 Start: 37737, Stop: 38099, Start Num: 65  
Candidate Starts for Ms6\_62:  
(Start: 65 @37737 has 56 MA's), (101, 38037), (102, 38040), (109, 38082),

Gene: Nicholasp3\_67 Start: 46381, Stop: 46797, Start Num: 62  
Candidate Starts for Nicholasp3\_67:  
(16, 46120), (27, 46213), (Start: 62 @46381 has 5 MA's), (Start: 71 @46399 has 18 MA's), (85, 46516),  
(89, 46543), (95, 46621), (112, 46768),

Gene: Nicole72\_53 Start: 39892, Stop: 40239, Start Num: 72  
Candidate Starts for Nicole72\_53:  
(45, 39826), (51, 39844), (Start: 72 @39892 has 2 MA's), (91, 40084), (97, 40153), (98, 40159),

Gene: Nimbo\_59 Start: 41301, Stop: 41663, Start Num: 65  
Candidate Starts for Nimbo\_59:  
(38, 41196), (39, 41202), (49, 41256), (Start: 65 @41301 has 56 MA's), (73, 41334), (101, 41601),  
(102, 41604), (109, 41646),

Gene: Nitzel\_62 Start: 41489, Stop: 41851, Start Num: 65  
Candidate Starts for Nitzel\_62:  
(Start: 65 @41489 has 56 MA's), (101, 41789), (102, 41792), (109, 41834),

Gene: Octobien14\_72 Start: 45181, Stop: 45522, Start Num: 61  
Candidate Starts for Octobien14\_72:  
(Start: 61 @45181 has 2 MA's), (82, 45283), (87, 45337), (95, 45421),

Gene: OldBen\_63 Start: 42694, Stop: 43056, Start Num: 65  
Candidate Starts for OldBen\_63:  
(38, 42589), (39, 42595), (49, 42649), (Start: 65 @42694 has 56 MA's), (73, 42727), (101, 42994),  
(102, 42997), (109, 43039),

Gene: Ovechkin\_65 Start: 42688, Stop: 43050, Start Num: 65  
Candidate Starts for Ovechkin\_65:  
(Start: 65 @42688 has 56 MA's), (101, 42988), (102, 42991), (109, 43033),

Gene: PYPDinur\_63 Start: 45117, Stop: 45515, Start Num: 65  
Candidate Starts for PYPDinur\_63:  
(Start: 65 @45117 has 56 MA's), (85, 45234), (89, 45261), (106, 45420),

Gene: Phalconet\_63 Start: 40623, Stop: 40985, Start Num: 65  
Candidate Starts for Phalconet\_63:  
(Start: 65 @40623 has 56 MA's), (101, 40923), (102, 40926), (109, 40968),

Gene: Phanphagia\_61 Start: 42234, Stop: 42596, Start Num: 65  
Candidate Starts for Phanphagia\_61:  
(Start: 65 @42234 has 56 MA's), (101, 42534), (102, 42537), (109, 42579),

Gene: Phatniss\_63 Start: 41806, Stop: 42168, Start Num: 65  
Candidate Starts for Phatniss\_63:  
(Start: 65 @41806 has 56 MA's), (87, 41965), (101, 42106), (102, 42109), (109, 42151),

Gene: PhillyJawn\_42 Start: 25617, Stop: 25994, Start Num: 68  
Candidate Starts for PhillyJawn\_42:

(Start: 68 @25617 has 9 MA's), (77, 25680), (97, 25881), (98, 25887), (101, 25908), (110, 25983),

Gene: Phingu\_44 Start: 25833, Stop: 26210, Start Num: 68

Candidate Starts for Phingu\_44:

(Start: 68 @25833 has 9 MA's), (77, 25896), (81, 25923), (97, 26097), (98, 26103), (110, 26199),

Gene: PhluffyCoco\_30 Start: 20856, Stop: 20503, Start Num: 50

Candidate Starts for PhluffyCoco\_30:

(1, 21258), (13, 21108), (37, 20913), (Start: 50 @20856 has 14 MA's), (67, 20823), (83, 20727),

Gene: Phonegingi\_41 Start: 25666, Stop: 26043, Start Num: 68

Candidate Starts for Phonegingi\_41:

(Start: 68 @25666 has 9 MA's), (77, 25729), (81, 25756), (95, 25903), (97, 25930), (98, 25936), (104, 25966), (110, 26032),

Gene: Pickles13\_40 Start: 25930, Stop: 26307, Start Num: 68

Candidate Starts for Pickles13\_40:

(Start: 68 @25930 has 9 MA's), (81, 26020), (97, 26194), (98, 26200), (101, 26221), (110, 26296),

Gene: Plumbus\_68 Start: 42573, Stop: 42935, Start Num: 65

Candidate Starts for Plumbus\_68:

(Start: 65 @42573 has 56 MA's), (101, 42873), (102, 42876), (109, 42918),

Gene: Polka\_31 Start: 21366, Stop: 21013, Start Num: 50

Candidate Starts for Polka\_31:

(24, 21492), (32, 21453), (Start: 50 @21366 has 14 MA's), (83, 21237), (87, 21192), (99, 21072),

Gene: PopTart\_59 Start: 40248, Stop: 40610, Start Num: 65

Candidate Starts for PopTart\_59:

(Start: 65 @40248 has 56 MA's), (101, 40548), (102, 40551), (109, 40593),

Gene: Quby\_65 Start: 45009, Stop: 45407, Start Num: 65

Candidate Starts for Quby\_65:

(Start: 65 @45009 has 56 MA's), (85, 45126), (89, 45153), (106, 45312),

Gene: Quico\_73 Start: 43794, Stop: 44156, Start Num: 65

Candidate Starts for Quico\_73:

(Start: 65 @43794 has 56 MA's), (101, 44094), (102, 44097), (109, 44139),

Gene: RedBird\_64 Start: 42140, Stop: 42502, Start Num: 65

Candidate Starts for RedBird\_64:

(38, 42035), (39, 42041), (49, 42095), (Start: 65 @42140 has 56 MA's), (73, 42173), (91, 42344), (101, 42440), (102, 42443), (109, 42485),

Gene: RedFox\_30 Start: 20869, Stop: 20516, Start Num: 50

Candidate Starts for RedFox\_30:

(1, 21271), (13, 21121), (37, 20926), (Start: 50 @20869 has 14 MA's), (67, 20836), (83, 20740),

Gene: Renna12\_29 Start: 20890, Stop: 20534, Start Num: 50

Candidate Starts for Renna12\_29:

(Start: 50 @20890 has 14 MA's), (67, 20857), (83, 20761), (99, 20596),

Gene: Rialto\_70 Start: 44435, Stop: 44797, Start Num: 65

Candidate Starts for Rialto\_70:

(Start: 65 @44435 has 56 MA's), (101, 44735), (102, 44738), (109, 44780),

Gene: Rumpelstiltskin\_66 Start: 45792, Stop: 46190, Start Num: 71

Candidate Starts for Rumpelstiltskin\_66:

(16, 45513), (27, 45606), (Start: 62 @45774 has 5 MA's), (Start: 71 @45792 has 18 MA's), (85, 45909), (89, 45936), (95, 46014), (112, 46161),

Gene: SG4\_62 Start: 41300, Stop: 41665, Start Num: 65

Candidate Starts for SG4\_62:

(Start: 65 @41300 has 56 MA's), (101, 41600),

Gene: Sarshaun\_68 Start: 46459, Stop: 46857, Start Num: 71

Candidate Starts for Sarshaun\_68:

(16, 46180), (27, 46273), (Start: 62 @46441 has 5 MA's), (Start: 71 @46459 has 18 MA's), (85, 46576), (89, 46603), (95, 46681), (112, 46828),

Gene: Sassafras\_64 Start: 42458, Stop: 42820, Start Num: 65

Candidate Starts for Sassafras\_64:

(38, 42353), (39, 42359), (49, 42413), (Start: 65 @42458 has 56 MA's), (73, 42491), (91, 42662), (101, 42758), (102, 42761), (109, 42803),

Gene: SassyB\_59 Start: 40248, Stop: 40610, Start Num: 65

Candidate Starts for SassyB\_59:

(Start: 65 @40248 has 56 MA's), (101, 40548), (102, 40551), (109, 40593),

Gene: Scottish\_64 Start: 42414, Stop: 42776, Start Num: 65

Candidate Starts for Scottish\_64:

(38, 42309), (39, 42315), (49, 42369), (Start: 65 @42414 has 56 MA's), (73, 42447), (101, 42714), (102, 42717), (109, 42759),

Gene: Seagreen\_64 Start: 41603, Stop: 41965, Start Num: 65

Candidate Starts for Seagreen\_64:

(Start: 65 @41603 has 56 MA's), (101, 41903), (102, 41906), (109, 41948),

Gene: Sephiroth\_73 Start: 45931, Stop: 46353, Start Num: 40

Candidate Starts for Sephiroth\_73:

(Start: 40 @45931 has 2 MA's), (95, 46252),

Gene: Shauna1\_63 Start: 42143, Stop: 42505, Start Num: 65

Candidate Starts for Shauna1\_63:

(Start: 65 @42143 has 56 MA's), (101, 42443), (102, 42446), (109, 42488),

Gene: Spartacus\_67 Start: 42463, Stop: 42825, Start Num: 65

Candidate Starts for Spartacus\_67:

(Start: 65 @42463 has 56 MA's), (101, 42763), (102, 42766), (109, 42808),

Gene: Squirty\_67 Start: 43396, Stop: 43758, Start Num: 65

Candidate Starts for Squirty\_67:

(Start: 65 @43396 has 56 MA's), (73, 43429), (91, 43600), (101, 43696), (102, 43699), (109, 43741),

Gene: StAnnes\_63 Start: 42321, Stop: 42683, Start Num: 65

Candidate Starts for StAnnes\_63:

(Start: 65 @42321 has 56 MA's), (101, 42621), (102, 42624), (109, 42666),

Gene: Stap\_63 Start: 42347, Stop: 42709, Start Num: 65

Candidate Starts for Stap\_63:

(38, 42242), (39, 42248), (49, 42302), (Start: 65 @42347 has 56 MA's), (73, 42380), (87, 42506), (101, 42647), (102, 42650), (109, 42692),

Gene: Strokeseat\_61 Start: 39911, Stop: 40273, Start Num: 65

Candidate Starts for Strokeseat\_61:

(Start: 65 @39911 has 56 MA's), (101, 40211), (102, 40214), (109, 40256),

Gene: Syleon\_75 Start: 45869, Stop: 46291, Start Num: 40

Candidate Starts for Syleon\_75:

(Start: 40 @45869 has 2 MA's), (42, 45875), (95, 46190),

Gene: TChen\_67 Start: 44519, Stop: 44881, Start Num: 65

Candidate Starts for TChen\_67:

(Start: 65 @44519 has 56 MA's), (101, 44819), (102, 44822), (109, 44864),

Gene: Taj\_70 Start: 44021, Stop: 44383, Start Num: 65

Candidate Starts for Taj\_70:

(60, 44006), (Start: 65 @44021 has 56 MA's), (101, 44321), (102, 44324), (109, 44366),

Gene: Terij\_52 Start: 35668, Stop: 36003, Start Num: 63

Candidate Starts for Terij\_52:

(3, 35263), (5, 35347), (6, 35350), (8, 35356), (14, 35413), (15, 35416), (43, 35608), (59, 35656), (60, 35659), (Start: 63 @35668 has 4 MA's), (84, 35785), (85, 35803), (97, 35935), (103, 35968),

Gene: Tourach\_66 Start: 46445, Stop: 46831, Start Num: 71

Candidate Starts for Tourach\_66:

(27, 46259), (Start: 62 @46427 has 5 MA's), (Start: 71 @46445 has 18 MA's), (85, 46562), (89, 46589), (95, 46667), (112, 46814),

Gene: UncleRicky\_64 Start: 42054, Stop: 42416, Start Num: 65

Candidate Starts for UncleRicky\_64:

(Start: 65 @42054 has 56 MA's), (87, 42213), (101, 42354), (102, 42357), (109, 42399),

Gene: Underpass\_59 Start: 41435, Stop: 41833, Start Num: 71

Candidate Starts for Underpass\_59:

(16, 41156), (27, 41249), (Start: 62 @41417 has 5 MA's), (Start: 71 @41435 has 18 MA's), (85, 41552), (89, 41579), (95, 41657), (112, 41804),

Gene: ValentiniPuff\_101 Start: 57583, Stop: 57990, Start Num: 64

Candidate Starts for ValentiniPuff\_101:

(Start: 64 @57583 has 1 MA's), (74, 57622), (75, 57628), (88, 57748), (100, 57883), (111, 57961),

Gene: Vetric\_67 Start: 46385, Stop: 46804, Start Num: 62

Candidate Starts for Vetric\_67:

(16, 46124), (27, 46217), (Start: 62 @46385 has 5 MA's), (Start: 71 @46403 has 18 MA's), (85, 46520), (89, 46547), (95, 46625), (112, 46772),

Gene: Warren\_41 Start: 25673, Stop: 26050, Start Num: 68

Candidate Starts for Warren\_41:

(Start: 68 @25673 has 9 MA's), (77, 25736), (81, 25763), (97, 25937), (98, 25943), (101, 25964), (110, 26039),

Gene: Wee\_70 Start: 44097, Stop: 44459, Start Num: 65

Candidate Starts for Wee\_70:

(60, 44082), (Start: 65 @44097 has 56 MA's), (101, 44397), (102, 44400), (109, 44442),

Gene: Weirido19\_91 Start: 53190, Stop: 53612, Start Num: 46

Candidate Starts for Weirido19\_91:

(46, 53190), (78, 53316), (92, 53445), (97, 53508), (105, 53550), (110, 53604),

Gene: Whatsapiecost\_65 Start: 41324, Stop: 41686, Start Num: 65

Candidate Starts for Whatsapiecost\_65:

(Start: 65 @41324 has 56 MA's), (73, 41357), (101, 41624), (102, 41627), (109, 41669),

Gene: Wigglewigggle\_67 Start: 46423, Stop: 46821, Start Num: 71

Candidate Starts for Wigglewigggle\_67:

(16, 46144), (27, 46237), (Start: 62 @46405 has 5 MA's), (Start: 71 @46423 has 18 MA's), (85, 46540), (89, 46567), (95, 46645), (112, 46792),

Gene: Wildcat\_77 Start: 48619, Stop: 48984, Start Num: 57

Candidate Starts for Wildcat\_77:

(Start: 40 @48556 has 2 MA's), (Start: 57 @48619 has 5 MA's), (90, 48811), (101, 48931), (108, 48964),

Gene: Wilder\_68 Start: 46369, Stop: 46770, Start Num: 71

Candidate Starts for Wilder\_68:

(16, 46090), (27, 46183), (Start: 62 @46351 has 5 MA's), (Start: 71 @46369 has 18 MA's), (85, 46486), (89, 46513), (95, 46591), (112, 46738),

Gene: WillSterrel\_66 Start: 43580, Stop: 43942, Start Num: 65

Candidate Starts for WillSterrel\_66:

(Start: 65 @43580 has 56 MA's), (101, 43880), (102, 43883), (109, 43925),

Gene: Winky\_67 Start: 46363, Stop: 46764, Start Num: 71

Candidate Starts for Winky\_67:

(16, 46084), (27, 46177), (Start: 62 @46345 has 5 MA's), (Start: 71 @46363 has 18 MA's), (85, 46480), (89, 46507), (95, 46585), (112, 46732),

Gene: Zakai\_68 Start: 46689, Stop: 47090, Start Num: 71

Candidate Starts for Zakai\_68:

(16, 46410), (27, 46503), (Start: 62 @46671 has 5 MA's), (Start: 71 @46689 has 18 MA's), (85, 46806), (89, 46833), (95, 46911), (112, 47058),

Gene: ZhongYanYuan\_66 Start: 46258, Stop: 46644, Start Num: 71

Candidate Starts for ZhongYanYuan\_66:

(27, 46072), (48, 46201), (Start: 62 @46240 has 5 MA's), (Start: 71 @46258 has 18 MA's), (85, 46375), (89, 46402), (95, 46480), (112, 46627),

Gene: Zhuangyuan\_35 Start: 22580, Stop: 22224, Start Num: 53

Candidate Starts for Zhuangyuan\_35:

(24, 22724), (37, 22649), (53, 22580), (67, 22544), (83, 22448), (99, 22283), (107, 22235),