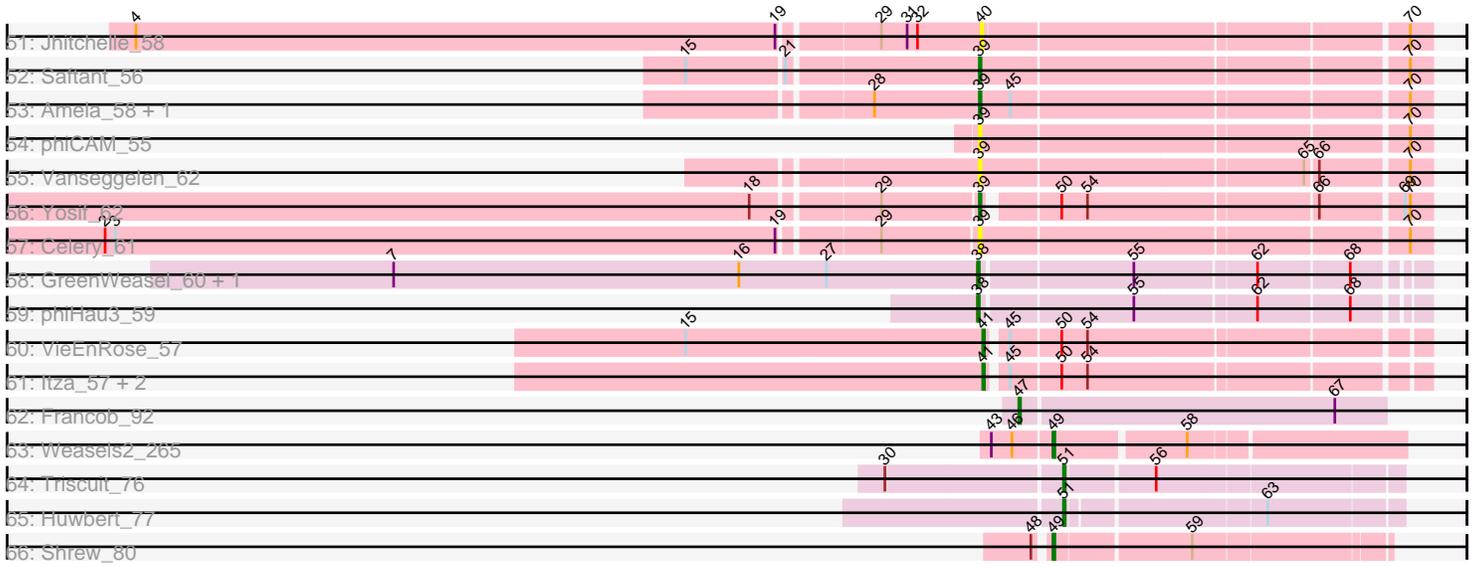




Pham 282074



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 282074 Report

This analysis was run 02/23/26 on database version 636.

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 282074 has 123 members, 9 are drafts.

Phages represented in each track:

- Track 1 : EastWest\_71
- Track 2 : Nostromo\_62
- Track 3 : Sujidade\_56
- Track 4 : Leviticus\_54, Esperer\_54
- Track 5 : Lannister\_55
- Track 6 : Asten\_55, Ejemplo\_53, Dwayne\_55, Maneekul\_55, Yasdnil\_55, Werner\_55, Brataylor\_58, Whatever\_55, Emaanora\_58, Hippo\_55, Lorelei\_56, Snorlax\_55, BarryBee\_58, Triste\_56, SarahRose\_55, TuanPN\_53, Rana\_57, TagePhighter\_57
- Track 7 : Lika\_56
- Track 8 : Legacy\_53, SunsetPointe\_53, Ozzie\_53
- Track 9 : Toma\_57, Goby\_57, Dattran\_58, Godpower\_57
- Track 10 : BeardedLady\_54, Caliburn\_53, Phettuccine\_54, Indigo\_53, Bovely\_54, Nerdos\_53, Unstoppable\_54, Aaronocolus\_54
- Track 11 : Danzina\_57
- Track 12 : Celeste\_57
- Track 13 : EnochSoames\_58, South40\_55, Katalie\_55, RedBear\_56
- Track 14 : Izzy\_56, Jash\_56, BryanRecycles\_56, Oliynyk\_56, Rusticus\_56, Eddasa\_57
- Track 15 : Nanodon\_57
- Track 16 : Chucky\_55
- Track 17 : OzzyJ\_57
- Track 18 : Zemlya\_57
- Track 19 : Nabi\_56
- Track 20 : Hydra\_55
- Track 21 : Triumph\_60
- Track 22 : Omar\_61
- Track 23 : BartholomewSD\_61, Alvy\_61
- Track 24 : Haizum\_58, Tefunt\_58, Nishikigoi\_59
- Track 25 : Amethyst\_58
- Track 26 : Jevington\_57
- Track 27 : Paedore\_59
- Track 28 : R4\_58

- Track 29 : Issmi\_59
- Track 30 : TinaBelcher\_58
- Track 31 : Loofah\_60
- Track 32 : Caelum\_60
- Track 33 : Pablito\_56
- Track 34 : Bowden\_58
- Track 35 : Diane\_58
- Track 36 : SqueakyClean\_59, Janus\_59, GirlDinner\_58, Animus\_58
- Track 37 : Andris\_58
- Track 38 : TrvxScott\_57, Thestral\_60
- Track 39 : Marav\_59
- Track 40 : Puginator\_60
- Track 41 : Paolo\_60, Zainub\_60
- Track 42 : Hank144\_60
- Track 43 : Superstar\_65
- Track 44 : Axiom\_59
- Track 45 : Daudau\_58
- Track 46 : ELB20\_57
- Track 47 : Provolone\_58, ElGato\_58
- Track 48 : Verabelle\_61
- Track 49 : Alsaber\_58, ZamZam\_61, Sudan\_59, Pavo\_59, Kaine\_58, Conan\_58, Dexers\_56
- Track 50 : Speedwell\_61
- Track 51 : Jhitchelle\_58
- Track 52 : Saftant\_56
- Track 53 : Amela\_58, Verse\_59
- Track 54 : phiCAM\_55
- Track 55 : Vanseggelen\_62
- Track 56 : Yosif\_62
- Track 57 : Celery\_61
- Track 58 : GreenWeasel\_60, BroPlease\_58
- Track 59 : phiHau3\_59
- Track 60 : VieEnRose\_57
- Track 61 : Itza\_57, Celia\_55, Urza\_56
- Track 62 : Francob\_92
- Track 63 : Weasels2\_265
- Track 64 : Triscuit\_76
- Track 65 : Huwbert\_77
- Track 66 : Shrew\_80

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

The start number called the most often in the published annotations is 41, it was called in 58 of the 114 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aaronocolus\_54, Asten\_55, BarryBee\_58, BeardedLady\_54, Bovely\_54, Brataylor\_58, BryanRecycles\_56, Caliburn\_53, Celeste\_57, Celia\_55, Danzina\_57, Dattran\_58, Dwayne\_55, Eddasa\_57, Ejemplo\_53, Emaanora\_58, EnochSoames\_58, Esperer\_54, Goby\_57, Godpower\_57, Hippo\_55, Hydra\_55,

Indigo\_53, Itza\_57, Izzy\_56, Jash\_56, Katalie\_55, Lannister\_55, Legacy\_53, Leviticus\_54, Lika\_56, Lorelei\_56, Maneekul\_55, Nabi\_56, Nanodon\_57, Nerdos\_53, Oliynyk\_56, Ozzie\_53, OzzyJ\_57, Phettuccine\_54, Rana\_57, RedBear\_56, Rusticus\_56, SarahRose\_55, Snorlax\_55, South40\_55, Sujidade\_56, SunsetPointe\_53, TagePhighter\_57, Toma\_57, Triste\_56, TuanPN\_53, Unstoppable\_54, Urza\_56, VieEnRose\_57, Werner\_55, Whatever\_55, Yasdnil\_55, Zemlya\_57,

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

- Chucky\_55,

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

- Alsaber\_58, Alvy\_61, Amela\_58, Amethyst\_58, Andris\_58, Animus\_58, Axiom\_59, BartholomewSD\_61, Bowden\_58, BroPlease\_58, Caelum\_60, Celery\_61, Conan\_58, Daudau\_58, Dexers\_56, Diane\_58, ELB20\_57, EastWest\_71, ElGato\_58, Francob\_92, GirlDinner\_58, GreenWeasel\_60, Haizum\_58, Hank144\_60, Huwbert\_77, Issmi\_59, Janus\_59, Jevington\_57, Jhitchelle\_58, Kaine\_58, Loofah\_60, Marav\_59, Nishikigoi\_59, Nostromo\_62, Omar\_61, Pablito\_56, Paedore\_59, Paolo\_60, Pavo\_59, Provolone\_58, Puginator\_60, R4\_58, Saftant\_56, Shrew\_80, Speedwell\_61, SqueakyClean\_59, Sudan\_59, Superstar\_65, Tefunt\_58, Thestral\_60, TinaBelcher\_58, Triscuit\_76, Triumph\_60, TrvxScott\_57, Vanseggelen\_62, Verabelle\_61, Verse\_59, Weasels2\_265, Yosif\_62, Zainub\_60, ZamZam\_61, phiCAM\_55, phiHau3\_59,

### Summary by start number:

Start 36:

- Found in 2 of 123 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 114
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Issmi\_59 (BD2),

Start 37:

- Found in 30 of 123 ( 24.4% ) of genes in pham
- Manual Annotations of this start: 25 of 114
- Called 83.3% of time when present
- Phage (with cluster) where this start called: Alvy\_61 (BD2), Amethyst\_58 (BD2), Andris\_58 (BD2), Animus\_58 (BD2), Axiom\_59 (BD2), BartholomewSD\_61 (BD2), Bowden\_58 (BD2), Caelum\_60 (BD2), Daudau\_58 (BD2), ELB20\_57 (BD2), GirlDinner\_58 (BD2), Janus\_59 (BD2), Jevington\_57 (BD2), Marav\_59 (BD2), Pablito\_56 (BD2), Paedore\_59 (BD2), Paolo\_60 (BD2), Puginator\_60 (BD2), R4\_58 (BD2), SqueakyClean\_59 (BD2), Thestral\_60 (BD2), TinaBelcher\_58 (BD2), Triumph\_60 (BD2), TrvxScott\_57 (BD2), Zainub\_60 (BD2),

Start 38:

- Found in 3 of 123 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 3 of 114
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BroPlease\_58 (BD4), GreenWeasel\_60 (BD4), phiHau3\_59 (BD4),

Start 39:

- Found in 18 of 123 ( 14.6% ) of genes in pham

- Manual Annotations of this start: 12 of 114
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alsaber\_58 (BD3), Amela\_58 (BD3), Celery\_61 (BD3), Conan\_58 (BD3), Dexers\_56 (BD3), ElGato\_58 (BD3), Kaine\_58 (BD3), Pavo\_59 (BD3), Provolone\_58 (BD3), Saftant\_56 (BD3), Speedwell\_61 (BD3), Sudan\_59 (BD3), Vanseggelen\_62 (BD3), Verabelle\_61 (BD3), Verse\_59 (BD3), Yosif\_62 (BD3), ZamZam\_61 (BD3), phiCAM\_55 (BD3),

#### Start 40:

- Found in 1 of 123 ( 0.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jhitchelle\_58 (BD3),

#### Start 41:

- Found in 60 of 123 ( 48.8% ) of genes in pham
- Manual Annotations of this start: 58 of 114
- Called 98.3% of time when present
- Phage (with cluster) where this start called: Aaronocolus\_54 (BD1), Asten\_55 (BD1), BarryBee\_58 (BD1), BeardedLady\_54 (BD1), Bovely\_54 (BD1), Brataylor\_58 (BD1), BryanRecycles\_56 (BD1), Caliburn\_53 (BD1), Celeste\_57 (BD1), Celia\_55 (BD6), Danzina\_57 (BD1), Dattran\_58 (BD1), Dwayne\_55 (BD1), Eddasa\_57 (BD1), Ejemplo\_53 (BD1), Emaanora\_58 (BD1), EnochSoames\_58 (BD1), Esperer\_54 (BD1), Goby\_57 (BD1), Godpower\_57 (BD1), Hippo\_55 (BD1), Hydra\_55 (BD1), Indigo\_53 (BD1), Itza\_57 (BD6), Izzy\_56 (BD1), Jash\_56 (BD1), Katalie\_55 (BD1), Lannister\_55 (BD1), Legacy\_53 (BD1), Leviticus\_54 (BD1), Lika\_56 (BD1), Lorelei\_56 (BD1), Maneekul\_55 (BD1), Nabi\_56 (BD1), Nanodon\_57 (BD1), Nerdos\_53 (BD1), Oliynyk\_56 (BD1), Ozzie\_53 (BD1), OzzyJ\_57 (BD1), Phettuccine\_54 (BD1), Rana\_57 (BD1), RedBear\_56 (BD1), Rusticus\_56 (BD1), SarahRose\_55 (BD1), Snorlax\_55 (BD1), South40\_55 (BD1), Sujidade\_56 (BD1), SunsetPointe\_53 (BD1), TagePhighter\_57 (BD1), Toma\_57 (BD1), Triste\_56 (BD1), TuanPN\_53 (BD1), Unstoppable\_54 (BD1), Urza\_56 (BD6), VieEnRose\_57 (BD6), Werner\_55 (BD1), Whatever\_55 (BD1), Yasdnil\_55 (BD1), Zemlya\_57 (BD1),

#### Start 42:

- Found in 1 of 123 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 114
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Loofah\_60 (BD2),

#### Start 44:

- Found in 1 of 123 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 114
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hank144\_60 (BD2),

#### Start 47:

- Found in 1 of 123 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 114
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Francob\_92 (BK1),

#### Start 49:

- Found in 2 of 123 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 2 of 114
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Shrew\_80 (singleton), Weasels2\_265 (CB),

Start 50:

- Found in 66 of 123 ( 53.7% ) of genes in pham
- Manual Annotations of this start: 6 of 114
- Called 10.6% of time when present
- Phage (with cluster) where this start called: Chucky\_55 (BD1), Diane\_58 (BD2), Haizum\_58 (BD2), Nishikigoi\_59 (BD2), Omar\_61 (BD2), Superstar\_65 (BD2), Tefunt\_58 (BD2),

Start 51:

- Found in 2 of 123 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 2 of 114
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Huwbert\_77 (GG), Triscuit\_76 (GG),

Start 52:

- Found in 1 of 123 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 114
- Called 100.0% of time when present
- Phage (with cluster) where this start called: EastWest\_71 (AO),

Start 53:

- Found in 1 of 123 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 114
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Nostromo\_62 (AO3),

### **Summary by clusters:**

There are 11 clusters represented in this pham: singleton, CB, AO, GG, BD4, BD6, BD1, BK1, BD3, BD2, AO3,

Info for manual annotations of cluster AO:

- Start number 52 was manually annotated 1 time for cluster AO.

Info for manual annotations of cluster AO3:

- Start number 53 was manually annotated 1 time for cluster AO3.

Info for manual annotations of cluster BD1:

- Start number 41 was manually annotated 54 times for cluster BD1.
- Start number 50 was manually annotated 1 time for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 36 was manually annotated 1 time for cluster BD2.
- Start number 37 was manually annotated 25 times for cluster BD2.
- Start number 42 was manually annotated 1 time for cluster BD2.
- Start number 44 was manually annotated 1 time for cluster BD2.
- Start number 50 was manually annotated 5 times for cluster BD2.

Info for manual annotations of cluster BD3:

- Start number 39 was manually annotated 12 times for cluster BD3.

Info for manual annotations of cluster BD4:

- Start number 38 was manually annotated 3 times for cluster BD4.

Info for manual annotations of cluster BD6:

- Start number 41 was manually annotated 4 times for cluster BD6.

Info for manual annotations of cluster BK1:

- Start number 47 was manually annotated 1 time for cluster BK1.

Info for manual annotations of cluster CB:

- Start number 49 was manually annotated 1 time for cluster CB.

Info for manual annotations of cluster GG:

- Start number 51 was manually annotated 2 times for cluster GG.

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

Gene: Aaronocolus\_54 Start: 40469, Stop: 40233, Start Num: 41

Candidate Starts for Aaronocolus\_54:

(Start: 41 @40469 has 58 MA's), (45, 40460), (Start: 50 @40433 has 6 MA's),

Gene: Alsaber\_58 Start: 40437, Stop: 40192, Start Num: 39

Candidate Starts for Alsaber\_58:

(Start: 39 @40437 has 12 MA's), (70, 40203),

Gene: Alvy\_61 Start: 42035, Stop: 41802, Start Num: 37

Candidate Starts for Alvy\_61:

(12, 42197), (16, 42146), (24, 42125), (Start: 37 @42035 has 25 MA's), (54, 41984),

Gene: Amela\_58 Start: 41420, Stop: 41175, Start Num: 39

Candidate Starts for Amela\_58:

(28, 41480), (Start: 39 @41420 has 12 MA's), (45, 41402), (70, 41186),

Gene: Amethyst\_58 Start: 40610, Stop: 40371, Start Num: 37

Candidate Starts for Amethyst\_58:

(Start: 37 @40610 has 25 MA's), (60, 40478), (62, 40463),

Gene: Andris\_58 Start: 40956, Stop: 40702, Start Num: 37

Candidate Starts for Andris\_58:

(Start: 37 @40956 has 25 MA's),

Gene: Animus\_58 Start: 41572, Stop: 41315, Start Num: 37

Candidate Starts for Animus\_58:

(Start: 37 @41572 has 25 MA's), (71, 41332),

Gene: Asten\_55 Start: 42688, Stop: 42452, Start Num: 41

Candidate Starts for Asten\_55:

(21, 42793), (28, 42748), (Start: 41 @42688 has 58 MA's), (Start: 50 @42652 has 6 MA's),

Gene: Axiom\_59 Start: 41223, Stop: 40963, Start Num: 37

Candidate Starts for Axiom\_59:

(20, 41337), (Start: 37 @41223 has 25 MA's), (71, 40983), (74, 40971),

Gene: BarryBee\_58 Start: 42710, Stop: 42474, Start Num: 41

Candidate Starts for BarryBee\_58:

(21, 42815), (28, 42770), (Start: 41 @42710 has 58 MA's), (Start: 50 @42674 has 6 MA's),

Gene: BartholomewSD\_61 Start: 41154, Stop: 40921, Start Num: 37

Candidate Starts for BartholomewSD\_61:

(12, 41316), (16, 41265), (24, 41244), (Start: 37 @41154 has 25 MA's), (54, 41103),

Gene: BeardedLady\_54 Start: 40843, Stop: 40607, Start Num: 41

Candidate Starts for BeardedLady\_54:

(Start: 41 @40843 has 58 MA's), (45, 40834), (Start: 50 @40807 has 6 MA's),

Gene: Bovely\_54 Start: 40472, Stop: 40236, Start Num: 41

Candidate Starts for Bovely\_54:

(Start: 41 @40472 has 58 MA's), (45, 40463), (Start: 50 @40436 has 6 MA's),

Gene: Bowden\_58 Start: 41991, Stop: 41758, Start Num: 37

Candidate Starts for Bowden\_58:

(16, 42102), (Start: 37 @41991 has 25 MA's), (54, 41940),

Gene: Brataylor\_58 Start: 42252, Stop: 42016, Start Num: 41

Candidate Starts for Brataylor\_58:

(21, 42357), (28, 42312), (Start: 41 @42252 has 58 MA's), (Start: 50 @42216 has 6 MA's),

Gene: BroPlease\_58 Start: 40749, Stop: 40513, Start Num: 38

Candidate Starts for BroPlease\_58:

(7, 41088), (16, 40887), (27, 40836), (Start: 38 @40749 has 3 MA's), (55, 40665), (62, 40599), (68, 40548),

Gene: BryanRecycles\_56 Start: 40959, Stop: 40723, Start Num: 41

Candidate Starts for BryanRecycles\_56:

(23, 41058), (Start: 41 @40959 has 58 MA's), (Start: 50 @40923 has 6 MA's), (69, 40734),

Gene: Caelum\_60 Start: 40694, Stop: 40458, Start Num: 37

Candidate Starts for Caelum\_60:

(Start: 37 @40694 has 25 MA's),

Gene: Caliburn\_53 Start: 40573, Stop: 40337, Start Num: 41

Candidate Starts for Caliburn\_53:

(Start: 41 @40573 has 58 MA's), (45, 40564), (Start: 50 @40537 has 6 MA's),

Gene: Celery\_61 Start: 40408, Stop: 40163, Start Num: 39

Candidate Starts for Celery\_61:

(2, 40903), (3, 40897), (19, 40513), (29, 40462), (Start: 39 @40408 has 12 MA's), (70, 40174),

Gene: Celeste\_57 Start: 41721, Stop: 41485, Start Num: 41

Candidate Starts for Celeste\_57:

(21, 41826), (28, 41781), (Start: 41 @41721 has 58 MA's), (69, 41496),

Gene: Celia\_55 Start: 40296, Stop: 40063, Start Num: 41

Candidate Starts for Celia\_55:

(Start: 41 @40296 has 58 MA's), (45, 40287), (Start: 50 @40260 has 6 MA's), (54, 40245),

Gene: Chucky\_55 Start: 42691, Stop: 42491, Start Num: 50

Candidate Starts for Chucky\_55:

(21, 42832), (28, 42787), (Start: 41 @42727 has 58 MA's), (Start: 50 @42691 has 6 MA's),

Gene: Conan\_58 Start: 40397, Stop: 40152, Start Num: 39

Candidate Starts for Conan\_58:

(Start: 39 @40397 has 12 MA's), (70, 40163),

Gene: Danzina\_57 Start: 41966, Stop: 41730, Start Num: 41

Candidate Starts for Danzina\_57:

(21, 42071), (26, 42056), (28, 42026), (Start: 41 @41966 has 58 MA's), (Start: 50 @41930 has 6 MA's),

Gene: Dattran\_58 Start: 42112, Stop: 41876, Start Num: 41

Candidate Starts for Dattran\_58:

(21, 42217), (28, 42172), (Start: 41 @42112 has 58 MA's), (Start: 50 @42076 has 6 MA's), (69, 41887),

Gene: Daudau\_58 Start: 40574, Stop: 40341, Start Num: 37

Candidate Starts for Daudau\_58:

(10, 40763), (12, 40736), (16, 40685), (Start: 37 @40574 has 25 MA's), (60, 40445),

Gene: Dexers\_56 Start: 40679, Stop: 40434, Start Num: 39

Candidate Starts for Dexers\_56:

(Start: 39 @40679 has 12 MA's), (70, 40445),

Gene: Diane\_58 Start: 41306, Stop: 41106, Start Num: 50

Candidate Starts for Diane\_58:

(12, 41507), (16, 41456), (22, 41441), (Start: 37 @41342 has 25 MA's), (Start: 50 @41306 has 6 MA's), (60, 41213), (62, 41198),

Gene: Dwayne\_55 Start: 42715, Stop: 42479, Start Num: 41

Candidate Starts for Dwayne\_55:

(21, 42820), (28, 42775), (Start: 41 @42715 has 58 MA's), (Start: 50 @42679 has 6 MA's),

Gene: ELB20\_57 Start: 40920, Stop: 40693, Start Num: 37

Candidate Starts for ELB20\_57:

(12, 41079), (16, 41028), (22, 41013), (Start: 37 @40920 has 25 MA's), (54, 40869), (69, 40704),

Gene: EastWest\_71 Start: 42488, Stop: 42676, Start Num: 52

Candidate Starts for EastWest\_71:

(Start: 52 @42488 has 1 MA's), (62, 42596),

Gene: Eddasa\_57 Start: 41498, Stop: 41262, Start Num: 41

Candidate Starts for Eddasa\_57:

(23, 41597), (Start: 41 @41498 has 58 MA's), (Start: 50 @41462 has 6 MA's), (69, 41273),

Gene: Ejemplo\_53 Start: 42653, Stop: 42417, Start Num: 41

Candidate Starts for Ejemplo\_53:

(21, 42758), (28, 42713), (Start: 41 @42653 has 58 MA's), (Start: 50 @42617 has 6 MA's),

Gene: ElGato\_58 Start: 40268, Stop: 40023, Start Num: 39

Candidate Starts for ElGato\_58:

(33, 40301), (Start: 39 @40268 has 12 MA's), (70, 40034),

Gene: Emaanora\_58 Start: 42638, Stop: 42402, Start Num: 41

Candidate Starts for Emaanora\_58:

(21, 42743), (28, 42698), (Start: 41 @42638 has 58 MA's), (Start: 50 @42602 has 6 MA's),

Gene: EnochSoames\_58 Start: 40755, Stop: 40519, Start Num: 41

Candidate Starts for EnochSoames\_58:

(Start: 41 @40755 has 58 MA's), (Start: 50 @40719 has 6 MA's), (69, 40530),

Gene: Esperer\_54 Start: 40288, Stop: 40049, Start Num: 41

Candidate Starts for Esperer\_54:

(Start: 41 @40288 has 58 MA's), (45, 40279), (Start: 50 @40249 has 6 MA's),

Gene: Francob\_92 Start: 65297, Stop: 65506, Start Num: 47

Candidate Starts for Francob\_92:

(Start: 47 @65297 has 1 MA's), (67, 65477),

Gene: GirlDinner\_58 Start: 41073, Stop: 40816, Start Num: 37

Candidate Starts for GirlDinner\_58:

(Start: 37 @41073 has 25 MA's), (71, 40833),

Gene: Goby\_57 Start: 42538, Stop: 42302, Start Num: 41

Candidate Starts for Goby\_57:

(21, 42643), (28, 42598), (Start: 41 @42538 has 58 MA's), (Start: 50 @42502 has 6 MA's), (69, 42313),

Gene: Godpower\_57 Start: 41991, Stop: 41755, Start Num: 41

Candidate Starts for Godpower\_57:

(21, 42096), (28, 42051), (Start: 41 @41991 has 58 MA's), (Start: 50 @41955 has 6 MA's), (69, 41766),

Gene: GreenWeasel\_60 Start: 40754, Stop: 40518, Start Num: 38

Candidate Starts for GreenWeasel\_60:

(7, 41093), (16, 40892), (27, 40841), (Start: 38 @40754 has 3 MA's), (55, 40670), (62, 40604), (68, 40553),

Gene: Haizum\_58 Start: 41371, Stop: 41171, Start Num: 50

Candidate Starts for Haizum\_58:

(12, 41572), (16, 41521), (22, 41506), (Start: 37 @41407 has 25 MA's), (Start: 50 @41371 has 6 MA's), (60, 41278), (62, 41263),

Gene: Hank144\_60 Start: 41455, Stop: 41225, Start Num: 44

Candidate Starts for Hank144\_60:

(34, 41491), (Start: 44 @41455 has 1 MA's), (48, 41440), (64, 41305),

Gene: Hippo\_55 Start: 42701, Stop: 42465, Start Num: 41

Candidate Starts for Hippo\_55:

(21, 42806), (28, 42761), (Start: 41 @42701 has 58 MA's), (Start: 50 @42665 has 6 MA's),

Gene: Huwbert\_77 Start: 47906, Stop: 48085, Start Num: 51

Candidate Starts for Huwbert\_77:  
(Start: 51 @47906 has 2 MA's), (63, 48011),

Gene: Hydra\_55 Start: 41124, Stop: 40885, Start Num: 41  
Candidate Starts for Hydra\_55:  
(Start: 41 @41124 has 58 MA's), (45, 41115), (Start: 50 @41085 has 6 MA's), (69, 40896),

Gene: Indigo\_53 Start: 40465, Stop: 40229, Start Num: 41  
Candidate Starts for Indigo\_53:  
(Start: 41 @40465 has 58 MA's), (45, 40456), (Start: 50 @40429 has 6 MA's),

Gene: Issmi\_59 Start: 40976, Stop: 40734, Start Num: 36  
Candidate Starts for Issmi\_59:  
(25, 41057), (Start: 36 @40976 has 1 MA's), (54, 40928), (60, 40850), (73, 40745),

Gene: Itza\_57 Start: 40229, Stop: 39996, Start Num: 41  
Candidate Starts for Itza\_57:  
(Start: 41 @40229 has 58 MA's), (45, 40220), (Start: 50 @40193 has 6 MA's), (54, 40178),

Gene: Izzy\_56 Start: 41006, Stop: 40770, Start Num: 41  
Candidate Starts for Izzy\_56:  
(23, 41105), (Start: 41 @41006 has 58 MA's), (Start: 50 @40970 has 6 MA's), (69, 40781),

Gene: Janus\_59 Start: 41413, Stop: 41156, Start Num: 37  
Candidate Starts for Janus\_59:  
(Start: 37 @41413 has 25 MA's), (71, 41173),

Gene: Jash\_56 Start: 40959, Stop: 40723, Start Num: 41  
Candidate Starts for Jash\_56:  
(23, 41058), (Start: 41 @40959 has 58 MA's), (Start: 50 @40923 has 6 MA's), (69, 40734),

Gene: Jevington\_57 Start: 39340, Stop: 39107, Start Num: 37  
Candidate Starts for Jevington\_57:  
(Start: 37 @39340 has 25 MA's), (54, 39289),

Gene: Jhitchelle\_58 Start: 40061, Stop: 39819, Start Num: 40  
Candidate Starts for Jhitchelle\_58:  
(4, 40541), (19, 40169), (29, 40118), (31, 40103), (32, 40097), (40, 40061), (70, 39830),

Gene: Kaine\_58 Start: 40589, Stop: 40344, Start Num: 39  
Candidate Starts for Kaine\_58:  
(Start: 39 @40589 has 12 MA's), (70, 40355),

Gene: Katalie\_55 Start: 42970, Stop: 42737, Start Num: 41  
Candidate Starts for Katalie\_55:  
(Start: 41 @42970 has 58 MA's), (Start: 50 @42934 has 6 MA's), (69, 42748),

Gene: Lannister\_55 Start: 41666, Stop: 41430, Start Num: 41  
Candidate Starts for Lannister\_55:  
(9, 41960), (19, 41774), (32, 41702), (35, 41681), (Start: 41 @41666 has 58 MA's), (Start: 50 @41630 has 6 MA's), (59, 41555),

Gene: Legacy\_53 Start: 40564, Stop: 40328, Start Num: 41

Candidate Starts for Legacy\_53:

(Start: 41 @40564 has 58 MA's), (Start: 50 @40528 has 6 MA's),

Gene: Leviticus\_54 Start: 40475, Stop: 40236, Start Num: 41

Candidate Starts for Leviticus\_54:

(Start: 41 @40475 has 58 MA's), (45, 40466), (Start: 50 @40436 has 6 MA's),

Gene: Lika\_56 Start: 42546, Stop: 42313, Start Num: 41

Candidate Starts for Lika\_56:

(19, 42651), (32, 42579), (Start: 41 @42546 has 58 MA's), (Start: 50 @42510 has 6 MA's), (66, 42369),

Gene: Loofah\_60 Start: 41340, Stop: 41113, Start Num: 42

Candidate Starts for Loofah\_60:

(5, 41775), (6, 41688), (8, 41649), (14, 41514), (31, 41385), (Start: 36 @41355 has 1 MA's), (Start: 42 @41340 has 1 MA's), (54, 41289), (69, 41124),

Gene: Lorelei\_56 Start: 41728, Stop: 41492, Start Num: 41

Candidate Starts for Lorelei\_56:

(21, 41833), (28, 41788), (Start: 41 @41728 has 58 MA's), (Start: 50 @41692 has 6 MA's),

Gene: Maneekul\_55 Start: 42731, Stop: 42495, Start Num: 41

Candidate Starts for Maneekul\_55:

(21, 42836), (28, 42791), (Start: 41 @42731 has 58 MA's), (Start: 50 @42695 has 6 MA's),

Gene: Marav\_59 Start: 39879, Stop: 39634, Start Num: 37

Candidate Starts for Marav\_59:

(12, 40041), (16, 39990), (24, 39969), (Start: 37 @39879 has 25 MA's), (Start: 50 @39846 has 6 MA's), (54, 39831), (61, 39744), (69, 39660),

Gene: Nabi\_56 Start: 41728, Stop: 41489, Start Num: 41

Candidate Starts for Nabi\_56:

(Start: 41 @41728 has 58 MA's), (45, 41719),

Gene: Nanodon\_57 Start: 41658, Stop: 41422, Start Num: 41

Candidate Starts for Nanodon\_57:

(28, 41718), (Start: 41 @41658 has 58 MA's),

Gene: Nerdos\_53 Start: 40464, Stop: 40228, Start Num: 41

Candidate Starts for Nerdos\_53:

(Start: 41 @40464 has 58 MA's), (45, 40455), (Start: 50 @40428 has 6 MA's),

Gene: Nishikigoi\_59 Start: 41371, Stop: 41171, Start Num: 50

Candidate Starts for Nishikigoi\_59:

(12, 41572), (16, 41521), (22, 41506), (Start: 37 @41407 has 25 MA's), (Start: 50 @41371 has 6 MA's), (60, 41278), (62, 41263),

Gene: Nostromo\_62 Start: 41307, Stop: 41489, Start Num: 53

Candidate Starts for Nostromo\_62:

(Start: 53 @41307 has 1 MA's), (57, 41358),

Gene: Oliynyk\_56 Start: 40959, Stop: 40723, Start Num: 41

Candidate Starts for Oliynyk\_56:

(23, 41058), (Start: 41 @40959 has 58 MA's), (Start: 50 @40923 has 6 MA's), (69, 40734),

Gene: Omar\_61 Start: 39650, Stop: 39450, Start Num: 50  
Candidate Starts for Omar\_61:  
(16, 39800), (22, 39785), (Start: 37 @39686 has 25 MA's), (Start: 50 @39650 has 6 MA's), (54, 39635),  
(60, 39557),

Gene: Ozzie\_53 Start: 40573, Stop: 40337, Start Num: 41  
Candidate Starts for Ozzie\_53:  
(Start: 41 @40573 has 58 MA's), (Start: 50 @40537 has 6 MA's),

Gene: OzzyJ\_57 Start: 42627, Stop: 42391, Start Num: 41  
Candidate Starts for OzzyJ\_57:  
(1, 43152), (3, 43119), (19, 42735), (32, 42663), (Start: 41 @42627 has 58 MA's), (Start: 50 @42591  
has 6 MA's),

Gene: Pablito\_56 Start: 39942, Stop: 39703, Start Num: 37  
Candidate Starts for Pablito\_56:  
(Start: 37 @39942 has 25 MA's), (48, 39921),

Gene: Paedore\_59 Start: 41325, Stop: 41098, Start Num: 37  
Candidate Starts for Paedore\_59:  
(12, 41484), (13, 41469), (16, 41433), (22, 41418), (Start: 37 @41325 has 25 MA's), (54, 41274), (69,  
41109),

Gene: Paolo\_60 Start: 41043, Stop: 40813, Start Num: 37  
Candidate Starts for Paolo\_60:  
(Start: 37 @41043 has 25 MA's), (54, 40995),

Gene: Pavo\_59 Start: 40640, Stop: 40395, Start Num: 39  
Candidate Starts for Pavo\_59:  
(Start: 39 @40640 has 12 MA's), (70, 40406),

Gene: Phettuccine\_54 Start: 40465, Stop: 40229, Start Num: 41  
Candidate Starts for Phettuccine\_54:  
(Start: 41 @40465 has 58 MA's), (45, 40456), (Start: 50 @40429 has 6 MA's),

Gene: Provolone\_58 Start: 40480, Stop: 40235, Start Num: 39  
Candidate Starts for Provolone\_58:  
(33, 40513), (Start: 39 @40480 has 12 MA's), (70, 40246),

Gene: Puginator\_60 Start: 41089, Stop: 40859, Start Num: 37  
Candidate Starts for Puginator\_60:  
(Start: 37 @41089 has 25 MA's), (Start: 50 @41056 has 6 MA's), (54, 41041),

Gene: R4\_58 Start: 41080, Stop: 40853, Start Num: 37  
Candidate Starts for R4\_58:  
(12, 41239), (16, 41188), (22, 41173), (Start: 37 @41080 has 25 MA's), (54, 41029), (69, 40864),

Gene: Rana\_57 Start: 42150, Stop: 41905, Start Num: 41  
Candidate Starts for Rana\_57:  
(21, 42255), (28, 42210), (Start: 41 @42150 has 58 MA's), (Start: 50 @42114 has 6 MA's),

Gene: RedBear\_56 Start: 42970, Stop: 42737, Start Num: 41

Candidate Starts for RedBear\_56:

(Start: 41 @42970 has 58 MA's), (Start: 50 @42934 has 6 MA's), (69, 42748),

Gene: Rusticus\_56 Start: 40959, Stop: 40723, Start Num: 41

Candidate Starts for Rusticus\_56:

(23, 41058), (Start: 41 @40959 has 58 MA's), (Start: 50 @40923 has 6 MA's), (69, 40734),

Gene: Saftant\_56 Start: 40553, Stop: 40308, Start Num: 39

Candidate Starts for Saftant\_56:

(15, 40712), (21, 40658), (Start: 39 @40553 has 12 MA's), (70, 40319),

Gene: SarahRose\_55 Start: 42700, Stop: 42464, Start Num: 41

Candidate Starts for SarahRose\_55:

(21, 42805), (28, 42760), (Start: 41 @42700 has 58 MA's), (Start: 50 @42664 has 6 MA's),

Gene: Shrew\_80 Start: 49126, Stop: 49305, Start Num: 49

Candidate Starts for Shrew\_80:

(48, 49120), (Start: 49 @49126 has 2 MA's), (59, 49201),

Gene: Snorlax\_55 Start: 42725, Stop: 42489, Start Num: 41

Candidate Starts for Snorlax\_55:

(21, 42830), (28, 42785), (Start: 41 @42725 has 58 MA's), (Start: 50 @42689 has 6 MA's),

Gene: South40\_55 Start: 42970, Stop: 42737, Start Num: 41

Candidate Starts for South40\_55:

(Start: 41 @42970 has 58 MA's), (Start: 50 @42934 has 6 MA's), (69, 42748),

Gene: Speedwell\_61 Start: 41596, Stop: 41351, Start Num: 39

Candidate Starts for Speedwell\_61:

(21, 41701), (Start: 39 @41596 has 12 MA's), (70, 41362),

Gene: SqueakyClean\_59 Start: 41591, Stop: 41334, Start Num: 37

Candidate Starts for SqueakyClean\_59:

(Start: 37 @41591 has 25 MA's), (71, 41351),

Gene: Sudan\_59 Start: 40444, Stop: 40199, Start Num: 39

Candidate Starts for Sudan\_59:

(Start: 39 @40444 has 12 MA's), (70, 40210),

Gene: Sujidade\_56 Start: 42279, Stop: 42043, Start Num: 41

Candidate Starts for Sujidade\_56:

(Start: 41 @42279 has 58 MA's), (Start: 50 @42243 has 6 MA's),

Gene: SunsetPointe\_53 Start: 40580, Stop: 40344, Start Num: 41

Candidate Starts for SunsetPointe\_53:

(Start: 41 @40580 has 58 MA's), (Start: 50 @40544 has 6 MA's),

Gene: Superstar\_65 Start: 41700, Stop: 41482, Start Num: 50

Candidate Starts for Superstar\_65:

(Start: 50 @41700 has 6 MA's), (54, 41685), (62, 41592), (72, 41502),

Gene: TagePighther\_57 Start: 42701, Stop: 42465, Start Num: 41

Candidate Starts for TagePighther\_57:

(21, 42806), (28, 42761), (Start: 41 @42701 has 58 MA's), (Start: 50 @42665 has 6 MA's),

Gene: Tefunt\_58 Start: 41285, Stop: 41085, Start Num: 50

Candidate Starts for Tefunt\_58:

(12, 41486), (16, 41435), (22, 41420), (Start: 37 @41321 has 25 MA's), (Start: 50 @41285 has 6 MA's), (60, 41192), (62, 41177),

Gene: Thestral\_60 Start: 41982, Stop: 41749, Start Num: 37

Candidate Starts for Thestral\_60:

(16, 42093), (Start: 37 @41982 has 25 MA's), (54, 41931),

Gene: TinaBelcher\_58 Start: 41930, Stop: 41697, Start Num: 37

Candidate Starts for TinaBelcher\_58:

(16, 42041), (Start: 37 @41930 has 25 MA's), (54, 41879),

Gene: Toma\_57 Start: 42541, Stop: 42305, Start Num: 41

Candidate Starts for Toma\_57:

(21, 42646), (28, 42601), (Start: 41 @42541 has 58 MA's), (Start: 50 @42505 has 6 MA's), (69, 42316),

Gene: Triscuit\_76 Start: 47863, Stop: 48045, Start Num: 51

Candidate Starts for Triscuit\_76:

(30, 47764), (Start: 51 @47863 has 2 MA's), (56, 47911),

Gene: Triste\_56 Start: 42700, Stop: 42464, Start Num: 41

Candidate Starts for Triste\_56:

(21, 42805), (28, 42760), (Start: 41 @42700 has 58 MA's), (Start: 50 @42664 has 6 MA's),

Gene: Triumph\_60 Start: 41299, Stop: 41039, Start Num: 37

Candidate Starts for Triumph\_60:

(20, 41413), (Start: 37 @41299 has 25 MA's), (71, 41059),

Gene: TrvxScott\_57 Start: 41976, Stop: 41743, Start Num: 37

Candidate Starts for TrvxScott\_57:

(16, 42087), (Start: 37 @41976 has 25 MA's), (54, 41925),

Gene: TuanPN\_53 Start: 42653, Stop: 42417, Start Num: 41

Candidate Starts for TuanPN\_53:

(21, 42758), (28, 42713), (Start: 41 @42653 has 58 MA's), (Start: 50 @42617 has 6 MA's),

Gene: Unstoppable\_54 Start: 40463, Stop: 40227, Start Num: 41

Candidate Starts for Unstoppable\_54:

(Start: 41 @40463 has 58 MA's), (45, 40454), (Start: 50 @40427 has 6 MA's),

Gene: Urza\_56 Start: 40250, Stop: 40017, Start Num: 41

Candidate Starts for Urza\_56:

(Start: 41 @40250 has 58 MA's), (45, 40241), (Start: 50 @40214 has 6 MA's), (54, 40199),

Gene: Vanseggelen\_62 Start: 40293, Stop: 40048, Start Num: 39

Candidate Starts for Vanseggelen\_62:

(Start: 39 @40293 has 12 MA's), (65, 40113), (66, 40107), (70, 40059),

Gene: Verabelle\_61 Start: 40129, Stop: 39887, Start Num: 39

Candidate Starts for Verabelle\_61:

(11, 40327), (17, 40255), (18, 40252), (19, 40237), (29, 40186), (32, 40165), (Start: 39 @40129 has 12 MA's), (61, 39985), (70, 39898),

Gene: Verse\_59 Start: 41411, Stop: 41166, Start Num: 39  
Candidate Starts for Verse\_59:  
(28, 41471), (Start: 39 @41411 has 12 MA's), (45, 41393), (70, 41177),

Gene: VieEnRose\_57 Start: 40308, Stop: 40075, Start Num: 41  
Candidate Starts for VieEnRose\_57:  
(15, 40479), (Start: 41 @40308 has 58 MA's), (45, 40299), (Start: 50 @40272 has 6 MA's), (54, 40257),

Gene: Weasels2\_265 Start: 124741, Stop: 124550, Start Num: 49  
Candidate Starts for Weasels2\_265:  
(43, 124774), (46, 124762), (Start: 49 @124741 has 2 MA's), (58, 124669),

Gene: Werner\_55 Start: 42698, Stop: 42462, Start Num: 41  
Candidate Starts for Werner\_55:  
(21, 42803), (28, 42758), (Start: 41 @42698 has 58 MA's), (Start: 50 @42662 has 6 MA's),

Gene: Whatever\_55 Start: 42724, Stop: 42488, Start Num: 41  
Candidate Starts for Whatever\_55:  
(21, 42829), (28, 42784), (Start: 41 @42724 has 58 MA's), (Start: 50 @42688 has 6 MA's),

Gene: Yasdnii\_55 Start: 42750, Stop: 42514, Start Num: 41  
Candidate Starts for Yasdnii\_55:  
(21, 42855), (28, 42810), (Start: 41 @42750 has 58 MA's), (Start: 50 @42714 has 6 MA's),

Gene: Yosif\_62 Start: 41552, Stop: 41316, Start Num: 39  
Candidate Starts for Yosif\_62:  
(18, 41672), (29, 41606), (Start: 39 @41552 has 12 MA's), (Start: 50 @41516 has 6 MA's), (54, 41501), (66, 41375), (69, 41330), (70, 41327),

Gene: Zainub\_60 Start: 41018, Stop: 40788, Start Num: 37  
Candidate Starts for Zainub\_60:  
(Start: 37 @41018 has 25 MA's), (54, 40970),

Gene: ZamZam\_61 Start: 40867, Stop: 40622, Start Num: 39  
Candidate Starts for ZamZam\_61:  
(Start: 39 @40867 has 12 MA's), (70, 40633),

Gene: Zemlya\_57 Start: 42273, Stop: 42040, Start Num: 41  
Candidate Starts for Zemlya\_57:  
(19, 42378), (29, 42327), (31, 42312), (Start: 41 @42273 has 58 MA's), (Start: 50 @42237 has 6 MA's), (66, 42096),

Gene: phiCAM\_55 Start: 42218, Stop: 41973, Start Num: 39  
Candidate Starts for phiCAM\_55:  
(Start: 39 @42218 has 12 MA's), (70, 41984),

Gene: phiHau3\_59 Start: 40712, Stop: 40476, Start Num: 38  
Candidate Starts for phiHau3\_59:  
(Start: 38 @40712 has 3 MA's), (55, 40628), (62, 40562), (68, 40511),