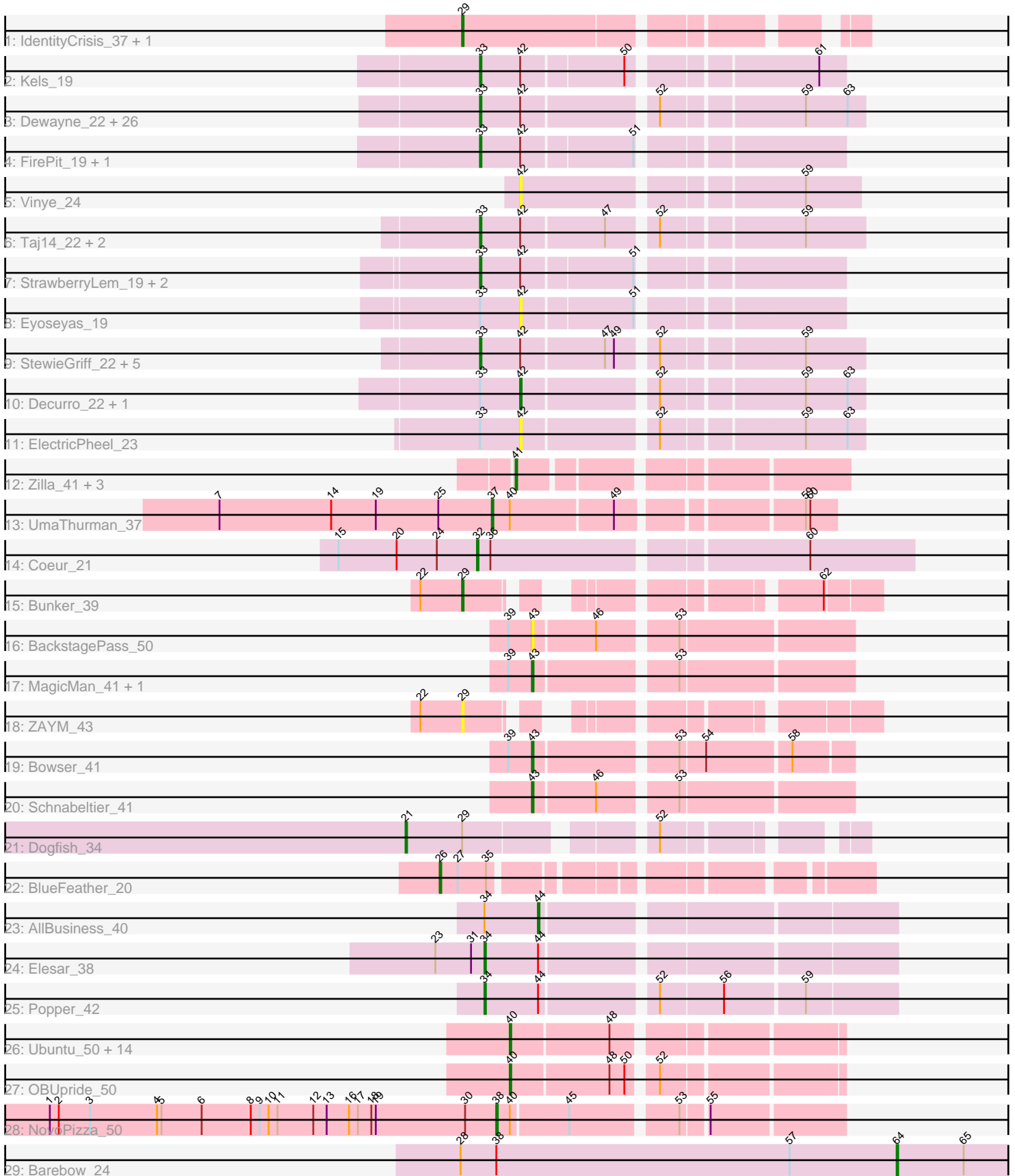


# Pham 311484



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 311484 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311484 has 85 members, 7 are drafts.

Phages represented in each track:

- Track 1 : IdentityCrisis\_37, WST1\_38
- Track 2 : Kels\_19
- Track 3 : Dewayne\_22, Hunnie\_22, Ronnie\_22, LouisXIV\_22, Inspire2\_22, Sandman\_22, Azathoth\_22, Courtney3\_22, Muttie\_22, TinoCrisci\_22, Arby\_22, Moloch\_22, Stratus\_22, TymAbreu\_22, CGermain\_22, Toulouse\_21, Prospero\_22, Yank\_22, Mariposa\_22, Guntur\_22, Maggie\_22, Sourignavong\_23, Copper\_22, Chestnut\_22, Link\_22, Seume\_22, Massimo\_22
- Track 4 : FirePit\_19, Ximeno\_19
- Track 5 : Vinye\_24
- Track 6 : Taj14\_22, Swenson\_22, Saphira\_23
- Track 7 : StrawberryLem\_19, Arielagos\_19, SerialPhiller\_19
- Track 8 : Eyoseyas\_19
- Track 9 : StewieGriff\_22, Blair\_22, Lore\_22, KylieMac\_23, Elkhorn\_22, Laila\_24
- Track 10 : Decurro\_22, Jessica\_23
- Track 11 : ElectricPheel\_23
- Track 12 : Zilla\_41, Petra\_40, Zarbodnamra\_42, Oblivate\_39
- Track 13 : UmaThurman\_37
- Track 14 : Coeur\_21
- Track 15 : Bunker\_39
- Track 16 : BackstagePass\_50
- Track 17 : MagicMan\_41, Eyes\_39
- Track 18 : ZAYM\_43
- Track 19 : Bowser\_41
- Track 20 : Schnabeltier\_41
- Track 21 : Dogfish\_34
- Track 22 : BlueFeather\_20
- Track 23 : AllBusiness\_40
- Track 24 : Elesar\_38
- Track 25 : Popper\_42
- Track 26 : Ubuntu\_50, Evanesce\_49, BloominB\_50, Hadrien\_50, Forge\_48, Daegal\_52, Webster2\_50, Ein37\_50, Amymech\_50, Amochick\_50, Gancho\_49, DeepSoil15\_50, Luke\_50, LilHazelNut\_50, Kinbote\_50
- Track 27 : OBUpride\_50
- Track 28 : NovoPizza\_50
- Track 29 : Barebow\_24

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

The start number called the most often in the published annotations is 33, it was called in 42 of the 78 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Arby\_22, Arielagos\_19, Azathoth\_22, Blair\_22, CGermain\_22, Chestnut\_22, Copper\_22, Courtney3\_22, Dewayne\_22, Elkhorn\_22, FirePit\_19, Guntur\_22, Hunnie\_22, Inspire2\_22, Kels\_19, KylieMac\_23, Laila\_24, Link\_22, Lore\_22, LouisXIV\_22, Maggie\_22, Mariposa\_22, Massimo\_22, Moloch\_22, Muttlie\_22, Prospero\_22, Ronnie\_22, Sandman\_22, Saphira\_23, SerialPhiller\_19, Seume\_22, Sourignavong\_23, StewieGriff\_22, Stratus\_22, StrawberryLem\_19, Swenson\_22, Taj14\_22, TinoCrisci\_22, Toulouse\_21, TymAbreu\_22, Ximeno\_19, Yank\_22,

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

- Decurro\_22, ElectricPheel\_23, Eyoseyas\_19, Jessica\_23,

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

- AllBusiness\_40, Amochick\_50, Amymech\_50, BackstagePass\_50, Barebow\_24, BloominB\_50, BlueFeather\_20, Bowser\_41, Bunker\_39, Coeur\_21, Daegal\_52, DeepSoil15\_50, Dogfish\_34, Ein37\_50, Elesar\_38, Evanesce\_49, Eyes\_39, Forge\_48, Gancho\_49, Hadrien\_50, IdentityCrisis\_37, Kinbote\_50, LilHazelnut\_50, Luke\_50, MagicMan\_41, NovoPizza\_50, OBUpride\_50, Obliviate\_39, Petra\_40, Popper\_42, Schnabeltier\_41, Ubuntu\_50, UmaThurman\_37, Vinye\_24, WST1\_38, Webster2\_50, ZAYM\_43, Zarbodnamra\_42, Zilla\_41,

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

Start 21:

- Found in 1 of 85 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 78
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dogfish\_34 (DT),

Start 26:

- Found in 1 of 85 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 78
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BlueFeather\_20 (FE),

Start 29:

- Found in 5 of 85 ( 5.9% ) of genes in pham
- Manual Annotations of this start: 2 of 78
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Bunker\_39 (DB), IdentityCrisis\_37 (AJ), WST1\_38 (AJ), ZAYM\_43 (DB),

Start 32:

- Found in 1 of 85 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 78
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Coeur\_21 (CW2),

Start 33:

- Found in 46 of 85 ( 54.1% ) of genes in pham
- Manual Annotations of this start: 42 of 78
- Called 91.3% of time when present
- Phage (with cluster) where this start called: Arby\_22 (AN), Arielagos\_19 (AN), Azathoth\_22 (AN), Blair\_22 (AN), CGermain\_22 (AN), Chestnut\_22 (AN), Copper\_22 (AN), Courtney3\_22 (AN), Dewayne\_22 (AN), Elkhorn\_22 (AN), FirePit\_19 (AN), Guntur\_22 (AN), Hunnie\_22 (AN), Inspire2\_22 (AN), Kels\_19 (AN), KylieMac\_23 (AN), Laila\_24 (AN), Link\_22 (AN), Lore\_22 (AN), LouisXIV\_22 (AN), Maggie\_22 (AN), Mariposa\_22 (AN), Massimo\_22 (AN), Moloch\_22 (AN), Muttie\_22 (AN), Prospero\_22 (AN), Ronnie\_22 (AN), Sandman\_22 (AN), Saphira\_23 (AN), SerialPhiller\_19 (AN), Seume\_22 (AN), Sourignavong\_23 (AN), StewieGriff\_22 (AN), Stratus\_22 (AN), StrawberryLem\_19 (AN), Swenson\_22 (AN), Taj14\_22 (AN), TinoCrisci\_22 (AN), Toulouse\_21 (AN), TymAbreu\_22 (AN), Ximeno\_19 (AN), Yank\_22 (AN),

Start 34:

- Found in 3 of 85 ( 3.5% ) of genes in pham
- Manual Annotations of this start: 2 of 78
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Elesar\_38 (FF), Popper\_42 (FF),

Start 37:

- Found in 1 of 85 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 78
- Called 100.0% of time when present
- Phage (with cluster) where this start called: UmaThurman\_37 (CV),

Start 38:

- Found in 2 of 85 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 1 of 78
- Called 50.0% of time when present
- Phage (with cluster) where this start called: NovoPizza\_50 (Q),

Start 40:

- Found in 18 of 85 ( 21.2% ) of genes in pham
- Manual Annotations of this start: 15 of 78
- Called 88.9% of time when present
- Phage (with cluster) where this start called: Amochick\_50 (Q), Amymech\_50 (Q), BloominB\_50 (Q), Daegal\_52 (Q), DeepSoil15\_50 (Q), Ein37\_50 (Q), Evanesce\_49 (Q), Forge\_48 (Q), Gancho\_49 (Q), Hadrien\_50 (Q), Kinbote\_50 (Q), LilHazelNut\_50 (Q), Luke\_50 (Q), OBUpride\_50 (Q), Ubuntu\_50 (Q), Webster2\_50 (Q),

Start 41:

- Found in 4 of 85 ( 4.7% ) of genes in pham
- Manual Annotations of this start: 4 of 78
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Obliviate\_39 (CV), Petra\_40 (CV), Zarbodnamra\_42 (CV), Zilla\_41 (CV),

Start 42:

- Found in 47 of 85 ( 55.3% ) of genes in pham

- Manual Annotations of this start: 2 of 78
- Called 10.6% of time when present
- Phage (with cluster) where this start called: Decurro\_22 (AN), ElectricPheel\_23 (AN), Eyoseyas\_19 (AN), Jessica\_23 (AN), Vinye\_24 (AN),

Start 43:

- Found in 5 of 85 ( 5.9% ) of genes in pham
- Manual Annotations of this start: 4 of 78
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BackstagePass\_50 (DB), Bowser\_41 (DB), Eyes\_39 (DB), MagicMan\_41 (DB), Schnabeltier\_41 (DB),

Start 44:

- Found in 3 of 85 ( 3.5% ) of genes in pham
- Manual Annotations of this start: 1 of 78
- Called 33.3% of time when present
- Phage (with cluster) where this start called: AllBusiness\_40 (FF),

Start 64:

- Found in 1 of 85 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 78
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Barebow\_24 (singleton),

### **Summary by clusters:**

There are 10 clusters represented in this pham: singleton, CW2, AJ, DB, AN, Q, FE, FF, DT, CV,

Info for manual annotations of cluster AJ:

- Start number 29 was manually annotated 1 time for cluster AJ.

Info for manual annotations of cluster AN:

- Start number 33 was manually annotated 42 times for cluster AN.
- Start number 42 was manually annotated 2 times for cluster AN.

Info for manual annotations of cluster CV:

- Start number 37 was manually annotated 1 time for cluster CV.
- Start number 41 was manually annotated 4 times for cluster CV.

Info for manual annotations of cluster CW2:

- Start number 32 was manually annotated 1 time for cluster CW2.

Info for manual annotations of cluster DB:

- Start number 29 was manually annotated 1 time for cluster DB.
- Start number 43 was manually annotated 4 times for cluster DB.

Info for manual annotations of cluster DT:

- Start number 21 was manually annotated 1 time for cluster DT.

Info for manual annotations of cluster FE:

- Start number 26 was manually annotated 1 time for cluster FE.

Info for manual annotations of cluster FF:

- Start number 34 was manually annotated 2 times for cluster FF.
- Start number 44 was manually annotated 1 time for cluster FF.

Info for manual annotations of cluster Q:

- Start number 38 was manually annotated 1 time for cluster Q.
- Start number 40 was manually annotated 15 times for cluster Q.

### **Gene Information:**

Gene: AllBusiness\_40 Start: 31222, Stop: 31440, Start Num: 44

Candidate Starts for AllBusiness\_40:

(Start: 34 @31186 has 2 MA's), (Start: 44 @31222 has 1 MA's),

Gene: Amochick\_50 Start: 36955, Stop: 37152, Start Num: 40

Candidate Starts for Amochick\_50:

(Start: 40 @36955 has 15 MA's), (48, 37018),

Gene: Amymech\_50 Start: 36949, Stop: 37146, Start Num: 40

Candidate Starts for Amymech\_50:

(Start: 40 @36949 has 15 MA's), (48, 37012),

Gene: Arby\_22 Start: 13886, Stop: 14119, Start Num: 33

Candidate Starts for Arby\_22:

(Start: 33 @13886 has 42 MA's), (Start: 42 @13913 has 2 MA's), (52, 13994), (59, 14081), (63, 14108),

Gene: Arielagos\_19 Start: 13063, Stop: 13281, Start Num: 33

Candidate Starts for Arielagos\_19:

(Start: 33 @13063 has 42 MA's), (Start: 42 @13090 has 2 MA's), (51, 13159),

Gene: Azathoth\_22 Start: 13886, Stop: 14119, Start Num: 33

Candidate Starts for Azathoth\_22:

(Start: 33 @13886 has 42 MA's), (Start: 42 @13913 has 2 MA's), (52, 13994), (59, 14081), (63, 14108),

Gene: BackstagePass\_50 Start: 34306, Stop: 34112, Start Num: 43

Candidate Starts for BackstagePass\_50:

(39, 34321), (Start: 43 @34306 has 4 MA's), (46, 34267), (53, 34222),

Gene: Barebow\_24 Start: 17257, Stop: 17445, Start Num: 64

Candidate Starts for Barebow\_24:

(28, 16966), (Start: 38 @16990 has 1 MA's), (57, 17185), (Start: 64 @17257 has 1 MA's), (65, 17302),

Gene: Blair\_22 Start: 13883, Stop: 14116, Start Num: 33

Candidate Starts for Blair\_22:

(Start: 33 @13883 has 42 MA's), (Start: 42 @13910 has 2 MA's), (47, 13964), (49, 13970), (52, 13991), (59, 14078),

Gene: BloominB\_50 Start: 36949, Stop: 37146, Start Num: 40

Candidate Starts for BloominB\_50:

(Start: 40 @36949 has 15 MA's), (48, 37012),

Gene: BlueFeather\_20 Start: 14165, Stop: 14407, Start Num: 26  
Candidate Starts for BlueFeather\_20:  
(Start: 26 @14165 has 1 MA's), (27, 14177), (35, 14195),

Gene: Bowser\_41 Start: 32656, Stop: 32847, Start Num: 43  
Candidate Starts for Bowser\_41:  
(39, 32641), (Start: 43 @32656 has 4 MA's), (53, 32740), (54, 32755), (58, 32809),

Gene: Bunker\_39 Start: 31881, Stop: 32090, Start Num: 29  
Candidate Starts for Bunker\_39:  
(22, 31854), (Start: 29 @31881 has 2 MA's), (62, 32055),

Gene: CGermain\_22 Start: 13886, Stop: 14119, Start Num: 33  
Candidate Starts for CGermain\_22:  
(Start: 33 @13886 has 42 MA's), (Start: 42 @13913 has 2 MA's), (52, 13994), (59, 14081), (63, 14108),

Gene: Chestnut\_22 Start: 13886, Stop: 14119, Start Num: 33  
Candidate Starts for Chestnut\_22:  
(Start: 33 @13886 has 42 MA's), (Start: 42 @13913 has 2 MA's), (52, 13994), (59, 14081), (63, 14108),

Gene: Coeur\_21 Start: 14434, Stop: 14706, Start Num: 32  
Candidate Starts for Coeur\_21:  
(15, 14341), (20, 14380), (24, 14407), (Start: 32 @14434 has 1 MA's), (36, 14443), (60, 14638),

Gene: Copper\_22 Start: 13886, Stop: 14119, Start Num: 33  
Candidate Starts for Copper\_22:  
(Start: 33 @13886 has 42 MA's), (Start: 42 @13913 has 2 MA's), (52, 13994), (59, 14081), (63, 14108),

Gene: Courtney3\_22 Start: 13886, Stop: 14119, Start Num: 33  
Candidate Starts for Courtney3\_22:  
(Start: 33 @13886 has 42 MA's), (Start: 42 @13913 has 2 MA's), (52, 13994), (59, 14081), (63, 14108),

Gene: Daegal\_52 Start: 37533, Stop: 37730, Start Num: 40  
Candidate Starts for Daegal\_52:  
(Start: 40 @37533 has 15 MA's), (48, 37596),

Gene: Decurro\_22 Start: 13881, Stop: 14087, Start Num: 42  
Candidate Starts for Decurro\_22:  
(Start: 33 @13854 has 42 MA's), (Start: 42 @13881 has 2 MA's), (52, 13962), (59, 14049), (63, 14076),

Gene: DeepSoil15\_50 Start: 36949, Stop: 37146, Start Num: 40  
Candidate Starts for DeepSoil15\_50:  
(Start: 40 @36949 has 15 MA's), (48, 37012),

Gene: Dewayne\_22 Start: 13886, Stop: 14119, Start Num: 33  
Candidate Starts for Dewayne\_22:  
(Start: 33 @13886 has 42 MA's), (Start: 42 @13913 has 2 MA's), (52, 13994), (59, 14081), (63, 14108),

Gene: Dogfish\_34 Start: 29638, Stop: 29883, Start Num: 21  
Candidate Starts for Dogfish\_34:  
(Start: 21 @29638 has 1 MA's), (Start: 29 @29674 has 2 MA's), (52, 29776),

Gene: Ein37\_50 Start: 36949, Stop: 37146, Start Num: 40

Candidate Starts for Ein37\_50:  
(Start: 40 @36949 has 15 MA's), (48, 37012),

Gene: ElectricPheel\_23 Start: 13954, Stop: 14160, Start Num: 42  
Candidate Starts for ElectricPheel\_23:  
(Start: 33 @13927 has 42 MA's), (Start: 42 @13954 has 2 MA's), (52, 14035), (59, 14122), (63, 14149),

Gene: Elesar\_38 Start: 30965, Stop: 31219, Start Num: 34  
Candidate Starts for Elesar\_38:  
(23, 30932), (31, 30956), (Start: 34 @30965 has 2 MA's), (Start: 44 @31001 has 1 MA's),

Gene: Elkhorn\_22 Start: 13883, Stop: 14116, Start Num: 33  
Candidate Starts for Elkhorn\_22:  
(Start: 33 @13883 has 42 MA's), (Start: 42 @13910 has 2 MA's), (47, 13964), (49, 13970), (52, 13991),  
(59, 14078),

Gene: Evanesce\_49 Start: 36949, Stop: 37146, Start Num: 40  
Candidate Starts for Evanesce\_49:  
(Start: 40 @36949 has 15 MA's), (48, 37012),

Gene: Eyes\_39 Start: 32432, Stop: 32626, Start Num: 43  
Candidate Starts for Eyes\_39:  
(39, 32417), (Start: 43 @32432 has 4 MA's), (53, 32516),

Gene: Eyoseyas\_19 Start: 13090, Stop: 13281, Start Num: 42  
Candidate Starts for Eyoseyas\_19:  
(Start: 33 @13063 has 42 MA's), (Start: 42 @13090 has 2 MA's), (51, 13159),

Gene: FirePit\_19 Start: 13076, Stop: 13294, Start Num: 33  
Candidate Starts for FirePit\_19:  
(Start: 33 @13076 has 42 MA's), (Start: 42 @13103 has 2 MA's), (51, 13172),

Gene: Forge\_48 Start: 36949, Stop: 37146, Start Num: 40  
Candidate Starts for Forge\_48:  
(Start: 40 @36949 has 15 MA's), (48, 37012),

Gene: Gancho\_49 Start: 36672, Stop: 36869, Start Num: 40  
Candidate Starts for Gancho\_49:  
(Start: 40 @36672 has 15 MA's), (48, 36735),

Gene: Guntur\_22 Start: 13886, Stop: 14119, Start Num: 33  
Candidate Starts for Guntur\_22:  
(Start: 33 @13886 has 42 MA's), (Start: 42 @13913 has 2 MA's), (52, 13994), (59, 14081), (63, 14108),

Gene: Hadrien\_50 Start: 36949, Stop: 37146, Start Num: 40  
Candidate Starts for Hadrien\_50:  
(Start: 40 @36949 has 15 MA's), (48, 37012),

Gene: Hunnie\_22 Start: 13886, Stop: 14119, Start Num: 33  
Candidate Starts for Hunnie\_22:  
(Start: 33 @13886 has 42 MA's), (Start: 42 @13913 has 2 MA's), (52, 13994), (59, 14081), (63, 14108),

Gene: IdentityCrisis\_37 Start: 27479, Stop: 27703, Start Num: 29

Candidate Starts for IdentityCrisis\_37:

(Start: 29 @27479 has 2 MA's),

Gene: Inspire2\_22 Start: 13886, Stop: 14119, Start Num: 33

Candidate Starts for Inspire2\_22:

(Start: 33 @13886 has 42 MA's), (Start: 42 @13913 has 2 MA's), (52, 13994), (59, 14081), (63, 14108),

Gene: Jessica\_23 Start: 13913, Stop: 14119, Start Num: 42

Candidate Starts for Jessica\_23:

(Start: 33 @13886 has 42 MA's), (Start: 42 @13913 has 2 MA's), (52, 13994), (59, 14081), (63, 14108),

Gene: Kels\_19 Start: 13001, Stop: 13219, Start Num: 33

Candidate Starts for Kels\_19:

(Start: 33 @13001 has 42 MA's), (Start: 42 @13028 has 2 MA's), (50, 13091), (61, 13202),

Gene: Kinbote\_50 Start: 36949, Stop: 37146, Start Num: 40

Candidate Starts for Kinbote\_50:

(Start: 40 @36949 has 15 MA's), (48, 37012),

Gene: KylieMac\_23 Start: 13870, Stop: 14103, Start Num: 33

Candidate Starts for KylieMac\_23:

(Start: 33 @13870 has 42 MA's), (Start: 42 @13897 has 2 MA's), (47, 13951), (49, 13957), (52, 13978), (59, 14065),

Gene: Laila\_24 Start: 13883, Stop: 14116, Start Num: 33

Candidate Starts for Laila\_24:

(Start: 33 @13883 has 42 MA's), (Start: 42 @13910 has 2 MA's), (47, 13964), (49, 13970), (52, 13991), (59, 14078),

Gene: LilHazelnut\_50 Start: 36949, Stop: 37146, Start Num: 40

Candidate Starts for LilHazelnut\_50:

(Start: 40 @36949 has 15 MA's), (48, 37012),

Gene: Link\_22 Start: 13851, Stop: 14084, Start Num: 33

Candidate Starts for Link\_22:

(Start: 33 @13851 has 42 MA's), (Start: 42 @13878 has 2 MA's), (52, 13959), (59, 14046), (63, 14073),

Gene: Lore\_22 Start: 13883, Stop: 14116, Start Num: 33

Candidate Starts for Lore\_22:

(Start: 33 @13883 has 42 MA's), (Start: 42 @13910 has 2 MA's), (47, 13964), (49, 13970), (52, 13991), (59, 14078),

Gene: LouisXIV\_22 Start: 13886, Stop: 14119, Start Num: 33

Candidate Starts for LouisXIV\_22:

(Start: 33 @13886 has 42 MA's), (Start: 42 @13913 has 2 MA's), (52, 13994), (59, 14081), (63, 14108),

Gene: Luke\_50 Start: 36904, Stop: 37101, Start Num: 40

Candidate Starts for Luke\_50:

(Start: 40 @36904 has 15 MA's), (48, 36967),

Gene: Maggie\_22 Start: 13886, Stop: 14119, Start Num: 33

Candidate Starts for Maggie\_22:

(Start: 33 @13886 has 42 MA's), (Start: 42 @13913 has 2 MA's), (52, 13994), (59, 14081), (63, 14108),

Gene: MagicMan\_41 Start: 32979, Stop: 33173, Start Num: 43

Candidate Starts for MagicMan\_41:

(39, 32964), (Start: 43 @32979 has 4 MA's), (53, 33063),

Gene: Mariposa\_22 Start: 13886, Stop: 14119, Start Num: 33

Candidate Starts for Mariposa\_22:

(Start: 33 @13886 has 42 MA's), (Start: 42 @13913 has 2 MA's), (52, 13994), (59, 14081), (63, 14108),

Gene: Massimo\_22 Start: 13886, Stop: 14119, Start Num: 33

Candidate Starts for Massimo\_22:

(Start: 33 @13886 has 42 MA's), (Start: 42 @13913 has 2 MA's), (52, 13994), (59, 14081), (63, 14108),

Gene: Moloch\_22 Start: 13960, Stop: 14193, Start Num: 33

Candidate Starts for Moloch\_22:

(Start: 33 @13960 has 42 MA's), (Start: 42 @13987 has 2 MA's), (52, 14068), (59, 14155), (63, 14182),

Gene: Muttie\_22 Start: 13854, Stop: 14087, Start Num: 33

Candidate Starts for Muttie\_22:

(Start: 33 @13854 has 42 MA's), (Start: 42 @13881 has 2 MA's), (52, 13962), (59, 14049), (63, 14076),

Gene: NovoPizza\_50 Start: 37432, Stop: 37641, Start Num: 38

Candidate Starts for NovoPizza\_50:

(1, 37132), (2, 37138), (3, 37159), (4, 37204), (5, 37207), (6, 37234), (8, 37267), (9, 37273), (10, 37279), (11, 37285), (12, 37309), (13, 37318), (16, 37333), (17, 37339), (18, 37348), (19, 37351), (30, 37411), (Start: 38 @37432 has 1 MA's), (Start: 40 @37441 has 15 MA's), (45, 37477), (53, 37540), (55, 37555),

Gene: OBUpride\_50 Start: 36945, Stop: 37142, Start Num: 40

Candidate Starts for OBUpride\_50:

(Start: 40 @36945 has 15 MA's), (48, 37008), (50, 37017), (52, 37032),

Gene: Obliviate\_39 Start: 31330, Stop: 31524, Start Num: 41

Candidate Starts for Obliviate\_39:

(Start: 41 @31330 has 4 MA's),

Gene: Petra\_40 Start: 31689, Stop: 31883, Start Num: 41

Candidate Starts for Petra\_40:

(Start: 41 @31689 has 4 MA's),

Gene: Popper\_42 Start: 30120, Stop: 30374, Start Num: 34

Candidate Starts for Popper\_42:

(Start: 34 @30120 has 2 MA's), (Start: 44 @30156 has 1 MA's), (52, 30225), (56, 30264), (59, 30315),

Gene: Prospero\_22 Start: 13886, Stop: 14119, Start Num: 33

Candidate Starts for Prospero\_22:

(Start: 33 @13886 has 42 MA's), (Start: 42 @13913 has 2 MA's), (52, 13994), (59, 14081), (63, 14108),

Gene: Ronnie\_22 Start: 13886, Stop: 14119, Start Num: 33

Candidate Starts for Ronnie\_22:

(Start: 33 @13886 has 42 MA's), (Start: 42 @13913 has 2 MA's), (52, 13994), (59, 14081), (63, 14108),

Gene: Sandman\_22 Start: 13960, Stop: 14193, Start Num: 33

Candidate Starts for Sandman\_22:

(Start: 33 @13960 has 42 MA's), (Start: 42 @13987 has 2 MA's), (52, 14068), (59, 14155), (63, 14182),

Gene: Saphira\_23 Start: 13885, Stop: 14118, Start Num: 33

Candidate Starts for Saphira\_23:

(Start: 33 @13885 has 42 MA's), (Start: 42 @13912 has 2 MA's), (47, 13966), (52, 13993), (59, 14080),

Gene: Schnabeltier\_41 Start: 32611, Stop: 32805, Start Num: 43

Candidate Starts for Schnabeltier\_41:

(Start: 43 @32611 has 4 MA's), (46, 32650), (53, 32695),

Gene: SerialPhiller\_19 Start: 13063, Stop: 13281, Start Num: 33

Candidate Starts for SerialPhiller\_19:

(Start: 33 @13063 has 42 MA's), (Start: 42 @13090 has 2 MA's), (51, 13159),

Gene: Seume\_22 Start: 13649, Stop: 13882, Start Num: 33

Candidate Starts for Seume\_22:

(Start: 33 @13649 has 42 MA's), (Start: 42 @13676 has 2 MA's), (52, 13757), (59, 13844), (63, 13871),

Gene: Sourignavong\_23 Start: 13955, Stop: 14188, Start Num: 33

Candidate Starts for Sourignavong\_23:

(Start: 33 @13955 has 42 MA's), (Start: 42 @13982 has 2 MA's), (52, 14063), (59, 14150), (63, 14177),

Gene: StewieGriff\_22 Start: 13883, Stop: 14116, Start Num: 33

Candidate Starts for StewieGriff\_22:

(Start: 33 @13883 has 42 MA's), (Start: 42 @13910 has 2 MA's), (47, 13964), (49, 13970), (52, 13991), (59, 14078),

Gene: Stratus\_22 Start: 13960, Stop: 14193, Start Num: 33

Candidate Starts for Stratus\_22:

(Start: 33 @13960 has 42 MA's), (Start: 42 @13987 has 2 MA's), (52, 14068), (59, 14155), (63, 14182),

Gene: StrawberryLem\_19 Start: 12988, Stop: 13206, Start Num: 33

Candidate Starts for StrawberryLem\_19:

(Start: 33 @12988 has 42 MA's), (Start: 42 @13015 has 2 MA's), (51, 13084),

Gene: Swenson\_22 Start: 14007, Stop: 14240, Start Num: 33

Candidate Starts for Swenson\_22:

(Start: 33 @14007 has 42 MA's), (Start: 42 @14034 has 2 MA's), (47, 14088), (52, 14115), (59, 14202),

Gene: Taj14\_22 Start: 13882, Stop: 14115, Start Num: 33

Candidate Starts for Taj14\_22:

(Start: 33 @13882 has 42 MA's), (Start: 42 @13909 has 2 MA's), (47, 13963), (52, 13990), (59, 14077),

Gene: TinoCrisci\_22 Start: 13886, Stop: 14119, Start Num: 33

Candidate Starts for TinoCrisci\_22:

(Start: 33 @13886 has 42 MA's), (Start: 42 @13913 has 2 MA's), (52, 13994), (59, 14081), (63, 14108),

Gene: Toulouse\_21 Start: 13649, Stop: 13882, Start Num: 33

Candidate Starts for Toulouse\_21:

(Start: 33 @13649 has 42 MA's), (Start: 42 @13676 has 2 MA's), (52, 13757), (59, 13844), (63, 13871),

Gene: TymAbreu\_22 Start: 13886, Stop: 14119, Start Num: 33

Candidate Starts for TymAbreu\_22:

(Start: 33 @13886 has 42 MA's), (Start: 42 @13913 has 2 MA's), (52, 13994), (59, 14081), (63, 14108),

Gene: Ubuntu\_50 Start: 36949, Stop: 37146, Start Num: 40

Candidate Starts for Ubuntu\_50:

(Start: 40 @36949 has 15 MA's), (48, 37012),

Gene: UmaThurman\_37 Start: 31748, Stop: 31954, Start Num: 37

Candidate Starts for UmaThurman\_37:

(7, 31565), (14, 31640), (19, 31670), (25, 31712), (Start: 37 @31748 has 1 MA's), (Start: 40 @31760 has 15 MA's), (49, 31826), (59, 31934), (60, 31937),

Gene: Vinye\_24 Start: 14391, Stop: 14597, Start Num: 42

Candidate Starts for Vinye\_24:

(Start: 42 @14391 has 2 MA's), (59, 14562),

Gene: WST1\_38 Start: 27336, Stop: 27560, Start Num: 29

Candidate Starts for WST1\_38:

(Start: 29 @27336 has 2 MA's),

Gene: Webster2\_50 Start: 36949, Stop: 37146, Start Num: 40

Candidate Starts for Webster2\_50:

(Start: 40 @36949 has 15 MA's), (48, 37012),

Gene: Ximeno\_19 Start: 13076, Stop: 13294, Start Num: 33

Candidate Starts for Ximeno\_19:

(Start: 33 @13076 has 42 MA's), (Start: 42 @13103 has 2 MA's), (51, 13172),

Gene: Yank\_22 Start: 13854, Stop: 14087, Start Num: 33

Candidate Starts for Yank\_22:

(Start: 33 @13854 has 42 MA's), (Start: 42 @13881 has 2 MA's), (52, 13962), (59, 14049), (63, 14076),

Gene: ZAYM\_43 Start: 32247, Stop: 32456, Start Num: 29

Candidate Starts for ZAYM\_43:

(22, 32220), (Start: 29 @32247 has 2 MA's),

Gene: Zarbodnamra\_42 Start: 32451, Stop: 32645, Start Num: 41

Candidate Starts for Zarbodnamra\_42:

(Start: 41 @32451 has 4 MA's),

Gene: Zilla\_41 Start: 32198, Stop: 32392, Start Num: 41

Candidate Starts for Zilla\_41:

(Start: 41 @32198 has 4 MA's),