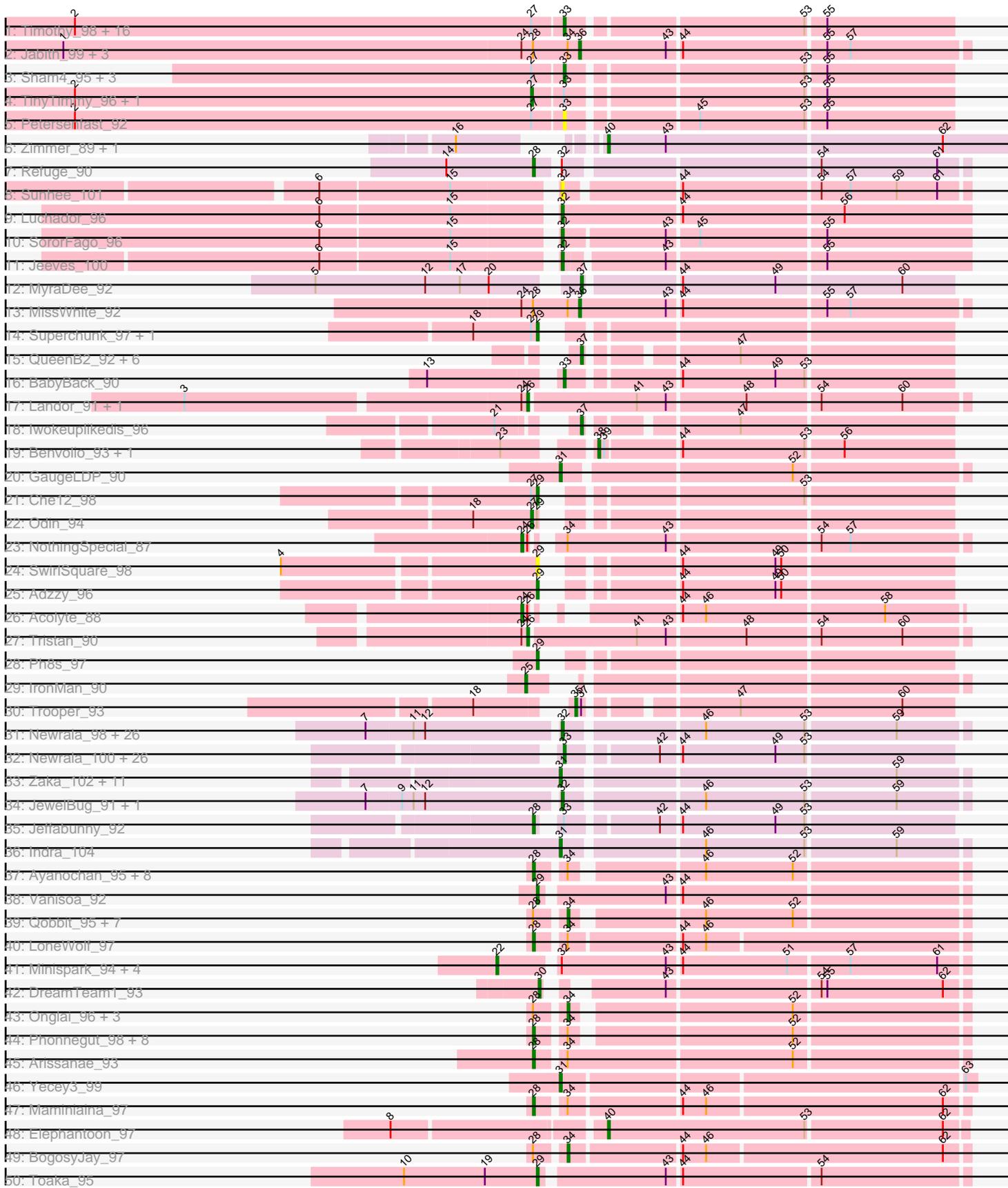


Pham 283524



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 283524 Report

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

Pham number 283524 has 177 members, 27 are drafts.

Phages represented in each track:

- Track 1 : Timothy\_98, Orange\_98, Aneem\_99, Munch\_97, Joselito\_96, Lucivia\_99, Bud\_91, Bachome\_96, Ebony\_97, Mulciber\_97, Kimba\_95, Flaverint\_99, Mabel\_98, Snape\_98, Gilberta\_96, Bowtie\_94, Saskia\_96
- Track 2 : Jabith\_99, Salz\_95, Et2Brutus\_99, Hutc2\_96
- Track 3 : Sham4\_95, Fibonacci\_98, Insomnia\_98, Wolpertinger\_98
- Track 4 : TinyTimmy\_96, MaCh\_98
- Track 5 : Petersenfast\_92
- Track 6 : Zimmer\_89, DARTHPhader\_90
- Track 7 : Refuge\_90
- Track 8 : Sunhee\_101
- Track 9 : Luchador\_96
- Track 10 : SororFago\_96
- Track 11 : Jeeves\_100
- Track 12 : MyraDee\_92
- Track 13 : MissWhite\_92
- Track 14 : Superchunk\_97, Caraxes\_98
- Track 15 : QueenB2\_92, Retro23\_94, Fameo\_92, Anselm\_96, Dalmatian\_93, Heffalump\_90, DudeLittle\_92
- Track 16 : BabyBack\_90
- Track 17 : Landor\_91, Bactobuster\_86
- Track 18 : Iwokeuplikedis\_96
- Track 19 : Benvolio\_93, Echild\_98
- Track 20 : GaugeLDP\_90
- Track 21 : Che12\_98
- Track 22 : Odin\_94
- Track 23 : NothingSpecial\_87
- Track 24 : SwirlSquare\_98
- Track 25 : Adzzy\_96
- Track 26 : Acolyte\_88
- Track 27 : Tristan\_90
- Track 28 : Ph8s\_97
- Track 29 : IronMan\_90
- Track 30 : Trooper\_93
- Track 31 : Newrala\_98, VohminGhazi\_99, Kazan\_100, EricB\_97, DaVinci\_97, Chartreuse\_98, Roksolana\_102, DelvinSonDorr\_95, Hexamo\_101, Candra\_97, Dorothea\_99, Artemis2UCLA\_101, Hoot\_94, Jeffabunny\_90, SuperAwesome\_99, Jordennis\_97, GreedyLawyer\_89, Helmet\_104, SmellyB\_99, Isiphiwo\_96,

Kipper29\_99, BABullseye\_92, Priamo\_99, BennyP\_100, Pmask\_98, CloudWang3\_102, McFly\_99

- Track 32 : Newrala\_100, Neeharika16\_98, VohminGhazi\_101, Kazan\_102, BennyP\_102, Roksolana\_104, EricB\_98, DaVinci\_98, Chartreuse\_100, Hexamo\_103, Hammer\_102, CloudWang3\_104, DelvinSonDorr\_96, Candra\_99, Rifter\_102, Hoot\_96, Artemis2UCLA\_103, Koko\_103, Gruunaga\_102, BABullseye\_94, Cookiedough\_99, SmellyB\_101, Isiphiwo\_97, Gladiator\_98, GreedyLawyer\_90, SuperCallie99\_96, McFly\_100
- Track 33 : Zaka\_102, Yokurt\_101, Garak\_103, Zulu\_103, Lilbunny\_98, Wiks\_101, ToneTone\_98, WunderPhul\_90, Tucker\_102, Blue7\_103, Temprado\_103, BlessJoy\_102
- Track 34 : JewelBug\_91, Polyphemus\_92
- Track 35 : Jeffabunny\_92
- Track 36 : Indra\_104
- Track 37 : Ayanochan\_95, Alma\_95, Catalina\_100, Fayely\_95, Conquerage\_95, ExplosioNervosa\_95, Priya\_95, Spouty\_95, Eidsmoe\_95
- Track 38 : Vanisoa\_92
- Track 39 : Qobbit\_95, Aliter\_91, HortumSL17\_99, Tubs\_98, EmyBug\_94, Phaeder\_98, Myxus\_98, PackMan\_93
- Track 40 : LoneWolf\_97
- Track 41 : Minispark\_94, Rahalelujah\_96, CogOmlette\_94, WorldCup\_95, Bellris\_94
- Track 42 : DreamTeam1\_93
- Track 43 : Onglai\_96, Beemo\_98, Lilleskat\_95, Holec\_97
- Track 44 : Phonnegut\_98, Pioneer\_98, Sachima\_94, Jiawan\_96, Hanray\_96, Scherzo\_96, EdogawaKiddo\_97, RyeScarlet\_99, Ugenie5\_85
- Track 45 : Arissanae\_93
- Track 46 : Yecey3\_99
- Track 47 : Maminiaina\_97
- Track 48 : Elephantoon\_97
- Track 49 : BogosyJay\_97
- Track 50 : Toaka\_95

***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 43 of the 150 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aneem\_99, Artemis2UCLA\_103, BABullseye\_94, BabyBack\_90, Bachome\_96, BennyP\_102, Bowtie\_94, Bud\_91, Candra\_99, Chartreuse\_100, CloudWang3\_104, Cookiedough\_99, DaVinci\_98, DelvinSonDorr\_96, Ebony\_97, EricB\_98, Fibonacci\_98, Flaverint\_99, Gilberta\_96, Gladiator\_98, GreedyLawyer\_90, Gruunaga\_102, Hammer\_102, Hexamo\_103, Hoot\_96, Insomnia\_98, Isiphiwo\_97, Joselito\_96, Kazan\_102, Kimba\_95, Koko\_103, Lucivia\_99, Mabel\_98, McFly\_100, Mulciber\_97, Munch\_97, Neeharika16\_98, Newrala\_100, Orange\_98, Petersenfast\_92, Rifter\_102, Roksolana\_104, Saskia\_96, Sham4\_95, SmellyB\_101, Snape\_98, SuperCallie99\_96, Timothy\_98, VohminGhazi\_101, Wolpertinger\_98,

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

- Jeffabunny\_92, MaCh\_98, TinyTimmy\_96,

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

- Acolyte\_88, Adzzy\_96, Aliter\_91, Alma\_95, Anselm\_96, Arissanae\_93, Artemis2UCLA\_101, Ayanochan\_95, BABullseye\_92, Bactobuster\_86, Beemo\_98, Bellris\_94, BennyP\_100, Benvolio\_93, BlessJoy\_102, Blue7\_103, BogosyJay\_97, Candra\_97, Caraxes\_98, Catalina\_100, Chartreuse\_98, Che12\_98, CloudWang3\_102, CogOmlette\_94, Conquerage\_95, DaVinci\_97, Dalmatian\_93, DarthPhader\_90, DelvinSonDorr\_95, Dorothea\_99, DreamTeam1\_93, DudeLittle\_92, Echild\_98, EdogawaKiddo\_97, Eidsmoe\_95, Elephantoon\_97, EmyBug\_94, EricB\_97, Et2Brutus\_99, ExplosioNervosa\_95, Fameo\_92, Fayely\_95, Garak\_103, GaugeLDP\_90, GreedyLawyer\_89, Hanray\_96, Heffalump\_90, Helmet\_104, Hexamo\_101, Halex\_97, Hoot\_94, HortumSL17\_99, Hutc2\_96, Indra\_104, IronMan\_90, Isiphiwo\_96, Iwokeuplikedis\_96, Jabith\_99, Jeeves\_100, Jeffabunny\_90, JewelBug\_91, Jiawan\_96, Jordennis\_97, Kazan\_100, Kipper29\_99, Landor\_91, Lilbunny\_98, Lilleskat\_95, LoneWolf\_97, Luchador\_96, Maminiaina\_97, McFly\_99, Minispark\_94, MissWhite\_92, MyraDee\_92, Myxus\_98, Newrala\_98, NothingSpecial\_87, Odin\_94, Onglai\_96, PackMan\_93, Ph8s\_97, Phaeder\_98, Phonnegut\_98, Pioneer\_98, Pmask\_98, Polyphemus\_92, Priamo\_99, Priya\_95, Qobbit\_95, QueenB2\_92, Rahalelujah\_96, Refuge\_90, Retro23\_94, Roksolana\_102, RyeScarlet\_99, Sachima\_94, Salz\_95, Scherzo\_96, SmellyB\_99, SororFago\_96, Spouty\_95, Sunhee\_101, SuperAwesome\_99, Superchunk\_97, SwirlSquare\_98, Temprado\_103, Toaka\_95, ToneTone\_98, Tristan\_90, Trooper\_93, Tubs\_98, Tucker\_102, Ugenie5\_85, Vanisoa\_92, VohminGhazi\_99, Wiks\_101, WorldCup\_95, WunderPhui\_90, Yecey3\_99, Yokurt\_101, Zaka\_102, Zimmer\_89, Zulu\_103,

### Summary by start number:

Start 22:

- Found in 5 of 177 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 1 of 150
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bellris\_94 (A9), CogOmlette\_94 (A9), Minispark\_94 (A9), Rahalelujah\_96 (A9), WorldCup\_95 (A9),

Start 24:

- Found in 10 of 177 ( 5.6% ) of genes in pham
- Manual Annotations of this start: 2 of 150
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Acolyte\_88 (A2), NothingSpecial\_87 (A2),

Start 25:

- Found in 1 of 177 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 150
- Called 100.0% of time when present
- Phage (with cluster) where this start called: IronMan\_90 (A2),

Start 26:

- Found in 5 of 177 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 3 of 150
- Called 60.0% of time when present
- Phage (with cluster) where this start called: Bactobuster\_86 (A2), Landor\_91 (A2), Tristan\_90 (A2),

Start 27:

- Found in 28 of 177 ( 15.8% ) of genes in pham
- Manual Annotations of this start: 3 of 150
- Called 10.7% of time when present
- Phage (with cluster) where this start called: MaCh\_98 (A11), Odin\_94 (A2), TinyTimmy\_96 (A11),

Start 28:

- Found in 41 of 177 ( 23.2% ) of genes in pham
- Manual Annotations of this start: 17 of 150
- Called 56.1% of time when present
- Phage (with cluster) where this start called: Alma\_95 (A9), Arissanae\_93 (A9), Ayanochan\_95 (A9), Catalina\_100 (A9), Conquerage\_95 (A9), EdogawaKiddo\_97 (A9), Eidsmoe\_95 (A9), ExplosioNervosa\_95 (A9), Fayely\_95 (A9), Hanray\_96 (A9), Jeffabunny\_92 (A6), Jiawan\_96 (A9), LoneWolf\_97 (A9), Maminiaina\_97 (A9), Phonnegut\_98 (A9), Pioneer\_98 (A9), Priya\_95 (A9), Refuge\_90 (A12), RyeScarlet\_99 (A9), Sachima\_94 (A9), Scherzo\_96 (A9), Spouty\_95 (A9), Ugenie5\_85 (A9),

Start 29:

- Found in 9 of 177 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 6 of 150
- Called 88.9% of time when present
- Phage (with cluster) where this start called: Adzzy\_96 (A2), Caraxes\_98 (A2), Che12\_98 (A2), Ph8s\_97 (A2), Superchunk\_97 (A2), SwirlSquare\_98 (A2), Toaka\_95 (A9), Vanisoa\_92 (A9),

Start 30:

- Found in 1 of 177 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 150
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DreamTeam1\_93 (A9),

Start 31:

- Found in 15 of 177 ( 8.5% ) of genes in pham
- Manual Annotations of this start: 14 of 150
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BlessJoy\_102 (A6), Blue7\_103 (A6), Garak\_103 (A6), GaugeLDP\_90 (A2), Indra\_104 (A6), Lilbunny\_98 (A6), Temprado\_103 (A6), ToneTone\_98 (A6), Tucker\_102 (A6), Wiks\_101 (A6), WunderPhul\_90 (A6), Yecey3\_99 (A9), Yokurt\_101 (A6), Zaka\_102 (A6), Zulu\_103 (A6),

Start 32:

- Found in 39 of 177 ( 22.0% ) of genes in pham
- Manual Annotations of this start: 29 of 150
- Called 84.6% of time when present
- Phage (with cluster) where this start called: Artemis2UCLA\_101 (A6), BABullseye\_92 (A6), BennyP\_100 (A6), Candra\_97 (A6), Chartreuse\_98 (A6), CloudWang3\_102 (A6), DaVinci\_97 (A6), DelvinSonDorr\_95 (A6), Dorothea\_99 (A6), EricB\_97 (A6), GreedyLawyer\_89 (A6), Helmet\_104 (A6), Hexamo\_101 (A6), Hoot\_94 (A6), Isiphiwo\_96 (A6), Jeeves\_100 (A14), Jeffabunny\_90 (A6),

JewelBug\_91 (A6), Jordennis\_97 (A6), Kazan\_100 (A6), Kipper29\_99 (A6), Luchador\_96 (A14), McFly\_99 (A6), Newrala\_98 (A6), Pmask\_98 (A6), Polyphemus\_92 (A6), Priamo\_99 (A6), Roksolana\_102 (A6), SmellyB\_99 (A6), SororFago\_96 (A14), Sunhee\_101 (A14), SuperAwesome\_99 (A6), VohminGhazi\_99 (A6),

#### Start 33:

- Found in 53 of 177 ( 29.9% ) of genes in pham
- Manual Annotations of this start: 43 of 150
- Called 94.3% of time when present
- Phage (with cluster) where this start called: Aneem\_99 (A11), Artemis2UCLA\_103 (A6), BABullseye\_94 (A6), BabyBack\_90 (A2), Bachome\_96 (A11), BennyP\_102 (A6), Bowtie\_94 (A11), Bud\_91 (A11), Candra\_99 (A6), Chartreuse\_100 (A6), CloudWang3\_104 (A6), Cookiedough\_99 (A6), DaVinci\_98 (A6), DelvinSonDorr\_96 (A6), Ebony\_97 (A11), EricB\_98 (A6), Fibonacci\_98 (A11), Flaverint\_99 (A11), Gilberta\_96 (A11), Gladiator\_98 (A6), GreedyLawyer\_90 (A6), Gruunaga\_102 (A6), Hammer\_102 (A6), Hexamo\_103 (A6), Hoot\_96 (A6), Insomnia\_98 (A11), Isiphiwo\_97 (A6), Joselito\_96 (A11), Kazan\_102 (A6), Kimba\_95 (A11), Koko\_103 (A6), Lucivia\_99 (A11), Mabel\_98 (A11), McFly\_100 (A6), Mulciber\_97 (A11), Munch\_97 (A11), Neeharika16\_98 (A6), Newrala\_100 (A6), Orange\_98 (A11), Petersenfast\_92 (A11), Rifter\_102 (A6), Roksolana\_104 (A6), Saskia\_96 (A11), Sham4\_95 (A11), SmellyB\_101 (A6), Snape\_98 (A11), SuperCallie99\_96 (A6), Timothy\_98 (A11), VohminGhazi\_101 (A6), Wolpertinger\_98 (A11),

#### Start 34:

- Found in 40 of 177 ( 22.6% ) of genes in pham
- Manual Annotations of this start: 10 of 150
- Called 32.5% of time when present
- Phage (with cluster) where this start called: Aliter\_91 (A9), Beemo\_98 (A9), BogosyJay\_97 (A9), EmyBug\_94 (A9), Halex\_97 (A9), HortumSL17\_99 (A9), Lilleskat\_95 (A9), Myxus\_98 (A9), Onglai\_96 (A9), PackMan\_93 (A9), Phaeder\_98 (A9), Qobbit\_95 (A9), Tubs\_98 (A9),

#### Start 35:

- Found in 1 of 177 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 150
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Trooper\_93 (A2),

#### Start 36:

- Found in 5 of 177 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 5 of 150
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Et2Brutus\_99 (A11), Hutc2\_96 (A11), Jabith\_99 (A11), MissWhite\_92 (A2), Salz\_95 (A11),

#### Start 37:

- Found in 10 of 177 ( 5.6% ) of genes in pham
- Manual Annotations of this start: 9 of 150
- Called 90.0% of time when present
- Phage (with cluster) where this start called: Anselm\_96 (A2), Dalmatian\_93 (A2), DudeLittle\_92 (A2), Fameo\_92 (A2), Heffalump\_90 (A2), Iwokeuplikedis\_96 (A2), MyraDee\_92 (A18), QueenB2\_92 (A2), Retro23\_94 (A2),

Start 38:

- Found in 2 of 177 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 2 of 150
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Benvolio\_93 (A2), Echild\_98 (A2),

Start 40:

- Found in 3 of 177 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 3 of 150
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DarthPhader\_90 (A12), Elephantoon\_97 (A9), Zimmer\_89 (A12),

### **Summary by clusters:**

There are 7 clusters represented in this pham: A14, A11, A12, A18, A2, A6, A9,

Info for manual annotations of cluster A11:

- Start number 27 was manually annotated 2 times for cluster A11.
- Start number 33 was manually annotated 18 times for cluster A11.
- Start number 36 was manually annotated 4 times for cluster A11.

Info for manual annotations of cluster A12:

- Start number 28 was manually annotated 1 time for cluster A12.
- Start number 40 was manually annotated 2 times for cluster A12.

Info for manual annotations of cluster A14:

- Start number 32 was manually annotated 3 times for cluster A14.

Info for manual annotations of cluster A18:

- Start number 37 was manually annotated 1 time for cluster A18.

Info for manual annotations of cluster A2:

- Start number 24 was manually annotated 2 times for cluster A2.
- Start number 25 was manually annotated 1 time for cluster A2.
- Start number 26 was manually annotated 3 times for cluster A2.
- Start number 27 was manually annotated 1 time for cluster A2.
- Start number 29 was manually annotated 4 times for cluster A2.
- Start number 31 was manually annotated 1 time for cluster A2.
- Start number 33 was manually annotated 1 time for cluster A2.
- Start number 35 was manually annotated 1 time for cluster A2.
- Start number 36 was manually annotated 1 time for cluster A2.
- Start number 37 was manually annotated 8 times for cluster A2.
- Start number 38 was manually annotated 2 times for cluster A2.

Info for manual annotations of cluster A6:

- Start number 28 was manually annotated 1 time for cluster A6.
- Start number 31 was manually annotated 12 times for cluster A6.
- Start number 32 was manually annotated 26 times for cluster A6.
- Start number 33 was manually annotated 24 times for cluster A6.

Info for manual annotations of cluster A9:

- Start number 22 was manually annotated 1 time for cluster A9.
- Start number 28 was manually annotated 15 times for cluster A9.
- Start number 29 was manually annotated 2 times for cluster A9.
- Start number 30 was manually annotated 1 time for cluster A9.
- Start number 31 was manually annotated 1 time for cluster A9.
- Start number 34 was manually annotated 10 times for cluster A9.
- Start number 40 was manually annotated 1 time for cluster A9.

### **Gene Information:**

Gene: Acolyte\_88 Start: 50735, Stop: 50541, Start Num: 24

Candidate Starts for Acolyte\_88:

(Start: 24 @50735 has 2 MA's), (Start: 26 @50732 has 3 MA's), (44, 50681), (46, 50669), (58, 50579),

Gene: Adzzy\_96 Start: 50624, Stop: 50436, Start Num: 29

Candidate Starts for Adzzy\_96:

(Start: 29 @50624 has 6 MA's), (44, 50573), (49, 50525), (50, 50522),

Gene: Aliter\_91 Start: 48577, Stop: 48383, Start Num: 34

Candidate Starts for Aliter\_91:

(Start: 28 @48589 has 17 MA's), (Start: 34 @48577 has 10 MA's), (46, 48514), (52, 48469),

Gene: Alma\_95 Start: 51299, Stop: 51096, Start Num: 28

Candidate Starts for Alma\_95:

(Start: 28 @51299 has 17 MA's), (Start: 34 @51287 has 10 MA's), (46, 51227), (52, 51182),

Gene: Aneem\_99 Start: 50978, Stop: 50790, Start Num: 33

Candidate Starts for Aneem\_99:

(2, 51230), (Start: 27 @50993 has 3 MA's), (Start: 33 @50978 has 43 MA's), (53, 50864), (55, 50855),

Gene: Anselm\_96 Start: 51904, Stop: 51731, Start Num: 37

Candidate Starts for Anselm\_96:

(Start: 37 @51904 has 9 MA's), (47, 51838),

Gene: Arissanae\_93 Start: 51287, Stop: 51075, Start Num: 28

Candidate Starts for Arissanae\_93:

(Start: 28 @51287 has 17 MA's), (Start: 34 @51275 has 10 MA's), (52, 51161),

Gene: Artemis2UCLA\_101 Start: 50316, Stop: 50119, Start Num: 32

Candidate Starts for Artemis2UCLA\_101:

(7, 50412), (11, 50388), (12, 50382), (Start: 32 @50316 has 29 MA's), (46, 50250), (53, 50199), (59, 50154),

Gene: Artemis2UCLA\_103 Start: 50643, Stop: 50455, Start Num: 33

Candidate Starts for Artemis2UCLA\_103:

(Start: 33 @50643 has 43 MA's), (42, 50601), (44, 50592), (49, 50544), (53, 50529),

Gene: Ayanochan\_95 Start: 51090, Stop: 50887, Start Num: 28

Candidate Starts for Ayanochan\_95:

(Start: 28 @51090 has 17 MA's), (Start: 34 @51078 has 10 MA's), (46, 51018), (52, 50973),

Gene: BABullseye\_94 Start: 48781, Stop: 48593, Start Num: 33  
Candidate Starts for BABullseye\_94:  
(Start: 33 @48781 has 43 MA's), (42, 48739), (44, 48730), (49, 48682), (53, 48667),

Gene: BABullseye\_92 Start: 48454, Stop: 48257, Start Num: 32  
Candidate Starts for BABullseye\_92:  
(7, 48550), (11, 48526), (12, 48520), (Start: 32 @48454 has 29 MA's), (46, 48388), (53, 48337), (59, 48292),

Gene: BabyBack\_90 Start: 51813, Stop: 51625, Start Num: 33  
Candidate Starts for BabyBack\_90:  
(13, 51873), (Start: 33 @51813 has 43 MA's), (44, 51762), (49, 51714), (53, 51699),

Gene: Bachome\_96 Start: 50026, Stop: 49838, Start Num: 33  
Candidate Starts for Bachome\_96:  
(2, 50278), (Start: 27 @50041 has 3 MA's), (Start: 33 @50026 has 43 MA's), (53, 49912), (55, 49903),

Gene: Bactobuster\_86 Start: 50535, Stop: 50317, Start Num: 26  
Candidate Starts for Bactobuster\_86:  
(3, 50706), (Start: 24 @50538 has 2 MA's), (Start: 26 @50535 has 3 MA's), (41, 50481), (43, 50466), (48, 50427), (54, 50391), (60, 50349),

Gene: Beemo\_98 Start: 51408, Stop: 51217, Start Num: 34  
Candidate Starts for Beemo\_98:  
(Start: 28 @51420 has 17 MA's), (Start: 34 @51408 has 10 MA's), (52, 51303),

Gene: Bellris\_94 Start: 50894, Stop: 50664, Start Num: 22  
Candidate Starts for Bellris\_94:  
(Start: 22 @50894 has 1 MA's), (Start: 32 @50867 has 29 MA's), (43, 50813), (44, 50807), (51, 50753), (57, 50723), (61, 50678),

Gene: BennyP\_102 Start: 50627, Stop: 50439, Start Num: 33  
Candidate Starts for BennyP\_102:  
(Start: 33 @50627 has 43 MA's), (42, 50585), (44, 50576), (49, 50528), (53, 50513),

Gene: BennyP\_100 Start: 50300, Stop: 50103, Start Num: 32  
Candidate Starts for BennyP\_100:  
(7, 50396), (11, 50372), (12, 50366), (Start: 32 @50300 has 29 MA's), (46, 50234), (53, 50183), (59, 50138),

Gene: Benvolio\_93 Start: 51526, Stop: 51350, Start Num: 38  
Candidate Starts for Benvolio\_93:  
(23, 51562), (Start: 38 @51526 has 2 MA's), (39, 51523), (44, 51487), (53, 51424), (56, 51406),

Gene: BlessJoy\_102 Start: 50840, Stop: 50643, Start Num: 31  
Candidate Starts for BlessJoy\_102:  
(Start: 31 @50840 has 14 MA's), (59, 50678),

Gene: Blue7\_103 Start: 50550, Stop: 50353, Start Num: 31  
Candidate Starts for Blue7\_103:  
(Start: 31 @50550 has 14 MA's), (59, 50388),

Gene: BogosyJay\_97 Start: 51415, Stop: 51218, Start Num: 34

Candidate Starts for BogosyJay\_97:

(Start: 28 @51427 has 17 MA's), (Start: 34 @51415 has 10 MA's), (44, 51361), (46, 51349), (62, 51229),

Gene: Bowtie\_94 Start: 49585, Stop: 49397, Start Num: 33

Candidate Starts for Bowtie\_94:

(2, 49837), (Start: 27 @49600 has 3 MA's), (Start: 33 @49585 has 43 MA's), (53, 49471), (55, 49462),

Gene: Bud\_91 Start: 49684, Stop: 49496, Start Num: 33

Candidate Starts for Bud\_91:

(2, 49936), (Start: 27 @49699 has 3 MA's), (Start: 33 @49684 has 43 MA's), (53, 49570), (55, 49561),

Gene: Candra\_97 Start: 50162, Stop: 49965, Start Num: 32

Candidate Starts for Candra\_97:

(7, 50258), (11, 50234), (12, 50228), (Start: 32 @50162 has 29 MA's), (46, 50096), (53, 50045), (59, 50000),

Gene: Candra\_99 Start: 50489, Stop: 50301, Start Num: 33

Candidate Starts for Candra\_99:

(Start: 33 @50489 has 43 MA's), (42, 50447), (44, 50438), (49, 50390), (53, 50375),

Gene: Caraxes\_98 Start: 51158, Stop: 50970, Start Num: 29

Candidate Starts for Caraxes\_98:

(18, 51191), (Start: 27 @51161 has 3 MA's), (Start: 29 @51158 has 6 MA's),

Gene: Catalina\_100 Start: 51533, Stop: 51330, Start Num: 28

Candidate Starts for Catalina\_100:

(Start: 28 @51533 has 17 MA's), (Start: 34 @51521 has 10 MA's), (46, 51461), (52, 51416),

Gene: Chartreuse\_100 Start: 49790, Stop: 49602, Start Num: 33

Candidate Starts for Chartreuse\_100:

(Start: 33 @49790 has 43 MA's), (42, 49748), (44, 49739), (49, 49691), (53, 49676),

Gene: Chartreuse\_98 Start: 49463, Stop: 49266, Start Num: 32

Candidate Starts for Chartreuse\_98:

(7, 49559), (11, 49535), (12, 49529), (Start: 32 @49463 has 29 MA's), (46, 49397), (53, 49346), (59, 49301),

Gene: Che12\_98 Start: 51094, Stop: 50906, Start Num: 29

Candidate Starts for Che12\_98:

(Start: 27 @51097 has 3 MA's), (Start: 29 @51094 has 6 MA's), (53, 50980),

Gene: CloudWang3\_104 Start: 51172, Stop: 50984, Start Num: 33

Candidate Starts for CloudWang3\_104:

(Start: 33 @51172 has 43 MA's), (42, 51130), (44, 51121), (49, 51073), (53, 51058),

Gene: CloudWang3\_102 Start: 50845, Stop: 50648, Start Num: 32

Candidate Starts for CloudWang3\_102:

(7, 50941), (11, 50917), (12, 50911), (Start: 32 @50845 has 29 MA's), (46, 50779), (53, 50728), (59, 50683),

Gene: CogOmlette\_94 Start: 50891, Stop: 50661, Start Num: 22

Candidate Starts for CogOmlette\_94:

(Start: 22 @50891 has 1 MA's), (Start: 32 @50864 has 29 MA's), (43, 50810), (44, 50804), (51, 50750), (57, 50720), (61, 50675),

Gene: Conquerage\_95 Start: 51075, Stop: 50872, Start Num: 28

Candidate Starts for Conquerage\_95:

(Start: 28 @51075 has 17 MA's), (Start: 34 @51063 has 10 MA's), (46, 51003), (52, 50958),

Gene: Cookiedough\_99 Start: 50764, Stop: 50576, Start Num: 33

Candidate Starts for Cookiedough\_99:

(Start: 33 @50764 has 43 MA's), (42, 50722), (44, 50713), (49, 50665), (53, 50650),

Gene: DaVinci\_98 Start: 49844, Stop: 49656, Start Num: 33

Candidate Starts for DaVinci\_98:

(Start: 33 @49844 has 43 MA's), (42, 49802), (44, 49793), (49, 49745), (53, 49730),

Gene: DaVinci\_97 Start: 49517, Stop: 49320, Start Num: 32

Candidate Starts for DaVinci\_97:

(7, 49613), (11, 49589), (12, 49583), (Start: 32 @49517 has 29 MA's), (46, 49451), (53, 49400), (59, 49355),

Gene: Dalmatian\_93 Start: 51205, Stop: 51032, Start Num: 37

Candidate Starts for Dalmatian\_93:

(Start: 37 @51205 has 9 MA's), (47, 51139),

Gene: DarthPhader\_90 Start: 51559, Stop: 51353, Start Num: 40

Candidate Starts for DarthPhader\_90:

(16, 51604), (Start: 40 @51559 has 3 MA's), (43, 51529), (62, 51388),

Gene: DelvinSonDorr\_95 Start: 49919, Stop: 49722, Start Num: 32

Candidate Starts for DelvinSonDorr\_95:

(7, 50015), (11, 49991), (12, 49985), (Start: 32 @49919 has 29 MA's), (46, 49853), (53, 49802), (59, 49757),

Gene: DelvinSonDorr\_96 Start: 50246, Stop: 50058, Start Num: 33

Candidate Starts for DelvinSonDorr\_96:

(Start: 33 @50246 has 43 MA's), (42, 50204), (44, 50195), (49, 50147), (53, 50132),

Gene: Dorothea\_99 Start: 50808, Stop: 50611, Start Num: 32

Candidate Starts for Dorothea\_99:

(7, 50904), (11, 50880), (12, 50874), (Start: 32 @50808 has 29 MA's), (46, 50742), (53, 50691), (59, 50646),

Gene: DreamTeam1\_93 Start: 50710, Stop: 50516, Start Num: 30

Candidate Starts for DreamTeam1\_93:

(Start: 30 @50710 has 1 MA's), (43, 50665), (54, 50590), (55, 50587), (62, 50527),

Gene: DudeLittle\_92 Start: 51271, Stop: 51098, Start Num: 37

Candidate Starts for DudeLittle\_92:

(Start: 37 @51271 has 9 MA's), (47, 51205),

Gene: Ebony\_97 Start: 50549, Stop: 50361, Start Num: 33

Candidate Starts for Ebony\_97:

(2, 50801), (Start: 27 @50564 has 3 MA's), (Start: 33 @50549 has 43 MA's), (53, 50435), (55, 50426),

Gene: Echild\_98 Start: 51550, Stop: 51374, Start Num: 38  
Candidate Starts for Echild\_98:  
(23, 51586), (Start: 38 @51550 has 2 MA's), (39, 51547), (44, 51511), (53, 51448), (56, 51430),

Gene: EdogawaKiddo\_97 Start: 51496, Stop: 51293, Start Num: 28  
Candidate Starts for EdogawaKiddo\_97:  
(Start: 28 @51496 has 17 MA's), (Start: 34 @51484 has 10 MA's), (52, 51379),

Gene: Eidsmoe\_95 Start: 51068, Stop: 50865, Start Num: 28  
Candidate Starts for Eidsmoe\_95:  
(Start: 28 @51068 has 17 MA's), (Start: 34 @51056 has 10 MA's), (46, 50996), (52, 50951),

Gene: Elephantoon\_97 Start: 51166, Stop: 50984, Start Num: 40  
Candidate Starts for Elephantoon\_97:  
(8, 51268), (Start: 40 @51166 has 3 MA's), (53, 51064), (62, 50995),

Gene: EmyBug\_94 Start: 51058, Stop: 50867, Start Num: 34  
Candidate Starts for EmyBug\_94:  
(Start: 28 @51070 has 17 MA's), (Start: 34 @51058 has 10 MA's), (46, 50998), (52, 50953),

Gene: EricB\_97 Start: 49662, Stop: 49465, Start Num: 32  
Candidate Starts for EricB\_97:  
(7, 49758), (11, 49734), (12, 49728), (Start: 32 @49662 has 29 MA's), (46, 49596), (53, 49545), (59, 49500),

Gene: EricB\_98 Start: 49989, Stop: 49801, Start Num: 33  
Candidate Starts for EricB\_98:  
(Start: 33 @49989 has 43 MA's), (42, 49947), (44, 49938), (49, 49890), (53, 49875),

Gene: Et2Brutus\_99 Start: 50879, Stop: 50685, Start Num: 36  
Candidate Starts for Et2Brutus\_99:  
(1, 51146), (Start: 24 @50909 has 2 MA's), (Start: 28 @50903 has 17 MA's), (Start: 34 @50885 has 10 MA's), (Start: 36 @50879 has 5 MA's), (43, 50834), (44, 50828), (55, 50756), (57, 50744),

Gene: ExplosioNervosa\_95 Start: 51136, Stop: 50933, Start Num: 28  
Candidate Starts for ExplosioNervosa\_95:  
(Start: 28 @51136 has 17 MA's), (Start: 34 @51124 has 10 MA's), (46, 51064), (52, 51019),

Gene: Fameo\_92 Start: 50977, Stop: 50804, Start Num: 37  
Candidate Starts for Fameo\_92:  
(Start: 37 @50977 has 9 MA's), (47, 50911),

Gene: Fayely\_95 Start: 51044, Stop: 50841, Start Num: 28  
Candidate Starts for Fayely\_95:  
(Start: 28 @51044 has 17 MA's), (Start: 34 @51032 has 10 MA's), (46, 50972), (52, 50927),

Gene: Fibonacci\_98 Start: 50832, Stop: 50644, Start Num: 33  
Candidate Starts for Fibonacci\_98:  
(Start: 27 @50847 has 3 MA's), (Start: 33 @50832 has 43 MA's), (53, 50718), (55, 50709),

Gene: Flaverint\_99 Start: 50976, Stop: 50788, Start Num: 33  
Candidate Starts for Flaverint\_99:

(2, 51228), (Start: 27 @50991 has 3 MA's), (Start: 33 @50976 has 43 MA's), (53, 50862), (55, 50853),

Gene: Garak\_103 Start: 50790, Stop: 50593, Start Num: 31

Candidate Starts for Garak\_103:

(Start: 31 @50790 has 14 MA's), (59, 50628),

Gene: GaugeLDP\_90 Start: 51345, Stop: 51148, Start Num: 31

Candidate Starts for GaugeLDP\_90:

(Start: 31 @51345 has 14 MA's), (52, 51234),

Gene: Gilberta\_96 Start: 49852, Stop: 49664, Start Num: 33

Candidate Starts for Gilberta\_96:

(2, 50104), (Start: 27 @49867 has 3 MA's), (Start: 33 @49852 has 43 MA's), (53, 49738), (55, 49729),

Gene: Gladiator\_98 Start: 50501, Stop: 50313, Start Num: 33

Candidate Starts for Gladiator\_98:

(Start: 33 @50501 has 43 MA's), (42, 50459), (44, 50450), (49, 50402), (53, 50387),

Gene: GreedyLawyer\_89 Start: 50095, Stop: 49898, Start Num: 32

Candidate Starts for GreedyLawyer\_89:

(7, 50191), (11, 50167), (12, 50161), (Start: 32 @50095 has 29 MA's), (46, 50029), (53, 49978), (59, 49933),

Gene: GreedyLawyer\_90 Start: 50422, Stop: 50234, Start Num: 33

Candidate Starts for GreedyLawyer\_90:

(Start: 33 @50422 has 43 MA's), (42, 50380), (44, 50371), (49, 50323), (53, 50308),

Gene: Gruunaga\_102 Start: 50457, Stop: 50269, Start Num: 33

Candidate Starts for Gruunaga\_102:

(Start: 33 @50457 has 43 MA's), (42, 50415), (44, 50406), (49, 50358), (53, 50343),

Gene: Hammer\_102 Start: 50154, Stop: 49966, Start Num: 33

Candidate Starts for Hammer\_102:

(Start: 33 @50154 has 43 MA's), (42, 50112), (44, 50103), (49, 50055), (53, 50040),

Gene: Hanray\_96 Start: 51485, Stop: 51282, Start Num: 28

Candidate Starts for Hanray\_96:

(Start: 28 @51485 has 17 MA's), (Start: 34 @51473 has 10 MA's), (52, 51368),

Gene: Heffalump\_90 Start: 51446, Stop: 51273, Start Num: 37

Candidate Starts for Heffalump\_90:

(Start: 37 @51446 has 9 MA's), (47, 51380),

Gene: Helmet\_104 Start: 50790, Stop: 50593, Start Num: 32

Candidate Starts for Helmet\_104:

(7, 50886), (11, 50862), (12, 50856), (Start: 32 @50790 has 29 MA's), (46, 50724), (53, 50673), (59, 50628),

Gene: Hexamo\_103 Start: 50658, Stop: 50470, Start Num: 33

Candidate Starts for Hexamo\_103:

(Start: 33 @50658 has 43 MA's), (42, 50616), (44, 50607), (49, 50559), (53, 50544),

Gene: Hexamo\_101 Start: 50331, Stop: 50134, Start Num: 32

Candidate Starts for Hexamo\_101:

(7, 50427), (11, 50403), (12, 50397), (Start: 32 @50331 has 29 MA's), (46, 50265), (53, 50214), (59, 50169),

Gene: Holec\_97 Start: 51486, Stop: 51295, Start Num: 34

Candidate Starts for Holec\_97:

(Start: 28 @51498 has 17 MA's), (Start: 34 @51486 has 10 MA's), (52, 51381),

Gene: Hoot\_96 Start: 48306, Stop: 48118, Start Num: 33

Candidate Starts for Hoot\_96:

(Start: 33 @48306 has 43 MA's), (42, 48264), (44, 48255), (49, 48207), (53, 48192),

Gene: Hoot\_94 Start: 47979, Stop: 47782, Start Num: 32

Candidate Starts for Hoot\_94:

(7, 48075), (11, 48051), (12, 48045), (Start: 32 @47979 has 29 MA's), (46, 47913), (53, 47862), (59, 47817),

Gene: HortumSL17\_99 Start: 51522, Stop: 51328, Start Num: 34

Candidate Starts for HortumSL17\_99:

(Start: 28 @51534 has 17 MA's), (Start: 34 @51522 has 10 MA's), (46, 51459), (52, 51414),

Gene: Hutc2\_96 Start: 49769, Stop: 49575, Start Num: 36

Candidate Starts for Hutc2\_96:

(1, 50036), (Start: 24 @49799 has 2 MA's), (Start: 28 @49793 has 17 MA's), (Start: 34 @49775 has 10 MA's), (Start: 36 @49769 has 5 MA's), (43, 49724), (44, 49718), (55, 49646), (57, 49634),

Gene: Indra\_104 Start: 50791, Stop: 50594, Start Num: 31

Candidate Starts for Indra\_104:

(Start: 31 @50791 has 14 MA's), (46, 50725), (53, 50674), (59, 50629),

Gene: Insomnia\_98 Start: 51010, Stop: 50822, Start Num: 33

Candidate Starts for Insomnia\_98:

(Start: 27 @51025 has 3 MA's), (Start: 33 @51010 has 43 MA's), (53, 50896), (55, 50887),

Gene: IronMan\_90 Start: 51924, Stop: 51724, Start Num: 25

Candidate Starts for IronMan\_90:

(Start: 25 @51924 has 1 MA's),

Gene: Isiphiwo\_97 Start: 50208, Stop: 50020, Start Num: 33

Candidate Starts for Isiphiwo\_97:

(Start: 33 @50208 has 43 MA's), (42, 50166), (44, 50157), (49, 50109), (53, 50094),

Gene: Isiphiwo\_96 Start: 49881, Stop: 49684, Start Num: 32

Candidate Starts for Isiphiwo\_96:

(7, 49977), (11, 49953), (12, 49947), (Start: 32 @49881 has 29 MA's), (46, 49815), (53, 49764), (59, 49719),

Gene: Iwokeuplikedis\_96 Start: 51616, Stop: 51443, Start Num: 37

Candidate Starts for Iwokeuplikedis\_96:

(21, 51640), (Start: 37 @51616 has 9 MA's), (47, 51550),

Gene: Jabith\_99 Start: 51077, Stop: 50883, Start Num: 36

Candidate Starts for Jabith\_99:

(1, 51344), (Start: 24 @51107 has 2 MA's), (Start: 28 @51101 has 17 MA's), (Start: 34 @51083 has 10 MA's), (Start: 36 @51077 has 5 MA's), (43, 51032), (44, 51026), (55, 50954), (57, 50942),

Gene: Jeeves\_100 Start: 50694, Stop: 50494, Start Num: 32

Candidate Starts for Jeeves\_100:

(6, 50808), (15, 50742), (Start: 32 @50694 has 29 MA's), (43, 50646), (55, 50568),

Gene: Jeffabunny\_92 Start: 47267, Stop: 47073, Start Num: 28

Candidate Starts for Jeffabunny\_92:

(Start: 28 @47267 has 17 MA's), (Start: 33 @47261 has 43 MA's), (42, 47219), (44, 47210), (49, 47162), (53, 47147),

Gene: Jeffabunny\_90 Start: 46934, Stop: 46737, Start Num: 32

Candidate Starts for Jeffabunny\_90:

(7, 47030), (11, 47006), (12, 47000), (Start: 32 @46934 has 29 MA's), (46, 46868), (53, 46817), (59, 46772),

Gene: JewelBug\_91 Start: 48501, Stop: 48304, Start Num: 32

Candidate Starts for JewelBug\_91:

(7, 48597), (9, 48579), (11, 48573), (12, 48567), (Start: 32 @48501 has 29 MA's), (46, 48435), (53, 48384), (59, 48339),

Gene: Jiawan\_96 Start: 51515, Stop: 51312, Start Num: 28

Candidate Starts for Jiawan\_96:

(Start: 28 @51515 has 17 MA's), (Start: 34 @51503 has 10 MA's), (52, 51398),

Gene: Jordennis\_97 Start: 50405, Stop: 50208, Start Num: 32

Candidate Starts for Jordennis\_97:

(7, 50501), (11, 50477), (12, 50471), (Start: 32 @50405 has 29 MA's), (46, 50339), (53, 50288), (59, 50243),

Gene: Joselito\_96 Start: 50730, Stop: 50542, Start Num: 33

Candidate Starts for Joselito\_96:

(2, 50982), (Start: 27 @50745 has 3 MA's), (Start: 33 @50730 has 43 MA's), (53, 50616), (55, 50607),

Gene: Kazan\_100 Start: 50132, Stop: 49935, Start Num: 32

Candidate Starts for Kazan\_100:

(7, 50228), (11, 50204), (12, 50198), (Start: 32 @50132 has 29 MA's), (46, 50066), (53, 50015), (59, 49970),

Gene: Kazan\_102 Start: 50459, Stop: 50271, Start Num: 33

Candidate Starts for Kazan\_102:

(Start: 33 @50459 has 43 MA's), (42, 50417), (44, 50408), (49, 50360), (53, 50345),

Gene: Kimba\_95 Start: 50034, Stop: 49846, Start Num: 33

Candidate Starts for Kimba\_95:

(2, 50286), (Start: 27 @50049 has 3 MA's), (Start: 33 @50034 has 43 MA's), (53, 49920), (55, 49911),

Gene: Kipper29\_99 Start: 50180, Stop: 49983, Start Num: 32

Candidate Starts for Kipper29\_99:

(7, 50276), (11, 50252), (12, 50246), (Start: 32 @50180 has 29 MA's), (46, 50114), (53, 50063), (59, 50018),

Gene: Koko\_103 Start: 51171, Stop: 50983, Start Num: 33  
Candidate Starts for Koko\_103:  
(Start: 33 @51171 has 43 MA's), (42, 51129), (44, 51120), (49, 51072), (53, 51057),

Gene: Landor\_91 Start: 52081, Stop: 51863, Start Num: 26  
Candidate Starts for Landor\_91:  
(3, 52252), (Start: 24 @52084 has 2 MA's), (Start: 26 @52081 has 3 MA's), (41, 52027), (43, 52012),  
(48, 51973), (54, 51937), (60, 51895),

Gene: Lilbunny\_98 Start: 49038, Stop: 48841, Start Num: 31  
Candidate Starts for Lilbunny\_98:  
(Start: 31 @49038 has 14 MA's), (59, 48876),

Gene: Lilleskat\_95 Start: 51474, Stop: 51283, Start Num: 34  
Candidate Starts for Lilleskat\_95:  
(Start: 28 @51486 has 17 MA's), (Start: 34 @51474 has 10 MA's), (52, 51369),

Gene: LoneWolf\_97 Start: 51410, Stop: 51201, Start Num: 28  
Candidate Starts for LoneWolf\_97:  
(Start: 28 @51410 has 17 MA's), (Start: 34 @51398 has 10 MA's), (44, 51344), (46, 51332),

Gene: Luchador\_96 Start: 51613, Stop: 51407, Start Num: 32  
Candidate Starts for Luchador\_96:  
(6, 51727), (15, 51661), (Start: 32 @51613 has 29 MA's), (44, 51553), (56, 51472),

Gene: Lucivia\_99 Start: 51009, Stop: 50821, Start Num: 33  
Candidate Starts for Lucivia\_99:  
(2, 51261), (Start: 27 @51024 has 3 MA's), (Start: 33 @51009 has 43 MA's), (53, 50895), (55, 50886),

Gene: MaCh\_98 Start: 50988, Stop: 50785, Start Num: 27  
Candidate Starts for MaCh\_98:  
(2, 51225), (Start: 27 @50988 has 3 MA's), (Start: 33 @50973 has 43 MA's), (53, 50859), (55, 50850),

Gene: Mabel\_98 Start: 50974, Stop: 50786, Start Num: 33  
Candidate Starts for Mabel\_98:  
(2, 51226), (Start: 27 @50989 has 3 MA's), (Start: 33 @50974 has 43 MA's), (53, 50860), (55, 50851),

Gene: Maminiaina\_97 Start: 51409, Stop: 51200, Start Num: 28  
Candidate Starts for Maminiaina\_97:  
(Start: 28 @51409 has 17 MA's), (Start: 34 @51397 has 10 MA's), (44, 51343), (46, 51331), (62,  
51211),

Gene: McFly\_99 Start: 50471, Stop: 50274, Start Num: 32  
Candidate Starts for McFly\_99:  
(7, 50567), (11, 50543), (12, 50537), (Start: 32 @50471 has 29 MA's), (46, 50405), (53, 50354), (59,  
50309),

Gene: McFly\_100 Start: 50798, Stop: 50610, Start Num: 33  
Candidate Starts for McFly\_100:  
(Start: 33 @50798 has 43 MA's), (42, 50756), (44, 50747), (49, 50699), (53, 50684),

Gene: Minispark\_94 Start: 50888, Stop: 50658, Start Num: 22  
Candidate Starts for Minispark\_94:

(Start: 22 @50888 has 1 MA's), (Start: 32 @50861 has 29 MA's), (43, 50807), (44, 50801), (51, 50747), (57, 50717), (61, 50672),

Gene: MissWhite\_92 Start: 48624, Stop: 48430, Start Num: 36

Candidate Starts for MissWhite\_92:

(Start: 24 @48654 has 2 MA's), (Start: 28 @48648 has 17 MA's), (Start: 34 @48630 has 10 MA's), (Start: 36 @48624 has 5 MA's), (43, 48579), (44, 48573), (55, 48501), (57, 48489),

Gene: Mulciber\_97 Start: 50829, Stop: 50641, Start Num: 33

Candidate Starts for Mulciber\_97:

(2, 51081), (Start: 27 @50844 has 3 MA's), (Start: 33 @50829 has 43 MA's), (53, 50715), (55, 50706),

Gene: Munch\_97 Start: 50978, Stop: 50790, Start Num: 33

Candidate Starts for Munch\_97:

(2, 51230), (Start: 27 @50993 has 3 MA's), (Start: 33 @50978 has 43 MA's), (53, 50864), (55, 50855),

Gene: MyraDee\_92 Start: 48828, Stop: 48646, Start Num: 37

Candidate Starts for MyraDee\_92:

(5, 48954), (12, 48897), (17, 48879), (20, 48864), (Start: 37 @48828 has 9 MA's), (44, 48783), (49, 48735), (60, 48672),

Gene: Myxus\_98 Start: 51522, Stop: 51328, Start Num: 34

Candidate Starts for Myxus\_98:

(Start: 28 @51534 has 17 MA's), (Start: 34 @51522 has 10 MA's), (46, 51459), (52, 51414),

Gene: Neeharika16\_98 Start: 50215, Stop: 50027, Start Num: 33

Candidate Starts for Neeharika16\_98:

(Start: 33 @50215 has 43 MA's), (42, 50173), (44, 50164), (49, 50116), (53, 50101),

Gene: Newrala\_98 Start: 50570, Stop: 50373, Start Num: 32

Candidate Starts for Newrala\_98:

(7, 50666), (11, 50642), (12, 50636), (Start: 32 @50570 has 29 MA's), (46, 50504), (53, 50453), (59, 50408),

Gene: Newrala\_100 Start: 50897, Stop: 50709, Start Num: 33

Candidate Starts for Newrala\_100:

(Start: 33 @50897 has 43 MA's), (42, 50855), (44, 50846), (49, 50798), (53, 50783),

Gene: NothingSpecial\_87 Start: 50873, Stop: 50661, Start Num: 24

Candidate Starts for NothingSpecial\_87:

(Start: 24 @50873 has 2 MA's), (Start: 26 @50870 has 3 MA's), (Start: 34 @50861 has 10 MA's), (43, 50810), (54, 50735), (57, 50720),

Gene: Odin\_94 Start: 51072, Stop: 50881, Start Num: 27

Candidate Starts for Odin\_94:

(18, 51102), (Start: 27 @51072 has 3 MA's), (Start: 29 @51069 has 6 MA's),

Gene: Onglai\_96 Start: 49675, Stop: 49484, Start Num: 34

Candidate Starts for Onglai\_96:

(Start: 28 @49687 has 17 MA's), (Start: 34 @49675 has 10 MA's), (52, 49570),

Gene: Orange\_98 Start: 50528, Stop: 50340, Start Num: 33

Candidate Starts for Orange\_98:

(2, 50780), (Start: 27 @50543 has 3 MA's), (Start: 33 @50528 has 43 MA's), (53, 50414), (55, 50405),

Gene: PackMan\_93 Start: 49436, Stop: 49242, Start Num: 34

Candidate Starts for PackMan\_93:

(Start: 28 @49448 has 17 MA's), (Start: 34 @49436 has 10 MA's), (46, 49373), (52, 49328),

Gene: Petersenfast\_92 Start: 49409, Stop: 49221, Start Num: 33

Candidate Starts for Petersenfast\_92:

(2, 49661), (Start: 27 @49424 has 3 MA's), (Start: 33 @49409 has 43 MA's), (45, 49349), (53, 49295), (55, 49286),

Gene: Ph8s\_97 Start: 50955, Stop: 50767, Start Num: 29

Candidate Starts for Ph8s\_97:

(Start: 29 @50955 has 6 MA's),

Gene: Phaeder\_98 Start: 51397, Stop: 51203, Start Num: 34

Candidate Starts for Phaeder\_98:

(Start: 28 @51409 has 17 MA's), (Start: 34 @51397 has 10 MA's), (46, 51334), (52, 51289),

Gene: Phonnegut\_98 Start: 51419, Stop: 51216, Start Num: 28

Candidate Starts for Phonnegut\_98:

(Start: 28 @51419 has 17 MA's), (Start: 34 @51407 has 10 MA's), (52, 51302),

Gene: Pioneer\_98 Start: 51419, Stop: 51216, Start Num: 28

Candidate Starts for Pioneer\_98:

(Start: 28 @51419 has 17 MA's), (Start: 34 @51407 has 10 MA's), (52, 51302),

Gene: Pmask\_98 Start: 50771, Stop: 50574, Start Num: 32

Candidate Starts for Pmask\_98:

(7, 50867), (11, 50843), (12, 50837), (Start: 32 @50771 has 29 MA's), (46, 50705), (53, 50654), (59, 50609),

Gene: Polyphemus\_92 Start: 48585, Stop: 48388, Start Num: 32

Candidate Starts for Polyphemus\_92:

(7, 48681), (9, 48663), (11, 48657), (12, 48651), (Start: 32 @48585 has 29 MA's), (46, 48519), (53, 48468), (59, 48423),

Gene: Priamo\_99 Start: 49814, Stop: 49617, Start Num: 32

Candidate Starts for Priamo\_99:

(7, 49910), (11, 49886), (12, 49880), (Start: 32 @49814 has 29 MA's), (46, 49748), (53, 49697), (59, 49652),

Gene: Priya\_95 Start: 51071, Stop: 50868, Start Num: 28

Candidate Starts for Priya\_95:

(Start: 28 @51071 has 17 MA's), (Start: 34 @51059 has 10 MA's), (46, 50999), (52, 50954),

Gene: Qobbit\_95 Start: 51021, Stop: 50830, Start Num: 34

Candidate Starts for Qobbit\_95:

(Start: 28 @51033 has 17 MA's), (Start: 34 @51021 has 10 MA's), (46, 50961), (52, 50916),

Gene: QueenB2\_92 Start: 51097, Stop: 50924, Start Num: 37

Candidate Starts for QueenB2\_92:

(Start: 37 @51097 has 9 MA's), (47, 51031),

Gene: Rahalelujah\_96 Start: 50903, Stop: 50673, Start Num: 22  
Candidate Starts for Rahalelujah\_96:  
(Start: 22 @50903 has 1 MA's), (Start: 32 @50876 has 29 MA's), (43, 50822), (44, 50816), (51, 50762),  
(57, 50732), (61, 50687),

Gene: Refuge\_90 Start: 51776, Stop: 51570, Start Num: 28  
Candidate Starts for Refuge\_90:  
(14, 51821), (Start: 28 @51776 has 17 MA's), (Start: 32 @51767 has 29 MA's), (54, 51644), (61,  
51584),

Gene: Retro23\_94 Start: 51395, Stop: 51222, Start Num: 37  
Candidate Starts for Retro23\_94:  
(Start: 37 @51395 has 9 MA's), (47, 51329),

Gene: Rifter\_102 Start: 49949, Stop: 49761, Start Num: 33  
Candidate Starts for Rifter\_102:  
(Start: 33 @49949 has 43 MA's), (42, 49907), (44, 49898), (49, 49850), (53, 49835),

Gene: Roksolana\_104 Start: 51001, Stop: 50813, Start Num: 33  
Candidate Starts for Roksolana\_104:  
(Start: 33 @51001 has 43 MA's), (42, 50959), (44, 50950), (49, 50902), (53, 50887),

Gene: Roksolana\_102 Start: 50674, Stop: 50477, Start Num: 32  
Candidate Starts for Roksolana\_102:  
(7, 50770), (11, 50746), (12, 50740), (Start: 32 @50674 has 29 MA's), (46, 50608), (53, 50557), (59,  
50512),

Gene: RyeScarlet\_99 Start: 51405, Stop: 51202, Start Num: 28  
Candidate Starts for RyeScarlet\_99:  
(Start: 28 @51405 has 17 MA's), (Start: 34 @51393 has 10 MA's), (52, 51288),

Gene: Sachima\_94 Start: 51433, Stop: 51230, Start Num: 28  
Candidate Starts for Sachima\_94:  
(Start: 28 @51433 has 17 MA's), (Start: 34 @51421 has 10 MA's), (52, 51316),

Gene: Salz\_95 Start: 49691, Stop: 49497, Start Num: 36  
Candidate Starts for Salz\_95:  
(1, 49958), (Start: 24 @49721 has 2 MA's), (Start: 28 @49715 has 17 MA's), (Start: 34 @49697 has 10  
MA's), (Start: 36 @49691 has 5 MA's), (43, 49646), (44, 49640), (55, 49568), (57, 49556),

Gene: Saskia\_96 Start: 50197, Stop: 50009, Start Num: 33  
Candidate Starts for Saskia\_96:  
(2, 50449), (Start: 27 @50212 has 3 MA's), (Start: 33 @50197 has 43 MA's), (53, 50083), (55, 50074),

Gene: Scherzo\_96 Start: 51450, Stop: 51247, Start Num: 28  
Candidate Starts for Scherzo\_96:  
(Start: 28 @51450 has 17 MA's), (Start: 34 @51438 has 10 MA's), (52, 51333),

Gene: Sham4\_95 Start: 49724, Stop: 49536, Start Num: 33  
Candidate Starts for Sham4\_95:  
(Start: 27 @49739 has 3 MA's), (Start: 33 @49724 has 43 MA's), (53, 49610), (55, 49601),

Gene: SmellyB\_101 Start: 50453, Stop: 50265, Start Num: 33  
Candidate Starts for SmellyB\_101:  
(Start: 33 @50453 has 43 MA's), (42, 50411), (44, 50402), (49, 50354), (53, 50339),

Gene: SmellyB\_99 Start: 50126, Stop: 49929, Start Num: 32  
Candidate Starts for SmellyB\_99:  
(7, 50222), (11, 50198), (12, 50192), (Start: 32 @50126 has 29 MA's), (46, 50060), (53, 50009), (59, 49964),

Gene: Snape\_98 Start: 50517, Stop: 50329, Start Num: 33  
Candidate Starts for Snape\_98:  
(2, 50769), (Start: 27 @50532 has 3 MA's), (Start: 33 @50517 has 43 MA's), (53, 50403), (55, 50394),

Gene: SororFago\_96 Start: 51668, Stop: 51465, Start Num: 32  
Candidate Starts for SororFago\_96:  
(6, 51782), (15, 51716), (Start: 32 @51668 has 29 MA's), (43, 51617), (45, 51602), (55, 51539),

Gene: Spouty\_95 Start: 51070, Stop: 50867, Start Num: 28  
Candidate Starts for Spouty\_95:  
(Start: 28 @51070 has 17 MA's), (Start: 34 @51058 has 10 MA's), (46, 50998), (52, 50953),

Gene: Sunhee\_101 Start: 50509, Stop: 50312, Start Num: 32  
Candidate Starts for Sunhee\_101:  
(6, 50623), (15, 50557), (Start: 32 @50509 has 29 MA's), (44, 50455), (54, 50386), (57, 50371), (59, 50347), (61, 50326),

Gene: SuperAwesome\_99 Start: 50810, Stop: 50613, Start Num: 32  
Candidate Starts for SuperAwesome\_99:  
(7, 50906), (11, 50882), (12, 50876), (Start: 32 @50810 has 29 MA's), (46, 50744), (53, 50693), (59, 50648),

Gene: SuperCallie99\_96 Start: 50373, Stop: 50185, Start Num: 33  
Candidate Starts for SuperCallie99\_96:  
(Start: 33 @50373 has 43 MA's), (42, 50331), (44, 50322), (49, 50274), (53, 50259),

Gene: Superchunk\_97 Start: 51158, Stop: 50970, Start Num: 29  
Candidate Starts for Superchunk\_97:  
(18, 51191), (Start: 27 @51161 has 3 MA's), (Start: 29 @51158 has 6 MA's),

Gene: SwirlSquare\_98 Start: 50315, Stop: 50127, Start Num: 29  
Candidate Starts for SwirlSquare\_98:  
(4, 50441), (Start: 29 @50315 has 6 MA's), (44, 50264), (49, 50216), (50, 50213),

Gene: Temprado\_103 Start: 50790, Stop: 50593, Start Num: 31  
Candidate Starts for Temprado\_103:  
(Start: 31 @50790 has 14 MA's), (59, 50628),

Gene: Timothy\_98 Start: 50494, Stop: 50306, Start Num: 33  
Candidate Starts for Timothy\_98:  
(2, 50746), (Start: 27 @50509 has 3 MA's), (Start: 33 @50494 has 43 MA's), (53, 50380), (55, 50371),

Gene: TinyTimmy\_96 Start: 50238, Stop: 50035, Start Num: 27  
Candidate Starts for TinyTimmy\_96:

(2, 50475), (Start: 27 @50238 has 3 MA's), (Start: 33 @50223 has 43 MA's), (53, 50109), (55, 50100),

Gene: Toaka\_95 Start: 51213, Stop: 51004, Start Num: 29

Candidate Starts for Toaka\_95:

(10, 51282), (19, 51240), (Start: 29 @51213 has 6 MA's), (43, 51153), (44, 51147), (54, 51078),

Gene: ToneTone\_98 Start: 50341, Stop: 50144, Start Num: 31

Candidate Starts for ToneTone\_98:

(Start: 31 @50341 has 14 MA's), (59, 50179),

Gene: Tristan\_90 Start: 51880, Stop: 51662, Start Num: 26

Candidate Starts for Tristan\_90:

(Start: 24 @51883 has 2 MA's), (Start: 26 @51880 has 3 MA's), (41, 51826), (43, 51811), (48, 51772), (54, 51736), (60, 51694),

Gene: Trooper\_93 Start: 50915, Stop: 50739, Start Num: 35

Candidate Starts for Trooper\_93:

(18, 50951), (Start: 35 @50915 has 1 MA's), (Start: 37 @50912 has 9 MA's), (47, 50846), (60, 50765),

Gene: Tubs\_98 Start: 51397, Stop: 51203, Start Num: 34

Candidate Starts for Tubs\_98:

(Start: 28 @51409 has 17 MA's), (Start: 34 @51397 has 10 MA's), (46, 51334), (52, 51289),

Gene: Tucker\_102 Start: 50544, Stop: 50347, Start Num: 31

Candidate Starts for Tucker\_102:

(Start: 31 @50544 has 14 MA's), (59, 50382),

Gene: Ugenie5\_85 Start: 48894, Stop: 48691, Start Num: 28

Candidate Starts for Ugenie5\_85:

(Start: 28 @48894 has 17 MA's), (Start: 34 @48882 has 10 MA's), (52, 48777),

Gene: Vanisoa\_92 Start: 51506, Stop: 51297, Start Num: 29

Candidate Starts for Vanisoa\_92:

(Start: 29 @51506 has 6 MA's), (43, 51446), (44, 51440),

Gene: VohminGhazi\_99 Start: 50127, Stop: 49930, Start Num: 32

Candidate Starts for VohminGhazi\_99:

(7, 50223), (11, 50199), (12, 50193), (Start: 32 @50127 has 29 MA's), (46, 50061), (53, 50010), (59, 49965),

Gene: VohminGhazi\_101 Start: 50454, Stop: 50266, Start Num: 33

Candidate Starts for VohminGhazi\_101:

(Start: 33 @50454 has 43 MA's), (42, 50412), (44, 50403), (49, 50355), (53, 50340),

Gene: Wiks\_101 Start: 50421, Stop: 50224, Start Num: 31

Candidate Starts for Wiks\_101:

(Start: 31 @50421 has 14 MA's), (59, 50259),

Gene: Wolpertinger\_98 Start: 50843, Stop: 50655, Start Num: 33

Candidate Starts for Wolpertinger\_98:

(Start: 27 @50858 has 3 MA's), (Start: 33 @50843 has 43 MA's), (53, 50729), (55, 50720),

Gene: WorldCup\_95 Start: 50989, Stop: 50759, Start Num: 22

Candidate Starts for WorldCup\_95:

(Start: 22 @50989 has 1 MA's), (Start: 32 @50962 has 29 MA's), (43, 50908), (44, 50902), (51, 50848), (57, 50818), (61, 50773),

Gene: WunderPhul\_90 Start: 47023, Stop: 46826, Start Num: 31

Candidate Starts for WunderPhul\_90:

(Start: 31 @47023 has 14 MA's), (59, 46861),

Gene: Yecey3\_99 Start: 51233, Stop: 51030, Start Num: 31

Candidate Starts for Yecey3\_99:

(Start: 31 @51233 has 14 MA's), (63, 51035),

Gene: Yokurt\_101 Start: 50421, Stop: 50224, Start Num: 31

Candidate Starts for Yokurt\_101:

(Start: 31 @50421 has 14 MA's), (59, 50259),

Gene: Zaka\_102 Start: 50421, Stop: 50224, Start Num: 31

Candidate Starts for Zaka\_102:

(Start: 31 @50421 has 14 MA's), (59, 50259),

Gene: Zimmer\_89 Start: 51230, Stop: 51024, Start Num: 40

Candidate Starts for Zimmer\_89:

(16, 51275), (Start: 40 @51230 has 3 MA's), (43, 51200), (62, 51059),

Gene: Zulu\_103 Start: 50798, Stop: 50601, Start Num: 31

Candidate Starts for Zulu\_103:

(Start: 31 @50798 has 14 MA's), (59, 50636),