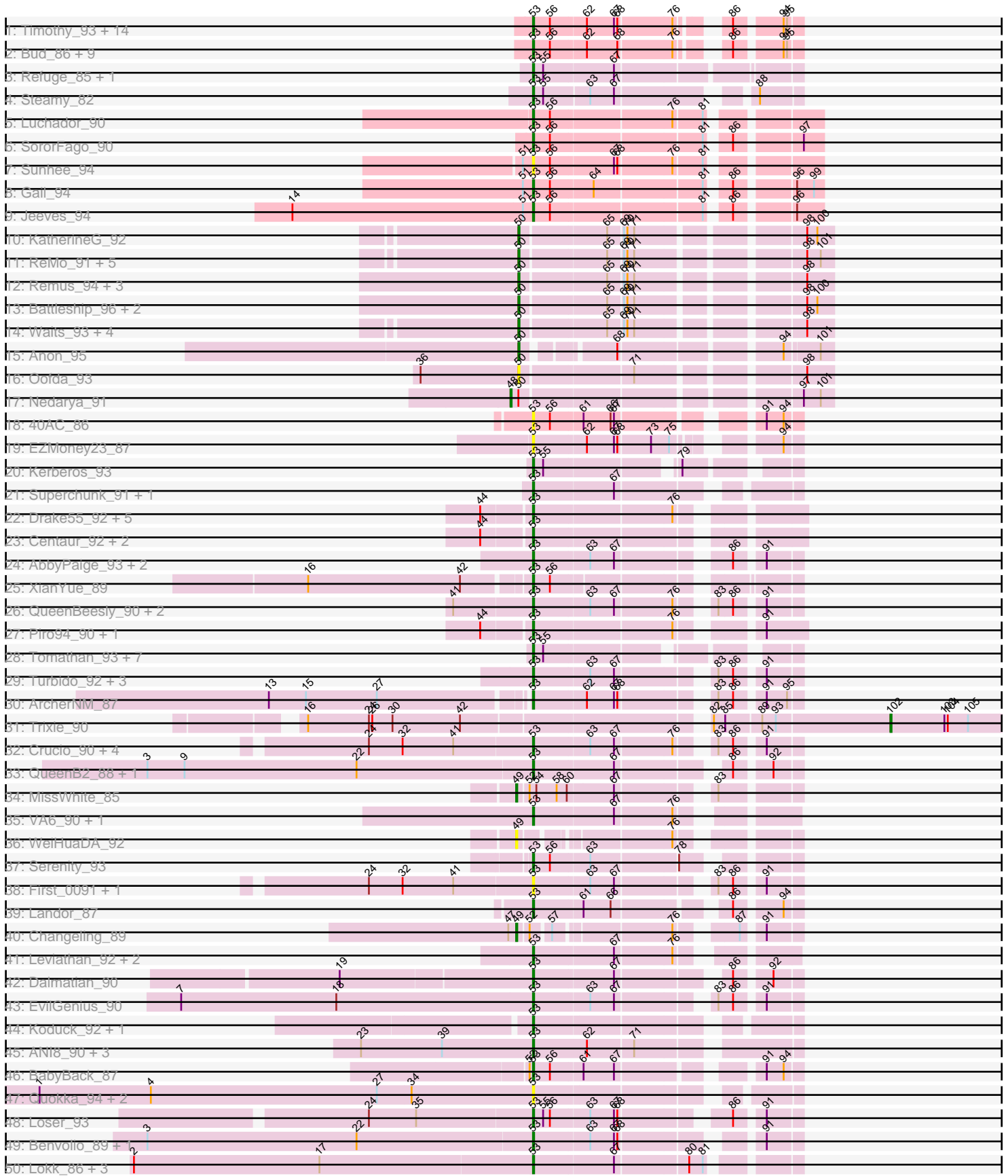
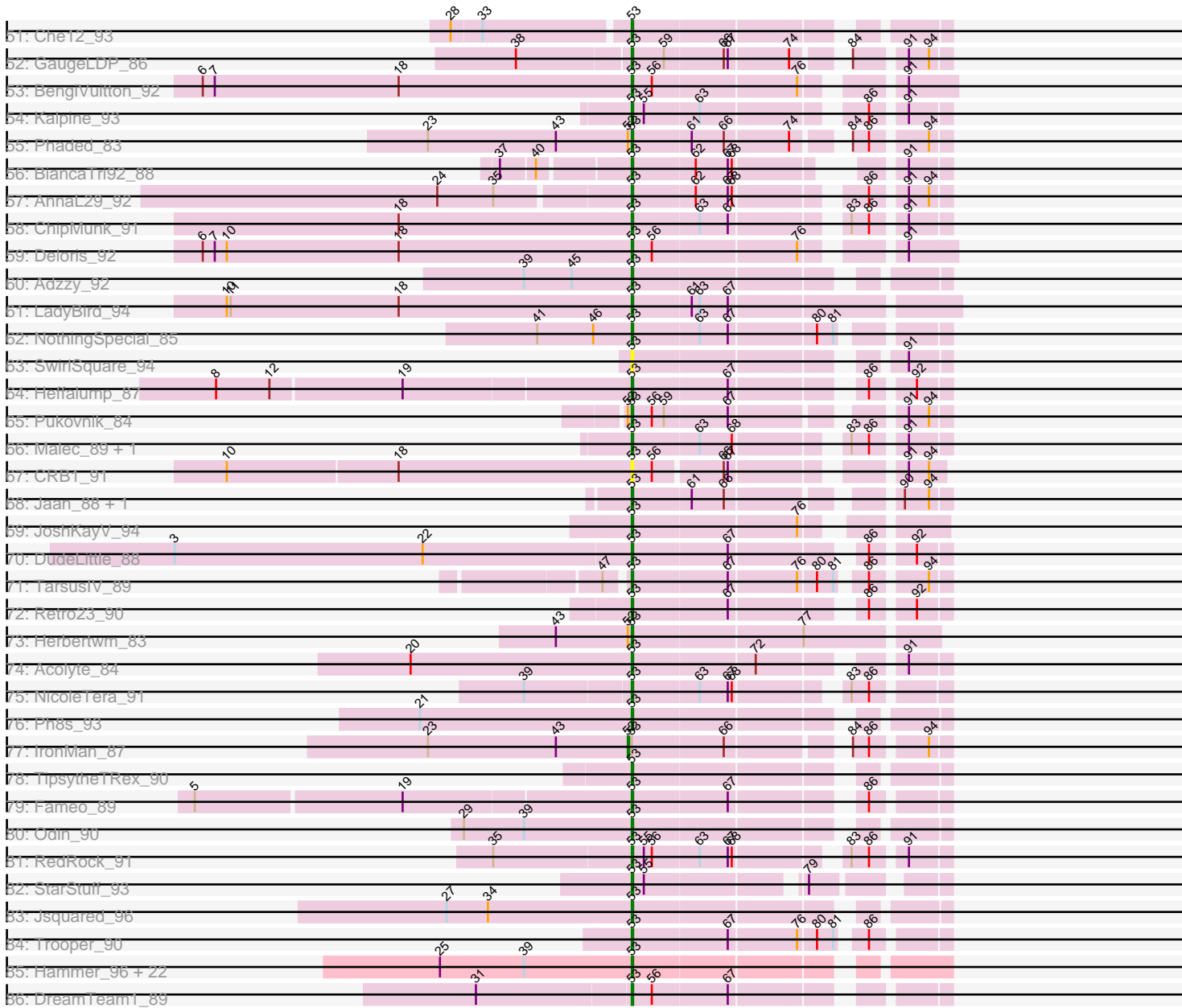


Pham 193759



Pham 193759



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 193759 Report

This analysis was run 11/02/24 on database version 579.

Pham number 193759 has 190 members, 18 are drafts.

Phages represented in each track:

- Track 1 : Timothy\_93, Orange\_93, Aneem\_94, Jabith\_93, Munch\_92, MaCh\_93, Joselito\_91, TinyTimmy\_91, Lucivia\_94, Bachome\_91, Ebony\_92, Petersenfast\_87, Mabel\_93, Bowtie\_89, Gilberta\_91
- Track 2 : Bud\_86, Salz\_89, Sham4\_90, Mulciber\_92, Et2Brutus\_93, Flaverint\_94, Insomnia\_93, Snape\_93, Hutc2\_90, Fibonacci\_93
- Track 3 : Refuge\_85, DARTHPhader\_83
- Track 4 : Steamy\_82
- Track 5 : Luchador\_90
- Track 6 : SororFago\_90
- Track 7 : Sunhee\_94
- Track 8 : Gail\_94
- Track 9 : Jeeves\_94
- Track 10 : KatherineG\_92
- Track 11 : ReMo\_91, Looper\_90, ShayRa\_91, Switzerland\_91, Soups\_93, Rosalind\_92
- Track 12 : Remus\_94, Epsocamisio\_91, Strosahl\_94, JSwag\_94
- Track 13 : Battleship\_96, DekHockey33\_95, MinecraftSteve\_94
- Track 14 : Waits\_93, Boohoo\_92, LastResort\_91, Anaysia\_93, Nebulosus\_90
- Track 15 : Anon\_95
- Track 16 : Oofda\_93
- Track 17 : Nedarya\_91
- Track 18 : 40AC\_86
- Track 19 : EZMoney23\_87
- Track 20 : Kerberos\_93
- Track 21 : Superchunk\_91, Caraxes\_92
- Track 22 : Drake55\_92, NaSiaTalie\_93, Equemioh13\_92, WideWale\_93, Flare16\_92, Updawg\_93
- Track 23 : Centaur\_92, Baehexic\_91, MiculUcigas\_92
- Track 24 : AbbyPaige\_93, LilTurb\_92, Whabigail7\_90
- Track 25 : XianYue\_89
- Track 26 : QueenBeesly\_90, FiringLine\_90, SemperFi\_90
- Track 27 : Piro94\_90, HarryHoudini\_91
- Track 28 : Tomathan\_93, Duplo\_94, D29\_84, D32\_81, Pomar16\_93, Travvers\_93, DBQu4n\_93, Naji\_82
- Track 29 : Turbido\_92, KingCyrus\_89, Jerm\_92, Smeagan\_93
- Track 30 : ArcherNM\_87
- Track 31 : Trixie\_90

- Track 32 : Crucio\_90, SnapTap\_90, Georgie2\_92, Power\_90, SweetiePie\_90
- Track 33 : QueenB2\_88, Anselm\_92
- Track 34 : MissWhite\_85
- Track 35 : VA6\_90, AN3\_90
- Track 36 : WeiHuaDA\_92
- Track 37 : Serenity\_93
- Track 38 : First\_0091, 20ES\_92
- Track 39 : Landor\_87
- Track 40 : Changeling\_89
- Track 41 : Leviathan\_92, Agape74\_93, Dignity\_93
- Track 42 : Dalmatian\_90
- Track 43 : EvilGenius\_90
- Track 44 : Koduck\_92, L5\_84
- Track 45 : ANI8\_90, VC3\_89, C3\_83, AN9\_90
- Track 46 : BabyBack\_87
- Track 47 : Quokka\_94, MajorMajor\_89, Bradman\_95
- Track 48 : Loser\_93
- Track 49 : Benvolio\_89, Echild\_94
- Track 50 : Loka\_86, BobSwaget\_85, Miko\_87, Rachaly\_88
- Track 51 : Che12\_93
- Track 52 : GaugeLDP\_86
- Track 53 : BengiVuitton\_92
- Track 54 : Kalpine\_93
- Track 55 : Phaded\_83
- Track 56 : BiancaTri92\_88
- Track 57 : AnnaL29\_92
- Track 58 : ChipMunk\_91
- Track 59 : Deloris\_92
- Track 60 : Adzzy\_92
- Track 61 : LadyBird\_94
- Track 62 : NothingSpecial\_85
- Track 63 : SwirlSquare\_94
- Track 64 : Heffalump\_87
- Track 65 : Pukovnik\_84
- Track 66 : Malec\_89, Larenn\_89
- Track 67 : CRB1\_91
- Track 68 : Jaan\_88, Bactobuster\_82
- Track 69 : JoshKayV\_94
- Track 70 : DudeLittle\_88
- Track 71 : TarsusIV\_89
- Track 72 : Retro23\_90
- Track 73 : Herbertwm\_83
- Track 74 : Acolyte\_84
- Track 75 : NicoleTera\_91
- Track 76 : Ph8s\_93
- Track 77 : IronMan\_87
- Track 78 : TipsytheTRex\_90
- Track 79 : Fameo\_89
- Track 80 : Odin\_90
- Track 81 : RedRock\_91
- Track 82 : StarStuff\_93
- Track 83 : Jsquared\_96
- Track 84 : Trooper\_90

- Track 85 : Hammer\_96, SuperCallie99\_90, Zaka\_96, Indra\_98, Roksolana\_96, Yokurt\_95, Hexamo\_95, Zulu\_97, Rifter\_96, Jeffabunny\_84, ToneTone\_92, Isiphiwo\_90, Gruunaga\_96, Blue7\_97, Wiks\_95, Lilbunny\_92, Koko\_97, Artemis2UCLA\_95, Helmet\_97, Tucker\_96, Gladiator\_92, CloudWang3\_96, Garak\_97
- Track 86 : DreamTeam1\_89

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

The start number called the most often in the published annotations is 53, it was called in 147 of the 172 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 20ES\_92, 40AC\_86, AN3\_90, AN9\_90, ANI8\_90, AbbyPaige\_93, Acolyte\_84, Adzzy\_92, Agape74\_93, Aneem\_94, AnnaL29\_92, Anselm\_92, ArcherNM\_87, Artemis2UCLA\_95, BabyBack\_87, Bachome\_91, Bactobuster\_82, Baehexic\_91, BengiVuitton\_92, Benvolio\_89, BiancaTri92\_88, Blue7\_97, BobSwaget\_85, Bowtie\_89, Bradman\_95, Bud\_86, C3\_83, CRB1\_91, Caraxes\_92, Centaur\_92, Che12\_93, ChipMunk\_91, CloudWang3\_96, Crucio\_90, D29\_84, D32\_81, DBQu4n\_93, Dalmatian\_90, DarthPhader\_83, Deloris\_92, Dignity\_93, Drake55\_92, DreamTeam1\_89, DudeLittle\_88, Duplo\_94, EZMoney23\_87, Ebony\_92, Echild\_94, Equemioh13\_92, Et2Brutus\_93, EvilGenius\_90, Fameo\_89, Fibonacci\_93, FiringLine\_90, First\_0091, Flare16\_92, Flaverint\_94, Gail\_94, Garak\_97, GaugeLDP\_86, Georgie2\_92, Gilberta\_91, Gladiator\_92, Gruunaga\_96, Hammer\_96, HarryHoudini\_91, Heffalump\_87, Helmet\_97, Herbertwm\_83, Hexamo\_95, Hutc2\_90, Indra\_98, Insomnia\_93, Isiphiwo\_90, Jaan\_88, Jabith\_93, Jeeves\_94, Jeffabunny\_84, Jerm\_92, Joselito\_91, JoshKayV\_94, Jsquared\_96, Kalpine\_93, Kerberos\_93, KingCyrus\_89, Koduck\_92, Koko\_97, L5\_84, LadyBird\_94, Landor\_87, Larenn\_89, Leviathan\_92, LilTurb\_92, Lilbunny\_92, Lokk\_86, Loser\_93, Luchador\_90, Lucivia\_94, MaCh\_93, Mabel\_93, MajorMajor\_89, Malec\_89, MiculUcigas\_92, Miko\_87, Mulciber\_92, Munch\_92, NaSiaTalie\_93, Naji\_82, NicoleTera\_91, NothingSpecial\_85, Odin\_90, Orange\_93, Petersenfast\_87, Ph8s\_93, Phaded\_83, Piro94\_90, Pomar16\_93, Power\_90, Pukovnik\_84, QueenB2\_88, QueenBeesly\_90, Quokka\_94, Rachaly\_88, RedRock\_91, Refuge\_85, Retro23\_90, Rifter\_96, Roksolana\_96, Salz\_89, SemperFi\_90, Serenity\_93, Sham4\_90, Smeagan\_93, SnapTap\_90, Snape\_93, SororFago\_90, StarStuff\_93, Steamy\_82, Sunhee\_94, SuperCallie99\_90, Superchunk\_91, SweetiePie\_90, SwirlSquare\_94, TarsusIV\_89, Timothy\_93, TinyTimmy\_91, TipsytheTRex\_90, Tomathan\_93, ToneTone\_92, Travvers\_93, Trooper\_90, Tucker\_96, Turbido\_92, Updawg\_93, VA6\_90, VC3\_89, Whabigail7\_90, WideWale\_93, Wiks\_95, XianYue\_89, Yokurt\_95, Zaka\_96, Zulu\_97,

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

- IronMan\_87,

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

- Anaysia\_93, Anon\_95, Battleship\_96, Boohoo\_92, Changeling\_89, DekHockey33\_95, Epsocamisio\_91, JSwag\_94, KatherineG\_92, LastResort\_91, Looper\_90, MinecraftSteve\_94, MissWhite\_85, Nebulosus\_90, Nedarya\_91, Oofda\_93, ReMo\_91, Remus\_94, Rosalind\_92, ShayRa\_91, Soups\_93, Strosahl\_94,

Switzerland\_91, Trixie\_90, Waits\_93, WeiHuaDA\_92,

### Summary by start number:

#### Start 48:

- Found in 1 of 190 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 172
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Nedarya\_91 (A15),

#### Start 49:

- Found in 3 of 190 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 2 of 172
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Changeling\_89 (A2), MissWhite\_85 (A2), WeiHuaDA\_92 (A2),

#### Start 50:

- Found in 22 of 190 ( 11.6% ) of genes in pham
- Manual Annotations of this start: 20 of 172
- Called 95.5% of time when present
- Phage (with cluster) where this start called: Anaysia\_93 (A15), Anon\_95 (A15), Battleship\_96 (A15), Boohoo\_92 (A15), DekHockey33\_95 (A15), Epsocamisio\_91 (A15), JSwag\_94 (A15), KatherineG\_92 (A15), LastResort\_91 (A15), Looper\_90 (A15), MinecraftSteve\_94 (A15), Nebulosus\_90 (A15), Oofda\_93 (A15), ReMo\_91 (A15), Remus\_94 (A15), Rosalind\_92 (A15), ShayRa\_91 (A15), Soups\_93 (A15), Strosahl\_94 (A15), Switzerland\_91 (A15), Waits\_93 (A15),

#### Start 52:

- Found in 7 of 190 ( 3.7% ) of genes in pham
- Manual Annotations of this start: 1 of 172
- Called 14.3% of time when present
- Phage (with cluster) where this start called: IronMan\_87 (A2),

#### Start 53:

- Found in 164 of 190 ( 86.3% ) of genes in pham
- Manual Annotations of this start: 147 of 172
- Called 99.4% of time when present
- Phage (with cluster) where this start called: 20ES\_92 (A2), 40AC\_86 (A17), AN3\_90 (A2), AN9\_90 (A2), ANI8\_90 (A2), AbbyPaige\_93 (A2), Acolyte\_84 (A2), Adzzy\_92 (A2), Agape74\_93 (A2), Aneem\_94 (A11), AnnaL29\_92 (A2), Anselm\_92 (A2), ArcherNM\_87 (A2), Artemis2UCLA\_95 (A6), BabyBack\_87 (A2), Bachome\_91 (A11), Bactobuster\_82 (A2), Baehexic\_91 (A2), BengiVuitton\_92 (A2), Benvolio\_89 (A2), BiancaTri92\_88 (A2), Blue7\_97 (A6), BobSwaget\_85 (A2), Bowtie\_89 (A11), Bradman\_95 (A2), Bud\_86 (A11), C3\_83 (A2), CRB1\_91 (A2), Caraxes\_92 (A2), Centaur\_92 (A2), Che12\_93 (A2), ChipMunk\_91 (A2), CloudWang3\_96 (A6), Crucio\_90 (A2), D29\_84 (A2), D32\_81 (A2), DBQu4n\_93 (A2), Dalmatian\_90 (A2), DARTHPhader\_83 (A12), Deloris\_92 (A2), Dignity\_93 (A2), Drake55\_92 (A2), DreamTeam1\_89 (A9), DudeLittle\_88 (A2), Duplo\_94 (A2), EZMoney23\_87 (A2), Ebony\_92 (A11), Echild\_94 (A2), Equemioh13\_92 (A2), Et2Brutus\_93 (A11), EvilGenius\_90 (A2), Fameo\_89 (A2), Fibonacci\_93 (A11), FiringLine\_90 (A2), First\_0091 (A2), Flare16\_92 (A2), Flaverint\_94 (A11), Gail\_94 (A14), Garak\_97 (A6), GaugeLDP\_86 (A2), Georgie2\_92 (A2), Gilberta\_91 (A11), Gladiator\_92 (A6),

Gruunaga\_96 (A6), Hammer\_96 (A6), HarryHoudini\_91 (A2), Heffalump\_87 (A2), Helmet\_97 (A6), Herbertwm\_83 (A2), Hexamo\_95 (A6), Hutc2\_90 (A11), Indra\_98 (A6), Insomnia\_93 (A11), Isiphiwo\_90 (A6), Jaan\_88 (A2), Jabith\_93 (A11), Jeeves\_94 (A14), Jeffabunny\_84 (A6), Jerm\_92 (A2), Joselito\_91 (A11), JoshKayV\_94 (A2), Jsquared\_96 (A2), Kalpine\_93 (A2), Kerberos\_93 (A2), KingCyrus\_89 (A2), Koduck\_92 (A2), Koko\_97 (A6), L5\_84 (A2), LadyBird\_94 (A2), Landor\_87 (A2), Larenn\_89 (A2), Leviathan\_92 (A2), LilTurb\_92 (A2), Lilbunny\_92 (A6), Lokk\_86 (A2), Loser\_93 (A2), Luchador\_90 (A14), Lucivia\_94 (A11), MaCh\_93 (A11), Mabel\_93 (A11), MajorMajor\_89 (A2), Malec\_89 (A2), MiculUcigas\_92 (A2), Miko\_87 (A2), Mulciber\_92 (A11), Munch\_92 (A11), NaSiaTalie\_93 (A2), Naji\_82 (A2), NicoleTera\_91 (A2), NothingSpecial\_85 (A2), Odin\_90 (A2), Orange\_93 (A11), Petersenfast\_87 (A11), Ph8s\_93 (A2), Phaded\_83 (A2), Piro94\_90 (A2), Pomar16\_93 (A2), Power\_90 (A2), Pukovnik\_84 (A2), QueenB2\_88 (A2), QueenBeesly\_90 (A2), Quokka\_94 (A2), Rachaly\_88 (A2), RedRock\_91 (A2), Refuge\_85 (A12), Retro23\_90 (A2), Rifter\_96 (A6), Roksolana\_96 (A6), Salz\_89 (A11), SemperFi\_90 (A2), Serenity\_93 (A2), Sham4\_90 (A11), Smeagan\_93 (A2), SnapTap\_90 (A2), Snape\_93 (A11), SororFago\_90 (A14), StarStuff\_93 (A2), Steamy\_82 (A12), Sunhee\_94 (A14), SuperCallie99\_90 (A6), Superchunk\_91 (A2), SweetiePie\_90 (A2), SwirlSquare\_94 (A2), TarsusIV\_89 (A2), Timothy\_93 (A11), TinyTimmy\_91 (A11), TopsytheTRex\_90 (A2), Tomathan\_93 (A2), ToneTone\_92 (A6), Travvers\_93 (A2), Trooper\_90 (A2), Tucker\_96 (A6), Turbido\_92 (A2), Updawg\_93 (A2), VA6\_90 (A2), VC3\_89 (A2), Whabigail7\_90 (A2), WideWale\_93 (A2), Wiks\_95 (A6), XianYue\_89 (A2), Yokurt\_95 (A6), Zaka\_96 (A6), Zulu\_97 (A6),

Start 102:

- Found in 1 of 190 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 172
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Trixie\_90 (A2),

### Summary by clusters:

There are 8 clusters represented in this pham: A15, A14, A17, A11, A12, A2, A6, A9,

Info for manual annotations of cluster A11:

- Start number 53 was manually annotated 24 times for cluster A11.

Info for manual annotations of cluster A12:

- Start number 53 was manually annotated 3 times for cluster A12.

Info for manual annotations of cluster A14:

- Start number 53 was manually annotated 4 times for cluster A14.

Info for manual annotations of cluster A15:

- Start number 48 was manually annotated 1 time for cluster A15.
- Start number 50 was manually annotated 20 times for cluster A15.

Info for manual annotations of cluster A2:

- Start number 49 was manually annotated 2 times for cluster A2.
- Start number 52 was manually annotated 1 time for cluster A2.
- Start number 53 was manually annotated 94 times for cluster A2.
- Start number 102 was manually annotated 1 time for cluster A2.

Info for manual annotations of cluster A6:

- Start number 53 was manually annotated 21 times for cluster A6.

Info for manual annotations of cluster A9:

- Start number 53 was manually annotated 1 time for cluster A9.

### **Gene Information:**

Gene: 20ES\_92 Start: 50139, Stop: 49939, Start Num: 53

Candidate Starts for 20ES\_92:

(24, 50283), (32, 50253), (41, 50208), (Start: 53 @50139 has 147 MA's), (63, 50091), (67, 50070), (83, 50001), (86, 49989), (91, 49968),

Gene: 40AC\_86 Start: 50289, Stop: 50089, Start Num: 53

Candidate Starts for 40AC\_86:

(Start: 53 @50289 has 147 MA's), (56, 50274), (61, 50247), (66, 50223), (67, 50220), (91, 50118), (94, 50103),

Gene: AN3\_90 Start: 48394, Stop: 48197, Start Num: 53

Candidate Starts for AN3\_90:

(Start: 53 @48394 has 147 MA's), (67, 48325), (76, 48277),

Gene: AN9\_90 Start: 48351, Stop: 48139, Start Num: 53

Candidate Starts for AN9\_90:

(23, 48504), (39, 48432), (Start: 53 @48351 has 147 MA's), (62, 48303), (71, 48264),

Gene: ANI8\_90 Start: 48351, Stop: 48139, Start Num: 53

Candidate Starts for ANI8\_90:

(23, 48504), (39, 48432), (Start: 53 @48351 has 147 MA's), (62, 48303), (71, 48264),

Gene: AbbyPaige\_93 Start: 50379, Stop: 50179, Start Num: 53

Candidate Starts for AbbyPaige\_93:

(Start: 53 @50379 has 147 MA's), (63, 50331), (67, 50310), (86, 50229), (91, 50208),

Gene: Acolyte\_84 Start: 49202, Stop: 49002, Start Num: 53

Candidate Starts for Acolyte\_84:

(20, 49361), (Start: 53 @49202 has 147 MA's), (72, 49115), (91, 49031),

Gene: Adzzy\_92 Start: 49175, Stop: 48975, Start Num: 53

Candidate Starts for Adzzy\_92:

(39, 49256), (45, 49220), (Start: 53 @49175 has 147 MA's),

Gene: Agape74\_93 Start: 50352, Stop: 50155, Start Num: 53

Candidate Starts for Agape74\_93:

(Start: 53 @50352 has 147 MA's), (67, 50283), (76, 50235),

Gene: Anaysia\_93 Start: 48754, Stop: 48512, Start Num: 50

Candidate Starts for Anaysia\_93:

(Start: 50 @48754 has 20 MA's), (65, 48682), (69, 48670), (70, 48667), (71, 48661), (98, 48535),



Gene: Aneem\_94 Start: 49357, Stop: 49163, Start Num: 53  
Candidate Starts for Aneem\_94:  
(Start: 53 @49357 has 147 MA's), (56, 49342), (62, 49312), (67, 49288), (68, 49285), (76, 49240), (86, 49213), (94, 49177), (95, 49174),

Gene: AnnaL29\_92 Start: 50344, Stop: 50144, Start Num: 53  
Candidate Starts for AnnaL29\_92:  
(24, 50482), (35, 50440), (Start: 53 @50344 has 147 MA's), (62, 50299), (67, 50275), (68, 50272), (86, 50194), (91, 50173), (94, 50158),

Gene: Anon\_95 Start: 49297, Stop: 49067, Start Num: 50  
Candidate Starts for Anon\_95:  
(Start: 50 @49297 has 20 MA's), (68, 49231), (94, 49105), (101, 49078),

Gene: Anselm\_92 Start: 50249, Stop: 50049, Start Num: 53  
Candidate Starts for Anselm\_92:  
(3, 50588), (9, 50555), (22, 50402), (Start: 53 @50249 has 147 MA's), (67, 50180), (86, 50099), (92, 50072),

Gene: ArcherNM\_87 Start: 49878, Stop: 49678, Start Num: 53  
Candidate Starts for ArcherNM\_87:  
(13, 50097), (15, 50064), (27, 50001), (Start: 53 @49878 has 147 MA's), (62, 49833), (67, 49809), (68, 49806), (83, 49740), (86, 49728), (91, 49707), (95, 49689),

Gene: Artemis2UCLA\_95 Start: 48793, Stop: 48590, Start Num: 53  
Candidate Starts for Artemis2UCLA\_95:  
(25, 48937), (39, 48874), (Start: 53 @48793 has 147 MA's),

Gene: BabyBack\_87 Start: 50564, Stop: 50364, Start Num: 53  
Candidate Starts for BabyBack\_87:  
(Start: 52 @50567 has 1 MA's), (Start: 53 @50564 has 147 MA's), (56, 50549), (61, 50522), (67, 50495), (91, 50393), (94, 50378),

Gene: Bachome\_91 Start: 48405, Stop: 48211, Start Num: 53  
Candidate Starts for Bachome\_91:  
(Start: 53 @48405 has 147 MA's), (56, 48390), (62, 48360), (67, 48336), (68, 48333), (76, 48288), (86, 48261), (94, 48225), (95, 48222),

Gene: Bactobuster\_82 Start: 49061, Stop: 48861, Start Num: 53  
Candidate Starts for Bactobuster\_82:  
(Start: 53 @49061 has 147 MA's), (61, 49019), (66, 48995), (90, 48893), (94, 48875),

Gene: Baehexic\_91 Start: 49989, Stop: 49783, Start Num: 53  
Candidate Starts for Baehexic\_91:  
(44, 50028), (Start: 53 @49989 has 147 MA's),

Gene: Battleship\_96 Start: 48740, Stop: 48498, Start Num: 50  
Candidate Starts for Battleship\_96:  
(Start: 50 @48740 has 20 MA's), (65, 48668), (69, 48656), (70, 48653), (71, 48647), (98, 48521), (100, 48512),

Gene: BengiVuitton\_92 Start: 50339, Stop: 50133, Start Num: 53  
Candidate Starts for BengiVuitton\_92:

(6, 50660), (7, 50651), (18, 50513), (Start: 53 @50339 has 147 MA's), (56, 50324), (76, 50222), (91, 50168),

Gene: Benvolio\_89 Start: 49865, Stop: 49665, Start Num: 53

Candidate Starts for Benvolio\_89:

(3, 50204), (22, 50018), (Start: 53 @49865 has 147 MA's), (63, 49817), (67, 49796), (68, 49793), (91, 49694),

Gene: BiancaTri92\_88 Start: 49684, Stop: 49499, Start Num: 53

Candidate Starts for BiancaTri92\_88:

(37, 49765), (40, 49741), (Start: 53 @49684 has 147 MA's), (62, 49639), (67, 49615), (68, 49612), (91, 49528),

Gene: Blue7\_97 Start: 49027, Stop: 48824, Start Num: 53

Candidate Starts for Blue7\_97:

(25, 49171), (39, 49108), (Start: 53 @49027 has 147 MA's),

Gene: BobSwaget\_85 Start: 47723, Stop: 47517, Start Num: 53

Candidate Starts for BobSwaget\_85:

(2, 48074), (17, 47909), (Start: 53 @47723 has 147 MA's), (67, 47654), (80, 47594), (81, 47582),

Gene: Boohoo\_92 Start: 48071, Stop: 47829, Start Num: 50

Candidate Starts for Boohoo\_92:

(Start: 50 @48071 has 20 MA's), (65, 47999), (69, 47987), (70, 47984), (71, 47978), (98, 47852),

Gene: Bowtie\_89 Start: 47964, Stop: 47770, Start Num: 53

Candidate Starts for Bowtie\_89:

(Start: 53 @47964 has 147 MA's), (56, 47949), (62, 47919), (67, 47895), (68, 47892), (76, 47847), (86, 47820), (94, 47784), (95, 47781),

Gene: Bradman\_95 Start: 49601, Stop: 49401, Start Num: 53

Candidate Starts for Bradman\_95:

(1, 50039), (4, 49940), (27, 49739), (34, 49709), (Start: 53 @49601 has 147 MA's),

Gene: Bud\_86 Start: 48063, Stop: 47869, Start Num: 53

Candidate Starts for Bud\_86:

(Start: 53 @48063 has 147 MA's), (56, 48048), (62, 48018), (68, 47991), (76, 47946), (86, 47919), (94, 47883), (95, 47880),

Gene: C3\_83 Start: 48351, Stop: 48139, Start Num: 53

Candidate Starts for C3\_83:

(23, 48504), (39, 48432), (Start: 53 @48351 has 147 MA's), (62, 48303), (71, 48264),

Gene: CRB1\_91 Start: 50324, Stop: 50130, Start Num: 53

Candidate Starts for CRB1\_91:

(10, 50624), (18, 50498), (Start: 53 @50324 has 147 MA's), (56, 50309), (66, 50261), (67, 50258), (91, 50156), (94, 50141),

Gene: Caraxes\_92 Start: 49153, Stop: 48953, Start Num: 53

Candidate Starts for Caraxes\_92:

(Start: 53 @49153 has 147 MA's), (67, 49084),

Gene: Centaur\_92 Start: 49856, Stop: 49650, Start Num: 53

Candidate Starts for Centaur\_92:  
(44, 49895), (Start: 53 @49856 has 147 MA's),

Gene: Changeling\_89 Start: 50335, Stop: 50135, Start Num: 49  
Candidate Starts for Changeling\_89:  
(47, 50341), (Start: 49 @50335 has 2 MA's), (Start: 52 @50326 has 1 MA's), (57, 50311), (76, 50218),  
(87, 50179), (91, 50164),

Gene: Che12\_93 Start: 49275, Stop: 49075, Start Num: 53  
Candidate Starts for Che12\_93:  
(28, 49401), (33, 49380), (Start: 53 @49275 has 147 MA's),

Gene: ChipMunk\_91 Start: 51305, Stop: 51105, Start Num: 53  
Candidate Starts for ChipMunk\_91:  
(18, 51479), (Start: 53 @51305 has 147 MA's), (63, 51257), (67, 51236), (83, 51167), (86, 51155), (91,  
51134),

Gene: CloudWang3\_96 Start: 49322, Stop: 49119, Start Num: 53  
Candidate Starts for CloudWang3\_96:  
(25, 49466), (39, 49403), (Start: 53 @49322 has 147 MA's),

Gene: Crucio\_90 Start: 50098, Stop: 49898, Start Num: 53  
Candidate Starts for Crucio\_90:  
(24, 50242), (32, 50212), (41, 50167), (Start: 53 @50098 has 147 MA's), (63, 50050), (67, 50029), (76,  
49981), (83, 49960), (86, 49948), (91, 49927),

Gene: D29\_84 Start: 46305, Stop: 46111, Start Num: 53  
Candidate Starts for D29\_84:  
(Start: 53 @46305 has 147 MA's), (55, 46296),

Gene: D32\_81 Start: 46305, Stop: 46111, Start Num: 53  
Candidate Starts for D32\_81:  
(Start: 53 @46305 has 147 MA's), (55, 46296),

Gene: DBQu4n\_93 Start: 49920, Stop: 49726, Start Num: 53  
Candidate Starts for DBQu4n\_93:  
(Start: 53 @49920 has 147 MA's), (55, 49911),

Gene: Dalmatian\_90 Start: 49897, Stop: 49697, Start Num: 53  
Candidate Starts for Dalmatian\_90:  
(19, 50062), (Start: 53 @49897 has 147 MA's), (67, 49828), (86, 49747), (92, 49720),

Gene: DarthPhader\_83 Start: 48841, Stop: 48626, Start Num: 53  
Candidate Starts for DarthPhader\_83:  
(Start: 53 @48841 has 147 MA's), (55, 48832), (67, 48772),

Gene: DekHockey33\_95 Start: 48825, Stop: 48583, Start Num: 50  
Candidate Starts for DekHockey33\_95:  
(Start: 50 @48825 has 20 MA's), (65, 48753), (69, 48741), (70, 48738), (71, 48732), (98, 48606), (100,  
48597),

Gene: Deloris\_92 Start: 50032, Stop: 49826, Start Num: 53  
Candidate Starts for Deloris\_92:

(6, 50353), (7, 50344), (10, 50335), (18, 50206), (Start: 53 @50032 has 147 MA's), (56, 50017), (76, 49915), (91, 49861),

Gene: Dignity\_93 Start: 50459, Stop: 50262, Start Num: 53

Candidate Starts for Dignity\_93:

(Start: 53 @50459 has 147 MA's), (67, 50390), (76, 50342),

Gene: Drake55\_92 Start: 49768, Stop: 49562, Start Num: 53

Candidate Starts for Drake55\_92:

(44, 49807), (Start: 53 @49768 has 147 MA's), (76, 49651),

Gene: DreamTeam1\_89 Start: 49222, Stop: 49022, Start Num: 53

Candidate Starts for DreamTeam1\_89:

(31, 49333), (Start: 53 @49222 has 147 MA's), (56, 49207), (67, 49153),

Gene: DudeLittle\_88 Start: 49616, Stop: 49416, Start Num: 53

Candidate Starts for DudeLittle\_88:

(3, 49955), (22, 49769), (Start: 53 @49616 has 147 MA's), (67, 49547), (86, 49466), (92, 49439),

Gene: Duplo\_94 Start: 49977, Stop: 49783, Start Num: 53

Candidate Starts for Duplo\_94:

(Start: 53 @49977 has 147 MA's), (55, 49968),

Gene: EZMoney23\_87 Start: 49272, Stop: 49078, Start Num: 53

Candidate Starts for EZMoney23\_87:

(Start: 53 @49272 has 147 MA's), (62, 49227), (67, 49203), (68, 49200), (73, 49173), (75, 49158), (94, 49092),

Gene: Ebony\_92 Start: 48928, Stop: 48734, Start Num: 53

Candidate Starts for Ebony\_92:

(Start: 53 @48928 has 147 MA's), (56, 48913), (62, 48883), (67, 48859), (68, 48856), (76, 48811), (86, 48784), (94, 48748), (95, 48745),

Gene: Echild\_94 Start: 49889, Stop: 49689, Start Num: 53

Candidate Starts for Echild\_94:

(3, 50228), (22, 50042), (Start: 53 @49889 has 147 MA's), (63, 49841), (67, 49820), (68, 49817), (91, 49718),

Gene: Epsocamisio\_91 Start: 48421, Stop: 48179, Start Num: 50

Candidate Starts for Epsocamisio\_91:

(Start: 50 @48421 has 20 MA's), (65, 48349), (69, 48337), (70, 48334), (71, 48328), (98, 48202),

Gene: Equemioh13\_92 Start: 50091, Stop: 49885, Start Num: 53

Candidate Starts for Equemioh13\_92:

(44, 50130), (Start: 53 @50091 has 147 MA's), (76, 49974),

Gene: Et2Brutus\_93 Start: 49205, Stop: 49011, Start Num: 53

Candidate Starts for Et2Brutus\_93:

(Start: 53 @49205 has 147 MA's), (56, 49190), (62, 49160), (68, 49133), (76, 49088), (86, 49061), (94, 49025), (95, 49022),

Gene: EvilGenius\_90 Start: 51306, Stop: 51106, Start Num: 53

Candidate Starts for EvilGenius\_90:

(7, 51618), (18, 51480), (Start: 53 @51306 has 147 MA's), (63, 51258), (67, 51237), (83, 51168), (86, 51156), (91, 51135),

Gene: Fameo\_89 Start: 49669, Stop: 49469, Start Num: 53

Candidate Starts for Fameo\_89:

(5, 49984), (19, 49834), (Start: 53 @49669 has 147 MA's), (67, 49600), (86, 49519),

Gene: Fibonacci\_93 Start: 49211, Stop: 49017, Start Num: 53

Candidate Starts for Fibonacci\_93:

(Start: 53 @49211 has 147 MA's), (56, 49196), (62, 49166), (68, 49139), (76, 49094), (86, 49067), (94, 49031), (95, 49028),

Gene: FiringLine\_90 Start: 50194, Stop: 49994, Start Num: 53

Candidate Starts for FiringLine\_90:

(41, 50263), (Start: 53 @50194 has 147 MA's), (63, 50146), (67, 50125), (76, 50077), (83, 50056), (86, 50044), (91, 50023),

Gene: First\_0091 Start: 50042, Stop: 49842, Start Num: 53

Candidate Starts for First\_0091:

(24, 50186), (32, 50156), (41, 50111), (Start: 53 @50042 has 147 MA's), (63, 49994), (67, 49973), (83, 49904), (86, 49892), (91, 49871),

Gene: Flare16\_92 Start: 49906, Stop: 49700, Start Num: 53

Candidate Starts for Flare16\_92:

(44, 49945), (Start: 53 @49906 has 147 MA's), (76, 49789),

Gene: Flaverint\_94 Start: 49355, Stop: 49161, Start Num: 53

Candidate Starts for Flaverint\_94:

(Start: 53 @49355 has 147 MA's), (56, 49340), (62, 49310), (68, 49283), (76, 49238), (86, 49211), (94, 49175), (95, 49172),

Gene: Gail\_94 Start: 50010, Stop: 49786, Start Num: 53

Candidate Starts for Gail\_94:

(51, 50013), (Start: 53 @50010 has 147 MA's), (56, 49995), (64, 49959), (81, 49869), (86, 49854), (96, 49809), (99, 49794),

Gene: Garak\_97 Start: 49267, Stop: 49064, Start Num: 53

Candidate Starts for Garak\_97:

(25, 49411), (39, 49348), (Start: 53 @49267 has 147 MA's),

Gene: GaugeLDP\_86 Start: 50114, Stop: 49914, Start Num: 53

Candidate Starts for GaugeLDP\_86:

(38, 50195), (Start: 53 @50114 has 147 MA's), (59, 50090), (66, 50048), (67, 50045), (74, 50003), (84, 49976), (91, 49943), (94, 49928),

Gene: Georgie2\_92 Start: 50242, Stop: 50042, Start Num: 53

Candidate Starts for Georgie2\_92:

(24, 50386), (32, 50356), (41, 50311), (Start: 53 @50242 has 147 MA's), (63, 50194), (67, 50173), (76, 50125), (83, 50104), (86, 50092), (91, 50071),

Gene: Gilberta\_91 Start: 48231, Stop: 48037, Start Num: 53

Candidate Starts for Gilberta\_91:

(Start: 53 @48231 has 147 MA's), (56, 48216), (62, 48186), (67, 48162), (68, 48159), (76, 48114), (86, 48087), (94, 48051), (95, 48048),

Gene: Gladiator\_92 Start: 48987, Stop: 48784, Start Num: 53  
Candidate Starts for Gladiator\_92:  
(25, 49131), (39, 49068), (Start: 53 @48987 has 147 MA's),

Gene: Gruunaga\_96 Start: 48943, Stop: 48740, Start Num: 53  
Candidate Starts for Gruunaga\_96:  
(25, 49087), (39, 49024), (Start: 53 @48943 has 147 MA's),

Gene: Hammer\_96 Start: 48640, Stop: 48437, Start Num: 53  
Candidate Starts for Hammer\_96:  
(25, 48784), (39, 48721), (Start: 53 @48640 has 147 MA's),

Gene: HarryHoudini\_91 Start: 49772, Stop: 49566, Start Num: 53  
Candidate Starts for HarryHoudini\_91:  
(44, 49811), (Start: 53 @49772 has 147 MA's), (76, 49655), (91, 49601),

Gene: Heffalump\_87 Start: 50137, Stop: 49937, Start Num: 53  
Candidate Starts for Heffalump\_87:  
(8, 50437), (12, 50398), (19, 50302), (Start: 53 @50137 has 147 MA's), (67, 50068), (86, 49987), (92, 49960),

Gene: Helmet\_97 Start: 49267, Stop: 49064, Start Num: 53  
Candidate Starts for Helmet\_97:  
(25, 49411), (39, 49348), (Start: 53 @49267 has 147 MA's),

Gene: Herbertwm\_83 Start: 48223, Stop: 48008, Start Num: 53  
Candidate Starts for Herbertwm\_83:  
(43, 48280), (Start: 52 @48226 has 1 MA's), (Start: 53 @48223 has 147 MA's), (77, 48100),

Gene: Hexamo\_95 Start: 48808, Stop: 48605, Start Num: 53  
Candidate Starts for Hexamo\_95:  
(25, 48952), (39, 48889), (Start: 53 @48808 has 147 MA's),

Gene: Hutc2\_90 Start: 48095, Stop: 47901, Start Num: 53  
Candidate Starts for Hutc2\_90:  
(Start: 53 @48095 has 147 MA's), (56, 48080), (62, 48050), (68, 48023), (76, 47978), (86, 47951), (94, 47915), (95, 47912),

Gene: Indra\_98 Start: 49268, Stop: 49065, Start Num: 53  
Candidate Starts for Indra\_98:  
(25, 49412), (39, 49349), (Start: 53 @49268 has 147 MA's),

Gene: Insomnia\_93 Start: 49389, Stop: 49195, Start Num: 53  
Candidate Starts for Insomnia\_93:  
(Start: 53 @49389 has 147 MA's), (56, 49374), (62, 49344), (68, 49317), (76, 49272), (86, 49245), (94, 49209), (95, 49206),

Gene: IronMan\_87 Start: 50577, Stop: 50374, Start Num: 52  
Candidate Starts for IronMan\_87:

(23, 50727), (43, 50631), (Start: 52 @50577 has 1 MA's), (Start: 53 @50574 has 147 MA's), (66, 50508), (84, 50436), (86, 50424), (94, 50388),

Gene: Isiphiwo\_90 Start: 48358, Stop: 48155, Start Num: 53

Candidate Starts for Isiphiwo\_90:

(25, 48502), (39, 48439), (Start: 53 @48358 has 147 MA's),

Gene: JSwag\_94 Start: 48269, Stop: 48027, Start Num: 50

Candidate Starts for JSwag\_94:

(Start: 50 @48269 has 20 MA's), (65, 48197), (69, 48185), (70, 48182), (71, 48176), (98, 48050),

Gene: Jaan\_88 Start: 50691, Stop: 50491, Start Num: 53

Candidate Starts for Jaan\_88:

(Start: 53 @50691 has 147 MA's), (61, 50649), (66, 50625), (90, 50523), (94, 50505),

Gene: Jabith\_93 Start: 49403, Stop: 49209, Start Num: 53

Candidate Starts for Jabith\_93:

(Start: 53 @49403 has 147 MA's), (56, 49388), (62, 49358), (67, 49334), (68, 49331), (76, 49286), (86, 49259), (94, 49223), (95, 49220),

Gene: Jeeves\_94 Start: 48823, Stop: 48599, Start Num: 53

Candidate Starts for Jeeves\_94:

(14, 49030), (51, 48826), (Start: 53 @48823 has 147 MA's), (56, 48808), (81, 48682), (86, 48667), (96, 48622),

Gene: Jeffabunny\_84 Start: 45411, Stop: 45208, Start Num: 53

Candidate Starts for Jeffabunny\_84:

(25, 45555), (39, 45492), (Start: 53 @45411 has 147 MA's),

Gene: Jerm\_92 Start: 50317, Stop: 50117, Start Num: 53

Candidate Starts for Jerm\_92:

(Start: 53 @50317 has 147 MA's), (63, 50269), (67, 50248), (83, 50179), (86, 50167), (91, 50146),

Gene: Joselito\_91 Start: 49109, Stop: 48915, Start Num: 53

Candidate Starts for Joselito\_91:

(Start: 53 @49109 has 147 MA's), (56, 49094), (62, 49064), (67, 49040), (68, 49037), (76, 48992), (86, 48965), (94, 48929), (95, 48926),

Gene: JoshKayV\_94 Start: 50772, Stop: 50575, Start Num: 53

Candidate Starts for JoshKayV\_94:

(Start: 53 @50772 has 147 MA's), (76, 50655),

Gene: Jsquared\_96 Start: 49844, Stop: 49644, Start Num: 53

Candidate Starts for Jsquared\_96:

(27, 49982), (34, 49952), (Start: 53 @49844 has 147 MA's),

Gene: Kalpine\_93 Start: 50429, Stop: 50229, Start Num: 53

Candidate Starts for Kalpine\_93:

(Start: 53 @50429 has 147 MA's), (55, 50420), (63, 50381), (86, 50279), (91, 50258),

Gene: KatherineG\_92 Start: 48409, Stop: 48167, Start Num: 50

Candidate Starts for KatherineG\_92:

(Start: 50 @48409 has 20 MA's), (65, 48337), (69, 48325), (70, 48322), (71, 48316), (98, 48190), (100, 48181),

Gene: Kerberos\_93 Start: 49940, Stop: 49746, Start Num: 53

Candidate Starts for Kerberos\_93:

(Start: 53 @49940 has 147 MA's), (55, 49931), (79, 49829),

Gene: KingCyrus\_89 Start: 51319, Stop: 51119, Start Num: 53

Candidate Starts for KingCyrus\_89:

(Start: 53 @51319 has 147 MA's), (63, 51271), (67, 51250), (83, 51181), (86, 51169), (91, 51148),

Gene: Koduck\_92 Start: 49225, Stop: 49025, Start Num: 53

Candidate Starts for Koduck\_92:

(Start: 53 @49225 has 147 MA's),

Gene: Koko\_97 Start: 49657, Stop: 49454, Start Num: 53

Candidate Starts for Koko\_97:

(25, 49801), (39, 49738), (Start: 53 @49657 has 147 MA's),

Gene: L5\_84 Start: 48929, Stop: 48729, Start Num: 53

Candidate Starts for L5\_84:

(Start: 53 @48929 has 147 MA's),

Gene: LadyBird\_94 Start: 50501, Stop: 50274, Start Num: 53

Candidate Starts for LadyBird\_94:

(10, 50804), (11, 50801), (18, 50675), (Start: 53 @50501 has 147 MA's), (61, 50459), (63, 50453), (67, 50432),

Gene: Landor\_87 Start: 50607, Stop: 50407, Start Num: 53

Candidate Starts for Landor\_87:

(Start: 53 @50607 has 147 MA's), (61, 50565), (66, 50541), (86, 50457), (94, 50421),

Gene: Larenn\_89 Start: 49810, Stop: 49610, Start Num: 53

Candidate Starts for Larenn\_89:

(Start: 53 @49810 has 147 MA's), (63, 49762), (68, 49738), (83, 49672), (86, 49660), (91, 49639),

Gene: LastResort\_91 Start: 48512, Stop: 48270, Start Num: 50

Candidate Starts for LastResort\_91:

(Start: 50 @48512 has 20 MA's), (65, 48440), (69, 48428), (70, 48425), (71, 48419), (98, 48293),

Gene: Leviathan\_92 Start: 50395, Stop: 50198, Start Num: 53

Candidate Starts for Leviathan\_92:

(Start: 53 @50395 has 147 MA's), (67, 50326), (76, 50278),

Gene: LilTurb\_92 Start: 50307, Stop: 50107, Start Num: 53

Candidate Starts for LilTurb\_92:

(Start: 53 @50307 has 147 MA's), (63, 50259), (67, 50238), (86, 50157), (91, 50136),

Gene: Lilbunny\_92 Start: 47515, Stop: 47312, Start Num: 53

Candidate Starts for Lilbunny\_92:

(25, 47659), (39, 47596), (Start: 53 @47515 has 147 MA's),

Gene: Lokk\_86 Start: 48344, Stop: 48138, Start Num: 53



Candidate Starts for Lökk\_86:

(2, 48695), (17, 48530), (Start: 53 @48344 has 147 MA's), (67, 48275), (80, 48215), (81, 48203),

Gene: Looper\_90 Start: 47361, Stop: 47119, Start Num: 50

Candidate Starts for Looper\_90:

(Start: 50 @47361 has 20 MA's), (65, 47289), (69, 47277), (70, 47274), (71, 47268), (98, 47142), (101, 47130),

Gene: Loser\_93 Start: 50594, Stop: 50394, Start Num: 53

Candidate Starts for Loser\_93:

(24, 50738), (35, 50696), (Start: 53 @50594 has 147 MA's), (55, 50585), (56, 50579), (63, 50546), (67, 50525), (68, 50522), (86, 50444), (91, 50423),

Gene: Luchador\_90 Start: 49724, Stop: 49500, Start Num: 53

Candidate Starts for Luchador\_90:

(Start: 53 @49724 has 147 MA's), (56, 49709), (76, 49607), (81, 49583),

Gene: Lucivia\_94 Start: 49388, Stop: 49194, Start Num: 53

Candidate Starts for Lucivia\_94:

(Start: 53 @49388 has 147 MA's), (56, 49373), (62, 49343), (67, 49319), (68, 49316), (76, 49271), (86, 49244), (94, 49208), (95, 49205),

Gene: MaCh\_93 Start: 49352, Stop: 49158, Start Num: 53

Candidate Starts for MaCh\_93:

(Start: 53 @49352 has 147 MA's), (56, 49337), (62, 49307), (67, 49283), (68, 49280), (76, 49235), (86, 49208), (94, 49172), (95, 49169),

Gene: Mabel\_93 Start: 49353, Stop: 49159, Start Num: 53

Candidate Starts for Mabel\_93:

(Start: 53 @49353 has 147 MA's), (56, 49338), (62, 49308), (67, 49284), (68, 49281), (76, 49236), (86, 49209), (94, 49173), (95, 49170),

Gene: MajorMajor\_89 Start: 47893, Stop: 47693, Start Num: 53

Candidate Starts for MajorMajor\_89:

(1, 48331), (4, 48232), (27, 48031), (34, 48001), (Start: 53 @47893 has 147 MA's),

Gene: Malec\_89 Start: 50218, Stop: 50018, Start Num: 53

Candidate Starts for Malec\_89:

(Start: 53 @50218 has 147 MA's), (63, 50170), (68, 50146), (83, 50080), (86, 50068), (91, 50047),

Gene: MiculUcigas\_92 Start: 49809, Stop: 49603, Start Num: 53

Candidate Starts for MiculUcigas\_92:

(44, 49848), (Start: 53 @49809 has 147 MA's),

Gene: Miko\_87 Start: 49201, Stop: 48995, Start Num: 53

Candidate Starts for Miko\_87:

(2, 49552), (17, 49387), (Start: 53 @49201 has 147 MA's), (67, 49132), (80, 49072), (81, 49060),

Gene: MinecraftSteve\_94 Start: 48536, Stop: 48294, Start Num: 50

Candidate Starts for MinecraftSteve\_94:

(Start: 50 @48536 has 20 MA's), (65, 48464), (69, 48452), (70, 48449), (71, 48443), (98, 48317), (100, 48308),

Gene: MissWhite\_85 Start: 46633, Stop: 46421, Start Num: 49  
Candidate Starts for MissWhite\_85:  
(Start: 49 @46633 has 2 MA's), (Start: 52 @46624 has 1 MA's), (54, 46618), (58, 46600), (60, 46591),  
(67, 46552), (83, 46483),

Gene: Mulciber\_92 Start: 49208, Stop: 49014, Start Num: 53  
Candidate Starts for Mulciber\_92:  
(Start: 53 @49208 has 147 MA's), (56, 49193), (62, 49163), (68, 49136), (76, 49091), (86, 49064), (94,  
49028), (95, 49025),

Gene: Munch\_92 Start: 49357, Stop: 49163, Start Num: 53  
Candidate Starts for Munch\_92:  
(Start: 53 @49357 has 147 MA's), (56, 49342), (62, 49312), (67, 49288), (68, 49285), (76, 49240), (86,  
49213), (94, 49177), (95, 49174),

Gene: NaSiaTalie\_93 Start: 49970, Stop: 49764, Start Num: 53  
Candidate Starts for NaSiaTalie\_93:  
(44, 50009), (Start: 53 @49970 has 147 MA's), (76, 49853),

Gene: Naji\_82 Start: 46305, Stop: 46111, Start Num: 53  
Candidate Starts for Naji\_82:  
(Start: 53 @46305 has 147 MA's), (55, 46296),

Gene: Nebulosus\_90 Start: 48069, Stop: 47827, Start Num: 50  
Candidate Starts for Nebulosus\_90:  
(Start: 50 @48069 has 20 MA's), (65, 47997), (69, 47985), (70, 47982), (71, 47976), (98, 47850),

Gene: Nedarya\_91 Start: 48955, Stop: 48707, Start Num: 48  
Candidate Starts for Nedarya\_91:  
(Start: 48 @48955 has 1 MA's), (Start: 50 @48949 has 20 MA's), (97, 48733), (101, 48718),

Gene: NicoleTera\_91 Start: 49964, Stop: 49764, Start Num: 53  
Candidate Starts for NicoleTera\_91:  
(39, 50039), (Start: 53 @49964 has 147 MA's), (63, 49916), (67, 49895), (68, 49892), (83, 49826), (86,  
49814),

Gene: NothingSpecial\_85 Start: 49750, Stop: 49544, Start Num: 53  
Candidate Starts for NothingSpecial\_85:  
(41, 49819), (46, 49777), (Start: 53 @49750 has 147 MA's), (63, 49702), (67, 49681), (80, 49621), (81,  
49609),

Gene: Odin\_90 Start: 49615, Stop: 49415, Start Num: 53  
Candidate Starts for Odin\_90:  
(29, 49741), (39, 49696), (Start: 53 @49615 has 147 MA's),

Gene: Oofda\_93 Start: 48798, Stop: 48556, Start Num: 50  
Candidate Starts for Oofda\_93:  
(36, 48885), (Start: 50 @48798 has 20 MA's), (71, 48705), (98, 48579),

Gene: Orange\_93 Start: 48907, Stop: 48713, Start Num: 53  
Candidate Starts for Orange\_93:  
(Start: 53 @48907 has 147 MA's), (56, 48892), (62, 48862), (67, 48838), (68, 48835), (76, 48790), (86,  
48763), (94, 48727), (95, 48724),

Gene: Petersenfast\_87 Start: 47788, Stop: 47594, Start Num: 53  
Candidate Starts for Petersenfast\_87:  
(Start: 53 @47788 has 147 MA's), (56, 47773), (62, 47743), (67, 47719), (68, 47716), (76, 47671), (86, 47644), (94, 47608), (95, 47605),

Gene: Ph8s\_93 Start: 49402, Stop: 49202, Start Num: 53  
Candidate Starts for Ph8s\_93:  
(21, 49558), (Start: 53 @49402 has 147 MA's),

Gene: Phaded\_83 Start: 50574, Stop: 50374, Start Num: 53  
Candidate Starts for Phaded\_83:  
(23, 50727), (43, 50631), (Start: 52 @50577 has 1 MA's), (Start: 53 @50574 has 147 MA's), (61, 50532), (66, 50508), (74, 50463), (84, 50436), (86, 50424), (94, 50388),

Gene: Piro94\_90 Start: 49697, Stop: 49491, Start Num: 53  
Candidate Starts for Piro94\_90:  
(44, 49736), (Start: 53 @49697 has 147 MA's), (76, 49580), (91, 49526),

Gene: Pomar16\_93 Start: 50013, Stop: 49819, Start Num: 53  
Candidate Starts for Pomar16\_93:  
(Start: 53 @50013 has 147 MA's), (55, 50004),

Gene: Power\_90 Start: 50241, Stop: 50041, Start Num: 53  
Candidate Starts for Power\_90:  
(24, 50385), (32, 50355), (41, 50310), (Start: 53 @50241 has 147 MA's), (63, 50193), (67, 50172), (76, 50124), (83, 50103), (86, 50091), (91, 50070),

Gene: Pukovnik\_84 Start: 50036, Stop: 49836, Start Num: 53  
Candidate Starts for Pukovnik\_84:  
(Start: 52 @50039 has 1 MA's), (Start: 53 @50036 has 147 MA's), (56, 50021), (59, 50012), (67, 49967), (91, 49865), (94, 49850),

Gene: QueenB2\_88 Start: 49442, Stop: 49242, Start Num: 53  
Candidate Starts for QueenB2\_88:  
(3, 49781), (9, 49748), (22, 49595), (Start: 53 @49442 has 147 MA's), (67, 49373), (86, 49292), (92, 49265),

Gene: QueenBeesly\_90 Start: 50194, Stop: 49994, Start Num: 53  
Candidate Starts for QueenBeesly\_90:  
(41, 50263), (Start: 53 @50194 has 147 MA's), (63, 50146), (67, 50125), (76, 50077), (83, 50056), (86, 50044), (91, 50023),

Gene: Quokka\_94 Start: 49602, Stop: 49402, Start Num: 53  
Candidate Starts for Quokka\_94:  
(1, 50040), (4, 49941), (27, 49740), (34, 49710), (Start: 53 @49602 has 147 MA's),

Gene: Rachaly\_88 Start: 49344, Stop: 49138, Start Num: 53  
Candidate Starts for Rachaly\_88:  
(2, 49695), (17, 49530), (Start: 53 @49344 has 147 MA's), (67, 49275), (80, 49215), (81, 49203),

Gene: ReMo\_91 Start: 48495, Stop: 48253, Start Num: 50  
Candidate Starts for ReMo\_91:

(Start: 50 @48495 has 20 MA's), (65, 48423), (69, 48411), (70, 48408), (71, 48402), (98, 48276), (101, 48264),

Gene: RedRock\_91 Start: 50352, Stop: 50152, Start Num: 53

Candidate Starts for RedRock\_91:

(35, 50454), (Start: 53 @50352 has 147 MA's), (55, 50343), (56, 50337), (63, 50304), (67, 50283), (68, 50280), (83, 50214), (86, 50202), (91, 50181),

Gene: Refuge\_85 Start: 49685, Stop: 49470, Start Num: 53

Candidate Starts for Refuge\_85:

(Start: 53 @49685 has 147 MA's), (55, 49676), (67, 49616),

Gene: Remus\_94 Start: 48833, Stop: 48591, Start Num: 50

Candidate Starts for Remus\_94:

(Start: 50 @48833 has 20 MA's), (65, 48761), (69, 48749), (70, 48746), (71, 48740), (98, 48614),

Gene: Retro23\_90 Start: 49740, Stop: 49540, Start Num: 53

Candidate Starts for Retro23\_90:

(Start: 53 @49740 has 147 MA's), (67, 49671), (86, 49590), (92, 49563),

Gene: Rifter\_96 Start: 48435, Stop: 48232, Start Num: 53

Candidate Starts for Rifter\_96:

(25, 48579), (39, 48516), (Start: 53 @48435 has 147 MA's),

Gene: Roksolana\_96 Start: 49151, Stop: 48948, Start Num: 53

Candidate Starts for Roksolana\_96:

(25, 49295), (39, 49232), (Start: 53 @49151 has 147 MA's),

Gene: Rosalind\_92 Start: 48173, Stop: 47931, Start Num: 50

Candidate Starts for Rosalind\_92:

(Start: 50 @48173 has 20 MA's), (65, 48101), (69, 48089), (70, 48086), (71, 48080), (98, 47954), (101, 47942),

Gene: Salz\_89 Start: 48017, Stop: 47823, Start Num: 53

Candidate Starts for Salz\_89:

(Start: 53 @48017 has 147 MA's), (56, 48002), (62, 47972), (68, 47945), (76, 47900), (86, 47873), (94, 47837), (95, 47834),

Gene: SemperFi\_90 Start: 50082, Stop: 49882, Start Num: 53

Candidate Starts for SemperFi\_90:

(41, 50151), (Start: 53 @50082 has 147 MA's), (63, 50034), (67, 50013), (76, 49965), (83, 49944), (86, 49932), (91, 49911),

Gene: Serenity\_93 Start: 49307, Stop: 49107, Start Num: 53

Candidate Starts for Serenity\_93:

(Start: 53 @49307 has 147 MA's), (56, 49292), (63, 49259), (78, 49187),

Gene: Sham4\_90 Start: 48103, Stop: 47909, Start Num: 53

Candidate Starts for Sham4\_90:

(Start: 53 @48103 has 147 MA's), (56, 48088), (62, 48058), (68, 48031), (76, 47986), (86, 47959), (94, 47923), (95, 47920),

Gene: ShayRa\_91 Start: 47127, Stop: 46885, Start Num: 50

Candidate Starts for ShayRa\_91:

(Start: 50 @47127 has 20 MA's), (65, 47055), (69, 47043), (70, 47040), (71, 47034), (98, 46908), (101, 46896),

Gene: Smeagan\_93 Start: 50489, Stop: 50289, Start Num: 53

Candidate Starts for Smeagan\_93:

(Start: 53 @50489 has 147 MA's), (63, 50441), (67, 50420), (83, 50351), (86, 50339), (91, 50318),

Gene: SnapTap\_90 Start: 49897, Stop: 49697, Start Num: 53

Candidate Starts for SnapTap\_90:

(24, 50041), (32, 50011), (41, 49966), (Start: 53 @49897 has 147 MA's), (63, 49849), (67, 49828), (76, 49780), (83, 49759), (86, 49747), (91, 49726),

Gene: Snape\_93 Start: 48896, Stop: 48702, Start Num: 53

Candidate Starts for Snape\_93:

(Start: 53 @48896 has 147 MA's), (56, 48881), (62, 48851), (68, 48824), (76, 48779), (86, 48752), (94, 48716), (95, 48713),

Gene: SororFago\_90 Start: 49611, Stop: 49387, Start Num: 53

Candidate Starts for SororFago\_90:

(Start: 53 @49611 has 147 MA's), (56, 49596), (81, 49470), (86, 49455), (97, 49404),

Gene: Soups\_93 Start: 48650, Stop: 48408, Start Num: 50

Candidate Starts for Soups\_93:

(Start: 50 @48650 has 20 MA's), (65, 48578), (69, 48566), (70, 48563), (71, 48557), (98, 48431), (101, 48419),

Gene: StarStuff\_93 Start: 49975, Stop: 49781, Start Num: 53

Candidate Starts for StarStuff\_93:

(Start: 53 @49975 has 147 MA's), (55, 49966), (79, 49864),

Gene: Steamy\_82 Start: 48643, Stop: 48440, Start Num: 53

Candidate Starts for Steamy\_82:

(Start: 53 @48643 has 147 MA's), (55, 48634), (63, 48595), (67, 48574), (88, 48475),

Gene: Strosahl\_94 Start: 48833, Stop: 48591, Start Num: 50

Candidate Starts for Strosahl\_94:

(Start: 50 @48833 has 20 MA's), (65, 48761), (69, 48749), (70, 48746), (71, 48740), (98, 48614),

Gene: Sunhee\_94 Start: 48450, Stop: 48226, Start Num: 53

Candidate Starts for Sunhee\_94:

(51, 48453), (Start: 53 @48450 has 147 MA's), (56, 48435), (67, 48381), (68, 48378), (76, 48333), (81, 48309),

Gene: SuperCallie99\_90 Start: 48859, Stop: 48656, Start Num: 53

Candidate Starts for SuperCallie99\_90:

(25, 49003), (39, 48940), (Start: 53 @48859 has 147 MA's),

Gene: Superchunk\_91 Start: 49153, Stop: 48953, Start Num: 53

Candidate Starts for Superchunk\_91:

(Start: 53 @49153 has 147 MA's), (67, 49084),

Gene: SweetiePie\_90 Start: 50030, Stop: 49830, Start Num: 53

Candidate Starts for SweetiePie\_90:

(24, 50174), (32, 50144), (41, 50099), (Start: 53 @50030 has 147 MA's), (63, 49982), (67, 49961), (76, 49913), (83, 49892), (86, 49880), (91, 49859),

Gene: SwirlSquare\_94 Start: 48865, Stop: 48665, Start Num: 53

Candidate Starts for SwirlSquare\_94:

(Start: 53 @48865 has 147 MA's), (91, 48694),

Gene: Switzerland\_91 Start: 48096, Stop: 47854, Start Num: 50

Candidate Starts for Switzerland\_91:

(Start: 50 @48096 has 20 MA's), (65, 48024), (69, 48012), (70, 48009), (71, 48003), (98, 47877), (101, 47865),

Gene: TarsusIV\_89 Start: 50048, Stop: 49842, Start Num: 53

Candidate Starts for TarsusIV\_89:

(47, 50060), (Start: 53 @50048 has 147 MA's), (67, 49979), (76, 49931), (80, 49919), (81, 49907), (86, 49892), (94, 49856),

Gene: Timothy\_93 Start: 48873, Stop: 48679, Start Num: 53

Candidate Starts for Timothy\_93:

(Start: 53 @48873 has 147 MA's), (56, 48858), (62, 48828), (67, 48804), (68, 48801), (76, 48756), (86, 48729), (94, 48693), (95, 48690),

Gene: TinyTimmy\_91 Start: 48602, Stop: 48408, Start Num: 53

Candidate Starts for TinyTimmy\_91:

(Start: 53 @48602 has 147 MA's), (56, 48587), (62, 48557), (67, 48533), (68, 48530), (76, 48485), (86, 48458), (94, 48422), (95, 48419),

Gene: TipsytheTRex\_90 Start: 49524, Stop: 49324, Start Num: 53

Candidate Starts for TipsytheTRex\_90:

(Start: 53 @49524 has 147 MA's),

Gene: Tomathan\_93 Start: 50054, Stop: 49860, Start Num: 53

Candidate Starts for Tomathan\_93:

(Start: 53 @50054 has 147 MA's), (55, 50045),

Gene: ToneTone\_92 Start: 48818, Stop: 48615, Start Num: 53

Candidate Starts for ToneTone\_92:

(25, 48962), (39, 48899), (Start: 53 @48818 has 147 MA's),

Gene: Travvers\_93 Start: 49971, Stop: 49777, Start Num: 53

Candidate Starts for Travvers\_93:

(Start: 53 @49971 has 147 MA's), (55, 49962),

Gene: Trixie\_90 Start: 50621, Stop: 50406, Start Num: 102

Candidate Starts for Trixie\_90:

(16, 51101), (24, 51047), (26, 51044), (30, 51026), (42, 50966), (82, 50771), (85, 50762), (89, 50732), (93, 50720), (Start: 102 @50621 has 1 MA's), (103, 50573), (104, 50570), (105, 50552),

Gene: Trooper\_90 Start: 49643, Stop: 49437, Start Num: 53

Candidate Starts for Trooper\_90:

(Start: 53 @49643 has 147 MA's), (67, 49574), (76, 49526), (80, 49514), (81, 49502), (86, 49487),

Gene: Tucker\_96 Start: 49021, Stop: 48818, Start Num: 53  
Candidate Starts for Tucker\_96:  
(25, 49165), (39, 49102), (Start: 53 @49021 has 147 MA's),

Gene: Turbido\_92 Start: 50323, Stop: 50123, Start Num: 53  
Candidate Starts for Turbido\_92:  
(Start: 53 @50323 has 147 MA's), (63, 50275), (67, 50254), (83, 50185), (86, 50173), (91, 50152),

Gene: Updawg\_93 Start: 50091, Stop: 49885, Start Num: 53  
Candidate Starts for Updawg\_93:  
(44, 50130), (Start: 53 @50091 has 147 MA's), (76, 49974),

Gene: VA6\_90 Start: 49965, Stop: 49768, Start Num: 53  
Candidate Starts for VA6\_90:  
(Start: 53 @49965 has 147 MA's), (67, 49896), (76, 49848),

Gene: VC3\_89 Start: 48351, Stop: 48139, Start Num: 53  
Candidate Starts for VC3\_89:  
(23, 48504), (39, 48432), (Start: 53 @48351 has 147 MA's), (62, 48303), (71, 48264),

Gene: Waits\_93 Start: 48464, Stop: 48222, Start Num: 50  
Candidate Starts for Waits\_93:  
(Start: 50 @48464 has 20 MA's), (65, 48392), (69, 48380), (70, 48377), (71, 48371), (98, 48245),

Gene: WeiHuaDA\_92 Start: 50647, Stop: 50450, Start Num: 49  
Candidate Starts for WeiHuaDA\_92:  
(Start: 49 @50647 has 2 MA's), (76, 50533),

Gene: Whabigail7\_90 Start: 50321, Stop: 50121, Start Num: 53  
Candidate Starts for Whabigail7\_90:  
(Start: 53 @50321 has 147 MA's), (63, 50273), (67, 50252), (86, 50171), (91, 50150),

Gene: WideWale\_93 Start: 50091, Stop: 49885, Start Num: 53  
Candidate Starts for WideWale\_93:  
(44, 50130), (Start: 53 @50091 has 147 MA's), (76, 49974),

Gene: Wiks\_95 Start: 48898, Stop: 48695, Start Num: 53  
Candidate Starts for Wiks\_95:  
(25, 49042), (39, 48979), (Start: 53 @48898 has 147 MA's),

Gene: XianYue\_89 Start: 50250, Stop: 50050, Start Num: 53  
Candidate Starts for XianYue\_89:  
(16, 50439), (42, 50304), (Start: 53 @50250 has 147 MA's), (56, 50235),

Gene: Yokurt\_95 Start: 48898, Stop: 48695, Start Num: 53  
Candidate Starts for Yokurt\_95:  
(25, 49042), (39, 48979), (Start: 53 @48898 has 147 MA's),

Gene: Zaka\_96 Start: 48898, Stop: 48695, Start Num: 53  
Candidate Starts for Zaka\_96:  
(25, 49042), (39, 48979), (Start: 53 @48898 has 147 MA's),

Gene: Zulu\_97 Start: 49275, Stop: 49072, Start Num: 53

Candidate Starts for Zulu\_97:  
(25, 49419), (39, 49356), (Start: 53 @49275 has 147 MA's),