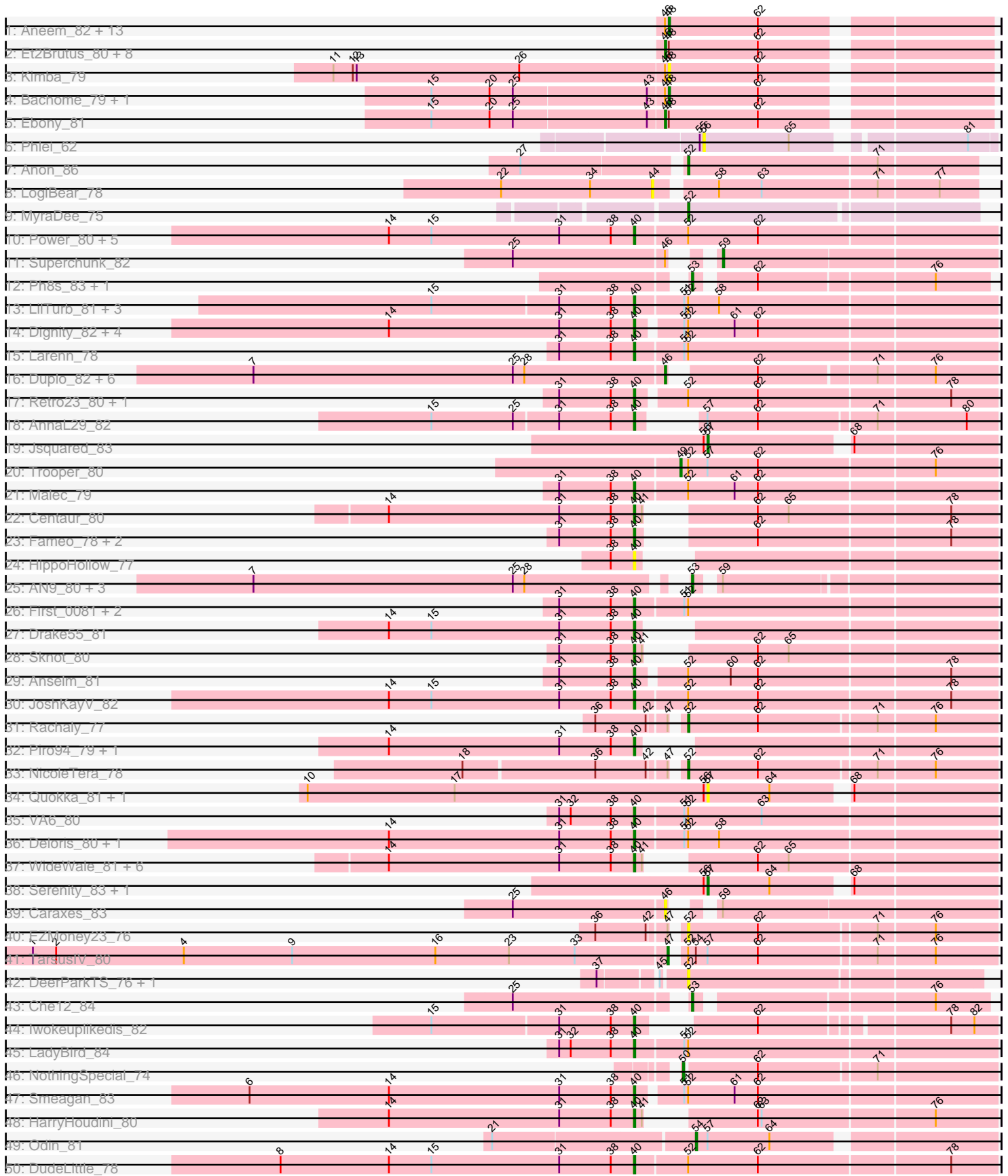
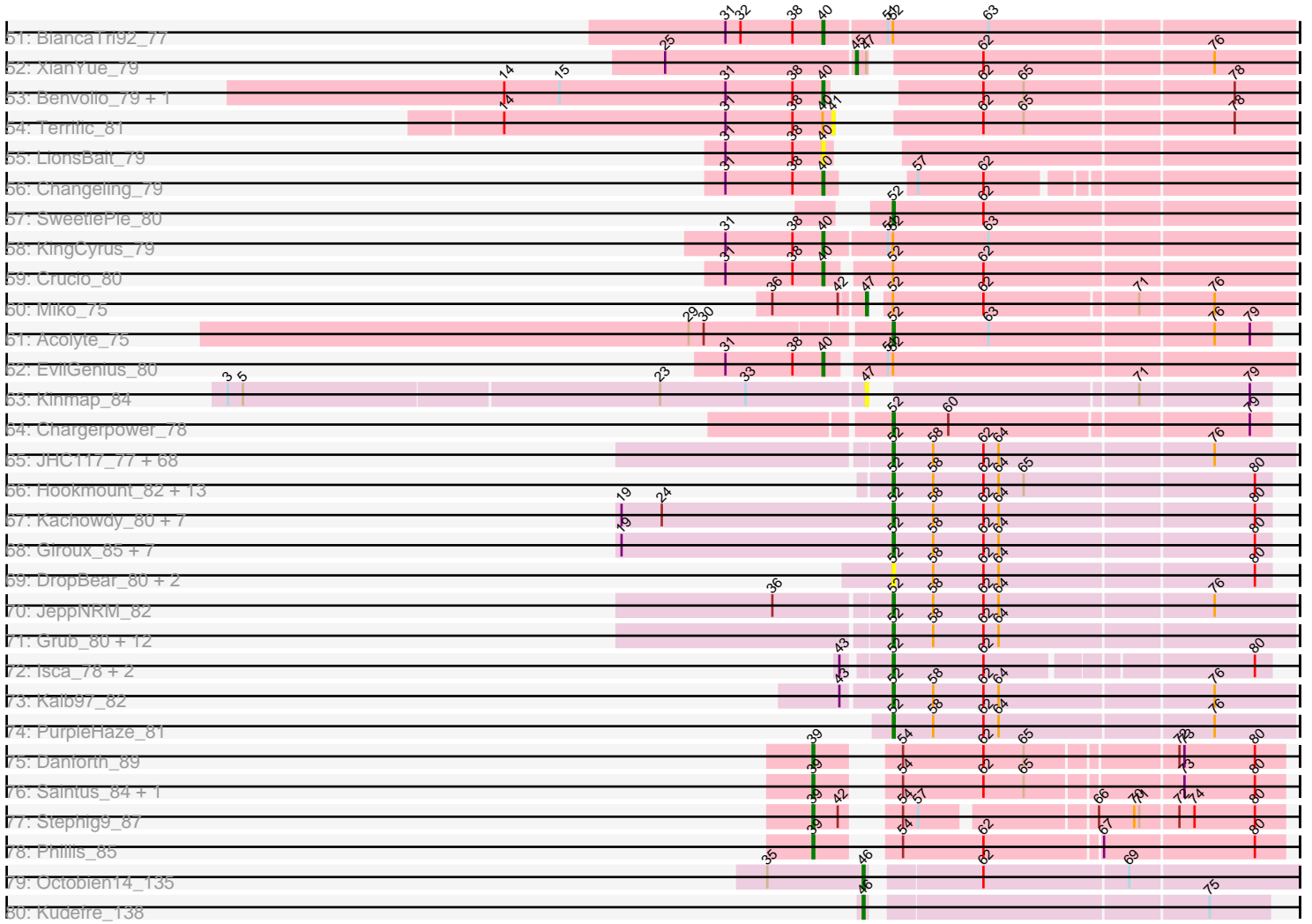


Pham 304685



Pham 304685



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 304685 Report

This analysis was run 06/08/26 on database version 649.

Pham number 304685 has 253 members, 36 are drafts.

Phages represented in each track:

- Track 1 : Aneem\_82, MaCh\_81, Sham4\_77, Bud\_76, Gilberta\_78, Petersenfast\_75, Joselito\_80, Orange\_81, Flaverint\_82, Wolpertinger\_80, Mabel\_81, Snape\_81, Jabith\_80, Mulciber\_79
- Track 2 : Et2Brutus\_80, Munch\_81, Salz\_76, Lucivia\_82, TinyTimmy\_80, Hutc2\_77, Insomnia\_80, Fibonacci\_80, Timothy\_81
- Track 3 : Kimba\_79
- Track 4 : Bachome\_79, Saskia\_78
- Track 5 : Ebony\_81
- Track 6 : Phlei\_62
- Track 7 : Anon\_86
- Track 8 : LogiBear\_78
- Track 9 : MyraDee\_75
- Track 10 : Power\_80, SnapTap\_80, SemperFi\_80, Georgie2\_82, FiringLine\_80, QueenBeesly\_80
- Track 11 : Superchunk\_82
- Track 12 : Ph8s\_83, Adzzy\_83
- Track 13 : LilTurb\_81, Jerm\_82, Agape74\_82, Bugsy\_82
- Track 14 : Dignity\_82, AbbyPaige\_82, Turbido\_81, Whabigail7\_80, Leviathan\_82
- Track 15 : Larenn\_78
- Track 16 : Duplo\_82, Kerberos\_81, DBQu4n\_81, Travvers\_81, Pomar16\_81, StarStuff\_81, Tomathan\_81
- Track 17 : Retro23\_80, Dalmatian\_80
- Track 18 : AnnaL29\_82
- Track 19 : Jsquared\_83
- Track 20 : Trooper\_80
- Track 21 : Malec\_79
- Track 22 : Centaur\_80
- Track 23 : Fameo\_78, QueenB2\_77, Heffalump\_77
- Track 24 : HippoHollow\_77
- Track 25 : AN9\_80, VC3\_79, ANI8\_80, C3\_73
- Track 26 : First\_0081, ChipMunk\_81, 20ES\_82
- Track 27 : Drake55\_81
- Track 28 : Sknot\_80
- Track 29 : Anselm\_81
- Track 30 : JoshKayV\_82
- Track 31 : Rachaly\_77
- Track 32 : Piro94\_79, NaSiaTalie\_81

- Track 33 : NicoleTera\_78
- Track 34 : Quokka\_81, Bradman\_82
- Track 35 : VA6\_80
- Track 36 : Deloris\_80, BengiVuitton\_80
- Track 37 : WideWale\_81, Flare16\_80, MiculUcigas\_80, Gratitude\_78, Updawg\_81, Baehexic\_79, Equemioh13\_80
- Track 38 : Serenity\_83, TipsytheTRex\_79
- Track 39 : Caraxes\_83
- Track 40 : EZMoney23\_76
- Track 41 : TarsusIV\_80
- Track 42 : DeerParkTS\_76, Prudy\_75
- Track 43 : Che12\_84
- Track 44 : Iwokeuplikedis\_82
- Track 45 : LadyBird\_84
- Track 46 : NothingSpecial\_74
- Track 47 : Smeagan\_83
- Track 48 : HarryHoudini\_80
- Track 49 : Odin\_81
- Track 50 : DudeLittle\_78
- Track 51 : BiancaTri92\_77
- Track 52 : XianYue\_79
- Track 53 : Benvolio\_79, Echild\_82
- Track 54 : Terrific\_81
- Track 55 : LionsBait\_79
- Track 56 : Changeling\_79
- Track 57 : SweetiePie\_80
- Track 58 : KingCyrus\_79
- Track 59 : Crucio\_80
- Track 60 : Miko\_75
- Track 61 : Acolyte\_75
- Track 62 : EvilGenius\_80
- Track 63 : Kinmap\_84
- Track 64 : Chargerpower\_78
- Track 65 : JHC117\_77, HashRod\_83, LugYA\_85, Snickers\_82, Marie\_80, Grif\_80, Louie6\_81, Gemma\_79, EpicPhail\_83, HaveUMetTed\_82, Mainiac\_81, Daishi\_81, Soshari\_84, Pawn\_80, Groupthink\_82, Aglet\_83, Gwennie\_77, Methuselah\_75, Hercules11\_82, GtownJaz\_82, Beauxregard13\_81, Cullens\_83, PhishRPhriends\_78, JenCasNa\_83, Sabinator\_80, OlanP\_80, Stagni\_79, Sabia\_80, Wooldri\_84, Bxz2\_77, Heliosoles\_79, PotatoSplit\_83, Farber\_82, Marius\_82, ClownCar\_79, Vix\_78, SoYo\_79, LarryKay\_82, TinyPebbles\_81, MadMarie\_80, Penny1\_82, StepMih\_82, Grum1\_82, Kalnoky\_82, Taurus\_83, Croquant\_79, Montavir\_77, Reba\_77, KADY\_79, Tiffany\_81, Manu\_81, Bigflo\_79, Calvinny\_79, Colbster\_78, DaHudson\_81, Fernando\_83, Rummer\_81, MoneyMay\_82, P28Green\_82, GingkoMaracino\_82, Spike509\_82, BuzzBuzz\_76, Dieselweasel\_83, MarQuardt\_82, Phoxy\_82, Phoebe\_83, Ollie\_82, LBerry\_83, Anubis\_86
- Track 66 : Hookmount\_82, EtoileNova\_80, QuinnKiro\_81, Popcicle\_82, Panamaxus\_79, Noella\_83, Veracruz\_79, ResDef\_80, Texage\_80, Todacoro\_82, Margo\_82, Norbert\_78, Pocahontas\_81, Lambert1\_82
- Track 67 : Kachowdy\_80, Fred313\_79, HelDan\_82, BabyRay\_81, Puppy\_83, Roimos\_81, Heathen\_81, Scout\_81
- Track 68 : Giroux\_85, SaturnRing\_83, Clammy\_83, TNguyen7\_83, BlueBird\_84, Idleandcovert\_82, Bugatti\_83, Pistachio\_82
- Track 69 : DropBear\_80, Zarafa\_79, Marchesa\_81

- Track 70 : JeppNRM\_82
- Track 71 : Grub\_80, SoilDragon\_82, Pembroke\_82, BreSam8\_82, Malinsilva\_85, Lilith\_80, PGHhamlin\_84, AugsMagnumOpus\_85, Microwolf\_78, Watson\_81, MuchMore\_85, Lowa\_79, Jobu08\_78
- Track 72 : Isca\_78, MA5\_80, Phantastic\_83
- Track 73 : Kalb97\_82
- Track 74 : PurpleHaze\_81
- Track 75 : Danforth\_89
- Track 76 : Saintus\_84, NearlyHeadless\_89
- Track 77 : Stephig9\_87
- Track 78 : Phillis\_85
- Track 79 : Octobien14\_135
- Track 80 : Kudetre\_138

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

The start number called the most often in the published annotations is 52, it was called in 112 of the 217 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acolyte\_75, Aglet\_83, Anon\_86, Anubis\_86, AugsMagnumOpus\_85, BabyRay\_81, Beauxregard13\_81, Bigflo\_79, BlueBird\_84, BreSam8\_82, Bugatti\_83, BuzzBuzz\_76, Bxz2\_77, Calvinny\_79, Chargerpower\_78, Clammy\_83, ClownCar\_79, Colbster\_78, Croquant\_79, Cullens\_83, DaHudson\_81, Daishi\_81, DeerParkTS\_76, Dieselweasel\_83, DropBear\_80, EZMoney23\_76, EpicPhail\_83, EtoileNova\_80, Farber\_82, Fernando\_83, Fred313\_79, Gemma\_79, GingkoMaracino\_82, Giroux\_85, Grif\_80, Groupthink\_82, Grub\_80, Grum1\_82, GtownJaz\_82, Gwennie\_77, HashRod\_83, HaveUMetTed\_82, Heathen\_81, HelDan\_82, Heliosoles\_79, Hercules11\_82, Hookmount\_82, Idleandcovert\_82, Isca\_78, JHC117\_77, JenCasNa\_83, JeppNRM\_82, Jobu08\_78, KADY\_79, Kachowdy\_80, Kalb97\_82, Kalnok\_82, LBerry\_83, Lambert1\_82, LarryKay\_82, Lilith\_80, Louie6\_81, Lowa\_79, LugYA\_85, MA5\_80, MadMarie\_80, Mainiac\_81, Malinsilva\_85, Manu\_81, MarQuardt\_82, Marchesa\_81, Margo\_82, Marie\_80, Marius\_82, Methuselah\_75, Microwolf\_78, MoneyMay\_82, Montavir\_77, MuchMore\_85, MyraDee\_75, NicoleTera\_78, Noella\_83, Norbert\_78, OlanP\_80, Ollie\_82, P28Green\_82, PGHhamlin\_84, Panamaxus\_79, Pawn\_80, Pembroke\_82, Penny1\_82, Phantastic\_83, PhishRPhriends\_78, Phoebe\_83, Phoxy\_82, Pistachio\_82, Pocahontas\_81, Popcicle\_82, PotatoSplit\_83, Prudy\_75, Puppy\_83, PurpleHaze\_81, QuinnKiro\_81, Rachaly\_77, Reba\_77, ResDef\_80, Roimos\_81, Rummer\_81, Sabia\_80, Sabinator\_80, SaturnRing\_83, Scout\_81, Snickers\_82, SoYo\_79, SoilDragon\_82, Soshari\_84, Spike509\_82, Stagni\_79, StepMih\_82, SweetiePie\_80, TNguyen7\_83, Taurus\_83, Texage\_80, Tiffany\_81, TinyPebbles\_81, Todacoro\_82, Veracruz\_79, Vix\_78, Watson\_81, Wooldri\_84, Zarafa\_79,

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

- 20ES\_82, AbbyPaige\_82, Agape74\_82, Anselm\_81, BengiVuitton\_80, BiancaTri92\_77, Buggy\_82, ChipMunk\_81, Crucio\_80, Dalmatian\_80, Deloris\_80, Dignity\_82, DudeLittle\_78, EvilGenius\_80, FiringLine\_80, First\_0081, Georgie2\_82, Jerm\_82, JoshKayV\_82, KingCyrus\_79, LadyBird\_84, Larenn\_78, Leviathan\_82, LilTurb\_81, Malec\_79, Miko\_75, Power\_80, QueenBeesly\_80, Retro23\_80,

SemperFi\_80, Smeagan\_83, SnapTap\_80, TarsusIV\_80, Trooper\_80, Turbido\_81, VA6\_80, Whabigail7\_80,

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

• AN9\_80, ANI8\_80, Adzzy\_83, Aneem\_82, AnnaL29\_82, Bachome\_79, Baehexic\_79, Benvolio\_79, Bradman\_82, Bud\_76, C3\_73, Caraxes\_83, Centaur\_80, Changeling\_79, Che12\_84, DBQu4n\_81, Danforth\_89, Drake55\_81, Duplo\_82, Ebony\_81, Echild\_82, Equemioh13\_80, Et2Brutus\_80, Fameo\_78, Fibonacci\_80, Flare16\_80, Flaverint\_82, Gilberta\_78, Gratitude\_78, HarryHoudini\_80, Heffalump\_77, HippoHollow\_77, Hutc2\_77, Insomnia\_80, Iwokeuplikedis\_82, Jabith\_80, Joselito\_80, Jsquared\_83, Kerberos\_81, Kimba\_79, Kinmap\_84, Kudrefre\_138, LionsBait\_79, LogiBear\_78, Lucivia\_82, MaCh\_81, Mabel\_81, MiculUcigas\_80, Mulciber\_79, Munch\_81, NaSiaTalie\_81, NearlyHeadless\_89, NothingSpecial\_74, Octobien14\_135, Odin\_81, Orange\_81, Petersenfast\_75, Ph8s\_83, Phillis\_85, Phlei\_62, Piro94\_79, Pomar16\_81, QueenB2\_77, Quokka\_81, Saintus\_84, Salz\_76, Saskia\_78, Serenity\_83, Sham4\_77, Sknot\_80, Snape\_81, StarStuff\_81, Stephig9\_87, Superchunk\_82, Terrific\_81, Timothy\_81, TinyTimmy\_80, TopsytheTRex\_79, Tomathan\_81, Travvers\_81, Updawg\_81, VC3\_79, WideWale\_81, Wolpertinger\_80, XianYue\_79,

### Summary by start number:

Start 39:

- Found in 5 of 253 ( 2.0% ) of genes in pham
- Manual Annotations of this start: 5 of 217
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Danforth\_89 (A8), NearlyHeadless\_89 (A8), Phillis\_85 (A8), Saintus\_84 (A8), Stephig9\_87 (A8),

Start 40:

- Found in 58 of 253 ( 22.9% ) of genes in pham
- Manual Annotations of this start: 52 of 217
- Called 98.3% of time when present
- Phage (with cluster) where this start called: 20ES\_82 (A2), AbbyPaige\_82 (A2), Agape74\_82 (A2), AnnaL29\_82 (A2), Anselm\_81 (A2), Baehexic\_79 (A2), BengiVuitton\_80 (A2), Benvolio\_79 (A2), BiancaTri92\_77 (A2), Buggy\_82 (A2), Centaur\_80 (A2), Changeling\_79 (A2), ChipMunk\_81 (A2), Crucio\_80 (A2), Dalmatian\_80 (A2), Deloris\_80 (A2), Dignity\_82 (A2), Drake55\_81 (A2), DudeLittle\_78 (A2), Echild\_82 (A2), Equemioh13\_80 (A2), EvilGenius\_80 (A2), Fameo\_78 (A2), FiringLine\_80 (A2), First\_0081 (A2), Flare16\_80 (A2), Georgie2\_82 (A2), Gratitude\_78 (A2), HarryHoudini\_80 (A2), Heffalump\_77 (A2), HippoHollow\_77 (A2), Iwokeuplikedis\_82 (A2), Jerm\_82 (A2), JoshKayV\_82 (A2), KingCyrus\_79 (A2), LadyBird\_84 (A2), Larenn\_78 (A2), Leviathan\_82 (A2), LilTurb\_81 (A2), LionsBait\_79 (A2), Malec\_79 (A2), MiculUcigas\_80 (A2), NaSiaTalie\_81 (A2), Piro94\_79 (A2), Power\_80 (A2), QueenB2\_77 (A2), QueenBeesly\_80 (A2), Retro23\_80 (A2), SemperFi\_80 (A2), Sknot\_80 (A2), Smeagan\_83 (A2), SnapTap\_80 (A2), Turbido\_81 (A2), Updawg\_81 (A2), VA6\_80 (A2), Whabigail7\_80 (A2), WideWale\_81 (A2),

Start 41:

- Found in 11 of 253 ( 4.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 9.1% of time when present
- Phage (with cluster) where this start called: Terrific\_81 (A2),

Start 44:

- Found in 1 of 253 ( 0.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: LogiBear\_78 (A15),

Start 45:

- Found in 3 of 253 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 217
- Called 33.3% of time when present
- Phage (with cluster) where this start called: XianYue\_79 (A2),

Start 46:

- Found in 38 of 253 ( 15.0% ) of genes in pham
- Manual Annotations of this start: 18 of 217
- Called 52.6% of time when present
- Phage (with cluster) where this start called: Caraxes\_83 (A2), DBQu4n\_81 (A2), Duplo\_82 (A2), Ebony\_81 (A11), Et2Brutus\_80 (A11), Fibonacci\_80 (A11), Hutc2\_77 (A11), Insomnia\_80 (A11), Kerberos\_81 (A2), Kudrefre\_138 (DU1), Lucivia\_82 (A11), Munch\_81 (A11), Octobien14\_135 (DU1), Pomar16\_81 (A2), Salz\_76 (A11), StarStuff\_81 (A2), Timothy\_81 (A11), TinyTimmy\_80 (A11), Tomathan\_81 (A2), Travvers\_81 (A2),

Start 47:

- Found in 7 of 253 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 2 of 217
- Called 42.9% of time when present
- Phage (with cluster) where this start called: Kinmap\_84 (A21), Miko\_75 (A2), TarsusIV\_80 (A2),

Start 48:

- Found in 27 of 253 ( 10.7% ) of genes in pham
- Manual Annotations of this start: 13 of 217
- Called 63.0% of time when present
- Phage (with cluster) where this start called: Aneem\_82 (A11), Bachome\_79 (A11), Bud\_76 (A11), Flaverint\_82 (A11), Gilberta\_78 (A11), Jabith\_80 (A11), Joselito\_80 (A11), Kimba\_79 (A11), MaCh\_81 (A11), Mabel\_81 (A11), Mulciber\_79 (A11), Orange\_81 (A11), Petersenfast\_75 (A11), Saskia\_78 (A11), Sham4\_77 (A11), Snape\_81 (A11), Wolpertinger\_80 (A11),

Start 49:

- Found in 1 of 253 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 217
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Trooper\_80 (A2),

Start 50:

- Found in 1 of 253 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 217
- Called 100.0% of time when present
- Phage (with cluster) where this start called: NothingSpecial\_74 (A2),

#### Start 52:

- Found in 168 of 253 ( 66.4% ) of genes in pham
- Manual Annotations of this start: 112 of 217
- Called 78.0% of time when present
- Phage (with cluster) where this start called: Acolyte\_75 (A2), Aglet\_83 (A3), Anon\_86 (A15), Anubis\_86 (A3), AugsMagnumOpus\_85 (A3), BabyRay\_81 (A3), Beauxregard13\_81 (A3), Bigflo\_79 (A3), BlueBird\_84 (A3), BreSam8\_82 (A3), Bugatti\_83 (A3), BuzzBuzz\_76 (A3), Bxz2\_77 (A3), Calvinny\_79 (A3), Chargerpower\_78 (A22), Clammy\_83 (A3), ClownCar\_79 (A3), Colbster\_78 (A3), Croquant\_79 (A3), Cullens\_83 (A3), DaHudson\_81 (A3), Daishi\_81 (A3), DeerParkTS\_76 (A2), Dieselweasel\_83 (A3), DropBear\_80 (A3), EZMoney23\_76 (A2), EpicPhail\_83 (A3), EtoileNova\_80 (A3), Farber\_82 (A3), Fernando\_83 (A3), Fred313\_79 (A3), Gemma\_79 (A3), GingkoMaracino\_82 (A3), Giroux\_85 (A3), Grif\_80 (A3), Groupthink\_82 (A3), Grub\_80 (A3), Grum1\_82 (A3), GtownJaz\_82 (A3), Gwennie\_77 (A3), HashRod\_83 (A3), HaveUMetTed\_82 (A3), Heathen\_81 (A3), HelDan\_82 (A3), Heliosoles\_79 (A3), Hercules11\_82 (A3), Hookmount\_82 (A3), Idleandcovert\_82 (A3), Isca\_78 (A3), JHC117\_77 (A3), JenCasNa\_83 (A3), JeppNRM\_82 (A3), Jobu08\_78 (A3), KADY\_79 (A3), Kachowdy\_80 (A3), Kalb97\_82 (A3), Kalnoky\_82 (A3), LBerry\_83 (A3), Lambert1\_82 (A3), LarryKay\_82 (A3), Lilit\_80 (A3), Louie6\_81 (A3), Lowa\_79 (A3), LugYA\_85 (A3), MA5\_80 (A3), MadMarie\_80 (A3), Mainiac\_81 (A3), Malinsilva\_85 (A3), Manu\_81 (A3), MarQuardt\_82 (A3), Marchesa\_81 (A3), Margo\_82 (A3), Marie\_80 (A3), Marius\_82 (A3), Methuselah\_75 (A3), Microwolf\_78 (A3), MoneyMay\_82 (A3), Montavir\_77 (A3), MuchMore\_85 (A3), MyraDee\_75 (A18), NicoleTera\_78 (A2), Noella\_83 (A3), Norbert\_78 (A3), OlanP\_80 (A3), Ollie\_82 (A3), P28Green\_82 (A3), PGHhamlin\_84 (A3), Panamaxus\_79 (A3), Pawn\_80 (A3), Pembroke\_82 (A3), Penny1\_82 (A3), Phantastic\_83 (A3), PhishRPhriends\_78 (A3), Phoebe\_83 (A3), Phoxy\_82 (A3), Pistachio\_82 (A3), Pocahontas\_81 (A3), Popcicle\_82 (A3), PotatoSplit\_83 (A3), Prudy\_75 (A2), Puppy\_83 (A3), PurpleHaze\_81 (A3), QuinnKiro\_81 (A3), Rachaly\_77 (A2), Reba\_77 (A3), ResDef\_80 (A3), Roimos\_81 (A3), Rummer\_81 (A3), Sabia\_80 (A3), Sabinator\_80 (A3), SaturnRing\_83 (A3), Scout\_81 (A3), Snickers\_82 (A3), SoYo\_79 (A3), SoilDragon\_82 (A3), Soshari\_84 (A3), Spike509\_82 (A3), Stagni\_79 (A3), StepMih\_82 (A3), SweetiePie\_80 (A2), TNguyen7\_83 (A3), Taurus\_83 (A3), Texage\_80 (A3), Tiffany\_81 (A3), TinyPebbles\_81 (A3), Todacoro\_82 (A3), Veracruz\_79 (A3), Vix\_78 (A3), Watson\_81 (A3), Wooldri\_84 (A3), Zarafa\_79 (A3),

#### Start 53:

- Found in 7 of 253 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 7 of 217
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AN9\_80 (A2), ANI8\_80 (A2), Adzzy\_83 (A2), C3\_73 (A2), Che12\_84 (A2), Ph8s\_83 (A2), VC3\_79 (A2),

#### Start 54:

- Found in 7 of 253 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 1 of 217
- Called 14.3% of time when present
- Phage (with cluster) where this start called: Odin\_81 (A2),

#### Start 56:

- Found in 6 of 253 ( 2.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 16.7% of time when present

- Phage (with cluster) where this start called: Phlei\_62 (A13),

Start 57:

- Found in 11 of 253 ( 4.3% ) of genes in pham
- Manual Annotations of this start: 3 of 217
- Called 45.5% of time when present
- Phage (with cluster) where this start called: Bradman\_82 (A2), Jsquared\_83 (A2), Quokka\_81 (A2), Serenity\_83 (A2), TipsytheTRex\_79 (A2),

Start 59:

- Found in 6 of 253 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 1 of 217
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Superchunk\_82 (A2),

### **Summary by clusters:**

There are 10 clusters represented in this pham: A15, A21, A22, A11, A13, A18, A3, A2, DU1, A8,

Info for manual annotations of cluster A11:

- Start number 46 was manually annotated 10 times for cluster A11.
- Start number 48 was manually annotated 13 times for cluster A11.

Info for manual annotations of cluster A15:

- Start number 52 was manually annotated 1 time for cluster A15.

Info for manual annotations of cluster A18:

- Start number 52 was manually annotated 1 time for cluster A18.

Info for manual annotations of cluster A2:

- Start number 40 was manually annotated 52 times for cluster A2.
- Start number 45 was manually annotated 1 time for cluster A2.
- Start number 46 was manually annotated 6 times for cluster A2.
- Start number 47 was manually annotated 2 times for cluster A2.
- Start number 49 was manually annotated 1 time for cluster A2.
- Start number 50 was manually annotated 1 time for cluster A2.
- Start number 52 was manually annotated 4 times for cluster A2.
- Start number 53 was manually annotated 7 times for cluster A2.
- Start number 54 was manually annotated 1 time for cluster A2.
- Start number 57 was manually annotated 3 times for cluster A2.
- Start number 59 was manually annotated 1 time for cluster A2.

Info for manual annotations of cluster A22:

- Start number 52 was manually annotated 1 time for cluster A22.

Info for manual annotations of cluster A3:

- Start number 52 was manually annotated 105 times for cluster A3.

Info for manual annotations of cluster A8:

- Start number 39 was manually annotated 5 times for cluster A8.

Info for manual annotations of cluster DU1:

•Start number 46 was manually annotated 2 times for cluster DU1.

**Gene Information:**

Gene: 20ES\_82 Start: 47043, Stop: 46771, Start Num: 40

Candidate Starts for 20ES\_82:

(31, 47100), (38, 47061), (Start: 40 @47043 has 52 MA's), (51, 47007), (Start: 52 @47004 has 112 MA's),

Gene: AN9\_80 Start: 45726, Stop: 45514, Start Num: 53

Candidate Starts for AN9\_80:

(7, 46038), (25, 45837), (28, 45828), (Start: 53 @45726 has 7 MA's), (Start: 59 @45714 has 1 MA's),

Gene: ANI8\_80 Start: 45726, Stop: 45514, Start Num: 53

Candidate Starts for ANI8\_80:

(7, 46038), (25, 45837), (28, 45828), (Start: 53 @45726 has 7 MA's), (Start: 59 @45714 has 1 MA's),

Gene: AbbyPaige\_82 Start: 47312, Stop: 47046, Start Num: 40

Candidate Starts for AbbyPaige\_82:

(14, 47501), (31, 47369), (38, 47330), (Start: 40 @47312 has 52 MA's), (51, 47282), (Start: 52 @47279 has 112 MA's), (61, 47243), (62, 47225),

Gene: Acolyte\_75 Start: 46237, Stop: 46019, Start Num: 52

Candidate Starts for Acolyte\_75:

(29, 46348), (30, 46339), (Start: 52 @46237 has 112 MA's), (63, 46180), (76, 46051), (79, 46030),

Gene: Adzzy\_83 Start: 46366, Stop: 46157, Start Num: 53

Candidate Starts for Adzzy\_83:

(Start: 53 @46366 has 7 MA's), (62, 46327), (76, 46198),

Gene: Agape74\_82 Start: 47312, Stop: 47040, Start Num: 40

Candidate Starts for Agape74\_82:

(15, 47465), (31, 47369), (38, 47330), (Start: 40 @47312 has 52 MA's), (51, 47276), (Start: 52 @47273 has 112 MA's), (58, 47249),

Gene: Aglet\_83 Start: 46040, Stop: 45807, Start Num: 52

Candidate Starts for Aglet\_83:

(Start: 52 @46040 has 112 MA's), (58, 46016), (62, 45986), (64, 45977), (76, 45854),

Gene: Aneem\_82 Start: 46211, Stop: 45981, Start Num: 48

Candidate Starts for Aneem\_82:

(Start: 46 @46214 has 18 MA's), (Start: 48 @46211 has 13 MA's), (62, 46142),

Gene: AnnaL29\_82 Start: 47478, Stop: 47248, Start Num: 40

Candidate Starts for AnnaL29\_82:

(15, 47631), (25, 47568), (31, 47535), (38, 47496), (Start: 40 @47478 has 52 MA's), (Start: 57 @47463 has 3 MA's), (62, 47424), (71, 47337), (80, 47271),

Gene: Anon\_86 Start: 46891, Stop: 46673, Start Num: 52

Candidate Starts for Anon\_86:

(27, 47008), (Start: 52 @46891 has 112 MA's), (71, 46747),

Gene: Anselm\_81 Start: 47199, Stop: 46933, Start Num: 40

Candidate Starts for Anselm\_81:

(31, 47256), (38, 47217), (Start: 40 @47199 has 52 MA's), (Start: 52 @47166 has 112 MA's), (60, 47133), (62, 47112), (78, 46968),

Gene: Anubis\_86 Start: 45926, Stop: 45693, Start Num: 52

Candidate Starts for Anubis\_86:

(Start: 52 @45926 has 112 MA's), (58, 45902), (62, 45872), (64, 45863), (76, 45740),

Gene: AugsMagnumOpus\_85 Start: 46028, Stop: 45795, Start Num: 52

Candidate Starts for AugsMagnumOpus\_85:

(Start: 52 @46028 has 112 MA's), (58, 46004), (62, 45974), (64, 45965),

Gene: BabyRay\_81 Start: 46355, Stop: 46137, Start Num: 52

Candidate Starts for BabyRay\_81:

(19, 46517), (24, 46493), (Start: 52 @46355 has 112 MA's), (58, 46331), (62, 46301), (64, 46292), (80, 46145),

Gene: Bachome\_79 Start: 45091, Stop: 44861, Start Num: 48

Candidate Starts for Bachome\_79:

(15, 45271), (20, 45226), (25, 45208), (43, 45106), (Start: 46 @45094 has 18 MA's), (Start: 48 @45091 has 13 MA's), (62, 45022),

Gene: Baehexic\_79 Start: 46679, Stop: 46440, Start Num: 40

Candidate Starts for Baehexic\_79:

(14, 46868), (31, 46736), (38, 46697), (Start: 40 @46679 has 52 MA's), (41, 46673), (62, 46619), (65, 46595),

Gene: Beauxregard13\_81 Start: 46043, Stop: 45810, Start Num: 52

Candidate Starts for Beauxregard13\_81:

(Start: 52 @46043 has 112 MA's), (58, 46019), (62, 45989), (64, 45980), (76, 45857),

Gene: BengiVuitton\_80 Start: 46850, Stop: 46578, Start Num: 40

Candidate Starts for BengiVuitton\_80:

(14, 47039), (31, 46907), (38, 46868), (Start: 40 @46850 has 52 MA's), (51, 46814), (Start: 52 @46811 has 112 MA's), (58, 46787),

Gene: Benvolio\_79 Start: 46873, Stop: 46640, Start Num: 40

Candidate Starts for Benvolio\_79:

(14, 47062), (15, 47029), (31, 46930), (38, 46891), (Start: 40 @46873 has 52 MA's), (62, 46819), (65, 46795), (78, 46675),

Gene: BiancaTri92\_77 Start: 46533, Stop: 46261, Start Num: 40

Candidate Starts for BiancaTri92\_77:

(31, 46590), (32, 46581), (38, 46551), (Start: 40 @46533 has 52 MA's), (51, 46497), (Start: 52 @46494 has 112 MA's), (63, 46437),

Gene: Bigflo\_79 Start: 46039, Stop: 45806, Start Num: 52

Candidate Starts for Bigflo\_79:

(Start: 52 @46039 has 112 MA's), (58, 46015), (62, 45985), (64, 45976), (76, 45853),

Gene: BlueBird\_84 Start: 46790, Stop: 46572, Start Num: 52  
Candidate Starts for BlueBird\_84:  
(19, 46952), (Start: 52 @46790 has 112 MA's), (58, 46766), (62, 46736), (64, 46727), (80, 46580),

Gene: Bradman\_82 Start: 46029, Stop: 45823, Start Num: 57  
Candidate Starts for Bradman\_82:  
(10, 46338), (17, 46224), (56, 46032), (Start: 57 @46029 has 3 MA's), (64, 45981), (68, 45930),

Gene: BreSam8\_82 Start: 46033, Stop: 45800, Start Num: 52  
Candidate Starts for BreSam8\_82:  
(Start: 52 @46033 has 112 MA's), (58, 46009), (62, 45979), (64, 45970),

Gene: Bud\_76 Start: 44648, Stop: 44418, Start Num: 48  
Candidate Starts for Bud\_76:  
(Start: 46 @44651 has 18 MA's), (Start: 48 @44648 has 13 MA's), (62, 44579),

Gene: Bugatti\_83 Start: 46790, Stop: 46572, Start Num: 52  
Candidate Starts for Bugatti\_83:  
(19, 46952), (Start: 52 @46790 has 112 MA's), (58, 46766), (62, 46736), (64, 46727), (80, 46580),

Gene: Buggy\_82 Start: 47363, Stop: 47091, Start Num: 40  
Candidate Starts for Buggy\_82:  
(15, 47516), (31, 47420), (38, 47381), (Start: 40 @47363 has 52 MA's), (51, 47327), (Start: 52 @47324 has 112 MA's), (58, 47300),

Gene: BuzzBuzz\_76 Start: 46068, Stop: 45835, Start Num: 52  
Candidate Starts for BuzzBuzz\_76:  
(Start: 52 @46068 has 112 MA's), (58, 46044), (62, 46014), (64, 46005), (76, 45882),

Gene: Bxz2\_77 Start: 46075, Stop: 45842, Start Num: 52  
Candidate Starts for Bxz2\_77:  
(Start: 52 @46075 has 112 MA's), (58, 46051), (62, 46021), (64, 46012), (76, 45889),

Gene: C3\_73 Start: 45726, Stop: 45514, Start Num: 53  
Candidate Starts for C3\_73:  
(7, 46038), (25, 45837), (28, 45828), (Start: 53 @45726 has 7 MA's), (Start: 59 @45714 has 1 MA's),

Gene: Calvinny\_79 Start: 45851, Stop: 45618, Start Num: 52  
Candidate Starts for Calvinny\_79:  
(Start: 52 @45851 has 112 MA's), (58, 45827), (62, 45797), (64, 45788), (76, 45665),

Gene: Caraxes\_83 Start: 46330, Stop: 46109, Start Num: 46  
Candidate Starts for Caraxes\_83:  
(25, 46444), (Start: 46 @46330 has 18 MA's), (Start: 59 @46315 has 1 MA's),

Gene: Centaur\_80 Start: 46557, Stop: 46318, Start Num: 40  
Candidate Starts for Centaur\_80:  
(14, 46746), (31, 46614), (38, 46575), (Start: 40 @46557 has 52 MA's), (41, 46551), (62, 46497), (65, 46473), (78, 46353),

Gene: Changeling\_79 Start: 47138, Stop: 46917, Start Num: 40  
Candidate Starts for Changeling\_79:

(31, 47195), (38, 47156), (Start: 40 @47138 has 52 MA's), (Start: 57 @47123 has 3 MA's), (62, 47084),

Gene: Chargerpower\_78 Start: 45099, Stop: 44884, Start Num: 52

Candidate Starts for Chargerpower\_78:

(Start: 52 @45099 has 112 MA's), (60, 45066), (79, 44895),

Gene: Che12\_84 Start: 46444, Stop: 46235, Start Num: 53

Candidate Starts for Che12\_84:

(25, 46564), (Start: 53 @46444 has 7 MA's), (76, 46276),

Gene: ChipMunk\_81 Start: 48224, Stop: 47958, Start Num: 40

Candidate Starts for ChipMunk\_81:

(31, 48281), (38, 48242), (Start: 40 @48224 has 52 MA's), (51, 48194), (Start: 52 @48191 has 112 MA's),

Gene: Clammy\_83 Start: 46790, Stop: 46572, Start Num: 52

Candidate Starts for Clammy\_83:

(19, 46952), (Start: 52 @46790 has 112 MA's), (58, 46766), (62, 46736), (64, 46727), (80, 46580),

Gene: ClownCar\_79 Start: 45846, Stop: 45613, Start Num: 52

Candidate Starts for ClownCar\_79:

(Start: 52 @45846 has 112 MA's), (58, 45822), (62, 45792), (64, 45783), (76, 45660),

Gene: Colbster\_78 Start: 46043, Stop: 45810, Start Num: 52

Candidate Starts for Colbster\_78:

(Start: 52 @46043 has 112 MA's), (58, 46019), (62, 45989), (64, 45980), (76, 45857),

Gene: Croquant\_79 Start: 46040, Stop: 45807, Start Num: 52

Candidate Starts for Croquant\_79:

(Start: 52 @46040 has 112 MA's), (58, 46016), (62, 45986), (64, 45977), (76, 45854),

Gene: Crucio\_80 Start: 47111, Stop: 46845, Start Num: 40

Candidate Starts for Crucio\_80:

(31, 47168), (38, 47129), (Start: 40 @47111 has 52 MA's), (Start: 52 @47078 has 112 MA's), (62, 47024),

Gene: Cullens\_83 Start: 46042, Stop: 45809, Start Num: 52

Candidate Starts for Cullens\_83:

(Start: 52 @46042 has 112 MA's), (58, 46018), (62, 45988), (64, 45979), (76, 45856),

Gene: DBQu4n\_81 Start: 46768, Stop: 46538, Start Num: 46

Candidate Starts for DBQu4n\_81:

(7, 47083), (25, 46882), (28, 46873), (Start: 46 @46768 has 18 MA's), (62, 46714), (71, 46627), (76, 46585),

Gene: DaHudson\_81 Start: 46032, Stop: 45799, Start Num: 52

Candidate Starts for DaHudson\_81:

(Start: 52 @46032 has 112 MA's), (58, 46008), (62, 45978), (64, 45969), (76, 45846),

Gene: Daishi\_81 Start: 44909, Stop: 44676, Start Num: 52

Candidate Starts for Daishi\_81:

(Start: 52 @44909 has 112 MA's), (58, 44885), (62, 44855), (64, 44846), (76, 44723),

Gene: Dalmatian\_80 Start: 46936, Stop: 46664, Start Num: 40  
Candidate Starts for Dalmatian\_80:  
(31, 46993), (38, 46954), (Start: 40 @46936 has 52 MA's), (Start: 52 @46897 has 112 MA's), (62, 46843), (78, 46699),

Gene: Danforth\_89 Start: 47488, Stop: 47243, Start Num: 39  
Candidate Starts for Danforth\_89:  
(Start: 39 @47488 has 5 MA's), (Start: 54 @47458 has 1 MA's), (62, 47410), (65, 47386), (72, 47305), (73, 47302), (80, 47260),

Gene: DeerParkTS\_76 Start: 45601, Stop: 45383, Start Num: 52  
Candidate Starts for DeerParkTS\_76:  
(37, 45658), (Start: 45 @45619 has 1 MA's), (Start: 52 @45601 has 112 MA's),

Gene: Deloris\_80 Start: 46546, Stop: 46274, Start Num: 40  
Candidate Starts for Deloris\_80:  
(14, 46735), (31, 46603), (38, 46564), (Start: 40 @46546 has 52 MA's), (51, 46510), (Start: 52 @46507 has 112 MA's), (58, 46483),

Gene: Dieselweasel\_83 Start: 46041, Stop: 45808, Start Num: 52  
Candidate Starts for Dieselweasel\_83:  
(Start: 52 @46041 has 112 MA's), (58, 46017), (62, 45987), (64, 45978), (76, 45855),

Gene: Dignity\_82 Start: 47395, Stop: 47129, Start Num: 40  
Candidate Starts for Dignity\_82:  
(14, 47584), (31, 47452), (38, 47413), (Start: 40 @47395 has 52 MA's), (51, 47365), (Start: 52 @47362 has 112 MA's), (61, 47326), (62, 47308),

Gene: Drake55\_81 Start: 46808, Stop: 46575, Start Num: 40  
Candidate Starts for Drake55\_81:  
(14, 46997), (15, 46964), (31, 46865), (38, 46826), (Start: 40 @46808 has 52 MA's),

Gene: DropBear\_80 Start: 46719, Stop: 46501, Start Num: 52  
Candidate Starts for DropBear\_80:  
(Start: 52 @46719 has 112 MA's), (58, 46695), (62, 46665), (64, 46656), (80, 46509),

Gene: DudeLittle\_78 Start: 46702, Stop: 46430, Start Num: 40  
Candidate Starts for DudeLittle\_78:  
(8, 46975), (14, 46891), (15, 46858), (31, 46759), (38, 46720), (Start: 40 @46702 has 52 MA's), (Start: 52 @46663 has 112 MA's), (62, 46609), (78, 46465),

Gene: Duplo\_82 Start: 46825, Stop: 46595, Start Num: 46  
Candidate Starts for Duplo\_82:  
(7, 47140), (25, 46939), (28, 46930), (Start: 46 @46825 has 18 MA's), (62, 46771), (71, 46684), (76, 46642),

Gene: EZMoney23\_76 Start: 46264, Stop: 46034, Start Num: 52  
Candidate Starts for EZMoney23\_76:  
(36, 46321), (42, 46282), (Start: 47 @46270 has 2 MA's), (Start: 52 @46264 has 112 MA's), (62, 46210), (71, 46123), (76, 46081),

Gene: Ebony\_81 Start: 45785, Stop: 45552, Start Num: 46  
Candidate Starts for Ebony\_81:

(15, 45962), (20, 45917), (25, 45899), (43, 45797), (Start: 46 @45785 has 18 MA's), (Start: 48 @45782 has 13 MA's), (62, 45713),

Gene: Echild\_82 Start: 46897, Stop: 46664, Start Num: 40

Candidate Starts for Echild\_82:

(14, 47086), (15, 47053), (31, 46954), (38, 46915), (Start: 40 @46897 has 52 MA's), (62, 46843), (65, 46819), (78, 46699),

Gene: EpicPhail\_83 Start: 46043, Stop: 45810, Start Num: 52

Candidate Starts for EpicPhail\_83:

(Start: 52 @46043 has 112 MA's), (58, 46019), (62, 45989), (64, 45980), (76, 45857),

Gene: Equemioh13\_80 Start: 46786, Stop: 46547, Start Num: 40

Candidate Starts for Equemioh13\_80:

(14, 46975), (31, 46843), (38, 46804), (Start: 40 @46786 has 52 MA's), (41, 46780), (62, 46726), (65, 46702),

Gene: Et2Brutus\_80 Start: 45748, Stop: 45515, Start Num: 46

Candidate Starts for Et2Brutus\_80:

(Start: 46 @45748 has 18 MA's), (Start: 48 @45745 has 13 MA's), (62, 45676),

Gene: EtoileNova\_80 Start: 46747, Stop: 46529, Start Num: 52

Candidate Starts for EtoileNova\_80:

(Start: 52 @46747 has 112 MA's), (58, 46723), (62, 46693), (64, 46684), (65, 46669), (80, 46537),

Gene: EvilGenius\_80 Start: 48225, Stop: 47959, Start Num: 40

Candidate Starts for EvilGenius\_80:

(31, 48282), (38, 48243), (Start: 40 @48225 has 52 MA's), (51, 48195), (Start: 52 @48192 has 112 MA's),

Gene: Fameo\_78 Start: 46711, Stop: 46472, Start Num: 40

Candidate Starts for Fameo\_78:

(31, 46768), (38, 46729), (Start: 40 @46711 has 52 MA's), (62, 46651), (78, 46507),

Gene: Farber\_82 Start: 46029, Stop: 45796, Start Num: 52

Candidate Starts for Farber\_82:

(Start: 52 @46029 has 112 MA's), (58, 46005), (62, 45975), (64, 45966), (76, 45843),

Gene: Fernando\_83 Start: 46042, Stop: 45809, Start Num: 52

Candidate Starts for Fernando\_83:

(Start: 52 @46042 has 112 MA's), (58, 46018), (62, 45988), (64, 45979), (76, 45856),

Gene: Fibonacci\_80 Start: 45754, Stop: 45521, Start Num: 46

Candidate Starts for Fibonacci\_80:

(Start: 46 @45754 has 18 MA's), (Start: 48 @45751 has 13 MA's), (62, 45682),

Gene: FiringLine\_80 Start: 47099, Stop: 46827, Start Num: 40

Candidate Starts for FiringLine\_80:

(14, 47288), (15, 47255), (31, 47156), (38, 47117), (Start: 40 @47099 has 52 MA's), (Start: 52 @47060 has 112 MA's), (62, 47006),

Gene: First\_0081 Start: 46943, Stop: 46671, Start Num: 40

Candidate Starts for First\_0081:

(31, 47000), (38, 46961), (Start: 40 @46943 has 52 MA's), (51, 46907), (Start: 52 @46904 has 112 MA's),

Gene: Flare16\_80 Start: 46601, Stop: 46362, Start Num: 40

Candidate Starts for Flare16\_80:

(14, 46790), (31, 46658), (38, 46619), (Start: 40 @46601 has 52 MA's), (41, 46595), (62, 46541), (65, 46517),

Gene: Flaverint\_82 Start: 46209, Stop: 45979, Start Num: 48

Candidate Starts for Flaverint\_82:

(Start: 46 @46212 has 18 MA's), (Start: 48 @46209 has 13 MA's), (62, 46140),

Gene: Fred313\_79 Start: 46420, Stop: 46202, Start Num: 52

Candidate Starts for Fred313\_79:

(19, 46582), (24, 46558), (Start: 52 @46420 has 112 MA's), (58, 46396), (62, 46366), (64, 46357), (80, 46210),

Gene: Gemma\_79 Start: 45849, Stop: 45616, Start Num: 52

Candidate Starts for Gemma\_79:

(Start: 52 @45849 has 112 MA's), (58, 45825), (62, 45795), (64, 45786), (76, 45663),

Gene: Georgie2\_82 Start: 47303, Stop: 47031, Start Num: 40

Candidate Starts for Georgie2\_82:

(14, 47492), (15, 47459), (31, 47360), (38, 47321), (Start: 40 @47303 has 52 MA's), (Start: 52 @47264 has 112 MA's), (62, 47210),

Gene: Gilberta\_78 Start: 45085, Stop: 44855, Start Num: 48

Candidate Starts for Gilberta\_78:

(Start: 46 @45088 has 18 MA's), (Start: 48 @45085 has 13 MA's), (62, 45016),

Gene: GingkoMaracino\_82 Start: 45925, Stop: 45692, Start Num: 52

Candidate Starts for GingkoMaracino\_82:

(Start: 52 @45925 has 112 MA's), (58, 45901), (62, 45871), (64, 45862), (76, 45739),

Gene: Giroux\_85 Start: 46789, Stop: 46571, Start Num: 52

Candidate Starts for Giroux\_85:

(19, 46951), (Start: 52 @46789 has 112 MA's), (58, 46765), (62, 46735), (64, 46726), (80, 46579),

Gene: Gratitude\_78 Start: 46786, Stop: 46547, Start Num: 40

Candidate Starts for Gratitude\_78:

(14, 46975), (31, 46843), (38, 46804), (Start: 40 @46786 has 52 MA's), (41, 46780), (62, 46726), (65, 46702),

Gene: Grif\_80 Start: 46116, Stop: 45883, Start Num: 52

Candidate Starts for Grif\_80:

(Start: 52 @46116 has 112 MA's), (58, 46092), (62, 46062), (64, 46053), (76, 45930),

Gene: Groupthink\_82 Start: 45850, Stop: 45617, Start Num: 52

Candidate Starts for Groupthink\_82:

(Start: 52 @45850 has 112 MA's), (58, 45826), (62, 45796), (64, 45787), (76, 45664),

Gene: Grub\_80 Start: 46032, Stop: 45799, Start Num: 52

Candidate Starts for Grub\_80:

(Start: 52 @46032 has 112 MA's), (58, 46008), (62, 45978), (64, 45969),

Gene: Grum1\_82 Start: 46042, Stop: 45809, Start Num: 52

Candidate Starts for Grum1\_82:

(Start: 52 @46042 has 112 MA's), (58, 46018), (62, 45988), (64, 45979), (76, 45856),

Gene: GtownJaz\_82 Start: 46040, Stop: 45807, Start Num: 52

Candidate Starts for GtownJaz\_82:

(Start: 52 @46040 has 112 MA's), (58, 46016), (62, 45986), (64, 45977), (76, 45854),

Gene: Gwennie\_77 Start: 46043, Stop: 45810, Start Num: 52

Candidate Starts for Gwennie\_77:

(Start: 52 @46043 has 112 MA's), (58, 46019), (62, 45989), (64, 45980), (76, 45857),

Gene: HarryHoudini\_80 Start: 46811, Stop: 46572, Start Num: 40

Candidate Starts for HarryHoudini\_80:

(14, 47000), (31, 46868), (38, 46829), (Start: 40 @46811 has 52 MA's), (41, 46805), (62, 46751), (63, 46748), (76, 46619),

Gene: HashRod\_83 Start: 46069, Stop: 45836, Start Num: 52

Candidate Starts for HashRod\_83:

(Start: 52 @46069 has 112 MA's), (58, 46045), (62, 46015), (64, 46006), (76, 45883),

Gene: HaveUMetTed\_82 Start: 45838, Stop: 45605, Start Num: 52

Candidate Starts for HaveUMetTed\_82:

(Start: 52 @45838 has 112 MA's), (58, 45814), (62, 45784), (64, 45775), (76, 45652),

Gene: Heathen\_81 Start: 46508, Stop: 46290, Start Num: 52

Candidate Starts for Heathen\_81:

(19, 46670), (24, 46646), (Start: 52 @46508 has 112 MA's), (58, 46484), (62, 46454), (64, 46445), (80, 46298),

Gene: Heffalump\_77 Start: 47179, Stop: 46940, Start Num: 40

Candidate Starts for Heffalump\_77:

(31, 47236), (38, 47197), (Start: 40 @47179 has 52 MA's), (62, 47119), (78, 46975),

Gene: HelDan\_82 Start: 46731, Stop: 46513, Start Num: 52

Candidate Starts for HelDan\_82:

(19, 46893), (24, 46869), (Start: 52 @46731 has 112 MA's), (58, 46707), (62, 46677), (64, 46668), (80, 46521),

Gene: Heliosoles\_79 Start: 45854, Stop: 45621, Start Num: 52

Candidate Starts for Heliosoles\_79:

(Start: 52 @45854 has 112 MA's), (58, 45830), (62, 45800), (64, 45791), (76, 45668),

Gene: Hercules11\_82 Start: 46051, Stop: 45818, Start Num: 52

Candidate Starts for Hercules11\_82:

(Start: 52 @46051 has 112 MA's), (58, 46027), (62, 45997), (64, 45988), (76, 45865),

Gene: HippoHollow\_77 Start: 47791, Stop: 47558, Start Num: 40

Candidate Starts for HippoHollow\_77:

(38, 47809), (Start: 40 @47791 has 52 MA's),

Gene: Hookmount\_82 Start: 46743, Stop: 46525, Start Num: 52  
Candidate Starts for Hookmount\_82:  
(Start: 52 @46743 has 112 MA's), (58, 46719), (62, 46689), (64, 46680), (65, 46665), (80, 46533),

Gene: Hutc2\_77 Start: 44638, Stop: 44405, Start Num: 46  
Candidate Starts for Hutc2\_77:  
(Start: 46 @44638 has 18 MA's), (Start: 48 @44635 has 13 MA's), (62, 44566),

Gene: Idleandcovert\_82 Start: 46790, Stop: 46572, Start Num: 52  
Candidate Starts for Idleandcovert\_82:  
(19, 46952), (Start: 52 @46790 has 112 MA's), (58, 46766), (62, 46736), (64, 46727), (80, 46580),

Gene: Insomnia\_80 Start: 45929, Stop: 45696, Start Num: 46  
Candidate Starts for Insomnia\_80:  
(Start: 46 @45929 has 18 MA's), (Start: 48 @45926 has 13 MA's), (62, 45857),

Gene: Isca\_78 Start: 45864, Stop: 45658, Start Num: 52  
Candidate Starts for Isca\_78:  
(43, 45888), (Start: 52 @45864 has 112 MA's), (62, 45810), (80, 45666),

Gene: Iwokeuplikedis\_82 Start: 47280, Stop: 47053, Start Num: 40  
Candidate Starts for Iwokeuplikedis\_82:  
(15, 47433), (31, 47337), (38, 47298), (Start: 40 @47280 has 52 MA's), (62, 47220), (78, 47088), (82, 47070),

Gene: JHC117\_77 Start: 46037, Stop: 45804, Start Num: 52  
Candidate Starts for JHC117\_77:  
(Start: 52 @46037 has 112 MA's), (58, 46013), (62, 45983), (64, 45974), (76, 45851),

Gene: Jabith\_80 Start: 45943, Stop: 45713, Start Num: 48  
Candidate Starts for Jabith\_80:  
(Start: 46 @45946 has 18 MA's), (Start: 48 @45943 has 13 MA's), (62, 45874),

Gene: JenCasNa\_83 Start: 46042, Stop: 45809, Start Num: 52  
Candidate Starts for JenCasNa\_83:  
(Start: 52 @46042 has 112 MA's), (58, 46018), (62, 45988), (64, 45979), (76, 45856),

Gene: JeppNRM\_82 Start: 45852, Stop: 45619, Start Num: 52  
Candidate Starts for JeppNRM\_82:  
(36, 45918), (Start: 52 @45852 has 112 MA's), (58, 45828), (62, 45798), (64, 45789), (76, 45666),

Gene: Jerm\_82 Start: 47384, Stop: 47112, Start Num: 40  
Candidate Starts for Jerm\_82:  
(15, 47537), (31, 47441), (38, 47402), (Start: 40 @47384 has 52 MA's), (51, 47348), (Start: 52 @47345 has 112 MA's), (58, 47321),

Gene: Jobu08\_78 Start: 45866, Stop: 45633, Start Num: 52  
Candidate Starts for Jobu08\_78:  
(Start: 52 @45866 has 112 MA's), (58, 45842), (62, 45812), (64, 45803),

Gene: Joselito\_80 Start: 45963, Stop: 45733, Start Num: 48  
Candidate Starts for Joselito\_80:  
(Start: 46 @45966 has 18 MA's), (Start: 48 @45963 has 13 MA's), (62, 45894),

Gene: JoshKayV\_82 Start: 47528, Stop: 47256, Start Num: 40  
Candidate Starts for JoshKayV\_82:  
(14, 47717), (15, 47684), (31, 47585), (38, 47546), (Start: 40 @47528 has 52 MA's), (Start: 52 @47489 has 112 MA's), (62, 47435), (78, 47291),

Gene: Jsquared\_83 Start: 46162, Stop: 45956, Start Num: 57  
Candidate Starts for Jsquared\_83:  
(56, 46165), (Start: 57 @46162 has 3 MA's), (68, 46063),

Gene: KADY\_79 Start: 46069, Stop: 45836, Start Num: 52  
Candidate Starts for KADY\_79:  
(Start: 52 @46069 has 112 MA's), (58, 46045), (62, 46015), (64, 46006), (76, 45883),

Gene: Kachowdy\_80 Start: 46760, Stop: 46542, Start Num: 52  
Candidate Starts for Kachowdy\_80:  
(19, 46922), (24, 46898), (Start: 52 @46760 has 112 MA's), (58, 46736), (62, 46706), (64, 46697), (80, 46550),

Gene: Kalb97\_82 Start: 45219, Stop: 44986, Start Num: 52  
Candidate Starts for Kalb97\_82:  
(43, 45246), (Start: 52 @45219 has 112 MA's), (58, 45195), (62, 45165), (64, 45156), (76, 45033),

Gene: Kalnoky\_82 Start: 45847, Stop: 45614, Start Num: 52  
Candidate Starts for Kalnoky\_82:  
(Start: 52 @45847 has 112 MA's), (58, 45823), (62, 45793), (64, 45784), (76, 45661),

Gene: Kerberos\_81 Start: 46788, Stop: 46558, Start Num: 46  
Candidate Starts for Kerberos\_81:  
(7, 47103), (25, 46902), (28, 46893), (Start: 46 @46788 has 18 MA's), (62, 46734), (71, 46647), (76, 46605),

Gene: Kimba\_79 Start: 45463, Stop: 45233, Start Num: 48  
Candidate Starts for Kimba\_79:  
(11, 45721), (12, 45706), (13, 45703), (26, 45577), (Start: 46 @45466 has 18 MA's), (Start: 48 @45463 has 13 MA's), (62, 45394),

Gene: KingCyrus\_79 Start: 48253, Stop: 47981, Start Num: 40  
Candidate Starts for KingCyrus\_79:  
(31, 48310), (38, 48271), (Start: 40 @48253 has 52 MA's), (51, 48217), (Start: 52 @48214 has 112 MA's), (63, 48157),

Gene: Kinmap\_84 Start: 45665, Stop: 45450, Start Num: 47  
Candidate Starts for Kinmap\_84:  
(3, 46034), (5, 46025), (23, 45785), (33, 45734), (Start: 47 @45665 has 2 MA's), (71, 45524), (79, 45461),

Gene: Kudrefre\_138 Start: 72466, Stop: 72245, Start Num: 46  
Candidate Starts for Kudrefre\_138:  
(Start: 46 @72466 has 18 MA's), (75, 72280),

Gene: LBerry\_83 Start: 46043, Stop: 45810, Start Num: 52  
Candidate Starts for LBerry\_83:

(Start: 52 @46043 has 112 MA's), (58, 46019), (62, 45989), (64, 45980), (76, 45857),

Gene: LadyBird\_84 Start: 47454, Stop: 47182, Start Num: 40

Candidate Starts for LadyBird\_84:

(31, 47511), (32, 47502), (38, 47472), (Start: 40 @47454 has 52 MA's), (51, 47418), (Start: 52 @47415 has 112 MA's),

Gene: Lambert1\_82 Start: 46744, Stop: 46526, Start Num: 52

Candidate Starts for Lambert1\_82:

(Start: 52 @46744 has 112 MA's), (58, 46720), (62, 46690), (64, 46681), (65, 46666), (80, 46534),

Gene: Larenn\_78 Start: 46804, Stop: 46532, Start Num: 40

Candidate Starts for Larenn\_78:

(31, 46861), (38, 46822), (Start: 40 @46804 has 52 MA's), (51, 46768), (Start: 52 @46765 has 112 MA's),

Gene: LarryKay\_82 Start: 46073, Stop: 45840, Start Num: 52

Candidate Starts for LarryKay\_82:

(Start: 52 @46073 has 112 MA's), (58, 46049), (62, 46019), (64, 46010), (76, 45887),

Gene: Leviathan\_82 Start: 47444, Stop: 47178, Start Num: 40

Candidate Starts for Leviathan\_82:

(14, 47633), (31, 47501), (38, 47462), (Start: 40 @47444 has 52 MA's), (51, 47414), (Start: 52 @47411 has 112 MA's), (61, 47375), (62, 47357),

Gene: LilTurb\_81 Start: 47264, Stop: 46992, Start Num: 40

Candidate Starts for LilTurb\_81:

(15, 47417), (31, 47321), (38, 47282), (Start: 40 @47264 has 52 MA's), (51, 47228), (Start: 52 @47225 has 112 MA's), (58, 47201),

Gene: Lilith\_80 Start: 46032, Stop: 45799, Start Num: 52

Candidate Starts for Lilith\_80:

(Start: 52 @46032 has 112 MA's), (58, 46008), (62, 45978), (64, 45969),

Gene: LionsBait\_79 Start: 47790, Stop: 47557, Start Num: 40

Candidate Starts for LionsBait\_79:

(31, 47847), (38, 47808), (Start: 40 @47790 has 52 MA's),

Gene: LogiBear\_78 Start: 44882, Stop: 44649, Start Num: 44

Candidate Starts for LogiBear\_78:

(22, 44999), (34, 44930), (44, 44882), (58, 44843), (63, 44810), (71, 44723), (77, 44678),

Gene: Louie6\_81 Start: 46070, Stop: 45837, Start Num: 52

Candidate Starts for Louie6\_81:

(Start: 52 @46070 has 112 MA's), (58, 46046), (62, 46016), (64, 46007), (76, 45884),

Gene: Lowa\_79 Start: 46031, Stop: 45798, Start Num: 52

Candidate Starts for Lowa\_79:

(Start: 52 @46031 has 112 MA's), (58, 46007), (62, 45977), (64, 45968),

Gene: Lucivia\_82 Start: 46245, Stop: 46012, Start Num: 46

Candidate Starts for Lucivia\_82:

(Start: 46 @46245 has 18 MA's), (Start: 48 @46242 has 13 MA's), (62, 46173),

Gene: LugYA\_85 Start: 46043, Stop: 45810, Start Num: 52  
Candidate Starts for LugYA\_85:  
(Start: 52 @46043 has 112 MA's), (58, 46019), (62, 45989), (64, 45980), (76, 45857),

Gene: MA5\_80 Start: 45778, Stop: 45572, Start Num: 52  
Candidate Starts for MA5\_80:  
(43, 45802), (Start: 52 @45778 has 112 MA's), (62, 45724), (80, 45580),

Gene: MaCh\_81 Start: 46206, Stop: 45976, Start Num: 48  
Candidate Starts for MaCh\_81:  
(Start: 46 @46209 has 18 MA's), (Start: 48 @46206 has 13 MA's), (62, 46137),

Gene: Mabel\_81 Start: 46207, Stop: 45977, Start Num: 48  
Candidate Starts for Mabel\_81:  
(Start: 46 @46210 has 18 MA's), (Start: 48 @46207 has 13 MA's), (62, 46138),

Gene: MadMarie\_80 Start: 46040, Stop: 45807, Start Num: 52  
Candidate Starts for MadMarie\_80:  
(Start: 52 @46040 has 112 MA's), (58, 46016), (62, 45986), (64, 45977), (76, 45854),

Gene: Mainiac\_81 Start: 46032, Stop: 45799, Start Num: 52  
Candidate Starts for Mainiac\_81:  
(Start: 52 @46032 has 112 MA's), (58, 46008), (62, 45978), (64, 45969), (76, 45846),

Gene: Malec\_79 Start: 47374, Stop: 47102, Start Num: 40  
Candidate Starts for Malec\_79:  
(31, 47431), (38, 47392), (Start: 40 @47374 has 52 MA's), (Start: 52 @47335 has 112 MA's), (61, 47299), (62, 47281),

Gene: Malinsilva\_85 Start: 46031, Stop: 45798, Start Num: 52  
Candidate Starts for Malinsilva\_85:  
(Start: 52 @46031 has 112 MA's), (58, 46007), (62, 45977), (64, 45968),

Gene: Manu\_81 Start: 45854, Stop: 45621, Start Num: 52  
Candidate Starts for Manu\_81:  
(Start: 52 @45854 has 112 MA's), (58, 45830), (62, 45800), (64, 45791), (76, 45668),

Gene: MarQuardt\_82 Start: 46041, Stop: 45808, Start Num: 52  
Candidate Starts for MarQuardt\_82:  
(Start: 52 @46041 has 112 MA's), (58, 46017), (62, 45987), (64, 45978), (76, 45855),

Gene: Marchesa\_81 Start: 46712, Stop: 46494, Start Num: 52  
Candidate Starts for Marchesa\_81:  
(Start: 52 @46712 has 112 MA's), (58, 46688), (62, 46658), (64, 46649), (80, 46502),

Gene: Margo\_82 Start: 46769, Stop: 46551, Start Num: 52  
Candidate Starts for Margo\_82:  
(Start: 52 @46769 has 112 MA's), (58, 46745), (62, 46715), (64, 46706), (65, 46691), (80, 46559),

Gene: Marie\_80 Start: 46042, Stop: 45809, Start Num: 52  
Candidate Starts for Marie\_80:  
(Start: 52 @46042 has 112 MA's), (58, 46018), (62, 45988), (64, 45979), (76, 45856),

Gene: Marius\_82 Start: 45847, Stop: 45614, Start Num: 52

Candidate Starts for Marius\_82:

(Start: 52 @45847 has 112 MA's), (58, 45823), (62, 45793), (64, 45784), (76, 45661),

Gene: Methuselah\_75 Start: 46063, Stop: 45830, Start Num: 52

Candidate Starts for Methuselah\_75:

(Start: 52 @46063 has 112 MA's), (58, 46039), (62, 46009), (64, 46000), (76, 45877),

Gene: Microwolf\_78 Start: 46055, Stop: 45822, Start Num: 52

Candidate Starts for Microwolf\_78:

(Start: 52 @46055 has 112 MA's), (58, 46031), (62, 46001), (64, 45992),

Gene: MiculUcigas\_80 Start: 46504, Stop: 46265, Start Num: 40

Candidate Starts for MiculUcigas\_80:

(14, 46693), (31, 46561), (38, 46522), (Start: 40 @46504 has 52 MA's), (41, 46498), (62, 46444), (65, 46420),

Gene: Miko\_75 Start: 46074, Stop: 45838, Start Num: 47

Candidate Starts for Miko\_75:

(36, 46125), (42, 46086), (Start: 47 @46074 has 2 MA's), (Start: 52 @46068 has 112 MA's), (62, 46014), (71, 45927), (76, 45885),

Gene: MoneyMay\_82 Start: 46042, Stop: 45809, Start Num: 52

Candidate Starts for MoneyMay\_82:

(Start: 52 @46042 has 112 MA's), (58, 46018), (62, 45988), (64, 45979), (76, 45856),

Gene: Montavir\_77 Start: 46039, Stop: 45806, Start Num: 52

Candidate Starts for Montavir\_77:

(Start: 52 @46039 has 112 MA's), (58, 46015), (62, 45985), (64, 45976), (76, 45853),

Gene: MuchMore\_85 Start: 46028, Stop: 45795, Start Num: 52

Candidate Starts for MuchMore\_85:

(Start: 52 @46028 has 112 MA's), (58, 46004), (62, 45974), (64, 45965),

Gene: Mulciber\_79 Start: 45748, Stop: 45518, Start Num: 48

Candidate Starts for Mulciber\_79:

(Start: 46 @45751 has 18 MA's), (Start: 48 @45748 has 13 MA's), (62, 45679),

Gene: Munch\_81 Start: 46214, Stop: 45981, Start Num: 46

Candidate Starts for Munch\_81:

(Start: 46 @46214 has 18 MA's), (Start: 48 @46211 has 13 MA's), (62, 46142),

Gene: MyraDee\_75 Start: 43252, Stop: 43040, Start Num: 52

Candidate Starts for MyraDee\_75:

(Start: 52 @43252 has 112 MA's),

Gene: NaSiaTalie\_81 Start: 46791, Stop: 46558, Start Num: 40

Candidate Starts for NaSiaTalie\_81:

(14, 46980), (31, 46848), (38, 46809), (Start: 40 @46791 has 52 MA's),

Gene: NearlyHeadless\_89 Start: 47225, Stop: 46980, Start Num: 39

Candidate Starts for NearlyHeadless\_89:

(Start: 39 @47225 has 5 MA's), (Start: 54 @47195 has 1 MA's), (62, 47147), (65, 47123), (73, 47039), (80, 46997),

Gene: NicoleTera\_78 Start: 46731, Stop: 46501, Start Num: 52

Candidate Starts for NicoleTera\_78:

(18, 46887), (36, 46788), (42, 46749), (Start: 47 @46737 has 2 MA's), (Start: 52 @46731 has 112 MA's), (62, 46677), (71, 46590), (76, 46548),

Gene: Noella\_83 Start: 46745, Stop: 46527, Start Num: 52

Candidate Starts for Noella\_83:

(Start: 52 @46745 has 112 MA's), (58, 46721), (62, 46691), (64, 46682), (65, 46667), (80, 46535),

Gene: Norbert\_78 Start: 46742, Stop: 46524, Start Num: 52

Candidate Starts for Norbert\_78:

(Start: 52 @46742 has 112 MA's), (58, 46718), (62, 46688), (64, 46679), (65, 46664), (80, 46532),

Gene: NothingSpecial\_74 Start: 46407, Stop: 46177, Start Num: 50

Candidate Starts for NothingSpecial\_74:

(Start: 50 @46407 has 1 MA's), (62, 46353), (71, 46266),

Gene: Octobien14\_135 Start: 71190, Stop: 70951, Start Num: 46

Candidate Starts for Octobien14\_135:

(35, 71247), (Start: 46 @71190 has 18 MA's), (62, 71133), (69, 71049),

Gene: Odin\_81 Start: 46643, Stop: 46428, Start Num: 54

Candidate Starts for Odin\_81:

(21, 46793), (Start: 54 @46643 has 1 MA's), (Start: 57 @46634 has 3 MA's), (64, 46586),

Gene: OlanP\_80 Start: 46026, Stop: 45793, Start Num: 52

Candidate Starts for OlanP\_80:

(Start: 52 @46026 has 112 MA's), (58, 46002), (62, 45972), (64, 45963), (76, 45840),

Gene: Ollie\_82 Start: 45910, Stop: 45677, Start Num: 52

Candidate Starts for Ollie\_82:

(Start: 52 @45910 has 112 MA's), (58, 45886), (62, 45856), (64, 45847), (76, 45724),

Gene: Orange\_81 Start: 45761, Stop: 45531, Start Num: 48

Candidate Starts for Orange\_81:

(Start: 46 @45764 has 18 MA's), (Start: 48 @45761 has 13 MA's), (62, 45692),

Gene: P28Green\_82 Start: 46045, Stop: 45812, Start Num: 52

Candidate Starts for P28Green\_82:

(Start: 52 @46045 has 112 MA's), (58, 46021), (62, 45991), (64, 45982), (76, 45859),

Gene: PGHhamlin\_84 Start: 46031, Stop: 45798, Start Num: 52

Candidate Starts for PGHhamlin\_84:

(Start: 52 @46031 has 112 MA's), (58, 46007), (62, 45977), (64, 45968),

Gene: Panamaxus\_79 Start: 46744, Stop: 46526, Start Num: 52

Candidate Starts for Panamaxus\_79:

(Start: 52 @46744 has 112 MA's), (58, 46720), (62, 46690), (64, 46681), (65, 46666), (80, 46534),

Gene: Pawn\_80 Start: 45854, Stop: 45621, Start Num: 52

Candidate Starts for Pawn\_80:

(Start: 52 @45854 has 112 MA's), (58, 45830), (62, 45800), (64, 45791), (76, 45668),

Gene: Pembroke\_82 Start: 46040, Stop: 45807, Start Num: 52

Candidate Starts for Pembroke\_82:

(Start: 52 @46040 has 112 MA's), (58, 46016), (62, 45986), (64, 45977),

Gene: Penny1\_82 Start: 46043, Stop: 45810, Start Num: 52

Candidate Starts for Penny1\_82:

(Start: 52 @46043 has 112 MA's), (58, 46019), (62, 45989), (64, 45980), (76, 45857),

Gene: Petersenfast\_75 Start: 44642, Stop: 44412, Start Num: 48

Candidate Starts for Petersenfast\_75:

(Start: 46 @44645 has 18 MA's), (Start: 48 @44642 has 13 MA's), (62, 44573),

Gene: Ph8s\_83 Start: 46579, Stop: 46370, Start Num: 53

Candidate Starts for Ph8s\_83:

(Start: 53 @46579 has 7 MA's), (62, 46540), (76, 46411),

Gene: Phantastic\_83 Start: 46192, Stop: 45986, Start Num: 52

Candidate Starts for Phantastic\_83:

(43, 46216), (Start: 52 @46192 has 112 MA's), (62, 46138), (80, 45994),

Gene: Phillis\_85 Start: 46238, Stop: 45990, Start Num: 39

Candidate Starts for Phillis\_85:

(Start: 39 @46238 has 5 MA's), (Start: 54 @46208 has 1 MA's), (62, 46160), (67, 46094), (80, 46007),

Gene: PhishRPhriends\_78 Start: 45034, Stop: 44801, Start Num: 52

Candidate Starts for PhishRPhriends\_78:

(Start: 52 @45034 has 112 MA's), (58, 45010), (62, 44980), (64, 44971), (76, 44848),

Gene: Phlei\_62 Start: 43268, Stop: 43068, Start Num: 56

Candidate Starts for Phlei\_62:

(55, 43271), (56, 43268), (65, 43202), (81, 43088),

Gene: Phoebe\_83 Start: 46035, Stop: 45802, Start Num: 52

Candidate Starts for Phoebe\_83:

(Start: 52 @46035 has 112 MA's), (58, 46011), (62, 45981), (64, 45972), (76, 45849),

Gene: Phoxy\_82 Start: 46064, Stop: 45831, Start Num: 52

Candidate Starts for Phoxy\_82:

(Start: 52 @46064 has 112 MA's), (58, 46040), (62, 46010), (64, 46001), (76, 45878),

Gene: Piro94\_79 Start: 46739, Stop: 46506, Start Num: 40

Candidate Starts for Piro94\_79:

(14, 46928), (31, 46796), (38, 46757), (Start: 40 @46739 has 52 MA's),

Gene: Pistachio\_82 Start: 46337, Stop: 46119, Start Num: 52

Candidate Starts for Pistachio\_82:

(19, 46499), (Start: 52 @46337 has 112 MA's), (58, 46313), (62, 46283), (64, 46274), (80, 46127),

Gene: Pocahontas\_81 Start: 46740, Stop: 46522, Start Num: 52

Candidate Starts for Pocahontas\_81:

(Start: 52 @46740 has 112 MA's), (58, 46716), (62, 46686), (64, 46677), (65, 46662), (80, 46530),

Gene: Pomar16\_81 Start: 46861, Stop: 46628, Start Num: 46

Candidate Starts for Pomar16\_81:

(7, 47176), (25, 46975), (28, 46966), (Start: 46 @46861 has 18 MA's), (62, 46807), (71, 46720), (76, 46675),

Gene: Popcicle\_82 Start: 46740, Stop: 46522, Start Num: 52

Candidate Starts for Popcicle\_82:

(Start: 52 @46740 has 112 MA's), (58, 46716), (62, 46686), (64, 46677), (65, 46662), (80, 46530),

Gene: PotatoSplit\_83 Start: 46043, Stop: 45810, Start Num: 52

Candidate Starts for PotatoSplit\_83:

(Start: 52 @46043 has 112 MA's), (58, 46019), (62, 45989), (64, 45980), (76, 45857),

Gene: Power\_80 Start: 47302, Stop: 47030, Start Num: 40

Candidate Starts for Power\_80:

(14, 47491), (15, 47458), (31, 47359), (38, 47320), (Start: 40 @47302 has 52 MA's), (Start: 52 @47263 has 112 MA's), (62, 47209),

Gene: Prudy\_75 Start: 47086, Stop: 46868, Start Num: 52

Candidate Starts for Prudy\_75:

(37, 47143), (Start: 45 @47104 has 1 MA's), (Start: 52 @47086 has 112 MA's),

Gene: Puppy\_83 Start: 46407, Stop: 46189, Start Num: 52

Candidate Starts for Puppy\_83:

(19, 46569), (24, 46545), (Start: 52 @46407 has 112 MA's), (58, 46383), (62, 46353), (64, 46344), (80, 46197),

Gene: PurpleHaze\_81 Start: 45850, Stop: 45617, Start Num: 52

Candidate Starts for PurpleHaze\_81:

(Start: 52 @45850 has 112 MA's), (58, 45826), (62, 45796), (64, 45787), (76, 45664),

Gene: QueenB2\_77 Start: 46392, Stop: 46153, Start Num: 40

Candidate Starts for QueenB2\_77:

(31, 46449), (38, 46410), (Start: 40 @46392 has 52 MA's), (62, 46332), (78, 46188),

Gene: QueenBeesly\_80 Start: 47099, Stop: 46827, Start Num: 40

Candidate Starts for QueenBeesly\_80:

(14, 47288), (15, 47255), (31, 47156), (38, 47117), (Start: 40 @47099 has 52 MA's), (Start: 52 @47060 has 112 MA's), (62, 47006),

Gene: QuinnKiro\_81 Start: 46743, Stop: 46525, Start Num: 52

Candidate Starts for QuinnKiro\_81:

(Start: 52 @46743 has 112 MA's), (58, 46719), (62, 46689), (64, 46680), (65, 46665), (80, 46533),

Gene: Quokka\_81 Start: 46030, Stop: 45824, Start Num: 57

Candidate Starts for Quokka\_81:

(10, 46339), (17, 46225), (56, 46033), (Start: 57 @46030 has 3 MA's), (64, 45982), (68, 45931),

Gene: Rachaly\_77 Start: 46214, Stop: 45984, Start Num: 52

Candidate Starts for Rachaly\_77:

(36, 46271), (42, 46232), (Start: 47 @46220 has 2 MA's), (Start: 52 @46214 has 112 MA's), (62, 46160), (71, 46073), (76, 46031),

Gene: Reba\_77 Start: 44690, Stop: 44457, Start Num: 52

Candidate Starts for Reba\_77:

(Start: 52 @44690 has 112 MA's), (58, 44666), (62, 44636), (64, 44627), (76, 44504),

Gene: ResDef\_80 Start: 46746, Stop: 46528, Start Num: 52

Candidate Starts for ResDef\_80:

(Start: 52 @46746 has 112 MA's), (58, 46722), (62, 46692), (64, 46683), (65, 46668), (80, 46536),

Gene: Retro23\_80 Start: 46823, Stop: 46557, Start Num: 40

Candidate Starts for Retro23\_80:

(31, 46880), (38, 46841), (Start: 40 @46823 has 52 MA's), (Start: 52 @46790 has 112 MA's), (62, 46736), (78, 46592),

Gene: Roimos\_81 Start: 46646, Stop: 46428, Start Num: 52

Candidate Starts for Roimos\_81:

(19, 46808), (24, 46784), (Start: 52 @46646 has 112 MA's), (58, 46622), (62, 46592), (64, 46583), (80, 46436),

Gene: Rummer\_81 Start: 46067, Stop: 45834, Start Num: 52

Candidate Starts for Rummer\_81:

(Start: 52 @46067 has 112 MA's), (58, 46043), (62, 46013), (64, 46004), (76, 45881),

Gene: Sabia\_80 Start: 46047, Stop: 45814, Start Num: 52

Candidate Starts for Sabia\_80:

(Start: 52 @46047 has 112 MA's), (58, 46023), (62, 45993), (64, 45984), (76, 45861),

Gene: Sabinator\_80 Start: 46041, Stop: 45808, Start Num: 52

Candidate Starts for Sabinator\_80:

(Start: 52 @46041 has 112 MA's), (58, 46017), (62, 45987), (64, 45978), (76, 45855),

Gene: Saintus\_84 Start: 44090, Stop: 43845, Start Num: 39

Candidate Starts for Saintus\_84:

(Start: 39 @44090 has 5 MA's), (Start: 54 @44060 has 1 MA's), (62, 44012), (65, 43988), (73, 43904), (80, 43862),

Gene: Salz\_76 Start: 44560, Stop: 44327, Start Num: 46

Candidate Starts for Salz\_76:

(Start: 46 @44560 has 18 MA's), (Start: 48 @44557 has 13 MA's), (62, 44488),

Gene: Saskia\_78 Start: 45105, Stop: 44875, Start Num: 48

Candidate Starts for Saskia\_78:

(15, 45285), (20, 45240), (25, 45222), (43, 45120), (Start: 46 @45108 has 18 MA's), (Start: 48 @45105 has 13 MA's), (62, 45036),

Gene: SaturnRing\_83 Start: 46790, Stop: 46572, Start Num: 52

Candidate Starts for SaturnRing\_83:

(19, 46952), (Start: 52 @46790 has 112 MA's), (58, 46766), (62, 46736), (64, 46727), (80, 46580),

Gene: Scout\_81 Start: 45971, Stop: 45753, Start Num: 52

Candidate Starts for Scout\_81:

(19, 46133), (24, 46109), (Start: 52 @45971 has 112 MA's), (58, 45947), (62, 45917), (64, 45908), (80, 45761),

Gene: SemperFi\_80 Start: 46987, Stop: 46715, Start Num: 40

Candidate Starts for SemperFi\_80:

(14, 47176), (15, 47143), (31, 47044), (38, 47005), (Start: 40 @46987 has 52 MA's), (Start: 52 @46948 has 112 MA's), (62, 46894),

Gene: Serenity\_83 Start: 46222, Stop: 46016, Start Num: 57

Candidate Starts for Serenity\_83:

(56, 46225), (Start: 57 @46222 has 3 MA's), (64, 46174), (68, 46123),

Gene: Sham4\_77 Start: 44640, Stop: 44410, Start Num: 48

Candidate Starts for Sham4\_77:

(Start: 46 @44643 has 18 MA's), (Start: 48 @44640 has 13 MA's), (62, 44571),

Gene: Sknot\_80 Start: 46598, Stop: 46359, Start Num: 40

Candidate Starts for Sknot\_80:

(31, 46655), (38, 46616), (Start: 40 @46598 has 52 MA's), (41, 46592), (62, 46538), (65, 46514),

Gene: Smeagan\_83 Start: 47535, Stop: 47269, Start Num: 40

Candidate Starts for Smeagan\_83:

(6, 47832), (14, 47724), (31, 47592), (38, 47553), (Start: 40 @47535 has 52 MA's), (51, 47505), (Start: 52 @47502 has 112 MA's), (61, 47466), (62, 47448),

Gene: SnapTap\_80 Start: 46958, Stop: 46686, Start Num: 40

Candidate Starts for SnapTap\_80:

(14, 47147), (15, 47114), (31, 47015), (38, 46976), (Start: 40 @46958 has 52 MA's), (Start: 52 @46919 has 112 MA's), (62, 46865),

Gene: Snape\_81 Start: 45750, Stop: 45520, Start Num: 48

Candidate Starts for Snape\_81:

(Start: 46 @45753 has 18 MA's), (Start: 48 @45750 has 13 MA's), (62, 45681),

Gene: Snickers\_82 Start: 46012, Stop: 45779, Start Num: 52

Candidate Starts for Snickers\_82:

(Start: 52 @46012 has 112 MA's), (58, 45988), (62, 45958), (64, 45949), (76, 45826),

Gene: SoYo\_79 Start: 45955, Stop: 45722, Start Num: 52

Candidate Starts for SoYo\_79:

(Start: 52 @45955 has 112 MA's), (58, 45931), (62, 45901), (64, 45892), (76, 45769),

Gene: SoilDragon\_82 Start: 45482, Stop: 45249, Start Num: 52

Candidate Starts for SoilDragon\_82:

(Start: 52 @45482 has 112 MA's), (58, 45458), (62, 45428), (64, 45419),

Gene: Soshari\_84 Start: 46063, Stop: 45830, Start Num: 52

Candidate Starts for Soshari\_84:

(Start: 52 @46063 has 112 MA's), (58, 46039), (62, 46009), (64, 46000), (76, 45877),

Gene: Spike509\_82 Start: 46064, Stop: 45831, Start Num: 52

Candidate Starts for Spike509\_82:

(Start: 52 @46064 has 112 MA's), (58, 46040), (62, 46010), (64, 46001), (76, 45878),

Gene: Stagni\_79 Start: 46042, Stop: 45809, Start Num: 52

Candidate Starts for Stagni\_79:

(Start: 52 @46042 has 112 MA's), (58, 46018), (62, 45988), (64, 45979), (76, 45856),

Gene: StarStuff\_81 Start: 46823, Stop: 46593, Start Num: 46

Candidate Starts for StarStuff\_81:

(7, 47138), (25, 46937), (28, 46928), (Start: 46 @46823 has 18 MA's), (62, 46769), (71, 46682), (76, 46640),

Gene: StepMih\_82 Start: 46033, Stop: 45800, Start Num: 52

Candidate Starts for StepMih\_82:

(Start: 52 @46033 has 112 MA's), (58, 46009), (62, 45979), (64, 45970), (76, 45847),

Gene: Stephig9\_87 Start: 47239, Stop: 47000, Start Num: 39

Candidate Starts for Stephig9\_87:

(Start: 39 @47239 has 5 MA's), (42, 47224), (Start: 54 @47209 has 1 MA's), (Start: 57 @47200 has 3 MA's), (66, 47107), (70, 47086), (71, 47083), (72, 47062), (74, 47053), (80, 47017),

Gene: Superchunk\_82 Start: 46315, Stop: 46109, Start Num: 59

Candidate Starts for Superchunk\_82:

(25, 46444), (Start: 46 @46330 has 18 MA's), (Start: 59 @46315 has 1 MA's),

Gene: SweetiePie\_80 Start: 47051, Stop: 46818, Start Num: 52

Candidate Starts for SweetiePie\_80:

(Start: 52 @47051 has 112 MA's), (62, 46997),

Gene: TNguyen7\_83 Start: 46748, Stop: 46530, Start Num: 52

Candidate Starts for TNguyen7\_83:

(19, 46910), (Start: 52 @46748 has 112 MA's), (58, 46724), (62, 46694), (64, 46685), (80, 46538),

Gene: TarsusIV\_80 Start: 47106, Stop: 46870, Start Num: 47

Candidate Starts for TarsusIV\_80:

(1, 47595), (2, 47577), (4, 47478), (9, 47394), (16, 47283), (23, 47226), (33, 47175), (Start: 47 @47106 has 2 MA's), (Start: 52 @47100 has 112 MA's), (Start: 54 @47094 has 1 MA's), (Start: 57 @47085 has 3 MA's), (62, 47046), (71, 46959), (76, 46917),

Gene: Taurus\_83 Start: 46042, Stop: 45809, Start Num: 52

Candidate Starts for Taurus\_83:

(Start: 52 @46042 has 112 MA's), (58, 46018), (62, 45988), (64, 45979), (76, 45856),

Gene: Terrific\_81 Start: 46566, Stop: 46333, Start Num: 41

Candidate Starts for Terrific\_81:

(14, 46761), (31, 46629), (38, 46590), (Start: 40 @46572 has 52 MA's), (41, 46566), (62, 46512), (65, 46488), (78, 46368),

Gene: Texage\_80 Start: 46744, Stop: 46526, Start Num: 52

Candidate Starts for Texage\_80:

(Start: 52 @46744 has 112 MA's), (58, 46720), (62, 46690), (64, 46681), (65, 46666), (80, 46534),

Gene: Tiffany\_81 Start: 45927, Stop: 45694, Start Num: 52

Candidate Starts for Tiffany\_81:

(Start: 52 @45927 has 112 MA's), (58, 45903), (62, 45873), (64, 45864), (76, 45741),

Gene: Timothy\_81 Start: 45730, Stop: 45497, Start Num: 46  
Candidate Starts for Timothy\_81:  
(Start: 46 @45730 has 18 MA's), (Start: 48 @45727 has 13 MA's), (62, 45658),

Gene: TinyPebbles\_81 Start: 46071, Stop: 45838, Start Num: 52  
Candidate Starts for TinyPebbles\_81:  
(Start: 52 @46071 has 112 MA's), (58, 46047), (62, 46017), (64, 46008), (76, 45885),

Gene: TinyTimmy\_80 Start: 45459, Stop: 45226, Start Num: 46  
Candidate Starts for TinyTimmy\_80:  
(Start: 46 @45459 has 18 MA's), (Start: 48 @45456 has 13 MA's), (62, 45387),

Gene: TipsytheTRex\_79 Start: 46224, Stop: 46018, Start Num: 57  
Candidate Starts for TipsytheTRex\_79:  
(56, 46227), (Start: 57 @46224 has 3 MA's), (64, 46176), (68, 46125),

Gene: Todacoro\_82 Start: 46743, Stop: 46525, Start Num: 52  
Candidate Starts for Todacoro\_82:  
(Start: 52 @46743 has 112 MA's), (58, 46719), (62, 46689), (64, 46680), (65, 46665), (80, 46533),

Gene: Tomathan\_81 Start: 46901, Stop: 46671, Start Num: 46  
Candidate Starts for Tomathan\_81:  
(7, 47216), (25, 47015), (28, 47006), (Start: 46 @46901 has 18 MA's), (62, 46847), (71, 46760), (76, 46718),

Gene: Travvers\_81 Start: 46818, Stop: 46588, Start Num: 46  
Candidate Starts for Travvers\_81:  
(7, 47133), (25, 46932), (28, 46923), (Start: 46 @46818 has 18 MA's), (62, 46764), (71, 46677), (76, 46635),

Gene: Trooper\_80 Start: 46666, Stop: 46427, Start Num: 49  
Candidate Starts for Trooper\_80:  
(Start: 49 @46666 has 1 MA's), (Start: 52 @46660 has 112 MA's), (Start: 57 @46645 has 3 MA's), (62, 46606), (76, 46474),

Gene: Turbido\_81 Start: 47256, Stop: 46990, Start Num: 40  
Candidate Starts for Turbido\_81:  
(14, 47445), (31, 47313), (38, 47274), (Start: 40 @47256 has 52 MA's), (51, 47226), (Start: 52 @47223 has 112 MA's), (61, 47187), (62, 47169),

Gene: Updawg\_81 Start: 46786, Stop: 46547, Start Num: 40  
Candidate Starts for Updawg\_81:  
(14, 46975), (31, 46843), (38, 46804), (Start: 40 @46786 has 52 MA's), (41, 46780), (62, 46726), (65, 46702),

Gene: VA6\_80 Start: 46834, Stop: 46562, Start Num: 40  
Candidate Starts for VA6\_80:  
(31, 46891), (32, 46882), (38, 46852), (Start: 40 @46834 has 52 MA's), (51, 46798), (Start: 52 @46795 has 112 MA's), (63, 46738),

Gene: VC3\_79 Start: 45726, Stop: 45514, Start Num: 53  
Candidate Starts for VC3\_79:

(7, 46038), (25, 45837), (28, 45828), (Start: 53 @45726 has 7 MA's), (Start: 59 @45714 has 1 MA's),

Gene: Veracruz\_79 Start: 46744, Stop: 46526, Start Num: 52

Candidate Starts for Veracruz\_79:

(Start: 52 @46744 has 112 MA's), (58, 46720), (62, 46690), (64, 46681), (65, 46666), (80, 46534),

Gene: Vix\_78 Start: 46122, Stop: 45889, Start Num: 52

Candidate Starts for Vix\_78:

(Start: 52 @46122 has 112 MA's), (58, 46098), (62, 46068), (64, 46059), (76, 45936),

Gene: Watson\_81 Start: 46031, Stop: 45798, Start Num: 52

Candidate Starts for Watson\_81:

(Start: 52 @46031 has 112 MA's), (58, 46007), (62, 45977), (64, 45968),

Gene: Whabigail7\_80 Start: 47254, Stop: 46988, Start Num: 40

Candidate Starts for Whabigail7\_80:

(14, 47443), (31, 47311), (38, 47272), (Start: 40 @47254 has 52 MA's), (51, 47224), (Start: 52 @47221 has 112 MA's), (61, 47185), (62, 47167),

Gene: WideWale\_81 Start: 46786, Stop: 46547, Start Num: 40

Candidate Starts for WideWale\_81:

(14, 46975), (31, 46843), (38, 46804), (Start: 40 @46786 has 52 MA's), (41, 46780), (62, 46726), (65, 46702),

Gene: Wolpertinger\_80 Start: 45759, Stop: 45529, Start Num: 48

Candidate Starts for Wolpertinger\_80:

(Start: 46 @45762 has 18 MA's), (Start: 48 @45759 has 13 MA's), (62, 45690),

Gene: Wooldri\_84 Start: 45948, Stop: 45715, Start Num: 52

Candidate Starts for Wooldri\_84:

(Start: 52 @45948 has 112 MA's), (58, 45924), (62, 45894), (64, 45885), (76, 45762),

Gene: XianYue\_79 Start: 47118, Stop: 46879, Start Num: 45

Candidate Starts for XianYue\_79:

(25, 47229), (Start: 45 @47118 has 1 MA's), (Start: 47 @47112 has 2 MA's), (62, 47058), (76, 46926),

Gene: Zarafa\_79 Start: 46732, Stop: 46514, Start Num: 52

Candidate Starts for Zarafa\_79:

(Start: 52 @46732 has 112 MA's), (58, 46708), (62, 46678), (64, 46669), (80, 46522),