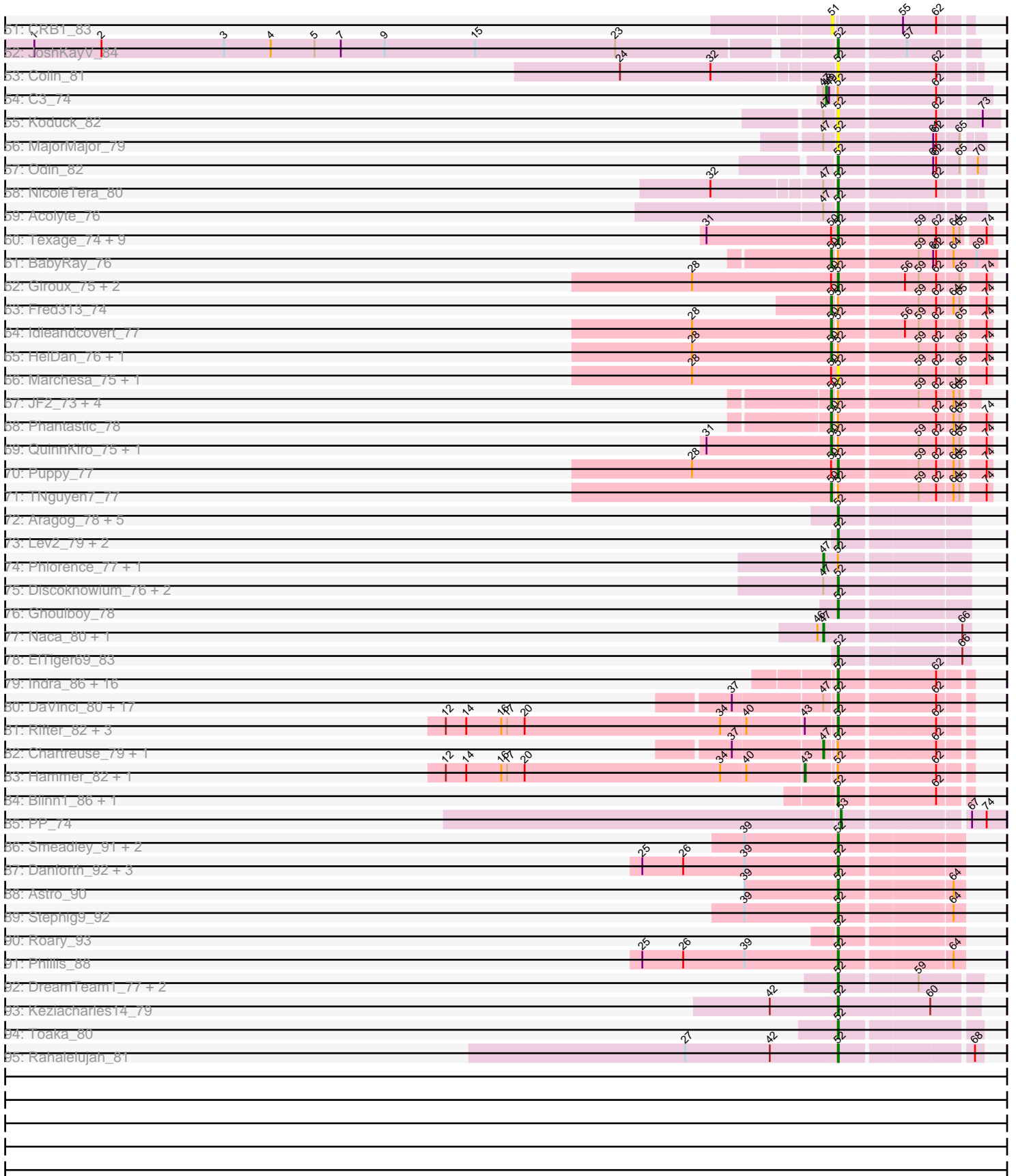


Pham 219378



Pham 219378



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 219378 Report

This analysis was run 03/28/25 on database version 593.

Pham number 219378 has 241 members, 30 are drafts.

Phages represented in each track:

- Track 1 : Chargerpower\_80
- Track 2 : Aneem\_84, Bachome\_81, Mulciber\_81, MaCh\_83, Jabith\_82, Bowtie\_80, Gilberta\_80, Bud\_78, Munch\_83, Joselito\_82, Orange\_83, Petersenfast\_77
- Track 3 : Flaverint\_84, TinyTimmy\_81, Et2Brutus\_82, Salz\_78, Lucivia\_84, Timothy\_83, Fibonacci\_82, Ebony\_83, Snape\_83, Mabel\_83
- Track 4 : Sham4\_79, Insomnia\_82
- Track 5 : Hutc2\_79
- Track 6 : DarthPhader\_76
- Track 7 : Zimmer\_78
- Track 8 : 40AC\_77
- Track 9 : Kimona\_73
- Track 10 : Power\_82, DudeLittle\_80, SnapTap\_82, Georgie2\_84, Retro23\_82, SweetiePie\_82, FiringLine\_82, QueenBeesly\_82, SemperFi\_82
- Track 11 : Superchunk\_83, Caraxes\_84
- Track 12 : Lokk\_77, Rachaly\_79
- Track 13 : Fameo\_80, Heffalump\_79, QueenB2\_79
- Track 14 : Larenn\_80, Malec\_81
- Track 15 : LilTurb\_83, Jerm\_84, AbbyPaige\_84, Anselm\_83, Turbido\_83, Agape74\_84, Dignity\_84, Smeagan\_85, Leviathan\_84
- Track 16 : Ph8s\_84, Adzzy\_84
- Track 17 : Duplo\_83
- Track 18 : Piro94\_81, Drake55\_83, HarryHoudini\_82, NaSiaTalie\_83, WideWale\_83, Flare16\_82, Baehexic\_81, Equemioh13\_82, MiculUcigas\_82, Terrific\_83, Updawg\_83, Centaur\_82
- Track 19 : L5\_75
- Track 20 : AN9\_81, VC3\_80, ANI8\_81
- Track 21 : First\_0083, VA6\_82, 20ES\_84, AN3\_82
- Track 22 : Trixie\_82
- Track 23 : MissWhite\_75
- Track 24 : Kerberos\_82, DBQu4n\_82, Travvers\_82, Pomar16\_82, StarStuff\_82
- Track 25 : Whabigail7\_82
- Track 26 : KingCyrus\_81, EvilGenius\_82, ChipMunk\_83
- Track 27 : LionsBait\_81
- Track 28 : Quokka\_84, Bradman\_85
- Track 29 : Iwokeuplikedis\_84
- Track 30 : Serenity\_85, TipsytheTRex\_81
- Track 31 : Kalpine\_84

- Track 32 : Benvolio\_81, Echild\_84
- Track 33 : BengiVuitton\_82
- Track 34 : Deloris\_82
- Track 35 : SwirlSquare\_86
- Track 36 : BobSwaget\_76, Miko\_77
- Track 37 : Loser\_85
- Track 38 : EZMoney23\_78
- Track 39 : LadyBird\_86
- Track 40 : Che12\_85
- Track 41 : Jsquared\_86
- Track 42 : Gratitude\_80, Sknot\_82
- Track 43 : BiancaTri92\_79
- Track 44 : AnnaL29\_84
- Track 45 : WeiHuaDA\_84
- Track 46 : Tomathan\_82
- Track 47 : Crucio\_82, Dalmatian\_82
- Track 48 : RedRock\_82
- Track 49 : Herbertwm\_76
- Track 50 : XianYue\_80
- Track 51 : CRB1\_83
- Track 52 : JoshKayV\_84
- Track 53 : Colin\_81
- Track 54 : C3\_74
- Track 55 : Koduck\_82
- Track 56 : MajorMajor\_79
- Track 57 : Odin\_82
- Track 58 : NicoleTera\_80
- Track 59 : Acolyte\_76
- Track 60 : Texage\_74, Popcicle\_76, Pocahontas\_75, Veracruz\_73, Noella\_77, ResDef\_74, Lambert1\_76, Hookmount\_76, Margo\_76, Todacoro\_76
- Track 61 : BabyRay\_76
- Track 62 : Giroux\_75, BlueBird\_79, Pistachio\_77
- Track 63 : Fred313\_74
- Track 64 : Idleandcovert\_77
- Track 65 : HelDan\_76, Scout\_75
- Track 66 : Marchesa\_75, DropBear\_74
- Track 67 : JF2\_73, Isca\_73, JF4\_73, B1\_67, MA5\_75
- Track 68 : Phantastic\_78
- Track 69 : QuinnKiro\_75, Norbert\_72
- Track 70 : Puppy\_77
- Track 71 : TNguyen7\_77
- Track 72 : Aragog\_78, PickleBack\_79, ForGetIt\_79, Micasa\_79, Prin Ashe11\_77, Tarynearal\_78
- Track 73 : Lev2\_79, Bonamassa\_79, Twigg\_77
- Track 74 : Phlorence\_77, AgentM\_78
- Track 75 : Discoknowium\_76, Conspiracy\_79, Tiger\_77
- Track 76 : Ghouboy\_78
- Track 77 : Naca\_80, PetterN\_85
- Track 78 : EITiger69\_83
- Track 79 : Indra\_86, Zulu\_84, Zaka\_83, ToneTone\_80, Artemis2UCLA\_82, Yokurt\_82, Koko\_84, Tucker\_83, Roksolana\_83, WunderPhul\_83, Blue7\_84, BlessJoy\_82, Lilbunny\_82, Garak\_84, Temprado\_84, Helmet\_84, Wiks\_82

- Track 80 : DaVinci\_80, Cookiedough\_82, McFly\_82, Hoot\_77, Kazan\_83, VohminGhazi\_82, Jordennis\_80, SuperAwesome\_82, Candra\_80, Isiphiwo\_79, SmellyB\_82, Neeharika16\_81, BABullseye\_75, EricB\_81, Newrala\_81, Kipper29\_82, Dorothea\_82, Pmask\_81
- Track 81 : Rifter\_82, Hexamo\_81, Gruunaga\_81, Gladiator\_78
- Track 82 : Chartreuse\_79, SuperCallie99\_79
- Track 83 : Hammer\_82, CloudWang3\_82
- Track 84 : Blinn1\_86, Priamo\_84
- Track 85 : PP\_74
- Track 86 : Smeadley\_91, Groundhog\_88, Expelliarmus\_88
- Track 87 : Danforth\_92, Dixon\_90, Saintus\_86, NearlyHeadless\_92
- Track 88 : Astro\_90
- Track 89 : Stephig9\_92
- Track 90 : Roary\_93
- Track 91 : Phillis\_88
- Track 92 : DreamTeam1\_77, Charm\_77, SheaKeira\_77
- Track 93 : Keziacharles14\_79
- Track 94 : Toaka\_80
- Track 95 : Rahalelujah\_81

***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 169 of the 211 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 20ES\_84, AN3\_82, AN9\_81, ANI8\_81, AbbyPaige\_84, Acolyte\_76, Adzzy\_84, Agape74\_84, Aneem\_84, AnnaL29\_84, Anselm\_83, Aragog\_78, Artemis2UCLA\_82, Astro\_90, BABullseye\_75, Bachome\_81, Baehexic\_81, BengiVuitton\_82, Benvolio\_81, BiancaTri92\_79, BlessJoy\_82, Blinn1\_86, Blue7\_84, BlueBird\_79, BobSwaget\_76, Bonamassa\_79, Bowtie\_80, Bud\_78, Candra\_80, Caraxes\_84, Centaur\_82, Chargerpower\_80, Charm\_77, Che12\_85, ChipMunk\_83, Colin\_81, Conspiracy\_79, Cookiedough\_82, Crucio\_82, DaVinci\_80, Dalmatian\_82, Danforth\_92, DarthPhader\_76, Deloris\_82, Dignity\_84, Discoknowium\_76, Dixon\_90, Dorothea\_82, Drake55\_83, DreamTeam1\_77, DropBear\_74, DudeLittle\_80, Duplo\_83, EZMoney23\_78, Echild\_84, ElTiger69\_83, Equemioh13\_82, EricB\_81, EvilGenius\_82, Expelliarmus\_88, Fameo\_80, FiringLine\_82, First\_0083, Flare16\_82, ForGetIt\_79, Garak\_84, Georgie2\_84, Ghoulyboy\_78, Gilberta\_80, Giroux\_75, Gladiator\_78, Groundhog\_88, Gruunaga\_81, HarryHoudini\_82, Heffalump\_79, Helmet\_84, Herbertwm\_76, Hexamo\_81, Hookmount\_76, Hoot\_77, Indra\_86, Isiphiwo\_79, Iwokeuplikedis\_84, Jabith\_82, Jerm\_84, Jordennis\_80, Joselito\_82, JoshKayV\_84, Jsquared\_86, Kalpine\_84, Kazan\_83, Keziacharles14\_79, Kimona\_73, KingCyrus\_81, Kipper29\_82, Koduck\_82, Koko\_84, L5\_75, LadyBird\_86, Lambert1\_76, Larenn\_80, Lev2\_79, Leviathan\_84, LilTurb\_83, Lilbunny\_82, LionsBait\_81, Lokk\_77, Loser\_85, MaCh\_83, MajorMajor\_79, Malec\_81, Marchesa\_75, Margo\_76, McFly\_82, Micasa\_79, MiculUcigas\_82, Miko\_77, Mulciber\_81, Munch\_83, NaSiaTalie\_83, NearlyHeadless\_92, Neeharika16\_81, Newrala\_81, NicoleTera\_80, Noella\_77, Odin\_82, Orange\_83, Petersenfast\_77, Ph8s\_84, Phillis\_88, PickleBack\_79, Piro94\_81, Pistachio\_77, Pmask\_81, Pocahontas\_75, Popcicle\_76, Power\_82, Priamo\_84, Prinashe11\_77, Puppy\_77,

QueenB2\_79, QueenBeesly\_82, Rachaly\_79, Rahalelujah\_81, RedRock\_82, ResDef\_74, Retro23\_82, Rifter\_82, Roary\_93, Roksolana\_83, Saintus\_86, SemperFi\_82, Serenity\_85, SheaKeira\_77, Smeadley\_91, Smeagan\_85, SmellyB\_82, SnapTap\_82, Stephig9\_92, SuperAwesome\_82, Superchunk\_83, SweetiePie\_82, SwirlSquare\_86, Tarynearal\_78, Temprado\_84, Terrific\_83, Texage\_74, Tiger\_77, TipsytheTRex\_81, Toaka\_80, Todacoro\_76, ToneTone\_80, Trixie\_82, Tucker\_83, Turbido\_83, Twigg\_77, Updawg\_83, VA6\_82, VC3\_80, Veracruz\_73, VohminGhazi\_82, WeiHuaDA\_84, Whabigail7\_82, WideWale\_83, Wiks\_82, WunderPhul\_83, XianYue\_80, Yokurt\_82, Zaka\_83, Zimmer\_78, Zulu\_84,

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

- AgentM\_78, B1\_67, BabyRay\_76, Bradman\_85, C3\_74, Chartreuse\_79, CloudWang3\_82, DBQu4n\_82, Ebony\_83, Et2Brutus\_82, Fibonacci\_82, Flaverint\_84, Fred313\_74, Gratitude\_80, Hammer\_82, HelDan\_76, Hutc2\_79, Idleandcovert\_77, Insomnia\_82, Isca\_73, JF2\_73, JF4\_73, Kerberos\_82, Lucivia\_84, MA5\_75, Mabel\_83, MissWhite\_75, Norbert\_72, Phantastic\_78, Phlorence\_77, Pomar16\_82, QuinnKiro\_75, Quokka\_84, Salz\_78, Scout\_75, Sham4\_79, Sknot\_82, Snape\_83, StarStuff\_82, SuperCallie99\_79, TNguyen7\_77, Timothy\_83, TinyTimmy\_81, Tomathan\_82, Travvers\_82,

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

- 40AC\_77, CRB1\_83, Naca\_80, PP\_74, PetterN\_85,

### Summary by start number:

Start 43:

- Found in 6 of 241 ( 2.5% ) of genes in pham
- Manual Annotations of this start: 2 of 211
- Called 33.3% of time when present
- Phage (with cluster) where this start called: CloudWang3\_82 (A6), Hammer\_82 (A6),

Start 47:

- Found in 101 of 241 ( 41.9% ) of genes in pham
- Manual Annotations of this start: 6 of 211
- Called 11.9% of time when present
- Phage (with cluster) where this start called: 40AC\_77 (A17), AgentM\_78 (A5), Bradman\_85 (A2), Chartreuse\_79 (A6), Gratitude\_80 (A2), Hutc2\_79 (A11), Naca\_80 (A5), PetterN\_85 (A5), Phlorence\_77 (A5), Quokka\_84 (A2), Sknot\_82 (A2), SuperCallie99\_79 (A6),

Start 48:

- Found in 37 of 241 ( 15.4% ) of genes in pham
- Manual Annotations of this start: 3 of 211
- Called 8.1% of time when present
- Phage (with cluster) where this start called: C3\_74 (A2), MissWhite\_75 (A2), Tomathan\_82 (A2),

Start 49:

- Found in 38 of 241 ( 15.8% ) of genes in pham
- Manual Annotations of this start: 16 of 211
- Called 44.7% of time when present
- Phage (with cluster) where this start called: DBQu4n\_82 (A2), Ebony\_83 (A11), Et2Brutus\_82 (A11), Fibonacci\_82 (A11), Flaverint\_84 (A11), Insomnia\_82 (A11),

Kerberos\_82 (A2), Lucivia\_84 (A11), Mabel\_83 (A11), Pomar16\_82 (A2), Salz\_78 (A11), Sham4\_79 (A11), Snape\_83 (A11), StarStuff\_82 (A2), Timothy\_83 (A11), TinyTimmy\_81 (A11), Travvers\_82 (A2),

Start 50:

- Found in 31 of 241 ( 12.9% ) of genes in pham
- Manual Annotations of this start: 14 of 211
- Called 45.2% of time when present
- Phage (with cluster) where this start called: B1\_67 (A3), BabyRay\_76 (A3), Fred313\_74 (A3), HelDan\_76 (A3), Idleandcovert\_77 (A3), Isca\_73 (A3), JF2\_73 (A3), JF4\_73 (A3), MA5\_75 (A3), Norbert\_72 (A3), Phantastic\_78 (A3), QuinnKiro\_75 (A3), Scout\_75 (A3), TNguyen7\_77 (A3),

Start 51:

- Found in 1 of 241 ( 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: CRB1\_83 (A2),

Start 52:

- Found in 236 of 241 ( 97.9% ) of genes in pham
- Manual Annotations of this start: 169 of 211
- Called 80.9% of time when present
- Phage (with cluster) where this start called: 20ES\_84 (A2), AN3\_82 (A2), AN9\_81 (A2), AN18\_81 (A2), AbbyPaige\_84 (A2), Acolyte\_76 (A2), Adzzy\_84 (A2), Agape74\_84 (A2), Aneem\_84 (A11), AnnaL29\_84 (A2), Anselm\_83 (A2), Aragog\_78 (A5), Artemis2UCLA\_82 (A6), Astro\_90 (A8), BABullseye\_75 (A6), Bachome\_81 (A11), Baehexic\_81 (A2), BengiVuitton\_82 (A2), Benvolio\_81 (A2), BiancaTri92\_79 (A2), BlessJoy\_82 (A6), Blinn1\_86 (A6), Blue7\_84 (A6), BlueBird\_79 (A3), BobSwaget\_76 (A2), Bonamassa\_79 (A5), Bowtie\_80 (A11), Bud\_78 (A11), Candra\_80 (A6), Caraxes\_84 (A2), Centaur\_82 (A2), Chargerpower\_80 (A), Charm\_77 (A9), Che12\_85 (A2), ChipMunk\_83 (A2), Colin\_81 (A2), Conspiracy\_79 (A5), Cookiedough\_82 (A6), Crucio\_82 (A2), DaVinci\_80 (A6), Dalmatian\_82 (A2), Danforth\_92 (A8), DarthPhader\_76 (A12), Deloris\_82 (A2), Dignity\_84 (A2), Discoknowium\_76 (A5), Dixon\_90 (A8), Dorothea\_82 (A6), Drake55\_83 (A2), DreamTeam1\_77 (A9), DropBear\_74 (A3), DudeLittle\_80 (A2), Duplo\_83 (A2), EZMoney23\_78 (A2), Echild\_84 (A2), EITiger69\_83 (A5), Equemioh13\_82 (A2), EricB\_81 (A6), EvilGenius\_82 (A2), Expelliarmus\_88 (A8), Fameo\_80 (A2), FiringLine\_82 (A2), First\_0083 (A2), Flare16\_82 (A2), ForGetIt\_79 (A5), Garak\_84 (A6), Georgie2\_84 (A2), Ghoulboy\_78 (A5), Gilberta\_80 (A11), Giroux\_75 (A3), Gladiator\_78 (A6), Groundhog\_88 (A8), Gruunaga\_81 (A6), HarryHoudini\_82 (A2), Heffalump\_79 (A2), Helmet\_84 (A6), Herbertwm\_76 (A2), Hexamo\_81 (A6), Hookmount\_76 (A3), Hoot\_77 (A6), Indra\_86 (A6), Isiphiwo\_79 (A6), Iwokeuplikedis\_84 (A2), Jabith\_82 (A11), Jerm\_84 (A2), Jordennis\_80 (A6), Joselito\_82 (A11), JoshKayV\_84 (A2), Jsquared\_86 (A2), Kalpine\_84 (A2), Kazan\_83 (A6), Keziacharles14\_79 (A9), Kimona\_73 (A19), KingCyrus\_81 (A2), Kipper29\_82 (A6), Koduck\_82 (A2), Koko\_84 (A6), L5\_75 (A2), LadyBird\_86 (A2), Lambert1\_76 (A3), Larenn\_80 (A2), Lev2\_79 (A5), Leviathan\_84 (A2), LilTurb\_83 (A2), Lilbunny\_82 (A6), LionsBait\_81 (A2), Lokk\_77 (A2), Loser\_85 (A2), MaCh\_83 (A11), MajorMajor\_79 (A2), Malec\_81 (A2), Marchesa\_75 (A3), Margo\_76 (A3), McFly\_82 (A6), Micasa\_79 (A5), MiculUcigas\_82 (A2), Miko\_77 (A2), Mulciber\_81 (A11), Munch\_83 (A11), NaSiaTalie\_83 (A2), NearlyHeadless\_92 (A8), Neeharika16\_81 (A6), Newrala\_81 (A6), NicoleTera\_80 (A2), Noella\_77 (A3), Odin\_82 (A2),

Orange\_83 (A11), Petersenfast\_77 (A11), Ph8s\_84 (A2), Phillis\_88 (A8), PickleBack\_79 (A5), Piro94\_81 (A2), Pistachio\_77 (A3), Pmask\_81 (A6), Pocahontas\_75 (A3), Popcicle\_76 (A3), Power\_82 (A2), Priamo\_84 (A6), Prinash11\_77 (A5), Puppy\_77 (A3), QueenB2\_79 (A2), QueenBeesly\_82 (A2), Rachaly\_79 (A2), Rahalelujah\_81 (A9), RedRock\_82 (A2), ResDef\_74 (A3), Retro23\_82 (A2), Rifter\_82 (A6), Roary\_93 (A8), Roksolana\_83 (A6), Saintus\_86 (A8), SemperFi\_82 (A2), Serenity\_85 (A2), SheaKeira\_77 (A9), Smeadley\_91 (A8), Smeagan\_85 (A2), SmellyB\_82 (A6), SnapTap\_82 (A2), Stephig9\_92 (A8), SuperAwesome\_82 (A6), Superchunk\_83 (A2), SweetiePie\_82 (A2), SwirlSquare\_86 (A2), Tarynearal\_78 (A5), Temprado\_84 (A6), Terrific\_83 (A2), Texage\_74 (A3), Tiger\_77 (A5), TopsytheTRex\_81 (A2), Toaka\_80 (A9), Todacoro\_76 (A3), ToneTone\_80 (A6), Trixie\_82 (A2), Tucker\_83 (A6), Turbido\_83 (A2), Twigg\_77 (A5), Updawg\_83 (A2), VA6\_82 (A2), VC3\_80 (A2), Veracruz\_73 (A3), VohminGhazi\_82 (A6), WeiHuaDA\_84 (A2), Whabigail7\_82 (A2), WideWale\_83 (A2), Wiks\_82 (A6), WunderPhul\_83 (A6), XianYue\_80 (A2), Yokurt\_82 (A6), Zaka\_83 (A6), Zimmer\_78 (A12), Zulu\_84 (A6),

Start 53:

- Found in 15 of 241 ( 6.2% ) of genes in pham
- Manual Annotations of this start: 1 of 211
- Called 6.7% of time when present
- Phage (with cluster) where this start called: PP\_74 (A7),

### Summary by clusters:

There are 12 clusters represented in this pham: A, A17, A11, A12, A19, A3, A2, A5, A7, A6, A9, A8,

Info for manual annotations of cluster A:

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

Info for manual annotations of cluster A11:

- Start number 47 was manually annotated 1 time for cluster A11.
- Start number 49 was manually annotated 12 times for cluster A11.
- Start number 52 was manually annotated 11 times for cluster A11.

Info for manual annotations of cluster A12:

- Start number 52 was manually annotated 2 times for cluster A12.

Info for manual annotations of cluster A19:

- Start number 52 was manually annotated 1 time for cluster A19.

Info for manual annotations of cluster A2:

- Start number 48 was manually annotated 3 times for cluster A2.
- Start number 49 was manually annotated 4 times for cluster A2.
- Start number 52 was manually annotated 76 times for cluster A2.

Info for manual annotations of cluster A3:

- Start number 50 was manually annotated 14 times for cluster A3.
- Start number 52 was manually annotated 13 times for cluster A3.

Info for manual annotations of cluster A5:



- Start number 47 was manually annotated 4 times for cluster A5.
- Start number 52 was manually annotated 12 times for cluster A5.

Info for manual annotations of cluster A6:

- Start number 43 was manually annotated 2 times for cluster A6.
- Start number 47 was manually annotated 1 time for cluster A6.
- Start number 52 was manually annotated 36 times for cluster A6.

Info for manual annotations of cluster A7:

- Start number 53 was manually annotated 1 time for cluster A7.

Info for manual annotations of cluster A8:

- Start number 52 was manually annotated 11 times for cluster A8.

Info for manual annotations of cluster A9:

- Start number 52 was manually annotated 6 times for cluster A9.

### **Gene Information:**

Gene: 20ES\_84 Start: 47398, Stop: 47276, Start Num: 52

Candidate Starts for 20ES\_84:

(Start: 52 @47398 has 169 MA's),

Gene: 40AC\_77 Start: 46818, Stop: 46687, Start Num: 47

Candidate Starts for 40AC\_77:

(Start: 47 @46818 has 6 MA's), (62, 46716),

Gene: AN3\_82 Start: 45603, Stop: 45481, Start Num: 52

Candidate Starts for AN3\_82:

(Start: 52 @45603 has 169 MA's),

Gene: AN9\_81 Start: 45854, Stop: 45714, Start Num: 52

Candidate Starts for AN9\_81:

(Start: 47 @45866 has 6 MA's), (Start: 48 @45863 has 3 MA's), (Start: 49 @45860 has 16 MA's),  
(Start: 52 @45854 has 169 MA's), (62, 45761),

Gene: ANI8\_81 Start: 45854, Stop: 45714, Start Num: 52

Candidate Starts for ANI8\_81:

(Start: 47 @45866 has 6 MA's), (Start: 48 @45863 has 3 MA's), (Start: 49 @45860 has 16 MA's),  
(Start: 52 @45854 has 169 MA's), (62, 45761),

Gene: AbbyPaige\_84 Start: 47670, Stop: 47542, Start Num: 52

Candidate Starts for AbbyPaige\_84:

(Start: 52 @47670 has 169 MA's), (57, 47607),

Gene: Acolyte\_76 Start: 46365, Stop: 46234, Start Num: 52

Candidate Starts for Acolyte\_76:

(Start: 47 @46377 has 6 MA's), (Start: 52 @46365 has 169 MA's),

Gene: Adzzy\_84 Start: 46503, Stop: 46375, Start Num: 52

Candidate Starts for Adzzy\_84:

(Start: 52 @46503 has 169 MA's), (62, 46410),

Gene: Agape74\_84 Start: 47646, Stop: 47518, Start Num: 52

Candidate Starts for Agape74\_84:

(Start: 52 @47646 has 169 MA's), (57, 47583),

Gene: AgentM\_78 Start: 46275, Stop: 46135, Start Num: 47

Candidate Starts for AgentM\_78:

(Start: 47 @46275 has 6 MA's), (Start: 52 @46260 has 169 MA's),

Gene: Aneem\_84 Start: 46539, Stop: 46411, Start Num: 52

Candidate Starts for Aneem\_84:

(29, 46683), (Start: 47 @46554 has 6 MA's), (Start: 48 @46551 has 3 MA's), (Start: 49 @46548 has 16 MA's), (Start: 52 @46539 has 169 MA's), (62, 46446),

Gene: AnnaL29\_84 Start: 47815, Stop: 47681, Start Num: 52

Candidate Starts for AnnaL29\_84:

(Start: 47 @47827 has 6 MA's), (Start: 52 @47815 has 169 MA's), (62, 47722),

Gene: Anselm\_83 Start: 47560, Stop: 47429, Start Num: 52

Candidate Starts for Anselm\_83:

(Start: 52 @47560 has 169 MA's), (57, 47497),

Gene: Aragog\_78 Start: 46278, Stop: 46153, Start Num: 52

Candidate Starts for Aragog\_78:

(Start: 52 @46278 has 169 MA's),

Gene: Artemis2UCLA\_82 Start: 45219, Stop: 45097, Start Num: 52

Candidate Starts for Artemis2UCLA\_82:

(Start: 52 @45219 has 169 MA's), (62, 45126),

Gene: Astro\_90 Start: 47879, Stop: 47760, Start Num: 52

Candidate Starts for Astro\_90:

(39, 47975), (Start: 52 @47879 has 169 MA's), (64, 47771),

Gene: B1\_67 Start: 43400, Stop: 43269, Start Num: 50

Candidate Starts for B1\_67:

(Start: 50 @43400 has 14 MA's), (Start: 52 @43397 has 169 MA's), (59, 43322), (62, 43304), (64, 43289), (65, 43283),

Gene: BABullseye\_75 Start: 43608, Stop: 43486, Start Num: 52

Candidate Starts for BABullseye\_75:

(37, 43704), (Start: 47 @43617 has 6 MA's), (Start: 52 @43608 has 169 MA's), (62, 43515),

Gene: BabyRay\_76 Start: 45160, Stop: 45005, Start Num: 50

Candidate Starts for BabyRay\_76:

(Start: 50 @45160 has 14 MA's), (Start: 52 @45157 has 169 MA's), (59, 45082), (61, 45067), (62, 45064), (64, 45049), (69, 45025),

Gene: Bachome\_81 Start: 45419, Stop: 45291, Start Num: 52

Candidate Starts for Bachome\_81:

(29, 45563), (Start: 47 @45434 has 6 MA's), (Start: 48 @45431 has 3 MA's), (Start: 49 @45428 has 16 MA's), (Start: 52 @45419 has 169 MA's), (62, 45326),

Gene: Baehexic\_81 Start: 47034, Stop: 46903, Start Num: 52

Candidate Starts for Baehexic\_81:

(Start: 47 @47046 has 6 MA's), (Start: 52 @47034 has 169 MA's), (Start: 53 @47031 has 1 MA's), (59, 46959), (64, 46926), (70, 46908),

Gene: BengiVuitton\_82 Start: 47211, Stop: 47089, Start Num: 52

Candidate Starts for BengiVuitton\_82:

(Start: 52 @47211 has 169 MA's),

Gene: Benvolio\_81 Start: 47231, Stop: 47103, Start Num: 52

Candidate Starts for Benvolio\_81:

(Start: 52 @47231 has 169 MA's), (59, 47156),

Gene: BiancaTri92\_79 Start: 46873, Stop: 46751, Start Num: 52

Candidate Starts for BiancaTri92\_79:

(10, 47317), (41, 46936), (Start: 52 @46873 has 169 MA's), (62, 46780),

Gene: BlessJoy\_82 Start: 45740, Stop: 45618, Start Num: 52

Candidate Starts for BlessJoy\_82:

(Start: 52 @45740 has 169 MA's), (62, 45647),

Gene: Blinn1\_86 Start: 46263, Stop: 46141, Start Num: 52

Candidate Starts for Blinn1\_86:

(Start: 52 @46263 has 169 MA's), (62, 46170),

Gene: Blue7\_84 Start: 45438, Stop: 45316, Start Num: 52

Candidate Starts for Blue7\_84:

(Start: 52 @45438 has 169 MA's), (62, 45345),

Gene: BlueBird\_79 Start: 45381, Stop: 45241, Start Num: 52

Candidate Starts for BlueBird\_79:

(28, 45525), (Start: 50 @45384 has 14 MA's), (Start: 52 @45381 has 169 MA's), (56, 45318), (59, 45306), (62, 45288), (65, 45267), (74, 45246),

Gene: BobSwaget\_76 Start: 45037, Stop: 44915, Start Num: 52

Candidate Starts for BobSwaget\_76:

(Start: 52 @45037 has 169 MA's), (59, 44962),

Gene: Bonamassa\_79 Start: 46599, Stop: 46474, Start Num: 52

Candidate Starts for Bonamassa\_79:

(Start: 52 @46599 has 169 MA's),

Gene: Bowtie\_80 Start: 45146, Stop: 45018, Start Num: 52

Candidate Starts for Bowtie\_80:

(29, 45290), (Start: 47 @45161 has 6 MA's), (Start: 48 @45158 has 3 MA's), (Start: 49 @45155 has 16 MA's), (Start: 52 @45146 has 169 MA's), (62, 45053),

Gene: Bradman\_85 Start: 46551, Stop: 46411, Start Num: 47

Candidate Starts for Bradman\_85:

(Start: 47 @46551 has 6 MA's), (Start: 52 @46539 has 169 MA's), (61, 46449), (62, 46446), (65, 46425),

Gene: Bud\_78 Start: 44976, Stop: 44848, Start Num: 52

Candidate Starts for Bud\_78:

(29, 45120), (Start: 47 @44991 has 6 MA's), (Start: 48 @44988 has 3 MA's), (Start: 49 @44985 has 16 MA's), (Start: 52 @44976 has 169 MA's), (62, 44883),

Gene: C3\_74 Start: 45863, Stop: 45714, Start Num: 48

Candidate Starts for C3\_74:

(Start: 47 @45866 has 6 MA's), (Start: 48 @45863 has 3 MA's), (Start: 49 @45860 has 16 MA's), (Start: 52 @45854 has 169 MA's), (62, 45761),

Gene: CRB1\_83 Start: 47654, Stop: 47532, Start Num: 51

Candidate Starts for CRB1\_83:

(51, 47654), (55, 47594), (62, 47561),

Gene: Candra\_80 Start: 45303, Stop: 45181, Start Num: 52

Candidate Starts for Candra\_80:

(37, 45399), (Start: 47 @45312 has 6 MA's), (Start: 52 @45303 has 169 MA's), (62, 45210),

Gene: Caraxes\_84 Start: 46461, Stop: 46327, Start Num: 52

Candidate Starts for Caraxes\_84:

(13, 46842), (19, 46773), (22, 46710), (Start: 52 @46461 has 169 MA's), (61, 46371), (62, 46368), (70, 46335),

Gene: Centaur\_82 Start: 46912, Stop: 46781, Start Num: 52

Candidate Starts for Centaur\_82:

(Start: 47 @46924 has 6 MA's), (Start: 52 @46912 has 169 MA's), (Start: 53 @46909 has 1 MA's), (59, 46837), (64, 46804), (70, 46786),

Gene: Chargerpower\_80 Start: 45411, Stop: 45283, Start Num: 52

Candidate Starts for Chargerpower\_80:

(Start: 52 @45411 has 169 MA's), (59, 45336),

Gene: Charm\_77 Start: 45481, Stop: 45350, Start Num: 52

Candidate Starts for Charm\_77:

(Start: 52 @45481 has 169 MA's), (59, 45406),

Gene: Chartreuse\_79 Start: 44623, Stop: 44492, Start Num: 47

Candidate Starts for Chartreuse\_79:

(37, 44710), (Start: 47 @44623 has 6 MA's), (Start: 52 @44614 has 169 MA's), (62, 44521),

Gene: Che12\_85 Start: 46581, Stop: 46453, Start Num: 52

Candidate Starts for Che12\_85:

(Start: 52 @46581 has 169 MA's), (58, 46512), (62, 46488),

Gene: ChipMunk\_83 Start: 48579, Stop: 48448, Start Num: 52

Candidate Starts for ChipMunk\_83:

(Start: 47 @48591 has 6 MA's), (Start: 52 @48579 has 169 MA's), (57, 48516),

Gene: CloudWang3\_82 Start: 45503, Stop: 45354, Start Num: 43

Candidate Starts for CloudWang3\_82:

(12, 45866), (14, 45845), (16, 45809), (17, 45803), (20, 45785), (34, 45584), (40, 45560), (Start: 43 @45503 has 2 MA's), (Start: 52 @45476 has 169 MA's), (62, 45383),

Gene: Colin\_81 Start: 47996, Stop: 47868, Start Num: 52  
Candidate Starts for Colin\_81:  
(24, 48206), (32, 48113), (Start: 52 @47996 has 169 MA's), (62, 47903),

Gene: Conspiracy\_79 Start: 46500, Stop: 46375, Start Num: 52  
Candidate Starts for Conspiracy\_79:  
(Start: 47 @46515 has 6 MA's), (Start: 52 @46500 has 169 MA's),

Gene: Cookiedough\_82 Start: 45921, Stop: 45799, Start Num: 52  
Candidate Starts for Cookiedough\_82:  
(37, 46017), (Start: 47 @45930 has 6 MA's), (Start: 52 @45921 has 169 MA's), (62, 45828),

Gene: Crucio\_82 Start: 47466, Stop: 47335, Start Num: 52  
Candidate Starts for Crucio\_82:  
(Start: 52 @47466 has 169 MA's), (57, 47403),

Gene: DBQu4n\_82 Start: 46905, Stop: 46765, Start Num: 49  
Candidate Starts for DBQu4n\_82:  
(29, 47025), (35, 46995), (Start: 47 @46911 has 6 MA's), (Start: 48 @46908 has 3 MA's), (Start: 49 @46905 has 16 MA's), (Start: 52 @46899 has 169 MA's), (62, 46806), (71, 46773),

Gene: DaVinci\_80 Start: 44668, Stop: 44546, Start Num: 52  
Candidate Starts for DaVinci\_80:  
(37, 44764), (Start: 47 @44677 has 6 MA's), (Start: 52 @44668 has 169 MA's), (62, 44575),

Gene: Dalmatian\_82 Start: 47291, Stop: 47160, Start Num: 52  
Candidate Starts for Dalmatian\_82:  
(Start: 52 @47291 has 169 MA's), (57, 47228),

Gene: Danforth\_92 Start: 48033, Stop: 47914, Start Num: 52  
Candidate Starts for Danforth\_92:  
(25, 48234), (26, 48192), (39, 48129), (Start: 52 @48033 has 169 MA's),

Gene: DarthPhader\_76 Start: 46568, Stop: 46434, Start Num: 52  
Candidate Starts for DarthPhader\_76:  
(33, 46697), (36, 46679), (Start: 52 @46568 has 169 MA's), (59, 46487), (65, 46448),

Gene: Deloris\_82 Start: 46907, Stop: 46785, Start Num: 52  
Candidate Starts for Deloris\_82:  
(Start: 52 @46907 has 169 MA's),

Gene: Dignity\_84 Start: 47753, Stop: 47625, Start Num: 52  
Candidate Starts for Dignity\_84:  
(Start: 52 @47753 has 169 MA's), (57, 47690),

Gene: Discoknowium\_76 Start: 46017, Stop: 45892, Start Num: 52  
Candidate Starts for Discoknowium\_76:  
(Start: 47 @46032 has 6 MA's), (Start: 52 @46017 has 169 MA's),

Gene: Dixon\_90 Start: 47438, Stop: 47319, Start Num: 52  
Candidate Starts for Dixon\_90:  
(25, 47639), (26, 47597), (39, 47534), (Start: 52 @47438 has 169 MA's),

Gene: Dorothea\_82 Start: 45914, Stop: 45792, Start Num: 52  
Candidate Starts for Dorothea\_82:  
(37, 46010), (Start: 47 @45923 has 6 MA's), (Start: 52 @45914 has 169 MA's), (62, 45821),

Gene: Drake55\_83 Start: 47163, Stop: 47032, Start Num: 52  
Candidate Starts for Drake55\_83:  
(Start: 47 @47175 has 6 MA's), (Start: 52 @47163 has 169 MA's), (Start: 53 @47160 has 1 MA's), (59, 47088), (64, 47055), (70, 47037),

Gene: DreamTeam1\_77 Start: 45329, Stop: 45198, Start Num: 52  
Candidate Starts for DreamTeam1\_77:  
(Start: 52 @45329 has 169 MA's), (59, 45254),

Gene: DropBear\_74 Start: 45305, Stop: 45165, Start Num: 52  
Candidate Starts for DropBear\_74:  
(28, 45449), (Start: 50 @45308 has 14 MA's), (Start: 52 @45305 has 169 MA's), (59, 45230), (62, 45212), (65, 45191), (74, 45170),

Gene: DudeLittle\_80 Start: 47060, Stop: 46932, Start Num: 52  
Candidate Starts for DudeLittle\_80:  
(Start: 52 @47060 has 169 MA's), (57, 46997),

Gene: Duplo\_83 Start: 46956, Stop: 46822, Start Num: 52  
Candidate Starts for Duplo\_83:  
(29, 47082), (35, 47052), (Start: 47 @46968 has 6 MA's), (Start: 48 @46965 has 3 MA's), (Start: 49 @46962 has 16 MA's), (Start: 52 @46956 has 169 MA's), (62, 46863), (71, 46830),

Gene: EZMoney23\_78 Start: 46625, Stop: 46476, Start Num: 52  
Candidate Starts for EZMoney23\_78:  
(Start: 52 @46625 has 169 MA's), (61, 46535), (62, 46532),

Gene: Ebony\_83 Start: 46119, Stop: 45982, Start Num: 49  
Candidate Starts for Ebony\_83:  
(29, 46254), (Start: 47 @46125 has 6 MA's), (Start: 48 @46122 has 3 MA's), (Start: 49 @46119 has 16 MA's), (Start: 52 @46110 has 169 MA's), (62, 46017),

Gene: Echild\_84 Start: 47255, Stop: 47127, Start Num: 52  
Candidate Starts for Echild\_84:  
(Start: 52 @47255 has 169 MA's), (59, 47180),

Gene: EITiger69\_83 Start: 46873, Stop: 46748, Start Num: 52  
Candidate Starts for EITiger69\_83:  
(Start: 52 @46873 has 169 MA's), (66, 46756),

Gene: Equemioh13\_82 Start: 47141, Stop: 47010, Start Num: 52  
Candidate Starts for Equemioh13\_82:  
(Start: 47 @47153 has 6 MA's), (Start: 52 @47141 has 169 MA's), (Start: 53 @47138 has 1 MA's), (59, 47066), (64, 47033), (70, 47015),

Gene: EricB\_81 Start: 45260, Stop: 45138, Start Num: 52  
Candidate Starts for EricB\_81:  
(37, 45356), (Start: 47 @45269 has 6 MA's), (Start: 52 @45260 has 169 MA's), (62, 45167),

Gene: Et2Brutus\_82 Start: 46082, Stop: 45945, Start Num: 49  
Candidate Starts for Et2Brutus\_82:  
(29, 46217), (Start: 47 @46088 has 6 MA's), (Start: 48 @46085 has 3 MA's), (Start: 49 @46082 has 16 MA's), (Start: 52 @46073 has 169 MA's), (62, 45980),

Gene: EvilGenius\_82 Start: 48580, Stop: 48449, Start Num: 52  
Candidate Starts for EvilGenius\_82:  
(Start: 47 @48592 has 6 MA's), (Start: 52 @48580 has 169 MA's), (57, 48517),

Gene: Expelliarmus\_88 Start: 47652, Stop: 47533, Start Num: 52  
Candidate Starts for Expelliarmus\_88:  
(39, 47748), (Start: 52 @47652 has 169 MA's),

Gene: Fameo\_80 Start: 47072, Stop: 46941, Start Num: 52  
Candidate Starts for Fameo\_80:  
(Start: 47 @47084 has 6 MA's), (Start: 52 @47072 has 169 MA's), (57, 47009),

Gene: Fibonacci\_82 Start: 46088, Stop: 45951, Start Num: 49  
Candidate Starts for Fibonacci\_82:  
(29, 46223), (Start: 47 @46094 has 6 MA's), (Start: 48 @46091 has 3 MA's), (Start: 49 @46088 has 16 MA's), (Start: 52 @46079 has 169 MA's), (62, 45986),

Gene: FiringLine\_82 Start: 47457, Stop: 47329, Start Num: 52  
Candidate Starts for FiringLine\_82:  
(Start: 52 @47457 has 169 MA's), (57, 47394),

Gene: First\_0083 Start: 47298, Stop: 47176, Start Num: 52  
Candidate Starts for First\_0083:  
(Start: 52 @47298 has 169 MA's),

Gene: Flare16\_82 Start: 46956, Stop: 46825, Start Num: 52  
Candidate Starts for Flare16\_82:  
(Start: 47 @46968 has 6 MA's), (Start: 52 @46956 has 169 MA's), (Start: 53 @46953 has 1 MA's), (59, 46881), (64, 46848), (70, 46830),

Gene: Flaverint\_84 Start: 46546, Stop: 46409, Start Num: 49  
Candidate Starts for Flaverint\_84:  
(29, 46681), (Start: 47 @46552 has 6 MA's), (Start: 48 @46549 has 3 MA's), (Start: 49 @46546 has 16 MA's), (Start: 52 @46537 has 169 MA's), (62, 46444),

Gene: ForGetIt\_79 Start: 46528, Stop: 46403, Start Num: 52  
Candidate Starts for ForGetIt\_79:  
(Start: 52 @46528 has 169 MA's),

Gene: Fred313\_74 Start: 45002, Stop: 44859, Start Num: 50  
Candidate Starts for Fred313\_74:  
(Start: 50 @45002 has 14 MA's), (Start: 52 @44999 has 169 MA's), (59, 44924), (62, 44906), (64, 44891), (65, 44885), (74, 44864),

Gene: Garak\_84 Start: 45681, Stop: 45559, Start Num: 52  
Candidate Starts for Garak\_84:  
(Start: 52 @45681 has 169 MA's), (62, 45588),

Gene: Georgie2\_84 Start: 47661, Stop: 47533, Start Num: 52  
Candidate Starts for Georgie2\_84:  
(Start: 52 @47661 has 169 MA's), (57, 47598),

Gene: Ghouboy\_78 Start: 46484, Stop: 46359, Start Num: 52  
Candidate Starts for Ghouboy\_78:  
(Start: 52 @46484 has 169 MA's),

Gene: Gilberta\_80 Start: 45413, Stop: 45285, Start Num: 52  
Candidate Starts for Gilberta\_80:  
(29, 45557), (Start: 47 @45428 has 6 MA's), (Start: 48 @45425 has 3 MA's), (Start: 49 @45422 has 16 MA's), (Start: 52 @45413 has 169 MA's), (62, 45320),

Gene: Giroux\_75 Start: 45380, Stop: 45240, Start Num: 52  
Candidate Starts for Giroux\_75:  
(28, 45524), (Start: 50 @45383 has 14 MA's), (Start: 52 @45380 has 169 MA's), (56, 45317), (59, 45305), (62, 45287), (65, 45266), (74, 45245),

Gene: Gladiator\_78 Start: 45132, Stop: 45010, Start Num: 52  
Candidate Starts for Gladiator\_78:  
(12, 45522), (14, 45501), (16, 45465), (17, 45459), (20, 45441), (34, 45240), (40, 45216), (Start: 43 @45159 has 2 MA's), (Start: 52 @45132 has 169 MA's), (62, 45039),

Gene: Gratitude\_80 Start: 47153, Stop: 47010, Start Num: 47  
Candidate Starts for Gratitude\_80:  
(Start: 47 @47153 has 6 MA's), (Start: 52 @47141 has 169 MA's), (Start: 53 @47138 has 1 MA's), (59, 47066), (64, 47033), (70, 47015),

Gene: Groundhog\_88 Start: 47708, Stop: 47589, Start Num: 52  
Candidate Starts for Groundhog\_88:  
(39, 47804), (Start: 52 @47708 has 169 MA's),

Gene: Gruunaga\_81 Start: 45087, Stop: 44965, Start Num: 52  
Candidate Starts for Gruunaga\_81:  
(12, 45477), (14, 45456), (16, 45420), (17, 45414), (20, 45396), (34, 45195), (40, 45171), (Start: 43 @45114 has 2 MA's), (Start: 52 @45087 has 169 MA's), (62, 44994),

Gene: Hammer\_82 Start: 44821, Stop: 44672, Start Num: 43  
Candidate Starts for Hammer\_82:  
(12, 45184), (14, 45163), (16, 45127), (17, 45121), (20, 45103), (34, 44902), (40, 44878), (Start: 43 @44821 has 2 MA's), (Start: 52 @44794 has 169 MA's), (62, 44701),

Gene: HarryHoudini\_82 Start: 47166, Stop: 47035, Start Num: 52  
Candidate Starts for HarryHoudini\_82:  
(Start: 47 @47178 has 6 MA's), (Start: 52 @47166 has 169 MA's), (Start: 53 @47163 has 1 MA's), (59, 47091), (64, 47058), (70, 47040),

Gene: Heffalump\_79 Start: 47540, Stop: 47409, Start Num: 52  
Candidate Starts for Heffalump\_79:  
(Start: 47 @47552 has 6 MA's), (Start: 52 @47540 has 169 MA's), (57, 47477),

Gene: HelDan\_76 Start: 45313, Stop: 45170, Start Num: 50  
Candidate Starts for HelDan\_76:



(28, 45454), (Start: 50 @45313 has 14 MA's), (Start: 52 @45310 has 169 MA's), (59, 45235), (62, 45217), (65, 45196), (74, 45175),

Gene: Helmet\_84 Start: 45681, Stop: 45559, Start Num: 52

Candidate Starts for Helmet\_84:

(Start: 52 @45681 has 169 MA's), (62, 45588),

Gene: Herbertwm\_76 Start: 46096, Stop: 45971, Start Num: 52

Candidate Starts for Herbertwm\_76:

(Start: 47 @46108 has 6 MA's), (Start: 52 @46096 has 169 MA's), (54, 46063), (59, 46024), (63, 45991),

Gene: Hexamo\_81 Start: 44962, Stop: 44840, Start Num: 52

Candidate Starts for Hexamo\_81:

(12, 45352), (14, 45331), (16, 45295), (17, 45289), (20, 45271), (34, 45070), (40, 45046), (Start: 43 @44989 has 2 MA's), (Start: 52 @44962 has 169 MA's), (62, 44869),

Gene: Hookmount\_76 Start: 45334, Stop: 45194, Start Num: 52

Candidate Starts for Hookmount\_76:

(31, 45463), (Start: 50 @45337 has 14 MA's), (Start: 52 @45334 has 169 MA's), (59, 45259), (62, 45241), (64, 45226), (65, 45220), (74, 45199),

Gene: Hoot\_77 Start: 43118, Stop: 42996, Start Num: 52

Candidate Starts for Hoot\_77:

(37, 43214), (Start: 47 @43127 has 6 MA's), (Start: 52 @43118 has 169 MA's), (62, 43025),

Gene: Hutc2\_79 Start: 44978, Stop: 44835, Start Num: 47

Candidate Starts for Hutc2\_79:

(29, 45107), (Start: 47 @44978 has 6 MA's), (Start: 48 @44975 has 3 MA's), (Start: 49 @44972 has 16 MA's), (Start: 52 @44963 has 169 MA's), (62, 44870),

Gene: Idleandcovert\_77 Start: 45384, Stop: 45241, Start Num: 50

Candidate Starts for Idleandcovert\_77:

(28, 45525), (Start: 50 @45384 has 14 MA's), (Start: 52 @45381 has 169 MA's), (56, 45318), (59, 45306), (62, 45288), (65, 45267), (74, 45246),

Gene: Indra\_86 Start: 45682, Stop: 45560, Start Num: 52

Candidate Starts for Indra\_86:

(Start: 52 @45682 has 169 MA's), (62, 45589),

Gene: Insomnia\_82 Start: 46263, Stop: 46126, Start Num: 49

Candidate Starts for Insomnia\_82:

(29, 46401), (Start: 47 @46269 has 6 MA's), (Start: 48 @46266 has 3 MA's), (Start: 49 @46263 has 16 MA's), (Start: 52 @46254 has 169 MA's), (62, 46161),

Gene: Isca\_73 Start: 44704, Stop: 44573, Start Num: 50

Candidate Starts for Isca\_73:

(Start: 50 @44704 has 14 MA's), (Start: 52 @44701 has 169 MA's), (59, 44626), (62, 44608), (64, 44593), (65, 44587),

Gene: Isiphiwo\_79 Start: 45288, Stop: 45166, Start Num: 52

Candidate Starts for Isiphiwo\_79:

(37, 45384), (Start: 47 @45297 has 6 MA's), (Start: 52 @45288 has 169 MA's), (62, 45195),

Gene: Iwokeuplikedis\_84 Start: 47619, Stop: 47479, Start Num: 52  
Candidate Starts for Iwokeuplikedis\_84:  
(45, 47637), (Start: 50 @47622 has 14 MA's), (Start: 52 @47619 has 169 MA's), (61, 47529), (62, 47526),

Gene: JF2\_73 Start: 43400, Stop: 43269, Start Num: 50  
Candidate Starts for JF2\_73:  
(Start: 50 @43400 has 14 MA's), (Start: 52 @43397 has 169 MA's), (59, 43322), (62, 43304), (64, 43289), (65, 43283),

Gene: JF4\_73 Start: 43400, Stop: 43269, Start Num: 50  
Candidate Starts for JF4\_73:  
(Start: 50 @43400 has 14 MA's), (Start: 52 @43397 has 169 MA's), (59, 43322), (62, 43304), (64, 43289), (65, 43283),

Gene: Jabith\_82 Start: 46271, Stop: 46143, Start Num: 52  
Candidate Starts for Jabith\_82:  
(29, 46415), (Start: 47 @46286 has 6 MA's), (Start: 48 @46283 has 3 MA's), (Start: 49 @46280 has 16 MA's), (Start: 52 @46271 has 169 MA's), (62, 46178),

Gene: Jerm\_84 Start: 47718, Stop: 47590, Start Num: 52  
Candidate Starts for Jerm\_84:  
(Start: 52 @47718 has 169 MA's), (57, 47655),

Gene: Jordennis\_80 Start: 45500, Stop: 45378, Start Num: 52  
Candidate Starts for Jordennis\_80:  
(37, 45596), (Start: 47 @45509 has 6 MA's), (Start: 52 @45500 has 169 MA's), (62, 45407),

Gene: Joselito\_82 Start: 46291, Stop: 46163, Start Num: 52  
Candidate Starts for Joselito\_82:  
(29, 46435), (Start: 47 @46306 has 6 MA's), (Start: 48 @46303 has 3 MA's), (Start: 49 @46300 has 16 MA's), (Start: 52 @46291 has 169 MA's), (62, 46198),

Gene: JoshKayV\_84 Start: 47886, Stop: 47758, Start Num: 52  
Candidate Starts for JoshKayV\_84:  
(1, 48690), (2, 48621), (3, 48495), (4, 48447), (5, 48402), (7, 48375), (9, 48330), (15, 48237), (23, 48093), (Start: 52 @47886 has 169 MA's), (57, 47823),

Gene: Jsquared\_86 Start: 46782, Stop: 46651, Start Num: 52  
Candidate Starts for Jsquared\_86:  
(Start: 47 @46794 has 6 MA's), (Start: 49 @46788 has 16 MA's), (Start: 52 @46782 has 169 MA's), (62, 46689),

Gene: Kalpine\_84 Start: 47882, Stop: 47751, Start Num: 52  
Candidate Starts for Kalpine\_84:  
(32, 47999), (Start: 52 @47882 has 169 MA's), (62, 47789), (68, 47759),

Gene: Kazan\_83 Start: 45273, Stop: 45151, Start Num: 52  
Candidate Starts for Kazan\_83:  
(37, 45369), (Start: 47 @45282 has 6 MA's), (Start: 52 @45273 has 169 MA's), (62, 45180),

Gene: Kerberos\_82 Start: 46925, Stop: 46785, Start Num: 49

Candidate Starts for Kerberos\_82:

(29, 47045), (35, 47015), (Start: 47 @46931 has 6 MA's), (Start: 48 @46928 has 3 MA's), (Start: 49 @46925 has 16 MA's), (Start: 52 @46919 has 169 MA's), (62, 46826), (71, 46793),

Gene: Keziacharles14\_79 Start: 46638, Stop: 46501, Start Num: 52

Candidate Starts for Keziacharles14\_79:

(42, 46698), (Start: 52 @46638 has 169 MA's), (60, 46545),

Gene: Kimona\_73 Start: 43945, Stop: 43820, Start Num: 52

Candidate Starts for Kimona\_73:

(41, 44005), (Start: 52 @43945 has 169 MA's), (59, 43870),

Gene: KingCyrus\_81 Start: 48593, Stop: 48462, Start Num: 52

Candidate Starts for KingCyrus\_81:

(Start: 47 @48605 has 6 MA's), (Start: 52 @48593 has 169 MA's), (57, 48530),

Gene: Kipper29\_82 Start: 45286, Stop: 45164, Start Num: 52

Candidate Starts for Kipper29\_82:

(37, 45382), (Start: 47 @45295 has 6 MA's), (Start: 52 @45286 has 169 MA's), (62, 45193),

Gene: Koduck\_82 Start: 46124, Stop: 45978, Start Num: 52

Candidate Starts for Koduck\_82:

(Start: 47 @46136 has 6 MA's), (Start: 52 @46124 has 169 MA's), (62, 46031), (73, 45995),

Gene: Koko\_84 Start: 46071, Stop: 45949, Start Num: 52

Candidate Starts for Koko\_84:

(Start: 52 @46071 has 169 MA's), (62, 45978),

Gene: L5\_75 Start: 46015, Stop: 45884, Start Num: 52

Candidate Starts for L5\_75:

(Start: 47 @46027 has 6 MA's), (Start: 52 @46015 has 169 MA's), (62, 45922), (72, 45889),

Gene: LadyBird\_86 Start: 47796, Stop: 47674, Start Num: 52

Candidate Starts for LadyBird\_86:

(30, 47931), (Start: 52 @47796 has 169 MA's),

Gene: Lambert1\_76 Start: 45335, Stop: 45195, Start Num: 52

Candidate Starts for Lambert1\_76:

(31, 45464), (Start: 50 @45338 has 14 MA's), (Start: 52 @45335 has 169 MA's), (59, 45260), (62, 45242), (64, 45227), (65, 45221), (74, 45200),

Gene: Larenn\_80 Start: 47156, Stop: 47028, Start Num: 52

Candidate Starts for Larenn\_80:

(Start: 47 @47168 has 6 MA's), (Start: 52 @47156 has 169 MA's), (57, 47093),

Gene: Lev2\_79 Start: 46416, Stop: 46291, Start Num: 52

Candidate Starts for Lev2\_79:

(Start: 52 @46416 has 169 MA's),

Gene: Leviathan\_84 Start: 47802, Stop: 47674, Start Num: 52

Candidate Starts for Leviathan\_84:

(Start: 52 @47802 has 169 MA's), (57, 47739),

Gene: LilTurb\_83 Start: 47598, Stop: 47470, Start Num: 52  
Candidate Starts for LilTurb\_83:  
(Start: 52 @47598 has 169 MA's), (57, 47535),

Gene: Lilbunny\_82 Start: 45313, Stop: 45191, Start Num: 52  
Candidate Starts for Lilbunny\_82:  
(Start: 52 @45313 has 169 MA's), (62, 45220),

Gene: LionsBait\_81 Start: 48130, Stop: 48008, Start Num: 52  
Candidate Starts for LionsBait\_81:  
(Start: 52 @48130 has 169 MA's), (62, 48037),

Gene: Lokk\_77 Start: 45661, Stop: 45539, Start Num: 52  
Candidate Starts for Lokk\_77:  
(Start: 52 @45661 has 169 MA's), (59, 45586),

Gene: Loser\_85 Start: 48065, Stop: 47931, Start Num: 52  
Candidate Starts for Loser\_85:  
(Start: 47 @48077 has 6 MA's), (Start: 52 @48065 has 169 MA's), (62, 47972),

Gene: Lucivia\_84 Start: 46579, Stop: 46442, Start Num: 49  
Candidate Starts for Lucivia\_84:  
(29, 46714), (Start: 47 @46585 has 6 MA's), (Start: 48 @46582 has 3 MA's), (Start: 49 @46579 has 16 MA's), (Start: 52 @46570 has 169 MA's), (62, 46477),

Gene: MA5\_75 Start: 44608, Stop: 44477, Start Num: 50  
Candidate Starts for MA5\_75:  
(Start: 50 @44608 has 14 MA's), (Start: 52 @44605 has 169 MA's), (59, 44530), (62, 44512), (64, 44497), (65, 44491),

Gene: MaCh\_83 Start: 46534, Stop: 46406, Start Num: 52  
Candidate Starts for MaCh\_83:  
(29, 46678), (Start: 47 @46549 has 6 MA's), (Start: 48 @46546 has 3 MA's), (Start: 49 @46543 has 16 MA's), (Start: 52 @46534 has 169 MA's), (62, 46441),

Gene: Mabel\_83 Start: 46544, Stop: 46407, Start Num: 49  
Candidate Starts for Mabel\_83:  
(29, 46679), (Start: 47 @46550 has 6 MA's), (Start: 48 @46547 has 3 MA's), (Start: 49 @46544 has 16 MA's), (Start: 52 @46535 has 169 MA's), (62, 46442),

Gene: MajorMajor\_79 Start: 44831, Stop: 44703, Start Num: 52  
Candidate Starts for MajorMajor\_79:  
(Start: 47 @44843 has 6 MA's), (Start: 52 @44831 has 169 MA's), (61, 44741), (62, 44738), (65, 44717),

Gene: Malec\_81 Start: 47726, Stop: 47598, Start Num: 52  
Candidate Starts for Malec\_81:  
(Start: 47 @47738 has 6 MA's), (Start: 52 @47726 has 169 MA's), (57, 47663),

Gene: Marchesa\_75 Start: 45298, Stop: 45158, Start Num: 52  
Candidate Starts for Marchesa\_75:  
(28, 45442), (Start: 50 @45301 has 14 MA's), (Start: 52 @45298 has 169 MA's), (59, 45223), (62, 45205), (65, 45184), (74, 45163),

Gene: Margo\_76 Start: 45360, Stop: 45220, Start Num: 52

Candidate Starts for Margo\_76:

(31, 45489), (Start: 50 @45363 has 14 MA's), (Start: 52 @45360 has 169 MA's), (59, 45285), (62, 45267), (64, 45252), (65, 45246), (74, 45225),

Gene: McFly\_82 Start: 45622, Stop: 45500, Start Num: 52

Candidate Starts for McFly\_82:

(37, 45718), (Start: 47 @45631 has 6 MA's), (Start: 52 @45622 has 169 MA's), (62, 45529),

Gene: Micasa\_79 Start: 46508, Stop: 46383, Start Num: 52

Candidate Starts for Micasa\_79:

(Start: 52 @46508 has 169 MA's),

Gene: MiculUcigas\_82 Start: 46859, Stop: 46728, Start Num: 52

Candidate Starts for MiculUcigas\_82:

(Start: 47 @46871 has 6 MA's), (Start: 52 @46859 has 169 MA's), (Start: 53 @46856 has 1 MA's), (59, 46784), (64, 46751), (70, 46733),

Gene: Miko\_77 Start: 46423, Stop: 46301, Start Num: 52

Candidate Starts for Miko\_77:

(Start: 52 @46423 has 169 MA's), (59, 46348),

Gene: MissWhite\_75 Start: 43780, Stop: 43640, Start Num: 48

Candidate Starts for MissWhite\_75:

(6, 44287), (8, 44248), (11, 44215), (18, 44101), (21, 44074), (38, 43861), (Start: 47 @43783 has 6 MA's), (Start: 48 @43780 has 3 MA's), (Start: 49 @43777 has 16 MA's), (Start: 52 @43771 has 169 MA's), (61, 43684), (62, 43681),

Gene: Mulciber\_81 Start: 46076, Stop: 45948, Start Num: 52

Candidate Starts for Mulciber\_81:

(29, 46220), (Start: 47 @46091 has 6 MA's), (Start: 48 @46088 has 3 MA's), (Start: 49 @46085 has 16 MA's), (Start: 52 @46076 has 169 MA's), (62, 45983),

Gene: Munch\_83 Start: 46539, Stop: 46411, Start Num: 52

Candidate Starts for Munch\_83:

(29, 46683), (Start: 47 @46554 has 6 MA's), (Start: 48 @46551 has 3 MA's), (Start: 49 @46548 has 16 MA's), (Start: 52 @46539 has 169 MA's), (62, 46446),

Gene: NaSiaTalie\_83 Start: 47146, Stop: 47015, Start Num: 52

Candidate Starts for NaSiaTalie\_83:

(Start: 47 @47158 has 6 MA's), (Start: 52 @47146 has 169 MA's), (Start: 53 @47143 has 1 MA's), (59, 47071), (64, 47038), (70, 47020),

Gene: Naca\_80 Start: 46930, Stop: 46790, Start Num: 47

Candidate Starts for Naca\_80:

(46, 46936), (Start: 47 @46930 has 6 MA's), (66, 46798),

Gene: NearlyHeadless\_92 Start: 47770, Stop: 47651, Start Num: 52

Candidate Starts for NearlyHeadless\_92:

(25, 47971), (26, 47929), (39, 47866), (Start: 52 @47770 has 169 MA's),

Gene: Neeharika16\_81 Start: 45372, Stop: 45250, Start Num: 52

Candidate Starts for Neeharika16\_81:

(37, 45468), (Start: 47 @45381 has 6 MA's), (Start: 52 @45372 has 169 MA's), (62, 45279),

Gene: Newrala\_81 Start: 45708, Stop: 45586, Start Num: 52

Candidate Starts for Newrala\_81:

(37, 45804), (Start: 47 @45717 has 6 MA's), (Start: 52 @45708 has 169 MA's), (62, 45615),

Gene: NicoleTera\_80 Start: 47083, Stop: 46955, Start Num: 52

Candidate Starts for NicoleTera\_80:

(32, 47200), (Start: 47 @47095 has 6 MA's), (Start: 52 @47083 has 169 MA's), (62, 46990),

Gene: Noella\_77 Start: 45336, Stop: 45196, Start Num: 52

Candidate Starts for Noella\_77:

(31, 45465), (Start: 50 @45339 has 14 MA's), (Start: 52 @45336 has 169 MA's), (59, 45261), (62, 45243), (64, 45228), (65, 45222), (74, 45201),

Gene: Norbert\_72 Start: 45336, Stop: 45193, Start Num: 50

Candidate Starts for Norbert\_72:

(31, 45462), (Start: 50 @45336 has 14 MA's), (Start: 52 @45333 has 169 MA's), (59, 45258), (62, 45240), (64, 45225), (65, 45219), (74, 45198),

Gene: Odin\_82 Start: 46934, Stop: 46800, Start Num: 52

Candidate Starts for Odin\_82:

(Start: 52 @46934 has 169 MA's), (61, 46844), (62, 46841), (65, 46820), (70, 46808),

Gene: Orange\_83 Start: 46089, Stop: 45961, Start Num: 52

Candidate Starts for Orange\_83:

(29, 46233), (Start: 47 @46104 has 6 MA's), (Start: 48 @46101 has 3 MA's), (Start: 49 @46098 has 16 MA's), (Start: 52 @46089 has 169 MA's), (62, 45996),

Gene: PP\_74 Start: 49167, Stop: 49015, Start Num: 53

Candidate Starts for PP\_74:

(Start: 53 @49167 has 1 MA's), (67, 49050), (74, 49035),

Gene: Petersenfast\_77 Start: 44970, Stop: 44842, Start Num: 52

Candidate Starts for Petersenfast\_77:

(29, 45114), (Start: 47 @44985 has 6 MA's), (Start: 48 @44982 has 3 MA's), (Start: 49 @44979 has 16 MA's), (Start: 52 @44970 has 169 MA's), (62, 44877),

Gene: PetterN\_85 Start: 46717, Stop: 46577, Start Num: 47

Candidate Starts for PetterN\_85:

(46, 46723), (Start: 47 @46717 has 6 MA's), (66, 46585),

Gene: Ph8s\_84 Start: 46716, Stop: 46588, Start Num: 52

Candidate Starts for Ph8s\_84:

(Start: 52 @46716 has 169 MA's), (62, 46623),

Gene: Phantastic\_78 Start: 45028, Stop: 44885, Start Num: 50

Candidate Starts for Phantastic\_78:

(Start: 50 @45028 has 14 MA's), (Start: 52 @45025 has 169 MA's), (62, 44932), (64, 44917), (65, 44911), (74, 44890),

Gene: Phillis\_88 Start: 46783, Stop: 46664, Start Num: 52

Candidate Starts for Phillis\_88:  
(25, 46984), (26, 46942), (39, 46879), (Start: 52 @46783 has 169 MA's), (64, 46675),

Gene: Phlorence\_77 Start: 46175, Stop: 46035, Start Num: 47  
Candidate Starts for Phlorence\_77:  
(Start: 47 @46175 has 6 MA's), (Start: 52 @46160 has 169 MA's),

Gene: PickleBack\_79 Start: 46335, Stop: 46210, Start Num: 52  
Candidate Starts for PickleBack\_79:  
(Start: 52 @46335 has 169 MA's),

Gene: Piro94\_81 Start: 47094, Stop: 46963, Start Num: 52  
Candidate Starts for Piro94\_81:  
(Start: 47 @47106 has 6 MA's), (Start: 52 @47094 has 169 MA's), (Start: 53 @47091 has 1 MA's), (59, 47019), (64, 46986), (70, 46968),

Gene: Pistachio\_77 Start: 44928, Stop: 44788, Start Num: 52  
Candidate Starts for Pistachio\_77:  
(28, 45072), (Start: 50 @44931 has 14 MA's), (Start: 52 @44928 has 169 MA's), (56, 44865), (59, 44853), (62, 44835), (65, 44814), (74, 44793),

Gene: Pmask\_81 Start: 45909, Stop: 45787, Start Num: 52  
Candidate Starts for Pmask\_81:  
(37, 46005), (Start: 47 @45918 has 6 MA's), (Start: 52 @45909 has 169 MA's), (62, 45816),

Gene: Pocahontas\_75 Start: 45331, Stop: 45191, Start Num: 52  
Candidate Starts for Pocahontas\_75:  
(31, 45460), (Start: 50 @45334 has 14 MA's), (Start: 52 @45331 has 169 MA's), (59, 45256), (62, 45238), (64, 45223), (65, 45217), (74, 45196),

Gene: Pomar16\_82 Start: 46998, Stop: 46858, Start Num: 49  
Candidate Starts for Pomar16\_82:  
(29, 47118), (35, 47088), (Start: 47 @47004 has 6 MA's), (Start: 48 @47001 has 3 MA's), (Start: 49 @46998 has 16 MA's), (Start: 52 @46992 has 169 MA's), (62, 46899), (71, 46866),

Gene: Popcicle\_76 Start: 45331, Stop: 45191, Start Num: 52  
Candidate Starts for Popcicle\_76:  
(31, 45460), (Start: 50 @45334 has 14 MA's), (Start: 52 @45331 has 169 MA's), (59, 45256), (62, 45238), (64, 45223), (65, 45217), (74, 45196),

Gene: Power\_82 Start: 47660, Stop: 47532, Start Num: 52  
Candidate Starts for Power\_82:  
(Start: 52 @47660 has 169 MA's), (57, 47597),

Gene: Priamo\_84 Start: 45609, Stop: 45487, Start Num: 52  
Candidate Starts for Priamo\_84:  
(Start: 52 @45609 has 169 MA's), (62, 45516),

Gene: Prinashe11\_77 Start: 46347, Stop: 46222, Start Num: 52  
Candidate Starts for Prinashe11\_77:  
(Start: 52 @46347 has 169 MA's),

Gene: Puppy\_77 Start: 44998, Stop: 44858, Start Num: 52

Candidate Starts for Puppy\_77:

(28, 45142), (Start: 50 @45001 has 14 MA's), (Start: 52 @44998 has 169 MA's), (59, 44923), (62, 44905), (64, 44890), (65, 44884), (74, 44863),

Gene: QueenB2\_79 Start: 46753, Stop: 46622, Start Num: 52

Candidate Starts for QueenB2\_79:

(Start: 47 @46765 has 6 MA's), (Start: 52 @46753 has 169 MA's), (57, 46690),

Gene: QueenBeesly\_82 Start: 47457, Stop: 47329, Start Num: 52

Candidate Starts for QueenBeesly\_82:

(Start: 52 @47457 has 169 MA's), (57, 47394),

Gene: QuinnKiro\_75 Start: 45337, Stop: 45194, Start Num: 50

Candidate Starts for QuinnKiro\_75:

(31, 45463), (Start: 50 @45337 has 14 MA's), (Start: 52 @45334 has 169 MA's), (59, 45259), (62, 45241), (64, 45226), (65, 45220), (74, 45199),

Gene: Quokka\_84 Start: 46552, Stop: 46412, Start Num: 47

Candidate Starts for Quokka\_84:

(Start: 47 @46552 has 6 MA's), (Start: 52 @46540 has 169 MA's), (61, 46450), (62, 46447), (65, 46426),

Gene: Rachaly\_79 Start: 46569, Stop: 46447, Start Num: 52

Candidate Starts for Rachaly\_79:

(Start: 52 @46569 has 169 MA's), (59, 46494),

Gene: Rahalelujah\_81 Start: 45564, Stop: 45433, Start Num: 52

Candidate Starts for Rahalelujah\_81:

(27, 45711), (42, 45624), (Start: 52 @45564 has 169 MA's), (68, 45441),

Gene: RedRock\_82 Start: 47718, Stop: 47584, Start Num: 52

Candidate Starts for RedRock\_82:

(Start: 47 @47730 has 6 MA's), (Start: 52 @47718 has 169 MA's), (61, 47628), (62, 47625),

Gene: ResDef\_74 Start: 45337, Stop: 45197, Start Num: 52

Candidate Starts for ResDef\_74:

(31, 45466), (Start: 50 @45340 has 14 MA's), (Start: 52 @45337 has 169 MA's), (59, 45262), (62, 45244), (64, 45229), (65, 45223), (74, 45202),

Gene: Retro23\_82 Start: 47184, Stop: 47053, Start Num: 52

Candidate Starts for Retro23\_82:

(Start: 52 @47184 has 169 MA's), (57, 47121),

Gene: Rifter\_82 Start: 44589, Stop: 44467, Start Num: 52

Candidate Starts for Rifter\_82:

(12, 44979), (14, 44958), (16, 44922), (17, 44916), (20, 44898), (34, 44697), (40, 44673), (Start: 43 @44616 has 2 MA's), (Start: 52 @44589 has 169 MA's), (62, 44496),

Gene: Roary\_93 Start: 47910, Stop: 47791, Start Num: 52

Candidate Starts for Roary\_93:

(Start: 52 @47910 has 169 MA's),

Gene: Roksolana\_83 Start: 45577, Stop: 45455, Start Num: 52



Candidate Starts for Roksolana\_83:  
(Start: 52 @45577 has 169 MA's), (62, 45484),

Gene: Saintus\_86 Start: 44635, Stop: 44516, Start Num: 52  
Candidate Starts for Saintus\_86:  
(25, 44836), (26, 44794), (39, 44731), (Start: 52 @44635 has 169 MA's),

Gene: Salz\_78 Start: 44894, Stop: 44757, Start Num: 49  
Candidate Starts for Salz\_78:  
(29, 45029), (Start: 47 @44900 has 6 MA's), (Start: 48 @44897 has 3 MA's), (Start: 49 @44894 has 16 MA's), (Start: 52 @44885 has 169 MA's), (62, 44792),

Gene: Scout\_75 Start: 44560, Stop: 44417, Start Num: 50  
Candidate Starts for Scout\_75:  
(28, 44701), (Start: 50 @44560 has 14 MA's), (Start: 52 @44557 has 169 MA's), (59, 44482), (62, 44464), (65, 44443), (74, 44422),

Gene: SemperFi\_82 Start: 47345, Stop: 47217, Start Num: 52  
Candidate Starts for SemperFi\_82:  
(Start: 52 @47345 has 169 MA's), (57, 47282),

Gene: Serenity\_85 Start: 46580, Stop: 46449, Start Num: 52  
Candidate Starts for Serenity\_85:  
(Start: 47 @46592 has 6 MA's), (Start: 52 @46580 has 169 MA's), (62, 46487),

Gene: Sham4\_79 Start: 44977, Stop: 44840, Start Num: 49  
Candidate Starts for Sham4\_79:  
(29, 45115), (Start: 47 @44983 has 6 MA's), (Start: 48 @44980 has 3 MA's), (Start: 49 @44977 has 16 MA's), (Start: 52 @44968 has 169 MA's), (62, 44875),

Gene: SheaKeira\_77 Start: 45357, Stop: 45226, Start Num: 52  
Candidate Starts for SheaKeira\_77:  
(Start: 52 @45357 has 169 MA's), (59, 45282),

Gene: Sknot\_82 Start: 46965, Stop: 46822, Start Num: 47  
Candidate Starts for Sknot\_82:  
(Start: 47 @46965 has 6 MA's), (Start: 52 @46953 has 169 MA's), (Start: 53 @46950 has 1 MA's), (59, 46878), (64, 46845), (70, 46827),

Gene: Smeadley\_91 Start: 47774, Stop: 47655, Start Num: 52  
Candidate Starts for Smeadley\_91:  
(39, 47870), (Start: 52 @47774 has 169 MA's),

Gene: Smeagan\_85 Start: 47893, Stop: 47765, Start Num: 52  
Candidate Starts for Smeagan\_85:  
(Start: 52 @47893 has 169 MA's), (57, 47830),

Gene: SmellyB\_82 Start: 45267, Stop: 45145, Start Num: 52  
Candidate Starts for SmellyB\_82:  
(37, 45363), (Start: 47 @45276 has 6 MA's), (Start: 52 @45267 has 169 MA's), (62, 45174),

Gene: SnapTap\_82 Start: 47316, Stop: 47188, Start Num: 52  
Candidate Starts for SnapTap\_82:

(Start: 52 @47316 has 169 MA's), (57, 47253),

Gene: Snape\_83 Start: 46087, Stop: 45950, Start Num: 49

Candidate Starts for Snape\_83:

(29, 46222), (Start: 47 @46093 has 6 MA's), (Start: 48 @46090 has 3 MA's), (Start: 49 @46087 has 16 MA's), (Start: 52 @46078 has 169 MA's), (62, 45985),

Gene: StarStuff\_82 Start: 46960, Stop: 46820, Start Num: 49

Candidate Starts for StarStuff\_82:

(29, 47080), (35, 47050), (Start: 47 @46966 has 6 MA's), (Start: 48 @46963 has 3 MA's), (Start: 49 @46960 has 16 MA's), (Start: 52 @46954 has 169 MA's), (62, 46861), (71, 46828),

Gene: Stephig9\_92 Start: 48125, Stop: 48006, Start Num: 52

Candidate Starts for Stephig9\_92:

(39, 48221), (Start: 52 @48125 has 169 MA's), (64, 48017),

Gene: SuperAwesome\_82 Start: 45948, Stop: 45826, Start Num: 52

Candidate Starts for SuperAwesome\_82:

(37, 46044), (Start: 47 @45957 has 6 MA's), (Start: 52 @45948 has 169 MA's), (62, 45855),

Gene: SuperCallie99\_79 Start: 45798, Stop: 45667, Start Num: 47

Candidate Starts for SuperCallie99\_79:

(37, 45885), (Start: 47 @45798 has 6 MA's), (Start: 52 @45789 has 169 MA's), (62, 45696),

Gene: Superchunk\_83 Start: 46461, Stop: 46327, Start Num: 52

Candidate Starts for Superchunk\_83:

(13, 46842), (19, 46773), (22, 46710), (Start: 52 @46461 has 169 MA's), (61, 46371), (62, 46368), (70, 46335),

Gene: SweetiePie\_82 Start: 47449, Stop: 47321, Start Num: 52

Candidate Starts for SweetiePie\_82:

(Start: 52 @47449 has 169 MA's), (57, 47386),

Gene: SwirlSquare\_86 Start: 46176, Stop: 46042, Start Num: 52

Candidate Starts for SwirlSquare\_86:

(Start: 52 @46176 has 169 MA's), (62, 46083), (65, 46062), (70, 46050),

Gene: TNguyen7\_77 Start: 45342, Stop: 45199, Start Num: 50

Candidate Starts for TNguyen7\_77:

(Start: 50 @45342 has 14 MA's), (Start: 52 @45339 has 169 MA's), (59, 45264), (62, 45246), (64, 45231), (65, 45225), (74, 45204),

Gene: Tarynearal\_78 Start: 46291, Stop: 46166, Start Num: 52

Candidate Starts for Tarynearal\_78:

(Start: 52 @46291 has 169 MA's),

Gene: Temprado\_84 Start: 45681, Stop: 45559, Start Num: 52

Candidate Starts for Temprado\_84:

(Start: 52 @45681 has 169 MA's), (62, 45588),

Gene: Terrific\_83 Start: 46927, Stop: 46796, Start Num: 52

Candidate Starts for Terrific\_83:

(Start: 47 @46939 has 6 MA's), (Start: 52 @46927 has 169 MA's), (Start: 53 @46924 has 1 MA's), (59, 46852), (64, 46819), (70, 46801),

Gene: Texage\_74 Start: 45335, Stop: 45195, Start Num: 52

Candidate Starts for Texage\_74:

(31, 45464), (Start: 50 @45338 has 14 MA's), (Start: 52 @45335 has 169 MA's), (59, 45260), (62, 45242), (64, 45227), (65, 45221), (74, 45200),

Gene: Tiger\_77 Start: 46081, Stop: 45956, Start Num: 52

Candidate Starts for Tiger\_77:

(Start: 47 @46096 has 6 MA's), (Start: 52 @46081 has 169 MA's),

Gene: Timothy\_83 Start: 46064, Stop: 45927, Start Num: 49

Candidate Starts for Timothy\_83:

(29, 46199), (Start: 47 @46070 has 6 MA's), (Start: 48 @46067 has 3 MA's), (Start: 49 @46064 has 16 MA's), (Start: 52 @46055 has 169 MA's), (62, 45962),

Gene: TinyTimmy\_81 Start: 45793, Stop: 45656, Start Num: 49

Candidate Starts for TinyTimmy\_81:

(29, 45928), (Start: 47 @45799 has 6 MA's), (Start: 48 @45796 has 3 MA's), (Start: 49 @45793 has 16 MA's), (Start: 52 @45784 has 169 MA's), (62, 45691),

Gene: TipsytheTRex\_81 Start: 46582, Stop: 46451, Start Num: 52

Candidate Starts for TipsytheTRex\_81:

(Start: 47 @46594 has 6 MA's), (Start: 52 @46582 has 169 MA's), (62, 46489),

Gene: Toaka\_80 Start: 45921, Stop: 45787, Start Num: 52

Candidate Starts for Toaka\_80:

(Start: 52 @45921 has 169 MA's),

Gene: Todacoro\_76 Start: 45334, Stop: 45194, Start Num: 52

Candidate Starts for Todacoro\_76:

(31, 45463), (Start: 50 @45337 has 14 MA's), (Start: 52 @45334 has 169 MA's), (59, 45259), (62, 45241), (64, 45226), (65, 45220), (74, 45199),

Gene: Tomathan\_82 Start: 47041, Stop: 46898, Start Num: 48

Candidate Starts for Tomathan\_82:

(29, 47158), (35, 47128), (Start: 47 @47044 has 6 MA's), (Start: 48 @47041 has 3 MA's), (Start: 49 @47038 has 16 MA's), (Start: 52 @47032 has 169 MA's), (62, 46939), (71, 46906),

Gene: ToneTone\_80 Start: 45241, Stop: 45119, Start Num: 52

Candidate Starts for ToneTone\_80:

(Start: 52 @45241 has 169 MA's), (62, 45148),

Gene: Travvers\_82 Start: 46955, Stop: 46815, Start Num: 49

Candidate Starts for Travvers\_82:

(29, 47075), (35, 47045), (Start: 47 @46961 has 6 MA's), (Start: 48 @46958 has 3 MA's), (Start: 49 @46955 has 16 MA's), (Start: 52 @46949 has 169 MA's), (62, 46856), (71, 46823),

Gene: Trixie\_82 Start: 47910, Stop: 47782, Start Num: 52

Candidate Starts for Trixie\_82:

(Start: 52 @47910 has 169 MA's), (62, 47817), (68, 47787),

Gene: Tucker\_83 Start: 45444, Stop: 45322, Start Num: 52  
Candidate Starts for Tucker\_83:  
(Start: 52 @45444 has 169 MA's), (62, 45351),

Gene: Turbido\_83 Start: 47614, Stop: 47486, Start Num: 52  
Candidate Starts for Turbido\_83:  
(Start: 52 @47614 has 169 MA's), (57, 47551),

Gene: Twigg\_77 Start: 46536, Stop: 46411, Start Num: 52  
Candidate Starts for Twigg\_77:  
(Start: 52 @46536 has 169 MA's),

Gene: Updawg\_83 Start: 47141, Stop: 47010, Start Num: 52  
Candidate Starts for Updawg\_83:  
(Start: 47 @47153 has 6 MA's), (Start: 52 @47141 has 169 MA's), (Start: 53 @47138 has 1 MA's), (59, 47066), (64, 47033), (70, 47015),

Gene: VA6\_82 Start: 47174, Stop: 47052, Start Num: 52  
Candidate Starts for VA6\_82:  
(Start: 52 @47174 has 169 MA's),

Gene: VC3\_80 Start: 45854, Stop: 45714, Start Num: 52  
Candidate Starts for VC3\_80:  
(Start: 47 @45866 has 6 MA's), (Start: 48 @45863 has 3 MA's), (Start: 49 @45860 has 16 MA's),  
(Start: 52 @45854 has 169 MA's), (62, 45761),

Gene: Veracruz\_73 Start: 45335, Stop: 45195, Start Num: 52  
Candidate Starts for Veracruz\_73:  
(31, 45464), (Start: 50 @45338 has 14 MA's), (Start: 52 @45335 has 169 MA's), (59, 45260), (62, 45242), (64, 45227), (65, 45221), (74, 45200),

Gene: VohminGhazi\_82 Start: 45268, Stop: 45146, Start Num: 52  
Candidate Starts for VohminGhazi\_82:  
(37, 45364), (Start: 47 @45277 has 6 MA's), (Start: 52 @45268 has 169 MA's), (62, 45175),

Gene: WeiHuaDA\_84 Start: 48169, Stop: 48041, Start Num: 52  
Candidate Starts for WeiHuaDA\_84:  
(Start: 52 @48169 has 169 MA's), (62, 48076), (68, 48046),

Gene: Whabigail7\_82 Start: 47612, Stop: 47484, Start Num: 52  
Candidate Starts for Whabigail7\_82:  
(44, 47636), (Start: 52 @47612 has 169 MA's), (57, 47549),

Gene: WideWale\_83 Start: 47141, Stop: 47010, Start Num: 52  
Candidate Starts for WideWale\_83:  
(Start: 47 @47153 has 6 MA's), (Start: 52 @47141 has 169 MA's), (Start: 53 @47138 has 1 MA's), (59, 47066), (64, 47033), (70, 47015),

Gene: Wiks\_82 Start: 45312, Stop: 45190, Start Num: 52  
Candidate Starts for Wiks\_82:  
(Start: 52 @45312 has 169 MA's), (62, 45219),

Gene: WunderPhul\_83 Start: 45310, Stop: 45188, Start Num: 52

Candidate Starts for WunderPhul\_83:  
(Start: 52 @45310 has 169 MA's), (62, 45217),

Gene: XianYue\_80 Start: 47246, Stop: 47115, Start Num: 52  
Candidate Starts for XianYue\_80:  
(Start: 52 @47246 has 169 MA's), (62, 47153),

Gene: Yokurt\_82 Start: 45312, Stop: 45190, Start Num: 52  
Candidate Starts for Yokurt\_82:  
(Start: 52 @45312 has 169 MA's), (62, 45219),

Gene: Zaka\_83 Start: 45312, Stop: 45190, Start Num: 52  
Candidate Starts for Zaka\_83:  
(Start: 52 @45312 has 169 MA's), (62, 45219),

Gene: Zimmer\_78 Start: 46792, Stop: 46658, Start Num: 52  
Candidate Starts for Zimmer\_78:  
(Start: 52 @46792 has 169 MA's), (68, 46669),

Gene: Zulu\_84 Start: 45690, Stop: 45568, Start Num: 52  
Candidate Starts for Zulu\_84:  
(Start: 52 @45690 has 169 MA's), (62, 45597),