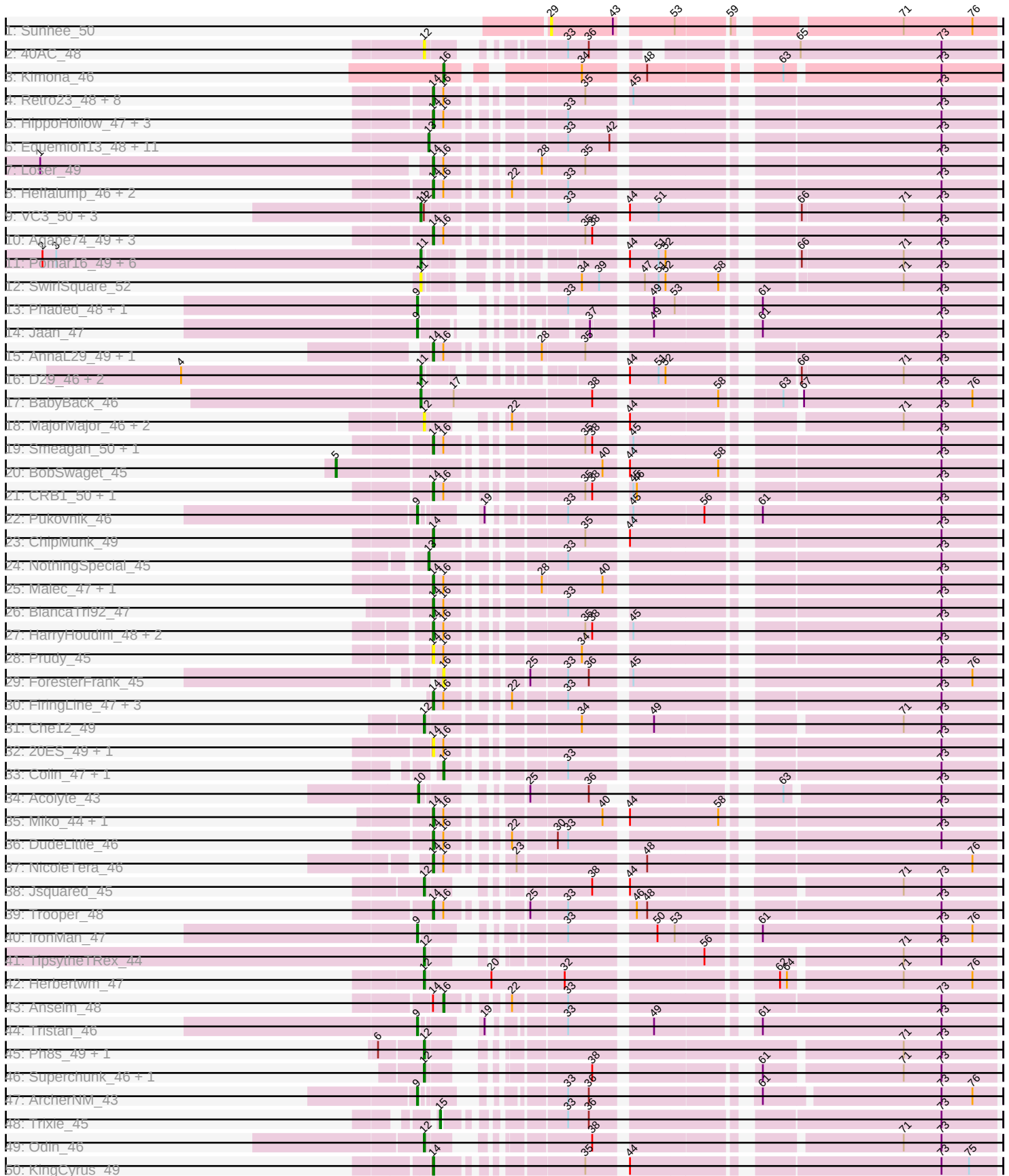
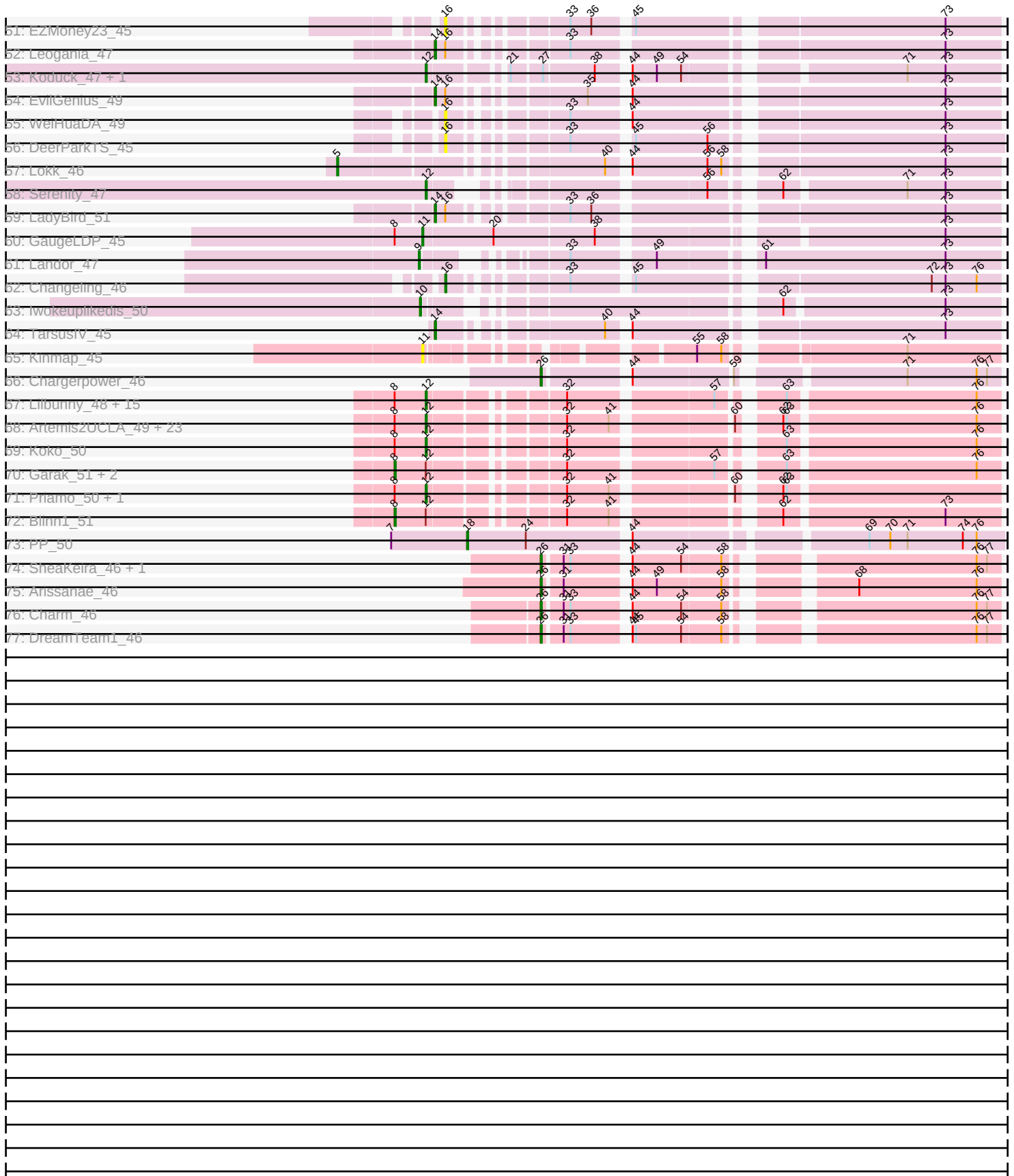


# Pham 280131



Pham 280131



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 280131 Report

This analysis was run 02/07/26 on database version 634.

Pham number 280131 has 175 members, 27 are drafts.

Phages represented in each track:

- Track 1 : Sunhee\_50
- Track 2 : 40AC\_48
- Track 3 : Kimona\_46
- Track 4 : Retro23\_48, Georgie2\_48, Crucio\_47, Dignity\_49, SemperFi\_48, SweetiePie\_47, Dalmatian\_48, Turbido\_48, Jerm\_49
- Track 5 : HippoHollow\_47, Echid\_47, LionsBait\_49, Benvolio\_44
- Track 6 : Equemioh13\_48, Buggy\_49, MiculUcigas\_47, Baehexic\_46, Updawg\_48, Centaur\_48, Terrific\_50, Gratitude\_47, NaSiaTalie\_47, Sknot\_47, WideWale\_48, Flare16\_47
- Track 7 : Loser\_49
- Track 8 : Heffalump\_46, QueenB2\_46, Fameo\_47
- Track 9 : VC3\_50, ANI8\_50, AN9\_50, C3\_45
- Track 10 : Agape74\_49, AbbyPaige\_49, Whabigail7\_48, LilTurb\_48
- Track 11 : Pomar16\_49, Travvers\_49, DBQu4n\_49, Tomathan\_49, Kerberos\_49, Duplo\_49, StarStuff\_49
- Track 12 : SwirlSquare\_52
- Track 13 : Phaded\_48, Bactobuster\_46
- Track 14 : Jaan\_47
- Track 15 : AnnaL29\_49, RedRock\_49
- Track 16 : D29\_46, D32\_49, Naji\_49
- Track 17 : BabyBack\_46
- Track 18 : MajorMajor\_46, Bradman\_46, Quokka\_45
- Track 19 : Smeagan\_50, Leviathan\_49
- Track 20 : BobSwaget\_45
- Track 21 : CRB1\_50, JoshKayV\_49
- Track 22 : Pukovnik\_46
- Track 23 : ChipMunk\_49
- Track 24 : NothingSpecial\_45
- Track 25 : Malec\_47, Larenn\_46
- Track 26 : BiancaTri92\_47
- Track 27 : HarryHoudini\_48, Piro94\_47, Drake55\_49
- Track 28 : Prudy\_45
- Track 29 : ForesterFrank\_45
- Track 30 : FiringLine\_47, Power\_46, SnapTap\_47, QueenBeesly\_47
- Track 31 : Che12\_49
- Track 32 : 20ES\_49, First\_0048
- Track 33 : Colin\_47, Kalpine\_45

- Track 34 : Acolyte\_43
- Track 35 : Miko\_44, Rachaly\_46
- Track 36 : DudeLittle\_46
- Track 37 : NicoleTera\_46
- Track 38 : Jsquared\_45
- Track 39 : Trooper\_48
- Track 40 : IronMan\_47
- Track 41 : TipsytheTRex\_44
- Track 42 : Herbertwm\_47
- Track 43 : Anselm\_48
- Track 44 : Tristan\_46
- Track 45 : Ph8s\_49, Adzzy\_49
- Track 46 : Superchunk\_46, Caraxes\_47
- Track 47 : ArcherNM\_43
- Track 48 : Trixie\_45
- Track 49 : Odin\_46
- Track 50 : KingCyrus\_49
- Track 51 : EZMoney23\_45
- Track 52 : Leogania\_47
- Track 53 : Koduck\_47, L5\_46
- Track 54 : EvilGenius\_49
- Track 55 : WeiHuaDA\_49
- Track 56 : DeerParkTS\_45
- Track 57 : Lökk\_46
- Track 58 : Serenity\_47
- Track 59 : LadyBird\_51
- Track 60 : GaugeLDP\_45
- Track 61 : Landor\_47
- Track 62 : Changeling\_46
- Track 63 : Iwokeuplikedis\_50
- Track 64 : TarsusIV\_45
- Track 65 : Kinmap\_45
- Track 66 : Chargerpower\_46
- Track 67 : Lilbunny\_48, ToneTone\_46, BlessJoy\_50, Wiks\_48, Temprado\_50, Helmet\_51, Hammer\_50, Blue7\_51, Zaka\_49, Indra\_52, Zulu\_49, WunderPhul\_49, Rifter\_50, Tucker\_49, Jeffabunny\_49, Gruunaga\_49
- Track 68 : Artemis2UCLA\_49, BennyP\_50, Isiphiwo\_47, SuperAwesome\_49, DaVinci\_48, GreedyLawyer\_49, Kipper29\_49, Dorothea\_49, Candra\_49, Gladiator\_47, SuperCallie99\_48, VohminGhazi\_49, Cookiedough\_49, Kazan\_50, McFly\_49, Roksolana\_50, Chartreuse\_48, Neeharika16\_48, Pmask\_49, CloudWang3\_49, Newrala\_49, EricB\_49, SmellyB\_49, Polyphemus\_50
- Track 69 : Koko\_50
- Track 70 : Garak\_51, Yokurt\_49, Hexamo\_49
- Track 71 : Priamo\_50, Jordennis\_48
- Track 72 : Blinn1\_51
- Track 73 : PP\_50
- Track 74 : SheaKeira\_46, Klodlith\_47
- Track 75 : Arissanae\_46
- Track 76 : Charm\_46
- Track 77 : DreamTeam1\_46

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

The start number called the most often in the published annotations is 12, it was called in 51 of the 148 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 40AC\_48, Adzzy\_49, Artemis2UCLA\_49, BennyP\_50, BlessJoy\_50, Blue7\_51, Bradman\_46, Candra\_49, Caraxes\_47, Chartreuse\_48, Che12\_49, CloudWang3\_49, Cookiedough\_49, DaVinci\_48, Dorothea\_49, EricB\_49, Gladiator\_47, GreedyLawyer\_49, Gruunaga\_49, Hammer\_50, Helmet\_51, Herbertwm\_47, Indra\_52, Isiphiwo\_47, Jeffabunny\_49, Jordennis\_48, Jsquared\_45, Kazan\_50, Kipper29\_49, Koduck\_47, Koko\_50, L5\_46, Lilbunny\_48, MajorMajor\_46, McFly\_49, Neeharika16\_48, Newrala\_49, Odin\_46, Ph8s\_49, Pmask\_49, Polyphemus\_50, Priamo\_50, Quokka\_45, Rifter\_50, Roksolana\_50, Serenity\_47, SmellyB\_49, SuperAwesome\_49, SuperCallie99\_48, Superchunk\_46, Temprado\_50, TipsytheTRex\_44, ToneTone\_46, Tucker\_49, VohminGhazi\_49, Wiks\_48, WunderPhul\_49, Zaka\_49, Zulu\_49,

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

- AN9\_50, ANI8\_50, Blinn1\_51, C3\_45, Garak\_51, Hexamo\_49, VC3\_50, Yokurt\_49,

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

- 20ES\_49, AbbyPaige\_49, Acolyte\_43, Agape74\_49, AnnaL29\_49, Anselm\_48, ArcherNM\_43, Arissanæ\_46, BabyBack\_46, Bactobuster\_46, Baehexic\_46, Benvolio\_44, BiancaTri92\_47, BobSwaget\_45, Buggy\_49, CRB1\_50, Centaur\_48, Changeling\_46, Chargerpower\_46, Charm\_46, ChipMunk\_49, Colin\_47, Crucio\_47, D29\_46, D32\_49, DBQu4n\_49, Dalmatian\_48, DeerParkTS\_45, Dignity\_49, Drake55\_49, DreamTeam1\_46, DudeLittle\_46, Duplo\_49, EZMoney23\_45, Echild\_47, Equemioh13\_48, EvilGenius\_49, Fameo\_47, FiringLine\_47, First\_0048, Flare16\_47, ForesterFrank\_45, GaugeLDP\_45, Georgie2\_48, Gratitude\_47, HarryHoudini\_48, Heffalump\_46, HippoHollow\_47, IronMan\_47, Iwokeuplikedis\_50, Jaan\_47, Jerm\_49, JoshKayV\_49, Kalpine\_45, Kerberos\_49, Kimona\_46, KingCyrus\_49, Kinmap\_45, Klodlith\_47, LadyBird\_51, Landor\_47, Larenn\_46, Leogania\_47, Leviathan\_49, LilTurb\_48, LionsBait\_49, Lokk\_46, Loser\_49, Malec\_47, MiculUcigas\_47, Miko\_44, NaSiaTalie\_47, Naji\_49, NicoleTera\_46, NothingSpecial\_45, PP\_50, Phaded\_48, Piro94\_47, Pomar16\_49, Power\_46, Prudy\_45, Pukovnik\_46, QueenB2\_46, QueenBeesly\_47, Rachaly\_46, RedRock\_49, Retro23\_48, SemperFi\_48, SheaKeira\_46, Sknot\_47, Smeagan\_50, SnapTap\_47, StarStuff\_49, Sunhee\_50, SweetiePie\_47, SwirlSquare\_52, TarsusIV\_45, Terrific\_50, Tomathan\_49, Travvers\_49, Tristan\_46, Trixie\_45, Trooper\_48, Turbido\_48, Updawg\_48, WeiHuaDA\_49, Whabigail7\_48, WideWale\_48,

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

Start 5:

- Found in 2 of 175 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 2 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BobSwaget\_45 (A2), Lokk\_46 (A2),

Start 8:

- Found in 48 of 175 ( 27.4% ) of genes in pham

- Manual Annotations of this start: 3 of 148
- Called 8.3% of time when present
- Phage (with cluster) where this start called: Blinn1\_51 (A6), Garak\_51 (A6), Hexamo\_49 (A6), Yokurt\_49 (A6),

#### Start 9:

- Found in 8 of 175 ( 4.6% ) of genes in pham
- Manual Annotations of this start: 8 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ArcherNM\_43 (A2), Bactobuster\_46 (A2), IronMan\_47 (A2), Jaan\_47 (A2), Landor\_47 (A2), Phaded\_48 (A2), Pukovnik\_46 (A2), Tristan\_46 (A2),

#### Start 10:

- Found in 2 of 175 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 2 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acolyte\_43 (A2), Iwokeuplikedis\_50 (A2),

#### Start 11:

- Found in 18 of 175 ( 10.3% ) of genes in pham
- Manual Annotations of this start: 15 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AN9\_50 (A2), ANI8\_50 (A2), BabyBack\_46 (A2), C3\_45 (A2), D29\_46 (A2), D32\_49 (A2), DBQu4n\_49 (A2), Duplo\_49 (A2), GaugeLDP\_45 (A2), Kerberos\_49 (A2), Kinmap\_45 (A2), Naji\_49 (A2), Pomar16\_49 (A2), StarStuff\_49 (A2), SwirlSquare\_52 (A2), Tomathan\_49 (A2), Travvers\_49 (A2), VC3\_50 (A2),

#### Start 12:

- Found in 67 of 175 ( 38.3% ) of genes in pham
- Manual Annotations of this start: 51 of 148
- Called 88.1% of time when present
- Phage (with cluster) where this start called: 40AC\_48 (A17), Adzzy\_49 (A2), Artemis2UCLA\_49 (A6), BennyP\_50 (A6), BlessJoy\_50 (A6), Blue7\_51 (A6), Bradman\_46 (A2), Candra\_49 (A6), Caraxes\_47 (A2), Chartreuse\_48 (A6), Che12\_49 (A2), CloudWang3\_49 (A6), Cookiedough\_49 (A6), DaVinci\_48 (A6), Dorothea\_49 (A6), EricB\_49 (A6), Gladiator\_47 (A6), GreedyLawyer\_49 (A6), Gruunaga\_49 (A6), Hammer\_50 (A6), Helmet\_51 (A6), Herbertwm\_47 (A2), Indra\_52 (A6), Isiphiwo\_47 (A6), Jeffabunny\_49 (A6), Jordennis\_48 (A6), Jsquared\_45 (A2), Kazan\_50 (A6), Kipper29\_49 (A6), Koduck\_47 (A2), Koko\_50 (A6), L5\_46 (A2), Lilbunny\_48 (A6), MajorMajor\_46 (A2), McFly\_49 (A6), Neeharika16\_48 (A6), Newrala\_49 (A6), Odin\_46 (A2), Ph8s\_49 (A2), Pmask\_49 (A6), Polyphemus\_50 (A6), Priamo\_50 (A6), Quokka\_45 (A2), Rifter\_50 (A6), Roksolana\_50 (A6), Serenity\_47 (A2), SmellyB\_49 (A6), SuperAwesome\_49 (A6), SuperCallie99\_48 (A6), Superchunk\_46 (A2), Temprado\_50 (A6), TopsytheTRex\_44 (A2), ToneTone\_46 (A6), Tucker\_49 (A6), VohminGhazi\_49 (A6), Wiks\_48 (A6), WunderPhul\_49 (A6), Zaka\_49 (A6), Zulu\_49 (A6),

#### Start 13:

- Found in 13 of 175 ( 7.4% ) of genes in pham
- Manual Annotations of this start: 11 of 148

- Called 100.0% of time when present
- Phage (with cluster) where this start called: Baehexic\_46 (A2), Bugsy\_49 (A2), Centaur\_48 (A2), Equemioh13\_48 (A2), Flare16\_47 (A2), Gratitude\_47 (A2), MiculUcigas\_47 (A2), NaSiaTalie\_47 (A2), NothingSpecial\_45 (A2), Sknot\_47 (A2), Terrific\_50 (A2), Updawg\_48 (A2), WideWale\_48 (A2),

#### Start 14:

- Found in 52 of 175 ( 29.7% ) of genes in pham
- Manual Annotations of this start: 45 of 148
- Called 98.1% of time when present
- Phage (with cluster) where this start called: 20ES\_49 (A2), AbbyPaige\_49 (A2), Agape74\_49 (A2), AnnaL29\_49 (A2), Benvolio\_44 (A2), BiancaTri92\_47 (A2), CRB1\_50 (A2), ChipMunk\_49 (A2), Crucio\_47 (A2), Dalmatian\_48 (A2), Dignity\_49 (A2), Drake55\_49 (A2), DudeLittle\_46 (A2), Echid\_47 (A2), EvilGenius\_49 (A2), Fameo\_47 (A2), FiringLine\_47 (A2), First\_0048 (A2), Georgie2\_48 (A2), HarryHoudini\_48 (A2), Heffalump\_46 (A2), HippoHollow\_47 (A2), Jerm\_49 (A2), JoshKayV\_49 (A2), KingCyrus\_49 (A2), LadyBird\_51 (A2), Larenn\_46 (A2), Leogania\_47 (A2), Leviathan\_49 (A2), LilTurb\_48 (A2), LionsBait\_49 (A2), Loser\_49 (A2), Malec\_47 (A2), Miko\_44 (A2), NicoleTera\_46 (A2), Piro94\_47 (A2), Power\_46 (A2), Prudy\_45 (A2), QueenB2\_46 (A2), QueenBeesly\_47 (A2), Rachaly\_46 (A2), RedRock\_49 (A2), Retro23\_48 (A2), SemperFi\_48 (A2), Smeagan\_50 (A2), SnapTap\_47 (A2), SweetiePie\_47 (A2), TarsusIV\_45 (A2), Trooper\_48 (A2), Turbido\_48 (A2), Whabigail7\_48 (A2),

#### Start 15:

- Found in 1 of 175 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Trixie\_45 (A2),

#### Start 16:

- Found in 57 of 175 ( 32.6% ) of genes in pham
- Manual Annotations of this start: 4 of 148
- Called 15.8% of time when present
- Phage (with cluster) where this start called: Anselm\_48 (A2), Changeling\_46 (A2), Colin\_47 (A2), DeerParkTS\_45 (A2), EZMoney23\_45 (A2), ForesterFrank\_45 (A2), Kalpine\_45 (A2), Kimona\_46 (A19), WeiHuaDA\_49 (A2),

#### Start 18:

- Found in 1 of 175 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: PP\_50 (A7),

#### Start 26:

- Found in 6 of 175 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 5 of 148
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arissanae\_46 (A9), Chargerpower\_46 (A22), Charm\_46 (A9), DreamTeam1\_46 (A9), Klodlith\_47 (A9), SheaKeira\_46 (A9),

#### Start 29:

- Found in 1 of 175 ( 0.6% ) of genes in pham

- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sunhee\_50 (A14),

### **Summary by clusters:**

There are 9 clusters represented in this pham: A21, A17, A14, A19, A22, A2, A7, A6, A9,

Info for manual annotations of cluster A19:

- Start number 16 was manually annotated 1 time for cluster A19.

Info for manual annotations of cluster A2:

- Start number 5 was manually annotated 2 times for cluster A2.
- Start number 9 was manually annotated 8 times for cluster A2.
- Start number 10 was manually annotated 2 times for cluster A2.
- Start number 11 was manually annotated 15 times for cluster A2.
- Start number 12 was manually annotated 10 times for cluster A2.
- Start number 13 was manually annotated 11 times for cluster A2.
- Start number 14 was manually annotated 45 times for cluster A2.
- Start number 15 was manually annotated 1 time for cluster A2.
- Start number 16 was manually annotated 3 times for cluster A2.

Info for manual annotations of cluster A22:

- Start number 26 was manually annotated 1 time for cluster A22.

Info for manual annotations of cluster A6:

- Start number 8 was manually annotated 3 times for cluster A6.
- Start number 12 was manually annotated 41 times for cluster A6.

Info for manual annotations of cluster A7:

- Start number 18 was manually annotated 1 time for cluster A7.

Info for manual annotations of cluster A9:

- Start number 26 was manually annotated 4 times for cluster A9.

### **Gene Information:**

Gene: 20ES\_49 Start: 32435, Stop: 32013, Start Num: 14

Candidate Starts for 20ES\_49:

(Start: 14 @32435 has 45 MA's), (Start: 16 @32426 has 4 MA's), (73, 32060),

Gene: 40AC\_48 Start: 33450, Stop: 33055, Start Num: 12

Candidate Starts for 40AC\_48:

(Start: 12 @33450 has 51 MA's), (33, 33372), (36, 33354), (65, 33225), (73, 33102),

Gene: AN9\_50 Start: 32346, Stop: 31912, Start Num: 11

Candidate Starts for AN9\_50:

(Start: 11 @32346 has 15 MA's), (Start: 12 @32343 has 51 MA's), (33, 32244), (44, 32202), (51, 32178), (66, 32079), (71, 31992), (73, 31959),

Gene: ANI8\_50 Start: 32346, Stop: 31912, Start Num: 11

Candidate Starts for ANI8\_50:

(Start: 11 @32346 has 15 MA's), (Start: 12 @32343 has 51 MA's), (33, 32244), (44, 32202), (51, 32178), (66, 32079), (71, 31992), (73, 31959),

Gene: AbbyPaige\_49 Start: 32616, Stop: 32194, Start Num: 14

Candidate Starts for AbbyPaige\_49:

(Start: 14 @32616 has 45 MA's), (Start: 16 @32607 has 4 MA's), (35, 32514), (38, 32508), (73, 32241),

Gene: Acolyte\_43 Start: 31589, Stop: 31182, Start Num: 10

Candidate Starts for Acolyte\_43:

(Start: 10 @31589 has 2 MA's), (25, 31532), (36, 31484), (63, 31358), (73, 31229),

Gene: Adzzy\_49 Start: 31071, Stop: 30643, Start Num: 12

Candidate Starts for Adzzy\_49:

(6, 31107), (Start: 12 @31071 has 51 MA's), (71, 30723), (73, 30690),

Gene: Agape74\_49 Start: 32601, Stop: 32179, Start Num: 14

Candidate Starts for Agape74\_49:

(Start: 14 @32601 has 45 MA's), (Start: 16 @32592 has 4 MA's), (35, 32499), (38, 32493), (73, 32226),

Gene: AnnaL29\_49 Start: 33146, Stop: 32724, Start Num: 14

Candidate Starts for AnnaL29\_49:

(Start: 14 @33146 has 45 MA's), (Start: 16 @33137 has 4 MA's), (28, 33080), (35, 33044), (73, 32771),

Gene: Anselm\_48 Start: 32523, Stop: 32110, Start Num: 16

Candidate Starts for Anselm\_48:

(Start: 14 @32532 has 45 MA's), (Start: 16 @32523 has 4 MA's), (22, 32487), (33, 32445), (73, 32157),

Gene: ArcherNM\_43 Start: 32185, Stop: 31778, Start Num: 9

Candidate Starts for ArcherNM\_43:

(Start: 9 @32185 has 8 MA's), (33, 32107), (36, 32089), (61, 31972), (73, 31825), (76, 31798),

Gene: Arissanae\_46 Start: 32694, Stop: 32350, Start Num: 26

Candidate Starts for Arissanae\_46:

(Start: 26 @32694 has 5 MA's), (31, 32679), (44, 32631), (49, 32610), (58, 32556), (68, 32472), (76, 32370),

Gene: Artemis2UCLA\_49 Start: 30834, Stop: 30406, Start Num: 12

Candidate Starts for Artemis2UCLA\_49:

(Start: 8 @30861 has 3 MA's), (Start: 12 @30834 has 51 MA's), (32, 30738), (41, 30702), (60, 30612), (62, 30585), (63, 30582), (76, 30426),

Gene: BabyBack\_46 Start: 32865, Stop: 32410, Start Num: 11

Candidate Starts for BabyBack\_46:

(Start: 11 @32865 has 15 MA's), (17, 32838), (38, 32721), (58, 32625), (63, 32589), (67, 32577), (73, 32457), (76, 32430),

Gene: Bactobuster\_46 Start: 33096, Stop: 32677, Start Num: 9

Candidate Starts for Bactobuster\_46:

(Start: 9 @33096 has 8 MA's), (33, 33015), (49, 32952), (53, 32934), (61, 32880), (73, 32724),

Gene: Baehexic\_46 Start: 32303, Stop: 31869, Start Num: 13

Candidate Starts for Baehexic\_46:

(Start: 13 @32303 has 11 MA's), (33, 32204), (42, 32168), (73, 31916),

Gene: BennyP\_50 Start: 31282, Stop: 30854, Start Num: 12

Candidate Starts for BennyP\_50:

(Start: 8 @31309 has 3 MA's), (Start: 12 @31282 has 51 MA's), (32, 31186), (41, 31150), (60, 31060), (62, 31033), (63, 31030), (76, 30874),

Gene: Benvolio\_44 Start: 31563, Stop: 31141, Start Num: 14

Candidate Starts for Benvolio\_44:

(Start: 14 @31563 has 45 MA's), (Start: 16 @31554 has 4 MA's), (33, 31476), (73, 31188),

Gene: BiancaTri92\_47 Start: 32931, Stop: 32509, Start Num: 14

Candidate Starts for BiancaTri92\_47:

(Start: 14 @32931 has 45 MA's), (Start: 16 @32922 has 4 MA's), (33, 32844), (73, 32556),

Gene: BlessJoy\_50 Start: 31295, Stop: 30867, Start Num: 12

Candidate Starts for BlessJoy\_50:

(Start: 8 @31322 has 3 MA's), (Start: 12 @31295 has 51 MA's), (32, 31199), (57, 31085), (63, 31043), (76, 30887),

Gene: Blinn1\_51 Start: 31121, Stop: 30666, Start Num: 8

Candidate Starts for Blinn1\_51:

(Start: 8 @31121 has 3 MA's), (Start: 12 @31094 has 51 MA's), (32, 30998), (41, 30962), (62, 30845), (73, 30713),

Gene: Blue7\_51 Start: 30930, Stop: 30502, Start Num: 12

Candidate Starts for Blue7\_51:

(Start: 8 @30957 has 3 MA's), (Start: 12 @30930 has 51 MA's), (32, 30834), (57, 30720), (63, 30678), (76, 30522),

Gene: BobSwaget\_45 Start: 31896, Stop: 31399, Start Num: 5

Candidate Starts for BobSwaget\_45:

(Start: 5 @31896 has 2 MA's), (40, 31704), (44, 31692), (58, 31617), (73, 31446),

Gene: Bradman\_46 Start: 31085, Stop: 30678, Start Num: 12

Candidate Starts for Bradman\_46:

(Start: 12 @31085 has 51 MA's), (22, 31049), (44, 30965), (71, 30758), (73, 30725),

Gene: Bugsy\_49 Start: 32673, Stop: 32239, Start Num: 13

Candidate Starts for Bugsy\_49:

(Start: 13 @32673 has 11 MA's), (33, 32574), (42, 32538), (73, 32286),

Gene: C3\_45 Start: 32346, Stop: 31912, Start Num: 11

Candidate Starts for C3\_45:

(Start: 11 @32346 has 15 MA's), (Start: 12 @32343 has 51 MA's), (33, 32244), (44, 32202), (51, 32178), (66, 32079), (71, 31992), (73, 31959),

Gene: CRB1\_50 Start: 32781, Stop: 32359, Start Num: 14

Candidate Starts for CRB1\_50:

(Start: 14 @32781 has 45 MA's), (Start: 16 @32772 has 4 MA's), (35, 32679), (38, 32673), (45, 32649), (46, 32646), (73, 32406),

Gene: Candra\_49 Start: 31173, Stop: 30745, Start Num: 12

Candidate Starts for Candra\_49:

(Start: 8 @31200 has 3 MA's), (Start: 12 @31173 has 51 MA's), (32, 31077), (41, 31041), (60, 30951), (62, 30924), (63, 30921), (76, 30765),

Gene: Caraxes\_47 Start: 30723, Stop: 30316, Start Num: 12

Candidate Starts for Caraxes\_47:

(Start: 12 @30723 has 51 MA's), (38, 30624), (61, 30510), (71, 30396), (73, 30363),

Gene: Centaur\_48 Start: 32520, Stop: 32086, Start Num: 13

Candidate Starts for Centaur\_48:

(Start: 13 @32520 has 11 MA's), (33, 32421), (42, 32385), (73, 32133),

Gene: Changeling\_46 Start: 32725, Stop: 32312, Start Num: 16

Candidate Starts for Changeling\_46:

(Start: 16 @32725 has 4 MA's), (33, 32647), (45, 32602), (72, 32371), (73, 32359), (76, 32332),

Gene: Chargerpower\_46 Start: 31054, Stop: 30704, Start Num: 26

Candidate Starts for Chargerpower\_46:

(Start: 26 @31054 has 5 MA's), (44, 30991), (59, 30910), (71, 30784), (76, 30724), (77, 30715),

Gene: Charm\_46 Start: 31899, Stop: 31555, Start Num: 26

Candidate Starts for Charm\_46:

(Start: 26 @31899 has 5 MA's), (31, 31884), (33, 31878), (44, 31836), (54, 31794), (58, 31761), (76, 31575), (77, 31566),

Gene: Chartreuse\_48 Start: 30533, Stop: 30105, Start Num: 12

Candidate Starts for Chartreuse\_48:

(Start: 8 @30560 has 3 MA's), (Start: 12 @30533 has 51 MA's), (32, 30437), (41, 30401), (60, 30311), (62, 30284), (63, 30281), (76, 30125),

Gene: Che12\_49 Start: 31155, Stop: 30727, Start Num: 12

Candidate Starts for Che12\_49:

(Start: 12 @31155 has 51 MA's), (34, 31044), (49, 30993), (71, 30807), (73, 30774),

Gene: ChipMunk\_49 Start: 33873, Stop: 33451, Start Num: 14

Candidate Starts for ChipMunk\_49:

(Start: 14 @33873 has 45 MA's), (35, 33771), (44, 33744), (73, 33498),

Gene: CloudWang3\_49 Start: 30934, Stop: 30506, Start Num: 12

Candidate Starts for CloudWang3\_49:

(Start: 8 @30961 has 3 MA's), (Start: 12 @30934 has 51 MA's), (32, 30838), (41, 30802), (60, 30712), (62, 30685), (63, 30682), (76, 30526),

Gene: Colin\_47 Start: 32497, Stop: 32084, Start Num: 16

Candidate Starts for Colin\_47:

(Start: 16 @32497 has 4 MA's), (33, 32419), (73, 32131),

Gene: Cookiedough\_49 Start: 31149, Stop: 30721, Start Num: 12

Candidate Starts for Cookiedough\_49:

(Start: 8 @31176 has 3 MA's), (Start: 12 @31149 has 51 MA's), (32, 31053), (41, 31017), (60, 30927), (62, 30900), (63, 30897), (76, 30741),

Gene: Crucio\_47 Start: 32116, Stop: 31694, Start Num: 14

Candidate Starts for Crucio\_47:

(Start: 14 @32116 has 45 MA's), (Start: 16 @32107 has 4 MA's), (35, 32014), (45, 31984), (73, 31741),

Gene: D29\_46 Start: 31906, Stop: 31496, Start Num: 11

Candidate Starts for D29\_46:

(4, 32113), (Start: 11 @31906 has 15 MA's), (44, 31786), (51, 31762), (52, 31756), (66, 31663), (71, 31576), (73, 31543),

Gene: D32\_49 Start: 31906, Stop: 31496, Start Num: 11

Candidate Starts for D32\_49:

(4, 32113), (Start: 11 @31906 has 15 MA's), (44, 31786), (51, 31762), (52, 31756), (66, 31663), (71, 31576), (73, 31543),

Gene: DBQu4n\_49 Start: 31906, Stop: 31496, Start Num: 11

Candidate Starts for DBQu4n\_49:

(2, 32233), (3, 32221), (Start: 11 @31906 has 15 MA's), (44, 31786), (51, 31762), (52, 31756), (66, 31663), (71, 31576), (73, 31543),

Gene: DaVinci\_48 Start: 30587, Stop: 30159, Start Num: 12

Candidate Starts for DaVinci\_48:

(Start: 8 @30614 has 3 MA's), (Start: 12 @30587 has 51 MA's), (32, 30491), (41, 30455), (60, 30365), (62, 30338), (63, 30335), (76, 30179),

Gene: Dalmatian\_48 Start: 32508, Stop: 32086, Start Num: 14

Candidate Starts for Dalmatian\_48:

(Start: 14 @32508 has 45 MA's), (Start: 16 @32499 has 4 MA's), (35, 32406), (45, 32376), (73, 32133),

Gene: DeerParkTS\_45 Start: 31640, Stop: 31224, Start Num: 16

Candidate Starts for DeerParkTS\_45:

(Start: 16 @31640 has 4 MA's), (33, 31562), (45, 31517), (56, 31457), (73, 31274),

Gene: Dignity\_49 Start: 32681, Stop: 32259, Start Num: 14

Candidate Starts for Dignity\_49:

(Start: 14 @32681 has 45 MA's), (Start: 16 @32672 has 4 MA's), (35, 32579), (45, 32549), (73, 32306),

Gene: Dorothea\_49 Start: 31156, Stop: 30728, Start Num: 12

Candidate Starts for Dorothea\_49:

(Start: 8 @31183 has 3 MA's), (Start: 12 @31156 has 51 MA's), (32, 31060), (41, 31024), (60, 30934), (62, 30907), (63, 30904), (76, 30748),

Gene: Drake55\_49 Start: 32605, Stop: 32183, Start Num: 14

Candidate Starts for Drake55\_49:

(Start: 14 @32605 has 45 MA's), (Start: 16 @32596 has 4 MA's), (35, 32503), (38, 32497), (45, 32473), (73, 32230),

Gene: DreamTeam1\_46 Start: 31773, Stop: 31429, Start Num: 26

Candidate Starts for DreamTeam1\_46:

(Start: 26 @31773 has 5 MA's), (31, 31758), (33, 31752), (44, 31710), (45, 31707), (54, 31668), (58, 31635), (76, 31449), (77, 31440),

Gene: DudeLittle\_46 Start: 32250, Stop: 31828, Start Num: 14

Candidate Starts for DudeLittle\_46:

(Start: 14 @32250 has 45 MA's), (Start: 16 @32241 has 4 MA's), (22, 32205), (30, 32172), (33, 32163), (73, 31875),

Gene: Duplo\_49 Start: 31944, Stop: 31534, Start Num: 11

Candidate Starts for Duplo\_49:

(2, 32271), (3, 32259), (Start: 11 @31944 has 15 MA's), (44, 31824), (51, 31800), (52, 31794), (66, 31701), (71, 31614), (73, 31581),

Gene: EZMoney23\_45 Start: 32055, Stop: 31642, Start Num: 16

Candidate Starts for EZMoney23\_45:

(Start: 16 @32055 has 4 MA's), (33, 31977), (36, 31959), (45, 31932), (73, 31689),

Gene: Echild\_47 Start: 31587, Stop: 31165, Start Num: 14

Candidate Starts for Echild\_47:

(Start: 14 @31587 has 45 MA's), (Start: 16 @31578 has 4 MA's), (33, 31500), (73, 31212),

Gene: Equemioh13\_48 Start: 32422, Stop: 31988, Start Num: 13

Candidate Starts for Equemioh13\_48:

(Start: 13 @32422 has 11 MA's), (33, 32323), (42, 32287), (73, 32035),

Gene: EricB\_49 Start: 31130, Stop: 30702, Start Num: 12

Candidate Starts for EricB\_49:

(Start: 8 @31157 has 3 MA's), (Start: 12 @31130 has 51 MA's), (32, 31034), (41, 30998), (60, 30908), (62, 30881), (63, 30878), (76, 30722),

Gene: EvilGenius\_49 Start: 33877, Stop: 33455, Start Num: 14

Candidate Starts for EvilGenius\_49:

(Start: 14 @33877 has 45 MA's), (Start: 16 @33868 has 4 MA's), (35, 33775), (44, 33748), (73, 33502),

Gene: Fameo\_47 Start: 32426, Stop: 32004, Start Num: 14

Candidate Starts for Fameo\_47:

(Start: 14 @32426 has 45 MA's), (Start: 16 @32417 has 4 MA's), (22, 32381), (33, 32339), (73, 32051),

Gene: FiringLine\_47 Start: 32097, Stop: 31675, Start Num: 14

Candidate Starts for FiringLine\_47:

(Start: 14 @32097 has 45 MA's), (Start: 16 @32088 has 4 MA's), (22, 32052), (33, 32010), (73, 31722),

Gene: First\_0048 Start: 32311, Stop: 31889, Start Num: 14

Candidate Starts for First\_0048:

(Start: 14 @32311 has 45 MA's), (Start: 16 @32302 has 4 MA's), (73, 31936),

Gene: Flare16\_47 Start: 32181, Stop: 31747, Start Num: 13

Candidate Starts for Flare16\_47:

(Start: 13 @32181 has 11 MA's), (33, 32082), (42, 32046), (73, 31794),

Gene: ForesterFrank\_45 Start: 32797, Stop: 32381, Start Num: 16

Candidate Starts for ForesterFrank\_45:

(Start: 16 @32797 has 4 MA's), (25, 32749), (33, 32719), (36, 32701), (45, 32674), (73, 32428), (76, 32401),

Gene: Garak\_51 Start: 31328, Stop: 30873, Start Num: 8

Candidate Starts for Garak\_51:

(Start: 8 @31328 has 3 MA's), (Start: 12 @31301 has 51 MA's), (32, 31205), (57, 31091), (63, 31049), (76, 30893),

Gene: GaugeLDP\_45 Start: 32488, Stop: 32036, Start Num: 11

Candidate Starts for GaugeLDP\_45:

(Start: 8 @32512 has 3 MA's), (Start: 11 @32488 has 15 MA's), (20, 32428), (38, 32344), (73, 32083),

Gene: Georgie2\_48 Start: 32142, Stop: 31720, Start Num: 14

Candidate Starts for Georgie2\_48:

(Start: 14 @32142 has 45 MA's), (Start: 16 @32133 has 4 MA's), (35, 32040), (45, 32010), (73, 31767),

Gene: Gladiator\_47 Start: 30461, Stop: 30033, Start Num: 12

Candidate Starts for Gladiator\_47:

(Start: 8 @30488 has 3 MA's), (Start: 12 @30461 has 51 MA's), (32, 30365), (41, 30329), (60, 30239), (62, 30212), (63, 30209), (76, 30053),

Gene: Gratitude\_47 Start: 32422, Stop: 31988, Start Num: 13

Candidate Starts for Gratitude\_47:

(Start: 13 @32422 has 11 MA's), (33, 32323), (42, 32287), (73, 32035),

Gene: GreedyLawyer\_49 Start: 31137, Stop: 30709, Start Num: 12

Candidate Starts for GreedyLawyer\_49:

(Start: 8 @31164 has 3 MA's), (Start: 12 @31137 has 51 MA's), (32, 31041), (41, 31005), (60, 30915), (62, 30888), (63, 30885), (76, 30729),

Gene: Gruunaga\_49 Start: 31137, Stop: 30709, Start Num: 12

Candidate Starts for Gruunaga\_49:

(Start: 8 @31164 has 3 MA's), (Start: 12 @31137 has 51 MA's), (32, 31041), (57, 30927), (63, 30885), (76, 30729),

Gene: Hammer\_50 Start: 30740, Stop: 30312, Start Num: 12

Candidate Starts for Hammer\_50:

(Start: 8 @30767 has 3 MA's), (Start: 12 @30740 has 51 MA's), (32, 30644), (57, 30530), (63, 30488), (76, 30332),

Gene: HarryHoudini\_48 Start: 32614, Stop: 32192, Start Num: 14

Candidate Starts for HarryHoudini\_48:

(Start: 14 @32614 has 45 MA's), (Start: 16 @32605 has 4 MA's), (35, 32512), (38, 32506), (45, 32482), (73, 32239),

Gene: Heffalump\_46 Start: 32894, Stop: 32472, Start Num: 14

Candidate Starts for Heffalump\_46:

(Start: 14 @32894 has 45 MA's), (Start: 16 @32885 has 4 MA's), (22, 32849), (33, 32807), (73, 32519),

Gene: Helmet\_51 Start: 31301, Stop: 30873, Start Num: 12

Candidate Starts for Helmet\_51:

(Start: 8 @31328 has 3 MA's), (Start: 12 @31301 has 51 MA's), (32, 31205), (57, 31091), (63, 31049), (76, 30893),

Gene: Herbertwm\_47 Start: 31973, Stop: 31524, Start Num: 12

Candidate Starts for Herbertwm\_47:

(Start: 12 @31973 has 51 MA's), (20, 31916), (32, 31856), (62, 31703), (64, 31697), (71, 31604), (76, 31544),

Gene: Hexamo\_49 Start: 30949, Stop: 30494, Start Num: 8

Candidate Starts for Hexamo\_49:

(Start: 8 @30949 has 3 MA's), (Start: 12 @30922 has 51 MA's), (32, 30826), (57, 30712), (63, 30670), (76, 30514),

Gene: HippoHollow\_47 Start: 33647, Stop: 33225, Start Num: 14

Candidate Starts for HippoHollow\_47:

(Start: 14 @33647 has 45 MA's), (Start: 16 @33638 has 4 MA's), (33, 33560), (73, 33272),

Gene: Indra\_52 Start: 31302, Stop: 30874, Start Num: 12

Candidate Starts for Indra\_52:

(Start: 8 @31329 has 3 MA's), (Start: 12 @31302 has 51 MA's), (32, 31206), (57, 31092), (63, 31050), (76, 30894),

Gene: IronMan\_47 Start: 33279, Stop: 32860, Start Num: 9

Candidate Starts for IronMan\_47:

(Start: 9 @33279 has 8 MA's), (33, 33198), (50, 33132), (53, 33117), (61, 33063), (73, 32907), (76, 32880),

Gene: Isiphiwo\_47 Start: 30674, Stop: 30246, Start Num: 12

Candidate Starts for Isiphiwo\_47:

(Start: 8 @30701 has 3 MA's), (Start: 12 @30674 has 51 MA's), (32, 30578), (41, 30542), (60, 30452), (62, 30425), (63, 30422), (76, 30266),

Gene: Iwokeuplikedis\_50 Start: 32216, Stop: 31788, Start Num: 10

Candidate Starts for Iwokeuplikedis\_50:

(Start: 10 @32216 has 2 MA's), (62, 31967), (73, 31835),

Gene: Jaan\_47 Start: 33445, Stop: 33047, Start Num: 9

Candidate Starts for Jaan\_47:

(Start: 9 @33445 has 8 MA's), (37, 33364), (49, 33322), (61, 33250), (73, 33094),

Gene: Jeffabunny\_49 Start: 30958, Stop: 30530, Start Num: 12

Candidate Starts for Jeffabunny\_49:

(Start: 8 @30985 has 3 MA's), (Start: 12 @30958 has 51 MA's), (32, 30862), (57, 30748), (63, 30706), (76, 30550),

Gene: Jerm\_49 Start: 32674, Stop: 32252, Start Num: 14

Candidate Starts for Jerm\_49:

(Start: 14 @32674 has 45 MA's), (Start: 16 @32665 has 4 MA's), (35, 32572), (45, 32542), (73, 32299),

Gene: Jordennis\_48 Start: 30594, Stop: 30166, Start Num: 12

Candidate Starts for Jordennis\_48:

(Start: 8 @30621 has 3 MA's), (Start: 12 @30594 has 51 MA's), (32, 30498), (41, 30462), (60, 30372), (62, 30345), (63, 30342),

Gene: JoshKayV\_49 Start: 32755, Stop: 32333, Start Num: 14

Candidate Starts for JoshKayV\_49:

(Start: 14 @32755 has 45 MA's), (Start: 16 @32746 has 4 MA's), (35, 32653), (38, 32647), (45, 32623), (46, 32620), (73, 32380),

Gene: Jsquared\_45 Start: 31025, Stop: 30618, Start Num: 12

Candidate Starts for Jsquared\_45:

(Start: 12 @31025 has 51 MA's), (38, 30926), (44, 30905), (71, 30698), (73, 30665),

Gene: Kalpine\_45 Start: 32395, Stop: 31982, Start Num: 16

Candidate Starts for Kalpine\_45:

(Start: 16 @32395 has 4 MA's), (33, 32317), (73, 32029),

Gene: Kazan\_50 Start: 31143, Stop: 30715, Start Num: 12

Candidate Starts for Kazan\_50:

(Start: 8 @31170 has 3 MA's), (Start: 12 @31143 has 51 MA's), (32, 31047), (41, 31011), (60, 30921), (62, 30894), (63, 30891), (76, 30735),

Gene: Kerberos\_49 Start: 31906, Stop: 31496, Start Num: 11

Candidate Starts for Kerberos\_49:

(2, 32233), (3, 32221), (Start: 11 @31906 has 15 MA's), (44, 31786), (51, 31762), (52, 31756), (66, 31663), (71, 31576), (73, 31543),

Gene: Kimona\_46 Start: 30459, Stop: 30046, Start Num: 16

Candidate Starts for Kimona\_46:

(Start: 16 @30459 has 4 MA's), (34, 30369), (48, 30324), (63, 30228), (73, 30099),

Gene: KingCyrus\_49 Start: 33872, Stop: 33450, Start Num: 14

Candidate Starts for KingCyrus\_49:

(Start: 14 @33872 has 45 MA's), (35, 33770), (44, 33743), (73, 33497), (75, 33473),

Gene: Kinmap\_45 Start: 31426, Stop: 31016, Start Num: 11

Candidate Starts for Kinmap\_45:

(Start: 11 @31426 has 15 MA's), (55, 31252), (58, 31231), (71, 31096),

Gene: Kipper29\_49 Start: 31156, Stop: 30728, Start Num: 12

Candidate Starts for Kipper29\_49:

(Start: 8 @31183 has 3 MA's), (Start: 12 @31156 has 51 MA's), (32, 31060), (41, 31024), (60, 30934), (62, 30907), (63, 30904), (76, 30748),

Gene: Klodlith\_47 Start: 31790, Stop: 31446, Start Num: 26

Candidate Starts for Klodlith\_47:

(Start: 26 @31790 has 5 MA's), (31, 31775), (33, 31769), (44, 31727), (54, 31685), (58, 31652), (76, 31466), (77, 31457),

Gene: Koduck\_47 Start: 31317, Stop: 30889, Start Num: 12

Candidate Starts for Koduck\_47:

(Start: 12 @31317 has 51 MA's), (21, 31263), (27, 31239), (38, 31197), (44, 31176), (49, 31155), (54, 31134), (71, 30969), (73, 30936),

Gene: Koko\_50 Start: 31279, Stop: 30851, Start Num: 12

Candidate Starts for Koko\_50:

(Start: 8 @31306 has 3 MA's), (Start: 12 @31279 has 51 MA's), (32, 31183), (63, 31027), (76, 30871),

Gene: L5\_46 Start: 31389, Stop: 30961, Start Num: 12

Candidate Starts for L5\_46:

(Start: 12 @31389 has 51 MA's), (21, 31335), (27, 31311), (38, 31269), (44, 31248), (49, 31227), (54, 31206), (71, 31041), (73, 31008),

Gene: LadyBird\_51 Start: 32746, Stop: 32324, Start Num: 14

Candidate Starts for LadyBird\_51:

(Start: 14 @32746 has 45 MA's), (Start: 16 @32737 has 4 MA's), (33, 32659), (36, 32641), (73, 32371),

Gene: Landor\_47 Start: 33357, Stop: 32938, Start Num: 9

Candidate Starts for Landor\_47:

(Start: 9 @33357 has 8 MA's), (33, 33276), (49, 33213), (61, 33141), (73, 32985),

Gene: Larenn\_46 Start: 32287, Stop: 31865, Start Num: 14

Candidate Starts for Larenn\_46:

(Start: 14 @32287 has 45 MA's), (Start: 16 @32278 has 4 MA's), (28, 32221), (40, 32170), (73, 31912),

Gene: Leogania\_47 Start: 33298, Stop: 32876, Start Num: 14

Candidate Starts for Leogania\_47:

(Start: 14 @33298 has 45 MA's), (Start: 16 @33289 has 4 MA's), (33, 33211), (73, 32923),

Gene: Leviathan\_49 Start: 32730, Stop: 32308, Start Num: 14

Candidate Starts for Leviathan\_49:

(Start: 14 @32730 has 45 MA's), (Start: 16 @32721 has 4 MA's), (35, 32628), (38, 32622), (45, 32598), (73, 32355),

Gene: LilTurb\_48 Start: 32563, Stop: 32141, Start Num: 14

Candidate Starts for LilTurb\_48:

(Start: 14 @32563 has 45 MA's), (Start: 16 @32554 has 4 MA's), (35, 32461), (38, 32455), (73, 32188),

Gene: Lilbunny\_48 Start: 30932, Stop: 30504, Start Num: 12

Candidate Starts for Lilbunny\_48:

(Start: 8 @30959 has 3 MA's), (Start: 12 @30932 has 51 MA's), (32, 30836), (57, 30722), (63, 30680), (76, 30524),

Gene: LionsBait\_49 Start: 33648, Stop: 33226, Start Num: 14

Candidate Starts for LionsBait\_49:

(Start: 14 @33648 has 45 MA's), (Start: 16 @33639 has 4 MA's), (33, 33561), (73, 33273),

Gene: Lokk\_46 Start: 32421, Stop: 31924, Start Num: 5

Candidate Starts for Lokk\_46:

(Start: 5 @32421 has 2 MA's), (40, 32229), (44, 32217), (56, 32154), (58, 32142), (73, 31971),

Gene: Loser\_49 Start: 33095, Stop: 32673, Start Num: 14

Candidate Starts for Loser\_49:

(1, 33422), (Start: 14 @33095 has 45 MA's), (Start: 16 @33086 has 4 MA's), (28, 33029), (35, 32993), (73, 32720),

Gene: MajorMajor\_46 Start: 31085, Stop: 30678, Start Num: 12

Candidate Starts for MajorMajor\_46:

(Start: 12 @31085 has 51 MA's), (22, 31049), (44, 30965), (71, 30758), (73, 30725),

Gene: Malec\_47 Start: 32851, Stop: 32429, Start Num: 14

Candidate Starts for Malec\_47:

(Start: 14 @32851 has 45 MA's), (Start: 16 @32842 has 4 MA's), (28, 32785), (40, 32734), (73, 32476),

Gene: McFly\_49 Start: 31137, Stop: 30709, Start Num: 12

Candidate Starts for McFly\_49:

(Start: 8 @31164 has 3 MA's), (Start: 12 @31137 has 51 MA's), (32, 31041), (41, 31005), (60, 30915), (62, 30888), (63, 30885), (76, 30729),

Gene: MiculUcigas\_47 Start: 32081, Stop: 31647, Start Num: 13

Candidate Starts for MiculUcigas\_47:

(Start: 13 @32081 has 11 MA's), (33, 31982), (42, 31946), (73, 31694),

Gene: Miko\_44 Start: 32243, Stop: 31821, Start Num: 14

Candidate Starts for Miko\_44:

(Start: 14 @32243 has 45 MA's), (Start: 16 @32234 has 4 MA's), (40, 32126), (44, 32114), (58, 32039), (73, 31868),

Gene: NaSiaTalie\_47 Start: 32178, Stop: 31744, Start Num: 13

Candidate Starts for NaSiaTalie\_47:

(Start: 13 @32178 has 11 MA's), (33, 32079), (42, 32043), (73, 31791),

Gene: Naji\_49 Start: 31906, Stop: 31496, Start Num: 11

Candidate Starts for Naji\_49:

(4, 32113), (Start: 11 @31906 has 15 MA's), (44, 31786), (51, 31762), (52, 31756), (66, 31663), (71, 31576), (73, 31543),

Gene: Neeharika16\_48 Start: 30597, Stop: 30169, Start Num: 12

Candidate Starts for Neeharika16\_48:

(Start: 8 @30624 has 3 MA's), (Start: 12 @30597 has 51 MA's), (32, 30501), (41, 30465), (60, 30375), (62, 30348), (63, 30345), (76, 30189),

Gene: Newrala\_49 Start: 31148, Stop: 30720, Start Num: 12

Candidate Starts for Newrala\_49:

(Start: 8 @31175 has 3 MA's), (Start: 12 @31148 has 51 MA's), (32, 31052), (41, 31016), (60, 30926), (62, 30899), (63, 30896), (76, 30740),

Gene: NicoleTera\_46 Start: 32449, Stop: 32027, Start Num: 14

Candidate Starts for NicoleTera\_46:

(Start: 14 @32449 has 45 MA's), (Start: 16 @32440 has 4 MA's), (23, 32401), (48, 32305), (76, 32047),

Gene: NothingSpecial\_45 Start: 32705, Stop: 32271, Start Num: 13

Candidate Starts for NothingSpecial\_45:

(Start: 13 @32705 has 11 MA's), (33, 32606), (73, 32318),

Gene: Odin\_46 Start: 30872, Stop: 30465, Start Num: 12

Candidate Starts for Odin\_46:

(Start: 12 @30872 has 51 MA's), (38, 30773), (71, 30545), (73, 30512),

Gene: PP\_50 Start: 36311, Stop: 35883, Start Num: 18

Candidate Starts for PP\_50:

(7, 36377), (Start: 18 @36311 has 1 MA's), (24, 36260), (44, 36179), (69, 35999), (70, 35981), (71, 35966), (74, 35918), (76, 35906),

Gene: Ph8s\_49 Start: 31506, Stop: 31078, Start Num: 12

Candidate Starts for Ph8s\_49:

(6, 31542), (Start: 12 @31506 has 51 MA's), (71, 31158), (73, 31125),

Gene: Phaded\_48 Start: 33339, Stop: 32920, Start Num: 9

Candidate Starts for Phaded\_48:

(Start: 9 @33339 has 8 MA's), (33, 33258), (49, 33195), (53, 33177), (61, 33123), (73, 32967),

Gene: Piro94\_47 Start: 32531, Stop: 32109, Start Num: 14

Candidate Starts for Piro94\_47:

(Start: 14 @32531 has 45 MA's), (Start: 16 @32522 has 4 MA's), (35, 32429), (38, 32423), (45, 32399), (73, 32156),

Gene: Pmask\_49 Start: 31149, Stop: 30721, Start Num: 12

Candidate Starts for Pmask\_49:

(Start: 8 @31176 has 3 MA's), (Start: 12 @31149 has 51 MA's), (32, 31053), (41, 31017), (60, 30927), (62, 30900), (63, 30897), (76, 30741),

Gene: Polyphemus\_50 Start: 31292, Stop: 30864, Start Num: 12

Candidate Starts for Polyphemus\_50:

(Start: 8 @31319 has 3 MA's), (Start: 12 @31292 has 51 MA's), (32, 31196), (41, 31160), (60, 31070), (62, 31043), (63, 31040), (76, 30884),

Gene: Pomar16\_49 Start: 31947, Stop: 31537, Start Num: 11

Candidate Starts for Pomar16\_49:

(2, 32274), (3, 32262), (Start: 11 @31947 has 15 MA's), (44, 31827), (51, 31803), (52, 31797), (66, 31704), (71, 31617), (73, 31584),

Gene: Power\_46 Start: 32150, Stop: 31728, Start Num: 14

Candidate Starts for Power\_46:

(Start: 14 @32150 has 45 MA's), (Start: 16 @32141 has 4 MA's), (22, 32105), (33, 32063), (73, 31775),

Gene: Priamo\_50 Start: 30766, Stop: 30338, Start Num: 12

Candidate Starts for Priamo\_50:

(Start: 8 @30793 has 3 MA's), (Start: 12 @30766 has 51 MA's), (32, 30670), (41, 30634), (60, 30544), (62, 30517), (63, 30514),

Gene: Prudy\_45 Start: 32629, Stop: 32207, Start Num: 14

Candidate Starts for Prudy\_45:

(Start: 14 @32629 has 45 MA's), (Start: 16 @32620 has 4 MA's), (34, 32530), (73, 32254),

Gene: Pukovnik\_46 Start: 32944, Stop: 32528, Start Num: 9

Candidate Starts for Pukovnik\_46:

(Start: 9 @32944 has 8 MA's), (19, 32914), (33, 32866), (45, 32821), (56, 32761), (61, 32731), (73, 32575),

Gene: QueenB2\_46 Start: 32110, Stop: 31688, Start Num: 14

Candidate Starts for QueenB2\_46:

(Start: 14 @32110 has 45 MA's), (Start: 16 @32101 has 4 MA's), (22, 32065), (33, 32023), (73, 31735),

Gene: QueenBeesly\_47 Start: 32097, Stop: 31675, Start Num: 14

Candidate Starts for QueenBeesly\_47:

(Start: 14 @32097 has 45 MA's), (Start: 16 @32088 has 4 MA's), (22, 32052), (33, 32010), (73, 31722),

Gene: Quokka\_45 Start: 31085, Stop: 30678, Start Num: 12

Candidate Starts for Quokka\_45:

(Start: 12 @31085 has 51 MA's), (22, 31049), (44, 30965), (71, 30758), (73, 30725),

Gene: Rachaly\_46 Start: 32420, Stop: 31998, Start Num: 14

Candidate Starts for Rachaly\_46:

(Start: 14 @32420 has 45 MA's), (Start: 16 @32411 has 4 MA's), (40, 32303), (44, 32291), (58, 32216), (73, 32045),

Gene: RedRock\_49 Start: 33308, Stop: 32886, Start Num: 14

Candidate Starts for RedRock\_49:

(Start: 14 @33308 has 45 MA's), (Start: 16 @33299 has 4 MA's), (28, 33242), (35, 33206), (73, 32933),

Gene: Retro23\_48 Start: 32504, Stop: 32082, Start Num: 14

Candidate Starts for Retro23\_48:

(Start: 14 @32504 has 45 MA's), (Start: 16 @32495 has 4 MA's), (35, 32402), (45, 32372), (73, 32129),

Gene: Rifter\_50 Start: 30703, Stop: 30275, Start Num: 12

Candidate Starts for Rifter\_50:

(Start: 8 @30730 has 3 MA's), (Start: 12 @30703 has 51 MA's), (32, 30607), (57, 30493), (63, 30451), (76, 30295),

Gene: Roksolana\_50 Start: 31185, Stop: 30757, Start Num: 12

Candidate Starts for Roksolana\_50:

(Start: 8 @31212 has 3 MA's), (Start: 12 @31185 has 51 MA's), (32, 31089), (41, 31053), (60, 30963), (62, 30936), (63, 30933), (76, 30777),

Gene: SemperFi\_48 Start: 32365, Stop: 31943, Start Num: 14

Candidate Starts for SemperFi\_48:

(Start: 14 @32365 has 45 MA's), (Start: 16 @32356 has 4 MA's), (35, 32263), (45, 32233), (73, 31990),

Gene: Serenity\_47 Start: 31249, Stop: 30842, Start Num: 12

Candidate Starts for Serenity\_47:

(Start: 12 @31249 has 51 MA's), (56, 31066), (62, 31021), (71, 30922), (73, 30889),

Gene: SheaKeira\_46 Start: 31684, Stop: 31340, Start Num: 26

Candidate Starts for SheaKeira\_46:

(Start: 26 @31684 has 5 MA's), (31, 31669), (33, 31663), (44, 31621), (54, 31579), (58, 31546), (76, 31360), (77, 31351),

Gene: Sknot\_47 Start: 32181, Stop: 31747, Start Num: 13

Candidate Starts for Sknot\_47:

(Start: 13 @32181 has 11 MA's), (33, 32082), (42, 32046), (73, 31794),

Gene: Smeagan\_50 Start: 32817, Stop: 32395, Start Num: 14

Candidate Starts for Smeagan\_50:

(Start: 14 @32817 has 45 MA's), (Start: 16 @32808 has 4 MA's), (35, 32715), (38, 32709), (45, 32685), (73, 32442),

Gene: SmellyB\_49 Start: 31137, Stop: 30709, Start Num: 12

Candidate Starts for SmellyB\_49:

(Start: 8 @31164 has 3 MA's), (Start: 12 @31137 has 51 MA's), (32, 31041), (41, 31005), (60, 30915), (62, 30888), (63, 30885), (76, 30729),

Gene: SnapTap\_47 Start: 32176, Stop: 31754, Start Num: 14

Candidate Starts for SnapTap\_47:

(Start: 14 @32176 has 45 MA's), (Start: 16 @32167 has 4 MA's), (22, 32131), (33, 32089), (73, 31801),

Gene: StarStuff\_49 Start: 31909, Stop: 31499, Start Num: 11

Candidate Starts for StarStuff\_49:

(2, 32236), (3, 32224), (Start: 11 @31909 has 15 MA's), (44, 31789), (51, 31765), (52, 31759), (66, 31666), (71, 31579), (73, 31546),

Gene: Sunhee\_50 Start: 32074, Stop: 31730, Start Num: 29

Candidate Starts for Sunhee\_50:

(29, 32074), (43, 32020), (53, 31978), (59, 31936), (71, 31810), (76, 31750),

Gene: SuperAwesome\_49 Start: 31148, Stop: 30720, Start Num: 12

Candidate Starts for SuperAwesome\_49:

(Start: 8 @31175 has 3 MA's), (Start: 12 @31148 has 51 MA's), (32, 31052), (41, 31016), (60, 30926), (62, 30899), (63, 30896), (76, 30740),

Gene: SuperCallie99\_48 Start: 31021, Stop: 30593, Start Num: 12

Candidate Starts for SuperCallie99\_48:

(Start: 8 @31048 has 3 MA's), (Start: 12 @31021 has 51 MA's), (32, 30925), (41, 30889), (60, 30799), (62, 30772), (63, 30769), (76, 30613),

Gene: Superchunk\_46 Start: 30723, Stop: 30316, Start Num: 12

Candidate Starts for Superchunk\_46:

(Start: 12 @30723 has 51 MA's), (38, 30624), (61, 30510), (71, 30396), (73, 30363),

Gene: SweetiePie\_47 Start: 32305, Stop: 31883, Start Num: 14

Candidate Starts for SweetiePie\_47:

(Start: 14 @32305 has 45 MA's), (Start: 16 @32296 has 4 MA's), (35, 32203), (45, 32173), (73, 31930),

Gene: SwirlSquare\_52 Start: 31390, Stop: 30980, Start Num: 11

Candidate Starts for SwirlSquare\_52:

(Start: 11 @31390 has 15 MA's), (34, 31300), (39, 31285), (47, 31258), (51, 31246), (52, 31240), (58, 31195), (71, 31060), (73, 31027),

Gene: TarsusIV\_45 Start: 31964, Stop: 31542, Start Num: 14

Candidate Starts for TarsusIV\_45:

(Start: 14 @31964 has 45 MA's), (40, 31847), (44, 31835), (73, 31589),

Gene: Temprado\_50 Start: 31301, Stop: 30873, Start Num: 12

Candidate Starts for Temprado\_50:

(Start: 8 @31328 has 3 MA's), (Start: 12 @31301 has 51 MA's), (32, 31205), (57, 31091), (63, 31049), (76, 30893),

Gene: Terrific\_50 Start: 32535, Stop: 32101, Start Num: 13

Candidate Starts for Terrific\_50:

(Start: 13 @32535 has 11 MA's), (33, 32436), (42, 32400), (73, 32148),

Gene: TipsytheTRex\_44 Start: 31322, Stop: 30915, Start Num: 12

Candidate Starts for TipsytheTRex\_44:

(Start: 12 @31322 has 51 MA's), (56, 31139), (71, 30995), (73, 30962),

Gene: Tomathan\_49 Start: 31906, Stop: 31496, Start Num: 11

Candidate Starts for Tomathan\_49:

(2, 32233), (3, 32221), (Start: 11 @31906 has 15 MA's), (44, 31786), (51, 31762), (52, 31756), (66, 31663), (71, 31576), (73, 31543),

Gene: ToneTone\_46 Start: 30864, Stop: 30436, Start Num: 12

Candidate Starts for ToneTone\_46:

(Start: 8 @30891 has 3 MA's), (Start: 12 @30864 has 51 MA's), (32, 30768), (57, 30654), (63, 30612), (76, 30456),

Gene: Travvers\_49 Start: 31906, Stop: 31496, Start Num: 11

Candidate Starts for Travvers\_49:

(2, 32233), (3, 32221), (Start: 11 @31906 has 15 MA's), (44, 31786), (51, 31762), (52, 31756), (66, 31663), (71, 31576), (73, 31543),

Gene: Tristan\_46 Start: 33143, Stop: 32727, Start Num: 9

Candidate Starts for Tristan\_46:

(Start: 9 @33143 has 8 MA's), (19, 33113), (33, 33065), (49, 33002), (61, 32930), (73, 32774),

Gene: Trixie\_45 Start: 32233, Stop: 31820, Start Num: 15

Candidate Starts for Trixie\_45:

(Start: 15 @32233 has 1 MA's), (33, 32155), (36, 32137), (73, 31867),

Gene: Trooper\_48 Start: 32526, Stop: 32104, Start Num: 14

Candidate Starts for Trooper\_48:

(Start: 14 @32526 has 45 MA's), (Start: 16 @32517 has 4 MA's), (25, 32469), (33, 32439), (46, 32391), (48, 32382), (73, 32151),

Gene: Tucker\_49 Start: 30751, Stop: 30323, Start Num: 12

Candidate Starts for Tucker\_49:

(Start: 8 @30778 has 3 MA's), (Start: 12 @30751 has 51 MA's), (32, 30655), (57, 30541), (63, 30499), (76, 30343),

Gene: Turbido\_48 Start: 32560, Stop: 32138, Start Num: 14

Candidate Starts for Turbido\_48:

(Start: 14 @32560 has 45 MA's), (Start: 16 @32551 has 4 MA's), (35, 32458), (45, 32428), (73, 32185),

Gene: Updawg\_48 Start: 32422, Stop: 31988, Start Num: 13

Candidate Starts for Updawg\_48:

(Start: 13 @32422 has 11 MA's), (33, 32323), (42, 32287), (73, 32035),

Gene: VC3\_50 Start: 32346, Stop: 31912, Start Num: 11

Candidate Starts for VC3\_50:

(Start: 11 @32346 has 15 MA's), (Start: 12 @32343 has 51 MA's), (33, 32244), (44, 32202), (51, 32178), (66, 32079), (71, 31992), (73, 31959),

Gene: VohminGhazi\_49 Start: 31138, Stop: 30710, Start Num: 12

Candidate Starts for VohminGhazi\_49:

(Start: 8 @31165 has 3 MA's), (Start: 12 @31138 has 51 MA's), (32, 31042), (41, 31006), (60, 30916), (62, 30889), (63, 30886), (76, 30730),

Gene: WeiHuaDA\_49 Start: 33119, Stop: 32706, Start Num: 16

Candidate Starts for WeiHuaDA\_49:

(Start: 16 @33119 has 4 MA's), (33, 33041), (44, 32999), (73, 32753),

Gene: Whabigail7\_48 Start: 32545, Stop: 32123, Start Num: 14

Candidate Starts for Whabigail7\_48:

(Start: 14 @32545 has 45 MA's), (Start: 16 @32536 has 4 MA's), (35, 32443), (38, 32437), (73, 32170),

Gene: WideWale\_48 Start: 32422, Stop: 31988, Start Num: 13

Candidate Starts for WideWale\_48:

(Start: 13 @32422 has 11 MA's), (33, 32323), (42, 32287), (73, 32035),

Gene: Wiks\_48 Start: 30932, Stop: 30504, Start Num: 12

Candidate Starts for Wiks\_48:

(Start: 8 @30959 has 3 MA's), (Start: 12 @30932 has 51 MA's), (32, 30836), (57, 30722), (63, 30680), (76, 30524),

Gene: WunderPhul\_49 Start: 30930, Stop: 30502, Start Num: 12

Candidate Starts for WunderPhul\_49:

(Start: 8 @30957 has 3 MA's), (Start: 12 @30930 has 51 MA's), (32, 30834), (57, 30720), (63, 30678), (76, 30522),

Gene: Yokurt\_49 Start: 30959, Stop: 30504, Start Num: 8

Candidate Starts for Yokurt\_49:

(Start: 8 @30959 has 3 MA's), (Start: 12 @30932 has 51 MA's), (32, 30836), (57, 30722), (63, 30680), (76, 30524),

Gene: Zaka\_49 Start: 30932, Stop: 30504, Start Num: 12

Candidate Starts for Zaka\_49:

(Start: 8 @30959 has 3 MA's), (Start: 12 @30932 has 51 MA's), (32, 30836), (57, 30722), (63, 30680), (76, 30524),

Gene: Zulu\_49 Start: 30732, Stop: 30304, Start Num: 12

Candidate Starts for Zulu\_49:

(Start: 8 @30759 has 3 MA's), (Start: 12 @30732 has 51 MA's), (32, 30636), (57, 30522), (63, 30480), (76, 30324),