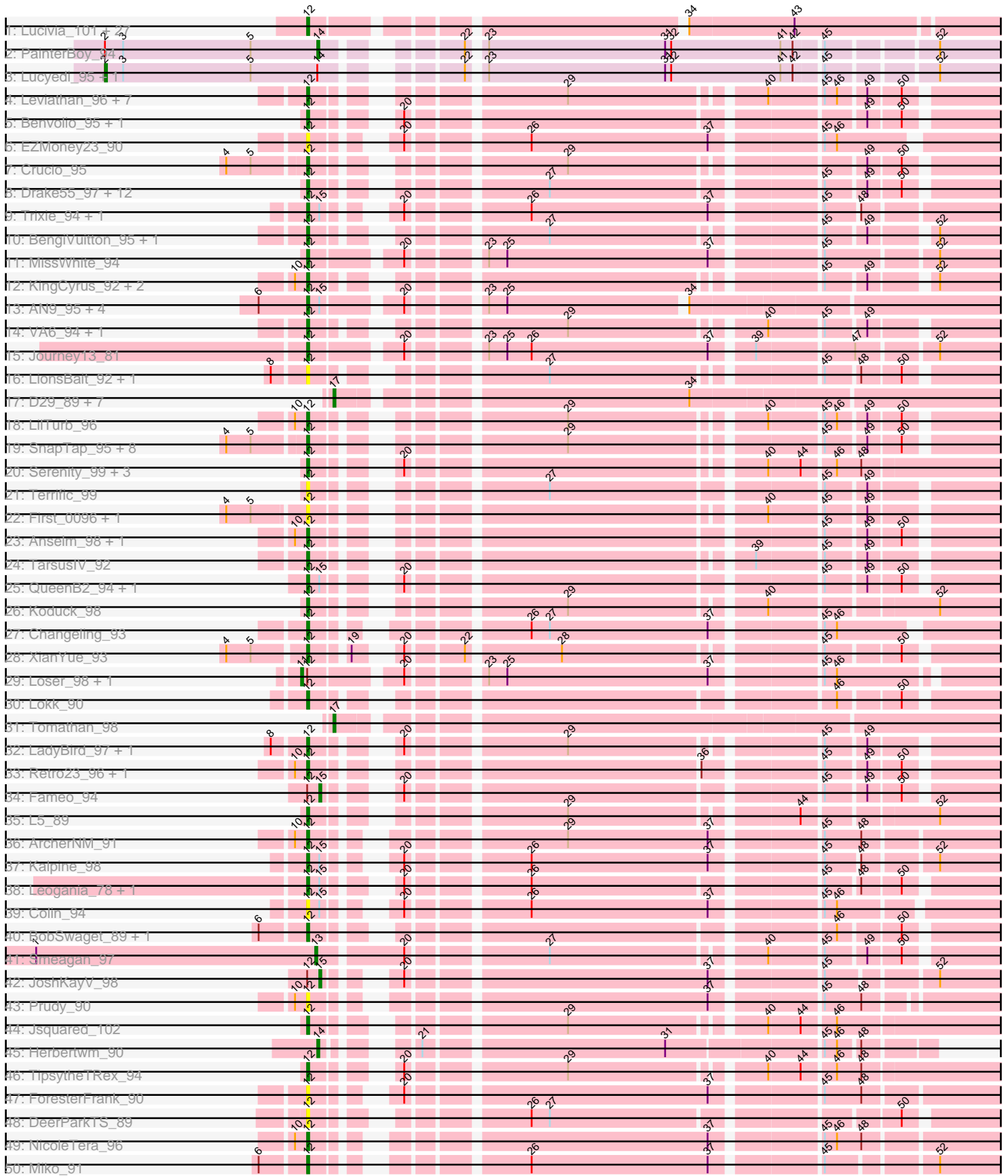


Pham 304743





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 304743 Report

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

Pham number 304743 has 178 members, 31 are drafts.

Phages represented in each track:

- Track 1 : Lucivia\_101, Timothy\_100, Orange\_100, Jabith\_100, Munch\_98, Joselito\_98, Sham4\_97, TinyTimmy\_98, Kimba\_97, Salz\_97, Flaverint\_101, Ebony\_99, Mulciber\_99, Bud\_92, Et2Brutus\_101, MaCh\_100, Snape\_100, Wolpertinger\_100, Aneem\_100, Petersenfast\_94, Mabel\_100, Gilberta\_98, Bowtie\_96, Hutc2\_98, Insomnia\_100, Fibonacci\_100, Bachome\_97, Saskia\_98
- Track 2 : PainterBoy\_94
- Track 3 : Lucyedi\_95, EagleEye\_97
- Track 4 : Leviathan\_96, AbbyPaige\_97, Whabigail7\_93, Turbido\_95, Jerm\_96, Agape74\_97, Buggy\_85, Dignity\_97
- Track 5 : Benvolio\_95, Echild\_100
- Track 6 : EZMoney23\_90
- Track 7 : Crucio\_95
- Track 8 : Drake55\_97, Centaur\_98, Sknot\_98, NaSiaTalie\_98, Flare16\_97, Baehexic\_97, Equemioh13\_97, WideWale\_98, MiculUcigas\_97, HarryHoudini\_96, Gratitude\_95, Updawg\_98, Piro94\_95
- Track 9 : Trixie\_94, WeiHuaDA\_96
- Track 10 : BengiVuitton\_95, Deloris\_95
- Track 11 : MissWhite\_94
- Track 12 : KingCyrus\_92, EvilGenius\_94, ChipMunk\_95
- Track 13 : AN9\_95, AN18\_95, VC3\_94, Kerberos\_98, C3\_88
- Track 14 : VA6\_94, AN3\_94
- Track 15 : Journey13\_81
- Track 16 : LionsBait\_92, HippoHollow\_90
- Track 17 : D29\_89, Naji\_87, Duplo\_99, Travvers\_98, Pomar16\_98, DBQu4n\_98, StarStuff\_98, D32\_86
- Track 18 : LilTurb\_96
- Track 19 : SnapTap\_95, QueenBeesly\_95, Malec\_93, Georgie2\_97, FiringLine\_95, SemperFi\_95, Larenn\_93, Power\_95, SweetiePie\_95
- Track 20 : Serenity\_99, Quokka\_99, MajorMajor\_94, Bradman\_100
- Track 21 : Terrific\_99
- Track 22 : First\_0096, 20ES\_97
- Track 23 : Anselm\_98, DudeLittle\_94
- Track 24 : TarsusIV\_92
- Track 25 : QueenB2\_94, Heffalump\_92
- Track 26 : Koduck\_98
- Track 27 : Changeling\_93
- Track 28 : XianYue\_93

- Track 29 : Loser\_98, AnnaL29\_97
- Track 30 : LOKK\_90
- Track 31 : Tomathan\_98
- Track 32 : LadyBird\_97, CRB1\_95
- Track 33 : Retro23\_96, Dalmatian\_95
- Track 34 : Fameo\_94
- Track 35 : L5\_89
- Track 36 : ArcherNM\_91
- Track 37 : Kalpine\_98
- Track 38 : Leogania\_78, BiancaTri92\_91
- Track 39 : Colin\_94
- Track 40 : BobSwaget\_89, Rachaly\_92
- Track 41 : Smeagan\_97
- Track 42 : JoshKayV\_98
- Track 43 : Prudy\_90
- Track 44 : Jsquared\_102
- Track 45 : Herbertwm\_90
- Track 46 : TipsytheTRex\_94
- Track 47 : ForesterFrank\_90
- Track 48 : DeerParkTS\_89
- Track 49 : NicoleTera\_96
- Track 50 : Miko\_91
- Track 51 : RedRock\_96
- Track 52 : Trooper\_95
- Track 53 : Chargerpower\_101
- Track 54 : Ayanochan\_96, Qobbit\_97, Aliter\_93, Catalina\_102, Onglai\_97, Scherzo\_98, Phonnegut\_100, Alma\_97, Fayely\_96, ExplosioNervosa\_96, Tubs\_100, Sachima\_95, Conquerage\_97, EmyBug\_96, Phaeder\_100, Priya\_97, Pioneer\_100, Spouty\_97, Jiawan\_97, Hanray\_97, Eidsmoe\_97, Beemo\_100, Lilleskat\_96, Myxus\_100, HortumSL17\_101, Horex\_98, PackMan\_94, RyeScarlet\_100, Ugenie5\_86, EdogawaKiddo\_98
- Track 55 : LoneWolf\_99
- Track 56 : Elephantoon\_98
- Track 57 : DreamTeam1\_95
- Track 58 : Darrell\_97
- Track 59 : Klodlith\_95, Charm\_94
- Track 60 : Maminiaina\_98, BogosyJay\_98
- Track 61 : SheaKeira\_94
- Track 62 : Arissanae\_95
- Track 63 : Yecey3\_102

***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 128 of the 147 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 20ES\_97, AN3\_94, AN9\_95, ANI8\_95, AbbyPaige\_97, Agape74\_97, Aliter\_93, Alma\_97, Aneem\_100, Anselm\_98, ArcherNM\_91, Arissanae\_95, Ayanochan\_96, Bachome\_97, Baehexic\_97, Beemo\_100, BengiVuitton\_95, Benvolio\_95,

BiancaTri92\_91, BobSwaget\_89, BogosyJay\_98, Bowtie\_96, Bradman\_100, Bud\_92, Buggy\_85, C3\_88, CRB1\_95, Catalina\_102, Centaur\_98, Changeling\_93, Charm\_94, ChipMunk\_95, Colin\_94, Conquerage\_97, Crucio\_95, Dalmatian\_95, Darrell\_97, DeerParkTS\_89, Deloris\_95, Dignity\_97, Drake55\_97, DreamTeam1\_95, DudeLittle\_94, EZMoney23\_90, Ebony\_99, Echild\_100, EdogawaKiddo\_98, Eidsmoe\_97, Elephantoon\_98, EmyBug\_96, Equemioh13\_97, Et2Brutus\_101, EvilGenius\_94, ExplosioNervosa\_96, Fayely\_96, Fibonacci\_100, FiringLine\_95, First\_0096, Flare16\_97, Flaverint\_101, ForesterFrank\_90, Georgie2\_97, Gilberta\_98, Gratitude\_95, Hanray\_97, HarryHoudini\_96, Heffalump\_92, HippoHollow\_90, Horex\_98, HortumSL17\_101, Hutc2\_98, Insomnia\_100, Jabith\_100, Jerm\_96, Jiawan\_97, Joselito\_98, Journey13\_81, Jsquared\_102, Kalpine\_98, Kerberos\_98, Kimba\_97, KingCyrus\_92, Klodlith\_95, Koduck\_98, L5\_89, LadyBird\_97, Larenn\_93, Leogania\_78, Leviathan\_96, LiITurb\_96, Lilleskat\_96, LionsBait\_92, Lokk\_90, LoneWolf\_99, Lucivia\_101, MaCh\_100, Mabel\_100, MajorMajor\_94, Malec\_93, Maminiaina\_98, MiculUcigas\_97, Miko\_91, MissWhite\_94, Mulciber\_99, Munch\_98, Myxus\_100, NaSiaTalie\_98, NicoleTera\_96, Onglai\_97, Orange\_100, PackMan\_94, Petersenfast\_94, Phaeder\_100, Phonnegut\_100, Pioneer\_100, Piro94\_95, Power\_95, Priya\_97, Prudy\_90, Qobbit\_97, QueenB2\_94, QueenBeesly\_95, Quokka\_99, Rachaly\_92, RedRock\_96, Retro23\_96, RyeScarlet\_100, Sachima\_95, Salz\_97, Saskia\_98, Scherzo\_98, SemperFi\_95, Serenity\_99, Sham4\_97, SheaKeira\_94, Sknot\_98, SnapTap\_95, Snape\_100, Spouty\_97, SweetiePie\_95, TarsusIV\_92, Terrific\_99, Timothy\_100, TinyTimmy\_98, TipsytheTRex\_94, Trixie\_94, Tubs\_100, Turbido\_95, Ugenie5\_86, Updawg\_98, VA6\_94, VC3\_94, WeiHuaDA\_96, Whabigail7\_93, WideWale\_98, Wolpertinger\_100, XianYue\_93, Yecey3\_102,

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

- AnnaL29\_97, Fameo\_94, JoshKayV\_98, Loser\_98, Trooper\_95,

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

- Chargerpower\_101, D29\_89, D32\_86, DBQu4n\_98, Duplo\_99, EagleEye\_97, Herbertwm\_90, Lucyedi\_95, Naji\_87, PainterBoy\_94, Pomar16\_98, Smeagan\_97, StarStuff\_98, Tomathan\_98, Travvers\_98,

### Summary by start number:

Start 2:

- Found in 3 of 178 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 2 of 147
- Called 66.7% of time when present
- Phage (with cluster) where this start called: EagleEye\_97 (A16), Lucyedi\_95 (A16),

Start 9:

- Found in 1 of 178 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 147
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Chargerpower\_101 (A22),

Start 10:

- Found in 12 of 178 ( 6.7% ) of genes in pham
- Manual Annotations of this start: 1 of 147
- Called 8.3% of time when present
- Phage (with cluster) where this start called: Trooper\_95 (A2),

#### Start 11:

- Found in 2 of 178 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 2 of 147
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AnnaL29\_97 (A2), Loser\_98 (A2),

#### Start 12:

- Found in 163 of 178 ( 91.6% ) of genes in pham
- Manual Annotations of this start: 128 of 147
- Called 96.9% of time when present
- Phage (with cluster) where this start called: 20ES\_97 (A2), AN3\_94 (A2), AN9\_95 (A2), AN18\_95 (A2), AbbyPaige\_97 (A2), Agape74\_97 (A2), Aliter\_93 (A9), Alma\_97 (A9), Aneem\_100 (A11), Anselm\_98 (A2), ArcherNM\_91 (A2), Arissanae\_95 (A9), Ayanochan\_96 (A9), Bachome\_97 (A11), Baehexic\_97 (A2), Beemo\_100 (A9), BengiVuitton\_95 (A2), Benvolio\_95 (A2), BiancaTri92\_91 (A2), BobSwaget\_89 (A2), BogosyJay\_98 (A9), Bowtie\_96 (A11), Bradman\_100 (A2), Bud\_92 (A11), Bugsy\_85 (A2), C3\_88 (A2), CRB1\_95 (A2), Catalina\_102 (A9), Centaur\_98 (A2), Changeling\_93 (A2), Charm\_94 (A9), ChipMunk\_95 (A2), Colin\_94 (A2), Conquerage\_97 (A9), Crucio\_95 (A2), Dalmatian\_95 (A2), Darrell\_97 (A9), DeerParkTS\_89 (A2), Deloris\_95 (A2), Dignity\_97 (A2), Drake55\_97 (A2), DreamTeam1\_95 (A9), DudeLittle\_94 (A2), EZMoney23\_90 (A2), Ebony\_99 (A11), Echild\_100 (A2), EdogawaKiddo\_98 (A9), Eidsmoe\_97 (A9), Elephantoon\_98 (A9), EmyBug\_96 (A9), Equemioh13\_97 (A2), Et2Brutus\_101 (A11), EvilGenius\_94 (A2), ExplosioNervosa\_96 (A9), Fayely\_96 (A9), Fibonacci\_100 (A11), FiringLine\_95 (A2), First\_0096 (A2), Flare16\_97 (A2), Flaverint\_101 (A11), ForesterFrank\_90 (A2), Georgie2\_97 (A2), Gilberta\_98 (A11), Gratitude\_95 (A2), Hanray\_97 (A9), HarryHoudini\_96 (A2), Heffalump\_92 (A2), HippoHollow\_90 (A2), Holes\_98 (A9), HortumSL17\_101 (A9), Hutc2\_98 (A11), Insomnia\_100 (A11), Jabith\_100 (A11), Jerm\_96 (A2), Jiawan\_97 (A9), Joselito\_98 (A11), Journey13\_81 (A2), Jsquared\_102 (A2), Kalpine\_98 (A2), Kerberos\_98 (A2), Kimba\_97 (A11), KingCyrus\_92 (A2), Klodlith\_95 (A9), Koduck\_98 (A2), L5\_89 (A2), LadyBird\_97 (A2), Larenn\_93 (A2), Leogania\_78 (A2), Leviathan\_96 (A2), LilTurb\_96 (A2), Lilleskat\_96 (A9), LionsBait\_92 (A2), Lokk\_90 (A2), LoneWolf\_99 (A9), Lucivia\_101 (A11), MaCh\_100 (A11), Mabel\_100 (A11), MajorMajor\_94 (A2), Malec\_93 (A2), Maminiaina\_98 (A9), MiculUcigas\_97 (A2), Miko\_91 (A2), MissWhite\_94 (A2), Mulciber\_99 (A11), Munch\_98 (A11), Myxus\_100 (A9), NaSiaTalie\_98 (A2), NicoleTera\_96 (A2), Onglai\_97 (A9), Orange\_100 (A11), PackMan\_94 (A9), Petersenfast\_94 (A11), Phaeder\_100 (A9), Phonnegut\_100 (A9), Pioneer\_100 (A9), Piro94\_95 (A2), Power\_95 (A2), Priya\_97 (A9), Prudy\_90 (A2), Qobbit\_97 (A9), QueenB2\_94 (A2), QueenBeesly\_95 (A2), Quokka\_99 (A2), Rachaly\_92 (A2), RedRock\_96 (A2), Retro23\_96 (A2), RyeScarlet\_100 (A9), Sachima\_95 (A9), Salz\_97 (A11), Saskia\_98 (A11), Scherzo\_98 (A9), SemperFi\_95 (A2), Serenity\_99 (A2), Sham4\_97 (A11), SheaKeira\_94 (A9), Sknot\_98 (A2), SnapTap\_95 (A2), Snape\_100 (A11), Spouty\_97 (A9), SweetiePie\_95 (A2), TarsusIV\_92 (A2), Terrific\_99 (A2), Timothy\_100 (A11), TinyTimmy\_98 (A11), TopsytheTRex\_94 (A2), Trixie\_94 (A2), Tubs\_100 (A9), Turbido\_95 (A2), Ugenie5\_86 (A9), Updawg\_98 (A2), VA6\_94 (A2), VC3\_94 (A2), WeiHuaDA\_96 (A2), Whabigail7\_93 (A2), WideWale\_98 (A2), Wolpertinger\_100 (A11), XianYue\_93 (A2), Yecy3\_102 (A9),

#### Start 13:

- Found in 1 of 178 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 147
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Smeagan\_97 (A2),

Start 14:

- Found in 4 of 178 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 2 of 147
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Herbertwm\_90 (A2), PainterBoy\_94 (A16),

Start 15:

- Found in 15 of 178 ( 8.4% ) of genes in pham
- Manual Annotations of this start: 2 of 147
- Called 13.3% of time when present
- Phage (with cluster) where this start called: Fameo\_94 (A2), JoshKayV\_98 (A2),

Start 17:

- Found in 9 of 178 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 8 of 147
- Called 100.0% of time when present
- Phage (with cluster) where this start called: D29\_89 (A2), D32\_86 (A2), DBQu4n\_98 (A2), Duplo\_99 (A2), Naji\_87 (A2), Pomar16\_98 (A2), StarStuff\_98 (A2), Tomathan\_98 (A2), Travvers\_98 (A2),

### **Summary by clusters:**

There are 5 clusters represented in this pham: A9, A22, A2, A11, A16,

Info for manual annotations of cluster A11:

- Start number 12 was manually annotated 24 times for cluster A11.

Info for manual annotations of cluster A16:

- Start number 2 was manually annotated 2 times for cluster A16.
- Start number 14 was manually annotated 1 time for cluster A16.

Info for manual annotations of cluster A2:

- Start number 10 was manually annotated 1 time for cluster A2.
- Start number 11 was manually annotated 2 times for cluster A2.
- Start number 12 was manually annotated 73 times for cluster A2.
- Start number 13 was manually annotated 1 time for cluster A2.
- Start number 14 was manually annotated 1 time for cluster A2.
- Start number 15 was manually annotated 2 times for cluster A2.
- Start number 17 was manually annotated 8 times for cluster A2.

Info for manual annotations of cluster A22:

- Start number 9 was manually annotated 1 time for cluster A22.

Info for manual annotations of cluster A9:

- Start number 12 was manually annotated 31 times for cluster A9.

### **Gene Information:**

Gene: 20ES\_97 Start: 51864, Stop: 51574, Start Num: 12  
Candidate Starts for 20ES\_97:  
(4, 51900), (5, 51888), (Start: 12 @51864 has 128 MA's), (40, 51681), (45, 51657), (49, 51639),

Gene: AN3\_94 Start: 49778, Stop: 49488, Start Num: 12  
Candidate Starts for AN3\_94:  
(Start: 12 @49778 has 128 MA's), (29, 49682), (40, 49595), (45, 49571), (49, 49553),

Gene: AN9\_95 Start: 49945, Stop: 49628, Start Num: 12  
Candidate Starts for AN9\_95:  
(6, 49969), (Start: 12 @49945 has 128 MA's), (Start: 15 @49939 has 2 MA's), (20, 49906), (23, 49876),  
(25, 49867), (34, 49783),

Gene: ANI8\_95 Start: 49945, Stop: 49628, Start Num: 12  
Candidate Starts for ANI8\_95:  
(6, 49969), (Start: 12 @49945 has 128 MA's), (Start: 15 @49939 has 2 MA's), (20, 49906), (23, 49876),  
(25, 49867), (34, 49783),

Gene: AbbyPaige\_97 Start: 51958, Stop: 51668, Start Num: 12  
Candidate Starts for AbbyPaige\_97:  
(Start: 12 @51958 has 128 MA's), (29, 51862), (40, 51775), (45, 51751), (46, 51745), (49, 51733), (50,  
51718),

Gene: Agape74\_97 Start: 51931, Stop: 51641, Start Num: 12  
Candidate Starts for Agape74\_97:  
(Start: 12 @51931 has 128 MA's), (29, 51835), (40, 51748), (45, 51724), (46, 51718), (49, 51706), (50,  
51691),

Gene: Aliter\_93 Start: 49003, Stop: 48707, Start Num: 12  
Candidate Starts for Aliter\_93:  
(Start: 12 @49003 has 128 MA's), (26, 48925), (28, 48910), (31, 48859), (45, 48793),

Gene: Alma\_97 Start: 51713, Stop: 51417, Start Num: 12  
Candidate Starts for Alma\_97:  
(Start: 12 @51713 has 128 MA's), (26, 51635), (28, 51620), (31, 51569), (45, 51503),

Gene: Aneem\_100 Start: 51418, Stop: 51101, Start Num: 12  
Candidate Starts for Aneem\_100:  
(Start: 12 @51418 has 128 MA's), (34, 51256), (43, 51205),

Gene: AnnaL29\_97 Start: 52055, Stop: 51741, Start Num: 11  
Candidate Starts for AnnaL29\_97:  
(Start: 11 @52055 has 2 MA's), (Start: 12 @52052 has 128 MA's), (20, 52013), (23, 51983), (25,  
51974), (37, 51875), (45, 51827), (46, 51821),

Gene: Anselm\_98 Start: 52336, Stop: 52043, Start Num: 12  
Candidate Starts for Anselm\_98:  
(Start: 10 @52342 has 1 MA's), (Start: 12 @52336 has 128 MA's), (45, 52126), (49, 52108), (50,  
52093),

Gene: ArcherNM\_91 Start: 51333, Stop: 51034, Start Num: 12  
Candidate Starts for ArcherNM\_91:

(Start: 10 @51339 has 1 MA's), (Start: 12 @51333 has 128 MA's), (29, 51237), (37, 51168), (45, 51120), (48, 51102),

Gene: Arissanae\_95 Start: 51941, Stop: 51645, Start Num: 12

Candidate Starts for Arissanae\_95:

(Start: 12 @51941 has 128 MA's), (20, 51914), (26, 51863), (28, 51848), (30, 51821), (31, 51797), (45, 51731), (48, 51713),

Gene: Ayanochan\_96 Start: 51504, Stop: 51208, Start Num: 12

Candidate Starts for Ayanochan\_96:

(Start: 12 @51504 has 128 MA's), (26, 51426), (28, 51411), (31, 51360), (45, 51294),

Gene: Bachome\_97 Start: 50466, Stop: 50149, Start Num: 12

Candidate Starts for Bachome\_97:

(Start: 12 @50466 has 128 MA's), (34, 50304), (43, 50253),

Gene: Baehexic\_97 Start: 51948, Stop: 51655, Start Num: 12

Candidate Starts for Baehexic\_97:

(Start: 12 @51948 has 128 MA's), (27, 51861), (45, 51738), (49, 51720), (50, 51705),

Gene: Beemo\_100 Start: 51834, Stop: 51538, Start Num: 12

Candidate Starts for Beemo\_100:

(Start: 12 @51834 has 128 MA's), (26, 51756), (28, 51741), (31, 51690), (45, 51624),

Gene: BengiVuitton\_95 Start: 51703, Stop: 51413, Start Num: 12

Candidate Starts for BengiVuitton\_95:

(Start: 12 @51703 has 128 MA's), (27, 51616), (45, 51496), (49, 51478), (52, 51451),

Gene: Benvolio\_95 Start: 51929, Stop: 51636, Start Num: 12

Candidate Starts for Benvolio\_95:

(Start: 12 @51929 has 128 MA's), (20, 51902), (49, 51701), (50, 51686),

Gene: BiancaTri92\_91 Start: 50985, Stop: 50692, Start Num: 12

Candidate Starts for BiancaTri92\_91:

(Start: 12 @50985 has 128 MA's), (Start: 15 @50979 has 2 MA's), (20, 50958), (26, 50907), (45, 50775), (48, 50760), (50, 50742),

Gene: BobSwaget\_89 Start: 49131, Stop: 48838, Start Num: 12

Candidate Starts for BobSwaget\_89:

(6, 49152), (Start: 12 @49131 has 128 MA's), (46, 48915), (50, 48888),

Gene: BogosyJay\_98 Start: 51847, Stop: 51551, Start Num: 12

Candidate Starts for BogosyJay\_98:

(Start: 12 @51847 has 128 MA's), (20, 51817), (26, 51766), (28, 51751), (31, 51700), (45, 51634),

Gene: Bowtie\_96 Start: 50025, Stop: 49708, Start Num: 12

Candidate Starts for Bowtie\_96:

(Start: 12 @50025 has 128 MA's), (34, 49863), (43, 49812),

Gene: Bradman\_100 Start: 51499, Stop: 51200, Start Num: 12

Candidate Starts for Bradman\_100:

(Start: 12 @51499 has 128 MA's), (20, 51472), (40, 51316), (44, 51301), (46, 51286), (48, 51274),

Gene: Bud\_92 Start: 50124, Stop: 49807, Start Num: 12  
Candidate Starts for Bud\_92:  
(Start: 12 @50124 has 128 MA's), (34, 49962), (43, 49911),

Gene: Buggy\_85 Start: 48670, Stop: 48380, Start Num: 12  
Candidate Starts for Buggy\_85:  
(Start: 12 @48670 has 128 MA's), (29, 48574), (40, 48487), (45, 48463), (46, 48457), (49, 48445), (50, 48430),

Gene: C3\_88 Start: 49945, Stop: 49628, Start Num: 12  
Candidate Starts for C3\_88:  
(6, 49969), (Start: 12 @49945 has 128 MA's), (Start: 15 @49939 has 2 MA's), (20, 49906), (23, 49876), (25, 49867), (34, 49783),

Gene: CRB1\_95 Start: 51714, Stop: 51424, Start Num: 12  
Candidate Starts for CRB1\_95:  
(8, 51729), (Start: 12 @51714 has 128 MA's), (20, 51687), (29, 51618), (45, 51507), (49, 51489),

Gene: Catalina\_102 Start: 51947, Stop: 51651, Start Num: 12  
Candidate Starts for Catalina\_102:  
(Start: 12 @51947 has 128 MA's), (26, 51869), (28, 51854), (31, 51803), (45, 51737),

Gene: Centaur\_98 Start: 51815, Stop: 51522, Start Num: 12  
Candidate Starts for Centaur\_98:  
(Start: 12 @51815 has 128 MA's), (27, 51728), (45, 51605), (49, 51587), (50, 51572),

Gene: Changeling\_93 Start: 51752, Stop: 51453, Start Num: 12  
Candidate Starts for Changeling\_93:  
(Start: 12 @51752 has 128 MA's), (26, 51674), (27, 51665), (37, 51587), (45, 51539), (46, 51533),

Gene: Chargerpower\_101 Start: 51440, Stop: 51123, Start Num: 9  
Candidate Starts for Chargerpower\_101:  
(Start: 9 @51440 has 1 MA's), (26, 51347), (28, 51332), (35, 51266), (37, 51260), (45, 51212), (52, 51161),

Gene: Charm\_94 Start: 51212, Stop: 50910, Start Num: 12  
Candidate Starts for Charm\_94:  
(Start: 12 @51212 has 128 MA's), (18, 51203), (26, 51134), (28, 51119), (31, 51068), (51, 50966), (52, 50948),

Gene: ChipMunk\_95 Start: 52668, Stop: 52378, Start Num: 12  
Candidate Starts for ChipMunk\_95:  
(Start: 10 @52674 has 1 MA's), (Start: 12 @52668 has 128 MA's), (45, 52461), (49, 52443), (52, 52416),

Gene: Colin\_94 Start: 52297, Stop: 51998, Start Num: 12  
Candidate Starts for Colin\_94:  
(Start: 12 @52297 has 128 MA's), (Start: 15 @52291 has 2 MA's), (20, 52270), (26, 52219), (37, 52132), (45, 52084), (46, 52078),

Gene: Conquerage\_97 Start: 51489, Stop: 51193, Start Num: 12  
Candidate Starts for Conquerage\_97:  
(Start: 12 @51489 has 128 MA's), (26, 51411), (28, 51396), (31, 51345), (45, 51279),

Gene: Crucio\_95 Start: 52008, Stop: 51718, Start Num: 12  
Candidate Starts for Crucio\_95:  
(4, 52044), (5, 52032), (Start: 12 @52008 has 128 MA's), (29, 51912), (49, 51783), (50, 51768),

Gene: D29\_89 Start: 47930, Stop: 47619, Start Num: 17  
Candidate Starts for D29\_89:  
(Start: 17 @47930 has 8 MA's), (34, 47774),

Gene: D32\_86 Start: 47930, Stop: 47619, Start Num: 17  
Candidate Starts for D32\_86:  
(Start: 17 @47930 has 8 MA's), (34, 47774),

Gene: DBQu4n\_98 Start: 51545, Stop: 51234, Start Num: 17  
Candidate Starts for DBQu4n\_98:  
(Start: 17 @51545 has 8 MA's), (34, 51389),

Gene: Dalmatian\_95 Start: 51637, Stop: 51344, Start Num: 12  
Candidate Starts for Dalmatian\_95:  
(Start: 10 @51643 has 1 MA's), (Start: 12 @51637 has 128 MA's), (36, 51478), (45, 51427), (49, 51409), (50, 51394),

Gene: Darrell\_97 Start: 50844, Stop: 50530, Start Num: 12  
Candidate Starts for Darrell\_97:  
(Start: 12 @50844 has 128 MA's), (26, 50748), (28, 50733), (45, 50616), (47, 50601), (48, 50598),

Gene: DeerParkTS\_89 Start: 50083, Stop: 49790, Start Num: 12  
Candidate Starts for DeerParkTS\_89:  
(Start: 12 @50083 has 128 MA's), (26, 50005), (27, 49996), (50, 49840),

Gene: Deloris\_95 Start: 51396, Stop: 51106, Start Num: 12  
Candidate Starts for Deloris\_95:  
(Start: 12 @51396 has 128 MA's), (27, 51309), (45, 51189), (49, 51171), (52, 51144),

Gene: Dignity\_97 Start: 52038, Stop: 51748, Start Num: 12  
Candidate Starts for Dignity\_97:  
(Start: 12 @52038 has 128 MA's), (29, 51942), (40, 51855), (45, 51831), (46, 51825), (49, 51813), (50, 51798),

Gene: Drake55\_97 Start: 51533, Stop: 51240, Start Num: 12  
Candidate Starts for Drake55\_97:  
(Start: 12 @51533 has 128 MA's), (27, 51446), (45, 51323), (49, 51305), (50, 51290),

Gene: DreamTeam1\_95 Start: 51173, Stop: 50871, Start Num: 12  
Candidate Starts for DreamTeam1\_95:  
(Start: 12 @51173 has 128 MA's), (18, 51164), (26, 51095), (28, 51080), (51, 50927), (52, 50909),

Gene: DudeLittle\_94 Start: 51703, Stop: 51410, Start Num: 12  
Candidate Starts for DudeLittle\_94:  
(Start: 10 @51709 has 1 MA's), (Start: 12 @51703 has 128 MA's), (45, 51493), (49, 51475), (50, 51460),

Gene: Duplo\_99 Start: 51602, Stop: 51291, Start Num: 17

Candidate Starts for Duplo\_99:  
(Start: 17 @51602 has 8 MA's), (34, 51446),

Gene: EZMoney23\_90 Start: 50589, Stop: 50290, Start Num: 12  
Candidate Starts for EZMoney23\_90:  
(Start: 12 @50589 has 128 MA's), (20, 50562), (26, 50511), (37, 50424), (45, 50376), (46, 50370),

Gene: EagleEye\_97 Start: 51822, Stop: 51415, Start Num: 2  
Candidate Starts for EagleEye\_97:  
(Start: 2 @51822 has 2 MA's), (3, 51813), (5, 51750), (Start: 14 @51717 has 2 MA's), (22, 51669), (23, 51663), (31, 51576), (32, 51573), (41, 51519), (42, 51513), (45, 51501), (52, 51453),

Gene: Ebony\_99 Start: 50989, Stop: 50672, Start Num: 12  
Candidate Starts for Ebony\_99:  
(Start: 12 @50989 has 128 MA's), (34, 50827), (43, 50776),

Gene: Echild\_100 Start: 51953, Stop: 51660, Start Num: 12  
Candidate Starts for Echild\_100:  
(Start: 12 @51953 has 128 MA's), (20, 51926), (49, 51725), (50, 51710),

Gene: EdogawaKiddo\_98 Start: 51910, Stop: 51614, Start Num: 12  
Candidate Starts for EdogawaKiddo\_98:  
(Start: 12 @51910 has 128 MA's), (26, 51832), (28, 51817), (31, 51766), (45, 51700),

Gene: Eidsmoe\_97 Start: 51482, Stop: 51186, Start Num: 12  
Candidate Starts for Eidsmoe\_97:  
(Start: 12 @51482 has 128 MA's), (26, 51404), (28, 51389), (31, 51338), (45, 51272),

Gene: Elephantoon\_98 Start: 51617, Stop: 51318, Start Num: 12  
Candidate Starts for Elephantoon\_98:  
(7, 51638), (Start: 12 @51617 has 128 MA's), (20, 51587), (26, 51536), (31, 51470), (33, 51461), (45, 51404),

Gene: EmyBug\_96 Start: 51484, Stop: 51188, Start Num: 12  
Candidate Starts for EmyBug\_96:  
(Start: 12 @51484 has 128 MA's), (26, 51406), (28, 51391), (31, 51340), (45, 51274),

Gene: Equemioh13\_97 Start: 51856, Stop: 51563, Start Num: 12  
Candidate Starts for Equemioh13\_97:  
(Start: 12 @51856 has 128 MA's), (27, 51769), (45, 51646), (49, 51628), (50, 51613),

Gene: Et2Brutus\_101 Start: 51334, Stop: 51017, Start Num: 12  
Candidate Starts for Et2Brutus\_101:  
(Start: 12 @51334 has 128 MA's), (34, 51172), (43, 51121),

Gene: EvilGenius\_94 Start: 52669, Stop: 52379, Start Num: 12  
Candidate Starts for EvilGenius\_94:  
(Start: 10 @52675 has 1 MA's), (Start: 12 @52669 has 128 MA's), (45, 52462), (49, 52444), (52, 52417),

Gene: ExplosioNervosa\_96 Start: 51550, Stop: 51254, Start Num: 12  
Candidate Starts for ExplosioNervosa\_96:  
(Start: 12 @51550 has 128 MA's), (26, 51472), (28, 51457), (31, 51406), (45, 51340),

Gene: Fameo\_94 Start: 51403, Stop: 51116, Start Num: 15

Candidate Starts for Fameo\_94:

(Start: 12 @51409 has 128 MA's), (Start: 15 @51403 has 2 MA's), (20, 51382), (45, 51199), (49, 51181), (50, 51166),

Gene: Fayely\_96 Start: 51458, Stop: 51162, Start Num: 12

Candidate Starts for Fayely\_96:

(Start: 12 @51458 has 128 MA's), (26, 51380), (28, 51365), (31, 51314), (45, 51248),

Gene: Fibonacci\_100 Start: 51272, Stop: 50955, Start Num: 12

Candidate Starts for Fibonacci\_100:

(Start: 12 @51272 has 128 MA's), (34, 51110), (43, 51059),

Gene: FiringLine\_95 Start: 52104, Stop: 51814, Start Num: 12

Candidate Starts for FiringLine\_95:

(4, 52140), (5, 52128), (Start: 12 @52104 has 128 MA's), (29, 52008), (45, 51897), (49, 51879), (50, 51864),

Gene: First\_0096 Start: 51767, Stop: 51477, Start Num: 12

Candidate Starts for First\_0096:

(4, 51803), (5, 51791), (Start: 12 @51767 has 128 MA's), (40, 51584), (45, 51560), (49, 51542),

Gene: Flare16\_97 Start: 51671, Stop: 51378, Start Num: 12

Candidate Starts for Flare16\_97:

(Start: 12 @51671 has 128 MA's), (27, 51584), (45, 51461), (49, 51443), (50, 51428),

Gene: Flaverint\_101 Start: 51416, Stop: 51099, Start Num: 12

Candidate Starts for Flaverint\_101:

(Start: 12 @51416 has 128 MA's), (34, 51254), (43, 51203),

Gene: ForesterFrank\_90 Start: 51261, Stop: 50962, Start Num: 12

Candidate Starts for ForesterFrank\_90:

(Start: 12 @51261 has 128 MA's), (20, 51234), (37, 51096), (45, 51048), (48, 51030),

Gene: Georgie2\_97 Start: 52152, Stop: 51862, Start Num: 12

Candidate Starts for Georgie2\_97:

(4, 52188), (5, 52176), (Start: 12 @52152 has 128 MA's), (29, 52056), (45, 51945), (49, 51927), (50, 51912),

Gene: Gilberta\_98 Start: 50292, Stop: 49975, Start Num: 12

Candidate Starts for Gilberta\_98:

(Start: 12 @50292 has 128 MA's), (34, 50130), (43, 50079),

Gene: Gratitude\_95 Start: 51856, Stop: 51563, Start Num: 12

Candidate Starts for Gratitude\_95:

(Start: 12 @51856 has 128 MA's), (27, 51769), (45, 51646), (49, 51628), (50, 51613),

Gene: Hanray\_97 Start: 51899, Stop: 51603, Start Num: 12

Candidate Starts for Hanray\_97:

(Start: 12 @51899 has 128 MA's), (26, 51821), (28, 51806), (31, 51755), (45, 51689),

Gene: HarryHoudini\_96 Start: 51537, Stop: 51244, Start Num: 12

Candidate Starts for HarryHoudini\_96:

(Start: 12 @51537 has 128 MA's), (27, 51450), (45, 51327), (49, 51309), (50, 51294),

Gene: Heffalump\_92 Start: 51878, Stop: 51585, Start Num: 12

Candidate Starts for Heffalump\_92:

(Start: 12 @51878 has 128 MA's), (Start: 15 @51872 has 2 MA's), (20, 51851), (45, 51668), (49, 51650), (50, 51635),

Gene: Herbertwm\_90 Start: 50464, Stop: 50207, Start Num: 14

Candidate Starts for Herbertwm\_90:

(Start: 14 @50464 has 2 MA's), (21, 50437), (31, 50326), (45, 50254), (46, 50248), (48, 50239),

Gene: HippoHollow\_90 Start: 52339, Stop: 52049, Start Num: 12

Candidate Starts for HippoHollow\_90:

(8, 52354), (Start: 12 @52339 has 128 MA's), (27, 52252), (45, 52132), (48, 52117), (50, 52099),

Gene: Horex\_98 Start: 51912, Stop: 51616, Start Num: 12

Candidate Starts for Horex\_98:

(Start: 12 @51912 has 128 MA's), (26, 51834), (28, 51819), (31, 51768), (45, 51702),

Gene: HortumSL17\_101 Start: 51948, Stop: 51652, Start Num: 12

Candidate Starts for HortumSL17\_101:

(Start: 12 @51948 has 128 MA's), (26, 51870), (28, 51855), (31, 51804), (45, 51738),

Gene: Hutc2\_98 Start: 50224, Stop: 49907, Start Num: 12

Candidate Starts for Hutc2\_98:

(Start: 12 @50224 has 128 MA's), (34, 50062), (43, 50011),

Gene: Insomnia\_100 Start: 51450, Stop: 51133, Start Num: 12

Candidate Starts for Insomnia\_100:

(Start: 12 @51450 has 128 MA's), (34, 51288), (43, 51237),

Gene: Jabith\_100 Start: 51532, Stop: 51215, Start Num: 12

Candidate Starts for Jabith\_100:

(Start: 12 @51532 has 128 MA's), (34, 51370), (43, 51319),

Gene: Jerm\_96 Start: 51896, Stop: 51606, Start Num: 12

Candidate Starts for Jerm\_96:

(Start: 12 @51896 has 128 MA's), (29, 51800), (40, 51713), (45, 51689), (46, 51683), (49, 51671), (50, 51656),

Gene: Jiawan\_97 Start: 51929, Stop: 51633, Start Num: 12

Candidate Starts for Jiawan\_97:

(Start: 12 @51929 has 128 MA's), (26, 51851), (28, 51836), (31, 51785), (45, 51719),

Gene: Joselito\_98 Start: 51170, Stop: 50853, Start Num: 12

Candidate Starts for Joselito\_98:

(Start: 12 @51170 has 128 MA's), (34, 51008), (43, 50957),

Gene: JoshKayV\_98 Start: 52139, Stop: 51846, Start Num: 15

Candidate Starts for JoshKayV\_98:

(Start: 12 @52145 has 128 MA's), (Start: 15 @52139 has 2 MA's), (20, 52118), (37, 51980), (45, 51932), (52, 51884),

Gene: Journey13\_81 Start: 47229, Stop: 46915, Start Num: 12

Candidate Starts for Journey13\_81:

(Start: 12 @47229 has 128 MA's), (20, 47190), (23, 47160), (25, 47151), (26, 47139), (37, 47052), (39, 47034), (47, 46989), (52, 46953),

Gene: Jsquared\_102 Start: 51747, Stop: 51448, Start Num: 12

Candidate Starts for Jsquared\_102:

(Start: 12 @51747 has 128 MA's), (29, 51651), (40, 51564), (44, 51549), (46, 51534),

Gene: Kalpine\_98 Start: 52161, Stop: 51862, Start Num: 12

Candidate Starts for Kalpine\_98:

(Start: 12 @52161 has 128 MA's), (Start: 15 @52155 has 2 MA's), (20, 52134), (26, 52083), (37, 51996), (45, 51948), (48, 51933), (52, 51900),

Gene: Kerberos\_98 Start: 51574, Stop: 51257, Start Num: 12

Candidate Starts for Kerberos\_98:

(6, 51598), (Start: 12 @51574 has 128 MA's), (Start: 15 @51568 has 2 MA's), (20, 51535), (23, 51505), (25, 51496), (34, 51412),

Gene: Kimba\_97 Start: 50474, Stop: 50157, Start Num: 12

Candidate Starts for Kimba\_97:

(Start: 12 @50474 has 128 MA's), (34, 50312), (43, 50261),

Gene: KingCyrus\_92 Start: 52682, Stop: 52392, Start Num: 12

Candidate Starts for KingCyrus\_92:

(Start: 10 @52688 has 1 MA's), (Start: 12 @52682 has 128 MA's), (45, 52475), (49, 52457), (52, 52430),

Gene: Klodlith\_95 Start: 51285, Stop: 50983, Start Num: 12

Candidate Starts for Klodlith\_95:

(Start: 12 @51285 has 128 MA's), (18, 51276), (26, 51207), (28, 51192), (31, 51141), (51, 51039), (52, 51021),

Gene: Koduck\_98 Start: 51378, Stop: 51082, Start Num: 12

Candidate Starts for Koduck\_98:

(Start: 12 @51378 has 128 MA's), (29, 51282), (40, 51195), (52, 51120),

Gene: L5\_89 Start: 51082, Stop: 50786, Start Num: 12

Candidate Starts for L5\_89:

(Start: 12 @51082 has 128 MA's), (29, 50986), (44, 50884), (52, 50824),

Gene: LadyBird\_97 Start: 51890, Stop: 51600, Start Num: 12

Candidate Starts for LadyBird\_97:

(8, 51905), (Start: 12 @51890 has 128 MA's), (20, 51863), (29, 51794), (45, 51683), (49, 51665),

Gene: Larenn\_93 Start: 51727, Stop: 51437, Start Num: 12

Candidate Starts for Larenn\_93:

(4, 51763), (5, 51751), (Start: 12 @51727 has 128 MA's), (29, 51631), (45, 51520), (49, 51502), (50, 51487),

Gene: Leogania\_78 Start: 47800, Stop: 47507, Start Num: 12

Candidate Starts for Leogania\_78:

(Start: 12 @47800 has 128 MA's), (Start: 15 @47794 has 2 MA's), (20, 47773), (26, 47722), (45, 47590), (48, 47575), (50, 47557),

Gene: Leviathan\_96 Start: 51974, Stop: 51684, Start Num: 12

Candidate Starts for Leviathan\_96:

(Start: 12 @51974 has 128 MA's), (29, 51878), (40, 51791), (45, 51767), (46, 51761), (49, 51749), (50, 51734),

Gene: LilTurb\_96 Start: 51886, Stop: 51596, Start Num: 12

Candidate Starts for LilTurb\_96:

(Start: 10 @51892 has 1 MA's), (Start: 12 @51886 has 128 MA's), (29, 51790), (40, 51703), (45, 51679), (46, 51673), (49, 51661), (50, 51646),

Gene: Lilleskat\_96 Start: 51900, Stop: 51604, Start Num: 12

Candidate Starts for Lilleskat\_96:

(Start: 12 @51900 has 128 MA's), (26, 51822), (28, 51807), (31, 51756), (45, 51690),

Gene: LionsBait\_92 Start: 52277, Stop: 51987, Start Num: 12

Candidate Starts for LionsBait\_92:

(8, 52292), (Start: 12 @52277 has 128 MA's), (27, 52190), (45, 52070), (48, 52055), (50, 52037),

Gene: Lokk\_90 Start: 49752, Stop: 49459, Start Num: 12

Candidate Starts for Lokk\_90:

(Start: 12 @49752 has 128 MA's), (46, 49536), (50, 49509),

Gene: LoneWolf\_99 Start: 51833, Stop: 51534, Start Num: 12

Candidate Starts for LoneWolf\_99:

(7, 51854), (Start: 12 @51833 has 128 MA's), (20, 51803), (26, 51752), (45, 51620),

Gene: Loser\_98 Start: 52299, Stop: 51985, Start Num: 11

Candidate Starts for Loser\_98:

(Start: 11 @52299 has 2 MA's), (Start: 12 @52296 has 128 MA's), (20, 52257), (23, 52227), (25, 52218), (37, 52119), (45, 52071), (46, 52065),

Gene: Lucivia\_101 Start: 51449, Stop: 51132, Start Num: 12

Candidate Starts for Lucivia\_101:

(Start: 12 @51449 has 128 MA's), (34, 51287), (43, 51236),

Gene: Lucyedi\_95 Start: 51835, Stop: 51428, Start Num: 2

Candidate Starts for Lucyedi\_95:

(Start: 2 @51835 has 2 MA's), (3, 51826), (5, 51763), (Start: 14 @51730 has 2 MA's), (22, 51682), (23, 51676), (31, 51589), (32, 51586), (41, 51532), (42, 51526), (45, 51514), (52, 51466),

Gene: MaCh\_100 Start: 51413, Stop: 51096, Start Num: 12

Candidate Starts for MaCh\_100:

(Start: 12 @51413 has 128 MA's), (34, 51251), (43, 51200),

Gene: Mabel\_100 Start: 51414, Stop: 51097, Start Num: 12

Candidate Starts for Mabel\_100:

(Start: 12 @51414 has 128 MA's), (34, 51252), (43, 51201),

Gene: MajorMajor\_94 Start: 49791, Stop: 49492, Start Num: 12

Candidate Starts for MajorMajor\_94:

(Start: 12 @49791 has 128 MA's), (20, 49764), (40, 49608), (44, 49593), (46, 49578), (48, 49566),

Gene: Malec\_93 Start: 52135, Stop: 51845, Start Num: 12

Candidate Starts for Malec\_93:

(4, 52171), (5, 52159), (Start: 12 @52135 has 128 MA's), (29, 52039), (45, 51928), (49, 51910), (50, 51895),

Gene: Maminaiaina\_98 Start: 51829, Stop: 51533, Start Num: 12

Candidate Starts for Maminaiaina\_98:

(Start: 12 @51829 has 128 MA's), (20, 51799), (26, 51748), (28, 51733), (31, 51682), (45, 51616),

Gene: MiculUcigas\_97 Start: 51574, Stop: 51281, Start Num: 12

Candidate Starts for MiculUcigas\_97:

(Start: 12 @51574 has 128 MA's), (27, 51487), (45, 51364), (49, 51346), (50, 51331),

Gene: Miko\_91 Start: 50615, Stop: 50316, Start Num: 12

Candidate Starts for Miko\_91:

(6, 50636), (Start: 12 @50615 has 128 MA's), (26, 50537), (37, 50450), (45, 50402), (52, 50354),

Gene: MissWhite\_94 Start: 49072, Stop: 48758, Start Num: 12

Candidate Starts for MissWhite\_94:

(Start: 12 @49072 has 128 MA's), (20, 49033), (23, 49003), (25, 48994), (37, 48895), (45, 48847), (52, 48796),

Gene: Mulciber\_99 Start: 51269, Stop: 50952, Start Num: 12

Candidate Starts for Mulciber\_99:

(Start: 12 @51269 has 128 MA's), (34, 51107), (43, 51056),

Gene: Munch\_98 Start: 51418, Stop: 51101, Start Num: 12

Candidate Starts for Munch\_98:

(Start: 12 @51418 has 128 MA's), (34, 51256), (43, 51205),

Gene: Myxus\_100 Start: 51948, Stop: 51652, Start Num: 12

Candidate Starts for Myxus\_100:

(Start: 12 @51948 has 128 MA's), (26, 51870), (28, 51855), (31, 51804), (45, 51738),

Gene: NaSiaTalie\_98 Start: 51735, Stop: 51442, Start Num: 12

Candidate Starts for NaSiaTalie\_98:

(Start: 12 @51735 has 128 MA's), (27, 51648), (45, 51525), (49, 51507), (50, 51492),

Gene: Naji\_87 Start: 47930, Stop: 47619, Start Num: 17

Candidate Starts for Naji\_87:

(Start: 17 @47930 has 8 MA's), (34, 47774),

Gene: NicoleTera\_96 Start: 51731, Stop: 51429, Start Num: 12

Candidate Starts for NicoleTera\_96:

(Start: 10 @51737 has 1 MA's), (Start: 12 @51731 has 128 MA's), (37, 51566), (45, 51518), (46, 51512), (48, 51500),

Gene: Onglai\_97 Start: 50101, Stop: 49805, Start Num: 12

Candidate Starts for Onglai\_97:

(Start: 12 @50101 has 128 MA's), (26, 50023), (28, 50008), (31, 49957), (45, 49891),

Gene: Orange\_100 Start: 50968, Stop: 50651, Start Num: 12

Candidate Starts for Orange\_100:

(Start: 12 @50968 has 128 MA's), (34, 50806), (43, 50755),

Gene: PackMan\_94 Start: 49862, Stop: 49566, Start Num: 12

Candidate Starts for PackMan\_94:

(Start: 12 @49862 has 128 MA's), (26, 49784), (28, 49769), (31, 49718), (45, 49652),

Gene: PainterBoy\_94 Start: 51441, Stop: 51139, Start Num: 14

Candidate Starts for PainterBoy\_94:

(Start: 2 @51546 has 2 MA's), (3, 51537), (5, 51474), (Start: 14 @51441 has 2 MA's), (22, 51393), (23, 51387), (31, 51300), (32, 51297), (41, 51243), (42, 51237), (45, 51225), (52, 51177),

Gene: Petersenfast\_94 Start: 49849, Stop: 49532, Start Num: 12

Candidate Starts for Petersenfast\_94:

(Start: 12 @49849 has 128 MA's), (34, 49687), (43, 49636),

Gene: Phaeder\_100 Start: 51823, Stop: 51527, Start Num: 12

Candidate Starts for Phaeder\_100:

(Start: 12 @51823 has 128 MA's), (26, 51745), (28, 51730), (31, 51679), (45, 51613),

Gene: Phonnegut\_100 Start: 51833, Stop: 51537, Start Num: 12

Candidate Starts for Phonnegut\_100:

(Start: 12 @51833 has 128 MA's), (26, 51755), (28, 51740), (31, 51689), (45, 51623),

Gene: Pioneer\_100 Start: 51833, Stop: 51537, Start Num: 12

Candidate Starts for Pioneer\_100:

(Start: 12 @51833 has 128 MA's), (26, 51755), (28, 51740), (31, 51689), (45, 51623),

Gene: Piro94\_95 Start: 51462, Stop: 51169, Start Num: 12

Candidate Starts for Piro94\_95:

(Start: 12 @51462 has 128 MA's), (27, 51375), (45, 51252), (49, 51234), (50, 51219),

Gene: Pomar16\_98 Start: 51638, Stop: 51327, Start Num: 17

Candidate Starts for Pomar16\_98:

(Start: 17 @51638 has 8 MA's), (34, 51482),

Gene: Power\_95 Start: 52151, Stop: 51861, Start Num: 12

Candidate Starts for Power\_95:

(4, 52187), (5, 52175), (Start: 12 @52151 has 128 MA's), (29, 52055), (45, 51944), (49, 51926), (50, 51911),

Gene: Priya\_97 Start: 51485, Stop: 51189, Start Num: 12

Candidate Starts for Priya\_97:

(Start: 12 @51485 has 128 MA's), (26, 51407), (28, 51392), (31, 51341), (45, 51275),

Gene: Prudy\_90 Start: 51527, Stop: 51228, Start Num: 12

Candidate Starts for Prudy\_90:

(Start: 10 @51533 has 1 MA's), (Start: 12 @51527 has 128 MA's), (37, 51362), (45, 51314), (48, 51296),

Gene: Qobbit\_97 Start: 51447, Stop: 51151, Start Num: 12

Candidate Starts for Qobbit\_97:

(Start: 12 @51447 has 128 MA's), (26, 51369), (28, 51354), (31, 51303), (45, 51237),

Gene: QueenB2\_94 Start: 51529, Stop: 51236, Start Num: 12

Candidate Starts for QueenB2\_94:

(Start: 12 @51529 has 128 MA's), (Start: 15 @51523 has 2 MA's), (20, 51502), (45, 51319), (49, 51301), (50, 51286),

Gene: QueenBeesly\_95 Start: 52104, Stop: 51814, Start Num: 12

Candidate Starts for QueenBeesly\_95:

(4, 52140), (5, 52128), (Start: 12 @52104 has 128 MA's), (29, 52008), (45, 51897), (49, 51879), (50, 51864),

Gene: Quokka\_99 Start: 51500, Stop: 51201, Start Num: 12

Candidate Starts for Quokka\_99:

(Start: 12 @51500 has 128 MA's), (20, 51473), (40, 51317), (44, 51302), (46, 51287), (48, 51275),

Gene: Rachaly\_92 Start: 50752, Stop: 50459, Start Num: 12

Candidate Starts for Rachaly\_92:

(6, 50773), (Start: 12 @50752 has 128 MA's), (46, 50536), (50, 50509),

Gene: RedRock\_96 Start: 52057, Stop: 51743, Start Num: 12

Candidate Starts for RedRock\_96:

(Start: 12 @52057 has 128 MA's), (16, 52048), (37, 51880), (45, 51832), (47, 51817),

Gene: Retro23\_96 Start: 51827, Stop: 51534, Start Num: 12

Candidate Starts for Retro23\_96:

(Start: 10 @51833 has 1 MA's), (Start: 12 @51827 has 128 MA's), (36, 51668), (45, 51617), (49, 51599), (50, 51584),

Gene: RyeScarlet\_100 Start: 51819, Stop: 51523, Start Num: 12

Candidate Starts for RyeScarlet\_100:

(Start: 12 @51819 has 128 MA's), (26, 51741), (28, 51726), (31, 51675), (45, 51609),

Gene: Sachima\_95 Start: 51847, Stop: 51551, Start Num: 12

Candidate Starts for Sachima\_95:

(Start: 12 @51847 has 128 MA's), (26, 51769), (28, 51754), (31, 51703), (45, 51637),

Gene: Salz\_97 Start: 50146, Stop: 49829, Start Num: 12

Candidate Starts for Salz\_97:

(Start: 12 @50146 has 128 MA's), (34, 49984), (43, 49933),

Gene: Saskia\_98 Start: 50637, Stop: 50320, Start Num: 12

Candidate Starts for Saskia\_98:

(Start: 12 @50637 has 128 MA's), (34, 50475), (43, 50424),

Gene: Scherzo\_98 Start: 51864, Stop: 51568, Start Num: 12

Candidate Starts for Scherzo\_98:

(Start: 12 @51864 has 128 MA's), (26, 51786), (28, 51771), (31, 51720), (45, 51654),

Gene: SemperFi\_95 Start: 51992, Stop: 51702, Start Num: 12

Candidate Starts for SemperFi\_95:

(4, 52028), (5, 52016), (Start: 12 @51992 has 128 MA's), (29, 51896), (45, 51785), (49, 51767), (50, 51752),

Gene: Serenity\_99 Start: 50858, Stop: 50559, Start Num: 12  
Candidate Starts for Serenity\_99:  
(Start: 12 @50858 has 128 MA's), (20, 50831), (40, 50675), (44, 50660), (46, 50645), (48, 50633),

Gene: Sham4\_97 Start: 50164, Stop: 49847, Start Num: 12  
Candidate Starts for Sham4\_97:  
(Start: 12 @50164 has 128 MA's), (34, 50002), (43, 49951),

Gene: SheaKeira\_94 Start: 51085, Stop: 50783, Start Num: 12  
Candidate Starts for SheaKeira\_94:  
(Start: 12 @51085 has 128 MA's), (18, 51076), (26, 51007), (28, 50992), (52, 50821),

Gene: Sknot\_98 Start: 51862, Stop: 51569, Start Num: 12  
Candidate Starts for Sknot\_98:  
(Start: 12 @51862 has 128 MA's), (27, 51775), (45, 51652), (49, 51634), (50, 51619),

Gene: Smeagan\_97 Start: 52047, Stop: 51745, Start Num: 13  
Candidate Starts for Smeagan\_97:  
(1, 52185), (Start: 13 @52047 has 1 MA's), (20, 52008), (27, 51948), (40, 51852), (45, 51828), (49, 51810), (50, 51795),

Gene: SnapTap\_95 Start: 51807, Stop: 51517, Start Num: 12  
Candidate Starts for SnapTap\_95:  
(4, 51843), (5, 51831), (Start: 12 @51807 has 128 MA's), (29, 51711), (45, 51600), (49, 51582), (50, 51567),

Gene: Snape\_100 Start: 50957, Stop: 50640, Start Num: 12  
Candidate Starts for Snape\_100:  
(Start: 12 @50957 has 128 MA's), (34, 50795), (43, 50744),

Gene: Spouty\_97 Start: 51484, Stop: 51188, Start Num: 12  
Candidate Starts for Spouty\_97:  
(Start: 12 @51484 has 128 MA's), (26, 51406), (28, 51391), (31, 51340), (45, 51274),

Gene: StarStuff\_98 Start: 51600, Stop: 51289, Start Num: 17  
Candidate Starts for StarStuff\_98:  
(Start: 17 @51600 has 8 MA's), (34, 51444),

Gene: SweetiePie\_95 Start: 51940, Stop: 51650, Start Num: 12  
Candidate Starts for SweetiePie\_95:  
(4, 51976), (5, 51964), (Start: 12 @51940 has 128 MA's), (29, 51844), (45, 51733), (49, 51715), (50, 51700),

Gene: TarsusIV\_92 Start: 51423, Stop: 51133, Start Num: 12  
Candidate Starts for TarsusIV\_92:  
(Start: 12 @51423 has 128 MA's), (39, 51246), (45, 51216), (49, 51198),

Gene: Terrific\_99 Start: 51830, Stop: 51537, Start Num: 12  
Candidate Starts for Terrific\_99:  
(Start: 12 @51830 has 128 MA's), (27, 51743), (45, 51620), (49, 51602),

Gene: Timothy\_100 Start: 50934, Stop: 50617, Start Num: 12

Candidate Starts for Timothy\_100:  
(Start: 12 @50934 has 128 MA's), (34, 50772), (43, 50721),

Gene: TinyTimmy\_98 Start: 50663, Stop: 50346, Start Num: 12  
Candidate Starts for TinyTimmy\_98:  
(Start: 12 @50663 has 128 MA's), (34, 50501), (43, 50450),

Gene: TipsytheTRex\_94 Start: 51132, Stop: 50833, Start Num: 12  
Candidate Starts for TipsytheTRex\_94:  
(Start: 12 @51132 has 128 MA's), (20, 51105), (29, 51036), (40, 50949), (44, 50934), (46, 50919), (48, 50907),

Gene: Tomathan\_98 Start: 51679, Stop: 51368, Start Num: 17  
Candidate Starts for Tomathan\_98:  
(Start: 17 @51679 has 8 MA's),

Gene: Travvers\_98 Start: 51596, Stop: 51285, Start Num: 17  
Candidate Starts for Travvers\_98:  
(Start: 17 @51596 has 8 MA's), (34, 51440),

Gene: Trixie\_94 Start: 52346, Stop: 52047, Start Num: 12  
Candidate Starts for Trixie\_94:  
(Start: 12 @52346 has 128 MA's), (Start: 15 @52340 has 2 MA's), (20, 52319), (26, 52268), (37, 52181), (45, 52133), (48, 52118),

Gene: Trooper\_95 Start: 51322, Stop: 51023, Start Num: 10  
Candidate Starts for Trooper\_95:  
(Start: 10 @51322 has 1 MA's), (Start: 12 @51316 has 128 MA's), (29, 51220), (31, 51172), (45, 51106), (49, 51088), (50, 51073),

Gene: Tubs\_100 Start: 51823, Stop: 51527, Start Num: 12  
Candidate Starts for Tubs\_100:  
(Start: 12 @51823 has 128 MA's), (26, 51745), (28, 51730), (31, 51679), (45, 51613),

Gene: Turbido\_95 Start: 51902, Stop: 51612, Start Num: 12  
Candidate Starts for Turbido\_95:  
(Start: 12 @51902 has 128 MA's), (29, 51806), (40, 51719), (45, 51695), (46, 51689), (49, 51677), (50, 51662),

Gene: Ugenie5\_86 Start: 49308, Stop: 49012, Start Num: 12  
Candidate Starts for Ugenie5\_86:  
(Start: 12 @49308 has 128 MA's), (26, 49230), (28, 49215), (31, 49164), (45, 49098),

Gene: Updawg\_98 Start: 51856, Stop: 51563, Start Num: 12  
Candidate Starts for Updawg\_98:  
(Start: 12 @51856 has 128 MA's), (27, 51769), (45, 51646), (49, 51628), (50, 51613),

Gene: VA6\_94 Start: 51349, Stop: 51059, Start Num: 12  
Candidate Starts for VA6\_94:  
(Start: 12 @51349 has 128 MA's), (29, 51253), (40, 51166), (45, 51142), (49, 51124),

Gene: VC3\_94 Start: 49945, Stop: 49628, Start Num: 12  
Candidate Starts for VC3\_94:

(6, 49969), (Start: 12 @49945 has 128 MA's), (Start: 15 @49939 has 2 MA's), (20, 49906), (23, 49876), (25, 49867), (34, 49783),

Gene: WeiHuaDA\_96 Start: 52378, Stop: 52079, Start Num: 12

Candidate Starts for WeiHuaDA\_96:

(Start: 12 @52378 has 128 MA's), (Start: 15 @52372 has 2 MA's), (20, 52351), (26, 52300), (37, 52213), (45, 52165), (48, 52150),

Gene: Whabigail7\_93 Start: 51900, Stop: 51610, Start Num: 12

Candidate Starts for Whabigail7\_93:

(Start: 12 @51900 has 128 MA's), (29, 51804), (40, 51717), (45, 51693), (46, 51687), (49, 51675), (50, 51660),

Gene: WideWale\_98 Start: 51856, Stop: 51563, Start Num: 12

Candidate Starts for WideWale\_98:

(Start: 12 @51856 has 128 MA's), (27, 51769), (45, 51646), (49, 51628), (50, 51613),

Gene: Wolpertinger\_100 Start: 51283, Stop: 50966, Start Num: 12

Candidate Starts for Wolpertinger\_100:

(Start: 12 @51283 has 128 MA's), (34, 51121), (43, 51070),

Gene: XianYue\_93 Start: 51675, Stop: 51385, Start Num: 12

Candidate Starts for XianYue\_93:

(4, 51711), (5, 51699), (Start: 12 @51675 has 128 MA's), (19, 51660), (20, 51648), (22, 51624), (28, 51582), (45, 51468), (50, 51435),

Gene: Yecey3\_102 Start: 51908, Stop: 51612, Start Num: 12

Candidate Starts for Yecey3\_102:

(Start: 12 @51908 has 128 MA's), (18, 51902), (20, 51884), (24, 51851), (26, 51833), (31, 51767), (38, 51746), (47, 51683),