



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 161726 Report

This analysis was run 04/28/24 on database version 559.

Pham number 161726 has 113 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Orange\_61, Bowtie\_63, Et2Brutus\_61, Gilberta\_63, MaCh\_62, Petersenfast\_60, Sham4\_62, Timothy\_62, Bud\_61, Salz\_61, Flaverint\_63, Hutc2\_61, Fibonacci\_62, Insomnia\_61, Mulciber\_61, Aneem\_63, Joselito\_63, TinyTimmy\_60, Lucivia\_63, Bachome\_64, Snape\_62, Ebony\_62, Jabith\_63, Munch\_62
- Track 2 : Mabel\_62
- Track 3 : Jeeves\_66
- Track 4 : Gail\_64
- Track 5 : SororFago\_63
- Track 6 : Luchador\_65
- Track 7 : 40AC\_63
- Track 8 : Fameo\_63, Heffalump\_62, QueenB2\_62
- Track 9 : Centaur\_64, Flare16\_63, WideWale\_64, Piro94\_63, Updawg\_64, HarryHoudini\_64, Equemioh13\_63, MiculUcigas\_63, Baehexic\_62, NaSiaTalie\_63
- Track 10 : Leogania\_63, BiancaTri92\_63
- Track 11 : NothingSpecial\_60
- Track 12 : Koduck\_63
- Track 13 : Landor\_62, IronMan\_62
- Track 14 : Jerm\_65, AbbyPaige\_65, LilTurb\_64, Agape74\_65, SemperFi\_64, Turbido\_64, Buggy\_65, Georgie2\_64, Crucio\_63
- Track 15 : 20ES\_66, Deloris\_64, LadyBird\_68, CRB1\_66, VA6\_64, First\_0065, Benvolio\_60, BengiVuitton\_64, Echild\_63, AN3\_66
- Track 16 : Rachaly\_61, BobSwaget\_58, Lokk\_59
- Track 17 : Serenity\_63, TipsytheTRex\_60
- Track 18 : Pomar16\_63, D29\_59.1, Kerberos\_64, D32\_63, Tomathan\_64, Naji\_64, Duplo\_64, DBQu4n\_64, StarStuff\_64
- Track 19 : TarsusIV\_60
- Track 20 : Changeling\_62
- Track 21 : Kalpine\_61
- Track 22 : Retro23\_64, DudeLittle\_62, Dalmatian\_64, Anselm\_64
- Track 23 : SwirlSquare\_68
- Track 24 : Ph8s\_64
- Track 25 : Power\_62
- Track 26 : NicoleTera\_61
- Track 27 : Miko\_59
- Track 28 : SweetiePie\_63, SnapTap\_63
- Track 29 : MissWhite\_61
- Track 30 : Larenn\_61, Malec\_62

- Track 31 : Jsquared\_63
- Track 32 : BabyBack\_59
- Track 33 : FiringLine\_63, QueenBeesly\_63
- Track 34 : Loser\_64
- Track 35 : ArcherNM\_57
- Track 36 : Jaan\_63
- Track 37 : XianYue\_61
- Track 38 : GaugeLDP\_60
- Track 39 : EZMoney23\_59
- Track 40 : Iwokeuplikedis\_65
- Track 41 : Trooper\_64
- Track 42 : Pukovnik\_61
- Track 43 : Drake55\_65

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

The start number called the most often in the published annotations is 10, it was called in 53 of the 101 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AbbyPaige\_65, Agape74\_65, Aneem\_63, ArcherNM\_57, Bachome\_64, BobSwaget\_58, Bowtie\_63, Bud\_61, Buggy\_65, Changeling\_62, Crucio\_63, D29\_59.1, D32\_63, DBQu4n\_64, Drake55\_65, Duplo\_64, EZMoney23\_59, Ebony\_62, Et2Brutus\_61, Fibonacci\_62, FiringLine\_63, Flaverint\_63, Georgie2\_64, Gilberta\_63, Hutc2\_61, Insomnia\_61, Jabith\_63, Jerm\_65, Joselito\_63, Kerberos\_64, LilTurb\_64, Lökk\_59, Loser\_64, Lucivia\_63, MaCh\_62, Mabel\_62, Miko\_59, Mulciber\_61, Munch\_62, Naji\_64, NicoleTera\_61, Orange\_61, Petersenfast\_60, Pomar16\_63, QueenBeesly\_63, Rachaly\_61, Salz\_61, SemperFi\_64, Sham4\_62, Snape\_62, StarStuff\_64, TarsusIV\_60, Timothy\_62, TinyTimmy\_60, Tomathan\_64, Trooper\_64, Turbido\_64,

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

- SnapTap\_63, SweetiePie\_63,

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

- 20ES\_66, 40AC\_63, AN3\_66, Anselm\_64, BabyBack\_59, Baehexic\_62, BengiVuitton\_64, Benvolio\_60, BiancaTri92\_63, CRB1\_66, Centaur\_64, Dalmatian\_64, Deloris\_64, DudeLittle\_62, Echild\_63, Equemioh13\_63, Fameo\_63, First\_0065, Flare16\_63, Gail\_64, GaugeLDP\_60, HarryHoudini\_64, Heffalump\_62, IronMan\_62, Iwokeuplikedis\_65, Jaan\_63, Jeeves\_66, Jsquared\_63, Kalpine\_61, Koduck\_63, LadyBird\_68, Landor\_62, Larenn\_61, Leogania\_63, Luchador\_65, Malec\_62, MiculUcigas\_63, MissWhite\_61, NaSiaTalie\_63, NothingSpecial\_60, Ph8s\_64, Piro94\_63, Power\_62, Pukovnik\_61, QueenB2\_62, Retro23\_64, Serenity\_63, SororFago\_63, SwirlSquare\_68, TopsytheTRex\_60, Updawg\_64, VA6\_64, WideWale\_64, XianYue\_61,

**Summary by start number:**

Start 10:

- Found in 59 of 113 ( 52.2% ) of genes in pham

- Manual Annotations of this start: 53 of 101
- Called 96.6% of time when present
- Phage (with cluster) where this start called: AbbyPaige\_65 (A2), Agape74\_65 (A2), Aneem\_63 (A11), ArcherNM\_57 (A2), Bachome\_64 (A11), BobSwaget\_58 (A2), Bowtie\_63 (A11), Bud\_61 (A11), Buggy\_65 (A2), Changeling\_62 (A2), Crucio\_63 (A2), D29\_59.1 (A2), D32\_63 (A2), DBQu4n\_64 (A2), Drake55\_65 (A2), Duplo\_64 (A2), EZMoney23\_59 (A2), Ebony\_62 (A11), Et2Brutus\_61 (A11), Fibonacci\_62 (A11), FiringLine\_63 (A2), Flaverint\_63 (A11), Georgie2\_64 (A2), Gilberta\_63 (A11), Hutc2\_61 (A11), Insomnia\_61 (A11), Jabith\_63 (A11), Jerm\_65 (A2), Joselito\_63 (A11), Kerberos\_64 (A2), LiITurb\_64 (A2), Lökk\_59 (A2), Loser\_64 (A2), Lucivia\_63 (A11), MaCh\_62 (A11), Mabel\_62 (A11), Miko\_59 (A2), Mulciber\_61 (A11), Munch\_62 (A11), Naji\_64 (A2), NicoleTera\_61 (A2), Orange\_61 (A11), Petersenfast\_60 (A11), Pomar16\_63 (A2), QueenBeesly\_63 (A2), Rachaly\_61 (A2), Salz\_61 (A11), SemperFi\_64 (A2), Sham4\_62 (A11), Snape\_62 (A11), StarStuff\_64 (A2), TarsusIV\_60 (A2), Timothy\_62 (A11), TinyTimmy\_60 (A11), Tomathan\_64 (A2), Trooper\_64 (A2), Turbido\_64 (A2),

#### Start 11:

- Found in 6 of 113 ( 5.3% ) of genes in pham
- Manual Annotations of this start: 4 of 101
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jsquared\_63 (A2), Koduck\_63 (A2), Ph8s\_64 (A2), Serenity\_63 (A2), SwirlSquare\_68 (A2), TopsytheTRex\_60 (A2),

#### Start 14:

- Found in 54 of 113 ( 47.8% ) of genes in pham
- Manual Annotations of this start: 25 of 101
- Called 51.9% of time when present
- Phage (with cluster) where this start called: 40AC\_63 (A17), BabyBack\_59 (A2), Baehexic\_62 (A2), Centaur\_64 (A2), Equemioh13\_63 (A2), Flare16\_63 (A2), GaugeLDP\_60 (A2), HarryHoudini\_64 (A2), IronMan\_62 (A2), Iwokeuplikedis\_65 (A2), Jaan\_63 (A2), Jeeves\_66 (A14), Landor\_62 (A2), Larenn\_61 (A2), Luchador\_65 (A14), Malec\_62 (A2), MiculUcigas\_63 (A2), MissWhite\_61 (A2), NaSiaTalie\_63 (A2), NothingSpecial\_60 (A2), Piro94\_63 (A2), Pukovnik\_61 (A2), SnapTap\_63 (A2), SororFago\_63 (A14), SweetiePie\_63 (A2), Updawg\_64 (A2), WideWale\_64 (A2), XianYue\_61 (A2),

#### Start 15:

- Found in 1 of 113 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 101
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gail\_64 (A14),

#### Start 16:

- Found in 21 of 113 ( 18.6% ) of genes in pham
- Manual Annotations of this start: 18 of 101
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 20ES\_66 (A2), AN3\_66 (A2), Anselm\_64 (A2), BengiVuitton\_64 (A2), Benvolio\_60 (A2), BiancaTri92\_63 (A2), CRB1\_66 (A2), Dalmatian\_64 (A2), Deloris\_64 (A2), DudeLittle\_62 (A2), Echild\_63 (A2), Fameo\_63 (A2), First\_0065 (A2), Heffalump\_62 (A2), Kalpine\_61 (A2), LadyBird\_68 (A2), Leogania\_63 (A2), Power\_62 (A2), QueenB2\_62 (A2), Retro23\_64 (A2), VA6\_64 (A2),

## Summary by clusters:

There are 4 clusters represented in this pham: A14, A17, A2, A11,

Info for manual annotations of cluster A11:

- Start number 10 was manually annotated 22 times for cluster A11.

Info for manual annotations of cluster A14:

- Start number 14 was manually annotated 3 times for cluster A14.
- Start number 15 was manually annotated 1 time for cluster A14.

Info for manual annotations of cluster A2:

- Start number 10 was manually annotated 31 times for cluster A2.
- Start number 11 was manually annotated 4 times for cluster A2.
- Start number 14 was manually annotated 22 times for cluster A2.
- Start number 16 was manually annotated 18 times for cluster A2.

## **Gene Information:**

Gene: 20ES\_66 Start: 40354, Stop: 40241, Start Num: 16

Candidate Starts for 20ES\_66:

(Start: 16 @40354 has 18 MA's),

Gene: 40AC\_63 Start: 41089, Stop: 40973, Start Num: 14

Candidate Starts for 40AC\_63:

(Start: 14 @41089 has 25 MA's),

Gene: AN3\_66 Start: 39069, Stop: 38956, Start Num: 16

Candidate Starts for AN3\_66:

(Start: 16 @39069 has 18 MA's),

Gene: AbbyPaige\_65 Start: 40341, Stop: 40210, Start Num: 10

Candidate Starts for AbbyPaige\_65:

(Start: 10 @40341 has 53 MA's), (Start: 14 @40332 has 25 MA's), (22, 40305),

Gene: Agape74\_65 Start: 40335, Stop: 40204, Start Num: 10

Candidate Starts for Agape74\_65:

(Start: 10 @40335 has 53 MA's), (Start: 14 @40326 has 25 MA's), (22, 40299),

Gene: Aneem\_63 Start: 39459, Stop: 39322, Start Num: 10

Candidate Starts for Aneem\_63:

(Start: 10 @39459 has 53 MA's), (31, 39387),

Gene: Anselm\_64 Start: 40239, Stop: 40120, Start Num: 16

Candidate Starts for Anselm\_64:

(Start: 16 @40239 has 18 MA's), (20, 40230),

Gene: ArcherNM\_57 Start: 39573, Stop: 39427, Start Num: 10

Candidate Starts for ArcherNM\_57:

(2, 39663), (Start: 10 @39573 has 53 MA's), (25, 39522), (36, 39435),

Gene: BabyBack\_59 Start: 40331, Stop: 40191, Start Num: 14

Candidate Starts for BabyBack\_59:

(2, 40424), (8, 40349), (Start: 14 @40331 has 25 MA's), (20, 40322), (30, 40274), (37, 40199),

Gene: Bachome\_64 Start: 39439, Stop: 39302, Start Num: 10

Candidate Starts for Bachome\_64:

(Start: 10 @39439 has 53 MA's), (31, 39367),

Gene: Baehexic\_62 Start: 39801, Stop: 39685, Start Num: 14

Candidate Starts for Baehexic\_62:

(Start: 14 @39801 has 25 MA's), (31, 39744),

Gene: BengiVuitton\_64 Start: 40331, Stop: 40212, Start Num: 16

Candidate Starts for BengiVuitton\_64:

(Start: 16 @40331 has 18 MA's),

Gene: Benvolio\_60 Start: 39343, Stop: 39227, Start Num: 16

Candidate Starts for Benvolio\_60:

(Start: 16 @39343 has 18 MA's),

Gene: BiancaTri92\_63 Start: 40390, Stop: 40262, Start Num: 16

Candidate Starts for BiancaTri92\_63:

(Start: 16 @40390 has 18 MA's), (20, 40381), (36, 40270),

Gene: BobSwaget\_58 Start: 38604, Stop: 38473, Start Num: 10

Candidate Starts for BobSwaget\_58:

(Start: 10 @38604 has 53 MA's), (Start: 14 @38595 has 25 MA's), (19, 38586), (30, 38535),

Gene: Bowtie\_63 Start: 39466, Stop: 39329, Start Num: 10

Candidate Starts for Bowtie\_63:

(Start: 10 @39466 has 53 MA's), (31, 39394),

Gene: Bud\_61 Start: 39013, Stop: 38876, Start Num: 10

Candidate Starts for Bud\_61:

(Start: 10 @39013 has 53 MA's), (31, 38941),

Gene: Buggy\_65 Start: 40392, Stop: 40261, Start Num: 10

Candidate Starts for Buggy\_65:

(Start: 10 @40392 has 53 MA's), (Start: 14 @40383 has 25 MA's), (22, 40356),

Gene: CRB1\_66 Start: 40877, Stop: 40758, Start Num: 16

Candidate Starts for CRB1\_66:

(Start: 16 @40877 has 18 MA's),

Gene: Centaur\_64 Start: 40015, Stop: 39899, Start Num: 14

Candidate Starts for Centaur\_64:

(Start: 14 @40015 has 25 MA's), (31, 39958),

Gene: Changeling\_62 Start: 40439, Stop: 40296, Start Num: 10

Candidate Starts for Changeling\_62:

(2, 40529), (Start: 10 @40439 has 53 MA's), (24, 40391), (30, 40370), (31, 40367), (36, 40304),

Gene: Crucio\_63 Start: 40018, Stop: 39887, Start Num: 10  
Candidate Starts for Crucio\_63:  
(Start: 10 @40018 has 53 MA's), (Start: 14 @40009 has 25 MA's), (22, 39982),

Gene: D29\_59.1 Start: 39706, Stop: 39563, Start Num: 10  
Candidate Starts for D29\_59.1:  
(Start: 10 @39706 has 53 MA's), (Start: 14 @39697 has 25 MA's), (24, 39658), (31, 39634),

Gene: D32\_63 Start: 39706, Stop: 39563, Start Num: 10  
Candidate Starts for D32\_63:  
(Start: 10 @39706 has 53 MA's), (Start: 14 @39697 has 25 MA's), (24, 39658), (31, 39634),

Gene: DBQu4n\_64 Start: 39687, Stop: 39544, Start Num: 10  
Candidate Starts for DBQu4n\_64:  
(Start: 10 @39687 has 53 MA's), (Start: 14 @39678 has 25 MA's), (24, 39639), (31, 39615),

Gene: Dalmatian\_64 Start: 40212, Stop: 40093, Start Num: 16  
Candidate Starts for Dalmatian\_64:  
(Start: 16 @40212 has 18 MA's), (20, 40203),

Gene: Deloris\_64 Start: 40027, Stop: 39908, Start Num: 16  
Candidate Starts for Deloris\_64:  
(Start: 16 @40027 has 18 MA's),

Gene: Drake55\_65 Start: 40115, Stop: 39984, Start Num: 10  
Candidate Starts for Drake55\_65:  
(Start: 10 @40115 has 53 MA's),

Gene: DudeLittle\_62 Start: 39978, Stop: 39859, Start Num: 16  
Candidate Starts for DudeLittle\_62:  
(Start: 16 @39978 has 18 MA's), (20, 39969),

Gene: Duplo\_64 Start: 39743, Stop: 39600, Start Num: 10  
Candidate Starts for Duplo\_64:  
(Start: 10 @39743 has 53 MA's), (Start: 14 @39734 has 25 MA's), (24, 39695), (31, 39671),

Gene: EZMoney23\_59 Start: 39508, Stop: 39365, Start Num: 10  
Candidate Starts for EZMoney23\_59:  
(Start: 10 @39508 has 53 MA's), (28, 39445), (36, 39373),

Gene: Ebony\_62 Start: 39030, Stop: 38893, Start Num: 10  
Candidate Starts for Ebony\_62:  
(Start: 10 @39030 has 53 MA's), (31, 38958),

Gene: Echild\_63 Start: 39367, Stop: 39251, Start Num: 16  
Candidate Starts for Echild\_63:  
(Start: 16 @39367 has 18 MA's),

Gene: Equemioh13\_63 Start: 39920, Stop: 39804, Start Num: 14  
Candidate Starts for Equemioh13\_63:  
(Start: 14 @39920 has 25 MA's), (31, 39863),

Gene: Et2Brutus\_61 Start: 38993, Stop: 38856, Start Num: 10  
Candidate Starts for Et2Brutus\_61:  
(Start: 10 @38993 has 53 MA's), (31, 38921),

Gene: Fameo\_63 Start: 40337, Stop: 40218, Start Num: 16  
Candidate Starts for Fameo\_63:  
(2, 40430), (Start: 16 @40337 has 18 MA's), (20, 40328),

Gene: Fibonacci\_62 Start: 38999, Stop: 38862, Start Num: 10  
Candidate Starts for Fibonacci\_62:  
(Start: 10 @38999 has 53 MA's), (31, 38927),

Gene: FiringLine\_63 Start: 39999, Stop: 39868, Start Num: 10  
Candidate Starts for FiringLine\_63:  
(Start: 10 @39999 has 53 MA's), (Start: 14 @39990 has 25 MA's), (22, 39963),

Gene: First\_0065 Start: 40254, Stop: 40141, Start Num: 16  
Candidate Starts for First\_0065:  
(Start: 16 @40254 has 18 MA's),

Gene: Flare16\_63 Start: 39676, Stop: 39560, Start Num: 14  
Candidate Starts for Flare16\_63:  
(Start: 14 @39676 has 25 MA's), (31, 39619),

Gene: Flaverint\_63 Start: 39457, Stop: 39320, Start Num: 10  
Candidate Starts for Flaverint\_63:  
(Start: 10 @39457 has 53 MA's), (31, 39385),

Gene: Gail\_64 Start: 40781, Stop: 40653, Start Num: 15  
Candidate Starts for Gail\_64:  
(12, 40787), (Start: 15 @40781 has 1 MA's),

Gene: GaugeLDP\_60 Start: 39857, Stop: 39732, Start Num: 14  
Candidate Starts for GaugeLDP\_60:  
(2, 39950), (8, 39875), (13, 39860), (Start: 14 @39857 has 25 MA's), (29, 39803), (34, 39752),

Gene: Georgie2\_64 Start: 40044, Stop: 39913, Start Num: 10  
Candidate Starts for Georgie2\_64:  
(Start: 10 @40044 has 53 MA's), (Start: 14 @40035 has 25 MA's), (22, 40008),

Gene: Gilberta\_63 Start: 39450, Stop: 39313, Start Num: 10  
Candidate Starts for Gilberta\_63:  
(Start: 10 @39450 has 53 MA's), (31, 39378),

Gene: HarryHoudini\_64 Start: 40119, Stop: 40003, Start Num: 14  
Candidate Starts for HarryHoudini\_64:  
(Start: 14 @40119 has 25 MA's), (31, 40062),

Gene: Heffalump\_62 Start: 40805, Stop: 40686, Start Num: 16  
Candidate Starts for Heffalump\_62:  
(2, 40898), (Start: 16 @40805 has 18 MA's), (20, 40796),

Gene: Hutc2\_61 Start: 38999, Stop: 38862, Start Num: 10



Candidate Starts for Hutc2\_61:  
(Start: 10 @38999 has 53 MA's), (31, 38927),

Gene: Insomnia\_61 Start: 39510, Stop: 39373, Start Num: 10  
Candidate Starts for Insomnia\_61:  
(Start: 10 @39510 has 53 MA's), (31, 39438),

Gene: IronMan\_62 Start: 40812, Stop: 40687, Start Num: 14  
Candidate Starts for IronMan\_62:  
(8, 40830), (Start: 14 @40812 has 25 MA's), (21, 40791), (35, 40695),

Gene: Iwokeuplikedis\_65 Start: 39836, Stop: 39705, Start Num: 14  
Candidate Starts for Iwokeuplikedis\_65:  
(1, 40247), (2, 39926), (Start: 14 @39836 has 25 MA's), (23, 39809), (24, 39800), (25, 39797), (26, 39794), (27, 39788),

Gene: Jaan\_63 Start: 40984, Stop: 40859, Start Num: 14  
Candidate Starts for Jaan\_63:  
(8, 41002), (Start: 14 @40984 has 25 MA's), (21, 40963), (30, 40927),

Gene: Jabith\_63 Start: 39511, Stop: 39374, Start Num: 10  
Candidate Starts for Jabith\_63:  
(Start: 10 @39511 has 53 MA's), (31, 39439),

Gene: Jeeves\_66 Start: 39766, Stop: 39632, Start Num: 14  
Candidate Starts for Jeeves\_66:  
(Start: 14 @39766 has 25 MA's),

Gene: Jerm\_65 Start: 40407, Stop: 40276, Start Num: 10  
Candidate Starts for Jerm\_65:  
(Start: 10 @40407 has 53 MA's), (Start: 14 @40398 has 25 MA's), (22, 40371),

Gene: Joselito\_63 Start: 39459, Stop: 39322, Start Num: 10  
Candidate Starts for Joselito\_63:  
(Start: 10 @39459 has 53 MA's), (31, 39387),

Gene: Jsquared\_63 Start: 39358, Stop: 39215, Start Num: 11  
Candidate Starts for Jsquared\_63:  
(4, 39388), (9, 39373), (Start: 11 @39358 has 4 MA's), (20, 39340), (23, 39322), (25, 39310), (29, 39295), (30, 39292), (31, 39289),

Gene: Kalpine\_61 Start: 40096, Stop: 39965, Start Num: 16  
Candidate Starts for Kalpine\_61:  
(8, 40117), (Start: 16 @40096 has 18 MA's), (32, 40030), (37, 39973),

Gene: Kerberos\_64 Start: 39705, Stop: 39562, Start Num: 10  
Candidate Starts for Kerberos\_64:  
(Start: 10 @39705 has 53 MA's), (Start: 14 @39696 has 25 MA's), (24, 39657), (31, 39633),

Gene: Koduck\_63 Start: 39295, Stop: 39152, Start Num: 11  
Candidate Starts for Koduck\_63:  
(6, 39316), (Start: 11 @39295 has 4 MA's), (20, 39277), (29, 39232), (30, 39229), (31, 39226),

Gene: LadyBird\_68 Start: 40839, Stop: 40720, Start Num: 16  
Candidate Starts for LadyBird\_68:  
(Start: 16 @40839 has 18 MA's),

Gene: Landor\_62 Start: 40890, Stop: 40765, Start Num: 14  
Candidate Starts for Landor\_62:  
(8, 40908), (Start: 14 @40890 has 25 MA's), (21, 40869), (35, 40773),

Gene: Larenn\_61 Start: 39953, Stop: 39837, Start Num: 14  
Candidate Starts for Larenn\_61:  
(Start: 14 @39953 has 25 MA's), (31, 39896),

Gene: Leogania\_63 Start: 40768, Stop: 40640, Start Num: 16  
Candidate Starts for Leogania\_63:  
(Start: 16 @40768 has 18 MA's), (20, 40759), (36, 40648),

Gene: LilTurb\_64 Start: 40289, Stop: 40158, Start Num: 10  
Candidate Starts for LilTurb\_64:  
(Start: 10 @40289 has 53 MA's), (Start: 14 @40280 has 25 MA's), (22, 40253),

Gene: Lokk\_59 Start: 39228, Stop: 39097, Start Num: 10  
Candidate Starts for Lokk\_59:  
(Start: 10 @39228 has 53 MA's), (Start: 14 @39219 has 25 MA's), (19, 39210), (30, 39159),

Gene: Loser\_64 Start: 40496, Stop: 40356, Start Num: 10  
Candidate Starts for Loser\_64:  
(Start: 10 @40496 has 53 MA's), (Start: 14 @40487 has 25 MA's), (30, 40427), (31, 40424), (36, 40364),

Gene: Luchador\_65 Start: 41349, Stop: 41215, Start Num: 14  
Candidate Starts for Luchador\_65:  
(Start: 14 @41349 has 25 MA's),

Gene: Lucivia\_63 Start: 39508, Stop: 39371, Start Num: 10  
Candidate Starts for Lucivia\_63:  
(Start: 10 @39508 has 53 MA's), (31, 39436),

Gene: MaCh\_62 Start: 39438, Stop: 39301, Start Num: 10  
Candidate Starts for MaCh\_62:  
(Start: 10 @39438 has 53 MA's), (31, 39366),

Gene: Mabel\_62 Start: 39455, Stop: 39318, Start Num: 10  
Candidate Starts for Mabel\_62:  
(Start: 10 @39455 has 53 MA's), (31, 39383), (33, 39341),

Gene: Malec\_62 Start: 40520, Stop: 40404, Start Num: 14  
Candidate Starts for Malec\_62:  
(Start: 14 @40520 has 25 MA's), (31, 40463),

Gene: MiculUcigas\_63 Start: 39579, Stop: 39463, Start Num: 14  
Candidate Starts for MiculUcigas\_63:  
(Start: 14 @39579 has 25 MA's), (31, 39522),

Gene: Miko\_59 Start: 40006, Stop: 39875, Start Num: 10  
Candidate Starts for Miko\_59:  
(Start: 10 @40006 has 53 MA's), (Start: 14 @39997 has 25 MA's), (30, 39937),

Gene: MissWhite\_61 Start: 38488, Stop: 38360, Start Num: 14  
Candidate Starts for MissWhite\_61:  
(8, 38506), (Start: 14 @38488 has 25 MA's), (19, 38479),

Gene: Mulciber\_61 Start: 38996, Stop: 38859, Start Num: 10  
Candidate Starts for Mulciber\_61:  
(Start: 10 @38996 has 53 MA's), (31, 38924),

Gene: Munch\_62 Start: 39459, Stop: 39322, Start Num: 10  
Candidate Starts for Munch\_62:  
(Start: 10 @39459 has 53 MA's), (31, 39387),

Gene: NaSiaTalie\_63 Start: 39673, Stop: 39557, Start Num: 14  
Candidate Starts for NaSiaTalie\_63:  
(Start: 14 @39673 has 25 MA's), (31, 39616),

Gene: Naji\_64 Start: 39706, Stop: 39563, Start Num: 10  
Candidate Starts for Naji\_64:  
(Start: 10 @39706 has 53 MA's), (Start: 14 @39697 has 25 MA's), (24, 39658), (31, 39634),

Gene: NicoleTera\_61 Start: 39996, Stop: 39865, Start Num: 10  
Candidate Starts for NicoleTera\_61:  
(Start: 10 @39996 has 53 MA's), (28, 39933),

Gene: NothingSpecial\_60 Start: 40211, Stop: 40077, Start Num: 14  
Candidate Starts for NothingSpecial\_60:  
(2, 40301), (8, 40229), (Start: 14 @40211 has 25 MA's), (30, 40154), (37, 40085),

Gene: Orange\_61 Start: 39008, Stop: 38871, Start Num: 10  
Candidate Starts for Orange\_61:  
(Start: 10 @39008 has 53 MA's), (31, 38936),

Gene: Petersenfast\_60 Start: 39007, Stop: 38870, Start Num: 10  
Candidate Starts for Petersenfast\_60:  
(Start: 10 @39007 has 53 MA's), (31, 38935),

Gene: Ph8s\_64 Start: 39243, Stop: 39100, Start Num: 11  
Candidate Starts for Ph8s\_64:  
(5, 39267), (7, 39264), (Start: 11 @39243 has 4 MA's), (17, 39231), (20, 39225), (29, 39180), (31, 39174),

Gene: Piro94\_63 Start: 40026, Stop: 39910, Start Num: 14  
Candidate Starts for Piro94\_63:  
(Start: 14 @40026 has 25 MA's), (31, 39969),

Gene: Pomar16\_63 Start: 39746, Stop: 39603, Start Num: 10  
Candidate Starts for Pomar16\_63:  
(Start: 10 @39746 has 53 MA's), (Start: 14 @39737 has 25 MA's), (24, 39698), (31, 39674),

Gene: Power\_62 Start: 40040, Stop: 39921, Start Num: 16

Candidate Starts for Power\_62:

(Start: 16 @40040 has 18 MA's), (20, 40031),

Gene: Pukovnik\_61 Start: 40533, Stop: 40414, Start Num: 14

Candidate Starts for Pukovnik\_61:

(2, 40626), (8, 40551), (Start: 14 @40533 has 25 MA's), (21, 40512), (30, 40476),

Gene: QueenB2\_62 Start: 40018, Stop: 39899, Start Num: 16

Candidate Starts for QueenB2\_62:

(2, 40111), (Start: 16 @40018 has 18 MA's), (20, 40009),

Gene: QueenBeesly\_63 Start: 39999, Stop: 39868, Start Num: 10

Candidate Starts for QueenBeesly\_63:

(Start: 10 @39999 has 53 MA's), (Start: 14 @39990 has 25 MA's), (22, 39963),

Gene: Rachaly\_61 Start: 40151, Stop: 40020, Start Num: 10

Candidate Starts for Rachaly\_61:

(Start: 10 @40151 has 53 MA's), (Start: 14 @40142 has 25 MA's), (19, 40133), (30, 40082),

Gene: Retro23\_64 Start: 40232, Stop: 40113, Start Num: 16

Candidate Starts for Retro23\_64:

(Start: 16 @40232 has 18 MA's), (20, 40223),

Gene: Salz\_61 Start: 38978, Stop: 38841, Start Num: 10

Candidate Starts for Salz\_61:

(Start: 10 @38978 has 53 MA's), (31, 38906),

Gene: SemperFi\_64 Start: 40267, Stop: 40136, Start Num: 10

Candidate Starts for SemperFi\_64:

(Start: 10 @40267 has 53 MA's), (Start: 14 @40258 has 25 MA's), (22, 40231),

Gene: Serenity\_63 Start: 39413, Stop: 39267, Start Num: 11

Candidate Starts for Serenity\_63:

(Start: 11 @39413 has 4 MA's), (20, 39395), (29, 39350), (30, 39347), (31, 39344),

Gene: Sham4\_62 Start: 39006, Stop: 38869, Start Num: 10

Candidate Starts for Sham4\_62:

(Start: 10 @39006 has 53 MA's), (31, 38934),

Gene: SnapTap\_63 Start: 40069, Stop: 39947, Start Num: 14

Candidate Starts for SnapTap\_63:

(Start: 10 @40078 has 53 MA's), (Start: 14 @40069 has 25 MA's), (22, 40042),

Gene: Snape\_62 Start: 38998, Stop: 38861, Start Num: 10

Candidate Starts for Snape\_62:

(Start: 10 @38998 has 53 MA's), (31, 38926),

Gene: SororFago\_63 Start: 40687, Stop: 40544, Start Num: 14

Candidate Starts for SororFago\_63:

(Start: 14 @40687 has 25 MA's),

Gene: StarStuff\_64 Start: 39708, Stop: 39565, Start Num: 10

Candidate Starts for StarStuff\_64:

(Start: 10 @39708 has 53 MA's), (Start: 14 @39699 has 25 MA's), (24, 39660), (31, 39636),

Gene: SweetiePie\_63 Start: 40201, Stop: 40079, Start Num: 14

Candidate Starts for SweetiePie\_63:

(Start: 10 @40210 has 53 MA's), (Start: 14 @40201 has 25 MA's), (22, 40174),

Gene: SwirlSquare\_68 Start: 39598, Stop: 39446, Start Num: 11

Candidate Starts for SwirlSquare\_68:

(3, 39631), (Start: 11 @39598 has 4 MA's), (20, 39580), (29, 39535), (30, 39532), (31, 39529), (38, 39454),

Gene: TarsusIV\_60 Start: 39672, Stop: 39541, Start Num: 10

Candidate Starts for TarsusIV\_60:

(Start: 10 @39672 has 53 MA's), (30, 39603),

Gene: Timothy\_62 Start: 38975, Stop: 38838, Start Num: 10

Candidate Starts for Timothy\_62:

(Start: 10 @38975 has 53 MA's), (31, 38903),

Gene: TinyTimmy\_60 Start: 39024, Stop: 38887, Start Num: 10

Candidate Starts for TinyTimmy\_60:

(Start: 10 @39024 has 53 MA's), (31, 38952),

Gene: TipsytheTRex\_60 Start: 39483, Stop: 39337, Start Num: 11

Candidate Starts for TipsytheTRex\_60:

(Start: 11 @39483 has 4 MA's), (20, 39465), (29, 39420), (30, 39417), (31, 39414),

Gene: Tomathan\_64 Start: 39755, Stop: 39612, Start Num: 10

Candidate Starts for Tomathan\_64:

(Start: 10 @39755 has 53 MA's), (Start: 14 @39746 has 25 MA's), (24, 39707), (31, 39683),

Gene: Trooper\_64 Start: 40399, Stop: 40268, Start Num: 10

Candidate Starts for Trooper\_64:

(Start: 10 @40399 has 53 MA's), (Start: 14 @40390 has 25 MA's), (18, 40384), (22, 40363), (29, 40333), (30, 40330),

Gene: Turbido\_64 Start: 40285, Stop: 40154, Start Num: 10

Candidate Starts for Turbido\_64:

(Start: 10 @40285 has 53 MA's), (Start: 14 @40276 has 25 MA's), (22, 40249),

Gene: Updawg\_64 Start: 39920, Stop: 39804, Start Num: 14

Candidate Starts for Updawg\_64:

(Start: 14 @39920 has 25 MA's), (31, 39863),

Gene: VA6\_64 Start: 40247, Stop: 40134, Start Num: 16

Candidate Starts for VA6\_64:

(Start: 16 @40247 has 18 MA's),

Gene: WideWale\_64 Start: 39920, Stop: 39804, Start Num: 14

Candidate Starts for WideWale\_64:

(Start: 14 @39920 has 25 MA's), (31, 39863),

Gene: XianYue\_61 Start: 39423, Stop: 39307, Start Num: 14  
Candidate Starts for XianYue\_61:  
(Start: 14 @39423 has 25 MA's), (30, 39369),