

Pham 161700



Pham 161700



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 161700 Report

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

Pham number 161700 has 126 members, 15 are drafts.

Phages represented in each track:

- Track 1 : Mercedes\_3
- Track 2 : HerculesXL\_3, Tinyman4\_3
- Track 3 : Ixel\_3
- Track 4 : Librie\_3, GreenIvy\_3, Fulton\_3, Hasitha\_3, CaptainRex\_3, Zayuliv\_3, LilTerminator\_3
- Track 5 : Neferthena\_3
- Track 6 : QuadZero\_3
- Track 7 : Alakazam\_3
- Track 8 : Nebulous\_3, Clock\_3
- Track 9 : Zepp\_3
- Track 10 : Jemerald\_3, Juicer\_3
- Track 11 : Chepli\_3
- Track 12 : KatChan\_3, Luna18\_3
- Track 13 : Sharkboy\_64
- Track 14 : Bernstein\_65, Skylord\_65, Brahms\_65, Armstrong\_65, Clayda5\_67, Coltrane\_65, Rollins\_65
- Track 15 : Doobus\_63
- Track 16 : Cashington\_64
- Track 17 : Finalfrontier\_65, Slay\_66
- Track 18 : BelmontSKP\_64, AnnaLie\_64
- Track 19 : Albright\_64, SansAfet\_66, Phisb\_68, Abigail\_64
- Track 20 : Eula\_64, Nicky22\_64
- Track 21 : Quenya\_65
- Track 22 : Stromboli\_62, DirtyBubble\_62
- Track 23 : Franklin22\_68
- Track 24 : Didgeridoo\_70, BabyDaisy\_67, IndyLu\_67
- Track 25 : SanaSana\_64, Loviatar\_107, Stoor\_62
- Track 26 : Lahqtemish\_65
- Track 27 : TukTuk\_66
- Track 28 : BubbaBear\_64
- Track 29 : Albedo\_66
- Track 30 : Eden\_66
- Track 31 : Gack\_65
- Track 32 : Jovita\_63, Swervy\_65
- Track 33 : Kenzers\_64
- Track 34 : QMacho\_66, Johnathan\_64
- Track 35 : Vitas\_65

- Track 36 : Dismas\_63, Rona\_62
- Track 37 : DickRichards\_63
- Track 38 : LimaBean\_64
- Track 39 : SarBear\_65
- Track 40 : Avocadoman\_64
- Track 41 : Elva\_67
- Track 42 : Burritobowl\_66
- Track 43 : BabyYoda\_62
- Track 44 : CroZenni\_65
- Track 45 : ChiliPepper\_61, Kieran\_61
- Track 46 : Icarian\_67
- Track 47 : Arroyo\_65
- Track 48 : AvGardian\_65
- Track 49 : Lynlen\_65
- Track 50 : PierreOrion\_63, Crisis\_64, Paschalis\_63, KaiHaiDragon\_64, EarickHC\_64
- Track 51 : Savannah\_62, Scumberland\_65, Piperis\_64, LittleFortune\_65, Antares\_63, Shotgun\_63, Quhwah\_67, Kowalski\_62, Honeyfin\_64, Hermeonysus\_63, Busephilis\_62, Jefe\_63, Ganandorf\_62, Yeti\_63, BrazzalePHS\_62, Jollipop\_63, Cranjis\_64, PiperSansNom\_64, Selwyn23\_64, Onika\_62, Pulchra\_65, Ramiel05\_62, Phrancesco\_63
- Track 52 : NoodlelyBoi\_64
- Track 53 : Phorgeous\_63, CrazyRich\_62
- Track 54 : Metamorphoo\_17
- Track 55 : Fireman\_16
- Track 56 : ClearAsMud\_67
- Track 57 : Tyumbra\_15
- Track 58 : RobsFeet\_17
- Track 59 : Sparcetus\_48, RikSengupta\_48, Ajin\_49, Kors\_49, TinyMiny\_48
- Track 60 : Cressida\_41
- Track 61 : Cinna\_39, MementoMori\_40
- Track 62 : Matzah\_40
- Track 63 : Count\_81

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

The start number called the most often in the published annotations is 33, it was called in 45 of the 111 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Antares\_63, Armstrong\_65, Bernstein\_65, Brahms\_65, BrazzalePHS\_62, Busephilis\_62, ChiliPepper\_61, Cinna\_39, Clayda5\_67, ClearAsMud\_67, Coltrane\_65, Cranjis\_64, Cressida\_41, Crisis\_64, Dismas\_63, EarickHC\_64, Eden\_66, Franklin22\_68, Gack\_65, Ganandorf\_62, Hermeonysus\_63, Honeyfin\_64, Jefe\_63, Jollipop\_63, KaiHaiDragon\_64, Kieran\_61, Kowalski\_62, LittleFortune\_65, Matzah\_40, MementoMori\_40, NoodlelyBoi\_64, Onika\_62, Paschalis\_63, Phrancesco\_63, PierreOrion\_63, PiperSansNom\_64, Piperis\_64, Pulchra\_65, Quhwah\_67, Ramiel05\_62, Rollins\_65, Rona\_62, Savannah\_62, Scumberland\_65, Selwyn23\_64, Sharkboy\_64, Shotgun\_63, Skylord\_65, Vitas\_65, Yeti\_63,

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

- CrazyRich\_62, Phorgeous\_63,

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

- Abigail\_64, Ajin\_49, Alakazam\_3, Albedo\_66, Albright\_64, AnnaLie\_64, Arroyo\_65, AvGardian\_65, Avocadoman\_64, BabyDaisy\_67, BabyYoda\_62, BelmontSKP\_64, BubbaBear\_64, Burritobowl\_66, CaptainRex\_3, Cashington\_64, Chepli\_3, Clock\_3, Count\_81, CroZenni\_65, DickRichards\_63, Didgeridoo\_70, DirtyBubble\_62, Doobus\_63, Elva\_67, Eula\_64, Finalfrontier\_65, Fireman\_16, Fulton\_3, Greenlvy\_3, Hasitha\_3, HerculesXL\_3, Icarian\_67, IndyLu\_67, Ixel\_3, Jemerald\_3, Johnathan\_64, Jovita\_63, Juicer\_3, KatChan\_3, Kenzers\_64, Kors\_49, Lahqtemish\_65, Librie\_3, LilTerminator\_3, LimaBean\_64, Loviatar\_107, Luna18\_3, Lynlen\_65, Mercedes\_3, Metamorphoo\_17, Nebulous\_3, Neferthena\_3, Nicky22\_64, Phisb\_68, QMacho\_66, QuadZero\_3, Quenya\_65, RikSengupta\_48, RobsFeet\_17, SanaSana\_64, SansAfet\_66, SarBear\_65, Slay\_66, Sparcetus\_48, Stoor\_62, Stromboli\_62, Swervy\_65, TinyMiny\_48, Tinyman4\_3, TukTuk\_66, Tyumbra\_15, Zayuliv\_3, Zepp\_3,

### Summary by start number:

Start 32:

- Found in 67 of 126 ( 53.2% ) of genes in pham
- Manual Annotations of this start: 39 of 111
- Called 64.2% of time when present
- Phage (with cluster) where this start called: Abigail\_64 (EB), Albedo\_66 (EB), Albright\_64 (EB), AnnaLie\_64 (EB), Arroyo\_65 (EB), AvGardian\_65 (EB), Avocadoman\_64 (EB), BabyDaisy\_67 (EB), BabyYoda\_62 (EB), BelmontSKP\_64 (EB), BubbaBear\_64 (EB), Burritobowl\_66 (EB), Cashington\_64 (EB), CrazyRich\_62 (EC), CroZenni\_65 (EB), DickRichards\_63 (EB), Didgeridoo\_70 (EB), DirtyBubble\_62 (EB), Doobus\_63 (EB), Elva\_67 (EB), Eula\_64 (EB), Finalfrontier\_65 (EB), Icarian\_67 (EB), IndyLu\_67 (EB), Johnathan\_64 (EB), Jovita\_63 (EB), Kenzers\_64 (EB), Lahqtemish\_65 (EB), LimaBean\_64 (EB), Loviatar\_107 (EB), Lynlen\_65 (EB), Nicky22\_64 (EB), Phisb\_68 (EB), Phorgeous\_63 (EC), QMacho\_66 (EB), SanaSana\_64 (EB), SansAfet\_66 (EB), SarBear\_65 (EB), Slay\_66 (EB), Stoor\_62 (EB), Stromboli\_62 (EB), Swervy\_65 (EB), TukTuk\_66 (EB),

Start 33:

- Found in 52 of 126 ( 41.3% ) of genes in pham
- Manual Annotations of this start: 45 of 111
- Called 96.2% of time when present
- Phage (with cluster) where this start called: Antares\_63 (EC), Armstrong\_65 (EB), Bernstein\_65 (EB), Brahms\_65 (EB), BrazzalePHS\_62 (EC), Busephilis\_62 (EC), ChiliPepper\_61 (EB), Cinna\_39 (EI), Clayda5\_67 (EB), ClearAsMud\_67 (EC), Coltrane\_65 (EB), Cranjis\_64 (EC), Cressida\_41 (EI), Crisis\_64 (EC), Dismas\_63 (EB), EarickHC\_64 (EC), Eden\_66 (EB), Franklin22\_68 (EB), Gack\_65 (EB), Ganandorf\_62 (EC), Hermeonysus\_63 (EC), Honeyfin\_64 (EC), Jefe\_63 (EC), Jollipop\_63 (EC), KaiHaiDragon\_64 (EC), Kieran\_61 (EB), Kowalski\_62 (EC), LittleFortune\_65 (EC), Matzah\_40 (EI), MementoMori\_40 (EI), NoodlelyBoi\_64 (EC), Onika\_62 (EC), Paschalis\_63 (EC), Phrancesco\_63 (EC), PierreOrion\_63 (EC), PiperSansNom\_64 (EC), Piperis\_64 (EC), Pulchra\_65 (EC), Quhwah\_67 (EC), Ramiel05\_62 (EC), Rollins\_65 (EB), Rona\_62 (EB), Savannah\_62 (EC), Scumberland\_65 (EC), Selwyn23\_64 (EC), Sharkboy\_64 (EB), Shotgun\_63 (EC), Skylord\_65 (EB), Vitas\_65 (EB), Yeti\_63 (EC),

Start 34:

- Found in 22 of 126 ( 17.5% ) of genes in pham
- Manual Annotations of this start: 18 of 111
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alakazam\_3 (EA5), CaptainRex\_3 (EA5), Chepli\_3 (EA6), Clock\_3 (EA5), Fulton\_3 (EA5), Greenlvy\_3 (EA5), Hasitha\_3 (EA5), HerculesXL\_3 (EA11), Ixel\_3 (EA11), Jemerald\_3 (EA6), Juicer\_3 (EA6), KatChan\_3 (EA6), Librie\_3 (EA5), LilTerminator\_3 (EA5), Luna18\_3 (EA6), Mercedes\_3 (EA), Nebulous\_3 (EA5), Neferthena\_3 (EA5), QuadZero\_3 (EA5), Tinyman4\_3 (EA11), Zayuliv\_3 (EA5), Zepp\_3 (EA5),

Start 35:

- Found in 1 of 126 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 111
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Quenya\_65 (EB),

Start 37:

- Found in 10 of 126 ( 7.9% ) of genes in pham
- Manual Annotations of this start: 8 of 111
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ajin\_49 (EF), Count\_81 (EL), Fireman\_16 (EC), Kors\_49 (EF), Metamorphoo\_17 (EC), RikSengupta\_48 (EF), RobsFeet\_17 (EC), Sparcetus\_48 (EF), TinyMiny\_48 (EF), Tyumbra\_15 (EC),

**Summary by clusters:**

There are 9 clusters represented in this pham: EL, EI, EF, EA, EC, EB, EA11, EA5, EA6,

Info for manual annotations of cluster EA:

- Start number 34 was manually annotated 1 time for cluster EA.

Info for manual annotations of cluster EA11:

- Start number 34 was manually annotated 3 times for cluster EA11.

Info for manual annotations of cluster EA5:

- Start number 34 was manually annotated 9 times for cluster EA5.

Info for manual annotations of cluster EA6:

- Start number 34 was manually annotated 5 times for cluster EA6.

Info for manual annotations of cluster EB:

- Start number 32 was manually annotated 37 times for cluster EB.
- Start number 33 was manually annotated 15 times for cluster EB.
- Start number 35 was manually annotated 1 time for cluster EB.

Info for manual annotations of cluster EC:

- Start number 32 was manually annotated 2 times for cluster EC.
- Start number 33 was manually annotated 26 times for cluster EC.
- Start number 37 was manually annotated 4 times for cluster EC.

Info for manual annotations of cluster EF:

- Start number 37 was manually annotated 3 times for cluster EF.

Info for manual annotations of cluster EI:

- Start number 33 was manually annotated 4 times for cluster EI.

Info for manual annotations of cluster EL:

- Start number 37 was manually annotated 1 time for cluster EL.

### ***Gene Information:***

Gene: Abigail\_64 Start: 39315, Stop: 39497, Start Num: 32

Candidate Starts for Abigail\_64:

(Start: 32 @39315 has 39 MA's), (44, 39360), (58, 39450),

Gene: Ajin\_49 Start: 30967, Stop: 31113, Start Num: 37

Candidate Starts for Ajin\_49:

(29, 30898), (36, 30964), (Start: 37 @30967 has 8 MA's), (50, 31033),

Gene: Alakazam\_3 Start: 2071, Stop: 2229, Start Num: 34

Candidate Starts for Alakazam\_3:

(Start: 32 @2065 has 39 MA's), (Start: 34 @2071 has 18 MA's), (36, 2083), (47, 2137), (50, 2152),

Gene: Albedo\_66 Start: 40235, Stop: 40417, Start Num: 32

Candidate Starts for Albedo\_66:

(Start: 32 @40235 has 39 MA's), (44, 40280), (58, 40370),

Gene: Albright\_64 Start: 39297, Stop: 39479, Start Num: 32

Candidate Starts for Albright\_64:

(Start: 32 @39297 has 39 MA's), (44, 39342), (58, 39432),

Gene: AnnaLie\_64 Start: 39976, Stop: 40158, Start Num: 32

Candidate Starts for AnnaLie\_64:

(Start: 32 @39976 has 39 MA's), (58, 40111),

Gene: Antares\_63 Start: 40647, Stop: 40802, Start Num: 33

Candidate Starts for Antares\_63:

(Start: 32 @40644 has 39 MA's), (Start: 33 @40647 has 45 MA's), (50, 40719),

Gene: Armstrong\_65 Start: 38306, Stop: 38512, Start Num: 33

Candidate Starts for Armstrong\_65:

(Start: 33 @38306 has 45 MA's), (54, 38414), (57, 38435), (59, 38456), (61, 38498),

Gene: Arroyo\_65 Start: 40440, Stop: 40622, Start Num: 32

Candidate Starts for Arroyo\_65:

(Start: 32 @40440 has 39 MA's), (41, 40470), (44, 40485), (58, 40575),

Gene: AvGardian\_65 Start: 40037, Stop: 40219, Start Num: 32

Candidate Starts for AvGardian\_65:

(Start: 32 @40037 has 39 MA's), (54, 40145), (55, 40148),

Gene: Avocadoman\_64 Start: 39447, Stop: 39629, Start Num: 32  
Candidate Starts for Avocadoman\_64:  
(31, 39441), (Start: 32 @39447 has 39 MA's), (41, 39477), (58, 39582),

Gene: BabyDaisy\_67 Start: 40786, Stop: 40968, Start Num: 32  
Candidate Starts for BabyDaisy\_67:  
(Start: 32 @40786 has 39 MA's), (41, 40816), (44, 40831),

Gene: BabyYoda\_62 Start: 39683, Stop: 39868, Start Num: 32  
Candidate Starts for BabyYoda\_62:  
(Start: 32 @39683 has 39 MA's), (39, 39701), (54, 39791), (58, 39818),

Gene: BelmontSKP\_64 Start: 39976, Stop: 40158, Start Num: 32  
Candidate Starts for BelmontSKP\_64:  
(Start: 32 @39976 has 39 MA's), (58, 40111),

Gene: Bernstein\_65 Start: 38304, Stop: 38510, Start Num: 33  
Candidate Starts for Bernstein\_65:  
(Start: 33 @38304 has 45 MA's), (54, 38412), (57, 38433), (59, 38454), (61, 38496),

Gene: Brahms\_65 Start: 38206, Stop: 38412, Start Num: 33  
Candidate Starts for Brahms\_65:  
(Start: 33 @38206 has 45 MA's), (54, 38314), (57, 38335), (59, 38356), (61, 38398),

Gene: BrazzalePHS\_62 Start: 40409, Stop: 40564, Start Num: 33  
Candidate Starts for BrazzalePHS\_62:  
(Start: 32 @40406 has 39 MA's), (Start: 33 @40409 has 45 MA's), (50, 40481),

Gene: BubbaBear\_64 Start: 40228, Stop: 40410, Start Num: 32  
Candidate Starts for BubbaBear\_64:  
(13, 40021), (Start: 32 @40228 has 39 MA's), (44, 40273), (58, 40363),

Gene: Burritobowl\_66 Start: 39798, Stop: 39980, Start Num: 32  
Candidate Starts for Burritobowl\_66:  
(Start: 32 @39798 has 39 MA's), (41, 39828), (44, 39843), (58, 39933),

Gene: Busephilis\_62 Start: 40354, Stop: 40509, Start Num: 33  
Candidate Starts for Busephilis\_62:  
(Start: 32 @40351 has 39 MA's), (Start: 33 @40354 has 45 MA's), (50, 40426),

Gene: CaptainRex\_3 Start: 1963, Stop: 2109, Start Num: 34  
Candidate Starts for CaptainRex\_3:  
(Start: 34 @1963 has 18 MA's), (50, 2029),

Gene: Cashington\_64 Start: 39539, Stop: 39721, Start Num: 32  
Candidate Starts for Cashington\_64:  
(Start: 32 @39539 has 39 MA's), (44, 39584), (58, 39674),

Gene: Chepli\_3 Start: 2101, Stop: 2247, Start Num: 34  
Candidate Starts for Chepli\_3:  
(Start: 34 @2101 has 18 MA's), (48, 2155), (50, 2167),

Gene: ChiliPepper\_61 Start: 40043, Stop: 40222, Start Num: 33



Candidate Starts for ChiliPepper\_61:  
(5, 39632), (Start: 33 @40043 has 45 MA's), (39, 40058), (53, 40136), (54, 40148),

Gene: Cinna\_39 Start: 31034, Stop: 31174, Start Num: 33  
Candidate Starts for Cinna\_39:  
(Start: 33 @31034 has 45 MA's), (49, 31103),

Gene: Clayda5\_67 Start: 38272, Stop: 38478, Start Num: 33  
Candidate Starts for Clayda5\_67:  
(Start: 33 @38272 has 45 MA's), (54, 38380), (57, 38401), (59, 38422), (61, 38464),

Gene: ClearAsMud\_67 Start: 40937, Stop: 41092, Start Num: 33  
Candidate Starts for ClearAsMud\_67:  
(8, 40664), (22, 40811), (Start: 33 @40937 has 45 MA's), (40, 40955), (43, 40976), (46, 40991), (47, 40994), (50, 41009),

Gene: Clock\_3 Start: 2104, Stop: 2262, Start Num: 34  
Candidate Starts for Clock\_3:  
(15, 1921), (20, 1969), (Start: 34 @2104 has 18 MA's), (48, 2173), (50, 2185), (54, 2218),

Gene: Coltrane\_65 Start: 38206, Stop: 38412, Start Num: 33  
Candidate Starts for Coltrane\_65:  
(Start: 33 @38206 has 45 MA's), (54, 38314), (57, 38335), (59, 38356), (61, 38398),

Gene: Count\_81 Start: 55860, Stop: 56000, Start Num: 37  
Candidate Starts for Count\_81:  
(27, 55776), (Start: 37 @55860 has 8 MA's), (48, 55914), (52, 55935),

Gene: Cranjis\_64 Start: 40602, Stop: 40757, Start Num: 33  
Candidate Starts for Cranjis\_64:  
(Start: 32 @40599 has 39 MA's), (Start: 33 @40602 has 45 MA's), (50, 40674),

Gene: CrazyRich\_62 Start: 40408, Stop: 40566, Start Num: 32  
Candidate Starts for CrazyRich\_62:  
(Start: 32 @40408 has 39 MA's), (Start: 33 @40411 has 45 MA's), (50, 40483),

Gene: Cressida\_41 Start: 30483, Stop: 30641, Start Num: 33  
Candidate Starts for Cressida\_41:  
(1, 29526), (2, 29640), (3, 29778), (19, 30348), (Start: 33 @30483 has 45 MA's), (49, 30552), (51, 30561), (56, 30606),

Gene: Crisis\_64 Start: 40417, Stop: 40572, Start Num: 33  
Candidate Starts for Crisis\_64:  
(8, 40159), (16, 40258), (21, 40303), (Start: 33 @40417 has 45 MA's), (50, 40489),

Gene: CroZenni\_65 Start: 39783, Stop: 39965, Start Num: 32  
Candidate Starts for CroZenni\_65:  
(10, 39564), (14, 39594), (Start: 32 @39783 has 39 MA's), (44, 39828), (58, 39918),

Gene: DickRichards\_63 Start: 39754, Stop: 39936, Start Num: 32  
Candidate Starts for DickRichards\_63:  
(Start: 32 @39754 has 39 MA's), (41, 39784), (44, 39799), (58, 39889),

Gene: Didgeridoo\_70 Start: 40896, Stop: 41078, Start Num: 32

Candidate Starts for Didgeridoo\_70:

(Start: 32 @40896 has 39 MA's), (41, 40926), (44, 40941),

Gene: DirtyBubble\_62 Start: 39722, Stop: 39907, Start Num: 32

Candidate Starts for DirtyBubble\_62:

(Start: 32 @39722 has 39 MA's), (39, 39740), (54, 39830), (58, 39857),

Gene: Dismas\_63 Start: 40180, Stop: 40359, Start Num: 33

Candidate Starts for Dismas\_63:

(Start: 33 @40180 has 45 MA's), (39, 40195), (53, 40273), (54, 40285),

Gene: Doobus\_63 Start: 39609, Stop: 39791, Start Num: 32

Candidate Starts for Doobus\_63:

(Start: 32 @39609 has 39 MA's), (41, 39639), (58, 39744),

Gene: EarickHC\_64 Start: 40339, Stop: 40494, Start Num: 33

Candidate Starts for EarickHC\_64:

(8, 40081), (16, 40180), (21, 40225), (Start: 33 @40339 has 45 MA's), (50, 40411),

Gene: Eden\_66 Start: 39118, Stop: 39339, Start Num: 33

Candidate Starts for Eden\_66:

(Start: 33 @39118 has 45 MA's), (59, 39271),

Gene: Elva\_67 Start: 40561, Stop: 40749, Start Num: 32

Candidate Starts for Elva\_67:

(Start: 32 @40561 has 39 MA's), (54, 40672), (58, 40699),

Gene: Eula\_64 Start: 39518, Stop: 39700, Start Num: 32

Candidate Starts for Eula\_64:

(Start: 32 @39518 has 39 MA's), (44, 39563), (58, 39653),

Gene: Finalfrontier\_65 Start: 40502, Stop: 40684, Start Num: 32

Candidate Starts for Finalfrontier\_65:

(Start: 32 @40502 has 39 MA's), (44, 40547), (58, 40637),

Gene: Fireman\_16 Start: 6897, Stop: 7046, Start Num: 37

Candidate Starts for Fireman\_16:

(23, 6774), (24, 6777), (26, 6792), (27, 6813), (Start: 37 @6897 has 8 MA's), (38, 6903), (50, 6963), (57, 7020),

Gene: Franklin22\_68 Start: 38842, Stop: 39054, Start Num: 33

Candidate Starts for Franklin22\_68:

(Start: 33 @38842 has 45 MA's), (54, 38950), (59, 38995),

Gene: Fulton\_3 Start: 1963, Stop: 2109, Start Num: 34

Candidate Starts for Fulton\_3:

(Start: 34 @1963 has 18 MA's), (50, 2029),

Gene: Gack\_65 Start: 38747, Stop: 38944, Start Num: 33

Candidate Starts for Gack\_65:

(6, 38459), (Start: 33 @38747 has 45 MA's), (59, 38897),

Gene: Ganandorf\_62 Start: 40435, Stop: 40590, Start Num: 33  
Candidate Starts for Ganandorf\_62:  
(Start: 32 @40432 has 39 MA's), (Start: 33 @40435 has 45 MA's), (50, 40507),

Gene: Greenlvy\_3 Start: 1963, Stop: 2109, Start Num: 34  
Candidate Starts for Greenlvy\_3:  
(Start: 34 @1963 has 18 MA's), (50, 2029),

Gene: Hasitha\_3 Start: 1963, Stop: 2109, Start Num: 34  
Candidate Starts for Hasitha\_3:  
(Start: 34 @1963 has 18 MA's), (50, 2029),

Gene: HerculesXL\_3 Start: 1952, Stop: 2107, Start Num: 34  
Candidate Starts for HerculesXL\_3:  
(Start: 34 @1952 has 18 MA's), (50, 2018),

Gene: Hermeonysus\_63 Start: 40330, Stop: 40485, Start Num: 33  
Candidate Starts for Hermeonysus\_63:  
(Start: 32 @40327 has 39 MA's), (Start: 33 @40330 has 45 MA's), (50, 40402),

Gene: Honeyfin\_64 Start: 40590, Stop: 40745, Start Num: 33  
Candidate Starts for Honeyfin\_64:  
(Start: 32 @40587 has 39 MA's), (Start: 33 @40590 has 45 MA's), (50, 40662),

Gene: Icarian\_67 Start: 40372, Stop: 40557, Start Num: 32  
Candidate Starts for Icarian\_67:  
(Start: 32 @40372 has 39 MA's), (45, 40423), (54, 40483),

Gene: IndyLu\_67 Start: 40517, Stop: 40699, Start Num: 32  
Candidate Starts for IndyLu\_67:  
(Start: 32 @40517 has 39 MA's), (41, 40547), (44, 40562),

Gene: Ixel\_3 Start: 2066, Stop: 2212, Start Num: 34  
Candidate Starts for Ixel\_3:  
(Start: 34 @2066 has 18 MA's), (38, 2072), (50, 2132),

Gene: Jefe\_63 Start: 40388, Stop: 40543, Start Num: 33  
Candidate Starts for Jefe\_63:  
(Start: 32 @40385 has 39 MA's), (Start: 33 @40388 has 45 MA's), (50, 40460),

Gene: Jemerald\_3 Start: 2077, Stop: 2223, Start Num: 34  
Candidate Starts for Jemerald\_3:  
(7, 1798), (17, 1930), (18, 1933), (25, 1981), (28, 2014), (Start: 34 @2077 has 18 MA's), (40, 2089),  
(42, 2107), (50, 2143),

Gene: Johnathan\_64 Start: 39298, Stop: 39480, Start Num: 32  
Candidate Starts for Johnathan\_64:  
(Start: 32 @39298 has 39 MA's), (58, 39433),

Gene: Jollipop\_63 Start: 40770, Stop: 40925, Start Num: 33  
Candidate Starts for Jollipop\_63:  
(Start: 32 @40767 has 39 MA's), (Start: 33 @40770 has 45 MA's), (50, 40842),

Gene: Jovita\_63 Start: 39286, Stop: 39468, Start Num: 32  
Candidate Starts for Jovita\_63:  
(Start: 32 @39286 has 39 MA's), (44, 39331), (58, 39421),

Gene: Juicer\_3 Start: 2077, Stop: 2223, Start Num: 34  
Candidate Starts for Juicer\_3:  
(7, 1798), (17, 1930), (18, 1933), (25, 1981), (28, 2014), (Start: 34 @2077 has 18 MA's), (40, 2089),  
(42, 2107), (50, 2143),

Gene: KaiHaiDragon\_64 Start: 40339, Stop: 40494, Start Num: 33  
Candidate Starts for KaiHaiDragon\_64:  
(8, 40081), (16, 40180), (21, 40225), (Start: 33 @40339 has 45 MA's), (50, 40411),

Gene: KatChan\_3 Start: 2101, Stop: 2247, Start Num: 34  
Candidate Starts for KatChan\_3:  
(Start: 34 @2101 has 18 MA's), (50, 2167),

Gene: Kenzers\_64 Start: 39369, Stop: 39551, Start Num: 32  
Candidate Starts for Kenzers\_64:  
(9, 39138), (30, 39357), (Start: 32 @39369 has 39 MA's), (44, 39414), (58, 39504),

Gene: Kieran\_61 Start: 40005, Stop: 40184, Start Num: 33  
Candidate Starts for Kieran\_61:  
(5, 39594), (Start: 33 @40005 has 45 MA's), (39, 40020), (53, 40098), (54, 40110),

Gene: Kors\_49 Start: 31044, Stop: 31190, Start Num: 37  
Candidate Starts for Kors\_49:  
(29, 30975), (36, 31041), (Start: 37 @31044 has 8 MA's), (50, 31110),

Gene: Kowalski\_62 Start: 40404, Stop: 40559, Start Num: 33  
Candidate Starts for Kowalski\_62:  
(Start: 32 @40401 has 39 MA's), (Start: 33 @40404 has 45 MA's), (50, 40476),

Gene: Lahqtemish\_65 Start: 40719, Stop: 40901, Start Num: 32  
Candidate Starts for Lahqtemish\_65:  
(Start: 32 @40719 has 39 MA's), (41, 40749), (44, 40764), (58, 40854),

Gene: Librie\_3 Start: 1963, Stop: 2109, Start Num: 34  
Candidate Starts for Librie\_3:  
(Start: 34 @1963 has 18 MA's), (50, 2029),

Gene: LilTerminator\_3 Start: 1963, Stop: 2109, Start Num: 34  
Candidate Starts for LilTerminator\_3:  
(Start: 34 @1963 has 18 MA's), (50, 2029),

Gene: LimaBean\_64 Start: 39192, Stop: 39374, Start Num: 32  
Candidate Starts for LimaBean\_64:  
(Start: 32 @39192 has 39 MA's), (41, 39222), (58, 39327),

Gene: LittleFortune\_65 Start: 40695, Stop: 40850, Start Num: 33  
Candidate Starts for LittleFortune\_65:  
(Start: 32 @40692 has 39 MA's), (Start: 33 @40695 has 45 MA's), (50, 40767),

Gene: Loviatar\_107 Start: 40790, Stop: 40975, Start Num: 32

Candidate Starts for Loviatar\_107:

(Start: 32 @40790 has 39 MA's), (45, 40841), (54, 40901),

Gene: Luna18\_3 Start: 2101, Stop: 2247, Start Num: 34

Candidate Starts for Luna18\_3:

(Start: 34 @2101 has 18 MA's), (50, 2167),

Gene: Lynlen\_65 Start: 39522, Stop: 39704, Start Num: 32

Candidate Starts for Lynlen\_65:

(30, 39510), (Start: 32 @39522 has 39 MA's), (44, 39567), (58, 39657),

Gene: Matzah\_40 Start: 30974, Stop: 31114, Start Num: 33

Candidate Starts for Matzah\_40:

(3, 30272), (4, 30299), (11, 30749), (19, 30839), (Start: 33 @30974 has 45 MA's), (49, 31043),

Gene: MementoMori\_40 Start: 30722, Stop: 30862, Start Num: 33

Candidate Starts for MementoMori\_40:

(Start: 33 @30722 has 45 MA's), (49, 30791),

Gene: Mercedes\_3 Start: 1955, Stop: 2101, Start Num: 34

Candidate Starts for Mercedes\_3:

(Start: 34 @1955 has 18 MA's), (50, 2021), (53, 2042), (55, 2057), (58, 2081),

Gene: Metamorphoo\_17 Start: 7070, Stop: 7219, Start Num: 37

Candidate Starts for Metamorphoo\_17:

(23, 6947), (24, 6950), (26, 6965), (27, 6986), (Start: 37 @7070 has 8 MA's), (38, 7076), (43, 7103), (50, 7136),

Gene: Nebulous\_3 Start: 2113, Stop: 2271, Start Num: 34

Candidate Starts for Nebulous\_3:

(15, 1930), (20, 1978), (Start: 34 @2113 has 18 MA's), (48, 2182), (50, 2194), (54, 2227),

Gene: Neferthena\_3 Start: 2107, Stop: 2265, Start Num: 34

Candidate Starts for Neferthena\_3:

(14, 1906), (15, 1924), (20, 1972), (Start: 34 @2107 has 18 MA's), (48, 2176), (50, 2188), (54, 2221),

Gene: Nicky22\_64 Start: 39961, Stop: 40143, Start Num: 32

Candidate Starts for Nicky22\_64:

(Start: 32 @39961 has 39 MA's), (44, 40006), (58, 40096),

Gene: NoodlelyBoi\_64 Start: 41186, Stop: 41341, Start Num: 33

Candidate Starts for NoodlelyBoi\_64:

(Start: 33 @41186 has 45 MA's), (40, 41204), (43, 41225), (46, 41240), (47, 41243), (50, 41258),

Gene: Onika\_62 Start: 40413, Stop: 40568, Start Num: 33

Candidate Starts for Onika\_62:

(Start: 32 @40410 has 39 MA's), (Start: 33 @40413 has 45 MA's), (50, 40485),

Gene: Paschalis\_63 Start: 40435, Stop: 40590, Start Num: 33

Candidate Starts for Paschalis\_63:

(8, 40177), (16, 40276), (21, 40321), (Start: 33 @40435 has 45 MA's), (50, 40507),

Gene: Phisb\_68 Start: 39867, Stop: 40049, Start Num: 32

Candidate Starts for Phisb\_68:

(Start: 32 @39867 has 39 MA's), (44, 39912), (58, 40002),

Gene: Phorgeous\_63 Start: 40218, Stop: 40376, Start Num: 32

Candidate Starts for Phorgeous\_63:

(Start: 32 @40218 has 39 MA's), (Start: 33 @40221 has 45 MA's), (50, 40293),

Gene: Phrancesco\_63 Start: 40544, Stop: 40699, Start Num: 33

Candidate Starts for Phrancesco\_63:

(Start: 32 @40541 has 39 MA's), (Start: 33 @40544 has 45 MA's), (50, 40616),

Gene: PierreOrion\_63 Start: 40644, Stop: 40799, Start Num: 33

Candidate Starts for PierreOrion\_63:

(8, 40386), (16, 40485), (21, 40530), (Start: 33 @40644 has 45 MA's), (50, 40716),

Gene: PiperSansNom\_64 Start: 40726, Stop: 40881, Start Num: 33

Candidate Starts for PiperSansNom\_64:

(Start: 32 @40723 has 39 MA's), (Start: 33 @40726 has 45 MA's), (50, 40798),

Gene: Piperis\_64 Start: 40346, Stop: 40501, Start Num: 33

Candidate Starts for Piperis\_64:

(Start: 32 @40343 has 39 MA's), (Start: 33 @40346 has 45 MA's), (50, 40418),

Gene: Pulchra\_65 Start: 40742, Stop: 40897, Start Num: 33

Candidate Starts for Pulchra\_65:

(Start: 32 @40739 has 39 MA's), (Start: 33 @40742 has 45 MA's), (50, 40814),

Gene: QMacho\_66 Start: 39998, Stop: 40180, Start Num: 32

Candidate Starts for QMacho\_66:

(Start: 32 @39998 has 39 MA's), (58, 40133),

Gene: QuadZero\_3 Start: 1963, Stop: 2109, Start Num: 34

Candidate Starts for QuadZero\_3:

(Start: 34 @1963 has 18 MA's), (50, 2029),

Gene: Quenya\_65 Start: 40431, Stop: 40655, Start Num: 35

Candidate Starts for Quenya\_65:

(Start: 35 @40431 has 1 MA's), (54, 40539), (60, 40614),

Gene: Quhwah\_67 Start: 41034, Stop: 41189, Start Num: 33

Candidate Starts for Quhwah\_67:

(Start: 32 @41031 has 39 MA's), (Start: 33 @41034 has 45 MA's), (50, 41106),

Gene: Ramiel05\_62 Start: 40404, Stop: 40559, Start Num: 33

Candidate Starts for Ramiel05\_62:

(Start: 32 @40401 has 39 MA's), (Start: 33 @40404 has 45 MA's), (50, 40476),

Gene: RikSengupta\_48 Start: 31081, Stop: 31227, Start Num: 37

Candidate Starts for RikSengupta\_48:

(29, 31012), (36, 31078), (Start: 37 @31081 has 8 MA's), (50, 31147),

Gene: RobsFeet\_17 Start: 6912, Stop: 7061, Start Num: 37

Candidate Starts for RobsFeet\_17:

(Start: 37 @6912 has 8 MA's), (43, 6945), (50, 6978),

Gene: Rollins\_65 Start: 38304, Stop: 38510, Start Num: 33

Candidate Starts for Rollins\_65:

(Start: 33 @38304 has 45 MA's), (54, 38412), (57, 38433), (59, 38454), (61, 38496),

Gene: Rona\_62 Start: 40171, Stop: 40350, Start Num: 33

Candidate Starts for Rona\_62:

(Start: 33 @40171 has 45 MA's), (39, 40186), (53, 40264), (54, 40276),

Gene: SanaSana\_64 Start: 40133, Stop: 40318, Start Num: 32

Candidate Starts for SanaSana\_64:

(Start: 32 @40133 has 39 MA's), (45, 40184), (54, 40244),

Gene: SansAfet\_66 Start: 39843, Stop: 40025, Start Num: 32

Candidate Starts for SansAfet\_66:

(Start: 32 @39843 has 39 MA's), (44, 39888), (58, 39978),

Gene: SarBear\_65 Start: 39611, Stop: 39793, Start Num: 32

Candidate Starts for SarBear\_65:

(12, 39398), (Start: 32 @39611 has 39 MA's), (44, 39656), (58, 39746),

Gene: Savannah\_62 Start: 40464, Stop: 40619, Start Num: 33

Candidate Starts for Savannah\_62:

(Start: 32 @40461 has 39 MA's), (Start: 33 @40464 has 45 MA's), (50, 40536),

Gene: Scumberland\_65 Start: 40659, Stop: 40814, Start Num: 33

Candidate Starts for Scumberland\_65:

(Start: 32 @40656 has 39 MA's), (Start: 33 @40659 has 45 MA's), (50, 40731),

Gene: Selwyn23\_64 Start: 40576, Stop: 40731, Start Num: 33

Candidate Starts for Selwyn23\_64:

(Start: 32 @40573 has 39 MA's), (Start: 33 @40576 has 45 MA's), (50, 40648),

Gene: Sharkboy\_64 Start: 40536, Stop: 40715, Start Num: 33

Candidate Starts for Sharkboy\_64:

(Start: 33 @40536 has 45 MA's), (39, 40551), (53, 40629), (54, 40641),

Gene: Shotgun\_63 Start: 40340, Stop: 40495, Start Num: 33

Candidate Starts for Shotgun\_63:

(Start: 32 @40337 has 39 MA's), (Start: 33 @40340 has 45 MA's), (50, 40412),

Gene: Skylord\_65 Start: 38221, Stop: 38427, Start Num: 33

Candidate Starts for Skylord\_65:

(Start: 33 @38221 has 45 MA's), (54, 38329), (57, 38350), (59, 38371), (61, 38413),

Gene: Slay\_66 Start: 40377, Stop: 40559, Start Num: 32

Candidate Starts for Slay\_66:

(Start: 32 @40377 has 39 MA's), (44, 40422), (58, 40512),

Gene: Sparcetus\_48 Start: 30958, Stop: 31104, Start Num: 37

Candidate Starts for Sparcetus\_48:

(29, 30889), (36, 30955), (Start: 37 @30958 has 8 MA's), (50, 31024),

Gene: Stoor\_62 Start: 39920, Stop: 40105, Start Num: 32

Candidate Starts for Stoor\_62:

(Start: 32 @39920 has 39 MA's), (45, 39971), (54, 40031),

Gene: Stromboli\_62 Start: 39721, Stop: 39906, Start Num: 32

Candidate Starts for Stromboli\_62:

(Start: 32 @39721 has 39 MA's), (39, 39739), (54, 39829), (58, 39856),

Gene: Swervy\_65 Start: 39648, Stop: 39830, Start Num: 32

Candidate Starts for Swervy\_65:

(Start: 32 @39648 has 39 MA's), (44, 39693), (58, 39783),

Gene: TinyMiny\_48 Start: 30979, Stop: 31125, Start Num: 37

Candidate Starts for TinyMiny\_48:

(29, 30910), (36, 30976), (Start: 37 @30979 has 8 MA's), (50, 31045),

Gene: Tinyman4\_3 Start: 1952, Stop: 2107, Start Num: 34

Candidate Starts for Tinyman4\_3:

(Start: 34 @1952 has 18 MA's), (50, 2018),

Gene: TukTuk\_66 Start: 40156, Stop: 40338, Start Num: 32

Candidate Starts for TukTuk\_66:

(30, 40144), (Start: 32 @40156 has 39 MA's), (44, 40201), (58, 40291),

Gene: Tyrumbra\_15 Start: 6388, Stop: 6537, Start Num: 37

Candidate Starts for Tyrumbra\_15:

(23, 6265), (24, 6268), (26, 6283), (27, 6304), (Start: 37 @6388 has 8 MA's), (38, 6394), (50, 6454), (57, 6511),

Gene: Vitas\_65 Start: 38277, Stop: 38483, Start Num: 33

Candidate Starts for Vitas\_65:

(Start: 33 @38277 has 45 MA's), (54, 38385), (57, 38406), (59, 38427), (61, 38469),

Gene: Yeti\_63 Start: 40378, Stop: 40533, Start Num: 33

Candidate Starts for Yeti\_63:

(Start: 32 @40375 has 39 MA's), (Start: 33 @40378 has 45 MA's), (50, 40450),

Gene: Zayuliv\_3 Start: 1963, Stop: 2109, Start Num: 34

Candidate Starts for Zayuliv\_3:

(Start: 34 @1963 has 18 MA's), (50, 2029),

Gene: Zepp\_3 Start: 1963, Stop: 2109, Start Num: 34

Candidate Starts for Zepp\_3:

(Start: 34 @1963 has 18 MA's), (40, 1975), (50, 2029),