

Pham 196434



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 196434 Report

This analysis was run 12/09/24 on database version 580.

Pham number 196434 has 99 members, 8 are drafts.

Phages represented in each track:

- Track 1 : Pharaoh\_3
- Track 2 : Refuge\_3
- Track 3 : Steamy\_3
- Track 4 : DarthPhader\_3
- Track 5 : Zimmer\_3
- Track 6 : Anon\_3
- Track 7 : PainterBoy\_3, Lucyedi\_3
- Track 8 : EagleEye\_3
- Track 9 : 40AC\_4
- Track 10 : Landor\_3, Bactobuster\_3
- Track 11 : Ph8s\_3
- Track 12 : Adzzy\_3
- Track 13 : Iwokeuplikedis\_4
- Track 14 : Phaded\_3
- Track 15 : Pukovnik\_3
- Track 16 : Acolyte\_3
- Track 17 : Trooper\_4
- Track 18 : NothingSpecial\_3
- Track 19 : GaugeLDP\_3
- Track 20 : Superchunk\_3, Caraxes\_3
- Track 21 : IronMan\_3
- Track 22 : SwirlSquare\_3
- Track 23 : BabyBack\_3
- Track 24 : Odin\_2
- Track 25 : Che12\_3
- Track 26 : Jaan\_3
- Track 27 : Roksolana\_3, BABullseye\_3, Hexamo\_3, Zaka\_3, Koko\_3, VohminGhazi\_3, Zulu\_3, Cookiedough\_3, Hoot\_3, Dorothea\_3, McFly\_3, Jeffabunny\_3, Priamo\_3, ToneTone\_3, SuperAwesome\_3, Kazan\_3, SuperCallie99\_3, Newrala\_3, Isiphiwo\_3, SmellyB\_3, Indra\_3, DaVinci\_3, CloudWang3\_3, Candra\_3, Lilbunny\_3, Garak\_3, GreedyLawyer\_3, JewelBug\_3, Wiks\_3, Kipper29\_3, Yokurt\_3, Chartreuse\_3, Helmet\_3, Jordennis\_3, EricB\_3, Blinn1\_3, Pmask\_3, WunderPhul\_3, Neeharika16\_3, Artemis2UCLA\_3, Tucker\_3
- Track 28 : Hammer\_3
- Track 29 : Gladiator\_3, Blue7\_3, Gruunaga\_3, Rifter\_3
- Track 30 : Darrell\_3
- Track 31 : Maminiaina\_3, BogosyJay\_3

- Track 32 : Vanisoa\_3
- Track 33 : Elephantoon\_3
- Track 34 : Charm\_3
- Track 35 : SheaKeira\_3
- Track 36 : DreamTeam1\_3
- Track 37 : Yecey3\_3
- Track 38 : Arissanae\_3
- Track 39 : Rahalelujah\_3
- Track 40 : Keziacharles14\_3
- Track 41 : LoneWolf\_3
- Track 42 : BeeGee\_36
- Track 43 : Herod\_32, Hugley\_31, Eviarto\_32, BatStarr\_32, Nymphadora\_32, TimTam\_32
- Track 44 : Bosnia\_32
- Track 45 : Nyceirae\_9
- Track 46 : Meyran\_7
- Track 47 : Phishy\_8

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

The start number called the most often in the published annotations is 21, it was called in 66 of the 91 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- 40AC\_4, Acolyte\_3, Anon\_3, Arissanae\_3, Artemis2UCLA\_3, BABullseye\_3, BabyBack\_3, Bactobuster\_3, Blinn1\_3, Blue7\_3, BogosyJay\_3, Candra\_3, Caraxes\_3, Charm\_3, Chartreuse\_3, CloudWang3\_3, Cookiedough\_3, DaVinci\_3, Dorothea\_3, DreamTeam1\_3, EagleEye\_3, Elephantoon\_3, EricB\_3, Garak\_3, GaugeLDP\_3, Gladiator\_3, GreedyLawyer\_3, Gruunaga\_3, Hammer\_3, Helmet\_3, Hexamo\_3, Hoot\_3, Indra\_3, Isiphiwo\_3, Jaan\_3, Jeffabunny\_3, JewelBug\_3, Jordennis\_3, Kazan\_3, Kipper29\_3, Koko\_3, Landor\_3, Lilbunny\_3, LoneWolf\_3, Maminiaina\_3, McFly\_3, Neeharika16\_3, Newrala\_3, NothingSpecial\_3, Odin\_2, Ph8s\_3, Pmask\_3, Priamo\_3, Rahalelujah\_3, Rifter\_3, Roksolana\_3, SheaKeira\_3, SmellyB\_3, SuperAwesome\_3, SuperCallie99\_3, Superchunk\_3, SwirlSquare\_3, ToneTone\_3, Trooper\_4, Tucker\_3, Vanisoa\_3, VohminGhazi\_3, Wiks\_3, WunderPhul\_3, Yecey3\_3, Yokurt\_3, Zaka\_3, Zulu\_3,

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

- Adzzy\_3, BatStarr\_32, BeeGee\_36, Bosnia\_32, Che12\_3, Eviarto\_32, Herod\_32, Hugley\_31, IronMan\_3, Iwokeuplikedis\_4, Lucyedi\_3, Nyceirae\_9, Nymphadora\_32, PainterBoy\_3, Phaded\_3, Pukovnik\_3, TimTam\_32,

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

- Darrell\_3, DarthPhader\_3, Keziacharles14\_3, Meyran\_7, Pharaoh\_3, Phishy\_8, Refuge\_3, Steamy\_3, Zimmer\_3,

**Summary by start number:**

Start 17:

- Found in 11 of 99 ( 11.1% ) of genes in pham

- Manual Annotations of this start: 8 of 91
- Called 81.8% of time when present
- Phage (with cluster) where this start called: BatStarr\_32 (CZ1), BeeGee\_36 (CY), Eviarto\_32 (CZ1), Herod\_32 (CZ1), Hugley\_31 (CZ1), Nyceirae\_9 (DT), Nymphadora\_32 (CZ1), Phishy\_8 (DT), TimTam\_32 (CZ1),

#### Start 18:

- Found in 1 of 99 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 91
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Meyran\_7 (DT),

#### Start 19:

- Found in 7 of 99 ( 7.1% ) of genes in pham
- Manual Annotations of this start: 7 of 91
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Darrell\_3 (A9), DARTHPhader\_3 (A12), Keziacharles14\_3 (A9), Pharaoh\_3 (A12), Refuge\_3 (A12), Steamy\_3 (A12), Zimmer\_3 (A12),

#### Start 20:

- Found in 11 of 99 ( 11.1% ) of genes in pham
- Manual Annotations of this start: 1 of 91
- Called 9.1% of time when present
- Phage (with cluster) where this start called: Bosnia\_32 (CZ1),

#### Start 21:

- Found in 90 of 99 ( 90.9% ) of genes in pham
- Manual Annotations of this start: 66 of 91
- Called 81.1% of time when present
- Phage (with cluster) where this start called: 40AC\_4 (A17), Acolyte\_3 (A2), Anon\_3 (A15), Arissanae\_3 (A9), Artemis2UCLA\_3 (A6), BABullseye\_3 (A6), BabyBack\_3 (A2), Bactobuster\_3 (A2), Blinn1\_3 (A6), Blue7\_3 (A6), BogosyJay\_3 (A9), Candra\_3 (A6), Caraxes\_3 (A2), Charm\_3 (A9), Chartreuse\_3 (A6), CloudWang3\_3 (A6), Cookiedough\_3 (A6), DaVinci\_3 (A6), Dorothea\_3 (A6), DreamTeam1\_3 (A9), EagleEye\_3 (A16), Elephantoon\_3 (A9), EricB\_3 (A6), Garak\_3 (A6), GaugeLDP\_3 (A2), Gladiator\_3 (A6), GreedyLawyer\_3 (A6), Gruunaga\_3 (A6), Hammer\_3 (A6), Helmet\_3 (A6), Hexamo\_3 (A6), Hoot\_3 (A6), Indra\_3 (A6), Isiphiwo\_3 (A6), Jaan\_3 (A2), Jeffabunny\_3 (A6), JewelBug\_3 (A6), Jordennis\_3 (A6), Kazan\_3 (A6), Kipper29\_3 (A6), Koko\_3 (A6), Landor\_3 (A2), Lilbunny\_3 (A6), LoneWolf\_3 (A9), Maminiaina\_3 (A9), McFly\_3 (A6), Neeharika16\_3 (A6), Newrala\_3 (A6), NothingSpecial\_3 (A2), Odin\_2 (A2), Ph8s\_3 (A2), Pmask\_3 (A6), Priamo\_3 (A6), Rahalelujah\_3 (A9), Rifter\_3 (A6), Roksolana\_3 (A6), SheaKeira\_3 (A9), SmellyB\_3 (A6), SuperAwesome\_3 (A6), SuperCallie99\_3 (A6), Superchunk\_3 (A2), SwirlSquare\_3 (A2), ToneTone\_3 (A6), Trooper\_4 (A2), Tucker\_3 (A6), Vanisoa\_3 (A9), VohminGhazi\_3 (A6), Wiks\_3 (A6), WunderPhul\_3 (A6), Yecy3\_3 (A9), Yokurt\_3 (A6), Zaka\_3 (A6), Zulu\_3 (A6),

#### Start 22:

- Found in 32 of 99 ( 32.3% ) of genes in pham
- Manual Annotations of this start: 7 of 91
- Called 21.9% of time when present

- Phage (with cluster) where this start called: Adzzy\_3 (A2), Che12\_3 (A2), Iwokeuplikedis\_4 (A2), Lucyedi\_3 (A16), PainterBoy\_3 (A16), Phaded\_3 (A2), Pukovnik\_3 (A2),

Start 27:

- Found in 6 of 99 ( 6.1% ) of genes in pham
- Manual Annotations of this start: 1 of 91
- Called 16.7% of time when present
- Phage (with cluster) where this start called: IronMan\_3 (A2),

### **Summary by clusters:**

There are 10 clusters represented in this pham: A15, A17, A16, A12, CZ1, CY, A2, A6, A9, DT,

Info for manual annotations of cluster A12:

- Start number 19 was manually annotated 5 times for cluster A12.

Info for manual annotations of cluster A15:

- Start number 21 was manually annotated 1 time for cluster A15.

Info for manual annotations of cluster A16:

- Start number 21 was manually annotated 1 time for cluster A16.
- Start number 22 was manually annotated 2 times for cluster A16.

Info for manual annotations of cluster A2:

- Start number 21 was manually annotated 11 times for cluster A2.
- Start number 22 was manually annotated 5 times for cluster A2.
- Start number 27 was manually annotated 1 time for cluster A2.

Info for manual annotations of cluster A6:

- Start number 21 was manually annotated 42 times for cluster A6.

Info for manual annotations of cluster A9:

- Start number 19 was manually annotated 2 times for cluster A9.
- Start number 21 was manually annotated 11 times for cluster A9.

Info for manual annotations of cluster CY:

- Start number 17 was manually annotated 1 time for cluster CY.

Info for manual annotations of cluster CZ1:

- Start number 17 was manually annotated 5 times for cluster CZ1.
- Start number 20 was manually annotated 1 time for cluster CZ1.

Info for manual annotations of cluster DT:

- Start number 17 was manually annotated 2 times for cluster DT.
- Start number 18 was manually annotated 1 time for cluster DT.

### **Gene Information:**

Gene: 40AC\_4 Start: 2081, Stop: 2299, Start Num: 21  
Candidate Starts for 40AC\_4:  
(Start: 21 @2081 has 66 MA's), (Start: 22 @2084 has 7 MA's), (33, 2171), (34, 2177), (46, 2279),

Gene: Acolyte\_3 Start: 1904, Stop: 2125, Start Num: 21  
Candidate Starts for Acolyte\_3:  
(Start: 21 @1904 has 66 MA's), (Start: 22 @1907 has 7 MA's), (28, 1949), (41, 2060), (49, 2120),

Gene: Adzzy\_3 Start: 1945, Stop: 2163, Start Num: 22  
Candidate Starts for Adzzy\_3:  
(Start: 21 @1942 has 66 MA's), (Start: 22 @1945 has 7 MA's), (49, 2158),

Gene: Anon\_3 Start: 1964, Stop: 2185, Start Num: 21  
Candidate Starts for Anon\_3:  
(13, 1898), (16, 1940), (Start: 21 @1964 has 66 MA's), (34, 2060), (49, 2180),

Gene: Arissanae\_3 Start: 1903, Stop: 2124, Start Num: 21  
Candidate Starts for Arissanae\_3:  
(13, 1837), (Start: 21 @1903 has 66 MA's), (29, 1960), (33, 1993), (38, 2026), (49, 2119),

Gene: Artemis2UCLA\_3 Start: 1925, Stop: 2146, Start Num: 21  
Candidate Starts for Artemis2UCLA\_3:  
(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: BABullseye\_3 Start: 1925, Stop: 2146, Start Num: 21  
Candidate Starts for BABullseye\_3:  
(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: BabyBack\_3 Start: 1878, Stop: 2099, Start Num: 21  
Candidate Starts for BabyBack\_3:  
(Start: 21 @1878 has 66 MA's), (Start: 22 @1881 has 7 MA's), (24, 1899), (49, 2094),

Gene: Bactobuster\_3 Start: 1888, Stop: 2109, Start Num: 21  
Candidate Starts for Bactobuster\_3:  
(9, 1663), (Start: 21 @1888 has 66 MA's), (Start: 22 @1891 has 7 MA's), (Start: 27 @1930 has 1 MA's), (29, 1945), (49, 2104),

Gene: BatStarr\_32 Start: 28866, Stop: 29126, Start Num: 17  
Candidate Starts for BatStarr\_32:  
(3, 28422), (4, 28551), (11, 28761), (Start: 17 @28866 has 8 MA's), (Start: 20 @28878 has 1 MA's),  
(Start: 21 @28881 has 66 MA's), (Start: 22 @28884 has 7 MA's), (40, 29025),

Gene: BeeGee\_36 Start: 29645, Stop: 29905, Start Num: 17  
Candidate Starts for BeeGee\_36:  
(Start: 17 @29645 has 8 MA's), (Start: 20 @29657 has 1 MA's), (Start: 21 @29660 has 66 MA's),  
(Start: 22 @29663 has 7 MA's),

Gene: Blinn1\_3 Start: 1925, Stop: 2146, Start Num: 21  
Candidate Starts for Blinn1\_3:  
(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Blue7\_3 Start: 1914, Stop: 2135, Start Num: 21  
Candidate Starts for Blue7\_3:

(Start: 21 @1914 has 66 MA's), (41, 2070), (49, 2130),

Gene: BogosyJay\_3 Start: 1884, Stop: 2105, Start Num: 21

Candidate Starts for BogosyJay\_3:

(Start: 21 @1884 has 66 MA's), (29, 1941), (30, 1947), (38, 2007), (49, 2100),

Gene: Bosnia\_32 Start: 28878, Stop: 29126, Start Num: 20

Candidate Starts for Bosnia\_32:

(3, 28422), (4, 28551), (11, 28761), (Start: 17 @28866 has 8 MA's), (Start: 20 @28878 has 1 MA's),  
(Start: 21 @28881 has 66 MA's), (Start: 22 @28884 has 7 MA's), (40, 29025),

Gene: Candra\_3 Start: 1958, Stop: 2179, Start Num: 21

Candidate Starts for Candra\_3:

(Start: 21 @1958 has 66 MA's), (41, 2114), (43, 2138), (49, 2174),

Gene: Caraxes\_3 Start: 1936, Stop: 2157, Start Num: 21

Candidate Starts for Caraxes\_3:

(9, 1711), (Start: 21 @1936 has 66 MA's), (49, 2152),

Gene: Charm\_3 Start: 1890, Stop: 2111, Start Num: 21

Candidate Starts for Charm\_3:

(12, 1821), (Start: 21 @1890 has 66 MA's), (Start: 22 @1893 has 7 MA's), (28, 1935), (49, 2106),

Gene: Chartreuse\_3 Start: 1926, Stop: 2147, Start Num: 21

Candidate Starts for Chartreuse\_3:

(Start: 21 @1926 has 66 MA's), (41, 2082), (43, 2106), (49, 2142),

Gene: Che12\_3 Start: 1900, Stop: 2118, Start Num: 22

Candidate Starts for Che12\_3:

(Start: 21 @1897 has 66 MA's), (Start: 22 @1900 has 7 MA's), (37, 2014), (41, 2053), (49, 2113),

Gene: CloudWang3\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for CloudWang3\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Cookiedough\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Cookiedough\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: DaVinci\_3 Start: 1926, Stop: 2147, Start Num: 21

Candidate Starts for DaVinci\_3:

(Start: 21 @1926 has 66 MA's), (41, 2082), (43, 2106), (49, 2142),

Gene: Darrell\_3 Start: 1912, Stop: 2220, Start Num: 19

Candidate Starts for Darrell\_3:

(Start: 19 @1912 has 7 MA's), (30, 1981), (34, 2014), (50, 2215),

Gene: DarthPhader\_3 Start: 1938, Stop: 2249, Start Num: 19

Candidate Starts for DarthPhader\_3:

(14, 1899), (Start: 19 @1938 has 7 MA's), (23, 1959), (37, 2064),

Gene: Dorothea\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Dorothea\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: DreamTeam1\_3 Start: 1890, Stop: 2111, Start Num: 21

Candidate Starts for DreamTeam1\_3:

(13, 1812), (Start: 21 @1890 has 66 MA's), (28, 1935), (37, 2007), (49, 2106),

Gene: EagleEye\_3 Start: 1907, Stop: 2128, Start Num: 21

Candidate Starts for EagleEye\_3:

(7, 1646), (9, 1685), (Start: 21 @1907 has 66 MA's), (Start: 22 @1910 has 7 MA's), (29, 1964), (43, 2087), (49, 2123),

Gene: Elephantoon\_3 Start: 1877, Stop: 2098, Start Num: 21

Candidate Starts for Elephantoon\_3:

(13, 1811), (Start: 21 @1877 has 66 MA's), (29, 1934), (38, 2000), (41, 2033), (49, 2093),

Gene: EricB\_3 Start: 1926, Stop: 2147, Start Num: 21

Candidate Starts for EricB\_3:

(Start: 21 @1926 has 66 MA's), (41, 2082), (43, 2106), (49, 2142),

Gene: Eviarto\_32 Start: 28842, Stop: 29102, Start Num: 17

Candidate Starts for Eviarto\_32:

(3, 28398), (4, 28527), (11, 28737), (Start: 17 @28842 has 8 MA's), (Start: 20 @28854 has 1 MA's), (Start: 21 @28857 has 66 MA's), (Start: 22 @28860 has 7 MA's), (40, 29001),

Gene: Garak\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Garak\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: GaugeLDP\_3 Start: 1874, Stop: 2095, Start Num: 21

Candidate Starts for GaugeLDP\_3:

(9, 1649), (13, 1808), (16, 1850), (Start: 21 @1874 has 66 MA's), (Start: 22 @1877 has 7 MA's), (24, 1895), (49, 2090),

Gene: Gladiator\_3 Start: 1915, Stop: 2136, Start Num: 21

Candidate Starts for Gladiator\_3:

(Start: 21 @1915 has 66 MA's), (41, 2071), (49, 2131),

Gene: GreedyLawyer\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for GreedyLawyer\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Gruunaga\_3 Start: 1915, Stop: 2136, Start Num: 21

Candidate Starts for Gruunaga\_3:

(Start: 21 @1915 has 66 MA's), (41, 2071), (49, 2131),

Gene: Hammer\_3 Start: 1914, Stop: 2135, Start Num: 21

Candidate Starts for Hammer\_3:

(Start: 21 @1914 has 66 MA's), (41, 2070), (43, 2094), (49, 2130),

Gene: Helmet\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Helmet\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),



Gene: Herod\_32 Start: 28866, Stop: 29126, Start Num: 17

Candidate Starts for Herod\_32:

(3, 28422), (4, 28551), (11, 28761), (Start: 17 @28866 has 8 MA's), (Start: 20 @28878 has 1 MA's), (Start: 21 @28881 has 66 MA's), (Start: 22 @28884 has 7 MA's), (40, 29025),

Gene: Hexamo\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Hexamo\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Hoot\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Hoot\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Hugley\_31 Start: 28865, Stop: 29125, Start Num: 17

Candidate Starts for Hugley\_31:

(3, 28421), (4, 28550), (11, 28760), (Start: 17 @28865 has 8 MA's), (Start: 20 @28877 has 1 MA's), (Start: 21 @28880 has 66 MA's), (Start: 22 @28883 has 7 MA's), (40, 29024),

Gene: Indra\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Indra\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: IronMan\_3 Start: 1938, Stop: 2117, Start Num: 27

Candidate Starts for IronMan\_3:

(Start: 21 @1896 has 66 MA's), (Start: 22 @1899 has 7 MA's), (Start: 27 @1938 has 1 MA's), (49, 2112),

Gene: Isiphiwo\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Isiphiwo\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Iwokeuplikedis\_4 Start: 2149, Stop: 2367, Start Num: 22

Candidate Starts for Iwokeuplikedis\_4:

(Start: 21 @2146 has 66 MA's), (Start: 22 @2149 has 7 MA's), (Start: 27 @2188 has 1 MA's), (29, 2203), (35, 2254), (37, 2263), (49, 2362),

Gene: Jaan\_3 Start: 1892, Stop: 2113, Start Num: 21

Candidate Starts for Jaan\_3:

(Start: 21 @1892 has 66 MA's), (Start: 22 @1895 has 7 MA's), (49, 2108),

Gene: Jeffabunny\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Jeffabunny\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: JewelBug\_3 Start: 1926, Stop: 2147, Start Num: 21

Candidate Starts for JewelBug\_3:

(Start: 21 @1926 has 66 MA's), (41, 2082), (43, 2106), (49, 2142),

Gene: Jordennis\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Jordennis\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Kazan\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Kazan\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Keziacharles14\_3 Start: 1907, Stop: 2215, Start Num: 19

Candidate Starts for Keziacharles14\_3:

(Start: 19 @1907 has 7 MA's), (34, 2009), (35, 2021),

Gene: Kipper29\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Kipper29\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Koko\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Koko\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Landor\_3 Start: 1894, Stop: 2115, Start Num: 21

Candidate Starts for Landor\_3:

(9, 1669), (Start: 21 @1894 has 66 MA's), (Start: 22 @1897 has 7 MA's), (Start: 27 @1936 has 1 MA's), (29, 1951), (49, 2110),

Gene: Lilbunny\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Lilbunny\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: LoneWolf\_3 Start: 1881, Stop: 2102, Start Num: 21

Candidate Starts for LoneWolf\_3:

(13, 1815), (Start: 21 @1881 has 66 MA's), (29, 1938), (35, 1989), (38, 2004), (40, 2016), (49, 2097),

Gene: Lucyedi\_3 Start: 1910, Stop: 2128, Start Num: 22

Candidate Starts for Lucyedi\_3:

(7, 1646), (9, 1685), (Start: 21 @1907 has 66 MA's), (Start: 22 @1910 has 7 MA's), (29, 1964), (43, 2087), (49, 2123),

Gene: Maminiaina\_3 Start: 1884, Stop: 2105, Start Num: 21

Candidate Starts for Maminiaina\_3:

(Start: 21 @1884 has 66 MA's), (29, 1941), (30, 1947), (38, 2007), (49, 2100),

Gene: McFly\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for McFly\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Meyran\_7 Start: 6273, Stop: 6530, Start Num: 18

Candidate Starts for Meyran\_7:

(15, 6240), (Start: 17 @6270 has 8 MA's), (Start: 18 @6273 has 1 MA's), (Start: 20 @6282 has 1 MA's), (Start: 22 @6288 has 7 MA's), (40, 6429), (49, 6507),

Gene: Neeharika16\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Neeharika16\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Newrala\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Newrala\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: NothingSpecial\_3 Start: 1929, Stop: 2150, Start Num: 21

Candidate Starts for NothingSpecial\_3:

(Start: 21 @1929 has 66 MA's), (Start: 22 @1932 has 7 MA's), (28, 1974), (49, 2145),

Gene: Nyceirae\_9 Start: 6259, Stop: 6519, Start Num: 17

Candidate Starts for Nyceirae\_9:

(15, 6229), (Start: 17 @6259 has 8 MA's), (Start: 20 @6271 has 1 MA's), (Start: 21 @6274 has 66 MA's), (Start: 22 @6277 has 7 MA's), (25, 6304), (26, 6316), (32, 6358), (40, 6418),

Gene: Nymphadora\_32 Start: 28866, Stop: 29126, Start Num: 17

Candidate Starts for Nymphadora\_32:

(3, 28422), (4, 28551), (11, 28761), (Start: 17 @28866 has 8 MA's), (Start: 20 @28878 has 1 MA's), (Start: 21 @28881 has 66 MA's), (Start: 22 @28884 has 7 MA's), (40, 29025),

Gene: Odin\_2 Start: 1935, Stop: 2156, Start Num: 21

Candidate Starts for Odin\_2:

(6, 1653), (9, 1710), (Start: 21 @1935 has 66 MA's), (49, 2151),

Gene: PainterBoy\_3 Start: 1910, Stop: 2128, Start Num: 22

Candidate Starts for PainterBoy\_3:

(7, 1646), (9, 1685), (Start: 21 @1907 has 66 MA's), (Start: 22 @1910 has 7 MA's), (29, 1964), (43, 2087), (49, 2123),

Gene: Ph8s\_3 Start: 1942, Stop: 2163, Start Num: 21

Candidate Starts for Ph8s\_3:

(Start: 21 @1942 has 66 MA's), (Start: 22 @1945 has 7 MA's), (49, 2158),

Gene: Phaded\_3 Start: 1894, Stop: 2112, Start Num: 22

Candidate Starts for Phaded\_3:

(Start: 21 @1891 has 66 MA's), (Start: 22 @1894 has 7 MA's), (49, 2107),

Gene: Pharaoh\_3 Start: 1910, Stop: 2221, Start Num: 19

Candidate Starts for Pharaoh\_3:

(Start: 19 @1910 has 7 MA's), (23, 1931), (47, 2123),

Gene: Phishy\_8 Start: 6231, Stop: 6491, Start Num: 17

Candidate Starts for Phishy\_8:

(15, 6201), (Start: 17 @6231 has 8 MA's), (Start: 20 @6243 has 1 MA's), (Start: 22 @6249 has 7 MA's), (40, 6390),

Gene: Pmask\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Pmask\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Priamo\_3 Start: 1940, Stop: 2161, Start Num: 21

Candidate Starts for Priamo\_3:

(Start: 21 @1940 has 66 MA's), (41, 2096), (43, 2120), (49, 2156),

Gene: Pukovnik\_3 Start: 1873, Stop: 2091, Start Num: 22

Candidate Starts for Pukovnik\_3:

(Start: 21 @1870 has 66 MA's), (Start: 22 @1873 has 7 MA's), (49, 2086),

Gene: Rahalelujah\_3 Start: 1884, Stop: 2105, Start Num: 21

Candidate Starts for Rahalelujah\_3:

(7, 1617), (8, 1635), (13, 1815), (Start: 21 @1884 has 66 MA's), (29, 1941), (35, 1992), (49, 2100),

Gene: Refuge\_3 Start: 1939, Stop: 2250, Start Num: 19

Candidate Starts for Refuge\_3:

(14, 1900), (Start: 19 @1939 has 7 MA's), (23, 1960), (36, 2062), (37, 2065), (45, 2143), (47, 2152),

Gene: Rifter\_3 Start: 1914, Stop: 2135, Start Num: 21

Candidate Starts for Rifter\_3:

(Start: 21 @1914 has 66 MA's), (41, 2070), (49, 2130),

Gene: Roksolana\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Roksolana\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: SheaKeira\_3 Start: 1905, Stop: 2126, Start Num: 21

Candidate Starts for SheaKeira\_3:

(Start: 21 @1905 has 66 MA's), (29, 1962), (35, 2013), (49, 2121),

Gene: SmellyB\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for SmellyB\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Steamy\_3 Start: 1910, Stop: 2221, Start Num: 19

Candidate Starts for Steamy\_3:

(1, 1442), (5, 1610), (14, 1871), (Start: 19 @1910 has 7 MA's), (39, 2051), (44, 2111),

Gene: SuperAwesome\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for SuperAwesome\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: SuperCallie99\_3 Start: 1926, Stop: 2147, Start Num: 21

Candidate Starts for SuperCallie99\_3:

(Start: 21 @1926 has 66 MA's), (41, 2082), (43, 2106), (49, 2142),

Gene: Superchunk\_3 Start: 1936, Stop: 2157, Start Num: 21

Candidate Starts for Superchunk\_3:

(9, 1711), (Start: 21 @1936 has 66 MA's), (49, 2152),

Gene: SwirlSquare\_3 Start: 1935, Stop: 2156, Start Num: 21

Candidate Starts for SwirlSquare\_3:

(6, 1653), (9, 1710), (Start: 21 @1935 has 66 MA's), (Start: 22 @1938 has 7 MA's), (31, 2001), (49, 2151),

Gene: TimTam\_32 Start: 28866, Stop: 29126, Start Num: 17

Candidate Starts for TimTam\_32:

(3, 28422), (4, 28551), (11, 28761), (Start: 17 @28866 has 8 MA's), (Start: 20 @28878 has 1 MA's), (Start: 21 @28881 has 66 MA's), (Start: 22 @28884 has 7 MA's), (40, 29025),

Gene: ToneTone\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for ToneTone\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Trooper\_4 Start: 2152, Stop: 2373, Start Num: 21

Candidate Starts for Trooper\_4:

(2, 1708), (7, 1888), (9, 1927), (13, 2086), (Start: 21 @2152 has 66 MA's), (Start: 22 @2155 has 7 MA's), (Start: 27 @2194 has 1 MA's), (29, 2209), (35, 2260), (37, 2269), (41, 2308), (49, 2368),

Gene: Tucker\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Tucker\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Vanisoa\_3 Start: 1884, Stop: 2105, Start Num: 21

Candidate Starts for Vanisoa\_3:

(Start: 21 @1884 has 66 MA's), (29, 1941), (35, 1992), (48, 2094), (49, 2100),

Gene: VohminGhazi\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for VohminGhazi\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Wiks\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Wiks\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: WunderPhul\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for WunderPhul\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Yecey3\_3 Start: 1883, Stop: 2104, Start Num: 21

Candidate Starts for Yecey3\_3:

(7, 1619), (10, 1679), (13, 1817), (Start: 21 @1883 has 66 MA's), (Start: 27 @1925 has 1 MA's), (49, 2099),

Gene: Yokurt\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Yokurt\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Zaka\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Zaka\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),

Gene: Zimmer\_3 Start: 1948, Stop: 2259, Start Num: 19

Candidate Starts for Zimmer\_3:

(14, 1909), (Start: 19 @1948 has 7 MA's), (23, 1969), (36, 2071), (37, 2074), (42, 2122),

Gene: Zulu\_3 Start: 1925, Stop: 2146, Start Num: 21

Candidate Starts for Zulu\_3:

(Start: 21 @1925 has 66 MA's), (41, 2081), (43, 2105), (49, 2141),