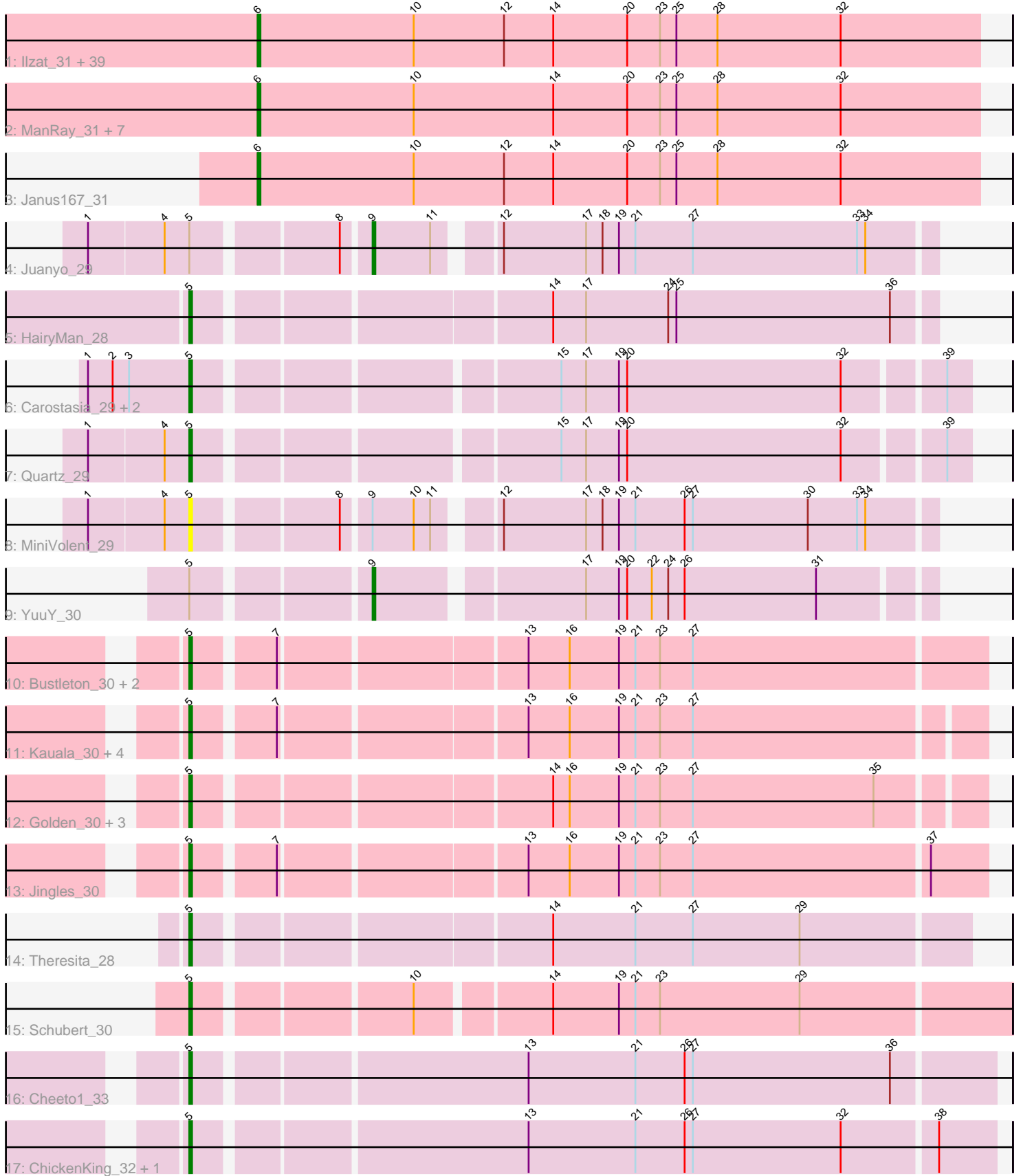


Pham 308515



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 308515 Report

This analysis was run 06/27/26 on database version 652.

Pham number 308515 has 75 members, 4 are drafts.

Phages represented in each track:

- Track 1 : Ilzat\_31, Sedgewig\_31, CoraRita\_31, SonOfLevi\_31, AranulaLuti\_31, Calix\_31, Chamuel\_31, Nattles\_31, Gubbabump\_31, Winzigespinne\_31, Exploradora\_31, Gelo\_31, JeriBeth\_31, Klimt\_31, Etta\_31, KannH\_31, Benjalauren\_32, Christoph\_31, StingRay\_31, HanSolo\_31, Erla\_31, RosieMae\_31, Papafritta\_31, Duocatuli\_31, Clancy\_31, Symere\_31, Kouch\_31, Baines\_31, Bonino\_31, JasperRussell\_31, Kale\_31, StirfryIV\_31, Chako\_31, Jerbirus\_32, HankSprout\_32, HungryHenry\_31, Rog141\_31, Pocket\_31, Garey24\_31, KellyGreen\_32
- Track 2 : ManRay\_31, Asta\_31, Gershwin\_31, TeddyBear\_31, Tenda\_31, Oats\_31, Espinosa\_31, Aubergine\_31
- Track 3 : Janus167\_31
- Track 4 : Juanyo\_29
- Track 5 : HairyMan\_28
- Track 6 : Carostasia\_29, Mandalorian\_29, Nucci\_29
- Track 7 : Quartz\_29
- Track 8 : MiniVolent\_29
- Track 9 : YuuY\_30
- Track 10 : Bustleton\_30, Sinatra\_30, Pherbot\_30
- Track 11 : Kauala\_30, PrincePhergus\_30, BouleyBill\_30, Koji\_30, RenegadeRaider\_31
- Track 12 : Golden\_30, Lucky3\_30, Guetzie\_30, SirVictor\_30
- Track 13 : Jingles\_30
- Track 14 : Theresita\_28
- Track 15 : Schubert\_30
- Track 16 : Cheeto1\_33
- Track 17 : ChickenKing\_32, GaeCeo\_33

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

The start number called the most often in the published annotations is 6, it was called in 47 of the 71 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AranulaLuti\_31, Asta\_31, Aubergine\_31, Baines\_31, Benjalauren\_32, Bonino\_31, Calix\_31, Chako\_31, Chamuel\_31, Christoph\_31, Clancy\_31, CoraRita\_31, Duocatuli\_31, Erla\_31, Espinosa\_31, Etta\_31, Exploradora\_31, Garey24\_31, Gelo\_31, Gershwin\_31, Gubbabump\_31, HanSolo\_31, HankSprout\_32, HungryHenry\_31, Ilzat\_31, Janus167\_31, JasperRussell\_31, Jerbirus\_32, JeriBeth\_31, Kale\_31, KannH\_31, KellyGreen\_32, Klimt\_31, Kouch\_31, ManRay\_31, Nattles\_31, Oats\_31, Papafritta\_31, Pocket\_31, Rog141\_31, RosieMae\_31, Sedgewig\_31, SonOfLevi\_31, StingRay\_31, StirfryIV\_31, Symere\_31, TeddyBear\_31, Tenda\_31, Winzigespinne\_31,

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

- 

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

- BouleyBill\_30, Bustleton\_30, Carostasia\_29, Cheeto1\_33, ChickenKing\_32, GaeCeo\_33, Golden\_30, Guetzie\_30, HairyMan\_28, Jingles\_30, Juanyo\_29, Kauala\_30, Koji\_30, Lucky3\_30, Mandalorian\_29, MiniVolent\_29, Nucci\_29, Pherbot\_30, PrincePhergus\_30, Quartz\_29, RenegadeRaider\_31, Schubert\_30, Sinatra\_30, SirVictor\_30, Theresita\_28, YuuY\_30,

### Summary by start number:

Start 5:

- Found in 26 of 75 ( 34.7% ) of genes in pham
- Manual Annotations of this start: 22 of 71
- Called 92.3% of time when present
- Phage (with cluster) where this start called: BouleyBill\_30 (EA4), Bustleton\_30 (EA4), Carostasia\_29 (EA10), Cheeto1\_33 (EA9), ChickenKing\_32 (EA9), GaeCeo\_33 (EA9), Golden\_30 (EA4), Guetzie\_30 (EA4), HairyMan\_28 (EA10), Jingles\_30 (EA4), Kauala\_30 (EA4), Koji\_30 (EA4), Lucky3\_30 (EA4), Mandalorian\_29 (EA10), MiniVolent\_29 (EA10), Nucci\_29 (EA10), Pherbot\_30 (EA4), PrincePhergus\_30 (EA4), Quartz\_29 (EA10), RenegadeRaider\_31 (EA4), Schubert\_30 (EA8), Sinatra\_30 (EA4), SirVictor\_30 (EA4), Theresita\_28 (EA7),

Start 6:

- Found in 49 of 75 ( 65.3% ) of genes in pham
- Manual Annotations of this start: 47 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AranulaLuti\_31 (EA1), Asta\_31 (EA1), Aubergine\_31 (EA1), Baines\_31 (EA1), Benjalauren\_32 (EA1), Bonino\_31 (EA1), Calix\_31 (EA1), Chako\_31 (EA1), Chamuel\_31 (EA1), Christoph\_31 (EA1), Clancy\_31 (EA1), CoraRita\_31 (EA1), Duocatuli\_31 (EA1), Erla\_31 (EA1), Espinosa\_31 (EA1), Etta\_31 (EA1), Exploradora\_31 (EA1), Garey24\_31 (EA1), Gelo\_31 (EA1), Gershwin\_31 (EA1), Gubbabump\_31 (EA1), HanSolo\_31 (EA1), HankSprout\_32 (EA1), HungryHenry\_31 (EA1), Ilzat\_31 (EA1), Janus167\_31 (EA1), JasperRussell\_31 (EA1), Jerbirus\_32 (EA1), JeriBeth\_31 (EA1), Kale\_31 (EA1), KannH\_31 (EA1), KellyGreen\_32 (EA1), Klimt\_31 (EA1), Kouch\_31 (EA1), ManRay\_31 (EA1), Nattles\_31 (EA1), Oats\_31 (EA1), Papafritta\_31 (EA1), Pocket\_31 (EA1), Rog141\_31 (EA1), RosieMae\_31 (EA1), Sedgewig\_31 (EA1), SonOfLevi\_31 (EA1), StingRay\_31 (EA1), StirfryIV\_31 (EA1), Symere\_31 (EA1), TeddyBear\_31 (EA1), Tenda\_31 (EA1), Winzigespinne\_31 (EA1),

Start 9:

- Found in 3 of 75 ( 4.0% ) of genes in pham
- Manual Annotations of this start: 2 of 71
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Juanyo\_29 (EA10), YuuY\_30 (EA10),

### **Summary by clusters:**

There are 6 clusters represented in this pham: EA10, EA9, EA8, EA1, EA4, EA7,

Info for manual annotations of cluster EA1:

- Start number 6 was manually annotated 47 times for cluster EA1.

Info for manual annotations of cluster EA10:

- Start number 5 was manually annotated 5 times for cluster EA10.
- Start number 9 was manually annotated 2 times for cluster EA10.

Info for manual annotations of cluster EA4:

- Start number 5 was manually annotated 12 times for cluster EA4.

Info for manual annotations of cluster EA7:

- Start number 5 was manually annotated 1 time for cluster EA7.

Info for manual annotations of cluster EA8:

- Start number 5 was manually annotated 1 time for cluster EA8.

Info for manual annotations of cluster EA9:

- Start number 5 was manually annotated 3 times for cluster EA9.

### **Gene Information:**

Gene: AranulaLuti\_31 Start: 21906, Stop: 21643, Start Num: 6

Candidate Starts for AranulaLuti\_31:

(Start: 6 @21906 has 47 MA's), (10, 21849), (12, 21816), (14, 21798), (20, 21771), (23, 21759), (25, 21753), (28, 21738), (32, 21693),

Gene: Asta\_31 Start: 21919, Stop: 21656, Start Num: 6

Candidate Starts for Asta\_31:

(Start: 6 @21919 has 47 MA's), (10, 21862), (14, 21811), (20, 21784), (23, 21772), (25, 21766), (28, 21751), (32, 21706),

Gene: Aubergine\_31 Start: 21919, Stop: 21656, Start Num: 6

Candidate Starts for Aubergine\_31:

(Start: 6 @21919 has 47 MA's), (10, 21862), (14, 21811), (20, 21784), (23, 21772), (25, 21766), (28, 21751), (32, 21706),

Gene: Baines\_31 Start: 21906, Stop: 21643, Start Num: 6

Candidate Starts for Baines\_31:

(Start: 6 @21906 has 47 MA's), (10, 21849), (12, 21816), (14, 21798), (20, 21771), (23, 21759), (25, 21753), (28, 21738), (32, 21693),

Gene: Benjalauren\_32 Start: 21916, Stop: 21653, Start Num: 6

Candidate Starts for Benjalauren\_32:

(Start: 6 @21916 has 47 MA's), (10, 21859), (12, 21826), (14, 21808), (20, 21781), (23, 21769), (25, 21763), (28, 21748), (32, 21703),

Gene: Bonino\_31 Start: 21895, Stop: 21632, Start Num: 6

Candidate Starts for Bonino\_31:

(Start: 6 @21895 has 47 MA's), (10, 21838), (12, 21805), (14, 21787), (20, 21760), (23, 21748), (25, 21742), (28, 21727), (32, 21682),

Gene: BouleyBill\_30 Start: 21998, Stop: 21723, Start Num: 5

Candidate Starts for BouleyBill\_30:

(Start: 5 @21998 has 22 MA's), (7, 21971), (13, 21887), (16, 21872), (19, 21854), (21, 21848), (23, 21839), (27, 21827),

Gene: Bustleton\_30 Start: 21998, Stop: 21723, Start Num: 5

Candidate Starts for Bustleton\_30:

(Start: 5 @21998 has 22 MA's), (7, 21971), (13, 21887), (16, 21872), (19, 21854), (21, 21848), (23, 21839), (27, 21827),

Gene: Calix\_31 Start: 21899, Stop: 21636, Start Num: 6

Candidate Starts for Calix\_31:

(Start: 6 @21899 has 47 MA's), (10, 21842), (12, 21809), (14, 21791), (20, 21764), (23, 21752), (25, 21746), (28, 21731), (32, 21686),

Gene: Carostasia\_29 Start: 21669, Stop: 21406, Start Num: 5

Candidate Starts for Carostasia\_29:

(1, 21705), (2, 21696), (3, 21690), (Start: 5 @21669 has 22 MA's), (15, 21549), (17, 21540), (19, 21528), (20, 21525), (32, 21447), (39, 21414),

Gene: Chako\_31 Start: 21906, Stop: 21643, Start Num: 6

Candidate Starts for Chako\_31:

(Start: 6 @21906 has 47 MA's), (10, 21849), (12, 21816), (14, 21798), (20, 21771), (23, 21759), (25, 21753), (28, 21738), (32, 21693),

Gene: Chamuel\_31 Start: 21901, Stop: 21638, Start Num: 6

Candidate Starts for Chamuel\_31:

(Start: 6 @21901 has 47 MA's), (10, 21844), (12, 21811), (14, 21793), (20, 21766), (23, 21754), (25, 21748), (28, 21733), (32, 21688),

Gene: Cheeto1\_33 Start: 22587, Stop: 22306, Start Num: 5

Candidate Starts for Cheeto1\_33:

(Start: 5 @22587 has 22 MA's), (13, 22473), (21, 22434), (26, 22416), (27, 22413), (36, 22341),

Gene: ChickenKing\_32 Start: 22500, Stop: 22219, Start Num: 5

Candidate Starts for ChickenKing\_32:

(Start: 5 @22500 has 22 MA's), (13, 22386), (21, 22347), (26, 22329), (27, 22326), (32, 22272), (38, 22239),

Gene: Christoph\_31 Start: 21917, Stop: 21654, Start Num: 6

Candidate Starts for Christoph\_31:

(Start: 6 @21917 has 47 MA's), (10, 21860), (12, 21827), (14, 21809), (20, 21782), (23, 21770), (25, 21764), (28, 21749), (32, 21704),

Gene: Clancy\_31 Start: 21906, Stop: 21643, Start Num: 6  
Candidate Starts for Clancy\_31:  
(Start: 6 @21906 has 47 MA's), (10, 21849), (12, 21816), (14, 21798), (20, 21771), (23, 21759), (25, 21753), (28, 21738), (32, 21693),

Gene: CoraRita\_31 Start: 21915, Stop: 21652, Start Num: 6  
Candidate Starts for CoraRita\_31:  
(Start: 6 @21915 has 47 MA's), (10, 21858), (12, 21825), (14, 21807), (20, 21780), (23, 21768), (25, 21762), (28, 21747), (32, 21702),

Gene: Duocatuli\_31 Start: 21906, Stop: 21643, Start Num: 6  
Candidate Starts for Duocatuli\_31:  
(Start: 6 @21906 has 47 MA's), (10, 21849), (12, 21816), (14, 21798), (20, 21771), (23, 21759), (25, 21753), (28, 21738), (32, 21693),

Gene: Erla\_31 Start: 21899, Stop: 21636, Start Num: 6  
Candidate Starts for Erla\_31:  
(Start: 6 @21899 has 47 MA's), (10, 21842), (12, 21809), (14, 21791), (20, 21764), (23, 21752), (25, 21746), (28, 21731), (32, 21686),

Gene: Espinosa\_31 Start: 21917, Stop: 21654, Start Num: 6  
Candidate Starts for Espinosa\_31:  
(Start: 6 @21917 has 47 MA's), (10, 21860), (14, 21809), (20, 21782), (23, 21770), (25, 21764), (28, 21749), (32, 21704),

Gene: Etta\_31 Start: 21903, Stop: 21640, Start Num: 6  
Candidate Starts for Etta\_31:  
(Start: 6 @21903 has 47 MA's), (10, 21846), (12, 21813), (14, 21795), (20, 21768), (23, 21756), (25, 21750), (28, 21735), (32, 21690),

Gene: Exploradora\_31 Start: 21906, Stop: 21643, Start Num: 6  
Candidate Starts for Exploradora\_31:  
(Start: 6 @21906 has 47 MA's), (10, 21849), (12, 21816), (14, 21798), (20, 21771), (23, 21759), (25, 21753), (28, 21738), (32, 21693),

Gene: GaeCeo\_33 Start: 22736, Stop: 22455, Start Num: 5  
Candidate Starts for GaeCeo\_33:  
(Start: 5 @22736 has 22 MA's), (13, 22622), (21, 22583), (26, 22565), (27, 22562), (32, 22508), (38, 22475),

Gene: Garey24\_31 Start: 21882, Stop: 21619, Start Num: 6  
Candidate Starts for Garey24\_31:  
(Start: 6 @21882 has 47 MA's), (10, 21825), (12, 21792), (14, 21774), (20, 21747), (23, 21735), (25, 21729), (28, 21714), (32, 21669),

Gene: Gelo\_31 Start: 21903, Stop: 21640, Start Num: 6  
Candidate Starts for Gelo\_31:  
(Start: 6 @21903 has 47 MA's), (10, 21846), (12, 21813), (14, 21795), (20, 21768), (23, 21756), (25, 21750), (28, 21735), (32, 21690),

Gene: Gershwin\_31 Start: 21919, Stop: 21656, Start Num: 6  
Candidate Starts for Gershwin\_31:

(Start: 6 @21919 has 47 MA's), (10, 21862), (14, 21811), (20, 21784), (23, 21772), (25, 21766), (28, 21751), (32, 21706),

Gene: Golden\_30 Start: 22099, Stop: 21827, Start Num: 5

Candidate Starts for Golden\_30:

(Start: 5 @22099 has 22 MA's), (14, 21979), (16, 21973), (19, 21955), (21, 21949), (23, 21940), (27, 21928), (35, 21862),

Gene: Gubbabump\_31 Start: 21908, Stop: 21645, Start Num: 6

Candidate Starts for Gubbabump\_31:

(Start: 6 @21908 has 47 MA's), (10, 21851), (12, 21818), (14, 21800), (20, 21773), (23, 21761), (25, 21755), (28, 21740), (32, 21695),

Gene: Guetzie\_30 Start: 22087, Stop: 21815, Start Num: 5

Candidate Starts for Guetzie\_30:

(Start: 5 @22087 has 22 MA's), (14, 21967), (16, 21961), (19, 21943), (21, 21937), (23, 21928), (27, 21916), (35, 21850),

Gene: HairyMan\_28 Start: 21239, Stop: 20982, Start Num: 5

Candidate Starts for HairyMan\_28:

(Start: 5 @21239 has 22 MA's), (14, 21119), (17, 21107), (24, 21077), (25, 21074), (36, 20996),

Gene: HanSolo\_31 Start: 21906, Stop: 21643, Start Num: 6

Candidate Starts for HanSolo\_31:

(Start: 6 @21906 has 47 MA's), (10, 21849), (12, 21816), (14, 21798), (20, 21771), (23, 21759), (25, 21753), (28, 21738), (32, 21693),

Gene: HankSprout\_32 Start: 21786, Stop: 21523, Start Num: 6

Candidate Starts for HankSprout\_32:

(Start: 6 @21786 has 47 MA's), (10, 21729), (12, 21696), (14, 21678), (20, 21651), (23, 21639), (25, 21633), (28, 21618), (32, 21573),

Gene: HungryHenry\_31 Start: 21917, Stop: 21654, Start Num: 6

Candidate Starts for HungryHenry\_31:

(Start: 6 @21917 has 47 MA's), (10, 21860), (12, 21827), (14, 21809), (20, 21782), (23, 21770), (25, 21764), (28, 21749), (32, 21704),

Gene: Ilzat\_31 Start: 21916, Stop: 21653, Start Num: 6

Candidate Starts for Ilzat\_31:

(Start: 6 @21916 has 47 MA's), (10, 21859), (12, 21826), (14, 21808), (20, 21781), (23, 21769), (25, 21763), (28, 21748), (32, 21703),

Gene: Janus167\_31 Start: 21906, Stop: 21643, Start Num: 6

Candidate Starts for Janus167\_31:

(Start: 6 @21906 has 47 MA's), (10, 21849), (12, 21816), (14, 21798), (20, 21771), (23, 21759), (25, 21753), (28, 21738), (32, 21693),

Gene: JasperRussell\_31 Start: 21906, Stop: 21643, Start Num: 6

Candidate Starts for JasperRussell\_31:

(Start: 6 @21906 has 47 MA's), (10, 21849), (12, 21816), (14, 21798), (20, 21771), (23, 21759), (25, 21753), (28, 21738), (32, 21693),

Gene: Jerbirus\_32 Start: 21906, Stop: 21643, Start Num: 6

Candidate Starts for Jerbirus\_32:

(Start: 6 @21906 has 47 MA's), (10, 21849), (12, 21816), (14, 21798), (20, 21771), (23, 21759), (25, 21753), (28, 21738), (32, 21693),

Gene: JeriBeth\_31 Start: 21763, Stop: 21500, Start Num: 6

Candidate Starts for JeriBeth\_31:

(Start: 6 @21763 has 47 MA's), (10, 21706), (12, 21673), (14, 21655), (20, 21628), (23, 21616), (25, 21610), (28, 21595), (32, 21550),

Gene: Jingles\_30 Start: 22005, Stop: 21730, Start Num: 5

Candidate Starts for Jingles\_30:

(Start: 5 @22005 has 22 MA's), (7, 21978), (13, 21894), (16, 21879), (19, 21861), (21, 21855), (23, 21846), (27, 21834), (37, 21750),

Gene: Juanyo\_29 Start: 21545, Stop: 21351, Start Num: 9

Candidate Starts for Juanyo\_29:

(1, 21638), (4, 21611), (Start: 5 @21602 has 22 MA's), (8, 21554), (Start: 9 @21545 has 2 MA's), (11, 21524), (12, 21506), (17, 21476), (18, 21470), (19, 21464), (21, 21458), (27, 21437), (33, 21377), (34, 21374),

Gene: Kale\_31 Start: 21921, Stop: 21658, Start Num: 6

Candidate Starts for Kale\_31:

(Start: 6 @21921 has 47 MA's), (10, 21864), (12, 21831), (14, 21813), (20, 21786), (23, 21774), (25, 21768), (28, 21753), (32, 21708),

Gene: KannH\_31 Start: 21906, Stop: 21643, Start Num: 6

Candidate Starts for KannH\_31:

(Start: 6 @21906 has 47 MA's), (10, 21849), (12, 21816), (14, 21798), (20, 21771), (23, 21759), (25, 21753), (28, 21738), (32, 21693),

Gene: Kauala\_30 Start: 21991, Stop: 21719, Start Num: 5

Candidate Starts for Kauala\_30:

(Start: 5 @21991 has 22 MA's), (7, 21964), (13, 21880), (16, 21865), (19, 21847), (21, 21841), (23, 21832), (27, 21820),

Gene: KellyGreen\_32 Start: 21906, Stop: 21643, Start Num: 6

Candidate Starts for KellyGreen\_32:

(Start: 6 @21906 has 47 MA's), (10, 21849), (12, 21816), (14, 21798), (20, 21771), (23, 21759), (25, 21753), (28, 21738), (32, 21693),

Gene: Klimt\_31 Start: 21901, Stop: 21638, Start Num: 6

Candidate Starts for Klimt\_31:

(Start: 6 @21901 has 47 MA's), (10, 21844), (12, 21811), (14, 21793), (20, 21766), (23, 21754), (25, 21748), (28, 21733), (32, 21688),

Gene: Koji\_30 Start: 22126, Stop: 21851, Start Num: 5

Candidate Starts for Koji\_30:

(Start: 5 @22126 has 22 MA's), (7, 22099), (13, 22015), (16, 22000), (19, 21982), (21, 21976), (23, 21967), (27, 21955),

Gene: Kouch\_31 Start: 21906, Stop: 21643, Start Num: 6

Candidate Starts for Kouch\_31:

(Start: 6 @21906 has 47 MA's), (10, 21849), (12, 21816), (14, 21798), (20, 21771), (23, 21759), (25, 21753), (28, 21738), (32, 21693),

Gene: Lucky3\_30 Start: 22099, Stop: 21827, Start Num: 5

Candidate Starts for Lucky3\_30:

(Start: 5 @22099 has 22 MA's), (14, 21979), (16, 21973), (19, 21955), (21, 21949), (23, 21940), (27, 21928), (35, 21862),

Gene: ManRay\_31 Start: 21919, Stop: 21656, Start Num: 6

Candidate Starts for ManRay\_31:

(Start: 6 @21919 has 47 MA's), (10, 21862), (14, 21811), (20, 21784), (23, 21772), (25, 21766), (28, 21751), (32, 21706),

Gene: Mandalorian\_29 Start: 21667, Stop: 21404, Start Num: 5

Candidate Starts for Mandalorian\_29:

(1, 21703), (2, 21694), (3, 21688), (Start: 5 @21667 has 22 MA's), (15, 21547), (17, 21538), (19, 21526), (20, 21523), (32, 21445), (39, 21412),

Gene: MiniVolent\_29 Start: 21561, Stop: 21310, Start Num: 5

Candidate Starts for MiniVolent\_29:

(1, 21597), (4, 21570), (Start: 5 @21561 has 22 MA's), (8, 21513), (Start: 9 @21504 has 2 MA's), (10, 21489), (11, 21483), (12, 21465), (17, 21435), (18, 21429), (19, 21423), (21, 21417), (26, 21399), (27, 21396), (30, 21354), (33, 21336), (34, 21333),

Gene: Nattles\_31 Start: 21906, Stop: 21643, Start Num: 6

Candidate Starts for Nattles\_31:

(Start: 6 @21906 has 47 MA's), (10, 21849), (12, 21816), (14, 21798), (20, 21771), (23, 21759), (25, 21753), (28, 21738), (32, 21693),

Gene: Nucci\_29 Start: 21656, Stop: 21393, Start Num: 5

Candidate Starts for Nucci\_29:

(1, 21692), (2, 21683), (3, 21677), (Start: 5 @21656 has 22 MA's), (15, 21536), (17, 21527), (19, 21515), (20, 21512), (32, 21434), (39, 21401),

Gene: Oats\_31 Start: 21919, Stop: 21656, Start Num: 6

Candidate Starts for Oats\_31:

(Start: 6 @21919 has 47 MA's), (10, 21862), (14, 21811), (20, 21784), (23, 21772), (25, 21766), (28, 21751), (32, 21706),

Gene: Papafritta\_31 Start: 21915, Stop: 21652, Start Num: 6

Candidate Starts for Papafritta\_31:

(Start: 6 @21915 has 47 MA's), (10, 21858), (12, 21825), (14, 21807), (20, 21780), (23, 21768), (25, 21762), (28, 21747), (32, 21702),

Gene: Pherbot\_30 Start: 21997, Stop: 21722, Start Num: 5

Candidate Starts for Pherbot\_30:

(Start: 5 @21997 has 22 MA's), (7, 21970), (13, 21886), (16, 21871), (19, 21853), (21, 21847), (23, 21838), (27, 21826),

Gene: Pocket\_31 Start: 21904, Stop: 21641, Start Num: 6

Candidate Starts for Pocket\_31:

(Start: 6 @21904 has 47 MA's), (10, 21847), (12, 21814), (14, 21796), (20, 21769), (23, 21757), (25, 21751), (28, 21736), (32, 21691),

Gene: PrincePhergus\_30 Start: 22000, Stop: 21725, Start Num: 5

Candidate Starts for PrincePhergus\_30:

(Start: 5 @22000 has 22 MA's), (7, 21973), (13, 21889), (16, 21874), (19, 21856), (21, 21850), (23, 21841), (27, 21829),

Gene: Quartz\_29 Start: 21669, Stop: 21406, Start Num: 5

Candidate Starts for Quartz\_29:

(1, 21705), (4, 21678), (Start: 5 @21669 has 22 MA's), (15, 21549), (17, 21540), (19, 21528), (20, 21525), (32, 21447), (39, 21414),

Gene: RenegadeRaider\_31 Start: 21843, Stop: 21568, Start Num: 5

Candidate Starts for RenegadeRaider\_31:

(Start: 5 @21843 has 22 MA's), (7, 21816), (13, 21732), (16, 21717), (19, 21699), (21, 21693), (23, 21684), (27, 21672),

Gene: Rog141\_31 Start: 21906, Stop: 21643, Start Num: 6

Candidate Starts for Rog141\_31:

(Start: 6 @21906 has 47 MA's), (10, 21849), (12, 21816), (14, 21798), (20, 21771), (23, 21759), (25, 21753), (28, 21738), (32, 21693),

Gene: RosieMae\_31 Start: 21916, Stop: 21653, Start Num: 6

Candidate Starts for RosieMae\_31:

(Start: 6 @21916 has 47 MA's), (10, 21859), (12, 21826), (14, 21808), (20, 21781), (23, 21769), (25, 21763), (28, 21748), (32, 21703),

Gene: Schubert\_30 Start: 22008, Stop: 21727, Start Num: 5

Candidate Starts for Schubert\_30:

(Start: 5 @22008 has 22 MA's), (10, 21936), (14, 21891), (19, 21867), (21, 21861), (23, 21852), (29, 21801),

Gene: Sedgewig\_31 Start: 21898, Stop: 21635, Start Num: 6

Candidate Starts for Sedgewig\_31:

(Start: 6 @21898 has 47 MA's), (10, 21841), (12, 21808), (14, 21790), (20, 21763), (23, 21751), (25, 21745), (28, 21730), (32, 21685),

Gene: Sinatra\_30 Start: 21996, Stop: 21721, Start Num: 5

Candidate Starts for Sinatra\_30:

(Start: 5 @21996 has 22 MA's), (7, 21969), (13, 21885), (16, 21870), (19, 21852), (21, 21846), (23, 21837), (27, 21825),

Gene: SirVictor\_30 Start: 22087, Stop: 21815, Start Num: 5

Candidate Starts for SirVictor\_30:

(Start: 5 @22087 has 22 MA's), (14, 21967), (16, 21961), (19, 21943), (21, 21937), (23, 21928), (27, 21916), (35, 21850),

Gene: SonOfLevi\_31 Start: 21901, Stop: 21638, Start Num: 6

Candidate Starts for SonOfLevi\_31:

(Start: 6 @21901 has 47 MA's), (10, 21844), (12, 21811), (14, 21793), (20, 21766), (23, 21754), (25, 21748), (28, 21733), (32, 21688),

Gene: StingRay\_31 Start: 21916, Stop: 21653, Start Num: 6

Candidate Starts for StingRay\_31:

(Start: 6 @21916 has 47 MA's), (10, 21859), (12, 21826), (14, 21808), (20, 21781), (23, 21769), (25, 21763), (28, 21748), (32, 21703),

Gene: StirfryIV\_31 Start: 21906, Stop: 21643, Start Num: 6

Candidate Starts for StirfryIV\_31:

(Start: 6 @21906 has 47 MA's), (10, 21849), (12, 21816), (14, 21798), (20, 21771), (23, 21759), (25, 21753), (28, 21738), (32, 21693),

Gene: Symere\_31 Start: 21896, Stop: 21633, Start Num: 6

Candidate Starts for Symere\_31:

(Start: 6 @21896 has 47 MA's), (10, 21839), (12, 21806), (14, 21788), (20, 21761), (23, 21749), (25, 21743), (28, 21728), (32, 21683),

Gene: TeddyBear\_31 Start: 21919, Stop: 21656, Start Num: 6

Candidate Starts for TeddyBear\_31:

(Start: 6 @21919 has 47 MA's), (10, 21862), (14, 21811), (20, 21784), (23, 21772), (25, 21766), (28, 21751), (32, 21706),

Gene: Tenda\_31 Start: 21917, Stop: 21654, Start Num: 6

Candidate Starts for Tenda\_31:

(Start: 6 @21917 has 47 MA's), (10, 21860), (14, 21809), (20, 21782), (23, 21770), (25, 21764), (28, 21749), (32, 21704),

Gene: Theresita\_28 Start: 20735, Stop: 20466, Start Num: 5

Candidate Starts for Theresita\_28:

(Start: 5 @20735 has 22 MA's), (14, 20615), (21, 20585), (27, 20564), (29, 20525),

Gene: Winzigespinne\_31 Start: 21905, Stop: 21642, Start Num: 6

Candidate Starts for Winzigespinne\_31:

(Start: 6 @21905 has 47 MA's), (10, 21848), (12, 21815), (14, 21797), (20, 21770), (23, 21758), (25, 21752), (28, 21737), (32, 21692),

Gene: YuuY\_30 Start: 22217, Stop: 22026, Start Num: 9

Candidate Starts for YuuY\_30:

(Start: 5 @22274 has 22 MA's), (Start: 9 @22217 has 2 MA's), (17, 22148), (19, 22136), (20, 22133), (22, 22124), (24, 22118), (26, 22112), (31, 22064),