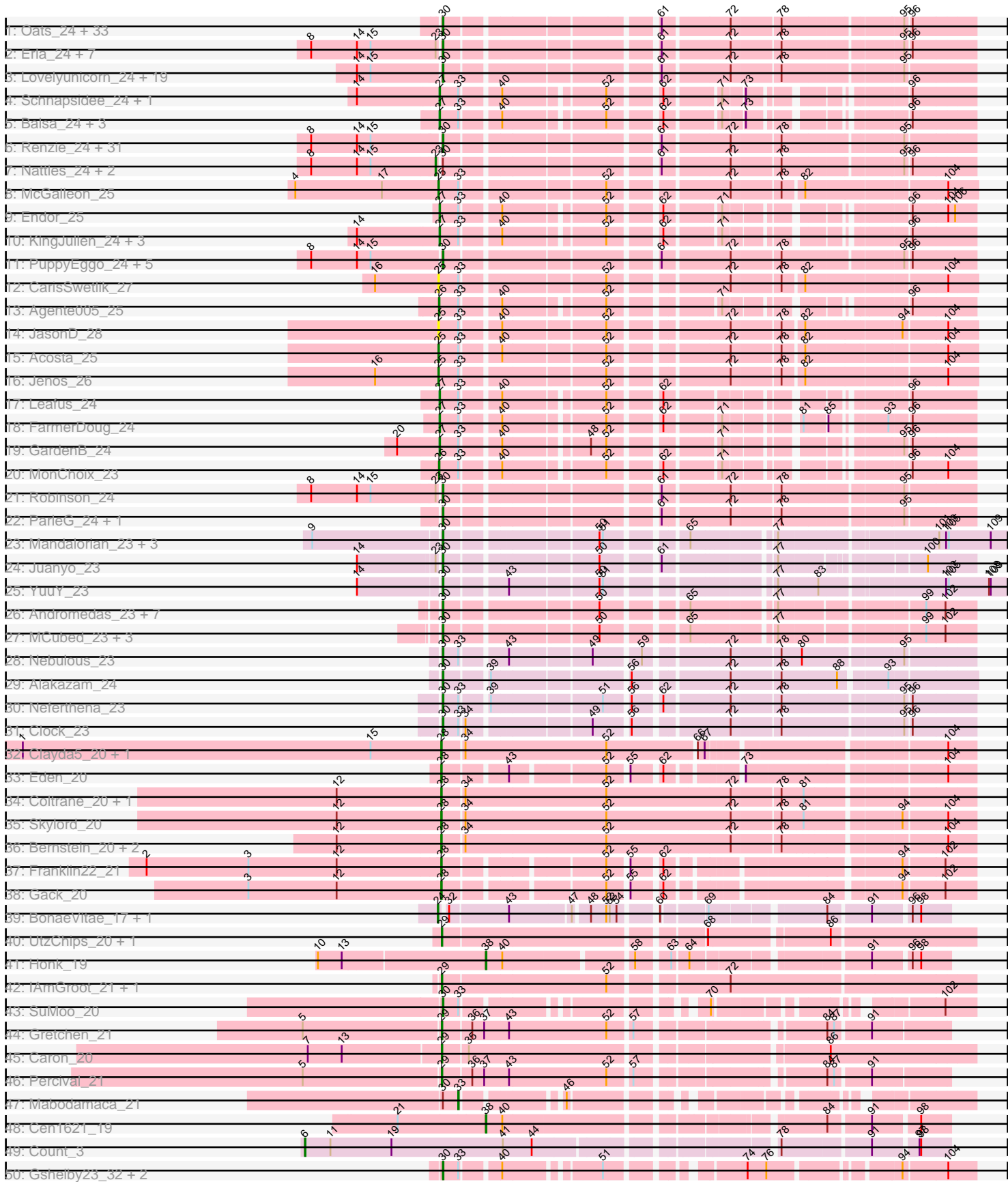


Pham 200019





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 200019 Report

This analysis was run 01/18/25 on database version 583.

Pham number 200019 has 187 members, 11 are drafts.

Phages represented in each track:

- Track 1 : Oats\_24, Clancy\_24, Espinosa\_24, JasperRussell\_24, StirfryIV\_24, Exploradora\_25, Jerbirus\_25, Duocatuli\_24, AranulaLuti\_24, Ilzat\_24, Asta\_24, HanSolo\_24, KannH\_24, Aubergine\_24, HankSprout\_25, Rog141\_24, Janus167\_24, Symere\_25, JeriBeth\_25, Tenda\_24, Papafritta\_24, Winzigespinne\_24, Chako\_24, Pocket\_24, Gubbabump\_24, Gershwin\_24, Kale\_24, HungryHenry\_24, Christoph\_24, ManRay\_24, Sedgewig\_24, TeddyBear\_24, Benjalauren\_25, StingRay\_24
- Track 2 : Erla\_24, Garey24\_24, Chamuel\_24, Baines\_24, Bonino\_24, Gelo\_24, Klimt\_24, Etta\_24
- Track 3 : Lovelyunicorn\_24, BonesMcCoy\_24, SoilGremlin\_24, Oxtober96\_24, Velene\_24, Delphidian\_24, MillyPhilly\_24, Phriends\_24, Convict\_24, Blage\_24, WildNOut\_24, Den3\_24, Knox\_24, Greys\_24, Strathdee\_24, OldNelly\_24, loannes\_24, BigRedClifford\_24, Thompsone\_24, Raptor\_24
- Track 4 : Schnapsidee\_24, Etna\_24
- Track 5 : Balsa\_24, Hamlet\_24, Peppino\_24, Redfield\_24
- Track 6 : Renzie\_24, TinSulphur\_24, Inventa\_24, Riyhil\_24, Teagan\_24, Gargoyle\_24, Alyxandracam\_24, Kurt1\_24, Rapheph\_24, Nagem\_24, TatarkaPM\_24, Ludgate\_24, Antoinette\_24, Pherferi\_24, SJay\_24, Superfresh\_24, Byron23\_24, Shee\_24, Dave\_24, Stanktossa\_24, Phireproof\_24, PhredFlintston\_24, MaeLinda\_24, NickSell\_24, Martin\_25, Dothraki\_24, Bandik\_24, Peep\_24, Figueroism\_24, Zada\_24, BeautPeep30\_24, Phiderman\_24
- Track 7 : Nattles\_24, Calix\_24, SonOfLevi\_24
- Track 8 : McGalleon\_25
- Track 9 : Endor\_25
- Track 10 : KingJulien\_24, Raccoon\_24, BeeBee8\_25, Stormbreaker8\_24
- Track 11 : PuppyEggo\_24, Vispistious\_24, AxiPup\_24, AlexAdler\_24, ShaiHulud\_24, Thorongil\_24
- Track 12 : CarisSwetlik\_27
- Track 13 : Agente005\_25
- Track 14 : JasonD\_28
- Track 15 : Acosta\_25
- Track 16 : Jenos\_26
- Track 17 : Leafus\_24
- Track 18 : FarmerDoug\_24
- Track 19 : GardenB\_24
- Track 20 : MonChoix\_23
- Track 21 : Robinson\_24
- Track 22 : ParleG\_24, MrWorldwide\_24

- Track 23 : Mandalorian\_23, Quartz\_23, Nucci\_23, Carostasia\_23
- Track 24 : Juanyo\_23
- Track 25 : YuuY\_23
- Track 26 : Andromedas\_23, ChikPic\_23, Eleri\_23, Glamour\_22, Zenitsu\_23, ColaCorta\_23, Saratos\_23, Shamu\_23
- Track 27 : MCubed\_23, Finny\_23, Phanita\_22, Sansa\_22
- Track 28 : Nebulous\_23
- Track 29 : Alakazam\_24
- Track 30 : Neferthena\_23
- Track 31 : Clock\_23
- Track 32 : Clayda5\_20, Armstrong\_20
- Track 33 : Eden\_20
- Track 34 : Coltrane\_20, Brahms\_20
- Track 35 : Skylord\_20
- Track 36 : Bernstein\_20, Vitas\_20, Rollins\_20
- Track 37 : Franklin22\_21
- Track 38 : Gack\_20
- Track 39 : BonaeVitae\_17, Naby\_17
- Track 40 : UtzChips\_20, Barnstormer\_20
- Track 41 : Honk\_19
- Track 42 : IAmGroot\_21, GardenState\_21
- Track 43 : SuMoo\_20
- Track 44 : Gretchen\_21
- Track 45 : Caron\_20
- Track 46 : Percival\_21
- Track 47 : Mabodamaca\_21
- Track 48 : Cen1621\_19
- Track 49 : Count\_3
- Track 50 : Gshelby23\_32, Hannabella\_34, Casino\_33
- Track 51 : Arete\_34, Scruffy\_34
- Track 52 : Araxxi\_34
- Track 53 : DoTi\_34
- Track 54 : Huwburt\_28
- Track 55 : Triscuit\_27
- Track 56 : JoyLin\_1, Yotsuba\_1, Eevee\_1
- Track 57 : Pippin15\_1

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

The start number called the most often in the published annotations is 30, it was called in 131 of the 176 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alakazam\_24, AlexAdler\_24, Alyxandracam\_24, Andromedas\_23, Antoinette\_24, AranulaLuti\_24, Araxxi\_34, Arete\_34, Asta\_24, Aubergine\_24, AxiPup\_24, Baines\_24, Bandik\_24, BeautPeep30\_24, Benjalauren\_25, BigRedClifford\_24, Blage\_24, BonesMcCoy\_24, Bonino\_24, Byron23\_24, Carostasia\_23, Casino\_33, Chako\_24, Chamuel\_24, ChikPic\_23, Christoph\_24, Clancy\_24, Clock\_23, ColaCorta\_23, Convict\_24, Dave\_24, Delphidian\_24, Den3\_24, DoTi\_34, Dothraki\_24, Duocatuli\_24, Eevee\_1, Eleri\_23, Erla\_24, Espinosa\_24, Etta\_24,

Exploradora\_25, Figueroism\_24, Finny\_23, Garey24\_24, Gargoyle\_24, Gelo\_24, Gershwin\_24, Glamour\_22, Greys\_24, Gshelby23\_32, Gubbabump\_24, HanSolo\_24, HankSprout\_25, Hannabella\_34, HungryHenry\_24, Huwburt\_28, Ilzat\_24, Inventa\_24, Ioannes\_24, Janus167\_24, JasperRussell\_24, Jerbirus\_25, JeriBeth\_25, JoyLin\_1, Juanyo\_23, Kale\_24, KannH\_24, Klimt\_24, Knox\_24, Kurt1\_24, Lovelyunicorn\_24, Ludgate\_24, MCubed\_23, MaeLinda\_24, ManRay\_24, Mandalorian\_23, Martin\_25, MillyPhilly\_24, MrWorldwide\_24, Nagem\_24, Nebulous\_23, Neferthena\_23, NickSell\_24, Nucci\_23, Oats\_24, OldNelly\_24, Oxtober96\_24, Papafritta\_24, ParleG\_24, Peep\_24, Phanita\_22, Pherferi\_24, Phiderman\_24, Phireproof\_24, PhredFlintston\_24, Phriends\_24, Pippin15\_1, Pocket\_24, PuppyEggo\_24, Quartz\_23, Rappheph\_24, Raptor\_24, Renzie\_24, Riyhil\_24, Robinson\_24, Rog141\_24, SJay\_24, Sansa\_22, Saratos\_23, Scruffy\_34, Sedgewig\_24, ShaiHulud\_24, Shamu\_23, Shee\_24, SoilGremlin\_24, Stanktossa\_24, StingRay\_24, StirfryIV\_24, Strathdee\_24, SuMoo\_20, Superfresh\_24, Symere\_25, TatarkaPM\_24, Teagan\_24, TeddyBear\_24, Tenda\_24, Thompsone\_24, Thorongil\_24, TinSulphur\_24, Triscuit\_27, Velene\_24, Vispistious\_24, WildNOut\_24, Winzigespinne\_24, Yotsuba\_1, YuuY\_23, Zada\_24, Zenitsu\_23,

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

- Calix\_24, Mabodamaca\_21, Nattles\_24, SonOfLevi\_24,

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

- Acosta\_25, Agente005\_25, Armstrong\_20, Balsa\_24, Barnstormer\_20, BeeBee8\_25, Bernstein\_20, BonaeVitae\_17, Brahms\_20, CarisSwetlik\_27, Caron\_20, Cen1621\_19, Clayda5\_20, Coltrane\_20, Count\_3, Eden\_20, Endor\_25, Etna\_24, FarmerDoug\_24, Franklin22\_21, Gack\_20, GardenB\_24, GardenState\_21, Gretchen\_21, Hamlet\_24, Honk\_19, IAmGroot\_21, JasonD\_28, Jenos\_26, KingJulien\_24, Leafus\_24, McGalleon\_25, MonChoix\_23, Naby\_17, Peppino\_24, Percival\_21, Raccoon\_24, Redfield\_24, Rollins\_20, Schnapsidee\_24, Skylord\_20, Stormbreaker8\_24, UtzChips\_20, Vitas\_20,

### Summary by start number:

Start 6:

- Found in 1 of 187 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 176
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Count\_3 (EL),

Start 23:

- Found in 13 of 187 ( 7.0% ) of genes in pham
- Manual Annotations of this start: 3 of 176
- Called 23.1% of time when present
- Phage (with cluster) where this start called: Calix\_24 (EA1), Nattles\_24 (EA1), SonOfLevi\_24 (EA1),

Start 24:

- Found in 2 of 187 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 2 of 176
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BonaeVitae\_17 (EE), Naby\_17 (EE),

Start 25:

- Found in 5 of 187 ( 2.7% ) of genes in pham
- Manual Annotations of this start: 3 of 176
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acosta\_25 (EA1), CarisSwetlik\_27 (EA1), JasonD\_28 (EA1), Jenos\_26 (EA1), McGalleon\_25 (EA1),

#### Start 26:

- Found in 2 of 187 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 2 of 176
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Agente005\_25 (EA1), MonChoix\_23 (EA1),

#### Start 27:

- Found in 14 of 187 ( 7.5% ) of genes in pham
- Manual Annotations of this start: 13 of 176
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Balsa\_24 (EA1), BeeBee8\_25 (EA1), Endor\_25 (EA1), Etna\_24 (EA1), FarmerDoug\_24 (EA1), GardenB\_24 (EA1), Hamlet\_24 (EA1), KingJulien\_24 (EA1), Leafus\_24 (EA1), Peppino\_24 (EA1), Raccoon\_24 (EA1), Redfield\_24 (EA1), Schnapsidee\_24 (EA1), Stormbreaker8\_24 (EA1),

#### Start 28:

- Found in 11 of 187 ( 5.9% ) of genes in pham
- Manual Annotations of this start: 11 of 176
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Armstrong\_20 (EB), Bernstein\_20 (EB), Brahms\_20 (EB), Clayda5\_20 (EB), Coltrane\_20 (EB), Eden\_20 (EB), Franklin22\_21 (EB), Gack\_20 (EB), Rollins\_20 (EB), Skylord\_20 (EB), Vitas\_20 (EB),

#### Start 29:

- Found in 7 of 187 ( 3.7% ) of genes in pham
- Manual Annotations of this start: 7 of 176
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Barnstormer\_20 (EH), Caron\_20 (EH), GardenState\_21 (EH), Gretchen\_21 (EH), IAmGroot\_21 (EH), Percival\_21 (EH), UtzChips\_20 (EH),

#### Start 30:

- Found in 143 of 187 ( 76.5% ) of genes in pham
- Manual Annotations of this start: 131 of 176
- Called 97.2% of time when present
- Phage (with cluster) where this start called: Alakazam\_24 (EA5), AlexAdler\_24 (EA1), Alyxandracam\_24 (EA1), Andromedas\_23 (EA2), Antoinette\_24 (EA1), AranulaLuti\_24 (EA1), Araxxi\_34 (EM1), Arete\_34 (EM1), Asta\_24 (EA1), Aubergine\_24 (EA1), AxiPup\_24 (EA1), Baines\_24 (EA1), Bandik\_24 (EA1), BeautPeep30\_24 (EA1), Benjalauren\_25 (EA1), BigRedClifford\_24 (EA1), Blage\_24 (EA1), BonesMcCoy\_24 (EA1), Bonino\_24 (EA1), Byron23\_24 (EA1), Carostasia\_23 (EA10), Casino\_33 (EM1), Chako\_24 (EA1), Chamuel\_24 (EA1), ChikPic\_23 (EA2), Christoph\_24 (EA1), Clancy\_24 (EA1), Clock\_23 (EA5), ColaCorta\_23 (EA2), Convict\_24 (EA1), Dave\_24 (EA1), Delphidian\_24 (EA1), Den3\_24 (EA1), DoTi\_34 (EM1), Dothraki\_24 (EA1), Duocatuli\_24 (EA1), Eevee\_1 (JA), Eleri\_23 (EA2),

Erla\_24 (EA1), Espinosa\_24 (EA1), Etta\_24 (EA1), Exploradora\_25 (UNK), Figueroism\_24 (EA1), Finny\_23 (EA2), Garey24\_24 (EA1), Gargoyle\_24 (EA1), Gelo\_24 (EA1), Gershwin\_24 (EA1), Glamour\_22 (EA2), Greys\_24 (EA1), Gshelby23\_32 (EM1), Gubbabump\_24 (EA1), HanSolo\_24 (EA1), HankSprout\_25 (EA1), Hannabella\_34 (EM1), HungryHenry\_24 (EA1), Huwbert\_28 (GG), Ilzat\_24 (EA1), Inventa\_24 (EA1), Ioannes\_24 (EA1), Janus167\_24 (EA1), JasperRussell\_24 (EA1), Jerbirus\_25 (EA1), JeriBeth\_25 (EA1), JoyLin\_1 (JA), Juanyo\_23 (EA10), Kale\_24 (EA1), KannH\_24 (EA1), Klimt\_24 (EA1), Knox\_24 (EA1), Kurt1\_24 (EA1), Lovelyunicorn\_24 (EA1), Ludgate\_24 (EA1), MCubed\_23 (EA2), MaeLinda\_24 (EA1), ManRay\_24 (EA1), Mandalorian\_23 (EA10), Martin\_25 (EA1), MillyPhilly\_24 (EA1), MrWorldwide\_24 (EA1), Nagem\_24 (EA1), Nebulous\_23 (EA5), Neferthena\_23 (EA5), NickSell\_24 (EA1), Nucci\_23 (EA10), Oats\_24 (EA1), OldNelly\_24 (EA1), Oxtober96\_24 (EA1), Papafritta\_24 (EA1), ParleG\_24 (EA1), Peep\_24 (EA1), Phanita\_22 (EA2), Pherferi\_24 (EA1), Phiderman\_24 (EA1), Phireproof\_24 (EA1), PhredFlintston\_24 (EA1), Phriends\_24 (EA1), Pippin15\_1 (JA), Pocket\_24 (EA1), PuppyEggo\_24 (EA1), Quartz\_23 (EA10), Rappheph\_24 (EA1), Raptor\_24 (EA1), Renzie\_24 (EA1), Riyhil\_24 (EA1), Robinson\_24 (EA1), Rog141\_24 (EA1), SJay\_24 (EA1), Sansa\_22 (EA2), Saratos\_23 (EA2), Scruffy\_34 (EM1), Sedgewig\_24 (EA1), ShaiHulud\_24 (EA1), Shamu\_23 (EA2), Shee\_24 (EA1), SoilGremlin\_24 (EA1), Stanktossa\_24 (EA1), StingRay\_24 (EA1), StirfryIV\_24 (EA1), Strathdee\_24 (EA1), SuMoo\_20 (EH), Superfresh\_24 (EA1), Symere\_25 (EA1), TatarkaPM\_24 (EA1), Teagan\_24 (EA1), TeddyBear\_24 (EA1), Tenda\_24 (EA1), Thompsone\_24 (EA1), Thorongil\_24 (EA1), TinSulphur\_24 (EA1), Triscuit\_27 (GG), Velene\_24 (EA1), Vispistious\_24 (EA1), WildNOOut\_24 (EA1), Winzigespinne\_24 (EA1), Yotsuba\_1 (JA), YuuY\_23 (EA10), Zada\_24 (EA1), Zenitsu\_23 (EA2),

Start 33:

- Found in 35 of 187 ( 18.7% ) of genes in pham
- Manual Annotations of this start: 1 of 176
- Called 2.9% of time when present
- Phage (with cluster) where this start called: Mabodamaca\_21 (EH),

Start 38:

- Found in 2 of 187 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 2 of 176
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cen1621\_19 (EH), Honk\_19 (EH),

### Summary by clusters:

There are 12 clusters represented in this pham: EL, UNK, EH, EE, EB, GG, EM1, EA1, EA2, EA5, JA, EA10,

Info for manual annotations of cluster EA1:

- Start number 23 was manually annotated 3 times for cluster EA1.
- Start number 25 was manually annotated 3 times for cluster EA1.
- Start number 26 was manually annotated 2 times for cluster EA1.
- Start number 27 was manually annotated 13 times for cluster EA1.
- Start number 30 was manually annotated 97 times for cluster EA1.

Info for manual annotations of cluster EA10:

- Start number 30 was manually annotated 6 times for cluster EA10.

Info for manual annotations of cluster EA2:

- Start number 30 was manually annotated 11 times for cluster EA2.

Info for manual annotations of cluster EA5:

- Start number 30 was manually annotated 4 times for cluster EA5.

Info for manual annotations of cluster EB:

- Start number 28 was manually annotated 11 times for cluster EB.

Info for manual annotations of cluster EE:

- Start number 24 was manually annotated 2 times for cluster EE.

Info for manual annotations of cluster EH:

- Start number 29 was manually annotated 7 times for cluster EH.
- Start number 30 was manually annotated 1 time for cluster EH.
- Start number 33 was manually annotated 1 time for cluster EH.
- Start number 38 was manually annotated 2 times for cluster EH.

Info for manual annotations of cluster EL:

- Start number 6 was manually annotated 1 time for cluster EL.

Info for manual annotations of cluster EM1:

- Start number 30 was manually annotated 6 times for cluster EM1.

Info for manual annotations of cluster GG:

- Start number 30 was manually annotated 2 times for cluster GG.

Info for manual annotations of cluster JA:

- Start number 30 was manually annotated 4 times for cluster JA.

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

Gene: Acosta\_25 Start: 18509, Stop: 19330, Start Num: 25

Candidate Starts for Acosta\_25:

(Start: 25 @18509 has 3 MA's), (Start: 33 @18542 has 1 MA's), (40, 18599), (52, 18761), (72, 18938), (78, 19019), (82, 19052), (104, 19280),

Gene: Agente005\_25 Start: 18800, Stop: 19540, Start Num: 26

Candidate Starts for Agente005\_25:

(Start: 26 @18800 has 2 MA's), (Start: 33 @18833 has 1 MA's), (40, 18890), (52, 19040), (71, 19187), (96, 19433),

Gene: Alakazam\_24 Start: 18140, Stop: 18949, Start Num: 30

Candidate Starts for Alakazam\_24:

(Start: 30 @18140 has 131 MA's), (39, 18206), (56, 18416), (72, 18563), (78, 18644), (88, 18734), (93, 18806),

Gene: AlexAdler\_24 Start: 18247, Stop: 19053, Start Num: 30

Candidate Starts for AlexAdler\_24:



(8, 18025), (14, 18106), (15, 18130), (Start: 30 @18247 has 131 MA's), (61, 18562), (72, 18667), (78, 18748), (95, 18937), (96, 18946),

Gene: Alyxandracam\_24 Start: 18259, Stop: 19065, Start Num: 30

Candidate Starts for Alyxandracam\_24:

(8, 18037), (14, 18118), (15, 18142), (Start: 30 @18259 has 131 MA's), (61, 18574), (72, 18679), (78, 18760), (95, 18949),

Gene: Andromedas\_23 Start: 18467, Stop: 19249, Start Num: 30

Candidate Starts for Andromedas\_23:

(Start: 30 @18467 has 131 MA's), (50, 18701), (65, 18818), (77, 18944), (99, 19166), (102, 19199),

Gene: Antoinette\_24 Start: 18247, Stop: 19053, Start Num: 30

Candidate Starts for Antoinette\_24:

(8, 18025), (14, 18106), (15, 18130), (Start: 30 @18247 has 131 MA's), (61, 18562), (72, 18667), (78, 18748), (95, 18937),

Gene: AranulaLuti\_24 Start: 18543, Stop: 19349, Start Num: 30

Candidate Starts for AranulaLuti\_24:

(Start: 30 @18543 has 131 MA's), (61, 18858), (72, 18963), (78, 19044), (95, 19233), (96, 19242),

Gene: Araxxi\_34 Start: 41327, Stop: 42091, Start Num: 30

Candidate Starts for Araxxi\_34:

(Start: 30 @41327 has 131 MA's), (Start: 33 @41354 has 1 MA's), (45, 41483), (51, 41552), (52, 41558), (74, 41732), (76, 41765), (79, 41798), (89, 41876),

Gene: Arete\_34 Start: 41089, Stop: 41835, Start Num: 30

Candidate Starts for Arete\_34:

(Start: 30 @41089 has 131 MA's), (Start: 33 @41116 has 1 MA's), (40, 41173), (51, 41314), (76, 41527), (94, 41716), (104, 41788),

Gene: Armstrong\_20 Start: 15862, Stop: 16719, Start Num: 28

Candidate Starts for Armstrong\_20:

(1, 15130), (15, 15745), (Start: 28 @15862 has 11 MA's), (34, 15898), (52, 16144), (66, 16294), (67, 16306), (104, 16672),

Gene: Asta\_24 Start: 18556, Stop: 19362, Start Num: 30

Candidate Starts for Asta\_24:

(Start: 30 @18556 has 131 MA's), (61, 18871), (72, 18976), (78, 19057), (95, 19246), (96, 19255),

Gene: Aubergine\_24 Start: 18556, Stop: 19362, Start Num: 30

Candidate Starts for Aubergine\_24:

(Start: 30 @18556 has 131 MA's), (61, 18871), (72, 18976), (78, 19057), (95, 19246), (96, 19255),

Gene: AxiPup\_24 Start: 18256, Stop: 19062, Start Num: 30

Candidate Starts for AxiPup\_24:

(8, 18034), (14, 18115), (15, 18139), (Start: 30 @18256 has 131 MA's), (61, 18571), (72, 18676), (78, 18757), (95, 18946), (96, 18955),

Gene: Baines\_24 Start: 18543, Stop: 19349, Start Num: 30

Candidate Starts for Baines\_24:

(8, 18321), (14, 18402), (15, 18426), (Start: 23 @18537 has 3 MA's), (Start: 30 @18543 has 131 MA's), (61, 18858), (72, 18963), (78, 19044), (95, 19233), (96, 19242),

Gene: Balsa\_24 Start: 18648, Stop: 19388, Start Num: 27

Candidate Starts for Balsa\_24:

(Start: 27 @18648 has 13 MA's), (Start: 33 @18681 has 1 MA's), (40, 18738), (52, 18888), (62, 18960), (71, 19035), (73, 19065), (96, 19281),

Gene: Bandik\_24 Start: 18255, Stop: 19061, Start Num: 30

Candidate Starts for Bandik\_24:

(8, 18033), (14, 18114), (15, 18138), (Start: 30 @18255 has 131 MA's), (61, 18570), (72, 18675), (78, 18756), (95, 18945),

Gene: Barnstormer\_20 Start: 17742, Stop: 18602, Start Num: 29

Candidate Starts for Barnstormer\_20:

(Start: 29 @17742 has 7 MA's), (68, 18162), (86, 18360),

Gene: BeautPeep30\_24 Start: 18261, Stop: 19067, Start Num: 30

Candidate Starts for BeautPeep30\_24:

(8, 18039), (14, 18120), (15, 18144), (Start: 30 @18261 has 131 MA's), (61, 18576), (72, 18681), (78, 18762), (95, 18951),

Gene: BeeBee8\_25 Start: 18813, Stop: 19553, Start Num: 27

Candidate Starts for BeeBee8\_25:

(14, 18672), (Start: 27 @18813 has 13 MA's), (Start: 33 @18846 has 1 MA's), (40, 18903), (52, 19053), (62, 19125), (71, 19200), (96, 19446),

Gene: Benjalauren\_25 Start: 18552, Stop: 19358, Start Num: 30

Candidate Starts for Benjalauren\_25:

(Start: 30 @18552 has 131 MA's), (61, 18867), (72, 18972), (78, 19053), (95, 19242), (96, 19251),

Gene: Bernstein\_20 Start: 15893, Stop: 16774, Start Num: 28

Candidate Starts for Bernstein\_20:

(12, 15716), (Start: 28 @15893 has 11 MA's), (34, 15929), (52, 16175), (72, 16388), (78, 16469), (104, 16727),

Gene: BigRedClifford\_24 Start: 18259, Stop: 19065, Start Num: 30

Candidate Starts for BigRedClifford\_24:

(14, 18118), (15, 18142), (Start: 30 @18259 has 131 MA's), (61, 18574), (72, 18679), (78, 18760), (95, 18949),

Gene: Blage\_24 Start: 18259, Stop: 19065, Start Num: 30

Candidate Starts for Blage\_24:

(14, 18118), (15, 18142), (Start: 30 @18259 has 131 MA's), (61, 18574), (72, 18679), (78, 18760), (95, 18949),

Gene: BonaeVitae\_17 Start: 12824, Stop: 13576, Start Num: 24

Candidate Starts for BonaeVitae\_17:

(Start: 24 @12824 has 2 MA's), (32, 12833), (43, 12929), (47, 13031), (48, 13052), (52, 13079), (53, 13085), (54, 13097), (60, 13148), (69, 13211), (84, 13385), (91, 13454), (96, 13511), (98, 13526),

Gene: BonesMcCoy\_24 Start: 18259, Stop: 19065, Start Num: 30

Candidate Starts for BonesMcCoy\_24:

(14, 18118), (15, 18142), (Start: 30 @18259 has 131 MA's), (61, 18574), (72, 18679), (78, 18760), (95, 18949),

Gene: Bonino\_24 Start: 18532, Stop: 19338, Start Num: 30

Candidate Starts for Bonino\_24:

(8, 18310), (14, 18391), (15, 18415), (Start: 23 @18526 has 3 MA's), (Start: 30 @18532 has 131 MA's), (61, 18847), (72, 18952), (78, 19033), (95, 19222), (96, 19231),

Gene: Brahms\_20 Start: 15838, Stop: 16722, Start Num: 28

Candidate Starts for Brahms\_20:

(12, 15661), (Start: 28 @15838 has 11 MA's), (34, 15874), (52, 16120), (72, 16336), (78, 16417), (81, 16453),

Gene: Byron23\_24 Start: 18264, Stop: 19070, Start Num: 30

Candidate Starts for Byron23\_24:

(8, 18042), (14, 18123), (15, 18147), (Start: 30 @18264 has 131 MA's), (61, 18579), (72, 18684), (78, 18765), (95, 18954),

Gene: Calix\_24 Start: 18530, Stop: 19342, Start Num: 23

Candidate Starts for Calix\_24:

(8, 18314), (14, 18395), (15, 18419), (Start: 23 @18530 has 3 MA's), (Start: 30 @18536 has 131 MA's), (61, 18851), (72, 18956), (78, 19037), (95, 19226), (96, 19235),

Gene: CarisSwetlik\_27 Start: 19006, Stop: 19827, Start Num: 25

Candidate Starts for CarisSwetlik\_27:

(16, 18895), (Start: 25 @19006 has 3 MA's), (Start: 33 @19039 has 1 MA's), (52, 19258), (72, 19435), (78, 19516), (82, 19549), (104, 19777),

Gene: Caron\_20 Start: 17127, Stop: 17996, Start Num: 29

Candidate Starts for Caron\_20:

(7, 16896), (13, 16956), (Start: 29 @17127 has 7 MA's), (35, 17169), (86, 17745),

Gene: Carostasia\_23 Start: 18678, Stop: 19541, Start Num: 30

Candidate Starts for Carostasia\_23:

(9, 18459), (Start: 30 @18678 has 131 MA's), (50, 18912), (51, 18918), (65, 19029), (77, 19155), (101, 19404), (103, 19416), (105, 19419), (109, 19491),

Gene: Casino\_33 Start: 41061, Stop: 41807, Start Num: 30

Candidate Starts for Casino\_33:

(Start: 30 @41061 has 131 MA's), (Start: 33 @41088 has 1 MA's), (40, 41145), (51, 41286), (74, 41466), (76, 41499), (94, 41688), (104, 41760),

Gene: Cen1621\_19 Start: 16339, Stop: 17049, Start Num: 38

Candidate Starts for Cen1621\_19:

(21, 16189), (Start: 38 @16339 has 2 MA's), (40, 16366), (84, 16858), (91, 16927), (98, 16999),

Gene: Chako\_24 Start: 18543, Stop: 19349, Start Num: 30

Candidate Starts for Chako\_24:

(Start: 30 @18543 has 131 MA's), (61, 18858), (72, 18963), (78, 19044), (95, 19233), (96, 19242),

Gene: Chamuel\_24 Start: 18538, Stop: 19344, Start Num: 30

Candidate Starts for Chamuel\_24:

(8, 18316), (14, 18397), (15, 18421), (Start: 23 @18532 has 3 MA's), (Start: 30 @18538 has 131 MA's), (61, 18853), (72, 18958), (78, 19039), (95, 19228), (96, 19237),

Gene: ChikPic\_23 Start: 18483, Stop: 19265, Start Num: 30  
Candidate Starts for ChikPic\_23:  
(Start: 30 @18483 has 131 MA's), (50, 18717), (65, 18834), (77, 18960), (99, 19182), (102, 19215),

Gene: Christoph\_24 Start: 18554, Stop: 19360, Start Num: 30  
Candidate Starts for Christoph\_24:  
(Start: 30 @18554 has 131 MA's), (61, 18869), (72, 18974), (78, 19055), (95, 19244), (96, 19253),

Gene: Clancy\_24 Start: 18543, Stop: 19349, Start Num: 30  
Candidate Starts for Clancy\_24:  
(Start: 30 @18543 has 131 MA's), (61, 18858), (72, 18963), (78, 19044), (95, 19233), (96, 19242),

Gene: Clayda5\_20 Start: 15868, Stop: 16725, Start Num: 28  
Candidate Starts for Clayda5\_20:  
(1, 15136), (15, 15751), (Start: 28 @15868 has 11 MA's), (34, 15904), (52, 16150), (66, 16300), (67, 16312), (104, 16678),

Gene: Clock\_23 Start: 18689, Stop: 19501, Start Num: 30  
Candidate Starts for Clock\_23:  
(Start: 30 @18689 has 131 MA's), (Start: 33 @18716 has 1 MA's), (34, 18722), (49, 18911), (56, 18965), (72, 19112), (78, 19193), (95, 19385), (96, 19394),

Gene: ColaCorta\_23 Start: 18467, Stop: 19249, Start Num: 30  
Candidate Starts for ColaCorta\_23:  
(Start: 30 @18467 has 131 MA's), (50, 18701), (65, 18818), (77, 18944), (99, 19166), (102, 19199),

Gene: Coltrane\_20 Start: 15838, Stop: 16722, Start Num: 28  
Candidate Starts for Coltrane\_20:  
(12, 15661), (Start: 28 @15838 has 11 MA's), (34, 15874), (52, 16120), (72, 16336), (78, 16417), (81, 16453),

Gene: Convict\_24 Start: 18259, Stop: 19065, Start Num: 30  
Candidate Starts for Convict\_24:  
(14, 18118), (15, 18142), (Start: 30 @18259 has 131 MA's), (61, 18574), (72, 18679), (78, 18760), (95, 18949),

Gene: Count\_3 Start: 493, Stop: 1518, Start Num: 6  
Candidate Starts for Count\_3:  
(Start: 6 @493 has 1 MA's), (11, 538), (19, 646), (41, 841), (44, 892), (78, 1252), (91, 1396), (97, 1465), (98, 1468),

Gene: Dave\_24 Start: 18247, Stop: 19053, Start Num: 30  
Candidate Starts for Dave\_24:  
(8, 18025), (14, 18106), (15, 18130), (Start: 30 @18247 has 131 MA's), (61, 18562), (72, 18667), (78, 18748), (95, 18937),

Gene: Delphidian\_24 Start: 18258, Stop: 19064, Start Num: 30  
Candidate Starts for Delphidian\_24:  
(14, 18117), (15, 18141), (Start: 30 @18258 has 131 MA's), (61, 18573), (72, 18678), (78, 18759), (95, 18948),

Gene: Den3\_24 Start: 18263, Stop: 19069, Start Num: 30  
Candidate Starts for Den3\_24:

(14, 18122), (15, 18146), (Start: 30 @18263 has 131 MA's), (61, 18578), (72, 18683), (78, 18764), (95, 18953),

Gene: DoTi\_34 Start: 41431, Stop: 42195, Start Num: 30

Candidate Starts for DoTi\_34:

(18, 41338), (Start: 30 @41431 has 131 MA's), (Start: 33 @41458 has 1 MA's), (45, 41587), (52, 41662), (74, 41836), (76, 41869), (79, 41902), (89, 41980),

Gene: Dothraki\_24 Start: 18261, Stop: 19067, Start Num: 30

Candidate Starts for Dothraki\_24:

(8, 18039), (14, 18120), (15, 18144), (Start: 30 @18261 has 131 MA's), (61, 18576), (72, 18681), (78, 18762), (95, 18951),

Gene: Duocatuli\_24 Start: 18543, Stop: 19349, Start Num: 30

Candidate Starts for Duocatuli\_24:

(Start: 30 @18543 has 131 MA's), (61, 18858), (72, 18963), (78, 19044), (95, 19233), (96, 19242),

Gene: Eden\_20 Start: 16231, Stop: 17001, Start Num: 28

Candidate Starts for Eden\_20:

(Start: 28 @16231 has 11 MA's), (43, 16324), (52, 16468), (55, 16498), (62, 16540), (73, 16636), (104, 16954),

Gene: Eevee\_1 Start: 116, Stop: 946, Start Num: 30

Candidate Starts for Eevee\_1:

(Start: 30 @116 has 131 MA's), (40, 200), (54, 380), (62, 434), (75, 590), (96, 839),

Gene: Eleri\_23 Start: 18480, Stop: 19262, Start Num: 30

Candidate Starts for Eleri\_23:

(Start: 30 @18480 has 131 MA's), (50, 18714), (65, 18831), (77, 18957), (99, 19179), (102, 19212),

Gene: Endor\_25 Start: 18780, Stop: 19520, Start Num: 27

Candidate Starts for Endor\_25:

(Start: 27 @18780 has 13 MA's), (Start: 33 @18813 has 1 MA's), (40, 18870), (52, 19020), (62, 19092), (71, 19167), (96, 19413), (104, 19473), (106, 19485),

Gene: Erla\_24 Start: 18536, Stop: 19342, Start Num: 30

Candidate Starts for Erla\_24:

(8, 18314), (14, 18395), (15, 18419), (Start: 23 @18530 has 3 MA's), (Start: 30 @18536 has 131 MA's), (61, 18851), (72, 18956), (78, 19037), (95, 19226), (96, 19235),

Gene: Espinosa\_24 Start: 18554, Stop: 19360, Start Num: 30

Candidate Starts for Espinosa\_24:

(Start: 30 @18554 has 131 MA's), (61, 18869), (72, 18974), (78, 19055), (95, 19244), (96, 19253),

Gene: Etna\_24 Start: 18641, Stop: 19381, Start Num: 27

Candidate Starts for Etna\_24:

(14, 18500), (Start: 27 @18641 has 13 MA's), (Start: 33 @18674 has 1 MA's), (40, 18731), (52, 18881), (62, 18953), (71, 19028), (73, 19058), (96, 19274),

Gene: Etta\_24 Start: 18540, Stop: 19346, Start Num: 30

Candidate Starts for Etta\_24:

(8, 18318), (14, 18399), (15, 18423), (Start: 23 @18534 has 3 MA's), (Start: 30 @18540 has 131 MA's), (61, 18855), (72, 18960), (78, 19041), (95, 19230), (96, 19239),

Gene: Exploradora\_25 Start: 18543, Stop: 19349, Start Num: 30  
Candidate Starts for Exploradora\_25:  
(Start: 30 @18543 has 131 MA's), (61, 18858), (72, 18963), (78, 19044), (95, 19233), (96, 19242),

Gene: FarmerDoug\_24 Start: 18356, Stop: 19096, Start Num: 27  
Candidate Starts for FarmerDoug\_24:  
(Start: 27 @18356 has 13 MA's), (Start: 33 @18389 has 1 MA's), (40, 18446), (52, 18596), (62, 18668),  
(71, 18743), (81, 18842), (85, 18878), (93, 18956), (96, 18989),

Gene: Figueroism\_24 Start: 18243, Stop: 19049, Start Num: 30  
Candidate Starts for Figueroism\_24:  
(8, 18021), (14, 18102), (15, 18126), (Start: 30 @18243 has 131 MA's), (61, 18558), (72, 18663), (78,  
18744), (95, 18933),

Gene: Finny\_23 Start: 18466, Stop: 19248, Start Num: 30  
Candidate Starts for Finny\_23:  
(Start: 30 @18466 has 131 MA's), (50, 18700), (65, 18817), (77, 18943), (99, 19165), (102, 19198),

Gene: Franklin22\_21 Start: 16416, Stop: 17186, Start Num: 28  
Candidate Starts for Franklin22\_21:  
(2, 15909), (3, 16089), (12, 16242), (Start: 28 @16416 has 11 MA's), (52, 16653), (55, 16683), (62,  
16725), (94, 17067), (102, 17136),

Gene: Gack\_20 Start: 16302, Stop: 17072, Start Num: 28  
Candidate Starts for Gack\_20:  
(3, 15975), (12, 16128), (Start: 28 @16302 has 11 MA's), (52, 16539), (55, 16569), (62, 16611), (94,  
16953), (102, 17022),

Gene: GardenB\_24 Start: 18645, Stop: 19385, Start Num: 27  
Candidate Starts for GardenB\_24:  
(20, 18576), (Start: 27 @18645 has 13 MA's), (Start: 33 @18678 has 1 MA's), (40, 18735), (48, 18858),  
(52, 18885), (71, 19032), (95, 19269), (96, 19278),

Gene: GardenState\_21 Start: 18154, Stop: 19038, Start Num: 29  
Candidate Starts for GardenState\_21:  
(Start: 29 @18154 has 7 MA's), (52, 18436), (72, 18619),

Gene: Garey24\_24 Start: 18519, Stop: 19325, Start Num: 30  
Candidate Starts for Garey24\_24:  
(8, 18297), (14, 18378), (15, 18402), (Start: 23 @18513 has 3 MA's), (Start: 30 @18519 has 131 MA's),  
(61, 18834), (72, 18939), (78, 19020), (95, 19209), (96, 19218),

Gene: Gargoyle\_24 Start: 18261, Stop: 19067, Start Num: 30  
Candidate Starts for Gargoyle\_24:  
(8, 18039), (14, 18120), (15, 18144), (Start: 30 @18261 has 131 MA's), (61, 18576), (72, 18681), (78,  
18762), (95, 18951),

Gene: Gelo\_24 Start: 18540, Stop: 19346, Start Num: 30  
Candidate Starts for Gelo\_24:  
(8, 18318), (14, 18399), (15, 18423), (Start: 23 @18534 has 3 MA's), (Start: 30 @18540 has 131 MA's),  
(61, 18855), (72, 18960), (78, 19041), (95, 19230), (96, 19239),

Gene: Gershwin\_24 Start: 18556, Stop: 19362, Start Num: 30  
Candidate Starts for Gershwin\_24:  
(Start: 30 @18556 has 131 MA's), (61, 18871), (72, 18976), (78, 19057), (95, 19246), (96, 19255),

Gene: Glamour\_22 Start: 18468, Stop: 19250, Start Num: 30  
Candidate Starts for Glamour\_22:  
(Start: 30 @18468 has 131 MA's), (50, 18702), (65, 18819), (77, 18945), (99, 19167), (102, 19200),

Gene: Gretchen\_21 Start: 18931, Stop: 19728, Start Num: 29  
Candidate Starts for Gretchen\_21:  
(5, 18691), (Start: 29 @18931 has 7 MA's), (36, 18979), (37, 19000), (43, 19042), (52, 19213), (57, 19249), (84, 19531), (87, 19543), (91, 19600),

Gene: Greys\_24 Start: 18256, Stop: 19062, Start Num: 30  
Candidate Starts for Greys\_24:  
(14, 18115), (15, 18139), (Start: 30 @18256 has 131 MA's), (61, 18571), (72, 18676), (78, 18757), (95, 18946),

Gene: Gshelby23\_32 Start: 40996, Stop: 41742, Start Num: 30  
Candidate Starts for Gshelby23\_32:  
(Start: 30 @40996 has 131 MA's), (Start: 33 @41023 has 1 MA's), (40, 41080), (51, 41221), (74, 41401), (76, 41434), (94, 41623), (104, 41695),

Gene: Gubbabump\_24 Start: 18545, Stop: 19351, Start Num: 30  
Candidate Starts for Gubbabump\_24:  
(Start: 30 @18545 has 131 MA's), (61, 18860), (72, 18965), (78, 19046), (95, 19235), (96, 19244),

Gene: Hamlet\_24 Start: 18648, Stop: 19388, Start Num: 27  
Candidate Starts for Hamlet\_24:  
(Start: 27 @18648 has 13 MA's), (Start: 33 @18681 has 1 MA's), (40, 18738), (52, 18888), (62, 18960), (71, 19035), (73, 19065), (96, 19281),

Gene: HanSolo\_24 Start: 18543, Stop: 19349, Start Num: 30  
Candidate Starts for HanSolo\_24:  
(Start: 30 @18543 has 131 MA's), (61, 18858), (72, 18963), (78, 19044), (95, 19233), (96, 19242),

Gene: HankSprout\_25 Start: 18423, Stop: 19229, Start Num: 30  
Candidate Starts for HankSprout\_25:  
(Start: 30 @18423 has 131 MA's), (61, 18738), (72, 18843), (78, 18924), (95, 19113), (96, 19122),

Gene: Hannabella\_34 Start: 41037, Stop: 41783, Start Num: 30  
Candidate Starts for Hannabella\_34:  
(Start: 30 @41037 has 131 MA's), (Start: 33 @41064 has 1 MA's), (40, 41121), (51, 41262), (74, 41442), (76, 41475), (94, 41664), (104, 41736),

Gene: Honk\_19 Start: 16206, Stop: 16907, Start Num: 38  
Candidate Starts for Honk\_19:  
(10, 15921), (13, 15963), (Start: 38 @16206 has 2 MA's), (40, 16233), (58, 16440), (63, 16488), (64, 16512), (91, 16785), (96, 16842), (98, 16857),

Gene: HungryHenry\_24 Start: 18553, Stop: 19359, Start Num: 30  
Candidate Starts for HungryHenry\_24:  
(Start: 30 @18553 has 131 MA's), (61, 18868), (72, 18973), (78, 19054), (95, 19243), (96, 19252),

Gene: Huwbert\_28 Start: 10411, Stop: 11349, Start Num: 30

Candidate Starts for Huwbert\_28:

(Start: 30 @10411 has 131 MA's), (31, 10420), (Start: 33 @10438 has 1 MA's), (42, 10501), (52, 10657), (92, 11086),

Gene: IAmGroot\_21 Start: 18815, Stop: 19699, Start Num: 29

Candidate Starts for IAmGroot\_21:

(Start: 29 @18815 has 7 MA's), (52, 19097), (72, 19280),

Gene: Ilzat\_24 Start: 18552, Stop: 19358, Start Num: 30

Candidate Starts for Ilzat\_24:

(Start: 30 @18552 has 131 MA's), (61, 18867), (72, 18972), (78, 19053), (95, 19242), (96, 19251),

Gene: Inventa\_24 Start: 18261, Stop: 19067, Start Num: 30

Candidate Starts for Inventa\_24:

(8, 18039), (14, 18120), (15, 18144), (Start: 30 @18261 has 131 MA's), (61, 18576), (72, 18681), (78, 18762), (95, 18951),

Gene: loannes\_24 Start: 18259, Stop: 19065, Start Num: 30

Candidate Starts for loannes\_24:

(14, 18118), (15, 18142), (Start: 30 @18259 has 131 MA's), (61, 18574), (72, 18679), (78, 18760), (95, 18949),

Gene: Janus167\_24 Start: 18543, Stop: 19349, Start Num: 30

Candidate Starts for Janus167\_24:

(Start: 30 @18543 has 131 MA's), (61, 18858), (72, 18963), (78, 19044), (95, 19233), (96, 19242),

Gene: JasonD\_28 Start: 18670, Stop: 19491, Start Num: 25

Candidate Starts for JasonD\_28:

(Start: 25 @18670 has 3 MA's), (Start: 33 @18703 has 1 MA's), (40, 18760), (52, 18922), (72, 19099), (78, 19180), (82, 19213), (94, 19369), (104, 19441),

Gene: JasperRussell\_24 Start: 18543, Stop: 19349, Start Num: 30

Candidate Starts for JasperRussell\_24:

(Start: 30 @18543 has 131 MA's), (61, 18858), (72, 18963), (78, 19044), (95, 19233), (96, 19242),

Gene: Jenos\_26 Start: 18997, Stop: 19818, Start Num: 25

Candidate Starts for Jenos\_26:

(16, 18886), (Start: 25 @18997 has 3 MA's), (Start: 33 @19030 has 1 MA's), (52, 19249), (72, 19426), (78, 19507), (82, 19540), (104, 19768),

Gene: Jerbirus\_25 Start: 18543, Stop: 19349, Start Num: 30

Candidate Starts for Jerbirus\_25:

(Start: 30 @18543 has 131 MA's), (61, 18858), (72, 18963), (78, 19044), (95, 19233), (96, 19242),

Gene: JeriBeth\_25 Start: 18399, Stop: 19205, Start Num: 30

Candidate Starts for JeriBeth\_25:

(Start: 30 @18399 has 131 MA's), (61, 18714), (72, 18819), (78, 18900), (95, 19089), (96, 19098),

Gene: JoyLin\_1 Start: 116, Stop: 946, Start Num: 30

Candidate Starts for JoyLin\_1:

(Start: 30 @116 has 131 MA's), (40, 200), (54, 380), (62, 434), (75, 590), (96, 839),



Gene: Juanyo\_23 Start: 18651, Stop: 19424, Start Num: 30

Candidate Starts for Juanyo\_23:

(14, 18513), (Start: 23 @18645 has 3 MA's), (Start: 30 @18651 has 131 MA's), (50, 18885), (61, 18966), (77, 19128), (100, 19344),

Gene: Kale\_24 Start: 18558, Stop: 19364, Start Num: 30

Candidate Starts for Kale\_24:

(Start: 30 @18558 has 131 MA's), (61, 18873), (72, 18978), (78, 19059), (95, 19248), (96, 19257),

Gene: KannH\_24 Start: 18543, Stop: 19349, Start Num: 30

Candidate Starts for KannH\_24:

(Start: 30 @18543 has 131 MA's), (61, 18858), (72, 18963), (78, 19044), (95, 19233), (96, 19242),

Gene: KingJulien\_24 Start: 18641, Stop: 19381, Start Num: 27

Candidate Starts for KingJulien\_24:

(14, 18500), (Start: 27 @18641 has 13 MA's), (Start: 33 @18674 has 1 MA's), (40, 18731), (52, 18881), (62, 18953), (71, 19028), (96, 19274),

Gene: Klimt\_24 Start: 18538, Stop: 19344, Start Num: 30

Candidate Starts for Klimt\_24:

(8, 18316), (14, 18397), (15, 18421), (Start: 23 @18532 has 3 MA's), (Start: 30 @18538 has 131 MA's), (61, 18853), (72, 18958), (78, 19039), (95, 19228), (96, 19237),

Gene: Knox\_24 Start: 18259, Stop: 19065, Start Num: 30

Candidate Starts for Knox\_24:

(14, 18118), (15, 18142), (Start: 30 @18259 has 131 MA's), (61, 18574), (72, 18679), (78, 18760), (95, 18949),

Gene: Kurt1\_24 Start: 18261, Stop: 19067, Start Num: 30

Candidate Starts for Kurt1\_24:

(8, 18039), (14, 18120), (15, 18144), (Start: 30 @18261 has 131 MA's), (61, 18576), (72, 18681), (78, 18762), (95, 18951),

Gene: Leafus\_24 Start: 18786, Stop: 19526, Start Num: 27

Candidate Starts for Leafus\_24:

(Start: 27 @18786 has 13 MA's), (Start: 33 @18819 has 1 MA's), (40, 18876), (52, 19026), (62, 19098), (96, 19419),

Gene: Lovelyunicorn\_24 Start: 18259, Stop: 19065, Start Num: 30

Candidate Starts for Lovelyunicorn\_24:

(14, 18118), (15, 18142), (Start: 30 @18259 has 131 MA's), (61, 18574), (72, 18679), (78, 18760), (95, 18949),

Gene: Ludgate\_24 Start: 18255, Stop: 19061, Start Num: 30

Candidate Starts for Ludgate\_24:

(8, 18033), (14, 18114), (15, 18138), (Start: 30 @18255 has 131 MA's), (61, 18570), (72, 18675), (78, 18756), (95, 18945),

Gene: MCubed\_23 Start: 18494, Stop: 19276, Start Num: 30

Candidate Starts for MCubed\_23:

(Start: 30 @18494 has 131 MA's), (50, 18728), (65, 18845), (77, 18971), (99, 19193), (102, 19226),

Gene: Mabodamaca\_21 Start: 18203, Stop: 18886, Start Num: 33  
Candidate Starts for Mabodamaca\_21:  
(Start: 30 @18176 has 131 MA's), (Start: 33 @18203 has 1 MA's), (46, 18347),

Gene: MaeLinda\_24 Start: 18261, Stop: 19067, Start Num: 30  
Candidate Starts for MaeLinda\_24:  
(8, 18039), (14, 18120), (15, 18144), (Start: 30 @18261 has 131 MA's), (61, 18576), (72, 18681), (78, 18762), (95, 18951),

Gene: ManRay\_24 Start: 18556, Stop: 19362, Start Num: 30  
Candidate Starts for ManRay\_24:  
(Start: 30 @18556 has 131 MA's), (61, 18871), (72, 18976), (78, 19057), (95, 19246), (96, 19255),

Gene: Mandalorian\_23 Start: 18676, Stop: 19539, Start Num: 30  
Candidate Starts for Mandalorian\_23:  
(9, 18457), (Start: 30 @18676 has 131 MA's), (50, 18910), (51, 18916), (65, 19027), (77, 19153), (101, 19402), (103, 19414), (105, 19417), (109, 19489),

Gene: Martin\_25 Start: 18261, Stop: 19067, Start Num: 30  
Candidate Starts for Martin\_25:  
(8, 18039), (14, 18120), (15, 18144), (Start: 30 @18261 has 131 MA's), (61, 18576), (72, 18681), (78, 18762), (95, 18951),

Gene: McGalleon\_25 Start: 19116, Stop: 19937, Start Num: 25  
Candidate Starts for McGalleon\_25:  
(4, 18864), (17, 19017), (Start: 25 @19116 has 3 MA's), (Start: 33 @19149 has 1 MA's), (52, 19368), (72, 19545), (78, 19626), (82, 19659), (104, 19887),

Gene: MillyPhilly\_24 Start: 18258, Stop: 19064, Start Num: 30  
Candidate Starts for MillyPhilly\_24:  
(14, 18117), (15, 18141), (Start: 30 @18258 has 131 MA's), (61, 18573), (72, 18678), (78, 18759), (95, 18948),

Gene: MonChoix\_23 Start: 18301, Stop: 19041, Start Num: 26  
Candidate Starts for MonChoix\_23:  
(Start: 26 @18301 has 2 MA's), (Start: 33 @18334 has 1 MA's), (40, 18391), (52, 18541), (62, 18613), (71, 18688), (96, 18934), (104, 18994),

Gene: MrWorldwide\_24 Start: 18262, Stop: 19068, Start Num: 30  
Candidate Starts for MrWorldwide\_24:  
(Start: 30 @18262 has 131 MA's), (61, 18577), (72, 18682), (78, 18763), (95, 18952),

Gene: Naby\_17 Start: 12821, Stop: 13573, Start Num: 24  
Candidate Starts for Naby\_17:  
(Start: 24 @12821 has 2 MA's), (32, 12830), (43, 12926), (47, 13028), (48, 13049), (52, 13076), (53, 13082), (54, 13094), (60, 13145), (69, 13208), (84, 13382), (91, 13451), (96, 13508), (98, 13523),

Gene: Nagem\_24 Start: 18255, Stop: 19061, Start Num: 30  
Candidate Starts for Nagem\_24:  
(8, 18033), (14, 18114), (15, 18138), (Start: 30 @18255 has 131 MA's), (61, 18570), (72, 18675), (78, 18756), (95, 18945),

Gene: Nattles\_24 Start: 18536, Stop: 19348, Start Num: 23

Candidate Starts for Nattles\_24:

(8, 18320), (14, 18401), (15, 18425), (Start: 23 @18536 has 3 MA's), (Start: 30 @18542 has 131 MA's), (61, 18857), (72, 18962), (78, 19043), (95, 19232), (96, 19241),

Gene: Nebulous\_23 Start: 18708, Stop: 19520, Start Num: 30

Candidate Starts for Nebulous\_23:

(Start: 30 @18708 has 131 MA's), (Start: 33 @18735 has 1 MA's), (43, 18801), (49, 18930), (59, 19002), (72, 19131), (78, 19212), (80, 19245), (95, 19404),

Gene: Neferthema\_23 Start: 18721, Stop: 19533, Start Num: 30

Candidate Starts for Neferthema\_23:

(Start: 30 @18721 has 131 MA's), (Start: 33 @18748 has 1 MA's), (39, 18787), (51, 18961), (56, 18997), (62, 19039), (72, 19144), (78, 19225), (95, 19417), (96, 19426),

Gene: NickSell\_24 Start: 18261, Stop: 19067, Start Num: 30

Candidate Starts for NickSell\_24:

(8, 18039), (14, 18120), (15, 18144), (Start: 30 @18261 has 131 MA's), (61, 18576), (72, 18681), (78, 18762), (95, 18951),

Gene: Nucci\_23 Start: 18665, Stop: 19528, Start Num: 30

Candidate Starts for Nucci\_23:

(9, 18446), (Start: 30 @18665 has 131 MA's), (50, 18899), (51, 18905), (65, 19016), (77, 19142), (101, 19391), (103, 19403), (105, 19406), (109, 19478),

Gene: Oats\_24 Start: 18556, Stop: 19362, Start Num: 30

Candidate Starts for Oats\_24:

(Start: 30 @18556 has 131 MA's), (61, 18871), (72, 18976), (78, 19057), (95, 19246), (96, 19255),

Gene: OldNelly\_24 Start: 18261, Stop: 19067, Start Num: 30

Candidate Starts for OldNelly\_24:

(14, 18120), (15, 18144), (Start: 30 @18261 has 131 MA's), (61, 18576), (72, 18681), (78, 18762), (95, 18951),

Gene: Oxtober96\_24 Start: 18259, Stop: 19065, Start Num: 30

Candidate Starts for Oxtober96\_24:

(14, 18118), (15, 18142), (Start: 30 @18259 has 131 MA's), (61, 18574), (72, 18679), (78, 18760), (95, 18949),

Gene: Papafritta\_24 Start: 18552, Stop: 19358, Start Num: 30

Candidate Starts for Papafritta\_24:

(Start: 30 @18552 has 131 MA's), (61, 18867), (72, 18972), (78, 19053), (95, 19242), (96, 19251),

Gene: ParleG\_24 Start: 18262, Stop: 19068, Start Num: 30

Candidate Starts for ParleG\_24:

(Start: 30 @18262 has 131 MA's), (61, 18577), (72, 18682), (78, 18763), (95, 18952),

Gene: Peep\_24 Start: 18247, Stop: 19053, Start Num: 30

Candidate Starts for Peep\_24:

(8, 18025), (14, 18106), (15, 18130), (Start: 30 @18247 has 131 MA's), (61, 18562), (72, 18667), (78, 18748), (95, 18937),

Gene: Peppino\_24 Start: 18639, Stop: 19379, Start Num: 27

Candidate Starts for Peppino\_24:

(Start: 27 @18639 has 13 MA's), (Start: 33 @18672 has 1 MA's), (40, 18729), (52, 18879), (62, 18951), (71, 19026), (73, 19056), (96, 19272),

Gene: Percival\_21 Start: 18765, Stop: 19562, Start Num: 29

Candidate Starts for Percival\_21:

(5, 18525), (Start: 29 @18765 has 7 MA's), (36, 18813), (37, 18834), (43, 18876), (52, 19047), (57, 19083), (84, 19365), (87, 19377), (91, 19434),

Gene: Phanita\_22 Start: 18465, Stop: 19247, Start Num: 30

Candidate Starts for Phanita\_22:

(Start: 30 @18465 has 131 MA's), (50, 18699), (65, 18816), (77, 18942), (99, 19164), (102, 19197),

Gene: Pherferi\_24 Start: 18261, Stop: 19067, Start Num: 30

Candidate Starts for Pherferi\_24:

(8, 18039), (14, 18120), (15, 18144), (Start: 30 @18261 has 131 MA's), (61, 18576), (72, 18681), (78, 18762), (95, 18951),

Gene: Phiderman\_24 Start: 18258, Stop: 19064, Start Num: 30

Candidate Starts for Phiderman\_24:

(8, 18036), (14, 18117), (15, 18141), (Start: 30 @18258 has 131 MA's), (61, 18573), (72, 18678), (78, 18759), (95, 18948),

Gene: Phireproof\_24 Start: 18261, Stop: 19067, Start Num: 30

Candidate Starts for Phireproof\_24:

(8, 18039), (14, 18120), (15, 18144), (Start: 30 @18261 has 131 MA's), (61, 18576), (72, 18681), (78, 18762), (95, 18951),

Gene: PhredFlintston\_24 Start: 18261, Stop: 19067, Start Num: 30

Candidate Starts for PhredFlintston\_24:

(8, 18039), (14, 18120), (15, 18144), (Start: 30 @18261 has 131 MA's), (61, 18576), (72, 18681), (78, 18762), (95, 18951),

Gene: Phriends\_24 Start: 18261, Stop: 19067, Start Num: 30

Candidate Starts for Phriends\_24:

(14, 18120), (15, 18144), (Start: 30 @18261 has 131 MA's), (61, 18576), (72, 18681), (78, 18762), (95, 18951),

Gene: Pippin15\_1 Start: 127, Stop: 969, Start Num: 30

Candidate Starts for Pippin15\_1:

(22, 73), (Start: 30 @127 has 131 MA's), (40, 211), (54, 391), (75, 601), (90, 760),

Gene: Pocket\_24 Start: 18541, Stop: 19347, Start Num: 30

Candidate Starts for Pocket\_24:

(Start: 30 @18541 has 131 MA's), (61, 18856), (72, 18961), (78, 19042), (95, 19231), (96, 19240),

Gene: PuppyEggo\_24 Start: 18256, Stop: 19062, Start Num: 30

Candidate Starts for PuppyEggo\_24:

(8, 18034), (14, 18115), (15, 18139), (Start: 30 @18256 has 131 MA's), (61, 18571), (72, 18676), (78, 18757), (95, 18946), (96, 18955),

Gene: Quartz\_23 Start: 18677, Stop: 19540, Start Num: 30

Candidate Starts for Quartz\_23:

(9, 18458), (Start: 30 @18677 has 131 MA's), (50, 18911), (51, 18917), (65, 19028), (77, 19154), (101, 19403), (103, 19415), (105, 19418), (109, 19490),

Gene: Raccoon\_24 Start: 18647, Stop: 19387, Start Num: 27

Candidate Starts for Raccoon\_24:

(14, 18506), (Start: 27 @18647 has 13 MA's), (Start: 33 @18680 has 1 MA's), (40, 18737), (52, 18887), (62, 18959), (71, 19034), (96, 19280),

Gene: Rapheph\_24 Start: 18261, Stop: 19067, Start Num: 30

Candidate Starts for Rapheph\_24:

(8, 18039), (14, 18120), (15, 18144), (Start: 30 @18261 has 131 MA's), (61, 18576), (72, 18681), (78, 18762), (95, 18951),

Gene: Raptor\_24 Start: 18259, Stop: 19065, Start Num: 30

Candidate Starts for Raptor\_24:

(14, 18118), (15, 18142), (Start: 30 @18259 has 131 MA's), (61, 18574), (72, 18679), (78, 18760), (95, 18949),

Gene: Redfield\_24 Start: 18647, Stop: 19387, Start Num: 27

Candidate Starts for Redfield\_24:

(Start: 27 @18647 has 13 MA's), (Start: 33 @18680 has 1 MA's), (40, 18737), (52, 18887), (62, 18959), (71, 19034), (73, 19064), (96, 19280),

Gene: Renzie\_24 Start: 18247, Stop: 19053, Start Num: 30

Candidate Starts for Renzie\_24:

(8, 18025), (14, 18106), (15, 18130), (Start: 30 @18247 has 131 MA's), (61, 18562), (72, 18667), (78, 18748), (95, 18937),

Gene: Riyhil\_24 Start: 18261, Stop: 19067, Start Num: 30

Candidate Starts for Riyhil\_24:

(8, 18039), (14, 18120), (15, 18144), (Start: 30 @18261 has 131 MA's), (61, 18576), (72, 18681), (78, 18762), (95, 18951),

Gene: Robinson\_24 Start: 18250, Stop: 19056, Start Num: 30

Candidate Starts for Robinson\_24:

(8, 18028), (14, 18109), (15, 18133), (Start: 23 @18244 has 3 MA's), (Start: 30 @18250 has 131 MA's), (61, 18565), (72, 18670), (78, 18751), (95, 18940),

Gene: Rog141\_24 Start: 18543, Stop: 19349, Start Num: 30

Candidate Starts for Rog141\_24:

(Start: 30 @18543 has 131 MA's), (61, 18858), (72, 18963), (78, 19044), (95, 19233), (96, 19242),

Gene: Rollins\_20 Start: 15893, Stop: 16774, Start Num: 28

Candidate Starts for Rollins\_20:

(12, 15716), (Start: 28 @15893 has 11 MA's), (34, 15929), (52, 16175), (72, 16388), (78, 16469), (104, 16727),

Gene: SJay\_24 Start: 18256, Stop: 19062, Start Num: 30

Candidate Starts for SJay\_24:

(8, 18034), (14, 18115), (15, 18139), (Start: 30 @18256 has 131 MA's), (61, 18571), (72, 18676), (78, 18757), (95, 18946),

Gene: Sansa\_22 Start: 18490, Stop: 19272, Start Num: 30

Candidate Starts for Sansa\_22:

(Start: 30 @18490 has 131 MA's), (50, 18724), (65, 18841), (77, 18967), (99, 19189), (102, 19222),

Gene: Saratos\_23 Start: 18468, Stop: 19250, Start Num: 30

Candidate Starts for Saratos\_23:

(Start: 30 @18468 has 131 MA's), (50, 18702), (65, 18819), (77, 18945), (99, 19167), (102, 19200),

Gene: Schnapsidee\_24 Start: 18640, Stop: 19380, Start Num: 27

Candidate Starts for Schnapsidee\_24:

(14, 18499), (Start: 27 @18640 has 13 MA's), (Start: 33 @18673 has 1 MA's), (40, 18730), (52, 18880), (62, 18952), (71, 19027), (73, 19057), (96, 19273),

Gene: Scruffy\_34 Start: 41322, Stop: 42068, Start Num: 30

Candidate Starts for Scruffy\_34:

(Start: 30 @41322 has 131 MA's), (Start: 33 @41349 has 1 MA's), (40, 41406), (51, 41547), (76, 41760), (94, 41949), (104, 42021),

Gene: Sedgewig\_24 Start: 18543, Stop: 19349, Start Num: 30

Candidate Starts for Sedgewig\_24:

(Start: 30 @18543 has 131 MA's), (61, 18858), (72, 18963), (78, 19044), (95, 19233), (96, 19242),

Gene: ShaiHulud\_24 Start: 18256, Stop: 19062, Start Num: 30

Candidate Starts for ShaiHulud\_24:

(8, 18034), (14, 18115), (15, 18139), (Start: 30 @18256 has 131 MA's), (61, 18571), (72, 18676), (78, 18757), (95, 18946), (96, 18955),

Gene: Shamu\_23 Start: 18480, Stop: 19262, Start Num: 30

Candidate Starts for Shamu\_23:

(Start: 30 @18480 has 131 MA's), (50, 18714), (65, 18831), (77, 18957), (99, 19179), (102, 19212),

Gene: Shee\_24 Start: 18258, Stop: 19064, Start Num: 30

Candidate Starts for Shee\_24:

(8, 18036), (14, 18117), (15, 18141), (Start: 30 @18258 has 131 MA's), (61, 18573), (72, 18678), (78, 18759), (95, 18948),

Gene: Skylord\_20 Start: 15838, Stop: 16722, Start Num: 28

Candidate Starts for Skylord\_20:

(12, 15661), (Start: 28 @15838 has 11 MA's), (34, 15874), (52, 16120), (72, 16336), (78, 16417), (81, 16453), (94, 16603), (104, 16675),

Gene: SoilGremlin\_24 Start: 18258, Stop: 19064, Start Num: 30

Candidate Starts for SoilGremlin\_24:

(14, 18117), (15, 18141), (Start: 30 @18258 has 131 MA's), (61, 18573), (72, 18678), (78, 18759), (95, 18948),

Gene: SonOfLevi\_24 Start: 18532, Stop: 19344, Start Num: 23

Candidate Starts for SonOfLevi\_24:

(8, 18316), (14, 18397), (15, 18421), (Start: 23 @18532 has 3 MA's), (Start: 30 @18538 has 131 MA's), (61, 18853), (72, 18958), (78, 19039), (95, 19228), (96, 19237),

Gene: Stanktossa\_24 Start: 18261, Stop: 19067, Start Num: 30

Candidate Starts for Stanktossa\_24:

(8, 18039), (14, 18120), (15, 18144), (Start: 30 @18261 has 131 MA's), (61, 18576), (72, 18681), (78, 18762), (95, 18951),

Gene: StingRay\_24 Start: 18552, Stop: 19358, Start Num: 30

Candidate Starts for StingRay\_24:

(Start: 30 @18552 has 131 MA's), (61, 18867), (72, 18972), (78, 19053), (95, 19242), (96, 19251),

Gene: StirfryIV\_24 Start: 18543, Stop: 19349, Start Num: 30

Candidate Starts for StirfryIV\_24:

(Start: 30 @18543 has 131 MA's), (61, 18858), (72, 18963), (78, 19044), (95, 19233), (96, 19242),

Gene: Stormbreaker8\_24 Start: 18641, Stop: 19381, Start Num: 27

Candidate Starts for Stormbreaker8\_24:

(14, 18500), (Start: 27 @18641 has 13 MA's), (Start: 33 @18674 has 1 MA's), (40, 18731), (52, 18881), (62, 18953), (71, 19028), (96, 19274),

Gene: Strathdee\_24 Start: 18260, Stop: 19066, Start Num: 30

Candidate Starts for Strathdee\_24:

(14, 18119), (15, 18143), (Start: 30 @18260 has 131 MA's), (61, 18575), (72, 18680), (78, 18761), (95, 18950),

Gene: SuMoo\_20 Start: 17131, Stop: 17841, Start Num: 30

Candidate Starts for SuMoo\_20:

(Start: 30 @17131 has 131 MA's), (Start: 33 @17158 has 1 MA's), (70, 17479), (102, 17791),

Gene: Superfresh\_24 Start: 18247, Stop: 19053, Start Num: 30

Candidate Starts for Superfresh\_24:

(8, 18025), (14, 18106), (15, 18130), (Start: 30 @18247 has 131 MA's), (61, 18562), (72, 18667), (78, 18748), (95, 18937),

Gene: Symere\_25 Start: 18540, Stop: 19346, Start Num: 30

Candidate Starts for Symere\_25:

(Start: 30 @18540 has 131 MA's), (61, 18855), (72, 18960), (78, 19041), (95, 19230), (96, 19239),

Gene: TatarkaPM\_24 Start: 18261, Stop: 19067, Start Num: 30

Candidate Starts for TatarkaPM\_24:

(8, 18039), (14, 18120), (15, 18144), (Start: 30 @18261 has 131 MA's), (61, 18576), (72, 18681), (78, 18762), (95, 18951),

Gene: Teagan\_24 Start: 18255, Stop: 19061, Start Num: 30

Candidate Starts for Teagan\_24:

(8, 18033), (14, 18114), (15, 18138), (Start: 30 @18255 has 131 MA's), (61, 18570), (72, 18675), (78, 18756), (95, 18945),

Gene: TeddyBear\_24 Start: 18556, Stop: 19362, Start Num: 30

Candidate Starts for TeddyBear\_24:

(Start: 30 @18556 has 131 MA's), (61, 18871), (72, 18976), (78, 19057), (95, 19246), (96, 19255),

Gene: Tenda\_24 Start: 18554, Stop: 19360, Start Num: 30

Candidate Starts for Tenda\_24:

(Start: 30 @18554 has 131 MA's), (61, 18869), (72, 18974), (78, 19055), (95, 19244), (96, 19253),

Gene: Thompsone\_24 Start: 18259, Stop: 19065, Start Num: 30

Candidate Starts for Thompsone\_24:

(14, 18118), (15, 18142), (Start: 30 @18259 has 131 MA's), (61, 18574), (72, 18679), (78, 18760), (95, 18949),

Gene: Thorongil\_24 Start: 18256, Stop: 19062, Start Num: 30

Candidate Starts for Thorongil\_24:

(8, 18034), (14, 18115), (15, 18139), (Start: 30 @18256 has 131 MA's), (61, 18571), (72, 18676), (78, 18757), (95, 18946), (96, 18955),

Gene: TinSulphur\_24 Start: 18261, Stop: 19067, Start Num: 30

Candidate Starts for TinSulphur\_24:

(8, 18039), (14, 18120), (15, 18144), (Start: 30 @18261 has 131 MA's), (61, 18576), (72, 18681), (78, 18762), (95, 18951),

Gene: Triscuit\_27 Start: 10327, Stop: 11265, Start Num: 30

Candidate Starts for Triscuit\_27:

(Start: 30 @10327 has 131 MA's), (31, 10336), (Start: 33 @10354 has 1 MA's), (42, 10417), (52, 10573), (92, 11002), (107, 11143),

Gene: UtzChips\_20 Start: 17730, Stop: 18590, Start Num: 29

Candidate Starts for UtzChips\_20:

(Start: 29 @17730 has 7 MA's), (68, 18150), (86, 18348),

Gene: Velene\_24 Start: 18259, Stop: 19065, Start Num: 30

Candidate Starts for Velene\_24:

(14, 18118), (15, 18142), (Start: 30 @18259 has 131 MA's), (61, 18574), (72, 18679), (78, 18760), (95, 18949),

Gene: Vispistious\_24 Start: 18256, Stop: 19062, Start Num: 30

Candidate Starts for Vispistious\_24:

(8, 18034), (14, 18115), (15, 18139), (Start: 30 @18256 has 131 MA's), (61, 18571), (72, 18676), (78, 18757), (95, 18946), (96, 18955),

Gene: Vitas\_20 Start: 15833, Stop: 16714, Start Num: 28

Candidate Starts for Vitas\_20:

(12, 15656), (Start: 28 @15833 has 11 MA's), (34, 15869), (52, 16115), (72, 16328), (78, 16409), (104, 16667),

Gene: WildNOut\_24 Start: 18259, Stop: 19065, Start Num: 30

Candidate Starts for WildNOut\_24:

(14, 18118), (15, 18142), (Start: 30 @18259 has 131 MA's), (61, 18574), (72, 18679), (78, 18760), (95, 18949),

Gene: Winzigespinne\_24 Start: 18542, Stop: 19348, Start Num: 30

Candidate Starts for Winzigespinne\_24:

(Start: 30 @18542 has 131 MA's), (61, 18857), (72, 18962), (78, 19043), (95, 19232), (96, 19241),

Gene: Yotsuba\_1 Start: 116, Stop: 946, Start Num: 30

Candidate Starts for Yotsuba\_1:

(Start: 30 @116 has 131 MA's), (40, 200), (54, 380), (62, 434), (75, 590), (96, 839),

Gene: YuuY\_23 Start: 18668, Stop: 19531, Start Num: 30

Candidate Starts for YuuY\_23:



(14, 18527), (Start: 30 @18668 has 131 MA's), (43, 18761), (50, 18902), (51, 18908), (77, 19145), (83, 19208), (103, 19406), (105, 19409), (108, 19478), (109, 19481),

Gene: Zada\_24 Start: 18241, Stop: 19047, Start Num: 30

Candidate Starts for Zada\_24:

(8, 18019), (14, 18100), (15, 18124), (Start: 30 @18241 has 131 MA's), (61, 18556), (72, 18661), (78, 18742), (95, 18931),

Gene: Zenitsu\_23 Start: 18495, Stop: 19277, Start Num: 30

Candidate Starts for Zenitsu\_23:

(Start: 30 @18495 has 131 MA's), (50, 18729), (65, 18846), (77, 18972), (99, 19194), (102, 19227),