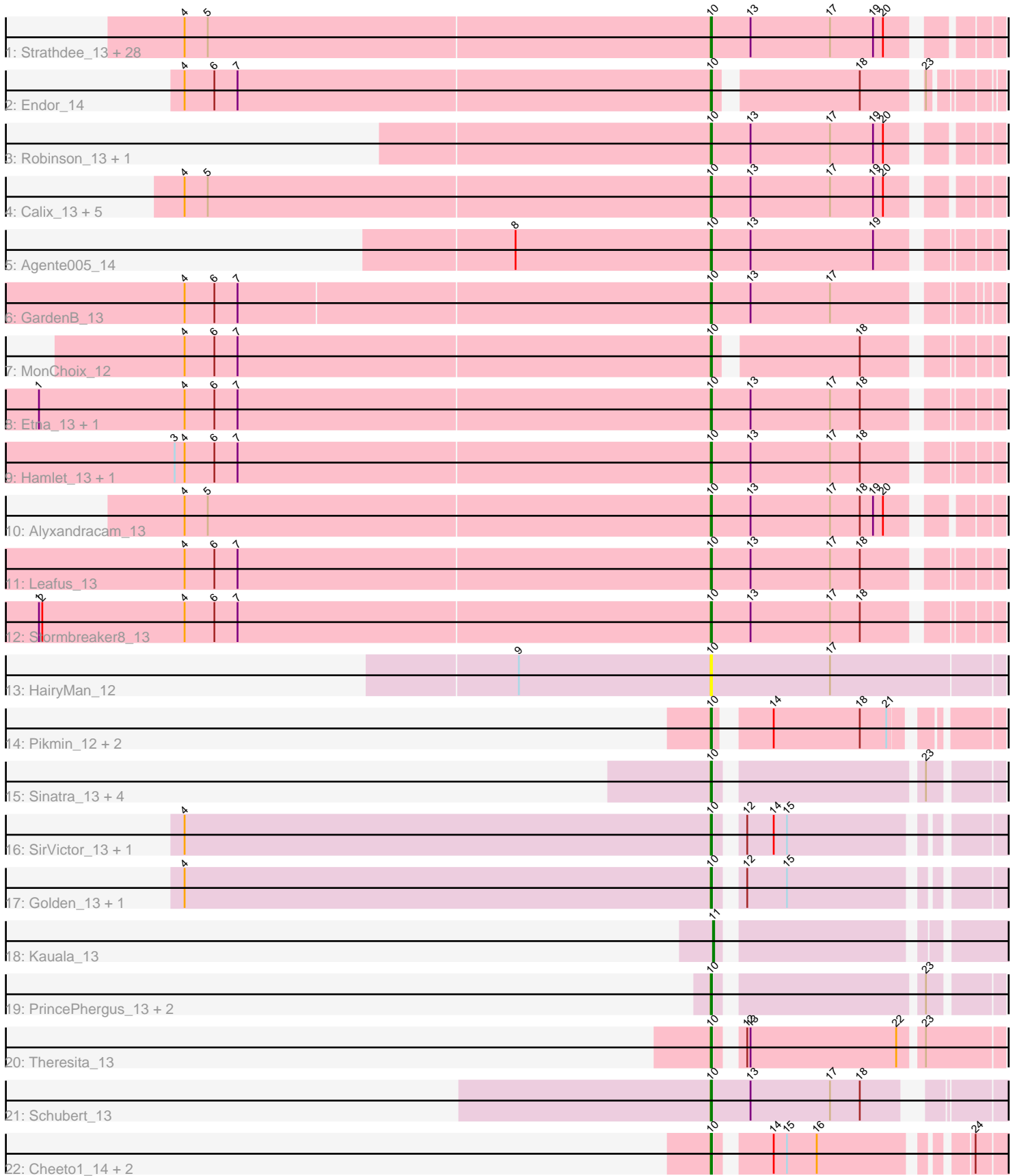


Pham 224556



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 224556 Report

This analysis was run 03/28/25 on database version 593.

Pham number 224556 has 70 members, 5 are drafts.

Phages represented in each track:

- Track 1 : Strathdee\_13, Blage\_13, Antoinette\_13, Renzie\_13, ShaiHulud\_13, Nattles\_13, Den3\_13, AlexAdler\_13, Etta\_13, Lovelyunicorn\_13, Ioannes\_13, Knox\_13, Velene\_13, Peep\_13, Vispistious\_13, Raptor\_13, Baines\_13, AxiPup\_13, WildNOut\_13, Convict\_13, PuppyEggo\_13, Superfresh\_13, BigRedClifford\_13, Thompsone\_13, Thorongil\_13, BonesMcCoy\_13, Greys\_13, Dave\_13, Oxtober96\_13
- Track 2 : Endor\_14
- Track 3 : Robinson\_13, Figueroism\_13
- Track 4 : Calix\_13, Chamuel\_13, Gelo\_13, Klimt\_13, SonOfLevi\_13, Erla\_13
- Track 5 : Agente005\_14
- Track 6 : GardenB\_13
- Track 7 : MonChoix\_12
- Track 8 : Etna\_13, KingJulien\_13
- Track 9 : Hamlet\_13, Balsa\_13
- Track 10 : Alyxandracam\_13
- Track 11 : Leafus\_13
- Track 12 : Stormbreaker8\_13
- Track 13 : HairyMan\_12
- Track 14 : Pikmin\_12, Casey\_12, Pajaza\_12
- Track 15 : Sinatra\_13, Bustleton\_13, Jingles\_13, BouleyBill\_13, Pherbot\_13
- Track 16 : SirVictor\_13, Guetzie\_13
- Track 17 : Golden\_13, Lucky3\_13
- Track 18 : Kauala\_13
- Track 19 : PrincePhergus\_13, RenegadeRaider\_13, Koji\_13
- Track 20 : Theresita\_13
- Track 21 : Schubert\_13
- Track 22 : Cheeto1\_14, GaeCeo\_14, ChickenKing\_13

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

The start number called the most often in the published annotations is 10, it was called in 64 of the 65 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agente005\_14, AlexAdler\_13, Alyxandracam\_13, Antoinette\_13, AxiPup\_13, Baines\_13, Balsa\_13, BigRedClifford\_13, Blage\_13, BonesMcCoy\_13, BouleyBill\_13, Bustleton\_13, Calix\_13, Casey\_12, Chamuel\_13, Cheeto1\_14, ChickenKing\_13, Convict\_13, Dave\_13, Den3\_13, Endor\_14, Erla\_13, Etna\_13, Etta\_13, Figueroism\_13, GaeCeo\_14, GardenB\_13, Gelo\_13, Golden\_13, Greys\_13, Guetzie\_13, HairyMan\_12, Hamlet\_13, Ioannes\_13, Jingles\_13, KingJulien\_13, Klimt\_13, Knox\_13, Koji\_13, Leafus\_13, Lovelyunicorn\_13, Lucky3\_13, MonChoix\_12, Nattles\_13, Oxtober96\_13, Pajaza\_12, Peep\_13, Pherbot\_13, Pikmin\_12, PrincePhergus\_13, PuppyEggo\_13, Raptor\_13, RenegadeRaider\_13, Renzie\_13, Robinson\_13, Schubert\_13, ShaiHulud\_13, Sinatra\_13, SirVictor\_13, SonOfLevi\_13, Stormbreaker8\_13, Strathdee\_13, Superfresh\_13, Theresita\_13, Thompsone\_13, Thorongil\_13, Velene\_13, Vispistious\_13, WildNOOut\_13,

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

- 

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

- Kauala\_13,

### Summary by start number:

Start 10:

- Found in 69 of 70 ( 98.6% ) of genes in pham
- Manual Annotations of this start: 64 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Agente005\_14 (EA1), AlexAdler\_13 (EA1), Alyxandracam\_13 (EA1), Antoinette\_13 (EA1), AxiPup\_13 (EA1), Baines\_13 (EA1), Balsa\_13 (EA1), BigRedClifford\_13 (EA1), Blage\_13 (EA1), BonesMcCoy\_13 (EA1), BouleyBill\_13 (EA4), Bustleton\_13 (EA4), Calix\_13 (EA1), Casey\_12 (EA3), Chamuel\_13 (EA1), Cheeto1\_14 (EA9), ChickenKing\_13 (EA9), Convict\_13 (EA1), Dave\_13 (EA1), Den3\_13 (EA1), Endor\_14 (EA1), Erla\_13 (EA1), Etna\_13 (EA1), Etta\_13 (EA1), Figueroism\_13 (EA1), GaeCeo\_14 (EA9), GardenB\_13 (EA1), Gelo\_13 (EA1), Golden\_13 (EA4), Greys\_13 (EA1), Guetzie\_13 (EA4), HairyMan\_12 (EA10), Hamlet\_13 (EA1), Ioannes\_13 (EA1), Jingles\_13 (EA4), KingJulien\_13 (EA1), Klimt\_13 (EA1), Knox\_13 (EA1), Koji\_13 (EA4), Leafus\_13 (EA1), Lovelyunicorn\_13 (EA1), Lucky3\_13 (EA4), MonChoix\_12 (EA1), Nattles\_13 (EA1), Oxtober96\_13 (EA1), Pajaza\_12 (EA3), Peep\_13 (EA1), Pherbot\_13 (EA4), Pikmin\_12 (EA3), PrincePhergus\_13 (EA4), PuppyEggo\_13 (EA1), Raptor\_13 (EA1), RenegadeRaider\_13 (EA4), Renzie\_13 (EA1), Robinson\_13 (EA1), Schubert\_13 (EA8), ShaiHulud\_13 (EA1), Sinatra\_13 (EA4), SirVictor\_13 (EA4), SonOfLevi\_13 (EA1), Stormbreaker8\_13 (EA1), Strathdee\_13 (EA1), Superfresh\_13 (EA1), Theresita\_13 (EA7), Thompsone\_13 (EA1), Thorongil\_13 (EA1), Velene\_13 (EA1), Vispistious\_13 (EA1), WildNOOut\_13 (EA1),

Start 11:

- Found in 1 of 70 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kauala\_13 (EA4),

### Summary by clusters:

There are 7 clusters represented in this pham: EA10, EA9, EA8, EA1, EA3, EA4, EA7,

Info for manual annotations of cluster EA1:

- Start number 10 was manually annotated 46 times for cluster EA1.

Info for manual annotations of cluster EA3:

- Start number 10 was manually annotated 3 times for cluster EA3.

Info for manual annotations of cluster EA4:

- Start number 10 was manually annotated 10 times for cluster EA4.
- Start number 11 was manually annotated 1 time for cluster EA4.

Info for manual annotations of cluster EA7:

- Start number 10 was manually annotated 1 time for cluster EA7.

Info for manual annotations of cluster EA8:

- Start number 10 was manually annotated 1 time for cluster EA8.

Info for manual annotations of cluster EA9:

- Start number 10 was manually annotated 3 times for cluster EA9.

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

Gene: Agente005\_14 Start: 8160, Stop: 8399, Start Num: 10

Candidate Starts for Agente005\_14:

(8, 7983), (Start: 10 @8160 has 64 MA's), (13, 8196), (19, 8307),

Gene: AlexAdler\_13 Start: 7594, Stop: 7830, Start Num: 10

Candidate Starts for AlexAdler\_13:

(4, 7120), (5, 7141), (Start: 10 @7594 has 64 MA's), (13, 7630), (17, 7702), (19, 7741), (20, 7750),

Gene: Alyxandracam\_13 Start: 7603, Stop: 7839, Start Num: 10

Candidate Starts for Alyxandracam\_13:

(4, 7129), (5, 7150), (Start: 10 @7603 has 64 MA's), (13, 7639), (17, 7711), (18, 7738), (19, 7750), (20, 7759),

Gene: Antoinette\_13 Start: 7594, Stop: 7830, Start Num: 10

Candidate Starts for Antoinette\_13:

(4, 7120), (5, 7141), (Start: 10 @7594 has 64 MA's), (13, 7630), (17, 7702), (19, 7741), (20, 7750),

Gene: AxiPup\_13 Start: 7603, Stop: 7839, Start Num: 10

Candidate Starts for AxiPup\_13:

(4, 7129), (5, 7150), (Start: 10 @7603 has 64 MA's), (13, 7639), (17, 7711), (19, 7750), (20, 7759),

Gene: Baines\_13 Start: 7893, Stop: 8129, Start Num: 10

Candidate Starts for Baines\_13:

(4, 7419), (5, 7440), (Start: 10 @7893 has 64 MA's), (13, 7929), (17, 8001), (19, 8040), (20, 8049),

Gene: Balsa\_13 Start: 8011, Stop: 8250, Start Num: 10

Candidate Starts for Balsa\_13:

(3, 7528), (4, 7537), (6, 7564), (7, 7585), (Start: 10 @8011 has 64 MA's), (13, 8047), (17, 8119), (18, 8146),

Gene: BigRedClifford\_13 Start: 7603, Stop: 7839, Start Num: 10

Candidate Starts for BigRedClifford\_13:

(4, 7129), (5, 7150), (Start: 10 @7603 has 64 MA's), (13, 7639), (17, 7711), (19, 7750), (20, 7759),

Gene: Blage\_13 Start: 7603, Stop: 7839, Start Num: 10

Candidate Starts for Blage\_13:

(4, 7129), (5, 7150), (Start: 10 @7603 has 64 MA's), (13, 7639), (17, 7711), (19, 7750), (20, 7759),

Gene: BonesMcCoy\_13 Start: 7603, Stop: 7839, Start Num: 10

Candidate Starts for BonesMcCoy\_13:

(4, 7129), (5, 7150), (Start: 10 @7603 has 64 MA's), (13, 7639), (17, 7711), (19, 7750), (20, 7759),

Gene: BouleyBill\_13 Start: 7871, Stop: 8098, Start Num: 10

Candidate Starts for BouleyBill\_13:

(Start: 10 @7871 has 64 MA's), (23, 8039),

Gene: Bustleton\_13 Start: 7859, Stop: 8086, Start Num: 10

Candidate Starts for Bustleton\_13:

(Start: 10 @7859 has 64 MA's), (23, 8027),

Gene: Calix\_13 Start: 7886, Stop: 8122, Start Num: 10

Candidate Starts for Calix\_13:

(4, 7412), (5, 7433), (Start: 10 @7886 has 64 MA's), (13, 7922), (17, 7994), (19, 8033), (20, 8042),

Gene: Casey\_12 Start: 7906, Stop: 8121, Start Num: 10

Candidate Starts for Casey\_12:

(Start: 10 @7906 has 64 MA's), (14, 7942), (18, 8020), (21, 8044),

Gene: Chamuel\_13 Start: 7888, Stop: 8124, Start Num: 10

Candidate Starts for Chamuel\_13:

(4, 7414), (5, 7435), (Start: 10 @7888 has 64 MA's), (13, 7924), (17, 7996), (19, 8035), (20, 8044),

Gene: Cheeto1\_14 Start: 7774, Stop: 8001, Start Num: 10

Candidate Starts for Cheeto1\_14:

(Start: 10 @7774 has 64 MA's), (14, 7813), (15, 7825), (16, 7852), (24, 7966),

Gene: ChickenKing\_13 Start: 7594, Stop: 7821, Start Num: 10

Candidate Starts for ChickenKing\_13:

(Start: 10 @7594 has 64 MA's), (14, 7633), (15, 7645), (16, 7672), (24, 7786),

Gene: Convict\_13 Start: 7603, Stop: 7839, Start Num: 10

Candidate Starts for Convict\_13:

(4, 7129), (5, 7150), (Start: 10 @7603 has 64 MA's), (13, 7639), (17, 7711), (19, 7750), (20, 7759),

Gene: Dave\_13 Start: 7594, Stop: 7830, Start Num: 10

Candidate Starts for Dave\_13:

(4, 7120), (5, 7141), (Start: 10 @7594 has 64 MA's), (13, 7630), (17, 7702), (19, 7741), (20, 7750),

Gene: Den3\_13 Start: 7607, Stop: 7843, Start Num: 10

Candidate Starts for Den3\_13:

(4, 7133), (5, 7154), (Start: 10 @7607 has 64 MA's), (13, 7643), (17, 7715), (19, 7754), (20, 7763),

Gene: Endor\_14 Start: 8172, Stop: 8384, Start Num: 10

Candidate Starts for Endor\_14:

(4, 7698), (6, 7725), (7, 7746), (Start: 10 @8172 has 64 MA's), (18, 8289), (23, 8334),

Gene: Erla\_13 Start: 7886, Stop: 8122, Start Num: 10

Candidate Starts for Erla\_13:

(4, 7412), (5, 7433), (Start: 10 @7886 has 64 MA's), (13, 7922), (17, 7994), (19, 8033), (20, 8042),

Gene: Etna\_13 Start: 8002, Stop: 8241, Start Num: 10

Candidate Starts for Etna\_13:

(1, 7396), (4, 7528), (6, 7555), (7, 7576), (Start: 10 @8002 has 64 MA's), (13, 8038), (17, 8110), (18, 8137),

Gene: Etta\_13 Start: 7890, Stop: 8126, Start Num: 10

Candidate Starts for Etta\_13:

(4, 7416), (5, 7437), (Start: 10 @7890 has 64 MA's), (13, 7926), (17, 7998), (19, 8037), (20, 8046),

Gene: Figueroism\_13 Start: 7594, Stop: 7830, Start Num: 10

Candidate Starts for Figueroism\_13:

(Start: 10 @7594 has 64 MA's), (13, 7630), (17, 7702), (19, 7741), (20, 7750),

Gene: GaeCeo\_14 Start: 7764, Stop: 7991, Start Num: 10

Candidate Starts for GaeCeo\_14:

(Start: 10 @7764 has 64 MA's), (14, 7803), (15, 7815), (16, 7842), (24, 7956),

Gene: GardenB\_13 Start: 8002, Stop: 8238, Start Num: 10

Candidate Starts for GardenB\_13:

(4, 7531), (6, 7558), (7, 7579), (Start: 10 @8002 has 64 MA's), (13, 8038), (17, 8110),

Gene: Gelo\_13 Start: 7890, Stop: 8126, Start Num: 10

Candidate Starts for Gelo\_13:

(4, 7416), (5, 7437), (Start: 10 @7890 has 64 MA's), (13, 7926), (17, 7998), (19, 8037), (20, 8046),

Gene: Golden\_13 Start: 7951, Stop: 8181, Start Num: 10

Candidate Starts for Golden\_13:

(4, 7474), (Start: 10 @7951 has 64 MA's), (12, 7966), (15, 8002),

Gene: Greys\_13 Start: 7603, Stop: 7839, Start Num: 10

Candidate Starts for Greys\_13:

(4, 7129), (5, 7150), (Start: 10 @7603 has 64 MA's), (13, 7639), (17, 7711), (19, 7750), (20, 7759),

Gene: Guetzie\_13 Start: 7945, Stop: 8175, Start Num: 10

Candidate Starts for Guetzie\_13:

(4, 7468), (Start: 10 @7945 has 64 MA's), (12, 7960), (14, 7984), (15, 7996),

Gene: HairyMan\_12 Start: 7390, Stop: 7650, Start Num: 10

Candidate Starts for HairyMan\_12:

(9, 7216), (Start: 10 @7390 has 64 MA's), (17, 7498),

Gene: Hamlet\_13 Start: 8011, Stop: 8250, Start Num: 10

Candidate Starts for Hamlet\_13:

(3, 7528), (4, 7537), (6, 7564), (7, 7585), (Start: 10 @8011 has 64 MA's), (13, 8047), (17, 8119), (18, 8146),

Gene: loannes\_13 Start: 7603, Stop: 7839, Start Num: 10

Candidate Starts for loannes\_13:

(4, 7129), (5, 7150), (Start: 10 @7603 has 64 MA's), (13, 7639), (17, 7711), (19, 7750), (20, 7759),

Gene: Jingles\_13 Start: 7873, Stop: 8100, Start Num: 10

Candidate Starts for Jingles\_13:

(Start: 10 @7873 has 64 MA's), (23, 8041),

Gene: Kauala\_13 Start: 7869, Stop: 8105, Start Num: 11

Candidate Starts for Kauala\_13:

(Start: 11 @7869 has 1 MA's),

Gene: KingJulien\_13 Start: 8002, Stop: 8241, Start Num: 10

Candidate Starts for KingJulien\_13:

(1, 7396), (4, 7528), (6, 7555), (7, 7576), (Start: 10 @8002 has 64 MA's), (13, 8038), (17, 8110), (18, 8137),

Gene: Klimt\_13 Start: 7888, Stop: 8124, Start Num: 10

Candidate Starts for Klimt\_13:

(4, 7414), (5, 7435), (Start: 10 @7888 has 64 MA's), (13, 7924), (17, 7996), (19, 8035), (20, 8044),

Gene: Knox\_13 Start: 7603, Stop: 7839, Start Num: 10

Candidate Starts for Knox\_13:

(4, 7129), (5, 7150), (Start: 10 @7603 has 64 MA's), (13, 7639), (17, 7711), (19, 7750), (20, 7759),

Gene: Koji\_13 Start: 7992, Stop: 8219, Start Num: 10

Candidate Starts for Koji\_13:

(Start: 10 @7992 has 64 MA's), (23, 8160),

Gene: Leafus\_13 Start: 8149, Stop: 8388, Start Num: 10

Candidate Starts for Leafus\_13:

(4, 7675), (6, 7702), (7, 7723), (Start: 10 @8149 has 64 MA's), (13, 8185), (17, 8257), (18, 8284),

Gene: Lovelyunicorn\_13 Start: 7603, Stop: 7839, Start Num: 10

Candidate Starts for Lovelyunicorn\_13:

(4, 7129), (5, 7150), (Start: 10 @7603 has 64 MA's), (13, 7639), (17, 7711), (19, 7750), (20, 7759),

Gene: Lucky3\_13 Start: 7951, Stop: 8181, Start Num: 10

Candidate Starts for Lucky3\_13:

(4, 7474), (Start: 10 @7951 has 64 MA's), (12, 7966), (15, 8002),

Gene: MonChoix\_12 Start: 7676, Stop: 7897, Start Num: 10

Candidate Starts for MonChoix\_12:

(4, 7202), (6, 7229), (7, 7250), (Start: 10 @7676 has 64 MA's), (18, 7793),

Gene: Nattles\_13 Start: 7892, Stop: 8128, Start Num: 10

Candidate Starts for Nattles\_13:

(4, 7418), (5, 7439), (Start: 10 @7892 has 64 MA's), (13, 7928), (17, 8000), (19, 8039), (20, 8048),

Gene: Oxtober96\_13 Start: 7603, Stop: 7839, Start Num: 10

Candidate Starts for Oxtober96\_13:

(4, 7129), (5, 7150), (Start: 10 @7603 has 64 MA's), (13, 7639), (17, 7711), (19, 7750), (20, 7759),

Gene: Pajaza\_12 Start: 7906, Stop: 8121, Start Num: 10

Candidate Starts for Pajaza\_12:

(Start: 10 @7906 has 64 MA's), (14, 7942), (18, 8020), (21, 8044),

Gene: Peep\_13 Start: 7594, Stop: 7830, Start Num: 10

Candidate Starts for Peep\_13:

(4, 7120), (5, 7141), (Start: 10 @7594 has 64 MA's), (13, 7630), (17, 7702), (19, 7741), (20, 7750),

Gene: Pherbot\_13 Start: 7858, Stop: 8085, Start Num: 10

Candidate Starts for Pherbot\_13:

(Start: 10 @7858 has 64 MA's), (23, 8026),

Gene: Pikmin\_12 Start: 7906, Stop: 8121, Start Num: 10

Candidate Starts for Pikmin\_12:

(Start: 10 @7906 has 64 MA's), (14, 7942), (18, 8020), (21, 8044),

Gene: PrincePhergus\_13 Start: 7862, Stop: 8089, Start Num: 10

Candidate Starts for PrincePhergus\_13:

(Start: 10 @7862 has 64 MA's), (23, 8030),

Gene: PuppyEggo\_13 Start: 7603, Stop: 7839, Start Num: 10

Candidate Starts for PuppyEggo\_13:

(4, 7129), (5, 7150), (Start: 10 @7603 has 64 MA's), (13, 7639), (17, 7711), (19, 7750), (20, 7759),

Gene: Raptor\_13 Start: 7603, Stop: 7839, Start Num: 10

Candidate Starts for Raptor\_13:

(4, 7129), (5, 7150), (Start: 10 @7603 has 64 MA's), (13, 7639), (17, 7711), (19, 7750), (20, 7759),

Gene: RenegadeRaider\_13 Start: 7861, Stop: 8088, Start Num: 10

Candidate Starts for RenegadeRaider\_13:

(Start: 10 @7861 has 64 MA's), (23, 8029),

Gene: Renzie\_13 Start: 7594, Stop: 7830, Start Num: 10

Candidate Starts for Renzie\_13:

(4, 7120), (5, 7141), (Start: 10 @7594 has 64 MA's), (13, 7630), (17, 7702), (19, 7741), (20, 7750),

Gene: Robinson\_13 Start: 7597, Stop: 7833, Start Num: 10

Candidate Starts for Robinson\_13:

(Start: 10 @7597 has 64 MA's), (13, 7633), (17, 7705), (19, 7744), (20, 7753),

Gene: Schubert\_13 Start: 8046, Stop: 8288, Start Num: 10

Candidate Starts for Schubert\_13:

(Start: 10 @8046 has 64 MA's), (13, 8082), (17, 8154), (18, 8181),

Gene: ShaiHulud\_13 Start: 7603, Stop: 7839, Start Num: 10

Candidate Starts for ShaiHulud\_13:

(4, 7129), (5, 7150), (Start: 10 @7603 has 64 MA's), (13, 7639), (17, 7711), (19, 7750), (20, 7759),

Gene: Sinatra\_13 Start: 7859, Stop: 8086, Start Num: 10

Candidate Starts for Sinatra\_13:



(Start: 10 @7859 has 64 MA's), (23, 8027),

Gene: SirVictor\_13 Start: 7945, Stop: 8175, Start Num: 10

Candidate Starts for SirVictor\_13:

(4, 7468), (Start: 10 @7945 has 64 MA's), (12, 7960), (14, 7984), (15, 7996),

Gene: SonOfLevi\_13 Start: 7888, Stop: 8124, Start Num: 10

Candidate Starts for SonOfLevi\_13:

(4, 7414), (5, 7435), (Start: 10 @7888 has 64 MA's), (13, 7924), (17, 7996), (19, 8035), (20, 8044),

Gene: Stormbreaker8\_13 Start: 8002, Stop: 8241, Start Num: 10

Candidate Starts for Stormbreaker8\_13:

(1, 7396), (2, 7399), (4, 7528), (6, 7555), (7, 7576), (Start: 10 @8002 has 64 MA's), (13, 8038), (17, 8110), (18, 8137),

Gene: Strathdee\_13 Start: 7604, Stop: 7840, Start Num: 10

Candidate Starts for Strathdee\_13:

(4, 7130), (5, 7151), (Start: 10 @7604 has 64 MA's), (13, 7640), (17, 7712), (19, 7751), (20, 7760),

Gene: Superfresh\_13 Start: 7594, Stop: 7830, Start Num: 10

Candidate Starts for Superfresh\_13:

(4, 7120), (5, 7141), (Start: 10 @7594 has 64 MA's), (13, 7630), (17, 7702), (19, 7741), (20, 7750),

Gene: Theresita\_13 Start: 7443, Stop: 7679, Start Num: 10

Candidate Starts for Theresita\_13:

(Start: 10 @7443 has 64 MA's), (12, 7458), (13, 7461), (22, 7593), (23, 7611),

Gene: Thompsone\_13 Start: 7603, Stop: 7839, Start Num: 10

Candidate Starts for Thompsone\_13:

(4, 7129), (5, 7150), (Start: 10 @7603 has 64 MA's), (13, 7639), (17, 7711), (19, 7750), (20, 7759),

Gene: Thorongil\_13 Start: 7603, Stop: 7839, Start Num: 10

Candidate Starts for Thorongil\_13:

(4, 7129), (5, 7150), (Start: 10 @7603 has 64 MA's), (13, 7639), (17, 7711), (19, 7750), (20, 7759),

Gene: Velene\_13 Start: 7603, Stop: 7839, Start Num: 10

Candidate Starts for Velene\_13:

(4, 7129), (5, 7150), (Start: 10 @7603 has 64 MA's), (13, 7639), (17, 7711), (19, 7750), (20, 7759),

Gene: Vispitious\_13 Start: 7603, Stop: 7839, Start Num: 10

Candidate Starts for Vispitious\_13:

(4, 7129), (5, 7150), (Start: 10 @7603 has 64 MA's), (13, 7639), (17, 7711), (19, 7750), (20, 7759),

Gene: WildNOut\_13 Start: 7603, Stop: 7839, Start Num: 10

Candidate Starts for WildNOut\_13:

(4, 7129), (5, 7150), (Start: 10 @7603 has 64 MA's), (13, 7639), (17, 7711), (19, 7750), (20, 7759),