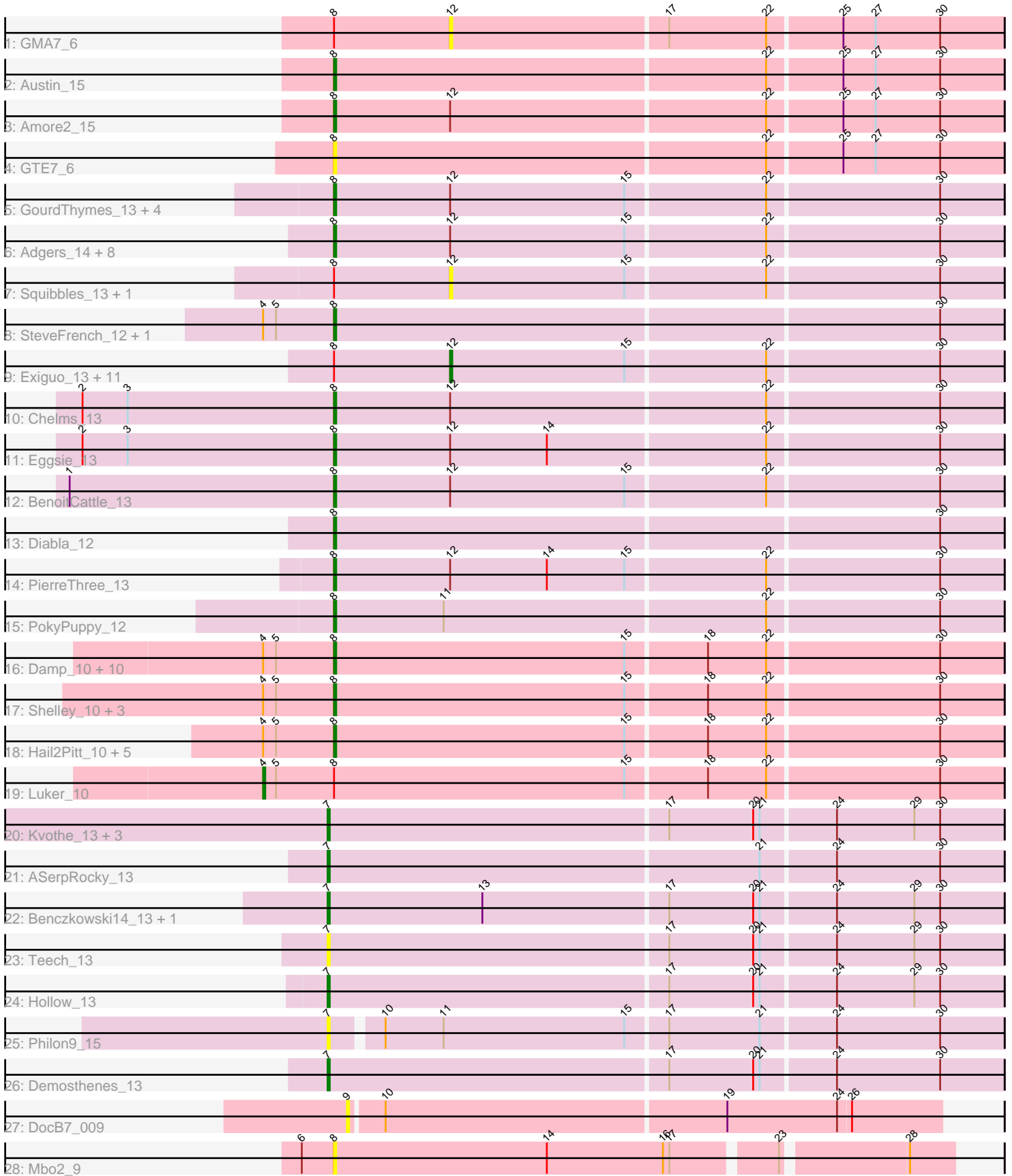


Pham 224534



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 224534 Report

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

Pham number 224534 has 75 members, 11 are drafts.

Phages represented in each track:

- Track 1 : GMA7\_6
- Track 2 : Austin\_15
- Track 3 : Amore2\_15
- Track 4 : GTE7\_6
- Track 5 : GourdThymes\_13, Flakey\_13, Linetti\_14, Lizzo\_13, Hotorobo\_13
- Track 6 : Adgers\_14, Boneham\_13, Jellybones\_13, Sam12\_13, Breezic\_13, John316\_13, BirksAndSocks\_13, Beaver\_13, Ekhein\_13
- Track 7 : Squibbles\_13, CathyBurgh\_13
- Track 8 : SteveFrench\_12, RoyalG\_14
- Track 9 : Exiguo\_13, Msay19\_14, Barbochs\_13, Gorko\_13, Butterball\_13, Sombrero\_13, FelixAlejandro\_14, Poland\_14, CinnamonToast\_14, Worcestershire\_13, Monty\_12, RemRem\_14
- Track 10 : Chelms\_13
- Track 11 : Eggsie\_13
- Track 12 : BenoitCattle\_13
- Track 13 : Diabla\_12
- Track 14 : PierreThree\_13
- Track 15 : PokyPuppy\_12
- Track 16 : Damp\_10, Teal\_10, GalacticEye\_10, Guillaume\_10, MrWormie\_10, Newt\_10, Minos\_10, Nimi13\_10, Sticker17\_10, Jormungandr\_10, Charianelly\_10
- Track 17 : Shelley\_10, Berries\_10, Woes\_10, Lidong\_10
- Track 18 : Hail2Pitt\_10, Jams\_10, Harambe\_10, Lahirium\_10, Anamika\_10, Neoevie\_10
- Track 19 : Luker\_10
- Track 20 : Kvothe\_13, Tredge\_13, Niagara\_13, Teatealatte\_13
- Track 21 : ASerpRocky\_13
- Track 22 : Benczkowski14\_13, Katyusha\_13
- Track 23 : Teech\_13
- Track 24 : Hollow\_13
- Track 25 : Philon9\_15
- Track 26 : Demosthenes\_13
- Track 27 : DocB7\_009
- Track 28 : Mbo2\_9

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

The start number called the most often in the published annotations is 8, it was called in 45 of the 64 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adgers\_14, Amore2\_15, Anamika\_10, Austin\_15, Beaver\_13, BenoitCattle\_13, Berries\_10, BirksAndSocks\_13, Boneham\_13, Breezic\_13, Charianelly\_10, Chelms\_13, Damp\_10, Diabla\_12, Eggsie\_13, Ekhein\_13, Flakey\_13, GTE7\_6, GalacticEye\_10, GourdThymes\_13, Guillaume\_10, Hail2Pitt\_10, Harambe\_10, Hotorobo\_13, Jams\_10, Jellybones\_13, John316\_13, Jormungandr\_10, Lahirium\_10, Lidong\_10, Linetti\_14, Lizzo\_13, Mbo2\_9, Minos\_10, MrWormie\_10, Neoevie\_10, Newt\_10, Nimi13\_10, PierreThree\_13, PokyPuppy\_12, RoyalG\_14, Sam12\_13, Shelley\_10, SteveFrench\_12, Sticker17\_10, Teal\_10, Woes\_10,

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

- Barbochs\_13, Butterball\_13, CathyBurgh\_13, CinnamonToast\_14, Exiguo\_13, FelixAlejandro\_14, GMA7\_6, Gorko\_13, Luker\_10, Monty\_12, Msay19\_14, Poland\_14, RemRem\_14, Sombrero\_13, Squibbles\_13, Worcestershire\_13,

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

- ASerpRocky\_13, Benczkowski14\_13, Demosthenes\_13, DocB7\_009, Hollow\_13, Katyusha\_13, Kvothe\_13, Niagara\_13, Philon9\_15, Teatealatte\_13, Teech\_13, Tredge\_13,

### Summary by start number:

Start 4:

- Found in 24 of 75 ( 32.0% ) of genes in pham
- Manual Annotations of this start: 1 of 64
- Called 4.2% of time when present
- Phage (with cluster) where this start called: Luker\_10 (CS3),

Start 7:

- Found in 11 of 75 ( 14.7% ) of genes in pham
- Manual Annotations of this start: 9 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ASerpRocky\_13 (CS4), Benczkowski14\_13 (CS4), Demosthenes\_13 (CS4), Hollow\_13 (CS4), Katyusha\_13 (CS4), Kvothe\_13 (CS4), Niagara\_13 (CS4), Philon9\_15 (CS4), Teatealatte\_13 (CS4), Teech\_13 (CS4), Tredge\_13 (CS4),

Start 8:

- Found in 63 of 75 ( 84.0% ) of genes in pham
- Manual Annotations of this start: 45 of 64
- Called 74.6% of time when present
- Phage (with cluster) where this start called: Adgers\_14 (CS2), Amore2\_15 (CS1), Anamika\_10 (CS3), Austin\_15 (CS1), Beaver\_13 (CS2), BenoitCattle\_13 (CS2), Berries\_10 (CS3), BirksAndSocks\_13 (CS2), Boneham\_13 (CS2), Breezic\_13 (CS2), Charianelly\_10 (CS3), Chelms\_13 (CS2), Damp\_10 (CS3), Diabla\_12 (CS2), Eggsie\_13 (CS2), Ekhein\_13 (CS2), Flakey\_13 (CS2), GTE7\_6 (CS1), GalacticEye\_10 (CS3), GourdThymes\_13 (CS2), Guillaume\_10 (CS3), Hail2Pitt\_10 (CS3), Harambe\_10 (CS3), Hotorobo\_13 (CS2), Jams\_10 (CS3), Jellybones\_13 (CS2), John316\_13 (CS2), Jormungandr\_10 (CS3), Lahirium\_10 (CS3), Lidong\_10

(CS3), Linetti\_14 (CS2), Lizzo\_13 (CS2), Mbo2\_9 (singleton), Minos\_10 (CS3), MrWormie\_10 (CS3), Neoevie\_10 (CS3), Newt\_10 (CS3), Nimi13\_10 (CS3), PierreThree\_13 (CS2), PokyPuppy\_12 (CS2), RoyalG\_14 (CS2), Sam12\_13 (CS2), Shelley\_10 (CS3), SteveFrench\_12 (CS2), Sticker17\_10 (CS3), Teal\_10 (CS3), Woes\_10 (CS3),

Start 9:

- Found in 1 of 75 ( 1.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DocB7\_009 (singleton),

Start 12:

- Found in 34 of 75 ( 45.3% ) of genes in pham
- Manual Annotations of this start: 9 of 64
- Called 44.1% of time when present
- Phage (with cluster) where this start called: Barbochs\_13 (CS2), Butterball\_13 (CS2), CathyBurgh\_13 (CS2), CinnamonToast\_14 (CS2), Exiguo\_13 (CS2), FelixAlejandro\_14 (CS2), GMA7\_6 (CS1), Gorko\_13 (CS2), Monty\_12 (CS2), Msay19\_14 (CS2), Poland\_14 (CS2), RemRem\_14 (CS2), Sombrero\_13 (CS2), Squibbles\_13 (CS2), Worcestershire\_13 (CS2),

### **Summary by clusters:**

There are 5 clusters represented in this pham: CS4, singleton, CS1, CS3, CS2,

Info for manual annotations of cluster CS1:

- Start number 8 was manually annotated 2 times for cluster CS1.

Info for manual annotations of cluster CS2:

- Start number 8 was manually annotated 22 times for cluster CS2.
- Start number 12 was manually annotated 9 times for cluster CS2.

Info for manual annotations of cluster CS3:

- Start number 4 was manually annotated 1 time for cluster CS3.
- Start number 8 was manually annotated 21 times for cluster CS3.

Info for manual annotations of cluster CS4:

- Start number 7 was manually annotated 9 times for cluster CS4.

### **Gene Information:**

Gene: ASerpRocky\_13 Start: 14958, Stop: 15266, Start Num: 7

Candidate Starts for ASerpRocky\_13:

(Start: 7 @14958 has 9 MA's), (21, 15156), (24, 15189), (30, 15237),

Gene: Adgers\_14 Start: 12592, Stop: 12897, Start Num: 8

Candidate Starts for Adgers\_14:

(Start: 8 @12592 has 45 MA's), (Start: 12 @12646 has 9 MA's), (15, 12727), (22, 12790), (30, 12868),

Gene: Amore2\_15 Start: 12500, Stop: 12805, Start Num: 8

Candidate Starts for Amore2\_15:

(Start: 8 @12500 has 45 MA's), (Start: 12 @12554 has 9 MA's), (22, 12698), (25, 12731), (27, 12746), (30, 12776),

Gene: Anamika\_10 Start: 13516, Stop: 13821, Start Num: 8

Candidate Starts for Anamika\_10:

(Start: 4 @13483 has 1 MA's), (5, 13489), (Start: 8 @13516 has 45 MA's), (15, 13651), (18, 13687), (22, 13714), (30, 13792),

Gene: Austin\_15 Start: 12500, Stop: 12805, Start Num: 8

Candidate Starts for Austin\_15:

(Start: 8 @12500 has 45 MA's), (22, 12698), (25, 12731), (27, 12746), (30, 12776),

Gene: Barbochs\_13 Start: 12484, Stop: 12735, Start Num: 12

Candidate Starts for Barbochs\_13:

(Start: 8 @12430 has 45 MA's), (Start: 12 @12484 has 9 MA's), (15, 12565), (22, 12628), (30, 12706),

Gene: Beaver\_13 Start: 12438, Stop: 12743, Start Num: 8

Candidate Starts for Beaver\_13:

(Start: 8 @12438 has 45 MA's), (Start: 12 @12492 has 9 MA's), (15, 12573), (22, 12636), (30, 12714),

Gene: Benczkowski14\_13 Start: 15021, Stop: 15329, Start Num: 7

Candidate Starts for Benczkowski14\_13:

(Start: 7 @15021 has 9 MA's), (13, 15093), (17, 15177), (20, 15216), (21, 15219), (24, 15252), (29, 15288), (30, 15300),

Gene: BenoitCattle\_13 Start: 12430, Stop: 12735, Start Num: 8

Candidate Starts for BenoitCattle\_13:

(1, 12307), (Start: 8 @12430 has 45 MA's), (Start: 12 @12484 has 9 MA's), (15, 12565), (22, 12628), (30, 12706),

Gene: Berries\_10 Start: 13501, Stop: 13806, Start Num: 8

Candidate Starts for Berries\_10:

(Start: 4 @13468 has 1 MA's), (5, 13474), (Start: 8 @13501 has 45 MA's), (15, 13636), (18, 13672), (22, 13699), (30, 13777),

Gene: BirksAndSocks\_13 Start: 12427, Stop: 12732, Start Num: 8

Candidate Starts for BirksAndSocks\_13:

(Start: 8 @12427 has 45 MA's), (Start: 12 @12481 has 9 MA's), (15, 12562), (22, 12625), (30, 12703),

Gene: Boneham\_13 Start: 12426, Stop: 12731, Start Num: 8

Candidate Starts for Boneham\_13:

(Start: 8 @12426 has 45 MA's), (Start: 12 @12480 has 9 MA's), (15, 12561), (22, 12624), (30, 12702),

Gene: Breezic\_13 Start: 12441, Stop: 12746, Start Num: 8

Candidate Starts for Breezic\_13:

(Start: 8 @12441 has 45 MA's), (Start: 12 @12495 has 9 MA's), (15, 12576), (22, 12639), (30, 12717),

Gene: Butterball\_13 Start: 12480, Stop: 12731, Start Num: 12

Candidate Starts for Butterball\_13:

(Start: 8 @12426 has 45 MA's), (Start: 12 @12480 has 9 MA's), (15, 12561), (22, 12624), (30, 12702),

Gene: CathyBurgh\_13 Start: 13352, Stop: 13603, Start Num: 12

Candidate Starts for CathyBurgh\_13:

(Start: 8 @13298 has 45 MA's), (Start: 12 @13352 has 9 MA's), (15, 13433), (22, 13496), (30, 13574),

Gene: Charianelly\_10 Start: 13233, Stop: 13538, Start Num: 8

Candidate Starts for Charianelly\_10:

(Start: 4 @13200 has 1 MA's), (5, 13206), (Start: 8 @13233 has 45 MA's), (15, 13368), (18, 13404), (22, 13431), (30, 13509),

Gene: Chelms\_13 Start: 12432, Stop: 12737, Start Num: 8

Candidate Starts for Chelms\_13:

(2, 12315), (3, 12336), (Start: 8 @12432 has 45 MA's), (Start: 12 @12486 has 9 MA's), (22, 12630), (30, 12708),

Gene: CinnamonToast\_14 Start: 12516, Stop: 12767, Start Num: 12

Candidate Starts for CinnamonToast\_14:

(Start: 8 @12462 has 45 MA's), (Start: 12 @12516 has 9 MA's), (15, 12597), (22, 12660), (30, 12738),

Gene: Damp\_10 Start: 12397, Stop: 12702, Start Num: 8

Candidate Starts for Damp\_10:

(Start: 4 @12364 has 1 MA's), (5, 12370), (Start: 8 @12397 has 45 MA's), (15, 12532), (18, 12568), (22, 12595), (30, 12673),

Gene: Demosthenes\_13 Start: 14928, Stop: 15236, Start Num: 7

Candidate Starts for Demosthenes\_13:

(Start: 7 @14928 has 9 MA's), (17, 15084), (20, 15123), (21, 15126), (24, 15159), (30, 15207),

Gene: Diabla\_12 Start: 12248, Stop: 12553, Start Num: 8

Candidate Starts for Diabla\_12:

(Start: 8 @12248 has 45 MA's), (30, 12524),

Gene: DocB7\_009 Start: 10204, Stop: 10473, Start Num: 9

Candidate Starts for DocB7\_009:

(9, 10204), (10, 10219), (19, 10375), (24, 10426), (26, 10432),

Gene: Eggsie\_13 Start: 12443, Stop: 12748, Start Num: 8

Candidate Starts for Eggsie\_13:

(2, 12326), (3, 12347), (Start: 8 @12443 has 45 MA's), (Start: 12 @12497 has 9 MA's), (14, 12542), (22, 12641), (30, 12719),

Gene: Ekhein\_13 Start: 12426, Stop: 12731, Start Num: 8

Candidate Starts for Ekhein\_13:

(Start: 8 @12426 has 45 MA's), (Start: 12 @12480 has 9 MA's), (15, 12561), (22, 12624), (30, 12702),

Gene: Exiguo\_13 Start: 12492, Stop: 12743, Start Num: 12

Candidate Starts for Exiguo\_13:

(Start: 8 @12438 has 45 MA's), (Start: 12 @12492 has 9 MA's), (15, 12573), (22, 12636), (30, 12714),

Gene: FelixAlejandro\_14 Start: 12678, Stop: 12929, Start Num: 12

Candidate Starts for FelixAlejandro\_14:

(Start: 8 @12624 has 45 MA's), (Start: 12 @12678 has 9 MA's), (15, 12759), (22, 12822), (30, 12900),

Gene: Flakey\_13 Start: 13299, Stop: 13604, Start Num: 8

Candidate Starts for Flakey\_13:

(Start: 8 @13299 has 45 MA's), (Start: 12 @13353 has 9 MA's), (15, 13434), (22, 13497), (30, 13575),

Gene: GMA7\_6 Start: 6743, Stop: 6994, Start Num: 12

Candidate Starts for GMA7\_6:

(Start: 8 @6689 has 45 MA's), (Start: 12 @6743 has 9 MA's), (17, 6842), (22, 6887), (25, 6920), (27, 6935), (30, 6965),

Gene: GTE7\_6 Start: 6748, Stop: 7053, Start Num: 8

Candidate Starts for GTE7\_6:

(Start: 8 @6748 has 45 MA's), (22, 6946), (25, 6979), (27, 6994), (30, 7024),

Gene: GalacticEye\_10 Start: 13222, Stop: 13527, Start Num: 8

Candidate Starts for GalacticEye\_10:

(Start: 4 @13189 has 1 MA's), (5, 13195), (Start: 8 @13222 has 45 MA's), (15, 13357), (18, 13393), (22, 13420), (30, 13498),

Gene: Gorko\_13 Start: 12484, Stop: 12735, Start Num: 12

Candidate Starts for Gorko\_13:

(Start: 8 @12430 has 45 MA's), (Start: 12 @12484 has 9 MA's), (15, 12565), (22, 12628), (30, 12706),

Gene: GourdThymes\_13 Start: 13298, Stop: 13603, Start Num: 8

Candidate Starts for GourdThymes\_13:

(Start: 8 @13298 has 45 MA's), (Start: 12 @13352 has 9 MA's), (15, 13433), (22, 13496), (30, 13574),

Gene: Guillaume\_10 Start: 13254, Stop: 13559, Start Num: 8

Candidate Starts for Guillaume\_10:

(Start: 4 @13221 has 1 MA's), (5, 13227), (Start: 8 @13254 has 45 MA's), (15, 13389), (18, 13425), (22, 13452), (30, 13530),

Gene: Hail2Pitt\_10 Start: 13731, Stop: 14036, Start Num: 8

Candidate Starts for Hail2Pitt\_10:

(Start: 4 @13698 has 1 MA's), (5, 13704), (Start: 8 @13731 has 45 MA's), (15, 13866), (18, 13902), (22, 13929), (30, 14007),

Gene: Harambe\_10 Start: 13515, Stop: 13820, Start Num: 8

Candidate Starts for Harambe\_10:

(Start: 4 @13482 has 1 MA's), (5, 13488), (Start: 8 @13515 has 45 MA's), (15, 13650), (18, 13686), (22, 13713), (30, 13791),

Gene: Hollow\_13 Start: 14187, Stop: 14495, Start Num: 7

Candidate Starts for Hollow\_13:

(Start: 7 @14187 has 9 MA's), (17, 14343), (20, 14382), (21, 14385), (24, 14418), (29, 14454), (30, 14466),

Gene: Hotorobo\_13 Start: 13309, Stop: 13614, Start Num: 8

Candidate Starts for Hotorobo\_13:

(Start: 8 @13309 has 45 MA's), (Start: 12 @13363 has 9 MA's), (15, 13444), (22, 13507), (30, 13585),

Gene: Jams\_10 Start: 12695, Stop: 13000, Start Num: 8

Candidate Starts for Jams\_10:

(Start: 4 @12662 has 1 MA's), (5, 12668), (Start: 8 @12695 has 45 MA's), (15, 12830), (18, 12866), (22, 12893), (30, 12971),

Gene: Jellybones\_13 Start: 12461, Stop: 12766, Start Num: 8  
Candidate Starts for Jellybones\_13:  
(Start: 8 @12461 has 45 MA's), (Start: 12 @12515 has 9 MA's), (15, 12596), (22, 12659), (30, 12737),

Gene: John316\_13 Start: 12426, Stop: 12731, Start Num: 8  
Candidate Starts for John316\_13:  
(Start: 8 @12426 has 45 MA's), (Start: 12 @12480 has 9 MA's), (15, 12561), (22, 12624), (30, 12702),

Gene: Jormungandr\_10 Start: 13236, Stop: 13541, Start Num: 8  
Candidate Starts for Jormungandr\_10:  
(Start: 4 @13203 has 1 MA's), (5, 13209), (Start: 8 @13236 has 45 MA's), (15, 13371), (18, 13407),  
(22, 13434), (30, 13512),

Gene: Katyusha\_13 Start: 15021, Stop: 15329, Start Num: 7  
Candidate Starts for Katyusha\_13:  
(Start: 7 @15021 has 9 MA's), (13, 15093), (17, 15177), (20, 15216), (21, 15219), (24, 15252), (29,  
15288), (30, 15300),

Gene: Kvothe\_13 Start: 14958, Stop: 15266, Start Num: 7  
Candidate Starts for Kvothe\_13:  
(Start: 7 @14958 has 9 MA's), (17, 15114), (20, 15153), (21, 15156), (24, 15189), (29, 15225), (30,  
15237),

Gene: Lahirium\_10 Start: 13752, Stop: 14057, Start Num: 8  
Candidate Starts for Lahirium\_10:  
(Start: 4 @13719 has 1 MA's), (5, 13725), (Start: 8 @13752 has 45 MA's), (15, 13887), (18, 13923),  
(22, 13950), (30, 14028),

Gene: Lidong\_10 Start: 13501, Stop: 13806, Start Num: 8  
Candidate Starts for Lidong\_10:  
(Start: 4 @13468 has 1 MA's), (5, 13474), (Start: 8 @13501 has 45 MA's), (15, 13636), (18, 13672),  
(22, 13699), (30, 13777),

Gene: Linetti\_14 Start: 13449, Stop: 13754, Start Num: 8  
Candidate Starts for Linetti\_14:  
(Start: 8 @13449 has 45 MA's), (Start: 12 @13503 has 9 MA's), (15, 13584), (22, 13647), (30, 13725),

Gene: Lizzo\_13 Start: 13298, Stop: 13603, Start Num: 8  
Candidate Starts for Lizzo\_13:  
(Start: 8 @13298 has 45 MA's), (Start: 12 @13352 has 9 MA's), (15, 13433), (22, 13496), (30, 13574),

Gene: Luker\_10 Start: 13183, Stop: 13521, Start Num: 4  
Candidate Starts for Luker\_10:  
(Start: 4 @13183 has 1 MA's), (5, 13189), (Start: 8 @13216 has 45 MA's), (15, 13351), (18, 13387),  
(22, 13414), (30, 13492),

Gene: Mbo2\_9 Start: 6654, Stop: 6929, Start Num: 8  
Candidate Starts for Mbo2\_9:  
(6, 6639), (Start: 8 @6654 has 45 MA's), (14, 6753), (16, 6807), (17, 6810), (23, 6855), (28, 6909),

Gene: Minos\_10 Start: 13222, Stop: 13527, Start Num: 8  
Candidate Starts for Minos\_10:



(Start: 4 @13189 has 1 MA's), (5, 13195), (Start: 8 @13222 has 45 MA's), (15, 13357), (18, 13393), (22, 13420), (30, 13498),

Gene: Monty\_12 Start: 12496, Stop: 12747, Start Num: 12

Candidate Starts for Monty\_12:

(Start: 8 @12442 has 45 MA's), (Start: 12 @12496 has 9 MA's), (15, 12577), (22, 12640), (30, 12718),

Gene: MrWormie\_10 Start: 12386, Stop: 12691, Start Num: 8

Candidate Starts for MrWormie\_10:

(Start: 4 @12353 has 1 MA's), (5, 12359), (Start: 8 @12386 has 45 MA's), (15, 12521), (18, 12557), (22, 12584), (30, 12662),

Gene: Msay19\_14 Start: 12670, Stop: 12921, Start Num: 12

Candidate Starts for Msay19\_14:

(Start: 8 @12616 has 45 MA's), (Start: 12 @12670 has 9 MA's), (15, 12751), (22, 12814), (30, 12892),

Gene: Neoevie\_10 Start: 13492, Stop: 13797, Start Num: 8

Candidate Starts for Neoevie\_10:

(Start: 4 @13459 has 1 MA's), (5, 13465), (Start: 8 @13492 has 45 MA's), (15, 13627), (18, 13663), (22, 13690), (30, 13768),

Gene: Newt\_10 Start: 13233, Stop: 13538, Start Num: 8

Candidate Starts for Newt\_10:

(Start: 4 @13200 has 1 MA's), (5, 13206), (Start: 8 @13233 has 45 MA's), (15, 13368), (18, 13404), (22, 13431), (30, 13509),

Gene: Niagara\_13 Start: 14978, Stop: 15286, Start Num: 7

Candidate Starts for Niagara\_13:

(Start: 7 @14978 has 9 MA's), (17, 15134), (20, 15173), (21, 15176), (24, 15209), (29, 15245), (30, 15257),

Gene: Nimi13\_10 Start: 13234, Stop: 13539, Start Num: 8

Candidate Starts for Nimi13\_10:

(Start: 4 @13201 has 1 MA's), (5, 13207), (Start: 8 @13234 has 45 MA's), (15, 13369), (18, 13405), (22, 13432), (30, 13510),

Gene: Philon9\_15 Start: 16867, Stop: 17169, Start Num: 7

Candidate Starts for Philon9\_15:

(Start: 7 @16867 has 9 MA's), (10, 16888), (11, 16915), (15, 16999), (17, 17017), (21, 17059), (24, 17092), (30, 17140),

Gene: PierreThree\_13 Start: 13300, Stop: 13605, Start Num: 8

Candidate Starts for PierreThree\_13:

(Start: 8 @13300 has 45 MA's), (Start: 12 @13354 has 9 MA's), (14, 13399), (15, 13435), (22, 13498), (30, 13576),

Gene: PokyPuppy\_12 Start: 13191, Stop: 13496, Start Num: 8

Candidate Starts for PokyPuppy\_12:

(Start: 8 @13191 has 45 MA's), (11, 13242), (22, 13389), (30, 13467),

Gene: Poland\_14 Start: 12646, Stop: 12897, Start Num: 12

Candidate Starts for Poland\_14:

(Start: 8 @12592 has 45 MA's), (Start: 12 @12646 has 9 MA's), (15, 12727), (22, 12790), (30, 12868),

Gene: RemRem\_14 Start: 12492, Stop: 12743, Start Num: 12

Candidate Starts for RemRem\_14:

(Start: 8 @12438 has 45 MA's), (Start: 12 @12492 has 9 MA's), (15, 12573), (22, 12636), (30, 12714),

Gene: RoyalG\_14 Start: 12925, Stop: 13230, Start Num: 8

Candidate Starts for RoyalG\_14:

(Start: 4 @12892 has 1 MA's), (5, 12898), (Start: 8 @12925 has 45 MA's), (30, 13201),

Gene: Sam12\_13 Start: 12438, Stop: 12743, Start Num: 8

Candidate Starts for Sam12\_13:

(Start: 8 @12438 has 45 MA's), (Start: 12 @12492 has 9 MA's), (15, 12573), (22, 12636), (30, 12714),

Gene: Shelley\_10 Start: 12710, Stop: 13015, Start Num: 8

Candidate Starts for Shelley\_10:

(Start: 4 @12677 has 1 MA's), (5, 12683), (Start: 8 @12710 has 45 MA's), (15, 12845), (18, 12881), (22, 12908), (30, 12986),

Gene: Sombrero\_13 Start: 12526, Stop: 12777, Start Num: 12

Candidate Starts for Sombrero\_13:

(Start: 8 @12472 has 45 MA's), (Start: 12 @12526 has 9 MA's), (15, 12607), (22, 12670), (30, 12748),

Gene: Squibbles\_13 Start: 13352, Stop: 13603, Start Num: 12

Candidate Starts for Squibbles\_13:

(Start: 8 @13298 has 45 MA's), (Start: 12 @13352 has 9 MA's), (15, 13433), (22, 13496), (30, 13574),

Gene: SteveFrench\_12 Start: 12519, Stop: 12824, Start Num: 8

Candidate Starts for SteveFrench\_12:

(Start: 4 @12486 has 1 MA's), (5, 12492), (Start: 8 @12519 has 45 MA's), (30, 12795),

Gene: Sticker17\_10 Start: 13233, Stop: 13538, Start Num: 8

Candidate Starts for Sticker17\_10:

(Start: 4 @13200 has 1 MA's), (5, 13206), (Start: 8 @13233 has 45 MA's), (15, 13368), (18, 13404), (22, 13431), (30, 13509),

Gene: Teal\_10 Start: 13210, Stop: 13515, Start Num: 8

Candidate Starts for Teal\_10:

(Start: 4 @13177 has 1 MA's), (5, 13183), (Start: 8 @13210 has 45 MA's), (15, 13345), (18, 13381), (22, 13408), (30, 13486),

Gene: Teatealatte\_13 Start: 14941, Stop: 15249, Start Num: 7

Candidate Starts for Teatealatte\_13:

(Start: 7 @14941 has 9 MA's), (17, 15097), (20, 15136), (21, 15139), (24, 15172), (29, 15208), (30, 15220),

Gene: Teech\_13 Start: 14742, Stop: 15050, Start Num: 7

Candidate Starts for Teech\_13:

(Start: 7 @14742 has 9 MA's), (17, 14898), (20, 14937), (21, 14940), (24, 14973), (29, 15009), (30, 15021),

Gene: Tredge\_13 Start: 14941, Stop: 15249, Start Num: 7

Candidate Starts for Tredge\_13:

(Start: 7 @14941 has 9 MA's), (17, 15097), (20, 15136), (21, 15139), (24, 15172), (29, 15208), (30, 15220),

Gene: Woes\_10 Start: 13762, Stop: 14067, Start Num: 8

Candidate Starts for Woes\_10:

(Start: 4 @13729 has 1 MA's), (5, 13735), (Start: 8 @13762 has 45 MA's), (15, 13897), (18, 13933), (22, 13960), (30, 14038),

Gene: Worcestershire\_13 Start: 12494, Stop: 12745, Start Num: 12

Candidate Starts for Worcestershire\_13:

(Start: 8 @12440 has 45 MA's), (Start: 12 @12494 has 9 MA's), (15, 12575), (22, 12638), (30, 12716),