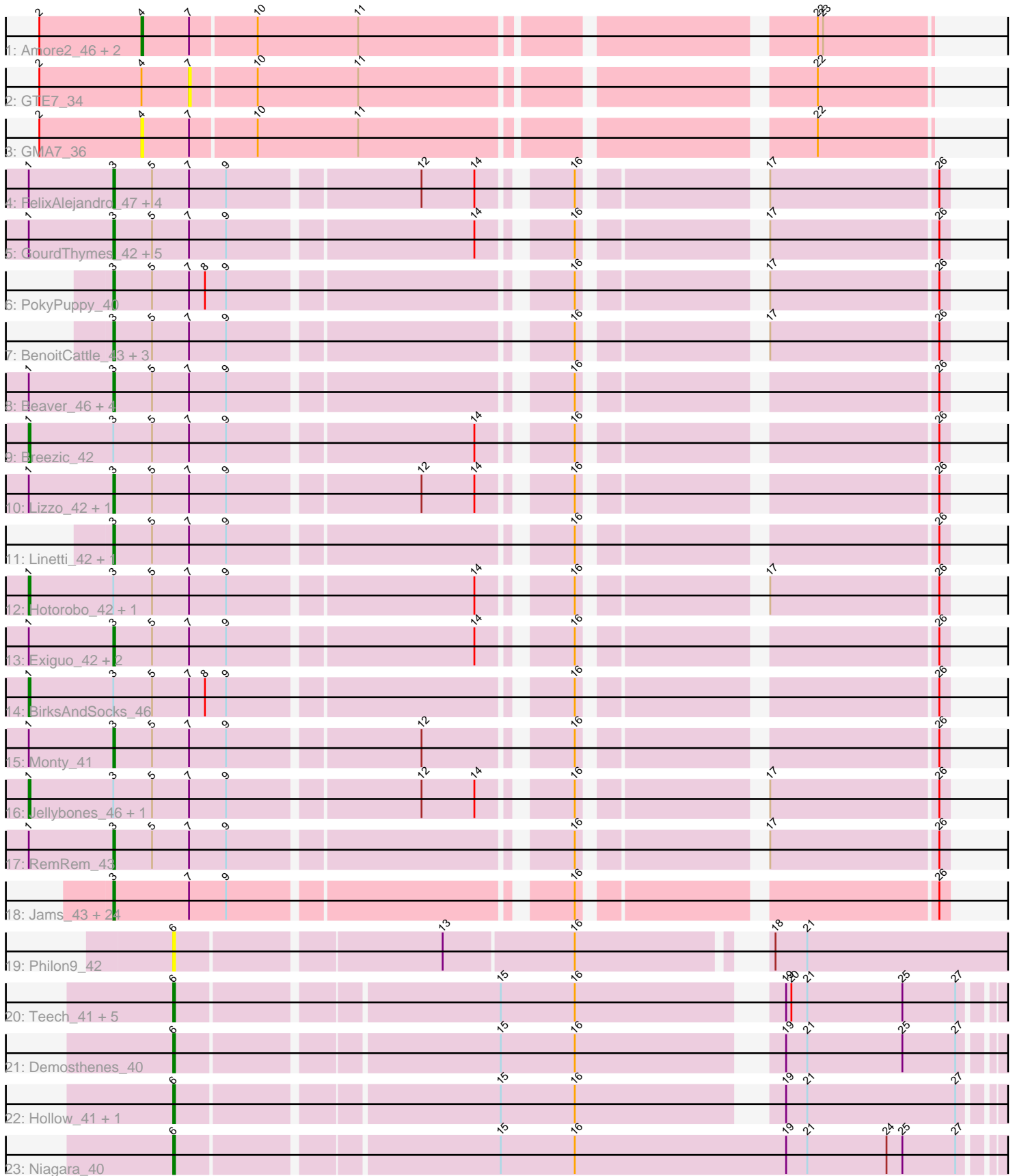


Pham 171410



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 171410 Report

This analysis was run 07/10/24 on database version 566.

Pham number 171410 has 77 members, 13 are drafts.

Phages represented in each track:

- Track 1 : Amore2\_46, Austin\_46, HayZem\_45
- Track 2 : GTE7\_34
- Track 3 : GMA7\_36
- Track 4 : FelixAlejandro\_47, Poland\_49, Msay19\_47, Butterball\_46, Sombrero\_42
- Track 5 : GourdThymes\_42, Gorko\_42, Ekhein\_43, Squibbles\_42, Barbochs\_43, Flakey\_42
- Track 6 : PokyPuppy\_40
- Track 7 : BenoitCattle\_43, Dakiti\_42, PierreThree\_41, Chelms\_41
- Track 8 : Beaver\_46, RoyalG\_42, SteveFrench\_41, Eggsie\_42, Diabla\_45
- Track 9 : Breezic\_42
- Track 10 : Lizzo\_42, CathyBurgh\_42
- Track 11 : Linetti\_42, BigShaq\_41
- Track 12 : Hotorobo\_42, Adgers\_43
- Track 13 : Exiguo\_42, John316\_46, Sam12\_42
- Track 14 : BirksAndSocks\_46
- Track 15 : Monty\_41
- Track 16 : Jellybones\_46, Boneham\_46
- Track 17 : RemRem\_43
- Track 18 : Jams\_43, Bianmat\_43, Anamika\_43, Lahirium\_43, Kaseim\_43, Newt\_44, Woes\_43, Charianelly\_43, Neoevie\_43, Luker\_44, Jormungandr\_43, Sticker17\_43, Lidong\_43, Damp\_42, Minos\_44, Nimi13\_43, Shelley\_43, Teal\_43, Berries\_43, MrWormie\_43, GalacticEye\_43, Hello\_43, Harambe\_43, Guillaume\_43, Hail2Pitt\_42
- Track 19 : Philon9\_42
- Track 20 : Teech\_41, Katyusha\_40, Teatealatte\_41, Benczkowski14\_40, Kvothe\_40, Tredge\_41
- Track 21 : Demosthenes\_40
- Track 22 : Hollow\_41, ASerpRocky\_41
- Track 23 : Niagara\_40

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

The start number called the most often in the published annotations is 3, it was called in 46 of the 64 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Anamika\_43, Barbochs\_43, Beaver\_46, BenoitCattle\_43, Berries\_43, Bianmat\_43, BigShaq\_41, Butterball\_46, CathyBurgh\_42, Charianelly\_43, Chelms\_41, Dakiti\_42, Damp\_42, Diabla\_45, Eggsie\_42, Ekhein\_43, Exiguo\_42, FelixAlejandro\_47, Flakey\_42, GalacticEye\_43, Gorko\_42, GourdThymes\_42, Guillaume\_43, Hail2Pitt\_42, Harambe\_43, Hello\_43, Jams\_43, John316\_46, Jormungandr\_43, Kaseim\_43, Lahirium\_43, Lidong\_43, Linetti\_42, Lizzo\_42, Luker\_44, Minos\_44, Monty\_41, MrWormie\_43, Msay19\_47, Neoevie\_43, Newt\_44, Nimi13\_43, PierreThree\_41, PokyPuppy\_40, Poland\_49, RemRem\_43, RoyalG\_42, Sam12\_42, Shelley\_43, Sombrero\_42, Squibbles\_42, SteveFrench\_41, Sticker17\_43, Teal\_43, Woes\_43,

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

- Adgers\_43, BirksAndSocks\_46, Boneham\_46, Breezic\_42, Hotorobo\_42, Jellybones\_46,

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

- ASerpRocky\_41, Amore2\_46, Austin\_46, Benczkowski14\_40, Demosthenes\_40, GMA7\_36, GTE7\_34, HayZem\_45, Hollow\_41, Katyusha\_40, Kvothe\_40, Niagara\_40, Philon9\_42, Teatealatte\_41, Teech\_41, Tredge\_41,

### Summary by start number:

Start 1:

- Found in 29 of 77 ( 37.7% ) of genes in pham
- Manual Annotations of this start: 6 of 64
- Called 20.7% of time when present
- Phage (with cluster) where this start called: Adgers\_43 (CS2), BirksAndSocks\_46 (CS2), Boneham\_46 (CS2), Breezic\_42 (CS2), Hotorobo\_42 (CS2), Jellybones\_46 (CS2),

Start 3:

- Found in 61 of 77 ( 79.2% ) of genes in pham
- Manual Annotations of this start: 46 of 64
- Called 90.2% of time when present
- Phage (with cluster) where this start called: Anamika\_43 (CS3), Barbochs\_43 (CS2), Beaver\_46 (CS2), BenoitCattle\_43 (CS2), Berries\_43 (CS3), Bianmat\_43 (CS3), BigShaq\_41 (CS2), Butterball\_46 (CS2), CathyBurgh\_42 (CS2), Charianelly\_43 (CS3), Chelms\_41 (CS2), Dakiti\_42 (CS2), Damp\_42 (CS2), Diabla\_45 (CS2), Eggsie\_42 (CS2), Ekhein\_43 (CS2), Exiguo\_42 (CS2), FelixAlejandro\_47 (CS2), Flakey\_42 (CS2), GalacticEye\_43 (CS3), Gorko\_42 (CS2), GourdThymes\_42 (CS2), Guillaume\_43 (CS3), Hail2Pitt\_42 (CS3), Harambe\_43 (CS3), Hello\_43 (CS3), Jams\_43 (CS3), John316\_46 (CS2), Jormungandr\_43 (CS3), Kaseim\_43 (CS3), Lahirium\_43 (CS3), Lidong\_43 (CS3), Linetti\_42 (CS2), Lizzo\_42 (CS2), Luker\_44 (CS3), Minos\_44 (CS3), Monty\_41 (CS2), MrWormie\_43 (CS3), Msay19\_47 (CS2), Neoevie\_43 (CS3), Newt\_44 (CS3), Nimi13\_43 (CS3), PierreThree\_41 (CS2), PokyPuppy\_40 (CS2), Poland\_49 (CS2), RemRem\_43 (CS2), RoyalG\_42 (CS2), Sam12\_42 (CS2), Shelley\_43 (CS3), Sombrero\_42 (CS2), Squibbles\_42 (CS2), SteveFrench\_41 (CS2), Sticker17\_43 (CS3), Teal\_43 (CS3), Woes\_43 (CS3),

Start 4:

- Found in 5 of 77 ( 6.5% ) of genes in pham

- Manual Annotations of this start: 3 of 64
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Amore2\_46 (CS1), Austin\_46 (CS1), GMA7\_36 (CS1), HayZem\_45 (CS1),

#### Start 6:

- Found in 11 of 77 ( 14.3% ) 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\_41 (CS4), Benczkowski14\_40 (CS4), Demosthenes\_40 (CS4), Hollow\_41 (CS4), Katyusha\_40 (CS4), Kvothe\_40 (CS4), Niagara\_40 (CS4), Philon9\_42 (CS4), Teatealatte\_41 (CS4), Teech\_41 (CS4), Tredge\_41 (CS4),

#### Start 7:

- Found in 66 of 77 ( 85.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 1.5% of time when present
- Phage (with cluster) where this start called: GTE7\_34 (CS1),

### **Summary by clusters:**

There are 4 clusters represented in this pham: CS4, CS1, CS3, CS2,

Info for manual annotations of cluster CS1:

- Start number 4 was manually annotated 3 times for cluster CS1.

Info for manual annotations of cluster CS2:

- Start number 1 was manually annotated 6 times for cluster CS2.
- Start number 3 was manually annotated 23 times for cluster CS2.

Info for manual annotations of cluster CS3:

- Start number 3 was manually annotated 23 times for cluster CS3.

Info for manual annotations of cluster CS4:

- Start number 6 was manually annotated 9 times for cluster CS4.

### **Gene Information:**

Gene: ASerpRocky\_41 Start: 44705, Stop: 44253, Start Num: 6

Candidate Starts for ASerpRocky\_41:

(Start: 6 @44705 has 9 MA's), (15, 44534), (16, 44492), (19, 44393), (21, 44381), (27, 44297),

Gene: Adgers\_43 Start: 43296, Stop: 42826, Start Num: 1

Candidate Starts for Adgers\_43:

(Start: 1 @43296 has 6 MA's), (Start: 3 @43248 has 46 MA's), (5, 43227), (7, 43206), (9, 43185), (14, 43053), (16, 43011), (17, 42924), (26, 42831),

Gene: Amore2\_46 Start: 43956, Stop: 43543, Start Num: 4

Candidate Starts for Amore2\_46:

(2, 44013), (Start: 4 @43956 has 3 MA's), (7, 43929), (10, 43893), (11, 43836), (22, 43605), (23, 43602),

Gene: Anamika\_43 Start: 45628, Stop: 45206, Start Num: 3

Candidate Starts for Anamika\_43:

(Start: 3 @45628 has 46 MA's), (7, 45586), (9, 45565), (16, 45391), (26, 45211),

Gene: Austin\_46 Start: 43956, Stop: 43543, Start Num: 4

Candidate Starts for Austin\_46:

(2, 44013), (Start: 4 @43956 has 3 MA's), (7, 43929), (10, 43893), (11, 43836), (22, 43605), (23, 43602),

Gene: Barbochs\_43 Start: 43087, Stop: 42665, Start Num: 3

Candidate Starts for Barbochs\_43:

(Start: 1 @43135 has 6 MA's), (Start: 3 @43087 has 46 MA's), (5, 43066), (7, 43045), (9, 43024), (14, 42892), (16, 42850), (17, 42763), (26, 42670),

Gene: Beaver\_46 Start: 45134, Stop: 44712, Start Num: 3

Candidate Starts for Beaver\_46:

(Start: 1 @45182 has 6 MA's), (Start: 3 @45134 has 46 MA's), (5, 45113), (7, 45092), (9, 45071), (16, 44897), (26, 44717),

Gene: Benczkowski14\_40 Start: 44738, Stop: 44286, Start Num: 6

Candidate Starts for Benczkowski14\_40:

(Start: 6 @44738 has 9 MA's), (15, 44567), (16, 44525), (19, 44426), (20, 44423), (21, 44414), (25, 44360), (27, 44330),

Gene: BenoitCattle\_43 Start: 43192, Stop: 42770, Start Num: 3

Candidate Starts for BenoitCattle\_43:

(Start: 3 @43192 has 46 MA's), (5, 43171), (7, 43150), (9, 43129), (16, 42955), (17, 42868), (26, 42775),

Gene: Berries\_43 Start: 45599, Stop: 45177, Start Num: 3

Candidate Starts for Berries\_43:

(Start: 3 @45599 has 46 MA's), (7, 45557), (9, 45536), (16, 45362), (26, 45182),

Gene: Bianmat\_43 Start: 45639, Stop: 45217, Start Num: 3

Candidate Starts for Bianmat\_43:

(Start: 3 @45639 has 46 MA's), (7, 45597), (9, 45576), (16, 45402), (26, 45222),

Gene: BigShaq\_41 Start: 43197, Stop: 42775, Start Num: 3

Candidate Starts for BigShaq\_41:

(Start: 3 @43197 has 46 MA's), (5, 43176), (7, 43155), (9, 43134), (16, 42960), (26, 42780),

Gene: BirksAndSocks\_46 Start: 45160, Stop: 44690, Start Num: 1

Candidate Starts for BirksAndSocks\_46:

(Start: 1 @45160 has 6 MA's), (Start: 3 @45112 has 46 MA's), (5, 45091), (7, 45070), (8, 45061), (9, 45049), (16, 44875), (26, 44695),

Gene: Boneham\_46 Start: 45159, Stop: 44689, Start Num: 1

Candidate Starts for Boneham\_46:

(Start: 1 @45159 has 6 MA's), (Start: 3 @45111 has 46 MA's), (5, 45090), (7, 45069), (9, 45048), (12, 44946), (14, 44916), (16, 44874), (17, 44787), (26, 44694),

Gene: Breezic\_42 Start: 43148, Stop: 42678, Start Num: 1

Candidate Starts for Breezic\_42:

(Start: 1 @43148 has 6 MA's), (Start: 3 @43100 has 46 MA's), (5, 43079), (7, 43058), (9, 43037), (14, 42905), (16, 42863), (26, 42683),

Gene: Butterball\_46 Start: 45111, Stop: 44689, Start Num: 3

Candidate Starts for Butterball\_46:

(Start: 1 @45159 has 6 MA's), (Start: 3 @45111 has 46 MA's), (5, 45090), (7, 45069), (9, 45048), (12, 44946), (14, 44916), (16, 44874), (17, 44787), (26, 44694),

Gene: CathyBurgh\_42 Start: 43954, Stop: 43532, Start Num: 3

Candidate Starts for CathyBurgh\_42:

(Start: 1 @44002 has 6 MA's), (Start: 3 @43954 has 46 MA's), (5, 43933), (7, 43912), (9, 43891), (12, 43789), (14, 43759), (16, 43717), (26, 43537),

Gene: Charianelly\_43 Start: 45349, Stop: 44927, Start Num: 3

Candidate Starts for Charianelly\_43:

(Start: 3 @45349 has 46 MA's), (7, 45307), (9, 45286), (16, 45112), (26, 44932),

Gene: Chelms\_41 Start: 43200, Stop: 42778, Start Num: 3

Candidate Starts for Chelms\_41:

(Start: 3 @43200 has 46 MA's), (5, 43179), (7, 43158), (9, 43137), (16, 42963), (17, 42876), (26, 42783),

Gene: Dakiti\_42 Start: 44068, Stop: 43646, Start Num: 3

Candidate Starts for Dakiti\_42:

(Start: 3 @44068 has 46 MA's), (5, 44047), (7, 44026), (9, 44005), (16, 43831), (17, 43744), (26, 43651),

Gene: Damp\_42 Start: 44513, Stop: 44091, Start Num: 3

Candidate Starts for Damp\_42:

(Start: 3 @44513 has 46 MA's), (7, 44471), (9, 44450), (16, 44276), (26, 44096),

Gene: Demosthenes\_40 Start: 44678, Stop: 44226, Start Num: 6

Candidate Starts for Demosthenes\_40:

(Start: 6 @44678 has 9 MA's), (15, 44507), (16, 44465), (19, 44366), (21, 44354), (25, 44300), (27, 44270),

Gene: Diabla\_45 Start: 44946, Stop: 44524, Start Num: 3

Candidate Starts for Diabla\_45:

(Start: 1 @44994 has 6 MA's), (Start: 3 @44946 has 46 MA's), (5, 44925), (7, 44904), (9, 44883), (16, 44709), (26, 44529),

Gene: Eggsie\_42 Start: 43215, Stop: 42793, Start Num: 3

Candidate Starts for Eggsie\_42:

(Start: 1 @43263 has 6 MA's), (Start: 3 @43215 has 46 MA's), (5, 43194), (7, 43173), (9, 43152), (16, 42978), (26, 42798),

Gene: Ekhein\_43 Start: 43082, Stop: 42660, Start Num: 3

Candidate Starts for Ekhein\_43:

(Start: 1 @43130 has 6 MA's), (Start: 3 @43082 has 46 MA's), (5, 43061), (7, 43040), (9, 43019), (14, 42887), (16, 42845), (17, 42758), (26, 42665),

Gene: Exiguo\_42 Start: 43094, Stop: 42672, Start Num: 3

Candidate Starts for Exiguo\_42:

(Start: 1 @43142 has 6 MA's), (Start: 3 @43094 has 46 MA's), (5, 43073), (7, 43052), (9, 43031), (14, 42899), (16, 42857), (26, 42677),

Gene: FelixAlejandro\_47 Start: 45309, Stop: 44887, Start Num: 3

Candidate Starts for FelixAlejandro\_47:

(Start: 1 @45357 has 6 MA's), (Start: 3 @45309 has 46 MA's), (5, 45288), (7, 45267), (9, 45246), (12, 45144), (14, 45114), (16, 45072), (17, 44985), (26, 44892),

Gene: Flakey\_42 Start: 43958, Stop: 43536, Start Num: 3

Candidate Starts for Flakey\_42:

(Start: 1 @44006 has 6 MA's), (Start: 3 @43958 has 46 MA's), (5, 43937), (7, 43916), (9, 43895), (14, 43763), (16, 43721), (17, 43634), (26, 43541),

Gene: GMA7\_36 Start: 38170, Stop: 37757, Start Num: 4

Candidate Starts for GMA7\_36:

(2, 38227), (Start: 4 @38170 has 3 MA's), (7, 38143), (10, 38107), (11, 38050), (22, 37819),

Gene: GTE7\_34 Start: 38174, Stop: 37788, Start Num: 7

Candidate Starts for GTE7\_34:

(2, 38258), (Start: 4 @38201 has 3 MA's), (7, 38174), (10, 38138), (11, 38081), (22, 37850),

Gene: GalacticEye\_43 Start: 45311, Stop: 44889, Start Num: 3

Candidate Starts for GalacticEye\_43:

(Start: 3 @45311 has 46 MA's), (7, 45269), (9, 45248), (16, 45074), (26, 44894),

Gene: Gorko\_42 Start: 43086, Stop: 42664, Start Num: 3

Candidate Starts for Gorko\_42:

(Start: 1 @43134 has 6 MA's), (Start: 3 @43086 has 46 MA's), (5, 43065), (7, 43044), (9, 43023), (14, 42891), (16, 42849), (17, 42762), (26, 42669),

Gene: GourdThymes\_42 Start: 43960, Stop: 43538, Start Num: 3

Candidate Starts for GourdThymes\_42:

(Start: 1 @44008 has 6 MA's), (Start: 3 @43960 has 46 MA's), (5, 43939), (7, 43918), (9, 43897), (14, 43765), (16, 43723), (17, 43636), (26, 43543),

Gene: Guillaume\_43 Start: 45361, Stop: 44939, Start Num: 3

Candidate Starts for Guillaume\_43:

(Start: 3 @45361 has 46 MA's), (7, 45319), (9, 45298), (16, 45124), (26, 44944),

Gene: Hail2Pitt\_42 Start: 45837, Stop: 45415, Start Num: 3

Candidate Starts for Hail2Pitt\_42:

(Start: 3 @45837 has 46 MA's), (7, 45795), (9, 45774), (16, 45600), (26, 45420),

Gene: Harambe\_43 Start: 45628, Stop: 45206, Start Num: 3

Candidate Starts for Harambe\_43:

(Start: 3 @45628 has 46 MA's), (7, 45586), (9, 45565), (16, 45391), (26, 45211),

Gene: HayZem\_45 Start: 43953, Stop: 43540, Start Num: 4

Candidate Starts for HayZem\_45:

(2, 44010), (Start: 4 @43953 has 3 MA's), (7, 43926), (10, 43890), (11, 43833), (22, 43602), (23, 43599),

Gene: Hello\_43 Start: 45590, Stop: 45168, Start Num: 3

Candidate Starts for Hello\_43:

(Start: 3 @45590 has 46 MA's), (7, 45548), (9, 45527), (16, 45353), (26, 45173),

Gene: Hollow\_41 Start: 45084, Stop: 44632, Start Num: 6

Candidate Starts for Hollow\_41:

(Start: 6 @45084 has 9 MA's), (15, 44913), (16, 44871), (19, 44772), (21, 44760), (27, 44676),

Gene: Hotorobo\_42 Start: 44013, Stop: 43543, Start Num: 1

Candidate Starts for Hotorobo\_42:

(Start: 1 @44013 has 6 MA's), (Start: 3 @43965 has 46 MA's), (5, 43944), (7, 43923), (9, 43902), (14, 43770), (16, 43728), (17, 43641), (26, 43548),

Gene: Jams\_43 Start: 44799, Stop: 44377, Start Num: 3

Candidate Starts for Jams\_43:

(Start: 3 @44799 has 46 MA's), (7, 44757), (9, 44736), (16, 44562), (26, 44382),

Gene: Jellybones\_46 Start: 45218, Stop: 44748, Start Num: 1

Candidate Starts for Jellybones\_46:

(Start: 1 @45218 has 6 MA's), (Start: 3 @45170 has 46 MA's), (5, 45149), (7, 45128), (9, 45107), (12, 45005), (14, 44975), (16, 44933), (17, 44846), (26, 44753),

Gene: John316\_46 Start: 45123, Stop: 44701, Start Num: 3

Candidate Starts for John316\_46:

(Start: 1 @45171 has 6 MA's), (Start: 3 @45123 has 46 MA's), (5, 45102), (7, 45081), (9, 45060), (14, 44928), (16, 44886), (26, 44706),

Gene: Jormungandr\_43 Start: 45343, Stop: 44921, Start Num: 3

Candidate Starts for Jormungandr\_43:

(Start: 3 @45343 has 46 MA's), (7, 45301), (9, 45280), (16, 45106), (26, 44926),

Gene: Kaseim\_43 Start: 44784, Stop: 44362, Start Num: 3

Candidate Starts for Kaseim\_43:

(Start: 3 @44784 has 46 MA's), (7, 44742), (9, 44721), (16, 44547), (26, 44367),

Gene: Katyusha\_40 Start: 44738, Stop: 44286, Start Num: 6

Candidate Starts for Katyusha\_40:

(Start: 6 @44738 has 9 MA's), (15, 44567), (16, 44525), (19, 44426), (20, 44423), (21, 44414), (25, 44360), (27, 44330),

Gene: Kvothe\_40 Start: 44637, Stop: 44185, Start Num: 6

Candidate Starts for Kvothe\_40:

(Start: 6 @44637 has 9 MA's), (15, 44466), (16, 44424), (19, 44325), (20, 44322), (21, 44313), (25, 44259), (27, 44229),

Gene: Lahirium\_43 Start: 45865, Stop: 45443, Start Num: 3

Candidate Starts for Lahirium\_43:

(Start: 3 @45865 has 46 MA's), (7, 45823), (9, 45802), (16, 45628), (26, 45448),

Gene: Lidong\_43 Start: 45599, Stop: 45177, Start Num: 3



Candidate Starts for Lidong\_43:

(Start: 3 @45599 has 46 MA's), (7, 45557), (9, 45536), (16, 45362), (26, 45182),

Gene: Linetti\_42 Start: 44194, Stop: 43772, Start Num: 3

Candidate Starts for Linetti\_42:

(Start: 3 @44194 has 46 MA's), (5, 44173), (7, 44152), (9, 44131), (16, 43957), (26, 43777),

Gene: Lizzo\_42 Start: 43954, Stop: 43532, Start Num: 3

Candidate Starts for Lizzo\_42:

(Start: 1 @44002 has 6 MA's), (Start: 3 @43954 has 46 MA's), (5, 43933), (7, 43912), (9, 43891), (12, 43789), (14, 43759), (16, 43717), (26, 43537),

Gene: Luker\_44 Start: 45818, Stop: 45396, Start Num: 3

Candidate Starts for Luker\_44:

(Start: 3 @45818 has 46 MA's), (7, 45776), (9, 45755), (16, 45581), (26, 45401),

Gene: Minos\_44 Start: 45341, Stop: 44919, Start Num: 3

Candidate Starts for Minos\_44:

(Start: 3 @45341 has 46 MA's), (7, 45299), (9, 45278), (16, 45104), (26, 44924),

Gene: Monty\_41 Start: 43104, Stop: 42682, Start Num: 3

Candidate Starts for Monty\_41:

(Start: 1 @43152 has 6 MA's), (Start: 3 @43104 has 46 MA's), (5, 43083), (7, 43062), (9, 43041), (12, 42939), (16, 42867), (26, 42687),

Gene: MrWormie\_43 Start: 44502, Stop: 44080, Start Num: 3

Candidate Starts for MrWormie\_43:

(Start: 3 @44502 has 46 MA's), (7, 44460), (9, 44439), (16, 44265), (26, 44085),

Gene: Msay19\_47 Start: 45300, Stop: 44878, Start Num: 3

Candidate Starts for Msay19\_47:

(Start: 1 @45348 has 6 MA's), (Start: 3 @45300 has 46 MA's), (5, 45279), (7, 45258), (9, 45237), (12, 45135), (14, 45105), (16, 45063), (17, 44976), (26, 44883),

Gene: Neoevie\_43 Start: 45604, Stop: 45182, Start Num: 3

Candidate Starts for Neoevie\_43:

(Start: 3 @45604 has 46 MA's), (7, 45562), (9, 45541), (16, 45367), (26, 45187),

Gene: Newt\_44 Start: 45832, Stop: 45410, Start Num: 3

Candidate Starts for Newt\_44:

(Start: 3 @45832 has 46 MA's), (7, 45790), (9, 45769), (16, 45595), (26, 45415),

Gene: Niagara\_40 Start: 44716, Stop: 44243, Start Num: 6

Candidate Starts for Niagara\_40:

(Start: 6 @44716 has 9 MA's), (15, 44545), (16, 44503), (19, 44383), (21, 44371), (24, 44326), (25, 44317), (27, 44287),

Gene: Nimi13\_43 Start: 45350, Stop: 44928, Start Num: 3

Candidate Starts for Nimi13\_43:

(Start: 3 @45350 has 46 MA's), (7, 45308), (9, 45287), (16, 45113), (26, 44933),

Gene: Philon9\_42 Start: 45911, Stop: 45444, Start Num: 6

Candidate Starts for Philon9\_42:

(Start: 6 @45911 has 9 MA's), (13, 45770), (16, 45698), (18, 45611), (21, 45593),

Gene: PierreThree\_41 Start: 44065, Stop: 43643, Start Num: 3

Candidate Starts for PierreThree\_41:

(Start: 3 @44065 has 46 MA's), (5, 44044), (7, 44023), (9, 44002), (16, 43828), (17, 43741), (26, 43648),

Gene: PokyPuppy\_40 Start: 44005, Stop: 43583, Start Num: 3

Candidate Starts for PokyPuppy\_40:

(Start: 3 @44005 has 46 MA's), (5, 43984), (7, 43963), (8, 43954), (9, 43942), (16, 43768), (17, 43681), (26, 43588),

Gene: Poland\_49 Start: 45279, Stop: 44857, Start Num: 3

Candidate Starts for Poland\_49:

(Start: 1 @45327 has 6 MA's), (Start: 3 @45279 has 46 MA's), (5, 45258), (7, 45237), (9, 45216), (12, 45114), (14, 45084), (16, 45042), (17, 44955), (26, 44862),

Gene: RemRem\_43 Start: 43094, Stop: 42672, Start Num: 3

Candidate Starts for RemRem\_43:

(Start: 1 @43142 has 6 MA's), (Start: 3 @43094 has 46 MA's), (5, 43073), (7, 43052), (9, 43031), (16, 42857), (17, 42770), (26, 42677),

Gene: RoyalG\_42 Start: 43558, Stop: 43136, Start Num: 3

Candidate Starts for RoyalG\_42:

(Start: 1 @43606 has 6 MA's), (Start: 3 @43558 has 46 MA's), (5, 43537), (7, 43516), (9, 43495), (16, 43321), (26, 43141),

Gene: Sam12\_42 Start: 43094, Stop: 42672, Start Num: 3

Candidate Starts for Sam12\_42:

(Start: 1 @43142 has 6 MA's), (Start: 3 @43094 has 46 MA's), (5, 43073), (7, 43052), (9, 43031), (14, 42899), (16, 42857), (26, 42677),

Gene: Shelley\_43 Start: 44826, Stop: 44404, Start Num: 3

Candidate Starts for Shelley\_43:

(Start: 3 @44826 has 46 MA's), (7, 44784), (9, 44763), (16, 44589), (26, 44409),

Gene: Sombrero\_42 Start: 43096, Stop: 42674, Start Num: 3

Candidate Starts for Sombrero\_42:

(Start: 1 @43144 has 6 MA's), (Start: 3 @43096 has 46 MA's), (5, 43075), (7, 43054), (9, 43033), (12, 42931), (14, 42901), (16, 42859), (17, 42772), (26, 42679),

Gene: Squibbles\_42 Start: 43957, Stop: 43535, Start Num: 3

Candidate Starts for Squibbles\_42:

(Start: 1 @44005 has 6 MA's), (Start: 3 @43957 has 46 MA's), (5, 43936), (7, 43915), (9, 43894), (14, 43762), (16, 43720), (17, 43633), (26, 43540),

Gene: SteveFrench\_41 Start: 43798, Stop: 43376, Start Num: 3

Candidate Starts for SteveFrench\_41:

(Start: 1 @43846 has 6 MA's), (Start: 3 @43798 has 46 MA's), (5, 43777), (7, 43756), (9, 43735), (16, 43561), (26, 43381),

Gene: Sticker17\_43 Start: 45341, Stop: 44919, Start Num: 3

Candidate Starts for Sticker17\_43:

(Start: 3 @45341 has 46 MA's), (7, 45299), (9, 45278), (16, 45104), (26, 44924),

Gene: Teal\_43 Start: 45809, Stop: 45387, Start Num: 3

Candidate Starts for Teal\_43:

(Start: 3 @45809 has 46 MA's), (7, 45767), (9, 45746), (16, 45572), (26, 45392),

Gene: Teatealatte\_41 Start: 44640, Stop: 44188, Start Num: 6

Candidate Starts for Teatealatte\_41:

(Start: 6 @44640 has 9 MA's), (15, 44469), (16, 44427), (19, 44328), (20, 44325), (21, 44316), (25, 44262), (27, 44232),

Gene: Teech\_41 Start: 44441, Stop: 43989, Start Num: 6

Candidate Starts for Teech\_41:

(Start: 6 @44441 has 9 MA's), (15, 44270), (16, 44228), (19, 44129), (20, 44126), (21, 44117), (25, 44063), (27, 44033),

Gene: Tredge\_41 Start: 44640, Stop: 44188, Start Num: 6

Candidate Starts for Tredge\_41:

(Start: 6 @44640 has 9 MA's), (15, 44469), (16, 44427), (19, 44328), (20, 44325), (21, 44316), (25, 44262), (27, 44232),

Gene: Woes\_43 Start: 45860, Stop: 45438, Start Num: 3

Candidate Starts for Woes\_43:

(Start: 3 @45860 has 46 MA's), (7, 45818), (9, 45797), (16, 45623), (26, 45443),