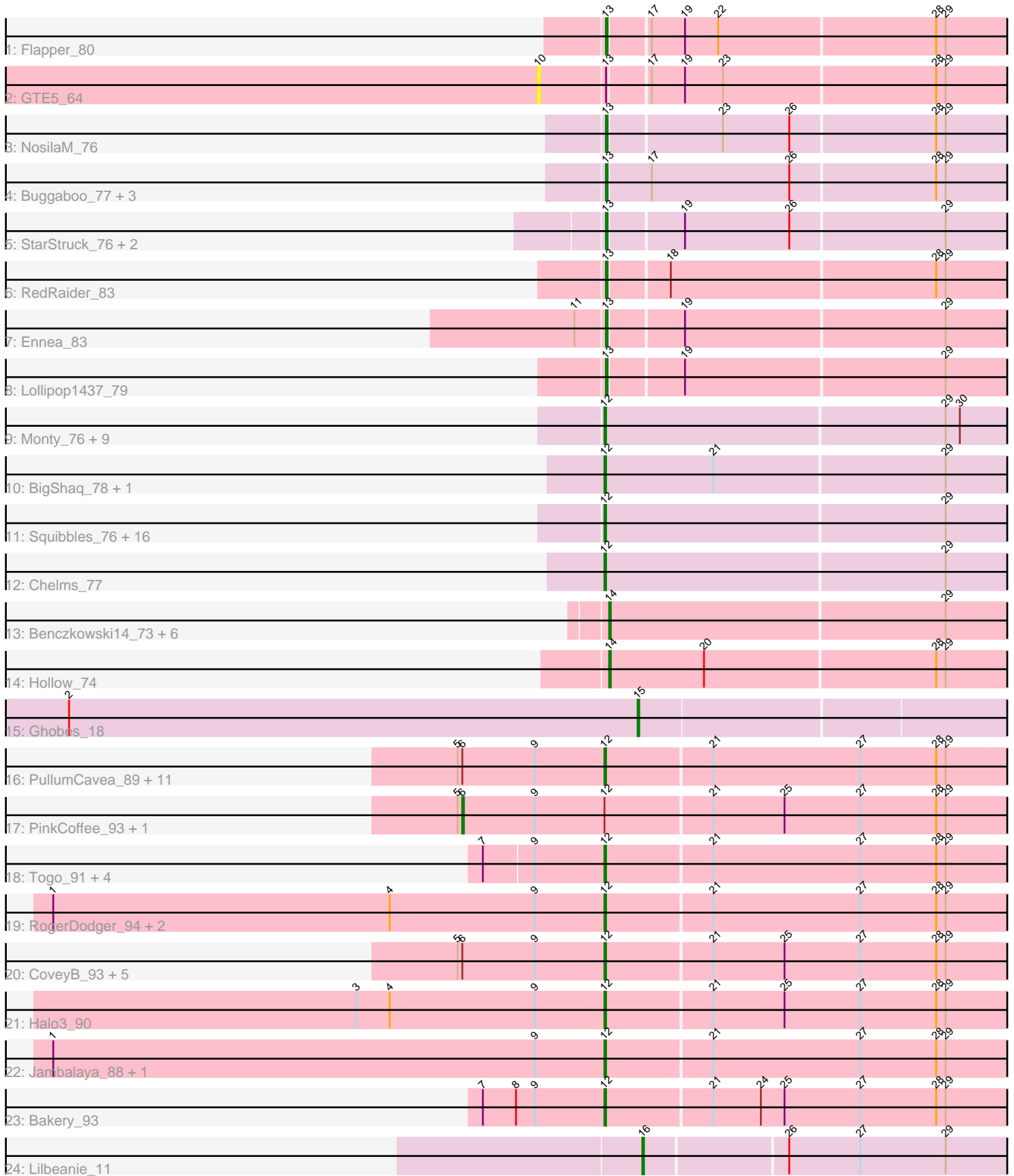


# Pham 224494



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 224494 Report

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

Pham number 224494 has 85 members, 13 are drafts.

Phages represented in each track:

- Track 1 : Flapper\_80
- Track 2 : GTE5\_64
- Track 3 : NosilaM\_76
- Track 4 : Buggaboo\_77, SuperSulley\_77, Bonum\_79, Kabluna\_78
- Track 5 : StarStruck\_76, MerCougar\_78, Outis\_76
- Track 6 : RedRaider\_83
- Track 7 : Ennea\_83
- Track 8 : Lollipop1437\_79
- Track 9 : Monty\_76, CathyBurgh\_76, Barbochs\_76, Breezic\_77, Ekhein\_77, John316\_80, Flakey\_76, GourdThymes\_77, Lizzo\_77, Hotorobo\_77
- Track 10 : BigShaq\_78, Crete\_77
- Track 11 : Squibbles\_76, Boneham\_80, FelixAlejandro\_81, Adgers\_80, Exiguo\_76, RemRem\_78, Sam12\_76, Jellybones\_78, CinnamonToast\_81, BirksAndSocks\_81, Sombrero\_78, Poland\_81, Beaver\_80, Gorko\_76, Butterball\_79, Msay19\_81, Worcestershire\_76
- Track 12 : Chelms\_77
- Track 13 : Benczkowski14\_73, Teatealatte\_74, Niagara\_73, Tredge\_73, Katyusha\_72, Teech\_71, Kvothe\_72
- Track 14 : Hollow\_74
- Track 15 : Ghobes\_18
- Track 16 : PullumCavea\_89, KimmyK\_89, Portcullis\_91, Valary\_92, Fireball\_94, Phlop\_88, Arri\_91, Gezellig\_90, Wizard\_86, Shinji\_90, Egi03\_90, CherryCola\_91
- Track 17 : PinkCoffee\_93, ClamChowder\_94
- Track 18 : Togo\_91, Salvador\_91, Evamon\_91, TillyBobJoe\_90, SmokingBunny\_92
- Track 19 : RogerDodger\_94, VanDeWege\_93, Twister6\_90
- Track 20 : CoveyB\_93, Mutzi\_91, Danyall\_92, Barb\_95, Nubi\_94, YungMoney\_91
- Track 21 : Halo3\_90
- Track 22 : Jambalaya\_88, Savbucketdawg\_86
- Track 23 : Bakery\_93
- Track 24 : Lilbeanie\_11

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

The start number called the most often in the published annotations is 12, it was called in 49 of the 72 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adgers\_80, Arri\_91, Bakery\_93, Barb\_95, Barbochs\_76, Beaver\_80, BigShaq\_78, BirksAndSocks\_81, Boneham\_80, Breezic\_77, Butterball\_79, CathyBurgh\_76, Chelms\_77, CherryCola\_91, CinnamonToast\_81, CoveyB\_93, Crete\_77, Danyall\_92, Egi03\_90, Ekhein\_77, Evamon\_91, Exiguo\_76, FelixAlejandro\_81, Fireball\_94, Flakey\_76, Gezellig\_90, Gorko\_76, GourdThymes\_77, Halo3\_90, Hotorobo\_77, Jambalaya\_88, Jellybones\_78, John316\_80, KimmyK\_89, Lizzo\_77, Monty\_76, Msay19\_81, Mutzi\_91, Nubi\_94, Phlop\_88, Poland\_81, Portcullis\_91, PullumCavea\_89, RemRem\_78, RogerDodger\_94, Salvador\_91, Sam12\_76, Savbucketdawg\_86, Shinji\_90, SmokingBunny\_92, Sombrero\_78, Squibbles\_76, TillyBobJoe\_90, Togo\_91, Twister6\_90, Valary\_92, VanDeWege\_93, Wizard\_86, Worcestershire\_76, YungMoney\_91,

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

- ClamChowder\_94, PinkCoffee\_93,

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

- Benczkowski14\_73, Bonum\_79, Buggaboo\_77, Ennea\_83, Flapper\_80, GTE5\_64, Ghobes\_18, Hollow\_74, Kabluna\_78, Katyusha\_72, Kvothe\_72, Lilbeanie\_11, Lollipop1437\_79, MerCougar\_78, Niagara\_73, NosilaM\_76, Outis\_76, RedRaider\_83, StarStruck\_76, SuperSulley\_77, Teatealatte\_74, Teech\_71, Tredge\_73,

### Summary by start number:

Start 6:

- Found in 20 of 85 ( 23.5% ) of genes in pham
- Manual Annotations of this start: 2 of 72
- Called 10.0% of time when present
- Phage (with cluster) where this start called: ClamChowder\_94 (DC1), PinkCoffee\_93 (DC1),

Start 10:

- Found in 1 of 85 ( 1.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GTE5\_64 (CR1),

Start 12:

- Found in 62 of 85 ( 72.9% ) of genes in pham
- Manual Annotations of this start: 49 of 72
- Called 96.8% of time when present
- Phage (with cluster) where this start called: Adgers\_80 (CS2), Arri\_91 (DC1), Bakery\_93 (DC1), Barb\_95 (DC1), Barbochs\_76 (CS2), Beaver\_80 (CS2), BigShaq\_78 (CS2), BirksAndSocks\_81 (CS2), Boneham\_80 (CS2), Breezic\_77 (CS2), Butterball\_79 (CS2), CathyBurgh\_76 (CS2), Chelms\_77 (CS2), CherryCola\_91 (DC1), CinnamonToast\_81 (CS2), CoveyB\_93 (DC1), Crete\_77 (CS2), Danyall\_92 (DC1), Egi03\_90 (DC1), Ekhein\_77 (CS2), Evamon\_91 (DC1), Exiguo\_76 (CS2), FelixAlejandro\_81 (CS2), Fireball\_94 (DC1), Flakey\_76 (CS2), Gezellig\_90 (DC1), Gorko\_76 (CS2), GourdThymes\_77 (CS2), Halo3\_90 (DC1), Hotorobo\_77 (CS2), Jambalaya\_88 (DC1), Jellybones\_78 (CS2), John316\_80 (CS2),

KimmyK\_89 (DC1), Lizzo\_77 (CS2), Monty\_76 (CS2), Msay19\_81 (CS2), Mutzi\_91 (DC1), Nubi\_94 (DC1), Phlop\_88 (DC1), Poland\_81 (CS2), Portcullis\_91 (DC1), PullumCavea\_89 (DC1), RemRem\_78 (CS2), RogerDodger\_94 (DC1), Salvador\_91 (DC1), Sam12\_76 (CS2), Savbucketdawg\_86 (DC1), Shinji\_90 (DC1), SmokingBunny\_92 (DC1), Sombrero\_78 (CS2), Squibbles\_76 (CS2), TillyBobJoe\_90 (DC1), Togo\_91 (DC1), Twister6\_90 (DC1), Valary\_92 (DC1), VanDeWege\_93 (DC1), Wizard\_86 (DC1), Worcestershire\_76 (CS2), YungMoney\_91 (DC1),

Start 13:

- Found in 13 of 85 ( 15.3% ) of genes in pham
- Manual Annotations of this start: 12 of 72
- Called 92.3% of time when present
- Phage (with cluster) where this start called: Bonum\_79 (CR2), Buggaboo\_77 (CR2), Ennea\_83 (CR3), Flapper\_80 (CR1), Kabluna\_78 (CR2), Lollipop1437\_79 (CR3), MerCougar\_78 (CR2), NosilaM\_76 (CR2), Outis\_76 (CR2), RedRaider\_83 (CR3), StarStruck\_76 (CR2), SuperSulley\_77 (CR2),

Start 14:

- Found in 8 of 85 ( 9.4% ) of genes in pham
- Manual Annotations of this start: 7 of 72
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Benczkowski14\_73 (CS4), Hollow\_74 (CS4), Katyusha\_72 (CS4), Kvothe\_72 (CS4), Niagara\_73 (CS4), Teatealatte\_74 (CS4), Teech\_71 (CS4), Tredge\_73 (CS4),

Start 15:

- Found in 1 of 85 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 72
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ghobes\_18 (DA),

Start 16:

- Found in 1 of 85 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 72
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Lilbeanie\_11 (DE5),

### **Summary by clusters:**

There are 8 clusters represented in this pham: CR2, CR3, CR1, DE5, DA, CS4, DC1, CS2,

Info for manual annotations of cluster CR1:

- Start number 13 was manually annotated 1 time for cluster CR1.

Info for manual annotations of cluster CR2:

- Start number 13 was manually annotated 8 times for cluster CR2.

Info for manual annotations of cluster CR3:

- Start number 13 was manually annotated 3 times for cluster CR3.

Info for manual annotations of cluster CS2:

- Start number 12 was manually annotated 24 times for cluster CS2.

Info for manual annotations of cluster CS4:

- Start number 14 was manually annotated 7 times for cluster CS4.

Info for manual annotations of cluster DA:

- Start number 15 was manually annotated 1 time for cluster DA.

Info for manual annotations of cluster DC1:

- Start number 6 was manually annotated 2 times for cluster DC1.
- Start number 12 was manually annotated 25 times for cluster DC1.

Info for manual annotations of cluster DE5:

- Start number 16 was manually annotated 1 time for cluster DE5.

### **Gene Information:**

Gene: Adgers\_80 Start: 60593, Stop: 60273, Start Num: 12

Candidate Starts for Adgers\_80:

(Start: 12 @60593 has 49 MA's), (29, 60380),

Gene: Arri\_91 Start: 57646, Stop: 57308, Start Num: 12

Candidate Starts for Arri\_91:

(5, 57736), (Start: 6 @57733 has 2 MA's), (9, 57688), (Start: 12 @57646 has 49 MA's), (21, 57580), (27, 57487), (28, 57439), (29, 57433),

Gene: Bakery\_93 Start: 59467, Stop: 59129, Start Num: 12

Candidate Starts for Bakery\_93:

(7, 59542), (8, 59521), (9, 59509), (Start: 12 @59467 has 49 MA's), (21, 59401), (24, 59371), (25, 59356), (27, 59308), (28, 59260), (29, 59254),

Gene: Barb\_95 Start: 58510, Stop: 58172, Start Num: 12

Candidate Starts for Barb\_95:

(5, 58600), (Start: 6 @58597 has 2 MA's), (9, 58552), (Start: 12 @58510 has 49 MA's), (21, 58444), (25, 58399), (27, 58351), (28, 58303), (29, 58297),

Gene: Barbochs\_76 Start: 59970, Stop: 59629, Start Num: 12

Candidate Starts for Barbochs\_76:

(Start: 12 @59970 has 49 MA's), (29, 59757), (30, 59748),

Gene: Beaver\_80 Start: 61914, Stop: 61585, Start Num: 12

Candidate Starts for Beaver\_80:

(Start: 12 @61914 has 49 MA's), (29, 61701),

Gene: Benczkowski14\_73 Start: 60661, Stop: 60341, Start Num: 14

Candidate Starts for Benczkowski14\_73:

(Start: 14 @60661 has 7 MA's), (29, 60451),

Gene: BigShaq\_78 Start: 60737, Stop: 60411, Start Num: 12

Candidate Starts for BigShaq\_78:

(Start: 12 @60737 has 49 MA's), (21, 60668), (29, 60524),

Gene: BirksAndSocks\_81 Start: 62036, Stop: 61731, Start Num: 12  
Candidate Starts for BirksAndSocks\_81:  
(Start: 12 @62036 has 49 MA's), (29, 61823),

Gene: Boneham\_80 Start: 61961, Stop: 61656, Start Num: 12  
Candidate Starts for Boneham\_80:  
(Start: 12 @61961 has 49 MA's), (29, 61748),

Gene: Bonum\_79 Start: 57724, Stop: 57392, Start Num: 13  
Candidate Starts for Bonum\_79:  
(Start: 13 @57724 has 12 MA's), (17, 57697), (26, 57610), (28, 57520), (29, 57514),

Gene: Breezic\_77 Start: 60181, Stop: 59828, Start Num: 12  
Candidate Starts for Breezic\_77:  
(Start: 12 @60181 has 49 MA's), (29, 59968), (30, 59959),

Gene: Buggaboo\_77 Start: 58290, Stop: 57958, Start Num: 13  
Candidate Starts for Buggaboo\_77:  
(Start: 13 @58290 has 12 MA's), (17, 58263), (26, 58176), (28, 58086), (29, 58080),

Gene: Butterball\_79 Start: 61966, Stop: 61661, Start Num: 12  
Candidate Starts for Butterball\_79:  
(Start: 12 @61966 has 49 MA's), (29, 61753),

Gene: CathyBurgh\_76 Start: 60701, Stop: 60336, Start Num: 12  
Candidate Starts for CathyBurgh\_76:  
(Start: 12 @60701 has 49 MA's), (29, 60488), (30, 60479),

Gene: Chelms\_77 Start: 60667, Stop: 60350, Start Num: 12  
Candidate Starts for Chelms\_77:  
(Start: 12 @60667 has 49 MA's), (29, 60454),

Gene: CherryCola\_91 Start: 58059, Stop: 57721, Start Num: 12  
Candidate Starts for CherryCola\_91:  
(5, 58149), (Start: 6 @58146 has 2 MA's), (9, 58101), (Start: 12 @58059 has 49 MA's), (21, 57993),  
(27, 57900), (28, 57852), (29, 57846),

Gene: CinnamonToast\_81 Start: 62041, Stop: 61709, Start Num: 12  
Candidate Starts for CinnamonToast\_81:  
(Start: 12 @62041 has 49 MA's), (29, 61828),

Gene: ClamChowder\_94 Start: 58597, Stop: 58172, Start Num: 6  
Candidate Starts for ClamChowder\_94:  
(5, 58600), (Start: 6 @58597 has 2 MA's), (9, 58552), (Start: 12 @58510 has 49 MA's), (21, 58444),  
(25, 58399), (27, 58351), (28, 58303), (29, 58297),

Gene: CoveyB\_93 Start: 57997, Stop: 57659, Start Num: 12  
Candidate Starts for CoveyB\_93:  
(5, 58087), (Start: 6 @58084 has 2 MA's), (9, 58039), (Start: 12 @57997 has 49 MA's), (21, 57931),  
(25, 57886), (27, 57838), (28, 57790), (29, 57784),

Gene: Crete\_77 Start: 60795, Stop: 60469, Start Num: 12  
Candidate Starts for Crete\_77:

(Start: 12 @60795 has 49 MA's), (21, 60726), (29, 60582),

Gene: Danyall\_92 Start: 57691, Stop: 57353, Start Num: 12

Candidate Starts for Danyall\_92:

(5, 57781), (Start: 6 @57778 has 2 MA's), (9, 57733), (Start: 12 @57691 has 49 MA's), (21, 57625), (25, 57580), (27, 57532), (28, 57484), (29, 57478),

Gene: Egi03\_90 Start: 57081, Stop: 56743, Start Num: 12

Candidate Starts for Egi03\_90:

(5, 57171), (Start: 6 @57168 has 2 MA's), (9, 57123), (Start: 12 @57081 has 49 MA's), (21, 57015), (27, 56922), (28, 56874), (29, 56868),

Gene: Ekhein\_77 Start: 59871, Stop: 59527, Start Num: 12

Candidate Starts for Ekhein\_77:

(Start: 12 @59871 has 49 MA's), (29, 59658), (30, 59649),

Gene: Ennea\_83 Start: 59022, Stop: 58708, Start Num: 13

Candidate Starts for Ennea\_83:

(11, 59040), (Start: 13 @59022 has 12 MA's), (19, 58977), (29, 58815),

Gene: Evamon\_91 Start: 57458, Stop: 57120, Start Num: 12

Candidate Starts for Evamon\_91:

(7, 57530), (9, 57500), (Start: 12 @57458 has 49 MA's), (21, 57392), (27, 57299), (28, 57251), (29, 57245),

Gene: Exiguo\_76 Start: 59877, Stop: 59545, Start Num: 12

Candidate Starts for Exiguo\_76:

(Start: 12 @59877 has 49 MA's), (29, 59664),

Gene: FelixAlejandro\_81 Start: 62391, Stop: 62059, Start Num: 12

Candidate Starts for FelixAlejandro\_81:

(Start: 12 @62391 has 49 MA's), (29, 62178),

Gene: Fireball\_94 Start: 57920, Stop: 57582, Start Num: 12

Candidate Starts for Fireball\_94:

(5, 58010), (Start: 6 @58007 has 2 MA's), (9, 57962), (Start: 12 @57920 has 49 MA's), (21, 57854), (27, 57761), (28, 57713), (29, 57707),

Gene: Flakey\_76 Start: 60687, Stop: 60322, Start Num: 12

Candidate Starts for Flakey\_76:

(Start: 12 @60687 has 49 MA's), (29, 60474), (30, 60465),

Gene: Flapper\_80 Start: 58306, Stop: 57980, Start Num: 13

Candidate Starts for Flapper\_80:

(Start: 13 @58306 has 12 MA's), (17, 58282), (19, 58261), (22, 58240), (28, 58105), (29, 58099),

Gene: GTE5\_64 Start: 50838, Stop: 50473, Start Num: 10

Candidate Starts for GTE5\_64:

(10, 50838), (Start: 13 @50799 has 12 MA's), (17, 50775), (19, 50754), (23, 50730), (28, 50598), (29, 50592),

Gene: Gezellig\_90 Start: 57304, Stop: 56966, Start Num: 12

Candidate Starts for Gezellig\_90:

(5, 57394), (Start: 6 @57391 has 2 MA's), (9, 57346), (Start: 12 @57304 has 49 MA's), (21, 57238), (27, 57145), (28, 57097), (29, 57091),

Gene: Ghobes\_18 Start: 16697, Stop: 16407, Start Num: 15  
Candidate Starts for Ghobes\_18:  
(2, 17057), (Start: 15 @16697 has 1 MA's),

Gene: Gorko\_76 Start: 59788, Stop: 59468, Start Num: 12  
Candidate Starts for Gorko\_76:  
(Start: 12 @59788 has 49 MA's), (29, 59575),

Gene: GourdThymes\_77 Start: 60728, Stop: 60423, Start Num: 12  
Candidate Starts for GourdThymes\_77:  
(Start: 12 @60728 has 49 MA's), (29, 60515), (30, 60506),

Gene: Halo3\_90 Start: 58179, Stop: 57841, Start Num: 12  
Candidate Starts for Halo3\_90:  
(3, 58332), (4, 58311), (9, 58221), (Start: 12 @58179 has 49 MA's), (21, 58113), (25, 58068), (27, 58020), (28, 57972), (29, 57966),

Gene: Hollow\_74 Start: 60832, Stop: 60512, Start Num: 14  
Candidate Starts for Hollow\_74:  
(Start: 14 @60832 has 7 MA's), (20, 60772), (28, 60628), (29, 60622),

Gene: Hotorobo\_77 Start: 60751, Stop: 60410, Start Num: 12  
Candidate Starts for Hotorobo\_77:  
(Start: 12 @60751 has 49 MA's), (29, 60538), (30, 60529),

Gene: Jambalaya\_88 Start: 56761, Stop: 56423, Start Num: 12  
Candidate Starts for Jambalaya\_88:  
(1, 57106), (9, 56803), (Start: 12 @56761 has 49 MA's), (21, 56695), (27, 56602), (28, 56554), (29, 56548),

Gene: Jellybones\_78 Start: 61675, Stop: 61343, Start Num: 12  
Candidate Starts for Jellybones\_78:  
(Start: 12 @61675 has 49 MA's), (29, 61462),

Gene: John316\_80 Start: 61839, Stop: 61486, Start Num: 12  
Candidate Starts for John316\_80:  
(Start: 12 @61839 has 49 MA's), (29, 61626), (30, 61617),

Gene: Kabluna\_78 Start: 57062, Stop: 56721, Start Num: 13  
Candidate Starts for Kabluna\_78:  
(Start: 13 @57062 has 12 MA's), (17, 57035), (26, 56948), (28, 56858), (29, 56852),

Gene: Katyusha\_72 Start: 60661, Stop: 60341, Start Num: 14  
Candidate Starts for Katyusha\_72:  
(Start: 14 @60661 has 7 MA's), (29, 60451),

Gene: KimmyK\_89 Start: 57751, Stop: 57413, Start Num: 12  
Candidate Starts for KimmyK\_89:  
(5, 57841), (Start: 6 @57838 has 2 MA's), (9, 57793), (Start: 12 @57751 has 49 MA's), (21, 57685), (27, 57592), (28, 57544), (29, 57538),



Gene: Kvothe\_72 Start: 60503, Stop: 60183, Start Num: 14  
Candidate Starts for Kvothe\_72:  
(Start: 14 @60503 has 7 MA's), (29, 60293),

Gene: Lilbeanie\_11 Start: 4525, Stop: 4851, Start Num: 16  
Candidate Starts for Lilbeanie\_11:  
(Start: 16 @4525 has 1 MA's), (26, 4612), (27, 4657), (29, 4711),

Gene: Lizzo\_77 Start: 60701, Stop: 60336, Start Num: 12  
Candidate Starts for Lizzo\_77:  
(Start: 12 @60701 has 49 MA's), (29, 60488), (30, 60479),

Gene: Lollipop1437\_79 Start: 58702, Stop: 58388, Start Num: 13  
Candidate Starts for Lollipop1437\_79:  
(Start: 13 @58702 has 12 MA's), (19, 58657), (29, 58495),

Gene: MerCougar\_78 Start: 58752, Stop: 58420, Start Num: 13  
Candidate Starts for MerCougar\_78:  
(Start: 13 @58752 has 12 MA's), (19, 58707), (26, 58641), (29, 58545),

Gene: Monty\_76 Start: 59914, Stop: 59549, Start Num: 12  
Candidate Starts for Monty\_76:  
(Start: 12 @59914 has 49 MA's), (29, 59701), (30, 59692),

Gene: Msay19\_81 Start: 62277, Stop: 61945, Start Num: 12  
Candidate Starts for Msay19\_81:  
(Start: 12 @62277 has 49 MA's), (29, 62064),

Gene: Mutzi\_91 Start: 58651, Stop: 58313, Start Num: 12  
Candidate Starts for Mutzi\_91:  
(5, 58741), (Start: 6 @58738 has 2 MA's), (9, 58693), (Start: 12 @58651 has 49 MA's), (21, 58585),  
(25, 58540), (27, 58492), (28, 58444), (29, 58438),

Gene: Niagara\_73 Start: 60594, Stop: 60274, Start Num: 14  
Candidate Starts for Niagara\_73:  
(Start: 14 @60594 has 7 MA's), (29, 60384),

Gene: NosilaM\_76 Start: 57364, Stop: 57035, Start Num: 13  
Candidate Starts for NosilaM\_76:  
(Start: 13 @57364 has 12 MA's), (23, 57295), (26, 57253), (28, 57163), (29, 57157),

Gene: Nubi\_94 Start: 57714, Stop: 57376, Start Num: 12  
Candidate Starts for Nubi\_94:  
(5, 57804), (Start: 6 @57801 has 2 MA's), (9, 57756), (Start: 12 @57714 has 49 MA's), (21, 57648),  
(25, 57603), (27, 57555), (28, 57507), (29, 57501),

Gene: Outis\_76 Start: 57844, Stop: 57512, Start Num: 13  
Candidate Starts for Outis\_76:  
(Start: 13 @57844 has 12 MA's), (19, 57799), (26, 57733), (29, 57637),

Gene: Phlop\_88 Start: 57354, Stop: 57016, Start Num: 12  
Candidate Starts for Phlop\_88:

(5, 57444), (Start: 6 @57441 has 2 MA's), (9, 57396), (Start: 12 @57354 has 49 MA's), (21, 57288), (27, 57195), (28, 57147), (29, 57141),

Gene: PinkCoffee\_93 Start: 57642, Stop: 57217, Start Num: 6

Candidate Starts for PinkCoffee\_93:

(5, 57645), (Start: 6 @57642 has 2 MA's), (9, 57597), (Start: 12 @57555 has 49 MA's), (21, 57489), (25, 57444), (27, 57396), (28, 57348), (29, 57342),

Gene: Poland\_81 Start: 62256, Stop: 61924, Start Num: 12

Candidate Starts for Poland\_81:

(Start: 12 @62256 has 49 MA's), (29, 62043),

Gene: Portcullis\_91 Start: 57360, Stop: 57022, Start Num: 12

Candidate Starts for Portcullis\_91:

(5, 57450), (Start: 6 @57447 has 2 MA's), (9, 57402), (Start: 12 @57360 has 49 MA's), (21, 57294), (27, 57201), (28, 57153), (29, 57147),

Gene: PullumCavea\_89 Start: 57531, Stop: 57193, Start Num: 12

Candidate Starts for PullumCavea\_89:

(5, 57621), (Start: 6 @57618 has 2 MA's), (9, 57573), (Start: 12 @57531 has 49 MA's), (21, 57465), (27, 57372), (28, 57324), (29, 57318),

Gene: RedRaider\_83 Start: 60073, Stop: 59747, Start Num: 13

Candidate Starts for RedRaider\_83:

(Start: 13 @60073 has 12 MA's), (18, 60037), (28, 59872), (29, 59866),

Gene: RemRem\_78 Start: 59853, Stop: 59521, Start Num: 12

Candidate Starts for RemRem\_78:

(Start: 12 @59853 has 49 MA's), (29, 59640),

Gene: RogerDodger\_94 Start: 58119, Stop: 57781, Start Num: 12

Candidate Starts for RogerDodger\_94:

(1, 58464), (4, 58251), (9, 58161), (Start: 12 @58119 has 49 MA's), (21, 58053), (27, 57960), (28, 57912), (29, 57906),

Gene: Salvador\_91 Start: 57456, Stop: 57118, Start Num: 12

Candidate Starts for Salvador\_91:

(7, 57528), (9, 57498), (Start: 12 @57456 has 49 MA's), (21, 57390), (27, 57297), (28, 57249), (29, 57243),

Gene: Sam12\_76 Start: 59877, Stop: 59545, Start Num: 12

Candidate Starts for Sam12\_76:

(Start: 12 @59877 has 49 MA's), (29, 59664),

Gene: Savbucketdawg\_86 Start: 56798, Stop: 56460, Start Num: 12

Candidate Starts for Savbucketdawg\_86:

(1, 57143), (9, 56840), (Start: 12 @56798 has 49 MA's), (21, 56732), (27, 56639), (28, 56591), (29, 56585),

Gene: Shinji\_90 Start: 57537, Stop: 57199, Start Num: 12

Candidate Starts for Shinji\_90:

(5, 57627), (Start: 6 @57624 has 2 MA's), (9, 57579), (Start: 12 @57537 has 49 MA's), (21, 57471), (27, 57378), (28, 57330), (29, 57324),

Gene: SmokingBunny\_92 Start: 58452, Stop: 58114, Start Num: 12  
Candidate Starts for SmokingBunny\_92:  
(7, 58524), (9, 58494), (Start: 12 @58452 has 49 MA's), (21, 58386), (27, 58293), (28, 58245), (29, 58239),

Gene: Sombrero\_78 Start: 60468, Stop: 60136, Start Num: 12  
Candidate Starts for Sombrero\_78:  
(Start: 12 @60468 has 49 MA's), (29, 60255),

Gene: Squibbles\_76 Start: 60731, Stop: 60402, Start Num: 12  
Candidate Starts for Squibbles\_76:  
(Start: 12 @60731 has 49 MA's), (29, 60518),

Gene: StarStruck\_76 Start: 57844, Stop: 57512, Start Num: 13  
Candidate Starts for StarStruck\_76:  
(Start: 13 @57844 has 12 MA's), (19, 57799), (26, 57733), (29, 57637),

Gene: SuperSulley\_77 Start: 58290, Stop: 57958, Start Num: 13  
Candidate Starts for SuperSulley\_77:  
(Start: 13 @58290 has 12 MA's), (17, 58263), (26, 58176), (28, 58086), (29, 58080),

Gene: Teatealatte\_74 Start: 60491, Stop: 60171, Start Num: 14  
Candidate Starts for Teatealatte\_74:  
(Start: 14 @60491 has 7 MA's), (29, 60281),

Gene: Teech\_71 Start: 60307, Stop: 59987, Start Num: 14  
Candidate Starts for Teech\_71:  
(Start: 14 @60307 has 7 MA's), (29, 60097),

Gene: TillyBobJoe\_90 Start: 57675, Stop: 57337, Start Num: 12  
Candidate Starts for TillyBobJoe\_90:  
(7, 57747), (9, 57717), (Start: 12 @57675 has 49 MA's), (21, 57609), (27, 57516), (28, 57468), (29, 57462),

Gene: Togo\_91 Start: 58452, Stop: 58114, Start Num: 12  
Candidate Starts for Togo\_91:  
(7, 58524), (9, 58494), (Start: 12 @58452 has 49 MA's), (21, 58386), (27, 58293), (28, 58245), (29, 58239),

Gene: Tredge\_73 Start: 60491, Stop: 60171, Start Num: 14  
Candidate Starts for Tredge\_73:  
(Start: 14 @60491 has 7 MA's), (29, 60281),

Gene: Twister6\_90 Start: 56801, Stop: 56463, Start Num: 12  
Candidate Starts for Twister6\_90:  
(1, 57146), (4, 56933), (9, 56843), (Start: 12 @56801 has 49 MA's), (21, 56735), (27, 56642), (28, 56594), (29, 56588),

Gene: Valary\_92 Start: 58444, Stop: 58106, Start Num: 12  
Candidate Starts for Valary\_92:  
(5, 58534), (Start: 6 @58531 has 2 MA's), (9, 58486), (Start: 12 @58444 has 49 MA's), (21, 58378), (27, 58285), (28, 58237), (29, 58231),

Gene: VanDeWege\_93 Start: 57969, Stop: 57631, Start Num: 12

Candidate Starts for VanDeWege\_93:

(1, 58314), (4, 58101), (9, 58011), (Start: 12 @57969 has 49 MA's), (21, 57903), (27, 57810), (28, 57762), (29, 57756),

Gene: Wizard\_86 Start: 57304, Stop: 56966, Start Num: 12

Candidate Starts for Wizard\_86:

(5, 57394), (Start: 6 @57391 has 2 MA's), (9, 57346), (Start: 12 @57304 has 49 MA's), (21, 57238), (27, 57145), (28, 57097), (29, 57091),

Gene: Worcestershire\_76 Start: 59861, Stop: 59529, Start Num: 12

Candidate Starts for Worcestershire\_76:

(Start: 12 @59861 has 49 MA's), (29, 59648),

Gene: YungMoney\_91 Start: 59491, Stop: 59153, Start Num: 12

Candidate Starts for YungMoney\_91:

(5, 59581), (Start: 6 @59578 has 2 MA's), (9, 59533), (Start: 12 @59491 has 49 MA's), (21, 59425), (25, 59380), (27, 59332), (28, 59284), (29, 59278),