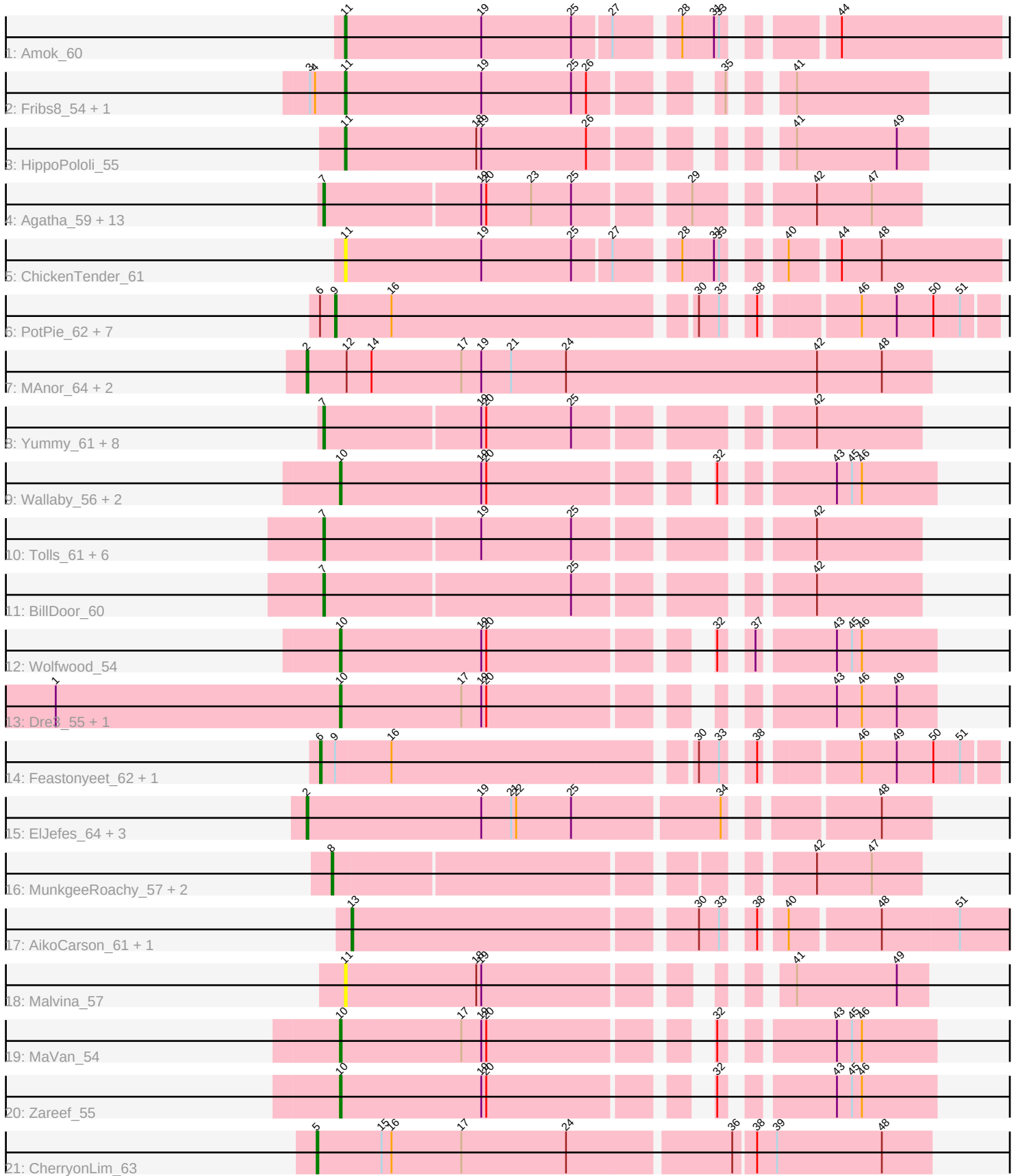


# Pham 317507



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 317507 Report

This analysis was run 09/05/26 on database version 662.

Pham number 317507 has 68 members, 14 are drafts.

Phages represented in each track:

- Track 1 : Amok\_60
- Track 2 : Fribs8\_54, Nibbles\_53
- Track 3 : HippoPololi\_55
- Track 4 : Agatha\_59, Starburst\_59, Quasar\_59, Cozz\_58, Nina\_59, RADical\_60, PsychoKiller\_58, Axym\_58, Bubble\_58, GoldHunter\_59, Sopespian\_57, Burnsey\_59, RSchmailzl\_60, Elliott\_59
- Track 5 : ChickenTender\_61
- Track 6 : PotPie\_62, Tarnish\_62, Baviard\_61, CocoaPuff\_62, Vine\_65, Yucky\_65, SummitAcademy\_62, Balloona\_61
- Track 7 : MAnor\_64, SheckWes\_66, Lauer\_57
- Track 8 : Yummy\_61, SketchMex\_59, Buttrmlkdreams\_61, MScarn\_63, Troje\_61, Blondies\_63, Horseradish\_61, SweatNTears\_61, Biskit\_61
- Track 9 : Wallaby\_56, Azira\_54, Survivors\_55
- Track 10 : Tolls\_61, Yarn\_57, CanesSauce\_59, CaramelLatte\_59, ChocoMunchkin\_59, AndPeggy\_56, SteamedHams\_61
- Track 11 : BillDoor\_60
- Track 12 : Wolfwood\_54
- Track 13 : Dre3\_55, Gibbous\_55
- Track 14 : Feastonyeet\_62, BigChungus\_62
- Track 15 : ElJefes\_64, Pons\_64, McDazzle\_64, Mayweather\_66
- Track 16 : MunkgeeRoachy\_57, Typhonomachy\_58, Socotra\_60
- Track 17 : AikoCarson\_61, Emalyn\_59
- Track 18 : Malvina\_57
- Track 19 : MaVan\_54
- Track 20 : Zareef\_55
- Track 21 : CherryonLim\_63

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

The start number called the most often in the published annotations is 7, it was called in 24 of the 54 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agatha\_59, AndPeggy\_56, Axym\_58, BillDoor\_60, Biskit\_61, Blondies\_63, Bubble\_58, Burnsey\_59, Buttrmilkdreams\_61, CanesSauce\_59, CaramelLatte\_59, ChocoMunchkin\_59, Cozz\_58, Elliott\_59, GoldHunter\_59, Horseradish\_61, MScarn\_63, Nina\_59, PsychoKiller\_58, Quasar\_59, RADical\_60, RSchmailzl\_60, SketchMex\_59, Sopespian\_57, Starburst\_59, SteamedHams\_61, SweatNTears\_61, Tolls\_61, Troje\_61, Yarn\_57, Yummy\_61,

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

- 

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

- AikoCarson\_61, Amok\_60, Azira\_54, Balloona\_61, Bavidard\_61, BigChungus\_62, CherryonLim\_63, ChickenTender\_61, CocoaPuff\_62, Dre3\_55, ElJefes\_64, Emalyn\_59, Feastonyeet\_62, Fribs8\_54, Gibbous\_55, HippoPololi\_55, Lauer\_57, MAnor\_64, MaVan\_54, Malvina\_57, Mayweather\_66, McDazzle\_64, MunkgeeRoachy\_57, Nibbles\_53, Pons\_64, PotPie\_62, SheckWes\_66, Socotra\_60, SummitAcademy\_62, Survivors\_55, Tarnish\_62, Typhonmarchy\_58, Vine\_65, Wallaby\_56, Wolfwood\_54, Yucky\_65, Zareef\_55,

### Summary by start number:

Start 2:

- Found in 7 of 68 ( 10.3% ) of genes in pham
- Manual Annotations of this start: 5 of 54
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ElJefes\_64 (CT), Lauer\_57 (CT), MAnor\_64 (CT), Mayweather\_66 (CT), McDazzle\_64 (CT), Pons\_64 (CT), SheckWes\_66 (CT),

Start 5:

- Found in 1 of 68 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 54
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CherryonLim\_63 (CT),

Start 6:

- Found in 10 of 68 ( 14.7% ) of genes in pham
- Manual Annotations of this start: 2 of 54
- Called 20.0% of time when present
- Phage (with cluster) where this start called: BigChungus\_62 (CT), Feastonyeet\_62 (CT),

Start 7:

- Found in 31 of 68 ( 45.6% ) of genes in pham
- Manual Annotations of this start: 24 of 54
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Agatha\_59 (CT), AndPeggy\_56 (CT), Axym\_58 (CT), BillDoor\_60 (CT), Biskit\_61 (CT), Blondies\_63 (CT), Bubble\_58 (CT), Burnsey\_59 (CT), Buttrmilkdreams\_61 (CT), CanesSauce\_59 (CT), CaramelLatte\_59 (CT), ChocoMunchkin\_59 (CT), Cozz\_58 (CT), Elliott\_59 (CT), GoldHunter\_59 (CT), Horseradish\_61 (CT), MScarn\_63 (CT), Nina\_59 (CT), PsychoKiller\_58 (CT), Quasar\_59 (CT), RADical\_60 (CT), RSchmailzl\_60 (CT), SketchMex\_59 (CT), Sopespian\_57 (CT), Starburst\_59 (CT), SteamedHams\_61 (CT), SweatNTears\_61

(CT), Tolls\_61 (CT), Troje\_61 (CT), Yarn\_57 (CT), Yummy\_61 (CT),

Start 8:

- Found in 3 of 68 ( 4.4% ) of genes in pham
- Manual Annotations of this start: 3 of 54
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MunkgeeRoachy\_57 (CT), Socotra\_60 (CT), Typhonomachy\_58 (CT),

Start 9:

- Found in 10 of 68 ( 14.7% ) of genes in pham
- Manual Annotations of this start: 6 of 54
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Balloona\_61 (CT), Bavidard\_61 (CT), CocoaPuff\_62 (CT), PotPie\_62 (CT), SummitAcademy\_62 (CT), Tarnish\_62 (CT), Vine\_65 (CT), Yucky\_65 (CT),

Start 10:

- Found in 8 of 68 ( 11.8% ) of genes in pham
- Manual Annotations of this start: 7 of 54
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Azira\_54 (CT), Dre3\_55 (CT), Gibbous\_55 (CT), MaVan\_54 (CT), Survivors\_55 (CT), Wallaby\_56 (CT), Wolfwood\_54 (CT), Zareef\_55 (CT),

Start 11:

- Found in 6 of 68 ( 8.8% ) of genes in pham
- Manual Annotations of this start: 4 of 54
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amok\_60 (CT), ChickenTender\_61 (CT), Fribs8\_54 (CT), HippoPololi\_55 (CT), Malvina\_57 (CT), Nibbles\_53 (CT),

Start 13:

- Found in 2 of 68 ( 2.9% ) of genes in pham
- Manual Annotations of this start: 2 of 54
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AikoCarson\_61 (CT), Emalyn\_59 (CT),

### **Summary by clusters:**

There is one cluster represented in this pham: CT

Info for manual annotations of cluster CT:

- Start number 2 was manually annotated 5 times for cluster CT.
- Start number 5 was manually annotated 1 time for cluster CT.
- Start number 6 was manually annotated 2 times for cluster CT.
- Start number 7 was manually annotated 24 times for cluster CT.
- Start number 8 was manually annotated 3 times for cluster CT.
- Start number 9 was manually annotated 6 times for cluster CT.
- Start number 10 was manually annotated 7 times for cluster CT.
- Start number 11 was manually annotated 4 times for cluster CT.
- Start number 13 was manually annotated 2 times for cluster CT.

**Gene Information:**

Gene: Agatha\_59 Start: 42204, Stop: 42527, Start Num: 7

Candidate Starts for Agatha\_59:

(Start: 7 @42204 has 24 MA's), (19, 42294), (20, 42297), (23, 42324), (25, 42348), (29, 42408), (42, 42465), (47, 42498),

Gene: AikoCarson\_61 Start: 42385, Stop: 42780, Start Num: 13

Candidate Starts for AikoCarson\_61:

(Start: 13 @42385 has 2 MA's), (30, 42580), (33, 42592), (38, 42604), (40, 42616), (48, 42667), (51, 42712),

Gene: Amok\_60 Start: 42320, Stop: 42676, Start Num: 11

Candidate Starts for Amok\_60:

(Start: 11 @42320 has 4 MA's), (19, 42401), (25, 42455), (27, 42476), (28, 42509), (31, 42527), (33, 42530), (44, 42581),

Gene: AndPeggy\_56 Start: 41621, Stop: 41944, Start Num: 7

Candidate Starts for AndPeggy\_56:

(Start: 7 @41621 has 24 MA's), (19, 41711), (25, 41765), (42, 41882),

Gene: Axym\_58 Start: 42100, Stop: 42423, Start Num: 7

Candidate Starts for Axym\_58:

(Start: 7 @42100 has 24 MA's), (19, 42190), (20, 42193), (23, 42220), (25, 42244), (29, 42304), (42, 42361), (47, 42394),

Gene: Azira\_54 Start: 41184, Stop: 41495, Start Num: 10

Candidate Starts for Azira\_54:

(Start: 10 @41184 has 7 MA's), (19, 41268), (20, 41271), (32, 41382), (43, 41436), (45, 41445), (46, 41451),

Gene: Balloona\_61 Start: 44265, Stop: 44651, Start Num: 9

Candidate Starts for Balloona\_61:

(Start: 6 @44256 has 2 MA's), (Start: 9 @44265 has 6 MA's), (16, 44298), (30, 44469), (33, 44481), (38, 44493), (46, 44544), (49, 44565), (50, 44586), (51, 44601),

Gene: Bavilard\_61 Start: 43275, Stop: 43661, Start Num: 9

Candidate Starts for Bavilard\_61:

(Start: 6 @43266 has 2 MA's), (Start: 9 @43275 has 6 MA's), (16, 43308), (30, 43479), (33, 43491), (38, 43503), (46, 43554), (49, 43575), (50, 43596), (51, 43611),

Gene: BigChungus\_62 Start: 43797, Stop: 44192, Start Num: 6

Candidate Starts for BigChungus\_62:

(Start: 6 @43797 has 2 MA's), (Start: 9 @43806 has 6 MA's), (16, 43839), (30, 44010), (33, 44022), (38, 44034), (46, 44085), (49, 44106), (50, 44127), (51, 44142),

Gene: BillDoor\_60 Start: 41297, Stop: 41620, Start Num: 7

Candidate Starts for BillDoor\_60:

(Start: 7 @41297 has 24 MA's), (25, 41441), (42, 41558),

Gene: Biskit\_61 Start: 42259, Stop: 42582, Start Num: 7

Candidate Starts for Biskit\_61:

(Start: 7 @42259 has 24 MA's), (19, 42349), (20, 42352), (25, 42403), (42, 42520),

Gene: Blondies\_63 Start: 42576, Stop: 42899, Start Num: 7

Candidate Starts for Blondies\_63:

(Start: 7 @42576 has 24 MA's), (19, 42666), (20, 42669), (25, 42720), (42, 42837),

Gene: Bubble\_58 Start: 42209, Stop: 42532, Start Num: 7

Candidate Starts for Bubble\_58:

(Start: 7 @42209 has 24 MA's), (19, 42299), (20, 42302), (23, 42329), (25, 42353), (29, 42413), (42, 42470), (47, 42503),

Gene: Burnsey\_59 Start: 42194, Stop: 42517, Start Num: 7

Candidate Starts for Burnsey\_59:

(Start: 7 @42194 has 24 MA's), (19, 42284), (20, 42287), (23, 42314), (25, 42338), (29, 42398), (42, 42455), (47, 42488),

Gene: Buttrmlkdreams\_61 Start: 42437, Stop: 42760, Start Num: 7

Candidate Starts for Buttrmlkdreams\_61:

(Start: 7 @42437 has 24 MA's), (19, 42527), (20, 42530), (25, 42581), (42, 42698),

Gene: CanesSauce\_59 Start: 41782, Stop: 42105, Start Num: 7

Candidate Starts for CanesSauce\_59:

(Start: 7 @41782 has 24 MA's), (19, 41872), (25, 41926), (42, 42043),

Gene: CaramellLatte\_59 Start: 41782, Stop: 42105, Start Num: 7

Candidate Starts for CaramellLatte\_59:

(Start: 7 @41782 has 24 MA's), (19, 41872), (25, 41926), (42, 42043),

Gene: CherryonLim\_63 Start: 45325, Stop: 45684, Start Num: 5

Candidate Starts for CherryonLim\_63:

(Start: 5 @45325 has 1 MA's), (15, 45364), (16, 45370), (17, 45412), (24, 45475), (36, 45568), (38, 45580), (39, 45592), (48, 45655),

Gene: ChickenTender\_61 Start: 41767, Stop: 42123, Start Num: 11

Candidate Starts for ChickenTender\_61:

(Start: 11 @41767 has 4 MA's), (19, 41848), (25, 41902), (27, 41923), (28, 41956), (31, 41974), (33, 41977), (40, 42001), (44, 42028), (48, 42052),

Gene: ChocoMunchkin\_59 Start: 41782, Stop: 42105, Start Num: 7

Candidate Starts for ChocoMunchkin\_59:

(Start: 7 @41782 has 24 MA's), (19, 41872), (25, 41926), (42, 42043),

Gene: CocoaPuff\_62 Start: 43811, Stop: 44197, Start Num: 9

Candidate Starts for CocoaPuff\_62:

(Start: 6 @43802 has 2 MA's), (Start: 9 @43811 has 6 MA's), (16, 43844), (30, 44015), (33, 44027), (38, 44039), (46, 44090), (49, 44111), (50, 44132), (51, 44147),

Gene: Cozz\_58 Start: 42212, Stop: 42535, Start Num: 7

Candidate Starts for Cozz\_58:

(Start: 7 @42212 has 24 MA's), (19, 42302), (20, 42305), (23, 42332), (25, 42356), (29, 42416), (42, 42473), (47, 42506),

Gene: Dre3\_55 Start: 41790, Stop: 42101, Start Num: 10

Candidate Starts for Dre3\_55:

(1, 41619), (Start: 10 @41790 has 7 MA's), (17, 41862), (19, 41874), (20, 41877), (43, 42042), (46, 42057), (49, 42078),

Gene: ElJefes\_64 Start: 44324, Stop: 44671, Start Num: 2

Candidate Starts for ElJefes\_64:

(Start: 2 @44324 has 5 MA's), (19, 44429), (21, 44447), (22, 44450), (25, 44483), (34, 44567), (48, 44642),

Gene: Eliott\_59 Start: 42087, Stop: 42410, Start Num: 7

Candidate Starts for Eliott\_59:

(Start: 7 @42087 has 24 MA's), (19, 42177), (20, 42180), (23, 42207), (25, 42231), (29, 42291), (42, 42348), (47, 42381),

Gene: Emalyn\_59 Start: 41105, Stop: 41500, Start Num: 13

Candidate Starts for Emalyn\_59:

(Start: 13 @41105 has 2 MA's), (30, 41300), (33, 41312), (38, 41324), (40, 41336), (48, 41387), (51, 41432),

Gene: Feastonyeet\_62 Start: 43797, Stop: 44192, Start Num: 6

Candidate Starts for Feastonyeet\_62:

(Start: 6 @43797 has 2 MA's), (Start: 9 @43806 has 6 MA's), (16, 43839), (30, 44010), (33, 44022), (38, 44034), (46, 44085), (49, 44106), (50, 44127), (51, 44142),

Gene: Fribs8\_54 Start: 41872, Stop: 42171, Start Num: 11

Candidate Starts for Fribs8\_54:

(3, 41851), (4, 41854), (Start: 11 @41872 has 4 MA's), (19, 41953), (25, 42007), (26, 42016), (35, 42073), (41, 42094),

Gene: Gibbous\_55 Start: 41790, Stop: 42101, Start Num: 10

Candidate Starts for Gibbous\_55:

(1, 41619), (Start: 10 @41790 has 7 MA's), (17, 41862), (19, 41874), (20, 41877), (43, 42042), (46, 42057), (49, 42078),

Gene: GoldHunter\_59 Start: 42204, Stop: 42527, Start Num: 7

Candidate Starts for GoldHunter\_59:

(Start: 7 @42204 has 24 MA's), (19, 42294), (20, 42297), (23, 42324), (25, 42348), (29, 42408), (42, 42465), (47, 42498),

Gene: HippoPololi\_55 Start: 41098, Stop: 41397, Start Num: 11

Candidate Starts for HippoPololi\_55:

(Start: 11 @41098 has 4 MA's), (18, 41176), (19, 41179), (26, 41242), (41, 41320), (49, 41380),

Gene: Horseradish\_61 Start: 42192, Stop: 42515, Start Num: 7

Candidate Starts for Horseradish\_61:

(Start: 7 @42192 has 24 MA's), (19, 42282), (20, 42285), (25, 42336), (42, 42453),

Gene: Lauer\_57 Start: 44774, Stop: 45148, Start Num: 2

Candidate Starts for Lauer\_57:

(Start: 2 @44774 has 5 MA's), (12, 44798), (14, 44813), (17, 44867), (19, 44879), (21, 44897), (24, 44930), (42, 45080), (48, 45119),

Gene: MAnor\_64 Start: 44728, Stop: 45102, Start Num: 2

Candidate Starts for MAnor\_64:

(Start: 2 @44728 has 5 MA's), (12, 44752), (14, 44767), (17, 44821), (19, 44833), (21, 44851), (24, 44884), (42, 45034), (48, 45073),

Gene: MScarn\_63 Start: 42105, Stop: 42428, Start Num: 7

Candidate Starts for MScarn\_63:

(Start: 7 @42105 has 24 MA's), (19, 42195), (20, 42198), (25, 42249), (42, 42366),

Gene: MaVan\_54 Start: 41214, Stop: 41525, Start Num: 10

Candidate Starts for MaVan\_54:

(Start: 10 @41214 has 7 MA's), (17, 41286), (19, 41298), (20, 41301), (32, 41412), (43, 41466), (45, 41475), (46, 41481),

Gene: Malvina\_57 Start: 41096, Stop: 41395, Start Num: 11

Candidate Starts for Malvina\_57:

(Start: 11 @41096 has 4 MA's), (18, 41174), (19, 41177), (41, 41318), (49, 41378),

Gene: Mayweather\_66 Start: 44991, Stop: 45338, Start Num: 2

Candidate Starts for Mayweather\_66:

(Start: 2 @44991 has 5 MA's), (19, 45096), (21, 45114), (22, 45117), (25, 45150), (34, 45234), (48, 45309),

Gene: McDazzle\_64 Start: 44318, Stop: 44665, Start Num: 2

Candidate Starts for McDazzle\_64:

(Start: 2 @44318 has 5 MA's), (19, 44423), (21, 44441), (22, 44444), (25, 44477), (34, 44561), (48, 44636),

Gene: MunkgeeRoachy\_57 Start: 41547, Stop: 41861, Start Num: 8

Candidate Starts for MunkgeeRoachy\_57:

(Start: 8 @41547 has 3 MA's), (42, 41799), (47, 41832),

Gene: Nibbles\_53 Start: 40904, Stop: 41203, Start Num: 11

Candidate Starts for Nibbles\_53:

(3, 40883), (4, 40886), (Start: 11 @40904 has 4 MA's), (19, 40985), (25, 41039), (26, 41048), (35, 41105), (41, 41126),

Gene: Nina\_59 Start: 42690, Stop: 43013, Start Num: 7

Candidate Starts for Nina\_59:

(Start: 7 @42690 has 24 MA's), (19, 42780), (20, 42783), (23, 42810), (25, 42834), (29, 42894), (42, 42951), (47, 42984),

Gene: Pons\_64 Start: 44333, Stop: 44680, Start Num: 2

Candidate Starts for Pons\_64:

(Start: 2 @44333 has 5 MA's), (19, 44438), (21, 44456), (22, 44459), (25, 44492), (34, 44576), (48, 44651),

Gene: PotPie\_62 Start: 44841, Stop: 45227, Start Num: 9

Candidate Starts for PotPie\_62:

(Start: 6 @44832 has 2 MA's), (Start: 9 @44841 has 6 MA's), (16, 44874), (30, 45045), (33, 45057), (38, 45069), (46, 45120), (49, 45141), (50, 45162), (51, 45177),

Gene: PsychoKiller\_58 Start: 42088, Stop: 42411, Start Num: 7



Candidate Starts for PsychoKiller\_58:

(Start: 7 @42088 has 24 MA's), (19, 42178), (20, 42181), (23, 42208), (25, 42232), (29, 42292), (42, 42349), (47, 42382),

Gene: Quasar\_59 Start: 42793, Stop: 43116, Start Num: 7

Candidate Starts for Quasar\_59:

(Start: 7 @42793 has 24 MA's), (19, 42883), (20, 42886), (23, 42913), (25, 42937), (29, 42997), (42, 43054), (47, 43087),

Gene: RADical\_60 Start: 42082, Stop: 42405, Start Num: 7

Candidate Starts for RADical\_60:

(Start: 7 @42082 has 24 MA's), (19, 42172), (20, 42175), (23, 42202), (25, 42226), (29, 42286), (42, 42343), (47, 42376),

Gene: RSchmailzl\_60 Start: 42516, Stop: 42839, Start Num: 7

Candidate Starts for RSchmailzl\_60:

(Start: 7 @42516 has 24 MA's), (19, 42606), (20, 42609), (23, 42636), (25, 42660), (29, 42720), (42, 42777), (47, 42810),

Gene: SheckWes\_66 Start: 43864, Stop: 44238, Start Num: 2

Candidate Starts for SheckWes\_66:

(Start: 2 @43864 has 5 MA's), (12, 43888), (14, 43903), (17, 43957), (19, 43969), (21, 43987), (24, 44020), (42, 44170), (48, 44209),

Gene: SketchMex\_59 Start: 42259, Stop: 42582, Start Num: 7

Candidate Starts for SketchMex\_59:

(Start: 7 @42259 has 24 MA's), (19, 42349), (20, 42352), (25, 42403), (42, 42520),

Gene: Socotra\_60 Start: 42197, Stop: 42511, Start Num: 8

Candidate Starts for Socotra\_60:

(Start: 8 @42197 has 3 MA's), (42, 42449), (47, 42482),

Gene: Sopespian\_57 Start: 42089, Stop: 42412, Start Num: 7

Candidate Starts for Sopespian\_57:

(Start: 7 @42089 has 24 MA's), (19, 42179), (20, 42182), (23, 42209), (25, 42233), (29, 42293), (42, 42350), (47, 42383),

Gene: Starburst\_59 Start: 42084, Stop: 42407, Start Num: 7

Candidate Starts for Starburst\_59:

(Start: 7 @42084 has 24 MA's), (19, 42174), (20, 42177), (23, 42204), (25, 42228), (29, 42288), (42, 42345), (47, 42378),

Gene: SteamedHams\_61 Start: 41598, Stop: 41921, Start Num: 7

Candidate Starts for SteamedHams\_61:

(Start: 7 @41598 has 24 MA's), (19, 41688), (25, 41742), (42, 41859),

Gene: SummitAcademy\_62 Start: 43984, Stop: 44370, Start Num: 9

Candidate Starts for SummitAcademy\_62:

(Start: 6 @43975 has 2 MA's), (Start: 9 @43984 has 6 MA's), (16, 44017), (30, 44188), (33, 44200), (38, 44212), (46, 44263), (49, 44284), (50, 44305), (51, 44320),

Gene: Survivors\_55 Start: 41106, Stop: 41417, Start Num: 10

Candidate Starts for Survivors\_55:

(Start: 10 @41106 has 7 MA's), (19, 41190), (20, 41193), (32, 41304), (43, 41358), (45, 41367), (46, 41373),

Gene: SweatNTears\_61 Start: 42333, Stop: 42656, Start Num: 7

Candidate Starts for SweatNTears\_61:

(Start: 7 @42333 has 24 MA's), (19, 42423), (20, 42426), (25, 42477), (42, 42594),

Gene: Tarnish\_62 Start: 44165, Stop: 44551, Start Num: 9

Candidate Starts for Tarnish\_62:

(Start: 6 @44156 has 2 MA's), (Start: 9 @44165 has 6 MA's), (16, 44198), (30, 44369), (33, 44381), (38, 44393), (46, 44444), (49, 44465), (50, 44486), (51, 44501),

Gene: Tolls\_61 Start: 41869, Stop: 42192, Start Num: 7

Candidate Starts for Tolls\_61:

(Start: 7 @41869 has 24 MA's), (19, 41959), (25, 42013), (42, 42130),

Gene: Troje\_61 Start: 42328, Stop: 42651, Start Num: 7

Candidate Starts for Troje\_61:

(Start: 7 @42328 has 24 MA's), (19, 42418), (20, 42421), (25, 42472), (42, 42589),

Gene: Typhonomachy\_58 Start: 41910, Stop: 42224, Start Num: 8

Candidate Starts for Typhonomachy\_58:

(Start: 8 @41910 has 3 MA's), (42, 42162), (47, 42195),

Gene: Vine\_65 Start: 44607, Stop: 44993, Start Num: 9

Candidate Starts for Vine\_65:

(Start: 6 @44598 has 2 MA's), (Start: 9 @44607 has 6 MA's), (16, 44640), (30, 44811), (33, 44823), (38, 44835), (46, 44886), (49, 44907), (50, 44928), (51, 44943),

Gene: Wallaby\_56 Start: 41207, Stop: 41518, Start Num: 10

Candidate Starts for Wallaby\_56:

(Start: 10 @41207 has 7 MA's), (19, 41291), (20, 41294), (32, 41405), (43, 41459), (45, 41468), (46, 41474),

Gene: Wolfwood\_54 Start: 41181, Stop: 41492, Start Num: 10

Candidate Starts for Wolfwood\_54:

(Start: 10 @41181 has 7 MA's), (19, 41265), (20, 41268), (32, 41379), (37, 41391), (43, 41433), (45, 41442), (46, 41448),

Gene: Yarn\_57 Start: 41626, Stop: 41949, Start Num: 7

Candidate Starts for Yarn\_57:

(Start: 7 @41626 has 24 MA's), (19, 41716), (25, 41770), (42, 41887),

Gene: Yucky\_65 Start: 44399, Stop: 44785, Start Num: 9

Candidate Starts for Yucky\_65:

(Start: 6 @44390 has 2 MA's), (Start: 9 @44399 has 6 MA's), (16, 44432), (30, 44603), (33, 44615), (38, 44627), (46, 44678), (49, 44699), (50, 44720), (51, 44735),

Gene: Yummy\_61 Start: 42306, Stop: 42629, Start Num: 7

Candidate Starts for Yummy\_61:

(Start: 7 @42306 has 24 MA's), (19, 42396), (20, 42399), (25, 42450), (42, 42567),

Gene: Zareef\_55 Start: 41204, Stop: 41515, Start Num: 10

Candidate Starts for Zareef\_55:

(Start: 10 @41204 has 7 MA's), (19, 41288), (20, 41291), (32, 41402), (43, 41456), (45, 41465), (46, 41471),