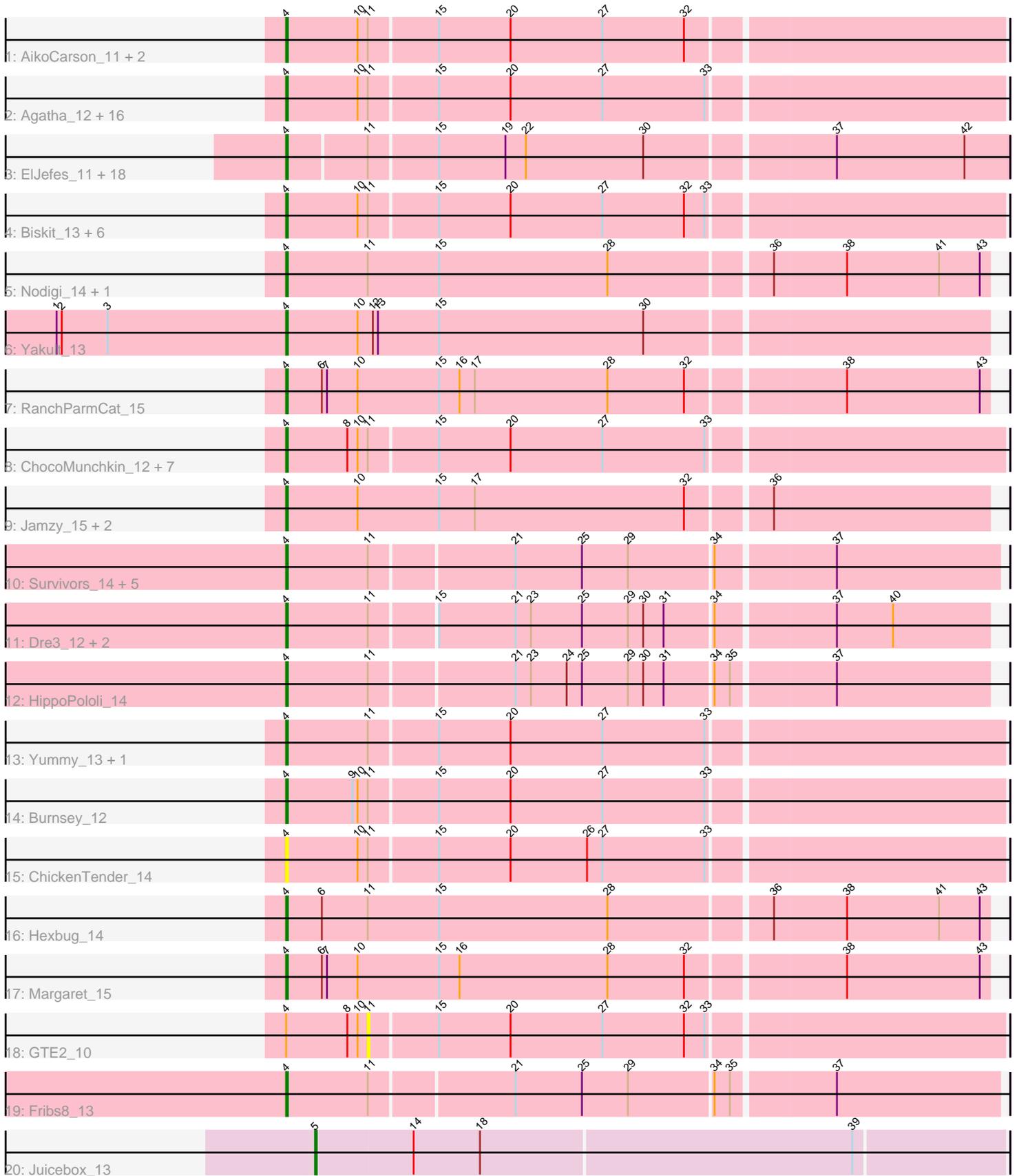


# Pham 283729



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 283729 Report

This analysis was run 02/23/26 on database version 636.

Pham number 283729 has 80 members, 20 are drafts.

Phages represented in each track:

- Track 1 : AikoCarson\_11, Amok\_11, Emalyn\_11
- Track 2 : Agatha\_12, Elliott\_12, Starburst\_13, Quasar\_12, Cozz\_12, RADical\_13, Carsonalex\_13, Socotra\_13, MunkgeeRoachy\_12, PsychoKiller\_12, Typhonomachy\_12, Nina\_13, RSchmailzl\_13, RedBaron\_13, Axym\_12, Sopespian\_12, Bubble\_12
- Track 3 : ElJefes\_11, McDazzle\_11, Bavidard\_12, Feastonyeet\_11, CherryonLim\_13, BigChungus\_11, Yucky\_12, Lauer\_11, SheckWes\_11, SummitAcademy\_11, CocoaPuff\_11, MAnor\_12, Mayweather\_13, Elinal\_13, Vine\_13, PotPie\_12, Pons\_12, KayGee\_12, Balloona\_11
- Track 4 : Biskit\_13, Buttrmilkdreams\_12, Blondies\_13, SweatNTears\_14, Troje\_12, SketchMex\_11, MScarn\_14
- Track 5 : Nodigi\_14, Orla\_14
- Track 6 : Yakult\_13
- Track 7 : RanchParmCat\_15
- Track 8 : ChocoMunchkin\_12, Yarn\_11, CaramelLatte\_12, CanesSauce\_12, SteamedHams\_14, AndPeggy\_11, Tolls\_14, BillDoor\_14
- Track 9 : Jamzy\_15, Button\_13, GiKK\_15
- Track 10 : Survivors\_14, Wolfwood\_16, MaVan\_14, Nibbles\_14, Azira\_14, Zareef\_14
- Track 11 : Dre3\_12, Gibbous\_12, Cleo\_12
- Track 12 : HippoPololi\_14
- Track 13 : Yummy\_13, Horseradish\_13
- Track 14 : Burnsey\_12
- Track 15 : ChickenTender\_14
- Track 16 : Hexbug\_14
- Track 17 : Margaret\_15
- Track 18 : GTE2\_10
- Track 19 : Fribs8\_13
- Track 20 : Juicebox\_13

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

The start number called the most often in the published annotations is 4, it was called in 59 of the 60 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agatha\_12, AikoCarson\_11, Amok\_11, AndPeggy\_11, Axym\_12, Azira\_14, Balloona\_11, Bavidard\_12, BigChungus\_11, BillDoor\_14, Biskit\_13, Blondies\_13, Bubble\_12, Burnsey\_12, Button\_13, Buttrmlkdreams\_12, CanesSauce\_12, CaramelLatte\_12, Carsonalex\_13, CherryonLim\_13, ChickenTender\_14, ChocoMunchkin\_12, Cleo\_12, CocoaPuff\_11, Cozz\_12, Dre3\_12, ElJefes\_11, Elinal\_13, Elliott\_12, Emalyn\_11, Feastonyeet\_11, Fribs8\_13, GiKK\_15, Gibbous\_12, Hexbug\_14, HippoPololi\_14, Horseradish\_13, Jamzy\_15, KayGee\_12, Lauer\_11, MAnor\_12, MScarn\_14, MaVan\_14, Margaret\_15, Mayweather\_13, McDazzle\_11, MunkgeeRoachy\_12, Nibbles\_14, Nina\_13, Nodigi\_14, Orla\_14, Pons\_12, PotPie\_12, PsychoKiller\_12, Quasar\_12, RADical\_13, RSchmailzl\_13, RanchParmCat\_15, RedBaron\_13, SheckWes\_11, SketchMex\_11, Socotra\_13, Sopespian\_12, Starburst\_13, SteamedHams\_14, SummitAcademy\_11, Survivors\_14, SweatNTears\_14, Tolls\_14, Troje\_12, Typhonomachy\_12, Vine\_13, Wolfwood\_16, Yakult\_13, Yarn\_11, Yucky\_12, Yummy\_13, Zareef\_14,

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

- GTE2\_10,

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

- Juicebox\_13,

### Summary by start number:

Start 4:

- Found in 79 of 80 ( 98.8% ) of genes in pham
- Manual Annotations of this start: 59 of 60
- Called 98.7% of time when present
- Phage (with cluster) where this start called: Agatha\_12 (CT), AikoCarson\_11 (CT), Amok\_11 (CT), AndPeggy\_11 (CT), Axym\_12 (CT), Azira\_14 (CT), Balloona\_11 (CT), Bavidard\_12 (CT), BigChungus\_11 (CT), BillDoor\_14 (CT), Biskit\_13 (CT), Blondies\_13 (CT), Bubble\_12 (CT), Burnsey\_12 (CT), Button\_13 (CT), Buttrmlkdreams\_12 (CT), CanesSauce\_12 (CT), CaramelLatte\_12 (CT), Carsonalex\_13 (CT), CherryonLim\_13 (CT), ChickenTender\_14 (CT), ChocoMunchkin\_12 (CT), Cleo\_12 (CT), CocoaPuff\_11 (CT), Cozz\_12 (CT), Dre3\_12 (CT), ElJefes\_11 (CT), Elinal\_13 (CT), Elliott\_12 (CT), Emalyn\_11 (CT), Feastonyeet\_11 (CT), Fribs8\_13 (CT), GiKK\_15 (CT), Gibbous\_12 (CT), Hexbug\_14 (CT), HippoPololi\_14 (CT), Horseradish\_13 (CT), Jamzy\_15 (CT), KayGee\_12 (CT), Lauer\_11 (CT), MAnor\_12 (CT), MScarn\_14 (CT), MaVan\_14 (CT), Margaret\_15 (CT), Mayweather\_13 (CT), McDazzle\_11 (CT), MunkgeeRoachy\_12 (CT), Nibbles\_14 (CT), Nina\_13 (CT), Nodigi\_14 (CT), Orla\_14 (CT), Pons\_12 (CT), PotPie\_12 (CT), PsychoKiller\_12 (CT), Quasar\_12 (CT), RADical\_13 (CT), RSchmailzl\_13 (CT), RanchParmCat\_15 (CT), RedBaron\_13 (CT), SheckWes\_11 (CT), SketchMex\_11 (CT), Socotra\_13 (CT), Sopespian\_12 (CT), Starburst\_13 (CT), SteamedHams\_14 (CT), SummitAcademy\_11 (CT), Survivors\_14 (CT), SweatNTears\_14 (CT), Tolls\_14 (CT), Troje\_12 (CT), Typhonomachy\_12 (CT), Vine\_13 (CT), Wolfwood\_16 (CT), Yakult\_13 (CT), Yarn\_11 (CT), Yucky\_12 (CT), Yummy\_13 (CT), Zareef\_14 (CT),

Start 5:

- Found in 1 of 80 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 60

- Called 100.0% of time when present
- Phage (with cluster) where this start called: Juicebox\_13 (singleton),

Start 11:

- Found in 73 of 80 ( 91.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 1.4% of time when present
- Phage (with cluster) where this start called: GTE2\_10 (CT),

### Summary by clusters:

There are 2 clusters represented in this pham: singleton, CT,

Info for manual annotations of cluster CT:

- Start number 4 was manually annotated 59 times for cluster CT.

### **Gene Information:**

Gene: Agatha\_12 Start: 7522, Stop: 7932, Start Num: 4

Candidate Starts for Agatha\_12:

(Start: 4 @7522 has 59 MA's), (10, 7564), (11, 7570), (15, 7609), (20, 7651), (27, 7705), (33, 7765),

Gene: AikoCarson\_11 Start: 7243, Stop: 7653, Start Num: 4

Candidate Starts for AikoCarson\_11:

(Start: 4 @7243 has 59 MA's), (10, 7285), (11, 7291), (15, 7330), (20, 7372), (27, 7426), (32, 7474),

Gene: Amok\_11 Start: 7243, Stop: 7653, Start Num: 4

Candidate Starts for Amok\_11:

(Start: 4 @7243 has 59 MA's), (10, 7285), (11, 7291), (15, 7330), (20, 7372), (27, 7426), (32, 7474),

Gene: AndPeggy\_11 Start: 7534, Stop: 7944, Start Num: 4

Candidate Starts for AndPeggy\_11:

(Start: 4 @7534 has 59 MA's), (8, 7570), (10, 7576), (11, 7582), (15, 7621), (20, 7663), (27, 7717), (33, 7777),

Gene: Axym\_12 Start: 7522, Stop: 7932, Start Num: 4

Candidate Starts for Axym\_12:

(Start: 4 @7522 has 59 MA's), (10, 7564), (11, 7570), (15, 7609), (20, 7651), (27, 7705), (33, 7765),

Gene: Azira\_14 Start: 8446, Stop: 8850, Start Num: 4

Candidate Starts for Azira\_14:

(Start: 4 @8446 has 59 MA's), (11, 8494), (21, 8575), (25, 8614), (29, 8641), (34, 8689), (37, 8755),

Gene: Balloona\_11 Start: 7288, Stop: 7698, Start Num: 4

Candidate Starts for Balloona\_11:

(Start: 4 @7288 has 59 MA's), (11, 7333), (15, 7372), (19, 7411), (22, 7423), (30, 7492), (37, 7597), (42, 7672),

Gene: Bavidard\_12 Start: 8068, Stop: 8478, Start Num: 4

Candidate Starts for Bavidard\_12:

(Start: 4 @8068 has 59 MA's), (11, 8113), (15, 8152), (19, 8191), (22, 8203), (30, 8272), (37, 8377), (42, 8452),

Gene: BigChungus\_11 Start: 7313, Stop: 7723, Start Num: 4

Candidate Starts for BigChungus\_11:

(Start: 4 @7313 has 59 MA's), (11, 7358), (15, 7397), (19, 7436), (22, 7448), (30, 7517), (37, 7622), (42, 7697),

Gene: BillDoor\_14 Start: 7499, Stop: 7909, Start Num: 4

Candidate Starts for BillDoor\_14:

(Start: 4 @7499 has 59 MA's), (8, 7535), (10, 7541), (11, 7547), (15, 7586), (20, 7628), (27, 7682), (33, 7742),

Gene: Biskit\_13 Start: 7506, Stop: 7916, Start Num: 4

Candidate Starts for Biskit\_13:

(Start: 4 @7506 has 59 MA's), (10, 7548), (11, 7554), (15, 7593), (20, 7635), (27, 7689), (32, 7737), (33, 7749),

Gene: Blondies\_13 Start: 7492, Stop: 7902, Start Num: 4

Candidate Starts for Blondies\_13:

(Start: 4 @7492 has 59 MA's), (10, 7534), (11, 7540), (15, 7579), (20, 7621), (27, 7675), (32, 7723), (33, 7735),

Gene: Bubble\_12 Start: 7522, Stop: 7932, Start Num: 4

Candidate Starts for Bubble\_12:

(Start: 4 @7522 has 59 MA's), (10, 7564), (11, 7570), (15, 7609), (20, 7651), (27, 7705), (33, 7765),

Gene: Burnsey\_12 Start: 7523, Stop: 7933, Start Num: 4

Candidate Starts for Burnsey\_12:

(Start: 4 @7523 has 59 MA's), (9, 7562), (10, 7565), (11, 7571), (15, 7610), (20, 7652), (27, 7706), (33, 7766),

Gene: Button\_13 Start: 7530, Stop: 7934, Start Num: 4

Candidate Starts for Button\_13:

(Start: 4 @7530 has 59 MA's), (10, 7572), (15, 7620), (17, 7641), (32, 7764), (36, 7809),

Gene: Buttrmlkdreams\_12 Start: 7491, Stop: 7901, Start Num: 4

Candidate Starts for Buttrmlkdreams\_12:

(Start: 4 @7491 has 59 MA's), (10, 7533), (11, 7539), (15, 7578), (20, 7620), (27, 7674), (32, 7722), (33, 7734),

Gene: CanesSauce\_12 Start: 7535, Stop: 7945, Start Num: 4

Candidate Starts for CanesSauce\_12:

(Start: 4 @7535 has 59 MA's), (8, 7571), (10, 7577), (11, 7583), (15, 7622), (20, 7664), (27, 7718), (33, 7778),

Gene: Caramellatte\_12 Start: 7535, Stop: 7945, Start Num: 4

Candidate Starts for Caramellatte\_12:

(Start: 4 @7535 has 59 MA's), (8, 7571), (10, 7577), (11, 7583), (15, 7622), (20, 7664), (27, 7718), (33, 7778),

Gene: Carsonalex\_13 Start: 7579, Stop: 7989, Start Num: 4

Candidate Starts for Carsonalex\_13:

(Start: 4 @7579 has 59 MA's), (10, 7621), (11, 7627), (15, 7666), (20, 7708), (27, 7762), (33, 7822),

Gene: CherryonLim\_13 Start: 8039, Stop: 8449, Start Num: 4

Candidate Starts for CherryonLim\_13:

(Start: 4 @8039 has 59 MA's), (11, 8084), (15, 8123), (19, 8162), (22, 8174), (30, 8243), (37, 8348), (42, 8423),

Gene: ChickenTender\_14 Start: 7565, Stop: 7975, Start Num: 4

Candidate Starts for ChickenTender\_14:

(Start: 4 @7565 has 59 MA's), (10, 7607), (11, 7613), (15, 7652), (20, 7694), (26, 7739), (27, 7748), (33, 7808),

Gene: ChocoMunchkin\_12 Start: 7535, Stop: 7945, Start Num: 4

Candidate Starts for ChocoMunchkin\_12:

(Start: 4 @7535 has 59 MA's), (8, 7571), (10, 7577), (11, 7583), (15, 7622), (20, 7664), (27, 7718), (33, 7778),

Gene: Cleo\_12 Start: 7746, Stop: 8144, Start Num: 4

Candidate Starts for Cleo\_12:

(Start: 4 @7746 has 59 MA's), (11, 7794), (15, 7830), (21, 7875), (23, 7884), (25, 7914), (29, 7941), (30, 7950), (31, 7962), (34, 7989), (37, 8055), (40, 8088),

Gene: CocoaPuff\_11 Start: 7288, Stop: 7698, Start Num: 4

Candidate Starts for CocoaPuff\_11:

(Start: 4 @7288 has 59 MA's), (11, 7333), (15, 7372), (19, 7411), (22, 7423), (30, 7492), (37, 7597), (42, 7672),

Gene: Cozz\_12 Start: 7523, Stop: 7933, Start Num: 4

Candidate Starts for Cozz\_12:

(Start: 4 @7523 has 59 MA's), (10, 7565), (11, 7571), (15, 7610), (20, 7652), (27, 7706), (33, 7766),

Gene: Dre3\_12 Start: 7693, Stop: 8091, Start Num: 4

Candidate Starts for Dre3\_12:

(Start: 4 @7693 has 59 MA's), (11, 7741), (15, 7777), (21, 7822), (23, 7831), (25, 7861), (29, 7888), (30, 7897), (31, 7909), (34, 7936), (37, 8002), (40, 8035),

Gene: ElJefes\_11 Start: 7765, Stop: 8175, Start Num: 4

Candidate Starts for ElJefes\_11:

(Start: 4 @7765 has 59 MA's), (11, 7810), (15, 7849), (19, 7888), (22, 7900), (30, 7969), (37, 8074), (42, 8149),

Gene: Elinal\_13 Start: 7294, Stop: 7704, Start Num: 4

Candidate Starts for Elinal\_13:

(Start: 4 @7294 has 59 MA's), (11, 7339), (15, 7378), (19, 7417), (22, 7429), (30, 7498), (37, 7603), (42, 7678),

Gene: Elliott\_12 Start: 7522, Stop: 7932, Start Num: 4

Candidate Starts for Elliott\_12:

(Start: 4 @7522 has 59 MA's), (10, 7564), (11, 7570), (15, 7609), (20, 7651), (27, 7705), (33, 7765),

Gene: Emalyn\_11 Start: 7242, Stop: 7652, Start Num: 4

Candidate Starts for Emalyn\_11:

(Start: 4 @7242 has 59 MA's), (10, 7284), (11, 7290), (15, 7329), (20, 7371), (27, 7425), (32, 7473),

Gene: Feastonyeet\_11 Start: 7313, Stop: 7723, Start Num: 4

Candidate Starts for Feastonyeet\_11:

(Start: 4 @7313 has 59 MA's), (11, 7358), (15, 7397), (19, 7436), (22, 7448), (30, 7517), (37, 7622), (42, 7697),

Gene: Fribs8\_13 Start: 8259, Stop: 8663, Start Num: 4

Candidate Starts for Fribs8\_13:

(Start: 4 @8259 has 59 MA's), (11, 8307), (21, 8388), (25, 8427), (29, 8454), (34, 8502), (35, 8511), (37, 8568),

Gene: GTE2\_10 Start: 7243, Stop: 7605, Start Num: 11

Candidate Starts for GTE2\_10:

(Start: 4 @7195 has 59 MA's), (8, 7231), (10, 7237), (11, 7243), (15, 7282), (20, 7324), (27, 7378), (32, 7426), (33, 7438),

Gene: GiKK\_15 Start: 7833, Stop: 8237, Start Num: 4

Candidate Starts for GiKK\_15:

(Start: 4 @7833 has 59 MA's), (10, 7875), (15, 7923), (17, 7944), (32, 8067), (36, 8112),

Gene: Gibbous\_12 Start: 7693, Stop: 8091, Start Num: 4

Candidate Starts for Gibbous\_12:

(Start: 4 @7693 has 59 MA's), (11, 7741), (15, 7777), (21, 7822), (23, 7831), (25, 7861), (29, 7888), (30, 7897), (31, 7909), (34, 7936), (37, 8002), (40, 8035),

Gene: Hexbug\_14 Start: 8519, Stop: 8923, Start Num: 4

Candidate Starts for Hexbug\_14:

(Start: 4 @8519 has 59 MA's), (6, 8540), (11, 8567), (15, 8609), (28, 8708), (36, 8798), (38, 8840), (41, 8894), (43, 8918),

Gene: HippoPololi\_14 Start: 8345, Stop: 8743, Start Num: 4

Candidate Starts for HippoPololi\_14:

(Start: 4 @8345 has 59 MA's), (11, 8393), (21, 8474), (23, 8483), (24, 8504), (25, 8513), (29, 8540), (30, 8549), (31, 8561), (34, 8588), (35, 8597), (37, 8654),

Gene: Horseradish\_13 Start: 7404, Stop: 7814, Start Num: 4

Candidate Starts for Horseradish\_13:

(Start: 4 @7404 has 59 MA's), (11, 7452), (15, 7491), (20, 7533), (27, 7587), (33, 7647),

Gene: Jamzy\_15 Start: 7843, Stop: 8247, Start Num: 4

Candidate Starts for Jamzy\_15:

(Start: 4 @7843 has 59 MA's), (10, 7885), (15, 7933), (17, 7954), (32, 8077), (36, 8122),

Gene: Juicebox\_13 Start: 8820, Stop: 9218, Start Num: 5

Candidate Starts for Juicebox\_13:

(Start: 5 @8820 has 1 MA's), (14, 8877), (18, 8916), (39, 9132),

Gene: KayGee\_12 Start: 7294, Stop: 7704, Start Num: 4

Candidate Starts for KayGee\_12:

(Start: 4 @7294 has 59 MA's), (11, 7339), (15, 7378), (19, 7417), (22, 7429), (30, 7498), (37, 7603), (42, 7678),

Gene: Lauer\_11 Start: 7343, Stop: 7753, Start Num: 4

Candidate Starts for Lauer\_11:

(Start: 4 @7343 has 59 MA's), (11, 7388), (15, 7427), (19, 7466), (22, 7478), (30, 7547), (37, 7652), (42, 7727),

Gene: MAnor\_12 Start: 7284, Stop: 7694, Start Num: 4

Candidate Starts for MAnor\_12:

(Start: 4 @7284 has 59 MA's), (11, 7329), (15, 7368), (19, 7407), (22, 7419), (30, 7488), (37, 7593), (42, 7668),

Gene: MScarn\_14 Start: 7491, Stop: 7901, Start Num: 4

Candidate Starts for MScarn\_14:

(Start: 4 @7491 has 59 MA's), (10, 7533), (11, 7539), (15, 7578), (20, 7620), (27, 7674), (32, 7722), (33, 7734),

Gene: MaVan\_14 Start: 8446, Stop: 8850, Start Num: 4

Candidate Starts for MaVan\_14:

(Start: 4 @8446 has 59 MA's), (11, 8494), (21, 8575), (25, 8614), (29, 8641), (34, 8689), (37, 8755),

Gene: Margaret\_15 Start: 8228, Stop: 8632, Start Num: 4

Candidate Starts for Margaret\_15:

(Start: 4 @8228 has 59 MA's), (6, 8249), (7, 8252), (10, 8270), (15, 8318), (16, 8330), (28, 8417), (32, 8462), (38, 8549), (43, 8627),

Gene: Mayweather\_13 Start: 7917, Stop: 8327, Start Num: 4

Candidate Starts for Mayweather\_13:

(Start: 4 @7917 has 59 MA's), (11, 7962), (15, 8001), (19, 8040), (22, 8052), (30, 8121), (37, 8226), (42, 8301),

Gene: McDazzle\_11 Start: 7759, Stop: 8169, Start Num: 4

Candidate Starts for McDazzle\_11:

(Start: 4 @7759 has 59 MA's), (11, 7804), (15, 7843), (19, 7882), (22, 7894), (30, 7963), (37, 8068), (42, 8143),

Gene: MunkgeeRoachy\_12 Start: 7570, Stop: 7980, Start Num: 4

Candidate Starts for MunkgeeRoachy\_12:

(Start: 4 @7570 has 59 MA's), (10, 7612), (11, 7618), (15, 7657), (20, 7699), (27, 7753), (33, 7813),

Gene: Nibbles\_14 Start: 8446, Stop: 8850, Start Num: 4

Candidate Starts for Nibbles\_14:

(Start: 4 @8446 has 59 MA's), (11, 8494), (21, 8575), (25, 8614), (29, 8641), (34, 8689), (37, 8755),

Gene: Nina\_13 Start: 8556, Stop: 8966, Start Num: 4

Candidate Starts for Nina\_13:

(Start: 4 @8556 has 59 MA's), (10, 8598), (11, 8604), (15, 8643), (20, 8685), (27, 8739), (33, 8799),

Gene: Nodigi\_14 Start: 8512, Stop: 8916, Start Num: 4

Candidate Starts for Nodigi\_14:

(Start: 4 @8512 has 59 MA's), (11, 8560), (15, 8602), (28, 8701), (36, 8791), (38, 8833), (41, 8887), (43, 8911),

Gene: Orla\_14 Start: 8516, Stop: 8920, Start Num: 4

Candidate Starts for Orla\_14:

(Start: 4 @8516 has 59 MA's), (11, 8564), (15, 8606), (28, 8705), (36, 8795), (38, 8837), (41, 8891), (43, 8915),

Gene: Pons\_12 Start: 7296, Stop: 7706, Start Num: 4

Candidate Starts for Pons\_12:

(Start: 4 @7296 has 59 MA's), (11, 7341), (15, 7380), (19, 7419), (22, 7431), (30, 7500), (37, 7605), (42, 7680),

Gene: PotPie\_12 Start: 8147, Stop: 8557, Start Num: 4

Candidate Starts for PotPie\_12:

(Start: 4 @8147 has 59 MA's), (11, 8192), (15, 8231), (19, 8270), (22, 8282), (30, 8351), (37, 8456), (42, 8531),

Gene: PsychoKiller\_12 Start: 7522, Stop: 7932, Start Num: 4

Candidate Starts for PsychoKiller\_12:

(Start: 4 @7522 has 59 MA's), (10, 7564), (11, 7570), (15, 7609), (20, 7651), (27, 7705), (33, 7765),

Gene: Quasar\_12 Start: 8131, Stop: 8541, Start Num: 4

Candidate Starts for Quasar\_12:

(Start: 4 @8131 has 59 MA's), (10, 8173), (11, 8179), (15, 8218), (20, 8260), (27, 8314), (33, 8374),

Gene: RADical\_13 Start: 7523, Stop: 7933, Start Num: 4

Candidate Starts for RADical\_13:

(Start: 4 @7523 has 59 MA's), (10, 7565), (11, 7571), (15, 7610), (20, 7652), (27, 7706), (33, 7766),

Gene: RSchmailzl\_13 Start: 7663, Stop: 8073, Start Num: 4

Candidate Starts for RSchmailzl\_13:

(Start: 4 @7663 has 59 MA's), (10, 7705), (11, 7711), (15, 7750), (20, 7792), (27, 7846), (33, 7906),

Gene: RanchParmCat\_15 Start: 8228, Stop: 8632, Start Num: 4

Candidate Starts for RanchParmCat\_15:

(Start: 4 @8228 has 59 MA's), (6, 8249), (7, 8252), (10, 8270), (15, 8318), (16, 8330), (17, 8339), (28, 8417), (32, 8462), (38, 8549), (43, 8627),

Gene: RedBaron\_13 Start: 7567, Stop: 7977, Start Num: 4

Candidate Starts for RedBaron\_13:

(Start: 4 @7567 has 59 MA's), (10, 7609), (11, 7615), (15, 7654), (20, 7696), (27, 7750), (33, 7810),

Gene: SheckWes\_11 Start: 7284, Stop: 7694, Start Num: 4

Candidate Starts for SheckWes\_11:

(Start: 4 @7284 has 59 MA's), (11, 7329), (15, 7368), (19, 7407), (22, 7419), (30, 7488), (37, 7593), (42, 7668),

Gene: SketchMex\_11 Start: 7506, Stop: 7916, Start Num: 4

Candidate Starts for SketchMex\_11:

(Start: 4 @7506 has 59 MA's), (10, 7548), (11, 7554), (15, 7593), (20, 7635), (27, 7689), (32, 7737), (33, 7749),

Gene: Socotra\_13 Start: 7522, Stop: 7932, Start Num: 4

Candidate Starts for Socotra\_13:

(Start: 4 @7522 has 59 MA's), (10, 7564), (11, 7570), (15, 7609), (20, 7651), (27, 7705), (33, 7765),

Gene: Sopespian\_12 Start: 7522, Stop: 7932, Start Num: 4

Candidate Starts for Sopespian\_12:

(Start: 4 @7522 has 59 MA's), (10, 7564), (11, 7570), (15, 7609), (20, 7651), (27, 7705), (33, 7765),

Gene: Starburst\_13 Start: 7522, Stop: 7932, Start Num: 4

Candidate Starts for Starburst\_13:

(Start: 4 @7522 has 59 MA's), (10, 7564), (11, 7570), (15, 7609), (20, 7651), (27, 7705), (33, 7765),

Gene: SteamedHams\_14 Start: 7535, Stop: 7945, Start Num: 4

Candidate Starts for SteamedHams\_14:

(Start: 4 @7535 has 59 MA's), (8, 7571), (10, 7577), (11, 7583), (15, 7622), (20, 7664), (27, 7718), (33, 7778),

Gene: SummitAcademy\_11 Start: 7362, Stop: 7772, Start Num: 4

Candidate Starts for SummitAcademy\_11:

(Start: 4 @7362 has 59 MA's), (11, 7407), (15, 7446), (19, 7485), (22, 7497), (30, 7566), (37, 7671), (42, 7746),

Gene: Survivors\_14 Start: 8300, Stop: 8704, Start Num: 4

Candidate Starts for Survivors\_14:

(Start: 4 @8300 has 59 MA's), (11, 8348), (21, 8429), (25, 8468), (29, 8495), (34, 8543), (37, 8609),

Gene: SweatNTears\_14 Start: 8017, Stop: 8427, Start Num: 4

Candidate Starts for SweatNTears\_14:

(Start: 4 @8017 has 59 MA's), (10, 8059), (11, 8065), (15, 8104), (20, 8146), (27, 8200), (32, 8248), (33, 8260),

Gene: Tolls\_14 Start: 7538, Stop: 7948, Start Num: 4

Candidate Starts for Tolls\_14:

(Start: 4 @7538 has 59 MA's), (8, 7574), (10, 7580), (11, 7586), (15, 7625), (20, 7667), (27, 7721), (33, 7781),

Gene: Troje\_12 Start: 7491, Stop: 7901, Start Num: 4

Candidate Starts for Troje\_12:

(Start: 4 @7491 has 59 MA's), (10, 7533), (11, 7539), (15, 7578), (20, 7620), (27, 7674), (32, 7722), (33, 7734),

Gene: Typhonomachy\_12 Start: 7522, Stop: 7932, Start Num: 4

Candidate Starts for Typhonomachy\_12:

(Start: 4 @7522 has 59 MA's), (10, 7564), (11, 7570), (15, 7609), (20, 7651), (27, 7705), (33, 7765),

Gene: Vine\_13 Start: 8291, Stop: 8701, Start Num: 4

Candidate Starts for Vine\_13:

(Start: 4 @8291 has 59 MA's), (11, 8336), (15, 8375), (19, 8414), (22, 8426), (30, 8495), (37, 8600), (42, 8675),

Gene: Wolfwood\_16 Start: 8445, Stop: 8849, Start Num: 4

Candidate Starts for Wolfwood\_16:

(Start: 4 @8445 has 59 MA's), (11, 8493), (21, 8574), (25, 8613), (29, 8640), (34, 8688), (37, 8754),

Gene: Yakult\_13 Start: 7424, Stop: 7828, Start Num: 4

Candidate Starts for Yakult\_13:

(1, 7289), (2, 7292), (3, 7319), (Start: 4 @7424 has 59 MA's), (10, 7466), (12, 7475), (13, 7478), (15, 7514), (30, 7634),

Gene: Yarn\_11 Start: 7528, Stop: 7938, Start Num: 4

Candidate Starts for Yarn\_11:

(Start: 4 @7528 has 59 MA's), (8, 7564), (10, 7570), (11, 7576), (15, 7615), (20, 7657), (27, 7711), (33, 7771),

Gene: Yucky\_12 Start: 8151, Stop: 8561, Start Num: 4

Candidate Starts for Yucky\_12:

(Start: 4 @8151 has 59 MA's), (11, 8196), (15, 8235), (19, 8274), (22, 8286), (30, 8355), (37, 8460), (42, 8535),

Gene: Yummy\_13 Start: 7404, Stop: 7814, Start Num: 4

Candidate Starts for Yummy\_13:

(Start: 4 @7404 has 59 MA's), (11, 7452), (15, 7491), (20, 7533), (27, 7587), (33, 7647),

Gene: Zareef\_14 Start: 8447, Stop: 8851, Start Num: 4

Candidate Starts for Zareef\_14:

(Start: 4 @8447 has 59 MA's), (11, 8495), (21, 8576), (25, 8615), (29, 8642), (34, 8690), (37, 8756),