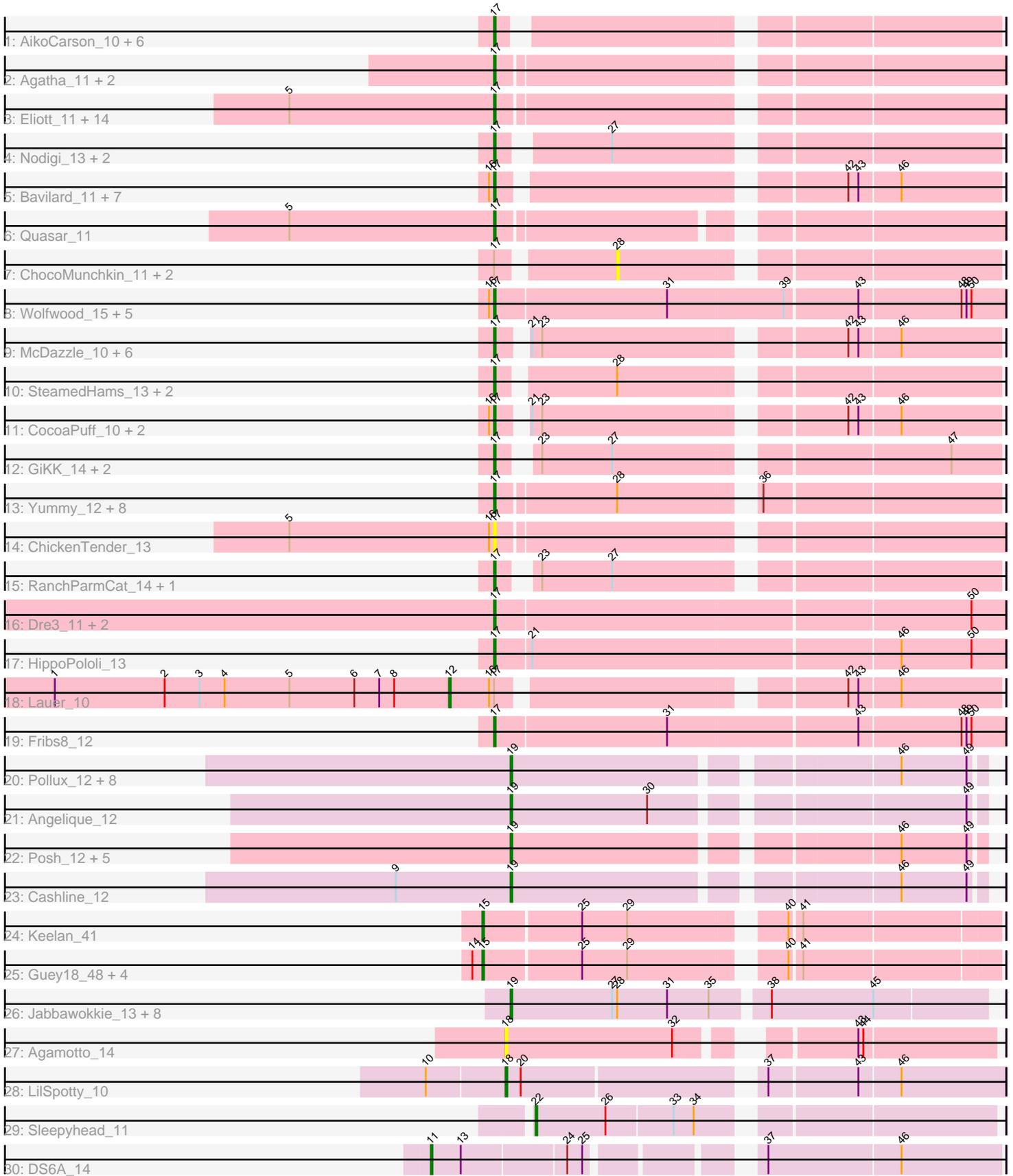


Pham 283632



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 283632 Report

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

Pham number 283632 has 116 members, 24 are drafts.

Phages represented in each track:

- Track 1 : AikoCarson\_10, Amok\_10, Yakult\_12, BillDoor\_13, Yarn\_10, Emalyn\_10, AndPeggy\_10
- Track 2 : Agatha\_11, GoldHunter\_12, Burnsey\_11
- Track 3 : Elliott\_11, Cozz\_11, Bubble\_11, Nina\_12, PsychoKiller\_11, RSchmailzl\_12, Starburst\_12, Carsonalex\_12, MunkgeeRoachy\_11, Typhonmacy\_11, Sopespian\_11, RADical\_12, RedBaron\_12, Socotra\_12, Axym\_11
- Track 4 : Nodigi\_13, Hexbug\_13, Orla\_13
- Track 5 : Bavidard\_11, Feastonyeet\_10, Vine\_12, KayGee\_11, Balloona\_10, Yucky\_11, BigChungus\_10, Elinal\_12
- Track 6 : Quasar\_11
- Track 7 : ChocoMunchkin\_11, CanesSauce\_11, CaramelLatte\_11
- Track 8 : Wolfwood\_15, Survivors\_13, Zareef\_13, Nibbles\_13, MaVan\_13, Azira\_13
- Track 9 : McDazzle\_10, Mayweather\_12, ElJefes\_10, CherryonLim\_12, SheckWes\_10, MAnor\_11, Pons\_11
- Track 10 : SteamedHams\_13, Tolls\_13, GTE2\_09
- Track 11 : CocoaPuff\_10, SummitAcademy\_10, PotPie\_11
- Track 12 : GiKK\_14, Button\_12, Jamzy\_14
- Track 13 : Yummy\_12, Biskit\_12, SweatNTears\_13, Buttrmlkdreams\_11, Troje\_11, SketchMex\_10, MScarn\_13, Horseradish\_12, Blondies\_12
- Track 14 : ChickenTender\_13
- Track 15 : RanchParmCat\_14, Margaret\_14
- Track 16 : Dre3\_11, Cleo\_11, Gibbous\_11
- Track 17 : HippoPololi\_13
- Track 18 : Lauer\_10
- Track 19 : Fribs8\_12
- Track 20 : Pollux\_12, Bradissa\_12, Floral\_12, BritBrat\_12, EMSquaredA\_12, Lilas\_12, EnalisNailo\_12, Confidence\_12, Marteena\_12
- Track 21 : Angelique\_12
- Track 22 : Posh\_12, Wrigley\_12, Pytheas\_12, LonelyBoi\_12, Jablanski\_12, BeeGee\_12
- Track 23 : Cashline\_12
- Track 24 : Keelan\_41
- Track 25 : Guey18\_48, Volt\_45, Fryberger\_43, Ronaldo\_46, Ziko\_46
- Track 26 : Jabbawokkie\_13, Avani\_12, SilverChicken\_12, Yoshi\_12, Soul22\_12, Che9d\_12, Demsculpinboyz\_12, Zapner\_13, Blarby\_13
- Track 27 : Agamoto\_14
- Track 28 : LilSpotty\_10

- Track 29 : Sleepyhead\_11
- Track 30 : DS6A\_14

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

The start number called the most often in the published annotations is 17, it was called in 58 of the 92 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agatha\_11, AikoCarson\_10, Amok\_10, AndPeggy\_10, Axym\_11, Azira\_13, Balloona\_10, Bavidard\_11, BigChungus\_10, BillDoor\_13, Biskit\_12, Blondies\_12, Bubble\_11, Burnsey\_11, Button\_12, Buttrmlkdreams\_11, Carsonalex\_12, CherryonLim\_12, ChickenTender\_13, Cleo\_11, CocoaPuff\_10, Cozz\_11, Dre3\_11, ElJefes\_10, Elinal\_12, Elliott\_11, Emalyn\_10, Feastonyeet\_10, Fribs8\_12, GTE2\_09, GiKK\_14, Gibbous\_11, GoldHunter\_12, Hexbug\_13, HippoPololi\_13, Horseradish\_12, Jamzy\_14, KayGee\_11, MAnor\_11, MScarn\_13, MaVan\_13, Margaret\_14, Mayweather\_12, McDazzle\_10, MunkgeeRoachy\_11, Nibbles\_13, Nina\_12, Nodigi\_13, Orla\_13, Pons\_11, PotPie\_11, PsychoKiller\_11, Quasar\_11, RADical\_12, RSchmailzl\_12, RanchParmCat\_14, RedBaron\_12, SheckWes\_10, SketchMex\_10, Socotra\_12, Sopespian\_11, Starburst\_12, SteamedHams\_13, SummitAcademy\_10, Survivors\_13, SweatNTears\_13, Tolls\_13, Troje\_11, Typhonomachy\_11, Vine\_12, Wolfwood\_15, Yakult\_12, Yarn\_10, Yucky\_11, Yummy\_12, Zareef\_13,

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

- CanesSauce\_11, CaramellLatte\_11, ChocoMunchkin\_11, Lauer\_10,

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

- Agamoto\_14, Angelique\_12, Avani\_12, BeeGee\_12, Blarby\_13, Bradissa\_12, BritBrat\_12, Cashline\_12, Che9d\_12, Confidence\_12, DS6A\_14, Demsculpinboyz\_12, EMSquaredA\_12, EnalisNailo\_12, Floral\_12, Fryberger\_43, Guey18\_48, Jabbawokkie\_13, Jablanski\_12, Keelan\_41, LilSpotty\_10, Lilas\_12, LonelyBoi\_12, Marteena\_12, Pollux\_12, Posh\_12, Pytheas\_12, Ronaldo\_46, SilverChicken\_12, Sleepyhead\_11, Soul22\_12, Volt\_45, Wrigley\_12, Yoshi\_12, Zapner\_13, Ziko\_46,

**Summary by start number:**

Start 11:

- Found in 1 of 116 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 92
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DS6A\_14 (singleton),

Start 12:

- Found in 1 of 116 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 92
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Lauer\_10 (CT),

Start 15:

- Found in 6 of 116 ( 5.2% ) of genes in pham
- Manual Annotations of this start: 6 of 92
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Fryberger\_43 (DP), Guey18\_48 (DP), Keelan\_41 (DP), Ronaldo\_46 (DP), Volt\_45 (DP), Ziko\_46 (DP),

Start 17:

- Found in 80 of 116 ( 69.0% ) of genes in pham
- Manual Annotations of this start: 58 of 92
- Called 95.0% of time when present
- Phage (with cluster) where this start called: Agatha\_11 (CT), AikoCarson\_10 (CT), Amok\_10 (CT), AndPeggy\_10 (CT), Axym\_11 (CT), Azira\_13 (CT), Balloona\_10 (CT), Bavidard\_11 (CT), BigChungus\_10 (CT), BillDoor\_13 (CT), Biskit\_12 (CT), Blondies\_12 (CT), Bubble\_11 (CT), Burnsey\_11 (CT), Button\_12 (CT), Buttrmilkdreams\_11 (CT), Carsonalex\_12 (CT), CherryonLim\_12 (CT), ChickenTender\_13 (CT), Cleo\_11 (CT), CocoaPuff\_10 (CT), Cozz\_11 (CT), Dre3\_11 (CT), ElJefes\_10 (CT), Elinal\_12 (CT), Elliott\_11 (CT), Emalyn\_10 (CT), Feastonyeet\_10 (CT), Fribs8\_12 (CT), GTE2\_09 (CT), GiKK\_14 (CT), Gibbous\_11 (CT), GoldHunter\_12 (CT), Hexbug\_13 (CT), HippoPololi\_13 (CT), Horseradish\_12 (CT), Jamzy\_14 (CT), KayGee\_11 (CT), MAnor\_11 (CT), MScarn\_13 (CT), MaVan\_13 (CT), Margaret\_14 (CT), Mayweather\_12 (CT), McDazzle\_10 (CT), MunkgeeRoachy\_11 (CT), Nibbles\_13 (CT), Nina\_12 (CT), Nodigi\_13 (CT), Orla\_13 (CT), Pons\_11 (CT), PotPie\_11 (CT), PsychoKiller\_11 (CT), Quasar\_11 (CT), RADical\_12 (CT), RSchmailzl\_12 (CT), RanchParmCat\_14 (CT), RedBaron\_12 (CT), SheckWes\_10 (CT), SketchMex\_10 (CT), Socotra\_12 (CT), Sopespian\_11 (CT), Starburst\_12 (CT), SteamedHams\_13 (CT), SummitAcademy\_10 (CT), Survivors\_13 (CT), SweatNTears\_13 (CT), Tolls\_13 (CT), Troje\_11 (CT), Typhonmarchy\_11 (CT), Vine\_12 (CT), Wolfwood\_15 (CT), Yakult\_12 (CT), Yarn\_10 (CT), Yucky\_11 (CT), Yummy\_12 (CT), Zareef\_13 (CT),

Start 18:

- Found in 2 of 116 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 1 of 92
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Agamoto\_14 (FR), LilSpotty\_10 (singleton),

Start 19:

- Found in 26 of 116 ( 22.4% ) of genes in pham
- Manual Annotations of this start: 24 of 92
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Angelique\_12 (CY1), Avani\_12 (F2), BeeGee\_12 (CY5), Blarby\_13 (F), Bradissa\_12 (CY1), BritBrat\_12 (CY2), Cashline\_12 (CY6), Che9d\_12 (F2), Confidence\_12 (CY1), Demsculpinboyz\_12 (F2), EMSquaredA\_12 (CY1), EnalisNailo\_12 (CY1), Floral\_12 (CY1), Jabbawokkie\_13 (F2), Jablanski\_12 (CY3), Lilas\_12 (CY1), LonelyBoi\_12 (CY7), Marteena\_12 (CY1), Pollux\_12 (CY1), Posh\_12 (CY4), Pytheas\_12 (CY3), SilverChicken\_12 (F2), Soul22\_12 (F2), Wrigley\_12 (CY4), Yoshi\_12 (F2), Zapner\_13 (F2),

Start 22:

- Found in 1 of 116 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 92

- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sleepyhead\_11 (singleton),

Start 28:

- Found in 24 of 116 ( 20.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 12.5% of time when present
- Phage (with cluster) where this start called: CanesSauce\_11 (CT), CaramelLatte\_11 (CT), ChocoMunchkin\_11 (CT),

### **Summary by clusters:**

There are 13 clusters represented in this pham: CY3, CY2, F2, CY7, CY6, CY5, CY4, FR, F, CY1, singleton, DP, CT,

Info for manual annotations of cluster CT:

- Start number 12 was manually annotated 1 time for cluster CT.
- Start number 17 was manually annotated 58 times for cluster CT.

Info for manual annotations of cluster CY1:

- Start number 19 was manually annotated 9 times for cluster CY1.

Info for manual annotations of cluster CY2:

- Start number 19 was manually annotated 1 time for cluster CY2.

Info for manual annotations of cluster CY3:

- Start number 19 was manually annotated 2 times for cluster CY3.

Info for manual annotations of cluster CY4:

- Start number 19 was manually annotated 2 times for cluster CY4.

Info for manual annotations of cluster CY5:

- Start number 19 was manually annotated 1 time for cluster CY5.

Info for manual annotations of cluster CY6:

- Start number 19 was manually annotated 1 time for cluster CY6.

Info for manual annotations of cluster CY7:

- Start number 19 was manually annotated 1 time for cluster CY7.

Info for manual annotations of cluster DP:

- Start number 15 was manually annotated 6 times for cluster DP.

Info for manual annotations of cluster F2:

- Start number 19 was manually annotated 7 times for cluster F2.

### **Gene Information:**

Gene: Agamoto\_14 Start: 10531, Stop: 10791, Start Num: 18

Candidate Starts for Agamoto\_14:  
(Start: 18 @10531 has 1 MA's), (32, 10630), (43, 10711), (44, 10714),

Gene: Agatha\_11 Start: 7257, Stop: 7538, Start Num: 17  
Candidate Starts for Agatha\_11:  
(Start: 17 @7257 has 58 MA's),

Gene: AikoCarson\_10 Start: 6987, Stop: 7256, Start Num: 17  
Candidate Starts for AikoCarson\_10:  
(Start: 17 @6987 has 58 MA's),

Gene: Amok\_10 Start: 6987, Stop: 7256, Start Num: 17  
Candidate Starts for Amok\_10:  
(Start: 17 @6987 has 58 MA's),

Gene: AndPeggy\_10 Start: 7275, Stop: 7547, Start Num: 17  
Candidate Starts for AndPeggy\_10:  
(Start: 17 @7275 has 58 MA's),

Gene: Angelique\_12 Start: 8007, Stop: 8264, Start Num: 19  
Candidate Starts for Angelique\_12:  
(Start: 19 @8007 has 24 MA's), (30, 8088), (49, 8256),

Gene: Avani\_12 Start: 6948, Stop: 7220, Start Num: 19  
Candidate Starts for Avani\_12:  
(Start: 19 @6948 has 24 MA's), (27, 7008), (28, 7011), (31, 7041), (35, 7065), (38, 7095), (45, 7155),

Gene: Axym\_11 Start: 7257, Stop: 7538, Start Num: 17  
Candidate Starts for Axym\_11:  
(5, 7134), (Start: 17 @7257 has 58 MA's),

Gene: Azira\_13 Start: 8163, Stop: 8462, Start Num: 17  
Candidate Starts for Azira\_13:  
(16, 8160), (Start: 17 @8163 has 58 MA's), (31, 8265), (39, 8334), (43, 8376), (48, 8436), (49, 8439), (50, 8442),

Gene: Balloona\_10 Start: 7029, Stop: 7301, Start Num: 17  
Candidate Starts for Balloona\_10:  
(16, 7026), (Start: 17 @7029 has 58 MA's), (42, 7212), (43, 7218), (46, 7242),

Gene: Bavilard\_11 Start: 7809, Stop: 8081, Start Num: 17  
Candidate Starts for Bavilard\_11:  
(16, 7806), (Start: 17 @7809 has 58 MA's), (42, 7992), (43, 7998), (46, 8022),

Gene: BeeGee\_12 Start: 8009, Stop: 8266, Start Num: 19  
Candidate Starts for BeeGee\_12:  
(Start: 19 @8009 has 24 MA's), (46, 8219), (49, 8258),

Gene: BigChungus\_10 Start: 7054, Stop: 7326, Start Num: 17  
Candidate Starts for BigChungus\_10:  
(16, 7051), (Start: 17 @7054 has 58 MA's), (42, 7237), (43, 7243), (46, 7267),

Gene: BillDoor\_13 Start: 7240, Stop: 7512, Start Num: 17

Candidate Starts for BillDoor\_13:  
(Start: 17 @7240 has 58 MA's),

Gene: Biskit\_12 Start: 7241, Stop: 7519, Start Num: 17  
Candidate Starts for Biskit\_12:  
(Start: 17 @7241 has 58 MA's), (28, 7310), (36, 7382),

Gene: Blarby\_13 Start: 7472, Stop: 7744, Start Num: 19  
Candidate Starts for Blarby\_13:  
(Start: 19 @7472 has 24 MA's), (27, 7532), (28, 7535), (31, 7565), (35, 7589), (38, 7619), (45, 7679),

Gene: Blondies\_12 Start: 7236, Stop: 7505, Start Num: 17  
Candidate Starts for Blondies\_12:  
(Start: 17 @7236 has 58 MA's), (28, 7296), (36, 7368),

Gene: Bradissa\_12 Start: 8013, Stop: 8270, Start Num: 19  
Candidate Starts for Bradissa\_12:  
(Start: 19 @8013 has 24 MA's), (46, 8223), (49, 8262),

Gene: BritBrat\_12 Start: 8015, Stop: 8272, Start Num: 19  
Candidate Starts for BritBrat\_12:  
(Start: 19 @8015 has 24 MA's), (46, 8225), (49, 8264),

Gene: Bubble\_11 Start: 7257, Stop: 7538, Start Num: 17  
Candidate Starts for Bubble\_11:  
(5, 7134), (Start: 17 @7257 has 58 MA's),

Gene: Burnsey\_11 Start: 7258, Stop: 7539, Start Num: 17  
Candidate Starts for Burnsey\_11:  
(Start: 17 @7258 has 58 MA's),

Gene: Button\_12 Start: 7274, Stop: 7543, Start Num: 17  
Candidate Starts for Button\_12:  
(Start: 17 @7274 has 58 MA's), (23, 7289), (27, 7331), (47, 7514),

Gene: Buttrmlkdreams\_11 Start: 7235, Stop: 7504, Start Num: 17  
Candidate Starts for Buttrmlkdreams\_11:  
(Start: 17 @7235 has 58 MA's), (28, 7295), (36, 7367),

Gene: CanesSauce\_11 Start: 7339, Stop: 7548, Start Num: 28  
Candidate Starts for CanesSauce\_11:  
(Start: 17 @7276 has 58 MA's), (28, 7339),

Gene: CaramelLatte\_11 Start: 7339, Stop: 7548, Start Num: 28  
Candidate Starts for CaramelLatte\_11:  
(Start: 17 @7276 has 58 MA's), (28, 7339),

Gene: Carsonalex\_12 Start: 7314, Stop: 7595, Start Num: 17  
Candidate Starts for Carsonalex\_12:  
(5, 7191), (Start: 17 @7314 has 58 MA's),

Gene: Cashline\_12 Start: 7862, Stop: 8119, Start Num: 19  
Candidate Starts for Cashline\_12:

(9, 7793), (Start: 19 @7862 has 24 MA's), (46, 8072), (49, 8111),

Gene: Che9d\_12 Start: 6957, Stop: 7229, Start Num: 19

Candidate Starts for Che9d\_12:

(Start: 19 @6957 has 24 MA's), (27, 7017), (28, 7020), (31, 7050), (35, 7074), (38, 7104), (45, 7164),

Gene: CherryonLim\_12 Start: 7780, Stop: 8052, Start Num: 17

Candidate Starts for CherryonLim\_12:

(Start: 17 @7780 has 58 MA's), (21, 7792), (23, 7798), (42, 7963), (43, 7969), (46, 7993),

Gene: ChickenTender\_13 Start: 7300, Stop: 7581, Start Num: 17

Candidate Starts for ChickenTender\_13:

(5, 7177), (16, 7297), (Start: 17 @7300 has 58 MA's),

Gene: ChocoMunchkin\_11 Start: 7339, Stop: 7548, Start Num: 28

Candidate Starts for ChocoMunchkin\_11:

(Start: 17 @7276 has 58 MA's), (28, 7339),

Gene: Cleo\_11 Start: 7463, Stop: 7762, Start Num: 17

Candidate Starts for Cleo\_11:

(Start: 17 @7463 has 58 MA's), (50, 7742),

Gene: CocoaPuff\_10 Start: 7029, Stop: 7301, Start Num: 17

Candidate Starts for CocoaPuff\_10:

(16, 7026), (Start: 17 @7029 has 58 MA's), (21, 7041), (23, 7047), (42, 7212), (43, 7218), (46, 7242),

Gene: Confidence\_12 Start: 8009, Stop: 8266, Start Num: 19

Candidate Starts for Confidence\_12:

(Start: 19 @8009 has 24 MA's), (46, 8219), (49, 8258),

Gene: Cozz\_11 Start: 7258, Stop: 7539, Start Num: 17

Candidate Starts for Cozz\_11:

(5, 7135), (Start: 17 @7258 has 58 MA's),

Gene: DS6A\_14 Start: 10056, Stop: 10361, Start Num: 11

Candidate Starts for DS6A\_14:

(Start: 11 @10056 has 1 MA's), (13, 10074), (24, 10134), (25, 10143), (37, 10224), (46, 10302),

Gene: Demsculpinboyz\_12 Start: 6948, Stop: 7220, Start Num: 19

Candidate Starts for Demsculpinboyz\_12:

(Start: 19 @6948 has 24 MA's), (27, 7008), (28, 7011), (31, 7041), (35, 7065), (38, 7095), (45, 7155),

Gene: Dre3\_11 Start: 7410, Stop: 7709, Start Num: 17

Candidate Starts for Dre3\_11:

(Start: 17 @7410 has 58 MA's), (50, 7689),

Gene: EMSquaredA\_12 Start: 8015, Stop: 8272, Start Num: 19

Candidate Starts for EMSquaredA\_12:

(Start: 19 @8015 has 24 MA's), (46, 8225), (49, 8264),

Gene: ElJefes\_10 Start: 7506, Stop: 7778, Start Num: 17

Candidate Starts for ElJefes\_10:

(Start: 17 @7506 has 58 MA's), (21, 7518), (23, 7524), (42, 7689), (43, 7695), (46, 7719),

Gene: Elinal\_12 Start: 7035, Stop: 7307, Start Num: 17  
Candidate Starts for Elinal\_12:  
(16, 7032), (Start: 17 @7035 has 58 MA's), (42, 7218), (43, 7224), (46, 7248),

Gene: Eliott\_11 Start: 7257, Stop: 7538, Start Num: 17  
Candidate Starts for Eliott\_11:  
(5, 7134), (Start: 17 @7257 has 58 MA's),

Gene: Emalyn\_10 Start: 6986, Stop: 7255, Start Num: 17  
Candidate Starts for Emalyn\_10:  
(Start: 17 @6986 has 58 MA's),

Gene: EnalisNailo\_12 Start: 8015, Stop: 8272, Start Num: 19  
Candidate Starts for EnalisNailo\_12:  
(Start: 19 @8015 has 24 MA's), (46, 8225), (49, 8264),

Gene: Feastonyeet\_10 Start: 7054, Stop: 7326, Start Num: 17  
Candidate Starts for Feastonyeet\_10:  
(16, 7051), (Start: 17 @7054 has 58 MA's), (42, 7237), (43, 7243), (46, 7267),

Gene: Floral\_12 Start: 8015, Stop: 8272, Start Num: 19  
Candidate Starts for Floral\_12:  
(Start: 19 @8015 has 24 MA's), (46, 8225), (49, 8264),

Gene: Fribs8\_12 Start: 7976, Stop: 8275, Start Num: 17  
Candidate Starts for Fribs8\_12:  
(Start: 17 @7976 has 58 MA's), (31, 8078), (43, 8189), (48, 8249), (49, 8252), (50, 8255),

Gene: Fryberger\_43 Start: 16293, Stop: 16577, Start Num: 15  
Candidate Starts for Fryberger\_43:  
(14, 16287), (Start: 15 @16293 has 6 MA's), (25, 16350), (29, 16377), (40, 16458), (41, 16464),

Gene: GTE2\_09 Start: 6936, Stop: 7208, Start Num: 17  
Candidate Starts for GTE2\_09:  
(Start: 17 @6936 has 58 MA's), (28, 6999),

Gene: GiKK\_14 Start: 7577, Stop: 7846, Start Num: 17  
Candidate Starts for GiKK\_14:  
(Start: 17 @7577 has 58 MA's), (23, 7592), (27, 7634), (47, 7817),

Gene: Gibbous\_11 Start: 7410, Stop: 7709, Start Num: 17  
Candidate Starts for Gibbous\_11:  
(Start: 17 @7410 has 58 MA's), (50, 7689),

Gene: GoldHunter\_12 Start: 7258, Stop: 7539, Start Num: 17  
Candidate Starts for GoldHunter\_12:  
(Start: 17 @7258 has 58 MA's),

Gene: Guey18\_48 Start: 17486, Stop: 17770, Start Num: 15  
Candidate Starts for Guey18\_48:  
(14, 17480), (Start: 15 @17486 has 6 MA's), (25, 17543), (29, 17570), (40, 17651), (41, 17657),

Gene: Hexbug\_13 Start: 8263, Stop: 8532, Start Num: 17

Candidate Starts for Hexbug\_13:

(Start: 17 @8263 has 58 MA's), (27, 8320),

Gene: HippoPololi\_13 Start: 8062, Stop: 8361, Start Num: 17

Candidate Starts for HippoPololi\_13:

(Start: 17 @8062 has 58 MA's), (21, 8083), (46, 8299), (50, 8341),

Gene: Horseradish\_12 Start: 7139, Stop: 7417, Start Num: 17

Candidate Starts for Horseradish\_12:

(Start: 17 @7139 has 58 MA's), (28, 7208), (36, 7280),

Gene: Jabbawokkie\_13 Start: 7471, Stop: 7743, Start Num: 19

Candidate Starts for Jabbawokkie\_13:

(Start: 19 @7471 has 24 MA's), (27, 7531), (28, 7534), (31, 7564), (35, 7588), (38, 7618), (45, 7678),

Gene: Jablanski\_12 Start: 7862, Stop: 8119, Start Num: 19

Candidate Starts for Jablanski\_12:

(Start: 19 @7862 has 24 MA's), (46, 8072), (49, 8111),

Gene: Jamzy\_14 Start: 7587, Stop: 7856, Start Num: 17

Candidate Starts for Jamzy\_14:

(Start: 17 @7587 has 58 MA's), (23, 7602), (27, 7644), (47, 7827),

Gene: KayGee\_11 Start: 7035, Stop: 7307, Start Num: 17

Candidate Starts for KayGee\_11:

(16, 7032), (Start: 17 @7035 has 58 MA's), (42, 7218), (43, 7224), (46, 7248),

Gene: Keelan\_41 Start: 16268, Stop: 16552, Start Num: 15

Candidate Starts for Keelan\_41:

(Start: 15 @16268 has 6 MA's), (25, 16325), (29, 16352), (40, 16433), (41, 16439),

Gene: Lauer\_10 Start: 7057, Stop: 7356, Start Num: 12

Candidate Starts for Lauer\_10:

(1, 6820), (2, 6886), (3, 6907), (4, 6922), (5, 6961), (6, 7000), (7, 7015), (8, 7024), (Start: 12 @7057 has 1 MA's), (16, 7081), (Start: 17 @7084 has 58 MA's), (42, 7267), (43, 7273), (46, 7297),

Gene: LilSpotty\_10 Start: 6830, Stop: 7105, Start Num: 18

Candidate Starts for LilSpotty\_10:

(10, 6785), (Start: 18 @6830 has 1 MA's), (20, 6839), (37, 6968), (43, 7019), (46, 7043),

Gene: Lilas\_12 Start: 8015, Stop: 8272, Start Num: 19

Candidate Starts for Lilas\_12:

(Start: 19 @8015 has 24 MA's), (46, 8225), (49, 8264),

Gene: LonelyBoi\_12 Start: 7862, Stop: 8119, Start Num: 19

Candidate Starts for LonelyBoi\_12:

(Start: 19 @7862 has 24 MA's), (46, 8072), (49, 8111),

Gene: MAnor\_11 Start: 7025, Stop: 7297, Start Num: 17

Candidate Starts for MAnor\_11:

(Start: 17 @7025 has 58 MA's), (21, 7037), (23, 7043), (42, 7208), (43, 7214), (46, 7238),

Gene: MScarn\_13 Start: 7235, Stop: 7504, Start Num: 17

Candidate Starts for MScarn\_13:

(Start: 17 @7235 has 58 MA's), (28, 7295), (36, 7367),

Gene: MaVan\_13 Start: 8163, Stop: 8462, Start Num: 17

Candidate Starts for MaVan\_13:

(16, 8160), (Start: 17 @8163 has 58 MA's), (31, 8265), (39, 8334), (43, 8376), (48, 8436), (49, 8439), (50, 8442),

Gene: Margaret\_14 Start: 7972, Stop: 8241, Start Num: 17

Candidate Starts for Margaret\_14:

(Start: 17 @7972 has 58 MA's), (23, 7987), (27, 8029),

Gene: Marteena\_12 Start: 8015, Stop: 8272, Start Num: 19

Candidate Starts for Marteena\_12:

(Start: 19 @8015 has 24 MA's), (46, 8225), (49, 8264),

Gene: Mayweather\_12 Start: 7658, Stop: 7930, Start Num: 17

Candidate Starts for Mayweather\_12:

(Start: 17 @7658 has 58 MA's), (21, 7670), (23, 7676), (42, 7841), (43, 7847), (46, 7871),

Gene: McDazzle\_10 Start: 7500, Stop: 7772, Start Num: 17

Candidate Starts for McDazzle\_10:

(Start: 17 @7500 has 58 MA's), (21, 7512), (23, 7518), (42, 7683), (43, 7689), (46, 7713),

Gene: MunkgeeRoachy\_11 Start: 7305, Stop: 7586, Start Num: 17

Candidate Starts for MunkgeeRoachy\_11:

(5, 7182), (Start: 17 @7305 has 58 MA's),

Gene: Nibbles\_13 Start: 8163, Stop: 8462, Start Num: 17

Candidate Starts for Nibbles\_13:

(16, 8160), (Start: 17 @8163 has 58 MA's), (31, 8265), (39, 8334), (43, 8376), (48, 8436), (49, 8439), (50, 8442),

Gene: Nina\_12 Start: 8291, Stop: 8572, Start Num: 17

Candidate Starts for Nina\_12:

(5, 8168), (Start: 17 @8291 has 58 MA's),

Gene: Nodigi\_13 Start: 8256, Stop: 8525, Start Num: 17

Candidate Starts for Nodigi\_13:

(Start: 17 @8256 has 58 MA's), (27, 8313),

Gene: Orla\_13 Start: 8260, Stop: 8529, Start Num: 17

Candidate Starts for Orla\_13:

(Start: 17 @8260 has 58 MA's), (27, 8317),

Gene: Pollux\_12 Start: 8015, Stop: 8272, Start Num: 19

Candidate Starts for Pollux\_12:

(Start: 19 @8015 has 24 MA's), (46, 8225), (49, 8264),

Gene: Pons\_11 Start: 7037, Stop: 7309, Start Num: 17

Candidate Starts for Pons\_11:

(Start: 17 @7037 has 58 MA's), (21, 7049), (23, 7055), (42, 7220), (43, 7226), (46, 7250),

Gene: Posh\_12 Start: 8009, Stop: 8266, Start Num: 19

Candidate Starts for Posh\_12:

(Start: 19 @8009 has 24 MA's), (46, 8219), (49, 8258),

Gene: PotPie\_11 Start: 7888, Stop: 8160, Start Num: 17

Candidate Starts for PotPie\_11:

(16, 7885), (Start: 17 @7888 has 58 MA's), (21, 7900), (23, 7906), (42, 8071), (43, 8077), (46, 8101),

Gene: PsychoKiller\_11 Start: 7257, Stop: 7538, Start Num: 17

Candidate Starts for PsychoKiller\_11:

(5, 7134), (Start: 17 @7257 has 58 MA's),

Gene: Pytheas\_12 Start: 7862, Stop: 8119, Start Num: 19

Candidate Starts for Pytheas\_12:

(Start: 19 @7862 has 24 MA's), (46, 8072), (49, 8111),

Gene: Quasar\_11 Start: 7872, Stop: 8147, Start Num: 17

Candidate Starts for Quasar\_11:

(5, 7749), (Start: 17 @7872 has 58 MA's),

Gene: RADical\_12 Start: 7258, Stop: 7539, Start Num: 17

Candidate Starts for RADical\_12:

(5, 7135), (Start: 17 @7258 has 58 MA's),

Gene: RSchmailzl\_12 Start: 7398, Stop: 7679, Start Num: 17

Candidate Starts for RSchmailzl\_12:

(5, 7275), (Start: 17 @7398 has 58 MA's),

Gene: RanchParmCat\_14 Start: 7972, Stop: 8241, Start Num: 17

Candidate Starts for RanchParmCat\_14:

(Start: 17 @7972 has 58 MA's), (23, 7987), (27, 8029),

Gene: RedBaron\_12 Start: 7302, Stop: 7583, Start Num: 17

Candidate Starts for RedBaron\_12:

(5, 7179), (Start: 17 @7302 has 58 MA's),

Gene: Ronaldo\_46 Start: 17223, Stop: 17507, Start Num: 15

Candidate Starts for Ronaldo\_46:

(14, 17217), (Start: 15 @17223 has 6 MA's), (25, 17280), (29, 17307), (40, 17388), (41, 17394),

Gene: SheckWes\_10 Start: 7025, Stop: 7297, Start Num: 17

Candidate Starts for SheckWes\_10:

(Start: 17 @7025 has 58 MA's), (21, 7037), (23, 7043), (42, 7208), (43, 7214), (46, 7238),

Gene: SilverChicken\_12 Start: 6948, Stop: 7220, Start Num: 19

Candidate Starts for SilverChicken\_12:

(Start: 19 @6948 has 24 MA's), (27, 7008), (28, 7011), (31, 7041), (35, 7065), (38, 7095), (45, 7155),

Gene: SketchMex\_10 Start: 7241, Stop: 7519, Start Num: 17

Candidate Starts for SketchMex\_10:

(Start: 17 @7241 has 58 MA's), (28, 7310), (36, 7382),

Gene: Sleepyhead\_11 Start: 7625, Stop: 7879, Start Num: 22  
Candidate Starts for Sleepyhead\_11:  
(Start: 22 @7625 has 1 MA's), (26, 7667), (33, 7706), (34, 7718),

Gene: Socotra\_12 Start: 7257, Stop: 7538, Start Num: 17  
Candidate Starts for Socotra\_12:  
(5, 7134), (Start: 17 @7257 has 58 MA's),

Gene: Sopespian\_11 Start: 7257, Stop: 7538, Start Num: 17  
Candidate Starts for Sopespian\_11:  
(5, 7134), (Start: 17 @7257 has 58 MA's),

Gene: Soul22\_12 Start: 6947, Stop: 7219, Start Num: 19  
Candidate Starts for Soul22\_12:  
(Start: 19 @6947 has 24 MA's), (27, 7007), (28, 7010), (31, 7040), (35, 7064), (38, 7094), (45, 7154),

Gene: Starburst\_12 Start: 7257, Stop: 7538, Start Num: 17  
Candidate Starts for Starburst\_12:  
(5, 7134), (Start: 17 @7257 has 58 MA's),

Gene: SteamedHams\_13 Start: 7276, Stop: 7548, Start Num: 17  
Candidate Starts for SteamedHams\_13:  
(Start: 17 @7276 has 58 MA's), (28, 7339),

Gene: SummitAcademy\_10 Start: 7103, Stop: 7375, Start Num: 17  
Candidate Starts for SummitAcademy\_10:  
(16, 7100), (Start: 17 @7103 has 58 MA's), (21, 7115), (23, 7121), (42, 7286), (43, 7292), (46, 7316),

Gene: Survivors\_13 Start: 8017, Stop: 8316, Start Num: 17  
Candidate Starts for Survivors\_13:  
(16, 8014), (Start: 17 @8017 has 58 MA's), (31, 8119), (39, 8188), (43, 8230), (48, 8290), (49, 8293),  
(50, 8296),

Gene: SweatNTears\_13 Start: 7761, Stop: 8030, Start Num: 17  
Candidate Starts for SweatNTears\_13:  
(Start: 17 @7761 has 58 MA's), (28, 7821), (36, 7893),

Gene: Tolls\_13 Start: 7279, Stop: 7551, Start Num: 17  
Candidate Starts for Tolls\_13:  
(Start: 17 @7279 has 58 MA's), (28, 7342),

Gene: Troje\_11 Start: 7235, Stop: 7504, Start Num: 17  
Candidate Starts for Troje\_11:  
(Start: 17 @7235 has 58 MA's), (28, 7295), (36, 7367),

Gene: Typhonomachy\_11 Start: 7257, Stop: 7538, Start Num: 17  
Candidate Starts for Typhonomachy\_11:  
(5, 7134), (Start: 17 @7257 has 58 MA's),

Gene: Vine\_12 Start: 8032, Stop: 8304, Start Num: 17  
Candidate Starts for Vine\_12:  
(16, 8029), (Start: 17 @8032 has 58 MA's), (42, 8215), (43, 8221), (46, 8245),

Gene: Volt\_45 Start: 17223, Stop: 17507, Start Num: 15  
Candidate Starts for Volt\_45:  
(14, 17217), (Start: 15 @17223 has 6 MA's), (25, 17280), (29, 17307), (40, 17388), (41, 17394),

Gene: Wolfwood\_15 Start: 8162, Stop: 8461, Start Num: 17  
Candidate Starts for Wolfwood\_15:  
(16, 8159), (Start: 17 @8162 has 58 MA's), (31, 8264), (39, 8333), (43, 8375), (48, 8435), (49, 8438),  
(50, 8441),

Gene: Wrigley\_12 Start: 7859, Stop: 8116, Start Num: 19  
Candidate Starts for Wrigley\_12:  
(Start: 19 @7859 has 24 MA's), (46, 8069), (49, 8108),

Gene: Yakult\_12 Start: 7168, Stop: 7437, Start Num: 17  
Candidate Starts for Yakult\_12:  
(Start: 17 @7168 has 58 MA's),

Gene: Yarn\_10 Start: 7269, Stop: 7541, Start Num: 17  
Candidate Starts for Yarn\_10:  
(Start: 17 @7269 has 58 MA's),

Gene: Yoshi\_12 Start: 6947, Stop: 7219, Start Num: 19  
Candidate Starts for Yoshi\_12:  
(Start: 19 @6947 has 24 MA's), (27, 7007), (28, 7010), (31, 7040), (35, 7064), (38, 7094), (45, 7154),

Gene: Yucky\_11 Start: 7892, Stop: 8164, Start Num: 17  
Candidate Starts for Yucky\_11:  
(16, 7889), (Start: 17 @7892 has 58 MA's), (42, 8075), (43, 8081), (46, 8105),

Gene: Yummy\_12 Start: 7139, Stop: 7417, Start Num: 17  
Candidate Starts for Yummy\_12:  
(Start: 17 @7139 has 58 MA's), (28, 7208), (36, 7280),

Gene: Zapner\_13 Start: 7472, Stop: 7744, Start Num: 19  
Candidate Starts for Zapner\_13:  
(Start: 19 @7472 has 24 MA's), (27, 7532), (28, 7535), (31, 7565), (35, 7589), (38, 7619), (45, 7679),

Gene: Zareef\_13 Start: 8164, Stop: 8463, Start Num: 17  
Candidate Starts for Zareef\_13:  
(16, 8161), (Start: 17 @8164 has 58 MA's), (31, 8266), (39, 8335), (43, 8377), (48, 8437), (49, 8440),  
(50, 8443),

Gene: Ziko\_46 Start: 17163, Stop: 17447, Start Num: 15  
Candidate Starts for Ziko\_46:  
(14, 17157), (Start: 15 @17163 has 6 MA's), (25, 17220), (29, 17247), (40, 17328), (41, 17334),