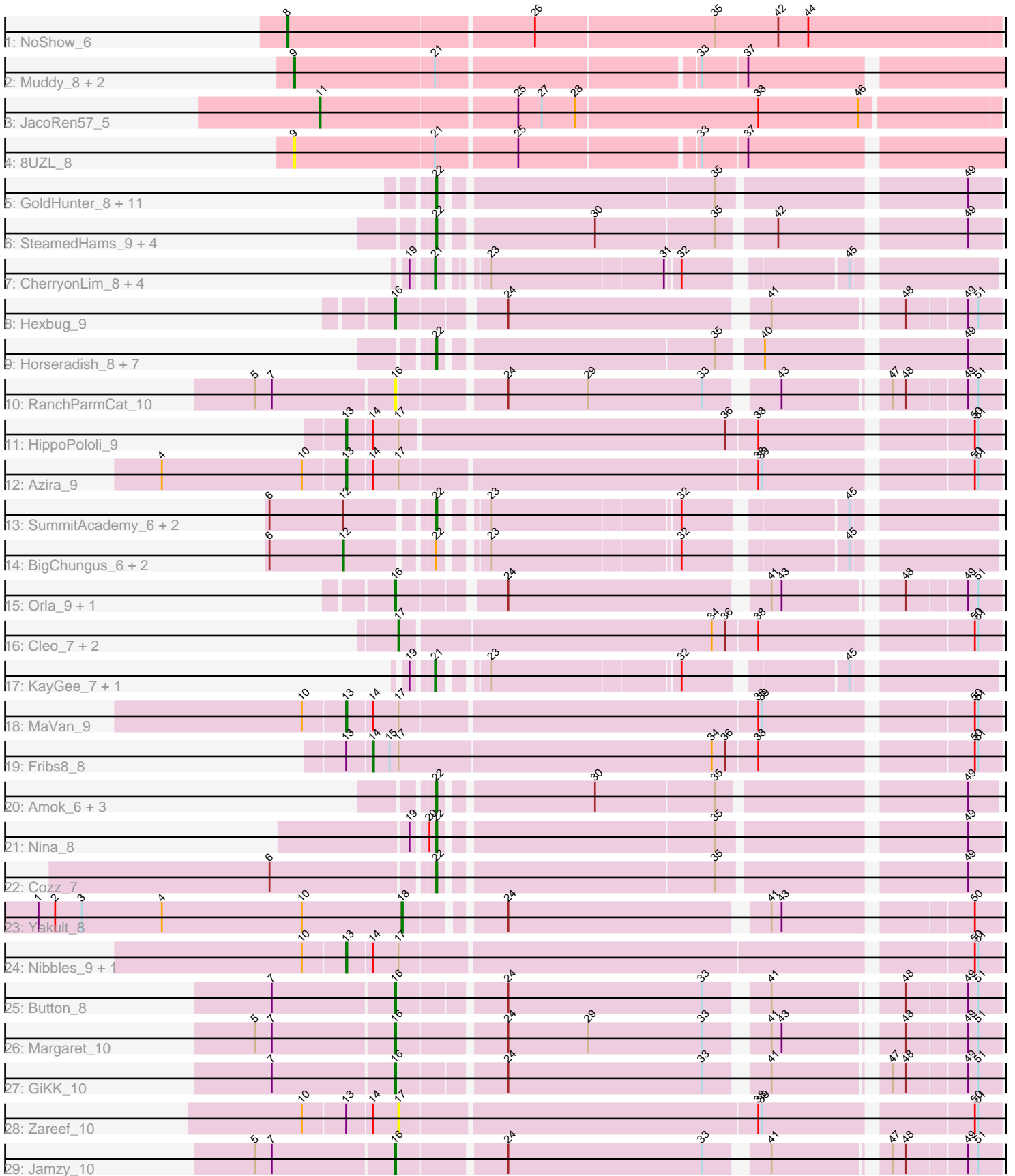


Pham 193984



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 193984 Report

This analysis was run 11/02/24 on database version 579.

Pham number 193984 has 69 members, 12 are drafts.

Phages represented in each track:

- Track 1 : NoShow\_6
- Track 2 : Muddy\_8, Maco6\_6, FF47\_08
- Track 3 : JacoRen57\_5
- Track 4 : 8UZL\_8
- Track 5 : GoldHunter\_8, RedBaron\_8, Quasar\_7, Sopespian\_7, Agatha\_7, Elliott\_7, PsychoKiller\_7, Burnsey\_7, Typhonmarchy\_8, MunkgeeRoachy\_7, Carsonalex\_8, Axym\_7
- Track 6 : SteamedHams\_9, Tolls\_9, AndPeggy\_6, BillDoor\_9, Yarn\_6
- Track 7 : CherryonLim\_8, SheckWes\_6, MAnor\_7, Mayweather\_8, Pons\_7
- Track 8 : Hexbug\_9
- Track 9 : Horseradish\_8, SweatNTears\_9, Biskit\_8, MScarn\_9, Troje\_7, Buttrmilkdreams\_7, SketchMex\_6, Yummy\_8
- Track 10 : RanchParmCat\_10
- Track 11 : HippoPololi\_9
- Track 12 : Azira\_9
- Track 13 : SummitAcademy\_6, Vine\_8, PotPie\_7
- Track 14 : BigChungus\_6, Lauer\_6, Feastonyeet\_6
- Track 15 : Orla\_9, Nodigi\_9
- Track 16 : Cleo\_7, Gibbous\_7, Dre3\_7
- Track 17 : KayGee\_7, Elinal\_8
- Track 18 : MaVan\_9
- Track 19 : Fribs8\_8
- Track 20 : Amok\_6, Emalyn\_6, GTE2\_05, AikoCarson\_6
- Track 21 : Nina\_8
- Track 22 : Cozz\_7
- Track 23 : Yakult\_8
- Track 24 : Nibbles\_9, Survivors\_9
- Track 25 : Button\_8
- Track 26 : Margaret\_10
- Track 27 : GiKK\_10
- Track 28 : Zareef\_10
- Track 29 : Jamzy\_10

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

The start number called the most often in the published annotations is 22, it was called in 26 of the 57 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agatha\_7, AikoCarson\_6, Amok\_6, AndPeggy\_6, Axym\_7, BillDoor\_9, Biskit\_8, Burnsey\_7, Buttrmlkdreams\_7, Carsonalex\_8, Cozz\_7, Elliott\_7, Emalyn\_6, GTE2\_05, GoldHunter\_8, Horseradish\_8, MScarn\_9, MunkgeeRoachy\_7, Nina\_8, PotPie\_7, PsychoKiller\_7, Quasar\_7, RedBaron\_8, SketchMex\_6, Sopespian\_7, SteamedHams\_9, SummitAcademy\_6, SweatNTears\_9, Tolls\_9, Troje\_7, Typhonomachy\_8, Vine\_8, Yarn\_6, Yummy\_8,

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

- BigChungus\_6, Feastonyeet\_6, Lauer\_6,

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

- 8UZL\_8, Azira\_9, Button\_8, CherryonLim\_8, Cleo\_7, Dre3\_7, Elinal\_8, FF47\_08, Fribs8\_8, GiKK\_10, Gibbous\_7, Hexbug\_9, HippoPololi\_9, JacoRen57\_5, Jamzy\_10, KayGee\_7, MAnor\_7, MaVan\_9, Maco6\_6, Margaret\_10, Mayweather\_8, Muddy\_8, Nibbles\_9, NoShow\_6, Nodigi\_9, Orla\_9, Pons\_7, RanchParmCat\_10, SheckWes\_6, Survivors\_9, Yakult\_8, Zareef\_10,

### **Summary by start number:**

Start 8:

- Found in 1 of 69 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: NoShow\_6 (AB),

Start 9:

- Found in 4 of 69 ( 5.8% ) of genes in pham
- Manual Annotations of this start: 2 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 8UZL\_8 (AB), FF47\_08 (AB), Maco6\_6 (AB), Muddy\_8 (AB),

Start 11:

- Found in 1 of 69 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: JacoRen57\_5 (AB),

Start 12:

- Found in 6 of 69 ( 8.7% ) of genes in pham
- Manual Annotations of this start: 3 of 57
- Called 50.0% of time when present
- Phage (with cluster) where this start called: BigChungus\_6 (CT), Feastonyeet\_6 (CT), Lauer\_6 (CT),

Start 13:

- Found in 7 of 69 ( 10.1% ) of genes in pham
- Manual Annotations of this start: 5 of 57

- Called 71.4% of time when present
- Phage (with cluster) where this start called: Azira\_9 (CT), HippoPololi\_9 (CT), MaVan\_9 (CT), Nibbles\_9 (CT), Survivors\_9 (CT),

#### Start 14:

- Found in 7 of 69 ( 10.1% ) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 14.3% of time when present
- Phage (with cluster) where this start called: Fribs8\_8 (CT),

#### Start 16:

- Found in 8 of 69 ( 11.6% ) of genes in pham
- Manual Annotations of this start: 7 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Button\_8 (CT), GiKK\_10 (CT), Hexbug\_9 (CT), Jamzy\_10 (CT), Margaret\_10 (CT), Nodigi\_9 (CT), Orla\_9 (CT), RanchParmCat\_10 (CT),

#### Start 17:

- Found in 10 of 69 ( 14.5% ) of genes in pham
- Manual Annotations of this start: 3 of 57
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Cleo\_7 (CT), Dre3\_7 (CT), Gibbous\_7 (CT), Zareef\_10 (CT),

#### Start 18:

- Found in 1 of 69 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Yakult\_8 (CT),

#### Start 21:

- Found in 11 of 69 ( 15.9% ) of genes in pham
- Manual Annotations of this start: 7 of 57
- Called 63.6% of time when present
- Phage (with cluster) where this start called: CherryonLim\_8 (CT), Elinal\_8 (CT), KayGee\_7 (CT), MAnor\_7 (CT), Mayweather\_8 (CT), Pons\_7 (CT), SheckWes\_6 (CT),

#### Start 22:

- Found in 37 of 69 ( 53.6% ) of genes in pham
- Manual Annotations of this start: 26 of 57
- Called 91.9% of time when present
- Phage (with cluster) where this start called: Agatha\_7 (CT), AikoCarson\_6 (CT), Amok\_6 (CT), AndPeggy\_6 (CT), Axym\_7 (CT), BillDoor\_9 (CT), Biskit\_8 (CT), Burnsey\_7 (CT), Buttrmldreams\_7 (CT), Carsonalex\_8 (CT), Cozz\_7 (CT), Elliott\_7 (CT), Emalyn\_6 (CT), GTE2\_05 (CT), GoldHunter\_8 (CT), Horseradish\_8 (CT), MScarn\_9 (CT), MunkgeeRoachy\_7 (CT), Nina\_8 (CT), PotPie\_7 (CT), PsychoKiller\_7 (CT), Quasar\_7 (CT), RedBaron\_8 (CT), SketchMex\_6 (CT), Sopespian\_7 (CT), SteamedHams\_9 (CT), SummitAcademy\_6 (CT), SweatNTears\_9 (CT), Tolls\_9 (CT), Troje\_7 (CT), Typhonmarchy\_8 (CT), Vine\_8 (CT), Yarn\_6 (CT), Yummy\_8 (CT),

## Summary by clusters:

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

Info for manual annotations of cluster AB:

- Start number 8 was manually annotated 1 time for cluster AB.
- Start number 9 was manually annotated 2 times for cluster AB.
- Start number 11 was manually annotated 1 time for cluster AB.

Info for manual annotations of cluster CT:

- Start number 12 was manually annotated 3 times for cluster CT.
- Start number 13 was manually annotated 5 times for cluster CT.
- Start number 14 was manually annotated 1 time for cluster CT.
- Start number 16 was manually annotated 7 times for cluster CT.
- Start number 17 was manually annotated 3 times for cluster CT.
- Start number 18 was manually annotated 1 time for cluster CT.
- Start number 21 was manually annotated 7 times for cluster CT.
- Start number 22 was manually annotated 26 times for cluster CT.

## Gene Information:

Gene: 8UZL\_8 Start: 5809, Stop: 6405, Start Num: 9

Candidate Starts for 8UZL\_8:

(Start: 9 @5809 has 2 MA's), (Start: 21 @5932 has 7 MA's), (25, 6001), (33, 6151), (37, 6190),

Gene: Agatha\_7 Start: 4894, Stop: 5358, Start Num: 22

Candidate Starts for Agatha\_7:

(Start: 22 @4894 has 26 MA's), (35, 5125), (49, 5329),

Gene: AikoCarson\_6 Start: 4622, Stop: 5080, Start Num: 22

Candidate Starts for AikoCarson\_6:

(Start: 22 @4622 has 26 MA's), (30, 4748), (35, 4853), (49, 5054),

Gene: Amok\_6 Start: 4623, Stop: 5081, Start Num: 22

Candidate Starts for Amok\_6:

(Start: 22 @4623 has 26 MA's), (30, 4749), (35, 4854), (49, 5055),

Gene: AndPeggy\_6 Start: 4931, Stop: 5392, Start Num: 22

Candidate Starts for AndPeggy\_6:

(Start: 22 @4931 has 26 MA's), (30, 5057), (35, 5162), (42, 5207), (49, 5363),

Gene: Axym\_7 Start: 4894, Stop: 5358, Start Num: 22

Candidate Starts for Axym\_7:

(Start: 22 @4894 has 26 MA's), (35, 5125), (49, 5329),

Gene: Azira\_9 Start: 5719, Stop: 6273, Start Num: 13

Candidate Starts for Azira\_9:

(4, 5557), (10, 5683), (Start: 13 @5719 has 5 MA's), (Start: 14 @5740 has 1 MA's), (Start: 17 @5761 has 3 MA's), (38, 6073), (39, 6076), (50, 6250), (51, 6253),

Gene: BigChungus\_6 Start: 4593, Stop: 5096, Start Num: 12

Candidate Starts for BigChungus\_6:  
(6, 4527), (Start: 12 @4593 has 3 MA's), (Start: 22 @4662 has 26 MA's), (23, 4692), (32, 4851), (45, 4980),

Gene: BillDoor\_9 Start: 4896, Stop: 5357, Start Num: 22  
Candidate Starts for BillDoor\_9:  
(Start: 22 @4896 has 26 MA's), (30, 5022), (35, 5127), (42, 5172), (49, 5328),

Gene: Biskit\_8 Start: 4888, Stop: 5349, Start Num: 22  
Candidate Starts for Biskit\_8:  
(Start: 22 @4888 has 26 MA's), (35, 5119), (40, 5152), (49, 5320),

Gene: Burnsey\_7 Start: 4894, Stop: 5358, Start Num: 22  
Candidate Starts for Burnsey\_7:  
(Start: 22 @4894 has 26 MA's), (35, 5125), (49, 5329),

Gene: Button\_8 Start: 4950, Stop: 5435, Start Num: 16  
Candidate Starts for Button\_8:  
(7, 4845), (Start: 16 @4950 has 7 MA's), (24, 5034), (33, 5208), (41, 5253), (48, 5355), (49, 5406), (51, 5415),

Gene: Buttrmlkdreams\_7 Start: 4889, Stop: 5350, Start Num: 22  
Candidate Starts for Buttrmlkdreams\_7:  
(Start: 22 @4889 has 26 MA's), (35, 5120), (40, 5153), (49, 5321),

Gene: Carsonalex\_8 Start: 4951, Stop: 5415, Start Num: 22  
Candidate Starts for Carsonalex\_8:  
(Start: 22 @4951 has 26 MA's), (35, 5182), (49, 5386),

Gene: CherryonLim\_8 Start: 5387, Stop: 5818, Start Num: 21  
Candidate Starts for CherryonLim\_8:  
(19, 5372), (Start: 21 @5387 has 7 MA's), (23, 5414), (31, 5564), (32, 5573), (45, 5702),

Gene: Cleo\_7 Start: 5059, Stop: 5571, Start Num: 17  
Candidate Starts for Cleo\_7:  
(Start: 17 @5059 has 3 MA's), (34, 5332), (36, 5344), (38, 5371), (50, 5548), (51, 5551),

Gene: Cozz\_7 Start: 4895, Stop: 5359, Start Num: 22  
Candidate Starts for Cozz\_7:  
(6, 4757), (Start: 22 @4895 has 26 MA's), (35, 5126), (49, 5330),

Gene: Dre3\_7 Start: 5006, Stop: 5518, Start Num: 17  
Candidate Starts for Dre3\_7:  
(Start: 17 @5006 has 3 MA's), (34, 5279), (36, 5291), (38, 5318), (50, 5495), (51, 5498),

Gene: Elinal\_8 Start: 4639, Stop: 5073, Start Num: 21  
Candidate Starts for Elinal\_8:  
(19, 4624), (Start: 21 @4639 has 7 MA's), (23, 4669), (32, 4828), (45, 4957),

Gene: Elliott\_7 Start: 4894, Stop: 5358, Start Num: 22  
Candidate Starts for Elliott\_7:  
(Start: 22 @4894 has 26 MA's), (35, 5125), (49, 5329),

Gene: Emalyn\_6 Start: 4622, Stop: 5080, Start Num: 22  
Candidate Starts for Emalyn\_6:  
(Start: 22 @4622 has 26 MA's), (30, 4748), (35, 4853), (49, 5054),

Gene: FF47\_08 Start: 5790, Stop: 6386, Start Num: 9  
Candidate Starts for FF47\_08:  
(Start: 9 @5790 has 2 MA's), (Start: 21 @5913 has 7 MA's), (33, 6132), (37, 6171),

Gene: Feastonyeet\_6 Start: 4593, Stop: 5096, Start Num: 12  
Candidate Starts for Feastonyeet\_6:  
(6, 4527), (Start: 12 @4593 has 3 MA's), (Start: 22 @4662 has 26 MA's), (23, 4692), (32, 4851), (45, 4980),

Gene: Fribs8\_8 Start: 5534, Stop: 6073, Start Num: 14  
Candidate Starts for Fribs8\_8:  
(Start: 13 @5513 has 5 MA's), (Start: 14 @5534 has 1 MA's), (15, 5549), (Start: 17 @5555 has 3 MA's), (34, 5834), (36, 5846), (38, 5873), (50, 6050), (51, 6053),

Gene: GTE2\_05 Start: 4581, Stop: 5042, Start Num: 22  
Candidate Starts for GTE2\_05:  
(Start: 22 @4581 has 26 MA's), (30, 4707), (35, 4812), (49, 5013),

Gene: GiKK\_10 Start: 5253, Stop: 5738, Start Num: 16  
Candidate Starts for GiKK\_10:  
(7, 5148), (Start: 16 @5253 has 7 MA's), (24, 5337), (33, 5511), (41, 5556), (47, 5646), (48, 5658), (49, 5709), (51, 5718),

Gene: Gibbous\_7 Start: 5006, Stop: 5518, Start Num: 17  
Candidate Starts for Gibbous\_7:  
(Start: 17 @5006 has 3 MA's), (34, 5279), (36, 5291), (38, 5318), (50, 5495), (51, 5498),

Gene: GoldHunter\_8 Start: 4894, Stop: 5358, Start Num: 22  
Candidate Starts for GoldHunter\_8:  
(Start: 22 @4894 has 26 MA's), (35, 5125), (49, 5329),

Gene: Hexbug\_9 Start: 5939, Stop: 6421, Start Num: 16  
Candidate Starts for Hexbug\_9:  
(Start: 16 @5939 has 7 MA's), (24, 6020), (41, 6239), (48, 6341), (49, 6392), (51, 6401),

Gene: HippoPololi\_9 Start: 5605, Stop: 6162, Start Num: 13  
Candidate Starts for HippoPololi\_9:  
(Start: 13 @5605 has 5 MA's), (Start: 14 @5626 has 1 MA's), (Start: 17 @5647 has 3 MA's), (36, 5935), (38, 5962), (50, 6139), (51, 6142),

Gene: Horseradish\_8 Start: 4795, Stop: 5256, Start Num: 22  
Candidate Starts for Horseradish\_8:  
(Start: 22 @4795 has 26 MA's), (35, 5026), (40, 5059), (49, 5227),

Gene: JacoRen57\_5 Start: 4850, Stop: 5443, Start Num: 11  
Candidate Starts for JacoRen57\_5:  
(Start: 11 @4850 has 1 MA's), (25, 5021), (27, 5042), (28, 5072), (38, 5234), (46, 5324),

Gene: Jamzy\_10 Start: 5261, Stop: 5749, Start Num: 16

Candidate Starts for Jamzy\_10:

(5, 5141), (7, 5156), (Start: 16 @5261 has 7 MA's), (24, 5348), (33, 5522), (41, 5567), (47, 5657), (48, 5669), (49, 5720), (51, 5729),

Gene: KayGee\_7 Start: 4639, Stop: 5073, Start Num: 21

Candidate Starts for KayGee\_7:

(19, 4624), (Start: 21 @4639 has 7 MA's), (23, 4669), (32, 4828), (45, 4957),

Gene: Lauer\_6 Start: 4623, Stop: 5126, Start Num: 12

Candidate Starts for Lauer\_6:

(6, 4557), (Start: 12 @4623 has 3 MA's), (Start: 22 @4692 has 26 MA's), (23, 4722), (32, 4881), (45, 5010),

Gene: MAnor\_7 Start: 4636, Stop: 5067, Start Num: 21

Candidate Starts for MAnor\_7:

(19, 4621), (Start: 21 @4636 has 7 MA's), (23, 4663), (31, 4813), (32, 4822), (45, 4951),

Gene: MScarn\_9 Start: 4889, Stop: 5350, Start Num: 22

Candidate Starts for MScarn\_9:

(Start: 22 @4889 has 26 MA's), (35, 5120), (40, 5153), (49, 5321),

Gene: MaVan\_9 Start: 5719, Stop: 6273, Start Num: 13

Candidate Starts for MaVan\_9:

(10, 5683), (Start: 13 @5719 has 5 MA's), (Start: 14 @5740 has 1 MA's), (Start: 17 @5761 has 3 MA's), (38, 6073), (39, 6076), (50, 6250), (51, 6253),

Gene: Maco6\_6 Start: 5069, Stop: 5665, Start Num: 9

Candidate Starts for Maco6\_6:

(Start: 9 @5069 has 2 MA's), (Start: 21 @5192 has 7 MA's), (33, 5411), (37, 5450),

Gene: Margaret\_10 Start: 5637, Stop: 6125, Start Num: 16

Candidate Starts for Margaret\_10:

(5, 5517), (7, 5532), (Start: 16 @5637 has 7 MA's), (24, 5724), (29, 5796), (33, 5898), (41, 5943), (43, 5952), (48, 6045), (49, 6096), (51, 6105),

Gene: Mayweather\_8 Start: 5257, Stop: 5688, Start Num: 21

Candidate Starts for Mayweather\_8:

(19, 5242), (Start: 21 @5257 has 7 MA's), (23, 5284), (31, 5434), (32, 5443), (45, 5572),

Gene: Muddy\_8 Start: 6022, Stop: 6618, Start Num: 9

Candidate Starts for Muddy\_8:

(Start: 9 @6022 has 2 MA's), (Start: 21 @6145 has 7 MA's), (33, 6364), (37, 6403),

Gene: MunkgeeRoachy\_7 Start: 4942, Stop: 5406, Start Num: 22

Candidate Starts for MunkgeeRoachy\_7:

(Start: 22 @4942 has 26 MA's), (35, 5173), (49, 5377),

Gene: Nibbles\_9 Start: 5719, Stop: 6273, Start Num: 13

Candidate Starts for Nibbles\_9:

(10, 5683), (Start: 13 @5719 has 5 MA's), (Start: 14 @5740 has 1 MA's), (Start: 17 @5761 has 3 MA's), (50, 6250), (51, 6253),

Gene: Nina\_8 Start: 5928, Stop: 6392, Start Num: 22



Candidate Starts for Nina\_8:

(19, 5910), (20, 5922), (Start: 22 @5928 has 26 MA's), (35, 6159), (49, 6363),

Gene: NoShow\_6 Start: 5050, Stop: 5676, Start Num: 8

Candidate Starts for NoShow\_6:

(Start: 8 @5050 has 1 MA's), (26, 5263), (35, 5422), (42, 5479), (44, 5506),

Gene: Nodigi\_9 Start: 5940, Stop: 6416, Start Num: 16

Candidate Starts for Nodigi\_9:

(Start: 16 @5940 has 7 MA's), (24, 6015), (41, 6234), (43, 6243), (48, 6336), (49, 6387), (51, 6396),

Gene: Orla\_9 Start: 5939, Stop: 6421, Start Num: 16

Candidate Starts for Orla\_9:

(Start: 16 @5939 has 7 MA's), (24, 6020), (41, 6239), (43, 6248), (48, 6341), (49, 6392), (51, 6401),

Gene: Pons\_7 Start: 4636, Stop: 5067, Start Num: 21

Candidate Starts for Pons\_7:

(19, 4621), (Start: 21 @4636 has 7 MA's), (23, 4663), (31, 4813), (32, 4822), (45, 4951),

Gene: PotPie\_7 Start: 5496, Stop: 5930, Start Num: 22

Candidate Starts for PotPie\_7:

(6, 5361), (Start: 12 @5427 has 3 MA's), (Start: 22 @5496 has 26 MA's), (23, 5526), (32, 5685), (45, 5814),

Gene: PsychoKiller\_7 Start: 4894, Stop: 5358, Start Num: 22

Candidate Starts for PsychoKiller\_7:

(Start: 22 @4894 has 26 MA's), (35, 5125), (49, 5329),

Gene: Quasar\_7 Start: 5515, Stop: 5979, Start Num: 22

Candidate Starts for Quasar\_7:

(Start: 22 @5515 has 26 MA's), (35, 5746), (49, 5950),

Gene: RanchParmCat\_10 Start: 5637, Stop: 6125, Start Num: 16

Candidate Starts for RanchParmCat\_10:

(5, 5517), (7, 5532), (Start: 16 @5637 has 7 MA's), (24, 5724), (29, 5796), (33, 5898), (43, 5952), (47, 6033), (48, 6045), (49, 6096), (51, 6105),

Gene: RedBaron\_8 Start: 4939, Stop: 5403, Start Num: 22

Candidate Starts for RedBaron\_8:

(Start: 22 @4939 has 26 MA's), (35, 5170), (49, 5374),

Gene: SheckWes\_6 Start: 4636, Stop: 5067, Start Num: 21

Candidate Starts for SheckWes\_6:

(19, 4621), (Start: 21 @4636 has 7 MA's), (23, 4663), (31, 4813), (32, 4822), (45, 4951),

Gene: SketchMex\_6 Start: 4888, Stop: 5349, Start Num: 22

Candidate Starts for SketchMex\_6:

(Start: 22 @4888 has 26 MA's), (35, 5119), (40, 5152), (49, 5320),

Gene: Sopespian\_7 Start: 4894, Stop: 5358, Start Num: 22

Candidate Starts for Sopespian\_7:

(Start: 22 @4894 has 26 MA's), (35, 5125), (49, 5329),

Gene: SteamedHams\_9 Start: 4931, Stop: 5392, Start Num: 22  
Candidate Starts for SteamedHams\_9:  
(Start: 22 @4931 has 26 MA's), (30, 5057), (35, 5162), (42, 5207), (49, 5363),

Gene: SummitAcademy\_6 Start: 4711, Stop: 5145, Start Num: 22  
Candidate Starts for SummitAcademy\_6:  
(6, 4576), (Start: 12 @4642 has 3 MA's), (Start: 22 @4711 has 26 MA's), (23, 4741), (32, 4900), (45, 5029),

Gene: Survivors\_9 Start: 5573, Stop: 6127, Start Num: 13  
Candidate Starts for Survivors\_9:  
(10, 5537), (Start: 13 @5573 has 5 MA's), (Start: 14 @5594 has 1 MA's), (Start: 17 @5615 has 3 MA's), (50, 6104), (51, 6107),

Gene: SweatNTears\_9 Start: 5415, Stop: 5876, Start Num: 22  
Candidate Starts for SweatNTears\_9:  
(Start: 22 @5415 has 26 MA's), (35, 5646), (40, 5679), (49, 5847),

Gene: Tolls\_9 Start: 4935, Stop: 5396, Start Num: 22  
Candidate Starts for Tolls\_9:  
(Start: 22 @4935 has 26 MA's), (30, 5061), (35, 5166), (42, 5211), (49, 5367),

Gene: Troje\_7 Start: 4889, Stop: 5350, Start Num: 22  
Candidate Starts for Troje\_7:  
(Start: 22 @4889 has 26 MA's), (35, 5120), (40, 5153), (49, 5321),

Gene: Typhonomachy\_8 Start: 4894, Stop: 5358, Start Num: 22  
Candidate Starts for Typhonomachy\_8:  
(Start: 22 @4894 has 26 MA's), (35, 5125), (49, 5329),

Gene: Vine\_8 Start: 5635, Stop: 6069, Start Num: 22  
Candidate Starts for Vine\_8:  
(6, 5500), (Start: 12 @5566 has 3 MA's), (Start: 22 @5635 has 26 MA's), (23, 5665), (32, 5824), (45, 5953),

Gene: Yakult\_8 Start: 4830, Stop: 5309, Start Num: 18  
Candidate Starts for Yakult\_8:  
(1, 4506), (2, 4521), (3, 4545), (4, 4617), (10, 4743), (Start: 18 @4830 has 1 MA's), (24, 4905), (41, 5124), (43, 5133), (50, 5286),

Gene: Yarn\_6 Start: 4925, Stop: 5386, Start Num: 22  
Candidate Starts for Yarn\_6:  
(Start: 22 @4925 has 26 MA's), (30, 5051), (35, 5156), (42, 5201), (49, 5357),

Gene: Yummy\_8 Start: 4795, Stop: 5256, Start Num: 22  
Candidate Starts for Yummy\_8:  
(Start: 22 @4795 has 26 MA's), (35, 5026), (40, 5059), (49, 5227),

Gene: Zareef\_10 Start: 5762, Stop: 6274, Start Num: 17  
Candidate Starts for Zareef\_10:  
(10, 5684), (Start: 13 @5720 has 5 MA's), (Start: 14 @5741 has 1 MA's), (Start: 17 @5762 has 3 MA's), (38, 6074), (39, 6077), (50, 6251), (51, 6254),