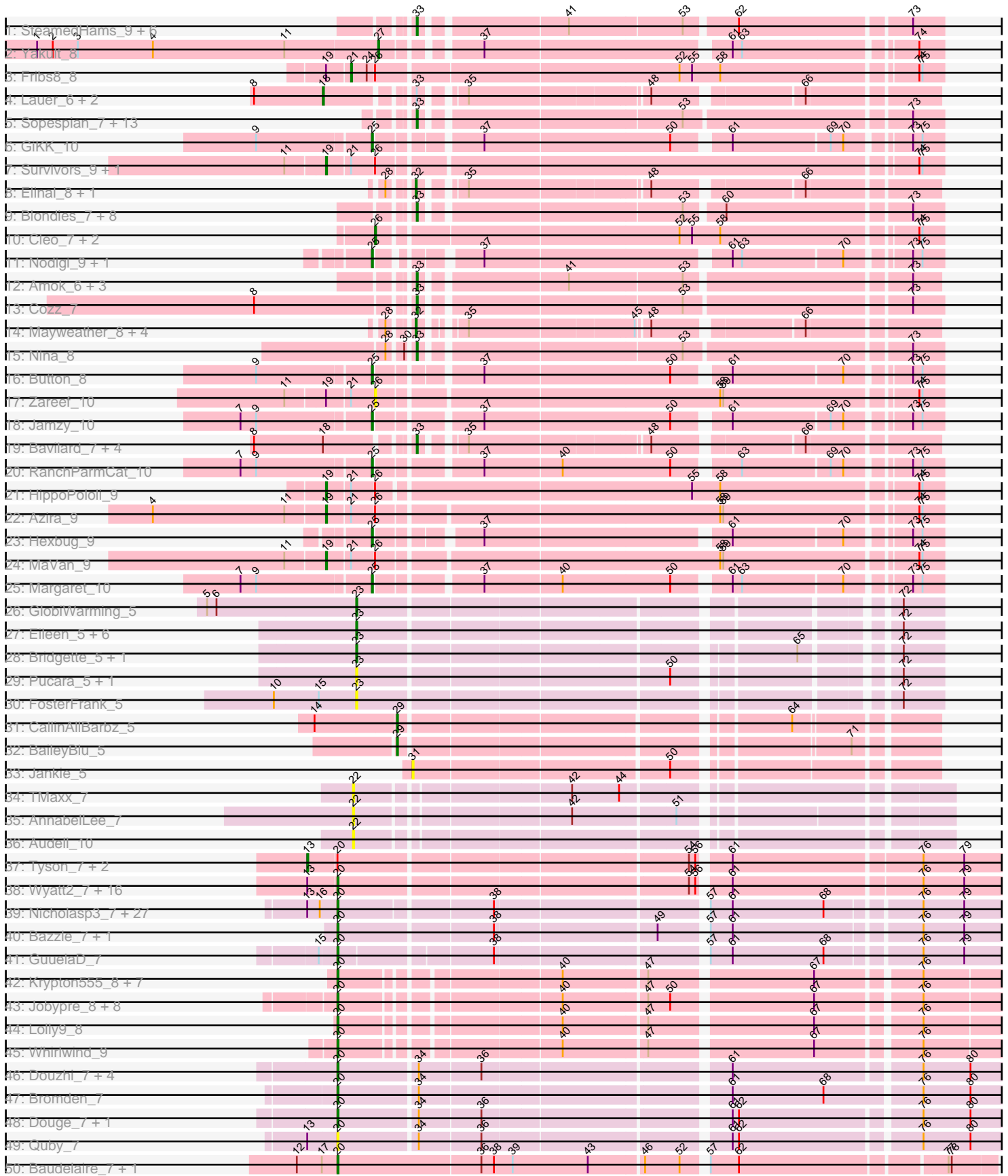


Pham 202718



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 202718 Report

This analysis was run 01/18/25 on database version 583.

Pham number 202718 has 170 members, 41 are drafts.

Phages represented in each track:

- Track 1 : SteamedHams\_9, AndPeggy\_6, CanesSauce\_7, Tolls\_9, BillDoor\_9, Yarn\_6, ChocoMunchkin\_7
- Track 2 : Yakult\_8
- Track 3 : Fribs8\_8
- Track 4 : Lauer\_6, BigChungus\_6, Feastonyeet\_6
- Track 5 : Sopespian\_7, RedBaron\_8, Quasar\_7, ChickenTender\_9, MunkgeeRoachy\_7, Carsonalex\_8, Agatha\_7, GoldHunter\_8, Typhonmarchy\_8, PsychoKiller\_7, Starburst\_8, Burnsey\_7, Elliott\_7, Axym\_7
- Track 6 : GiKK\_10
- Track 7 : Survivors\_9, Nibbles\_9
- Track 8 : Elinal\_8, KayGee\_7
- Track 9 : Blondies\_7, Horseradish\_8, Biskit\_8, Troje\_7, MScarn\_9, SketchMex\_6, SweatNTears\_9, Buttrmlkdreams\_7, Yummy\_8
- Track 10 : Cleo\_7, Dre3\_7, Gibbous\_7
- Track 11 : Nodigi\_9, Orla\_9
- Track 12 : Amok\_6, GTE2\_05, AikoCarson\_6, Emalyn\_6
- Track 13 : Cozz\_7
- Track 14 : Mayweather\_8, SheckWes\_6, Pons\_7, CherryonLim\_8, MAnor\_7
- Track 15 : Nina\_8
- Track 16 : Button\_8
- Track 17 : Zareef\_10
- Track 18 : Jamzy\_10
- Track 19 : Bavidard\_7, Vine\_8, SummitAcademy\_6, Yucky\_9, PotPie\_7
- Track 20 : RanchParmCat\_10
- Track 21 : HippoPololi\_9
- Track 22 : Azira\_9
- Track 23 : Hexbug\_9
- Track 24 : MaVan\_9
- Track 25 : Margaret\_10
- Track 26 : GlobiWarming\_5
- Track 27 : Eileen\_5, Constance\_5, ChuckDuck\_5, Judy\_5, PeggyLeg03\_5, Peas\_5, KayMoney\_5
- Track 28 : Bridgette\_5, Karkharias\_5
- Track 29 : Pucara\_5, HotPotato\_5
- Track 30 : FosterFrank\_5
- Track 31 : CallinAllBarbz\_5
- Track 32 : BaileyBlu\_5

- Track 33 : Jankie\_5
- Track 34 : TMaxx\_7
- Track 35 : AnnabelLee\_7
- Track 36 : Audell\_10
- Track 37 : Tyson\_7, LeBron\_7, UPIE\_7
- Track 38 : Wyatt2\_7, Zaria\_7, CicholasNage\_7, AvadaKedavra\_7, JoeDirt\_7, Halena\_7, Wamburgrxpress\_7, Appletree2\_7, Rose5\_7, Calm\_7, MAckerman\_7, DirkDirk\_7, Poochiewood\_7, Silverleaf\_7, Enceladus\_7, Acquire49\_7, OhShagHennessy\_7
- Track 39 : Nicholasp3\_7, Lewan\_7, Underpass\_7, Vetrix\_7, Soap141\_7, BobsGarage\_7, Rumpelstiltskin\_7, Kahlid\_7, Netyap\_7, Gabriela\_7, LilDestine\_7, Faith1\_7, Winky\_7, Sarshaun\_7, Finemlucis\_7, Zakai\_7, Loadrie\_7, Gardann\_7, DrSeegs\_7, Wilder\_7, Breezona\_7, Miley16\_7, MkaliMitinis3\_7, Hafay\_7, Itos\_7, BigCheese\_7, Crossroads\_7, Wigglewiggle\_7
- Track 40 : Bazzle\_7, Archie\_7
- Track 41 : GuuelaD\_7
- Track 42 : Krypton555\_8, DuncansLeg\_8, MiniMac\_8, Ellson\_8, MiniLon\_8, KirDoubleO7\_6, BourbonZero\_7, LiyuLake\_8
- Track 43 : Jobypre\_8, Nicholas\_8, Kingsolomon\_8, MsGreen\_8, TriFive\_8, Snenia\_8, Lumos\_8, Jubie\_8, Clautastrophe\_8
- Track 44 : Lolly9\_8
- Track 45 : Whirlwind\_9
- Track 46 : Douzhi\_7, BrainDrainer\_8, Chaser\_7, PYPDinur\_7, Sheng711\_7
- Track 47 : Bromden\_7
- Track 48 : Douge\_7, FarmResident\_7
- Track 49 : Quby\_7
- Track 50 : Baudelaire\_7, Aegeus\_7

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

The start number called the most often in the published annotations is 20, it was called in 61 of the 129 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acquire49\_7, Aegeus\_7, Appletree2\_7, Archie\_7, AvadaKedavra\_7, Baudelaire\_7, Bazzle\_7, BigCheese\_7, BobsGarage\_7, BourbonZero\_7, BrainDrainer\_8, Breezona\_7, Bromden\_7, Calm\_7, Chaser\_7, CicholasNage\_7, Clautastrophe\_8, Crossroads\_7, DirkDirk\_7, Douge\_7, Douzhi\_7, DrSeegs\_7, DuncansLeg\_8, Ellson\_8, Enceladus\_7, Faith1\_7, FarmResident\_7, Finemlucis\_7, Gabriela\_7, Gardann\_7, GuuelaD\_7, Hafay\_7, Halena\_7, Itos\_7, Jobypre\_8, JoeDirt\_7, Jubie\_8, Kahlid\_7, Kingsolomon\_8, KirDoubleO7\_6, Krypton555\_8, Lewan\_7, LilDestine\_7, LiyuLake\_8, Loadrie\_7, Lolly9\_8, Lumos\_8, MAckerman\_7, Miley16\_7, MiniLon\_8, MiniMac\_8, MkaliMitinis3\_7, MsGreen\_8, Netyap\_7, Nicholas\_8, Nicholasp3\_7, OhShagHennessy\_7, PYPDinur\_7, Poochiewood\_7, Quby\_7, Rose5\_7, Rumpelstiltskin\_7, Sarshaun\_7, Sheng711\_7, Silverleaf\_7, Snenia\_8, Soap141\_7, TriFive\_8, Underpass\_7, Vetrix\_7, Wamburgrxpress\_7, Whirlwind\_9, Wigglewiggle\_7, Wilder\_7, Winky\_7, Wyatt2\_7, Zakai\_7, Zaria\_7,

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

- LeBron\_7, Tyson\_7, UPIE\_7,

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

- Agatha\_7, AikoCarson\_6, Amok\_6, AndPeggy\_6, AnnabelLee\_7, Audell\_10, Axym\_7, Azira\_9, BaileyBlu\_5, Bavilard\_7, BigChungus\_6, BillDoor\_9, Biskit\_8, Blondies\_7, Bridgette\_5, Burnsey\_7, Button\_8, Buttrmlkdreams\_7, CallinAllBarbz\_5, CanesSauce\_7, Carsonalex\_8, CherryonLim\_8, ChickenTender\_9, ChocoMunchkin\_7, ChuckDuck\_5, Cleo\_7, Constance\_5, Cozz\_7, Dre3\_7, Eileen\_5, Elinal\_8, Elliott\_7, Emalyn\_6, Feastonyeet\_6, FosterFrank\_5, Fribs8\_8, GTE2\_05, GiKK\_10, Gibbous\_7, GlobiWarming\_5, GoldHunter\_8, Hexbug\_9, HippoPololi\_9, Horseradish\_8, HotPotato\_5, Jamzy\_10, Jankie\_5, Judy\_5, Karkharias\_5, KayGee\_7, KayMoney\_5, Lauer\_6, MAnor\_7, MScarn\_9, MaVan\_9, Margaret\_10, Mayweather\_8, MunkgeeRoachy\_7, Nibbles\_9, Nina\_8, Nodigi\_9, Orla\_9, Peas\_5, PeggyLeg03\_5, Pons\_7, PotPie\_7, PsychoKiller\_7, Pucara\_5, Quasar\_7, RanchParmCat\_10, RedBaron\_8, SheckWes\_6, SketchMex\_6, Sopespian\_7, Starburst\_8, SteamedHams\_9, SummitAcademy\_6, Survivors\_9, SweatNTears\_9, TMaxx\_7, Tolls\_9, Troje\_7, Typhonmochy\_8, Vine\_8, Yakult\_8, Yarn\_6, Yucky\_9, Yummy\_8, Zareef\_10,

### Summary by start number:

Start 13:

- Found in 49 of 170 ( 28.8% ) of genes in pham
- Manual Annotations of this start: 3 of 129
- Called 6.1% of time when present
- Phage (with cluster) where this start called: LeBron\_7 (L1), Tyson\_7 (L1), UPIE\_7 (L1),

Start 18:

- Found in 8 of 170 ( 4.7% ) of genes in pham
- Manual Annotations of this start: 3 of 129
- Called 37.5% of time when present
- Phage (with cluster) where this start called: BigChungus\_6 (CT), Feastonyeet\_6 (CT), Lauer\_6 (CT),

Start 19:

- Found in 7 of 170 ( 4.1% ) of genes in pham
- Manual Annotations of this start: 5 of 129
- 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 20:

- Found in 81 of 170 ( 47.6% ) of genes in pham
- Manual Annotations of this start: 61 of 129
- Called 96.3% of time when present
- Phage (with cluster) where this start called: Acquire49\_7 (L1), Aegeus\_7 (L5), Appletree2\_7 (L1), Archie\_7 (L2), AvadaKedavra\_7 (L1), Baudelaire\_7 (L5), Bazzle\_7 (L2), BigCheese\_7 (L2), BobsGarage\_7 (L2), BourbonZero\_7 (L3), BrainDrainer\_8 (L4), Breezona\_7 (L2), Bromden\_7 (L4), Calm\_7 (L1), Chaser\_7 (L4), CicholasNage\_7 (L1), Clautastrophe\_8 (L3), Crossroads\_7 (L2), DirkDirk\_7 (L1), Douge\_7 (L4), Douzhi\_7 (L4), DrSeegs\_7 (L2), DuncansLeg\_8 (L3), Ellson\_8 (L3), Enceladus\_7 (L1), Faith1\_7 (L2), FarmResident\_7 (L4), Finemlucis\_7 (L2), Gabriela\_7 (L2), Gardann\_7 (L2), GuuelaD\_7 (L2), Hafay\_7 (L2), Halena\_7 (L1),

Itos\_7 (L2), Jobypre\_8 (L3), JoeDirt\_7 (L1), Jubie\_8 (L3), Kahlid\_7 (L2), Kingsolomon\_8 (L3), KirDoubleO7\_6 (L3), Krypton555\_8 (L3), Lewan\_7 (L2), LilDestine\_7 (L2), LiyuLake\_8 (L3), Loadrie\_7 (L2), Lolly9\_8 (L3), Lumos\_8 (L3), MAckerman\_7 (L1), Miley16\_7 (L2), MiniLon\_8 (L3), MiniMac\_8 (L3), MkaliMitinis3\_7 (L2), MsGreen\_8 (L3), Netyap\_7 (L2), Nicholas\_8 (L3), Nicholasp3\_7 (L2), OhShagHennessy\_7 (L1), PYPDinur\_7 (L4), Poochiewood\_7 (L1), Quby\_7 (L4), Rose5\_7 (L1), Rumpelstiltskin\_7 (L2), Sarshaun\_7 (L2), Sheng711\_7 (L4), Silverleaf\_7 (L1), Snenia\_8 (L3), Soap141\_7 (L2), TriFive\_8 (L3), Underpass\_7 (L2), Vetrix\_7 (L2), Wamburggrxpress\_7 (L1), Whirlwind\_9 (L3), Wigglewiggle\_7 (L2), Wilder\_7 (L2), Winky\_7 (L2), Wyatt2\_7 (L1), Zakai\_7 (L2), Zaria\_7 (L1),

#### Start 21:

- Found in 7 of 170 ( 4.1% ) of genes in pham
- Manual Annotations of this start: 1 of 129
- Called 14.3% of time when present
- Phage (with cluster) where this start called: Fribs8\_8 (CT),

#### Start 22:

- Found in 3 of 170 ( 1.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AnnabelleLee\_7 (FR), Audell\_10 (FR), TMaxx\_7 (FR),

#### Start 23:

- Found in 13 of 170 ( 7.6% ) of genes in pham
- Manual Annotations of this start: 9 of 129
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bridgette\_5 (FA), ChuckDuck\_5 (FA), Constance\_5 (FA), Eileen\_5 (FA), FosterFrank\_5 (FA), GlobiWarming\_5 (FA), HotPotato\_5 (FA), Judy\_5 (FA), Karkharias\_5 (FA), KayMoney\_5 (FA), Peas\_5 (FA), PeggyLeg03\_5 (FA), Pucara\_5 (FA),

#### Start 25:

- Found in 8 of 170 ( 4.7% ) of genes in pham
- Manual Annotations of this start: 8 of 129
- 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 26:

- Found in 10 of 170 ( 5.9% ) of genes in pham
- Manual Annotations of this start: 3 of 129
- 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 27:

- Found in 1 of 170 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 129
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Yakult\_8 (CT),

Start 29:

- Found in 2 of 170 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 2 of 129
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BaileyBlu\_5 (FP), CallinAllBarbz\_5 (FP),

Start 31:

- Found in 1 of 170 ( 0.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jankie\_5 (FP),

Start 32:

- Found in 7 of 170 ( 4.1% ) of genes in pham
- Manual Annotations of this start: 7 of 129
- Called 100.0% 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 33:

- Found in 44 of 170 ( 25.9% ) of genes in pham
- Manual Annotations of this start: 26 of 129
- Called 93.2% 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), Bavidard\_7 (CT), BillDoor\_9 (CT), Biskit\_8 (CT), Blondies\_7 (CT), Burnsey\_7 (CT), Buttrmlkdreams\_7 (CT), CanesSauce\_7 (CT), Carsonalex\_8 (CT), ChickenTender\_9 (CT), ChocoMunchkin\_7 (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), Starburst\_8 (CT), SteamedHams\_9 (CT), SummitAcademy\_6 (CT), SweatNTears\_9 (CT), Tolls\_9 (CT), Troje\_7 (CT), Typhonomachy\_8 (CT), Vine\_8 (CT), Yarn\_6 (CT), Yucky\_9 (CT), Yummy\_8 (CT),

**Summary by clusters:**

There are 9 clusters represented in this pham: FP, FR, FA, L4, L5, L2, L3, L1, CT,

Info for manual annotations of cluster CT:

- Start number 18 was manually annotated 3 times for cluster CT.
- Start number 19 was manually annotated 5 times for cluster CT.
- Start number 21 was manually annotated 1 time for cluster CT.
- Start number 25 was manually annotated 8 times for cluster CT.
- Start number 26 was manually annotated 3 times for cluster CT.
- Start number 27 was manually annotated 1 time for cluster CT.
- Start number 32 was manually annotated 7 times for cluster CT.
- Start number 33 was manually annotated 26 times for cluster CT.

Info for manual annotations of cluster FA:

- Start number 23 was manually annotated 9 times for cluster FA.

Info for manual annotations of cluster FP:

- Start number 29 was manually annotated 2 times for cluster FP.

Info for manual annotations of cluster L1:

- Start number 13 was manually annotated 3 times for cluster L1.
- Start number 20 was manually annotated 16 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 20 was manually annotated 27 times for cluster L2.

Info for manual annotations of cluster L3:

- Start number 20 was manually annotated 13 times for cluster L3.

Info for manual annotations of cluster L4:

- Start number 20 was manually annotated 3 times for cluster L4.

Info for manual annotations of cluster L5:

- Start number 20 was manually annotated 2 times for cluster L5.

### ***Gene Information:***

Gene: Acquire49\_7 Start: 5429, Stop: 6040, Start Num: 20

Candidate Starts for Acquire49\_7:

(Start: 13 @5402 has 3 MA's), (Start: 20 @5429 has 61 MA's), (54, 5744), (56, 5750), (61, 5774), (76, 5948), (79, 5987),

Gene: Aegeus\_7 Start: 5028, Stop: 5621, Start Num: 20

Candidate Starts for Aegeus\_7:

(12, 4989), (17, 5013), (Start: 20 @5028 has 61 MA's), (36, 5163), (38, 5175), (39, 5193), (43, 5265), (46, 5313), (52, 5346), (57, 5364), (62, 5391), (77, 5577), (78, 5580),

Gene: Agatha\_7 Start: 4894, Stop: 5358, Start Num: 33

Candidate Starts for Agatha\_7:

(Start: 33 @4894 has 26 MA's), (53, 5125), (73, 5329),

Gene: AikoCarson\_6 Start: 4622, Stop: 5080, Start Num: 33

Candidate Starts for AikoCarson\_6:

(Start: 33 @4622 has 26 MA's), (41, 4748), (53, 4853), (73, 5054),

Gene: Amok\_6 Start: 4623, Stop: 5081, Start Num: 33

Candidate Starts for Amok\_6:

(Start: 33 @4623 has 26 MA's), (41, 4749), (53, 4854), (73, 5055),

Gene: AndPeggy\_6 Start: 4931, Stop: 5392, Start Num: 33

Candidate Starts for AndPeggy\_6:

(Start: 33 @4931 has 26 MA's), (41, 5057), (53, 5162), (62, 5207), (73, 5363),

Gene: AnnabelLee\_7 Start: 4967, Stop: 5473, Start Num: 22

Candidate Starts for AnnabelLee\_7:

(22, 4967), (42, 5153), (51, 5246),

Gene: Appletree2\_7 Start: 5403, Stop: 6014, Start Num: 20

Candidate Starts for Appletree2\_7:

(Start: 13 @5376 has 3 MA's), (Start: 20 @5403 has 61 MA's), (54, 5718), (56, 5724), (61, 5748), (76, 5922), (79, 5961),

Gene: Archie\_7 Start: 5396, Stop: 6001, Start Num: 20

Candidate Starts for Archie\_7:

(Start: 20 @5396 has 61 MA's), (38, 5537), (49, 5681), (57, 5720), (61, 5741), (76, 5909), (79, 5948),

Gene: Audell\_10 Start: 8386, Stop: 8895, Start Num: 22

Candidate Starts for Audell\_10:

(22, 8386),

Gene: AvadaKedavra\_7 Start: 5429, Stop: 6040, Start Num: 20

Candidate Starts for AvadaKedavra\_7:

(Start: 13 @5402 has 3 MA's), (Start: 20 @5429 has 61 MA's), (54, 5744), (56, 5750), (61, 5774), (76, 5948), (79, 5987),

Gene: Axym\_7 Start: 4894, Stop: 5358, Start Num: 33

Candidate Starts for Axym\_7:

(Start: 33 @4894 has 26 MA's), (53, 5125), (73, 5329),

Gene: Azira\_9 Start: 5719, Stop: 6273, Start Num: 19

Candidate Starts for Azira\_9:

(4, 5557), (11, 5683), (Start: 19 @5719 has 5 MA's), (Start: 21 @5740 has 1 MA's), (Start: 26 @5761 has 3 MA's), (58, 6073), (59, 6076), (74, 6250), (75, 6253),

Gene: BaileyBlu\_5 Start: 4160, Stop: 4618, Start Num: 29

Candidate Starts for BaileyBlu\_5:

(Start: 29 @4160 has 2 MA's), (71, 4547),

Gene: Baudelaire\_7 Start: 5028, Stop: 5621, Start Num: 20

Candidate Starts for Baudelaire\_7:

(12, 4989), (17, 5013), (Start: 20 @5028 has 61 MA's), (36, 5163), (38, 5175), (39, 5193), (43, 5265), (46, 5313), (52, 5346), (57, 5364), (62, 5391), (77, 5577), (78, 5580),

Gene: Bavilard\_7 Start: 5413, Stop: 5847, Start Num: 33

Candidate Starts for Bavilard\_7:

(8, 5278), (Start: 18 @5344 has 3 MA's), (Start: 33 @5413 has 26 MA's), (35, 5443), (48, 5602), (66, 5731),

Gene: Bazzle\_7 Start: 5372, Stop: 5977, Start Num: 20

Candidate Starts for Bazzle\_7:

(Start: 20 @5372 has 61 MA's), (38, 5513), (49, 5657), (57, 5696), (61, 5717), (76, 5885), (79, 5924),

Gene: BigCheese\_7 Start: 5422, Stop: 6027, Start Num: 20

Candidate Starts for BigCheese\_7:

(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: BigChungus\_6 Start: 4593, Stop: 5096, Start Num: 18

Candidate Starts for BigChungus\_6:



(8, 4527), (Start: 18 @4593 has 3 MA's), (Start: 33 @4662 has 26 MA's), (35, 4692), (48, 4851), (66, 4980),

Gene: BillDoor\_9 Start: 4896, Stop: 5357, Start Num: 33

Candidate Starts for BillDoor\_9:

(Start: 33 @4896 has 26 MA's), (41, 5022), (53, 5127), (62, 5172), (73, 5328),

Gene: Biskit\_8 Start: 4888, Stop: 5349, Start Num: 33

Candidate Starts for Biskit\_8:

(Start: 33 @4888 has 26 MA's), (53, 5119), (60, 5152), (73, 5320),

Gene: Blondies\_7 Start: 4889, Stop: 5350, Start Num: 33

Candidate Starts for Blondies\_7:

(Start: 33 @4889 has 26 MA's), (53, 5120), (60, 5153), (73, 5321),

Gene: BobsGarage\_7 Start: 5422, Stop: 6027, Start Num: 20

Candidate Starts for BobsGarage\_7:

(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: BourbonZero\_7 Start: 5543, Stop: 6142, Start Num: 20

Candidate Starts for BourbonZero\_7:

(Start: 20 @5543 has 61 MA's), (40, 5729), (47, 5804), (67, 5951), (76, 6041),

Gene: BrainDrainer\_8 Start: 5236, Stop: 5844, Start Num: 20

Candidate Starts for BrainDrainer\_8:

(Start: 20 @5236 has 61 MA's), (34, 5308), (36, 5365), (61, 5581), (76, 5749), (80, 5794),

Gene: Breezona\_7 Start: 5422, Stop: 6027, Start Num: 20

Candidate Starts for Breezona\_7:

(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: Bridgette\_5 Start: 5076, Stop: 5570, Start Num: 23

Candidate Starts for Bridgette\_5:

(Start: 23 @5076 has 9 MA's), (65, 5457), (72, 5532),

Gene: Bromden\_7 Start: 5140, Stop: 5754, Start Num: 20

Candidate Starts for Bromden\_7:

(Start: 20 @5140 has 61 MA's), (34, 5212), (61, 5485), (68, 5572), (76, 5659), (80, 5704),

Gene: Burnsey\_7 Start: 4894, Stop: 5358, Start Num: 33

Candidate Starts for Burnsey\_7:

(Start: 33 @4894 has 26 MA's), (53, 5125), (73, 5329),

Gene: Button\_8 Start: 4950, Stop: 5435, Start Num: 25

Candidate Starts for Button\_8:

(9, 4845), (Start: 25 @4950 has 8 MA's), (37, 5034), (50, 5208), (61, 5253), (70, 5355), (73, 5406), (75, 5415),

Gene: Buttrmlkdreams\_7 Start: 4889, Stop: 5350, Start Num: 33

Candidate Starts for Buttrmlkdreams\_7:

(Start: 33 @4889 has 26 MA's), (53, 5120), (60, 5153), (73, 5321),

Gene: CallinAllBarbz\_5 Start: 4163, Stop: 4621, Start Num: 29

Candidate Starts for CallinAllBarbz\_5:

(14, 4088), (Start: 29 @4163 has 2 MA's), (64, 4499),

Gene: Calm\_7 Start: 5430, Stop: 6041, Start Num: 20

Candidate Starts for Calm\_7:

(Start: 13 @5403 has 3 MA's), (Start: 20 @5430 has 61 MA's), (54, 5745), (56, 5751), (61, 5775), (76, 5949), (79, 5988),

Gene: CanesSauce\_7 Start: 4931, Stop: 5392, Start Num: 33

Candidate Starts for CanesSauce\_7:

(Start: 33 @4931 has 26 MA's), (41, 5057), (53, 5162), (62, 5207), (73, 5363),

Gene: Carsonalex\_8 Start: 4951, Stop: 5415, Start Num: 33

Candidate Starts for Carsonalex\_8:

(Start: 33 @4951 has 26 MA's), (53, 5182), (73, 5386),

Gene: Chaser\_7 Start: 5142, Stop: 5759, Start Num: 20

Candidate Starts for Chaser\_7:

(Start: 20 @5142 has 61 MA's), (34, 5214), (36, 5271), (61, 5487), (76, 5664), (80, 5709),

Gene: CherryonLim\_8 Start: 5387, Stop: 5818, Start Num: 32

Candidate Starts for CherryonLim\_8:

(28, 5372), (Start: 32 @5387 has 7 MA's), (35, 5414), (45, 5564), (48, 5573), (66, 5702),

Gene: ChickenTender\_9 Start: 4942, Stop: 5406, Start Num: 33

Candidate Starts for ChickenTender\_9:

(Start: 33 @4942 has 26 MA's), (53, 5173), (73, 5377),

Gene: ChocoMunchkin\_7 Start: 4931, Stop: 5392, Start Num: 33

Candidate Starts for ChocoMunchkin\_7:

(Start: 33 @4931 has 26 MA's), (41, 5057), (53, 5162), (62, 5207), (73, 5363),

Gene: ChuckDuck\_5 Start: 5037, Stop: 5531, Start Num: 23

Candidate Starts for ChuckDuck\_5:

(Start: 23 @5037 has 9 MA's), (72, 5493),

Gene: CicholasNage\_7 Start: 5430, Stop: 6041, Start Num: 20

Candidate Starts for CicholasNage\_7:

(Start: 13 @5403 has 3 MA's), (Start: 20 @5430 has 61 MA's), (54, 5745), (56, 5751), (61, 5775), (76, 5949), (79, 5988),

Gene: Clautastrophe\_8 Start: 5542, Stop: 6141, Start Num: 20

Candidate Starts for Clautastrophe\_8:

(Start: 20 @5542 has 61 MA's), (40, 5728), (47, 5803), (50, 5824), (67, 5950), (76, 6040),

Gene: Cleo\_7 Start: 5059, Stop: 5571, Start Num: 26

Candidate Starts for Cleo\_7:

(Start: 26 @5059 has 3 MA's), (52, 5332), (55, 5344), (58, 5371), (74, 5548), (75, 5551),

Gene: Constance\_5 Start: 5077, Stop: 5574, Start Num: 23

Candidate Starts for Constance\_5:

(Start: 23 @5077 has 9 MA's), (72, 5536),

Gene: Cozz\_7 Start: 4895, Stop: 5359, Start Num: 33

Candidate Starts for Cozz\_7:

(8, 4757), (Start: 33 @4895 has 26 MA's), (53, 5126), (73, 5330),

Gene: Crossroads\_7 Start: 5422, Stop: 6027, Start Num: 20

Candidate Starts for Crossroads\_7:

(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: DirkDirk\_7 Start: 5431, Stop: 6042, Start Num: 20

Candidate Starts for DirkDirk\_7:

(Start: 13 @5404 has 3 MA's), (Start: 20 @5431 has 61 MA's), (54, 5746), (56, 5752), (61, 5776), (76, 5950), (79, 5989),

Gene: Douge\_7 Start: 5097, Stop: 5705, Start Num: 20

Candidate Starts for Douge\_7:

(Start: 20 @5097 has 61 MA's), (34, 5169), (36, 5226), (61, 5442), (62, 5448), (76, 5610), (80, 5655),

Gene: Douzhi\_7 Start: 5097, Stop: 5705, Start Num: 20

Candidate Starts for Douzhi\_7:

(Start: 20 @5097 has 61 MA's), (34, 5169), (36, 5226), (61, 5442), (76, 5610), (80, 5655),

Gene: DrSeegs\_7 Start: 5422, Stop: 6027, Start Num: 20

Candidate Starts for DrSeegs\_7:

(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: Dre3\_7 Start: 5006, Stop: 5518, Start Num: 26

Candidate Starts for Dre3\_7:

(Start: 26 @5006 has 3 MA's), (52, 5279), (55, 5291), (58, 5318), (74, 5495), (75, 5498),

Gene: DuncansLeg\_8 Start: 5545, Stop: 6144, Start Num: 20

Candidate Starts for DuncansLeg\_8:

(Start: 20 @5545 has 61 MA's), (40, 5731), (47, 5806), (67, 5953), (76, 6043),

Gene: Eileen\_5 Start: 5037, Stop: 5534, Start Num: 23

Candidate Starts for Eileen\_5:

(Start: 23 @5037 has 9 MA's), (72, 5496),

Gene: Elinal\_8 Start: 4639, Stop: 5073, Start Num: 32

Candidate Starts for Elinal\_8:

(28, 4624), (Start: 32 @4639 has 7 MA's), (35, 4669), (48, 4828), (66, 4957),

Gene: Elliott\_7 Start: 4894, Stop: 5358, Start Num: 33

Candidate Starts for Elliott\_7:

(Start: 33 @4894 has 26 MA's), (53, 5125), (73, 5329),

Gene: Ellson\_8 Start: 5554, Stop: 6153, Start Num: 20

Candidate Starts for Ellson\_8:

(Start: 20 @5554 has 61 MA's), (40, 5740), (47, 5815), (67, 5962), (76, 6052),

Gene: Emalyn\_6 Start: 4622, Stop: 5080, Start Num: 33  
Candidate Starts for Emalyn\_6:  
(Start: 33 @4622 has 26 MA's), (41, 4748), (53, 4853), (73, 5054),

Gene: Enceladus\_7 Start: 5431, Stop: 6042, Start Num: 20  
Candidate Starts for Enceladus\_7:  
(Start: 13 @5404 has 3 MA's), (Start: 20 @5431 has 61 MA's), (54, 5746), (56, 5752), (61, 5776), (76, 5950), (79, 5989),

Gene: Faith1\_7 Start: 5422, Stop: 6027, Start Num: 20  
Candidate Starts for Faith1\_7:  
(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: FarmResident\_7 Start: 5136, Stop: 5750, Start Num: 20  
Candidate Starts for FarmResident\_7:  
(Start: 20 @5136 has 61 MA's), (34, 5205), (36, 5262), (61, 5478), (62, 5484), (76, 5655), (80, 5700),

Gene: Feastonyeet\_6 Start: 4593, Stop: 5096, Start Num: 18  
Candidate Starts for Feastonyeet\_6:  
(8, 4527), (Start: 18 @4593 has 3 MA's), (Start: 33 @4662 has 26 MA's), (35, 4692), (48, 4851), (66, 4980),

Gene: Finemlucis\_7 Start: 5422, Stop: 6027, Start Num: 20  
Candidate Starts for Finemlucis\_7:  
(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: FosterFrank\_5 Start: 5039, Stop: 5533, Start Num: 23  
Candidate Starts for FosterFrank\_5:  
(10, 4961), (15, 5003), (Start: 23 @5039 has 9 MA's), (72, 5495),

Gene: Fribs8\_8 Start: 5534, Stop: 6073, Start Num: 21  
Candidate Starts for Fribs8\_8:  
(Start: 19 @5513 has 5 MA's), (Start: 21 @5534 has 1 MA's), (24, 5549), (Start: 26 @5555 has 3 MA's), (52, 5834), (55, 5846), (58, 5873), (74, 6050), (75, 6053),

Gene: GTE2\_05 Start: 4581, Stop: 5042, Start Num: 33  
Candidate Starts for GTE2\_05:  
(Start: 33 @4581 has 26 MA's), (41, 4707), (53, 4812), (73, 5013),

Gene: Gabriela\_7 Start: 5422, Stop: 6027, Start Num: 20  
Candidate Starts for Gabriela\_7:  
(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: Gardann\_7 Start: 5422, Stop: 6027, Start Num: 20  
Candidate Starts for Gardann\_7:  
(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: GiKK\_10 Start: 5253, Stop: 5738, Start Num: 25  
Candidate Starts for GiKK\_10:

(9, 5148), (Start: 25 @5253 has 8 MA's), (37, 5337), (50, 5511), (61, 5556), (69, 5646), (70, 5658), (73, 5709), (75, 5718),

Gene: Gibbous\_7 Start: 5006, Stop: 5518, Start Num: 26

Candidate Starts for Gibbous\_7:

(Start: 26 @5006 has 3 MA's), (52, 5279), (55, 5291), (58, 5318), (74, 5495), (75, 5498),

Gene: GlobiWarming\_5 Start: 5032, Stop: 5529, Start Num: 23

Candidate Starts for GlobiWarming\_5:

(5, 4891), (6, 4900), (Start: 23 @5032 has 9 MA's), (72, 5491),

Gene: GoldHunter\_8 Start: 4894, Stop: 5358, Start Num: 33

Candidate Starts for GoldHunter\_8:

(Start: 33 @4894 has 26 MA's), (53, 5125), (73, 5329),

Gene: GuuelaD\_7 Start: 5462, Stop: 6061, Start Num: 20

Candidate Starts for GuuelaD\_7:

(15, 5447), (Start: 20 @5462 has 61 MA's), (38, 5597), (57, 5780), (61, 5801), (68, 5888), (76, 5969), (79, 6008),

Gene: Hafay\_7 Start: 5455, Stop: 6060, Start Num: 20

Candidate Starts for Hafay\_7:

(Start: 13 @5428 has 3 MA's), (16, 5440), (Start: 20 @5455 has 61 MA's), (38, 5593), (57, 5776), (61, 5797), (68, 5884), (76, 5965), (79, 6004),

Gene: Halena\_7 Start: 5430, Stop: 6041, Start Num: 20

Candidate Starts for Halena\_7:

(Start: 13 @5403 has 3 MA's), (Start: 20 @5430 has 61 MA's), (54, 5745), (56, 5751), (61, 5775), (76, 5949), (79, 5988),

Gene: Hexbug\_9 Start: 5939, Stop: 6421, Start Num: 25

Candidate Starts for Hexbug\_9:

(Start: 25 @5939 has 8 MA's), (37, 6020), (61, 6239), (70, 6341), (73, 6392), (75, 6401),

Gene: HippoPololi\_9 Start: 5605, Stop: 6162, Start Num: 19

Candidate Starts for HippoPololi\_9:

(Start: 19 @5605 has 5 MA's), (Start: 21 @5626 has 1 MA's), (Start: 26 @5647 has 3 MA's), (55, 5935), (58, 5962), (74, 6139), (75, 6142),

Gene: Horseradish\_8 Start: 4795, Stop: 5256, Start Num: 33

Candidate Starts for Horseradish\_8:

(Start: 33 @4795 has 26 MA's), (53, 5026), (60, 5059), (73, 5227),

Gene: HotPotato\_5 Start: 5037, Stop: 5534, Start Num: 23

Candidate Starts for HotPotato\_5:

(Start: 23 @5037 has 9 MA's), (50, 5316), (72, 5496),

Gene: Itos\_7 Start: 5422, Stop: 6027, Start Num: 20

Candidate Starts for Itos\_7:

(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: Jamzy\_10 Start: 5261, Stop: 5749, Start Num: 25

Candidate Starts for Jamzy\_10:

(7, 5141), (9, 5156), (Start: 25 @5261 has 8 MA's), (37, 5348), (50, 5522), (61, 5567), (69, 5657), (70, 5669), (73, 5720), (75, 5729),

Gene: Jankie\_5 Start: 4178, Stop: 4630, Start Num: 31

Candidate Starts for Jankie\_5:

(31, 4178), (50, 4409),

Gene: Jobypre\_8 Start: 5542, Stop: 6141, Start Num: 20

Candidate Starts for Jobypre\_8:

(Start: 20 @5542 has 61 MA's), (40, 5728), (47, 5803), (50, 5824), (67, 5950), (76, 6040),

Gene: JoeDirt\_7 Start: 5430, Stop: 6041, Start Num: 20

Candidate Starts for JoeDirt\_7:

(Start: 13 @5403 has 3 MA's), (Start: 20 @5430 has 61 MA's), (54, 5745), (56, 5751), (61, 5775), (76, 5949), (79, 5988),

Gene: Jubie\_8 Start: 5542, Stop: 6141, Start Num: 20

Candidate Starts for Jubie\_8:

(Start: 20 @5542 has 61 MA's), (40, 5728), (47, 5803), (50, 5824), (67, 5950), (76, 6040),

Gene: Judy\_5 Start: 5076, Stop: 5573, Start Num: 23

Candidate Starts for Judy\_5:

(Start: 23 @5076 has 9 MA's), (72, 5535),

Gene: Kahlid\_7 Start: 5422, Stop: 6027, Start Num: 20

Candidate Starts for Kahlid\_7:

(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: Karkharias\_5 Start: 5037, Stop: 5531, Start Num: 23

Candidate Starts for Karkharias\_5:

(Start: 23 @5037 has 9 MA's), (65, 5418), (72, 5493),

Gene: KayGee\_7 Start: 4639, Stop: 5073, Start Num: 32

Candidate Starts for KayGee\_7:

(28, 4624), (Start: 32 @4639 has 7 MA's), (35, 4669), (48, 4828), (66, 4957),

Gene: KayMoney\_5 Start: 5037, Stop: 5531, Start Num: 23

Candidate Starts for KayMoney\_5:

(Start: 23 @5037 has 9 MA's), (72, 5493),

Gene: Kingsolomon\_8 Start: 5542, Stop: 6141, Start Num: 20

Candidate Starts for Kingsolomon\_8:

(Start: 20 @5542 has 61 MA's), (40, 5728), (47, 5803), (50, 5824), (67, 5950), (76, 6040),

Gene: KirDoubleO7\_6 Start: 5554, Stop: 6153, Start Num: 20

Candidate Starts for KirDoubleO7\_6:

(Start: 20 @5554 has 61 MA's), (40, 5740), (47, 5815), (67, 5962), (76, 6052),

Gene: Krypton555\_8 Start: 5533, Stop: 6132, Start Num: 20

Candidate Starts for Krypton555\_8:

(Start: 20 @5533 has 61 MA's), (40, 5719), (47, 5794), (67, 5941), (76, 6031),

Gene: Lauer\_6 Start: 4623, Stop: 5126, Start Num: 18

Candidate Starts for Lauer\_6:

(8, 4557), (Start: 18 @4623 has 3 MA's), (Start: 33 @4692 has 26 MA's), (35, 4722), (48, 4881), (66, 5010),

Gene: LeBron\_7 Start: 5403, Stop: 6041, Start Num: 13

Candidate Starts for LeBron\_7:

(Start: 13 @5403 has 3 MA's), (Start: 20 @5430 has 61 MA's), (54, 5745), (56, 5751), (61, 5775), (76, 5949), (79, 5988),

Gene: Lewan\_7 Start: 5422, Stop: 6027, Start Num: 20

Candidate Starts for Lewan\_7:

(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: LilDestine\_7 Start: 5422, Stop: 6027, Start Num: 20

Candidate Starts for LilDestine\_7:

(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: LiyuLake\_8 Start: 5545, Stop: 6144, Start Num: 20

Candidate Starts for LiyuLake\_8:

(Start: 20 @5545 has 61 MA's), (40, 5731), (47, 5806), (67, 5953), (76, 6043),

Gene: Loadrie\_7 Start: 5455, Stop: 6060, Start Num: 20

Candidate Starts for Loadrie\_7:

(Start: 13 @5428 has 3 MA's), (16, 5440), (Start: 20 @5455 has 61 MA's), (38, 5593), (57, 5776), (61, 5797), (68, 5884), (76, 5965), (79, 6004),

Gene: Lolly9\_8 Start: 5548, Stop: 6147, Start Num: 20

Candidate Starts for Lolly9\_8:

(Start: 20 @5548 has 61 MA's), (40, 5734), (47, 5809), (67, 5956), (76, 6046),

Gene: Lumos\_8 Start: 5542, Stop: 6141, Start Num: 20

Candidate Starts for Lumos\_8:

(Start: 20 @5542 has 61 MA's), (40, 5728), (47, 5803), (50, 5824), (67, 5950), (76, 6040),

Gene: MAckerman\_7 Start: 5429, Stop: 6040, Start Num: 20

Candidate Starts for MAckerman\_7:

(Start: 13 @5402 has 3 MA's), (Start: 20 @5429 has 61 MA's), (54, 5744), (56, 5750), (61, 5774), (76, 5948), (79, 5987),

Gene: MAnor\_7 Start: 4636, Stop: 5067, Start Num: 32

Candidate Starts for MAnor\_7:

(28, 4621), (Start: 32 @4636 has 7 MA's), (35, 4663), (45, 4813), (48, 4822), (66, 4951),

Gene: MScarn\_9 Start: 4889, Stop: 5350, Start Num: 33

Candidate Starts for MScarn\_9:

(Start: 33 @4889 has 26 MA's), (53, 5120), (60, 5153), (73, 5321),

Gene: MaVan\_9 Start: 5719, Stop: 6273, Start Num: 19

Candidate Starts for MaVan\_9:

(11, 5683), (Start: 19 @5719 has 5 MA's), (Start: 21 @5740 has 1 MA's), (Start: 26 @5761 has 3 MA's), (58, 6073), (59, 6076), (74, 6250), (75, 6253),

Gene: Margaret\_10 Start: 5637, Stop: 6125, Start Num: 25

Candidate Starts for Margaret\_10:

(7, 5517), (9, 5532), (Start: 25 @5637 has 8 MA's), (37, 5724), (40, 5796), (50, 5898), (61, 5943), (63, 5952), (70, 6045), (73, 6096), (75, 6105),

Gene: Mayweather\_8 Start: 5257, Stop: 5688, Start Num: 32

Candidate Starts for Mayweather\_8:

(28, 5242), (Start: 32 @5257 has 7 MA's), (35, 5284), (45, 5434), (48, 5443), (66, 5572),

Gene: Miley16\_7 Start: 5422, Stop: 6027, Start Num: 20

Candidate Starts for Miley16\_7:

(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: MiniLon\_8 Start: 5548, Stop: 6147, Start Num: 20

Candidate Starts for MiniLon\_8:

(Start: 20 @5548 has 61 MA's), (40, 5734), (47, 5809), (67, 5956), (76, 6046),

Gene: MiniMac\_8 Start: 5548, Stop: 6147, Start Num: 20

Candidate Starts for MiniMac\_8:

(Start: 20 @5548 has 61 MA's), (40, 5734), (47, 5809), (67, 5956), (76, 6046),

Gene: MkaliMitinis3\_7 Start: 5422, Stop: 6027, Start Num: 20

Candidate Starts for MkaliMitinis3\_7:

(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: MsGreen\_8 Start: 5542, Stop: 6141, Start Num: 20

Candidate Starts for MsGreen\_8:

(Start: 20 @5542 has 61 MA's), (40, 5728), (47, 5803), (50, 5824), (67, 5950), (76, 6040),

Gene: MunkgeeRoachy\_7 Start: 4942, Stop: 5406, Start Num: 33

Candidate Starts for MunkgeeRoachy\_7:

(Start: 33 @4942 has 26 MA's), (53, 5173), (73, 5377),

Gene: Netyap\_7 Start: 5422, Stop: 6027, Start Num: 20

Candidate Starts for Netyap\_7:

(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: Nibbles\_9 Start: 5719, Stop: 6273, Start Num: 19

Candidate Starts for Nibbles\_9:

(11, 5683), (Start: 19 @5719 has 5 MA's), (Start: 21 @5740 has 1 MA's), (Start: 26 @5761 has 3 MA's), (74, 6250), (75, 6253),

Gene: Nicholas\_8 Start: 5542, Stop: 6141, Start Num: 20

Candidate Starts for Nicholas\_8:

(Start: 20 @5542 has 61 MA's), (40, 5728), (47, 5803), (50, 5824), (67, 5950), (76, 6040),

Gene: Nicholasp3\_7 Start: 5422, Stop: 6027, Start Num: 20



Candidate Starts for Nicholasp3\_7:

(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: Nina\_8 Start: 5928, Stop: 6392, Start Num: 33

Candidate Starts for Nina\_8:

(28, 5910), (30, 5922), (Start: 33 @5928 has 26 MA's), (53, 6159), (73, 6363),

Gene: Nodigi\_9 Start: 5940, Stop: 6416, Start Num: 25

Candidate Starts for Nodigi\_9:

(Start: 25 @5940 has 8 MA's), (37, 6015), (61, 6234), (63, 6243), (70, 6336), (73, 6387), (75, 6396),

Gene: OhShagHennessy\_7 Start: 5403, Stop: 6014, Start Num: 20

Candidate Starts for OhShagHennessy\_7:

(Start: 13 @5376 has 3 MA's), (Start: 20 @5403 has 61 MA's), (54, 5718), (56, 5724), (61, 5748), (76, 5922), (79, 5961),

Gene: Orla\_9 Start: 5939, Stop: 6421, Start Num: 25

Candidate Starts for Orla\_9:

(Start: 25 @5939 has 8 MA's), (37, 6020), (61, 6239), (63, 6248), (70, 6341), (73, 6392), (75, 6401),

Gene: PYPDinur\_7 Start: 5097, Stop: 5705, Start Num: 20

Candidate Starts for PYPDinur\_7:

(Start: 20 @5097 has 61 MA's), (34, 5169), (36, 5226), (61, 5442), (76, 5610), (80, 5655),

Gene: Peas\_5 Start: 5037, Stop: 5534, Start Num: 23

Candidate Starts for Peas\_5:

(Start: 23 @5037 has 9 MA's), (72, 5496),

Gene: PeggyLeg03\_5 Start: 5077, Stop: 5574, Start Num: 23

Candidate Starts for PeggyLeg03\_5:

(Start: 23 @5077 has 9 MA's), (72, 5536),

Gene: Pons\_7 Start: 4636, Stop: 5067, Start Num: 32

Candidate Starts for Pons\_7:

(28, 4621), (Start: 32 @4636 has 7 MA's), (35, 4663), (45, 4813), (48, 4822), (66, 4951),

Gene: Poochiewood\_7 Start: 5429, Stop: 6040, Start Num: 20

Candidate Starts for Poochiewood\_7:

(Start: 13 @5402 has 3 MA's), (Start: 20 @5429 has 61 MA's), (54, 5744), (56, 5750), (61, 5774), (76, 5948), (79, 5987),

Gene: PotPie\_7 Start: 5496, Stop: 5930, Start Num: 33

Candidate Starts for PotPie\_7:

(8, 5361), (Start: 18 @5427 has 3 MA's), (Start: 33 @5496 has 26 MA's), (35, 5526), (48, 5685), (66, 5814),

Gene: PsychoKiller\_7 Start: 4894, Stop: 5358, Start Num: 33

Candidate Starts for PsychoKiller\_7:

(Start: 33 @4894 has 26 MA's), (53, 5125), (73, 5329),

Gene: Pucara\_5 Start: 5039, Stop: 5533, Start Num: 23

Candidate Starts for Pucara\_5:

(Start: 23 @5039 has 9 MA's), (50, 5318), (72, 5495),

Gene: Quasar\_7 Start: 5515, Stop: 5979, Start Num: 33

Candidate Starts for Quasar\_7:

(Start: 33 @5515 has 26 MA's), (53, 5746), (73, 5950),

Gene: Quby\_7 Start: 5096, Stop: 5704, Start Num: 20

Candidate Starts for Quby\_7:

(Start: 13 @5069 has 3 MA's), (Start: 20 @5096 has 61 MA's), (34, 5168), (36, 5225), (61, 5441), (62, 5447), (76, 5609), (80, 5654),

Gene: RanchParmCat\_10 Start: 5637, Stop: 6125, Start Num: 25

Candidate Starts for RanchParmCat\_10:

(7, 5517), (9, 5532), (Start: 25 @5637 has 8 MA's), (37, 5724), (40, 5796), (50, 5898), (63, 5952), (69, 6033), (70, 6045), (73, 6096), (75, 6105),

Gene: RedBaron\_8 Start: 4939, Stop: 5403, Start Num: 33

Candidate Starts for RedBaron\_8:

(Start: 33 @4939 has 26 MA's), (53, 5170), (73, 5374),

Gene: Rose5\_7 Start: 5429, Stop: 6040, Start Num: 20

Candidate Starts for Rose5\_7:

(Start: 13 @5402 has 3 MA's), (Start: 20 @5429 has 61 MA's), (54, 5744), (56, 5750), (61, 5774), (76, 5948), (79, 5987),

Gene: Rumpelstiltskin\_7 Start: 5422, Stop: 6027, Start Num: 20

Candidate Starts for Rumpelstiltskin\_7:

(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: Sarshaun\_7 Start: 5455, Stop: 6060, Start Num: 20

Candidate Starts for Sarshaun\_7:

(Start: 13 @5428 has 3 MA's), (16, 5440), (Start: 20 @5455 has 61 MA's), (38, 5593), (57, 5776), (61, 5797), (68, 5884), (76, 5965), (79, 6004),

Gene: SheckWes\_6 Start: 4636, Stop: 5067, Start Num: 32

Candidate Starts for SheckWes\_6:

(28, 4621), (Start: 32 @4636 has 7 MA's), (35, 4663), (45, 4813), (48, 4822), (66, 4951),

Gene: Sheng711\_7 Start: 5097, Stop: 5705, Start Num: 20

Candidate Starts for Sheng711\_7:

(Start: 20 @5097 has 61 MA's), (34, 5169), (36, 5226), (61, 5442), (76, 5610), (80, 5655),

Gene: Silverleaf\_7 Start: 5429, Stop: 6040, Start Num: 20

Candidate Starts for Silverleaf\_7:

(Start: 13 @5402 has 3 MA's), (Start: 20 @5429 has 61 MA's), (54, 5744), (56, 5750), (61, 5774), (76, 5948), (79, 5987),

Gene: SketchMex\_6 Start: 4888, Stop: 5349, Start Num: 33

Candidate Starts for SketchMex\_6:

(Start: 33 @4888 has 26 MA's), (53, 5119), (60, 5152), (73, 5320),

Gene: Snenia\_8 Start: 5542, Stop: 6141, Start Num: 20

Candidate Starts for Snenia\_8:

(Start: 20 @5542 has 61 MA's), (40, 5728), (47, 5803), (50, 5824), (67, 5950), (76, 6040),

Gene: Soap141\_7 Start: 5455, Stop: 6060, Start Num: 20

Candidate Starts for Soap141\_7:

(Start: 13 @5428 has 3 MA's), (16, 5440), (Start: 20 @5455 has 61 MA's), (38, 5593), (57, 5776), (61, 5797), (68, 5884), (76, 5965), (79, 6004),

Gene: Sopespian\_7 Start: 4894, Stop: 5358, Start Num: 33

Candidate Starts for Sopespian\_7:

(Start: 33 @4894 has 26 MA's), (53, 5125), (73, 5329),

Gene: Starburst\_8 Start: 4894, Stop: 5358, Start Num: 33

Candidate Starts for Starburst\_8:

(Start: 33 @4894 has 26 MA's), (53, 5125), (73, 5329),

Gene: SteamedHams\_9 Start: 4931, Stop: 5392, Start Num: 33

Candidate Starts for SteamedHams\_9:

(Start: 33 @4931 has 26 MA's), (41, 5057), (53, 5162), (62, 5207), (73, 5363),

Gene: SummitAcademy\_6 Start: 4711, Stop: 5145, Start Num: 33

Candidate Starts for SummitAcademy\_6:

(8, 4576), (Start: 18 @4642 has 3 MA's), (Start: 33 @4711 has 26 MA's), (35, 4741), (48, 4900), (66, 5029),

Gene: Survivors\_9 Start: 5573, Stop: 6127, Start Num: 19

Candidate Starts for Survivors\_9:

(11, 5537), (Start: 19 @5573 has 5 MA's), (Start: 21 @5594 has 1 MA's), (Start: 26 @5615 has 3 MA's), (74, 6104), (75, 6107),

Gene: SweatNTears\_9 Start: 5415, Stop: 5876, Start Num: 33

Candidate Starts for SweatNTears\_9:

(Start: 33 @5415 has 26 MA's), (53, 5646), (60, 5679), (73, 5847),

Gene: TMaxx\_7 Start: 4931, Stop: 5440, Start Num: 22

Candidate Starts for TMaxx\_7:

(22, 4931), (42, 5117), (44, 5162),

Gene: Tolls\_9 Start: 4935, Stop: 5396, Start Num: 33

Candidate Starts for Tolls\_9:

(Start: 33 @4935 has 26 MA's), (41, 5061), (53, 5166), (62, 5211), (73, 5367),

Gene: TriFive\_8 Start: 5542, Stop: 6141, Start Num: 20

Candidate Starts for TriFive\_8:

(Start: 20 @5542 has 61 MA's), (40, 5728), (47, 5803), (50, 5824), (67, 5950), (76, 6040),

Gene: Troje\_7 Start: 4889, Stop: 5350, Start Num: 33

Candidate Starts for Troje\_7:

(Start: 33 @4889 has 26 MA's), (53, 5120), (60, 5153), (73, 5321),

Gene: Typhonomachy\_8 Start: 4894, Stop: 5358, Start Num: 33

Candidate Starts for Typhonomachy\_8:

(Start: 33 @4894 has 26 MA's), (53, 5125), (73, 5329),

Gene: Tyson\_7 Start: 5402, Stop: 6040, Start Num: 13

Candidate Starts for Tyson\_7:

(Start: 13 @5402 has 3 MA's), (Start: 20 @5429 has 61 MA's), (54, 5744), (56, 5750), (61, 5774), (76, 5948), (79, 5987),

Gene: UPIE\_7 Start: 5400, Stop: 6038, Start Num: 13

Candidate Starts for UPIE\_7:

(Start: 13 @5400 has 3 MA's), (Start: 20 @5427 has 61 MA's), (54, 5742), (56, 5748), (61, 5772), (76, 5946), (79, 5985),

Gene: Underpass\_7 Start: 5422, Stop: 6027, Start Num: 20

Candidate Starts for Underpass\_7:

(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: Vetrrix\_7 Start: 5422, Stop: 6027, Start Num: 20

Candidate Starts for Vetrrix\_7:

(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: Vine\_8 Start: 5635, Stop: 6069, Start Num: 33

Candidate Starts for Vine\_8:

(8, 5500), (Start: 18 @5566 has 3 MA's), (Start: 33 @5635 has 26 MA's), (35, 5665), (48, 5824), (66, 5953),

Gene: Wamburgexpress\_7 Start: 5429, Stop: 6040, Start Num: 20

Candidate Starts for Wamburgexpress\_7:

(Start: 13 @5402 has 3 MA's), (Start: 20 @5429 has 61 MA's), (54, 5744), (56, 5750), (61, 5774), (76, 5948), (79, 5987),

Gene: Whirlwind\_9 Start: 5535, Stop: 6134, Start Num: 20

Candidate Starts for Whirlwind\_9:

(Start: 20 @5535 has 61 MA's), (40, 5721), (47, 5796), (67, 5943), (76, 6033),

Gene: Wigglewigggle\_7 Start: 5455, Stop: 6060, Start Num: 20

Candidate Starts for Wigglewigggle\_7:

(Start: 13 @5428 has 3 MA's), (16, 5440), (Start: 20 @5455 has 61 MA's), (38, 5593), (57, 5776), (61, 5797), (68, 5884), (76, 5965), (79, 6004),

Gene: Wilder\_7 Start: 5422, Stop: 6027, Start Num: 20

Candidate Starts for Wilder\_7:

(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: Winky\_7 Start: 5422, Stop: 6027, Start Num: 20

Candidate Starts for Winky\_7:

(Start: 13 @5395 has 3 MA's), (16, 5407), (Start: 20 @5422 has 61 MA's), (38, 5560), (57, 5743), (61, 5764), (68, 5851), (76, 5932), (79, 5971),

Gene: Wyatt2\_7 Start: 5429, Stop: 6040, Start Num: 20

Candidate Starts for Wyatt2\_7:

(Start: 13 @5402 has 3 MA's), (Start: 20 @5429 has 61 MA's), (54, 5744), (56, 5750), (61, 5774), (76, 5948), (79, 5987),

Gene: Yakult\_8 Start: 4830, Stop: 5309, Start Num: 27

Candidate Starts for Yakult\_8:

(1, 4506), (2, 4521), (3, 4545), (4, 4617), (11, 4743), (Start: 27 @4830 has 1 MA's), (37, 4905), (61, 5124), (63, 5133), (74, 5286),

Gene: Yarn\_6 Start: 4925, Stop: 5386, Start Num: 33

Candidate Starts for Yarn\_6:

(Start: 33 @4925 has 26 MA's), (41, 5051), (53, 5156), (62, 5201), (73, 5357),

Gene: Yucky\_9 Start: 5496, Stop: 5930, Start Num: 33

Candidate Starts for Yucky\_9:

(8, 5361), (Start: 18 @5427 has 3 MA's), (Start: 33 @5496 has 26 MA's), (35, 5526), (48, 5685), (66, 5814),

Gene: Yummy\_8 Start: 4795, Stop: 5256, Start Num: 33

Candidate Starts for Yummy\_8:

(Start: 33 @4795 has 26 MA's), (53, 5026), (60, 5059), (73, 5227),

Gene: Zakai\_7 Start: 5410, Stop: 6015, Start Num: 20

Candidate Starts for Zakai\_7:

(Start: 13 @5383 has 3 MA's), (16, 5395), (Start: 20 @5410 has 61 MA's), (38, 5548), (57, 5731), (61, 5752), (68, 5839), (76, 5920), (79, 5959),

Gene: Zareef\_10 Start: 5762, Stop: 6274, Start Num: 26

Candidate Starts for Zareef\_10:

(11, 5684), (Start: 19 @5720 has 5 MA's), (Start: 21 @5741 has 1 MA's), (Start: 26 @5762 has 3 MA's), (58, 6074), (59, 6077), (74, 6251), (75, 6254),

Gene: Zaria\_7 Start: 5430, Stop: 6041, Start Num: 20

Candidate Starts for Zaria\_7:

(Start: 13 @5403 has 3 MA's), (Start: 20 @5430 has 61 MA's), (54, 5745), (56, 5751), (61, 5775), (76, 5949), (79, 5988),