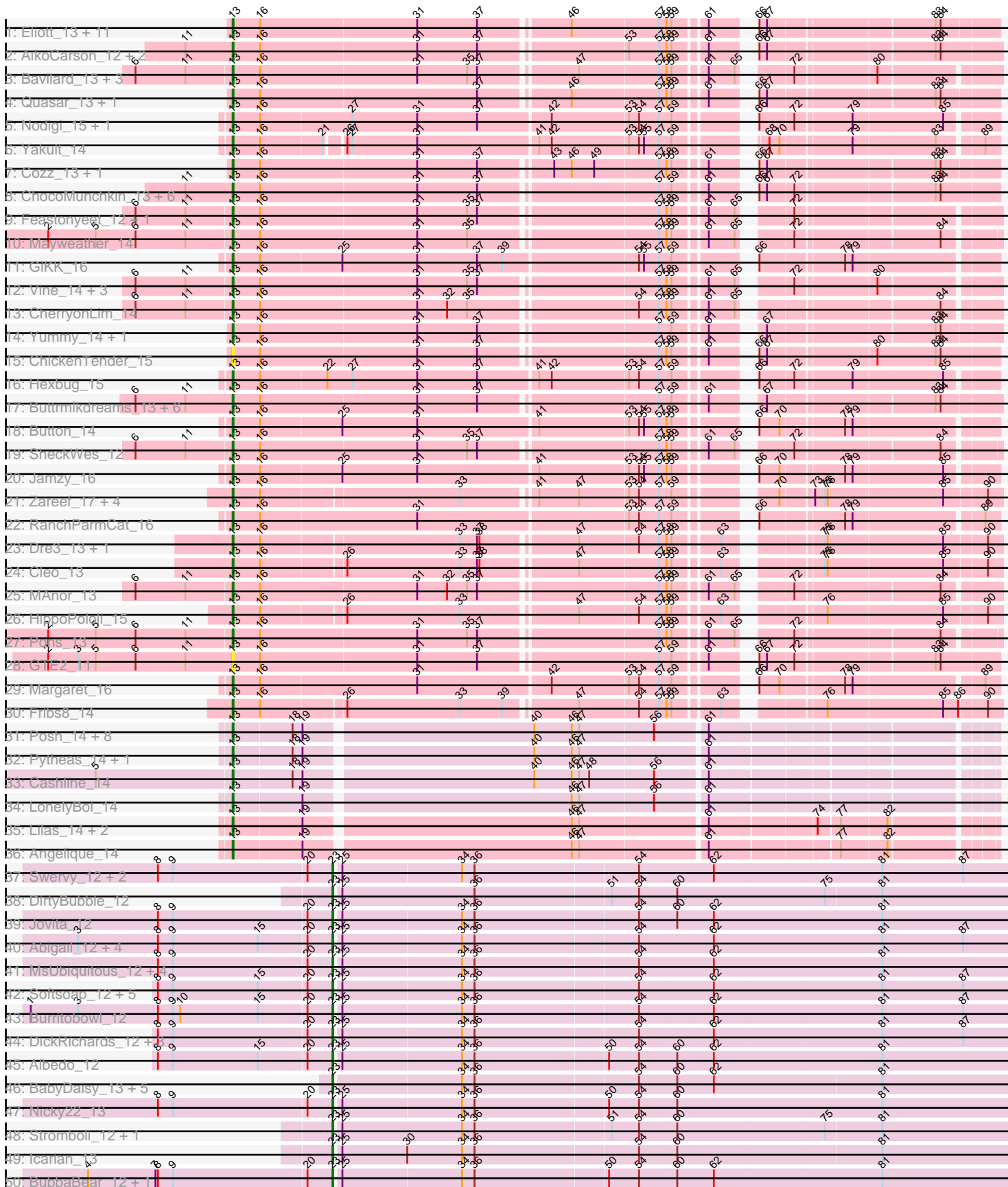
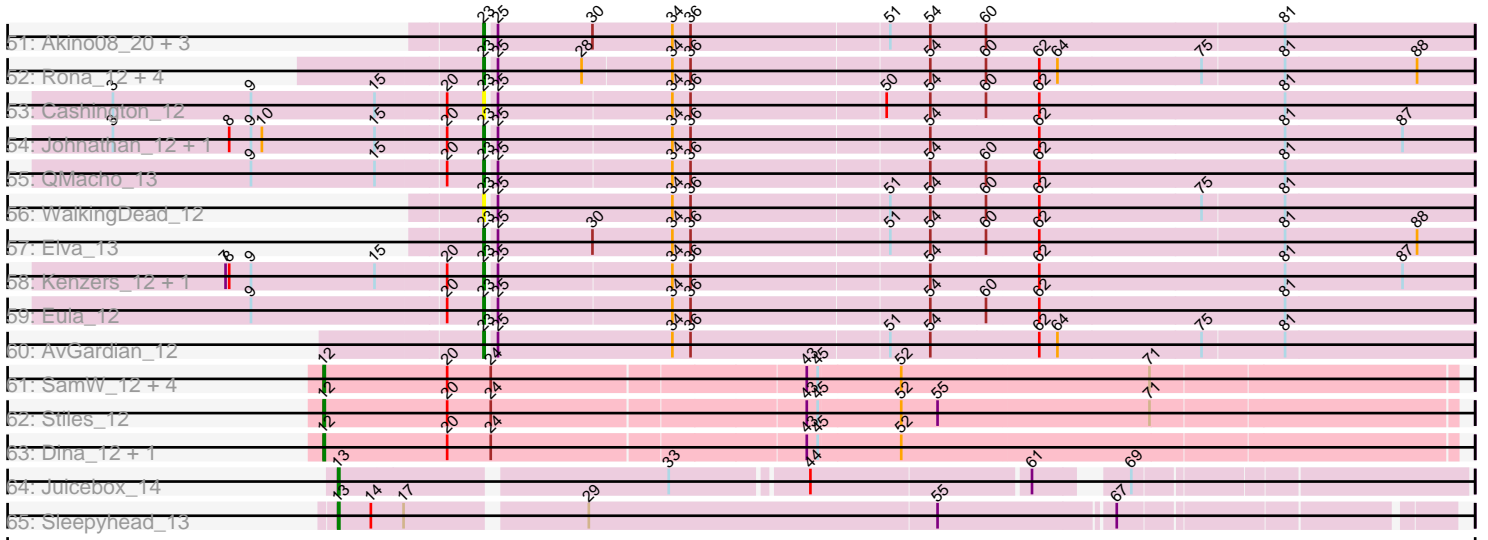


Pham 224345



Pham 224345



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 224345 Report

This analysis was run 03/28/25 on database version 593.

Pham number 224345 has 156 members, 30 are drafts.

Phages represented in each track:

- Track 1 : Elliott\_13, Agatha\_13, PsychoKiller\_13, Starburst\_14, GoldHunter\_14, Carsonalex\_14, MunkgeeRoachy\_13, Typhonomachy\_14, RedBaron\_14, Socotra\_14, Sopespian\_13, Burnsey\_13
- Track 2 : AikoCarson\_12, Amok\_12, Emalyn\_12
- Track 3 : Bavidard\_13, KayGee\_13, Elinal\_14, Yucky\_15
- Track 4 : Quasar\_13, Nina\_14
- Track 5 : Nodigi\_15, Orla\_15
- Track 6 : Yakult\_14
- Track 7 : Cozz\_13, Axym\_13
- Track 8 : ChocoMunchkin\_13, SteamedHams\_15, Tolls\_15, BillDoor\_15, Yarn\_12, CanesSauce\_13, AndPeggy\_12
- Track 9 : Feastonyeet\_12, BigChungus\_12
- Track 10 : Mayweather\_14
- Track 11 : GiKK\_16
- Track 12 : Vine\_14, PotPie\_13, SummitAcademy\_12, Lauer\_12
- Track 13 : CherryonLim\_14
- Track 14 : Yummy\_14, Horseradish\_14
- Track 15 : ChickenTender\_15
- Track 16 : Hexbug\_15
- Track 17 : Buttrmilkdreams\_13, Biskit\_14, SweatNTears\_15, Troje\_13, SketchMex\_12, MScarn\_15, Blondies\_13
- Track 18 : Button\_14
- Track 19 : SheckWes\_12
- Track 20 : Jamzy\_16
- Track 21 : Zareef\_17, Survivors\_15, Nibbles\_15, MaVan\_15, Azira\_15
- Track 22 : RanchParmCat\_16
- Track 23 : Dre3\_13, Gibbous\_13
- Track 24 : Cleo\_13
- Track 25 : MAnor\_13
- Track 26 : HippoPololi\_15
- Track 27 : Pons\_13
- Track 28 : GTE2\_11
- Track 29 : Margaret\_16
- Track 30 : Fribs8\_14
- Track 31 : Posh\_14, Wrigley\_14, Pollux\_14, BritBrat\_14, Floral\_14, EMSquaredA\_14, Confidence\_14, Marteena\_14, BeeGee\_14
- Track 32 : Pytheas\_14, Jablanski\_14

- Track 33 : Cashline\_14
- Track 34 : LonelyBoi\_14
- Track 35 : Lilas\_14, Bradissa\_14, EnalisNailo\_14
- Track 36 : Angelique\_14
- Track 37 : Swervy\_12, Slay\_12, SarBear\_12
- Track 38 : DirtyBubble\_12
- Track 39 : Jovita\_12
- Track 40 : Abigail\_12, Albright\_12, LimaBean\_12, Avocadoman\_12, Doobus\_12
- Track 41 : MsUbiquitous\_12, Finalfrontier\_13, CupcakePrincess\_12, TukTuk\_12, Jabb\_12
- Track 42 : Softsoap\_12, Arroyo\_13, PhigPhack\_12, SansAfet\_12, Solea\_13, Milomuff\_13
- Track 43 : Burritobowl\_12
- Track 44 : DickRichards\_12, CroZenni\_12, BelmontSKP\_13, AnnaLie\_13
- Track 45 : Albedo\_12
- Track 46 : BabyDaisy\_13, Kate33\_12, Didgeridoo\_13, IndyLu\_12, Lahqtemish\_12, PastaFagioli\_12
- Track 47 : Nicky22\_13
- Track 48 : Stromboli\_12, BabyYoda\_12
- Track 49 : Icarian\_13
- Track 50 : BubbaBear\_12, Phisb\_12
- Track 51 : Akino08\_20, Stoor\_12, SanaSana\_13, Loviatar\_20
- Track 52 : Rona\_12, ChiliPepper\_12, Kieran\_12, Dismas\_12, Sharkboy\_12
- Track 53 : Cashington\_12
- Track 54 : Johnathan\_12, Bengal\_12
- Track 55 : QMacho\_13
- Track 56 : WalkingDead\_12
- Track 57 : Elva\_13
- Track 58 : Kenzers\_12, Lynlen\_12
- Track 59 : Eula\_12
- Track 60 : AvGardian\_12
- Track 61 : SamW\_12, Lederberg\_12, Troy\_12, Bran\_12, Adelaide\_12
- Track 62 : Stiles\_12
- Track 63 : Dina\_12, StAB\_12
- Track 64 : Juicebox\_14
- Track 65 : Sleepyhead\_13

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

The start number called the most often in the published annotations is 13, it was called in 73 of the 126 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agatha\_13, AikoCarson\_12, Amok\_12, AndPeggy\_12, Angelique\_14, Axym\_13, Azira\_15, Bavidard\_13, BeeGee\_14, BigChungus\_12, BillDoor\_15, Biskit\_14, Blondies\_13, Bradissa\_14, BritBrat\_14, Burnsey\_13, Button\_14, Buttrmlkdreams\_13, CanesSauce\_13, Carsonalex\_14, Cashline\_14, CherryonLim\_14, ChickenTender\_15, ChocoMunchkin\_13, Cleo\_13, Confidence\_14, Cozz\_13, Dre3\_13, EMSquaredA\_14, Elinal\_14, Elliott\_13, Emalyn\_12, EnalisNailo\_14, Feastonyeet\_12, Floral\_14, Fribs8\_14, GTE2\_11, GiKK\_16, Gibbous\_13, GoldHunter\_14, Hexbug\_15,

HippoPololi\_15, Horseradish\_14, Jablanski\_14, Jamzy\_16, Juicebox\_14, KayGee\_13, Lauer\_12, Lilas\_14, LonelyBoi\_14, MAnor\_13, MScarn\_15, MaVan\_15, Margaret\_16, Marteena\_14, Mayweather\_14, MunkgeeRoachy\_13, Nibbles\_15, Nina\_14, Nodigi\_15, Orla\_15, Pollux\_14, Pons\_13, Posh\_14, PotPie\_13, PsychoKiller\_13, Pytheas\_14, Quasar\_13, RanchParmCat\_16, RedBaron\_14, SheckWes\_12, SketchMex\_12, Sleepyhead\_13, Socotra\_14, Sopespian\_13, Starburst\_14, SteamedHams\_15, SummitAcademy\_12, Survivors\_15, SweatNTears\_15, Tolls\_15, Troje\_13, Typhonmacy\_14, Vine\_14, Wrigley\_14, Yakult\_14, Yarn\_12, Yucky\_15, Yummy\_14, Zareef\_17,

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

- 

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

- Abigail\_12, Adelaide\_12, Akino08\_20, Albedo\_12, Albright\_12, AnnaLie\_13, Arroyo\_13, AvGardian\_12, Avocadoman\_12, BabyDaisy\_13, BabyYoda\_12, BelmontSKP\_13, Bengal\_12, Bran\_12, BubbaBear\_12, Burritobowl\_12, Cashington\_12, ChiliPepper\_12, CroZenni\_12, CupcakePrincess\_12, DickRichards\_12, Didgeridoo\_13, Dina\_12, DirtyBubble\_12, Dismas\_12, Doobus\_12, Elva\_13, Eula\_12, Finalfrontier\_13, Icarian\_13, IndyLu\_12, Jabb\_12, Johnathan\_12, Jovita\_12, Kate33\_12, Kenzers\_12, Kieran\_12, Lahqtemish\_12, Lederberg\_12, LimaBean\_12, Loviatar\_20, Lynlen\_12, Milomuff\_13, MsUbiquitous\_12, Nicky22\_13, PastaFagioli\_12, PhigPhack\_12, Phisb\_12, QMacho\_13, Rona\_12, SamW\_12, SanaSana\_13, SansAfet\_12, SarBear\_12, Sharkboy\_12, Slay\_12, Softsoap\_12, Solea\_13, StAB\_12, Stiles\_12, Stoor\_12, Stromboli\_12, Swervy\_12, Troy\_12, TukTuk\_12, WalkingDead\_12,

### Summary by start number:

Start 12:

- Found in 8 of 156 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 8 of 126
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Adelaide\_12 (EP), Bran\_12 (EP), Dina\_12 (EP), Lederberg\_12 (EP), SamW\_12 (EP), StAB\_12 (EP), Stiles\_12 (EP), Troy\_12 (EP),

Start 13:

- Found in 90 of 156 ( 57.7% ) of genes in pham
- Manual Annotations of this start: 73 of 126
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Agatha\_13 (CT), AikoCarson\_12 (CT), Amok\_12 (CT), AndPeggy\_12 (CT), Angelique\_14 (CY1), Axym\_13 (CT), Azira\_15 (CT), Bavilard\_13 (CT), BeeGee\_14 (CY), BigChungus\_12 (CT), BillDoor\_15 (CT), Biskit\_14 (CT), Blondies\_13 (CT), Bradissa\_14 (CY1), BritBrat\_14 (CY2), Burnsey\_13 (CT), Button\_14 (CT), Buttrmilkdreams\_13 (CT), CanesSauce\_13 (CT), Carsonalex\_14 (CT), Cashline\_14 (CY), CherryonLim\_14 (CT), ChickenTender\_15 (CT), ChocoMunchkin\_13 (CT), Cleo\_13 (CT), Confidence\_14 (CY1), Cozz\_13 (CT), Dre3\_13 (CT), EMsquaredA\_14 (CY1), Elinal\_14 (CT), Elliott\_13 (CT), Emalyn\_12 (CT), EnalisNailo\_14 (CY1), Feastonyeet\_12 (CT), Floral\_14 (CY1), Fribs8\_14 (CT), GTE2\_11 (CT), GiKK\_16 (CT), Gibbous\_13 (CT), GoldHunter\_14 (CT), Hexbug\_15 (CT), HippoPololi\_15 (CT), Horseradish\_14 (CT), Jablanski\_14 (CY), Jamzy\_16 (CT), Juicebox\_14 (singleton), KayGee\_13 (CT), Lauer\_12 (CT), Lilas\_14 (CY1),

LonelyBoi\_14 (CY), MAnor\_13 (CT), MScarn\_15 (CT), MaVan\_15 (CT), Margaret\_16 (CT), Marteena\_14 (CY1), Mayweather\_14 (CT), MunkgeeRoachy\_13 (CT), Nibbles\_15 (CT), Nina\_14 (CT), Nodigi\_15 (CT), Orla\_15 (CT), Pollux\_14 (CY1), Pons\_13 (CT), Posh\_14 (CY), PotPie\_13 (CT), PsychoKiller\_13 (CT), Pytheas\_14 (CY), Quasar\_13 (CT), RanchParmCat\_16 (CT), RedBaron\_14 (CT), SheckWes\_12 (CT), SketchMex\_12 (CT), Sleepyhead\_13 (singleton), Socotra\_14 (CT), Sopespian\_13 (CT), Starburst\_14 (CT), SteamedHams\_15 (CT), SummitAcademy\_12 (CT), Survivors\_15 (CT), SweatNTears\_15 (CT), Tolls\_15 (CT), Troje\_13 (CT), Typhonmarchy\_14 (CT), Vine\_14 (CT), Wrigley\_14 (CY), Yakult\_14 (CT), Yarn\_12 (CT), Yucky\_15 (CT), Yummy\_14 (CT), Zareef\_17 (CT),

Start 23:

- Found in 58 of 156 ( 37.2% ) of genes in pham
- Manual Annotations of this start: 45 of 126
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abigail\_12 (EB), Akino08\_20 (EB), Albedo\_12 (EB), Albright\_12 (EB), AnnaLie\_13 (EB), Arroyo\_13 (EB), AvGuardian\_12 (EB), Avocadoman\_12 (EB), BabyDaisy\_13 (EB), BabyYoda\_12 (EB), BelmontSKP\_13 (EB), Bengal\_12 (EB), BubbaBear\_12 (EB), Burritobowl\_12 (EB), Cashington\_12 (EB), ChiliPepper\_12 (EB), CroZenni\_12 (EB), CupcakePrincess\_12 (EB), DickRichards\_12 (EB), Didgeridoo\_13 (EB), DirtyBubble\_12 (EB), Dismas\_12 (EB), Doobus\_12 (EB), Elva\_13 (EB), Eula\_12 (EB), Finalfrontier\_13 (EB), Icarian\_13 (EB), IndyLu\_12 (EB), Jabb\_12 (EB), Johnathan\_12 (EB), Jovita\_12 (EB), Kate33\_12 (EB), Kenzers\_12 (EB), Kieran\_12 (EB), Lahqtemish\_12 (EB), LimaBean\_12 (EB), Loviatar\_20 (EB), Lynlen\_12 (EB), Milomuff\_13 (EB), MsUbiquitous\_12 (EB), Nicky22\_13 (EB), PastaFagioli\_12 (EB), PhigPhack\_12 (EB), Phisb\_12 (EB), QMacho\_13 (EB), Rona\_12 (EB), SanaSana\_13 (EB), SansAfet\_12 (EB), SarBear\_12 (EB), Sharkboy\_12 (EB), Slay\_12 (EB), Softsoap\_12 (EB), Solea\_13 (EB), Stoor\_12 (EB), Stromboli\_12 (EB), Swervy\_12 (EB), TukTuk\_12 (EB), WalkingDead\_12 (EB),

### Summary by clusters:

There are 7 clusters represented in this pham: CY2, CY1, singleton, EB, CY, EP, CT,

Info for manual annotations of cluster CT:

- Start number 13 was manually annotated 54 times for cluster CT.

Info for manual annotations of cluster CY:

- Start number 13 was manually annotated 7 times for cluster CY.

Info for manual annotations of cluster CY1:

- Start number 13 was manually annotated 9 times for cluster CY1.

Info for manual annotations of cluster CY2:

- Start number 13 was manually annotated 1 time for cluster CY2.

Info for manual annotations of cluster EB:

- Start number 23 was manually annotated 45 times for cluster EB.

Info for manual annotations of cluster EP:

- Start number 12 was manually annotated 8 times for cluster EP.

**Gene Information:**

Gene: Abigail\_12 Start: 8439, Stop: 9236, Start Num: 23

Candidate Starts for Abigail\_12:

(3, 8139), (8, 8235), (9, 8253), (15, 8355), (20, 8409), (Start: 23 @8439 has 45 MA's), (25, 8445), (34, 8586), (36, 8601), (54, 8793), (62, 8880), (81, 9081), (87, 9177),

Gene: Adelaide\_12 Start: 7964, Stop: 8869, Start Num: 12

Candidate Starts for Adelaide\_12:

(Start: 12 @7964 has 8 MA's), (20, 8066), (24, 8102), (43, 8351), (45, 8360), (52, 8426), (71, 8627),

Gene: Agatha\_13 Start: 7939, Stop: 8781, Start Num: 13

Candidate Starts for Agatha\_13:

(Start: 13 @7939 has 73 MA's), (16, 7972), (31, 8158), (37, 8230), (46, 8329), (57, 8431), (58, 8440), (59, 8446), (61, 8479), (66, 8515), (67, 8524), (83, 8710), (84, 8716),

Gene: AikoCarson\_12 Start: 7662, Stop: 8510, Start Num: 13

Candidate Starts for AikoCarson\_12:

(11, 7605), (Start: 13 @7662 has 73 MA's), (16, 7695), (31, 7881), (37, 7953), (53, 8118), (57, 8154), (58, 8163), (59, 8169), (61, 8202), (66, 8238), (67, 8247), (83, 8433), (84, 8439),

Gene: Akino08\_20 Start: 8625, Stop: 9422, Start Num: 23

Candidate Starts for Akino08\_20:

(Start: 23 @8625 has 45 MA's), (25, 8631), (30, 8709), (34, 8775), (36, 8790), (51, 8949), (54, 8982), (60, 9027), (81, 9267),

Gene: Albedo\_12 Start: 8314, Stop: 9111, Start Num: 23

Candidate Starts for Albedo\_12:

(8, 8110), (9, 8128), (15, 8230), (20, 8284), (Start: 23 @8314 has 45 MA's), (25, 8320), (34, 8461), (36, 8476), (50, 8632), (54, 8668), (60, 8713), (62, 8755), (81, 8956),

Gene: Albright\_12 Start: 8320, Stop: 9117, Start Num: 23

Candidate Starts for Albright\_12:

(3, 8020), (8, 8116), (9, 8134), (15, 8236), (20, 8290), (Start: 23 @8320 has 45 MA's), (25, 8326), (34, 8467), (36, 8482), (54, 8674), (62, 8761), (81, 8962), (87, 9058),

Gene: Amok\_12 Start: 7662, Stop: 8510, Start Num: 13

Candidate Starts for Amok\_12:

(11, 7605), (Start: 13 @7662 has 73 MA's), (16, 7695), (31, 7881), (37, 7953), (53, 8118), (57, 8154), (58, 8163), (59, 8169), (61, 8202), (66, 8238), (67, 8247), (83, 8433), (84, 8439),

Gene: AndPeggy\_12 Start: 7953, Stop: 8798, Start Num: 13

Candidate Starts for AndPeggy\_12:

(11, 7896), (Start: 13 @7953 has 73 MA's), (16, 7986), (31, 8172), (37, 8244), (57, 8445), (59, 8460), (61, 8493), (66, 8529), (67, 8538), (72, 8568), (83, 8724), (84, 8730),

Gene: Angelique\_14 Start: 8715, Stop: 9560, Start Num: 13

Candidate Starts for Angelique\_14:

(Start: 13 @8715 has 73 MA's), (19, 8796), (46, 9105), (47, 9114), (61, 9255), (77, 9396), (82, 9447),

Gene: AnnaLie\_13 Start: 8729, Stop: 9526, Start Num: 23

Candidate Starts for AnnaLie\_13:

(8, 8525), (9, 8543), (20, 8699), (Start: 23 @8729 has 45 MA's), (25, 8735), (34, 8876), (36, 8891), (54, 9083), (62, 9170), (81, 9371), (87, 9467),

Gene: Arroyo\_13 Start: 8790, Stop: 9587, Start Num: 23

Candidate Starts for Arroyo\_13:

(8, 8586), (9, 8604), (15, 8706), (20, 8760), (Start: 23 @8790 has 45 MA's), (25, 8796), (34, 8937), (36, 8952), (54, 9144), (62, 9231), (81, 9432), (87, 9528),

Gene: AvGardian\_12 Start: 8379, Stop: 9176, Start Num: 23

Candidate Starts for AvGardian\_12:

(Start: 23 @8379 has 45 MA's), (25, 8385), (34, 8529), (36, 8544), (51, 8703), (54, 8736), (62, 8823), (64, 8838), (75, 8955), (81, 9021),

Gene: Avocadoman\_12 Start: 8378, Stop: 9175, Start Num: 23

Candidate Starts for Avocadoman\_12:

(3, 8078), (8, 8174), (9, 8192), (15, 8294), (20, 8348), (Start: 23 @8378 has 45 MA's), (25, 8384), (34, 8525), (36, 8540), (54, 8732), (62, 8819), (81, 9020), (87, 9116),

Gene: Axym\_13 Start: 7939, Stop: 8781, Start Num: 13

Candidate Starts for Axym\_13:

(Start: 13 @7939 has 73 MA's), (16, 7972), (31, 8158), (37, 8230), (43, 8308), (46, 8329), (49, 8356), (57, 8431), (58, 8440), (59, 8446), (61, 8479), (66, 8515), (67, 8524), (83, 8710), (84, 8716),

Gene: Azira\_15 Start: 8878, Stop: 9717, Start Num: 13

Candidate Starts for Azira\_15:

(Start: 13 @8878 has 73 MA's), (16, 8911), (33, 9139), (41, 9220), (47, 9268), (53, 9325), (54, 9337), (57, 9361), (59, 9376), (70, 9469), (73, 9502), (75, 9514), (76, 9517), (85, 9652), (90, 9700),

Gene: BabyDaisy\_13 Start: 8547, Stop: 9341, Start Num: 23

Candidate Starts for BabyDaisy\_13:

(Start: 23 @8547 has 45 MA's), (34, 8694), (36, 8709), (54, 8901), (60, 8946), (62, 8988), (81, 9186),

Gene: BabyYoda\_12 Start: 8571, Stop: 9368, Start Num: 23

Candidate Starts for BabyYoda\_12:

(Start: 23 @8571 has 45 MA's), (25, 8577), (34, 8721), (36, 8736), (51, 8895), (54, 8928), (60, 8973), (75, 9147), (81, 9213),

Gene: Bavilard\_13 Start: 8481, Stop: 9320, Start Num: 13

Candidate Starts for Bavilard\_13:

(6, 8367), (11, 8427), (Start: 13 @8481 has 73 MA's), (16, 8514), (31, 8700), (35, 8760), (37, 8772), (47, 8880), (57, 8973), (58, 8982), (59, 8988), (61, 9021), (65, 9051), (72, 9096), (80, 9186),

Gene: BeeGee\_14 Start: 8711, Stop: 9556, Start Num: 13

Candidate Starts for BeeGee\_14:

(Start: 13 @8711 has 73 MA's), (18, 8780), (19, 8792), (40, 9056), (46, 9101), (47, 9110), (56, 9197), (61, 9251),

Gene: BelmontSKP\_13 Start: 8729, Stop: 9526, Start Num: 23

Candidate Starts for BelmontSKP\_13:

(8, 8525), (9, 8543), (20, 8699), (Start: 23 @8729 has 45 MA's), (25, 8735), (34, 8876), (36, 8891), (54, 9083), (62, 9170), (81, 9371), (87, 9467),



Gene: Bengal\_12 Start: 8320, Stop: 9117, Start Num: 23

Candidate Starts for Bengal\_12:

(3, 8020), (8, 8116), (9, 8134), (10, 8143), (15, 8236), (20, 8290), (Start: 23 @8320 has 45 MA's), (25, 8326), (34, 8467), (36, 8482), (54, 8674), (62, 8761), (81, 8962), (87, 9058),

Gene: BigChungus\_12 Start: 7726, Stop: 8565, Start Num: 13

Candidate Starts for BigChungus\_12:

(6, 7612), (11, 7672), (Start: 13 @7726 has 73 MA's), (16, 7759), (31, 7945), (35, 8005), (37, 8017), (57, 8218), (58, 8227), (59, 8233), (61, 8266), (65, 8296), (72, 8341),

Gene: BillDoor\_15 Start: 7918, Stop: 8763, Start Num: 13

Candidate Starts for BillDoor\_15:

(11, 7861), (Start: 13 @7918 has 73 MA's), (16, 7951), (31, 8137), (37, 8209), (57, 8410), (59, 8425), (61, 8458), (66, 8494), (67, 8503), (72, 8533), (83, 8689), (84, 8695),

Gene: Biskit\_14 Start: 7925, Stop: 8770, Start Num: 13

Candidate Starts for Biskit\_14:

(6, 7808), (11, 7868), (Start: 13 @7925 has 73 MA's), (16, 7958), (31, 8144), (37, 8216), (57, 8417), (59, 8432), (61, 8465), (67, 8510), (83, 8696), (84, 8702),

Gene: Blondies\_13 Start: 7911, Stop: 8756, Start Num: 13

Candidate Starts for Blondies\_13:

(6, 7794), (11, 7854), (Start: 13 @7911 has 73 MA's), (16, 7944), (31, 8130), (37, 8202), (57, 8403), (59, 8418), (61, 8451), (67, 8496), (83, 8682), (84, 8688),

Gene: Bradissa\_14 Start: 8715, Stop: 9560, Start Num: 13

Candidate Starts for Bradissa\_14:

(Start: 13 @8715 has 73 MA's), (19, 8796), (46, 9105), (47, 9114), (61, 9255), (74, 9372), (77, 9396), (82, 9447),

Gene: Bran\_12 Start: 7969, Stop: 8874, Start Num: 12

Candidate Starts for Bran\_12:

(Start: 12 @7969 has 8 MA's), (20, 8071), (24, 8107), (43, 8356), (45, 8365), (52, 8431), (71, 8632),

Gene: BritBrat\_14 Start: 8717, Stop: 9562, Start Num: 13

Candidate Starts for BritBrat\_14:

(Start: 13 @8717 has 73 MA's), (18, 8786), (19, 8798), (40, 9062), (46, 9107), (47, 9116), (56, 9203), (61, 9257),

Gene: BubbaBear\_12 Start: 8314, Stop: 9111, Start Num: 23

Candidate Starts for BubbaBear\_12:

(4, 8026), (7, 8107), (8, 8110), (9, 8128), (20, 8284), (Start: 23 @8314 has 45 MA's), (25, 8320), (34, 8461), (36, 8476), (50, 8632), (54, 8668), (60, 8713), (62, 8755), (81, 8956),

Gene: Burnsey\_13 Start: 7940, Stop: 8782, Start Num: 13

Candidate Starts for Burnsey\_13:

(Start: 13 @7940 has 73 MA's), (16, 7973), (31, 8159), (37, 8231), (46, 8330), (57, 8432), (58, 8441), (59, 8447), (61, 8480), (66, 8516), (67, 8525), (83, 8711), (84, 8717),

Gene: Burritobowl\_12 Start: 8347, Stop: 9144, Start Num: 23

Candidate Starts for Burritobowl\_12:

(1, 7990), (3, 8047), (8, 8143), (9, 8161), (10, 8170), (15, 8263), (20, 8317), (Start: 23 @8347 has 45 MA's), (25, 8353), (34, 8494), (36, 8509), (54, 8701), (62, 8788), (81, 8989), (87, 9085),

Gene: Button\_14 Start: 7947, Stop: 8795, Start Num: 13

Candidate Starts for Button\_14:

(Start: 13 @7947 has 73 MA's), (16, 7980), (25, 8076), (31, 8166), (41, 8307), (53, 8412), (54, 8424), (55, 8430), (57, 8448), (58, 8457), (59, 8463), (66, 8532), (70, 8556), (78, 8625), (79, 8634),

Gene: Buttrmlkdreams\_13 Start: 7910, Stop: 8755, Start Num: 13

Candidate Starts for Buttrmlkdreams\_13:

(6, 7793), (11, 7853), (Start: 13 @7910 has 73 MA's), (16, 7943), (31, 8129), (37, 8201), (57, 8402), (59, 8417), (61, 8450), (67, 8495), (83, 8681), (84, 8687),

Gene: CanesSauce\_13 Start: 7954, Stop: 8799, Start Num: 13

Candidate Starts for CanesSauce\_13:

(11, 7897), (Start: 13 @7954 has 73 MA's), (16, 7987), (31, 8173), (37, 8245), (57, 8446), (59, 8461), (61, 8494), (66, 8530), (67, 8539), (72, 8569), (83, 8725), (84, 8731),

Gene: Carsonalex\_14 Start: 7996, Stop: 8838, Start Num: 13

Candidate Starts for Carsonalex\_14:

(Start: 13 @7996 has 73 MA's), (16, 8029), (31, 8215), (37, 8287), (46, 8386), (57, 8488), (58, 8497), (59, 8503), (61, 8536), (66, 8572), (67, 8581), (83, 8767), (84, 8773),

Gene: Cashington\_12 Start: 8337, Stop: 9134, Start Num: 23

Candidate Starts for Cashington\_12:

(3, 8037), (9, 8151), (15, 8253), (20, 8307), (Start: 23 @8337 has 45 MA's), (25, 8343), (34, 8484), (36, 8499), (50, 8655), (54, 8691), (60, 8736), (62, 8778), (81, 8979),

Gene: Cashline\_14 Start: 8571, Stop: 9416, Start Num: 13

Candidate Starts for Cashline\_14:

(5, 8409), (Start: 13 @8571 has 73 MA's), (18, 8640), (19, 8652), (40, 8916), (46, 8961), (47, 8970), (48, 8982), (56, 9057), (61, 9111),

Gene: CherryonLim\_14 Start: 8452, Stop: 9291, Start Num: 13

Candidate Starts for CherryonLim\_14:

(6, 8338), (11, 8398), (Start: 13 @8452 has 73 MA's), (16, 8485), (31, 8671), (32, 8707), (35, 8731), (54, 8920), (57, 8944), (58, 8953), (59, 8959), (61, 8992), (65, 9022), (84, 9229),

Gene: ChickenTender\_15 Start: 7982, Stop: 8830, Start Num: 13

Candidate Starts for ChickenTender\_15:

(Start: 13 @7982 has 73 MA's), (16, 8015), (31, 8201), (37, 8273), (57, 8474), (58, 8483), (59, 8489), (61, 8522), (66, 8558), (67, 8567), (80, 8687), (83, 8756), (84, 8762),

Gene: ChiliPepper\_12 Start: 8556, Stop: 9350, Start Num: 23

Candidate Starts for ChiliPepper\_12:

(Start: 23 @8556 has 45 MA's), (25, 8562), (28, 8631), (34, 8703), (36, 8718), (54, 8910), (60, 8955), (62, 8997), (64, 9012), (75, 9129), (81, 9195), (88, 9303),

Gene: ChocoMunchkin\_13 Start: 7954, Stop: 8799, Start Num: 13

Candidate Starts for ChocoMunchkin\_13:

(11, 7897), (Start: 13 @7954 has 73 MA's), (16, 7987), (31, 8173), (37, 8245), (57, 8446), (59, 8461), (61, 8494), (66, 8530), (67, 8539), (72, 8569), (83, 8725), (84, 8731),

Gene: Cleo\_13 Start: 8168, Stop: 9007, Start Num: 13

Candidate Starts for Cleo\_13:

(Start: 13 @8168 has 73 MA's), (16, 8201), (26, 8294), (33, 8429), (37, 8450), (38, 8453), (47, 8558), (57, 8651), (58, 8660), (59, 8666), (63, 8714), (75, 8804), (76, 8807), (85, 8942), (90, 8990),

Gene: Confidence\_14 Start: 8711, Stop: 9556, Start Num: 13

Candidate Starts for Confidence\_14:

(Start: 13 @8711 has 73 MA's), (18, 8780), (19, 8792), (40, 9056), (46, 9101), (47, 9110), (56, 9197), (61, 9251),

Gene: Cozz\_13 Start: 7940, Stop: 8782, Start Num: 13

Candidate Starts for Cozz\_13:

(Start: 13 @7940 has 73 MA's), (16, 7973), (31, 8159), (37, 8231), (43, 8309), (46, 8330), (49, 8357), (57, 8432), (58, 8441), (59, 8447), (61, 8480), (66, 8516), (67, 8525), (83, 8711), (84, 8717),

Gene: CroZenni\_12 Start: 8320, Stop: 9117, Start Num: 23

Candidate Starts for CroZenni\_12:

(8, 8116), (9, 8134), (20, 8290), (Start: 23 @8320 has 45 MA's), (25, 8326), (34, 8467), (36, 8482), (54, 8674), (62, 8761), (81, 8962), (87, 9058),

Gene: CupcakePrincess\_12 Start: 8360, Stop: 9157, Start Num: 23

Candidate Starts for CupcakePrincess\_12:

(8, 8156), (9, 8174), (20, 8330), (Start: 23 @8360 has 45 MA's), (25, 8366), (34, 8507), (36, 8522), (54, 8714), (62, 8801), (81, 9002),

Gene: DickRichards\_12 Start: 8814, Stop: 9611, Start Num: 23

Candidate Starts for DickRichards\_12:

(8, 8610), (9, 8628), (20, 8784), (Start: 23 @8814 has 45 MA's), (25, 8820), (34, 8961), (36, 8976), (54, 9168), (62, 9255), (81, 9456), (87, 9552),

Gene: Didgeridoo\_13 Start: 8549, Stop: 9343, Start Num: 23

Candidate Starts for Didgeridoo\_13:

(Start: 23 @8549 has 45 MA's), (34, 8696), (36, 8711), (54, 8903), (60, 8948), (62, 8990), (81, 9188),

Gene: Dina\_12 Start: 7952, Stop: 8857, Start Num: 12

Candidate Starts for Dina\_12:

(Start: 12 @7952 has 8 MA's), (20, 8054), (24, 8090), (43, 8339), (45, 8348), (52, 8414),

Gene: DirtyBubble\_12 Start: 8579, Stop: 9376, Start Num: 23

Candidate Starts for DirtyBubble\_12:

(Start: 23 @8579 has 45 MA's), (25, 8585), (36, 8744), (51, 8903), (54, 8936), (60, 8981), (75, 9155), (81, 9221),

Gene: Dismas\_12 Start: 8556, Stop: 9350, Start Num: 23

Candidate Starts for Dismas\_12:

(Start: 23 @8556 has 45 MA's), (25, 8562), (28, 8631), (34, 8703), (36, 8718), (54, 8910), (60, 8955), (62, 8997), (64, 9012), (75, 9129), (81, 9195), (88, 9303),

Gene: Doobus\_12 Start: 8551, Stop: 9348, Start Num: 23

Candidate Starts for Doobus\_12:

(3, 8251), (8, 8347), (9, 8365), (15, 8467), (20, 8521), (Start: 23 @8551 has 45 MA's), (25, 8557), (34, 8698), (36, 8713), (54, 8905), (62, 8992), (81, 9193), (87, 9289),

Gene: Dre3\_13 Start: 8115, Stop: 8954, Start Num: 13

Candidate Starts for Dre3\_13:

(Start: 13 @8115 has 73 MA's), (16, 8148), (33, 8376), (37, 8397), (38, 8400), (47, 8505), (54, 8574), (57, 8598), (58, 8607), (59, 8613), (63, 8661), (75, 8751), (76, 8754), (85, 8889), (90, 8937),

Gene: EMSquaredA\_14 Start: 8717, Stop: 9562, Start Num: 13

Candidate Starts for EMSquaredA\_14:

(Start: 13 @8717 has 73 MA's), (18, 8786), (19, 8798), (40, 9062), (46, 9107), (47, 9116), (56, 9203), (61, 9257),

Gene: Elinal\_14 Start: 7707, Stop: 8546, Start Num: 13

Candidate Starts for Elinal\_14:

(6, 7593), (11, 7653), (Start: 13 @7707 has 73 MA's), (16, 7740), (31, 7926), (35, 7986), (37, 7998), (47, 8106), (57, 8199), (58, 8208), (59, 8214), (61, 8247), (65, 8277), (72, 8322), (80, 8412),

Gene: Elliott\_13 Start: 7939, Stop: 8781, Start Num: 13

Candidate Starts for Elliott\_13:

(Start: 13 @7939 has 73 MA's), (16, 7972), (31, 8158), (37, 8230), (46, 8329), (57, 8431), (58, 8440), (59, 8446), (61, 8479), (66, 8515), (67, 8524), (83, 8710), (84, 8716),

Gene: Elva\_13 Start: 8634, Stop: 9431, Start Num: 23

Candidate Starts for Elva\_13:

(Start: 23 @8634 has 45 MA's), (25, 8640), (30, 8718), (34, 8784), (36, 8799), (51, 8958), (54, 8991), (60, 9036), (62, 9078), (81, 9276), (88, 9384),

Gene: Emalyn\_12 Start: 7661, Stop: 8509, Start Num: 13

Candidate Starts for Emalyn\_12:

(11, 7604), (Start: 13 @7661 has 73 MA's), (16, 7694), (31, 7880), (37, 7952), (53, 8117), (57, 8153), (58, 8162), (59, 8168), (61, 8201), (66, 8237), (67, 8246), (83, 8432), (84, 8438),

Gene: EnalisNailo\_14 Start: 8717, Stop: 9562, Start Num: 13

Candidate Starts for EnalisNailo\_14:

(Start: 13 @8717 has 73 MA's), (19, 8798), (46, 9107), (47, 9116), (61, 9257), (74, 9374), (77, 9398), (82, 9449),

Gene: Eula\_12 Start: 8321, Stop: 9118, Start Num: 23

Candidate Starts for Eula\_12:

(9, 8135), (20, 8291), (Start: 23 @8321 has 45 MA's), (25, 8327), (34, 8468), (36, 8483), (54, 8675), (60, 8720), (62, 8762), (81, 8963),

Gene: Feastonyeet\_12 Start: 7726, Stop: 8565, Start Num: 13

Candidate Starts for Feastonyeet\_12:

(6, 7612), (11, 7672), (Start: 13 @7726 has 73 MA's), (16, 7759), (31, 7945), (35, 8005), (37, 8017), (57, 8218), (58, 8227), (59, 8233), (61, 8266), (65, 8296), (72, 8341),

Gene: Finalfrontier\_13 Start: 8833, Stop: 9630, Start Num: 23

Candidate Starts for Finalfrontier\_13:

(8, 8629), (9, 8647), (20, 8803), (Start: 23 @8833 has 45 MA's), (25, 8839), (34, 8980), (36, 8995), (54, 9187), (62, 9274), (81, 9475),

Gene: Floral\_14 Start: 8717, Stop: 9562, Start Num: 13

Candidate Starts for Floral\_14:

(Start: 13 @8717 has 73 MA's), (18, 8786), (19, 8798), (40, 9062), (46, 9107), (47, 9116), (56, 9203), (61, 9257),

Gene: Fribs8\_14 Start: 8691, Stop: 9530, Start Num: 13

Candidate Starts for Fribs8\_14:

(Start: 13 @8691 has 73 MA's), (16, 8724), (26, 8817), (33, 8952), (39, 9003), (47, 9081), (54, 9150), (57, 9174), (58, 9183), (59, 9189), (63, 9237), (76, 9330), (85, 9465), (86, 9483), (90, 9513),

Gene: GTE2\_11 Start: 7614, Stop: 8459, Start Num: 13

Candidate Starts for GTE2\_11:

(2, 7392), (3, 7428), (5, 7449), (6, 7497), (11, 7557), (Start: 13 @7614 has 73 MA's), (16, 7647), (31, 7833), (37, 7905), (57, 8106), (59, 8121), (61, 8154), (66, 8190), (67, 8199), (72, 8229), (83, 8385), (84, 8391),

Gene: GiKK\_16 Start: 8250, Stop: 9098, Start Num: 13

Candidate Starts for GiKK\_16:

(Start: 13 @8250 has 73 MA's), (16, 8283), (25, 8379), (31, 8469), (37, 8541), (39, 8571), (54, 8727), (55, 8733), (57, 8751), (59, 8766), (66, 8835), (78, 8928), (79, 8937),

Gene: Gibbous\_13 Start: 8115, Stop: 8954, Start Num: 13

Candidate Starts for Gibbous\_13:

(Start: 13 @8115 has 73 MA's), (16, 8148), (33, 8376), (37, 8397), (38, 8400), (47, 8505), (54, 8574), (57, 8598), (58, 8607), (59, 8613), (63, 8661), (75, 8751), (76, 8754), (85, 8889), (90, 8937),

Gene: GoldHunter\_14 Start: 7940, Stop: 8782, Start Num: 13

Candidate Starts for GoldHunter\_14:

(Start: 13 @7940 has 73 MA's), (16, 7973), (31, 8159), (37, 8231), (46, 8330), (57, 8432), (58, 8441), (59, 8447), (61, 8480), (66, 8516), (67, 8525), (83, 8711), (84, 8717),

Gene: Hexbug\_15 Start: 8936, Stop: 9784, Start Num: 13

Candidate Starts for Hexbug\_15:

(Start: 13 @8936 has 73 MA's), (16, 8969), (22, 9047), (27, 9077), (31, 9155), (37, 9227), (41, 9296), (42, 9311), (53, 9401), (54, 9413), (57, 9437), (59, 9452), (66, 9521), (72, 9560), (79, 9623), (85, 9728),

Gene: HippoPololi\_15 Start: 8768, Stop: 9607, Start Num: 13

Candidate Starts for HippoPololi\_15:

(Start: 13 @8768 has 73 MA's), (16, 8801), (26, 8894), (33, 9029), (47, 9158), (54, 9227), (57, 9251), (58, 9260), (59, 9266), (63, 9314), (76, 9407), (85, 9542), (90, 9590),

Gene: Horseradish\_14 Start: 7821, Stop: 8666, Start Num: 13

Candidate Starts for Horseradish\_14:

(Start: 13 @7821 has 73 MA's), (16, 7854), (31, 8040), (37, 8112), (57, 8313), (59, 8328), (61, 8361), (67, 8406), (83, 8592), (84, 8598),

Gene: Icarian\_13 Start: 8561, Stop: 9358, Start Num: 23

Candidate Starts for Icarian\_13:

(Start: 23 @8561 has 45 MA's), (25, 8567), (30, 8645), (34, 8711), (36, 8726), (54, 8918), (60, 8963), (81, 9203),

Gene: IndyLu\_12 Start: 8371, Stop: 9165, Start Num: 23

Candidate Starts for IndyLu\_12:

(Start: 23 @8371 has 45 MA's), (34, 8518), (36, 8533), (54, 8725), (60, 8770), (62, 8812), (81, 9010),

Gene: Jabb\_12 Start: 8360, Stop: 9157, Start Num: 23

Candidate Starts for Jabb\_12:

(8, 8156), (9, 8174), (20, 8330), (Start: 23 @8360 has 45 MA's), (25, 8366), (34, 8507), (36, 8522), (54, 8714), (62, 8801), (81, 9002),

Gene: Jablanski\_14 Start: 8564, Stop: 9409, Start Num: 13

Candidate Starts for Jablanski\_14:

(Start: 13 @8564 has 73 MA's), (18, 8633), (19, 8645), (40, 8909), (46, 8954), (47, 8963), (61, 9104),

Gene: Jamzy\_16 Start: 8260, Stop: 9108, Start Num: 13

Candidate Starts for Jamzy\_16:

(Start: 13 @8260 has 73 MA's), (16, 8293), (25, 8389), (31, 8479), (41, 8620), (53, 8725), (54, 8737), (55, 8743), (57, 8761), (58, 8770), (59, 8776), (66, 8845), (70, 8869), (78, 8938), (79, 8947), (85, 9052),

Gene: Johnathan\_12 Start: 8320, Stop: 9117, Start Num: 23

Candidate Starts for Johnathan\_12:

(3, 8020), (8, 8116), (9, 8134), (10, 8143), (15, 8236), (20, 8290), (Start: 23 @8320 has 45 MA's), (25, 8326), (34, 8467), (36, 8482), (54, 8674), (62, 8761), (81, 8962), (87, 9058),

Gene: Jovita\_12 Start: 8422, Stop: 9219, Start Num: 23

Candidate Starts for Jovita\_12:

(8, 8218), (9, 8236), (20, 8392), (Start: 23 @8422 has 45 MA's), (25, 8428), (34, 8569), (36, 8584), (54, 8776), (60, 8821), (62, 8863), (81, 9064),

Gene: Juicebox\_14 Start: 9288, Stop: 10136, Start Num: 13

Candidate Starts for Juicebox\_14:

(Start: 13 @9288 has 73 MA's), (33, 9543), (44, 9648), (61, 9822), (69, 9879),

Gene: Kate33\_12 Start: 8370, Stop: 9164, Start Num: 23

Candidate Starts for Kate33\_12:

(Start: 23 @8370 has 45 MA's), (34, 8517), (36, 8532), (54, 8724), (60, 8769), (62, 8811), (81, 9009),

Gene: KayGee\_13 Start: 7707, Stop: 8546, Start Num: 13

Candidate Starts for KayGee\_13:

(6, 7593), (11, 7653), (Start: 13 @7707 has 73 MA's), (16, 7740), (31, 7926), (35, 7986), (37, 7998), (47, 8106), (57, 8199), (58, 8208), (59, 8214), (61, 8247), (65, 8277), (72, 8322), (80, 8412),

Gene: Kenzers\_12 Start: 8337, Stop: 9134, Start Num: 23

Candidate Starts for Kenzers\_12:

(7, 8130), (8, 8133), (9, 8151), (15, 8253), (20, 8307), (Start: 23 @8337 has 45 MA's), (25, 8343), (34, 8484), (36, 8499), (54, 8691), (62, 8778), (81, 8979), (87, 9075),

Gene: Kieran\_12 Start: 8559, Stop: 9353, Start Num: 23

Candidate Starts for Kieran\_12:

(Start: 23 @8559 has 45 MA's), (25, 8565), (28, 8634), (34, 8706), (36, 8721), (54, 8913), (60, 8958), (62, 9000), (64, 9015), (75, 9132), (81, 9198), (88, 9306),

Gene: Lahqtemish\_12 Start: 8417, Stop: 9211, Start Num: 23

Candidate Starts for Lahqtemish\_12:

(Start: 23 @8417 has 45 MA's), (34, 8564), (36, 8579), (54, 8771), (60, 8816), (62, 8858), (81, 9056),

Gene: Lauer\_12 Start: 7756, Stop: 8595, Start Num: 13

Candidate Starts for Lauer\_12:

(6, 7642), (11, 7702), (Start: 13 @7756 has 73 MA's), (16, 7789), (31, 7975), (35, 8035), (37, 8047), (57, 8248), (58, 8257), (59, 8263), (61, 8296), (65, 8326), (72, 8371), (80, 8461),

Gene: Lederberg\_12 Start: 7952, Stop: 8857, Start Num: 12

Candidate Starts for Lederberg\_12:

(Start: 12 @7952 has 8 MA's), (20, 8054), (24, 8090), (43, 8339), (45, 8348), (52, 8414), (71, 8615),

Gene: Lilas\_14 Start: 8717, Stop: 9562, Start Num: 13

Candidate Starts for Lilas\_14:

(Start: 13 @8717 has 73 MA's), (19, 8798), (46, 9107), (47, 9116), (61, 9257), (74, 9374), (77, 9398), (82, 9449),

Gene: LimaBean\_12 Start: 8320, Stop: 9117, Start Num: 23

Candidate Starts for LimaBean\_12:

(3, 8020), (8, 8116), (9, 8134), (15, 8236), (20, 8290), (Start: 23 @8320 has 45 MA's), (25, 8326), (34, 8467), (36, 8482), (54, 8674), (62, 8761), (81, 8962), (87, 9058),

Gene: LonelyBoi\_14 Start: 8564, Stop: 9409, Start Num: 13

Candidate Starts for LonelyBoi\_14:

(Start: 13 @8564 has 73 MA's), (19, 8645), (46, 8954), (47, 8963), (56, 9050), (61, 9104),

Gene: Loviatar\_20 Start: 8640, Stop: 9437, Start Num: 23

Candidate Starts for Loviatar\_20:

(Start: 23 @8640 has 45 MA's), (25, 8646), (30, 8724), (34, 8790), (36, 8805), (51, 8964), (54, 8997), (60, 9042), (81, 9282),

Gene: Lynlen\_12 Start: 8337, Stop: 9134, Start Num: 23

Candidate Starts for Lynlen\_12:

(7, 8130), (8, 8133), (9, 8151), (15, 8253), (20, 8307), (Start: 23 @8337 has 45 MA's), (25, 8343), (34, 8484), (36, 8499), (54, 8691), (62, 8778), (81, 8979), (87, 9075),

Gene: MAnor\_13 Start: 7697, Stop: 8536, Start Num: 13

Candidate Starts for MAnor\_13:

(6, 7583), (11, 7643), (Start: 13 @7697 has 73 MA's), (16, 7730), (31, 7916), (32, 7952), (35, 7976), (37, 7988), (57, 8189), (58, 8198), (59, 8204), (61, 8237), (65, 8267), (72, 8312), (84, 8474),

Gene: MScarn\_15 Start: 7910, Stop: 8755, Start Num: 13

Candidate Starts for MScarn\_15:

(6, 7793), (11, 7853), (Start: 13 @7910 has 73 MA's), (16, 7943), (31, 8129), (37, 8201), (57, 8402), (59, 8417), (61, 8450), (67, 8495), (83, 8681), (84, 8687),

Gene: MaVan\_15 Start: 8878, Stop: 9717, Start Num: 13

Candidate Starts for MaVan\_15:

(Start: 13 @8878 has 73 MA's), (16, 8911), (33, 9139), (41, 9220), (47, 9268), (53, 9325), (54, 9337), (57, 9361), (59, 9376), (70, 9469), (73, 9502), (75, 9514), (76, 9517), (85, 9652), (90, 9700),

Gene: Margaret\_16 Start: 8645, Stop: 9493, Start Num: 13

Candidate Starts for Margaret\_16:

(Start: 13 @8645 has 73 MA's), (16, 8678), (31, 8864), (42, 9020), (53, 9110), (54, 9122), (57, 9146), (59, 9161), (66, 9230), (70, 9254), (78, 9323), (79, 9332), (89, 9476),

Gene: Marteena\_14 Start: 8717, Stop: 9562, Start Num: 13

Candidate Starts for Marteena\_14:

(Start: 13 @8717 has 73 MA's), (18, 8786), (19, 8798), (40, 9062), (46, 9107), (47, 9116), (56, 9203), (61, 9257),

Gene: Mayweather\_14 Start: 8330, Stop: 9166, Start Num: 13

Candidate Starts for Mayweather\_14:

(2, 8111), (5, 8168), (6, 8216), (11, 8276), (Start: 13 @8330 has 73 MA's), (16, 8363), (31, 8549), (35, 8609), (57, 8822), (58, 8831), (59, 8837), (61, 8870), (65, 8900), (72, 8945), (84, 9107),

Gene: Milomuff\_13 Start: 8706, Stop: 9503, Start Num: 23

Candidate Starts for Milomuff\_13:

(8, 8502), (9, 8520), (15, 8622), (20, 8676), (Start: 23 @8706 has 45 MA's), (25, 8712), (34, 8853), (36, 8868), (54, 9060), (62, 9147), (81, 9348), (87, 9444),

Gene: MsUbiquitous\_12 Start: 8360, Stop: 9157, Start Num: 23

Candidate Starts for MsUbiquitous\_12:

(8, 8156), (9, 8174), (20, 8330), (Start: 23 @8360 has 45 MA's), (25, 8366), (34, 8507), (36, 8522), (54, 8714), (62, 8801), (81, 9002),

Gene: MunkgeeRoachy\_13 Start: 7987, Stop: 8829, Start Num: 13

Candidate Starts for MunkgeeRoachy\_13:

(Start: 13 @7987 has 73 MA's), (16, 8020), (31, 8206), (37, 8278), (46, 8377), (57, 8479), (58, 8488), (59, 8494), (61, 8527), (66, 8563), (67, 8572), (83, 8758), (84, 8764),

Gene: Nibbles\_15 Start: 8878, Stop: 9717, Start Num: 13

Candidate Starts for Nibbles\_15:

(Start: 13 @8878 has 73 MA's), (16, 8911), (33, 9139), (41, 9220), (47, 9268), (53, 9325), (54, 9337), (57, 9361), (59, 9376), (70, 9469), (73, 9502), (75, 9514), (76, 9517), (85, 9652), (90, 9700),

Gene: Nicky22\_13 Start: 8768, Stop: 9565, Start Num: 23

Candidate Starts for Nicky22\_13:

(8, 8564), (9, 8582), (20, 8738), (Start: 23 @8768 has 45 MA's), (25, 8774), (34, 8915), (36, 8930), (50, 9086), (54, 9122), (60, 9167), (81, 9410),

Gene: Nina\_14 Start: 8973, Stop: 9815, Start Num: 13

Candidate Starts for Nina\_14:

(Start: 13 @8973 has 73 MA's), (16, 9006), (37, 9264), (46, 9363), (57, 9465), (58, 9474), (59, 9480), (61, 9513), (66, 9549), (67, 9558), (83, 9744), (84, 9750),

Gene: Nodigi\_15 Start: 8929, Stop: 9777, Start Num: 13

Candidate Starts for Nodigi\_15:

(Start: 13 @8929 has 73 MA's), (16, 8962), (27, 9070), (31, 9148), (37, 9220), (42, 9304), (53, 9394), (54, 9406), (57, 9430), (59, 9445), (66, 9514), (72, 9553), (79, 9616), (85, 9721),

Gene: Orla\_15 Start: 8933, Stop: 9781, Start Num: 13

Candidate Starts for Orla\_15:

(Start: 13 @8933 has 73 MA's), (16, 8966), (27, 9074), (31, 9152), (37, 9224), (42, 9308), (53, 9398), (54, 9410), (57, 9434), (59, 9449), (66, 9518), (72, 9557), (79, 9620), (85, 9725),

Gene: PastaFagioli\_12 Start: 8405, Stop: 9199, Start Num: 23

Candidate Starts for PastaFagioli\_12:

(Start: 23 @8405 has 45 MA's), (34, 8552), (36, 8567), (54, 8759), (60, 8804), (62, 8846), (81, 9044),

Gene: PhigPhack\_12 Start: 8349, Stop: 9146, Start Num: 23

Candidate Starts for PhigPhack\_12:



(8, 8145), (9, 8163), (15, 8265), (20, 8319), (Start: 23 @8349 has 45 MA's), (25, 8355), (34, 8496), (36, 8511), (54, 8703), (62, 8790), (81, 8991), (87, 9087),

Gene: Phisb\_12 Start: 8314, Stop: 9111, Start Num: 23

Candidate Starts for Phisb\_12:

(4, 8026), (7, 8107), (8, 8110), (9, 8128), (20, 8284), (Start: 23 @8314 has 45 MA's), (25, 8320), (34, 8461), (36, 8476), (50, 8632), (54, 8668), (60, 8713), (62, 8755), (81, 8956),

Gene: Pollux\_14 Start: 8717, Stop: 9562, Start Num: 13

Candidate Starts for Pollux\_14:

(Start: 13 @8717 has 73 MA's), (18, 8786), (19, 8798), (40, 9062), (46, 9107), (47, 9116), (56, 9203), (61, 9257),

Gene: Pons\_13 Start: 7709, Stop: 8545, Start Num: 13

Candidate Starts for Pons\_13:

(2, 7490), (5, 7547), (6, 7595), (11, 7655), (Start: 13 @7709 has 73 MA's), (16, 7742), (31, 7928), (35, 7988), (37, 8000), (57, 8201), (58, 8210), (59, 8216), (61, 8249), (65, 8279), (72, 8324), (84, 8486),

Gene: Posh\_14 Start: 8717, Stop: 9562, Start Num: 13

Candidate Starts for Posh\_14:

(Start: 13 @8717 has 73 MA's), (18, 8786), (19, 8798), (40, 9062), (46, 9107), (47, 9116), (56, 9203), (61, 9257),

Gene: PotPie\_13 Start: 8560, Stop: 9399, Start Num: 13

Candidate Starts for PotPie\_13:

(6, 8446), (11, 8506), (Start: 13 @8560 has 73 MA's), (16, 8593), (31, 8779), (35, 8839), (37, 8851), (57, 9052), (58, 9061), (59, 9067), (61, 9100), (65, 9130), (72, 9175), (80, 9265),

Gene: PsychoKiller\_13 Start: 7939, Stop: 8781, Start Num: 13

Candidate Starts for PsychoKiller\_13:

(Start: 13 @7939 has 73 MA's), (16, 7972), (31, 8158), (37, 8230), (46, 8329), (57, 8431), (58, 8440), (59, 8446), (61, 8479), (66, 8515), (67, 8524), (83, 8710), (84, 8716),

Gene: Pytheas\_14 Start: 8564, Stop: 9409, Start Num: 13

Candidate Starts for Pytheas\_14:

(Start: 13 @8564 has 73 MA's), (18, 8633), (19, 8645), (40, 8909), (46, 8954), (47, 8963), (61, 9104),

Gene: QMacho\_13 Start: 8804, Stop: 9601, Start Num: 23

Candidate Starts for QMacho\_13:

(9, 8618), (15, 8720), (20, 8774), (Start: 23 @8804 has 45 MA's), (25, 8810), (34, 8951), (36, 8966), (54, 9158), (60, 9203), (62, 9245), (81, 9446),

Gene: Quasar\_13 Start: 8548, Stop: 9390, Start Num: 13

Candidate Starts for Quasar\_13:

(Start: 13 @8548 has 73 MA's), (16, 8581), (37, 8839), (46, 8938), (57, 9040), (58, 9049), (59, 9055), (61, 9088), (66, 9124), (67, 9133), (83, 9319), (84, 9325),

Gene: RanchParmCat\_16 Start: 8645, Stop: 9493, Start Num: 13

Candidate Starts for RanchParmCat\_16:

(Start: 13 @8645 has 73 MA's), (16, 8678), (31, 8864), (53, 9110), (54, 9122), (57, 9146), (59, 9161), (66, 9230), (78, 9323), (79, 9332), (89, 9476),

Gene: RedBaron\_14 Start: 7984, Stop: 8826, Start Num: 13

Candidate Starts for RedBaron\_14:

(Start: 13 @7984 has 73 MA's), (16, 8017), (31, 8203), (37, 8275), (46, 8374), (57, 8476), (58, 8485), (59, 8491), (61, 8524), (66, 8560), (67, 8569), (83, 8755), (84, 8761),

Gene: Rona\_12 Start: 8556, Stop: 9350, Start Num: 23

Candidate Starts for Rona\_12:

(Start: 23 @8556 has 45 MA's), (25, 8562), (28, 8631), (34, 8703), (36, 8718), (54, 8910), (60, 8955), (62, 8997), (64, 9012), (75, 9129), (81, 9195), (88, 9303),

Gene: SamW\_12 Start: 7952, Stop: 8857, Start Num: 12

Candidate Starts for SamW\_12:

(Start: 12 @7952 has 8 MA's), (20, 8054), (24, 8090), (43, 8339), (45, 8348), (52, 8414), (71, 8615),

Gene: SanaSana\_13 Start: 8569, Stop: 9366, Start Num: 23

Candidate Starts for SanaSana\_13:

(Start: 23 @8569 has 45 MA's), (25, 8575), (30, 8653), (34, 8719), (36, 8734), (51, 8893), (54, 8926), (60, 8971), (81, 9211),

Gene: SansAfet\_12 Start: 8331, Stop: 9128, Start Num: 23

Candidate Starts for SansAfet\_12:

(8, 8127), (9, 8145), (15, 8247), (20, 8301), (Start: 23 @8331 has 45 MA's), (25, 8337), (34, 8478), (36, 8493), (54, 8685), (62, 8772), (81, 8973), (87, 9069),

Gene: SarBear\_12 Start: 8297, Stop: 9094, Start Num: 23

Candidate Starts for SarBear\_12:

(8, 8093), (9, 8111), (20, 8267), (Start: 23 @8297 has 45 MA's), (25, 8303), (34, 8444), (36, 8459), (54, 8651), (62, 8738), (81, 8939), (87, 9035),

Gene: Sharkboy\_12 Start: 8555, Stop: 9349, Start Num: 23

Candidate Starts for Sharkboy\_12:

(Start: 23 @8555 has 45 MA's), (25, 8561), (28, 8630), (34, 8702), (36, 8717), (54, 8909), (60, 8954), (62, 8996), (64, 9011), (75, 9128), (81, 9194), (88, 9302),

Gene: SheckWes\_12 Start: 7697, Stop: 8533, Start Num: 13

Candidate Starts for SheckWes\_12:

(6, 7583), (11, 7643), (Start: 13 @7697 has 73 MA's), (16, 7730), (31, 7916), (35, 7976), (37, 7988), (57, 8189), (58, 8198), (59, 8204), (61, 8237), (65, 8267), (72, 8312), (84, 8474),

Gene: SketchMex\_12 Start: 7925, Stop: 8770, Start Num: 13

Candidate Starts for SketchMex\_12:

(6, 7808), (11, 7868), (Start: 13 @7925 has 73 MA's), (16, 7958), (31, 8144), (37, 8216), (57, 8417), (59, 8432), (61, 8465), (67, 8510), (83, 8696), (84, 8702),

Gene: Slay\_12 Start: 8773, Stop: 9570, Start Num: 23

Candidate Starts for Slay\_12:

(8, 8569), (9, 8587), (20, 8743), (Start: 23 @8773 has 45 MA's), (25, 8779), (34, 8920), (36, 8935), (54, 9127), (62, 9214), (81, 9415), (87, 9511),

Gene: Sleepyhead\_13 Start: 8334, Stop: 9200, Start Num: 13

Candidate Starts for Sleepyhead\_13:

(Start: 13 @8334 has 73 MA's), (14, 8361), (17, 8388), (29, 8526), (55, 8811), (67, 8949),

Gene: Socotra\_14 Start: 7939, Stop: 8781, Start Num: 13

Candidate Starts for Socotra\_14:

(Start: 13 @7939 has 73 MA's), (16, 7972), (31, 8158), (37, 8230), (46, 8329), (57, 8431), (58, 8440), (59, 8446), (61, 8479), (66, 8515), (67, 8524), (83, 8710), (84, 8716),

Gene: Softsoap\_12 Start: 8320, Stop: 9117, Start Num: 23

Candidate Starts for Softsoap\_12:

(8, 8116), (9, 8134), (15, 8236), (20, 8290), (Start: 23 @8320 has 45 MA's), (25, 8326), (34, 8467), (36, 8482), (54, 8674), (62, 8761), (81, 8962), (87, 9058),

Gene: Solea\_13 Start: 8706, Stop: 9503, Start Num: 23

Candidate Starts for Solea\_13:

(8, 8502), (9, 8520), (15, 8622), (20, 8676), (Start: 23 @8706 has 45 MA's), (25, 8712), (34, 8853), (36, 8868), (54, 9060), (62, 9147), (81, 9348), (87, 9444),

Gene: Sopespian\_13 Start: 7939, Stop: 8781, Start Num: 13

Candidate Starts for Sopespian\_13:

(Start: 13 @7939 has 73 MA's), (16, 7972), (31, 8158), (37, 8230), (46, 8329), (57, 8431), (58, 8440), (59, 8446), (61, 8479), (66, 8515), (67, 8524), (83, 8710), (84, 8716),

Gene: StAB\_12 Start: 7957, Stop: 8862, Start Num: 12

Candidate Starts for StAB\_12:

(Start: 12 @7957 has 8 MA's), (20, 8059), (24, 8095), (43, 8344), (45, 8353), (52, 8419),

Gene: Starburst\_14 Start: 7939, Stop: 8781, Start Num: 13

Candidate Starts for Starburst\_14:

(Start: 13 @7939 has 73 MA's), (16, 7972), (31, 8158), (37, 8230), (46, 8329), (57, 8431), (58, 8440), (59, 8446), (61, 8479), (66, 8515), (67, 8524), (83, 8710), (84, 8716),

Gene: SteamedHams\_15 Start: 7954, Stop: 8799, Start Num: 13

Candidate Starts for SteamedHams\_15:

(11, 7897), (Start: 13 @7954 has 73 MA's), (16, 7987), (31, 8173), (37, 8245), (57, 8446), (59, 8461), (61, 8494), (66, 8530), (67, 8539), (72, 8569), (83, 8725), (84, 8731),

Gene: Stiles\_12 Start: 7951, Stop: 8856, Start Num: 12

Candidate Starts for Stiles\_12:

(Start: 12 @7951 has 8 MA's), (20, 8053), (24, 8089), (43, 8338), (45, 8347), (52, 8413), (55, 8443), (71, 8614),

Gene: Stoor\_12 Start: 8566, Stop: 9363, Start Num: 23

Candidate Starts for Stoor\_12:

(Start: 23 @8566 has 45 MA's), (25, 8572), (30, 8650), (34, 8716), (36, 8731), (51, 8890), (54, 8923), (60, 8968), (81, 9208),

Gene: Stromboli\_12 Start: 8570, Stop: 9367, Start Num: 23

Candidate Starts for Stromboli\_12:

(Start: 23 @8570 has 45 MA's), (25, 8576), (34, 8720), (36, 8735), (51, 8894), (54, 8927), (60, 8972), (75, 9146), (81, 9212),

Gene: SummitAcademy\_12 Start: 7775, Stop: 8614, Start Num: 13

Candidate Starts for SummitAcademy\_12:

(6, 7661), (11, 7721), (Start: 13 @7775 has 73 MA's), (16, 7808), (31, 7994), (35, 8054), (37, 8066), (57, 8267), (58, 8276), (59, 8282), (61, 8315), (65, 8345), (72, 8390), (80, 8480),

Gene: Survivors\_15 Start: 8732, Stop: 9571, Start Num: 13

Candidate Starts for Survivors\_15:

(Start: 13 @8732 has 73 MA's), (16, 8765), (33, 8993), (41, 9074), (47, 9122), (53, 9179), (54, 9191), (57, 9215), (59, 9230), (70, 9323), (73, 9356), (75, 9368), (76, 9371), (85, 9506), (90, 9554),

Gene: SweatNTears\_15 Start: 8436, Stop: 9281, Start Num: 13

Candidate Starts for SweatNTears\_15:

(6, 8319), (11, 8379), (Start: 13 @8436 has 73 MA's), (16, 8469), (31, 8655), (37, 8727), (57, 8928), (59, 8943), (61, 8976), (67, 9021), (83, 9207), (84, 9213),

Gene: Swervy\_12 Start: 8297, Stop: 9094, Start Num: 23

Candidate Starts for Swervy\_12:

(8, 8093), (9, 8111), (20, 8267), (Start: 23 @8297 has 45 MA's), (25, 8303), (34, 8444), (36, 8459), (54, 8651), (62, 8738), (81, 8939), (87, 9035),

Gene: Tolls\_15 Start: 7957, Stop: 8802, Start Num: 13

Candidate Starts for Tolls\_15:

(11, 7900), (Start: 13 @7957 has 73 MA's), (16, 7990), (31, 8176), (37, 8248), (57, 8449), (59, 8464), (61, 8497), (66, 8533), (67, 8542), (72, 8572), (83, 8728), (84, 8734),

Gene: Troje\_13 Start: 7910, Stop: 8755, Start Num: 13

Candidate Starts for Troje\_13:

(6, 7793), (11, 7853), (Start: 13 @7910 has 73 MA's), (16, 7943), (31, 8129), (37, 8201), (57, 8402), (59, 8417), (61, 8450), (67, 8495), (83, 8681), (84, 8687),

Gene: Troy\_12 Start: 7952, Stop: 8857, Start Num: 12

Candidate Starts for Troy\_12:

(Start: 12 @7952 has 8 MA's), (20, 8054), (24, 8090), (43, 8339), (45, 8348), (52, 8414), (71, 8615),

Gene: TukTuk\_12 Start: 8357, Stop: 9154, Start Num: 23

Candidate Starts for TukTuk\_12:

(8, 8153), (9, 8171), (20, 8327), (Start: 23 @8357 has 45 MA's), (25, 8363), (34, 8504), (36, 8519), (54, 8711), (62, 8798), (81, 8999),

Gene: Typhonomachy\_14 Start: 7939, Stop: 8781, Start Num: 13

Candidate Starts for Typhonomachy\_14:

(Start: 13 @7939 has 73 MA's), (16, 7972), (31, 8158), (37, 8230), (46, 8329), (57, 8431), (58, 8440), (59, 8446), (61, 8479), (66, 8515), (67, 8524), (83, 8710), (84, 8716),

Gene: Vine\_14 Start: 8704, Stop: 9543, Start Num: 13

Candidate Starts for Vine\_14:

(6, 8590), (11, 8650), (Start: 13 @8704 has 73 MA's), (16, 8737), (31, 8923), (35, 8983), (37, 8995), (57, 9196), (58, 9205), (59, 9211), (61, 9244), (65, 9274), (72, 9319), (80, 9409),

Gene: WalkingDead\_12 Start: 8557, Stop: 9354, Start Num: 23

Candidate Starts for WalkingDead\_12:

(Start: 23 @8557 has 45 MA's), (25, 8563), (34, 8707), (36, 8722), (51, 8881), (54, 8914), (60, 8959), (62, 9001), (75, 9133), (81, 9199),

Gene: Wrigley\_14 Start: 8561, Stop: 9406, Start Num: 13

Candidate Starts for Wrigley\_14:

(Start: 13 @8561 has 73 MA's), (18, 8630), (19, 8642), (40, 8906), (46, 8951), (47, 8960), (56, 9047), (61, 9101),

Gene: Yakult\_14 Start: 7841, Stop: 8674, Start Num: 13

Candidate Starts for Yakult\_14:

(Start: 13 @7841 has 73 MA's), (16, 7874), (21, 7946), (26, 7964), (27, 7970), (31, 8048), (41, 8189), (42, 8204), (53, 8294), (54, 8306), (55, 8312), (57, 8330), (59, 8345), (68, 8423), (70, 8435), (79, 8513), (83, 8609), (89, 8657),

Gene: Yarn\_12 Start: 7947, Stop: 8792, Start Num: 13

Candidate Starts for Yarn\_12:

(11, 7890), (Start: 13 @7947 has 73 MA's), (16, 7980), (31, 8166), (37, 8238), (57, 8439), (59, 8454), (61, 8487), (66, 8523), (67, 8532), (72, 8562), (83, 8718), (84, 8724),

Gene: Yucky\_15 Start: 8564, Stop: 9403, Start Num: 13

Candidate Starts for Yucky\_15:

(6, 8450), (11, 8510), (Start: 13 @8564 has 73 MA's), (16, 8597), (31, 8783), (35, 8843), (37, 8855), (47, 8963), (57, 9056), (58, 9065), (59, 9071), (61, 9104), (65, 9134), (72, 9179), (80, 9269),

Gene: Yummy\_14 Start: 7821, Stop: 8666, Start Num: 13

Candidate Starts for Yummy\_14:

(Start: 13 @7821 has 73 MA's), (16, 7854), (31, 8040), (37, 8112), (57, 8313), (59, 8328), (61, 8361), (67, 8406), (83, 8592), (84, 8598),

Gene: Zareef\_17 Start: 8879, Stop: 9718, Start Num: 13

Candidate Starts for Zareef\_17:

(Start: 13 @8879 has 73 MA's), (16, 8912), (33, 9140), (41, 9221), (47, 9269), (53, 9326), (54, 9338), (57, 9362), (59, 9377), (70, 9470), (73, 9503), (75, 9515), (76, 9518), (85, 9653), (90, 9701),