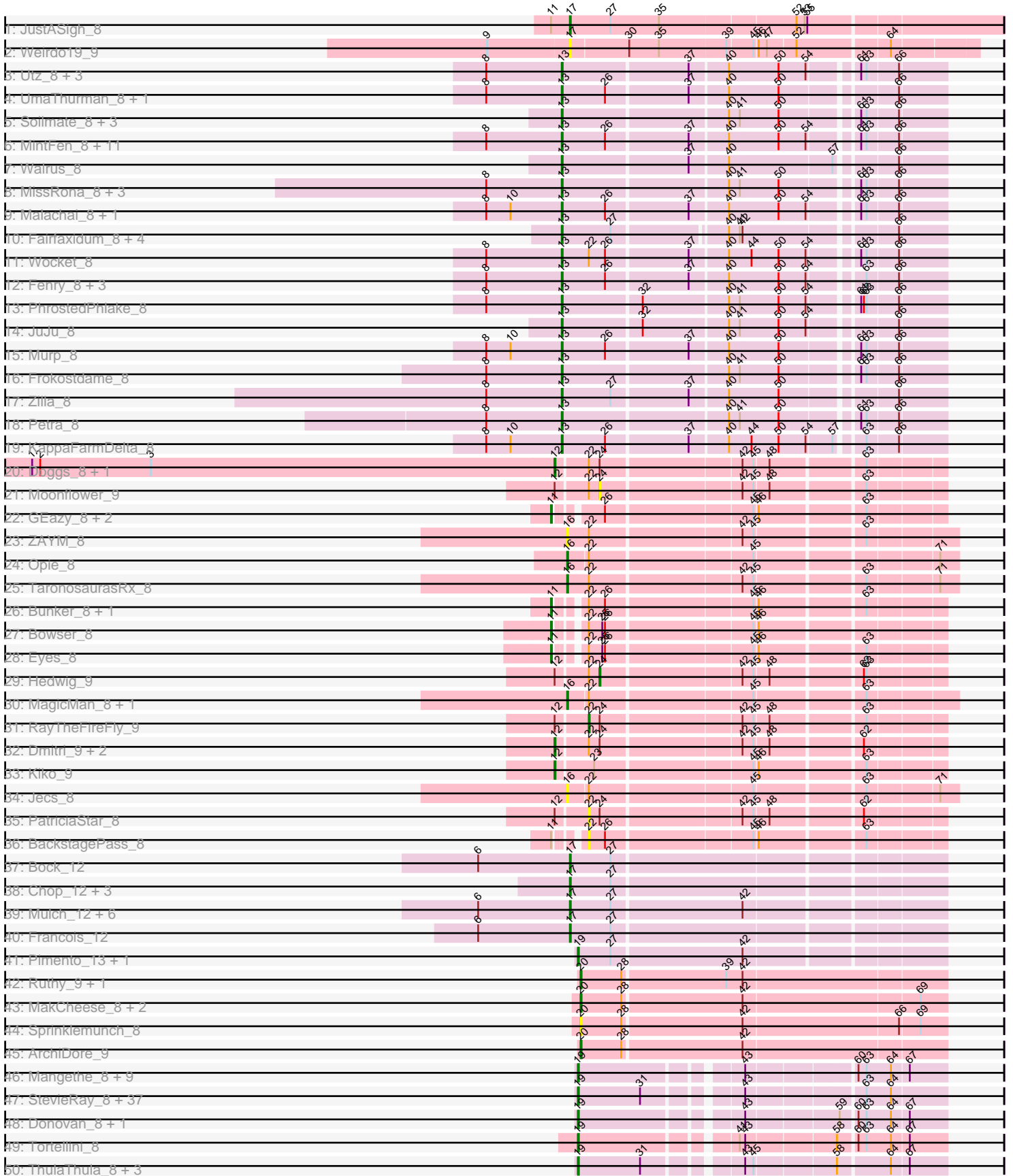


Pham 308147





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 308147 Report

This analysis was run 06/27/26 on database version 652.

Pham number 308147 has 178 members, 21 are drafts.

Phages represented in each track:

- Track 1 : JustASigh\_8
- Track 2 : Weirdo19\_9
- Track 3 : Utz\_8, Lysidious\_8, Wisp\_8, BlingBling\_8
- Track 4 : UmaThurman\_8, Samba\_8
- Track 5 : Soilmate\_8, CarolAnn\_8, CheeseSpider\_8, Blino\_8
- Track 6 : MintFen\_8, Guacamole\_8, Melba\_8, Mellie\_8, Barco\_8, ZiggyZoo\_8, JasperJr\_8, Zarbodnamra\_8, CaptainKirk2\_8, Pipp\_8, Delian\_8, Obliviate\_8
- Track 7 : Walrus\_8
- Track 8 : MissRona\_8, Azula\_8, Blueberry\_8, Gambino\_8
- Track 9 : Malachai\_8, Begonia\_8
- Track 10 : Fairfaxidum\_8, PCoral7\_8, PrincePatrick\_8, William\_8, Toast\_8
- Track 11 : Wocket\_8
- Track 12 : Fenry\_8, Jalammah\_8, Archis\_8, Hitter\_8
- Track 13 : PhrostedPhlake\_8
- Track 14 : JuJu\_8
- Track 15 : Murp\_8
- Track 16 : Frokostdame\_8
- Track 17 : Zilla\_8
- Track 18 : Petra\_8
- Track 19 : KappaFarmDelta\_8
- Track 20 : Doggs\_8, Coriander\_9
- Track 21 : Moonflower\_9
- Track 22 : GEazy\_8, NaLuna\_8, HannahD\_8
- Track 23 : ZAYM\_8
- Track 24 : Opie\_8
- Track 25 : TaronosaurusRx\_8
- Track 26 : Bunker\_8, BBQValindra\_8
- Track 27 : Bowser\_8
- Track 28 : Eyes\_8
- Track 29 : Hedwig\_9
- Track 30 : MagicMan\_8, Schnabeltier\_8
- Track 31 : RayTheFireFly\_9
- Track 32 : Dmitri\_9, Chipko\_9, DirtyBoi\_9
- Track 33 : Kiko\_9
- Track 34 : Jecs\_8
- Track 35 : PatriciaStar\_8
- Track 36 : BackstagePass\_8

- Track 37 : Bock\_12
- Track 38 : Chop\_12, Ayotoya\_12, GrandSlam\_12, Hamood\_12
- Track 39 : Mulch\_12, WheatThin\_12, Nadeem\_12, BetterKatz\_12, Brylie\_12, Parada\_12, NancyRae\_12
- Track 40 : Francois\_12
- Track 41 : Pimento\_13, DelRio\_13
- Track 42 : Ruthy\_9, DumpsterDude\_9
- Track 43 : MakCheese\_8, Zodiariah\_8, Malibo\_8
- Track 44 : Sprinklemunch\_8
- Track 45 : ArchiDore\_9
- Track 46 : Mangethe\_8, Langerak\_8, Majeke\_8, GaloreK\_8, Techage\_8, Arib1\_8, Phegasus\_8, Juniormint\_8, Jebeks\_8, BronnyJr\_8
- Track 47 : StevieRay\_8, Phalm\_8, Glaske\_8, FirstPlacePfu\_8, Brusacoram\_8, Dynamo\_8, Venti\_8, Shipwreck\_8, Atcoo\_8, Bunnies\_8, Camster\_8, Polkaroo\_8, Chubbello\_8, Jung\_8, Pygmy\_8, Etoile\_8, Necropolis\_8, HUHilltop\_8, Phineas\_8, Xavia\_8, Bhagsy\_8, Fishburne\_8, Willsammy\_8, GreaseLightnin\_8, Megiddo\_8, StressBall\_8, CactusJack\_8, Bogie\_8, PeanutPie\_8, Zilizebeth\_8, Bartholomew\_8, Thespis\_8, Gavriela\_8, Malithi\_8, Kari\_8, KilKor\_8, Ksquared\_8, Vidya\_8
- Track 48 : Donovan\_8, Sonah\_8
- Track 49 : Tortellini\_8
- Track 50 : ThulaThula\_8, BigNuz\_8, Nazo\_8, Phayonce\_8
- Track 51 : Purky\_8
- Track 52 : Kinbote\_11, BloominB\_11, Ein37\_11, OBUpride\_11, HH92\_11, Luna22\_11, Ubuntu\_11, Evanesce\_11, DeepSoil15\_11, Amymech\_11, Dewey\_11, Webster2\_11, Giles\_11, Wishmaker\_11, Luke\_11, Hail\_11, LilHazelNut\_11, Hadrien\_11, Forge\_11
- Track 53 : Gancho\_10, Daegal\_12, Gravallia\_11
- Track 54 : Amochick\_11
- Track 55 : NovoPizza\_9
- Track 56 : Rem711\_14
- Track 57 : Finkle\_8
- Track 58 : Whack\_8
- Track 59 : REQ2\_08

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

The start number called the most often in the published annotations is 19, it was called in 53 of the 157 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Arib1\_8, Atcoo\_8, Bartholomew\_8, Bhagsy\_8, BigNuz\_8, Bogie\_8, BronnyJr\_8, Brusacoram\_8, Bunnies\_8, CactusJack\_8, Camster\_8, Chubbello\_8, DelRio\_13, Donovan\_8, Dynamo\_8, Etoile\_8, FirstPlacePfu\_8, Fishburne\_8, GaloreK\_8, Gavriela\_8, Glaske\_8, GreaseLightnin\_8, HUHilltop\_8, Jebeks\_8, Jung\_8, Juniormint\_8, Kari\_8, KilKor\_8, Ksquared\_8, Langerak\_8, Majeke\_8, Malithi\_8, Mangethe\_8, Megiddo\_8, Nazo\_8, Necropolis\_8, PeanutPie\_8, Phalm\_8, Phayonce\_8, Phegasus\_8, Phineas\_8, Pimento\_13, Polkaroo\_8, Purky\_8, Pygmy\_8, REQ2\_08, Shipwreck\_8, Sonah\_8, StevieRay\_8, StressBall\_8, Techage\_8, Thespis\_8, ThulaThula\_8, Tortellini\_8, Venti\_8, Vidya\_8, Whack\_8, Willsammy\_8, Xavia\_8, Zilizebeth\_8,

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

- 

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

- Amochick\_11, Amymech\_11, ArchiDore\_9, Archis\_8, Ayotoya\_12, Azula\_8, BBQValindra\_8, BackstagePass\_8, Barco\_8, Begonia\_8, BetterKatz\_12, BlingBling\_8, Blino\_8, BloominB\_11, Blueberry\_8, Bock\_12, Bowser\_8, Brylie\_12, Bunker\_8, CaptainKirk2\_8, CarolAnn\_8, CheeseSpider\_8, Chipko\_9, Chop\_12, Coriander\_9, Daegal\_12, DeepSoil15\_11, Delian\_8, Dewey\_11, DirtyBoi\_9, Dmitri\_9, Doggs\_8, DumpsterDude\_9, Ein37\_11, Evanesce\_11, Eyes\_8, Fairfaxidum\_8, Fenry\_8, Finkle\_8, Forge\_11, Francois\_12, Frokostdame\_8, GEazy\_8, Gambino\_8, Gancho\_10, Giles\_11, GrandSlam\_12, Gravallia\_11, Guacamole\_8, HH92\_11, Hadrien\_11, Hail\_11, Hamood\_12, HannahD\_8, Hedwig\_9, Hitter\_8, Jalammah\_8, JasperJr\_8, Jecs\_8, JuJu\_8, JustASigh\_8, KappaFarmDelta\_8, Kiko\_9, Kinbote\_11, LilHazelNut\_11, Luke\_11, Luna22\_11, Lysidious\_8, MagicMan\_8, MakCheese\_8, Malachai\_8, Malibo\_8, Melba\_8, Mellie\_8, MintFen\_8, MissRona\_8, Moonflower\_9, Mulch\_12, Murp\_8, NaLuna\_8, Nadeem\_12, NancyRae\_12, NovoPizza\_9, OBUpride\_11, Obliviate\_8, Opie\_8, PCoral7\_8, Parada\_12, PatriciaStar\_8, Petra\_8, PhrostedPhlake\_8, Pipp\_8, PrincePatrick\_8, RayTheFireFly\_9, Rem711\_14, Ruthy\_9, Samba\_8, Schnabeltier\_8, Soilmate\_8, Sprinklemunch\_8, TaronosaurusRx\_8, Toast\_8, Ubuntu\_11, UmaThurman\_8, Utz\_8, Walrus\_8, Webster2\_11, Weirdo19\_9, WheatThin\_12, William\_8, Wishmaker\_11, Wisp\_8, Wocket\_8, ZAYM\_8, Zarbodnamra\_8, ZiggyZoo\_8, Zilla\_8, Zodiariah\_8,

### Summary by start number:

Start 11:

- Found in 9 of 178 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 6 of 157
- Called 77.8% of time when present
- Phage (with cluster) where this start called: BBQValindra\_8 (DB), Bowser\_8 (DB), Bunker\_8 (DB), Eyes\_8 (DB), GEazy\_8 (DB), HannahD\_8 (DB), NaLuna\_8 (DB),

Start 12:

- Found in 10 of 178 ( 5.6% ) of genes in pham
- Manual Annotations of this start: 5 of 157
- Called 60.0% of time when present
- Phage (with cluster) where this start called: Chipko\_9 (DB), Coriander\_9 (DB), DirtyBoi\_9 (DB), Dmitri\_9 (DB), Doggs\_8 (DB), Kiko\_9 (DB),

Start 13:

- Found in 46 of 178 ( 25.8% ) of genes in pham
- Manual Annotations of this start: 43 of 157
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Archis\_8 (CV), Azula\_8 (CV), Barco\_8 (CV), Begonia\_8 (CV), BlingBling\_8 (CV), Blino\_8 (CV), Blueberry\_8 (CV), CaptainKirk2\_8 (CV), CarolAnn\_8 (CV), CheeseSpider\_8 (CV), Delian\_8 (CV), Fairfaxidum\_8 (CV), Fenry\_8 (CV), Frokostdame\_8 (CV), Gambino\_8 (CV), Guacamole\_8 (CV), Hitter\_8 (CV), Jalammah\_8 (CV), JasperJr\_8 (CV), JuJu\_8 (CV), KappaFarmDelta\_8 (CV), Lysidious\_8 (CV), Malachai\_8 (CV), Melba\_8 (CV), Mellie\_8 (CV), MintFen\_8 (CV), MissRona\_8 (CV), Murp\_8 (CV), Obliviate\_8 (CV), PCoral7\_8 (CV), Petra\_8 (CV), PhrostedPhlake\_8 (CV), Pipp\_8 (CV), PrincePatrick\_8

(CV), Samba\_8 (CV), Soilmate\_8 (CV), Toast\_8 (CV), UmaThurman\_8 (CV), Utz\_8 (CV), Walrus\_8 (CV), William\_8 (CV), Wisp\_8 (CV), Wocket\_8 (CV), Zorbodnamra\_8 (CV), ZiggyZoo\_8 (CV), Zilla\_8 (CV),

Start 14:

- Found in 1 of 178 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 157
- Called 100.0% of time when present
- Phage (with cluster) where this start called: NovoPizza\_9 (Q),

Start 15:

- Found in 23 of 178 ( 12.9% ) of genes in pham
- Manual Annotations of this start: 22 of 157
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amochick\_11 (Q), Amymech\_11 (Q), BloominB\_11 (Q), Daegal\_12 (Q), DeepSoil15\_11 (Q), Dewey\_11 (Q), Ein37\_11 (Q), Evanesce\_11 (Q), Forge\_11 (Q), Gancho\_10 (Q), Giles\_11 (Q), Gravaillia\_11 (Q), HH92\_11 (Q), Hadrien\_11 (Q), Hail\_11 (Q), Kinbote\_11 (Q), LilHazelNut\_11 (Q), Luke\_11 (Q), Luna22\_11 (Q), OBUpride\_11 (Q), Ubuntu\_11 (Q), Webster2\_11 (Q), Wishmaker\_11 (Q),

Start 16:

- Found in 8 of 178 ( 4.5% ) of genes in pham
- Manual Annotations of this start: 6 of 157
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Finkle\_8 (singleton), Jecs\_8 (DB), MagicMan\_8 (DB), Opie\_8 (DB), Rem711\_14 (Z), Schnabeltier\_8 (DB), TaronosaurusRx\_8 (DB), ZAYM\_8 (DB),

Start 17:

- Found in 15 of 178 ( 8.4% ) of genes in pham
- Manual Annotations of this start: 14 of 157
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ayotoya\_12 (DI), BetterKatz\_12 (DI), Bock\_12 (DI), Brylie\_12 (DI), Chop\_12 (DI), Francois\_12 (DI), GrandSlam\_12 (DI), Hamood\_12 (DI), JustASigh\_8 (AH), Mulch\_12 (DI), Nadeem\_12 (DI), NancyRae\_12 (DI), Parada\_12 (DI), Weirido19\_9 (AH), WheatThin\_12 (DI),

Start 19:

- Found in 60 of 178 ( 33.7% ) of genes in pham
- Manual Annotations of this start: 53 of 157
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Arib1\_8 (P1), Atcoo\_8 (P1), Bartholomew\_8 (P1), Bhagsy\_8 (P1), BigNuz\_8 (P4), Bogie\_8 (P1), BronnyJr\_8 (P1), Brusacoram\_8 (P1), Bunnies\_8 (P1), CactusJack\_8 (P1), Camster\_8 (P1), Chubbello\_8 (P1), DelRio\_13 (DI), Donovan\_8 (P1), Dynamo\_8 (P1), Etoile\_8 (P1), FirstPlacePfu\_8 (P1), Fishburne\_8 (P1), GaloreK\_8 (P1), Gavriela\_8 (P1), Glaske\_8 (P1), GreaseLightnin\_8 (P1), HUHilltop\_8 (P1), Jebeks\_8 (P1), Jung\_8 (P1), Juniormint\_8 (P1), Kari\_8 (P1), KilKor\_8 (P1), Ksquard\_8 (P1), Langerak\_8 (P1), Majeke\_8 (P1), Malithi\_8 (P1), Mangethe\_8 (P1), Megiddo\_8 (P1), Nazo\_8 (P4), Necropolis\_8 (P1), PeanutPie\_8 (P1), Phalm\_8 (P1), Phayonce\_8 (P5), Phegasus\_8 (P1), Phineas\_8 (P1), Pimento\_13 (DI), Polkaroo\_8 (P1), Purky\_8 (P6), Pygmy\_8 (P1), REQ2\_08 (singleton), Shipwreck\_8 (P1), Sonah\_8 (P1), StevieRay\_8 (P1),

StressBall\_8 (P1), Techage\_8 (P1), Thespis\_8 (P1), ThulaThula\_8 (P5), Tortellini\_8 (P2), Venti\_8 (P1), Vidya\_8 (P1), Whack\_8 (singleton), Willsammy\_8 (P1), Xavia\_8 (P3), Zilizebeth\_8 (P1),

Start 20:

- Found in 7 of 178 ( 3.9% ) of genes in pham
- Manual Annotations of this start: 5 of 157
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ArchiDore\_9 (DW), DumpsterDude\_9 (DW), MakCheese\_8 (DW), Malibo\_8 (DW), Ruthy\_9 (DW), Sprinklemunch\_8 (DW), Zodiariah\_8 (DW),

Start 22:

- Found in 22 of 178 ( 12.4% ) of genes in pham
- Manual Annotations of this start: 1 of 157
- Called 13.6% of time when present
- Phage (with cluster) where this start called: BackstagePass\_8 (DB), PatriciaStar\_8 (DB), RayTheFireFly\_9 (DB),

Start 24:

- Found in 9 of 178 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 1 of 157
- Called 22.2% of time when present
- Phage (with cluster) where this start called: Hedwig\_9 (DB), Moonflower\_9 (DB),

### **Summary by clusters:**

There are 14 clusters represented in this pham: P2, P3, singleton, P1, P6, P4, DI, AH, P5, DB, Q, DW, Z, CV,

Info for manual annotations of cluster AH:

- Start number 17 was manually annotated 1 time for cluster AH.

Info for manual annotations of cluster CV:

- Start number 13 was manually annotated 43 times for cluster CV.

Info for manual annotations of cluster DB:

- Start number 11 was manually annotated 6 times for cluster DB.
- Start number 12 was manually annotated 5 times for cluster DB.
- Start number 16 was manually annotated 4 times for cluster DB.
- Start number 22 was manually annotated 1 time for cluster DB.
- Start number 24 was manually annotated 1 time for cluster DB.

Info for manual annotations of cluster DI:

- Start number 17 was manually annotated 13 times for cluster DI.
- Start number 19 was manually annotated 2 times for cluster DI.

Info for manual annotations of cluster DW:

- Start number 20 was manually annotated 5 times for cluster DW.

Info for manual annotations of cluster P1:

- Start number 19 was manually annotated 43 times for cluster P1.

Info for manual annotations of cluster P2:

- Start number 19 was manually annotated 1 time for cluster P2.

Info for manual annotations of cluster P3:

- Start number 19 was manually annotated 1 time for cluster P3.

Info for manual annotations of cluster P4:

- Start number 19 was manually annotated 2 times for cluster P4.

Info for manual annotations of cluster P5:

- Start number 19 was manually annotated 2 times for cluster P5.

Info for manual annotations of cluster P6:

- Start number 19 was manually annotated 1 time for cluster P6.

Info for manual annotations of cluster Q:

- Start number 14 was manually annotated 1 time for cluster Q.
- Start number 15 was manually annotated 22 times for cluster Q.

Info for manual annotations of cluster Z:

- Start number 16 was manually annotated 1 time for cluster Z.

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

Gene: Amochick\_11 Start: 7977, Stop: 8429, Start Num: 15

Candidate Starts for Amochick\_11:

(Start: 15 @7977 has 22 MA's), (18, 7986), (23, 8004), (27, 8022), (28, 8034), (32, 8052), (33, 8064), (35, 8070), (40, 8145), (42, 8157), (48, 8184), (51, 8202), (61, 8277), (62, 8280), (65, 8310), (70, 8349), (72, 8370), (73, 8397), (75, 8421),

Gene: Amymech\_11 Start: 7983, Stop: 8435, Start Num: 15

Candidate Starts for Amymech\_11:

(Start: 15 @7983 has 22 MA's), (18, 7992), (23, 8010), (27, 8028), (28, 8040), (32, 8058), (33, 8070), (35, 8076), (40, 8151), (42, 8163), (48, 8190), (51, 8208), (59, 8265), (61, 8283), (62, 8286), (65, 8316), (70, 8355), (72, 8376), (73, 8403), (75, 8427),

Gene: ArchiDore\_9 Start: 6962, Stop: 7354, Start Num: 20

Candidate Starts for ArchiDore\_9:

(Start: 20 @6962 has 5 MA's), (28, 7007), (42, 7136),

Gene: Archis\_8 Start: 6567, Stop: 6959, Start Num: 13

Candidate Starts for Archis\_8:

(8, 6483), (Start: 13 @6567 has 43 MA's), (26, 6615), (37, 6702), (40, 6741), (50, 6795), (54, 6825), (63, 6876), (66, 6909),

Gene: Arib1\_8 Start: 6594, Stop: 6956, Start Num: 19

Candidate Starts for Arib1\_8:

(Start: 19 @6594 has 53 MA's), (43, 6753), (60, 6861), (63, 6870), (64, 6897), (67, 6915),

Gene: Atcoo\_8 Start: 6580, Stop: 6942, Start Num: 19

Candidate Starts for Atcoo\_8:

(Start: 19 @6580 has 53 MA's), (31, 6649), (43, 6739), (63, 6856), (64, 6883),

Gene: Ayotoya\_12 Start: 8519, Stop: 8911, Start Num: 17

Candidate Starts for Ayotoya\_12:

(Start: 17 @8519 has 14 MA's), (27, 8564),

Gene: Azula\_8 Start: 6443, Stop: 6835, Start Num: 13

Candidate Starts for Azula\_8:

(8, 6359), (Start: 13 @6443 has 43 MA's), (40, 6617), (41, 6629), (50, 6671), (61, 6746), (63, 6752), (66, 6785),

Gene: BBQValindra\_8 Start: 6485, Stop: 6868, Start Num: 11

Candidate Starts for BBQValindra\_8:

(Start: 11 @6485 has 6 MA's), (Start: 22 @6506 has 1 MA's), (26, 6524), (45, 6677), (46, 6680), (63, 6788),

Gene: BackstagePass\_8 Start: 6483, Stop: 6845, Start Num: 22

Candidate Starts for BackstagePass\_8:

(Start: 11 @6462 has 6 MA's), (Start: 22 @6483 has 1 MA's), (26, 6501), (45, 6654), (46, 6657), (63, 6765),

Gene: Barco\_8 Start: 6567, Stop: 6959, Start Num: 13

Candidate Starts for Barco\_8:

(8, 6483), (Start: 13 @6567 has 43 MA's), (26, 6615), (37, 6702), (40, 6741), (50, 6795), (54, 6825), (61, 6870), (63, 6876), (66, 6909),

Gene: Bartholomew\_8 Start: 6592, Stop: 6954, Start Num: 19

Candidate Starts for Bartholomew\_8:

(Start: 19 @6592 has 53 MA's), (31, 6661), (43, 6751), (63, 6868), (64, 6895),

Gene: Begonia\_8 Start: 6570, Stop: 6962, Start Num: 13

Candidate Starts for Begonia\_8:

(8, 6486), (10, 6513), (Start: 13 @6570 has 43 MA's), (26, 6618), (37, 6705), (40, 6744), (50, 6798), (54, 6828), (61, 6873), (63, 6879), (66, 6912),

Gene: BetterKatz\_12 Start: 8487, Stop: 8879, Start Num: 17

Candidate Starts for BetterKatz\_12:

(6, 8385), (Start: 17 @8487 has 14 MA's), (27, 8532), (42, 8673),

Gene: Bhagsy\_8 Start: 6583, Stop: 6945, Start Num: 19

Candidate Starts for Bhagsy\_8:

(Start: 19 @6583 has 53 MA's), (31, 6652), (43, 6742), (63, 6859), (64, 6886),

Gene: BigNuz\_8 Start: 6561, Stop: 6923, Start Num: 19

Candidate Starts for BigNuz\_8:

(Start: 19 @6561 has 53 MA's), (31, 6630), (43, 6720), (45, 6729), (58, 6810), (64, 6864), (67, 6882),

Gene: BlingBling\_8 Start: 6567, Stop: 6959, Start Num: 13

Candidate Starts for BlingBling\_8:

(8, 6483), (Start: 13 @6567 has 43 MA's), (37, 6702), (40, 6741), (50, 6795), (54, 6825), (61, 6870), (63, 6876), (66, 6909),

Gene: Blino\_8 Start: 6467, Stop: 6859, Start Num: 13

Candidate Starts for Blino\_8:

(Start: 13 @6467 has 43 MA's), (40, 6641), (41, 6653), (50, 6695), (61, 6770), (63, 6776), (66, 6809),

Gene: BloominB\_11 Start: 7983, Stop: 8435, Start Num: 15

Candidate Starts for BloominB\_11:

(Start: 15 @7983 has 22 MA's), (18, 7992), (23, 8010), (27, 8028), (28, 8040), (32, 8058), (33, 8070), (35, 8076), (40, 8151), (42, 8163), (48, 8190), (51, 8208), (59, 8265), (61, 8283), (62, 8286), (65, 8316), (70, 8355), (72, 8376), (73, 8403), (75, 8427),

Gene: Blueberry\_8 Start: 6443, Stop: 6835, Start Num: 13

Candidate Starts for Blueberry\_8:

(8, 6359), (Start: 13 @6443 has 43 MA's), (40, 6617), (41, 6629), (50, 6671), (61, 6746), (63, 6752), (66, 6785),

Gene: Bock\_12 Start: 8237, Stop: 8629, Start Num: 17

Candidate Starts for Bock\_12:

(6, 8135), (Start: 17 @8237 has 14 MA's), (27, 8282),

Gene: Bogie\_8 Start: 6580, Stop: 6942, Start Num: 19

Candidate Starts for Bogie\_8:

(Start: 19 @6580 has 53 MA's), (31, 6649), (43, 6739), (63, 6856), (64, 6883),

Gene: Bowser\_8 Start: 6483, Stop: 6866, Start Num: 11

Candidate Starts for Bowser\_8:

(Start: 11 @6483 has 6 MA's), (Start: 22 @6504 has 1 MA's), (25, 6519), (26, 6522), (45, 6675), (46, 6678),

Gene: BronnyJr\_8 Start: 6597, Stop: 6959, Start Num: 19

Candidate Starts for BronnyJr\_8:

(Start: 19 @6597 has 53 MA's), (43, 6756), (60, 6864), (63, 6873), (64, 6900), (67, 6918),

Gene: Brusacoram\_8 Start: 6579, Stop: 6941, Start Num: 19

Candidate Starts for Brusacoram\_8:

(Start: 19 @6579 has 53 MA's), (31, 6648), (43, 6738), (63, 6855), (64, 6882),

Gene: Brylie\_12 Start: 8234, Stop: 8626, Start Num: 17

Candidate Starts for Brylie\_12:

(6, 8132), (Start: 17 @8234 has 14 MA's), (27, 8279), (42, 8420),

Gene: Bunker\_8 Start: 6485, Stop: 6868, Start Num: 11

Candidate Starts for Bunker\_8:

(Start: 11 @6485 has 6 MA's), (Start: 22 @6506 has 1 MA's), (26, 6524), (45, 6677), (46, 6680), (63, 6788),

Gene: Bunnies\_8 Start: 6592, Stop: 6954, Start Num: 19

Candidate Starts for Bunnies\_8:

(Start: 19 @6592 has 53 MA's), (31, 6661), (43, 6751), (63, 6868), (64, 6895),

Gene: CactusJack\_8 Start: 6579, Stop: 6941, Start Num: 19

Candidate Starts for CactusJack\_8:

(Start: 19 @6579 has 53 MA's), (31, 6648), (43, 6738), (63, 6855), (64, 6882),

Gene: Camster\_8 Start: 6592, Stop: 6954, Start Num: 19

Candidate Starts for Camster\_8:

(Start: 19 @6592 has 53 MA's), (31, 6661), (43, 6751), (63, 6868), (64, 6895),

Gene: CaptainKirk2\_8 Start: 6567, Stop: 6959, Start Num: 13

Candidate Starts for CaptainKirk2\_8:

(8, 6483), (Start: 13 @6567 has 43 MA's), (26, 6615), (37, 6702), (40, 6741), (50, 6795), (54, 6825), (61, 6870), (63, 6876), (66, 6909),

Gene: CarolAnn\_8 Start: 6466, Stop: 6858, Start Num: 13

Candidate Starts for CarolAnn\_8:

(Start: 13 @6466 has 43 MA's), (40, 6640), (41, 6652), (50, 6694), (61, 6769), (63, 6775), (66, 6808),

Gene: CheeseSpider\_8 Start: 6443, Stop: 6835, Start Num: 13

Candidate Starts for CheeseSpider\_8:

(Start: 13 @6443 has 43 MA's), (40, 6617), (41, 6629), (50, 6671), (61, 6746), (63, 6752), (66, 6785),

Gene: Chipko\_9 Start: 6871, Stop: 7266, Start Num: 12

Candidate Starts for Chipko\_9:

(Start: 12 @6871 has 5 MA's), (Start: 22 @6904 has 1 MA's), (Start: 24 @6916 has 1 MA's), (42, 7063), (45, 7075), (48, 7090), (62, 7183),

Gene: Chop\_12 Start: 8267, Stop: 8659, Start Num: 17

Candidate Starts for Chop\_12:

(Start: 17 @8267 has 14 MA's), (27, 8312),

Gene: Chubbello\_8 Start: 6591, Stop: 6953, Start Num: 19

Candidate Starts for Chubbello\_8:

(Start: 19 @6591 has 53 MA's), (31, 6660), (43, 6750), (63, 6867), (64, 6894),

Gene: Coriander\_9 Start: 6870, Stop: 7265, Start Num: 12

Candidate Starts for Coriander\_9:

(1, 6291), (2, 6300), (3, 6423), (Start: 12 @6870 has 5 MA's), (Start: 22 @6903 has 1 MA's), (Start: 24 @6915 has 1 MA's), (42, 7062), (45, 7074), (48, 7089), (63, 7185),

Gene: Daegal\_12 Start: 8274, Stop: 8726, Start Num: 15

Candidate Starts for Daegal\_12:

(Start: 15 @8274 has 22 MA's), (18, 8283), (27, 8319), (28, 8331), (32, 8349), (35, 8367), (40, 8442), (42, 8454), (48, 8481), (51, 8499), (59, 8556), (61, 8574), (62, 8577), (65, 8607), (70, 8646), (72, 8667), (73, 8694), (75, 8718),

Gene: DeepSoil15\_11 Start: 7983, Stop: 8435, Start Num: 15

Candidate Starts for DeepSoil15\_11:

(Start: 15 @7983 has 22 MA's), (18, 7992), (23, 8010), (27, 8028), (28, 8040), (32, 8058), (33, 8070), (35, 8076), (40, 8151), (42, 8163), (48, 8190), (51, 8208), (59, 8265), (61, 8283), (62, 8286), (65, 8316), (70, 8355), (72, 8376), (73, 8403), (75, 8427),

Gene: DelRio\_13 Start: 8753, Stop: 9136, Start Num: 19

Candidate Starts for DelRio\_13:

(Start: 19 @8753 has 53 MA's), (27, 8789), (42, 8930),

Gene: Delian\_8 Start: 6567, Stop: 6959, Start Num: 13

Candidate Starts for Delian\_8:

(8, 6483), (Start: 13 @6567 has 43 MA's), (26, 6615), (37, 6702), (40, 6741), (50, 6795), (54, 6825), (61, 6870), (63, 6876), (66, 6909),

Gene: Dewey\_11 Start: 7983, Stop: 8435, Start Num: 15

Candidate Starts for Dewey\_11:

(Start: 15 @7983 has 22 MA's), (18, 7992), (23, 8010), (27, 8028), (28, 8040), (32, 8058), (33, 8070), (35, 8076), (40, 8151), (42, 8163), (48, 8190), (51, 8208), (59, 8265), (61, 8283), (62, 8286), (65, 8316), (70, 8355), (72, 8376), (73, 8403), (75, 8427),

Gene: DirtyBoi\_9 Start: 6843, Stop: 7238, Start Num: 12

Candidate Starts for DirtyBoi\_9:

(Start: 12 @6843 has 5 MA's), (Start: 22 @6876 has 1 MA's), (Start: 24 @6888 has 1 MA's), (42, 7035), (45, 7047), (48, 7062), (62, 7155),

Gene: Dmitri\_9 Start: 6852, Stop: 7247, Start Num: 12

Candidate Starts for Dmitri\_9:

(Start: 12 @6852 has 5 MA's), (Start: 22 @6885 has 1 MA's), (Start: 24 @6897 has 1 MA's), (42, 7044), (45, 7056), (48, 7071), (62, 7164),

Gene: Doggs\_8 Start: 6567, Stop: 6962, Start Num: 12

Candidate Starts for Doggs\_8:

(1, 5988), (2, 5997), (3, 6120), (Start: 12 @6567 has 5 MA's), (Start: 22 @6600 has 1 MA's), (Start: 24 @6612 has 1 MA's), (42, 6759), (45, 6771), (48, 6786), (63, 6882),

Gene: Donovan\_8 Start: 6594, Stop: 6956, Start Num: 19

Candidate Starts for Donovan\_8:

(Start: 19 @6594 has 53 MA's), (43, 6753), (59, 6846), (60, 6861), (63, 6870), (64, 6897), (67, 6915),

Gene: DumpsterDude\_9 Start: 6975, Stop: 7367, Start Num: 20

Candidate Starts for DumpsterDude\_9:

(Start: 20 @6975 has 5 MA's), (28, 7020), (39, 7131), (42, 7149),

Gene: Dynamo\_8 Start: 6592, Stop: 6954, Start Num: 19

Candidate Starts for Dynamo\_8:

(Start: 19 @6592 has 53 MA's), (31, 6661), (43, 6751), (63, 6868), (64, 6895),

Gene: Ein37\_11 Start: 7983, Stop: 8435, Start Num: 15

Candidate Starts for Ein37\_11:

(Start: 15 @7983 has 22 MA's), (18, 7992), (23, 8010), (27, 8028), (28, 8040), (32, 8058), (33, 8070), (35, 8076), (40, 8151), (42, 8163), (48, 8190), (51, 8208), (59, 8265), (61, 8283), (62, 8286), (65, 8316), (70, 8355), (72, 8376), (73, 8403), (75, 8427),

Gene: Etoile\_8 Start: 6592, Stop: 6954, Start Num: 19

Candidate Starts for Etoile\_8:

(Start: 19 @6592 has 53 MA's), (31, 6661), (43, 6751), (63, 6868), (64, 6895),

Gene: Evanesce\_11 Start: 7983, Stop: 8435, Start Num: 15

Candidate Starts for Evanesce\_11:

(Start: 15 @7983 has 22 MA's), (18, 7992), (23, 8010), (27, 8028), (28, 8040), (32, 8058), (33, 8070), (35, 8076), (40, 8151), (42, 8163), (48, 8190), (51, 8208), (59, 8265), (61, 8283), (62, 8286), (65, 8316), (70, 8355), (72, 8376), (73, 8403), (75, 8427),

Gene: Eyes\_8 Start: 6492, Stop: 6875, Start Num: 11

Candidate Starts for Eyes\_8:

(Start: 11 @6492 has 6 MA's), (Start: 22 @6513 has 1 MA's), (25, 6528), (26, 6531), (45, 6684), (46, 6687), (63, 6795),

Gene: Fairfaxidum\_8 Start: 6551, Stop: 6937, Start Num: 13

Candidate Starts for Fairfaxidum\_8:

(Start: 13 @6551 has 43 MA's), (27, 6605), (40, 6719), (41, 6731), (42, 6734), (66, 6887),

Gene: Fenry\_8 Start: 6576, Stop: 6968, Start Num: 13

Candidate Starts for Fenry\_8:

(8, 6492), (Start: 13 @6576 has 43 MA's), (26, 6624), (37, 6711), (40, 6750), (50, 6804), (54, 6834), (63, 6885), (66, 6918),

Gene: Finkle\_8 Start: 6251, Stop: 6634, Start Num: 16

Candidate Starts for Finkle\_8:

(Start: 16 @6251 has 6 MA's), (23, 6281), (29, 6311), (46, 6437), (68, 6596),

Gene: FirstPlacePfu\_8 Start: 6592, Stop: 6954, Start Num: 19

Candidate Starts for FirstPlacePfu\_8:

(Start: 19 @6592 has 53 MA's), (31, 6661), (43, 6751), (63, 6868), (64, 6895),

Gene: Fishburne\_8 Start: 6592, Stop: 6954, Start Num: 19

Candidate Starts for Fishburne\_8:

(Start: 19 @6592 has 53 MA's), (31, 6661), (43, 6751), (63, 6868), (64, 6895),

Gene: Forge\_11 Start: 7983, Stop: 8435, Start Num: 15

Candidate Starts for Forge\_11:

(Start: 15 @7983 has 22 MA's), (18, 7992), (23, 8010), (27, 8028), (28, 8040), (32, 8058), (33, 8070), (35, 8076), (40, 8151), (42, 8163), (48, 8190), (51, 8208), (59, 8265), (61, 8283), (62, 8286), (65, 8316), (70, 8355), (72, 8376), (73, 8403), (75, 8427),

Gene: Francois\_12 Start: 8248, Stop: 8640, Start Num: 17

Candidate Starts for Francois\_12:

(6, 8146), (Start: 17 @8248 has 14 MA's), (27, 8293),

Gene: Frokostdame\_8 Start: 6562, Stop: 6954, Start Num: 13

Candidate Starts for Frokostdame\_8:

(8, 6478), (Start: 13 @6562 has 43 MA's), (40, 6736), (41, 6748), (50, 6790), (61, 6865), (63, 6871), (66, 6904),

Gene: GEazy\_8 Start: 6494, Stop: 6877, Start Num: 11

Candidate Starts for GEazy\_8:

(Start: 11 @6494 has 6 MA's), (26, 6533), (45, 6686), (46, 6689), (63, 6797),

Gene: GaloreK\_8 Start: 6595, Stop: 6957, Start Num: 19

Candidate Starts for GaloreK\_8:

(Start: 19 @6595 has 53 MA's), (43, 6754), (60, 6862), (63, 6871), (64, 6898), (67, 6916),

Gene: Gambino\_8 Start: 6443, Stop: 6835, Start Num: 13

Candidate Starts for Gambino\_8:

(8, 6359), (Start: 13 @6443 has 43 MA's), (40, 6617), (41, 6629), (50, 6671), (61, 6746), (63, 6752), (66, 6785),

Gene: Gancho\_10 Start: 7683, Stop: 8135, Start Num: 15

Candidate Starts for Gancho\_10:

(Start: 15 @7683 has 22 MA's), (18, 7692), (27, 7728), (28, 7740), (32, 7758), (35, 7776), (40, 7851), (42, 7863), (48, 7890), (51, 7908), (59, 7965), (61, 7983), (62, 7986), (65, 8016), (70, 8055), (72, 8076), (73, 8103), (75, 8127),

Gene: Gavriela\_8 Start: 6579, Stop: 6941, Start Num: 19

Candidate Starts for Gavriela\_8:

(Start: 19 @6579 has 53 MA's), (31, 6648), (43, 6738), (63, 6855), (64, 6882),

Gene: Giles\_11 Start: 7983, Stop: 8435, Start Num: 15

Candidate Starts for Giles\_11:

(Start: 15 @7983 has 22 MA's), (18, 7992), (23, 8010), (27, 8028), (28, 8040), (32, 8058), (33, 8070), (35, 8076), (40, 8151), (42, 8163), (48, 8190), (51, 8208), (59, 8265), (61, 8283), (62, 8286), (65, 8316), (70, 8355), (72, 8376), (73, 8403), (75, 8427),

Gene: Glaske\_8 Start: 6579, Stop: 6941, Start Num: 19

Candidate Starts for Glaske\_8:

(Start: 19 @6579 has 53 MA's), (31, 6648), (43, 6738), (63, 6855), (64, 6882),

Gene: GrandSlam\_12 Start: 8267, Stop: 8659, Start Num: 17

Candidate Starts for GrandSlam\_12:

(Start: 17 @8267 has 14 MA's), (27, 8312),

Gene: Gravaillia\_11 Start: 7716, Stop: 8168, Start Num: 15

Candidate Starts for Gravaillia\_11:

(Start: 15 @7716 has 22 MA's), (18, 7725), (27, 7761), (28, 7773), (32, 7791), (35, 7809), (40, 7884), (42, 7896), (48, 7923), (51, 7941), (59, 7998), (61, 8016), (62, 8019), (65, 8049), (70, 8088), (72, 8109), (73, 8136), (75, 8160),

Gene: GreaseLightnin\_8 Start: 6592, Stop: 6954, Start Num: 19

Candidate Starts for GreaseLightnin\_8:

(Start: 19 @6592 has 53 MA's), (31, 6661), (43, 6751), (63, 6868), (64, 6895),

Gene: Guacamole\_8 Start: 6571, Stop: 6963, Start Num: 13

Candidate Starts for Guacamole\_8:

(8, 6487), (Start: 13 @6571 has 43 MA's), (26, 6619), (37, 6706), (40, 6745), (50, 6799), (54, 6829), (61, 6874), (63, 6880), (66, 6913),

Gene: HH92\_11 Start: 7983, Stop: 8435, Start Num: 15

Candidate Starts for HH92\_11:

(Start: 15 @7983 has 22 MA's), (18, 7992), (23, 8010), (27, 8028), (28, 8040), (32, 8058), (33, 8070), (35, 8076), (40, 8151), (42, 8163), (48, 8190), (51, 8208), (59, 8265), (61, 8283), (62, 8286), (65, 8316), (70, 8355), (72, 8376), (73, 8403), (75, 8427),

Gene: HUHilltop\_8 Start: 6592, Stop: 6954, Start Num: 19

Candidate Starts for HUHilltop\_8:

(Start: 19 @6592 has 53 MA's), (31, 6661), (43, 6751), (63, 6868), (64, 6895),

Gene: Hadrien\_11 Start: 7983, Stop: 8435, Start Num: 15

Candidate Starts for Hadrien\_11:

(Start: 15 @7983 has 22 MA's), (18, 7992), (23, 8010), (27, 8028), (28, 8040), (32, 8058), (33, 8070), (35, 8076), (40, 8151), (42, 8163), (48, 8190), (51, 8208), (59, 8265), (61, 8283), (62, 8286), (65, 8316),

(70, 8355), (72, 8376), (73, 8403), (75, 8427),

Gene: Hail\_11 Start: 7983, Stop: 8435, Start Num: 15

Candidate Starts for Hail\_11:

(Start: 15 @7983 has 22 MA's), (18, 7992), (23, 8010), (27, 8028), (28, 8040), (32, 8058), (33, 8070), (35, 8076), (40, 8151), (42, 8163), (48, 8190), (51, 8208), (59, 8265), (61, 8283), (62, 8286), (65, 8316), (70, 8355), (72, 8376), (73, 8403), (75, 8427),

Gene: Hamood\_12 Start: 8267, Stop: 8659, Start Num: 17

Candidate Starts for Hamood\_12:

(Start: 17 @8267 has 14 MA's), (27, 8312),

Gene: HannahD\_8 Start: 6494, Stop: 6877, Start Num: 11

Candidate Starts for HannahD\_8:

(Start: 11 @6494 has 6 MA's), (26, 6533), (45, 6686), (46, 6689), (63, 6797),

Gene: Hedwig\_9 Start: 6888, Stop: 7238, Start Num: 24

Candidate Starts for Hedwig\_9:

(Start: 12 @6843 has 5 MA's), (Start: 22 @6876 has 1 MA's), (Start: 24 @6888 has 1 MA's), (42, 7035), (45, 7047), (48, 7062), (62, 7155), (63, 7158),

Gene: Hitter\_8 Start: 6567, Stop: 6959, Start Num: 13

Candidate Starts for Hitter\_8:

(8, 6483), (Start: 13 @6567 has 43 MA's), (26, 6615), (37, 6702), (40, 6741), (50, 6795), (54, 6825), (63, 6876), (66, 6909),

Gene: Jalammah\_8 Start: 6567, Stop: 6959, Start Num: 13

Candidate Starts for Jalammah\_8:

(8, 6483), (Start: 13 @6567 has 43 MA's), (26, 6615), (37, 6702), (40, 6741), (50, 6795), (54, 6825), (63, 6876), (66, 6909),

Gene: JasperJr\_8 Start: 6571, Stop: 6963, Start Num: 13

Candidate Starts for JasperJr\_8:

(8, 6487), (Start: 13 @6571 has 43 MA's), (26, 6619), (37, 6706), (40, 6745), (50, 6799), (54, 6829), (61, 6874), (63, 6880), (66, 6913),

Gene: Jebeks\_8 Start: 6594, Stop: 6956, Start Num: 19

Candidate Starts for Jebeks\_8:

(Start: 19 @6594 has 53 MA's), (43, 6753), (60, 6861), (63, 6870), (64, 6897), (67, 6915),

Gene: Jecs\_8 Start: 6817, Stop: 7212, Start Num: 16

Candidate Starts for Jecs\_8:

(Start: 16 @6817 has 6 MA's), (Start: 22 @6838 has 1 MA's), (45, 7009), (63, 7120), (71, 7192),

Gene: JuJu\_8 Start: 6492, Stop: 6884, Start Num: 13

Candidate Starts for JuJu\_8:

(Start: 13 @6492 has 43 MA's), (32, 6576), (40, 6666), (41, 6678), (50, 6720), (54, 6750), (66, 6834),

Gene: Jung\_8 Start: 6579, Stop: 6941, Start Num: 19

Candidate Starts for Jung\_8:

(Start: 19 @6579 has 53 MA's), (31, 6648), (43, 6738), (63, 6855), (64, 6882),

Gene: Juniormint\_8 Start: 6597, Stop: 6959, Start Num: 19

Candidate Starts for Juniormint\_8:

(Start: 19 @6597 has 53 MA's), (43, 6756), (60, 6864), (63, 6873), (64, 6900), (67, 6918),

Gene: JustASigh\_8 Start: 7097, Stop: 7558, Start Num: 17

Candidate Starts for JustASigh\_8:

(Start: 11 @7076 has 6 MA's), (Start: 17 @7097 has 14 MA's), (27, 7142), (35, 7196), (52, 7340), (53, 7349), (55, 7352),

Gene: KappaFarmDelta\_8 Start: 6605, Stop: 6997, Start Num: 13

Candidate Starts for KappaFarmDelta\_8:

(8, 6521), (10, 6548), (Start: 13 @6605 has 43 MA's), (26, 6653), (37, 6740), (40, 6779), (44, 6803), (50, 6833), (54, 6863), (57, 6890), (63, 6914), (66, 6947),

Gene: Kari\_8 Start: 6592, Stop: 6954, Start Num: 19

Candidate Starts for Kari\_8:

(Start: 19 @6592 has 53 MA's), (31, 6661), (43, 6751), (63, 6868), (64, 6895),

Gene: Kiko\_9 Start: 6686, Stop: 7078, Start Num: 12

Candidate Starts for Kiko\_9:

(Start: 12 @6686 has 5 MA's), (23, 6722), (45, 6887), (46, 6890), (63, 6998),

Gene: KilKor\_8 Start: 6579, Stop: 6941, Start Num: 19

Candidate Starts for KilKor\_8:

(Start: 19 @6579 has 53 MA's), (31, 6648), (43, 6738), (63, 6855), (64, 6882),

Gene: Kinbote\_11 Start: 7983, Stop: 8435, Start Num: 15

Candidate Starts for Kinbote\_11:

(Start: 15 @7983 has 22 MA's), (18, 7992), (23, 8010), (27, 8028), (28, 8040), (32, 8058), (33, 8070), (35, 8076), (40, 8151), (42, 8163), (48, 8190), (51, 8208), (59, 8265), (61, 8283), (62, 8286), (65, 8316), (70, 8355), (72, 8376), (73, 8403), (75, 8427),

Gene: Ksquared\_8 Start: 6592, Stop: 6954, Start Num: 19

Candidate Starts for Ksquared\_8:

(Start: 19 @6592 has 53 MA's), (31, 6661), (43, 6751), (63, 6868), (64, 6895),

Gene: Langerak\_8 Start: 6594, Stop: 6956, Start Num: 19

Candidate Starts for Langerak\_8:

(Start: 19 @6594 has 53 MA's), (43, 6753), (60, 6861), (63, 6870), (64, 6897), (67, 6915),

Gene: LilHazelnut\_11 Start: 7983, Stop: 8435, Start Num: 15

Candidate Starts for LilHazelnut\_11:

(Start: 15 @7983 has 22 MA's), (18, 7992), (23, 8010), (27, 8028), (28, 8040), (32, 8058), (33, 8070), (35, 8076), (40, 8151), (42, 8163), (48, 8190), (51, 8208), (59, 8265), (61, 8283), (62, 8286), (65, 8316), (70, 8355), (72, 8376), (73, 8403), (75, 8427),

Gene: Luke\_11 Start: 7983, Stop: 8435, Start Num: 15

Candidate Starts for Luke\_11:

(Start: 15 @7983 has 22 MA's), (18, 7992), (23, 8010), (27, 8028), (28, 8040), (32, 8058), (33, 8070), (35, 8076), (40, 8151), (42, 8163), (48, 8190), (51, 8208), (59, 8265), (61, 8283), (62, 8286), (65, 8316), (70, 8355), (72, 8376), (73, 8403), (75, 8427),

Gene: Luna22\_11 Start: 7983, Stop: 8435, Start Num: 15

Candidate Starts for Luna22\_11:

(Start: 15 @7983 has 22 MA's), (18, 7992), (23, 8010), (27, 8028), (28, 8040), (32, 8058), (33, 8070), (35, 8076), (40, 8151), (42, 8163), (48, 8190), (51, 8208), (59, 8265), (61, 8283), (62, 8286), (65, 8316), (70, 8355), (72, 8376), (73, 8403), (75, 8427),

Gene: Lysidious\_8 Start: 6567, Stop: 6959, Start Num: 13

Candidate Starts for Lysidious\_8:

(8, 6483), (Start: 13 @6567 has 43 MA's), (37, 6702), (40, 6741), (50, 6795), (54, 6825), (61, 6870), (63, 6876), (66, 6909),

Gene: MagicMan\_8 Start: 6823, Stop: 7218, Start Num: 16

Candidate Starts for MagicMan\_8:

(Start: 16 @6823 has 6 MA's), (Start: 22 @6844 has 1 MA's), (45, 7015), (63, 7126),

Gene: Majeke\_8 Start: 6594, Stop: 6956, Start Num: 19

Candidate Starts for Majeke\_8:

(Start: 19 @6594 has 53 MA's), (43, 6753), (60, 6861), (63, 6870), (64, 6897), (67, 6915),

Gene: MakCheese\_8 Start: 6782, Stop: 7174, Start Num: 20

Candidate Starts for MakCheese\_8:

(Start: 20 @6782 has 5 MA's), (28, 6827), (42, 6956), (69, 7145),

Gene: Malachai\_8 Start: 6570, Stop: 6962, Start Num: 13

Candidate Starts for Malachai\_8:

(8, 6486), (10, 6513), (Start: 13 @6570 has 43 MA's), (26, 6618), (37, 6705), (40, 6744), (50, 6798), (54, 6828), (61, 6873), (63, 6879), (66, 6912),

Gene: Malibo\_8 Start: 6765, Stop: 7157, Start Num: 20

Candidate Starts for Malibo\_8:

(Start: 20 @6765 has 5 MA's), (28, 6810), (42, 6939), (69, 7128),

Gene: Malithi\_8 Start: 6592, Stop: 6954, Start Num: 19

Candidate Starts for Malithi\_8:

(Start: 19 @6592 has 53 MA's), (31, 6661), (43, 6751), (63, 6868), (64, 6895),

Gene: Mangethe\_8 Start: 6594, Stop: 6956, Start Num: 19

Candidate Starts for Mangethe\_8:

(Start: 19 @6594 has 53 MA's), (43, 6753), (60, 6861), (63, 6870), (64, 6897), (67, 6915),

Gene: Megiddo\_8 Start: 6579, Stop: 6941, Start Num: 19

Candidate Starts for Megiddo\_8:

(Start: 19 @6579 has 53 MA's), (31, 6648), (43, 6738), (63, 6855), (64, 6882),

Gene: Melba\_8 Start: 6567, Stop: 6959, Start Num: 13

Candidate Starts for Melba\_8:

(8, 6483), (Start: 13 @6567 has 43 MA's), (26, 6615), (37, 6702), (40, 6741), (50, 6795), (54, 6825), (61, 6870), (63, 6876), (66, 6909),

Gene: Mellie\_8 Start: 6567, Stop: 6959, Start Num: 13

Candidate Starts for Mellie\_8:

(8, 6483), (Start: 13 @6567 has 43 MA's), (26, 6615), (37, 6702), (40, 6741), (50, 6795), (54, 6825), (61, 6870), (63, 6876), (66, 6909),

Gene: MintFen\_8 Start: 6567, Stop: 6959, Start Num: 13

Candidate Starts for MintFen\_8:

(8, 6483), (Start: 13 @6567 has 43 MA's), (26, 6615), (37, 6702), (40, 6741), (50, 6795), (54, 6825), (61, 6870), (63, 6876), (66, 6909),

Gene: MissRona\_8 Start: 6443, Stop: 6835, Start Num: 13

Candidate Starts for MissRona\_8:

(8, 6359), (Start: 13 @6443 has 43 MA's), (40, 6617), (41, 6629), (50, 6671), (61, 6746), (63, 6752), (66, 6785),

Gene: Moonflower\_9 Start: 6920, Stop: 7270, Start Num: 24

Candidate Starts for Moonflower\_9:

(Start: 12 @6875 has 5 MA's), (Start: 22 @6908 has 1 MA's), (Start: 24 @6920 has 1 MA's), (42, 7067), (45, 7079), (48, 7094), (63, 7190),

Gene: Mulch\_12 Start: 8234, Stop: 8626, Start Num: 17

Candidate Starts for Mulch\_12:

(6, 8132), (Start: 17 @8234 has 14 MA's), (27, 8279), (42, 8420),

Gene: Murp\_8 Start: 6608, Stop: 7000, Start Num: 13

Candidate Starts for Murp\_8:

(8, 6524), (10, 6551), (Start: 13 @6608 has 43 MA's), (26, 6656), (37, 6743), (40, 6782), (50, 6836), (61, 6911), (63, 6917), (66, 6950),

Gene: NaLuna\_8 Start: 6494, Stop: 6877, Start Num: 11

Candidate Starts for NaLuna\_8:

(Start: 11 @6494 has 6 MA's), (26, 6533), (45, 6686), (46, 6689), (63, 6797),

Gene: Nadeem\_12 Start: 8234, Stop: 8626, Start Num: 17

Candidate Starts for Nadeem\_12:

(6, 8132), (Start: 17 @8234 has 14 MA's), (27, 8279), (42, 8420),

Gene: NancyRae\_12 Start: 8234, Stop: 8626, Start Num: 17

Candidate Starts for NancyRae\_12:

(6, 8132), (Start: 17 @8234 has 14 MA's), (27, 8279), (42, 8420),

Gene: Nazo\_8 Start: 6561, Stop: 6923, Start Num: 19

Candidate Starts for Nazo\_8:

(Start: 19 @6561 has 53 MA's), (31, 6630), (43, 6720), (45, 6729), (58, 6810), (64, 6864), (67, 6882),

Gene: Necropolis\_8 Start: 6592, Stop: 6954, Start Num: 19

Candidate Starts for Necropolis\_8:

(Start: 19 @6592 has 53 MA's), (31, 6661), (43, 6751), (63, 6868), (64, 6895),

Gene: NovoPizza\_9 Start: 8112, Stop: 8564, Start Num: 14

Candidate Starts for NovoPizza\_9:

(Start: 14 @8112 has 1 MA's), (18, 8124), (23, 8142), (27, 8160), (33, 8202), (40, 8280), (42, 8292), (70, 8484), (74, 8535),

Gene: OBUpride\_11 Start: 7977, Stop: 8429, Start Num: 15

Candidate Starts for OBUpride\_11:

(Start: 15 @7977 has 22 MA's), (18, 7986), (23, 8004), (27, 8022), (28, 8034), (32, 8052), (33, 8064), (35, 8070), (40, 8145), (42, 8157), (48, 8184), (51, 8202), (59, 8259), (61, 8277), (62, 8280), (65, 8310), (70, 8349), (72, 8370), (73, 8397), (75, 8421),

Gene: Obliviate\_8 Start: 6591, Stop: 6983, Start Num: 13

Candidate Starts for Obliviate\_8:

(8, 6507), (Start: 13 @6591 has 43 MA's), (26, 6639), (37, 6726), (40, 6765), (50, 6819), (54, 6849), (61, 6894), (63, 6900), (66, 6933),

Gene: Opie\_8 Start: 6838, Stop: 7233, Start Num: 16

Candidate Starts for Opie\_8:

(Start: 16 @6838 has 6 MA's), (Start: 22 @6859 has 1 MA's), (45, 7030), (71, 7213),

Gene: PCoral7\_8 Start: 6551, Stop: 6937, Start Num: 13

Candidate Starts for PCoral7\_8:

(Start: 13 @6551 has 43 MA's), (27, 6605), (40, 6719), (41, 6731), (42, 6734), (66, 6887),

Gene: Parada\_12 Start: 8234, Stop: 8626, Start Num: 17

Candidate Starts for Parada\_12:

(6, 8132), (Start: 17 @8234 has 14 MA's), (27, 8279), (42, 8420),

Gene: PatriciaStar\_8 Start: 6521, Stop: 6883, Start Num: 22

Candidate Starts for PatriciaStar\_8:

(Start: 12 @6488 has 5 MA's), (Start: 22 @6521 has 1 MA's), (Start: 24 @6533 has 1 MA's), (42, 6680), (45, 6692), (48, 6707), (62, 6800),

Gene: PeanutPie\_8 Start: 6583, Stop: 6945, Start Num: 19

Candidate Starts for PeanutPie\_8:

(Start: 19 @6583 has 53 MA's), (31, 6652), (43, 6742), (63, 6859), (64, 6886),

Gene: Petra\_8 Start: 6473, Stop: 6865, Start Num: 13

Candidate Starts for Petra\_8:

(8, 6389), (Start: 13 @6473 has 43 MA's), (40, 6647), (41, 6659), (50, 6701), (61, 6776), (63, 6782), (66, 6815),

Gene: Phalm\_8 Start: 6579, Stop: 6941, Start Num: 19

Candidate Starts for Phalm\_8:

(Start: 19 @6579 has 53 MA's), (31, 6648), (43, 6738), (63, 6855), (64, 6882),

Gene: Phayonce\_8 Start: 6581, Stop: 6943, Start Num: 19

Candidate Starts for Phayonce\_8:

(Start: 19 @6581 has 53 MA's), (31, 6650), (43, 6740), (45, 6749), (58, 6830), (64, 6884), (67, 6902),

Gene: Phegasus\_8 Start: 6594, Stop: 6956, Start Num: 19

Candidate Starts for Phegasus\_8:

(Start: 19 @6594 has 53 MA's), (43, 6753), (60, 6861), (63, 6870), (64, 6897), (67, 6915),

Gene: Phineas\_8 Start: 6580, Stop: 6942, Start Num: 19

Candidate Starts for Phineas\_8:

(Start: 19 @6580 has 53 MA's), (31, 6649), (43, 6739), (63, 6856), (64, 6883),

Gene: PhrostedPhlake\_8 Start: 6648, Stop: 7040, Start Num: 13

Candidate Starts for PhrostedPhlake\_8:

(8, 6564), (Start: 13 @6648 has 43 MA's), (32, 6732), (40, 6822), (41, 6834), (50, 6876), (54, 6906), (61, 6951), (62, 6954), (63, 6957), (66, 6990),

Gene: Pimento\_13 Start: 8447, Stop: 8830, Start Num: 19

Candidate Starts for Pimento\_13:

(Start: 19 @8447 has 53 MA's), (27, 8483), (42, 8624),

Gene: Pipp\_8 Start: 6591, Stop: 6983, Start Num: 13

Candidate Starts for Pipp\_8:

(8, 6507), (Start: 13 @6591 has 43 MA's), (26, 6639), (37, 6726), (40, 6765), (50, 6819), (54, 6849), (61, 6894), (63, 6900), (66, 6933),

Gene: Polkaroo\_8 Start: 6592, Stop: 6954, Start Num: 19

Candidate Starts for Polkaroo\_8:

(Start: 19 @6592 has 53 MA's), (31, 6661), (43, 6751), (63, 6868), (64, 6895),

Gene: PrincePatrick\_8 Start: 6552, Stop: 6938, Start Num: 13

Candidate Starts for PrincePatrick\_8:

(Start: 13 @6552 has 43 MA's), (27, 6606), (40, 6720), (41, 6732), (42, 6735), (66, 6888),

Gene: Purky\_8 Start: 6597, Stop: 6959, Start Num: 19

Candidate Starts for Purky\_8:

(Start: 19 @6597 has 53 MA's), (43, 6756), (58, 6846), (60, 6864), (63, 6873), (64, 6900), (67, 6918),

Gene: Pygmy\_8 Start: 6580, Stop: 6942, Start Num: 19

Candidate Starts for Pygmy\_8:

(Start: 19 @6580 has 53 MA's), (31, 6649), (43, 6739), (63, 6856), (64, 6883),

Gene: REQ2\_08 Start: 6272, Stop: 6640, Start Num: 19

Candidate Starts for REQ2\_08:

(Start: 19 @6272 has 53 MA's), (21, 6278), (34, 6353), (49, 6476), (56, 6524),

Gene: RayTheFireFly\_9 Start: 6909, Stop: 7271, Start Num: 22

Candidate Starts for RayTheFireFly\_9:

(Start: 12 @6876 has 5 MA's), (Start: 22 @6909 has 1 MA's), (Start: 24 @6921 has 1 MA's), (42, 7068), (45, 7080), (48, 7095), (63, 7191),

Gene: Rem711\_14 Start: 9778, Stop: 10167, Start Num: 16

Candidate Starts for Rem711\_14:

(Start: 16 @9778 has 6 MA's), (Start: 22 @9802 has 1 MA's), (27, 9826), (36, 9877), (42, 9958), (47, 9982), (58, 10054),

Gene: Ruthy\_9 Start: 7046, Stop: 7438, Start Num: 20

Candidate Starts for Ruthy\_9:

(Start: 20 @7046 has 5 MA's), (28, 7091), (39, 7202), (42, 7220),

Gene: Samba\_8 Start: 6568, Stop: 6960, Start Num: 13

Candidate Starts for Samba\_8:

(8, 6484), (Start: 13 @6568 has 43 MA's), (26, 6616), (37, 6703), (40, 6742), (50, 6796), (66, 6910),

Gene: Schnabeltier\_8 Start: 6824, Stop: 7219, Start Num: 16

Candidate Starts for Schnabeltier\_8:

(Start: 16 @6824 has 6 MA's), (Start: 22 @6845 has 1 MA's), (45, 7016), (63, 7127),

Gene: Shipwreck\_8 Start: 6580, Stop: 6942, Start Num: 19

Candidate Starts for Shipwreck\_8:

(Start: 19 @6580 has 53 MA's), (31, 6649), (43, 6739), (63, 6856), (64, 6883),

Gene: Soilmate\_8 Start: 6466, Stop: 6858, Start Num: 13

Candidate Starts for Soilmate\_8:

(Start: 13 @6466 has 43 MA's), (40, 6640), (41, 6652), (50, 6694), (61, 6769), (63, 6775), (66, 6808),

Gene: Sonah\_8 Start: 6594, Stop: 6956, Start Num: 19

Candidate Starts for Sonah\_8:

(Start: 19 @6594 has 53 MA's), (43, 6753), (59, 6846), (60, 6861), (63, 6870), (64, 6897), (67, 6915),

Gene: Sprinklemunch\_8 Start: 6822, Stop: 7214, Start Num: 20

Candidate Starts for Sprinklemunch\_8:

(Start: 20 @6822 has 5 MA's), (28, 6867), (42, 6996), (66, 7164), (69, 7185),

Gene: StevieRay\_8 Start: 6583, Stop: 6945, Start Num: 19

Candidate Starts for StevieRay\_8:

(Start: 19 @6583 has 53 MA's), (31, 6652), (43, 6742), (63, 6859), (64, 6886),

Gene: StressBall\_8 Start: 6579, Stop: 6941, Start Num: 19

Candidate Starts for StressBall\_8:

(Start: 19 @6579 has 53 MA's), (31, 6648), (43, 6738), (63, 6855), (64, 6882),

Gene: TaronosaurusRx\_8 Start: 6834, Stop: 7232, Start Num: 16

Candidate Starts for TaronosaurusRx\_8:

(Start: 16 @6834 has 6 MA's), (Start: 22 @6858 has 1 MA's), (42, 7017), (45, 7029), (63, 7140), (71, 7212),

Gene: Techage\_8 Start: 6597, Stop: 6959, Start Num: 19

Candidate Starts for Techage\_8:

(Start: 19 @6597 has 53 MA's), (43, 6756), (60, 6864), (63, 6873), (64, 6900), (67, 6918),

Gene: Thespis\_8 Start: 6579, Stop: 6941, Start Num: 19

Candidate Starts for Thespis\_8:

(Start: 19 @6579 has 53 MA's), (31, 6648), (43, 6738), (63, 6855), (64, 6882),

Gene: ThulaThula\_8 Start: 6626, Stop: 6988, Start Num: 19

Candidate Starts for ThulaThula\_8:

(Start: 19 @6626 has 53 MA's), (31, 6695), (43, 6785), (45, 6794), (58, 6875), (64, 6929), (67, 6947),

Gene: Toast\_8 Start: 6551, Stop: 6937, Start Num: 13

Candidate Starts for Toast\_8:

(Start: 13 @6551 has 43 MA's), (27, 6605), (40, 6719), (41, 6731), (42, 6734), (66, 6887),

Gene: Tortellini\_8 Start: 6539, Stop: 6901, Start Num: 19

Candidate Starts for Tortellini\_8:

(Start: 19 @6539 has 53 MA's), (41, 6692), (43, 6698), (58, 6788), (60, 6806), (63, 6815), (64, 6842), (67, 6860),

Gene: Ubuntu\_11 Start: 7983, Stop: 8435, Start Num: 15

Candidate Starts for Ubuntu\_11:

(Start: 15 @7983 has 22 MA's), (18, 7992), (23, 8010), (27, 8028), (28, 8040), (32, 8058), (33, 8070), (35, 8076), (40, 8151), (42, 8163), (48, 8190), (51, 8208), (59, 8265), (61, 8283), (62, 8286), (65, 8316), (70, 8355), (72, 8376), (73, 8403), (75, 8427),

Gene: UmaThurman\_8 Start: 6567, Stop: 6959, Start Num: 13

Candidate Starts for UmaThurman\_8:

(8, 6483), (Start: 13 @6567 has 43 MA's), (26, 6615), (37, 6702), (40, 6741), (50, 6795), (66, 6909),

Gene: Utz\_8 Start: 6567, Stop: 6959, Start Num: 13

Candidate Starts for Utz\_8:

(8, 6483), (Start: 13 @6567 has 43 MA's), (37, 6702), (40, 6741), (50, 6795), (54, 6825), (61, 6870), (63, 6876), (66, 6909),

Gene: Venti\_8 Start: 6592, Stop: 6954, Start Num: 19

Candidate Starts for Venti\_8:

(Start: 19 @6592 has 53 MA's), (31, 6661), (43, 6751), (63, 6868), (64, 6895),

Gene: Vidya\_8 Start: 6592, Stop: 6954, Start Num: 19

Candidate Starts for Vidya\_8:

(Start: 19 @6592 has 53 MA's), (31, 6661), (43, 6751), (63, 6868), (64, 6895),

Gene: Walrus\_8 Start: 6479, Stop: 6871, Start Num: 13

Candidate Starts for Walrus\_8:

(Start: 13 @6479 has 43 MA's), (37, 6614), (40, 6653), (57, 6764), (66, 6821),

Gene: Webster2\_11 Start: 7983, Stop: 8435, Start Num: 15

Candidate Starts for Webster2\_11:

(Start: 15 @7983 has 22 MA's), (18, 7992), (23, 8010), (27, 8028), (28, 8040), (32, 8058), (33, 8070), (35, 8076), (40, 8151), (42, 8163), (48, 8190), (51, 8208), (59, 8265), (61, 8283), (62, 8286), (65, 8316), (70, 8355), (72, 8376), (73, 8403), (75, 8427),

Gene: Weirido19\_9 Start: 6915, Stop: 7337, Start Num: 17

Candidate Starts for Weirido19\_9:

(9, 6825), (Start: 17 @6915 has 14 MA's), (30, 6978), (35, 7011), (39, 7083), (45, 7110), (46, 7113), (47, 7122), (52, 7152), (64, 7248),

Gene: Whack\_8 Start: 6270, Stop: 6635, Start Num: 19

Candidate Starts for Whack\_8:

(4, 6051), (5, 6072), (7, 6162), (Start: 19 @6270 has 53 MA's), (38, 6396), (42, 6426), (43, 6429), (56, 6507), (62, 6546), (63, 6549),

Gene: WheatThin\_12 Start: 8234, Stop: 8626, Start Num: 17

Candidate Starts for WheatThin\_12:

(6, 8132), (Start: 17 @8234 has 14 MA's), (27, 8279), (42, 8420),

Gene: William\_8 Start: 6566, Stop: 6952, Start Num: 13

Candidate Starts for William\_8:

(Start: 13 @6566 has 43 MA's), (27, 6620), (40, 6734), (41, 6746), (42, 6749), (66, 6902),

Gene: Willsammy\_8 Start: 6582, Stop: 6944, Start Num: 19

Candidate Starts for Willsammy\_8:

(Start: 19 @6582 has 53 MA's), (31, 6651), (43, 6741), (63, 6858), (64, 6885),

Gene: Wishmaker\_11 Start: 7983, Stop: 8435, Start Num: 15

Candidate Starts for Wishmaker\_11:

(Start: 15 @7983 has 22 MA's), (18, 7992), (23, 8010), (27, 8028), (28, 8040), (32, 8058), (33, 8070), (35, 8076), (40, 8151), (42, 8163), (48, 8190), (51, 8208), (59, 8265), (61, 8283), (62, 8286), (65, 8316), (70, 8355), (72, 8376), (73, 8403), (75, 8427),

Gene: Wisp\_8 Start: 6567, Stop: 6959, Start Num: 13

Candidate Starts for Wisp\_8:

(8, 6483), (Start: 13 @6567 has 43 MA's), (37, 6702), (40, 6741), (50, 6795), (54, 6825), (61, 6870), (63, 6876), (66, 6909),

Gene: Wocket\_8 Start: 6632, Stop: 7024, Start Num: 13

Candidate Starts for Wocket\_8:

(8, 6548), (Start: 13 @6632 has 43 MA's), (Start: 22 @6662 has 1 MA's), (26, 6680), (37, 6767), (40, 6806), (44, 6830), (50, 6860), (54, 6890), (61, 6935), (63, 6941), (66, 6974),

Gene: Xavia\_8 Start: 6594, Stop: 6956, Start Num: 19

Candidate Starts for Xavia\_8:

(Start: 19 @6594 has 53 MA's), (31, 6663), (43, 6753), (63, 6870), (64, 6897),

Gene: ZAYM\_8 Start: 6827, Stop: 7225, Start Num: 16

Candidate Starts for ZAYM\_8:

(Start: 16 @6827 has 6 MA's), (Start: 22 @6851 has 1 MA's), (42, 7010), (45, 7022), (63, 7133),

Gene: Zarbodnamra\_8 Start: 6566, Stop: 6958, Start Num: 13

Candidate Starts for Zarbodnamra\_8:

(8, 6482), (Start: 13 @6566 has 43 MA's), (26, 6614), (37, 6701), (40, 6740), (50, 6794), (54, 6824), (61, 6869), (63, 6875), (66, 6908),

Gene: ZiggyZoo\_8 Start: 6591, Stop: 6983, Start Num: 13

Candidate Starts for ZiggyZoo\_8:

(8, 6507), (Start: 13 @6591 has 43 MA's), (26, 6639), (37, 6726), (40, 6765), (50, 6819), (54, 6849), (61, 6894), (63, 6900), (66, 6933),

Gene: Zilizebeth\_8 Start: 6592, Stop: 6954, Start Num: 19

Candidate Starts for Zilizebeth\_8:

(Start: 19 @6592 has 53 MA's), (31, 6661), (43, 6751), (63, 6868), (64, 6895),

Gene: Zilla\_8 Start: 6619, Stop: 7011, Start Num: 13

Candidate Starts for Zilla\_8:

(8, 6535), (Start: 13 @6619 has 43 MA's), (27, 6673), (37, 6754), (40, 6793), (50, 6847), (66, 6961),

Gene: Zodiariah\_8 Start: 6772, Stop: 7164, Start Num: 20

Candidate Starts for Zodiariah\_8:

(Start: 20 @6772 has 5 MA's), (28, 6817), (42, 6946), (69, 7135),