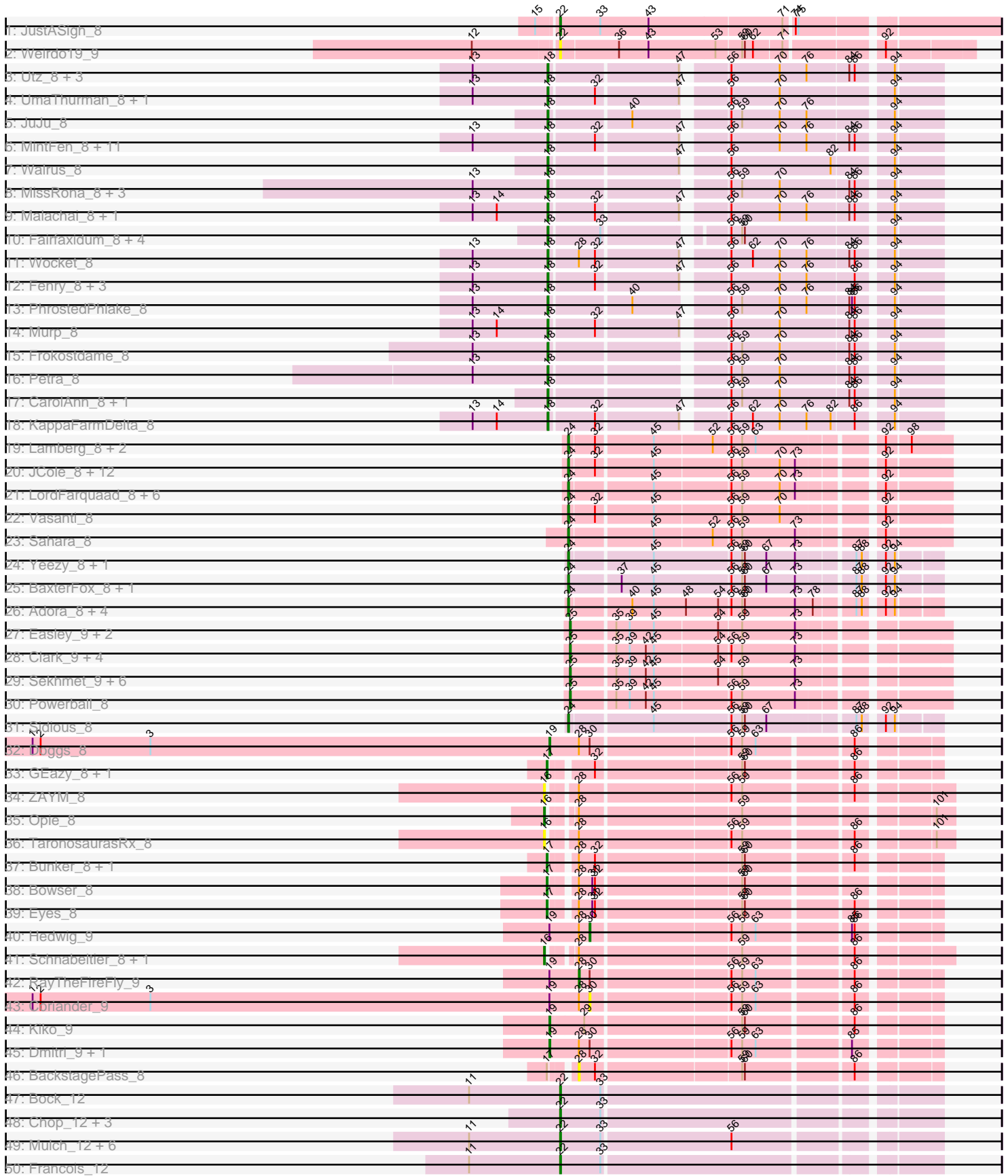
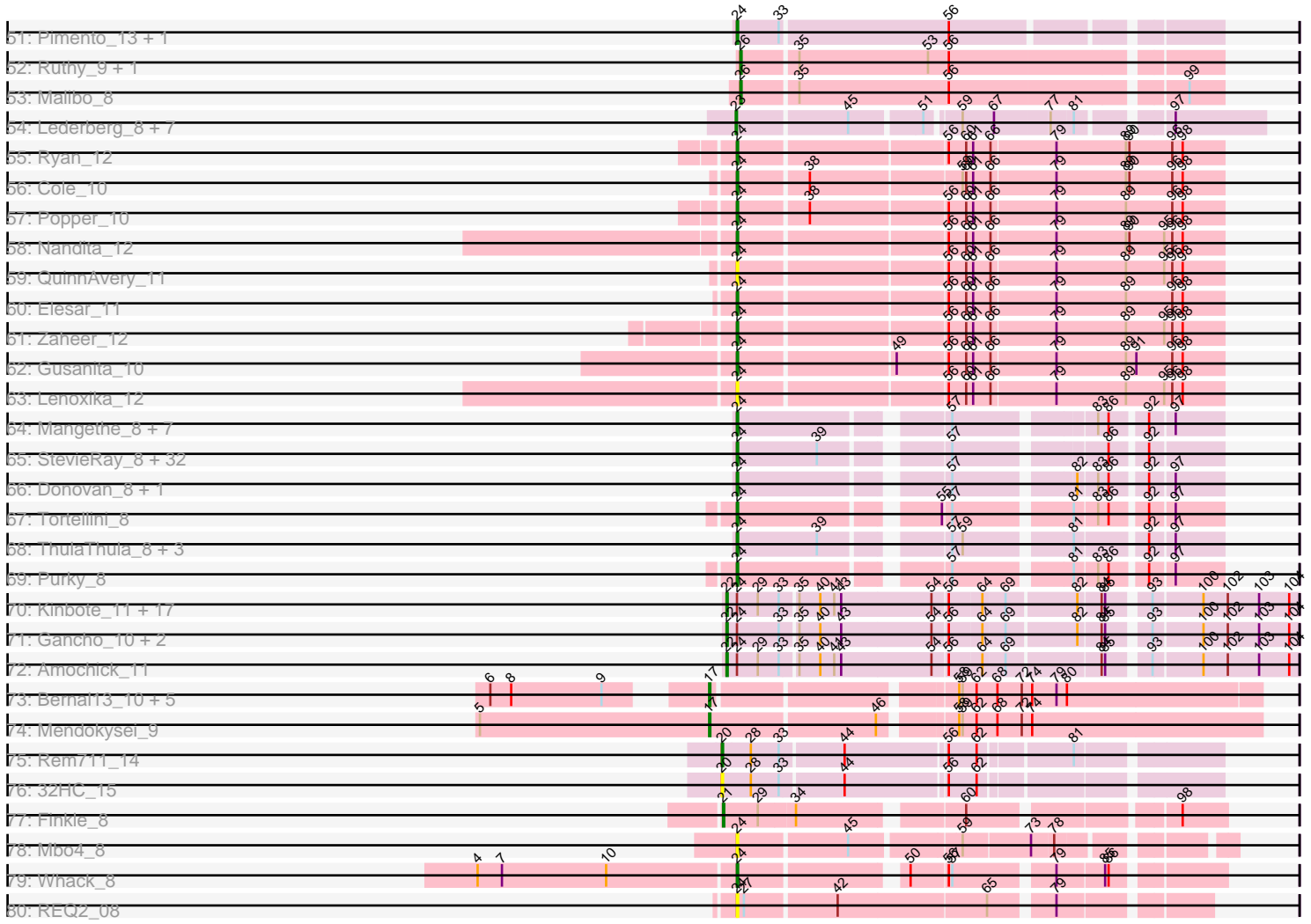


Pham 193712



Pham 193712



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 193712 Report

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

Pham number 193712 has 234 members, 17 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 : JuJu\_8
- Track 6 : MintFen\_8, Delian\_8, Guacamole\_8, CaptainKirk2\_8, Pipp\_8, Melba\_8, Mellie\_8, Barco\_8, ZiggyZoo\_8, Zarbodnamra\_8, Obliviate\_8, JasperJr\_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 : Murp\_8
- Track 15 : Frokostdame\_8
- Track 16 : Petra\_8
- Track 17 : CarolAnn\_8, Blino\_8
- Track 18 : KappaFarmDelta\_8
- Track 19 : Lamberg\_8, EdnaMode\_8, Nettuno\_8
- Track 20 : JCole\_8, Clap\_8, Cynthia\_8, GemG\_8, Denise\_8, Whiteclaw\_8, Gizermo\_8, Ebert\_8, Sproutie\_8, Savage\_8, Haley23\_8, TuertoX\_8, Mocha12\_8
- Track 21 : LordFarquaad\_8, Yeet412\_8, Attis\_8, SoilAssassin\_8, Matteo\_8, Bjanes7\_8, Pickett\_8
- Track 22 : Vasanti\_8
- Track 23 : Sahara\_8
- Track 24 : Yeezy\_8, PantheRoc\_8
- Track 25 : BaxterFox\_8, Ohgeesy\_8
- Track 26 : Adora\_8, Shlim410\_8, Hortense\_8, Howe\_8, Twinkle\_8
- Track 27 : Easley\_9, Beenie\_9, MichaelScott\_9
- Track 28 : Clark\_9, DobbysSock\_8, Dorito\_8, Annalisa\_9, PhriskyACE\_8
- Track 29 : Sekhmet\_9, Oregano\_9, Suerte\_8, Dolores\_9, Samman98\_9, WinkNick\_9, Thimann\_9
- Track 30 : Powerball\_8
- Track 31 : Sidious\_8
- Track 32 : Doggs\_8
- Track 33 : GEazy\_8, HannahD\_8

- Track 34 : ZAYM\_8
- Track 35 : Opie\_8
- Track 36 : TaronosaurusRx\_8
- Track 37 : Bunker\_8, BBQValindra\_8
- Track 38 : Bowser\_8
- Track 39 : Eyes\_8
- Track 40 : Hedwig\_9
- Track 41 : Schnabeltier\_8, MagicMan\_8
- Track 42 : RayTheFireFly\_9
- Track 43 : Coriander\_9
- Track 44 : Kiko\_9
- Track 45 : Dmitri\_9, DirtyBoi\_9
- Track 46 : BackstagePass\_8
- Track 47 : Bock\_12
- Track 48 : Chop\_12, Ayotoya\_12, GrandSlam\_12, Hamood\_12
- Track 49 : Mulch\_12, Parada\_12, WheatThin\_12, Nadeem\_12, BetterKatz\_12, NancyRae\_12, Brylie\_12
- Track 50 : Francois\_12
- Track 51 : Pimento\_13, DelRio\_13
- Track 52 : Ruthy\_9, DumpsterDude\_9
- Track 53 : Malibo\_8
- Track 54 : Lederberg\_8, Bran\_8, SamW\_8, StAB\_8, Stiles\_8, Dina\_8, Troy\_8, Adelaide\_8
- Track 55 : Ryan\_12
- Track 56 : Cole\_10
- Track 57 : Popper\_10
- Track 58 : Nandita\_12
- Track 59 : QuinnAvery\_11
- Track 60 : Elesar\_11
- Track 61 : Zaheer\_12
- Track 62 : Gusanita\_10
- Track 63 : Lenoxika\_12
- Track 64 : Mangethe\_8, Langerak\_8, Majeke\_8, Techage\_8, Arib1\_8, Phegasus\_8, Juniormint\_8, Jebeks\_8
- Track 65 : StevieRay\_8, Glaske\_8, FirstPlacePfu\_8, Brusacoram\_8, Dynamo\_8, Venti\_8, Shipwreck\_8, Atcoo\_8, Bunnies\_8, KilKor\_8, Camster\_8, Polkaroo\_8, Phalm\_8, Jung\_8, Bartholomew\_8, Pygmy\_8, HUHilltop\_8, Necropolis\_8, Phineas\_8, Xavia\_8, Willsammy\_8, GreaseLightnin\_8, Fishburne\_8, StressBall\_8, CactusJack\_8, Zilizabeth\_8, Thespis\_8, Bogie\_8, Malithi\_8, Kari\_8, Ksquared\_8, Vidya\_8, Megiddo\_8
- Track 66 : Donovan\_8, Sonah\_8
- Track 67 : Tortellini\_8
- Track 68 : ThulaThula\_8, BigNuz\_8, Nazo\_8, Phayonce\_8
- Track 69 : Purky\_8
- Track 70 : Kinbote\_11, Ein37\_11, OBUpride\_11, HH92\_11, Luna22\_11, Ubuntu\_11, Evanesce\_11, DeepSoil15\_11, Dewey\_11, Amymech\_11, Webster2\_11, Giles\_11, Wishmaker\_11, Luke\_11, Hail\_11, LilHazelNut\_11, Forge\_11, Hadrien\_11
- Track 71 : Gancho\_10, Daegal\_12, Gravallia\_11
- Track 72 : Amochick\_11
- Track 73 : Bernal13\_10, RonRayGun\_10, ZenTime222\_10, Nairb\_10, Ibrahim\_10, Whitty\_10
- Track 74 : Mendokysei\_9
- Track 75 : Rem711\_14

- Track 76 : 32HC\_15
- Track 77 : Finkle\_8
- Track 78 : Mbo4\_8
- Track 79 : Whack\_8
- Track 80 : 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 24, it was called in 90 of the 217 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adora\_8, Arib1\_8, Atcoo\_8, Attis\_8, Bartholomew\_8, BaxterFox\_8, BigNuz\_8, Bjaner7\_8, Bogie\_8, Brusacoram\_8, Bunnies\_8, CactusJack\_8, Camster\_8, Clap\_8, Cole\_10, Cynthia\_8, DelRio\_13, Denise\_8, Donovan\_8, Dynamo\_8, Ebert\_8, EdnaMode\_8, Elesar\_11, FirstPlacePfu\_8, Fishburne\_8, GemG\_8, Gizermo\_8, Glaske\_8, GreaseLightnin\_8, Gusanita\_10, HUHilltop\_8, Haley23\_8, Hortense\_8, Howe\_8, JCole\_8, Jebeks\_8, Jung\_8, Juniormint\_8, Kari\_8, KilKor\_8, Ksquared\_8, Lamberg\_8, Langerak\_8, Lenoxika\_12, LordFarquaad\_8, Majeke\_8, Malithi\_8, Mangethe\_8, Matteo\_8, Mbo4\_8, Megiddo\_8, Mocha12\_8, Nandita\_12, Nazo\_8, Necropolis\_8, Nettuno\_8, Ohgeesy\_8, PantheRoc\_8, Phalm\_8, Phayonce\_8, Phegasus\_8, Phineas\_8, Pickett\_8, Pimento\_13, Polkaroo\_8, Popper\_10, Purky\_8, Pygmy\_8, QuinnAvery\_11, REQ2\_08, Ryan\_12, Sahara\_8, Savage\_8, Shipwreck\_8, Shlim410\_8, Sidious\_8, SoilAssassin\_8, Sonah\_8, Sproutie\_8, StevieRay\_8, StressBall\_8, Techage\_8, Thespis\_8, ThulaThula\_8, Tortellini\_8, TuertoX\_8, Twinkle\_8, Vasanti\_8, Venti\_8, Vidya\_8, Whack\_8, Whiteclaw\_8, Willsammy\_8, Xavia\_8, Yeet412\_8, Yeezy\_8, Zaheer\_12, Zilizebeth\_8,

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

- Amochick\_11, Amymech\_11, Daegal\_12, DeepSoil15\_11, Dewey\_11, Ein37\_11, Evanesce\_11, Forge\_11, Gancho\_10, Giles\_11, Gravaillia\_11, HH92\_11, Hadrien\_11, Hail\_11, Kinbote\_11, LilHazelNut\_11, Luke\_11, Luna22\_11, OBUpride\_11, Ubuntu\_11, Webster2\_11, Wishmaker\_11,

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

- 32HC\_15, Adelaide\_8, Annalisa\_9, Archis\_8, Ayotoya\_12, Azula\_8, BBQValindra\_8, BackstagePass\_8, Barco\_8, Beenie\_9, Begonia\_8, Bernal13\_10, BetterKatz\_12, BlingBling\_8, Blino\_8, Blueberry\_8, Bock\_12, Bowser\_8, Bran\_8, Brylie\_12, Bunker\_8, CaptainKirk2\_8, CarolAnn\_8, Chop\_12, Clark\_9, Coriander\_9, Delian\_8, Dina\_8, DirtyBoi\_9, Dmitri\_9, DobbysSock\_8, Doggs\_8, Dolores\_9, Dorito\_8, DumpsterDude\_9, Easley\_9, Eyes\_8, Fairfaxidum\_8, Fenry\_8, Finkle\_8, Francois\_12, Frokostdame\_8, GEazy\_8, Gambino\_8, GrandSlam\_12, Guacamole\_8, Hamood\_12, HannahD\_8, Hedwig\_9, Hitter\_8, Ibrahim\_10, Jalammah\_8, JasperJr\_8, JuJu\_8, JustASigh\_8, KappaFarmDelta\_8, Kiko\_9, Lederberg\_8, Lysidious\_8, MagicMan\_8, Malachai\_8, Malibo\_8, Melba\_8, Mellie\_8, Mendokysei\_9, MichaelScott\_9, MintFen\_8, MissRona\_8, Mulch\_12, Murp\_8, Nadeem\_12, Nairb\_10, NancyRae\_12, Obliviate\_8, Opie\_8, Oregano\_9, PCoral7\_8, Parada\_12, Petra\_8, PhriskyACE\_8, PhrostedPhlake\_8, Pipp\_8, Powerball\_8, PrincePatrick\_8, RayTheFireFly\_9, Rem711\_14, RonRayGun\_10, Ruthy\_9, SamW\_8, Samba\_8, Samman98\_9, Schnabeltier\_8, Sekhmet\_9, StAB\_8, Stiles\_8, Suerte\_8,

TaronosaurusRx\_8, Thimann\_9, Toast\_8, Troy\_8, UmaThurman\_8, Utz\_8, Walrus\_8, Weirido19\_9, WheatThin\_12, Whitty\_10, William\_8, WinkNick\_9, Wisp\_8, Wocket\_8, ZAYM\_8, Z̄arbodnamra\_8, ZenTime222\_10, ZiggyZoo\_8,

### Summary by start number:

#### Start 16:

- Found in 5 of 234 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 3 of 217
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MagicMan\_8 (DB), Opie\_8 (DB), Schnabeltier\_8 (DB), TaronosaurusRx\_8 (DB), ZAYM\_8 (DB),

#### Start 17:

- Found in 14 of 234 ( 6.0% ) of genes in pham
- Manual Annotations of this start: 13 of 217
- Called 92.9% of time when present
- Phage (with cluster) where this start called: BBQValindra\_8 (DB), Bernal13\_10 (T), Bowser\_8 (DB), Bunker\_8 (DB), Eyes\_8 (DB), GEazy\_8 (DB), HannahD\_8 (DB), Ibrahim\_10 (T), Mendokysei\_9 (T), Nairb\_10 (T), RonRayGun\_10 (T), Whitty\_10 (T), ZenTime222\_10 (T),

#### Start 18:

- Found in 43 of 234 ( 18.4% ) of genes in pham
- Manual Annotations of this start: 42 of 217
- 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), 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), Toast\_8 (CV), UmaThurman\_8 (CV), Utz\_8 (CV), Walrus\_8 (CV), William\_8 (CV), Wisp\_8 (CV), Wocket\_8 (CV), Z̄arbodnamra\_8 (CV), ZiggyZoo\_8 (CV),

#### Start 19:

- Found in 7 of 234 ( 3.0% ) of genes in pham
- Manual Annotations of this start: 4 of 217
- Called 57.1% of time when present
- Phage (with cluster) where this start called: DirtyBoi\_9 (DB), Dmitri\_9 (DB), Doggs\_8 (DB), Kiko\_9 (DB),

#### Start 20:

- Found in 2 of 234 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 217
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 32HC\_15 (Z), Rem711\_14 (Z),

#### Start 21:

- Found in 1 of 234 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 217

- Called 100.0% of time when present
- Phage (with cluster) where this start called: Finkle\_8 (singleton),

#### Start 22:

- Found in 37 of 234 ( 15.8% ) of genes in pham
- Manual Annotations of this start: 36 of 217
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amochick\_11 (Q), Amymech\_11 (Q), Ayotoya\_12 (DI), BetterKatz\_12 (DI), Bock\_12 (DI), Brylie\_12 (DI), Chop\_12 (DI), Daegal\_12 (Q), DeepSoil15\_11 (Q), Dewey\_11 (Q), Ein37\_11 (Q), Evanesce\_11 (Q), Forge\_11 (Q), Francois\_12 (DI), Gancho\_10 (Q), Giles\_11 (Q), GrandSlam\_12 (DI), Gravaillia\_11 (Q), HH92\_11 (Q), Hadrien\_11 (Q), Hail\_11 (Q), Hamood\_12 (DI), JustASigh\_8 (AH), Kinbote\_11 (Q), LilHazelNut\_11 (Q), Luke\_11 (Q), Luna22\_11 (Q), Mulch\_12 (DI), Nadeem\_12 (DI), NancyRae\_12 (DI), OBUpride\_11 (Q), Parada\_12 (DI), Ubuntu\_11 (Q), Webster2\_11 (Q), WeirDo19\_9 (AH), WheatThin\_12 (DI), Wishmaker\_11 (Q),

#### Start 23:

- Found in 8 of 234 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 8 of 217
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Adelaide\_8 (EP), Bran\_8 (EP), Dina\_8 (EP), Lederberg\_8 (EP), SamW\_8 (EP), StAB\_8 (EP), Stiles\_8 (EP), Troy\_8 (EP),

#### Start 24:

- Found in 120 of 234 ( 51.3% ) of genes in pham
- Manual Annotations of this start: 90 of 217
- Called 81.7% of time when present
- Phage (with cluster) where this start called: Adora\_8 (CZ4), Arib1\_8 (P1), Atcoo\_8 (P1), Attis\_8 (CZ2), Bartholomew\_8 (P1), BaxterFox\_8 (CZ3), BigNuz\_8 (P4), Bjaness7\_8 (CZ2), Bogie\_8 (P1), Brusacoram\_8 (P1), Bunnies\_8 (P1), CactusJack\_8 (P1), Camster\_8 (P1), Clap\_8 (CZ2), Cole\_10 (FF), Cynthia\_8 (CZ2), DelRio\_13 (DI), Denise\_8 (CZ5), Donovan\_8 (P1), Dynamo\_8 (P1), Ebert\_8 (CZ2), EdnaMode\_8 (CZ2), Elesar\_11 (FF), FirstPlacePfu\_8 (P1), Fishburne\_8 (P1), GemG\_8 (CZ2), Gizermo\_8 (CZ2), Glaske\_8 (P1), GreaseLightnin\_8 (P1), Gusanita\_10 (FF), HUHilltop\_8 (P1), Haley23\_8 (CZ2), Hortense\_8 (CZ4), Howe\_8 (CZ4), JCole\_8 (CZ2), Jebeks\_8 (P1), Jung\_8 (P1), Juniormint\_8 (P1), Kari\_8 (P1), KilKor\_8 (P1), Ksquared\_8 (P1), Lamberg\_8 (CZ2), Langerak\_8 (P1), Lenoxika\_12 (FF), LordFarquaad\_8 (CZ2), Majeke\_8 (P1), Malithi\_8 (P1), Mangethe\_8 (P1), Matteo\_8 (CZ2), Mbo4\_8 (singleton), Megiddo\_8 (P1), Mocha12\_8 (CZ2), Nandita\_12 (FF), Nazo\_8 (P4), Necropolis\_8 (P1), Nettuno\_8 (CZ2), Ohgeesy\_8 (CZ), PantheRoc\_8 (CZ3), Phalm\_8 (P1), Phayonce\_8 (P5), Phegasus\_8 (P1), Phineas\_8 (P1), Pickett\_8 (CZ2), Pimento\_13 (DI), Polkaroo\_8 (P1), Popper\_10 (FF), Purky\_8 (P6), Pygmy\_8 (P1), QuinnAvery\_11 (FF), REQ2\_08 (singleton), Ryan\_12 (FF), Sahara\_8 (CZ2), Savage\_8 (CZ2), Shipwreck\_8 (P1), Shlim410\_8 (CZ4), Sidious\_8 (CZ7), SoilAssassin\_8 (CZ2), Sonah\_8 (P1), Sproutie\_8 (CZ2), StevieRay\_8 (P1), StressBall\_8 (P1), Techage\_8 (P1), Thespis\_8 (P1), ThulaThula\_8 (P5), Tortellini\_8 (P2), TuertoX\_8 (CZ2), Twinkle\_8 (CZ4), Vasanti\_8 (CZ2), Venti\_8 (P1), Vidya\_8 (P1), Whack\_8 (singleton), Whiteclaw\_8 (CZ2), Willsammy\_8 (P1), Xavia\_8 (P3), Yeet412\_8 (CZ2), Yeezy\_8 (CZ3), Zaheer\_12 (FF), Zilizebeth\_8 (P1),

#### Start 25:

- Found in 16 of 234 ( 6.8% ) of genes in pham

- Manual Annotations of this start: 14 of 217
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Annalisa\_9 (CZ4), Beenie\_9 (CZ4), Clark\_9 (CZ4), DobbysSock\_8 (CZ4), Dolores\_9 (CZ4), Dorito\_8 (CZ4), Easley\_9 (CZ4), MichaelScott\_9 (CZ4), Oregano\_9 (CZ4), PhriskyACE\_8 (CZ4), Powerball\_8 (CZ4), Samman98\_9 (CZ4), Sekhmet\_9 (CZ4), Suerte\_8 (CZ4), Thimann\_9 (CZ4), WinkNick\_9 (CZ4),

Start 26:

- Found in 3 of 234 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 3 of 217
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DumpsterDude\_9 (DW), Malibo\_8 (DW), Ruthy\_9 (DW),

Start 28:

- Found in 19 of 234 ( 8.1% ) of genes in pham
- Manual Annotations of this start: 1 of 217
- Called 10.5% of time when present
- Phage (with cluster) where this start called: BackstagePass\_8 (DB), RayTheFireFly\_9 (DB),

Start 30:

- Found in 6 of 234 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 1 of 217
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Coriander\_9 (DB), Hedwig\_9 (DB),

### **Summary by clusters:**

There are 23 clusters represented in this pham: singleton, DI, CZ2, CZ3, DB, CZ7, CZ4, CZ5, FF, DW, EP, P2, P3, P1, P6, P4, P5, AH, Q, CZ, T, Z, CV,

Info for manual annotations of cluster AH:

- Start number 22 was manually annotated 1 time for cluster AH.

Info for manual annotations of cluster CV:

- Start number 18 was manually annotated 42 times for cluster CV.

Info for manual annotations of cluster CZ:

- Start number 24 was manually annotated 1 time for cluster CZ.

Info for manual annotations of cluster CZ2:

- Start number 24 was manually annotated 23 times for cluster CZ2.

Info for manual annotations of cluster CZ3:

- Start number 24 was manually annotated 3 times for cluster CZ3.

Info for manual annotations of cluster CZ4:

- Start number 24 was manually annotated 5 times for cluster CZ4.
- Start number 25 was manually annotated 14 times for cluster CZ4.

Info for manual annotations of cluster CZ5:



- Start number 24 was manually annotated 1 time for cluster CZ5.

Info for manual annotations of cluster CZ7:

- Start number 24 was manually annotated 1 time for cluster CZ7.

Info for manual annotations of cluster DB:

- Start number 16 was manually annotated 3 times for cluster DB.
- Start number 17 was manually annotated 6 times for cluster DB.
- Start number 19 was manually annotated 4 times for cluster DB.
- Start number 28 was manually annotated 1 time for cluster DB.
- Start number 30 was manually annotated 1 time for cluster DB.

Info for manual annotations of cluster DI:

- Start number 22 was manually annotated 13 times for cluster DI.
- Start number 24 was manually annotated 2 times for cluster DI.

Info for manual annotations of cluster DW:

- Start number 26 was manually annotated 3 times for cluster DW.

Info for manual annotations of cluster EP:

- Start number 23 was manually annotated 8 times for cluster EP.

Info for manual annotations of cluster FF:

- Start number 24 was manually annotated 7 times for cluster FF.

Info for manual annotations of cluster P1:

- Start number 24 was manually annotated 39 times for cluster P1.

Info for manual annotations of cluster P2:

- Start number 24 was manually annotated 1 time for cluster P2.

Info for manual annotations of cluster P3:

- Start number 24 was manually annotated 1 time for cluster P3.

Info for manual annotations of cluster P4:

- Start number 24 was manually annotated 2 times for cluster P4.

Info for manual annotations of cluster P5:

- Start number 24 was manually annotated 2 times for cluster P5.

Info for manual annotations of cluster P6:

- Start number 24 was manually annotated 1 time for cluster P6.

Info for manual annotations of cluster Q:

- Start number 22 was manually annotated 22 times for cluster Q.

Info for manual annotations of cluster T:

- Start number 17 was manually annotated 7 times for cluster T.

Info for manual annotations of cluster Z:

- Start number 20 was manually annotated 1 time for cluster Z.

**Gene Information:**

Gene: 32HC\_15 Start: 9730, Stop: 10119, Start Num: 20

Candidate Starts for 32HC\_15:

(Start: 20 @9730 has 1 MA's), (Start: 28 @9754 has 1 MA's), (33, 9778), (44, 9829), (56, 9910), (62, 9934),

Gene: Adelaide\_8 Start: 6455, Stop: 6859, Start Num: 23

Candidate Starts for Adelaide\_8:

(Start: 23 @6455 has 8 MA's), (45, 6545), (51, 6602), (59, 6626), (67, 6653), (77, 6698), (81, 6716), (97, 6782),

Gene: Adora\_8 Start: 6280, Stop: 6651, Start Num: 24

Candidate Starts for Adora\_8:

(Start: 24 @6280 has 90 MA's), (40, 6343), (45, 6367), (48, 6403), (54, 6439), (56, 6451), (59, 6463), (60, 6466), (73, 6520), (78, 6538), (87, 6577), (88, 6583), (92, 6598), (94, 6607),

Gene: Amochick\_11 Start: 7977, Stop: 8429, Start Num: 22

Candidate Starts for Amochick\_11:

(Start: 22 @7977 has 36 MA's), (Start: 24 @7986 has 90 MA's), (29, 8004), (33, 8022), (35, 8034), (40, 8052), (41, 8064), (43, 8070), (54, 8145), (56, 8157), (64, 8184), (69, 8202), (84, 8277), (85, 8280), (93, 8310), (100, 8349), (102, 8370), (103, 8397), (104, 8421),

Gene: Amymech\_11 Start: 7983, Stop: 8435, Start Num: 22

Candidate Starts for Amymech\_11:

(Start: 22 @7983 has 36 MA's), (Start: 24 @7992 has 90 MA's), (29, 8010), (33, 8028), (35, 8040), (40, 8058), (41, 8070), (43, 8076), (54, 8151), (56, 8163), (64, 8190), (69, 8208), (82, 8265), (84, 8283), (85, 8286), (93, 8316), (100, 8355), (102, 8376), (103, 8403), (104, 8427),

Gene: Annalisa\_9 Start: 6598, Stop: 6981, Start Num: 25

Candidate Starts for Annalisa\_9:

(Start: 25 @6598 has 14 MA's), (35, 6643), (39, 6658), (42, 6676), (45, 6685), (54, 6754), (56, 6766), (59, 6778), (73, 6835),

Gene: Archis\_8 Start: 6567, Stop: 6959, Start Num: 18

Candidate Starts for Archis\_8:

(13, 6483), (Start: 18 @6567 has 42 MA's), (32, 6615), (47, 6702), (56, 6741), (70, 6795), (76, 6825), (86, 6876), (94, 6909),

Gene: Arib1\_8 Start: 6594, Stop: 6956, Start Num: 24

Candidate Starts for Arib1\_8:

(Start: 24 @6594 has 90 MA's), (57, 6753), (83, 6861), (86, 6870), (92, 6897), (97, 6915),

Gene: Atcoo\_8 Start: 6580, Stop: 6942, Start Num: 24

Candidate Starts for Atcoo\_8:

(Start: 24 @6580 has 90 MA's), (39, 6649), (57, 6739), (86, 6856), (92, 6883),

Gene: Attis\_8 Start: 6128, Stop: 6511, Start Num: 24

Candidate Starts for Attis\_8:

(Start: 24 @6128 has 90 MA's), (45, 6215), (56, 6296), (59, 6308), (70, 6350), (73, 6365), (92, 6443),

Gene: Ayotoya\_12 Start: 8519, Stop: 8911, Start Num: 22

Candidate Starts for Ayotoya\_12:

(Start: 22 @8519 has 36 MA's), (33, 8564),

Gene: Azula\_8 Start: 6443, Stop: 6835, Start Num: 18

Candidate Starts for Azula\_8:

(13, 6359), (Start: 18 @6443 has 42 MA's), (56, 6617), (59, 6629), (70, 6671), (84, 6746), (86, 6752), (94, 6785),

Gene: BBQValindra\_8 Start: 6485, Stop: 6868, Start Num: 17

Candidate Starts for BBQValindra\_8:

(Start: 17 @6485 has 13 MA's), (Start: 28 @6506 has 1 MA's), (32, 6524), (59, 6677), (60, 6680), (86, 6788),

Gene: BackstagePass\_8 Start: 6483, Stop: 6845, Start Num: 28

Candidate Starts for BackstagePass\_8:

(Start: 17 @6462 has 13 MA's), (Start: 28 @6483 has 1 MA's), (32, 6501), (59, 6654), (60, 6657), (86, 6765),

Gene: Barco\_8 Start: 6567, Stop: 6959, Start Num: 18

Candidate Starts for Barco\_8:

(13, 6483), (Start: 18 @6567 has 42 MA's), (32, 6615), (47, 6702), (56, 6741), (70, 6795), (76, 6825), (84, 6870), (86, 6876), (94, 6909),

Gene: Bartholomew\_8 Start: 6592, Stop: 6954, Start Num: 24

Candidate Starts for Bartholomew\_8:

(Start: 24 @6592 has 90 MA's), (39, 6661), (57, 6751), (86, 6868), (92, 6895),

Gene: BaxterFox\_8 Start: 6274, Stop: 6648, Start Num: 24

Candidate Starts for BaxterFox\_8:

(Start: 24 @6274 has 90 MA's), (37, 6328), (45, 6364), (56, 6448), (59, 6460), (60, 6463), (67, 6487), (73, 6517), (87, 6574), (88, 6580), (92, 6595), (94, 6604),

Gene: Beenie\_9 Start: 6592, Stop: 6975, Start Num: 25

Candidate Starts for Beenie\_9:

(Start: 25 @6592 has 14 MA's), (35, 6637), (39, 6652), (45, 6679), (54, 6748), (59, 6772), (73, 6829),

Gene: Begonia\_8 Start: 6570, Stop: 6962, Start Num: 18

Candidate Starts for Begonia\_8:

(13, 6486), (14, 6513), (Start: 18 @6570 has 42 MA's), (32, 6618), (47, 6705), (56, 6744), (70, 6798), (76, 6828), (84, 6873), (86, 6879), (94, 6912),

Gene: Bernal13\_10 Start: 8271, Stop: 8714, Start Num: 17

Candidate Starts for Bernal13\_10:

(6, 8115), (8, 8133), (9, 8211), (Start: 17 @8271 has 13 MA's), (58, 8457), (59, 8460), (62, 8472), (68, 8490), (72, 8511), (74, 8520), (79, 8541), (80, 8550),

Gene: BetterKatz\_12 Start: 8487, Stop: 8879, Start Num: 22

Candidate Starts for BetterKatz\_12:

(11, 8385), (Start: 22 @8487 has 36 MA's), (33, 8532), (56, 8673),

Gene: BigNuz\_8 Start: 6561, Stop: 6923, Start Num: 24

Candidate Starts for BigNuz\_8:

(Start: 24 @6561 has 90 MA's), (39, 6630), (57, 6720), (59, 6729), (81, 6810), (92, 6864), (97, 6882),

Gene: Bjaner7\_8 Start: 6128, Stop: 6511, Start Num: 24  
Candidate Starts for Bjaner7\_8:  
(Start: 24 @6128 has 90 MA's), (45, 6215), (56, 6296), (59, 6308), (70, 6350), (73, 6365), (92, 6443),

Gene: BlingBling\_8 Start: 6567, Stop: 6959, Start Num: 18  
Candidate Starts for BlingBling\_8:  
(13, 6483), (Start: 18 @6567 has 42 MA's), (47, 6702), (56, 6741), (70, 6795), (76, 6825), (84, 6870),  
(86, 6876), (94, 6909),

Gene: Blino\_8 Start: 6467, Stop: 6859, Start Num: 18  
Candidate Starts for Blino\_8:  
(Start: 18 @6467 has 42 MA's), (56, 6641), (59, 6653), (70, 6695), (84, 6770), (86, 6776), (94, 6809),

Gene: Blueberry\_8 Start: 6443, Stop: 6835, Start Num: 18  
Candidate Starts for Blueberry\_8:  
(13, 6359), (Start: 18 @6443 has 42 MA's), (56, 6617), (59, 6629), (70, 6671), (84, 6746), (86, 6752),  
(94, 6785),

Gene: Bock\_12 Start: 8237, Stop: 8629, Start Num: 22  
Candidate Starts for Bock\_12:  
(11, 8135), (Start: 22 @8237 has 36 MA's), (33, 8282),

Gene: Bogie\_8 Start: 6580, Stop: 6942, Start Num: 24  
Candidate Starts for Bogie\_8:  
(Start: 24 @6580 has 90 MA's), (39, 6649), (57, 6739), (86, 6856), (92, 6883),

Gene: Bowser\_8 Start: 6483, Stop: 6866, Start Num: 17  
Candidate Starts for Bowser\_8:  
(Start: 17 @6483 has 13 MA's), (Start: 28 @6504 has 1 MA's), (31, 6519), (32, 6522), (59, 6675), (60,  
6678),

Gene: Bran\_8 Start: 6460, Stop: 6864, Start Num: 23  
Candidate Starts for Bran\_8:  
(Start: 23 @6460 has 8 MA's), (45, 6550), (51, 6607), (59, 6631), (67, 6658), (77, 6703), (81, 6721),  
(97, 6787),

Gene: Brusacoram\_8 Start: 6579, Stop: 6941, Start Num: 24  
Candidate Starts for Brusacoram\_8:  
(Start: 24 @6579 has 90 MA's), (39, 6648), (57, 6738), (86, 6855), (92, 6882),

Gene: Brylie\_12 Start: 8234, Stop: 8626, Start Num: 22  
Candidate Starts for Brylie\_12:  
(11, 8132), (Start: 22 @8234 has 36 MA's), (33, 8279), (56, 8420),

Gene: Bunker\_8 Start: 6485, Stop: 6868, Start Num: 17  
Candidate Starts for Bunker\_8:  
(Start: 17 @6485 has 13 MA's), (Start: 28 @6506 has 1 MA's), (32, 6524), (59, 6677), (60, 6680), (86,  
6788),

Gene: Bunnies\_8 Start: 6592, Stop: 6954, Start Num: 24  
Candidate Starts for Bunnies\_8:  
(Start: 24 @6592 has 90 MA's), (39, 6661), (57, 6751), (86, 6868), (92, 6895),

Gene: CactusJack\_8 Start: 6579, Stop: 6941, Start Num: 24  
Candidate Starts for CactusJack\_8:  
(Start: 24 @6579 has 90 MA's), (39, 6648), (57, 6738), (86, 6855), (92, 6882),

Gene: Camster\_8 Start: 6592, Stop: 6954, Start Num: 24  
Candidate Starts for Camster\_8:  
(Start: 24 @6592 has 90 MA's), (39, 6661), (57, 6751), (86, 6868), (92, 6895),

Gene: CaptainKirk2\_8 Start: 6567, Stop: 6959, Start Num: 18  
Candidate Starts for CaptainKirk2\_8:  
(13, 6483), (Start: 18 @6567 has 42 MA's), (32, 6615), (47, 6702), (56, 6741), (70, 6795), (76, 6825),  
(84, 6870), (86, 6876), (94, 6909),

Gene: CarolAnn\_8 Start: 6466, Stop: 6858, Start Num: 18  
Candidate Starts for CarolAnn\_8:  
(Start: 18 @6466 has 42 MA's), (56, 6640), (59, 6652), (70, 6694), (84, 6769), (86, 6775), (94, 6808),

Gene: Chop\_12 Start: 8267, Stop: 8659, Start Num: 22  
Candidate Starts for Chop\_12:  
(Start: 22 @8267 has 36 MA's), (33, 8312),

Gene: Clap\_8 Start: 6128, Stop: 6511, Start Num: 24  
Candidate Starts for Clap\_8:  
(Start: 24 @6128 has 90 MA's), (32, 6155), (45, 6215), (56, 6296), (59, 6308), (70, 6350), (73, 6365),  
(92, 6443),

Gene: Clark\_9 Start: 6598, Stop: 6981, Start Num: 25  
Candidate Starts for Clark\_9:  
(Start: 25 @6598 has 14 MA's), (35, 6643), (39, 6658), (42, 6676), (45, 6685), (54, 6754), (56, 6766),  
(59, 6778), (73, 6835),

Gene: Cole\_10 Start: 7439, Stop: 7840, Start Num: 24  
Candidate Starts for Cole\_10:  
(Start: 24 @7439 has 90 MA's), (38, 7496), (59, 7619), (60, 7622), (61, 7628), (66, 7643), (79, 7697),  
(89, 7757), (90, 7760), (96, 7796), (98, 7805),

Gene: Coriander\_9 Start: 6915, Stop: 7265, Start Num: 30  
Candidate Starts for Coriander\_9:  
(1, 6291), (2, 6300), (3, 6423), (Start: 19 @6870 has 4 MA's), (Start: 28 @6903 has 1 MA's), (Start: 30  
@6915 has 1 MA's), (56, 7062), (59, 7074), (63, 7089), (86, 7185),

Gene: Cynthia\_8 Start: 6128, Stop: 6511, Start Num: 24  
Candidate Starts for Cynthia\_8:  
(Start: 24 @6128 has 90 MA's), (32, 6155), (45, 6215), (56, 6296), (59, 6308), (70, 6350), (73, 6365),  
(92, 6443),

Gene: Daegal\_12 Start: 8274, Stop: 8726, Start Num: 22  
Candidate Starts for Daegal\_12:  
(Start: 22 @8274 has 36 MA's), (Start: 24 @8283 has 90 MA's), (33, 8319), (35, 8331), (40, 8349),  
(43, 8367), (54, 8442), (56, 8454), (64, 8481), (69, 8499), (82, 8556), (84, 8574), (85, 8577), (93,  
8607), (100, 8646), (102, 8667), (103, 8694), (104, 8718),

Gene: DeepSoil15\_11 Start: 7983, Stop: 8435, Start Num: 22

Candidate Starts for DeepSoil15\_11:

(Start: 22 @7983 has 36 MA's), (Start: 24 @7992 has 90 MA's), (29, 8010), (33, 8028), (35, 8040), (40, 8058), (41, 8070), (43, 8076), (54, 8151), (56, 8163), (64, 8190), (69, 8208), (82, 8265), (84, 8283), (85, 8286), (93, 8316), (100, 8355), (102, 8376), (103, 8403), (104, 8427),

Gene: DelRio\_13 Start: 8753, Stop: 9136, Start Num: 24

Candidate Starts for DelRio\_13:

(Start: 24 @8753 has 90 MA's), (33, 8789), (56, 8930),

Gene: Delian\_8 Start: 6567, Stop: 6959, Start Num: 18

Candidate Starts for Delian\_8:

(13, 6483), (Start: 18 @6567 has 42 MA's), (32, 6615), (47, 6702), (56, 6741), (70, 6795), (76, 6825), (84, 6870), (86, 6876), (94, 6909),

Gene: Denise\_8 Start: 6137, Stop: 6520, Start Num: 24

Candidate Starts for Denise\_8:

(Start: 24 @6137 has 90 MA's), (32, 6164), (45, 6224), (56, 6305), (59, 6317), (70, 6359), (73, 6374), (92, 6452),

Gene: Dewey\_11 Start: 7983, Stop: 8435, Start Num: 22

Candidate Starts for Dewey\_11:

(Start: 22 @7983 has 36 MA's), (Start: 24 @7992 has 90 MA's), (29, 8010), (33, 8028), (35, 8040), (40, 8058), (41, 8070), (43, 8076), (54, 8151), (56, 8163), (64, 8190), (69, 8208), (82, 8265), (84, 8283), (85, 8286), (93, 8316), (100, 8355), (102, 8376), (103, 8403), (104, 8427),

Gene: Dina\_8 Start: 6443, Stop: 6847, Start Num: 23

Candidate Starts for Dina\_8:

(Start: 23 @6443 has 8 MA's), (45, 6533), (51, 6590), (59, 6614), (67, 6641), (77, 6686), (81, 6704), (97, 6770),

Gene: DirtyBoi\_9 Start: 6843, Stop: 7238, Start Num: 19

Candidate Starts for DirtyBoi\_9:

(Start: 19 @6843 has 4 MA's), (Start: 28 @6876 has 1 MA's), (Start: 30 @6888 has 1 MA's), (56, 7035), (59, 7047), (63, 7062), (85, 7155),

Gene: Dmitri\_9 Start: 6852, Stop: 7247, Start Num: 19

Candidate Starts for Dmitri\_9:

(Start: 19 @6852 has 4 MA's), (Start: 28 @6885 has 1 MA's), (Start: 30 @6897 has 1 MA's), (56, 7044), (59, 7056), (63, 7071), (85, 7164),

Gene: DobbysSock\_8 Start: 6090, Stop: 6473, Start Num: 25

Candidate Starts for DobbysSock\_8:

(Start: 25 @6090 has 14 MA's), (35, 6135), (39, 6150), (42, 6168), (45, 6177), (54, 6246), (56, 6258), (59, 6270), (73, 6327),

Gene: Doggs\_8 Start: 6567, Stop: 6962, Start Num: 19

Candidate Starts for Doggs\_8:

(1, 5988), (2, 5997), (3, 6120), (Start: 19 @6567 has 4 MA's), (Start: 28 @6600 has 1 MA's), (Start: 30 @6612 has 1 MA's), (56, 6759), (59, 6771), (63, 6786), (86, 6882),

Gene: Dolores\_9 Start: 6592, Stop: 6975, Start Num: 25

Candidate Starts for Dolores\_9:

(Start: 25 @6592 has 14 MA's), (35, 6637), (39, 6652), (42, 6670), (45, 6679), (54, 6748), (59, 6772), (73, 6829),

Gene: Donovan\_8 Start: 6594, Stop: 6956, Start Num: 24

Candidate Starts for Donovan\_8:

(Start: 24 @6594 has 90 MA's), (57, 6753), (82, 6846), (83, 6861), (86, 6870), (92, 6897), (97, 6915),

Gene: Dorito\_8 Start: 6096, Stop: 6479, Start Num: 25

Candidate Starts for Dorito\_8:

(Start: 25 @6096 has 14 MA's), (35, 6141), (39, 6156), (42, 6174), (45, 6183), (54, 6252), (56, 6264), (59, 6276), (73, 6333),

Gene: DumpsterDude\_9 Start: 6975, Stop: 7367, Start Num: 26

Candidate Starts for DumpsterDude\_9:

(Start: 26 @6975 has 3 MA's), (35, 7020), (53, 7131), (56, 7149),

Gene: Dynamo\_8 Start: 6592, Stop: 6954, Start Num: 24

Candidate Starts for Dynamo\_8:

(Start: 24 @6592 has 90 MA's), (39, 6661), (57, 6751), (86, 6868), (92, 6895),

Gene: Easley\_9 Start: 6592, Stop: 6975, Start Num: 25

Candidate Starts for Easley\_9:

(Start: 25 @6592 has 14 MA's), (35, 6637), (39, 6652), (45, 6679), (54, 6748), (59, 6772), (73, 6829),

Gene: Ebert\_8 Start: 6128, Stop: 6511, Start Num: 24

Candidate Starts for Ebert\_8:

(Start: 24 @6128 has 90 MA's), (32, 6155), (45, 6215), (56, 6296), (59, 6308), (70, 6350), (73, 6365), (92, 6443),

Gene: EdnaMode\_8 Start: 6128, Stop: 6511, Start Num: 24

Candidate Starts for EdnaMode\_8:

(Start: 24 @6128 has 90 MA's), (32, 6155), (45, 6215), (52, 6278), (56, 6296), (59, 6308), (63, 6323), (92, 6443), (98, 6467),

Gene: Ein37\_11 Start: 7983, Stop: 8435, Start Num: 22

Candidate Starts for Ein37\_11:

(Start: 22 @7983 has 36 MA's), (Start: 24 @7992 has 90 MA's), (29, 8010), (33, 8028), (35, 8040), (40, 8058), (41, 8070), (43, 8076), (54, 8151), (56, 8163), (64, 8190), (69, 8208), (82, 8265), (84, 8283), (85, 8286), (93, 8316), (100, 8355), (102, 8376), (103, 8403), (104, 8427),

Gene: Elesar\_11 Start: 7829, Stop: 8230, Start Num: 24

Candidate Starts for Elesar\_11:

(Start: 24 @7829 has 90 MA's), (56, 7997), (60, 8012), (61, 8018), (66, 8033), (79, 8087), (89, 8147), (96, 8186), (98, 8195),

Gene: Evanesce\_11 Start: 7983, Stop: 8435, Start Num: 22

Candidate Starts for Evanesce\_11:

(Start: 22 @7983 has 36 MA's), (Start: 24 @7992 has 90 MA's), (29, 8010), (33, 8028), (35, 8040), (40, 8058), (41, 8070), (43, 8076), (54, 8151), (56, 8163), (64, 8190), (69, 8208), (82, 8265), (84, 8283), (85, 8286), (93, 8316), (100, 8355), (102, 8376), (103, 8403), (104, 8427),

Gene: Eyes\_8 Start: 6492, Stop: 6875, Start Num: 17

Candidate Starts for Eyes\_8:

(Start: 17 @6492 has 13 MA's), (Start: 28 @6513 has 1 MA's), (31, 6528), (32, 6531), (59, 6684), (60, 6687), (86, 6795),

Gene: Fairfaxidum\_8 Start: 6551, Stop: 6937, Start Num: 18

Candidate Starts for Fairfaxidum\_8:

(Start: 18 @6551 has 42 MA's), (33, 6605), (56, 6719), (59, 6731), (60, 6734), (94, 6887),

Gene: Fenry\_8 Start: 6576, Stop: 6968, Start Num: 18

Candidate Starts for Fenry\_8:

(13, 6492), (Start: 18 @6576 has 42 MA's), (32, 6624), (47, 6711), (56, 6750), (70, 6804), (76, 6834), (86, 6885), (94, 6918),

Gene: Finkle\_8 Start: 6251, Stop: 6634, Start Num: 21

Candidate Starts for Finkle\_8:

(Start: 21 @6251 has 1 MA's), (29, 6281), (34, 6311), (60, 6437), (98, 6596),

Gene: FirstPlacePfu\_8 Start: 6592, Stop: 6954, Start Num: 24

Candidate Starts for FirstPlacePfu\_8:

(Start: 24 @6592 has 90 MA's), (39, 6661), (57, 6751), (86, 6868), (92, 6895),

Gene: Fishburne\_8 Start: 6592, Stop: 6954, Start Num: 24

Candidate Starts for Fishburne\_8:

(Start: 24 @6592 has 90 MA's), (39, 6661), (57, 6751), (86, 6868), (92, 6895),

Gene: Forge\_11 Start: 7983, Stop: 8435, Start Num: 22

Candidate Starts for Forge\_11:

(Start: 22 @7983 has 36 MA's), (Start: 24 @7992 has 90 MA's), (29, 8010), (33, 8028), (35, 8040), (40, 8058), (41, 8070), (43, 8076), (54, 8151), (56, 8163), (64, 8190), (69, 8208), (82, 8265), (84, 8283), (85, 8286), (93, 8316), (100, 8355), (102, 8376), (103, 8403), (104, 8427),

Gene: Francois\_12 Start: 8248, Stop: 8640, Start Num: 22

Candidate Starts for Francois\_12:

(11, 8146), (Start: 22 @8248 has 36 MA's), (33, 8293),

Gene: Frokostdame\_8 Start: 6562, Stop: 6954, Start Num: 18

Candidate Starts for Frokostdame\_8:

(13, 6478), (Start: 18 @6562 has 42 MA's), (56, 6736), (59, 6748), (70, 6790), (84, 6865), (86, 6871), (94, 6904),

Gene: GEazy\_8 Start: 6494, Stop: 6877, Start Num: 17

Candidate Starts for GEazy\_8:

(Start: 17 @6494 has 13 MA's), (32, 6533), (59, 6686), (60, 6689), (86, 6797),

Gene: Gambino\_8 Start: 6443, Stop: 6835, Start Num: 18

Candidate Starts for Gambino\_8:

(13, 6359), (Start: 18 @6443 has 42 MA's), (56, 6617), (59, 6629), (70, 6671), (84, 6746), (86, 6752), (94, 6785),

Gene: Gancho\_10 Start: 7683, Stop: 8135, Start Num: 22

Candidate Starts for Gancho\_10:

(Start: 22 @7683 has 36 MA's), (Start: 24 @7692 has 90 MA's), (33, 7728), (35, 7740), (40, 7758), (43, 7776), (54, 7851), (56, 7863), (64, 7890), (69, 7908), (82, 7965), (84, 7983), (85, 7986), (93, 8016), (100, 8055), (102, 8076), (103, 8103), (104, 8127),



Gene: GemG\_8 Start: 6128, Stop: 6511, Start Num: 24

Candidate Starts for GemG\_8:

(Start: 24 @6128 has 90 MA's), (32, 6155), (45, 6215), (56, 6296), (59, 6308), (70, 6350), (73, 6365), (92, 6443),

Gene: Giles\_11 Start: 7983, Stop: 8435, Start Num: 22

Candidate Starts for Giles\_11:

(Start: 22 @7983 has 36 MA's), (Start: 24 @7992 has 90 MA's), (29, 8010), (33, 8028), (35, 8040), (40, 8058), (41, 8070), (43, 8076), (54, 8151), (56, 8163), (64, 8190), (69, 8208), (82, 8265), (84, 8283), (85, 8286), (93, 8316), (100, 8355), (102, 8376), (103, 8403), (104, 8427),

Gene: Gizermo\_8 Start: 6128, Stop: 6511, Start Num: 24

Candidate Starts for Gizermo\_8:

(Start: 24 @6128 has 90 MA's), (32, 6155), (45, 6215), (56, 6296), (59, 6308), (70, 6350), (73, 6365), (92, 6443),

Gene: Glaske\_8 Start: 6579, Stop: 6941, Start Num: 24

Candidate Starts for Glaske\_8:

(Start: 24 @6579 has 90 MA's), (39, 6648), (57, 6738), (86, 6855), (92, 6882),

Gene: GrandSlam\_12 Start: 8267, Stop: 8659, Start Num: 22

Candidate Starts for GrandSlam\_12:

(Start: 22 @8267 has 36 MA's), (33, 8312),

Gene: Gravaillia\_11 Start: 7716, Stop: 8168, Start Num: 22

Candidate Starts for Gravaillia\_11:

(Start: 22 @7716 has 36 MA's), (Start: 24 @7725 has 90 MA's), (33, 7761), (35, 7773), (40, 7791), (43, 7809), (54, 7884), (56, 7896), (64, 7923), (69, 7941), (82, 7998), (84, 8016), (85, 8019), (93, 8049), (100, 8088), (102, 8109), (103, 8136), (104, 8160),

Gene: GreaseLightnin\_8 Start: 6592, Stop: 6954, Start Num: 24

Candidate Starts for GreaseLightnin\_8:

(Start: 24 @6592 has 90 MA's), (39, 6661), (57, 6751), (86, 6868), (92, 6895),

Gene: Guacamole\_8 Start: 6571, Stop: 6963, Start Num: 18

Candidate Starts for Guacamole\_8:

(13, 6487), (Start: 18 @6571 has 42 MA's), (32, 6619), (47, 6706), (56, 6745), (70, 6799), (76, 6829), (84, 6874), (86, 6880), (94, 6913),

Gene: Gusanita\_10 Start: 7653, Stop: 8054, Start Num: 24

Candidate Starts for Gusanita\_10:

(Start: 24 @7653 has 90 MA's), (49, 7779), (56, 7821), (60, 7836), (61, 7842), (66, 7857), (79, 7911), (89, 7971), (91, 7980), (96, 8010), (98, 8019),

Gene: HH92\_11 Start: 7983, Stop: 8435, Start Num: 22

Candidate Starts for HH92\_11:

(Start: 22 @7983 has 36 MA's), (Start: 24 @7992 has 90 MA's), (29, 8010), (33, 8028), (35, 8040), (40, 8058), (41, 8070), (43, 8076), (54, 8151), (56, 8163), (64, 8190), (69, 8208), (82, 8265), (84, 8283), (85, 8286), (93, 8316), (100, 8355), (102, 8376), (103, 8403), (104, 8427),

Gene: HUHilltop\_8 Start: 6592, Stop: 6954, Start Num: 24

Candidate Starts for HUHilltop\_8:

(Start: 24 @6592 has 90 MA's), (39, 6661), (57, 6751), (86, 6868), (92, 6895),

Gene: Hadrien\_11 Start: 7983, Stop: 8435, Start Num: 22

Candidate Starts for Hadrien\_11:

(Start: 22 @7983 has 36 MA's), (Start: 24 @7992 has 90 MA's), (29, 8010), (33, 8028), (35, 8040), (40, 8058), (41, 8070), (43, 8076), (54, 8151), (56, 8163), (64, 8190), (69, 8208), (82, 8265), (84, 8283), (85, 8286), (93, 8316), (100, 8355), (102, 8376), (103, 8403), (104, 8427),

Gene: Hail\_11 Start: 7983, Stop: 8435, Start Num: 22

Candidate Starts for Hail\_11:

(Start: 22 @7983 has 36 MA's), (Start: 24 @7992 has 90 MA's), (29, 8010), (33, 8028), (35, 8040), (40, 8058), (41, 8070), (43, 8076), (54, 8151), (56, 8163), (64, 8190), (69, 8208), (82, 8265), (84, 8283), (85, 8286), (93, 8316), (100, 8355), (102, 8376), (103, 8403), (104, 8427),

Gene: Haley23\_8 Start: 6128, Stop: 6511, Start Num: 24

Candidate Starts for Haley23\_8:

(Start: 24 @6128 has 90 MA's), (32, 6155), (45, 6215), (56, 6296), (59, 6308), (70, 6350), (73, 6365), (92, 6443),

Gene: Hamood\_12 Start: 8267, Stop: 8659, Start Num: 22

Candidate Starts for Hamood\_12:

(Start: 22 @8267 has 36 MA's), (33, 8312),

Gene: HannahD\_8 Start: 6494, Stop: 6877, Start Num: 17

Candidate Starts for HannahD\_8:

(Start: 17 @6494 has 13 MA's), (32, 6533), (59, 6686), (60, 6689), (86, 6797),

Gene: Hedwig\_9 Start: 6888, Stop: 7238, Start Num: 30

Candidate Starts for Hedwig\_9:

(Start: 19 @6843 has 4 MA's), (Start: 28 @6876 has 1 MA's), (Start: 30 @6888 has 1 MA's), (56, 7035), (59, 7047), (63, 7062), (85, 7155), (86, 7158),

Gene: Hitter\_8 Start: 6567, Stop: 6959, Start Num: 18

Candidate Starts for Hitter\_8:

(13, 6483), (Start: 18 @6567 has 42 MA's), (32, 6615), (47, 6702), (56, 6741), (70, 6795), (76, 6825), (86, 6876), (94, 6909),

Gene: Hortense\_8 Start: 6280, Stop: 6651, Start Num: 24

Candidate Starts for Hortense\_8:

(Start: 24 @6280 has 90 MA's), (40, 6343), (45, 6367), (48, 6403), (54, 6439), (56, 6451), (59, 6463), (60, 6466), (73, 6520), (78, 6538), (87, 6577), (88, 6583), (92, 6598), (94, 6607),

Gene: Howe\_8 Start: 6280, Stop: 6651, Start Num: 24

Candidate Starts for Howe\_8:

(Start: 24 @6280 has 90 MA's), (40, 6343), (45, 6367), (48, 6403), (54, 6439), (56, 6451), (59, 6463), (60, 6466), (73, 6520), (78, 6538), (87, 6577), (88, 6583), (92, 6598), (94, 6607),

Gene: Ibrahim\_10 Start: 8271, Stop: 8714, Start Num: 17

Candidate Starts for Ibrahim\_10:

(6, 8115), (8, 8133), (9, 8211), (Start: 17 @8271 has 13 MA's), (58, 8457), (59, 8460), (62, 8472), (68, 8490), (72, 8511), (74, 8520), (79, 8541), (80, 8550),

Gene: JCole\_8 Start: 6128, Stop: 6511, Start Num: 24

Candidate Starts for JCole\_8:

(Start: 24 @6128 has 90 MA's), (32, 6155), (45, 6215), (56, 6296), (59, 6308), (70, 6350), (73, 6365), (92, 6443),

Gene: Jalammah\_8 Start: 6567, Stop: 6959, Start Num: 18

Candidate Starts for Jalammah\_8:

(13, 6483), (Start: 18 @6567 has 42 MA's), (32, 6615), (47, 6702), (56, 6741), (70, 6795), (76, 6825), (86, 6876), (94, 6909),

Gene: JasperJr\_8 Start: 6571, Stop: 6963, Start Num: 18

Candidate Starts for JasperJr\_8:

(13, 6487), (Start: 18 @6571 has 42 MA's), (32, 6619), (47, 6706), (56, 6745), (70, 6799), (76, 6829), (84, 6874), (86, 6880), (94, 6913),

Gene: Jebeks\_8 Start: 6594, Stop: 6956, Start Num: 24

Candidate Starts for Jebeks\_8:

(Start: 24 @6594 has 90 MA's), (57, 6753), (83, 6861), (86, 6870), (92, 6897), (97, 6915),

Gene: JuJu\_8 Start: 6492, Stop: 6884, Start Num: 18

Candidate Starts for JuJu\_8:

(Start: 18 @6492 has 42 MA's), (40, 6576), (56, 6666), (59, 6678), (70, 6720), (76, 6750), (94, 6834),

Gene: Jung\_8 Start: 6579, Stop: 6941, Start Num: 24

Candidate Starts for Jung\_8:

(Start: 24 @6579 has 90 MA's), (39, 6648), (57, 6738), (86, 6855), (92, 6882),

Gene: Juniormint\_8 Start: 6597, Stop: 6959, Start Num: 24

Candidate Starts for Juniormint\_8:

(Start: 24 @6597 has 90 MA's), (57, 6756), (83, 6864), (86, 6873), (92, 6900), (97, 6918),

Gene: JustASigh\_8 Start: 7097, Stop: 7558, Start Num: 22

Candidate Starts for JustASigh\_8:

(15, 7076), (Start: 22 @7097 has 36 MA's), (33, 7142), (43, 7196), (71, 7340), (74, 7349), (75, 7352),

Gene: KappaFarmDelta\_8 Start: 6605, Stop: 6997, Start Num: 18

Candidate Starts for KappaFarmDelta\_8:

(13, 6521), (14, 6548), (Start: 18 @6605 has 42 MA's), (32, 6653), (47, 6740), (56, 6779), (62, 6803), (70, 6833), (76, 6863), (82, 6890), (86, 6914), (94, 6947),

Gene: Kari\_8 Start: 6592, Stop: 6954, Start Num: 24

Candidate Starts for Kari\_8:

(Start: 24 @6592 has 90 MA's), (39, 6661), (57, 6751), (86, 6868), (92, 6895),

Gene: Kiko\_9 Start: 6686, Stop: 7078, Start Num: 19

Candidate Starts for Kiko\_9:

(Start: 19 @6686 has 4 MA's), (29, 6722), (59, 6887), (60, 6890), (86, 6998),

Gene: KilKor\_8 Start: 6579, Stop: 6941, Start Num: 24

Candidate Starts for KilKor\_8:

(Start: 24 @6579 has 90 MA's), (39, 6648), (57, 6738), (86, 6855), (92, 6882),

Gene: Kinbote\_11 Start: 7983, Stop: 8435, Start Num: 22

Candidate Starts for Kinbote\_11:

(Start: 22 @7983 has 36 MA's), (Start: 24 @7992 has 90 MA's), (29, 8010), (33, 8028), (35, 8040), (40, 8058), (41, 8070), (43, 8076), (54, 8151), (56, 8163), (64, 8190), (69, 8208), (82, 8265), (84, 8283), (85, 8286), (93, 8316), (100, 8355), (102, 8376), (103, 8403), (104, 8427),

Gene: Ksquared\_8 Start: 6592, Stop: 6954, Start Num: 24

Candidate Starts for Ksquared\_8:

(Start: 24 @6592 has 90 MA's), (39, 6661), (57, 6751), (86, 6868), (92, 6895),

Gene: Lamberg\_8 Start: 6128, Stop: 6511, Start Num: 24

Candidate Starts for Lamberg\_8:

(Start: 24 @6128 has 90 MA's), (32, 6155), (45, 6215), (52, 6278), (56, 6296), (59, 6308), (63, 6323), (92, 6443), (98, 6467),

Gene: Langerak\_8 Start: 6594, Stop: 6956, Start Num: 24

Candidate Starts for Langerak\_8:

(Start: 24 @6594 has 90 MA's), (57, 6753), (83, 6861), (86, 6870), (92, 6897), (97, 6915),

Gene: Lederberg\_8 Start: 6443, Stop: 6847, Start Num: 23

Candidate Starts for Lederberg\_8:

(Start: 23 @6443 has 8 MA's), (45, 6533), (51, 6590), (59, 6614), (67, 6641), (77, 6686), (81, 6704), (97, 6770),

Gene: Lenoxika\_12 Start: 7767, Stop: 8168, Start Num: 24

Candidate Starts for Lenoxika\_12:

(Start: 24 @7767 has 90 MA's), (56, 7935), (60, 7950), (61, 7956), (66, 7971), (79, 8025), (89, 8085), (95, 8118), (96, 8124), (98, 8133),

Gene: LilHazelnut\_11 Start: 7983, Stop: 8435, Start Num: 22

Candidate Starts for LilHazelnut\_11:

(Start: 22 @7983 has 36 MA's), (Start: 24 @7992 has 90 MA's), (29, 8010), (33, 8028), (35, 8040), (40, 8058), (41, 8070), (43, 8076), (54, 8151), (56, 8163), (64, 8190), (69, 8208), (82, 8265), (84, 8283), (85, 8286), (93, 8316), (100, 8355), (102, 8376), (103, 8403), (104, 8427),

Gene: LordFarquaad\_8 Start: 6128, Stop: 6511, Start Num: 24

Candidate Starts for LordFarquaad\_8:

(Start: 24 @6128 has 90 MA's), (45, 6215), (56, 6296), (59, 6308), (70, 6350), (73, 6365), (92, 6443),

Gene: Luke\_11 Start: 7983, Stop: 8435, Start Num: 22

Candidate Starts for Luke\_11:

(Start: 22 @7983 has 36 MA's), (Start: 24 @7992 has 90 MA's), (29, 8010), (33, 8028), (35, 8040), (40, 8058), (41, 8070), (43, 8076), (54, 8151), (56, 8163), (64, 8190), (69, 8208), (82, 8265), (84, 8283), (85, 8286), (93, 8316), (100, 8355), (102, 8376), (103, 8403), (104, 8427),

Gene: Luna22\_11 Start: 7983, Stop: 8435, Start Num: 22

Candidate Starts for Luna22\_11:

(Start: 22 @7983 has 36 MA's), (Start: 24 @7992 has 90 MA's), (29, 8010), (33, 8028), (35, 8040), (40, 8058), (41, 8070), (43, 8076), (54, 8151), (56, 8163), (64, 8190), (69, 8208), (82, 8265), (84, 8283), (85, 8286), (93, 8316), (100, 8355), (102, 8376), (103, 8403), (104, 8427),

Gene: Lysidious\_8 Start: 6567, Stop: 6959, Start Num: 18

Candidate Starts for Lysidious\_8:

(13, 6483), (Start: 18 @6567 has 42 MA's), (47, 6702), (56, 6741), (70, 6795), (76, 6825), (84, 6870), (86, 6876), (94, 6909),

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

Candidate Starts for MagicMan\_8:

(Start: 16 @6823 has 3 MA's), (Start: 28 @6844 has 1 MA's), (59, 7015), (86, 7126),

Gene: Majeke\_8 Start: 6594, Stop: 6956, Start Num: 24

Candidate Starts for Majeke\_8:

(Start: 24 @6594 has 90 MA's), (57, 6753), (83, 6861), (86, 6870), (92, 6897), (97, 6915),

Gene: Malachai\_8 Start: 6570, Stop: 6962, Start Num: 18

Candidate Starts for Malachai\_8:

(13, 6486), (14, 6513), (Start: 18 @6570 has 42 MA's), (32, 6618), (47, 6705), (56, 6744), (70, 6798), (76, 6828), (84, 6873), (86, 6879), (94, 6912),

Gene: Malibo\_8 Start: 6765, Stop: 7157, Start Num: 26

Candidate Starts for Malibo\_8:

(Start: 26 @6765 has 3 MA's), (35, 6810), (56, 6939), (99, 7128),

Gene: Malithi\_8 Start: 6592, Stop: 6954, Start Num: 24

Candidate Starts for Malithi\_8:

(Start: 24 @6592 has 90 MA's), (39, 6661), (57, 6751), (86, 6868), (92, 6895),

Gene: Mangethe\_8 Start: 6594, Stop: 6956, Start Num: 24

Candidate Starts for Mangethe\_8:

(Start: 24 @6594 has 90 MA's), (57, 6753), (83, 6861), (86, 6870), (92, 6897), (97, 6915),

Gene: Matteo\_8 Start: 6128, Stop: 6511, Start Num: 24

Candidate Starts for Matteo\_8:

(Start: 24 @6128 has 90 MA's), (45, 6215), (56, 6296), (59, 6308), (70, 6350), (73, 6365), (92, 6443),

Gene: Mbo4\_8 Start: 6815, Stop: 7189, Start Num: 24

Candidate Starts for Mbo4\_8:

(Start: 24 @6815 has 90 MA's), (45, 6905), (59, 6992), (73, 7046), (78, 7064),

Gene: Megiddo\_8 Start: 6579, Stop: 6941, Start Num: 24

Candidate Starts for Megiddo\_8:

(Start: 24 @6579 has 90 MA's), (39, 6648), (57, 6738), (86, 6855), (92, 6882),

Gene: Melba\_8 Start: 6567, Stop: 6959, Start Num: 18

Candidate Starts for Melba\_8:

(13, 6483), (Start: 18 @6567 has 42 MA's), (32, 6615), (47, 6702), (56, 6741), (70, 6795), (76, 6825), (84, 6870), (86, 6876), (94, 6909),

Gene: Mellie\_8 Start: 6567, Stop: 6959, Start Num: 18

Candidate Starts for Mellie\_8:

(13, 6483), (Start: 18 @6567 has 42 MA's), (32, 6615), (47, 6702), (56, 6741), (70, 6795), (76, 6825), (84, 6870), (86, 6876), (94, 6909),

Gene: Mendokysei\_9 Start: 8237, Stop: 8689, Start Num: 17

Candidate Starts for Mendokysei\_9:

(5, 8039), (Start: 17 @8237 has 13 MA's), (46, 8375), (58, 8429), (59, 8432), (62, 8444), (68, 8462), (72, 8483), (74, 8492),

Gene: MichaelScott\_9 Start: 6592, Stop: 6975, Start Num: 25

Candidate Starts for MichaelScott\_9:

(Start: 25 @6592 has 14 MA's), (35, 6637), (39, 6652), (45, 6679), (54, 6748), (59, 6772), (73, 6829),

Gene: MintFen\_8 Start: 6567, Stop: 6959, Start Num: 18

Candidate Starts for MintFen\_8:

(13, 6483), (Start: 18 @6567 has 42 MA's), (32, 6615), (47, 6702), (56, 6741), (70, 6795), (76, 6825), (84, 6870), (86, 6876), (94, 6909),

Gene: MissRona\_8 Start: 6443, Stop: 6835, Start Num: 18

Candidate Starts for MissRona\_8:

(13, 6359), (Start: 18 @6443 has 42 MA's), (56, 6617), (59, 6629), (70, 6671), (84, 6746), (86, 6752), (94, 6785),

Gene: Mocha12\_8 Start: 6128, Stop: 6511, Start Num: 24

Candidate Starts for Mocha12\_8:

(Start: 24 @6128 has 90 MA's), (32, 6155), (45, 6215), (56, 6296), (59, 6308), (70, 6350), (73, 6365), (92, 6443),

Gene: Mulch\_12 Start: 8234, Stop: 8626, Start Num: 22

Candidate Starts for Mulch\_12:

(11, 8132), (Start: 22 @8234 has 36 MA's), (33, 8279), (56, 8420),

Gene: Murp\_8 Start: 6608, Stop: 7000, Start Num: 18

Candidate Starts for Murp\_8:

(13, 6524), (14, 6551), (Start: 18 @6608 has 42 MA's), (32, 6656), (47, 6743), (56, 6782), (70, 6836), (84, 6911), (86, 6917), (94, 6950),

Gene: Nadeem\_12 Start: 8234, Stop: 8626, Start Num: 22

Candidate Starts for Nadeem\_12:

(11, 8132), (Start: 22 @8234 has 36 MA's), (33, 8279), (56, 8420),

Gene: Nairb\_10 Start: 8271, Stop: 8714, Start Num: 17

Candidate Starts for Nairb\_10:

(6, 8115), (8, 8133), (9, 8211), (Start: 17 @8271 has 13 MA's), (58, 8457), (59, 8460), (62, 8472), (68, 8490), (72, 8511), (74, 8520), (79, 8541), (80, 8550),

Gene: NancyRae\_12 Start: 8234, Stop: 8626, Start Num: 22

Candidate Starts for NancyRae\_12:

(11, 8132), (Start: 22 @8234 has 36 MA's), (33, 8279), (56, 8420),

Gene: Nandita\_12 Start: 7765, Stop: 8166, Start Num: 24

Candidate Starts for Nandita\_12:

(Start: 24 @7765 has 90 MA's), (56, 7933), (60, 7948), (61, 7954), (66, 7969), (79, 8023), (89, 8083), (90, 8086), (95, 8116), (96, 8122), (98, 8131),

Gene: Nazo\_8 Start: 6561, Stop: 6923, Start Num: 24

Candidate Starts for Nazo\_8:

(Start: 24 @6561 has 90 MA's), (39, 6630), (57, 6720), (59, 6729), (81, 6810), (92, 6864), (97, 6882),

Gene: Necropolis\_8 Start: 6592, Stop: 6954, Start Num: 24

Candidate Starts for Necropolis\_8:

(Start: 24 @6592 has 90 MA's), (39, 6661), (57, 6751), (86, 6868), (92, 6895),

Gene: Nettuno\_8 Start: 6128, Stop: 6511, Start Num: 24

Candidate Starts for Nettuno\_8:

(Start: 24 @6128 has 90 MA's), (32, 6155), (45, 6215), (52, 6278), (56, 6296), (59, 6308), (63, 6323), (92, 6443), (98, 6467),

Gene: OBUpride\_11 Start: 7977, Stop: 8429, Start Num: 22

Candidate Starts for OBUpride\_11:

(Start: 22 @7977 has 36 MA's), (Start: 24 @7986 has 90 MA's), (29, 8004), (33, 8022), (35, 8034), (40, 8052), (41, 8064), (43, 8070), (54, 8145), (56, 8157), (64, 8184), (69, 8202), (82, 8259), (84, 8277), (85, 8280), (93, 8310), (100, 8349), (102, 8370), (103, 8397), (104, 8421),

Gene: Obliviate\_8 Start: 6591, Stop: 6983, Start Num: 18

Candidate Starts for Obliviate\_8:

(13, 6507), (Start: 18 @6591 has 42 MA's), (32, 6639), (47, 6726), (56, 6765), (70, 6819), (76, 6849), (84, 6894), (86, 6900), (94, 6933),

Gene: Ohgeesy\_8 Start: 6274, Stop: 6648, Start Num: 24

Candidate Starts for Ohgeesy\_8:

(Start: 24 @6274 has 90 MA's), (37, 6328), (45, 6364), (56, 6448), (59, 6460), (60, 6463), (67, 6487), (73, 6517), (87, 6574), (88, 6580), (92, 6595), (94, 6604),

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

Candidate Starts for Opie\_8:

(Start: 16 @6838 has 3 MA's), (Start: 28 @6859 has 1 MA's), (59, 7030), (101, 7213),

Gene: Oregano\_9 Start: 6263, Stop: 6646, Start Num: 25

Candidate Starts for Oregano\_9:

(Start: 25 @6263 has 14 MA's), (35, 6308), (39, 6323), (42, 6341), (45, 6350), (54, 6419), (59, 6443), (73, 6500),

Gene: PCoral7\_8 Start: 6551, Stop: 6937, Start Num: 18

Candidate Starts for PCoral7\_8:

(Start: 18 @6551 has 42 MA's), (33, 6605), (56, 6719), (59, 6731), (60, 6734), (94, 6887),

Gene: PantheRoc\_8 Start: 6274, Stop: 6648, Start Num: 24

Candidate Starts for PantheRoc\_8:

(Start: 24 @6274 has 90 MA's), (45, 6364), (56, 6448), (59, 6460), (60, 6463), (67, 6487), (73, 6517), (87, 6574), (88, 6580), (92, 6595), (94, 6604),

Gene: Parada\_12 Start: 8234, Stop: 8626, Start Num: 22

Candidate Starts for Parada\_12:

(11, 8132), (Start: 22 @8234 has 36 MA's), (33, 8279), (56, 8420),

Gene: Petra\_8 Start: 6473, Stop: 6865, Start Num: 18

Candidate Starts for Petra\_8:

(13, 6389), (Start: 18 @6473 has 42 MA's), (56, 6647), (59, 6659), (70, 6701), (84, 6776), (86, 6782), (94, 6815),

Gene: Phalm\_8 Start: 6579, Stop: 6941, Start Num: 24

Candidate Starts for Phalm\_8:

(Start: 24 @6579 has 90 MA's), (39, 6648), (57, 6738), (86, 6855), (92, 6882),

Gene: Phayonce\_8 Start: 6581, Stop: 6943, Start Num: 24  
Candidate Starts for Phayonce\_8:  
(Start: 24 @6581 has 90 MA's), (39, 6650), (57, 6740), (59, 6749), (81, 6830), (92, 6884), (97, 6902),

Gene: Phegasus\_8 Start: 6594, Stop: 6956, Start Num: 24  
Candidate Starts for Phegasus\_8:  
(Start: 24 @6594 has 90 MA's), (57, 6753), (83, 6861), (86, 6870), (92, 6897), (97, 6915),

Gene: Phineas\_8 Start: 6580, Stop: 6942, Start Num: 24  
Candidate Starts for Phineas\_8:  
(Start: 24 @6580 has 90 MA's), (39, 6649), (57, 6739), (86, 6856), (92, 6883),

Gene: PhriskyACE\_8 Start: 6096, Stop: 6479, Start Num: 25  
Candidate Starts for PhriskyACE\_8:  
(Start: 25 @6096 has 14 MA's), (35, 6141), (39, 6156), (42, 6174), (45, 6183), (54, 6252), (56, 6264),  
(59, 6276), (73, 6333),

Gene: PhrostedPhlake\_8 Start: 6648, Stop: 7040, Start Num: 18  
Candidate Starts for PhrostedPhlake\_8:  
(13, 6564), (Start: 18 @6648 has 42 MA's), (40, 6732), (56, 6822), (59, 6834), (70, 6876), (76, 6906),  
(84, 6951), (85, 6954), (86, 6957), (94, 6990),

Gene: Pickett\_8 Start: 6128, Stop: 6511, Start Num: 24  
Candidate Starts for Pickett\_8:  
(Start: 24 @6128 has 90 MA's), (45, 6215), (56, 6296), (59, 6308), (70, 6350), (73, 6365), (92, 6443),

Gene: Pimento\_13 Start: 8447, Stop: 8830, Start Num: 24  
Candidate Starts for Pimento\_13:  
(Start: 24 @8447 has 90 MA's), (33, 8483), (56, 8624),

Gene: Pipp\_8 Start: 6591, Stop: 6983, Start Num: 18  
Candidate Starts for Pipp\_8:  
(13, 6507), (Start: 18 @6591 has 42 MA's), (32, 6639), (47, 6726), (56, 6765), (70, 6819), (76, 6849),  
(84, 6894), (86, 6900), (94, 6933),

Gene: Polkaroo\_8 Start: 6592, Stop: 6954, Start Num: 24  
Candidate Starts for Polkaroo\_8:  
(Start: 24 @6592 has 90 MA's), (39, 6661), (57, 6751), (86, 6868), (92, 6895),

Gene: Popper\_10 Start: 7293, Stop: 7694, Start Num: 24  
Candidate Starts for Popper\_10:  
(Start: 24 @7293 has 90 MA's), (38, 7350), (56, 7461), (60, 7476), (61, 7482), (66, 7497), (79, 7551),  
(89, 7611), (96, 7650), (98, 7659),

Gene: Powerball\_8 Start: 6096, Stop: 6479, Start Num: 25  
Candidate Starts for Powerball\_8:  
(Start: 25 @6096 has 14 MA's), (35, 6141), (39, 6156), (42, 6174), (45, 6183), (56, 6264), (59, 6276),  
(73, 6333),

Gene: PrincePatrick\_8 Start: 6552, Stop: 6938, Start Num: 18  
Candidate Starts for PrincePatrick\_8:  
(Start: 18 @6552 has 42 MA's), (33, 6606), (56, 6720), (59, 6732), (60, 6735), (94, 6888),



Gene: Purky\_8 Start: 6597, Stop: 6959, Start Num: 24  
Candidate Starts for Purky\_8:  
(Start: 24 @6597 has 90 MA's), (57, 6756), (81, 6846), (83, 6864), (86, 6873), (92, 6900), (97, 6918),

Gene: Pygmy\_8 Start: 6580, Stop: 6942, Start Num: 24  
Candidate Starts for Pygmy\_8:  
(Start: 24 @6580 has 90 MA's), (39, 6649), (57, 6739), (86, 6856), (92, 6883),

Gene: QuinnAvery\_11 Start: 7780, Stop: 8181, Start Num: 24  
Candidate Starts for QuinnAvery\_11:  
(Start: 24 @7780 has 90 MA's), (56, 7948), (60, 7963), (61, 7969), (66, 7984), (79, 8038), (89, 8098),  
(95, 8131), (96, 8137), (98, 8146),

Gene: REQ2\_08 Start: 6272, Stop: 6640, Start Num: 24  
Candidate Starts for REQ2\_08:  
(Start: 24 @6272 has 90 MA's), (27, 6278), (42, 6353), (65, 6476), (79, 6524),

Gene: RayTheFireFly\_9 Start: 6909, Stop: 7271, Start Num: 28  
Candidate Starts for RayTheFireFly\_9:  
(Start: 19 @6876 has 4 MA's), (Start: 28 @6909 has 1 MA's), (Start: 30 @6921 has 1 MA's), (56,  
7068), (59, 7080), (63, 7095), (86, 7191),

Gene: Rem711\_14 Start: 9778, Stop: 10167, Start Num: 20  
Candidate Starts for Rem711\_14:  
(Start: 20 @9778 has 1 MA's), (Start: 28 @9802 has 1 MA's), (33, 9826), (44, 9877), (56, 9958), (62,  
9982), (81, 10054),

Gene: RonRayGun\_10 Start: 8271, Stop: 8714, Start Num: 17  
Candidate Starts for RonRayGun\_10:  
(6, 8115), (8, 8133), (9, 8211), (Start: 17 @8271 has 13 MA's), (58, 8457), (59, 8460), (62, 8472), (68,  
8490), (72, 8511), (74, 8520), (79, 8541), (80, 8550),

Gene: Ruthy\_9 Start: 7046, Stop: 7438, Start Num: 26  
Candidate Starts for Ruthy\_9:  
(Start: 26 @7046 has 3 MA's), (35, 7091), (53, 7202), (56, 7220),

Gene: Ryan\_12 Start: 7911, Stop: 8312, Start Num: 24  
Candidate Starts for Ryan\_12:  
(Start: 24 @7911 has 90 MA's), (56, 8079), (60, 8094), (61, 8100), (66, 8115), (79, 8169), (89, 8229),  
(90, 8232), (96, 8268), (98, 8277),

Gene: Sahara\_8 Start: 6144, Stop: 6527, Start Num: 24  
Candidate Starts for Sahara\_8:  
(Start: 24 @6144 has 90 MA's), (45, 6231), (52, 6294), (56, 6312), (59, 6324), (73, 6381), (92, 6459),

Gene: SamW\_8 Start: 6443, Stop: 6847, Start Num: 23  
Candidate Starts for SamW\_8:  
(Start: 23 @6443 has 8 MA's), (45, 6533), (51, 6590), (59, 6614), (67, 6641), (77, 6686), (81, 6704),  
(97, 6770),

Gene: Samba\_8 Start: 6568, Stop: 6960, Start Num: 18  
Candidate Starts for Samba\_8:  
(13, 6484), (Start: 18 @6568 has 42 MA's), (32, 6616), (47, 6703), (56, 6742), (70, 6796), (94, 6910),

Gene: Samman98\_9 Start: 6592, Stop: 6975, Start Num: 25

Candidate Starts for Samman98\_9:

(Start: 25 @6592 has 14 MA's), (35, 6637), (39, 6652), (42, 6670), (45, 6679), (54, 6748), (59, 6772), (73, 6829),

Gene: Savage\_8 Start: 6128, Stop: 6511, Start Num: 24

Candidate Starts for Savage\_8:

(Start: 24 @6128 has 90 MA's), (32, 6155), (45, 6215), (56, 6296), (59, 6308), (70, 6350), (73, 6365), (92, 6443),

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

Candidate Starts for Schnabeltier\_8:

(Start: 16 @6824 has 3 MA's), (Start: 28 @6845 has 1 MA's), (59, 7016), (86, 7127),

Gene: Sekhmet\_9 Start: 6592, Stop: 6975, Start Num: 25

Candidate Starts for Sekhmet\_9:

(Start: 25 @6592 has 14 MA's), (35, 6637), (39, 6652), (42, 6670), (45, 6679), (54, 6748), (59, 6772), (73, 6829),

Gene: Shipwreck\_8 Start: 6580, Stop: 6942, Start Num: 24

Candidate Starts for Shipwreck\_8:

(Start: 24 @6580 has 90 MA's), (39, 6649), (57, 6739), (86, 6856), (92, 6883),

Gene: Shlim410\_8 Start: 6280, Stop: 6651, Start Num: 24

Candidate Starts for Shlim410\_8:

(Start: 24 @6280 has 90 MA's), (40, 6343), (45, 6367), (48, 6403), (54, 6439), (56, 6451), (59, 6463), (60, 6466), (73, 6520), (78, 6538), (87, 6577), (88, 6583), (92, 6598), (94, 6607),

Gene: Sidious\_8 Start: 6277, Stop: 6648, Start Num: 24

Candidate Starts for Sidious\_8:

(Start: 24 @6277 has 90 MA's), (45, 6364), (56, 6448), (59, 6460), (60, 6463), (67, 6487), (87, 6574), (88, 6580), (92, 6595), (94, 6604),

Gene: SoilAssassin\_8 Start: 6128, Stop: 6511, Start Num: 24

Candidate Starts for SoilAssassin\_8:

(Start: 24 @6128 has 90 MA's), (45, 6215), (56, 6296), (59, 6308), (70, 6350), (73, 6365), (92, 6443),

Gene: Sonah\_8 Start: 6594, Stop: 6956, Start Num: 24

Candidate Starts for Sonah\_8:

(Start: 24 @6594 has 90 MA's), (57, 6753), (82, 6846), (83, 6861), (86, 6870), (92, 6897), (97, 6915),

Gene: Sproutie\_8 Start: 6128, Stop: 6511, Start Num: 24

Candidate Starts for Sproutie\_8:

(Start: 24 @6128 has 90 MA's), (32, 6155), (45, 6215), (56, 6296), (59, 6308), (70, 6350), (73, 6365), (92, 6443),

Gene: StAB\_8 Start: 6448, Stop: 6852, Start Num: 23

Candidate Starts for StAB\_8:

(Start: 23 @6448 has 8 MA's), (45, 6538), (51, 6595), (59, 6619), (67, 6646), (77, 6691), (81, 6709), (97, 6775),

Gene: StevieRay\_8 Start: 6583, Stop: 6945, Start Num: 24

Candidate Starts for StevieRay\_8:

(Start: 24 @6583 has 90 MA's), (39, 6652), (57, 6742), (86, 6859), (92, 6886),

Gene: Stiles\_8 Start: 6442, Stop: 6846, Start Num: 23

Candidate Starts for Stiles\_8:

(Start: 23 @6442 has 8 MA's), (45, 6532), (51, 6589), (59, 6613), (67, 6640), (77, 6685), (81, 6703), (97, 6769),

Gene: StressBall\_8 Start: 6579, Stop: 6941, Start Num: 24

Candidate Starts for StressBall\_8:

(Start: 24 @6579 has 90 MA's), (39, 6648), (57, 6738), (86, 6855), (92, 6882),

Gene: Suerte\_8 Start: 6090, Stop: 6473, Start Num: 25

Candidate Starts for Suerte\_8:

(Start: 25 @6090 has 14 MA's), (35, 6135), (39, 6150), (42, 6168), (45, 6177), (54, 6246), (59, 6270), (73, 6327),

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

Candidate Starts for TaronosaurusRx\_8:

(Start: 16 @6834 has 3 MA's), (Start: 28 @6858 has 1 MA's), (56, 7017), (59, 7029), (86, 7140), (101, 7212),

Gene: Techage\_8 Start: 6597, Stop: 6959, Start Num: 24

Candidate Starts for Techage\_8:

(Start: 24 @6597 has 90 MA's), (57, 6756), (83, 6864), (86, 6873), (92, 6900), (97, 6918),

Gene: Thespis\_8 Start: 6579, Stop: 6941, Start Num: 24

Candidate Starts for Thespis\_8:

(Start: 24 @6579 has 90 MA's), (39, 6648), (57, 6738), (86, 6855), (92, 6882),

Gene: Thimann\_9 Start: 6592, Stop: 6975, Start Num: 25

Candidate Starts for Thimann\_9:

(Start: 25 @6592 has 14 MA's), (35, 6637), (39, 6652), (42, 6670), (45, 6679), (54, 6748), (59, 6772), (73, 6829),

Gene: ThulaThula\_8 Start: 6626, Stop: 6988, Start Num: 24

Candidate Starts for ThulaThula\_8:

(Start: 24 @6626 has 90 MA's), (39, 6695), (57, 6785), (59, 6794), (81, 6875), (92, 6929), (97, 6947),

Gene: Toast\_8 Start: 6551, Stop: 6937, Start Num: 18

Candidate Starts for Toast\_8:

(Start: 18 @6551 has 42 MA's), (33, 6605), (56, 6719), (59, 6731), (60, 6734), (94, 6887),

Gene: Tortellini\_8 Start: 6539, Stop: 6901, Start Num: 24

Candidate Starts for Tortellini\_8:

(Start: 24 @6539 has 90 MA's), (55, 6692), (57, 6698), (81, 6788), (83, 6806), (86, 6815), (92, 6842), (97, 6860),

Gene: Troy\_8 Start: 6443, Stop: 6847, Start Num: 23

Candidate Starts for Troy\_8:

(Start: 23 @6443 has 8 MA's), (45, 6533), (51, 6590), (59, 6614), (67, 6641), (77, 6686), (81, 6704), (97, 6770),

Gene: TuertoX\_8 Start: 6128, Stop: 6511, Start Num: 24

Candidate Starts for TuertoX\_8:

(Start: 24 @6128 has 90 MA's), (32, 6155), (45, 6215), (56, 6296), (59, 6308), (70, 6350), (73, 6365), (92, 6443),

Gene: Twinkle\_8 Start: 6280, Stop: 6651, Start Num: 24

Candidate Starts for Twinkle\_8:

(Start: 24 @6280 has 90 MA's), (40, 6343), (45, 6367), (48, 6403), (54, 6439), (56, 6451), (59, 6463), (60, 6466), (73, 6520), (78, 6538), (87, 6577), (88, 6583), (92, 6598), (94, 6607),

Gene: Ubuntu\_11 Start: 7983, Stop: 8435, Start Num: 22

Candidate Starts for Ubuntu\_11:

(Start: 22 @7983 has 36 MA's), (Start: 24 @7992 has 90 MA's), (29, 8010), (33, 8028), (35, 8040), (40, 8058), (41, 8070), (43, 8076), (54, 8151), (56, 8163), (64, 8190), (69, 8208), (82, 8265), (84, 8283), (85, 8286), (93, 8316), (100, 8355), (102, 8376), (103, 8403), (104, 8427),

Gene: UmaThurman\_8 Start: 6567, Stop: 6959, Start Num: 18

Candidate Starts for UmaThurman\_8:

(13, 6483), (Start: 18 @6567 has 42 MA's), (32, 6615), (47, 6702), (56, 6741), (70, 6795), (94, 6909),

Gene: Utz\_8 Start: 6567, Stop: 6959, Start Num: 18

Candidate Starts for Utz\_8:

(13, 6483), (Start: 18 @6567 has 42 MA's), (47, 6702), (56, 6741), (70, 6795), (76, 6825), (84, 6870), (86, 6876), (94, 6909),

Gene: Vasanti\_8 Start: 6132, Stop: 6515, Start Num: 24

Candidate Starts for Vasanti\_8:

(Start: 24 @6132 has 90 MA's), (32, 6159), (45, 6219), (56, 6300), (59, 6312), (70, 6354), (92, 6447),

Gene: Venti\_8 Start: 6592, Stop: 6954, Start Num: 24

Candidate Starts for Venti\_8:

(Start: 24 @6592 has 90 MA's), (39, 6661), (57, 6751), (86, 6868), (92, 6895),

Gene: Vidya\_8 Start: 6592, Stop: 6954, Start Num: 24

Candidate Starts for Vidya\_8:

(Start: 24 @6592 has 90 MA's), (39, 6661), (57, 6751), (86, 6868), (92, 6895),

Gene: Walrus\_8 Start: 6479, Stop: 6871, Start Num: 18

Candidate Starts for Walrus\_8:

(Start: 18 @6479 has 42 MA's), (47, 6614), (56, 6653), (82, 6764), (94, 6821),

Gene: Webster2\_11 Start: 7983, Stop: 8435, Start Num: 22

Candidate Starts for Webster2\_11:

(Start: 22 @7983 has 36 MA's), (Start: 24 @7992 has 90 MA's), (29, 8010), (33, 8028), (35, 8040), (40, 8058), (41, 8070), (43, 8076), (54, 8151), (56, 8163), (64, 8190), (69, 8208), (82, 8265), (84, 8283), (85, 8286), (93, 8316), (100, 8355), (102, 8376), (103, 8403), (104, 8427),

Gene: Weirido19\_9 Start: 6915, Stop: 7337, Start Num: 22

Candidate Starts for Weirido19\_9:

(12, 6825), (Start: 22 @6915 has 36 MA's), (36, 6978), (43, 7011), (53, 7083), (59, 7110), (60, 7113), (62, 7122), (71, 7152), (92, 7248),

Gene: Whack\_8 Start: 6270, Stop: 6635, Start Num: 24

Candidate Starts for Whack\_8:

(4, 6051), (7, 6072), (10, 6162), (Start: 24 @6270 has 90 MA's), (50, 6396), (56, 6426), (57, 6429), (79, 6507), (85, 6546), (86, 6549),

Gene: WheatThin\_12 Start: 8234, Stop: 8626, Start Num: 22

Candidate Starts for WheatThin\_12:

(11, 8132), (Start: 22 @8234 has 36 MA's), (33, 8279), (56, 8420),

Gene: Whiteclaw\_8 Start: 6128, Stop: 6511, Start Num: 24

Candidate Starts for Whiteclaw\_8:

(Start: 24 @6128 has 90 MA's), (32, 6155), (45, 6215), (56, 6296), (59, 6308), (70, 6350), (73, 6365), (92, 6443),

Gene: Whitty\_10 Start: 8271, Stop: 8714, Start Num: 17

Candidate Starts for Whitty\_10:

(6, 8115), (8, 8133), (9, 8211), (Start: 17 @8271 has 13 MA's), (58, 8457), (59, 8460), (62, 8472), (68, 8490), (72, 8511), (74, 8520), (79, 8541), (80, 8550),

Gene: William\_8 Start: 6566, Stop: 6952, Start Num: 18

Candidate Starts for William\_8:

(Start: 18 @6566 has 42 MA's), (33, 6620), (56, 6734), (59, 6746), (60, 6749), (94, 6902),

Gene: Willsammy\_8 Start: 6582, Stop: 6944, Start Num: 24

Candidate Starts for Willsammy\_8:

(Start: 24 @6582 has 90 MA's), (39, 6651), (57, 6741), (86, 6858), (92, 6885),

Gene: WinkNick\_9 Start: 6592, Stop: 6975, Start Num: 25

Candidate Starts for WinkNick\_9:

(Start: 25 @6592 has 14 MA's), (35, 6637), (39, 6652), (42, 6670), (45, 6679), (54, 6748), (59, 6772), (73, 6829),

Gene: Wishmaker\_11 Start: 7983, Stop: 8435, Start Num: 22

Candidate Starts for Wishmaker\_11:

(Start: 22 @7983 has 36 MA's), (Start: 24 @7992 has 90 MA's), (29, 8010), (33, 8028), (35, 8040), (40, 8058), (41, 8070), (43, 8076), (54, 8151), (56, 8163), (64, 8190), (69, 8208), (82, 8265), (84, 8283), (85, 8286), (93, 8316), (100, 8355), (102, 8376), (103, 8403), (104, 8427),

Gene: Wisp\_8 Start: 6567, Stop: 6959, Start Num: 18

Candidate Starts for Wisp\_8:

(13, 6483), (Start: 18 @6567 has 42 MA's), (47, 6702), (56, 6741), (70, 6795), (76, 6825), (84, 6870), (86, 6876), (94, 6909),

Gene: Wocket\_8 Start: 6632, Stop: 7024, Start Num: 18

Candidate Starts for Wocket\_8:

(13, 6548), (Start: 18 @6632 has 42 MA's), (Start: 28 @6662 has 1 MA's), (32, 6680), (47, 6767), (56, 6806), (62, 6830), (70, 6860), (76, 6890), (84, 6935), (86, 6941), (94, 6974),

Gene: Xavia\_8 Start: 6594, Stop: 6956, Start Num: 24

Candidate Starts for Xavia\_8:

(Start: 24 @6594 has 90 MA's), (39, 6663), (57, 6753), (86, 6870), (92, 6897),

Gene: Yeet412\_8 Start: 6128, Stop: 6511, Start Num: 24

Candidate Starts for Yeet412\_8:

(Start: 24 @6128 has 90 MA's), (45, 6215), (56, 6296), (59, 6308), (70, 6350), (73, 6365), (92, 6443),

Gene: Yeezy\_8 Start: 6274, Stop: 6645, Start Num: 24

Candidate Starts for Yeezy\_8:

(Start: 24 @6274 has 90 MA's), (45, 6361), (56, 6445), (59, 6457), (60, 6460), (67, 6484), (73, 6514), (87, 6571), (88, 6577), (92, 6592), (94, 6601),

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

Candidate Starts for ZAYM\_8:

(Start: 16 @6827 has 3 MA's), (Start: 28 @6851 has 1 MA's), (56, 7010), (59, 7022), (86, 7133),

Gene: Zaheer\_12 Start: 8000, Stop: 8401, Start Num: 24

Candidate Starts for Zaheer\_12:

(Start: 24 @8000 has 90 MA's), (56, 8168), (60, 8183), (61, 8189), (66, 8204), (79, 8258), (89, 8318), (95, 8351), (96, 8357), (98, 8366),

Gene: Zarbodnamra\_8 Start: 6566, Stop: 6958, Start Num: 18

Candidate Starts for Zarbodnamra\_8:

(13, 6482), (Start: 18 @6566 has 42 MA's), (32, 6614), (47, 6701), (56, 6740), (70, 6794), (76, 6824), (84, 6869), (86, 6875), (94, 6908),

Gene: ZenTime222\_10 Start: 8271, Stop: 8714, Start Num: 17

Candidate Starts for ZenTime222\_10:

(6, 8115), (8, 8133), (9, 8211), (Start: 17 @8271 has 13 MA's), (58, 8457), (59, 8460), (62, 8472), (68, 8490), (72, 8511), (74, 8520), (79, 8541), (80, 8550),

Gene: ZiggyZoo\_8 Start: 6591, Stop: 6983, Start Num: 18

Candidate Starts for ZiggyZoo\_8:

(13, 6507), (Start: 18 @6591 has 42 MA's), (32, 6639), (47, 6726), (56, 6765), (70, 6819), (76, 6849), (84, 6894), (86, 6900), (94, 6933),

Gene: Zilizebeth\_8 Start: 6592, Stop: 6954, Start Num: 24

Candidate Starts for Zilizebeth\_8:

(Start: 24 @6592 has 90 MA's), (39, 6661), (57, 6751), (86, 6868), (92, 6895),