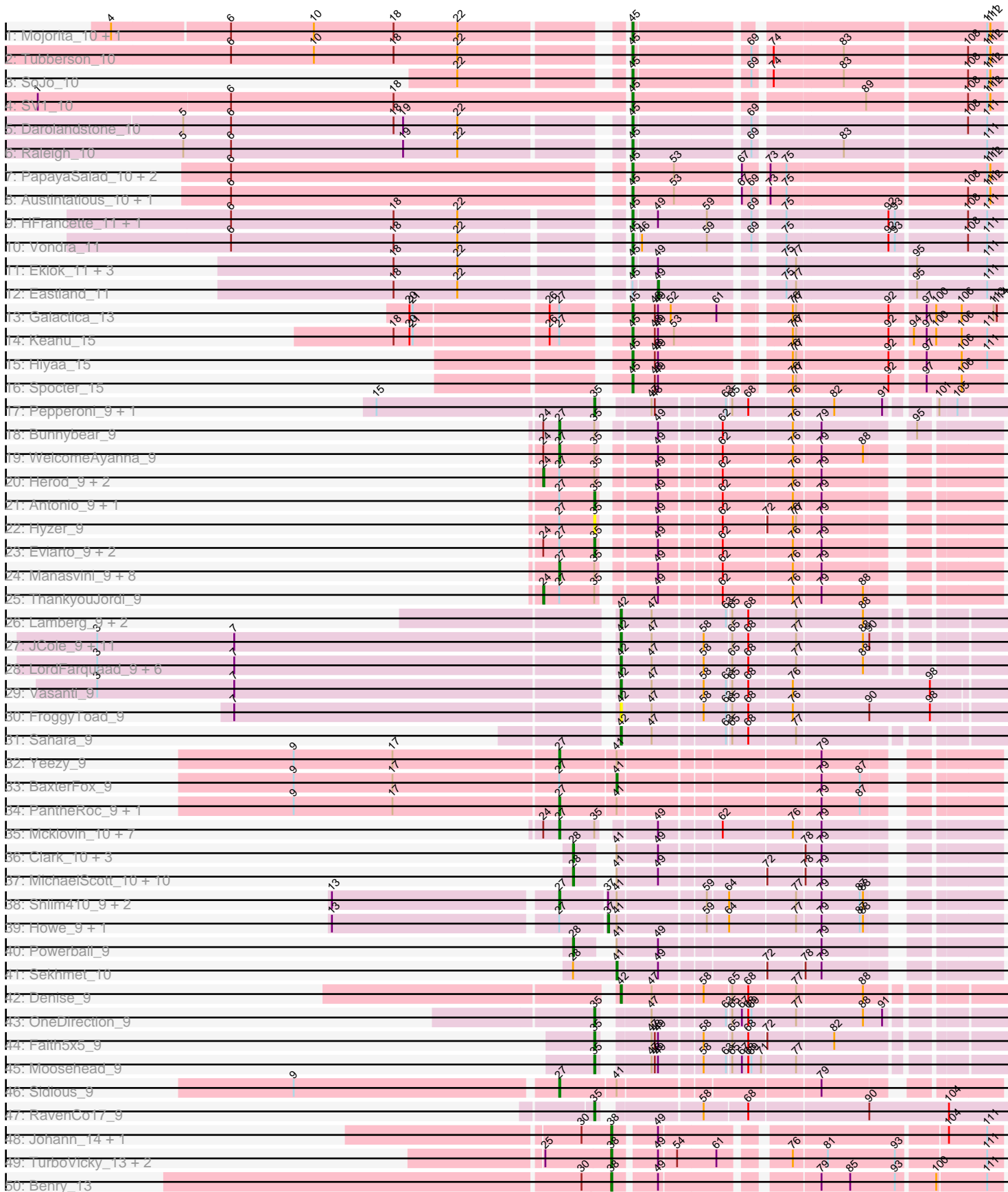
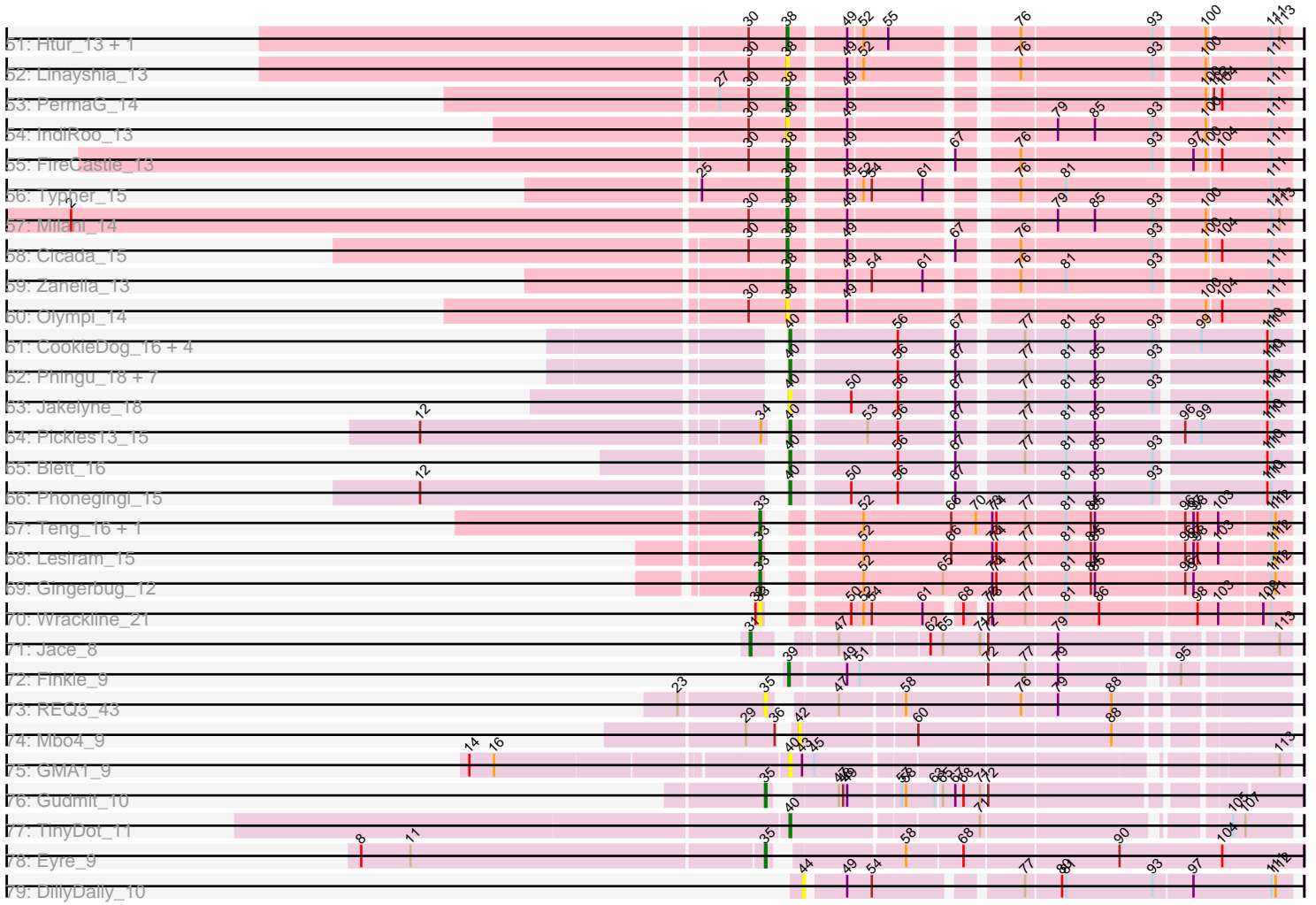


Pham 215896





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 215896 Report

This analysis was run 02/22/25 on database version 588.

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 215896 has 160 members, 25 are drafts.

Phages represented in each track:

- Track 1 : Mojorita\_10, Picard\_10
- Track 2 : Tubberson\_10
- Track 3 : SoJo\_10
- Track 4 : SV1\_10
- Track 5 : Darolandstone\_10
- Track 6 : Raleigh\_10
- Track 7 : PapayaSalad\_10, Ididsumtinwong\_10, Bioscum\_10
- Track 8 : Austintatious\_10, Lishka\_10
- Track 9 : HFrancette\_11, Ignacio\_11
- Track 10 : Vondra\_11
- Track 11 : Eklok\_11, Cumberbatch\_11, Piccadilly\_11, AxeJC\_11
- Track 12 : Eastland\_11
- Track 13 : Galactica\_13
- Track 14 : Keanu\_15
- Track 15 : Hiyaa\_15
- Track 16 : Spocter\_15
- Track 17 : Pepperoni\_9, Lton\_9
- Track 18 : Bunnybear\_9
- Track 19 : WelcomeAyanna\_9
- Track 20 : Herod\_9, BatStarr\_9, Zirinka\_9
- Track 21 : Antonio\_9, Maridalia\_9
- Track 22 : Hyzer\_9
- Track 23 : Eviarto\_9, Hugley\_9, TimTam\_9
- Track 24 : Manasvini\_9, Trumpet\_9, Susceptit\_9, Kita\_9, Polly\_9, Zameen\_9, Eudoria\_9, Tayonia\_9, Neobush\_9
- Track 25 : ThankyouJordi\_9
- Track 26 : Lamberg\_9, EdnaMode\_9, Nettuno\_9
- Track 27 : JCole\_9, Cynthia\_9, Clap\_9, GemG\_9, Whiteclaw\_9, Sproutie\_9, Gizermo\_9, Ebert\_9, Savage\_9, Mocha12\_9, Haley23\_9, TuertoX\_9
- Track 28 : LordFarquaad\_9, Yeet412\_9, Attis\_9, SoilAssassin\_9, Matteo\_9, Bjaness7\_9, Pickett\_9
- Track 29 : Vasanti\_9
- Track 30 : FroggyToad\_9

- Track 31 : Sahara\_9
- Track 32 : Yeezy\_9
- Track 33 : BaxterFox\_9
- Track 34 : PantheRoc\_9, Ohgeesy\_9
- Track 35 : Mcklovin\_10, Agueybana\_9, Nymphadora\_9, AlumE\_9, Bialota\_9, BoyNamedSue\_9, Madeline\_9, Bosnia\_9
- Track 36 : Clark\_10, Annalisa\_10, Dorito\_9, PhriskyACE\_9
- Track 37 : MichaelScott\_10, DobbysSock\_9, Suerte\_9, WinkNick\_10, Oregano\_10, Easley\_10, Dolores\_10, Samman98\_10, Beenie\_10, Thimann\_10, Invecetra\_10
- Track 38 : Shlim410\_9, Hortense\_9, Adora\_9
- Track 39 : Howe\_9, Twinkle\_9
- Track 40 : Powerball\_9
- Track 41 : Sekhmet\_10
- Track 42 : Denise\_9
- Track 43 : OneDirection\_9
- Track 44 : Faith5x5\_9
- Track 45 : Moosehead\_9
- Track 46 : Sidious\_9
- Track 47 : RavenCo17\_9
- Track 48 : Johann\_14, Goodman\_14
- Track 49 : TurboVicky\_13, Jera\_14, SBlackberry\_13
- Track 50 : Benry\_13
- Track 51 : Htur\_13, Rasovi\_13
- Track 52 : Linayshia\_13
- Track 53 : PermaG\_14
- Track 54 : IndiRoo\_13
- Track 55 : FireCastle\_13
- Track 56 : Typher\_15
- Track 57 : Milani\_14
- Track 58 : Cicada\_15
- Track 59 : Zanella\_13
- Track 60 : Olympi\_14
- Track 61 : CookieDog\_16, Appa\_15, PhillyJawn\_16, Losacky\_18, Warren\_16
- Track 62 : Phingu\_18, Carrillo\_17, Dropshot\_15, MenE\_16, Antuna\_16, Bush\_16, Guzman\_17, Violeta\_17
- Track 63 : Jakelyne\_18
- Track 64 : Pickles13\_15
- Track 65 : Blett\_16
- Track 66 : Phonegingi\_15
- Track 67 : Teng\_16, DelaGarza\_15
- Track 68 : Lesiram\_15
- Track 69 : Gingerbug\_12
- Track 70 : Wrackline\_21
- Track 71 : Jace\_8
- Track 72 : Finkle\_9
- Track 73 : REQ3\_43
- Track 74 : Mbo4\_9
- Track 75 : GMA1\_9
- Track 76 : Gudmit\_10
- Track 77 : TinyDot\_11
- Track 78 : Eyre\_9
- Track 79 : DillyDally\_10

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

The start number called the most often in the published annotations is 27, it was called in 26 of the 135 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adora\_9, Agueybana\_9, AlumE\_9, Bialota\_9, Bosnia\_9, BoyNamedSue\_9, Bunnybear\_9, Eudoria\_9, Hortense\_9, Kita\_9, Madeline\_9, Manasvini\_9, Mcklovin\_10, Neobush\_9, Nymphadora\_9, Ohgeesy\_9, PantheRoc\_9, Polly\_9, Shlim410\_9, Sidious\_9, Suscepit\_9, Tayonia\_9, Trumpet\_9, WelcomeAyanna\_9, Yeezy\_9, Zameen\_9,

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

- Antonio\_9, BatStarr\_9, BaxterFox\_9, Eviarto\_9, Galactica\_13, Herod\_9, Howe\_9, Hugley\_9, Hyzer\_9, Keanu\_15, Maridalia\_9, PermaG\_14, ThankyouJordi\_9, TimTam\_9, Twinkle\_9, Zirinka\_9,

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

- Annalisa\_10, Antuna\_16, Appa\_15, Attis\_9, Austintatious\_10, AxeJC\_11, Beenie\_10, Benry\_13, Bioscum\_10, Bjaner7\_9, Blett\_16, Bush\_16, Carrillo\_17, Cicada\_15, Clap\_9, Clark\_10, CookieDog\_16, Cumberbatch\_11, Cynthia\_9, Darolandstone\_10, DelaGarza\_15, Denise\_9, DillyDally\_10, DobbysSock\_9, Dolores\_10, Dorito\_9, Dropshot\_15, Easley\_10, Eastland\_11, Ebert\_9, EdnaMode\_9, Eklok\_11, Eyre\_9, Faith5x5\_9, Finkle\_9, FireCastle\_13, FroggyToad\_9, GMA1\_9, GemG\_9, Gingerbug\_12, Gizermo\_9, Goodman\_14, Gudmit\_10, Guzman\_17, HFrancette\_11, Haley23\_9, Hiyaa\_15, Htur\_13, Ididsumtinwong\_10, Ignacio\_11, IndiRoo\_13, Invectra\_10, JCole\_9, Jace\_8, Jakelyne\_18, Jera\_14, Johann\_14, Lamberg\_9, Lesiram\_15, Linayshia\_13, Lishka\_10, LordFarquaad\_9, Losacky\_18, Lton\_9, Matteo\_9, Mbo4\_9, MenE\_16, MichaelScott\_10, Milani\_14, Mocha12\_9, Moajorita\_10, Moosehead\_9, Nettuno\_9, Olympi\_14, OneDirection\_9, Oregano\_10, PapayaSalad\_10, Pepperoni\_9, PhillyJawn\_16, Phingu\_18, Phonegingi\_15, PhriskyACE\_9, Picard\_10, Piccadilly\_11, Pickett\_9, Pickles13\_15, Powerball\_9, REQ3\_43, Raleigh\_10, Rasovi\_13, RavenCo17\_9, SBlackberry\_13, SV1\_10, Sahara\_9, Samman98\_10, Savage\_9, Sekhmet\_10, SoJo\_10, SoilAssassin\_9, Spocter\_15, Sproutie\_9, Suerte\_9, Teng\_16, Thimann\_10, TinyDot\_11, Tubberson\_10, TuertoX\_9, TurboVicky\_13, Typher\_15, Vasanti\_9, Violeta\_17, Vondra\_11, Warren\_16, Whiteclaw\_9, WinkNick\_10, Wrackline\_21, Yeet412\_9, Zanella\_13,

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

Start 24:

- Found in 17 of 160 ( 10.6% ) of genes in pham
- Manual Annotations of this start: 4 of 135
- Called 23.5% of time when present
- Phage (with cluster) where this start called: BatStarr\_9 (CZ1), Herod\_9 (CZ1), ThankyouJordi\_9 (CZ1), Zirinka\_9 (CZ1),

Start 27:

- Found in 42 of 160 ( 26.2% ) of genes in pham

- Manual Annotations of this start: 26 of 135
- Called 61.9% of time when present
- Phage (with cluster) where this start called: Adora\_9 (CZ4), Agueybana\_9 (CZ1), AlumE\_9 (CZ1), Bialota\_9 (CZ1), Bosnia\_9 (CZ1), BoyNamedSue\_9 (CZ1), Bunnybear\_9 (CZ), Eudoria\_9 (CZ1), Hortense\_9 (CZ4), Kita\_9 (CZ1), Madeline\_9 (CZ1), Manasvini\_9 (CZ1), Mcklovin\_10 (CZ4), Neobush\_9 (CZ1), Nymphadora\_9 (CZ1), Ohgeesy\_9 (CZ), PantheRoc\_9 (CZ3), Polly\_9 (CZ1), Shlim410\_9 (CZ4), Sidious\_9 (CZ7), Susceptit\_9 (CZ1), Tayonia\_9 (CZ1), Trumpet\_9 (CZ1), WelcomeAyanna\_9 (CZ1), Yeezy\_9 (CZ3), Zameen\_9 (CZ1),

#### Start 28:

- Found in 17 of 160 ( 10.6% ) of genes in pham
- Manual Annotations of this start: 14 of 135
- Called 94.1% of time when present
- Phage (with cluster) where this start called: Annalisa\_10 (CZ4), Beenie\_10 (CZ4), Clark\_10 (CZ4), DobbysSock\_9 (CZ4), Dolores\_10 (CZ4), Dorito\_9 (CZ4), Easley\_10 (CZ4), Invectra\_10 (CZ4), MichaelScott\_10 (CZ4), Oregano\_10 (CZ4), PhriskyACE\_9 (CZ4), Powerball\_9 (CZ4), Samman98\_10 (CZ4), Suerte\_9 (CZ4), Thimann\_10 (CZ4), WinkNick\_10 (CZ4),

#### Start 31:

- Found in 1 of 160 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 135
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jace\_8 (singleton),

#### Start 33:

- Found in 5 of 160 ( 3.1% ) of genes in pham
- Manual Annotations of this start: 3 of 135
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DelaGarza\_15 (GF), Gingerbug\_12 (GF), Lesiram\_15 (GF), Teng\_16 (GF), Wrackline\_21 (GF),

#### Start 35:

- Found in 38 of 160 ( 23.8% ) of genes in pham
- Manual Annotations of this start: 11 of 135
- Called 39.5% of time when present
- Phage (with cluster) where this start called: Antonio\_9 (CZ1), Eviarto\_9 (CZ1), Eyre\_9 (singleton), Faith5x5\_9 (CZ6), Gudmit\_10 (singleton), Hugley\_9 (CZ1), Hyzer\_9 (CZ1), Lton\_9 (CZ), Maridalia\_9 (CZ1), Moosehead\_9 (CZ6), OneDirection\_9 (CZ6), Pepperoni\_9 (CZ), REQ3\_43 (singleton), RavenCo17\_9 (CZ8), TimTam\_9 (CZ1),

#### Start 37:

- Found in 5 of 160 ( 3.1% ) of genes in pham
- Manual Annotations of this start: 2 of 135
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Howe\_9 (CZ4), Twinkle\_9 (CZ4),

#### Start 38:

- Found in 17 of 160 ( 10.6% ) of genes in pham
- Manual Annotations of this start: 14 of 135
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Berry\_13 (EJ), Cicada\_15 (EJ), FireCastle\_13 (EJ), Goodman\_14 (EJ), Htur\_13 (EJ), IndiRoo\_13 (EJ), Jera\_14 (EJ), Johann\_14 (EJ), Linayshia\_13 (EJ), Milani\_14 (EJ), Olympi\_14 (EJ), PermaG\_14 (EJ), Rasovi\_13 (EJ), SBlackberry\_13 (EJ), TurboVicky\_13 (EJ), Typher\_15 (EJ), Zanella\_13 (EJ),

#### Start 39:

- Found in 1 of 160 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 135
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Finkle\_9 (singleton),

#### Start 40:

- Found in 19 of 160 ( 11.9% ) of genes in pham
- Manual Annotations of this start: 10 of 135
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Antuna\_16 (GA), Appa\_15 (GA), Blett\_16 (GA), Bush\_16 (GA), Carrillo\_17 (GA), CookieDog\_16 (GA), Dropshot\_15 (GA), GMA1\_9 (singleton), Guzman\_17 (GA), Jakelyne\_18 (GA), Losacky\_18 (GA), MenE\_16 (GA), PhillyJawn\_16 (GA), Phingu\_18 (GA), Phonegingi\_15 (GA), Pickles13\_15 (GA), TinyDot\_11 (singleton), Violeta\_17 (GA), Warren\_16 (GA),

#### Start 41:

- Found in 27 of 160 ( 16.9% ) of genes in pham
- Manual Annotations of this start: 2 of 135
- Called 7.4% of time when present
- Phage (with cluster) where this start called: BaxterFox\_9 (CZ3), Sekhmet\_10 (CZ4),

#### Start 42:

- Found in 27 of 160 ( 16.9% ) of genes in pham
- Manual Annotations of this start: 24 of 135
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Attis\_9 (CZ2), Bjaner7\_9 (CZ2), Clap\_9 (CZ2), Cynthia\_9 (CZ2), Denise\_9 (CZ5), Ebert\_9 (CZ2), EdnaMode\_9 (CZ2), FroggyToad\_9 (CZ2), GemG\_9 (CZ2), Gizermo\_9 (CZ2), Haley23\_9 (CZ2), JCole\_9 (CZ2), Lamberg\_9 (CZ2), LordFarquaad\_9 (CZ2), Matteo\_9 (CZ2), Mbo4\_9 (singleton), Mocha12\_9 (CZ2), Nettuno\_9 (CZ2), Pickett\_9 (CZ2), Sahara\_9 (CZ2), Savage\_9 (CZ2), SoilAssassin\_9 (CZ2), Sproutie\_9 (CZ2), TuertoX\_9 (CZ2), Vasanti\_9 (CZ2), Whiteclaw\_9 (CZ2), Yeet412\_9 (CZ2),

#### Start 44:

- Found in 1 of 160 ( 0.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DillyDally\_10 (singleton),

#### Start 45:

- Found in 25 of 160 ( 15.6% ) of genes in pham
- Manual Annotations of this start: 22 of 135
- Called 92.0% of time when present
- Phage (with cluster) where this start called: Austintatious\_10 (BC3), AxeJC\_11 (BP), Bioscum\_10 (BC3), Cumberbatch\_11 (BP), Darolandstone\_10 (BC2), Eklok\_11 (BP), Galactica\_13 (BQ), HFrancette\_11 (BP), Hiyaa\_15 (BQ), Ididsumtinwong\_10 (BC3),

Ignacio\_11 (BP), Keanu\_15 (BQ), Lishka\_10 (BC3), Mojerita\_10 (BC1), PapayaSalad\_10 (BC3), Picard\_10 (BC1), Piccadilly\_11 (BP), Raleigh\_10 (BC2), SV1\_10 (BC1), SoJo\_10 (BC1), Spocter\_15 (BQ), Tubberson\_10 (BC1), Vondra\_11 (BP),

Start 49:

- Found in 79 of 160 ( 49.4% ) of genes in pham
- Manual Annotations of this start: 1 of 135
- Called 1.3% of time when present
- Phage (with cluster) where this start called: Eastland\_11 (BP),

### **Summary by clusters:**

There are 18 clusters represented in this pham: singleton, EJ, CZ2, CZ3, CZ8, CZ1, CZ6, CZ7, CZ4, CZ5, GF, BP, BQ, GA, CZ, BC1, BC2, BC3,

Info for manual annotations of cluster BC1:

- Start number 45 was manually annotated 5 times for cluster BC1.

Info for manual annotations of cluster BC2:

- Start number 45 was manually annotated 2 times for cluster BC2.

Info for manual annotations of cluster BC3:

- Start number 45 was manually annotated 4 times for cluster BC3.

Info for manual annotations of cluster BP:

- Start number 45 was manually annotated 7 times for cluster BP.
- Start number 49 was manually annotated 1 time for cluster BP.

Info for manual annotations of cluster BQ:

- Start number 45 was manually annotated 4 times for cluster BQ.

Info for manual annotations of cluster CZ:

- Start number 27 was manually annotated 2 times for cluster CZ.
- Start number 35 was manually annotated 1 time for cluster CZ.

Info for manual annotations of cluster CZ1:

- Start number 24 was manually annotated 4 times for cluster CZ1.
- Start number 27 was manually annotated 17 times for cluster CZ1.
- Start number 35 was manually annotated 4 times for cluster CZ1.

Info for manual annotations of cluster CZ2:

- Start number 42 was manually annotated 23 times for cluster CZ2.

Info for manual annotations of cluster CZ3:

- Start number 27 was manually annotated 2 times for cluster CZ3.
- Start number 41 was manually annotated 1 time for cluster CZ3.

Info for manual annotations of cluster CZ4:

- Start number 27 was manually annotated 4 times for cluster CZ4.
- Start number 28 was manually annotated 14 times for cluster CZ4.
- Start number 37 was manually annotated 2 times for cluster CZ4.
- Start number 41 was manually annotated 1 time for cluster CZ4.



Info for manual annotations of cluster CZ5:

- Start number 42 was manually annotated 1 time for cluster CZ5.

Info for manual annotations of cluster CZ6:

- Start number 35 was manually annotated 3 times for cluster CZ6.

Info for manual annotations of cluster CZ7:

- Start number 27 was manually annotated 1 time for cluster CZ7.

Info for manual annotations of cluster CZ8:

- Start number 35 was manually annotated 1 time for cluster CZ8.

Info for manual annotations of cluster EJ:

- Start number 38 was manually annotated 14 times for cluster EJ.

Info for manual annotations of cluster GA:

- Start number 40 was manually annotated 9 times for cluster GA.

Info for manual annotations of cluster GF:

- Start number 33 was manually annotated 3 times for cluster GF.

### **Gene Information:**

Gene: Adora\_9 Start: 6677, Stop: 7039, Start Num: 27

Candidate Starts for Adora\_9:

(13, 6473), (Start: 27 @6677 has 26 MA's), (Start: 37 @6719 has 2 MA's), (Start: 41 @6725 has 2 MA's), (59, 6800), (64, 6818), (77, 6878), (79, 6899), (87, 6935), (88, 6938),

Gene: Agueybana\_9 Start: 7344, Stop: 7697, Start Num: 27

Candidate Starts for Agueybana\_9:

(Start: 24 @7329 has 4 MA's), (Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: AlumE\_9 Start: 7344, Stop: 7697, Start Num: 27

Candidate Starts for AlumE\_9:

(Start: 24 @7329 has 4 MA's), (Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: Annalisa\_10 Start: 7010, Stop: 7345, Start Num: 28

Candidate Starts for Annalisa\_10:

(Start: 28 @7010 has 14 MA's), (Start: 41 @7031 has 2 MA's), (Start: 49 @7067 has 1 MA's), (78, 7190), (79, 7205),

Gene: Antonio\_9 Start: 7377, Stop: 7697, Start Num: 35

Candidate Starts for Antonio\_9:

(Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: Antuna\_16 Start: 8983, Stop: 9306, Start Num: 40

Candidate Starts for Antuna\_16:

(Start: 40 @8983 has 10 MA's), (56, 9052), (67, 9085), (77, 9127), (81, 9154), (85, 9175), (93, 9214), (110, 9289), (111, 9292),

Gene: Appa\_15 Start: 8845, Stop: 9168, Start Num: 40

Candidate Starts for Appa\_15:

(Start: 40 @8845 has 10 MA's), (56, 8914), (67, 8947), (77, 8989), (81, 9016), (85, 9037), (93, 9076), (99, 9103), (110, 9151), (111, 9154),

Gene: Attis\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for Attis\_9:

(3, 6034), (7, 6163), (Start: 42 @6508 has 24 MA's), (47, 6535), (58, 6577), (65, 6601), (68, 6616), (77, 6658), (88, 6718),

Gene: Austintatious\_10 Start: 7516, Stop: 7836, Start Num: 45

Candidate Starts for Austintatious\_10:

(6, 7162), (Start: 45 @7516 has 22 MA's), (53, 7555), (67, 7609), (69, 7618), (73, 7627), (75, 7642), (108, 7804), (111, 7822), (112, 7825),

Gene: AxeJC\_11 Start: 7664, Stop: 7981, Start Num: 45

Candidate Starts for AxeJC\_11:

(18, 7472), (22, 7532), (Start: 45 @7664 has 22 MA's), (Start: 49 @7685 has 1 MA's), (75, 7787), (77, 7796), (95, 7901), (111, 7967),

Gene: BatStarr\_9 Start: 7329, Stop: 7697, Start Num: 24

Candidate Starts for BatStarr\_9:

(Start: 24 @7329 has 4 MA's), (Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: BaxterFox\_9 Start: 6731, Stop: 7045, Start Num: 41

Candidate Starts for BaxterFox\_9:

(9, 6434), (17, 6527), (Start: 27 @6680 has 26 MA's), (Start: 41 @6731 has 2 MA's), (79, 6905), (87, 6941),

Gene: Beenie\_10 Start: 7004, Stop: 7339, Start Num: 28

Candidate Starts for Beenie\_10:

(Start: 28 @7004 has 14 MA's), (Start: 41 @7025 has 2 MA's), (Start: 49 @7061 has 1 MA's), (72, 7151), (78, 7184), (79, 7199),

Gene: Benry\_13 Start: 9080, Stop: 9403, Start Num: 38

Candidate Starts for Benry\_13:

(30, 9071), (Start: 38 @9080 has 14 MA's), (Start: 49 @9116 has 1 MA's), (79, 9242), (85, 9269), (93, 9311), (100, 9344), (111, 9389),

Gene: Bialota\_9 Start: 7344, Stop: 7697, Start Num: 27

Candidate Starts for Bialota\_9:

(Start: 24 @7329 has 4 MA's), (Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: Bioscum\_10 Start: 7552, Stop: 7872, Start Num: 45

Candidate Starts for Bioscum\_10:

(6, 7198), (Start: 45 @7552 has 22 MA's), (53, 7591), (67, 7645), (73, 7663), (75, 7678), (111, 7858), (112, 7861),

Gene: Bjaner7\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for Bjaner7\_9:

(3, 6034), (7, 6163), (Start: 42 @6508 has 24 MA's), (47, 6535), (58, 6577), (65, 6601), (68, 6616), (77, 6658), (88, 6718),

Gene: Blett\_16 Start: 8998, Stop: 9321, Start Num: 40

Candidate Starts for Blett\_16:

(Start: 40 @8998 has 10 MA's), (56, 9067), (67, 9100), (77, 9142), (81, 9169), (85, 9190), (93, 9229), (110, 9304), (111, 9307),

Gene: Bosnia\_9 Start: 7344, Stop: 7697, Start Num: 27

Candidate Starts for Bosnia\_9:

(Start: 24 @7329 has 4 MA's), (Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: BoyNamedSue\_9 Start: 7344, Stop: 7697, Start Num: 27

Candidate Starts for BoyNamedSue\_9:

(Start: 24 @7329 has 4 MA's), (Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: Bunnybear\_9 Start: 7335, Stop: 7688, Start Num: 27

Candidate Starts for Bunnybear\_9:

(Start: 24 @7320 has 4 MA's), (Start: 27 @7335 has 26 MA's), (Start: 35 @7368 has 11 MA's), (Start: 49 @7410 has 1 MA's), (62, 7461), (76, 7524), (79, 7548), (95, 7617),

Gene: Bush\_16 Start: 8979, Stop: 9302, Start Num: 40

Candidate Starts for Bush\_16:

(Start: 40 @8979 has 10 MA's), (56, 9048), (67, 9081), (77, 9123), (81, 9150), (85, 9171), (93, 9210), (110, 9285), (111, 9288),

Gene: Carrillo\_17 Start: 8952, Stop: 9275, Start Num: 40

Candidate Starts for Carrillo\_17:

(Start: 40 @8952 has 10 MA's), (56, 9021), (67, 9054), (77, 9096), (81, 9123), (85, 9144), (93, 9183), (110, 9258), (111, 9261),

Gene: Cicada\_15 Start: 11149, Stop: 11472, Start Num: 38

Candidate Starts for Cicada\_15:

(30, 11140), (Start: 38 @11149 has 14 MA's), (Start: 49 @11185 has 1 MA's), (67, 11251), (76, 11287), (93, 11380), (100, 11413), (104, 11422), (111, 11458),

Gene: Clap\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for Clap\_9:

(3, 6034), (7, 6163), (Start: 42 @6508 has 24 MA's), (47, 6535), (58, 6577), (65, 6601), (68, 6616), (77, 6658), (88, 6718), (90, 6724),

Gene: Clark\_10 Start: 7010, Stop: 7345, Start Num: 28

Candidate Starts for Clark\_10:

(Start: 28 @7010 has 14 MA's), (Start: 41 @7031 has 2 MA's), (Start: 49 @7067 has 1 MA's), (78, 7190), (79, 7205),

Gene: CookieDog\_16 Start: 8979, Stop: 9302, Start Num: 40

Candidate Starts for CookieDog\_16:

(Start: 40 @8979 has 10 MA's), (56, 9048), (67, 9081), (77, 9123), (81, 9150), (85, 9171), (93, 9210), (99, 9237), (110, 9285), (111, 9288),

Gene: Cumberbatch\_11 Start: 7651, Stop: 7968, Start Num: 45

Candidate Starts for Cumberbatch\_11:

(18, 7459), (22, 7519), (Start: 45 @7651 has 22 MA's), (Start: 49 @7672 has 1 MA's), (75, 7774), (77, 7783), (95, 7888), (111, 7954),

Gene: Cynthia\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for Cynthia\_9:

(3, 6034), (7, 6163), (Start: 42 @6508 has 24 MA's), (47, 6535), (58, 6577), (65, 6601), (68, 6616), (77, 6658), (88, 6718), (90, 6724),

Gene: Darolandstone\_10 Start: 7986, Stop: 8303, Start Num: 45

Candidate Starts for Darolandstone\_10:

(5, 7593), (6, 7638), (18, 7791), (19, 7800), (22, 7851), (Start: 45 @7986 has 22 MA's), (69, 8085), (108, 8271), (111, 8289),

Gene: DelaGarza\_15 Start: 9604, Stop: 9954, Start Num: 33

Candidate Starts for DelaGarza\_15:

(Start: 33 @9604 has 3 MA's), (52, 9652), (66, 9715), (70, 9733), (73, 9745), (74, 9748), (77, 9769), (81, 9796), (84, 9814), (85, 9817), (96, 9880), (97, 9886), (98, 9889), (103, 9904), (111, 9940), (112, 9943),

Gene: Denise\_9 Start: 6517, Stop: 6843, Start Num: 42

Candidate Starts for Denise\_9:

(Start: 42 @6517 has 24 MA's), (47, 6544), (58, 6586), (65, 6610), (68, 6625), (77, 6667), (88, 6727),

Gene: DillyDally\_10 Start: 7591, Stop: 7914, Start Num: 44

Candidate Starts for DillyDally\_10:

(44, 7591), (Start: 49 @7615 has 1 MA's), (54, 7633), (77, 7726), (80, 7750), (81, 7753), (93, 7816), (97, 7843), (111, 7900), (112, 7903),

Gene: DobbysSock\_9 Start: 6502, Stop: 6837, Start Num: 28

Candidate Starts for DobbysSock\_9:

(Start: 28 @6502 has 14 MA's), (Start: 41 @6523 has 2 MA's), (Start: 49 @6559 has 1 MA's), (72, 6649), (78, 6682), (79, 6697),

Gene: Dolores\_10 Start: 7004, Stop: 7339, Start Num: 28

Candidate Starts for Dolores\_10:

(Start: 28 @7004 has 14 MA's), (Start: 41 @7025 has 2 MA's), (Start: 49 @7061 has 1 MA's), (72, 7151), (78, 7184), (79, 7199),

Gene: Dorito\_9 Start: 6508, Stop: 6843, Start Num: 28

Candidate Starts for Dorito\_9:

(Start: 28 @6508 has 14 MA's), (Start: 41 @6529 has 2 MA's), (Start: 49 @6565 has 1 MA's), (78, 6688), (79, 6703),

Gene: Dropshot\_15 Start: 8845, Stop: 9168, Start Num: 40

Candidate Starts for Dropshot\_15:

(Start: 40 @8845 has 10 MA's), (56, 8914), (67, 8947), (77, 8989), (81, 9016), (85, 9037), (93, 9076), (110, 9151), (111, 9154),

Gene: Easley\_10 Start: 7004, Stop: 7339, Start Num: 28

Candidate Starts for Easley\_10:

(Start: 28 @7004 has 14 MA's), (Start: 41 @7025 has 2 MA's), (Start: 49 @7061 has 1 MA's), (72, 7151), (78, 7184), (79, 7199),

Gene: Eastland\_11 Start: 7673, Stop: 7969, Start Num: 49

Candidate Starts for Eastland\_11:

(18, 7460), (22, 7520), (Start: 45 @7652 has 22 MA's), (Start: 49 @7673 has 1 MA's), (75, 7775), (77, 7784), (95, 7889), (111, 7955),

Gene: Ebert\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for Ebert\_9:

(3, 6034), (7, 6163), (Start: 42 @6508 has 24 MA's), (47, 6535), (58, 6577), (65, 6601), (68, 6616), (77, 6658), (88, 6718), (90, 6724),

Gene: EdnaMode\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for EdnaMode\_9:

(Start: 42 @6508 has 24 MA's), (47, 6535), (63, 6598), (65, 6601), (68, 6616), (77, 6658), (88, 6718),

Gene: Eklok\_11 Start: 7664, Stop: 7981, Start Num: 45

Candidate Starts for Eklok\_11:

(18, 7472), (22, 7532), (Start: 45 @7664 has 22 MA's), (Start: 49 @7685 has 1 MA's), (75, 7787), (77, 7796), (95, 7901), (111, 7967),

Gene: Eudoria\_9 Start: 7344, Stop: 7697, Start Num: 27

Candidate Starts for Eudoria\_9:

(Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: Eviarto\_9 Start: 7377, Stop: 7697, Start Num: 35

Candidate Starts for Eviarto\_9:

(Start: 24 @7329 has 4 MA's), (Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: Eyre\_9 Start: 7136, Stop: 7498, Start Num: 35

Candidate Starts for Eyre\_9:

(8, 6848), (11, 6884), (Start: 35 @7136 has 11 MA's), (58, 7217), (68, 7256), (90, 7364), (104, 7439),

Gene: Faith5x5\_9 Start: 6467, Stop: 6802, Start Num: 35

Candidate Starts for Faith5x5\_9:

(Start: 35 @6467 has 11 MA's), (47, 6503), (48, 6506), (Start: 49 @6509 has 1 MA's), (58, 6545), (65, 6569), (68, 6584), (72, 6599), (82, 6659),

Gene: Finkle\_9 Start: 6638, Stop: 6967, Start Num: 39

Candidate Starts for Finkle\_9:

(Start: 39 @6638 has 1 MA's), (Start: 49 @6677 has 1 MA's), (51, 6686), (72, 6776), (77, 6803), (79, 6824), (95, 6896),

Gene: FireCastle\_13 Start: 10810, Stop: 11133, Start Num: 38

Candidate Starts for FireCastle\_13:

(30, 10801), (Start: 38 @10810 has 14 MA's), (Start: 49 @10846 has 1 MA's), (67, 10912), (76, 10948), (93, 11041), (97, 11065), (100, 11074), (104, 11083), (111, 11119),

Gene: FroggyToad\_9 Start: 6509, Stop: 6850, Start Num: 42

Candidate Starts for FroggyToad\_9:

(7, 6164), (Start: 42 @6509 has 24 MA's), (47, 6536), (58, 6578), (63, 6599), (65, 6602), (68, 6617), (76, 6656), (90, 6725), (98, 6782),

Gene: GMA1\_9 Start: 6867, Stop: 7187, Start Num: 40

Candidate Starts for GMA1\_9:

(14, 6651), (16, 6669), (Start: 40 @6867 has 10 MA's), (43, 6876), (Start: 45 @6885 has 22 MA's), (113, 7179),

Gene: Galactica\_13 Start: 12489, Stop: 12806, Start Num: 45

Candidate Starts for Galactica\_13:

(20, 12306), (21, 12309), (26, 12429), (Start: 27 @12438 has 26 MA's), (Start: 45 @12489 has 22 MA's), (48, 12510), (Start: 49 @12513 has 1 MA's), (52, 12525), (61, 12567), (76, 12618), (77, 12621), (92, 12705), (97, 12735), (100, 12744), (106, 12768), (113, 12798), (114, 12801),

Gene: GemG\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for GemG\_9:

(3, 6034), (7, 6163), (Start: 42 @6508 has 24 MA's), (47, 6535), (58, 6577), (65, 6601), (68, 6616), (77, 6658), (88, 6718), (90, 6724),

Gene: Gingerbug\_12 Start: 8787, Stop: 9137, Start Num: 33

Candidate Starts for Gingerbug\_12:

(Start: 33 @8787 has 3 MA's), (52, 8835), (65, 8892), (73, 8928), (74, 8931), (77, 8952), (81, 8979), (84, 8997), (85, 9000), (96, 9063), (97, 9069), (111, 9123), (112, 9126),

Gene: Gizermo\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for Gizermo\_9:

(3, 6034), (7, 6163), (Start: 42 @6508 has 24 MA's), (47, 6535), (58, 6577), (65, 6601), (68, 6616), (77, 6658), (88, 6718), (90, 6724),

Gene: Goodman\_14 Start: 11061, Stop: 11384, Start Num: 38

Candidate Starts for Goodman\_14:

(30, 11052), (Start: 38 @11061 has 14 MA's), (Start: 49 @11097 has 1 MA's), (104, 11334), (111, 11370),

Gene: Gudmit\_10 Start: 7283, Stop: 7618, Start Num: 35

Candidate Starts for Gudmit\_10:

(Start: 35 @7283 has 11 MA's), (47, 7319), (48, 7322), (Start: 49 @7325 has 1 MA's), (57, 7358), (58, 7361), (63, 7382), (65, 7385), (67, 7394), (68, 7400), (71, 7412), (72, 7415),

Gene: Guzman\_17 Start: 9260, Stop: 9583, Start Num: 40

Candidate Starts for Guzman\_17:

(Start: 40 @9260 has 10 MA's), (56, 9329), (67, 9362), (77, 9404), (81, 9431), (85, 9452), (93, 9491), (110, 9566), (111, 9569),

Gene: HFrancette\_11 Start: 7660, Stop: 7977, Start Num: 45

Candidate Starts for HFrancette\_11:

(6, 7315), (18, 7468), (22, 7528), (Start: 45 @7660 has 22 MA's), (Start: 49 @7681 has 1 MA's), (59, 7726), (69, 7759), (75, 7783), (92, 7876), (93, 7882), (108, 7945), (111, 7963),

Gene: Haley23\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for Haley23\_9:

(3, 6034), (7, 6163), (Start: 42 @6508 has 24 MA's), (47, 6535), (58, 6577), (65, 6601), (68, 6616), (77, 6658), (88, 6718), (90, 6724),

Gene: Herod\_9 Start: 7329, Stop: 7697, Start Num: 24

Candidate Starts for Herod\_9:

(Start: 24 @7329 has 4 MA's), (Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: Hiyaa\_15 Start: 13527, Stop: 13844, Start Num: 45

Candidate Starts for Hiyaa\_15:

(Start: 45 @13527 has 22 MA's), (48, 13548), (Start: 49 @13551 has 1 MA's), (76, 13656), (77, 13659), (92, 13743), (97, 13773), (106, 13806), (111, 13830),

Gene: Hortense\_9 Start: 6677, Stop: 7039, Start Num: 27

Candidate Starts for Hortense\_9:

(13, 6473), (Start: 27 @6677 has 26 MA's), (Start: 37 @6719 has 2 MA's), (Start: 41 @6725 has 2 MA's), (59, 6800), (64, 6818), (77, 6878), (79, 6899), (87, 6935), (88, 6938),

Gene: Howe\_9 Start: 6719, Stop: 7039, Start Num: 37

Candidate Starts for Howe\_9:

(13, 6473), (Start: 27 @6677 has 26 MA's), (Start: 37 @6719 has 2 MA's), (Start: 41 @6725 has 2 MA's), (59, 6800), (64, 6818), (77, 6878), (79, 6899), (87, 6935), (88, 6938),

Gene: Htur\_13 Start: 11064, Stop: 11387, Start Num: 38

Candidate Starts for Htur\_13:

(30, 11055), (Start: 38 @11064 has 14 MA's), (Start: 49 @11100 has 1 MA's), (52, 11109), (55, 11127), (76, 11202), (93, 11295), (100, 11328), (111, 11373), (113, 11379),

Gene: Hugley\_9 Start: 7377, Stop: 7697, Start Num: 35

Candidate Starts for Hugley\_9:

(Start: 24 @7329 has 4 MA's), (Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: Hyzer\_9 Start: 7378, Stop: 7698, Start Num: 35

Candidate Starts for Hyzer\_9:

(Start: 27 @7345 has 26 MA's), (Start: 35 @7378 has 11 MA's), (Start: 49 @7420 has 1 MA's), (62, 7471), (72, 7510), (76, 7534), (77, 7537), (79, 7558),

Gene: Ididsumtinwong\_10 Start: 7552, Stop: 7872, Start Num: 45

Candidate Starts for Ididsumtinwong\_10:

(6, 7198), (Start: 45 @7552 has 22 MA's), (53, 7591), (67, 7645), (73, 7663), (75, 7678), (111, 7858), (112, 7861),

Gene: Ignacio\_11 Start: 7660, Stop: 7977, Start Num: 45

Candidate Starts for Ignacio\_11:

(6, 7315), (18, 7468), (22, 7528), (Start: 45 @7660 has 22 MA's), (Start: 49 @7681 has 1 MA's), (59, 7726), (69, 7759), (75, 7783), (92, 7876), (93, 7882), (108, 7945), (111, 7963),

Gene: IndiRoo\_13 Start: 9088, Stop: 9411, Start Num: 38

Candidate Starts for IndiRoo\_13:

(30, 9079), (Start: 38 @9088 has 14 MA's), (Start: 49 @9124 has 1 MA's), (79, 9250), (85, 9277), (93, 9319), (100, 9352), (111, 9397),

Gene: Invecetra\_10 Start: 7004, Stop: 7339, Start Num: 28

Candidate Starts for Invecetra\_10:

(Start: 28 @7004 has 14 MA's), (Start: 41 @7025 has 2 MA's), (Start: 49 @7061 has 1 MA's), (72, 7151), (78, 7184), (79, 7199),

Gene: JCole\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for JCole\_9:

(3, 6034), (7, 6163), (Start: 42 @6508 has 24 MA's), (47, 6535), (58, 6577), (65, 6601), (68, 6616), (77, 6658), (88, 6718), (90, 6724),

Gene: Jace\_8 Start: 7053, Stop: 7382, Start Num: 31

Candidate Starts for Jace\_8:

(Start: 31 @7053 has 1 MA's), (47, 7095), (62, 7152), (65, 7161), (71, 7188), (72, 7191), (79, 7239), (113, 7374),

Gene: Jakelyne\_18 Start: 9001, Stop: 9324, Start Num: 40

Candidate Starts for Jakelyne\_18:

(Start: 40 @9001 has 10 MA's), (50, 9037), (56, 9070), (67, 9103), (77, 9145), (81, 9172), (85, 9193), (93, 9232), (110, 9307), (111, 9310),

Gene: Jera\_14 Start: 10142, Stop: 10465, Start Num: 38

Candidate Starts for Jera\_14:

(25, 10097), (Start: 38 @10142 has 14 MA's), (Start: 49 @10178 has 1 MA's), (54, 10193), (61, 10229), (76, 10280), (81, 10310), (93, 10373), (111, 10451),

Gene: Johann\_14 Start: 11061, Stop: 11384, Start Num: 38

Candidate Starts for Johann\_14:

(30, 11052), (Start: 38 @11061 has 14 MA's), (Start: 49 @11097 has 1 MA's), (104, 11334), (111, 11370),

Gene: Keanu\_15 Start: 13576, Stop: 13893, Start Num: 45

Candidate Starts for Keanu\_15:

(18, 13378), (20, 13393), (21, 13396), (26, 13516), (Start: 27 @13525 has 26 MA's), (Start: 45 @13576 has 22 MA's), (48, 13597), (Start: 49 @13600 has 1 MA's), (53, 13615), (76, 13705), (77, 13708), (92, 13792), (94, 13810), (97, 13822), (100, 13831), (106, 13855), (111, 13879),

Gene: Kita\_9 Start: 7344, Stop: 7697, Start Num: 27

Candidate Starts for Kita\_9:

(Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: Lamberg\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for Lamberg\_9:

(Start: 42 @6508 has 24 MA's), (47, 6535), (63, 6598), (65, 6601), (68, 6616), (77, 6658), (88, 6718),

Gene: Lesiram\_15 Start: 9580, Stop: 9930, Start Num: 33

Candidate Starts for Lesiram\_15:

(Start: 33 @9580 has 3 MA's), (52, 9628), (66, 9691), (73, 9721), (74, 9724), (77, 9745), (81, 9772), (84, 9790), (85, 9793), (96, 9856), (97, 9862), (98, 9865), (103, 9880), (111, 9916), (112, 9919),

Gene: Linayshia\_13 Start: 11056, Stop: 11379, Start Num: 38

Candidate Starts for Linayshia\_13:



(30, 11047), (Start: 38 @11056 has 14 MA's), (Start: 49 @11092 has 1 MA's), (52, 11101), (76, 11194), (93, 11287), (100, 11320), (111, 11365),

Gene: Lishka\_10 Start: 7516, Stop: 7836, Start Num: 45

Candidate Starts for Lishka\_10:

(6, 7162), (Start: 45 @7516 has 22 MA's), (53, 7555), (67, 7609), (69, 7618), (73, 7627), (75, 7642), (108, 7804), (111, 7822), (112, 7825),

Gene: LordFarquaad\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for LordFarquaad\_9:

(3, 6034), (7, 6163), (Start: 42 @6508 has 24 MA's), (47, 6535), (58, 6577), (65, 6601), (68, 6616), (77, 6658), (88, 6718),

Gene: Losacky\_18 Start: 9125, Stop: 9448, Start Num: 40

Candidate Starts for Losacky\_18:

(Start: 40 @9125 has 10 MA's), (56, 9194), (67, 9227), (77, 9269), (81, 9296), (85, 9317), (93, 9356), (99, 9383), (110, 9431), (111, 9434),

Gene: Lton\_9 Start: 6521, Stop: 6856, Start Num: 35

Candidate Starts for Lton\_9:

(15, 6320), (Start: 35 @6521 has 11 MA's), (47, 6557), (48, 6560), (63, 6620), (65, 6623), (68, 6638), (76, 6677), (82, 6713), (91, 6758), (101, 6794), (105, 6809),

Gene: Madeline\_9 Start: 7344, Stop: 7697, Start Num: 27

Candidate Starts for Madeline\_9:

(Start: 24 @7329 has 4 MA's), (Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: Manasvini\_9 Start: 7344, Stop: 7697, Start Num: 27

Candidate Starts for Manasvini\_9:

(Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: Maridalia\_9 Start: 7377, Stop: 7697, Start Num: 35

Candidate Starts for Maridalia\_9:

(Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: Matteo\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for Matteo\_9:

(3, 6034), (7, 6163), (Start: 42 @6508 has 24 MA's), (47, 6535), (58, 6577), (65, 6601), (68, 6616), (77, 6658), (88, 6718),

Gene: Mbo4\_9 Start: 7186, Stop: 7509, Start Num: 42

Candidate Starts for Mbo4\_9:

(29, 7159), (36, 7180), (Start: 42 @7186 has 24 MA's), (60, 7264), (88, 7399),

Gene: Mcklovin\_10 Start: 7803, Stop: 8156, Start Num: 27

Candidate Starts for Mcklovin\_10:

(Start: 24 @7788 has 4 MA's), (Start: 27 @7803 has 26 MA's), (Start: 35 @7836 has 11 MA's), (Start: 49 @7878 has 1 MA's), (62, 7929), (76, 7992), (79, 8016),

Gene: MenE\_16 Start: 9113, Stop: 9436, Start Num: 40

Candidate Starts for MenE\_16:

(Start: 40 @9113 has 10 MA's), (56, 9182), (67, 9215), (77, 9257), (81, 9284), (85, 9305), (93, 9344), (110, 9419), (111, 9422),

Gene: MichaelScott\_10 Start: 7004, Stop: 7339, Start Num: 28

Candidate Starts for MichaelScott\_10:

(Start: 28 @7004 has 14 MA's), (Start: 41 @7025 has 2 MA's), (Start: 49 @7061 has 1 MA's), (72, 7151), (78, 7184), (79, 7199),

Gene: Milani\_14 Start: 9739, Stop: 10062, Start Num: 38

Candidate Starts for Milani\_14:

(2, 9241), (30, 9730), (Start: 38 @9739 has 14 MA's), (Start: 49 @9775 has 1 MA's), (79, 9901), (85, 9928), (93, 9970), (100, 10003), (111, 10048), (113, 10054),

Gene: Mocha12\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for Mocha12\_9:

(3, 6034), (7, 6163), (Start: 42 @6508 has 24 MA's), (47, 6535), (58, 6577), (65, 6601), (68, 6616), (77, 6658), (88, 6718), (90, 6724),

Gene: Mojarita\_10 Start: 7832, Stop: 8146, Start Num: 45

Candidate Starts for Mojarita\_10:

(4, 7376), (6, 7484), (10, 7562), (18, 7637), (22, 7697), (Start: 45 @7832 has 22 MA's), (111, 8132), (112, 8135),

Gene: Moosehead\_9 Start: 6464, Stop: 6799, Start Num: 35

Candidate Starts for Moosehead\_9:

(Start: 35 @6464 has 11 MA's), (47, 6500), (48, 6503), (Start: 49 @6506 has 1 MA's), (58, 6542), (63, 6563), (65, 6566), (67, 6575), (68, 6581), (69, 6584), (71, 6593), (77, 6623),

Gene: Neobush\_9 Start: 7344, Stop: 7697, Start Num: 27

Candidate Starts for Neobush\_9:

(Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: Nettuno\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for Nettuno\_9:

(Start: 42 @6508 has 24 MA's), (47, 6535), (63, 6598), (65, 6601), (68, 6616), (77, 6658), (88, 6718),

Gene: Nymphadora\_9 Start: 7344, Stop: 7697, Start Num: 27

Candidate Starts for Nymphadora\_9:

(Start: 24 @7329 has 4 MA's), (Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: Ohgeesy\_9 Start: 6680, Stop: 7045, Start Num: 27

Candidate Starts for Ohgeesy\_9:

(9, 6434), (17, 6527), (Start: 27 @6680 has 26 MA's), (Start: 41 @6731 has 2 MA's), (79, 6905), (87, 6941),

Gene: Olympi\_14 Start: 11052, Stop: 11375, Start Num: 38

Candidate Starts for Olympi\_14:

(30, 11043), (Start: 38 @11052 has 14 MA's), (Start: 49 @11088 has 1 MA's), (100, 11316), (104, 11325), (111, 11361),

Gene: OneDirection\_9 Start: 6465, Stop: 6800, Start Num: 35

Candidate Starts for OneDirection\_9:

(Start: 35 @6465 has 11 MA's), (47, 6501), (63, 6564), (65, 6567), (67, 6576), (68, 6582), (69, 6585), (77, 6624), (88, 6684), (91, 6702),

Gene: Oregano\_10 Start: 6675, Stop: 7010, Start Num: 28

Candidate Starts for Oregano\_10:

(Start: 28 @6675 has 14 MA's), (Start: 41 @6696 has 2 MA's), (Start: 49 @6732 has 1 MA's), (72, 6822), (78, 6855), (79, 6870),

Gene: PantheRoc\_9 Start: 6680, Stop: 7045, Start Num: 27

Candidate Starts for PantheRoc\_9:

(9, 6434), (17, 6527), (Start: 27 @6680 has 26 MA's), (Start: 41 @6731 has 2 MA's), (79, 6905), (87, 6941),

Gene: PapayaSalad\_10 Start: 7524, Stop: 7844, Start Num: 45

Candidate Starts for PapayaSalad\_10:

(6, 7170), (Start: 45 @7524 has 22 MA's), (53, 7563), (67, 7617), (73, 7635), (75, 7650), (111, 7830), (112, 7833),

Gene: Pepperoni\_9 Start: 6815, Stop: 7150, Start Num: 35

Candidate Starts for Pepperoni\_9:

(15, 6614), (Start: 35 @6815 has 11 MA's), (47, 6851), (48, 6854), (63, 6914), (65, 6917), (68, 6932), (76, 6971), (82, 7007), (91, 7052), (101, 7088), (105, 7103),

Gene: PermaG\_14 Start: 11124, Stop: 11447, Start Num: 38

Candidate Starts for PermaG\_14:

(Start: 27 @11094 has 26 MA's), (30, 11115), (Start: 38 @11124 has 14 MA's), (Start: 49 @11160 has 1 MA's), (100, 11388), (102, 11391), (104, 11397), (111, 11433),

Gene: PhillyJawn\_16 Start: 8845, Stop: 9168, Start Num: 40

Candidate Starts for PhillyJawn\_16:

(Start: 40 @8845 has 10 MA's), (56, 8914), (67, 8947), (77, 8989), (81, 9016), (85, 9037), (93, 9076), (99, 9103), (110, 9151), (111, 9154),

Gene: Phingu\_18 Start: 9004, Stop: 9327, Start Num: 40

Candidate Starts for Phingu\_18:

(Start: 40 @9004 has 10 MA's), (56, 9073), (67, 9106), (77, 9148), (81, 9175), (85, 9196), (93, 9235), (110, 9310), (111, 9313),

Gene: Phonegingi\_15 Start: 8845, Stop: 9168, Start Num: 40

Candidate Starts for Phonegingi\_15:

(12, 8602), (Start: 40 @8845 has 10 MA's), (50, 8881), (56, 8914), (67, 8947), (81, 9016), (85, 9037), (93, 9076), (110, 9151), (111, 9154),

Gene: PhriskyACE\_9 Start: 6508, Stop: 6843, Start Num: 28

Candidate Starts for PhriskyACE\_9:

(Start: 28 @6508 has 14 MA's), (Start: 41 @6529 has 2 MA's), (Start: 49 @6565 has 1 MA's), (78, 6688), (79, 6703),

Gene: Picard\_10 Start: 7832, Stop: 8146, Start Num: 45

Candidate Starts for Picard\_10:

(4, 7376), (6, 7484), (10, 7562), (18, 7637), (22, 7697), (Start: 45 @7832 has 22 MA's), (111, 8132), (112, 8135),

Gene: Piccadilly\_11 Start: 7651, Stop: 7968, Start Num: 45

Candidate Starts for Piccadilly\_11:

(18, 7459), (22, 7519), (Start: 45 @7651 has 22 MA's), (Start: 49 @7672 has 1 MA's), (75, 7774), (77, 7783), (95, 7888), (111, 7954),

Gene: Pickett\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for Pickett\_9:

(3, 6034), (7, 6163), (Start: 42 @6508 has 24 MA's), (47, 6535), (58, 6577), (65, 6601), (68, 6616), (77, 6658), (88, 6718),

Gene: Pickles13\_15 Start: 9015, Stop: 9338, Start Num: 40

Candidate Starts for Pickles13\_15:

(12, 8772), (34, 9009), (Start: 40 @9015 has 10 MA's), (53, 9063), (56, 9084), (67, 9117), (77, 9159), (81, 9186), (85, 9207), (96, 9261), (99, 9273), (110, 9321), (111, 9324),

Gene: Polly\_9 Start: 7344, Stop: 7697, Start Num: 27

Candidate Starts for Polly\_9:

(Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: Powerball\_9 Start: 6508, Stop: 6843, Start Num: 28

Candidate Starts for Powerball\_9:

(Start: 28 @6508 has 14 MA's), (Start: 41 @6529 has 2 MA's), (Start: 49 @6565 has 1 MA's), (79, 6703),

Gene: REQ3\_43 Start: 23906, Stop: 24238, Start Num: 35

Candidate Starts for REQ3\_43:

(23, 23846), (Start: 35 @23906 has 11 MA's), (47, 23942), (58, 23984), (76, 24065), (79, 24089), (88, 24128),

Gene: Raleigh\_10 Start: 7951, Stop: 8271, Start Num: 45

Candidate Starts for Raleigh\_10:

(5, 7558), (6, 7603), (19, 7765), (22, 7816), (Start: 45 @7951 has 22 MA's), (69, 8050), (83, 8128), (111, 8257),

Gene: Rasovi\_13 Start: 11064, Stop: 11387, Start Num: 38

Candidate Starts for Rasovi\_13:

(30, 11055), (Start: 38 @11064 has 14 MA's), (Start: 49 @11100 has 1 MA's), (52, 11109), (55, 11127), (76, 11202), (93, 11295), (100, 11328), (111, 11373), (113, 11379),

Gene: RavenCo17\_9 Start: 7317, Stop: 7679, Start Num: 35

Candidate Starts for RavenCo17\_9:

(Start: 35 @7317 has 11 MA's), (58, 7398), (68, 7437), (90, 7545), (104, 7620),

Gene: SBlackberry\_13 Start: 10901, Stop: 11224, Start Num: 38

Candidate Starts for SBlackberry\_13:

(25, 10856), (Start: 38 @10901 has 14 MA's), (Start: 49 @10937 has 1 MA's), (54, 10952), (61, 10988), (76, 11039), (81, 11069), (93, 11132), (111, 11210),

Gene: SV1\_10 Start: 7724, Stop: 8044, Start Num: 45

Candidate Starts for SV1\_10:

(1, 7172), (6, 7352), (18, 7505), (Start: 45 @7724 has 22 MA's), (89, 7922), (108, 8012), (111, 8030), (112, 8033),

Gene: Sahara\_9 Start: 6524, Stop: 6850, Start Num: 42

Candidate Starts for Sahara\_9:

(Start: 42 @6524 has 24 MA's), (47, 6551), (63, 6614), (65, 6617), (68, 6632), (77, 6674),

Gene: Samman98\_10 Start: 7004, Stop: 7339, Start Num: 28

Candidate Starts for Samman98\_10:

(Start: 28 @7004 has 14 MA's), (Start: 41 @7025 has 2 MA's), (Start: 49 @7061 has 1 MA's), (72, 7151), (78, 7184), (79, 7199),

Gene: Savage\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for Savage\_9:

(3, 6034), (7, 6163), (Start: 42 @6508 has 24 MA's), (47, 6535), (58, 6577), (65, 6601), (68, 6616), (77, 6658), (88, 6718), (90, 6724),

Gene: Sekhmet\_10 Start: 7025, Stop: 7339, Start Num: 41

Candidate Starts for Sekhmet\_10:

(Start: 28 @7004 has 14 MA's), (Start: 41 @7025 has 2 MA's), (Start: 49 @7061 has 1 MA's), (72, 7151), (78, 7184), (79, 7199),

Gene: Shlim410\_9 Start: 6677, Stop: 7039, Start Num: 27

Candidate Starts for Shlim410\_9:

(13, 6473), (Start: 27 @6677 has 26 MA's), (Start: 37 @6719 has 2 MA's), (Start: 41 @6725 has 2 MA's), (59, 6800), (64, 6818), (77, 6878), (79, 6899), (87, 6935), (88, 6938),

Gene: Sidious\_9 Start: 6674, Stop: 7039, Start Num: 27

Candidate Starts for Sidious\_9:

(9, 6434), (Start: 27 @6674 has 26 MA's), (Start: 41 @6725 has 2 MA's), (79, 6899),

Gene: SoJo\_10 Start: 7746, Stop: 8063, Start Num: 45

Candidate Starts for SoJo\_10:

(22, 7611), (Start: 45 @7746 has 22 MA's), (69, 7845), (74, 7857), (83, 7920), (108, 8031), (111, 8049), (112, 8052),

Gene: SoilAssassin\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for SoilAssassin\_9:

(3, 6034), (7, 6163), (Start: 42 @6508 has 24 MA's), (47, 6535), (58, 6577), (65, 6601), (68, 6616), (77, 6658), (88, 6718),

Gene: Spocter\_15 Start: 13515, Stop: 13832, Start Num: 45

Candidate Starts for Spocter\_15:

(Start: 45 @13515 has 22 MA's), (48, 13536), (Start: 49 @13539 has 1 MA's), (76, 13644), (77, 13647), (92, 13731), (97, 13761), (106, 13794),

Gene: Sproutie\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for Sproutie\_9:

(3, 6034), (7, 6163), (Start: 42 @6508 has 24 MA's), (47, 6535), (58, 6577), (65, 6601), (68, 6616), (77, 6658), (88, 6718), (90, 6724),

Gene: Suerte\_9 Start: 6502, Stop: 6837, Start Num: 28

Candidate Starts for Suerte\_9:

(Start: 28 @6502 has 14 MA's), (Start: 41 @6523 has 2 MA's), (Start: 49 @6559 has 1 MA's), (72, 6649), (78, 6682), (79, 6697),

Gene: Suscepit\_9 Start: 7344, Stop: 7697, Start Num: 27

Candidate Starts for Suscepit\_9:

(Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: Tayonia\_9 Start: 7344, Stop: 7697, Start Num: 27

Candidate Starts for Tayonia\_9:

(Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: Teng\_16 Start: 9601, Stop: 9951, Start Num: 33

Candidate Starts for Teng\_16:

(Start: 33 @9601 has 3 MA's), (52, 9649), (66, 9712), (70, 9730), (73, 9742), (74, 9745), (77, 9766), (81, 9793), (84, 9811), (85, 9814), (96, 9877), (97, 9883), (98, 9886), (103, 9901), (111, 9937), (112, 9940),

Gene: ThankyouJordi\_9 Start: 7327, Stop: 7695, Start Num: 24

Candidate Starts for ThankyouJordi\_9:

(Start: 24 @7327 has 4 MA's), (Start: 27 @7342 has 26 MA's), (Start: 35 @7375 has 11 MA's), (Start: 49 @7417 has 1 MA's), (62, 7468), (76, 7531), (79, 7555), (88, 7594),

Gene: Thimann\_10 Start: 7004, Stop: 7339, Start Num: 28

Candidate Starts for Thimann\_10:

(Start: 28 @7004 has 14 MA's), (Start: 41 @7025 has 2 MA's), (Start: 49 @7061 has 1 MA's), (72, 7151), (78, 7184), (79, 7199),

Gene: TimTam\_9 Start: 7377, Stop: 7697, Start Num: 35

Candidate Starts for TimTam\_9:

(Start: 24 @7329 has 4 MA's), (Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: TinyDot\_11 Start: 7635, Stop: 7961, Start Num: 40

Candidate Starts for TinyDot\_11:

(Start: 40 @7635 has 10 MA's), (71, 7764), (105, 7920), (107, 7929),

Gene: Trumpet\_9 Start: 7344, Stop: 7697, Start Num: 27

Candidate Starts for Trumpet\_9:

(Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: Tubberson\_10 Start: 7746, Stop: 8063, Start Num: 45

Candidate Starts for Tubberson\_10:

(6, 7398), (10, 7476), (18, 7551), (22, 7611), (Start: 45 @7746 has 22 MA's), (69, 7845), (74, 7857), (83, 7920), (108, 8031), (111, 8049), (112, 8052),

Gene: TuertoX\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for TuertoX\_9:

(3, 6034), (7, 6163), (Start: 42 @6508 has 24 MA's), (47, 6535), (58, 6577), (65, 6601), (68, 6616), (77, 6658), (88, 6718), (90, 6724),

Gene: TurboVicky\_13 Start: 10895, Stop: 11218, Start Num: 38

Candidate Starts for TurboVicky\_13:

(25, 10850), (Start: 38 @10895 has 14 MA's), (Start: 49 @10931 has 1 MA's), (54, 10946), (61, 10982), (76, 11033), (81, 11063), (93, 11126), (111, 11204),

Gene: Twinkle\_9 Start: 6719, Stop: 7039, Start Num: 37

Candidate Starts for Twinkle\_9:

(13, 6473), (Start: 27 @6677 has 26 MA's), (Start: 37 @6719 has 2 MA's), (Start: 41 @6725 has 2 MA's), (59, 6800), (64, 6818), (77, 6878), (79, 6899), (87, 6935), (88, 6938),

Gene: Typher\_15 Start: 11029, Stop: 11352, Start Num: 38

Candidate Starts for Typher\_15:

(25, 10984), (Start: 38 @11029 has 14 MA's), (Start: 49 @11065 has 1 MA's), (52, 11074), (54, 11080), (61, 11116), (76, 11167), (81, 11197), (111, 11338),

Gene: Vasanti\_9 Start: 6512, Stop: 6853, Start Num: 42

Candidate Starts for Vasanti\_9:

(3, 6038), (7, 6167), (Start: 42 @6512 has 24 MA's), (47, 6539), (58, 6581), (63, 6602), (65, 6605), (68, 6620), (76, 6659), (98, 6785),

Gene: Violeta\_17 Start: 8943, Stop: 9266, Start Num: 40

Candidate Starts for Violeta\_17:

(Start: 40 @8943 has 10 MA's), (56, 9012), (67, 9045), (77, 9087), (81, 9114), (85, 9135), (93, 9174), (110, 9249), (111, 9252),

Gene: Vondra\_11 Start: 7660, Stop: 7977, Start Num: 45

Candidate Starts for Vondra\_11:

(6, 7315), (18, 7468), (22, 7528), (Start: 45 @7660 has 22 MA's), (46, 7666), (59, 7726), (69, 7759), (75, 7783), (92, 7876), (93, 7882), (108, 7945), (111, 7963),

Gene: Warren\_16 Start: 9042, Stop: 9365, Start Num: 40

Candidate Starts for Warren\_16:

(Start: 40 @9042 has 10 MA's), (56, 9111), (67, 9144), (77, 9186), (81, 9213), (85, 9234), (93, 9273), (99, 9300), (110, 9348), (111, 9351),

Gene: WelcomeAyanna\_9 Start: 7342, Stop: 7695, Start Num: 27

Candidate Starts for WelcomeAyanna\_9:

(Start: 24 @7327 has 4 MA's), (Start: 27 @7342 has 26 MA's), (Start: 35 @7375 has 11 MA's), (Start: 49 @7417 has 1 MA's), (62, 7468), (76, 7531), (79, 7555), (88, 7594),

Gene: Whiteclaw\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for Whiteclaw\_9:

(3, 6034), (7, 6163), (Start: 42 @6508 has 24 MA's), (47, 6535), (58, 6577), (65, 6601), (68, 6616), (77, 6658), (88, 6718), (90, 6724),

Gene: WinkNick\_10 Start: 7004, Stop: 7339, Start Num: 28

Candidate Starts for WinkNick\_10:

(Start: 28 @7004 has 14 MA's), (Start: 41 @7025 has 2 MA's), (Start: 49 @7061 has 1 MA's), (72, 7151), (78, 7184), (79, 7199),

Gene: Wrackline\_21 Start: 10284, Stop: 10616, Start Num: 33

Candidate Starts for Wrackline\_21:

(32, 10281), (Start: 33 @10284 has 3 MA's), (50, 10323), (52, 10332), (54, 10338), (61, 10374), (68, 10395), (72, 10404), (73, 10407), (77, 10431), (81, 10458), (86, 10482), (98, 10551), (103, 10566), (109, 10596), (111, 10602),

Gene: Yeet412\_9 Start: 6508, Stop: 6834, Start Num: 42

Candidate Starts for Yeet412\_9:

(3, 6034), (7, 6163), (Start: 42 @6508 has 24 MA's), (47, 6535), (58, 6577), (65, 6601), (68, 6616), (77, 6658), (88, 6718),

Gene: Yeezy\_9 Start: 6677, Stop: 7042, Start Num: 27

Candidate Starts for Yeezy\_9:

(9, 6431), (17, 6524), (Start: 27 @6677 has 26 MA's), (Start: 41 @6728 has 2 MA's), (79, 6902),

Gene: Zameen\_9 Start: 7344, Stop: 7697, Start Num: 27

Candidate Starts for Zameen\_9:

(Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),

Gene: Zanella\_13 Start: 10898, Stop: 11221, Start Num: 38

Candidate Starts for Zanella\_13:

(Start: 38 @10898 has 14 MA's), (Start: 49 @10934 has 1 MA's), (54, 10949), (61, 10985), (76, 11036), (81, 11066), (93, 11129), (111, 11207),

Gene: Zirinka\_9 Start: 7329, Stop: 7697, Start Num: 24

Candidate Starts for Zirinka\_9:

(Start: 24 @7329 has 4 MA's), (Start: 27 @7344 has 26 MA's), (Start: 35 @7377 has 11 MA's), (Start: 49 @7419 has 1 MA's), (62, 7470), (76, 7533), (79, 7557),