

Pham 294659



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 294659 Report

This analysis was run 04/18/26 on database version 643.

Pham number 294659 has 79 members, 8 are drafts.

Phages represented in each track:

- Track 1 : ArizonaGT\_15, FrumpyGal\_15, Schlegelian\_15, Piccadilly\_15, Eastland\_15, Cumberbatch\_15
- Track 2 : Vondra\_15, Eklok\_15, AxeJC\_15, Ignacio\_15, HFrancette\_15
- Track 3 : Hiya\_19, Spocter\_19, Kokushibo\_20
- Track 4 : Keanu\_19
- Track 5 : Galactica\_17
- Track 6 : Ohgeesy\_14
- Track 7 : Bunnybear\_13
- Track 8 : Zirinka\_14, Bialota\_14, Yeezy\_15
- Track 9 : Tayonia\_14, Hugley\_14, Antonio\_14, Eviarto\_14, BaxterFox\_13, Manasvini\_14, TimTam\_14, BatStarr\_14, Zameen\_14, Maridalia\_14, Kita\_14, Suscepit\_14, Neobush\_14, Polly\_14, Bosnia\_14, AlumE\_14, BoyNamedSue\_14, Eudoria\_14, Nymphadora\_14, Trumpet\_14, Herod\_14
- Track 10 : Hyzer\_14
- Track 11 : Madavieve\_14
- Track 12 : WelcomeAyanna\_13, ThankyouJordi\_13
- Track 13 : Agueybana\_14
- Track 14 : Madeline\_14
- Track 15 : PantheRoc\_14, Sidious\_14
- Track 16 : PhriskyACE\_14, Clark\_15, Suerte\_14, DobbysSock\_14, Annalisa\_15, Dorito\_14, Easley\_15, Dolores\_15, Samman98\_15, Powerball\_14, WinkNick\_15, Thimann\_15
- Track 17 : Shlim410\_15, Hortense\_15, Adora\_15, Twinkle\_15, Howe\_15
- Track 18 : Mcklovin\_16
- Track 19 : Invectra\_15, Oregano\_15, Sekhmet\_15, MichaelScott\_15, Tuti\_16, Beenie\_16
- Track 20 : REQ3\_47
- Track 21 : Jace\_13
- Track 22 : Finkle\_14
- Track 23 : GMA1\_14
- Track 24 : DillyDally\_14

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

The start number called the most often in the published annotations is 2, it was called in 54 of the 71 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adora\_15, Agueybana\_14, AlumE\_14, Annalisa\_15, Antonio\_14, BatStarr\_14, BaxterFox\_13, Beenie\_16, Bialota\_14, Bosnia\_14, BoyNamedSue\_14, Bunnybear\_13, Clark\_15, DobbysSock\_14, Dolores\_15, Dorito\_14, Easley\_15, Eudoria\_14, Eviarto\_14, Finkle\_14, GMA1\_14, Herod\_14, Hortense\_15, Howe\_15, Hugley\_14, Hyzer\_14, Invectra\_15, Kita\_14, Madavieve\_14, Madeline\_14, Manasvini\_14, Maridalia\_14, Mcklovin\_16, MichaelScott\_15, Neobush\_14, Nymphadora\_14, Ohgeesy\_14, Oregano\_15, PantheRoc\_14, PhriskyACE\_14, Polly\_14, Powerball\_14, REQ3\_47, Samman98\_15, Sekhmet\_15, Shlim410\_15, Sidious\_14, Suerte\_14, Suscepit\_14, Tayonia\_14, ThankyouJordi\_13, Thimann\_15, TimTam\_14, Trumpet\_14, Tuti\_16, Twinkle\_15, WelcomeAyanna\_13, WinkNick\_15, Yeezy\_15, Zameen\_14, Zirinka\_14,

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

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

- ArizonaGT\_15, AxeJC\_15, Cumberbatch\_15, DillyDally\_14, Eastland\_15, Eklok\_15, FrumpyGal\_15, Galactica\_17, HFrancette\_15, Hiyaa\_19, Ignacio\_15, Jace\_13, Keanu\_19, Kokushibo\_20, Piccadilly\_15, Schlegelian\_15, Spocter\_19, Vondra\_15,

### Summary by start number:

Start 2:

- Found in 61 of 79 ( 77.2% ) of genes in pham
- Manual Annotations of this start: 54 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Adora\_15 (CZ4), Agueybana\_14 (CZ1), AlumE\_14 (CZ1), Annalisa\_15 (CZ4), Antonio\_14 (CZ1), BatStarr\_14 (CZ1), BaxterFox\_13 (CZ3), Beenie\_16 (CZ4), Bialota\_14 (CZ1), Bosnia\_14 (CZ1), BoyNamedSue\_14 (CZ1), Bunnybear\_13 (CZ), Clark\_15 (CZ4), DobbysSock\_14 (CZ4), Dolores\_15 (CZ4), Dorito\_14 (CZ4), Easley\_15 (CZ4), Eudoria\_14 (CZ1), Eviarto\_14 (CZ1), Finkle\_14 (singleton), GMA1\_14 (singleton), Herod\_14 (CZ1), Hortense\_15 (CZ4), Howe\_15 (CZ4), Hugley\_14 (CZ1), Hyzer\_14 (CZ1), Invectra\_15 (CZ4), Kita\_14 (CZ1), Madavieve\_14 (CZ1), Madeline\_14 (CZ1), Manasvini\_14 (CZ1), Maridalia\_14 (CZ1), Mcklovin\_16 (CZ4), MichaelScott\_15 (CZ4), Neobush\_14 (CZ1), Nymphadora\_14 (CZ1), Ohgeesy\_14 (CZ), Oregano\_15 (CZ4), PantheRoc\_14 (CZ3), PhriskyACE\_14 (CZ4), Polly\_14 (CZ1), Powerball\_14 (CZ4), REQ3\_47 (singleton), Samman98\_15 (CZ4), Sekhmet\_15 (CZ4), Shlim410\_15 (CZ4), Sidious\_14 (CZ7), Suerte\_14 (CZ4), Suscepit\_14 (CZ1), Tayonia\_14 (CZ1), ThankyouJordi\_13 (CZ1), Thimann\_15 (CZ4), TimTam\_14 (CZ1), Trumpet\_14 (CZ1), Tuti\_16 (CZ4), Twinkle\_15 (CZ4), WelcomeAyanna\_13 (CZ1), WinkNick\_15 (CZ4), Yeezy\_15 (CZ3), Zameen\_14 (CZ1), Zirinka\_14 (CZ1),

Start 3:

- Found in 1 of 79 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 1 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jace\_13 (singleton),

Start 4:

- Found in 4 of 79 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 3 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hiyaa\_19 (BQ), Keanu\_19 (BQ), Kokushibo\_20 (BQ), Spocter\_19 (BQ),

Start 5:

- Found in 1 of 79 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 1 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Galactica\_17 (BQ),

Start 6:

- Found in 11 of 79 ( 13.9% ) of genes in pham
- Manual Annotations of this start: 11 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ArizonaGT\_15 (BP), AxeJC\_15 (BP), Cumberbatch\_15 (BP), Eastland\_15 (BP), Eklok\_15 (BP), FrumpyGal\_15 (BP), HFrancette\_15 (BP), Ignacio\_15 (BP), Piccadilly\_15 (BP), Schlegelian\_15 (BP), Vondra\_15 (BP),

Start 9:

- Found in 1 of 79 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 1 of 71
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DillyDally\_14 (singleton),

**Summary by clusters:**

There are 8 clusters represented in this pham: singleton, CZ3, CZ1, CZ7, CZ4, CZ, BP, BQ,

Info for manual annotations of cluster BP:

- Start number 6 was manually annotated 11 times for cluster BP.

Info for manual annotations of cluster BQ:

- Start number 4 was manually annotated 3 times for cluster BQ.
- Start number 5 was manually annotated 1 time for cluster BQ.

Info for manual annotations of cluster CZ:

- Start number 2 was manually annotated 2 times for cluster CZ.

Info for manual annotations of cluster CZ1:

- Start number 2 was manually annotated 25 times for cluster CZ1.

Info for manual annotations of cluster CZ3:

- Start number 2 was manually annotated 3 times for cluster CZ3.

Info for manual annotations of cluster CZ4:

- Start number 2 was manually annotated 22 times for cluster CZ4.

Info for manual annotations of cluster CZ7:

- Start number 2 was manually annotated 1 time for cluster CZ7.

### **Gene Information:**

Gene: Adora\_15 Start: 8998, Stop: 9651, Start Num: 2

Candidate Starts for Adora\_15:

(Start: 2 @8998 has 54 MA's), (10, 9079), (12, 9109), (15, 9130), (18, 9166), (19, 9190), (25, 9235), (26, 9241), (29, 9265), (30, 9268), (36, 9307), (37, 9319), (42, 9352), (45, 9373), (47, 9388), (50, 9409), (56, 9487),

Gene: Agueybana\_14 Start: 9286, Stop: 9933, Start Num: 2

Candidate Starts for Agueybana\_14:

(Start: 2 @9286 has 54 MA's), (10, 9367), (12, 9397), (15, 9418), (18, 9454), (19, 9478), (29, 9550), (37, 9604), (55, 9739), (59, 9811),

Gene: AlumE\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for AlumE\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: Annalisa\_15 Start: 8856, Stop: 9503, Start Num: 2

Candidate Starts for Annalisa\_15:

(Start: 2 @8856 has 54 MA's), (12, 8967), (18, 9024), (33, 9135), (37, 9174), (42, 9207), (45, 9228), (50, 9264), (52, 9282), (60, 9399),

Gene: Antonio\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for Antonio\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: ArizonaGT\_15 Start: 9256, Stop: 9762, Start Num: 6

Candidate Starts for ArizonaGT\_15:

(Start: 6 @9256 has 11 MA's), (14, 9325), (34, 9475), (43, 9538), (45, 9553), (46, 9556),

Gene: AxeJC\_15 Start: 9272, Stop: 9778, Start Num: 6

Candidate Starts for AxeJC\_15:

(Start: 6 @9272 has 11 MA's), (14, 9341), (34, 9491), (43, 9554), (45, 9569), (46, 9572),

Gene: BatStarr\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for BatStarr\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: BaxterFox\_13 Start: 8633, Stop: 9280, Start Num: 2

Candidate Starts for BaxterFox\_13:

(Start: 2 @8633 has 54 MA's), (10, 8714), (11, 8732), (12, 8744), (15, 8765), (18, 8801), (19, 8825), (29, 8897), (37, 8951), (55, 9086),

Gene: Beenie\_16 Start: 8840, Stop: 9493, Start Num: 2

Candidate Starts for Beenie\_16:

(Start: 2 @8840 has 54 MA's), (10, 8921), (12, 8951), (15, 8972), (18, 9008), (19, 9032), (25, 9077), (26, 9083), (29, 9107), (30, 9110), (36, 9149), (37, 9161), (42, 9194), (45, 9215), (47, 9230), (50, 9251), (56, 9329),

Gene: Bialota\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for Bialota\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: Bosnia\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for Bosnia\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: BoyNamedSue\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for BoyNamedSue\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: Bunnybear\_13 Start: 9302, Stop: 9949, Start Num: 2

Candidate Starts for Bunnybear\_13:

(Start: 2 @9302 has 54 MA's), (10, 9383), (12, 9413), (15, 9434), (18, 9470), (19, 9494), (29, 9566), (37, 9620), (50, 9710),

Gene: Clark\_15 Start: 8856, Stop: 9503, Start Num: 2

Candidate Starts for Clark\_15:

(Start: 2 @8856 has 54 MA's), (12, 8967), (18, 9024), (33, 9135), (37, 9174), (42, 9207), (45, 9228), (50, 9264), (52, 9282), (60, 9399),

Gene: Cumberbatch\_15 Start: 9256, Stop: 9762, Start Num: 6

Candidate Starts for Cumberbatch\_15:

(Start: 6 @9256 has 11 MA's), (14, 9325), (34, 9475), (43, 9538), (45, 9553), (46, 9556),

Gene: DillyDally\_14 Start: 9259, Stop: 9768, Start Num: 9

Candidate Starts for DillyDally\_14:

(7, 9244), (8, 9253), (Start: 9 @9259 has 1 MA's), (17, 9343), (21, 9385), (22, 9391), (45, 9553),

Gene: DobbysSock\_14 Start: 8339, Stop: 8986, Start Num: 2

Candidate Starts for DobbysSock\_14:

(Start: 2 @8339 has 54 MA's), (12, 8450), (18, 8507), (33, 8618), (37, 8657), (42, 8690), (45, 8711), (50, 8747), (52, 8765), (60, 8882),

Gene: Dolores\_15 Start: 8841, Stop: 9488, Start Num: 2

Candidate Starts for Dolores\_15:

(Start: 2 @8841 has 54 MA's), (12, 8952), (18, 9009), (33, 9120), (37, 9159), (42, 9192), (45, 9213), (50, 9249), (52, 9267), (60, 9384),

Gene: Dorito\_14 Start: 8338, Stop: 8985, Start Num: 2

Candidate Starts for Dorito\_14:

(Start: 2 @8338 has 54 MA's), (12, 8449), (18, 8506), (33, 8617), (37, 8656), (42, 8689), (45, 8710), (50, 8746), (52, 8764), (60, 8881),

Gene: Easley\_15 Start: 8845, Stop: 9492, Start Num: 2

Candidate Starts for Easley\_15:

(Start: 2 @8845 has 54 MA's), (12, 8956), (18, 9013), (33, 9124), (37, 9163), (42, 9196), (45, 9217), (50, 9253), (52, 9271), (60, 9388),

Gene: Eastland\_15 Start: 9257, Stop: 9763, Start Num: 6

Candidate Starts for Eastland\_15:

(Start: 6 @9257 has 11 MA's), (14, 9326), (34, 9476), (43, 9539), (45, 9554), (46, 9557),

Gene: Eklok\_15 Start: 9272, Stop: 9778, Start Num: 6

Candidate Starts for Eklok\_15:

(Start: 6 @9272 has 11 MA's), (14, 9341), (34, 9491), (43, 9554), (45, 9569), (46, 9572),

Gene: Eudoria\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for Eudoria\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: Eviarto\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for Eviarto\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: Finkle\_14 Start: 8643, Stop: 9212, Start Num: 2

Candidate Starts for Finkle\_14:

(Start: 2 @8643 has 54 MA's), (13, 8757), (18, 8805), (22, 8847), (34, 8928), (37, 8955), (39, 8970), (41, 8985), (42, 8988), (46, 9012), (47, 9024), (49, 9033),

Gene: FrumpyGal\_15 Start: 9257, Stop: 9763, Start Num: 6

Candidate Starts for FrumpyGal\_15:

(Start: 6 @9257 has 11 MA's), (14, 9326), (34, 9476), (43, 9539), (45, 9554), (46, 9557),

Gene: GMA1\_14 Start: 8784, Stop: 9359, Start Num: 2

Candidate Starts for GMA1\_14:

(Start: 2 @8784 has 54 MA's), (19, 8970), (21, 8982), (31, 9048), (37, 9096), (39, 9111), (42, 9129), (47, 9165), (51, 9195), (54, 9204), (57, 9270),

Gene: Galactica\_17 Start: 14113, Stop: 14673, Start Num: 5

Candidate Starts for Galactica\_17:

(Start: 5 @14113 has 1 MA's), (23, 14272), (28, 14314), (36, 14362), (37, 14374), (40, 14398), (46, 14431), (58, 14578),

Gene: HFrancette\_15 Start: 9271, Stop: 9777, Start Num: 6

Candidate Starts for HFrancette\_15:

(Start: 6 @9271 has 11 MA's), (14, 9340), (34, 9490), (43, 9553), (45, 9568), (46, 9571),

Gene: Herod\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for Herod\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: Hiyaa\_19 Start: 15134, Stop: 15703, Start Num: 4

Candidate Starts for Hiyaa\_19:

(Start: 4 @15134 has 3 MA's), (12, 15197), (24, 15311), (27, 15341), (37, 15404), (40, 15428), (44, 15455), (46, 15461), (48, 15479),

Gene: Hortense\_15 Start: 9045, Stop: 9698, Start Num: 2

Candidate Starts for Hortense\_15:

(Start: 2 @9045 has 54 MA's), (10, 9126), (12, 9156), (15, 9177), (18, 9213), (19, 9237), (25, 9282), (26, 9288), (29, 9312), (30, 9315), (36, 9354), (37, 9366), (42, 9399), (45, 9420), (47, 9435), (50, 9456), (56, 9534),

Gene: Howe\_15 Start: 9045, Stop: 9698, Start Num: 2

Candidate Starts for Howe\_15:

(Start: 2 @9045 has 54 MA's), (10, 9126), (12, 9156), (15, 9177), (18, 9213), (19, 9237), (25, 9282), (26, 9288), (29, 9312), (30, 9315), (36, 9354), (37, 9366), (42, 9399), (45, 9420), (47, 9435), (50, 9456), (56, 9534),

Gene: Hugley\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for Hugley\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: Hyzer\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for Hyzer\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (30, 9552), (37, 9603), (50, 9693), (55, 9738),

Gene: Ignacio\_15 Start: 9271, Stop: 9777, Start Num: 6

Candidate Starts for Ignacio\_15:

(Start: 6 @9271 has 11 MA's), (14, 9340), (34, 9490), (43, 9553), (45, 9568), (46, 9571),

Gene: Invectra\_15 Start: 8840, Stop: 9493, Start Num: 2

Candidate Starts for Invectra\_15:

(Start: 2 @8840 has 54 MA's), (10, 8921), (12, 8951), (15, 8972), (18, 9008), (19, 9032), (25, 9077), (26, 9083), (29, 9107), (30, 9110), (36, 9149), (37, 9161), (42, 9194), (45, 9215), (47, 9230), (50, 9251), (56, 9329),

Gene: Jace\_13 Start: 8989, Stop: 9525, Start Num: 3

Candidate Starts for Jace\_13:

(1, 8959), (Start: 3 @8989 has 1 MA's), (20, 9184), (22, 9193), (26, 9223), (35, 9280), (37, 9301), (42, 9334), (45, 9355), (53, 9409),

Gene: Keanu\_19 Start: 15177, Stop: 15746, Start Num: 4

Candidate Starts for Keanu\_19:

(Start: 4 @15177 has 3 MA's), (12, 15240), (37, 15447), (44, 15498), (46, 15504), (48, 15522),

Gene: Kita\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for Kita\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: Kokushibo\_20 Start: 15149, Stop: 15718, Start Num: 4

Candidate Starts for Kokushibo\_20:

(Start: 4 @15149 has 3 MA's), (12, 15212), (24, 15326), (27, 15356), (37, 15419), (40, 15443), (44, 15470), (46, 15476), (48, 15494),

Gene: Madavieve\_14 Start: 9287, Stop: 9934, Start Num: 2

Candidate Starts for Madavieve\_14:

(Start: 2 @9287 has 54 MA's), (10, 9368), (12, 9398), (13, 9401), (15, 9419), (18, 9455), (19, 9479), (29, 9551), (37, 9605), (45, 9659), (50, 9695), (55, 9740),

Gene: Madeline\_14 Start: 9287, Stop: 9934, Start Num: 2

Candidate Starts for Madeline\_14:

(Start: 2 @9287 has 54 MA's), (10, 9368), (11, 9386), (12, 9398), (15, 9419), (18, 9455), (19, 9479), (29, 9551), (37, 9605), (55, 9740),

Gene: Manasvini\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for Manasvini\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: Maridalia\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for Maridalia\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: Mcklovin\_16 Start: 10161, Stop: 10811, Start Num: 2

Candidate Starts for Mcklovin\_16:

(Start: 2 @10161 has 54 MA's), (11, 10260), (12, 10272), (16, 10317), (18, 10329), (19, 10353), (22, 10371), (29, 10425), (37, 10479), (42, 10512), (56, 10647),

Gene: MichaelScott\_15 Start: 8840, Stop: 9493, Start Num: 2

Candidate Starts for MichaelScott\_15:

(Start: 2 @8840 has 54 MA's), (10, 8921), (12, 8951), (15, 8972), (18, 9008), (19, 9032), (25, 9077), (26, 9083), (29, 9107), (30, 9110), (36, 9149), (37, 9161), (42, 9194), (45, 9215), (47, 9230), (50, 9251), (56, 9329),

Gene: Neobush\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for Neobush\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: Nymphadora\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for Nymphadora\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: Ohgeesy\_14 Start: 8633, Stop: 9280, Start Num: 2

Candidate Starts for Ohgeesy\_14:

(Start: 2 @8633 has 54 MA's), (10, 8714), (11, 8732), (12, 8744), (15, 8765), (18, 8801), (19, 8825), (29, 8897), (37, 8951), (52, 9059), (55, 9086),

Gene: Oregano\_15 Start: 8511, Stop: 9164, Start Num: 2

Candidate Starts for Oregano\_15:

(Start: 2 @8511 has 54 MA's), (10, 8592), (12, 8622), (15, 8643), (18, 8679), (19, 8703), (25, 8748), (26, 8754), (29, 8778), (30, 8781), (36, 8820), (37, 8832), (42, 8865), (45, 8886), (47, 8901), (50, 8922), (56, 9000),

Gene: PantheRoc\_14 Start: 8634, Stop: 9266, Start Num: 2

Candidate Starts for PantheRoc\_14:

(Start: 2 @8634 has 54 MA's), (10, 8715), (12, 8745), (15, 8766), (18, 8802), (19, 8826), (29, 8898), (37, 8952), (55, 9087),

Gene: PhriskyACE\_14 Start: 8338, Stop: 8985, Start Num: 2

Candidate Starts for PhriskyACE\_14:

(Start: 2 @8338 has 54 MA's), (12, 8449), (18, 8506), (33, 8617), (37, 8656), (42, 8689), (45, 8710), (50, 8746), (52, 8764), (60, 8881),

Gene: Piccadilly\_15 Start: 9256, Stop: 9762, Start Num: 6

Candidate Starts for Piccadilly\_15:

(Start: 6 @9256 has 11 MA's), (14, 9325), (34, 9475), (43, 9538), (45, 9553), (46, 9556),

Gene: Polly\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for Polly\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: Powerball\_14 Start: 8347, Stop: 8994, Start Num: 2

Candidate Starts for Powerball\_14:

(Start: 2 @8347 has 54 MA's), (12, 8458), (18, 8515), (33, 8626), (37, 8665), (42, 8698), (45, 8719), (50, 8755), (52, 8773), (60, 8890),

Gene: REQ3\_47 Start: 25838, Stop: 26401, Start Num: 2

Candidate Starts for REQ3\_47:

(Start: 2 @25838 has 54 MA's), (24, 26069), (32, 26126), (38, 26177),

Gene: Samman98\_15 Start: 8856, Stop: 9503, Start Num: 2

Candidate Starts for Samman98\_15:

(Start: 2 @8856 has 54 MA's), (12, 8967), (18, 9024), (33, 9135), (37, 9174), (42, 9207), (45, 9228), (50, 9264), (52, 9282), (60, 9399),

Gene: Schlegelian\_15 Start: 9256, Stop: 9762, Start Num: 6

Candidate Starts for Schlegelian\_15:

(Start: 6 @9256 has 11 MA's), (14, 9325), (34, 9475), (43, 9538), (45, 9553), (46, 9556),

Gene: Sekhmet\_15 Start: 8840, Stop: 9493, Start Num: 2

Candidate Starts for Sekhmet\_15:

(Start: 2 @8840 has 54 MA's), (10, 8921), (12, 8951), (15, 8972), (18, 9008), (19, 9032), (25, 9077), (26, 9083), (29, 9107), (30, 9110), (36, 9149), (37, 9161), (42, 9194), (45, 9215), (47, 9230), (50, 9251), (56, 9329),

Gene: Shlim410\_15 Start: 9045, Stop: 9698, Start Num: 2

Candidate Starts for Shlim410\_15:

(Start: 2 @9045 has 54 MA's), (10, 9126), (12, 9156), (15, 9177), (18, 9213), (19, 9237), (25, 9282), (26, 9288), (29, 9312), (30, 9315), (36, 9354), (37, 9366), (42, 9399), (45, 9420), (47, 9435), (50, 9456), (56, 9534),

Gene: Sidious\_14 Start: 8632, Stop: 9279, Start Num: 2

Candidate Starts for Sidious\_14:

(Start: 2 @8632 has 54 MA's), (10, 8713), (12, 8743), (15, 8764), (18, 8800), (19, 8824), (29, 8896), (37, 8950), (55, 9085),

Gene: Spocter\_19 Start: 15122, Stop: 15691, Start Num: 4

Candidate Starts for Spocter\_19:

(Start: 4 @15122 has 3 MA's), (12, 15185), (24, 15299), (27, 15329), (37, 15392), (40, 15416), (44, 15443), (46, 15449), (48, 15467),

Gene: Suerte\_14 Start: 8339, Stop: 8986, Start Num: 2

Candidate Starts for Suerte\_14:

(Start: 2 @8339 has 54 MA's), (12, 8450), (18, 8507), (33, 8618), (37, 8657), (42, 8690), (45, 8711), (50, 8747), (52, 8765), (60, 8882),

Gene: Susceptit\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for Susceptit\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: Tayonia\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for Tayonia\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: ThankyouJordi\_13 Start: 9309, Stop: 9956, Start Num: 2

Candidate Starts for ThankyouJordi\_13:

(Start: 2 @9309 has 54 MA's), (10, 9390), (15, 9441), (18, 9477), (19, 9501), (29, 9573), (37, 9627), (50, 9717), (55, 9762),

Gene: Thimann\_15 Start: 8826, Stop: 9473, Start Num: 2

Candidate Starts for Thimann\_15:

(Start: 2 @8826 has 54 MA's), (12, 8937), (18, 8994), (33, 9105), (37, 9144), (42, 9177), (45, 9198), (50, 9234), (52, 9252), (60, 9369),

Gene: TimTam\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for TimTam\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: Trumpet\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for Trumpet\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: Tuti\_16 Start: 8843, Stop: 9496, Start Num: 2

Candidate Starts for Tuti\_16:

(Start: 2 @8843 has 54 MA's), (10, 8924), (12, 8954), (15, 8975), (18, 9011), (19, 9035), (25, 9080), (26, 9086), (29, 9110), (30, 9113), (36, 9152), (37, 9164), (42, 9197), (45, 9218), (47, 9233), (50, 9254), (56, 9332),

Gene: Twinkle\_15 Start: 9045, Stop: 9698, Start Num: 2

Candidate Starts for Twinkle\_15:

(Start: 2 @9045 has 54 MA's), (10, 9126), (12, 9156), (15, 9177), (18, 9213), (19, 9237), (25, 9282), (26, 9288), (29, 9312), (30, 9315), (36, 9354), (37, 9366), (42, 9399), (45, 9420), (47, 9435), (50, 9456), (56, 9534),

Gene: Vondra\_15 Start: 9268, Stop: 9774, Start Num: 6

Candidate Starts for Vondra\_15:

(Start: 6 @9268 has 11 MA's), (14, 9337), (34, 9487), (43, 9550), (45, 9565), (46, 9568),

Gene: WelcomeAyanna\_13 Start: 9309, Stop: 9956, Start Num: 2

Candidate Starts for WelcomeAyanna\_13:

(Start: 2 @9309 has 54 MA's), (10, 9390), (15, 9441), (18, 9477), (19, 9501), (29, 9573), (37, 9627), (50, 9717), (55, 9762),

Gene: WinkNick\_15 Start: 8841, Stop: 9488, Start Num: 2

Candidate Starts for WinkNick\_15:

(Start: 2 @8841 has 54 MA's), (12, 8952), (18, 9009), (33, 9120), (37, 9159), (42, 9192), (45, 9213), (50, 9249), (52, 9267), (60, 9384),

Gene: Yeezy\_15 Start: 8643, Stop: 9290, Start Num: 2

Candidate Starts for Yeezy\_15:

(Start: 2 @8643 has 54 MA's), (10, 8724), (12, 8754), (15, 8775), (18, 8811), (19, 8835), (29, 8907), (37, 8961), (55, 9096),

Gene: Zameen\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for Zameen\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (11, 9384), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),

Gene: Zirinka\_14 Start: 9285, Stop: 9932, Start Num: 2

Candidate Starts for Zirinka\_14:

(Start: 2 @9285 has 54 MA's), (10, 9366), (12, 9396), (15, 9417), (18, 9453), (19, 9477), (29, 9549), (37, 9603), (55, 9738),