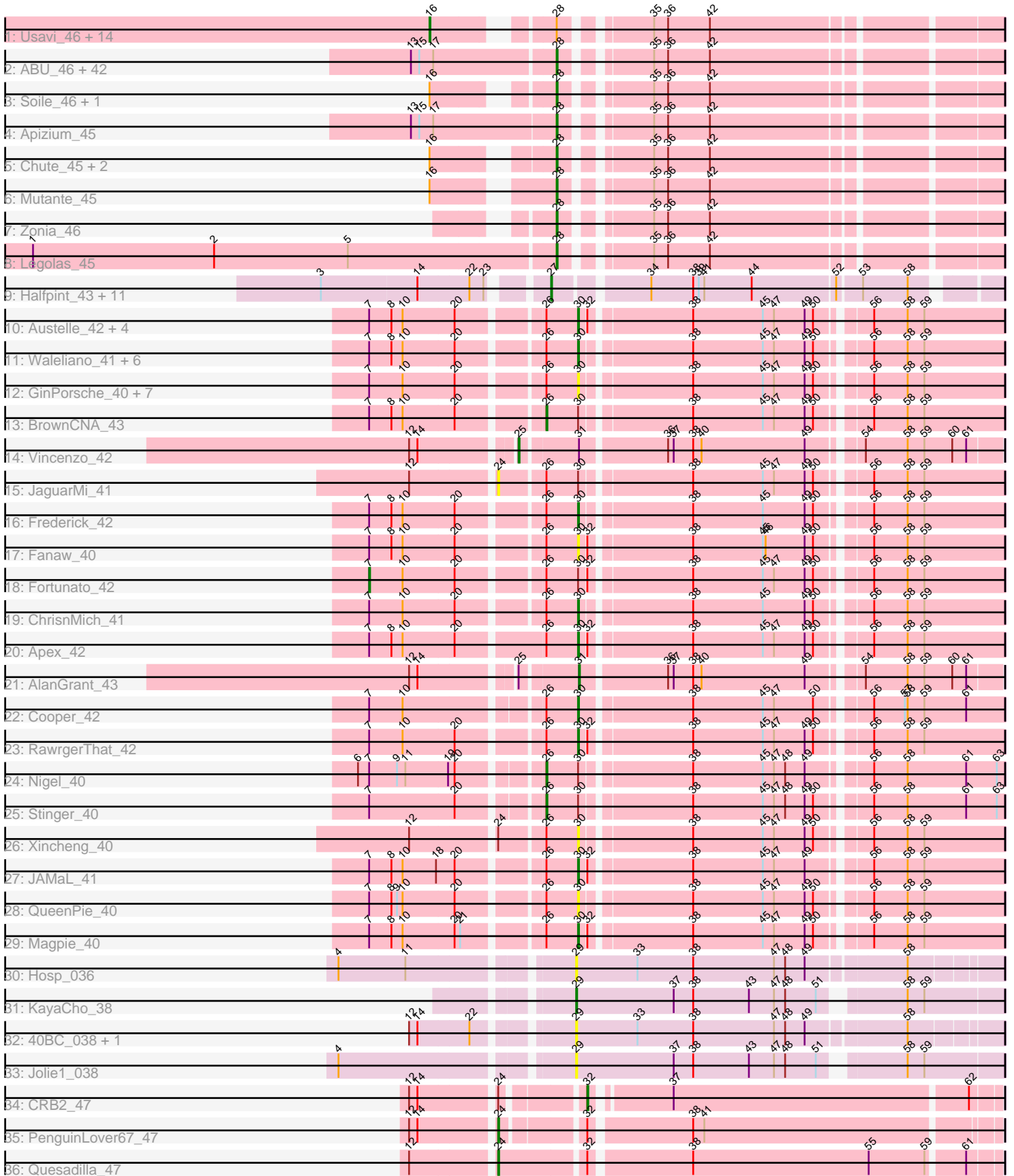


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Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. 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 196378 Report

This analysis was run 12/09/24 on database version 580.

Pham number 196378 has 124 members, 20 are drafts.

Phages represented in each track:

- Track 1 : Usavi\_46, Mosaic\_45, Suffolk\_46, Roy17\_46, Lopsy\_45, Eremos\_46, Eugenia\_46, Lulumae\_45, Prickles\_46, Colbert\_46, Daka\_47, Chunky\_46, Gwilliam\_47, Basato\_47, Tooj\_46
- Track 2 : ABU\_46, PG1\_46, PhrodoBaggins\_45, Badfish\_46, ThreeOh3D2\_46, HighStump\_45, LasagnaCat\_46, Morty\_46, ImtiyazSitla\_45, Ashraf\_45, Nacho\_0046, RedMaple\_45, Fang\_46, Katniss\_46, Mulan\_45, Orion\_46, Scoot17C\_46, Trypo\_46, Emiris\_46, Megatron\_46, CampRoach\_46, Swish\_46, PhatCats2014\_46, IsaacEli\_46, Craff\_46, MelsMeow\_45, Inchworm\_46, Maskar\_45, FluffyNinja\_46, Chah\_47, Yoshand\_46, BlackStallion\_46, Fringe\_46, Kikipoo\_46, Pherdinand\_46, JacAttac\_46, Phamished\_46, Sigman\_46, Durga\_46, Andre\_46, Adriana\_46, OSmaximus\_46, DuchessDung\_44
- Track 3 : Soile\_46, Gareth\_45
- Track 4 : Apizium\_45
- Track 5 : Chute\_45, Dati\_46, JDog\_45
- Track 6 : Mutante\_45
- Track 7 : Zonia\_46
- Track 8 : Legolas\_45
- Track 9 : Halfpint\_43, Phayeta\_45, Chandler\_44, Casbah\_43, Phaedrus\_42, Jackstina\_41, Ben11\_43, Tydolla\_44, Akoma\_44, SlippinJimmy\_44, Audrey\_44, Morty007\_44
- Track 10 : Austelle\_42, Prince\_41, Zemanar\_42, Lolalove\_41, VioletZ\_42
- Track 11 : Waleliano\_41, Hydro\_41, Hangman\_41, Mudslide\_41, Mithril\_41, Heath\_40, BobbyK\_42
- Track 12 : GinPorsche\_40, Ahwei\_40, Hally898\_40, Antihero\_40, Nanao\_40, Lambano\_40, Poster\_40, Epah\_40
- Track 13 : BrownCNA\_43
- Track 14 : Vincenzo\_42
- Track 15 : JaguarMi\_41
- Track 16 : Frederick\_42
- Track 17 : Fanaw\_40
- Track 18 : Fortunato\_42
- Track 19 : ChrisnMich\_41
- Track 20 : Apex\_42
- Track 21 : AlanGrant\_43
- Track 22 : Cooper\_42
- Track 23 : RawrgerThat\_42
- Track 24 : Nigel\_40

- Track 25 : Stinger\_40
- Track 26 : Xincheng\_40
- Track 27 : JAMaL\_41
- Track 28 : QueenPie\_40
- Track 29 : Magpie\_40
- Track 30 : Hosp\_036
- Track 31 : KayaCho\_38
- Track 32 : 40BC\_038, 39HC\_038
- Track 33 : Jolie1\_038
- Track 34 : CRB2\_47
- Track 35 : PenguinLover67\_47
- Track 36 : Quesadilla\_47

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

The start number called the most often in the published annotations is 28, it was called in 51 of the 104 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ABU\_46, Adriana\_46, Andre\_46, Apizium\_45, Ashraf\_45, Badfish\_46, BlackStallion\_46, CampRoach\_46, Chah\_47, Chute\_45, Craff\_46, Dati\_46, DuchessDung\_44, Durga\_46, Emiris\_46, Fang\_46, FluffyNinja\_46, Fringe\_46, Gareth\_45, HighStump\_45, ImtiyazSitla\_45, Inchworm\_46, IsaacEli\_46, JDog\_45, JacAttac\_46, Katniss\_46, Kikipoo\_46, LasagnaCat\_46, Legolas\_45, Maskar\_45, Megatron\_46, MelsMeow\_45, Morty\_46, Mulan\_45, Mutante\_45, Nacho\_0046, OSmaximus\_46, Orion\_46, PG1\_46, Phamished\_46, PhatCats2014\_46, Pherdinand\_46, PhrodoBaggins\_45, RedMaple\_45, Scoot17C\_46, Sigman\_46, Soile\_46, Swish\_46, ThreeOh3D2\_46, Trypo\_46, Yoshand\_46, Zonia\_46,

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

- Basato\_47, Chunky\_46, Colbert\_46, Daka\_47, Eremos\_46, Eugenia\_46, Gwilliam\_47, Lopsy\_45, Lulumae\_45, Mosaic\_45, Prickles\_46, Roy17\_46, Suffolk\_46, Tooj\_46, Usavi\_46,

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

- 39HC\_038, 40BC\_038, Ahwei\_40, Akoma\_44, AlanGrant\_43, Antihero\_40, Apex\_42, Audrey\_44, Austelle\_42, Ben11\_43, BobbyK\_42, BrownCNA\_43, CRB2\_47, Casbah\_43, Chandler\_44, ChrisnMich\_41, Cooper\_42, Epah\_40, Fanaw\_40, Fortunato\_42, Frederick\_42, GinPorsche\_40, Halfpint\_43, Hally898\_40, Hangman\_41, Heath\_40, Hosp\_036, Hydro\_41, JAMaL\_41, Jackstina\_41, JaguarMi\_41, Jolie1\_038, KayaCho\_38, Lambano\_40, Lolalove\_41, Magpie\_40, Mithril\_41, Morty007\_44, Mudslide\_41, Nanao\_40, Nigel\_40, PenguinLover67\_47, Phaedrus\_42, Phayeta\_45, Poster\_40, Prince\_41, QueenPie\_40, Quesadilla\_47, RawrgerThat\_42, SlippinJimmy\_44, Stinger\_40, Tydolla\_44, Vincenzo\_42, VioletZ\_42, Waleliano\_41, Xincheng\_40, Zemanar\_42,

**Summary by start number:**

Start 7:

- Found in 33 of 124 ( 26.6% ) of genes in pham

- Manual Annotations of this start: 1 of 104
- Called 3.0% of time when present
- Phage (with cluster) where this start called: Fortunato\_42 (B4),

#### Start 16:

- Found in 21 of 124 ( 16.9% ) of genes in pham
- Manual Annotations of this start: 14 of 104
- Called 71.4% of time when present
- Phage (with cluster) where this start called: Basato\_47 (B1), Chunky\_46 (B1), Colbert\_46 (B1), Daka\_47 (B1), Eremos\_46 (B1), Eugenia\_46 (B1), Gwilliam\_47 (B1), Lopsy\_45 (B1), Lulumae\_45 (B1), Mosaic\_45 (B1), Prickles\_46 (B1), Roy17\_46 (B1), Suffolk\_46 (B1), Tooj\_46 (B1), Usavi\_46 (B1),

#### Start 24:

- Found in 5 of 124 ( 4.0% ) of genes in pham
- Manual Annotations of this start: 2 of 104
- Called 60.0% of time when present
- Phage (with cluster) where this start called: JaguarMi\_41 (B4), PenguinLover67\_47 (B9), Quesadilla\_47 (B9),

#### Start 25:

- Found in 2 of 124 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 104
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Vincenzo\_42 (B4),

#### Start 26:

- Found in 35 of 124 ( 28.2% ) of genes in pham
- Manual Annotations of this start: 3 of 104
- Called 8.6% of time when present
- Phage (with cluster) where this start called: BrownCNA\_43 (B4), Nigel\_40 (B4), Stinger\_40 (B4),

#### Start 27:

- Found in 12 of 124 ( 9.7% ) of genes in pham
- Manual Annotations of this start: 10 of 104
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Akoma\_44 (B3), Audrey\_44 (B3), Ben11\_43 (B3), Casbah\_43 (B3), Chandler\_44 (B3), Halfpint\_43 (B3), Jackstina\_41 (B3), Morty007\_44 (B3), Phaedrus\_42 (B3), Phayeta\_45 (B3), SlippinJimmy\_44 (B3), Tydolla\_44 (B3),

#### Start 28:

- Found in 67 of 124 ( 54.0% ) of genes in pham
- Manual Annotations of this start: 51 of 104
- Called 77.6% of time when present
- Phage (with cluster) where this start called: ABU\_46 (B1), Adriana\_46 (B1), Andre\_46 (B1), Apizium\_45 (B1), Ashraf\_45 (B1), Badfish\_46 (B1), BlackStallion\_46 (B1), CampRoach\_46 (B1), Chah\_47 (B1), Chute\_45 (B1), Craff\_46 (B1), Dati\_46 (B1), DuchessDung\_44 (B1), Durga\_46 (B1), Emiris\_46 (B1), Fang\_46 (B1), FluffyNinja\_46 (B1), Fringe\_46 (B1), Gareth\_45 (B1), HighStump\_45 (B1), ImtiyazSitla\_45 (B1), Inchworm\_46 (B1), IsaacEli\_46 (B1), JDog\_45 (B1), JacAttac\_46 (B1), Katniss\_46 (B1), Kikipoo\_46 (B1), LasagnaCat\_46 (B1),

Legolas\_45 (B1), Maskar\_45 (B1), Megatron\_46 (B1), MelsMeow\_45 (B1), Morty\_46 (B1), Mulan\_45 (B1), Mutante\_45 (B1), Nacho\_0046 (B1), OSmaximus\_46 (B1), Orion\_46 (B1), PG1\_46 (B1), Phamished\_46 (B1), PhatCats2014\_46 (B1), Pherdinand\_46 (B1), PhrodoBaggins\_45 (B1), RedMaple\_45 (B1), Scoot17C\_46 (B1), Sigman\_46 (B1), Soile\_46 (B1), Swish\_46 (B1), ThreeOh3D2\_46 (B1), Trypo\_46 (B1), Yoshand\_46 (B1), Zonia\_46 (B1),

Start 29:

- Found in 5 of 124 ( 4.0% ) of genes in pham
- Manual Annotations of this start: 1 of 104
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 39HC\_038 (B6), 40BC\_038 (B6), Hosp\_036 (B6), Jolie1\_038 (B6), KayaCho\_38 (B6),

Start 30:

- Found in 35 of 124 ( 28.2% ) of genes in pham
- Manual Annotations of this start: 19 of 104
- Called 85.7% of time when present
- Phage (with cluster) where this start called: Ahwei\_40 (B4), Antihero\_40 (B4), Apex\_42 (B4), Austelle\_42 (B4), BobbyK\_42 (B4), ChrisnMich\_41 (B4), Cooper\_42 (B4), Epah\_40 (B4), Fanaw\_40 (B4), Frederick\_42 (B4), GinPorsche\_40 (B4), Hally898\_40 (B4), Hangman\_41 (B4), Heath\_40 (B4), Hydro\_41 (B4), JAMaL\_41 (B4), Lambano\_40 (B4), Lolalove\_41 (B4), Maggie\_40 (B4), Mithril\_41 (B4), Mudslide\_41 (B4), Nanao\_40 (B4), Poster\_40 (B4), Prince\_41 (B4), QueenPie\_40 (B4), RawrgerThat\_42 (B4), VioletZ\_42 (B4), Waleliano\_41 (B4), Xincheng\_40 (B4), Zemanar\_42 (B4),

Start 31:

- Found in 2 of 124 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 104
- Called 50.0% of time when present
- Phage (with cluster) where this start called: AlanGrant\_43 (B4),

Start 32:

- Found in 14 of 124 ( 11.3% ) of genes in pham
- Manual Annotations of this start: 1 of 104
- Called 7.1% of time when present
- Phage (with cluster) where this start called: CRB2\_47 (B9),

### **Summary by clusters:**

There are 5 clusters represented in this pham: B4, B6, B9, B1, B3,

Info for manual annotations of cluster B1:

- Start number 16 was manually annotated 14 times for cluster B1.
- Start number 28 was manually annotated 51 times for cluster B1.

Info for manual annotations of cluster B3:

- Start number 27 was manually annotated 10 times for cluster B3.

Info for manual annotations of cluster B4:

- Start number 7 was manually annotated 1 time for cluster B4.
- Start number 25 was manually annotated 1 time for cluster B4.

- Start number 26 was manually annotated 3 times for cluster B4.
- Start number 30 was manually annotated 19 times for cluster B4.
- Start number 31 was manually annotated 1 time for cluster B4.

Info for manual annotations of cluster B6:

- Start number 29 was manually annotated 1 time for cluster B6.

Info for manual annotations of cluster B9:

- Start number 24 was manually annotated 2 times for cluster B9.
- Start number 32 was manually annotated 1 time for cluster B9.

### **Gene Information:**

Gene: 39HC\_038 Start: 37421, Stop: 36984, Start Num: 29

Candidate Starts for 39HC\_038:

(12, 37574), (14, 37565), (22, 37511), (Start: 29 @37421 has 1 MA's), (33, 37355), (38, 37295), (47, 37208), (48, 37196), (49, 37175), (58, 37076),

Gene: 40BC\_038 Start: 37421, Stop: 36984, Start Num: 29

Candidate Starts for 40BC\_038:

(12, 37574), (14, 37565), (22, 37511), (Start: 29 @37421 has 1 MA's), (33, 37355), (38, 37295), (47, 37208), (48, 37196), (49, 37175), (58, 37076),

Gene: ABU\_46 Start: 39612, Stop: 39187, Start Num: 28

Candidate Starts for ABU\_46:

(13, 39762), (15, 39753), (17, 39738), (Start: 28 @39612 has 51 MA's), (35, 39534), (36, 39519), (42, 39474),

Gene: Adriana\_46 Start: 39610, Stop: 39185, Start Num: 28

Candidate Starts for Adriana\_46:

(13, 39760), (15, 39751), (17, 39736), (Start: 28 @39610 has 51 MA's), (35, 39532), (36, 39517), (42, 39472),

Gene: Ahwei\_40 Start: 38593, Stop: 38168, Start Num: 30

Candidate Starts for Ahwei\_40:

(Start: 7 @38797 has 1 MA's), (10, 38761), (20, 38707), (Start: 26 @38626 has 3 MA's), (Start: 30 @38593 has 19 MA's), (38, 38485), (45, 38410), (47, 38398), (49, 38365), (50, 38356), (56, 38308), (58, 38272), (59, 38254),

Gene: Akoma\_44 Start: 39465, Stop: 39028, Start Num: 27

Candidate Starts for Akoma\_44:

(3, 39684), (14, 39582), (22, 39528), (23, 39513), (Start: 27 @39465 has 10 MA's), (34, 39375), (38, 39330), (39, 39324), (41, 39318), (44, 39267), (52, 39180), (53, 39156), (58, 39108),

Gene: AlanGrant\_43 Start: 40379, Stop: 39954, Start Num: 31

Candidate Starts for AlanGrant\_43:

(12, 40535), (14, 40526), (Start: 25 @40436 has 1 MA's), (Start: 31 @40379 has 1 MA's), (36, 40292), (37, 40286), (38, 40265), (40, 40256), (49, 40145), (54, 40097), (58, 40052), (59, 40034), (60, 40004), (61, 39989),

Gene: Andre\_46 Start: 39604, Stop: 39179, Start Num: 28

Candidate Starts for Andre\_46:

(13, 39754), (15, 39745), (17, 39730), (Start: 28 @39604 has 51 MA's), (35, 39526), (36, 39511), (42, 39466),

Gene: Antihero\_40 Start: 38593, Stop: 38168, Start Num: 30

Candidate Starts for Antihero\_40:

(Start: 7 @38797 has 1 MA's), (10, 38761), (20, 38707), (Start: 26 @38626 has 3 MA's), (Start: 30 @38593 has 19 MA's), (38, 38485), (45, 38410), (47, 38398), (49, 38365), (50, 38356), (56, 38308), (58, 38272), (59, 38254),

Gene: Apex\_42 Start: 39799, Stop: 39374, Start Num: 30

Candidate Starts for Apex\_42:

(Start: 7 @40009 has 1 MA's), (8, 39985), (10, 39973), (20, 39919), (Start: 26 @39832 has 3 MA's), (Start: 30 @39799 has 19 MA's), (Start: 32 @39793 has 1 MA's), (38, 39691), (45, 39616), (47, 39604), (49, 39571), (50, 39562), (56, 39514), (58, 39478), (59, 39460),

Gene: Apizium\_45 Start: 39365, Stop: 38940, Start Num: 28

Candidate Starts for Apizium\_45:

(13, 39518), (15, 39509), (17, 39494), (Start: 28 @39365 has 51 MA's), (35, 39287), (36, 39272), (42, 39227),

Gene: Ashraf\_45 Start: 39169, Stop: 38744, Start Num: 28

Candidate Starts for Ashraf\_45:

(13, 39319), (15, 39310), (17, 39295), (Start: 28 @39169 has 51 MA's), (35, 39091), (36, 39076), (42, 39031),

Gene: Audrey\_44 Start: 39461, Stop: 39024, Start Num: 27

Candidate Starts for Audrey\_44:

(3, 39680), (14, 39578), (22, 39524), (23, 39509), (Start: 27 @39461 has 10 MA's), (34, 39371), (38, 39326), (39, 39320), (41, 39314), (44, 39263), (52, 39176), (53, 39152), (58, 39104),

Gene: Austelle\_42 Start: 40255, Stop: 39830, Start Num: 30

Candidate Starts for Austelle\_42:

(Start: 7 @40459 has 1 MA's), (8, 40435), (10, 40423), (20, 40369), (Start: 26 @40288 has 3 MA's), (Start: 30 @40255 has 19 MA's), (Start: 32 @40249 has 1 MA's), (38, 40147), (45, 40072), (47, 40060), (49, 40027), (50, 40018), (56, 39970), (58, 39934), (59, 39916),

Gene: Badfish\_46 Start: 39635, Stop: 39210, Start Num: 28

Candidate Starts for Badfish\_46:

(13, 39785), (15, 39776), (17, 39761), (Start: 28 @39635 has 51 MA's), (35, 39557), (36, 39542), (42, 39497),

Gene: Basato\_47 Start: 39988, Stop: 39464, Start Num: 16

Candidate Starts for Basato\_47:

(Start: 16 @39988 has 14 MA's), (Start: 28 @39889 has 51 MA's), (35, 39811), (36, 39796), (42, 39751),

Gene: Ben11\_43 Start: 39283, Stop: 38846, Start Num: 27

Candidate Starts for Ben11\_43:

(3, 39502), (14, 39400), (22, 39346), (23, 39331), (Start: 27 @39283 has 10 MA's), (34, 39193), (38, 39148), (39, 39142), (41, 39136), (44, 39085), (52, 38998), (53, 38974), (58, 38926),

Gene: BlackStallion\_46 Start: 39621, Stop: 39196, Start Num: 28

Candidate Starts for BlackStallion\_46:

(13, 39771), (15, 39762), (17, 39747), (Start: 28 @39621 has 51 MA's), (35, 39543), (36, 39528), (42, 39483),

Gene: BobbyK\_42 Start: 39624, Stop: 39199, Start Num: 30

Candidate Starts for BobbyK\_42:

(Start: 7 @39828 has 1 MA's), (8, 39804), (10, 39792), (20, 39738), (Start: 26 @39657 has 3 MA's), (Start: 30 @39624 has 19 MA's), (38, 39516), (45, 39441), (47, 39429), (49, 39396), (50, 39387), (56, 39339), (58, 39303), (59, 39285),

Gene: BrownCNA\_43 Start: 39918, Stop: 39460, Start Num: 26

Candidate Starts for BrownCNA\_43:

(Start: 7 @40089 has 1 MA's), (8, 40065), (10, 40053), (20, 39999), (Start: 26 @39918 has 3 MA's), (Start: 30 @39885 has 19 MA's), (38, 39777), (45, 39702), (47, 39690), (49, 39657), (50, 39648), (56, 39600), (58, 39564), (59, 39546),

Gene: CRB2\_47 Start: 42140, Stop: 41727, Start Num: 32

Candidate Starts for CRB2\_47:

(12, 42299), (14, 42290), (Start: 24 @42215 has 2 MA's), (Start: 32 @42140 has 1 MA's), (37, 42065), (62, 41756),

Gene: CampRoach\_46 Start: 39607, Stop: 39182, Start Num: 28

Candidate Starts for CampRoach\_46:

(13, 39757), (15, 39748), (17, 39733), (Start: 28 @39607 has 51 MA's), (35, 39529), (36, 39514), (42, 39469),

Gene: Casbah\_43 Start: 39313, Stop: 38876, Start Num: 27

Candidate Starts for Casbah\_43:

(3, 39532), (14, 39430), (22, 39376), (23, 39361), (Start: 27 @39313 has 10 MA's), (34, 39223), (38, 39178), (39, 39172), (41, 39166), (44, 39115), (52, 39028), (53, 39004), (58, 38956),

Gene: Chah\_47 Start: 39634, Stop: 39209, Start Num: 28

Candidate Starts for Chah\_47:

(13, 39784), (15, 39775), (17, 39760), (Start: 28 @39634 has 51 MA's), (35, 39556), (36, 39541), (42, 39496),

Gene: Chandler\_44 Start: 40244, Stop: 39807, Start Num: 27

Candidate Starts for Chandler\_44:

(3, 40463), (14, 40361), (22, 40307), (23, 40292), (Start: 27 @40244 has 10 MA's), (34, 40154), (38, 40109), (39, 40103), (41, 40097), (44, 40046), (52, 39959), (53, 39935), (58, 39887),

Gene: ChrisnMich\_41 Start: 38585, Stop: 38160, Start Num: 30

Candidate Starts for ChrisnMich\_41:

(Start: 7 @38789 has 1 MA's), (10, 38753), (20, 38699), (Start: 26 @38618 has 3 MA's), (Start: 30 @38585 has 19 MA's), (38, 38477), (45, 38402), (49, 38357), (50, 38348), (56, 38300), (58, 38264), (59, 38246),

Gene: Chunky\_46 Start: 39724, Stop: 39200, Start Num: 16

Candidate Starts for Chunky\_46:

(Start: 16 @39724 has 14 MA's), (Start: 28 @39625 has 51 MA's), (35, 39547), (36, 39532), (42, 39487),

Gene: Chute\_45 Start: 39663, Stop: 39238, Start Num: 28



Candidate Starts for Chute\_45:

(Start: 16 @39765 has 14 MA's), (Start: 28 @39663 has 51 MA's), (35, 39585), (36, 39570), (42, 39525),

Gene: Colbert\_46 Start: 39777, Stop: 39253, Start Num: 16

Candidate Starts for Colbert\_46:

(Start: 16 @39777 has 14 MA's), (Start: 28 @39678 has 51 MA's), (35, 39600), (36, 39585), (42, 39540),

Gene: Cooper\_42 Start: 38807, Stop: 38379, Start Num: 30

Candidate Starts for Cooper\_42:

(Start: 7 @39008 has 1 MA's), (10, 38972), (Start: 26 @38840 has 3 MA's), (Start: 30 @38807 has 19 MA's), (38, 38696), (45, 38621), (47, 38609), (50, 38567), (56, 38519), (57, 38486), (58, 38483), (59, 38465), (61, 38420),

Gene: Craff\_46 Start: 39620, Stop: 39195, Start Num: 28

Candidate Starts for Craff\_46:

(13, 39770), (15, 39761), (17, 39746), (Start: 28 @39620 has 51 MA's), (35, 39542), (36, 39527), (42, 39482),

Gene: Daka\_47 Start: 39714, Stop: 39190, Start Num: 16

Candidate Starts for Daka\_47:

(Start: 16 @39714 has 14 MA's), (Start: 28 @39615 has 51 MA's), (35, 39537), (36, 39522), (42, 39477),

Gene: Dati\_46 Start: 39336, Stop: 38911, Start Num: 28

Candidate Starts for Dati\_46:

(Start: 16 @39438 has 14 MA's), (Start: 28 @39336 has 51 MA's), (35, 39258), (36, 39243), (42, 39198),

Gene: DuchessDung\_44 Start: 38469, Stop: 38044, Start Num: 28

Candidate Starts for DuchessDung\_44:

(13, 38619), (15, 38610), (17, 38595), (Start: 28 @38469 has 51 MA's), (35, 38391), (36, 38376), (42, 38331),

Gene: Durga\_46 Start: 39635, Stop: 39210, Start Num: 28

Candidate Starts for Durga\_46:

(13, 39785), (15, 39776), (17, 39761), (Start: 28 @39635 has 51 MA's), (35, 39557), (36, 39542), (42, 39497),

Gene: Emiris\_46 Start: 39603, Stop: 39178, Start Num: 28

Candidate Starts for Emiris\_46:

(13, 39753), (15, 39744), (17, 39729), (Start: 28 @39603 has 51 MA's), (35, 39525), (36, 39510), (42, 39465),

Gene: Epah\_40 Start: 38593, Stop: 38168, Start Num: 30

Candidate Starts for Epah\_40:

(Start: 7 @38797 has 1 MA's), (10, 38761), (20, 38707), (Start: 26 @38626 has 3 MA's), (Start: 30 @38593 has 19 MA's), (38, 38485), (45, 38410), (47, 38398), (49, 38365), (50, 38356), (56, 38308), (58, 38272), (59, 38254),

Gene: Eremos\_46 Start: 39713, Stop: 39189, Start Num: 16

Candidate Starts for Eremos\_46:

(Start: 16 @39713 has 14 MA's), (Start: 28 @39614 has 51 MA's), (35, 39536), (36, 39521), (42, 39476),

Gene: Eugenia\_46 Start: 39723, Stop: 39199, Start Num: 16

Candidate Starts for Eugenia\_46:

(Start: 16 @39723 has 14 MA's), (Start: 28 @39624 has 51 MA's), (35, 39546), (36, 39531), (42, 39486),

Gene: Fanaw\_40 Start: 39290, Stop: 38865, Start Num: 30

Candidate Starts for Fanaw\_40:

(Start: 7 @39494 has 1 MA's), (8, 39470), (10, 39458), (20, 39404), (Start: 26 @39323 has 3 MA's), (Start: 30 @39290 has 19 MA's), (Start: 32 @39284 has 1 MA's), (38, 39182), (45, 39107), (46, 39104), (49, 39062), (50, 39053), (56, 39005), (58, 38969), (59, 38951),

Gene: Fang\_46 Start: 39628, Stop: 39203, Start Num: 28

Candidate Starts for Fang\_46:

(13, 39778), (15, 39769), (17, 39754), (Start: 28 @39628 has 51 MA's), (35, 39550), (36, 39535), (42, 39490),

Gene: FluffyNinja\_46 Start: 39621, Stop: 39196, Start Num: 28

Candidate Starts for FluffyNinja\_46:

(13, 39771), (15, 39762), (17, 39747), (Start: 28 @39621 has 51 MA's), (35, 39543), (36, 39528), (42, 39483),

Gene: Fortunato\_42 Start: 39822, Stop: 39193, Start Num: 7

Candidate Starts for Fortunato\_42:

(Start: 7 @39822 has 1 MA's), (10, 39786), (20, 39732), (Start: 26 @39651 has 3 MA's), (Start: 30 @39618 has 19 MA's), (Start: 32 @39612 has 1 MA's), (38, 39510), (45, 39435), (47, 39423), (49, 39390), (50, 39381), (56, 39333), (58, 39297), (59, 39279),

Gene: Frederick\_42 Start: 39624, Stop: 39199, Start Num: 30

Candidate Starts for Frederick\_42:

(Start: 7 @39828 has 1 MA's), (8, 39804), (10, 39792), (20, 39738), (Start: 26 @39657 has 3 MA's), (Start: 30 @39624 has 19 MA's), (38, 39516), (45, 39441), (49, 39396), (50, 39387), (56, 39339), (58, 39303), (59, 39285),

Gene: Fringe\_46 Start: 39604, Stop: 39179, Start Num: 28

Candidate Starts for Fringe\_46:

(13, 39754), (15, 39745), (17, 39730), (Start: 28 @39604 has 51 MA's), (35, 39526), (36, 39511), (42, 39466),

Gene: Gareth\_45 Start: 39320, Stop: 38895, Start Num: 28

Candidate Starts for Gareth\_45:

(Start: 16 @39419 has 14 MA's), (Start: 28 @39320 has 51 MA's), (35, 39242), (36, 39227), (42, 39182),

Gene: GinPorsche\_40 Start: 38593, Stop: 38168, Start Num: 30

Candidate Starts for GinPorsche\_40:

(Start: 7 @38797 has 1 MA's), (10, 38761), (20, 38707), (Start: 26 @38626 has 3 MA's), (Start: 30 @38593 has 19 MA's), (38, 38485), (45, 38410), (47, 38398), (49, 38365), (50, 38356), (56, 38308), (58, 38272), (59, 38254),

Gene: Gwilliam\_47 Start: 39717, Stop: 39193, Start Num: 16

Candidate Starts for Gwilliam\_47:

(Start: 16 @39717 has 14 MA's), (Start: 28 @39618 has 51 MA's), (35, 39540), (36, 39525), (42, 39480),

Gene: Halfpint\_43 Start: 39281, Stop: 38844, Start Num: 27

Candidate Starts for Halfpint\_43:

(3, 39500), (14, 39398), (22, 39344), (23, 39329), (Start: 27 @39281 has 10 MA's), (34, 39191), (38, 39146), (39, 39140), (41, 39134), (44, 39083), (52, 38996), (53, 38972), (58, 38924),

Gene: Hally898\_40 Start: 38605, Stop: 38180, Start Num: 30

Candidate Starts for Hally898\_40:

(Start: 7 @38809 has 1 MA's), (10, 38773), (20, 38719), (Start: 26 @38638 has 3 MA's), (Start: 30 @38605 has 19 MA's), (38, 38497), (45, 38422), (47, 38410), (49, 38377), (50, 38368), (56, 38320), (58, 38284), (59, 38266),

Gene: Hangman\_41 Start: 39616, Stop: 39191, Start Num: 30

Candidate Starts for Hangman\_41:

(Start: 7 @39820 has 1 MA's), (8, 39796), (10, 39784), (20, 39730), (Start: 26 @39649 has 3 MA's), (Start: 30 @39616 has 19 MA's), (38, 39508), (45, 39433), (47, 39421), (49, 39388), (50, 39379), (56, 39331), (58, 39295), (59, 39277),

Gene: Heath\_40 Start: 39223, Stop: 38798, Start Num: 30

Candidate Starts for Heath\_40:

(Start: 7 @39427 has 1 MA's), (8, 39403), (10, 39391), (20, 39337), (Start: 26 @39256 has 3 MA's), (Start: 30 @39223 has 19 MA's), (38, 39115), (45, 39040), (47, 39028), (49, 38995), (50, 38986), (56, 38938), (58, 38902), (59, 38884),

Gene: HighStump\_45 Start: 39321, Stop: 38896, Start Num: 28

Candidate Starts for HighStump\_45:

(13, 39471), (15, 39462), (17, 39447), (Start: 28 @39321 has 51 MA's), (35, 39243), (36, 39228), (42, 39183),

Gene: Hosp\_036 Start: 35614, Stop: 35177, Start Num: 29

Candidate Starts for Hosp\_036:

(4, 35842), (11, 35770), (Start: 29 @35614 has 1 MA's), (33, 35548), (38, 35488), (47, 35401), (48, 35389), (49, 35368), (58, 35269),

Gene: Hydro\_41 Start: 39633, Stop: 39208, Start Num: 30

Candidate Starts for Hydro\_41:

(Start: 7 @39837 has 1 MA's), (8, 39813), (10, 39801), (20, 39747), (Start: 26 @39666 has 3 MA's), (Start: 30 @39633 has 19 MA's), (38, 39525), (45, 39450), (47, 39438), (49, 39405), (50, 39396), (56, 39348), (58, 39312), (59, 39294),

Gene: ImtiyazSitla\_45 Start: 39169, Stop: 38744, Start Num: 28

Candidate Starts for ImtiyazSitla\_45:

(13, 39319), (15, 39310), (17, 39295), (Start: 28 @39169 has 51 MA's), (35, 39091), (36, 39076), (42, 39031),

Gene: Inchworm\_46 Start: 39607, Stop: 39182, Start Num: 28

Candidate Starts for Inchworm\_46:

(13, 39757), (15, 39748), (17, 39733), (Start: 28 @39607 has 51 MA's), (35, 39529), (36, 39514), (42, 39469),

Gene: IsaacEli\_46 Start: 39625, Stop: 39200, Start Num: 28  
Candidate Starts for IsaacEli\_46:  
(13, 39775), (15, 39766), (17, 39751), (Start: 28 @39625 has 51 MA's), (35, 39547), (36, 39532), (42, 39487),

Gene: JAMaL\_41 Start: 39804, Stop: 39379, Start Num: 30  
Candidate Starts for JAMaL\_41:  
(Start: 7 @40008 has 1 MA's), (8, 39984), (10, 39972), (18, 39936), (20, 39918), (Start: 26 @39837 has 3 MA's), (Start: 30 @39804 has 19 MA's), (Start: 32 @39798 has 1 MA's), (38, 39696), (45, 39621), (47, 39609), (49, 39576), (56, 39519), (58, 39483), (59, 39465),

Gene: JDog\_45 Start: 39338, Stop: 38913, Start Num: 28  
Candidate Starts for JDog\_45:  
(Start: 16 @39440 has 14 MA's), (Start: 28 @39338 has 51 MA's), (35, 39260), (36, 39245), (42, 39200),

Gene: JacAttac\_46 Start: 39607, Stop: 39182, Start Num: 28  
Candidate Starts for JacAttac\_46:  
(13, 39757), (15, 39748), (17, 39733), (Start: 28 @39607 has 51 MA's), (35, 39529), (36, 39514), (42, 39469),

Gene: Jackstina\_41 Start: 39385, Stop: 38948, Start Num: 27  
Candidate Starts for Jackstina\_41:  
(3, 39604), (14, 39502), (22, 39448), (23, 39433), (Start: 27 @39385 has 10 MA's), (34, 39295), (38, 39250), (39, 39244), (41, 39238), (44, 39187), (52, 39100), (53, 39076), (58, 39028),

Gene: JaguarMi\_41 Start: 39177, Stop: 38674, Start Num: 24  
Candidate Starts for JaguarMi\_41:  
(12, 39261), (Start: 24 @39177 has 2 MA's), (Start: 26 @39132 has 3 MA's), (Start: 30 @39099 has 19 MA's), (38, 38991), (45, 38916), (47, 38904), (49, 38871), (50, 38862), (56, 38814), (58, 38778), (59, 38760),

Gene: Jolie1\_038 Start: 37398, Stop: 36964, Start Num: 29  
Candidate Starts for Jolie1\_038:  
(4, 37626), (Start: 29 @37398 has 1 MA's), (37, 37293), (38, 37272), (43, 37212), (47, 37185), (48, 37173), (51, 37140), (58, 37065), (59, 37047),

Gene: Katniss\_46 Start: 39634, Stop: 39209, Start Num: 28  
Candidate Starts for Katniss\_46:  
(13, 39784), (15, 39775), (17, 39760), (Start: 28 @39634 has 51 MA's), (35, 39556), (36, 39541), (42, 39496),

Gene: KayaCho\_38 Start: 37397, Stop: 36963, Start Num: 29  
Candidate Starts for KayaCho\_38:  
(Start: 29 @37397 has 1 MA's), (37, 37292), (38, 37271), (43, 37211), (47, 37184), (48, 37172), (51, 37139), (58, 37064), (59, 37046),

Gene: Kikipoo\_46 Start: 39625, Stop: 39200, Start Num: 28  
Candidate Starts for Kikipoo\_46:  
(13, 39775), (15, 39766), (17, 39751), (Start: 28 @39625 has 51 MA's), (35, 39547), (36, 39532), (42, 39487),

Gene: Lambano\_40 Start: 38605, Stop: 38180, Start Num: 30

Candidate Starts for Lambano\_40:

(Start: 7 @38809 has 1 MA's), (10, 38773), (20, 38719), (Start: 26 @38638 has 3 MA's), (Start: 30 @38605 has 19 MA's), (38, 38497), (45, 38422), (47, 38410), (49, 38377), (50, 38368), (56, 38320), (58, 38284), (59, 38266),

Gene: LasagnaCat\_46 Start: 39619, Stop: 39194, Start Num: 28

Candidate Starts for LasagnaCat\_46:

(13, 39769), (15, 39760), (17, 39745), (Start: 28 @39619 has 51 MA's), (35, 39541), (36, 39526), (42, 39481),

Gene: Legolas\_45 Start: 39333, Stop: 38908, Start Num: 28

Candidate Starts for Legolas\_45:

(1, 39888), (2, 39693), (5, 39549), (Start: 28 @39333 has 51 MA's), (35, 39255), (36, 39240), (42, 39195),

Gene: Lolalove\_41 Start: 39630, Stop: 39205, Start Num: 30

Candidate Starts for Lolalove\_41:

(Start: 7 @39834 has 1 MA's), (8, 39810), (10, 39798), (20, 39744), (Start: 26 @39663 has 3 MA's), (Start: 30 @39630 has 19 MA's), (Start: 32 @39624 has 1 MA's), (38, 39522), (45, 39447), (47, 39435), (49, 39402), (50, 39393), (56, 39345), (58, 39309), (59, 39291),

Gene: Lopsy\_45 Start: 39277, Stop: 38750, Start Num: 16

Candidate Starts for Lopsy\_45:

(Start: 16 @39277 has 14 MA's), (Start: 28 @39175 has 51 MA's), (35, 39097), (36, 39082), (42, 39037),

Gene: Lulumae\_45 Start: 39416, Stop: 38892, Start Num: 16

Candidate Starts for Lulumae\_45:

(Start: 16 @39416 has 14 MA's), (Start: 28 @39317 has 51 MA's), (35, 39239), (36, 39224), (42, 39179),

Gene: Magpie\_40 Start: 39466, Stop: 39041, Start Num: 30

Candidate Starts for Magpie\_40:

(Start: 7 @39670 has 1 MA's), (8, 39646), (10, 39634), (20, 39580), (21, 39574), (Start: 26 @39499 has 3 MA's), (Start: 30 @39466 has 19 MA's), (Start: 32 @39460 has 1 MA's), (38, 39358), (45, 39283), (47, 39271), (49, 39238), (50, 39229), (56, 39181), (58, 39145), (59, 39127),

Gene: Maskar\_45 Start: 39169, Stop: 38744, Start Num: 28

Candidate Starts for Maskar\_45:

(13, 39319), (15, 39310), (17, 39295), (Start: 28 @39169 has 51 MA's), (35, 39091), (36, 39076), (42, 39031),

Gene: Megatron\_46 Start: 39616, Stop: 39191, Start Num: 28

Candidate Starts for Megatron\_46:

(13, 39766), (15, 39757), (17, 39742), (Start: 28 @39616 has 51 MA's), (35, 39538), (36, 39523), (42, 39478),

Gene: MelsMeow\_45 Start: 39219, Stop: 38794, Start Num: 28

Candidate Starts for MelsMeow\_45:

(13, 39369), (15, 39360), (17, 39345), (Start: 28 @39219 has 51 MA's), (35, 39141), (36, 39126), (42, 39081),

Gene: Mithril\_41 Start: 39634, Stop: 39209, Start Num: 30

Candidate Starts for Mithril\_41:

(Start: 7 @39838 has 1 MA's), (8, 39814), (10, 39802), (20, 39748), (Start: 26 @39667 has 3 MA's), (Start: 30 @39634 has 19 MA's), (38, 39526), (45, 39451), (47, 39439), (49, 39406), (50, 39397), (56, 39349), (58, 39313), (59, 39295),

Gene: Morty\_46 Start: 39625, Stop: 39200, Start Num: 28

Candidate Starts for Morty\_46:

(13, 39775), (15, 39766), (17, 39751), (Start: 28 @39625 has 51 MA's), (35, 39547), (36, 39532), (42, 39487),

Gene: Morty007\_44 Start: 40243, Stop: 39806, Start Num: 27

Candidate Starts for Morty007\_44:

(3, 40462), (14, 40360), (22, 40306), (23, 40291), (Start: 27 @40243 has 10 MA's), (34, 40153), (38, 40108), (39, 40102), (41, 40096), (44, 40045), (52, 39958), (53, 39934), (58, 39886),

Gene: Mosaic\_45 Start: 39417, Stop: 38905, Start Num: 16

Candidate Starts for Mosaic\_45:

(Start: 16 @39417 has 14 MA's), (Start: 28 @39318 has 51 MA's), (35, 39252), (36, 39237), (42, 39192),

Gene: Mudslide\_41 Start: 39866, Stop: 39441, Start Num: 30

Candidate Starts for Mudslide\_41:

(Start: 7 @40070 has 1 MA's), (8, 40046), (10, 40034), (20, 39980), (Start: 26 @39899 has 3 MA's), (Start: 30 @39866 has 19 MA's), (38, 39758), (45, 39683), (47, 39671), (49, 39638), (50, 39629), (56, 39581), (58, 39545), (59, 39527),

Gene: Mulan\_45 Start: 39342, Stop: 38917, Start Num: 28

Candidate Starts for Mulan\_45:

(13, 39492), (15, 39483), (17, 39468), (Start: 28 @39342 has 51 MA's), (35, 39264), (36, 39249), (42, 39204),

Gene: Mutante\_45 Start: 39324, Stop: 38899, Start Num: 28

Candidate Starts for Mutante\_45:

(Start: 16 @39429 has 14 MA's), (Start: 28 @39324 has 51 MA's), (35, 39246), (36, 39231), (42, 39186),

Gene: Nacho\_0046 Start: 39619, Stop: 39194, Start Num: 28

Candidate Starts for Nacho\_0046:

(13, 39769), (15, 39760), (17, 39745), (Start: 28 @39619 has 51 MA's), (35, 39541), (36, 39526), (42, 39481),

Gene: Nanao\_40 Start: 38592, Stop: 38167, Start Num: 30

Candidate Starts for Nanao\_40:

(Start: 7 @38796 has 1 MA's), (10, 38760), (20, 38706), (Start: 26 @38625 has 3 MA's), (Start: 30 @38592 has 19 MA's), (38, 38484), (45, 38409), (47, 38397), (49, 38364), (50, 38355), (56, 38307), (58, 38271), (59, 38253),

Gene: Nigel\_40 Start: 38541, Stop: 38083, Start Num: 26

Candidate Starts for Nigel\_40:

(6, 38721), (Start: 7 @38709 has 1 MA's), (9, 38679), (11, 38670), (19, 38625), (20, 38619), (Start: 26 @38541 has 3 MA's), (Start: 30 @38508 has 19 MA's), (38, 38400), (45, 38325), (47, 38313), (48, 38301), (49, 38280), (56, 38223), (58, 38187), (61, 38124), (63, 38091),

Gene: OSmaximus\_46 Start: 39658, Stop: 39233, Start Num: 28  
Candidate Starts for OSmaximus\_46:  
(13, 39808), (15, 39799), (17, 39784), (Start: 28 @39658 has 51 MA's), (35, 39580), (36, 39565), (42, 39520),

Gene: Orion\_46 Start: 39614, Stop: 39189, Start Num: 28  
Candidate Starts for Orion\_46:  
(13, 39764), (15, 39755), (17, 39740), (Start: 28 @39614 has 51 MA's), (35, 39536), (36, 39521), (42, 39476),

Gene: PG1\_46 Start: 39627, Stop: 39202, Start Num: 28  
Candidate Starts for PG1\_46:  
(13, 39777), (15, 39768), (17, 39753), (Start: 28 @39627 has 51 MA's), (35, 39549), (36, 39534), (42, 39489),

Gene: PenguinLover67\_47 Start: 41507, Stop: 41013, Start Num: 24  
Candidate Starts for PenguinLover67\_47:  
(12, 41591), (14, 41582), (Start: 24 @41507 has 2 MA's), (Start: 32 @41429 has 1 MA's), (38, 41327), (41, 41315),

Gene: Phaedrus\_42 Start: 39384, Stop: 38947, Start Num: 27  
Candidate Starts for Phaedrus\_42:  
(3, 39603), (14, 39501), (22, 39447), (23, 39432), (Start: 27 @39384 has 10 MA's), (34, 39294), (38, 39249), (39, 39243), (41, 39237), (44, 39186), (52, 39099), (53, 39075), (58, 39027),

Gene: Phamished\_46 Start: 39622, Stop: 39197, Start Num: 28  
Candidate Starts for Phamished\_46:  
(13, 39772), (15, 39763), (17, 39748), (Start: 28 @39622 has 51 MA's), (35, 39544), (36, 39529), (42, 39484),

Gene: PhatCats2014\_46 Start: 39631, Stop: 39206, Start Num: 28  
Candidate Starts for PhatCats2014\_46:  
(13, 39781), (15, 39772), (17, 39757), (Start: 28 @39631 has 51 MA's), (35, 39553), (36, 39538), (42, 39493),

Gene: Phayeta\_45 Start: 39329, Stop: 38892, Start Num: 27  
Candidate Starts for Phayeta\_45:  
(3, 39548), (14, 39446), (22, 39392), (23, 39377), (Start: 27 @39329 has 10 MA's), (34, 39239), (38, 39194), (39, 39188), (41, 39182), (44, 39131), (52, 39044), (53, 39020), (58, 38972),

Gene: Pherdinand\_46 Start: 39622, Stop: 39197, Start Num: 28  
Candidate Starts for Pherdinand\_46:  
(13, 39772), (15, 39763), (17, 39748), (Start: 28 @39622 has 51 MA's), (35, 39544), (36, 39529), (42, 39484),

Gene: PhrodoBaggins\_45 Start: 39610, Stop: 39185, Start Num: 28  
Candidate Starts for PhrodoBaggins\_45:  
(13, 39760), (15, 39751), (17, 39736), (Start: 28 @39610 has 51 MA's), (35, 39532), (36, 39517), (42, 39472),

Gene: Poster\_40 Start: 38593, Stop: 38168, Start Num: 30  
Candidate Starts for Poster\_40:

(Start: 7 @38797 has 1 MA's), (10, 38761), (20, 38707), (Start: 26 @38626 has 3 MA's), (Start: 30 @38593 has 19 MA's), (38, 38485), (45, 38410), (47, 38398), (49, 38365), (50, 38356), (56, 38308), (58, 38272), (59, 38254),

Gene: Prickles\_46 Start: 39710, Stop: 39186, Start Num: 16

Candidate Starts for Prickles\_46:

(Start: 16 @39710 has 14 MA's), (Start: 28 @39611 has 51 MA's), (35, 39533), (36, 39518), (42, 39473),

Gene: Prince\_41 Start: 39776, Stop: 39351, Start Num: 30

Candidate Starts for Prince\_41:

(Start: 7 @39980 has 1 MA's), (8, 39956), (10, 39944), (20, 39890), (Start: 26 @39809 has 3 MA's), (Start: 30 @39776 has 19 MA's), (Start: 32 @39770 has 1 MA's), (38, 39668), (45, 39593), (47, 39581), (49, 39548), (50, 39539), (56, 39491), (58, 39455), (59, 39437),

Gene: QueenPie\_40 Start: 39717, Stop: 39292, Start Num: 30

Candidate Starts for QueenPie\_40:

(Start: 7 @39921 has 1 MA's), (8, 39897), (9, 39891), (10, 39885), (20, 39831), (Start: 26 @39750 has 3 MA's), (Start: 30 @39717 has 19 MA's), (38, 39609), (45, 39534), (47, 39522), (49, 39489), (50, 39480), (56, 39432), (58, 39396), (59, 39378),

Gene: Quesadilla\_47 Start: 41493, Stop: 40987, Start Num: 24

Candidate Starts for Quesadilla\_47:

(12, 41577), (Start: 24 @41493 has 2 MA's), (Start: 32 @41406 has 1 MA's), (38, 41304), (55, 41115), (59, 41055), (61, 41019),

Gene: RawrgerThat\_42 Start: 39621, Stop: 39196, Start Num: 30

Candidate Starts for RawrgerThat\_42:

(Start: 7 @39825 has 1 MA's), (10, 39789), (20, 39735), (Start: 26 @39654 has 3 MA's), (Start: 30 @39621 has 19 MA's), (Start: 32 @39615 has 1 MA's), (38, 39513), (45, 39438), (47, 39426), (49, 39393), (50, 39384), (56, 39336), (58, 39300), (59, 39282),

Gene: RedMaple\_45 Start: 39624, Stop: 39199, Start Num: 28

Candidate Starts for RedMaple\_45:

(13, 39774), (15, 39765), (17, 39750), (Start: 28 @39624 has 51 MA's), (35, 39546), (36, 39531), (42, 39486),

Gene: Roy17\_46 Start: 39416, Stop: 38892, Start Num: 16

Candidate Starts for Roy17\_46:

(Start: 16 @39416 has 14 MA's), (Start: 28 @39317 has 51 MA's), (35, 39239), (36, 39224), (42, 39179),

Gene: Scoot17C\_46 Start: 39616, Stop: 39191, Start Num: 28

Candidate Starts for Scoot17C\_46:

(13, 39766), (15, 39757), (17, 39742), (Start: 28 @39616 has 51 MA's), (35, 39538), (36, 39523), (42, 39478),

Gene: Sigman\_46 Start: 39607, Stop: 39182, Start Num: 28

Candidate Starts for Sigman\_46:

(13, 39757), (15, 39748), (17, 39733), (Start: 28 @39607 has 51 MA's), (35, 39529), (36, 39514), (42, 39469),

Gene: SlippinJimmy\_44 Start: 40230, Stop: 39793, Start Num: 27



Candidate Starts for SlippinJimmy\_44:

(3, 40449), (14, 40347), (22, 40293), (23, 40278), (Start: 27 @40230 has 10 MA's), (34, 40140), (38, 40095), (39, 40089), (41, 40083), (44, 40032), (52, 39945), (53, 39921), (58, 39873),

Gene: Soile\_46 Start: 39334, Stop: 38909, Start Num: 28

Candidate Starts for Soile\_46:

(Start: 16 @39433 has 14 MA's), (Start: 28 @39334 has 51 MA's), (35, 39256), (36, 39241), (42, 39196),

Gene: Stinger\_40 Start: 38231, Stop: 37773, Start Num: 26

Candidate Starts for Stinger\_40:

(Start: 7 @38399 has 1 MA's), (20, 38309), (Start: 26 @38231 has 3 MA's), (Start: 30 @38198 has 19 MA's), (38, 38090), (45, 38015), (47, 38003), (48, 37991), (49, 37970), (50, 37961), (56, 37913), (58, 37877), (61, 37814), (63, 37781),

Gene: Suffolk\_46 Start: 39721, Stop: 39197, Start Num: 16

Candidate Starts for Suffolk\_46:

(Start: 16 @39721 has 14 MA's), (Start: 28 @39622 has 51 MA's), (35, 39544), (36, 39529), (42, 39484),

Gene: Swish\_46 Start: 39608, Stop: 39183, Start Num: 28

Candidate Starts for Swish\_46:

(13, 39758), (15, 39749), (17, 39734), (Start: 28 @39608 has 51 MA's), (35, 39530), (36, 39515), (42, 39470),

Gene: ThreeOh3D2\_46 Start: 39622, Stop: 39197, Start Num: 28

Candidate Starts for ThreeOh3D2\_46:

(13, 39772), (15, 39763), (17, 39748), (Start: 28 @39622 has 51 MA's), (35, 39544), (36, 39529), (42, 39484),

Gene: Tooj\_46 Start: 39781, Stop: 39257, Start Num: 16

Candidate Starts for Tooj\_46:

(Start: 16 @39781 has 14 MA's), (Start: 28 @39682 has 51 MA's), (35, 39604), (36, 39589), (42, 39544),

Gene: Trypo\_46 Start: 39618, Stop: 39193, Start Num: 28

Candidate Starts for Trypo\_46:

(13, 39768), (15, 39759), (17, 39744), (Start: 28 @39618 has 51 MA's), (35, 39540), (36, 39525), (42, 39480),

Gene: Tydolla\_44 Start: 40199, Stop: 39762, Start Num: 27

Candidate Starts for Tydolla\_44:

(3, 40418), (14, 40316), (22, 40262), (23, 40247), (Start: 27 @40199 has 10 MA's), (34, 40109), (38, 40064), (39, 40058), (41, 40052), (44, 40001), (52, 39914), (53, 39890), (58, 39842),

Gene: Usavi\_46 Start: 39721, Stop: 39197, Start Num: 16

Candidate Starts for Usavi\_46:

(Start: 16 @39721 has 14 MA's), (Start: 28 @39622 has 51 MA's), (35, 39544), (36, 39529), (42, 39484),

Gene: Vincenzo\_42 Start: 40436, Stop: 39954, Start Num: 25

Candidate Starts for Vincenzo\_42:

(12, 40535), (14, 40526), (Start: 25 @40436 has 1 MA's), (Start: 31 @40379 has 1 MA's), (36, 40292), (37, 40286), (38, 40265), (40, 40256), (49, 40145), (54, 40097), (58, 40052), (59, 40034), (60, 40004), (61, 39989),

Gene: VioletZ\_42 Start: 39692, Stop: 39267, Start Num: 30

Candidate Starts for VioletZ\_42:

(Start: 7 @39896 has 1 MA's), (8, 39872), (10, 39860), (20, 39806), (Start: 26 @39725 has 3 MA's), (Start: 30 @39692 has 19 MA's), (Start: 32 @39686 has 1 MA's), (38, 39584), (45, 39509), (47, 39497), (49, 39464), (50, 39455), (56, 39407), (58, 39371), (59, 39353),

Gene: Waleliano\_41 Start: 39619, Stop: 39194, Start Num: 30

Candidate Starts for Waleliano\_41:

(Start: 7 @39823 has 1 MA's), (8, 39799), (10, 39787), (20, 39733), (Start: 26 @39652 has 3 MA's), (Start: 30 @39619 has 19 MA's), (38, 39511), (45, 39436), (47, 39424), (49, 39391), (50, 39382), (56, 39334), (58, 39298), (59, 39280),

Gene: Xincheng\_40 Start: 39075, Stop: 38650, Start Num: 30

Candidate Starts for Xincheng\_40:

(12, 39237), (Start: 24 @39153 has 2 MA's), (Start: 26 @39108 has 3 MA's), (Start: 30 @39075 has 19 MA's), (38, 38967), (45, 38892), (47, 38880), (49, 38847), (50, 38838), (56, 38790), (58, 38754), (59, 38736),

Gene: Yoshand\_46 Start: 39621, Stop: 39196, Start Num: 28

Candidate Starts for Yoshand\_46:

(13, 39771), (15, 39762), (17, 39747), (Start: 28 @39621 has 51 MA's), (35, 39543), (36, 39528), (42, 39483),

Gene: Zemanar\_42 Start: 39622, Stop: 39197, Start Num: 30

Candidate Starts for Zemanar\_42:

(Start: 7 @39826 has 1 MA's), (8, 39802), (10, 39790), (20, 39736), (Start: 26 @39655 has 3 MA's), (Start: 30 @39622 has 19 MA's), (Start: 32 @39616 has 1 MA's), (38, 39514), (45, 39439), (47, 39427), (49, 39394), (50, 39385), (56, 39337), (58, 39301), (59, 39283),

Gene: Zonia\_46 Start: 39635, Stop: 39210, Start Num: 28

Candidate Starts for Zonia\_46:

(Start: 28 @39635 has 51 MA's), (35, 39557), (36, 39542), (42, 39497),