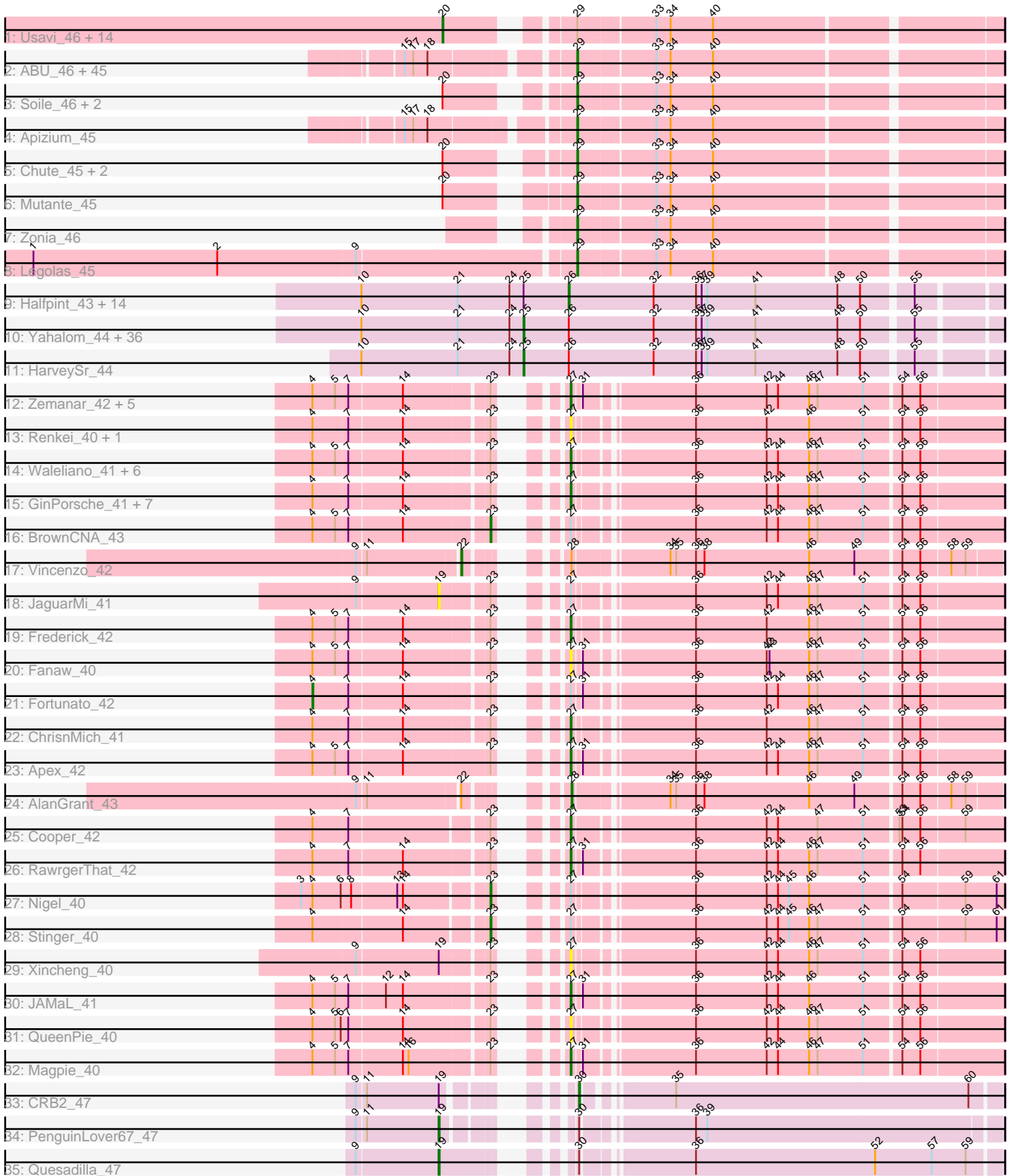


Pham 294477



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 294477 Report

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

Pham number 294477 has 167 members, 26 are drafts.

Phages represented in each track:

- Track 1 : Usavi\_46, Mosaic\_45, AltPhacts\_46, Suffolk\_46, Eremos\_46, Lopsy\_45, Prickles\_46, Chipette\_47, Colbert\_46, Daka\_47, Chunky\_46, Triad\_46, Gwilliam\_46, Basato\_47, Tooj\_46
- Track 2 : ABU\_46, PhrodoBaggins\_45, Badfish\_46, Morty\_46, ThreeOh3D2\_46, HighStump\_45, LasagnaCat\_46, PG1\_46, ImtiyazSitla\_45, Ashraf\_45, Nacho\_0046, RedMaple\_45, Fang\_46, Katniss\_46, DoIn\_48, Mulan\_45, SallyH\_46, Orion\_46, Scoot17C\_46, Trypo\_46, Emiris\_46, Megatron\_46, CampRoach\_46, Swish\_46, Craff\_46, IsaacEli\_46, ElvisPhasley\_46, PhatCats2014\_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, Lehmann\_46
- 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, SwainyDoc\_44, Casbah\_43, Phaedrus\_42, Jackstina\_41, Marlia\_44, Shenandoah\_44, Mulaychimus\_44, Olivio\_43, Tydolla\_44, SlippinJimmy\_44, Audrey\_44, Morty007\_44
- Track 10 : Yahalom\_44, Nozo\_44, MmasiCarm\_44, Mortcellus\_43, Briakila\_45, Chalmers\_44, Abinghost\_44, Daisy\_44, Gadjet\_45, Devonte\_44, Deenasa\_44, Glubnar\_45, Kamiyu\_44, Rita1961\_44, Neos5\_44, Obutu\_44, OrangeOswald\_44, Athena\_45, Gervas\_44, Philly\_43, Phlyer\_44, Yinz\_44, ChaChing\_44, Compostia\_45, LestyG\_44, Ben11\_43, TinyTerror\_44, RomaT\_44, Marley1013\_44, Corofin\_44, Heathcliff\_44, GlenHope\_45, SynergyX\_44, RagingRooster\_44, Baloo\_44, Chentzyk\_44, Kronus\_43
- Track 11 : HarveySr\_44
- Track 12 : Zemanar\_42, Austelle\_42, Prince\_41, Lolalove\_41, VioletZ\_42, JoyceMaria\_41
- Track 13 : Renkei\_40, LittleDigger\_40
- Track 14 : Waleliano\_41, Hydro\_41, Hangman\_41, Mudslide\_41, Mithril\_41, Heath\_40, BobbyK\_42
- Track 15 : GinPorsche\_41, Ahwei\_40, Hally898\_40, Antihero\_40, Nanao\_40, Lambano\_40, Poster\_40, Epah\_40
- Track 16 : BrownCNA\_43
- Track 17 : Vincenzo\_42

- Track 18 : JaguarMi\_41
- Track 19 : Frederick\_42
- Track 20 : Fanaw\_40
- Track 21 : Fortunato\_42
- Track 22 : ChrisnMich\_41
- Track 23 : Apex\_42
- Track 24 : AlanGrant\_43
- Track 25 : Cooper\_42
- Track 26 : RawrgerThat\_42
- Track 27 : Nigel\_40
- Track 28 : Stinger\_40
- Track 29 : Xincheng\_40
- Track 30 : JAMaL\_41
- Track 31 : QueenPie\_40
- Track 32 : Magpie\_40
- Track 33 : CRB2\_47
- Track 34 : PenguinLover67\_47
- Track 35 : 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 29, it was called in 52 of the 141 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, DoIOn\_48, DuchessDung\_44, Durga\_46, ElvisPhasley\_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, Lehmann\_46, 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, SallyH\_46, 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:

- AltPhacts\_46, Basato\_47, Chipette\_47, Chunky\_46, Colbert\_46, Daka\_47, Eremos\_46, Gwilliam\_46, Lopsy\_45, Mosaic\_45, Prickles\_46, Suffolk\_46, Tooj\_46, Triad\_46, Usavi\_46,

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

- Abinghost\_44, Ahwei\_40, AlanGrant\_43, Antihero\_40, Apex\_42, Athena\_45, Audrey\_44, Austelle\_42, Baloo\_44, Ben11\_43, BobbyK\_42, Briakila\_45, BrownCNA\_43, CRB2\_47, Casbah\_43, ChaChing\_44, Chalmers\_44, Chandler\_44, Chentzyk\_44, ChrisnMich\_41, Compostia\_45, Cooper\_42, Corofin\_44, Daisy\_44, Deenasa\_44, Devonte\_44, Epah\_40, Fanaw\_40, Fortunato\_42, Frederick\_42, Gadget\_45, Gervas\_44, GinPorsche\_41, GlenHope\_45, Glubnar\_45, Halfpint\_43, Hally898\_40, Hangman\_41, HarveySr\_44, Heath\_40, Heathcliff\_44, Hydro\_41, JAMaL\_41, Jackstina\_41, JaguarMi\_41, JoyceMaria\_41, Kamiyu\_44, Kronus\_43,

Lambano\_40, LestyG\_44, LittleDigger\_40, Lolalove\_41, Magpie\_40, Marley1013\_44, Marlia\_44, Mithril\_41, MmasiCarm\_44, Mortcellus\_43, Morty007\_44, Mudslide\_41, Mulaychimus\_44, Nanao\_40, Neos5\_44, Nigel\_40, Nozo\_44, Obutu\_44, Olivio\_43, OrangeOswald\_44, PenguinLover67\_47, Phaedrus\_42, Phayeta\_45, Philly\_43, Phlyer\_44, Poster\_40, Prince\_41, QueenPie\_40, Quesadilla\_47, RagingRooster\_44, RawrgerThat\_42, Renkei\_40, Rita1961\_44, RomaT\_44, Shenandoah\_44, SlippinJimmy\_44, Stinger\_40, SwainyDoc\_44, SynergyX\_44, TinyTerror\_44, Tydolla\_44, Vincenzo\_42, VioletZ\_42, Waleliano\_41, Xincheng\_40, Yahalom\_44, Yinz\_44, Zemanar\_42,

### Summary by start number:

#### Start 4:

- Found in 36 of 167 ( 21.6% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 2.8% of time when present
- Phage (with cluster) where this start called: Fortunato\_42 (B4),

#### Start 19:

- Found in 5 of 167 ( 3.0% ) of genes in pham
- Manual Annotations of this start: 2 of 141
- Called 60.0% of time when present
- Phage (with cluster) where this start called: JaguarMi\_41 (B4), PenguinLover67\_47 (B9), Quesadilla\_47 (B9),

#### Start 20:

- Found in 22 of 167 ( 13.2% ) of genes in pham
- Manual Annotations of this start: 13 of 141
- Called 68.2% of time when present
- Phage (with cluster) where this start called: AltPhacts\_46 (B1), Basato\_47 (B1), Chipette\_47 (B1), Chunky\_46 (B1), Colbert\_46 (B1), Daka\_47 (B1), Eremos\_46 (B1), Gwilliam\_46 (B1), Lopsy\_45 (B1), Mosaic\_45 (B1), Prickles\_46 (B1), Suffolk\_46 (B1), Tooj\_46 (B1), Triad\_46 (B1), Usavi\_46 (B1),

#### Start 22:

- Found in 2 of 167 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Vincenzo\_42 (B4),

#### Start 23:

- Found in 38 of 167 ( 22.8% ) of genes in pham
- Manual Annotations of this start: 3 of 141
- Called 7.9% of time when present
- Phage (with cluster) where this start called: BrownCNA\_43 (B4), Nigel\_40 (B4), Stinger\_40 (B4),

#### Start 25:

- Found in 53 of 167 ( 31.7% ) of genes in pham
- Manual Annotations of this start: 38 of 141
- Called 71.7% of time when present
- Phage (with cluster) where this start called: Abinghost\_44 (B3), Athena\_45 (B3), Baloo\_44 (B3), Ben11\_43 (B3), Briakila\_45 (B3), ChaChing\_44 (B3), Chalmers\_44

(B3), Chentzyk\_44 (B3), Compostia\_45 (B3), Corofin\_44 (B3), Daisy\_44 (B3), Deenasa\_44 (B3), Devonte\_44 (B3), Gadget\_45 (B3), Gervas\_44 (B3), GlenHope\_45 (B3), Glubnar\_45 (B3), HarveySr\_44 (B3), Heathcliff\_44 (B3), Kamiyu\_44 (B3), Kronus\_43 (B3), LestyG\_44 (B3), Marley1013\_44 (B3), MmasiCarm\_44 (B3), Mortcellus\_43 (B3), Neos5\_44 (B3), Nozo\_44 (B3), Obutu\_44 (B3), OrangeOswald\_44 (B3), Philly\_43 (B3), Phlyer\_44 (B3), RagingRooster\_44 (B3), Rita1961\_44 (B3), RomaT\_44 (B3), SynergyX\_44 (B3), TinyTerror\_44 (B3), Yahalom\_44 (B3), Yinz\_44 (B3),

#### Start 26:

- Found in 53 of 167 ( 31.7% ) of genes in pham
- Manual Annotations of this start: 9 of 141
- Called 28.3% of time when present
- Phage (with cluster) where this start called: Audrey\_44 (B3), Casbah\_43 (B3), Chandler\_44 (B3), Halfpint\_43 (B3), Jackstina\_41 (B3), Marlia\_44 (B3), Morty007\_44 (B3), Mulaychimus\_44 (B3), Olivio\_43 (B3), Phaedrus\_42 (B3), Phayeta\_45 (B3), Shenandoah\_44 (B3), SlippinJimmy\_44 (B3), SwainyDoc\_44 (B3), Tydolla\_44 (B3),

#### Start 27:

- Found in 38 of 167 ( 22.8% ) of genes in pham
- Manual Annotations of this start: 20 of 141
- Called 86.8% 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\_41 (B4), Hally898\_40 (B4), Hangman\_41 (B4), Heath\_40 (B4), Hydro\_41 (B4), JAMaL\_41 (B4), JoyceMaria\_41 (B4), Lambano\_40 (B4), LittleDigger\_40 (B4), Lolalove\_41 (B4), Magpie\_40 (B4), Mithril\_41 (B4), Mudslide\_41 (B4), Nanao\_40 (B4), Poster\_40 (B4), Prince\_41 (B4), QueenPie\_40 (B4), RawrgerThat\_42 (B4), Renkei\_40 (B4), VioletZ\_42 (B4), Waleliano\_41 (B4), Xincheng\_40 (B4), Zemanar\_42 (B4),

#### Start 28:

- Found in 2 of 167 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 50.0% of time when present
- Phage (with cluster) where this start called: AlanGrant\_43 (B4),

#### Start 29:

- Found in 71 of 167 ( 42.5% ) of genes in pham
- Manual Annotations of this start: 52 of 141
- Called 78.9% 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), DolOn\_48 (B1), DuchessDung\_44 (B1), Durga\_46 (B1), ElvisPhasley\_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), Lehmann\_46 (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), SallyH\_46 (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 30:

- Found in 3 of 167 ( 1.8% ) of genes in pham
- Manual Annotations of this start: 1 of 141
- Called 33.3% of time when present
- Phage (with cluster) where this start called: CRB2\_47 (B9),

### **Summary by clusters:**

There are 4 clusters represented in this pham: B4, B9, B1, B3,

Info for manual annotations of cluster B1:

- Start number 20 was manually annotated 13 times for cluster B1.
- Start number 29 was manually annotated 52 times for cluster B1.

Info for manual annotations of cluster B3:

- Start number 25 was manually annotated 38 times for cluster B3.
- Start number 26 was manually annotated 9 times for cluster B3.

Info for manual annotations of cluster B4:

- Start number 4 was manually annotated 1 time for cluster B4.
- Start number 22 was manually annotated 1 time for cluster B4.
- Start number 23 was manually annotated 3 times for cluster B4.
- Start number 27 was manually annotated 20 times for cluster B4.
- Start number 28 was manually annotated 1 time for cluster B4.

Info for manual annotations of cluster B9:

- Start number 19 was manually annotated 2 times for cluster B9.
- Start number 30 was manually annotated 1 time for cluster B9.

### **Gene Information:**

Gene: ABU\_46 Start: 39612, Stop: 39187, Start Num: 29

Candidate Starts for ABU\_46:

(15, 39762), (17, 39753), (18, 39738), (Start: 29 @39612 has 52 MA's), (33, 39534), (34, 39519), (40, 39474),

Gene: Abinghost\_44 Start: 39509, Stop: 39024, Start Num: 25

Candidate Starts for Abinghost\_44:

(10, 39680), (21, 39578), (24, 39524), (Start: 25 @39509 has 38 MA's), (Start: 26 @39461 has 9 MA's), (32, 39371), (36, 39326), (37, 39320), (39, 39314), (41, 39263), (48, 39176), (50, 39152), (55, 39104),

Gene: Adriana\_46 Start: 39610, Stop: 39185, Start Num: 29

Candidate Starts for Adriana\_46:

(15, 39760), (17, 39751), (18, 39736), (Start: 29 @39610 has 52 MA's), (33, 39532), (34, 39517), (40, 39472),

Gene: Ahwei\_40 Start: 38593, Stop: 38168, Start Num: 27

Candidate Starts for Ahwei\_40:

(Start: 4 @38797 has 1 MA's), (7, 38761), (14, 38707), (Start: 23 @38626 has 3 MA's), (Start: 27 @38593 has 20 MA's), (36, 38485), (42, 38410), (44, 38398), (46, 38365), (47, 38356), (51, 38308), (54, 38272), (56, 38254),

Gene: AlanGrant\_43 Start: 40379, Stop: 39954, Start Num: 28

Candidate Starts for AlanGrant\_43:

(9, 40535), (11, 40526), (Start: 22 @40436 has 1 MA's), (Start: 28 @40379 has 1 MA's), (34, 40292), (35, 40286), (36, 40265), (38, 40256), (46, 40145), (49, 40097), (54, 40052), (56, 40034), (58, 40004), (59, 39989),

Gene: AltPhacts\_46 Start: 39698, Stop: 39174, Start Num: 20

Candidate Starts for AltPhacts\_46:

(Start: 20 @39698 has 13 MA's), (Start: 29 @39599 has 52 MA's), (33, 39521), (34, 39506), (40, 39461),

Gene: Andre\_46 Start: 39604, Stop: 39179, Start Num: 29

Candidate Starts for Andre\_46:

(15, 39754), (17, 39745), (18, 39730), (Start: 29 @39604 has 52 MA's), (33, 39526), (34, 39511), (40, 39466),

Gene: Antihero\_40 Start: 38593, Stop: 38168, Start Num: 27

Candidate Starts for Antihero\_40:

(Start: 4 @38797 has 1 MA's), (7, 38761), (14, 38707), (Start: 23 @38626 has 3 MA's), (Start: 27 @38593 has 20 MA's), (36, 38485), (42, 38410), (44, 38398), (46, 38365), (47, 38356), (51, 38308), (54, 38272), (56, 38254),

Gene: Apex\_42 Start: 39799, Stop: 39374, Start Num: 27

Candidate Starts for Apex\_42:

(Start: 4 @40009 has 1 MA's), (5, 39985), (7, 39973), (14, 39919), (Start: 23 @39832 has 3 MA's), (Start: 27 @39799 has 20 MA's), (31, 39793), (36, 39691), (42, 39616), (44, 39604), (46, 39571), (47, 39562), (51, 39514), (54, 39478), (56, 39460),

Gene: Apizium\_45 Start: 39365, Stop: 38940, Start Num: 29

Candidate Starts for Apizium\_45:

(15, 39518), (17, 39509), (18, 39494), (Start: 29 @39365 has 52 MA's), (33, 39287), (34, 39272), (40, 39227),

Gene: Ashraf\_45 Start: 39169, Stop: 38744, Start Num: 29

Candidate Starts for Ashraf\_45:

(15, 39319), (17, 39310), (18, 39295), (Start: 29 @39169 has 52 MA's), (33, 39091), (34, 39076), (40, 39031),

Gene: Athena\_45 Start: 40260, Stop: 39775, Start Num: 25

Candidate Starts for Athena\_45:

(10, 40431), (21, 40329), (24, 40275), (Start: 25 @40260 has 38 MA's), (Start: 26 @40212 has 9 MA's), (32, 40122), (36, 40077), (37, 40071), (39, 40065), (41, 40014), (48, 39927), (50, 39903), (55, 39855),

Gene: Audrey\_44 Start: 39461, Stop: 39024, Start Num: 26

Candidate Starts for Audrey\_44:

(10, 39680), (21, 39578), (24, 39524), (Start: 25 @39509 has 38 MA's), (Start: 26 @39461 has 9 MA's), (32, 39371), (36, 39326), (37, 39320), (39, 39314), (41, 39263), (48, 39176), (50, 39152), (55, 39104),

Gene: Austelle\_42 Start: 40255, Stop: 39830, Start Num: 27

Candidate Starts for Austelle\_42:

(Start: 4 @40459 has 1 MA's), (5, 40435), (7, 40423), (14, 40369), (Start: 23 @40288 has 3 MA's), (Start: 27 @40255 has 20 MA's), (31, 40249), (36, 40147), (42, 40072), (44, 40060), (46, 40027), (47, 40018), (51, 39970), (54, 39934), (56, 39916),

Gene: Badfish\_46 Start: 39635, Stop: 39210, Start Num: 29

Candidate Starts for Badfish\_46:

(15, 39785), (17, 39776), (18, 39761), (Start: 29 @39635 has 52 MA's), (33, 39557), (34, 39542), (40, 39497),

Gene: Baloo\_44 Start: 39512, Stop: 39027, Start Num: 25

Candidate Starts for Baloo\_44:

(10, 39683), (21, 39581), (24, 39527), (Start: 25 @39512 has 38 MA's), (Start: 26 @39464 has 9 MA's), (32, 39374), (36, 39329), (37, 39323), (39, 39317), (41, 39266), (48, 39179), (50, 39155), (55, 39107),

Gene: Basato\_47 Start: 39988, Stop: 39464, Start Num: 20

Candidate Starts for Basato\_47:

(Start: 20 @39988 has 13 MA's), (Start: 29 @39889 has 52 MA's), (33, 39811), (34, 39796), (40, 39751),

Gene: Ben11\_43 Start: 39331, Stop: 38846, Start Num: 25

Candidate Starts for Ben11\_43:

(10, 39502), (21, 39400), (24, 39346), (Start: 25 @39331 has 38 MA's), (Start: 26 @39283 has 9 MA's), (32, 39193), (36, 39148), (37, 39142), (39, 39136), (41, 39085), (48, 38998), (50, 38974), (55, 38926),

Gene: BlackStallion\_46 Start: 39621, Stop: 39196, Start Num: 29

Candidate Starts for BlackStallion\_46:

(15, 39771), (17, 39762), (18, 39747), (Start: 29 @39621 has 52 MA's), (33, 39543), (34, 39528), (40, 39483),

Gene: BobbyK\_42 Start: 39624, Stop: 39199, Start Num: 27

Candidate Starts for BobbyK\_42:

(Start: 4 @39828 has 1 MA's), (5, 39804), (7, 39792), (14, 39738), (Start: 23 @39657 has 3 MA's), (Start: 27 @39624 has 20 MA's), (36, 39516), (42, 39441), (44, 39429), (46, 39396), (47, 39387), (51, 39339), (54, 39303), (56, 39285),

Gene: Briakila\_45 Start: 40279, Stop: 39794, Start Num: 25

Candidate Starts for Briakila\_45:

(10, 40450), (21, 40348), (24, 40294), (Start: 25 @40279 has 38 MA's), (Start: 26 @40231 has 9 MA's), (32, 40141), (36, 40096), (37, 40090), (39, 40084), (41, 40033), (48, 39946), (50, 39922), (55, 39874),

Gene: BrownCNA\_43 Start: 39918, Stop: 39460, Start Num: 23

Candidate Starts for BrownCNA\_43:

(Start: 4 @40089 has 1 MA's), (5, 40065), (7, 40053), (14, 39999), (Start: 23 @39918 has 3 MA's), (Start: 27 @39885 has 20 MA's), (36, 39777), (42, 39702), (44, 39690), (46, 39657), (47, 39648), (51, 39600), (54, 39564), (56, 39546),

Gene: CRB2\_47 Start: 42140, Stop: 41727, Start Num: 30

Candidate Starts for CRB2\_47:

(9, 42299), (11, 42290), (Start: 19 @42215 has 2 MA's), (Start: 30 @42140 has 1 MA's), (35, 42065), (60, 41756),

Gene: CampRoach\_46 Start: 39607, Stop: 39182, Start Num: 29

Candidate Starts for CampRoach\_46:

(15, 39757), (17, 39748), (18, 39733), (Start: 29 @39607 has 52 MA's), (33, 39529), (34, 39514), (40, 39469),

Gene: Casbah\_43 Start: 39313, Stop: 38876, Start Num: 26

Candidate Starts for Casbah\_43:

(10, 39532), (21, 39430), (24, 39376), (Start: 25 @39361 has 38 MA's), (Start: 26 @39313 has 9 MA's), (32, 39223), (36, 39178), (37, 39172), (39, 39166), (41, 39115), (48, 39028), (50, 39004), (55, 38956),

Gene: ChaChing\_44 Start: 39524, Stop: 39039, Start Num: 25

Candidate Starts for ChaChing\_44:

(10, 39695), (21, 39593), (24, 39539), (Start: 25 @39524 has 38 MA's), (Start: 26 @39476 has 9 MA's), (32, 39386), (36, 39341), (37, 39335), (39, 39329), (41, 39278), (48, 39191), (50, 39167), (55, 39119),

Gene: Chah\_47 Start: 39634, Stop: 39209, Start Num: 29

Candidate Starts for Chah\_47:

(15, 39784), (17, 39775), (18, 39760), (Start: 29 @39634 has 52 MA's), (33, 39556), (34, 39541), (40, 39496),

Gene: Chalmers\_44 Start: 40316, Stop: 39831, Start Num: 25

Candidate Starts for Chalmers\_44:

(10, 40487), (21, 40385), (24, 40331), (Start: 25 @40316 has 38 MA's), (Start: 26 @40268 has 9 MA's), (32, 40178), (36, 40133), (37, 40127), (39, 40121), (41, 40070), (48, 39983), (50, 39959), (55, 39911),

Gene: Chandler\_44 Start: 40244, Stop: 39807, Start Num: 26

Candidate Starts for Chandler\_44:

(10, 40463), (21, 40361), (24, 40307), (Start: 25 @40292 has 38 MA's), (Start: 26 @40244 has 9 MA's), (32, 40154), (36, 40109), (37, 40103), (39, 40097), (41, 40046), (48, 39959), (50, 39935), (55, 39887),

Gene: Chentzyk\_44 Start: 39873, Stop: 39388, Start Num: 25

Candidate Starts for Chentzyk\_44:

(10, 40044), (21, 39942), (24, 39888), (Start: 25 @39873 has 38 MA's), (Start: 26 @39825 has 9 MA's), (32, 39735), (36, 39690), (37, 39684), (39, 39678), (41, 39627), (48, 39540), (50, 39516), (55, 39468),

Gene: Chipette\_47 Start: 39931, Stop: 39407, Start Num: 20

Candidate Starts for Chipette\_47:

(Start: 20 @39931 has 13 MA's), (Start: 29 @39832 has 52 MA's), (33, 39754), (34, 39739), (40, 39694),

Gene: ChrisnMich\_41 Start: 38585, Stop: 38160, Start Num: 27

Candidate Starts for ChrisnMich\_41:

(Start: 4 @38789 has 1 MA's), (7, 38753), (14, 38699), (Start: 23 @38618 has 3 MA's), (Start: 27 @38585 has 20 MA's), (36, 38477), (42, 38402), (46, 38357), (47, 38348), (51, 38300), (54, 38264), (56, 38246),

Gene: Chunky\_46 Start: 39724, Stop: 39200, Start Num: 20

Candidate Starts for Chunky\_46:

(Start: 20 @39724 has 13 MA's), (Start: 29 @39625 has 52 MA's), (33, 39547), (34, 39532), (40, 39487),

Gene: Chute\_45 Start: 39663, Stop: 39238, Start Num: 29

Candidate Starts for Chute\_45:

(Start: 20 @39765 has 13 MA's), (Start: 29 @39663 has 52 MA's), (33, 39585), (34, 39570), (40, 39525),

Gene: Colbert\_46 Start: 39777, Stop: 39253, Start Num: 20

Candidate Starts for Colbert\_46:

(Start: 20 @39777 has 13 MA's), (Start: 29 @39678 has 52 MA's), (33, 39600), (34, 39585), (40, 39540),

Gene: Compostia\_45 Start: 39940, Stop: 39455, Start Num: 25

Candidate Starts for Compostia\_45:

(10, 40111), (21, 40009), (24, 39955), (Start: 25 @39940 has 38 MA's), (Start: 26 @39892 has 9 MA's), (32, 39802), (36, 39757), (37, 39751), (39, 39745), (41, 39694), (48, 39607), (50, 39583), (55, 39535),

Gene: Cooper\_42 Start: 38807, Stop: 38379, Start Num: 27

Candidate Starts for Cooper\_42:

(Start: 4 @39008 has 1 MA's), (7, 38972), (Start: 23 @38840 has 3 MA's), (Start: 27 @38807 has 20 MA's), (36, 38696), (42, 38621), (44, 38609), (47, 38567), (51, 38519), (53, 38486), (54, 38483), (56, 38465), (59, 38420),

Gene: Corofin\_44 Start: 39535, Stop: 39050, Start Num: 25

Candidate Starts for Corofin\_44:

(10, 39706), (21, 39604), (24, 39550), (Start: 25 @39535 has 38 MA's), (Start: 26 @39487 has 9 MA's), (32, 39397), (36, 39352), (37, 39346), (39, 39340), (41, 39289), (48, 39202), (50, 39178), (55, 39130),

Gene: Craff\_46 Start: 39620, Stop: 39195, Start Num: 29

Candidate Starts for Craff\_46:

(15, 39770), (17, 39761), (18, 39746), (Start: 29 @39620 has 52 MA's), (33, 39542), (34, 39527), (40, 39482),

Gene: Daisy\_44 Start: 39536, Stop: 39051, Start Num: 25

Candidate Starts for Daisy\_44:

(10, 39707), (21, 39605), (24, 39551), (Start: 25 @39536 has 38 MA's), (Start: 26 @39488 has 9 MA's), (32, 39398), (36, 39353), (37, 39347), (39, 39341), (41, 39290), (48, 39203), (50, 39179), (55, 39131),

Gene: Daka\_47 Start: 39714, Stop: 39190, Start Num: 20

Candidate Starts for Daka\_47:

(Start: 20 @39714 has 13 MA's), (Start: 29 @39615 has 52 MA's), (33, 39537), (34, 39522), (40, 39477),

Gene: Dati\_46 Start: 39336, Stop: 38911, Start Num: 29

Candidate Starts for Dati\_46:

(Start: 20 @39438 has 13 MA's), (Start: 29 @39336 has 52 MA's), (33, 39258), (34, 39243), (40, 39198),

Gene: Deenasa\_44 Start: 40271, Stop: 39786, Start Num: 25

Candidate Starts for Deenasa\_44:

(10, 40442), (21, 40340), (24, 40286), (Start: 25 @40271 has 38 MA's), (Start: 26 @40223 has 9 MA's), (32, 40133), (36, 40088), (37, 40082), (39, 40076), (41, 40025), (48, 39938), (50, 39914), (55, 39866),

Gene: Devonte\_44 Start: 39500, Stop: 39015, Start Num: 25

Candidate Starts for Devonte\_44:

(10, 39671), (21, 39569), (24, 39515), (Start: 25 @39500 has 38 MA's), (Start: 26 @39452 has 9 MA's), (32, 39362), (36, 39317), (37, 39311), (39, 39305), (41, 39254), (48, 39167), (50, 39143), (55, 39095),

Gene: DolOn\_48 Start: 39845, Stop: 39420, Start Num: 29

Candidate Starts for DolOn\_48:

(15, 39995), (17, 39986), (18, 39971), (Start: 29 @39845 has 52 MA's), (33, 39767), (34, 39752), (40, 39707),

Gene: DuchessDung\_44 Start: 38469, Stop: 38044, Start Num: 29

Candidate Starts for DuchessDung\_44:

(15, 38619), (17, 38610), (18, 38595), (Start: 29 @38469 has 52 MA's), (33, 38391), (34, 38376), (40, 38331),

Gene: Durga\_46 Start: 39635, Stop: 39210, Start Num: 29

Candidate Starts for Durga\_46:

(15, 39785), (17, 39776), (18, 39761), (Start: 29 @39635 has 52 MA's), (33, 39557), (34, 39542), (40, 39497),

Gene: ElvisPhasley\_46 Start: 39657, Stop: 39232, Start Num: 29

Candidate Starts for ElvisPhasley\_46:

(15, 39807), (17, 39798), (18, 39783), (Start: 29 @39657 has 52 MA's), (33, 39579), (34, 39564), (40, 39519),

Gene: Emiris\_46 Start: 39603, Stop: 39178, Start Num: 29

Candidate Starts for Emiris\_46:

(15, 39753), (17, 39744), (18, 39729), (Start: 29 @39603 has 52 MA's), (33, 39525), (34, 39510), (40, 39465),

Gene: Epah\_40 Start: 38593, Stop: 38168, Start Num: 27

Candidate Starts for Epah\_40:

(Start: 4 @38797 has 1 MA's), (7, 38761), (14, 38707), (Start: 23 @38626 has 3 MA's), (Start: 27 @38593 has 20 MA's), (36, 38485), (42, 38410), (44, 38398), (46, 38365), (47, 38356), (51, 38308), (54, 38272), (56, 38254),

Gene: Eremos\_46 Start: 39713, Stop: 39189, Start Num: 20

Candidate Starts for Eremos\_46:

(Start: 20 @39713 has 13 MA's), (Start: 29 @39614 has 52 MA's), (33, 39536), (34, 39521), (40, 39476),

Gene: Fanaw\_40 Start: 39290, Stop: 38865, Start Num: 27

Candidate Starts for Fanaw\_40:

(Start: 4 @39494 has 1 MA's), (5, 39470), (7, 39458), (14, 39404), (Start: 23 @39323 has 3 MA's), (Start: 27 @39290 has 20 MA's), (31, 39284), (36, 39182), (42, 39107), (43, 39104), (46, 39062), (47, 39053), (51, 39005), (54, 38969), (56, 38951),

Gene: Fang\_46 Start: 39628, Stop: 39203, Start Num: 29

Candidate Starts for Fang\_46:

(15, 39778), (17, 39769), (18, 39754), (Start: 29 @39628 has 52 MA's), (33, 39550), (34, 39535), (40, 39490),

Gene: FluffyNinja\_46 Start: 39621, Stop: 39196, Start Num: 29

Candidate Starts for FluffyNinja\_46:

(15, 39771), (17, 39762), (18, 39747), (Start: 29 @39621 has 52 MA's), (33, 39543), (34, 39528), (40, 39483),

Gene: Fortunato\_42 Start: 39822, Stop: 39193, Start Num: 4

Candidate Starts for Fortunato\_42:

(Start: 4 @39822 has 1 MA's), (7, 39786), (14, 39732), (Start: 23 @39651 has 3 MA's), (Start: 27 @39618 has 20 MA's), (31, 39612), (36, 39510), (42, 39435), (44, 39423), (46, 39390), (47, 39381), (51, 39333), (54, 39297), (56, 39279),

Gene: Frederick\_42 Start: 39624, Stop: 39199, Start Num: 27

Candidate Starts for Frederick\_42:

(Start: 4 @39828 has 1 MA's), (5, 39804), (7, 39792), (14, 39738), (Start: 23 @39657 has 3 MA's), (Start: 27 @39624 has 20 MA's), (36, 39516), (42, 39441), (46, 39396), (47, 39387), (51, 39339), (54, 39303), (56, 39285),

Gene: Fringe\_46 Start: 39604, Stop: 39179, Start Num: 29

Candidate Starts for Fringe\_46:

(15, 39754), (17, 39745), (18, 39730), (Start: 29 @39604 has 52 MA's), (33, 39526), (34, 39511), (40, 39466),

Gene: Gadget\_45 Start: 39523, Stop: 39038, Start Num: 25

Candidate Starts for Gadget\_45:

(10, 39694), (21, 39592), (24, 39538), (Start: 25 @39523 has 38 MA's), (Start: 26 @39475 has 9 MA's), (32, 39385), (36, 39340), (37, 39334), (39, 39328), (41, 39277), (48, 39190), (50, 39166), (55, 39118),

Gene: Gareth\_45 Start: 39320, Stop: 38895, Start Num: 29

Candidate Starts for Gareth\_45:

(Start: 20 @39419 has 13 MA's), (Start: 29 @39320 has 52 MA's), (33, 39242), (34, 39227), (40, 39182),

Gene: Gervas\_44 Start: 39490, Stop: 39005, Start Num: 25

Candidate Starts for Gervas\_44:

(10, 39661), (21, 39559), (24, 39505), (Start: 25 @39490 has 38 MA's), (Start: 26 @39442 has 9 MA's), (32, 39352), (36, 39307), (37, 39301), (39, 39295), (41, 39244), (48, 39157), (50, 39133), (55, 39085),

Gene: GinPorsche\_41 Start: 38593, Stop: 38168, Start Num: 27

Candidate Starts for GinPorsche\_41:

(Start: 4 @38797 has 1 MA's), (7, 38761), (14, 38707), (Start: 23 @38626 has 3 MA's), (Start: 27 @38593 has 20 MA's), (36, 38485), (42, 38410), (44, 38398), (46, 38365), (47, 38356), (51, 38308), (54, 38272), (56, 38254),

Gene: GlenHope\_45 Start: 39503, Stop: 39018, Start Num: 25

Candidate Starts for GlenHope\_45:

(10, 39674), (21, 39572), (24, 39518), (Start: 25 @39503 has 38 MA's), (Start: 26 @39455 has 9 MA's), (32, 39365), (36, 39320), (37, 39314), (39, 39308), (41, 39257), (48, 39170), (50, 39146), (55, 39098),

Gene: Glubnar\_45 Start: 39502, Stop: 39017, Start Num: 25

Candidate Starts for Glubnar\_45:

(10, 39673), (21, 39571), (24, 39517), (Start: 25 @39502 has 38 MA's), (Start: 26 @39454 has 9 MA's), (32, 39364), (36, 39319), (37, 39313), (39, 39307), (41, 39256), (48, 39169), (50, 39145), (55, 39097),

Gene: Gwilliam\_46 Start: 39717, Stop: 39193, Start Num: 20

Candidate Starts for Gwilliam\_46:

(Start: 20 @39717 has 13 MA's), (Start: 29 @39618 has 52 MA's), (33, 39540), (34, 39525), (40, 39480),

Gene: Halfpint\_43 Start: 39281, Stop: 38844, Start Num: 26

Candidate Starts for Halfpint\_43:

(10, 39500), (21, 39398), (24, 39344), (Start: 25 @39329 has 38 MA's), (Start: 26 @39281 has 9 MA's), (32, 39191), (36, 39146), (37, 39140), (39, 39134), (41, 39083), (48, 38996), (50, 38972), (55, 38924),

Gene: Hally898\_40 Start: 38605, Stop: 38180, Start Num: 27

Candidate Starts for Hally898\_40:

(Start: 4 @38809 has 1 MA's), (7, 38773), (14, 38719), (Start: 23 @38638 has 3 MA's), (Start: 27 @38605 has 20 MA's), (36, 38497), (42, 38422), (44, 38410), (46, 38377), (47, 38368), (51, 38320), (54, 38284), (56, 38266),

Gene: Hangman\_41 Start: 39616, Stop: 39191, Start Num: 27

Candidate Starts for Hangman\_41:

(Start: 4 @39820 has 1 MA's), (5, 39796), (7, 39784), (14, 39730), (Start: 23 @39649 has 3 MA's), (Start: 27 @39616 has 20 MA's), (36, 39508), (42, 39433), (44, 39421), (46, 39388), (47, 39379), (51, 39331), (54, 39295), (56, 39277),

Gene: HarveySr\_44 Start: 39496, Stop: 39011, Start Num: 25

Candidate Starts for HarveySr\_44:

(10, 39667), (21, 39565), (24, 39511), (Start: 25 @39496 has 38 MA's), (Start: 26 @39448 has 9 MA's), (32, 39358), (36, 39313), (37, 39307), (39, 39301), (41, 39250), (48, 39163), (50, 39139), (55, 39091),

Gene: Heath\_40 Start: 39223, Stop: 38798, Start Num: 27

Candidate Starts for Heath\_40:

(Start: 4 @39427 has 1 MA's), (5, 39403), (7, 39391), (14, 39337), (Start: 23 @39256 has 3 MA's), (Start: 27 @39223 has 20 MA's), (36, 39115), (42, 39040), (44, 39028), (46, 38995), (47, 38986), (51, 38938), (54, 38902), (56, 38884),

Gene: Heathcliff\_44 Start: 39474, Stop: 38989, Start Num: 25

Candidate Starts for Heathcliff\_44:

(10, 39645), (21, 39543), (24, 39489), (Start: 25 @39474 has 38 MA's), (Start: 26 @39426 has 9 MA's), (32, 39336), (36, 39291), (37, 39285), (39, 39279), (41, 39228), (48, 39141), (50, 39117), (55, 39069),

Gene: HighStump\_45 Start: 39321, Stop: 38896, Start Num: 29

Candidate Starts for HighStump\_45:

(15, 39471), (17, 39462), (18, 39447), (Start: 29 @39321 has 52 MA's), (33, 39243), (34, 39228), (40, 39183),

Gene: Hydro\_41 Start: 39633, Stop: 39208, Start Num: 27

Candidate Starts for Hydro\_41:

(Start: 4 @39837 has 1 MA's), (5, 39813), (7, 39801), (14, 39747), (Start: 23 @39666 has 3 MA's), (Start: 27 @39633 has 20 MA's), (36, 39525), (42, 39450), (44, 39438), (46, 39405), (47, 39396), (51, 39348), (54, 39312), (56, 39294),

Gene: ImtiyazSitla\_45 Start: 39169, Stop: 38744, Start Num: 29

Candidate Starts for ImtiyazSitla\_45:

(15, 39319), (17, 39310), (18, 39295), (Start: 29 @39169 has 52 MA's), (33, 39091), (34, 39076), (40, 39031),

Gene: Inchworm\_46 Start: 39607, Stop: 39182, Start Num: 29

Candidate Starts for Inchworm\_46:

(15, 39757), (17, 39748), (18, 39733), (Start: 29 @39607 has 52 MA's), (33, 39529), (34, 39514), (40, 39469),

Gene: IsaacEli\_46 Start: 39625, Stop: 39200, Start Num: 29

Candidate Starts for IsaacEli\_46:

(15, 39775), (17, 39766), (18, 39751), (Start: 29 @39625 has 52 MA's), (33, 39547), (34, 39532), (40, 39487),

Gene: JAMaL\_41 Start: 39804, Stop: 39379, Start Num: 27

Candidate Starts for JAMaL\_41:

(Start: 4 @40008 has 1 MA's), (5, 39984), (7, 39972), (12, 39936), (14, 39918), (Start: 23 @39837 has 3 MA's), (Start: 27 @39804 has 20 MA's), (31, 39798), (36, 39696), (42, 39621), (44, 39609), (46, 39576), (51, 39519), (54, 39483), (56, 39465),

Gene: JDog\_45 Start: 39338, Stop: 38913, Start Num: 29

Candidate Starts for JDog\_45:

(Start: 20 @39440 has 13 MA's), (Start: 29 @39338 has 52 MA's), (33, 39260), (34, 39245), (40, 39200),

Gene: JacAttac\_46 Start: 39607, Stop: 39182, Start Num: 29

Candidate Starts for JacAttac\_46:

(15, 39757), (17, 39748), (18, 39733), (Start: 29 @39607 has 52 MA's), (33, 39529), (34, 39514), (40, 39469),

Gene: Jackstina\_41 Start: 39385, Stop: 38948, Start Num: 26

Candidate Starts for Jackstina\_41:

(10, 39604), (21, 39502), (24, 39448), (Start: 25 @39433 has 38 MA's), (Start: 26 @39385 has 9 MA's), (32, 39295), (36, 39250), (37, 39244), (39, 39238), (41, 39187), (48, 39100), (50, 39076), (55, 39028),

Gene: JaguarMi\_41 Start: 39177, Stop: 38674, Start Num: 19

Candidate Starts for JaguarMi\_41:

(9, 39261), (Start: 19 @39177 has 2 MA's), (Start: 23 @39132 has 3 MA's), (Start: 27 @39099 has 20 MA's), (36, 38991), (42, 38916), (44, 38904), (46, 38871), (47, 38862), (51, 38814), (54, 38778), (56, 38760),

Gene: JoyceMaria\_41 Start: 39619, Stop: 39194, Start Num: 27

Candidate Starts for JoyceMaria\_41:

(Start: 4 @39823 has 1 MA's), (5, 39799), (7, 39787), (14, 39733), (Start: 23 @39652 has 3 MA's), (Start: 27 @39619 has 20 MA's), (31, 39613), (36, 39511), (42, 39436), (44, 39424), (46, 39391), (47, 39382), (51, 39334), (54, 39298), (56, 39280),

Gene: Kamiyu\_44 Start: 39482, Stop: 38997, Start Num: 25

Candidate Starts for Kamiyu\_44:

(10, 39653), (21, 39551), (24, 39497), (Start: 25 @39482 has 38 MA's), (Start: 26 @39434 has 9 MA's), (32, 39344), (36, 39299), (37, 39293), (39, 39287), (41, 39236), (48, 39149), (50, 39125), (55, 39077),

Gene: Katniss\_46 Start: 39634, Stop: 39209, Start Num: 29

Candidate Starts for Katniss\_46:

(15, 39784), (17, 39775), (18, 39760), (Start: 29 @39634 has 52 MA's), (33, 39556), (34, 39541), (40, 39496),

Gene: Kikipoo\_46 Start: 39625, Stop: 39200, Start Num: 29

Candidate Starts for Kikipoo\_46:

(15, 39775), (17, 39766), (18, 39751), (Start: 29 @39625 has 52 MA's), (33, 39547), (34, 39532), (40, 39487),

Gene: Kronus\_43 Start: 40092, Stop: 39607, Start Num: 25

Candidate Starts for Kronus\_43:

(10, 40263), (21, 40161), (24, 40107), (Start: 25 @40092 has 38 MA's), (Start: 26 @40044 has 9 MA's), (32, 39954), (36, 39909), (37, 39903), (39, 39897), (41, 39846), (48, 39759), (50, 39735), (55, 39687),

Gene: Lambano\_40 Start: 38605, Stop: 38180, Start Num: 27

Candidate Starts for Lambano\_40:

(Start: 4 @38809 has 1 MA's), (7, 38773), (14, 38719), (Start: 23 @38638 has 3 MA's), (Start: 27 @38605 has 20 MA's), (36, 38497), (42, 38422), (44, 38410), (46, 38377), (47, 38368), (51, 38320), (54, 38284), (56, 38266),

Gene: LasagnaCat\_46 Start: 39619, Stop: 39194, Start Num: 29

Candidate Starts for LasagnaCat\_46:

(15, 39769), (17, 39760), (18, 39745), (Start: 29 @39619 has 52 MA's), (33, 39541), (34, 39526), (40, 39481),

Gene: Legolas\_45 Start: 39333, Stop: 38908, Start Num: 29

Candidate Starts for Legolas\_45:

(1, 39888), (2, 39693), (9, 39549), (Start: 29 @39333 has 52 MA's), (33, 39255), (34, 39240), (40, 39195),

Gene: Lehmann\_46 Start: 39156, Stop: 38731, Start Num: 29

Candidate Starts for Lehmann\_46:

(Start: 20 @39255 has 13 MA's), (Start: 29 @39156 has 52 MA's), (33, 39078), (34, 39063), (40, 39018),

Gene: LestyG\_44 Start: 39513, Stop: 39028, Start Num: 25

Candidate Starts for LestyG\_44:

(10, 39684), (21, 39582), (24, 39528), (Start: 25 @39513 has 38 MA's), (Start: 26 @39465 has 9 MA's), (32, 39375), (36, 39330), (37, 39324), (39, 39318), (41, 39267), (48, 39180), (50, 39156), (55, 39108),

Gene: LittleDigger\_40 Start: 38627, Stop: 38202, Start Num: 27

Candidate Starts for LittleDigger\_40:

(Start: 4 @38831 has 1 MA's), (7, 38795), (14, 38741), (Start: 23 @38660 has 3 MA's), (Start: 27 @38627 has 20 MA's), (36, 38519), (42, 38444), (46, 38399), (51, 38342), (54, 38306), (56, 38288),

Gene: Lolalove\_41 Start: 39630, Stop: 39205, Start Num: 27

Candidate Starts for Lolalove\_41:

(Start: 4 @39834 has 1 MA's), (5, 39810), (7, 39798), (14, 39744), (Start: 23 @39663 has 3 MA's), (Start: 27 @39630 has 20 MA's), (31, 39624), (36, 39522), (42, 39447), (44, 39435), (46, 39402), (47, 39393), (51, 39345), (54, 39309), (56, 39291),

Gene: Lopsy\_45 Start: 39277, Stop: 38750, Start Num: 20

Candidate Starts for Lopsy\_45:

(Start: 20 @39277 has 13 MA's), (Start: 29 @39175 has 52 MA's), (33, 39097), (34, 39082), (40, 39037),

Gene: Magpie\_40 Start: 39466, Stop: 39041, Start Num: 27

Candidate Starts for Magpie\_40:

(Start: 4 @39670 has 1 MA's), (5, 39646), (7, 39634), (14, 39580), (16, 39574), (Start: 23 @39499 has 3 MA's), (Start: 27 @39466 has 20 MA's), (31, 39460), (36, 39358), (42, 39283), (44, 39271), (46, 39238), (47, 39229), (51, 39181), (54, 39145), (56, 39127),

Gene: Marley1013\_44 Start: 40291, Stop: 39806, Start Num: 25

Candidate Starts for Marley1013\_44:

(10, 40462), (21, 40360), (24, 40306), (Start: 25 @40291 has 38 MA's), (Start: 26 @40243 has 9 MA's), (32, 40153), (36, 40108), (37, 40102), (39, 40096), (41, 40045), (48, 39958), (50, 39934), (55, 39886),

Gene: Marlia\_44 Start: 39446, Stop: 39009, Start Num: 26

Candidate Starts for Marlia\_44:

(10, 39665), (21, 39563), (24, 39509), (Start: 25 @39494 has 38 MA's), (Start: 26 @39446 has 9 MA's), (32, 39356), (36, 39311), (37, 39305), (39, 39299), (41, 39248), (48, 39161), (50, 39137), (55, 39089),

Gene: Maskar\_45 Start: 39169, Stop: 38744, Start Num: 29

Candidate Starts for Maskar\_45:

(15, 39319), (17, 39310), (18, 39295), (Start: 29 @39169 has 52 MA's), (33, 39091), (34, 39076), (40, 39031),

Gene: Megatron\_46 Start: 39616, Stop: 39191, Start Num: 29

Candidate Starts for Megatron\_46:

(15, 39766), (17, 39757), (18, 39742), (Start: 29 @39616 has 52 MA's), (33, 39538), (34, 39523), (40, 39478),

Gene: MelsMeow\_45 Start: 39219, Stop: 38794, Start Num: 29

Candidate Starts for MelsMeow\_45:

(15, 39369), (17, 39360), (18, 39345), (Start: 29 @39219 has 52 MA's), (33, 39141), (34, 39126), (40, 39081),

Gene: Mithril\_41 Start: 39634, Stop: 39209, Start Num: 27

Candidate Starts for Mithril\_41:

(Start: 4 @39838 has 1 MA's), (5, 39814), (7, 39802), (14, 39748), (Start: 23 @39667 has 3 MA's), (Start: 27 @39634 has 20 MA's), (36, 39526), (42, 39451), (44, 39439), (46, 39406), (47, 39397), (51, 39349), (54, 39313), (56, 39295),

Gene: MmasiCarm\_44 Start: 39495, Stop: 39010, Start Num: 25

Candidate Starts for MmasiCarm\_44:

(10, 39666), (21, 39564), (24, 39510), (Start: 25 @39495 has 38 MA's), (Start: 26 @39447 has 9 MA's), (32, 39357), (36, 39312), (37, 39306), (39, 39300), (41, 39249), (48, 39162), (50, 39138), (55, 39090),

Gene: Mortcellus\_43 Start: 40147, Stop: 39662, Start Num: 25

Candidate Starts for Mortcellus\_43:

(10, 40318), (21, 40216), (24, 40162), (Start: 25 @40147 has 38 MA's), (Start: 26 @40099 has 9 MA's), (32, 40009), (36, 39964), (37, 39958), (39, 39952), (41, 39901), (48, 39814), (50, 39790), (55, 39742),

Gene: Morty\_46 Start: 39625, Stop: 39200, Start Num: 29

Candidate Starts for Morty\_46:

(15, 39775), (17, 39766), (18, 39751), (Start: 29 @39625 has 52 MA's), (33, 39547), (34, 39532), (40, 39487),

Gene: Morty007\_44 Start: 40243, Stop: 39806, Start Num: 26

Candidate Starts for Morty007\_44:

(10, 40462), (21, 40360), (24, 40306), (Start: 25 @40291 has 38 MA's), (Start: 26 @40243 has 9 MA's), (32, 40153), (36, 40108), (37, 40102), (39, 40096), (41, 40045), (48, 39958), (50, 39934), (55, 39886),

Gene: Mosaic\_45 Start: 39417, Stop: 38905, Start Num: 20

Candidate Starts for Mosaic\_45:

(Start: 20 @39417 has 13 MA's), (Start: 29 @39318 has 52 MA's), (33, 39252), (34, 39237), (40, 39192),

Gene: Mudslide\_41 Start: 39866, Stop: 39441, Start Num: 27

Candidate Starts for Mudslide\_41:

(Start: 4 @40070 has 1 MA's), (5, 40046), (7, 40034), (14, 39980), (Start: 23 @39899 has 3 MA's), (Start: 27 @39866 has 20 MA's), (36, 39758), (42, 39683), (44, 39671), (46, 39638), (47, 39629), (51, 39581), (54, 39545), (56, 39527),

Gene: Mulan\_45 Start: 39342, Stop: 38917, Start Num: 29

Candidate Starts for Mulan\_45:

(15, 39492), (17, 39483), (18, 39468), (Start: 29 @39342 has 52 MA's), (33, 39264), (34, 39249), (40, 39204),

Gene: Mulaychimus\_44 Start: 39429, Stop: 38992, Start Num: 26

Candidate Starts for Mulaychimus\_44:

(10, 39648), (21, 39546), (24, 39492), (Start: 25 @39477 has 38 MA's), (Start: 26 @39429 has 9 MA's), (32, 39339), (36, 39294), (37, 39288), (39, 39282), (41, 39231), (48, 39144), (50, 39120), (55, 39072),

Gene: Mutante\_45 Start: 39324, Stop: 38899, Start Num: 29

Candidate Starts for Mutante\_45:

(Start: 20 @39429 has 13 MA's), (Start: 29 @39324 has 52 MA's), (33, 39246), (34, 39231), (40, 39186),

Gene: Nacho\_0046 Start: 39619, Stop: 39194, Start Num: 29

Candidate Starts for Nacho\_0046:

(15, 39769), (17, 39760), (18, 39745), (Start: 29 @39619 has 52 MA's), (33, 39541), (34, 39526), (40, 39481),

Gene: Nanao\_40 Start: 38592, Stop: 38167, Start Num: 27

Candidate Starts for Nanao\_40:

(Start: 4 @38796 has 1 MA's), (7, 38760), (14, 38706), (Start: 23 @38625 has 3 MA's), (Start: 27 @38592 has 20 MA's), (36, 38484), (42, 38409), (44, 38397), (46, 38364), (47, 38355), (51, 38307), (54, 38271), (56, 38253),

Gene: Neos5\_44 Start: 40306, Stop: 39821, Start Num: 25

Candidate Starts for Neos5\_44:

(10, 40477), (21, 40375), (24, 40321), (Start: 25 @40306 has 38 MA's), (Start: 26 @40258 has 9 MA's), (32, 40168), (36, 40123), (37, 40117), (39, 40111), (41, 40060), (48, 39973), (50, 39949), (55, 39901),

Gene: Nigel\_40 Start: 38541, Stop: 38083, Start Num: 23

Candidate Starts for Nigel\_40:

(3, 38721), (Start: 4 @38709 has 1 MA's), (6, 38679), (8, 38670), (13, 38625), (14, 38619), (Start: 23 @38541 has 3 MA's), (Start: 27 @38508 has 20 MA's), (36, 38400), (42, 38325), (44, 38313), (45, 38301), (46, 38280), (51, 38223), (54, 38187), (59, 38124), (61, 38091),

Gene: Nozo\_44 Start: 40271, Stop: 39786, Start Num: 25

Candidate Starts for Nozo\_44:

(10, 40442), (21, 40340), (24, 40286), (Start: 25 @40271 has 38 MA's), (Start: 26 @40223 has 9 MA's), (32, 40133), (36, 40088), (37, 40082), (39, 40076), (41, 40025), (48, 39938), (50, 39914), (55, 39866),

Gene: OSmaximus\_46 Start: 39658, Stop: 39233, Start Num: 29

Candidate Starts for OSmaximus\_46:

(15, 39808), (17, 39799), (18, 39784), (Start: 29 @39658 has 52 MA's), (33, 39580), (34, 39565), (40, 39520),

Gene: Obutu\_44 Start: 39495, Stop: 39010, Start Num: 25

Candidate Starts for Obutu\_44:

(10, 39666), (21, 39564), (24, 39510), (Start: 25 @39495 has 38 MA's), (Start: 26 @39447 has 9 MA's), (32, 39357), (36, 39312), (37, 39306), (39, 39300), (41, 39249), (48, 39162), (50, 39138), (55, 39090),

Gene: Olivio\_43 Start: 39316, Stop: 38879, Start Num: 26

Candidate Starts for Olivio\_43:

(10, 39535), (21, 39433), (24, 39379), (Start: 25 @39364 has 38 MA's), (Start: 26 @39316 has 9 MA's), (32, 39226), (36, 39181), (37, 39175), (39, 39169), (41, 39118), (48, 39031), (50, 39007), (55, 38959),

Gene: OrangeOswald\_44 Start: 39512, Stop: 39027, Start Num: 25

Candidate Starts for OrangeOswald\_44:

(10, 39683), (21, 39581), (24, 39527), (Start: 25 @39512 has 38 MA's), (Start: 26 @39464 has 9 MA's), (32, 39374), (36, 39329), (37, 39323), (39, 39317), (41, 39266), (48, 39179), (50, 39155), (55, 39107),

Gene: Orion\_46 Start: 39614, Stop: 39189, Start Num: 29

Candidate Starts for Orion\_46:

(15, 39764), (17, 39755), (18, 39740), (Start: 29 @39614 has 52 MA's), (33, 39536), (34, 39521), (40, 39476),

Gene: PG1\_46 Start: 39627, Stop: 39202, Start Num: 29

Candidate Starts for PG1\_46:

(15, 39777), (17, 39768), (18, 39753), (Start: 29 @39627 has 52 MA's), (33, 39549), (34, 39534), (40, 39489),

Gene: PenguinLover67\_47 Start: 41507, Stop: 41013, Start Num: 19

Candidate Starts for PenguinLover67\_47:

(9, 41591), (11, 41582), (Start: 19 @41507 has 2 MA's), (Start: 30 @41429 has 1 MA's), (36, 41327), (39, 41315),

Gene: Phaedrus\_42 Start: 39384, Stop: 38947, Start Num: 26

Candidate Starts for Phaedrus\_42:

(10, 39603), (21, 39501), (24, 39447), (Start: 25 @39432 has 38 MA's), (Start: 26 @39384 has 9 MA's), (32, 39294), (36, 39249), (37, 39243), (39, 39237), (41, 39186), (48, 39099), (50, 39075), (55, 39027),

Gene: Phamished\_46 Start: 39622, Stop: 39197, Start Num: 29

Candidate Starts for Phamished\_46:

(15, 39772), (17, 39763), (18, 39748), (Start: 29 @39622 has 52 MA's), (33, 39544), (34, 39529), (40, 39484),

Gene: PhatCats2014\_46 Start: 39631, Stop: 39206, Start Num: 29

Candidate Starts for PhatCats2014\_46:

(15, 39781), (17, 39772), (18, 39757), (Start: 29 @39631 has 52 MA's), (33, 39553), (34, 39538), (40, 39493),

Gene: Phayeta\_45 Start: 39329, Stop: 38892, Start Num: 26

Candidate Starts for Phayeta\_45:

(10, 39548), (21, 39446), (24, 39392), (Start: 25 @39377 has 38 MA's), (Start: 26 @39329 has 9 MA's), (32, 39239), (36, 39194), (37, 39188), (39, 39182), (41, 39131), (48, 39044), (50, 39020), (55, 38972),

Gene: Pherdinand\_46 Start: 39622, Stop: 39197, Start Num: 29

Candidate Starts for Pherdinand\_46:

(15, 39772), (17, 39763), (18, 39748), (Start: 29 @39622 has 52 MA's), (33, 39544), (34, 39529), (40, 39484),

Gene: Philly\_43 Start: 39363, Stop: 38878, Start Num: 25

Candidate Starts for Philly\_43:

(10, 39534), (21, 39432), (24, 39378), (Start: 25 @39363 has 38 MA's), (Start: 26 @39315 has 9 MA's), (32, 39225), (36, 39180), (37, 39174), (39, 39168), (41, 39117), (48, 39030), (50, 39006), (55, 38958),

Gene: Phlyer\_44 Start: 40251, Stop: 39766, Start Num: 25

Candidate Starts for Phlyer\_44:

(10, 40422), (21, 40320), (24, 40266), (Start: 25 @40251 has 38 MA's), (Start: 26 @40203 has 9 MA's), (32, 40113), (36, 40068), (37, 40062), (39, 40056), (41, 40005), (48, 39918), (50, 39894), (55, 39846),

Gene: PhrodoBaggins\_45 Start: 39610, Stop: 39185, Start Num: 29

Candidate Starts for PhrodoBaggins\_45:

(15, 39760), (17, 39751), (18, 39736), (Start: 29 @39610 has 52 MA's), (33, 39532), (34, 39517), (40, 39472),

Gene: Poster\_40 Start: 38593, Stop: 38168, Start Num: 27

Candidate Starts for Poster\_40:

(Start: 4 @38797 has 1 MA's), (7, 38761), (14, 38707), (Start: 23 @38626 has 3 MA's), (Start: 27 @38593 has 20 MA's), (36, 38485), (42, 38410), (44, 38398), (46, 38365), (47, 38356), (51, 38308), (54, 38272), (56, 38254),

Gene: Prickles\_46 Start: 39710, Stop: 39186, Start Num: 20

Candidate Starts for Prickles\_46:

(Start: 20 @39710 has 13 MA's), (Start: 29 @39611 has 52 MA's), (33, 39533), (34, 39518), (40, 39473),

Gene: Prince\_41 Start: 39776, Stop: 39351, Start Num: 27

Candidate Starts for Prince\_41:

(Start: 4 @39980 has 1 MA's), (5, 39956), (7, 39944), (14, 39890), (Start: 23 @39809 has 3 MA's), (Start: 27 @39776 has 20 MA's), (31, 39770), (36, 39668), (42, 39593), (44, 39581), (46, 39548), (47, 39539), (51, 39491), (54, 39455), (56, 39437),

Gene: QueenPie\_40 Start: 39717, Stop: 39292, Start Num: 27

Candidate Starts for QueenPie\_40:

(Start: 4 @39921 has 1 MA's), (5, 39897), (6, 39891), (7, 39885), (14, 39831), (Start: 23 @39750 has 3 MA's), (Start: 27 @39717 has 20 MA's), (36, 39609), (42, 39534), (44, 39522), (46, 39489), (47, 39480), (51, 39432), (54, 39396), (56, 39378),

Gene: Quesadilla\_47 Start: 41493, Stop: 40987, Start Num: 19

Candidate Starts for Quesadilla\_47:

(9, 41577), (Start: 19 @41493 has 2 MA's), (Start: 30 @41406 has 1 MA's), (36, 41304), (52, 41115), (57, 41055), (59, 41019),

Gene: RagingRooster\_44 Start: 39513, Stop: 39028, Start Num: 25

Candidate Starts for RagingRooster\_44:

(10, 39684), (21, 39582), (24, 39528), (Start: 25 @39513 has 38 MA's), (Start: 26 @39465 has 9 MA's), (32, 39375), (36, 39330), (37, 39324), (39, 39318), (41, 39267), (48, 39180), (50, 39156), (55, 39108),

Gene: RawrgerThat\_42 Start: 39621, Stop: 39196, Start Num: 27

Candidate Starts for RawrgerThat\_42:

(Start: 4 @39825 has 1 MA's), (7, 39789), (14, 39735), (Start: 23 @39654 has 3 MA's), (Start: 27 @39621 has 20 MA's), (31, 39615), (36, 39513), (42, 39438), (44, 39426), (46, 39393), (47, 39384), (51, 39336), (54, 39300), (56, 39282),

Gene: RedMaple\_45 Start: 39624, Stop: 39199, Start Num: 29

Candidate Starts for RedMaple\_45:

(15, 39774), (17, 39765), (18, 39750), (Start: 29 @39624 has 52 MA's), (33, 39546), (34, 39531), (40, 39486),

Gene: Renkei\_40 Start: 38627, Stop: 38202, Start Num: 27

Candidate Starts for Renkei\_40:

(Start: 4 @38831 has 1 MA's), (7, 38795), (14, 38741), (Start: 23 @38660 has 3 MA's), (Start: 27 @38627 has 20 MA's), (36, 38519), (42, 38444), (46, 38399), (51, 38342), (54, 38306), (56, 38288),

Gene: Rita1961\_44 Start: 39496, Stop: 39011, Start Num: 25

Candidate Starts for Rita1961\_44:

(10, 39667), (21, 39565), (24, 39511), (Start: 25 @39496 has 38 MA's), (Start: 26 @39448 has 9 MA's), (32, 39358), (36, 39313), (37, 39307), (39, 39301), (41, 39250), (48, 39163), (50, 39139), (55, 39091),

Gene: RomaT\_44 Start: 40286, Stop: 39801, Start Num: 25

Candidate Starts for RomaT\_44:

(10, 40457), (21, 40355), (24, 40301), (Start: 25 @40286 has 38 MA's), (Start: 26 @40238 has 9 MA's), (32, 40148), (36, 40103), (37, 40097), (39, 40091), (41, 40040), (48, 39953), (50, 39929), (55, 39881),

Gene: SallyH\_46 Start: 39627, Stop: 39202, Start Num: 29

Candidate Starts for SallyH\_46:

(15, 39777), (17, 39768), (18, 39753), (Start: 29 @39627 has 52 MA's), (33, 39549), (34, 39534), (40, 39489),

Gene: Scoot17C\_46 Start: 39616, Stop: 39191, Start Num: 29

Candidate Starts for Scoot17C\_46:

(15, 39766), (17, 39757), (18, 39742), (Start: 29 @39616 has 52 MA's), (33, 39538), (34, 39523), (40, 39478),

Gene: Shenandoah\_44 Start: 39437, Stop: 39000, Start Num: 26

Candidate Starts for Shenandoah\_44:

(10, 39656), (21, 39554), (24, 39500), (Start: 25 @39485 has 38 MA's), (Start: 26 @39437 has 9 MA's), (32, 39347), (36, 39302), (37, 39296), (39, 39290), (41, 39239), (48, 39152), (50, 39128), (55, 39080),

Gene: Sigman\_46 Start: 39607, Stop: 39182, Start Num: 29

Candidate Starts for Sigman\_46:

(15, 39757), (17, 39748), (18, 39733), (Start: 29 @39607 has 52 MA's), (33, 39529), (34, 39514), (40, 39469),

Gene: SlippinJimmy\_44 Start: 40230, Stop: 39793, Start Num: 26

Candidate Starts for SlippinJimmy\_44:

(10, 40449), (21, 40347), (24, 40293), (Start: 25 @40278 has 38 MA's), (Start: 26 @40230 has 9 MA's), (32, 40140), (36, 40095), (37, 40089), (39, 40083), (41, 40032), (48, 39945), (50, 39921), (55, 39873),

Gene: Soile\_46 Start: 39334, Stop: 38909, Start Num: 29

Candidate Starts for Soile\_46:

(Start: 20 @39433 has 13 MA's), (Start: 29 @39334 has 52 MA's), (33, 39256), (34, 39241), (40, 39196),

Gene: Stinger\_40 Start: 38231, Stop: 37773, Start Num: 23

Candidate Starts for Stinger\_40:

(Start: 4 @38399 has 1 MA's), (14, 38309), (Start: 23 @38231 has 3 MA's), (Start: 27 @38198 has 20 MA's), (36, 38090), (42, 38015), (44, 38003), (45, 37991), (46, 37970), (47, 37961), (51, 37913), (54, 37877), (59, 37814), (61, 37781),

Gene: Suffolk\_46 Start: 39721, Stop: 39197, Start Num: 20

Candidate Starts for Suffolk\_46:

(Start: 20 @39721 has 13 MA's), (Start: 29 @39622 has 52 MA's), (33, 39544), (34, 39529), (40, 39484),

Gene: SwainyDoc\_44 Start: 39459, Stop: 39022, Start Num: 26

Candidate Starts for SwainyDoc\_44:

(10, 39678), (21, 39576), (24, 39522), (Start: 25 @39507 has 38 MA's), (Start: 26 @39459 has 9 MA's), (32, 39369), (36, 39324), (37, 39318), (39, 39312), (41, 39261), (48, 39174), (50, 39150), (55, 39102),

Gene: Swish\_46 Start: 39608, Stop: 39183, Start Num: 29

Candidate Starts for Swish\_46:

(15, 39758), (17, 39749), (18, 39734), (Start: 29 @39608 has 52 MA's), (33, 39530), (34, 39515), (40, 39470),

Gene: SynergyX\_44 Start: 39513, Stop: 39028, Start Num: 25

Candidate Starts for SynergyX\_44:

(10, 39684), (21, 39582), (24, 39528), (Start: 25 @39513 has 38 MA's), (Start: 26 @39465 has 9 MA's), (32, 39375), (36, 39330), (37, 39324), (39, 39318), (41, 39267), (48, 39180), (50, 39156), (55, 39108),

Gene: ThreeOh3D2\_46 Start: 39622, Stop: 39197, Start Num: 29

Candidate Starts for ThreeOh3D2\_46:

(15, 39772), (17, 39763), (18, 39748), (Start: 29 @39622 has 52 MA's), (33, 39544), (34, 39529), (40, 39484),

Gene: TinyTerror\_44 Start: 39498, Stop: 39013, Start Num: 25

Candidate Starts for TinyTerror\_44:

(10, 39669), (21, 39567), (24, 39513), (Start: 25 @39498 has 38 MA's), (Start: 26 @39450 has 9 MA's), (32, 39360), (36, 39315), (37, 39309), (39, 39303), (41, 39252), (48, 39165), (50, 39141), (55, 39093),

Gene: Tooj\_46 Start: 39781, Stop: 39257, Start Num: 20

Candidate Starts for Tooj\_46:

(Start: 20 @39781 has 13 MA's), (Start: 29 @39682 has 52 MA's), (33, 39604), (34, 39589), (40, 39544),

Gene: Triad\_46 Start: 38585, Stop: 38061, Start Num: 20

Candidate Starts for Triad\_46:

(Start: 20 @38585 has 13 MA's), (Start: 29 @38486 has 52 MA's), (33, 38408), (34, 38393), (40, 38348),

Gene: Trypo\_46 Start: 39618, Stop: 39193, Start Num: 29

Candidate Starts for Trypo\_46:

(15, 39768), (17, 39759), (18, 39744), (Start: 29 @39618 has 52 MA's), (33, 39540), (34, 39525), (40, 39480),

Gene: Tydolla\_44 Start: 40199, Stop: 39762, Start Num: 26

Candidate Starts for Tydolla\_44:

(10, 40418), (21, 40316), (24, 40262), (Start: 25 @40247 has 38 MA's), (Start: 26 @40199 has 9 MA's), (32, 40109), (36, 40064), (37, 40058), (39, 40052), (41, 40001), (48, 39914), (50, 39890), (55, 39842),

Gene: Usavi\_46 Start: 39721, Stop: 39197, Start Num: 20

Candidate Starts for Usavi\_46:

(Start: 20 @39721 has 13 MA's), (Start: 29 @39622 has 52 MA's), (33, 39544), (34, 39529), (40, 39484),

Gene: Vincenzo\_42 Start: 40436, Stop: 39954, Start Num: 22

Candidate Starts for Vincenzo\_42:

(9, 40535), (11, 40526), (Start: 22 @40436 has 1 MA's), (Start: 28 @40379 has 1 MA's), (34, 40292), (35, 40286), (36, 40265), (38, 40256), (46, 40145), (49, 40097), (54, 40052), (56, 40034), (58, 40004), (59, 39989),

Gene: VioletZ\_42 Start: 39692, Stop: 39267, Start Num: 27

Candidate Starts for VioletZ\_42:

(Start: 4 @39896 has 1 MA's), (5, 39872), (7, 39860), (14, 39806), (Start: 23 @39725 has 3 MA's), (Start: 27 @39692 has 20 MA's), (31, 39686), (36, 39584), (42, 39509), (44, 39497), (46, 39464), (47, 39455), (51, 39407), (54, 39371), (56, 39353),

Gene: Waleliano\_41 Start: 39619, Stop: 39194, Start Num: 27

Candidate Starts for Waleliano\_41:

(Start: 4 @39823 has 1 MA's), (5, 39799), (7, 39787), (14, 39733), (Start: 23 @39652 has 3 MA's), (Start: 27 @39619 has 20 MA's), (36, 39511), (42, 39436), (44, 39424), (46, 39391), (47, 39382), (51, 39334), (54, 39298), (56, 39280),

Gene: Xincheng\_40 Start: 39075, Stop: 38650, Start Num: 27

Candidate Starts for Xincheng\_40:

(9, 39237), (Start: 19 @39153 has 2 MA's), (Start: 23 @39108 has 3 MA's), (Start: 27 @39075 has 20 MA's), (36, 38967), (42, 38892), (44, 38880), (46, 38847), (47, 38838), (51, 38790), (54, 38754), (56, 38736),

Gene: Yahalom\_44 Start: 39523, Stop: 39038, Start Num: 25

Candidate Starts for Yahalom\_44:

(10, 39694), (21, 39592), (24, 39538), (Start: 25 @39523 has 38 MA's), (Start: 26 @39475 has 9 MA's), (32, 39385), (36, 39340), (37, 39334), (39, 39328), (41, 39277), (48, 39190), (50, 39166), (55, 39118),

Gene: Yinz\_44 Start: 39549, Stop: 39064, Start Num: 25

Candidate Starts for Yinz\_44:

(10, 39720), (21, 39618), (24, 39564), (Start: 25 @39549 has 38 MA's), (Start: 26 @39501 has 9 MA's), (32, 39411), (36, 39366), (37, 39360), (39, 39354), (41, 39303), (48, 39216), (50, 39192), (55, 39144),

Gene: Yoshand\_46 Start: 39621, Stop: 39196, Start Num: 29

Candidate Starts for Yoshand\_46:

(15, 39771), (17, 39762), (18, 39747), (Start: 29 @39621 has 52 MA's), (33, 39543), (34, 39528), (40, 39483),

Gene: Zemanar\_42 Start: 39622, Stop: 39197, Start Num: 27

Candidate Starts for Zemanar\_42:

(Start: 4 @39826 has 1 MA's), (5, 39802), (7, 39790), (14, 39736), (Start: 23 @39655 has 3 MA's),  
(Start: 27 @39622 has 20 MA's), (31, 39616), (36, 39514), (42, 39439), (44, 39427), (46, 39394), (47,  
39385), (51, 39337), (54, 39301), (56, 39283),

Gene: Zonia\_46 Start: 39635, Stop: 39210, Start Num: 29

Candidate Starts for Zonia\_46:

(Start: 29 @39635 has 52 MA's), (33, 39557), (34, 39542), (40, 39497),