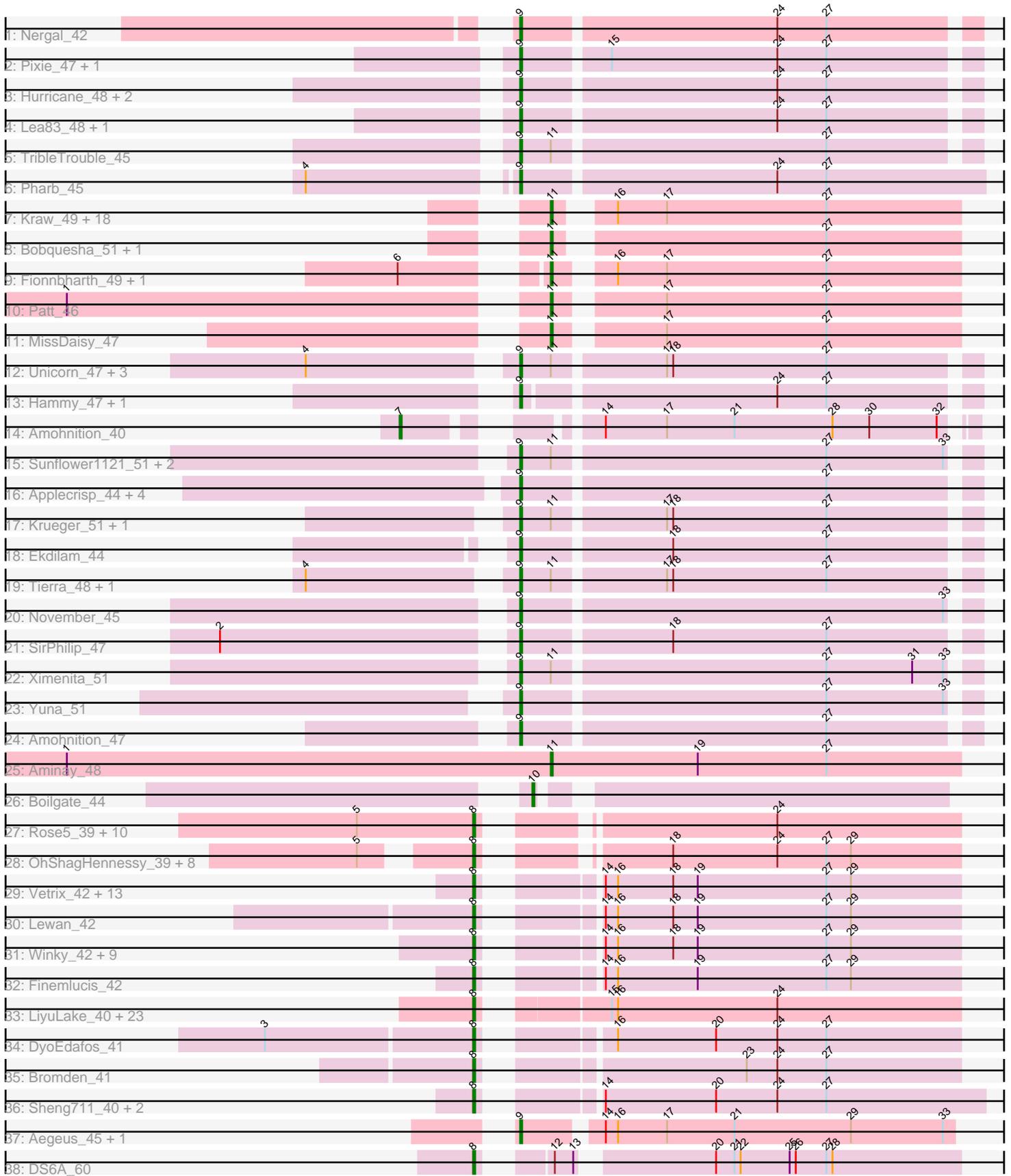


Pham 290933



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 290933 Report

This analysis was run 03/28/26 on database version 641.

Pham number 290933 has 140 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Nergal\_42
- Track 2 : Pixie\_47, TBond007\_47
- Track 3 : Hurricane\_48, Keshu\_49, MacnCheese\_49
- Track 4 : Lea83\_48, ShedlockHolmes\_48
- Track 5 : TribelTrouble\_45
- Track 6 : Pharb\_45
- Track 7 : Kraw\_49, Chancellor\_49, Lebo14\_48, Qhanda\_51, YasnayaPolyana\_49, Mitti\_49, Juliette\_51, Slarp\_49, Cheetobro\_49, DanSyl44\_52, Wintermute\_49, SamScheppers\_47, OmniCritical\_48, Malthus\_50, Taquito\_49, JF1\_49, Y10\_48, Ruthiejr\_50, Y2\_48
- Track 8 : Bobquesha\_51, Reptar3000\_47
- Track 9 : Fionnbharth\_49, Eponine\_51
- Track 10 : Patt\_46
- Track 11 : MissDaisy\_47
- Track 12 : Unicorn\_47, PhelpsODU\_47, Bryler\_48, Cain\_48
- Track 13 : Hammy\_47, DarthP\_47
- Track 14 : Amohnition\_40
- Track 15 : Sunflower1121\_51, Syra333\_50, Shadow1\_50
- Track 16 : Applecrisp\_44, Amgine\_45, Ellie\_43, Fefferhead\_45, Lavahound\_46
- Track 17 : Krueger\_51, Tigress9\_51
- Track 18 : Ekdilam\_44
- Track 19 : Tierra\_48, Phrank\_48
- Track 20 : November\_45
- Track 21 : SirPhilip\_47
- Track 22 : Ximenita\_51
- Track 23 : Yuna\_51
- Track 24 : Amohnition\_47
- Track 25 : Aminay\_48
- Track 26 : Boilgate\_44
- Track 27 : Rose5\_39, Tyson\_39, Halena\_39, MAckerman\_40, CicholasNage\_40, Calm\_40, Wyatt2\_40, Zaria\_40, Silverleaf\_39, AvadaKedavra\_40, Acquire49\_40
- Track 28 : OhShagHennessy\_39, Wamburgxpress\_40, LeBron\_40, Enceladus\_39, JoeDirt\_39, Appletree2\_39, Poochiewood\_39, DirkDirk\_39, UPIE\_40
- Track 29 : Vatrix\_42, Nicholasp3\_42, GuuelaD\_42, Kahlid\_42, Crossroads\_42, Loadrie\_42, Gabriela\_42, Gardann\_42, Wilder\_42, Rumpelstiltskin\_42, Underpass\_42, MkaliMitinis3\_42, Wigglewiggle\_42, Zakai\_42
- Track 30 : Lewan\_42

- Track 31 : Winky\_42, Breezona\_42, Itos\_41, BobsGarage\_42, Netyap\_42, BigCheese\_42, Faith1\_42, Miley16\_42, LilDestine\_42, DrSeegs\_42
- Track 32 : Finemlucis\_42
- Track 33 : LiyuLake\_40, Lolly9\_40, MsGreen\_40, Jobypre\_40, MiniLon\_40, Krypton555\_40, Whirlwind\_41, Lumos\_40, Samty\_40, Clautastrophe\_40, Kingsolomon\_40, Bellis\_40, Snenia\_40, Finnry\_40, Ellson\_40, TriFive\_40, MiniMac\_40, DuncansLeg\_40, KirDoubleO7\_38, BourbonZero\_39, Jubie\_40, Red305\_40, Nicholas\_40, Moostard\_40
- Track 34 : DyoEdafos\_41
- Track 35 : Bromden\_41
- Track 36 : Sheng711\_40, Douge\_39, Chaser\_39
- Track 37 : Aegeus\_45, Baudelaire\_45
- Track 38 : DS6A\_60

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

The start number called the most often in the published annotations is 8, it was called in 69 of the 128 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Acquire49\_40, Appletree2\_39, AvadaKedavra\_40, Bellis\_40, BigCheese\_42, BobsGarage\_42, BourbonZero\_39, Breezona\_42, Bromden\_41, Calm\_40, Chaser\_39, CicholasNage\_40, Clautastrophe\_40, Crossroads\_42, DS6A\_60, DirkDirk\_39, Douge\_39, DrSeegs\_42, DuncansLeg\_40, DyoEdafos\_41, Ellson\_40, Enceladus\_39, Faith1\_42, Finemlucis\_42, Finnry\_40, Gabriela\_42, Gardann\_42, GuuelaD\_42, Halena\_39, Itos\_41, Jobypre\_40, JoeDirt\_39, Jubie\_40, Kahlid\_42, Kingsolomon\_40, KirDoubleO7\_38, Krypton555\_40, LeBron\_40, Lewan\_42, LilDestine\_42, LiyuLake\_40, Loadrie\_42, Lolly9\_40, Lumos\_40, MAckerman\_40, Miley16\_42, MiniLon\_40, MiniMac\_40, MkaliMitinis3\_42, Moostard\_40, MsGreen\_40, Netyap\_42, Nicholas\_40, Nicholasp3\_42, OhShagHennessy\_39, Pochiewood\_39, Red305\_40, Rose5\_39, Rumpelstiltskin\_42, Samty\_40, Sheng711\_40, Silverleaf\_39, Snenia\_40, TriFive\_40, Tyson\_39, UPIE\_40, Underpass\_42, Vetrix\_42, Wamburgxpress\_40, Whirlwind\_41, Wigglewiggle\_42, Wilder\_42, Winky\_42, Wyatt2\_40, Zakai\_42, Zaria\_40,

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

- 

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

- Aegeus\_45, Amgine\_45, Aminay\_48, Amohnition\_40, Amohnition\_47, Applecrisp\_44, Baudelaire\_45, Bobquesha\_51, Boilgate\_44, Bryler\_48, Cain\_48, Chancellor\_49, Cheetobro\_49, DanSyl44\_52, DarthP\_47, Ekdilam\_44, Ellie\_43, Eponine\_51, Fefferhead\_45, Fionnbharth\_49, Hammy\_47, Hurricane\_48, JF1\_49, Juliette\_51, Keshu\_49, Kraw\_49, Krueger\_51, Lavahound\_46, Lea83\_48, Lebo14\_48, MacnCheese\_49, Malthus\_50, MissDaisy\_47, Mitti\_49, Nergal\_42, November\_45, OmniCritical\_48, Patt\_46, Pharb\_45, PhelpsODU\_47, Phrank\_48, Pixie\_47, Qhanda\_51, Reptar3000\_47, Ruthiejr\_50, SamScheppers\_47, Shadow1\_50, ShedlockHolmes\_48, SirPhilip\_47, Slarp\_49, Sunflower1121\_51, Syra333\_50, TBond007\_47, Taquito\_49, Tierra\_48, Tigress9\_51, TribbleTrouble\_45, Unicorn\_47, Wintermute\_49, Ximenita\_51, Y10\_48, Y2\_48, YasnayaPolyana\_49,

Yuna\_51,

### Summary by start number:

#### Start 7:

- Found in 1 of 140 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amohnition\_40 (K6),

#### Start 8:

- Found in 76 of 140 ( 54.3% ) of genes in pham
- Manual Annotations of this start: 69 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acquire49\_40 (L1), Appletree2\_39 (L1), AvadaKedavra\_40 (L1), Bellis\_40 (L3), BigCheese\_42 (L2), BobsGarage\_42 (L2), BourbonZero\_39 (L3), Breezona\_42 (L2), Bromden\_41 (L4), Calm\_40 (L1), Chaser\_39 (L4), CicholasNage\_40 (L1), Clautastrophe\_40 (L3), Crossroads\_42 (L2), DS6A\_60 (singleton), DirkDirk\_39 (L1), Douge\_39 (L4), DrSeegs\_42 (L2), DuncansLeg\_40 (L3), DyoEdafos\_41 (L4), Ellson\_40 (L3), Enceladus\_39 (L1), Faith1\_42 (L2), Finemlucis\_42 (L2), Finnry\_40 (L3), Gabriela\_42 (L2), Gardann\_42 (L2), GuuelaD\_42 (L2), Halena\_39 (L1), Itos\_41 (L2), Jobypre\_40 (L3), JoeDirt\_39 (L1), Jubie\_40 (L3), Kahlid\_42 (L2), Kingsolomon\_40 (L3), KirDoubleO7\_38 (L3), Krypton555\_40 (L3), LeBron\_40 (L1), Lewan\_42 (L2), LilDestine\_42 (L2), LiyuLake\_40 (L3), Loadrie\_42 (L2), Lolly9\_40 (L3), Lumos\_40 (L3), MAckerman\_40 (L1), Miley16\_42 (L2), MiniLon\_40 (L3), MiniMac\_40 (L3), MkaliMitinis3\_42 (L2), Moostard\_40 (L3), MsGreen\_40 (L3), Netyap\_42 (L2), Nicholas\_40 (L3), Nicholasp3\_42 (L2), OhShagHennessey\_39 (L1), Poochiewood\_39 (L1), Red305\_40 (L3), Rose5\_39 (L1), Rumpelstiltskin\_42 (L2), Samty\_40 (L3), Sheng711\_40 (L4), Silverleaf\_39 (L1), Snenia\_40 (L3), TriFive\_40 (L3), Tyson\_39 (L1), UPIE\_40 (L1), Underpass\_42 (L2), Vetrix\_42 (L2), Wamburgrxpress\_40 (L1), Whirlwind\_41 (L3), Wigglewiggles\_42 (L2), Wilder\_42 (L2), Winky\_42 (L2), Wyatt2\_40 (L1), Zakai\_42 (L2), Zaria\_40 (L1),

#### Start 9:

- Found in 36 of 140 ( 25.7% ) of genes in pham
- Manual Annotations of this start: 34 of 128
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aegeus\_45 (L5), Amgine\_45 (K6), Amohnition\_47 (K6), Applecrisp\_44 (K6), Baudelaire\_45 (L5), Bryler\_48 (K6), Cain\_48 (K6), DARTH\_47 (K6), Ekdilam\_44 (K6), Ellie\_43 (K6), Fefferhead\_45 (K6), Hammy\_47 (K6), Hurricane\_48 (K3), Keshu\_49 (K3), Krueger\_51 (K6), Lavahound\_46 (K6), Lea83\_48 (K3), MacnCheese\_49 (K3), Nergal\_42 (AG), November\_45 (K6), Pharb\_45 (K3), PhelpsODU\_47 (K6), Phrank\_48 (K6), Pixie\_47 (K3), Shadow1\_50 (K6), ShedlockHolmes\_48 (K3), SirPhilip\_47 (K6), Sunflower1121\_51 (K6), Syra333\_50 (K6), TBond007\_47 (K3), Tierra\_48 (K6), Tigress9\_51 (K6), TribbleTrouble\_45 (K3), Unicorn\_47 (K6), Ximenita\_51 (K6), Yuna\_51 (K6),

#### Start 10:

- Found in 1 of 140 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 128
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Boilgate\_44 (K8),

Start 11:

- Found in 39 of 140 ( 27.9% ) of genes in pham
- Manual Annotations of this start: 23 of 128
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Aminay\_48 (K7), Bobquesha\_51 (K4), Chancellor\_49 (K4), Cheetobro\_49 (K4), DanSyl44\_52 (K4), Eponine\_51 (K4), Fionnbharth\_49 (K4), JF1\_49 (K4), Juliette\_51 (K4), Kraw\_49 (K4), Lebo14\_48 (K4), Malthus\_50 (K4), MissDaisy\_47 (K4), Mitti\_49 (K4), OmniCritical\_48 (K4), Patt\_46 (K4), Qhanda\_51 (K4), Reptar3000\_47 (K4), Ruthiejr\_50 (K4), SamScheppers\_47 (K4), Slarp\_49 (K4), Taquito\_49 (K4), Wintermute\_49 (K4), Y10\_48 (K4), Y2\_48 (K4), YasnayaPolyana\_49 (K4),

### Summary by clusters:

There are 12 clusters represented in this pham: singleton, AG, L1, K3, L4, L5, L2, K6, K4, K7, K8, L3,

Info for manual annotations of cluster AG:

- Start number 9 was manually annotated 1 time for cluster AG.

Info for manual annotations of cluster K3:

- Start number 9 was manually annotated 9 times for cluster K3.

Info for manual annotations of cluster K4:

- Start number 11 was manually annotated 22 times for cluster K4.

Info for manual annotations of cluster K6:

- Start number 7 was manually annotated 1 time for cluster K6.
- Start number 9 was manually annotated 22 times for cluster K6.

Info for manual annotations of cluster K7:

- Start number 11 was manually annotated 1 time for cluster K7.

Info for manual annotations of cluster K8:

- Start number 10 was manually annotated 1 time for cluster K8.

Info for manual annotations of cluster L1:

- Start number 8 was manually annotated 19 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 8 was manually annotated 26 times for cluster L2.

Info for manual annotations of cluster L3:

- Start number 8 was manually annotated 19 times for cluster L3.

Info for manual annotations of cluster L4:

- Start number 8 was manually annotated 4 times for cluster L4.

Info for manual annotations of cluster L5:

- Start number 9 was manually annotated 2 times for cluster L5.

**Gene Information:**

Gene: Acquire49\_40 Start: 33342, Stop: 33551, Start Num: 8

Candidate Starts for Acquire49\_40:

(5, 33285), (Start: 8 @33342 has 69 MA's), (24, 33462),

Gene: Aegeus\_45 Start: 37056, Stop: 37259, Start Num: 9

Candidate Starts for Aegeus\_45:

(Start: 9 @37056 has 34 MA's), (14, 37089), (16, 37095), (17, 37119), (21, 37152), (29, 37209), (33, 37254),

Gene: Amgine\_45 Start: 36475, Stop: 36687, Start Num: 9

Candidate Starts for Amgine\_45:

(Start: 9 @36475 has 34 MA's), (27, 36619),

Gene: Aminay\_48 Start: 36910, Stop: 37110, Start Num: 11

Candidate Starts for Aminay\_48:

(1, 36673), (Start: 11 @36910 has 23 MA's), (19, 36982), (27, 37045),

Gene: Amohnition\_40 Start: 32428, Stop: 32189, Start Num: 7

Candidate Starts for Amohnition\_40:

(Start: 7 @32428 has 1 MA's), (14, 32362), (17, 32332), (21, 32299), (28, 32251), (30, 32233), (32, 32200),

Gene: Amohnition\_47 Start: 36488, Stop: 36700, Start Num: 9

Candidate Starts for Amohnition\_47:

(Start: 9 @36488 has 34 MA's), (27, 36632),

Gene: Applecrisp\_44 Start: 35971, Stop: 36183, Start Num: 9

Candidate Starts for Applecrisp\_44:

(Start: 9 @35971 has 34 MA's), (27, 36115),

Gene: Appletree2\_39 Start: 33269, Stop: 33478, Start Num: 8

Candidate Starts for Appletree2\_39:

(5, 33227), (Start: 8 @33269 has 69 MA's), (18, 33338), (24, 33389), (27, 33413), (29, 33425),

Gene: AvadaKedavra\_40 Start: 33351, Stop: 33560, Start Num: 8

Candidate Starts for AvadaKedavra\_40:

(5, 33294), (Start: 8 @33351 has 69 MA's), (24, 33471),

Gene: Baudelaire\_45 Start: 37056, Stop: 37259, Start Num: 9

Candidate Starts for Baudelaire\_45:

(Start: 9 @37056 has 34 MA's), (14, 37089), (16, 37095), (17, 37119), (21, 37152), (29, 37209), (33, 37254),

Gene: Bellis\_40 Start: 34953, Stop: 35168, Start Num: 8

Candidate Starts for Bellis\_40:

(Start: 8 @34953 has 69 MA's), (15, 34998), (16, 35001), (24, 35079),

Gene: BigCheese\_42 Start: 34694, Stop: 34909, Start Num: 8

Candidate Starts for BigCheese\_42:

(Start: 8 @34694 has 69 MA's), (14, 34736), (16, 34742), (18, 34769), (19, 34781), (27, 34844), (29, 34856),

Gene: Bobquesha\_51 Start: 35789, Stop: 35974, Start Num: 11  
Candidate Starts for Bobquesha\_51:  
(Start: 11 @35789 has 23 MA's), (27, 35909),

Gene: BobsGarage\_42 Start: 34694, Stop: 34909, Start Num: 8  
Candidate Starts for BobsGarage\_42:  
(Start: 8 @34694 has 69 MA's), (14, 34736), (16, 34742), (18, 34769), (19, 34781), (27, 34844), (29, 34856),

Gene: Boilgate\_44 Start: 36561, Stop: 36746, Start Num: 10  
Candidate Starts for Boilgate\_44:  
(Start: 10 @36561 has 1 MA's),

Gene: BourbonZero\_39 Start: 34932, Stop: 35150, Start Num: 8  
Candidate Starts for BourbonZero\_39:  
(Start: 8 @34932 has 69 MA's), (15, 34980), (16, 34983), (24, 35061),

Gene: Breezona\_42 Start: 34694, Stop: 34909, Start Num: 8  
Candidate Starts for Breezona\_42:  
(Start: 8 @34694 has 69 MA's), (14, 34736), (16, 34742), (18, 34769), (19, 34781), (27, 34844), (29, 34856),

Gene: Bromden\_41 Start: 34169, Stop: 34384, Start Num: 8  
Candidate Starts for Bromden\_41:  
(Start: 8 @34169 has 69 MA's), (23, 34280), (24, 34295), (27, 34319),

Gene: Bryler\_48 Start: 35349, Stop: 35561, Start Num: 9  
Candidate Starts for Bryler\_48:  
(4, 35259), (Start: 9 @35349 has 34 MA's), (Start: 11 @35364 has 23 MA's), (17, 35415), (18, 35418), (27, 35493),

Gene: Cain\_48 Start: 35337, Stop: 35549, Start Num: 9  
Candidate Starts for Cain\_48:  
(4, 35247), (Start: 9 @35337 has 34 MA's), (Start: 11 @35352 has 23 MA's), (17, 35403), (18, 35406), (27, 35481),

Gene: Calm\_40 Start: 33357, Stop: 33566, Start Num: 8  
Candidate Starts for Calm\_40:  
(5, 33300), (Start: 8 @33357 has 69 MA's), (24, 33477),

Gene: Chancellor\_49 Start: 36414, Stop: 36599, Start Num: 11  
Candidate Starts for Chancellor\_49:  
(Start: 11 @36414 has 23 MA's), (16, 36432), (17, 36456), (27, 36534),

Gene: Chaser\_39 Start: 33432, Stop: 33659, Start Num: 8  
Candidate Starts for Chaser\_39:  
(Start: 8 @33432 has 69 MA's), (14, 33474), (20, 33528), (24, 33558), (27, 33582),

Gene: Cheetobro\_49 Start: 36411, Stop: 36596, Start Num: 11  
Candidate Starts for Cheetobro\_49:

(Start: 11 @36411 has 23 MA's), (16, 36429), (17, 36453), (27, 36531),

Gene: CicholasNage\_40 Start: 33378, Stop: 33587, Start Num: 8

Candidate Starts for CicholasNage\_40:

(5, 33321), (Start: 8 @33378 has 69 MA's), (24, 33498),

Gene: Clautastrophe\_40 Start: 34951, Stop: 35166, Start Num: 8

Candidate Starts for Clautastrophe\_40:

(Start: 8 @34951 has 69 MA's), (15, 34996), (16, 34999), (24, 35077),

Gene: Crossroads\_42 Start: 34696, Stop: 34911, Start Num: 8

Candidate Starts for Crossroads\_42:

(Start: 8 @34696 has 69 MA's), (14, 34738), (16, 34744), (18, 34771), (19, 34783), (27, 34846), (29, 34858),

Gene: DS6A\_60 Start: 41278, Stop: 41484, Start Num: 8

Candidate Starts for DS6A\_60:

(Start: 8 @41278 has 69 MA's), (12, 41299), (13, 41308), (20, 41365), (21, 41374), (22, 41377), (25, 41401), (26, 41404), (27, 41419), (28, 41422),

Gene: DanSyl44\_52 Start: 37457, Stop: 37642, Start Num: 11

Candidate Starts for DanSyl44\_52:

(Start: 11 @37457 has 23 MA's), (16, 37475), (17, 37499), (27, 37577),

Gene: DarthP\_47 Start: 36375, Stop: 36584, Start Num: 9

Candidate Starts for DarthP\_47:

(Start: 9 @36375 has 34 MA's), (24, 36492), (27, 36516),

Gene: DirkDirk\_39 Start: 33329, Stop: 33538, Start Num: 8

Candidate Starts for DirkDirk\_39:

(5, 33287), (Start: 8 @33329 has 69 MA's), (18, 33398), (24, 33449), (27, 33473), (29, 33485),

Gene: Douge\_39 Start: 33370, Stop: 33597, Start Num: 8

Candidate Starts for Douge\_39:

(Start: 8 @33370 has 69 MA's), (14, 33412), (20, 33466), (24, 33496), (27, 33520),

Gene: DrSeegs\_42 Start: 34694, Stop: 34909, Start Num: 8

Candidate Starts for DrSeegs\_42:

(Start: 8 @34694 has 69 MA's), (14, 34736), (16, 34742), (18, 34769), (19, 34781), (27, 34844), (29, 34856),

Gene: DuncansLeg\_40 Start: 34969, Stop: 35187, Start Num: 8

Candidate Starts for DuncansLeg\_40:

(Start: 8 @34969 has 69 MA's), (15, 35017), (16, 35020), (24, 35098),

Gene: DyoEdafos\_41 Start: 33704, Stop: 33919, Start Num: 8

Candidate Starts for DyoEdafos\_41:

(3, 33605), (Start: 8 @33704 has 69 MA's), (16, 33752), (20, 33800), (24, 33830), (27, 33854),

Gene: Ekdilam\_44 Start: 35937, Stop: 36149, Start Num: 9

Candidate Starts for Ekdilam\_44:

(Start: 9 @35937 has 34 MA's), (18, 36006), (27, 36081),

Gene: Ellie\_43 Start: 35663, Stop: 35875, Start Num: 9

Candidate Starts for Ellie\_43:

(Start: 9 @35663 has 34 MA's), (27, 35807),

Gene: Ellson\_40 Start: 34945, Stop: 35163, Start Num: 8

Candidate Starts for Ellson\_40:

(Start: 8 @34945 has 69 MA's), (15, 34993), (16, 34996), (24, 35074),

Gene: Enceladus\_39 Start: 33312, Stop: 33521, Start Num: 8

Candidate Starts for Enceladus\_39:

(5, 33270), (Start: 8 @33312 has 69 MA's), (18, 33381), (24, 33432), (27, 33456), (29, 33468),

Gene: Eponine\_51 Start: 37164, Stop: 37352, Start Num: 11

Candidate Starts for Eponine\_51:

(6, 37113), (Start: 11 @37164 has 23 MA's), (16, 37185), (17, 37209), (27, 37287),

Gene: Faith1\_42 Start: 34694, Stop: 34909, Start Num: 8

Candidate Starts for Faith1\_42:

(Start: 8 @34694 has 69 MA's), (14, 34736), (16, 34742), (18, 34769), (19, 34781), (27, 34844), (29, 34856),

Gene: Fefferhead\_45 Start: 35614, Stop: 35826, Start Num: 9

Candidate Starts for Fefferhead\_45:

(Start: 9 @35614 has 34 MA's), (27, 35758),

Gene: Finemlucis\_42 Start: 34970, Stop: 35185, Start Num: 8

Candidate Starts for Finemlucis\_42:

(Start: 8 @34970 has 69 MA's), (14, 35012), (16, 35018), (19, 35057), (27, 35120), (29, 35132),

Gene: Finnry\_40 Start: 34954, Stop: 35169, Start Num: 8

Candidate Starts for Finnry\_40:

(Start: 8 @34954 has 69 MA's), (15, 34999), (16, 35002), (24, 35080),

Gene: Fionnbharth\_49 Start: 36562, Stop: 36750, Start Num: 11

Candidate Starts for Fionnbharth\_49:

(6, 36511), (Start: 11 @36562 has 23 MA's), (16, 36583), (17, 36607), (27, 36685),

Gene: Gabriela\_42 Start: 34956, Stop: 35171, Start Num: 8

Candidate Starts for Gabriela\_42:

(Start: 8 @34956 has 69 MA's), (14, 34998), (16, 35004), (18, 35031), (19, 35043), (27, 35106), (29, 35118),

Gene: Gardann\_42 Start: 34695, Stop: 34910, Start Num: 8

Candidate Starts for Gardann\_42:

(Start: 8 @34695 has 69 MA's), (14, 34737), (16, 34743), (18, 34770), (19, 34782), (27, 34845), (29, 34857),

Gene: GuuelaD\_42 Start: 34733, Stop: 34948, Start Num: 8

Candidate Starts for GuuelaD\_42:

(Start: 8 @34733 has 69 MA's), (14, 34775), (16, 34781), (18, 34808), (19, 34820), (27, 34883), (29, 34895),

Gene: Halena\_39 Start: 33353, Stop: 33562, Start Num: 8

Candidate Starts for Halena\_39:  
(5, 33296), (Start: 8 @33353 has 69 MA's), (24, 33473),

Gene: Hammy\_47 Start: 36363, Stop: 36572, Start Num: 9  
Candidate Starts for Hammy\_47:  
(Start: 9 @36363 has 34 MA's), (24, 36480), (27, 36504),

Gene: Hurricane\_48 Start: 36096, Stop: 36308, Start Num: 9  
Candidate Starts for Hurricane\_48:  
(Start: 9 @36096 has 34 MA's), (24, 36216), (27, 36240),

Gene: Itos\_41 Start: 33600, Stop: 33815, Start Num: 8  
Candidate Starts for Itos\_41:  
(Start: 8 @33600 has 69 MA's), (14, 33642), (16, 33648), (18, 33675), (19, 33687), (27, 33750), (29, 33762),

Gene: JF1\_49 Start: 36482, Stop: 36667, Start Num: 11  
Candidate Starts for JF1\_49:  
(Start: 11 @36482 has 23 MA's), (16, 36500), (17, 36524), (27, 36602),

Gene: Jobypre\_40 Start: 34951, Stop: 35166, Start Num: 8  
Candidate Starts for Jobypre\_40:  
(Start: 8 @34951 has 69 MA's), (15, 34996), (16, 34999), (24, 35077),

Gene: JoeDirt\_39 Start: 33310, Stop: 33519, Start Num: 8  
Candidate Starts for JoeDirt\_39:  
(5, 33268), (Start: 8 @33310 has 69 MA's), (18, 33379), (24, 33430), (27, 33454), (29, 33466),

Gene: Jubie\_40 Start: 34952, Stop: 35167, Start Num: 8  
Candidate Starts for Jubie\_40:  
(Start: 8 @34952 has 69 MA's), (15, 34997), (16, 35000), (24, 35078),

Gene: Juliette\_51 Start: 36638, Stop: 36823, Start Num: 11  
Candidate Starts for Juliette\_51:  
(Start: 11 @36638 has 23 MA's), (16, 36656), (17, 36680), (27, 36758),

Gene: Kahlid\_42 Start: 34700, Stop: 34915, Start Num: 8  
Candidate Starts for Kahlid\_42:  
(Start: 8 @34700 has 69 MA's), (14, 34742), (16, 34748), (18, 34775), (19, 34787), (27, 34850), (29, 34862),

Gene: Keshu\_49 Start: 36154, Stop: 36366, Start Num: 9  
Candidate Starts for Keshu\_49:  
(Start: 9 @36154 has 34 MA's), (24, 36274), (27, 36298),

Gene: Kingsolomon\_40 Start: 34951, Stop: 35166, Start Num: 8  
Candidate Starts for Kingsolomon\_40:  
(Start: 8 @34951 has 69 MA's), (15, 34996), (16, 34999), (24, 35077),

Gene: KirDoubleO7\_38 Start: 34973, Stop: 35191, Start Num: 8  
Candidate Starts for KirDoubleO7\_38:  
(Start: 8 @34973 has 69 MA's), (15, 35021), (16, 35024), (24, 35102),

Gene: Kraw\_49 Start: 36326, Stop: 36511, Start Num: 11  
Candidate Starts for Kraw\_49:  
(Start: 11 @36326 has 23 MA's), (16, 36344), (17, 36368), (27, 36446),

Gene: Krueger\_51 Start: 36343, Stop: 36555, Start Num: 9  
Candidate Starts for Krueger\_51:  
(Start: 9 @36343 has 34 MA's), (Start: 11 @36358 has 23 MA's), (17, 36409), (18, 36412), (27, 36487),

Gene: Krypton555\_40 Start: 34868, Stop: 35083, Start Num: 8  
Candidate Starts for Krypton555\_40:  
(Start: 8 @34868 has 69 MA's), (15, 34913), (16, 34916), (24, 34994),

Gene: Lavahound\_46 Start: 36596, Stop: 36808, Start Num: 9  
Candidate Starts for Lavahound\_46:  
(Start: 9 @36596 has 34 MA's), (27, 36740),

Gene: LeBron\_40 Start: 33354, Stop: 33563, Start Num: 8  
Candidate Starts for LeBron\_40:  
(5, 33312), (Start: 8 @33354 has 69 MA's), (18, 33423), (24, 33474), (27, 33498), (29, 33510),

Gene: Lea83\_48 Start: 36128, Stop: 36340, Start Num: 9  
Candidate Starts for Lea83\_48:  
(Start: 9 @36128 has 34 MA's), (24, 36248), (27, 36272),

Gene: Lebo14\_48 Start: 36592, Stop: 36777, Start Num: 11  
Candidate Starts for Lebo14\_48:  
(Start: 11 @36592 has 23 MA's), (16, 36610), (17, 36634), (27, 36712),

Gene: Lewan\_42 Start: 34687, Stop: 34902, Start Num: 8  
Candidate Starts for Lewan\_42:  
(Start: 8 @34687 has 69 MA's), (14, 34729), (16, 34735), (18, 34762), (19, 34774), (27, 34837), (29, 34849),

Gene: LilDestine\_42 Start: 34692, Stop: 34907, Start Num: 8  
Candidate Starts for LilDestine\_42:  
(Start: 8 @34692 has 69 MA's), (14, 34734), (16, 34740), (18, 34767), (19, 34779), (27, 34842), (29, 34854),

Gene: LiyuLake\_40 Start: 34935, Stop: 35153, Start Num: 8  
Candidate Starts for LiyuLake\_40:  
(Start: 8 @34935 has 69 MA's), (15, 34983), (16, 34986), (24, 35064),

Gene: Loadrie\_42 Start: 34726, Stop: 34941, Start Num: 8  
Candidate Starts for Loadrie\_42:  
(Start: 8 @34726 has 69 MA's), (14, 34768), (16, 34774), (18, 34801), (19, 34813), (27, 34876), (29, 34888),

Gene: Lolly9\_40 Start: 34759, Stop: 34977, Start Num: 8  
Candidate Starts for Lolly9\_40:  
(Start: 8 @34759 has 69 MA's), (15, 34807), (16, 34810), (24, 34888),

Gene: Lumos\_40 Start: 34948, Stop: 35163, Start Num: 8  
Candidate Starts for Lumos\_40:

(Start: 8 @34948 has 69 MA's), (15, 34993), (16, 34996), (24, 35074),

Gene: MAckerman\_40 Start: 33347, Stop: 33556, Start Num: 8

Candidate Starts for MAckerman\_40:

(5, 33290), (Start: 8 @33347 has 69 MA's), (24, 33467),

Gene: MacnCheese\_49 Start: 37043, Stop: 37276, Start Num: 9

Candidate Starts for MacnCheese\_49:

(Start: 9 @37043 has 34 MA's), (24, 37163), (27, 37187),

Gene: Malthus\_50 Start: 36326, Stop: 36511, Start Num: 11

Candidate Starts for Malthus\_50:

(Start: 11 @36326 has 23 MA's), (16, 36344), (17, 36368), (27, 36446),

Gene: Miley16\_42 Start: 34694, Stop: 34909, Start Num: 8

Candidate Starts for Miley16\_42:

(Start: 8 @34694 has 69 MA's), (14, 34736), (16, 34742), (18, 34769), (19, 34781), (27, 34844), (29, 34856),

Gene: MiniLon\_40 Start: 34760, Stop: 34978, Start Num: 8

Candidate Starts for MiniLon\_40:

(Start: 8 @34760 has 69 MA's), (15, 34808), (16, 34811), (24, 34889),

Gene: MiniMac\_40 Start: 34757, Stop: 34975, Start Num: 8

Candidate Starts for MiniMac\_40:

(Start: 8 @34757 has 69 MA's), (15, 34805), (16, 34808), (24, 34886),

Gene: MissDaisy\_47 Start: 35801, Stop: 35989, Start Num: 11

Candidate Starts for MissDaisy\_47:

(Start: 11 @35801 has 23 MA's), (17, 35846), (27, 35924),

Gene: Mitti\_49 Start: 36502, Stop: 36687, Start Num: 11

Candidate Starts for Mitti\_49:

(Start: 11 @36502 has 23 MA's), (16, 36520), (17, 36544), (27, 36622),

Gene: MkaliMitinis3\_42 Start: 34696, Stop: 34911, Start Num: 8

Candidate Starts for MkaliMitinis3\_42:

(Start: 8 @34696 has 69 MA's), (14, 34738), (16, 34744), (18, 34771), (19, 34783), (27, 34846), (29, 34858),

Gene: Moostard\_40 Start: 34953, Stop: 35168, Start Num: 8

Candidate Starts for Moostard\_40:

(Start: 8 @34953 has 69 MA's), (15, 34998), (16, 35001), (24, 35079),

Gene: MsGreen\_40 Start: 34951, Stop: 35166, Start Num: 8

Candidate Starts for MsGreen\_40:

(Start: 8 @34951 has 69 MA's), (15, 34996), (16, 34999), (24, 35077),

Gene: Nergal\_42 Start: 34081, Stop: 34293, Start Num: 9

Candidate Starts for Nergal\_42:

(Start: 9 @34081 has 34 MA's), (24, 34201), (27, 34225),

Gene: Netyap\_42 Start: 34694, Stop: 34909, Start Num: 8

Candidate Starts for Netyap\_42:

(Start: 8 @34694 has 69 MA's), (14, 34736), (16, 34742), (18, 34769), (19, 34781), (27, 34844), (29, 34856),

Gene: Nicholas\_40 Start: 34951, Stop: 35166, Start Num: 8

Candidate Starts for Nicholas\_40:

(Start: 8 @34951 has 69 MA's), (15, 34996), (16, 34999), (24, 35077),

Gene: Nicholasp3\_42 Start: 34695, Stop: 34910, Start Num: 8

Candidate Starts for Nicholasp3\_42:

(Start: 8 @34695 has 69 MA's), (14, 34737), (16, 34743), (18, 34770), (19, 34782), (27, 34845), (29, 34857),

Gene: November\_45 Start: 36096, Stop: 36308, Start Num: 9

Candidate Starts for November\_45:

(Start: 9 @36096 has 34 MA's), (33, 36297),

Gene: OhShagHennessy\_39 Start: 33300, Stop: 33509, Start Num: 8

Candidate Starts for OhShagHennessy\_39:

(5, 33258), (Start: 8 @33300 has 69 MA's), (18, 33369), (24, 33420), (27, 33444), (29, 33456),

Gene: OmniCritical\_48 Start: 36311, Stop: 36496, Start Num: 11

Candidate Starts for OmniCritical\_48:

(Start: 11 @36311 has 23 MA's), (16, 36329), (17, 36353), (27, 36431),

Gene: Patt\_46 Start: 35525, Stop: 35713, Start Num: 11

Candidate Starts for Patt\_46:

(1, 35309), (Start: 11 @35525 has 23 MA's), (17, 35570), (27, 35648),

Gene: Pharb\_45 Start: 34846, Stop: 35067, Start Num: 9

Candidate Starts for Pharb\_45:

(4, 34756), (Start: 9 @34846 has 34 MA's), (24, 34966), (27, 34990),

Gene: PhelpsODU\_47 Start: 35370, Stop: 35582, Start Num: 9

Candidate Starts for PhelpsODU\_47:

(4, 35280), (Start: 9 @35370 has 34 MA's), (Start: 11 @35385 has 23 MA's), (17, 35436), (18, 35439), (27, 35514),

Gene: Phrank\_48 Start: 35327, Stop: 35539, Start Num: 9

Candidate Starts for Phrank\_48:

(4, 35237), (Start: 9 @35327 has 34 MA's), (Start: 11 @35342 has 23 MA's), (17, 35393), (18, 35396), (27, 35471),

Gene: Pixie\_47 Start: 35607, Stop: 35819, Start Num: 9

Candidate Starts for Pixie\_47:

(Start: 9 @35607 has 34 MA's), (15, 35646), (24, 35727), (27, 35751),

Gene: Pochiewood\_39 Start: 33328, Stop: 33537, Start Num: 8

Candidate Starts for Pochiewood\_39:

(5, 33286), (Start: 8 @33328 has 69 MA's), (18, 33397), (24, 33448), (27, 33472), (29, 33484),

Gene: Qhanda\_51 Start: 36423, Stop: 36608, Start Num: 11

Candidate Starts for Qhanda\_51:

(Start: 11 @36423 has 23 MA's), (16, 36441), (17, 36465), (27, 36543),

Gene: Red305\_40 Start: 34951, Stop: 35166, Start Num: 8

Candidate Starts for Red305\_40:

(Start: 8 @34951 has 69 MA's), (15, 34996), (16, 34999), (24, 35077),

Gene: Reptar3000\_47 Start: 35516, Stop: 35701, Start Num: 11

Candidate Starts for Reptar3000\_47:

(Start: 11 @35516 has 23 MA's), (27, 35636),

Gene: Rose5\_39 Start: 33342, Stop: 33551, Start Num: 8

Candidate Starts for Rose5\_39:

(5, 33285), (Start: 8 @33342 has 69 MA's), (24, 33462),

Gene: Rumpelstiltskin\_42 Start: 34961, Stop: 35173, Start Num: 8

Candidate Starts for Rumpelstiltskin\_42:

(Start: 8 @34961 has 69 MA's), (14, 35003), (16, 35009), (18, 35036), (19, 35048), (27, 35111), (29, 35123),

Gene: Ruthiejr\_50 Start: 36376, Stop: 36561, Start Num: 11

Candidate Starts for Ruthiejr\_50:

(Start: 11 @36376 has 23 MA's), (16, 36394), (17, 36418), (27, 36496),

Gene: SamScheppers\_47 Start: 36805, Stop: 36990, Start Num: 11

Candidate Starts for SamScheppers\_47:

(Start: 11 @36805 has 23 MA's), (16, 36823), (17, 36847), (27, 36925),

Gene: Samty\_40 Start: 34952, Stop: 35167, Start Num: 8

Candidate Starts for Samty\_40:

(Start: 8 @34952 has 69 MA's), (15, 34997), (16, 35000), (24, 35078),

Gene: Shadow1\_50 Start: 36488, Stop: 36700, Start Num: 9

Candidate Starts for Shadow1\_50:

(Start: 9 @36488 has 34 MA's), (Start: 11 @36503 has 23 MA's), (27, 36632), (33, 36689),

Gene: ShedlockHolmes\_48 Start: 36132, Stop: 36344, Start Num: 9

Candidate Starts for ShedlockHolmes\_48:

(Start: 9 @36132 has 34 MA's), (24, 36252), (27, 36276),

Gene: Sheng711\_40 Start: 33476, Stop: 33703, Start Num: 8

Candidate Starts for Sheng711\_40:

(Start: 8 @33476 has 69 MA's), (14, 33518), (20, 33572), (24, 33602), (27, 33626),

Gene: Silverleaf\_39 Start: 33342, Stop: 33551, Start Num: 8

Candidate Starts for Silverleaf\_39:

(5, 33285), (Start: 8 @33342 has 69 MA's), (24, 33462),

Gene: SirPhilip\_47 Start: 36707, Stop: 36919, Start Num: 9

Candidate Starts for SirPhilip\_47:

(2, 36575), (Start: 9 @36707 has 34 MA's), (18, 36776), (27, 36851),

Gene: Slarp\_49 Start: 36414, Stop: 36599, Start Num: 11

Candidate Starts for Slarp\_49:

(Start: 11 @36414 has 23 MA's), (16, 36432), (17, 36456), (27, 36534),

Gene: Snenia\_40 Start: 34952, Stop: 35167, Start Num: 8

Candidate Starts for Snenia\_40:

(Start: 8 @34952 has 69 MA's), (15, 34997), (16, 35000), (24, 35078),

Gene: Sunflower1121\_51 Start: 36589, Stop: 36801, Start Num: 9

Candidate Starts for Sunflower1121\_51:

(Start: 9 @36589 has 34 MA's), (Start: 11 @36604 has 23 MA's), (27, 36733), (33, 36790),

Gene: Syra333\_50 Start: 36256, Stop: 36468, Start Num: 9

Candidate Starts for Syra333\_50:

(Start: 9 @36256 has 34 MA's), (Start: 11 @36271 has 23 MA's), (27, 36400), (33, 36457),

Gene: TBond007\_47 Start: 35606, Stop: 35818, Start Num: 9

Candidate Starts for TBond007\_47:

(Start: 9 @35606 has 34 MA's), (15, 35645), (24, 35726), (27, 35750),

Gene: Taquito\_49 Start: 36661, Stop: 36846, Start Num: 11

Candidate Starts for Taquito\_49:

(Start: 11 @36661 has 23 MA's), (16, 36679), (17, 36703), (27, 36781),

Gene: Tierra\_48 Start: 36138, Stop: 36350, Start Num: 9

Candidate Starts for Tierra\_48:

(4, 36048), (Start: 9 @36138 has 34 MA's), (Start: 11 @36153 has 23 MA's), (17, 36204), (18, 36207), (27, 36282),

Gene: Tigress9\_51 Start: 36343, Stop: 36555, Start Num: 9

Candidate Starts for Tigress9\_51:

(Start: 9 @36343 has 34 MA's), (Start: 11 @36358 has 23 MA's), (17, 36409), (18, 36412), (27, 36487),

Gene: TriFive\_40 Start: 34951, Stop: 35166, Start Num: 8

Candidate Starts for TriFive\_40:

(Start: 8 @34951 has 69 MA's), (15, 34996), (16, 34999), (24, 35077),

Gene: TribbleTrouble\_45 Start: 35497, Stop: 35709, Start Num: 9

Candidate Starts for TribbleTrouble\_45:

(Start: 9 @35497 has 34 MA's), (Start: 11 @35512 has 23 MA's), (27, 35641),

Gene: Tyson\_39 Start: 33343, Stop: 33552, Start Num: 8

Candidate Starts for Tyson\_39:

(5, 33286), (Start: 8 @33343 has 69 MA's), (24, 33463),

Gene: UPIE\_40 Start: 33326, Stop: 33535, Start Num: 8

Candidate Starts for UPIE\_40:

(5, 33284), (Start: 8 @33326 has 69 MA's), (18, 33395), (24, 33446), (27, 33470), (29, 33482),

Gene: Underpass\_42 Start: 34695, Stop: 34910, Start Num: 8

Candidate Starts for Underpass\_42:

(Start: 8 @34695 has 69 MA's), (14, 34737), (16, 34743), (18, 34770), (19, 34782), (27, 34845), (29, 34857),

Gene: Unicorn\_47 Start: 35370, Stop: 35582, Start Num: 9

Candidate Starts for Unicorn\_47:

(4, 35280), (Start: 9 @35370 has 34 MA's), (Start: 11 @35385 has 23 MA's), (17, 35436), (18, 35439), (27, 35514),

Gene: Vetrix\_42 Start: 34701, Stop: 34916, Start Num: 8

Candidate Starts for Vetrix\_42:

(Start: 8 @34701 has 69 MA's), (14, 34743), (16, 34749), (18, 34776), (19, 34788), (27, 34851), (29, 34863),

Gene: Wamburgrxpress\_40 Start: 33341, Stop: 33550, Start Num: 8

Candidate Starts for Wamburgrxpress\_40:

(5, 33299), (Start: 8 @33341 has 69 MA's), (18, 33410), (24, 33461), (27, 33485), (29, 33497),

Gene: Whirlwind\_41 Start: 34710, Stop: 34925, Start Num: 8

Candidate Starts for Whirlwind\_41:

(Start: 8 @34710 has 69 MA's), (15, 34755), (16, 34758), (24, 34836),

Gene: Wigglewigggle\_42 Start: 34727, Stop: 34942, Start Num: 8

Candidate Starts for Wigglewigggle\_42:

(Start: 8 @34727 has 69 MA's), (14, 34769), (16, 34775), (18, 34802), (19, 34814), (27, 34877), (29, 34889),

Gene: Wilder\_42 Start: 34700, Stop: 34915, Start Num: 8

Candidate Starts for Wilder\_42:

(Start: 8 @34700 has 69 MA's), (14, 34742), (16, 34748), (18, 34775), (19, 34787), (27, 34850), (29, 34862),

Gene: Winky\_42 Start: 34694, Stop: 34909, Start Num: 8

Candidate Starts for Winky\_42:

(Start: 8 @34694 has 69 MA's), (14, 34736), (16, 34742), (18, 34769), (19, 34781), (27, 34844), (29, 34856),

Gene: Wintermute\_49 Start: 36563, Stop: 36748, Start Num: 11

Candidate Starts for Wintermute\_49:

(Start: 11 @36563 has 23 MA's), (16, 36581), (17, 36605), (27, 36683),

Gene: Wyatt2\_40 Start: 33342, Stop: 33551, Start Num: 8

Candidate Starts for Wyatt2\_40:

(5, 33285), (Start: 8 @33342 has 69 MA's), (24, 33462),

Gene: Ximenita\_51 Start: 36442, Stop: 36654, Start Num: 9

Candidate Starts for Ximenita\_51:

(Start: 9 @36442 has 34 MA's), (Start: 11 @36457 has 23 MA's), (27, 36586), (31, 36628), (33, 36643),

Gene: Y10\_48 Start: 36482, Stop: 36667, Start Num: 11

Candidate Starts for Y10\_48:

(Start: 11 @36482 has 23 MA's), (16, 36500), (17, 36524), (27, 36602),

Gene: Y2\_48 Start: 36482, Stop: 36667, Start Num: 11

Candidate Starts for Y2\_48:

(Start: 11 @36482 has 23 MA's), (16, 36500), (17, 36524), (27, 36602),

Gene: YasnayaPolyana\_49 Start: 36413, Stop: 36598, Start Num: 11

Candidate Starts for YasnayaPolyana\_49:

(Start: 11 @36413 has 23 MA's), (16, 36431), (17, 36455), (27, 36533),

Gene: Yuna\_51 Start: 37201, Stop: 37413, Start Num: 9

Candidate Starts for Yuna\_51:

(Start: 9 @37201 has 34 MA's), (27, 37345), (33, 37402),

Gene: Zakai\_42 Start: 34952, Stop: 35167, Start Num: 8

Candidate Starts for Zakai\_42:

(Start: 8 @34952 has 69 MA's), (14, 34994), (16, 35000), (18, 35027), (19, 35039), (27, 35102), (29, 35114),

Gene: Zaria\_40 Start: 33357, Stop: 33566, Start Num: 8

Candidate Starts for Zaria\_40:

(5, 33300), (Start: 8 @33357 has 69 MA's), (24, 33477),