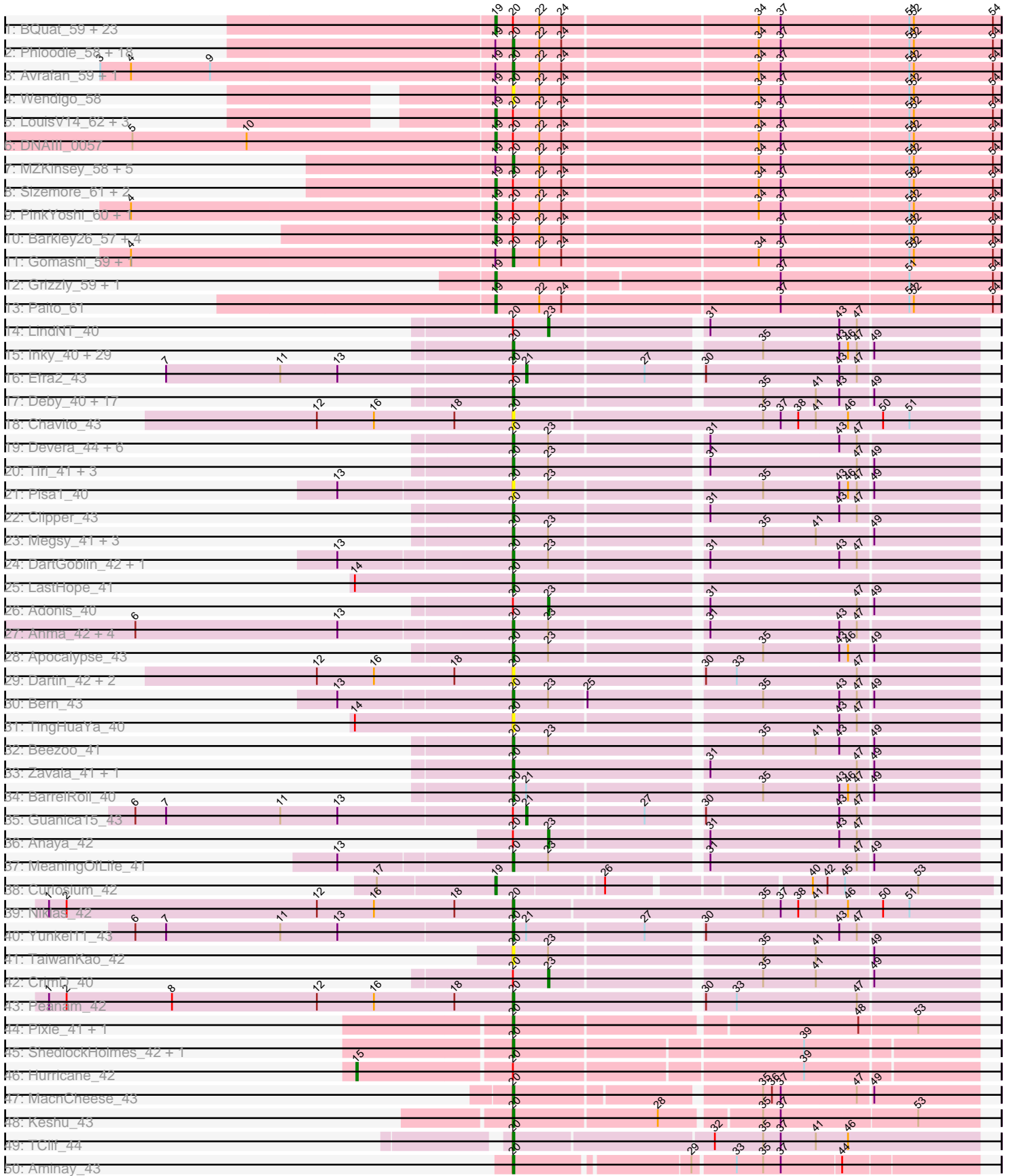


Pham 294466



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 294466 Report

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

Pham number 294466 has 177 members, 20 are drafts.

Phages represented in each track:

- Track 1 : BQuat\_59, Gideon\_60, Aroostook\_60, Jonghyun\_58, AzulaCat\_61, Phish\_59, Marmie\_60, CLED96\_59, JorRay\_61, CassieYates\_60, Mowgli\_60, Remy19\_60, Cherrybomb426\_59, ShaboiShabazz\_59, Jolene\_60, Camri\_59, GoldenAsh\_58, TinaBug\_61, Periodt\_60, Plagueis\_60, Zombie\_60, ECartman\_58, TomBrady\_60, Chance64\_60
- Track 2 : Phloodle\_58, Neoh\_58, AizenPogi\_60, Rattrick\_60, Hotshotbaby7\_60, Phreak\_60, DingDing\_58, Schiebel\_58, Liefie\_57, Crespo\_59, Cedasite\_60, Halo\_61, Ruriko\_57, Darionha\_60, Jeilious\_60, Coleslaw\_59, Maliketh\_58, Angel\_58, Hope\_60
- Track 3 : Avrafan\_59, Richarlison\_60
- Track 4 : Wendigo\_58
- Track 5 : LouisV14\_62, Renaissance\_59, OctaviousRex\_59, DMoney\_59
- Track 6 : DNAlll\_0057
- Track 7 : MZKinsey\_58, BPs\_60, Kasen3\_61, BruceB\_60, Sweets\_60, Jane\_61
- Track 8 : Sizemore\_61, ZoMa\_59, Kareem\_61
- Track 9 : PinkYoshi\_60, Annihilator\_59
- Track 10 : Barkley26\_57, Terror\_56, Rabbs\_61, Sneeze\_60, Taheera\_56
- Track 11 : Gomashi\_59, Olga\_61
- Track 12 : Grizzly\_59, Peeb\_59
- Track 13 : Paito\_61
- Track 14 : LindNT\_40
- Track 15 : Inky\_40, Spock\_40, Slimphazie\_40, BGIlluvia\_40, Capricorn\_40, Peel\_40, CREW\_40, Jayhawk\_41, CallaLilly\_40, Topper\_40, Tachez\_40, Dalmuri\_40, Joy99\_40, Jeckyll\_40, HedwigODU\_40, Twitch\_40, ActinUp\_40, Atiba\_40, Padpat\_41, Veliki\_40, Belladonna\_40, Rosmarinus\_40, Rapunzel97\_40, TruffulaTree\_40, Adephagia\_40, Llorens\_40, Lunahalos\_40, Homura\_40, Emerson\_41, Jarvi\_40
- Track 16 : Efra2\_43
- Track 17 : Deby\_40, QuincyRose\_39, CaseJules\_41, Sulley\_40, Piatt\_40, Geraldini\_42, Asayake\_40, BEEST\_40, Angelica\_40, Boiii\_40, Ganymede\_41, AlishaPH\_40, Hyperbowlee\_40, ShiaSurprise\_41, Blizzard\_40, Padfoot\_40, Durfee\_40, YoureAdopted\_39
- Track 18 : Chavito\_43
- Track 19 : Devera\_44, Illumine\_43, TreyKay\_40, Ageofdapage\_42, Prithvi\_40, Murucutumbu\_41, Dole\_43
- Track 20 : Tiri\_41, JAWS\_40, Ramen\_40, Pokerus\_39
- Track 21 : Pisa1\_40
- Track 22 : Clipper\_43

- Track 23 : Megsy\_41, CheetoDust\_39, LaterM\_41, BaghaKamala\_39
- Track 24 : DartGoblin\_42, Bella96\_41
- Track 25 : LastHope\_41
- Track 26 : Adonis\_40
- Track 27 : Anma\_42, Urkel\_41, SamuelLPlaqson\_41, TiniBug\_41, DrHayes\_41
- Track 28 : Apocalypse\_43
- Track 29 : Dartin\_42, McMater\_42, Richo\_42
- Track 30 : Bern\_43
- Track 31 : TingHuaYa\_40
- Track 32 : Beezoo\_41
- Track 33 : Zavala\_41, Mynx\_41
- Track 34 : BarrelRoll\_40
- Track 35 : Guanica15\_43
- Track 36 : Anaya\_42
- Track 37 : MeaningOfLife\_41
- Track 38 : Curiosium\_42
- Track 39 : Niklas\_42
- Track 40 : Yunke11\_43
- Track 41 : TaiwanKao\_42
- Track 42 : CrimD\_40
- Track 43 : Peanam\_42
- Track 44 : Pixie\_41, TBond007\_41
- Track 45 : ShedlockHolmes\_42, Lea83\_42
- Track 46 : Hurricane\_42
- Track 47 : MacnCheese\_43
- Track 48 : Keshu\_43
- Track 49 : TClif\_44
- Track 50 : Aminay\_43

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

The start number called the most often in the published annotations is 20, it was called in 107 of the 157 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ActinUp\_40, Adephagia\_40, Ageofdapage\_42, AizenPogi\_60, AlishaPH\_40, Aminay\_43, Angel\_58, Angelica\_40, Anma\_42, Apocalypse\_43, Asayake\_40, Atiba\_40, Avrafan\_59, BEEST\_40, BGlluviae\_40, BPs\_60, BaghaKamala\_39, BarrelRoll\_40, Beezoo\_41, Bella96\_41, Belladonna\_40, Bern\_43, Blizzard\_40, Boiiii\_40, BruceB\_60, CREW\_40, CallaLilly\_40, Capricorn\_40, CaseJules\_41, Cedasite\_60, Chavito\_43, CheetoDust\_39, Clipper\_43, Coleslaw\_59, Crespo\_59, Dalmuri\_40, Darionha\_60, DartGoblin\_42, Dartin\_42, Deby\_40, Devera\_44, DingDing\_58, Dole\_43, DrHayes\_41, Durfee\_40, Emerson\_41, Ganymede\_41, Geraldini\_42, Gomashi\_59, Halo\_61, HedwigODU\_40, Homura\_40, Hope\_60, Hotshotbaby7\_60, Hyperbowlee\_40, Illumine\_43, Inky\_40, JAWS\_40, Jane\_61, Jarvi\_40, Jayhawk\_41, Jeckyll\_40, Jeilious\_60, Joy99\_40, Kasen3\_61, Keshu\_43, LastHope\_41, LaterM\_41, Lea83\_42, Liefie\_57, Llorens\_40, Lunahalos\_40, MZKinsey\_58, MacnCheese\_43, Maliketh\_58, McMater\_42, MeaningOfLife\_41, Megsy\_41, Murucutumbu\_41, Mynx\_41, Neoh\_58, Niklas\_42, Olga\_61, Padfoot\_40, Padpat\_41, Peanam\_42, Peel\_40, Phloodle\_58, Phreak\_60, Piatt\_40, Pisa1\_40,

Pixie\_41, Pokerus\_39, Prithvi\_40, QuincyRose\_39, Ramen\_40, Rapunzel97\_40, Rattrick\_60, Richarlison\_60, Richo\_42, Rosmarinus\_40, Ruriko\_57, SamuelLPlaqson\_41, Schiebel\_58, ShedlockHolmes\_42, ShiaSurprise\_41, Slimphazie\_40, Spock\_40, Sulley\_40, Sweets\_60, TBond007\_41, TClif\_44, Tachez\_40, TaiwanKao\_42, TingHuaYa\_40, TiniBug\_41, Tiri\_41, Topper\_40, TreyKay\_40, TruffulaTree\_40, Twitch\_40, Urkel\_41, Veliki\_40, Wendigo\_58, YoureAdopted\_39, Yunkel11\_43, Zavala\_41,

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

- Adonis\_40, Anaya\_42, Annihilator\_59, Aroostook\_60, AzulaCat\_61, BQuat\_59, Barkley26\_57, CLED96\_59, Camri\_59, CassieYates\_60, Chance64\_60, Cherrybomb426\_59, CrimD\_40, DMoney\_59, DNAIII\_0057, ECartman\_58, Efra2\_43, Gideon\_60, GoldenAsh\_58, Guanica15\_43, Hurricane\_42, Jolene\_60, Jonghyun\_58, JorRay\_61, Kareem\_61, LindNT\_40, LouisV14\_62, Marmie\_60, Mowgli\_60, OctaviousRex\_59, Periodt\_60, Phish\_59, PinkYoshi\_60, Plagueis\_60, Rabbs\_61, Remy19\_60, Renaissance\_59, ShaboiShabazz\_59, Sizemore\_61, Sneeze\_60, Taheera\_56, Terror\_56, TinaBug\_61, TomBrady\_60, ZoMa\_59, Zombie\_60,

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

- Curiosium\_42, Grizzly\_59, Paito\_61, Peeb\_59,

### Summary by start number:

Start 15:

- Found in 1 of 177 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 157
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hurricane\_42 (K3),

Start 19:

- Found in 73 of 177 ( 41.2% ) of genes in pham
- Manual Annotations of this start: 43 of 157
- Called 58.9% of time when present
- Phage (with cluster) where this start called: Annihilator\_59 (G1), Aroostook\_60 (G1), AzulaCat\_61 (G1), BQuat\_59 (G1), Barkley26\_57 (G1), CLED96\_59 (G1), Camri\_59 (G1), CassieYates\_60 (G1), Chance64\_60 (G1), Cherrybomb426\_59 (G1), Curiosium\_42 (K1), DMoney\_59 (G1), DNAIII\_0057 (G1), ECartman\_58 (G1), Gideon\_60 (G1), GoldenAsh\_58 (G1), Grizzly\_59 (G1), Jolene\_60 (G1), Jonghyun\_58 (G1), JorRay\_61 (G1), Kareem\_61 (G1), LouisV14\_62 (G1), Marmie\_60 (G1), Mowgli\_60 (G1), OctaviousRex\_59 (G1), Paito\_61 (G1), Peeb\_59 (G1), Periodt\_60 (G1), Phish\_59 (G1), PinkYoshi\_60 (G1), Plagueis\_60 (G1), Rabbs\_61 (G1), Remy19\_60 (G1), Renaissance\_59 (G1), ShaboiShabazz\_59 (G1), Sizemore\_61 (G1), Sneeze\_60 (G1), Taheera\_56 (G1), Terror\_56 (G1), TinaBug\_61 (G1), TomBrady\_60 (G1), ZoMa\_59 (G1), Zombie\_60 (G1),

Start 20:

- Found in 173 of 177 ( 97.7% ) of genes in pham
- Manual Annotations of this start: 107 of 157
- Called 73.4% of time when present
- Phage (with cluster) where this start called: ActinUp\_40 (K1), Adephegia\_40 (K1), Ageofdapage\_42 (K1), AizenPogi\_60 (G1), AlishaPH\_40 (K1), Aminay\_43 (K7), Angel\_58 (G1), Angelica\_40 (K1), Anma\_42 (K1), Apocalypse\_43 (K1), Asayake\_40 (K1), Atiba\_40 (K1), Avrafan\_59 (G1), BEEST\_40 (K1), BGlluviae\_40 (K1), BPs\_60

(G1), BaghaKamala\_39 (K1), BarrelRoll\_40 (K1), Beezoo\_41 (K1), Bella96\_41 (K1), Belladonna\_40 (K1), Bern\_43 (K1), Blizzard\_40 (K1), Boiiii\_40 (K1), BruceB\_60 (G1), CREW\_40 (K1), CallaLilly\_40 (K1), Capricorn\_40 (K1), CaseJules\_41 (K1), Cedasite\_60 (G1), Chavito\_43 (K1), CheetoDust\_39 (K1), Clipper\_43 (K1), Coleslaw\_59 (G1), Crespo\_59 (G1), Dalmuri\_40 (K1), Darionha\_60 (G1), DartGoblin\_42 (K1), Dartin\_42 (K1), Deby\_40 (K1), Devera\_44 (K1), DingDing\_58 (G1), Dole\_43 (K1), DrHayes\_41 (K1), Durfee\_40 (K1), Emerson\_41 (K1), Ganymede\_41 (K1), Geraldini\_42 (K1), Gomashi\_59 (G1), Halo\_61 (G1), HedwigODU\_40 (K1), Homura\_40 (K1), Hope\_60 (G1), Hotshotbaby7\_60 (G1), Hyperbowlee\_40 (K1), Illumine\_43 (K1), Inky\_40 (K1), JAWS\_40 (K1), Jane\_61 (G1), Jarvi\_40 (K1), Jayhawk\_41 (K1), Jeckyll\_40 (K1), Jeilious\_60 (G), Joy99\_40 (K1), Kasen3\_61 (G1), Keshu\_43 (K3), LastHope\_41 (K1), LaterM\_41 (K1), Lea83\_42 (K3), Liefie\_57 (G1), Llorens\_40 (K1), Lunahalos\_40 (K1), MZKinsey\_58 (G1), MacnCheese\_43 (K3), Maliketh\_58 (G1), McMater\_42 (K1), MeaningOfLife\_41 (K1), Megsy\_41 (K1), Murucutumbu\_41 (K1), Mynx\_41 (K1), Neoh\_58 (G), Niklas\_42 (K1), Olga\_61 (G1), Padfoot\_40 (K1), Padpat\_41 (K1), Peanam\_42 (K1), Peel\_40 (K1), Phloodle\_58 (G1), Phreak\_60 (G1), Piatt\_40 (K1), Pisa1\_40 (K1), Pixie\_41 (K3), Pokerus\_39 (K1), Prithvi\_40 (K1), QuincyRose\_39 (K1), Ramen\_40 (K1), Rapunzel97\_40 (K1), Rattrick\_60 (G1), Richarlison\_60 (G1), Richo\_42 (K1), Rosmarinus\_40 (K1), Ruriko\_57 (G1), SamuelLPlaqson\_41 (K1), Schiebel\_58 (G1), ShedlockHolmes\_42 (K3), ShiaSurprise\_41 (K1), Slimphazie\_40 (K1), Spock\_40 (K1), Sulley\_40 (K1), Sweets\_60 (G1), TBond007\_41 (K3), TClif\_44 (K6), Tachez\_40 (K1), TaiwanKao\_42 (K1), TingHuaYa\_40 (K1), TiniBug\_41 (K1), Tiri\_41 (K1), Topper\_40 (K1), TreyKay\_40 (K1), TruffulaTree\_40 (K1), Twitch\_40 (K1), Urkel\_41 (K1), Veliki\_40 (K1), Wendigo\_58 (G1), YoureAdopted\_39 (K1), Yunkel11\_43 (K1), Zavala\_41 (K1),

#### Start 21:

- Found in 4 of 177 ( 2.3% ) of genes in pham
- Manual Annotations of this start: 2 of 157
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Efra2\_43 (K1), Guanica15\_43 (K1),

#### Start 23:

- Found in 32 of 177 ( 18.1% ) of genes in pham
- Manual Annotations of this start: 4 of 157
- Called 12.5% of time when present
- Phage (with cluster) where this start called: Adonis\_40 (K1), Anaya\_42 (K1), CrimD\_40 (K1), LindNT\_40 (K1),

### Summary by clusters:

There are 6 clusters represented in this pham: G1, G, K3, K1, K7, K6,

#### Info for manual annotations of cluster G1:

- Start number 19 was manually annotated 42 times for cluster G1.
- Start number 20 was manually annotated 19 times for cluster G1.

#### Info for manual annotations of cluster K1:

- Start number 19 was manually annotated 1 time for cluster K1.
- Start number 20 was manually annotated 80 times for cluster K1.
- Start number 21 was manually annotated 2 times for cluster K1.

- Start number 23 was manually annotated 4 times for cluster K1.

Info for manual annotations of cluster K3:

- Start number 15 was manually annotated 1 time for cluster K3.
- Start number 20 was manually annotated 6 times for cluster K3.

Info for manual annotations of cluster K6:

- Start number 20 was manually annotated 1 time for cluster K6.

Info for manual annotations of cluster K7:

- Start number 20 was manually annotated 1 time for cluster K7.

### ***Gene Information:***

Gene: ActinUp\_40 Start: 32121, Stop: 31819, Start Num: 20

Candidate Starts for ActinUp\_40:

(Start: 20 @32121 has 107 MA's), (35, 31962), (43, 31911), (46, 31905), (47, 31899), (49, 31890),

Gene: Adephagia\_40 Start: 32118, Stop: 31816, Start Num: 20

Candidate Starts for Adephagia\_40:

(Start: 20 @32118 has 107 MA's), (35, 31959), (43, 31908), (46, 31902), (47, 31896), (49, 31887),

Gene: Adonis\_40 Start: 32395, Stop: 32114, Start Num: 23

Candidate Starts for Adonis\_40:

(Start: 20 @32419 has 107 MA's), (Start: 23 @32395 has 4 MA's), (31, 32293), (47, 32194), (49, 32185),

Gene: Ageofdapage\_42 Start: 33095, Stop: 32793, Start Num: 20

Candidate Starts for Ageofdapage\_42:

(Start: 20 @33095 has 107 MA's), (Start: 23 @33071 has 4 MA's), (31, 32972), (43, 32885), (47, 32873),

Gene: AizenPogi\_60 Start: 40437, Stop: 40760, Start Num: 20

Candidate Starts for AizenPogi\_60:

(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: AlishaPH\_40 Start: 32393, Stop: 32091, Start Num: 20

Candidate Starts for AlishaPH\_40:

(Start: 20 @32393 has 107 MA's), (35, 32234), (41, 32198), (43, 32183), (49, 32162),

Gene: Aminay\_43 Start: 33661, Stop: 33365, Start Num: 20

Candidate Starts for Aminay\_43:

(Start: 20 @33661 has 107 MA's), (29, 33550), (33, 33523), (35, 33505), (37, 33493), (44, 33454),

Gene: Anaya\_42 Start: 32707, Stop: 32429, Start Num: 23

Candidate Starts for Anaya\_42:

(Start: 20 @32731 has 107 MA's), (Start: 23 @32707 has 4 MA's), (31, 32608), (43, 32521), (47, 32509),

Gene: Angel\_58 Start: 39977, Stop: 40300, Start Num: 20

Candidate Starts for Angel\_58:

(Start: 19 @39965 has 43 MA's), (Start: 20 @39977 has 107 MA's), (22, 39995), (24, 40010), (34, 40139), (37, 40154), (51, 40238), (52, 40241), (54, 40295),

Gene: Angelica\_40 Start: 32350, Stop: 32048, Start Num: 20

Candidate Starts for Angelica\_40:

(Start: 20 @32350 has 107 MA's), (35, 32191), (41, 32155), (43, 32140), (49, 32119),

Gene: Anma\_42 Start: 33019, Stop: 32717, Start Num: 20

Candidate Starts for Anma\_42:

(6, 33271), (13, 33133), (Start: 20 @33019 has 107 MA's), (Start: 23 @32995 has 4 MA's), (31, 32896), (43, 32809), (47, 32797),

Gene: Annihilator\_59 Start: 40417, Stop: 40752, Start Num: 19

Candidate Starts for Annihilator\_59:

(4, 40171), (Start: 19 @40417 has 43 MA's), (Start: 20 @40429 has 107 MA's), (22, 40447), (24, 40462), (34, 40591), (37, 40606), (51, 40690), (52, 40693), (54, 40747),

Gene: Apocalypse\_43 Start: 33135, Stop: 32833, Start Num: 20

Candidate Starts for Apocalypse\_43:

(Start: 20 @33135 has 107 MA's), (Start: 23 @33111 has 4 MA's), (35, 32976), (43, 32925), (46, 32919), (49, 32904),

Gene: Aroostook\_60 Start: 40427, Stop: 40762, Start Num: 19

Candidate Starts for Aroostook\_60:

(Start: 19 @40427 has 43 MA's), (Start: 20 @40439 has 107 MA's), (22, 40457), (24, 40472), (34, 40601), (37, 40616), (51, 40700), (52, 40703), (54, 40757),

Gene: Asayake\_40 Start: 32434, Stop: 32132, Start Num: 20

Candidate Starts for Asayake\_40:

(Start: 20 @32434 has 107 MA's), (35, 32275), (41, 32239), (43, 32224), (49, 32203),

Gene: Atiba\_40 Start: 32081, Stop: 31779, Start Num: 20

Candidate Starts for Atiba\_40:

(Start: 20 @32081 has 107 MA's), (35, 31922), (43, 31871), (46, 31865), (47, 31859), (49, 31850),

Gene: Avrafan\_59 Start: 40437, Stop: 40760, Start Num: 20

Candidate Starts for Avrafan\_59:

(3, 40158), (4, 40179), (9, 40233), (Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: AzulaCat\_61 Start: 40425, Stop: 40760, Start Num: 19

Candidate Starts for AzulaCat\_61:

(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: BEEST\_40 Start: 32434, Stop: 32132, Start Num: 20

Candidate Starts for BEEST\_40:

(Start: 20 @32434 has 107 MA's), (35, 32275), (41, 32239), (43, 32224), (49, 32203),

Gene: BGlluviae\_40 Start: 32237, Stop: 31935, Start Num: 20

Candidate Starts for BGlluviae\_40:

(Start: 20 @32237 has 107 MA's), (35, 32078), (43, 32027), (46, 32021), (47, 32015), (49, 32006),

Gene: BPs\_60 Start: 40437, Stop: 40760, Start Num: 20

Candidate Starts for BPs\_60:

(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: BQuat\_59 Start: 40417, Stop: 40752, Start Num: 19

Candidate Starts for BQuat\_59:

(Start: 19 @40417 has 43 MA's), (Start: 20 @40429 has 107 MA's), (22, 40447), (24, 40462), (34, 40591), (37, 40606), (51, 40690), (52, 40693), (54, 40747),

Gene: BaghaKamala\_39 Start: 31559, Stop: 31257, Start Num: 20

Candidate Starts for BaghaKamala\_39:

(Start: 20 @31559 has 107 MA's), (Start: 23 @31535 has 4 MA's), (35, 31400), (41, 31364), (49, 31328),

Gene: Barkley26\_57 Start: 39877, Stop: 40212, Start Num: 19

Candidate Starts for Barkley26\_57:

(Start: 19 @39877 has 43 MA's), (Start: 20 @39889 has 107 MA's), (22, 39907), (24, 39922), (37, 40066), (51, 40150), (52, 40153), (54, 40207),

Gene: BarrelRoll\_40 Start: 32104, Stop: 31802, Start Num: 20

Candidate Starts for BarrelRoll\_40:

(Start: 20 @32104 has 107 MA's), (Start: 21 @32095 has 2 MA's), (35, 31945), (43, 31894), (46, 31888), (47, 31882), (49, 31873),

Gene: Beezoo\_41 Start: 33084, Stop: 32779, Start Num: 20

Candidate Starts for Beezoo\_41:

(Start: 20 @33084 has 107 MA's), (Start: 23 @33060 has 4 MA's), (35, 32922), (41, 32886), (43, 32871), (49, 32850),

Gene: Bella96\_41 Start: 32976, Stop: 32674, Start Num: 20

Candidate Starts for Bella96\_41:

(13, 33090), (Start: 20 @32976 has 107 MA's), (Start: 23 @32952 has 4 MA's), (31, 32853), (43, 32766), (47, 32754),

Gene: Belladonna\_40 Start: 32237, Stop: 31935, Start Num: 20

Candidate Starts for Belladonna\_40:

(Start: 20 @32237 has 107 MA's), (35, 32078), (43, 32027), (46, 32021), (47, 32015), (49, 32006),

Gene: Bern\_43 Start: 33663, Stop: 33361, Start Num: 20

Candidate Starts for Bern\_43:

(13, 33777), (Start: 20 @33663 has 107 MA's), (Start: 23 @33639 has 4 MA's), (25, 33615), (35, 33504), (43, 33453), (47, 33441), (49, 33432),

Gene: Blizzard\_40 Start: 32434, Stop: 32132, Start Num: 20

Candidate Starts for Blizzard\_40:

(Start: 20 @32434 has 107 MA's), (35, 32275), (41, 32239), (43, 32224), (49, 32203),

Gene: Boiiii\_40 Start: 32436, Stop: 32134, Start Num: 20

Candidate Starts for Boiiii\_40:

(Start: 20 @32436 has 107 MA's), (35, 32277), (41, 32241), (43, 32226), (49, 32205),

Gene: BruceB\_60 Start: 40437, Stop: 40760, Start Num: 20

Candidate Starts for BruceB\_60:

(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: CLED96\_59 Start: 39980, Stop: 40315, Start Num: 19

Candidate Starts for CLED96\_59:

(Start: 19 @39980 has 43 MA's), (Start: 20 @39992 has 107 MA's), (22, 40010), (24, 40025), (34, 40154), (37, 40169), (51, 40253), (52, 40256), (54, 40310),

Gene: CREW\_40 Start: 32237, Stop: 31935, Start Num: 20

Candidate Starts for CREW\_40:

(Start: 20 @32237 has 107 MA's), (35, 32078), (43, 32027), (46, 32021), (47, 32015), (49, 32006),

Gene: CallaLilly\_40 Start: 32160, Stop: 31858, Start Num: 20

Candidate Starts for CallaLilly\_40:

(Start: 20 @32160 has 107 MA's), (35, 32001), (43, 31950), (46, 31944), (47, 31938), (49, 31929),

Gene: Camri\_59 Start: 39980, Stop: 40315, Start Num: 19

Candidate Starts for Camri\_59:

(Start: 19 @39980 has 43 MA's), (Start: 20 @39992 has 107 MA's), (22, 40010), (24, 40025), (34, 40154), (37, 40169), (51, 40253), (52, 40256), (54, 40310),

Gene: Capricorn\_40 Start: 32237, Stop: 31935, Start Num: 20

Candidate Starts for Capricorn\_40:

(Start: 20 @32237 has 107 MA's), (35, 32078), (43, 32027), (46, 32021), (47, 32015), (49, 32006),

Gene: CaseJules\_41 Start: 32434, Stop: 32132, Start Num: 20

Candidate Starts for CaseJules\_41:

(Start: 20 @32434 has 107 MA's), (35, 32275), (41, 32239), (43, 32224), (49, 32203),

Gene: CassieYates\_60 Start: 40425, Stop: 40760, Start Num: 19

Candidate Starts for CassieYates\_60:

(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: Cedasite\_60 Start: 40437, Stop: 40760, Start Num: 20

Candidate Starts for Cedasite\_60:

(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: Chance64\_60 Start: 40427, Stop: 40762, Start Num: 19

Candidate Starts for Chance64\_60:

(Start: 19 @40427 has 43 MA's), (Start: 20 @40439 has 107 MA's), (22, 40457), (24, 40472), (34, 40601), (37, 40616), (51, 40700), (52, 40703), (54, 40757),

Gene: Chavito\_43 Start: 33312, Stop: 32998, Start Num: 20

Candidate Starts for Chavito\_43:

(12, 33444), (16, 33405), (18, 33351), (Start: 20 @33312 has 107 MA's), (35, 33144), (37, 33132), (38, 33120), (41, 33108), (46, 33087), (50, 33063), (51, 33045),

Gene: CheetoDust\_39 Start: 31609, Stop: 31307, Start Num: 20

Candidate Starts for CheetoDust\_39:

(Start: 20 @31609 has 107 MA's), (Start: 23 @31585 has 4 MA's), (35, 31450), (41, 31414), (49, 31378),

Gene: Cherrybomb426\_59 Start: 39980, Stop: 40315, Start Num: 19

Candidate Starts for Cherrybomb426\_59:

(Start: 19 @39980 has 43 MA's), (Start: 20 @39992 has 107 MA's), (22, 40010), (24, 40025), (34, 40154), (37, 40169), (51, 40253), (52, 40256), (54, 40310),

Gene: Clipper\_43 Start: 32756, Stop: 32454, Start Num: 20

Candidate Starts for Clipper\_43:

(Start: 20 @32756 has 107 MA's), (31, 32633), (43, 32546), (47, 32534),

Gene: Coleslaw\_59 Start: 40429, Stop: 40752, Start Num: 20

Candidate Starts for Coleslaw\_59:

(Start: 19 @40417 has 43 MA's), (Start: 20 @40429 has 107 MA's), (22, 40447), (24, 40462), (34, 40591), (37, 40606), (51, 40690), (52, 40693), (54, 40747),

Gene: Crespo\_59 Start: 40438, Stop: 40761, Start Num: 20

Candidate Starts for Crespo\_59:

(Start: 19 @40426 has 43 MA's), (Start: 20 @40438 has 107 MA's), (22, 40456), (24, 40471), (34, 40600), (37, 40615), (51, 40699), (52, 40702), (54, 40756),

Gene: CrimD\_40 Start: 32341, Stop: 32063, Start Num: 23

Candidate Starts for CrimD\_40:

(Start: 20 @32365 has 107 MA's), (Start: 23 @32341 has 4 MA's), (35, 32206), (41, 32170), (49, 32134),

Gene: Curiosium\_42 Start: 30899, Stop: 30588, Start Num: 19

Candidate Starts for Curiosium\_42:

(17, 30977), (Start: 19 @30899 has 43 MA's), (26, 30833), (40, 30707), (42, 30698), (45, 30686), (53, 30638),

Gene: DMoney\_59 Start: 40404, Stop: 40739, Start Num: 19

Candidate Starts for DMoney\_59:

(Start: 19 @40404 has 43 MA's), (Start: 20 @40416 has 107 MA's), (22, 40434), (24, 40449), (34, 40578), (37, 40593), (51, 40677), (52, 40680), (54, 40734),

Gene: DNAIII\_0057 Start: 38054, Stop: 38389, Start Num: 19

Candidate Starts for DNAIII\_0057:

(5, 37808), (10, 37886), (Start: 19 @38054 has 43 MA's), (Start: 20 @38066 has 107 MA's), (22, 38084), (24, 38099), (34, 38228), (37, 38243), (51, 38327), (52, 38330), (54, 38384),

Gene: Dalmuri\_40 Start: 32237, Stop: 31935, Start Num: 20

Candidate Starts for Dalmuri\_40:

(Start: 20 @32237 has 107 MA's), (35, 32078), (43, 32027), (46, 32021), (47, 32015), (49, 32006),

Gene: Darionha\_60 Start: 40437, Stop: 40760, Start Num: 20

Candidate Starts for Darionha\_60:

(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: DartGoblin\_42 Start: 32970, Stop: 32668, Start Num: 20

Candidate Starts for DartGoblin\_42:

(13, 33084), (Start: 20 @32970 has 107 MA's), (Start: 23 @32946 has 4 MA's), (31, 32847), (43, 32760), (47, 32748),

Gene: Dartin\_42 Start: 32677, Stop: 32372, Start Num: 20

Candidate Starts for Dartin\_42:

(12, 32809), (16, 32770), (18, 32716), (Start: 20 @32677 has 107 MA's), (30, 32554), (33, 32533), (47, 32452),

Gene: Deby\_40 Start: 32368, Stop: 32066, Start Num: 20

Candidate Starts for Deby\_40:

(Start: 20 @32368 has 107 MA's), (35, 32209), (41, 32173), (43, 32158), (49, 32137),

Gene: Devera\_44 Start: 32903, Stop: 32601, Start Num: 20

Candidate Starts for Devera\_44:

(Start: 20 @32903 has 107 MA's), (Start: 23 @32879 has 4 MA's), (31, 32780), (43, 32693), (47, 32681),

Gene: DingDing\_58 Start: 40437, Stop: 40760, Start Num: 20

Candidate Starts for DingDing\_58:

(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: Dole\_43 Start: 32905, Stop: 32603, Start Num: 20

Candidate Starts for Dole\_43:

(Start: 20 @32905 has 107 MA's), (Start: 23 @32881 has 4 MA's), (31, 32782), (43, 32695), (47, 32683),

Gene: DrHayes\_41 Start: 33019, Stop: 32717, Start Num: 20

Candidate Starts for DrHayes\_41:

(6, 33271), (13, 33133), (Start: 20 @33019 has 107 MA's), (Start: 23 @32995 has 4 MA's), (31, 32896), (43, 32809), (47, 32797),

Gene: Durfee\_40 Start: 32434, Stop: 32132, Start Num: 20

Candidate Starts for Durfee\_40:

(Start: 20 @32434 has 107 MA's), (35, 32275), (41, 32239), (43, 32224), (49, 32203),

Gene: ECartman\_58 Start: 40425, Stop: 40760, Start Num: 19

Candidate Starts for ECartman\_58:

(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: Efra2\_43 Start: 32200, Stop: 31907, Start Num: 21

Candidate Starts for Efra2\_43:

(7, 32443), (11, 32365), (13, 32326), (Start: 20 @32209 has 107 MA's), (Start: 21 @32200 has 2 MA's), (27, 32122), (30, 32089), (43, 31999), (47, 31987),

Gene: Emerson\_41 Start: 32112, Stop: 31810, Start Num: 20

Candidate Starts for Emerson\_41:

(Start: 20 @32112 has 107 MA's), (35, 31953), (43, 31902), (46, 31896), (47, 31890), (49, 31881),

Gene: Ganymede\_41 Start: 32423, Stop: 32121, Start Num: 20

Candidate Starts for Ganymede\_41:

(Start: 20 @32423 has 107 MA's), (35, 32264), (41, 32228), (43, 32213), (49, 32192),

Gene: Geraldini\_42 Start: 33169, Stop: 32864, Start Num: 20

Candidate Starts for Geraldini\_42:

(Start: 20 @33169 has 107 MA's), (35, 33007), (41, 32971), (43, 32956), (49, 32935),

Gene: Gideon\_60 Start: 40427, Stop: 40762, Start Num: 19

Candidate Starts for Gideon\_60:

(Start: 19 @40427 has 43 MA's), (Start: 20 @40439 has 107 MA's), (22, 40457), (24, 40472), (34, 40601), (37, 40616), (51, 40700), (52, 40703), (54, 40757),

Gene: GoldenAsh\_58 Start: 39965, Stop: 40300, Start Num: 19

Candidate Starts for GoldenAsh\_58:

(Start: 19 @39965 has 43 MA's), (Start: 20 @39977 has 107 MA's), (22, 39995), (24, 40010), (34, 40139), (37, 40154), (51, 40238), (52, 40241), (54, 40295),

Gene: Gomashi\_59 Start: 40439, Stop: 40762, Start Num: 20

Candidate Starts for Gomashi\_59:

(4, 40181), (Start: 19 @40427 has 43 MA's), (Start: 20 @40439 has 107 MA's), (22, 40457), (24, 40472), (34, 40601), (37, 40616), (51, 40700), (52, 40703), (54, 40757),

Gene: Grizzly\_59 Start: 40279, Stop: 40611, Start Num: 19

Candidate Starts for Grizzly\_59:

(Start: 19 @40279 has 43 MA's), (37, 40465), (51, 40549), (54, 40606),

Gene: Guanica15\_43 Start: 32157, Stop: 31864, Start Num: 21

Candidate Starts for Guanica15\_43:

(6, 32421), (7, 32400), (11, 32322), (13, 32283), (Start: 20 @32166 has 107 MA's), (Start: 21 @32157 has 2 MA's), (27, 32079), (30, 32046), (43, 31956), (47, 31944),

Gene: Halo\_61 Start: 40985, Stop: 41308, Start Num: 20

Candidate Starts for Halo\_61:

(Start: 19 @40973 has 43 MA's), (Start: 20 @40985 has 107 MA's), (22, 41003), (24, 41018), (34, 41147), (37, 41162), (51, 41246), (52, 41249), (54, 41303),

Gene: HedwigODU\_40 Start: 32121, Stop: 31819, Start Num: 20

Candidate Starts for HedwigODU\_40:

(Start: 20 @32121 has 107 MA's), (35, 31962), (43, 31911), (46, 31905), (47, 31899), (49, 31890),

Gene: Homura\_40 Start: 32237, Stop: 31935, Start Num: 20

Candidate Starts for Homura\_40:

(Start: 20 @32237 has 107 MA's), (35, 32078), (43, 32027), (46, 32021), (47, 32015), (49, 32006),

Gene: Hope\_60 Start: 40437, Stop: 40760, Start Num: 20

Candidate Starts for Hope\_60:

(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: Hotshotbaby7\_60 Start: 40439, Stop: 40762, Start Num: 20

Candidate Starts for Hotshotbaby7\_60:

(Start: 19 @40427 has 43 MA's), (Start: 20 @40439 has 107 MA's), (22, 40457), (24, 40472), (34, 40601), (37, 40616), (51, 40700), (52, 40703), (54, 40757),

Gene: Hurricane\_42 Start: 32320, Stop: 31916, Start Num: 15

Candidate Starts for Hurricane\_42:

(Start: 15 @32320 has 1 MA's), (Start: 20 @32218 has 107 MA's), (39, 32029),

Gene: Hyperbowlee\_40 Start: 32434, Stop: 32132, Start Num: 20

Candidate Starts for Hyperbowlee\_40:

(Start: 20 @32434 has 107 MA's), (35, 32275), (41, 32239), (43, 32224), (49, 32203),

Gene: Illumine\_43 Start: 32905, Stop: 32603, Start Num: 20

Candidate Starts for Illumine\_43:

(Start: 20 @32905 has 107 MA's), (Start: 23 @32881 has 4 MA's), (31, 32782), (43, 32695), (47, 32683),

Gene: Inky\_40 Start: 32237, Stop: 31935, Start Num: 20

Candidate Starts for Inky\_40:

(Start: 20 @32237 has 107 MA's), (35, 32078), (43, 32027), (46, 32021), (47, 32015), (49, 32006),

Gene: JAWS\_40 Start: 32111, Stop: 31806, Start Num: 20

Candidate Starts for JAWS\_40:

(Start: 20 @32111 has 107 MA's), (Start: 23 @32087 has 4 MA's), (31, 31985), (47, 31886), (49, 31877),

Gene: Jane\_61 Start: 40437, Stop: 40760, Start Num: 20

Candidate Starts for Jane\_61:

(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: Jarvi\_40 Start: 32237, Stop: 31935, Start Num: 20

Candidate Starts for Jarvi\_40:

(Start: 20 @32237 has 107 MA's), (35, 32078), (43, 32027), (46, 32021), (47, 32015), (49, 32006),

Gene: Jayhawk\_41 Start: 32119, Stop: 31817, Start Num: 20

Candidate Starts for Jayhawk\_41:

(Start: 20 @32119 has 107 MA's), (35, 31960), (43, 31909), (46, 31903), (47, 31897), (49, 31888),

Gene: Jeckyll\_40 Start: 32237, Stop: 31935, Start Num: 20

Candidate Starts for Jeckyll\_40:

(Start: 20 @32237 has 107 MA's), (35, 32078), (43, 32027), (46, 32021), (47, 32015), (49, 32006),

Gene: Jeilious\_60 Start: 40436, Stop: 40759, Start Num: 20

Candidate Starts for Jeilious\_60:

(Start: 19 @40424 has 43 MA's), (Start: 20 @40436 has 107 MA's), (22, 40454), (24, 40469), (34, 40598), (37, 40613), (51, 40697), (52, 40700), (54, 40754),

Gene: Jolene\_60 Start: 40829, Stop: 41164, Start Num: 19

Candidate Starts for Jolene\_60:

(Start: 19 @40829 has 43 MA's), (Start: 20 @40841 has 107 MA's), (22, 40859), (24, 40874), (34, 41003), (37, 41018), (51, 41102), (52, 41105), (54, 41159),

Gene: Jonghyun\_58 Start: 40428, Stop: 40763, Start Num: 19

Candidate Starts for Jonghyun\_58:

(Start: 19 @40428 has 43 MA's), (Start: 20 @40440 has 107 MA's), (22, 40458), (24, 40473), (34, 40602), (37, 40617), (51, 40701), (52, 40704), (54, 40758),

Gene: JorRay\_61 Start: 40425, Stop: 40760, Start Num: 19  
Candidate Starts for JorRay\_61:  
(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: Joy99\_40 Start: 32166, Stop: 31864, Start Num: 20  
Candidate Starts for Joy99\_40:  
(Start: 20 @32166 has 107 MA's), (35, 32007), (43, 31956), (46, 31950), (47, 31944), (49, 31935),

Gene: Kareem\_61 Start: 40425, Stop: 40760, Start Num: 19  
Candidate Starts for Kareem\_61:  
(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: Kasen3\_61 Start: 40426, Stop: 40749, Start Num: 20  
Candidate Starts for Kasen3\_61:  
(Start: 19 @40414 has 43 MA's), (Start: 20 @40426 has 107 MA's), (22, 40444), (24, 40459), (34, 40588), (37, 40603), (51, 40687), (52, 40690), (54, 40744),

Gene: Keshu\_43 Start: 32282, Stop: 31980, Start Num: 20  
Candidate Starts for Keshu\_43:  
(Start: 20 @32282 has 107 MA's), (28, 32186), (35, 32123), (37, 32111), (53, 32021),

Gene: LastHope\_41 Start: 31193, Stop: 30891, Start Num: 20  
Candidate Starts for LastHope\_41:  
(14, 31301), (Start: 20 @31193 has 107 MA's),

Gene: LaterM\_41 Start: 33018, Stop: 32716, Start Num: 20  
Candidate Starts for LaterM\_41:  
(Start: 20 @33018 has 107 MA's), (Start: 23 @32994 has 4 MA's), (35, 32859), (41, 32823), (49, 32787),

Gene: Lea83\_42 Start: 32247, Stop: 31945, Start Num: 20  
Candidate Starts for Lea83\_42:  
(Start: 20 @32247 has 107 MA's), (39, 32058),

Gene: Liefie\_57 Start: 40076, Stop: 40399, Start Num: 20  
Candidate Starts for Liefie\_57:  
(Start: 19 @40064 has 43 MA's), (Start: 20 @40076 has 107 MA's), (22, 40094), (24, 40109), (34, 40238), (37, 40253), (51, 40337), (52, 40340), (54, 40394),

Gene: LindNT\_40 Start: 32283, Stop: 32005, Start Num: 23  
Candidate Starts for LindNT\_40:  
(Start: 20 @32307 has 107 MA's), (Start: 23 @32283 has 4 MA's), (31, 32184), (43, 32097), (47, 32085),

Gene: Llorens\_40 Start: 32237, Stop: 31935, Start Num: 20  
Candidate Starts for Llorens\_40:  
(Start: 20 @32237 has 107 MA's), (35, 32078), (43, 32027), (46, 32021), (47, 32015), (49, 32006),

Gene: LouisV14\_62 Start: 42669, Stop: 43004, Start Num: 19  
Candidate Starts for LouisV14\_62:

(Start: 19 @42669 has 43 MA's), (Start: 20 @42681 has 107 MA's), (22, 42699), (24, 42714), (34, 42843), (37, 42858), (51, 42942), (52, 42945), (54, 42999),

Gene: Lunahalos\_40 Start: 32237, Stop: 31935, Start Num: 20

Candidate Starts for Lunahalos\_40:

(Start: 20 @32237 has 107 MA's), (35, 32078), (43, 32027), (46, 32021), (47, 32015), (49, 32006),

Gene: MZKinsey\_58 Start: 40437, Stop: 40760, Start Num: 20

Candidate Starts for MZKinsey\_58:

(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: MacnCheese\_43 Start: 33155, Stop: 32856, Start Num: 20

Candidate Starts for MacnCheese\_43:

(Start: 20 @33155 has 107 MA's), (35, 32999), (36, 32993), (37, 32987), (47, 32936), (49, 32927),

Gene: Maliketh\_58 Start: 40437, Stop: 40760, Start Num: 20

Candidate Starts for Maliketh\_58:

(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: Marmie\_60 Start: 40426, Stop: 40761, Start Num: 19

Candidate Starts for Marmie\_60:

(Start: 19 @40426 has 43 MA's), (Start: 20 @40438 has 107 MA's), (22, 40456), (24, 40471), (34, 40600), (37, 40615), (51, 40699), (52, 40702), (54, 40756),

Gene: McMater\_42 Start: 32677, Stop: 32372, Start Num: 20

Candidate Starts for McMater\_42:

(12, 32809), (16, 32770), (18, 32716), (Start: 20 @32677 has 107 MA's), (30, 32554), (33, 32533), (47, 32452),

Gene: MeaningOfLife\_41 Start: 33052, Stop: 32747, Start Num: 20

Candidate Starts for MeaningOfLife\_41:

(13, 33166), (Start: 20 @33052 has 107 MA's), (Start: 23 @33028 has 4 MA's), (31, 32926), (47, 32827), (49, 32818),

Gene: Megsy\_41 Start: 32366, Stop: 32064, Start Num: 20

Candidate Starts for Megsy\_41:

(Start: 20 @32366 has 107 MA's), (Start: 23 @32342 has 4 MA's), (35, 32207), (41, 32171), (49, 32135),

Gene: Mowgli\_60 Start: 40426, Stop: 40761, Start Num: 19

Candidate Starts for Mowgli\_60:

(Start: 19 @40426 has 43 MA's), (Start: 20 @40438 has 107 MA's), (22, 40456), (24, 40471), (34, 40600), (37, 40615), (51, 40699), (52, 40702), (54, 40756),

Gene: Murucutumbu\_41 Start: 33111, Stop: 32809, Start Num: 20

Candidate Starts for Murucutumbu\_41:

(Start: 20 @33111 has 107 MA's), (Start: 23 @33087 has 4 MA's), (31, 32988), (43, 32901), (47, 32889),

Gene: Mynx\_41 Start: 32441, Stop: 32136, Start Num: 20

Candidate Starts for Mynx\_41:

(Start: 20 @32441 has 107 MA's), (31, 32315), (47, 32216), (49, 32207),

Gene: Neoh\_58 Start: 40430, Stop: 40753, Start Num: 20

Candidate Starts for Neoh\_58:

(Start: 19 @40418 has 43 MA's), (Start: 20 @40430 has 107 MA's), (22, 40448), (24, 40463), (34, 40592), (37, 40607), (51, 40691), (52, 40694), (54, 40748),

Gene: Niklas\_42 Start: 32703, Stop: 32389, Start Num: 20

Candidate Starts for Niklas\_42:

(1, 33018), (2, 33006), (12, 32835), (16, 32796), (18, 32742), (Start: 20 @32703 has 107 MA's), (35, 32535), (37, 32523), (38, 32511), (41, 32499), (46, 32478), (50, 32454), (51, 32436),

Gene: OctaviousRex\_59 Start: 40404, Stop: 40739, Start Num: 19

Candidate Starts for OctaviousRex\_59:

(Start: 19 @40404 has 43 MA's), (Start: 20 @40416 has 107 MA's), (22, 40434), (24, 40449), (34, 40578), (37, 40593), (51, 40677), (52, 40680), (54, 40734),

Gene: Olga\_61 Start: 40438, Stop: 40761, Start Num: 20

Candidate Starts for Olga\_61:

(4, 40180), (Start: 19 @40426 has 43 MA's), (Start: 20 @40438 has 107 MA's), (22, 40456), (24, 40471), (34, 40600), (37, 40615), (51, 40699), (52, 40702), (54, 40756),

Gene: Padfoot\_40 Start: 32434, Stop: 32132, Start Num: 20

Candidate Starts for Padfoot\_40:

(Start: 20 @32434 has 107 MA's), (35, 32275), (41, 32239), (43, 32224), (49, 32203),

Gene: Padpat\_41 Start: 32112, Stop: 31810, Start Num: 20

Candidate Starts for Padpat\_41:

(Start: 20 @32112 has 107 MA's), (35, 31953), (43, 31902), (46, 31896), (47, 31890), (49, 31881),

Gene: Paito\_61 Start: 40051, Stop: 40386, Start Num: 19

Candidate Starts for Paito\_61:

(Start: 19 @40051 has 43 MA's), (22, 40081), (24, 40096), (37, 40240), (51, 40324), (52, 40327), (54, 40381),

Gene: Peanam\_42 Start: 32677, Stop: 32372, Start Num: 20

Candidate Starts for Peanam\_42:

(1, 32992), (2, 32980), (8, 32908), (12, 32809), (16, 32770), (18, 32716), (Start: 20 @32677 has 107 MA's), (30, 32554), (33, 32533), (47, 32452),

Gene: Peeb\_59 Start: 40403, Stop: 40735, Start Num: 19

Candidate Starts for Peeb\_59:

(Start: 19 @40403 has 43 MA's), (37, 40589), (51, 40673), (54, 40730),

Gene: Peel\_40 Start: 32239, Stop: 31937, Start Num: 20

Candidate Starts for Peel\_40:

(Start: 20 @32239 has 107 MA's), (35, 32080), (43, 32029), (46, 32023), (47, 32017), (49, 32008),

Gene: Periodt\_60 Start: 40818, Stop: 41153, Start Num: 19

Candidate Starts for Periodt\_60:

(Start: 19 @40818 has 43 MA's), (Start: 20 @40830 has 107 MA's), (22, 40848), (24, 40863), (34, 40992), (37, 41007), (51, 41091), (52, 41094), (54, 41148),

Gene: Phish\_59 Start: 40425, Stop: 40760, Start Num: 19  
Candidate Starts for Phish\_59:  
(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: Phloodle\_58 Start: 40453, Stop: 40776, Start Num: 20  
Candidate Starts for Phloodle\_58:  
(Start: 19 @40441 has 43 MA's), (Start: 20 @40453 has 107 MA's), (22, 40471), (24, 40486), (34, 40615), (37, 40630), (51, 40714), (52, 40717), (54, 40771),

Gene: Phreak\_60 Start: 40437, Stop: 40760, Start Num: 20  
Candidate Starts for Phreak\_60:  
(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: Piatt\_40 Start: 32434, Stop: 32132, Start Num: 20  
Candidate Starts for Piatt\_40:  
(Start: 20 @32434 has 107 MA's), (35, 32275), (41, 32239), (43, 32224), (49, 32203),

Gene: PinkYoshi\_60 Start: 40417, Stop: 40752, Start Num: 19  
Candidate Starts for PinkYoshi\_60:  
(4, 40171), (Start: 19 @40417 has 43 MA's), (Start: 20 @40429 has 107 MA's), (22, 40447), (24, 40462), (34, 40591), (37, 40606), (51, 40690), (52, 40693), (54, 40747),

Gene: Pisa1\_40 Start: 33411, Stop: 33109, Start Num: 20  
Candidate Starts for Pisa1\_40:  
(13, 33525), (Start: 20 @33411 has 107 MA's), (Start: 23 @33387 has 4 MA's), (35, 33252), (43, 33201), (46, 33195), (47, 33189), (49, 33180),

Gene: Pixie\_41 Start: 31717, Stop: 31415, Start Num: 20  
Candidate Starts for Pixie\_41:  
(Start: 20 @31717 has 107 MA's), (48, 31495), (53, 31456),

Gene: Plagueis\_60 Start: 40246, Stop: 40581, Start Num: 19  
Candidate Starts for Plagueis\_60:  
(Start: 19 @40246 has 43 MA's), (Start: 20 @40258 has 107 MA's), (22, 40276), (24, 40291), (34, 40420), (37, 40435), (51, 40519), (52, 40522), (54, 40576),

Gene: Pokerus\_39 Start: 32158, Stop: 31853, Start Num: 20  
Candidate Starts for Pokerus\_39:  
(Start: 20 @32158 has 107 MA's), (Start: 23 @32134 has 4 MA's), (31, 32032), (47, 31933), (49, 31924),

Gene: Prithvi\_40 Start: 32307, Stop: 32005, Start Num: 20  
Candidate Starts for Prithvi\_40:  
(Start: 20 @32307 has 107 MA's), (Start: 23 @32283 has 4 MA's), (31, 32184), (43, 32097), (47, 32085),

Gene: QuincyRose\_39 Start: 32423, Stop: 32121, Start Num: 20  
Candidate Starts for QuincyRose\_39:  
(Start: 20 @32423 has 107 MA's), (35, 32264), (41, 32228), (43, 32213), (49, 32192),

Gene: Rabbs\_61 Start: 40507, Stop: 40842, Start Num: 19

Candidate Starts for Rabbs\_61:

(Start: 19 @40507 has 43 MA's), (Start: 20 @40519 has 107 MA's), (22, 40537), (24, 40552), (37, 40696), (51, 40780), (52, 40783), (54, 40837),

Gene: Ramen\_40 Start: 32123, Stop: 31818, Start Num: 20

Candidate Starts for Ramen\_40:

(Start: 20 @32123 has 107 MA's), (Start: 23 @32099 has 4 MA's), (31, 31997), (47, 31898), (49, 31889),

Gene: Rapunzel97\_40 Start: 32119, Stop: 31817, Start Num: 20

Candidate Starts for Rapunzel97\_40:

(Start: 20 @32119 has 107 MA's), (35, 31960), (43, 31909), (46, 31903), (47, 31897), (49, 31888),

Gene: Rattrick\_60 Start: 40830, Stop: 41153, Start Num: 20

Candidate Starts for Rattrick\_60:

(Start: 19 @40818 has 43 MA's), (Start: 20 @40830 has 107 MA's), (22, 40848), (24, 40863), (34, 40992), (37, 41007), (51, 41091), (52, 41094), (54, 41148),

Gene: Remy19\_60 Start: 40425, Stop: 40760, Start Num: 19

Candidate Starts for Remy19\_60:

(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: Renaissance\_59 Start: 40403, Stop: 40738, Start Num: 19

Candidate Starts for Renaissance\_59:

(Start: 19 @40403 has 43 MA's), (Start: 20 @40415 has 107 MA's), (22, 40433), (24, 40448), (34, 40577), (37, 40592), (51, 40676), (52, 40679), (54, 40733),

Gene: Richarlison\_60 Start: 40422, Stop: 40745, Start Num: 20

Candidate Starts for Richarlison\_60:

(3, 40143), (4, 40164), (9, 40218), (Start: 19 @40410 has 43 MA's), (Start: 20 @40422 has 107 MA's), (22, 40440), (24, 40455), (34, 40584), (37, 40599), (51, 40683), (52, 40686), (54, 40740),

Gene: Richo\_42 Start: 32677, Stop: 32372, Start Num: 20

Candidate Starts for Richo\_42:

(12, 32809), (16, 32770), (18, 32716), (Start: 20 @32677 has 107 MA's), (30, 32554), (33, 32533), (47, 32452),

Gene: Rosmarinus\_40 Start: 32225, Stop: 31923, Start Num: 20

Candidate Starts for Rosmarinus\_40:

(Start: 20 @32225 has 107 MA's), (35, 32066), (43, 32015), (46, 32009), (47, 32003), (49, 31994),

Gene: Ruriko\_57 Start: 40439, Stop: 40762, Start Num: 20

Candidate Starts for Ruriko\_57:

(Start: 19 @40427 has 43 MA's), (Start: 20 @40439 has 107 MA's), (22, 40457), (24, 40472), (34, 40601), (37, 40616), (51, 40700), (52, 40703), (54, 40757),

Gene: SamuelLPlaqson\_41 Start: 33019, Stop: 32717, Start Num: 20

Candidate Starts for SamuelLPlaqson\_41:

(6, 33271), (13, 33133), (Start: 20 @33019 has 107 MA's), (Start: 23 @32995 has 4 MA's), (31, 32896), (43, 32809), (47, 32797),

Gene: Schiebel\_58 Start: 39977, Stop: 40300, Start Num: 20

Candidate Starts for Schiebel\_58:

(Start: 19 @39965 has 43 MA's), (Start: 20 @39977 has 107 MA's), (22, 39995), (24, 40010), (34, 40139), (37, 40154), (51, 40238), (52, 40241), (54, 40295),

Gene: ShaboiShabazz\_59 Start: 40425, Stop: 40760, Start Num: 19

Candidate Starts for ShaboiShabazz\_59:

(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: ShedlockHolmes\_42 Start: 32251, Stop: 31949, Start Num: 20

Candidate Starts for ShedlockHolmes\_42:

(Start: 20 @32251 has 107 MA's), (39, 32062),

Gene: ShiaSurprise\_41 Start: 32434, Stop: 32132, Start Num: 20

Candidate Starts for ShiaSurprise\_41:

(Start: 20 @32434 has 107 MA's), (35, 32275), (41, 32239), (43, 32224), (49, 32203),

Gene: Sizemore\_61 Start: 40414, Stop: 40749, Start Num: 19

Candidate Starts for Sizemore\_61:

(Start: 19 @40414 has 43 MA's), (Start: 20 @40426 has 107 MA's), (22, 40444), (24, 40459), (34, 40588), (37, 40603), (51, 40687), (52, 40690), (54, 40744),

Gene: Slimphazie\_40 Start: 32119, Stop: 31817, Start Num: 20

Candidate Starts for Slimphazie\_40:

(Start: 20 @32119 has 107 MA's), (35, 31960), (43, 31909), (46, 31903), (47, 31897), (49, 31888),

Gene: Sneeze\_60 Start: 40506, Stop: 40841, Start Num: 19

Candidate Starts for Sneeze\_60:

(Start: 19 @40506 has 43 MA's), (Start: 20 @40518 has 107 MA's), (22, 40536), (24, 40551), (37, 40695), (51, 40779), (52, 40782), (54, 40836),

Gene: Spock\_40 Start: 32237, Stop: 31935, Start Num: 20

Candidate Starts for Spock\_40:

(Start: 20 @32237 has 107 MA's), (35, 32078), (43, 32027), (46, 32021), (47, 32015), (49, 32006),

Gene: Sulley\_40 Start: 32367, Stop: 32065, Start Num: 20

Candidate Starts for Sulley\_40:

(Start: 20 @32367 has 107 MA's), (35, 32208), (41, 32172), (43, 32157), (49, 32136),

Gene: Sweets\_60 Start: 40432, Stop: 40755, Start Num: 20

Candidate Starts for Sweets\_60:

(Start: 19 @40420 has 43 MA's), (Start: 20 @40432 has 107 MA's), (22, 40450), (24, 40465), (34, 40594), (37, 40609), (51, 40693), (52, 40696), (54, 40750),

Gene: TBond007\_41 Start: 31716, Stop: 31414, Start Num: 20

Candidate Starts for TBond007\_41:

(Start: 20 @31716 has 107 MA's), (48, 31494), (53, 31455),

Gene: TClif\_44 Start: 33159, Stop: 32848, Start Num: 20

Candidate Starts for TClif\_44:

(Start: 20 @33159 has 107 MA's), (32, 33027), (35, 32994), (37, 32982), (41, 32958), (46, 32937),

Gene: Tachez\_40 Start: 32081, Stop: 31779, Start Num: 20

Candidate Starts for Tachez\_40:

(Start: 20 @32081 has 107 MA's), (35, 31922), (43, 31871), (46, 31865), (47, 31859), (49, 31850),

Gene: Taheera\_56 Start: 39404, Stop: 39739, Start Num: 19

Candidate Starts for Taheera\_56:

(Start: 19 @39404 has 43 MA's), (Start: 20 @39416 has 107 MA's), (22, 39434), (24, 39449), (37, 39593), (51, 39677), (52, 39680), (54, 39734),

Gene: TaiwanKao\_42 Start: 32363, Stop: 32061, Start Num: 20

Candidate Starts for TaiwanKao\_42:

(Start: 20 @32363 has 107 MA's), (Start: 23 @32339 has 4 MA's), (35, 32204), (41, 32168), (49, 32132),

Gene: Terror\_56 Start: 39404, Stop: 39739, Start Num: 19

Candidate Starts for Terror\_56:

(Start: 19 @39404 has 43 MA's), (Start: 20 @39416 has 107 MA's), (22, 39434), (24, 39449), (37, 39593), (51, 39677), (52, 39680), (54, 39734),

Gene: TinaBug\_61 Start: 40973, Stop: 41308, Start Num: 19

Candidate Starts for TinaBug\_61:

(Start: 19 @40973 has 43 MA's), (Start: 20 @40985 has 107 MA's), (22, 41003), (24, 41018), (34, 41147), (37, 41162), (51, 41246), (52, 41249), (54, 41303),

Gene: TingHuaYa\_40 Start: 30975, Stop: 30673, Start Num: 20

Candidate Starts for TingHuaYa\_40:

(14, 31083), (Start: 20 @30975 has 107 MA's), (43, 30765), (47, 30753),

Gene: TiniBug\_41 Start: 33015, Stop: 32713, Start Num: 20

Candidate Starts for TiniBug\_41:

(6, 33267), (13, 33129), (Start: 20 @33015 has 107 MA's), (Start: 23 @32991 has 4 MA's), (31, 32892), (43, 32805), (47, 32793),

Gene: Tiri\_41 Start: 32417, Stop: 32112, Start Num: 20

Candidate Starts for Tiri\_41:

(Start: 20 @32417 has 107 MA's), (Start: 23 @32393 has 4 MA's), (31, 32291), (47, 32192), (49, 32183),

Gene: TomBrady\_60 Start: 40426, Stop: 40761, Start Num: 19

Candidate Starts for TomBrady\_60:

(Start: 19 @40426 has 43 MA's), (Start: 20 @40438 has 107 MA's), (22, 40456), (24, 40471), (34, 40600), (37, 40615), (51, 40699), (52, 40702), (54, 40756),

Gene: Topper\_40 Start: 32237, Stop: 31935, Start Num: 20

Candidate Starts for Topper\_40:

(Start: 20 @32237 has 107 MA's), (35, 32078), (43, 32027), (46, 32021), (47, 32015), (49, 32006),

Gene: TreyKay\_40 Start: 32307, Stop: 32005, Start Num: 20

Candidate Starts for TreyKay\_40:

(Start: 20 @32307 has 107 MA's), (Start: 23 @32283 has 4 MA's), (31, 32184), (43, 32097), (47, 32085),

Gene: TruffulaTree\_40 Start: 32115, Stop: 31813, Start Num: 20

Candidate Starts for TruffulaTree\_40:

(Start: 20 @32115 has 107 MA's), (35, 31956), (43, 31905), (46, 31899), (47, 31893), (49, 31884),

Gene: Twitch\_40 Start: 32239, Stop: 31937, Start Num: 20

Candidate Starts for Twitch\_40:

(Start: 20 @32239 has 107 MA's), (35, 32080), (43, 32029), (46, 32023), (47, 32017), (49, 32008),

Gene: Urkel\_41 Start: 33019, Stop: 32717, Start Num: 20

Candidate Starts for Urkel\_41:

(6, 33271), (13, 33133), (Start: 20 @33019 has 107 MA's), (Start: 23 @32995 has 4 MA's), (31, 32896), (43, 32809), (47, 32797),

Gene: Veliki\_40 Start: 32155, Stop: 31853, Start Num: 20

Candidate Starts for Veliki\_40:

(Start: 20 @32155 has 107 MA's), (35, 31996), (43, 31945), (46, 31939), (47, 31933), (49, 31924),

Gene: Wendigo\_58 Start: 40416, Stop: 40739, Start Num: 20

Candidate Starts for Wendigo\_58:

(Start: 19 @40404 has 43 MA's), (Start: 20 @40416 has 107 MA's), (22, 40434), (24, 40449), (34, 40578), (37, 40593), (51, 40677), (52, 40680), (54, 40734),

Gene: YoureAdopted\_39 Start: 32324, Stop: 32019, Start Num: 20

Candidate Starts for YoureAdopted\_39:

(Start: 20 @32324 has 107 MA's), (35, 32162), (41, 32126), (43, 32111), (49, 32090),

Gene: Yunkel11\_43 Start: 32165, Stop: 31863, Start Num: 20

Candidate Starts for Yunkel11\_43:

(6, 32420), (7, 32399), (11, 32321), (13, 32282), (Start: 20 @32165 has 107 MA's), (Start: 21 @32156 has 2 MA's), (27, 32078), (30, 32045), (43, 31955), (47, 31943),

Gene: Zavala\_41 Start: 32401, Stop: 32096, Start Num: 20

Candidate Starts for Zavala\_41:

(Start: 20 @32401 has 107 MA's), (31, 32275), (47, 32176), (49, 32167),

Gene: ZoMa\_59 Start: 40425, Stop: 40760, Start Num: 19

Candidate Starts for ZoMa\_59:

(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),

Gene: Zombie\_60 Start: 40425, Stop: 40760, Start Num: 19

Candidate Starts for Zombie\_60:

(Start: 19 @40425 has 43 MA's), (Start: 20 @40437 has 107 MA's), (22, 40455), (24, 40470), (34, 40599), (37, 40614), (51, 40698), (52, 40701), (54, 40755),