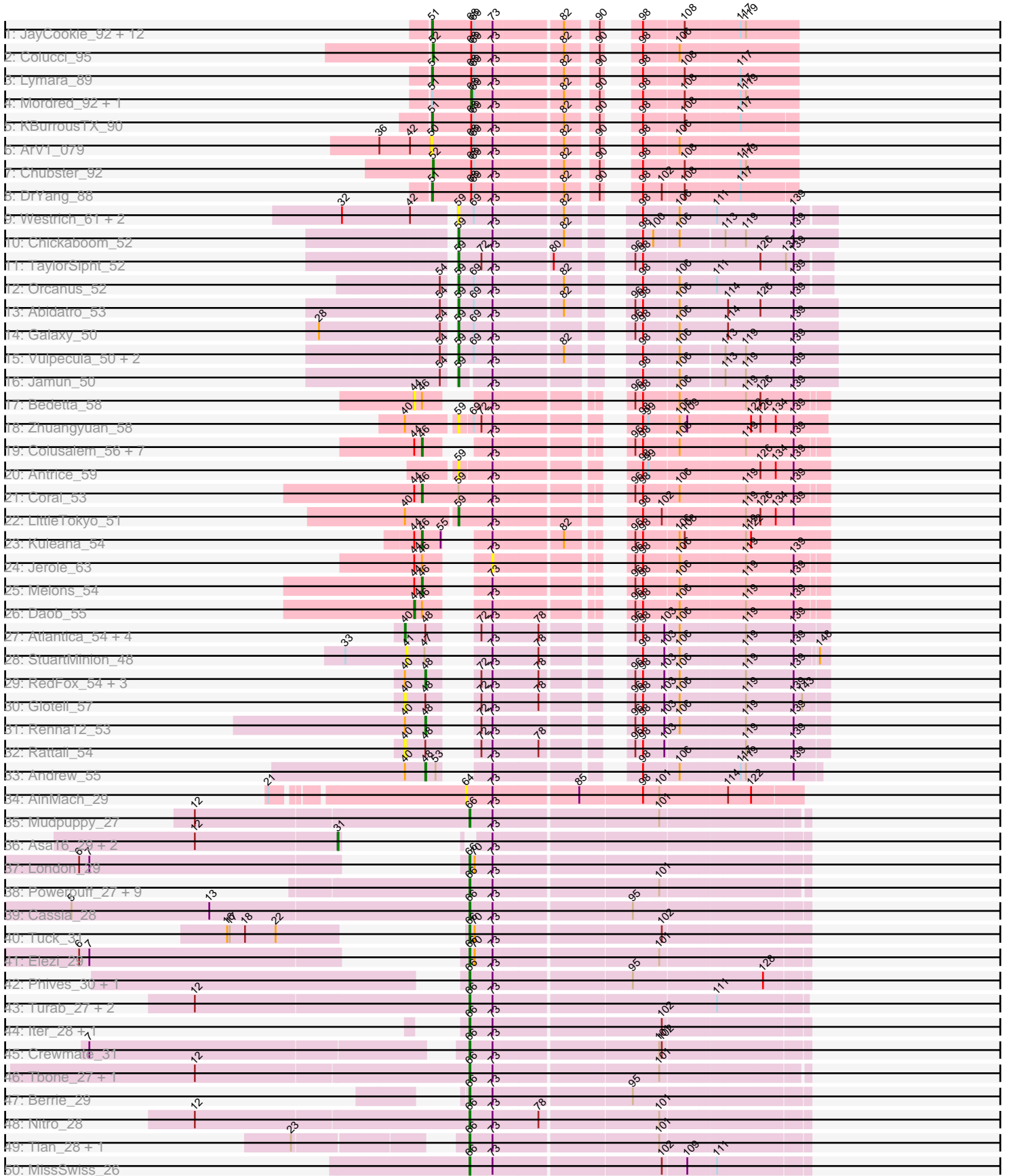
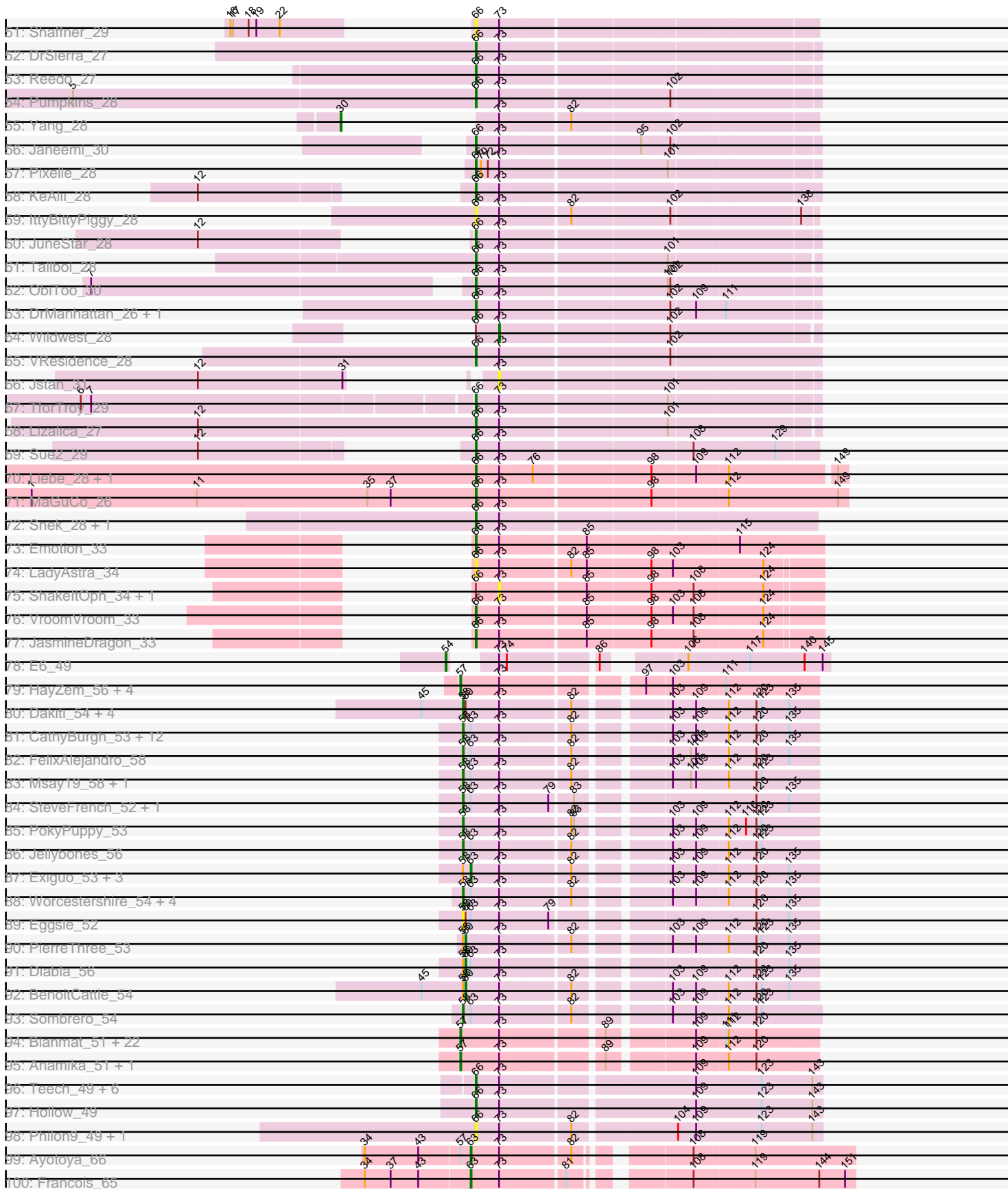


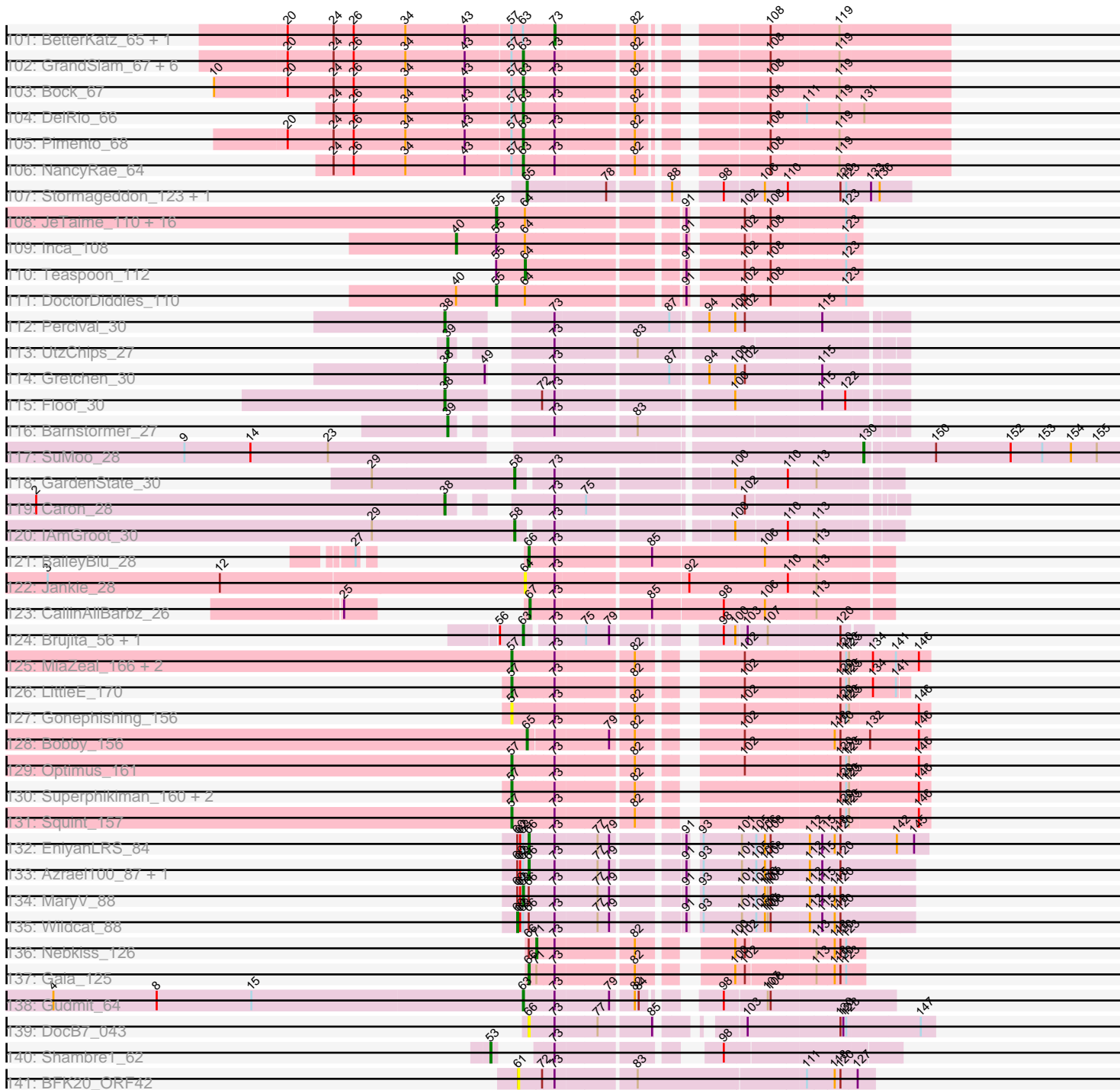
Pham 197768



Pham 197768



Pham 197768



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 197768 Report

This analysis was run 01/18/25 on database version 583.

Pham number 197768 has 282 members, 49 are drafts.

Phages represented in each track:

- Track 1 : JayCookie\_92, Chipper1996\_930, Conboy\_90, PrincessTrina\_93, Chocolat\_92, Scavito\_93, JaNo\_91, RosiePosie\_92, HumptyDumpty\_92, Linus\_92, Tophat\_93, Kabreeze\_92, EdgarPoe\_91
- Track 2 : Colucci\_95
- Track 3 : Lymara\_89
- Track 4 : Mordred\_92, MoyaNatalis\_91
- Track 5 : KBurrousTX\_90
- Track 6 : ArV1\_079
- Track 7 : Chubster\_92
- Track 8 : DrYang\_88
- Track 9 : Westrich\_61, Gravel\_62, Pelletreau\_62
- Track 10 : Chickaboom\_52
- Track 11 : TaylorSipht\_52
- Track 12 : Orcanus\_52
- Track 13 : Abidatro\_53
- Track 14 : Galaxy\_50
- Track 15 : Vulpecula\_50, Ruchi\_50, Basilisk\_51
- Track 16 : Jamun\_50
- Track 17 : Bedetta\_58
- Track 18 : Zhuangyuan\_58
- Track 19 : Colusalem\_56, Kepler\_54, HannahPhantana\_54, Amelia\_53, Bible12\_57, Cote\_55, Polka\_53, Lunar\_54
- Track 20 : Antrice\_59
- Track 21 : Coral\_53
- Track 22 : LittleTokyo\_51
- Track 23 : Kuleana\_54
- Track 24 : Jerole\_63
- Track 25 : Melons\_54
- Track 26 : Daob\_55
- Track 27 : Atlantica\_54, AmiCi24\_53, Camara\_54, HamCheese\_53, KHumphrey\_54
- Track 28 : StuartMinion\_48
- Track 29 : RedFox\_54, Leona\_53, Juno112\_53, PhluffyCoco\_54
- Track 30 : Glotell\_57
- Track 31 : Renna12\_53
- Track 32 : Rattail\_54
- Track 33 : Andrew\_55
- Track 34 : AinMach\_29

- Track 35 : Mudpuppy\_27
- Track 36 : Asa16\_29, Niobe\_29, Eraser\_29
- Track 37 : London\_29
- Track 38 : Powerpuff\_27, Cyan\_27, Tutumahutu\_27, AGrandiflora\_28, JohnDoe\_27, Kaylissa\_27, YesChef\_27, Joemato\_27, Lego\_27, Simpson\_29
- Track 39 : Cassia\_28
- Track 40 : Tuck\_31
- Track 41 : Elezi\_29
- Track 42 : Phives\_30, Community\_29
- Track 43 : Turab\_27, Adumb2043\_27, AEgle\_27
- Track 44 : lter\_28, Ascela\_28
- Track 45 : Crewmate\_31
- Track 46 : Tbone\_27, Warda\_27
- Track 47 : Berrie\_29
- Track 48 : Nitro\_28
- Track 49 : Tian\_28, Amyev\_28
- Track 50 : MissSwiss\_26
- Track 51 : Shaffner\_29
- Track 52 : DrSierra\_27
- Track 53 : Reedo\_27
- Track 54 : Pumpkins\_28
- Track 55 : Yang\_28
- Track 56 : Janeemi\_30
- Track 57 : Pixelle\_28
- Track 58 : KeAlii\_28
- Track 59 : IttyBittyPiggy\_28
- Track 60 : JuneStar\_28
- Track 61 : Tallboi\_28
- Track 62 : ObiToo\_30
- Track 63 : DrManhattan\_26, Adolin\_26
- Track 64 : Wildwest\_28
- Track 65 : VResidence\_28
- Track 66 : Jstan\_31
- Track 67 : TforTroy\_29
- Track 68 : Lizalica\_27
- Track 69 : Sue2\_29
- Track 70 : Liebe\_28, Maureen\_28
- Track 71 : MaGuCo\_26
- Track 72 : Snek\_28, Tweety19\_28
- Track 73 : Emotion\_33
- Track 74 : LadyAstra\_34
- Track 75 : ShakeltOph\_34, MiniMommy\_34
- Track 76 : VroomVroom\_33
- Track 77 : JasmineDragon\_33
- Track 78 : E6\_49
- Track 79 : HayZem\_56, GTE7\_45, Austin\_56, GMA7\_46, Amore2\_57
- Track 80 : Dakiti\_54, Chelms\_53, Crete\_55, BigShaq\_53, Linetti\_54
- Track 81 : CathyBurgh\_53, John316\_57, Butterball\_57, CinnamonToast\_60, Monty\_53, Hotorobo\_54, Barbochs\_54, Boneham\_58, Sam12\_53, Lizzo\_54, RemRem\_55, Breezic\_54, Beaver\_57
- Track 82 : FelixAlejandro\_58
- Track 83 : Msay19\_58, Poland\_58
- Track 84 : SteveFrench\_52, RoyalG\_53

- Track 85 : PokyPuppy\_53
- Track 86 : Jellybones\_56
- Track 87 : Exiguo\_53, Flakey\_53, Gorko\_53, Ekhein\_54
- Track 88 : Worcestershire\_54, BirksAndSocks\_59, Adgers\_56, Squibbles\_53, GourdThymes\_54
- Track 89 : Eggsie\_52
- Track 90 : PierreThree\_53
- Track 91 : Diabla\_56
- Track 92 : BenoitCattle\_54
- Track 93 : Sombrero\_54
- Track 94 : Bianmat\_51, Kaseim\_51, Jormungandr\_51, GalacticEye\_51, Luker\_52, Charianelly\_51, Nimi13\_51, Shelley\_51, MrWormie\_51, Harambe\_51, Newt\_52, Lahirium\_51, Neeovie\_51, Lidong\_51, Damp\_51, Teal\_51, Berries\_51, Hello\_51, Guillaume\_51, Sticker17\_51, Jams\_51, Woes\_51, Minos\_52
- Track 95 : Anamika\_51, Hail2Pitt\_50
- Track 96 : Teech\_49, Benczkowski14\_48, Teatealatte\_49, Katyusha\_48, Niagara\_48, Tredge\_49, Kvothe\_48
- Track 97 : Hollow\_49
- Track 98 : Philon9\_49, Vitaenoi\_49
- Track 99 : Ayotoya\_66
- Track 100 : Francois\_65
- Track 101 : BetterKatz\_65, Brylie\_65
- Track 102 : GrandSlam\_67, Hamood\_67, Mulch\_65, Chop\_67, Nadeem\_65, Parada\_65, WheatThin\_64
- Track 103 : Bock\_67
- Track 104 : DelRio\_66
- Track 105 : Pimento\_68
- Track 106 : NancyRae\_64
- Track 107 : Stormageddon\_123, RedWattleHog\_124
- Track 108 : JeTaime\_110, Kimchi\_116, Wiggin\_114, TBrady12\_115, Nimrod\_112, Goku\_111, 244\_113, BaboJay\_111, Stank\_114, Icee\_113, Filch\_114, Holt\_117, BigBubba\_113, Goldilocks\_115, Xandras\_111, Marshmallow\_110, Porky\_110
- Track 109 : Inca\_108
- Track 110 : Teaspoon\_112
- Track 111 : DoctorDiddles\_110
- Track 112 : Percival\_30
- Track 113 : UtzChips\_27
- Track 114 : Gretchen\_30
- Track 115 : Floof\_30
- Track 116 : Barnstormer\_27
- Track 117 : SuMoo\_28
- Track 118 : GardenState\_30
- Track 119 : Caron\_28
- Track 120 : IAmGroot\_30
- Track 121 : BaileyBlu\_28
- Track 122 : Jankie\_28
- Track 123 : CallinAllBarbz\_26
- Track 124 : Brujita\_56, Island3\_56
- Track 125 : MiaZeal\_166, Lucky2013\_159, Porcelain\_163
- Track 126 : LittleE\_170
- Track 127 : Gonephishing\_156
- Track 128 : Bobby\_156
- Track 129 : Optimus\_161

- Track 130 : Superphikiman\_160, Courthouse\_159, Ariel\_162
- Track 131 : Squint\_157
- Track 132 : EniyanLRS\_84
- Track 133 : Azrael100\_87, Cosmo\_88
- Track 134 : MaryV\_88
- Track 135 : Wildcat\_88
- Track 136 : Nebkiss\_126
- Track 137 : Gaia\_125
- Track 138 : Gudmit\_64
- Track 139 : DocB7\_043
- Track 140 : Shambre1\_62
- Track 141 : BFK20\_ORF42

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

The start number called the most often in the published annotations is 66, it was called in 59 of the 233 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AEgle\_27, AGrandiflora\_28, Adolin\_26, Adumb2043\_27, Amyev\_28, Ascela\_28, Azrael100\_87, BaileyBlu\_28, Benczkowski14\_48, Berrie\_29, Cassia\_28, Community\_29, Cosmo\_88, Crewmate\_31, Cyan\_27, DocB7\_043, DrManhattan\_26, DrSierra\_27, Elezi\_29, Emotion\_33, EniyanLRS\_84, Gaia\_125, Hollow\_49, Iter\_28, IttyBittyPiggy\_28, Janeemi\_30, JasmineDragon\_33, Joemato\_27, JohnDoe\_27, JuneStar\_28, Katyusha\_48, Kaylissa\_27, KeAlii\_28, Kvothe\_48, LadyAstra\_34, Lego\_27, Liebe\_28, Lizalica\_27, London\_29, MaGuCo\_26, Maureen\_28, MissSwiss\_26, Mudpuppy\_27, Niagara\_48, Nitro\_28, ObiToo\_30, Philon9\_49, Phives\_30, Pixelle\_28, Powerpuff\_27, Pumpkins\_28, Reedo\_27, Shaffner\_29, Simpson\_29, Snek\_28, Sue2\_29, Tallboi\_28, Tbone\_27, Teatealatte\_49, Teech\_49, TforTroy\_29, Tian\_28, Tredge\_49, Tuck\_31, Turab\_27, Tutumahutu\_27, Tweety19\_28, VResidence\_28, Vitaenoi\_49, VroomVroom\_33, Warda\_27, YesChef\_27,

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

- MaryV\_88, MiniMommy\_34, Nebkiss\_126, ShakeltOph\_34, Wildcat\_88, Wildwest\_28,

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

- 244\_113, Abidatro\_53, Adgers\_56, AinMach\_29, Amelia\_53, AmiCi24\_53, Amore2\_57, Anamika\_51, Andrew\_55, Antrice\_59, ArV1\_079, Ariel\_162, Asa16\_29, Atlantica\_54, Austin\_56, Ayotoya\_66, BFK20\_ORF42, BaboJay\_111, Barbochs\_54, Barnstormer\_27, Basilisk\_51, Beaver\_57, Bedetta\_58, BenoitCattle\_54, Berries\_51, BetterKatz\_65, Bianmat\_51, Bibble12\_57, BigBubba\_113, BigShaq\_53, BirksAndSocks\_59, Bobby\_156, Bock\_67, Boneham\_58, Breezic\_54, Brujita\_56, Brylie\_65, Butterball\_57, CallinAllBarbz\_26, Camara\_54, Caron\_28, CathyBurgh\_53, Charianelly\_51, Chelms\_53, Chickaboom\_52, Chipper1996\_930, Chocolat\_92, Chop\_67, Chubster\_92, CinnamonToast\_60, Colucci\_95, Colusalem\_56, Conboy\_90, Coral\_53, Cote\_55, Courthouse\_159, Crete\_55, Dakiti\_54, Damp\_51, Daob\_55, DelRio\_66, Diabla\_56, DoctorDiddles\_110, DrYang\_88, E6\_49, EdgarPoe\_91, Eggsie\_52, Ekhein\_54, Eraser\_29, Exiguo\_53, FelixAlejandro\_58, Filch\_114,

Flakey\_53, Floof\_30, Francois\_65, GMA7\_46, GTE7\_45, GalacticEye\_51, Galaxy\_50, GardenState\_30, Glotell\_57, Goku\_111, Goldilocks\_115, Gonephishing\_156, Gorko\_53, GourdThymes\_54, GrandSlam\_67, Gravel\_62, Gretchen\_30, Gudmit\_64, Guillaume\_51, Hail2Pitt\_50, HamCheese\_53, Hamood\_67, HannahPhantana\_54, Harambe\_51, HayZem\_56, Hello\_51, Holt\_117, Hotorobo\_54, HumptyDumpty\_92, IAmGroot\_30, Icee\_113, Inca\_108, Island3\_56, JaNo\_91, Jams\_51, Jamun\_50, Jankie\_28, JayCookie\_92, JeTaime\_110, Jellybones\_56, Jerole\_63, John316\_57, Jormungandr\_51, Jstan\_31, Juno112\_53, KBurroustX\_90, KHumphrey\_54, Kabreeze\_92, Kaseim\_51, Kepler\_54, Kimchi\_116, Kuleana\_54, Lahirium\_51, Leona\_53, Lidong\_51, Linetti\_54, Linus\_92, LittleE\_170, LittleTokyo\_51, Lizzo\_54, Lucky2013\_159, Luker\_52, Lunar\_54, Lymara\_89, Marshmallow\_110, Melons\_54, MiaZeal\_166, Minos\_52, Monty\_53, Mordred\_92, MoyaNatalis\_91, MrWormie\_51, Msay19\_58, Mulch\_65, Nadeem\_65, NancyRae\_64, Neevie\_51, Newt\_52, Nimi13\_51, Nimrod\_112, Niobe\_29, Optimus\_161, Orcanus\_52, Parada\_65, Pelletreau\_62, Percival\_30, PhluffyCoco\_54, PierreThree\_53, Pimento\_68, PokyPuppy\_53, Poland\_58, Polka\_53, Porcelain\_163, Porky\_110, PrincessTrina\_93, Rattail\_54, RedFox\_54, RedWattleHog\_124, RemRem\_55, Renna12\_53, RosiePosie\_92, RoyalG\_53, Ruchi\_50, Sam12\_53, Scavito\_93, Shambre1\_62, Shelley\_51, Sombrero\_54, Squibbles\_53, Squint\_157, Stank\_114, SteveFrench\_52, Sticker17\_51, Stormageddon\_123, StuartMinion\_48, SuMoo\_28, Superphikiman\_160, TBrady12\_115, TaylorSipht\_52, Teal\_51, Teaspoon\_112, Tophat\_93, UtzChips\_27, Vulpecula\_50, Westrich\_61, WheatThin\_64, Wiggin\_114, Woes\_51, Worcestershire\_54, Xandras\_111, Yang\_28, Zhuangyuan\_58,

### Summary by start number:

#### Start 30:

- Found in 1 of 282 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 233
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Yang\_28 (AZ1),

#### Start 31:

- Found in 4 of 282 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 3 of 233
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Asa16\_29 (AZ1), Eraser\_29 (AZ1), Niobe\_29 (AZ1),

#### Start 38:

- Found in 4 of 282 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 4 of 233
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Caron\_28 (EH), Floof\_30 (EH), Gretchen\_30 (EH), Percival\_30 (EH),

#### Start 39:

- Found in 2 of 282 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 2 of 233
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Barnstormer\_27 (EH), UtzChips\_27 (EH),



Start 40:

- Found in 17 of 282 ( 6.0% ) of genes in pham
- Manual Annotations of this start: 2 of 233
- Called 47.1% of time when present
- Phage (with cluster) where this start called: AmiCi24\_53 (AS3), Atlantica\_54 (AS3), Camara\_54 (AS3), Glotell\_57 (AS3), HamCheese\_53 (AS3), Inca\_108 (E), KHumphrey\_54 (AS3), Rattail\_54 (AS3),

Start 41:

- Found in 1 of 282 ( 0.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: StuartMinion\_48 (AS3),

Start 44:

- Found in 14 of 282 ( 5.0% ) of genes in pham
- Manual Annotations of this start: 1 of 233
- Called 14.3% of time when present
- Phage (with cluster) where this start called: Bedetta\_58 (AS2), Daob\_55 (AS2),

Start 46:

- Found in 14 of 282 ( 5.0% ) of genes in pham
- Manual Annotations of this start: 9 of 233
- Called 78.6% of time when present
- Phage (with cluster) where this start called: Amelia\_53 (AS2), Bibble12\_57 (AS2), Colusalem\_56 (AS2), Coral\_53 (AS2), Cote\_55 (AS2), HannahPhantana\_54 (AS2), Kepler\_54 (AS2), Kuleana\_54 (AS2), Lunar\_54 (AS2), Melons\_54 (AS2), Polka\_53 (AS2),

Start 48:

- Found in 13 of 282 ( 4.6% ) of genes in pham
- Manual Annotations of this start: 6 of 233
- Called 46.2% of time when present
- Phage (with cluster) where this start called: Andrew\_55 (AS3), Juno112\_53 (AS3), Leona\_53 (AS3), PhluffyCoco\_54 (AS3), RedFox\_54 (AS3), Renna12\_53 (AS3),

Start 50:

- Found in 1 of 282 ( 0.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ArV1\_079 (AR),

Start 51:

- Found in 18 of 282 ( 6.4% ) of genes in pham
- Manual Annotations of this start: 16 of 233
- Called 88.9% of time when present
- Phage (with cluster) where this start called: Chipper1996\_930 (AR), Chocolat\_92 (AR), Conboy\_90 (AR), DrYang\_88 (AR), EdgarPoe\_91 (AR), HumptyDumpty\_92 (AR), JaNo\_91 (AR), JayCookie\_92 (AR), KBurrousTX\_90 (AR), Kabreeze\_92 (AR), Linus\_92 (AR), Lymara\_89 (AR), PrincessTrina\_93 (AR), RosiePosie\_92 (AR), Scavito\_93 (AR), Tophat\_93 (AR),

Start 52:

- Found in 2 of 282 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 2 of 233
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Chubster\_92 (AR), Colucci\_95 (AR),

Start 53:

- Found in 2 of 282 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 233
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Shambre1\_62 (singleton),

Start 54:

- Found in 8 of 282 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 1 of 233
- Called 12.5% of time when present
- Phage (with cluster) where this start called: E6\_49 (BW),

Start 55:

- Found in 21 of 282 ( 7.4% ) of genes in pham
- Manual Annotations of this start: 18 of 233
- Called 85.7% of time when present
- Phage (with cluster) where this start called: 244\_113 (E), BaboJay\_111 (E), BigBubba\_113 (E), DoctorDiddles\_110 (E), Filch\_114 (E), Goku\_111 (E), Goldilocks\_115 (E), Holt\_117 (E), Icee\_113 (E), JeTaime\_110 (E), Kimchi\_116 (E), Marshmallow\_110 (E), Nimrod\_112 (E), Porky\_110 (E), Stank\_114 (E), TBrady12\_115 (E), Wiggin\_114 (E), Xandras\_111 (E),

Start 57:

- Found in 54 of 282 ( 19.1% ) of genes in pham
- Manual Annotations of this start: 36 of 233
- Called 74.1% of time when present
- Phage (with cluster) where this start called: Amore2\_57 (CS1), Anamika\_51 (CS3), Ariel\_162 (J), Austin\_56 (CS1), Berries\_51 (CS3), Bianmat\_51 (CS3), Charianelly\_51 (CS3), Courthouse\_159 (J), Damp\_51 (CS3), GMA7\_46 (CS1), GTE7\_45 (CS1), GalacticEye\_51 (CS3), Gonephishing\_156 (J), Guillaume\_51 (CS3), Hail2Pitt\_50 (CS3), Harambe\_51 (CS3), HayZem\_56 (CS1), Hello\_51 (CS3), Jams\_51 (CS3), Jormungandr\_51 (CS3), Kaseim\_51 (CS3), Lahirium\_51 (CS3), Lidong\_51 (CS3), LittleE\_170 (J), Lucky2013\_159 (J), Luker\_52 (CS3), MiaZeal\_166 (J), Minos\_52 (CS3), MrWormie\_51 (CS3), Neoevie\_51 (CS3), Newt\_52 (CS3), Nimi13\_51 (CS3), Optimus\_161 (J), Porcelain\_163 (J), Shelley\_51 (CS3), Squint\_157 (J), Sticker17\_51 (CS3), Superphikiman\_160 (J), Teal\_51 (CS3), Woes\_51 (CS3),

Start 58:

- Found in 41 of 282 ( 14.5% ) of genes in pham
- Manual Annotations of this start: 26 of 233
- Called 82.9% of time when present
- Phage (with cluster) where this start called: Adgers\_56 (CS2), Barbochs\_54 (CS2), Beaver\_57 (CS2), BigShaq\_53 (CS2), BirksAndSocks\_59 (CS2), Boneham\_58 (CS2), Breezic\_54 (CS2), Butterball\_57 (CS2), CathyBurgh\_53 (CS2), Chelms\_53 (CS2), CinnamonToast\_60 (CS2), Crete\_55 (CS2), Dakiti\_54 (CS2), Eggsie\_52 (CS2), FelixAlejandro\_58 (CS2), GardenState\_30 (EH), GourdThymes\_54 (CS2), Hotorobo\_54 (CS2), IAmGroot\_30 (EH), Jellybones\_56 (CS2), John316\_57 (CS2),

Linetti\_54 (CS2), Lizzo\_54 (CS2), Monty\_53 (CS2), Msay19\_58 (CS2), PokyPuppy\_53 (CS2), Poland\_58 (CS2), RemRem\_55 (CS2), RoyalG\_53 (CS2), Sam12\_53 (CS2), Sombrero\_54 (CS2), Squibbles\_53 (CS2), SteveFrench\_52 (CS2), Worcestershire\_54 (CS2),

Start 59:

- Found in 16 of 282 ( 5.7% ) of genes in pham
- Manual Annotations of this start: 10 of 233
- Called 93.8% of time when present
- Phage (with cluster) where this start called: Abidatro\_53 (AS1), Antrice\_59 (AS2), Basilisk\_51 (AS1), Chickaboom\_52 (AS1), Galaxy\_50 (AS1), Gravel\_62 (AS1), Jamun\_50 (AS1), LittleTokyo\_51 (AS2), Orcanus\_52 (AS1), Pelletreau\_62 (AS1), Ruchi\_50 (AS1), TaylorSipht\_52 (AS1), Vulpecula\_50 (AS1), Westrich\_61 (AS1), Zhuangyuan\_58 (AS2),

Start 60:

- Found in 14 of 282 ( 5.0% ) of genes in pham
- Manual Annotations of this start: 4 of 233
- Called 28.6% of time when present
- Phage (with cluster) where this start called: BenoitCattle\_54 (CS2), Diabla\_56 (CS2), PierreThree\_53 (CS2), Wildcat\_88 (V),

Start 61:

- Found in 1 of 282 ( 0.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BFK20\_ORF42 (singleton),

Start 63:

- Found in 54 of 282 ( 19.1% ) of genes in pham
- Manual Annotations of this start: 21 of 233
- Called 38.9% of time when present
- Phage (with cluster) where this start called: Ayotoya\_66 (DI), Bock\_67 (DI), Brujita\_56 (I1), Chop\_67 (DI), DelRio\_66 (DI), Ekhein\_54 (CS2), Exiguo\_53 (CS2), Flakey\_53 (CS2), Francois\_65 (DI), Gorko\_53 (CS2), GrandSlam\_67 (DI), Gudmit\_64 (singleton), Hamood\_67 (DI), Island3\_56 (I1), MaryV\_88 (V), Mulch\_65 (DI), Nadeem\_65 (DI), NancyRae\_64 (DI), Parada\_65 (DI), Pimento\_68 (DI), WheatThin\_64 (DI),

Start 64:

- Found in 22 of 282 ( 7.8% ) of genes in pham
- Manual Annotations of this start: 1 of 233
- Called 13.6% of time when present
- Phage (with cluster) where this start called: AinMach\_29 (AZ), Jankie\_28 (FP), Teaspoon\_112 (E),

Start 65:

- Found in 3 of 282 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 3 of 233
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bobby\_156 (J), RedWattleHog\_124 (DX), Stormageddon\_123 (DX),

Start 66:

- Found in 78 of 282 ( 27.7% ) of genes in pham
- Manual Annotations of this start: 59 of 233
- Called 92.3% of time when present
- Phage (with cluster) where this start called: AEgle\_27 (AZ1), AGrandiflora\_28 (AZ1), Adolin\_26 (AZ1), Adumb2043\_27 (AZ1), Amyev\_28 (AZ1), Ascela\_28 (AZ1), Azrael100\_87 (V), BaileyBlu\_28 (FP), Benczkowski14\_48 (CS4), Berrie\_29 (AZ1), Cassia\_28 (AZ1), Community\_29 (AZ1), Cosmo\_88 (V), Crewmate\_31 (AZ1), Cyan\_27 (AZ1), DocB7\_043 (singleton), DrManhattan\_26 (AZ1), DrSierra\_27 (AZ1), Elezi\_29 (AZ1), Emotion\_33 (AZ4), EniyanLRS\_84 (V), Gaia\_125 (X), Hollow\_49 (CS4), Iter\_28 (AZ1), IttyBittyPiggy\_28 (AZ1), Janeemi\_30 (AZ1), JasmineDragon\_33 (AZ4), Joemato\_27 (AZ1), JohnDoe\_27 (AZ1), JuneStar\_28 (AZ1), Katyusha\_48 (CS4), Kaylissa\_27 (AZ1), KeAlii\_28 (AZ1), Kvothe\_48 (CS4), LadyAstra\_34 (AZ4), Lego\_27 (AZ1), Liebe\_28 (AZ2), Lizalica\_27 (AZ1), London\_29 (AZ1), MaGuCo\_26 (AZ2), Maureen\_28 (AZ2), MissSwiss\_26 (AZ1), Mudpuppy\_27 (AZ1), Niagara\_48 (CS4), Nitro\_28 (AZ1), ObiToo\_30 (AZ1), Philon9\_49 (CS4), Phives\_30 (AZ1), Pixelle\_28 (AZ1), Powerpuff\_27 (AZ1), Pumpkins\_28 (AZ1), Reedo\_27 (AZ1), Shaffner\_29 (AZ1), Simpson\_29 (AZ1), Snek\_28 (AZ3), Sue2\_29 (AZ1), Tallboi\_28 (AZ1), Tbone\_27 (AZ1), Teatealatte\_49 (CS4), Teech\_49 (CS4), TforTroy\_29 (AZ1), Tian\_28 (AZ1), Tredge\_49 (CS4), Tuck\_31 (AZ1), Turab\_27 (AZ1), Tutumahutu\_27 (AZ1), Tweety19\_28 (AZ3), VResidence\_28 (AZ1), Vitaenoi\_49 (CS4), VroomVroom\_33 (AZ4), Warda\_27 (AZ1), YesChef\_27 (AZ1),

Start 67:

- Found in 1 of 282 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 233
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CallinAllBarbz\_26 (FP),

Start 68:

- Found in 21 of 282 ( 7.4% ) of genes in pham
- Manual Annotations of this start: 1 of 233
- Called 9.5% of time when present
- Phage (with cluster) where this start called: Mordred\_92 (AR), MoyaNatalis\_91 (AR),

Start 71:

- Found in 2 of 282 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 233
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Nebkiss\_126 (X),

Start 73:

- Found in 259 of 282 ( 91.8% ) of genes in pham
- Manual Annotations of this start: 3 of 233
- Called 2.7% of time when present
- Phage (with cluster) where this start called: BetterKatz\_65 (DI), Brylie\_65 (DI), Jerole\_63 (AS2), Jstan\_31 (AZ1), MiniMommy\_34 (AZ4), ShakeltOph\_34 (AZ4), Wildwest\_28 (AZ1),

Start 130:

- Found in 1 of 282 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 233
- Called 100.0% of time when present

- Phage (with cluster) where this start called: SuMoo\_28 (EH),

### **Summary by clusters:**

There are 24 clusters represented in this pham: FP, singleton, DI, BW, DX, I1, CS4, CS1, CS3, CS2, AS3, AS2, AS1, E, EH, J, AR, V, X, AZ, AZ1, AZ2, AZ3, AZ4,

Info for manual annotations of cluster AR:

- Start number 51 was manually annotated 16 times for cluster AR.
- Start number 52 was manually annotated 2 times for cluster AR.
- Start number 68 was manually annotated 1 time for cluster AR.

Info for manual annotations of cluster AS1:

- Start number 59 was manually annotated 9 times for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 44 was manually annotated 1 time for cluster AS2.
- Start number 46 was manually annotated 9 times for cluster AS2.
- Start number 59 was manually annotated 1 time for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 40 was manually annotated 1 time for cluster AS3.
- Start number 48 was manually annotated 6 times for cluster AS3.

Info for manual annotations of cluster AZ1:

- Start number 30 was manually annotated 1 time for cluster AZ1.
- Start number 31 was manually annotated 3 times for cluster AZ1.
- Start number 66 was manually annotated 39 times for cluster AZ1.
- Start number 73 was manually annotated 1 time for cluster AZ1.

Info for manual annotations of cluster AZ2:

- Start number 66 was manually annotated 3 times for cluster AZ2.

Info for manual annotations of cluster AZ3:

- Start number 66 was manually annotated 2 times for cluster AZ3.

Info for manual annotations of cluster AZ4:

- Start number 66 was manually annotated 3 times for cluster AZ4.

Info for manual annotations of cluster BW:

- Start number 54 was manually annotated 1 time for cluster BW.

Info for manual annotations of cluster CS1:

- Start number 57 was manually annotated 3 times for cluster CS1.

Info for manual annotations of cluster CS2:

- Start number 58 was manually annotated 24 times for cluster CS2.
- Start number 60 was manually annotated 3 times for cluster CS2.
- Start number 63 was manually annotated 4 times for cluster CS2.

Info for manual annotations of cluster CS3:

- Start number 57 was manually annotated 24 times for cluster CS3.

Info for manual annotations of cluster CS4:

- Start number 66 was manually annotated 7 times for cluster CS4.

Info for manual annotations of cluster DI:

- Start number 63 was manually annotated 13 times for cluster DI.
- Start number 73 was manually annotated 2 times for cluster DI.

Info for manual annotations of cluster DX:

- Start number 65 was manually annotated 2 times for cluster DX.

Info for manual annotations of cluster E:

- Start number 40 was manually annotated 1 time for cluster E.
- Start number 55 was manually annotated 18 times for cluster E.
- Start number 64 was manually annotated 1 time for cluster E.

Info for manual annotations of cluster EH:

- Start number 38 was manually annotated 4 times for cluster EH.
- Start number 39 was manually annotated 2 times for cluster EH.
- Start number 58 was manually annotated 2 times for cluster EH.
- Start number 130 was manually annotated 1 time for cluster EH.

Info for manual annotations of cluster FP:

- Start number 66 was manually annotated 1 time for cluster FP.
- Start number 67 was manually annotated 1 time for cluster FP.

Info for manual annotations of cluster I1:

- Start number 63 was manually annotated 2 times for cluster I1.

Info for manual annotations of cluster J:

- Start number 57 was manually annotated 9 times for cluster J.
- Start number 65 was manually annotated 1 time for cluster J.

Info for manual annotations of cluster V:

- Start number 60 was manually annotated 1 time for cluster V.
- Start number 63 was manually annotated 1 time for cluster V.
- Start number 66 was manually annotated 3 times for cluster V.

Info for manual annotations of cluster X:

- Start number 66 was manually annotated 1 time for cluster X.
- Start number 71 was manually annotated 1 time for cluster X.

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

Gene: 244\_113 Start: 63341, Stop: 63673, Start Num: 55

Candidate Starts for 244\_113:

(Start: 55 @63341 has 18 MA's), (Start: 64 @63371 has 1 MA's), (91, 63515), (102, 63563), (108, 63587), (123, 63659),

Gene: AEgle\_27 Start: 22275, Stop: 22640, Start Num: 66

Candidate Starts for AEgle\_27:

(12, 22110), (Start: 66 @22275 has 59 MA's), (Start: 73 @22299 has 3 MA's), (111, 22542),

Gene: AGrandiflora\_28 Start: 22305, Stop: 22670, Start Num: 66

Candidate Starts for AGrandiflora\_28:

(Start: 66 @22305 has 59 MA's), (Start: 73 @22329 has 3 MA's), (101, 22512),

Gene: Abidatro\_53 Start: 33792, Stop: 34178, Start Num: 59

Candidate Starts for Abidatro\_53:

(Start: 54 @33783 has 1 MA's), (Start: 59 @33792 has 10 MA's), (69, 33810), (Start: 73 @33831 has 3 MA's), (82, 33906), (96, 33954), (98, 33963), (106, 34002), (114, 34053), (126, 34089), (139, 34128),

Gene: Adgers\_56 Start: 47963, Stop: 47601, Start Num: 58

Candidate Starts for Adgers\_56:

(Start: 58 @47963 has 26 MA's), (Start: 63 @47954 has 21 MA's), (Start: 73 @47924 has 3 MA's), (82, 47849), (103, 47759), (109, 47732), (112, 47699), (120, 47669), (135, 47633),

Gene: Adolin\_26 Start: 20726, Stop: 21094, Start Num: 66

Candidate Starts for Adolin\_26:

(Start: 66 @20726 has 59 MA's), (Start: 73 @20750 has 3 MA's), (102, 20936), (109, 20963), (111, 20993),

Gene: Adumb2043\_27 Start: 22274, Stop: 22639, Start Num: 66

Candidate Starts for Adumb2043\_27:

(12, 22109), (Start: 66 @22274 has 59 MA's), (Start: 73 @22298 has 3 MA's), (111, 22541),

Gene: AinMach\_29 Start: 23247, Stop: 23618, Start Num: 64

Candidate Starts for AinMach\_29:

(21, 23190), (Start: 64 @23247 has 1 MA's), (Start: 73 @23277 has 3 MA's), (85, 23370), (98, 23442), (101, 23460), (114, 23535), (122, 23562),

Gene: Amelia\_53 Start: 32651, Stop: 33019, Start Num: 46

Candidate Starts for Amelia\_53:

(Start: 44 @32642 has 1 MA's), (Start: 46 @32651 has 9 MA's), (Start: 73 @32693 has 3 MA's), (96, 32810), (98, 32819), (106, 32858), (119, 32930), (139, 32984),

Gene: AmiCi24\_53 Start: 33119, Stop: 33514, Start Num: 40

Candidate Starts for AmiCi24\_53:

(Start: 40 @33119 has 2 MA's), (Start: 48 @33143 has 6 MA's), (72, 33170), (Start: 73 @33182 has 3 MA's), (78, 33233), (96, 33302), (98, 33311), (103, 33335), (106, 33350), (119, 33422), (139, 33476),

Gene: Amore2\_57 Start: 48420, Stop: 48055, Start Num: 57

Candidate Starts for Amore2\_57:

(Start: 57 @48420 has 36 MA's), (Start: 73 @48378 has 3 MA's), (97, 48240), (103, 48213), (111, 48156),

Gene: Amyev\_28 Start: 24196, Stop: 24564, Start Num: 66

Candidate Starts for Amyev\_28:

(23, 24034), (Start: 66 @24196 has 59 MA's), (Start: 73 @24220 has 3 MA's), (101, 24403),

Gene: Anamika\_51 Start: 48759, Stop: 48394, Start Num: 57

Candidate Starts for Anamika\_51:

(Start: 57 @48759 has 36 MA's), (Start: 73 @48717 has 3 MA's), (89, 48612), (109, 48525), (112, 48492), (120, 48462),

Gene: Andrew\_55 Start: 33040, Stop: 33402, Start Num: 48

Candidate Starts for Andrew\_55:

(Start: 40 @33016 has 2 MA's), (Start: 48 @33040 has 6 MA's), (Start: 53 @33052 has 1 MA's), (Start: 73 @33079 has 3 MA's), (98, 33208), (106, 33247), (117, 33313), (119, 33319), (139, 33373),

Gene: Antrice\_59 Start: 33012, Stop: 33383, Start Num: 59

Candidate Starts for Antrice\_59:

(Start: 59 @33012 has 10 MA's), (Start: 73 @33048 has 3 MA's), (98, 33177), (99, 33183), (126, 33303), (134, 33321), (139, 33342),

Gene: ArV1\_079 Start: 59307, Stop: 59669, Start Num: 50

Candidate Starts for ArV1\_079:

(36, 59250), (42, 59286), (50, 59307), (Start: 68 @59352 has 1 MA's), (69, 59355), (Start: 73 @59376 has 3 MA's), (82, 59451), (90, 59481), (98, 59499), (106, 59538),

Gene: Ariel\_162 Start: 83313, Stop: 83693, Start Num: 57

Candidate Starts for Ariel\_162:

(Start: 57 @83313 has 36 MA's), (Start: 73 @83355 has 3 MA's), (82, 83430), (120, 83604), (123, 83610), (125, 83613), (146, 83682),

Gene: Asa16\_29 Start: 24444, Stop: 24812, Start Num: 31

Candidate Starts for Asa16\_29:

(12, 24279), (Start: 31 @24444 has 3 MA's), (Start: 73 @24468 has 3 MA's),

Gene: Ascela\_28 Start: 22439, Stop: 22807, Start Num: 66

Candidate Starts for Ascela\_28:

(Start: 66 @22439 has 59 MA's), (Start: 73 @22463 has 3 MA's), (102, 22649),

Gene: Atlantica\_54 Start: 33121, Stop: 33516, Start Num: 40

Candidate Starts for Atlantica\_54:

(Start: 40 @33121 has 2 MA's), (Start: 48 @33145 has 6 MA's), (72, 33172), (Start: 73 @33184 has 3 MA's), (78, 33235), (96, 33304), (98, 33313), (103, 33337), (106, 33352), (119, 33424), (139, 33478),

Gene: Austin\_56 Start: 48418, Stop: 48053, Start Num: 57

Candidate Starts for Austin\_56:

(Start: 57 @48418 has 36 MA's), (Start: 73 @48376 has 3 MA's), (97, 48238), (103, 48211), (111, 48154),

Gene: Ayotoya\_66 Start: 43183, Stop: 43569, Start Num: 63

Candidate Starts for Ayotoya\_66:

(34, 43066), (43, 43126), (Start: 57 @43171 has 36 MA's), (Start: 63 @43183 has 21 MA's), (Start: 73 @43213 has 3 MA's), (82, 43288), (108, 43390), (119, 43456),

Gene: Azrael100\_87 Start: 53907, Stop: 54263, Start Num: 66

Candidate Starts for Azrael100\_87:

(Start: 60 @53895 has 4 MA's), (62, 53898), (Start: 63 @53901 has 21 MA's), (Start: 66 @53907 has 59 MA's), (Start: 73 @53931 has 3 MA's), (77, 53973), (79, 53985), (91, 54048), (93, 54054), (101, 54093), (105, 54108), (106, 54117), (108, 54123), (112, 54159), (115, 54171), (120, 54189),

Gene: BFK20\_ORF42 Start: 32596, Stop: 32249, Start Num: 61

Candidate Starts for BFK20\_ORF42:



(61, 32596), (72, 32572), (Start: 73 @32560 has 3 MA's), (83, 32482), (111, 32314), (118, 32287), (120, 32281), (127, 32266),

Gene: BaboJay\_111 Start: 64514, Stop: 64846, Start Num: 55

Candidate Starts for BaboJay\_111:

(Start: 55 @64514 has 18 MA's), (Start: 64 @64544 has 1 MA's), (91, 64688), (102, 64736), (108, 64760), (123, 64832),

Gene: BaileyBlu\_28 Start: 22070, Stop: 22423, Start Num: 66

Candidate Starts for BaileyBlu\_28:

(27, 22052), (Start: 66 @22070 has 59 MA's), (Start: 73 @22094 has 3 MA's), (85, 22187), (106, 22301), (113, 22349),

Gene: Barbochs\_54 Start: 47707, Stop: 47345, Start Num: 58

Candidate Starts for Barbochs\_54:

(Start: 58 @47707 has 26 MA's), (Start: 63 @47698 has 21 MA's), (Start: 73 @47668 has 3 MA's), (82, 47593), (103, 47503), (109, 47476), (112, 47443), (120, 47413), (135, 47377),

Gene: Barnstormer\_27 Start: 22061, Stop: 22453, Start Num: 39

Candidate Starts for Barnstormer\_27:

(Start: 39 @22061 has 2 MA's), (Start: 73 @22127 has 3 MA's), (83, 22205),

Gene: Basilisk\_51 Start: 33012, Stop: 33398, Start Num: 59

Candidate Starts for Basilisk\_51:

(Start: 54 @33003 has 1 MA's), (Start: 59 @33012 has 10 MA's), (69, 33030), (Start: 73 @33051 has 3 MA's), (82, 33126), (98, 33183), (106, 33222), (113, 33270), (119, 33294), (139, 33348),

Gene: Beaver\_57 Start: 49477, Stop: 49115, Start Num: 58

Candidate Starts for Beaver\_57:

(Start: 58 @49477 has 26 MA's), (Start: 63 @49468 has 21 MA's), (Start: 73 @49438 has 3 MA's), (82, 49363), (103, 49273), (109, 49246), (112, 49213), (120, 49183), (135, 49147),

Gene: Bedetta\_58 Start: 32801, Stop: 33178, Start Num: 44

Candidate Starts for Bedetta\_58:

(Start: 44 @32801 has 1 MA's), (Start: 46 @32810 has 9 MA's), (Start: 73 @32852 has 3 MA's), (96, 32969), (98, 32978), (106, 33017), (119, 33089), (126, 33104), (139, 33143),

Gene: Benczkowski14\_48 Start: 48592, Stop: 48224, Start Num: 66

Candidate Starts for Benczkowski14\_48:

(Start: 66 @48592 has 59 MA's), (Start: 73 @48568 has 3 MA's), (109, 48361), (123, 48292), (143, 48235),

Gene: BenoitCattle\_54 Start: 48067, Stop: 47708, Start Num: 60

Candidate Starts for BenoitCattle\_54:

(45, 48118), (Start: 58 @48070 has 26 MA's), (Start: 60 @48067 has 4 MA's), (Start: 73 @48031 has 3 MA's), (82, 47956), (103, 47866), (109, 47839), (112, 47806), (120, 47776), (123, 47770), (135, 47740),

Gene: Berrie\_29 Start: 23499, Stop: 23867, Start Num: 66

Candidate Starts for Berrie\_29:

(Start: 66 @23499 has 59 MA's), (Start: 73 @23523 has 3 MA's), (95, 23676),

Gene: Berries\_51 Start: 48731, Stop: 48366, Start Num: 57

Candidate Starts for Berries\_51:

(Start: 57 @48731 has 36 MA's), (Start: 73 @48689 has 3 MA's), (89, 48584), (109, 48497), (111, 48467), (112, 48464), (120, 48434),

Gene: BetterKatz\_65 Start: 42412, Stop: 42768, Start Num: 73

Candidate Starts for BetterKatz\_65:

(20, 42142), (24, 42190), (26, 42211), (34, 42265), (43, 42325), (Start: 57 @42370 has 36 MA's), (Start: 63 @42382 has 21 MA's), (Start: 73 @42412 has 3 MA's), (82, 42487), (108, 42589), (119, 42655),

Gene: Bianmat\_51 Start: 48771, Stop: 48406, Start Num: 57

Candidate Starts for Bianmat\_51:

(Start: 57 @48771 has 36 MA's), (Start: 73 @48729 has 3 MA's), (89, 48624), (109, 48537), (111, 48507), (112, 48504), (120, 48474),

Gene: Bible12\_57 Start: 32646, Stop: 33014, Start Num: 46

Candidate Starts for Bible12\_57:

(Start: 44 @32637 has 1 MA's), (Start: 46 @32646 has 9 MA's), (Start: 73 @32688 has 3 MA's), (96, 32805), (98, 32814), (106, 32853), (119, 32925), (139, 32979),

Gene: BigBubba\_113 Start: 62987, Stop: 63319, Start Num: 55

Candidate Starts for BigBubba\_113:

(Start: 55 @62987 has 18 MA's), (Start: 64 @63017 has 1 MA's), (91, 63161), (102, 63209), (108, 63233), (123, 63305),

Gene: BigShaq\_53 Start: 48075, Stop: 47713, Start Num: 58

Candidate Starts for BigShaq\_53:

(45, 48123), (Start: 58 @48075 has 26 MA's), (Start: 60 @48072 has 4 MA's), (Start: 73 @48036 has 3 MA's), (82, 47961), (103, 47871), (109, 47844), (112, 47811), (120, 47781), (123, 47775), (135, 47745),

Gene: BirksAndSocks\_59 Start: 49827, Stop: 49465, Start Num: 58

Candidate Starts for BirksAndSocks\_59:

(Start: 58 @49827 has 26 MA's), (Start: 63 @49818 has 21 MA's), (Start: 73 @49788 has 3 MA's), (82, 49713), (103, 49623), (109, 49596), (112, 49563), (120, 49533), (135, 49497),

Gene: Bobby\_156 Start: 89177, Stop: 89539, Start Num: 65

Candidate Starts for Bobby\_156:

(Start: 65 @89177 has 3 MA's), (Start: 73 @89201 has 3 MA's), (79, 89255), (82, 89276), (102, 89357), (118, 89444), (120, 89450), (132, 89477), (146, 89528),

Gene: Bock\_67 Start: 42626, Stop: 43012, Start Num: 63

Candidate Starts for Bock\_67:

(10, 42311), (20, 42386), (24, 42434), (26, 42455), (34, 42509), (43, 42569), (Start: 57 @42614 has 36 MA's), (Start: 63 @42626 has 21 MA's), (Start: 73 @42656 has 3 MA's), (82, 42731), (108, 42833), (119, 42899),

Gene: Boneham\_58 Start: 49728, Stop: 49366, Start Num: 58

Candidate Starts for Boneham\_58:

(Start: 58 @49728 has 26 MA's), (Start: 63 @49719 has 21 MA's), (Start: 73 @49689 has 3 MA's), (82, 49614), (103, 49524), (109, 49497), (112, 49464), (120, 49434), (135, 49398),

Gene: Breezic\_54 Start: 47720, Stop: 47358, Start Num: 58

Candidate Starts for Breezic\_54:

(Start: 58 @47720 has 26 MA's), (Start: 63 @47711 has 21 MA's), (Start: 73 @47681 has 3 MA's), (82, 47606), (103, 47516), (109, 47489), (112, 47456), (120, 47426), (135, 47390),

Gene: Brujita\_56 Start: 37993, Stop: 38289, Start Num: 63

Candidate Starts for Brujita\_56:

(56, 37969), (Start: 63 @37993 has 21 MA's), (Start: 73 @38017 has 3 MA's), (75, 38047), (79, 38071), (98, 38149), (100, 38161), (103, 38170), (107, 38191), (120, 38260),

Gene: Brylie\_65 Start: 42235, Stop: 42591, Start Num: 73

Candidate Starts for Brylie\_65:

(20, 41965), (24, 42013), (26, 42034), (34, 42088), (43, 42148), (Start: 57 @42193 has 36 MA's), (Start: 63 @42205 has 21 MA's), (Start: 73 @42235 has 3 MA's), (82, 42310), (108, 42412), (119, 42478),

Gene: Butterball\_57 Start: 49733, Stop: 49371, Start Num: 58

Candidate Starts for Butterball\_57:

(Start: 58 @49733 has 26 MA's), (Start: 63 @49724 has 21 MA's), (Start: 73 @49694 has 3 MA's), (82, 49619), (103, 49529), (109, 49502), (112, 49469), (120, 49439), (135, 49403),

Gene: CallinAllBarbz\_26 Start: 21897, Stop: 22250, Start Num: 67

Candidate Starts for CallinAllBarbz\_26:

(25, 21858), (Start: 67 @21897 has 1 MA's), (Start: 73 @21921 has 3 MA's), (85, 22014), (98, 22086), (106, 22128), (113, 22176),

Gene: Camara\_54 Start: 33012, Stop: 33407, Start Num: 40

Candidate Starts for Camara\_54:

(Start: 40 @33012 has 2 MA's), (Start: 48 @33036 has 6 MA's), (72, 33063), (Start: 73 @33075 has 3 MA's), (78, 33126), (96, 33195), (98, 33204), (103, 33228), (106, 33243), (119, 33315), (139, 33369),

Gene: Caron\_28 Start: 22040, Stop: 22432, Start Num: 38

Candidate Starts for Caron\_28:

(2, 21614), (Start: 38 @22040 has 4 MA's), (Start: 73 @22109 has 3 MA's), (75, 22139), (102, 22286),

Gene: Cassia\_28 Start: 22891, Stop: 23259, Start Num: 66

Candidate Starts for Cassia\_28:

(5, 22426), (13, 22588), (Start: 66 @22891 has 59 MA's), (Start: 73 @22915 has 3 MA's), (95, 23068),

Gene: CathyBurgh\_53 Start: 48297, Stop: 47935, Start Num: 58

Candidate Starts for CathyBurgh\_53:

(Start: 58 @48297 has 26 MA's), (Start: 63 @48288 has 21 MA's), (Start: 73 @48258 has 3 MA's), (82, 48183), (103, 48093), (109, 48066), (112, 48033), (120, 48003), (135, 47967),

Gene: Charianelly\_51 Start: 48481, Stop: 48116, Start Num: 57

Candidate Starts for Charianelly\_51:

(Start: 57 @48481 has 36 MA's), (Start: 73 @48439 has 3 MA's), (89, 48334), (109, 48247), (111, 48217), (112, 48214), (120, 48184),

Gene: Chelms\_53 Start: 48063, Stop: 47701, Start Num: 58

Candidate Starts for Chelms\_53:

(45, 48111), (Start: 58 @48063 has 26 MA's), (Start: 60 @48060 has 4 MA's), (Start: 73 @48024 has 3 MA's), (82, 47949), (103, 47859), (109, 47832), (112, 47799), (120, 47769), (123, 47763), (135, 47733),

Gene: Chickaboom\_52 Start: 33345, Stop: 33731, Start Num: 59

Candidate Starts for Chickaboom\_52:

(Start: 59 @33345 has 10 MA's), (Start: 73 @33384 has 3 MA's), (82, 33459), (98, 33516), (100, 33528), (106, 33555), (113, 33603), (119, 33627), (139, 33681),

Gene: Chipper1996\_930 Start: 60998, Stop: 61360, Start Num: 51

Candidate Starts for Chipper1996\_930:

(Start: 51 @60998 has 16 MA's), (Start: 68 @61043 has 1 MA's), (69, 61046), (Start: 73 @61067 has 3 MA's), (82, 61142), (90, 61172), (98, 61190), (108, 61235), (117, 61295), (119, 61301),

Gene: Chocolat\_92 Start: 60705, Stop: 61067, Start Num: 51

Candidate Starts for Chocolat\_92:

(Start: 51 @60705 has 16 MA's), (Start: 68 @60750 has 1 MA's), (69, 60753), (Start: 73 @60774 has 3 MA's), (82, 60849), (90, 60879), (98, 60897), (108, 60942), (117, 61002), (119, 61008),

Gene: Chop\_67 Start: 43371, Stop: 43757, Start Num: 63

Candidate Starts for Chop\_67:

(20, 43131), (24, 43179), (26, 43200), (34, 43254), (43, 43314), (Start: 57 @43359 has 36 MA's), (Start: 63 @43371 has 21 MA's), (Start: 73 @43401 has 3 MA's), (82, 43476), (108, 43578), (119, 43644),

Gene: Chubster\_92 Start: 60945, Stop: 61307, Start Num: 52

Candidate Starts for Chubster\_92:

(Start: 52 @60945 has 2 MA's), (Start: 68 @60990 has 1 MA's), (69, 60993), (Start: 73 @61014 has 3 MA's), (82, 61089), (90, 61119), (98, 61137), (108, 61182), (117, 61242), (119, 61248),

Gene: CinnamonToast\_60 Start: 49787, Stop: 49425, Start Num: 58

Candidate Starts for CinnamonToast\_60:

(Start: 58 @49787 has 26 MA's), (Start: 63 @49778 has 21 MA's), (Start: 73 @49748 has 3 MA's), (82, 49673), (103, 49583), (109, 49556), (112, 49523), (120, 49493), (135, 49457),

Gene: Colucci\_95 Start: 61317, Stop: 61679, Start Num: 52

Candidate Starts for Colucci\_95:

(Start: 52 @61317 has 2 MA's), (Start: 68 @61362 has 1 MA's), (69, 61365), (Start: 73 @61386 has 3 MA's), (82, 61461), (90, 61491), (98, 61509), (106, 61548),

Gene: Colusalem\_56 Start: 32628, Stop: 32996, Start Num: 46

Candidate Starts for Colusalem\_56:

(Start: 44 @32619 has 1 MA's), (Start: 46 @32628 has 9 MA's), (Start: 73 @32670 has 3 MA's), (96, 32787), (98, 32796), (106, 32835), (119, 32907), (139, 32961),

Gene: Community\_29 Start: 24629, Stop: 24997, Start Num: 66

Candidate Starts for Community\_29:

(Start: 66 @24629 has 59 MA's), (Start: 73 @24653 has 3 MA's), (95, 24806), (128, 24947),

Gene: Conboy\_90 Start: 60454, Stop: 60816, Start Num: 51

Candidate Starts for Conboy\_90:

(Start: 51 @60454 has 16 MA's), (Start: 68 @60499 has 1 MA's), (69, 60502), (Start: 73 @60523 has 3 MA's), (82, 60598), (90, 60628), (98, 60646), (108, 60691), (117, 60751), (119, 60757),

Gene: Coral\_53 Start: 32516, Stop: 32923, Start Num: 46

Candidate Starts for Coral\_53:

(Start: 44 @32507 has 1 MA's), (Start: 46 @32516 has 9 MA's), (Start: 59 @32558 has 10 MA's),  
(Start: 73 @32597 has 3 MA's), (96, 32714), (98, 32723), (106, 32762), (119, 32834), (139, 32888),

Gene: Cosmo\_88 Start: 53908, Stop: 54264, Start Num: 66

Candidate Starts for Cosmo\_88:

(Start: 60 @53896 has 4 MA's), (62, 53899), (Start: 63 @53902 has 21 MA's), (Start: 66 @53908 has  
59 MA's), (Start: 73 @53932 has 3 MA's), (77, 53974), (79, 53986), (91, 54049), (93, 54055), (101,  
54094), (105, 54109), (106, 54118), (108, 54124), (112, 54160), (115, 54172), (120, 54190),

Gene: Cote\_55 Start: 32989, Stop: 33357, Start Num: 46

Candidate Starts for Cote\_55:

(Start: 44 @32980 has 1 MA's), (Start: 46 @32989 has 9 MA's), (Start: 73 @33031 has 3 MA's), (96,  
33148), (98, 33157), (106, 33196), (119, 33268), (139, 33322),

Gene: Courthouse\_159 Start: 83757, Stop: 84137, Start Num: 57

Candidate Starts for Courthouse\_159:

(Start: 57 @83757 has 36 MA's), (Start: 73 @83799 has 3 MA's), (82, 83874), (120, 84048), (123,  
84054), (125, 84057), (146, 84126),

Gene: Crete\_55 Start: 48341, Stop: 47979, Start Num: 58

Candidate Starts for Crete\_55:

(45, 48389), (Start: 58 @48341 has 26 MA's), (Start: 60 @48338 has 4 MA's), (Start: 73 @48302 has 3  
MA's), (82, 48227), (103, 48137), (109, 48110), (112, 48077), (120, 48047), (123, 48041), (135,  
48011),

Gene: Crewmate\_31 Start: 23149, Stop: 23517, Start Num: 66

Candidate Starts for Crewmate\_31:

(7, 22744), (Start: 66 @23149 has 59 MA's), (Start: 73 @23173 has 3 MA's), (101, 23356), (102,  
23359),

Gene: Cyan\_27 Start: 22364, Stop: 22729, Start Num: 66

Candidate Starts for Cyan\_27:

(Start: 66 @22364 has 59 MA's), (Start: 73 @22388 has 3 MA's), (101, 22571),

Gene: Dakiti\_54 Start: 48931, Stop: 48569, Start Num: 58

Candidate Starts for Dakiti\_54:

(45, 48979), (Start: 58 @48931 has 26 MA's), (Start: 60 @48928 has 4 MA's), (Start: 73 @48892 has 3  
MA's), (82, 48817), (103, 48727), (109, 48700), (112, 48667), (120, 48637), (123, 48631), (135,  
48601),

Gene: Damp\_51 Start: 47645, Stop: 47280, Start Num: 57

Candidate Starts for Damp\_51:

(Start: 57 @47645 has 36 MA's), (Start: 73 @47603 has 3 MA's), (89, 47498), (109, 47411), (111,  
47381), (112, 47378), (120, 47348),

Gene: Daob\_55 Start: 32991, Stop: 33368, Start Num: 44

Candidate Starts for Daob\_55:

(Start: 44 @32991 has 1 MA's), (Start: 46 @33000 has 9 MA's), (Start: 73 @33042 has 3 MA's), (96,  
33159), (98, 33168), (106, 33207), (119, 33279), (139, 33333),

Gene: DelRio\_66 Start: 43392, Stop: 43778, Start Num: 63

Candidate Starts for DelRio\_66:

(24, 43200), (26, 43221), (34, 43275), (43, 43335), (Start: 57 @43380 has 36 MA's), (Start: 63 @43392 has 21 MA's), (Start: 73 @43422 has 3 MA's), (82, 43497), (108, 43599), (111, 43632), (119, 43665), (131, 43689),

Gene: Diabla\_56 Start: 49398, Stop: 49039, Start Num: 60

Candidate Starts for Diabla\_56:

(Start: 58 @49401 has 26 MA's), (Start: 60 @49398 has 4 MA's), (Start: 63 @49392 has 21 MA's), (Start: 73 @49362 has 3 MA's), (120, 49107), (135, 49071),

Gene: DocB7\_043 Start: 40188, Stop: 39829, Start Num: 66

Candidate Starts for DocB7\_043:

(Start: 66 @40188 has 59 MA's), (Start: 73 @40164 has 3 MA's), (77, 40122), (85, 40071), (103, 40014), (120, 39924), (121, 39921), (123, 39918), (147, 39843),

Gene: DoctorDiddles\_110 Start: 62868, Stop: 63200, Start Num: 55

Candidate Starts for DoctorDiddles\_110:

(Start: 40 @62826 has 2 MA's), (Start: 55 @62868 has 18 MA's), (Start: 64 @62898 has 1 MA's), (91, 63042), (102, 63090), (108, 63114), (123, 63186),

Gene: DrManhattan\_26 Start: 20716, Stop: 21084, Start Num: 66

Candidate Starts for DrManhattan\_26:

(Start: 66 @20716 has 59 MA's), (Start: 73 @20740 has 3 MA's), (102, 20926), (109, 20953), (111, 20983),

Gene: DrSierra\_27 Start: 21394, Stop: 21762, Start Num: 66

Candidate Starts for DrSierra\_27:

(Start: 66 @21394 has 59 MA's), (Start: 73 @21418 has 3 MA's),

Gene: DrYang\_88 Start: 60507, Stop: 60866, Start Num: 51

Candidate Starts for DrYang\_88:

(Start: 51 @60507 has 16 MA's), (Start: 68 @60552 has 1 MA's), (69, 60555), (Start: 73 @60576 has 3 MA's), (82, 60651), (90, 60681), (98, 60699), (102, 60720), (108, 60744), (117, 60804),

Gene: E6\_49 Start: 32814, Stop: 33161, Start Num: 54

Candidate Starts for E6\_49:

(Start: 54 @32814 has 1 MA's), (Start: 73 @32838 has 3 MA's), (74, 32847), (86, 32937), (106, 33006), (117, 33072), (140, 33132), (145, 33153),

Gene: EdgarPoe\_91 Start: 60862, Stop: 61224, Start Num: 51

Candidate Starts for EdgarPoe\_91:

(Start: 51 @60862 has 16 MA's), (Start: 68 @60907 has 1 MA's), (69, 60910), (Start: 73 @60931 has 3 MA's), (82, 61006), (90, 61036), (98, 61054), (108, 61099), (117, 61159), (119, 61165),

Gene: Eggsie\_52 Start: 47363, Stop: 47001, Start Num: 58

Candidate Starts for Eggsie\_52:

(Start: 58 @47363 has 26 MA's), (Start: 60 @47360 has 4 MA's), (Start: 63 @47354 has 21 MA's), (Start: 73 @47324 has 3 MA's), (79, 47270), (120, 47069), (135, 47033),

Gene: Ekhein\_54 Start: 47416, Stop: 47060, Start Num: 63

Candidate Starts for Ekhein\_54:

(Start: 58 @47425 has 26 MA's), (Start: 63 @47416 has 21 MA's), (Start: 73 @47386 has 3 MA's), (82, 47311), (103, 47221), (109, 47194), (112, 47161), (120, 47131), (135, 47095),

Gene: Elezi\_29 Start: 24459, Stop: 24827, Start Num: 66

Candidate Starts for Elezi\_29:

(6, 24144), (7, 24156), (Start: 66 @24459 has 59 MA's), (70, 24465), (Start: 73 @24483 has 3 MA's), (101, 24666),

Gene: Emotion\_33 Start: 24307, Stop: 24687, Start Num: 66

Candidate Starts for Emotion\_33:

(Start: 66 @24307 has 59 MA's), (Start: 73 @24331 has 3 MA's), (85, 24424), (115, 24592),

Gene: EniyanLRS\_84 Start: 53647, Stop: 54018, Start Num: 66

Candidate Starts for EniyanLRS\_84:

(Start: 60 @53635 has 4 MA's), (62, 53638), (Start: 63 @53641 has 21 MA's), (Start: 66 @53647 has 59 MA's), (Start: 73 @53671 has 3 MA's), (77, 53713), (79, 53725), (91, 53788), (93, 53794), (101, 53833), (105, 53848), (106, 53857), (108, 53863), (112, 53899), (115, 53911), (118, 53923), (120, 53929), (142, 53986), (145, 54004),

Gene: Eraser\_29 Start: 24451, Stop: 24819, Start Num: 31

Candidate Starts for Eraser\_29:

(12, 24286), (Start: 31 @24451 has 3 MA's), (Start: 73 @24475 has 3 MA's),

Gene: Exiguo\_53 Start: 47428, Stop: 47075, Start Num: 63

Candidate Starts for Exiguo\_53:

(Start: 58 @47437 has 26 MA's), (Start: 63 @47428 has 21 MA's), (Start: 73 @47398 has 3 MA's), (82, 47323), (103, 47233), (109, 47206), (112, 47173), (120, 47143), (135, 47107),

Gene: FelixAlejandro\_58 Start: 49931, Stop: 49569, Start Num: 58

Candidate Starts for FelixAlejandro\_58:

(Start: 58 @49931 has 26 MA's), (Start: 63 @49922 has 21 MA's), (Start: 73 @49892 has 3 MA's), (82, 49817), (103, 49727), (107, 49706), (109, 49700), (112, 49667), (120, 49637), (135, 49601),

Gene: Filch\_114 Start: 63550, Stop: 63882, Start Num: 55

Candidate Starts for Filch\_114:

(Start: 55 @63550 has 18 MA's), (Start: 64 @63580 has 1 MA's), (91, 63724), (102, 63772), (108, 63796), (123, 63868),

Gene: Flakey\_53 Start: 48292, Stop: 47939, Start Num: 63

Candidate Starts for Flakey\_53:

(Start: 58 @48301 has 26 MA's), (Start: 63 @48292 has 21 MA's), (Start: 73 @48262 has 3 MA's), (82, 48187), (103, 48097), (109, 48070), (112, 48037), (120, 48007), (135, 47971),

Gene: Floof\_30 Start: 23138, Stop: 23557, Start Num: 38

Candidate Starts for Floof\_30:

(Start: 38 @23138 has 4 MA's), (72, 23213), (Start: 73 @23225 has 3 MA's), (100, 23393), (115, 23477), (122, 23501),

Gene: Francois\_65 Start: 42391, Stop: 42777, Start Num: 63

Candidate Starts for Francois\_65:

(34, 42274), (37, 42304), (43, 42334), (Start: 63 @42391 has 21 MA's), (Start: 73 @42421 has 3 MA's), (81, 42490), (108, 42598), (119, 42664), (144, 42736), (151, 42766),

Gene: GMA7\_46 Start: 42634, Stop: 42269, Start Num: 57

Candidate Starts for GMA7\_46:

(Start: 57 @42634 has 36 MA's), (Start: 73 @42592 has 3 MA's), (97, 42454), (103, 42427), (111, 42370),

Gene: GTE7\_45 Start: 42665, Stop: 42300, Start Num: 57

Candidate Starts for GTE7\_45:

(Start: 57 @42665 has 36 MA's), (Start: 73 @42623 has 3 MA's), (97, 42485), (103, 42458), (111, 42401),

Gene: Gaia\_125 Start: 69310, Stop: 69603, Start Num: 66

Candidate Starts for Gaia\_125:

(Start: 66 @69310 has 59 MA's), (Start: 71 @69316 has 1 MA's), (Start: 73 @69334 has 3 MA's), (82, 69409), (100, 69481), (102, 69490), (113, 69556), (118, 69574), (120, 69580), (123, 69586),

Gene: GalacticEye\_51 Start: 48442, Stop: 48077, Start Num: 57

Candidate Starts for GalacticEye\_51:

(Start: 57 @48442 has 36 MA's), (Start: 73 @48400 has 3 MA's), (89, 48295), (109, 48208), (111, 48178), (112, 48175), (120, 48145),

Gene: Galaxy\_50 Start: 32207, Stop: 32593, Start Num: 59

Candidate Starts for Galaxy\_50:

(28, 32063), (Start: 54 @32198 has 1 MA's), (Start: 59 @32207 has 10 MA's), (69, 32225), (Start: 73 @32246 has 3 MA's), (96, 32369), (98, 32378), (106, 32417), (114, 32468), (139, 32543),

Gene: GardenState\_30 Start: 22984, Stop: 23337, Start Num: 58

Candidate Starts for GardenState\_30:

(29, 22870), (Start: 58 @22984 has 26 MA's), (Start: 73 @23017 has 3 MA's), (100, 23182), (110, 23230), (113, 23257),

Gene: Glotell\_57 Start: 33167, Stop: 33562, Start Num: 40

Candidate Starts for Glotell\_57:

(Start: 40 @33167 has 2 MA's), (Start: 48 @33191 has 6 MA's), (72, 33218), (Start: 73 @33230 has 3 MA's), (78, 33281), (96, 33350), (98, 33359), (103, 33383), (106, 33398), (119, 33470), (139, 33524), (143, 33533),

Gene: Goku\_111 Start: 64093, Stop: 64425, Start Num: 55

Candidate Starts for Goku\_111:

(Start: 55 @64093 has 18 MA's), (Start: 64 @64123 has 1 MA's), (91, 64267), (102, 64315), (108, 64339), (123, 64411),

Gene: Goldilocks\_115 Start: 63774, Stop: 64106, Start Num: 55

Candidate Starts for Goldilocks\_115:

(Start: 55 @63774 has 18 MA's), (Start: 64 @63804 has 1 MA's), (91, 63948), (102, 63996), (108, 64020), (123, 64092),

Gene: Gonephishing\_156 Start: 85217, Stop: 85597, Start Num: 57

Candidate Starts for Gonephishing\_156:

(Start: 57 @85217 has 36 MA's), (Start: 73 @85259 has 3 MA's), (82, 85334), (102, 85415), (120, 85508), (123, 85514), (125, 85517), (146, 85586),

Gene: Gorko\_53 Start: 47420, Stop: 47067, Start Num: 63

Candidate Starts for Gorko\_53:

(Start: 58 @47429 has 26 MA's), (Start: 63 @47420 has 21 MA's), (Start: 73 @47390 has 3 MA's), (82, 47315), (103, 47225), (109, 47198), (112, 47165), (120, 47135), (135, 47099),



Gene: GourdThymes\_54 Start: 48303, Stop: 47941, Start Num: 58

Candidate Starts for GourdThymes\_54:

(Start: 58 @48303 has 26 MA's), (Start: 63 @48294 has 21 MA's), (Start: 73 @48264 has 3 MA's), (82, 48189), (103, 48099), (109, 48072), (112, 48039), (120, 48009), (135, 47973),

Gene: GrandSlam\_67 Start: 43371, Stop: 43757, Start Num: 63

Candidate Starts for GrandSlam\_67:

(20, 43131), (24, 43179), (26, 43200), (34, 43254), (43, 43314), (Start: 57 @43359 has 36 MA's), (Start: 63 @43371 has 21 MA's), (Start: 73 @43401 has 3 MA's), (82, 43476), (108, 43578), (119, 43644),

Gene: Gravel\_62 Start: 34684, Stop: 35061, Start Num: 59

Candidate Starts for Gravel\_62:

(32, 34564), (42, 34642), (Start: 59 @34684 has 10 MA's), (69, 34702), (Start: 73 @34723 has 3 MA's), (82, 34798), (98, 34855), (106, 34894), (111, 34933), (139, 35020),

Gene: Gretchen\_30 Start: 24301, Stop: 24720, Start Num: 38

Candidate Starts for Gretchen\_30:

(Start: 38 @24301 has 4 MA's), (49, 24343), (Start: 73 @24388 has 3 MA's), (87, 24499), (94, 24529), (100, 24556), (102, 24565), (115, 24640),

Gene: Gudmit\_64 Start: 38580, Stop: 38909, Start Num: 63

Candidate Starts for Gudmit\_64:

(4, 38091), (8, 38199), (15, 38298), (Start: 63 @38580 has 21 MA's), (Start: 73 @38610 has 3 MA's), (79, 38664), (82, 38685), (84, 38688), (98, 38742), (107, 38784), (108, 38787),

Gene: Guillaume\_51 Start: 48492, Stop: 48127, Start Num: 57

Candidate Starts for Guillaume\_51:

(Start: 57 @48492 has 36 MA's), (Start: 73 @48450 has 3 MA's), (89, 48345), (109, 48258), (111, 48228), (112, 48225), (120, 48195),

Gene: Hail2Pitt\_50 Start: 48968, Stop: 48603, Start Num: 57

Candidate Starts for Hail2Pitt\_50:

(Start: 57 @48968 has 36 MA's), (Start: 73 @48926 has 3 MA's), (89, 48821), (109, 48734), (112, 48701), (120, 48671),

Gene: HamCheese\_53 Start: 33107, Stop: 33502, Start Num: 40

Candidate Starts for HamCheese\_53:

(Start: 40 @33107 has 2 MA's), (Start: 48 @33131 has 6 MA's), (72, 33158), (Start: 73 @33170 has 3 MA's), (78, 33221), (96, 33290), (98, 33299), (103, 33323), (106, 33338), (119, 33410), (139, 33464),

Gene: Hamood\_67 Start: 43371, Stop: 43757, Start Num: 63

Candidate Starts for Hamood\_67:

(20, 43131), (24, 43179), (26, 43200), (34, 43254), (43, 43314), (Start: 57 @43359 has 36 MA's), (Start: 63 @43371 has 21 MA's), (Start: 73 @43401 has 3 MA's), (82, 43476), (108, 43578), (119, 43644),

Gene: HannahPhantana\_54 Start: 32646, Stop: 33014, Start Num: 46

Candidate Starts for HannahPhantana\_54:

(Start: 44 @32637 has 1 MA's), (Start: 46 @32646 has 9 MA's), (Start: 73 @32688 has 3 MA's), (96, 32805), (98, 32814), (106, 32853), (119, 32925), (139, 32979),

Gene: Harambe\_51 Start: 48759, Stop: 48394, Start Num: 57

Candidate Starts for Harambe\_51:

(Start: 57 @48759 has 36 MA's), (Start: 73 @48717 has 3 MA's), (89, 48612), (109, 48525), (111, 48495), (112, 48492), (120, 48462),

Gene: HayZem\_56 Start: 48417, Stop: 48052, Start Num: 57

Candidate Starts for HayZem\_56:

(Start: 57 @48417 has 36 MA's), (Start: 73 @48375 has 3 MA's), (97, 48237), (103, 48210), (111, 48153),

Gene: Hello\_51 Start: 48721, Stop: 48356, Start Num: 57

Candidate Starts for Hello\_51:

(Start: 57 @48721 has 36 MA's), (Start: 73 @48679 has 3 MA's), (89, 48574), (109, 48487), (111, 48457), (112, 48454), (120, 48424),

Gene: Hollow\_49 Start: 48928, Stop: 48560, Start Num: 66

Candidate Starts for Hollow\_49:

(Start: 66 @48928 has 59 MA's), (Start: 73 @48904 has 3 MA's), (109, 48697), (123, 48628), (143, 48571),

Gene: Holt\_117 Start: 64172, Stop: 64504, Start Num: 55

Candidate Starts for Holt\_117:

(Start: 55 @64172 has 18 MA's), (Start: 64 @64202 has 1 MA's), (91, 64346), (102, 64394), (108, 64418), (123, 64490),

Gene: Hotorobo\_54 Start: 48308, Stop: 47946, Start Num: 58

Candidate Starts for Hotorobo\_54:

(Start: 58 @48308 has 26 MA's), (Start: 63 @48299 has 21 MA's), (Start: 73 @48269 has 3 MA's), (82, 48194), (103, 48104), (109, 48077), (112, 48044), (120, 48014), (135, 47978),

Gene: HumptyDumpty\_92 Start: 60665, Stop: 61027, Start Num: 51

Candidate Starts for HumptyDumpty\_92:

(Start: 51 @60665 has 16 MA's), (Start: 68 @60710 has 1 MA's), (69, 60713), (Start: 73 @60734 has 3 MA's), (82, 60809), (90, 60839), (98, 60857), (108, 60902), (117, 60962), (119, 60968),

Gene: IAmGroot\_30 Start: 23648, Stop: 24001, Start Num: 58

Candidate Starts for IAmGroot\_30:

(29, 23534), (Start: 58 @23648 has 26 MA's), (Start: 73 @23681 has 3 MA's), (100, 23846), (110, 23894), (113, 23921),

Gene: Icee\_113 Start: 63282, Stop: 63614, Start Num: 55

Candidate Starts for Icee\_113:

(Start: 55 @63282 has 18 MA's), (Start: 64 @63312 has 1 MA's), (91, 63456), (102, 63504), (108, 63528), (123, 63600),

Gene: Inca\_108 Start: 61449, Stop: 61823, Start Num: 40

Candidate Starts for Inca\_108:

(Start: 40 @61449 has 2 MA's), (Start: 55 @61491 has 18 MA's), (Start: 64 @61521 has 1 MA's), (91, 61665), (102, 61713), (108, 61737), (123, 61809),

Gene: Island3\_56 Start: 37993, Stop: 38289, Start Num: 63

Candidate Starts for Island3\_56:

(56, 37969), (Start: 63 @37993 has 21 MA's), (Start: 73 @38017 has 3 MA's), (75, 38047), (79, 38071), (98, 38149), (100, 38161), (103, 38170), (107, 38191), (120, 38260),

Gene: Iter\_28 Start: 22439, Stop: 22807, Start Num: 66

Candidate Starts for Iter\_28:

(Start: 66 @22439 has 59 MA's), (Start: 73 @22463 has 3 MA's), (102, 22649),

Gene: IttyBittyPiggy\_28 Start: 22679, Stop: 23044, Start Num: 66

Candidate Starts for IttyBittyPiggy\_28:

(Start: 66 @22679 has 59 MA's), (Start: 73 @22703 has 3 MA's), (82, 22778), (102, 22889), (138, 23027),

Gene: JaNo\_91 Start: 60636, Stop: 60998, Start Num: 51

Candidate Starts for JaNo\_91:

(Start: 51 @60636 has 16 MA's), (Start: 68 @60681 has 1 MA's), (69, 60684), (Start: 73 @60705 has 3 MA's), (82, 60780), (90, 60810), (98, 60828), (108, 60873), (117, 60933), (119, 60939),

Gene: Jams\_51 Start: 47931, Stop: 47566, Start Num: 57

Candidate Starts for Jams\_51:

(Start: 57 @47931 has 36 MA's), (Start: 73 @47889 has 3 MA's), (89, 47784), (109, 47697), (111, 47667), (112, 47664), (120, 47634),

Gene: Jamun\_50 Start: 33451, Stop: 33831, Start Num: 59

Candidate Starts for Jamun\_50:

(Start: 54 @33442 has 1 MA's), (Start: 59 @33451 has 10 MA's), (Start: 73 @33484 has 3 MA's), (98, 33616), (106, 33655), (113, 33703), (119, 33727), (139, 33781),

Gene: Janeemi\_30 Start: 24658, Stop: 25026, Start Num: 66

Candidate Starts for Janeemi\_30:

(Start: 66 @24658 has 59 MA's), (Start: 73 @24682 has 3 MA's), (95, 24835), (102, 24868),

Gene: Jankie\_28 Start: 21876, Stop: 22235, Start Num: 64

Candidate Starts for Jankie\_28:

(3, 21531), (12, 21711), (Start: 64 @21876 has 1 MA's), (Start: 73 @21906 has 3 MA's), (92, 22035), (110, 22134), (113, 22161),

Gene: JasmineDragon\_33 Start: 23709, Stop: 24083, Start Num: 66

Candidate Starts for JasmineDragon\_33:

(Start: 66 @23709 has 59 MA's), (Start: 73 @23733 has 3 MA's), (85, 23826), (98, 23898), (108, 23946), (124, 24021),

Gene: JayCookie\_92 Start: 61198, Stop: 61560, Start Num: 51

Candidate Starts for JayCookie\_92:

(Start: 51 @61198 has 16 MA's), (Start: 68 @61243 has 1 MA's), (69, 61246), (Start: 73 @61267 has 3 MA's), (82, 61342), (90, 61372), (98, 61390), (108, 61435), (117, 61495), (119, 61501),

Gene: JeTaime\_110 Start: 63384, Stop: 63716, Start Num: 55

Candidate Starts for JeTaime\_110:

(Start: 55 @63384 has 18 MA's), (Start: 64 @63414 has 1 MA's), (91, 63558), (102, 63606), (108, 63630), (123, 63702),

Gene: Jellybones\_56 Start: 49403, Stop: 49041, Start Num: 58

Candidate Starts for Jellybones\_56:

(Start: 58 @49403 has 26 MA's), (Start: 63 @49394 has 21 MA's), (Start: 73 @49364 has 3 MA's), (82, 49289), (103, 49199), (109, 49172), (112, 49139), (120, 49109), (123, 49103),

Gene: Jerole\_63 Start: 32812, Stop: 33138, Start Num: 73

Candidate Starts for Jerole\_63:

(Start: 44 @32761 has 1 MA's), (Start: 46 @32770 has 9 MA's), (Start: 73 @32812 has 3 MA's), (96, 32929), (98, 32938), (106, 32977), (119, 33049), (139, 33103),

Gene: Joemato\_27 Start: 22364, Stop: 22729, Start Num: 66

Candidate Starts for Joemato\_27:

(Start: 66 @22364 has 59 MA's), (Start: 73 @22388 has 3 MA's), (101, 22571),

Gene: John316\_57 Start: 49466, Stop: 49104, Start Num: 58

Candidate Starts for John316\_57:

(Start: 58 @49466 has 26 MA's), (Start: 63 @49457 has 21 MA's), (Start: 73 @49427 has 3 MA's), (82, 49352), (103, 49262), (109, 49235), (112, 49202), (120, 49172), (135, 49136),

Gene: JohnDoe\_27 Start: 22359, Stop: 22724, Start Num: 66

Candidate Starts for JohnDoe\_27:

(Start: 66 @22359 has 59 MA's), (Start: 73 @22383 has 3 MA's), (101, 22566),

Gene: Jormungandr\_51 Start: 48474, Stop: 48109, Start Num: 57

Candidate Starts for Jormungandr\_51:

(Start: 57 @48474 has 36 MA's), (Start: 73 @48432 has 3 MA's), (89, 48327), (109, 48240), (111, 48210), (112, 48207), (120, 48177),

Gene: Jstan\_31 Start: 24469, Stop: 24813, Start Num: 73

Candidate Starts for Jstan\_31:

(12, 24280), (Start: 31 @24445 has 3 MA's), (Start: 73 @24469 has 3 MA's),

Gene: JuneStar\_28 Start: 24589, Stop: 24957, Start Num: 66

Candidate Starts for JuneStar\_28:

(12, 24424), (Start: 66 @24589 has 59 MA's), (Start: 73 @24613 has 3 MA's),

Gene: Juno112\_53 Start: 33147, Stop: 33518, Start Num: 48

Candidate Starts for Juno112\_53:

(Start: 40 @33123 has 2 MA's), (Start: 48 @33147 has 6 MA's), (72, 33174), (Start: 73 @33186 has 3 MA's), (78, 33237), (96, 33306), (98, 33315), (103, 33339), (106, 33354), (119, 33426), (139, 33480),

Gene: KBurrousTX\_90 Start: 62135, Stop: 62494, Start Num: 51

Candidate Starts for KBurrousTX\_90:

(Start: 51 @62135 has 16 MA's), (Start: 68 @62180 has 1 MA's), (69, 62183), (Start: 73 @62204 has 3 MA's), (82, 62279), (90, 62309), (98, 62327), (108, 62372), (117, 62432),

Gene: KHumphrey\_54 Start: 33011, Stop: 33406, Start Num: 40

Candidate Starts for KHumphrey\_54:

(Start: 40 @33011 has 2 MA's), (Start: 48 @33035 has 6 MA's), (72, 33062), (Start: 73 @33074 has 3 MA's), (78, 33125), (96, 33194), (98, 33203), (103, 33227), (106, 33242), (119, 33314), (139, 33368),

Gene: Kabreeze\_92 Start: 60722, Stop: 61084, Start Num: 51

Candidate Starts for Kabreeze\_92:

(Start: 51 @60722 has 16 MA's), (Start: 68 @60767 has 1 MA's), (69, 60770), (Start: 73 @60791 has 3 MA's), (82, 60866), (90, 60896), (98, 60914), (108, 60959), (117, 61019), (119, 61025),

Gene: Kaseim\_51 Start: 47916, Stop: 47551, Start Num: 57

Candidate Starts for Kaseim\_51:

(Start: 57 @47916 has 36 MA's), (Start: 73 @47874 has 3 MA's), (89, 47769), (109, 47682), (111, 47652), (112, 47649), (120, 47619),

Gene: Katyusha\_48 Start: 48592, Stop: 48224, Start Num: 66

Candidate Starts for Katyusha\_48:

(Start: 66 @48592 has 59 MA's), (Start: 73 @48568 has 3 MA's), (109, 48361), (123, 48292), (143, 48235),

Gene: Kaylissa\_27 Start: 22354, Stop: 22719, Start Num: 66

Candidate Starts for Kaylissa\_27:

(Start: 66 @22354 has 59 MA's), (Start: 73 @22378 has 3 MA's), (101, 22561),

Gene: KeAlii\_28 Start: 22518, Stop: 22889, Start Num: 66

Candidate Starts for KeAlii\_28:

(12, 22341), (Start: 66 @22518 has 59 MA's), (Start: 73 @22542 has 3 MA's),

Gene: Kepler\_54 Start: 32767, Stop: 33135, Start Num: 46

Candidate Starts for Kepler\_54:

(Start: 44 @32758 has 1 MA's), (Start: 46 @32767 has 9 MA's), (Start: 73 @32809 has 3 MA's), (96, 32926), (98, 32935), (106, 32974), (119, 33046), (139, 33100),

Gene: Kimchi\_116 Start: 63899, Stop: 64231, Start Num: 55

Candidate Starts for Kimchi\_116:

(Start: 55 @63899 has 18 MA's), (Start: 64 @63929 has 1 MA's), (91, 64073), (102, 64121), (108, 64145), (123, 64217),

Gene: Kuleana\_54 Start: 32362, Stop: 32733, Start Num: 46

Candidate Starts for Kuleana\_54:

(Start: 44 @32353 has 1 MA's), (Start: 46 @32362 has 9 MA's), (Start: 55 @32383 has 18 MA's), (Start: 73 @32404 has 3 MA's), (82, 32479), (96, 32521), (98, 32530), (106, 32569), (108, 32575), (119, 32641), (122, 32647),

Gene: Kvothe\_48 Start: 48491, Stop: 48123, Start Num: 66

Candidate Starts for Kvothe\_48:

(Start: 66 @48491 has 59 MA's), (Start: 73 @48467 has 3 MA's), (109, 48260), (123, 48191), (143, 48134),

Gene: LadyAstra\_34 Start: 23749, Stop: 24123, Start Num: 66

Candidate Starts for LadyAstra\_34:

(Start: 66 @23749 has 59 MA's), (Start: 73 @23773 has 3 MA's), (82, 23848), (85, 23866), (98, 23938), (103, 23962), (124, 24061),

Gene: Lahirium\_51 Start: 48996, Stop: 48631, Start Num: 57

Candidate Starts for Lahirium\_51:

(Start: 57 @48996 has 36 MA's), (Start: 73 @48954 has 3 MA's), (89, 48849), (109, 48762), (111, 48732), (112, 48729), (120, 48699),

Gene: Lego\_27 Start: 22308, Stop: 22673, Start Num: 66

Candidate Starts for Lego\_27:

(Start: 66 @22308 has 59 MA's), (Start: 73 @22332 has 3 MA's), (101, 22515),

Gene: Leona\_53 Start: 33226, Stop: 33597, Start Num: 48

Candidate Starts for Leona\_53:

(Start: 40 @33202 has 2 MA's), (Start: 48 @33226 has 6 MA's), (72, 33253), (Start: 73 @33265 has 3 MA's), (78, 33316), (96, 33385), (98, 33394), (103, 33418), (106, 33433), (119, 33505), (139, 33559),

Gene: Lidong\_51 Start: 48731, Stop: 48366, Start Num: 57

Candidate Starts for Lidong\_51:

(Start: 57 @48731 has 36 MA's), (Start: 73 @48689 has 3 MA's), (89, 48584), (109, 48497), (111, 48467), (112, 48464), (120, 48434),

Gene: Liebe\_28 Start: 23243, Stop: 23641, Start Num: 66

Candidate Starts for Liebe\_28:

(Start: 66 @23243 has 59 MA's), (Start: 73 @23267 has 3 MA's), (76, 23303), (98, 23432), (109, 23480), (112, 23513), (149, 23630),

Gene: Linetti\_54 Start: 49072, Stop: 48710, Start Num: 58

Candidate Starts for Linetti\_54:

(45, 49120), (Start: 58 @49072 has 26 MA's), (Start: 60 @49069 has 4 MA's), (Start: 73 @49033 has 3 MA's), (82, 48958), (103, 48868), (109, 48841), (112, 48808), (120, 48778), (123, 48772), (135, 48742),

Gene: Linus\_92 Start: 61170, Stop: 61532, Start Num: 51

Candidate Starts for Linus\_92:

(Start: 51 @61170 has 16 MA's), (Start: 68 @61215 has 1 MA's), (69, 61218), (Start: 73 @61239 has 3 MA's), (82, 61314), (90, 61344), (98, 61362), (108, 61407), (117, 61467), (119, 61473),

Gene: LittleE\_170 Start: 88113, Stop: 88469, Start Num: 57

Candidate Starts for LittleE\_170:

(Start: 57 @88113 has 36 MA's), (Start: 73 @88155 has 3 MA's), (82, 88230), (102, 88311), (120, 88404), (123, 88410), (125, 88413), (134, 88434), (141, 88458),

Gene: LittleTokyo\_51 Start: 31575, Stop: 31949, Start Num: 59

Candidate Starts for LittleTokyo\_51:

(Start: 40 @31518 has 2 MA's), (Start: 59 @31575 has 10 MA's), (Start: 73 @31614 has 3 MA's), (98, 31743), (102, 31764), (119, 31854), (126, 31869), (134, 31887), (139, 31908),

Gene: Lizalica\_27 Start: 22357, Stop: 22722, Start Num: 66

Candidate Starts for Lizalica\_27:

(12, 22192), (Start: 66 @22357 has 59 MA's), (Start: 73 @22381 has 3 MA's), (101, 22564),

Gene: Lizzo\_54 Start: 48297, Stop: 47935, Start Num: 58

Candidate Starts for Lizzo\_54:

(Start: 58 @48297 has 26 MA's), (Start: 63 @48288 has 21 MA's), (Start: 73 @48258 has 3 MA's), (82, 48183), (103, 48093), (109, 48066), (112, 48033), (120, 48003), (135, 47967),

Gene: London\_29 Start: 24459, Stop: 24827, Start Num: 66

Candidate Starts for London\_29:

(6, 24144), (7, 24156), (Start: 66 @24459 has 59 MA's), (70, 24465), (Start: 73 @24483 has 3 MA's),

Gene: Lucky2013\_159 Start: 83586, Stop: 83966, Start Num: 57

Candidate Starts for Lucky2013\_159:

(Start: 57 @83586 has 36 MA's), (Start: 73 @83628 has 3 MA's), (82, 83703), (102, 83784), (120, 83877), (123, 83883), (125, 83886), (134, 83907), (141, 83931), (146, 83955),

Gene: Luker\_52 Start: 48949, Stop: 48584, Start Num: 57

Candidate Starts for Luker\_52:

(Start: 57 @48949 has 36 MA's), (Start: 73 @48907 has 3 MA's), (89, 48802), (109, 48715), (111, 48685), (112, 48682), (120, 48652),

Gene: Lunar\_54 Start: 32679, Stop: 33047, Start Num: 46

Candidate Starts for Lunar\_54:

(Start: 44 @32670 has 1 MA's), (Start: 46 @32679 has 9 MA's), (Start: 73 @32721 has 3 MA's), (96, 32838), (98, 32847), (106, 32886), (119, 32958), (139, 33012),

Gene: Lymara\_89 Start: 59643, Stop: 60005, Start Num: 51

Candidate Starts for Lymara\_89:

(Start: 51 @59643 has 16 MA's), (Start: 68 @59688 has 1 MA's), (69, 59691), (Start: 73 @59712 has 3 MA's), (82, 59787), (90, 59817), (98, 59835), (108, 59880), (117, 59940),

Gene: MaGuCo\_26 Start: 22035, Stop: 22442, Start Num: 66

Candidate Starts for MaGuCo\_26:

(1, 21519), (11, 21711), (35, 21909), (37, 21936), (Start: 66 @22035 has 59 MA's), (Start: 73 @22059 has 3 MA's), (98, 22224), (112, 22305), (149, 22431),

Gene: Marshmallow\_110 Start: 64096, Stop: 64428, Start Num: 55

Candidate Starts for Marshmallow\_110:

(Start: 55 @64096 has 18 MA's), (Start: 64 @64126 has 1 MA's), (91, 64270), (102, 64318), (108, 64342), (123, 64414),

Gene: MaryV\_88 Start: 53723, Stop: 54085, Start Num: 63

Candidate Starts for MaryV\_88:

(Start: 60 @53717 has 4 MA's), (62, 53720), (Start: 63 @53723 has 21 MA's), (Start: 66 @53729 has 59 MA's), (Start: 73 @53753 has 3 MA's), (77, 53795), (79, 53807), (91, 53870), (93, 53876), (101, 53915), (105, 53930), (106, 53939), (107, 53942), (108, 53945), (112, 53981), (115, 53993), (118, 54005), (120, 54011),

Gene: Maureen\_28 Start: 23243, Stop: 23641, Start Num: 66

Candidate Starts for Maureen\_28:

(Start: 66 @23243 has 59 MA's), (Start: 73 @23267 has 3 MA's), (76, 23303), (98, 23432), (109, 23480), (112, 23513), (149, 23630),

Gene: Melons\_54 Start: 32493, Stop: 32861, Start Num: 46

Candidate Starts for Melons\_54:

(Start: 44 @32484 has 1 MA's), (Start: 46 @32493 has 9 MA's), (Start: 73 @32535 has 3 MA's), (96, 32652), (98, 32661), (106, 32700), (119, 32772), (139, 32826),

Gene: MiaZeal\_166 Start: 84733, Stop: 85113, Start Num: 57

Candidate Starts for MiaZeal\_166:

(Start: 57 @84733 has 36 MA's), (Start: 73 @84775 has 3 MA's), (82, 84850), (102, 84931), (120, 85024), (123, 85030), (125, 85033), (134, 85054), (141, 85078), (146, 85102),

Gene: MiniMommy\_34 Start: 23734, Stop: 24084, Start Num: 73

Candidate Starts for MiniMommy\_34:

(Start: 66 @23710 has 59 MA's), (Start: 73 @23734 has 3 MA's), (85, 23827), (98, 23899), (108, 23947), (124, 24022),

Gene: Minos\_52 Start: 48473, Stop: 48108, Start Num: 57

Candidate Starts for Minos\_52:

(Start: 57 @48473 has 36 MA's), (Start: 73 @48431 has 3 MA's), (89, 48326), (109, 48239), (111, 48209), (112, 48206), (120, 48176),

Gene: MissSwiss\_26 Start: 20779, Stop: 21147, Start Num: 66

Candidate Starts for MissSwiss\_26:

(Start: 66 @20779 has 59 MA's), (Start: 73 @20803 has 3 MA's), (102, 20989), (109, 21016), (111, 21046),

Gene: Monty\_53 Start: 47447, Stop: 47085, Start Num: 58

Candidate Starts for Monty\_53:

(Start: 58 @47447 has 26 MA's), (Start: 63 @47438 has 21 MA's), (Start: 73 @47408 has 3 MA's), (82, 47333), (103, 47243), (109, 47216), (112, 47183), (120, 47153), (135, 47117),

Gene: Mordred\_92 Start: 60806, Stop: 61123, Start Num: 68

Candidate Starts for Mordred\_92:

(Start: 51 @60761 has 16 MA's), (Start: 68 @60806 has 1 MA's), (69, 60809), (Start: 73 @60830 has 3 MA's), (82, 60905), (90, 60935), (98, 60953), (108, 60998), (117, 61058), (119, 61064),

Gene: MoyaNatalis\_91 Start: 60689, Stop: 61006, Start Num: 68

Candidate Starts for MoyaNatalis\_91:

(Start: 51 @60644 has 16 MA's), (Start: 68 @60689 has 1 MA's), (69, 60692), (Start: 73 @60713 has 3 MA's), (82, 60788), (90, 60818), (98, 60836), (108, 60881), (117, 60941), (119, 60947),

Gene: MrWormie\_51 Start: 47634, Stop: 47269, Start Num: 57

Candidate Starts for MrWormie\_51:

(Start: 57 @47634 has 36 MA's), (Start: 73 @47592 has 3 MA's), (89, 47487), (109, 47400), (111, 47370), (112, 47367), (120, 47337),

Gene: Msay19\_58 Start: 49817, Stop: 49455, Start Num: 58

Candidate Starts for Msay19\_58:

(Start: 58 @49817 has 26 MA's), (Start: 63 @49808 has 21 MA's), (Start: 73 @49778 has 3 MA's), (82, 49703), (103, 49613), (107, 49592), (109, 49586), (112, 49553), (120, 49523), (123, 49517),

Gene: Mudpuppy\_27 Start: 22359, Stop: 22724, Start Num: 66

Candidate Starts for Mudpuppy\_27:

(12, 22197), (Start: 66 @22359 has 59 MA's), (Start: 73 @22383 has 3 MA's), (101, 22566),

Gene: Mulch\_65 Start: 42205, Stop: 42591, Start Num: 63

Candidate Starts for Mulch\_65:

(20, 41965), (24, 42013), (26, 42034), (34, 42088), (43, 42148), (Start: 57 @42193 has 36 MA's), (Start: 63 @42205 has 21 MA's), (Start: 73 @42235 has 3 MA's), (82, 42310), (108, 42412), (119, 42478),

Gene: Nadeem\_65 Start: 42193, Stop: 42579, Start Num: 63

Candidate Starts for Nadeem\_65:

(20, 41953), (24, 42001), (26, 42022), (34, 42076), (43, 42136), (Start: 57 @42181 has 36 MA's), (Start: 63 @42193 has 21 MA's), (Start: 73 @42223 has 3 MA's), (82, 42298), (108, 42400), (119, 42466),



Gene: NancyRae\_64 Start: 42143, Stop: 42529, Start Num: 63

Candidate Starts for NancyRae\_64:

(24, 41951), (26, 41972), (34, 42026), (43, 42086), (Start: 57 @42131 has 36 MA's), (Start: 63 @42143 has 21 MA's), (Start: 73 @42173 has 3 MA's), (82, 42248), (108, 42350), (119, 42416),

Gene: Nebkiss\_126 Start: 68242, Stop: 68529, Start Num: 71

Candidate Starts for Nebkiss\_126:

(Start: 66 @68236 has 59 MA's), (Start: 71 @68242 has 1 MA's), (Start: 73 @68260 has 3 MA's), (82, 68335), (100, 68407), (102, 68416), (113, 68482), (118, 68500), (120, 68506), (123, 68512),

Gene: Neoevie\_51 Start: 48735, Stop: 48370, Start Num: 57

Candidate Starts for Neoevie\_51:

(Start: 57 @48735 has 36 MA's), (Start: 73 @48693 has 3 MA's), (89, 48588), (109, 48501), (111, 48471), (112, 48468), (120, 48438),

Gene: Newt\_52 Start: 48963, Stop: 48598, Start Num: 57

Candidate Starts for Newt\_52:

(Start: 57 @48963 has 36 MA's), (Start: 73 @48921 has 3 MA's), (89, 48816), (109, 48729), (111, 48699), (112, 48696), (120, 48666),

Gene: Niagara\_48 Start: 48582, Stop: 48214, Start Num: 66

Candidate Starts for Niagara\_48:

(Start: 66 @48582 has 59 MA's), (Start: 73 @48558 has 3 MA's), (109, 48351), (123, 48282), (143, 48225),

Gene: Nimi13\_51 Start: 48482, Stop: 48117, Start Num: 57

Candidate Starts for Nimi13\_51:

(Start: 57 @48482 has 36 MA's), (Start: 73 @48440 has 3 MA's), (89, 48335), (109, 48248), (111, 48218), (112, 48215), (120, 48185),

Gene: Nimrod\_112 Start: 64244, Stop: 64576, Start Num: 55

Candidate Starts for Nimrod\_112:

(Start: 55 @64244 has 18 MA's), (Start: 64 @64274 has 1 MA's), (91, 64418), (102, 64466), (108, 64490), (123, 64562),

Gene: Niobe\_29 Start: 24445, Stop: 24813, Start Num: 31

Candidate Starts for Niobe\_29:

(12, 24280), (Start: 31 @24445 has 3 MA's), (Start: 73 @24469 has 3 MA's),

Gene: Nitro\_28 Start: 23769, Stop: 24137, Start Num: 66

Candidate Starts for Nitro\_28:

(12, 23607), (Start: 66 @23769 has 59 MA's), (Start: 73 @23793 has 3 MA's), (78, 23844), (101, 23976),

Gene: ObiToo\_30 Start: 22889, Stop: 23257, Start Num: 66

Candidate Starts for ObiToo\_30:

(7, 22481), (Start: 66 @22889 has 59 MA's), (Start: 73 @22913 has 3 MA's), (101, 23096), (102, 23099),

Gene: Optimus\_161 Start: 87411, Stop: 87791, Start Num: 57

Candidate Starts for Optimus\_161:

(Start: 57 @87411 has 36 MA's), (Start: 73 @87453 has 3 MA's), (82, 87528), (102, 87609), (120, 87702), (123, 87708), (125, 87711), (146, 87780),

Gene: Orcanus\_52 Start: 34039, Stop: 34413, Start Num: 59

Candidate Starts for Orcanus\_52:

(Start: 54 @34030 has 1 MA's), (Start: 59 @34039 has 10 MA's), (69, 34057), (Start: 73 @34078 has 3 MA's), (82, 34153), (98, 34210), (106, 34249), (111, 34288), (139, 34375),

Gene: Parada\_65 Start: 42205, Stop: 42591, Start Num: 63

Candidate Starts for Parada\_65:

(20, 41965), (24, 42013), (26, 42034), (34, 42088), (43, 42148), (Start: 57 @42193 has 36 MA's), (Start: 63 @42205 has 21 MA's), (Start: 73 @42235 has 3 MA's), (82, 42310), (108, 42412), (119, 42478),

Gene: Pelletreau\_62 Start: 34684, Stop: 35061, Start Num: 59

Candidate Starts for Pelletreau\_62:

(32, 34564), (42, 34642), (Start: 59 @34684 has 10 MA's), (69, 34702), (Start: 73 @34723 has 3 MA's), (82, 34798), (98, 34855), (106, 34894), (111, 34933), (139, 35020),

Gene: Percival\_30 Start: 24132, Stop: 24551, Start Num: 38

Candidate Starts for Percival\_30:

(Start: 38 @24132 has 4 MA's), (Start: 73 @24219 has 3 MA's), (87, 24330), (94, 24360), (100, 24387), (102, 24396), (115, 24471),

Gene: Philon9\_49 Start: 49613, Stop: 49245, Start Num: 66

Candidate Starts for Philon9\_49:

(Start: 66 @49613 has 59 MA's), (Start: 73 @49589 has 3 MA's), (82, 49514), (104, 49403), (109, 49382), (123, 49313), (143, 49256),

Gene: Phives\_30 Start: 24466, Stop: 24834, Start Num: 66

Candidate Starts for Phives\_30:

(Start: 66 @24466 has 59 MA's), (Start: 73 @24490 has 3 MA's), (95, 24643), (128, 24784),

Gene: PhluffyCoco\_54 Start: 33245, Stop: 33616, Start Num: 48

Candidate Starts for PhluffyCoco\_54:

(Start: 40 @33221 has 2 MA's), (Start: 48 @33245 has 6 MA's), (72, 33272), (Start: 73 @33284 has 3 MA's), (78, 33335), (96, 33404), (98, 33413), (103, 33437), (106, 33452), (119, 33524), (139, 33578),

Gene: PierreThree\_53 Start: 48715, Stop: 48356, Start Num: 60

Candidate Starts for PierreThree\_53:

(Start: 58 @48718 has 26 MA's), (Start: 60 @48715 has 4 MA's), (Start: 73 @48679 has 3 MA's), (82, 48604), (103, 48514), (109, 48487), (112, 48454), (120, 48424), (123, 48418), (135, 48388),

Gene: Pimento\_68 Start: 42324, Stop: 42710, Start Num: 63

Candidate Starts for Pimento\_68:

(20, 42084), (24, 42132), (26, 42153), (34, 42207), (43, 42267), (Start: 57 @42312 has 36 MA's), (Start: 63 @42324 has 21 MA's), (Start: 73 @42354 has 3 MA's), (82, 42429), (108, 42531), (119, 42597),

Gene: Pixelle\_28 Start: 24216, Stop: 24584, Start Num: 66

Candidate Starts for Pixelle\_28:

(Start: 66 @24216 has 59 MA's), (70, 24222), (72, 24228), (Start: 73 @24240 has 3 MA's), (101, 24423),

Gene: PokyPuppy\_53 Start: 48755, Stop: 48393, Start Num: 58

Candidate Starts for PokyPuppy\_53:

(Start: 58 @48755 has 26 MA's), (Start: 73 @48716 has 3 MA's), (82, 48641), (83, 48638), (103, 48551), (109, 48524), (112, 48491), (116, 48473), (120, 48461), (123, 48455),

Gene: Poland\_58 Start: 49796, Stop: 49434, Start Num: 58

Candidate Starts for Poland\_58:

(Start: 58 @49796 has 26 MA's), (Start: 63 @49787 has 21 MA's), (Start: 73 @49757 has 3 MA's), (82, 49682), (103, 49592), (107, 49571), (109, 49565), (112, 49532), (120, 49502), (123, 49496),

Gene: Polka\_53 Start: 32500, Stop: 32868, Start Num: 46

Candidate Starts for Polka\_53:

(Start: 44 @32491 has 1 MA's), (Start: 46 @32500 has 9 MA's), (Start: 73 @32542 has 3 MA's), (96, 32659), (98, 32668), (106, 32707), (119, 32779), (139, 32833),

Gene: Porcelain\_163 Start: 84532, Stop: 84912, Start Num: 57

Candidate Starts for Porcelain\_163:

(Start: 57 @84532 has 36 MA's), (Start: 73 @84574 has 3 MA's), (82, 84649), (102, 84730), (120, 84823), (123, 84829), (125, 84832), (134, 84853), (141, 84877), (146, 84901),

Gene: Porky\_110 Start: 63022, Stop: 63354, Start Num: 55

Candidate Starts for Porky\_110:

(Start: 55 @63022 has 18 MA's), (Start: 64 @63052 has 1 MA's), (91, 63196), (102, 63244), (108, 63268), (123, 63340),

Gene: Powerpuff\_27 Start: 22359, Stop: 22724, Start Num: 66

Candidate Starts for Powerpuff\_27:

(Start: 66 @22359 has 59 MA's), (Start: 73 @22383 has 3 MA's), (101, 22566),

Gene: PrincessTrina\_93 Start: 60952, Stop: 61314, Start Num: 51

Candidate Starts for PrincessTrina\_93:

(Start: 51 @60952 has 16 MA's), (Start: 68 @60997 has 1 MA's), (69, 61000), (Start: 73 @61021 has 3 MA's), (82, 61096), (90, 61126), (98, 61144), (108, 61189), (117, 61249), (119, 61255),

Gene: Pumpkins\_28 Start: 23311, Stop: 23679, Start Num: 66

Candidate Starts for Pumpkins\_28:

(5, 22846), (Start: 66 @23311 has 59 MA's), (Start: 73 @23335 has 3 MA's), (102, 23521),

Gene: Rattail\_54 Start: 33307, Stop: 33702, Start Num: 40

Candidate Starts for Rattail\_54:

(Start: 40 @33307 has 2 MA's), (Start: 48 @33331 has 6 MA's), (72, 33358), (Start: 73 @33370 has 3 MA's), (78, 33421), (96, 33490), (98, 33499), (103, 33523), (119, 33610), (139, 33664),

Gene: RedFox\_54 Start: 33244, Stop: 33615, Start Num: 48

Candidate Starts for RedFox\_54:

(Start: 40 @33220 has 2 MA's), (Start: 48 @33244 has 6 MA's), (72, 33271), (Start: 73 @33283 has 3 MA's), (78, 33334), (96, 33403), (98, 33412), (103, 33436), (106, 33451), (119, 33523), (139, 33577),

Gene: RedWattleHog\_124 Start: 92547, Stop: 92891, Start Num: 65

Candidate Starts for RedWattleHog\_124:

(Start: 65 @92547 has 3 MA's), (78, 92622), (88, 92676), (98, 92709), (106, 92748), (110, 92769), (120, 92820), (123, 92826), (133, 92850), (136, 92859),

Gene: Reedo\_27 Start: 20942, Stop: 21310, Start Num: 66

Candidate Starts for Reedo\_27:

(Start: 66 @20942 has 59 MA's), (Start: 73 @20966 has 3 MA's),

Gene: RemRem\_55 Start: 47437, Stop: 47075, Start Num: 58

Candidate Starts for RemRem\_55:

(Start: 58 @47437 has 26 MA's), (Start: 63 @47428 has 21 MA's), (Start: 73 @47398 has 3 MA's), (82, 47323), (103, 47233), (109, 47206), (112, 47173), (120, 47143), (135, 47107),

Gene: Renna12\_53 Start: 33097, Stop: 33468, Start Num: 48

Candidate Starts for Renna12\_53:

(Start: 40 @33073 has 2 MA's), (Start: 48 @33097 has 6 MA's), (72, 33124), (Start: 73 @33136 has 3 MA's), (96, 33256), (98, 33265), (103, 33289), (106, 33304), (119, 33376), (139, 33430),

Gene: RosiePosie\_92 Start: 60817, Stop: 61179, Start Num: 51

Candidate Starts for RosiePosie\_92:

(Start: 51 @60817 has 16 MA's), (Start: 68 @60862 has 1 MA's), (69, 60865), (Start: 73 @60886 has 3 MA's), (82, 60961), (90, 60991), (98, 61009), (108, 61054), (117, 61114), (119, 61120),

Gene: RoyalG\_53 Start: 48012, Stop: 47650, Start Num: 58

Candidate Starts for RoyalG\_53:

(Start: 58 @48012 has 26 MA's), (Start: 63 @48003 has 21 MA's), (Start: 73 @47973 has 3 MA's), (79, 47919), (83, 47895), (120, 47718), (135, 47682),

Gene: Ruchi\_50 Start: 32934, Stop: 33320, Start Num: 59

Candidate Starts for Ruchi\_50:

(Start: 54 @32925 has 1 MA's), (Start: 59 @32934 has 10 MA's), (69, 32952), (Start: 73 @32973 has 3 MA's), (82, 33048), (98, 33105), (106, 33144), (113, 33192), (119, 33216), (139, 33270),

Gene: Sam12\_53 Start: 47437, Stop: 47075, Start Num: 58

Candidate Starts for Sam12\_53:

(Start: 58 @47437 has 26 MA's), (Start: 63 @47428 has 21 MA's), (Start: 73 @47398 has 3 MA's), (82, 47323), (103, 47233), (109, 47206), (112, 47173), (120, 47143), (135, 47107),

Gene: Scavito\_93 Start: 60810, Stop: 61172, Start Num: 51

Candidate Starts for Scavito\_93:

(Start: 51 @60810 has 16 MA's), (Start: 68 @60855 has 1 MA's), (69, 60858), (Start: 73 @60879 has 3 MA's), (82, 60954), (90, 60984), (98, 61002), (108, 61047), (117, 61107), (119, 61113),

Gene: Shaffner\_29 Start: 23536, Stop: 23904, Start Num: 66

Candidate Starts for Shaffner\_29:

(16, 23401), (17, 23404), (18, 23422), (19, 23431), (22, 23458), (Start: 66 @23536 has 59 MA's), (Start: 73 @23560 has 3 MA's),

Gene: ShakeltOph\_34 Start: 23733, Stop: 24083, Start Num: 73

Candidate Starts for ShakeltOph\_34:

(Start: 66 @23709 has 59 MA's), (Start: 73 @23733 has 3 MA's), (85, 23826), (98, 23898), (108, 23946), (124, 24021),

Gene: Shambre1\_62 Start: 40086, Stop: 40415, Start Num: 53

Candidate Starts for Shambre1\_62:

(Start: 53 @40086 has 1 MA's), (Start: 73 @40113 has 3 MA's), (98, 40245),

Gene: Shelley\_51 Start: 47958, Stop: 47593, Start Num: 57

Candidate Starts for Shelley\_51:

(Start: 57 @47958 has 36 MA's), (Start: 73 @47916 has 3 MA's), (89, 47811), (109, 47724), (111, 47694), (112, 47691), (120, 47661),

Gene: Simpson\_29 Start: 22364, Stop: 22729, Start Num: 66

Candidate Starts for Simpson\_29:

(Start: 66 @22364 has 59 MA's), (Start: 73 @22388 has 3 MA's), (101, 22571),

Gene: Snek\_28 Start: 21512, Stop: 21880, Start Num: 66

Candidate Starts for Snek\_28:

(Start: 66 @21512 has 59 MA's), (Start: 73 @21536 has 3 MA's),

Gene: Sombrero\_54 Start: 47804, Stop: 47439, Start Num: 58

Candidate Starts for Sombrero\_54:

(Start: 58 @47804 has 26 MA's), (Start: 63 @47795 has 21 MA's), (Start: 73 @47765 has 3 MA's), (82, 47690), (103, 47600), (109, 47573), (112, 47540), (120, 47510), (123, 47504),

Gene: Squibbles\_53 Start: 48300, Stop: 47935, Start Num: 58

Candidate Starts for Squibbles\_53:

(Start: 58 @48300 has 26 MA's), (Start: 63 @48291 has 21 MA's), (Start: 73 @48261 has 3 MA's), (82, 48186), (103, 48096), (109, 48069), (112, 48036), (120, 48006), (135, 47970),

Gene: Squint\_157 Start: 84398, Stop: 84778, Start Num: 57

Candidate Starts for Squint\_157:

(Start: 57 @84398 has 36 MA's), (Start: 73 @84440 has 3 MA's), (82, 84515), (120, 84689), (123, 84695), (125, 84698), (146, 84767),

Gene: Stank\_114 Start: 63971, Stop: 64303, Start Num: 55

Candidate Starts for Stank\_114:

(Start: 55 @63971 has 18 MA's), (Start: 64 @64001 has 1 MA's), (91, 64145), (102, 64193), (108, 64217), (123, 64289),

Gene: SteveFrench\_52 Start: 48252, Stop: 47890, Start Num: 58

Candidate Starts for SteveFrench\_52:

(Start: 58 @48252 has 26 MA's), (Start: 63 @48243 has 21 MA's), (Start: 73 @48213 has 3 MA's), (79, 48159), (83, 48135), (120, 47958), (135, 47922),

Gene: Sticker17\_51 Start: 48473, Stop: 48108, Start Num: 57

Candidate Starts for Sticker17\_51:

(Start: 57 @48473 has 36 MA's), (Start: 73 @48431 has 3 MA's), (89, 48326), (109, 48239), (111, 48209), (112, 48206), (120, 48176),

Gene: Stormageddon\_123 Start: 92481, Stop: 92825, Start Num: 65

Candidate Starts for Stormageddon\_123:

(Start: 65 @92481 has 3 MA's), (78, 92556), (88, 92610), (98, 92643), (106, 92682), (110, 92703), (120, 92754), (123, 92760), (133, 92784), (136, 92793),

Gene: StuartMinion\_48 Start: 29935, Stop: 30324, Start Num: 41

Candidate Starts for StuartMinion\_48:

(33, 29863), (41, 29935), (47, 29956), (Start: 73 @29995 has 3 MA's), (78, 30046), (98, 30124), (103, 30148), (106, 30163), (119, 30235), (139, 30289), (148, 30313),

Gene: SuMoo\_28 Start: 21704, Stop: 22096, Start Num: 130

Candidate Starts for SuMoo\_28:

(9, 21047), (14, 21116), (23, 21197), (Start: 130 @21704 has 1 MA's), (150, 21773), (152, 21851), (153, 21884), (154, 21914), (155, 21941),

Gene: Sue2\_29 Start: 23242, Stop: 23610, Start Num: 66

Candidate Starts for Sue2\_29:

(12, 23062), (Start: 66 @23242 has 59 MA's), (Start: 73 @23266 has 3 MA's), (108, 23476), (129, 23563),

Gene: Superphikiman\_160 Start: 83453, Stop: 83833, Start Num: 57

Candidate Starts for Superphikiman\_160:

(Start: 57 @83453 has 36 MA's), (Start: 73 @83495 has 3 MA's), (82, 83570), (120, 83744), (123, 83750), (125, 83753), (146, 83822),

Gene: TBrady12\_115 Start: 63408, Stop: 63740, Start Num: 55

Candidate Starts for TBrady12\_115:

(Start: 55 @63408 has 18 MA's), (Start: 64 @63438 has 1 MA's), (91, 63582), (102, 63630), (108, 63654), (123, 63726),

Gene: Tallboi\_28 Start: 23797, Stop: 24162, Start Num: 66

Candidate Starts for Tallboi\_28:

(Start: 66 @23797 has 59 MA's), (Start: 73 @23821 has 3 MA's), (101, 24004),

Gene: TaylorSipht\_52 Start: 33579, Stop: 33953, Start Num: 59

Candidate Starts for TaylorSipht\_52:

(Start: 59 @33579 has 10 MA's), (72, 33606), (Start: 73 @33618 has 3 MA's), (80, 33681), (96, 33741), (98, 33750), (126, 33876), (137, 33906), (139, 33915),

Gene: Tbone\_27 Start: 22383, Stop: 22748, Start Num: 66

Candidate Starts for Tbone\_27:

(12, 22221), (Start: 66 @22383 has 59 MA's), (Start: 73 @22407 has 3 MA's), (101, 22590),

Gene: Teal\_51 Start: 48940, Stop: 48575, Start Num: 57

Candidate Starts for Teal\_51:

(Start: 57 @48940 has 36 MA's), (Start: 73 @48898 has 3 MA's), (89, 48793), (109, 48706), (111, 48676), (112, 48673), (120, 48643),

Gene: Teaspoon\_112 Start: 63986, Stop: 64288, Start Num: 64

Candidate Starts for Teaspoon\_112:

(Start: 55 @63956 has 18 MA's), (Start: 64 @63986 has 1 MA's), (91, 64130), (102, 64178), (108, 64202), (123, 64274),

Gene: Teatealatte\_49 Start: 48494, Stop: 48126, Start Num: 66

Candidate Starts for Teatealatte\_49:

(Start: 66 @48494 has 59 MA's), (Start: 73 @48470 has 3 MA's), (109, 48263), (123, 48194), (143, 48137),

Gene: Teech\_49 Start: 48295, Stop: 47927, Start Num: 66

Candidate Starts for Teech\_49:

(Start: 66 @48295 has 59 MA's), (Start: 73 @48271 has 3 MA's), (109, 48064), (123, 47995), (143, 47938),

Gene: TforTroy\_29 Start: 23185, Stop: 23553, Start Num: 66  
Candidate Starts for TforTroy\_29:  
(6, 22750), (7, 22762), (Start: 66 @23185 has 59 MA's), (Start: 73 @23209 has 3 MA's), (101, 23392),

Gene: Tian\_28 Start: 24196, Stop: 24564, Start Num: 66  
Candidate Starts for Tian\_28:  
(23, 24034), (Start: 66 @24196 has 59 MA's), (Start: 73 @24220 has 3 MA's), (101, 24403),

Gene: Tophat\_93 Start: 60999, Stop: 61361, Start Num: 51  
Candidate Starts for Tophat\_93:  
(Start: 51 @60999 has 16 MA's), (Start: 68 @61044 has 1 MA's), (69, 61047), (Start: 73 @61068 has 3 MA's), (82, 61143), (90, 61173), (98, 61191), (108, 61236), (117, 61296), (119, 61302),

Gene: Tredge\_49 Start: 48494, Stop: 48126, Start Num: 66  
Candidate Starts for Tredge\_49:  
(Start: 66 @48494 has 59 MA's), (Start: 73 @48470 has 3 MA's), (109, 48263), (123, 48194), (143, 48137),

Gene: Tuck\_31 Start: 25007, Stop: 25378, Start Num: 66  
Candidate Starts for Tuck\_31:  
(16, 24872), (17, 24875), (18, 24893), (22, 24929), (Start: 66 @25007 has 59 MA's), (70, 25013), (Start: 73 @25031 has 3 MA's), (102, 25217),

Gene: Turab\_27 Start: 22274, Stop: 22639, Start Num: 66  
Candidate Starts for Turab\_27:  
(12, 22109), (Start: 66 @22274 has 59 MA's), (Start: 73 @22298 has 3 MA's), (111, 22541),

Gene: Tutumahutu\_27 Start: 22358, Stop: 22723, Start Num: 66  
Candidate Starts for Tutumahutu\_27:  
(Start: 66 @22358 has 59 MA's), (Start: 73 @22382 has 3 MA's), (101, 22565),

Gene: Tweety19\_28 Start: 21511, Stop: 21879, Start Num: 66  
Candidate Starts for Tweety19\_28:  
(Start: 66 @21511 has 59 MA's), (Start: 73 @21535 has 3 MA's),

Gene: UtzChips\_27 Start: 22046, Stop: 22438, Start Num: 39  
Candidate Starts for UtzChips\_27:  
(Start: 39 @22046 has 2 MA's), (Start: 73 @22112 has 3 MA's), (83, 22190),

Gene: VResidence\_28 Start: 22506, Stop: 22880, Start Num: 66  
Candidate Starts for VResidence\_28:  
(Start: 66 @22506 has 59 MA's), (Start: 73 @22530 has 3 MA's), (102, 22716),

Gene: Vitaenoi\_49 Start: 49612, Stop: 49244, Start Num: 66  
Candidate Starts for Vitaenoi\_49:  
(Start: 66 @49612 has 59 MA's), (Start: 73 @49588 has 3 MA's), (82, 49513), (104, 49402), (109, 49381), (123, 49312), (143, 49255),

Gene: VroomVroom\_33 Start: 23804, Stop: 24178, Start Num: 66  
Candidate Starts for VroomVroom\_33:  
(Start: 66 @23804 has 59 MA's), (Start: 73 @23828 has 3 MA's), (85, 23921), (98, 23993), (103, 24017), (108, 24041), (124, 24116),

Gene: Vulpecula\_50 Start: 32594, Stop: 32980, Start Num: 59

Candidate Starts for Vulpecula\_50:

(Start: 54 @32585 has 1 MA's), (Start: 59 @32594 has 10 MA's), (69, 32612), (Start: 73 @32633 has 3 MA's), (82, 32708), (98, 32765), (106, 32804), (113, 32852), (119, 32876), (139, 32930),

Gene: Warda\_27 Start: 22358, Stop: 22723, Start Num: 66

Candidate Starts for Warda\_27:

(12, 22196), (Start: 66 @22358 has 59 MA's), (Start: 73 @22382 has 3 MA's), (101, 22565),

Gene: Westrich\_61 Start: 34608, Stop: 34985, Start Num: 59

Candidate Starts for Westrich\_61:

(32, 34488), (42, 34566), (Start: 59 @34608 has 10 MA's), (69, 34626), (Start: 73 @34647 has 3 MA's), (82, 34722), (98, 34779), (106, 34818), (111, 34857), (139, 34944),

Gene: WheatThin\_64 Start: 42193, Stop: 42579, Start Num: 63

Candidate Starts for WheatThin\_64:

(20, 41953), (24, 42001), (26, 42022), (34, 42076), (43, 42136), (Start: 57 @42181 has 36 MA's), (Start: 63 @42193 has 21 MA's), (Start: 73 @42223 has 3 MA's), (82, 42298), (108, 42400), (119, 42466),

Gene: Wiggin\_114 Start: 63401, Stop: 63733, Start Num: 55

Candidate Starts for Wiggin\_114:

(Start: 55 @63401 has 18 MA's), (Start: 64 @63431 has 1 MA's), (91, 63575), (102, 63623), (108, 63647), (123, 63719),

Gene: Wildcat\_88 Start: 53727, Stop: 54095, Start Num: 60

Candidate Starts for Wildcat\_88:

(Start: 60 @53727 has 4 MA's), (62, 53730), (Start: 63 @53733 has 21 MA's), (Start: 66 @53739 has 59 MA's), (Start: 73 @53763 has 3 MA's), (77, 53805), (79, 53817), (91, 53880), (93, 53886), (101, 53925), (105, 53940), (106, 53949), (107, 53952), (108, 53955), (112, 53991), (115, 54003), (118, 54015), (120, 54021),

Gene: Wildwest\_28 Start: 22362, Stop: 22703, Start Num: 73

Candidate Starts for Wildwest\_28:

(Start: 66 @22338 has 59 MA's), (Start: 73 @22362 has 3 MA's), (102, 22548),

Gene: Woes\_51 Start: 48991, Stop: 48626, Start Num: 57

Candidate Starts for Woes\_51:

(Start: 57 @48991 has 36 MA's), (Start: 73 @48949 has 3 MA's), (89, 48844), (109, 48757), (111, 48727), (112, 48724), (120, 48694),

Gene: Worcestershire\_54 Start: 47439, Stop: 47077, Start Num: 58

Candidate Starts for Worcestershire\_54:

(Start: 58 @47439 has 26 MA's), (Start: 63 @47430 has 21 MA's), (Start: 73 @47400 has 3 MA's), (82, 47325), (103, 47235), (109, 47208), (112, 47175), (120, 47145), (135, 47109),

Gene: Xandras\_111 Start: 63224, Stop: 63556, Start Num: 55

Candidate Starts for Xandras\_111:

(Start: 55 @63224 has 18 MA's), (Start: 64 @63254 has 1 MA's), (91, 63398), (102, 63446), (108, 63470), (123, 63542),

Gene: Yang\_28 Start: 22698, Stop: 23066, Start Num: 30



Candidate Starts for Yang\_28:

(Start: 30 @22698 has 1 MA's), (Start: 73 @22722 has 3 MA's), (82, 22797),

Gene: YesChef\_27 Start: 22359, Stop: 22724, Start Num: 66

Candidate Starts for YesChef\_27:

(Start: 66 @22359 has 59 MA's), (Start: 73 @22383 has 3 MA's), (101, 22566),

Gene: Zhuangyuan\_58 Start: 33443, Stop: 33811, Start Num: 59

Candidate Starts for Zhuangyuan\_58:

(Start: 40 @33389 has 2 MA's), (Start: 59 @33443 has 10 MA's), (69, 33458), (72, 33467), (Start: 73 @33479 has 3 MA's), (98, 33608), (99, 33614), (106, 33647), (109, 33656), (122, 33725), (126, 33734), (134, 33752), (139, 33773),