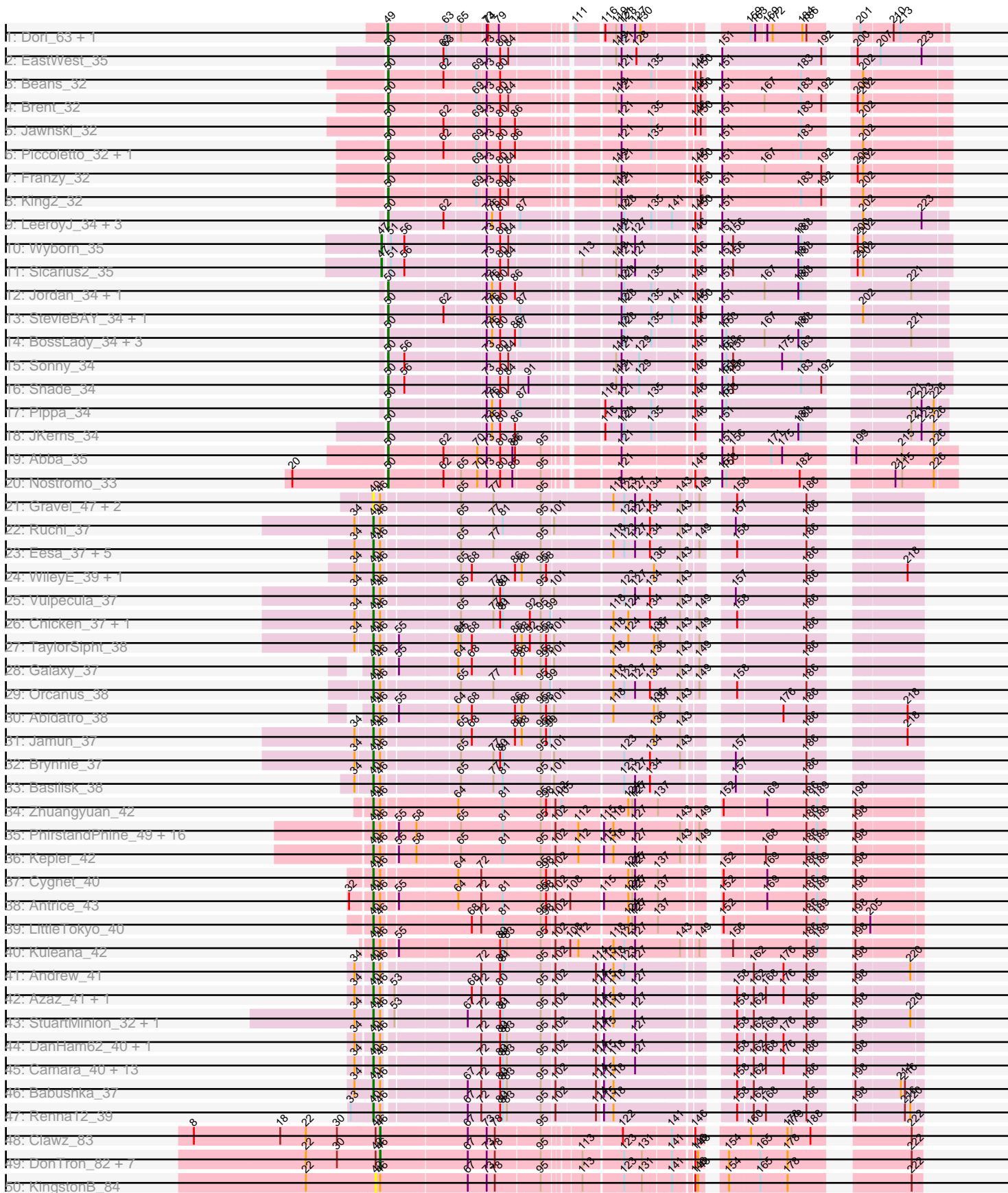
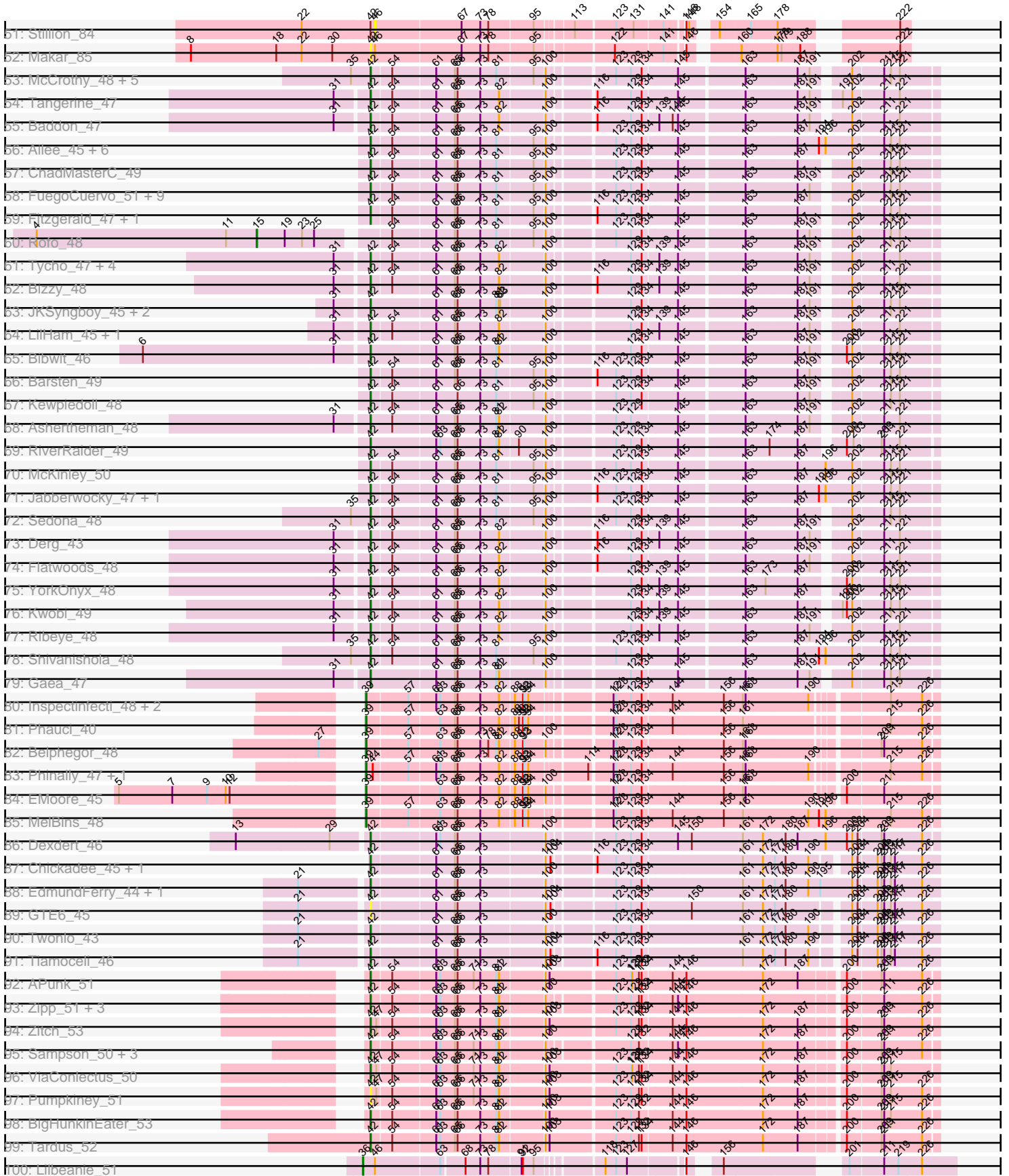


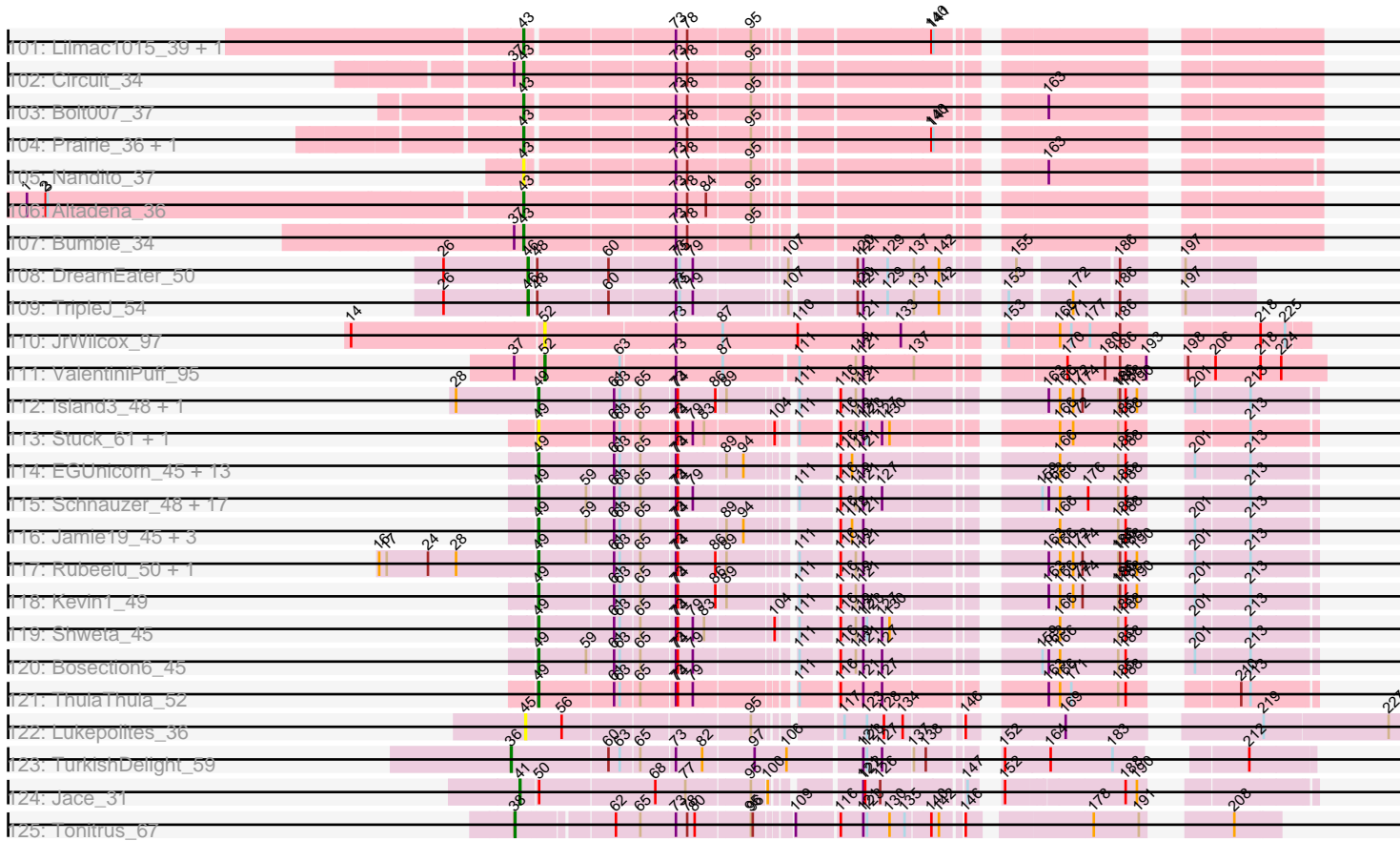
# Pham 303053



Pham 303053



Pham 303053



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 303053 Report

This analysis was run 06/08/26 on database version 649.

Pham number 303053 has 261 members, 40 are drafts.

Phages represented in each track:

- Track 1 : Dori\_63, Mask\_63
- Track 2 : EastWest\_35
- Track 3 : Beans\_32
- Track 4 : Brent\_32
- Track 5 : Jawnski\_32
- Track 6 : Piccoletto\_32, NathanVaag\_32
- Track 7 : Franzy\_32
- Track 8 : King2\_32
- Track 9 : LeeroyJ\_34, BarretLemon\_34, BigDome\_34, Timinator\_34
- Track 10 : Wyborn\_35
- Track 11 : Sicarius2\_35
- Track 12 : Jordan\_34, Zartrosa\_34
- Track 13 : StevieBAY\_34, GravityBall\_34
- Track 14 : BossLady\_34, Martha\_34, TaeYoung\_34, Grekaycon\_34
- Track 15 : Sonny\_34
- Track 16 : Shade\_34
- Track 17 : Pippa\_34
- Track 18 : JKerns\_34
- Track 19 : Abba\_35
- Track 20 : Nostromo\_33
- Track 21 : Gravel\_47, Pelletreau\_47, Westrich\_46
- Track 22 : Ruchi\_37
- Track 23 : Eesa\_37, KendraB23\_48, Amanises\_40, Shen\_37, Zixiang\_37, Toad24\_40
- Track 24 : WileyE\_39, Chickaboom\_39
- Track 25 : Vulpecula\_37
- Track 26 : Chicken\_37, Niblet\_37
- Track 27 : TaylorSipht\_38
- Track 28 : Galaxy\_37
- Track 29 : Orcanus\_38
- Track 30 : Abidatro\_38
- Track 31 : Jamun\_37
- Track 32 : Brynnie\_37
- Track 33 : Basilisk\_38
- Track 34 : Zhuangyuan\_42
- Track 35 : PhirstandPhine\_49, Melons\_42, Coral\_40, Bedetta\_45, Colusalem\_41, GramZayde\_42, OtsoOtso\_41, HannahPhantana\_41, Polka\_40, Damocles\_44,

Pineda\_43, Daob\_42, Amelia\_40, Jerole\_41, Bibble12\_44, Lunar\_42, Cote\_42

- Track 36 : Kepler\_42
- Track 37 : Cygnet\_40
- Track 38 : Antrice\_43
- Track 39 : LittleTokyo\_40
- Track 40 : Kuleana\_42
- Track 41 : Andrew\_41
- Track 42 : Azaz\_41, Leona\_39
- Track 43 : StuartMinion\_32, AlexMinion\_42
- Track 44 : DanHam62\_40, AmiCi24\_39
- Track 45 : Camara\_40, RedFox\_40, AdoptaAdorbs\_39, Atlantica\_40, Glotell\_41, Rattail\_40, Fingolfin\_40, Laphuphu24k\_39, PhluffyCoco\_40, Amphitrite\_40, HamCheese\_40, Juno112\_39, KHumphrey\_40, Oppalora\_39
- Track 46 : Babushka\_37
- Track 47 : Renna12\_39
- Track 48 : Clawz\_83
- Track 49 : DonTron\_82, Grumio\_83, ColdSoup\_85, Jollymon\_82, Purplicious\_82, Amo99\_85, Sting\_81, Soos\_78
- Track 50 : KingstonB\_84
- Track 51 : Stillion\_84
- Track 52 : Makar\_85
- Track 53 : McCrothy\_48, Galadriel\_48, Nordenberg\_43, Brandonk123\_50, Paries\_51, BobBob\_46
- Track 54 : Tangerine\_47
- Track 55 : Baddon\_47
- Track 56 : Ailee\_45, Sitar\_48, Affeca\_46, Keitabear\_48, Stultus\_47, Lennon\_48, Angelicage\_46
- Track 57 : ChadMasterC\_49
- Track 58 : FuegoCuervo\_51, Tangent\_49, Charming\_49, Geodirt\_47, Vivi2\_51, Fosterous\_46, Love\_52, MoontowerMania\_48, Kamashten\_46, Thing3\_46
- Track 59 : Fitzgerald\_47, Sanjuju\_47
- Track 60 : Rofo\_48
- Track 61 : Tycho\_47, SchottB\_46, Stichling\_45, StorminNorm\_47, Kroos\_48
- Track 62 : Bizzy\_48
- Track 63 : JKSyngboy\_45, Saronaya\_47, Gustavo\_47
- Track 64 : LilHam\_45, Baumdotcom\_46
- Track 65 : Bibwit\_46
- Track 66 : Barsten\_49
- Track 67 : Kewpiedoll\_48
- Track 68 : Ashertheman\_48
- Track 69 : RiverRaider\_49
- Track 70 : McKinley\_50
- Track 71 : Jabberwocky\_47, Brawn1\_45
- Track 72 : Sedona\_48
- Track 73 : Derg\_43
- Track 74 : Flatwoods\_48
- Track 75 : YorkOnyx\_48
- Track 76 : Kwobi\_49
- Track 77 : Ribeye\_48
- Track 78 : Shivanishola\_48
- Track 79 : Gaea\_47
- Track 80 : Inspectinfecti\_48, Ali17\_45, Hans\_49
- Track 81 : Phauci\_40

- Track 82 : Belphegor\_48
- Track 83 : Phinally\_47, Leonard\_47
- Track 84 : EMoore\_45
- Track 85 : MelBins\_48
- Track 86 : Dxdert\_46
- Track 87 : Chickadee\_45, Kwekel\_45
- Track 88 : EdmundFerry\_44, RoadKill\_43
- Track 89 : GTE6\_45
- Track 90 : Twonlo\_43
- Track 91 : Tiamoceli\_46
- Track 92 : APunk\_51
- Track 93 : Zipp\_51, Delrey21\_50, DoctorFroggo\_50, Verity\_50
- Track 94 : Zitch\_53
- Track 95 : Sampson\_50, Scioto\_51, Natkenzie\_50, Abblin\_50
- Track 96 : ViaConlectus\_50
- Track 97 : Pumpkiney\_51
- Track 98 : BigHunkinEater\_53
- Track 99 : Tardus\_52
- Track 100 : Lilbeanie\_51
- Track 101 : Lilmac1015\_39, CalWood4100\_39
- Track 102 : Circuit\_34
- Track 103 : Bolt007\_37
- Track 104 : Prairie\_36, Klevey\_37
- Track 105 : Nandito\_37
- Track 106 : Altadena\_36
- Track 107 : Bumble\_34
- Track 108 : DreamEater\_50
- Track 109 : TripleJ\_54
- Track 110 : JrWilcox\_97
- Track 111 : ValentiniPuff\_95
- Track 112 : Island3\_48, Brujita\_48
- Track 113 : Stuck\_61, Bluvara\_52
- Track 114 : EGUnicorn\_45, Rebel\_43, ShrimpFriedEgg\_51, BabeRuth\_52, Nenae\_51, Purgamenstris\_51, Impisi\_52, Phrann\_48, Redi\_51, Hanako\_51, Andies\_44, PhancyPhin\_51, Raymond7\_45, Spinach\_51
- Track 115 : Schnauzer\_48, Fulbright\_46, Melville\_50, Tessdabest\_48, Parmesanjohn\_47, Magsby\_47, Duplicity\_47, Phloss\_45, Silvafighter\_48, Tortoise12\_46, Carcharodon\_47, Gex\_47, Xerxes\_47, Pipsqueaks\_47, Smurph\_47, Scitech\_44, Tapioca\_49, Chewbacca\_49
- Track 116 : Jamie19\_45, Panchino\_44, SpongeBob\_45, Snekmaggedon\_45
- Track 117 : Rubeelu\_50, Butters\_50
- Track 118 : Kevin1\_49
- Track 119 : Shweta\_45
- Track 120 : Bosection6\_45
- Track 121 : ThulaThula\_52
- Track 122 : Lukepolites\_36
- Track 123 : TurkishDelight\_59
- Track 124 : Jace\_31
- Track 125 : Tonitrus\_67

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

The start number called the most often in the published annotations is 42, it was called in 72 of the 221 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- APunk\_51, Abblin\_50, Affeca\_46, Ailee\_45, Angelicage\_46, Ashertheman\_48, Baddon\_47, Barsten\_49, Baumdotcom\_46, Bibwit\_46, BigHunkinEater\_53, Bizzy\_48, BobBob\_46, Brandonk123\_50, Brawn1\_45, ChadMasterC\_49, Charming\_49, Chickadee\_45, Delrey21\_50, Derg\_43, Dexdert\_46, DoctorFroggo\_50, EdmundFerry\_44, Fitzgerald\_47, Flatwoods\_48, Fosterous\_46, FuegoCuervo\_51, GTE6\_45, Gaea\_47, Galadriel\_48, Geodirt\_47, Gustavo\_47, JKSyngboy\_45, Jabberwocky\_47, Kamashten\_46, Keitabear\_48, Kewpiedoll\_48, KingstonB\_84, Kroos\_48, Kwekel\_45, Kwobi\_49, Lennon\_48, LilHam\_45, Love\_52, Makar\_85, McCrothy\_48, McKinley\_50, MoontowerMania\_48, Natkenzie\_50, Nordenberg\_43, Paries\_51, Pumpkiney\_51, Ribeye\_48, RiverRaider\_49, RoadKill\_43, Sampson\_50, Sanjuju\_47, Saronaya\_47, SchottB\_46, Scioto\_51, Sedona\_48, Shivanishola\_48, Sitar\_48, Stichling\_45, StorminNorm\_47, Stultus\_47, Tangent\_49, Tangerine\_47, Tardus\_52, Thing3\_46, Tiamoceli\_46, Twonlo\_43, Tycho\_47, Verity\_50, ViaConlectus\_50, Vivi2\_51, YorkOnyx\_48, Zipp\_51, Zitch\_53,

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

- Amo99\_85, Clawz\_83, ColdSoup\_85, DonTron\_82, Grumio\_83, Jollymon\_82, Purplicious\_82, Soos\_78, Stillion\_84, Sting\_81,

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

- Abba\_35, Abidatro\_38, AdoptaAdorbs\_39, AlexMinion\_42, Ali17\_45, Altadena\_36, Amanises\_40, Amelia\_40, AmiCi24\_39, Amphitrite\_40, Andies\_44, Andrew\_41, Antrice\_43, Atlantica\_40, Azaz\_41, BabeRuth\_52, Babushka\_37, BarretLemon\_34, Basilisk\_38, Beans\_32, Bedetta\_45, Belphegor\_48, Bibble12\_44, BigDome\_34, Bluvara\_52, Bolt007\_37, Bosection6\_45, BossLady\_34, Brent\_32, Brujita\_48, Brynnie\_37, Bumble\_34, Butters\_50, CalWood4100\_39, Camara\_40, Carcharodon\_47, Chewbacca\_49, Chickaboom\_39, Chicken\_37, Circuit\_34, Colusalem\_41, Coral\_40, Cote\_42, Cygnet\_40, Damocles\_44, DanHam62\_40, Daob\_42, Dori\_63, DreamEater\_50, Duplicity\_47, EGUnicorn\_45, EMoore\_45, EastWest\_35, Eesa\_37, Fingolfin\_40, Franzy\_32, Fulbright\_46, Galaxy\_37, Gex\_47, Glotell\_41, GramZayde\_42, Gravel\_47, GravityBall\_34, Grekaycon\_34, HamCheese\_40, Hanako\_51, HannahPhantana\_41, Hans\_49, Impisi\_52, Inspectinfecti\_48, Island3\_48, JKerns\_34, Jace\_31, Jamie19\_45, Jamun\_37, Jawnski\_32, Jerole\_41, Jordan\_34, JrWilcox\_97, Juno112\_39, KHumphrey\_40, KendraB23\_48, Kepler\_42, Kevin1\_49, King2\_32, Klevey\_37, Kuleana\_42, Laphuphu24k\_39, LeeroyJ\_34, Leona\_39, Leonard\_47, Lilbeanie\_51, Lilmac1015\_39, LittleTokyo\_40, Lukepolites\_36, Lunar\_42, Magsby\_47, Martha\_34, Mask\_63, MelBins\_48, Melons\_42, Melville\_50, Nandito\_37, NathanVaag\_32, Nenae\_51, Niblet\_37, Nostromo\_33, Oppalora\_39, Orcanus\_38, OtsoOtso\_41, Panchino\_44, Parmesanjohn\_47, Pelletreau\_47, PhancyPhin\_51, Phauci\_40, Phinally\_47, PhirstandPhine\_49, Phloss\_45, PhluffyCoco\_40, Phrann\_48, Piccoletto\_32, Pineda\_43, Pippa\_34, Pipsqueaks\_47, Polka\_40, Prairie\_36, Purgamenstris\_51, Rattail\_40, Raymond7\_45, Rebel\_43, RedFox\_40, Redi\_51, Renna12\_39, Rofo\_48, Rubeelu\_50, Ruchi\_37, Schnauzer\_48, Scitech\_44, Shade\_34, Shen\_37, ShrimpFriedEgg\_51, Shweta\_45, Sicarius2\_35, Silvafighter\_48, Smurph\_47, Snekmaggon\_45, Sonny\_34, Spinach\_51, SpongeBob\_45, StevieBAY\_34, StuartMinion\_32, Stuck\_61, TaeYoung\_34, Tapioca\_49, TaylorSipht\_38, Tessdabest\_48, ThulaThula\_52, Timinator\_34, Toad24\_40,

Tonitrus\_67, Tortoise12\_46, TripleJ\_54, TurkishDelight\_59, ValentiniPuff\_95, Vulpecula\_37, Westrich\_46, WileyE\_39, Wyborn\_35, Xerxes\_47, Zartrosa\_34, Zhuangyuan\_42, Zixiang\_37,

### Summary by start number:

#### Start 15:

- Found in 1 of 261 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 221
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rofo\_48 (DE1),

#### Start 36:

- Found in 2 of 261 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 2 of 221
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Lilbeanie\_51 (DE5), TurkishDelight\_59 (singleton),

#### Start 38:

- Found in 1 of 261 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 221
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Tonitrus\_67 (singleton),

#### Start 39:

- Found in 9 of 261 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 9 of 221
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ali17\_45 (DE2), Belphegor\_48 (DE2), EMOore\_45 (DE2), Hans\_49 (DE2), Inspectinfecti\_48 (DE2), Leonard\_47 (DE2), MelBins\_48 (DE2), Phauci\_40 (DE2), Phinally\_47 (DE2),

#### Start 40:

- Found in 68 of 261 ( 26.1% ) of genes in pham
- Manual Annotations of this start: 50 of 221
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abidatro\_38 (AS1), AdoptaAdorbs\_39 (AS3), AlexMinion\_42 (AS3), Amanises\_40 (AS1), Amelia\_40 (AS2), AmiCi24\_39 (AS3), Amphitrite\_40 (AS3), Andrew\_41 (AS3), Antrice\_43 (AS2), Atlantica\_40 (AS3), Azaz\_41 (AS3), Babushka\_37 (AS3), Basilisk\_38 (AS1), Bedetta\_45 (AS2), Bibble12\_44 (AS2), Brynnie\_37 (AS1), Camara\_40 (AS3), Chickaboom\_39 (AS1), Chicken\_37 (AS1), Colusalem\_41 (AS2), Coral\_40 (AS2), Cote\_42 (AS2), Cygnet\_40 (AS2), Damocles\_44 (AS2), DanHam62\_40 (AS3), Daob\_42 (AS2), Eesa\_37 (AS1), Fingolfin\_40 (AS3), Galaxy\_37 (AS1), Glotell\_41 (AS3), GramZayde\_42 (AS2), Gravel\_47 (AS1), HamCheese\_40 (AS3), HannahPhantana\_41 (AS2), Jamun\_37 (AS1), Jerole\_41 (AS2), Juno112\_39 (AS3), KHumphrey\_40 (AS3), KendraB23\_48 (AS1), Kepler\_42 (AS2), Kuleana\_42 (AS2), Laphuphu24k\_39 (AS3), Leona\_39 (AS3), LittleTokyo\_40 (AS2), Lunar\_42 (AS2), Melons\_42 (AS2), Niblet\_37 (AS1), Oppalora\_39 (AS3), Orcanus\_38 (AS1), OtsoOtso\_41 (AS2), Pelletreau\_47 (AS1), PhirstandPhine\_49 (AS2), PhluffyCoco\_40 (AS3), Pineda\_43 (AS2), Polka\_40 (AS2), Rattail\_40 (AS3), RedFox\_40 (AS3), Renna12\_39 (AS3), Ruchi\_37 (AS1), Shen\_37 (AS1), StuartMinion\_32 (AS3), TaylorSipt\_38 (AS1), Toad24\_40 (AS1),

Vulpecula\_37 (AS1), Westrich\_46 (AS1), WileyE\_39 (AS1), Zhuangyuan\_42 (AS2), Zixiang\_37 (AS1),

Start 41:

- Found in 1 of 261 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 221
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jace\_31 (singleton),

Start 42:

- Found in 89 of 261 ( 34.1% ) of genes in pham
- Manual Annotations of this start: 72 of 221
- Called 88.8% of time when present
- Phage (with cluster) where this start called: APunk\_51 (DE4), Abblin\_50 (DE4), Affeca\_46 (DE1), Ailee\_45 (DE1), Angelicage\_46 (DE1), Ashertheman\_48 (DE1), Baddon\_47 (DE1), Barsten\_49 (DE1), Baumdotcom\_46 (DE1), Bibwit\_46 (DE1), BigHunkinEater\_53 (DE4), Bizzy\_48 (DE1), BobBob\_46 (DE1), Brandonk123\_50 (DE1), Brawn1\_45 (DE1), ChadMasterC\_49 (DE1), Charming\_49 (DE1), Chickadee\_45 (DE3), Delrey21\_50 (DE4), Derg\_43 (DE1), Dextert\_46 (DE3), DoctorFroggo\_50 (DE4), EdmundFerry\_44 (DE3), Fitzgerald\_47 (DE1), Flatwoods\_48 (DE1), Fosterous\_46 (DE1), FuegoCuervo\_51 (DE1), GTE6\_45 (DE3), Gaea\_47 (DE1), Galadriel\_48 (DE1), Geodirt\_47 (DE1), Gustavo\_47 (DE1), JKSyngboy\_45 (DE1), Jabberwocky\_47 (DE1), Kamashten\_46 (DE1), Keitabear\_48 (DE1), Kewpiedoll\_48 (DE1), KingstonB\_84 (CP), Kroos\_48 (DE1), Kwekel\_45 (DE3), Kwobi\_49 (DE1), Lennon\_48 (DE1), LilHam\_45 (DE1), Love\_52 (DE1), Makar\_85 (CP), McCrothy\_48 (DE1), McKinley\_50 (DE1), MoontowerMania\_48 (DE1), Natkenzie\_50 (DE4), Nordenberg\_43 (DE1), Paries\_51 (DE1), Pumpkiney\_51 (DE4), Ribeye\_48 (DE1), RiverRaider\_49 (DE1), RoadKill\_43 (DE3), Sampson\_50 (DE4), Sanjuju\_47 (DE1), Saronaya\_47 (DE1), SchottB\_46 (DE1), Scioto\_51 (DE4), Sedona\_48 (DE1), Shivanishola\_48 (DE1), Sitar\_48 (DE1), Stichling\_45 (DE1), StorminNorm\_47 (DE1), Stultus\_47 (DE1), Tangent\_49 (DE1), Tangerine\_47 (DE1), Tardus\_52 (DE4), Thing3\_46 (DE1), Tiamoceli\_46 (DE3), Twonlo\_43 (DE3), Tycho\_47 (DE1), Verity\_50 (DE4), ViaConlectus\_50 (DE4), Vivi2\_51 (DE1), YorkOnyx\_48 (DE1), Zipp\_51 (DE4), Zitch\_53 (DE4),

Start 43:

- Found in 9 of 261 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 7 of 221
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Altadena\_36 (FH), Bolt007\_37 (FH), Bumble\_34 (FH), CalWood4100\_39 (FH), Circuit\_34 (FH), Klevey\_37 (FH), Lilmac1015\_39 (FH), Nandito\_37 (FH), Prairie\_36 (FH),

Start 45:

- Found in 1 of 261 ( 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: Lukepolites\_36 (singleton),

Start 46:

- Found in 83 of 261 ( 31.8% ) of genes in pham
- Manual Annotations of this start: 7 of 221
- Called 14.5% of time when present

- Phage (with cluster) where this start called: Amo99\_85 (CP), Clawz\_83 (CP), ColdSoup\_85 (CP), DonTron\_82 (CP), DreamEater\_50 (FJ), Grumio\_83 (CP), Jollymon\_82 (CP), Purplicious\_82 (CP), Soos\_78 (CP), Stillion\_84 (CP), Sting\_81 (CP), TripleJ\_54 (FJ),

#### Start 47:

- Found in 5 of 261 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 2 of 221
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Sicarius2\_35 (AO2), Wyborn\_35 (AO2),

#### Start 49:

- Found in 48 of 261 ( 18.4% ) of genes in pham
- Manual Annotations of this start: 43 of 221
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Andies\_44 (N), BabeRuth\_52 (N), Bluvara\_52 (I3), Bosection6\_45 (N), Brujita\_48 (I1), Butters\_50 (N), Carcharodon\_47 (N), Chewbacca\_49 (N), Dori\_63 (AD), Duplicity\_47 (N), EGUnicorn\_45 (N), Fulbright\_46 (N), Gex\_47 (N), Hanako\_51 (N), Impisi\_52 (N), Island3\_48 (I1), Jamie19\_45 (N), Kevin1\_49 (N), Magsby\_47 (N), Mask\_63 (AD), Melville\_50 (N), Nenae\_51 (N), Panchino\_44 (N), Parmesanjohn\_47 (N), PhancyPhin\_51 (N), Phloss\_45 (N), Phrann\_48 (N), Pipsqueaks\_47 (N), Purgamenstris\_51 (N), Raymond7\_45 (N), Rebel\_43 (N), Redi\_51 (N), Rubeelu\_50 (N), Schnauzer\_48 (N), Scitech\_44 (N), ShrimpFriedEgg\_51 (N), Shweta\_45 (N), Silvafighter\_48 (N), Smurph\_47 (N), Snekmaggedon\_45 (N), Spinach\_51 (N), SpongeBob\_45 (N), Stuck\_61 (I2), Tapioca\_49 (N), Tessdabest\_48 (N), ThulaThula\_52 (P5), Tortoise12\_46 (N), Xerxes\_47 (N),

#### Start 50:

- Found in 27 of 261 ( 10.3% ) of genes in pham
- Manual Annotations of this start: 25 of 221
- Called 96.3% of time when present
- Phage (with cluster) where this start called: Abba\_35 (AO3), BarretLemon\_34 (AO2), Beans\_32 (AO1), BigDome\_34 (AO2), BossLady\_34 (AO2), Brent\_32 (AO1), EastWest\_35 (AO), Franzy\_32 (AO1), GravityBall\_34 (AO2), Grekaycon\_34 (AO2), JKerns\_34 (AO2), Jawnski\_32 (AO1), Jordan\_34 (AO2), King2\_32 (AO1), LeeroyJ\_34 (AO2), Martha\_34 (AO2), NathanVaag\_32 (AO1), Nostromo\_33 (AO3), Piccoletto\_32 (AO1), Pippa\_34 (AO2), Shade\_34 (AO2), Sonny\_34 (AO2), StevieBAY\_34 (AO2), TaeYoung\_34 (AO2), Timinator\_34 (AO2), Zartrosa\_34 (AO2),

#### Start 52:

- Found in 2 of 261 ( 0.8% ) of genes in pham
- Manual Annotations of this start: 1 of 221
- Called 100.0% of time when present
- Phage (with cluster) where this start called: JrWilcox\_97 (GL), ValentiniPuff\_95 (GL),

### Summary by clusters:

There are 23 clusters represented in this pham: singleton, FH, FJ, GL, I1, I3, I2, AS3, AS2, AS1, AD, P5, AO, N, AO3, AO2, AO1, CP, DE1, DE2, DE3, DE4, DE5,

Info for manual annotations of cluster AD:

- Start number 49 was manually annotated 2 times for cluster AD.

Info for manual annotations of cluster AO:

- Start number 50 was manually annotated 1 time for cluster AO.

Info for manual annotations of cluster AO1:

- Start number 50 was manually annotated 7 times for cluster AO1.

Info for manual annotations of cluster AO2:

- Start number 47 was manually annotated 2 times for cluster AO2.
- Start number 50 was manually annotated 15 times for cluster AO2.

Info for manual annotations of cluster AO3:

- Start number 50 was manually annotated 2 times for cluster AO3.

Info for manual annotations of cluster AS1:

- Start number 40 was manually annotated 17 times for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 40 was manually annotated 17 times for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 40 was manually annotated 16 times for cluster AS3.

Info for manual annotations of cluster CP:

- Start number 46 was manually annotated 5 times for cluster CP.

Info for manual annotations of cluster DE1:

- Start number 15 was manually annotated 1 time for cluster DE1.
- Start number 42 was manually annotated 52 times for cluster DE1.

Info for manual annotations of cluster DE2:

- Start number 39 was manually annotated 9 times for cluster DE2.

Info for manual annotations of cluster DE3:

- Start number 42 was manually annotated 7 times for cluster DE3.

Info for manual annotations of cluster DE4:

- Start number 42 was manually annotated 13 times for cluster DE4.

Info for manual annotations of cluster DE5:

- Start number 36 was manually annotated 1 time for cluster DE5.

Info for manual annotations of cluster FH:

- Start number 43 was manually annotated 7 times for cluster FH.

Info for manual annotations of cluster FJ:

- Start number 46 was manually annotated 2 times for cluster FJ.

Info for manual annotations of cluster GL:

- Start number 52 was manually annotated 1 time for cluster GL.

Info for manual annotations of cluster I1:

- Start number 49 was manually annotated 2 times for cluster I1.

Info for manual annotations of cluster N:

- Start number 49 was manually annotated 38 times for cluster N.

Info for manual annotations of cluster P5:

- Start number 49 was manually annotated 1 time for cluster P5.

### **Gene Information:**

Gene: APunk\_51 Start: 41866, Stop: 43041, Start Num: 42

Candidate Starts for APunk\_51:

(Start: 42 @41866 has 72 MA's), (54, 41905), (61, 41998), (63, 42007), (65, 42040), (66, 42046), (71, 42082), (73, 42097), (81, 42130), (82, 42136), (100, 42229), (103, 42238), (123, 42373), (129, 42406), (130, 42409), (132, 42421), (134, 42427), (144, 42490), (146, 42520), (172, 42691), (187, 42766), (200, 42850), (209, 42922), (211, 42928), (226, 43009),

Gene: Abba\_35 Start: 27714, Stop: 28745, Start Num: 50

Candidate Starts for Abba\_35:

(Start: 50 @27714 has 25 MA's), (62, 27831), (70, 27897), (73, 27915), (80, 27945), (85, 27969), (86, 27975), (95, 28023), (121, 28155), (151, 28317), (156, 28341), (171, 28416), (175, 28437), (199, 28542), (215, 28635), (226, 28701),

Gene: Abblin\_50 Start: 42409, Stop: 43563, Start Num: 42

Candidate Starts for Abblin\_50:

(Start: 42 @42409 has 72 MA's), (54, 42448), (61, 42541), (63, 42550), (65, 42583), (66, 42589), (71, 42625), (73, 42640), (81, 42673), (82, 42679), (100, 42772), (129, 42928), (132, 42943), (144, 43012), (145, 43024), (146, 43042), (172, 43213), (187, 43288), (200, 43372), (209, 43444), (211, 43450), (226, 43531),

Gene: Abidatro\_38 Start: 25301, Stop: 26326, Start Num: 40

Candidate Starts for Abidatro\_38:

(Start: 40 @25301 has 50 MA's), (Start: 46 @25316 has 7 MA's), (55, 25343), (64, 25460), (68, 25490), (86, 25586), (88, 25598), (95, 25640), (98, 25652), (101, 25664), (118, 25778), (136, 25865), (137, 25871), (143, 25919), (176, 26090), (186, 26138), (218, 26291),

Gene: AdoptaAdorbs\_39 Start: 25001, Stop: 26014, Start Num: 40

Candidate Starts for AdoptaAdorbs\_39:

(34, 24977), (Start: 40 @25001 has 50 MA's), (Start: 46 @25016 has 7 MA's), (72, 25205), (80, 25247), (81, 25253), (83, 25262), (95, 25334), (102, 25361), (114, 25442), (115, 25451), (118, 25472), (127, 25520), (158, 25691), (162, 25721), (168, 25748), (176, 25787), (186, 25835), (198, 25880),

Gene: Affeca\_46 Start: 40965, Stop: 42128, Start Num: 42

Candidate Starts for Affeca\_46:

(Start: 42 @40965 has 72 MA's), (54, 41004), (61, 41097), (65, 41139), (66, 41145), (73, 41196), (81, 41229), (95, 41304), (100, 41325), (123, 41448), (129, 41481), (134, 41502), (145, 41577), (163, 41715), (187, 41829), (194, 41877), (196, 41892), (202, 41952), (211, 42018), (215, 42033), (221, 42051),

Gene: Ailee\_45 Start: 40558, Stop: 41721, Start Num: 42

Candidate Starts for Ailee\_45:

(Start: 42 @40558 has 72 MA's), (54, 40597), (61, 40690), (65, 40732), (66, 40738), (73, 40789), (81, 40822), (95, 40897), (100, 40918), (123, 41041), (129, 41074), (134, 41095), (145, 41170), (163, 41308), (187, 41422), (194, 41470), (196, 41485), (202, 41545), (211, 41611), (215, 41626), (221, 41644),

Gene: AlexMinion\_42 Start: 25167, Stop: 26180, Start Num: 40

Candidate Starts for AlexMinion\_42:

(34, 25134), (Start: 40 @25167 has 50 MA's), (Start: 46 @25182 has 7 MA's), (53, 25200), (67, 25341), (72, 25371), (80, 25413), (81, 25419), (95, 25500), (102, 25527), (114, 25608), (115, 25617), (118, 25638), (127, 25686), (158, 25857), (162, 25887), (186, 26001), (198, 26046), (220, 26157),

Gene: Ali17\_45 Start: 39857, Stop: 41008, Start Num: 39

Candidate Starts for Ali17\_45:

(Start: 39 @39857 has 9 MA's), (57, 39941), (61, 39998), (63, 40007), (65, 40040), (66, 40046), (73, 40094), (82, 40133), (88, 40163), (92, 40181), (93, 40184), (94, 40193), (121, 40343), (123, 40349), (129, 40382), (134, 40403), (144, 40466), (156, 40580), (161, 40622), (163, 40628), (190, 40766), (215, 40910), (226, 40976),

Gene: Altadena\_36 Start: 26934, Stop: 28001, Start Num: 43

Candidate Starts for Altadena\_36:

(1, 26163), (2, 26193), (3, 26196), (Start: 43 @26934 has 7 MA's), (73, 27156), (78, 27174), (84, 27201), (95, 27264),

Gene: Amanises\_40 Start: 26357, Stop: 27385, Start Num: 40

Candidate Starts for Amanises\_40:

(34, 26315), (Start: 40 @26357 has 50 MA's), (Start: 46 @26372 has 7 MA's), (65, 26522), (77, 26594), (95, 26696), (118, 26834), (123, 26858), (127, 26882), (134, 26915), (143, 26978), (149, 27005), (158, 27053), (186, 27197),

Gene: Amelia\_40 Start: 25064, Stop: 26086, Start Num: 40

Candidate Starts for Amelia\_40:

(Start: 40 @25064 has 50 MA's), (Start: 46 @25079 has 7 MA's), (55, 25106), (58, 25142), (65, 25229), (81, 25322), (95, 25403), (102, 25430), (112, 25475), (115, 25523), (118, 25544), (127, 25592), (143, 25688), (149, 25715), (186, 25907), (189, 25928), (198, 25952),

Gene: AmiCi24\_39 Start: 24999, Stop: 26012, Start Num: 40

Candidate Starts for AmiCi24\_39:

(34, 24975), (Start: 40 @24999 has 50 MA's), (Start: 46 @25014 has 7 MA's), (72, 25203), (80, 25245), (81, 25251), (83, 25260), (95, 25332), (102, 25359), (114, 25440), (115, 25449), (127, 25518), (158, 25689), (162, 25719), (168, 25746), (176, 25785), (186, 25833), (198, 25878),

Gene: Amo99\_85 Start: 52756, Stop: 53769, Start Num: 46

Candidate Starts for Amo99\_85:

(22, 52594), (30, 52663), (Start: 42 @52747 has 72 MA's), (Start: 46 @52756 has 7 MA's), (67, 52942), (73, 52981), (78, 52999), (95, 53092), (113, 53161), (123, 53242), (131, 53281), (141, 53341), (146, 53377), (148, 53383), (154, 53416), (165, 53482), (178, 53539), (222, 53746),

Gene: Amphitrite\_40 Start: 25000, Stop: 26013, Start Num: 40

Candidate Starts for Amphitrite\_40:

(34, 24976), (Start: 40 @25000 has 50 MA's), (Start: 46 @25015 has 7 MA's), (72, 25204), (80, 25246), (81, 25252), (83, 25261), (95, 25333), (102, 25360), (114, 25441), (115, 25450), (118, 25471), (127, 25519), (158, 25690), (162, 25720), (168, 25747), (176, 25786), (186, 25834), (198, 25879),

Gene: Andies\_44 Start: 31627, Stop: 32637, Start Num: 49

Candidate Starts for Andies\_44:

(Start: 49 @31627 has 43 MA's), (61, 31741), (63, 31750), (65, 31777), (73, 31828), (74, 31831), (89, 31897), (94, 31924), (116, 32032), (118, 32050), (121, 32068), (166, 32317), (185, 32407), (188, 32419), (201, 32467), (213, 32548),

Gene: Andrew\_41 Start: 24893, Stop: 25906, Start Num: 40

Candidate Starts for Andrew\_41:

(34, 24869), (Start: 40 @24893 has 50 MA's), (Start: 46 @24908 has 7 MA's), (72, 25097), (80, 25139), (81, 25145), (95, 25226), (102, 25253), (114, 25334), (115, 25343), (118, 25364), (123, 25388), (127, 25412), (162, 25613), (176, 25679), (186, 25727), (198, 25772), (220, 25883),

Gene: Angelicage\_46 Start: 41383, Stop: 42546, Start Num: 42

Candidate Starts for Angelicage\_46:

(Start: 42 @41383 has 72 MA's), (54, 41422), (61, 41515), (65, 41557), (66, 41563), (73, 41614), (81, 41647), (95, 41722), (100, 41743), (123, 41866), (129, 41899), (134, 41920), (145, 41995), (163, 42133), (187, 42247), (194, 42295), (196, 42310), (202, 42370), (211, 42436), (215, 42451), (221, 42469),

Gene: Antrice\_43 Start: 26254, Stop: 27282, Start Num: 40

Candidate Starts for Antrice\_43:

(32, 26218), (Start: 40 @26254 has 50 MA's), (Start: 46 @26269 has 7 MA's), (55, 26296), (64, 26419), (72, 26470), (81, 26518), (95, 26599), (98, 26611), (102, 26626), (108, 26653), (115, 26719), (124, 26773), (125, 26782), (127, 26788), (137, 26836), (152, 26929), (169, 27019), (186, 27103), (189, 27124), (198, 27148),

Gene: Ashertheman\_48 Start: 41154, Stop: 42287, Start Num: 42

Candidate Starts for Ashertheman\_48:

(31, 41085), (Start: 42 @41154 has 72 MA's), (54, 41199), (61, 41292), (65, 41334), (66, 41340), (73, 41391), (81, 41424), (82, 41430), (100, 41520), (123, 41643), (129, 41676), (145, 41772), (163, 41910), (187, 42024), (191, 42051), (202, 42111), (211, 42177), (221, 42210),

Gene: Atlantica\_40 Start: 25001, Stop: 26014, Start Num: 40

Candidate Starts for Atlantica\_40:

(34, 24977), (Start: 40 @25001 has 50 MA's), (Start: 46 @25016 has 7 MA's), (72, 25205), (80, 25247), (81, 25253), (83, 25262), (95, 25334), (102, 25361), (114, 25442), (115, 25451), (118, 25472), (127, 25520), (158, 25691), (162, 25721), (168, 25748), (176, 25787), (186, 25835), (198, 25880),

Gene: Azaz\_41 Start: 25073, Stop: 26086, Start Num: 40

Candidate Starts for Azaz\_41:

(34, 25049), (Start: 40 @25073 has 50 MA's), (Start: 46 @25088 has 7 MA's), (53, 25106), (68, 25256), (72, 25277), (80, 25319), (95, 25406), (102, 25433), (114, 25514), (115, 25523), (118, 25544), (127, 25592), (158, 25763), (162, 25793), (168, 25820), (176, 25859), (186, 25907), (198, 25952),

Gene: BabeRuth\_52 Start: 33348, Stop: 34358, Start Num: 49

Candidate Starts for BabeRuth\_52:

(Start: 49 @33348 has 43 MA's), (61, 33462), (63, 33471), (65, 33498), (73, 33549), (74, 33552), (89, 33618), (94, 33645), (116, 33753), (118, 33771), (121, 33789), (166, 34038), (185, 34128), (188, 34140), (201, 34188), (213, 34269),

Gene: Babushka\_37 Start: 24932, Stop: 25945, Start Num: 40

Candidate Starts for Babushka\_37:

(34, 24899), (Start: 40 @24932 has 50 MA's), (Start: 46 @24947 has 7 MA's), (67, 25106), (72, 25136), (80, 25178), (81, 25184), (83, 25193), (95, 25265), (102, 25292), (114, 25373), (115, 25382), (118, 25403), (158, 25622), (162, 25652), (186, 25766), (198, 25811), (214, 25904), (216, 25913),

Gene: Baddon\_47 Start: 41688, Stop: 42815, Start Num: 42

Candidate Starts for Baddon\_47:

(31, 41619), (Start: 42 @41688 has 72 MA's), (54, 41727), (61, 41820), (65, 41862), (66, 41868), (73, 41919), (82, 41958), (100, 42048), (116, 42129), (129, 42204), (134, 42225), (139, 42258), (144, 42288), (145, 42300), (163, 42438), (187, 42552), (191, 42579), (202, 42639), (211, 42705), (221, 42738),

Gene: BarretLemon\_34 Start: 28805, Stop: 29824, Start Num: 50

Candidate Starts for BarretLemon\_34:

(Start: 50 @28805 has 25 MA's), (62, 28922), (73, 29006), (76, 29018), (80, 29036), (87, 29072), (121, 29246), (123, 29252), (135, 29309), (141, 29348), (146, 29384), (150, 29396), (151, 29408), (202, 29651), (223, 29771),

Gene: Barsten\_49 Start: 41538, Stop: 42665, Start Num: 42

Candidate Starts for Barsten\_49:

(Start: 42 @41538 has 72 MA's), (54, 41577), (61, 41670), (65, 41712), (66, 41718), (73, 41769), (81, 41802), (95, 41877), (100, 41898), (116, 41979), (123, 42021), (129, 42054), (134, 42075), (145, 42150), (163, 42288), (187, 42402), (191, 42429), (202, 42489), (211, 42555), (215, 42570), (221, 42588),

Gene: Basilisk\_38 Start: 25812, Stop: 26840, Start Num: 40

Candidate Starts for Basilisk\_38:

(34, 25779), (Start: 40 @25812 has 50 MA's), (Start: 46 @25827 has 7 MA's), (65, 25977), (77, 26049), (81, 26070), (95, 26151), (101, 26175), (123, 26313), (127, 26337), (134, 26370), (157, 26505), (186, 26652),

Gene: Baumdotcom\_46 Start: 40560, Stop: 41684, Start Num: 42

Candidate Starts for Baumdotcom\_46:

(31, 40491), (Start: 42 @40560 has 72 MA's), (54, 40596), (61, 40689), (65, 40731), (66, 40737), (73, 40788), (82, 40827), (100, 40917), (129, 41073), (134, 41094), (139, 41127), (145, 41169), (163, 41307), (187, 41421), (191, 41448), (202, 41508), (211, 41574), (221, 41607),

Gene: Beans\_32 Start: 28492, Stop: 29520, Start Num: 50

Candidate Starts for Beans\_32:

(Start: 50 @28492 has 25 MA's), (62, 28609), (69, 28675), (73, 28693), (80, 28723), (121, 28933), (135, 28996), (146, 29071), (150, 29083), (151, 29095), (183, 29260), (202, 29338),

Gene: Bedetta\_45 Start: 25211, Stop: 26233, Start Num: 40

Candidate Starts for Bedetta\_45:

(Start: 40 @25211 has 50 MA's), (Start: 46 @25226 has 7 MA's), (55, 25253), (58, 25289), (65, 25376), (81, 25469), (95, 25550), (102, 25577), (112, 25622), (115, 25670), (118, 25691), (127, 25739), (143, 25835), (149, 25862), (186, 26054), (189, 26075), (198, 26099),

Gene: Belphegor\_48 Start: 41897, Stop: 43045, Start Num: 39

Candidate Starts for Belphegor\_48:

(27, 41861), (Start: 39 @41897 has 9 MA's), (57, 41978), (63, 42044), (65, 42077), (66, 42083), (73, 42131), (78, 42149), (81, 42164), (82, 42170), (88, 42200), (92, 42218), (93, 42221), (100, 42263), (121, 42380), (123, 42386), (129, 42419), (134, 42440), (156, 42617), (161, 42659), (163, 42665), (209, 42926), (211, 42932), (226, 43013),

Gene: Bible12\_44 Start: 25059, Stop: 26081, Start Num: 40

Candidate Starts for Bible12\_44:

(Start: 40 @25059 has 50 MA's), (Start: 46 @25074 has 7 MA's), (55, 25101), (58, 25137), (65, 25224), (81, 25317), (95, 25398), (102, 25425), (112, 25470), (115, 25518), (118, 25539), (127, 25587), (143, 25683), (149, 25710), (186, 25902), (189, 25923), (198, 25947),

Gene: Bibwit\_46 Start: 40244, Stop: 41377, Start Num: 42

Candidate Starts for Bibwit\_46:

(6, 39749), (31, 40175), (Start: 42 @40244 has 72 MA's), (61, 40382), (65, 40424), (66, 40430), (73, 40481), (81, 40514), (82, 40520), (100, 40610), (129, 40766), (134, 40787), (145, 40862), (163, 41000), (187, 41114), (191, 41141), (200, 41189), (202, 41201), (211, 41267), (215, 41282), (221, 41300),

Gene: BigDome\_34 Start: 28797, Stop: 29816, Start Num: 50

Candidate Starts for BigDome\_34:

(Start: 50 @28797 has 25 MA's), (62, 28914), (73, 28998), (76, 29010), (80, 29028), (87, 29064), (121, 29238), (123, 29244), (135, 29301), (141, 29340), (146, 29376), (150, 29388), (151, 29400), (202, 29643), (223, 29763),

Gene: BigHunkinEater\_53 Start: 41644, Stop: 42819, Start Num: 42

Candidate Starts for BigHunkinEater\_53:

(Start: 42 @41644 has 72 MA's), (54, 41683), (61, 41776), (63, 41785), (65, 41818), (66, 41824), (73, 41875), (81, 41908), (82, 41914), (100, 42007), (103, 42016), (123, 42151), (129, 42184), (132, 42199), (144, 42268), (146, 42298), (172, 42469), (187, 42544), (200, 42628), (209, 42700), (211, 42706), (215, 42721), (226, 42787),

Gene: Bizzy\_48 Start: 40845, Stop: 41972, Start Num: 42

Candidate Starts for Bizzy\_48:

(31, 40776), (Start: 42 @40845 has 72 MA's), (54, 40884), (61, 40977), (65, 41019), (66, 41025), (73, 41076), (82, 41115), (100, 41205), (116, 41286), (129, 41361), (134, 41382), (139, 41415), (145, 41457), (163, 41595), (187, 41709), (191, 41736), (202, 41796), (211, 41862), (221, 41895),

Gene: Bluvara\_52 Start: 37027, Stop: 38037, Start Num: 49

Candidate Starts for Bluvara\_52:

(Start: 49 @37027 has 43 MA's), (61, 37141), (63, 37150), (65, 37177), (73, 37228), (74, 37231), (79, 37255), (83, 37270), (104, 37363), (111, 37381), (116, 37432), (119, 37456), (121, 37468), (123, 37474), (127, 37498), (130, 37510), (166, 37717), (172, 37738), (185, 37807), (188, 37819), (213, 37948),

Gene: BobBob\_46 Start: 40656, Stop: 41780, Start Num: 42

Candidate Starts for BobBob\_46:

(35, 40617), (Start: 42 @40656 has 72 MA's), (54, 40692), (61, 40785), (65, 40827), (66, 40833), (73, 40884), (81, 40917), (95, 40992), (100, 41013), (123, 41136), (129, 41169), (134, 41190), (145, 41265), (163, 41403), (187, 41517), (191, 41544), (202, 41604), (211, 41670), (215, 41685), (221, 41703),

Gene: Bolt007\_37 Start: 29435, Stop: 30487, Start Num: 43

Candidate Starts for Bolt007\_37:

(Start: 43 @29435 has 7 MA's), (73, 29645), (78, 29663), (95, 29753), (163, 30122),

Gene: Bosection6\_45 Start: 31093, Stop: 32103, Start Num: 49

Candidate Starts for Bosection6\_45:

(Start: 49 @31093 has 43 MA's), (59, 31168), (61, 31207), (63, 31216), (65, 31243), (73, 31294), (74, 31297), (79, 31321), (111, 31447), (116, 31498), (119, 31522), (121, 31534), (127, 31564), (159, 31756), (163, 31765), (166, 31783), (185, 31873), (188, 31885), (201, 31933), (213, 32014),

Gene: BossLady\_34 Start: 28774, Stop: 29793, Start Num: 50

Candidate Starts for BossLady\_34:

(Start: 50 @28774 has 25 MA's), (73, 28975), (76, 28987), (80, 29005), (86, 29035), (87, 29041), (121, 29215), (123, 29221), (135, 29278), (146, 29353), (151, 29377), (153, 29386), (167, 29464), (181, 29536), (183, 29542), (221, 29719),

Gene: Brandonk123\_50 Start: 41790, Stop: 42914, Start Num: 42

Candidate Starts for Brandonk123\_50:

(35, 41751), (Start: 42 @41790 has 72 MA's), (54, 41826), (61, 41919), (65, 41961), (66, 41967), (73, 42018), (81, 42051), (95, 42126), (100, 42147), (123, 42270), (129, 42303), (134, 42324), (145, 42399), (163, 42537), (187, 42651), (191, 42678), (202, 42738), (211, 42804), (215, 42819), (221, 42837),

Gene: Brawn1\_45 Start: 40865, Stop: 42028, Start Num: 42

Candidate Starts for Brawn1\_45:

(Start: 42 @40865 has 72 MA's), (54, 40904), (61, 40997), (65, 41039), (66, 41045), (73, 41096), (81, 41129), (95, 41204), (100, 41225), (116, 41306), (123, 41348), (129, 41381), (134, 41402), (145, 41477), (163, 41615), (187, 41729), (194, 41777), (196, 41792), (202, 41852), (211, 41918), (215, 41933), (221, 41951),

Gene: Brent\_32 Start: 28455, Stop: 29483, Start Num: 50

Candidate Starts for Brent\_32:

(Start: 50 @28455 has 25 MA's), (69, 28638), (73, 28656), (80, 28686), (84, 28701), (119, 28884), (121, 28896), (146, 29034), (150, 29046), (151, 29058), (167, 29145), (183, 29223), (192, 29265), (200, 29289), (202, 29301),

Gene: Brujita\_48 Start: 33774, Stop: 34781, Start Num: 49

Candidate Starts for Brujita\_48:

(28, 33654), (Start: 49 @33774 has 43 MA's), (61, 33885), (63, 33894), (65, 33921), (73, 33972), (74, 33975), (86, 34032), (89, 34041), (111, 34125), (116, 34176), (119, 34200), (121, 34212), (163, 34443), (166, 34461), (172, 34482), (174, 34497), (185, 34551), (186, 34554), (188, 34563), (190, 34581), (201, 34611), (213, 34692),

Gene: Brynnie\_37 Start: 25690, Stop: 26718, Start Num: 40

Candidate Starts for Brynnie\_37:

(34, 25657), (Start: 40 @25690 has 50 MA's), (Start: 46 @25705 has 7 MA's), (65, 25855), (77, 25927), (80, 25942), (81, 25948), (95, 26029), (101, 26053), (123, 26191), (134, 26248), (143, 26311), (157, 26383), (186, 26530),

Gene: Bumble\_34 Start: 26999, Stop: 28066, Start Num: 43

Candidate Starts for Bumble\_34:

(37, 26987), (Start: 43 @26999 has 7 MA's), (73, 27221), (78, 27239), (95, 27329),

Gene: Butters\_50 Start: 33050, Stop: 34057, Start Num: 49

Candidate Starts for Butters\_50:

(16, 32807), (17, 32819), (24, 32885), (28, 32930), (Start: 49 @33050 has 43 MA's), (61, 33161), (63, 33170), (65, 33197), (73, 33248), (74, 33251), (86, 33308), (89, 33317), (111, 33401), (116, 33452), (119, 33476), (121, 33488), (163, 33719), (166, 33737), (172, 33758), (174, 33773), (185, 33827), (186, 33830), (188, 33839), (190, 33857), (201, 33887), (213, 33968),

Gene: CalWood4100\_39 Start: 28926, Stop: 29978, Start Num: 43

Candidate Starts for CalWood4100\_39:

(Start: 43 @28926 has 7 MA's), (73, 29136), (78, 29154), (95, 29244), (140, 29481), (141, 29484),

Gene: Camara\_40 Start: 25003, Stop: 26016, Start Num: 40

Candidate Starts for Camara\_40:

(34, 24979), (Start: 40 @25003 has 50 MA's), (Start: 46 @25018 has 7 MA's), (72, 25207), (80, 25249), (81, 25255), (83, 25264), (95, 25336), (102, 25363), (114, 25444), (115, 25453), (118, 25474), (127, 25522), (158, 25693), (162, 25723), (168, 25750), (176, 25789), (186, 25837), (198, 25882),

Gene: Carcharodon\_47 Start: 32442, Stop: 33452, Start Num: 49

Candidate Starts for Carcharodon\_47:

(Start: 49 @32442 has 43 MA's), (59, 32517), (61, 32556), (63, 32565), (65, 32592), (73, 32643), (74, 32646), (79, 32670), (111, 32796), (116, 32847), (119, 32871), (121, 32883), (127, 32913), (159, 33105), (163, 33114), (166, 33132), (176, 33174), (185, 33222), (188, 33234), (213, 33363),

Gene: ChadMasterC\_49 Start: 42937, Stop: 44064, Start Num: 42

Candidate Starts for ChadMasterC\_49:

(Start: 42 @42937 has 72 MA's), (54, 42976), (61, 43069), (65, 43111), (66, 43117), (73, 43168), (81, 43201), (95, 43276), (100, 43297), (123, 43420), (129, 43453), (134, 43474), (145, 43549), (163, 43687), (187, 43801), (202, 43888), (211, 43954), (215, 43969), (221, 43987),

Gene: Charming\_49 Start: 41293, Stop: 42420, Start Num: 42

Candidate Starts for Charming\_49:

(Start: 42 @41293 has 72 MA's), (54, 41332), (61, 41425), (65, 41467), (66, 41473), (73, 41524), (81, 41557), (95, 41632), (100, 41653), (123, 41776), (129, 41809), (134, 41830), (145, 41905), (163, 42043), (187, 42157), (191, 42184), (202, 42244), (211, 42310), (215, 42325), (221, 42343),

Gene: Chewbacca\_49 Start: 32442, Stop: 33452, Start Num: 49

Candidate Starts for Chewbacca\_49:

(Start: 49 @32442 has 43 MA's), (59, 32517), (61, 32556), (63, 32565), (65, 32592), (73, 32643), (74, 32646), (79, 32670), (111, 32796), (116, 32847), (119, 32871), (121, 32883), (127, 32913), (159, 33105), (163, 33114), (166, 33132), (176, 33174), (185, 33222), (188, 33234), (213, 33363),

Gene: Chickaboom\_39 Start: 25312, Stop: 26337, Start Num: 40

Candidate Starts for Chickaboom\_39:

(34, 25279), (Start: 40 @25312 has 50 MA's), (Start: 46 @25327 has 7 MA's), (65, 25477), (68, 25501), (86, 25597), (88, 25609), (95, 25651), (98, 25663), (136, 25876), (143, 25930), (186, 26149), (218, 26302),

Gene: Chickadee\_45 Start: 37929, Stop: 39083, Start Num: 42

Candidate Starts for Chickadee\_45:

(Start: 42 @37929 has 72 MA's), (61, 38058), (65, 38100), (66, 38106), (73, 38157), (100, 38286), (104, 38292), (116, 38370), (123, 38412), (129, 38445), (134, 38466), (161, 38685), (172, 38730), (177, 38754), (180, 38778), (190, 38829), (202, 38898), (204, 38910), (208, 38949), (209, 38958), (211, 38964), (215, 38979), (217, 38988), (226, 39045),

Gene: Chicken\_37 Start: 25652, Stop: 26680, Start Num: 40

Candidate Starts for Chicken\_37:

(34, 25619), (Start: 40 @25652 has 50 MA's), (Start: 46 @25667 has 7 MA's), (65, 25817), (77, 25889), (80, 25904), (81, 25910), (92, 25967), (95, 25991), (99, 26012), (118, 26129), (124, 26162), (134, 26210), (143, 26273), (149, 26300), (158, 26348), (186, 26492),

Gene: Circuit\_34 Start: 27961, Stop: 29031, Start Num: 43

Candidate Starts for Circuit\_34:

(37, 27946), (Start: 43 @27961 has 7 MA's), (73, 28186), (78, 28204), (95, 28294),

Gene: Clawz\_83 Start: 52842, Stop: 53858, Start Num: 46

Candidate Starts for Clawz\_83:

(8, 52431), (18, 52623), (22, 52680), (30, 52749), (Start: 42 @52833 has 72 MA's), (Start: 46 @52842 has 7 MA's), (67, 53031), (73, 53070), (78, 53088), (95, 53181), (122, 53328), (141, 53430), (146, 53466), (160, 53550), (178, 53628), (179, 53637), (188, 53679), (222, 53835),

Gene: ColdSoup\_85 Start: 52837, Stop: 53850, Start Num: 46

Candidate Starts for ColdSoup\_85:

(22, 52675), (30, 52744), (Start: 42 @52828 has 72 MA's), (Start: 46 @52837 has 7 MA's), (67, 53023), (73, 53062), (78, 53080), (95, 53173), (113, 53242), (123, 53323), (131, 53362), (141, 53422), (146, 53458), (148, 53464), (154, 53497), (165, 53563), (178, 53620), (222, 53827),

Gene: Colusalem\_41 Start: 25041, Stop: 26063, Start Num: 40

Candidate Starts for Colusalem\_41:

(Start: 40 @25041 has 50 MA's), (Start: 46 @25056 has 7 MA's), (55, 25083), (58, 25119), (65, 25206), (81, 25299), (95, 25380), (102, 25407), (112, 25452), (115, 25500), (118, 25521), (127, 25569), (143, 25665), (149, 25692), (186, 25884), (189, 25905), (198, 25929),

Gene: Coral\_40 Start: 24912, Stop: 25934, Start Num: 40

Candidate Starts for Coral\_40:

(Start: 40 @24912 has 50 MA's), (Start: 46 @24927 has 7 MA's), (55, 24954), (58, 24990), (65, 25077), (81, 25170), (95, 25251), (102, 25278), (112, 25323), (115, 25371), (118, 25392), (127, 25440), (143, 25536), (149, 25563), (186, 25755), (189, 25776), (198, 25800),

Gene: Cote\_42 Start: 25389, Stop: 26411, Start Num: 40

Candidate Starts for Cote\_42:

(Start: 40 @25389 has 50 MA's), (Start: 46 @25404 has 7 MA's), (55, 25431), (58, 25467), (65, 25554), (81, 25647), (95, 25728), (102, 25755), (112, 25800), (115, 25848), (118, 25869), (127, 25917), (143, 26013), (149, 26040), (186, 26232), (189, 26253), (198, 26277),

Gene: Cygnet\_40 Start: 25852, Stop: 26877, Start Num: 40

Candidate Starts for Cygnet\_40:

(Start: 40 @25852 has 50 MA's), (Start: 46 @25864 has 7 MA's), (64, 26014), (72, 26065), (95, 26194), (98, 26206), (102, 26221), (124, 26368), (125, 26377), (127, 26383), (137, 26431), (152, 26524), (169, 26614), (186, 26698), (189, 26719), (198, 26743),

Gene: Damocles\_44 Start: 25200, Stop: 26222, Start Num: 40

Candidate Starts for Damocles\_44:

(Start: 40 @25200 has 50 MA's), (Start: 46 @25215 has 7 MA's), (55, 25242), (58, 25278), (65, 25365), (81, 25458), (95, 25539), (102, 25566), (112, 25611), (115, 25659), (118, 25680), (127, 25728), (143, 25824), (149, 25851), (186, 26043), (189, 26064), (198, 26088),

Gene: DanHam62\_40 Start: 25000, Stop: 26013, Start Num: 40

Candidate Starts for DanHam62\_40:

(34, 24976), (Start: 40 @25000 has 50 MA's), (Start: 46 @25015 has 7 MA's), (72, 25204), (80, 25246), (81, 25252), (83, 25261), (95, 25333), (102, 25360), (114, 25441), (115, 25450), (127, 25519), (158, 25690), (162, 25720), (168, 25747), (176, 25786), (186, 25834), (198, 25879),

Gene: Daob\_42 Start: 25397, Stop: 26419, Start Num: 40

Candidate Starts for Daob\_42:

(Start: 40 @25397 has 50 MA's), (Start: 46 @25412 has 7 MA's), (55, 25439), (58, 25475), (65, 25562), (81, 25655), (95, 25736), (102, 25763), (112, 25808), (115, 25856), (118, 25877), (127, 25925), (143, 26021), (149, 26048), (186, 26240), (189, 26261), (198, 26285),

Gene: Delrey21\_50 Start: 43180, Stop: 44334, Start Num: 42

Candidate Starts for Delrey21\_50:

(Start: 42 @43180 has 72 MA's), (54, 43219), (61, 43312), (63, 43321), (65, 43354), (66, 43360), (73, 43411), (81, 43444), (82, 43450), (100, 43543), (123, 43666), (129, 43699), (132, 43714), (134, 43720), (144, 43783), (145, 43795), (146, 43813), (172, 43984), (200, 44143), (211, 44221), (226, 44302),

Gene: Derg\_43 Start: 40440, Stop: 41564, Start Num: 42

Candidate Starts for Derg\_43:

(31, 40371), (Start: 42 @40440 has 72 MA's), (54, 40476), (61, 40569), (65, 40611), (66, 40617), (73, 40668), (82, 40707), (100, 40797), (116, 40878), (129, 40953), (134, 40974), (139, 41007), (145, 41049), (163, 41187), (187, 41301), (191, 41328), (202, 41388), (211, 41454), (221, 41487),

Gene: Dexdert\_46 Start: 38194, Stop: 39375, Start Num: 42

Candidate Starts for Dexdert\_46:

(13, 37912), (29, 38119), (Start: 42 @38194 has 72 MA's), (61, 38326), (63, 38335), (65, 38368), (66, 38374), (73, 38425), (100, 38554), (123, 38680), (129, 38713), (134, 38734), (145, 38809), (150, 38839), (161, 38953), (172, 38998), (180, 39046), (187, 39073), (196, 39136), (200, 39184), (202, 39196), (204, 39208), (209, 39256), (211, 39262), (226, 39343),

Gene: DoctorFroggo\_50 Start: 43180, Stop: 44334, Start Num: 42

Candidate Starts for DoctorFroggo\_50:

(Start: 42 @43180 has 72 MA's), (54, 43219), (61, 43312), (63, 43321), (65, 43354), (66, 43360), (73, 43411), (81, 43444), (82, 43450), (100, 43543), (123, 43666), (129, 43699), (132, 43714), (134, 43720), (144, 43783), (145, 43795), (146, 43813), (172, 43984), (200, 44143), (211, 44221), (226, 44302),

Gene: DonTron\_82 Start: 52715, Stop: 53728, Start Num: 46

Candidate Starts for DonTron\_82:

(22, 52553), (30, 52622), (Start: 42 @52706 has 72 MA's), (Start: 46 @52715 has 7 MA's), (67, 52901), (73, 52940), (78, 52958), (95, 53051), (113, 53120), (123, 53201), (131, 53240), (141, 53300), (146, 53336), (148, 53342), (154, 53375), (165, 53441), (178, 53498), (222, 53705),

Gene: Dori\_63 Start: 49123, Stop: 50127, Start Num: 49

Candidate Starts for Dori\_63:

(Start: 49 @49123 has 43 MA's), (63, 49246), (65, 49273), (73, 49324), (74, 49327), (79, 49351), (111, 49477), (116, 49528), (119, 49552), (121, 49564), (123, 49570), (127, 49594), (130, 49606), (159, 49786), (163, 49795), (169, 49816), (172, 49828), (184, 49891), (186, 49900), (201, 49957), (210, 50023), (213, 50038),

Gene: DreamEater\_50 Start: 33476, Stop: 34402, Start Num: 46

Candidate Starts for DreamEater\_50:

(26, 33344), (Start: 46 @33476 has 7 MA's), (48, 33482), (60, 33590), (73, 33686), (75, 33692), (79, 33713), (107, 33833), (120, 33920), (121, 33929), (129, 33968), (137, 34007), (142, 34046), (155, 34118), (186, 34253), (197, 34298),

Gene: Duplicity\_47 Start: 32451, Stop: 33461, Start Num: 49

Candidate Starts for Duplicity\_47:

(Start: 49 @32451 has 43 MA's), (59, 32526), (61, 32565), (63, 32574), (65, 32601), (73, 32652), (74, 32655), (79, 32679), (111, 32805), (116, 32856), (119, 32880), (121, 32892), (127, 32922), (159, 33114), (163, 33123), (166, 33141), (176, 33183), (185, 33231), (188, 33243), (213, 33372),

Gene: EGUunicorn\_45 Start: 31139, Stop: 32149, Start Num: 49

Candidate Starts for EGUunicorn\_45:

(Start: 49 @31139 has 43 MA's), (61, 31253), (63, 31262), (65, 31289), (73, 31340), (74, 31343), (89, 31409), (94, 31436), (116, 31544), (118, 31562), (121, 31580), (166, 31829), (185, 31919), (188, 31931), (201, 31979), (213, 32060),

Gene: EMoore\_45 Start: 41058, Stop: 42209, Start Num: 39

Candidate Starts for EMoore\_45:

(5, 40575), (7, 40695), (9, 40773), (10, 40815), (12, 40824), (Start: 39 @41058 has 9 MA's), (63, 41208), (65, 41241), (66, 41247), (73, 41295), (82, 41334), (88, 41364), (92, 41382), (93, 41385), (94, 41394), (100, 41427), (121, 41544), (123, 41550), (129, 41583), (134, 41604), (156, 41781), (161, 41823), (163, 41829), (200, 42018), (211, 42096),

Gene: EastWest\_35 Start: 28014, Stop: 29039, Start Num: 50

Candidate Starts for EastWest\_35:

(Start: 50 @28014 has 25 MA's), (62, 28131), (63, 28137), (73, 28215), (80, 28245), (84, 28260), (119, 28443), (121, 28455), (128, 28488), (151, 28617), (192, 28824), (200, 28848), (207, 28893), (223, 28980),

Gene: EdmundFerry\_44 Start: 37970, Stop: 39154, Start Num: 42

Candidate Starts for EdmundFerry\_44:

(21, 37829), (Start: 42 @37970 has 72 MA's), (61, 38099), (65, 38141), (66, 38147), (73, 38198), (100, 38327), (123, 38453), (129, 38486), (134, 38507), (161, 38726), (172, 38771), (177, 38795), (180, 38819), (190, 38870), (195, 38897), (202, 38969), (204, 38981), (208, 39020), (209, 39029), (211, 39035), (215, 39050), (217, 39059), (226, 39116),

Gene: Eesa\_37 Start: 26191, Stop: 27219, Start Num: 40

Candidate Starts for Eesa\_37:

(34, 26149), (Start: 40 @26191 has 50 MA's), (Start: 46 @26206 has 7 MA's), (65, 26356), (77, 26428), (95, 26530), (118, 26668), (123, 26692), (127, 26716), (134, 26749), (143, 26812), (149, 26839), (158, 26887), (186, 27031),

Gene: Fingolfin\_40 Start: 25003, Stop: 26016, Start Num: 40

Candidate Starts for Fingolfin\_40:

(34, 24979), (Start: 40 @25003 has 50 MA's), (Start: 46 @25018 has 7 MA's), (72, 25207), (80, 25249), (81, 25255), (83, 25264), (95, 25336), (102, 25363), (114, 25444), (115, 25453), (118, 25474), (127, 25522), (158, 25693), (162, 25723), (168, 25750), (176, 25789), (186, 25837), (198, 25882),

Gene: Fitzgerald\_47 Start: 42195, Stop: 43319, Start Num: 42

Candidate Starts for Fitzgerald\_47:

(Start: 42 @42195 has 72 MA's), (54, 42231), (61, 42324), (65, 42366), (66, 42372), (73, 42423), (81, 42456), (95, 42531), (100, 42552), (116, 42633), (123, 42675), (129, 42708), (134, 42729), (145, 42804), (163, 42942), (187, 43056), (202, 43143), (211, 43209), (215, 43224), (221, 43242),

Gene: Flatwoods\_48 Start: 40789, Stop: 41913, Start Num: 42

Candidate Starts for Flatwoods\_48:

(31, 40720), (Start: 42 @40789 has 72 MA's), (54, 40825), (61, 40918), (65, 40960), (66, 40966), (73, 41017), (82, 41056), (100, 41146), (116, 41227), (129, 41302), (134, 41323), (145, 41398), (163,

41536), (187, 41650), (191, 41677), (202, 41737), (211, 41803), (221, 41836),

Gene: Fosterous\_46 Start: 40754, Stop: 41881, Start Num: 42

Candidate Starts for Fosterous\_46:

(Start: 42 @40754 has 72 MA's), (54, 40793), (61, 40886), (65, 40928), (66, 40934), (73, 40985), (81, 41018), (95, 41093), (100, 41114), (123, 41237), (129, 41270), (134, 41291), (145, 41366), (163, 41504), (187, 41618), (191, 41645), (202, 41705), (211, 41771), (215, 41786), (221, 41804),

Gene: Franzy\_32 Start: 28454, Stop: 29482, Start Num: 50

Candidate Starts for Franzy\_32:

(Start: 50 @28454 has 25 MA's), (69, 28637), (73, 28655), (80, 28685), (84, 28700), (119, 28883), (121, 28895), (146, 29033), (150, 29045), (151, 29057), (167, 29144), (192, 29264), (200, 29288), (202, 29300),

Gene: FuegoCuervo\_51 Start: 40622, Stop: 41746, Start Num: 42

Candidate Starts for FuegoCuervo\_51:

(Start: 42 @40622 has 72 MA's), (54, 40661), (61, 40754), (65, 40796), (66, 40802), (73, 40853), (81, 40886), (95, 40961), (100, 40982), (123, 41105), (129, 41138), (134, 41159), (145, 41234), (163, 41372), (187, 41486), (191, 41513), (202, 41573), (211, 41639), (215, 41654), (221, 41672),

Gene: Fulbright\_46 Start: 31531, Stop: 32541, Start Num: 49

Candidate Starts for Fulbright\_46:

(Start: 49 @31531 has 43 MA's), (59, 31606), (61, 31645), (63, 31654), (65, 31681), (73, 31732), (74, 31735), (79, 31759), (111, 31885), (116, 31936), (119, 31960), (121, 31972), (127, 32002), (159, 32194), (163, 32203), (166, 32221), (176, 32263), (185, 32311), (188, 32323), (213, 32452),

Gene: GTE6\_45 Start: 38462, Stop: 39616, Start Num: 42

Candidate Starts for GTE6\_45:

(21, 38321), (Start: 42 @38462 has 72 MA's), (61, 38591), (65, 38633), (66, 38639), (73, 38690), (100, 38819), (104, 38825), (123, 38945), (129, 38978), (134, 38999), (150, 39104), (161, 39218), (172, 39263), (177, 39287), (180, 39311), (202, 39431), (204, 39443), (208, 39482), (209, 39491), (211, 39497), (215, 39512), (217, 39521), (226, 39578),

Gene: Gaea\_47 Start: 40432, Stop: 41565, Start Num: 42

Candidate Starts for Gaea\_47:

(31, 40363), (Start: 42 @40432 has 72 MA's), (61, 40570), (65, 40612), (66, 40618), (73, 40669), (81, 40702), (82, 40708), (100, 40798), (129, 40954), (134, 40975), (145, 41050), (163, 41188), (187, 41302), (191, 41329), (202, 41389), (211, 41455), (215, 41470), (221, 41488),

Gene: Galadriel\_48 Start: 41561, Stop: 42682, Start Num: 42

Candidate Starts for Galadriel\_48:

(35, 41522), (Start: 42 @41561 has 72 MA's), (54, 41597), (61, 41690), (65, 41732), (66, 41738), (73, 41789), (81, 41822), (95, 41897), (100, 41918), (123, 42041), (129, 42074), (134, 42095), (145, 42170), (163, 42308), (187, 42422), (191, 42449), (202, 42509), (211, 42575), (215, 42590), (221, 42608),

Gene: Galaxy\_37 Start: 25067, Stop: 26092, Start Num: 40

Candidate Starts for Galaxy\_37:

(Start: 40 @25067 has 50 MA's), (Start: 46 @25082 has 7 MA's), (55, 25109), (64, 25226), (68, 25256), (86, 25352), (88, 25364), (95, 25406), (98, 25418), (101, 25430), (118, 25544), (136, 25631), (143, 25685), (149, 25712), (186, 25904),

Gene: Geodirt\_47 Start: 42173, Stop: 43297, Start Num: 42

Candidate Starts for Geodirt\_47:

(Start: 42 @42173 has 72 MA's), (54, 42212), (61, 42305), (65, 42347), (66, 42353), (73, 42404), (81, 42437), (95, 42512), (100, 42533), (123, 42656), (129, 42689), (134, 42710), (145, 42785), (163, 42923), (187, 43037), (191, 43064), (202, 43124), (211, 43190), (215, 43205), (221, 43223),

Gene: Gex\_47 Start: 32458, Stop: 33468, Start Num: 49

Candidate Starts for Gex\_47:

(Start: 49 @32458 has 43 MA's), (59, 32533), (61, 32572), (63, 32581), (65, 32608), (73, 32659), (74, 32662), (79, 32686), (111, 32812), (116, 32863), (119, 32887), (121, 32899), (127, 32929), (159, 33121), (163, 33130), (166, 33148), (176, 33190), (185, 33238), (188, 33250), (213, 33379),

Gene: Glotell\_41 Start: 25159, Stop: 26172, Start Num: 40

Candidate Starts for Glotell\_41:

(34, 25135), (Start: 40 @25159 has 50 MA's), (Start: 46 @25174 has 7 MA's), (72, 25363), (80, 25405), (81, 25411), (83, 25420), (95, 25492), (102, 25519), (114, 25600), (115, 25609), (118, 25630), (127, 25678), (158, 25849), (162, 25879), (168, 25906), (176, 25945), (186, 25993), (198, 26038),

Gene: GramZayde\_42 Start: 25225, Stop: 26247, Start Num: 40

Candidate Starts for GramZayde\_42:

(Start: 40 @25225 has 50 MA's), (Start: 46 @25240 has 7 MA's), (55, 25267), (58, 25303), (65, 25390), (81, 25483), (95, 25564), (102, 25591), (112, 25636), (115, 25684), (118, 25705), (127, 25753), (143, 25849), (149, 25876), (186, 26068), (189, 26089), (198, 26113),

Gene: Gravel\_47 Start: 26164, Stop: 27192, Start Num: 40

Candidate Starts for Gravel\_47:

(Start: 40 @26164 has 50 MA's), (Start: 46 @26179 has 7 MA's), (65, 26329), (77, 26401), (95, 26503), (118, 26641), (123, 26665), (127, 26689), (134, 26722), (143, 26785), (149, 26812), (158, 26860), (186, 27004),

Gene: GravityBall\_34 Start: 28804, Stop: 29823, Start Num: 50

Candidate Starts for GravityBall\_34:

(Start: 50 @28804 has 25 MA's), (62, 28921), (73, 29005), (76, 29017), (80, 29035), (87, 29071), (121, 29245), (123, 29251), (135, 29308), (141, 29347), (146, 29383), (150, 29395), (151, 29407), (202, 29650),

Gene: Grekaycon\_34 Start: 28720, Stop: 29739, Start Num: 50

Candidate Starts for Grekaycon\_34:

(Start: 50 @28720 has 25 MA's), (73, 28921), (76, 28933), (80, 28951), (86, 28981), (87, 28987), (121, 29161), (123, 29167), (135, 29224), (146, 29299), (151, 29323), (153, 29332), (167, 29410), (181, 29482), (183, 29488), (221, 29665),

Gene: Grumio\_83 Start: 52315, Stop: 53328, Start Num: 46

Candidate Starts for Grumio\_83:

(22, 52153), (30, 52222), (Start: 42 @52306 has 72 MA's), (Start: 46 @52315 has 7 MA's), (67, 52501), (73, 52540), (78, 52558), (95, 52651), (113, 52720), (123, 52801), (131, 52840), (141, 52900), (146, 52936), (148, 52942), (154, 52975), (165, 53041), (178, 53098), (222, 53305),

Gene: Gustavo\_47 Start: 40605, Stop: 41738, Start Num: 42

Candidate Starts for Gustavo\_47:

(31, 40536), (Start: 42 @40605 has 72 MA's), (61, 40743), (65, 40785), (66, 40791), (73, 40842), (81, 40875), (82, 40881), (83, 40884), (100, 40971), (129, 41127), (134, 41148), (145, 41223), (163, 41361), (187, 41475), (191, 41502), (202, 41562), (211, 41628), (215, 41643), (221, 41661),

Gene: HamCheese\_40 Start: 24987, Stop: 26000, Start Num: 40

Candidate Starts for HamCheese\_40:

(34, 24963), (Start: 40 @24987 has 50 MA's), (Start: 46 @25002 has 7 MA's), (72, 25191), (80, 25233), (81, 25239), (83, 25248), (95, 25320), (102, 25347), (114, 25428), (115, 25437), (118, 25458), (127, 25506), (158, 25677), (162, 25707), (168, 25734), (176, 25773), (186, 25821), (198, 25866),

Gene: Hanako\_51 Start: 33348, Stop: 34358, Start Num: 49

Candidate Starts for Hanako\_51:

(Start: 49 @33348 has 43 MA's), (61, 33462), (63, 33471), (65, 33498), (73, 33549), (74, 33552), (89, 33618), (94, 33645), (116, 33753), (118, 33771), (121, 33789), (166, 34038), (185, 34128), (188, 34140), (201, 34188), (213, 34269),

Gene: HannahPhantana\_41 Start: 25059, Stop: 26081, Start Num: 40

Candidate Starts for HannahPhantana\_41:

(Start: 40 @25059 has 50 MA's), (Start: 46 @25074 has 7 MA's), (55, 25101), (58, 25137), (65, 25224), (81, 25317), (95, 25398), (102, 25425), (112, 25470), (115, 25518), (118, 25539), (127, 25587), (143, 25683), (149, 25710), (186, 25902), (189, 25923), (198, 25947),

Gene: Hans\_49 Start: 40497, Stop: 41648, Start Num: 39

Candidate Starts for Hans\_49:

(Start: 39 @40497 has 9 MA's), (57, 40581), (61, 40638), (63, 40647), (65, 40680), (66, 40686), (73, 40734), (82, 40773), (88, 40803), (92, 40821), (93, 40824), (94, 40833), (121, 40983), (123, 40989), (129, 41022), (134, 41043), (144, 41106), (156, 41220), (161, 41262), (163, 41268), (190, 41406), (215, 41550), (226, 41616),

Gene: Impisi\_52 Start: 33145, Stop: 34155, Start Num: 49

Candidate Starts for Impisi\_52:

(Start: 49 @33145 has 43 MA's), (61, 33259), (63, 33268), (65, 33295), (73, 33346), (74, 33349), (89, 33415), (94, 33442), (116, 33550), (118, 33568), (121, 33586), (166, 33835), (185, 33925), (188, 33937), (201, 33985), (213, 34066),

Gene: Inspectinfecti\_48 Start: 40943, Stop: 42094, Start Num: 39

Candidate Starts for Inspectinfecti\_48:

(Start: 39 @40943 has 9 MA's), (57, 41027), (61, 41084), (63, 41093), (65, 41126), (66, 41132), (73, 41180), (82, 41219), (88, 41249), (92, 41267), (93, 41270), (94, 41279), (121, 41429), (123, 41435), (129, 41468), (134, 41489), (144, 41552), (156, 41666), (161, 41708), (163, 41714), (190, 41852), (215, 41996), (226, 42062),

Gene: Island3\_48 Start: 33774, Stop: 34781, Start Num: 49

Candidate Starts for Island3\_48:

(28, 33654), (Start: 49 @33774 has 43 MA's), (61, 33885), (63, 33894), (65, 33921), (73, 33972), (74, 33975), (86, 34032), (89, 34041), (111, 34125), (116, 34176), (119, 34200), (121, 34212), (163, 34443), (166, 34461), (172, 34482), (174, 34497), (185, 34551), (186, 34554), (188, 34563), (190, 34581), (201, 34611), (213, 34692),

Gene: JKSyngboy\_45 Start: 41204, Stop: 42337, Start Num: 42

Candidate Starts for JKSyngboy\_45:

(31, 41135), (Start: 42 @41204 has 72 MA's), (61, 41342), (65, 41384), (66, 41390), (73, 41441), (81, 41474), (82, 41480), (83, 41483), (100, 41570), (129, 41726), (134, 41747), (145, 41822), (163, 41960), (187, 42074), (191, 42101), (202, 42161), (211, 42227), (215, 42242), (221, 42260),

Gene: JKerns\_34 Start: 28666, Stop: 29685, Start Num: 50

Candidate Starts for JKerns\_34:

(Start: 50 @28666 has 25 MA's), (73, 28867), (76, 28879), (80, 28897), (86, 28927), (116, 29071), (121, 29107), (123, 29113), (135, 29170), (146, 29245), (151, 29269), (181, 29428), (183, 29434), (221, 29611), (223, 29632), (226, 29659),

Gene: Jabberwocky\_47 Start: 42599, Stop: 43762, Start Num: 42

Candidate Starts for Jabberwocky\_47:

(Start: 42 @42599 has 72 MA's), (54, 42638), (61, 42731), (65, 42773), (66, 42779), (73, 42830), (81, 42863), (95, 42938), (100, 42959), (116, 43040), (123, 43082), (129, 43115), (134, 43136), (145, 43211), (163, 43349), (187, 43463), (194, 43511), (196, 43526), (202, 43586), (211, 43652), (215, 43667), (221, 43685),

Gene: Jace\_31 Start: 25322, Stop: 26353, Start Num: 41

Candidate Starts for Jace\_31:

(Start: 41 @25322 has 1 MA's), (Start: 50 @25343 has 25 MA's), (68, 25523), (77, 25571), (95, 25664), (100, 25685), (121, 25793), (122, 25796), (126, 25820), (147, 25934), (152, 25955), (188, 26132), (190, 26150),

Gene: Jamie19\_45 Start: 31639, Stop: 32649, Start Num: 49

Candidate Starts for Jamie19\_45:

(Start: 49 @31639 has 43 MA's), (59, 31714), (61, 31753), (63, 31762), (65, 31789), (73, 31840), (74, 31843), (89, 31909), (94, 31936), (116, 32044), (118, 32062), (121, 32080), (166, 32329), (185, 32419), (188, 32431), (201, 32479), (213, 32560),

Gene: Jamun\_37 Start: 25352, Stop: 26377, Start Num: 40

Candidate Starts for Jamun\_37:

(34, 25319), (Start: 40 @25352 has 50 MA's), (Start: 46 @25367 has 7 MA's), (65, 25517), (68, 25541), (86, 25637), (88, 25649), (95, 25691), (98, 25703), (99, 25712), (136, 25916), (143, 25970), (186, 26189), (218, 26342),

Gene: Jawnski\_32 Start: 28461, Stop: 29489, Start Num: 50

Candidate Starts for Jawnski\_32:

(Start: 50 @28461 has 25 MA's), (62, 28578), (69, 28644), (73, 28662), (80, 28692), (86, 28722), (121, 28902), (135, 28965), (146, 29040), (150, 29052), (151, 29064), (183, 29229), (202, 29307),

Gene: Jerole\_41 Start: 25183, Stop: 26205, Start Num: 40

Candidate Starts for Jerole\_41:

(Start: 40 @25183 has 50 MA's), (Start: 46 @25198 has 7 MA's), (55, 25225), (58, 25261), (65, 25348), (81, 25441), (95, 25522), (102, 25549), (112, 25594), (115, 25642), (118, 25663), (127, 25711), (143, 25807), (149, 25834), (186, 26026), (189, 26047), (198, 26071),

Gene: Jollymon\_82 Start: 52837, Stop: 53850, Start Num: 46

Candidate Starts for Jollymon\_82:

(22, 52675), (30, 52744), (Start: 42 @52828 has 72 MA's), (Start: 46 @52837 has 7 MA's), (67, 53023), (73, 53062), (78, 53080), (95, 53173), (113, 53242), (123, 53323), (131, 53362), (141, 53422), (146, 53458), (148, 53464), (154, 53497), (165, 53563), (178, 53620), (222, 53827),

Gene: Jordan\_34 Start: 28716, Stop: 29735, Start Num: 50

Candidate Starts for Jordan\_34:

(Start: 50 @28716 has 25 MA's), (73, 28917), (76, 28929), (80, 28947), (86, 28977), (121, 29157), (123, 29163), (135, 29220), (146, 29295), (151, 29319), (167, 29406), (181, 29478), (183, 29484), (221, 29661),

Gene: JrWilcox\_97 Start: 53551, Stop: 54615, Start Num: 52

Candidate Starts for JrWilcox\_97:

(14, 53251), (Start: 52 @53551 has 1 MA's), (73, 53749), (87, 53824), (110, 53944), (121, 54049), (133, 54106), (153, 54220), (166, 54289), (171, 54307), (177, 54337), (186, 54385), (218, 54541), (225, 54580),

Gene: Juno112\_39 Start: 25003, Stop: 26016, Start Num: 40

Candidate Starts for Juno112\_39:

(34, 24979), (Start: 40 @25003 has 50 MA's), (Start: 46 @25018 has 7 MA's), (72, 25207), (80, 25249), (81, 25255), (83, 25264), (95, 25336), (102, 25363), (114, 25444), (115, 25453), (118, 25474), (127, 25522), (158, 25693), (162, 25723), (168, 25750), (176, 25789), (186, 25837), (198, 25882),

Gene: KHumphrey\_40 Start: 25002, Stop: 26015, Start Num: 40

Candidate Starts for KHumphrey\_40:

(34, 24978), (Start: 40 @25002 has 50 MA's), (Start: 46 @25017 has 7 MA's), (72, 25206), (80, 25248), (81, 25254), (83, 25263), (95, 25335), (102, 25362), (114, 25443), (115, 25452), (118, 25473), (127, 25521), (158, 25692), (162, 25722), (168, 25749), (176, 25788), (186, 25836), (198, 25881),

Gene: Kamashten\_46 Start: 40534, Stop: 41661, Start Num: 42

Candidate Starts for Kamashten\_46:

(Start: 42 @40534 has 72 MA's), (54, 40573), (61, 40666), (65, 40708), (66, 40714), (73, 40765), (81, 40798), (95, 40873), (100, 40894), (123, 41017), (129, 41050), (134, 41071), (145, 41146), (163, 41284), (187, 41398), (191, 41425), (202, 41485), (211, 41551), (215, 41566), (221, 41584),

Gene: Keitabear\_48 Start: 42189, Stop: 43352, Start Num: 42

Candidate Starts for Keitabear\_48:

(Start: 42 @42189 has 72 MA's), (54, 42228), (61, 42321), (65, 42363), (66, 42369), (73, 42420), (81, 42453), (95, 42528), (100, 42549), (123, 42672), (129, 42705), (134, 42726), (145, 42801), (163, 42939), (187, 43053), (194, 43101), (196, 43116), (202, 43176), (211, 43242), (215, 43257), (221, 43275),

Gene: KendraB23\_48 Start: 26357, Stop: 27385, Start Num: 40

Candidate Starts for KendraB23\_48:

(34, 26315), (Start: 40 @26357 has 50 MA's), (Start: 46 @26372 has 7 MA's), (65, 26522), (77, 26594), (95, 26696), (118, 26834), (123, 26858), (127, 26882), (134, 26915), (143, 26978), (149, 27005), (158, 27053), (186, 27197),

Gene: Kepler\_42 Start: 25807, Stop: 26829, Start Num: 40

Candidate Starts for Kepler\_42:

(Start: 40 @25807 has 50 MA's), (Start: 46 @25822 has 7 MA's), (55, 25849), (58, 25885), (65, 25972), (81, 26065), (95, 26146), (102, 26173), (112, 26218), (115, 26266), (118, 26287), (127, 26335), (143, 26431), (149, 26458), (168, 26563), (186, 26650), (189, 26671), (198, 26695),

Gene: Kevin1\_49 Start: 32486, Stop: 33493, Start Num: 49

Candidate Starts for Kevin1\_49:

(Start: 49 @32486 has 43 MA's), (61, 32597), (63, 32606), (65, 32633), (73, 32684), (74, 32687), (86, 32744), (89, 32753), (111, 32837), (116, 32888), (119, 32912), (121, 32924), (163, 33155), (166, 33173), (172, 33194), (174, 33209), (185, 33263), (186, 33266), (188, 33275), (190, 33293), (201, 33323), (213, 33404),

Gene: Kewpiedoll\_48 Start: 41475, Stop: 42602, Start Num: 42

Candidate Starts for Kewpiedoll\_48:

(Start: 42 @41475 has 72 MA's), (54, 41514), (61, 41607), (66, 41655), (73, 41706), (81, 41739), (95, 41814), (100, 41835), (123, 41958), (129, 41991), (134, 42012), (145, 42087), (163, 42225), (187,

42339), (191, 42366), (202, 42426), (211, 42492), (215, 42507), (221, 42525),

Gene: King2\_32 Start: 28450, Stop: 29478, Start Num: 50

Candidate Starts for King2\_32:

(Start: 50 @28450 has 25 MA's), (69, 28633), (73, 28651), (80, 28681), (84, 28696), (119, 28879), (121, 28891), (150, 29041), (151, 29053), (183, 29218), (192, 29260), (202, 29296),

Gene: KingstonB\_84 Start: 52239, Stop: 53261, Start Num: 42

Candidate Starts for KingstonB\_84:

(22, 52086), (Start: 42 @52239 has 72 MA's), (Start: 46 @52248 has 7 MA's), (67, 52434), (73, 52473), (78, 52491), (95, 52584), (113, 52653), (123, 52734), (131, 52773), (141, 52833), (146, 52869), (148, 52875), (154, 52908), (165, 52974), (178, 53031), (222, 53238),

Gene: Klevey\_37 Start: 28353, Stop: 29405, Start Num: 43

Candidate Starts for Klevey\_37:

(Start: 43 @28353 has 7 MA's), (73, 28563), (78, 28581), (95, 28671), (140, 28908), (141, 28911),

Gene: Kroos\_48 Start: 41345, Stop: 42472, Start Num: 42

Candidate Starts for Kroos\_48:

(31, 41276), (Start: 42 @41345 has 72 MA's), (54, 41384), (61, 41477), (65, 41519), (66, 41525), (73, 41576), (82, 41615), (100, 41705), (129, 41861), (134, 41882), (139, 41915), (145, 41957), (163, 42095), (187, 42209), (191, 42236), (202, 42296), (211, 42362), (221, 42395),

Gene: Kuleana\_42 Start: 25383, Stop: 26405, Start Num: 40

Candidate Starts for Kuleana\_42:

(Start: 40 @25383 has 50 MA's), (Start: 46 @25398 has 7 MA's), (55, 25425), (80, 25635), (81, 25641), (83, 25650), (95, 25722), (102, 25749), (108, 25776), (112, 25794), (118, 25863), (123, 25887), (127, 25911), (143, 26007), (149, 26034), (156, 26073), (186, 26226), (189, 26247), (198, 26271),

Gene: Kwekel\_45 Start: 37890, Stop: 39044, Start Num: 42

Candidate Starts for Kwekel\_45:

(Start: 42 @37890 has 72 MA's), (61, 38019), (65, 38061), (66, 38067), (73, 38118), (100, 38247), (104, 38253), (116, 38331), (123, 38373), (129, 38406), (134, 38427), (161, 38646), (172, 38691), (177, 38715), (180, 38739), (190, 38790), (202, 38859), (204, 38871), (208, 38910), (209, 38919), (211, 38925), (215, 38940), (217, 38949), (226, 39006),

Gene: Kwobi\_49 Start: 41331, Stop: 42458, Start Num: 42

Candidate Starts for Kwobi\_49:

(31, 41262), (Start: 42 @41331 has 72 MA's), (54, 41370), (61, 41463), (65, 41505), (66, 41511), (73, 41562), (82, 41601), (100, 41691), (129, 41847), (134, 41868), (139, 41901), (145, 41943), (163, 42081), (187, 42195), (197, 42261), (200, 42270), (202, 42282), (211, 42348), (215, 42363), (221, 42381),

Gene: Laphuphu24k\_39 Start: 24987, Stop: 26000, Start Num: 40

Candidate Starts for Laphuphu24k\_39:

(34, 24963), (Start: 40 @24987 has 50 MA's), (Start: 46 @25002 has 7 MA's), (72, 25191), (80, 25233), (81, 25239), (83, 25248), (95, 25320), (102, 25347), (114, 25428), (115, 25437), (118, 25458), (127, 25506), (158, 25677), (162, 25707), (168, 25734), (176, 25773), (186, 25821), (198, 25866),

Gene: LeeroyJ\_34 Start: 28804, Stop: 29823, Start Num: 50

Candidate Starts for LeeroyJ\_34:

(Start: 50 @28804 has 25 MA's), (62, 28921), (73, 29005), (76, 29017), (80, 29035), (87, 29071), (121, 29245), (123, 29251), (135, 29308), (141, 29347), (146, 29383), (150, 29395), (151, 29407), (202,

29650), (223, 29770),

Gene: Lennon\_48 Start: 42278, Stop: 43441, Start Num: 42

Candidate Starts for Lennon\_48:

(Start: 42 @42278 has 72 MA's), (54, 42317), (61, 42410), (65, 42452), (66, 42458), (73, 42509), (81, 42542), (95, 42617), (100, 42638), (123, 42761), (129, 42794), (134, 42815), (145, 42890), (163, 43028), (187, 43142), (194, 43190), (196, 43205), (202, 43265), (211, 43331), (215, 43346), (221, 43364),

Gene: Leona\_39 Start: 25074, Stop: 26087, Start Num: 40

Candidate Starts for Leona\_39:

(34, 25050), (Start: 40 @25074 has 50 MA's), (Start: 46 @25089 has 7 MA's), (53, 25107), (68, 25257), (72, 25278), (80, 25320), (95, 25407), (102, 25434), (114, 25515), (115, 25524), (118, 25545), (127, 25593), (158, 25764), (162, 25794), (168, 25821), (176, 25860), (186, 25908), (198, 25953),

Gene: Leonard\_47 Start: 40587, Stop: 41741, Start Num: 39

Candidate Starts for Leonard\_47:

(Start: 39 @40587 has 9 MA's), (44, 40602), (57, 40671), (61, 40728), (63, 40737), (65, 40770), (66, 40776), (73, 40824), (82, 40863), (88, 40893), (92, 40911), (93, 40914), (94, 40923), (114, 41031), (121, 41076), (123, 41082), (129, 41115), (134, 41136), (144, 41199), (156, 41313), (161, 41355), (163, 41361), (190, 41499), (215, 41643), (226, 41709),

Gene: LilHam\_45 Start: 39953, Stop: 41077, Start Num: 42

Candidate Starts for LilHam\_45:

(31, 39884), (Start: 42 @39953 has 72 MA's), (54, 39989), (61, 40082), (65, 40124), (66, 40130), (73, 40181), (82, 40220), (100, 40310), (129, 40466), (134, 40487), (139, 40520), (145, 40562), (163, 40700), (187, 40814), (191, 40841), (202, 40901), (211, 40967), (221, 41000),

Gene: Lilbeanie\_51 Start: 37513, Stop: 38625, Start Num: 36

Candidate Starts for Lilbeanie\_51:

(Start: 36 @37513 has 2 MA's), (Start: 46 @37537 has 7 MA's), (63, 37675), (68, 37723), (73, 37753), (78, 37771), (91, 37837), (92, 37840), (95, 37864), (118, 37981), (123, 38005), (127, 38029), (146, 38137), (156, 38179), (201, 38395), (211, 38467), (219, 38497), (226, 38548),

Gene: Lilmac1015\_39 Start: 28926, Stop: 29978, Start Num: 43

Candidate Starts for Lilmac1015\_39:

(Start: 43 @28926 has 7 MA's), (73, 29136), (78, 29154), (95, 29244), (140, 29481), (141, 29484),

Gene: LittleTokyo\_40 Start: 24933, Stop: 25961, Start Num: 40

Candidate Starts for LittleTokyo\_40:

(Start: 40 @24933 has 50 MA's), (Start: 46 @24948 has 7 MA's), (68, 25128), (72, 25149), (81, 25197), (95, 25278), (98, 25290), (102, 25305), (124, 25452), (125, 25461), (127, 25467), (137, 25515), (152, 25608), (186, 25782), (189, 25803), (198, 25827), (205, 25857),

Gene: Love\_52 Start: 42726, Stop: 43853, Start Num: 42

Candidate Starts for Love\_52:

(Start: 42 @42726 has 72 MA's), (54, 42765), (61, 42858), (65, 42900), (66, 42906), (73, 42957), (81, 42990), (95, 43065), (100, 43086), (123, 43209), (129, 43242), (134, 43263), (145, 43338), (163, 43476), (187, 43590), (191, 43617), (202, 43677), (211, 43743), (215, 43758), (221, 43776),

Gene: Lukepolites\_36 Start: 28340, Stop: 29587, Start Num: 45

Candidate Starts for Lukepolites\_36:

(45, 28340), (56, 28394), (95, 28667), (117, 28769), (123, 28805), (128, 28832), (134, 28862), (146, 28937), (169, 29060), (219, 29315), (227, 29510),

Gene: Lunar\_42 Start: 25723, Stop: 26745, Start Num: 40

Candidate Starts for Lunar\_42:

(Start: 40 @25723 has 50 MA's), (Start: 46 @25738 has 7 MA's), (55, 25765), (58, 25801), (65, 25888), (81, 25981), (95, 26062), (102, 26089), (112, 26134), (115, 26182), (118, 26203), (127, 26251), (143, 26347), (149, 26374), (186, 26566), (189, 26587), (198, 26611),

Gene: Magsby\_47 Start: 32459, Stop: 33469, Start Num: 49

Candidate Starts for Magsby\_47:

(Start: 49 @32459 has 43 MA's), (59, 32534), (61, 32573), (63, 32582), (65, 32609), (73, 32660), (74, 32663), (79, 32687), (111, 32813), (116, 32864), (119, 32888), (121, 32900), (127, 32930), (159, 33122), (163, 33131), (166, 33149), (176, 33191), (185, 33239), (188, 33251), (213, 33380),

Gene: Makar\_85 Start: 52565, Stop: 53590, Start Num: 42

Candidate Starts for Makar\_85:

(8, 52163), (18, 52355), (22, 52412), (30, 52481), (Start: 42 @52565 has 72 MA's), (Start: 46 @52574 has 7 MA's), (67, 52763), (73, 52802), (78, 52820), (95, 52913), (122, 53060), (141, 53162), (146, 53198), (160, 53282), (178, 53360), (179, 53369), (188, 53411), (222, 53567),

Gene: Martha\_34 Start: 28721, Stop: 29740, Start Num: 50

Candidate Starts for Martha\_34:

(Start: 50 @28721 has 25 MA's), (73, 28922), (76, 28934), (80, 28952), (86, 28982), (87, 28988), (121, 29162), (123, 29168), (135, 29225), (146, 29300), (151, 29324), (153, 29333), (167, 29411), (181, 29483), (183, 29489), (221, 29666),

Gene: Mask\_63 Start: 49866, Stop: 50870, Start Num: 49

Candidate Starts for Mask\_63:

(Start: 49 @49866 has 43 MA's), (63, 49989), (65, 50016), (73, 50067), (74, 50070), (79, 50094), (111, 50220), (116, 50271), (119, 50295), (121, 50307), (123, 50313), (127, 50337), (130, 50349), (159, 50529), (163, 50538), (169, 50559), (172, 50571), (184, 50634), (186, 50643), (201, 50700), (210, 50766), (213, 50781),

Gene: McCrothy\_48 Start: 41885, Stop: 43006, Start Num: 42

Candidate Starts for McCrothy\_48:

(35, 41846), (Start: 42 @41885 has 72 MA's), (54, 41921), (61, 42014), (65, 42056), (66, 42062), (73, 42113), (81, 42146), (95, 42221), (100, 42242), (123, 42365), (129, 42398), (134, 42419), (145, 42494), (163, 42632), (187, 42746), (191, 42773), (202, 42833), (211, 42899), (215, 42914), (221, 42932),

Gene: McKinley\_50 Start: 42099, Stop: 43259, Start Num: 42

Candidate Starts for McKinley\_50:

(Start: 42 @42099 has 72 MA's), (54, 42138), (61, 42231), (65, 42273), (66, 42279), (73, 42330), (81, 42363), (95, 42438), (100, 42459), (123, 42582), (129, 42615), (134, 42636), (145, 42711), (163, 42849), (187, 42963), (196, 43026), (202, 43086), (211, 43152), (215, 43167), (221, 43185),

Gene: MelBins\_48 Start: 40737, Stop: 41921, Start Num: 39

Candidate Starts for MelBins\_48:

(Start: 39 @40737 has 9 MA's), (57, 40821), (63, 40887), (65, 40920), (66, 40926), (73, 40974), (82, 41013), (88, 41043), (92, 41061), (93, 41064), (94, 41073), (121, 41223), (123, 41229), (129, 41262), (134, 41283), (144, 41346), (156, 41460), (161, 41502), (190, 41646), (194, 41667), (196, 41682), (215, 41823), (226, 41889),

Gene: Melons\_42 Start: 25537, Stop: 26559, Start Num: 40

Candidate Starts for Melons\_42:

(Start: 40 @25537 has 50 MA's), (Start: 46 @25552 has 7 MA's), (55, 25579), (58, 25615), (65, 25702), (81, 25795), (95, 25876), (102, 25903), (112, 25948), (115, 25996), (118, 26017), (127, 26065), (143, 26161), (149, 26188), (186, 26380), (189, 26401), (198, 26425),

Gene: Melville\_50 Start: 32443, Stop: 33453, Start Num: 49

Candidate Starts for Melville\_50:

(Start: 49 @32443 has 43 MA's), (59, 32518), (61, 32557), (63, 32566), (65, 32593), (73, 32644), (74, 32647), (79, 32671), (111, 32797), (116, 32848), (119, 32872), (121, 32884), (127, 32914), (159, 33106), (163, 33115), (166, 33133), (176, 33175), (185, 33223), (188, 33235), (213, 33364),

Gene: MoontowerMania\_48 Start: 41934, Stop: 43061, Start Num: 42

Candidate Starts for MoontowerMania\_48:

(Start: 42 @41934 has 72 MA's), (54, 41973), (61, 42066), (65, 42108), (66, 42114), (73, 42165), (81, 42198), (95, 42273), (100, 42294), (123, 42417), (129, 42450), (134, 42471), (145, 42546), (163, 42684), (187, 42798), (191, 42825), (202, 42885), (211, 42951), (215, 42966), (221, 42984),

Gene: Nandito\_37 Start: 28626, Stop: 29672, Start Num: 43

Candidate Starts for Nandito\_37:

(Start: 43 @28626 has 7 MA's), (73, 28836), (78, 28854), (95, 28944), (163, 29313),

Gene: NathanVaag\_32 Start: 28464, Stop: 29492, Start Num: 50

Candidate Starts for NathanVaag\_32:

(Start: 50 @28464 has 25 MA's), (62, 28581), (69, 28647), (73, 28665), (80, 28695), (86, 28725), (121, 28905), (135, 28968), (151, 29067), (183, 29232), (202, 29310),

Gene: Natkenzie\_50 Start: 42409, Stop: 43563, Start Num: 42

Candidate Starts for Natkenzie\_50:

(Start: 42 @42409 has 72 MA's), (54, 42448), (61, 42541), (63, 42550), (65, 42583), (66, 42589), (71, 42625), (73, 42640), (81, 42673), (82, 42679), (100, 42772), (129, 42928), (132, 42943), (144, 43012), (145, 43024), (146, 43042), (172, 43213), (187, 43288), (200, 43372), (209, 43444), (211, 43450), (226, 43531),

Gene: Nenae\_51 Start: 33350, Stop: 34360, Start Num: 49

Candidate Starts for Nenae\_51:

(Start: 49 @33350 has 43 MA's), (61, 33464), (63, 33473), (65, 33500), (73, 33551), (74, 33554), (89, 33620), (94, 33647), (116, 33755), (118, 33773), (121, 33791), (166, 34040), (185, 34130), (188, 34142), (201, 34190), (213, 34271),

Gene: Niblet\_37 Start: 25739, Stop: 26767, Start Num: 40

Candidate Starts for Niblet\_37:

(34, 25706), (Start: 40 @25739 has 50 MA's), (Start: 46 @25754 has 7 MA's), (65, 25904), (77, 25976), (80, 25991), (81, 25997), (92, 26054), (95, 26078), (99, 26099), (118, 26216), (124, 26249), (134, 26297), (143, 26360), (149, 26387), (158, 26435), (186, 26579),

Gene: Nordenberg\_43 Start: 40917, Stop: 42038, Start Num: 42

Candidate Starts for Nordenberg\_43:

(35, 40878), (Start: 42 @40917 has 72 MA's), (54, 40953), (61, 41046), (65, 41088), (66, 41094), (73, 41145), (81, 41178), (95, 41253), (100, 41274), (123, 41397), (129, 41430), (134, 41451), (145, 41526), (163, 41664), (187, 41778), (191, 41805), (202, 41865), (211, 41931), (215, 41946), (221, 41964),

Gene: Nostromo\_33 Start: 27783, Stop: 28817, Start Num: 50

Candidate Starts for Nostromo\_33:

(20, 27585), (Start: 50 @27783 has 25 MA's), (62, 27900), (65, 27933), (70, 27966), (73, 27984), (80, 28014), (85, 28038), (95, 28092), (121, 28224), (146, 28362), (151, 28386), (153, 28395), (182, 28545), (211, 28689), (215, 28704), (226, 28770),

Gene: Oppalora\_39 Start: 25001, Stop: 26014, Start Num: 40

Candidate Starts for Oppalora\_39:

(34, 24977), (Start: 40 @25001 has 50 MA's), (Start: 46 @25016 has 7 MA's), (72, 25205), (80, 25247), (81, 25253), (83, 25262), (95, 25334), (102, 25361), (114, 25442), (115, 25451), (118, 25472), (127, 25520), (158, 25691), (162, 25721), (168, 25748), (176, 25787), (186, 25835), (198, 25880),

Gene: Orcanus\_38 Start: 25714, Stop: 26742, Start Num: 40

Candidate Starts for Orcanus\_38:

(Start: 40 @25714 has 50 MA's), (Start: 46 @25729 has 7 MA's), (65, 25879), (77, 25951), (95, 26053), (99, 26074), (118, 26191), (123, 26215), (127, 26239), (134, 26272), (143, 26335), (149, 26362), (158, 26410), (186, 26554),

Gene: OtsoOtso\_41 Start: 24913, Stop: 25935, Start Num: 40

Candidate Starts for OtsoOtso\_41:

(Start: 40 @24913 has 50 MA's), (Start: 46 @24928 has 7 MA's), (55, 24955), (58, 24991), (65, 25078), (81, 25171), (95, 25252), (102, 25279), (112, 25324), (115, 25372), (118, 25393), (127, 25441), (143, 25537), (149, 25564), (186, 25756), (189, 25777), (198, 25801),

Gene: Panchino\_44 Start: 32985, Stop: 33995, Start Num: 49

Candidate Starts for Panchino\_44:

(Start: 49 @32985 has 43 MA's), (59, 33060), (61, 33099), (63, 33108), (65, 33135), (73, 33186), (74, 33189), (89, 33255), (94, 33282), (116, 33390), (118, 33408), (121, 33426), (166, 33675), (185, 33765), (188, 33777), (201, 33825), (213, 33906),

Gene: Paries\_51 Start: 42388, Stop: 43509, Start Num: 42

Candidate Starts for Paries\_51:

(35, 42349), (Start: 42 @42388 has 72 MA's), (54, 42424), (61, 42517), (65, 42559), (66, 42565), (73, 42616), (81, 42649), (95, 42724), (100, 42745), (123, 42868), (129, 42901), (134, 42922), (145, 42997), (163, 43135), (187, 43249), (191, 43276), (202, 43336), (211, 43402), (215, 43417), (221, 43435),

Gene: Parmesanjohn\_47 Start: 32462, Stop: 33472, Start Num: 49

Candidate Starts for Parmesanjohn\_47:

(Start: 49 @32462 has 43 MA's), (59, 32537), (61, 32576), (63, 32585), (65, 32612), (73, 32663), (74, 32666), (79, 32690), (111, 32816), (116, 32867), (119, 32891), (121, 32903), (127, 32933), (159, 33125), (163, 33134), (166, 33152), (176, 33194), (185, 33242), (188, 33254), (213, 33383),

Gene: Pelletreau\_47 Start: 26164, Stop: 27192, Start Num: 40

Candidate Starts for Pelletreau\_47:

(Start: 40 @26164 has 50 MA's), (Start: 46 @26179 has 7 MA's), (65, 26329), (77, 26401), (95, 26503), (118, 26641), (123, 26665), (127, 26689), (134, 26722), (143, 26785), (149, 26812), (158, 26860), (186, 27004),

Gene: PhancyPhin\_51 Start: 33344, Stop: 34354, Start Num: 49

Candidate Starts for PhancyPhin\_51:

(Start: 49 @33344 has 43 MA's), (61, 33458), (63, 33467), (65, 33494), (73, 33545), (74, 33548), (89, 33614), (94, 33641), (116, 33749), (118, 33767), (121, 33785), (166, 34034), (185, 34124), (188, 34136), (201, 34184), (213, 34265),

Gene: Phauci\_40 Start: 37439, Stop: 38590, Start Num: 39

Candidate Starts for Phauci\_40:

(Start: 39 @37439 has 9 MA's), (57, 37523), (63, 37589), (65, 37622), (66, 37628), (73, 37676), (82, 37715), (88, 37745), (90, 37754), (92, 37763), (93, 37766), (94, 37775), (121, 37925), (123, 37931), (129, 37964), (134, 37985), (144, 38048), (156, 38162), (161, 38204), (215, 38492), (226, 38558),

Gene: Phinally\_47 Start: 40584, Stop: 41738, Start Num: 39

Candidate Starts for Phinally\_47:

(Start: 39 @40584 has 9 MA's), (44, 40599), (57, 40668), (61, 40725), (63, 40734), (65, 40767), (66, 40773), (73, 40821), (82, 40860), (88, 40890), (92, 40908), (93, 40911), (94, 40920), (114, 41028), (121, 41073), (123, 41079), (129, 41112), (134, 41133), (144, 41196), (156, 41310), (161, 41352), (163, 41358), (190, 41496), (215, 41640), (226, 41706),

Gene: PhirstandPhine\_49 Start: 25683, Stop: 26705, Start Num: 40

Candidate Starts for PhirstandPhine\_49:

(Start: 40 @25683 has 50 MA's), (Start: 46 @25698 has 7 MA's), (55, 25725), (58, 25761), (65, 25848), (81, 25941), (95, 26022), (102, 26049), (112, 26094), (115, 26142), (118, 26163), (127, 26211), (143, 26307), (149, 26334), (186, 26526), (189, 26547), (198, 26571),

Gene: Phloss\_45 Start: 31869, Stop: 32879, Start Num: 49

Candidate Starts for Phloss\_45:

(Start: 49 @31869 has 43 MA's), (59, 31944), (61, 31983), (63, 31992), (65, 32019), (73, 32070), (74, 32073), (79, 32097), (111, 32223), (116, 32274), (119, 32298), (121, 32310), (127, 32340), (159, 32532), (163, 32541), (166, 32559), (176, 32601), (185, 32649), (188, 32661), (213, 32790),

Gene: PhluffyCoco\_40 Start: 24999, Stop: 26012, Start Num: 40

Candidate Starts for PhluffyCoco\_40:

(34, 24975), (Start: 40 @24999 has 50 MA's), (Start: 46 @25014 has 7 MA's), (72, 25203), (80, 25245), (81, 25251), (83, 25260), (95, 25332), (102, 25359), (114, 25440), (115, 25449), (118, 25470), (127, 25518), (158, 25689), (162, 25719), (168, 25746), (176, 25785), (186, 25833), (198, 25878),

Gene: Phrann\_48 Start: 33627, Stop: 34637, Start Num: 49

Candidate Starts for Phrann\_48:

(Start: 49 @33627 has 43 MA's), (61, 33741), (63, 33750), (65, 33777), (73, 33828), (74, 33831), (89, 33897), (94, 33924), (116, 34032), (118, 34050), (121, 34068), (166, 34317), (185, 34407), (188, 34419), (201, 34467), (213, 34548),

Gene: Piccoletto\_32 Start: 28465, Stop: 29493, Start Num: 50

Candidate Starts for Piccoletto\_32:

(Start: 50 @28465 has 25 MA's), (62, 28582), (69, 28648), (73, 28666), (80, 28696), (86, 28726), (121, 28906), (135, 28969), (151, 29068), (183, 29233), (202, 29311),

Gene: Pineda\_43 Start: 25209, Stop: 26231, Start Num: 40

Candidate Starts for Pineda\_43:

(Start: 40 @25209 has 50 MA's), (Start: 46 @25224 has 7 MA's), (55, 25251), (58, 25287), (65, 25374), (81, 25467), (95, 25548), (102, 25575), (112, 25620), (115, 25668), (118, 25689), (127, 25737), (143, 25833), (149, 25860), (186, 26052), (189, 26073), (198, 26097),

Gene: Pippa\_34 Start: 28845, Stop: 29864, Start Num: 50

Candidate Starts for Pippa\_34:

(Start: 50 @28845 has 25 MA's), (73, 29046), (76, 29058), (80, 29076), (87, 29112), (116, 29250), (121, 29286), (135, 29349), (146, 29424), (151, 29448), (153, 29457), (221, 29790), (223, 29811), (226, 29838),

Gene: Pipsqueaks\_47 Start: 32439, Stop: 33449, Start Num: 49

Candidate Starts for Pipsqueaks\_47:

(Start: 49 @32439 has 43 MA's), (59, 32514), (61, 32553), (63, 32562), (65, 32589), (73, 32640), (74, 32643), (79, 32667), (111, 32793), (116, 32844), (119, 32868), (121, 32880), (127, 32910), (159, 33102), (163, 33111), (166, 33129), (176, 33171), (185, 33219), (188, 33231), (213, 33360),

Gene: Polka\_40 Start: 24913, Stop: 25935, Start Num: 40

Candidate Starts for Polka\_40:

(Start: 40 @24913 has 50 MA's), (Start: 46 @24928 has 7 MA's), (55, 24955), (58, 24991), (65, 25078), (81, 25171), (95, 25252), (102, 25279), (112, 25324), (115, 25372), (118, 25393), (127, 25441), (143, 25537), (149, 25564), (186, 25756), (189, 25777), (198, 25801),

Gene: Prairie\_36 Start: 28272, Stop: 29321, Start Num: 43

Candidate Starts for Prairie\_36:

(Start: 43 @28272 has 7 MA's), (73, 28482), (78, 28500), (95, 28590), (140, 28827), (141, 28830),

Gene: Pumpkiney\_51 Start: 39724, Stop: 40899, Start Num: 42

Candidate Starts for Pumpkiney\_51:

(Start: 42 @39724 has 72 MA's), (Start: 47 @39736 has 2 MA's), (54, 39763), (61, 39856), (63, 39865), (65, 39898), (66, 39904), (71, 39940), (73, 39955), (81, 39988), (82, 39994), (100, 40087), (103, 40096), (123, 40231), (129, 40264), (132, 40279), (134, 40285), (144, 40348), (146, 40378), (172, 40549), (187, 40624), (200, 40708), (209, 40780), (211, 40786), (215, 40801), (226, 40867),

Gene: Purgamenstris\_51 Start: 33348, Stop: 34358, Start Num: 49

Candidate Starts for Purgamenstris\_51:

(Start: 49 @33348 has 43 MA's), (61, 33462), (63, 33471), (65, 33498), (73, 33549), (74, 33552), (89, 33618), (94, 33645), (116, 33753), (118, 33771), (121, 33789), (166, 34038), (185, 34128), (188, 34140), (201, 34188), (213, 34269),

Gene: Purplicious\_82 Start: 52080, Stop: 53093, Start Num: 46

Candidate Starts for Purplicious\_82:

(22, 51918), (30, 51987), (Start: 42 @52071 has 72 MA's), (Start: 46 @52080 has 7 MA's), (67, 52266), (73, 52305), (78, 52323), (95, 52416), (113, 52485), (123, 52566), (131, 52605), (141, 52665), (146, 52701), (148, 52707), (154, 52740), (165, 52806), (178, 52863), (222, 53070),

Gene: Rattail\_40 Start: 25085, Stop: 26098, Start Num: 40

Candidate Starts for Rattail\_40:

(34, 25061), (Start: 40 @25085 has 50 MA's), (Start: 46 @25100 has 7 MA's), (72, 25289), (80, 25331), (81, 25337), (83, 25346), (95, 25418), (102, 25445), (114, 25526), (115, 25535), (118, 25556), (127, 25604), (158, 25775), (162, 25805), (168, 25832), (176, 25871), (186, 25919), (198, 25964),

Gene: Raymond7\_45 Start: 33136, Stop: 34146, Start Num: 49

Candidate Starts for Raymond7\_45:

(Start: 49 @33136 has 43 MA's), (61, 33250), (63, 33259), (65, 33286), (73, 33337), (74, 33340), (89, 33406), (94, 33433), (116, 33541), (118, 33559), (121, 33577), (166, 33826), (185, 33916), (188, 33928), (201, 33976), (213, 34057),

Gene: Rebel\_43 Start: 29478, Stop: 30488, Start Num: 49

Candidate Starts for Rebel\_43:

(Start: 49 @29478 has 43 MA's), (61, 29592), (63, 29601), (65, 29628), (73, 29679), (74, 29682), (89, 29748), (94, 29775), (116, 29883), (118, 29901), (121, 29919), (166, 30168), (185, 30258), (188, 30270), (201, 30318), (213, 30399),

Gene: RedFox\_40 Start: 24998, Stop: 26011, Start Num: 40

Candidate Starts for RedFox\_40:

(34, 24974), (Start: 40 @24998 has 50 MA's), (Start: 46 @25013 has 7 MA's), (72, 25202), (80, 25244), (81, 25250), (83, 25259), (95, 25331), (102, 25358), (114, 25439), (115, 25448), (118, 25469), (127, 25517), (158, 25688), (162, 25718), (168, 25745), (176, 25784), (186, 25832), (198, 25877),

Gene: Redi\_51 Start: 33347, Stop: 34357, Start Num: 49

Candidate Starts for Redi\_51:

(Start: 49 @33347 has 43 MA's), (61, 33461), (63, 33470), (65, 33497), (73, 33548), (74, 33551), (89, 33617), (94, 33644), (116, 33752), (118, 33770), (121, 33788), (166, 34037), (185, 34127), (188, 34139), (201, 34187), (213, 34268),

Gene: Renna12\_39 Start: 25056, Stop: 26069, Start Num: 40

Candidate Starts for Renna12\_39:

(33, 25014), (Start: 40 @25056 has 50 MA's), (Start: 46 @25071 has 7 MA's), (67, 25230), (72, 25260), (80, 25302), (81, 25308), (83, 25317), (95, 25389), (102, 25416), (114, 25497), (115, 25506), (118, 25527), (158, 25746), (162, 25776), (168, 25803), (186, 25890), (198, 25935), (216, 26037), (220, 26046),

Gene: Ribeye\_48 Start: 41766, Stop: 42890, Start Num: 42

Candidate Starts for Ribeye\_48:

(31, 41697), (Start: 42 @41766 has 72 MA's), (54, 41802), (61, 41895), (65, 41937), (66, 41943), (73, 41994), (82, 42033), (100, 42123), (129, 42279), (134, 42300), (139, 42333), (145, 42375), (163, 42513), (187, 42627), (191, 42654), (202, 42714), (211, 42780), (221, 42813),

Gene: RiverRaider\_49 Start: 40177, Stop: 41307, Start Num: 42

Candidate Starts for RiverRaider\_49:

(Start: 42 @40177 has 72 MA's), (61, 40315), (63, 40324), (65, 40357), (66, 40363), (73, 40414), (81, 40447), (82, 40453), (90, 40489), (100, 40543), (123, 40666), (129, 40699), (134, 40720), (145, 40795), (163, 40933), (174, 40987), (187, 41047), (200, 41122), (203, 41137), (209, 41194), (211, 41200), (221, 41233),

Gene: RoadKill\_43 Start: 37465, Stop: 38649, Start Num: 42

Candidate Starts for RoadKill\_43:

(21, 37324), (Start: 42 @37465 has 72 MA's), (61, 37594), (65, 37636), (66, 37642), (73, 37693), (100, 37822), (123, 37948), (129, 37981), (134, 38002), (161, 38221), (172, 38266), (177, 38290), (180, 38314), (190, 38365), (195, 38392), (202, 38464), (204, 38476), (208, 38515), (209, 38524), (211, 38530), (215, 38545), (217, 38554), (226, 38611),

Gene: Rofo\_48 Start: 41463, Stop: 42809, Start Num: 15

Candidate Starts for Rofo\_48:

(4, 40968), (11, 41394), (Start: 15 @41463 has 1 MA's), (19, 41526), (23, 41565), (25, 41592), (54, 41721), (61, 41814), (65, 41856), (66, 41862), (73, 41913), (81, 41946), (95, 42021), (100, 42042), (123, 42165), (129, 42198), (134, 42219), (145, 42294), (163, 42432), (187, 42546), (191, 42573), (202, 42633), (211, 42699), (215, 42714), (221, 42732),

Gene: Rubeelu\_50 Start: 33050, Stop: 34057, Start Num: 49

Candidate Starts for Rubeelu\_50:

(16, 32807), (17, 32819), (24, 32885), (28, 32930), (Start: 49 @33050 has 43 MA's), (61, 33161), (63, 33170), (65, 33197), (73, 33248), (74, 33251), (86, 33308), (89, 33317), (111, 33401), (116, 33452), (119, 33476), (121, 33488), (163, 33719), (166, 33737), (172, 33758), (174, 33773), (185, 33827), (186, 33830), (188, 33839), (190, 33857), (201, 33887), (213, 33968),

Gene: Ruchi\_37 Start: 25758, Stop: 26786, Start Num: 40

Candidate Starts for Ruchi\_37:

(34, 25725), (Start: 40 @25758 has 50 MA's), (Start: 46 @25773 has 7 MA's), (65, 25923), (77, 25995), (81, 26016), (95, 26097), (101, 26121), (123, 26259), (127, 26283), (134, 26316), (143, 26379), (157, 26451), (186, 26598),

Gene: Sampson\_50 Start: 42354, Stop: 43508, Start Num: 42

Candidate Starts for Sampson\_50:

(Start: 42 @42354 has 72 MA's), (54, 42393), (61, 42486), (63, 42495), (65, 42528), (66, 42534), (71, 42570), (73, 42585), (81, 42618), (82, 42624), (100, 42717), (129, 42873), (132, 42888), (144, 42957), (145, 42969), (146, 42987), (172, 43158), (187, 43233), (200, 43317), (209, 43389), (211, 43395), (226, 43476),

Gene: Sanjuju\_47 Start: 42328, Stop: 43452, Start Num: 42

Candidate Starts for Sanjuju\_47:

(Start: 42 @42328 has 72 MA's), (54, 42364), (61, 42457), (65, 42499), (66, 42505), (73, 42556), (81, 42589), (95, 42664), (100, 42685), (116, 42766), (123, 42808), (129, 42841), (134, 42862), (145, 42937), (163, 43075), (187, 43189), (202, 43276), (211, 43342), (215, 43357), (221, 43375),

Gene: Saronaya\_47 Start: 40605, Stop: 41738, Start Num: 42

Candidate Starts for Saronaya\_47:

(31, 40536), (Start: 42 @40605 has 72 MA's), (61, 40743), (65, 40785), (66, 40791), (73, 40842), (81, 40875), (82, 40881), (83, 40884), (100, 40971), (129, 41127), (134, 41148), (145, 41223), (163, 41361), (187, 41475), (191, 41502), (202, 41562), (211, 41628), (215, 41643), (221, 41661),

Gene: Schnauzer\_48 Start: 32462, Stop: 33472, Start Num: 49

Candidate Starts for Schnauzer\_48:

(Start: 49 @32462 has 43 MA's), (59, 32537), (61, 32576), (63, 32585), (65, 32612), (73, 32663), (74, 32666), (79, 32690), (111, 32816), (116, 32867), (119, 32891), (121, 32903), (127, 32933), (159, 33125), (163, 33134), (166, 33152), (176, 33194), (185, 33242), (188, 33254), (213, 33383),

Gene: SchottB\_46 Start: 41605, Stop: 42732, Start Num: 42

Candidate Starts for SchottB\_46:

(31, 41536), (Start: 42 @41605 has 72 MA's), (54, 41644), (61, 41737), (65, 41779), (66, 41785), (73, 41836), (82, 41875), (100, 41965), (129, 42121), (134, 42142), (139, 42175), (145, 42217), (163, 42355), (187, 42469), (191, 42496), (202, 42556), (211, 42622), (221, 42655),

Gene: Scioto\_51 Start: 42410, Stop: 43564, Start Num: 42

Candidate Starts for Scioto\_51:

(Start: 42 @42410 has 72 MA's), (54, 42449), (61, 42542), (63, 42551), (65, 42584), (66, 42590), (71, 42626), (73, 42641), (81, 42674), (82, 42680), (100, 42773), (129, 42929), (132, 42944), (144, 43013), (145, 43025), (146, 43043), (172, 43214), (187, 43289), (200, 43373), (209, 43445), (211, 43451), (226, 43532),

Gene: Scitech\_44 Start: 30478, Stop: 31488, Start Num: 49

Candidate Starts for Scitech\_44:

(Start: 49 @30478 has 43 MA's), (59, 30553), (61, 30592), (63, 30601), (65, 30628), (73, 30679), (74, 30682), (79, 30706), (111, 30832), (116, 30883), (119, 30907), (121, 30919), (127, 30949), (159,

31141), (163, 31150), (166, 31168), (176, 31210), (185, 31258), (188, 31270), (213, 31399),

Gene: Sedona\_48 Start: 41923, Stop: 43047, Start Num: 42

Candidate Starts for Sedona\_48:

(35, 41884), (Start: 42 @41923 has 72 MA's), (54, 41959), (61, 42052), (65, 42094), (66, 42100), (73, 42151), (81, 42184), (95, 42259), (100, 42280), (123, 42403), (129, 42436), (134, 42457), (145, 42532), (163, 42670), (187, 42784), (202, 42871), (211, 42937), (215, 42952), (221, 42970),

Gene: Shade\_34 Start: 28686, Stop: 29714, Start Num: 50

Candidate Starts for Shade\_34:

(Start: 50 @28686 has 25 MA's), (56, 28722), (73, 28887), (80, 28917), (84, 28932), (91, 28968), (119, 29115), (121, 29127), (129, 29166), (146, 29265), (151, 29289), (153, 29298), (156, 29313), (183, 29454), (192, 29496),

Gene: Shen\_37 Start: 24271, Stop: 25299, Start Num: 40

Candidate Starts for Shen\_37:

(34, 24229), (Start: 40 @24271 has 50 MA's), (Start: 46 @24286 has 7 MA's), (65, 24436), (77, 24508), (95, 24610), (118, 24748), (123, 24772), (127, 24796), (134, 24829), (143, 24892), (149, 24919), (158, 24967), (186, 25111),

Gene: Shivanishola\_48 Start: 40593, Stop: 41753, Start Num: 42

Candidate Starts for Shivanishola\_48:

(35, 40554), (Start: 42 @40593 has 72 MA's), (54, 40629), (61, 40722), (65, 40764), (66, 40770), (73, 40821), (81, 40854), (95, 40929), (100, 40950), (123, 41073), (129, 41106), (134, 41127), (145, 41202), (163, 41340), (187, 41454), (194, 41502), (196, 41517), (202, 41577), (211, 41643), (215, 41658), (221, 41676),

Gene: ShrimpFriedEgg\_51 Start: 33347, Stop: 34357, Start Num: 49

Candidate Starts for ShrimpFriedEgg\_51:

(Start: 49 @33347 has 43 MA's), (61, 33461), (63, 33470), (65, 33497), (73, 33548), (74, 33551), (89, 33617), (94, 33644), (116, 33752), (118, 33770), (121, 33788), (166, 34037), (185, 34127), (188, 34139), (201, 34187), (213, 34268),

Gene: Shweta\_45 Start: 31406, Stop: 32416, Start Num: 49

Candidate Starts for Shweta\_45:

(Start: 49 @31406 has 43 MA's), (61, 31520), (63, 31529), (65, 31556), (73, 31607), (74, 31610), (79, 31634), (83, 31649), (104, 31742), (111, 31760), (116, 31811), (119, 31835), (121, 31847), (123, 31853), (127, 31877), (130, 31889), (166, 32096), (185, 32186), (188, 32198), (201, 32246), (213, 32327),

Gene: Sicarius2\_35 Start: 28313, Stop: 29347, Start Num: 47

Candidate Starts for Sicarius2\_35:

(Start: 47 @28313 has 2 MA's), (51, 28322), (56, 28352), (73, 28520), (80, 28550), (84, 28565), (113, 28685), (119, 28748), (121, 28760), (127, 28790), (146, 28898), (151, 28922), (156, 28946), (181, 29081), (183, 29087), (200, 29153), (202, 29165),

Gene: Silvafighter\_48 Start: 32435, Stop: 33445, Start Num: 49

Candidate Starts for Silvafighter\_48:

(Start: 49 @32435 has 43 MA's), (59, 32510), (61, 32549), (63, 32558), (65, 32585), (73, 32636), (74, 32639), (79, 32663), (111, 32789), (116, 32840), (119, 32864), (121, 32876), (127, 32906), (159, 33098), (163, 33107), (166, 33125), (176, 33167), (185, 33215), (188, 33227), (213, 33356),

Gene: Sitar\_48 Start: 42278, Stop: 43441, Start Num: 42

Candidate Starts for Sitar\_48:

(Start: 42 @42278 has 72 MA's), (54, 42317), (61, 42410), (65, 42452), (66, 42458), (73, 42509), (81, 42542), (95, 42617), (100, 42638), (123, 42761), (129, 42794), (134, 42815), (145, 42890), (163, 43028), (187, 43142), (194, 43190), (196, 43205), (202, 43265), (211, 43331), (215, 43346), (221, 43364),

Gene: Smurph\_47 Start: 32462, Stop: 33472, Start Num: 49

Candidate Starts for Smurph\_47:

(Start: 49 @32462 has 43 MA's), (59, 32537), (61, 32576), (63, 32585), (65, 32612), (73, 32663), (74, 32666), (79, 32690), (111, 32816), (116, 32867), (119, 32891), (121, 32903), (127, 32933), (159, 33125), (163, 33134), (166, 33152), (176, 33194), (185, 33242), (188, 33254), (213, 33383),

Gene: Snekmaggedon\_45 Start: 31639, Stop: 32649, Start Num: 49

Candidate Starts for Snekmaggedon\_45:

(Start: 49 @31639 has 43 MA's), (59, 31714), (61, 31753), (63, 31762), (65, 31789), (73, 31840), (74, 31843), (89, 31909), (94, 31936), (116, 32044), (118, 32062), (121, 32080), (166, 32329), (185, 32419), (188, 32431), (201, 32479), (213, 32560),

Gene: Sonny\_34 Start: 28716, Stop: 29744, Start Num: 50

Candidate Starts for Sonny\_34:

(Start: 50 @28716 has 25 MA's), (56, 28752), (73, 28917), (80, 28947), (84, 28962), (119, 29145), (121, 29157), (129, 29196), (146, 29295), (151, 29319), (153, 29328), (156, 29343), (175, 29442), (183, 29484),

Gene: Soos\_78 Start: 52041, Stop: 53054, Start Num: 46

Candidate Starts for Soos\_78:

(22, 51879), (30, 51948), (Start: 42 @52032 has 72 MA's), (Start: 46 @52041 has 7 MA's), (67, 52227), (73, 52266), (78, 52284), (95, 52377), (113, 52446), (123, 52527), (131, 52566), (141, 52626), (146, 52662), (148, 52668), (154, 52701), (165, 52767), (178, 52824), (222, 53031),

Gene: Spinach\_51 Start: 33347, Stop: 34357, Start Num: 49

Candidate Starts for Spinach\_51:

(Start: 49 @33347 has 43 MA's), (61, 33461), (63, 33470), (65, 33497), (73, 33548), (74, 33551), (89, 33617), (94, 33644), (116, 33752), (118, 33770), (121, 33788), (166, 34037), (185, 34127), (188, 34139), (201, 34187), (213, 34268),

Gene: SpongeBob\_45 Start: 31639, Stop: 32649, Start Num: 49

Candidate Starts for SpongeBob\_45:

(Start: 49 @31639 has 43 MA's), (59, 31714), (61, 31753), (63, 31762), (65, 31789), (73, 31840), (74, 31843), (89, 31909), (94, 31936), (116, 32044), (118, 32062), (121, 32080), (166, 32329), (185, 32419), (188, 32431), (201, 32479), (213, 32560),

Gene: StevieBAY\_34 Start: 28804, Stop: 29823, Start Num: 50

Candidate Starts for StevieBAY\_34:

(Start: 50 @28804 has 25 MA's), (62, 28921), (73, 29005), (76, 29017), (80, 29035), (87, 29071), (121, 29245), (123, 29251), (135, 29308), (141, 29347), (146, 29383), (150, 29395), (151, 29407), (202, 29650),

Gene: Stichling\_45 Start: 40125, Stop: 41252, Start Num: 42

Candidate Starts for Stichling\_45:

(31, 40056), (Start: 42 @40125 has 72 MA's), (54, 40164), (61, 40257), (65, 40299), (66, 40305), (73, 40356), (82, 40395), (100, 40485), (129, 40641), (134, 40662), (139, 40695), (145, 40737), (163, 40875), (187, 40989), (191, 41016), (202, 41076), (211, 41142), (221, 41175),

Gene: Stillion\_84 Start: 52962, Stop: 53975, Start Num: 46

Candidate Starts for Stillion\_84:

(22, 52800), (Start: 42 @52953 has 72 MA's), (Start: 46 @52962 has 7 MA's), (67, 53148), (73, 53187), (78, 53205), (95, 53298), (113, 53367), (123, 53448), (131, 53487), (141, 53547), (146, 53583), (148, 53589), (154, 53622), (165, 53688), (178, 53745), (222, 53952),

Gene: Sting\_81 Start: 52480, Stop: 53493, Start Num: 46

Candidate Starts for Sting\_81:

(22, 52318), (30, 52387), (Start: 42 @52471 has 72 MA's), (Start: 46 @52480 has 7 MA's), (67, 52666), (73, 52705), (78, 52723), (95, 52816), (113, 52885), (123, 52966), (131, 53005), (141, 53065), (146, 53101), (148, 53107), (154, 53140), (165, 53206), (178, 53263), (222, 53470),

Gene: StorminNorm\_47 Start: 40696, Stop: 41823, Start Num: 42

Candidate Starts for StorminNorm\_47:

(31, 40627), (Start: 42 @40696 has 72 MA's), (54, 40735), (61, 40828), (65, 40870), (66, 40876), (73, 40927), (82, 40966), (100, 41056), (129, 41212), (134, 41233), (139, 41266), (145, 41308), (163, 41446), (187, 41560), (191, 41587), (202, 41647), (211, 41713), (221, 41746),

Gene: StuartMinion\_32 Start: 22066, Stop: 23079, Start Num: 40

Candidate Starts for StuartMinion\_32:

(34, 22033), (Start: 40 @22066 has 50 MA's), (Start: 46 @22081 has 7 MA's), (53, 22099), (67, 22240), (72, 22270), (80, 22312), (81, 22318), (95, 22399), (102, 22426), (114, 22507), (115, 22516), (118, 22537), (127, 22585), (158, 22756), (162, 22786), (186, 22900), (198, 22945), (220, 23056),

Gene: Stuck\_61 Start: 41880, Stop: 42890, Start Num: 49

Candidate Starts for Stuck\_61:

(Start: 49 @41880 has 43 MA's), (61, 41994), (63, 42003), (65, 42030), (73, 42081), (74, 42084), (79, 42108), (83, 42123), (104, 42216), (111, 42234), (116, 42285), (119, 42309), (121, 42321), (123, 42327), (127, 42351), (130, 42363), (166, 42570), (172, 42591), (185, 42660), (188, 42672), (213, 42801),

Gene: Stultus\_47 Start: 41231, Stop: 42394, Start Num: 42

Candidate Starts for Stultus\_47:

(Start: 42 @41231 has 72 MA's), (54, 41270), (61, 41363), (65, 41405), (66, 41411), (73, 41462), (81, 41495), (95, 41570), (100, 41591), (123, 41714), (129, 41747), (134, 41768), (145, 41843), (163, 41981), (187, 42095), (194, 42143), (196, 42158), (202, 42218), (211, 42284), (215, 42299), (221, 42317),

Gene: TaeYoung\_34 Start: 28721, Stop: 29740, Start Num: 50

Candidate Starts for TaeYoung\_34:

(Start: 50 @28721 has 25 MA's), (73, 28922), (76, 28934), (80, 28952), (86, 28982), (87, 28988), (121, 29162), (123, 29168), (135, 29225), (146, 29300), (151, 29324), (153, 29333), (167, 29411), (181, 29483), (183, 29489), (221, 29666),

Gene: Tangent\_49 Start: 41305, Stop: 42432, Start Num: 42

Candidate Starts for Tangent\_49:

(Start: 42 @41305 has 72 MA's), (54, 41344), (61, 41437), (65, 41479), (66, 41485), (73, 41536), (81, 41569), (95, 41644), (100, 41665), (123, 41788), (129, 41821), (134, 41842), (145, 41917), (163, 42055), (187, 42169), (191, 42196), (202, 42256), (211, 42322), (215, 42337), (221, 42355),

Gene: Tangerine\_47 Start: 40477, Stop: 41601, Start Num: 42

Candidate Starts for Tangerine\_47:

(31, 40408), (Start: 42 @40477 has 72 MA's), (54, 40513), (61, 40606), (65, 40648), (66, 40654), (73, 40705), (82, 40744), (100, 40834), (116, 40915), (129, 40990), (134, 41011), (145, 41086), (163, 41224), (187, 41338), (191, 41365), (197, 41404), (202, 41425), (211, 41491), (221, 41524),

Gene: Tapioca\_49 Start: 32428, Stop: 33438, Start Num: 49

Candidate Starts for Tapioca\_49:

(Start: 49 @32428 has 43 MA's), (59, 32503), (61, 32542), (63, 32551), (65, 32578), (73, 32629), (74, 32632), (79, 32656), (111, 32782), (116, 32833), (119, 32857), (121, 32869), (127, 32899), (159, 33091), (163, 33100), (166, 33118), (176, 33160), (185, 33208), (188, 33220), (213, 33349),

Gene: Tardus\_52 Start: 42085, Stop: 43260, Start Num: 42

Candidate Starts for Tardus\_52:

(Start: 42 @42085 has 72 MA's), (54, 42124), (61, 42217), (63, 42226), (65, 42259), (66, 42265), (73, 42316), (81, 42349), (82, 42355), (100, 42448), (103, 42457), (123, 42592), (129, 42625), (132, 42640), (134, 42646), (144, 42709), (146, 42739), (172, 42910), (187, 42985), (200, 43069), (209, 43141), (211, 43147), (226, 43228),

Gene: TaylorSipt\_38 Start: 25131, Stop: 26156, Start Num: 40

Candidate Starts for TaylorSipt\_38:

(34, 25098), (Start: 40 @25131 has 50 MA's), (Start: 46 @25146 has 7 MA's), (55, 25173), (64, 25290), (65, 25296), (68, 25320), (86, 25416), (88, 25428), (92, 25446), (95, 25470), (98, 25482), (101, 25494), (118, 25608), (124, 25641), (136, 25695), (137, 25701), (143, 25749), (149, 25776), (186, 25968),

Gene: Tessdabest\_48 Start: 32459, Stop: 33469, Start Num: 49

Candidate Starts for Tessdabest\_48:

(Start: 49 @32459 has 43 MA's), (59, 32534), (61, 32573), (63, 32582), (65, 32609), (73, 32660), (74, 32663), (79, 32687), (111, 32813), (116, 32864), (119, 32888), (121, 32900), (127, 32930), (159, 33122), (163, 33131), (166, 33149), (176, 33191), (185, 33239), (188, 33251), (213, 33380),

Gene: Thing3\_46 Start: 40534, Stop: 41661, Start Num: 42

Candidate Starts for Thing3\_46:

(Start: 42 @40534 has 72 MA's), (54, 40573), (61, 40666), (65, 40708), (66, 40714), (73, 40765), (81, 40798), (95, 40873), (100, 40894), (123, 41017), (129, 41050), (134, 41071), (145, 41146), (163, 41284), (187, 41398), (191, 41425), (202, 41485), (211, 41551), (215, 41566), (221, 41584),

Gene: ThulaThula\_52 Start: 36104, Stop: 37114, Start Num: 49

Candidate Starts for ThulaThula\_52:

(Start: 49 @36104 has 43 MA's), (61, 36218), (63, 36227), (65, 36254), (73, 36305), (74, 36308), (79, 36332), (111, 36458), (116, 36509), (121, 36545), (127, 36575), (163, 36776), (166, 36794), (171, 36812), (185, 36884), (188, 36896), (210, 37010), (213, 37025),

Gene: Tiamoceli\_46 Start: 38786, Stop: 39940, Start Num: 42

Candidate Starts for Tiamoceli\_46:

(21, 38645), (Start: 42 @38786 has 72 MA's), (61, 38915), (65, 38957), (66, 38963), (73, 39014), (100, 39143), (104, 39149), (116, 39227), (123, 39269), (129, 39302), (134, 39323), (161, 39542), (172, 39587), (177, 39611), (180, 39635), (190, 39686), (202, 39755), (204, 39767), (208, 39806), (209, 39815), (211, 39821), (215, 39836), (217, 39845), (226, 39902),

Gene: Timinator\_34 Start: 28804, Stop: 29823, Start Num: 50

Candidate Starts for Timinator\_34:

(Start: 50 @28804 has 25 MA's), (62, 28921), (73, 29005), (76, 29017), (80, 29035), (87, 29071), (121, 29245), (123, 29251), (135, 29308), (141, 29347), (146, 29383), (150, 29395), (151, 29407), (202, 29650), (223, 29770),

Gene: Toad24\_40 Start: 26410, Stop: 27438, Start Num: 40

Candidate Starts for Toad24\_40:

(34, 26368), (Start: 40 @26410 has 50 MA's), (Start: 46 @26425 has 7 MA's), (65, 26575), (77, 26647), (95, 26749), (118, 26887), (123, 26911), (127, 26935), (134, 26968), (143, 27031), (149, 27058), (158, 27106), (186, 27250),

Gene: Tonitrus\_67 Start: 48810, Stop: 49829, Start Num: 38

Candidate Starts for Tonitrus\_67:

(Start: 38 @48810 has 1 MA's), (62, 48945), (65, 48984), (73, 49038), (78, 49056), (80, 49068), (95, 49146), (96, 49149), (109, 49194), (116, 49254), (121, 49287), (123, 49293), (130, 49329), (135, 49353), (140, 49389), (142, 49401), (146, 49428), (178, 49596), (191, 49668), (208, 49758),

Gene: Tortoise12\_46 Start: 31145, Stop: 32155, Start Num: 49

Candidate Starts for Tortoise12\_46:

(Start: 49 @31145 has 43 MA's), (59, 31220), (61, 31259), (63, 31268), (65, 31295), (73, 31346), (74, 31349), (79, 31373), (111, 31499), (116, 31550), (119, 31574), (121, 31586), (127, 31616), (159, 31808), (163, 31817), (166, 31835), (176, 31877), (185, 31925), (188, 31937), (213, 32066),

Gene: TripleJ\_54 Start: 32997, Stop: 33923, Start Num: 46

Candidate Starts for TripleJ\_54:

(26, 32865), (Start: 46 @32997 has 7 MA's), (48, 33003), (60, 33111), (73, 33207), (75, 33213), (79, 33234), (107, 33354), (120, 33441), (121, 33450), (129, 33489), (137, 33528), (142, 33567), (153, 33627), (172, 33711), (186, 33774), (197, 33819),

Gene: TurkishDelight\_59 Start: 49631, Stop: 50719, Start Num: 36

Candidate Starts for TurkishDelight\_59:

(Start: 36 @49631 has 2 MA's), (60, 49781), (63, 49799), (65, 49826), (73, 49874), (82, 49913), (97, 49991), (106, 50042), (121, 50150), (123, 50156), (127, 50180), (137, 50222), (138, 50240), (152, 50312), (164, 50384), (183, 50483), (212, 50621),

Gene: Twonlo\_43 Start: 37416, Stop: 38570, Start Num: 42

Candidate Starts for Twonlo\_43:

(21, 37275), (Start: 42 @37416 has 72 MA's), (61, 37545), (65, 37587), (66, 37593), (73, 37644), (100, 37773), (123, 37899), (129, 37932), (134, 37953), (161, 38172), (172, 38217), (177, 38241), (180, 38265), (190, 38316), (202, 38385), (204, 38397), (208, 38436), (209, 38445), (211, 38451), (215, 38466), (217, 38475), (226, 38532),

Gene: Tycho\_47 Start: 40564, Stop: 41691, Start Num: 42

Candidate Starts for Tycho\_47:

(31, 40495), (Start: 42 @40564 has 72 MA's), (54, 40603), (61, 40696), (65, 40738), (66, 40744), (73, 40795), (82, 40834), (100, 40924), (129, 41080), (134, 41101), (139, 41134), (145, 41176), (163, 41314), (187, 41428), (191, 41455), (202, 41515), (211, 41581), (221, 41614),

Gene: ValentiniPuff\_95 Start: 54258, Stop: 55337, Start Num: 52

Candidate Starts for ValentiniPuff\_95:

(37, 54216), (Start: 52 @54258 has 1 MA's), (63, 54375), (73, 54453), (87, 54528), (111, 54639), (119, 54729), (121, 54741), (137, 54813), (170, 54993), (180, 55053), (186, 55077), (193, 55116), (198, 55122), (206, 55161), (218, 55233), (224, 55266),

Gene: Verity\_50 Start: 43180, Stop: 44334, Start Num: 42

Candidate Starts for Verity\_50:

(Start: 42 @43180 has 72 MA's), (54, 43219), (61, 43312), (63, 43321), (65, 43354), (66, 43360), (73, 43411), (81, 43444), (82, 43450), (100, 43543), (123, 43666), (129, 43699), (132, 43714), (134, 43720), (144, 43783), (145, 43795), (146, 43813), (172, 43984), (200, 44143), (211, 44221), (226, 44302),

Gene: ViaConlectus\_50 Start: 41038, Stop: 42213, Start Num: 42

Candidate Starts for ViaConlectus\_50:

(Start: 42 @41038 has 72 MA's), (Start: 47 @41050 has 2 MA's), (54, 41077), (61, 41170), (63, 41179), (65, 41212), (66, 41218), (71, 41254), (73, 41269), (81, 41302), (82, 41308), (100, 41401), (103, 41410), (123, 41545), (129, 41578), (130, 41581), (132, 41593), (134, 41599), (144, 41662), (146, 41692), (172, 41863), (187, 41938), (200, 42022), (209, 42094), (211, 42100), (215, 42115),

Gene: Vivi2\_51 Start: 42332, Stop: 43459, Start Num: 42

Candidate Starts for Vivi2\_51:

(Start: 42 @42332 has 72 MA's), (54, 42371), (61, 42464), (65, 42506), (66, 42512), (73, 42563), (81, 42596), (95, 42671), (100, 42692), (123, 42815), (129, 42848), (134, 42869), (145, 42944), (163, 43082), (187, 43196), (191, 43223), (202, 43283), (211, 43349), (215, 43364), (221, 43382),

Gene: Vulpecula\_37 Start: 25435, Stop: 26463, Start Num: 40

Candidate Starts for Vulpecula\_37:

(34, 25402), (Start: 40 @25435 has 50 MA's), (Start: 46 @25450 has 7 MA's), (65, 25600), (77, 25672), (80, 25687), (81, 25693), (95, 25774), (101, 25798), (123, 25936), (127, 25960), (134, 25993), (143, 26056), (157, 26128), (186, 26275),

Gene: Westrich\_46 Start: 26088, Stop: 27116, Start Num: 40

Candidate Starts for Westrich\_46:

(Start: 40 @26088 has 50 MA's), (Start: 46 @26103 has 7 MA's), (65, 26253), (77, 26325), (95, 26427), (118, 26565), (123, 26589), (127, 26613), (134, 26646), (143, 26709), (149, 26736), (158, 26784), (186, 26928),

Gene: WileyE\_39 Start: 25312, Stop: 26337, Start Num: 40

Candidate Starts for WileyE\_39:

(34, 25279), (Start: 40 @25312 has 50 MA's), (Start: 46 @25327 has 7 MA's), (65, 25477), (68, 25501), (86, 25597), (88, 25609), (95, 25651), (98, 25663), (136, 25876), (143, 25930), (186, 26149), (218, 26302),

Gene: Wyborn\_35 Start: 28951, Stop: 29985, Start Num: 47

Candidate Starts for Wyborn\_35:

(Start: 47 @28951 has 2 MA's), (51, 28960), (56, 28990), (73, 29158), (80, 29188), (84, 29203), (119, 29386), (121, 29398), (127, 29428), (146, 29536), (151, 29560), (156, 29584), (181, 29719), (183, 29725), (200, 29791), (202, 29803),

Gene: Xerxes\_47 Start: 32459, Stop: 33469, Start Num: 49

Candidate Starts for Xerxes\_47:

(Start: 49 @32459 has 43 MA's), (59, 32534), (61, 32573), (63, 32582), (65, 32609), (73, 32660), (74, 32663), (79, 32687), (111, 32813), (116, 32864), (119, 32888), (121, 32900), (127, 32930), (159, 33122), (163, 33131), (166, 33149), (176, 33191), (185, 33239), (188, 33251), (213, 33380),

Gene: YorkOnyx\_48 Start: 40821, Stop: 41948, Start Num: 42

Candidate Starts for YorkOnyx\_48:

(31, 40752), (Start: 42 @40821 has 72 MA's), (54, 40860), (61, 40953), (65, 40995), (66, 41001), (73, 41052), (82, 41091), (100, 41181), (129, 41337), (134, 41358), (139, 41391), (145, 41433), (163, 41571), (173, 41616), (187, 41685), (200, 41760), (202, 41772), (211, 41838), (215, 41853), (221,

41871),

Gene: Zartrosa\_34 Start: 28629, Stop: 29648, Start Num: 50

Candidate Starts for Zartrosa\_34:

(Start: 50 @28629 has 25 MA's), (73, 28830), (76, 28842), (80, 28860), (86, 28890), (121, 29070), (123, 29076), (135, 29133), (146, 29208), (151, 29232), (167, 29319), (181, 29391), (183, 29397), (221, 29574),

Gene: Zhuangyuan\_42 Start: 25780, Stop: 26808, Start Num: 40

Candidate Starts for Zhuangyuan\_42:

(Start: 40 @25780 has 50 MA's), (Start: 46 @25795 has 7 MA's), (64, 25945), (81, 26044), (95, 26125), (98, 26137), (102, 26152), (105, 26164), (124, 26299), (125, 26308), (127, 26314), (137, 26362), (152, 26455), (169, 26545), (186, 26629), (189, 26650), (198, 26674),

Gene: Zipp\_51 Start: 43095, Stop: 44249, Start Num: 42

Candidate Starts for Zipp\_51:

(Start: 42 @43095 has 72 MA's), (54, 43134), (61, 43227), (63, 43236), (65, 43269), (66, 43275), (73, 43326), (81, 43359), (82, 43365), (100, 43458), (123, 43581), (129, 43614), (132, 43629), (134, 43635), (144, 43698), (145, 43710), (146, 43728), (172, 43899), (200, 44058), (211, 44136), (226, 44217),

Gene: Zitch\_53 Start: 41194, Stop: 42369, Start Num: 42

Candidate Starts for Zitch\_53:

(Start: 42 @41194 has 72 MA's), (Start: 47 @41206 has 2 MA's), (54, 41233), (61, 41326), (63, 41335), (65, 41368), (66, 41374), (73, 41425), (81, 41458), (82, 41464), (100, 41557), (103, 41566), (123, 41701), (129, 41734), (132, 41749), (134, 41755), (144, 41818), (146, 41848), (172, 42019), (187, 42094), (200, 42178), (209, 42250), (211, 42256), (226, 42337),

Gene: Zixiang\_37 Start: 25775, Stop: 26803, Start Num: 40

Candidate Starts for Zixiang\_37:

(34, 25733), (Start: 40 @25775 has 50 MA's), (Start: 46 @25790 has 7 MA's), (65, 25940), (77, 26012), (95, 26114), (118, 26252), (123, 26276), (127, 26300), (134, 26333), (143, 26396), (149, 26423), (158, 26471), (186, 26615),