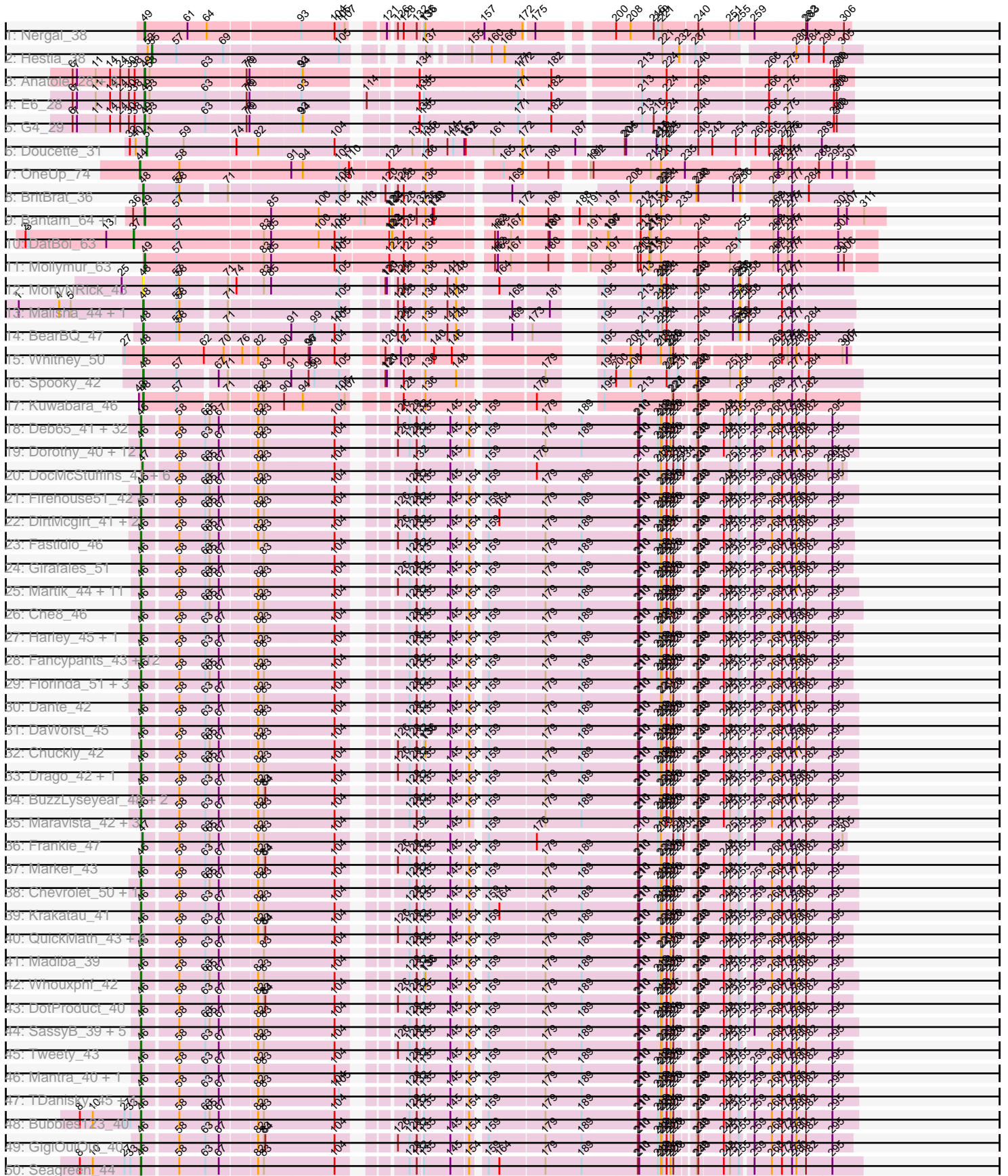


Pham 193671







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 193671 Report

This analysis was run 11/02/24 on database version 579.

Pham number 193671 has 322 members, 31 are drafts.

Phages represented in each track:

- Track 1 : Nergal\_38
- Track 2 : Hestia\_38
- Track 3 : Anatole\_28, B22\_29, E1\_28, B3\_28
- Track 4 : E6\_28
- Track 5 : G4\_29
- Track 6 : Doucette\_31
- Track 7 : OneUp\_74
- Track 8 : BritBrat\_36
- Track 9 : Bantam\_64, SpeedDemon\_660
- Track 10 : DatBoi\_63
- Track 11 : Mollymur\_63
- Track 12 : MortyNRick\_43
- Track 13 : Malisha\_44, Squiddly\_44
- Track 14 : BearBQ\_47
- Track 15 : Whitney\_50
- Track 16 : Spooky\_42
- Track 17 : Kuwabara\_46
- Track 18 : Deb65\_41, Ramsey\_44, Doomphist\_43, Empress\_43, KingMidas\_44, Girr\_44, Poenanya\_43, Jarcob\_44, Yorick\_40, Scottish\_43, Lizziana\_50, Nimbo\_40, Sassafras\_42, Pacc40\_40, PMC\_38, Leperchaun\_38, Spoonbill\_42, LilMoolah\_42, Daenerys\_40, JoeyJr\_41, OldBen\_41, Latretium\_45, PHappiness\_41, MisterCuddles\_43, Ogotogo\_44, Ruby\_42, Inventum\_40, Geralt\_41, RitaG\_41, Polka14\_42, DaddyRickover\_43, Rockne\_40, Boomer\_46
- Track 19 : Dorothy\_40, Pollywog\_42, RedBird\_40, Job42\_44, Karhdo\_42, Leozinho\_43, Stap\_42, Spikelee\_48, IbOuu\_44, Radiance\_42, Tootsieroll\_45, BodEinwohner17\_41, Sandalphon\_45
- Track 20 : DocMcStuffins\_41, ChickenDinner\_41, Misha28\_40, TootsiePop\_40, MulchSalad\_37, Awesomesauce\_41, Piper2020\_41
- Track 21 : Firehouse51\_42, Gandalph\_42
- Track 22 : DirtMcgirt\_41, Llij\_40, Phatniss\_41
- Track 23 : Fastidio\_46
- Track 24 : Girafales\_51
- Track 25 : Martik\_44, Crumble\_38, Koella\_38, ShowerHandel\_45, NormanBulbieJr\_44, Priscilla\_44, ShiLan\_44, Nivrat\_42, Burwell21\_43, MadMen\_38, Cabrinians\_45, FreddyB\_43
- Track 26 : Che8\_46
- Track 27 : Harley\_45, Kersh\_43

- Track 28 : Fancypants\_43, Blexus\_41, OwlsT2W\_41, Ochi17\_43, Modragons\_44, Ibhubesi\_44, Oksu\_45, Llama\_45, Seabastian\_45, OfUltron\_45, OlympiaSaint\_42, Jinglebell\_44, AlpineSix\_45
- Track 29 : Florinda\_51, Sabbb\_48, Phasih\_41, BlueCrab\_41
- Track 30 : Dante\_42
- Track 31 : DaWorst\_45
- Track 32 : Chuckly\_42
- Track 33 : Drago\_42, UncleRicky\_43
- Track 34 : BuzzLyseyear\_48, GUmbie\_41, Totinger\_42
- Track 35 : Maravista\_42, Eish\_43, DillTech15\_43, Mahavrat\_39
- Track 36 : Frankie\_47
- Track 37 : Marker\_43
- Track 38 : Chevrolet\_50, ArcusAngelus\_47
- Track 39 : Krakatau\_41
- Track 40 : QuickMath\_43, MulchExplorer\_47, Kimberlium\_44, LittleShirley\_43, Veteran\_41, SiSi\_43, Starcevich\_43
- Track 41 : Madiba\_39
- Track 42 : Whouxphf\_42
- Track 43 : DotProduct\_40
- Track 44 : SassyB\_39, JalFarm20\_52, Zerg\_42, Aubs\_41, PopTart\_39, RockyHorror\_44
- Track 45 : Tweety\_43
- Track 46 : Mantra\_40, Nitzel\_39
- Track 47 : TDanisky\_45, Sparkdehlily\_45
- Track 48 : Bubbles123\_40
- Track 49 : GigiOuiOui\_40
- Track 50 : Seagreen\_44
- Track 51 : Doug\_43, Hamulus\_43
- Track 52 : Royals2015\_43
- Track 53 : Plumbus\_43
- Track 54 : Quico\_50
- Track 55 : Demsculpinboyz\_50
- Track 56 : Che9d\_50
- Track 57 : Zapner\_55, Jabbawokkie\_57
- Track 58 : Avani\_50
- Track 59 : Yoshi\_54
- Track 60 : ThetaBob\_45
- Track 61 : Toron\_41
- Track 62 : Karkharias\_37
- Track 63 : PeggyLeg03\_37
- Track 64 : Pucara\_34
- Track 65 : Kumotta\_30, MargaretKali\_30
- Track 66 : CocoCinnamon\_36
- Track 67 : Hurricane\_43
- Track 68 : ShedlockHolmes\_43
- Track 69 : Keshu\_44
- Track 70 : TribbleTrouble\_40
- Track 71 : Pixie\_42, TBond007\_42
- Track 72 : Pharb\_40
- Track 73 : MacnCheese\_44
- Track 74 : SamScheppers\_44, Chancellor\_45, Eponine\_47, Wintermute\_45, Cheetobro\_45, Slarp\_45, Ruthiejr\_46, Malthus\_46, Mitti\_45
- Track 75 : JF1\_45

- Track 76 : Juliette\_47, Taquito\_45
- Track 77 : MissDaisy\_43, Patt\_42, Reptar3000\_43
- Track 78 : Fionnbharth\_45
- Track 79 : OmniCritical\_44
- Track 80 : Y10\_44, Y2\_44
- Track 81 : Unicorn\_42, PhelpsODU\_42
- Track 82 : Sunflower1121\_46, Shadow1\_45
- Track 83 : Hammy\_42
- Track 84 : DARTH\_42
- Track 85 : Tierra\_43
- Track 86 : Amohnition\_42
- Track 87 : Krueger\_46
- Track 88 : Cain\_43, Phrank\_43, Bryler\_43
- Track 89 : SirPhilip\_42
- Track 90 : Ellie\_39, Amgine\_41
- Track 91 : Ximenita\_46
- Track 92 : Syra333\_45
- Track 93 : Ekdilam\_39
- Track 94 : Fefferhead\_40
- Track 95 : Yuna\_46
- Track 96 : Aminay\_44
- Track 97 : Boilgate\_39
- Track 98 : JoeDirt\_35, Calm\_36, Tyson\_35, LeBron\_36, Rose5\_35, Halena\_35, CicholasNage\_36, Wyatt2\_36, MAckerman\_36, Acquire49\_36, Zaria\_36, DirkDirk\_35, Silverleaf\_35, Appletree2\_35, AvadaKedavra\_36
- Track 99 : OhShagHennessy\_35
- Track 100 : Wamburgrxpress\_36, UPIE\_36, Enceladus\_35
- Track 101 : Gardann\_38, Kahlid\_38, Wilder\_38, Hafay\_38, Loadrie\_38, GuuelaD\_38, Zakai\_38, Finemlucis\_38, Wigglewiggle\_38, Crossroads\_38, MkaliMitinis3\_38, Nicholasp3\_38
- Track 102 : Archie\_38
- Track 103 : Itos\_38, Breezona\_38, Miley16\_38, Winky\_38, Netyap\_38, Faith1\_38, BigCheese\_38, BobsGarage\_38, DrSeegs\_38
- Track 104 : DHan\_39
- Track 105 : Baoshan\_37, ZhongYanYuan\_37
- Track 106 : Rumpelstiltskin\_38, Gabriela\_38, LilDestine\_38
- Track 107 : Vetric\_38
- Track 108 : Claus\_39
- Track 109 : Sarshaun\_38
- Track 110 : Bazzle\_38
- Track 111 : Tourach\_38
- Track 112 : Lewan\_38
- Track 113 : Soap141\_38
- Track 114 : DanBing\_38
- Track 115 : Moostard\_36, Nicholas\_36, Samty\_36, Jubie\_36, Finnry\_36, Lumos\_36, Snenia\_36, Clautastrophe\_36, Bellis\_36, MsGreen\_36, Kingsolomon\_36, Jobypre\_36
- Track 116 : MiniMac\_36, MiniLon\_36, Lolly9\_36
- Track 117 : Krypton555\_36, Whirlwind\_37
- Track 118 : LiyuLake\_36
- Track 119 : Ellson\_36, DuncansLeg\_36
- Track 120 : BourbonZero\_35
- Track 121 : KirDoubleO7\_34
- Track 122 : PYPDinur\_35, Douzhi\_35, Sheng711\_35, BrainDrainer\_36



- Track 123 : Quby\_35
- Track 124 : Chaser\_35
- Track 125 : DyoEdafos\_37
- Track 126 : Bromden\_37
- Track 127 : FarmResident\_35, Douge\_35
- Track 128 : Baudelaire\_41, Aegeus\_41
- Track 129 : Bernal13\_33, Nairb\_33, Whitty\_34
- Track 130 : ZenTime222\_33
- Track 131 : Mendokysei\_31
- Track 132 : Ibrahim\_33
- Track 133 : RonRayGun\_33
- Track 134 : Jace\_26
- Track 135 : DS6A\_56
- Track 136 : GAL1\_31

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

The start number called the most often in the published annotations is 46, it was called in 128 of the 291 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AlpineSix\_45, ArcusAngelus\_47, Aubs\_41, Avani\_50, Blexus\_41, BlueCrab\_41, BodEinwohner17\_41, Boilgate\_39, Boomer\_46, Bubbles123\_40, Burwell21\_43, BuzzLyseyear\_48, Cabrinians\_45, Che8\_46, Chevrolet\_50, Chuckly\_42, Crumble\_38, DaWorst\_45, DaddyRickover\_43, Daenerys\_40, Dante\_42, Deb65\_41, DillTech15\_43, DirtMcgirt\_41, Doomphist\_43, Dorothy\_40, DotProduct\_40, Doug\_43, Drago\_42, Eish\_43, Empress\_43, Fancypants\_43, Fastidio\_46, Firehouse51\_42, Florinda\_51, FreddyB\_43, GUmbe\_41, Gandalph\_42, Geralt\_41, GigiOuiOui\_40, Girafales\_51, Girr\_44, Hamulus\_43, Harley\_45, IbOuu\_44, Ibhubesi\_44, Inventum\_40, JalFarm20\_52, Jarcob\_44, Jinglebell\_44, Job42\_44, JoeyJr\_41, Karhdo\_42, Kersh\_43, Kimberlium\_44, KingMidas\_44, Koella\_38, Krakatau\_41, Latretium\_45, Leozinho\_43, Leperchaun\_38, LilMoolah\_42, LittleShirley\_43, Lizziana\_50, Llama\_45, Llij\_40, MadMen\_38, Madiba\_39, Mahavrat\_39, Mantra\_40, Maravista\_42, Marker\_43, Martik\_44, MisterCuddles\_43, Modragons\_44, MulchExplorer\_47, Nimbo\_40, Nitzel\_39, Nivrat\_42, NormanBulbieJr\_44, Ochi17\_43, OfUltron\_45, Ogotogo\_44, Oksu\_45, OldBen\_41, OlympiaSaint\_42, OwlsT2W\_41, PHappiness\_41, PMC\_38, Pacc40\_40, Phasih\_41, Phatniss\_41, Plumbus\_43, Poenanya\_43, Polka14\_42, Pollywog\_42, PopTart\_39, Priscilla\_44, QuickMath\_43, Quico\_50, Radiance\_42, Ramsey\_44, RedBird\_40, RitaG\_41, Rockne\_40, RockyHorror\_44, Royals2015\_43, Ruby\_42, Sabbb\_48, Sandalphon\_45, Sassafras\_42, SassyB\_39, Scottish\_43, Sebastian\_45, Seagreen\_44, ShiLan\_44, ShowerHandel\_45, SiSi\_43, Sparkdehlily\_45, Spikelee\_48, Spoonbill\_42, Stap\_42, Starcevich\_43, TDanisky\_45, Tootsieroll\_45, Totinger\_42, Tweety\_43, UncleRicky\_43, Veteran\_41, Whouxphf\_42, Yorick\_40, Zerg\_42,

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

- 

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

- Acquire49\_36, Aegeus\_41, Amgine\_41, Aminay\_44, Amohnition\_42, Anatole\_28, Appletree2\_35, Archie\_38, AvadaKedavra\_36, Awesomesauce\_41, B22\_29, B3\_28, Bantam\_64, Baoshan\_37, Baudelaire\_41, Bazzle\_38, BearBQ\_47, Bellis\_36, Bernal13\_33, BigCheese\_38, BobsGarage\_38, BourbonZero\_35, BrainDrainer\_36, Breezona\_38, BritBrat\_36, Bromden\_37, Bryler\_43, Cain\_43, Calm\_36, Chancellor\_45, Chaser\_35, Che9d\_50, Cheetobro\_45, ChickenDinner\_41, CicholasNage\_36, Claus\_39, Clautastrophe\_36, CocoCinnamon\_36, Crossroads\_38, DHan\_39, DS6A\_56, DanBing\_38, DarthP\_42, DatBoi\_63, Demsculpinboyz\_50, DirkDirk\_35, DocMcStuffins\_41, Doucette\_31, Douge\_35, Douzhi\_35, DrSeegs\_38, DuncansLeg\_36, DyoEdafos\_37, E1\_28, E6\_28, Ekdilam\_39, Ellie\_39, Ellson\_36, Enceladus\_35, Eponine\_47, Faith1\_38, FarmResident\_35, Fefferhead\_40, Finemlucis\_38, Finnry\_36, Fionnbharth\_45, Frankie\_47, G4\_29, GAL1\_31, Gabriela\_38, Gardann\_38, GuuelaD\_38, Hafay\_38, Halena\_35, Hammy\_42, Hestia\_38, Hurricane\_43, Ibrahim\_33, Itos\_38, JF1\_45, Jabbawokkie\_57, Jace\_26, Jobypre\_36, JoeDirt\_35, Jubie\_36, Juliette\_47, Kahlid\_38, Karkharias\_37, Keshu\_44, Kingsolomon\_36, KirDoubleO7\_34, Krueger\_46, Krypton555\_36, Kumotta\_30, Kuwabara\_46, LeBron\_36, Lewan\_38, LilDestine\_38, LiyuLake\_36, Loadrie\_38, Lolly9\_36, Lumos\_36, MAckerman\_36, MacnCheese\_44, Malisha\_44, Malthus\_46, MargaretKali\_30, Mendokysei\_31, Miley16\_38, MiniLon\_36, MiniMac\_36, Misha28\_40, MissDaisy\_43, Mitti\_45, MkaliMitinis3\_38, Mollymur\_63, Moostard\_36, MortyNRick\_43, MsGreen\_36, MulchSalad\_37, Nairb\_33, Nergal\_38, Netyap\_38, Nicholas\_36, Nicholasp3\_38, OhShagHennessy\_35, OmniCritical\_44, OneUp\_74, PYPDinur\_35, Patt\_42, PeggyLeg03\_37, Pharb\_40, PhelpsODU\_42, Phrank\_43, Piper2020\_41, Pixie\_42, Pucara\_34, Quby\_35, Reptar3000\_43, RonRayGun\_33, Rose5\_35, Rumpelstiltskin\_38, Ruthiejr\_46, SamScheppers\_44, Samty\_36, Sarshaun\_38, Shadow1\_45, ShedlockHolmes\_43, Sheng711\_35, Silverleaf\_35, SirPhilip\_42, Slarp\_45, Snenia\_36, Soap141\_38, SpeedDemon\_660, Spooky\_42, Squiddly\_44, Sunflower1121\_46, Syra333\_45, TBond007\_42, Taquito\_45, ThetaBob\_45, Tierra\_43, TootsiePop\_40, Toron\_41, Tourach\_38, TribbleTrouble\_40, Tyson\_35, UPIE\_36, Unicorn\_42, Vetrrix\_38, Wamburgrxpress\_36, Whirlwind\_37, Whitney\_50, Whitty\_34, Wigglewiggle\_38, Wilder\_38, Winky\_38, Wintermute\_45, Wyatt2\_36, Ximenita\_46, Y10\_44, Y2\_44, Yoshi\_54, Yuna\_46, Zakai\_38, Zapner\_55, Zaria\_36, ZenTime222\_33, ZhongYanYuan\_37,

### Summary by start number:

#### Start 14:

- Found in 9 of 322 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 1 of 291
- Called 11.1% of time when present
- Phage (with cluster) where this start called: RonRayGun\_33 (T),

#### Start 20:

- Found in 16 of 322 ( 5.0% ) of genes in pham
- Manual Annotations of this start: 1 of 291
- Called 6.2% of time when present
- Phage (with cluster) where this start called: JF1\_45 (K4),

#### Start 25:

- Found in 8 of 322 ( 2.5% ) of genes in pham
- Manual Annotations of this start: 4 of 291
- Called 50.0% of time when present



- Phage (with cluster) where this start called: Bernal13\_33 (T), Ibrahim\_33 (T), Nairb\_33 (T), Whitty\_34 (T),

#### Start 28:

- Found in 7 of 322 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 1 of 291
- Called 14.3% of time when present
- Phage (with cluster) where this start called: ZenTime222\_33 (T),

#### Start 29:

- Found in 19 of 322 ( 5.9% ) of genes in pham
- Manual Annotations of this start: 15 of 291
- Called 78.9% of time when present
- Phage (with cluster) where this start called: Chancellor\_45 (K4), Cheetobro\_45 (K4), Eponine\_47 (K4), Fionnbharth\_45 (K4), Malthus\_46 (K4), MissDaisy\_43 (K4), Mitti\_45 (K4), Patt\_42 (K4), Reptar3000\_43 (K4), Ruthiejr\_46 (K4), SamScheppers\_44 (K4), Slarp\_45 (K4), Wintermute\_45 (K4), Y10\_44 (K4), Y2\_44 (K4),

#### Start 37:

- Found in 6 of 322 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 5 of 291
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Che9d\_50 (F2), DatBoi\_63 (DL), Demsculpinboyz\_50 (F2), ThetaBob\_45 (F4), Toron\_41 (F6), Yoshi\_54 (F2),

#### Start 39:

- Found in 1 of 322 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 291
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DS6A\_56 (singleton),

#### Start 40:

- Found in 2 of 322 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 291
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Ekdilam\_39 (K6),

#### Start 41:

- Found in 3 of 322 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 2 of 291
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Karkharias\_37 (FA), PeggyLeg03\_37 (FA), Pucara\_34 (FA),

#### Start 43:

- Found in 20 of 322 ( 6.2% ) of genes in pham
- Manual Annotations of this start: 19 of 291
- Called 95.0% of time when present
- Phage (with cluster) where this start called: Amgine\_41 (K6), Aminay\_44 (K7), Amohnition\_42 (K6), Bryler\_43 (K6), Cain\_43 (K6), Ellie\_39 (K6), Fefferhead\_40 (K6), Krueger\_46 (K6), PhelpsODU\_42 (K6), Phrank\_43 (K6), Shadow1\_45 (K6), SirPhilip\_42 (K6), Sunflower1121\_46 (K6), Syra333\_45 (K6), Tierra\_43 (K6),

TribleTrouble\_40 (K3), Unicorn\_42 (K6), Ximenita\_46 (K6), Yuna\_46 (K6),

Start 44:

- Found in 1 of 322 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 291
- Called 100.0% of time when present
- Phage (with cluster) where this start called: OneUp\_74 (CQ2),

Start 45:

- Found in 89 of 322 ( 27.6% ) of genes in pham
- Manual Annotations of this start: 69 of 291
- Called 96.6% of time when present
- Phage (with cluster) where this start called: Acquire49\_36 (L1), Aegeus\_41 (L5), Appletree2\_35 (L1), Archie\_38 (L2), AvadaKedavra\_36 (L1), Baoshan\_37 (L2), Baudelaire\_41 (L5), Bazzle\_38 (L2), Bellis\_36 (L3), BigCheese\_38 (L2), BobsGarage\_38 (L2), BourbonZero\_35 (L3), BrainDrainer\_36 (L4), Breezona\_38 (L2), Bromden\_37 (L4), Calm\_36 (L1), Chaser\_35 (L4), CicholasNage\_36 (L1), Clautastrophe\_36 (L3), Crossroads\_38 (L2), DHan\_39 (L2), DirkDirk\_35 (L1), Douge\_35 (L4), Douzhi\_35 (L4), DrSeegs\_38 (L2), DuncansLeg\_36 (L3), DyoEdafos\_37 (L4), Ellson\_36 (L3), Enceladus\_35 (L1), Faith1\_38 (L2), FarmResident\_35 (L4), Finemlucis\_38 (L2), Finnry\_36 (L3), Gabriela\_38 (L2), Gardann\_38 (L2), GuuelaD\_38 (L2), Hafay\_38 (L2), Halena\_35 (L1), Itos\_38 (L2), Jobypre\_36 (L3), JoeDirt\_35 (L1), Jubie\_36 (L3), Kahlid\_38 (L2), Kingsolomon\_36 (L3), KirDoubleO7\_34 (L3), Krypton555\_36 (L3), LeBron\_36 (L1), Lewan\_38 (L2), LilDestine\_38 (L2), LiyuLake\_36 (L3), Loadrie\_38 (L2), Lolly9\_36 (L3), Lumos\_36 (L3), MAckerman\_36 (L1), Miley16\_38 (L2), MiniLon\_36 (L3), MiniMac\_36 (L3), MkaliMinitis3\_38 (L2), Moostard\_36 (L3), MsGreen\_36 (L3), Netyap\_38 (L2), Nicholas\_36 (L3), Nicholasp3\_38 (L2), OhShagHennessy\_35 (L1), PYPDinur\_35 (L4), Quby\_35 (L4), Rose5\_35 (L1), Rumpelstiltskin\_38 (L2), Samty\_36 (L3), Sarshaun\_38 (L2), Sheng711\_35 (L4), Silverleaf\_35 (L1), Snenia\_36 (L3), Tourach\_38 (L2), Tyson\_35 (L1), UPIE\_36 (L1), Vetrix\_38 (L2), Wamburggrxpress\_36 (L1), Whirlwind\_37 (L3), Wigglewobble\_38 (L2), Wilder\_38 (L2), Winky\_38 (L2), Wyatt2\_36 (L1), Zakai\_38 (L2), Zaria\_36 (L1), ZhongYanYuan\_37 (L2),

Start 46:

- Found in 132 of 322 ( 41.0% ) of genes in pham
- Manual Annotations of this start: 128 of 291
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AlpineSix\_45 (F1), ArcusAngelus\_47 (F1), Aubs\_41 (F1), Avani\_50 (F2), Blexus\_41 (F1), BlueCrab\_41 (F1), BodEinwohner17\_41 (F1), Boilgate\_39 (K8), Boomer\_46 (F1), Bubbles123\_40 (F1), Burwell21\_43 (F1), BuzzLyseyear\_48 (F1), Cabrinians\_45 (F1), Che8\_46 (F1), Chevrolet\_50 (F1), Chuckly\_42 (F1), Crumble\_38 (F1), DaWorst\_45 (F1), DaddyRickover\_43 (F1), Daenerys\_40 (F1), Dante\_42 (F1), Deb65\_41 (F1), DillTech15\_43 (F1), DirtMcgirt\_41 (F1), Doomphist\_43 (F1), Dorothy\_40 (F1), DotProduct\_40 (F1), Doug\_43 (F1), Drago\_42 (F1), Eish\_43 (F1), Empress\_43 (F1), Fancypants\_43 (F1), Fastidio\_46 (F1), Firehouse51\_42 (F1), Florinda\_51 (F1), FreddyB\_43 (F1), GUmbie\_41 (F1), Gandolph\_42 (F1), Geralt\_41 (F1), GigiOuiOui\_40 (F1), Girafales\_51 (F1), Girr\_44 (F1), Hamulus\_43 (F1), Harley\_45 (F1), IbOuu\_44 (F1), Ibhubes\_i\_44 (F1), Inventum\_40 (F1), JalFarm20\_52 (F1), Jarcob\_44 (F1), Jinglebell\_44 (F1), Job42\_44 (F1), JoeyJr\_41 (F1), Karhdo\_42 (F1), Kersh\_43 (F1), Kimberlium\_44 (F1), KingMidas\_44 (F1), Koella\_38 (F1), Krakatau\_41 (F1), Latretium\_45 (F1), Leozinho\_43 (F1), Leperchaun\_38 (F1),

LilMoolah\_42 (F1), LittleShirley\_43 (F1), Lizziana\_50 (F1), Llama\_45 (F1), Llij\_40 (F1), MadMen\_38 (F1), Madiba\_39 (F1), Mahavrat\_39 (F1), Mantra\_40 (F1), Maravista\_42 (F1), Marker\_43 (F1), Martik\_44 (F1), MisterCuddles\_43 (F1), Modragons\_44 (F1), MulchExplorer\_47 (F1), Nimbo\_40 (F1), Nitzel\_39 (F1), Nivrat\_42 (F1), NormanBulbieJr\_44 (F1), Ochi17\_43 (F1), OfUltron\_45 (F1), Ogopogo\_44 (F1), Oksu\_45 (F1), OldBen\_41 (F1), OlympiaSaint\_42 (F1), OwlsT2W\_41 (F1), PHappiness\_41 (F1), PMC\_38 (F1), Pacc40\_40 (F1), Phasih\_41 (F1), Phatniss\_41 (F1), Plumbus\_43 (F1), Poenanya\_43 (F1), Polka14\_42 (F1), Pollywog\_42 (F1), PopTart\_39 (F1), Priscilla\_44 (F1), QuickMath\_43 (F1), Quico\_50 (F1), Radiance\_42 (F1), Ramsey\_44 (F1), RedBird\_40 (F1), RitaG\_41 (F1), Rockne\_40 (F1), RockyHorror\_44 (F1), Royals2015\_43 (F1), Ruby\_42 (F1), Sabb\_48 (F1), Sandalphon\_45 (F1), Sassafras\_42 (F1), SassyB\_39 (F1), Scottish\_43 (F1), Seabastian\_45 (F1), Seagreen\_44 (F1), ShiLan\_44 (F1), ShowerHandel\_45 (F1), SiSi\_43 (F1), Sparkdehlily\_45 (F1), Spikelee\_48 (F1), Spoonbill\_42 (F1), Stap\_42 (F1), Starceвич\_43 (F1), TDanisky\_45 (F1), Tootsieroll\_45 (F1), Totinger\_42 (F1), Tweety\_43 (F1), UncleRicky\_43 (F1), Veteran\_41 (F1), Whouxphf\_42 (F1), Yorick\_40 (F1), Zerg\_42 (F1),

#### Start 47:

- Found in 8 of 322 ( 2.5% ) of genes in pham
- Manual Annotations of this start: 6 of 291
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Awesomesauce\_41 (F1), ChickenDinner\_41 (F1), DocMcStuffins\_41 (F1), Frankie\_47 (F1), Misha28\_40 (F1), MulchSalad\_37 (F), Piper2020\_41 (F1), TootsiePop\_40 (F1),

#### Start 48:

- Found in 9 of 322 ( 2.8% ) of genes in pham
- Manual Annotations of this start: 7 of 291
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BearBQ\_47 (DN), BritBrat\_36 (CY2), GAL1\_31 (singleton), Kuwabara\_46 (DN4), Malisha\_44 (DN), MortyNRick\_43 (DN), Spooky\_42 (DN2), Squiddly\_44 (DN2), Whitney\_50 (DN1),

#### Start 49:

- Found in 39 of 322 ( 12.1% ) of genes in pham
- Manual Annotations of this start: 22 of 291
- Called 56.4% of time when present
- Phage (with cluster) where this start called: Anatole\_28 (BV), B22\_29 (BW), B3\_28 (BV), Bantam\_64 (DL), DarthP\_42 (K6), E1\_28 (BV), E6\_28 (BW), G4\_29 (BW), Hammy\_42 (K6), Hurricane\_43 (K3), Jace\_26 (singleton), Juliette\_47 (K4), Keshu\_44 (K3), MacnCheese\_44 (K3), Mollymur\_63 (DL), Nergal\_38 (AG), Pharb\_40 (K3), Pixie\_42 (K3), ShedlockHolmes\_43 (K3), SpeedDemon\_660 (DL), TBond007\_42 (K3), Taquito\_45 (K4),

#### Start 51:

- Found in 1 of 322 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 291
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Doucette\_31 (BW),

#### Start 52:

- Found in 4 of 322 ( 1.2% ) of genes in pham

- Manual Annotations of this start: 2 of 291
- Called 75.0% of time when present
- Phage (with cluster) where this start called: CocoCinnamon\_36 (FO), Kumotta\_30 (FB), MargaretKali\_30 (FB),

Start 54:

- Found in 2 of 322 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 2 of 291
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jabbawokkie\_57 (F2), Zapner\_55 (F2),

Start 55:

- Found in 2 of 322 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 291
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Hestia\_38 (AY),

Start 57:

- Found in 121 of 322 ( 37.6% ) of genes in pham
- Manual Annotations of this start: 1 of 291
- Called 2.5% of time when present
- Phage (with cluster) where this start called: Claus\_39 (L2), DanBing\_38 (L2), Mendokysei\_31 (T),

Start 59:

- Found in 94 of 322 ( 29.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 1.1% of time when present
- Phage (with cluster) where this start called: Soap141\_38 (L2),

Start 62:

- Found in 20 of 322 ( 6.2% ) of genes in pham
- Manual Annotations of this start: 1 of 291
- Called 5.0% of time when present
- Phage (with cluster) where this start called: OmniCritical\_44 (K4),

### **Summary by clusters:**

There are 31 clusters represented in this pham: DN, singleton, DL, K3, FA, BV, BW, K7, K6, K4, K8, FO, DN4, DN1, DN2, CQ2, CY2, AG, F, L4, L5, L2, T, L1, AY, F1, F2, F4, F6, FB, L3,

Info for manual annotations of cluster AG:

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

Info for manual annotations of cluster AY:

- Start number 55 was manually annotated 1 time for cluster AY.

Info for manual annotations of cluster BV:

- Start number 49 was manually annotated 3 times for cluster BV.

Info for manual annotations of cluster BW:

- Start number 49 was manually annotated 3 times for cluster BW.

- Start number 51 was manually annotated 1 time for cluster BW.

Info for manual annotations of cluster CQ2:

- Start number 44 was manually annotated 1 time for cluster CQ2.

Info for manual annotations of cluster CY2:

- Start number 48 was manually annotated 1 time for cluster CY2.

Info for manual annotations of cluster DL:

- Start number 37 was manually annotated 1 time for cluster DL.
- Start number 49 was manually annotated 3 times for cluster DL.

Info for manual annotations of cluster DN:

- Start number 48 was manually annotated 2 times for cluster DN.

Info for manual annotations of cluster DN1:

- Start number 48 was manually annotated 1 time for cluster DN1.

Info for manual annotations of cluster DN2:

- Start number 48 was manually annotated 2 times for cluster DN2.

Info for manual annotations of cluster DN4:

- Start number 48 was manually annotated 1 time for cluster DN4.

Info for manual annotations of cluster F1:

- Start number 46 was manually annotated 126 times for cluster F1.
- Start number 47 was manually annotated 6 times for cluster F1.

Info for manual annotations of cluster F2:

- Start number 37 was manually annotated 3 times for cluster F2.
- Start number 46 was manually annotated 1 time for cluster F2.
- Start number 54 was manually annotated 2 times for cluster F2.

Info for manual annotations of cluster F4:

- Start number 37 was manually annotated 1 time for cluster F4.

Info for manual annotations of cluster FA:

- Start number 41 was manually annotated 2 times for cluster FA.

Info for manual annotations of cluster FB:

- Start number 52 was manually annotated 2 times for cluster FB.

Info for manual annotations of cluster K3:

- Start number 43 was manually annotated 1 time for cluster K3.
- Start number 49 was manually annotated 7 times for cluster K3.

Info for manual annotations of cluster K4:

- Start number 20 was manually annotated 1 time for cluster K4.
- Start number 29 was manually annotated 15 times for cluster K4.
- Start number 49 was manually annotated 2 times for cluster K4.

- Start number 62 was manually annotated 1 time for cluster K4.

Info for manual annotations of cluster K6:

- Start number 40 was manually annotated 1 time for cluster K6.
- Start number 43 was manually annotated 17 times for cluster K6.
- Start number 49 was manually annotated 2 times for cluster K6.

Info for manual annotations of cluster K7:

- Start number 43 was manually annotated 1 time for cluster K7.

Info for manual annotations of cluster K8:

- Start number 46 was manually annotated 1 time for cluster K8.

Info for manual annotations of cluster L1:

- Start number 45 was manually annotated 19 times for cluster L1.

Info for manual annotations of cluster L2:

- Start number 45 was manually annotated 28 times for cluster L2.

Info for manual annotations of cluster L3:

- Start number 45 was manually annotated 16 times for cluster L3.

Info for manual annotations of cluster L4:

- Start number 45 was manually annotated 4 times for cluster L4.

Info for manual annotations of cluster L5:

- Start number 45 was manually annotated 2 times for cluster L5.

Info for manual annotations of cluster T:

- Start number 14 was manually annotated 1 time for cluster T.
- Start number 25 was manually annotated 4 times for cluster T.
- Start number 28 was manually annotated 1 time for cluster T.
- Start number 57 was manually annotated 1 time for cluster T.

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

Gene: Acquire49\_36 Start: 30284, Stop: 31591, Start Num: 45

Candidate Starts for Acquire49\_36:

(Start: 45 @30284 has 69 MA's), (59, 30374), (61, 30380), (74, 30473), (104, 30662), (105, 30671), (107, 30683), (126, 30758), (128, 30770), (129, 30782), (130, 30785), (133, 30800), (140, 30827), (164, 30953), (175, 31019), (179, 31040), (219, 31223), (220, 31229), (230, 31259), (240, 31301), (262, 31409), (268, 31439), (280, 31484), (283, 31502), (288, 31526), (291, 31538),

Gene: Aegeus\_41 Start: 34150, Stop: 35448, Start Num: 45

Candidate Starts for Aegeus\_41:

(Start: 45 @34150 has 69 MA's), (72, 34327), (73, 34330), (90, 34429), (97, 34480), (100, 34498), (104, 34528), (105, 34537), (121, 34615), (126, 34627), (129, 34651), (130, 34654), (150, 34744), (158, 34792), (161, 34807), (172, 34867), (175, 34885), (177, 34894), (179, 34906), (220, 35098), (223, 35107), (224, 35110), (229, 35125), (240, 35173), (261, 35278), (262, 35281), (270, 35317), (280, 35356), (281, 35365), (283, 35374), (288, 35398), (300, 35434),

Gene: AlpineSix\_45 Start: 33145, Stop: 34455, Start Num: 46

Candidate Starts for AlpineSix\_45:

(Start: 46 @33145 has 128 MA's), (58, 33211), (63, 33265), (67, 33292), (82, 33361), (83, 33373), (104, 33511), (129, 33607), (132, 33622), (135, 33631), (145, 33685), (154, 33718), (159, 33739), (179, 33850), (189, 33925), (210, 34036), (211, 34039), (219, 34078), (220, 34084), (221, 34087), (224, 34096), (226, 34102), (228, 34108), (239, 34141), (240, 34144), (248, 34192), (251, 34204), (255, 34222), (259, 34243), (268, 34279), (272, 34297), (277, 34315), (280, 34324), (282, 34339), (295, 34393),

Gene: Amgine\_41 Start: 33316, Stop: 34692, Start Num: 43

Candidate Starts for Amgine\_41:

(Start: 43 @33316 has 19 MA's), (Start: 57 @33391 has 1 MA's), (81, 33541), (88, 33580), (90, 33595), (104, 33694), (105, 33703), (128, 33784), (177, 34039), (179, 34051), (181, 34060), (193, 34135), (207, 34195), (212, 34216), (216, 34243), (217, 34249), (220, 34258), (240, 34333), (255, 34414), (315, 34669),

Gene: Aminay\_44 Start: 33976, Stop: 35307, Start Num: 43

Candidate Starts for Aminay\_44:

(24, 33937), (Start: 43 @33976 has 19 MA's), (Start: 57 @34048 has 1 MA's), (58, 34054), (77, 34177), (81, 34198), (82, 34204), (85, 34228), (88, 34237), (104, 34351), (105, 34360), (109, 34378), (135, 34477), (136, 34480), (179, 34720), (190, 34807), (200, 34861), (206, 34882), (210, 34900), (219, 34942), (220, 34948), (240, 35023), (251, 35086), (255, 35104), (269, 35167), (282, 35224), (284, 35230), (306, 35299),

Gene: Amohnition\_42 Start: 33014, Stop: 34399, Start Num: 43

Candidate Starts for Amohnition\_42:

(Start: 43 @33014 has 19 MA's), (63, 33149), (71, 33194), (81, 33242), (88, 33281), (90, 33296), (104, 33395), (105, 33404), (128, 33485), (177, 33740), (179, 33752), (181, 33761), (193, 33836), (207, 33896), (212, 33917), (216, 33944), (217, 33950), (220, 33959), (240, 34034), (255, 34115), (315, 34373),

Gene: Anatole\_28 Start: 21218, Stop: 22537, Start Num: 49

Candidate Starts for Anatole\_28:

(6, 21068), (7, 21077), (11, 21116), (Start: 14 @21146 has 1 MA's), (24, 21167), (30, 21185), (38, 21197), (Start: 49 @21218 has 22 MA's), (53, 21227), (63, 21341), (78, 21419), (79, 21425), (93, 21521), (94, 21524), (134, 21716), (171, 21905), (172, 21914), (182, 21968), (213, 22130), (224, 22181), (240, 22238), (266, 22373), (275, 22409), (296, 22496), (300, 22502),

Gene: Appletree2\_35 Start: 30226, Stop: 31533, Start Num: 45

Candidate Starts for Appletree2\_35:

(Start: 45 @30226 has 69 MA's), (59, 30316), (61, 30322), (74, 30415), (104, 30604), (105, 30613), (107, 30625), (126, 30700), (128, 30712), (129, 30724), (130, 30727), (133, 30742), (140, 30769), (164, 30895), (175, 30961), (179, 30982), (219, 31165), (220, 31171), (230, 31201), (240, 31243), (262, 31351), (268, 31381), (280, 31426), (283, 31444), (288, 31468), (291, 31480),

Gene: Archie\_38 Start: 31865, Stop: 33166, Start Num: 45

Candidate Starts for Archie\_38:

(Start: 45 @31865 has 69 MA's), (Start: 57 @31937 has 1 MA's), (74, 32051), (83, 32108), (95, 32183), (104, 32240), (132, 32375), (164, 32531), (170, 32564), (175, 32597), (179, 32618), (199, 32717), (220, 32807), (230, 32837), (240, 32879), (250, 32939), (252, 32945), (259, 32981), (261, 32984), (262, 32987), (268, 33017), (270, 33023), (280, 33062), (283, 33080), (289, 33110), (291, 33116),



Gene: ArcusAngelus\_47 Start: 34275, Stop: 35576, Start Num: 46

Candidate Starts for ArcusAngelus\_47:

(Start: 46 @34275 has 128 MA's), (58, 34341), (63, 34395), (65, 34404), (67, 34422), (82, 34491), (83, 34503), (104, 34641), (129, 34737), (132, 34752), (135, 34761), (145, 34815), (154, 34848), (159, 34869), (179, 34980), (189, 35055), (210, 35166), (211, 35169), (219, 35208), (220, 35214), (221, 35217), (224, 35226), (226, 35232), (228, 35238), (239, 35271), (240, 35274), (248, 35322), (251, 35334), (255, 35352), (259, 35373), (268, 35409), (272, 35427), (277, 35445), (282, 35469), (295, 35523),

Gene: Aubs\_41 Start: 31765, Stop: 33054, Start Num: 46

Candidate Starts for Aubs\_41:

(Start: 46 @31765 has 128 MA's), (58, 31831), (63, 31885), (65, 31894), (67, 31912), (82, 31981), (83, 31993), (104, 32131), (129, 32227), (132, 32242), (135, 32251), (145, 32305), (154, 32338), (159, 32359), (179, 32470), (189, 32545), (210, 32656), (211, 32659), (219, 32698), (220, 32704), (221, 32707), (224, 32716), (226, 32722), (228, 32728), (239, 32761), (240, 32764), (248, 32812), (251, 32824), (255, 32842), (259, 32863), (268, 32899), (272, 32917), (277, 32935), (280, 32944), (282, 32959), (295, 33013),

Gene: AvadaKedavra\_36 Start: 30293, Stop: 31600, Start Num: 45

Candidate Starts for AvadaKedavra\_36:

(Start: 45 @30293 has 69 MA's), (59, 30383), (61, 30389), (74, 30482), (104, 30671), (105, 30680), (107, 30692), (126, 30767), (128, 30779), (129, 30791), (130, 30794), (133, 30809), (140, 30836), (164, 30962), (175, 31028), (179, 31049), (219, 31232), (220, 31238), (230, 31268), (240, 31310), (262, 31418), (268, 31448), (280, 31493), (283, 31511), (288, 31535), (291, 31547),

Gene: Avani\_50 Start: 32075, Stop: 33376, Start Num: 46

Candidate Starts for Avani\_50:

(Start: 46 @32075 has 128 MA's), (58, 32141), (63, 32195), (67, 32222), (82, 32291), (83, 32303), (104, 32441), (129, 32537), (132, 32552), (135, 32561), (145, 32615), (154, 32648), (159, 32669), (179, 32780), (189, 32855), (210, 32966), (211, 32969), (219, 33008), (220, 33014), (221, 33017), (226, 33032), (239, 33071), (240, 33074), (248, 33122), (251, 33134), (255, 33152), (259, 33173), (268, 33209), (272, 33227), (277, 33245), (282, 33269), (295, 33323),

Gene: Awesomesauce\_41 Start: 30861, Stop: 32132, Start Num: 47

Candidate Starts for Awesomesauce\_41:

(Start: 47 @30861 has 6 MA's), (58, 30924), (63, 30978), (65, 30987), (67, 31005), (82, 31074), (83, 31086), (104, 31224), (132, 31335), (145, 31398), (159, 31452), (176, 31545), (210, 31746), (219, 31788), (220, 31794), (224, 31806), (228, 31818), (231, 31827), (234, 31833), (239, 31851), (240, 31854), (251, 31914), (255, 31932), (259, 31953), (272, 32007), (277, 32025), (282, 32049), (293, 32094), (295, 32103), (305, 32124),

Gene: B22\_29 Start: 20933, Stop: 22252, Start Num: 49

Candidate Starts for B22\_29:

(6, 20783), (7, 20792), (11, 20831), (Start: 14 @20861 has 1 MA's), (24, 20882), (30, 20900), (38, 20912), (Start: 49 @20933 has 22 MA's), (53, 20942), (63, 21056), (78, 21134), (79, 21140), (93, 21236), (94, 21239), (134, 21431), (171, 21620), (172, 21629), (182, 21683), (213, 21845), (224, 21896), (240, 21953), (266, 22088), (275, 22124), (296, 22211), (300, 22217),

Gene: B3\_28 Start: 21212, Stop: 22531, Start Num: 49

Candidate Starts for B3\_28:

(6, 21062), (7, 21071), (11, 21110), (Start: 14 @21140 has 1 MA's), (24, 21161), (30, 21179), (38, 21191), (Start: 49 @21212 has 22 MA's), (53, 21221), (63, 21335), (78, 21413), (79, 21419), (93, 21515), (94, 21518), (134, 21710), (171, 21899), (172, 21908), (182, 21962), (213, 22124), (224,

22175), (240, 22232), (266, 22367), (275, 22403), (296, 22490), (300, 22496),

Gene: Bantam\_64 Start: 47224, Stop: 48609, Start Num: 49

Candidate Starts for Bantam\_64:

(36, 47200), (Start: 49 @47224 has 22 MA's), (Start: 57 @47290 has 1 MA's), (85, 47467), (100, 47560), (105, 47599), (111, 47644), (113, 47653), (122, 47704), (123, 47707), (124, 47710), (128, 47734), (132, 47761), (136, 47779), (139, 47794), (140, 47797), (172, 47950), (180, 47995), (188, 48040), (191, 48055), (197, 48094), (212, 48145), (215, 48166), (220, 48187), (233, 48226), (269, 48391), (271, 48400), (275, 48418), (277, 48424), (301, 48511), (307, 48529), (311, 48565),

Gene: Baoshan\_37 Start: 31494, Stop: 32801, Start Num: 45

Candidate Starts for Baoshan\_37:

(21, 31449), (Start: 45 @31494 has 69 MA's), (Start: 57 @31566 has 1 MA's), (66, 31644), (80, 31716), (82, 31725), (104, 31869), (105, 31878), (132, 32004), (164, 32160), (170, 32193), (176, 32229), (179, 32247), (181, 32256), (220, 32439), (230, 32469), (239, 32508), (240, 32511), (250, 32571), (252, 32577), (259, 32613), (261, 32616), (262, 32619), (270, 32655), (275, 32679), (280, 32694), (283, 32712), (289, 32742),

Gene: Baudelaire\_41 Start: 34150, Stop: 35448, Start Num: 45

Candidate Starts for Baudelaire\_41:

(Start: 45 @34150 has 69 MA's), (72, 34327), (73, 34330), (90, 34429), (97, 34480), (100, 34498), (104, 34528), (105, 34537), (121, 34615), (126, 34627), (129, 34651), (130, 34654), (150, 34744), (158, 34792), (161, 34807), (172, 34867), (175, 34885), (177, 34894), (179, 34906), (220, 35098), (223, 35107), (224, 35110), (229, 35125), (240, 35173), (261, 35278), (262, 35281), (270, 35317), (280, 35356), (281, 35365), (283, 35374), (288, 35398), (300, 35434),

Gene: Bazzle\_38 Start: 31899, Stop: 33203, Start Num: 45

Candidate Starts for Bazzle\_38:

(21, 31854), (Start: 45 @31899 has 69 MA's), (59, 31986), (66, 32049), (83, 32142), (94, 32211), (104, 32274), (105, 32283), (132, 32409), (164, 32565), (170, 32598), (175, 32631), (179, 32652), (193, 32718), (220, 32841), (230, 32871), (240, 32913), (250, 32973), (252, 32979), (259, 33015), (261, 33018), (262, 33021), (268, 33051), (270, 33057), (280, 33096), (283, 33114), (289, 33144), (291, 33150),

Gene: BearBQ\_47 Start: 33640, Stop: 34851, Start Num: 48

Candidate Starts for BearBQ\_47:

(Start: 48 @33640 has 7 MA's), (Start: 57 @33703 has 1 MA's), (58, 33709), (71, 33793), (91, 33907), (99, 33952), (104, 33991), (105, 34000), (126, 34072), (128, 34084), (136, 34123), (144, 34168), (148, 34186), (169, 34273), (173, 34306), (195, 34378), (213, 34450), (219, 34483), (221, 34492), (224, 34501), (240, 34558), (253, 34627), (255, 34639), (256, 34642), (258, 34651), (272, 34717), (277, 34735), (284, 34765),

Gene: Bellis\_36 Start: 31900, Stop: 33192, Start Num: 45

Candidate Starts for Bellis\_36:

(12, 31816), (19, 31849), (Start: 45 @31900 has 69 MA's), (Start: 57 @31975 has 1 MA's), (59, 31990), (105, 32287), (129, 32383), (138, 32416), (161, 32542), (164, 32554), (176, 32623), (220, 32830), (234, 32872), (240, 32902), (250, 32962), (261, 33007), (262, 33010), (268, 33040), (280, 33085), (283, 33103), (288, 33127), (291, 33139),

Gene: Bernal13\_33 Start: 27804, Stop: 29102, Start Num: 25

Candidate Starts for Bernal13\_33:

(Start: 25 @27804 has 4 MA's), (Start: 28 @27813 has 1 MA's), (42, 27837), (50, 27855), (Start: 57 @27915 has 1 MA's), (82, 28068), (90, 28116), (105, 28224), (119, 28269), (120, 28272), (128,

28299), (129, 28311), (132, 28326), (164, 28485), (174, 28548), (210, 28710), (222, 28764), (227, 28779), (230, 28788), (240, 28833), (243, 28863), (252, 28899), (277, 28995), (280, 29004), (305, 29091),

Gene: BigCheese\_38 Start: 31656, Stop: 32963, Start Num: 45

Candidate Starts for BigCheese\_38:

(21, 31611), (Start: 45 @31656 has 69 MA's), (Start: 57 @31728 has 1 MA's), (59, 31743), (66, 31806), (74, 31842), (75, 31845), (105, 32040), (132, 32166), (164, 32322), (170, 32355), (176, 32391), (179, 32409), (181, 32418), (220, 32601), (230, 32631), (239, 32670), (240, 32673), (250, 32733), (252, 32739), (258, 32763), (261, 32778), (262, 32781), (275, 32841), (280, 32856), (283, 32874), (289, 32904),

Gene: Blexus\_41 Start: 32016, Stop: 33305, Start Num: 46

Candidate Starts for Blexus\_41:

(Start: 46 @32016 has 128 MA's), (58, 32082), (63, 32136), (67, 32163), (82, 32232), (83, 32244), (104, 32382), (129, 32478), (132, 32493), (135, 32502), (145, 32556), (154, 32589), (159, 32610), (179, 32721), (189, 32796), (210, 32907), (211, 32910), (219, 32949), (220, 32955), (221, 32958), (224, 32967), (226, 32973), (228, 32979), (239, 33012), (240, 33015), (248, 33063), (251, 33075), (255, 33093), (259, 33114), (268, 33150), (272, 33168), (277, 33186), (280, 33195), (282, 33210), (295, 33264),

Gene: BlueCrab\_41 Start: 31731, Stop: 33032, Start Num: 46

Candidate Starts for BlueCrab\_41:

(Start: 46 @31731 has 128 MA's), (58, 31797), (63, 31851), (65, 31860), (67, 31878), (82, 31947), (83, 31959), (104, 32097), (129, 32193), (132, 32208), (135, 32217), (145, 32271), (154, 32304), (159, 32325), (179, 32436), (189, 32511), (210, 32622), (211, 32625), (219, 32664), (220, 32670), (221, 32673), (224, 32682), (226, 32688), (228, 32694), (239, 32727), (240, 32730), (248, 32778), (251, 32790), (255, 32808), (259, 32829), (268, 32865), (272, 32883), (277, 32901), (280, 32910), (282, 32925), (295, 32979),

Gene: BobsGarage\_38 Start: 31656, Stop: 32963, Start Num: 45

Candidate Starts for BobsGarage\_38:

(21, 31611), (Start: 45 @31656 has 69 MA's), (Start: 57 @31728 has 1 MA's), (59, 31743), (66, 31806), (74, 31842), (75, 31845), (105, 32040), (132, 32166), (164, 32322), (170, 32355), (176, 32391), (179, 32409), (181, 32418), (220, 32601), (230, 32631), (239, 32670), (240, 32673), (250, 32733), (252, 32739), (258, 32763), (261, 32778), (262, 32781), (275, 32841), (280, 32856), (283, 32874), (289, 32904),

Gene: BodEinwohner17\_41 Start: 31958, Stop: 33247, Start Num: 46

Candidate Starts for BodEinwohner17\_41:

(Start: 46 @31958 has 128 MA's), (58, 32024), (63, 32078), (67, 32105), (82, 32174), (83, 32186), (104, 32324), (126, 32396), (129, 32420), (132, 32435), (135, 32444), (145, 32498), (154, 32531), (159, 32552), (179, 32663), (189, 32738), (210, 32849), (211, 32852), (219, 32891), (220, 32897), (221, 32900), (224, 32909), (226, 32915), (228, 32921), (239, 32954), (240, 32957), (248, 33005), (251, 33017), (255, 33035), (259, 33056), (268, 33092), (272, 33110), (277, 33128), (280, 33137), (282, 33152), (295, 33206),

Gene: Boilgate\_39 Start: 33424, Stop: 34686, Start Num: 46

Candidate Starts for Boilgate\_39:

(Start: 46 @33424 has 128 MA's), (Start: 57 @33493 has 1 MA's), (61, 33514), (81, 33640), (101, 33766), (105, 33799), (107, 33811), (130, 33895), (175, 34120), (181, 34150), (214, 34309), (217, 34324), (219, 34327), (224, 34345), (227, 34354), (228, 34357), (240, 34402), (255, 34483), (270, 34534), (282, 34588), (284, 34594), (289, 34621), (291, 34627), (306, 34663),

Gene: Boomer\_46 Start: 33186, Stop: 34475, Start Num: 46

Candidate Starts for Boomer\_46:

(Start: 46 @33186 has 128 MA's), (58, 33252), (63, 33306), (65, 33315), (67, 33333), (82, 33402), (83, 33414), (104, 33552), (126, 33624), (129, 33648), (132, 33663), (135, 33672), (145, 33726), (154, 33759), (159, 33780), (179, 33891), (189, 33966), (210, 34077), (211, 34080), (219, 34119), (220, 34125), (221, 34128), (224, 34137), (226, 34143), (228, 34149), (239, 34182), (240, 34185), (248, 34233), (251, 34245), (255, 34263), (259, 34284), (268, 34320), (272, 34338), (277, 34356), (280, 34365), (282, 34380), (295, 34434),

Gene: BourbonZero\_35 Start: 31860, Stop: 33164, Start Num: 45

Candidate Starts for BourbonZero\_35:

(Start: 45 @31860 has 69 MA's), (59, 31947), (61, 31953), (83, 32103), (104, 32235), (105, 32244), (128, 32343), (138, 32388), (161, 32514), (164, 32526), (176, 32595), (194, 32685), (210, 32754), (220, 32802), (234, 32844), (240, 32874), (250, 32934), (252, 32940), (261, 32979), (262, 32982), (268, 33012), (280, 33057), (283, 33075), (288, 33099), (291, 33111),

Gene: BrainDrainer\_36 Start: 30535, Stop: 31842, Start Num: 45

Candidate Starts for BrainDrainer\_36:

(31, 30514), (Start: 45 @30535 has 69 MA's), (Start: 57 @30610 has 1 MA's), (59, 30625), (66, 30688), (68, 30697), (87, 30793), (94, 30847), (104, 30910), (105, 30919), (125, 31000), (134, 31051), (136, 31057), (142, 31093), (164, 31201), (176, 31270), (179, 31288), (181, 31297), (188, 31339), (198, 31384), (217, 31471), (220, 31480), (234, 31522), (240, 31552), (250, 31612), (252, 31618), (255, 31633), (268, 31690), (280, 31735), (283, 31753), (289, 31783),

Gene: Breezona\_38 Start: 31656, Stop: 32963, Start Num: 45

Candidate Starts for Breezona\_38:

(21, 31611), (Start: 45 @31656 has 69 MA's), (Start: 57 @31728 has 1 MA's), (59, 31743), (66, 31806), (74, 31842), (75, 31845), (105, 32040), (132, 32166), (164, 32322), (170, 32355), (176, 32391), (179, 32409), (181, 32418), (220, 32601), (230, 32631), (239, 32670), (240, 32673), (250, 32733), (252, 32739), (258, 32763), (261, 32778), (262, 32781), (275, 32841), (280, 32856), (283, 32874), (289, 32904),

Gene: BritBrat\_36 Start: 31287, Stop: 32501, Start Num: 48

Candidate Starts for BritBrat\_36:

(Start: 48 @31287 has 7 MA's), (Start: 57 @31353 has 1 MA's), (58, 31359), (71, 31443), (105, 31650), (107, 31662), (120, 31707), (126, 31722), (128, 31734), (136, 31773), (169, 31923), (208, 32079), (220, 32139), (221, 32142), (224, 32151), (238, 32205), (240, 32208), (253, 32277), (256, 32292), (269, 32352), (277, 32385), (284, 32415),

Gene: Bromden\_37 Start: 31082, Stop: 32389, Start Num: 45

Candidate Starts for Bromden\_37:

(31, 31061), (Start: 45 @31082 has 69 MA's), (59, 31172), (68, 31244), (87, 31340), (104, 31457), (105, 31466), (125, 31547), (134, 31598), (136, 31604), (149, 31670), (161, 31736), (164, 31748), (176, 31817), (179, 31835), (188, 31886), (193, 31904), (220, 32027), (234, 32069), (240, 32099), (250, 32159), (252, 32165), (262, 32207), (268, 32237), (280, 32282), (283, 32300), (289, 32330), (295, 32351),

Gene: Bryler\_43 Start: 31802, Stop: 33181, Start Num: 43

Candidate Starts for Bryler\_43:

(24, 31772), (Start: 43 @31802 has 19 MA's), (Start: 57 @31877 has 1 MA's), (63, 31934), (81, 32027), (90, 32081), (104, 32180), (105, 32189), (106, 32192), (170, 32480), (177, 32522), (179, 32534), (181, 32543), (193, 32618), (207, 32678), (212, 32699), (216, 32726), (217, 32732), (220,

32741), (248, 32867), (251, 32879), (255, 32897), (275, 32987), (313, 33146),

Gene: Bubbles123\_40 Start: 32413, Stop: 33714, Start Num: 46

Candidate Starts for Bubbles123\_40:

(8, 32287), (10, 32314), (27, 32380), (33, 32392), (Start: 46 @32413 has 128 MA's), (58, 32479), (63, 32533), (65, 32542), (67, 32560), (82, 32629), (83, 32641), (104, 32779), (129, 32875), (132, 32890), (135, 32899), (145, 32953), (154, 32986), (159, 33007), (179, 33118), (189, 33193), (210, 33304), (211, 33307), (219, 33346), (220, 33352), (221, 33355), (224, 33364), (226, 33370), (228, 33376), (239, 33409), (240, 33412), (248, 33460), (251, 33472), (255, 33490), (259, 33511), (268, 33547), (272, 33565), (277, 33583), (280, 33592), (282, 33607), (295, 33661),

Gene: Burwell21\_43 Start: 33220, Stop: 34521, Start Num: 46

Candidate Starts for Burwell21\_43:

(Start: 46 @33220 has 128 MA's), (58, 33286), (63, 33340), (65, 33349), (67, 33367), (82, 33436), (83, 33448), (104, 33586), (126, 33658), (129, 33682), (132, 33697), (135, 33706), (145, 33760), (154, 33793), (159, 33814), (179, 33925), (189, 34000), (210, 34111), (211, 34114), (219, 34153), (220, 34159), (221, 34162), (224, 34171), (226, 34177), (228, 34183), (239, 34216), (240, 34219), (248, 34267), (251, 34279), (255, 34297), (259, 34318), (268, 34354), (272, 34372), (277, 34390), (280, 34399), (282, 34414), (295, 34468),

Gene: BuzzLyseyear\_48 Start: 33537, Stop: 34835, Start Num: 46

Candidate Starts for BuzzLyseyear\_48:

(Start: 46 @33537 has 128 MA's), (58, 33603), (63, 33657), (67, 33684), (82, 33753), (83, 33765), (84, 33768), (104, 33903), (129, 33999), (132, 34014), (135, 34023), (145, 34077), (154, 34110), (159, 34131), (179, 34242), (189, 34317), (210, 34428), (211, 34431), (220, 34476), (221, 34479), (224, 34488), (226, 34494), (228, 34500), (239, 34533), (240, 34536), (248, 34584), (251, 34596), (255, 34614), (259, 34635), (268, 34671), (272, 34689), (277, 34707), (280, 34716), (282, 34731), (295, 34785),

Gene: Cabrinians\_45 Start: 33298, Stop: 34599, Start Num: 46

Candidate Starts for Cabrinians\_45:

(Start: 46 @33298 has 128 MA's), (58, 33364), (63, 33418), (65, 33427), (67, 33445), (82, 33514), (83, 33526), (104, 33664), (126, 33736), (129, 33760), (132, 33775), (135, 33784), (145, 33838), (154, 33871), (159, 33892), (179, 34003), (189, 34078), (210, 34189), (211, 34192), (219, 34231), (220, 34237), (221, 34240), (224, 34249), (226, 34255), (228, 34261), (239, 34294), (240, 34297), (248, 34345), (251, 34357), (255, 34375), (259, 34396), (268, 34432), (272, 34450), (277, 34468), (280, 34477), (282, 34492), (295, 34546),

Gene: Cain\_43 Start: 31790, Stop: 33169, Start Num: 43

Candidate Starts for Cain\_43:

(24, 31760), (Start: 43 @31790 has 19 MA's), (Start: 57 @31865 has 1 MA's), (63, 31922), (81, 32015), (90, 32069), (104, 32168), (105, 32177), (106, 32180), (170, 32468), (177, 32510), (179, 32522), (181, 32531), (193, 32606), (207, 32666), (212, 32687), (216, 32714), (217, 32720), (220, 32729), (248, 32855), (251, 32867), (255, 32885), (275, 32975), (313, 33134),

Gene: Calm\_36 Start: 30299, Stop: 31606, Start Num: 45

Candidate Starts for Calm\_36:

(Start: 45 @30299 has 69 MA's), (59, 30389), (61, 30395), (74, 30488), (104, 30677), (105, 30686), (107, 30698), (126, 30773), (128, 30785), (129, 30797), (130, 30800), (133, 30815), (140, 30842), (164, 30968), (175, 31034), (179, 31055), (219, 31238), (220, 31244), (230, 31274), (240, 31316), (262, 31424), (268, 31454), (280, 31499), (283, 31517), (288, 31541), (291, 31553),

Gene: Chancellor\_45 Start: 33531, Stop: 34796, Start Num: 29

Candidate Starts for Chancellor\_45:

(Start: 20 @33510 has 1 MA's), (Start: 29 @33531 has 15 MA's), (35, 33543), (Start: 49 @33561 has 22 MA's), (Start: 57 @33618 has 1 MA's), (Start: 62 @33672 has 1 MA's), (66, 33696), (81, 33765), (90, 33816), (104, 33915), (105, 33924), (107, 33936), (129, 34017), (136, 34044), (179, 34266), (181, 34275), (184, 34284), (193, 34335), (208, 34398), (224, 34470), (227, 34479), (240, 34527), (259, 34617), (275, 34683), (276, 34686), (282, 34713), (284, 34719), (288, 34740), (291, 34752),

Gene: Chaser\_35 Start: 30352, Stop: 31659, Start Num: 45

Candidate Starts for Chaser\_35:

(31, 30331), (Start: 45 @30352 has 69 MA's), (59, 30442), (68, 30514), (87, 30610), (94, 30664), (104, 30727), (105, 30736), (125, 30817), (134, 30868), (136, 30874), (140, 30892), (142, 30910), (164, 31018), (176, 31087), (179, 31105), (181, 31114), (188, 31156), (198, 31201), (217, 31288), (220, 31297), (234, 31339), (240, 31369), (250, 31429), (252, 31435), (255, 31450), (268, 31507), (280, 31552), (283, 31570), (289, 31600),

Gene: Che8\_46 Start: 32978, Stop: 34288, Start Num: 46

Candidate Starts for Che8\_46:

(Start: 46 @32978 has 128 MA's), (58, 33044), (63, 33098), (65, 33107), (67, 33125), (82, 33194), (83, 33206), (104, 33344), (129, 33440), (132, 33455), (135, 33464), (145, 33518), (154, 33551), (159, 33572), (179, 33683), (189, 33758), (210, 33869), (211, 33872), (219, 33911), (220, 33917), (221, 33920), (224, 33929), (226, 33935), (228, 33941), (239, 33974), (240, 33977), (248, 34025), (251, 34037), (255, 34055), (259, 34076), (268, 34112), (272, 34130), (277, 34148), (282, 34172), (295, 34226),

Gene: Che9d\_50 Start: 32834, Stop: 31560, Start Num: 37

Candidate Starts for Che9d\_50:

(Start: 37 @32834 has 5 MA's), (60, 32735), (82, 32603), (94, 32519), (105, 32450), (118, 32402), (126, 32384), (128, 32372), (132, 32345), (133, 32342), (139, 32318), (149, 32267), (157, 32237), (161, 32219), (162, 32216), (170, 32174), (179, 32120), (181, 32111), (185, 32081), (186, 32072), (198, 32027), (200, 32018), (202, 32012), (208, 31991), (209, 31988), (210, 31979), (211, 31976), (221, 31928), (224, 31919), (231, 31898), (240, 31859), (242, 31832), (251, 31796), (254, 31784), (259, 31757), (262, 31751), (268, 31721), (272, 31703), (277, 31685), (280, 31676), (284, 31655), (286, 31646), (295, 31607), (300, 31598), (301, 31595), (304, 31589), (308, 31568),

Gene: Cheetobro\_45 Start: 33528, Stop: 34793, Start Num: 29

Candidate Starts for Cheetobro\_45:

(Start: 20 @33507 has 1 MA's), (Start: 29 @33528 has 15 MA's), (35, 33540), (Start: 49 @33558 has 22 MA's), (Start: 57 @33615 has 1 MA's), (Start: 62 @33669 has 1 MA's), (66, 33693), (81, 33762), (90, 33813), (104, 33912), (105, 33921), (107, 33933), (129, 34014), (136, 34041), (179, 34263), (181, 34272), (184, 34281), (193, 34332), (208, 34395), (224, 34467), (227, 34476), (240, 34524), (259, 34614), (275, 34680), (276, 34683), (282, 34710), (284, 34716), (288, 34737), (291, 34749),

Gene: Chevrolet\_50 Start: 34276, Stop: 35577, Start Num: 46

Candidate Starts for Chevrolet\_50:

(Start: 46 @34276 has 128 MA's), (58, 34342), (63, 34396), (65, 34405), (67, 34423), (82, 34492), (83, 34504), (104, 34642), (129, 34738), (132, 34753), (135, 34762), (145, 34816), (154, 34849), (159, 34870), (179, 34981), (189, 35056), (210, 35167), (211, 35170), (219, 35209), (220, 35215), (221, 35218), (224, 35227), (226, 35233), (228, 35239), (239, 35272), (240, 35275), (248, 35323), (251, 35335), (255, 35353), (259, 35374), (268, 35410), (272, 35428), (277, 35446), (282, 35470), (295, 35524),

Gene: ChickenDinner\_41 Start: 31599, Stop: 32870, Start Num: 47

Candidate Starts for ChickenDinner\_41:

(Start: 47 @31599 has 6 MA's), (58, 31662), (63, 31716), (65, 31725), (67, 31743), (82, 31812), (83, 31824), (104, 31962), (132, 32073), (145, 32136), (159, 32190), (176, 32283), (210, 32484), (219, 32526), (220, 32532), (224, 32544), (228, 32556), (231, 32565), (234, 32571), (239, 32589), (240, 32592), (251, 32652), (255, 32670), (259, 32691), (272, 32745), (277, 32763), (282, 32787), (293, 32832), (295, 32841), (305, 32862),

Gene: Chuckly\_42 Start: 31981, Stop: 33282, Start Num: 46

Candidate Starts for Chuckly\_42:

(Start: 46 @31981 has 128 MA's), (58, 32047), (63, 32101), (65, 32110), (67, 32128), (82, 32197), (83, 32209), (104, 32347), (126, 32419), (129, 32443), (132, 32458), (135, 32467), (136, 32470), (145, 32521), (154, 32554), (159, 32575), (179, 32686), (189, 32761), (210, 32872), (211, 32875), (219, 32914), (220, 32920), (221, 32923), (224, 32932), (226, 32938), (228, 32944), (239, 32977), (240, 32980), (248, 33028), (251, 33040), (255, 33058), (259, 33079), (268, 33115), (272, 33133), (277, 33151), (280, 33160), (282, 33175), (295, 33229),

Gene: CicholasNage\_36 Start: 30275, Stop: 31582, Start Num: 45

Candidate Starts for CicholasNage\_36:

(Start: 45 @30275 has 69 MA's), (59, 30365), (61, 30371), (74, 30464), (104, 30653), (105, 30662), (107, 30674), (126, 30749), (128, 30761), (129, 30773), (130, 30776), (133, 30791), (140, 30818), (164, 30944), (175, 31010), (179, 31031), (219, 31214), (220, 31220), (230, 31250), (240, 31292), (262, 31400), (268, 31430), (280, 31475), (283, 31493), (288, 31517), (291, 31529),

Gene: Claus\_39 Start: 31724, Stop: 32959, Start Num: 57

Candidate Starts for Claus\_39:

(21, 31607), (Start: 45 @31652 has 69 MA's), (Start: 57 @31724 has 1 MA's), (59, 31739), (66, 31802), (74, 31838), (75, 31841), (82, 31883), (104, 32027), (105, 32036), (132, 32162), (164, 32318), (170, 32351), (176, 32387), (179, 32405), (181, 32414), (220, 32597), (230, 32627), (239, 32666), (240, 32669), (250, 32729), (251, 32732), (252, 32735), (259, 32771), (261, 32774), (262, 32777), (270, 32813), (275, 32837), (280, 32852), (283, 32870), (289, 32900),

Gene: Clautastrophe\_36 Start: 31898, Stop: 33190, Start Num: 45

Candidate Starts for Clautastrophe\_36:

(12, 31814), (19, 31847), (Start: 45 @31898 has 69 MA's), (Start: 57 @31973 has 1 MA's), (59, 31988), (105, 32285), (129, 32381), (138, 32414), (161, 32540), (164, 32552), (176, 32621), (220, 32828), (234, 32870), (240, 32900), (250, 32960), (261, 33005), (262, 33008), (268, 33038), (280, 33083), (283, 33101), (288, 33125), (291, 33137),

Gene: CocoCinnamon\_36 Start: 25775, Stop: 24426, Start Num: 52

Candidate Starts for CocoCinnamon\_36:

(33, 25811), (Start: 52 @25775 has 2 MA's), (82, 25547), (83, 25535), (96, 25445), (107, 25370), (127, 25301), (136, 25256), (218, 24803), (227, 24773), (244, 24692), (246, 24677), (257, 24635), (259, 24617), (261, 24614), (262, 24611), (263, 24605), (264, 24602), (268, 24581), (275, 24548), (297, 24467), (299, 24464), (302, 24458),

Gene: Crossroads\_38 Start: 31657, Stop: 32964, Start Num: 45

Candidate Starts for Crossroads\_38:

(21, 31612), (Start: 45 @31657 has 69 MA's), (Start: 57 @31729 has 1 MA's), (59, 31744), (66, 31807), (74, 31843), (105, 32041), (132, 32167), (164, 32323), (170, 32356), (176, 32392), (179, 32410), (181, 32419), (220, 32602), (230, 32632), (239, 32671), (240, 32674), (250, 32734), (252, 32740), (258, 32764), (261, 32779), (262, 32782), (275, 32842), (280, 32857), (283, 32875), (289, 32905), (291, 32911),

Gene: Crumble\_38 Start: 29234, Stop: 30535, Start Num: 46



Candidate Starts for Crumble\_38:

(Start: 46 @29234 has 128 MA's), (58, 29300), (63, 29354), (65, 29363), (67, 29381), (82, 29450), (83, 29462), (104, 29600), (126, 29672), (129, 29696), (132, 29711), (135, 29720), (145, 29774), (154, 29807), (159, 29828), (179, 29939), (189, 30014), (210, 30125), (211, 30128), (219, 30167), (220, 30173), (221, 30176), (224, 30185), (226, 30191), (228, 30197), (239, 30230), (240, 30233), (248, 30281), (251, 30293), (255, 30311), (259, 30332), (268, 30368), (272, 30386), (277, 30404), (280, 30413), (282, 30428), (295, 30482),

Gene: DHan\_39 Start: 31593, Stop: 32900, Start Num: 45

Candidate Starts for DHan\_39:

(21, 31548), (Start: 45 @31593 has 69 MA's), (Start: 57 @31665 has 1 MA's), (59, 31680), (66, 31743), (74, 31779), (75, 31782), (82, 31824), (104, 31968), (105, 31977), (132, 32103), (164, 32259), (170, 32292), (176, 32328), (179, 32346), (181, 32355), (220, 32538), (230, 32568), (239, 32607), (240, 32610), (250, 32670), (251, 32673), (252, 32676), (259, 32712), (261, 32715), (262, 32718), (270, 32754), (275, 32778), (280, 32793), (283, 32811), (289, 32841),

Gene: DS6A\_56 Start: 38186, Stop: 39772, Start Num: 39

Candidate Starts for DS6A\_56:

(18, 38144), (Start: 39 @38186 has 1 MA's), (60, 38282), (63, 38318), (65, 38327), (82, 38414), (89, 38450), (94, 38501), (105, 38573), (108, 38585), (116, 38612), (120, 38627), (128, 38654), (130, 38669), (132, 38681), (136, 38693), (140, 38711), (149, 38759), (153, 38771), (210, 39047), (211, 39050), (217, 39086), (219, 39089), (227, 39116), (240, 39170), (249, 39224), (265, 39296), (273, 39329), (275, 39335), (280, 39353), (285, 39386), (292, 39416), (294, 39422), (295, 39425), (298, 39431), (309, 39467), (310, 39482), (312, 39515), (315, 39533), (317, 39566), (318, 39587), (319, 39602), (320, 39614), (321, 39629), (322, 39641), (323, 39647), (324, 39674), (325, 39692), (326, 39704), (327, 39734), (328, 39743),

Gene: DaWorst\_45 Start: 32810, Stop: 34111, Start Num: 46

Candidate Starts for DaWorst\_45:

(Start: 46 @32810 has 128 MA's), (58, 32876), (63, 32930), (67, 32957), (82, 33026), (83, 33038), (104, 33176), (129, 33272), (132, 33287), (135, 33296), (145, 33350), (154, 33383), (159, 33404), (179, 33515), (189, 33590), (210, 33701), (211, 33704), (219, 33743), (220, 33749), (221, 33752), (224, 33761), (226, 33767), (228, 33773), (239, 33806), (240, 33809), (248, 33857), (251, 33869), (255, 33887), (259, 33908), (268, 33944), (272, 33962), (277, 33980), (282, 34004), (295, 34058),

Gene: DaddyRickover\_43 Start: 32110, Stop: 33411, Start Num: 46

Candidate Starts for DaddyRickover\_43:

(Start: 46 @32110 has 128 MA's), (58, 32176), (63, 32230), (65, 32239), (67, 32257), (82, 32326), (83, 32338), (104, 32476), (126, 32548), (129, 32572), (132, 32587), (135, 32596), (145, 32650), (154, 32683), (159, 32704), (179, 32815), (189, 32890), (210, 33001), (211, 33004), (219, 33043), (220, 33049), (221, 33052), (224, 33061), (226, 33067), (228, 33073), (239, 33106), (240, 33109), (248, 33157), (251, 33169), (255, 33187), (259, 33208), (268, 33244), (272, 33262), (277, 33280), (280, 33289), (282, 33304), (295, 33358),

Gene: Daenerys\_40 Start: 31596, Stop: 32897, Start Num: 46

Candidate Starts for Daenerys\_40:

(Start: 46 @31596 has 128 MA's), (58, 31662), (63, 31716), (65, 31725), (67, 31743), (82, 31812), (83, 31824), (104, 31962), (126, 32034), (129, 32058), (132, 32073), (135, 32082), (145, 32136), (154, 32169), (159, 32190), (179, 32301), (189, 32376), (210, 32487), (211, 32490), (219, 32529), (220, 32535), (221, 32538), (224, 32547), (226, 32553), (228, 32559), (239, 32592), (240, 32595), (248, 32643), (251, 32655), (255, 32673), (259, 32694), (268, 32730), (272, 32748), (277, 32766), (280, 32775), (282, 32790), (295, 32844),

Gene: DanBing\_38 Start: 31557, Stop: 32792, Start Num: 57

Candidate Starts for DanBing\_38:

(Start: 45 @31485 has 69 MA's), (Start: 57 @31557 has 1 MA's), (66, 31635), (80, 31707), (82, 31716), (104, 31860), (105, 31869), (132, 31995), (164, 32151), (170, 32184), (176, 32220), (179, 32238), (181, 32247), (220, 32430), (230, 32460), (239, 32499), (240, 32502), (250, 32562), (252, 32568), (259, 32604), (261, 32607), (262, 32610), (270, 32646), (275, 32670), (280, 32685), (283, 32703), (289, 32733),

Gene: Dante\_42 Start: 31713, Stop: 33014, Start Num: 46

Candidate Starts for Dante\_42:

(Start: 46 @31713 has 128 MA's), (58, 31779), (63, 31833), (67, 31860), (82, 31929), (83, 31941), (104, 32079), (129, 32175), (132, 32190), (135, 32199), (145, 32253), (154, 32286), (159, 32307), (179, 32418), (189, 32493), (210, 32604), (211, 32607), (220, 32652), (221, 32655), (226, 32670), (228, 32676), (239, 32709), (240, 32712), (248, 32760), (251, 32772), (255, 32790), (259, 32811), (268, 32847), (272, 32865), (277, 32883), (280, 32892), (282, 32907), (295, 32961),

Gene: DarthP\_42 Start: 33018, Stop: 34286, Start Num: 49

Candidate Starts for DarthP\_42:

(Start: 49 @33018 has 22 MA's), (50, 33021), (59, 33093), (61, 33099), (64, 33138), (69, 33171), (102, 33357), (104, 33375), (105, 33384), (107, 33396), (120, 33438), (135, 33501), (136, 33504), (141, 33537), (158, 33618), (167, 33669), (179, 33732), (181, 33741), (207, 33858), (216, 33906), (219, 33915), (220, 33921), (234, 33966), (255, 34071), (259, 34104), (283, 34203), (306, 34275),

Gene: DatBoi\_63 Start: 47209, Stop: 48582, Start Num: 37

Candidate Starts for DatBoi\_63:

(2, 46984), (3, 46990), (13, 47152), (Start: 37 @47209 has 5 MA's), (Start: 57 @47296 has 1 MA's), (83, 47461), (85, 47473), (100, 47566), (104, 47596), (105, 47605), (122, 47704), (123, 47707), (124, 47710), (128, 47734), (136, 47779), (162, 47893), (163, 47899), (167, 47926), (180, 47995), (181, 47998), (191, 48055), (196, 48091), (197, 48094), (212, 48145), (214, 48163), (215, 48166), (220, 48187), (240, 48262), (255, 48343), (269, 48391), (271, 48400), (275, 48418), (277, 48424), (301, 48511),

Gene: Deb65\_41 Start: 31565, Stop: 32866, Start Num: 46

Candidate Starts for Deb65\_41:

(Start: 46 @31565 has 128 MA's), (58, 31631), (63, 31685), (65, 31694), (67, 31712), (82, 31781), (83, 31793), (104, 31931), (126, 32003), (129, 32027), (132, 32042), (135, 32051), (145, 32105), (154, 32138), (159, 32159), (179, 32270), (189, 32345), (210, 32456), (211, 32459), (219, 32498), (220, 32504), (221, 32507), (224, 32516), (226, 32522), (228, 32528), (239, 32561), (240, 32564), (248, 32612), (251, 32624), (255, 32642), (259, 32663), (268, 32699), (272, 32717), (277, 32735), (280, 32744), (282, 32759), (295, 32813),

Gene: Demsculpinboyz\_50 Start: 32530, Stop: 31235, Start Num: 37

Candidate Starts for Demsculpinboyz\_50:

(Start: 37 @32530 has 5 MA's), (Start: 57 @32449 has 1 MA's), (78, 32314), (82, 32296), (85, 32272), (94, 32212), (96, 32200), (98, 32194), (104, 32152), (105, 32143), (118, 32095), (126, 32077), (130, 32050), (136, 32026), (139, 32011), (144, 31981), (157, 31930), (161, 31912), (198, 31720), (202, 31705), (208, 31684), (209, 31681), (210, 31672), (228, 31600), (240, 31552), (242, 31525), (259, 31450), (268, 31414), (277, 31378), (295, 31300), (303, 31285), (304, 31282), (308, 31261),

Gene: DillTech15\_43 Start: 32397, Stop: 33698, Start Num: 46

Candidate Starts for DillTech15\_43:

(Start: 46 @32397 has 128 MA's), (58, 32463), (63, 32517), (67, 32544), (82, 32613), (83, 32625), (104, 32763), (129, 32859), (132, 32874), (135, 32883), (145, 32937), (154, 32970), (159, 32991),

(179, 33102), (189, 33177), (210, 33288), (211, 33291), (219, 33330), (220, 33336), (221, 33339), (224, 33348), (226, 33354), (228, 33360), (239, 33393), (240, 33396), (248, 33444), (251, 33456), (255, 33474), (259, 33495), (268, 33531), (272, 33549), (277, 33567), (282, 33591), (295, 33645),

Gene: DirkDirk\_35 Start: 30286, Stop: 31593, Start Num: 45

Candidate Starts for DirkDirk\_35:

(Start: 45 @30286 has 69 MA's), (59, 30376), (61, 30382), (74, 30475), (104, 30664), (105, 30673), (107, 30685), (126, 30760), (128, 30772), (129, 30784), (130, 30787), (133, 30802), (140, 30829), (164, 30955), (175, 31021), (179, 31042), (219, 31225), (220, 31231), (230, 31261), (240, 31303), (262, 31411), (268, 31441), (280, 31486), (283, 31504), (288, 31528), (291, 31540),

Gene: DirtMcgirt\_41 Start: 31265, Stop: 32554, Start Num: 46

Candidate Starts for DirtMcgirt\_41:

(Start: 46 @31265 has 128 MA's), (58, 31331), (63, 31385), (65, 31394), (67, 31412), (82, 31481), (83, 31493), (104, 31631), (126, 31703), (129, 31727), (132, 31742), (135, 31751), (145, 31805), (154, 31838), (159, 31859), (164, 31880), (179, 31970), (189, 32045), (210, 32156), (211, 32159), (219, 32198), (220, 32204), (221, 32207), (224, 32216), (226, 32222), (228, 32228), (239, 32261), (240, 32264), (248, 32312), (251, 32324), (255, 32342), (259, 32363), (268, 32399), (272, 32417), (277, 32435), (280, 32444), (282, 32459), (295, 32513),

Gene: DocMcStuffins\_41 Start: 31599, Stop: 32870, Start Num: 47

Candidate Starts for DocMcStuffins\_41:

(Start: 47 @31599 has 6 MA's), (58, 31662), (63, 31716), (65, 31725), (67, 31743), (82, 31812), (83, 31824), (104, 31962), (132, 32073), (145, 32136), (159, 32190), (176, 32283), (210, 32484), (219, 32526), (220, 32532), (224, 32544), (228, 32556), (231, 32565), (234, 32571), (239, 32589), (240, 32592), (251, 32652), (255, 32670), (259, 32691), (272, 32745), (277, 32763), (282, 32787), (293, 32832), (295, 32841), (305, 32862),

Gene: Doomphist\_43 Start: 32942, Stop: 34243, Start Num: 46

Candidate Starts for Doomphist\_43:

(Start: 46 @32942 has 128 MA's), (58, 33008), (63, 33062), (65, 33071), (67, 33089), (82, 33158), (83, 33170), (104, 33308), (126, 33380), (129, 33404), (132, 33419), (135, 33428), (145, 33482), (154, 33515), (159, 33536), (179, 33647), (189, 33722), (210, 33833), (211, 33836), (219, 33875), (220, 33881), (221, 33884), (224, 33893), (226, 33899), (228, 33905), (239, 33938), (240, 33941), (248, 33989), (251, 34001), (255, 34019), (259, 34040), (268, 34076), (272, 34094), (277, 34112), (280, 34121), (282, 34136), (295, 34190),

Gene: Dorothy\_40 Start: 31738, Stop: 33039, Start Num: 46

Candidate Starts for Dorothy\_40:

(Start: 46 @31738 has 128 MA's), (58, 31804), (63, 31858), (67, 31885), (82, 31954), (83, 31966), (104, 32104), (126, 32176), (129, 32200), (132, 32215), (135, 32224), (145, 32278), (154, 32311), (159, 32332), (179, 32443), (189, 32518), (210, 32629), (211, 32632), (219, 32671), (220, 32677), (221, 32680), (224, 32689), (226, 32695), (228, 32701), (239, 32734), (240, 32737), (248, 32785), (251, 32797), (255, 32815), (259, 32836), (268, 32872), (272, 32890), (277, 32908), (280, 32917), (282, 32932), (295, 32986),

Gene: DotProduct\_40 Start: 31396, Stop: 32685, Start Num: 46

Candidate Starts for DotProduct\_40:

(Start: 46 @31396 has 128 MA's), (58, 31462), (63, 31516), (67, 31543), (82, 31612), (83, 31624), (84, 31627), (104, 31762), (126, 31834), (129, 31858), (132, 31873), (135, 31882), (145, 31936), (154, 31969), (159, 31990), (179, 32101), (189, 32176), (210, 32287), (211, 32290), (219, 32329), (220, 32335), (221, 32338), (224, 32347), (226, 32353), (239, 32392), (240, 32395), (248, 32443), (251, 32455), (255, 32473), (259, 32494), (268, 32530), (272, 32548), (277, 32566), (280, 32575), (282,

32590), (295, 32644),

Gene: Doucette\_31 Start: 22357, Stop: 23664, Start Num: 51

Candidate Starts for Doucette\_31:

(32, 22324), (Start: 40 @22336 has 1 MA's), (Start: 51 @22357 has 1 MA's), (59, 22426), (74, 22528), (82, 22573), (104, 22717), (131, 22831), (135, 22849), (138, 22858), (144, 22897), (147, 22909), (151, 22930), (152, 22933), (161, 22987), (172, 23044), (187, 23146), (204, 23227), (205, 23230), (217, 23287), (219, 23290), (221, 23299), (224, 23308), (225, 23311), (240, 23365), (242, 23392), (254, 23440), (260, 23473), (266, 23500), (272, 23524), (275, 23536), (276, 23539), (289, 23599),

Gene: Doug\_43 Start: 32286, Stop: 33575, Start Num: 46

Candidate Starts for Doug\_43:

(Start: 46 @32286 has 128 MA's), (58, 32352), (63, 32406), (65, 32415), (67, 32433), (82, 32502), (83, 32514), (104, 32652), (129, 32748), (132, 32763), (135, 32772), (145, 32826), (154, 32859), (159, 32880), (179, 32991), (189, 33066), (210, 33177), (211, 33180), (219, 33219), (220, 33225), (221, 33228), (224, 33237), (226, 33243), (239, 33282), (240, 33285), (248, 33333), (251, 33345), (255, 33363), (259, 33384), (268, 33420), (272, 33438), (277, 33456), (280, 33465), (282, 33480), (295, 33534),

Gene: Douge\_35 Start: 30290, Stop: 31597, Start Num: 45

Candidate Starts for Douge\_35:

(31, 30269), (Start: 45 @30290 has 69 MA's), (59, 30380), (66, 30443), (68, 30452), (87, 30548), (94, 30602), (104, 30665), (105, 30674), (125, 30755), (134, 30806), (136, 30812), (142, 30848), (164, 30956), (176, 31025), (179, 31043), (181, 31052), (188, 31094), (198, 31139), (217, 31226), (220, 31235), (234, 31277), (240, 31307), (250, 31367), (252, 31373), (255, 31388), (268, 31445), (280, 31490), (283, 31508), (289, 31538),

Gene: Douzhi\_35 Start: 30396, Stop: 31703, Start Num: 45

Candidate Starts for Douzhi\_35:

(31, 30375), (Start: 45 @30396 has 69 MA's), (Start: 57 @30471 has 1 MA's), (59, 30486), (66, 30549), (68, 30558), (87, 30654), (94, 30708), (104, 30771), (105, 30780), (125, 30861), (134, 30912), (136, 30918), (142, 30954), (164, 31062), (176, 31131), (179, 31149), (181, 31158), (188, 31200), (198, 31245), (217, 31332), (220, 31341), (234, 31383), (240, 31413), (250, 31473), (252, 31479), (255, 31494), (268, 31551), (280, 31596), (283, 31614), (289, 31644),

Gene: DrSeegs\_38 Start: 31656, Stop: 32963, Start Num: 45

Candidate Starts for DrSeegs\_38:

(21, 31611), (Start: 45 @31656 has 69 MA's), (Start: 57 @31728 has 1 MA's), (59, 31743), (66, 31806), (74, 31842), (75, 31845), (105, 32040), (132, 32166), (164, 32322), (170, 32355), (176, 32391), (179, 32409), (181, 32418), (220, 32601), (230, 32631), (239, 32670), (240, 32673), (250, 32733), (252, 32739), (258, 32763), (261, 32778), (262, 32781), (275, 32841), (280, 32856), (283, 32874), (289, 32904),

Gene: Drago\_42 Start: 31258, Stop: 32559, Start Num: 46

Candidate Starts for Drago\_42:

(Start: 46 @31258 has 128 MA's), (58, 31324), (63, 31378), (65, 31387), (67, 31405), (82, 31474), (83, 31486), (104, 31624), (126, 31696), (129, 31720), (132, 31735), (135, 31744), (145, 31798), (154, 31831), (159, 31852), (179, 31963), (189, 32038), (210, 32149), (211, 32152), (219, 32191), (220, 32197), (221, 32200), (224, 32209), (226, 32215), (228, 32221), (239, 32254), (240, 32257), (248, 32305), (251, 32317), (255, 32335), (259, 32356), (268, 32392), (272, 32410), (277, 32428), (282, 32452), (295, 32506),

Gene: DuncansLeg\_36 Start: 31897, Stop: 33201, Start Num: 45

Candidate Starts for DuncansLeg\_36:

(Start: 45 @31897 has 69 MA's), (59, 31984), (61, 31990), (83, 32140), (104, 32272), (105, 32281), (128, 32380), (138, 32425), (161, 32551), (164, 32563), (176, 32632), (194, 32722), (220, 32839), (234, 32881), (240, 32911), (250, 32971), (252, 32977), (261, 33016), (262, 33019), (268, 33049), (280, 33094), (283, 33112), (288, 33136), (291, 33148),

Gene: DyoEdafos\_37 Start: 30624, Stop: 31931, Start Num: 45

Candidate Starts for DyoEdafos\_37:

(31, 30603), (Start: 45 @30624 has 69 MA's), (66, 30777), (81, 30849), (87, 30882), (101, 30975), (103, 30984), (104, 30999), (105, 31008), (125, 31089), (136, 31146), (142, 31182), (161, 31278), (164, 31290), (170, 31323), (176, 31359), (179, 31377), (193, 31446), (194, 31452), (217, 31560), (220, 31569), (234, 31611), (240, 31641), (250, 31701), (252, 31707), (262, 31749), (268, 31779), (280, 31824), (283, 31842), (288, 31866), (289, 31872),

Gene: E1\_28 Start: 21218, Stop: 22537, Start Num: 49

Candidate Starts for E1\_28:

(6, 21068), (7, 21077), (11, 21116), (Start: 14 @21146 has 1 MA's), (24, 21167), (30, 21185), (38, 21197), (Start: 49 @21218 has 22 MA's), (53, 21227), (63, 21341), (78, 21419), (79, 21425), (93, 21521), (94, 21524), (134, 21716), (171, 21905), (172, 21914), (182, 21968), (213, 22130), (224, 22181), (240, 22238), (266, 22373), (275, 22409), (296, 22496), (300, 22502),

Gene: E6\_28 Start: 20940, Stop: 22259, Start Num: 49

Candidate Starts for E6\_28:

(6, 20790), (7, 20799), (11, 20838), (Start: 14 @20868 has 1 MA's), (24, 20889), (30, 20907), (38, 20919), (Start: 49 @20940 has 22 MA's), (53, 20949), (63, 21063), (78, 21141), (79, 21147), (93, 21243), (114, 21345), (134, 21438), (135, 21441), (171, 21627), (182, 21690), (213, 21852), (224, 21903), (240, 21960), (266, 22095), (275, 22131), (296, 22218), (300, 22224),

Gene: Eish\_43 Start: 32301, Stop: 33611, Start Num: 46

Candidate Starts for Eish\_43:

(Start: 46 @32301 has 128 MA's), (58, 32367), (63, 32421), (67, 32448), (82, 32517), (83, 32529), (104, 32667), (129, 32763), (132, 32778), (135, 32787), (145, 32841), (154, 32874), (159, 32895), (179, 33006), (189, 33081), (210, 33192), (211, 33195), (219, 33234), (220, 33240), (221, 33243), (224, 33252), (226, 33258), (228, 33264), (239, 33297), (240, 33300), (248, 33348), (251, 33360), (255, 33378), (259, 33399), (268, 33435), (272, 33453), (277, 33471), (282, 33495), (295, 33549),

Gene: Ekdilam\_39 Start: 32465, Stop: 33844, Start Num: 40

Candidate Starts for Ekdilam\_39:

(Start: 40 @32465 has 1 MA's), (Start: 57 @32546 has 1 MA's), (59, 32561), (63, 32603), (81, 32696), (88, 32735), (90, 32750), (104, 32849), (105, 32858), (128, 32939), (177, 33194), (179, 33206), (181, 33215), (193, 33290), (207, 33350), (212, 33371), (216, 33398), (217, 33404), (220, 33413), (240, 33488), (252, 33554), (255, 33569), (275, 33659), (314, 33815),

Gene: Ellie\_39 Start: 32504, Stop: 33880, Start Num: 43

Candidate Starts for Ellie\_39:

(Start: 43 @32504 has 19 MA's), (Start: 57 @32579 has 1 MA's), (81, 32729), (88, 32768), (90, 32783), (104, 32882), (105, 32891), (128, 32972), (177, 33227), (179, 33239), (181, 33248), (193, 33323), (207, 33383), (212, 33404), (216, 33431), (217, 33437), (220, 33446), (240, 33521), (255, 33602), (315, 33857),

Gene: Ellson\_36 Start: 31873, Stop: 33177, Start Num: 45

Candidate Starts for Ellson\_36:

(Start: 45 @31873 has 69 MA's), (59, 31960), (61, 31966), (83, 32116), (104, 32248), (105, 32257), (128, 32356), (138, 32401), (161, 32527), (164, 32539), (176, 32608), (194, 32698), (220, 32815), (234, 32857), (240, 32887), (250, 32947), (252, 32953), (261, 32992), (262, 32995), (268, 33025), (280, 33070), (283, 33088), (288, 33112), (291, 33124),

Gene: Empress\_43 Start: 33009, Stop: 34310, Start Num: 46

Candidate Starts for Empress\_43:

(Start: 46 @33009 has 128 MA's), (58, 33075), (63, 33129), (65, 33138), (67, 33156), (82, 33225), (83, 33237), (104, 33375), (126, 33447), (129, 33471), (132, 33486), (135, 33495), (145, 33549), (154, 33582), (159, 33603), (179, 33714), (189, 33789), (210, 33900), (211, 33903), (219, 33942), (220, 33948), (221, 33951), (224, 33960), (226, 33966), (228, 33972), (239, 34005), (240, 34008), (248, 34056), (251, 34068), (255, 34086), (259, 34107), (268, 34143), (272, 34161), (277, 34179), (280, 34188), (282, 34203), (295, 34257),

Gene: Enceladus\_35 Start: 30269, Stop: 31576, Start Num: 45

Candidate Starts for Enceladus\_35:

(Start: 45 @30269 has 69 MA's), (59, 30359), (61, 30365), (74, 30458), (104, 30647), (105, 30656), (107, 30668), (126, 30743), (128, 30755), (129, 30767), (130, 30770), (133, 30785), (140, 30812), (164, 30938), (175, 31004), (179, 31025), (219, 31208), (220, 31214), (230, 31244), (240, 31286), (262, 31394), (268, 31424), (270, 31430), (280, 31469), (283, 31487), (288, 31511), (291, 31523),

Gene: Eponine\_47 Start: 34284, Stop: 35549, Start Num: 29

Candidate Starts for Eponine\_47:

(Start: 20 @34263 has 1 MA's), (Start: 29 @34284 has 15 MA's), (35, 34296), (Start: 49 @34314 has 22 MA's), (Start: 57 @34371 has 1 MA's), (Start: 62 @34425 has 1 MA's), (66, 34449), (81, 34518), (90, 34569), (104, 34668), (105, 34677), (107, 34689), (129, 34770), (136, 34797), (179, 35019), (181, 35028), (184, 35037), (193, 35088), (208, 35151), (224, 35223), (227, 35232), (240, 35280), (259, 35370), (275, 35436), (276, 35439), (282, 35466), (284, 35472), (288, 35493), (291, 35505),

Gene: Faith1\_38 Start: 31656, Stop: 32963, Start Num: 45

Candidate Starts for Faith1\_38:

(21, 31611), (Start: 45 @31656 has 69 MA's), (Start: 57 @31728 has 1 MA's), (59, 31743), (66, 31806), (74, 31842), (75, 31845), (105, 32040), (132, 32166), (164, 32322), (170, 32355), (176, 32391), (179, 32409), (181, 32418), (220, 32601), (230, 32631), (239, 32670), (240, 32673), (250, 32733), (252, 32739), (258, 32763), (261, 32778), (262, 32781), (275, 32841), (280, 32856), (283, 32874), (289, 32904),

Gene: Fancypants\_43 Start: 32701, Stop: 33990, Start Num: 46

Candidate Starts for Fancypants\_43:

(Start: 46 @32701 has 128 MA's), (58, 32767), (63, 32821), (67, 32848), (82, 32917), (83, 32929), (104, 33067), (129, 33163), (132, 33178), (135, 33187), (145, 33241), (154, 33274), (159, 33295), (179, 33406), (189, 33481), (210, 33592), (211, 33595), (219, 33634), (220, 33640), (221, 33643), (224, 33652), (226, 33658), (228, 33664), (239, 33697), (240, 33700), (248, 33748), (251, 33760), (255, 33778), (259, 33799), (268, 33835), (272, 33853), (277, 33871), (280, 33880), (282, 33895), (295, 33949),

Gene: FarmResident\_35 Start: 30334, Stop: 31641, Start Num: 45

Candidate Starts for FarmResident\_35:

(31, 30313), (Start: 45 @30334 has 69 MA's), (59, 30424), (66, 30487), (68, 30496), (87, 30592), (94, 30646), (104, 30709), (105, 30718), (125, 30799), (134, 30850), (136, 30856), (142, 30892), (164, 31000), (176, 31069), (179, 31087), (181, 31096), (188, 31138), (198, 31183), (217, 31270), (220, 31279), (234, 31321), (240, 31351), (250, 31411), (252, 31417), (255, 31432), (268, 31489), (280, 31534), (283, 31552), (289, 31582),

Gene: Fastidio\_46 Start: 32627, Stop: 33919, Start Num: 46

Candidate Starts for Fastidio\_46:

(Start: 46 @32627 has 128 MA's), (58, 32693), (63, 32747), (65, 32756), (67, 32774), (82, 32843), (83, 32855), (104, 32993), (126, 33065), (129, 33089), (132, 33104), (135, 33113), (145, 33167), (154, 33200), (159, 33221), (179, 33332), (189, 33407), (210, 33518), (211, 33521), (219, 33560), (220, 33566), (221, 33569), (224, 33578), (226, 33584), (239, 33623), (240, 33626), (248, 33674), (251, 33686), (255, 33704), (259, 33725), (268, 33761), (272, 33779), (277, 33797), (280, 33806), (282, 33821), (295, 33875),

Gene: Fefferhead\_40 Start: 32458, Stop: 33831, Start Num: 43

Candidate Starts for Fefferhead\_40:

(Start: 43 @32458 has 19 MA's), (Start: 57 @32533 has 1 MA's), (81, 32683), (88, 32722), (90, 32737), (104, 32836), (105, 32845), (128, 32926), (177, 33181), (179, 33193), (181, 33202), (193, 33277), (207, 33337), (212, 33358), (217, 33391), (220, 33400), (255, 33556), (315, 33808),

Gene: Finemlucis\_38 Start: 31932, Stop: 33239, Start Num: 45

Candidate Starts for Finemlucis\_38:

(21, 31887), (Start: 45 @31932 has 69 MA's), (Start: 57 @32004 has 1 MA's), (59, 32019), (66, 32082), (74, 32118), (105, 32316), (132, 32442), (164, 32598), (170, 32631), (176, 32667), (179, 32685), (181, 32694), (220, 32877), (230, 32907), (239, 32946), (240, 32949), (250, 33009), (252, 33015), (258, 33039), (261, 33054), (262, 33057), (275, 33117), (280, 33132), (283, 33150), (289, 33180), (291, 33186),

Gene: Finnry\_36 Start: 31901, Stop: 33193, Start Num: 45

Candidate Starts for Finnry\_36:

(12, 31817), (19, 31850), (Start: 45 @31901 has 69 MA's), (Start: 57 @31976 has 1 MA's), (59, 31991), (105, 32288), (129, 32384), (138, 32417), (161, 32543), (164, 32555), (176, 32624), (220, 32831), (234, 32873), (240, 32903), (250, 32963), (261, 33008), (262, 33011), (268, 33041), (280, 33086), (283, 33104), (288, 33128), (291, 33140),

Gene: Fionnbharth\_45 Start: 33681, Stop: 34946, Start Num: 29

Candidate Starts for Fionnbharth\_45:

(Start: 20 @33660 has 1 MA's), (Start: 29 @33681 has 15 MA's), (35, 33693), (Start: 49 @33711 has 22 MA's), (Start: 57 @33768 has 1 MA's), (Start: 62 @33822 has 1 MA's), (66, 33846), (81, 33915), (90, 33966), (104, 34065), (105, 34074), (107, 34086), (129, 34167), (136, 34194), (179, 34416), (181, 34425), (184, 34434), (193, 34485), (208, 34548), (224, 34620), (227, 34629), (240, 34677), (259, 34767), (275, 34833), (276, 34836), (280, 34848), (282, 34863), (284, 34869), (288, 34890), (291, 34902),

Gene: Firehouse51\_42 Start: 33340, Stop: 34641, Start Num: 46

Candidate Starts for Firehouse51\_42:

(Start: 46 @33340 has 128 MA's), (58, 33406), (63, 33460), (65, 33469), (67, 33487), (82, 33556), (83, 33568), (104, 33706), (129, 33802), (132, 33817), (135, 33826), (145, 33880), (154, 33913), (159, 33934), (179, 34045), (189, 34120), (210, 34231), (211, 34234), (220, 34279), (221, 34282), (224, 34291), (226, 34297), (228, 34303), (239, 34336), (240, 34339), (248, 34387), (251, 34399), (255, 34417), (259, 34438), (268, 34474), (272, 34492), (277, 34510), (280, 34519), (282, 34534), (295, 34588),

Gene: Florinda\_51 Start: 33021, Stop: 34310, Start Num: 46

Candidate Starts for Florinda\_51:

(Start: 46 @33021 has 128 MA's), (58, 33087), (63, 33141), (65, 33150), (67, 33168), (82, 33237), (83, 33249), (104, 33387), (129, 33483), (132, 33498), (135, 33507), (145, 33561), (154, 33594), (159,



33615), (179, 33726), (189, 33801), (210, 33912), (211, 33915), (219, 33954), (220, 33960), (221, 33963), (224, 33972), (226, 33978), (228, 33984), (239, 34017), (240, 34020), (248, 34068), (251, 34080), (255, 34098), (259, 34119), (268, 34155), (272, 34173), (277, 34191), (280, 34200), (282, 34215), (295, 34269),

Gene: Frankie\_47 Start: 33449, Stop: 34720, Start Num: 47

Candidate Starts for Frankie\_47:

(Start: 47 @33449 has 6 MA's), (58, 33512), (63, 33566), (65, 33575), (67, 33593), (82, 33662), (83, 33674), (104, 33812), (132, 33923), (145, 33986), (159, 34040), (176, 34133), (210, 34334), (219, 34376), (220, 34382), (228, 34406), (231, 34415), (234, 34421), (239, 34439), (240, 34442), (251, 34502), (255, 34520), (259, 34541), (272, 34595), (277, 34613), (282, 34637), (295, 34691), (305, 34712),

Gene: FreddyB\_43 Start: 32145, Stop: 33446, Start Num: 46

Candidate Starts for FreddyB\_43:

(Start: 46 @32145 has 128 MA's), (58, 32211), (63, 32265), (65, 32274), (67, 32292), (82, 32361), (83, 32373), (104, 32511), (126, 32583), (129, 32607), (132, 32622), (135, 32631), (145, 32685), (154, 32718), (159, 32739), (179, 32850), (189, 32925), (210, 33036), (211, 33039), (219, 33078), (220, 33084), (221, 33087), (224, 33096), (226, 33102), (228, 33108), (239, 33141), (240, 33144), (248, 33192), (251, 33204), (255, 33222), (259, 33243), (268, 33279), (272, 33297), (277, 33315), (280, 33324), (282, 33339), (295, 33393),

Gene: G4\_29 Start: 21966, Stop: 23285, Start Num: 49

Candidate Starts for G4\_29:

(6, 21816), (7, 21825), (11, 21864), (Start: 14 @21894 has 1 MA's), (24, 21915), (30, 21933), (38, 21945), (Start: 49 @21966 has 22 MA's), (53, 21975), (63, 22089), (78, 22167), (79, 22173), (93, 22269), (94, 22272), (134, 22464), (135, 22467), (171, 22653), (182, 22716), (213, 22878), (216, 22902), (224, 22929), (240, 22986), (266, 23121), (275, 23157), (296, 23244), (300, 23250),

Gene: GAL1\_31 Start: 28103, Stop: 29317, Start Num: 48

Candidate Starts for GAL1\_31:

(Start: 48 @28103 has 7 MA's), (Start: 57 @28169 has 1 MA's), (58, 28175), (71, 28259), (105, 28466), (107, 28478), (120, 28523), (126, 28538), (128, 28550), (136, 28589), (169, 28739), (195, 28844), (208, 28895), (213, 28916), (220, 28955), (221, 28958), (224, 28967), (240, 29024), (251, 29087), (256, 29108), (269, 29168), (277, 29201), (284, 29231),

Gene: GUmbie\_41 Start: 31614, Stop: 32912, Start Num: 46

Candidate Starts for GUmbie\_41:

(Start: 46 @31614 has 128 MA's), (58, 31680), (63, 31734), (67, 31761), (82, 31830), (83, 31842), (84, 31845), (104, 31980), (129, 32076), (132, 32091), (135, 32100), (145, 32154), (154, 32187), (159, 32208), (179, 32319), (189, 32394), (210, 32505), (211, 32508), (220, 32553), (221, 32556), (224, 32565), (226, 32571), (228, 32577), (239, 32610), (240, 32613), (248, 32661), (251, 32673), (255, 32691), (259, 32712), (268, 32748), (272, 32766), (277, 32784), (280, 32793), (282, 32808), (295, 32862),

Gene: Gabriela\_38 Start: 31918, Stop: 33225, Start Num: 45

Candidate Starts for Gabriela\_38:

(21, 31873), (Start: 45 @31918 has 69 MA's), (Start: 57 @31990 has 1 MA's), (59, 32005), (66, 32068), (74, 32104), (105, 32302), (132, 32428), (164, 32584), (170, 32617), (176, 32653), (179, 32671), (181, 32680), (220, 32863), (230, 32893), (239, 32932), (250, 32995), (252, 33001), (258, 33025), (261, 33040), (262, 33043), (275, 33103), (280, 33118), (283, 33136), (289, 33166), (291, 33172),

Gene: Gandalph\_42 Start: 31699, Stop: 32988, Start Num: 46

Candidate Starts for Gandalph\_42:

(Start: 46 @31699 has 128 MA's), (58, 31765), (63, 31819), (65, 31828), (67, 31846), (82, 31915), (83, 31927), (104, 32065), (129, 32161), (132, 32176), (135, 32185), (145, 32239), (154, 32272), (159, 32293), (179, 32404), (189, 32479), (210, 32590), (211, 32593), (220, 32638), (221, 32641), (224, 32650), (226, 32656), (228, 32662), (239, 32695), (240, 32698), (248, 32746), (251, 32758), (255, 32776), (259, 32797), (268, 32833), (272, 32851), (277, 32869), (280, 32878), (282, 32893), (295, 32947),

Gene: Gardann\_38 Start: 31657, Stop: 32964, Start Num: 45

Candidate Starts for Gardann\_38:

(21, 31612), (Start: 45 @31657 has 69 MA's), (Start: 57 @31729 has 1 MA's), (59, 31744), (66, 31807), (74, 31843), (105, 32041), (132, 32167), (164, 32323), (170, 32356), (176, 32392), (179, 32410), (181, 32419), (220, 32602), (230, 32632), (239, 32671), (240, 32674), (250, 32734), (252, 32740), (258, 32764), (261, 32779), (262, 32782), (275, 32842), (280, 32857), (283, 32875), (289, 32905), (291, 32911),

Gene: Geralt\_41 Start: 31564, Stop: 32865, Start Num: 46

Candidate Starts for Geralt\_41:

(Start: 46 @31564 has 128 MA's), (58, 31630), (63, 31684), (65, 31693), (67, 31711), (82, 31780), (83, 31792), (104, 31930), (126, 32002), (129, 32026), (132, 32041), (135, 32050), (145, 32104), (154, 32137), (159, 32158), (179, 32269), (189, 32344), (210, 32455), (211, 32458), (219, 32497), (220, 32503), (221, 32506), (224, 32515), (226, 32521), (228, 32527), (239, 32560), (240, 32563), (248, 32611), (251, 32623), (255, 32641), (259, 32662), (268, 32698), (272, 32716), (277, 32734), (280, 32743), (282, 32758), (295, 32812),

Gene: GigiOuiOui\_40 Start: 31539, Stop: 32828, Start Num: 46

Candidate Starts for GigiOuiOui\_40:

(Start: 46 @31539 has 128 MA's), (58, 31605), (63, 31659), (67, 31686), (82, 31755), (83, 31767), (84, 31770), (104, 31905), (126, 31977), (129, 32001), (132, 32016), (135, 32025), (145, 32079), (154, 32112), (159, 32133), (179, 32244), (189, 32319), (210, 32430), (211, 32433), (219, 32472), (220, 32478), (221, 32481), (224, 32490), (226, 32496), (228, 32502), (239, 32535), (240, 32538), (248, 32586), (251, 32598), (255, 32616), (259, 32637), (268, 32673), (272, 32691), (277, 32709), (280, 32718), (282, 32733), (295, 32787),

Gene: Girafales\_51 Start: 32828, Stop: 34117, Start Num: 46

Candidate Starts for Girafales\_51:

(Start: 46 @32828 has 128 MA's), (58, 32894), (63, 32948), (65, 32957), (67, 32975), (83, 33056), (104, 33194), (129, 33290), (132, 33305), (135, 33314), (145, 33368), (154, 33401), (159, 33422), (179, 33533), (189, 33608), (210, 33719), (211, 33722), (219, 33761), (220, 33767), (221, 33770), (224, 33779), (226, 33785), (228, 33791), (239, 33824), (240, 33827), (248, 33875), (251, 33887), (255, 33905), (259, 33926), (268, 33962), (272, 33980), (277, 33998), (280, 34007), (282, 34022), (295, 34076),

Gene: Girr\_44 Start: 32606, Stop: 33907, Start Num: 46

Candidate Starts for Girr\_44:

(Start: 46 @32606 has 128 MA's), (58, 32672), (63, 32726), (65, 32735), (67, 32753), (82, 32822), (83, 32834), (104, 32972), (126, 33044), (129, 33068), (132, 33083), (135, 33092), (145, 33146), (154, 33179), (159, 33200), (179, 33311), (189, 33386), (210, 33497), (211, 33500), (219, 33539), (220, 33545), (221, 33548), (224, 33557), (226, 33563), (228, 33569), (239, 33602), (240, 33605), (248, 33653), (251, 33665), (255, 33683), (259, 33704), (268, 33740), (272, 33758), (277, 33776), (280, 33785), (282, 33800), (295, 33854),

Gene: GuuelaD\_38 Start: 31694, Stop: 33001, Start Num: 45

Candidate Starts for GuuelaD\_38:

(21, 31649), (Start: 45 @31694 has 69 MA's), (Start: 57 @31766 has 1 MA's), (59, 31781), (66, 31844), (74, 31880), (105, 32078), (132, 32204), (164, 32360), (170, 32393), (176, 32429), (179, 32447), (181, 32456), (220, 32639), (230, 32669), (239, 32708), (240, 32711), (250, 32771), (252, 32777), (258, 32801), (261, 32816), (262, 32819), (275, 32879), (280, 32894), (283, 32912), (289, 32942), (291, 32948),

Gene: Hafay\_38 Start: 31689, Stop: 32996, Start Num: 45

Candidate Starts for Hafay\_38:

(21, 31644), (Start: 45 @31689 has 69 MA's), (Start: 57 @31761 has 1 MA's), (59, 31776), (66, 31839), (74, 31875), (105, 32073), (132, 32199), (164, 32355), (170, 32388), (176, 32424), (179, 32442), (181, 32451), (220, 32634), (230, 32664), (239, 32703), (240, 32706), (250, 32766), (252, 32772), (258, 32796), (261, 32811), (262, 32814), (275, 32874), (280, 32889), (283, 32907), (289, 32937), (291, 32943),

Gene: Halena\_35 Start: 30295, Stop: 31602, Start Num: 45

Candidate Starts for Halena\_35:

(Start: 45 @30295 has 69 MA's), (59, 30385), (61, 30391), (74, 30484), (104, 30673), (105, 30682), (107, 30694), (126, 30769), (128, 30781), (129, 30793), (130, 30796), (133, 30811), (140, 30838), (164, 30964), (175, 31030), (179, 31051), (219, 31234), (220, 31240), (230, 31270), (240, 31312), (262, 31420), (268, 31450), (280, 31495), (283, 31513), (288, 31537), (291, 31549),

Gene: Hammy\_42 Start: 33006, Stop: 34274, Start Num: 49

Candidate Starts for Hammy\_42:

(Start: 49 @33006 has 22 MA's), (50, 33009), (59, 33081), (61, 33087), (64, 33126), (69, 33159), (102, 33345), (104, 33363), (105, 33372), (107, 33384), (120, 33426), (135, 33489), (136, 33492), (141, 33525), (158, 33606), (167, 33657), (179, 33720), (181, 33729), (207, 33846), (216, 33894), (219, 33903), (234, 33954), (255, 34059), (259, 34092), (283, 34191), (306, 34263),

Gene: Hamulus\_43 Start: 32980, Stop: 34269, Start Num: 46

Candidate Starts for Hamulus\_43:

(Start: 46 @32980 has 128 MA's), (58, 33046), (63, 33100), (65, 33109), (67, 33127), (82, 33196), (83, 33208), (104, 33346), (129, 33442), (132, 33457), (135, 33466), (145, 33520), (154, 33553), (159, 33574), (179, 33685), (189, 33760), (210, 33871), (211, 33874), (219, 33913), (220, 33919), (221, 33922), (224, 33931), (226, 33937), (239, 33976), (240, 33979), (248, 34027), (251, 34039), (255, 34057), (259, 34078), (268, 34114), (272, 34132), (277, 34150), (280, 34159), (282, 34174), (295, 34228),

Gene: Harley\_45 Start: 32333, Stop: 33622, Start Num: 46

Candidate Starts for Harley\_45:

(Start: 46 @32333 has 128 MA's), (58, 32399), (63, 32453), (67, 32480), (82, 32549), (83, 32561), (104, 32699), (129, 32795), (132, 32810), (135, 32819), (145, 32873), (154, 32906), (159, 32927), (179, 33038), (189, 33113), (210, 33224), (211, 33227), (219, 33266), (220, 33272), (221, 33275), (226, 33290), (228, 33296), (239, 33329), (240, 33332), (248, 33380), (251, 33392), (255, 33410), (259, 33431), (268, 33467), (272, 33485), (277, 33503), (280, 33512), (282, 33527), (295, 33581),

Gene: Hestia\_38 Start: 27099, Stop: 25888, Start Num: 55

Candidate Starts for Hestia\_38:

(Start: 52 @27108 has 2 MA's), (Start: 55 @27099 has 1 MA's), (Start: 57 @27051 has 1 MA's), (69, 26958), (105, 26742), (137, 26661), (155, 26598), (160, 26562), (166, 26535), (221, 26247), (232, 26214), (237, 26193), (280, 26019), (284, 25998), (290, 25968), (305, 25929),

Gene: Hurricane\_43 Start: 32582, Stop: 33862, Start Num: 49

Candidate Starts for Hurricane\_43:

(Start: 49 @32582 has 22 MA's), (61, 32663), (64, 32702), (77, 32771), (93, 32882), (97, 32900), (100, 32918), (104, 32948), (105, 32957), (107, 32969), (120, 33011), (130, 33053), (136, 33077), (167, 33239), (169, 33242), (179, 33302), (181, 33311), (208, 33434), (219, 33488), (221, 33497), (240, 33563), (251, 33626), (259, 33677), (269, 33716), (291, 33812), (306, 33848),

Gene: lbOuu\_44 Start: 32170, Stop: 33471, Start Num: 46

Candidate Starts for lbOuu\_44:

(Start: 46 @32170 has 128 MA's), (58, 32236), (63, 32290), (67, 32317), (82, 32386), (83, 32398), (104, 32536), (126, 32608), (129, 32632), (132, 32647), (135, 32656), (145, 32710), (154, 32743), (159, 32764), (179, 32875), (189, 32950), (210, 33061), (211, 33064), (219, 33103), (220, 33109), (221, 33112), (224, 33121), (226, 33127), (228, 33133), (239, 33166), (240, 33169), (248, 33217), (251, 33229), (255, 33247), (259, 33268), (268, 33304), (272, 33322), (277, 33340), (280, 33349), (282, 33364), (295, 33418),

Gene: lbhubesi\_44 Start: 32340, Stop: 33641, Start Num: 46

Candidate Starts for lbhubesi\_44:

(Start: 46 @32340 has 128 MA's), (58, 32406), (63, 32460), (67, 32487), (82, 32556), (83, 32568), (104, 32706), (129, 32802), (132, 32817), (135, 32826), (145, 32880), (154, 32913), (159, 32934), (179, 33045), (189, 33120), (210, 33231), (211, 33234), (219, 33273), (220, 33279), (221, 33282), (224, 33291), (226, 33297), (228, 33303), (239, 33336), (240, 33339), (248, 33387), (251, 33399), (255, 33417), (259, 33438), (268, 33474), (272, 33492), (277, 33510), (280, 33519), (282, 33534), (295, 33588),

Gene: Ibrahim\_33 Start: 27804, Stop: 29102, Start Num: 25

Candidate Starts for Ibrahim\_33:

(Start: 14 @27780 has 1 MA's), (Start: 25 @27804 has 4 MA's), (Start: 28 @27813 has 1 MA's), (42, 27837), (50, 27855), (Start: 57 @27915 has 1 MA's), (82, 28068), (90, 28116), (105, 28224), (119, 28269), (120, 28272), (128, 28299), (129, 28311), (132, 28326), (164, 28485), (174, 28548), (210, 28710), (222, 28764), (227, 28779), (230, 28788), (240, 28833), (243, 28863), (252, 28899), (277, 28995), (280, 29004), (305, 29091),

Gene: Inventum\_40 Start: 32277, Stop: 33578, Start Num: 46

Candidate Starts for Inventum\_40:

(Start: 46 @32277 has 128 MA's), (58, 32343), (63, 32397), (65, 32406), (67, 32424), (82, 32493), (83, 32505), (104, 32643), (126, 32715), (129, 32739), (132, 32754), (135, 32763), (145, 32817), (154, 32850), (159, 32871), (179, 32982), (189, 33057), (210, 33168), (211, 33171), (219, 33210), (220, 33216), (221, 33219), (224, 33228), (226, 33234), (228, 33240), (239, 33273), (240, 33276), (248, 33324), (251, 33336), (255, 33354), (259, 33375), (268, 33411), (272, 33429), (277, 33447), (280, 33456), (282, 33471), (295, 33525),

Gene: Itos\_38 Start: 31656, Stop: 32963, Start Num: 45

Candidate Starts for Itos\_38:

(21, 31611), (Start: 45 @31656 has 69 MA's), (Start: 57 @31728 has 1 MA's), (59, 31743), (66, 31806), (74, 31842), (75, 31845), (105, 32040), (132, 32166), (164, 32322), (170, 32355), (176, 32391), (179, 32409), (181, 32418), (220, 32601), (230, 32631), (239, 32670), (240, 32673), (250, 32733), (252, 32739), (258, 32763), (261, 32778), (262, 32781), (275, 32841), (280, 32856), (283, 32874), (289, 32904),

Gene: JF1\_45 Start: 33574, Stop: 34860, Start Num: 20

Candidate Starts for JF1\_45:

(Start: 20 @33574 has 1 MA's), (Start: 29 @33595 has 15 MA's), (35, 33607), (Start: 49 @33625 has 22 MA's), (Start: 57 @33682 has 1 MA's), (Start: 62 @33736 has 1 MA's), (66, 33760), (81, 33829), (90, 33880), (104, 33979), (105, 33988), (107, 34000), (136, 34108), (179, 34330), (181, 34339), (184, 34348), (193, 34399), (208, 34462), (227, 34543), (240, 34591), (259, 34681), (268, 34717), (275, 34747), (276, 34750), (280, 34762), (282, 34777), (284, 34783), (288, 34804), (291, 34816),

Gene: Jabbawokkie\_57 Start: 33700, Stop: 34929, Start Num: 54

Candidate Starts for Jabbawokkie\_57:

(Start: 54 @33700 has 2 MA's), (65, 33817), (82, 33904), (85, 33928), (104, 34051), (105, 34060), (118, 34111), (120, 34114), (121, 34117), (126, 34129), (129, 34153), (130, 34156), (143, 34219), (157, 34276), (163, 34300), (167, 34327), (170, 34336), (178, 34378), (180, 34390), (183, 34399), (201, 34495), (209, 34525), (210, 34534), (211, 34537), (212, 34540), (219, 34576), (224, 34594), (239, 34648), (240, 34651), (242, 34678), (247, 34699), (252, 34717), (255, 34732), (266, 34777), (267, 34780), (277, 34813), (280, 34822), (282, 34837), (287, 34858), (288, 34864), (289, 34870), (295, 34891),

Gene: Jace\_26 Start: 22288, Stop: 23565, Start Num: 49

Candidate Starts for Jace\_26:

(Start: 49 @22288 has 22 MA's), (Start: 55 @22303 has 1 MA's), (58, 22360), (66, 22435), (92, 22576), (104, 22657), (105, 22666), (132, 22780), (158, 22888), (162, 22906), (164, 22915), (205, 23134), (217, 23197), (219, 23200), (220, 23206), (240, 23275), (241, 23281), (259, 23365), (272, 23419), (274, 23428), (275, 23431), (281, 23455), (283, 23464),

Gene: JalFarm20\_52 Start: 34705, Stop: 35994, Start Num: 46

Candidate Starts for JalFarm20\_52:

(Start: 46 @34705 has 128 MA's), (58, 34771), (63, 34825), (65, 34834), (67, 34852), (82, 34921), (83, 34933), (104, 35071), (129, 35167), (132, 35182), (135, 35191), (145, 35245), (154, 35278), (159, 35299), (179, 35410), (189, 35485), (210, 35596), (211, 35599), (219, 35638), (220, 35644), (221, 35647), (224, 35656), (226, 35662), (228, 35668), (239, 35701), (240, 35704), (248, 35752), (251, 35764), (255, 35782), (259, 35803), (268, 35839), (272, 35857), (277, 35875), (280, 35884), (282, 35899), (295, 35953),

Gene: Jacob\_44 Start: 33274, Stop: 34563, Start Num: 46

Candidate Starts for Jacob\_44:

(Start: 46 @33274 has 128 MA's), (58, 33340), (63, 33394), (65, 33403), (67, 33421), (82, 33490), (83, 33502), (104, 33640), (126, 33712), (129, 33736), (132, 33751), (135, 33760), (145, 33814), (154, 33847), (159, 33868), (179, 33979), (189, 34054), (210, 34165), (211, 34168), (219, 34207), (220, 34213), (221, 34216), (224, 34225), (226, 34231), (228, 34237), (239, 34270), (240, 34273), (248, 34321), (251, 34333), (255, 34351), (259, 34372), (268, 34408), (272, 34426), (277, 34444), (280, 34453), (282, 34468), (295, 34522),

Gene: Jinglebell\_44 Start: 33144, Stop: 34454, Start Num: 46

Candidate Starts for Jinglebell\_44:

(Start: 46 @33144 has 128 MA's), (58, 33210), (63, 33264), (67, 33291), (82, 33360), (83, 33372), (104, 33510), (129, 33606), (132, 33621), (135, 33630), (145, 33684), (154, 33717), (159, 33738), (179, 33849), (189, 33924), (210, 34035), (211, 34038), (219, 34077), (220, 34083), (221, 34086), (224, 34095), (226, 34101), (228, 34107), (239, 34140), (240, 34143), (248, 34191), (251, 34203), (255, 34221), (259, 34242), (268, 34278), (272, 34296), (277, 34314), (280, 34323), (282, 34338), (295, 34392),

Gene: Job42\_44 Start: 33592, Stop: 34893, Start Num: 46

Candidate Starts for Job42\_44:

(Start: 46 @33592 has 128 MA's), (58, 33658), (63, 33712), (67, 33739), (82, 33808), (83, 33820), (104, 33958), (126, 34030), (129, 34054), (132, 34069), (135, 34078), (145, 34132), (154, 34165), (159, 34186), (179, 34297), (189, 34372), (210, 34483), (211, 34486), (219, 34525), (220, 34531), (221, 34534), (224, 34543), (226, 34549), (228, 34555), (239, 34588), (240, 34591), (248, 34639), (251, 34651), (255, 34669), (259, 34690), (268, 34726), (272, 34744), (277, 34762), (280, 34771), (282, 34786), (295, 34840),

Gene: Jobypre\_36 Start: 31898, Stop: 33190, Start Num: 45

Candidate Starts for Jobypre\_36:

(12, 31814), (19, 31847), (Start: 45 @31898 has 69 MA's), (Start: 57 @31973 has 1 MA's), (59, 31988), (105, 32285), (129, 32381), (138, 32414), (161, 32540), (164, 32552), (176, 32621), (220, 32828), (234, 32870), (240, 32900), (250, 32960), (261, 33005), (262, 33008), (268, 33038), (280, 33083), (283, 33101), (288, 33125), (291, 33137),

Gene: JoeDirt\_35 Start: 30267, Stop: 31574, Start Num: 45

Candidate Starts for JoeDirt\_35:

(Start: 45 @30267 has 69 MA's), (59, 30357), (61, 30363), (74, 30456), (104, 30645), (105, 30654), (107, 30666), (126, 30741), (128, 30753), (129, 30765), (130, 30768), (133, 30783), (140, 30810), (164, 30936), (175, 31002), (179, 31023), (219, 31206), (220, 31212), (230, 31242), (240, 31284), (262, 31392), (268, 31422), (280, 31467), (283, 31485), (288, 31509), (291, 31521),

Gene: JoeyJr\_41 Start: 31764, Stop: 33065, Start Num: 46

Candidate Starts for JoeyJr\_41:

(Start: 46 @31764 has 128 MA's), (58, 31830), (63, 31884), (65, 31893), (67, 31911), (82, 31980), (83, 31992), (104, 32130), (126, 32202), (129, 32226), (132, 32241), (135, 32250), (145, 32304), (154, 32337), (159, 32358), (179, 32469), (189, 32544), (210, 32655), (211, 32658), (219, 32697), (220, 32703), (221, 32706), (224, 32715), (226, 32721), (228, 32727), (239, 32760), (240, 32763), (248, 32811), (251, 32823), (255, 32841), (259, 32862), (268, 32898), (272, 32916), (277, 32934), (280, 32943), (282, 32958), (295, 33012),

Gene: Jubie\_36 Start: 31899, Stop: 33191, Start Num: 45

Candidate Starts for Jubie\_36:

(12, 31815), (19, 31848), (Start: 45 @31899 has 69 MA's), (Start: 57 @31974 has 1 MA's), (59, 31989), (105, 32286), (129, 32382), (138, 32415), (161, 32541), (164, 32553), (176, 32622), (220, 32829), (234, 32871), (240, 32901), (250, 32961), (261, 33006), (262, 33009), (268, 33039), (280, 33084), (283, 33102), (288, 33126), (291, 33138),

Gene: Juliette\_47 Start: 33785, Stop: 35020, Start Num: 49

Candidate Starts for Juliette\_47:

(Start: 20 @33734 has 1 MA's), (Start: 29 @33755 has 15 MA's), (35, 33767), (Start: 49 @33785 has 22 MA's), (Start: 57 @33842 has 1 MA's), (Start: 62 @33896 has 1 MA's), (66, 33920), (81, 33989), (90, 34040), (104, 34139), (105, 34148), (107, 34160), (129, 34241), (136, 34268), (179, 34490), (181, 34499), (184, 34508), (193, 34559), (208, 34622), (224, 34694), (227, 34703), (240, 34751), (259, 34841), (275, 34907), (276, 34910), (282, 34937), (284, 34943), (288, 34964), (291, 34976),

Gene: Kahlid\_38 Start: 31661, Stop: 32968, Start Num: 45

Candidate Starts for Kahlid\_38:

(21, 31616), (Start: 45 @31661 has 69 MA's), (Start: 57 @31733 has 1 MA's), (59, 31748), (66, 31811), (74, 31847), (105, 32045), (132, 32171), (164, 32327), (170, 32360), (176, 32396), (179, 32414), (181, 32423), (220, 32606), (230, 32636), (239, 32675), (240, 32678), (250, 32738), (252, 32744), (258, 32768), (261, 32783), (262, 32786), (275, 32846), (280, 32861), (283, 32879), (289, 32909), (291, 32915),

Gene: Karhdo\_42 Start: 32421, Stop: 33710, Start Num: 46

Candidate Starts for Karhdo\_42:

(Start: 46 @32421 has 128 MA's), (58, 32487), (63, 32541), (67, 32568), (82, 32637), (83, 32649), (104, 32787), (126, 32859), (129, 32883), (132, 32898), (135, 32907), (145, 32961), (154, 32994), (159, 33015), (179, 33126), (189, 33201), (210, 33312), (211, 33315), (219, 33354), (220, 33360), (221, 33363), (224, 33372), (226, 33378), (228, 33384), (239, 33417), (240, 33420), (248, 33468), (251, 33480), (255, 33498), (259, 33519), (268, 33555), (272, 33573), (277, 33591), (280, 33600), (282, 33615), (295, 33669),

Gene: Karkharias\_37 Start: 27757, Stop: 26384, Start Num: 41

Candidate Starts for Karkharias\_37:

(22, 27793), (Start: 41 @27757 has 2 MA's), (76, 27541), (82, 27508), (83, 27496), (86, 27478), (96, 27406), (107, 27331), (112, 27322), (115, 27301), (127, 27262), (128, 27256), (136, 27217), (150, 27148), (171, 27025), (203, 26833), (227, 26734), (245, 26644), (246, 26638), (257, 26596), (258, 26590), (259, 26578), (261, 26575), (262, 26572), (263, 26566), (264, 26563), (268, 26542), (275, 26509), (297, 26425), (302, 26416),

Gene: Kersh\_43 Start: 33655, Stop: 34944, Start Num: 46

Candidate Starts for Kersh\_43:

(Start: 46 @33655 has 128 MA's), (58, 33721), (63, 33775), (67, 33802), (82, 33871), (83, 33883), (104, 34021), (129, 34117), (132, 34132), (135, 34141), (145, 34195), (154, 34228), (159, 34249), (179, 34360), (189, 34435), (210, 34546), (211, 34549), (219, 34588), (220, 34594), (221, 34597), (226, 34612), (228, 34618), (239, 34651), (240, 34654), (248, 34702), (251, 34714), (255, 34732), (259, 34753), (268, 34789), (272, 34807), (277, 34825), (280, 34834), (282, 34849), (295, 34903),

Gene: Keshu\_44 Start: 32647, Stop: 33933, Start Num: 49

Candidate Starts for Keshu\_44:

(Start: 49 @32647 has 22 MA's), (61, 32728), (64, 32767), (77, 32836), (93, 32947), (97, 32965), (100, 32983), (104, 33013), (105, 33022), (107, 33034), (120, 33076), (130, 33118), (136, 33142), (167, 33304), (169, 33307), (179, 33367), (181, 33376), (208, 33499), (219, 33553), (221, 33562), (240, 33628), (251, 33691), (255, 33709), (259, 33742), (269, 33781), (291, 33877), (306, 33913),

Gene: Kimberlium\_44 Start: 32953, Stop: 34242, Start Num: 46

Candidate Starts for Kimberlium\_44:

(Start: 46 @32953 has 128 MA's), (58, 33019), (63, 33073), (67, 33100), (82, 33169), (83, 33181), (84, 33184), (104, 33319), (126, 33391), (129, 33415), (132, 33430), (135, 33439), (145, 33493), (154, 33526), (159, 33547), (179, 33658), (189, 33733), (210, 33844), (211, 33847), (220, 33892), (221, 33895), (224, 33904), (226, 33910), (228, 33916), (239, 33949), (240, 33952), (248, 34000), (251, 34012), (255, 34030), (259, 34051), (268, 34087), (272, 34105), (277, 34123), (280, 34132), (282, 34147), (295, 34201),

Gene: KingMidas\_44 Start: 33426, Stop: 34727, Start Num: 46

Candidate Starts for KingMidas\_44:

(Start: 46 @33426 has 128 MA's), (58, 33492), (63, 33546), (65, 33555), (67, 33573), (82, 33642), (83, 33654), (104, 33792), (126, 33864), (129, 33888), (132, 33903), (135, 33912), (145, 33966), (154, 33999), (159, 34020), (179, 34131), (189, 34206), (210, 34317), (211, 34320), (219, 34359), (220, 34365), (221, 34368), (224, 34377), (226, 34383), (228, 34389), (239, 34422), (240, 34425), (248, 34473), (251, 34485), (255, 34503), (259, 34524), (268, 34560), (272, 34578), (277, 34596), (280, 34605), (282, 34620), (295, 34674),

Gene: Kingsolomon\_36 Start: 31898, Stop: 33190, Start Num: 45

Candidate Starts for Kingsolomon\_36:

(12, 31814), (19, 31847), (Start: 45 @31898 has 69 MA's), (Start: 57 @31973 has 1 MA's), (59, 31988), (105, 32285), (129, 32381), (138, 32414), (161, 32540), (164, 32552), (176, 32621), (220, 32828), (234, 32870), (240, 32900), (250, 32960), (261, 33005), (262, 33008), (268, 33038), (280, 33083), (283, 33101), (288, 33125), (291, 33137),

Gene: KirDoubleO7\_34 Start: 31905, Stop: 33209, Start Num: 45

Candidate Starts for KirDoubleO7\_34:

(Start: 45 @31905 has 69 MA's), (56, 31956), (59, 31992), (61, 31998), (83, 32148), (104, 32280), (105, 32289), (128, 32388), (138, 32433), (161, 32559), (164, 32571), (176, 32640), (194, 32730), (210, 32799), (220, 32847), (234, 32889), (240, 32919), (250, 32979), (252, 32985), (261, 33024), (262, 33027), (268, 33057), (280, 33102), (283, 33120), (291, 33156),

Gene: Koella\_38 Start: 29196, Stop: 30497, Start Num: 46

Candidate Starts for Koella\_38:

(Start: 46 @29196 has 128 MA's), (58, 29262), (63, 29316), (65, 29325), (67, 29343), (82, 29412), (83, 29424), (104, 29562), (126, 29634), (129, 29658), (132, 29673), (135, 29682), (145, 29736), (154, 29769), (159, 29790), (179, 29901), (189, 29976), (210, 30087), (211, 30090), (219, 30129), (220, 30135), (221, 30138), (224, 30147), (226, 30153), (228, 30159), (239, 30192), (240, 30195), (248, 30243), (251, 30255), (255, 30273), (259, 30294), (268, 30330), (272, 30348), (277, 30366), (280, 30375), (282, 30390), (295, 30444),

Gene: Krakatau\_41 Start: 32101, Stop: 33402, Start Num: 46

Candidate Starts for Krakatau\_41:

(Start: 46 @32101 has 128 MA's), (58, 32167), (63, 32221), (67, 32248), (82, 32317), (83, 32329), (104, 32467), (129, 32563), (132, 32578), (135, 32587), (145, 32641), (154, 32674), (159, 32695), (164, 32716), (179, 32806), (189, 32881), (210, 32992), (211, 32995), (219, 33034), (220, 33040), (221, 33043), (224, 33052), (226, 33058), (228, 33064), (239, 33097), (240, 33100), (248, 33148), (251, 33160), (255, 33178), (259, 33199), (268, 33235), (272, 33253), (277, 33271), (280, 33280), (282, 33295), (295, 33349),

Gene: Krueger\_46 Start: 32803, Stop: 34188, Start Num: 43

Candidate Starts for Krueger\_46:

(23, 32773), (Start: 43 @32803 has 19 MA's), (Start: 57 @32878 has 1 MA's), (59, 32893), (63, 32935), (81, 33028), (90, 33082), (104, 33181), (105, 33190), (106, 33193), (177, 33523), (179, 33535), (181, 33544), (193, 33619), (207, 33679), (212, 33700), (216, 33727), (217, 33733), (220, 33742), (255, 33898), (275, 33988), (316, 34174),

Gene: Krypton555\_36 Start: 31803, Stop: 33095, Start Num: 45

Candidate Starts for Krypton555\_36:

(Start: 45 @31803 has 69 MA's), (Start: 57 @31878 has 1 MA's), (58, 31884), (59, 31893), (105, 32190), (129, 32286), (138, 32319), (161, 32445), (164, 32457), (176, 32526), (220, 32733), (234, 32775), (240, 32805), (250, 32865), (261, 32910), (262, 32913), (268, 32943), (280, 32988), (283, 33006), (288, 33030), (291, 33042),

Gene: Kumotta\_30 Start: 23663, Stop: 24967, Start Num: 52

Candidate Starts for Kumotta\_30:

(Start: 52 @23663 has 2 MA's), (Start: 57 @23720 has 1 MA's), (67, 23807), (69, 23816), (74, 23837), (91, 23939), (100, 23993), (101, 23999), (107, 24044), (110, 24053), (117, 24092), (168, 24338), (221, 24611), (239, 24668), (259, 24764), (265, 24791), (278, 24839), (284, 24866), (290, 24896), (294, 24911), (300, 24923),

Gene: Kuwabara\_46 Start: 31894, Stop: 33123, Start Num: 48

Candidate Starts for Kuwabara\_46:



(Start: 43 @31885 has 19 MA's), (Start: 48 @31894 has 7 MA's), (Start: 57 @31960 has 1 MA's), (71, 32050), (82, 32101), (83, 32113), (90, 32149), (94, 32185), (105, 32257), (107, 32269), (128, 32341), (136, 32380), (176, 32572), (195, 32635), (213, 32707), (227, 32767), (228, 32770), (239, 32812), (240, 32815), (256, 32899), (269, 32959), (277, 32992), (282, 33016),

Gene: Latretium\_45 Start: 33223, Stop: 34524, Start Num: 46

Candidate Starts for Latretium\_45:

(Start: 46 @33223 has 128 MA's), (58, 33289), (63, 33343), (65, 33352), (67, 33370), (82, 33439), (83, 33451), (104, 33589), (126, 33661), (129, 33685), (132, 33700), (135, 33709), (145, 33763), (154, 33796), (159, 33817), (179, 33928), (189, 34003), (210, 34114), (211, 34117), (219, 34156), (220, 34162), (221, 34165), (224, 34174), (226, 34180), (228, 34186), (239, 34219), (240, 34222), (248, 34270), (251, 34282), (255, 34300), (259, 34321), (268, 34357), (272, 34375), (277, 34393), (280, 34402), (282, 34417), (295, 34471),

Gene: LeBron\_36 Start: 30311, Stop: 31618, Start Num: 45

Candidate Starts for LeBron\_36:

(Start: 45 @30311 has 69 MA's), (59, 30401), (61, 30407), (74, 30500), (104, 30689), (105, 30698), (107, 30710), (126, 30785), (128, 30797), (129, 30809), (130, 30812), (133, 30827), (140, 30854), (164, 30980), (175, 31046), (179, 31067), (219, 31250), (220, 31256), (230, 31286), (240, 31328), (262, 31436), (268, 31466), (280, 31511), (283, 31529), (288, 31553), (291, 31565),

Gene: Leozinho\_43 Start: 32017, Stop: 33318, Start Num: 46

Candidate Starts for Leozinho\_43:

(Start: 46 @32017 has 128 MA's), (58, 32083), (63, 32137), (67, 32164), (82, 32233), (83, 32245), (104, 32383), (126, 32455), (129, 32479), (132, 32494), (135, 32503), (145, 32557), (154, 32590), (159, 32611), (179, 32722), (189, 32797), (210, 32908), (211, 32911), (219, 32950), (220, 32956), (221, 32959), (224, 32968), (226, 32974), (228, 32980), (239, 33013), (240, 33016), (248, 33064), (251, 33076), (255, 33094), (259, 33115), (268, 33151), (272, 33169), (277, 33187), (280, 33196), (282, 33211), (295, 33265),

Gene: Leperchaun\_38 Start: 30994, Stop: 32295, Start Num: 46

Candidate Starts for Leperchaun\_38:

(Start: 46 @30994 has 128 MA's), (58, 31060), (63, 31114), (65, 31123), (67, 31141), (82, 31210), (83, 31222), (104, 31360), (126, 31432), (129, 31456), (132, 31471), (135, 31480), (145, 31534), (154, 31567), (159, 31588), (179, 31699), (189, 31774), (210, 31885), (211, 31888), (219, 31927), (220, 31933), (221, 31936), (224, 31945), (226, 31951), (228, 31957), (239, 31990), (240, 31993), (248, 32041), (251, 32053), (255, 32071), (259, 32092), (268, 32128), (272, 32146), (277, 32164), (280, 32173), (282, 32188), (295, 32242),

Gene: Lewan\_38 Start: 31655, Stop: 32956, Start Num: 45

Candidate Starts for Lewan\_38:

(21, 31610), (Start: 45 @31655 has 69 MA's), (Start: 57 @31727 has 1 MA's), (61, 31748), (74, 31841), (88, 31916), (105, 32039), (132, 32165), (164, 32321), (170, 32354), (175, 32387), (179, 32408), (194, 32480), (210, 32549), (219, 32591), (220, 32597), (230, 32627), (239, 32666), (240, 32669), (250, 32729), (251, 32732), (252, 32735), (258, 32759), (259, 32771), (261, 32774), (268, 32807), (270, 32813), (283, 32870), (289, 32900), (291, 32906),

Gene: LilDestine\_38 Start: 31654, Stop: 32961, Start Num: 45

Candidate Starts for LilDestine\_38:

(21, 31609), (Start: 45 @31654 has 69 MA's), (Start: 57 @31726 has 1 MA's), (59, 31741), (66, 31804), (74, 31840), (105, 32038), (132, 32164), (164, 32320), (170, 32353), (176, 32389), (179, 32407), (181, 32416), (220, 32599), (230, 32629), (239, 32668), (250, 32731), (252, 32737), (258, 32761), (261, 32776), (262, 32779), (275, 32839), (280, 32854), (283, 32872), (289, 32902), (291,

32908),

Gene: LilMoolah\_42 Start: 31995, Stop: 33296, Start Num: 46

Candidate Starts for LilMoolah\_42:

(Start: 46 @31995 has 128 MA's), (58, 32061), (63, 32115), (65, 32124), (67, 32142), (82, 32211), (83, 32223), (104, 32361), (126, 32433), (129, 32457), (132, 32472), (135, 32481), (145, 32535), (154, 32568), (159, 32589), (179, 32700), (189, 32775), (210, 32886), (211, 32889), (219, 32928), (220, 32934), (221, 32937), (224, 32946), (226, 32952), (228, 32958), (239, 32991), (240, 32994), (248, 33042), (251, 33054), (255, 33072), (259, 33093), (268, 33129), (272, 33147), (277, 33165), (280, 33174), (282, 33189), (295, 33243),

Gene: LittleShirley\_43 Start: 33047, Stop: 34336, Start Num: 46

Candidate Starts for LittleShirley\_43:

(Start: 46 @33047 has 128 MA's), (58, 33113), (63, 33167), (67, 33194), (82, 33263), (83, 33275), (84, 33278), (104, 33413), (126, 33485), (129, 33509), (132, 33524), (135, 33533), (145, 33587), (154, 33620), (159, 33641), (179, 33752), (189, 33827), (210, 33938), (211, 33941), (220, 33986), (221, 33989), (224, 33998), (226, 34004), (228, 34010), (239, 34043), (240, 34046), (248, 34094), (251, 34106), (255, 34124), (259, 34145), (268, 34181), (272, 34199), (277, 34217), (280, 34226), (282, 34241), (295, 34295),

Gene: LiyuLake\_36 Start: 31863, Stop: 33167, Start Num: 45

Candidate Starts for LiyuLake\_36:

(Start: 45 @31863 has 69 MA's), (59, 31950), (61, 31956), (83, 32106), (104, 32238), (105, 32247), (128, 32346), (138, 32391), (161, 32517), (164, 32529), (176, 32598), (194, 32688), (220, 32805), (234, 32847), (240, 32877), (250, 32937), (252, 32943), (261, 32982), (262, 32985), (268, 33015), (275, 33045), (280, 33060), (283, 33078), (288, 33102), (291, 33114),

Gene: Lizziana\_50 Start: 34269, Stop: 35570, Start Num: 46

Candidate Starts for Lizziana\_50:

(Start: 46 @34269 has 128 MA's), (58, 34335), (63, 34389), (65, 34398), (67, 34416), (82, 34485), (83, 34497), (104, 34635), (126, 34707), (129, 34731), (132, 34746), (135, 34755), (145, 34809), (154, 34842), (159, 34863), (179, 34974), (189, 35049), (210, 35160), (211, 35163), (219, 35202), (220, 35208), (221, 35211), (224, 35220), (226, 35226), (228, 35232), (239, 35265), (240, 35268), (248, 35316), (251, 35328), (255, 35346), (259, 35367), (268, 35403), (272, 35421), (277, 35439), (280, 35448), (282, 35463), (295, 35517),

Gene: Llama\_45 Start: 33142, Stop: 34452, Start Num: 46

Candidate Starts for Llama\_45:

(Start: 46 @33142 has 128 MA's), (58, 33208), (63, 33262), (67, 33289), (82, 33358), (83, 33370), (104, 33508), (129, 33604), (132, 33619), (135, 33628), (145, 33682), (154, 33715), (159, 33736), (179, 33847), (189, 33922), (210, 34033), (211, 34036), (219, 34075), (220, 34081), (221, 34084), (224, 34093), (226, 34099), (228, 34105), (239, 34138), (240, 34141), (248, 34189), (251, 34201), (255, 34219), (259, 34240), (268, 34276), (272, 34294), (277, 34312), (280, 34321), (282, 34336), (295, 34390),

Gene: Llij\_40 Start: 31422, Stop: 32711, Start Num: 46

Candidate Starts for Llij\_40:

(Start: 46 @31422 has 128 MA's), (58, 31488), (63, 31542), (65, 31551), (67, 31569), (82, 31638), (83, 31650), (104, 31788), (126, 31860), (129, 31884), (132, 31899), (135, 31908), (145, 31962), (154, 31995), (159, 32016), (164, 32037), (179, 32127), (189, 32202), (210, 32313), (211, 32316), (219, 32355), (220, 32361), (221, 32364), (224, 32373), (226, 32379), (228, 32385), (239, 32418), (240, 32421), (248, 32469), (251, 32481), (255, 32499), (259, 32520), (268, 32556), (272, 32574), (277, 32592), (280, 32601), (282, 32616), (295, 32670),

Gene: Loadrie\_38 Start: 31687, Stop: 32994, Start Num: 45

Candidate Starts for Loadrie\_38:

(21, 31642), (Start: 45 @31687 has 69 MA's), (Start: 57 @31759 has 1 MA's), (59, 31774), (66, 31837), (74, 31873), (105, 32071), (132, 32197), (164, 32353), (170, 32386), (176, 32422), (179, 32440), (181, 32449), (220, 32632), (230, 32662), (239, 32701), (240, 32704), (250, 32764), (252, 32770), (258, 32794), (261, 32809), (262, 32812), (275, 32872), (280, 32887), (283, 32905), (289, 32935), (291, 32941),

Gene: Lolly9\_36 Start: 31683, Stop: 32990, Start Num: 45

Candidate Starts for Lolly9\_36:

(16, 31626), (Start: 45 @31683 has 69 MA's), (Start: 57 @31758 has 1 MA's), (59, 31773), (104, 32061), (105, 32070), (128, 32169), (138, 32214), (161, 32340), (164, 32352), (176, 32421), (194, 32511), (220, 32628), (234, 32670), (240, 32700), (250, 32760), (252, 32766), (261, 32805), (262, 32808), (268, 32838), (280, 32883), (283, 32901), (288, 32925), (289, 32931), (291, 32937),

Gene: Lumos\_36 Start: 31895, Stop: 33187, Start Num: 45

Candidate Starts for Lumos\_36:

(12, 31811), (19, 31844), (Start: 45 @31895 has 69 MA's), (Start: 57 @31970 has 1 MA's), (59, 31985), (105, 32282), (129, 32378), (138, 32411), (161, 32537), (164, 32549), (176, 32618), (220, 32825), (234, 32867), (240, 32897), (250, 32957), (261, 33002), (262, 33005), (268, 33035), (280, 33080), (283, 33098), (288, 33122), (291, 33134),

Gene: MAckerman\_36 Start: 30289, Stop: 31596, Start Num: 45

Candidate Starts for MAckerman\_36:

(Start: 45 @30289 has 69 MA's), (59, 30379), (61, 30385), (74, 30478), (104, 30667), (105, 30676), (107, 30688), (126, 30763), (128, 30775), (129, 30787), (130, 30790), (133, 30805), (140, 30832), (164, 30958), (175, 31024), (179, 31045), (219, 31228), (220, 31234), (230, 31264), (240, 31306), (262, 31414), (268, 31444), (280, 31489), (283, 31507), (288, 31531), (291, 31543),

Gene: MacnCheese\_44 Start: 33533, Stop: 34810, Start Num: 49

Candidate Starts for MacnCheese\_44:

(9, 33407), (Start: 49 @33533 has 22 MA's), (59, 33608), (61, 33614), (64, 33653), (93, 33833), (100, 33869), (104, 33899), (105, 33908), (107, 33920), (119, 33959), (120, 33962), (130, 34004), (136, 34028), (156, 34127), (169, 34193), (172, 34214), (179, 34253), (181, 34262), (207, 34382), (208, 34385), (219, 34439), (221, 34448), (236, 34502), (240, 34514), (251, 34577), (259, 34628), (269, 34667), (272, 34682), (283, 34727), (306, 34799),

Gene: MadMen\_38 Start: 31057, Stop: 32358, Start Num: 46

Candidate Starts for MadMen\_38:

(Start: 46 @31057 has 128 MA's), (58, 31123), (63, 31177), (65, 31186), (67, 31204), (82, 31273), (83, 31285), (104, 31423), (126, 31495), (129, 31519), (132, 31534), (135, 31543), (145, 31597), (154, 31630), (159, 31651), (179, 31762), (189, 31837), (210, 31948), (211, 31951), (219, 31990), (220, 31996), (221, 31999), (224, 32008), (226, 32014), (228, 32020), (239, 32053), (240, 32056), (248, 32104), (251, 32116), (255, 32134), (259, 32155), (268, 32191), (272, 32209), (277, 32227), (280, 32236), (282, 32251), (295, 32305),

Gene: Madiba\_39 Start: 30348, Stop: 31637, Start Num: 46

Candidate Starts for Madiba\_39:

(Start: 46 @30348 has 128 MA's), (58, 30414), (63, 30468), (67, 30495), (83, 30576), (104, 30714), (129, 30810), (132, 30825), (135, 30834), (145, 30888), (154, 30921), (159, 30942), (179, 31053), (189, 31128), (210, 31239), (211, 31242), (220, 31287), (221, 31290), (226, 31305), (228, 31311), (239, 31344), (240, 31347), (248, 31395), (251, 31407), (255, 31425), (259, 31446), (268, 31482),

(272, 31500), (277, 31518), (280, 31527), (282, 31542), (295, 31596),

Gene: Mahavrat\_39 Start: 31314, Stop: 32603, Start Num: 46

Candidate Starts for Mahavrat\_39:

(Start: 46 @31314 has 128 MA's), (58, 31380), (63, 31434), (67, 31461), (82, 31530), (83, 31542), (104, 31680), (129, 31776), (132, 31791), (135, 31800), (145, 31854), (154, 31887), (159, 31908), (179, 32019), (189, 32094), (210, 32205), (211, 32208), (219, 32247), (220, 32253), (221, 32256), (224, 32265), (226, 32271), (228, 32277), (239, 32310), (240, 32313), (248, 32361), (251, 32373), (255, 32391), (259, 32412), (268, 32448), (272, 32466), (277, 32484), (282, 32508), (295, 32562),

Gene: Malisha\_44 Start: 31424, Stop: 32641, Start Num: 48

Candidate Starts for Malisha\_44:

(1, 31166), (4, 31250), (5, 31274), (Start: 48 @31424 has 7 MA's), (Start: 57 @31487 has 1 MA's), (58, 31493), (71, 31577), (105, 31784), (126, 31856), (128, 31868), (136, 31907), (144, 31952), (148, 31970), (169, 32057), (181, 32126), (195, 32162), (213, 32234), (219, 32267), (221, 32276), (224, 32285), (240, 32342), (253, 32411), (256, 32426), (258, 32435), (272, 32501), (277, 32519),

Gene: Malthus\_46 Start: 33443, Stop: 34708, Start Num: 29

Candidate Starts for Malthus\_46:

(Start: 20 @33422 has 1 MA's), (Start: 29 @33443 has 15 MA's), (35, 33455), (Start: 49 @33473 has 22 MA's), (Start: 57 @33530 has 1 MA's), (Start: 62 @33584 has 1 MA's), (66, 33608), (81, 33677), (90, 33728), (104, 33827), (105, 33836), (107, 33848), (129, 33929), (136, 33956), (179, 34178), (181, 34187), (184, 34196), (193, 34247), (208, 34310), (224, 34382), (227, 34391), (240, 34439), (259, 34529), (275, 34595), (276, 34598), (282, 34625), (284, 34631), (288, 34652), (291, 34664),

Gene: Mantra\_40 Start: 31505, Stop: 32794, Start Num: 46

Candidate Starts for Mantra\_40:

(Start: 46 @31505 has 128 MA's), (58, 31571), (63, 31625), (67, 31652), (82, 31721), (83, 31733), (104, 31871), (129, 31967), (132, 31982), (135, 31991), (145, 32045), (154, 32078), (159, 32099), (179, 32210), (189, 32285), (210, 32396), (211, 32399), (219, 32438), (220, 32444), (221, 32447), (224, 32456), (226, 32462), (228, 32468), (239, 32501), (240, 32504), (248, 32552), (251, 32564), (255, 32582), (259, 32603), (268, 32639), (272, 32657), (277, 32675), (280, 32684), (282, 32699), (295, 32753),

Gene: Maravista\_42 Start: 32697, Stop: 33998, Start Num: 46

Candidate Starts for Maravista\_42:

(Start: 46 @32697 has 128 MA's), (58, 32763), (63, 32817), (67, 32844), (82, 32913), (83, 32925), (104, 33063), (129, 33159), (132, 33174), (135, 33183), (145, 33237), (154, 33270), (159, 33291), (179, 33402), (189, 33477), (210, 33588), (211, 33591), (219, 33630), (220, 33636), (221, 33639), (224, 33648), (226, 33654), (228, 33660), (239, 33693), (240, 33696), (248, 33744), (251, 33756), (255, 33774), (259, 33795), (268, 33831), (272, 33849), (277, 33867), (282, 33891), (295, 33945),

Gene: MargaretKali\_30 Start: 23298, Stop: 24602, Start Num: 52

Candidate Starts for MargaretKali\_30:

(Start: 52 @23298 has 2 MA's), (Start: 57 @23355 has 1 MA's), (67, 23442), (69, 23451), (74, 23472), (91, 23574), (100, 23628), (101, 23634), (107, 23679), (110, 23688), (117, 23727), (168, 23973), (221, 24246), (239, 24303), (259, 24399), (265, 24426), (278, 24474), (284, 24501), (290, 24531), (294, 24546), (300, 24558),

Gene: Marker\_43 Start: 31907, Stop: 33208, Start Num: 46

Candidate Starts for Marker\_43:

(Start: 46 @31907 has 128 MA's), (58, 31973), (63, 32027), (67, 32054), (82, 32123), (83, 32135), (84, 32138), (104, 32273), (126, 32345), (129, 32369), (132, 32384), (135, 32393), (145, 32447), (154,

32480), (159, 32501), (179, 32612), (189, 32687), (210, 32798), (211, 32801), (220, 32846), (221, 32849), (224, 32858), (226, 32864), (228, 32870), (239, 32903), (240, 32906), (248, 32954), (251, 32966), (255, 32984), (268, 33041), (272, 33059), (277, 33077), (280, 33086), (282, 33101), (295, 33155),

Gene: Martik\_44 Start: 33222, Stop: 34523, Start Num: 46

Candidate Starts for Martik\_44:

(Start: 46 @33222 has 128 MA's), (58, 33288), (63, 33342), (65, 33351), (67, 33369), (82, 33438), (83, 33450), (104, 33588), (126, 33660), (129, 33684), (132, 33699), (135, 33708), (145, 33762), (154, 33795), (159, 33816), (179, 33927), (189, 34002), (210, 34113), (211, 34116), (219, 34155), (220, 34161), (221, 34164), (224, 34173), (226, 34179), (228, 34185), (239, 34218), (240, 34221), (248, 34269), (251, 34281), (255, 34299), (259, 34320), (268, 34356), (272, 34374), (277, 34392), (280, 34401), (282, 34416), (295, 34470),

Gene: Mendokysei\_31 Start: 27397, Stop: 28584, Start Num: 57

Candidate Starts for Mendokysei\_31:

(Start: 25 @27286 has 4 MA's), (Start: 28 @27295 has 1 MA's), (42, 27319), (50, 27337), (Start: 57 @27397 has 1 MA's), (61, 27418), (82, 27550), (88, 27583), (90, 27598), (105, 27706), (119, 27751), (120, 27754), (128, 27781), (129, 27793), (132, 27808), (164, 27967), (174, 28030), (210, 28192), (227, 28261), (230, 28270), (240, 28315), (243, 28345), (251, 28378), (252, 28381), (275, 28471), (277, 28477), (280, 28486), (305, 28573),

Gene: Miley16\_38 Start: 31656, Stop: 32963, Start Num: 45

Candidate Starts for Miley16\_38:

(21, 31611), (Start: 45 @31656 has 69 MA's), (Start: 57 @31728 has 1 MA's), (59, 31743), (66, 31806), (74, 31842), (75, 31845), (105, 32040), (132, 32166), (164, 32322), (170, 32355), (176, 32391), (179, 32409), (181, 32418), (220, 32601), (230, 32631), (239, 32670), (240, 32673), (250, 32733), (252, 32739), (258, 32763), (261, 32778), (262, 32781), (275, 32841), (280, 32856), (283, 32874), (289, 32904),

Gene: MiniLon\_36 Start: 31684, Stop: 32991, Start Num: 45

Candidate Starts for MiniLon\_36:

(16, 31627), (Start: 45 @31684 has 69 MA's), (Start: 57 @31759 has 1 MA's), (59, 31774), (104, 32062), (105, 32071), (128, 32170), (138, 32215), (161, 32341), (164, 32353), (176, 32422), (194, 32512), (220, 32629), (234, 32671), (240, 32701), (250, 32761), (252, 32767), (261, 32806), (262, 32809), (268, 32839), (280, 32884), (283, 32902), (288, 32926), (289, 32932), (291, 32938),

Gene: MiniMac\_36 Start: 31681, Stop: 32988, Start Num: 45

Candidate Starts for MiniMac\_36:

(16, 31624), (Start: 45 @31681 has 69 MA's), (Start: 57 @31756 has 1 MA's), (59, 31771), (104, 32059), (105, 32068), (128, 32167), (138, 32212), (161, 32338), (164, 32350), (176, 32419), (194, 32509), (220, 32626), (234, 32668), (240, 32698), (250, 32758), (252, 32764), (261, 32803), (262, 32806), (268, 32836), (280, 32881), (283, 32899), (288, 32923), (289, 32929), (291, 32935),

Gene: Misha28\_40 Start: 30866, Stop: 32137, Start Num: 47

Candidate Starts for Misha28\_40:

(Start: 47 @30866 has 6 MA's), (58, 30929), (63, 30983), (65, 30992), (67, 31010), (82, 31079), (83, 31091), (104, 31229), (132, 31340), (145, 31403), (159, 31457), (176, 31550), (210, 31751), (219, 31793), (220, 31799), (224, 31811), (228, 31823), (231, 31832), (234, 31838), (239, 31856), (240, 31859), (251, 31919), (255, 31937), (259, 31958), (272, 32012), (277, 32030), (282, 32054), (293, 32099), (295, 32108), (305, 32129),

Gene: MissDaisy\_43 Start: 32928, Stop: 34193, Start Num: 29

Candidate Starts for MissDaisy\_43:

(Start: 29 @32928 has 15 MA's), (35, 32940), (Start: 49 @32958 has 22 MA's), (Start: 57 @33015 has 1 MA's), (Start: 62 @33069 has 1 MA's), (74, 33129), (81, 33162), (90, 33213), (104, 33312), (105, 33321), (107, 33333), (130, 33417), (136, 33441), (179, 33663), (181, 33672), (184, 33681), (193, 33732), (208, 33795), (227, 33876), (240, 33924), (250, 33984), (252, 33990), (259, 34014), (276, 34083), (282, 34110), (284, 34116), (291, 34149),

Gene: MisterCuddles\_43 Start: 32606, Stop: 33907, Start Num: 46

Candidate Starts for MisterCuddles\_43:

(Start: 46 @32606 has 128 MA's), (58, 32672), (63, 32726), (65, 32735), (67, 32753), (82, 32822), (83, 32834), (104, 32972), (126, 33044), (129, 33068), (132, 33083), (135, 33092), (145, 33146), (154, 33179), (159, 33200), (179, 33311), (189, 33386), (210, 33497), (211, 33500), (219, 33539), (220, 33545), (221, 33548), (224, 33557), (226, 33563), (228, 33569), (239, 33602), (240, 33605), (248, 33653), (251, 33665), (255, 33683), (259, 33704), (268, 33740), (272, 33758), (277, 33776), (280, 33785), (282, 33800), (295, 33854),

Gene: Mitti\_45 Start: 33619, Stop: 34884, Start Num: 29

Candidate Starts for Mitti\_45:

(Start: 20 @33598 has 1 MA's), (Start: 29 @33619 has 15 MA's), (35, 33631), (Start: 49 @33649 has 22 MA's), (Start: 57 @33706 has 1 MA's), (Start: 62 @33760 has 1 MA's), (66, 33784), (81, 33853), (90, 33904), (104, 34003), (105, 34012), (107, 34024), (129, 34105), (136, 34132), (179, 34354), (181, 34363), (184, 34372), (193, 34423), (208, 34486), (224, 34558), (227, 34567), (240, 34615), (259, 34705), (275, 34771), (276, 34774), (282, 34801), (284, 34807), (288, 34828), (291, 34840),

Gene: MkaliMitis3\_38 Start: 31656, Stop: 32963, Start Num: 45

Candidate Starts for MkaliMitis3\_38:

(21, 31611), (Start: 45 @31656 has 69 MA's), (Start: 57 @31728 has 1 MA's), (59, 31743), (66, 31806), (74, 31842), (105, 32040), (132, 32166), (164, 32322), (170, 32355), (176, 32391), (179, 32409), (181, 32418), (220, 32601), (230, 32631), (239, 32670), (240, 32673), (250, 32733), (252, 32739), (258, 32763), (261, 32778), (262, 32781), (275, 32841), (280, 32856), (283, 32874), (289, 32904), (291, 32910),

Gene: Modragons\_44 Start: 32988, Stop: 34298, Start Num: 46

Candidate Starts for Modragons\_44:

(Start: 46 @32988 has 128 MA's), (58, 33054), (63, 33108), (67, 33135), (82, 33204), (83, 33216), (104, 33354), (129, 33450), (132, 33465), (135, 33474), (145, 33528), (154, 33561), (159, 33582), (179, 33693), (189, 33768), (210, 33879), (211, 33882), (219, 33921), (220, 33927), (221, 33930), (224, 33939), (226, 33945), (228, 33951), (239, 33984), (240, 33987), (248, 34035), (251, 34047), (255, 34065), (259, 34086), (268, 34122), (272, 34140), (277, 34158), (280, 34167), (282, 34182), (295, 34236),

Gene: Mollymur\_63 Start: 47480, Stop: 48832, Start Num: 49

Candidate Starts for Mollymur\_63:

(Start: 49 @47480 has 22 MA's), (Start: 57 @47546 has 1 MA's), (83, 47711), (85, 47723), (104, 47846), (105, 47855), (122, 47954), (128, 47984), (136, 48029), (162, 48143), (163, 48149), (167, 48176), (180, 48245), (191, 48305), (197, 48344), (210, 48389), (212, 48395), (214, 48413), (215, 48416), (220, 48437), (240, 48512), (251, 48575), (269, 48641), (271, 48650), (275, 48668), (277, 48674), (301, 48761), (306, 48773),

Gene: Moostard\_36 Start: 31900, Stop: 33192, Start Num: 45

Candidate Starts for Moostard\_36:

(12, 31816), (19, 31849), (Start: 45 @31900 has 69 MA's), (Start: 57 @31975 has 1 MA's), (59, 31990), (105, 32287), (129, 32383), (138, 32416), (161, 32542), (164, 32554), (176, 32623), (220,

32830), (234, 32872), (240, 32902), (250, 32962), (261, 33007), (262, 33010), (268, 33040), (280, 33085), (283, 33103), (288, 33127), (291, 33139),

Gene: MortyNRick\_43 Start: 32503, Stop: 33714, Start Num: 48

Candidate Starts for MortyNRick\_43:

(Start: 25 @32461 has 4 MA's), (Start: 48 @32503 has 7 MA's), (Start: 57 @32566 has 1 MA's), (58, 32572), (71, 32656), (74, 32668), (83, 32719), (85, 32731), (105, 32863), (120, 32920), (121, 32923), (126, 32935), (128, 32947), (136, 32986), (144, 33031), (148, 33049), (164, 33109), (195, 33241), (213, 33313), (219, 33346), (220, 33352), (221, 33355), (224, 33364), (239, 33418), (240, 33421), (253, 33490), (255, 33502), (256, 33505), (258, 33514), (272, 33580), (277, 33598),

Gene: MsGreen\_36 Start: 31898, Stop: 33190, Start Num: 45

Candidate Starts for MsGreen\_36:

(12, 31814), (19, 31847), (Start: 45 @31898 has 69 MA's), (Start: 57 @31973 has 1 MA's), (59, 31988), (105, 32285), (129, 32381), (138, 32414), (161, 32540), (164, 32552), (176, 32621), (220, 32828), (234, 32870), (240, 32900), (250, 32960), (261, 33005), (262, 33008), (268, 33038), (280, 33083), (283, 33101), (288, 33125), (291, 33137),

Gene: MulchExplorer\_47 Start: 32952, Stop: 34241, Start Num: 46

Candidate Starts for MulchExplorer\_47:

(Start: 46 @32952 has 128 MA's), (58, 33018), (63, 33072), (67, 33099), (82, 33168), (83, 33180), (84, 33183), (104, 33318), (126, 33390), (129, 33414), (132, 33429), (135, 33438), (145, 33492), (154, 33525), (159, 33546), (179, 33657), (189, 33732), (210, 33843), (211, 33846), (220, 33891), (221, 33894), (224, 33903), (226, 33909), (228, 33915), (239, 33948), (240, 33951), (248, 33999), (251, 34011), (255, 34029), (259, 34050), (268, 34086), (272, 34104), (277, 34122), (280, 34131), (282, 34146), (295, 34200),

Gene: MulchSalad\_37 Start: 27871, Stop: 29142, Start Num: 47

Candidate Starts for MulchSalad\_37:

(Start: 47 @27871 has 6 MA's), (58, 27934), (63, 27988), (65, 27997), (67, 28015), (82, 28084), (83, 28096), (104, 28234), (132, 28345), (145, 28408), (159, 28462), (176, 28555), (210, 28756), (219, 28798), (220, 28804), (224, 28816), (228, 28828), (231, 28837), (234, 28843), (239, 28861), (240, 28864), (251, 28924), (255, 28942), (259, 28963), (272, 29017), (277, 29035), (282, 29059), (293, 29104), (295, 29113), (305, 29134),

Gene: Nairb\_33 Start: 27804, Stop: 29102, Start Num: 25

Candidate Starts for Nairb\_33:

(Start: 25 @27804 has 4 MA's), (Start: 28 @27813 has 1 MA's), (42, 27837), (50, 27855), (Start: 57 @27915 has 1 MA's), (82, 28068), (90, 28116), (105, 28224), (119, 28269), (120, 28272), (128, 28299), (129, 28311), (132, 28326), (164, 28485), (174, 28548), (210, 28710), (222, 28764), (227, 28779), (230, 28788), (240, 28833), (243, 28863), (252, 28899), (277, 28995), (280, 29004), (305, 29091),

Gene: Nergal\_38 Start: 30980, Stop: 32254, Start Num: 49

Candidate Starts for Nergal\_38:

(Start: 49 @30980 has 22 MA's), (61, 31061), (64, 31100), (93, 31271), (104, 31337), (105, 31346), (107, 31358), (121, 31403), (126, 31415), (128, 31427), (132, 31454), (135, 31463), (136, 31466), (157, 31577), (172, 31655), (175, 31673), (200, 31799), (208, 31826), (216, 31871), (219, 31880), (221, 31889), (240, 31955), (251, 32018), (255, 32036), (259, 32069), (282, 32165), (283, 32168), (306, 32240),

Gene: Netyap\_38 Start: 31656, Stop: 32963, Start Num: 45

Candidate Starts for Netyap\_38:

(21, 31611), (Start: 45 @31656 has 69 MA's), (Start: 57 @31728 has 1 MA's), (59, 31743), (66, 31806), (74, 31842), (75, 31845), (105, 32040), (132, 32166), (164, 32322), (170, 32355), (176, 32391), (179, 32409), (181, 32418), (220, 32601), (230, 32631), (239, 32670), (240, 32673), (250, 32733), (252, 32739), (258, 32763), (261, 32778), (262, 32781), (275, 32841), (280, 32856), (283, 32874), (289, 32904),

Gene: Nicholas\_36 Start: 31898, Stop: 33190, Start Num: 45

Candidate Starts for Nicholas\_36:

(12, 31814), (19, 31847), (Start: 45 @31898 has 69 MA's), (Start: 57 @31973 has 1 MA's), (59, 31988), (105, 32285), (129, 32381), (138, 32414), (161, 32540), (164, 32552), (176, 32621), (220, 32828), (234, 32870), (240, 32900), (250, 32960), (261, 33005), (262, 33008), (268, 33038), (280, 33083), (283, 33101), (288, 33125), (291, 33137),

Gene: Nicholasp3\_38 Start: 31657, Stop: 32964, Start Num: 45

Candidate Starts for Nicholasp3\_38:

(21, 31612), (Start: 45 @31657 has 69 MA's), (Start: 57 @31729 has 1 MA's), (59, 31744), (66, 31807), (74, 31843), (105, 32041), (132, 32167), (164, 32323), (170, 32356), (176, 32392), (179, 32410), (181, 32419), (220, 32602), (230, 32632), (239, 32671), (240, 32674), (250, 32734), (252, 32740), (258, 32764), (261, 32779), (262, 32782), (275, 32842), (280, 32857), (283, 32875), (289, 32905), (291, 32911),

Gene: Nimbo\_40 Start: 31567, Stop: 32868, Start Num: 46

Candidate Starts for Nimbo\_40:

(Start: 46 @31567 has 128 MA's), (58, 31633), (63, 31687), (65, 31696), (67, 31714), (82, 31783), (83, 31795), (104, 31933), (126, 32005), (129, 32029), (132, 32044), (135, 32053), (145, 32107), (154, 32140), (159, 32161), (179, 32272), (189, 32347), (210, 32458), (211, 32461), (219, 32500), (220, 32506), (221, 32509), (224, 32518), (226, 32524), (228, 32530), (239, 32563), (240, 32566), (248, 32614), (251, 32626), (255, 32644), (259, 32665), (268, 32701), (272, 32719), (277, 32737), (280, 32746), (282, 32761), (295, 32815),

Gene: Nitzel\_39 Start: 31678, Stop: 32988, Start Num: 46

Candidate Starts for Nitzel\_39:

(Start: 46 @31678 has 128 MA's), (58, 31744), (63, 31798), (67, 31825), (82, 31894), (83, 31906), (104, 32044), (129, 32140), (132, 32155), (135, 32164), (145, 32218), (154, 32251), (159, 32272), (179, 32383), (189, 32458), (210, 32569), (211, 32572), (219, 32611), (220, 32617), (221, 32620), (224, 32629), (226, 32635), (228, 32641), (239, 32674), (240, 32677), (248, 32725), (251, 32737), (255, 32755), (259, 32776), (268, 32812), (272, 32830), (277, 32848), (280, 32857), (282, 32872), (295, 32926),

Gene: Nivrat\_42 Start: 31868, Stop: 33169, Start Num: 46

Candidate Starts for Nivrat\_42:

(Start: 46 @31868 has 128 MA's), (58, 31934), (63, 31988), (65, 31997), (67, 32015), (82, 32084), (83, 32096), (104, 32234), (126, 32306), (129, 32330), (132, 32345), (135, 32354), (145, 32408), (154, 32441), (159, 32462), (179, 32573), (189, 32648), (210, 32759), (211, 32762), (219, 32801), (220, 32807), (221, 32810), (224, 32819), (226, 32825), (228, 32831), (239, 32864), (240, 32867), (248, 32915), (251, 32927), (255, 32945), (259, 32966), (268, 33002), (272, 33020), (277, 33038), (280, 33047), (282, 33062), (295, 33116),

Gene: NormanBulbieJr\_44 Start: 33209, Stop: 34510, Start Num: 46

Candidate Starts for NormanBulbieJr\_44:

(Start: 46 @33209 has 128 MA's), (58, 33275), (63, 33329), (65, 33338), (67, 33356), (82, 33425), (83, 33437), (104, 33575), (126, 33647), (129, 33671), (132, 33686), (135, 33695), (145, 33749), (154, 33782), (159, 33803), (179, 33914), (189, 33989), (210, 34100), (211, 34103), (219, 34142), (220,



34148), (221, 34151), (224, 34160), (226, 34166), (228, 34172), (239, 34205), (240, 34208), (248, 34256), (251, 34268), (255, 34286), (259, 34307), (268, 34343), (272, 34361), (277, 34379), (280, 34388), (282, 34403), (295, 34457),

Gene: Ochi17\_43 Start: 32595, Stop: 33905, Start Num: 46

Candidate Starts for Ochi17\_43:

(Start: 46 @32595 has 128 MA's), (58, 32661), (63, 32715), (67, 32742), (82, 32811), (83, 32823), (104, 32961), (129, 33057), (132, 33072), (135, 33081), (145, 33135), (154, 33168), (159, 33189), (179, 33300), (189, 33375), (210, 33486), (211, 33489), (219, 33528), (220, 33534), (221, 33537), (224, 33546), (226, 33552), (228, 33558), (239, 33591), (240, 33594), (248, 33642), (251, 33654), (255, 33672), (259, 33693), (268, 33729), (272, 33747), (277, 33765), (280, 33774), (282, 33789), (295, 33843),

Gene: OfUltron\_45 Start: 33144, Stop: 34454, Start Num: 46

Candidate Starts for OfUltron\_45:

(Start: 46 @33144 has 128 MA's), (58, 33210), (63, 33264), (67, 33291), (82, 33360), (83, 33372), (104, 33510), (129, 33606), (132, 33621), (135, 33630), (145, 33684), (154, 33717), (159, 33738), (179, 33849), (189, 33924), (210, 34035), (211, 34038), (219, 34077), (220, 34083), (221, 34086), (224, 34095), (226, 34101), (228, 34107), (239, 34140), (240, 34143), (248, 34191), (251, 34203), (255, 34221), (259, 34242), (268, 34278), (272, 34296), (277, 34314), (280, 34323), (282, 34338), (295, 34392),

Gene: Ogopogo\_44 Start: 31526, Stop: 32827, Start Num: 46

Candidate Starts for Ogopogo\_44:

(Start: 46 @31526 has 128 MA's), (58, 31592), (63, 31646), (65, 31655), (67, 31673), (82, 31742), (83, 31754), (104, 31892), (126, 31964), (129, 31988), (132, 32003), (135, 32012), (145, 32066), (154, 32099), (159, 32120), (179, 32231), (189, 32306), (210, 32417), (211, 32420), (219, 32459), (220, 32465), (221, 32468), (224, 32477), (226, 32483), (228, 32489), (239, 32522), (240, 32525), (248, 32573), (251, 32585), (255, 32603), (259, 32624), (268, 32660), (272, 32678), (277, 32696), (280, 32705), (282, 32720), (295, 32774),

Gene: OhShagHennessy\_35 Start: 30257, Stop: 31564, Start Num: 45

Candidate Starts for OhShagHennessy\_35:

(Start: 45 @30257 has 69 MA's), (59, 30347), (61, 30353), (74, 30446), (104, 30635), (105, 30644), (107, 30656), (126, 30731), (128, 30743), (129, 30755), (130, 30758), (133, 30773), (140, 30800), (164, 30926), (175, 30992), (179, 31013), (219, 31196), (220, 31202), (230, 31232), (240, 31274), (262, 31382), (268, 31412), (280, 31457), (283, 31475), (288, 31499), (291, 31511), (306, 31550),

Gene: Oksu\_45 Start: 32988, Stop: 34289, Start Num: 46

Candidate Starts for Oksu\_45:

(Start: 46 @32988 has 128 MA's), (58, 33054), (63, 33108), (67, 33135), (82, 33204), (83, 33216), (104, 33354), (129, 33450), (132, 33465), (135, 33474), (145, 33528), (154, 33561), (159, 33582), (179, 33693), (189, 33768), (210, 33879), (211, 33882), (219, 33921), (220, 33927), (221, 33930), (224, 33939), (226, 33945), (228, 33951), (239, 33984), (240, 33987), (248, 34035), (251, 34047), (255, 34065), (259, 34086), (268, 34122), (272, 34140), (277, 34158), (280, 34167), (282, 34182), (295, 34236),

Gene: OldBen\_41 Start: 31598, Stop: 32899, Start Num: 46

Candidate Starts for OldBen\_41:

(Start: 46 @31598 has 128 MA's), (58, 31664), (63, 31718), (65, 31727), (67, 31745), (82, 31814), (83, 31826), (104, 31964), (126, 32036), (129, 32060), (132, 32075), (135, 32084), (145, 32138), (154, 32171), (159, 32192), (179, 32303), (189, 32378), (210, 32489), (211, 32492), (219, 32531), (220, 32537), (221, 32540), (224, 32549), (226, 32555), (228, 32561), (239, 32594), (240, 32597), (248,

32645), (251, 32657), (255, 32675), (259, 32696), (268, 32732), (272, 32750), (277, 32768), (280, 32777), (282, 32792), (295, 32846),

Gene: OlympiaSaint\_42 Start: 32045, Stop: 33346, Start Num: 46

Candidate Starts for OlympiaSaint\_42:

(Start: 46 @32045 has 128 MA's), (58, 32111), (63, 32165), (67, 32192), (82, 32261), (83, 32273), (104, 32411), (129, 32507), (132, 32522), (135, 32531), (145, 32585), (154, 32618), (159, 32639), (179, 32750), (189, 32825), (210, 32936), (211, 32939), (219, 32978), (220, 32984), (221, 32987), (224, 32996), (226, 33002), (228, 33008), (239, 33041), (240, 33044), (248, 33092), (251, 33104), (255, 33122), (259, 33143), (268, 33179), (272, 33197), (277, 33215), (280, 33224), (282, 33239), (295, 33293),

Gene: OmniCritical\_44 Start: 33567, Stop: 34691, Start Num: 62

Candidate Starts for OmniCritical\_44:

(Start: 20 @33405 has 1 MA's), (Start: 29 @33426 has 15 MA's), (35, 33438), (Start: 49 @33456 has 22 MA's), (Start: 57 @33513 has 1 MA's), (Start: 62 @33567 has 1 MA's), (66, 33591), (81, 33660), (90, 33711), (104, 33810), (105, 33819), (107, 33831), (129, 33912), (136, 33939), (179, 34161), (181, 34170), (184, 34179), (193, 34230), (208, 34293), (224, 34365), (227, 34374), (240, 34422), (259, 34512), (275, 34578), (276, 34581), (282, 34608), (284, 34614), (288, 34635), (291, 34647),

Gene: OneUp\_74 Start: 49149, Stop: 50507, Start Num: 44

Candidate Starts for OneUp\_74:

(Start: 44 @49149 has 1 MA's), (58, 49230), (91, 49443), (94, 49464), (105, 49536), (110, 49557), (122, 49629), (136, 49704), (165, 49836), (172, 49875), (180, 49920), (191, 49977), (192, 49983), (215, 50097), (220, 50118), (235, 50166), (269, 50322), (271, 50331), (275, 50349), (277, 50355), (288, 50406), (295, 50433), (307, 50460),

Gene: OwlsT2W\_41 Start: 32020, Stop: 33321, Start Num: 46

Candidate Starts for OwlsT2W\_41:

(Start: 46 @32020 has 128 MA's), (58, 32086), (63, 32140), (67, 32167), (82, 32236), (83, 32248), (104, 32386), (129, 32482), (132, 32497), (135, 32506), (145, 32560), (154, 32593), (159, 32614), (179, 32725), (189, 32800), (210, 32911), (211, 32914), (219, 32953), (220, 32959), (221, 32962), (224, 32971), (226, 32977), (228, 32983), (239, 33016), (240, 33019), (248, 33067), (251, 33079), (255, 33097), (259, 33118), (268, 33154), (272, 33172), (277, 33190), (280, 33199), (282, 33214), (295, 33268),

Gene: PHappiness\_41 Start: 31540, Stop: 32841, Start Num: 46

Candidate Starts for PHappiness\_41:

(Start: 46 @31540 has 128 MA's), (58, 31606), (63, 31660), (65, 31669), (67, 31687), (82, 31756), (83, 31768), (104, 31906), (126, 31978), (129, 32002), (132, 32017), (135, 32026), (145, 32080), (154, 32113), (159, 32134), (179, 32245), (189, 32320), (210, 32431), (211, 32434), (219, 32473), (220, 32479), (221, 32482), (224, 32491), (226, 32497), (228, 32503), (239, 32536), (240, 32539), (248, 32587), (251, 32599), (255, 32617), (259, 32638), (268, 32674), (272, 32692), (277, 32710), (280, 32719), (282, 32734), (295, 32788),

Gene: PMC\_38 Start: 31422, Stop: 32711, Start Num: 46

Candidate Starts for PMC\_38:

(Start: 46 @31422 has 128 MA's), (58, 31488), (63, 31542), (65, 31551), (67, 31569), (82, 31638), (83, 31650), (104, 31788), (126, 31860), (129, 31884), (132, 31899), (135, 31908), (145, 31962), (154, 31995), (159, 32016), (179, 32127), (189, 32202), (210, 32313), (211, 32316), (219, 32355), (220, 32361), (221, 32364), (224, 32373), (226, 32379), (228, 32385), (239, 32418), (240, 32421), (248, 32469), (251, 32481), (255, 32499), (259, 32520), (268, 32556), (272, 32574), (277, 32592), (280, 32601), (282, 32616), (295, 32670),

Gene: PYPDinur\_35 Start: 30396, Stop: 31703, Start Num: 45

Candidate Starts for PYPDinur\_35:

(31, 30375), (Start: 45 @30396 has 69 MA's), (Start: 57 @30471 has 1 MA's), (59, 30486), (66, 30549), (68, 30558), (87, 30654), (94, 30708), (104, 30771), (105, 30780), (125, 30861), (134, 30912), (136, 30918), (142, 30954), (164, 31062), (176, 31131), (179, 31149), (181, 31158), (188, 31200), (198, 31245), (217, 31332), (220, 31341), (234, 31383), (240, 31413), (250, 31473), (252, 31479), (255, 31494), (268, 31551), (280, 31596), (283, 31614), (289, 31644),

Gene: Pacc40\_40 Start: 31614, Stop: 32915, Start Num: 46

Candidate Starts for Pacc40\_40:

(Start: 46 @31614 has 128 MA's), (58, 31680), (63, 31734), (65, 31743), (67, 31761), (82, 31830), (83, 31842), (104, 31980), (126, 32052), (129, 32076), (132, 32091), (135, 32100), (145, 32154), (154, 32187), (159, 32208), (179, 32319), (189, 32394), (210, 32505), (211, 32508), (219, 32547), (220, 32553), (221, 32556), (224, 32565), (226, 32571), (228, 32577), (239, 32610), (240, 32613), (248, 32661), (251, 32673), (255, 32691), (259, 32712), (268, 32748), (272, 32766), (277, 32784), (280, 32793), (282, 32808), (295, 32862),

Gene: Patt\_42 Start: 32652, Stop: 33917, Start Num: 29

Candidate Starts for Patt\_42:

(Start: 29 @32652 has 15 MA's), (35, 32664), (Start: 49 @32682 has 22 MA's), (Start: 57 @32739 has 1 MA's), (Start: 62 @32793 has 1 MA's), (74, 32853), (81, 32886), (90, 32937), (104, 33036), (105, 33045), (107, 33057), (130, 33141), (136, 33165), (179, 33387), (181, 33396), (184, 33405), (193, 33456), (208, 33519), (227, 33600), (240, 33648), (250, 33708), (252, 33714), (259, 33738), (276, 33807), (282, 33834), (284, 33840), (291, 33873),

Gene: PeggyLeg03\_37 Start: 27992, Stop: 26619, Start Num: 41

Candidate Starts for PeggyLeg03\_37:

(22, 28028), (Start: 41 @27992 has 2 MA's), (76, 27776), (82, 27743), (83, 27731), (86, 27713), (96, 27641), (107, 27566), (115, 27536), (127, 27497), (136, 27452), (150, 27383), (171, 27260), (203, 27068), (227, 26969), (245, 26879), (246, 26873), (257, 26831), (258, 26825), (259, 26813), (261, 26810), (262, 26807), (263, 26801), (264, 26798), (268, 26777), (275, 26744), (297, 26660), (302, 26651),

Gene: Pharb\_40 Start: 31402, Stop: 32679, Start Num: 49

Candidate Starts for Pharb\_40:

(26, 31357), (Start: 49 @31402 has 22 MA's), (50, 31405), (58, 31468), (61, 31483), (64, 31522), (77, 31591), (93, 31702), (97, 31720), (100, 31738), (105, 31777), (107, 31789), (120, 31831), (128, 31858), (130, 31873), (136, 31897), (172, 32083), (179, 32122), (181, 32131), (208, 32254), (219, 32308), (221, 32317), (240, 32383), (259, 32497), (306, 32668),

Gene: Phasih\_41 Start: 31965, Stop: 33266, Start Num: 46

Candidate Starts for Phasih\_41:

(Start: 46 @31965 has 128 MA's), (58, 32031), (63, 32085), (65, 32094), (67, 32112), (82, 32181), (83, 32193), (104, 32331), (129, 32427), (132, 32442), (135, 32451), (145, 32505), (154, 32538), (159, 32559), (179, 32670), (189, 32745), (210, 32856), (211, 32859), (219, 32898), (220, 32904), (221, 32907), (224, 32916), (226, 32922), (228, 32928), (239, 32961), (240, 32964), (248, 33012), (251, 33024), (255, 33042), (259, 33063), (268, 33099), (272, 33117), (277, 33135), (280, 33144), (282, 33159), (295, 33213),

Gene: Phatniss\_41 Start: 31939, Stop: 33228, Start Num: 46

Candidate Starts for Phatniss\_41:

(Start: 46 @31939 has 128 MA's), (58, 32005), (63, 32059), (65, 32068), (67, 32086), (82, 32155), (83, 32167), (104, 32305), (126, 32377), (129, 32401), (132, 32416), (135, 32425), (145, 32479), (154, 32512), (159, 32533), (164, 32554), (179, 32644), (189, 32719), (210, 32830), (211, 32833), (219, 32872), (220, 32878), (221, 32881), (224, 32890), (226, 32896), (228, 32902), (239, 32935), (240, 32938), (248, 32986), (251, 32998), (255, 33016), (259, 33037), (268, 33073), (272, 33091), (277, 33109), (280, 33118), (282, 33133), (295, 33187),

Gene: PhelpsODU\_42 Start: 31819, Stop: 33198, Start Num: 43

Candidate Starts for PhelpsODU\_42:

(Start: 43 @31819 has 19 MA's), (Start: 57 @31894 has 1 MA's), (59, 31909), (63, 31951), (78, 32026), (81, 32044), (82, 32050), (88, 32083), (90, 32098), (104, 32197), (105, 32206), (106, 32209), (164, 32464), (170, 32497), (177, 32539), (179, 32551), (181, 32560), (193, 32635), (207, 32695), (212, 32716), (216, 32743), (217, 32749), (220, 32758), (248, 32884), (251, 32896), (255, 32914), (275, 33004), (313, 33163),

Gene: Phrank\_43 Start: 31779, Stop: 33158, Start Num: 43

Candidate Starts for Phrank\_43:

(24, 31749), (Start: 43 @31779 has 19 MA's), (Start: 57 @31854 has 1 MA's), (63, 31911), (81, 32004), (90, 32058), (104, 32157), (105, 32166), (106, 32169), (170, 32457), (177, 32499), (179, 32511), (181, 32520), (193, 32595), (207, 32655), (212, 32676), (216, 32703), (217, 32709), (220, 32718), (248, 32844), (251, 32856), (255, 32874), (275, 32964), (313, 33123),

Gene: Piper2020\_41 Start: 31582, Stop: 32853, Start Num: 47

Candidate Starts for Piper2020\_41:

(Start: 47 @31582 has 6 MA's), (58, 31645), (63, 31699), (65, 31708), (67, 31726), (82, 31795), (83, 31807), (104, 31945), (132, 32056), (145, 32119), (159, 32173), (176, 32266), (210, 32467), (219, 32509), (220, 32515), (224, 32527), (228, 32539), (231, 32548), (234, 32554), (239, 32572), (240, 32575), (251, 32635), (255, 32653), (259, 32674), (272, 32728), (277, 32746), (282, 32770), (293, 32815), (295, 32824), (305, 32845),

Gene: Pixie\_42 Start: 32081, Stop: 33361, Start Num: 49

Candidate Starts for Pixie\_42:

(Start: 49 @32081 has 22 MA's), (61, 32162), (64, 32201), (77, 32270), (93, 32381), (97, 32399), (100, 32417), (104, 32447), (105, 32456), (107, 32468), (120, 32510), (130, 32552), (136, 32576), (156, 32675), (167, 32738), (169, 32741), (179, 32801), (181, 32810), (208, 32933), (219, 32987), (221, 32996), (239, 33059), (240, 33062), (251, 33125), (259, 33176), (269, 33215), (306, 33347),

Gene: Plumbus\_43 Start: 31678, Stop: 32967, Start Num: 46

Candidate Starts for Plumbus\_43:

(Start: 46 @31678 has 128 MA's), (58, 31744), (63, 31798), (67, 31825), (82, 31894), (83, 31906), (104, 32044), (126, 32116), (129, 32140), (132, 32155), (135, 32164), (145, 32218), (154, 32251), (159, 32272), (179, 32383), (189, 32458), (210, 32569), (211, 32572), (219, 32611), (220, 32617), (221, 32620), (224, 32629), (226, 32635), (228, 32641), (239, 32674), (240, 32677), (248, 32725), (251, 32737), (255, 32755), (259, 32776), (268, 32812), (272, 32830), (277, 32848), (282, 32872), (295, 32926),

Gene: Poenanya\_43 Start: 32942, Stop: 34243, Start Num: 46

Candidate Starts for Poenanya\_43:

(Start: 46 @32942 has 128 MA's), (58, 33008), (63, 33062), (65, 33071), (67, 33089), (82, 33158), (83, 33170), (104, 33308), (126, 33380), (129, 33404), (132, 33419), (135, 33428), (145, 33482), (154, 33515), (159, 33536), (179, 33647), (189, 33722), (210, 33833), (211, 33836), (219, 33875), (220, 33881), (221, 33884), (224, 33893), (226, 33899), (228, 33905), (239, 33938), (240, 33941), (248, 33989), (251, 34001), (255, 34019), (259, 34040), (268, 34076), (272, 34094), (277, 34112), (280,

34121), (282, 34136), (295, 34190),

Gene: Polka14\_42 Start: 32217, Stop: 33518, Start Num: 46

Candidate Starts for Polka14\_42:

(Start: 46 @32217 has 128 MA's), (58, 32283), (63, 32337), (65, 32346), (67, 32364), (82, 32433), (83, 32445), (104, 32583), (126, 32655), (129, 32679), (132, 32694), (135, 32703), (145, 32757), (154, 32790), (159, 32811), (179, 32922), (189, 32997), (210, 33108), (211, 33111), (219, 33150), (220, 33156), (221, 33159), (224, 33168), (226, 33174), (228, 33180), (239, 33213), (240, 33216), (248, 33264), (251, 33276), (255, 33294), (259, 33315), (268, 33351), (272, 33369), (277, 33387), (280, 33396), (282, 33411), (295, 33465),

Gene: Pollywog\_42 Start: 32138, Stop: 33427, Start Num: 46

Candidate Starts for Pollywog\_42:

(Start: 46 @32138 has 128 MA's), (58, 32204), (63, 32258), (67, 32285), (82, 32354), (83, 32366), (104, 32504), (126, 32576), (129, 32600), (132, 32615), (135, 32624), (145, 32678), (154, 32711), (159, 32732), (179, 32843), (189, 32918), (210, 33029), (211, 33032), (219, 33071), (220, 33077), (221, 33080), (224, 33089), (226, 33095), (228, 33101), (239, 33134), (240, 33137), (248, 33185), (251, 33197), (255, 33215), (259, 33236), (268, 33272), (272, 33290), (277, 33308), (280, 33317), (282, 33332), (295, 33386),

Gene: PopTart\_39 Start: 31428, Stop: 32729, Start Num: 46

Candidate Starts for PopTart\_39:

(Start: 46 @31428 has 128 MA's), (58, 31494), (63, 31548), (65, 31557), (67, 31575), (82, 31644), (83, 31656), (104, 31794), (129, 31890), (132, 31905), (135, 31914), (145, 31968), (154, 32001), (159, 32022), (179, 32133), (189, 32208), (210, 32319), (211, 32322), (219, 32361), (220, 32367), (221, 32370), (224, 32379), (226, 32385), (228, 32391), (239, 32424), (240, 32427), (248, 32475), (251, 32487), (255, 32505), (259, 32526), (268, 32562), (272, 32580), (277, 32598), (280, 32607), (282, 32622), (295, 32676),

Gene: Priscilla\_44 Start: 33308, Stop: 34609, Start Num: 46

Candidate Starts for Priscilla\_44:

(Start: 46 @33308 has 128 MA's), (58, 33374), (63, 33428), (65, 33437), (67, 33455), (82, 33524), (83, 33536), (104, 33674), (126, 33746), (129, 33770), (132, 33785), (135, 33794), (145, 33848), (154, 33881), (159, 33902), (179, 34013), (189, 34088), (210, 34199), (211, 34202), (219, 34241), (220, 34247), (221, 34250), (224, 34259), (226, 34265), (228, 34271), (239, 34304), (240, 34307), (248, 34355), (251, 34367), (255, 34385), (259, 34406), (268, 34442), (272, 34460), (277, 34478), (280, 34487), (282, 34502), (295, 34556),

Gene: Pucara\_34 Start: 27597, Stop: 26224, Start Num: 41

Candidate Starts for Pucara\_34:

(22, 27633), (Start: 41 @27597 has 2 MA's), (76, 27381), (82, 27348), (83, 27336), (86, 27318), (96, 27246), (107, 27171), (115, 27141), (127, 27102), (136, 27057), (143, 27018), (150, 26988), (171, 26865), (203, 26673), (227, 26574), (245, 26484), (246, 26478), (257, 26436), (258, 26430), (259, 26418), (261, 26415), (262, 26412), (263, 26406), (264, 26403), (268, 26382), (275, 26349), (297, 26265), (302, 26256),

Gene: Quby\_35 Start: 30289, Stop: 31596, Start Num: 45

Candidate Starts for Quby\_35:

(31, 30268), (Start: 45 @30289 has 69 MA's), (59, 30379), (66, 30442), (68, 30451), (87, 30547), (94, 30601), (104, 30664), (105, 30673), (125, 30754), (134, 30805), (136, 30811), (140, 30829), (142, 30847), (164, 30955), (176, 31024), (179, 31042), (181, 31051), (188, 31093), (198, 31138), (217, 31225), (220, 31234), (234, 31276), (240, 31306), (250, 31366), (252, 31372), (255, 31387), (268, 31444), (280, 31489), (283, 31507), (289, 31537),

Gene: QuickMath\_43 Start: 33176, Stop: 34465, Start Num: 46

Candidate Starts for QuickMath\_43:

(Start: 46 @33176 has 128 MA's), (58, 33242), (63, 33296), (67, 33323), (82, 33392), (83, 33404), (84, 33407), (104, 33542), (126, 33614), (129, 33638), (132, 33653), (135, 33662), (145, 33716), (154, 33749), (159, 33770), (179, 33881), (189, 33956), (210, 34067), (211, 34070), (220, 34115), (221, 34118), (224, 34127), (226, 34133), (228, 34139), (239, 34172), (240, 34175), (248, 34223), (251, 34235), (255, 34253), (259, 34274), (268, 34310), (272, 34328), (277, 34346), (280, 34355), (282, 34370), (295, 34424),

Gene: Quico\_50 Start: 32828, Stop: 34129, Start Num: 46

Candidate Starts for Quico\_50:

(Start: 46 @32828 has 128 MA's), (58, 32894), (63, 32948), (65, 32957), (67, 32975), (83, 33056), (104, 33194), (126, 33266), (129, 33290), (132, 33305), (135, 33314), (145, 33368), (154, 33401), (159, 33422), (179, 33533), (189, 33608), (210, 33719), (211, 33722), (220, 33767), (221, 33770), (226, 33785), (228, 33791), (239, 33824), (240, 33827), (248, 33875), (251, 33887), (255, 33905), (259, 33926), (268, 33962), (272, 33980), (277, 33998), (280, 34007), (282, 34022), (295, 34076),

Gene: Radiance\_42 Start: 31767, Stop: 33068, Start Num: 46

Candidate Starts for Radiance\_42:

(Start: 46 @31767 has 128 MA's), (58, 31833), (63, 31887), (67, 31914), (82, 31983), (83, 31995), (104, 32133), (126, 32205), (129, 32229), (132, 32244), (135, 32253), (145, 32307), (154, 32340), (159, 32361), (179, 32472), (189, 32547), (210, 32658), (211, 32661), (219, 32700), (220, 32706), (221, 32709), (224, 32718), (226, 32724), (228, 32730), (239, 32763), (240, 32766), (248, 32814), (251, 32826), (255, 32844), (259, 32865), (268, 32901), (272, 32919), (277, 32937), (280, 32946), (282, 32961), (295, 33015),

Gene: Ramsey\_44 Start: 32395, Stop: 33696, Start Num: 46

Candidate Starts for Ramsey\_44:

(Start: 46 @32395 has 128 MA's), (58, 32461), (63, 32515), (65, 32524), (67, 32542), (82, 32611), (83, 32623), (104, 32761), (126, 32833), (129, 32857), (132, 32872), (135, 32881), (145, 32935), (154, 32968), (159, 32989), (179, 33100), (189, 33175), (210, 33286), (211, 33289), (219, 33328), (220, 33334), (221, 33337), (224, 33346), (226, 33352), (228, 33358), (239, 33391), (240, 33394), (248, 33442), (251, 33454), (255, 33472), (259, 33493), (268, 33529), (272, 33547), (277, 33565), (280, 33574), (282, 33589), (295, 33643),

Gene: RedBird\_40 Start: 31750, Stop: 33051, Start Num: 46

Candidate Starts for RedBird\_40:

(Start: 46 @31750 has 128 MA's), (58, 31816), (63, 31870), (67, 31897), (82, 31966), (83, 31978), (104, 32116), (126, 32188), (129, 32212), (132, 32227), (135, 32236), (145, 32290), (154, 32323), (159, 32344), (179, 32455), (189, 32530), (210, 32641), (211, 32644), (219, 32683), (220, 32689), (221, 32692), (224, 32701), (226, 32707), (228, 32713), (239, 32746), (240, 32749), (248, 32797), (251, 32809), (255, 32827), (259, 32848), (268, 32884), (272, 32902), (277, 32920), (280, 32929), (282, 32944), (295, 32998),

Gene: Reptar3000\_43 Start: 32643, Stop: 33908, Start Num: 29

Candidate Starts for Reptar3000\_43:

(Start: 29 @32643 has 15 MA's), (35, 32655), (Start: 49 @32673 has 22 MA's), (Start: 57 @32730 has 1 MA's), (Start: 62 @32784 has 1 MA's), (74, 32844), (81, 32877), (90, 32928), (104, 33027), (105, 33036), (107, 33048), (130, 33132), (136, 33156), (179, 33378), (181, 33387), (184, 33396), (193, 33447), (208, 33510), (227, 33591), (240, 33639), (250, 33699), (252, 33705), (259, 33729), (276, 33798), (282, 33825), (284, 33831), (291, 33864),

Gene: RitaG\_41 Start: 31885, Stop: 33186, Start Num: 46

Candidate Starts for RitaG\_41:

(Start: 46 @31885 has 128 MA's), (58, 31951), (63, 32005), (65, 32014), (67, 32032), (82, 32101), (83, 32113), (104, 32251), (126, 32323), (129, 32347), (132, 32362), (135, 32371), (145, 32425), (154, 32458), (159, 32479), (179, 32590), (189, 32665), (210, 32776), (211, 32779), (219, 32818), (220, 32824), (221, 32827), (224, 32836), (226, 32842), (228, 32848), (239, 32881), (240, 32884), (248, 32932), (251, 32944), (255, 32962), (259, 32983), (268, 33019), (272, 33037), (277, 33055), (280, 33064), (282, 33079), (295, 33133),

Gene: Rockne\_40 Start: 31422, Stop: 32711, Start Num: 46

Candidate Starts for Rockne\_40:

(Start: 46 @31422 has 128 MA's), (58, 31488), (63, 31542), (65, 31551), (67, 31569), (82, 31638), (83, 31650), (104, 31788), (126, 31860), (129, 31884), (132, 31899), (135, 31908), (145, 31962), (154, 31995), (159, 32016), (179, 32127), (189, 32202), (210, 32313), (211, 32316), (219, 32355), (220, 32361), (221, 32364), (224, 32373), (226, 32379), (228, 32385), (239, 32418), (240, 32421), (248, 32469), (251, 32481), (255, 32499), (259, 32520), (268, 32556), (272, 32574), (277, 32592), (280, 32601), (282, 32616), (295, 32670),

Gene: RockyHorror\_44 Start: 31835, Stop: 33124, Start Num: 46

Candidate Starts for RockyHorror\_44:

(Start: 46 @31835 has 128 MA's), (58, 31901), (63, 31955), (65, 31964), (67, 31982), (82, 32051), (83, 32063), (104, 32201), (129, 32297), (132, 32312), (135, 32321), (145, 32375), (154, 32408), (159, 32429), (179, 32540), (189, 32615), (210, 32726), (211, 32729), (219, 32768), (220, 32774), (221, 32777), (224, 32786), (226, 32792), (228, 32798), (239, 32831), (240, 32834), (248, 32882), (251, 32894), (255, 32912), (259, 32933), (268, 32969), (272, 32987), (277, 33005), (280, 33014), (282, 33029), (295, 33083),

Gene: RonRayGun\_33 Start: 27780, Stop: 29102, Start Num: 14

Candidate Starts for RonRayGun\_33:

(Start: 14 @27780 has 1 MA's), (Start: 25 @27804 has 4 MA's), (Start: 28 @27813 has 1 MA's), (42, 27837), (50, 27855), (Start: 57 @27915 has 1 MA's), (82, 28068), (90, 28116), (105, 28224), (119, 28269), (120, 28272), (128, 28299), (129, 28311), (132, 28326), (164, 28485), (174, 28548), (210, 28710), (222, 28764), (227, 28779), (230, 28788), (240, 28833), (243, 28863), (252, 28899), (277, 28995), (280, 29004), (305, 29091),

Gene: Rose5\_35 Start: 30284, Stop: 31591, Start Num: 45

Candidate Starts for Rose5\_35:

(Start: 45 @30284 has 69 MA's), (59, 30374), (61, 30380), (74, 30473), (104, 30662), (105, 30671), (107, 30683), (126, 30758), (128, 30770), (129, 30782), (130, 30785), (133, 30800), (140, 30827), (164, 30953), (175, 31019), (179, 31040), (219, 31223), (220, 31229), (230, 31259), (240, 31301), (262, 31409), (268, 31439), (280, 31484), (283, 31502), (288, 31526), (291, 31538),

Gene: Royals2015\_43 Start: 32053, Stop: 33342, Start Num: 46

Candidate Starts for Royals2015\_43:

(Start: 46 @32053 has 128 MA's), (58, 32119), (63, 32173), (67, 32200), (82, 32269), (83, 32281), (84, 32284), (104, 32419), (126, 32491), (129, 32515), (132, 32530), (135, 32539), (145, 32593), (154, 32626), (159, 32647), (179, 32758), (189, 32833), (210, 32944), (211, 32947), (220, 32992), (221, 32995), (224, 33004), (226, 33010), (228, 33016), (239, 33049), (240, 33052), (248, 33100), (251, 33112), (255, 33130), (268, 33187), (272, 33205), (277, 33223), (280, 33232), (282, 33247), (295, 33301),

Gene: Ruby\_42 Start: 32606, Stop: 33907, Start Num: 46

Candidate Starts for Ruby\_42:

(Start: 46 @32606 has 128 MA's), (58, 32672), (63, 32726), (65, 32735), (67, 32753), (82, 32822), (83, 32834), (104, 32972), (126, 33044), (129, 33068), (132, 33083), (135, 33092), (145, 33146), (154, 33179), (159, 33200), (179, 33311), (189, 33386), (210, 33497), (211, 33500), (219, 33539), (220, 33545), (221, 33548), (224, 33557), (226, 33563), (228, 33569), (239, 33602), (240, 33605), (248, 33653), (251, 33665), (255, 33683), (259, 33704), (268, 33740), (272, 33758), (277, 33776), (280, 33785), (282, 33800), (295, 33854),

Gene: Rumpelstiltskin\_38 Start: 31923, Stop: 33230, Start Num: 45

Candidate Starts for Rumpelstiltskin\_38:

(21, 31878), (Start: 45 @31923 has 69 MA's), (Start: 57 @31995 has 1 MA's), (59, 32010), (66, 32073), (74, 32109), (105, 32307), (132, 32433), (164, 32589), (170, 32622), (176, 32658), (179, 32676), (181, 32685), (220, 32868), (230, 32898), (239, 32937), (250, 33000), (252, 33006), (258, 33030), (261, 33045), (262, 33048), (275, 33108), (280, 33123), (283, 33141), (289, 33171), (291, 33177),

Gene: Ruthiejr\_46 Start: 33493, Stop: 34758, Start Num: 29

Candidate Starts for Ruthiejr\_46:

(Start: 20 @33472 has 1 MA's), (Start: 29 @33493 has 15 MA's), (35, 33505), (Start: 49 @33523 has 22 MA's), (Start: 57 @33580 has 1 MA's), (Start: 62 @33634 has 1 MA's), (66, 33658), (81, 33727), (90, 33778), (104, 33877), (105, 33886), (107, 33898), (129, 33979), (136, 34006), (179, 34228), (181, 34237), (184, 34246), (193, 34297), (208, 34360), (224, 34432), (227, 34441), (240, 34489), (259, 34579), (275, 34645), (276, 34648), (282, 34675), (284, 34681), (288, 34702), (291, 34714),

Gene: Sabbb\_48 Start: 33435, Stop: 34736, Start Num: 46

Candidate Starts for Sabbb\_48:

(Start: 46 @33435 has 128 MA's), (58, 33501), (63, 33555), (65, 33564), (67, 33582), (82, 33651), (83, 33663), (104, 33801), (129, 33897), (132, 33912), (135, 33921), (145, 33975), (154, 34008), (159, 34029), (179, 34140), (189, 34215), (210, 34326), (211, 34329), (219, 34368), (220, 34374), (221, 34377), (224, 34386), (226, 34392), (228, 34398), (239, 34431), (240, 34434), (248, 34482), (251, 34494), (255, 34512), (259, 34533), (268, 34569), (272, 34587), (277, 34605), (280, 34614), (282, 34629), (295, 34683),

Gene: SamScheppers\_44 Start: 33922, Stop: 35187, Start Num: 29

Candidate Starts for SamScheppers\_44:

(Start: 20 @33901 has 1 MA's), (Start: 29 @33922 has 15 MA's), (35, 33934), (Start: 49 @33952 has 22 MA's), (Start: 57 @34009 has 1 MA's), (Start: 62 @34063 has 1 MA's), (66, 34087), (81, 34156), (90, 34207), (104, 34306), (105, 34315), (107, 34327), (129, 34408), (136, 34435), (179, 34657), (181, 34666), (184, 34675), (193, 34726), (208, 34789), (224, 34861), (227, 34870), (240, 34918), (259, 35008), (275, 35074), (276, 35077), (282, 35104), (284, 35110), (288, 35131), (291, 35143),

Gene: Samty\_36 Start: 31899, Stop: 33191, Start Num: 45

Candidate Starts for Samty\_36:

(12, 31815), (19, 31848), (Start: 45 @31899 has 69 MA's), (Start: 57 @31974 has 1 MA's), (59, 31989), (105, 32286), (129, 32382), (138, 32415), (161, 32541), (164, 32553), (176, 32622), (220, 32829), (234, 32871), (240, 32901), (250, 32961), (261, 33006), (262, 33009), (268, 33039), (280, 33084), (283, 33102), (288, 33126), (291, 33138),

Gene: Sandalphon\_45 Start: 32954, Stop: 34255, Start Num: 46

Candidate Starts for Sandalphon\_45:

(Start: 46 @32954 has 128 MA's), (58, 33020), (63, 33074), (67, 33101), (82, 33170), (83, 33182), (104, 33320), (126, 33392), (129, 33416), (132, 33431), (135, 33440), (145, 33494), (154, 33527), (159, 33548), (179, 33659), (189, 33734), (210, 33845), (211, 33848), (219, 33887), (220, 33893), (221, 33896), (224, 33905), (226, 33911), (228, 33917), (239, 33950), (240, 33953), (248, 34001),



(251, 34013), (255, 34031), (259, 34052), (268, 34088), (272, 34106), (277, 34124), (280, 34133), (282, 34148), (295, 34202),

Gene: Sarshaun\_38 Start: 31689, Stop: 32996, Start Num: 45

Candidate Starts for Sarshaun\_38:

(21, 31644), (Start: 45 @31689 has 69 MA's), (Start: 57 @31761 has 1 MA's), (59, 31776), (66, 31839), (74, 31875), (75, 31878), (105, 32073), (132, 32199), (164, 32355), (170, 32388), (176, 32424), (179, 32442), (181, 32451), (220, 32634), (230, 32664), (239, 32703), (240, 32706), (250, 32766), (252, 32772), (258, 32796), (261, 32811), (262, 32814), (275, 32874), (280, 32889), (283, 32907), (289, 32937), (291, 32943),

Gene: Sassafras\_42 Start: 32276, Stop: 33577, Start Num: 46

Candidate Starts for Sassafras\_42:

(Start: 46 @32276 has 128 MA's), (58, 32342), (63, 32396), (65, 32405), (67, 32423), (82, 32492), (83, 32504), (104, 32642), (126, 32714), (129, 32738), (132, 32753), (135, 32762), (145, 32816), (154, 32849), (159, 32870), (179, 32981), (189, 33056), (210, 33167), (211, 33170), (219, 33209), (220, 33215), (221, 33218), (224, 33227), (226, 33233), (228, 33239), (239, 33272), (240, 33275), (248, 33323), (251, 33335), (255, 33353), (259, 33374), (268, 33410), (272, 33428), (277, 33446), (280, 33455), (282, 33470), (295, 33524),

Gene: SassyB\_39 Start: 31428, Stop: 32729, Start Num: 46

Candidate Starts for SassyB\_39:

(Start: 46 @31428 has 128 MA's), (58, 31494), (63, 31548), (65, 31557), (67, 31575), (82, 31644), (83, 31656), (104, 31794), (129, 31890), (132, 31905), (135, 31914), (145, 31968), (154, 32001), (159, 32022), (179, 32133), (189, 32208), (210, 32319), (211, 32322), (219, 32361), (220, 32367), (221, 32370), (224, 32379), (226, 32385), (228, 32391), (239, 32424), (240, 32427), (248, 32475), (251, 32487), (255, 32505), (259, 32526), (268, 32562), (272, 32580), (277, 32598), (280, 32607), (282, 32622), (295, 32676),

Gene: Scottish\_43 Start: 32897, Stop: 34198, Start Num: 46

Candidate Starts for Scottish\_43:

(Start: 46 @32897 has 128 MA's), (58, 32963), (63, 33017), (65, 33026), (67, 33044), (82, 33113), (83, 33125), (104, 33263), (126, 33335), (129, 33359), (132, 33374), (135, 33383), (145, 33437), (154, 33470), (159, 33491), (179, 33602), (189, 33677), (210, 33788), (211, 33791), (219, 33830), (220, 33836), (221, 33839), (224, 33848), (226, 33854), (228, 33860), (239, 33893), (240, 33896), (248, 33944), (251, 33956), (255, 33974), (259, 33995), (268, 34031), (272, 34049), (277, 34067), (280, 34076), (282, 34091), (295, 34145),

Gene: Seabastian\_45 Start: 33144, Stop: 34454, Start Num: 46

Candidate Starts for Seabastian\_45:

(Start: 46 @33144 has 128 MA's), (58, 33210), (63, 33264), (67, 33291), (82, 33360), (83, 33372), (104, 33510), (129, 33606), (132, 33621), (135, 33630), (145, 33684), (154, 33717), (159, 33738), (179, 33849), (189, 33924), (210, 34035), (211, 34038), (219, 34077), (220, 34083), (221, 34086), (224, 34095), (226, 34101), (228, 34107), (239, 34140), (240, 34143), (248, 34191), (251, 34203), (255, 34221), (259, 34242), (268, 34278), (272, 34296), (277, 34314), (280, 34323), (282, 34338), (295, 34392),

Gene: Seagreen\_44 Start: 32175, Stop: 33485, Start Num: 46

Candidate Starts for Seagreen\_44:

(8, 32049), (10, 32076), (27, 32142), (33, 32154), (Start: 46 @32175 has 128 MA's), (58, 32241), (63, 32295), (67, 32322), (82, 32391), (83, 32403), (104, 32541), (129, 32637), (132, 32652), (135, 32661), (145, 32715), (154, 32748), (159, 32769), (164, 32790), (179, 32880), (189, 32955), (210, 33066), (211, 33069), (219, 33108), (220, 33114), (221, 33117), (224, 33126), (226, 33132), (228, 33138),

(239, 33171), (240, 33174), (248, 33222), (251, 33234), (255, 33252), (259, 33273), (268, 33309), (272, 33327), (277, 33345), (280, 33354), (282, 33369), (295, 33423),

Gene: Shadow1\_45 Start: 32862, Stop: 34250, Start Num: 43

Candidate Starts for Shadow1\_45:

(Start: 43 @32862 has 19 MA's), (Start: 57 @32940 has 1 MA's), (59, 32955), (63, 32997), (81, 33090), (90, 33144), (104, 33243), (105, 33252), (106, 33255), (170, 33543), (177, 33585), (179, 33597), (181, 33606), (193, 33681), (207, 33741), (212, 33762), (217, 33795), (219, 33798), (220, 33804), (255, 33960), (275, 34050), (313, 34209), (316, 34236),

Gene: ShedlockHolmes\_43 Start: 32615, Stop: 33895, Start Num: 49

Candidate Starts for ShedlockHolmes\_43:

(Start: 49 @32615 has 22 MA's), (61, 32696), (64, 32735), (77, 32804), (93, 32915), (97, 32933), (100, 32951), (104, 32981), (105, 32990), (107, 33002), (120, 33044), (130, 33086), (136, 33110), (167, 33272), (169, 33275), (179, 33335), (181, 33344), (208, 33467), (219, 33521), (221, 33530), (240, 33596), (251, 33659), (259, 33710), (269, 33749), (301, 33869), (306, 33881),

Gene: Sheng711\_35 Start: 30396, Stop: 31703, Start Num: 45

Candidate Starts for Sheng711\_35:

(31, 30375), (Start: 45 @30396 has 69 MA's), (Start: 57 @30471 has 1 MA's), (59, 30486), (66, 30549), (68, 30558), (87, 30654), (94, 30708), (104, 30771), (105, 30780), (125, 30861), (134, 30912), (136, 30918), (142, 30954), (164, 31062), (176, 31131), (179, 31149), (181, 31158), (188, 31200), (198, 31245), (217, 31332), (220, 31341), (234, 31383), (240, 31413), (250, 31473), (252, 31479), (255, 31494), (268, 31551), (280, 31596), (283, 31614), (289, 31644),

Gene: ShiLan\_44 Start: 33263, Stop: 34552, Start Num: 46

Candidate Starts for ShiLan\_44:

(Start: 46 @33263 has 128 MA's), (58, 33329), (63, 33383), (65, 33392), (67, 33410), (82, 33479), (83, 33491), (104, 33629), (126, 33701), (129, 33725), (132, 33740), (135, 33749), (145, 33803), (154, 33836), (159, 33857), (179, 33968), (189, 34043), (210, 34154), (211, 34157), (219, 34196), (220, 34202), (221, 34205), (224, 34214), (226, 34220), (228, 34226), (239, 34259), (240, 34262), (248, 34310), (251, 34322), (255, 34340), (259, 34361), (268, 34397), (272, 34415), (277, 34433), (280, 34442), (282, 34457), (295, 34511),

Gene: ShowerHandel\_45 Start: 33222, Stop: 34523, Start Num: 46

Candidate Starts for ShowerHandel\_45:

(Start: 46 @33222 has 128 MA's), (58, 33288), (63, 33342), (65, 33351), (67, 33369), (82, 33438), (83, 33450), (104, 33588), (126, 33660), (129, 33684), (132, 33699), (135, 33708), (145, 33762), (154, 33795), (159, 33816), (179, 33927), (189, 34002), (210, 34113), (211, 34116), (219, 34155), (220, 34161), (221, 34164), (224, 34173), (226, 34179), (228, 34185), (239, 34218), (240, 34221), (248, 34269), (251, 34281), (255, 34299), (259, 34320), (268, 34356), (272, 34374), (277, 34392), (280, 34401), (282, 34416), (295, 34470),

Gene: SiSi\_43 Start: 31969, Stop: 33258, Start Num: 46

Candidate Starts for SiSi\_43:

(Start: 46 @31969 has 128 MA's), (58, 32035), (63, 32089), (67, 32116), (82, 32185), (83, 32197), (84, 32200), (104, 32335), (126, 32407), (129, 32431), (132, 32446), (135, 32455), (145, 32509), (154, 32542), (159, 32563), (179, 32674), (189, 32749), (210, 32860), (211, 32863), (220, 32908), (221, 32911), (224, 32920), (226, 32926), (228, 32932), (239, 32965), (240, 32968), (248, 33016), (251, 33028), (255, 33046), (259, 33067), (268, 33103), (272, 33121), (277, 33139), (280, 33148), (282, 33163), (295, 33217),

Gene: Silverleaf\_35 Start: 30284, Stop: 31591, Start Num: 45

Candidate Starts for Silverleaf\_35:

(Start: 45 @30284 has 69 MA's), (59, 30374), (61, 30380), (74, 30473), (104, 30662), (105, 30671), (107, 30683), (126, 30758), (128, 30770), (129, 30782), (130, 30785), (133, 30800), (140, 30827), (164, 30953), (175, 31019), (179, 31040), (219, 31223), (220, 31229), (230, 31259), (240, 31301), (262, 31409), (268, 31439), (280, 31484), (283, 31502), (288, 31526), (291, 31538),

Gene: SirPhilip\_42 Start: 33094, Stop: 34491, Start Num: 43

Candidate Starts for SirPhilip\_42:

(15, 33046), (Start: 43 @33094 has 19 MA's), (Start: 57 @33172 has 1 MA's), (59, 33187), (63, 33229), (66, 33250), (78, 33304), (81, 33322), (88, 33361), (90, 33376), (104, 33475), (105, 33484), (128, 33565), (158, 33712), (177, 33814), (179, 33826), (181, 33835), (193, 33910), (207, 33970), (212, 33991), (217, 34024), (220, 34033), (240, 34108), (268, 34249), (275, 34279),

Gene: Slarp\_45 Start: 33531, Stop: 34796, Start Num: 29

Candidate Starts for Slarp\_45:

(Start: 20 @33510 has 1 MA's), (Start: 29 @33531 has 15 MA's), (35, 33543), (Start: 49 @33561 has 22 MA's), (Start: 57 @33618 has 1 MA's), (Start: 62 @33672 has 1 MA's), (66, 33696), (81, 33765), (90, 33816), (104, 33915), (105, 33924), (107, 33936), (129, 34017), (136, 34044), (179, 34266), (181, 34275), (184, 34284), (193, 34335), (208, 34398), (224, 34470), (227, 34479), (240, 34527), (259, 34617), (275, 34683), (276, 34686), (282, 34713), (284, 34719), (288, 34740), (291, 34752),

Gene: Snenia\_36 Start: 31899, Stop: 33191, Start Num: 45

Candidate Starts for Snenia\_36:

(12, 31815), (19, 31848), (Start: 45 @31899 has 69 MA's), (Start: 57 @31974 has 1 MA's), (59, 31989), (105, 32286), (129, 32382), (138, 32415), (161, 32541), (164, 32553), (176, 32622), (220, 32829), (234, 32871), (240, 32901), (250, 32961), (261, 33006), (262, 33009), (268, 33039), (280, 33084), (283, 33102), (288, 33126), (291, 33138),

Gene: Soap141\_38 Start: 31776, Stop: 32996, Start Num: 59

Candidate Starts for Soap141\_38:

(21, 31644), (Start: 45 @31689 has 69 MA's), (Start: 57 @31761 has 1 MA's), (59, 31776), (66, 31839), (74, 31875), (75, 31878), (105, 32073), (132, 32199), (164, 32355), (170, 32388), (176, 32424), (179, 32442), (181, 32451), (220, 32634), (230, 32664), (239, 32703), (240, 32706), (250, 32766), (252, 32772), (258, 32796), (261, 32811), (262, 32814), (275, 32874), (280, 32889), (283, 32907), (289, 32937), (291, 32943),

Gene: Sparkdehlily\_45 Start: 32819, Stop: 34120, Start Num: 46

Candidate Starts for Sparkdehlily\_45:

(Start: 46 @32819 has 128 MA's), (58, 32885), (63, 32939), (67, 32966), (82, 33035), (83, 33047), (104, 33185), (105, 33194), (129, 33281), (132, 33296), (135, 33305), (145, 33359), (154, 33392), (159, 33413), (179, 33524), (189, 33599), (210, 33710), (211, 33713), (219, 33752), (220, 33758), (221, 33761), (224, 33770), (226, 33776), (228, 33782), (239, 33815), (240, 33818), (248, 33866), (251, 33878), (255, 33896), (259, 33917), (268, 33953), (272, 33971), (277, 33989), (280, 33998), (282, 34013), (295, 34067),

Gene: SpeedDemon\_660 Start: 49456, Stop: 50841, Start Num: 49

Candidate Starts for SpeedDemon\_660:

(36, 49432), (Start: 49 @49456 has 22 MA's), (Start: 57 @49522 has 1 MA's), (85, 49699), (100, 49792), (105, 49831), (111, 49876), (113, 49885), (122, 49936), (123, 49939), (124, 49942), (128, 49966), (132, 49993), (136, 50011), (139, 50026), (140, 50029), (172, 50182), (180, 50227), (188, 50272), (191, 50287), (197, 50326), (212, 50377), (215, 50398), (220, 50419), (233, 50458), (269, 50623), (271, 50632), (275, 50650), (277, 50656), (301, 50743), (307, 50761), (311, 50797),

Gene: Spikelee\_48 Start: 32968, Stop: 34257, Start Num: 46

Candidate Starts for Spikelee\_48:

(Start: 46 @32968 has 128 MA's), (58, 33034), (63, 33088), (67, 33115), (82, 33184), (83, 33196), (104, 33334), (126, 33406), (129, 33430), (132, 33445), (135, 33454), (145, 33508), (154, 33541), (159, 33562), (179, 33673), (189, 33748), (210, 33859), (211, 33862), (219, 33901), (220, 33907), (221, 33910), (224, 33919), (226, 33925), (228, 33931), (239, 33964), (240, 33967), (248, 34015), (251, 34027), (255, 34045), (259, 34066), (268, 34102), (272, 34120), (277, 34138), (280, 34147), (282, 34162), (295, 34216),

Gene: Spooky\_42 Start: 30480, Stop: 31712, Start Num: 48

Candidate Starts for Spooky\_42:

(Start: 48 @30480 has 7 MA's), (Start: 57 @30543 has 1 MA's), (67, 30615), (71, 30633), (83, 30696), (91, 30747), (96, 30780), (99, 30792), (105, 30840), (120, 30897), (121, 30900), (128, 30924), (136, 30963), (148, 31026), (179, 31173), (195, 31218), (200, 31242), (208, 31269), (224, 31341), (225, 31344), (231, 31362), (238, 31395), (240, 31398), (251, 31461), (256, 31482), (269, 31542), (277, 31575), (284, 31605),

Gene: Spoonbill\_42 Start: 31856, Stop: 33145, Start Num: 46

Candidate Starts for Spoonbill\_42:

(Start: 46 @31856 has 128 MA's), (58, 31922), (63, 31976), (65, 31985), (67, 32003), (82, 32072), (83, 32084), (104, 32222), (126, 32294), (129, 32318), (132, 32333), (135, 32342), (145, 32396), (154, 32429), (159, 32450), (179, 32561), (189, 32636), (210, 32747), (211, 32750), (219, 32789), (220, 32795), (221, 32798), (224, 32807), (226, 32813), (228, 32819), (239, 32852), (240, 32855), (248, 32903), (251, 32915), (255, 32933), (259, 32954), (268, 32990), (272, 33008), (277, 33026), (280, 33035), (282, 33050), (295, 33104),

Gene: Squiddly\_44 Start: 32456, Stop: 33673, Start Num: 48

Candidate Starts for Squiddly\_44:

(1, 32198), (4, 32282), (5, 32306), (Start: 48 @32456 has 7 MA's), (Start: 57 @32519 has 1 MA's), (58, 32525), (71, 32609), (105, 32816), (126, 32888), (128, 32900), (136, 32939), (144, 32984), (148, 33002), (169, 33089), (181, 33158), (195, 33194), (213, 33266), (219, 33299), (221, 33308), (224, 33317), (240, 33374), (253, 33443), (256, 33458), (258, 33467), (272, 33533), (277, 33551),

Gene: Stap\_42 Start: 31715, Stop: 33016, Start Num: 46

Candidate Starts for Stap\_42:

(Start: 46 @31715 has 128 MA's), (58, 31781), (63, 31835), (67, 31862), (82, 31931), (83, 31943), (104, 32081), (126, 32153), (129, 32177), (132, 32192), (135, 32201), (145, 32255), (154, 32288), (159, 32309), (179, 32420), (189, 32495), (210, 32606), (211, 32609), (219, 32648), (220, 32654), (221, 32657), (224, 32666), (226, 32672), (228, 32678), (239, 32711), (240, 32714), (248, 32762), (251, 32774), (255, 32792), (259, 32813), (268, 32849), (272, 32867), (277, 32885), (280, 32894), (282, 32909), (295, 32963),

Gene: Starcevich\_43 Start: 32603, Stop: 33892, Start Num: 46

Candidate Starts for Starcevich\_43:

(Start: 46 @32603 has 128 MA's), (58, 32669), (63, 32723), (67, 32750), (82, 32819), (83, 32831), (84, 32834), (104, 32969), (126, 33041), (129, 33065), (132, 33080), (135, 33089), (145, 33143), (154, 33176), (159, 33197), (179, 33308), (189, 33383), (210, 33494), (211, 33497), (220, 33542), (221, 33545), (224, 33554), (226, 33560), (228, 33566), (239, 33599), (240, 33602), (248, 33650), (251, 33662), (255, 33680), (259, 33701), (268, 33737), (272, 33755), (277, 33773), (280, 33782), (282, 33797), (295, 33851),

Gene: Sunflower1121\_46 Start: 32957, Stop: 34345, Start Num: 43

Candidate Starts for Sunflower1121\_46:

(Start: 43 @32957 has 19 MA's), (Start: 57 @33035 has 1 MA's), (59, 33050), (63, 33092), (81, 33185), (90, 33239), (104, 33338), (105, 33347), (106, 33350), (170, 33638), (177, 33680), (179, 33692), (181, 33701), (193, 33776), (207, 33836), (212, 33857), (217, 33890), (219, 33893), (220, 33899), (255, 34055), (275, 34145), (313, 34304), (316, 34331),

Gene: Syra333\_45 Start: 32618, Stop: 34006, Start Num: 43

Candidate Starts for Syra333\_45:

(Start: 43 @32618 has 19 MA's), (Start: 57 @32696 has 1 MA's), (59, 32711), (63, 32753), (81, 32846), (90, 32900), (104, 32999), (105, 33008), (106, 33011), (170, 33299), (177, 33341), (179, 33353), (181, 33362), (193, 33437), (207, 33497), (212, 33518), (217, 33551), (220, 33560), (255, 33716), (275, 33806), (313, 33965), (316, 33992),

Gene: TBond007\_42 Start: 32080, Stop: 33360, Start Num: 49

Candidate Starts for TBond007\_42:

(Start: 49 @32080 has 22 MA's), (61, 32161), (64, 32200), (77, 32269), (93, 32380), (97, 32398), (100, 32416), (104, 32446), (105, 32455), (107, 32467), (120, 32509), (130, 32551), (136, 32575), (156, 32674), (167, 32737), (169, 32740), (179, 32800), (181, 32809), (208, 32932), (219, 32986), (221, 32995), (239, 33058), (240, 33061), (251, 33124), (259, 33175), (269, 33214), (306, 33346),

Gene: TDanisky\_45 Start: 32819, Stop: 34120, Start Num: 46

Candidate Starts for TDanisky\_45:

(Start: 46 @32819 has 128 MA's), (58, 32885), (63, 32939), (67, 32966), (82, 33035), (83, 33047), (104, 33185), (105, 33194), (129, 33281), (132, 33296), (135, 33305), (145, 33359), (154, 33392), (159, 33413), (179, 33524), (189, 33599), (210, 33710), (211, 33713), (219, 33752), (220, 33758), (221, 33761), (224, 33770), (226, 33776), (228, 33782), (239, 33815), (240, 33818), (248, 33866), (251, 33878), (255, 33896), (259, 33917), (268, 33953), (272, 33971), (277, 33989), (280, 33998), (282, 34013), (295, 34067),

Gene: Taquito\_45 Start: 33948, Stop: 35183, Start Num: 49

Candidate Starts for Taquito\_45:

(Start: 20 @33897 has 1 MA's), (Start: 29 @33918 has 15 MA's), (35, 33930), (Start: 49 @33948 has 22 MA's), (Start: 57 @34005 has 1 MA's), (Start: 62 @34059 has 1 MA's), (66, 34083), (81, 34152), (90, 34203), (104, 34302), (105, 34311), (107, 34323), (129, 34404), (136, 34431), (179, 34653), (181, 34662), (184, 34671), (193, 34722), (208, 34785), (224, 34857), (227, 34866), (240, 34914), (259, 35004), (275, 35070), (276, 35073), (282, 35100), (284, 35106), (288, 35127), (291, 35139),

Gene: ThetaBob\_45 Start: 33333, Stop: 32056, Start Num: 37

Candidate Starts for ThetaBob\_45:

(Start: 37 @33333 has 5 MA's), (Start: 57 @33252 has 1 MA's), (60, 33231), (78, 33117), (82, 33099), (85, 33075), (94, 33015), (96, 33003), (98, 32997), (104, 32955), (105, 32946), (118, 32898), (126, 32880), (130, 32853), (136, 32829), (139, 32814), (144, 32784), (157, 32733), (161, 32715), (198, 32523), (202, 32508), (208, 32487), (209, 32484), (210, 32475), (228, 32403), (240, 32355), (242, 32328), (259, 32253), (268, 32217), (277, 32181), (295, 32103), (303, 32088), (304, 32085), (308, 32064),

Gene: Tierra\_43 Start: 32593, Stop: 33972, Start Num: 43

Candidate Starts for Tierra\_43:

(Start: 43 @32593 has 19 MA's), (Start: 57 @32668 has 1 MA's), (59, 32683), (63, 32725), (78, 32800), (81, 32818), (82, 32824), (88, 32857), (90, 32872), (104, 32971), (105, 32980), (106, 32983), (167, 33262), (177, 33313), (179, 33325), (181, 33334), (193, 33409), (207, 33469), (212, 33490), (216, 33517), (217, 33523), (220, 33532), (251, 33670), (255, 33688), (275, 33778), (313, 33937),

Gene: TootsiePop\_40 Start: 30866, Stop: 32137, Start Num: 47

Candidate Starts for TootsiePop\_40:

(Start: 47 @30866 has 6 MA's), (58, 30929), (63, 30983), (65, 30992), (67, 31010), (82, 31079), (83, 31091), (104, 31229), (132, 31340), (145, 31403), (159, 31457), (176, 31550), (210, 31751), (219, 31793), (220, 31799), (224, 31811), (228, 31823), (231, 31832), (234, 31838), (239, 31856), (240, 31859), (251, 31919), (255, 31937), (259, 31958), (272, 32012), (277, 32030), (282, 32054), (293, 32099), (295, 32108), (305, 32129),

Gene: Tootsieroll\_45 Start: 32005, Stop: 33306, Start Num: 46

Candidate Starts for Tootsieroll\_45:

(Start: 46 @32005 has 128 MA's), (58, 32071), (63, 32125), (67, 32152), (82, 32221), (83, 32233), (104, 32371), (126, 32443), (129, 32467), (132, 32482), (135, 32491), (145, 32545), (154, 32578), (159, 32599), (179, 32710), (189, 32785), (210, 32896), (211, 32899), (219, 32938), (220, 32944), (221, 32947), (224, 32956), (226, 32962), (228, 32968), (239, 33001), (240, 33004), (248, 33052), (251, 33064), (255, 33082), (259, 33103), (268, 33139), (272, 33157), (277, 33175), (280, 33184), (282, 33199), (295, 33253),

Gene: Toron\_41 Start: 33514, Stop: 32246, Start Num: 37

Candidate Starts for Toron\_41:

(Start: 37 @33514 has 5 MA's), (Start: 57 @33439 has 1 MA's), (82, 33286), (94, 33202), (96, 33190), (98, 33184), (105, 33133), (118, 33085), (126, 33067), (132, 33028), (133, 33025), (136, 33016), (157, 32920), (161, 32902), (170, 32857), (179, 32803), (181, 32794), (185, 32764), (198, 32710), (200, 32701), (202, 32695), (208, 32674), (209, 32671), (210, 32662), (211, 32659), (219, 32620), (221, 32611), (231, 32581), (240, 32542), (242, 32515), (251, 32479), (254, 32467), (259, 32440), (262, 32434), (268, 32404), (269, 32401), (277, 32368), (280, 32359), (284, 32338), (286, 32329), (295, 32290), (301, 32278), (303, 32275), (308, 32254),

Gene: Totinger\_42 Start: 31733, Stop: 33031, Start Num: 46

Candidate Starts for Totinger\_42:

(Start: 46 @31733 has 128 MA's), (58, 31799), (63, 31853), (67, 31880), (82, 31949), (83, 31961), (84, 31964), (104, 32099), (129, 32195), (132, 32210), (135, 32219), (145, 32273), (154, 32306), (159, 32327), (179, 32438), (189, 32513), (210, 32624), (211, 32627), (220, 32672), (221, 32675), (224, 32684), (226, 32690), (228, 32696), (239, 32729), (240, 32732), (248, 32780), (251, 32792), (255, 32810), (259, 32831), (268, 32867), (272, 32885), (277, 32903), (280, 32912), (282, 32927), (295, 32981),

Gene: Tourach\_38 Start: 31657, Stop: 32958, Start Num: 45

Candidate Starts for Tourach\_38:

(21, 31612), (Start: 45 @31657 has 69 MA's), (Start: 57 @31729 has 1 MA's), (61, 31750), (74, 31843), (82, 31888), (105, 32041), (132, 32167), (164, 32323), (170, 32356), (175, 32389), (179, 32410), (220, 32599), (230, 32629), (240, 32671), (250, 32731), (251, 32734), (252, 32737), (259, 32773), (261, 32776), (268, 32809), (280, 32854), (283, 32872), (289, 32902), (291, 32908),

Gene: TribelTrouble\_40 Start: 31879, Stop: 33267, Start Num: 43

Candidate Starts for TribelTrouble\_40:

(Start: 43 @31879 has 19 MA's), (Start: 57 @31957 has 1 MA's), (63, 32014), (81, 32107), (82, 32113), (90, 32161), (104, 32260), (105, 32269), (106, 32272), (128, 32350), (167, 32554), (177, 32605), (179, 32617), (181, 32626), (186, 32656), (193, 32701), (207, 32761), (208, 32764), (216, 32809), (220, 32824), (240, 32899), (262, 33010), (275, 33070), (279, 33082),

Gene: Tweety\_43 Start: 32478, Stop: 33767, Start Num: 46

Candidate Starts for Tweety\_43:

(Start: 46 @32478 has 128 MA's), (58, 32544), (63, 32598), (67, 32625), (82, 32694), (83, 32706), (104, 32844), (126, 32916), (129, 32940), (132, 32955), (135, 32964), (145, 33018), (154, 33051),

(159, 33072), (179, 33183), (189, 33258), (210, 33369), (211, 33372), (220, 33417), (221, 33420), (224, 33429), (226, 33435), (228, 33441), (239, 33474), (240, 33477), (248, 33525), (251, 33537), (255, 33555), (268, 33612), (272, 33630), (277, 33648), (280, 33657), (282, 33672), (295, 33726),

Gene: Tyson\_35 Start: 30285, Stop: 31592, Start Num: 45

Candidate Starts for Tyson\_35:

(Start: 45 @30285 has 69 MA's), (59, 30375), (61, 30381), (74, 30474), (104, 30663), (105, 30672), (107, 30684), (126, 30759), (128, 30771), (129, 30783), (130, 30786), (133, 30801), (140, 30828), (164, 30954), (175, 31020), (179, 31041), (219, 31224), (220, 31230), (230, 31260), (240, 31302), (262, 31410), (268, 31440), (280, 31485), (283, 31503), (288, 31527), (291, 31539),

Gene: UPIE\_36 Start: 30283, Stop: 31590, Start Num: 45

Candidate Starts for UPIE\_36:

(Start: 45 @30283 has 69 MA's), (59, 30373), (61, 30379), (74, 30472), (104, 30661), (105, 30670), (107, 30682), (126, 30757), (128, 30769), (129, 30781), (130, 30784), (133, 30799), (140, 30826), (164, 30952), (175, 31018), (179, 31039), (219, 31222), (220, 31228), (230, 31258), (240, 31300), (262, 31408), (268, 31438), (270, 31444), (280, 31483), (283, 31501), (288, 31525), (291, 31537),

Gene: UncleRicky\_43 Start: 32755, Stop: 34056, Start Num: 46

Candidate Starts for UncleRicky\_43:

(Start: 46 @32755 has 128 MA's), (58, 32821), (63, 32875), (65, 32884), (67, 32902), (82, 32971), (83, 32983), (104, 33121), (126, 33193), (129, 33217), (132, 33232), (135, 33241), (145, 33295), (154, 33328), (159, 33349), (179, 33460), (189, 33535), (210, 33646), (211, 33649), (219, 33688), (220, 33694), (221, 33697), (224, 33706), (226, 33712), (228, 33718), (239, 33751), (240, 33754), (248, 33802), (251, 33814), (255, 33832), (259, 33853), (268, 33889), (272, 33907), (277, 33925), (282, 33949), (295, 34003),

Gene: Unicorn\_42 Start: 31819, Stop: 33198, Start Num: 43

Candidate Starts for Unicorn\_42:

(Start: 43 @31819 has 19 MA's), (Start: 57 @31894 has 1 MA's), (59, 31909), (63, 31951), (78, 32026), (81, 32044), (82, 32050), (88, 32083), (90, 32098), (104, 32197), (105, 32206), (106, 32209), (164, 32464), (170, 32497), (177, 32539), (179, 32551), (181, 32560), (193, 32635), (207, 32695), (212, 32716), (216, 32743), (217, 32749), (220, 32758), (248, 32884), (251, 32896), (255, 32914), (275, 33004), (313, 33163),

Gene: Veteran\_41 Start: 31613, Stop: 32902, Start Num: 46

Candidate Starts for Veteran\_41:

(Start: 46 @31613 has 128 MA's), (58, 31679), (63, 31733), (67, 31760), (82, 31829), (83, 31841), (84, 31844), (104, 31979), (126, 32051), (129, 32075), (132, 32090), (135, 32099), (145, 32153), (154, 32186), (159, 32207), (179, 32318), (189, 32393), (210, 32504), (211, 32507), (220, 32552), (221, 32555), (224, 32564), (226, 32570), (228, 32576), (239, 32609), (240, 32612), (248, 32660), (251, 32672), (255, 32690), (259, 32711), (268, 32747), (272, 32765), (277, 32783), (280, 32792), (282, 32807), (295, 32861),

Gene: Vetrrix\_38 Start: 31662, Stop: 32969, Start Num: 45

Candidate Starts for Vetrrix\_38:

(21, 31617), (Start: 45 @31662 has 69 MA's), (Start: 57 @31734 has 1 MA's), (59, 31749), (74, 31848), (105, 32046), (132, 32172), (164, 32328), (170, 32361), (176, 32397), (179, 32415), (181, 32424), (220, 32607), (230, 32637), (239, 32676), (250, 32739), (252, 32745), (258, 32769), (261, 32784), (262, 32787), (275, 32847), (280, 32862), (283, 32880), (289, 32910), (291, 32916),

Gene: Wamburgxpress\_36 Start: 30298, Stop: 31605, Start Num: 45

Candidate Starts for Wamburgxpress\_36:

(Start: 45 @30298 has 69 MA's), (59, 30388), (61, 30394), (74, 30487), (104, 30676), (105, 30685), (107, 30697), (126, 30772), (128, 30784), (129, 30796), (130, 30799), (133, 30814), (140, 30841), (164, 30967), (175, 31033), (179, 31054), (219, 31237), (220, 31243), (230, 31273), (240, 31315), (262, 31423), (268, 31453), (270, 31459), (280, 31498), (283, 31516), (288, 31540), (291, 31552),

Gene: Whirlwind\_37 Start: 31644, Stop: 32936, Start Num: 45

Candidate Starts for Whirlwind\_37:

(Start: 45 @31644 has 69 MA's), (Start: 57 @31719 has 1 MA's), (58, 31725), (59, 31734), (105, 32031), (129, 32127), (138, 32160), (161, 32286), (164, 32298), (176, 32367), (220, 32574), (234, 32616), (240, 32646), (250, 32706), (261, 32751), (262, 32754), (268, 32784), (280, 32829), (283, 32847), (288, 32871), (291, 32883),

Gene: Whitney\_50 Start: 34749, Stop: 35948, Start Num: 48

Candidate Starts for Whitney\_50:

(27, 34710), (Start: 48 @34749 has 7 MA's), (Start: 62 @34869 has 1 MA's), (70, 34905), (76, 34938), (82, 34965), (90, 35010), (96, 35058), (97, 35061), (104, 35109), (120, 35175), (127, 35196), (140, 35259), (146, 35295), (195, 35502), (208, 35553), (212, 35571), (219, 35607), (220, 35613), (225, 35628), (226, 35631), (228, 35637), (240, 35673), (269, 35802), (272, 35817), (275, 35829), (277, 35835), (280, 35844), (284, 35865), (305, 35931), (307, 35940),

Gene: Whitty\_34 Start: 27804, Stop: 29102, Start Num: 25

Candidate Starts for Whitty\_34:

(Start: 25 @27804 has 4 MA's), (Start: 28 @27813 has 1 MA's), (42, 27837), (50, 27855), (Start: 57 @27915 has 1 MA's), (82, 28068), (90, 28116), (105, 28224), (119, 28269), (120, 28272), (128, 28299), (129, 28311), (132, 28326), (164, 28485), (174, 28548), (210, 28710), (222, 28764), (227, 28779), (230, 28788), (240, 28833), (243, 28863), (252, 28899), (277, 28995), (280, 29004), (305, 29091),

Gene: Whouxphf\_42 Start: 31928, Stop: 33229, Start Num: 46

Candidate Starts for Whouxphf\_42:

(Start: 46 @31928 has 128 MA's), (58, 31994), (63, 32048), (65, 32057), (67, 32075), (82, 32144), (83, 32156), (104, 32294), (129, 32390), (132, 32405), (135, 32414), (136, 32417), (145, 32468), (154, 32501), (159, 32522), (179, 32633), (189, 32708), (210, 32819), (211, 32822), (219, 32861), (220, 32867), (221, 32870), (224, 32879), (226, 32885), (228, 32891), (239, 32924), (240, 32927), (248, 32975), (251, 32987), (255, 33005), (259, 33026), (268, 33062), (272, 33080), (277, 33098), (280, 33107), (282, 33122), (295, 33176),

Gene: Wigglewigggle\_38 Start: 31688, Stop: 32995, Start Num: 45

Candidate Starts for Wigglewigggle\_38:

(21, 31643), (Start: 45 @31688 has 69 MA's), (Start: 57 @31760 has 1 MA's), (59, 31775), (66, 31838), (74, 31874), (105, 32072), (132, 32198), (164, 32354), (170, 32387), (176, 32423), (179, 32441), (181, 32450), (220, 32633), (230, 32663), (239, 32702), (240, 32705), (250, 32765), (252, 32771), (258, 32795), (261, 32810), (262, 32813), (275, 32873), (280, 32888), (283, 32906), (289, 32936), (291, 32942),

Gene: Wilder\_38 Start: 31661, Stop: 32968, Start Num: 45

Candidate Starts for Wilder\_38:

(21, 31616), (Start: 45 @31661 has 69 MA's), (Start: 57 @31733 has 1 MA's), (59, 31748), (66, 31811), (74, 31847), (105, 32045), (132, 32171), (164, 32327), (170, 32360), (176, 32396), (179, 32414), (181, 32423), (220, 32606), (230, 32636), (239, 32675), (240, 32678), (250, 32738), (252, 32744), (258, 32768), (261, 32783), (262, 32786), (275, 32846), (280, 32861), (283, 32879), (289, 32909), (291, 32915),



Gene: Winky\_38 Start: 31656, Stop: 32963, Start Num: 45

Candidate Starts for Winky\_38:

(21, 31611), (Start: 45 @31656 has 69 MA's), (Start: 57 @31728 has 1 MA's), (59, 31743), (66, 31806), (74, 31842), (75, 31845), (105, 32040), (132, 32166), (164, 32322), (170, 32355), (176, 32391), (179, 32409), (181, 32418), (220, 32601), (230, 32631), (239, 32670), (240, 32673), (250, 32733), (252, 32739), (258, 32763), (261, 32778), (262, 32781), (275, 32841), (280, 32856), (283, 32874), (289, 32904),

Gene: Wintermute\_45 Start: 33680, Stop: 34945, Start Num: 29

Candidate Starts for Wintermute\_45:

(Start: 20 @33659 has 1 MA's), (Start: 29 @33680 has 15 MA's), (35, 33692), (Start: 49 @33710 has 22 MA's), (Start: 57 @33767 has 1 MA's), (Start: 62 @33821 has 1 MA's), (66, 33845), (81, 33914), (90, 33965), (104, 34064), (105, 34073), (107, 34085), (129, 34166), (136, 34193), (179, 34415), (181, 34424), (184, 34433), (193, 34484), (208, 34547), (224, 34619), (227, 34628), (240, 34676), (259, 34766), (275, 34832), (276, 34835), (282, 34862), (284, 34868), (288, 34889), (291, 34901),

Gene: Wyatt2\_36 Start: 30284, Stop: 31591, Start Num: 45

Candidate Starts for Wyatt2\_36:

(Start: 45 @30284 has 69 MA's), (59, 30374), (61, 30380), (74, 30473), (104, 30662), (105, 30671), (107, 30683), (126, 30758), (128, 30770), (129, 30782), (130, 30785), (133, 30800), (140, 30827), (164, 30953), (175, 31019), (179, 31040), (219, 31223), (220, 31229), (230, 31259), (240, 31301), (262, 31409), (268, 31439), (280, 31484), (283, 31502), (288, 31526), (291, 31538),

Gene: Ximenita\_46 Start: 32802, Stop: 34190, Start Num: 43

Candidate Starts for Ximenita\_46:

(Start: 43 @32802 has 19 MA's), (Start: 57 @32880 has 1 MA's), (59, 32895), (63, 32937), (81, 33030), (90, 33084), (104, 33183), (105, 33192), (106, 33195), (177, 33525), (179, 33537), (181, 33546), (193, 33621), (207, 33681), (212, 33702), (217, 33735), (220, 33744), (255, 33900), (275, 33990), (313, 34149), (316, 34176),

Gene: Y10\_44 Start: 33595, Stop: 34860, Start Num: 29

Candidate Starts for Y10\_44:

(Start: 20 @33574 has 1 MA's), (Start: 29 @33595 has 15 MA's), (35, 33607), (Start: 49 @33625 has 22 MA's), (Start: 57 @33682 has 1 MA's), (Start: 62 @33736 has 1 MA's), (66, 33760), (81, 33829), (90, 33880), (104, 33979), (105, 33988), (107, 34000), (136, 34108), (179, 34330), (181, 34339), (184, 34348), (193, 34399), (208, 34462), (227, 34543), (240, 34591), (259, 34681), (268, 34717), (275, 34747), (276, 34750), (280, 34762), (282, 34777), (284, 34783), (288, 34804), (291, 34816),

Gene: Y2\_44 Start: 33595, Stop: 34860, Start Num: 29

Candidate Starts for Y2\_44:

(Start: 20 @33574 has 1 MA's), (Start: 29 @33595 has 15 MA's), (35, 33607), (Start: 49 @33625 has 22 MA's), (Start: 57 @33682 has 1 MA's), (Start: 62 @33736 has 1 MA's), (66, 33760), (81, 33829), (90, 33880), (104, 33979), (105, 33988), (107, 34000), (136, 34108), (179, 34330), (181, 34339), (184, 34348), (193, 34399), (208, 34462), (227, 34543), (240, 34591), (259, 34681), (268, 34717), (275, 34747), (276, 34750), (280, 34762), (282, 34777), (284, 34783), (288, 34804), (291, 34816),

Gene: Yorick\_40 Start: 31944, Stop: 33233, Start Num: 46

Candidate Starts for Yorick\_40:

(Start: 46 @31944 has 128 MA's), (58, 32010), (63, 32064), (65, 32073), (67, 32091), (82, 32160), (83, 32172), (104, 32310), (126, 32382), (129, 32406), (132, 32421), (135, 32430), (145, 32484), (154, 32517), (159, 32538), (179, 32649), (189, 32724), (210, 32835), (211, 32838), (219, 32877), (220, 32883), (221, 32886), (224, 32895), (226, 32901), (228, 32907), (239, 32940), (240, 32943), (248, 32991), (251, 33003), (255, 33021), (259, 33042), (268, 33078), (272, 33096), (277, 33114), (280,

33123), (282, 33138), (295, 33192),

Gene: Yoshi\_54 Start: 34225, Stop: 32954, Start Num: 37

Candidate Starts for Yoshi\_54:

(34, 34228), (Start: 37 @34225 has 5 MA's), (Start: 57 @34150 has 1 MA's), (82, 33997), (94, 33913), (105, 33844), (118, 33796), (126, 33778), (132, 33739), (133, 33736), (139, 33712), (149, 33661), (157, 33631), (161, 33613), (162, 33610), (170, 33568), (179, 33514), (181, 33505), (185, 33475), (186, 33466), (198, 33421), (200, 33412), (202, 33406), (208, 33385), (209, 33382), (210, 33373), (211, 33370), (221, 33322), (224, 33313), (231, 33292), (240, 33253), (242, 33226), (251, 33190), (254, 33178), (259, 33151), (262, 33145), (268, 33115), (272, 33097), (277, 33079), (280, 33070), (284, 33049), (286, 33040), (295, 33001), (300, 32992), (301, 32989), (304, 32983), (308, 32962),

Gene: Yuna\_46 Start: 33692, Stop: 35065, Start Num: 43

Candidate Starts for Yuna\_46:

(17, 33647), (Start: 43 @33692 has 19 MA's), (Start: 57 @33767 has 1 MA's), (63, 33824), (81, 33917), (88, 33956), (89, 33959), (90, 33971), (104, 34070), (105, 34079), (128, 34160), (167, 34358), (177, 34409), (179, 34421), (181, 34430), (193, 34508), (207, 34568), (212, 34589), (219, 34625), (240, 34706), (255, 34787), (262, 34817), (275, 34877), (312, 35021),

Gene: Zakai\_38 Start: 31913, Stop: 33220, Start Num: 45

Candidate Starts for Zakai\_38:

(21, 31868), (Start: 45 @31913 has 69 MA's), (Start: 57 @31985 has 1 MA's), (59, 32000), (66, 32063), (74, 32099), (105, 32297), (132, 32423), (164, 32579), (170, 32612), (176, 32648), (179, 32666), (181, 32675), (220, 32858), (230, 32888), (239, 32927), (240, 32930), (250, 32990), (252, 32996), (258, 33020), (261, 33035), (262, 33038), (275, 33098), (280, 33113), (283, 33131), (289, 33161), (291, 33167),

Gene: Zapner\_55 Start: 33701, Stop: 34930, Start Num: 54

Candidate Starts for Zapner\_55:

(Start: 54 @33701 has 2 MA's), (65, 33818), (82, 33905), (85, 33929), (104, 34052), (105, 34061), (118, 34112), (120, 34115), (121, 34118), (126, 34130), (129, 34154), (130, 34157), (143, 34220), (157, 34277), (163, 34301), (167, 34328), (170, 34337), (178, 34379), (180, 34391), (183, 34400), (201, 34496), (209, 34526), (210, 34535), (211, 34538), (212, 34541), (219, 34577), (224, 34595), (239, 34649), (240, 34652), (242, 34679), (247, 34700), (252, 34718), (255, 34733), (266, 34778), (267, 34781), (277, 34814), (280, 34823), (282, 34838), (287, 34859), (288, 34865), (289, 34871), (295, 34892),

Gene: Zaria\_36 Start: 30299, Stop: 31606, Start Num: 45

Candidate Starts for Zaria\_36:

(Start: 45 @30299 has 69 MA's), (59, 30389), (61, 30395), (74, 30488), (104, 30677), (105, 30686), (107, 30698), (126, 30773), (128, 30785), (129, 30797), (130, 30800), (133, 30815), (140, 30842), (164, 30968), (175, 31034), (179, 31055), (219, 31238), (220, 31244), (230, 31274), (240, 31316), (262, 31424), (268, 31454), (280, 31499), (283, 31517), (288, 31541), (291, 31553),

Gene: ZenTime222\_33 Start: 27813, Stop: 29102, Start Num: 28

Candidate Starts for ZenTime222\_33:

(Start: 14 @27780 has 1 MA's), (Start: 25 @27804 has 4 MA's), (Start: 28 @27813 has 1 MA's), (42, 27837), (50, 27855), (Start: 57 @27915 has 1 MA's), (82, 28068), (90, 28116), (105, 28224), (119, 28269), (120, 28272), (128, 28299), (129, 28311), (132, 28326), (164, 28485), (174, 28548), (210, 28710), (222, 28764), (227, 28779), (230, 28788), (240, 28833), (243, 28863), (252, 28899), (277, 28995), (280, 29004), (305, 29091),

Gene: Zerg\_42 Start: 31944, Stop: 33233, Start Num: 46

Candidate Starts for Zerg\_42:

(Start: 46 @31944 has 128 MA's), (58, 32010), (63, 32064), (65, 32073), (67, 32091), (82, 32160), (83, 32172), (104, 32310), (129, 32406), (132, 32421), (135, 32430), (145, 32484), (154, 32517), (159, 32538), (179, 32649), (189, 32724), (210, 32835), (211, 32838), (219, 32877), (220, 32883), (221, 32886), (224, 32895), (226, 32901), (228, 32907), (239, 32940), (240, 32943), (248, 32991), (251, 33003), (255, 33021), (259, 33042), (268, 33078), (272, 33096), (277, 33114), (280, 33123), (282, 33138), (295, 33192),

Gene: ZhongYanYuan\_37 Start: 31494, Stop: 32801, Start Num: 45

Candidate Starts for ZhongYanYuan\_37:

(21, 31449), (Start: 45 @31494 has 69 MA's), (Start: 57 @31566 has 1 MA's), (66, 31644), (80, 31716), (82, 31725), (104, 31869), (105, 31878), (132, 32004), (164, 32160), (170, 32193), (176, 32229), (179, 32247), (181, 32256), (220, 32439), (230, 32469), (239, 32508), (240, 32511), (250, 32571), (252, 32577), (259, 32613), (261, 32616), (262, 32619), (270, 32655), (275, 32679), (280, 32694), (283, 32712), (289, 32742),