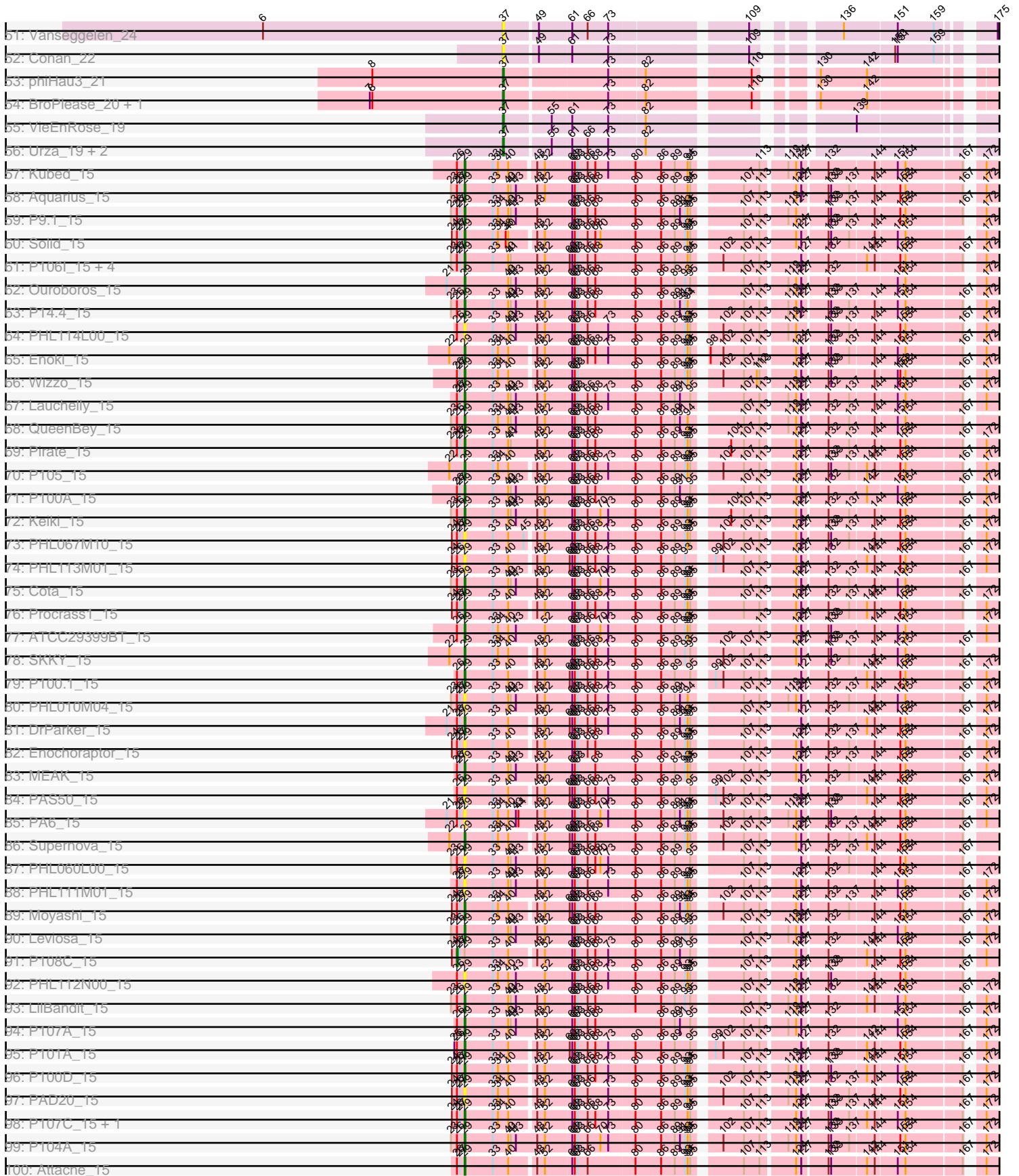
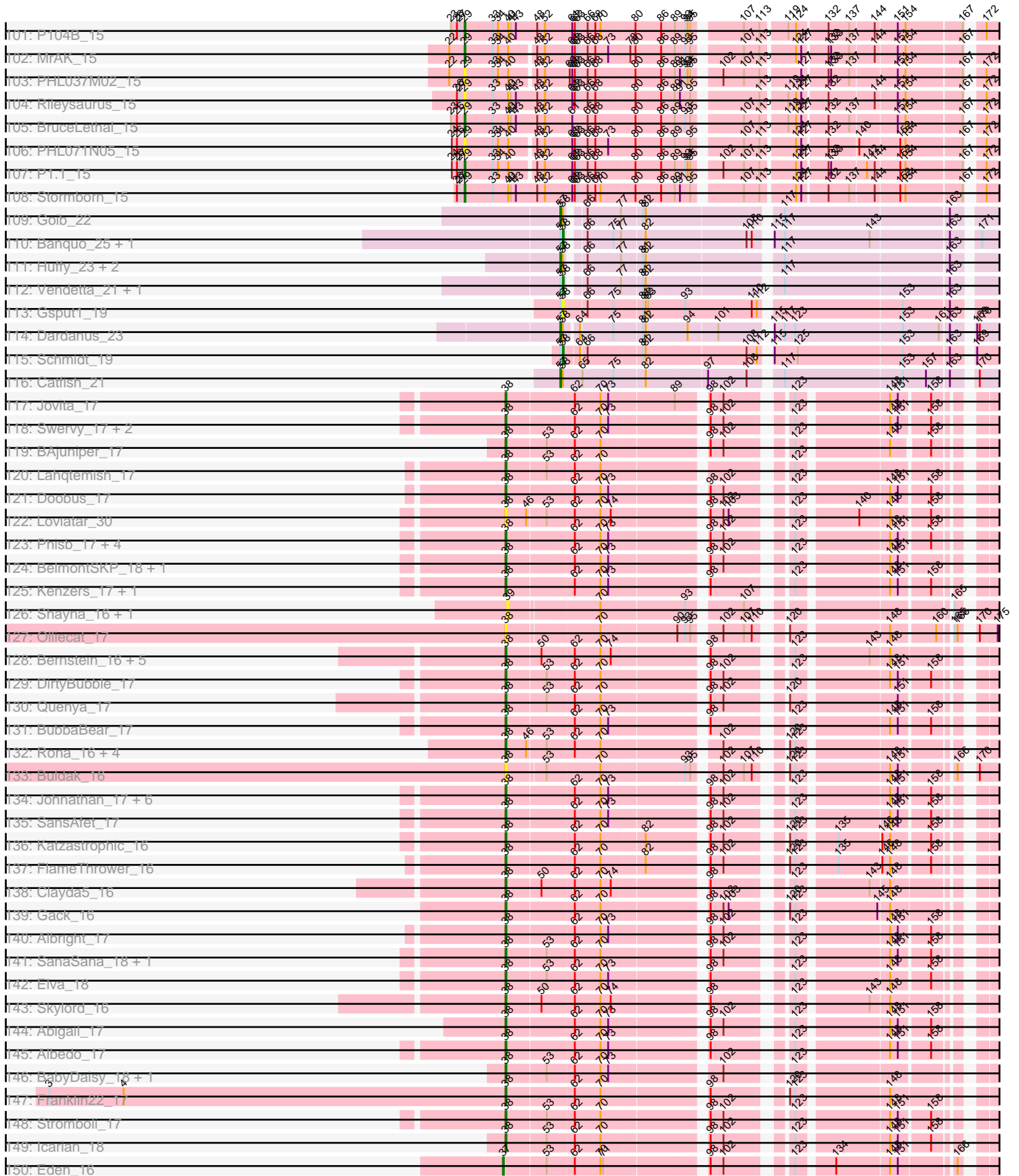




# Zoomed Pham 171137

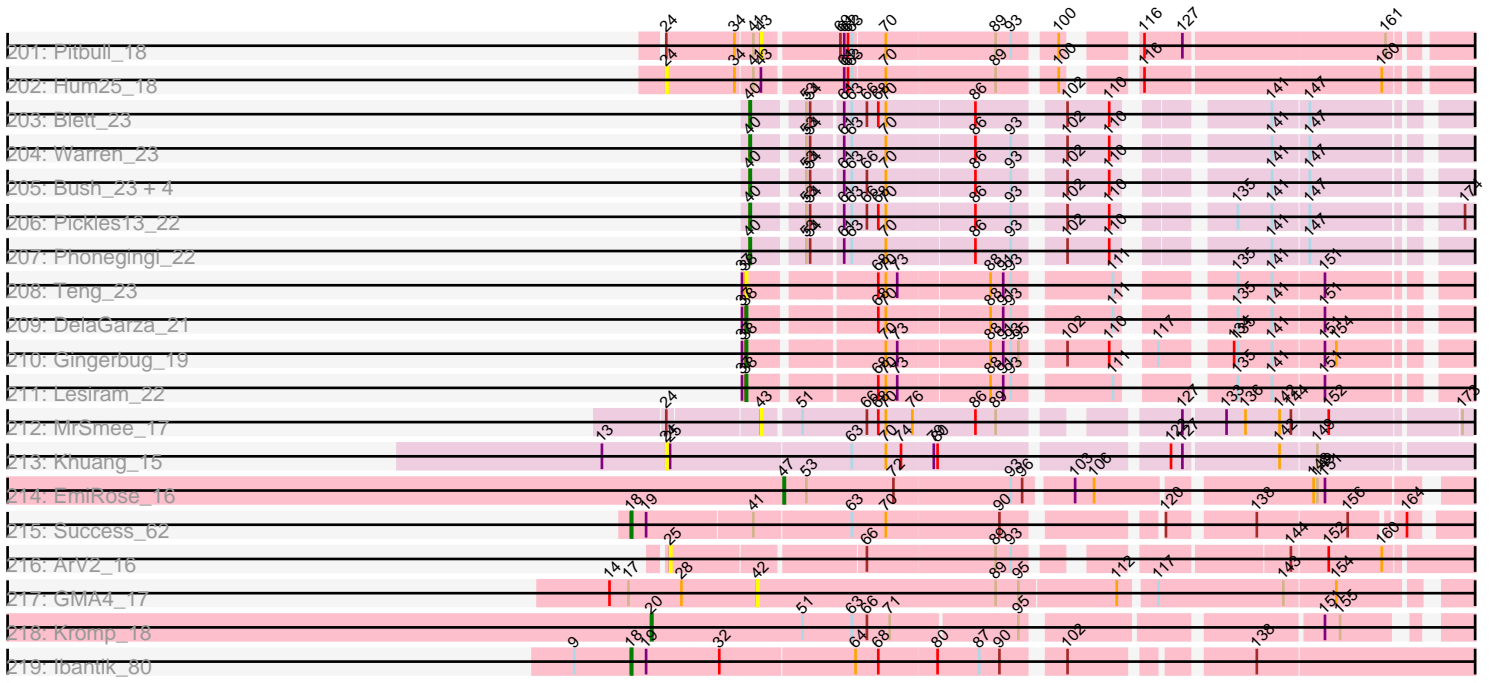


# Zoomed Pham 171137





# Zoomed Pham 171137



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 171137 Report

This analysis was run 07/10/24 on database version 566.

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 171137 has 344 members, 56 are drafts.

Phages represented in each track:

- Track 1 : AbbyDaisy\_18
- Track 2 : Raqqa\_18
- Track 3 : Bovely\_19, BeardedLady\_20, Nerdos\_19, Ozzie\_19, Aaronocolus\_19, Unstoppable\_19, Hydra\_21, SunsetPointe\_19, Esperer\_19, Indigo\_19, Phettuccine\_19, Leviticus\_19, Caliburn\_19, Legacy\_19
- Track 4 : Goby\_19, Toma\_19
- Track 5 : Danzina\_20
- Track 6 : Hippo\_19, Triste\_19, SarahRose\_19, Dwayne\_19, Whatever\_19, Asten\_19, Emaanora\_21, Werner\_19, BarryBee\_21
- Track 7 : Lorelei\_19, Rana\_19, Nabi\_19
- Track 8 : TagePhighter\_20, Snorlax\_19, Chucky\_19
- Track 9 : Izzy\_20, Eddasa\_20, Rusticus\_20, BryanRecycles\_20, Jash\_20, Oliynyk\_20
- Track 10 : Godpower\_20, Lika\_19, Sujidade\_20
- Track 11 : Celeste\_19, Zemlya\_20, Dattran\_20
- Track 12 : Maneekul\_19, TuanPN\_19, Ejemplo\_19, Yasdnii\_19
- Track 13 : South40\_20, RedBear\_21, Katalie\_20
- Track 14 : Lannister\_20
- Track 15 : EnochSoames\_21
- Track 16 : Nanodon\_21
- Track 17 : Brataylor\_20
- Track 18 : OzzyJ\_20
- Track 19 : TrvxScott\_18
- Track 20 : Issmi\_20
- Track 21 : Omar\_20
- Track 22 : Hank144\_20
- Track 23 : Zainub\_25, Paolo\_23
- Track 24 : Marav\_22, Puginator\_23
- Track 25 : Amethyst\_19
- Track 26 : Loofah\_20, Paedore\_19
- Track 27 : Caelum\_20
- Track 28 : Janus\_20
- Track 29 : Superstar\_22

- Track 30 : Daudau\_19
- Track 31 : SqueakyClean\_20, Animus\_20
- Track 32 : Jevington\_22
- Track 33 : Bowden\_20, TinaBelcher\_19
- Track 34 : Nishikigoi\_19, Haizum\_19, Tefunt\_19
- Track 35 : ELB20\_18, R4\_19
- Track 36 : Andris\_19
- Track 37 : BartholomewSD\_21, Alvy\_21
- Track 38 : Triumph\_21
- Track 39 : GirlDinner\_20
- Track 40 : Thestral\_20
- Track 41 : Pablito\_19
- Track 42 : Diane\_19
- Track 43 : Yosif\_20
- Track 44 : Verabelle\_20
- Track 45 : Saftant\_19
- Track 46 : Dexers\_18, Alsaber\_20
- Track 47 : Amela\_19, Verse\_19
- Track 48 : phiCAM\_20
- Track 49 : Celery\_22
- Track 50 : Provolone\_20, ElGato\_21
- Track 51 : Vanseggelen\_24
- Track 52 : Conan\_22
- Track 53 : phiHau3\_21
- Track 54 : BroPlease\_20, GreenWeasel\_21
- Track 55 : VieEnRose\_19
- Track 56 : Urza\_19, Itza\_19, Celia\_19
- Track 57 : Kubed\_15
- Track 58 : Aquarius\_15
- Track 59 : P9.1\_15
- Track 60 : Solid\_15
- Track 61 : P106I\_15, P106A\_15, P106C\_15, P106M\_15, P106L\_15
- Track 62 : Ouroboros\_15
- Track 63 : P14.4\_15
- Track 64 : PHL114L00\_15
- Track 65 : Enoki\_15
- Track 66 : Wizzo\_15
- Track 67 : Lauchelly\_15
- Track 68 : QueenBey\_15
- Track 69 : Pirate\_15
- Track 70 : P105\_15
- Track 71 : P100A\_15
- Track 72 : Keiki\_15
- Track 73 : PHL067M10\_15
- Track 74 : PHL113M01\_15
- Track 75 : Cota\_15
- Track 76 : Procrass1\_15
- Track 77 : ATCC29399BT\_15
- Track 78 : SKKY\_15
- Track 79 : P100.1\_15
- Track 80 : PHL010M04\_15
- Track 81 : DrParker\_15
- Track 82 : Enochoraptor\_15

- Track 83 : MEAK\_15
- Track 84 : PAS50\_15
- Track 85 : PA6\_15
- Track 86 : Supernova\_15
- Track 87 : PHL060L00\_15
- Track 88 : PHL111M01\_15
- Track 89 : Moyashi\_15
- Track 90 : Leviosa\_15
- Track 91 : P108C\_15
- Track 92 : PHL112N00\_15
- Track 93 : LilBandit\_15
- Track 94 : P107A\_15
- Track 95 : P101A\_15
- Track 96 : P100D\_15
- Track 97 : PAD20\_15
- Track 98 : P107C\_15, ATCC29399BC\_15
- Track 99 : P104A\_15
- Track 100 : Attacne\_15
- Track 101 : P104B\_15
- Track 102 : MrAK\_15
- Track 103 : PHL037M02\_15
- Track 104 : Rileysaurus\_15
- Track 105 : BruceLethal\_15
- Track 106 : PHL071N05\_15
- Track 107 : P1.1\_15
- Track 108 : Stormborn\_15
- Track 109 : Goib\_22
- Track 110 : Banquo\_25, TinaLin\_24
- Track 111 : Huffy\_23, DinoDaryn\_23, TZGordon\_23
- Track 112 : Vendetta\_21, Splinter\_21
- Track 113 : Gspat1\_19
- Track 114 : Dardanus\_23
- Track 115 : Schmidt\_19
- Track 116 : Catfish\_21
- Track 117 : Jovita\_17
- Track 118 : Swervy\_17, Slay\_17, SarBear\_17
- Track 119 : BAjuniper\_17
- Track 120 : Lahqtemish\_17
- Track 121 : Doobus\_17
- Track 122 : Loviatar\_30
- Track 123 : Phisb\_17, TukTuk\_17, Eula\_17, QMacho\_18, Nicky22\_18
- Track 124 : BelmontSKP\_18, AnnaLie\_18
- Track 125 : Kenzers\_17, Lynlen\_17
- Track 126 : Shayna\_16, SunnyD\_18
- Track 127 : Olliecat\_17
- Track 128 : Bernstein\_16, Armstrong\_16, Coltrane\_16, Rollins\_16, Vitas\_16, Brahms\_16
- Track 129 : DirtyBubble\_17
- Track 130 : Quenya\_17
- Track 131 : BubbaBear\_17
- Track 132 : Rona\_16, Sharkboy\_16, Kieran\_16, ChiliPepper\_16, Dismas\_16
- Track 133 : Buldak\_16



- Track 134 : Johnathan\_17, CroZenni\_17, Cashington\_17, DickRichards\_17, LimaBean\_17, Arroyo\_18, Burritobowl\_17
- Track 135 : SansAfet\_17
- Track 136 : Katzastrophic\_16
- Track 137 : FlameThrower\_16
- Track 138 : Clayda5\_16
- Track 139 : Gack\_16
- Track 140 : Albright\_17
- Track 141 : SanaSana\_18, Stoor\_17
- Track 142 : Elva\_18
- Track 143 : Skylord\_16
- Track 144 : Abigail\_17
- Track 145 : Albedo\_17
- Track 146 : BabyDaisy\_18, Finalfrontier\_18
- Track 147 : Franklin22\_17
- Track 148 : Stromboli\_17
- Track 149 : Icarian\_18
- Track 150 : Eden\_16
- Track 151 : Celaena\_16
- Track 152 : Didgeridoo\_18
- Track 153 : Bachaco\_16
- Track 154 : Avocadoman\_17
- Track 155 : IndyLu\_17
- Track 156 : BabyYoda\_17
- Track 157 : AvGardian\_17
- Track 158 : Haunter\_30, Pharpay\_30, CoolCookie\_34, Rachella\_30, AnnaSerena\_30, PhunaPhoke\_30, Tedro\_30
- Track 159 : JDawG\_29, JingleBells\_29, Crestdrop\_30, MortySmith\_28
- Track 160 : Snakehole\_30, FreddieHg\_29, Hiddenleaf\_29, Chivey\_29
- Track 161 : DannyDe\_29
- Track 162 : Rie18\_30
- Track 163 : Gilda\_30
- Track 164 : Dauntless\_30, Erudite\_29
- Track 165 : Sparcetus\_31
- Track 166 : Kate\_30, Krampus\_30, Anakin\_30, OverHedge\_30, Potty\_30, NarutoRun\_30, Cybele\_30, Neptune\_30
- Track 167 : Poultruss\_29
- Track 168 : Aesir\_29
- Track 169 : Karate\_29
- Track 170 : TinyMiny\_31, RikSengupta\_31
- Track 171 : Ajin\_31
- Track 172 : Hager\_31
- Track 173 : Kors\_32
- Track 174 : Barnstormer\_15, UtzChips\_15
- Track 175 : SuMoo\_15
- Track 176 : GardenState\_16, IAmGroot\_16
- Track 177 : Gretchen\_16, Percival\_16
- Track 178 : Honk\_15
- Track 179 : Floof\_16
- Track 180 : Caron\_15
- Track 181 : Mabodamaca\_16
- Track 182 : Cen1621\_15
- Track 183 : Sucha\_17

- Track 184 : Johann\_21, Goodman\_21
- Track 185 : Cicada\_22
- Track 186 : Benry\_20
- Track 187 : TurboVicky\_20, Typher\_22, SBlackberry\_20, Jera\_21
- Track 188 : PermaG\_21
- Track 189 : Zanella\_20
- Track 190 : Rasovi\_20, Htur\_20
- Track 191 : FireCastle\_20
- Track 192 : Milani\_21
- Track 193 : RootBeer\_16
- Track 194 : BrayBeast\_17
- Track 195 : Kumotta\_18, MargaretKali\_18
- Track 196 : Sarge\_17
- Track 197 : Shoya\_16
- Track 198 : Zucker\_19, Bauer\_20
- Track 199 : BlackSpider\_18
- Track 200 : Maja\_17
- Track 201 : Pitbull\_18
- Track 202 : Hum25\_18
- Track 203 : Blett\_23
- Track 204 : Warren\_23
- Track 205 : Bush\_23, Dropshot\_22, MenE\_26, Antuna\_23, Appa\_22
- Track 206 : Pickles13\_22
- Track 207 : Phonegingi\_22
- Track 208 : Teng\_23
- Track 209 : DelaGarza\_21
- Track 210 : Gingerbug\_19
- Track 211 : Lesiram\_22
- Track 212 : MrSmee\_17
- Track 213 : Khuang\_15
- Track 214 : EmiRose\_16
- Track 215 : Success\_62
- Track 216 : ArV2\_16
- Track 217 : GMA4\_17
- Track 218 : Kromp\_18
- Track 219 : Ibantik\_80

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

The start number called the most often in the published annotations is 37, it was called in 100 of the 288 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• Aaronocolus\_19, Ajin\_31, Alsaber\_20, Alvy\_21, Amela\_19, Amethyst\_19, Andris\_19, Animus\_20, Asten\_19, BarryBee\_21, BartholomewSD\_21, BeardedLady\_20, Bovely\_19, Bowden\_20, Brataylor\_20, BroPlease\_20, BryanRecycles\_20, Caelum\_20, Caliburn\_19, Celery\_22, Celeste\_19, Celia\_19, Chucky\_19, Conan\_22, Danzina\_20, Dattran\_20, Daudau\_19, Dexers\_18, Diane\_19, Dwayne\_19, ELB20\_18, Eddasa\_20, Eden\_16, Ejemplo\_19, ElGato\_21, Emaanora\_21, EnochSoames\_21, Esperer\_19, GirlDinner\_20, Goby\_19,

Godpower\_20, GreenWeasel\_21, Haizum\_19, Hank144\_20, Hippo\_19, Hydra\_21, Indigo\_19, Issmi\_20, Itza\_19, Izzy\_20, Janus\_20, Jash\_20, Jevington\_22, Katalie\_20, Kors\_32, Lannister\_20, Legacy\_19, Leviticus\_19, Lika\_19, Loofah\_20, Lorelei\_19, Maneekul\_19, Marav\_22, Nabi\_19, Nanodon\_21, Nerdos\_19, Nishikigoi\_19, Oliynyk\_20, Omar\_20, Ozzie\_19, OzzyJ\_20, Pablito\_19, Paedore\_19, Paolo\_23, Phettuccine\_19, Provolone\_20, Puginator\_23, R4\_19, Rana\_19, RedBear\_21, RikSengupta\_31, Rusticus\_20, Saftant\_19, SarahRose\_19, Snorlax\_19, South40\_20, Sparcetus\_31, SqueakyClean\_20, Sujidade\_20, SunsetPointe\_19, Superstar\_22, TagePhighter\_20, Tefunt\_19, Thestral\_20, TinaBelcher\_19, TinyMiny\_31, Toma\_19, Triste\_19, Triumph\_21, TrvxScott\_18, TuanPN\_19, Unstoppable\_19, Urza\_19, Vanseggelen\_24, Verabelle\_20, Verse\_19, VieEnRose\_19, Werner\_19, Whatever\_19, Yasdnil\_19, Yosif\_20, Zainub\_25, Zemlya\_20, phiCAM\_20, phiHau3\_21,

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

- DelaGarza\_21, Gingerbug\_19, Lesiram\_22, Teng\_23,

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

- ATCC29399BC\_15, ATCC29399BT\_15, AbbyDaisy\_18, Abigail\_17, Aesir\_29, Albedo\_17, Albright\_17, Anakin\_30, AnnaLie\_18, AnnaSerena\_30, Antuna\_23, Appa\_22, Aquarius\_15, ArV2\_16, Armstrong\_16, Arroyo\_18, Attacne\_15, AvGuardian\_17, Avocadoman\_17, BAjuniper\_17, BabyDaisy\_18, BabyYoda\_17, Bachaco\_16, Banquo\_25, Barnstormer\_15, Bauer\_20, BelmontSKP\_18, Benry\_20, Bernstein\_16, BlackSpider\_18, Blett\_23, Brahms\_16, BrayBeast\_17, BruceLethal\_15, BubbaBear\_17, Buldak\_16, Burritobowl\_17, Bush\_23, Caron\_15, Cashington\_17, Catfish\_21, Celaena\_16, Cen1621\_15, ChiliPepper\_16, Chivey\_29, Cicada\_22, Clayda5\_16, Coltrane\_16, CoolCookie\_34, Cota\_15, Crestdrop\_30, CroZenni\_17, Cybele\_30, DannyDe\_29, Dardanus\_23, Dauntless\_30, DickRichards\_17, Didgeridoo\_18, DinoDaryn\_23, DirtyBubble\_17, Dismas\_16, Doobus\_17, DrParker\_15, Dropshot\_22, Elva\_18, EmiRose\_16, Enochoraptor\_15, Enoki\_15, Erudite\_29, Eula\_17, Finalfrontier\_18, FireCastle\_20, FlameThrower\_16, Floof\_16, Franklin22\_17, FreddieHg\_29, GMA4\_17, Gack\_16, GardenState\_16, Gilda\_30, Goib\_22, Goodman\_21, Gretchen\_16, Gspu1\_19, Hager\_31, Haunter\_30, Hiddenleaf\_29, Honk\_15, Htur\_20, Huff\_23, Hum25\_18, IAmGroot\_16, Ibantik\_80, Icarian\_18, IndyLu\_17, JDawG\_29, Jera\_21, JingleBells\_29, Johann\_21, Johnathan\_17, Jovita\_17, Karate\_29, Kate\_30, Katzastrophic\_16, Keiki\_15, Kenzers\_17, Khuang\_15, Kieran\_16, Krampus\_30, Kromp\_18, Kubed\_15, Kumotta\_18, Lahqtemish\_17, Lauchelly\_15, Leviosa\_15, LilBandit\_15, LimaBean\_17, Loviatar\_30, Lynlen\_17, MEAK\_15, Mabodamaca\_16, Maja\_17, MargaretKali\_18, MenE\_26, Milani\_21, MortySmith\_28, Moyashi\_15, MrAK\_15, MrSmee\_17, NarutoRun\_30, Neptune\_30, Nicky22\_18, Olliecat\_17, Ouroboros\_15, OverHedge\_30, P1.1\_15, P100.1\_15, P100A\_15, P100D\_15, P101A\_15, P104A\_15, P104B\_15, P105\_15, P106A\_15, P106C\_15, P106I\_15, P106L\_15, P106M\_15, P107A\_15, P107C\_15, P108C\_15, P14.4\_15, P9.1\_15, PA6\_15, PAD20\_15, PAS50\_15, PHL010M04\_15, PHL037M02\_15, PHL060L00\_15, PHL067M10\_15, PHL071N05\_15, PHL111M01\_15, PHL112N00\_15, PHL113M01\_15, PHL114L00\_15, Percival\_16, PermaG\_21, Pharpay\_30, Phisb\_17, Phonegingi\_22, PhunaPhoke\_30, Pickles13\_22, Pirate\_15, Pitbull\_18, Potty\_30, Poultruss\_29, Procrass1\_15, QMacho\_18, QueenBey\_15, Quenya\_17, Rachella\_30, Raqqa\_18, Rasovi\_20, Rie18\_30, Rileysaurus\_15, Rollins\_16, Rona\_16, RootBeer\_16, SBlackberry\_20, SKKY\_15, SanaSana\_18, SansAfet\_17, SarBear\_17, Sarge\_17, Schmidt\_19, Sharkboy\_16, Shayna\_16, Shoya\_16, Skylord\_16, Slay\_17, Snakehole\_30, Solid\_15, Splinter\_21, Stoor\_17, Stormborn\_15, Stromboli\_17,

SuMoo\_15, Success\_62, Sucha\_17, SunnyD\_18, Supernova\_15, Swervy\_17, TZGordon\_23, Tedro\_30, TinaLin\_24, TukTuk\_17, TurboVicky\_20, Typher\_22, UtzChips\_15, Vendetta\_21, Vitas\_16, Warren\_23, Wizzo\_15, Zanella\_20, Zucker\_19,

### Summary by start number:

#### Start 18:

- Found in 2 of 344 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 2 of 288
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ibantik\_80 (singleton), Success\_62 (singleton),

#### Start 20:

- Found in 1 of 344 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 288
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kromp\_18 (singleton),

#### Start 24:

- Found in 28 of 344 ( 8.1% ) of genes in pham
- Manual Annotations of this start: 7 of 288
- Called 39.3% of time when present
- Phage (with cluster) where this start called: AbbyDaisy\_18 (AY), BlackSpider\_18 (FN), BrayBeast\_17 (FB), Hum25\_18 (FQ), Khuang\_15 (UNK), Kumotta\_18 (FB), Maja\_17 (FO), MargaretKali\_18 (FB), Raqqa\_18 (AY), Sarge\_17 (FB), Shoya\_16 (FB),

#### Start 25:

- Found in 4 of 344 ( 1.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: ArV2\_16 (singleton), RootBeer\_16 (FA),

#### Start 26:

- Found in 50 of 344 ( 14.5% ) of genes in pham
- Manual Annotations of this start: 1 of 288
- Called 2.0% of time when present
- Phage (with cluster) where this start called: P108C\_15 (BU),

#### Start 29:

- Found in 57 of 344 ( 16.6% ) of genes in pham
- Manual Annotations of this start: 42 of 288
- Called 98.2% of time when present
- Phage (with cluster) where this start called: ATCC29399BC\_15 (BU), ATCC29399BT\_15 (BU), Aquarius\_15 (BU), Attacne\_15 (BU), BruceLethal\_15 (BU), Cota\_15 (BU), DrParker\_15 (BU), Enochoraptor\_15 (BU), Enoki\_15 (BU), Keiki\_15 (BU), Kubed\_15 (BU), Lauchelly\_15 (BU), Leviosa\_15 (BU), LilBandit\_15 (BU), MEAK\_15 (BU), Moyashi\_15 (BU), MrAK\_15 (BU), Ouroboros\_15 (BU), P1.1\_15 (BU), P100.1\_15 (BU), P100A\_15 (BU), P100D\_15 (BU), P101A\_15 (BU), P104A\_15 (BU), P104B\_15 (BU), P105\_15 (BU), P106A\_15 (BU), P106C\_15 (BU), P106I\_15 (BU), P106L\_15 (BU), P106M\_15 (BU), P107A\_15 (BU), P107C\_15 (BU), P14.4\_15 (BU), P9.1\_15 (BU), PA6\_15 (BU), PAD20\_15 (BU), PAS50\_15 (BU),

PHL010M04\_15 (BU), PHL037M02\_15 (BU), PHL060L00\_15 (BU), PHL067M10\_15 (BU), PHL071N05\_15 (BU), PHL111M01\_15 (BU), PHL112N00\_15 (BU), PHL113M01\_15 (BU), PHL114L00\_15 (BU), Pirate\_15 (BU), Procrass1\_15 (BU), QueenBey\_15 (BU), Rileysaurus\_15 (BU), SKKY\_15 (BU), Solid\_15 (BU), Stormborn\_15 (BU), Supernova\_15 (BU), Wizzo\_15 (BU),

Start 34:

- Found in 26 of 344 ( 7.6% ) of genes in pham
- Manual Annotations of this start: 2 of 288
- Called 7.7% of time when present
- Phage (with cluster) where this start called: Cen1621\_15 (EH), Honk\_15 (EH),

Start 35:

- Found in 32 of 344 ( 9.3% ) of genes in pham
- Manual Annotations of this start: 26 of 288
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aesir\_29 (EF), Anakin\_30 (EF), AnnaSerena\_30 (EF), Chivey\_29 (EF), CoolCookie\_34 (EF), Crestdrop\_30 (EF), Cybele\_30 (EF), DannyDe\_29 (EF), Dauntless\_30 (EF), Erudite\_29 (EF), FreddieHg\_29 (EF), Gilda\_30 (EF), Hager\_31 (EF), Haunter\_30 (EF), Hiddenleaf\_29 (EF), JDawG\_29 (EF), JingleBells\_29 (EF), Karate\_29 (EF), Kate\_30 (EF), Krampus\_30 (EF), MortySmith\_28 (EF), NarutoRun\_30 (EF), Neptune\_30 (EF), OverHedge\_30 (EF), Pharpay\_30 (EF), PhunaPhoke\_30 (EF), Potty\_30 (EF), Poultruss\_29 (EF), Rachella\_30 (EF), Rie18\_30 (EF), Snakehole\_30 (EF), Tedro\_30 (EF),

Start 36:

- Found in 10 of 344 ( 2.9% ) of genes in pham
- Manual Annotations of this start: 9 of 288
- Called 90.0% of time when present
- Phage (with cluster) where this start called: Barnstormer\_15 (EH), Caron\_15 (EH), Floop\_16 (EH), GardenState\_16 (EH), Gretchen\_16 (EH), IAmGroot\_16 (EH), Mabodamaca\_16 (EH), Percival\_16 (EH), UtzChips\_15 (EH),

Start 37:

- Found in 119 of 344 ( 34.6% ) of genes in pham
- Manual Annotations of this start: 100 of 288
- Called 96.6% of time when present
- Phage (with cluster) where this start called: Aaronocolus\_19 (BD1), Ajin\_31 (EF), Alsaber\_20 (BD3), Alvy\_21 (BD2), Amela\_19 (BD3), Amethyst\_19 (BD2), Andris\_19 (BD2), Animus\_20 (BD2), Asten\_19 (BD1), BarryBee\_21 (BD1), BartholomewSD\_21 (BD2), BeardedLady\_20 (BD1), Bovely\_19 (BD1), Bowden\_20 (BD2), Brataylor\_20 (BD1), BroPlease\_20 (BD4), BryanRecycles\_20 (BD1), Caelum\_20 (BD2), Caliburn\_19 (BD1), Celery\_22 (BD3), Celeste\_19 (BD1), Celia\_19 (BD6), Chucky\_19 (BD1), Conan\_22 (BD3), Danzina\_20 (BD1), Dattran\_20 (BD1), Daudau\_19 (BD2), Dexers\_18 (BD3), Diane\_19 (BD2), Dwayne\_19 (BD1), ELB20\_18 (BD2), Eddasa\_20 (BD1), Eden\_16 (EB), Ejemplo\_19 (BD1), ElGato\_21 (BD3), Emaanora\_21 (BD1), EnochSoames\_21 (BD1), Esperer\_19 (BD1), GirlDinner\_20 (BD2), Goby\_19 (BD1), Godpower\_20 (BD1), GreenWeasel\_21 (BD4), Haizum\_19 (BD2), Hank144\_20 (BD2), Hippo\_19 (BD1), Hydra\_21 (BD1), Indigo\_19 (BD1), Issmi\_20 (BD2), Itza\_19 (BD6), Izzy\_20 (BD1), Janus\_20 (BD2), Jash\_20 (BD1), Jevington\_22 (BD2), Katalie\_20 (BD1), Kors\_32 (EF), Lannister\_20 (BD1), Legacy\_19 (BD1), Leviticus\_19 (BD1), Lika\_19 (BD1), Loofah\_20 (BD2), Lorelei\_19 (BD1), Maneekul\_19 (BD1),

Marav\_22 (BD2), Nabi\_19 (BD1), Nanodon\_21 (BD1), Nerdos\_19 (BD1), Nishikigoi\_19 (BD2), Oliynyk\_20 (BD1), Omar\_20 (BD2), Ozzie\_19 (BD1), OzzyJ\_20 (BD1), Pablito\_19 (BD2), Paedore\_19 (BD2), Paolo\_23 (BD2), Phettuccine\_19 (BD1), Provolone\_20 (BD3), Puginator\_23 (BD2), R4\_19 (BD2), Rana\_19 (BD1), RedBear\_21 (BD1), RikSengupta\_31 (EF), Rusticus\_20 (BD1), Saftant\_19 (BD3), SarahRose\_19 (BD1), Snorlax\_19 (BD1), South40\_20 (BD1), Sparcetus\_31 (EF), SqueakyClean\_20 (BD2), Sujidade\_20 (BD1), SunsetPointe\_19 (BD1), Superstar\_22 (BD2), TagePhighter\_20 (BD1), Tefunt\_19 (BD2), Thestral\_20 (BD2), TinaBelcher\_19 (BD2), TinyMiny\_31 (EF), Toma\_19 (BD1), Triste\_19 (BD1), Triumph\_21 (BD2), TrvxScott\_18 (BD2), TuanPN\_19 (BD1), Unstoppable\_19 (BD1), Urza\_19 (BD6), Vanseggelen\_24 (BD3), Verabelle\_20 (BD3), Verse\_19 (BD3), VieEnRose\_19 (BD6), Werner\_19 (BD1), Whatever\_19 (BD1), Yasdnil\_19 (BD1), Yosif\_20 (BD3), Zainub\_25 (BD2), Zemlya\_20 (BD1), phiCAM\_20 (BD3), phiHau3\_21 (BD4),

#### Start 38:

- Found in 73 of 344 ( 21.2% ) of genes in pham
- Manual Annotations of this start: 64 of 288
- Called 95.9% of time when present
- Phage (with cluster) where this start called: Abigail\_17 (EB), Albedo\_17 (EB), Albright\_17 (EB), AnnaLie\_18 (EB), Armstrong\_16 (EB), Arroyo\_18 (EB), AvGardian\_17 (EB), Avocadoman\_17 (EB), BAjuniper\_17 (EB), BabyDaisy\_18 (EB), BabyYoda\_17 (EB), Bachaco\_16 (EB), BelmontSKP\_18 (EB), Bernstein\_16 (EB), Brahms\_16 (EB), BubbaBear\_17 (EB), Buldak\_16 (EB), Burritobowl\_17 (EB), Cashington\_17 (EB), Celaena\_16 (EB), ChiliPepper\_16 (EB), Clayda5\_16 (EB), Coltrane\_16 (EB), CroZenni\_17 (EB), DelaGarza\_21 (GF), DickRichards\_17 (EB), Didgeridoo\_18 (EB), DirtyBubble\_17 (EB), Dismas\_16 (EB), Doobus\_17 (EB), Elva\_18 (EB), Eula\_17 (EB), Finalfrontier\_18 (EB), FireCastle\_20 (EJ), FlameThrower\_16 (EB), Franklin22\_17 (EB), Gack\_16 (EB), Gingerbug\_19 (GF), Icarian\_18 (EB), IndyLu\_17 (EB), Johnathan\_17 (EB), Jovita\_17 (EB), Katzastrophic\_16 (EB), Kenzers\_17 (EB), Kieran\_16 (EB), Lahqtemish\_17 (EB), Lesiram\_22 (GF), LimaBean\_17 (EB), Loviatar\_30 (EB), Lynlen\_17 (EB), Milani\_21 (EJ), Nicky22\_18 (EB), Olliecat\_17 (EB), Phisb\_17 (EB), QMacho\_18 (EB), Quenya\_17 (EB), Rollins\_16 (EB), Rona\_16 (EB), SanaSana\_18 (EB), SansAfet\_17 (EB), SarBear\_17 (EB), Sharkboy\_16 (EB), Skylord\_16 (EB), Slay\_17 (EB), Stoor\_17 (EB), Stromboli\_17 (EB), Swervy\_17 (EB), Teng\_23 (GF), TukTuk\_17 (EB), Vitas\_16 (EB),

#### Start 39:

- Found in 2 of 344 ( 0.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Shayna\_16 (EB), SunnyD\_18 (EB),

#### Start 40:

- Found in 77 of 344 ( 22.4% ) of genes in pham
- Manual Annotations of this start: 19 of 288
- Called 26.0% of time when present
- Phage (with cluster) where this start called: Antuna\_23 (GA), Appa\_22 (GA), Blett\_23 (GA), Bush\_23 (GA), Cicada\_22 (EJ), Dropshot\_22 (GA), Goodman\_21 (EJ), Htur\_20 (EJ), Jera\_21 (EJ), Johann\_21 (EJ), MenE\_26 (GA), PermaG\_21 (EJ), Phonegingi\_22 (GA), Pickles13\_22 (GA), Rasovi\_20 (EJ), SBlackberry\_20 (EJ), TurboVicky\_20 (EJ), Typher\_22 (EJ), Warren\_23 (GA), Zanella\_20 (EJ),

Start 42:

- Found in 4 of 344 ( 1.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 25.0% of time when present
- Phage (with cluster) where this start called: GMA4\_17 (singleton),

Start 43:

- Found in 41 of 344 ( 11.9% ) of genes in pham
- Manual Annotations of this start: 2 of 288
- Called 9.8% of time when present
- Phage (with cluster) where this start called: Bauer\_20 (FN), MrSmee\_17 (UNK), Pitbull\_18 (FQ), Zucker\_19 (FN),

Start 47:

- Found in 1 of 344 ( 0.3% ) of genes in pham
- Manual Annotations of this start: 1 of 288
- Called 100.0% of time when present
- Phage (with cluster) where this start called: EmiRose\_16 (singleton),

Start 54:

- Found in 11 of 344 ( 3.2% ) of genes in pham
- Manual Annotations of this start: 1 of 288
- Called 18.2% of time when present
- Phage (with cluster) where this start called: Benry\_20 (EJ), Sucha\_17 (EJ),

Start 57:

- Found in 12 of 344 ( 3.5% ) of genes in pham
- Manual Annotations of this start: 6 of 288
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Catfish\_21 (CU5), Dardanus\_23 (CU3), DinoDaryn\_23 (CU1), Goib\_22 (CU1), Huff\_23 (CU1), TZGordon\_23 (CU1),

Start 58:

- Found in 13 of 344 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 5 of 288
- Called 46.2% of time when present
- Phage (with cluster) where this start called: Banquo\_25 (CU1), Gspu1\_19 (CU2), Schmidt\_19 (CU4), Splinter\_21 (CU1), TinaLin\_24 (CU1), Vendetta\_21 (CU1),

Start 63:

- Found in 74 of 344 ( 21.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 1.4% of time when present
- Phage (with cluster) where this start called: SuMoo\_15 (EH),

**Summary by clusters:**

There are 25 clusters represented in this pham: FQ, singleton, FA, FB, FN, FO, CU5, CU4, CU3, CU2, CU1, BD4, BD6, BD1, BD3, BD2, EH, EJ, EF, EB, GF, GA, AY, UNK, BU,

Info for manual annotations of cluster AY:

- Start number 24 was manually annotated 1 time for cluster AY.

Info for manual annotations of cluster BD1:

- Start number 37 was manually annotated 55 times for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 37 was manually annotated 26 times for cluster BD2.

Info for manual annotations of cluster BD3:

- Start number 37 was manually annotated 7 times for cluster BD3.

Info for manual annotations of cluster BD4:

- Start number 37 was manually annotated 3 times for cluster BD4.

Info for manual annotations of cluster BD6:

- Start number 37 was manually annotated 4 times for cluster BD6.

Info for manual annotations of cluster BU:

- Start number 26 was manually annotated 1 time for cluster BU.
- Start number 29 was manually annotated 42 times for cluster BU.

Info for manual annotations of cluster CU1:

- Start number 57 was manually annotated 4 times for cluster CU1.
- Start number 58 was manually annotated 4 times for cluster CU1.

Info for manual annotations of cluster CU3:

- Start number 57 was manually annotated 1 time for cluster CU3.

Info for manual annotations of cluster CU4:

- Start number 58 was manually annotated 1 time for cluster CU4.

Info for manual annotations of cluster CU5:

- Start number 57 was manually annotated 1 time for cluster CU5.

Info for manual annotations of cluster EB:

- Start number 37 was manually annotated 1 time for cluster EB.
- Start number 38 was manually annotated 59 times for cluster EB.

Info for manual annotations of cluster EF:

- Start number 35 was manually annotated 26 times for cluster EF.
- Start number 37 was manually annotated 4 times for cluster EF.

Info for manual annotations of cluster EH:

- Start number 34 was manually annotated 2 times for cluster EH.
- Start number 36 was manually annotated 9 times for cluster EH.

Info for manual annotations of cluster EJ:

- Start number 38 was manually annotated 2 times for cluster EJ.
- Start number 40 was manually annotated 11 times for cluster EJ.
- Start number 54 was manually annotated 1 time for cluster EJ.

Info for manual annotations of cluster FB:



- Start number 24 was manually annotated 5 times for cluster FB.

Info for manual annotations of cluster FN:

- Start number 43 was manually annotated 2 times for cluster FN.

Info for manual annotations of cluster FO:

- Start number 24 was manually annotated 1 time for cluster FO.

Info for manual annotations of cluster GA:

- Start number 40 was manually annotated 8 times for cluster GA.

Info for manual annotations of cluster GF:

- Start number 38 was manually annotated 3 times for cluster GF.

### **Gene Information:**

Gene: ATCC29399BC\_15 Start: 11283, Stop: 12224, Start Num: 29

Candidate Starts for ATCC29399BC\_15:

(Start: 24 @11268 has 7 MA's), (Start: 26 @11274 has 1 MA's), (27, 11277), (Start: 29 @11283 has 42 MA's), (33, 11316), (Start: 34 @11322 has 2 MA's), (Start: 40 @11334 has 19 MA's), (48, 11361), (52, 11370), (61, 11400), (62, 11403), (63, 11406), (66, 11418), (68, 11427), (73, 11442), (80, 11472), (86, 11502), (89, 11517), (94, 11532), (95, 11535), (107, 11583), (113, 11601), (124, 11637), (127, 11643), (132, 11670), (133, 11673), (137, 11694), (142, 11712), (144, 11721), (151, 11745), (154, 11754), (167, 11817), (172, 11829), (181, 11871), (182, 11874), (183, 11877), (200, 11943), (206, 11964), (211, 11979), (216, 11994), (219, 12000), (249, 12072), (251, 12075), (256, 12093), (257, 12096), (259, 12105), (268, 12153), (272, 12165), (274, 12174), (276, 12183), (278, 12189), (280, 12195), (284, 12210),

Gene: ATCC29399BT\_15 Start: 11281, Stop: 12228, Start Num: 29

Candidate Starts for ATCC29399BT\_15:

(Start: 26 @11272 has 1 MA's), (Start: 29 @11281 has 42 MA's), (33, 11314), (Start: 34 @11320 has 2 MA's), (Start: 40 @11332 has 19 MA's), (Start: 43 @11341 has 2 MA's), (52, 11374), (61, 11404), (62, 11407), (63, 11410), (66, 11422), (70, 11437), (73, 11446), (80, 11476), (86, 11506), (89, 11521), (93, 11533), (94, 11536), (95, 11539), (113, 11605), (124, 11641), (127, 11647), (132, 11674), (133, 11677), (144, 11725), (151, 11749), (154, 11758), (172, 11833), (182, 11878), (183, 11881), (184, 11884), (200, 11947), (206, 11968), (211, 11983), (216, 11998), (219, 12004), (249, 12076), (251, 12079), (256, 12097), (257, 12100), (268, 12157), (272, 12169), (274, 12178), (278, 12193), (280, 12199), (284, 12214),

Gene: Aaronocolus\_19 Start: 14993, Stop: 15850, Start Num: 37

Candidate Starts for Aaronocolus\_19:

(Start: 37 @14993 has 100 MA's), (61, 15065), (66, 15083), (75, 15113), (82, 15146), (109, 15251), (123, 15278), (150, 15380), (159, 15425), (179, 15491), (181, 15497), (198, 15551), (200, 15563), (232, 15665), (240, 15677), (244, 15686), (288, 15839), (290, 15842),

Gene: AbbyDaisy\_18 Start: 14442, Stop: 15422, Start Num: 24

Candidate Starts for AbbyDaisy\_18:

(Start: 24 @14442 has 7 MA's), (60, 14571), (66, 14589), (69, 14601), (80, 14643), (84, 14661), (105, 14736), (160, 14943), (168, 14970), (175, 15006), (200, 15105), (207, 15135), (212, 15147), (220,

15168), (227, 15198), (236, 15231), (243, 15258), (258, 15300), (268, 15351), (272, 15363),

Gene: Abigail\_17 Start: 13263, Stop: 14117, Start Num: 38

Candidate Starts for Abigail\_17:

(Start: 38 @13263 has 64 MA's), (62, 13338), (70, 13368), (73, 13377), (98, 13476), (102, 13491), (123, 13548), (148, 13644), (151, 13653), (158, 13686), (185, 13770), (194, 13791), (227, 13908), (271, 14049), (290, 14109),

Gene: Aesir\_29 Start: 17532, Stop: 18422, Start Num: 35

Candidate Starts for Aesir\_29:

(Start: 35 @17532 has 26 MA's), (106, 17787), (126, 17856), (133, 17880), (140, 17913), (181, 18069), (194, 18102), (200, 18135), (217, 18192), (233, 18243), (264, 18333), (273, 18363), (290, 18414), (291, 18417),

Gene: Ajin\_31 Start: 17618, Stop: 18502, Start Num: 37

Candidate Starts for Ajin\_31:

(16, 17519), (Start: 37 @17618 has 100 MA's), (67, 17714), (73, 17735), (93, 17819), (95, 17825), (134, 17966), (200, 18215), (207, 18245), (233, 18323), (243, 18335), (244, 18338), (253, 18356), (267, 18422), (268, 18425), (269, 18428), (291, 18497),

Gene: Albedo\_17 Start: 13131, Stop: 13985, Start Num: 38

Candidate Starts for Albedo\_17:

(Start: 38 @13131 has 64 MA's), (62, 13206), (70, 13236), (73, 13245), (98, 13344), (123, 13416), (148, 13512), (151, 13521), (158, 13554), (185, 13638), (191, 13653), (267, 13905), (271, 13917), (290, 13977),

Gene: Albright\_17 Start: 13042, Stop: 13896, Start Num: 38

Candidate Starts for Albright\_17:

(Start: 38 @13042 has 64 MA's), (62, 13117), (70, 13147), (73, 13156), (98, 13255), (102, 13270), (123, 13327), (148, 13423), (151, 13432), (158, 13465), (185, 13549), (194, 13570), (227, 13687), (229, 13696), (266, 13813), (271, 13828), (290, 13888),

Gene: Alsaber\_20 Start: 15677, Stop: 16534, Start Num: 37

Candidate Starts for Alsaber\_20:

(Start: 37 @15677 has 100 MA's), (49, 15713), (61, 15749), (73, 15791), (109, 15935), (123, 15962), (178, 16169), (179, 16175), (187, 16199), (232, 16349), (280, 16499), (288, 16523), (290, 16526),

Gene: Alvy\_21 Start: 15007, Stop: 15861, Start Num: 37

Candidate Starts for Alvy\_21:

(Start: 37 @15007 has 100 MA's), (56, 15061), (66, 15097), (179, 15502), (288, 15850), (290, 15853),

Gene: Amela\_19 Start: 15969, Stop: 16826, Start Num: 37

Candidate Starts for Amela\_19:

(Start: 37 @15969 has 100 MA's), (49, 16005), (61, 16041), (73, 16083), (109, 16227), (151, 16359), (178, 16461), (179, 16467), (232, 16641), (244, 16662), (269, 16752), (280, 16791), (288, 16815), (290, 16818),

Gene: Amethyst\_19 Start: 15455, Stop: 16312, Start Num: 37

Candidate Starts for Amethyst\_19:

(Start: 37 @15455 has 100 MA's), (66, 15545), (77, 15584), (109, 15713), (121, 15737), (134, 15776), (159, 15887), (162, 15896), (198, 16013), (200, 16025), (203, 16034), (244, 16148), (258, 16184), (272, 16247), (288, 16301), (290, 16304),

Gene: Anakin\_30 Start: 17786, Stop: 18676, Start Num: 35

Candidate Starts for Anakin\_30:

(Start: 35 @17786 has 26 MA's), (126, 18110), (133, 18134), (140, 18167), (181, 18323), (233, 18497), (273, 18617), (290, 18668), (291, 18671),

Gene: Andris\_19 Start: 14711, Stop: 15565, Start Num: 37

Candidate Starts for Andris\_19:

(Start: 37 @14711 has 100 MA's), (56, 14765), (66, 14801), (82, 14864), (134, 15032), (177, 15197), (178, 15200), (179, 15206), (227, 15362), (244, 15401), (246, 15404), (288, 15554), (290, 15557),

Gene: Animus\_20 Start: 15047, Stop: 15901, Start Num: 37

Candidate Starts for Animus\_20:

(Start: 37 @15047 has 100 MA's), (82, 15200), (134, 15368), (177, 15533), (179, 15542), (203, 15623), (244, 15737), (288, 15890), (290, 15893),

Gene: AnnaLie\_18 Start: 13450, Stop: 14304, Start Num: 38

Candidate Starts for AnnaLie\_18:

(Start: 38 @13450 has 64 MA's), (62, 13525), (70, 13555), (73, 13564), (98, 13663), (102, 13678), (123, 13735), (148, 13831), (151, 13840), (185, 13957), (194, 13978), (227, 14095), (271, 14236), (290, 14296),

Gene: AnnaSerena\_30 Start: 17795, Stop: 18685, Start Num: 35

Candidate Starts for AnnaSerena\_30:

(Start: 35 @17795 has 26 MA's), (126, 18119), (133, 18143), (140, 18176), (181, 18332), (200, 18398), (233, 18506), (273, 18626), (290, 18677), (291, 18680),

Gene: Antuna\_23 Start: 13703, Stop: 14563, Start Num: 40

Candidate Starts for Antuna\_23:

(Start: 40 @13703 has 19 MA's), (53, 13739), (Start: 54 @13742 has 1 MA's), (61, 13763), (63, 13769), (66, 13781), (70, 13796), (86, 13862), (93, 13889), (102, 13919), (110, 13952), (141, 14045), (147, 14072), (178, 14195), (179, 14201), (191, 14234), (210, 14312), (287, 14549), (288, 14552),

Gene: Appa\_22 Start: 13565, Stop: 14425, Start Num: 40

Candidate Starts for Appa\_22:

(Start: 40 @13565 has 19 MA's), (53, 13601), (Start: 54 @13604 has 1 MA's), (61, 13625), (63, 13631), (66, 13643), (70, 13658), (86, 13724), (93, 13751), (102, 13781), (110, 13814), (141, 13907), (147, 13934), (178, 14057), (179, 14063), (191, 14096), (210, 14174), (287, 14411), (288, 14414),

Gene: Aquarius\_15 Start: 11300, Stop: 12247, Start Num: 29

Candidate Starts for Aquarius\_15:

(23, 11285), (Start: 26 @11291 has 1 MA's), (27, 11294), (Start: 29 @11300 has 42 MA's), (33, 11333), (Start: 40 @11351 has 19 MA's), (41, 11354), (Start: 43 @11360 has 2 MA's), (48, 11384), (52, 11393), (61, 11423), (62, 11426), (63, 11429), (66, 11441), (68, 11450), (80, 11495), (86, 11525), (89, 11540), (94, 11555), (95, 11558), (107, 11606), (113, 11624), (124, 11660), (127, 11666), (132, 11693), (133, 11696), (137, 11717), (144, 11744), (152, 11771), (154, 11777), (167, 11840), (172, 11852), (181, 11894), (182, 11897), (183, 11900), (194, 11933), (197, 11951), (200, 11966), (211, 12002), (216, 12017), (219, 12023), (248, 12092), (249, 12095), (251, 12098), (256, 12116), (257, 12119), (259, 12128), (268, 12176), (272, 12188), (274, 12197), (278, 12212), (280, 12218), (284, 12233),

Gene: ArV2\_16 Start: 12791, Stop: 13762, Start Num: 25

Candidate Starts for ArV2\_16:

(25, 12791), (66, 12935), (89, 13034), (93, 13046), (144, 13220), (152, 13247), (160, 13289), (188, 13403), (204, 13463), (207, 13481), (227, 13544), (238, 13592), (243, 13604), (272, 13703),

Gene: Armstrong\_16 Start: 11609, Stop: 12466, Start Num: 38

Candidate Starts for Armstrong\_16:

(Start: 38 @11609 has 64 MA's), (50, 11648), (62, 11684), (70, 11714), (74, 11726), (98, 11822), (123, 11894), (143, 11969), (148, 11990), (197, 12158), (230, 12269),

Gene: Arroyo\_18 Start: 13651, Stop: 14505, Start Num: 38

Candidate Starts for Arroyo\_18:

(Start: 38 @13651 has 64 MA's), (62, 13726), (70, 13756), (73, 13765), (98, 13864), (102, 13879), (123, 13936), (148, 14032), (151, 14041), (158, 14074), (185, 14158), (194, 14179), (227, 14296), (271, 14437), (290, 14497),

Gene: Asten\_19 Start: 14959, Stop: 15816, Start Num: 37

Candidate Starts for Asten\_19:

(Start: 37 @14959 has 100 MA's), (61, 15031), (66, 15049), (109, 15217), (123, 15244), (175, 15439), (179, 15457), (181, 15463), (198, 15517), (232, 15631), (244, 15652), (288, 15805), (290, 15808),

Gene: Attacne\_15 Start: 11286, Stop: 12227, Start Num: 29

Candidate Starts for Attacne\_15:

(Start: 26 @11277 has 1 MA's), (27, 11280), (Start: 29 @11286 has 42 MA's), (33, 11319), (Start: 40 @11337 has 19 MA's), (48, 11364), (52, 11373), (61, 11403), (62, 11406), (63, 11409), (66, 11421), (80, 11475), (86, 11505), (89, 11520), (93, 11532), (94, 11535), (95, 11538), (107, 11586), (113, 11604), (124, 11640), (127, 11646), (132, 11673), (133, 11676), (142, 11715), (144, 11724), (151, 11748), (154, 11757), (167, 11820), (172, 11832), (181, 11874), (182, 11877), (183, 11880), (197, 11931), (200, 11946), (206, 11967), (211, 11982), (216, 11997), (219, 12003), (249, 12075), (251, 12078), (256, 12096), (257, 12099), (259, 12108), (268, 12156), (272, 12168), (274, 12177), (278, 12192), (280, 12198), (284, 12213),

Gene: AvGardian\_17 Start: 12793, Stop: 13647, Start Num: 38

Candidate Starts for AvGardian\_17:

(Start: 38 @12793 has 64 MA's), (53, 12838), (62, 12868), (70, 12898), (73, 12907), (87, 12967), (98, 13006), (102, 13021), (123, 13078), (135, 13117), (148, 13174), (151, 13183), (158, 13216), (181, 13288), (191, 13315), (194, 13321), (218, 13414), (231, 13456), (267, 13567), (269, 13573), (271, 13579), (290, 13639),

Gene: Avocadoman\_17 Start: 13206, Stop: 14060, Start Num: 38

Candidate Starts for Avocadoman\_17:

(Start: 38 @13206 has 64 MA's), (62, 13281), (70, 13311), (73, 13320), (98, 13419), (102, 13434), (123, 13491), (148, 13587), (151, 13596), (158, 13629), (185, 13713), (227, 13851), (271, 13992), (290, 14052),

Gene: BAjuniper\_17 Start: 12793, Stop: 13644, Start Num: 38

Candidate Starts for BAjuniper\_17:

(Start: 38 @12793 has 64 MA's), (53, 12838), (62, 12868), (70, 12898), (98, 13006), (102, 13021), (123, 13078), (148, 13174), (158, 13213), (185, 13297), (194, 13318), (212, 13393), (233, 13462), (254, 13504), (271, 13576), (290, 13636),

Gene: BabyDaisy\_18 Start: 13266, Stop: 14120, Start Num: 38

Candidate Starts for BabyDaisy\_18:

(Start: 38 @13266 has 64 MA's), (53, 13311), (62, 13341), (70, 13371), (73, 13380), (102, 13494), (123, 13551), (194, 13794), (210, 13866), (230, 13923), (267, 14040), (271, 14052), (290, 14112),

Gene: BabyYoda\_17 Start: 13134, Stop: 13988, Start Num: 38

Candidate Starts for BabyYoda\_17:

(Start: 38 @13134 has 64 MA's), (53, 13179), (62, 13209), (70, 13239), (98, 13347), (102, 13362), (123, 13419), (148, 13515), (151, 13524), (158, 13557), (194, 13662), (196, 13671), (197, 13680), (212, 13737), (218, 13755), (227, 13779), (267, 13908), (271, 13920), (290, 13980),

Gene: Bachaco\_16 Start: 12667, Stop: 13521, Start Num: 38

Candidate Starts for Bachaco\_16:

(Start: 38 @12667 has 64 MA's), (62, 12742), (70, 12772), (82, 12820), (98, 12880), (120, 12946), (123, 12952), (135, 12991), (148, 13048), (158, 13090), (181, 13162), (194, 13195), (197, 13213), (267, 13441), (269, 13447), (290, 13513),

Gene: Banquo\_25 Start: 16992, Stop: 17822, Start Num: 58

Candidate Starts for Banquo\_25:

(Start: 57 @16989 has 6 MA's), (Start: 58 @16992 has 5 MA's), (66, 17007), (75, 17037), (77, 17046), (82, 17070), (108, 17184), (110, 17190), (115, 17202), (117, 17214), (143, 17313), (163, 17400), (171, 17424), (196, 17508), (200, 17532), (201, 17535), (212, 17571), (244, 17652), (262, 17718), (267, 17742), (271, 17754), (272, 17757),

Gene: Barnstormer\_15 Start: 12284, Stop: 13150, Start Num: 36

Candidate Starts for Barnstormer\_15:

(Start: 36 @12284 has 9 MA's), (44, 12305), (75, 12410), (93, 12488), (153, 12695), (179, 12797), (227, 12947), (258, 13022), (271, 13082), (285, 13133),

Gene: BarryBee\_21 Start: 14969, Stop: 15826, Start Num: 37

Candidate Starts for BarryBee\_21:

(Start: 37 @14969 has 100 MA's), (61, 15041), (66, 15059), (109, 15227), (123, 15254), (175, 15449), (179, 15467), (181, 15473), (198, 15527), (232, 15641), (244, 15662), (288, 15815), (290, 15818),

Gene: BartholomewSD\_21 Start: 15007, Stop: 15861, Start Num: 37

Candidate Starts for BartholomewSD\_21:

(Start: 37 @15007 has 100 MA's), (56, 15061), (66, 15097), (179, 15502), (288, 15850), (290, 15853),

Gene: Bauer\_20 Start: 15182, Stop: 16024, Start Num: 43

Candidate Starts for Bauer\_20:

(Start: 24 @15113 has 7 MA's), (28, 15122), (30, 15140), (31, 15143), (33, 15158), (Start: 43 @15182 has 2 MA's), (44, 15185), (60, 15239), (68, 15269), (70, 15275), (80, 15314), (85, 15341), (86, 15344), (89, 15359), (105, 15407), (118, 15449), (127, 15467), (136, 15512), (144, 15548), (145, 15551), (152, 15575), (173, 15668), (194, 15713), (200, 15746), (207, 15776), (217, 15803), (221, 15815), (224, 15836), (242, 15863), (254, 15893), (266, 15947), (268, 15953), (272, 15965),

Gene: BeardedLady\_20 Start: 15240, Stop: 16097, Start Num: 37

Candidate Starts for BeardedLady\_20:

(Start: 37 @15240 has 100 MA's), (61, 15312), (66, 15330), (75, 15360), (82, 15393), (109, 15498), (123, 15525), (150, 15627), (159, 15672), (179, 15738), (181, 15744), (198, 15798), (200, 15810), (232, 15912), (240, 15924), (244, 15933), (288, 16086), (290, 16089),

Gene: BelmontSKP\_18 Start: 13450, Stop: 14304, Start Num: 38

Candidate Starts for BelmontSKP\_18:

(Start: 38 @13450 has 64 MA's), (62, 13525), (70, 13555), (73, 13564), (98, 13663), (102, 13678), (123, 13735), (148, 13831), (151, 13840), (185, 13957), (194, 13978), (227, 14095), (271, 14236), (290, 14296),

Gene: Benry\_20 Start: 13849, Stop: 14670, Start Num: 54

Candidate Starts for Benry\_20:

(Start: 38 @13807 has 64 MA's), (Start: 54 @13849 has 1 MA's), (66, 13888), (70, 13903), (89, 13984), (91, 13990), (110, 14059), (134, 14125), (151, 14194), (154, 14203), (158, 14233), (165, 14251), (197, 14368), (217, 14437), (225, 14458), (226, 14461), (232, 14485), (269, 14596), (270, 14599), (287, 14656), (288, 14659),

Gene: Bernstein\_16 Start: 11669, Stop: 12526, Start Num: 38

Candidate Starts for Bernstein\_16:

(Start: 38 @11669 has 64 MA's), (50, 11708), (62, 11744), (70, 11774), (74, 11786), (98, 11882), (123, 11954), (143, 12029), (148, 12050), (197, 12218), (230, 12329),

Gene: BlackSpider\_18 Start: 14770, Stop: 15681, Start Num: 24

Candidate Starts for BlackSpider\_18:

(1, 14101), (2, 14233), (5, 14440), (Start: 24 @14770 has 7 MA's), (Start: 43 @14839 has 2 MA's), (51, 14866), (66, 14917), (68, 14926), (70, 14932), (89, 15016), (127, 15124), (133, 15154), (136, 15169), (142, 15196), (144, 15205), (152, 15232), (173, 15325), (178, 15340), (194, 15370), (200, 15403), (209, 15439), (212, 15445), (221, 15472), (226, 15499), (253, 15544), (254, 15550), (258, 15562), (268, 15610), (270, 15616), (272, 15622),

Gene: Blett\_23 Start: 13718, Stop: 14578, Start Num: 40

Candidate Starts for Blett\_23:

(Start: 40 @13718 has 19 MA's), (53, 13754), (Start: 54 @13757 has 1 MA's), (61, 13778), (63, 13784), (66, 13796), (68, 13805), (70, 13811), (86, 13877), (102, 13934), (110, 13967), (141, 14060), (147, 14087), (178, 14210), (179, 14216), (191, 14249), (210, 14327), (287, 14564), (288, 14567),

Gene: Bovely\_19 Start: 14999, Stop: 15856, Start Num: 37

Candidate Starts for Bovely\_19:

(Start: 37 @14999 has 100 MA's), (61, 15071), (66, 15089), (75, 15119), (82, 15152), (109, 15257), (123, 15284), (150, 15386), (159, 15431), (179, 15497), (181, 15503), (198, 15557), (200, 15569), (232, 15671), (240, 15683), (244, 15692), (288, 15845), (290, 15848),

Gene: Bowden\_20 Start: 14939, Stop: 15793, Start Num: 37

Candidate Starts for Bowden\_20:

(Start: 37 @14939 has 100 MA's), (56, 14993), (66, 15029), (134, 15260), (179, 15434), (288, 15782), (290, 15785),

Gene: Brahms\_16 Start: 11609, Stop: 12466, Start Num: 38

Candidate Starts for Brahms\_16:

(Start: 38 @11609 has 64 MA's), (50, 11648), (62, 11684), (70, 11714), (74, 11726), (98, 11822), (123, 11894), (143, 11969), (148, 11990), (197, 12158), (230, 12269),

Gene: Brataylor\_20 Start: 14985, Stop: 15842, Start Num: 37

Candidate Starts for Brataylor\_20:

(Start: 37 @14985 has 100 MA's), (61, 15057), (109, 15243), (123, 15270), (159, 15417), (177, 15474), (178, 15477), (179, 15483), (181, 15489), (217, 15612), (244, 15678), (288, 15831), (290, 15834),

Gene: BrayBeast\_17 Start: 13162, Stop: 14070, Start Num: 24

Candidate Starts for BrayBeast\_17:

(Start: 24 @13162 has 7 MA's), (Start: 43 @13231 has 2 MA's), (60, 13288), (70, 13321), (80, 13360), (86, 13390), (89, 13405), (105, 13453), (133, 13543), (136, 13558), (144, 13594), (152, 13621), (154,

13627), (173, 13714), (194, 13759), (207, 13822), (209, 13828), (221, 13861), (226, 13888), (242, 13909), (253, 13933), (254, 13939), (258, 13951), (266, 13993), (268, 13999), (270, 14005), (272, 14011),

Gene: BroPlease\_20 Start: 15689, Stop: 16543, Start Num: 37

Candidate Starts for BroPlease\_20:

(7, 15533), (8, 15536), (Start: 37 @15689 has 100 MA's), (73, 15803), (82, 15842), (110, 15950), (130, 15992), (142, 16046), (229, 16349), (288, 16532), (290, 16535), (291, 16538),

Gene: BruceLethal\_15 Start: 11290, Stop: 12237, Start Num: 29

Candidate Starts for BruceLethal\_15:

(23, 11275), (Start: 26 @11281 has 1 MA's), (Start: 29 @11290 has 42 MA's), (33, 11323), (Start: 40 @11341 has 19 MA's), (41, 11344), (Start: 43 @11350 has 2 MA's), (48, 11374), (52, 11383), (61, 11413), (66, 11431), (68, 11440), (80, 11485), (86, 11515), (89, 11530), (93, 11542), (95, 11548), (107, 11596), (113, 11614), (119, 11641), (124, 11650), (127, 11656), (132, 11683), (137, 11707), (151, 11758), (154, 11767), (167, 11830), (172, 11842), (181, 11884), (182, 11887), (183, 11890), (197, 11941), (200, 11956), (206, 11977), (211, 11992), (216, 12007), (219, 12013), (249, 12085), (251, 12088), (256, 12106), (257, 12109), (259, 12118), (268, 12166), (272, 12178), (274, 12187), (278, 12202), (280, 12208), (284, 12223),

Gene: BryanRecycles\_20 Start: 15156, Stop: 16013, Start Num: 37

Candidate Starts for BryanRecycles\_20:

(Start: 37 @15156 has 100 MA's), (61, 15228), (66, 15246), (82, 15309), (109, 15414), (123, 15441), (134, 15477), (150, 15543), (159, 15588), (179, 15654), (181, 15660), (200, 15726), (210, 15765), (217, 15783), (240, 15840), (253, 15867), (288, 16002), (290, 16005),

Gene: BubbaBear\_17 Start: 13131, Stop: 13985, Start Num: 38

Candidate Starts for BubbaBear\_17:

(Start: 38 @13131 has 64 MA's), (62, 13206), (70, 13236), (73, 13245), (98, 13344), (123, 13416), (148, 13512), (151, 13521), (158, 13554), (185, 13638), (267, 13905), (271, 13917), (290, 13977),

Gene: Buldak\_16 Start: 13043, Stop: 13900, Start Num: 38

Candidate Starts for Buldak\_16:

(Start: 38 @13043 has 64 MA's), (53, 13085), (70, 13145), (93, 13238), (95, 13244), (102, 13268), (107, 13292), (110, 13301), (120, 13319), (123, 13325), (148, 13421), (151, 13430), (166, 13484), (170, 13493), (181, 13538), (191, 13565), (203, 13613), (218, 13664), (260, 13787), (266, 13817), (269, 13826), (288, 13889),

Gene: Burritobowl\_17 Start: 13209, Stop: 14063, Start Num: 38

Candidate Starts for Burritobowl\_17:

(Start: 38 @13209 has 64 MA's), (62, 13284), (70, 13314), (73, 13323), (98, 13422), (102, 13437), (123, 13494), (148, 13590), (151, 13599), (158, 13632), (185, 13716), (194, 13737), (227, 13854), (271, 13995), (290, 14055),

Gene: Bush\_23 Start: 13699, Stop: 14559, Start Num: 40

Candidate Starts for Bush\_23:

(Start: 40 @13699 has 19 MA's), (53, 13735), (Start: 54 @13738 has 1 MA's), (61, 13759), (63, 13765), (66, 13777), (70, 13792), (86, 13858), (93, 13885), (102, 13915), (110, 13948), (141, 14041), (147, 14068), (178, 14191), (179, 14197), (191, 14230), (210, 14308), (287, 14545), (288, 14548),

Gene: Caelum\_20 Start: 15485, Stop: 16339, Start Num: 37

Candidate Starts for Caelum\_20:

(Start: 37 @15485 has 100 MA's), (44, 15503), (59, 15551), (66, 15575), (73, 15599), (77, 15614), (109, 15743), (162, 15923), (178, 15974), (179, 15980), (200, 16052), (244, 16175), (258, 16211), (272, 16274), (288, 16328), (290, 16331),

Gene: Caliburn\_19 Start: 14973, Stop: 15830, Start Num: 37

Candidate Starts for Caliburn\_19:

(Start: 37 @14973 has 100 MA's), (61, 15045), (66, 15063), (75, 15093), (82, 15126), (109, 15231), (123, 15258), (150, 15360), (159, 15405), (179, 15471), (181, 15477), (198, 15531), (200, 15543), (232, 15645), (240, 15657), (244, 15666), (288, 15819), (290, 15822),

Gene: Caron\_15 Start: 12326, Stop: 13192, Start Num: 36

Candidate Starts for Caron\_15:

(Start: 36 @12326 has 9 MA's), (44, 12347), (75, 12452), (93, 12530), (153, 12737), (179, 12839), (246, 13028), (258, 13064), (271, 13124), (285, 13175),

Gene: Cashington\_17 Start: 13058, Stop: 13912, Start Num: 38

Candidate Starts for Cashington\_17:

(Start: 38 @13058 has 64 MA's), (62, 13133), (70, 13163), (73, 13172), (98, 13271), (102, 13286), (123, 13343), (148, 13439), (151, 13448), (158, 13481), (185, 13565), (194, 13586), (227, 13703), (271, 13844), (290, 13904),

Gene: Catfish\_21 Start: 17616, Stop: 18467, Start Num: 57

Candidate Starts for Catfish\_21:

(Start: 57 @17616 has 6 MA's), (Start: 58 @17619 has 5 MA's), (65, 17640), (75, 17676), (82, 17709), (97, 17778), (108, 17823), (117, 17853), (153, 17988), (157, 18015), (163, 18039), (170, 18060), (201, 18180), (223, 18246), (226, 18252), (284, 18447),

Gene: Celaena\_16 Start: 12603, Stop: 13457, Start Num: 38

Candidate Starts for Celaena\_16:

(Start: 38 @12603 has 64 MA's), (62, 12678), (70, 12708), (82, 12756), (98, 12816), (102, 12831), (123, 12888), (135, 12927), (148, 12984), (158, 13026), (181, 13098), (194, 13131), (197, 13149), (267, 13377), (269, 13383), (290, 13449),

Gene: Celery\_22 Start: 15630, Stop: 16484, Start Num: 37

Candidate Starts for Celery\_22:

(Start: 37 @15630 has 100 MA's), (49, 15666), (61, 15702), (66, 15720), (73, 15744), (96, 15837), (109, 15888), (146, 16002), (150, 16017), (151, 16020), (159, 16062), (175, 16107), (177, 16116), (178, 16119), (179, 16125), (187, 16149), (280, 16449), (288, 16473), (290, 16476),

Gene: Celeste\_19 Start: 14977, Stop: 15834, Start Num: 37

Candidate Starts for Celeste\_19:

(Start: 37 @14977 has 100 MA's), (61, 15049), (82, 15130), (109, 15235), (123, 15262), (177, 15466), (178, 15469), (179, 15475), (200, 15547), (217, 15604), (244, 15670), (288, 15823), (290, 15826),

Gene: Celia\_19 Start: 15416, Stop: 16273, Start Num: 37

Candidate Starts for Celia\_19:

(Start: 37 @15416 has 100 MA's), (55, 15467), (61, 15488), (66, 15506), (73, 15530), (82, 15569), (181, 15920), (191, 15947), (200, 15986), (218, 16046), (279, 16235), (288, 16262), (290, 16265),

Gene: Cen1621\_15 Start: 11346, Stop: 12224, Start Num: 34

Candidate Starts for Cen1621\_15:

(Start: 34 @11346 has 2 MA's), (64, 11436), (111, 11619), (197, 11919), (271, 12156), (290, 12216),



Gene: ChiliPepper\_16 Start: 12807, Stop: 13661, Start Num: 38

Candidate Starts for ChiliPepper\_16:

(Start: 38 @12807 has 64 MA's), (46, 12831), (53, 12852), (62, 12882), (70, 12912), (102, 13035), (120, 13086), (123, 13092), (185, 13314), (191, 13329), (194, 13335), (231, 13470), (267, 13581), (271, 13593), (290, 13653),

Gene: Chivey\_29 Start: 16948, Stop: 17838, Start Num: 35

Candidate Starts for Chivey\_29:

(Start: 35 @16948 has 26 MA's), (101, 17176), (106, 17203), (126, 17272), (133, 17296), (140, 17329), (181, 17485), (194, 17518), (200, 17551), (217, 17608), (233, 17659), (264, 17749), (273, 17779), (290, 17830), (291, 17833),

Gene: Chucky\_19 Start: 14970, Stop: 15827, Start Num: 37

Candidate Starts for Chucky\_19:

(Start: 37 @14970 has 100 MA's), (61, 15042), (66, 15060), (109, 15228), (123, 15255), (179, 15468), (181, 15474), (200, 15540), (217, 15597), (232, 15642), (244, 15663), (288, 15816), (290, 15819),

Gene: Cicada\_22 Start: 15575, Stop: 16468, Start Num: 40

Candidate Starts for Cicada\_22:

(Start: 40 @15575 has 19 MA's), (70, 15668), (91, 15755), (110, 15839), (134, 15920), (135, 15923), (165, 16046), (209, 16214), (232, 16283), (244, 16304), (246, 16307), (269, 16394), (270, 16397), (280, 16433),

Gene: Clayda5\_16 Start: 11609, Stop: 12466, Start Num: 38

Candidate Starts for Clayda5\_16:

(Start: 38 @11609 has 64 MA's), (50, 11648), (62, 11684), (70, 11714), (74, 11726), (98, 11822), (123, 11894), (143, 11969), (148, 11990), (197, 12158), (230, 12269),

Gene: Coltrane\_16 Start: 11609, Stop: 12466, Start Num: 38

Candidate Starts for Coltrane\_16:

(Start: 38 @11609 has 64 MA's), (50, 11648), (62, 11684), (70, 11714), (74, 11726), (98, 11822), (123, 11894), (143, 11969), (148, 11990), (197, 12158), (230, 12269),

Gene: Conan\_22 Start: 15399, Stop: 16256, Start Num: 37

Candidate Starts for Conan\_22:

(Start: 37 @15399 has 100 MA's), (49, 15435), (61, 15471), (73, 15513), (109, 15657), (150, 15786), (151, 15789), (159, 15831), (178, 15891), (179, 15897), (210, 16008), (232, 16071), (244, 16092), (280, 16221), (288, 16245), (290, 16248),

Gene: CoolCookie\_34 Start: 17793, Stop: 18683, Start Num: 35

Candidate Starts for CoolCookie\_34:

(Start: 35 @17793 has 26 MA's), (126, 18117), (133, 18141), (140, 18174), (181, 18330), (200, 18396), (233, 18504), (273, 18624), (290, 18675), (291, 18678),

Gene: Cota\_15 Start: 11295, Stop: 12242, Start Num: 29

Candidate Starts for Cota\_15:

(23, 11280), (Start: 26 @11286 has 1 MA's), (Start: 29 @11295 has 42 MA's), (33, 11328), (Start: 40 @11346 has 19 MA's), (41, 11349), (Start: 43 @11355 has 2 MA's), (48, 11379), (52, 11388), (61, 11418), (62, 11421), (63, 11424), (66, 11436), (70, 11451), (73, 11460), (80, 11490), (86, 11520), (89, 11535), (93, 11547), (94, 11550), (95, 11553), (107, 11601), (113, 11619), (124, 11655), (127, 11661), (132, 11688), (137, 11712), (144, 11739), (151, 11763), (154, 11772), (167, 11835), (181, 11889), (182, 11892), (183, 11895), (187, 11907), (197, 11946), (200, 11961), (203, 11970), (206, 11982), (211, 11997), (216, 12012), (219, 12018), (249, 12090), (251, 12093), (256, 12111), (257, 12114),

(259, 12123), (268, 12171), (272, 12183), (274, 12192), (278, 12207), (280, 12213), (284, 12228),

Gene: Crestdrop\_30 Start: 16857, Stop: 17747, Start Num: 35

Candidate Starts for Crestdrop\_30:

(Start: 35 @16857 has 26 MA's), (106, 17112), (126, 17181), (133, 17205), (140, 17238), (194, 17427), (200, 17460), (217, 17517), (233, 17568), (264, 17658), (273, 17688), (290, 17739), (291, 17742),

Gene: CroZenni\_17 Start: 13041, Stop: 13895, Start Num: 38

Candidate Starts for CroZenni\_17:

(Start: 38 @13041 has 64 MA's), (62, 13116), (70, 13146), (73, 13155), (98, 13254), (102, 13269), (123, 13326), (148, 13422), (151, 13431), (158, 13464), (185, 13548), (194, 13569), (227, 13686), (271, 13827), (290, 13887),

Gene: Cybele\_30 Start: 17763, Stop: 18653, Start Num: 35

Candidate Starts for Cybele\_30:

(Start: 35 @17763 has 26 MA's), (126, 18087), (133, 18111), (140, 18144), (181, 18300), (233, 18474), (273, 18594), (290, 18645), (291, 18648),

Gene: DannyDe\_29 Start: 16940, Stop: 17830, Start Num: 35

Candidate Starts for DannyDe\_29:

(Start: 35 @16940 has 26 MA's), (101, 17168), (106, 17195), (126, 17264), (133, 17288), (140, 17321), (194, 17510), (200, 17543), (217, 17600), (233, 17651), (264, 17741), (273, 17771), (290, 17822), (291, 17825),

Gene: Danzina\_20 Start: 15187, Stop: 16044, Start Num: 37

Candidate Starts for Danzina\_20:

(Start: 37 @15187 has 100 MA's), (61, 15259), (82, 15340), (109, 15445), (123, 15472), (177, 15676), (178, 15679), (179, 15685), (217, 15814), (244, 15880), (288, 16033), (290, 16036),

Gene: Dardanus\_23 Start: 15835, Stop: 16677, Start Num: 57

Candidate Starts for Dardanus\_23:

(Start: 57 @15835 has 6 MA's), (Start: 58 @15838 has 5 MA's), (64, 15850), (75, 15886), (81, 15916), (82, 15919), (94, 15967), (101, 16000), (115, 16051), (117, 16063), (123, 16075), (153, 16198), (161, 16240), (163, 16249), (169, 16267), (170, 16270), (180, 16318), (181, 16321), (189, 16342), (201, 16390), (212, 16426), (240, 16498), (241, 16501), (244, 16507), (267, 16597), (272, 16612), (282, 16648),

Gene: Dattran\_20 Start: 14976, Stop: 15833, Start Num: 37

Candidate Starts for Dattran\_20:

(Start: 37 @14976 has 100 MA's), (61, 15048), (82, 15129), (109, 15234), (123, 15261), (177, 15465), (178, 15468), (179, 15474), (200, 15546), (217, 15603), (244, 15669), (288, 15822), (290, 15825),

Gene: Daudau\_19 Start: 14913, Stop: 15773, Start Num: 37

Candidate Starts for Daudau\_19:

(Start: 37 @14913 has 100 MA's), (Start: 43 @14928 has 2 MA's), (56, 14970), (66, 15006), (82, 15069), (123, 15201), (179, 15414), (288, 15762), (290, 15765), (291, 15768),

Gene: Dauntless\_30 Start: 17500, Stop: 18390, Start Num: 35

Candidate Starts for Dauntless\_30:

(Start: 35 @17500 has 26 MA's), (106, 17755), (126, 17824), (133, 17848), (140, 17881), (181, 18037), (194, 18070), (217, 18160), (233, 18211), (264, 18301), (273, 18331), (278, 18349), (290, 18382), (291, 18385),

Gene: DelaGarza\_21 Start: 14265, Stop: 15128, Start Num: 38

Candidate Starts for DelaGarza\_21:

(Start: 37 @14262 has 100 MA's), (Start: 38 @14265 has 64 MA's), (68, 14355), (70, 14361), (88, 14439), (91, 14448), (93, 14454), (111, 14520), (135, 14586), (141, 14613), (151, 14652), (179, 14769), (181, 14775), (191, 14802), (197, 14826), (232, 14943), (239, 14952), (253, 14982), (269, 15054), (287, 15114),

Gene: Dexers\_18 Start: 15380, Stop: 16237, Start Num: 37

Candidate Starts for Dexers\_18:

(Start: 37 @15380 has 100 MA's), (49, 15416), (61, 15452), (73, 15494), (109, 15638), (123, 15665), (178, 15872), (179, 15878), (187, 15902), (232, 16052), (280, 16202), (288, 16226), (290, 16229),

Gene: Diane\_19 Start: 15448, Stop: 16305, Start Num: 37

Candidate Starts for Diane\_19:

(Start: 37 @15448 has 100 MA's), (66, 15538), (109, 15706), (121, 15730), (134, 15769), (159, 15880), (162, 15889), (179, 15946), (198, 16006), (200, 16018), (203, 16027), (217, 16075), (244, 16141), (258, 16177), (272, 16240), (288, 16294), (290, 16297),

Gene: DickRichards\_17 Start: 13536, Stop: 14390, Start Num: 38

Candidate Starts for DickRichards\_17:

(Start: 38 @13536 has 64 MA's), (62, 13611), (70, 13641), (73, 13650), (98, 13749), (102, 13764), (123, 13821), (148, 13917), (151, 13926), (158, 13959), (185, 14043), (194, 14064), (227, 14181), (271, 14322), (290, 14382),

Gene: Didgeridoo\_18 Start: 13268, Stop: 14122, Start Num: 38

Candidate Starts for Didgeridoo\_18:

(Start: 38 @13268 has 64 MA's), (53, 13313), (62, 13343), (70, 13373), (73, 13382), (102, 13496), (123, 13553), (194, 13796), (210, 13868), (230, 13925), (267, 14042), (271, 14054), (290, 14114),

Gene: DinoDaryn\_23 Start: 15864, Stop: 16697, Start Num: 57

Candidate Starts for DinoDaryn\_23:

(Start: 57 @15864 has 6 MA's), (Start: 58 @15867 has 5 MA's), (66, 15882), (77, 15921), (81, 15942), (82, 15945), (117, 16089), (163, 16275), (189, 16362), (212, 16446), (244, 16527), (265, 16611), (267, 16617), (271, 16629), (272, 16632), (278, 16656),

Gene: DirtyBubble\_17 Start: 13092, Stop: 13946, Start Num: 38

Candidate Starts for DirtyBubble\_17:

(Start: 38 @13092 has 64 MA's), (53, 13137), (62, 13167), (70, 13197), (98, 13305), (102, 13320), (123, 13377), (148, 13473), (151, 13482), (158, 13515), (194, 13620), (196, 13629), (212, 13695), (218, 13713), (227, 13737), (267, 13866), (271, 13878), (290, 13938),

Gene: Dismas\_16 Start: 12807, Stop: 13661, Start Num: 38

Candidate Starts for Dismas\_16:

(Start: 38 @12807 has 64 MA's), (46, 12831), (53, 12852), (62, 12882), (70, 12912), (102, 13035), (120, 13086), (123, 13092), (185, 13314), (191, 13329), (194, 13335), (231, 13470), (267, 13581), (271, 13593), (290, 13653),

Gene: Doobus\_17 Start: 13393, Stop: 14247, Start Num: 38

Candidate Starts for Doobus\_17:

(Start: 38 @13393 has 64 MA's), (62, 13468), (70, 13498), (73, 13507), (98, 13606), (102, 13621), (123, 13678), (148, 13774), (151, 13783), (158, 13816), (185, 13900), (227, 14038), (229, 14047), (266, 14164), (271, 14179), (290, 14239),

Gene: DrParker\_15 Start: 11327, Stop: 12268, Start Num: 29

Candidate Starts for DrParker\_15:

(21, 11306), (Start: 26 @11318 has 1 MA's), (27, 11321), (Start: 29 @11327 has 42 MA's), (33, 11360), (Start: 40 @11378 has 19 MA's), (48, 11405), (52, 11414), (60, 11441), (61, 11444), (62, 11447), (63, 11450), (66, 11462), (68, 11471), (73, 11486), (80, 11516), (86, 11546), (89, 11561), (91, 11567), (93, 11573), (94, 11576), (95, 11579), (107, 11627), (113, 11645), (127, 11687), (132, 11714), (142, 11756), (144, 11765), (152, 11792), (154, 11798), (167, 11861), (172, 11873), (181, 11915), (182, 11918), (197, 11972), (200, 11987), (206, 12008), (211, 12023), (216, 12038), (219, 12044), (226, 12062), (256, 12137), (257, 12140), (259, 12149), (268, 12197), (272, 12209), (274, 12218), (278, 12233), (280, 12239), (284, 12254),

Gene: Dropshot\_22 Start: 13565, Stop: 14425, Start Num: 40

Candidate Starts for Dropshot\_22:

(Start: 40 @13565 has 19 MA's), (53, 13601), (Start: 54 @13604 has 1 MA's), (61, 13625), (63, 13631), (66, 13643), (70, 13658), (86, 13724), (93, 13751), (102, 13781), (110, 13814), (141, 13907), (147, 13934), (178, 14057), (179, 14063), (191, 14096), (210, 14174), (287, 14411), (288, 14414),

Gene: Dwayne\_19 Start: 14966, Stop: 15823, Start Num: 37

Candidate Starts for Dwayne\_19:

(Start: 37 @14966 has 100 MA's), (61, 15038), (66, 15056), (109, 15224), (123, 15251), (175, 15446), (179, 15464), (181, 15470), (198, 15524), (232, 15638), (244, 15659), (288, 15812), (290, 15815),

Gene: ELB20\_18 Start: 15035, Stop: 15892, Start Num: 37

Candidate Starts for ELB20\_18:

(Start: 37 @15035 has 100 MA's), (56, 15089), (66, 15125), (109, 15293), (179, 15533), (246, 15731), (288, 15881), (290, 15884),

Gene: Eddasa\_20 Start: 15156, Stop: 16013, Start Num: 37

Candidate Starts for Eddasa\_20:

(Start: 37 @15156 has 100 MA's), (61, 15228), (66, 15246), (82, 15309), (109, 15414), (123, 15441), (134, 15477), (150, 15543), (159, 15588), (179, 15654), (181, 15660), (200, 15726), (210, 15765), (217, 15783), (240, 15840), (253, 15867), (288, 16002), (290, 16005),

Gene: Eden\_16 Start: 11733, Stop: 12590, Start Num: 37

Candidate Starts for Eden\_16:

(Start: 37 @11733 has 100 MA's), (53, 11778), (62, 11808), (70, 11838), (71, 11841), (98, 11946), (102, 11961), (123, 12018), (134, 12054), (148, 12114), (151, 12123), (166, 12180), (194, 12264), (210, 12336), (233, 12408), (290, 12582),

Gene: Ejemplo\_19 Start: 14966, Stop: 15823, Start Num: 37

Candidate Starts for Ejemplo\_19:

(Start: 37 @14966 has 100 MA's), (61, 15038), (66, 15056), (109, 15224), (123, 15251), (179, 15464), (181, 15470), (200, 15536), (217, 15593), (232, 15638), (244, 15659), (279, 15785), (288, 15812), (290, 15815),

Gene: ElGato\_21 Start: 15402, Stop: 16259, Start Num: 37

Candidate Starts for ElGato\_21:

(Start: 37 @15402 has 100 MA's), (49, 15438), (61, 15474), (73, 15516), (109, 15660), (123, 15687), (150, 15789), (151, 15792), (159, 15834), (160, 15837), (178, 15894), (179, 15900), (192, 15936), (232, 16074), (280, 16224), (288, 16248), (290, 16251),

Gene: Elva\_18 Start: 13053, Stop: 13907, Start Num: 38

Candidate Starts for Elva\_18:

(Start: 38 @13053 has 64 MA's), (53, 13098), (62, 13128), (70, 13158), (73, 13167), (98, 13266), (123, 13338), (148, 13434), (158, 13476), (181, 13548), (191, 13575), (194, 13581), (196, 13590), (210, 13653), (252, 13755), (271, 13839), (290, 13899),

Gene: Emaanora\_21 Start: 14969, Stop: 15826, Start Num: 37

Candidate Starts for Emaanora\_21:

(Start: 37 @14969 has 100 MA's), (61, 15041), (66, 15059), (109, 15227), (123, 15254), (175, 15449), (179, 15467), (181, 15473), (198, 15527), (232, 15641), (244, 15662), (288, 15815), (290, 15818),

Gene: EmiRose\_16 Start: 13050, Stop: 13937, Start Num: 47

Candidate Starts for EmiRose\_16:

(Start: 47 @13050 has 1 MA's), (53, 13068), (72, 13137), (93, 13227), (96, 13236), (103, 13269), (106, 13284), (148, 13440), (149, 13443), (151, 13449), (192, 13608), (199, 13638), (205, 13668), (208, 13680), (253, 13794), (254, 13800),

Gene: EnochSoames\_21 Start: 15152, Stop: 16009, Start Num: 37

Candidate Starts for EnochSoames\_21:

(Start: 37 @15152 has 100 MA's), (61, 15224), (66, 15242), (82, 15305), (109, 15410), (123, 15437), (150, 15539), (159, 15584), (179, 15650), (181, 15656), (200, 15722), (210, 15761), (217, 15779), (240, 15836), (288, 15998), (290, 16001),

Gene: Enochoraptor\_15 Start: 11298, Stop: 12239, Start Num: 29

Candidate Starts for Enochoraptor\_15:

(Start: 24 @11283 has 7 MA's), (Start: 26 @11289 has 1 MA's), (27, 11292), (Start: 29 @11298 has 42 MA's), (33, 11331), (Start: 40 @11349 has 19 MA's), (48, 11376), (52, 11385), (61, 11415), (62, 11418), (63, 11421), (66, 11433), (68, 11442), (80, 11487), (86, 11517), (89, 11532), (93, 11544), (94, 11547), (95, 11550), (107, 11598), (113, 11616), (124, 11652), (127, 11658), (132, 11685), (137, 11709), (144, 11736), (152, 11763), (154, 11769), (167, 11832), (172, 11844), (181, 11886), (182, 11889), (183, 11892), (197, 11943), (200, 11958), (206, 11979), (211, 11994), (216, 12009), (219, 12015), (249, 12087), (251, 12090), (256, 12108), (257, 12111), (259, 12120), (268, 12168), (272, 12180), (274, 12189), (278, 12204), (280, 12210), (284, 12225),

Gene: Enoki\_15 Start: 11280, Stop: 12221, Start Num: 29

Candidate Starts for Enoki\_15:

(22, 11262), (Start: 29 @11280 has 42 MA's), (33, 11313), (Start: 34 @11319 has 2 MA's), (Start: 40 @11331 has 19 MA's), (48, 11358), (52, 11367), (61, 11397), (62, 11400), (63, 11403), (66, 11415), (68, 11424), (73, 11439), (80, 11469), (86, 11499), (89, 11514), (93, 11526), (94, 11529), (95, 11532), (98, 11541), (102, 11556), (107, 11580), (113, 11598), (124, 11634), (127, 11640), (132, 11667), (133, 11670), (137, 11691), (144, 11718), (151, 11742), (154, 11751), (167, 11814), (172, 11826), (181, 11868), (182, 11871), (183, 11874), (187, 11886), (197, 11925), (200, 11940), (206, 11961), (211, 11976), (216, 11991), (219, 11997), (249, 12069), (251, 12072), (256, 12090), (257, 12093), (259, 12102), (268, 12150), (272, 12162), (274, 12171), (278, 12186), (280, 12192), (284, 12207),

Gene: Erudite\_29 Start: 17500, Stop: 18390, Start Num: 35

Candidate Starts for Erudite\_29:

(Start: 35 @17500 has 26 MA's), (106, 17755), (126, 17824), (133, 17848), (140, 17881), (181, 18037), (194, 18070), (217, 18160), (233, 18211), (264, 18301), (273, 18331), (278, 18349), (290, 18382), (291, 18385),

Gene: Esperer\_19 Start: 14993, Stop: 15850, Start Num: 37

Candidate Starts for Esperer\_19:

(Start: 37 @14993 has 100 MA's), (61, 15065), (66, 15083), (75, 15113), (82, 15146), (109, 15251), (123, 15278), (150, 15380), (159, 15425), (179, 15491), (181, 15497), (198, 15551), (200, 15563), (232, 15665), (240, 15677), (244, 15686), (288, 15839), (290, 15842),

Gene: Eula\_17 Start: 13119, Stop: 13973, Start Num: 38

Candidate Starts for Eula\_17:

(Start: 38 @13119 has 64 MA's), (62, 13194), (70, 13224), (73, 13233), (98, 13332), (102, 13347), (123, 13404), (148, 13500), (151, 13509), (158, 13542), (185, 13626), (191, 13641), (267, 13893), (271, 13905), (290, 13965),

Gene: Finalfrontier\_18 Start: 13632, Stop: 14486, Start Num: 38

Candidate Starts for Finalfrontier\_18:

(Start: 38 @13632 has 64 MA's), (53, 13677), (62, 13707), (70, 13737), (73, 13746), (102, 13860), (123, 13917), (194, 14160), (210, 14232), (230, 14289), (267, 14406), (271, 14418), (290, 14478),

Gene: FireCastle\_20 Start: 15375, Stop: 16238, Start Num: 38

Candidate Starts for FireCastle\_20:

(15, 15270), (Start: 38 @15375 has 64 MA's), (53, 15414), (70, 15471), (89, 15552), (91, 15558), (93, 15564), (102, 15594), (110, 15627), (134, 15693), (154, 15771), (158, 15801), (165, 15819), (195, 15921), (209, 15987), (215, 16002), (253, 16092), (269, 16164), (278, 16197), (280, 16203), (281, 16206), (287, 16224),

Gene: FlameThrower\_16 Start: 12491, Stop: 13345, Start Num: 38

Candidate Starts for FlameThrower\_16:

(Start: 38 @12491 has 64 MA's), (62, 12566), (70, 12596), (82, 12644), (98, 12704), (102, 12719), (120, 12770), (123, 12776), (135, 12815), (146, 12863), (148, 12872), (158, 12914), (181, 12986), (194, 13019), (197, 13037), (267, 13265), (269, 13271), (290, 13337),

Gene: Floof\_16 Start: 12468, Stop: 13334, Start Num: 36

Candidate Starts for Floof\_16:

(Start: 36 @12468 has 9 MA's), (71, 12582), (75, 12594), (92, 12669), (93, 12672), (126, 12780), (131, 12795), (142, 12846), (147, 12867), (179, 12981), (190, 13011), (194, 13020), (229, 13140), (271, 13266),

Gene: Franklin22\_17 Start: 11912, Stop: 12769, Start Num: 38

Candidate Starts for Franklin22\_17:

(3, 11378), (4, 11465), (Start: 38 @11912 has 64 MA's), (62, 11987), (70, 12017), (98, 12125), (120, 12191), (123, 12197), (148, 12293), (194, 12443), (197, 12461), (210, 12515), (233, 12587), (267, 12689), (290, 12761),

Gene: FreddieHg\_29 Start: 16964, Stop: 17854, Start Num: 35

Candidate Starts for FreddieHg\_29:

(Start: 35 @16964 has 26 MA's), (101, 17192), (106, 17219), (126, 17288), (133, 17312), (140, 17345), (181, 17501), (194, 17534), (200, 17567), (217, 17624), (233, 17675), (264, 17765), (273, 17795), (290, 17846), (291, 17849),

Gene: GMA4\_17 Start: 16043, Stop: 16957, Start Num: 42

Candidate Starts for GMA4\_17:

(14, 15926), (17, 15941), (28, 15983), (42, 16043), (89, 16232), (95, 16250), (112, 16325), (117, 16349), (143, 16448), (154, 16487), (181, 16598), (182, 16601), (193, 16634), (205, 16694), (245, 16793), (266, 16871), (269, 16880), (272, 16889), (278, 16916), (284, 16937), (287, 16943),

Gene: Gack\_16 Start: 11801, Stop: 12658, Start Num: 38

Candidate Starts for Gack\_16:

(Start: 38 @11801 has 64 MA's), (62, 11876), (70, 11906), (98, 12014), (102, 12029), (103, 12035), (120, 12080), (123, 12086), (145, 12170), (148, 12182), (194, 12332), (233, 12476), (267, 12578), (290, 12650),

Gene: GardenState\_16 Start: 12560, Stop: 13426, Start Num: 36

Candidate Starts for GardenState\_16:

(Start: 36 @12560 has 9 MA's), (75, 12686), (76, 12692), (90, 12755), (114, 12836), (142, 12938), (147, 12959), (179, 13073), (190, 13103), (271, 13358),

Gene: Gilda\_30 Start: 17787, Stop: 18677, Start Num: 35

Candidate Starts for Gilda\_30:

(Start: 35 @17787 has 26 MA's), (126, 18111), (133, 18135), (181, 18324), (233, 18498), (273, 18618), (290, 18669), (291, 18672),

Gene: Gingerbug\_19 Start: 13474, Stop: 14337, Start Num: 38

Candidate Starts for Gingerbug\_19:

(Start: 37 @13471 has 100 MA's), (Start: 38 @13474 has 64 MA's), (70, 13570), (73, 13579), (88, 13648), (91, 13657), (93, 13663), (95, 13669), (102, 13693), (110, 13726), (117, 13747), (134, 13792), (135, 13795), (141, 13822), (151, 13861), (154, 13870), (178, 13972), (179, 13978), (191, 14011), (197, 14035), (209, 14086), (226, 14128), (232, 14152), (252, 14185), (269, 14263), (278, 14296), (280, 14302), (287, 14323), (288, 14326),

Gene: GirlDinner\_20 Start: 14709, Stop: 15563, Start Num: 37

Candidate Starts for GirlDinner\_20:

(Start: 37 @14709 has 100 MA's), (66, 14799), (82, 14862), (134, 15030), (177, 15195), (179, 15204), (203, 15285), (227, 15360), (244, 15399), (288, 15552), (290, 15555),

Gene: Goby\_19 Start: 14982, Stop: 15839, Start Num: 37

Candidate Starts for Goby\_19:

(Start: 37 @14982 has 100 MA's), (61, 15054), (82, 15135), (109, 15240), (110, 15243), (123, 15267), (159, 15414), (177, 15471), (178, 15474), (179, 15480), (200, 15552), (217, 15609), (244, 15675), (288, 15828), (290, 15831),

Gene: Godpower\_20 Start: 14994, Stop: 15851, Start Num: 37

Candidate Starts for Godpower\_20:

(Start: 37 @14994 has 100 MA's), (61, 15066), (66, 15084), (82, 15147), (109, 15252), (123, 15279), (151, 15384), (159, 15426), (179, 15492), (198, 15552), (200, 15564), (217, 15621), (232, 15666), (244, 15687), (288, 15840), (290, 15843),

Gene: Goib\_22 Start: 15642, Stop: 16475, Start Num: 57

Candidate Starts for Goib\_22:

(Start: 57 @15642 has 6 MA's), (Start: 58 @15645 has 5 MA's), (66, 15660), (77, 15699), (81, 15720), (82, 15723), (117, 15867), (163, 16053), (180, 16122), (212, 16224), (244, 16305), (246, 16308), (265, 16389), (267, 16395), (271, 16407), (272, 16410), (278, 16434),

Gene: Goodman\_21 Start: 15488, Stop: 16381, Start Num: 40

Candidate Starts for Goodman\_21:

(Start: 40 @15488 has 19 MA's), (70, 15581), (91, 15668), (134, 15833), (135, 15836), (165, 15959), (209, 16127), (232, 16196), (244, 16217), (246, 16220), (269, 16307), (270, 16310), (271, 16313), (280, 16346),

Gene: GreenWeasel\_21 Start: 15698, Stop: 16552, Start Num: 37

Candidate Starts for GreenWeasel\_21:

(7, 15542), (8, 15545), (Start: 37 @15698 has 100 MA's), (73, 15812), (82, 15851), (110, 15959), (130, 16001), (142, 16055), (229, 16358), (288, 16541), (290, 16544), (291, 16547),

Gene: Gretchen\_16 Start: 13995, Stop: 14861, Start Num: 36

Candidate Starts for Gretchen\_16:

(Start: 36 @13995 has 9 MA's), (71, 14109), (92, 14196), (93, 14199), (95, 14205), (126, 14307), (131, 14322), (142, 14373), (147, 14394), (179, 14508), (229, 14667), (269, 14787), (271, 14793), (279, 14823),

Gene: Gspu1\_19 Start: 14904, Stop: 15749, Start Num: 58

Candidate Starts for Gspu1\_19:

(Start: 57 @14901 has 6 MA's), (Start: 58 @14904 has 5 MA's), (66, 14928), (75, 14958), (81, 14988), (82, 14991), (83, 14994), (93, 15036), (110, 15111), (112, 15117), (153, 15270), (163, 15321), (177, 15378), (192, 15423), (228, 15543), (229, 15546), (261, 15642), (271, 15681), (272, 15684), (282, 15720),

Gene: Hager\_31 Start: 17349, Stop: 18239, Start Num: 35

Candidate Starts for Hager\_31:

(Start: 35 @17349 has 26 MA's), (126, 17673), (133, 17697), (140, 17730), (181, 17886), (194, 17919), (200, 17952), (233, 18060), (264, 18150), (273, 18180), (290, 18231), (291, 18234),

Gene: Haizum\_19 Start: 15480, Stop: 16337, Start Num: 37

Candidate Starts for Haizum\_19:

(10, 15354), (11, 15357), (12, 15363), (Start: 37 @15480 has 100 MA's), (44, 15498), (66, 15570), (109, 15738), (134, 15801), (159, 15912), (179, 15978), (198, 16038), (200, 16050), (203, 16059), (217, 16107), (244, 16173), (258, 16209), (272, 16272), (288, 16326), (290, 16329),

Gene: Hank144\_20 Start: 15105, Stop: 15959, Start Num: 37

Candidate Starts for Hank144\_20:

(Start: 37 @15105 has 100 MA's), (56, 15159), (82, 15258), (87, 15279), (104, 15342), (142, 15462), (151, 15495), (166, 15555), (179, 15600), (227, 15756), (244, 15795), (263, 15858), (288, 15948), (290, 15951), (291, 15954),

Gene: Haunter\_30 Start: 17200, Stop: 18090, Start Num: 35

Candidate Starts for Haunter\_30:

(Start: 35 @17200 has 26 MA's), (126, 17524), (133, 17548), (140, 17581), (181, 17737), (200, 17803), (233, 17911), (273, 18031), (290, 18082), (291, 18085),

Gene: Hiddenleaf\_29 Start: 16948, Stop: 17838, Start Num: 35

Candidate Starts for Hiddenleaf\_29:

(Start: 35 @16948 has 26 MA's), (101, 17176), (106, 17203), (126, 17272), (133, 17296), (140, 17329), (181, 17485), (194, 17518), (200, 17551), (217, 17608), (233, 17659), (264, 17749), (273, 17779), (290, 17830), (291, 17833),

Gene: Hippo\_19 Start: 14969, Stop: 15826, Start Num: 37

Candidate Starts for Hippo\_19:

(Start: 37 @14969 has 100 MA's), (61, 15041), (66, 15059), (109, 15227), (123, 15254), (175, 15449), (179, 15467), (181, 15473), (198, 15527), (232, 15641), (244, 15662), (288, 15815), (290, 15818),

Gene: Honk\_15 Start: 11270, Stop: 12148, Start Num: 34

Candidate Starts for Honk\_15:



(Start: 34 @11270 has 2 MA's), (64, 11360), (111, 11543), (135, 11618), (197, 11843), (271, 12080), (290, 12140),

Gene: Htur\_20 Start: 15518, Stop: 16411, Start Num: 40

Candidate Starts for Htur\_20:

(Start: 40 @15518 has 19 MA's), (70, 15611), (73, 15620), (91, 15698), (102, 15749), (134, 15863), (135, 15866), (136, 15872), (151, 15932), (208, 16154), (209, 16157), (232, 16226), (244, 16247), (246, 16250), (263, 16310), (280, 16376),

Gene: Huffy\_23 Start: 15864, Stop: 16697, Start Num: 57

Candidate Starts for Huffy\_23:

(Start: 57 @15864 has 6 MA's), (Start: 58 @15867 has 5 MA's), (66, 15882), (77, 15921), (81, 15942), (82, 15945), (117, 16089), (163, 16275), (189, 16362), (212, 16446), (244, 16527), (265, 16611), (267, 16617), (271, 16629), (272, 16632), (278, 16656),

Gene: Hum25\_18 Start: 12574, Stop: 13560, Start Num: 24

Candidate Starts for Hum25\_18:

(Start: 24 @12574 has 7 MA's), (Start: 34 @12628 has 2 MA's), (41, 12640), (Start: 43 @12646 has 2 MA's), (61, 12706), (62, 12709), (63, 12712), (70, 12736), (89, 12820), (100, 12859), (116, 12898), (160, 13078), (176, 13144), (188, 13168), (194, 13183), (203, 13225), (215, 13270), (237, 13372), (243, 13396), (274, 13510), (283, 13540),

Gene: Hydra\_21 Start: 15521, Stop: 16378, Start Num: 37

Candidate Starts for Hydra\_21:

(Start: 37 @15521 has 100 MA's), (61, 15593), (66, 15611), (75, 15641), (82, 15674), (109, 15779), (123, 15806), (150, 15908), (159, 15953), (179, 16019), (181, 16025), (198, 16079), (200, 16091), (232, 16193), (240, 16205), (244, 16214), (288, 16367), (290, 16370),

Gene: IAmGroot\_16 Start: 13204, Stop: 14070, Start Num: 36

Candidate Starts for IAmGroot\_16:

(Start: 36 @13204 has 9 MA's), (75, 13330), (76, 13336), (90, 13399), (114, 13480), (142, 13582), (147, 13603), (179, 13717), (190, 13747), (271, 14002),

Gene: Ibantik\_80 Start: 41938, Stop: 42960, Start Num: 18

Candidate Starts for Ibantik\_80:

(9, 41893), (Start: 18 @41938 has 2 MA's), (19, 41950), (32, 42007), (64, 42112), (68, 42130), (80, 42175), (87, 42208), (90, 42223), (102, 42262), (138, 42382), (186, 42598), (225, 42745), (231, 42769), (232, 42772),

Gene: Icarian\_18 Start: 12974, Stop: 13828, Start Num: 38

Candidate Starts for Icarian\_18:

(Start: 38 @12974 has 64 MA's), (53, 13019), (62, 13049), (70, 13079), (98, 13187), (102, 13202), (123, 13259), (148, 13355), (151, 13364), (158, 13397), (185, 13481), (194, 13502), (196, 13511), (197, 13520), (218, 13595), (227, 13619), (267, 13748), (271, 13760), (290, 13820),

Gene: Indigo\_19 Start: 14993, Stop: 15850, Start Num: 37

Candidate Starts for Indigo\_19:

(Start: 37 @14993 has 100 MA's), (61, 15065), (66, 15083), (75, 15113), (82, 15146), (109, 15251), (123, 15278), (150, 15380), (159, 15425), (179, 15491), (181, 15497), (198, 15551), (200, 15563), (232, 15665), (240, 15677), (244, 15686), (288, 15839), (290, 15842),

Gene: IndyLu\_17 Start: 13090, Stop: 13944, Start Num: 38

Candidate Starts for IndyLu\_17:

(Start: 38 @13090 has 64 MA's), (53, 13135), (62, 13165), (70, 13195), (73, 13204), (123, 13375), (194, 13618), (210, 13690), (230, 13747), (267, 13864), (271, 13876), (290, 13936),

Gene: Issmi\_20 Start: 15911, Stop: 16768, Start Num: 37

Candidate Starts for Issmi\_20:

(Start: 37 @15911 has 100 MA's), (44, 15929), (59, 15977), (66, 16001), (75, 16031), (86, 16082), (109, 16169), (159, 16343), (162, 16352), (171, 16373), (179, 16409), (181, 16415), (200, 16481), (208, 16514), (244, 16604), (246, 16607), (258, 16640), (272, 16703), (288, 16757), (290, 16760),

Gene: Itza\_19 Start: 15339, Stop: 16196, Start Num: 37

Candidate Starts for Itza\_19:

(Start: 37 @15339 has 100 MA's), (55, 15390), (61, 15411), (66, 15429), (73, 15453), (82, 15492), (181, 15843), (191, 15870), (200, 15909), (218, 15969), (279, 16158), (288, 16185), (290, 16188),

Gene: Izzy\_20 Start: 15203, Stop: 16060, Start Num: 37

Candidate Starts for Izzy\_20:

(Start: 37 @15203 has 100 MA's), (61, 15275), (66, 15293), (82, 15356), (109, 15461), (123, 15488), (134, 15524), (150, 15590), (159, 15635), (179, 15701), (181, 15707), (200, 15773), (210, 15812), (217, 15830), (240, 15887), (253, 15914), (288, 16049), (290, 16052),

Gene: JDawG\_29 Start: 17530, Stop: 18420, Start Num: 35

Candidate Starts for JDawG\_29:

(Start: 35 @17530 has 26 MA's), (106, 17785), (126, 17854), (133, 17878), (140, 17911), (194, 18100), (200, 18133), (217, 18190), (233, 18241), (264, 18331), (273, 18361), (290, 18412), (291, 18415),

Gene: Janus\_20 Start: 15047, Stop: 15901, Start Num: 37

Candidate Starts for Janus\_20:

(Start: 37 @15047 has 100 MA's), (66, 15137), (82, 15200), (177, 15533), (179, 15542), (203, 15623), (227, 15698), (244, 15737), (264, 15812), (288, 15890), (290, 15893),

Gene: Jash\_20 Start: 15156, Stop: 16013, Start Num: 37

Candidate Starts for Jash\_20:

(Start: 37 @15156 has 100 MA's), (61, 15228), (66, 15246), (82, 15309), (109, 15414), (123, 15441), (134, 15477), (150, 15543), (159, 15588), (179, 15654), (181, 15660), (200, 15726), (210, 15765), (217, 15783), (240, 15840), (253, 15867), (288, 16002), (290, 16005),

Gene: Jera\_21 Start: 14585, Stop: 15478, Start Num: 40

Candidate Starts for Jera\_21:

(Start: 40 @14585 has 19 MA's), (70, 14678), (73, 14687), (91, 14765), (102, 14816), (120, 14876), (134, 14930), (135, 14933), (136, 14939), (208, 15221), (209, 15224), (232, 15293), (244, 15314), (246, 15317), (263, 15377), (280, 15443),

Gene: Jevington\_22 Start: 15349, Stop: 16206, Start Num: 37

Candidate Starts for Jevington\_22:

(Start: 37 @15349 has 100 MA's), (66, 15439), (134, 15670), (179, 15847), (244, 16042), (288, 16195), (290, 16198),

Gene: JingleBells\_29 Start: 17064, Stop: 17954, Start Num: 35

Candidate Starts for JingleBells\_29:

(Start: 35 @17064 has 26 MA's), (106, 17319), (126, 17388), (133, 17412), (140, 17445), (194, 17634), (200, 17667), (217, 17724), (233, 17775), (264, 17865), (273, 17895), (290, 17946), (291, 17949),

Gene: Johann\_21 Start: 15488, Stop: 16381, Start Num: 40

Candidate Starts for Johann\_21:

(Start: 40 @15488 has 19 MA's), (70, 15581), (91, 15668), (134, 15833), (135, 15836), (165, 15959), (209, 16127), (232, 16196), (244, 16217), (246, 16220), (269, 16307), (270, 16310), (271, 16313), (280, 16346),

Gene: Johnathan\_17 Start: 13145, Stop: 13999, Start Num: 38

Candidate Starts for Johnathan\_17:

(Start: 38 @13145 has 64 MA's), (62, 13220), (70, 13250), (73, 13259), (98, 13358), (102, 13373), (123, 13430), (148, 13526), (151, 13535), (158, 13568), (185, 13652), (194, 13673), (227, 13790), (271, 13931), (290, 13991),

Gene: Jovita\_17 Start: 13220, Stop: 14074, Start Num: 38

Candidate Starts for Jovita\_17:

(Start: 38 @13220 has 64 MA's), (62, 13295), (70, 13325), (73, 13334), (89, 13406), (98, 13433), (102, 13448), (123, 13505), (148, 13601), (151, 13610), (158, 13643), (185, 13727), (191, 13742), (267, 13994), (271, 14006), (290, 14066),

Gene: Karate\_29 Start: 17199, Stop: 18089, Start Num: 35

Candidate Starts for Karate\_29:

(Start: 35 @17199 has 26 MA's), (73, 17319), (106, 17454), (126, 17523), (133, 17547), (140, 17580), (181, 17736), (194, 17769), (200, 17802), (233, 17910), (264, 18000), (273, 18030), (290, 18081), (291, 18084),

Gene: Katalie\_20 Start: 15234, Stop: 16091, Start Num: 37

Candidate Starts for Katalie\_20:

(Start: 37 @15234 has 100 MA's), (61, 15306), (66, 15324), (109, 15492), (123, 15519), (151, 15624), (179, 15732), (181, 15738), (200, 15804), (244, 15927), (288, 16080), (290, 16083),

Gene: Kate\_30 Start: 17795, Stop: 18685, Start Num: 35

Candidate Starts for Kate\_30:

(Start: 35 @17795 has 26 MA's), (126, 18119), (133, 18143), (140, 18176), (181, 18332), (233, 18506), (273, 18626), (290, 18677), (291, 18680),

Gene: Katzastrophic\_16 Start: 12666, Stop: 13520, Start Num: 38

Candidate Starts for Katzastrophic\_16:

(Start: 38 @12666 has 64 MA's), (62, 12741), (70, 12771), (82, 12819), (98, 12879), (102, 12894), (120, 12945), (123, 12951), (135, 12990), (146, 13038), (148, 13047), (158, 13089), (194, 13194), (197, 13212), (267, 13440), (269, 13446), (290, 13512),

Gene: Keiki\_15 Start: 11295, Stop: 12242, Start Num: 29

Candidate Starts for Keiki\_15:

(23, 11280), (Start: 26 @11286 has 1 MA's), (Start: 29 @11295 has 42 MA's), (33, 11328), (Start: 40 @11346 has 19 MA's), (41, 11349), (Start: 43 @11355 has 2 MA's), (48, 11379), (52, 11388), (61, 11418), (62, 11421), (63, 11424), (66, 11436), (70, 11451), (73, 11460), (80, 11490), (86, 11520), (89, 11535), (93, 11547), (94, 11550), (95, 11553), (104, 11586), (107, 11601), (113, 11619), (124, 11655), (127, 11661), (132, 11688), (137, 11712), (144, 11739), (152, 11766), (154, 11772), (167, 11835), (172, 11847), (181, 11889), (182, 11892), (183, 11895), (197, 11946), (200, 11961), (206, 11982), (211, 11997), (213, 12003), (216, 12012), (219, 12018), (249, 12090), (251, 12093), (256, 12111), (257, 12114), (259, 12123), (268, 12171), (272, 12183), (274, 12192), (278, 12207), (280, 12213), (284, 12228),

Gene: Kenzers\_17 Start: 13132, Stop: 13986, Start Num: 38

Candidate Starts for Kenzers\_17:

(Start: 38 @13132 has 64 MA's), (62, 13207), (70, 13237), (73, 13246), (98, 13345), (123, 13417), (148, 13513), (151, 13522), (158, 13555), (185, 13639), (194, 13660), (218, 13753), (227, 13777), (229, 13786), (253, 13840), (266, 13903), (271, 13918), (290, 13978),

Gene: Khuang\_15 Start: 13016, Stop: 13963, Start Num: 24

Candidate Starts for Khuang\_15:

(13, 12965), (Start: 24 @13016 has 7 MA's), (25, 13019), (63, 13160), (70, 13187), (74, 13199), (79, 13223), (80, 13226), (122, 13388), (127, 13397), (142, 13469), (149, 13496), (194, 13652), (214, 13736), (222, 13760), (253, 13826), (255, 13835), (286, 13952), (289, 13958),

Gene: Kieran\_16 Start: 12810, Stop: 13664, Start Num: 38

Candidate Starts for Kieran\_16:

(Start: 38 @12810 has 64 MA's), (46, 12834), (53, 12855), (62, 12885), (70, 12915), (102, 13038), (120, 13089), (123, 13095), (185, 13317), (191, 13332), (194, 13338), (231, 13473), (267, 13584), (271, 13596), (290, 13656),

Gene: Kors\_32 Start: 17664, Stop: 18548, Start Num: 37

Candidate Starts for Kors\_32:

(16, 17565), (Start: 37 @17664 has 100 MA's), (67, 17760), (73, 17781), (93, 17865), (95, 17871), (134, 18012), (177, 18180), (200, 18261), (207, 18291), (233, 18369), (243, 18381), (244, 18384), (253, 18402), (267, 18468), (268, 18471), (269, 18474), (290, 18540), (291, 18543),

Gene: Krampus\_30 Start: 17793, Stop: 18683, Start Num: 35

Candidate Starts for Krampus\_30:

(Start: 35 @17793 has 26 MA's), (126, 18117), (133, 18141), (140, 18174), (181, 18330), (233, 18504), (273, 18624), (290, 18675), (291, 18678),

Gene: Kromp\_18 Start: 16065, Stop: 17072, Start Num: 20

Candidate Starts for Kromp\_18:

(Start: 20 @16065 has 1 MA's), (51, 16185), (63, 16224), (66, 16236), (71, 16254), (95, 16350), (151, 16554), (155, 16566), (180, 16656), (181, 16659), (198, 16713), (199, 16716), (202, 16731), (203, 16734), (240, 16896),

Gene: Kubed\_15 Start: 11291, Stop: 12232, Start Num: 29

Candidate Starts for Kubed\_15:

(Start: 26 @11282 has 1 MA's), (Start: 29 @11291 has 42 MA's), (33, 11324), (Start: 34 @11330 has 2 MA's), (Start: 40 @11342 has 19 MA's), (48, 11369), (52, 11378), (61, 11408), (62, 11411), (63, 11414), (66, 11426), (68, 11435), (73, 11450), (80, 11480), (86, 11510), (89, 11525), (94, 11540), (95, 11543), (113, 11609), (119, 11636), (124, 11645), (127, 11651), (132, 11678), (144, 11729), (151, 11753), (154, 11762), (167, 11825), (172, 11837), (182, 11882), (183, 11885), (197, 11936), (200, 11951), (206, 11972), (211, 11987), (216, 12002), (249, 12080), (251, 12083), (256, 12101), (257, 12104), (268, 12161), (272, 12173), (274, 12182), (278, 12197), (284, 12218),

Gene: Kumotta\_18 Start: 14074, Stop: 15051, Start Num: 24

Candidate Starts for Kumotta\_18:

(Start: 24 @14074 has 7 MA's), (33, 14119), (42, 14140), (Start: 43 @14143 has 2 MA's), (60, 14197), (63, 14206), (66, 14215), (89, 14314), (105, 14362), (116, 14392), (160, 14572), (161, 14575), (188, 14659), (212, 14749), (220, 14770), (226, 14803), (234, 14839), (235, 14848), (250, 14902), (253, 14914), (275, 15007), (280, 15022), (283, 15031),

Gene: Lahqtemish\_17 Start: 13135, Stop: 13989, Start Num: 38

Candidate Starts for Lahqtemish\_17:

(Start: 38 @13135 has 64 MA's), (53, 13180), (62, 13210), (70, 13240), (123, 13420), (194, 13663), (197, 13681), (210, 13735), (230, 13792), (267, 13909), (271, 13921), (290, 13981),

Gene: Lannister\_20 Start: 15000, Stop: 15857, Start Num: 37

Candidate Starts for Lannister\_20:

(Start: 37 @15000 has 100 MA's), (61, 15072), (66, 15090), (75, 15120), (109, 15258), (123, 15285), (159, 15432), (178, 15492), (179, 15498), (181, 15504), (198, 15558), (200, 15570), (232, 15672), (244, 15693), (288, 15846), (290, 15849),

Gene: Lauchelly\_15 Start: 11298, Stop: 12245, Start Num: 29

Candidate Starts for Lauchelly\_15:

(Start: 26 @11289 has 1 MA's), (27, 11292), (Start: 29 @11298 has 42 MA's), (33, 11331), (Start: 40 @11349 has 19 MA's), (41, 11352), (Start: 43 @11358 has 2 MA's), (48, 11382), (52, 11391), (61, 11421), (62, 11424), (63, 11427), (66, 11439), (68, 11448), (73, 11463), (80, 11493), (86, 11523), (89, 11538), (91, 11544), (95, 11556), (107, 11604), (113, 11622), (119, 11649), (124, 11658), (127, 11664), (132, 11691), (137, 11715), (144, 11742), (151, 11766), (154, 11775), (167, 11838), (172, 11850), (181, 11892), (182, 11895), (183, 11898), (197, 11949), (200, 11964), (206, 11985), (211, 12000), (216, 12015), (219, 12021), (249, 12093), (251, 12096), (256, 12114), (257, 12117), (268, 12174), (272, 12186), (274, 12195), (278, 12210), (280, 12216), (284, 12231),

Gene: Legacy\_19 Start: 14964, Stop: 15821, Start Num: 37

Candidate Starts for Legacy\_19:

(Start: 37 @14964 has 100 MA's), (61, 15036), (66, 15054), (75, 15084), (82, 15117), (109, 15222), (123, 15249), (150, 15351), (159, 15396), (179, 15462), (181, 15468), (198, 15522), (200, 15534), (232, 15636), (240, 15648), (244, 15657), (288, 15810), (290, 15813),

Gene: Lesiram\_22 Start: 14235, Stop: 15098, Start Num: 38

Candidate Starts for Lesiram\_22:

(Start: 37 @14232 has 100 MA's), (Start: 38 @14235 has 64 MA's), (68, 14325), (70, 14331), (73, 14340), (88, 14409), (91, 14418), (93, 14424), (111, 14490), (135, 14556), (141, 14583), (151, 14622), (179, 14739), (181, 14745), (191, 14772), (197, 14796), (232, 14913), (239, 14922), (253, 14952), (280, 15063), (287, 15084),

Gene: Leviosa\_15 Start: 11312, Stop: 12259, Start Num: 29

Candidate Starts for Leviosa\_15:

(23, 11297), (Start: 26 @11303 has 1 MA's), (Start: 29 @11312 has 42 MA's), (33, 11345), (Start: 40 @11363 has 19 MA's), (41, 11366), (Start: 43 @11372 has 2 MA's), (48, 11396), (52, 11405), (61, 11435), (62, 11438), (63, 11441), (66, 11453), (68, 11462), (80, 11507), (86, 11537), (89, 11552), (93, 11564), (95, 11570), (107, 11618), (113, 11636), (119, 11663), (124, 11672), (127, 11678), (132, 11705), (144, 11756), (151, 11780), (154, 11789), (167, 11852), (172, 11864), (181, 11906), (182, 11909), (183, 11912), (197, 11963), (200, 11978), (206, 11999), (211, 12014), (216, 12029), (219, 12035), (249, 12107), (251, 12110), (256, 12128), (257, 12131), (259, 12140), (268, 12188), (272, 12200), (274, 12209), (278, 12224), (280, 12230), (284, 12245),

Gene: Leviticus\_19 Start: 14993, Stop: 15850, Start Num: 37

Candidate Starts for Leviticus\_19:

(Start: 37 @14993 has 100 MA's), (61, 15065), (66, 15083), (75, 15113), (82, 15146), (109, 15251), (123, 15278), (150, 15380), (159, 15425), (179, 15491), (181, 15497), (198, 15551), (200, 15563), (232, 15665), (240, 15677), (244, 15686), (288, 15839), (290, 15842),

Gene: Lika\_19 Start: 14998, Stop: 15855, Start Num: 37

Candidate Starts for Lika\_19:

(Start: 37 @14998 has 100 MA's), (61, 15070), (66, 15088), (82, 15151), (109, 15256), (123, 15283), (151, 15388), (159, 15430), (179, 15496), (198, 15556), (200, 15568), (217, 15625), (232, 15670), (244, 15691), (288, 15844), (290, 15847),

Gene: LilBandit\_15 Start: 11296, Stop: 12243, Start Num: 29

Candidate Starts for LilBandit\_15:

(23, 11281), (Start: 26 @11287 has 1 MA's), (Start: 29 @11296 has 42 MA's), (33, 11329), (Start: 40 @11347 has 19 MA's), (41, 11350), (Start: 43 @11356 has 2 MA's), (48, 11380), (52, 11389), (61, 11419), (62, 11422), (63, 11425), (66, 11437), (68, 11446), (80, 11491), (86, 11521), (89, 11536), (93, 11548), (95, 11554), (107, 11602), (113, 11620), (119, 11647), (124, 11656), (127, 11662), (132, 11689), (142, 11731), (144, 11740), (151, 11764), (154, 11773), (167, 11836), (172, 11848), (181, 11890), (182, 11893), (183, 11896), (194, 11929), (197, 11947), (200, 11962), (206, 11983), (211, 11998), (216, 12013), (219, 12019), (249, 12091), (251, 12094), (256, 12112), (257, 12115), (259, 12124), (268, 12172), (272, 12184), (274, 12193), (278, 12208), (280, 12214), (284, 12229),

Gene: LimaBean\_17 Start: 13144, Stop: 13998, Start Num: 38

Candidate Starts for LimaBean\_17:

(Start: 38 @13144 has 64 MA's), (62, 13219), (70, 13249), (73, 13258), (98, 13357), (102, 13372), (123, 13429), (148, 13525), (151, 13534), (158, 13567), (185, 13651), (194, 13672), (227, 13789), (271, 13930), (290, 13990),

Gene: Loofah\_20 Start: 14964, Stop: 15821, Start Num: 37

Candidate Starts for Loofah\_20:

(Start: 37 @14964 has 100 MA's), (56, 15018), (66, 15054), (179, 15462), (246, 15660), (288, 15810), (290, 15813),

Gene: Lorelei\_19 Start: 14967, Stop: 15824, Start Num: 37

Candidate Starts for Lorelei\_19:

(Start: 37 @14967 has 100 MA's), (61, 15039), (75, 15087), (82, 15120), (109, 15225), (123, 15252), (140, 15315), (151, 15357), (177, 15456), (178, 15459), (179, 15465), (200, 15537), (217, 15594), (240, 15651), (244, 15660), (288, 15813), (290, 15816),

Gene: Loviatar\_30 Start: 13062, Stop: 13919, Start Num: 38

Candidate Starts for Loviatar\_30:

(Start: 38 @13062 has 64 MA's), (46, 13086), (53, 13107), (62, 13137), (70, 13167), (74, 13179), (98, 13275), (102, 13290), (103, 13296), (123, 13347), (140, 13410), (148, 13443), (158, 13485), (194, 13590), (196, 13599), (197, 13608), (226, 13704), (267, 13839), (271, 13851), (290, 13911),

Gene: Lynlen\_17 Start: 13132, Stop: 13986, Start Num: 38

Candidate Starts for Lynlen\_17:

(Start: 38 @13132 has 64 MA's), (62, 13207), (70, 13237), (73, 13246), (98, 13345), (123, 13417), (148, 13513), (151, 13522), (158, 13555), (185, 13639), (194, 13660), (218, 13753), (227, 13777), (229, 13786), (253, 13840), (266, 13903), (271, 13918), (290, 13978),

Gene: MEAK\_15 Start: 11282, Stop: 12229, Start Num: 29

Candidate Starts for MEAK\_15:

(Start: 26 @11273 has 1 MA's), (27, 11276), (Start: 29 @11282 has 42 MA's), (33, 11315), (Start: 40 @11333 has 19 MA's), (41, 11336), (Start: 43 @11342 has 2 MA's), (48, 11366), (52, 11375), (61, 11405), (62, 11408), (63, 11411), (68, 11432), (80, 11477), (86, 11507), (89, 11522), (93, 11534), (94, 11537), (95, 11540), (107, 11588), (113, 11606), (124, 11642), (127, 11648), (132, 11675), (137, 11699), (144, 11726), (152, 11753), (154, 11759), (167, 11822), (172, 11834), (181, 11876), (182, 11879), (183, 11882), (194, 11915), (197, 11933), (200, 11948), (206, 11969), (211, 11984), (216, 11999), (219, 12005), (249, 12077), (251, 12080), (256, 12098), (257, 12101), (259, 12110), (268,

12158), (272, 12170), (274, 12179), (278, 12194), (280, 12200), (284, 12215),

Gene: Mabodamaca\_16 Start: 13111, Stop: 13977, Start Num: 36

Candidate Starts for Mabodamaca\_16:

(Start: 36 @13111 has 9 MA's), (63, 13195), (71, 13225), (93, 13315), (95, 13321), (179, 13624), (271, 13909),

Gene: Maja\_17 Start: 13790, Stop: 14692, Start Num: 24

Candidate Starts for Maja\_17:

(Start: 24 @13790 has 7 MA's), (33, 13838), (42, 13859), (Start: 43 @13862 has 2 MA's), (76, 13973), (80, 13991), (85, 14018), (86, 14021), (89, 14036), (105, 14084), (133, 14159), (136, 14174), (144, 14210), (152, 14237), (194, 14381), (200, 14414), (212, 14456), (221, 14483), (242, 14531), (258, 14573), (268, 14621), (272, 14633),

Gene: Maneekul\_19 Start: 14965, Stop: 15822, Start Num: 37

Candidate Starts for Maneekul\_19:

(Start: 37 @14965 has 100 MA's), (61, 15037), (66, 15055), (109, 15223), (123, 15250), (179, 15463), (181, 15469), (200, 15535), (217, 15592), (232, 15637), (244, 15658), (279, 15784), (288, 15811), (290, 15814),

Gene: Marav\_22 Start: 15699, Stop: 16556, Start Num: 37

Candidate Starts for Marav\_22:

(Start: 37 @15699 has 100 MA's), (66, 15789), (134, 16020), (142, 16056), (179, 16197), (244, 16392), (288, 16545), (290, 16548),

Gene: MargaretKali\_18 Start: 13709, Stop: 14686, Start Num: 24

Candidate Starts for MargaretKali\_18:

(Start: 24 @13709 has 7 MA's), (33, 13754), (42, 13775), (Start: 43 @13778 has 2 MA's), (60, 13832), (63, 13841), (66, 13850), (89, 13949), (105, 13997), (116, 14027), (160, 14207), (161, 14210), (188, 14294), (212, 14384), (220, 14405), (226, 14438), (234, 14474), (235, 14483), (250, 14537), (253, 14549), (275, 14642), (280, 14657), (283, 14666),

Gene: MenE\_26 Start: 13833, Stop: 14693, Start Num: 40

Candidate Starts for MenE\_26:

(Start: 40 @13833 has 19 MA's), (53, 13869), (Start: 54 @13872 has 1 MA's), (61, 13893), (63, 13899), (66, 13911), (70, 13926), (86, 13992), (93, 14019), (102, 14049), (110, 14082), (141, 14175), (147, 14202), (178, 14325), (179, 14331), (191, 14364), (210, 14442), (287, 14679), (288, 14682),

Gene: Milani\_21 Start: 14466, Stop: 15329, Start Num: 38

Candidate Starts for Milani\_21:

(Start: 38 @14466 has 64 MA's), (66, 14547), (70, 14562), (89, 14643), (91, 14649), (117, 14739), (134, 14784), (151, 14853), (154, 14862), (158, 14892), (165, 14910), (191, 15003), (197, 15027), (215, 15093), (269, 15255), (278, 15288), (287, 15315), (288, 15318),

Gene: MortySmith\_28 Start: 16923, Stop: 17813, Start Num: 35

Candidate Starts for MortySmith\_28:

(Start: 35 @16923 has 26 MA's), (106, 17178), (126, 17247), (133, 17271), (140, 17304), (194, 17493), (200, 17526), (217, 17583), (233, 17634), (264, 17724), (273, 17754), (290, 17805), (291, 17808),

Gene: Moyashi\_15 Start: 11324, Stop: 12265, Start Num: 29

Candidate Starts for Moyashi\_15:

(Start: 24 @11309 has 7 MA's), (Start: 26 @11315 has 1 MA's), (27, 11318), (Start: 29 @11324 has 42 MA's), (33, 11357), (Start: 34 @11363 has 2 MA's), (Start: 40 @11375 has 19 MA's), (48, 11402), (52, 11411), (60, 11438), (61, 11441), (62, 11444), (63, 11447), (66, 11459), (68, 11468), (80, 11513), (86, 11543), (89, 11558), (91, 11564), (93, 11570), (94, 11573), (95, 11576), (102, 11600), (107, 11624), (113, 11642), (124, 11678), (127, 11684), (132, 11711), (137, 11735), (144, 11762), (152, 11789), (154, 11795), (167, 11858), (172, 11870), (181, 11912), (182, 11915), (187, 11930), (197, 11969), (200, 11984), (206, 12005), (211, 12020), (216, 12035), (219, 12041), (249, 12113), (251, 12116), (256, 12134), (257, 12137), (259, 12146), (268, 12194), (272, 12206), (274, 12215), (278, 12230), (280, 12236), (284, 12251),

Gene: MrAK\_15 Start: 11335, Stop: 12276, Start Num: 29

Candidate Starts for MrAK\_15:

(22, 11317), (Start: 29 @11335 has 42 MA's), (33, 11368), (Start: 34 @11374 has 2 MA's), (Start: 40 @11386 has 19 MA's), (48, 11413), (52, 11422), (61, 11452), (62, 11455), (63, 11458), (66, 11470), (68, 11479), (73, 11494), (78, 11518), (80, 11524), (86, 11554), (89, 11569), (93, 11581), (95, 11587), (107, 11635), (113, 11653), (124, 11689), (127, 11695), (132, 11722), (133, 11725), (137, 11746), (144, 11773), (151, 11797), (154, 11806), (167, 11869), (181, 11923), (182, 11926), (197, 11980), (200, 11995), (206, 12016), (211, 12031), (216, 12046), (219, 12052), (249, 12124), (251, 12127), (256, 12145), (257, 12148), (259, 12157), (268, 12205), (272, 12217), (274, 12226), (278, 12241), (280, 12247), (284, 12262),

Gene: MrSmee\_17 Start: 12921, Stop: 13763, Start Num: 43

Candidate Starts for MrSmee\_17:

(Start: 24 @12852 has 7 MA's), (Start: 43 @12921 has 2 MA's), (51, 12948), (66, 12999), (68, 13008), (70, 13014), (76, 13035), (86, 13083), (89, 13098), (127, 13206), (133, 13236), (136, 13251), (142, 13278), (144, 13287), (152, 13314), (173, 13407), (188, 13437), (194, 13452), (200, 13485), (212, 13527), (221, 13554), (242, 13602), (266, 13686), (268, 13692), (270, 13698), (272, 13704),

Gene: Nabi\_19 Start: 14967, Stop: 15824, Start Num: 37

Candidate Starts for Nabi\_19:

(Start: 37 @14967 has 100 MA's), (61, 15039), (75, 15087), (82, 15120), (109, 15225), (123, 15252), (140, 15315), (151, 15357), (177, 15456), (178, 15459), (179, 15465), (200, 15537), (217, 15594), (240, 15651), (244, 15660), (288, 15813), (290, 15816),

Gene: Nanodon\_21 Start: 15175, Stop: 16032, Start Num: 37

Candidate Starts for Nanodon\_21:

(Start: 37 @15175 has 100 MA's), (61, 15247), (66, 15265), (82, 15328), (109, 15433), (123, 15460), (142, 15532), (159, 15607), (178, 15667), (179, 15673), (181, 15679), (198, 15733), (200, 15745), (217, 15802), (232, 15847), (240, 15859), (244, 15868), (273, 15973), (288, 16021), (290, 16024),

Gene: NarutoRun\_30 Start: 17786, Stop: 18676, Start Num: 35

Candidate Starts for NarutoRun\_30:

(Start: 35 @17786 has 26 MA's), (126, 18110), (133, 18134), (140, 18167), (181, 18323), (233, 18497), (273, 18617), (290, 18668), (291, 18671),

Gene: Neptune\_30 Start: 17763, Stop: 18653, Start Num: 35

Candidate Starts for Neptune\_30:

(Start: 35 @17763 has 26 MA's), (126, 18087), (133, 18111), (140, 18144), (181, 18300), (233, 18474), (273, 18594), (290, 18645), (291, 18648),

Gene: Nerdos\_19 Start: 14993, Stop: 15850, Start Num: 37

Candidate Starts for Nerdos\_19:



(Start: 37 @14993 has 100 MA's), (61, 15065), (66, 15083), (75, 15113), (82, 15146), (109, 15251), (123, 15278), (150, 15380), (159, 15425), (179, 15491), (181, 15497), (198, 15551), (200, 15563), (232, 15665), (240, 15677), (244, 15686), (288, 15839), (290, 15842),

Gene: Nicky22\_18 Start: 13563, Stop: 14417, Start Num: 38

Candidate Starts for Nicky22\_18:

(Start: 38 @13563 has 64 MA's), (62, 13638), (70, 13668), (73, 13677), (98, 13776), (102, 13791), (123, 13848), (148, 13944), (151, 13953), (158, 13986), (185, 14070), (191, 14085), (267, 14337), (271, 14349), (290, 14409),

Gene: Nishikigoi\_19 Start: 15480, Stop: 16337, Start Num: 37

Candidate Starts for Nishikigoi\_19:

(10, 15354), (11, 15357), (12, 15363), (Start: 37 @15480 has 100 MA's), (44, 15498), (66, 15570), (109, 15738), (134, 15801), (159, 15912), (179, 15978), (198, 16038), (200, 16050), (203, 16059), (217, 16107), (244, 16173), (258, 16209), (272, 16272), (288, 16326), (290, 16329),

Gene: Oliynyk\_20 Start: 15156, Stop: 16013, Start Num: 37

Candidate Starts for Oliynyk\_20:

(Start: 37 @15156 has 100 MA's), (61, 15228), (66, 15246), (82, 15309), (109, 15414), (123, 15441), (134, 15477), (150, 15543), (159, 15588), (179, 15654), (181, 15660), (200, 15726), (210, 15765), (217, 15783), (240, 15840), (253, 15867), (288, 16002), (290, 16005),

Gene: Olliecat\_17 Start: 13002, Stop: 13859, Start Num: 38

Candidate Starts for Olliecat\_17:

(Start: 38 @13002 has 64 MA's), (70, 13104), (90, 13188), (93, 13197), (95, 13203), (102, 13227), (107, 13251), (110, 13260), (120, 13278), (148, 13380), (160, 13428), (165, 13440), (166, 13443), (170, 13452), (175, 13473), (191, 13524), (203, 13572), (266, 13776), (269, 13785),

Gene: Omar\_20 Start: 15815, Stop: 16672, Start Num: 37

Candidate Starts for Omar\_20:

(32, 15797), (Start: 37 @15815 has 100 MA's), (66, 15905), (73, 15929), (77, 15944), (86, 15986), (103, 16049), (109, 16073), (134, 16136), (159, 16247), (162, 16256), (179, 16313), (200, 16385), (217, 16442), (244, 16508), (258, 16544), (272, 16607), (288, 16661), (290, 16664),

Gene: Ouroboros\_15 Start: 11284, Stop: 12231, Start Num: 29

Candidate Starts for Ouroboros\_15:

(21, 11266), (Start: 29 @11284 has 42 MA's), (Start: 40 @11335 has 19 MA's), (41, 11338), (Start: 43 @11344 has 2 MA's), (48, 11368), (52, 11377), (61, 11407), (62, 11410), (63, 11413), (66, 11425), (68, 11434), (80, 11479), (86, 11509), (89, 11524), (93, 11536), (95, 11542), (107, 11590), (113, 11608), (119, 11635), (124, 11644), (127, 11650), (132, 11677), (151, 11752), (154, 11761), (172, 11836), (181, 11878), (182, 11881), (183, 11884), (197, 11935), (200, 11950), (206, 11971), (211, 11986), (216, 12001), (219, 12007), (249, 12079), (251, 12082), (256, 12100), (257, 12103), (259, 12112), (268, 12160), (272, 12172), (274, 12181), (278, 12196), (280, 12202), (284, 12217),

Gene: OverHedge\_30 Start: 17753, Stop: 18643, Start Num: 35

Candidate Starts for OverHedge\_30:

(Start: 35 @17753 has 26 MA's), (126, 18077), (133, 18101), (140, 18134), (181, 18290), (233, 18464), (273, 18584), (290, 18635), (291, 18638),

Gene: Ozzie\_19 Start: 14973, Stop: 15830, Start Num: 37

Candidate Starts for Ozzie\_19:

(Start: 37 @14973 has 100 MA's), (61, 15045), (66, 15063), (75, 15093), (82, 15126), (109, 15231), (123, 15258), (150, 15360), (159, 15405), (179, 15471), (181, 15477), (198, 15531), (200, 15543),

(232, 15645), (240, 15657), (244, 15666), (288, 15819), (290, 15822),

Gene: OzzyJ\_20 Start: 14960, Stop: 15817, Start Num: 37

Candidate Starts for OzzyJ\_20:

(Start: 37 @14960 has 100 MA's), (61, 15032), (66, 15050), (109, 15218), (123, 15245), (151, 15350), (179, 15458), (181, 15464), (198, 15518), (232, 15632), (244, 15653), (288, 15806), (290, 15809),

Gene: P1.1\_15 Start: 11293, Stop: 12234, Start Num: 29

Candidate Starts for P1.1\_15:

(Start: 24 @11278 has 7 MA's), (Start: 26 @11284 has 1 MA's), (27, 11287), (Start: 29 @11293 has 42 MA's), (33, 11326), (Start: 34 @11332 has 2 MA's), (Start: 40 @11344 has 19 MA's), (48, 11371), (52, 11380), (61, 11410), (62, 11413), (63, 11416), (66, 11428), (68, 11437), (80, 11482), (86, 11512), (89, 11527), (93, 11539), (94, 11542), (95, 11545), (102, 11569), (107, 11593), (113, 11611), (124, 11647), (127, 11653), (132, 11680), (133, 11683), (142, 11722), (144, 11731), (152, 11758), (154, 11764), (167, 11827), (172, 11839), (181, 11881), (182, 11884), (183, 11887), (197, 11938), (200, 11953), (206, 11974), (211, 11989), (216, 12004), (219, 12010), (249, 12082), (251, 12085), (256, 12103), (257, 12106), (259, 12115), (268, 12163), (272, 12175), (274, 12184), (278, 12199), (280, 12205), (284, 12220),

Gene: P100.1\_15 Start: 11300, Stop: 12241, Start Num: 29

Candidate Starts for P100.1\_15:

(Start: 26 @11291 has 1 MA's), (Start: 29 @11300 has 42 MA's), (33, 11333), (Start: 40 @11351 has 19 MA's), (48, 11378), (52, 11387), (60, 11414), (61, 11417), (62, 11420), (63, 11423), (66, 11435), (68, 11444), (73, 11459), (80, 11489), (86, 11519), (89, 11534), (95, 11552), (99, 11567), (102, 11576), (107, 11600), (113, 11618), (127, 11660), (132, 11687), (142, 11729), (144, 11738), (152, 11765), (154, 11771), (167, 11834), (172, 11846), (181, 11888), (182, 11891), (187, 11906), (197, 11945), (200, 11960), (206, 11981), (211, 11996), (216, 12011), (219, 12017), (249, 12089), (251, 12092), (256, 12110), (257, 12113), (259, 12122), (268, 12170), (272, 12182), (274, 12191), (278, 12206), (280, 12212), (284, 12227),

Gene: P100A\_15 Start: 11295, Stop: 12242, Start Num: 29

Candidate Starts for P100A\_15:

(Start: 26 @11286 has 1 MA's), (27, 11289), (Start: 29 @11295 has 42 MA's), (33, 11328), (Start: 40 @11346 has 19 MA's), (41, 11349), (Start: 43 @11355 has 2 MA's), (48, 11379), (52, 11388), (61, 11418), (62, 11421), (63, 11424), (66, 11436), (68, 11445), (80, 11490), (86, 11520), (89, 11535), (91, 11541), (95, 11553), (107, 11601), (113, 11619), (124, 11655), (127, 11661), (132, 11688), (142, 11730), (151, 11763), (154, 11772), (167, 11835), (172, 11847), (181, 11889), (182, 11892), (183, 11895), (194, 11928), (197, 11946), (200, 11961), (206, 11982), (211, 11997), (216, 12012), (219, 12018), (249, 12090), (251, 12093), (256, 12111), (257, 12114), (268, 12171), (272, 12183), (274, 12192), (278, 12207), (280, 12213), (284, 12228),

Gene: P100D\_15 Start: 11296, Stop: 12237, Start Num: 29

Candidate Starts for P100D\_15:

(Start: 24 @11281 has 7 MA's), (Start: 26 @11287 has 1 MA's), (27, 11290), (Start: 29 @11296 has 42 MA's), (33, 11329), (Start: 34 @11335 has 2 MA's), (Start: 40 @11347 has 19 MA's), (48, 11374), (52, 11383), (61, 11413), (62, 11416), (63, 11419), (66, 11431), (68, 11440), (73, 11455), (80, 11485), (86, 11515), (89, 11530), (93, 11542), (94, 11545), (95, 11548), (107, 11596), (113, 11614), (119, 11641), (124, 11650), (127, 11656), (132, 11683), (133, 11686), (142, 11725), (144, 11734), (151, 11758), (154, 11767), (167, 11830), (172, 11842), (181, 11884), (182, 11887), (183, 11890), (197, 11941), (200, 11956), (206, 11977), (211, 11992), (216, 12007), (219, 12013), (249, 12085), (251, 12088), (256, 12106), (257, 12109), (259, 12118), (268, 12166), (272, 12178), (274, 12187), (278, 12202), (280, 12208), (284, 12223),

Gene: P101A\_15 Start: 11308, Stop: 12249, Start Num: 29

Candidate Starts for P101A\_15:

(25, 11296), (Start: 26 @11299 has 1 MA's), (Start: 29 @11308 has 42 MA's), (33, 11341), (Start: 40 @11359 has 19 MA's), (48, 11386), (52, 11395), (60, 11422), (61, 11425), (62, 11428), (63, 11431), (66, 11443), (68, 11452), (73, 11467), (80, 11497), (86, 11527), (89, 11542), (95, 11560), (99, 11575), (102, 11584), (107, 11608), (113, 11626), (127, 11668), (132, 11695), (142, 11737), (144, 11746), (152, 11773), (154, 11779), (167, 11842), (172, 11854), (181, 11896), (182, 11899), (187, 11914), (197, 11953), (200, 11968), (206, 11989), (211, 12004), (216, 12019), (219, 12025), (249, 12097), (251, 12100), (256, 12118), (257, 12121), (259, 12130), (268, 12178), (272, 12190), (274, 12199), (278, 12214), (280, 12220), (284, 12235),

Gene: P104A\_15 Start: 11279, Stop: 12226, Start Num: 29

Candidate Starts for P104A\_15:

(23, 11264), (Start: 26 @11270 has 1 MA's), (Start: 29 @11279 has 42 MA's), (33, 11312), (Start: 40 @11330 has 19 MA's), (41, 11333), (Start: 43 @11339 has 2 MA's), (48, 11363), (52, 11372), (61, 11402), (62, 11405), (63, 11408), (66, 11420), (70, 11435), (73, 11444), (80, 11474), (86, 11504), (89, 11519), (91, 11525), (93, 11531), (94, 11534), (95, 11537), (102, 11561), (107, 11585), (113, 11603), (119, 11630), (124, 11639), (127, 11645), (132, 11672), (133, 11675), (137, 11696), (144, 11723), (152, 11750), (154, 11756), (167, 11819), (172, 11831), (181, 11873), (182, 11876), (183, 11879), (187, 11891), (197, 11930), (200, 11945), (206, 11966), (211, 11981), (216, 11996), (219, 12002), (249, 12074), (251, 12077), (256, 12095), (257, 12098), (259, 12107), (268, 12155), (272, 12167), (274, 12176), (278, 12191), (280, 12197), (284, 12212),

Gene: P104B\_15 Start: 11296, Stop: 12243, Start Num: 29

Candidate Starts for P104B\_15:

(23, 11281), (Start: 26 @11287 has 1 MA's), (27, 11290), (Start: 29 @11296 has 42 MA's), (33, 11329), (Start: 34 @11335 has 2 MA's), (Start: 40 @11347 has 19 MA's), (41, 11350), (Start: 43 @11356 has 2 MA's), (48, 11380), (52, 11389), (61, 11419), (62, 11422), (63, 11425), (66, 11437), (68, 11446), (70, 11452), (80, 11491), (86, 11521), (89, 11536), (93, 11548), (94, 11551), (95, 11554), (107, 11602), (113, 11620), (119, 11647), (124, 11656), (132, 11689), (137, 11713), (144, 11740), (151, 11764), (154, 11773), (167, 11836), (172, 11848), (181, 11890), (182, 11893), (183, 11896), (197, 11947), (200, 11962), (206, 11983), (211, 11998), (216, 12013), (219, 12019), (249, 12091), (251, 12094), (256, 12112), (257, 12115), (259, 12124), (268, 12172), (272, 12184), (274, 12193), (278, 12208), (280, 12214), (284, 12229),

Gene: P105\_15 Start: 11205, Stop: 12146, Start Num: 29

Candidate Starts for P105\_15:

(22, 11187), (Start: 29 @11205 has 42 MA's), (33, 11238), (Start: 34 @11244 has 2 MA's), (Start: 40 @11256 has 19 MA's), (48, 11283), (52, 11292), (61, 11322), (62, 11325), (63, 11328), (66, 11340), (68, 11349), (73, 11364), (80, 11394), (86, 11424), (89, 11439), (93, 11451), (94, 11454), (95, 11457), (102, 11481), (107, 11505), (113, 11523), (124, 11559), (127, 11565), (132, 11592), (133, 11595), (137, 11616), (142, 11634), (144, 11643), (152, 11670), (154, 11676), (167, 11739), (172, 11751), (181, 11793), (182, 11796), (183, 11799), (187, 11811), (197, 11850), (200, 11865), (206, 11886), (211, 11901), (216, 11916), (219, 11922), (249, 11994), (256, 12015), (257, 12018), (259, 12027), (268, 12075), (272, 12087), (274, 12096), (278, 12111), (280, 12117), (284, 12132),

Gene: P106A\_15 Start: 11324, Stop: 12271, Start Num: 29

Candidate Starts for P106A\_15:

(23, 11309), (Start: 26 @11315 has 1 MA's), (27, 11318), (Start: 29 @11324 has 42 MA's), (33, 11357), (Start: 40 @11375 has 19 MA's), (41, 11378), (48, 11408), (52, 11417), (60, 11444), (61, 11447), (62, 11450), (63, 11453), (66, 11465), (68, 11474), (80, 11519), (86, 11549), (89, 11564), (94, 11579), (95, 11582), (102, 11606), (107, 11630), (113, 11648), (127, 11690), (132, 11717), (142, 11759), (144, 11768), (152, 11795), (154, 11801), (167, 11864), (172, 11876), (181, 11918), (182,

11921), (183, 11924), (197, 11975), (200, 11990), (203, 11999), (211, 12026), (216, 12041), (219, 12047), (249, 12119), (251, 12122), (256, 12140), (257, 12143), (259, 12152), (268, 12200), (272, 12212), (274, 12221), (278, 12236), (280, 12242), (284, 12257),

Gene: P106C\_15 Start: 11324, Stop: 12271, Start Num: 29

Candidate Starts for P106C\_15:

(23, 11309), (Start: 26 @11315 has 1 MA's), (27, 11318), (Start: 29 @11324 has 42 MA's), (33, 11357), (Start: 40 @11375 has 19 MA's), (41, 11378), (48, 11408), (52, 11417), (60, 11444), (61, 11447), (62, 11450), (63, 11453), (66, 11465), (68, 11474), (80, 11519), (86, 11549), (89, 11564), (94, 11579), (95, 11582), (102, 11606), (107, 11630), (113, 11648), (127, 11690), (132, 11717), (142, 11759), (144, 11768), (152, 11795), (154, 11801), (167, 11864), (172, 11876), (181, 11918), (182, 11921), (183, 11924), (197, 11975), (200, 11990), (203, 11999), (211, 12026), (216, 12041), (219, 12047), (249, 12119), (251, 12122), (256, 12140), (257, 12143), (259, 12152), (268, 12200), (272, 12212), (274, 12221), (278, 12236), (280, 12242), (284, 12257),

Gene: P106I\_15 Start: 11324, Stop: 12271, Start Num: 29

Candidate Starts for P106I\_15:

(23, 11309), (Start: 26 @11315 has 1 MA's), (27, 11318), (Start: 29 @11324 has 42 MA's), (33, 11357), (Start: 40 @11375 has 19 MA's), (41, 11378), (48, 11408), (52, 11417), (60, 11444), (61, 11447), (62, 11450), (63, 11453), (66, 11465), (68, 11474), (80, 11519), (86, 11549), (89, 11564), (94, 11579), (95, 11582), (102, 11606), (107, 11630), (113, 11648), (127, 11690), (132, 11717), (142, 11759), (144, 11768), (152, 11795), (154, 11801), (167, 11864), (172, 11876), (181, 11918), (182, 11921), (183, 11924), (197, 11975), (200, 11990), (203, 11999), (211, 12026), (216, 12041), (219, 12047), (249, 12119), (251, 12122), (256, 12140), (257, 12143), (259, 12152), (268, 12200), (272, 12212), (274, 12221), (278, 12236), (280, 12242), (284, 12257),

Gene: P106L\_15 Start: 11324, Stop: 12271, Start Num: 29

Candidate Starts for P106L\_15:

(23, 11309), (Start: 26 @11315 has 1 MA's), (27, 11318), (Start: 29 @11324 has 42 MA's), (33, 11357), (Start: 40 @11375 has 19 MA's), (41, 11378), (48, 11408), (52, 11417), (60, 11444), (61, 11447), (62, 11450), (63, 11453), (66, 11465), (68, 11474), (80, 11519), (86, 11549), (89, 11564), (94, 11579), (95, 11582), (102, 11606), (107, 11630), (113, 11648), (127, 11690), (132, 11717), (142, 11759), (144, 11768), (152, 11795), (154, 11801), (167, 11864), (172, 11876), (181, 11918), (182, 11921), (183, 11924), (197, 11975), (200, 11990), (203, 11999), (211, 12026), (216, 12041), (219, 12047), (249, 12119), (251, 12122), (256, 12140), (257, 12143), (259, 12152), (268, 12200), (272, 12212), (274, 12221), (278, 12236), (280, 12242), (284, 12257),

Gene: P106M\_15 Start: 11324, Stop: 12271, Start Num: 29

Candidate Starts for P106M\_15:

(23, 11309), (Start: 26 @11315 has 1 MA's), (27, 11318), (Start: 29 @11324 has 42 MA's), (33, 11357), (Start: 40 @11375 has 19 MA's), (41, 11378), (48, 11408), (52, 11417), (60, 11444), (61, 11447), (62, 11450), (63, 11453), (66, 11465), (68, 11474), (80, 11519), (86, 11549), (89, 11564), (94, 11579), (95, 11582), (102, 11606), (107, 11630), (113, 11648), (127, 11690), (132, 11717), (142, 11759), (144, 11768), (152, 11795), (154, 11801), (167, 11864), (172, 11876), (181, 11918), (182, 11921), (183, 11924), (197, 11975), (200, 11990), (203, 11999), (211, 12026), (216, 12041), (219, 12047), (249, 12119), (251, 12122), (256, 12140), (257, 12143), (259, 12152), (268, 12200), (272, 12212), (274, 12221), (278, 12236), (280, 12242), (284, 12257),

Gene: P107A\_15 Start: 11301, Stop: 12248, Start Num: 29

Candidate Starts for P107A\_15:

(Start: 26 @11292 has 1 MA's), (Start: 29 @11301 has 42 MA's), (33, 11334), (Start: 40 @11352 has 19 MA's), (41, 11355), (Start: 43 @11361 has 2 MA's), (48, 11385), (52, 11394), (61, 11424), (62, 11427), (63, 11430), (66, 11442), (68, 11451), (86, 11526), (89, 11541), (91, 11547), (95, 11559),

(107, 11607), (113, 11625), (119, 11652), (124, 11661), (127, 11667), (132, 11694), (151, 11769), (154, 11778), (167, 11841), (172, 11853), (181, 11895), (182, 11898), (183, 11901), (197, 11952), (200, 11967), (206, 11988), (211, 12003), (216, 12018), (219, 12024), (249, 12096), (251, 12099), (256, 12117), (257, 12120), (268, 12177), (272, 12189), (274, 12198), (278, 12213), (280, 12219), (284, 12234),

Gene: P107C\_15 Start: 11283, Stop: 12224, Start Num: 29

Candidate Starts for P107C\_15:

(Start: 24 @11268 has 7 MA's), (Start: 26 @11274 has 1 MA's), (27, 11277), (Start: 29 @11283 has 42 MA's), (33, 11316), (Start: 34 @11322 has 2 MA's), (Start: 40 @11334 has 19 MA's), (48, 11361), (52, 11370), (61, 11400), (62, 11403), (63, 11406), (66, 11418), (68, 11427), (73, 11442), (80, 11472), (86, 11502), (89, 11517), (94, 11532), (95, 11535), (107, 11583), (113, 11601), (124, 11637), (127, 11643), (132, 11670), (133, 11673), (137, 11694), (142, 11712), (144, 11721), (151, 11745), (154, 11754), (167, 11817), (172, 11829), (181, 11871), (182, 11874), (183, 11877), (200, 11943), (206, 11964), (211, 11979), (216, 11994), (219, 12000), (249, 12072), (251, 12075), (256, 12093), (257, 12096), (259, 12105), (268, 12153), (272, 12165), (274, 12174), (276, 12183), (278, 12189), (280, 12195), (284, 12210),

Gene: P108C\_15 Start: 11282, Stop: 12232, Start Num: 26

Candidate Starts for P108C\_15:

(Start: 24 @11276 has 7 MA's), (Start: 26 @11282 has 1 MA's), (27, 11285), (Start: 29 @11291 has 42 MA's), (33, 11324), (Start: 40 @11342 has 19 MA's), (48, 11369), (52, 11378), (61, 11408), (62, 11411), (63, 11414), (66, 11426), (68, 11435), (73, 11450), (80, 11480), (86, 11510), (89, 11525), (91, 11531), (95, 11543), (107, 11591), (113, 11609), (124, 11645), (127, 11651), (132, 11678), (142, 11720), (144, 11729), (152, 11756), (154, 11762), (167, 11825), (172, 11837), (181, 11879), (182, 11882), (183, 11885), (194, 11918), (197, 11936), (200, 11951), (203, 11960), (211, 11987), (216, 12002), (219, 12008), (249, 12080), (251, 12083), (256, 12101), (257, 12104), (259, 12113), (268, 12161), (272, 12173), (274, 12182), (278, 12197), (280, 12203), (284, 12218),

Gene: P14.4\_15 Start: 11291, Stop: 12238, Start Num: 29

Candidate Starts for P14.4\_15:

(23, 11276), (Start: 26 @11282 has 1 MA's), (Start: 29 @11291 has 42 MA's), (33, 11324), (Start: 40 @11342 has 19 MA's), (41, 11345), (Start: 43 @11351 has 2 MA's), (48, 11375), (52, 11384), (61, 11414), (62, 11417), (63, 11420), (66, 11432), (68, 11441), (80, 11486), (86, 11516), (89, 11531), (91, 11537), (93, 11543), (94, 11546), (107, 11597), (113, 11615), (119, 11642), (124, 11651), (127, 11657), (132, 11684), (133, 11687), (137, 11708), (144, 11735), (151, 11759), (154, 11768), (167, 11831), (172, 11843), (181, 11885), (182, 11888), (183, 11891), (197, 11942), (200, 11957), (206, 11978), (211, 11993), (216, 12008), (219, 12014), (249, 12086), (251, 12089), (256, 12107), (257, 12110), (259, 12119), (268, 12167), (272, 12179), (278, 12203), (280, 12209), (284, 12224),

Gene: P9.1\_15 Start: 11286, Stop: 12233, Start Num: 29

Candidate Starts for P9.1\_15:

(23, 11271), (Start: 26 @11277 has 1 MA's), (27, 11280), (Start: 29 @11286 has 42 MA's), (33, 11319), (Start: 34 @11325 has 2 MA's), (Start: 40 @11337 has 19 MA's), (41, 11340), (Start: 43 @11346 has 2 MA's), (48, 11370), (61, 11409), (62, 11412), (63, 11415), (66, 11427), (68, 11436), (80, 11481), (86, 11511), (89, 11526), (91, 11532), (93, 11538), (94, 11541), (95, 11544), (107, 11592), (113, 11610), (119, 11637), (124, 11646), (132, 11679), (133, 11682), (137, 11703), (144, 11730), (152, 11757), (154, 11763), (167, 11826), (172, 11838), (181, 11880), (182, 11883), (183, 11886), (197, 11937), (200, 11952), (203, 11961), (211, 11988), (216, 12003), (219, 12009), (249, 12081), (251, 12084), (256, 12102), (257, 12105), (259, 12114), (268, 12162), (272, 12174), (274, 12183), (278, 12198), (280, 12204), (284, 12219),

Gene: PA6\_15 Start: 11315, Stop: 12262, Start Num: 29

Candidate Starts for PA6\_15:

(21, 11294), (Start: 26 @11306 has 1 MA's), (27, 11309), (Start: 29 @11315 has 42 MA's), (33, 11348), (Start: 34 @11354 has 2 MA's), (Start: 40 @11366 has 19 MA's), (Start: 43 @11375 has 2 MA's), (44, 11378), (48, 11399), (52, 11408), (61, 11438), (62, 11441), (63, 11444), (66, 11456), (70, 11471), (73, 11480), (80, 11510), (86, 11540), (89, 11555), (91, 11561), (93, 11567), (94, 11570), (95, 11573), (102, 11597), (107, 11621), (113, 11639), (119, 11666), (124, 11675), (127, 11681), (132, 11708), (133, 11711), (144, 11759), (152, 11786), (154, 11792), (167, 11855), (172, 11867), (181, 11909), (182, 11912), (187, 11927), (197, 11966), (200, 11981), (206, 12002), (211, 12017), (216, 12032), (219, 12038), (249, 12110), (251, 12113), (256, 12131), (257, 12134), (259, 12143), (268, 12191), (272, 12203), (274, 12212), (278, 12227), (280, 12233), (284, 12248),

Gene: PAD20\_15 Start: 11289, Stop: 12230, Start Num: 29

Candidate Starts for PAD20\_15:

(Start: 24 @11274 has 7 MA's), (Start: 26 @11280 has 1 MA's), (27, 11283), (Start: 29 @11289 has 42 MA's), (33, 11322), (Start: 34 @11328 has 2 MA's), (Start: 40 @11340 has 19 MA's), (48, 11367), (52, 11376), (61, 11406), (62, 11409), (63, 11412), (66, 11424), (73, 11448), (80, 11478), (86, 11508), (89, 11523), (93, 11535), (94, 11538), (95, 11541), (102, 11565), (107, 11589), (113, 11607), (119, 11634), (124, 11643), (127, 11649), (132, 11676), (137, 11700), (144, 11727), (152, 11754), (154, 11760), (167, 11823), (172, 11835), (181, 11877), (182, 11880), (183, 11883), (197, 11934), (200, 11949), (206, 11970), (211, 11985), (219, 12006), (249, 12078), (251, 12081), (256, 12099), (257, 12102), (259, 12111), (268, 12159), (272, 12171), (278, 12195), (280, 12201), (284, 12216),

Gene: PAS50\_15 Start: 11298, Stop: 12239, Start Num: 29

Candidate Starts for PAS50\_15:

(Start: 26 @11289 has 1 MA's), (Start: 29 @11298 has 42 MA's), (33, 11331), (Start: 40 @11349 has 19 MA's), (48, 11376), (52, 11385), (60, 11412), (61, 11415), (62, 11418), (63, 11421), (66, 11433), (68, 11442), (73, 11457), (80, 11487), (86, 11517), (89, 11532), (95, 11550), (99, 11565), (102, 11574), (107, 11598), (113, 11616), (127, 11658), (132, 11685), (142, 11727), (144, 11736), (152, 11763), (154, 11769), (167, 11832), (172, 11844), (181, 11886), (182, 11889), (183, 11892), (194, 11925), (197, 11943), (200, 11958), (203, 11967), (211, 11994), (216, 12009), (219, 12015), (249, 12087), (251, 12090), (256, 12108), (257, 12111), (259, 12120), (268, 12168), (272, 12180), (274, 12189), (278, 12204), (280, 12210), (284, 12225),

Gene: PHL010M04\_15 Start: 11286, Stop: 12233, Start Num: 29

Candidate Starts for PHL010M04\_15:

(23, 11271), (Start: 26 @11277 has 1 MA's), (27, 11280), (Start: 29 @11286 has 42 MA's), (33, 11319), (Start: 40 @11337 has 19 MA's), (41, 11340), (Start: 43 @11346 has 2 MA's), (48, 11370), (52, 11379), (61, 11409), (62, 11412), (63, 11415), (66, 11427), (68, 11436), (73, 11451), (80, 11481), (86, 11511), (89, 11526), (91, 11532), (94, 11541), (107, 11592), (113, 11610), (119, 11637), (124, 11646), (127, 11652), (132, 11679), (137, 11703), (144, 11730), (151, 11754), (154, 11763), (167, 11826), (172, 11838), (181, 11880), (182, 11883), (183, 11886), (197, 11937), (200, 11952), (206, 11973), (211, 11988), (216, 12003), (219, 12009), (249, 12081), (251, 12084), (256, 12102), (257, 12105), (259, 12114), (268, 12162), (272, 12174), (274, 12183), (278, 12198), (280, 12204), (284, 12219),

Gene: PHL037M02\_15 Start: 11301, Stop: 12242, Start Num: 29

Candidate Starts for PHL037M02\_15:

(22, 11283), (Start: 29 @11301 has 42 MA's), (33, 11334), (Start: 34 @11340 has 2 MA's), (Start: 40 @11352 has 19 MA's), (48, 11379), (52, 11388), (60, 11415), (61, 11418), (62, 11421), (63, 11424), (66, 11436), (68, 11445), (80, 11490), (86, 11520), (89, 11535), (91, 11541), (93, 11547), (94, 11550), (95, 11553), (102, 11577), (107, 11601), (113, 11619), (127, 11661), (132, 11688), (133, 11691), (137, 11712), (151, 11763), (154, 11772), (167, 11835), (172, 11847), (181, 11889), (182, 11892), (183, 11895), (197, 11946), (200, 11961), (206, 11982), (211, 11997), (216, 12012), (219, 12018), (249,

12090), (251, 12093), (256, 12111), (257, 12114), (268, 12171), (272, 12183), (274, 12192), (278, 12207), (280, 12213), (284, 12228),

Gene: PHL060L00\_15 Start: 11302, Stop: 12249, Start Num: 29

Candidate Starts for PHL060L00\_15:

(23, 11287), (Start: 26 @11293 has 1 MA's), (Start: 29 @11302 has 42 MA's), (33, 11335), (Start: 40 @11353 has 19 MA's), (41, 11356), (Start: 43 @11362 has 2 MA's), (48, 11386), (52, 11395), (61, 11425), (62, 11428), (63, 11431), (66, 11443), (68, 11452), (70, 11458), (73, 11467), (80, 11497), (86, 11527), (89, 11542), (95, 11560), (107, 11608), (113, 11626), (127, 11668), (132, 11695), (137, 11719), (144, 11746), (152, 11773), (154, 11779), (167, 11842), (181, 11896), (182, 11899), (183, 11902), (194, 11935), (197, 11953), (200, 11968), (206, 11989), (211, 12004), (216, 12019), (219, 12025), (249, 12097), (251, 12100), (256, 12118), (257, 12121), (268, 12178), (272, 12190), (274, 12199), (278, 12214), (280, 12220), (284, 12235),

Gene: PHL067M10\_15 Start: 11269, Stop: 12210, Start Num: 29

Candidate Starts for PHL067M10\_15:

(Start: 24 @11254 has 7 MA's), (Start: 26 @11260 has 1 MA's), (27, 11263), (Start: 29 @11269 has 42 MA's), (33, 11302), (Start: 40 @11320 has 19 MA's), (45, 11338), (48, 11347), (52, 11356), (61, 11386), (62, 11389), (63, 11392), (66, 11404), (68, 11413), (73, 11428), (80, 11458), (86, 11488), (89, 11503), (93, 11515), (94, 11518), (95, 11521), (102, 11545), (107, 11569), (113, 11587), (124, 11623), (127, 11629), (132, 11656), (133, 11659), (137, 11680), (144, 11707), (152, 11734), (154, 11740), (167, 11803), (172, 11815), (181, 11857), (182, 11860), (183, 11863), (197, 11914), (200, 11929), (206, 11950), (211, 11965), (216, 11980), (219, 11986), (249, 12058), (251, 12061), (256, 12079), (257, 12082), (259, 12091), (268, 12139), (272, 12151), (274, 12160), (278, 12175), (280, 12181), (284, 12196),

Gene: PHL071N05\_15 Start: 11297, Stop: 12238, Start Num: 29

Candidate Starts for PHL071N05\_15:

(Start: 24 @11282 has 7 MA's), (Start: 26 @11288 has 1 MA's), (Start: 29 @11297 has 42 MA's), (33, 11330), (Start: 34 @11336 has 2 MA's), (Start: 40 @11348 has 19 MA's), (48, 11375), (52, 11384), (61, 11414), (62, 11417), (63, 11420), (66, 11432), (68, 11441), (73, 11456), (80, 11486), (86, 11516), (89, 11531), (95, 11549), (107, 11597), (113, 11615), (124, 11651), (127, 11657), (132, 11684), (140, 11717), (152, 11762), (154, 11768), (167, 11831), (172, 11843), (181, 11885), (182, 11888), (183, 11891), (200, 11957), (206, 11978), (211, 11993), (216, 12008), (219, 12014), (249, 12086), (251, 12089), (256, 12107), (257, 12110), (259, 12119), (268, 12167), (272, 12179), (274, 12188), (278, 12203), (280, 12209), (284, 12224),

Gene: PHL111M01\_15 Start: 11287, Stop: 12234, Start Num: 29

Candidate Starts for PHL111M01\_15:

(Start: 26 @11278 has 1 MA's), (27, 11281), (Start: 29 @11287 has 42 MA's), (33, 11320), (Start: 40 @11338 has 19 MA's), (41, 11341), (Start: 43 @11347 has 2 MA's), (48, 11371), (52, 11380), (61, 11410), (62, 11413), (63, 11416), (66, 11428), (73, 11452), (80, 11482), (86, 11512), (89, 11527), (93, 11539), (94, 11542), (95, 11545), (107, 11593), (113, 11611), (124, 11647), (127, 11653), (132, 11680), (144, 11731), (151, 11755), (154, 11764), (167, 11827), (172, 11839), (181, 11881), (182, 11884), (183, 11887), (197, 11938), (200, 11953), (206, 11974), (211, 11989), (216, 12004), (219, 12010), (249, 12082), (251, 12085), (256, 12103), (257, 12106), (259, 12115), (268, 12163), (272, 12175), (274, 12184), (278, 12199), (280, 12205), (284, 12220),

Gene: PHL112N00\_15 Start: 11284, Stop: 12231, Start Num: 29

Candidate Starts for PHL112N00\_15:

(Start: 26 @11275 has 1 MA's), (Start: 29 @11284 has 42 MA's), (33, 11317), (Start: 34 @11323 has 2 MA's), (Start: 40 @11335 has 19 MA's), (Start: 43 @11344 has 2 MA's), (52, 11377), (61, 11407), (62, 11410), (63, 11413), (66, 11425), (68, 11434), (73, 11449), (80, 11479), (86, 11509), (89, 11524),

(93, 11536), (94, 11539), (95, 11542), (107, 11590), (113, 11608), (124, 11644), (127, 11650), (132, 11677), (133, 11680), (144, 11728), (152, 11755), (154, 11761), (167, 11824), (181, 11878), (182, 11881), (183, 11884), (194, 11917), (197, 11935), (200, 11950), (206, 11971), (211, 11986), (216, 12001), (219, 12007), (249, 12079), (251, 12082), (256, 12100), (257, 12103), (259, 12112), (268, 12160), (272, 12172), (274, 12181), (278, 12196), (280, 12202), (284, 12217),

Gene: PHL113M01\_15 Start: 11311, Stop: 12252, Start Num: 29

Candidate Starts for PHL113M01\_15:

(Start: 24 @11296 has 7 MA's), (Start: 26 @11302 has 1 MA's), (Start: 29 @11311 has 42 MA's), (33, 11344), (Start: 40 @11362 has 19 MA's), (48, 11389), (52, 11398), (60, 11425), (61, 11428), (62, 11431), (63, 11434), (66, 11446), (68, 11455), (73, 11470), (80, 11500), (86, 11530), (89, 11545), (93, 11557), (99, 11578), (102, 11587), (107, 11611), (113, 11629), (124, 11665), (127, 11671), (132, 11698), (142, 11740), (144, 11749), (152, 11776), (154, 11782), (167, 11845), (172, 11857), (181, 11899), (182, 11902), (183, 11905), (197, 11956), (200, 11971), (206, 11992), (211, 12007), (216, 12022), (219, 12028), (249, 12100), (251, 12103), (256, 12121), (257, 12124), (259, 12133), (268, 12181), (272, 12193), (274, 12202), (278, 12217), (280, 12223), (284, 12238),

Gene: PHL114L00\_15 Start: 11289, Stop: 12236, Start Num: 29

Candidate Starts for PHL114L00\_15:

(Start: 26 @11280 has 1 MA's), (Start: 29 @11289 has 42 MA's), (33, 11322), (Start: 40 @11340 has 19 MA's), (41, 11343), (Start: 43 @11349 has 2 MA's), (48, 11373), (52, 11382), (61, 11412), (62, 11415), (63, 11418), (66, 11430), (73, 11454), (80, 11484), (86, 11514), (89, 11529), (93, 11541), (94, 11544), (95, 11547), (102, 11571), (107, 11595), (113, 11613), (119, 11640), (124, 11649), (132, 11682), (133, 11685), (137, 11706), (144, 11733), (152, 11760), (154, 11766), (167, 11829), (172, 11841), (181, 11883), (182, 11886), (183, 11889), (197, 11940), (200, 11955), (206, 11976), (211, 11991), (216, 12006), (219, 12012), (249, 12084), (251, 12087), (256, 12105), (257, 12108), (268, 12165), (272, 12177), (274, 12186), (278, 12201), (280, 12207), (284, 12222),

Gene: Pablito\_19 Start: 14808, Stop: 15662, Start Num: 37

Candidate Starts for Pablito\_19:

(Start: 37 @14808 has 100 MA's), (56, 14862), (66, 14898), (177, 15294), (179, 15303), (227, 15459), (244, 15498), (263, 15561), (288, 15651), (290, 15654), (291, 15657),

Gene: Paedore\_19 Start: 14964, Stop: 15821, Start Num: 37

Candidate Starts for Paedore\_19:

(Start: 37 @14964 has 100 MA's), (56, 15018), (66, 15054), (179, 15462), (246, 15660), (288, 15810), (290, 15813),

Gene: Paolo\_23 Start: 15362, Stop: 16219, Start Num: 37

Candidate Starts for Paolo\_23:

(Start: 37 @15362 has 100 MA's), (134, 15683), (142, 15719), (179, 15860), (244, 16055), (288, 16208), (290, 16211),

Gene: Percival\_16 Start: 13829, Stop: 14695, Start Num: 36

Candidate Starts for Percival\_16:

(Start: 36 @13829 has 9 MA's), (71, 13943), (92, 14030), (93, 14033), (95, 14039), (126, 14141), (131, 14156), (142, 14207), (147, 14228), (179, 14342), (229, 14501), (269, 14621), (271, 14627), (279, 14657),

Gene: PermaG\_21 Start: 15549, Stop: 16442, Start Num: 40

Candidate Starts for PermaG\_21:

(Start: 40 @15549 has 19 MA's), (110, 15813), (134, 15894), (135, 15897), (136, 15903), (154, 15972), (165, 16020), (209, 16188), (232, 16257), (244, 16278), (246, 16281), (263, 16341), (269,



16368), (270, 16371), (271, 16374), (280, 16407), (281, 16410), (290, 16434),

Gene: Pharpay\_30 Start: 17808, Stop: 18698, Start Num: 35

Candidate Starts for Pharpay\_30:

(Start: 35 @17808 has 26 MA's), (126, 18132), (133, 18156), (140, 18189), (181, 18345), (200, 18411), (233, 18519), (273, 18639), (290, 18690), (291, 18693),

Gene: Phettuccine\_19 Start: 14993, Stop: 15850, Start Num: 37

Candidate Starts for Phettuccine\_19:

(Start: 37 @14993 has 100 MA's), (61, 15065), (66, 15083), (75, 15113), (82, 15146), (109, 15251), (123, 15278), (150, 15380), (159, 15425), (179, 15491), (181, 15497), (198, 15551), (200, 15563), (232, 15665), (240, 15677), (244, 15686), (288, 15839), (290, 15842),

Gene: Phisb\_17 Start: 13132, Stop: 13986, Start Num: 38

Candidate Starts for Phisb\_17:

(Start: 38 @13132 has 64 MA's), (62, 13207), (70, 13237), (73, 13246), (98, 13345), (102, 13360), (123, 13417), (148, 13513), (151, 13522), (158, 13555), (185, 13639), (191, 13654), (267, 13906), (271, 13918), (290, 13978),

Gene: Phonegingi\_22 Start: 13626, Stop: 14486, Start Num: 40

Candidate Starts for Phonegingi\_22:

(Start: 40 @13626 has 19 MA's), (53, 13662), (Start: 54 @13665 has 1 MA's), (61, 13686), (63, 13692), (70, 13719), (86, 13785), (93, 13812), (102, 13842), (110, 13875), (141, 13968), (147, 13995), (178, 14118), (179, 14124), (191, 14157), (200, 14196), (210, 14235), (270, 14415), (271, 14418), (287, 14472), (288, 14475),

Gene: PhunaPhoke\_30 Start: 17781, Stop: 18671, Start Num: 35

Candidate Starts for PhunaPhoke\_30:

(Start: 35 @17781 has 26 MA's), (126, 18105), (133, 18129), (140, 18162), (181, 18318), (200, 18384), (233, 18492), (273, 18612), (290, 18663), (291, 18666),

Gene: Pickles13\_22 Start: 13990, Stop: 14850, Start Num: 40

Candidate Starts for Pickles13\_22:

(Start: 40 @13990 has 19 MA's), (53, 14026), (Start: 54 @14029 has 1 MA's), (61, 14050), (63, 14056), (66, 14068), (68, 14077), (70, 14083), (86, 14149), (93, 14176), (102, 14206), (110, 14239), (135, 14305), (141, 14332), (147, 14359), (174, 14458), (178, 14482), (179, 14488), (191, 14521), (210, 14599), (270, 14779), (280, 14815), (287, 14836),

Gene: Pirate\_15 Start: 11280, Stop: 12227, Start Num: 29

Candidate Starts for Pirate\_15:

(23, 11265), (Start: 26 @11271 has 1 MA's), (27, 11274), (Start: 29 @11280 has 42 MA's), (33, 11313), (Start: 40 @11331 has 19 MA's), (41, 11334), (48, 11364), (52, 11373), (61, 11403), (62, 11406), (63, 11409), (66, 11421), (68, 11430), (80, 11475), (86, 11505), (89, 11520), (93, 11532), (94, 11535), (95, 11538), (104, 11571), (107, 11586), (113, 11604), (124, 11640), (127, 11646), (132, 11673), (137, 11697), (144, 11724), (152, 11751), (154, 11757), (167, 11820), (172, 11832), (181, 11874), (182, 11877), (183, 11880), (197, 11931), (200, 11946), (206, 11967), (211, 11982), (216, 11997), (219, 12003), (249, 12075), (251, 12078), (256, 12096), (257, 12099), (259, 12108), (268, 12156), (272, 12168), (274, 12177), (278, 12192), (280, 12198), (284, 12213),

Gene: Pitbull\_18 Start: 12276, Stop: 13190, Start Num: 43

Candidate Starts for Pitbull\_18:

(Start: 24 @12204 has 7 MA's), (Start: 34 @12258 has 2 MA's), (41, 12270), (Start: 43 @12276 has 2 MA's), (60, 12333), (61, 12336), (62, 12339), (63, 12342), (70, 12366), (89, 12450), (93, 12462), (100,

12489), (116, 12528), (127, 12558), (161, 12711), (176, 12774), (188, 12798), (194, 12813), (203, 12855), (215, 12900), (237, 13002), (243, 13026), (274, 13140), (283, 13170),

Gene: Potty\_30 Start: 17786, Stop: 18676, Start Num: 35

Candidate Starts for Potty\_30:

(Start: 35 @17786 has 26 MA's), (126, 18110), (133, 18134), (140, 18167), (181, 18323), (233, 18497), (273, 18617), (290, 18668), (291, 18671),

Gene: Poultruss\_29 Start: 17550, Stop: 18440, Start Num: 35

Candidate Starts for Poultruss\_29:

(Start: 35 @17550 has 26 MA's), (73, 17670), (106, 17805), (126, 17874), (133, 17898), (140, 17931), (181, 18087), (194, 18120), (200, 18153), (233, 18261), (264, 18351), (273, 18381), (290, 18432),

Gene: Procrass1\_15 Start: 11294, Stop: 12235, Start Num: 29

Candidate Starts for Procrass1\_15:

(Start: 24 @11279 has 7 MA's), (Start: 26 @11285 has 1 MA's), (27, 11288), (Start: 29 @11294 has 42 MA's), (33, 11327), (Start: 40 @11345 has 19 MA's), (48, 11372), (52, 11381), (61, 11411), (62, 11414), (63, 11417), (66, 11429), (68, 11438), (73, 11453), (80, 11483), (86, 11513), (89, 11528), (93, 11540), (94, 11543), (95, 11546), (107, 11594), (113, 11612), (124, 11648), (127, 11654), (132, 11681), (137, 11705), (142, 11723), (144, 11732), (152, 11759), (154, 11765), (167, 11828), (172, 11840), (181, 11882), (182, 11885), (183, 11888), (194, 11921), (197, 11939), (200, 11954), (206, 11975), (211, 11990), (216, 12005), (219, 12011), (249, 12083), (251, 12086), (256, 12104), (257, 12107), (259, 12116), (268, 12164), (272, 12176), (274, 12185), (278, 12200), (280, 12206), (284, 12221),

Gene: Provolone\_20 Start: 15402, Stop: 16259, Start Num: 37

Candidate Starts for Provolone\_20:

(Start: 37 @15402 has 100 MA's), (49, 15438), (61, 15474), (73, 15516), (109, 15660), (123, 15687), (150, 15789), (151, 15792), (159, 15834), (160, 15837), (178, 15894), (179, 15900), (192, 15936), (232, 16074), (280, 16224), (288, 16248), (290, 16251),

Gene: Puginator\_23 Start: 15407, Stop: 16264, Start Num: 37

Candidate Starts for Puginator\_23:

(Start: 37 @15407 has 100 MA's), (66, 15497), (134, 15728), (142, 15764), (179, 15905), (244, 16100), (288, 16253), (290, 16256),

Gene: QMacho\_18 Start: 13602, Stop: 14456, Start Num: 38

Candidate Starts for QMacho\_18:

(Start: 38 @13602 has 64 MA's), (62, 13677), (70, 13707), (73, 13716), (98, 13815), (102, 13830), (123, 13887), (148, 13983), (151, 13992), (158, 14025), (185, 14109), (191, 14124), (267, 14376), (271, 14388), (290, 14448),

Gene: QueenBey\_15 Start: 11288, Stop: 12235, Start Num: 29

Candidate Starts for QueenBey\_15:

(23, 11273), (Start: 26 @11279 has 1 MA's), (Start: 29 @11288 has 42 MA's), (33, 11321), (Start: 34 @11327 has 2 MA's), (Start: 40 @11339 has 19 MA's), (41, 11342), (Start: 43 @11348 has 2 MA's), (48, 11372), (52, 11381), (61, 11411), (62, 11414), (63, 11417), (66, 11429), (68, 11438), (80, 11483), (86, 11513), (89, 11528), (91, 11534), (94, 11543), (107, 11594), (113, 11612), (119, 11639), (124, 11648), (127, 11654), (132, 11681), (137, 11705), (144, 11732), (151, 11756), (154, 11765), (167, 11828), (181, 11882), (182, 11885), (183, 11888), (197, 11939), (200, 11954), (206, 11975), (211, 11990), (216, 12005), (219, 12011), (249, 12083), (251, 12086), (256, 12104), (257, 12107), (259, 12116), (268, 12164), (272, 12176), (274, 12185), (278, 12200), (280, 12206), (284, 12221),

Gene: Quenya\_17 Start: 12664, Stop: 13518, Start Num: 38

Candidate Starts for Quenya\_17:

(Start: 38 @12664 has 64 MA's), (53, 12709), (62, 12739), (70, 12769), (98, 12877), (102, 12892), (120, 12943), (151, 13054), (191, 13186), (194, 13192), (225, 13303), (229, 13318), (267, 13438), (269, 13444), (271, 13450), (290, 13510),

Gene: R4\_19 Start: 15046, Stop: 15903, Start Num: 37

Candidate Starts for R4\_19:

(Start: 37 @15046 has 100 MA's), (56, 15100), (66, 15136), (109, 15304), (179, 15544), (246, 15742), (288, 15892), (290, 15895),

Gene: Rachella\_30 Start: 17789, Stop: 18679, Start Num: 35

Candidate Starts for Rachella\_30:

(Start: 35 @17789 has 26 MA's), (126, 18113), (133, 18137), (140, 18170), (181, 18326), (200, 18392), (233, 18500), (273, 18620), (290, 18671), (291, 18674),

Gene: Rana\_19 Start: 14967, Stop: 15824, Start Num: 37

Candidate Starts for Rana\_19:

(Start: 37 @14967 has 100 MA's), (61, 15039), (75, 15087), (82, 15120), (109, 15225), (123, 15252), (140, 15315), (151, 15357), (177, 15456), (178, 15459), (179, 15465), (200, 15537), (217, 15594), (240, 15651), (244, 15660), (288, 15813), (290, 15816),

Gene: Raqqa\_18 Start: 14740, Stop: 15720, Start Num: 24

Candidate Starts for Raqqa\_18:

(Start: 24 @14740 has 7 MA's), (60, 14869), (66, 14887), (69, 14899), (80, 14941), (84, 14959), (93, 14998), (95, 15004), (105, 15034), (128, 15097), (160, 15241), (168, 15268), (175, 15304), (200, 15403), (207, 15433), (212, 15445), (220, 15466), (227, 15496), (236, 15529), (243, 15556), (258, 15598), (268, 15649), (272, 15661),

Gene: Rasovi\_20 Start: 15518, Stop: 16411, Start Num: 40

Candidate Starts for Rasovi\_20:

(Start: 40 @15518 has 19 MA's), (70, 15611), (73, 15620), (91, 15698), (102, 15749), (134, 15863), (135, 15866), (136, 15872), (151, 15932), (208, 16154), (209, 16157), (232, 16226), (244, 16247), (246, 16250), (263, 16310), (280, 16376),

Gene: RedBear\_21 Start: 15234, Stop: 16091, Start Num: 37

Candidate Starts for RedBear\_21:

(Start: 37 @15234 has 100 MA's), (61, 15306), (66, 15324), (109, 15492), (123, 15519), (151, 15624), (179, 15732), (181, 15738), (200, 15804), (244, 15927), (288, 16080), (290, 16083),

Gene: Rie18\_30 Start: 17302, Stop: 18192, Start Num: 35

Candidate Starts for Rie18\_30:

(Start: 35 @17302 has 26 MA's), (126, 17626), (133, 17650), (181, 17839), (194, 17872), (233, 18013), (264, 18103), (273, 18133), (290, 18184), (291, 18187),

Gene: RikSengupta\_31 Start: 17701, Stop: 18585, Start Num: 37

Candidate Starts for RikSengupta\_31:

(16, 17602), (Start: 37 @17701 has 100 MA's), (67, 17797), (73, 17818), (93, 17902), (95, 17908), (134, 18049), (200, 18298), (207, 18328), (233, 18406), (243, 18418), (244, 18421), (253, 18439), (267, 18505), (268, 18508), (269, 18511), (290, 18577), (291, 18580),

Gene: Rileysaurus\_15 Start: 11284, Stop: 12231, Start Num: 29

Candidate Starts for Rileysaurus\_15:

(Start: 26 @11275 has 1 MA's), (27, 11278), (Start: 29 @11284 has 42 MA's), (33, 11317), (Start: 40 @11335 has 19 MA's), (41, 11338), (Start: 43 @11344 has 2 MA's), (48, 11368), (52, 11377), (61, 11407), (62, 11410), (63, 11413), (66, 11425), (68, 11434), (80, 11479), (86, 11509), (89, 11524), (91, 11530), (95, 11542), (113, 11608), (119, 11635), (124, 11644), (127, 11650), (132, 11677), (144, 11728), (151, 11752), (154, 11761), (167, 11824), (172, 11836), (181, 11878), (182, 11881), (183, 11884), (197, 11935), (200, 11950), (206, 11971), (211, 11986), (216, 12001), (219, 12007), (249, 12079), (251, 12082), (256, 12100), (257, 12103), (259, 12112), (268, 12160), (272, 12172), (274, 12181), (278, 12196), (280, 12202), (284, 12217),

Gene: Rollins\_16 Start: 11669, Stop: 12526, Start Num: 38

Candidate Starts for Rollins\_16:

(Start: 38 @11669 has 64 MA's), (50, 11708), (62, 11744), (70, 11774), (74, 11786), (98, 11882), (123, 11954), (143, 12029), (148, 12050), (197, 12218), (230, 12329),

Gene: Rona\_16 Start: 12807, Stop: 13661, Start Num: 38

Candidate Starts for Rona\_16:

(Start: 38 @12807 has 64 MA's), (46, 12831), (53, 12852), (62, 12882), (70, 12912), (102, 13035), (120, 13086), (123, 13092), (185, 13314), (191, 13329), (194, 13335), (231, 13470), (267, 13581), (271, 13593), (290, 13653),

Gene: RootBeer\_16 Start: 13240, Stop: 14184, Start Num: 25

Candidate Starts for RootBeer\_16:

(13, 13192), (25, 13240), (70, 13408), (74, 13420), (80, 13447), (89, 13492), (105, 13558), (122, 13609), (129, 13633), (142, 13690), (148, 13714), (194, 13873), (255, 14056), (268, 14113),

Gene: Rusticus\_20 Start: 15156, Stop: 16013, Start Num: 37

Candidate Starts for Rusticus\_20:

(Start: 37 @15156 has 100 MA's), (61, 15228), (66, 15246), (82, 15309), (109, 15414), (123, 15441), (134, 15477), (150, 15543), (159, 15588), (179, 15654), (181, 15660), (200, 15726), (210, 15765), (217, 15783), (240, 15840), (253, 15867), (288, 16002), (290, 16005),

Gene: SBlackberry\_20 Start: 15344, Stop: 16237, Start Num: 40

Candidate Starts for SBlackberry\_20:

(Start: 40 @15344 has 19 MA's), (70, 15437), (73, 15446), (91, 15524), (102, 15575), (120, 15635), (134, 15689), (135, 15692), (136, 15698), (208, 15980), (209, 15983), (232, 16052), (244, 16073), (246, 16076), (263, 16136), (280, 16202),

Gene: SKKY\_15 Start: 11329, Stop: 12270, Start Num: 29

Candidate Starts for SKKY\_15:

(22, 11311), (Start: 29 @11329 has 42 MA's), (33, 11362), (Start: 34 @11368 has 2 MA's), (Start: 40 @11380 has 19 MA's), (48, 11407), (52, 11416), (61, 11446), (62, 11449), (63, 11452), (66, 11464), (68, 11473), (73, 11488), (80, 11518), (86, 11548), (89, 11563), (93, 11575), (95, 11581), (102, 11605), (107, 11629), (113, 11647), (124, 11683), (127, 11689), (132, 11716), (133, 11719), (137, 11740), (144, 11767), (151, 11791), (154, 11800), (167, 11863), (181, 11917), (182, 11920), (187, 11935), (197, 11974), (200, 11989), (206, 12010), (211, 12025), (216, 12040), (219, 12046), (249, 12118), (251, 12121), (256, 12139), (257, 12142), (259, 12151), (268, 12199), (272, 12211), (274, 12220), (278, 12235), (280, 12241), (284, 12256),

Gene: Saftant\_19 Start: 15950, Stop: 16807, Start Num: 37

Candidate Starts for Saftant\_19:

(Start: 37 @15950 has 100 MA's), (Start: 43 @15965 has 2 MA's), (49, 15986), (61, 16022), (66, 16040), (73, 16064), (82, 16103), (134, 16271), (175, 16430), (177, 16439), (178, 16442), (179, 16448), (200, 16520), (218, 16580), (232, 16622), (244, 16643), (280, 16772), (288, 16796), (290,

16799),

Gene: SanaSana\_18 Start: 13004, Stop: 13858, Start Num: 38

Candidate Starts for SanaSana\_18:

(Start: 38 @13004 has 64 MA's), (53, 13049), (62, 13079), (70, 13109), (98, 13217), (102, 13232), (123, 13289), (148, 13385), (151, 13394), (158, 13427), (194, 13532), (196, 13541), (197, 13550), (218, 13625), (227, 13649), (267, 13778), (271, 13790), (290, 13850),

Gene: SansAfet\_17 Start: 13052, Stop: 13906, Start Num: 38

Candidate Starts for SansAfet\_17:

(Start: 38 @13052 has 64 MA's), (62, 13127), (70, 13157), (73, 13166), (98, 13265), (102, 13280), (123, 13337), (148, 13433), (151, 13442), (158, 13475), (185, 13559), (226, 13694), (227, 13697), (271, 13838), (290, 13898),

Gene: SarBear\_17 Start: 13097, Stop: 13951, Start Num: 38

Candidate Starts for SarBear\_17:

(Start: 38 @13097 has 64 MA's), (62, 13172), (70, 13202), (73, 13211), (98, 13310), (102, 13325), (123, 13382), (148, 13478), (151, 13487), (158, 13520), (185, 13604), (191, 13619), (194, 13625), (267, 13871), (271, 13883), (290, 13943),

Gene: SarahRose\_19 Start: 14966, Stop: 15823, Start Num: 37

Candidate Starts for SarahRose\_19:

(Start: 37 @14966 has 100 MA's), (61, 15038), (66, 15056), (109, 15224), (123, 15251), (175, 15446), (179, 15464), (181, 15470), (198, 15524), (232, 15638), (244, 15659), (288, 15812), (290, 15815),

Gene: Sarge\_17 Start: 13073, Stop: 13981, Start Num: 24

Candidate Starts for Sarge\_17:

(Start: 24 @13073 has 7 MA's), (Start: 43 @13142 has 2 MA's), (60, 13199), (70, 13232), (80, 13271), (86, 13301), (89, 13316), (105, 13364), (133, 13454), (136, 13469), (144, 13505), (152, 13532), (154, 13538), (173, 13625), (194, 13670), (207, 13733), (209, 13739), (221, 13772), (226, 13799), (242, 13820), (253, 13844), (254, 13850), (258, 13862), (268, 13910), (270, 13916), (272, 13922),

Gene: Schmidt\_19 Start: 13858, Stop: 14700, Start Num: 58

Candidate Starts for Schmidt\_19:

(Start: 57 @13855 has 6 MA's), (Start: 58 @13858 has 5 MA's), (64, 13873), (66, 13879), (81, 13939), (82, 13942), (108, 14056), (112, 14068), (115, 14074), (125, 14101), (153, 14221), (163, 14272), (169, 14290), (183, 14350), (194, 14377), (200, 14410), (246, 14533), (265, 14614), (278, 14659), (281, 14668),

Gene: Sharkboy\_16 Start: 12806, Stop: 13660, Start Num: 38

Candidate Starts for Sharkboy\_16:

(Start: 38 @12806 has 64 MA's), (46, 12830), (53, 12851), (62, 12881), (70, 12911), (102, 13034), (120, 13085), (123, 13091), (185, 13313), (191, 13328), (194, 13334), (231, 13469), (267, 13580), (271, 13592), (290, 13652),

Gene: Shayna\_16 Start: 12861, Stop: 13715, Start Num: 39

Candidate Starts for Shayna\_16:

(39, 12861), (70, 12960), (93, 13053), (107, 13107), (165, 13296), (181, 13353), (191, 13380), (247, 13548), (253, 13563), (271, 13647), (288, 13704), (290, 13707),

Gene: Shoya\_16 Start: 12709, Stop: 13617, Start Num: 24

Candidate Starts for Shoya\_16:

(Start: 24 @12709 has 7 MA's), (Start: 43 @12778 has 2 MA's), (70, 12868), (80, 12907), (86, 12937), (89, 12952), (105, 13000), (133, 13090), (136, 13105), (144, 13141), (152, 13168), (154, 13174), (173, 13261), (194, 13306), (207, 13369), (209, 13375), (221, 13408), (226, 13435), (242, 13456), (253, 13480), (254, 13486), (258, 13498), (268, 13546), (270, 13552), (272, 13558),

Gene: Skylord\_16 Start: 11609, Stop: 12466, Start Num: 38

Candidate Starts for Skylord\_16:

(Start: 38 @11609 has 64 MA's), (50, 11648), (62, 11684), (70, 11714), (74, 11726), (98, 11822), (123, 11894), (143, 11969), (148, 11990), (197, 12158), (230, 12269), (272, 12401),

Gene: Slay\_17 Start: 13639, Stop: 14493, Start Num: 38

Candidate Starts for Slay\_17:

(Start: 38 @13639 has 64 MA's), (62, 13714), (70, 13744), (73, 13753), (98, 13852), (102, 13867), (123, 13924), (148, 14020), (151, 14029), (158, 14062), (185, 14146), (191, 14161), (194, 14167), (267, 14413), (271, 14425), (290, 14485),

Gene: Snakehole\_30 Start: 17045, Stop: 17935, Start Num: 35

Candidate Starts for Snakehole\_30:

(Start: 35 @17045 has 26 MA's), (101, 17273), (106, 17300), (126, 17369), (133, 17393), (140, 17426), (181, 17582), (194, 17615), (200, 17648), (217, 17705), (233, 17756), (264, 17846), (273, 17876), (290, 17927), (291, 17930),

Gene: Snorlax\_19 Start: 14969, Stop: 15826, Start Num: 37

Candidate Starts for Snorlax\_19:

(Start: 37 @14969 has 100 MA's), (61, 15041), (66, 15059), (109, 15227), (123, 15254), (179, 15467), (181, 15473), (200, 15539), (217, 15596), (232, 15641), (244, 15662), (288, 15815), (290, 15818),

Gene: Solid\_15 Start: 11283, Stop: 12224, Start Num: 29

Candidate Starts for Solid\_15:

(Start: 24 @11268 has 7 MA's), (Start: 26 @11274 has 1 MA's), (27, 11277), (Start: 29 @11283 has 42 MA's), (33, 11316), (Start: 34 @11322 has 2 MA's), (Start: 38 @11331 has 64 MA's), (Start: 40 @11334 has 19 MA's), (48, 11361), (52, 11370), (61, 11400), (62, 11403), (63, 11406), (66, 11418), (68, 11427), (70, 11433), (80, 11472), (86, 11502), (89, 11517), (93, 11529), (94, 11532), (95, 11535), (107, 11583), (113, 11601), (124, 11637), (127, 11643), (132, 11670), (133, 11673), (137, 11694), (144, 11721), (151, 11745), (154, 11754), (172, 11829), (181, 11871), (182, 11874), (183, 11877), (187, 11889), (197, 11928), (200, 11943), (206, 11964), (211, 11979), (216, 11994), (219, 12000), (226, 12018), (249, 12072), (251, 12075), (256, 12093), (257, 12096), (268, 12153), (272, 12165), (274, 12174), (278, 12189), (280, 12195), (284, 12210),

Gene: South40\_20 Start: 15234, Stop: 16091, Start Num: 37

Candidate Starts for South40\_20:

(Start: 37 @15234 has 100 MA's), (61, 15306), (66, 15324), (109, 15492), (123, 15519), (151, 15624), (179, 15732), (181, 15738), (200, 15804), (244, 15927), (288, 16080), (290, 16083),

Gene: Sparcetus\_31 Start: 17580, Stop: 18464, Start Num: 37

Candidate Starts for Sparcetus\_31:

(16, 17481), (Start: 37 @17580 has 100 MA's), (Start: 58 @17646 has 5 MA's), (67, 17676), (73, 17697), (93, 17781), (95, 17787), (134, 17928), (177, 18096), (200, 18177), (207, 18207), (233, 18285), (243, 18297), (244, 18300), (253, 18318), (267, 18384), (268, 18387), (269, 18390), (290, 18456), (291, 18459),

Gene: Splinter\_21 Start: 15645, Stop: 16475, Start Num: 58

Candidate Starts for Splinter\_21:

(Start: 57 @15642 has 6 MA's), (Start: 58 @15645 has 5 MA's), (66, 15660), (77, 15699), (81, 15720), (82, 15723), (117, 15867), (163, 16053), (180, 16122), (212, 16224), (244, 16305), (246, 16308), (265, 16389), (267, 16395), (271, 16407), (272, 16410), (278, 16434),

Gene: SqueakyClean\_20 Start: 14973, Stop: 15827, Start Num: 37

Candidate Starts for SqueakyClean\_20:

(Start: 37 @14973 has 100 MA's), (82, 15126), (134, 15294), (177, 15459), (179, 15468), (203, 15549), (244, 15663), (288, 15816), (290, 15819),

Gene: Stoor\_17 Start: 13001, Stop: 13855, Start Num: 38

Candidate Starts for Stoor\_17:

(Start: 38 @13001 has 64 MA's), (53, 13046), (62, 13076), (70, 13106), (98, 13214), (102, 13229), (123, 13286), (148, 13382), (151, 13391), (158, 13424), (194, 13529), (196, 13538), (197, 13547), (218, 13622), (227, 13646), (267, 13775), (271, 13787), (290, 13847),

Gene: Stormborn\_15 Start: 11299, Stop: 12246, Start Num: 29

Candidate Starts for Stormborn\_15:

(Start: 26 @11290 has 1 MA's), (27, 11293), (Start: 29 @11299 has 42 MA's), (33, 11332), (Start: 40 @11350 has 19 MA's), (41, 11353), (Start: 43 @11359 has 2 MA's), (48, 11383), (52, 11392), (61, 11422), (62, 11425), (63, 11428), (66, 11440), (68, 11449), (70, 11455), (80, 11494), (86, 11524), (89, 11539), (91, 11545), (95, 11557), (107, 11605), (113, 11623), (124, 11659), (127, 11665), (132, 11692), (137, 11716), (144, 11743), (152, 11770), (154, 11776), (167, 11839), (172, 11851), (181, 11893), (182, 11896), (183, 11899), (197, 11950), (200, 11965), (203, 11974), (206, 11986), (211, 12001), (219, 12022), (249, 12094), (251, 12097), (256, 12115), (257, 12118), (268, 12175), (272, 12187), (274, 12196), (278, 12211), (280, 12217), (284, 12232),

Gene: Stromboli\_17 Start: 13132, Stop: 13986, Start Num: 38

Candidate Starts for Stromboli\_17:

(Start: 38 @13132 has 64 MA's), (53, 13177), (62, 13207), (70, 13237), (98, 13345), (102, 13360), (123, 13417), (148, 13513), (151, 13522), (158, 13555), (194, 13660), (196, 13669), (197, 13678), (212, 13735), (218, 13753), (227, 13777), (271, 13918), (290, 13978),

Gene: SuMoo\_15 Start: 12152, Stop: 12934, Start Num: 63

Candidate Starts for SuMoo\_15:

(Start: 36 @12068 has 9 MA's), (63, 12152), (71, 12182), (89, 12260), (93, 12272), (95, 12278), (109, 12332), (179, 12581), (254, 12794), (271, 12866),

Gene: Success\_62 Start: 38159, Stop: 39157, Start Num: 18

Candidate Starts for Success\_62:

(Start: 18 @38159 has 2 MA's), (19, 38171), (41, 38252), (63, 38327), (70, 38354), (90, 38441), (120, 38540), (138, 38600), (156, 38669), (164, 38705), (179, 38765), (185, 38783), (186, 38786), (226, 38942), (247, 38993), (271, 39089), (272, 39092),

Gene: Sucha\_17 Start: 12846, Stop: 13667, Start Num: 54

Candidate Starts for Sucha\_17:

(Start: 38 @12804 has 64 MA's), (Start: 54 @12846 has 1 MA's), (66, 12885), (70, 12900), (89, 12981), (91, 12987), (110, 13056), (134, 13122), (151, 13191), (154, 13200), (158, 13230), (165, 13248), (197, 13365), (226, 13458), (253, 13521), (269, 13593), (270, 13596), (278, 13626), (280, 13632), (287, 13653), (288, 13656),

Gene: Sujidade\_20 Start: 15274, Stop: 16131, Start Num: 37

Candidate Starts for Sujidade\_20:

(Start: 37 @15274 has 100 MA's), (61, 15346), (66, 15364), (82, 15427), (109, 15532), (123, 15559), (151, 15664), (159, 15706), (179, 15772), (198, 15832), (200, 15844), (217, 15901), (232, 15946), (244, 15967), (288, 16120), (290, 16123),

Gene: SunnyD\_18 Start: 12861, Stop: 13715, Start Num: 39

Candidate Starts for SunnyD\_18:

(39, 12861), (70, 12960), (93, 13053), (107, 13107), (165, 13296), (181, 13353), (191, 13380), (247, 13548), (253, 13563), (271, 13647), (288, 13704), (290, 13707),

Gene: SunsetPointe\_19 Start: 14983, Stop: 15840, Start Num: 37

Candidate Starts for SunsetPointe\_19:

(Start: 37 @14983 has 100 MA's), (61, 15055), (66, 15073), (75, 15103), (82, 15136), (109, 15241), (123, 15268), (150, 15370), (159, 15415), (179, 15481), (181, 15487), (198, 15541), (200, 15553), (232, 15655), (240, 15667), (244, 15676), (288, 15829), (290, 15832),

Gene: Supernova\_15 Start: 11301, Stop: 12242, Start Num: 29

Candidate Starts for Supernova\_15:

(22, 11283), (Start: 29 @11301 has 42 MA's), (33, 11334), (Start: 34 @11340 has 2 MA's), (Start: 40 @11352 has 19 MA's), (48, 11379), (52, 11388), (60, 11415), (61, 11418), (62, 11421), (63, 11424), (66, 11436), (68, 11445), (80, 11490), (86, 11520), (89, 11535), (93, 11547), (94, 11550), (95, 11553), (102, 11577), (107, 11601), (113, 11619), (124, 11655), (127, 11661), (132, 11688), (137, 11712), (142, 11730), (144, 11739), (152, 11766), (154, 11772), (167, 11835), (181, 11889), (182, 11892), (183, 11895), (187, 11907), (197, 11946), (200, 11961), (206, 11982), (211, 11997), (216, 12012), (219, 12018), (249, 12090), (251, 12093), (256, 12111), (257, 12114), (259, 12123), (268, 12171), (272, 12183), (274, 12192), (278, 12207), (280, 12213), (284, 12228),

Gene: Superstar\_22 Start: 16683, Stop: 17540, Start Num: 37

Candidate Starts for Superstar\_22:

(Start: 37 @16683 has 100 MA's), (44, 16701), (59, 16749), (66, 16773), (77, 16812), (130, 16986), (159, 17115), (178, 17175), (179, 17181), (198, 17241), (200, 17253), (244, 17376), (246, 17379), (258, 17412), (272, 17475), (288, 17529), (290, 17532),

Gene: Swervy\_17 Start: 13097, Stop: 13951, Start Num: 38

Candidate Starts for Swervy\_17:

(Start: 38 @13097 has 64 MA's), (62, 13172), (70, 13202), (73, 13211), (98, 13310), (102, 13325), (123, 13382), (148, 13478), (151, 13487), (158, 13520), (185, 13604), (191, 13619), (194, 13625), (267, 13871), (271, 13883), (290, 13943),

Gene: TZGordon\_23 Start: 15781, Stop: 16614, Start Num: 57

Candidate Starts for TZGordon\_23:

(Start: 57 @15781 has 6 MA's), (Start: 58 @15784 has 5 MA's), (66, 15799), (77, 15838), (81, 15859), (82, 15862), (117, 16006), (163, 16192), (189, 16279), (212, 16363), (244, 16444), (265, 16528), (267, 16534), (271, 16546), (272, 16549), (278, 16573),

Gene: TagePighther\_20 Start: 14969, Stop: 15826, Start Num: 37

Candidate Starts for TagePighther\_20:

(Start: 37 @14969 has 100 MA's), (61, 15041), (66, 15059), (109, 15227), (123, 15254), (179, 15467), (181, 15473), (200, 15539), (217, 15596), (232, 15641), (244, 15662), (288, 15815), (290, 15818),

Gene: Tedro\_30 Start: 17259, Stop: 18149, Start Num: 35

Candidate Starts for Tedro\_30:

(Start: 35 @17259 has 26 MA's), (126, 17583), (133, 17607), (140, 17640), (181, 17796), (200, 17862), (233, 17970), (273, 18090), (290, 18141), (291, 18144),



Gene: Tefunt\_19 Start: 15480, Stop: 16337, Start Num: 37

Candidate Starts for Tefunt\_19:

(10, 15354), (11, 15357), (12, 15363), (Start: 37 @15480 has 100 MA's), (44, 15498), (66, 15570), (109, 15738), (134, 15801), (159, 15912), (179, 15978), (198, 16038), (200, 16050), (203, 16059), (217, 16107), (244, 16173), (258, 16209), (272, 16272), (288, 16326), (290, 16329),

Gene: Teng\_23 Start: 14262, Stop: 15125, Start Num: 38

Candidate Starts for Teng\_23:

(Start: 37 @14259 has 100 MA's), (Start: 38 @14262 has 64 MA's), (68, 14352), (70, 14358), (73, 14367), (88, 14436), (91, 14445), (93, 14451), (111, 14517), (135, 14583), (141, 14610), (151, 14649), (178, 14760), (179, 14766), (181, 14772), (191, 14799), (197, 14823), (232, 14940), (239, 14949), (269, 15051), (278, 15084), (287, 15111),

Gene: Thestral\_20 Start: 14942, Stop: 15796, Start Num: 37

Candidate Starts for Thestral\_20:

(Start: 37 @14942 has 100 MA's), (Start: 43 @14957 has 2 MA's), (56, 14996), (66, 15032), (134, 15263), (162, 15383), (179, 15437), (288, 15785), (290, 15788),

Gene: TinaBelcher\_19 Start: 14890, Stop: 15744, Start Num: 37

Candidate Starts for TinaBelcher\_19:

(Start: 37 @14890 has 100 MA's), (56, 14944), (66, 14980), (134, 15211), (179, 15385), (288, 15733), (290, 15736),

Gene: TinaLin\_24 Start: 16616, Stop: 17446, Start Num: 58

Candidate Starts for TinaLin\_24:

(Start: 57 @16613 has 6 MA's), (Start: 58 @16616 has 5 MA's), (66, 16631), (75, 16661), (77, 16670), (82, 16694), (108, 16808), (110, 16814), (115, 16826), (117, 16838), (143, 16937), (163, 17024), (171, 17048), (196, 17132), (200, 17156), (201, 17159), (212, 17195), (244, 17276), (262, 17342), (267, 17366), (271, 17378), (272, 17381),

Gene: TinyMiny\_31 Start: 17599, Stop: 18483, Start Num: 37

Candidate Starts for TinyMiny\_31:

(16, 17500), (Start: 37 @17599 has 100 MA's), (67, 17695), (73, 17716), (93, 17800), (95, 17806), (134, 17947), (200, 18196), (207, 18226), (233, 18304), (243, 18316), (244, 18319), (253, 18337), (267, 18403), (268, 18406), (269, 18409), (290, 18475), (291, 18478),

Gene: Toma\_19 Start: 14982, Stop: 15839, Start Num: 37

Candidate Starts for Toma\_19:

(Start: 37 @14982 has 100 MA's), (61, 15054), (82, 15135), (109, 15240), (110, 15243), (123, 15267), (159, 15414), (177, 15471), (178, 15474), (179, 15480), (200, 15552), (217, 15609), (244, 15675), (288, 15828), (290, 15831),

Gene: Triste\_19 Start: 14960, Stop: 15817, Start Num: 37

Candidate Starts for Triste\_19:

(Start: 37 @14960 has 100 MA's), (61, 15032), (66, 15050), (109, 15218), (123, 15245), (175, 15440), (179, 15458), (181, 15464), (198, 15518), (232, 15632), (244, 15653), (288, 15806), (290, 15809),

Gene: Triumph\_21 Start: 14890, Stop: 15744, Start Num: 37

Candidate Starts for Triumph\_21:

(Start: 37 @14890 has 100 MA's), (56, 14944), (66, 14980), (82, 15043), (104, 15127), (177, 15376), (179, 15385), (191, 15418), (203, 15466), (227, 15541), (244, 15580), (288, 15733), (290, 15736),

Gene: TrvxScott\_18 Start: 14892, Stop: 15746, Start Num: 37

Candidate Starts for TrvxScott\_18:

(Start: 37 @14892 has 100 MA's), (56, 14946), (66, 14982), (134, 15213), (178, 15381), (179, 15387), (288, 15735), (290, 15738),

Gene: TuanPN\_19 Start: 14966, Stop: 15823, Start Num: 37

Candidate Starts for TuanPN\_19:

(Start: 37 @14966 has 100 MA's), (61, 15038), (66, 15056), (109, 15224), (123, 15251), (179, 15464), (181, 15470), (200, 15536), (217, 15593), (232, 15638), (244, 15659), (279, 15785), (288, 15812), (290, 15815),

Gene: TukTuk\_17 Start: 13155, Stop: 14009, Start Num: 38

Candidate Starts for TukTuk\_17:

(Start: 38 @13155 has 64 MA's), (62, 13230), (70, 13260), (73, 13269), (98, 13368), (102, 13383), (123, 13440), (148, 13536), (151, 13545), (158, 13578), (185, 13662), (191, 13677), (267, 13929), (271, 13941), (290, 14001),

Gene: TurboVicky\_20 Start: 15338, Stop: 16231, Start Num: 40

Candidate Starts for TurboVicky\_20:

(Start: 40 @15338 has 19 MA's), (70, 15431), (73, 15440), (91, 15518), (102, 15569), (120, 15629), (134, 15683), (135, 15686), (136, 15692), (208, 15974), (209, 15977), (232, 16046), (244, 16067), (246, 16070), (263, 16130), (280, 16196),

Gene: Typher\_22 Start: 15468, Stop: 16361, Start Num: 40

Candidate Starts for Typher\_22:

(Start: 40 @15468 has 19 MA's), (70, 15561), (73, 15570), (91, 15648), (102, 15699), (120, 15759), (134, 15813), (135, 15816), (136, 15822), (208, 16104), (209, 16107), (232, 16176), (244, 16197), (246, 16200), (263, 16260), (280, 16326),

Gene: Unstoppable\_19 Start: 14984, Stop: 15841, Start Num: 37

Candidate Starts for Unstoppable\_19:

(Start: 37 @14984 has 100 MA's), (61, 15056), (66, 15074), (75, 15104), (82, 15137), (109, 15242), (123, 15269), (150, 15371), (159, 15416), (179, 15482), (181, 15488), (198, 15542), (200, 15554), (232, 15656), (240, 15668), (244, 15677), (288, 15830), (290, 15833),

Gene: Urza\_19 Start: 15351, Stop: 16208, Start Num: 37

Candidate Starts for Urza\_19:

(Start: 37 @15351 has 100 MA's), (55, 15402), (61, 15423), (66, 15441), (73, 15465), (82, 15504), (181, 15855), (191, 15882), (200, 15921), (218, 15981), (279, 16170), (288, 16197), (290, 16200),

Gene: UtzChips\_15 Start: 12272, Stop: 13138, Start Num: 36

Candidate Starts for UtzChips\_15:

(Start: 36 @12272 has 9 MA's), (44, 12293), (75, 12398), (93, 12476), (153, 12683), (179, 12785), (227, 12935), (258, 13010), (271, 13070), (285, 13121),

Gene: Vanseggelen\_24 Start: 15333, Stop: 16190, Start Num: 37

Candidate Starts for Vanseggelen\_24:

(6, 15054), (Start: 37 @15333 has 100 MA's), (49, 15369), (61, 15405), (66, 15423), (73, 15447), (109, 15591), (136, 15663), (151, 15723), (159, 15765), (175, 15813), (232, 16005), (244, 16026), (280, 16155), (288, 16179), (290, 16182),

Gene: Vendetta\_21 Start: 15645, Stop: 16475, Start Num: 58

Candidate Starts for Vendetta\_21:

(Start: 57 @15642 has 6 MA's), (Start: 58 @15645 has 5 MA's), (66, 15660), (77, 15699), (81, 15720), (82, 15723), (117, 15867), (163, 16053), (180, 16122), (212, 16224), (244, 16305), (246, 16308), (265, 16389), (267, 16395), (271, 16407), (272, 16410), (278, 16434),

Gene: Verabelle\_20 Start: 15664, Stop: 16521, Start Num: 37

Candidate Starts for Verabelle\_20:

(Start: 37 @15664 has 100 MA's), (Start: 43 @15679 has 2 MA's), (49, 15700), (61, 15736), (66, 15754), (73, 15778), (108, 15919), (109, 15922), (123, 15949), (159, 16096), (178, 16156), (181, 16168), (187, 16186), (232, 16336), (244, 16357), (280, 16486), (288, 16510), (290, 16513),

Gene: Verse\_19 Start: 15963, Stop: 16820, Start Num: 37

Candidate Starts for Verse\_19:

(Start: 37 @15963 has 100 MA's), (49, 15999), (61, 16035), (73, 16077), (109, 16221), (151, 16353), (178, 16455), (179, 16461), (232, 16635), (244, 16656), (269, 16746), (280, 16785), (288, 16809), (290, 16812),

Gene: VieEnRose\_19 Start: 15417, Stop: 16274, Start Num: 37

Candidate Starts for VieEnRose\_19:

(Start: 37 @15417 has 100 MA's), (55, 15468), (61, 15489), (73, 15531), (82, 15570), (139, 15762), (181, 15921), (191, 15948), (200, 15987), (279, 16236), (288, 16263), (290, 16266),

Gene: Vitas\_16 Start: 11609, Stop: 12466, Start Num: 38

Candidate Starts for Vitas\_16:

(Start: 38 @11609 has 64 MA's), (50, 11648), (62, 11684), (70, 11714), (74, 11726), (98, 11822), (123, 11894), (143, 11969), (148, 11990), (197, 12158), (230, 12269),

Gene: Warren\_23 Start: 13763, Stop: 14623, Start Num: 40

Candidate Starts for Warren\_23:

(Start: 40 @13763 has 19 MA's), (53, 13799), (Start: 54 @13802 has 1 MA's), (61, 13823), (63, 13829), (70, 13856), (86, 13922), (93, 13949), (102, 13979), (110, 14012), (141, 14105), (147, 14132), (178, 14255), (179, 14261), (191, 14294), (210, 14372), (287, 14609), (288, 14612),

Gene: Werner\_19 Start: 14970, Stop: 15827, Start Num: 37

Candidate Starts for Werner\_19:

(Start: 37 @14970 has 100 MA's), (61, 15042), (66, 15060), (109, 15228), (123, 15255), (175, 15450), (179, 15468), (181, 15474), (198, 15528), (232, 15642), (244, 15663), (288, 15816), (290, 15819),

Gene: Whatever\_19 Start: 14970, Stop: 15827, Start Num: 37

Candidate Starts for Whatever\_19:

(Start: 37 @14970 has 100 MA's), (61, 15042), (66, 15060), (109, 15228), (123, 15255), (175, 15450), (179, 15468), (181, 15474), (198, 15528), (232, 15642), (244, 15663), (288, 15816), (290, 15819),

Gene: Wizzo\_15 Start: 11316, Stop: 12257, Start Num: 29

Candidate Starts for Wizzo\_15:

(Start: 26 @11307 has 1 MA's), (27, 11310), (Start: 29 @11316 has 42 MA's), (33, 11349), (Start: 34 @11355 has 2 MA's), (Start: 40 @11367 has 19 MA's), (48, 11394), (52, 11403), (61, 11433), (62, 11436), (63, 11439), (80, 11505), (86, 11535), (89, 11550), (93, 11562), (94, 11565), (95, 11568), (102, 11592), (107, 11616), (112, 11631), (113, 11634), (124, 11670), (127, 11676), (132, 11703), (133, 11706), (144, 11754), (151, 11778), (152, 11781), (154, 11787), (167, 11850), (172, 11862), (178, 11892), (181, 11904), (182, 11907), (183, 11910), (197, 11961), (200, 11976), (206, 11997), (211, 12012), (216, 12027), (219, 12033), (249, 12105), (251, 12108), (256, 12126), (257, 12129), (259, 12138), (268, 12186), (272, 12198), (274, 12207), (277, 12219), (278, 12222), (280, 12228), (284, 12243),

Gene: Yasdni1\_19 Start: 14962, Stop: 15819, Start Num: 37

Candidate Starts for Yasdni1\_19:

(Start: 37 @14962 has 100 MA's), (61, 15034), (66, 15052), (109, 15220), (123, 15247), (179, 15460), (181, 15466), (200, 15532), (217, 15589), (232, 15634), (244, 15655), (279, 15781), (288, 15808), (290, 15811),

Gene: Yosif\_20 Start: 15949, Stop: 16794, Start Num: 37

Candidate Starts for Yosif\_20:

(Start: 37 @15949 has 100 MA's), (61, 16021), (66, 16039), (126, 16240), (134, 16270), (142, 16300), (151, 16327), (179, 16435), (181, 16441), (271, 16726), (288, 16783), (290, 16786),

Gene: Zainub\_25 Start: 15320, Stop: 16177, Start Num: 37

Candidate Starts for Zainub\_25:

(Start: 37 @15320 has 100 MA's), (134, 15641), (142, 15677), (179, 15818), (244, 16013), (288, 16166), (290, 16169),

Gene: Zanella\_20 Start: 15341, Stop: 16234, Start Num: 40

Candidate Starts for Zanella\_20:

(Start: 40 @15341 has 19 MA's), (70, 15434), (73, 15443), (91, 15521), (102, 15572), (120, 15632), (126, 15644), (134, 15686), (135, 15689), (136, 15695), (208, 15977), (209, 15980), (232, 16049), (244, 16070), (246, 16073), (263, 16133), (280, 16199),

Gene: Zemlya\_20 Start: 14993, Stop: 15850, Start Num: 37

Candidate Starts for Zemlya\_20:

(Start: 37 @14993 has 100 MA's), (61, 15065), (82, 15146), (109, 15251), (123, 15278), (177, 15482), (178, 15485), (179, 15491), (200, 15563), (217, 15620), (244, 15686), (288, 15839), (290, 15842),

Gene: Zucker\_19 Start: 14495, Stop: 15337, Start Num: 43

Candidate Starts for Zucker\_19:

(Start: 24 @14426 has 7 MA's), (28, 14435), (30, 14453), (31, 14456), (33, 14471), (Start: 43 @14495 has 2 MA's), (44, 14498), (60, 14552), (68, 14582), (70, 14588), (80, 14627), (85, 14654), (86, 14657), (89, 14672), (105, 14720), (118, 14762), (127, 14780), (136, 14825), (144, 14861), (145, 14864), (152, 14888), (173, 14981), (194, 15026), (200, 15059), (207, 15089), (217, 15116), (221, 15128), (224, 15149), (242, 15176), (254, 15206), (266, 15260), (268, 15266), (272, 15278),

Gene: phiCAM\_20 Start: 17629, Stop: 18483, Start Num: 37

Candidate Starts for phiCAM\_20:

(Start: 37 @17629 has 100 MA's), (49, 17665), (61, 17701), (66, 17719), (73, 17743), (96, 17836), (109, 17887), (151, 18019), (175, 18106), (178, 18118), (179, 18124), (187, 18148), (232, 18298), (244, 18319), (280, 18448), (288, 18472), (290, 18475),

Gene: phiHau3\_21 Start: 15666, Stop: 16520, Start Num: 37

Candidate Starts for phiHau3\_21:

(8, 15513), (Start: 37 @15666 has 100 MA's), (73, 15780), (82, 15819), (110, 15927), (130, 15969), (142, 16023), (229, 16326), (288, 16509), (290, 16512), (291, 16515),