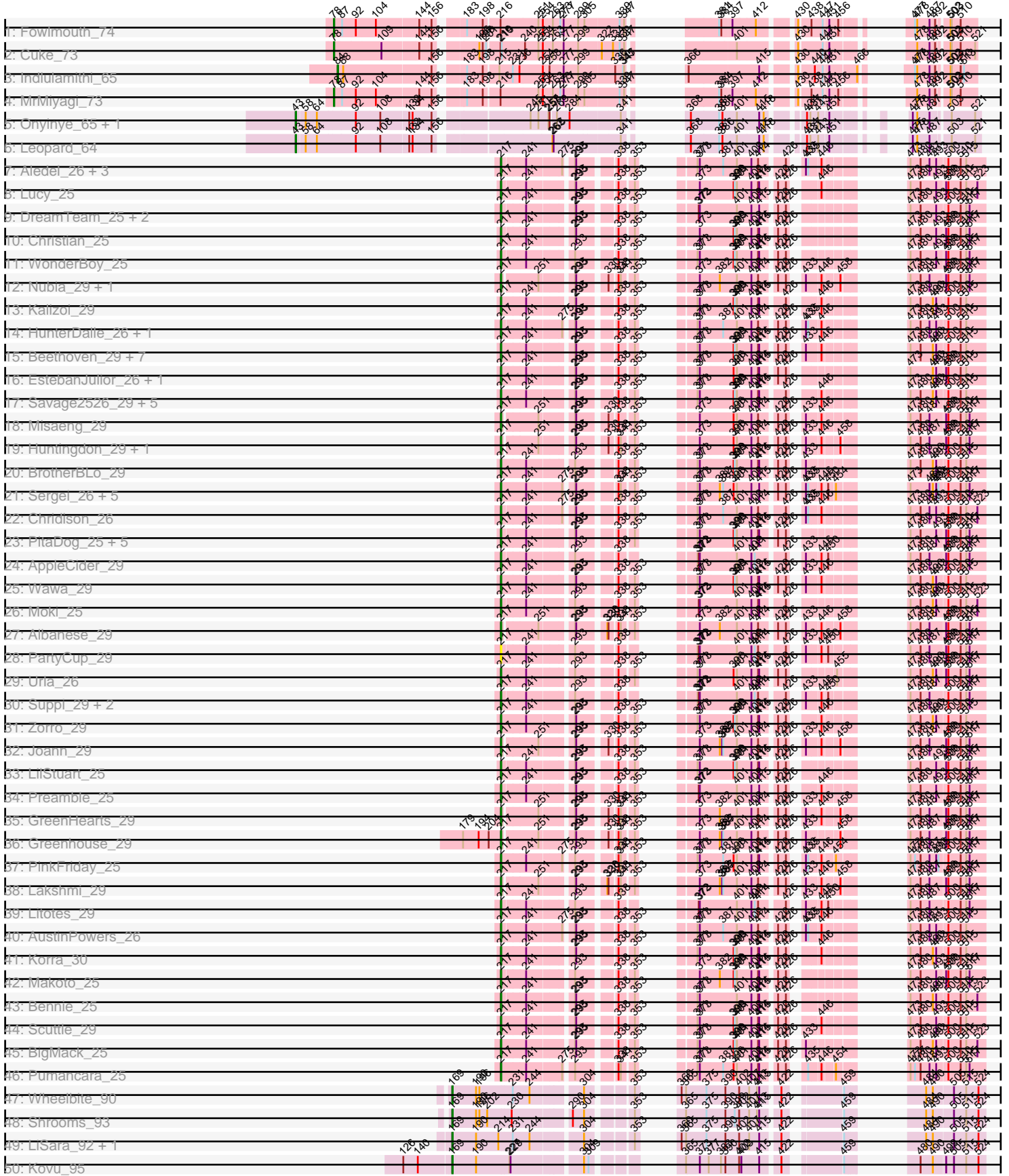
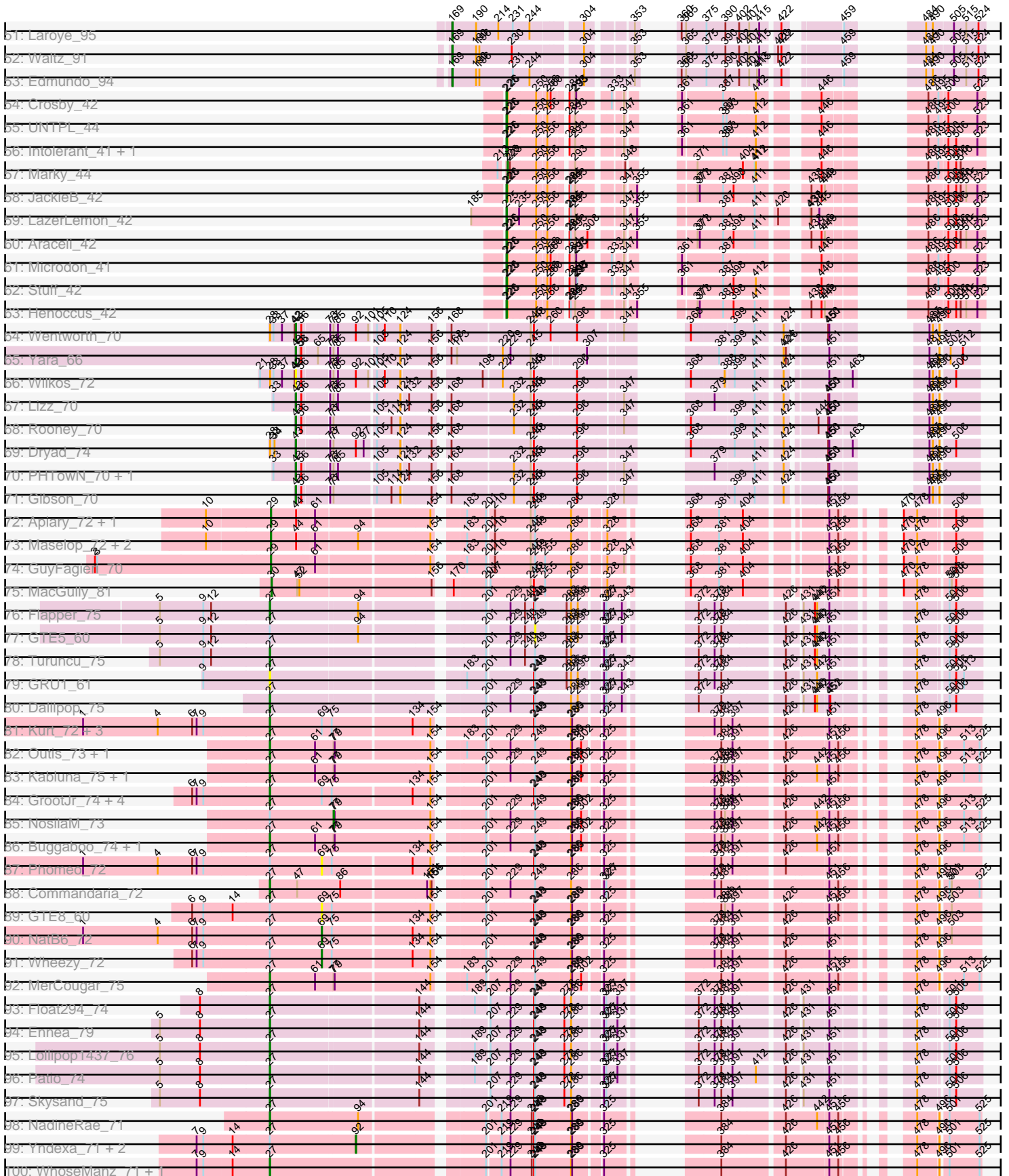


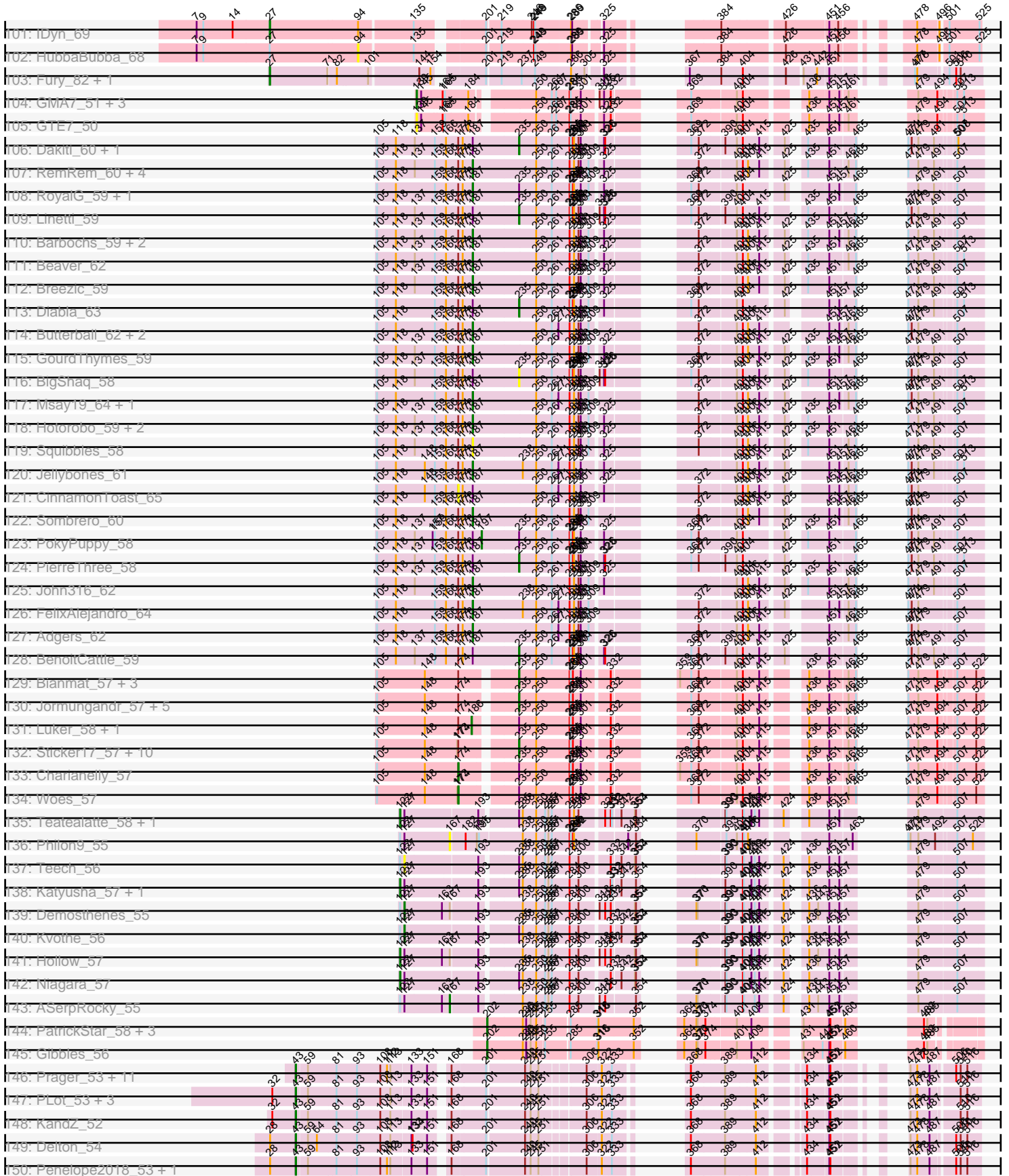
# Zoomed Pham 193647



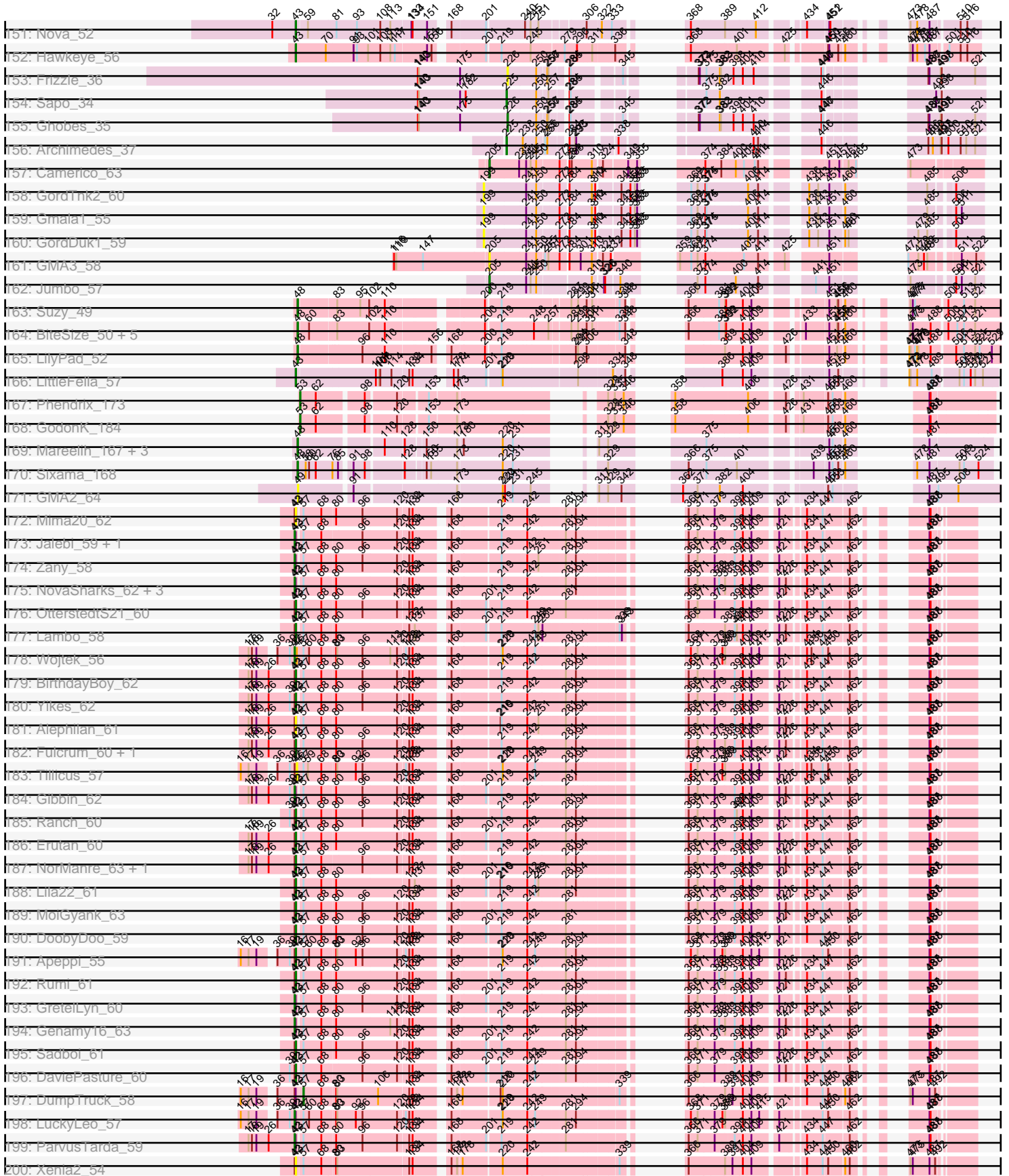
# Zoomed Pham 193647



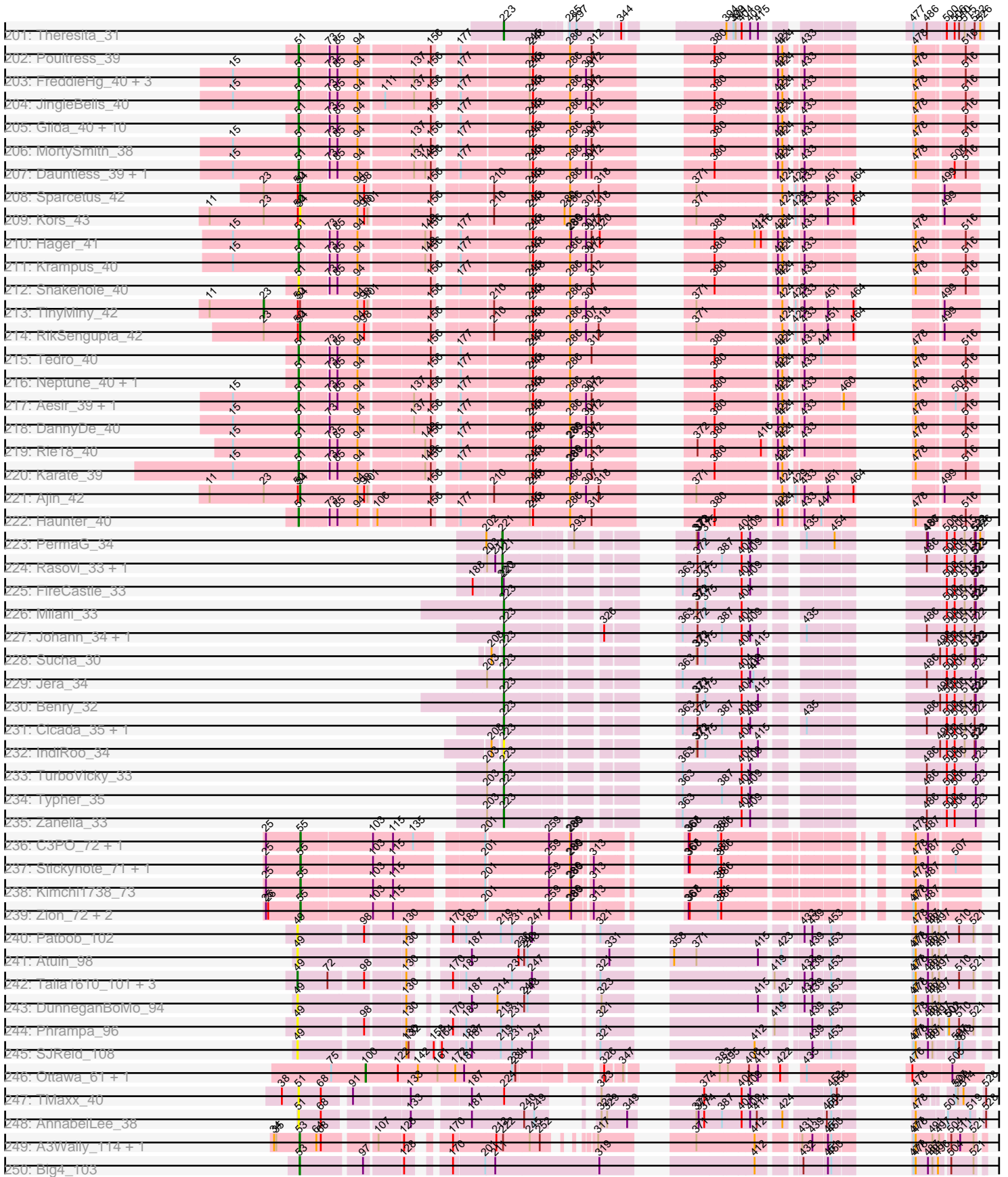
# Zoomed Pham 193647



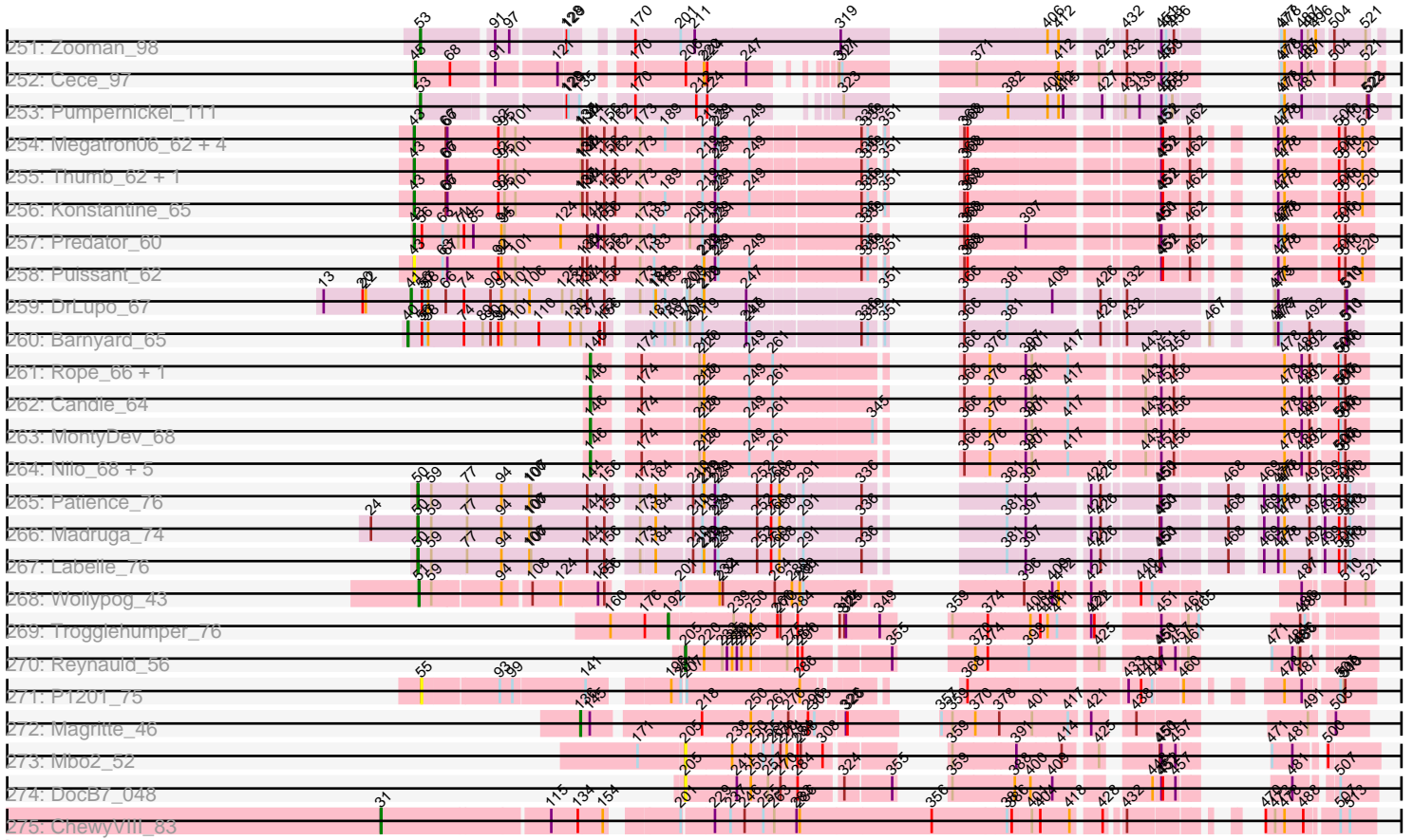
# Zoomed Pham 193647



# Zoomed Pham 193647



# Zoomed Pham 193647



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 193647 Report

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

Pham number 193647 has 437 members, 47 are drafts.

Phages represented in each track:

- Track 1 : Fowlmouth\_74
- Track 2 : Cuke\_73
- Track 3 : Indlulamithi\_65
- Track 4 : MrMiyagi\_73
- Track 5 : Onyinye\_65, Aikoy\_65
- Track 6 : Leopard\_64
- Track 7 : Aledel\_26, Riovina\_26, Eunoia\_26, OMalley\_26
- Track 8 : Lucy\_25
- Track 9 : DreamTeam\_25, Gisselle\_25, Kittykat\_25
- Track 10 : Christian\_25
- Track 11 : WonderBoy\_25
- Track 12 : Nubia\_29, Oxyfnrius\_29
- Track 13 : Kalizoi\_29
- Track 14 : HunterDalle\_26, Vulture\_26
- Track 15 : Beethoven\_29, Vallejo\_29, Glenn\_29, TattModd\_29, Carpal\_29, Rozby\_29, Fluke\_29, Riverdale\_29
- Track 16 : EstebanJulior\_26, MamaPearl\_26
- Track 17 : Savage2526\_29, RAP15\_29, Cholula\_29, MeganNoll\_29, Potatoes\_29, Jumboset\_29
- Track 18 : Misaeng\_29
- Track 19 : Huntingdon\_29, RcigaStruga\_29
- Track 20 : BrotherBLo\_29
- Track 21 : Sergei\_26, Maria1952\_26, Daiboju\_26, KingBob\_26, Herb\_26, Temper16\_26
- Track 22 : Chridison\_26
- Track 23 : PitaDog\_25, CristinaYang\_25, ChewChew\_25, Nancia\_25, DrRobert\_25, Bodacious\_25
- Track 24 : AppleCider\_29
- Track 25 : Wawa\_29
- Track 26 : Moki\_25
- Track 27 : Albanese\_29
- Track 28 : PartyCup\_29
- Track 29 : Urla\_26
- Track 30 : Suppi\_29, Canowicakte\_29, Wayne\_29
- Track 31 : Zorro\_29
- Track 32 : Joann\_29
- Track 33 : LilStuart\_25

- Track 34 : Preamble\_25
- Track 35 : GreenHearts\_29
- Track 36 : Greenhouse\_29
- Track 37 : PinkFriday\_25
- Track 38 : Lakshmi\_29
- Track 39 : Litotes\_29
- Track 40 : AustinPowers\_26
- Track 41 : Korra\_30
- Track 42 : Makoto\_25
- Track 43 : Bennie\_25
- Track 44 : Scuttle\_29
- Track 45 : BigMack\_25
- Track 46 : Pumancara\_25
- Track 47 : Wheelbite\_90
- Track 48 : Shrooms\_93
- Track 49 : LiSara\_92, Salgado\_95
- Track 50 : Kovu\_95
- Track 51 : Laroye\_95
- Track 52 : Waltz\_91
- Track 53 : Edmundo\_94
- Track 54 : Crosby\_42
- Track 55 : UNTPL\_44
- Track 56 : Intolerant\_41, Bogota\_43
- Track 57 : Marky\_44
- Track 58 : JackieB\_42
- Track 59 : LazerLemon\_42
- Track 60 : Araceli\_42
- Track 61 : Microdon\_41
- Track 62 : Stuff\_42
- Track 63 : Henoccus\_42
- Track 64 : Wentworth\_70
- Track 65 : Yara\_66
- Track 66 : Wilkos\_72
- Track 67 : Lizz\_70
- Track 68 : Rooney\_70
- Track 69 : Dryad\_74
- Track 70 : PHTown\_70, ShakeNBake\_70
- Track 71 : Gibson\_70
- Track 72 : Apiary\_72, Polyuyuki\_72
- Track 73 : Maselop\_72, CoffeeBean\_72, Braxoaddie\_72
- Track 74 : GuyFagieri\_70
- Track 75 : MacGully\_81
- Track 76 : Flapper\_75
- Track 77 : GTE5\_60
- Track 78 : Turuncu\_75
- Track 79 : GRU1\_61
- Track 80 : Dalilpop\_75
- Track 81 : Kurt\_72, Jifall16\_71, KidneyBean\_72, Emianna\_72
- Track 82 : Outis\_73, StarStruck\_73
- Track 83 : Kabluna\_75, Bonum\_76
- Track 84 : GrootJr\_74, Tracker\_72, Arti\_71, NovumRegina\_72, Foxboro\_72
- Track 85 : NosilaM\_73
- Track 86 : Buggaboo\_74, SuperSulley\_74



- Track 87 : Phomeo\_72
- Track 88 : Commandaria\_72
- Track 89 : GTE8\_60
- Track 90 : NatB6\_72
- Track 91 : Wheezy\_72
- Track 92 : MerCougar\_75
- Track 93 : Float294\_74
- Track 94 : Ennea\_79
- Track 95 : Lollipop1437\_76
- Track 96 : Patio\_74
- Track 97 : Skysand\_75
- Track 98 : NadineRae\_71
- Track 99 : Yndexa\_71, Sukkupi\_71, BiPauneto\_74
- Track 100 : WhoseManz\_71, Marietta\_72
- Track 101 : IDyn\_69
- Track 102 : HubbaBubba\_68
- Track 103 : Fury\_82, Pleakley\_82
- Track 104 : GMA7\_51, Amore2\_62, Austin\_61, HayZem\_62
- Track 105 : GTE7\_50
- Track 106 : Dakiti\_60, Chelms\_59
- Track 107 : RemRem\_60, Ekhein\_59, Exiguo\_58, Flakey\_58, Sam12\_58
- Track 108 : RoyalG\_59, SteveFrench\_58
- Track 109 : Linetti\_59
- Track 110 : Barbochs\_59, CathyBurgh\_58, Lizzo\_59
- Track 111 : Beaver\_62
- Track 112 : Breezic\_59
- Track 113 : Diabla\_63
- Track 114 : Butterball\_62, BirksAndSocks\_64, Boneham\_63
- Track 115 : GourdThymes\_59
- Track 116 : BigShaq\_58
- Track 117 : Msay19\_64, Poland\_64
- Track 118 : Hotorobo\_59, Monty\_58, Gorko\_58
- Track 119 : Squibbles\_58
- Track 120 : Jellybones\_61
- Track 121 : CinnamonToast\_65
- Track 122 : Sombrero\_60
- Track 123 : PokyPuppy\_58
- Track 124 : PierreThree\_58
- Track 125 : John316\_62
- Track 126 : FelixAlejandro\_64
- Track 127 : Adgers\_62
- Track 128 : BenoitCattle\_59
- Track 129 : Bianmat\_57, Shelley\_57, Lidong\_57, Jams\_57
- Track 130 : Jormungandr\_57, Guillaume\_57, Lahirium\_57, Berries\_57, Nimi13\_57, MrWormie\_57
- Track 131 : Luker\_58, Kaseim\_57
- Track 132 : Sticker17\_57, Hail2Pitt\_56, Neoevie\_57, Damp\_57, GalacticEye\_57, Teal\_57, Minos\_58, Anamika\_57, Newt\_58, Harambe\_57, Hello\_57
- Track 133 : Charianelly\_57
- Track 134 : Woes\_57
- Track 135 : Teatealatte\_58, Tredge\_57
- Track 136 : Philon9\_55
- Track 137 : Teech\_56

- Track 138 : Katyusha\_57, Benczkowski14\_57
- Track 139 : Demosthenes\_55
- Track 140 : Kvothe\_56
- Track 141 : Hollow\_57
- Track 142 : Niagara\_57
- Track 143 : ASerpRocky\_55
- Track 144 : PatrickStar\_58, Orchid\_57, Kampe\_58, RobinSparkles\_61
- Track 145 : Gibbles\_56
- Track 146 : Prager\_53, Giuseppe\_53, Butterscotch\_52, Chill\_55, PBI1\_50, WaldoWhy\_55, Adjutor\_52, Visconti\_54, Troll4\_53, BigMama\_51, Thoth\_53, Mopey\_54
- Track 147 : PLOT\_53, SirHarley\_54, Erk16\_52, Gumball\_52
- Track 148 : KandZ\_52
- Track 149 : Delton\_54
- Track 150 : Penelope2018\_53, Helpful\_56
- Track 151 : Nova\_52
- Track 152 : Hawkeye\_56
- Track 153 : Frizzle\_36
- Track 154 : Sapo\_34
- Track 155 : Ghobes\_35
- Track 156 : Archimedes\_37
- Track 157 : Camerico\_63
- Track 158 : GordTnk2\_60
- Track 159 : Gmala1\_55
- Track 160 : GordDuk1\_59
- Track 161 : GMA3\_58
- Track 162 : Jumbo\_57
- Track 163 : Suzy\_49
- Track 164 : BiteSize\_50, Terapin\_51, Sienna\_50, Madi\_50, Beyoncage\_50, Djokovic\_50
- Track 165 : LilyPad\_52
- Track 166 : LittleFella\_57
- Track 167 : Phendrix\_173
- Track 168 : GodonK\_184
- Track 169 : Mareelih\_167, BlueNGold\_166, Forza\_170, Boopy\_169
- Track 170 : Sixama\_168
- Track 171 : GMA2\_64
- Track 172 : Mima20\_62
- Track 173 : Jalebi\_59, Sampudon\_60
- Track 174 : Zany\_58
- Track 175 : NovaSharks\_62, Alyssamiracle\_63, Avian\_60, Jamemuya19\_61
- Track 176 : OtterstedtS21\_60
- Track 177 : Lambo\_58
- Track 178 : Wojtek\_56
- Track 179 : BirthdayBoy\_62
- Track 180 : Yikes\_62
- Track 181 : Alephilan\_61
- Track 182 : Fulcrum\_60, GOATification\_60
- Track 183 : Tillicus\_57
- Track 184 : Gibbin\_62
- Track 185 : Ranch\_60
- Track 186 : Erutan\_60
- Track 187 : NorManre\_63, Patos\_63

- Track 188 : Lila22\_61
- Track 189 : MoiGyank\_63
- Track 190 : DoobyDoo\_59
- Track 191 : Apeppi\_55
- Track 192 : Rumi\_61
- Track 193 : GretelLyn\_60
- Track 194 : Genamy16\_63
- Track 195 : Sadboi\_61
- Track 196 : DaviePasture\_60
- Track 197 : DumpTruck\_58
- Track 198 : LuckyLeo\_57
- Track 199 : ParvusTarda\_59
- Track 200 : Xenia2\_54
- Track 201 : Theresita\_31
- Track 202 : Poultruss\_39
- Track 203 : FreddieHg\_40, Hiddenleaf\_40, Chivey\_40, Crestdrop\_40
- Track 204 : JingleBells\_40
- Track 205 : Gilda\_40, Rachella\_40, OverHedge\_40, Anakin\_40, PhunaPhoke\_40, AnnaSerena\_40, Pharpay\_40, CoolCookie\_40, Potty\_40, NarutoRun\_40, Kate\_41
- Track 206 : MortySmith\_38
- Track 207 : Dauntless\_39, Erudite\_39
- Track 208 : Sparcetuss\_42
- Track 209 : Kors\_43
- Track 210 : Hager\_41
- Track 211 : Krampus\_40
- Track 212 : Snakehole\_40
- Track 213 : TinyMiny\_42
- Track 214 : RikSengupta\_42
- Track 215 : Tedro\_40
- Track 216 : Neptune\_40, Cybele\_40
- Track 217 : Aesir\_39, JDawG\_39
- Track 218 : DannyDe\_40
- Track 219 : Rie18\_40
- Track 220 : Karate\_39
- Track 221 : Ajin\_42
- Track 222 : Haunter\_40
- Track 223 : PermaG\_34
- Track 224 : Rasovi\_33, Htur\_33
- Track 225 : FireCastle\_33
- Track 226 : Milani\_33
- Track 227 : Johann\_34, Goodman\_34
- Track 228 : Sucha\_30
- Track 229 : Jera\_34
- Track 230 : Benry\_32
- Track 231 : Cicada\_35, SBlackberry\_33
- Track 232 : IndiRoo\_34
- Track 233 : TurboVicky\_33
- Track 234 : Typher\_35
- Track 235 : Zanella\_33
- Track 236 : C3PO\_72, Cruella\_72
- Track 237 : Stickynote\_71, Darwin\_73
- Track 238 : Kimchi1738\_73
- Track 239 : Zion\_72, PeteyPab\_71, PotatoChip\_72

- Track 240 : Patbob\_102
- Track 241 : Atuin\_98
- Track 242 : Talia1610\_101, Bloom\_105, Racecar\_102, Mimi\_107
- Track 243 : DunneganBoMo\_94
- Track 244 : Phrampa\_96
- Track 245 : SJReid\_108
- Track 246 : Ottawa\_61, Kharcho\_61
- Track 247 : TMaxx\_40
- Track 248 : AnnabelLee\_38
- Track 249 : A3Wally\_114, PauloDiaboli\_114
- Track 250 : Big4\_103
- Track 251 : Zooman\_98
- Track 252 : Cece\_97
- Track 253 : Pumpnickel\_111
- Track 254 : Megatron06\_62, Damien\_61, Beckerton\_60, Cborch11\_63, Oaker\_60
- Track 255 : Thumb\_62, Phreeze\_60
- Track 256 : Konstantine\_65
- Track 257 : Predator\_60
- Track 258 : Puissant\_62
- Track 259 : DrLupo\_67
- Track 260 : Barnyard\_65
- Track 261 : Rope\_66, Papyrus\_66
- Track 262 : Candle\_64
- Track 263 : MontyDev\_68
- Track 264 : Nilo\_68, Riparian\_68, Zenon\_68, Send513\_66, Yelo\_65, Weiss13\_66
- Track 265 : Patience\_76
- Track 266 : Madruga\_74
- Track 267 : Labelle\_76
- Track 268 : Wolypog\_43
- Track 269 : Trogglehumper\_76
- Track 270 : Reynauld\_56
- Track 271 : P1201\_75
- Track 272 : Magritte\_46
- Track 273 : Mbo2\_52
- Track 274 : DocB7\_048
- Track 275 : ChewyVIII\_83

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

The start number called the most often in the published annotations is 217, it was called in 72 of the 390 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• Albanese\_29, Aledel\_26, AppleCider\_29, AustinPowers\_26, Beethoven\_29, Bennie\_25, BigMack\_25, Bodacious\_25, BrotherBLo\_29, Canowicakte\_29, Carpal\_29, ChewChew\_25, Cholula\_29, Chridison\_26, Christian\_25, CristinaYang\_25, Daiboju\_26, DrRobert\_25, DreamTeam\_25, EstebanJulior\_26, Eunoia\_26, Fluke\_29, Gisselle\_25, Glenn\_29, GreenHearts\_29, Greenhouse\_29, Herb\_26, HunterDalle\_26, Huntingdon\_29, Joann\_29, Jumboset\_29, Kalizoi\_29, KingBob\_26, Kittykat\_25, Korra\_30, Lakshmi\_29, LilStuart\_25, Litotes\_29, Lucy\_25,

Makoto\_25, MamaPearl\_26, Maria1952\_26, MeganNoll\_29, Misaeng\_29, Moki\_25, Nancia\_25, Nubia\_29, OMalley\_26, Oxynfrius\_29, PartyCup\_29, PinkFriday\_25, PitaDog\_25, Potatoes\_29, Preamble\_25, Pumancara\_25, RAP15\_29, RcigaStruga\_29, Riovina\_26, Riverdale\_29, Rozby\_29, Savage2526\_29, Scuttle\_29, Sergei\_26, Suppi\_29, TattModd\_29, Temper16\_26, Urla\_26, Vallejo\_29, Vulture\_26, Wawa\_29, Wayne\_29, WonderBoy\_25, Zorro\_29,

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

- 

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

- A3Wally\_114, ASerpRocky\_55, Adgers\_62, Adjutor\_52, Aesir\_39, Aikoy\_65, Ajin\_42, Alephilan\_61, Alyssamiracle\_63, Amore2\_62, Anakin\_40, Anamika\_57, AnnaSerena\_40, AnnabelLee\_38, Apeppi\_55, Apiary\_72, Araceli\_42, Archimedes\_37, Arti\_71, Atuin\_98, Austin\_61, Avian\_60, Barbochs\_59, Barnyard\_65, Beaver\_62, Beckerton\_60, Benczkowski14\_57, BenoitCattle\_59, Benry\_32, Berries\_57, Beyoncage\_50, BiPauneto\_74, Bianmat\_57, Big4\_103, BigMama\_51, BigShaq\_58, BirksAndSocks\_64, BirthdayBoy\_62, BiteSize\_50, Bloom\_105, BlueNGold\_166, Bogota\_43, Boneham\_63, Bonum\_76, Boopy\_169, Braxoaddie\_72, Breezic\_59, Buggaboo\_74, Butterball\_62, Butterscotch\_52, C3PO\_72, Camerico\_63, Candle\_64, CathyBurgh\_58, Cborch11\_63, Cece\_97, Charianelly\_57, Chelms\_59, ChewyVIII\_83, Chill\_55, Chivey\_40, Cicada\_35, CinnamonToast\_65, CoffeeBean\_72, Commandaria\_72, CoolCookie\_40, Crestdrop\_40, Crosby\_42, Cruella\_72, Cuke\_73, Cybele\_40, Dakiti\_60, Dalilpop\_75, Damien\_61, Damp\_57, DannyDe\_40, Darwin\_73, Dauntless\_39, DaviePasture\_60, Delton\_54, Demosthenes\_55, Diabla\_63, Djokovic\_50, DocB7\_048, DoobyDoo\_59, DrLupo\_67, Dryad\_74, DumpTruck\_58, DunneganBoMo\_94, Edmundo\_94, Ekhein\_59, Emianna\_72, Ennea\_79, Erk16\_52, Erudite\_39, Erutan\_60, Exiguo\_58, FelixAlejandro\_64, FireCastle\_33, Flakey\_58, Flapper\_75, Float294\_74, Forza\_170, Fowlmouth\_74, Foxboro\_72, FreddieHg\_40, Frizzle\_36, Fulcrum\_60, Fury\_82, GMA2\_64, GMA3\_58, GMA7\_51, GOATification\_60, GRU1\_61, GTE5\_60, GTE7\_50, GTE8\_60, GalacticEye\_57, Genamy16\_63, Ghobes\_35, Gibbin\_62, Gibbles\_56, Gibson\_70, Gilda\_40, Giuseppe\_53, Gmala1\_55, GodonK\_184, Goodman\_34, GordDuk1\_59, GordTnk2\_60, Gorko\_58, GourdThymes\_59, Gretellyn\_60, GrootJr\_74, Guillaume\_57, Gumball\_52, GuyFagieri\_70, Hager\_41, Hail2Pitt\_56, Harambe\_57, Haunter\_40, Hawkeye\_56, HayZem\_62, Hello\_57, Helpful\_56, Henoccus\_42, Hiddenleaf\_40, Hollow\_57, Hotorobo\_59, Htur\_33, HubbaBubba\_68, IDyn\_69, IndiRoo\_34, Indlulamithi\_65, Intolerant\_41, JDawG\_39, JackieB\_42, Jalebi\_59, Jamemuya19\_61, Jams\_57, Jellybones\_61, Jera\_34, Jifall16\_71, JingleBells\_40, Johann\_34, John316\_62, Jormungandr\_57, Jumbo\_57, Kabluna\_75, Kampe\_58, KandZ\_52, Karate\_39, Kaseim\_57, Kate\_41, Katyusha\_57, Kharcho\_61, KidneyBean\_72, Kimchi1738\_73, Konstantine\_65, Kors\_43, Kovu\_95, Krampus\_40, Kurt\_72, Kvothe\_56, Labelle\_76, Lahirium\_57, Lambo\_58, Laroye\_95, LazerLemon\_42, Leopard\_64, LiSara\_92, Lidong\_57, Lila22\_61, LilyPad\_52, Linetti\_59, LittleFella\_57, Lizz\_70, Lizzo\_59, Lollipop1437\_76, LuckyLeo\_57, Luker\_58, MacGully\_81, Madi\_50, Madrugua\_74, Magritte\_46, Mareelih\_167, Marietta\_72, Marky\_44, Maselop\_72, Mbo2\_52, Megatron06\_62, MerCougar\_75, Microdon\_41, Milani\_33, Mima20\_62, Mimi\_107, Minos\_58, MoiGyank\_63, MontyDev\_68, Monty\_58, Mopey\_54, MortySmith\_38, MrMiyagi\_73, MrWormie\_57, Msay19\_64, NadineRae\_71, NarutoRun\_40, NatB6\_72, Neoevie\_57, Neptune\_40, Newt\_58, Niagara\_57, Nilo\_68, Nimi13\_57, NorManre\_63, NosilaM\_73, NovaSharks\_62, Nova\_52, NovumRegina\_72, Oaker\_60, Onyinye\_65, Orchid\_57, Ottawa\_61, OtterstedtS21\_60, Outis\_73, OverHedge\_40, P1201\_75, PBI1\_50,

PHTown\_70, PLOT\_53, Papyrus\_66, ParvusTarda\_59, Patbob\_102, Patience\_76, Patio\_74, Patos\_63, PatrickStar\_58, PauloDiaboli\_114, Penelope2018\_53, PermaG\_34, PeteyPab\_71, Pharpay\_40, Phendrix\_173, Philon9\_55, Phomeo\_72, Phrampa\_96, Phreeze\_60, PhunaPhoke\_40, PierreThree\_58, Pleakley\_82, PokyPuppy\_58, Poland\_64, Polyyuki\_72, PotatoChip\_72, Potty\_40, Poultruss\_39, Prager\_53, Predator\_60, Puissant\_62, Pumpernickel\_111, Racecar\_102, Rachella\_40, Ranch\_60, Rasovi\_33, RemRem\_60, Reynauld\_56, Rie18\_40, RikSengupta\_42, Riparian\_68, RobinSparkles\_61, Rooney\_70, Rope\_66, RoyalG\_59, Rumi\_61, SBlackberry\_33, SJReid\_108, Sadboi\_61, Salgado\_95, Sam12\_58, Sampudon\_60, Sapo\_34, Send513\_66, ShakeNBake\_70, Shelley\_57, Shrooms\_93, Sienna\_50, SirHarley\_54, Sixama\_168, Skysand\_75, Snakehole\_40, Sombrero\_60, Sparcetuss\_42, Squibbles\_58, StarStruck\_73, SteveFrench\_58, Sticker17\_57, Stickynote\_71, Stuff\_42, Sucha\_30, Sukkupi\_71, SuperSulley\_74, Suzy\_49, TMaxx\_40, Talia1610\_101, Teal\_57, Teatealatte\_58, Tedro\_40, Teech\_56, Terapin\_51, Theresita\_31, Thoth\_53, Thumb\_62, Tillicus\_57, TinyMiny\_42, Tracker\_72, Tredge\_57, Trogglehumper\_76, Troll4\_53, TurboVicky\_33, Turuncu\_75, Typher\_35, UNTPL\_44, Visconti\_54, WaldoWhy\_55, Waltz\_91, Weiss13\_66, Wentworth\_70, Wheelbite\_90, Wheezy\_72, WhoseManz\_71, Wilkos\_72, Woes\_57, Wojtek\_56, Wollypog\_43, Xenia2\_54, Yara\_66, Yelo\_65, Yikes\_62, Yndexa\_71, Zanella\_33, Zany\_58, Zenon\_68, Zion\_72, Zooman\_98,

### Summary by start number:

#### Start 23:

- Found in 5 of 437 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 390
- Called 20.0% of time when present
- Phage (with cluster) where this start called: TinyMiny\_42 (EF),

#### Start 27:

- Found in 42 of 437 ( 9.6% ) of genes in pham
- Manual Annotations of this start: 31 of 390
- Called 76.2% of time when present
- Phage (with cluster) where this start called: Arti\_71 (CR2), Bonum\_76 (CR2), Buggaboo\_74 (CR2), Commandaria\_72 (CR2), Dalilpop\_75 (CR1), Emianna\_72 (CR2), Ennea\_79 (CR3), Flapper\_75 (CR1), Float294\_74 (CR3), Foxboro\_72 (CR2), Fury\_82 (CR5), GRU1\_61 (CR1), GrootJr\_74 (CR2), IDyn\_69 (CR4), Jifall16\_71 (CR2), Kabluna\_75 (CR2), KidneyBean\_72 (CR2), Kurt\_72 (CR2), Lollipop1437\_76 (CR3), Marietta\_72 (CR4), MerCougar\_75 (CR2), NadineRae\_71 (CR4), NovumRegina\_72 (CR2), Outis\_73 (CR2), Patio\_74 (CR3), Pleakley\_82 (CR5), Skysand\_75 (CR3), StarStruck\_73 (CR2), SuperSulley\_74 (CR2), Tracker\_72 (CR2), Turuncu\_75 (CR1), WhoseManz\_71 (CR4),

#### Start 29:

- Found in 6 of 437 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 6 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Apiary\_72 (CR), Braxoaddie\_72 (CR), CoffeeBean\_72 (CR), GuyFagieri\_70 (CR), Maselop\_72 (CR), Polyyuki\_72 (CR),

#### Start 30:

- Found in 1 of 437 ( 0.2% ) of genes in pham
- Manual Annotations of this start: 1 of 390

- Called 100.0% of time when present
- Phage (with cluster) where this start called: MacGully\_81 (CR),

#### Start 31:

- Found in 1 of 437 ( 0.2% ) of genes in pham
- Manual Annotations of this start: 1 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ChewyVIII\_83 (singleton),

#### Start 40:

- Found in 1 of 437 ( 0.2% ) of genes in pham
- Manual Annotations of this start: 1 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Barnyard\_65 (H2),

#### Start 41:

- Found in 1 of 437 ( 0.2% ) of genes in pham
- Manual Annotations of this start: 1 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DrLupo\_67 (H2),

#### Start 42:

- Found in 37 of 437 ( 8.5% ) of genes in pham
- Manual Annotations of this start: 11 of 390
- Called 35.1% of time when present
- Phage (with cluster) where this start called: Alyssamiracle\_63 (DV), Avian\_60 (DV), Genamy16\_63 (DV), Gibbin\_62 (DV), GretelLyn\_60 (DV), Jalebi\_59 (DV), Jamemuya19\_61 (DV), LuckyLeo\_57 (DV), NovaSharks\_62 (DV), ParvusTarda\_59 (DV), Sampudon\_60 (DV), Wojtek\_56 (DV), Zany\_58 (DV),

#### Start 43:

- Found in 78 of 437 ( 17.8% ) of genes in pham
- Manual Annotations of this start: 59 of 390
- Called 83.3% of time when present
- Phage (with cluster) where this start called: Adjutor\_52 (D1), Aikoy\_65 (AE), Alephlan\_61 (DV), Apeppi\_55 (DV), Beckerton\_60 (H1), BigMama\_51 (D1), BirthdayBoy\_62 (DV), Butterscotch\_52 (D1), Cborch11\_63 (H1), Chill\_55 (D1), Damien\_61 (H1), DaviePasture\_60 (DV), Delton\_54 (D1), DoobyDoo\_59 (DV), Dryad\_74 (BN), Erk16\_52 (D1), Erutan\_60 (DV), Fulcrum\_60 (DV), GOATification\_60 (DV), Gibson\_70 (BN), Giuseppe\_53 (D1), Gumball\_52 (D1), Hawkeye\_56 (D2), Helpful\_56 (D1), KandZ\_52 (D1), Konstantine\_65 (H1), Lambo\_58 (DV), Leopard\_64 (AE), Lila22\_61 (DV), LittleFella\_57 (DG2), Lizz\_70 (BN), Megatron06\_62 (H1), Mima20\_62 (DV), MoiGyank\_63 (DV), Mopey\_54 (D1), NorManre\_63 (DV), Nova\_52 (D1), Oaker\_60 (H1), Onyinye\_65 (AE), OtterstedtS21\_60 (DV), PBI1\_50 (D1), PHTown\_70 (BN), PLOT\_53 (D1), Patos\_63 (DV), Penelope2018\_53 (D1), Phreeze\_60 (H1), Prager\_53 (D1), Predator\_60 (H1), Puissant\_62 (H1), Ranch\_60 (DV), Rooney\_70 (BN), Rumi\_61 (DV), Sadboi\_61 (DV), ShakeNBake\_70 (BN), SirHarley\_54 (D1), Thoth\_53 (D1), Thumb\_62 (H1), Troll4\_53 (D1), Visconti\_54 (D1), WaldoWhy\_55 (D1), Wentworth\_70 (BN), Wilkos\_72 (BN), Xenia2\_54 (DV), Yara\_66 (BN), Yikes\_62 (DV),

#### Start 45:

- Found in 1 of 437 ( 0.2% ) of genes in pham

- Manual Annotations of this start: 1 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cece\_97 (GD3),

#### Start 46:

- Found in 2 of 437 ( 0.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Tillicus\_57 (DV),

#### Start 48:

- Found in 13 of 437 ( 3.0% ) of genes in pham
- Manual Annotations of this start: 13 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Beyoncage\_50 (DG1), BiteSize\_50 (DG1), BlueNGold\_166 (DS), Boopy\_169 (DS), Djokovic\_50 (DG1), Forza\_170 (DS), LilyPad\_52 (DG1), Madi\_50 (DG1), Mareelih\_167 (DS), Sienna\_50 (DG1), Sixama\_168 (DS), Suzy\_49 (DG1), Terapin\_51 (DG1),

#### Start 49:

- Found in 10 of 437 ( 2.3% ) of genes in pham
- Manual Annotations of this start: 2 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Atuin\_98 (FC), Bloom\_105 (FC), DunneganBoMo\_94 (FC), GMA2\_64 (DS), Mimi\_107 (FC), Patbob\_102 (FC), Phrampa\_96 (FC), Racecar\_102 (FC), SJReid\_108 (FC), Talia1610\_101 (FC),

#### Start 50:

- Found in 8 of 437 ( 1.8% ) of genes in pham
- Manual Annotations of this start: 3 of 390
- Called 37.5% of time when present
- Phage (with cluster) where this start called: Labelle\_76 (U), Madruga\_74 (U), Patience\_76 (U),

#### Start 51:

- Found in 35 of 437 ( 8.0% ) of genes in pham
- Manual Annotations of this start: 32 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aesir\_39 (EF), Anakin\_40 (EF), AnnaSerena\_40 (EF), AnnabelLee\_38 (FR), Chivey\_40 (EF), CoolCookie\_40 (EF), Crestdrop\_40 (EF), Cybele\_40 (EF), DannyDe\_40 (EF), Dauntless\_39 (EF), Erudite\_39 (EF), FreddieHg\_40 (EF), Gilda\_40 (EF), Hager\_41 (EF), Haunter\_40 (EF), Hiddenleaf\_40 (EF), JDawG\_39 (EF), JingleBells\_40 (EF), Karate\_39 (EF), Kate\_41 (EF), Krampus\_40 (EF), MortySmith\_38 (EF), NarutoRun\_40 (EF), Neptune\_40 (EF), OverHedge\_40 (EF), Pharpay\_40 (EF), PhunaPhoke\_40 (EF), Potty\_40 (EF), Poultruss\_39 (EF), Rachella\_40 (EF), Rie18\_40 (EF), Snakehole\_40 (EF), TMaxx\_40 (FR), Tedro\_40 (EF), Wollypog\_43 (singleton),

#### Start 53:

- Found in 8 of 437 ( 1.8% ) of genes in pham
- Manual Annotations of this start: 7 of 390
- Called 87.5% of time when present



- Phage (with cluster) where this start called: A3Wally\_114 (GD1), Big4\_103 (GD2), GodonK\_184 (DK), PauloDiaboli\_114 (GD1), Phendrix\_173 (DK), Pumpernickel\_111 (GD4), Zooman\_98 (GD2),

#### Start 54:

- Found in 5 of 437 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 3 of 390
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Ajin\_42 (EF), Kors\_43 (EF), RikSengupta\_42 (EF), Sparcetus\_42 (EF),

#### Start 55:

- Found in 9 of 437 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 8 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: C3PO\_72 (EN), Cruella\_72 (EN), Darwin\_73 (EN), Kimchi1738\_73 (EN), P1201\_75 (singleton), PeteyPab\_71 (EN), PotatoChip\_72 (EN), Stickynote\_71 (EN), Zion\_72 (EN),

#### Start 57:

- Found in 37 of 437 ( 8.5% ) of genes in pham
- Manual Annotations of this start: 1 of 390
- Called 2.7% of time when present
- Phage (with cluster) where this start called: DumpTruck\_58 (DV),

#### Start 69:

- Found in 13 of 437 ( 3.0% ) of genes in pham
- Manual Annotations of this start: 2 of 390
- Called 30.8% of time when present
- Phage (with cluster) where this start called: GTE8\_60 (CR2), NatB6\_72 (CR2), Phomeo\_72 (CR2), Wheezy\_72 (CR2),

#### Start 77:

- Found in 20 of 437 ( 4.6% ) of genes in pham
- Manual Annotations of this start: 1 of 390
- Called 5.0% of time when present
- Phage (with cluster) where this start called: NosilaM\_73 (CR2),

#### Start 78:

- Found in 3 of 437 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 3 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cuke\_73 (AC), Fowlmouth\_74 (AC), MrMiyagi\_73 (AC),

#### Start 84:

- Found in 1 of 437 ( 0.2% ) of genes in pham
- Manual Annotations of this start: 1 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Indlulamithi\_65 (AC),

#### Start 92:

- Found in 24 of 437 ( 5.5% ) of genes in pham

- Manual Annotations of this start: 3 of 390
- Called 12.5% of time when present
- Phage (with cluster) where this start called: BiPauneto\_74 (CR4), Sukkupi\_71 (CR4), Yndexa\_71 (CR4),

#### Start 94:

- Found in 53 of 437 ( 12.1% ) of genes in pham
- No Manual Annotations of this start.
- Called 1.9% of time when present
- Phage (with cluster) where this start called: HubbaBubba\_68 (CR4),

#### Start 100:

- Found in 2 of 437 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 2 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kharcho\_61 (FM), Ottawa\_61 (FM),

#### Start 123:

- Found in 11 of 437 ( 2.5% ) of genes in pham
- Manual Annotations of this start: 6 of 390
- Called 54.5% of time when present
- Phage (with cluster) where this start called: Benczkowski14\_57 (CS4), Hollow\_57 (CS4), Katyusha\_57 (CS4), Niagara\_57 (CS4), Teatealatte\_58 (CS4), Tredge\_57 (CS4),

#### Start 127:

- Found in 11 of 437 ( 2.5% ) of genes in pham
- Manual Annotations of this start: 2 of 390
- Called 27.3% of time when present
- Phage (with cluster) where this start called: Demosthenes\_55 (CS4), Kvothe\_56 (CS4), Teech\_56 (CS4),

#### Start 136:

- Found in 1 of 437 ( 0.2% ) of genes in pham
- Manual Annotations of this start: 1 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Magritte\_46 (singleton),

#### Start 139:

- Found in 5 of 437 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 3 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amore2\_62 (CS1), Austin\_61 (CS1), GMA7\_51 (CS1), GTE7\_50 (CS1), HayZem\_62 (CS1),

#### Start 146:

- Found in 10 of 437 ( 2.3% ) of genes in pham
- Manual Annotations of this start: 9 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Candle\_64 (R), MontyDev\_68 (R), Nilo\_68 (R), Papyrus\_66 (R), Riparian\_68 (R), Rope\_66 (R), Send513\_66 (R), Weiss13\_66 (R), Yelo\_65 (R), Zenon\_68 (R),

Start 167:

- Found in 4 of 437 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 390
- Called 50.0% of time when present
- Phage (with cluster) where this start called: ASerpRocky\_55 (CS4), Philon9\_55 (CS4),

Start 169:

- Found in 8 of 437 ( 1.8% ) of genes in pham
- Manual Annotations of this start: 8 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Edmundo\_94 (AL), Kovu\_95 (AL), Laroye\_95 (AL), LiSara\_92 (AL), Salgado\_95 (AL), Shrooms\_93 (AL), Waltz\_91 (AL), Wheelbite\_90 (AL),

Start 174:

- Found in 72 of 437 ( 16.5% ) of genes in pham
- Manual Annotations of this start: 2 of 390
- Called 4.2% of time when present
- Phage (with cluster) where this start called: Charianelly\_57 (CS3), CinnamonToast\_65 (CS2), Woes\_57 (CS3),

Start 186:

- Found in 2 of 437 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kaseim\_57 (CS3), Luker\_58 (CS3),

Start 187:

- Found in 41 of 437 ( 9.4% ) of genes in pham
- Manual Annotations of this start: 24 of 390
- Called 65.9% of time when present
- Phage (with cluster) where this start called: Adgers\_62 (CS2), Barbochs\_59 (CS2), Beaver\_62 (CS2), BirksAndSocks\_64 (CS2), Boneham\_63 (CS2), Breezic\_59 (CS2), Butterball\_62 (CS2), CathyBurgh\_58 (CS2), Ekhein\_59 (CS2), Exiguo\_58 (CS2), FelixAlejandro\_64 (CS2), Flakey\_58 (CS2), Gorko\_58 (CS2), GourdThymes\_59 (CS2), Hotorobo\_59 (CS2), Jellybones\_61 (CS2), John316\_62 (CS2), Lizzo\_59 (CS2), Monty\_58 (CS2), Msay19\_64 (CS2), Poland\_64 (CS2), RemRem\_60 (CS2), RoyalG\_59 (CS2), Sam12\_58 (CS2), Sombrero\_60 (CS2), Squibbles\_58 (CS2), SteveFrench\_58 (CS2),

Start 192:

- Found in 1 of 437 ( 0.2% ) of genes in pham
- Manual Annotations of this start: 1 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Trogglehumper\_76 (singleton),

Start 197:

- Found in 2 of 437 ( 0.5% ) of genes in pham
- Manual Annotations of this start: 1 of 390
- Called 50.0% of time when present
- Phage (with cluster) where this start called: PokyPuppy\_58 (CS2),

#### Start 199:

- Found in 3 of 437 ( 0.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gmala1\_55 (DF1), GordDuk1\_59 (DF1), GordTnk2\_60 (DF1),

#### Start 202:

- Found in 7 of 437 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 5 of 390
- Called 71.4% of time when present
- Phage (with cluster) where this start called: Gibbles\_56 (CX), Kampe\_58 (CX), Orchid\_57 (CX), PatrickStar\_58 (CX), RobinSparkles\_61 (CX),

#### Start 205:

- Found in 6 of 437 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 3 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Camerico\_63 (DF), DocB7\_048 (singleton), GMA3\_58 (DF2), Jumbo\_57 (DF3), Mbo2\_52 (singleton), Reynauld\_56 (singleton),

#### Start 217:

- Found in 73 of 437 ( 16.7% ) of genes in pham
- Manual Annotations of this start: 72 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Albanese\_29 (AK), Aledel\_26 (AK), AppleCider\_29 (AK), AustinPowers\_26 (AK), Beethoven\_29 (AK), Bennie\_25 (AK), BigMack\_25 (AK), Bodacious\_25 (AK), BrotherBLo\_29 (AK), Canowicakte\_29 (AK), Carpal\_29 (AK), ChewChew\_25 (AK), Cholula\_29 (AK), Chridison\_26 (AK), Christian\_25 (AK), CristinaYang\_25 (AK), Daiboju\_26 (AK), DrRobert\_25 (AK), DreamTeam\_25 (AK), EstebanJulior\_26 (AK), Eunoia\_26 (AK), Fluke\_29 (AK), Gisselle\_25 (AK), Glenn\_29 (AK), GreenHearts\_29 (AK), Greenhouse\_29 (AK), Herb\_26 (AK), HunterDalle\_26 (AK), Huntingdon\_29 (AK), Joann\_29 (AK), Jumboset\_29 (AK), Kalizoi\_29 (AK), KingBob\_26 (AK), Kittykat\_25 (AK), Korra\_30 (AK), Lakshmi\_29 (AK), LilStuart\_25 (AK), Litotes\_29 (AK), Lucy\_25 (AK), Makoto\_25 (AK), MamaPearl\_26 (AK), Maria1952\_26 (AK), MeganNoll\_29 (AK), Misaeng\_29 (AK), Moki\_25 (AK), Nancia\_25 (AK), Nubia\_29 (AK), OMalley\_26 (AK), Oxynfrius\_29 (AK), PartyCup\_29 (AK), PinkFriday\_25 (AK), PitaDog\_25 (AK), Potatoes\_29 (AK), Preamble\_25 (AK), Pumancara\_25 (AK), RAP15\_29 (AK), RcigaStruga\_29 (AK), Riovina\_26 (AK), Riverdale\_29 (AK), Rozby\_29 (AK), Savage2526\_29 (AK), Scuttle\_29 (AK), Sergei\_26 (AK), Suppi\_29 (AK), TattModd\_29 (AK), Temper16\_26 (AK), Urla\_26 (AK), Vallejo\_29 (AK), Vulture\_26 (AK), Wawa\_29 (AK), Wayne\_29 (AK), WonderBoy\_25 (AK), Zorro\_29 (AK),

#### Start 220:

- Found in 32 of 437 ( 7.3% ) of genes in pham
- Manual Annotations of this start: 1 of 390
- Called 3.1% of time when present
- Phage (with cluster) where this start called: FireCastle\_33 (EJ),

#### Start 221:

- Found in 3 of 437 ( 0.7% ) of genes in pham

- Manual Annotations of this start: 3 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Htur\_33 (EJ), PermaG\_34 (EJ), Rasovi\_33 (EJ),

#### Start 223:

- Found in 14 of 437 ( 3.2% ) of genes in pham
- Manual Annotations of this start: 12 of 390
- Called 92.9% of time when present
- Phage (with cluster) where this start called: Berry\_32 (EJ), Cicada\_35 (EJ), Goodman\_34 (EJ), IndiRoo\_34 (EJ), Jera\_34 (EJ), Johann\_34 (EJ), Milani\_33 (EJ), SBlackberry\_33 (EJ), Sucha\_30 (EJ), Theresita\_31 (EA7), TurboVicky\_33 (EJ), Typher\_35 (EJ), Zanella\_33 (EJ),

#### Start 225:

- Found in 12 of 437 ( 2.7% ) of genes in pham
- Manual Annotations of this start: 12 of 390
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Araceli\_42 (BH), Archimedes\_37 (DA), Bogota\_43 (BH), Crosby\_42 (BH), Henoccus\_42 (BH), Intolerant\_41 (BH), JackieB\_42 (BH), LazerLemon\_42 (BH), Microdon\_41 (BH), Sapo\_34 (DA), Stuff\_42 (BH), UNTPL\_44 (BH),

#### Start 226:

- Found in 12 of 437 ( 2.7% ) of genes in pham
- Manual Annotations of this start: 2 of 390
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Frizzle\_36 (DA), Ghobes\_35 (DA), Marky\_44 (BH),

#### Start 235:

- Found in 45 of 437 ( 10.3% ) of genes in pham
- Manual Annotations of this start: 27 of 390
- Called 62.2% of time when present
- Phage (with cluster) where this start called: Anamika\_57 (CS3), BenoitCattle\_59 (CS2), Berries\_57 (CS3), Bianmat\_57 (CS3), BigShaq\_58 (CS2), Chelms\_59 (CS2), Dakiti\_60 (CS2), Damp\_57 (CS3), Diabla\_63 (CS2), GalacticEye\_57 (CS3), Guillaume\_57 (CS3), Hail2Pitt\_56 (CS3), Harambe\_57 (CS3), Hello\_57 (CS3), Jams\_57 (CS3), Jormungandr\_57 (CS3), Lahirium\_57 (CS3), Lidong\_57 (CS3), Linetti\_59 (CS2), Minos\_58 (CS3), MrWormie\_57 (CS3), Neevie\_57 (CS3), Newt\_58 (CS3), Nimi13\_57 (CS3), PierreThree\_58 (CS2), Shelley\_57 (CS3), Sticker17\_57 (CS3), Teal\_57 (CS3),

#### Start 249:

- Found in 76 of 437 ( 17.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 1.3% of time when present
- Phage (with cluster) where this start called: GTE5\_60 (CR1),

### Summary by clusters:

There are 45 clusters represented in this pham: GD1, GD2, GD3, GD4, DK, DF, BN, BH, singleton, DA, FC, DV, DG1, DS, FR, DF1, DF3, DF2, FM, CS4, CS1, CS3, CS2,

AC, EN, AE, EJ, AK, EF, AL, DG2, R, U, CR, EA7, CR2, CR3, CR1, CR4, CR5, H2, H1, CX, D2, D1,

Info for manual annotations of cluster AC:

- Start number 78 was manually annotated 3 times for cluster AC.
- Start number 84 was manually annotated 1 time for cluster AC.

Info for manual annotations of cluster AE:

- Start number 43 was manually annotated 3 times for cluster AE.

Info for manual annotations of cluster AK:

- Start number 217 was manually annotated 72 times for cluster AK.

Info for manual annotations of cluster AL:

- Start number 169 was manually annotated 8 times for cluster AL.

Info for manual annotations of cluster BH:

- Start number 225 was manually annotated 10 times for cluster BH.
- Start number 226 was manually annotated 1 time for cluster BH.

Info for manual annotations of cluster BN:

- Start number 43 was manually annotated 8 times for cluster BN.

Info for manual annotations of cluster CR:

- Start number 29 was manually annotated 6 times for cluster CR.
- Start number 30 was manually annotated 1 time for cluster CR.

Info for manual annotations of cluster CR1:

- Start number 27 was manually annotated 3 times for cluster CR1.

Info for manual annotations of cluster CR2:

- Start number 27 was manually annotated 17 times for cluster CR2.
- Start number 69 was manually annotated 2 times for cluster CR2.
- Start number 77 was manually annotated 1 time for cluster CR2.

Info for manual annotations of cluster CR3:

- Start number 27 was manually annotated 5 times for cluster CR3.

Info for manual annotations of cluster CR4:

- Start number 27 was manually annotated 4 times for cluster CR4.
- Start number 92 was manually annotated 3 times for cluster CR4.

Info for manual annotations of cluster CR5:

- Start number 27 was manually annotated 2 times for cluster CR5.

Info for manual annotations of cluster CS1:

- Start number 139 was manually annotated 3 times for cluster CS1.

Info for manual annotations of cluster CS2:

- Start number 187 was manually annotated 24 times for cluster CS2.
- Start number 197 was manually annotated 1 time for cluster CS2.
- Start number 235 was manually annotated 6 times for cluster CS2.

Info for manual annotations of cluster CS3:

- Start number 174 was manually annotated 2 times for cluster CS3.
- Start number 186 was manually annotated 1 time for cluster CS3.
- Start number 235 was manually annotated 21 times for cluster CS3.

Info for manual annotations of cluster CS4:

- Start number 123 was manually annotated 6 times for cluster CS4.
- Start number 127 was manually annotated 2 times for cluster CS4.
- Start number 167 was manually annotated 1 time for cluster CS4.

Info for manual annotations of cluster CX:

- Start number 202 was manually annotated 5 times for cluster CX.

Info for manual annotations of cluster D1:

- Start number 43 was manually annotated 20 times for cluster D1.

Info for manual annotations of cluster D2:

- Start number 43 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster DA:

- Start number 225 was manually annotated 2 times for cluster DA.
- Start number 226 was manually annotated 1 time for cluster DA.

Info for manual annotations of cluster DF:

- Start number 205 was manually annotated 1 time for cluster DF.

Info for manual annotations of cluster DF3:

- Start number 205 was manually annotated 1 time for cluster DF3.

Info for manual annotations of cluster DG1:

- Start number 48 was manually annotated 8 times for cluster DG1.

Info for manual annotations of cluster DG2:

- Start number 43 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DK:

- Start number 53 was manually annotated 2 times for cluster DK.

Info for manual annotations of cluster DS:

- Start number 48 was manually annotated 5 times for cluster DS.

Info for manual annotations of cluster DV:

- Start number 42 was manually annotated 11 times for cluster DV.
- Start number 43 was manually annotated 17 times for cluster DV.
- Start number 57 was manually annotated 1 time for cluster DV.

Info for manual annotations of cluster EA7:

- Start number 223 was manually annotated 1 time for cluster EA7.

Info for manual annotations of cluster EF:

- Start number 23 was manually annotated 1 time for cluster EF.

- Start number 51 was manually annotated 31 times for cluster EF.
- Start number 54 was manually annotated 3 times for cluster EF.

Info for manual annotations of cluster EJ:

- Start number 220 was manually annotated 1 time for cluster EJ.
- Start number 221 was manually annotated 3 times for cluster EJ.
- Start number 223 was manually annotated 11 times for cluster EJ.

Info for manual annotations of cluster EN:

- Start number 55 was manually annotated 8 times for cluster EN.

Info for manual annotations of cluster FC:

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

Info for manual annotations of cluster FM:

- Start number 100 was manually annotated 2 times for cluster FM.

Info for manual annotations of cluster GD1:

- Start number 53 was manually annotated 2 times for cluster GD1.

Info for manual annotations of cluster GD2:

- Start number 53 was manually annotated 2 times for cluster GD2.

Info for manual annotations of cluster GD3:

- Start number 45 was manually annotated 1 time for cluster GD3.

Info for manual annotations of cluster GD4:

- Start number 53 was manually annotated 1 time for cluster GD4.

Info for manual annotations of cluster H1:

- Start number 43 was manually annotated 9 times for cluster H1.

Info for manual annotations of cluster H2:

- Start number 40 was manually annotated 1 time for cluster H2.
- Start number 41 was manually annotated 1 time for cluster H2.

Info for manual annotations of cluster R:

- Start number 146 was manually annotated 9 times for cluster R.

Info for manual annotations of cluster U:

- Start number 50 was manually annotated 3 times for cluster U.

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

Gene: A3Wally\_114 Start: 79188, Stop: 77338, Start Num: 53

Candidate Starts for A3Wally\_114:

(34, 79257), (35, 79251), (Start: 53 @79188 has 7 MA's), (64, 79143), (68, 79131), (107, 79005), (128, 78942), (170, 78867), (212, 78759), (222, 78741), (245, 78672), (252, 78645), (317, 78585), (371, 78420), (412, 78276), (431, 78189), (439, 78162), (451, 78126), (453, 78117), (477, 78060), (478, 78054), (491, 78009), (497, 77997), (504, 77976), (511, 77952), (521, 77916), (539, 77871), (577,



77787), (579, 77784), (580, 77778), (602, 77715), (626, 77613), (645, 77526), (653, 77484), (667, 77433),

Gene: ASerpRocky\_55 Start: 52672, Stop: 51098, Start Num: 167

Candidate Starts for ASerpRocky\_55:

(Start: 123 @52804 has 6 MA's), (Start: 127 @52792 has 2 MA's), (163, 52693), (Start: 167 @52672 has 1 MA's), (193, 52606), (238, 52507), (250, 52471), (255, 52447), (257, 52438), (261, 52429), (284, 52381), (300, 52357), (318, 52315), (326, 52300), (354, 52225), (370, 52165), (371, 52162), (390, 52096), (393, 52093), (404, 52057), (405, 52054), (411, 52027), (415, 52015), (424, 51967), (436, 51934), (443, 51910), (451, 51886), (457, 51862), (479, 51796), (507, 51697), (548, 51598), (557, 51565), (558, 51562), (611, 51445), (612, 51442), (625, 51385), (628, 51367), (652, 51250), (653, 51247), (657, 51235), (697, 51136), (708, 51115),

Gene: Adgers\_62 Start: 52192, Stop: 50660, Start Num: 187

Candidate Starts for Adgers\_62:

(105, 52447), (118, 52396), (159, 52291), (166, 52261), (Start: 174 @52228 has 2 MA's), (178, 52219), (Start: 187 @52192 has 24 MA's), (250, 52024), (261, 51982), (271, 51964), (284, 51934), (292, 51922), (300, 51910), (301, 51904), (309, 51883), (372, 51715), (401, 51628), (404, 51613), (406, 51601), (415, 51571), (451, 51442), (461, 51400), (465, 51382), (471, 51379), (474, 51370), (479, 51352), (507, 51265), (558, 51130), (562, 51115), (569, 51094), (611, 51013), (612, 51010), (625, 50953), (626, 50947), (628, 50935), (640, 50884), (645, 50860), (652, 50821), (656, 50809), (657, 50806), (689, 50713), (697, 50698),

Gene: Adjutor\_52 Start: 39669, Stop: 41612, Start Num: 43

Candidate Starts for Adjutor\_52:

(Start: 43 @39669 has 59 MA's), (59, 39696), (81, 39768), (93, 39822), (108, 39882), (112, 39900), (113, 39909), (133, 39960), (151, 40002), (168, 40038), (201, 40125), (240, 40218), (245, 40233), (251, 40254), (306, 40356), (322, 40389), (333, 40413), (368, 40473), (389, 40560), (412, 40635), (434, 40725), (451, 40776), (452, 40779), (473, 40869), (478, 40887), (487, 40920), (506, 40974), (510, 40986), (516, 41004), (550, 41067), (575, 41151), (611, 41268), (617, 41316), (632, 41379), (649, 41463),

Gene: Aesir\_39 Start: 25591, Stop: 27498, Start Num: 51

Candidate Starts for Aesir\_39:

(15, 25417), (Start: 51 @25591 has 32 MA's), (73, 25654), (85, 25675), (94, 25729), (137, 25864), (156, 25906), (177, 25951), (245, 26125), (248, 26134), (286, 26224), (307, 26266), (312, 26281), (380, 26467), (421, 26602), (424, 26614), (433, 26647), (460, 26740), (478, 26776), (507, 26866), (516, 26893), (617, 27202), (618, 27205), (631, 27265), (650, 27355), (659, 27385), (671, 27427), (692, 27478),

Gene: Aikoy\_65 Start: 45786, Stop: 47714, Start Num: 43

Candidate Starts for Aikoy\_65:

(Start: 43 @45786 has 59 MA's), (58, 45807), (64, 45837), (Start: 92 @45936 has 3 MA's), (108, 45999), (132, 46071), (134, 46080), (156, 46128), (245, 46344), (251, 46365), (257, 46386), (258, 46389), (269, 46401), (284, 46428), (341, 46551), (368, 46587), (381, 46659), (386, 46668), (401, 46701), (415, 46758), (418, 46770), (434, 46839), (437, 46848), (443, 46866), (451, 46890), (475, 46986), (478, 46998), (487, 47031), (503, 47073), (521, 47136), (570, 47241), (627, 47457), (631, 47481), (632, 47484), (643, 47526), (648, 47556), (655, 47580), (700, 47697),

Gene: Ajin\_42 Start: 26641, Stop: 28575, Start Num: 54

Candidate Starts for Ajin\_42:

(11, 26401), (Start: 23 @26545 has 1 MA's), (Start: 50 @26635 has 3 MA's), (Start: 54 @26641 has 3 MA's), (94, 26788), (98, 26806), (101, 26815), (156, 26965), (210, 27091), (245, 27181), (248, 27190),

(286, 27280), (307, 27322), (318, 27352), (371, 27484), (424, 27670), (429, 27688), (433, 27703), (451, 27760), (464, 27820), (499, 27892), (554, 28030), (571, 28096), (576, 28126), (603, 28204), (618, 28282), (631, 28342), (642, 28381), (650, 28432), (657, 28450), (694, 28558),

Gene: Albanese\_29 Start: 22144, Stop: 23535, Start Num: 217

Candidate Starts for Albanese\_29:

(Start: 217 @22144 has 72 MA's), (251, 22231), (293, 22303), (295, 22306), (328, 22369), (330, 22372), (338, 22390), (341, 22396), (353, 22423), (373, 22480), (382, 22531), (401, 22570), (409, 22606), (414, 22624), (420, 22660), (426, 22681), (433, 22699), (446, 22732), (458, 22771), (473, 22813), (480, 22840), (487, 22864), (499, 22900), (500, 22906), (510, 22939), (515, 22954), (517, 22963), (538, 23008), (550, 23041), (551, 23044), (579, 23128), (584, 23149), (587, 23161), (595, 23179), (616, 23269), (623, 23290), (624, 23293), (629, 23317), (630, 23326), (649, 23413), (678, 23503), (685, 23527),

Gene: Aledel\_26 Start: 21745, Stop: 23139, Start Num: 217

Candidate Starts for Aledel\_26:

(Start: 217 @21745 has 72 MA's), (241, 21802), (275, 21889), (293, 21907), (295, 21910), (338, 21994), (353, 22027), (371, 22078), (373, 22084), (387, 22144), (401, 22174), (409, 22210), (414, 22228), (426, 22285), (433, 22303), (435, 22309), (446, 22336), (473, 22417), (480, 22444), (487, 22468), (493, 22483), (500, 22510), (510, 22543), (515, 22558), (563, 22690), (576, 22726), (584, 22753), (587, 22765), (595, 22783), (616, 22873), (618, 22879), (623, 22894), (624, 22897), (630, 22930), (645, 22990), (649, 23017), (666, 23074), (678, 23107), (685, 23131),

Gene: Alephilan\_61 Start: 40725, Stop: 42638, Start Num: 43

Candidate Starts for Alephilan\_61:

(17, 40599), (18, 40608), (19, 40620), (26, 40653), (Start: 42 @40722 has 11 MA's), (Start: 43 @40725 has 59 MA's), (Start: 57 @40737 has 1 MA's), (68, 40785), (80, 40818), (120, 40977), (132, 41004), (134, 41013), (168, 41085), (216, 41202), (219, 41205), (242, 41268), (251, 41295), (281, 41358), (294, 41385), (366, 41514), (371, 41538), (379, 41580), (399, 41628), (404, 41649), (409, 41670), (421, 41727), (426, 41745), (434, 41781), (447, 41823), (462, 41883), (487, 41979), (488, 41982), (583, 42210), (611, 42300), (617, 42336), (619, 42342), (631, 42396), (642, 42435), (665, 42537), (669, 42552), (677, 42573),

Gene: Alyssamiracle\_63 Start: 39828, Stop: 41744, Start Num: 42

Candidate Starts for Alyssamiracle\_63:

(Start: 42 @39828 has 11 MA's), (Start: 43 @39831 has 59 MA's), (Start: 57 @39843 has 1 MA's), (68, 39891), (80, 39924), (120, 40083), (132, 40110), (134, 40119), (168, 40191), (219, 40311), (242, 40374), (281, 40464), (294, 40491), (366, 40620), (371, 40644), (379, 40686), (381, 40698), (389, 40713), (399, 40734), (404, 40755), (409, 40776), (421, 40833), (426, 40851), (434, 40887), (447, 40929), (462, 40989), (487, 41085), (488, 41088), (564, 41265), (583, 41316), (611, 41406), (617, 41442), (619, 41448), (631, 41502), (642, 41541), (665, 41643), (669, 41658), (677, 41679),

Gene: Amore2\_62 Start: 52713, Stop: 51082, Start Num: 139

Candidate Starts for Amore2\_62:

(Start: 139 @52713 has 3 MA's), (145, 52701), (164, 52650), (165, 52644), (184, 52587), (250, 52446), (261, 52404), (267, 52392), (284, 52356), (285, 52353), (301, 52326), (318, 52290), (325, 52278), (332, 52263), (369, 52155), (401, 52050), (404, 52035), (436, 51912), (451, 51864), (457, 51840), (461, 51822), (479, 51774), (494, 51723), (507, 51687), (513, 51669), (558, 51552), (573, 51501), (605, 51459), (617, 51399), (628, 51357), (640, 51306), (645, 51282), (697, 51120), (708, 51099),

Gene: Anakin\_40 Start: 25911, Stop: 27818, Start Num: 51

Candidate Starts for Anakin\_40:

(Start: 51 @25911 has 32 MA's), (73, 25974), (85, 25995), (94, 26049), (156, 26226), (177, 26271), (245, 26445), (248, 26454), (286, 26544), (312, 26601), (380, 26787), (421, 26922), (424, 26934), (433, 26967), (478, 27096), (516, 27213), (557, 27288), (617, 27522), (618, 27525), (631, 27585), (650, 27675), (659, 27705), (671, 27747), (692, 27798),

Gene: Anamika\_57 Start: 52887, Stop: 51475, Start Num: 235

Candidate Starts for Anamika\_57:

(105, 53235), (148, 53106), (173, 53019), (Start: 174 @53016 has 2 MA's), (Start: 235 @52887 has 27 MA's), (250, 52842), (284, 52752), (285, 52749), (290, 52743), (301, 52722), (332, 52659), (369, 52551), (372, 52533), (401, 52446), (404, 52431), (415, 52389), (436, 52308), (451, 52260), (461, 52218), (465, 52200), (471, 52197), (479, 52170), (494, 52119), (507, 52083), (522, 52032), (558, 51948), (563, 51927), (625, 51771), (626, 51765), (628, 51753), (656, 51627), (697, 51513),

Gene: AnnaSerena\_40 Start: 25946, Stop: 27853, Start Num: 51

Candidate Starts for AnnaSerena\_40:

(Start: 51 @25946 has 32 MA's), (73, 26009), (85, 26030), (94, 26084), (156, 26261), (177, 26306), (245, 26480), (248, 26489), (286, 26579), (312, 26636), (380, 26822), (421, 26957), (424, 26969), (433, 27002), (478, 27131), (516, 27248), (557, 27323), (617, 27557), (618, 27560), (631, 27620), (650, 27710), (659, 27740), (671, 27782), (692, 27833),

Gene: AnnabelLee\_38 Start: 26373, Stop: 24541, Start Num: 51

Candidate Starts for AnnabelLee\_38:

(Start: 51 @26373 has 32 MA's), (68, 26316), (133, 26115), (Start: 187 @25980 has 24 MA's), (240, 25845), (249, 25818), (323, 25761), (329, 25746), (349, 25692), (371, 25596), (373, 25590), (374, 25575), (387, 25530), (404, 25482), (409, 25461), (414, 25443), (424, 25392), (450, 25299), (453, 25287), (478, 25224), (501, 25152), (519, 25092), (528, 25071), (557, 25005), (563, 24987), (576, 24969), (577, 24966), (588, 24930), (617, 24822), (620, 24813), (634, 24753), (645, 24705),

Gene: Apeppi\_55 Start: 40047, Stop: 41966, Start Num: 43

Candidate Starts for Apeppi\_55:

(16, 39927), (17, 39948), (19, 39969), (36, 39999), (39, 40032), (Start: 42 @40044 has 11 MA's), (Start: 43 @40047 has 59 MA's), (Start: 57 @40062 has 1 MA's), (60, 40077), (68, 40110), (80, 40143), (83, 40146), (Start: 92 @40194 has 3 MA's), (96, 40212), (120, 40302), (129, 40320), (132, 40329), (134, 40338), (168, 40410), (219, 40530), (Start: 220 @40533 has 1 MA's), (242, 40593), (249, 40611), (281, 40683), (294, 40710), (368, 40845), (371, 40863), (379, 40905), (386, 40926), (389, 40932), (404, 40974), (409, 40995), (415, 41016), (421, 41052), (447, 41151), (450, 41160), (462, 41211), (487, 41307), (488, 41310), (546, 41421), (564, 41487), (575, 41511), (583, 41538), (628, 41706), (631, 41724), (637, 41748), (642, 41763), (643, 41769), (649, 41811), (655, 41826), (665, 41865), (669, 41880), (677, 41901), (705, 41958),

Gene: Apiary\_72 Start: 53146, Stop: 51110, Start Num: 29

Candidate Starts for Apiary\_72:

(10, 53314), (Start: 29 @53146 has 6 MA's), (44, 53080), (61, 53038), (154, 52753), (183, 52696), (201, 52645), (210, 52630), (245, 52540), (249, 52528), (286, 52435), (328, 52363), (368, 52294), (381, 52222), (404, 52165), (451, 51985), (456, 51961), (470, 51898), (478, 51862), (506, 51775), (557, 51643), (567, 51604), (568, 51601), (577, 51556), (617, 51409), (632, 51346), (643, 51304), (649, 51265), (658, 51241),

Gene: AppleCider\_29 Start: 22130, Stop: 23524, Start Num: 217

Candidate Starts for AppleCider\_29:

(Start: 217 @22130 has 72 MA's), (241, 22187), (293, 22292), (338, 22379), (371, 22463), (372, 22466), (373, 22469), (401, 22559), (409, 22595), (411, 22604), (426, 22670), (433, 22688), (446, 22721), (450, 22733), (473, 22802), (480, 22829), (487, 22853), (499, 22889), (500, 22895), (510,

22928), (515, 22943), (517, 22952), (554, 23042), (576, 23111), (584, 23138), (591, 23156), (595, 23168), (616, 23258), (618, 23264), (621, 23273), (623, 23279), (630, 23315), (649, 23402), (664, 23453), (678, 23492), (685, 23516),

Gene: Araceli\_42 Start: 30875, Stop: 32269, Start Num: 225

Candidate Starts for Araceli\_42:

(Start: 225 @30875 has 12 MA's), (Start: 226 @30878 has 2 MA's), (250, 30953), (256, 30977), (284, 31007), (285, 31010), (293, 31022), (308, 31055), (347, 31112), (355, 31136), (371, 31181), (373, 31187), (387, 31247), (398, 31268), (411, 31322), (438, 31421), (446, 31448), (449, 31457), (486, 31583), (500, 31631), (506, 31652), (510, 31664), (515, 31679), (523, 31709), (541, 31742), (544, 31751), (556, 31793), (577, 31859), (579, 31862), (584, 31883), (591, 31901), (596, 31919), (612, 31973), (616, 32003), (630, 32060), (631, 32063), (644, 32111), (656, 32165), (676, 32234), (681, 32252),

Gene: Archimedes\_37 Start: 33084, Stop: 31684, Start Num: 225

Candidate Starts for Archimedes\_37:

(Start: 225 @33084 has 12 MA's), (238, 33042), (250, 33006), (255, 32988), (256, 32982), (284, 32952), (293, 32937), (295, 32934), (338, 32850), (410, 32628), (414, 32616), (446, 32502), (486, 32376), (490, 32364), (497, 32343), (498, 32340), (500, 32328), (510, 32295), (515, 32280), (521, 32256), (541, 32220), (544, 32211), (576, 32112), (595, 32055), (599, 32043), (602, 32037), (621, 31950), (627, 31929), (630, 31908), (652, 31815), (687, 31689),

Gene: Arti\_71 Start: 55496, Stop: 53430, Start Num: 27

Candidate Starts for Arti\_71:

(6, 55700), (7, 55688), (9, 55670), (Start: 27 @55496 has 31 MA's), (Start: 69 @55358 has 2 MA's), (75, 55334), (134, 55130), (154, 55085), (201, 54977), (248, 54863), (249, 54860), (286, 54770), (289, 54767), (325, 54707), (379, 54569), (384, 54551), (397, 54527), (426, 54404), (451, 54299), (478, 54173), (496, 54119), (547, 53993), (550, 53984), (556, 53960), (575, 53888), (577, 53882), (585, 53852), (604, 53795), (617, 53735), (632, 53672), (649, 53591),

Gene: Atuin\_98 Start: 80621, Stop: 82477, Start Num: 49

Candidate Starts for Atuin\_98:

(Start: 49 @80621 has 2 MA's), (130, 80894), (Start: 187 @80999 has 24 MA's), (236, 81122), (240, 81134), (243, 81143), (331, 81239), (358, 81314), (371, 81374), (415, 81527), (423, 81572), (439, 81632), (453, 81677), (477, 81734), (478, 81740), (487, 81773), (491, 81785), (497, 81797), (535, 81914), (536, 81917), (557, 81974), (576, 82010), (580, 82022), (585, 82043), (612, 82127), (632, 82220), (638, 82244), (680, 82412), (682, 82415),

Gene: Austin\_61 Start: 52711, Stop: 51080, Start Num: 139

Candidate Starts for Austin\_61:

(Start: 139 @52711 has 3 MA's), (145, 52699), (164, 52648), (165, 52642), (184, 52585), (250, 52444), (261, 52402), (267, 52390), (284, 52354), (285, 52351), (301, 52324), (318, 52288), (325, 52276), (332, 52261), (369, 52153), (401, 52048), (404, 52033), (436, 51910), (451, 51862), (457, 51838), (461, 51820), (479, 51772), (494, 51721), (507, 51685), (513, 51667), (558, 51550), (573, 51499), (605, 51457), (617, 51397), (628, 51355), (640, 51304), (645, 51280), (697, 51118), (708, 51097),

Gene: AustinPowers\_26 Start: 21746, Stop: 23140, Start Num: 217

Candidate Starts for AustinPowers\_26:

(Start: 217 @21746 has 72 MA's), (241, 21803), (275, 21890), (293, 21908), (295, 21911), (338, 21995), (353, 22028), (371, 22079), (373, 22085), (387, 22145), (401, 22175), (409, 22211), (414, 22229), (420, 22265), (426, 22286), (433, 22304), (435, 22310), (446, 22337), (473, 22418), (480, 22445), (487, 22469), (493, 22484), (500, 22511), (510, 22544), (515, 22559), (576, 22727), (584,

22754), (587, 22766), (595, 22784), (616, 22874), (618, 22880), (623, 22895), (624, 22898), (645, 22991), (649, 23018), (666, 23075), (678, 23108), (685, 23132),

Gene: Avian\_60 Start: 39556, Stop: 41472, Start Num: 42

Candidate Starts for Avian\_60:

(Start: 42 @39556 has 11 MA's), (Start: 43 @39559 has 59 MA's), (Start: 57 @39571 has 1 MA's), (68, 39619), (80, 39652), (120, 39811), (132, 39838), (134, 39847), (168, 39919), (219, 40039), (242, 40102), (281, 40192), (294, 40219), (366, 40348), (371, 40372), (379, 40414), (381, 40426), (389, 40441), (399, 40462), (404, 40483), (409, 40504), (421, 40561), (426, 40579), (434, 40615), (447, 40657), (462, 40717), (487, 40813), (488, 40816), (564, 40993), (583, 41044), (611, 41134), (617, 41170), (619, 41176), (631, 41230), (642, 41269), (665, 41371), (669, 41386), (677, 41407),

Gene: Barbochs\_59 Start: 51736, Stop: 50204, Start Num: 187

Candidate Starts for Barbochs\_59:

(105, 51991), (118, 51940), (137, 51889), (159, 51835), (166, 51805), (Start: 174 @51772 has 2 MA's), (178, 51763), (Start: 187 @51736 has 24 MA's), (250, 51568), (261, 51526), (284, 51478), (292, 51466), (300, 51454), (301, 51448), (309, 51427), (325, 51400), (372, 51259), (401, 51172), (404, 51157), (406, 51145), (415, 51115), (425, 51064), (435, 51037), (451, 50986), (457, 50962), (461, 50944), (465, 50926), (471, 50923), (479, 50896), (491, 50854), (507, 50809), (558, 50674), (562, 50659), (569, 50638), (605, 50581), (611, 50557), (625, 50497), (626, 50491), (627, 50485), (628, 50479), (640, 50428), (645, 50404), (652, 50365), (656, 50353), (657, 50350), (689, 50257), (697, 50242), (708, 50221),

Gene: Barnyard\_65 Start: 45144, Stop: 47105, Start Num: 40

Candidate Starts for Barnyard\_65:

(Start: 40 @45144 has 1 MA's), (56, 45171), (Start: 57 @45177 has 1 MA's), (58, 45183), (74, 45249), (89, 45282), (90, 45297), (Start: 92 @45312 has 3 MA's), (94, 45318), (101, 45345), (110, 45387), (130, 45447), (137, 45468), (152, 45504), (156, 45513), (183, 45576), (189, 45597), (Start: 197 @45615 has 1 MA's), (207, 45630), (209, 45636), (219, 45660), (247, 45735), (249, 45741), (336, 45924), (339, 45936), (351, 45954), (366, 45969), (381, 46047), (426, 46200), (432, 46233), (467, 46368), (473, 46395), (475, 46401), (477, 46407), (492, 46461), (510, 46527), (511, 46530), (546, 46572), (577, 46656), (586, 46689), (616, 46800), (617, 46803), (618, 46806), (620, 46812), (628, 46845), (632, 46866), (633, 46869), (643, 46908), (655, 46962), (664, 46998), (667, 47007), (688, 47064), (698, 47082),

Gene: Beaver\_62 Start: 53506, Stop: 51974, Start Num: 187

Candidate Starts for Beaver\_62:

(105, 53761), (118, 53710), (137, 53659), (159, 53605), (166, 53575), (Start: 174 @53542 has 2 MA's), (178, 53533), (Start: 187 @53506 has 24 MA's), (250, 53338), (261, 53296), (284, 53248), (292, 53236), (300, 53224), (301, 53218), (309, 53197), (325, 53170), (372, 53029), (401, 52942), (404, 52927), (406, 52915), (415, 52885), (425, 52834), (435, 52807), (451, 52756), (461, 52714), (465, 52696), (471, 52693), (479, 52666), (491, 52624), (507, 52579), (513, 52561), (558, 52444), (562, 52429), (569, 52408), (605, 52351), (611, 52327), (625, 52267), (626, 52261), (627, 52255), (628, 52249), (640, 52198), (645, 52174), (652, 52135), (656, 52123), (689, 52027), (697, 52012), (708, 51991),

Gene: Beckerton\_60 Start: 46572, Stop: 48629, Start Num: 43

Candidate Starts for Beckerton\_60:

(Start: 43 @46572 has 59 MA's), (66, 46632), (67, 46635), (Start: 92 @46728 has 3 MA's), (95, 46740), (101, 46761), (137, 46884), (138, 46887), (144, 46896), (156, 46929), (162, 46950), (173, 46998), (189, 47040), (219, 47103), (229, 47124), (231, 47130), (249, 47184), (336, 47370), (339, 47382), (351, 47400), (366, 47415), (368, 47421), (451, 47739), (452, 47742), (462, 47787), (475, 47838), (478, 47850), (506, 47940), (510, 47952), (520, 47985), (541, 48009), (544, 48018), (577,

48108), (586, 48141), (616, 48252), (617, 48255), (618, 48258), (619, 48261), (628, 48297), (631, 48315), (646, 48381), (649, 48399), (710, 48576),

Gene: Beethoven\_29 Start: 22100, Stop: 23500, Start Num: 217

Candidate Starts for Beethoven\_29:

(Start: 217 @22100 has 72 MA's), (241, 22163), (293, 22268), (295, 22271), (338, 22355), (353, 22388), (371, 22439), (373, 22445), (398, 22526), (399, 22529), (401, 22535), (409, 22571), (414, 22589), (415, 22592), (420, 22625), (426, 22646), (433, 22664), (446, 22697), (473, 22778), (480, 22805), (490, 22835), (493, 22844), (500, 22871), (510, 22904), (515, 22919), (538, 22973), (546, 22994), (550, 23006), (554, 23018), (618, 23240), (621, 23249), (623, 23255), (630, 23291), (645, 23351), (649, 23378), (678, 23468),

Gene: Benczkowski14\_57 Start: 53319, Stop: 51616, Start Num: 123

Candidate Starts for Benczkowski14\_57:

(Start: 123 @53319 has 6 MA's), (Start: 127 @53307 has 2 MA's), (193, 53124), (Start: 235 @53034 has 27 MA's), (238, 53025), (250, 52989), (255, 52965), (257, 52956), (261, 52947), (284, 52899), (300, 52875), (332, 52803), (333, 52800), (342, 52782), (354, 52743), (390, 52614), (404, 52575), (405, 52572), (409, 52554), (411, 52545), (415, 52533), (424, 52485), (436, 52452), (451, 52404), (457, 52380), (479, 52314), (507, 52215), (548, 52116), (551, 52107), (557, 52083), (558, 52080), (605, 51987), (611, 51963), (612, 51960), (625, 51903), (628, 51885), (652, 51768), (653, 51765), (657, 51753), (697, 51654), (708, 51633),

Gene: Bennie\_25 Start: 20566, Stop: 21960, Start Num: 217

Candidate Starts for Bennie\_25:

(Start: 217 @20566 has 72 MA's), (241, 20623), (293, 20728), (295, 20731), (338, 20815), (353, 20848), (371, 20899), (373, 20905), (401, 20995), (409, 21031), (414, 21049), (415, 21052), (420, 21085), (426, 21106), (473, 21238), (480, 21265), (490, 21295), (493, 21304), (500, 21331), (510, 21364), (515, 21379), (523, 21406), (538, 21433), (551, 21469), (563, 21511), (584, 21574), (591, 21592), (612, 21664), (614, 21688), (616, 21694), (617, 21697), (623, 21715), (624, 21718), (629, 21742), (630, 21751), (649, 21838), (664, 21889), (678, 21928),

Gene: BenoitCattle\_59 Start: 52020, Stop: 50611, Start Num: 235

Candidate Starts for BenoitCattle\_59:

(105, 52398), (118, 52347), (137, 52296), (159, 52242), (166, 52212), (Start: 174 @52179 has 2 MA's), (178, 52170), (Start: 187 @52143 has 24 MA's), (Start: 235 @52020 has 27 MA's), (250, 51975), (261, 51933), (284, 51885), (285, 51882), (290, 51876), (292, 51873), (300, 51861), (301, 51855), (325, 51807), (326, 51804), (369, 51684), (372, 51666), (390, 51603), (401, 51579), (404, 51564), (415, 51522), (425, 51471), (451, 51393), (465, 51333), (471, 51330), (474, 51321), (479, 51303), (491, 51261), (507, 51216), (558, 51081), (562, 51066), (569, 51045), (611, 50964), (612, 50961), (625, 50904), (626, 50898), (628, 50886), (640, 50835), (645, 50811), (652, 50772), (656, 50760), (689, 50664), (697, 50649),

Gene: Benry\_32 Start: 21495, Stop: 22922, Start Num: 223

Candidate Starts for Benry\_32:

(Start: 223 @21495 has 12 MA's), (371, 21849), (372, 21852), (375, 21873), (404, 21960), (415, 22002), (498, 22284), (500, 22296), (506, 22317), (515, 22344), (522, 22371), (523, 22374), (538, 22401), (541, 22407), (553, 22443), (584, 22542), (605, 22605), (611, 22623), (612, 22626), (624, 22680), (630, 22713), (634, 22725), (644, 22764), (649, 22800), (652, 22806), (656, 22818), (664, 22851), (673, 22881),

Gene: Berries\_57 Start: 52859, Stop: 51447, Start Num: 235

Candidate Starts for Berries\_57:

(105, 53207), (148, 53078), (Start: 174 @52988 has 2 MA's), (Start: 235 @52859 has 27 MA's), (250, 52814), (284, 52724), (285, 52721), (290, 52715), (301, 52694), (332, 52631), (369, 52523), (372, 52505), (401, 52418), (404, 52403), (415, 52361), (436, 52280), (451, 52232), (461, 52190), (465, 52172), (471, 52169), (479, 52142), (494, 52091), (507, 52055), (522, 52004), (558, 51920), (563, 51899), (625, 51743), (626, 51737), (628, 51725), (656, 51599), (697, 51485),

Gene: Beyoncage\_50 Start: 36615, Stop: 38669, Start Num: 48

Candidate Starts for Beyoncage\_50:

(Start: 48 @36615 has 13 MA's), (60, 36639), (83, 36702), (102, 36786), (110, 36828), (200, 37050), (219, 37086), (248, 37161), (257, 37200), (287, 37242), (299, 37260), (306, 37281), (311, 37293), (339, 37353), (348, 37368), (366, 37386), (381, 37464), (389, 37479), (392, 37482), (404, 37521), (409, 37542), (433, 37644), (451, 37701), (455, 37722), (456, 37725), (460, 37737), (473, 37785), (475, 37791), (488, 37839), (500, 37872), (507, 37896), (513, 37914), (521, 37944), (532, 38067), (541, 38100), (545, 38112), (550, 38127), (561, 38166), (575, 38211), (583, 38238), (609, 38322), (623, 38385), (631, 38427), (634, 38436), (636, 38445), (646, 38493), (648, 38502), (649, 38514), (655, 38529), (666, 38571),

Gene: BiPauneto\_74 Start: 54628, Stop: 52772, Start Num: 92

Candidate Starts for BiPauneto\_74:

(7, 55045), (9, 55027), (14, 54952), (Start: 27 @54853 has 31 MA's), (Start: 92 @54628 has 3 MA's), (201, 54334), (219, 54301), (229, 54280), (246, 54226), (248, 54220), (249, 54217), (286, 54127), (289, 54124), (325, 54064), (384, 53908), (426, 53761), (451, 53653), (456, 53629), (478, 53527), (496, 53473), (501, 53458), (525, 53377), (550, 53338), (565, 53275), (575, 53236), (577, 53230), (585, 53200), (617, 53083), (632, 53020), (646, 52957), (649, 52939), (674, 52855),

Gene: Bianmat\_57 Start: 52899, Stop: 51487, Start Num: 235

Candidate Starts for Bianmat\_57:

(105, 53247), (148, 53118), (Start: 174 @53028 has 2 MA's), (Start: 235 @52899 has 27 MA's), (250, 52854), (284, 52764), (285, 52761), (290, 52755), (301, 52734), (332, 52671), (359, 52593), (369, 52563), (372, 52545), (401, 52458), (404, 52443), (415, 52401), (436, 52320), (451, 52272), (461, 52230), (465, 52212), (471, 52209), (479, 52182), (494, 52131), (507, 52095), (522, 52044), (558, 51960), (563, 51939), (625, 51783), (626, 51777), (628, 51765), (656, 51639), (697, 51525),

Gene: Big4\_103 Start: 78367, Stop: 76427, Start Num: 53

Candidate Starts for Big4\_103:

(Start: 53 @78367 has 7 MA's), (97, 78214), (128, 78121), (170, 78046), (201, 77965), (211, 77941), (319, 77665), (412, 77359), (432, 77269), (451, 77209), (453, 77200), (477, 77143), (478, 77137), (487, 77104), (491, 77092), (496, 77083), (504, 77059), (521, 76999), (579, 76867), (580, 76861), (602, 76798), (606, 76777), (608, 76771), (626, 76696), (627, 76690), (630, 76669), (645, 76609), (653, 76567), (659, 76543), (662, 76531),

Gene: BigMack\_25 Start: 20560, Stop: 21960, Start Num: 217

Candidate Starts for BigMack\_25:

(Start: 217 @20560 has 72 MA's), (241, 20623), (293, 20728), (295, 20731), (338, 20815), (353, 20848), (371, 20899), (373, 20905), (398, 20986), (399, 20989), (401, 20995), (409, 21031), (414, 21049), (415, 21052), (420, 21085), (426, 21106), (433, 21124), (473, 21238), (480, 21265), (490, 21295), (493, 21304), (500, 21331), (510, 21364), (515, 21379), (523, 21406), (541, 21439), (563, 21511), (584, 21574), (591, 21592), (603, 21625), (616, 21694), (618, 21700), (623, 21715), (624, 21718), (630, 21751), (645, 21811), (649, 21838), (678, 21928),

Gene: BigMama\_51 Start: 39745, Stop: 41688, Start Num: 43

Candidate Starts for BigMama\_51:

(Start: 43 @39745 has 59 MA's), (59, 39772), (81, 39844), (93, 39898), (108, 39958), (112, 39976), (113, 39985), (133, 40036), (151, 40078), (168, 40114), (201, 40201), (240, 40294), (245, 40309), (251, 40330), (306, 40432), (322, 40465), (333, 40489), (368, 40549), (389, 40636), (412, 40711), (434, 40801), (451, 40852), (452, 40855), (473, 40945), (478, 40963), (487, 40996), (506, 41050), (510, 41062), (516, 41080), (550, 41143), (575, 41227), (611, 41344), (617, 41392), (632, 41455), (649, 41539),

Gene: BigShaq\_58 Start: 52025, Stop: 50616, Start Num: 235

Candidate Starts for BigShaq\_58:

(105, 52403), (118, 52352), (137, 52301), (159, 52247), (166, 52217), (Start: 174 @52184 has 2 MA's), (178, 52175), (Start: 187 @52148 has 24 MA's), (Start: 235 @52025 has 27 MA's), (250, 51980), (261, 51938), (284, 51890), (285, 51887), (290, 51881), (292, 51878), (300, 51866), (301, 51860), (318, 51824), (325, 51812), (326, 51809), (369, 51689), (372, 51671), (401, 51584), (404, 51569), (415, 51527), (425, 51476), (435, 51449), (451, 51398), (465, 51338), (471, 51335), (474, 51326), (479, 51308), (491, 51266), (507, 51221), (558, 51086), (562, 51071), (569, 51050), (611, 50969), (612, 50966), (625, 50909), (626, 50903), (628, 50891), (640, 50840), (644, 50825), (645, 50816), (652, 50777), (656, 50765), (689, 50669), (697, 50654),

Gene: BirksAndSocks\_64 Start: 53856, Stop: 52324, Start Num: 187

Candidate Starts for BirksAndSocks\_64:

(105, 54111), (118, 54060), (159, 53955), (166, 53925), (Start: 174 @53892 has 2 MA's), (178, 53883), (Start: 187 @53856 has 24 MA's), (250, 53688), (261, 53646), (271, 53628), (284, 53598), (292, 53586), (300, 53574), (301, 53568), (309, 53547), (372, 53379), (401, 53292), (404, 53277), (406, 53265), (415, 53235), (451, 53106), (457, 53082), (461, 53064), (465, 53046), (471, 53043), (474, 53034), (479, 53016), (507, 52929), (558, 52794), (562, 52779), (569, 52758), (611, 52677), (612, 52674), (625, 52617), (626, 52611), (628, 52599), (640, 52548), (645, 52524), (652, 52485), (656, 52473), (657, 52470), (689, 52377), (697, 52362),

Gene: BirthdayBoy\_62 Start: 41143, Stop: 43056, Start Num: 43

Candidate Starts for BirthdayBoy\_62:

(17, 41017), (18, 41026), (19, 41038), (26, 41071), (Start: 42 @41140 has 11 MA's), (Start: 43 @41143 has 59 MA's), (Start: 57 @41155 has 1 MA's), (68, 41203), (80, 41236), (96, 41305), (120, 41395), (132, 41422), (134, 41431), (168, 41503), (219, 41623), (242, 41686), (281, 41776), (294, 41803), (366, 41932), (371, 41956), (379, 41998), (399, 42046), (404, 42067), (409, 42088), (421, 42145), (434, 42199), (447, 42241), (462, 42301), (487, 42397), (488, 42400), (564, 42577), (583, 42628), (611, 42718), (617, 42754), (619, 42760), (631, 42814), (642, 42853), (665, 42955), (669, 42970), (677, 42991),

Gene: BiteSize\_50 Start: 36701, Stop: 38755, Start Num: 48

Candidate Starts for BiteSize\_50:

(Start: 48 @36701 has 13 MA's), (60, 36725), (83, 36788), (102, 36872), (110, 36914), (200, 37136), (219, 37172), (248, 37247), (257, 37286), (287, 37328), (299, 37346), (306, 37367), (311, 37379), (339, 37439), (348, 37454), (366, 37472), (381, 37550), (389, 37565), (392, 37568), (404, 37607), (409, 37628), (433, 37730), (451, 37787), (455, 37808), (456, 37811), (460, 37823), (473, 37871), (475, 37877), (488, 37925), (500, 37958), (507, 37982), (513, 38000), (521, 38030), (532, 38153), (541, 38186), (545, 38198), (550, 38213), (561, 38252), (575, 38297), (583, 38324), (609, 38408), (623, 38471), (631, 38513), (634, 38522), (636, 38531), (646, 38579), (648, 38588), (649, 38600), (655, 38615), (666, 38657),

Gene: Bloom\_105 Start: 80738, Stop: 82576, Start Num: 49

Candidate Starts for Bloom\_105:

(Start: 49 @80738 has 2 MA's), (72, 80819), (98, 80897), (130, 80993), (170, 81053), (183, 81083), (231, 81203), (247, 81254), (321, 81314), (419, 81653), (433, 81710), (439, 81731), (453, 81776),



(477, 81833), (478, 81839), (487, 81872), (491, 81884), (497, 81896), (510, 81941), (521, 81980), (546, 82037), (548, 82043), (557, 82076), (585, 82145), (612, 82229), (638, 82346), (684, 82520), (706, 82562),

Gene: BlueNGold\_166 Start: 96830, Stop: 94920, Start Num: 48

Candidate Starts for BlueNGold\_166:

(Start: 48 @96830 has 13 MA's), (110, 96626), (128, 96578), (150, 96533), (173, 96452), (180, 96440), (Start: 220 @96335 has 1 MA's), (231, 96308), (317, 96203), (329, 96179), (375, 96014), (451, 95747), (453, 95738), (460, 95711), (487, 95642), (557, 95393), (583, 95327), (592, 95303), (627, 95168), (641, 95108), (656, 95036),

Gene: Bodacious\_25 Start: 20580, Stop: 21974, Start Num: 217

Candidate Starts for Bodacious\_25:

(Start: 217 @20580 has 72 MA's), (241, 20637), (293, 20742), (295, 20745), (338, 20829), (353, 20862), (371, 20913), (373, 20919), (398, 21000), (399, 21003), (401, 21009), (409, 21045), (414, 21063), (415, 21066), (420, 21099), (426, 21120), (473, 21252), (480, 21279), (493, 21318), (499, 21339), (500, 21345), (510, 21378), (515, 21393), (517, 21402), (538, 21447), (551, 21483), (563, 21525), (584, 21588), (591, 21606), (616, 21708), (617, 21711), (623, 21729), (624, 21732), (629, 21756), (630, 21765), (649, 21852), (678, 21942), (685, 21966),

Gene: Bogota\_43 Start: 31399, Stop: 32793, Start Num: 225

Candidate Starts for Bogota\_43:

(Start: 225 @31399 has 12 MA's), (Start: 226 @31402 has 2 MA's), (250, 31477), (256, 31501), (284, 31531), (293, 31546), (347, 31636), (361, 31672), (387, 31771), (393, 31780), (412, 31849), (446, 31972), (486, 32107), (495, 32134), (500, 32155), (506, 32176), (523, 32233), (541, 32266), (544, 32275), (556, 32317), (577, 32383), (584, 32407), (591, 32425), (596, 32443), (612, 32497), (616, 32527), (630, 32584), (631, 32587), (644, 32635), (651, 32674), (656, 32689), (676, 32758), (681, 32776), (685, 32785),

Gene: Boneham\_63 Start: 53757, Stop: 52225, Start Num: 187

Candidate Starts for Boneham\_63:

(105, 54012), (118, 53961), (159, 53856), (166, 53826), (Start: 174 @53793 has 2 MA's), (178, 53784), (Start: 187 @53757 has 24 MA's), (250, 53589), (261, 53547), (271, 53529), (284, 53499), (292, 53487), (300, 53475), (301, 53469), (309, 53448), (372, 53280), (401, 53193), (404, 53178), (406, 53166), (415, 53136), (451, 53007), (457, 52983), (461, 52965), (465, 52947), (471, 52944), (474, 52935), (479, 52917), (507, 52830), (558, 52695), (562, 52680), (569, 52659), (611, 52578), (612, 52575), (625, 52518), (626, 52512), (628, 52500), (640, 52449), (645, 52425), (652, 52386), (656, 52374), (657, 52371), (689, 52278), (697, 52263),

Gene: Bonum\_76 Start: 56632, Stop: 54545, Start Num: 27

Candidate Starts for Bonum\_76:

(Start: 27 @56632 has 31 MA's), (61, 56512), (Start: 77 @56467 has 1 MA's), (79, 56464), (154, 56209), (201, 56101), (229, 56047), (249, 55984), (286, 55894), (289, 55891), (302, 55867), (325, 55831), (379, 55693), (384, 55675), (389, 55666), (397, 55651), (426, 55528), (442, 55444), (451, 55417), (456, 55393), (478, 55294), (496, 55240), (513, 55186), (525, 55144), (550, 55105), (568, 55036), (575, 55003), (585, 54967), (603, 54922), (604, 54910), (617, 54850), (632, 54787), (674, 54622), (683, 54598),

Gene: Boopy\_169 Start: 96841, Stop: 94931, Start Num: 48

Candidate Starts for Boopy\_169:

(Start: 48 @96841 has 13 MA's), (110, 96637), (128, 96589), (150, 96544), (173, 96463), (180, 96451), (Start: 220 @96346 has 1 MA's), (231, 96319), (317, 96214), (329, 96190), (375, 96025), (451, 95758), (453, 95749), (460, 95722), (487, 95653), (557, 95404), (583, 95338), (592, 95314),

(627, 95179), (641, 95119), (656, 95047),

Gene: Braxoaddie\_72 Start: 53132, Stop: 51096, Start Num: 29

Candidate Starts for Braxoaddie\_72:

(10, 53300), (Start: 29 @53132 has 6 MA's), (44, 53066), (61, 53024), (94, 52919), (154, 52739), (183, 52682), (201, 52631), (210, 52616), (245, 52526), (249, 52514), (286, 52421), (328, 52349), (368, 52280), (381, 52208), (404, 52151), (451, 51971), (456, 51947), (470, 51884), (478, 51848), (506, 51761), (557, 51629), (567, 51590), (568, 51587), (577, 51542), (617, 51395), (632, 51332), (643, 51290), (649, 51251), (658, 51227),

Gene: Breezic\_59 Start: 51749, Stop: 50217, Start Num: 187

Candidate Starts for Breezic\_59:

(105, 52004), (118, 51953), (137, 51902), (159, 51848), (166, 51818), (Start: 174 @51785 has 2 MA's), (178, 51776), (Start: 187 @51749 has 24 MA's), (250, 51581), (261, 51539), (284, 51491), (292, 51479), (300, 51467), (301, 51461), (309, 51440), (325, 51413), (372, 51272), (401, 51185), (404, 51170), (406, 51158), (415, 51128), (425, 51077), (435, 51050), (451, 50999), (465, 50939), (471, 50936), (479, 50909), (491, 50867), (507, 50822), (558, 50687), (562, 50672), (569, 50651), (605, 50594), (611, 50570), (612, 50567), (625, 50510), (626, 50504), (627, 50498), (628, 50492), (640, 50441), (645, 50417), (652, 50378), (656, 50366), (657, 50363), (689, 50270), (697, 50255), (708, 50234),

Gene: BrotherBLo\_29 Start: 22106, Stop: 23506, Start Num: 217

Candidate Starts for BrotherBLo\_29:

(Start: 217 @22106 has 72 MA's), (241, 22169), (293, 22274), (338, 22361), (353, 22394), (371, 22445), (373, 22451), (398, 22532), (399, 22535), (401, 22541), (409, 22577), (414, 22595), (415, 22598), (420, 22631), (426, 22652), (433, 22670), (473, 22784), (480, 22811), (490, 22841), (493, 22850), (500, 22877), (510, 22910), (515, 22925), (538, 22979), (546, 23000), (550, 23012), (554, 23024), (616, 23240), (617, 23243), (618, 23246), (621, 23255), (623, 23261), (630, 23297), (645, 23357), (649, 23384), (678, 23474),

Gene: Buggaboo\_74 Start: 57198, Stop: 55111, Start Num: 27

Candidate Starts for Buggaboo\_74:

(Start: 27 @57198 has 31 MA's), (61, 57078), (Start: 77 @57033 has 1 MA's), (79, 57030), (154, 56775), (201, 56667), (229, 56613), (249, 56550), (286, 56460), (289, 56457), (302, 56433), (325, 56397), (379, 56259), (384, 56241), (389, 56232), (397, 56217), (426, 56094), (442, 56010), (451, 55983), (456, 55959), (478, 55860), (496, 55806), (513, 55752), (525, 55710), (550, 55671), (568, 55602), (575, 55569), (585, 55533), (603, 55488), (604, 55476), (617, 55416), (619, 55410), (632, 55353), (674, 55188), (683, 55164),

Gene: Butterball\_62 Start: 53762, Stop: 52230, Start Num: 187

Candidate Starts for Butterball\_62:

(105, 54017), (118, 53966), (159, 53861), (166, 53831), (Start: 174 @53798 has 2 MA's), (178, 53789), (Start: 187 @53762 has 24 MA's), (250, 53594), (261, 53552), (271, 53534), (284, 53504), (292, 53492), (300, 53480), (301, 53474), (309, 53453), (372, 53285), (401, 53198), (404, 53183), (406, 53171), (415, 53141), (451, 53012), (457, 52988), (461, 52970), (465, 52952), (471, 52949), (474, 52940), (479, 52922), (507, 52835), (558, 52700), (562, 52685), (569, 52664), (611, 52583), (612, 52580), (625, 52523), (626, 52517), (628, 52505), (640, 52454), (645, 52430), (652, 52391), (656, 52379), (657, 52376), (689, 52283), (697, 52268),

Gene: Butterscotch\_52 Start: 39729, Stop: 41672, Start Num: 43

Candidate Starts for Butterscotch\_52:

(Start: 43 @39729 has 59 MA's), (59, 39756), (81, 39828), (93, 39882), (108, 39942), (112, 39960), (113, 39969), (133, 40020), (151, 40062), (168, 40098), (201, 40185), (240, 40278), (245, 40293),

(251, 40314), (306, 40416), (322, 40449), (333, 40473), (368, 40533), (389, 40620), (412, 40695), (434, 40785), (451, 40836), (452, 40839), (473, 40929), (478, 40947), (487, 40980), (506, 41034), (510, 41046), (516, 41064), (550, 41127), (575, 41211), (611, 41328), (617, 41376), (632, 41439), (649, 41523),

Gene: C3PO\_72 Start: 52724, Stop: 50799, Start Num: 55

Candidate Starts for C3PO\_72:

(25, 52817), (Start: 55 @52724 has 8 MA's), (103, 52553), (115, 52499), (135, 52445), (201, 52295), (259, 52139), (286, 52088), (289, 52085), (367, 51956), (368, 51953), (381, 51881), (386, 51872), (478, 51515), (487, 51482), (557, 51296), (619, 51077), (623, 51065), (627, 51047), (632, 51020), (646, 50957), (655, 50924), (675, 50852),

Gene: Camerico\_63 Start: 54751, Stop: 53234, Start Num: 205

Candidate Starts for Camerico\_63:

(Start: 205 @54751 has 3 MA's), (Start: 235 @54673 has 27 MA's), (241, 54655), (245, 54643), (250, 54628), (272, 54574), (284, 54556), (288, 54550), (310, 54496), (324, 54478), (349, 54418), (355, 54394), (374, 54313), (384, 54274), (400, 54247), (405, 54226), (411, 54199), (414, 54190), (451, 54058), (457, 54034), (461, 54016), (465, 53998), (473, 53989), (552, 53773), (554, 53767), (557, 53752), (572, 53701), (593, 53647), (628, 53506), (644, 53440), (645, 53431), (649, 53398),

Gene: Candle\_64 Start: 47961, Stop: 49721, Start Num: 146

Candidate Starts for Candle\_64:

(Start: 146 @47961 has 9 MA's), (Start: 174 @48030 has 2 MA's), (215, 48126), (Start: 220 @48135 has 1 MA's), (249, 48216), (261, 48261), (366, 48462), (376, 48510), (397, 48570), (401, 48582), (417, 48648), (443, 48771), (451, 48795), (456, 48819), (478, 49023), (487, 49056), (492, 49071), (506, 49110), (507, 49113), (510, 49122), (550, 49191), (556, 49215), (592, 49323), (617, 49446), (618, 49449), (626, 49476), (631, 49506), (633, 49512), (634, 49515), (638, 49533), (642, 49545), (677, 49680), (689, 49710),

Gene: Canowicakte\_29 Start: 22165, Stop: 23559, Start Num: 217

Candidate Starts for Canowicakte\_29:

(Start: 217 @22165 has 72 MA's), (241, 22222), (293, 22327), (338, 22414), (371, 22498), (372, 22501), (373, 22504), (401, 22594), (409, 22630), (411, 22639), (414, 22648), (426, 22705), (433, 22723), (446, 22756), (450, 22768), (473, 22837), (480, 22864), (487, 22888), (500, 22930), (510, 22963), (515, 22978), (517, 22987), (554, 23077), (576, 23146), (584, 23173), (591, 23191), (595, 23203), (616, 23293), (618, 23299), (621, 23308), (623, 23314), (630, 23350), (649, 23437), (664, 23488), (678, 23527), (685, 23551),

Gene: Carpal\_29 Start: 22107, Stop: 23507, Start Num: 217

Candidate Starts for Carpal\_29:

(Start: 217 @22107 has 72 MA's), (241, 22170), (293, 22275), (295, 22278), (338, 22362), (353, 22395), (371, 22446), (373, 22452), (398, 22533), (399, 22536), (401, 22542), (409, 22578), (414, 22596), (415, 22599), (420, 22632), (426, 22653), (433, 22671), (446, 22704), (473, 22785), (480, 22812), (490, 22842), (493, 22851), (500, 22878), (510, 22911), (515, 22926), (538, 22980), (546, 23001), (550, 23013), (554, 23025), (618, 23247), (621, 23256), (623, 23262), (630, 23298), (645, 23358), (649, 23385), (678, 23475),

Gene: CathyBurgh\_58 Start: 52326, Stop: 50794, Start Num: 187

Candidate Starts for CathyBurgh\_58:

(105, 52581), (118, 52530), (137, 52479), (159, 52425), (166, 52395), (Start: 174 @52362 has 2 MA's), (178, 52353), (Start: 187 @52326 has 24 MA's), (250, 52158), (261, 52116), (284, 52068), (292, 52056), (300, 52044), (301, 52038), (309, 52017), (325, 51990), (372, 51849), (401, 51762), (404, 51747), (406, 51735), (415, 51705), (425, 51654), (435, 51627), (451, 51576), (457, 51552),

(461, 51534), (465, 51516), (471, 51513), (479, 51486), (491, 51444), (507, 51399), (558, 51264), (562, 51249), (569, 51228), (605, 51171), (611, 51147), (625, 51087), (626, 51081), (627, 51075), (628, 51069), (640, 51018), (645, 50994), (652, 50955), (656, 50943), (657, 50940), (689, 50847), (697, 50832), (708, 50811),

Gene: Cborch11\_63 Start: 46091, Stop: 48148, Start Num: 43

Candidate Starts for Cborch11\_63:

(Start: 43 @46091 has 59 MA's), (66, 46151), (67, 46154), (Start: 92 @46247 has 3 MA's), (95, 46259), (101, 46280), (137, 46403), (138, 46406), (144, 46415), (156, 46448), (162, 46469), (173, 46517), (189, 46559), (219, 46622), (229, 46643), (231, 46649), (249, 46703), (336, 46889), (339, 46901), (351, 46919), (366, 46934), (368, 46940), (451, 47258), (452, 47261), (462, 47306), (475, 47357), (478, 47369), (506, 47459), (510, 47471), (520, 47504), (541, 47528), (544, 47537), (577, 47627), (586, 47660), (616, 47771), (617, 47774), (618, 47777), (619, 47780), (628, 47816), (631, 47834), (646, 47900), (649, 47918), (710, 48095),

Gene: Cece\_97 Start: 81318, Stop: 79462, Start Num: 45

Candidate Starts for Cece\_97:

(Start: 45 @81318 has 1 MA's), (68, 81255), (91, 81186), (121, 81078), (170, 80991), (206, 80901), (Start: 220 @80868 has 1 MA's), (224, 80862), (247, 80790), (317, 80709), (321, 80703), (371, 80544), (412, 80400), (425, 80340), (432, 80310), (451, 80250), (453, 80241), (477, 80184), (478, 80178), (487, 80145), (491, 80133), (504, 80100), (521, 80040), (577, 79911), (579, 79908), (585, 79881), (602, 79839), (606, 79818), (627, 79731), (645, 79650), (653, 79608), (659, 79584), (677, 79527),

Gene: Charianelly\_57 Start: 52738, Stop: 51197, Start Num: 174

Candidate Starts for Charianelly\_57:

(105, 52957), (148, 52828), (Start: 174 @52738 has 2 MA's), (Start: 235 @52609 has 27 MA's), (250, 52564), (284, 52474), (285, 52471), (290, 52465), (301, 52444), (332, 52381), (359, 52303), (369, 52273), (372, 52255), (401, 52168), (404, 52153), (415, 52111), (436, 52030), (451, 51982), (461, 51940), (465, 51922), (471, 51919), (479, 51892), (494, 51841), (507, 51805), (522, 51754), (558, 51670), (563, 51649), (625, 51493), (626, 51487), (628, 51475), (656, 51349), (697, 51235),

Gene: Chelms\_59 Start: 52169, Stop: 50760, Start Num: 235

Candidate Starts for Chelms\_59:

(105, 52547), (118, 52496), (137, 52445), (159, 52391), (166, 52361), (Start: 174 @52328 has 2 MA's), (178, 52319), (Start: 187 @52292 has 24 MA's), (Start: 235 @52169 has 27 MA's), (250, 52124), (261, 52082), (284, 52034), (285, 52031), (290, 52025), (292, 52022), (300, 52010), (301, 52004), (325, 51956), (326, 51953), (369, 51833), (372, 51815), (390, 51752), (401, 51728), (404, 51713), (415, 51671), (425, 51620), (435, 51593), (451, 51542), (465, 51482), (471, 51479), (474, 51470), (479, 51452), (491, 51410), (507, 51365), (508, 51362), (558, 51230), (562, 51215), (569, 51194), (611, 51113), (612, 51110), (625, 51053), (626, 51047), (628, 51035), (640, 50984), (644, 50969), (645, 50960), (652, 50921), (656, 50909), (689, 50813), (697, 50798),

Gene: ChewChew\_25 Start: 20575, Stop: 21969, Start Num: 217

Candidate Starts for ChewChew\_25:

(Start: 217 @20575 has 72 MA's), (241, 20632), (293, 20737), (295, 20740), (338, 20824), (353, 20857), (371, 20908), (373, 20914), (398, 20995), (399, 20998), (401, 21004), (409, 21040), (414, 21058), (415, 21061), (420, 21094), (426, 21115), (473, 21247), (480, 21274), (493, 21313), (499, 21334), (500, 21340), (510, 21373), (515, 21388), (517, 21397), (538, 21442), (551, 21478), (563, 21520), (584, 21583), (591, 21601), (616, 21703), (617, 21706), (623, 21724), (624, 21727), (629, 21751), (630, 21760), (649, 21847), (678, 21937), (685, 21961),

Gene: ChewyVIII\_83 Start: 61890, Stop: 59662, Start Num: 31

Candidate Starts for ChewyVIII\_83:

(Start: 31 @61890 has 1 MA's), (115, 61581), (134, 61530), (154, 61485), (201, 61377), (229, 61323), (237, 61293), (246, 61269), (255, 61233), (263, 61212), (283, 61173), (286, 61167), (356, 60918), (381, 60777), (386, 60768), (401, 60735), (404, 60720), (418, 60666), (428, 60621), (432, 60597), (470, 60450), (473, 60432), (478, 60414), (488, 60378), (507, 60324), (513, 60306), (557, 60195), (568, 60153), (592, 60063), (617, 59958), (623, 59940), (643, 59853), (648, 59823), (649, 59814), (664, 59763), (671, 59739), (674, 59730), (683, 59706), (692, 59688),

Gene: Chill\_55 Start: 39836, Stop: 41779, Start Num: 43

Candidate Starts for Chill\_55:

(Start: 43 @39836 has 59 MA's), (59, 39863), (81, 39935), (93, 39989), (108, 40049), (112, 40067), (113, 40076), (133, 40127), (151, 40169), (168, 40205), (201, 40292), (240, 40385), (245, 40400), (251, 40421), (306, 40523), (322, 40556), (333, 40580), (368, 40640), (389, 40727), (412, 40802), (434, 40892), (451, 40943), (452, 40946), (473, 41036), (478, 41054), (487, 41087), (506, 41141), (510, 41153), (516, 41171), (550, 41234), (575, 41318), (611, 41435), (617, 41483), (632, 41546), (649, 41630),

Gene: Chivey\_40 Start: 25169, Stop: 27076, Start Num: 51

Candidate Starts for Chivey\_40:

(15, 24995), (Start: 51 @25169 has 32 MA's), (73, 25232), (85, 25253), (94, 25307), (137, 25442), (156, 25484), (177, 25529), (245, 25703), (248, 25712), (286, 25802), (307, 25844), (312, 25859), (380, 26045), (421, 26180), (424, 26192), (433, 26225), (478, 26354), (516, 26471), (612, 26744), (618, 26783), (631, 26843), (650, 26933), (659, 26963), (671, 27005), (692, 27056),

Gene: Cholula\_29 Start: 22153, Stop: 23553, Start Num: 217

Candidate Starts for Cholula\_29:

(Start: 217 @22153 has 72 MA's), (241, 22216), (293, 22321), (295, 22324), (338, 22408), (353, 22441), (371, 22492), (373, 22498), (398, 22579), (399, 22582), (401, 22588), (409, 22624), (414, 22642), (415, 22645), (426, 22699), (446, 22750), (473, 22831), (480, 22858), (490, 22888), (493, 22897), (500, 22924), (510, 22957), (515, 22972), (538, 23026), (546, 23047), (550, 23059), (554, 23071), (618, 23293), (621, 23302), (623, 23308), (630, 23344), (645, 23404), (649, 23431), (678, 23521),

Gene: Chridison\_26 Start: 21746, Stop: 23140, Start Num: 217

Candidate Starts for Chridison\_26:

(Start: 217 @21746 has 72 MA's), (241, 21803), (275, 21890), (293, 21908), (295, 21911), (338, 21995), (353, 22028), (371, 22079), (373, 22085), (387, 22145), (401, 22175), (409, 22211), (414, 22229), (426, 22286), (433, 22304), (435, 22310), (446, 22337), (473, 22418), (480, 22445), (487, 22469), (493, 22484), (500, 22511), (510, 22544), (515, 22559), (523, 22586), (576, 22727), (584, 22754), (587, 22766), (595, 22784), (607, 22826), (616, 22874), (618, 22880), (623, 22895), (624, 22898), (630, 22931), (645, 22991), (649, 23018), (666, 23075), (678, 23108), (685, 23132),

Gene: Christian\_25 Start: 20576, Stop: 21970, Start Num: 217

Candidate Starts for Christian\_25:

(Start: 217 @20576 has 72 MA's), (241, 20633), (293, 20738), (295, 20741), (338, 20825), (353, 20858), (373, 20915), (398, 20996), (399, 20999), (401, 21005), (409, 21041), (414, 21059), (415, 21062), (420, 21095), (426, 21116), (473, 21248), (480, 21275), (493, 21314), (499, 21335), (500, 21341), (510, 21374), (515, 21389), (517, 21398), (538, 21443), (551, 21479), (563, 21521), (584, 21584), (591, 21602), (616, 21704), (617, 21707), (623, 21725), (624, 21728), (629, 21752), (630, 21761), (649, 21848), (678, 21938), (685, 21962),

Gene: Cicada\_35 Start: 23458, Stop: 24885, Start Num: 223

Candidate Starts for Cicada\_35:

(Start: 223 @23458 has 12 MA's), (363, 23776), (372, 23815), (387, 23878), (404, 23923), (409, 23944), (435, 24043), (486, 24211), (500, 24259), (506, 24280), (515, 24307), (522, 24334), (538, 24364), (540, 24367), (541, 24370), (553, 24406), (579, 24484), (605, 24568), (611, 24586), (612, 24589), (630, 24676), (634, 24688), (644, 24727), (649, 24763), (652, 24769), (664, 24814), (673, 24844),

Gene: CinnamonToast\_65 Start: 53852, Stop: 52284, Start Num: 174

Candidate Starts for CinnamonToast\_65:

(105, 54071), (118, 54020), (148, 53942), (159, 53915), (166, 53885), (Start: 174 @53852 has 2 MA's), (178, 53843), (Start: 187 @53816 has 24 MA's), (250, 53648), (261, 53606), (271, 53588), (284, 53558), (292, 53546), (301, 53528), (325, 53480), (372, 53339), (401, 53252), (404, 53237), (406, 53225), (415, 53195), (425, 53144), (451, 53066), (457, 53042), (461, 53024), (465, 53006), (471, 53003), (474, 52994), (479, 52976), (507, 52889), (558, 52754), (562, 52739), (569, 52718), (605, 52661), (611, 52637), (612, 52634), (625, 52577), (626, 52571), (628, 52559), (640, 52508), (645, 52484), (652, 52445), (656, 52433), (657, 52430), (689, 52337), (697, 52322), (708, 52301),

Gene: CoffeeBean\_72 Start: 53090, Stop: 51054, Start Num: 29

Candidate Starts for CoffeeBean\_72:

(10, 53258), (Start: 29 @53090 has 6 MA's), (44, 53024), (61, 52982), (94, 52877), (154, 52697), (183, 52640), (201, 52589), (210, 52574), (245, 52484), (249, 52472), (286, 52379), (328, 52307), (368, 52238), (381, 52166), (404, 52109), (451, 51929), (456, 51905), (470, 51842), (478, 51806), (506, 51719), (557, 51587), (567, 51548), (568, 51545), (577, 51500), (617, 51353), (632, 51290), (643, 51248), (649, 51209), (658, 51185),

Gene: Commandaria\_72 Start: 56463, Stop: 54385, Start Num: 27

Candidate Starts for Commandaria\_72:

(Start: 27 @56463 has 31 MA's), (47, 56391), (86, 56277), (151, 56058), (154, 56049), (156, 56046), (201, 55941), (229, 55887), (249, 55824), (286, 55734), (325, 55671), (327, 55665), (379, 55533), (384, 55515), (451, 55260), (456, 55236), (478, 55134), (496, 55080), (501, 55065), (503, 55059), (525, 54984), (550, 54945), (568, 54876), (576, 54840), (577, 54837), (585, 54807), (602, 54765), (617, 54690), (632, 54627), (649, 54546), (674, 54462), (683, 54438),

Gene: CoolCookie\_40 Start: 25941, Stop: 27848, Start Num: 51

Candidate Starts for CoolCookie\_40:

(Start: 51 @25941 has 32 MA's), (73, 26004), (85, 26025), (94, 26079), (156, 26256), (177, 26301), (245, 26475), (248, 26484), (286, 26574), (312, 26631), (380, 26817), (421, 26952), (424, 26964), (433, 26997), (478, 27126), (516, 27243), (557, 27318), (617, 27552), (618, 27555), (631, 27615), (650, 27705), (659, 27735), (671, 27777), (692, 27828),

Gene: Crestdrop\_40 Start: 25203, Stop: 27110, Start Num: 51

Candidate Starts for Crestdrop\_40:

(15, 25029), (Start: 51 @25203 has 32 MA's), (73, 25266), (85, 25287), (94, 25341), (137, 25476), (156, 25518), (177, 25563), (245, 25737), (248, 25746), (286, 25836), (307, 25878), (312, 25893), (380, 26079), (421, 26214), (424, 26226), (433, 26259), (478, 26388), (516, 26505), (612, 26778), (618, 26817), (631, 26877), (650, 26967), (659, 26997), (671, 27039), (692, 27090),

Gene: CristinaYang\_25 Start: 20580, Stop: 21974, Start Num: 217

Candidate Starts for CristinaYang\_25:

(Start: 217 @20580 has 72 MA's), (241, 20637), (293, 20742), (295, 20745), (338, 20829), (353, 20862), (371, 20913), (373, 20919), (398, 21000), (399, 21003), (401, 21009), (409, 21045), (414, 21063), (415, 21066), (420, 21099), (426, 21120), (473, 21252), (480, 21279), (493, 21318), (499, 21339), (500, 21345), (510, 21378), (515, 21393), (517, 21402), (538, 21447), (551, 21483), (563, 21525), (584, 21588), (591, 21606), (616, 21708), (617, 21711), (623, 21729), (624, 21732), (629,

21756), (630, 21765), (649, 21852), (678, 21942), (685, 21966),

Gene: Crosby\_42 Start: 31144, Stop: 32538, Start Num: 225

Candidate Starts for Crosby\_42:

(Start: 225 @31144 has 12 MA's), (Start: 226 @31147 has 2 MA's), (250, 31222), (256, 31246), (260, 31252), (284, 31276), (293, 31291), (295, 31294), (333, 31366), (347, 31381), (361, 31417), (387, 31516), (412, 31594), (446, 31717), (486, 31852), (495, 31879), (500, 31900), (523, 31978), (541, 32011), (544, 32020), (556, 32062), (577, 32128), (579, 32131), (584, 32152), (591, 32170), (596, 32188), (612, 32242), (616, 32272), (630, 32329), (631, 32332), (644, 32380), (651, 32419), (656, 32434), (676, 32503), (681, 32521), (685, 32530),

Gene: Cruella\_72 Start: 52724, Stop: 50799, Start Num: 55

Candidate Starts for Cruella\_72:

(25, 52817), (Start: 55 @52724 has 8 MA's), (103, 52553), (115, 52499), (135, 52445), (201, 52295), (259, 52139), (286, 52088), (289, 52085), (367, 51956), (368, 51953), (381, 51881), (386, 51872), (478, 51515), (487, 51482), (557, 51296), (619, 51077), (623, 51065), (627, 51047), (632, 51020), (646, 50957), (655, 50924), (675, 50852),

Gene: Cuke\_73 Start: 42303, Stop: 44156, Start Num: 78

Candidate Starts for Cuke\_73:

(Start: 78 @42303 has 3 MA's), (109, 42423), (144, 42516), (156, 42549), (196, 42642), (198, 42651), (201, 42660), (216, 42690), (219, 42693), (240, 42750), (251, 42786), (254, 42798), (263, 42825), (277, 42849), (299, 42888), (322, 42942), (334, 42972), (339, 42990), (347, 43002), (401, 43143), (430, 43269), (447, 43326), (451, 43338), (478, 43440), (487, 43473), (492, 43488), (502, 43512), (503, 43515), (510, 43539), (521, 43578), (603, 43773), (617, 43863), (619, 43869), (627, 43899), (648, 43998), (663, 44058), (668, 44076), (672, 44088), (690, 44133), (695, 44139),

Gene: Cybele\_40 Start: 25911, Stop: 27818, Start Num: 51

Candidate Starts for Cybele\_40:

(Start: 51 @25911 has 32 MA's), (73, 25974), (85, 25995), (94, 26049), (156, 26226), (177, 26271), (245, 26445), (248, 26454), (286, 26544), (380, 26787), (421, 26922), (424, 26934), (433, 26967), (478, 27096), (516, 27213), (557, 27288), (617, 27522), (618, 27525), (631, 27585), (650, 27675), (659, 27705), (671, 27747), (692, 27798),

Gene: Daiboju\_26 Start: 21732, Stop: 23129, Start Num: 217

Candidate Starts for Daiboju\_26:

(Start: 217 @21732 has 72 MA's), (241, 21792), (275, 21879), (293, 21897), (295, 21900), (338, 21984), (341, 21990), (353, 22017), (371, 22068), (373, 22074), (382, 22125), (387, 22134), (398, 22155), (401, 22164), (409, 22200), (415, 22221), (420, 22254), (426, 22275), (433, 22293), (435, 22299), (446, 22326), (450, 22338), (454, 22353), (473, 22407), (487, 22458), (490, 22464), (493, 22473), (495, 22479), (500, 22500), (510, 22533), (515, 22548), (517, 22557), (563, 22680), (577, 22719), (584, 22743), (587, 22755), (616, 22863), (618, 22869), (621, 22878), (623, 22884), (630, 22920), (649, 23007), (678, 23097), (685, 23121),

Gene: Dakiti\_60 Start: 53037, Stop: 51628, Start Num: 235

Candidate Starts for Dakiti\_60:

(105, 53415), (118, 53364), (137, 53313), (159, 53259), (166, 53229), (Start: 174 @53196 has 2 MA's), (178, 53187), (Start: 187 @53160 has 24 MA's), (Start: 235 @53037 has 27 MA's), (250, 52992), (261, 52950), (284, 52902), (285, 52899), (290, 52893), (292, 52890), (300, 52878), (301, 52872), (325, 52824), (326, 52821), (369, 52701), (372, 52683), (390, 52620), (401, 52596), (404, 52581), (415, 52539), (425, 52488), (435, 52461), (451, 52410), (465, 52350), (471, 52347), (474, 52338), (479, 52320), (491, 52278), (507, 52233), (508, 52230), (558, 52098), (562, 52083), (569, 52062), (611, 51981), (612, 51978), (625, 51921), (626, 51915), (628, 51903), (640, 51852), (644,

51837), (645, 51828), (652, 51789), (656, 51777), (689, 51681), (697, 51666),

Gene: Dalilpop\_75 Start: 57466, Stop: 55409, Start Num: 27

Candidate Starts for Dalilpop\_75:

(Start: 27 @57466 has 31 MA's), (201, 56953), (229, 56899), (248, 56839), (249, 56836), (286, 56746), (298, 56728), (325, 56683), (327, 56677), (343, 56638), (372, 56584), (384, 56527), (426, 56380), (431, 56347), (440, 56317), (442, 56311), (451, 56284), (452, 56281), (478, 56161), (501, 56092), (506, 56074), (550, 55969), (553, 55960), (568, 55900), (577, 55861), (585, 55831), (604, 55774), (617, 55714), (626, 55684), (632, 55651), (643, 55609), (688, 55453),

Gene: Damien\_61 Start: 46053, Stop: 48110, Start Num: 43

Candidate Starts for Damien\_61:

(Start: 43 @46053 has 59 MA's), (66, 46113), (67, 46116), (Start: 92 @46209 has 3 MA's), (95, 46221), (101, 46242), (137, 46365), (138, 46368), (144, 46377), (156, 46410), (162, 46431), (173, 46479), (189, 46521), (219, 46584), (229, 46605), (231, 46611), (249, 46665), (336, 46851), (339, 46863), (351, 46881), (366, 46896), (368, 46902), (451, 47220), (452, 47223), (462, 47268), (475, 47319), (478, 47331), (506, 47421), (510, 47433), (520, 47466), (541, 47490), (544, 47499), (577, 47589), (586, 47622), (616, 47733), (617, 47736), (618, 47739), (619, 47742), (628, 47778), (631, 47796), (646, 47862), (649, 47880), (710, 48057),

Gene: Damp\_57 Start: 51773, Stop: 50361, Start Num: 235

Candidate Starts for Damp\_57:

(105, 52121), (148, 51992), (173, 51905), (Start: 174 @51902 has 2 MA's), (Start: 235 @51773 has 27 MA's), (250, 51728), (284, 51638), (285, 51635), (290, 51629), (301, 51608), (332, 51545), (369, 51437), (372, 51419), (401, 51332), (404, 51317), (415, 51275), (436, 51194), (451, 51146), (461, 51104), (465, 51086), (471, 51083), (479, 51056), (494, 51005), (507, 50969), (522, 50918), (558, 50834), (563, 50813), (625, 50657), (626, 50651), (628, 50639), (656, 50513), (697, 50399),

Gene: DannyDe\_40 Start: 25175, Stop: 27082, Start Num: 51

Candidate Starts for DannyDe\_40:

(15, 25001), (Start: 51 @25175 has 32 MA's), (73, 25238), (94, 25313), (137, 25448), (156, 25490), (177, 25535), (245, 25709), (248, 25718), (286, 25808), (307, 25850), (312, 25865), (380, 26051), (421, 26186), (424, 26198), (433, 26231), (478, 26360), (516, 26477), (612, 26750), (618, 26789), (631, 26849), (650, 26939), (659, 26969), (671, 27011), (692, 27062),

Gene: Darwin\_73 Start: 51965, Stop: 50040, Start Num: 55

Candidate Starts for Darwin\_73:

(25, 52058), (Start: 55 @51965 has 8 MA's), (103, 51794), (115, 51740), (201, 51536), (259, 51380), (286, 51329), (289, 51326), (313, 51284), (367, 51197), (368, 51194), (381, 51122), (386, 51113), (478, 50756), (487, 50723), (507, 50666), (604, 50384), (619, 50318), (623, 50306), (627, 50288), (628, 50282), (632, 50261), (646, 50198), (655, 50165), (665, 50126),

Gene: Dauntless\_39 Start: 25497, Stop: 27404, Start Num: 51

Candidate Starts for Dauntless\_39:

(15, 25323), (Start: 51 @25497 has 32 MA's), (73, 25560), (85, 25581), (94, 25635), (137, 25770), (149, 25797), (156, 25812), (177, 25857), (245, 26031), (248, 26040), (286, 26130), (307, 26172), (312, 26187), (380, 26373), (421, 26508), (424, 26520), (433, 26553), (478, 26682), (506, 26769), (516, 26799), (612, 27072), (618, 27111), (631, 27171), (650, 27261), (659, 27291), (671, 27333), (692, 27384),

Gene: DaviePasture\_60 Start: 40751, Stop: 42664, Start Num: 43

Candidate Starts for DaviePasture\_60:



(39, 40736), (Start: 42 @40748 has 11 MA's), (Start: 43 @40751 has 59 MA's), (Start: 57 @40763 has 1 MA's), (68, 40811), (96, 40913), (120, 41003), (132, 41030), (134, 41039), (168, 41111), (201, 41198), (219, 41231), (242, 41294), (249, 41312), (281, 41384), (294, 41411), (366, 41540), (371, 41564), (379, 41606), (399, 41654), (404, 41675), (409, 41696), (421, 41753), (426, 41771), (434, 41807), (447, 41849), (462, 41909), (487, 42005), (488, 42008), (583, 42236), (611, 42326), (617, 42362), (619, 42368), (631, 42422), (642, 42461), (665, 42563), (669, 42578), (677, 42599),

Gene: Delton\_54 Start: 40127, Stop: 42070, Start Num: 43

Candidate Starts for Delton\_54:

(28, 40058), (Start: 43 @40127 has 59 MA's), (59, 40154), (64, 40178), (81, 40226), (93, 40280), (108, 40340), (113, 40367), (133, 40418), (134, 40421), (151, 40460), (168, 40496), (201, 40583), (240, 40676), (245, 40691), (251, 40712), (306, 40814), (322, 40847), (333, 40871), (368, 40931), (389, 41018), (412, 41093), (434, 41183), (451, 41234), (452, 41237), (473, 41327), (478, 41345), (487, 41378), (506, 41432), (510, 41444), (516, 41462), (550, 41525), (575, 41609), (611, 41726), (617, 41774), (632, 41837), (649, 41921),

Gene: Demosthenes\_55 Start: 52768, Stop: 51074, Start Num: 127

Candidate Starts for Demosthenes\_55:

(Start: 123 @52780 has 6 MA's), (Start: 127 @52768 has 2 MA's), (163, 52669), (Start: 167 @52648 has 1 MA's), (193, 52582), (238, 52483), (250, 52447), (255, 52423), (257, 52414), (261, 52405), (284, 52357), (300, 52333), (318, 52291), (326, 52276), (332, 52261), (353, 52204), (354, 52201), (370, 52141), (371, 52138), (390, 52072), (393, 52069), (404, 52033), (405, 52030), (409, 52012), (411, 52003), (415, 51991), (424, 51943), (436, 51910), (443, 51886), (451, 51862), (457, 51838), (479, 51772), (507, 51673), (557, 51541), (558, 51538), (594, 51472), (611, 51421), (612, 51418), (625, 51361), (628, 51343), (652, 51226), (653, 51223), (657, 51211), (697, 51112), (708, 51091),

Gene: Diabla\_63 Start: 53692, Stop: 52283, Start Num: 235

Candidate Starts for Diabla\_63:

(105, 54070), (118, 54019), (159, 53914), (166, 53884), (Start: 174 @53851 has 2 MA's), (178, 53842), (Start: 187 @53815 has 24 MA's), (Start: 235 @53692 has 27 MA's), (250, 53647), (261, 53605), (284, 53557), (285, 53554), (290, 53548), (292, 53545), (301, 53527), (309, 53506), (325, 53479), (369, 53356), (372, 53338), (401, 53251), (404, 53236), (425, 53143), (451, 53065), (457, 53041), (465, 53005), (471, 53002), (479, 52975), (491, 52933), (507, 52888), (513, 52870), (543, 52804), (558, 52753), (562, 52738), (569, 52717), (605, 52660), (612, 52633), (625, 52576), (626, 52570), (628, 52558), (640, 52507), (645, 52483), (652, 52444), (656, 52432), (657, 52429), (689, 52336), (697, 52321), (708, 52300),

Gene: Djokovic\_50 Start: 36614, Stop: 38668, Start Num: 48

Candidate Starts for Djokovic\_50:

(Start: 48 @36614 has 13 MA's), (60, 36638), (83, 36701), (102, 36785), (110, 36827), (200, 37049), (219, 37085), (248, 37160), (257, 37199), (287, 37241), (299, 37259), (306, 37280), (311, 37292), (339, 37352), (348, 37367), (366, 37385), (381, 37463), (389, 37478), (392, 37481), (404, 37520), (409, 37541), (433, 37643), (451, 37700), (455, 37721), (456, 37724), (460, 37736), (473, 37784), (475, 37790), (488, 37838), (500, 37871), (507, 37895), (513, 37913), (521, 37943), (532, 38066), (541, 38099), (545, 38111), (550, 38126), (561, 38165), (575, 38210), (583, 38237), (609, 38321), (623, 38384), (631, 38426), (634, 38435), (636, 38444), (646, 38492), (648, 38501), (649, 38513), (655, 38528), (666, 38570),

Gene: DocB7\_048 Start: 43676, Stop: 42174, Start Num: 205

Candidate Starts for DocB7\_048:

(Start: 205 @43676 has 3 MA's), (241, 43580), (250, 43553), (257, 43520), (270, 43496), (284, 43466), (324, 43391), (355, 43310), (359, 43295), (388, 43184), (400, 43163), (409, 43124), (448, 42986), (451, 42974), (452, 42971), (457, 42950), (481, 42872), (507, 42812), (557, 42677), (558,

42674), (578, 42623), (590, 42602), (598, 42575), (613, 42509), (621, 42482), (624, 42473), (628, 42452), (636, 42416), (645, 42377), (659, 42311), (701, 42215),

Gene: DoobyDoo\_59 Start: 39773, Stop: 41686, Start Num: 43

Candidate Starts for DoobyDoo\_59:

(Start: 42 @39770 has 11 MA's), (Start: 43 @39773 has 59 MA's), (Start: 57 @39785 has 1 MA's), (68, 39833), (80, 39866), (96, 39935), (120, 40025), (132, 40052), (134, 40061), (168, 40133), (201, 40220), (219, 40253), (242, 40316), (281, 40406), (366, 40562), (371, 40586), (379, 40628), (399, 40676), (404, 40697), (409, 40718), (421, 40775), (434, 40829), (447, 40871), (462, 40931), (487, 41027), (488, 41030), (564, 41207), (583, 41258), (611, 41348), (617, 41384), (619, 41390), (628, 41426), (631, 41444), (642, 41483), (665, 41585), (669, 41600), (677, 41621),

Gene: DrLupo\_67 Start: 46291, Stop: 48255, Start Num: 41

Candidate Starts for DrLupo\_67:

(13, 46123), (20, 46198), (22, 46204), (Start: 41 @46291 has 1 MA's), (56, 46312), (Start: 57 @46318 has 1 MA's), (58, 46324), (66, 46357), (74, 46390), (90, 46438), (94, 46459), (101, 46486), (106, 46510), (125, 46573), (131, 46591), (137, 46609), (144, 46621), (156, 46654), (173, 46696), (183, 46717), (184, 46720), (189, 46738), (207, 46771), (209, 46777), (219, 46801), (Start: 220 @46804 has 1 MA's), (247, 46876), (351, 47095), (366, 47110), (381, 47188), (409, 47266), (426, 47341), (432, 47374), (473, 47536), (475, 47542), (510, 47668), (511, 47671), (544, 47707), (546, 47713), (577, 47797), (586, 47830), (616, 47941), (617, 47944), (620, 47953), (628, 47986), (632, 48007), (643, 48049), (658, 48112), (664, 48139), (698, 48223),

Gene: DrRobert\_25 Start: 20576, Stop: 21970, Start Num: 217

Candidate Starts for DrRobert\_25:

(Start: 217 @20576 has 72 MA's), (241, 20633), (293, 20738), (295, 20741), (338, 20825), (353, 20858), (371, 20909), (373, 20915), (398, 20996), (399, 20999), (401, 21005), (409, 21041), (414, 21059), (415, 21062), (420, 21095), (426, 21116), (473, 21248), (480, 21275), (493, 21314), (499, 21335), (500, 21341), (510, 21374), (515, 21389), (517, 21398), (538, 21443), (551, 21479), (563, 21521), (584, 21584), (591, 21602), (616, 21704), (617, 21707), (623, 21725), (624, 21728), (629, 21752), (630, 21761), (649, 21848), (678, 21938), (685, 21962),

Gene: DreamTeam\_25 Start: 20615, Stop: 22009, Start Num: 217

Candidate Starts for DreamTeam\_25:

(Start: 217 @20615 has 72 MA's), (241, 20672), (293, 20777), (295, 20780), (338, 20864), (353, 20897), (372, 20951), (373, 20954), (401, 21044), (409, 21080), (415, 21101), (420, 21134), (426, 21155), (473, 21287), (480, 21314), (493, 21353), (500, 21380), (510, 21413), (515, 21428), (517, 21437), (538, 21482), (551, 21518), (577, 21599), (584, 21623), (591, 21641), (595, 21653), (612, 21713), (614, 21737), (616, 21743), (617, 21746), (623, 21764), (624, 21767), (629, 21791), (630, 21800), (649, 21887), (664, 21938), (678, 21977),

Gene: Dryad\_74 Start: 51068, Stop: 49182, Start Num: 43

Candidate Starts for Dryad\_74:

(28, 51137), (33, 51128), (34, 51125), (Start: 43 @51068 has 59 MA's), (73, 50990), (Start: 77 @50981 has 1 MA's), (Start: 92 @50921 has 3 MA's), (97, 50900), (105, 50876), (124, 50813), (156, 50738), (168, 50714), (245, 50516), (248, 50507), (296, 50399), (368, 50243), (399, 50138), (411, 50087), (424, 50027), (450, 49940), (451, 49937), (463, 49883), (487, 49832), (490, 49823), (496, 49811), (506, 49778), (549, 49712), (556, 49685), (557, 49682), (586, 49583), (596, 49556), (618, 49466), (631, 49406), (634, 49397), (637, 49382), (649, 49322), (655, 49307), (665, 49268),

Gene: DumpTruck\_58 Start: 39261, Stop: 41165, Start Num: 57

Candidate Starts for DumpTruck\_58:

(16, 39126), (17, 39147), (19, 39168), (36, 39198), (Start: 42 @39243 has 11 MA's), (Start: 43 @39246 has 59 MA's), (Start: 57 @39261 has 1 MA's), (68, 39309), (80, 39342), (83, 39345), (106, 39450), (132, 39528), (134, 39537), (168, 39609), (173, 39624), (178, 39633), (216, 39726), (Start: 220 @39732 has 1 MA's), (242, 39792), (339, 40005), (366, 40038), (389, 40131), (397, 40146), (404, 40173), (409, 40194), (434, 40308), (447, 40350), (450, 40359), (460, 40398), (462, 40410), (473, 40455), (475, 40461), (487, 40506), (492, 40521), (545, 40614), (575, 40707), (617, 40860), (628, 40902), (631, 40920), (632, 40923), (665, 41061), (677, 41097), (703, 41151),

Gene: DunneganBoMo\_94 Start: 76558, Stop: 78402, Start Num: 49

Candidate Starts for DunneganBoMo\_94:

(Start: 49 @76558 has 2 MA's), (130, 76831), (Start: 187 @76939 has 24 MA's), (214, 77005), (240, 77074), (243, 77083), (323, 77158), (415, 77467), (423, 77512), (433, 77551), (439, 77572), (453, 77617), (477, 77674), (478, 77680), (487, 77713), (491, 77725), (497, 77737), (535, 77854), (537, 77860), (576, 77950), (585, 77983), (612, 78067), (632, 78160), (638, 78184), (680, 78352), (682, 78355),

Gene: Edmundo\_94 Start: 55295, Stop: 56959, Start Num: 169

Candidate Starts for Edmundo\_94:

(Start: 169 @55295 has 8 MA's), (190, 55358), (196, 55367), (231, 55454), (244, 55499), (304, 55619), (353, 55712), (360, 55736), (365, 55748), (375, 55802), (390, 55853), (402, 55889), (407, 55916), (413, 55937), (415, 55943), (422, 55985), (459, 56102), (484, 56180), (490, 56198), (505, 56249), (515, 56282), (524, 56315), (550, 56372), (557, 56399), (568, 56441), (591, 56522), (600, 56552), (605, 56570), (612, 56597), (615, 56624), (634, 56699), (641, 56726), (644, 56738), (659, 56807), (661, 56816), (662, 56819), (672, 56852), (686, 56888), (695, 56903), (704, 56918), (709, 56939),

Gene: Ekhein\_59 Start: 51454, Stop: 49922, Start Num: 187

Candidate Starts for Ekhein\_59:

(105, 51709), (118, 51658), (137, 51607), (159, 51553), (166, 51523), (Start: 174 @51490 has 2 MA's), (178, 51481), (Start: 187 @51454 has 24 MA's), (250, 51286), (261, 51244), (284, 51196), (292, 51184), (300, 51172), (301, 51166), (309, 51145), (325, 51118), (372, 50977), (401, 50890), (404, 50875), (406, 50863), (415, 50833), (425, 50782), (435, 50755), (451, 50704), (461, 50662), (465, 50644), (471, 50641), (479, 50614), (491, 50572), (507, 50527), (558, 50392), (562, 50377), (569, 50356), (605, 50299), (611, 50275), (612, 50272), (625, 50215), (626, 50209), (627, 50203), (628, 50197), (640, 50146), (645, 50122), (652, 50083), (656, 50071), (657, 50068), (689, 49975), (697, 49960), (708, 49939),

Gene: Emianna\_72 Start: 56707, Stop: 54641, Start Num: 27

Candidate Starts for Emianna\_72:

(1, 57205), (4, 57004), (6, 56911), (7, 56899), (9, 56881), (Start: 27 @56707 has 31 MA's), (Start: 69 @56569 has 2 MA's), (75, 56545), (134, 56341), (154, 56296), (201, 56188), (248, 56074), (249, 56071), (286, 55981), (289, 55978), (325, 55918), (379, 55780), (384, 55762), (397, 55738), (426, 55615), (451, 55510), (478, 55384), (496, 55330), (547, 55204), (550, 55195), (556, 55171), (575, 55099), (577, 55093), (585, 55063), (604, 55006), (617, 54946), (632, 54883), (649, 54802),

Gene: Ennea\_79 Start: 57918, Stop: 55861, Start Num: 27

Candidate Starts for Ennea\_79:

(5, 58206), (8, 58098), (Start: 27 @57918 has 31 MA's), (144, 57543), (207, 57402), (229, 57351), (248, 57291), (249, 57288), (278, 57216), (286, 57198), (325, 57135), (327, 57129), (337, 57102), (372, 57036), (379, 56997), (384, 56979), (397, 56955), (426, 56832), (431, 56799), (451, 56736), (478, 56613), (501, 56544), (506, 56526), (550, 56421), (553, 56412), (568, 56352), (575, 56319), (577, 56313), (585, 56283), (604, 56226), (617, 56166), (626, 56136), (632, 56103), (674, 55938),

Gene: Erk16\_52 Start: 39875, Stop: 41818, Start Num: 43

Candidate Starts for Erk16\_52:

(32, 39812), (Start: 43 @39875 has 59 MA's), (59, 39902), (81, 39974), (93, 40028), (108, 40088), (113, 40115), (133, 40166), (151, 40208), (168, 40244), (201, 40331), (240, 40424), (245, 40439), (251, 40460), (306, 40562), (322, 40595), (333, 40619), (368, 40679), (389, 40766), (412, 40841), (434, 40931), (451, 40982), (452, 40985), (473, 41075), (478, 41093), (487, 41126), (510, 41192), (516, 41210), (550, 41273), (575, 41357), (611, 41474), (617, 41522), (632, 41585), (649, 41669),

Gene: Erudite\_39 Start: 25497, Stop: 27404, Start Num: 51

Candidate Starts for Erudite\_39:

(15, 25323), (Start: 51 @25497 has 32 MA's), (73, 25560), (85, 25581), (94, 25635), (137, 25770), (149, 25797), (156, 25812), (177, 25857), (245, 26031), (248, 26040), (286, 26130), (307, 26172), (312, 26187), (380, 26373), (421, 26508), (424, 26520), (433, 26553), (478, 26682), (506, 26769), (516, 26799), (612, 27072), (618, 27111), (631, 27171), (650, 27261), (659, 27291), (671, 27333), (692, 27384),

Gene: Erutan\_60 Start: 40423, Stop: 42336, Start Num: 43

Candidate Starts for Erutan\_60:

(17, 40297), (18, 40306), (19, 40318), (26, 40351), (Start: 42 @40420 has 11 MA's), (Start: 43 @40423 has 59 MA's), (Start: 57 @40435 has 1 MA's), (68, 40483), (80, 40516), (120, 40675), (132, 40702), (134, 40711), (168, 40783), (201, 40870), (219, 40903), (242, 40966), (281, 41056), (294, 41083), (366, 41212), (371, 41236), (379, 41278), (399, 41326), (404, 41347), (409, 41368), (421, 41425), (434, 41479), (447, 41521), (462, 41581), (487, 41677), (488, 41680), (583, 41908), (611, 41998), (617, 42034), (619, 42040), (631, 42094), (642, 42133), (665, 42235), (669, 42250), (677, 42271),

Gene: EstebanJulior\_26 Start: 21743, Stop: 23140, Start Num: 217

Candidate Starts for EstebanJulior\_26:

(Start: 217 @21743 has 72 MA's), (241, 21803), (293, 21908), (295, 21911), (338, 21995), (353, 22028), (371, 22079), (373, 22085), (398, 22166), (401, 22175), (409, 22211), (414, 22229), (415, 22232), (420, 22265), (426, 22286), (473, 22418), (490, 22475), (493, 22484), (499, 22505), (500, 22511), (510, 22544), (515, 22559), (541, 22619), (551, 22649), (577, 22730), (591, 22772), (603, 22805), (614, 22868), (617, 22877), (621, 22889), (623, 22895), (627, 22910), (629, 22922), (630, 22931), (649, 23018), (666, 23075), (678, 23108),

Gene: Eunoia\_26 Start: 21745, Stop: 23139, Start Num: 217

Candidate Starts for Eunoia\_26:

(Start: 217 @21745 has 72 MA's), (241, 21802), (275, 21889), (293, 21907), (295, 21910), (338, 21994), (353, 22027), (371, 22078), (373, 22084), (387, 22144), (401, 22174), (409, 22210), (414, 22228), (426, 22285), (433, 22303), (435, 22309), (446, 22336), (473, 22417), (480, 22444), (487, 22468), (493, 22483), (500, 22510), (510, 22543), (515, 22558), (563, 22690), (576, 22726), (584, 22753), (587, 22765), (595, 22783), (616, 22873), (618, 22879), (623, 22894), (624, 22897), (630, 22930), (645, 22990), (649, 23017), (666, 23074), (678, 23107), (685, 23131),

Gene: Exiguo\_58 Start: 51466, Stop: 49934, Start Num: 187

Candidate Starts for Exiguo\_58:

(105, 51721), (118, 51670), (137, 51619), (159, 51565), (166, 51535), (Start: 174 @51502 has 2 MA's), (178, 51493), (Start: 187 @51466 has 24 MA's), (250, 51298), (261, 51256), (284, 51208), (292, 51196), (300, 51184), (301, 51178), (309, 51157), (325, 51130), (372, 50989), (401, 50902), (404, 50887), (406, 50875), (415, 50845), (425, 50794), (435, 50767), (451, 50716), (461, 50674), (465, 50656), (471, 50653), (479, 50626), (491, 50584), (507, 50539), (558, 50404), (562, 50389), (569, 50368), (605, 50311), (611, 50287), (612, 50284), (625, 50227), (626, 50221), (627, 50215), (628, 50209), (640, 50158), (645, 50134), (652, 50095), (656, 50083), (657, 50080), (689, 49987),

(697, 49972), (708, 49951),

Gene: FelixAlejandro\_64 Start: 54160, Stop: 52628, Start Num: 187

Candidate Starts for FelixAlejandro\_64:

(105, 54415), (118, 54364), (159, 54259), (166, 54229), (Start: 174 @54196 has 2 MA's), (178, 54187), (Start: 187 @54160 has 24 MA's), (238, 54028), (250, 53992), (261, 53950), (271, 53932), (284, 53902), (292, 53890), (300, 53878), (301, 53872), (309, 53851), (372, 53683), (401, 53596), (404, 53581), (406, 53569), (415, 53539), (425, 53488), (451, 53410), (457, 53386), (461, 53368), (465, 53350), (471, 53347), (474, 53338), (479, 53320), (507, 53233), (558, 53098), (562, 53083), (569, 53062), (611, 52981), (612, 52978), (625, 52921), (626, 52915), (628, 52903), (640, 52852), (645, 52828), (652, 52789), (656, 52777), (657, 52774), (689, 52681), (697, 52666), (708, 52645),

Gene: FireCastle\_33 Start: 23203, Stop: 24633, Start Num: 220

Candidate Starts for FireCastle\_33:

(188, 23134), (Start: 220 @23203 has 1 MA's), (Start: 223 @23206 has 12 MA's), (363, 23524), (372, 23563), (375, 23584), (404, 23671), (409, 23692), (500, 24007), (506, 24028), (515, 24055), (522, 24082), (523, 24085), (538, 24112), (541, 24118), (553, 24154), (571, 24202), (579, 24232), (605, 24316), (612, 24337), (624, 24391), (628, 24409), (630, 24424), (634, 24436), (644, 24475), (649, 24511), (652, 24517), (656, 24529), (673, 24592), (687, 24628),

Gene: Flakey\_58 Start: 52330, Stop: 50798, Start Num: 187

Candidate Starts for Flakey\_58:

(105, 52585), (118, 52534), (137, 52483), (159, 52429), (166, 52399), (Start: 174 @52366 has 2 MA's), (178, 52357), (Start: 187 @52330 has 24 MA's), (250, 52162), (261, 52120), (284, 52072), (292, 52060), (300, 52048), (301, 52042), (309, 52021), (325, 51994), (372, 51853), (401, 51766), (404, 51751), (406, 51739), (415, 51709), (425, 51658), (435, 51631), (451, 51580), (461, 51538), (465, 51520), (471, 51517), (479, 51490), (491, 51448), (507, 51403), (558, 51268), (562, 51253), (569, 51232), (605, 51175), (611, 51151), (612, 51148), (625, 51091), (626, 51085), (627, 51079), (628, 51073), (640, 51022), (645, 50998), (652, 50959), (656, 50947), (657, 50944), (689, 50851), (697, 50836), (708, 50815),

Gene: Flapper\_75 Start: 57019, Stop: 54962, Start Num: 27

Candidate Starts for Flapper\_75:

(5, 57304), (9, 57187), (12, 57169), (Start: 27 @57019 has 31 MA's), (94, 56794), (201, 56506), (229, 56452), (240, 56416), (248, 56392), (249, 56389), (282, 56311), (286, 56299), (298, 56281), (325, 56236), (327, 56230), (343, 56191), (372, 56137), (379, 56098), (384, 56080), (426, 55933), (431, 55900), (440, 55870), (442, 55864), (451, 55837), (478, 55714), (501, 55645), (506, 55627), (550, 55522), (553, 55513), (557, 55495), (568, 55453), (577, 55414), (585, 55384), (593, 55366), (604, 55327), (617, 55267), (626, 55237), (632, 55204), (643, 55162), (688, 55006),

Gene: Float294\_74 Start: 57824, Stop: 55767, Start Num: 27

Candidate Starts for Float294\_74:

(8, 58004), (Start: 27 @57824 has 31 MA's), (144, 57449), (189, 57341), (207, 57308), (229, 57257), (248, 57197), (249, 57194), (278, 57122), (286, 57104), (325, 57041), (327, 57035), (337, 57008), (372, 56942), (379, 56903), (384, 56885), (397, 56861), (426, 56738), (431, 56705), (451, 56642), (478, 56519), (501, 56450), (506, 56432), (550, 56327), (568, 56258), (577, 56219), (584, 56195), (585, 56189), (604, 56132), (617, 56072), (626, 56042), (632, 56009), (674, 55844),

Gene: Fluke\_29 Start: 22148, Stop: 23548, Start Num: 217

Candidate Starts for Fluke\_29:

(Start: 217 @22148 has 72 MA's), (241, 22211), (293, 22316), (295, 22319), (338, 22403), (353, 22436), (371, 22487), (373, 22493), (398, 22574), (399, 22577), (401, 22583), (409, 22619), (414, 22637), (415, 22640), (420, 22673), (426, 22694), (433, 22712), (446, 22745), (473, 22826), (480,

22853), (490, 22883), (493, 22892), (500, 22919), (510, 22952), (515, 22967), (538, 23021), (546, 23042), (550, 23054), (554, 23066), (618, 23288), (621, 23297), (623, 23303), (630, 23339), (645, 23399), (649, 23426), (678, 23516),

Gene: Forza\_170 Start: 96758, Stop: 94848, Start Num: 48

Candidate Starts for Forza\_170:

(Start: 48 @96758 has 13 MA's), (110, 96554), (128, 96506), (150, 96461), (173, 96380), (180, 96368), (Start: 220 @96263 has 1 MA's), (231, 96236), (317, 96131), (329, 96107), (375, 95942), (451, 95675), (453, 95666), (460, 95639), (487, 95570), (557, 95321), (583, 95255), (592, 95231), (627, 95096), (641, 95036), (656, 94964),

Gene: Fowlmouth\_74 Start: 44820, Stop: 46667, Start Num: 78

Candidate Starts for Fowlmouth\_74:

(Start: 78 @44820 has 3 MA's), (87, 44838), (Start: 92 @44874 has 3 MA's), (104, 44925), (144, 45033), (156, 45066), (183, 45126), (198, 45168), (216, 45207), (251, 45303), (254, 45315), (263, 45342), (273, 45357), (277, 45366), (299, 45405), (305, 45420), (339, 45507), (347, 45519), (381, 45618), (384, 45624), (397, 45648), (412, 45708), (430, 45786), (438, 45813), (447, 45843), (451, 45855), (456, 45879), (477, 45951), (478, 45957), (487, 45990), (492, 46005), (502, 46029), (503, 46032), (510, 46056), (617, 46380), (620, 46389), (627, 46416), (631, 46440), (643, 46485), (649, 46527), (663, 46575), (668, 46593), (690, 46650),

Gene: Foxboro\_72 Start: 56919, Stop: 54853, Start Num: 27

Candidate Starts for Foxboro\_72:

(6, 57123), (7, 57111), (9, 57093), (Start: 27 @56919 has 31 MA's), (Start: 69 @56781 has 2 MA's), (75, 56757), (134, 56553), (154, 56508), (201, 56400), (248, 56286), (249, 56283), (286, 56193), (289, 56190), (325, 56130), (379, 55992), (384, 55974), (397, 55950), (426, 55827), (451, 55722), (478, 55596), (496, 55542), (547, 55416), (550, 55407), (556, 55383), (575, 55311), (577, 55305), (585, 55275), (604, 55218), (617, 55158), (632, 55095), (649, 55014),

Gene: FreddieHg\_40 Start: 25185, Stop: 27092, Start Num: 51

Candidate Starts for FreddieHg\_40:

(15, 25011), (Start: 51 @25185 has 32 MA's), (73, 25248), (85, 25269), (94, 25323), (137, 25458), (156, 25500), (177, 25545), (245, 25719), (248, 25728), (286, 25818), (307, 25860), (312, 25875), (380, 26061), (421, 26196), (424, 26208), (433, 26241), (478, 26370), (516, 26487), (612, 26760), (618, 26799), (631, 26859), (650, 26949), (659, 26979), (671, 27021), (692, 27072),

Gene: Frizzle\_36 Start: 32091, Stop: 30688, Start Num: 226

Candidate Starts for Frizzle\_36:

(140, 32331), (143, 32328), (175, 32217), (Start: 226 @32091 has 2 MA's), (250, 32016), (256, 31992), (257, 31989), (284, 31959), (285, 31956), (345, 31845), (372, 31770), (373, 31767), (375, 31749), (382, 31716), (383, 31713), (398, 31686), (404, 31662), (410, 31635), (446, 31509), (447, 31506), (486, 31383), (487, 31380), (497, 31350), (498, 31347), (521, 31263), (544, 31218), (591, 31071), (602, 31041), (603, 31038), (652, 30819), (659, 30777),

Gene: Fulcrum\_60 Start: 40439, Stop: 42352, Start Num: 43

Candidate Starts for Fulcrum\_60:

(17, 40313), (18, 40322), (19, 40334), (26, 40367), (Start: 42 @40436 has 11 MA's), (Start: 43 @40439 has 59 MA's), (Start: 57 @40451 has 1 MA's), (68, 40499), (80, 40532), (96, 40601), (120, 40691), (132, 40718), (134, 40727), (168, 40799), (219, 40919), (242, 40982), (281, 41072), (294, 41099), (366, 41228), (371, 41252), (379, 41294), (389, 41321), (399, 41342), (404, 41363), (409, 41384), (421, 41441), (426, 41459), (434, 41495), (447, 41537), (462, 41597), (487, 41693), (488, 41696), (583, 41924), (611, 42014), (617, 42050), (619, 42056), (631, 42110), (642, 42149), (665, 42251), (669, 42266), (677, 42287),

Gene: Fury\_82 Start: 56141, Stop: 54093, Start Num: 27

Candidate Starts for Fury\_82:

(Start: 27 @56141 has 31 MA's), (71, 55988), (82, 55973), (101, 55892), (144, 55769), (154, 55739), (201, 55631), (219, 55598), (237, 55547), (249, 55514), (286, 55424), (305, 55391), (325, 55361), (367, 55286), (384, 55205), (404, 55154), (426, 55058), (431, 55025), (442, 54989), (451, 54962), (477, 54845), (478, 54839), (501, 54770), (506, 54752), (510, 54740), (568, 54578), (577, 54545), (585, 54515), (592, 54500), (604, 54458), (632, 54335), (649, 54254), (658, 54230), (674, 54170),

Gene: GMA2\_64 Start: 67776, Stop: 65812, Start Num: 49

Candidate Starts for GMA2\_64:

(Start: 49 @67776 has 2 MA's), (91, 67644), (173, 67386), (Start: 220 @67269 has 1 MA's), (224, 67263), (231, 67242), (245, 67197), (317, 67137), (329, 67113), (342, 67077), (362, 67011), (371, 66972), (382, 66918), (404, 66864), (450, 66684), (453, 66672), (487, 66576), (495, 66558), (508, 66504), (541, 66342), (592, 66198), (619, 66093), (632, 66036), (641, 66003), (677, 65859),

Gene: GMA3\_58 Start: 50868, Stop: 49351, Start Num: 205

Candidate Starts for GMA3\_58:

(116, 51117), (119, 51111), (147, 51039), (Start: 205 @50868 has 3 MA's), (241, 50772), (250, 50745), (255, 50727), (257, 50718), (272, 50691), (284, 50673), (301, 50643), (310, 50613), (324, 50592), (332, 50571), (359, 50493), (369, 50463), (371, 50448), (374, 50427), (405, 50334), (414, 50298), (425, 50244), (451, 50166), (471, 50103), (479, 50076), (482, 50061), (485, 50052), (511, 49989), (522, 49950), (551, 49890), (556, 49869), (557, 49866), (558, 49863), (572, 49815), (617, 49653), (628, 49611), (639, 49563), (652, 49497), (656, 49485),

Gene: GMA7\_51 Start: 46927, Stop: 45296, Start Num: 139

Candidate Starts for GMA7\_51:

(Start: 139 @46927 has 3 MA's), (145, 46915), (164, 46864), (165, 46858), (184, 46801), (250, 46660), (261, 46618), (267, 46606), (284, 46570), (285, 46567), (301, 46540), (318, 46504), (325, 46492), (332, 46477), (369, 46369), (401, 46264), (404, 46249), (436, 46126), (451, 46078), (457, 46054), (461, 46036), (479, 45988), (494, 45937), (507, 45901), (513, 45883), (558, 45766), (573, 45715), (605, 45673), (617, 45613), (628, 45571), (640, 45520), (645, 45496), (697, 45334), (708, 45313),

Gene: GOATification\_60 Start: 40439, Stop: 42352, Start Num: 43

Candidate Starts for GOATification\_60:

(17, 40313), (18, 40322), (19, 40334), (26, 40367), (Start: 42 @40436 has 11 MA's), (Start: 43 @40439 has 59 MA's), (Start: 57 @40451 has 1 MA's), (68, 40499), (80, 40532), (96, 40601), (120, 40691), (132, 40718), (134, 40727), (168, 40799), (219, 40919), (242, 40982), (281, 41072), (294, 41099), (366, 41228), (371, 41252), (379, 41294), (389, 41321), (399, 41342), (404, 41363), (409, 41384), (421, 41441), (426, 41459), (434, 41495), (447, 41537), (462, 41597), (487, 41693), (488, 41696), (583, 41924), (611, 42014), (617, 42050), (619, 42056), (631, 42110), (642, 42149), (665, 42251), (669, 42266), (677, 42287),

Gene: GRU1\_61 Start: 48864, Stop: 46807, Start Num: 27

Candidate Starts for GRU1\_61:

(9, 49032), (Start: 27 @48864 has 31 MA's), (183, 48402), (201, 48351), (248, 48237), (249, 48234), (282, 48156), (286, 48144), (298, 48126), (325, 48081), (327, 48075), (343, 48036), (372, 47982), (379, 47943), (384, 47925), (426, 47778), (431, 47745), (442, 47709), (451, 47682), (478, 47559), (501, 47490), (506, 47472), (513, 47451), (550, 47367), (568, 47298), (577, 47259), (585, 47229), (604, 47172), (617, 47112), (626, 47082), (632, 47049), (643, 47007), (688, 46851),

Gene: GTE5\_60 Start: 49067, Stop: 47640, Start Num: 249

Candidate Starts for GTE5\_60:

(5, 49982), (9, 49865), (12, 49847), (Start: 27 @49697 has 31 MA's), (94, 49472), (201, 49184), (229, 49130), (240, 49094), (249, 49067), (282, 48989), (286, 48977), (298, 48959), (325, 48914), (327, 48908), (343, 48869), (372, 48815), (379, 48776), (384, 48758), (426, 48611), (431, 48578), (440, 48548), (442, 48542), (451, 48515), (478, 48392), (501, 48323), (506, 48305), (550, 48200), (553, 48191), (557, 48173), (568, 48131), (577, 48092), (585, 48062), (604, 48005), (617, 47945), (626, 47915), (632, 47882), (643, 47840), (688, 47684),

Gene: GTE7\_50 Start: 46958, Stop: 45327, Start Num: 139

Candidate Starts for GTE7\_50:

(Start: 139 @46958 has 3 MA's), (145, 46946), (164, 46895), (165, 46889), (184, 46832), (250, 46691), (261, 46649), (267, 46637), (284, 46601), (285, 46598), (301, 46571), (325, 46523), (332, 46508), (369, 46400), (401, 46295), (404, 46280), (436, 46157), (451, 46109), (457, 46085), (461, 46067), (479, 46019), (494, 45968), (507, 45932), (513, 45914), (558, 45797), (573, 45746), (605, 45704), (617, 45644), (628, 45602), (640, 45551), (645, 45527), (697, 45365), (708, 45344),

Gene: GTE8\_60 Start: 49561, Stop: 47633, Start Num: 69

Candidate Starts for GTE8\_60:

(6, 49903), (9, 49873), (14, 49798), (Start: 27 @49699 has 31 MA's), (Start: 69 @49561 has 2 MA's), (75, 49537), (154, 49288), (201, 49180), (248, 49066), (249, 49063), (286, 48973), (289, 48970), (325, 48910), (384, 48754), (389, 48745), (397, 48730), (426, 48607), (451, 48502), (456, 48478), (478, 48376), (496, 48322), (503, 48301), (550, 48187), (575, 48091), (577, 48085), (585, 48055), (600, 48016), (604, 47998), (617, 47938), (632, 47875), (649, 47794), (674, 47710),

Gene: GalacticEye\_57 Start: 52570, Stop: 51158, Start Num: 235

Candidate Starts for GalacticEye\_57:

(105, 52918), (148, 52789), (173, 52702), (Start: 174 @52699 has 2 MA's), (Start: 235 @52570 has 27 MA's), (250, 52525), (284, 52435), (285, 52432), (290, 52426), (301, 52405), (332, 52342), (369, 52234), (372, 52216), (401, 52129), (404, 52114), (415, 52072), (436, 51991), (451, 51943), (461, 51901), (465, 51883), (471, 51880), (479, 51853), (494, 51802), (507, 51766), (522, 51715), (558, 51631), (563, 51610), (625, 51454), (626, 51448), (628, 51436), (656, 51310), (697, 51196),

Gene: Genamy16\_63 Start: 39814, Stop: 41730, Start Num: 42

Candidate Starts for Genamy16\_63:

(Start: 42 @39814 has 11 MA's), (Start: 43 @39817 has 59 MA's), (Start: 57 @39829 has 1 MA's), (68, 39877), (80, 39910), (113, 40051), (120, 40069), (132, 40096), (134, 40105), (168, 40177), (219, 40297), (242, 40360), (281, 40450), (294, 40477), (366, 40606), (371, 40630), (379, 40672), (381, 40684), (389, 40699), (399, 40720), (404, 40741), (409, 40762), (421, 40819), (426, 40837), (434, 40873), (447, 40915), (462, 40975), (487, 41071), (488, 41074), (564, 41251), (583, 41302), (611, 41392), (617, 41428), (619, 41434), (631, 41488), (642, 41527), (665, 41629), (669, 41644), (677, 41665),

Gene: Ghobes\_35 Start: 32092, Stop: 30689, Start Num: 226

Candidate Starts for Ghobes\_35:

(140, 32332), (143, 32329), (175, 32218), (Start: 226 @32092 has 2 MA's), (250, 32017), (256, 31993), (257, 31990), (284, 31960), (285, 31957), (345, 31846), (372, 31771), (373, 31768), (382, 31717), (383, 31714), (398, 31687), (404, 31663), (410, 31636), (446, 31510), (447, 31507), (486, 31384), (487, 31381), (497, 31351), (498, 31348), (521, 31264), (544, 31219), (576, 31117), (591, 31072), (602, 31042), (603, 31039), (624, 30946), (627, 30934), (652, 30820), (659, 30778),

Gene: Gibbin\_62 Start: 41245, Stop: 43161, Start Num: 42

Candidate Starts for Gibbin\_62:



(17, 41122), (18, 41131), (19, 41143), (26, 41176), (39, 41233), (Start: 42 @41245 has 11 MA's), (Start: 43 @41248 has 59 MA's), (Start: 57 @41260 has 1 MA's), (68, 41308), (80, 41341), (96, 41410), (120, 41500), (132, 41527), (134, 41536), (168, 41608), (201, 41695), (219, 41728), (242, 41791), (281, 41881), (366, 42037), (371, 42061), (379, 42103), (399, 42151), (404, 42172), (409, 42193), (421, 42250), (426, 42268), (434, 42304), (447, 42346), (462, 42406), (487, 42502), (488, 42505), (583, 42733), (611, 42823), (617, 42859), (619, 42865), (631, 42919), (642, 42958), (665, 43060), (669, 43075), (677, 43096),

Gene: Gibbles\_56 Start: 50443, Stop: 48953, Start Num: 202

Candidate Starts for Gibbles\_56:

(Start: 202 @50443 has 5 MA's), (238, 50350), (241, 50341), (245, 50329), (250, 50314), (255, 50296), (285, 50239), (315, 50167), (316, 50164), (352, 50071), (364, 50038), (370, 50005), (371, 50002), (374, 49981), (401, 49912), (409, 49876), (431, 49789), (447, 49738), (451, 49726), (452, 49723), (460, 49693), (482, 49621), (485, 49612), (541, 49489), (543, 49483), (612, 49309), (621, 49264), (628, 49234), (702, 48982),

Gene: Gibson\_70 Start: 50318, Stop: 48432, Start Num: 43

Candidate Starts for Gibson\_70:

(Start: 43 @50318 has 59 MA's), (56, 50303), (73, 50240), (Start: 77 @50231 has 1 MA's), (105, 50126), (114, 50087), (124, 50063), (156, 49988), (168, 49964), (232, 49805), (245, 49766), (248, 49757), (296, 49649), (347, 49541), (399, 49388), (411, 49337), (424, 49277), (450, 49190), (451, 49187), (487, 49082), (490, 49073), (496, 49061), (549, 48962), (583, 48845), (586, 48833), (596, 48806), (618, 48716), (623, 48701), (634, 48647), (646, 48590), (677, 48482), (683, 48464),

Gene: Gilda\_40 Start: 25935, Stop: 27842, Start Num: 51

Candidate Starts for Gilda\_40:

(Start: 51 @25935 has 32 MA's), (73, 25998), (85, 26019), (94, 26073), (156, 26250), (177, 26295), (245, 26469), (248, 26478), (286, 26568), (312, 26625), (380, 26811), (421, 26946), (424, 26958), (433, 26991), (478, 27120), (516, 27237), (557, 27312), (617, 27546), (618, 27549), (631, 27609), (650, 27699), (659, 27729), (671, 27771), (692, 27822),

Gene: Gisselle\_25 Start: 20615, Stop: 22009, Start Num: 217

Candidate Starts for Gisselle\_25:

(Start: 217 @20615 has 72 MA's), (241, 20672), (293, 20777), (295, 20780), (338, 20864), (353, 20897), (372, 20951), (373, 20954), (401, 21044), (409, 21080), (415, 21101), (420, 21134), (426, 21155), (473, 21287), (480, 21314), (493, 21353), (500, 21380), (510, 21413), (515, 21428), (517, 21437), (538, 21482), (551, 21518), (577, 21599), (584, 21623), (591, 21641), (595, 21653), (612, 21713), (614, 21737), (616, 21743), (617, 21746), (623, 21764), (624, 21767), (629, 21791), (630, 21800), (649, 21887), (664, 21938), (678, 21977),

Gene: Giuseppe\_53 Start: 39718, Stop: 41661, Start Num: 43

Candidate Starts for Giuseppe\_53:

(Start: 43 @39718 has 59 MA's), (59, 39745), (81, 39817), (93, 39871), (108, 39931), (112, 39949), (113, 39958), (133, 40009), (151, 40051), (168, 40087), (201, 40174), (240, 40267), (245, 40282), (251, 40303), (306, 40405), (322, 40438), (333, 40462), (368, 40522), (389, 40609), (412, 40684), (434, 40774), (451, 40825), (452, 40828), (473, 40918), (478, 40936), (487, 40969), (506, 41023), (510, 41035), (516, 41053), (550, 41116), (575, 41200), (611, 41317), (617, 41365), (632, 41428), (649, 41512),

Gene: Glenn\_29 Start: 22157, Stop: 23557, Start Num: 217

Candidate Starts for Glenn\_29:

(Start: 217 @22157 has 72 MA's), (241, 22220), (293, 22325), (295, 22328), (338, 22412), (353, 22445), (371, 22496), (373, 22502), (398, 22583), (399, 22586), (401, 22592), (409, 22628), (414,

22646), (415, 22649), (420, 22682), (426, 22703), (433, 22721), (446, 22754), (473, 22835), (480, 22862), (490, 22892), (493, 22901), (500, 22928), (510, 22961), (515, 22976), (538, 23030), (546, 23051), (550, 23063), (554, 23075), (618, 23297), (621, 23306), (623, 23312), (630, 23348), (645, 23408), (649, 23435), (678, 23525),

Gene: Gmala1\_55 Start: 48612, Stop: 47071, Start Num: 199

Candidate Starts for Gmala1\_55:

(199, 48612), (241, 48507), (250, 48480), (272, 48426), (284, 48408), (310, 48348), (314, 48339), (342, 48288), (350, 48264), (353, 48252), (355, 48246), (369, 48201), (371, 48186), (374, 48165), (375, 48162), (406, 48063), (414, 48036), (436, 47952), (443, 47928), (451, 47904), (460, 47871), (485, 47790), (506, 47742), (511, 47727), (549, 47634), (556, 47607), (557, 47604), (581, 47520), (594, 47484), (598, 47469), (611, 47424), (627, 47352), (628, 47346), (659, 47205), (702, 47106), (704, 47103),

Gene: GodonK\_184 Start: 93693, Stop: 91774, Start Num: 53

Candidate Starts for GodonK\_184:

(Start: 53 @93693 has 7 MA's), (62, 93651), (98, 93537), (120, 93462), (153, 93393), (173, 93324), (329, 93051), (335, 93033), (346, 93009), (358, 92970), (406, 92790), (426, 92706), (431, 92682), (450, 92622), (453, 92610), (460, 92583), (487, 92514), (488, 92511), (542, 92295), (548, 92277), (550, 92271), (575, 92205), (586, 92166), (592, 92154), (602, 92127), (620, 92046), (628, 92013), (632, 91992), (641, 91959), (649, 91908), (656, 91890),

Gene: Goodman\_34 Start: 23371, Stop: 24798, Start Num: 223

Candidate Starts for Goodman\_34:

(Start: 223 @23371 has 12 MA's), (326, 23587), (363, 23689), (372, 23728), (387, 23791), (404, 23836), (409, 23857), (435, 23956), (486, 24124), (500, 24172), (506, 24193), (515, 24220), (522, 24247), (538, 24277), (541, 24283), (553, 24319), (579, 24397), (605, 24481), (611, 24499), (612, 24502), (630, 24589), (634, 24601), (644, 24640), (649, 24676), (652, 24682), (666, 24733), (673, 24757),

Gene: GordDuk1\_59 Start: 49176, Stop: 47635, Start Num: 199

Candidate Starts for GordDuk1\_59:

(199, 49176), (241, 49071), (250, 49044), (272, 48990), (284, 48972), (310, 48912), (314, 48903), (342, 48852), (350, 48828), (353, 48816), (355, 48810), (369, 48765), (371, 48750), (374, 48729), (375, 48726), (406, 48627), (414, 48600), (436, 48516), (443, 48492), (451, 48468), (460, 48435), (461, 48426), (479, 48378), (485, 48354), (506, 48306), (549, 48198), (556, 48171), (581, 48084), (594, 48048), (598, 48033), (611, 47988), (627, 47916), (628, 47910), (702, 47670), (704, 47667),

Gene: GordTnk2\_60 Start: 49330, Stop: 47789, Start Num: 199

Candidate Starts for GordTnk2\_60:

(199, 49330), (241, 49225), (250, 49198), (272, 49144), (284, 49126), (310, 49066), (314, 49057), (342, 49006), (350, 48982), (353, 48970), (355, 48964), (369, 48919), (371, 48904), (374, 48883), (375, 48880), (406, 48781), (414, 48754), (436, 48670), (443, 48646), (451, 48622), (460, 48589), (485, 48508), (506, 48460), (549, 48352), (556, 48325), (557, 48322), (581, 48238), (594, 48202), (598, 48187), (611, 48142), (627, 48070), (628, 48064), (659, 47923), (702, 47824), (704, 47821),

Gene: Gorko\_58 Start: 51458, Stop: 49926, Start Num: 187

Candidate Starts for Gorko\_58:

(105, 51713), (118, 51662), (137, 51611), (159, 51557), (166, 51527), (Start: 174 @51494 has 2 MA's), (178, 51485), (Start: 187 @51458 has 24 MA's), (250, 51290), (261, 51248), (284, 51200), (292, 51188), (300, 51176), (301, 51170), (309, 51149), (325, 51122), (372, 50981), (401, 50894), (404, 50879), (406, 50867), (415, 50837), (425, 50786), (435, 50759), (451, 50708), (465, 50648), (471, 50645), (479, 50618), (491, 50576), (507, 50531), (558, 50396), (562, 50381), (569, 50360),

(611, 50279), (612, 50276), (625, 50219), (626, 50213), (627, 50207), (628, 50201), (645, 50126), (652, 50087), (656, 50075), (657, 50072), (689, 49979), (697, 49964), (708, 49943),

Gene: GourdThymes\_59 Start: 52332, Stop: 50800, Start Num: 187

Candidate Starts for GourdThymes\_59:

(105, 52587), (118, 52536), (137, 52485), (159, 52431), (166, 52401), (Start: 174 @52368 has 2 MA's), (178, 52359), (Start: 187 @52332 has 24 MA's), (250, 52164), (261, 52122), (284, 52074), (292, 52062), (300, 52050), (301, 52044), (309, 52023), (325, 51996), (372, 51855), (401, 51768), (404, 51753), (406, 51741), (415, 51711), (425, 51660), (435, 51633), (451, 51582), (457, 51558), (461, 51540), (465, 51522), (471, 51519), (479, 51492), (491, 51450), (507, 51405), (558, 51270), (562, 51255), (569, 51234), (605, 51177), (611, 51153), (612, 51150), (625, 51093), (626, 51087), (627, 51081), (628, 51075), (640, 51024), (645, 51000), (652, 50961), (656, 50949), (657, 50946), (689, 50853), (697, 50838), (708, 50817),

Gene: GreenHearts\_29 Start: 22236, Stop: 23627, Start Num: 217

Candidate Starts for GreenHearts\_29:

(Start: 217 @22236 has 72 MA's), (251, 22323), (293, 22395), (295, 22398), (330, 22464), (338, 22482), (341, 22488), (353, 22515), (373, 22572), (382, 22623), (401, 22662), (409, 22698), (414, 22716), (420, 22752), (426, 22773), (433, 22791), (446, 22824), (458, 22863), (473, 22905), (480, 22932), (487, 22956), (499, 22992), (500, 22998), (510, 23031), (515, 23046), (517, 23055), (538, 23100), (550, 23133), (551, 23136), (579, 23220), (584, 23241), (587, 23253), (591, 23259), (595, 23271), (616, 23361), (617, 23364), (618, 23367), (623, 23382), (624, 23385), (629, 23409), (630, 23418), (649, 23505), (664, 23556), (678, 23595), (685, 23619),

Gene: Greenhouse\_29 Start: 22160, Stop: 23551, Start Num: 217

Candidate Starts for Greenhouse\_29:

(179, 22058), (194, 22100), (204, 22127), (Start: 217 @22160 has 72 MA's), (251, 22247), (293, 22319), (295, 22322), (330, 22388), (338, 22406), (341, 22412), (353, 22439), (373, 22496), (382, 22547), (385, 22553), (387, 22556), (401, 22586), (409, 22622), (414, 22640), (420, 22676), (426, 22697), (433, 22715), (458, 22787), (473, 22829), (480, 22856), (487, 22880), (499, 22916), (500, 22922), (510, 22955), (515, 22970), (517, 22979), (550, 23057), (551, 23060), (579, 23144), (584, 23165), (587, 23177), (591, 23183), (595, 23195), (616, 23285), (623, 23306), (624, 23309), (629, 23333), (630, 23342), (649, 23429), (664, 23480), (678, 23519), (685, 23543),

Gene: GretellLyn\_60 Start: 41292, Stop: 43208, Start Num: 42

Candidate Starts for GretellLyn\_60:

(Start: 42 @41292 has 11 MA's), (Start: 43 @41295 has 59 MA's), (Start: 57 @41307 has 1 MA's), (68, 41355), (80, 41388), (96, 41457), (120, 41547), (132, 41574), (134, 41583), (168, 41655), (201, 41742), (219, 41775), (242, 41838), (281, 41928), (294, 41955), (366, 42084), (371, 42108), (379, 42150), (399, 42198), (404, 42219), (409, 42240), (421, 42297), (434, 42351), (447, 42393), (462, 42453), (487, 42549), (488, 42552), (564, 42729), (583, 42780), (611, 42870), (617, 42906), (619, 42912), (631, 42966), (642, 43005), (665, 43107), (669, 43122), (677, 43143),

Gene: GrootJr\_74 Start: 56101, Stop: 54035, Start Num: 27

Candidate Starts for GrootJr\_74:

(6, 56305), (7, 56293), (9, 56275), (Start: 27 @56101 has 31 MA's), (Start: 69 @55963 has 2 MA's), (75, 55939), (134, 55735), (154, 55690), (201, 55582), (248, 55468), (249, 55465), (286, 55375), (289, 55372), (325, 55312), (379, 55174), (384, 55156), (397, 55132), (426, 55009), (451, 54904), (478, 54778), (496, 54724), (547, 54598), (550, 54589), (556, 54565), (575, 54493), (577, 54487), (585, 54457), (604, 54400), (617, 54340), (632, 54277), (649, 54196),

Gene: Guillaume\_57 Start: 52620, Stop: 51208, Start Num: 235

Candidate Starts for Guillaume\_57:

(105, 52968), (148, 52839), (Start: 174 @52749 has 2 MA's), (Start: 235 @52620 has 27 MA's), (250, 52575), (284, 52485), (285, 52482), (290, 52476), (301, 52455), (332, 52392), (369, 52284), (372, 52266), (401, 52179), (404, 52164), (415, 52122), (436, 52041), (451, 51993), (461, 51951), (465, 51933), (471, 51930), (479, 51903), (494, 51852), (507, 51816), (522, 51765), (558, 51681), (563, 51660), (625, 51504), (626, 51498), (628, 51486), (656, 51360), (697, 51246),

Gene: Gumball\_52 Start: 39923, Stop: 41866, Start Num: 43

Candidate Starts for Gumball\_52:

(32, 39860), (Start: 43 @39923 has 59 MA's), (59, 39950), (81, 40022), (93, 40076), (108, 40136), (113, 40163), (133, 40214), (151, 40256), (168, 40292), (201, 40379), (240, 40472), (245, 40487), (251, 40508), (306, 40610), (322, 40643), (333, 40667), (368, 40727), (389, 40814), (412, 40889), (434, 40979), (451, 41030), (452, 41033), (473, 41123), (478, 41141), (487, 41174), (510, 41240), (516, 41258), (550, 41321), (575, 41405), (611, 41522), (617, 41570), (632, 41633), (649, 41717),

Gene: GuyFagieri\_70 Start: 52937, Stop: 50901, Start Num: 29

Candidate Starts for GuyFagieri\_70:

(2, 53405), (3, 53399), (Start: 29 @52937 has 6 MA's), (61, 52829), (154, 52544), (183, 52487), (201, 52436), (210, 52421), (245, 52331), (249, 52319), (255, 52292), (286, 52226), (328, 52154), (347, 52112), (368, 52085), (381, 52013), (404, 51956), (451, 51776), (456, 51752), (470, 51689), (478, 51653), (506, 51566), (557, 51434), (567, 51395), (568, 51392), (604, 51260), (617, 51200), (632, 51137), (643, 51095), (658, 51032),

Gene: Hager\_41 Start: 25422, Stop: 27329, Start Num: 51

Candidate Starts for Hager\_41:

(15, 25248), (Start: 51 @25422 has 32 MA's), (73, 25485), (85, 25506), (94, 25560), (149, 25722), (156, 25737), (177, 25782), (245, 25956), (248, 25965), (286, 26055), (289, 26058), (307, 26097), (312, 26112), (320, 26130), (380, 26298), (412, 26391), (416, 26406), (421, 26433), (424, 26445), (433, 26478), (478, 26607), (516, 26724), (612, 26997), (618, 27036), (631, 27096), (650, 27186), (659, 27216), (671, 27258), (692, 27309),

Gene: Hail2Pitt\_56 Start: 53096, Stop: 51684, Start Num: 235

Candidate Starts for Hail2Pitt\_56:

(105, 53444), (148, 53315), (173, 53228), (Start: 174 @53225 has 2 MA's), (Start: 235 @53096 has 27 MA's), (250, 53051), (284, 52961), (285, 52958), (290, 52952), (301, 52931), (332, 52868), (369, 52760), (372, 52742), (401, 52655), (404, 52640), (415, 52598), (436, 52517), (451, 52469), (461, 52427), (465, 52409), (471, 52406), (479, 52379), (494, 52328), (507, 52292), (522, 52241), (558, 52157), (563, 52136), (625, 51980), (626, 51974), (628, 51962), (656, 51836), (697, 51722),

Gene: Harambe\_57 Start: 52887, Stop: 51475, Start Num: 235

Candidate Starts for Harambe\_57:

(105, 53235), (148, 53106), (173, 53019), (Start: 174 @53016 has 2 MA's), (Start: 235 @52887 has 27 MA's), (250, 52842), (284, 52752), (285, 52749), (290, 52743), (301, 52722), (332, 52659), (369, 52551), (372, 52533), (401, 52446), (404, 52431), (415, 52389), (436, 52308), (451, 52260), (461, 52218), (465, 52200), (471, 52197), (479, 52170), (494, 52119), (507, 52083), (522, 52032), (558, 51948), (563, 51927), (625, 51771), (626, 51765), (628, 51753), (656, 51627), (697, 51513),

Gene: Haunter\_40 Start: 25327, Stop: 27234, Start Num: 51

Candidate Starts for Haunter\_40:

(Start: 51 @25327 has 32 MA's), (73, 25390), (85, 25411), (94, 25465), (106, 25507), (156, 25642), (177, 25687), (245, 25861), (248, 25870), (286, 25960), (312, 26017), (380, 26203), (421, 26338), (424, 26350), (433, 26383), (447, 26428), (478, 26512), (516, 26629), (612, 26902), (617, 26938), (618, 26941), (631, 27001), (650, 27091), (659, 27121), (671, 27163), (692, 27214),

Gene: Hawkeye\_56 Start: 39560, Stop: 41506, Start Num: 43

Candidate Starts for Hawkeye\_56:

(Start: 43 @39560 has 59 MA's), (70, 39638), (91, 39707), (93, 39716), (101, 39746), (108, 39776), (113, 39803), (117, 39815), (151, 39893), (156, 39905), (201, 40016), (219, 40049), (245, 40124), (279, 40202), (296, 40232), (311, 40268), (336, 40322), (368, 40373), (401, 40487), (425, 40595), (450, 40673), (451, 40676), (456, 40700), (460, 40712), (473, 40769), (475, 40775), (478, 40787), (483, 40808), (487, 40820), (501, 40856), (510, 40886), (516, 40904), (550, 40967), (575, 41051), (585, 41087), (603, 41132), (611, 41168), (617, 41216), (619, 41222), (632, 41279), (691, 41483), (695, 41489), (698, 41492),

Gene: HayZem\_62 Start: 52710, Stop: 51079, Start Num: 139

Candidate Starts for HayZem\_62:

(Start: 139 @52710 has 3 MA's), (145, 52698), (164, 52647), (165, 52641), (184, 52584), (250, 52443), (261, 52401), (267, 52389), (284, 52353), (285, 52350), (301, 52323), (318, 52287), (325, 52275), (332, 52260), (369, 52152), (401, 52047), (404, 52032), (436, 51909), (451, 51861), (457, 51837), (461, 51819), (479, 51771), (494, 51720), (507, 51684), (513, 51666), (558, 51549), (573, 51498), (605, 51456), (617, 51396), (628, 51354), (640, 51303), (645, 51279), (697, 51117), (708, 51096),

Gene: Hello\_57 Start: 52849, Stop: 51437, Start Num: 235

Candidate Starts for Hello\_57:

(105, 53197), (148, 53068), (173, 52981), (Start: 174 @52978 has 2 MA's), (Start: 235 @52849 has 27 MA's), (250, 52804), (284, 52714), (285, 52711), (290, 52705), (301, 52684), (332, 52621), (369, 52513), (372, 52495), (401, 52408), (404, 52393), (415, 52351), (436, 52270), (451, 52222), (461, 52180), (465, 52162), (471, 52159), (479, 52132), (494, 52081), (507, 52045), (522, 51994), (558, 51910), (563, 51889), (625, 51733), (626, 51727), (628, 51715), (656, 51589), (697, 51475),

Gene: Helpful\_56 Start: 40102, Stop: 42045, Start Num: 43

Candidate Starts for Helpful\_56:

(28, 40033), (Start: 43 @40102 has 59 MA's), (59, 40129), (81, 40201), (93, 40255), (108, 40315), (112, 40333), (113, 40342), (133, 40393), (151, 40435), (168, 40471), (201, 40558), (240, 40651), (245, 40666), (251, 40687), (306, 40789), (322, 40822), (333, 40846), (368, 40906), (389, 40993), (412, 41068), (434, 41158), (451, 41209), (452, 41212), (473, 41302), (478, 41320), (487, 41353), (506, 41407), (510, 41419), (516, 41437), (550, 41500), (575, 41584), (611, 41701), (617, 41749), (632, 41812), (649, 41896),

Gene: Henococcus\_42 Start: 30892, Stop: 32286, Start Num: 225

Candidate Starts for Henococcus\_42:

(Start: 225 @30892 has 12 MA's), (Start: 226 @30895 has 2 MA's), (250, 30970), (256, 30994), (284, 31024), (285, 31027), (293, 31039), (347, 31129), (355, 31153), (371, 31198), (373, 31204), (387, 31264), (398, 31285), (411, 31339), (438, 31438), (446, 31465), (449, 31474), (486, 31600), (500, 31648), (506, 31669), (510, 31681), (515, 31696), (523, 31726), (541, 31759), (544, 31768), (556, 31810), (577, 31876), (579, 31879), (584, 31900), (591, 31918), (596, 31936), (612, 31990), (616, 32020), (630, 32077), (631, 32080), (644, 32128), (656, 32182), (676, 32251), (681, 32269),

Gene: Herb\_26 Start: 21732, Stop: 23129, Start Num: 217

Candidate Starts for Herb\_26:

(Start: 217 @21732 has 72 MA's), (241, 21792), (275, 21879), (293, 21897), (295, 21900), (338, 21984), (341, 21990), (353, 22017), (371, 22068), (373, 22074), (382, 22125), (387, 22134), (398, 22155), (401, 22164), (409, 22200), (415, 22221), (420, 22254), (426, 22275), (433, 22293), (435, 22299), (446, 22326), (450, 22338), (454, 22353), (473, 22407), (487, 22458), (490, 22464), (493, 22473), (495, 22479), (500, 22500), (510, 22533), (515, 22548), (517, 22557), (563, 22680), (577, 22719), (584, 22743), (587, 22755), (616, 22863), (618, 22869), (621, 22878), (623, 22884), (630,

22920), (649, 23007), (678, 23097), (685, 23121),

Gene: Hiddenleaf\_40 Start: 25169, Stop: 27076, Start Num: 51

Candidate Starts for Hiddenleaf\_40:

(15, 24995), (Start: 51 @25169 has 32 MA's), (73, 25232), (85, 25253), (94, 25307), (137, 25442), (156, 25484), (177, 25529), (245, 25703), (248, 25712), (286, 25802), (307, 25844), (312, 25859), (380, 26045), (421, 26180), (424, 26192), (433, 26225), (478, 26354), (516, 26471), (612, 26744), (618, 26783), (631, 26843), (650, 26933), (659, 26963), (671, 27005), (692, 27056),

Gene: Hollow\_57 Start: 53503, Stop: 51797, Start Num: 123

Candidate Starts for Hollow\_57:

(Start: 123 @53503 has 6 MA's), (Start: 127 @53491 has 2 MA's), (163, 53392), (Start: 167 @53371 has 1 MA's), (193, 53305), (238, 53206), (250, 53170), (255, 53146), (257, 53137), (261, 53128), (284, 53080), (300, 53056), (318, 53014), (326, 52999), (332, 52984), (353, 52927), (354, 52924), (370, 52864), (371, 52861), (390, 52795), (393, 52792), (404, 52756), (405, 52753), (409, 52735), (411, 52726), (415, 52714), (424, 52666), (436, 52633), (443, 52609), (451, 52585), (457, 52561), (479, 52495), (507, 52396), (557, 52264), (558, 52261), (611, 52144), (612, 52141), (625, 52084), (628, 52066), (652, 51949), (653, 51946), (657, 51934), (697, 51835), (708, 51814),

Gene: Hotorobo\_59 Start: 52337, Stop: 50805, Start Num: 187

Candidate Starts for Hotorobo\_59:

(105, 52592), (118, 52541), (137, 52490), (159, 52436), (166, 52406), (Start: 174 @52373 has 2 MA's), (178, 52364), (Start: 187 @52337 has 24 MA's), (250, 52169), (261, 52127), (284, 52079), (292, 52067), (300, 52055), (301, 52049), (309, 52028), (325, 52001), (372, 51860), (401, 51773), (404, 51758), (406, 51746), (415, 51716), (425, 51665), (435, 51638), (451, 51587), (465, 51527), (471, 51524), (479, 51497), (491, 51455), (507, 51410), (558, 51275), (562, 51260), (569, 51239), (611, 51158), (612, 51155), (625, 51098), (626, 51092), (627, 51086), (628, 51080), (645, 51005), (652, 50966), (656, 50954), (657, 50951), (689, 50858), (697, 50843), (708, 50822),

Gene: Htur\_33 Start: 23465, Stop: 24892, Start Num: 221

Candidate Starts for Htur\_33:

(203, 23426), (211, 23447), (Start: 221 @23465 has 3 MA's), (372, 23822), (387, 23885), (404, 23930), (409, 23951), (486, 24218), (500, 24266), (506, 24287), (515, 24314), (522, 24341), (523, 24344), (538, 24371), (541, 24377), (553, 24413), (579, 24491), (584, 24512), (591, 24530), (595, 24542), (616, 24626), (630, 24683), (634, 24695), (644, 24734), (649, 24770), (652, 24776),

Gene: HubbaBubba\_68 Start: 51470, Stop: 49620, Start Num: 94

Candidate Starts for HubbaBubba\_68:

(7, 51893), (9, 51875), (Start: 27 @51701 has 31 MA's), (94, 51470), (135, 51332), (201, 51182), (219, 51149), (248, 51068), (249, 51065), (286, 50975), (289, 50972), (325, 50912), (384, 50756), (426, 50609), (451, 50501), (456, 50477), (478, 50375), (496, 50321), (501, 50306), (525, 50225), (550, 50186), (565, 50123), (575, 50084), (577, 50078), (585, 50048), (617, 49931), (632, 49868), (646, 49805), (649, 49787), (674, 49703),

Gene: HunterDalle\_26 Start: 21745, Stop: 23139, Start Num: 217

Candidate Starts for HunterDalle\_26:

(Start: 217 @21745 has 72 MA's), (241, 21802), (275, 21889), (293, 21907), (295, 21910), (338, 21994), (353, 22027), (371, 22078), (373, 22084), (387, 22144), (401, 22174), (409, 22210), (414, 22228), (420, 22264), (426, 22285), (433, 22303), (435, 22309), (446, 22336), (473, 22417), (480, 22444), (487, 22468), (493, 22483), (500, 22510), (510, 22543), (515, 22558), (576, 22726), (584, 22753), (587, 22765), (595, 22783), (616, 22873), (618, 22879), (623, 22894), (624, 22897), (630, 22930), (645, 22990), (649, 23017), (666, 23074), (678, 23107), (685, 23131),

Gene: Huntingdon\_29 Start: 22127, Stop: 23518, Start Num: 217

Candidate Starts for Huntingdon\_29:

(Start: 217 @22127 has 72 MA's), (251, 22214), (293, 22286), (295, 22289), (330, 22355), (338, 22373), (341, 22379), (353, 22406), (373, 22463), (398, 22544), (401, 22553), (409, 22589), (414, 22607), (420, 22643), (426, 22664), (433, 22682), (446, 22715), (458, 22754), (473, 22796), (480, 22823), (487, 22847), (499, 22883), (500, 22889), (510, 22922), (515, 22937), (517, 22946), (538, 22991), (550, 23024), (551, 23027), (577, 23108), (587, 23144), (591, 23150), (595, 23162), (616, 23252), (623, 23273), (624, 23276), (629, 23300), (630, 23309), (649, 23396), (664, 23447), (678, 23486), (685, 23510),

Gene: IDyn\_69 Start: 52448, Stop: 50367, Start Num: 27

Candidate Starts for IDyn\_69:

(7, 52640), (9, 52622), (14, 52547), (Start: 27 @52448 has 31 MA's), (94, 52217), (135, 52079), (201, 51929), (219, 51896), (246, 51821), (248, 51815), (249, 51812), (286, 51722), (289, 51719), (325, 51659), (384, 51503), (426, 51356), (451, 51248), (456, 51224), (478, 51122), (496, 51068), (501, 51053), (525, 50972), (550, 50933), (565, 50870), (575, 50831), (577, 50825), (585, 50795), (617, 50678), (632, 50615), (646, 50552), (649, 50534), (674, 50450),

Gene: IndiRoo\_34 Start: 21703, Stop: 23130, Start Num: 223

Candidate Starts for IndiRoo\_34:

(208, 21682), (Start: 223 @21703 has 12 MA's), (371, 22057), (372, 22060), (375, 22081), (404, 22168), (415, 22210), (498, 22492), (500, 22504), (506, 22525), (515, 22552), (522, 22579), (523, 22582), (538, 22609), (541, 22615), (553, 22651), (584, 22750), (605, 22813), (612, 22834), (624, 22888), (630, 22921), (634, 22933), (644, 22972), (649, 23008), (652, 23014), (656, 23026), (664, 23059), (673, 23089),

Gene: Indlulamithi\_65 Start: 45619, Stop: 47481, Start Num: 84

Candidate Starts for Indlulamithi\_65:

(Start: 84 @45619 has 1 MA's), (88, 45634), (156, 45862), (183, 45922), (198, 45964), (215, 46000), (231, 46033), (236, 46051), (254, 46111), (258, 46129), (277, 46162), (299, 46201), (336, 46291), (345, 46312), (347, 46315), (366, 46336), (415, 46513), (430, 46582), (440, 46618), (447, 46639), (451, 46651), (466, 46717), (477, 46759), (478, 46765), (487, 46798), (492, 46813), (502, 46837), (503, 46840), (510, 46864), (513, 46873), (557, 46960), (592, 47065), (623, 47206), (646, 47314), (649, 47335), (655, 47350), (668, 47401), (690, 47458), (695, 47464), (702, 47476),

Gene: Intolerant\_41 Start: 31037, Stop: 32431, Start Num: 225

Candidate Starts for Intolerant\_41:

(Start: 225 @31037 has 12 MA's), (Start: 226 @31040 has 2 MA's), (250, 31115), (256, 31139), (284, 31169), (293, 31184), (347, 31274), (361, 31310), (387, 31409), (393, 31418), (412, 31487), (446, 31610), (486, 31745), (495, 31772), (500, 31793), (506, 31814), (523, 31871), (541, 31904), (544, 31913), (556, 31955), (577, 32021), (584, 32045), (591, 32063), (596, 32081), (612, 32135), (616, 32165), (630, 32222), (631, 32225), (644, 32273), (651, 32312), (656, 32327), (676, 32396), (681, 32414), (685, 32423),

Gene: JDawG\_39 Start: 25586, Stop: 27493, Start Num: 51

Candidate Starts for JDawG\_39:

(15, 25412), (Start: 51 @25586 has 32 MA's), (73, 25649), (85, 25670), (94, 25724), (137, 25859), (156, 25901), (177, 25946), (245, 26120), (248, 26129), (286, 26219), (307, 26261), (312, 26276), (380, 26462), (421, 26597), (424, 26609), (433, 26642), (460, 26735), (478, 26771), (507, 26861), (516, 26888), (617, 27197), (618, 27200), (631, 27260), (650, 27350), (659, 27380), (671, 27422), (692, 27473),

Gene: JackieB\_42 Start: 30731, Stop: 32125, Start Num: 225

Candidate Starts for JackieB\_42:

(Start: 225 @30731 has 12 MA's), (Start: 226 @30734 has 2 MA's), (250, 30809), (256, 30833), (284, 30863), (285, 30866), (293, 30878), (347, 30968), (355, 30992), (371, 31037), (373, 31043), (387, 31103), (398, 31124), (411, 31178), (438, 31277), (446, 31304), (449, 31313), (486, 31439), (500, 31487), (506, 31508), (510, 31520), (515, 31535), (523, 31565), (541, 31598), (544, 31607), (556, 31649), (579, 31718), (584, 31739), (591, 31757), (596, 31775), (612, 31829), (616, 31859), (630, 31916), (631, 31919), (644, 31967), (656, 32021), (676, 32090), (681, 32108),

Gene: Jalebi\_59 Start: 41637, Stop: 43553, Start Num: 42

Candidate Starts for Jalebi\_59:

(Start: 42 @41637 has 11 MA's), (Start: 43 @41640 has 59 MA's), (Start: 57 @41652 has 1 MA's), (68, 41700), (96, 41802), (120, 41892), (132, 41919), (134, 41928), (168, 42000), (219, 42120), (242, 42183), (281, 42273), (294, 42300), (366, 42429), (371, 42453), (379, 42495), (399, 42543), (404, 42564), (409, 42585), (421, 42642), (434, 42696), (447, 42738), (462, 42798), (487, 42894), (488, 42897), (564, 43074), (583, 43125), (610, 43212), (611, 43215), (617, 43251), (619, 43257), (631, 43311), (642, 43350), (665, 43452), (669, 43467), (677, 43488),

Gene: Jamemuya19\_61 Start: 39419, Stop: 41335, Start Num: 42

Candidate Starts for Jamemuya19\_61:

(Start: 42 @39419 has 11 MA's), (Start: 43 @39422 has 59 MA's), (Start: 57 @39434 has 1 MA's), (68, 39482), (80, 39515), (120, 39674), (132, 39701), (134, 39710), (168, 39782), (219, 39902), (242, 39965), (281, 40055), (294, 40082), (366, 40211), (371, 40235), (379, 40277), (381, 40289), (389, 40304), (399, 40325), (404, 40346), (409, 40367), (421, 40424), (426, 40442), (434, 40478), (447, 40520), (462, 40580), (487, 40676), (488, 40679), (564, 40856), (583, 40907), (611, 40997), (617, 41033), (619, 41039), (631, 41093), (642, 41132), (665, 41234), (669, 41249), (677, 41270),

Gene: Jams\_57 Start: 52059, Stop: 50647, Start Num: 235

Candidate Starts for Jams\_57:

(105, 52407), (148, 52278), (Start: 174 @52188 has 2 MA's), (Start: 235 @52059 has 27 MA's), (250, 52014), (284, 51924), (285, 51921), (290, 51915), (301, 51894), (332, 51831), (359, 51753), (369, 51723), (372, 51705), (401, 51618), (404, 51603), (415, 51561), (436, 51480), (451, 51432), (461, 51390), (465, 51372), (471, 51369), (479, 51342), (494, 51291), (507, 51255), (522, 51204), (558, 51120), (563, 51099), (625, 50943), (626, 50937), (628, 50925), (656, 50799), (697, 50685),

Gene: Jellybones\_61 Start: 53432, Stop: 51900, Start Num: 187

Candidate Starts for Jellybones\_61:

(105, 53687), (118, 53636), (148, 53558), (159, 53531), (166, 53501), (Start: 174 @53468 has 2 MA's), (178, 53459), (Start: 187 @53432 has 24 MA's), (238, 53300), (250, 53264), (261, 53222), (271, 53204), (284, 53174), (292, 53162), (301, 53144), (325, 53096), (401, 52868), (404, 52853), (406, 52841), (415, 52811), (425, 52760), (451, 52682), (457, 52658), (461, 52640), (465, 52622), (471, 52619), (474, 52610), (479, 52592), (491, 52550), (507, 52505), (513, 52487), (558, 52370), (562, 52355), (569, 52334), (605, 52277), (611, 52253), (612, 52250), (625, 52193), (626, 52187), (628, 52175), (640, 52124), (645, 52100), (652, 52061), (656, 52049), (657, 52046), (689, 51953), (697, 51938), (708, 51917),

Gene: Jera\_34 Start: 22504, Stop: 23931, Start Num: 223

Candidate Starts for Jera\_34:

(203, 22462), (Start: 223 @22504 has 12 MA's), (363, 22822), (404, 22969), (409, 22990), (411, 22999), (486, 23257), (500, 23305), (506, 23326), (523, 23383), (541, 23416), (553, 23452), (579, 23530), (584, 23551), (611, 23632), (612, 23635), (630, 23722), (634, 23734), (644, 23773), (649, 23809), (652, 23815), (656, 23827), (673, 23890),

Gene: Jifall16\_71 Start: 56412, Stop: 54346, Start Num: 27



Candidate Starts for Jifall16\_71:

(1, 56910), (4, 56709), (6, 56616), (7, 56604), (9, 56586), (Start: 27 @56412 has 31 MA's), (Start: 69 @56274 has 2 MA's), (75, 56250), (134, 56046), (154, 56001), (201, 55893), (248, 55779), (249, 55776), (286, 55686), (289, 55683), (325, 55623), (379, 55485), (384, 55467), (397, 55443), (426, 55320), (451, 55215), (478, 55089), (496, 55035), (547, 54909), (550, 54900), (556, 54876), (575, 54804), (577, 54798), (585, 54768), (604, 54711), (617, 54651), (632, 54588), (649, 54507),

Gene: JingleBells\_40 Start: 25290, Stop: 27197, Start Num: 51

Candidate Starts for JingleBells\_40:

(15, 25116), (Start: 51 @25290 has 32 MA's), (73, 25353), (85, 25374), (94, 25428), (111, 25491), (137, 25563), (156, 25605), (177, 25650), (245, 25824), (248, 25833), (286, 25923), (307, 25965), (312, 25980), (380, 26166), (421, 26301), (424, 26313), (433, 26346), (478, 26475), (516, 26592), (617, 26901), (618, 26904), (631, 26964), (650, 27054), (659, 27084), (671, 27126), (692, 27177),

Gene: Joann\_29 Start: 22094, Stop: 23485, Start Num: 217

Candidate Starts for Joann\_29:

(Start: 217 @22094 has 72 MA's), (251, 22181), (293, 22253), (295, 22256), (330, 22322), (338, 22340), (353, 22373), (373, 22430), (382, 22481), (385, 22487), (387, 22490), (401, 22520), (409, 22556), (414, 22574), (420, 22610), (426, 22631), (433, 22649), (446, 22682), (458, 22721), (473, 22763), (480, 22790), (487, 22814), (499, 22850), (500, 22856), (510, 22889), (515, 22904), (517, 22913), (538, 22958), (546, 22979), (550, 22991), (577, 23075), (584, 23099), (587, 23111), (591, 23117), (595, 23129), (616, 23219), (618, 23225), (623, 23240), (624, 23243), (629, 23267), (630, 23276), (649, 23363), (678, 23453), (685, 23477),

Gene: Johann\_34 Start: 23371, Stop: 24798, Start Num: 223

Candidate Starts for Johann\_34:

(Start: 223 @23371 has 12 MA's), (326, 23587), (363, 23689), (372, 23728), (387, 23791), (404, 23836), (409, 23857), (435, 23956), (486, 24124), (500, 24172), (506, 24193), (515, 24220), (522, 24247), (538, 24277), (541, 24283), (553, 24319), (579, 24397), (605, 24481), (611, 24499), (612, 24502), (630, 24589), (634, 24601), (644, 24640), (649, 24676), (652, 24682), (666, 24733), (673, 24757),

Gene: John316\_62 Start: 53495, Stop: 51963, Start Num: 187

Candidate Starts for John316\_62:

(105, 53750), (118, 53699), (137, 53648), (159, 53594), (166, 53564), (Start: 174 @53531 has 2 MA's), (178, 53522), (Start: 187 @53495 has 24 MA's), (250, 53327), (261, 53285), (284, 53237), (292, 53225), (300, 53213), (301, 53207), (309, 53186), (325, 53159), (401, 52931), (404, 52916), (406, 52904), (415, 52874), (425, 52823), (435, 52796), (451, 52745), (461, 52703), (465, 52685), (471, 52682), (479, 52655), (491, 52613), (507, 52568), (558, 52433), (562, 52418), (569, 52397), (611, 52316), (612, 52313), (625, 52256), (626, 52250), (627, 52244), (628, 52238), (645, 52163), (652, 52124), (656, 52112), (657, 52109), (689, 52016), (697, 52001), (708, 51980),

Gene: Jormungandr\_57 Start: 52602, Stop: 51190, Start Num: 235

Candidate Starts for Jormungandr\_57:

(105, 52950), (148, 52821), (Start: 174 @52731 has 2 MA's), (Start: 235 @52602 has 27 MA's), (250, 52557), (284, 52467), (285, 52464), (290, 52458), (301, 52437), (332, 52374), (369, 52266), (372, 52248), (401, 52161), (404, 52146), (415, 52104), (436, 52023), (451, 51975), (461, 51933), (465, 51915), (471, 51912), (479, 51885), (494, 51834), (507, 51798), (522, 51747), (558, 51663), (563, 51642), (625, 51486), (626, 51480), (628, 51468), (656, 51342), (697, 51228),

Gene: Jumbo\_57 Start: 53259, Stop: 51742, Start Num: 205

Candidate Starts for Jumbo\_57:

(Start: 205 @53259 has 3 MA's), (241, 53163), (245, 53151), (250, 53136), (310, 53004), (325, 52980), (326, 52977), (340, 52944), (371, 52839), (374, 52818), (400, 52746), (414, 52689), (441, 52587), (451, 52557), (473, 52488), (506, 52395), (511, 52380), (521, 52344), (541, 52311), (551, 52281), (556, 52260), (569, 52218), (572, 52206), (601, 52131), (628, 52014), (635, 51981), (645, 51939), (659, 51873), (702, 51774), (704, 51771),

Gene: Jumboset\_29 Start: 22100, Stop: 23500, Start Num: 217

Candidate Starts for Jumboset\_29:

(Start: 217 @22100 has 72 MA's), (241, 22163), (293, 22268), (295, 22271), (338, 22355), (353, 22388), (371, 22439), (373, 22445), (398, 22526), (399, 22529), (401, 22535), (409, 22571), (414, 22589), (415, 22592), (426, 22646), (446, 22697), (473, 22778), (480, 22805), (490, 22835), (493, 22844), (500, 22871), (510, 22904), (515, 22919), (538, 22973), (546, 22994), (550, 23006), (554, 23018), (618, 23240), (621, 23249), (623, 23255), (630, 23291), (645, 23351), (649, 23378), (678, 23468),

Gene: Kabluna\_75 Start: 55961, Stop: 53874, Start Num: 27

Candidate Starts for Kabluna\_75:

(Start: 27 @55961 has 31 MA's), (61, 55841), (Start: 77 @55796 has 1 MA's), (79, 55793), (154, 55538), (201, 55430), (229, 55376), (249, 55313), (286, 55223), (289, 55220), (302, 55196), (325, 55160), (379, 55022), (384, 55004), (389, 54995), (397, 54980), (426, 54857), (442, 54773), (451, 54746), (456, 54722), (478, 54623), (496, 54569), (513, 54515), (525, 54473), (550, 54434), (568, 54365), (575, 54332), (585, 54296), (603, 54251), (604, 54239), (617, 54179), (632, 54116), (674, 53951), (683, 53927),

Gene: Kalizoi\_29 Start: 22099, Stop: 23499, Start Num: 217

Candidate Starts for Kalizoi\_29:

(Start: 217 @22099 has 72 MA's), (241, 22162), (293, 22267), (295, 22270), (338, 22354), (353, 22387), (371, 22438), (373, 22444), (398, 22525), (399, 22528), (401, 22534), (409, 22570), (414, 22588), (415, 22591), (426, 22645), (446, 22696), (473, 22777), (480, 22804), (490, 22834), (493, 22843), (500, 22870), (510, 22903), (515, 22918), (538, 22972), (546, 22993), (550, 23005), (554, 23017), (618, 23239), (621, 23248), (623, 23254), (630, 23290), (645, 23350), (649, 23377), (678, 23467), (685, 23491), (687, 23494),

Gene: Kampe\_58 Start: 50421, Stop: 48931, Start Num: 202

Candidate Starts for Kampe\_58:

(Start: 202 @50421 has 5 MA's), (238, 50328), (241, 50319), (245, 50307), (250, 50292), (255, 50274), (285, 50217), (315, 50145), (316, 50142), (352, 50049), (364, 50016), (370, 49983), (371, 49980), (374, 49959), (401, 49890), (409, 49854), (431, 49767), (451, 49704), (452, 49701), (460, 49671), (482, 49599), (485, 49590), (541, 49467), (543, 49461), (601, 49329), (612, 49287), (621, 49242), (628, 49212), (702, 48960),

Gene: KandZ\_52 Start: 39857, Stop: 41800, Start Num: 43

Candidate Starts for KandZ\_52:

(32, 39794), (Start: 43 @39857 has 59 MA's), (59, 39884), (81, 39956), (93, 40010), (108, 40070), (113, 40097), (133, 40148), (151, 40190), (168, 40226), (201, 40313), (240, 40406), (245, 40421), (251, 40442), (306, 40544), (322, 40577), (333, 40601), (368, 40661), (389, 40748), (412, 40823), (434, 40913), (451, 40964), (452, 40967), (473, 41057), (478, 41075), (487, 41108), (510, 41174), (516, 41192), (550, 41255), (575, 41339), (611, 41456), (617, 41504), (632, 41567), (649, 41651),

Gene: Karate\_39 Start: 25940, Stop: 27847, Start Num: 51

Candidate Starts for Karate\_39:

(15, 25766), (Start: 51 @25940 has 32 MA's), (73, 26003), (85, 26024), (94, 26078), (149, 26240), (156, 26255), (177, 26300), (245, 26474), (248, 26483), (286, 26573), (289, 26576), (312, 26630),

(380, 26816), (421, 26951), (424, 26963), (478, 27125), (516, 27242), (618, 27554), (631, 27614), (650, 27704), (659, 27734), (671, 27776), (692, 27827),

Gene: Kaseim\_57 Start: 52137, Stop: 50632, Start Num: 186

Candidate Starts for Kaseim\_57:

(105, 52392), (148, 52263), (Start: 174 @52173 has 2 MA's), (Start: 186 @52137 has 1 MA's), (Start: 235 @52044 has 27 MA's), (250, 51999), (284, 51909), (285, 51906), (290, 51900), (301, 51879), (332, 51816), (369, 51708), (372, 51690), (401, 51603), (404, 51588), (415, 51546), (436, 51465), (451, 51417), (461, 51375), (465, 51357), (471, 51354), (479, 51327), (494, 51276), (507, 51240), (522, 51189), (558, 51105), (563, 51084), (625, 50928), (626, 50922), (628, 50910), (656, 50784), (697, 50670),

Gene: Kate\_41 Start: 25943, Stop: 27850, Start Num: 51

Candidate Starts for Kate\_41:

(Start: 51 @25943 has 32 MA's), (73, 26006), (85, 26027), (94, 26081), (156, 26258), (177, 26303), (245, 26477), (248, 26486), (286, 26576), (312, 26633), (380, 26819), (421, 26954), (424, 26966), (433, 26999), (478, 27128), (516, 27245), (557, 27320), (617, 27554), (618, 27557), (631, 27617), (650, 27707), (659, 27737), (671, 27779), (692, 27830),

Gene: Katyusha\_57 Start: 53319, Stop: 51616, Start Num: 123

Candidate Starts for Katyusha\_57:

(Start: 123 @53319 has 6 MA's), (Start: 127 @53307 has 2 MA's), (193, 53124), (Start: 235 @53034 has 27 MA's), (238, 53025), (250, 52989), (255, 52965), (257, 52956), (261, 52947), (284, 52899), (300, 52875), (332, 52803), (333, 52800), (342, 52782), (354, 52743), (390, 52614), (404, 52575), (405, 52572), (409, 52554), (411, 52545), (415, 52533), (424, 52485), (436, 52452), (451, 52404), (457, 52380), (479, 52314), (507, 52215), (548, 52116), (551, 52107), (557, 52083), (558, 52080), (605, 51987), (611, 51963), (612, 51960), (625, 51903), (628, 51885), (652, 51768), (653, 51765), (657, 51753), (697, 51654), (708, 51633),

Gene: Kharcho\_61 Start: 33998, Stop: 35899, Start Num: 100

Candidate Starts for Kharcho\_61:

(75, 33905), (Start: 100 @33998 has 2 MA's), (122, 34085), (142, 34139), (161, 34190), (172, 34238), (181, 34262), (231, 34388), (234, 34397), (326, 34583), (347, 34625), (383, 34772), (395, 34793), (408, 34850), (415, 34874), (422, 34916), (435, 34952), (476, 35090), (505, 35192), (551, 35318), (557, 35342), (568, 35384), (641, 35669), (655, 35732), (662, 35762), (693, 35843), (702, 35858),

Gene: KidneyBean\_72 Start: 56536, Stop: 54470, Start Num: 27

Candidate Starts for KidneyBean\_72:

(1, 57034), (4, 56833), (6, 56740), (7, 56728), (9, 56710), (Start: 27 @56536 has 31 MA's), (Start: 69 @56398 has 2 MA's), (75, 56374), (134, 56170), (154, 56125), (201, 56017), (248, 55903), (249, 55900), (286, 55810), (289, 55807), (325, 55747), (379, 55609), (384, 55591), (397, 55567), (426, 55444), (451, 55339), (478, 55213), (496, 55159), (547, 55033), (550, 55024), (556, 55000), (575, 54928), (577, 54922), (585, 54892), (604, 54835), (617, 54775), (632, 54712), (649, 54631),

Gene: Kimchi1738\_73 Start: 52700, Stop: 50775, Start Num: 55

Candidate Starts for Kimchi1738\_73:

(25, 52793), (Start: 55 @52700 has 8 MA's), (103, 52529), (115, 52475), (201, 52271), (259, 52115), (286, 52064), (289, 52061), (313, 52019), (381, 51857), (386, 51848), (478, 51491), (487, 51458), (557, 51272), (604, 51119), (619, 51053), (623, 51041), (627, 51023), (632, 50996), (646, 50933), (655, 50900), (675, 50828),

Gene: KingBob\_26 Start: 21732, Stop: 23129, Start Num: 217

Candidate Starts for KingBob\_26:

(Start: 217 @21732 has 72 MA's), (241, 21792), (275, 21879), (293, 21897), (295, 21900), (338, 21984), (341, 21990), (353, 22017), (371, 22068), (373, 22074), (382, 22125), (387, 22134), (398, 22155), (401, 22164), (409, 22200), (415, 22221), (420, 22254), (426, 22275), (433, 22293), (435, 22299), (446, 22326), (450, 22338), (454, 22353), (473, 22407), (487, 22458), (490, 22464), (493, 22473), (495, 22479), (500, 22500), (510, 22533), (515, 22548), (517, 22557), (563, 22680), (577, 22719), (584, 22743), (587, 22755), (616, 22863), (618, 22869), (621, 22878), (623, 22884), (630, 22920), (649, 23007), (678, 23097), (685, 23121),

Gene: Kittykat\_25 Start: 20600, Stop: 21994, Start Num: 217

Candidate Starts for Kittykat\_25:

(Start: 217 @20600 has 72 MA's), (241, 20657), (293, 20762), (295, 20765), (338, 20849), (353, 20882), (372, 20936), (373, 20939), (401, 21029), (409, 21065), (415, 21086), (420, 21119), (426, 21140), (473, 21272), (480, 21299), (493, 21338), (500, 21365), (510, 21398), (515, 21413), (517, 21422), (538, 21467), (551, 21503), (577, 21584), (584, 21608), (591, 21626), (595, 21638), (612, 21698), (614, 21722), (616, 21728), (617, 21731), (623, 21749), (624, 21752), (629, 21776), (630, 21785), (649, 21872), (664, 21923), (678, 21962),

Gene: Konstantine\_65 Start: 46884, Stop: 48941, Start Num: 43

Candidate Starts for Konstantine\_65:

(Start: 43 @46884 has 59 MA's), (66, 46944), (67, 46947), (Start: 92 @47040 has 3 MA's), (95, 47052), (101, 47073), (137, 47196), (138, 47199), (144, 47208), (156, 47241), (162, 47262), (173, 47310), (189, 47352), (219, 47415), (229, 47436), (231, 47442), (249, 47496), (336, 47682), (339, 47694), (351, 47712), (366, 47727), (368, 47733), (451, 48051), (452, 48054), (462, 48099), (475, 48150), (478, 48162), (506, 48252), (510, 48264), (520, 48297), (541, 48321), (544, 48330), (577, 48420), (586, 48453), (616, 48564), (617, 48567), (618, 48570), (619, 48573), (631, 48627), (646, 48693), (649, 48711), (710, 48888),

Gene: Korra\_30 Start: 22105, Stop: 23505, Start Num: 217

Candidate Starts for Korra\_30:

(Start: 217 @22105 has 72 MA's), (241, 22168), (293, 22273), (295, 22276), (338, 22360), (353, 22393), (371, 22444), (373, 22450), (398, 22531), (399, 22534), (401, 22540), (409, 22576), (414, 22594), (415, 22597), (420, 22630), (426, 22651), (446, 22702), (473, 22783), (480, 22810), (490, 22840), (493, 22849), (500, 22876), (510, 22909), (515, 22924), (538, 22978), (546, 22999), (550, 23011), (554, 23023), (591, 23137), (618, 23245), (621, 23254), (623, 23260), (630, 23296), (645, 23356), (649, 23383), (678, 23473),

Gene: Kors\_43 Start: 26688, Stop: 28622, Start Num: 54

Candidate Starts for Kors\_43:

(11, 26448), (Start: 23 @26592 has 1 MA's), (Start: 50 @26682 has 3 MA's), (Start: 54 @26688 has 3 MA's), (94, 26835), (98, 26853), (101, 26862), (156, 27012), (210, 27138), (245, 27228), (248, 27237), (280, 27312), (286, 27327), (307, 27369), (318, 27399), (371, 27531), (424, 27717), (429, 27735), (433, 27750), (451, 27807), (464, 27867), (499, 27939), (554, 28077), (571, 28143), (576, 28173), (603, 28251), (618, 28329), (631, 28389), (650, 28479), (657, 28497), (694, 28605),

Gene: Kovu\_95 Start: 56142, Stop: 57803, Start Num: 169

Candidate Starts for Kovu\_95:

(126, 56019), (140, 56058), (Start: 169 @56142 has 8 MA's), (190, 56202), (227, 56289), (229, 56292), (304, 56463), (309, 56475), (365, 56595), (373, 56631), (377, 56655), (383, 56688), (390, 56700), (402, 56736), (403, 56742), (415, 56790), (422, 56832), (459, 56952), (480, 57015), (490, 57048), (499, 57078), (505, 57099), (515, 57132), (524, 57165), (550, 57222), (557, 57249), (568, 57291), (582, 57348), (591, 57372), (600, 57402), (605, 57420), (612, 57447), (615, 57474), (634, 57549), (641, 57576), (649, 57624), (654, 57636), (659, 57657), (661, 57666), (662, 57669), (670, 57696), (672, 57702), (680, 57729), (695, 57756), (702, 57768), (704, 57771), (706, 57777),

Gene: Krampus\_40 Start: 25943, Stop: 27850, Start Num: 51

Candidate Starts for Krampus\_40:

(15, 25769), (Start: 51 @25943 has 32 MA's), (73, 26006), (85, 26027), (94, 26081), (149, 26243), (156, 26258), (177, 26303), (245, 26477), (248, 26486), (286, 26576), (307, 26618), (312, 26633), (380, 26819), (421, 26954), (424, 26966), (433, 26999), (478, 27128), (516, 27245), (557, 27320), (617, 27554), (618, 27557), (631, 27617), (650, 27707), (659, 27737), (671, 27779), (692, 27830),

Gene: Kurt\_72 Start: 56722, Stop: 54656, Start Num: 27

Candidate Starts for Kurt\_72:

(1, 57220), (4, 57019), (6, 56926), (7, 56914), (9, 56896), (Start: 27 @56722 has 31 MA's), (Start: 69 @56584 has 2 MA's), (75, 56560), (134, 56356), (154, 56311), (201, 56203), (248, 56089), (249, 56086), (286, 55996), (289, 55993), (325, 55933), (379, 55795), (384, 55777), (397, 55753), (426, 55630), (451, 55525), (478, 55399), (496, 55345), (547, 55219), (550, 55210), (556, 55186), (575, 55114), (577, 55108), (585, 55078), (604, 55021), (617, 54961), (632, 54898), (649, 54817),

Gene: Kvothe\_56 Start: 53206, Stop: 51515, Start Num: 127

Candidate Starts for Kvothe\_56:

(Start: 123 @53218 has 6 MA's), (Start: 127 @53206 has 2 MA's), (193, 53023), (Start: 235 @52933 has 27 MA's), (238, 52924), (250, 52888), (255, 52864), (257, 52855), (261, 52846), (284, 52798), (300, 52774), (332, 52702), (342, 52681), (353, 52645), (354, 52642), (390, 52513), (393, 52510), (404, 52474), (405, 52471), (409, 52453), (411, 52444), (415, 52432), (424, 52384), (436, 52351), (451, 52303), (457, 52279), (479, 52213), (507, 52114), (548, 52015), (551, 52006), (557, 51982), (558, 51979), (605, 51886), (611, 51862), (612, 51859), (625, 51802), (628, 51784), (652, 51667), (653, 51664), (657, 51652), (697, 51553), (708, 51532),

Gene: Labelle\_76 Start: 49171, Stop: 51204, Start Num: 50

Candidate Starts for Labelle\_76:

(Start: 50 @49171 has 3 MA's), (59, 49195), (Start: 77 @49258 has 1 MA's), (94, 49324), (106, 49375), (107, 49378), (144, 49486), (156, 49519), (173, 49558), (184, 49582), (210, 49645), (219, 49663), (Start: 220 @49666 has 1 MA's), (229, 49684), (231, 49690), (252, 49759), (260, 49786), (268, 49798), (291, 49831), (336, 49933), (381, 50056), (397, 50086), (421, 50191), (426, 50209), (450, 50299), (451, 50302), (468, 50404), (469, 50443), (475, 50470), (478, 50482), (492, 50530), (499, 50548), (506, 50575), (510, 50587), (513, 50596), (577, 50734), (592, 50779), (616, 50884), (646, 51013), (655, 51046), (659, 51064), (675, 51118), (692, 51157),

Gene: Lahirium\_57 Start: 53124, Stop: 51712, Start Num: 235

Candidate Starts for Lahirium\_57:

(105, 53472), (148, 53343), (Start: 174 @53253 has 2 MA's), (Start: 235 @53124 has 27 MA's), (250, 53079), (284, 52989), (285, 52986), (290, 52980), (301, 52959), (332, 52896), (369, 52788), (372, 52770), (401, 52683), (404, 52668), (415, 52626), (436, 52545), (451, 52497), (461, 52455), (465, 52437), (471, 52434), (479, 52407), (494, 52356), (507, 52320), (522, 52269), (558, 52185), (563, 52164), (625, 52008), (626, 52002), (628, 51990), (656, 51864), (697, 51750),

Gene: Lakshmi\_29 Start: 22120, Stop: 23511, Start Num: 217

Candidate Starts for Lakshmi\_29:

(Start: 217 @22120 has 72 MA's), (251, 22207), (293, 22279), (295, 22282), (328, 22345), (330, 22348), (338, 22366), (341, 22372), (353, 22399), (373, 22456), (382, 22507), (385, 22513), (387, 22516), (401, 22546), (409, 22582), (414, 22600), (420, 22636), (426, 22657), (433, 22675), (446, 22708), (458, 22747), (473, 22789), (480, 22816), (487, 22840), (499, 22876), (500, 22882), (510, 22915), (515, 22930), (517, 22939), (538, 22984), (550, 23017), (551, 23020), (579, 23104), (584, 23125), (587, 23137), (595, 23155), (616, 23245), (623, 23266), (624, 23269), (629, 23293), (630, 23302), (649, 23389), (664, 23440), (678, 23479), (685, 23503),

Gene: Lambo\_58 Start: 40249, Stop: 42159, Start Num: 43

Candidate Starts for Lambo\_58:

(Start: 42 @40246 has 11 MA's), (Start: 43 @40249 has 59 MA's), (Start: 57 @40261 has 1 MA's), (68, 40309), (80, 40342), (132, 40528), (137, 40543), (168, 40609), (201, 40696), (219, 40729), (249, 40810), (251, 40819), (253, 40828), (339, 41002), (343, 41008), (366, 41035), (389, 41128), (399, 41149), (401, 41155), (404, 41170), (409, 41191), (421, 41248), (426, 41266), (434, 41302), (447, 41344), (462, 41404), (487, 41500), (488, 41503), (583, 41731), (611, 41821), (617, 41857), (619, 41863), (631, 41917), (642, 41956), (665, 42058), (669, 42073), (677, 42094),

Gene: Laroye\_95 Start: 55108, Stop: 56772, Start Num: 169

Candidate Starts for Laroye\_95:

(Start: 169 @55108 has 8 MA's), (190, 55171), (214, 55231), (231, 55267), (244, 55312), (304, 55432), (353, 55525), (360, 55549), (365, 55561), (375, 55615), (390, 55666), (402, 55702), (407, 55729), (415, 55756), (422, 55798), (459, 55915), (484, 55993), (490, 56011), (505, 56062), (515, 56095), (524, 56128), (550, 56185), (557, 56212), (568, 56254), (582, 56311), (591, 56335), (600, 56365), (605, 56383), (612, 56410), (634, 56512), (641, 56539), (644, 56551), (659, 56620), (661, 56629), (662, 56632), (670, 56659), (672, 56665), (686, 56701), (695, 56716), (704, 56731), (709, 56752),

Gene: LazerLemon\_42 Start: 31529, Stop: 32923, Start Num: 225

Candidate Starts for LazerLemon\_42:

(185, 31445), (Start: 225 @31529 has 12 MA's), (Start: 235 @31562 has 27 MA's), (250, 31607), (256, 31631), (284, 31661), (285, 31664), (293, 31676), (347, 31766), (355, 31790), (387, 31901), (411, 31976), (420, 32021), (437, 32072), (438, 32075), (445, 32096), (486, 32237), (495, 32264), (500, 32285), (506, 32306), (523, 32363), (538, 32390), (541, 32396), (544, 32405), (556, 32447), (577, 32513), (579, 32516), (584, 32537), (591, 32555), (596, 32573), (612, 32627), (630, 32714), (631, 32717), (644, 32765), (651, 32804), (656, 32819), (676, 32888), (681, 32906), (685, 32915),

Gene: Leopard\_64 Start: 46071, Stop: 48014, Start Num: 43

Candidate Starts for Leopard\_64:

(Start: 43 @46071 has 59 MA's), (58, 46092), (64, 46122), (Start: 92 @46221 has 3 MA's), (108, 46284), (132, 46356), (134, 46365), (156, 46413), (262, 46686), (265, 46689), (341, 46851), (368, 46887), (381, 46959), (386, 46968), (401, 47001), (415, 47058), (418, 47070), (434, 47139), (437, 47148), (443, 47166), (451, 47190), (475, 47286), (478, 47298), (487, 47331), (503, 47373), (521, 47436), (570, 47541), (627, 47757), (631, 47781), (632, 47784), (643, 47826), (648, 47856), (655, 47880), (700, 47997),

Gene: LiSara\_92 Start: 55240, Stop: 56904, Start Num: 169

Candidate Starts for LiSara\_92:

(Start: 169 @55240 has 8 MA's), (190, 55303), (214, 55363), (231, 55399), (244, 55444), (304, 55564), (353, 55657), (360, 55681), (365, 55693), (375, 55747), (390, 55798), (402, 55834), (407, 55861), (415, 55888), (422, 55930), (459, 56047), (484, 56125), (490, 56143), (505, 56194), (515, 56227), (524, 56260), (550, 56317), (557, 56344), (568, 56386), (582, 56443), (591, 56467), (600, 56497), (605, 56515), (612, 56542), (634, 56644), (641, 56671), (644, 56683), (659, 56752), (661, 56761), (670, 56791), (672, 56797), (686, 56833), (695, 56848), (704, 56863), (709, 56884),

Gene: Lidong\_57 Start: 52859, Stop: 51447, Start Num: 235

Candidate Starts for Lidong\_57:

(105, 53207), (148, 53078), (Start: 174 @52988 has 2 MA's), (Start: 235 @52859 has 27 MA's), (250, 52814), (284, 52724), (285, 52721), (290, 52715), (301, 52694), (332, 52631), (359, 52553), (369, 52523), (372, 52505), (401, 52418), (404, 52403), (415, 52361), (436, 52280), (451, 52232), (461, 52190), (465, 52172), (471, 52169), (479, 52142), (494, 52091), (507, 52055), (522, 52004), (558,

51920), (563, 51899), (625, 51743), (626, 51737), (628, 51725), (656, 51599), (697, 51485),

Gene: LilStuart\_25 Start: 20568, Stop: 21962, Start Num: 217

Candidate Starts for LilStuart\_25:

(Start: 217 @20568 has 72 MA's), (241, 20625), (293, 20730), (295, 20733), (338, 20817), (353, 20850), (371, 20901), (373, 20907), (398, 20988), (399, 20991), (401, 20997), (409, 21033), (414, 21051), (415, 21054), (420, 21087), (426, 21108), (473, 21240), (480, 21267), (493, 21306), (499, 21327), (500, 21333), (510, 21366), (515, 21381), (517, 21390), (538, 21435), (551, 21471), (563, 21513), (584, 21576), (591, 21594), (616, 21696), (617, 21699), (623, 21717), (624, 21720), (629, 21744), (630, 21753), (649, 21840), (678, 21930), (685, 21954), (687, 21957),

Gene: Lila22\_61 Start: 41200, Stop: 43113, Start Num: 43

Candidate Starts for Lila22\_61:

(Start: 42 @41197 has 11 MA's), (Start: 43 @41200 has 59 MA's), (Start: 57 @41212 has 1 MA's), (68, 41260), (80, 41293), (132, 41479), (137, 41494), (168, 41560), (201, 41647), (216, 41677), (219, 41680), (242, 41743), (249, 41761), (251, 41770), (281, 41833), (294, 41860), (366, 41989), (371, 42013), (379, 42055), (399, 42103), (404, 42124), (409, 42145), (421, 42202), (434, 42256), (447, 42298), (462, 42358), (487, 42454), (488, 42457), (564, 42634), (583, 42685), (611, 42775), (617, 42811), (619, 42817), (631, 42871), (642, 42910), (665, 43012), (669, 43027), (677, 43048),

Gene: LilyPad\_52 Start: 37853, Stop: 39895, Start Num: 48

Candidate Starts for LilyPad\_52:

(Start: 48 @37853 has 13 MA's), (96, 38006), (110, 38066), (156, 38180), (168, 38204), (200, 38288), (219, 38324), (294, 38492), (299, 38498), (306, 38519), (348, 38606), (389, 38717), (404, 38759), (409, 38780), (426, 38855), (451, 38939), (455, 38960), (460, 38975), (472, 39020), (473, 39023), (477, 39035), (478, 39041), (479, 39044), (488, 39077), (506, 39131), (513, 39152), (521, 39182), (525, 39194), (529, 39227), (531, 39296), (547, 39353), (561, 39401), (575, 39446), (583, 39473), (623, 39620), (636, 39680), (646, 39728), (649, 39749), (666, 39806), (671, 39824), (677, 39839), (696, 39881),

Gene: Linetti\_59 Start: 53022, Stop: 51613, Start Num: 235

Candidate Starts for Linetti\_59:

(105, 53400), (118, 53349), (137, 53298), (159, 53244), (166, 53214), (Start: 174 @53181 has 2 MA's), (178, 53172), (Start: 187 @53145 has 24 MA's), (Start: 235 @53022 has 27 MA's), (250, 52977), (261, 52935), (284, 52887), (285, 52884), (290, 52878), (292, 52875), (300, 52863), (301, 52857), (318, 52821), (325, 52809), (326, 52806), (369, 52686), (372, 52668), (390, 52605), (401, 52581), (404, 52566), (415, 52524), (435, 52446), (451, 52395), (465, 52335), (471, 52332), (474, 52323), (479, 52305), (491, 52263), (507, 52218), (558, 52083), (562, 52068), (569, 52047), (611, 51966), (612, 51963), (625, 51906), (626, 51900), (628, 51888), (640, 51837), (644, 51822), (645, 51813), (652, 51774), (656, 51762), (689, 51666), (697, 51651),

Gene: Litotes\_29 Start: 22115, Stop: 23509, Start Num: 217

Candidate Starts for Litotes\_29:

(Start: 217 @22115 has 72 MA's), (241, 22172), (293, 22277), (338, 22364), (372, 22451), (373, 22454), (401, 22544), (409, 22580), (411, 22589), (414, 22598), (426, 22655), (433, 22673), (446, 22706), (450, 22718), (473, 22787), (480, 22814), (487, 22838), (500, 22880), (510, 22913), (515, 22928), (517, 22937), (554, 23027), (576, 23096), (584, 23123), (591, 23141), (595, 23153), (616, 23243), (618, 23249), (621, 23258), (623, 23264), (630, 23300), (649, 23387), (664, 23438), (666, 23444), (678, 23477), (685, 23501),

Gene: LittleFella\_57 Start: 39855, Stop: 41873, Start Num: 43

Candidate Starts for LittleFella\_57:

(Start: 43 @39855 has 59 MA's), (104, 40053), (107, 40062), (108, 40065), (114, 40095), (132, 40137), (134, 40146), (170, 40224), (Start: 174 @40236 has 2 MA's), (201, 40305), (219, 40338), (Start: 220 @40341 has 1 MA's), (299, 40521), (334, 40602), (348, 40629), (386, 40734), (404, 40776), (409, 40797), (451, 40956), (456, 40980), (472, 41037), (473, 41040), (478, 41058), (489, 41097), (509, 41157), (513, 41169), (518, 41187), (521, 41199), (527, 41220), (534, 41307), (540, 41310), (541, 41313), (561, 41379), (575, 41424), (583, 41451), (611, 41544), (627, 41619), (629, 41631), (631, 41643), (634, 41652), (636, 41661), (646, 41709), (649, 41727), (666, 41784), (677, 41817), (698, 41856),

Gene: Lizz\_70 Start: 50158, Stop: 48272, Start Num: 43

Candidate Starts for Lizz\_70:

(33, 50218), (Start: 43 @50158 has 59 MA's), (56, 50143), (73, 50080), (Start: 77 @50071 has 1 MA's), (85, 50059), (105, 49966), (124, 49903), (132, 49885), (156, 49828), (168, 49804), (232, 49645), (245, 49606), (248, 49597), (296, 49489), (347, 49381), (379, 49276), (411, 49177), (424, 49117), (450, 49030), (451, 49027), (487, 48922), (490, 48913), (496, 48901), (549, 48802), (583, 48685), (586, 48673), (596, 48646), (618, 48556), (623, 48541), (634, 48487), (646, 48430), (683, 48304),

Gene: Lizzo\_59 Start: 52326, Stop: 50794, Start Num: 187

Candidate Starts for Lizzo\_59:

(105, 52581), (118, 52530), (137, 52479), (159, 52425), (166, 52395), (Start: 174 @52362 has 2 MA's), (178, 52353), (Start: 187 @52326 has 24 MA's), (250, 52158), (261, 52116), (284, 52068), (292, 52056), (300, 52044), (301, 52038), (309, 52017), (325, 51990), (372, 51849), (401, 51762), (404, 51747), (406, 51735), (415, 51705), (425, 51654), (435, 51627), (451, 51576), (457, 51552), (461, 51534), (465, 51516), (471, 51513), (479, 51486), (491, 51444), (507, 51399), (558, 51264), (562, 51249), (569, 51228), (605, 51171), (611, 51147), (625, 51087), (626, 51081), (627, 51075), (628, 51069), (640, 51018), (645, 50994), (652, 50955), (656, 50943), (657, 50940), (689, 50847), (697, 50832), (708, 50811),

Gene: Lollipop1437\_76 Start: 57598, Stop: 55541, Start Num: 27

Candidate Starts for Lollipop1437\_76:

(5, 57886), (8, 57778), (Start: 27 @57598 has 31 MA's), (144, 57223), (189, 57115), (207, 57082), (229, 57031), (248, 56971), (249, 56968), (278, 56896), (286, 56878), (325, 56815), (327, 56809), (337, 56782), (372, 56716), (379, 56677), (384, 56659), (397, 56635), (426, 56512), (431, 56479), (451, 56416), (478, 56293), (501, 56224), (506, 56206), (550, 56101), (553, 56092), (568, 56032), (577, 55993), (585, 55963), (604, 55906), (617, 55846), (626, 55816), (632, 55783), (674, 55618),

Gene: LuckyLeo\_57 Start: 40044, Stop: 41966, Start Num: 42

Candidate Starts for LuckyLeo\_57:

(16, 39927), (17, 39948), (19, 39969), (36, 39999), (39, 40032), (Start: 42 @40044 has 11 MA's), (Start: 43 @40047 has 59 MA's), (Start: 57 @40062 has 1 MA's), (60, 40077), (68, 40110), (80, 40143), (83, 40146), (Start: 92 @40194 has 3 MA's), (96, 40212), (120, 40302), (129, 40320), (132, 40329), (134, 40338), (168, 40410), (219, 40530), (Start: 220 @40533 has 1 MA's), (242, 40593), (249, 40611), (281, 40683), (294, 40710), (368, 40845), (371, 40863), (379, 40905), (386, 40926), (389, 40932), (404, 40974), (409, 40995), (415, 41016), (421, 41052), (447, 41151), (450, 41160), (462, 41211), (487, 41307), (488, 41310), (546, 41421), (564, 41487), (575, 41511), (583, 41538), (628, 41706), (631, 41724), (637, 41748), (642, 41763), (643, 41769), (649, 41811), (655, 41826), (665, 41865), (669, 41880), (677, 41901), (705, 41958),

Gene: Lucy\_25 Start: 20556, Stop: 21950, Start Num: 217

Candidate Starts for Lucy\_25:

(Start: 217 @20556 has 72 MA's), (241, 20613), (293, 20718), (295, 20721), (338, 20805), (353, 20838), (373, 20895), (398, 20976), (399, 20979), (401, 20985), (409, 21021), (414, 21039), (415,



21042), (420, 21075), (426, 21096), (446, 21147), (473, 21228), (480, 21255), (493, 21294), (499, 21315), (500, 21321), (510, 21354), (515, 21369), (523, 21396), (538, 21423), (551, 21459), (584, 21564), (591, 21582), (616, 21684), (617, 21687), (623, 21705), (624, 21708), (629, 21732), (630, 21741), (649, 21828), (664, 21879), (665, 21882), (678, 21918), (685, 21942),

Gene: Luker\_58 Start: 53170, Stop: 51665, Start Num: 186

Candidate Starts for Luker\_58:

(105, 53425), (148, 53296), (Start: 174 @53206 has 2 MA's), (Start: 186 @53170 has 1 MA's), (Start: 235 @53077 has 27 MA's), (250, 53032), (284, 52942), (285, 52939), (290, 52933), (301, 52912), (332, 52849), (369, 52741), (372, 52723), (401, 52636), (404, 52621), (415, 52579), (436, 52498), (451, 52450), (461, 52408), (465, 52390), (471, 52387), (479, 52360), (494, 52309), (507, 52273), (522, 52222), (558, 52138), (563, 52117), (625, 51961), (626, 51955), (628, 51943), (656, 51817), (697, 51703),

Gene: MacGully\_81 Start: 56374, Stop: 54335, Start Num: 30

Candidate Starts for MacGully\_81:

(Start: 30 @56374 has 1 MA's), (47, 56305), (52, 56299), (156, 55975), (170, 55951), (201, 55870), (207, 55867), (245, 55765), (248, 55756), (255, 55726), (286, 55660), (328, 55588), (368, 55519), (381, 55447), (404, 55390), (451, 55210), (456, 55186), (470, 55123), (478, 55087), (501, 55018), (503, 55012), (506, 55000), (568, 54826), (626, 54604), (632, 54571), (643, 54529), (648, 54499), (649, 54490), (658, 54466), (659, 54457), (671, 54415),

Gene: Madi\_50 Start: 36692, Stop: 38746, Start Num: 48

Candidate Starts for Madi\_50:

(Start: 48 @36692 has 13 MA's), (60, 36716), (83, 36779), (102, 36863), (110, 36905), (200, 37127), (219, 37163), (248, 37238), (257, 37277), (287, 37319), (299, 37337), (306, 37358), (311, 37370), (339, 37430), (348, 37445), (366, 37463), (381, 37541), (389, 37556), (392, 37559), (404, 37598), (409, 37619), (433, 37721), (451, 37778), (455, 37799), (456, 37802), (460, 37814), (473, 37862), (475, 37868), (488, 37916), (500, 37949), (507, 37973), (513, 37991), (521, 38021), (532, 38144), (541, 38177), (545, 38189), (550, 38204), (561, 38243), (575, 38288), (583, 38315), (609, 38399), (623, 38462), (631, 38504), (634, 38513), (636, 38522), (646, 38570), (648, 38579), (649, 38591), (655, 38606), (666, 38648),

Gene: Madruga\_74 Start: 48812, Stop: 50845, Start Num: 50

Candidate Starts for Madruga\_74:

(24, 48722), (Start: 50 @48812 has 3 MA's), (59, 48836), (Start: 77 @48899 has 1 MA's), (94, 48965), (106, 49016), (107, 49019), (144, 49127), (156, 49160), (173, 49199), (184, 49223), (210, 49286), (219, 49304), (229, 49325), (231, 49331), (252, 49400), (260, 49427), (268, 49439), (291, 49472), (336, 49574), (381, 49697), (397, 49727), (421, 49832), (426, 49850), (450, 49940), (451, 49943), (468, 50045), (469, 50084), (475, 50111), (478, 50123), (492, 50171), (499, 50189), (506, 50216), (510, 50228), (513, 50237), (577, 50375), (592, 50420), (616, 50525), (646, 50654), (655, 50687), (659, 50705), (675, 50759), (692, 50798),

Gene: Magritte\_46 Start: 45422, Stop: 47152, Start Num: 136

Candidate Starts for Magritte\_46:

(Start: 136 @45422 has 1 MA's), (145, 45440), (218, 45632), (250, 45725), (261, 45767), (276, 45797), (296, 45827), (303, 45839), (325, 45893), (326, 45896), (357, 45992), (359, 46013), (370, 46055), (378, 46097), (401, 46160), (417, 46226), (421, 46256), (438, 46313), (491, 46502), (505, 46535), (553, 46631), (555, 46637), (560, 46658), (600, 46763), (603, 46769), (632, 46904), (641, 46937), (652, 46994), (671, 47063),

Gene: Makoto\_25 Start: 20576, Stop: 21970, Start Num: 217

Candidate Starts for Makoto\_25:

(Start: 217 @20576 has 72 MA's), (241, 20633), (293, 20738), (338, 20825), (353, 20858), (373, 20915), (382, 20966), (398, 20996), (399, 20999), (401, 21005), (409, 21041), (414, 21059), (415, 21062), (420, 21095), (426, 21116), (473, 21248), (480, 21275), (493, 21314), (499, 21335), (500, 21341), (510, 21374), (515, 21389), (517, 21398), (538, 21443), (551, 21479), (563, 21521), (584, 21584), (591, 21602), (616, 21704), (617, 21707), (623, 21725), (624, 21728), (629, 21752), (630, 21761), (649, 21848), (678, 21938), (685, 21962),

Gene: MamaPearl\_26 Start: 21743, Stop: 23140, Start Num: 217

Candidate Starts for MamaPearl\_26:

(Start: 217 @21743 has 72 MA's), (241, 21803), (293, 21908), (295, 21911), (338, 21995), (353, 22028), (371, 22079), (373, 22085), (398, 22166), (401, 22175), (409, 22211), (414, 22229), (415, 22232), (420, 22265), (426, 22286), (473, 22418), (490, 22475), (493, 22484), (499, 22505), (500, 22511), (510, 22544), (515, 22559), (541, 22619), (551, 22649), (577, 22730), (591, 22772), (603, 22805), (614, 22868), (617, 22877), (621, 22889), (623, 22895), (627, 22910), (629, 22922), (630, 22931), (649, 23018), (666, 23075), (678, 23108),

Gene: Mareelih\_167 Start: 96276, Stop: 94366, Start Num: 48

Candidate Starts for Mareelih\_167:

(Start: 48 @96276 has 13 MA's), (110, 96072), (128, 96024), (150, 95979), (173, 95898), (180, 95886), (Start: 220 @95781 has 1 MA's), (231, 95754), (317, 95649), (329, 95625), (375, 95460), (451, 95193), (453, 95184), (460, 95157), (487, 95088), (557, 94839), (583, 94773), (592, 94749), (627, 94614), (641, 94554), (656, 94482),

Gene: Maria1952\_26 Start: 21732, Stop: 23129, Start Num: 217

Candidate Starts for Maria1952\_26:

(Start: 217 @21732 has 72 MA's), (241, 21792), (275, 21879), (293, 21897), (295, 21900), (338, 21984), (341, 21990), (353, 22017), (371, 22068), (373, 22074), (382, 22125), (387, 22134), (398, 22155), (401, 22164), (409, 22200), (415, 22221), (420, 22254), (426, 22275), (433, 22293), (435, 22299), (446, 22326), (450, 22338), (454, 22353), (473, 22407), (487, 22458), (490, 22464), (493, 22473), (495, 22479), (500, 22500), (510, 22533), (515, 22548), (517, 22557), (563, 22680), (577, 22719), (584, 22743), (587, 22755), (616, 22863), (618, 22869), (621, 22878), (623, 22884), (630, 22920), (649, 23007), (678, 23097), (685, 23121),

Gene: Marietta\_72 Start: 52748, Stop: 50667, Start Num: 27

Candidate Starts for Marietta\_72:

(7, 52940), (9, 52922), (14, 52847), (Start: 27 @52748 has 31 MA's), (201, 52229), (219, 52196), (229, 52175), (246, 52121), (248, 52115), (249, 52112), (286, 52022), (289, 52019), (325, 51959), (384, 51803), (426, 51656), (451, 51548), (456, 51524), (478, 51422), (496, 51368), (501, 51353), (525, 51272), (550, 51233), (565, 51170), (575, 51131), (577, 51125), (585, 51095), (617, 50978), (632, 50915), (646, 50852), (649, 50834), (674, 50750),

Gene: Marky\_44 Start: 31624, Stop: 33015, Start Num: 226

Candidate Starts for Marky\_44:

(213, 31615), (Start: 226 @31624 has 2 MA's), (228, 31630), (250, 31699), (256, 31723), (293, 31768), (348, 31861), (371, 31927), (404, 32038), (411, 32068), (412, 32071), (446, 32194), (486, 32329), (495, 32356), (500, 32377), (506, 32398), (510, 32410), (556, 32539), (579, 32608), (584, 32629), (591, 32647), (596, 32665), (612, 32719), (616, 32749), (630, 32806), (631, 32809), (644, 32857), (659, 32926), (676, 32980), (681, 32998),

Gene: Maselop\_72 Start: 53166, Stop: 51130, Start Num: 29

Candidate Starts for Maselop\_72:

(10, 53334), (Start: 29 @53166 has 6 MA's), (44, 53100), (61, 53058), (94, 52953), (154, 52773), (183, 52716), (201, 52665), (210, 52650), (245, 52560), (249, 52548), (286, 52455), (328, 52383), (368,

52314), (381, 52242), (404, 52185), (451, 52005), (456, 51981), (470, 51918), (478, 51882), (506, 51795), (557, 51663), (567, 51624), (568, 51621), (577, 51576), (617, 51429), (632, 51366), (643, 51324), (649, 51285), (658, 51261),

Gene: Mbo2\_52 Start: 42925, Stop: 41438, Start Num: 205

Candidate Starts for Mbo2\_52:

(171, 43012), (Start: 205 @42925 has 3 MA's), (238, 42838), (250, 42802), (255, 42784), (261, 42769), (270, 42754), (274, 42742), (284, 42730), (288, 42724), (308, 42682), (359, 42559), (391, 42445), (414, 42370), (425, 42316), (450, 42241), (451, 42238), (457, 42214), (471, 42175), (481, 42136), (500, 42094), (563, 41911), (592, 41851), (598, 41833), (611, 41788), (612, 41785), (621, 41737), (624, 41728), (628, 41707), (631, 41689), (637, 41665), (644, 41641), (652, 41599), (659, 41572), (662, 41560), (671, 41530), (677, 41515), (702, 41473),

Gene: MeganNoll\_29 Start: 22157, Stop: 23557, Start Num: 217

Candidate Starts for MeganNoll\_29:

(Start: 217 @22157 has 72 MA's), (241, 22220), (293, 22325), (295, 22328), (338, 22412), (353, 22445), (371, 22496), (373, 22502), (398, 22583), (399, 22586), (401, 22592), (409, 22628), (414, 22646), (415, 22649), (426, 22703), (446, 22754), (473, 22835), (480, 22862), (490, 22892), (493, 22901), (500, 22928), (510, 22961), (515, 22976), (538, 23030), (546, 23051), (550, 23063), (554, 23075), (618, 23297), (621, 23306), (623, 23312), (630, 23348), (645, 23408), (649, 23435), (678, 23525),

Gene: Megatron06\_62 Start: 46630, Stop: 48687, Start Num: 43

Candidate Starts for Megatron06\_62:

(Start: 43 @46630 has 59 MA's), (66, 46690), (67, 46693), (Start: 92 @46786 has 3 MA's), (95, 46798), (101, 46819), (137, 46942), (138, 46945), (144, 46954), (156, 46987), (162, 47008), (173, 47056), (189, 47098), (219, 47161), (229, 47182), (231, 47188), (249, 47242), (336, 47428), (339, 47440), (351, 47458), (366, 47473), (368, 47479), (451, 47797), (452, 47800), (462, 47845), (475, 47896), (478, 47908), (506, 47998), (510, 48010), (520, 48043), (541, 48067), (544, 48076), (577, 48166), (586, 48199), (616, 48310), (617, 48313), (618, 48316), (619, 48319), (628, 48355), (631, 48373), (646, 48439), (649, 48457), (710, 48634),

Gene: MerCougar\_75 Start: 57668, Stop: 55593, Start Num: 27

Candidate Starts for MerCougar\_75:

(Start: 27 @57668 has 31 MA's), (61, 57548), (Start: 77 @57503 has 1 MA's), (79, 57500), (154, 57257), (183, 57200), (201, 57149), (229, 57095), (249, 57032), (286, 56942), (289, 56939), (302, 56915), (325, 56879), (384, 56723), (397, 56699), (426, 56576), (451, 56465), (456, 56441), (478, 56342), (496, 56288), (513, 56234), (525, 56192), (550, 56153), (557, 56126), (568, 56084), (575, 56051), (585, 56015), (603, 55970), (604, 55958), (617, 55898), (649, 55754), (674, 55670),

Gene: Microdon\_41 Start: 30843, Stop: 32237, Start Num: 225

Candidate Starts for Microdon\_41:

(Start: 225 @30843 has 12 MA's), (Start: 226 @30846 has 2 MA's), (250, 30921), (256, 30945), (260, 30951), (284, 30975), (293, 30990), (295, 30993), (333, 31065), (347, 31080), (361, 31116), (387, 31215), (446, 31416), (486, 31551), (495, 31578), (500, 31599), (523, 31677), (541, 31710), (544, 31719), (556, 31761), (577, 31827), (579, 31830), (584, 31851), (591, 31869), (596, 31887), (612, 31941), (616, 31971), (630, 32028), (631, 32031), (644, 32079), (651, 32118), (656, 32133), (676, 32202), (681, 32220), (685, 32229),

Gene: Milani\_33 Start: 22173, Stop: 23600, Start Num: 223

Candidate Starts for Milani\_33:

(Start: 223 @22173 has 12 MA's), (371, 22527), (372, 22530), (375, 22551), (404, 22638), (500, 22974), (506, 22995), (515, 23022), (522, 23049), (523, 23052), (541, 23085), (553, 23121), (577,

23196), (584, 23220), (605, 23283), (612, 23304), (624, 23358), (630, 23391), (634, 23403), (644, 23442), (649, 23478), (652, 23484), (656, 23496), (659, 23511), (673, 23559), (678, 23568), (685, 23592),

Gene: Mima20\_62 Start: 40803, Stop: 42716, Start Num: 43

Candidate Starts for Mima20\_62:

(Start: 42 @40800 has 11 MA's), (Start: 43 @40803 has 59 MA's), (Start: 57 @40815 has 1 MA's), (68, 40863), (80, 40896), (96, 40965), (120, 41055), (132, 41082), (134, 41091), (168, 41163), (219, 41283), (242, 41346), (281, 41436), (294, 41463), (366, 41592), (371, 41616), (379, 41658), (399, 41706), (404, 41727), (409, 41748), (421, 41805), (434, 41859), (447, 41901), (462, 41961), (487, 42057), (488, 42060), (564, 42237), (583, 42288), (611, 42378), (617, 42414), (619, 42420), (631, 42474), (642, 42513), (665, 42615), (669, 42630), (677, 42651),

Gene: Mimi\_107 Start: 80085, Stop: 81923, Start Num: 49

Candidate Starts for Mimi\_107:

(Start: 49 @80085 has 2 MA's), (72, 80166), (98, 80244), (130, 80340), (170, 80400), (183, 80430), (231, 80550), (247, 80601), (321, 80661), (419, 81000), (433, 81057), (439, 81078), (453, 81123), (477, 81180), (478, 81186), (487, 81219), (491, 81231), (497, 81243), (510, 81288), (521, 81327), (546, 81384), (548, 81390), (557, 81423), (585, 81492), (612, 81576), (638, 81693), (684, 81867), (706, 81909),

Gene: Minos\_58 Start: 52601, Stop: 51189, Start Num: 235

Candidate Starts for Minos\_58:

(105, 52949), (148, 52820), (173, 52733), (Start: 174 @52730 has 2 MA's), (Start: 235 @52601 has 27 MA's), (250, 52556), (284, 52466), (285, 52463), (290, 52457), (301, 52436), (332, 52373), (369, 52265), (372, 52247), (401, 52160), (404, 52145), (415, 52103), (436, 52022), (451, 51974), (461, 51932), (465, 51914), (471, 51911), (479, 51884), (494, 51833), (507, 51797), (522, 51746), (558, 51662), (563, 51641), (625, 51485), (626, 51479), (628, 51467), (656, 51341), (697, 51227),

Gene: Misaeng\_29 Start: 22230, Stop: 23621, Start Num: 217

Candidate Starts for Misaeng\_29:

(Start: 217 @22230 has 72 MA's), (251, 22317), (293, 22389), (295, 22392), (330, 22458), (338, 22476), (353, 22509), (373, 22566), (398, 22647), (401, 22656), (409, 22692), (414, 22710), (420, 22746), (426, 22767), (433, 22785), (446, 22818), (473, 22899), (480, 22926), (487, 22950), (499, 22986), (500, 22992), (510, 23025), (515, 23040), (517, 23049), (538, 23094), (550, 23127), (551, 23130), (579, 23214), (587, 23247), (591, 23253), (595, 23265), (616, 23355), (618, 23361), (623, 23376), (624, 23379), (627, 23391), (629, 23403), (630, 23412), (649, 23499), (678, 23589),

Gene: MoiGyank\_63 Start: 41576, Stop: 43489, Start Num: 43

Candidate Starts for MoiGyank\_63:

(Start: 42 @41573 has 11 MA's), (Start: 43 @41576 has 59 MA's), (Start: 57 @41588 has 1 MA's), (68, 41636), (80, 41669), (96, 41738), (120, 41828), (132, 41855), (134, 41864), (168, 41936), (219, 42056), (242, 42119), (281, 42209), (366, 42365), (371, 42389), (379, 42431), (399, 42479), (404, 42500), (409, 42521), (421, 42578), (426, 42596), (434, 42632), (447, 42674), (462, 42734), (487, 42830), (488, 42833), (564, 43010), (583, 43061), (611, 43151), (617, 43187), (619, 43193), (628, 43229), (631, 43247), (642, 43286), (665, 43388), (669, 43403), (677, 43424),

Gene: Moki\_25 Start: 20566, Stop: 21960, Start Num: 217

Candidate Starts for Moki\_25:

(Start: 217 @20566 has 72 MA's), (241, 20623), (293, 20728), (338, 20815), (353, 20848), (372, 20902), (373, 20905), (401, 20995), (409, 21031), (414, 21049), (415, 21052), (426, 21106), (473, 21238), (480, 21265), (490, 21295), (493, 21304), (500, 21331), (510, 21364), (515, 21379), (523, 21406), (538, 21433), (551, 21469), (563, 21511), (584, 21574), (591, 21592), (612, 21664), (614,

21688), (616, 21694), (617, 21697), (623, 21715), (624, 21718), (629, 21742), (630, 21751), (649, 21838), (664, 21889), (678, 21928),

Gene: Monty\_58 Start: 51476, Stop: 49944, Start Num: 187

Candidate Starts for Monty\_58:

(105, 51731), (118, 51680), (137, 51629), (159, 51575), (166, 51545), (Start: 174 @51512 has 2 MA's), (178, 51503), (Start: 187 @51476 has 24 MA's), (250, 51308), (261, 51266), (284, 51218), (292, 51206), (300, 51194), (301, 51188), (309, 51167), (325, 51140), (372, 50999), (401, 50912), (404, 50897), (406, 50885), (415, 50855), (425, 50804), (435, 50777), (451, 50726), (465, 50666), (471, 50663), (479, 50636), (491, 50594), (507, 50549), (558, 50414), (562, 50399), (569, 50378), (611, 50297), (612, 50294), (625, 50237), (626, 50231), (627, 50225), (628, 50219), (645, 50144), (652, 50105), (656, 50093), (657, 50090), (689, 49997), (697, 49982), (708, 49961),

Gene: MontyDev\_68 Start: 47606, Stop: 49366, Start Num: 146

Candidate Starts for MontyDev\_68:

(Start: 146 @47606 has 9 MA's), (Start: 174 @47675 has 2 MA's), (215, 47771), (Start: 220 @47780 has 1 MA's), (249, 47861), (261, 47906), (345, 48083), (366, 48107), (376, 48155), (397, 48215), (401, 48227), (417, 48293), (443, 48416), (451, 48440), (456, 48464), (478, 48668), (487, 48701), (492, 48716), (506, 48755), (507, 48758), (510, 48767), (550, 48836), (592, 48968), (617, 49091), (618, 49094), (626, 49121), (631, 49151), (633, 49157), (634, 49160), (638, 49178), (642, 49190), (677, 49325), (686, 49352), (689, 49355),

Gene: Mopey\_54 Start: 39729, Stop: 41672, Start Num: 43

Candidate Starts for Mopey\_54:

(Start: 43 @39729 has 59 MA's), (59, 39756), (81, 39828), (93, 39882), (108, 39942), (112, 39960), (113, 39969), (133, 40020), (151, 40062), (168, 40098), (201, 40185), (240, 40278), (245, 40293), (251, 40314), (306, 40416), (322, 40449), (333, 40473), (368, 40533), (389, 40620), (412, 40695), (434, 40785), (451, 40836), (452, 40839), (473, 40929), (478, 40947), (487, 40980), (506, 41034), (510, 41046), (516, 41064), (550, 41127), (575, 41211), (611, 41328), (617, 41376), (632, 41439), (649, 41523),

Gene: MortySmith\_38 Start: 24974, Stop: 26881, Start Num: 51

Candidate Starts for MortySmith\_38:

(15, 24800), (Start: 51 @24974 has 32 MA's), (73, 25037), (85, 25058), (94, 25112), (137, 25247), (156, 25289), (177, 25334), (245, 25508), (248, 25517), (286, 25607), (307, 25649), (312, 25664), (380, 25850), (421, 25985), (424, 25997), (433, 26030), (478, 26159), (516, 26276), (617, 26585), (618, 26588), (631, 26648), (650, 26738), (659, 26768), (671, 26810), (692, 26861),

Gene: MrMiyagi\_73 Start: 45205, Stop: 47052, Start Num: 78

Candidate Starts for MrMiyagi\_73:

(Start: 78 @45205 has 3 MA's), (87, 45223), (Start: 92 @45259 has 3 MA's), (104, 45310), (144, 45418), (156, 45451), (183, 45511), (198, 45553), (216, 45592), (251, 45688), (254, 45700), (263, 45727), (273, 45742), (277, 45751), (299, 45790), (305, 45805), (339, 45892), (347, 45904), (381, 46003), (384, 46009), (397, 46033), (412, 46093), (430, 46171), (438, 46198), (447, 46228), (451, 46240), (456, 46264), (478, 46342), (487, 46375), (492, 46390), (502, 46414), (503, 46417), (510, 46441), (617, 46765), (620, 46774), (627, 46801), (631, 46825), (643, 46870), (649, 46912), (663, 46960), (668, 46978), (690, 47035),

Gene: MrWormie\_57 Start: 51762, Stop: 50350, Start Num: 235

Candidate Starts for MrWormie\_57:

(105, 52110), (148, 51981), (Start: 174 @51891 has 2 MA's), (Start: 235 @51762 has 27 MA's), (250, 51717), (284, 51627), (285, 51624), (290, 51618), (301, 51597), (332, 51534), (369, 51426), (372, 51408), (401, 51321), (404, 51306), (415, 51264), (436, 51183), (451, 51135), (461, 51093), (465,

51075), (471, 51072), (479, 51045), (494, 50994), (507, 50958), (522, 50907), (558, 50823), (563, 50802), (625, 50646), (626, 50640), (628, 50628), (656, 50502), (697, 50388),

Gene: Msay19\_64 Start: 54046, Stop: 52514, Start Num: 187

Candidate Starts for Msay19\_64:

(105, 54301), (118, 54250), (159, 54145), (166, 54115), (Start: 174 @54082 has 2 MA's), (178, 54073), (Start: 187 @54046 has 24 MA's), (250, 53878), (261, 53836), (271, 53818), (284, 53788), (292, 53776), (300, 53764), (301, 53758), (309, 53737), (372, 53569), (401, 53482), (404, 53467), (406, 53455), (415, 53425), (425, 53374), (451, 53296), (457, 53272), (461, 53254), (465, 53236), (471, 53233), (474, 53224), (479, 53206), (491, 53164), (507, 53119), (513, 53101), (558, 52984), (562, 52969), (569, 52948), (611, 52867), (612, 52864), (625, 52807), (626, 52801), (628, 52789), (645, 52714), (652, 52675), (656, 52663), (657, 52660), (689, 52567), (697, 52552),

Gene: NadineRae\_71 Start: 52357, Stop: 50276, Start Num: 27

Candidate Starts for NadineRae\_71:

(Start: 27 @52357 has 31 MA's), (94, 52126), (201, 51838), (219, 51805), (229, 51784), (246, 51730), (248, 51724), (249, 51721), (286, 51631), (289, 51628), (325, 51568), (384, 51412), (426, 51265), (442, 51184), (451, 51157), (456, 51133), (478, 51031), (496, 50977), (501, 50962), (525, 50881), (550, 50842), (565, 50779), (575, 50740), (577, 50734), (585, 50704), (617, 50587), (632, 50524), (646, 50461), (649, 50443), (674, 50359),

Gene: Nancia\_25 Start: 20580, Stop: 21974, Start Num: 217

Candidate Starts for Nancia\_25:

(Start: 217 @20580 has 72 MA's), (241, 20637), (293, 20742), (295, 20745), (338, 20829), (353, 20862), (371, 20913), (373, 20919), (398, 21000), (399, 21003), (401, 21009), (409, 21045), (414, 21063), (415, 21066), (420, 21099), (426, 21120), (473, 21252), (480, 21279), (493, 21318), (499, 21339), (500, 21345), (510, 21378), (515, 21393), (517, 21402), (538, 21447), (551, 21483), (563, 21525), (584, 21588), (591, 21606), (616, 21708), (617, 21711), (623, 21729), (624, 21732), (629, 21756), (630, 21765), (649, 21852), (678, 21942), (685, 21966),

Gene: NarutoRun\_40 Start: 25911, Stop: 27818, Start Num: 51

Candidate Starts for NarutoRun\_40:

(Start: 51 @25911 has 32 MA's), (73, 25974), (85, 25995), (94, 26049), (156, 26226), (177, 26271), (245, 26445), (248, 26454), (286, 26544), (312, 26601), (380, 26787), (421, 26922), (424, 26934), (433, 26967), (478, 27096), (516, 27213), (557, 27288), (617, 27522), (618, 27525), (631, 27585), (650, 27675), (659, 27705), (671, 27747), (692, 27798),

Gene: NatB6\_72 Start: 55674, Stop: 53746, Start Num: 69

Candidate Starts for NatB6\_72:

(1, 56310), (4, 56109), (6, 56016), (7, 56004), (9, 55986), (Start: 27 @55812 has 31 MA's), (Start: 69 @55674 has 2 MA's), (75, 55650), (134, 55446), (154, 55401), (201, 55293), (248, 55179), (249, 55176), (286, 55086), (289, 55083), (325, 55023), (379, 54885), (384, 54867), (397, 54843), (426, 54720), (451, 54615), (478, 54489), (496, 54435), (503, 54414), (550, 54300), (575, 54204), (577, 54198), (585, 54168), (604, 54111), (617, 54051), (632, 53988), (649, 53907),

Gene: Neovie\_57 Start: 52863, Stop: 51451, Start Num: 235

Candidate Starts for Neovie\_57:

(105, 53211), (148, 53082), (173, 52995), (Start: 174 @52992 has 2 MA's), (Start: 235 @52863 has 27 MA's), (250, 52818), (284, 52728), (285, 52725), (290, 52719), (301, 52698), (332, 52635), (369, 52527), (372, 52509), (401, 52422), (404, 52407), (415, 52365), (436, 52284), (451, 52236), (461, 52194), (465, 52176), (471, 52173), (479, 52146), (494, 52095), (507, 52059), (522, 52008), (558, 51924), (563, 51903), (625, 51747), (626, 51741), (628, 51729), (656, 51603), (697, 51489),

Gene: Neptune\_40 Start: 25911, Stop: 27818, Start Num: 51

Candidate Starts for Neptune\_40:

(Start: 51 @25911 has 32 MA's), (73, 25974), (85, 25995), (94, 26049), (156, 26226), (177, 26271), (245, 26445), (248, 26454), (286, 26544), (380, 26787), (421, 26922), (424, 26934), (433, 26967), (478, 27096), (516, 27213), (557, 27288), (617, 27522), (618, 27525), (631, 27585), (650, 27675), (659, 27705), (671, 27747), (692, 27798),

Gene: Newt\_58 Start: 53091, Stop: 51679, Start Num: 235

Candidate Starts for Newt\_58:

(105, 53439), (148, 53310), (173, 53223), (Start: 174 @53220 has 2 MA's), (Start: 235 @53091 has 27 MA's), (250, 53046), (284, 52956), (285, 52953), (290, 52947), (301, 52926), (332, 52863), (369, 52755), (372, 52737), (401, 52650), (404, 52635), (415, 52593), (436, 52512), (451, 52464), (461, 52422), (465, 52404), (471, 52401), (479, 52374), (494, 52323), (507, 52287), (522, 52236), (558, 52152), (563, 52131), (625, 51975), (626, 51969), (628, 51957), (656, 51831), (697, 51717),

Gene: Niagara\_57 Start: 53309, Stop: 51606, Start Num: 123

Candidate Starts for Niagara\_57:

(Start: 123 @53309 has 6 MA's), (Start: 127 @53297 has 2 MA's), (193, 53114), (Start: 235 @53024 has 27 MA's), (238, 53015), (250, 52979), (255, 52955), (257, 52946), (261, 52937), (284, 52889), (300, 52865), (332, 52793), (342, 52772), (353, 52736), (354, 52733), (390, 52604), (393, 52601), (404, 52565), (405, 52562), (409, 52544), (411, 52535), (415, 52523), (424, 52475), (436, 52442), (451, 52394), (457, 52370), (479, 52304), (507, 52205), (548, 52106), (551, 52097), (557, 52073), (558, 52070), (605, 51977), (611, 51953), (612, 51950), (625, 51893), (628, 51875), (652, 51758), (653, 51755), (657, 51743), (697, 51644), (708, 51623),

Gene: Nilo\_68 Start: 47960, Stop: 49720, Start Num: 146

Candidate Starts for Nilo\_68:

(Start: 146 @47960 has 9 MA's), (Start: 174 @48029 has 2 MA's), (215, 48125), (Start: 220 @48134 has 1 MA's), (249, 48215), (261, 48260), (366, 48461), (376, 48509), (397, 48569), (401, 48581), (417, 48647), (443, 48770), (451, 48794), (456, 48818), (478, 49022), (487, 49055), (492, 49070), (506, 49109), (507, 49112), (510, 49121), (550, 49190), (592, 49322), (617, 49445), (618, 49448), (626, 49475), (631, 49505), (633, 49511), (634, 49514), (638, 49532), (642, 49544), (677, 49679), (689, 49709),

Gene: Nimi13\_57 Start: 52610, Stop: 51198, Start Num: 235

Candidate Starts for Nimi13\_57:

(105, 52958), (148, 52829), (Start: 174 @52739 has 2 MA's), (Start: 235 @52610 has 27 MA's), (250, 52565), (284, 52475), (285, 52472), (290, 52466), (301, 52445), (332, 52382), (369, 52274), (372, 52256), (401, 52169), (404, 52154), (415, 52112), (436, 52031), (451, 51983), (461, 51941), (465, 51923), (471, 51920), (479, 51893), (494, 51842), (507, 51806), (522, 51755), (558, 51671), (563, 51650), (625, 51494), (626, 51488), (628, 51476), (656, 51350), (697, 51236),

Gene: NorManre\_63 Start: 40960, Stop: 42873, Start Num: 43

Candidate Starts for NorManre\_63:

(17, 40834), (18, 40843), (19, 40855), (26, 40888), (Start: 42 @40957 has 11 MA's), (Start: 43 @40960 has 59 MA's), (Start: 57 @40972 has 1 MA's), (68, 41020), (96, 41122), (120, 41212), (132, 41239), (134, 41248), (168, 41320), (219, 41440), (242, 41503), (281, 41593), (294, 41620), (366, 41749), (371, 41773), (379, 41815), (399, 41863), (404, 41884), (409, 41905), (421, 41962), (426, 41980), (434, 42016), (447, 42058), (462, 42118), (487, 42214), (488, 42217), (564, 42394), (583, 42445), (611, 42535), (617, 42571), (619, 42577), (631, 42631), (642, 42670), (665, 42772), (669, 42787), (677, 42808), (705, 42865),

Gene: NosilaM\_73 Start: 56110, Stop: 54188, Start Num: 77

Candidate Starts for NosilaM\_73:

(Start: 27 @56275 has 31 MA's), (Start: 77 @56110 has 1 MA's), (79, 56107), (154, 55852), (201, 55744), (229, 55690), (249, 55627), (286, 55537), (289, 55534), (302, 55510), (325, 55474), (379, 55336), (384, 55318), (389, 55309), (397, 55294), (426, 55171), (442, 55087), (451, 55060), (456, 55036), (478, 54937), (496, 54883), (513, 54829), (525, 54787), (550, 54748), (568, 54679), (575, 54646), (585, 54610), (603, 54565), (604, 54553), (617, 54493), (632, 54430), (674, 54265),

Gene: Nova\_52 Start: 40183, Stop: 42126, Start Num: 43

Candidate Starts for Nova\_52:

(32, 40120), (Start: 43 @40183 has 59 MA's), (59, 40210), (81, 40282), (93, 40336), (108, 40396), (113, 40423), (133, 40474), (134, 40477), (151, 40516), (168, 40552), (201, 40639), (240, 40732), (245, 40747), (251, 40768), (306, 40870), (322, 40903), (333, 40927), (368, 40987), (389, 41074), (412, 41149), (434, 41239), (451, 41290), (452, 41293), (473, 41383), (478, 41401), (487, 41434), (510, 41500), (516, 41518), (550, 41581), (575, 41665), (611, 41782), (617, 41830), (632, 41893), (649, 41977),

Gene: NovaSharks\_62 Start: 39405, Stop: 41321, Start Num: 42

Candidate Starts for NovaSharks\_62:

(Start: 42 @39405 has 11 MA's), (Start: 43 @39408 has 59 MA's), (Start: 57 @39420 has 1 MA's), (68, 39468), (80, 39501), (120, 39660), (132, 39687), (134, 39696), (168, 39768), (219, 39888), (242, 39951), (281, 40041), (294, 40068), (366, 40197), (371, 40221), (379, 40263), (381, 40275), (389, 40290), (399, 40311), (404, 40332), (409, 40353), (421, 40410), (426, 40428), (434, 40464), (447, 40506), (462, 40566), (487, 40662), (488, 40665), (564, 40842), (583, 40893), (611, 40983), (617, 41019), (619, 41025), (631, 41079), (642, 41118), (665, 41220), (669, 41235), (677, 41256),

Gene: NovumRegina\_72 Start: 56100, Stop: 54034, Start Num: 27

Candidate Starts for NovumRegina\_72:

(6, 56304), (7, 56292), (9, 56274), (Start: 27 @56100 has 31 MA's), (Start: 69 @55962 has 2 MA's), (75, 55938), (134, 55734), (154, 55689), (201, 55581), (248, 55467), (249, 55464), (286, 55374), (289, 55371), (325, 55311), (379, 55173), (384, 55155), (397, 55131), (426, 55008), (451, 54903), (478, 54777), (496, 54723), (547, 54597), (550, 54588), (556, 54564), (575, 54492), (577, 54486), (585, 54456), (604, 54399), (617, 54339), (632, 54276), (649, 54195),

Gene: Nubia\_29 Start: 22080, Stop: 23471, Start Num: 217

Candidate Starts for Nubia\_29:

(Start: 217 @22080 has 72 MA's), (251, 22167), (293, 22239), (295, 22242), (330, 22308), (338, 22326), (341, 22332), (353, 22359), (373, 22416), (382, 22467), (401, 22506), (409, 22542), (414, 22560), (420, 22596), (426, 22617), (433, 22635), (446, 22668), (458, 22707), (473, 22749), (480, 22776), (487, 22800), (499, 22836), (500, 22842), (510, 22875), (515, 22890), (517, 22899), (538, 22944), (550, 22977), (551, 22980), (584, 23085), (587, 23097), (595, 23115), (616, 23205), (623, 23226), (624, 23229), (629, 23253), (630, 23262), (649, 23349), (664, 23400), (678, 23439), (685, 23463),

Gene: OMalley\_26 Start: 21745, Stop: 23139, Start Num: 217

Candidate Starts for OMalley\_26:

(Start: 217 @21745 has 72 MA's), (241, 21802), (275, 21889), (293, 21907), (295, 21910), (338, 21994), (353, 22027), (371, 22078), (373, 22084), (387, 22144), (401, 22174), (409, 22210), (414, 22228), (426, 22285), (433, 22303), (435, 22309), (446, 22336), (473, 22417), (480, 22444), (487, 22468), (493, 22483), (500, 22510), (510, 22543), (515, 22558), (563, 22690), (576, 22726), (584, 22753), (587, 22765), (595, 22783), (616, 22873), (618, 22879), (623, 22894), (624, 22897), (630, 22930), (645, 22990), (649, 23017), (666, 23074), (678, 23107), (685, 23131),

Gene: Oaker\_60 Start: 46344, Stop: 48401, Start Num: 43



Candidate Starts for Oaker\_60:

(Start: 43 @46344 has 59 MA's), (66, 46404), (67, 46407), (Start: 92 @46500 has 3 MA's), (95, 46512), (101, 46533), (137, 46656), (138, 46659), (144, 46668), (156, 46701), (162, 46722), (173, 46770), (189, 46812), (219, 46875), (229, 46896), (231, 46902), (249, 46956), (336, 47142), (339, 47154), (351, 47172), (366, 47187), (368, 47193), (451, 47511), (452, 47514), (462, 47559), (475, 47610), (478, 47622), (506, 47712), (510, 47724), (520, 47757), (541, 47781), (544, 47790), (577, 47880), (586, 47913), (616, 48024), (617, 48027), (618, 48030), (619, 48033), (628, 48069), (631, 48087), (646, 48153), (649, 48171), (710, 48348),

Gene: Onyinye\_65 Start: 45953, Stop: 47881, Start Num: 43

Candidate Starts for Onyinye\_65:

(Start: 43 @45953 has 59 MA's), (58, 45974), (64, 46004), (Start: 92 @46103 has 3 MA's), (108, 46166), (132, 46238), (134, 46247), (156, 46295), (245, 46511), (251, 46532), (257, 46553), (258, 46556), (269, 46568), (284, 46595), (341, 46718), (368, 46754), (381, 46826), (386, 46835), (401, 46868), (415, 46925), (418, 46937), (434, 47006), (437, 47015), (443, 47033), (451, 47057), (475, 47153), (478, 47165), (487, 47198), (503, 47240), (521, 47303), (570, 47408), (627, 47624), (631, 47648), (632, 47651), (643, 47693), (648, 47723), (655, 47747), (700, 47864),

Gene: Orchid\_57 Start: 50422, Stop: 48932, Start Num: 202

Candidate Starts for Orchid\_57:

(Start: 202 @50422 has 5 MA's), (238, 50329), (241, 50320), (245, 50308), (250, 50293), (255, 50275), (285, 50218), (315, 50146), (316, 50143), (352, 50050), (364, 50017), (370, 49984), (371, 49981), (374, 49960), (401, 49891), (409, 49855), (431, 49768), (451, 49705), (452, 49702), (460, 49672), (482, 49600), (485, 49591), (541, 49468), (543, 49462), (601, 49330), (612, 49288), (621, 49243), (628, 49213), (702, 48961),

Gene: Ottawa\_61 Start: 33948, Stop: 35849, Start Num: 100

Candidate Starts for Ottawa\_61:

(75, 33855), (Start: 100 @33948 has 2 MA's), (122, 34035), (142, 34089), (161, 34140), (172, 34188), (181, 34212), (231, 34338), (234, 34347), (326, 34533), (347, 34575), (383, 34722), (395, 34743), (408, 34800), (415, 34824), (422, 34866), (435, 34902), (476, 35040), (505, 35142), (551, 35268), (557, 35292), (568, 35334), (641, 35619), (655, 35682), (662, 35712), (693, 35793), (702, 35808),

Gene: OtterstedtS21\_60 Start: 40582, Stop: 42495, Start Num: 43

Candidate Starts for OtterstedtS21\_60:

(Start: 42 @40579 has 11 MA's), (Start: 43 @40582 has 59 MA's), (Start: 57 @40594 has 1 MA's), (68, 40642), (80, 40675), (96, 40744), (120, 40834), (132, 40861), (134, 40870), (168, 40942), (201, 41029), (219, 41062), (242, 41125), (281, 41215), (366, 41371), (371, 41395), (379, 41437), (399, 41485), (404, 41506), (409, 41527), (421, 41584), (434, 41638), (447, 41680), (462, 41740), (487, 41836), (488, 41839), (564, 42016), (583, 42067), (611, 42157), (617, 42193), (619, 42199), (631, 42253), (642, 42292), (665, 42394), (669, 42409), (677, 42430),

Gene: Outis\_73 Start: 56760, Stop: 54685, Start Num: 27

Candidate Starts for Outis\_73:

(Start: 27 @56760 has 31 MA's), (61, 56640), (Start: 77 @56595 has 1 MA's), (79, 56592), (154, 56349), (183, 56292), (201, 56241), (229, 56187), (249, 56124), (286, 56034), (289, 56031), (302, 56007), (325, 55971), (384, 55815), (397, 55791), (426, 55668), (451, 55557), (456, 55533), (478, 55434), (496, 55380), (513, 55326), (525, 55284), (550, 55245), (568, 55176), (575, 55143), (585, 55107), (603, 55062), (604, 55050), (617, 54990), (632, 54927), (649, 54846), (674, 54762),

Gene: OverHedge\_40 Start: 25901, Stop: 27808, Start Num: 51

Candidate Starts for OverHedge\_40:

(Start: 51 @25901 has 32 MA's), (73, 25964), (85, 25985), (94, 26039), (156, 26216), (177, 26261), (245, 26435), (248, 26444), (286, 26534), (312, 26591), (380, 26777), (421, 26912), (424, 26924), (433, 26957), (478, 27086), (516, 27203), (557, 27278), (617, 27512), (618, 27515), (631, 27575), (650, 27665), (659, 27695), (671, 27737), (692, 27788),

Gene: Oxynfrius\_29 Start: 22093, Stop: 23484, Start Num: 217

Candidate Starts for Oxynfrius\_29:

(Start: 217 @22093 has 72 MA's), (251, 22180), (293, 22252), (295, 22255), (330, 22321), (338, 22339), (341, 22345), (353, 22372), (373, 22429), (382, 22480), (401, 22519), (409, 22555), (414, 22573), (420, 22609), (426, 22630), (433, 22648), (446, 22681), (458, 22720), (473, 22762), (480, 22789), (487, 22813), (499, 22849), (500, 22855), (510, 22888), (515, 22903), (517, 22912), (538, 22957), (550, 22990), (551, 22993), (584, 23098), (587, 23110), (595, 23128), (616, 23218), (623, 23239), (624, 23242), (629, 23266), (630, 23275), (649, 23362), (664, 23413), (678, 23452), (685, 23476),

Gene: P1201\_75 Start: 57035, Stop: 55065, Start Num: 55

Candidate Starts for P1201\_75:

(Start: 55 @57035 has 8 MA's), (93, 56897), (99, 56873), (141, 56741), (196, 56618), (201, 56600), (207, 56597), (286, 56390), (368, 56249), (433, 55979), (440, 55955), (447, 55934), (460, 55886), (478, 55790), (487, 55757), (507, 55700), (509, 55694), (510, 55691), (577, 55502), (627, 55319), (632, 55292), (646, 55229), (649, 55211),

Gene: PBI1\_50 Start: 39660, Stop: 41603, Start Num: 43

Candidate Starts for PBI1\_50:

(Start: 43 @39660 has 59 MA's), (59, 39687), (81, 39759), (93, 39813), (108, 39873), (112, 39891), (113, 39900), (133, 39951), (151, 39993), (168, 40029), (201, 40116), (240, 40209), (245, 40224), (251, 40245), (306, 40347), (322, 40380), (333, 40404), (368, 40464), (389, 40551), (412, 40626), (434, 40716), (451, 40767), (452, 40770), (473, 40860), (478, 40878), (487, 40911), (506, 40965), (510, 40977), (516, 40995), (550, 41058), (575, 41142), (611, 41259), (617, 41307), (632, 41370), (649, 41454),

Gene: PHTowN\_70 Start: 50156, Stop: 48270, Start Num: 43

Candidate Starts for PHTowN\_70:

(33, 50216), (Start: 43 @50156 has 59 MA's), (56, 50141), (73, 50078), (Start: 77 @50069 has 1 MA's), (85, 50057), (105, 49964), (124, 49901), (132, 49883), (156, 49826), (168, 49802), (232, 49643), (245, 49604), (248, 49595), (296, 49487), (347, 49379), (379, 49274), (411, 49175), (424, 49115), (450, 49028), (451, 49025), (487, 48920), (490, 48911), (496, 48899), (549, 48800), (560, 48761), (583, 48683), (586, 48671), (596, 48644), (618, 48554), (623, 48539), (634, 48485), (646, 48428), (683, 48302),

Gene: PLOT\_53 Start: 39756, Stop: 41699, Start Num: 43

Candidate Starts for PLOT\_53:

(32, 39693), (Start: 43 @39756 has 59 MA's), (59, 39783), (81, 39855), (93, 39909), (108, 39969), (113, 39996), (133, 40047), (151, 40089), (168, 40125), (201, 40212), (240, 40305), (245, 40320), (251, 40341), (306, 40443), (322, 40476), (333, 40500), (368, 40560), (389, 40647), (412, 40722), (434, 40812), (451, 40863), (452, 40866), (473, 40956), (478, 40974), (487, 41007), (510, 41073), (516, 41091), (550, 41154), (575, 41238), (611, 41355), (617, 41403), (632, 41466), (649, 41550),

Gene: Papyrus\_66 Start: 47571, Stop: 49331, Start Num: 146

Candidate Starts for Papyrus\_66:

(Start: 146 @47571 has 9 MA's), (Start: 174 @47640 has 2 MA's), (215, 47736), (Start: 220 @47745 has 1 MA's), (249, 47826), (261, 47871), (366, 48072), (376, 48120), (397, 48180), (401, 48192), (417, 48258), (443, 48381), (451, 48405), (456, 48429), (478, 48633), (487, 48666), (492, 48681), (506,

48720), (507, 48723), (510, 48732), (550, 48801), (592, 48933), (617, 49056), (618, 49059), (626, 49086), (631, 49116), (633, 49122), (634, 49125), (638, 49143), (642, 49155), (677, 49290), (686, 49317), (689, 49320),

Gene: PartyCup\_29 Start: 22162, Stop: 23556, Start Num: 217

Candidate Starts for PartyCup\_29:

(Start: 217 @22162 has 72 MA's), (241, 22219), (293, 22324), (338, 22411), (371, 22495), (372, 22498), (373, 22501), (401, 22591), (409, 22627), (411, 22636), (414, 22645), (426, 22702), (433, 22720), (446, 22753), (450, 22765), (473, 22834), (480, 22861), (487, 22885), (499, 22921), (500, 22927), (510, 22960), (515, 22975), (517, 22984), (554, 23074), (576, 23143), (584, 23170), (591, 23188), (595, 23200), (616, 23290), (618, 23296), (621, 23305), (623, 23311), (630, 23347), (649, 23434), (666, 23491), (678, 23524), (685, 23548),

Gene: ParvusTarda\_59 Start: 39954, Stop: 41870, Start Num: 42

Candidate Starts for ParvusTarda\_59:

(17, 39831), (18, 39840), (19, 39852), (26, 39885), (Start: 42 @39954 has 11 MA's), (Start: 43 @39957 has 59 MA's), (Start: 57 @39969 has 1 MA's), (68, 40017), (80, 40050), (96, 40119), (120, 40209), (132, 40236), (134, 40245), (168, 40317), (201, 40404), (219, 40437), (242, 40500), (281, 40590), (366, 40746), (371, 40770), (379, 40812), (399, 40860), (404, 40881), (409, 40902), (421, 40959), (434, 41013), (447, 41055), (462, 41115), (487, 41211), (488, 41214), (564, 41391), (583, 41442), (611, 41532), (617, 41568), (619, 41574), (631, 41628), (642, 41667), (665, 41769), (669, 41784), (677, 41805),

Gene: Patbob\_102 Start: 80820, Stop: 82658, Start Num: 49

Candidate Starts for Patbob\_102:

(Start: 49 @80820 has 2 MA's), (98, 80979), (130, 81075), (170, 81135), (183, 81165), (219, 81255), (231, 81285), (247, 81336), (321, 81396), (433, 81792), (439, 81813), (453, 81858), (478, 81921), (487, 81954), (491, 81966), (497, 81978), (510, 82023), (521, 82062), (546, 82119), (548, 82125), (557, 82158), (585, 82227), (612, 82311), (638, 82428), (684, 82602), (706, 82644),

Gene: Patience\_76 Start: 49716, Stop: 51749, Start Num: 50

Candidate Starts for Patience\_76:

(Start: 50 @49716 has 3 MA's), (59, 49740), (Start: 77 @49803 has 1 MA's), (94, 49869), (106, 49920), (107, 49923), (144, 50031), (156, 50064), (173, 50103), (184, 50127), (210, 50190), (219, 50208), (Start: 220 @50211 has 1 MA's), (229, 50229), (231, 50235), (252, 50304), (260, 50331), (268, 50343), (291, 50376), (336, 50478), (381, 50601), (397, 50631), (421, 50736), (426, 50754), (450, 50844), (451, 50847), (468, 50949), (469, 50988), (475, 51015), (477, 51021), (478, 51027), (492, 51075), (499, 51093), (506, 51120), (510, 51132), (513, 51141), (616, 51429), (646, 51558), (655, 51591), (659, 51609), (675, 51663), (692, 51702),

Gene: Patio\_74 Start: 56655, Stop: 54598, Start Num: 27

Candidate Starts for Patio\_74:

(5, 56943), (8, 56835), (Start: 27 @56655 has 31 MA's), (144, 56280), (189, 56172), (207, 56139), (229, 56088), (248, 56028), (249, 56025), (278, 55953), (286, 55935), (325, 55872), (327, 55866), (337, 55839), (372, 55773), (379, 55734), (384, 55716), (397, 55692), (412, 55632), (426, 55569), (431, 55536), (451, 55473), (478, 55350), (501, 55281), (506, 55263), (550, 55158), (553, 55149), (568, 55089), (575, 55056), (577, 55050), (585, 55020), (604, 54963), (617, 54903), (626, 54873), (632, 54840), (674, 54675),

Gene: Patos\_63 Start: 40959, Stop: 42872, Start Num: 43

Candidate Starts for Patos\_63:

(17, 40833), (18, 40842), (19, 40854), (26, 40887), (Start: 42 @40956 has 11 MA's), (Start: 43 @40959 has 59 MA's), (Start: 57 @40971 has 1 MA's), (68, 41019), (96, 41121), (120, 41211), (132,

41238), (134, 41247), (168, 41319), (219, 41439), (242, 41502), (281, 41592), (294, 41619), (366, 41748), (371, 41772), (379, 41814), (399, 41862), (404, 41883), (409, 41904), (421, 41961), (426, 41979), (434, 42015), (447, 42057), (462, 42117), (487, 42213), (488, 42216), (564, 42393), (583, 42444), (611, 42534), (617, 42570), (619, 42576), (631, 42630), (642, 42669), (665, 42771), (669, 42786), (677, 42807), (705, 42864),

Gene: PatrickStar\_58 Start: 50421, Stop: 48931, Start Num: 202

Candidate Starts for PatrickStar\_58:

(Start: 202 @50421 has 5 MA's), (238, 50328), (241, 50319), (245, 50307), (250, 50292), (255, 50274), (285, 50217), (315, 50145), (316, 50142), (352, 50049), (364, 50016), (370, 49983), (371, 49980), (374, 49959), (401, 49890), (409, 49854), (431, 49767), (451, 49704), (452, 49701), (460, 49671), (482, 49599), (485, 49590), (541, 49467), (543, 49461), (601, 49329), (612, 49287), (621, 49242), (628, 49212), (702, 48960),

Gene: PauloDiaboli\_114 Start: 78533, Stop: 76683, Start Num: 53

Candidate Starts for PauloDiaboli\_114:

(34, 78602), (35, 78596), (Start: 53 @78533 has 7 MA's), (64, 78488), (68, 78476), (107, 78350), (128, 78287), (170, 78212), (212, 78104), (222, 78086), (245, 78017), (252, 77990), (317, 77930), (371, 77765), (412, 77621), (431, 77534), (439, 77507), (451, 77471), (453, 77462), (477, 77405), (478, 77399), (491, 77354), (497, 77342), (504, 77321), (511, 77297), (521, 77261), (539, 77216), (577, 77132), (579, 77129), (580, 77123), (602, 77060), (626, 76958), (645, 76871), (653, 76829), (667, 76778),

Gene: Penelope2018\_53 Start: 39774, Stop: 41717, Start Num: 43

Candidate Starts for Penelope2018\_53:

(28, 39705), (Start: 43 @39774 has 59 MA's), (59, 39801), (81, 39873), (93, 39927), (108, 39987), (112, 40005), (113, 40014), (133, 40065), (151, 40107), (168, 40143), (201, 40230), (240, 40323), (245, 40338), (251, 40359), (306, 40461), (322, 40494), (333, 40518), (368, 40578), (389, 40665), (412, 40740), (434, 40830), (451, 40881), (452, 40884), (473, 40974), (478, 40992), (487, 41025), (506, 41079), (510, 41091), (516, 41109), (550, 41172), (575, 41256), (611, 41373), (617, 41421), (632, 41484), (649, 41568),

Gene: PermaG\_34 Start: 23404, Stop: 24831, Start Num: 221

Candidate Starts for PermaG\_34:

(Start: 202 @23362 has 5 MA's), (Start: 221 @23404 has 3 MA's), (293, 23560), (371, 23758), (372, 23761), (373, 23764), (375, 23782), (404, 23869), (409, 23890), (435, 23989), (454, 24055), (486, 24157), (487, 24160), (500, 24205), (506, 24226), (515, 24253), (522, 24280), (523, 24283), (526, 24295), (538, 24310), (541, 24316), (553, 24352), (563, 24388), (571, 24400), (579, 24430), (605, 24514), (611, 24532), (612, 24535), (630, 24622), (634, 24634), (644, 24673), (649, 24709), (652, 24715), (673, 24790),

Gene: PeteyPab\_71 Start: 52509, Stop: 50584, Start Num: 55

Candidate Starts for PeteyPab\_71:

(25, 52602), (26, 52596), (Start: 55 @52509 has 8 MA's), (103, 52338), (115, 52284), (201, 52080), (259, 51924), (286, 51873), (289, 51870), (313, 51828), (367, 51741), (368, 51738), (381, 51666), (386, 51657), (477, 51306), (478, 51300), (487, 51267), (604, 50928), (619, 50862), (623, 50850), (627, 50832), (632, 50805), (646, 50742), (655, 50709), (675, 50637),

Gene: Pharpay\_40 Start: 25956, Stop: 27863, Start Num: 51

Candidate Starts for Pharpay\_40:

(Start: 51 @25956 has 32 MA's), (73, 26019), (85, 26040), (94, 26094), (156, 26271), (177, 26316), (245, 26490), (248, 26499), (286, 26589), (312, 26646), (380, 26832), (421, 26967), (424, 26979), (433, 27012), (478, 27141), (516, 27258), (557, 27333), (617, 27567), (618, 27570), (631, 27630),

(650, 27720), (659, 27750), (671, 27792), (692, 27843),

Gene: Phendrix\_173 Start: 92821, Stop: 90896, Start Num: 53

Candidate Starts for Phendrix\_173:

(Start: 53 @92821 has 7 MA's), (62, 92779), (98, 92665), (120, 92590), (153, 92521), (173, 92452), (329, 92179), (335, 92161), (346, 92137), (358, 92098), (406, 91918), (426, 91834), (431, 91810), (450, 91750), (453, 91738), (460, 91711), (487, 91642), (488, 91639), (530, 91474), (542, 91423), (550, 91399), (575, 91333), (586, 91294), (592, 91282), (620, 91174), (628, 91141), (632, 91120), (641, 91087), (649, 91036), (656, 91018),

Gene: Philon9\_55 Start: 53812, Stop: 52235, Start Num: 167

Candidate Starts for Philon9\_55:

(Start: 123 @53944 has 6 MA's), (Start: 127 @53932 has 2 MA's), (Start: 167 @53812 has 1 MA's), (182, 53779), (191, 53749), (195, 53743), (238, 53635), (250, 53599), (255, 53575), (257, 53566), (261, 53557), (284, 53509), (285, 53506), (290, 53500), (292, 53497), (349, 53374), (354, 53353), (370, 53293), (393, 53221), (401, 53200), (404, 53185), (405, 53182), (406, 53173), (451, 53014), (463, 52963), (471, 52951), (473, 52945), (479, 52924), (492, 52879), (507, 52834), (520, 52792), (548, 52735), (556, 52705), (557, 52702), (558, 52699), (589, 52645), (625, 52522), (628, 52504), (652, 52387), (653, 52384), (657, 52372), (708, 52252),

Gene: Phomeo\_72 Start: 56270, Stop: 54342, Start Num: 69

Candidate Starts for Phomeo\_72:

(1, 56906), (4, 56705), (6, 56612), (7, 56600), (9, 56582), (Start: 27 @56408 has 31 MA's), (Start: 69 @56270 has 2 MA's), (75, 56246), (134, 56042), (154, 55997), (201, 55889), (248, 55775), (249, 55772), (286, 55682), (289, 55679), (325, 55619), (379, 55481), (384, 55463), (397, 55439), (426, 55316), (451, 55211), (478, 55085), (496, 55031), (547, 54905), (550, 54896), (556, 54872), (575, 54800), (577, 54794), (585, 54764), (604, 54707), (617, 54647), (632, 54584), (649, 54503),

Gene: Phrampa\_96 Start: 82318, Stop: 84156, Start Num: 49

Candidate Starts for Phrampa\_96:

(Start: 49 @82318 has 2 MA's), (98, 82477), (130, 82573), (170, 82633), (183, 82663), (219, 82753), (231, 82783), (321, 82894), (419, 83233), (439, 83311), (453, 83356), (478, 83419), (487, 83452), (491, 83464), (497, 83476), (501, 83491), (502, 83494), (510, 83521), (521, 83560), (546, 83617), (548, 83623), (557, 83656), (585, 83725), (612, 83809), (638, 83926), (684, 84100), (706, 84142),

Gene: Phreeze\_60 Start: 45650, Stop: 47707, Start Num: 43

Candidate Starts for Phreeze\_60:

(Start: 43 @45650 has 59 MA's), (66, 45710), (67, 45713), (Start: 92 @45806 has 3 MA's), (95, 45818), (101, 45839), (137, 45962), (138, 45965), (144, 45974), (156, 46007), (162, 46028), (173, 46076), (219, 46181), (229, 46202), (231, 46208), (249, 46262), (336, 46448), (339, 46460), (351, 46478), (366, 46493), (368, 46499), (451, 46817), (452, 46820), (462, 46865), (475, 46916), (478, 46928), (506, 47018), (510, 47030), (520, 47063), (541, 47087), (544, 47096), (577, 47186), (586, 47219), (616, 47330), (617, 47333), (618, 47336), (619, 47339), (631, 47393), (646, 47459), (649, 47477), (710, 47654),

Gene: PhunaPhoke\_40 Start: 25929, Stop: 27836, Start Num: 51

Candidate Starts for PhunaPhoke\_40:

(Start: 51 @25929 has 32 MA's), (73, 25992), (85, 26013), (94, 26067), (156, 26244), (177, 26289), (245, 26463), (248, 26472), (286, 26562), (312, 26619), (380, 26805), (421, 26940), (424, 26952), (433, 26985), (478, 27114), (516, 27231), (557, 27306), (617, 27540), (618, 27543), (631, 27603), (650, 27693), (659, 27723), (671, 27765), (692, 27816),

Gene: PierreThree\_58 Start: 52668, Stop: 51259, Start Num: 235

Candidate Starts for PierreThree\_58:

(105, 53046), (118, 52995), (137, 52944), (159, 52890), (166, 52860), (Start: 174 @52827 has 2 MA's), (178, 52818), (Start: 187 @52791 has 24 MA's), (Start: 235 @52668 has 27 MA's), (250, 52623), (261, 52581), (284, 52533), (285, 52530), (290, 52524), (292, 52521), (300, 52509), (301, 52503), (325, 52455), (326, 52452), (369, 52332), (372, 52314), (390, 52251), (401, 52227), (404, 52212), (425, 52119), (451, 52041), (465, 51981), (471, 51978), (474, 51969), (479, 51951), (491, 51909), (507, 51864), (513, 51846), (558, 51729), (562, 51714), (569, 51693), (611, 51612), (612, 51609), (625, 51552), (626, 51546), (628, 51534), (640, 51483), (644, 51468), (645, 51459), (652, 51420), (656, 51408), (689, 51312), (697, 51297),

Gene: PinkFriday\_25 Start: 20614, Stop: 22011, Start Num: 217

Candidate Starts for PinkFriday\_25:

(Start: 217 @20614 has 72 MA's), (241, 20674), (275, 20761), (293, 20779), (338, 20866), (341, 20872), (353, 20899), (371, 20950), (373, 20956), (387, 21016), (398, 21037), (401, 21046), (409, 21082), (414, 21100), (415, 21103), (420, 21136), (426, 21157), (433, 21175), (435, 21181), (446, 21208), (454, 21235), (473, 21289), (477, 21301), (480, 21316), (487, 21340), (493, 21355), (495, 21361), (500, 21382), (510, 21415), (515, 21430), (517, 21439), (541, 21490), (563, 21562), (584, 21625), (591, 21643), (612, 21715), (614, 21739), (616, 21745), (617, 21748), (623, 21766), (630, 21802), (649, 21889), (678, 21979), (685, 22003),

Gene: PitaDog\_25 Start: 20567, Stop: 21961, Start Num: 217

Candidate Starts for PitaDog\_25:

(Start: 217 @20567 has 72 MA's), (241, 20624), (293, 20729), (295, 20732), (338, 20816), (353, 20849), (371, 20900), (373, 20906), (398, 20987), (399, 20990), (401, 20996), (409, 21032), (414, 21050), (415, 21053), (420, 21086), (426, 21107), (473, 21239), (480, 21266), (493, 21305), (499, 21326), (500, 21332), (510, 21365), (515, 21380), (517, 21389), (538, 21434), (551, 21470), (563, 21512), (584, 21575), (591, 21593), (616, 21695), (617, 21698), (623, 21716), (624, 21719), (629, 21743), (630, 21752), (649, 21839), (678, 21929), (685, 21953),

Gene: Pleakley\_82 Start: 56142, Stop: 54094, Start Num: 27

Candidate Starts for Pleakley\_82:

(Start: 27 @56142 has 31 MA's), (71, 55989), (82, 55974), (101, 55893), (144, 55770), (154, 55740), (201, 55632), (219, 55599), (237, 55548), (249, 55515), (286, 55425), (305, 55392), (325, 55362), (367, 55287), (384, 55206), (404, 55155), (426, 55059), (431, 55026), (442, 54990), (451, 54963), (477, 54846), (478, 54840), (501, 54771), (506, 54753), (510, 54741), (568, 54579), (577, 54546), (585, 54516), (592, 54501), (604, 54459), (632, 54336), (649, 54255), (658, 54231), (674, 54171),

Gene: PokyPuppy\_58 Start: 52764, Stop: 51256, Start Num: 197

Candidate Starts for PokyPuppy\_58:

(105, 53043), (118, 52992), (137, 52941), (157, 52893), (159, 52887), (166, 52857), (Start: 174 @52824 has 2 MA's), (178, 52815), (Start: 187 @52788 has 24 MA's), (Start: 197 @52764 has 1 MA's), (Start: 235 @52665 has 27 MA's), (250, 52620), (261, 52578), (284, 52530), (285, 52527), (290, 52521), (292, 52518), (301, 52500), (325, 52452), (369, 52329), (372, 52311), (401, 52224), (404, 52209), (425, 52116), (435, 52089), (451, 52038), (465, 51978), (471, 51975), (474, 51966), (479, 51948), (491, 51906), (507, 51861), (558, 51726), (562, 51711), (569, 51690), (605, 51633), (612, 51606), (625, 51549), (626, 51543), (628, 51531), (640, 51480), (645, 51456), (652, 51417), (656, 51405), (657, 51402), (689, 51309), (697, 51294),

Gene: Poland\_64 Start: 54025, Stop: 52493, Start Num: 187

Candidate Starts for Poland\_64:

(105, 54280), (118, 54229), (159, 54124), (166, 54094), (Start: 174 @54061 has 2 MA's), (178, 54052), (Start: 187 @54025 has 24 MA's), (250, 53857), (261, 53815), (271, 53797), (284, 53767), (292, 53755), (300, 53743), (301, 53737), (309, 53716), (372, 53548), (401, 53461), (404, 53446),

(406, 53434), (415, 53404), (425, 53353), (451, 53275), (457, 53251), (461, 53233), (465, 53215), (471, 53212), (474, 53203), (479, 53185), (491, 53143), (507, 53098), (513, 53080), (558, 52963), (562, 52948), (569, 52927), (611, 52846), (612, 52843), (625, 52786), (626, 52780), (628, 52768), (645, 52693), (652, 52654), (656, 52642), (657, 52639), (689, 52546), (697, 52531),

Gene: Polyuki\_72 Start: 53158, Stop: 51122, Start Num: 29

Candidate Starts for Polyuki\_72:

(10, 53326), (Start: 29 @53158 has 6 MA's), (44, 53092), (61, 53050), (154, 52765), (183, 52708), (201, 52657), (210, 52642), (245, 52552), (249, 52540), (286, 52447), (328, 52375), (368, 52306), (381, 52234), (404, 52177), (451, 51997), (456, 51973), (470, 51910), (478, 51874), (506, 51787), (557, 51655), (567, 51616), (568, 51613), (577, 51568), (617, 51421), (632, 51358), (643, 51316), (649, 51277), (658, 51253),

Gene: PotatoChip\_72 Start: 52511, Stop: 50586, Start Num: 55

Candidate Starts for PotatoChip\_72:

(25, 52604), (26, 52598), (Start: 55 @52511 has 8 MA's), (103, 52340), (115, 52286), (201, 52082), (259, 51926), (286, 51875), (289, 51872), (313, 51830), (367, 51743), (368, 51740), (381, 51668), (386, 51659), (477, 51308), (478, 51302), (487, 51269), (604, 50930), (619, 50864), (623, 50852), (627, 50834), (632, 50807), (646, 50744), (655, 50711), (675, 50639),

Gene: Potatoes\_29 Start: 22153, Stop: 23553, Start Num: 217

Candidate Starts for Potatoes\_29:

(Start: 217 @22153 has 72 MA's), (241, 22216), (293, 22321), (295, 22324), (338, 22408), (353, 22441), (371, 22492), (373, 22498), (398, 22579), (399, 22582), (401, 22588), (409, 22624), (414, 22642), (415, 22645), (426, 22699), (446, 22750), (473, 22831), (480, 22858), (490, 22888), (493, 22897), (500, 22924), (510, 22957), (515, 22972), (538, 23026), (546, 23047), (550, 23059), (554, 23071), (618, 23293), (621, 23302), (623, 23308), (630, 23344), (645, 23404), (649, 23431), (678, 23521),

Gene: Potty\_40 Start: 25934, Stop: 27841, Start Num: 51

Candidate Starts for Potty\_40:

(Start: 51 @25934 has 32 MA's), (73, 25997), (85, 26018), (94, 26072), (156, 26249), (177, 26294), (245, 26468), (248, 26477), (286, 26567), (312, 26624), (380, 26810), (421, 26945), (424, 26957), (433, 26990), (478, 27119), (516, 27236), (557, 27311), (617, 27545), (618, 27548), (631, 27608), (650, 27698), (659, 27728), (671, 27770), (692, 27821),

Gene: Poultruss\_39 Start: 26280, Stop: 28187, Start Num: 51

Candidate Starts for Poultruss\_39:

(Start: 51 @26280 has 32 MA's), (73, 26343), (85, 26364), (94, 26418), (156, 26595), (177, 26640), (245, 26814), (248, 26823), (286, 26913), (312, 26970), (380, 27156), (421, 27291), (424, 27303), (433, 27336), (478, 27465), (516, 27582), (618, 27894), (631, 27954), (650, 28044), (659, 28074), (671, 28116), (692, 28167),

Gene: Prager\_53 Start: 39749, Stop: 41692, Start Num: 43

Candidate Starts for Prager\_53:

(Start: 43 @39749 has 59 MA's), (59, 39776), (81, 39848), (93, 39902), (108, 39962), (112, 39980), (113, 39989), (133, 40040), (151, 40082), (168, 40118), (201, 40205), (240, 40298), (245, 40313), (251, 40334), (306, 40436), (322, 40469), (333, 40493), (368, 40553), (389, 40640), (412, 40715), (434, 40805), (451, 40856), (452, 40859), (473, 40949), (478, 40967), (487, 41000), (506, 41054), (510, 41066), (516, 41084), (550, 41147), (575, 41231), (611, 41348), (617, 41396), (632, 41459), (649, 41543),

Gene: Preamble\_25 Start: 20577, Stop: 21971, Start Num: 217

Candidate Starts for Preamble\_25:

(Start: 217 @20577 has 72 MA's), (241, 20634), (293, 20739), (295, 20742), (338, 20826), (353, 20859), (372, 20913), (373, 20916), (401, 21006), (409, 21042), (415, 21063), (420, 21096), (426, 21117), (446, 21168), (473, 21249), (480, 21276), (493, 21315), (500, 21342), (510, 21375), (515, 21390), (517, 21399), (538, 21444), (551, 21480), (577, 21561), (584, 21585), (591, 21603), (595, 21615), (612, 21675), (614, 21699), (616, 21705), (617, 21708), (623, 21726), (624, 21729), (629, 21753), (630, 21762), (649, 21849), (664, 21900), (678, 21939),

Gene: Predator\_60 Start: 44295, Stop: 46307, Start Num: 43

Candidate Starts for Predator\_60:

(Start: 43 @44295 has 59 MA's), (56, 44310), (63, 44349), (71, 44379), (74, 44388), (85, 44403), (94, 44457), (95, 44463), (124, 44568), (144, 44619), (151, 44640), (156, 44652), (173, 44721), (183, 44742), (209, 44802), (219, 44826), (229, 44847), (231, 44853), (336, 45093), (339, 45105), (366, 45138), (368, 45144), (397, 45246), (450, 45459), (451, 45462), (462, 45510), (475, 45561), (477, 45567), (478, 45573), (506, 45663), (510, 45675), (561, 45798), (577, 45831), (616, 45975), (620, 45987), (628, 46020), (646, 46104), (649, 46122), (651, 46125), (664, 46173), (683, 46230),

Gene: Puissant\_62 Start: 45753, Stop: 47810, Start Num: 43

Candidate Starts for Puissant\_62:

(Start: 43 @45753 has 59 MA's), (63, 45807), (67, 45816), (Start: 92 @45909 has 3 MA's), (94, 45915), (101, 45942), (138, 46068), (144, 46077), (156, 46110), (162, 46131), (173, 46179), (183, 46200), (219, 46284), (Start: 220 @46287 has 1 MA's), (229, 46305), (231, 46311), (249, 46365), (336, 46551), (339, 46563), (351, 46581), (366, 46596), (368, 46602), (451, 46920), (452, 46923), (462, 46968), (475, 47019), (478, 47031), (506, 47121), (510, 47133), (520, 47166), (541, 47190), (544, 47199), (577, 47289), (586, 47322), (616, 47433), (617, 47436), (618, 47439), (619, 47442), (631, 47496), (634, 47505), (649, 47580), (658, 47604), (664, 47631), (710, 47757),

Gene: Pumancara\_25 Start: 20596, Stop: 21993, Start Num: 217

Candidate Starts for Pumancara\_25:

(Start: 217 @20596 has 72 MA's), (241, 20656), (275, 20743), (293, 20761), (338, 20848), (341, 20854), (353, 20881), (371, 20932), (373, 20938), (387, 20998), (398, 21019), (401, 21028), (409, 21064), (414, 21082), (415, 21085), (420, 21118), (426, 21139), (435, 21163), (446, 21190), (454, 21217), (473, 21271), (477, 21283), (480, 21298), (487, 21322), (493, 21337), (500, 21364), (510, 21397), (515, 21412), (517, 21421), (541, 21472), (563, 21544), (577, 21583), (584, 21607), (591, 21625), (612, 21697), (614, 21721), (616, 21727), (617, 21730), (623, 21748), (630, 21784), (649, 21871), (660, 21910), (678, 21961), (685, 21985), (687, 21988),

Gene: Pumpernickel\_111 Start: 80095, Stop: 78248, Start Num: 53

Candidate Starts for Pumpernickel\_111:

(Start: 53 @80095 has 7 MA's), (128, 79855), (129, 79852), (135, 79831), (170, 79780), (212, 79672), (224, 79651), (323, 79489), (382, 79276), (406, 79210), (412, 79189), (415, 79180), (427, 79123), (431, 79102), (439, 79075), (451, 79039), (453, 79030), (455, 79018), (477, 78973), (478, 78967), (487, 78934), (522, 78823), (523, 78820), (537, 78778), (556, 78727), (602, 78607), (608, 78580), (622, 78520), (651, 78382), (653, 78376), (666, 78328), (686, 78268),

Gene: RAP15\_29 Start: 22157, Stop: 23557, Start Num: 217

Candidate Starts for RAP15\_29:

(Start: 217 @22157 has 72 MA's), (241, 22220), (293, 22325), (295, 22328), (338, 22412), (353, 22445), (371, 22496), (373, 22502), (398, 22583), (399, 22586), (401, 22592), (409, 22628), (414, 22646), (415, 22649), (426, 22703), (446, 22754), (473, 22835), (480, 22862), (490, 22892), (493, 22901), (500, 22928), (510, 22961), (515, 22976), (538, 23030), (546, 23051), (550, 23063), (554, 23075), (618, 23297), (621, 23306), (623, 23312), (630, 23348), (645, 23408), (649, 23435), (678, 23525),



Gene: Racecar\_102 Start: 80738, Stop: 82576, Start Num: 49

Candidate Starts for Racecar\_102:

(Start: 49 @80738 has 2 MA's), (72, 80819), (98, 80897), (130, 80993), (170, 81053), (183, 81083), (231, 81203), (247, 81254), (321, 81314), (419, 81653), (433, 81710), (439, 81731), (453, 81776), (477, 81833), (478, 81839), (487, 81872), (491, 81884), (497, 81896), (510, 81941), (521, 81980), (546, 82037), (548, 82043), (557, 82076), (585, 82145), (612, 82229), (638, 82346), (684, 82520), (706, 82562),

Gene: Rachella\_40 Start: 25937, Stop: 27844, Start Num: 51

Candidate Starts for Rachella\_40:

(Start: 51 @25937 has 32 MA's), (73, 26000), (85, 26021), (94, 26075), (156, 26252), (177, 26297), (245, 26471), (248, 26480), (286, 26570), (312, 26627), (380, 26813), (421, 26948), (424, 26960), (433, 26993), (478, 27122), (516, 27239), (557, 27314), (617, 27548), (618, 27551), (631, 27611), (650, 27701), (659, 27731), (671, 27773), (692, 27824),

Gene: Ranch\_60 Start: 39414, Stop: 41327, Start Num: 43

Candidate Starts for Ranch\_60:

(39, 39399), (Start: 42 @39411 has 11 MA's), (Start: 43 @39414 has 59 MA's), (Start: 57 @39426 has 1 MA's), (68, 39474), (80, 39507), (96, 39576), (120, 39666), (132, 39693), (134, 39702), (168, 39774), (219, 39894), (242, 39957), (281, 40047), (294, 40074), (366, 40203), (371, 40227), (379, 40269), (399, 40317), (401, 40323), (404, 40338), (409, 40359), (421, 40416), (434, 40470), (447, 40512), (462, 40572), (487, 40668), (488, 40671), (564, 40848), (583, 40899), (611, 40989), (617, 41025), (619, 41031), (631, 41085), (642, 41124), (665, 41226), (669, 41241), (677, 41262),

Gene: Rasovi\_33 Start: 23465, Stop: 24892, Start Num: 221

Candidate Starts for Rasovi\_33:

(203, 23426), (211, 23447), (Start: 221 @23465 has 3 MA's), (372, 23822), (387, 23885), (404, 23930), (409, 23951), (486, 24218), (500, 24266), (506, 24287), (515, 24314), (522, 24341), (523, 24344), (538, 24371), (541, 24377), (553, 24413), (579, 24491), (584, 24512), (591, 24530), (595, 24542), (616, 24626), (630, 24683), (634, 24695), (644, 24734), (649, 24770), (652, 24776),

Gene: RcigaStruga\_29 Start: 22127, Stop: 23518, Start Num: 217

Candidate Starts for RcigaStruga\_29:

(Start: 217 @22127 has 72 MA's), (251, 22214), (293, 22286), (295, 22289), (330, 22355), (338, 22373), (341, 22379), (353, 22406), (373, 22463), (398, 22544), (401, 22553), (409, 22589), (414, 22607), (420, 22643), (426, 22664), (433, 22682), (446, 22715), (458, 22754), (473, 22796), (480, 22823), (487, 22847), (499, 22883), (500, 22889), (510, 22922), (515, 22937), (517, 22946), (538, 22991), (550, 23024), (551, 23027), (577, 23108), (587, 23144), (591, 23150), (595, 23162), (616, 23252), (623, 23273), (624, 23276), (629, 23300), (630, 23309), (649, 23396), (664, 23447), (678, 23486), (685, 23510),

Gene: RemRem\_60 Start: 51466, Stop: 49934, Start Num: 187

Candidate Starts for RemRem\_60:

(105, 51721), (118, 51670), (137, 51619), (159, 51565), (166, 51535), (Start: 174 @51502 has 2 MA's), (178, 51493), (Start: 187 @51466 has 24 MA's), (250, 51298), (261, 51256), (284, 51208), (292, 51196), (300, 51184), (301, 51178), (309, 51157), (325, 51130), (372, 50989), (401, 50902), (404, 50887), (406, 50875), (415, 50845), (425, 50794), (435, 50767), (451, 50716), (461, 50674), (465, 50656), (471, 50653), (479, 50626), (491, 50584), (507, 50539), (558, 50404), (562, 50389), (569, 50368), (605, 50311), (611, 50287), (612, 50284), (625, 50227), (626, 50221), (627, 50215), (628, 50209), (640, 50158), (645, 50134), (652, 50095), (656, 50083), (657, 50080), (689, 49987), (697, 49972), (708, 49951),

Gene: Reynauld\_56 Start: 50676, Stop: 49183, Start Num: 205

Candidate Starts for Reynauld\_56:

(Start: 205 @50676 has 3 MA's), (Start: 220 @50640 has 1 MA's), (233, 50607), (Start: 235 @50598 has 27 MA's), (238, 50589), (241, 50580), (244, 50571), (250, 50553), (275, 50493), (284, 50481), (290, 50472), (355, 50325), (370, 50268), (374, 50244), (399, 50181), (425, 50067), (450, 49992), (451, 49989), (457, 49965), (461, 49947), (471, 49926), (481, 49887), (485, 49875), (486, 49872), (556, 49695), (566, 49659), (628, 49446), (637, 49404), (649, 49338), (671, 49263), (677, 49248),

Gene: Rie18\_40 Start: 25493, Stop: 27400, Start Num: 51

Candidate Starts for Rie18\_40:

(15, 25319), (Start: 51 @25493 has 32 MA's), (73, 25556), (85, 25577), (94, 25631), (149, 25793), (156, 25808), (177, 25853), (245, 26027), (248, 26036), (286, 26126), (289, 26129), (307, 26168), (312, 26183), (372, 26333), (380, 26369), (416, 26477), (421, 26504), (424, 26516), (433, 26549), (478, 26678), (516, 26795), (618, 27107), (631, 27167), (650, 27257), (659, 27287), (660, 27293), (671, 27329), (692, 27380),

Gene: RikSengupta\_42 Start: 26725, Stop: 28659, Start Num: 54

Candidate Starts for RikSengupta\_42:

(Start: 23 @26629 has 1 MA's), (Start: 50 @26719 has 3 MA's), (Start: 54 @26725 has 3 MA's), (94, 26872), (98, 26890), (156, 27049), (210, 27175), (245, 27265), (248, 27274), (286, 27364), (307, 27406), (318, 27436), (371, 27568), (424, 27754), (429, 27772), (433, 27787), (451, 27844), (464, 27904), (499, 27976), (547, 28093), (554, 28114), (571, 28180), (576, 28210), (603, 28288), (618, 28366), (631, 28426), (642, 28465), (650, 28516), (657, 28534), (694, 28642),

Gene: Riovina\_26 Start: 21745, Stop: 23139, Start Num: 217

Candidate Starts for Riovina\_26:

(Start: 217 @21745 has 72 MA's), (241, 21802), (275, 21889), (293, 21907), (295, 21910), (338, 21994), (353, 22027), (371, 22078), (373, 22084), (387, 22144), (401, 22174), (409, 22210), (414, 22228), (426, 22285), (433, 22303), (435, 22309), (446, 22336), (473, 22417), (480, 22444), (487, 22468), (493, 22483), (500, 22510), (510, 22543), (515, 22558), (563, 22690), (576, 22726), (584, 22753), (587, 22765), (595, 22783), (616, 22873), (618, 22879), (623, 22894), (624, 22897), (630, 22930), (645, 22990), (649, 23017), (666, 23074), (678, 23107), (685, 23131),

Gene: Riparian\_68 Start: 47408, Stop: 49168, Start Num: 146

Candidate Starts for Riparian\_68:

(Start: 146 @47408 has 9 MA's), (Start: 174 @47477 has 2 MA's), (215, 47573), (Start: 220 @47582 has 1 MA's), (249, 47663), (261, 47708), (366, 47909), (376, 47957), (397, 48017), (401, 48029), (417, 48095), (443, 48218), (451, 48242), (456, 48266), (478, 48470), (487, 48503), (492, 48518), (506, 48557), (507, 48560), (510, 48569), (550, 48638), (592, 48770), (617, 48893), (618, 48896), (626, 48923), (631, 48953), (633, 48959), (634, 48962), (638, 48980), (642, 48992), (677, 49127), (689, 49157),

Gene: Riverdale\_29 Start: 22087, Stop: 23487, Start Num: 217

Candidate Starts for Riverdale\_29:

(Start: 217 @22087 has 72 MA's), (241, 22150), (293, 22255), (295, 22258), (338, 22342), (353, 22375), (371, 22426), (373, 22432), (398, 22513), (399, 22516), (401, 22522), (409, 22558), (414, 22576), (415, 22579), (420, 22612), (426, 22633), (433, 22651), (446, 22684), (473, 22765), (480, 22792), (490, 22822), (493, 22831), (500, 22858), (510, 22891), (515, 22906), (538, 22960), (546, 22981), (550, 22993), (554, 23005), (618, 23227), (621, 23236), (623, 23242), (630, 23278), (645, 23338), (649, 23365), (678, 23455),

Gene: RobinSparkles\_61 Start: 50974, Stop: 49484, Start Num: 202

Candidate Starts for RobinSparkles\_61:

(Start: 202 @50974 has 5 MA's), (238, 50881), (241, 50872), (245, 50860), (250, 50845), (255, 50827), (285, 50770), (315, 50698), (316, 50695), (352, 50602), (364, 50569), (370, 50536), (371, 50533), (374, 50512), (401, 50443), (409, 50407), (431, 50320), (451, 50257), (452, 50254), (460, 50224), (482, 50152), (485, 50143), (541, 50020), (543, 50014), (601, 49882), (612, 49840), (621, 49795), (628, 49765), (702, 49513),

Gene: Rooney\_70 Start: 50294, Stop: 48408, Start Num: 43

Candidate Starts for Rooney\_70:

(Start: 43 @50294 has 59 MA's), (56, 50279), (73, 50216), (Start: 77 @50207 has 1 MA's), (105, 50102), (114, 50063), (124, 50039), (156, 49964), (168, 49940), (232, 49781), (245, 49742), (248, 49733), (296, 49625), (347, 49517), (368, 49469), (399, 49364), (411, 49313), (424, 49253), (444, 49187), (450, 49166), (451, 49163), (487, 49058), (490, 49049), (496, 49037), (549, 48938), (583, 48821), (586, 48809), (596, 48782), (618, 48692), (623, 48677), (634, 48623), (646, 48566), (677, 48458), (683, 48440),

Gene: Rope\_66 Start: 47562, Stop: 49322, Start Num: 146

Candidate Starts for Rope\_66:

(Start: 146 @47562 has 9 MA's), (Start: 174 @47631 has 2 MA's), (215, 47727), (Start: 220 @47736 has 1 MA's), (249, 47817), (261, 47862), (366, 48063), (376, 48111), (397, 48171), (401, 48183), (417, 48249), (443, 48372), (451, 48396), (456, 48420), (478, 48624), (487, 48657), (492, 48672), (506, 48711), (507, 48714), (510, 48723), (550, 48792), (592, 48924), (617, 49047), (618, 49050), (626, 49077), (631, 49107), (633, 49113), (634, 49116), (638, 49134), (642, 49146), (677, 49281), (686, 49308), (689, 49311),

Gene: RoyalG\_59 Start: 52241, Stop: 50709, Start Num: 187

Candidate Starts for RoyalG\_59:

(105, 52496), (118, 52445), (159, 52340), (166, 52310), (Start: 174 @52277 has 2 MA's), (178, 52268), (Start: 187 @52241 has 24 MA's), (Start: 235 @52118 has 27 MA's), (250, 52073), (261, 52031), (284, 51983), (285, 51980), (290, 51974), (292, 51971), (301, 51953), (309, 51932), (325, 51905), (369, 51782), (372, 51764), (401, 51677), (404, 51662), (425, 51569), (451, 51491), (457, 51467), (465, 51431), (479, 51401), (491, 51359), (507, 51314), (558, 51179), (562, 51164), (569, 51143), (612, 51059), (625, 51002), (626, 50996), (628, 50984), (640, 50933), (645, 50909), (652, 50870), (656, 50858), (657, 50855), (689, 50762), (697, 50747),

Gene: Rozby\_29 Start: 22088, Stop: 23488, Start Num: 217

Candidate Starts for Rozby\_29:

(Start: 217 @22088 has 72 MA's), (241, 22151), (293, 22256), (295, 22259), (338, 22343), (353, 22376), (371, 22427), (373, 22433), (398, 22514), (399, 22517), (401, 22523), (409, 22559), (414, 22577), (415, 22580), (420, 22613), (426, 22634), (433, 22652), (446, 22685), (473, 22766), (480, 22793), (490, 22823), (493, 22832), (500, 22859), (510, 22892), (515, 22907), (538, 22961), (546, 22982), (550, 22994), (554, 23006), (618, 23228), (621, 23237), (623, 23243), (630, 23279), (645, 23339), (649, 23366), (678, 23456),

Gene: Rumi\_61 Start: 39105, Stop: 41018, Start Num: 43

Candidate Starts for Rumi\_61:

(Start: 42 @39102 has 11 MA's), (Start: 43 @39105 has 59 MA's), (Start: 57 @39117 has 1 MA's), (68, 39165), (80, 39198), (120, 39357), (132, 39384), (134, 39393), (168, 39465), (219, 39585), (242, 39648), (281, 39738), (294, 39765), (366, 39894), (371, 39918), (379, 39960), (381, 39972), (389, 39987), (399, 40008), (404, 40029), (409, 40050), (421, 40107), (426, 40125), (434, 40161), (447, 40203), (462, 40263), (487, 40359), (488, 40362), (564, 40539), (583, 40590), (611, 40680), (617, 40716), (619, 40722), (631, 40776), (642, 40815), (665, 40917), (669, 40932), (677, 40953),

Gene: SBlackberry\_33 Start: 23236, Stop: 24663, Start Num: 223

Candidate Starts for SBlackberry\_33:

(Start: 223 @23236 has 12 MA's), (363, 23554), (372, 23593), (387, 23656), (404, 23701), (409, 23722), (435, 23821), (486, 23989), (500, 24037), (506, 24058), (515, 24085), (522, 24112), (538, 24142), (540, 24145), (541, 24148), (553, 24184), (579, 24262), (605, 24346), (611, 24364), (612, 24367), (630, 24454), (634, 24466), (644, 24505), (649, 24541), (652, 24547), (664, 24592), (673, 24622),

Gene: SJReid\_108 Start: 73084, Stop: 74940, Start Num: 49

Candidate Starts for SJReid\_108:

(Start: 49 @73084 has 2 MA's), (130, 73342), (132, 73348), (158, 73381), (164, 73390), (183, 73450), (Start: 187 @73465 has 24 MA's), (219, 73540), (231, 73570), (247, 73621), (321, 73681), (412, 73984), (439, 74098), (453, 74143), (477, 74200), (478, 74206), (487, 74239), (491, 74251), (507, 74299), (510, 74308), (513, 74317), (536, 74386), (557, 74443), (585, 74512), (610, 74590), (612, 74596), (632, 74689), (638, 74713), (656, 74794), (666, 74833), (682, 74884),

Gene: Sadboi\_61 Start: 41296, Stop: 43209, Start Num: 43

Candidate Starts for Sadboi\_61:

(Start: 42 @41293 has 11 MA's), (Start: 43 @41296 has 59 MA's), (Start: 57 @41308 has 1 MA's), (68, 41356), (80, 41389), (96, 41458), (120, 41548), (132, 41575), (134, 41584), (168, 41656), (201, 41743), (219, 41776), (242, 41839), (281, 41929), (294, 41956), (366, 42085), (371, 42109), (379, 42151), (399, 42199), (404, 42220), (409, 42241), (421, 42298), (434, 42352), (447, 42394), (462, 42454), (487, 42550), (488, 42553), (564, 42730), (583, 42781), (611, 42871), (617, 42907), (619, 42913), (631, 42967), (642, 43006), (665, 43108), (669, 43123), (677, 43144),

Gene: Salgado\_95 Start: 54910, Stop: 56574, Start Num: 169

Candidate Starts for Salgado\_95:

(Start: 169 @54910 has 8 MA's), (190, 54973), (214, 55033), (231, 55069), (244, 55114), (304, 55234), (353, 55327), (360, 55351), (365, 55363), (375, 55417), (390, 55468), (402, 55504), (407, 55531), (415, 55558), (422, 55600), (459, 55717), (484, 55795), (490, 55813), (505, 55864), (515, 55897), (524, 55930), (550, 55987), (557, 56014), (568, 56056), (582, 56113), (591, 56137), (600, 56167), (605, 56185), (612, 56212), (634, 56314), (641, 56341), (644, 56353), (659, 56422), (661, 56431), (670, 56461), (672, 56467), (686, 56503), (695, 56518), (704, 56533), (709, 56554),

Gene: Sam12\_58 Start: 51466, Stop: 49934, Start Num: 187

Candidate Starts for Sam12\_58:

(105, 51721), (118, 51670), (137, 51619), (159, 51565), (166, 51535), (Start: 174 @51502 has 2 MA's), (178, 51493), (Start: 187 @51466 has 24 MA's), (250, 51298), (261, 51256), (284, 51208), (292, 51196), (300, 51184), (301, 51178), (309, 51157), (325, 51130), (372, 50989), (401, 50902), (404, 50887), (406, 50875), (415, 50845), (425, 50794), (435, 50767), (451, 50716), (461, 50674), (465, 50656), (471, 50653), (479, 50626), (491, 50584), (507, 50539), (558, 50404), (562, 50389), (569, 50368), (605, 50311), (611, 50287), (612, 50284), (625, 50227), (626, 50221), (627, 50215), (628, 50209), (640, 50158), (645, 50134), (652, 50095), (656, 50083), (657, 50080), (689, 49987), (697, 49972), (708, 49951),

Gene: Sampudon\_60 Start: 41637, Stop: 43553, Start Num: 42

Candidate Starts for Sampudon\_60:

(Start: 42 @41637 has 11 MA's), (Start: 43 @41640 has 59 MA's), (Start: 57 @41652 has 1 MA's), (68, 41700), (96, 41802), (120, 41892), (132, 41919), (134, 41928), (168, 42000), (219, 42120), (242, 42183), (281, 42273), (294, 42300), (366, 42429), (371, 42453), (379, 42495), (399, 42543), (404, 42564), (409, 42585), (421, 42642), (434, 42696), (447, 42738), (462, 42798), (487, 42894), (488, 42897), (564, 43074), (583, 43125), (610, 43212), (611, 43215), (617, 43251), (619, 43257), (631, 43311), (642, 43350), (665, 43452), (669, 43467), (677, 43488),

Gene: Sapo\_34 Start: 32116, Stop: 30710, Start Num: 225

Candidate Starts for Sapo\_34:

(140, 32353), (143, 32350), (175, 32239), (182, 32224), (Start: 225 @32116 has 12 MA's), (250, 32038), (257, 32011), (284, 31981), (285, 31978), (375, 31771), (382, 31738), (446, 31531), (493, 31384), (498, 31369), (548, 31228), (591, 31093), (602, 31063), (603, 31060), (616, 30991), (617, 30988), (624, 30967), (631, 30931), (632, 30928), (652, 30841), (656, 30829), (678, 30742),

Gene: Savage2526\_29 Start: 22151, Stop: 23551, Start Num: 217

Candidate Starts for Savage2526\_29:

(Start: 217 @22151 has 72 MA's), (241, 22214), (293, 22319), (295, 22322), (338, 22406), (353, 22439), (371, 22490), (373, 22496), (398, 22577), (399, 22580), (401, 22586), (409, 22622), (414, 22640), (415, 22643), (426, 22697), (446, 22748), (473, 22829), (480, 22856), (490, 22886), (493, 22895), (500, 22922), (510, 22955), (515, 22970), (538, 23024), (546, 23045), (550, 23057), (554, 23069), (618, 23291), (621, 23300), (623, 23306), (630, 23342), (645, 23402), (649, 23429), (678, 23519),

Gene: Scuttle\_29 Start: 22156, Stop: 23556, Start Num: 217

Candidate Starts for Scuttle\_29:

(Start: 217 @22156 has 72 MA's), (241, 22219), (293, 22324), (295, 22327), (338, 22411), (353, 22444), (371, 22495), (373, 22501), (398, 22582), (399, 22585), (401, 22591), (409, 22627), (414, 22645), (415, 22648), (420, 22681), (426, 22702), (446, 22753), (473, 22834), (480, 22861), (493, 22900), (500, 22927), (510, 22960), (515, 22975), (538, 23029), (546, 23050), (550, 23062), (554, 23074), (591, 23188), (618, 23296), (621, 23305), (623, 23311), (630, 23347), (645, 23407), (649, 23434), (678, 23524),

Gene: Send513\_66 Start: 47939, Stop: 49699, Start Num: 146

Candidate Starts for Send513\_66:

(Start: 146 @47939 has 9 MA's), (Start: 174 @48008 has 2 MA's), (215, 48104), (Start: 220 @48113 has 1 MA's), (249, 48194), (261, 48239), (366, 48440), (376, 48488), (397, 48548), (401, 48560), (417, 48626), (443, 48749), (451, 48773), (456, 48797), (478, 49001), (487, 49034), (492, 49049), (506, 49088), (507, 49091), (510, 49100), (550, 49169), (592, 49301), (617, 49424), (618, 49427), (626, 49454), (631, 49484), (633, 49490), (634, 49493), (638, 49511), (642, 49523), (677, 49658), (689, 49688),

Gene: Sergei\_26 Start: 21732, Stop: 23129, Start Num: 217

Candidate Starts for Sergei\_26:

(Start: 217 @21732 has 72 MA's), (241, 21792), (275, 21879), (293, 21897), (295, 21900), (338, 21984), (341, 21990), (353, 22017), (371, 22068), (373, 22074), (382, 22125), (387, 22134), (398, 22155), (401, 22164), (409, 22200), (415, 22221), (420, 22254), (426, 22275), (433, 22293), (435, 22299), (446, 22326), (450, 22338), (454, 22353), (473, 22407), (487, 22458), (490, 22464), (493, 22473), (495, 22479), (500, 22500), (510, 22533), (515, 22548), (517, 22557), (563, 22680), (577, 22719), (584, 22743), (587, 22755), (616, 22863), (618, 22869), (621, 22878), (623, 22884), (630, 22920), (649, 23007), (678, 23097), (685, 23121),

Gene: ShakeNBake\_70 Start: 50183, Stop: 48297, Start Num: 43

Candidate Starts for ShakeNBake\_70:

(33, 50243), (Start: 43 @50183 has 59 MA's), (56, 50168), (73, 50105), (Start: 77 @50096 has 1 MA's), (85, 50084), (105, 49991), (124, 49928), (132, 49910), (156, 49853), (168, 49829), (232, 49670), (245, 49631), (248, 49622), (296, 49514), (347, 49406), (379, 49301), (411, 49202), (424, 49142), (450, 49055), (451, 49052), (487, 48947), (490, 48938), (496, 48926), (549, 48827), (560, 48788), (583, 48710), (586, 48698), (596, 48671), (618, 48581), (623, 48566), (634, 48512), (646, 48455), (683, 48329),

Gene: Shelley\_57 Start: 52086, Stop: 50674, Start Num: 235

Candidate Starts for Shelley\_57:

(105, 52434), (148, 52305), (Start: 174 @52215 has 2 MA's), (Start: 235 @52086 has 27 MA's), (250, 52041), (284, 51951), (285, 51948), (290, 51942), (301, 51921), (332, 51858), (359, 51780), (369, 51750), (372, 51732), (401, 51645), (404, 51630), (415, 51588), (436, 51507), (451, 51459), (461, 51417), (465, 51399), (471, 51396), (479, 51369), (494, 51318), (507, 51282), (522, 51231), (558, 51147), (563, 51126), (625, 50970), (626, 50964), (628, 50952), (656, 50826), (697, 50712),

Gene: Shrooms\_93 Start: 54534, Stop: 56189, Start Num: 169

Candidate Starts for Shrooms\_93:

(Start: 169 @54534 has 8 MA's), (190, 54597), (196, 54606), (Start: 202 @54627 has 5 MA's), (230, 54690), (290, 54828), (304, 54858), (353, 54951), (365, 54987), (375, 55041), (390, 55092), (399, 55116), (402, 55128), (407, 55155), (413, 55176), (415, 55182), (422, 55224), (459, 55341), (484, 55419), (490, 55437), (505, 55488), (515, 55521), (524, 55554), (547, 55602), (557, 55638), (568, 55680), (600, 55791), (605, 55809), (612, 55836), (615, 55863), (641, 55965), (659, 56046), (661, 56055), (662, 56058), (670, 56085), (672, 56091), (686, 56127), (695, 56142), (709, 56178),

Gene: Sienna\_50 Start: 36692, Stop: 38746, Start Num: 48

Candidate Starts for Sienna\_50:

(Start: 48 @36692 has 13 MA's), (60, 36716), (83, 36779), (102, 36863), (110, 36905), (200, 37127), (219, 37163), (248, 37238), (257, 37277), (287, 37319), (299, 37337), (306, 37358), (311, 37370), (339, 37430), (348, 37445), (366, 37463), (381, 37541), (389, 37556), (392, 37559), (404, 37598), (409, 37619), (433, 37721), (451, 37778), (455, 37799), (456, 37802), (460, 37814), (473, 37862), (475, 37868), (488, 37916), (500, 37949), (507, 37973), (513, 37991), (521, 38021), (532, 38144), (541, 38177), (545, 38189), (550, 38204), (561, 38243), (575, 38288), (583, 38315), (609, 38399), (623, 38462), (631, 38504), (634, 38513), (636, 38522), (646, 38570), (648, 38579), (649, 38591), (655, 38606), (666, 38648),

Gene: SirHarley\_54 Start: 39905, Stop: 41848, Start Num: 43

Candidate Starts for SirHarley\_54:

(32, 39842), (Start: 43 @39905 has 59 MA's), (59, 39932), (81, 40004), (93, 40058), (108, 40118), (113, 40145), (133, 40196), (151, 40238), (168, 40274), (201, 40361), (240, 40454), (245, 40469), (251, 40490), (306, 40592), (322, 40625), (333, 40649), (368, 40709), (389, 40796), (412, 40871), (434, 40961), (451, 41012), (452, 41015), (473, 41105), (478, 41123), (487, 41156), (510, 41222), (516, 41240), (550, 41303), (575, 41387), (611, 41504), (617, 41552), (632, 41615), (649, 41699),

Gene: Sixama\_168 Start: 96248, Stop: 94338, Start Num: 48

Candidate Starts for Sixama\_168:

(Start: 48 @96248 has 13 MA's), (58, 96227), (60, 96218), (62, 96200), (76, 96155), (85, 96140), (91, 96116), (98, 96086), (128, 95996), (150, 95951), (155, 95939), (173, 95870), (Start: 220 @95753 has 1 MA's), (231, 95726), (329, 95597), (366, 95480), (375, 95432), (401, 95363), (439, 95201), (451, 95165), (453, 95156), (456, 95141), (460, 95129), (478, 95093), (487, 95060), (509, 94985), (513, 94973), (524, 94934), (533, 94883), (592, 94721), (641, 94526), (651, 94469), (663, 94424),

Gene: Skysand\_75 Start: 57318, Stop: 55261, Start Num: 27

Candidate Starts for Skysand\_75:

(5, 57606), (8, 57498), (Start: 27 @57318 has 31 MA's), (144, 56943), (207, 56802), (229, 56751), (248, 56691), (249, 56688), (278, 56616), (286, 56598), (325, 56535), (327, 56529), (372, 56436), (379, 56397), (384, 56379), (397, 56355), (426, 56232), (431, 56199), (451, 56136), (478, 56013), (501, 55944), (506, 55926), (550, 55821), (568, 55752), (577, 55713), (584, 55689), (585, 55683), (604, 55626), (617, 55566), (626, 55536), (632, 55503), (674, 55338), (692, 55296),

Gene: Snakehole\_40 Start: 25114, Stop: 27021, Start Num: 51

Candidate Starts for Snakehole\_40:

(Start: 51 @25114 has 32 MA's), (73, 25177), (85, 25198), (94, 25252), (156, 25429), (177, 25474), (245, 25648), (248, 25657), (286, 25747), (312, 25804), (380, 25990), (421, 26125), (424, 26137), (433, 26170), (478, 26299), (516, 26416), (617, 26725), (618, 26728), (631, 26788), (650, 26878), (659, 26908), (671, 26950), (692, 27001),

Gene: Sombrero\_60 Start: 52033, Stop: 50501, Start Num: 187

Candidate Starts for Sombrero\_60:

(105, 52288), (118, 52237), (159, 52132), (166, 52102), (Start: 174 @52069 has 2 MA's), (178, 52060), (Start: 187 @52033 has 24 MA's), (250, 51865), (261, 51823), (284, 51775), (292, 51763), (300, 51751), (301, 51745), (309, 51724), (372, 51556), (401, 51469), (404, 51454), (406, 51442), (415, 51412), (425, 51361), (451, 51283), (457, 51259), (461, 51241), (465, 51223), (471, 51220), (474, 51211), (479, 51193), (507, 51106), (558, 50971), (562, 50956), (569, 50935), (611, 50854), (612, 50851), (625, 50794), (626, 50788), (628, 50776), (640, 50725), (645, 50701), (652, 50662), (656, 50650), (657, 50647), (689, 50554), (697, 50539), (708, 50518),

Gene: Sparcetus\_42 Start: 26604, Stop: 28538, Start Num: 54

Candidate Starts for Sparcetus\_42:

(Start: 23 @26508 has 1 MA's), (Start: 50 @26598 has 3 MA's), (Start: 54 @26604 has 3 MA's), (94, 26751), (98, 26769), (156, 26928), (210, 27054), (245, 27144), (248, 27153), (286, 27243), (318, 27315), (371, 27447), (424, 27633), (429, 27651), (433, 27666), (451, 27723), (464, 27783), (499, 27855), (554, 27993), (571, 28059), (576, 28089), (577, 28092), (603, 28167), (618, 28245), (631, 28305), (642, 28344), (650, 28395), (657, 28413), (694, 28521),

Gene: Squibbles\_58 Start: 52329, Stop: 50797, Start Num: 187

Candidate Starts for Squibbles\_58:

(105, 52584), (118, 52533), (137, 52482), (159, 52428), (166, 52398), (Start: 174 @52365 has 2 MA's), (178, 52356), (Start: 187 @52329 has 24 MA's), (250, 52161), (261, 52119), (284, 52071), (292, 52059), (300, 52047), (301, 52041), (309, 52020), (325, 51993), (372, 51852), (401, 51765), (404, 51750), (406, 51738), (415, 51708), (425, 51657), (435, 51630), (451, 51579), (461, 51537), (465, 51519), (471, 51516), (479, 51489), (491, 51447), (507, 51402), (558, 51267), (562, 51252), (569, 51231), (605, 51174), (612, 51147), (625, 51090), (626, 51084), (627, 51078), (628, 51072), (640, 51021), (645, 50997), (652, 50958), (656, 50946), (657, 50943), (689, 50850), (697, 50835), (708, 50814),

Gene: StarStruck\_73 Start: 56760, Stop: 54685, Start Num: 27

Candidate Starts for StarStruck\_73:

(Start: 27 @56760 has 31 MA's), (61, 56640), (Start: 77 @56595 has 1 MA's), (79, 56592), (154, 56349), (183, 56292), (201, 56241), (229, 56187), (249, 56124), (286, 56034), (289, 56031), (302, 56007), (325, 55971), (384, 55815), (397, 55791), (426, 55668), (451, 55557), (456, 55533), (478, 55434), (496, 55380), (513, 55326), (525, 55284), (550, 55245), (568, 55176), (575, 55143), (585, 55107), (603, 55062), (604, 55050), (617, 54990), (632, 54927), (649, 54846), (674, 54762),

Gene: SteveFrench\_58 Start: 52481, Stop: 50949, Start Num: 187

Candidate Starts for SteveFrench\_58:

(105, 52736), (118, 52685), (159, 52580), (166, 52550), (Start: 174 @52517 has 2 MA's), (178, 52508), (Start: 187 @52481 has 24 MA's), (Start: 235 @52358 has 27 MA's), (250, 52313), (261, 52271), (284, 52223), (285, 52220), (290, 52214), (292, 52211), (301, 52193), (309, 52172), (325, 52145), (369, 52022), (372, 52004), (401, 51917), (404, 51902), (425, 51809), (451, 51731), (457, 51707), (465, 51671), (479, 51641), (491, 51599), (507, 51554), (558, 51419), (562, 51404), (569, 51383), (612, 51299), (625, 51242), (626, 51236), (628, 51224), (640, 51173), (645, 51149), (652, 51110), (656, 51098), (657, 51095), (689, 51002), (697, 50987),

Gene: Sticker17\_57 Start: 52601, Stop: 51189, Start Num: 235

Candidate Starts for Sticker17\_57:

(105, 52949), (148, 52820), (173, 52733), (Start: 174 @52730 has 2 MA's), (Start: 235 @52601 has 27 MA's), (250, 52556), (284, 52466), (285, 52463), (290, 52457), (301, 52436), (332, 52373), (369, 52265), (372, 52247), (401, 52160), (404, 52145), (415, 52103), (436, 52022), (451, 51974), (461, 51932), (465, 51914), (471, 51911), (479, 51884), (494, 51833), (507, 51797), (522, 51746), (558, 51662), (563, 51641), (625, 51485), (626, 51479), (628, 51467), (656, 51341), (697, 51227),

Gene: Stickynote\_71 Start: 52712, Stop: 50787, Start Num: 55

Candidate Starts for Stickynote\_71:

(25, 52805), (Start: 55 @52712 has 8 MA's), (103, 52541), (115, 52487), (201, 52283), (259, 52127), (286, 52076), (289, 52073), (313, 52031), (367, 51944), (368, 51941), (381, 51869), (386, 51860), (478, 51503), (487, 51470), (507, 51413), (604, 51131), (619, 51065), (623, 51053), (627, 51035), (628, 51029), (632, 51008), (646, 50945), (655, 50912), (665, 50873),

Gene: Stuff\_42 Start: 31323, Stop: 32717, Start Num: 225

Candidate Starts for Stuff\_42:

(Start: 225 @31323 has 12 MA's), (Start: 226 @31326 has 2 MA's), (250, 31401), (256, 31425), (260, 31431), (284, 31455), (293, 31470), (295, 31473), (297, 31476), (333, 31545), (347, 31560), (361, 31596), (387, 31695), (398, 31716), (412, 31773), (446, 31896), (486, 32031), (495, 32058), (500, 32079), (523, 32157), (541, 32190), (544, 32199), (556, 32241), (577, 32307), (584, 32331), (591, 32349), (596, 32367), (612, 32421), (616, 32451), (630, 32508), (631, 32511), (644, 32559), (651, 32598), (656, 32613), (676, 32682), (681, 32700), (685, 32709),

Gene: Sucha\_30 Start: 20665, Stop: 22092, Start Num: 223

Candidate Starts for Sucha\_30:

(208, 20644), (Start: 223 @20665 has 12 MA's), (371, 21019), (372, 21022), (375, 21043), (404, 21130), (415, 21172), (498, 21454), (500, 21466), (506, 21487), (515, 21514), (522, 21541), (523, 21544), (538, 21571), (541, 21577), (553, 21613), (584, 21712), (605, 21775), (612, 21796), (624, 21850), (630, 21883), (634, 21895), (644, 21934), (649, 21970), (652, 21976), (656, 21988), (664, 22021), (673, 22051),

Gene: Sukkupi\_71 Start: 54175, Stop: 52319, Start Num: 92

Candidate Starts for Sukkupi\_71:

(7, 54592), (9, 54574), (14, 54499), (Start: 27 @54400 has 31 MA's), (Start: 92 @54175 has 3 MA's), (201, 53881), (219, 53848), (229, 53827), (246, 53773), (248, 53767), (249, 53764), (286, 53674), (289, 53671), (325, 53611), (384, 53455), (426, 53308), (451, 53200), (456, 53176), (478, 53074), (496, 53020), (501, 53005), (525, 52924), (550, 52885), (565, 52822), (575, 52783), (577, 52777), (585, 52747), (617, 52630), (632, 52567), (646, 52504), (649, 52486), (674, 52402),

Gene: SuperSulley\_74 Start: 57198, Stop: 55111, Start Num: 27

Candidate Starts for SuperSulley\_74:

(Start: 27 @57198 has 31 MA's), (61, 57078), (Start: 77 @57033 has 1 MA's), (79, 57030), (154, 56775), (201, 56667), (229, 56613), (249, 56550), (286, 56460), (289, 56457), (302, 56433), (325, 56397), (379, 56259), (384, 56241), (389, 56232), (397, 56217), (426, 56094), (442, 56010), (451, 55983), (456, 55959), (478, 55860), (496, 55806), (513, 55752), (525, 55710), (550, 55671), (568, 55602), (575, 55569), (585, 55533), (603, 55488), (604, 55476), (617, 55416), (619, 55410), (632, 55353), (674, 55188), (683, 55164),

Gene: Suppi\_29 Start: 22165, Stop: 23559, Start Num: 217

Candidate Starts for Suppi\_29:

(Start: 217 @22165 has 72 MA's), (241, 22222), (293, 22327), (338, 22414), (371, 22498), (372, 22501), (373, 22504), (401, 22594), (409, 22630), (411, 22639), (414, 22648), (426, 22705), (433,



22723), (446, 22756), (450, 22768), (473, 22837), (480, 22864), (487, 22888), (500, 22930), (510, 22963), (515, 22978), (517, 22987), (554, 23077), (576, 23146), (584, 23173), (591, 23191), (595, 23203), (616, 23293), (618, 23299), (621, 23308), (623, 23314), (630, 23350), (649, 23437), (664, 23488), (678, 23527), (685, 23551),

Gene: Suzy\_49 Start: 37573, Stop: 39624, Start Num: 48

Candidate Starts for Suzy\_49:

(Start: 48 @37573 has 13 MA's), (83, 37660), (95, 37720), (102, 37744), (110, 37786), (200, 38008), (219, 38044), (287, 38200), (299, 38218), (306, 38239), (311, 38251), (339, 38311), (348, 38326), (366, 38344), (381, 38422), (389, 38437), (392, 38440), (404, 38479), (409, 38500), (451, 38659), (455, 38680), (456, 38683), (460, 38695), (473, 38743), (475, 38749), (477, 38755), (500, 38830), (513, 38872), (521, 38902), (532, 39025), (541, 39058), (545, 39070), (561, 39124), (583, 39196), (585, 39205), (609, 39280), (620, 39334), (631, 39385), (636, 39403), (646, 39451), (648, 39460), (649, 39472), (655, 39487), (666, 39529), (675, 39559),

Gene: TMaxx\_40 Start: 26999, Stop: 25191, Start Num: 51

Candidate Starts for TMaxx\_40:

(38, 27044), (Start: 51 @26999 has 32 MA's), (68, 26939), (91, 26876), (133, 26738), (Start: 187 @26609 has 24 MA's), (224, 26525), (323, 26387), (374, 26201), (404, 26108), (409, 26087), (453, 25916), (456, 25901), (478, 25853), (507, 25784), (509, 25778), (514, 25763), (528, 25724), (535, 25715), (556, 25661), (557, 25658), (563, 25640), (576, 25622), (620, 25466), (628, 25433), (634, 25406), (639, 25385), (666, 25268), (682, 25217),

Gene: Talia1610\_101 Start: 80103, Stop: 81941, Start Num: 49

Candidate Starts for Talia1610\_101:

(Start: 49 @80103 has 2 MA's), (72, 80184), (98, 80262), (130, 80358), (170, 80418), (183, 80448), (231, 80568), (247, 80619), (321, 80679), (419, 81018), (433, 81075), (439, 81096), (453, 81141), (477, 81198), (478, 81204), (487, 81237), (491, 81249), (497, 81261), (510, 81306), (521, 81345), (546, 81402), (548, 81408), (557, 81441), (585, 81510), (612, 81594), (638, 81711), (684, 81885), (706, 81927),

Gene: TattModd\_29 Start: 22150, Stop: 23550, Start Num: 217

Candidate Starts for TattModd\_29:

(Start: 217 @22150 has 72 MA's), (241, 22213), (293, 22318), (295, 22321), (338, 22405), (353, 22438), (371, 22489), (373, 22495), (398, 22576), (399, 22579), (401, 22585), (409, 22621), (414, 22639), (415, 22642), (420, 22675), (426, 22696), (433, 22714), (446, 22747), (473, 22828), (480, 22855), (490, 22885), (493, 22894), (500, 22921), (510, 22954), (515, 22969), (538, 23023), (546, 23044), (550, 23056), (554, 23068), (618, 23290), (621, 23299), (623, 23305), (630, 23341), (645, 23401), (649, 23428), (678, 23518),

Gene: Teal\_57 Start: 53068, Stop: 51656, Start Num: 235

Candidate Starts for Teal\_57:

(105, 53416), (148, 53287), (173, 53200), (Start: 174 @53197 has 2 MA's), (Start: 235 @53068 has 27 MA's), (250, 53023), (284, 52933), (285, 52930), (290, 52924), (301, 52903), (332, 52840), (369, 52732), (372, 52714), (401, 52627), (404, 52612), (415, 52570), (436, 52489), (451, 52441), (461, 52399), (465, 52381), (471, 52378), (479, 52351), (494, 52300), (507, 52264), (522, 52213), (558, 52129), (563, 52108), (625, 51952), (626, 51946), (628, 51934), (656, 51808), (697, 51694),

Gene: Teatealatte\_58 Start: 53221, Stop: 51518, Start Num: 123

Candidate Starts for Teatealatte\_58:

(Start: 123 @53221 has 6 MA's), (Start: 127 @53209 has 2 MA's), (193, 53026), (Start: 235 @52936 has 27 MA's), (238, 52927), (250, 52891), (255, 52867), (257, 52858), (261, 52849), (284, 52801), (292, 52789), (300, 52777), (326, 52720), (332, 52705), (333, 52702), (342, 52684), (353, 52648),

(354, 52645), (390, 52516), (393, 52513), (404, 52477), (405, 52474), (409, 52456), (411, 52447), (415, 52435), (424, 52387), (436, 52354), (451, 52306), (457, 52282), (479, 52216), (507, 52117), (548, 52018), (557, 51985), (558, 51982), (594, 51916), (611, 51865), (612, 51862), (625, 51805), (628, 51787), (652, 51670), (653, 51667), (657, 51655), (697, 51556), (708, 51535),

Gene: Tedro\_40 Start: 25407, Stop: 27314, Start Num: 51

Candidate Starts for Tedro\_40:

(Start: 51 @25407 has 32 MA's), (73, 25470), (85, 25491), (94, 25545), (156, 25722), (177, 25767), (245, 25941), (248, 25950), (286, 26040), (312, 26097), (380, 26283), (421, 26418), (424, 26430), (433, 26463), (447, 26508), (478, 26592), (516, 26709), (612, 26982), (617, 27018), (618, 27021), (631, 27081), (650, 27171), (659, 27201), (671, 27243), (692, 27294),

Gene: Teech\_56 Start: 53010, Stop: 51319, Start Num: 127

Candidate Starts for Teech\_56:

(Start: 123 @53022 has 6 MA's), (Start: 127 @53010 has 2 MA's), (193, 52827), (Start: 235 @52737 has 27 MA's), (238, 52728), (250, 52692), (255, 52668), (257, 52659), (261, 52650), (284, 52602), (300, 52578), (332, 52506), (342, 52485), (353, 52449), (354, 52446), (390, 52317), (393, 52314), (404, 52278), (405, 52275), (409, 52257), (411, 52248), (415, 52236), (424, 52188), (436, 52155), (451, 52107), (457, 52083), (479, 52017), (507, 51918), (548, 51819), (551, 51810), (557, 51786), (558, 51783), (594, 51717), (611, 51666), (612, 51663), (625, 51606), (628, 51588), (652, 51471), (653, 51468), (657, 51456), (697, 51357), (708, 51336),

Gene: Temper16\_26 Start: 21732, Stop: 23129, Start Num: 217

Candidate Starts for Temper16\_26:

(Start: 217 @21732 has 72 MA's), (241, 21792), (275, 21879), (293, 21897), (295, 21900), (338, 21984), (341, 21990), (353, 22017), (371, 22068), (373, 22074), (382, 22125), (387, 22134), (398, 22155), (401, 22164), (409, 22200), (415, 22221), (420, 22254), (426, 22275), (433, 22293), (435, 22299), (446, 22326), (450, 22338), (454, 22353), (473, 22407), (487, 22458), (490, 22464), (493, 22473), (495, 22479), (500, 22500), (510, 22533), (515, 22548), (517, 22557), (563, 22680), (577, 22719), (584, 22743), (587, 22755), (616, 22863), (618, 22869), (621, 22878), (623, 22884), (630, 22920), (649, 23007), (678, 23097), (685, 23121),

Gene: Terapin\_51 Start: 36616, Stop: 38670, Start Num: 48

Candidate Starts for Terapin\_51:

(Start: 48 @36616 has 13 MA's), (60, 36640), (83, 36703), (102, 36787), (110, 36829), (200, 37051), (219, 37087), (248, 37162), (257, 37201), (287, 37243), (299, 37261), (306, 37282), (311, 37294), (339, 37354), (348, 37369), (366, 37387), (381, 37465), (389, 37480), (392, 37483), (404, 37522), (409, 37543), (433, 37645), (451, 37702), (455, 37723), (456, 37726), (460, 37738), (473, 37786), (475, 37792), (488, 37840), (500, 37873), (507, 37897), (513, 37915), (521, 37945), (532, 38068), (541, 38101), (545, 38113), (550, 38128), (561, 38167), (575, 38212), (583, 38239), (609, 38323), (623, 38386), (631, 38428), (634, 38437), (636, 38446), (646, 38494), (648, 38503), (649, 38515), (655, 38530), (666, 38572),

Gene: Theresita\_31 Start: 21253, Stop: 22665, Start Num: 223

Candidate Starts for Theresita\_31:

(Start: 223 @21253 has 12 MA's), (285, 21397), (297, 21415), (344, 21505), (394, 21664), (399, 21682), (401, 21688), (404, 21703), (409, 21724), (415, 21745), (477, 21955), (486, 21991), (500, 22039), (506, 22060), (510, 22072), (515, 22087), (522, 22114), (526, 22129), (553, 22186), (577, 22261), (584, 22285), (595, 22315), (599, 22327), (612, 22369), (616, 22399), (630, 22456), (634, 22468), (652, 22549), (653, 22552), (659, 22576), (664, 22594), (673, 22624),

Gene: Thoth\_53 Start: 39727, Stop: 41670, Start Num: 43

Candidate Starts for Thoth\_53:

(Start: 43 @39727 has 59 MA's), (59, 39754), (81, 39826), (93, 39880), (108, 39940), (112, 39958), (113, 39967), (133, 40018), (151, 40060), (168, 40096), (201, 40183), (240, 40276), (245, 40291), (251, 40312), (306, 40414), (322, 40447), (333, 40471), (368, 40531), (389, 40618), (412, 40693), (434, 40783), (451, 40834), (452, 40837), (473, 40927), (478, 40945), (487, 40978), (506, 41032), (510, 41044), (516, 41062), (550, 41125), (575, 41209), (611, 41326), (617, 41374), (632, 41437), (649, 41521),

Gene: Thumb\_62 Start: 46085, Stop: 48142, Start Num: 43

Candidate Starts for Thumb\_62:

(Start: 43 @46085 has 59 MA's), (66, 46145), (67, 46148), (Start: 92 @46241 has 3 MA's), (95, 46253), (101, 46274), (137, 46397), (138, 46400), (144, 46409), (156, 46442), (162, 46463), (173, 46511), (219, 46616), (229, 46637), (231, 46643), (249, 46697), (336, 46883), (339, 46895), (351, 46913), (366, 46928), (368, 46934), (451, 47252), (452, 47255), (462, 47300), (475, 47351), (478, 47363), (506, 47453), (510, 47465), (520, 47498), (541, 47522), (544, 47531), (577, 47621), (586, 47654), (616, 47765), (617, 47768), (618, 47771), (619, 47774), (631, 47828), (646, 47894), (649, 47912), (710, 48089),

Gene: Tillicus\_57 Start: 39985, Stop: 41907, Start Num: 46

Candidate Starts for Tillicus\_57:

(16, 39862), (17, 39883), (19, 39904), (36, 39934), (39, 39967), (Start: 42 @39979 has 11 MA's), (46, 39985), (Start: 57 @40003 has 1 MA's), (59, 40015), (68, 40051), (80, 40084), (83, 40087), (Start: 92 @40135 has 3 MA's), (96, 40153), (120, 40243), (129, 40261), (132, 40270), (134, 40279), (168, 40351), (219, 40471), (Start: 220 @40474 has 1 MA's), (242, 40534), (249, 40552), (281, 40624), (294, 40651), (368, 40786), (371, 40804), (379, 40846), (386, 40867), (389, 40873), (404, 40915), (409, 40936), (415, 40957), (421, 40993), (434, 41050), (438, 41062), (447, 41092), (450, 41101), (462, 41152), (487, 41248), (488, 41251), (546, 41362), (560, 41410), (575, 41452), (583, 41479), (609, 41563), (628, 41647), (631, 41665), (637, 41689), (642, 41704), (649, 41752), (655, 41767), (665, 41806), (669, 41821), (677, 41842), (705, 41899),

Gene: TinyMiny\_42 Start: 26527, Stop: 28557, Start Num: 23

Candidate Starts for TinyMiny\_42:

(11, 26383), (Start: 23 @26527 has 1 MA's), (Start: 50 @26617 has 3 MA's), (Start: 54 @26623 has 3 MA's), (94, 26770), (98, 26788), (101, 26797), (156, 26947), (210, 27073), (245, 27163), (248, 27172), (286, 27262), (307, 27304), (371, 27466), (424, 27652), (429, 27670), (433, 27685), (451, 27742), (464, 27802), (499, 27874), (554, 28012), (571, 28078), (576, 28108), (603, 28186), (618, 28264), (631, 28324), (642, 28363), (650, 28414), (657, 28432), (694, 28540),

Gene: Tracker\_72 Start: 55556, Stop: 53490, Start Num: 27

Candidate Starts for Tracker\_72:

(6, 55760), (7, 55748), (9, 55730), (Start: 27 @55556 has 31 MA's), (Start: 69 @55418 has 2 MA's), (75, 55394), (134, 55190), (154, 55145), (201, 55037), (248, 54923), (249, 54920), (286, 54830), (289, 54827), (325, 54767), (379, 54629), (384, 54611), (397, 54587), (426, 54464), (451, 54359), (478, 54233), (496, 54179), (547, 54053), (550, 54044), (556, 54020), (575, 53948), (577, 53942), (585, 53912), (604, 53855), (617, 53795), (632, 53732), (649, 53651),

Gene: Tredge\_57 Start: 53221, Stop: 51518, Start Num: 123

Candidate Starts for Tredge\_57:

(Start: 123 @53221 has 6 MA's), (Start: 127 @53209 has 2 MA's), (193, 53026), (Start: 235 @52936 has 27 MA's), (238, 52927), (250, 52891), (255, 52867), (257, 52858), (261, 52849), (284, 52801), (292, 52789), (300, 52777), (326, 52720), (332, 52705), (333, 52702), (342, 52684), (353, 52648), (354, 52645), (390, 52516), (393, 52513), (404, 52477), (405, 52474), (409, 52456), (411, 52447), (415, 52435), (424, 52387), (436, 52354), (451, 52306), (457, 52282), (479, 52216), (507, 52117), (548, 52018), (557, 51985), (558, 51982), (594, 51916), (611, 51865), (612, 51862), (625, 51805),

(628, 51787), (652, 51670), (653, 51667), (657, 51655), (697, 51556), (708, 51535),

Gene: Trogglehumper\_76 Start: 59717, Stop: 58170, Start Num: 192

Candidate Starts for Trogglehumper\_76:

(160, 59828), (176, 59762), (Start: 192 @59717 has 1 MA's), (239, 59600), (250, 59567), (266, 59525), (270, 59519), (284, 59495), (318, 59429), (324, 59420), (325, 59417), (349, 59354), (359, 59315), (374, 59249), (400, 59183), (404, 59165), (406, 59153), (411, 59135), (421, 59087), (422, 59081), (451, 59003), (461, 58961), (465, 58943), (486, 58886), (489, 58877), (545, 58751), (557, 58709), (558, 58706), (563, 58685), (574, 58652), (590, 58595), (628, 58445), (633, 58421), (645, 58370), (666, 58280), (679, 58241), (691, 58220), (699, 58208), (701, 58205), (707, 58193),

Gene: Troll4\_53 Start: 39859, Stop: 41802, Start Num: 43

Candidate Starts for Troll4\_53:

(Start: 43 @39859 has 59 MA's), (59, 39886), (81, 39958), (93, 40012), (108, 40072), (112, 40090), (113, 40099), (133, 40150), (151, 40192), (168, 40228), (201, 40315), (240, 40408), (245, 40423), (251, 40444), (306, 40546), (322, 40579), (333, 40603), (368, 40663), (389, 40750), (412, 40825), (434, 40915), (451, 40966), (452, 40969), (473, 41059), (478, 41077), (487, 41110), (506, 41164), (510, 41176), (516, 41194), (550, 41257), (575, 41341), (611, 41458), (617, 41506), (632, 41569), (649, 41653),

Gene: TurboVicky\_33 Start: 23252, Stop: 24679, Start Num: 223

Candidate Starts for TurboVicky\_33:

(203, 23210), (Start: 223 @23252 has 12 MA's), (363, 23570), (404, 23717), (409, 23738), (486, 24005), (500, 24053), (506, 24074), (523, 24131), (541, 24164), (553, 24200), (579, 24278), (584, 24299), (611, 24380), (612, 24383), (630, 24470), (634, 24482), (644, 24521), (649, 24557), (652, 24563), (656, 24575), (673, 24638),

Gene: Turuncu\_75 Start: 56841, Stop: 54784, Start Num: 27

Candidate Starts for Turuncu\_75:

(5, 57126), (9, 57009), (12, 56991), (Start: 27 @56841 has 31 MA's), (201, 56328), (229, 56274), (240, 56238), (249, 56211), (282, 56133), (286, 56121), (325, 56058), (327, 56052), (372, 55959), (379, 55920), (384, 55902), (426, 55755), (431, 55722), (440, 55692), (442, 55686), (451, 55659), (478, 55536), (501, 55467), (506, 55449), (550, 55344), (553, 55335), (568, 55275), (577, 55236), (585, 55206), (593, 55188), (604, 55149), (617, 55089), (626, 55059), (632, 55026), (643, 54984), (688, 54828),

Gene: Typher\_35 Start: 23381, Stop: 24808, Start Num: 223

Candidate Starts for Typher\_35:

(203, 23339), (Start: 223 @23381 has 12 MA's), (363, 23699), (387, 23801), (404, 23846), (409, 23867), (486, 24134), (500, 24182), (506, 24203), (523, 24260), (541, 24293), (553, 24329), (579, 24407), (584, 24428), (611, 24509), (612, 24512), (630, 24599), (634, 24611), (644, 24650), (649, 24686), (656, 24704), (673, 24767),

Gene: UNTPL\_44 Start: 31380, Stop: 32774, Start Num: 225

Candidate Starts for UNTPL\_44:

(Start: 225 @31380 has 12 MA's), (Start: 226 @31383 has 2 MA's), (250, 31458), (256, 31482), (284, 31512), (293, 31527), (347, 31617), (361, 31653), (387, 31752), (393, 31761), (412, 31830), (446, 31953), (486, 32088), (495, 32115), (500, 32136), (523, 32214), (541, 32247), (544, 32256), (556, 32298), (577, 32364), (584, 32388), (591, 32406), (596, 32424), (612, 32478), (616, 32508), (630, 32565), (631, 32568), (644, 32616), (651, 32655), (656, 32670), (676, 32739), (681, 32757), (685, 32766),

Gene: Urla\_26 Start: 21745, Stop: 23142, Start Num: 217

Candidate Starts for Urla\_26:

(Start: 217 @21745 has 72 MA's), (241, 21805), (293, 21910), (338, 21997), (353, 22030), (371, 22081), (373, 22087), (398, 22168), (401, 22177), (409, 22213), (414, 22231), (415, 22234), (420, 22267), (426, 22288), (455, 22369), (473, 22420), (480, 22447), (490, 22477), (493, 22486), (499, 22507), (500, 22513), (510, 22546), (515, 22561), (517, 22570), (541, 22621), (551, 22651), (577, 22732), (591, 22774), (603, 22807), (614, 22870), (621, 22891), (623, 22897), (627, 22912), (630, 22933), (649, 23020), (666, 23077), (678, 23110),

Gene: Vallejo\_29 Start: 22089, Stop: 23489, Start Num: 217

Candidate Starts for Vallejo\_29:

(Start: 217 @22089 has 72 MA's), (241, 22152), (293, 22257), (295, 22260), (338, 22344), (353, 22377), (371, 22428), (373, 22434), (398, 22515), (399, 22518), (401, 22524), (409, 22560), (414, 22578), (415, 22581), (420, 22614), (426, 22635), (433, 22653), (446, 22686), (473, 22767), (480, 22794), (490, 22824), (493, 22833), (500, 22860), (510, 22893), (515, 22908), (538, 22962), (546, 22983), (550, 22995), (554, 23007), (618, 23229), (621, 23238), (623, 23244), (630, 23280), (645, 23340), (649, 23367), (678, 23457),

Gene: Visconti\_54 Start: 39739, Stop: 41682, Start Num: 43

Candidate Starts for Visconti\_54:

(Start: 43 @39739 has 59 MA's), (59, 39766), (81, 39838), (93, 39892), (108, 39952), (112, 39970), (113, 39979), (133, 40030), (151, 40072), (168, 40108), (201, 40195), (240, 40288), (245, 40303), (251, 40324), (306, 40426), (322, 40459), (333, 40483), (368, 40543), (389, 40630), (412, 40705), (434, 40795), (451, 40846), (452, 40849), (473, 40939), (478, 40957), (487, 40990), (506, 41044), (510, 41056), (516, 41074), (550, 41137), (575, 41221), (611, 41338), (617, 41386), (632, 41449), (649, 41533),

Gene: Vulture\_26 Start: 21745, Stop: 23139, Start Num: 217

Candidate Starts for Vulture\_26:

(Start: 217 @21745 has 72 MA's), (241, 21802), (275, 21889), (293, 21907), (295, 21910), (338, 21994), (353, 22027), (371, 22078), (373, 22084), (387, 22144), (401, 22174), (409, 22210), (414, 22228), (420, 22264), (426, 22285), (433, 22303), (435, 22309), (446, 22336), (473, 22417), (480, 22444), (487, 22468), (493, 22483), (500, 22510), (510, 22543), (515, 22558), (576, 22726), (584, 22753), (587, 22765), (595, 22783), (616, 22873), (618, 22879), (623, 22894), (624, 22897), (630, 22930), (645, 22990), (649, 23017), (666, 23074), (678, 23107), (685, 23131),

Gene: WaldoWhy\_55 Start: 39836, Stop: 41779, Start Num: 43

Candidate Starts for WaldoWhy\_55:

(Start: 43 @39836 has 59 MA's), (59, 39863), (81, 39935), (93, 39989), (108, 40049), (112, 40067), (113, 40076), (133, 40127), (151, 40169), (168, 40205), (201, 40292), (240, 40385), (245, 40400), (251, 40421), (306, 40523), (322, 40556), (333, 40580), (368, 40640), (389, 40727), (412, 40802), (434, 40892), (451, 40943), (452, 40946), (473, 41036), (478, 41054), (487, 41087), (506, 41141), (510, 41153), (516, 41171), (550, 41234), (575, 41318), (611, 41435), (617, 41483), (632, 41546), (649, 41630),

Gene: Waltz\_91 Start: 53322, Stop: 54977, Start Num: 169

Candidate Starts for Waltz\_91:

(Start: 169 @53322 has 8 MA's), (190, 53385), (196, 53394), (230, 53478), (304, 53646), (353, 53739), (365, 53775), (375, 53829), (390, 53880), (402, 53916), (407, 53943), (415, 53970), (420, 54003), (422, 54012), (459, 54129), (484, 54207), (490, 54225), (505, 54276), (515, 54309), (524, 54342), (547, 54390), (557, 54426), (568, 54468), (600, 54579), (605, 54597), (612, 54624), (615, 54651), (634, 54726), (641, 54753), (656, 54819), (659, 54834), (661, 54843), (662, 54846), (670, 54873), (672, 54879), (695, 54930), (706, 54951), (709, 54966),

Gene: Wawa\_29 Start: 22126, Stop: 23526, Start Num: 217

Candidate Starts for Wawa\_29:

(Start: 217 @22126 has 72 MA's), (241, 22189), (293, 22294), (295, 22297), (338, 22381), (353, 22414), (371, 22465), (373, 22471), (398, 22552), (399, 22555), (401, 22561), (409, 22597), (414, 22615), (415, 22618), (420, 22651), (426, 22672), (433, 22690), (446, 22723), (473, 22804), (480, 22831), (490, 22861), (493, 22870), (500, 22897), (510, 22930), (515, 22945), (538, 22999), (546, 23020), (550, 23032), (554, 23044), (591, 23158), (618, 23266), (621, 23275), (623, 23281), (630, 23317), (645, 23377), (649, 23404), (678, 23494),

Gene: Wayne\_29 Start: 22211, Stop: 23605, Start Num: 217

Candidate Starts for Wayne\_29:

(Start: 217 @22211 has 72 MA's), (241, 22268), (293, 22373), (338, 22460), (371, 22544), (372, 22547), (373, 22550), (401, 22640), (409, 22676), (411, 22685), (414, 22694), (426, 22751), (433, 22769), (446, 22802), (450, 22814), (473, 22883), (480, 22910), (487, 22934), (500, 22976), (510, 23009), (515, 23024), (517, 23033), (554, 23123), (576, 23192), (584, 23219), (591, 23237), (595, 23249), (616, 23339), (618, 23345), (621, 23354), (623, 23360), (630, 23396), (649, 23483), (664, 23534), (678, 23573), (685, 23597),

Gene: Weiss13\_66 Start: 47645, Stop: 49405, Start Num: 146

Candidate Starts for Weiss13\_66:

(Start: 146 @47645 has 9 MA's), (Start: 174 @47714 has 2 MA's), (215, 47810), (Start: 220 @47819 has 1 MA's), (249, 47900), (261, 47945), (366, 48146), (376, 48194), (397, 48254), (401, 48266), (417, 48332), (443, 48455), (451, 48479), (456, 48503), (478, 48707), (487, 48740), (492, 48755), (506, 48794), (507, 48797), (510, 48806), (550, 48875), (592, 49007), (617, 49130), (618, 49133), (626, 49160), (631, 49190), (633, 49196), (634, 49199), (638, 49217), (642, 49229), (677, 49364), (689, 49394),

Gene: Wentworth\_70 Start: 50269, Stop: 48383, Start Num: 43

Candidate Starts for Wentworth\_70:

(28, 50335), (33, 50326), (37, 50305), (Start: 42 @50272 has 11 MA's), (Start: 43 @50269 has 59 MA's), (56, 50254), (73, 50191), (Start: 77 @50182 has 1 MA's), (85, 50170), (Start: 92 @50122 has 3 MA's), (101, 50089), (105, 50077), (110, 50056), (124, 50014), (156, 49939), (168, 49915), (245, 49717), (248, 49708), (260, 49663), (296, 49600), (347, 49492), (368, 49444), (399, 49339), (411, 49288), (424, 49228), (450, 49141), (451, 49138), (487, 49033), (490, 49024), (496, 49012), (549, 48913), (583, 48796), (586, 48784), (596, 48757), (597, 48751), (618, 48667), (634, 48598), (646, 48541), (649, 48523), (665, 48469), (683, 48415),

Gene: Wheelbite\_90 Start: 54992, Stop: 56656, Start Num: 169

Candidate Starts for Wheelbite\_90:

(Start: 169 @54992 has 8 MA's), (190, 55055), (196, 55064), (231, 55151), (244, 55196), (304, 55316), (353, 55409), (360, 55433), (365, 55445), (375, 55499), (390, 55550), (402, 55586), (407, 55613), (413, 55634), (415, 55640), (422, 55682), (459, 55799), (484, 55877), (490, 55895), (505, 55946), (515, 55979), (524, 56012), (550, 56069), (557, 56096), (568, 56138), (591, 56219), (600, 56249), (605, 56267), (612, 56294), (615, 56321), (634, 56396), (641, 56423), (644, 56435), (659, 56504), (660, 56510), (661, 56513), (662, 56516), (670, 56543), (672, 56549), (686, 56585), (695, 56600), (704, 56615), (709, 56636),

Gene: Wheezy\_72 Start: 55632, Stop: 53704, Start Num: 69

Candidate Starts for Wheezy\_72:

(6, 55974), (7, 55962), (9, 55944), (Start: 27 @55770 has 31 MA's), (Start: 69 @55632 has 2 MA's), (75, 55608), (134, 55404), (154, 55359), (201, 55251), (248, 55137), (249, 55134), (286, 55044), (289, 55041), (325, 54981), (379, 54843), (384, 54825), (397, 54801), (426, 54678), (451, 54573), (478, 54447), (496, 54393), (547, 54267), (550, 54258), (556, 54234), (575, 54162), (577, 54156), (585,

54126), (604, 54069), (617, 54009), (632, 53946), (649, 53865),

Gene: WhoseManz\_71 Start: 52415, Stop: 50334, Start Num: 27

Candidate Starts for WhoseManz\_71:

(7, 52607), (9, 52589), (14, 52514), (Start: 27 @52415 has 31 MA's), (201, 51896), (219, 51863), (229, 51842), (246, 51788), (248, 51782), (249, 51779), (286, 51689), (289, 51686), (325, 51626), (384, 51470), (426, 51323), (451, 51215), (456, 51191), (478, 51089), (496, 51035), (501, 51020), (525, 50939), (550, 50900), (565, 50837), (575, 50798), (577, 50792), (585, 50762), (617, 50645), (632, 50582), (646, 50519), (649, 50501), (674, 50417),

Gene: Wilkos\_72 Start: 50432, Stop: 48546, Start Num: 43

Candidate Starts for Wilkos\_72:

(21, 50525), (28, 50498), (33, 50489), (37, 50468), (Start: 42 @50435 has 11 MA's), (Start: 43 @50432 has 59 MA's), (56, 50417), (73, 50354), (Start: 77 @50345 has 1 MA's), (85, 50333), (Start: 92 @50285 has 3 MA's), (101, 50252), (105, 50240), (110, 50219), (124, 50177), (156, 50102), (198, 49994), (Start: 220 @49949 has 1 MA's), (245, 49880), (248, 49871), (296, 49763), (368, 49607), (388, 49523), (399, 49502), (411, 49451), (424, 49391), (451, 49301), (463, 49247), (487, 49196), (490, 49187), (496, 49175), (506, 49142), (549, 49076), (586, 48947), (596, 48920), (597, 48914), (618, 48830), (634, 48761), (637, 48746), (646, 48704), (649, 48686), (665, 48632), (683, 48578),

Gene: Woes\_57 Start: 53248, Stop: 51707, Start Num: 174

Candidate Starts for Woes\_57:

(105, 53467), (148, 53338), (173, 53251), (Start: 174 @53248 has 2 MA's), (Start: 235 @53119 has 27 MA's), (250, 53074), (284, 52984), (285, 52981), (290, 52975), (301, 52954), (332, 52891), (369, 52783), (372, 52765), (401, 52678), (404, 52663), (415, 52621), (436, 52540), (451, 52492), (461, 52450), (465, 52432), (471, 52429), (479, 52402), (494, 52351), (507, 52315), (522, 52264), (558, 52180), (563, 52159), (625, 52003), (626, 51997), (628, 51985), (656, 51859), (697, 51745),

Gene: Wojtek\_56 Start: 39665, Stop: 41593, Start Num: 42

Candidate Starts for Wojtek\_56:

(17, 39569), (18, 39578), (19, 39590), (36, 39620), (39, 39653), (Start: 42 @39665 has 11 MA's), (46, 39671), (Start: 57 @39689 has 1 MA's), (60, 39704), (68, 39737), (80, 39770), (83, 39773), (96, 39839), (113, 39911), (120, 39929), (129, 39947), (132, 39956), (134, 39965), (168, 40037), (219, 40157), (Start: 220 @40160 has 1 MA's), (242, 40220), (249, 40238), (281, 40310), (294, 40337), (368, 40472), (371, 40490), (379, 40532), (386, 40553), (389, 40559), (404, 40601), (409, 40622), (415, 40643), (421, 40679), (434, 40736), (438, 40748), (447, 40778), (450, 40787), (462, 40838), (487, 40934), (488, 40937), (546, 41048), (575, 41138), (583, 41165), (611, 41255), (628, 41333), (631, 41351), (637, 41375), (642, 41390), (665, 41492), (669, 41507), (677, 41528),

Gene: Wollypog\_43 Start: 30596, Stop: 32524, Start Num: 51

Candidate Starts for Wollypog\_43:

(Start: 51 @30596 has 32 MA's), (59, 30620), (94, 30746), (108, 30794), (124, 30848), (151, 30911), (156, 30923), (201, 31034), (232, 31100), (234, 31106), (264, 31199), (280, 31229), (286, 31244), (291, 31250), (396, 31514), (409, 31562), (412, 31574), (421, 31619), (440, 31688), (447, 31709), (487, 31829), (510, 31895), (521, 31934), (559, 31997), (620, 32228), (643, 32327), (647, 32354), (671, 32453), (674, 32462),

Gene: WonderBoy\_25 Start: 20548, Stop: 21942, Start Num: 217

Candidate Starts for WonderBoy\_25:

(Start: 217 @20548 has 72 MA's), (241, 20605), (293, 20710), (338, 20797), (353, 20830), (371, 20881), (373, 20887), (398, 20968), (399, 20971), (401, 20977), (409, 21013), (414, 21031), (415, 21034), (420, 21067), (426, 21088), (473, 21220), (480, 21247), (493, 21286), (499, 21307), (500, 21313), (510, 21346), (515, 21361), (517, 21370), (538, 21415), (551, 21451), (563, 21493), (584,

21556), (591, 21574), (616, 21676), (617, 21679), (623, 21697), (624, 21700), (629, 21724), (630, 21733), (649, 21820), (678, 21910), (685, 21934),

Gene: Xenia2\_54 Start: 38993, Stop: 40912, Start Num: 43

Candidate Starts for Xenia2\_54:

(Start: 42 @38990 has 11 MA's), (Start: 43 @38993 has 59 MA's), (Start: 57 @39008 has 1 MA's), (68, 39056), (80, 39089), (83, 39092), (132, 39275), (134, 39284), (168, 39356), (173, 39371), (178, 39380), (Start: 220 @39479 has 1 MA's), (242, 39539), (339, 39752), (366, 39785), (389, 39878), (397, 39893), (404, 39920), (409, 39941), (434, 40055), (447, 40097), (450, 40106), (460, 40145), (462, 40157), (473, 40202), (475, 40208), (487, 40253), (492, 40268), (545, 40361), (575, 40454), (617, 40607), (628, 40649), (631, 40667), (632, 40670), (665, 40808), (677, 40844), (703, 40898),

Gene: Yara\_66 Start: 49125, Stop: 47230, Start Num: 43

Candidate Starts for Yara\_66:

(Start: 43 @49125 has 59 MA's), (Start: 53 @49113 has 7 MA's), (56, 49110), (65, 49071), (73, 49047), (Start: 77 @49038 has 1 MA's), (85, 49026), (105, 48933), (124, 48870), (156, 48795), (168, 48771), (173, 48756), (Start: 220 @48645 has 1 MA's), (229, 48624), (245, 48576), (307, 48438), (381, 48240), (399, 48198), (411, 48147), (424, 48087), (426, 48081), (451, 47997), (487, 47892), (496, 47871), (502, 47853), (512, 47820), (549, 47772), (583, 47649), (586, 47637), (596, 47610), (618, 47520), (619, 47517), (634, 47451), (646, 47394), (649, 47376), (651, 47373), (671, 47301), (692, 47250),

Gene: Yelo\_65 Start: 48022, Stop: 49782, Start Num: 146

Candidate Starts for Yelo\_65:

(Start: 146 @48022 has 9 MA's), (Start: 174 @48091 has 2 MA's), (215, 48187), (Start: 220 @48196 has 1 MA's), (249, 48277), (261, 48322), (366, 48523), (376, 48571), (397, 48631), (401, 48643), (417, 48709), (443, 48832), (451, 48856), (456, 48880), (478, 49084), (487, 49117), (492, 49132), (506, 49171), (507, 49174), (510, 49183), (550, 49252), (592, 49384), (617, 49507), (618, 49510), (626, 49537), (631, 49567), (633, 49573), (634, 49576), (638, 49594), (642, 49606), (677, 49741), (689, 49771),

Gene: Yikes\_62 Start: 41734, Stop: 43647, Start Num: 43

Candidate Starts for Yikes\_62:

(17, 41608), (18, 41617), (19, 41629), (26, 41662), (39, 41719), (Start: 42 @41731 has 11 MA's), (Start: 43 @41734 has 59 MA's), (Start: 57 @41746 has 1 MA's), (68, 41794), (80, 41827), (96, 41896), (120, 41986), (132, 42013), (134, 42022), (168, 42094), (219, 42214), (242, 42277), (281, 42367), (294, 42394), (366, 42523), (371, 42547), (379, 42589), (399, 42637), (404, 42658), (409, 42679), (421, 42736), (434, 42790), (447, 42832), (462, 42892), (487, 42988), (488, 42991), (564, 43168), (583, 43219), (611, 43309), (617, 43345), (619, 43351), (631, 43405), (642, 43444), (665, 43546), (669, 43561), (677, 43582),

Gene: Yndexa\_71 Start: 54175, Stop: 52319, Start Num: 92

Candidate Starts for Yndexa\_71:

(7, 54592), (9, 54574), (14, 54499), (Start: 27 @54400 has 31 MA's), (Start: 92 @54175 has 3 MA's), (201, 53881), (219, 53848), (229, 53827), (246, 53773), (248, 53767), (249, 53764), (286, 53674), (289, 53671), (325, 53611), (384, 53455), (426, 53308), (451, 53200), (456, 53176), (478, 53074), (496, 53020), (501, 53005), (525, 52924), (550, 52885), (565, 52822), (575, 52783), (577, 52777), (585, 52747), (617, 52630), (632, 52567), (646, 52504), (649, 52486), (674, 52402),

Gene: Zanella\_33 Start: 23260, Stop: 24687, Start Num: 223

Candidate Starts for Zanella\_33:

(203, 23218), (Start: 223 @23260 has 12 MA's), (363, 23578), (404, 23725), (409, 23746), (486, 24013), (500, 24061), (506, 24082), (523, 24139), (541, 24172), (553, 24208), (579, 24286), (584,



24307), (611, 24388), (612, 24391), (630, 24478), (634, 24490), (644, 24529), (649, 24565), (652, 24571), (653, 24574), (656, 24583), (673, 24646),

Gene: Zany\_58 Start: 41140, Stop: 43056, Start Num: 42

Candidate Starts for Zany\_58:

(Start: 42 @41140 has 11 MA's), (Start: 43 @41143 has 59 MA's), (Start: 57 @41155 has 1 MA's), (68, 41203), (80, 41236), (96, 41305), (120, 41395), (132, 41422), (134, 41431), (168, 41503), (219, 41623), (242, 41686), (251, 41713), (281, 41776), (294, 41803), (366, 41932), (371, 41956), (379, 41998), (399, 42046), (404, 42067), (409, 42088), (421, 42145), (434, 42199), (447, 42241), (462, 42301), (487, 42397), (488, 42400), (583, 42628), (611, 42718), (617, 42754), (619, 42760), (631, 42814), (642, 42853), (665, 42955), (669, 42970), (677, 42991),

Gene: Zenon\_68 Start: 47968, Stop: 49728, Start Num: 146

Candidate Starts for Zenon\_68:

(Start: 146 @47968 has 9 MA's), (Start: 174 @48037 has 2 MA's), (215, 48133), (Start: 220 @48142 has 1 MA's), (249, 48223), (261, 48268), (366, 48469), (376, 48517), (397, 48577), (401, 48589), (417, 48655), (443, 48778), (451, 48802), (456, 48826), (478, 49030), (487, 49063), (492, 49078), (506, 49117), (507, 49120), (510, 49129), (550, 49198), (592, 49330), (617, 49453), (618, 49456), (626, 49483), (631, 49513), (633, 49519), (634, 49522), (638, 49540), (642, 49552), (677, 49687), (689, 49717),

Gene: Zion\_72 Start: 52509, Stop: 50584, Start Num: 55

Candidate Starts for Zion\_72:

(25, 52602), (26, 52596), (Start: 55 @52509 has 8 MA's), (103, 52338), (115, 52284), (201, 52080), (259, 51924), (286, 51873), (289, 51870), (313, 51828), (367, 51741), (368, 51738), (381, 51666), (386, 51657), (477, 51306), (478, 51300), (487, 51267), (604, 50928), (619, 50862), (623, 50850), (627, 50832), (632, 50805), (646, 50742), (655, 50709), (675, 50637),

Gene: Zooman\_98 Start: 76212, Stop: 74272, Start Num: 53

Candidate Starts for Zooman\_98:

(Start: 53 @76212 has 7 MA's), (91, 76086), (97, 76059), (128, 75966), (129, 75963), (170, 75891), (201, 75810), (211, 75786), (319, 75510), (406, 75225), (412, 75204), (432, 75114), (451, 75054), (453, 75045), (456, 75030), (477, 74988), (478, 74982), (487, 74949), (491, 74937), (496, 74928), (504, 74904), (521, 74844), (537, 74808), (579, 74712), (580, 74706), (602, 74643), (606, 74622), (608, 74616), (626, 74541), (627, 74535), (630, 74514), (645, 74454), (653, 74412), (659, 74388), (662, 74376),

Gene: Zorro\_29 Start: 22105, Stop: 23505, Start Num: 217

Candidate Starts for Zorro\_29:

(Start: 217 @22105 has 72 MA's), (241, 22168), (293, 22273), (295, 22276), (338, 22360), (353, 22393), (371, 22444), (373, 22450), (398, 22531), (399, 22534), (401, 22540), (409, 22576), (414, 22594), (415, 22597), (420, 22630), (426, 22651), (446, 22702), (473, 22783), (480, 22810), (490, 22840), (493, 22849), (500, 22876), (510, 22909), (515, 22924), (538, 22978), (546, 22999), (550, 23011), (554, 23023), (618, 23245), (621, 23254), (623, 23260), (630, 23296), (645, 23356), (649, 23383), (678, 23473),