





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 163335 Report

This analysis was run 04/28/24 on database version 559.

Pham number 163335 has 225 members, 31 are drafts.

Phages represented in each track:

- Track 1 : Kittykat\_14
- Track 2 : Makoto\_14
- Track 3 : EstebanJulior\_14, MamaPearl\_14
- Track 4 : BigMack\_14
- Track 5 : OMalley\_14, Eunoia\_14, Aledel\_14, Chridison\_14, Riovina\_14
- Track 6 : Carpal\_18, Dino\_18, Kalizoi\_18, Zorro\_18
- Track 7 : Oxynfrius\_18, Albanese\_18
- Track 8 : CristinaYang\_14, Lasagna\_14, Nancia\_14, Bodacious\_14
- Track 9 : Scuttle\_18
- Track 10 : Suppi\_18, Canowicakte\_18
- Track 11 : Sergei\_14, KingBob\_14, Herb\_14, Temper16\_14, Maria1952\_14, Daiboju\_14
- Track 12 : AustinPowers\_14
- Track 13 : Moki\_14, Bennie\_14, HeadNerd\_14, Huckleberry\_14
- Track 14 : Beethoven\_18
- Track 15 : HunterDalle\_14, Vulture\_14
- Track 16 : RAP15\_18, Vallejo\_18, Jumboset\_18, MeganNoll\_18
- Track 17 : LilStuart\_14, Lennox\_14
- Track 18 : Greenhouse\_18
- Track 19 : Potatoes\_18, Cholula\_18, Immaculata\_18
- Track 20 : Urla\_14
- Track 21 : AppleCider\_18
- Track 22 : PinkFriday\_14
- Track 23 : Lakshmi\_18
- Track 24 : GreenHearts\_18
- Track 25 : Fluke\_18, Glenn\_18, TattModd\_18, Savage2526\_18
- Track 26 : Lucy\_14
- Track 27 : Wawa\_18
- Track 28 : Korra\_19
- Track 29 : Gisselle\_14, DreamTeam\_14
- Track 30 : DrRobert\_14
- Track 31 : Nubia\_18
- Track 32 : OurGirlNessie\_14
- Track 33 : RcigaStruga\_18, Huntingdon\_18
- Track 34 : Pumancara\_14
- Track 35 : Litotes\_18
- Track 36 : Wayne\_18, PartyCup\_18

- Track 37 : PitaDog\_14
- Track 38 : Rozby\_18
- Track 39 : Christian\_14
- Track 40 : MrGloopy\_18
- Track 41 : Riverdale\_18
- Track 42 : ChewChew\_14
- Track 43 : Pterodactyl\_14
- Track 44 : Joann\_18
- Track 45 : Preamble\_14
- Track 46 : CallieOMalley\_18
- Track 47 : Supakev\_14
- Track 48 : Misaeng\_18
- Track 49 : WonderBoy\_14
- Track 50 : BrotherBLo\_18
- Track 51 : Moss\_18
- Track 52 : VResidence\_16
- Track 53 : Goobery\_12, JaimeB\_12, BurtonThePup\_12, Otwor\_12, Burgy\_12, Rhogar\_12, Slentz\_12, Rhysand\_12, Ciel\_12, NeumannU\_12, BinkBonk\_12, Josuke\_12, SantasSleigh\_13, Owens\_12, Cheesecake\_12, Godfather\_12, Luxx\_12, Scrunchy\_12, Danno\_12, Charbie\_12, Vanisius\_12, LionelHutz\_12, Scamander\_12, Maneater\_12, Aries55\_12, Majesty\_12, BarBear\_12, Kojax4\_12, Astro16\_12, TeddyBoy\_12, Avvas\_12, Yasuo\_12, LaviMo\_12, Eightball\_12, Sage7\_13, TimoTea\_12
- Track 54 : Baine\_12, Lola20\_12, Cayde6\_12
- Track 55 : McShie\_12, BrokMonster\_12
- Track 56 : Miaurora\_12, Stem\_11
- Track 57 : Snuffles\_12, Namsahir\_12, Bullzi2019\_12, TomBrady12\_12, Publix\_12, Slizam\_11
- Track 58 : Lunatic\_12, Nobel\_12, PuffyCat\_12, TinyTruffula\_12, Clownery\_12, Niffler\_12
- Track 59 : Octopus\_12, Alucard\_12, EdElric\_12, Puddles3\_12, Horacetta\_12, SeaWolves\_12, Erin\_12, PaoPu\_12, Aztec\_12, Danimal\_12, Gardevoir\_12, Dooby\_12, Chatham\_12, Picnic\_12, GoldenBlanche\_12, Minima\_12, LemonPepper\_12, ManAs\_12, KyriosFaba\_12, Pondwater\_12, JoBros\_12, Sara\_12, Witch\_12, Dongwon\_12, YertPhresh\_12, Yubaba\_12
- Track 60 : Leafy\_12
- Track 61 : BonaeVitae\_12
- Track 62 : Gabbspett\_12, Hernandez44\_12
- Track 63 : Jannah\_12
- Track 64 : MirimarMandM\_12, Upsilon\_12, PoRanda\_12
- Track 65 : Bradley2\_12, Gillker\_12
- Track 66 : Oaklynn\_12
- Track 67 : KayPaulus\_12, MelBee03\_12, Bodhi17\_12, Wolfpack\_12, Sippinontea\_12, Douggie\_12, Kevanna\_12
- Track 68 : Belthelas\_12, Concrete\_12, BoomRoasted\_12
- Track 69 : Jahseh\_12
- Track 70 : Hulk\_12
- Track 71 : KillerTomato\_12, Bri160\_12
- Track 72 : Efeko\_13
- Track 73 : Bintii\_12
- Track 74 : Ekko14\_12, HarperAnne\_12, Elspeth\_11
- Track 75 : Yami\_11, Cazares\_11
- Track 76 : Quaker\_12, Livingwater\_12

- Track 77 : Kaijohn\_12
- Track 78 : Anseraureola\_12
- Track 79 : Noelani\_12
- Track 80 : JRok\_12, Azizam\_12
- Track 81 : MasterPitts\_12, DaftyDuck\_12
- Track 82 : MrGreen\_12
- Track 83 : Jerky\_12, VitulaEligans\_12
- Track 84 : Naby\_12
- Track 85 : JooneeDee\_12
- Track 86 : Trireme\_12
- Track 87 : RoscoWindex\_12
- Track 88 : Loca\_12
- Track 89 : Biscayne\_12
- Track 90 : Zeta1847\_14
- Track 91 : Honk\_14
- Track 92 : Caron\_14
- Track 93 : GardenState\_15
- Track 94 : Barnstormer\_14, UtzChips\_14
- Track 95 : IAmGroot\_15
- Track 96 : Cen1621\_14

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

The start number called the most often in the published annotations is 11, it was called in 105 of the 194 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alucard\_12, Anseraureola\_12, Aries55\_12, Astro16\_12, Avvas\_12, Azizam\_12, Aztec\_12, Baine\_12, BarBear\_12, Belthelas\_12, BinkBonk\_12, Bintii\_12, Biscayne\_12, Bodhi17\_12, BonaeVitae\_12, BoomRoasted\_12, Bradley2\_12, Bri160\_12, BrokMonster\_12, Bullzi2019\_12, Burgy\_12, BurtonThePup\_12, Cayde6\_12, Charbie\_12, Chatham\_12, Cheesecake\_12, Ciel\_12, Clownery\_12, Concrete\_12, DaftyDuck\_12, Danimal\_12, Danno\_12, Dongwon\_12, Dooby\_12, Duggie\_12, EdElric\_12, Efeko\_13, Eightball\_12, Ekko14\_12, Elspeth\_11, Erin\_12, Gabbspett\_12, Gardevoir\_12, Gillker\_12, Godfather\_12, GoldenBlanche\_12, Goobery\_12, HarperAnne\_12, Hernandez44\_12, Horacetta\_12, Hulk\_12, JRok\_12, Jahseh\_12, JaimeB\_12, Jannah\_12, Jerky\_12, JoBros\_12, JooneeDee\_12, Josuke\_12, Kaijohn\_12, KayPaulus\_12, Kevanna\_12, KillerTomato\_12, Kojax4\_12, KyriosFaba\_12, LaviMo\_12, Leafy\_12, LemonPepper\_12, LionelHutz\_12, Livingwater\_12, Loca\_12, Lola20\_12, Lunatic\_12, Luxx\_12, Majesty\_12, ManAs\_12, Maneater\_12, MasterPitts\_12, McShie\_12, MelBee03\_12, Miaurora\_12, Minima\_12, MirimarMandM\_12, MrGreen\_12, Naby\_12, Namsahir\_12, NeumannU\_12, Niffler\_12, Nobel\_12, Noelani\_12, Octopus\_12, Otwor\_12, Owens\_12, PaoPu\_12, Picnic\_12, PoRanda\_12, Pondwater\_12, Publix\_12, Puddles3\_12, PuffyCat\_12, Quaker\_12, Rhogar\_12, Rhysand\_12, RoscoWindex\_12, Sage7\_13, SantasSleigh\_13, Sara\_12, Scamander\_12, Scrunchy\_12, SeaWolves\_12, Sippinontea\_12, Slentz\_12, Slizam\_11, Snuffles\_12, Stem\_11, TeddyBoy\_12, TimoTea\_12, TinyTruffula\_12, TomBrady12\_12, Trireme\_12, Upsilon\_12, Vanisius\_12, VitulaEligans\_12, Witch\_12, Wolfpack\_12, Yasuo\_12, YertPhresh\_12, Yubaba\_12,

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

- Cazares\_11, Oaklynn\_12, Yami\_11,

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

- Albanese\_18, Aledel\_14, AppleCider\_18, AustinPowers\_14, Barnstormer\_14, Beethoven\_18, Bennie\_14, BigMack\_14, Bodacious\_14, BrotherBLo\_18, CallieOMalley\_18, Canowicakte\_18, Caron\_14, Carpal\_18, Cen1621\_14, ChewChew\_14, Cholula\_18, Chridison\_14, Christian\_14, CristinaYang\_14, Daiboju\_14, Dino\_18, DrRobert\_14, DreamTeam\_14, EstebanJulior\_14, Eunoia\_14, Fluke\_18, GardenState\_15, Gisselle\_14, Glenn\_18, GreenHearts\_18, Greenhouse\_18, HeadNerd\_14, Herb\_14, Honk\_14, Huckleberry\_14, HunterDalle\_14, Huntingdon\_18, IAmGroot\_15, Immaculata\_18, Joann\_18, Jumboset\_18, Kalizoi\_18, KingBob\_14, Kittykat\_14, Korra\_19, Lakshmi\_18, Lasagna\_14, Lennox\_14, LilStuart\_14, Litotes\_18, Lucy\_14, Makoto\_14, MamaPearl\_14, Maria1952\_14, MeganNoll\_18, Misaeng\_18, Moki\_14, Moss\_18, MrGloopy\_18, Nancia\_14, Nubia\_18, OMalley\_14, OurGirlNessie\_14, Oxynfrius\_18, PartyCup\_18, PinkFriday\_14, PitaDog\_14, Potatoes\_18, Preamble\_14, Pterodactyl\_14, Pumancara\_14, RAP15\_18, RcigaStruga\_18, Riovina\_14, Riverdale\_18, Rozby\_18, Savage2526\_18, Scuttle\_18, Sergei\_14, Supakev\_14, Suppi\_18, TattModd\_18, Temper16\_14, Urla\_14, UtzChips\_14, VResidence\_16, Vallejo\_18, Vulture\_14, Wawa\_18, Wayne\_18, WonderBoy\_14, Zeta1847\_14, Zorro\_18,

### Summary by start number:

Start 4:

- Found in 1 of 225 ( 0.4% ) of genes in pham
- Manual Annotations of this start: 1 of 194
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Zeta1847\_14 (EH),

Start 5:

- Found in 84 of 225 ( 37.3% ) of genes in pham
- Manual Annotations of this start: 80 of 194
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Albanese\_18 (AK), Aledel\_14 (AK), AppleCider\_18 (AK), AustinPowers\_14 (AK), Beethoven\_18 (AK), Bennie\_14 (AK), BigMack\_14 (AK), Bodacious\_14 (AK), BrotherBLo\_18 (AK), CallieOMalley\_18 (AK), Canowicakte\_18 (AK), Carpal\_18 (AK), ChewChew\_14 (AK), Cholula\_18 (AK), Chridison\_14 (AK), Christian\_14 (AK), CristinaYang\_14 (AK), Daiboju\_14 (AK), Dino\_18 (AK), DrRobert\_14 (AK), DreamTeam\_14 (AK), EstebanJulior\_14 (AK), Eunoia\_14 (AK), Fluke\_18 (AK), Gisselle\_14 (AK), Glenn\_18 (AK), GreenHearts\_18 (AK), Greenhouse\_18 (AK), HeadNerd\_14 (AK), Herb\_14 (AK), Huckleberry\_14 (AK), HunterDalle\_14 (AK), Huntingdon\_18 (AK), Immaculata\_18 (AK), Joann\_18 (AK), Jumboset\_18 (AK), Kalizoi\_18 (AK), KingBob\_14 (AK), Kittykat\_14 (AK), Korra\_19 (AK), Lakshmi\_18 (AK), Lasagna\_14 (AK), Lennox\_14 (AK), LilStuart\_14 (AK), Litotes\_18 (AK), Lucy\_14 (AK), Makoto\_14 (AK), MamaPearl\_14 (AK), Maria1952\_14 (AK), MeganNoll\_18 (AK), Misaeng\_18 (AK), Moki\_14 (AK), MrGloopy\_18 (AK), Nancia\_14 (AK), Nubia\_18 (AK), OMalley\_14 (AK), OurGirlNessie\_14 (AK), Oxynfrius\_18 (AK), PartyCup\_18 (AK), PinkFriday\_14 (AK), PitaDog\_14 (AK), Potatoes\_18 (AK), Preamble\_14 (AK), Pterodactyl\_14 (AK), Pumancara\_14 (AK), RAP15\_18 (AK), RcigaStruga\_18 (AK), Riovina\_14 (AK), Riverdale\_18 (AK), Rozby\_18 (AK), Savage2526\_18 (AK), Scuttle\_18 (AK), Sergei\_14 (AK), Supakev\_14

(AK), Suppi\_18 (AK), TattModd\_18 (AK), Temper16\_14 (AK), Urla\_14 (AK), Vallejo\_18 (AK), Vulture\_14 (AK), Wawa\_18 (AK), Wayne\_18 (AK), WonderBoy\_14 (AK), Zorro\_18 (AK),

#### Start 6:

- Found in 9 of 225 ( 4.0% ) of genes in pham
- Manual Annotations of this start: 8 of 194
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Barnstormer\_14 (EH), Caron\_14 (EH), Cen1621\_14 (EH), GardenState\_15 (EH), Honk\_14 (EH), IAmGroot\_15 (EH), Moss\_18 (AZ), UtzChips\_14 (EH), VResidence\_16 (AZ1),

#### Start 11:

- Found in 131 of 225 ( 58.2% ) of genes in pham
- Manual Annotations of this start: 105 of 194
- Called 97.7% of time when present
- Phage (with cluster) where this start called: Alucard\_12 (EE), Anseraureola\_12 (EE), Aries55\_12 (EE), Astro16\_12 (EE), Avvas\_12 (EE), Azizam\_12 (EE), Aztec\_12 (EE), Baine\_12 (EE), BarBear\_12 (EE), Belthelas\_12 (EE), BinkBonk\_12 (EE), Bintii\_12 (EE), Biscayne\_12 (EE), Bodhi17\_12 (EE), BonaeVitae\_12 (EE), BoomRoasted\_12 (EE), Bradley2\_12 (EE), Bri160\_12 (EE), BrokMonster\_12 (EE), Bullzi2019\_12 (EE), Burgy\_12 (EE), BurtonThePup\_12 (EE), Cayde6\_12 (EE), Charbie\_12 (EE), Chatham\_12 (EE), Cheesecake\_12 (EE), Ciel\_12 (EE), Clownery\_12 (EE), Concrete\_12 (EE), DaftyDuck\_12 (EE), Danimal\_12 (EE), Danno\_12 (EE), Dongwon\_12 (EE), Dooby\_12 (EE), Douggie\_12 (EE), EdElric\_12 (EE), Efeke\_13 (EE), Eightball\_12 (EE), Ekko14\_12 (EE), Elspeth\_11 (EE), Erin\_12 (EE), Gabbspett\_12 (EE), Gardevoir\_12 (EE), Gillker\_12 (EE), Godfather\_12 (EE), GoldenBlanche\_12 (EE), Goobery\_12 (EE), HarperAnne\_12 (EE), Hernandez44\_12 (EE), Horacetta\_12 (EE), Hulk\_12 (EE), JRok\_12 (EE), Jahseh\_12 (EE), JaimeB\_12 (EE), Jannah\_12 (EE), Jerky\_12 (EE), JoBros\_12 (EE), JooneeDee\_12 (EE), Josuke\_12 (EE), Kaijohn\_12 (EE), KayPaulus\_12 (EE), Kevanna\_12 (EE), KillerTomato\_12 (EE), Kojax4\_12 (EE), KyriosFaba\_12 (EE), LaviMo\_12 (EE), Leafy\_12 (EE), LemonPepper\_12 (EE), LionelHutz\_12 (EE), Livingwater\_12 (EE), Loca\_12 (EE), Lola20\_12 (EE), Lunatic\_12 (EE), Luxx\_12 (EE), Majesty\_12 (EE), ManAs\_12 (EE), Maneater\_12 (EE), MasterPitts\_12 (EE), McShie\_12 (EE), MelBee03\_12 (EE), Miaurora\_12 (EE), Minima\_12 (EE), MirimarMandM\_12 (EE), MrGreen\_12 (EE), Naby\_12 (EE), Namsahir\_12 (EE), NeumannU\_12 (EE), Niffler\_12 (EE), Nobel\_12 (EE), Noelani\_12 (EE), Octopus\_12 (EE), Otwor\_12 (EE), Owens\_12 (EE), PaoPu\_12 (EE), Picnic\_12 (EE), PoRanda\_12 (EE), Pondwater\_12 (EE), Publix\_12 (EE), Puddles3\_12 (EE), PuffyCat\_12 (EE), Quaker\_12 (EE), Rhogar\_12 (EE), Rhysand\_12 (EE), RoscoWindex\_12 (EE), Sage7\_13 (EE), SantasSleigh\_13 (EE), Sara\_12 (EE), Scamander\_12 (EE), Scrunchy\_12 (EE), SeaWolves\_12 (EE), Sippinontea\_12 (EE), Slentz\_12 (EE), Slizam\_11 (EE), Snuffles\_12 (EE), Stem\_11 (EE), TeddyBoy\_12 (EE), TimoTea\_12 (EE), TinyTruffula\_12 (EE), TomBrady12\_12 (EE), Trireme\_12 (EE), Upsilon\_12 (EE), Vanisius\_12 (EE), VitulaEligans\_12 (EE), Witch\_12 (EE), Wolfpack\_12 (EE), Yasuo\_12 (EE), YertPhresh\_12 (EE), Yubaba\_12 (EE),

#### Start 13:

- Found in 130 of 225 ( 57.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 2.3% of time when present

- Phage (with cluster) where this start called: Cazares\_11 (EE), Oaklynn\_12 (EE), Yami\_11 (EE),

### **Summary by clusters:**

There are 5 clusters represented in this pham: EE, AZ1, AK, AZ, EH,

Info for manual annotations of cluster AK:

- Start number 5 was manually annotated 80 times for cluster AK.

Info for manual annotations of cluster AZ1:

- Start number 6 was manually annotated 1 time for cluster AZ1.

Info for manual annotations of cluster EE:

- Start number 11 was manually annotated 105 times for cluster EE.

Info for manual annotations of cluster EH:

- Start number 4 was manually annotated 1 time for cluster EH.
- Start number 6 was manually annotated 7 times for cluster EH.

### **Gene Information:**

Gene: Albanese\_18 Start: 12660, Stop: 15221, Start Num: 5

Candidate Starts for Albanese\_18:

(3, 12639), (Start: 5 @12660 has 80 MA's), (15, 12750), (18, 12789), (21, 12825), (30, 12885), (34, 12933), (35, 12948), (46, 13116), (49, 13161), (51, 13212), (52, 13215), (59, 13299), (71, 13485), (76, 13521), (79, 13533), (83, 13575), (94, 13686), (114, 13884), (129, 13977), (133, 14001), (134, 14004), (151, 14082), (153, 14088), (159, 14115), (166, 14145), (177, 14208), (181, 14223), (184, 14232), (185, 14235), (187, 14244), (191, 14268), (193, 14280), (194, 14286), (197, 14301), (198, 14307), (199, 14310), (202, 14331), (205, 14346), (208, 14361), (212, 14379), (213, 14385), (216, 14400), (218, 14409), (220, 14418), (227, 14451), (228, 14454), (231, 14466), (232, 14472), (235, 14484), (242, 14550), (245, 14565), (252, 14595), (254, 14604), (267, 14715), (273, 14751), (276, 14772), (285, 14847), (286, 14850), (292, 14904), (295, 14943), (303, 15000), (305, 15024), (311, 15066), (315, 15093), (325, 15162),

Gene: Aledel\_14 Start: 9738, Stop: 12296, Start Num: 5

Candidate Starts for Aledel\_14:

(Start: 5 @9738 has 80 MA's), (7, 9747), (8, 9777), (18, 9867), (30, 9963), (33, 10008), (35, 10026), (46, 10194), (51, 10290), (52, 10293), (53, 10308), (61, 10395), (76, 10599), (77, 10602), (88, 10686), (119, 10992), (129, 11052), (132, 11070), (133, 11076), (140, 11109), (143, 11121), (151, 11157), (157, 11184), (162, 11208), (164, 11214), (173, 11271), (180, 11295), (183, 11304), (187, 11319), (191, 11343), (193, 11355), (197, 11376), (198, 11382), (201, 11403), (206, 11427), (208, 11436), (212, 11454), (216, 11475), (217, 11481), (220, 11493), (227, 11526), (228, 11529), (231, 11541), (234, 11556), (235, 11559), (246, 11646), (262, 11736), (263, 11739), (267, 11790), (276, 11847), (277, 11856), (280, 11868), (285, 11922), (286, 11925), (292, 11979), (295, 12018), (302, 12066), (303, 12075), (305, 12099), (307, 12111), (322, 12207), (325, 12237),

Gene: Alucard\_12 Start: 7541, Stop: 9646, Start Num: 11

Candidate Starts for Alucard\_12:



(Start: 11 @7541 has 105 MA's), (13, 7562), (32, 7739), (34, 7748), (37, 7772), (39, 7844), (41, 7868), (42, 7874), (50, 8024), (53, 8045), (54, 8057), (56, 8066), (70, 8273), (74, 8291), (95, 8378), (114, 8447), (117, 8459), (127, 8507), (136, 8537), (141, 8552), (149, 8588), (157, 8615), (162, 8636), (169, 8660), (172, 8684), (174, 8690), (182, 8717), (191, 8750), (198, 8789), (203, 8816), (207, 8837), (209, 8852), (222, 8879), (223, 8882), (230, 8903), (233, 8915), (234, 8921), (239, 8969), (245, 9005), (260, 9053), (265, 9080), (266, 9101), (274, 9164), (278, 9188), (284, 9245), (297, 9350), (299, 9371), (301, 9383), (305, 9425), (309, 9446), (311, 9467), (327, 9596),

Gene: Anseraureola\_12 Start: 7563, Stop: 9671, Start Num: 11

Candidate Starts for Anseraureola\_12:

(Start: 11 @7563 has 105 MA's), (13, 7584), (32, 7761), (34, 7770), (37, 7794), (39, 7866), (41, 7890), (42, 7896), (48, 7989), (50, 8046), (53, 8067), (54, 8079), (56, 8088), (70, 8295), (74, 8313), (95, 8400), (114, 8469), (117, 8481), (127, 8529), (136, 8559), (141, 8574), (149, 8610), (157, 8637), (163, 8661), (169, 8682), (172, 8706), (174, 8712), (182, 8739), (191, 8772), (198, 8811), (203, 8838), (207, 8859), (209, 8874), (222, 8901), (223, 8904), (233, 8937), (234, 8943), (239, 8991), (245, 9027), (260, 9075), (265, 9102), (266, 9123), (274, 9186), (278, 9210), (284, 9267), (297, 9372), (299, 9393), (301, 9405), (305, 9447), (311, 9489), (327, 9621),

Gene: AppleCider\_18 Start: 12612, Stop: 15167, Start Num: 5

Candidate Starts for AppleCider\_18:

(3, 12591), (Start: 5 @12612 has 80 MA's), (10, 12660), (18, 12741), (20, 12765), (30, 12837), (34, 12885), (35, 12900), (36, 12906), (46, 13068), (49, 13113), (51, 13164), (52, 13167), (55, 13197), (59, 13251), (64, 13335), (73, 13458), (82, 13518), (85, 13536), (87, 13551), (92, 13602), (114, 13833), (126, 13902), (129, 13926), (132, 13944), (133, 13950), (145, 14004), (147, 14016), (153, 14037), (158, 14061), (175, 14148), (181, 14172), (183, 14178), (184, 14181), (187, 14193), (190, 14214), (191, 14217), (192, 14223), (193, 14229), (196, 14247), (197, 14250), (198, 14256), (202, 14280), (206, 14301), (208, 14310), (212, 14328), (216, 14349), (218, 14358), (220, 14367), (227, 14400), (228, 14403), (230, 14412), (231, 14415), (238, 14466), (267, 14664), (269, 14676), (272, 14697), (273, 14700), (285, 14796), (286, 14799), (292, 14853), (295, 14892), (303, 14949), (308, 14991), (315, 15039), (322, 15081), (325, 15111),

Gene: Aries55\_12 Start: 7552, Stop: 9657, Start Num: 11

Candidate Starts for Aries55\_12:

(Start: 11 @7552 has 105 MA's), (13, 7573), (32, 7750), (34, 7759), (37, 7783), (39, 7855), (41, 7879), (42, 7885), (50, 8035), (53, 8056), (54, 8068), (56, 8077), (70, 8284), (74, 8302), (95, 8389), (114, 8458), (117, 8470), (127, 8518), (136, 8548), (141, 8563), (149, 8599), (157, 8626), (162, 8647), (169, 8671), (172, 8695), (174, 8701), (182, 8728), (191, 8761), (198, 8800), (203, 8827), (207, 8848), (209, 8863), (222, 8890), (223, 8893), (230, 8914), (233, 8926), (234, 8932), (239, 8980), (255, 9055), (260, 9064), (265, 9091), (266, 9112), (274, 9175), (278, 9199), (284, 9256), (297, 9361), (299, 9382), (301, 9394), (305, 9436), (309, 9457), (311, 9478),

Gene: Astro16\_12 Start: 7546, Stop: 9651, Start Num: 11

Candidate Starts for Astro16\_12:

(Start: 11 @7546 has 105 MA's), (13, 7567), (32, 7744), (34, 7753), (37, 7777), (39, 7849), (41, 7873), (42, 7879), (50, 8029), (53, 8050), (54, 8062), (56, 8071), (70, 8278), (74, 8296), (95, 8383), (114, 8452), (117, 8464), (127, 8512), (136, 8542), (141, 8557), (149, 8593), (157, 8620), (162, 8641), (169, 8665), (172, 8689), (174, 8695), (182, 8722), (191, 8755), (198, 8794), (203, 8821), (207, 8842), (209, 8857), (222, 8884), (223, 8887), (230, 8908), (233, 8920), (234, 8926), (239, 8974), (255, 9049), (260, 9058), (265, 9085), (266, 9106), (274, 9169), (278, 9193), (284, 9250), (297, 9355), (299, 9376), (301, 9388), (305, 9430), (309, 9451), (311, 9472),

Gene: AustinPowers\_14 Start: 9739, Stop: 12297, Start Num: 5

Candidate Starts for AustinPowers\_14:

(Start: 5 @9739 has 80 MA's), (7, 9748), (8, 9778), (18, 9868), (30, 9964), (33, 10009), (35, 10027), (46, 10195), (51, 10291), (52, 10294), (53, 10309), (61, 10396), (64, 10462), (76, 10600), (77, 10603), (88, 10687), (119, 10993), (129, 11053), (132, 11071), (133, 11077), (140, 11110), (143, 11122), (151, 11158), (157, 11185), (162, 11209), (164, 11215), (173, 11272), (180, 11296), (183, 11305), (187, 11320), (191, 11344), (193, 11356), (197, 11377), (198, 11383), (201, 11404), (208, 11437), (212, 11455), (216, 11476), (217, 11482), (220, 11494), (227, 11527), (228, 11530), (231, 11542), (234, 11557), (235, 11560), (246, 11647), (262, 11737), (263, 11740), (267, 11791), (272, 11824), (276, 11848), (277, 11857), (285, 11923), (286, 11926), (292, 11980), (295, 12019), (302, 12067), (303, 12076), (305, 12100), (307, 12112), (322, 12208), (325, 12238),

Gene: Avvas\_12 Start: 7552, Stop: 9657, Start Num: 11

Candidate Starts for Avvas\_12:

(Start: 11 @7552 has 105 MA's), (13, 7573), (32, 7750), (34, 7759), (37, 7783), (39, 7855), (41, 7879), (42, 7885), (50, 8035), (53, 8056), (54, 8068), (56, 8077), (70, 8284), (74, 8302), (95, 8389), (114, 8458), (117, 8470), (127, 8518), (136, 8548), (141, 8563), (149, 8599), (157, 8626), (162, 8647), (169, 8671), (172, 8695), (174, 8701), (182, 8728), (191, 8761), (198, 8800), (203, 8827), (207, 8848), (209, 8863), (222, 8890), (223, 8893), (230, 8914), (233, 8926), (234, 8932), (239, 8980), (255, 9055), (260, 9064), (265, 9091), (266, 9112), (274, 9175), (278, 9199), (284, 9256), (297, 9361), (299, 9382), (301, 9394), (305, 9436), (309, 9457), (311, 9478),

Gene: Azizam\_12 Start: 7534, Stop: 9639, Start Num: 11

Candidate Starts for Azizam\_12:

(Start: 11 @7534 has 105 MA's), (13, 7555), (32, 7732), (34, 7741), (37, 7765), (39, 7837), (41, 7861), (42, 7867), (50, 8017), (53, 8038), (54, 8050), (56, 8059), (70, 8266), (74, 8284), (95, 8371), (114, 8440), (117, 8452), (127, 8500), (136, 8530), (141, 8545), (157, 8608), (162, 8629), (163, 8632), (174, 8683), (182, 8710), (191, 8743), (198, 8782), (203, 8809), (207, 8830), (209, 8845), (222, 8872), (230, 8896), (233, 8908), (234, 8914), (239, 8962), (260, 9046), (265, 9073), (266, 9094), (274, 9157), (278, 9181), (282, 9205), (283, 9226), (297, 9343), (299, 9364), (301, 9376), (305, 9418), (309, 9439), (311, 9460), (327, 9589),

Gene: Aztec\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for Aztec\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: Baine\_12 Start: 7538, Stop: 9646, Start Num: 11

Candidate Starts for Baine\_12:

(Start: 11 @7538 has 105 MA's), (13, 7559), (32, 7736), (34, 7745), (37, 7769), (39, 7841), (41, 7865), (42, 7871), (48, 7964), (50, 8021), (53, 8042), (54, 8054), (56, 8063), (70, 8270), (74, 8288), (95, 8375), (114, 8444), (117, 8456), (127, 8504), (136, 8534), (141, 8549), (149, 8585), (157, 8612), (169, 8657), (172, 8681), (174, 8687), (182, 8714), (191, 8747), (198, 8786), (203, 8813), (207, 8834), (209, 8849), (222, 8876), (223, 8879), (233, 8912), (234, 8918), (239, 8966), (245, 9002), (260, 9050), (265, 9077), (266, 9098), (274, 9161), (278, 9185), (284, 9242), (297, 9347), (299, 9368), (301, 9380), (305, 9422), (311, 9464), (327, 9596),

Gene: BarBear\_12 Start: 7546, Stop: 9651, Start Num: 11

Candidate Starts for BarBear\_12:

(Start: 11 @7546 has 105 MA's), (13, 7567), (32, 7744), (34, 7753), (37, 7777), (39, 7849), (41, 7873), (42, 7879), (50, 8029), (53, 8050), (54, 8062), (56, 8071), (70, 8278), (74, 8296), (95, 8383), (114, 8452), (117, 8464), (127, 8512), (136, 8542), (141, 8557), (149, 8593), (157, 8620), (162, 8641), (169, 8665), (172, 8689), (174, 8695), (182, 8722), (191, 8755), (198, 8794), (203, 8821), (207, 8842), (209, 8857), (222, 8884), (223, 8887), (230, 8908), (233, 8920), (234, 8926), (239, 8974), (255, 9049), (260, 9058), (265, 9085), (266, 9106), (274, 9169), (278, 9193), (284, 9250), (297, 9355), (299, 9376), (301, 9388), (305, 9430), (309, 9451), (311, 9472),

Gene: Barnstormer\_14 Start: 9927, Stop: 12275, Start Num: 6

Candidate Starts for Barnstormer\_14:

(Start: 6 @9927 has 8 MA's), (25, 10110), (37, 10206), (43, 10314), (47, 10374), (62, 10569), (65, 10632), (72, 10716), (74, 10728), (77, 10731), (84, 10782), (91, 10833), (98, 10920), (105, 10980), (110, 11004), (121, 11085), (135, 11145), (142, 11166), (157, 11226), (162, 11247), (165, 11256), (176, 11307), (196, 11394), (198, 11403), (224, 11499), (225, 11505), (234, 11538), (248, 11634), (260, 11673), (278, 11811), (285, 11874), (298, 11985), (311, 12090), (315, 12126),

Gene: Beethoven\_18 Start: 12567, Stop: 15128, Start Num: 5

Candidate Starts for Beethoven\_18:

(3, 12546), (Start: 5 @12567 has 80 MA's), (10, 12615), (14, 12648), (18, 12696), (20, 12720), (21, 12732), (30, 12792), (34, 12840), (35, 12855), (36, 12861), (44, 12981), (46, 13023), (51, 13119), (52, 13122), (55, 13152), (59, 13206), (68, 13347), (69, 13368), (71, 13392), (73, 13413), (75, 13422), (82, 13473), (85, 13491), (100, 13677), (119, 13821), (125, 13854), (129, 13881), (132, 13899), (133, 13905), (138, 13929), (140, 13938), (151, 13986), (157, 14013), (164, 14043), (166, 14049), (173, 14100), (178, 14115), (181, 14127), (183, 14133), (184, 14136), (186, 14145), (191, 14172), (193, 14184), (195, 14193), (197, 14205), (198, 14211), (201, 14232), (206, 14256), (208, 14265), (215, 14301), (216, 14304), (220, 14322), (227, 14355), (228, 14358), (230, 14367), (231, 14370), (234, 14385), (246, 14475), (267, 14619), (273, 14655), (285, 14751), (286, 14754), (292, 14808), (295, 14847), (302, 14895), (303, 14904), (305, 14928), (308, 14946), (315, 14997), (319, 15021), (322, 15039), (325, 15069),

Gene: Belthelas\_12 Start: 7590, Stop: 9695, Start Num: 11

Candidate Starts for Belthelas\_12:

(Start: 11 @7590 has 105 MA's), (13, 7611), (32, 7788), (34, 7797), (37, 7821), (39, 7893), (41, 7917), (42, 7923), (48, 8016), (50, 8073), (53, 8094), (54, 8106), (56, 8115), (70, 8322), (74, 8340), (95, 8427), (114, 8496), (117, 8508), (127, 8556), (136, 8586), (141, 8601), (149, 8637), (157, 8664), (163, 8688), (169, 8709), (172, 8733), (174, 8739), (182, 8766), (191, 8799), (198, 8838), (203, 8865), (207, 8886), (209, 8901), (222, 8928), (223, 8931), (230, 8952), (233, 8964), (234, 8970), (239, 9018), (245, 9054), (260, 9102), (265, 9129), (266, 9150), (274, 9213), (278, 9237), (284, 9294), (297, 9399), (299, 9420), (301, 9432), (305, 9474), (309, 9495), (311, 9516), (327, 9645),

Gene: Bennie\_14 Start: 9720, Stop: 12287, Start Num: 5

Candidate Starts for Bennie\_14:

(3, 9699), (Start: 5 @9720 has 80 MA's), (10, 9768), (18, 9849), (20, 9873), (30, 9945), (34, 9993), (35, 10008), (36, 10014), (46, 10176), (50, 10269), (51, 10272), (52, 10275), (55, 10305), (60, 10362), (68, 10500), (69, 10521), (73, 10566), (79, 10593), (82, 10626), (85, 10644), (91, 10686), (94, 10743), (125, 11007), (129, 11034), (132, 11052), (133, 11058), (138, 11082), (143, 11103), (151, 11139), (157, 11166), (164, 11196), (166, 11202), (173, 11253), (183, 11286), (191, 11325), (192, 11331), (193, 11337), (195, 11346), (197, 11358), (198, 11364), (202, 11388), (206, 11409), (208, 11418), (216, 11457), (220, 11475), (227, 11508), (228, 11511), (231, 11523), (234, 11538), (240, 11589), (245, 11622), (249, 11640), (255, 11664), (260, 11706), (267, 11772), (269, 11784), (276, 11829), (285, 11904), (286, 11907), (292, 11961), (295, 12000), (299, 12027), (303, 12057), (304, 12069), (305, 12081), (306, 12090), (315, 12156), (322, 12198), (325, 12228),

Gene: BigMack\_14 Start: 9716, Stop: 12277, Start Num: 5

Candidate Starts for BigMack\_14:

(3, 9695), (Start: 5 @9716 has 80 MA's), (10, 9764), (18, 9845), (20, 9869), (30, 9941), (34, 9989), (35, 10004), (36, 10010), (44, 10130), (46, 10172), (50, 10265), (51, 10268), (52, 10271), (55, 10301), (68, 10496), (69, 10517), (73, 10562), (82, 10622), (85, 10640), (109, 10892), (125, 11003), (129, 11030), (132, 11048), (133, 11054), (138, 11078), (140, 11087), (151, 11135), (157, 11162), (158, 11165), (164, 11192), (166, 11198), (169, 11210), (173, 11249), (178, 11264), (181, 11276), (183, 11282), (184, 11285), (186, 11294), (191, 11321), (192, 11327), (193, 11333), (195, 11342), (197, 11354), (198, 11360), (199, 11363), (208, 11414), (215, 11450), (216, 11453), (227, 11504), (228, 11507), (230, 11516), (231, 11519), (234, 11534), (245, 11618), (264, 11726), (267, 11768), (285, 11900), (286, 11903), (292, 11957), (295, 11996), (302, 12044), (303, 12053), (305, 12077), (315, 12146), (316, 12152), (325, 12218),

Gene: BinkBonk\_12 Start: 7546, Stop: 9651, Start Num: 11

Candidate Starts for BinkBonk\_12:

(Start: 11 @7546 has 105 MA's), (13, 7567), (32, 7744), (34, 7753), (37, 7777), (39, 7849), (41, 7873), (42, 7879), (50, 8029), (53, 8050), (54, 8062), (56, 8071), (70, 8278), (74, 8296), (95, 8383), (114, 8452), (117, 8464), (127, 8512), (136, 8542), (141, 8557), (149, 8593), (157, 8620), (162, 8641), (169, 8665), (172, 8689), (174, 8695), (182, 8722), (191, 8755), (198, 8794), (203, 8821), (207, 8842), (209, 8857), (222, 8884), (223, 8887), (230, 8908), (233, 8920), (234, 8926), (239, 8974), (255, 9049), (260, 9058), (265, 9085), (266, 9106), (274, 9169), (278, 9193), (284, 9250), (297, 9355), (299, 9376), (301, 9388), (305, 9430), (309, 9451), (311, 9472),

Gene: Bintii\_12 Start: 7572, Stop: 9677, Start Num: 11

Candidate Starts for Bintii\_12:

(1, 7476), (Start: 11 @7572 has 105 MA's), (13, 7593), (32, 7770), (34, 7779), (37, 7803), (39, 7875), (41, 7899), (48, 7998), (53, 8076), (54, 8088), (56, 8097), (70, 8304), (74, 8322), (95, 8409), (114, 8478), (117, 8490), (127, 8538), (136, 8568), (141, 8583), (155, 8637), (162, 8667), (163, 8670), (169, 8691), (174, 8721), (182, 8748), (191, 8781), (198, 8820), (203, 8847), (204, 8853), (207, 8868), (209, 8883), (222, 8910), (223, 8913), (230, 8934), (233, 8946), (234, 8952), (239, 9000), (245, 9036), (260, 9084), (265, 9111), (266, 9132), (274, 9195), (278, 9219), (284, 9276), (297, 9381), (299, 9402), (301, 9414), (305, 9456), (309, 9477), (311, 9498),

Gene: Biscayne\_12 Start: 7608, Stop: 9713, Start Num: 11

Candidate Starts for Biscayne\_12:

(Start: 11 @7608 has 105 MA's), (13, 7629), (32, 7806), (34, 7815), (37, 7839), (39, 7911), (41, 7935), (42, 7941), (50, 8091), (53, 8112), (54, 8124), (56, 8133), (70, 8340), (74, 8358), (95, 8445), (114, 8514), (117, 8526), (127, 8574), (136, 8604), (141, 8619), (149, 8655), (157, 8682), (162, 8703), (169, 8727), (172, 8751), (174, 8757), (182, 8784), (191, 8817), (198, 8856), (203, 8883), (207, 8904), (209, 8919), (222, 8946), (223, 8949), (230, 8970), (233, 8982), (234, 8988), (239, 9036), (260, 9120), (265, 9147), (266, 9168), (274, 9231), (278, 9255), (284, 9312), (297, 9417), (299, 9438), (301, 9450), (305, 9492), (309, 9513), (311, 9534), (327, 9663),

Gene: Bodacious\_14 Start: 9717, Stop: 12278, Start Num: 5

Candidate Starts for Bodacious\_14:

(3, 9696), (Start: 5 @9717 has 80 MA's), (10, 9765), (18, 9846), (20, 9870), (30, 9942), (34, 9990), (35, 10005), (36, 10011), (44, 10131), (46, 10173), (51, 10269), (52, 10272), (55, 10302), (64, 10440), (69, 10518), (73, 10563), (75, 10572), (82, 10623), (85, 10641), (86, 10653), (90, 10677), (109, 10893), (120, 10983), (125, 11004), (129, 11031), (132, 11049), (133, 11055), (138, 11079), (140, 11088), (151, 11136), (157, 11163), (164, 11193), (173, 11250), (178, 11265), (181, 11277), (183, 11283), (184, 11286), (186, 11295), (191, 11322), (193, 11334), (195, 11343), (197, 11355), (198, 11361), (202, 11385), (206, 11406), (208, 11415), (211, 11430), (216, 11454), (227, 11505), (228, 11508), (231, 11520), (241, 11595), (246, 11625), (255, 11661), (267, 11769), (269, 11781), (273, 11805),

(285, 11901), (286, 11904), (290, 11937), (292, 11958), (295, 11997), (298, 12015), (302, 12045),  
(303, 12054), (305, 12078), (316, 12153), (325, 12219),

Gene: Bodhi17\_12 Start: 7533, Stop: 9638, Start Num: 11

Candidate Starts for Bodhi17\_12:

(Start: 11 @7533 has 105 MA's), (13, 7554), (32, 7731), (34, 7740), (37, 7764), (39, 7836), (41, 7860),  
(42, 7866), (48, 7959), (50, 8016), (53, 8037), (54, 8049), (56, 8058), (70, 8265), (74, 8283), (95,  
8370), (114, 8439), (117, 8451), (127, 8499), (136, 8529), (141, 8544), (149, 8580), (157, 8607), (163,  
8631), (169, 8652), (172, 8676), (174, 8682), (182, 8709), (191, 8742), (198, 8781), (203, 8808), (207,  
8829), (209, 8844), (222, 8871), (223, 8874), (233, 8907), (234, 8913), (239, 8961), (245, 8997), (260,  
9045), (265, 9072), (266, 9093), (274, 9156), (278, 9180), (284, 9237), (297, 9342), (299, 9363), (301,  
9375), (305, 9417), (309, 9438), (311, 9459), (327, 9588),

Gene: BonaeVitae\_12 Start: 7240, Stop: 9339, Start Num: 11

Candidate Starts for BonaeVitae\_12:

(Start: 11 @7240 has 105 MA's), (12, 7255), (13, 7261), (19, 7321), (26, 7375), (32, 7438), (34, 7447),  
(37, 7471), (39, 7543), (41, 7567), (48, 7666), (50, 7723), (54, 7756), (56, 7765), (82, 8032), (95,  
8077), (115, 8149), (120, 8179), (136, 8236), (141, 8251), (159, 8320), (170, 8365), (172, 8383), (174,  
8389), (191, 8449), (192, 8455), (195, 8470), (198, 8488), (203, 8515), (218, 8557), (230, 8602), (234,  
8620), (237, 8647), (253, 8734), (260, 8752), (265, 8779), (268, 8821), (274, 8863), (275, 8866), (278,  
8887), (291, 8998), (299, 9070), (301, 9082), (304, 9112), (305, 9124), (309, 9145), (324, 9253), (327,  
9289),

Gene: BoomRoasted\_12 Start: 7587, Stop: 9692, Start Num: 11

Candidate Starts for BoomRoasted\_12:

(Start: 11 @7587 has 105 MA's), (13, 7608), (32, 7785), (34, 7794), (37, 7818), (39, 7890), (41, 7914),  
(42, 7920), (48, 8013), (50, 8070), (53, 8091), (54, 8103), (56, 8112), (70, 8319), (74, 8337), (95,  
8424), (114, 8493), (117, 8505), (127, 8553), (136, 8583), (141, 8598), (149, 8634), (157, 8661), (163,  
8685), (169, 8706), (172, 8730), (174, 8736), (182, 8763), (191, 8796), (198, 8835), (203, 8862), (207,  
8883), (209, 8898), (222, 8925), (223, 8928), (230, 8949), (233, 8961), (234, 8967), (239, 9015), (245,  
9051), (260, 9099), (265, 9126), (266, 9147), (274, 9210), (278, 9234), (284, 9291), (297, 9396), (299,  
9417), (301, 9429), (305, 9471), (309, 9492), (311, 9513), (327, 9642),

Gene: Bradley2\_12 Start: 7539, Stop: 9644, Start Num: 11

Candidate Starts for Bradley2\_12:

(Start: 11 @7539 has 105 MA's), (13, 7560), (32, 7737), (34, 7746), (37, 7770), (39, 7842), (41, 7866),  
(42, 7872), (50, 8022), (53, 8043), (54, 8055), (56, 8064), (70, 8271), (74, 8289), (95, 8376), (114,  
8445), (117, 8457), (127, 8505), (136, 8535), (141, 8550), (149, 8586), (157, 8613), (162, 8634), (169,  
8658), (172, 8682), (174, 8688), (182, 8715), (191, 8748), (198, 8787), (203, 8814), (207, 8835), (209,  
8850), (222, 8877), (223, 8880), (230, 8901), (233, 8913), (234, 8919), (239, 8967), (245, 9003), (260,  
9051), (265, 9078), (266, 9099), (274, 9162), (278, 9186), (284, 9243), (297, 9348), (299, 9369), (301,  
9381), (305, 9423), (309, 9444), (311, 9465), (327, 9594),

Gene: Bri160\_12 Start: 7586, Stop: 9691, Start Num: 11

Candidate Starts for Bri160\_12:

(Start: 11 @7586 has 105 MA's), (13, 7607), (32, 7784), (34, 7793), (37, 7817), (39, 7889), (41, 7913),  
(42, 7919), (48, 8012), (50, 8069), (53, 8090), (54, 8102), (56, 8111), (70, 8318), (74, 8336), (95,  
8423), (114, 8492), (117, 8504), (127, 8552), (136, 8582), (141, 8597), (149, 8633), (157, 8660), (163,  
8684), (169, 8705), (172, 8729), (174, 8735), (182, 8762), (191, 8795), (198, 8834), (203, 8861), (207,  
8882), (209, 8897), (222, 8924), (223, 8927), (230, 8948), (233, 8960), (234, 8966), (239, 9014), (245,  
9050), (260, 9098), (265, 9125), (266, 9146), (274, 9209), (278, 9233), (284, 9290), (297, 9395), (299,  
9416), (301, 9428), (305, 9470), (309, 9491), (311, 9512), (327, 9641),

Gene: BrokMonster\_12 Start: 7529, Stop: 9634, Start Num: 11

Candidate Starts for BrokMonster\_12:

(Start: 11 @7529 has 105 MA's), (13, 7550), (32, 7727), (34, 7736), (37, 7760), (39, 7832), (41, 7856), (42, 7862), (48, 7955), (50, 8012), (53, 8033), (54, 8045), (56, 8054), (70, 8261), (74, 8279), (95, 8366), (114, 8435), (117, 8447), (127, 8495), (136, 8525), (141, 8540), (157, 8603), (162, 8624), (163, 8627), (174, 8678), (182, 8705), (191, 8738), (198, 8777), (203, 8804), (207, 8825), (209, 8840), (222, 8867), (230, 8891), (233, 8903), (234, 8909), (239, 8957), (260, 9041), (265, 9068), (266, 9089), (274, 9152), (278, 9176), (284, 9233), (297, 9338), (299, 9359), (301, 9371), (305, 9413), (309, 9434), (311, 9455), (327, 9584),

Gene: BrotherBLo\_18 Start: 12573, Stop: 15134, Start Num: 5

Candidate Starts for BrotherBLo\_18:

(3, 12552), (Start: 5 @12573 has 80 MA's), (10, 12621), (14, 12654), (18, 12702), (20, 12726), (21, 12738), (30, 12798), (34, 12846), (35, 12861), (36, 12867), (44, 12987), (46, 13029), (51, 13125), (52, 13128), (55, 13158), (59, 13212), (68, 13353), (69, 13374), (71, 13398), (73, 13419), (75, 13428), (82, 13479), (85, 13497), (100, 13683), (119, 13827), (125, 13860), (129, 13887), (132, 13905), (133, 13911), (138, 13935), (140, 13944), (151, 13992), (157, 14019), (158, 14022), (162, 14043), (164, 14049), (166, 14055), (173, 14106), (178, 14121), (181, 14133), (183, 14139), (184, 14142), (186, 14151), (191, 14178), (193, 14190), (195, 14199), (197, 14211), (198, 14217), (201, 14238), (206, 14262), (208, 14271), (216, 14310), (220, 14328), (227, 14361), (228, 14364), (230, 14373), (231, 14376), (234, 14391), (246, 14481), (255, 14517), (267, 14625), (273, 14661), (276, 14682), (285, 14757), (286, 14760), (292, 14814), (295, 14853), (302, 14901), (303, 14910), (305, 14934), (308, 14952), (315, 15003), (319, 15027), (322, 15045), (325, 15075),

Gene: Bullzi2019\_12 Start: 7561, Stop: 9666, Start Num: 11

Candidate Starts for Bullzi2019\_12:

(Start: 11 @7561 has 105 MA's), (13, 7582), (32, 7759), (34, 7768), (37, 7792), (39, 7864), (41, 7888), (48, 7987), (53, 8065), (54, 8077), (56, 8086), (70, 8293), (74, 8311), (95, 8398), (114, 8467), (117, 8479), (127, 8527), (136, 8557), (141, 8572), (155, 8626), (162, 8656), (163, 8659), (169, 8680), (174, 8710), (182, 8737), (191, 8770), (198, 8809), (203, 8836), (204, 8842), (207, 8857), (209, 8872), (222, 8899), (223, 8902), (230, 8923), (233, 8935), (234, 8941), (239, 8989), (245, 9025), (260, 9073), (265, 9100), (266, 9121), (274, 9184), (278, 9208), (284, 9265), (297, 9370), (299, 9391), (305, 9445), (309, 9466), (311, 9487),

Gene: Burgy\_12 Start: 7552, Stop: 9657, Start Num: 11

Candidate Starts for Burgy\_12:

(Start: 11 @7552 has 105 MA's), (13, 7573), (32, 7750), (34, 7759), (37, 7783), (39, 7855), (41, 7879), (42, 7885), (50, 8035), (53, 8056), (54, 8068), (56, 8077), (70, 8284), (74, 8302), (95, 8389), (114, 8458), (117, 8470), (127, 8518), (136, 8548), (141, 8563), (149, 8599), (157, 8626), (162, 8647), (169, 8671), (172, 8695), (174, 8701), (182, 8728), (191, 8761), (198, 8800), (203, 8827), (207, 8848), (209, 8863), (222, 8890), (223, 8893), (230, 8914), (233, 8926), (234, 8932), (239, 8980), (255, 9055), (260, 9064), (265, 9091), (266, 9112), (274, 9175), (278, 9199), (284, 9256), (297, 9361), (299, 9382), (301, 9394), (305, 9436), (309, 9457), (311, 9478),

Gene: BurtonThePup\_12 Start: 7546, Stop: 9651, Start Num: 11

Candidate Starts for BurtonThePup\_12:

(Start: 11 @7546 has 105 MA's), (13, 7567), (32, 7744), (34, 7753), (37, 7777), (39, 7849), (41, 7873), (42, 7879), (50, 8029), (53, 8050), (54, 8062), (56, 8071), (70, 8278), (74, 8296), (95, 8383), (114, 8452), (117, 8464), (127, 8512), (136, 8542), (141, 8557), (149, 8593), (157, 8620), (162, 8641), (169, 8665), (172, 8689), (174, 8695), (182, 8722), (191, 8755), (198, 8794), (203, 8821), (207, 8842), (209, 8857), (222, 8884), (223, 8887), (230, 8908), (233, 8920), (234, 8926), (239, 8974), (255, 9049), (260, 9058), (265, 9085), (266, 9106), (274, 9169), (278, 9193), (284, 9250), (297, 9355), (299, 9376), (301, 9388), (305, 9430), (309, 9451), (311, 9472),

Gene: CallieOMalley\_18 Start: 12612, Stop: 15167, Start Num: 5

Candidate Starts for CallieOMalley\_18:

(3, 12591), (Start: 5 @12612 has 80 MA's), (10, 12660), (18, 12741), (20, 12765), (23, 12795), (30, 12837), (35, 12900), (36, 12906), (46, 13068), (51, 13164), (52, 13167), (55, 13197), (64, 13335), (73, 13458), (82, 13518), (85, 13536), (87, 13551), (92, 13602), (114, 13833), (126, 13902), (129, 13926), (132, 13944), (133, 13950), (145, 14004), (147, 14016), (153, 14037), (158, 14061), (175, 14148), (181, 14172), (183, 14178), (184, 14181), (187, 14193), (190, 14214), (191, 14217), (192, 14223), (193, 14229), (195, 14238), (196, 14247), (197, 14250), (198, 14256), (202, 14280), (206, 14301), (208, 14310), (212, 14328), (216, 14349), (218, 14358), (220, 14367), (227, 14400), (228, 14403), (230, 14412), (231, 14415), (238, 14466), (255, 14556), (267, 14664), (269, 14676), (272, 14697), (273, 14700), (285, 14796), (286, 14799), (292, 14853), (295, 14892), (303, 14949), (308, 14991), (315, 15039), (322, 15081), (325, 15111),

Gene: Canowicakte\_18 Start: 12647, Stop: 15202, Start Num: 5

Candidate Starts for Canowicakte\_18:

(3, 12626), (Start: 5 @12647 has 80 MA's), (10, 12695), (18, 12776), (20, 12800), (30, 12872), (34, 12920), (35, 12935), (36, 12941), (46, 13103), (49, 13148), (51, 13199), (52, 13202), (55, 13232), (64, 13370), (73, 13493), (82, 13553), (85, 13571), (87, 13586), (92, 13637), (114, 13868), (126, 13937), (129, 13961), (132, 13979), (133, 13985), (145, 14039), (147, 14051), (153, 14072), (158, 14096), (175, 14183), (181, 14207), (183, 14213), (184, 14216), (187, 14228), (190, 14249), (191, 14252), (192, 14258), (193, 14264), (195, 14273), (196, 14282), (197, 14285), (198, 14291), (202, 14315), (206, 14336), (208, 14345), (212, 14363), (216, 14384), (218, 14393), (220, 14402), (227, 14435), (228, 14438), (230, 14447), (231, 14450), (238, 14501), (255, 14591), (267, 14699), (269, 14711), (272, 14732), (273, 14735), (285, 14831), (286, 14834), (292, 14888), (295, 14927), (303, 14984), (308, 15026), (315, 15074), (322, 15116), (325, 15146),

Gene: Caron\_14 Start: 9969, Stop: 12317, Start Num: 6

Candidate Starts for Caron\_14:

(Start: 6 @9969 has 8 MA's), (25, 10152), (37, 10248), (43, 10356), (47, 10416), (62, 10611), (65, 10674), (72, 10758), (74, 10770), (77, 10773), (84, 10824), (91, 10875), (97, 10956), (105, 11022), (110, 11046), (121, 11127), (135, 11187), (142, 11208), (165, 11298), (176, 11349), (198, 11445), (224, 11541), (225, 11547), (229, 11559), (234, 11580), (249, 11682), (260, 11715), (266, 11763), (278, 11853), (285, 11916), (287, 11928), (298, 12027), (311, 12132), (315, 12168),

Gene: Carpal\_18 Start: 12574, Stop: 15135, Start Num: 5

Candidate Starts for Carpal\_18:

(3, 12553), (Start: 5 @12574 has 80 MA's), (10, 12622), (14, 12655), (18, 12703), (20, 12727), (21, 12739), (30, 12799), (34, 12847), (35, 12862), (36, 12868), (44, 12988), (46, 13030), (51, 13126), (52, 13129), (55, 13159), (59, 13213), (68, 13354), (69, 13375), (71, 13399), (73, 13420), (75, 13429), (82, 13480), (85, 13498), (100, 13684), (119, 13828), (125, 13861), (129, 13888), (132, 13906), (133, 13912), (138, 13936), (140, 13945), (151, 13993), (157, 14020), (158, 14023), (162, 14044), (166, 14056), (173, 14107), (178, 14122), (181, 14134), (184, 14143), (186, 14152), (191, 14179), (193, 14191), (195, 14200), (197, 14212), (198, 14218), (201, 14239), (206, 14263), (208, 14272), (216, 14311), (227, 14362), (228, 14365), (230, 14374), (231, 14377), (234, 14392), (246, 14482), (255, 14518), (267, 14626), (273, 14662), (285, 14758), (286, 14761), (292, 14815), (295, 14854), (302, 14902), (303, 14911), (305, 14935), (308, 14953), (315, 15004), (319, 15028), (322, 15046), (325, 15076),

Gene: Cayde6\_12 Start: 7538, Stop: 9646, Start Num: 11

Candidate Starts for Cayde6\_12:

(Start: 11 @7538 has 105 MA's), (13, 7559), (32, 7736), (34, 7745), (37, 7769), (39, 7841), (41, 7865), (42, 7871), (48, 7964), (50, 8021), (53, 8042), (54, 8054), (56, 8063), (70, 8270), (74, 8288), (95,

8375), (114, 8444), (117, 8456), (127, 8504), (136, 8534), (141, 8549), (149, 8585), (157, 8612), (169, 8657), (172, 8681), (174, 8687), (182, 8714), (191, 8747), (198, 8786), (203, 8813), (207, 8834), (209, 8849), (222, 8876), (223, 8879), (233, 8912), (234, 8918), (239, 8966), (245, 9002), (260, 9050), (265, 9077), (266, 9098), (274, 9161), (278, 9185), (284, 9242), (297, 9347), (299, 9368), (301, 9380), (305, 9422), (311, 9464), (327, 9596),

Gene: Cazares\_11 Start: 7552, Stop: 9636, Start Num: 13

Candidate Starts for Cazares\_11:

(Start: 11 @7531 has 105 MA's), (13, 7552), (32, 7729), (34, 7738), (37, 7762), (39, 7834), (41, 7858), (48, 7957), (50, 8014), (53, 8035), (54, 8047), (56, 8056), (70, 8263), (74, 8281), (95, 8368), (114, 8437), (117, 8449), (127, 8497), (136, 8527), (141, 8542), (162, 8626), (163, 8629), (169, 8650), (174, 8680), (182, 8707), (191, 8740), (198, 8779), (203, 8806), (204, 8812), (207, 8827), (209, 8842), (223, 8872), (230, 8893), (233, 8905), (234, 8911), (239, 8959), (245, 8995), (260, 9043), (265, 9070), (266, 9091), (274, 9154), (278, 9178), (284, 9235), (297, 9340), (299, 9361), (305, 9415), (309, 9436), (311, 9457),

Gene: Cen1621\_14 Start: 9057, Stop: 11342, Start Num: 6

Candidate Starts for Cen1621\_14:

(Start: 6 @9057 has 8 MA's), (22, 9216), (31, 9294), (37, 9336), (43, 9444), (46, 9495), (47, 9504), (50, 9588), (54, 9621), (58, 9645), (62, 9699), (65, 9762), (74, 9858), (77, 9861), (130, 10152), (133, 10173), (155, 10254), (169, 10308), (170, 10314), (179, 10353), (188, 10386), (204, 10470), (214, 10518), (226, 10578), (233, 10596), (237, 10629), (239, 10650), (243, 10677), (251, 10710), (260, 10734), (261, 10743), (274, 10845), (285, 10932), (296, 11028), (303, 11082), (304, 11094), (317, 11187),

Gene: Charbie\_12 Start: 7528, Stop: 9633, Start Num: 11

Candidate Starts for Charbie\_12:

(Start: 11 @7528 has 105 MA's), (13, 7549), (32, 7726), (34, 7735), (37, 7759), (39, 7831), (41, 7855), (42, 7861), (50, 8011), (53, 8032), (54, 8044), (56, 8053), (70, 8260), (74, 8278), (95, 8365), (114, 8434), (117, 8446), (127, 8494), (136, 8524), (141, 8539), (149, 8575), (157, 8602), (162, 8623), (169, 8647), (172, 8671), (174, 8677), (182, 8704), (191, 8737), (198, 8776), (203, 8803), (207, 8824), (209, 8839), (222, 8866), (223, 8869), (230, 8890), (233, 8902), (234, 8908), (239, 8956), (255, 9031), (260, 9040), (265, 9067), (266, 9088), (274, 9151), (278, 9175), (284, 9232), (297, 9337), (299, 9358), (301, 9370), (305, 9412), (309, 9433), (311, 9454),

Gene: Chatham\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for Chatham\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: Cheesecake\_12 Start: 7552, Stop: 9657, Start Num: 11

Candidate Starts for Cheesecake\_12:

(Start: 11 @7552 has 105 MA's), (13, 7573), (32, 7750), (34, 7759), (37, 7783), (39, 7855), (41, 7879), (42, 7885), (50, 8035), (53, 8056), (54, 8068), (56, 8077), (70, 8284), (74, 8302), (95, 8389), (114, 8458), (117, 8470), (127, 8518), (136, 8548), (141, 8563), (149, 8599), (157, 8626), (162, 8647), (169, 8671), (172, 8695), (174, 8701), (182, 8728), (191, 8761), (198, 8800), (203, 8827), (207, 8848), (209, 8863), (222, 8890), (223, 8893), (230, 8914), (233, 8926), (234, 8932), (239, 8980), (255, 9055), (260, 9064), (265, 9091), (266, 9112), (274, 9175), (278, 9199), (284, 9256), (297, 9361), (299, 9382), (301,



9394), (305, 9436), (309, 9457), (311, 9478),

Gene: ChewChew\_14 Start: 9716, Stop: 12277, Start Num: 5

Candidate Starts for ChewChew\_14:

(3, 9695), (Start: 5 @9716 has 80 MA's), (10, 9764), (18, 9845), (20, 9869), (30, 9941), (34, 9989), (35, 10004), (36, 10010), (46, 10172), (51, 10268), (52, 10271), (55, 10301), (64, 10439), (69, 10517), (73, 10562), (75, 10571), (82, 10622), (85, 10640), (86, 10652), (90, 10676), (109, 10892), (120, 10982), (125, 11003), (129, 11030), (132, 11048), (133, 11054), (138, 11078), (140, 11087), (151, 11135), (157, 11162), (164, 11192), (173, 11249), (178, 11264), (181, 11276), (183, 11282), (184, 11285), (186, 11294), (191, 11321), (193, 11333), (195, 11342), (197, 11354), (198, 11360), (202, 11384), (206, 11405), (208, 11414), (211, 11429), (215, 11450), (216, 11453), (227, 11504), (228, 11507), (231, 11519), (241, 11594), (246, 11624), (255, 11660), (267, 11768), (269, 11780), (273, 11804), (285, 11900), (286, 11903), (290, 11936), (292, 11957), (295, 11996), (298, 12014), (302, 12044), (303, 12053), (305, 12077), (316, 12152), (325, 12218),

Gene: Cholula\_18 Start: 12619, Stop: 15180, Start Num: 5

Candidate Starts for Cholula\_18:

(3, 12598), (Start: 5 @12619 has 80 MA's), (10, 12667), (14, 12700), (18, 12748), (20, 12772), (21, 12784), (30, 12844), (34, 12892), (35, 12907), (36, 12913), (44, 13033), (46, 13075), (50, 13168), (51, 13171), (52, 13174), (55, 13204), (59, 13258), (68, 13399), (69, 13420), (71, 13444), (73, 13465), (75, 13474), (82, 13525), (85, 13543), (89, 13567), (100, 13729), (119, 13873), (125, 13906), (129, 13933), (132, 13951), (133, 13957), (138, 13981), (140, 13990), (151, 14038), (157, 14065), (162, 14089), (164, 14095), (166, 14101), (173, 14152), (178, 14167), (181, 14179), (183, 14185), (184, 14188), (186, 14197), (191, 14224), (193, 14236), (195, 14245), (197, 14257), (198, 14263), (201, 14284), (208, 14317), (216, 14356), (227, 14407), (228, 14410), (230, 14419), (231, 14422), (234, 14437), (245, 14521), (246, 14527), (255, 14563), (267, 14671), (269, 14683), (273, 14707), (285, 14803), (286, 14806), (292, 14860), (295, 14899), (302, 14947), (303, 14956), (305, 14980), (308, 14998), (315, 15049), (319, 15073), (322, 15091), (325, 15121),

Gene: Chridison\_14 Start: 9739, Stop: 12297, Start Num: 5

Candidate Starts for Chridison\_14:

(Start: 5 @9739 has 80 MA's), (7, 9748), (8, 9778), (18, 9868), (30, 9964), (33, 10009), (35, 10027), (46, 10195), (51, 10291), (52, 10294), (53, 10309), (61, 10396), (76, 10600), (77, 10603), (88, 10687), (119, 10993), (129, 11053), (132, 11071), (133, 11077), (140, 11110), (143, 11122), (151, 11158), (157, 11185), (162, 11209), (164, 11215), (173, 11272), (180, 11296), (183, 11305), (187, 11320), (191, 11344), (193, 11356), (197, 11377), (198, 11383), (201, 11404), (206, 11428), (208, 11437), (212, 11455), (216, 11476), (217, 11482), (220, 11494), (227, 11527), (228, 11530), (231, 11542), (234, 11557), (235, 11560), (246, 11647), (262, 11737), (263, 11740), (267, 11791), (276, 11848), (277, 11857), (280, 11869), (285, 11923), (286, 11926), (292, 11980), (295, 12019), (302, 12067), (303, 12076), (305, 12100), (307, 12112), (322, 12208), (325, 12238),

Gene: Christian\_14 Start: 9717, Stop: 12278, Start Num: 5

Candidate Starts for Christian\_14:

(3, 9696), (Start: 5 @9717 has 80 MA's), (10, 9765), (18, 9846), (20, 9870), (30, 9942), (34, 9990), (35, 10005), (36, 10011), (46, 10173), (51, 10269), (52, 10272), (55, 10302), (64, 10440), (69, 10518), (73, 10563), (75, 10572), (82, 10623), (85, 10641), (86, 10653), (90, 10677), (109, 10893), (120, 10983), (125, 11004), (129, 11031), (132, 11049), (133, 11055), (138, 11079), (140, 11088), (151, 11136), (157, 11163), (164, 11193), (173, 11250), (183, 11283), (186, 11295), (191, 11322), (192, 11328), (193, 11334), (195, 11343), (197, 11355), (198, 11361), (202, 11385), (206, 11406), (208, 11415), (211, 11430), (216, 11454), (227, 11505), (228, 11508), (231, 11520), (241, 11595), (246, 11625), (255, 11661), (267, 11769), (269, 11781), (273, 11805), (285, 11901), (286, 11904), (290, 11937), (292, 11958), (295, 11997), (298, 12015), (302, 12045), (303, 12054), (305, 12078), (316, 12153), (325, 12219),

Gene: Ciel\_12 Start: 7546, Stop: 9651, Start Num: 11

Candidate Starts for Ciel\_12:

(Start: 11 @7546 has 105 MA's), (13, 7567), (32, 7744), (34, 7753), (37, 7777), (39, 7849), (41, 7873), (42, 7879), (50, 8029), (53, 8050), (54, 8062), (56, 8071), (70, 8278), (74, 8296), (95, 8383), (114, 8452), (117, 8464), (127, 8512), (136, 8542), (141, 8557), (149, 8593), (157, 8620), (162, 8641), (169, 8665), (172, 8689), (174, 8695), (182, 8722), (191, 8755), (198, 8794), (203, 8821), (207, 8842), (209, 8857), (222, 8884), (223, 8887), (230, 8908), (233, 8920), (234, 8926), (239, 8974), (255, 9049), (260, 9058), (265, 9085), (266, 9106), (274, 9169), (278, 9193), (284, 9250), (297, 9355), (299, 9376), (301, 9388), (305, 9430), (309, 9451), (311, 9472),

Gene: Clownery\_12 Start: 7648, Stop: 9753, Start Num: 11

Candidate Starts for Clownery\_12:

(Start: 11 @7648 has 105 MA's), (13, 7669), (32, 7846), (34, 7855), (37, 7879), (39, 7951), (41, 7975), (48, 8074), (50, 8131), (53, 8152), (54, 8164), (56, 8173), (70, 8380), (74, 8398), (95, 8485), (114, 8554), (117, 8566), (127, 8614), (136, 8644), (141, 8659), (162, 8743), (163, 8746), (169, 8767), (174, 8797), (182, 8824), (191, 8857), (198, 8896), (203, 8923), (204, 8929), (207, 8944), (209, 8959), (223, 8989), (230, 9010), (233, 9022), (234, 9028), (239, 9076), (245, 9112), (260, 9160), (265, 9187), (266, 9208), (274, 9271), (278, 9295), (284, 9352), (297, 9457), (299, 9478), (305, 9532), (309, 9553), (311, 9574),

Gene: Concrete\_12 Start: 7587, Stop: 9692, Start Num: 11

Candidate Starts for Concrete\_12:

(Start: 11 @7587 has 105 MA's), (13, 7608), (32, 7785), (34, 7794), (37, 7818), (39, 7890), (41, 7914), (42, 7920), (48, 8013), (50, 8070), (53, 8091), (54, 8103), (56, 8112), (70, 8319), (74, 8337), (95, 8424), (114, 8493), (117, 8505), (127, 8553), (136, 8583), (141, 8598), (149, 8634), (157, 8661), (163, 8685), (169, 8706), (172, 8730), (174, 8736), (182, 8763), (191, 8796), (198, 8835), (203, 8862), (207, 8883), (209, 8898), (222, 8925), (223, 8928), (230, 8949), (233, 8961), (234, 8967), (239, 9015), (245, 9051), (260, 9099), (265, 9126), (266, 9147), (274, 9210), (278, 9234), (284, 9291), (297, 9396), (299, 9417), (301, 9429), (305, 9471), (309, 9492), (311, 9513), (327, 9642),

Gene: CristinaYang\_14 Start: 9717, Stop: 12278, Start Num: 5

Candidate Starts for CristinaYang\_14:

(3, 9696), (Start: 5 @9717 has 80 MA's), (10, 9765), (18, 9846), (20, 9870), (30, 9942), (34, 9990), (35, 10005), (36, 10011), (44, 10131), (46, 10173), (51, 10269), (52, 10272), (55, 10302), (64, 10440), (69, 10518), (73, 10563), (75, 10572), (82, 10623), (85, 10641), (86, 10653), (90, 10677), (109, 10893), (120, 10983), (125, 11004), (129, 11031), (132, 11049), (133, 11055), (138, 11079), (140, 11088), (151, 11136), (157, 11163), (164, 11193), (173, 11250), (178, 11265), (181, 11277), (183, 11283), (184, 11286), (186, 11295), (191, 11322), (193, 11334), (195, 11343), (197, 11355), (198, 11361), (202, 11385), (206, 11406), (208, 11415), (211, 11430), (216, 11454), (227, 11505), (228, 11508), (231, 11520), (241, 11595), (246, 11625), (255, 11661), (267, 11769), (269, 11781), (273, 11805), (285, 11901), (286, 11904), (290, 11937), (292, 11958), (295, 11997), (298, 12015), (302, 12045), (303, 12054), (305, 12078), (316, 12153), (325, 12219),

Gene: DaftyDuck\_12 Start: 7546, Stop: 9651, Start Num: 11

Candidate Starts for DaftyDuck\_12:

(Start: 11 @7546 has 105 MA's), (13, 7567), (32, 7744), (34, 7753), (37, 7777), (39, 7849), (41, 7873), (42, 7879), (50, 8029), (53, 8050), (54, 8062), (56, 8071), (70, 8278), (74, 8296), (95, 8383), (114, 8452), (117, 8464), (127, 8512), (136, 8542), (141, 8557), (149, 8593), (157, 8620), (162, 8641), (169, 8665), (172, 8689), (174, 8695), (182, 8722), (191, 8755), (198, 8794), (203, 8821), (207, 8842), (209, 8857), (222, 8884), (223, 8887), (230, 8908), (233, 8920), (234, 8926), (239, 8974), (260, 9058), (265, 9085), (266, 9106), (274, 9169), (284, 9250), (297, 9355), (299, 9376), (301, 9388), (305, 9430), (309, 9451), (311, 9472), (327, 9601),

Gene: Daiboju\_14 Start: 9744, Stop: 12302, Start Num: 5

Candidate Starts for Daiboju\_14:

(Start: 5 @9744 has 80 MA's), (7, 9753), (8, 9783), (18, 9873), (21, 9909), (34, 10017), (35, 10032), (46, 10200), (51, 10296), (71, 10569), (73, 10590), (80, 10620), (82, 10650), (92, 10737), (101, 10860), (111, 10935), (119, 10998), (125, 11031), (128, 11052), (129, 11058), (132, 11076), (133, 11082), (138, 11106), (147, 11148), (151, 11163), (153, 11169), (159, 11196), (171, 11247), (175, 11280), (177, 11289), (183, 11310), (186, 11322), (191, 11349), (193, 11361), (195, 11370), (197, 11382), (198, 11388), (199, 11391), (202, 11412), (208, 11442), (212, 11460), (216, 11481), (218, 11490), (220, 11499), (227, 11532), (228, 11535), (231, 11547), (234, 11562), (245, 11646), (246, 11652), (255, 11688), (263, 11745), (264, 11754), (267, 11796), (276, 11853), (285, 11928), (286, 11931), (289, 11961), (292, 11985), (298, 12042), (302, 12072), (303, 12081), (305, 12105), (307, 12117), (325, 12243),

Gene: Danimal\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for Danimal\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: Danno\_12 Start: 7552, Stop: 9657, Start Num: 11

Candidate Starts for Danno\_12:

(Start: 11 @7552 has 105 MA's), (13, 7573), (32, 7750), (34, 7759), (37, 7783), (39, 7855), (41, 7879), (42, 7885), (50, 8035), (53, 8056), (54, 8068), (56, 8077), (70, 8284), (74, 8302), (95, 8389), (114, 8458), (117, 8470), (127, 8518), (136, 8548), (141, 8563), (149, 8599), (157, 8626), (162, 8647), (169, 8671), (172, 8695), (174, 8701), (182, 8728), (191, 8761), (198, 8800), (203, 8827), (207, 8848), (209, 8863), (222, 8890), (223, 8893), (230, 8914), (233, 8926), (234, 8932), (239, 8980), (255, 9055), (260, 9064), (265, 9091), (266, 9112), (274, 9175), (278, 9199), (284, 9256), (297, 9361), (299, 9382), (301, 9394), (305, 9436), (309, 9457), (311, 9478),

Gene: Dino\_18 Start: 12572, Stop: 15133, Start Num: 5

Candidate Starts for Dino\_18:

(3, 12551), (Start: 5 @12572 has 80 MA's), (10, 12620), (14, 12653), (18, 12701), (20, 12725), (21, 12737), (30, 12797), (34, 12845), (35, 12860), (36, 12866), (44, 12986), (46, 13028), (51, 13124), (52, 13127), (55, 13157), (59, 13211), (68, 13352), (69, 13373), (71, 13397), (73, 13418), (75, 13427), (82, 13478), (85, 13496), (100, 13682), (119, 13826), (125, 13859), (129, 13886), (132, 13904), (133, 13910), (138, 13934), (140, 13943), (151, 13991), (157, 14018), (158, 14021), (162, 14042), (166, 14054), (173, 14105), (178, 14120), (181, 14132), (184, 14141), (186, 14150), (191, 14177), (193, 14189), (195, 14198), (197, 14210), (198, 14216), (201, 14237), (206, 14261), (208, 14270), (216, 14309), (227, 14360), (228, 14363), (230, 14372), (231, 14375), (234, 14390), (246, 14480), (255, 14516), (267, 14624), (273, 14660), (285, 14756), (286, 14759), (292, 14813), (295, 14852), (302, 14900), (303, 14909), (305, 14933), (308, 14951), (315, 15002), (319, 15026), (322, 15044), (325, 15074),

Gene: Dongwon\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for Dongwon\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169,

8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: Dooby\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for Dooby\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: Douggie\_12 Start: 7533, Stop: 9638, Start Num: 11

Candidate Starts for Douggie\_12:

(Start: 11 @7533 has 105 MA's), (13, 7554), (32, 7731), (34, 7740), (37, 7764), (39, 7836), (41, 7860), (42, 7866), (48, 7959), (50, 8016), (53, 8037), (54, 8049), (56, 8058), (70, 8265), (74, 8283), (95, 8370), (114, 8439), (117, 8451), (127, 8499), (136, 8529), (141, 8544), (149, 8580), (157, 8607), (163, 8631), (169, 8652), (172, 8676), (174, 8682), (182, 8709), (191, 8742), (198, 8781), (203, 8808), (207, 8829), (209, 8844), (222, 8871), (223, 8874), (233, 8907), (234, 8913), (239, 8961), (245, 8997), (260, 9045), (265, 9072), (266, 9093), (274, 9156), (278, 9180), (284, 9237), (297, 9342), (299, 9363), (301, 9375), (305, 9417), (309, 9438), (311, 9459), (327, 9588),

Gene: DrRobert\_14 Start: 9717, Stop: 12278, Start Num: 5

Candidate Starts for DrRobert\_14:

(3, 9696), (Start: 5 @9717 has 80 MA's), (10, 9765), (18, 9846), (20, 9870), (30, 9942), (34, 9990), (35, 10005), (36, 10011), (46, 10173), (51, 10269), (52, 10272), (55, 10302), (64, 10440), (69, 10518), (73, 10563), (75, 10572), (82, 10623), (85, 10641), (86, 10653), (90, 10677), (109, 10893), (120, 10983), (125, 11004), (129, 11031), (132, 11049), (138, 11079), (140, 11088), (151, 11136), (157, 11163), (164, 11193), (173, 11250), (178, 11265), (181, 11277), (183, 11283), (184, 11286), (186, 11295), (191, 11322), (193, 11334), (195, 11343), (197, 11355), (198, 11361), (202, 11385), (206, 11406), (208, 11415), (211, 11430), (216, 11454), (227, 11505), (228, 11508), (231, 11520), (241, 11595), (246, 11625), (255, 11661), (267, 11769), (269, 11781), (272, 11802), (273, 11805), (285, 11901), (286, 11904), (290, 11937), (292, 11958), (298, 12015), (302, 12045), (303, 12054), (305, 12078), (316, 12153), (325, 12219),

Gene: DreamTeam\_14 Start: 9784, Stop: 12330, Start Num: 5

Candidate Starts for DreamTeam\_14:

(3, 9763), (Start: 5 @9784 has 80 MA's), (10, 9832), (18, 9913), (23, 9967), (30, 10009), (34, 10057), (35, 10072), (36, 10078), (46, 10240), (49, 10285), (51, 10336), (52, 10339), (68, 10564), (69, 10585), (75, 10639), (79, 10657), (80, 10660), (82, 10690), (119, 11026), (128, 11080), (129, 11086), (132, 11104), (133, 11110), (143, 11155), (150, 11188), (151, 11191), (161, 11239), (162, 11242), (166, 11254), (168, 11263), (175, 11308), (177, 11317), (183, 11338), (186, 11350), (187, 11353), (191, 11377), (192, 11383), (193, 11389), (197, 11410), (198, 11416), (201, 11437), (206, 11461), (208, 11470), (212, 11488), (216, 11509), (217, 11515), (227, 11560), (228, 11563), (230, 11572), (231, 11575), (245, 11674), (246, 11680), (258, 11734), (267, 11824), (285, 11956), (286, 11959), (292, 12013), (295, 12052), (298, 12070), (302, 12100), (303, 12109), (308, 12151), (325, 12271),

Gene: EdElric\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for EdElric\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: Efeko\_13 Start: 7413, Stop: 9512, Start Num: 11

Candidate Starts for Efeko\_13:

(Start: 11 @7413 has 105 MA's), (28, 7557), (30, 7572), (31, 7602), (34, 7620), (37, 7644), (39, 7716), (41, 7740), (42, 7746), (48, 7839), (53, 7917), (54, 7929), (56, 7938), (70, 8145), (78, 8169), (80, 8178), (82, 8205), (95, 8250), (103, 8295), (143, 8430), (156, 8478), (159, 8490), (167, 8523), (172, 8556), (174, 8562), (179, 8577), (185, 8598), (198, 8661), (200, 8670), (204, 8694), (205, 8700), (207, 8709), (218, 8730), (222, 8751), (223, 8754), (230, 8775), (233, 8787), (234, 8793), (237, 8820), (239, 8841), (243, 8868), (253, 8907), (260, 8925), (265, 8952), (266, 8973), (274, 9036), (275, 9039), (278, 9060), (283, 9105), (291, 9171), (297, 9222), (299, 9243), (301, 9255), (305, 9297), (323, 9420), (324, 9426),

Gene: Eightball\_12 Start: 7546, Stop: 9651, Start Num: 11

Candidate Starts for Eightball\_12:

(Start: 11 @7546 has 105 MA's), (13, 7567), (32, 7744), (34, 7753), (37, 7777), (39, 7849), (41, 7873), (42, 7879), (50, 8029), (53, 8050), (54, 8062), (56, 8071), (70, 8278), (74, 8296), (95, 8383), (114, 8452), (117, 8464), (127, 8512), (136, 8542), (141, 8557), (149, 8593), (157, 8620), (162, 8641), (169, 8665), (172, 8689), (174, 8695), (182, 8722), (191, 8755), (198, 8794), (203, 8821), (207, 8842), (209, 8857), (222, 8884), (223, 8887), (230, 8908), (233, 8920), (234, 8926), (239, 8974), (255, 9049), (260, 9058), (265, 9085), (266, 9106), (274, 9169), (278, 9193), (284, 9250), (297, 9355), (299, 9376), (301, 9388), (305, 9430), (309, 9451), (311, 9472),

Gene: Ekko14\_12 Start: 7529, Stop: 9634, Start Num: 11

Candidate Starts for Ekko14\_12:

(Start: 11 @7529 has 105 MA's), (13, 7550), (32, 7727), (34, 7736), (37, 7760), (39, 7832), (41, 7856), (48, 7955), (53, 8033), (54, 8045), (56, 8054), (70, 8261), (74, 8279), (95, 8366), (114, 8435), (117, 8447), (127, 8495), (136, 8525), (141, 8540), (162, 8624), (163, 8627), (169, 8648), (174, 8678), (182, 8705), (191, 8738), (198, 8777), (203, 8804), (204, 8810), (207, 8825), (209, 8840), (223, 8870), (230, 8891), (233, 8903), (234, 8909), (239, 8957), (245, 8993), (260, 9041), (265, 9068), (266, 9089), (274, 9152), (278, 9176), (284, 9233), (297, 9338), (299, 9359), (305, 9413), (309, 9434), (311, 9455),

Gene: Elspeth\_11 Start: 7529, Stop: 9634, Start Num: 11

Candidate Starts for Elspeth\_11:

(Start: 11 @7529 has 105 MA's), (13, 7550), (32, 7727), (34, 7736), (37, 7760), (39, 7832), (41, 7856), (48, 7955), (53, 8033), (54, 8045), (56, 8054), (70, 8261), (74, 8279), (95, 8366), (114, 8435), (117, 8447), (127, 8495), (136, 8525), (141, 8540), (162, 8624), (163, 8627), (169, 8648), (174, 8678), (182, 8705), (191, 8738), (198, 8777), (203, 8804), (204, 8810), (207, 8825), (209, 8840), (223, 8870), (230, 8891), (233, 8903), (234, 8909), (239, 8957), (245, 8993), (260, 9041), (265, 9068), (266, 9089), (274, 9152), (278, 9176), (284, 9233), (297, 9338), (299, 9359), (305, 9413), (309, 9434), (311, 9455),

Gene: Erin\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for Erin\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209,

8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: EstebanJulior\_14 Start: 9752, Stop: 12301, Start Num: 5

Candidate Starts for EstebanJulior\_14:

(2, 9722), (Start: 5 @9752 has 80 MA's), (18, 9881), (21, 9917), (34, 10025), (35, 10040), (45, 10187), (46, 10208), (51, 10304), (60, 10394), (66, 10487), (73, 10598), (82, 10658), (83, 10667), (112, 10940), (119, 10994), (125, 11027), (128, 11048), (129, 11054), (132, 11072), (151, 11159), (166, 11222), (175, 11276), (177, 11285), (183, 11306), (186, 11318), (187, 11321), (191, 11345), (192, 11351), (193, 11357), (195, 11366), (197, 11378), (198, 11384), (201, 11405), (208, 11438), (211, 11453), (212, 11456), (216, 11477), (217, 11483), (220, 11495), (227, 11528), (228, 11531), (230, 11540), (231, 11543), (234, 11558), (245, 11642), (254, 11681), (267, 11792), (269, 11804), (276, 11849), (285, 11924), (286, 11927), (292, 11981), (302, 12068), (303, 12077), (305, 12101), (307, 12113), (315, 12170), (316, 12176), (325, 12242), (328, 12284),

Gene: Eunoia\_14 Start: 9738, Stop: 12296, Start Num: 5

Candidate Starts for Eunoia\_14:

(Start: 5 @9738 has 80 MA's), (7, 9747), (8, 9777), (18, 9867), (30, 9963), (33, 10008), (35, 10026), (46, 10194), (51, 10290), (52, 10293), (53, 10308), (61, 10395), (76, 10599), (77, 10602), (88, 10686), (119, 10992), (129, 11052), (132, 11070), (133, 11076), (140, 11109), (143, 11121), (151, 11157), (157, 11184), (162, 11208), (164, 11214), (173, 11271), (180, 11295), (183, 11304), (187, 11319), (191, 11343), (193, 11355), (197, 11376), (198, 11382), (201, 11403), (206, 11427), (208, 11436), (212, 11454), (216, 11475), (217, 11481), (220, 11493), (227, 11526), (228, 11529), (231, 11541), (234, 11556), (235, 11559), (246, 11646), (262, 11736), (263, 11739), (267, 11790), (276, 11847), (277, 11856), (280, 11868), (285, 11922), (286, 11925), (292, 11979), (295, 12018), (302, 12066), (303, 12075), (305, 12099), (307, 12111), (322, 12207), (325, 12237),

Gene: Fluke\_18 Start: 12615, Stop: 15176, Start Num: 5

Candidate Starts for Fluke\_18:

(3, 12594), (Start: 5 @12615 has 80 MA's), (10, 12663), (14, 12696), (18, 12744), (20, 12768), (21, 12780), (30, 12840), (34, 12888), (35, 12903), (36, 12909), (44, 13029), (46, 13071), (51, 13167), (52, 13170), (55, 13200), (59, 13254), (68, 13395), (69, 13416), (71, 13440), (73, 13461), (75, 13470), (82, 13521), (85, 13539), (100, 13725), (119, 13869), (125, 13902), (129, 13929), (132, 13947), (133, 13953), (138, 13977), (140, 13986), (151, 14034), (157, 14061), (164, 14091), (166, 14097), (173, 14148), (178, 14163), (181, 14175), (183, 14181), (184, 14184), (186, 14193), (191, 14220), (193, 14232), (195, 14241), (197, 14253), (198, 14259), (201, 14280), (206, 14304), (208, 14313), (216, 14352), (220, 14370), (227, 14403), (228, 14406), (230, 14415), (231, 14418), (234, 14433), (246, 14523), (255, 14559), (267, 14667), (273, 14703), (285, 14799), (286, 14802), (292, 14856), (295, 14895), (302, 14943), (303, 14952), (305, 14976), (308, 14994), (315, 15045), (319, 15069), (322, 15087), (325, 15117),

Gene: Gabbspett\_12 Start: 7641, Stop: 9746, Start Num: 11

Candidate Starts for Gabbspett\_12:

(Start: 11 @7641 has 105 MA's), (13, 7662), (32, 7839), (34, 7848), (37, 7872), (39, 7944), (41, 7968), (42, 7974), (50, 8124), (53, 8145), (54, 8157), (56, 8166), (70, 8373), (74, 8391), (95, 8478), (114, 8547), (117, 8559), (127, 8607), (136, 8637), (141, 8652), (149, 8688), (157, 8715), (162, 8736), (169, 8760), (172, 8784), (174, 8790), (182, 8817), (191, 8850), (198, 8889), (203, 8916), (207, 8937), (209, 8952), (222, 8979), (223, 8982), (230, 9003), (233, 9015), (234, 9021), (239, 9069), (255, 9144), (260, 9153), (265, 9180), (266, 9201), (274, 9264), (278, 9288), (284, 9345), (297, 9450), (299, 9471), (301, 9483), (305, 9525), (309, 9546), (311, 9567),

Gene: GardenState\_15 Start: 10196, Stop: 12547, Start Num: 6

Candidate Starts for GardenState\_15:

(Start: 6 @10196 has 8 MA's), (25, 10379), (43, 10595), (47, 10655), (50, 10739), (56, 10781), (62, 10850), (65, 10913), (74, 11009), (77, 11012), (84, 11063), (91, 11114), (99, 11228), (102, 11237), (107, 11276), (146, 11465), (168, 11549), (176, 11588), (182, 11609), (198, 11684), (225, 11786), (234, 11819), (252, 11933), (256, 11948), (260, 11954), (281, 12104), (284, 12149), (285, 12155), (298, 12266), (303, 12305), (311, 12371),

Gene: Gardevoir\_12 Start: 7574, Stop: 9679, Start Num: 11

Candidate Starts for Gardevoir\_12:

(Start: 11 @7574 has 105 MA's), (13, 7595), (32, 7772), (34, 7781), (37, 7805), (39, 7877), (41, 7901), (42, 7907), (50, 8057), (53, 8078), (54, 8090), (56, 8099), (70, 8306), (74, 8324), (95, 8411), (114, 8480), (117, 8492), (127, 8540), (136, 8570), (141, 8585), (149, 8621), (157, 8648), (162, 8669), (169, 8693), (172, 8717), (174, 8723), (182, 8750), (191, 8783), (198, 8822), (203, 8849), (207, 8870), (209, 8885), (222, 8912), (223, 8915), (230, 8936), (233, 8948), (234, 8954), (239, 9002), (245, 9038), (260, 9086), (265, 9113), (266, 9134), (274, 9197), (278, 9221), (284, 9278), (297, 9383), (299, 9404), (301, 9416), (305, 9458), (309, 9479), (311, 9500), (327, 9629),

Gene: Gillker\_12 Start: 7539, Stop: 9644, Start Num: 11

Candidate Starts for Gillker\_12:

(Start: 11 @7539 has 105 MA's), (13, 7560), (32, 7737), (34, 7746), (37, 7770), (39, 7842), (41, 7866), (42, 7872), (50, 8022), (53, 8043), (54, 8055), (56, 8064), (70, 8271), (74, 8289), (95, 8376), (114, 8445), (117, 8457), (127, 8505), (136, 8535), (141, 8550), (149, 8586), (157, 8613), (162, 8634), (169, 8658), (172, 8682), (174, 8688), (182, 8715), (191, 8748), (198, 8787), (203, 8814), (207, 8835), (209, 8850), (222, 8877), (223, 8880), (230, 8901), (233, 8913), (234, 8919), (239, 8967), (245, 9003), (260, 9051), (265, 9078), (266, 9099), (274, 9162), (278, 9186), (284, 9243), (297, 9348), (299, 9369), (301, 9381), (305, 9423), (309, 9444), (311, 9465), (327, 9594),

Gene: Gisselle\_14 Start: 9784, Stop: 12330, Start Num: 5

Candidate Starts for Gisselle\_14:

(3, 9763), (Start: 5 @9784 has 80 MA's), (10, 9832), (18, 9913), (23, 9967), (30, 10009), (34, 10057), (35, 10072), (36, 10078), (46, 10240), (49, 10285), (51, 10336), (52, 10339), (68, 10564), (69, 10585), (75, 10639), (79, 10657), (80, 10660), (82, 10690), (119, 11026), (128, 11080), (129, 11086), (132, 11104), (133, 11110), (143, 11155), (150, 11188), (151, 11191), (161, 11239), (162, 11242), (166, 11254), (168, 11263), (175, 11308), (177, 11317), (183, 11338), (186, 11350), (187, 11353), (191, 11377), (192, 11383), (193, 11389), (197, 11410), (198, 11416), (201, 11437), (206, 11461), (208, 11470), (212, 11488), (216, 11509), (217, 11515), (227, 11560), (228, 11563), (230, 11572), (231, 11575), (245, 11674), (246, 11680), (258, 11734), (267, 11824), (285, 11956), (286, 11959), (292, 12013), (295, 12052), (298, 12070), (302, 12100), (303, 12109), (308, 12151), (325, 12271),

Gene: Glenn\_18 Start: 12624, Stop: 15185, Start Num: 5

Candidate Starts for Glenn\_18:

(3, 12603), (Start: 5 @12624 has 80 MA's), (10, 12672), (14, 12705), (18, 12753), (20, 12777), (21, 12789), (30, 12849), (34, 12897), (35, 12912), (36, 12918), (44, 13038), (46, 13080), (51, 13176), (52, 13179), (55, 13209), (59, 13263), (68, 13404), (69, 13425), (71, 13449), (73, 13470), (75, 13479), (82, 13530), (85, 13548), (100, 13734), (119, 13878), (125, 13911), (129, 13938), (132, 13956), (133, 13962), (138, 13986), (140, 13995), (151, 14043), (157, 14070), (164, 14100), (166, 14106), (173, 14157), (178, 14172), (181, 14184), (183, 14190), (184, 14193), (186, 14202), (191, 14229), (193, 14241), (195, 14250), (197, 14262), (198, 14268), (201, 14289), (206, 14313), (208, 14322), (216, 14361), (220, 14379), (227, 14412), (228, 14415), (230, 14424), (231, 14427), (234, 14442), (246, 14532), (255, 14568), (267, 14676), (273, 14712), (285, 14808), (286, 14811), (292, 14865), (295, 14904), (302, 14952), (303, 14961), (305, 14985), (308, 15003), (315, 15054), (319, 15078), (322, 15096), (325, 15126),

Gene: Godfather\_12 Start: 7552, Stop: 9657, Start Num: 11

Candidate Starts for Godfather\_12:

(Start: 11 @7552 has 105 MA's), (13, 7573), (32, 7750), (34, 7759), (37, 7783), (39, 7855), (41, 7879), (42, 7885), (50, 8035), (53, 8056), (54, 8068), (56, 8077), (70, 8284), (74, 8302), (95, 8389), (114, 8458), (117, 8470), (127, 8518), (136, 8548), (141, 8563), (149, 8599), (157, 8626), (162, 8647), (169, 8671), (172, 8695), (174, 8701), (182, 8728), (191, 8761), (198, 8800), (203, 8827), (207, 8848), (209, 8863), (222, 8890), (223, 8893), (230, 8914), (233, 8926), (234, 8932), (239, 8980), (255, 9055), (260, 9064), (265, 9091), (266, 9112), (274, 9175), (278, 9199), (284, 9256), (297, 9361), (299, 9382), (301, 9394), (305, 9436), (309, 9457), (311, 9478),

Gene: GoldenBlanche\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for GoldenBlanche\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: Goobery\_12 Start: 7546, Stop: 9651, Start Num: 11

Candidate Starts for Goobery\_12:

(Start: 11 @7546 has 105 MA's), (13, 7567), (32, 7744), (34, 7753), (37, 7777), (39, 7849), (41, 7873), (42, 7879), (50, 8029), (53, 8050), (54, 8062), (56, 8071), (70, 8278), (74, 8296), (95, 8383), (114, 8452), (117, 8464), (127, 8512), (136, 8542), (141, 8557), (149, 8593), (157, 8620), (162, 8641), (169, 8665), (172, 8689), (174, 8695), (182, 8722), (191, 8755), (198, 8794), (203, 8821), (207, 8842), (209, 8857), (222, 8884), (223, 8887), (230, 8908), (233, 8920), (234, 8926), (239, 8974), (255, 9049), (260, 9058), (265, 9085), (266, 9106), (274, 9169), (278, 9193), (284, 9250), (297, 9355), (299, 9376), (301, 9388), (305, 9430), (309, 9451), (311, 9472),

Gene: GreenHearts\_18 Start: 12707, Stop: 15268, Start Num: 5

Candidate Starts for GreenHearts\_18:

(3, 12686), (Start: 5 @12707 has 80 MA's), (15, 12797), (18, 12836), (21, 12872), (30, 12932), (34, 12980), (35, 12995), (46, 13163), (49, 13208), (51, 13259), (52, 13262), (59, 13346), (71, 13532), (76, 13568), (79, 13580), (83, 13622), (114, 13931), (129, 14024), (132, 14042), (133, 14048), (151, 14129), (153, 14135), (159, 14162), (166, 14192), (177, 14255), (181, 14270), (184, 14279), (185, 14282), (187, 14291), (191, 14315), (193, 14327), (194, 14333), (197, 14348), (198, 14354), (199, 14357), (202, 14378), (205, 14393), (208, 14408), (212, 14426), (213, 14432), (216, 14447), (218, 14456), (220, 14465), (227, 14498), (228, 14501), (231, 14513), (232, 14519), (235, 14531), (242, 14597), (245, 14612), (252, 14642), (254, 14651), (267, 14762), (273, 14798), (276, 14819), (285, 14894), (286, 14897), (292, 14951), (295, 14990), (303, 15047), (305, 15071), (311, 15113), (315, 15140), (325, 15209),

Gene: Greenhouse\_18 Start: 12631, Stop: 15192, Start Num: 5

Candidate Starts for Greenhouse\_18:

(3, 12610), (Start: 5 @12631 has 80 MA's), (15, 12721), (18, 12760), (24, 12817), (30, 12856), (34, 12904), (35, 12919), (46, 13087), (49, 13132), (51, 13183), (55, 13216), (68, 13411), (73, 13477), (76, 13492), (79, 13504), (83, 13546), (94, 13657), (100, 13744), (114, 13855), (119, 13888), (129, 13948), (133, 13972), (134, 13975), (151, 14053), (153, 14059), (154, 14062), (159, 14086), (166, 14116), (177, 14179), (181, 14194), (183, 14200), (184, 14203), (187, 14215), (191, 14239), (193, 14251), (194, 14257), (197, 14272), (198, 14278), (199, 14281), (202, 14302), (205, 14317), (208, 14332), (212, 14350), (213, 14356), (216, 14371), (218, 14380), (227, 14422), (228, 14425), (231, 14437), (232, 14443), (235, 14455), (240, 14503), (242, 14521), (245, 14536), (252, 14566), (254, 14575),



(267, 14686), (273, 14722), (276, 14743), (285, 14818), (286, 14821), (292, 14875), (295, 14914), (303, 14971), (305, 14995), (311, 15037), (315, 15064), (325, 15133),

Gene: HarperAnne\_12 Start: 7528, Stop: 9633, Start Num: 11

Candidate Starts for HarperAnne\_12:

(Start: 11 @7528 has 105 MA's), (13, 7549), (32, 7726), (34, 7735), (37, 7759), (39, 7831), (41, 7855), (48, 7954), (53, 8032), (54, 8044), (56, 8053), (70, 8260), (74, 8278), (95, 8365), (114, 8434), (117, 8446), (127, 8494), (136, 8524), (141, 8539), (162, 8623), (163, 8626), (169, 8647), (174, 8677), (182, 8704), (191, 8737), (198, 8776), (203, 8803), (204, 8809), (207, 8824), (209, 8839), (223, 8869), (230, 8890), (233, 8902), (234, 8908), (239, 8956), (245, 8992), (260, 9040), (265, 9067), (266, 9088), (274, 9151), (278, 9175), (284, 9232), (297, 9337), (299, 9358), (305, 9412), (309, 9433), (311, 9454),

Gene: HeadNerd\_14 Start: 9720, Stop: 12287, Start Num: 5

Candidate Starts for HeadNerd\_14:

(3, 9699), (Start: 5 @9720 has 80 MA's), (10, 9768), (18, 9849), (20, 9873), (30, 9945), (34, 9993), (35, 10008), (36, 10014), (46, 10176), (50, 10269), (51, 10272), (52, 10275), (55, 10305), (60, 10362), (68, 10500), (69, 10521), (73, 10566), (79, 10593), (82, 10626), (85, 10644), (91, 10686), (94, 10743), (125, 11007), (129, 11034), (132, 11052), (133, 11058), (138, 11082), (143, 11103), (151, 11139), (157, 11166), (164, 11196), (166, 11202), (173, 11253), (183, 11286), (191, 11325), (192, 11331), (193, 11337), (195, 11346), (197, 11358), (198, 11364), (202, 11388), (206, 11409), (208, 11418), (216, 11457), (220, 11475), (227, 11508), (228, 11511), (231, 11523), (234, 11538), (240, 11589), (245, 11622), (249, 11640), (255, 11664), (260, 11706), (267, 11772), (269, 11784), (276, 11829), (285, 11904), (286, 11907), (292, 11961), (295, 12000), (299, 12027), (303, 12057), (304, 12069), (305, 12081), (306, 12090), (315, 12156), (322, 12198), (325, 12228),

Gene: Herb\_14 Start: 9744, Stop: 12302, Start Num: 5

Candidate Starts for Herb\_14:

(Start: 5 @9744 has 80 MA's), (7, 9753), (8, 9783), (18, 9873), (21, 9909), (34, 10017), (35, 10032), (46, 10200), (51, 10296), (71, 10569), (73, 10590), (80, 10620), (82, 10650), (92, 10737), (101, 10860), (111, 10935), (119, 10998), (125, 11031), (128, 11052), (129, 11058), (132, 11076), (133, 11082), (138, 11106), (147, 11148), (151, 11163), (153, 11169), (159, 11196), (171, 11247), (175, 11280), (177, 11289), (183, 11310), (186, 11322), (191, 11349), (193, 11361), (195, 11370), (197, 11382), (198, 11388), (199, 11391), (202, 11412), (208, 11442), (212, 11460), (216, 11481), (218, 11490), (220, 11499), (227, 11532), (228, 11535), (231, 11547), (234, 11562), (245, 11646), (246, 11652), (255, 11688), (263, 11745), (264, 11754), (267, 11796), (276, 11853), (285, 11928), (286, 11931), (289, 11961), (292, 11985), (298, 12042), (302, 12072), (303, 12081), (305, 12105), (307, 12117), (325, 12243),

Gene: Hernandez44\_12 Start: 7641, Stop: 9746, Start Num: 11

Candidate Starts for Hernandez44\_12:

(Start: 11 @7641 has 105 MA's), (13, 7662), (32, 7839), (34, 7848), (37, 7872), (39, 7944), (41, 7968), (42, 7974), (50, 8124), (53, 8145), (54, 8157), (56, 8166), (70, 8373), (74, 8391), (95, 8478), (114, 8547), (117, 8559), (127, 8607), (136, 8637), (141, 8652), (149, 8688), (157, 8715), (162, 8736), (169, 8760), (172, 8784), (174, 8790), (182, 8817), (191, 8850), (198, 8889), (203, 8916), (207, 8937), (209, 8952), (222, 8979), (223, 8982), (230, 9003), (233, 9015), (234, 9021), (239, 9069), (255, 9144), (260, 9153), (265, 9180), (266, 9201), (274, 9264), (278, 9288), (284, 9345), (297, 9450), (299, 9471), (301, 9483), (305, 9525), (309, 9546), (311, 9567),

Gene: Honk\_14 Start: 9008, Stop: 11266, Start Num: 6

Candidate Starts for Honk\_14:

(Start: 6 @9008 has 8 MA's), (22, 9167), (25, 9191), (29, 9203), (31, 9245), (37, 9287), (43, 9395), (46, 9446), (47, 9455), (54, 9572), (57, 9587), (58, 9596), (62, 9650), (65, 9713), (72, 9797), (74, 9809), (77, 9812), (79, 9821), (91, 9872), (104, 9986), (124, 10082), (133, 10124), (160, 10223), (168,

10256), (170, 10265), (191, 10349), (223, 10481), (232, 10511), (234, 10520), (245, 10604), (247, 10610), (249, 10619), (256, 10646), (260, 10652), (272, 10751), (283, 10832), (298, 10964), (303, 11003), (304, 11015), (311, 11069), (314, 11084), (317, 11111),

Gene: Horacetta\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for Horacetta\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: Huckleberry\_14 Start: 9720, Stop: 12287, Start Num: 5

Candidate Starts for Huckleberry\_14:

(3, 9699), (Start: 5 @9720 has 80 MA's), (10, 9768), (18, 9849), (20, 9873), (30, 9945), (34, 9993), (35, 10008), (36, 10014), (46, 10176), (50, 10269), (51, 10272), (52, 10275), (55, 10305), (60, 10362), (68, 10500), (69, 10521), (73, 10566), (79, 10593), (82, 10626), (85, 10644), (91, 10686), (94, 10743), (125, 11007), (129, 11034), (132, 11052), (133, 11058), (138, 11082), (143, 11103), (151, 11139), (157, 11166), (164, 11196), (166, 11202), (173, 11253), (183, 11286), (191, 11325), (192, 11331), (193, 11337), (195, 11346), (197, 11358), (198, 11364), (202, 11388), (206, 11409), (208, 11418), (216, 11457), (220, 11475), (227, 11508), (228, 11511), (231, 11523), (234, 11538), (240, 11589), (245, 11622), (249, 11640), (255, 11664), (260, 11706), (267, 11772), (269, 11784), (276, 11829), (285, 11904), (286, 11907), (292, 11961), (295, 12000), (299, 12027), (303, 12057), (304, 12069), (305, 12081), (306, 12090), (315, 12156), (322, 12198), (325, 12228),

Gene: Hulk\_12 Start: 7553, Stop: 9658, Start Num: 11

Candidate Starts for Hulk\_12:

(Start: 11 @7553 has 105 MA's), (13, 7574), (32, 7751), (34, 7760), (37, 7784), (39, 7856), (41, 7880), (42, 7886), (50, 8036), (53, 8057), (54, 8069), (56, 8078), (70, 8285), (74, 8303), (95, 8390), (114, 8459), (117, 8471), (127, 8519), (136, 8549), (141, 8564), (149, 8600), (157, 8627), (162, 8648), (169, 8672), (172, 8696), (174, 8702), (182, 8729), (191, 8762), (198, 8801), (203, 8828), (207, 8849), (209, 8864), (222, 8891), (223, 8894), (230, 8915), (233, 8927), (234, 8933), (239, 8981), (255, 9056), (260, 9065), (265, 9092), (266, 9113), (274, 9176), (284, 9257), (297, 9362), (299, 9383), (301, 9395), (305, 9437), (309, 9458), (311, 9479), (327, 9608),

Gene: HunterDalle\_14 Start: 9738, Stop: 12296, Start Num: 5

Candidate Starts for HunterDalle\_14:

(Start: 5 @9738 has 80 MA's), (7, 9747), (8, 9777), (18, 9867), (30, 9963), (35, 10026), (46, 10194), (51, 10290), (52, 10293), (53, 10308), (61, 10395), (64, 10461), (76, 10599), (77, 10602), (88, 10686), (119, 10992), (129, 11052), (132, 11070), (133, 11076), (140, 11109), (143, 11121), (151, 11157), (157, 11184), (162, 11208), (164, 11214), (173, 11271), (180, 11295), (183, 11304), (187, 11319), (191, 11343), (193, 11355), (197, 11376), (198, 11382), (201, 11403), (206, 11427), (208, 11436), (212, 11454), (216, 11475), (217, 11481), (220, 11493), (227, 11526), (228, 11529), (231, 11541), (234, 11556), (235, 11559), (246, 11646), (262, 11736), (263, 11739), (267, 11790), (276, 11847), (277, 11856), (280, 11868), (285, 11922), (286, 11925), (292, 11979), (295, 12018), (302, 12066), (303, 12075), (305, 12099), (307, 12111), (322, 12207), (325, 12237),

Gene: Huntingdon\_18 Start: 12617, Stop: 15178, Start Num: 5

Candidate Starts for Huntingdon\_18:

(3, 12596), (Start: 5 @12617 has 80 MA's), (15, 12707), (18, 12746), (21, 12782), (30, 12842), (35, 12905), (46, 13073), (49, 13118), (50, 13166), (51, 13169), (52, 13172), (59, 13256), (60, 13259), (68,

13397), (73, 13463), (79, 13490), (83, 13532), (114, 13841), (119, 13874), (129, 13934), (133, 13958), (151, 14039), (153, 14045), (154, 14048), (159, 14072), (166, 14102), (171, 14123), (179, 14171), (183, 14186), (187, 14201), (191, 14225), (193, 14237), (194, 14243), (197, 14258), (198, 14264), (205, 14303), (206, 14309), (208, 14318), (212, 14336), (213, 14342), (215, 14354), (216, 14357), (218, 14366), (221, 14384), (227, 14408), (228, 14411), (231, 14423), (235, 14441), (242, 14507), (245, 14522), (252, 14552), (254, 14561), (263, 14621), (267, 14672), (273, 14708), (285, 14804), (286, 14807), (292, 14861), (295, 14900), (299, 14927), (303, 14957), (305, 14981), (311, 15023), (315, 15050), (325, 15119),

Gene: IAmGroot\_15 Start: 10840, Stop: 13191, Start Num: 6

Candidate Starts for IAmGroot\_15:

(Start: 6 @10840 has 8 MA's), (25, 11023), (43, 11239), (47, 11299), (50, 11383), (56, 11425), (62, 11494), (65, 11557), (74, 11653), (77, 11656), (84, 11707), (91, 11758), (99, 11872), (102, 11881), (107, 11920), (146, 12109), (168, 12193), (176, 12232), (182, 12253), (198, 12328), (225, 12430), (229, 12442), (234, 12463), (252, 12577), (256, 12592), (260, 12598), (285, 12799), (303, 12949), (311, 13015),

Gene: Immaculata\_18 Start: 12618, Stop: 15179, Start Num: 5

Candidate Starts for Immaculata\_18:

(3, 12597), (Start: 5 @12618 has 80 MA's), (10, 12666), (14, 12699), (18, 12747), (20, 12771), (21, 12783), (30, 12843), (34, 12891), (35, 12906), (36, 12912), (44, 13032), (46, 13074), (50, 13167), (51, 13170), (52, 13173), (55, 13203), (59, 13257), (68, 13398), (69, 13419), (71, 13443), (73, 13464), (75, 13473), (82, 13524), (85, 13542), (89, 13566), (100, 13728), (119, 13872), (125, 13905), (129, 13932), (132, 13950), (133, 13956), (138, 13980), (140, 13989), (151, 14037), (157, 14064), (162, 14088), (164, 14094), (166, 14100), (173, 14151), (178, 14166), (181, 14178), (183, 14184), (184, 14187), (186, 14196), (191, 14223), (193, 14235), (195, 14244), (197, 14256), (198, 14262), (201, 14283), (208, 14316), (216, 14355), (227, 14406), (228, 14409), (230, 14418), (231, 14421), (234, 14436), (245, 14520), (246, 14526), (255, 14562), (267, 14670), (269, 14682), (273, 14706), (285, 14802), (286, 14805), (292, 14859), (295, 14898), (302, 14946), (303, 14955), (305, 14979), (308, 14997), (315, 15048), (319, 15072), (322, 15090), (325, 15120),

Gene: JRok\_12 Start: 7531, Stop: 9636, Start Num: 11

Candidate Starts for JRok\_12:

(Start: 11 @7531 has 105 MA's), (13, 7552), (32, 7729), (34, 7738), (37, 7762), (39, 7834), (41, 7858), (42, 7864), (50, 8014), (53, 8035), (54, 8047), (56, 8056), (70, 8263), (74, 8281), (95, 8368), (114, 8437), (117, 8449), (127, 8497), (136, 8527), (141, 8542), (157, 8605), (162, 8626), (163, 8629), (174, 8680), (182, 8707), (191, 8740), (198, 8779), (203, 8806), (207, 8827), (209, 8842), (222, 8869), (230, 8893), (233, 8905), (234, 8911), (239, 8959), (260, 9043), (265, 9070), (266, 9091), (274, 9154), (278, 9178), (282, 9202), (283, 9223), (297, 9340), (299, 9361), (301, 9373), (305, 9415), (309, 9436), (311, 9457), (327, 9586),

Gene: Jahseh\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for Jahseh\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: JaimeB\_12 Start: 7546, Stop: 9651, Start Num: 11

Candidate Starts for JaimeB\_12:

(Start: 11 @7546 has 105 MA's), (13, 7567), (32, 7744), (34, 7753), (37, 7777), (39, 7849), (41, 7873), (42, 7879), (50, 8029), (53, 8050), (54, 8062), (56, 8071), (70, 8278), (74, 8296), (95, 8383), (114, 8452), (117, 8464), (127, 8512), (136, 8542), (141, 8557), (149, 8593), (157, 8620), (162, 8641), (169, 8665), (172, 8689), (174, 8695), (182, 8722), (191, 8755), (198, 8794), (203, 8821), (207, 8842), (209, 8857), (222, 8884), (223, 8887), (230, 8908), (233, 8920), (234, 8926), (239, 8974), (255, 9049), (260, 9058), (265, 9085), (266, 9106), (274, 9169), (278, 9193), (284, 9250), (297, 9355), (299, 9376), (301, 9388), (305, 9430), (309, 9451), (311, 9472),

Gene: Jannah\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for Jannah\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466),

Gene: Jerky\_12 Start: 7627, Stop: 9732, Start Num: 11

Candidate Starts for Jerky\_12:

(Start: 11 @7627 has 105 MA's), (13, 7648), (32, 7825), (34, 7834), (37, 7858), (39, 7930), (41, 7954), (42, 7960), (50, 8110), (53, 8131), (54, 8143), (56, 8152), (70, 8359), (74, 8377), (95, 8464), (114, 8533), (117, 8545), (127, 8593), (136, 8623), (141, 8638), (157, 8701), (162, 8722), (169, 8746), (172, 8770), (174, 8776), (182, 8803), (191, 8836), (198, 8875), (203, 8902), (207, 8923), (209, 8938), (222, 8965), (223, 8968), (230, 8989), (233, 9001), (234, 9007), (239, 9055), (245, 9091), (255, 9130), (260, 9139), (265, 9166), (266, 9187), (274, 9250), (278, 9274), (284, 9331), (297, 9436), (299, 9457), (301, 9469), (305, 9511), (309, 9532), (311, 9553), (327, 9682),

Gene: JoBros\_12 Start: 7541, Stop: 9646, Start Num: 11

Candidate Starts for JoBros\_12:

(Start: 11 @7541 has 105 MA's), (13, 7562), (32, 7739), (34, 7748), (37, 7772), (39, 7844), (41, 7868), (42, 7874), (50, 8024), (53, 8045), (54, 8057), (56, 8066), (70, 8273), (74, 8291), (95, 8378), (114, 8447), (117, 8459), (127, 8507), (136, 8537), (141, 8552), (149, 8588), (157, 8615), (162, 8636), (169, 8660), (172, 8684), (174, 8690), (182, 8717), (191, 8750), (198, 8789), (203, 8816), (207, 8837), (209, 8852), (222, 8879), (223, 8882), (230, 8903), (233, 8915), (234, 8921), (239, 8969), (245, 9005), (260, 9053), (265, 9080), (266, 9101), (274, 9164), (278, 9188), (284, 9245), (297, 9350), (299, 9371), (301, 9383), (305, 9425), (309, 9446), (311, 9467), (327, 9596),

Gene: Joann\_18 Start: 12611, Stop: 15172, Start Num: 5

Candidate Starts for Joann\_18:

(3, 12590), (Start: 5 @12611 has 80 MA's), (15, 12701), (18, 12740), (21, 12776), (30, 12836), (34, 12884), (35, 12899), (46, 13067), (49, 13112), (51, 13163), (52, 13166), (59, 13250), (73, 13457), (75, 13466), (79, 13484), (83, 13526), (114, 13835), (119, 13868), (129, 13928), (133, 13952), (151, 14033), (153, 14039), (154, 14042), (159, 14066), (166, 14096), (171, 14117), (183, 14180), (187, 14195), (191, 14219), (193, 14231), (194, 14237), (197, 14252), (198, 14258), (199, 14261), (202, 14282), (205, 14297), (208, 14312), (212, 14330), (213, 14336), (216, 14351), (218, 14360), (220, 14369), (227, 14402), (228, 14405), (231, 14417), (232, 14423), (235, 14435), (242, 14501), (245, 14516), (263, 14615), (267, 14666), (269, 14678), (272, 14699), (285, 14798), (286, 14801), (292, 14855), (295, 14894), (303, 14951), (305, 14975), (311, 15017), (315, 15044), (325, 15113),

Gene: JooneeDee\_12 Start: 7572, Stop: 9677, Start Num: 11

Candidate Starts for JooneeDee\_12:

(1, 7476), (Start: 11 @7572 has 105 MA's), (13, 7593), (29, 7719), (32, 7770), (34, 7779), (37, 7803), (39, 7875), (41, 7899), (48, 7998), (53, 8076), (54, 8088), (56, 8097), (70, 8304), (74, 8322), (95, 8409), (114, 8478), (117, 8490), (127, 8538), (136, 8568), (141, 8583), (155, 8637), (162, 8667), (163, 8670), (169, 8691), (174, 8721), (182, 8748), (191, 8781), (198, 8820), (203, 8847), (204, 8853), (207, 8868), (209, 8883), (222, 8910), (223, 8913), (230, 8934), (233, 8946), (234, 8952), (239, 9000), (245, 9036), (260, 9084), (265, 9111), (266, 9132), (274, 9195), (278, 9219), (284, 9276), (297, 9381), (299, 9402), (301, 9414), (305, 9456), (309, 9477), (311, 9498),

Gene: Josuke\_12 Start: 7552, Stop: 9657, Start Num: 11

Candidate Starts for Josuke\_12:

(Start: 11 @7552 has 105 MA's), (13, 7573), (32, 7750), (34, 7759), (37, 7783), (39, 7855), (41, 7879), (42, 7885), (50, 8035), (53, 8056), (54, 8068), (56, 8077), (70, 8284), (74, 8302), (95, 8389), (114, 8458), (117, 8470), (127, 8518), (136, 8548), (141, 8563), (149, 8599), (157, 8626), (162, 8647), (169, 8671), (172, 8695), (174, 8701), (182, 8728), (191, 8761), (198, 8800), (203, 8827), (207, 8848), (209, 8863), (222, 8890), (223, 8893), (230, 8914), (233, 8926), (234, 8932), (239, 8980), (255, 9055), (260, 9064), (265, 9091), (266, 9112), (274, 9175), (278, 9199), (284, 9256), (297, 9361), (299, 9382), (301, 9394), (305, 9436), (309, 9457), (311, 9478),

Gene: Jumboset\_18 Start: 12567, Stop: 15128, Start Num: 5

Candidate Starts for Jumboset\_18:

(3, 12546), (Start: 5 @12567 has 80 MA's), (10, 12615), (14, 12648), (18, 12696), (20, 12720), (21, 12732), (30, 12792), (34, 12840), (35, 12855), (36, 12861), (44, 12981), (46, 13023), (51, 13119), (52, 13122), (55, 13152), (59, 13206), (60, 13209), (68, 13347), (69, 13368), (71, 13392), (73, 13413), (75, 13422), (82, 13473), (85, 13491), (100, 13677), (119, 13821), (125, 13854), (129, 13881), (132, 13899), (133, 13905), (138, 13929), (140, 13938), (151, 13986), (157, 14013), (158, 14016), (162, 14037), (164, 14043), (166, 14049), (173, 14100), (178, 14115), (181, 14127), (183, 14133), (184, 14136), (186, 14145), (191, 14172), (193, 14184), (195, 14193), (197, 14205), (198, 14211), (201, 14232), (208, 14265), (216, 14304), (227, 14355), (228, 14358), (230, 14367), (231, 14370), (234, 14385), (246, 14475), (255, 14511), (267, 14619), (273, 14655), (285, 14751), (286, 14754), (292, 14808), (295, 14847), (302, 14895), (303, 14904), (305, 14928), (308, 14946), (315, 14997), (319, 15021), (322, 15039), (325, 15069),

Gene: Kaijohn\_12 Start: 7545, Stop: 9650, Start Num: 11

Candidate Starts for Kaijohn\_12:

(Start: 11 @7545 has 105 MA's), (13, 7566), (32, 7743), (34, 7752), (37, 7776), (39, 7848), (41, 7872), (42, 7878), (48, 7971), (50, 8028), (53, 8049), (54, 8061), (56, 8070), (70, 8277), (74, 8295), (95, 8382), (114, 8451), (117, 8463), (127, 8511), (136, 8541), (141, 8556), (149, 8592), (157, 8619), (162, 8640), (169, 8664), (172, 8688), (174, 8694), (182, 8721), (191, 8754), (198, 8793), (203, 8820), (207, 8841), (209, 8856), (222, 8883), (223, 8886), (230, 8907), (233, 8919), (234, 8925), (239, 8973), (260, 9057), (265, 9084), (266, 9105), (274, 9168), (284, 9249), (297, 9354), (301, 9387), (305, 9429), (309, 9450), (311, 9471), (327, 9600),

Gene: Kalizoi\_18 Start: 12566, Stop: 15127, Start Num: 5

Candidate Starts for Kalizoi\_18:

(3, 12545), (Start: 5 @12566 has 80 MA's), (10, 12614), (14, 12647), (18, 12695), (20, 12719), (21, 12731), (30, 12791), (34, 12839), (35, 12854), (36, 12860), (44, 12980), (46, 13022), (51, 13118), (52, 13121), (55, 13151), (59, 13205), (68, 13346), (69, 13367), (71, 13391), (73, 13412), (75, 13421), (82, 13472), (85, 13490), (100, 13676), (119, 13820), (125, 13853), (129, 13880), (132, 13898), (133, 13904), (138, 13928), (140, 13937), (151, 13985), (157, 14012), (158, 14015), (162, 14036), (166, 14048), (173, 14099), (178, 14114), (181, 14126), (184, 14135), (186, 14144), (191, 14171), (193, 14183), (195, 14192), (197, 14204), (198, 14210), (201, 14231), (206, 14255), (208, 14264), (216, 14303), (227, 14354), (228, 14357), (230, 14366), (231, 14369), (234, 14384), (246, 14474), (255, 14510), (267, 14618), (273, 14654), (285, 14750), (286, 14753), (292, 14807), (295, 14846), (302,

14894), (303, 14903), (305, 14927), (308, 14945), (315, 14996), (319, 15020), (322, 15038), (325, 15068),

Gene: KayPaulus\_12 Start: 7533, Stop: 9638, Start Num: 11

Candidate Starts for KayPaulus\_12:

(Start: 11 @7533 has 105 MA's), (13, 7554), (32, 7731), (34, 7740), (37, 7764), (39, 7836), (41, 7860), (42, 7866), (48, 7959), (50, 8016), (53, 8037), (54, 8049), (56, 8058), (70, 8265), (74, 8283), (95, 8370), (114, 8439), (117, 8451), (127, 8499), (136, 8529), (141, 8544), (149, 8580), (157, 8607), (163, 8631), (169, 8652), (172, 8676), (174, 8682), (182, 8709), (191, 8742), (198, 8781), (203, 8808), (207, 8829), (209, 8844), (222, 8871), (223, 8874), (233, 8907), (234, 8913), (239, 8961), (245, 8997), (260, 9045), (265, 9072), (266, 9093), (274, 9156), (278, 9180), (284, 9237), (297, 9342), (299, 9363), (301, 9375), (305, 9417), (309, 9438), (311, 9459), (327, 9588),

Gene: Kevanna\_12 Start: 7533, Stop: 9638, Start Num: 11

Candidate Starts for Kevanna\_12:

(Start: 11 @7533 has 105 MA's), (13, 7554), (32, 7731), (34, 7740), (37, 7764), (39, 7836), (41, 7860), (42, 7866), (48, 7959), (50, 8016), (53, 8037), (54, 8049), (56, 8058), (70, 8265), (74, 8283), (95, 8370), (114, 8439), (117, 8451), (127, 8499), (136, 8529), (141, 8544), (149, 8580), (157, 8607), (163, 8631), (169, 8652), (172, 8676), (174, 8682), (182, 8709), (191, 8742), (198, 8781), (203, 8808), (207, 8829), (209, 8844), (222, 8871), (223, 8874), (233, 8907), (234, 8913), (239, 8961), (245, 8997), (260, 9045), (265, 9072), (266, 9093), (274, 9156), (278, 9180), (284, 9237), (297, 9342), (299, 9363), (301, 9375), (305, 9417), (309, 9438), (311, 9459), (327, 9588),

Gene: KillerTomato\_12 Start: 7586, Stop: 9691, Start Num: 11

Candidate Starts for KillerTomato\_12:

(Start: 11 @7586 has 105 MA's), (13, 7607), (32, 7784), (34, 7793), (37, 7817), (39, 7889), (41, 7913), (42, 7919), (48, 8012), (50, 8069), (53, 8090), (54, 8102), (56, 8111), (70, 8318), (74, 8336), (95, 8423), (114, 8492), (117, 8504), (127, 8552), (136, 8582), (141, 8597), (149, 8633), (157, 8660), (163, 8684), (169, 8705), (172, 8729), (174, 8735), (182, 8762), (191, 8795), (198, 8834), (203, 8861), (207, 8882), (209, 8897), (222, 8924), (223, 8927), (230, 8948), (233, 8960), (234, 8966), (239, 9014), (245, 9050), (260, 9098), (265, 9125), (266, 9146), (274, 9209), (278, 9233), (284, 9290), (297, 9395), (299, 9416), (301, 9428), (305, 9470), (309, 9491), (311, 9512), (327, 9641),

Gene: KingBob\_14 Start: 9744, Stop: 12302, Start Num: 5

Candidate Starts for KingBob\_14:

(Start: 5 @9744 has 80 MA's), (7, 9753), (8, 9783), (18, 9873), (21, 9909), (34, 10017), (35, 10032), (46, 10200), (51, 10296), (71, 10569), (73, 10590), (80, 10620), (82, 10650), (92, 10737), (101, 10860), (111, 10935), (119, 10998), (125, 11031), (128, 11052), (129, 11058), (132, 11076), (133, 11082), (138, 11106), (147, 11148), (151, 11163), (153, 11169), (159, 11196), (171, 11247), (175, 11280), (177, 11289), (183, 11310), (186, 11322), (191, 11349), (193, 11361), (195, 11370), (197, 11382), (198, 11388), (199, 11391), (202, 11412), (208, 11442), (212, 11460), (216, 11481), (218, 11490), (220, 11499), (227, 11532), (228, 11535), (231, 11547), (234, 11562), (245, 11646), (246, 11652), (255, 11688), (263, 11745), (264, 11754), (267, 11796), (276, 11853), (285, 11928), (286, 11931), (289, 11961), (292, 11985), (298, 12042), (302, 12072), (303, 12081), (305, 12105), (307, 12117), (325, 12243),

Gene: Kittykat\_14 Start: 9756, Stop: 12314, Start Num: 5

Candidate Starts for Kittykat\_14:

(3, 9735), (Start: 5 @9756 has 80 MA's), (10, 9804), (18, 9885), (30, 9981), (33, 10026), (35, 10044), (36, 10050), (45, 10191), (46, 10212), (49, 10257), (51, 10308), (52, 10311), (55, 10341), (59, 10395), (67, 10524), (73, 10602), (75, 10611), (76, 10617), (79, 10629), (82, 10662), (88, 10704), (92, 10749), (100, 10869), (101, 10872), (111, 10947), (119, 11010), (129, 11070), (132, 11088), (133, 11094), (136, 11106), (139, 11124), (151, 11175), (153, 11181), (158, 11205), (161, 11223), (166, 11238),

(168, 11247), (175, 11292), (177, 11301), (183, 11322), (186, 11334), (187, 11337), (190, 11358), (191, 11361), (192, 11367), (193, 11373), (197, 11394), (198, 11400), (201, 11421), (206, 11445), (208, 11454), (210, 11466), (212, 11472), (216, 11493), (227, 11544), (228, 11547), (230, 11556), (231, 11559), (246, 11664), (249, 11676), (254, 11697), (264, 11766), (267, 11808), (269, 11820), (270, 11823), (272, 11841), (273, 11844), (285, 11940), (286, 11943), (292, 11997), (295, 12036), (298, 12054), (302, 12084), (303, 12093), (308, 12135), (325, 12255),

Gene: Kojax4\_12 Start: 7552, Stop: 9657, Start Num: 11

Candidate Starts for Kojax4\_12:

(Start: 11 @7552 has 105 MA's), (13, 7573), (32, 7750), (34, 7759), (37, 7783), (39, 7855), (41, 7879), (42, 7885), (50, 8035), (53, 8056), (54, 8068), (56, 8077), (70, 8284), (74, 8302), (95, 8389), (114, 8458), (117, 8470), (127, 8518), (136, 8548), (141, 8563), (149, 8599), (157, 8626), (162, 8647), (169, 8671), (172, 8695), (174, 8701), (182, 8728), (191, 8761), (198, 8800), (203, 8827), (207, 8848), (209, 8863), (222, 8890), (223, 8893), (230, 8914), (233, 8926), (234, 8932), (239, 8980), (255, 9055), (260, 9064), (265, 9091), (266, 9112), (274, 9175), (278, 9199), (284, 9256), (297, 9361), (299, 9382), (301, 9394), (305, 9436), (309, 9457), (311, 9478),

Gene: Korra\_19 Start: 12572, Stop: 15133, Start Num: 5

Candidate Starts for Korra\_19:

(3, 12551), (Start: 5 @12572 has 80 MA's), (10, 12620), (14, 12653), (18, 12701), (20, 12725), (21, 12737), (30, 12797), (34, 12845), (35, 12860), (36, 12866), (44, 12986), (46, 13028), (51, 13124), (52, 13127), (55, 13157), (59, 13211), (68, 13352), (69, 13373), (71, 13397), (73, 13418), (75, 13427), (82, 13478), (85, 13496), (100, 13682), (119, 13826), (125, 13859), (129, 13886), (132, 13904), (133, 13910), (138, 13934), (140, 13943), (151, 13991), (157, 14018), (158, 14021), (162, 14042), (166, 14054), (173, 14105), (178, 14120), (181, 14132), (184, 14141), (186, 14150), (191, 14177), (193, 14189), (195, 14198), (197, 14210), (198, 14216), (201, 14237), (206, 14261), (208, 14270), (216, 14309), (227, 14360), (228, 14363), (230, 14372), (231, 14375), (234, 14390), (246, 14480), (255, 14516), (267, 14624), (273, 14660), (285, 14756), (286, 14759), (292, 14813), (295, 14852), (302, 14900), (303, 14909), (305, 14933), (308, 14951), (315, 15002), (319, 15026), (325, 15074),

Gene: KyriosFaba\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for KyriosFaba\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: Lakshmi\_18 Start: 12636, Stop: 15197, Start Num: 5

Candidate Starts for Lakshmi\_18:

(3, 12615), (Start: 5 @12636 has 80 MA's), (15, 12726), (18, 12765), (21, 12801), (30, 12861), (34, 12909), (35, 12924), (46, 13092), (49, 13137), (51, 13188), (52, 13191), (59, 13275), (71, 13461), (76, 13497), (79, 13509), (83, 13551), (94, 13662), (114, 13860), (129, 13953), (133, 13977), (134, 13980), (151, 14058), (153, 14064), (159, 14091), (166, 14121), (177, 14184), (181, 14199), (184, 14208), (185, 14211), (187, 14220), (191, 14244), (193, 14256), (194, 14262), (197, 14277), (198, 14283), (199, 14286), (202, 14307), (205, 14322), (208, 14337), (212, 14355), (213, 14361), (216, 14376), (218, 14385), (220, 14394), (227, 14427), (228, 14430), (231, 14442), (232, 14448), (235, 14460), (242, 14526), (245, 14541), (252, 14571), (254, 14580), (267, 14691), (273, 14727), (276, 14748), (285, 14823), (286, 14826), (292, 14880), (294, 14895), (295, 14919), (303, 14976), (305, 15000), (311, 15042), (315, 15069), (325, 15138),

Gene: Lasagna\_14 Start: 9717, Stop: 12278, Start Num: 5

Candidate Starts for Lasagna\_14:

(3, 9696), (Start: 5 @9717 has 80 MA's), (10, 9765), (18, 9846), (20, 9870), (30, 9942), (34, 9990), (35, 10005), (36, 10011), (44, 10131), (46, 10173), (51, 10269), (52, 10272), (55, 10302), (64, 10440), (69, 10518), (73, 10563), (75, 10572), (82, 10623), (85, 10641), (86, 10653), (90, 10677), (109, 10893), (120, 10983), (125, 11004), (129, 11031), (132, 11049), (133, 11055), (138, 11079), (140, 11088), (151, 11136), (157, 11163), (164, 11193), (173, 11250), (178, 11265), (181, 11277), (183, 11283), (184, 11286), (186, 11295), (191, 11322), (193, 11334), (195, 11343), (197, 11355), (198, 11361), (202, 11385), (206, 11406), (208, 11415), (211, 11430), (216, 11454), (227, 11505), (228, 11508), (231, 11520), (241, 11595), (246, 11625), (255, 11661), (267, 11769), (269, 11781), (273, 11805), (285, 11901), (286, 11904), (290, 11937), (292, 11958), (295, 11997), (298, 12015), (302, 12045), (303, 12054), (305, 12078), (316, 12153), (325, 12219),

Gene: LaviMo\_12 Start: 7552, Stop: 9657, Start Num: 11

Candidate Starts for LaviMo\_12:

(Start: 11 @7552 has 105 MA's), (13, 7573), (32, 7750), (34, 7759), (37, 7783), (39, 7855), (41, 7879), (42, 7885), (50, 8035), (53, 8056), (54, 8068), (56, 8077), (70, 8284), (74, 8302), (95, 8389), (114, 8458), (117, 8470), (127, 8518), (136, 8548), (141, 8563), (149, 8599), (157, 8626), (162, 8647), (169, 8671), (172, 8695), (174, 8701), (182, 8728), (191, 8761), (198, 8800), (203, 8827), (207, 8848), (209, 8863), (222, 8890), (223, 8893), (230, 8914), (233, 8926), (234, 8932), (239, 8980), (255, 9055), (260, 9064), (265, 9091), (266, 9112), (274, 9175), (278, 9199), (284, 9256), (297, 9361), (299, 9382), (301, 9394), (305, 9436), (309, 9457), (311, 9478),

Gene: Leafy\_12 Start: 7556, Stop: 9661, Start Num: 11

Candidate Starts for Leafy\_12:

(Start: 11 @7556 has 105 MA's), (13, 7577), (32, 7754), (34, 7763), (37, 7787), (39, 7859), (41, 7883), (42, 7889), (48, 7982), (50, 8039), (53, 8060), (54, 8072), (56, 8081), (70, 8288), (74, 8306), (95, 8393), (114, 8462), (117, 8474), (127, 8522), (136, 8552), (141, 8567), (157, 8630), (163, 8654), (169, 8675), (172, 8699), (174, 8705), (182, 8732), (191, 8765), (198, 8804), (204, 8837), (207, 8852), (209, 8867), (222, 8894), (223, 8897), (233, 8930), (234, 8936), (239, 8984), (260, 9068), (265, 9095), (266, 9116), (274, 9179), (278, 9203), (284, 9260), (297, 9365), (299, 9386), (301, 9398), (305, 9440), (309, 9461), (311, 9482), (327, 9611),

Gene: LemonPepper\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for LemonPepper\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: Lennox\_14 Start: 9717, Stop: 12278, Start Num: 5

Candidate Starts for Lennox\_14:

(3, 9696), (Start: 5 @9717 has 80 MA's), (10, 9765), (18, 9846), (20, 9870), (30, 9942), (34, 9990), (35, 10005), (36, 10011), (46, 10173), (51, 10269), (55, 10302), (64, 10440), (69, 10518), (73, 10563), (75, 10572), (82, 10623), (85, 10641), (86, 10653), (90, 10677), (109, 10893), (120, 10983), (125, 11004), (129, 11031), (132, 11049), (133, 11055), (138, 11079), (140, 11088), (151, 11136), (157, 11163), (164, 11193), (173, 11250), (178, 11265), (181, 11277), (183, 11283), (184, 11286), (186, 11295), (191, 11322), (193, 11334), (195, 11343), (197, 11355), (198, 11361), (202, 11385), (206, 11406), (208, 11415), (211, 11430), (216, 11454), (227, 11505), (228, 11508), (231, 11520), (246, 11625), (255, 11661), (267, 11769), (269, 11781), (273, 11805), (285, 11901), (286, 11904), (290, 11937),



(292, 11958), (295, 11997), (298, 12015), (302, 12045), (303, 12054), (305, 12078), (316, 12153), (325, 12219),

Gene: LilStuart\_14 Start: 9717, Stop: 12278, Start Num: 5

Candidate Starts for LilStuart\_14:

(3, 9696), (Start: 5 @9717 has 80 MA's), (10, 9765), (18, 9846), (20, 9870), (30, 9942), (34, 9990), (35, 10005), (36, 10011), (46, 10173), (51, 10269), (55, 10302), (64, 10440), (69, 10518), (73, 10563), (75, 10572), (82, 10623), (85, 10641), (86, 10653), (90, 10677), (109, 10893), (120, 10983), (125, 11004), (129, 11031), (132, 11049), (133, 11055), (138, 11079), (140, 11088), (151, 11136), (157, 11163), (164, 11193), (173, 11250), (178, 11265), (181, 11277), (183, 11283), (184, 11286), (186, 11295), (191, 11322), (193, 11334), (195, 11343), (197, 11355), (198, 11361), (202, 11385), (206, 11406), (208, 11415), (211, 11430), (216, 11454), (227, 11505), (228, 11508), (231, 11520), (246, 11625), (255, 11661), (267, 11769), (269, 11781), (273, 11805), (285, 11901), (286, 11904), (290, 11937), (292, 11958), (295, 11997), (298, 12015), (302, 12045), (303, 12054), (305, 12078), (316, 12153), (325, 12219),

Gene: LionelHutz\_12 Start: 7546, Stop: 9651, Start Num: 11

Candidate Starts for LionelHutz\_12:

(Start: 11 @7546 has 105 MA's), (13, 7567), (32, 7744), (34, 7753), (37, 7777), (39, 7849), (41, 7873), (42, 7879), (50, 8029), (53, 8050), (54, 8062), (56, 8071), (70, 8278), (74, 8296), (95, 8383), (114, 8452), (117, 8464), (127, 8512), (136, 8542), (141, 8557), (149, 8593), (157, 8620), (162, 8641), (169, 8665), (172, 8689), (174, 8695), (182, 8722), (191, 8755), (198, 8794), (203, 8821), (207, 8842), (209, 8857), (222, 8884), (223, 8887), (230, 8908), (233, 8920), (234, 8926), (239, 8974), (255, 9049), (260, 9058), (265, 9085), (266, 9106), (274, 9169), (278, 9193), (284, 9250), (297, 9355), (299, 9376), (301, 9388), (305, 9430), (309, 9451), (311, 9472),

Gene: Litotes\_18 Start: 12597, Stop: 15152, Start Num: 5

Candidate Starts for Litotes\_18:

(3, 12576), (Start: 5 @12597 has 80 MA's), (10, 12645), (18, 12726), (20, 12750), (30, 12822), (34, 12870), (35, 12885), (36, 12891), (46, 13053), (51, 13149), (52, 13152), (55, 13182), (64, 13320), (73, 13443), (82, 13503), (85, 13521), (87, 13536), (92, 13587), (114, 13818), (126, 13887), (129, 13911), (132, 13929), (133, 13935), (145, 13989), (147, 14001), (153, 14022), (158, 14046), (175, 14133), (181, 14157), (183, 14163), (184, 14166), (187, 14178), (190, 14199), (191, 14202), (192, 14208), (193, 14214), (196, 14232), (197, 14235), (198, 14241), (206, 14286), (208, 14295), (212, 14313), (216, 14334), (218, 14343), (220, 14352), (227, 14385), (228, 14388), (230, 14397), (231, 14400), (238, 14451), (267, 14649), (269, 14661), (272, 14682), (273, 14685), (285, 14781), (286, 14784), (292, 14838), (295, 14877), (303, 14934), (308, 14976), (315, 15024), (322, 15066), (325, 15096),

Gene: Livingwater\_12 Start: 7533, Stop: 9638, Start Num: 11

Candidate Starts for Livingwater\_12:

(Start: 11 @7533 has 105 MA's), (13, 7554), (32, 7731), (34, 7740), (37, 7764), (39, 7836), (41, 7860), (42, 7866), (48, 7959), (50, 8016), (53, 8037), (54, 8049), (56, 8058), (70, 8265), (74, 8283), (95, 8370), (114, 8439), (117, 8451), (127, 8499), (136, 8529), (141, 8544), (157, 8607), (163, 8631), (169, 8652), (172, 8676), (174, 8682), (182, 8709), (191, 8742), (198, 8781), (207, 8829), (209, 8844), (222, 8871), (223, 8874), (233, 8907), (234, 8913), (239, 8961), (260, 9045), (265, 9072), (266, 9093), (274, 9156), (278, 9180), (284, 9237), (297, 9342), (299, 9363), (301, 9375), (305, 9417), (309, 9438), (311, 9459), (327, 9588),

Gene: Loca\_12 Start: 7559, Stop: 9664, Start Num: 11

Candidate Starts for Loca\_12:

(Start: 11 @7559 has 105 MA's), (13, 7580), (32, 7757), (34, 7766), (37, 7790), (39, 7862), (41, 7886), (42, 7892), (48, 7985), (50, 8042), (53, 8063), (54, 8075), (56, 8084), (70, 8291), (74, 8309), (95, 8396), (114, 8465), (117, 8477), (127, 8525), (136, 8555), (141, 8570), (157, 8633), (169, 8678), (172,

8702), (174, 8708), (182, 8735), (191, 8768), (198, 8807), (207, 8855), (209, 8870), (222, 8897), (223, 8900), (233, 8933), (234, 8939), (239, 8987), (260, 9071), (265, 9098), (266, 9119), (274, 9182), (278, 9206), (284, 9263), (297, 9368), (299, 9389), (301, 9401), (305, 9443), (309, 9464), (311, 9485), (327, 9614),

Gene: Lola20\_12 Start: 7538, Stop: 9646, Start Num: 11

Candidate Starts for Lola20\_12:

(Start: 11 @7538 has 105 MA's), (13, 7559), (32, 7736), (34, 7745), (37, 7769), (39, 7841), (41, 7865), (42, 7871), (48, 7964), (50, 8021), (53, 8042), (54, 8054), (56, 8063), (70, 8270), (74, 8288), (95, 8375), (114, 8444), (117, 8456), (127, 8504), (136, 8534), (141, 8549), (149, 8585), (157, 8612), (169, 8657), (172, 8681), (174, 8687), (182, 8714), (191, 8747), (198, 8786), (203, 8813), (207, 8834), (209, 8849), (222, 8876), (223, 8879), (233, 8912), (234, 8918), (239, 8966), (245, 9002), (260, 9050), (265, 9077), (266, 9098), (274, 9161), (278, 9185), (284, 9242), (297, 9347), (299, 9368), (301, 9380), (305, 9422), (311, 9464), (327, 9596),

Gene: Lucy\_14 Start: 9709, Stop: 12270, Start Num: 5

Candidate Starts for Lucy\_14:

(3, 9688), (Start: 5 @9709 has 80 MA's), (10, 9757), (18, 9838), (20, 9862), (30, 9934), (34, 9982), (35, 9997), (36, 10003), (46, 10165), (51, 10261), (52, 10264), (55, 10294), (64, 10432), (69, 10510), (73, 10555), (75, 10564), (82, 10615), (85, 10633), (86, 10645), (90, 10669), (109, 10885), (120, 10975), (125, 10996), (129, 11023), (132, 11041), (133, 11047), (138, 11071), (140, 11080), (151, 11128), (157, 11155), (164, 11185), (173, 11242), (178, 11257), (181, 11269), (183, 11275), (184, 11278), (186, 11287), (191, 11314), (193, 11326), (195, 11335), (197, 11347), (198, 11353), (202, 11377), (206, 11398), (208, 11407), (211, 11422), (216, 11446), (220, 11464), (227, 11497), (228, 11500), (231, 11512), (241, 11587), (246, 11617), (255, 11653), (267, 11761), (269, 11773), (273, 11797), (285, 11893), (286, 11896), (292, 11950), (295, 11989), (298, 12007), (302, 12037), (303, 12046), (305, 12070), (316, 12145), (319, 12163), (325, 12211),

Gene: Lunatic\_12 Start: 7531, Stop: 9636, Start Num: 11

Candidate Starts for Lunatic\_12:

(Start: 11 @7531 has 105 MA's), (13, 7552), (32, 7729), (34, 7738), (37, 7762), (39, 7834), (41, 7858), (48, 7957), (50, 8014), (53, 8035), (54, 8047), (56, 8056), (70, 8263), (74, 8281), (95, 8368), (114, 8437), (117, 8449), (127, 8497), (136, 8527), (141, 8542), (162, 8626), (163, 8629), (169, 8650), (174, 8680), (182, 8707), (191, 8740), (198, 8779), (203, 8806), (204, 8812), (207, 8827), (209, 8842), (223, 8872), (230, 8893), (233, 8905), (234, 8911), (239, 8959), (245, 8995), (260, 9043), (265, 9070), (266, 9091), (274, 9154), (278, 9178), (284, 9235), (297, 9340), (299, 9361), (305, 9415), (309, 9436), (311, 9457),

Gene: Luxx\_12 Start: 7564, Stop: 9669, Start Num: 11

Candidate Starts for Luxx\_12:

(Start: 11 @7564 has 105 MA's), (13, 7585), (32, 7762), (34, 7771), (37, 7795), (39, 7867), (41, 7891), (42, 7897), (50, 8047), (53, 8068), (54, 8080), (56, 8089), (70, 8296), (74, 8314), (95, 8401), (114, 8470), (117, 8482), (127, 8530), (136, 8560), (141, 8575), (149, 8611), (157, 8638), (162, 8659), (169, 8683), (172, 8707), (174, 8713), (182, 8740), (191, 8773), (198, 8812), (203, 8839), (207, 8860), (209, 8875), (222, 8902), (223, 8905), (230, 8926), (233, 8938), (234, 8944), (239, 8992), (255, 9067), (260, 9076), (265, 9103), (266, 9124), (274, 9187), (278, 9211), (284, 9268), (297, 9373), (299, 9394), (301, 9406), (305, 9448), (309, 9469), (311, 9490),

Gene: Majesty\_12 Start: 7546, Stop: 9651, Start Num: 11

Candidate Starts for Majesty\_12:

(Start: 11 @7546 has 105 MA's), (13, 7567), (32, 7744), (34, 7753), (37, 7777), (39, 7849), (41, 7873), (42, 7879), (50, 8029), (53, 8050), (54, 8062), (56, 8071), (70, 8278), (74, 8296), (95, 8383), (114, 8452), (117, 8464), (127, 8512), (136, 8542), (141, 8557), (149, 8593), (157, 8620), (162, 8641), (169,

8665), (172, 8689), (174, 8695), (182, 8722), (191, 8755), (198, 8794), (203, 8821), (207, 8842), (209, 8857), (222, 8884), (223, 8887), (230, 8908), (233, 8920), (234, 8926), (239, 8974), (255, 9049), (260, 9058), (265, 9085), (266, 9106), (274, 9169), (278, 9193), (284, 9250), (297, 9355), (299, 9376), (301, 9388), (305, 9430), (309, 9451), (311, 9472),

Gene: Makoto\_14 Start: 9718, Stop: 12279, Start Num: 5

Candidate Starts for Makoto\_14:

(3, 9697), (Start: 5 @9718 has 80 MA's), (10, 9766), (18, 9847), (20, 9871), (30, 9943), (34, 9991), (35, 10006), (36, 10012), (46, 10174), (51, 10270), (55, 10303), (64, 10441), (69, 10519), (73, 10564), (75, 10573), (82, 10624), (85, 10642), (86, 10654), (90, 10678), (109, 10894), (125, 11005), (129, 11032), (132, 11050), (133, 11056), (138, 11080), (140, 11089), (151, 11137), (157, 11164), (164, 11194), (173, 11251), (178, 11266), (181, 11278), (183, 11284), (184, 11287), (186, 11296), (191, 11323), (193, 11335), (195, 11344), (197, 11356), (198, 11362), (202, 11386), (206, 11407), (208, 11416), (211, 11431), (216, 11455), (227, 11506), (228, 11509), (231, 11521), (241, 11596), (246, 11626), (255, 11662), (267, 11770), (269, 11782), (273, 11806), (285, 11902), (286, 11905), (290, 11938), (292, 11959), (298, 12016), (302, 12046), (303, 12055), (305, 12079), (316, 12154), (325, 12220),

Gene: MamaPearl\_14 Start: 9752, Stop: 12301, Start Num: 5

Candidate Starts for MamaPearl\_14:

(2, 9722), (Start: 5 @9752 has 80 MA's), (18, 9881), (21, 9917), (34, 10025), (35, 10040), (45, 10187), (46, 10208), (51, 10304), (60, 10394), (66, 10487), (73, 10598), (82, 10658), (83, 10667), (112, 10940), (119, 10994), (125, 11027), (128, 11048), (129, 11054), (132, 11072), (151, 11159), (166, 11222), (175, 11276), (177, 11285), (183, 11306), (186, 11318), (187, 11321), (191, 11345), (192, 11351), (193, 11357), (195, 11366), (197, 11378), (198, 11384), (201, 11405), (208, 11438), (211, 11453), (212, 11456), (216, 11477), (217, 11483), (220, 11495), (227, 11528), (228, 11531), (230, 11540), (231, 11543), (234, 11558), (245, 11642), (254, 11681), (267, 11792), (269, 11804), (276, 11849), (285, 11924), (286, 11927), (292, 11981), (302, 12068), (303, 12077), (305, 12101), (307, 12113), (315, 12170), (316, 12176), (325, 12242), (328, 12284),

Gene: ManAs\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for ManAs\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: Maneater\_12 Start: 7528, Stop: 9633, Start Num: 11

Candidate Starts for Maneater\_12:

(Start: 11 @7528 has 105 MA's), (13, 7549), (32, 7726), (34, 7735), (37, 7759), (39, 7831), (41, 7855), (42, 7861), (50, 8011), (53, 8032), (54, 8044), (56, 8053), (70, 8260), (74, 8278), (95, 8365), (114, 8434), (117, 8446), (127, 8494), (136, 8524), (141, 8539), (149, 8575), (157, 8602), (162, 8623), (169, 8647), (172, 8671), (174, 8677), (182, 8704), (191, 8737), (198, 8776), (203, 8803), (207, 8824), (209, 8839), (222, 8866), (223, 8869), (230, 8890), (233, 8902), (234, 8908), (239, 8956), (255, 9031), (260, 9040), (265, 9067), (266, 9088), (274, 9151), (278, 9175), (284, 9232), (297, 9337), (299, 9358), (301, 9370), (305, 9412), (309, 9433), (311, 9454),

Gene: Maria1952\_14 Start: 9744, Stop: 12302, Start Num: 5

Candidate Starts for Maria1952\_14:

(Start: 5 @9744 has 80 MA's), (7, 9753), (8, 9783), (18, 9873), (21, 9909), (34, 10017), (35, 10032), (46, 10200), (51, 10296), (71, 10569), (73, 10590), (80, 10620), (82, 10650), (92, 10737), (101,

10860), (111, 10935), (119, 10998), (125, 11031), (128, 11052), (129, 11058), (132, 11076), (133, 11082), (138, 11106), (147, 11148), (151, 11163), (153, 11169), (159, 11196), (171, 11247), (175, 11280), (177, 11289), (183, 11310), (186, 11322), (191, 11349), (193, 11361), (195, 11370), (197, 11382), (198, 11388), (199, 11391), (202, 11412), (208, 11442), (212, 11460), (216, 11481), (218, 11490), (220, 11499), (227, 11532), (228, 11535), (231, 11547), (234, 11562), (245, 11646), (246, 11652), (255, 11688), (263, 11745), (264, 11754), (267, 11796), (276, 11853), (285, 11928), (286, 11931), (289, 11961), (292, 11985), (298, 12042), (302, 12072), (303, 12081), (305, 12105), (307, 12117), (325, 12243),

Gene: MasterPitts\_12 Start: 7546, Stop: 9651, Start Num: 11

Candidate Starts for MasterPitts\_12:

(Start: 11 @7546 has 105 MA's), (13, 7567), (32, 7744), (34, 7753), (37, 7777), (39, 7849), (41, 7873), (42, 7879), (50, 8029), (53, 8050), (54, 8062), (56, 8071), (70, 8278), (74, 8296), (95, 8383), (114, 8452), (117, 8464), (127, 8512), (136, 8542), (141, 8557), (149, 8593), (157, 8620), (162, 8641), (169, 8665), (172, 8689), (174, 8695), (182, 8722), (191, 8755), (198, 8794), (203, 8821), (207, 8842), (209, 8857), (222, 8884), (223, 8887), (230, 8908), (233, 8920), (234, 8926), (239, 8974), (260, 9058), (265, 9085), (266, 9106), (274, 9169), (284, 9250), (297, 9355), (299, 9376), (301, 9388), (305, 9430), (309, 9451), (311, 9472), (327, 9601),

Gene: McShie\_12 Start: 7529, Stop: 9634, Start Num: 11

Candidate Starts for McShie\_12:

(Start: 11 @7529 has 105 MA's), (13, 7550), (32, 7727), (34, 7736), (37, 7760), (39, 7832), (41, 7856), (42, 7862), (48, 7955), (50, 8012), (53, 8033), (54, 8045), (56, 8054), (70, 8261), (74, 8279), (95, 8366), (114, 8435), (117, 8447), (127, 8495), (136, 8525), (141, 8540), (157, 8603), (162, 8624), (163, 8627), (174, 8678), (182, 8705), (191, 8738), (198, 8777), (203, 8804), (207, 8825), (209, 8840), (222, 8867), (230, 8891), (233, 8903), (234, 8909), (239, 8957), (260, 9041), (265, 9068), (266, 9089), (274, 9152), (278, 9176), (284, 9233), (297, 9338), (299, 9359), (301, 9371), (305, 9413), (309, 9434), (311, 9455), (327, 9584),

Gene: MeganNoll\_18 Start: 12624, Stop: 15185, Start Num: 5

Candidate Starts for MeganNoll\_18:

(3, 12603), (Start: 5 @12624 has 80 MA's), (10, 12672), (14, 12705), (18, 12753), (20, 12777), (21, 12789), (30, 12849), (34, 12897), (35, 12912), (36, 12918), (44, 13038), (46, 13080), (51, 13176), (52, 13179), (55, 13209), (59, 13263), (60, 13266), (68, 13404), (69, 13425), (71, 13449), (73, 13470), (75, 13479), (82, 13530), (85, 13548), (100, 13734), (119, 13878), (125, 13911), (129, 13938), (132, 13956), (133, 13962), (138, 13986), (140, 13995), (151, 14043), (157, 14070), (158, 14073), (162, 14094), (164, 14100), (166, 14106), (173, 14157), (178, 14172), (181, 14184), (183, 14190), (184, 14193), (186, 14202), (191, 14229), (193, 14241), (195, 14250), (197, 14262), (198, 14268), (201, 14289), (208, 14322), (216, 14361), (227, 14412), (228, 14415), (230, 14424), (231, 14427), (234, 14442), (246, 14532), (255, 14568), (267, 14676), (273, 14712), (285, 14808), (286, 14811), (292, 14865), (295, 14904), (302, 14952), (303, 14961), (305, 14985), (308, 15003), (315, 15054), (319, 15078), (322, 15096), (325, 15126),

Gene: MelBee03\_12 Start: 7533, Stop: 9638, Start Num: 11

Candidate Starts for MelBee03\_12:

(Start: 11 @7533 has 105 MA's), (13, 7554), (32, 7731), (34, 7740), (37, 7764), (39, 7836), (41, 7860), (42, 7866), (48, 7959), (50, 8016), (53, 8037), (54, 8049), (56, 8058), (70, 8265), (74, 8283), (95, 8370), (114, 8439), (117, 8451), (127, 8499), (136, 8529), (141, 8544), (149, 8580), (157, 8607), (163, 8631), (169, 8652), (172, 8676), (174, 8682), (182, 8709), (191, 8742), (198, 8781), (203, 8808), (207, 8829), (209, 8844), (222, 8871), (223, 8874), (233, 8907), (234, 8913), (239, 8961), (245, 8997), (260, 9045), (265, 9072), (266, 9093), (274, 9156), (278, 9180), (284, 9237), (297, 9342), (299, 9363), (301, 9375), (305, 9417), (309, 9438), (311, 9459), (327, 9588),

Gene: Miaurora\_12 Start: 7648, Stop: 9753, Start Num: 11

Candidate Starts for Miaurora\_12:

(Start: 11 @7648 has 105 MA's), (13, 7669), (32, 7846), (34, 7855), (37, 7879), (39, 7951), (41, 7975), (48, 8074), (50, 8131), (53, 8152), (54, 8164), (56, 8173), (70, 8380), (74, 8398), (95, 8485), (114, 8554), (117, 8566), (127, 8614), (136, 8644), (141, 8659), (155, 8713), (162, 8743), (163, 8746), (169, 8767), (174, 8797), (182, 8824), (191, 8857), (198, 8896), (203, 8923), (204, 8929), (207, 8944), (209, 8959), (222, 8986), (223, 8989), (230, 9010), (233, 9022), (234, 9028), (239, 9076), (245, 9112), (260, 9160), (265, 9187), (266, 9208), (274, 9271), (278, 9295), (284, 9352), (297, 9457), (299, 9478), (305, 9532), (309, 9553), (311, 9574),

Gene: Minima\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for Minima\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: MirimarMandM\_12 Start: 7615, Stop: 9720, Start Num: 11

Candidate Starts for MirimarMandM\_12:

(Start: 11 @7615 has 105 MA's), (13, 7636), (32, 7813), (34, 7822), (37, 7846), (39, 7918), (41, 7942), (48, 8041), (50, 8098), (53, 8119), (54, 8131), (56, 8140), (70, 8347), (74, 8365), (95, 8452), (114, 8521), (117, 8533), (127, 8581), (136, 8611), (141, 8626), (155, 8680), (162, 8710), (163, 8713), (169, 8734), (174, 8764), (182, 8791), (191, 8824), (198, 8863), (203, 8890), (204, 8896), (207, 8911), (209, 8926), (223, 8956), (230, 8977), (233, 8989), (234, 8995), (239, 9043), (245, 9079), (260, 9127), (265, 9154), (266, 9175), (274, 9238), (278, 9262), (284, 9319), (297, 9424), (299, 9445), (301, 9457), (305, 9499), (309, 9520), (311, 9541),

Gene: Misaeng\_18 Start: 12684, Stop: 15242, Start Num: 5

Candidate Starts for Misaeng\_18:

(3, 12663), (Start: 5 @12684 has 80 MA's), (15, 12774), (18, 12813), (21, 12849), (35, 12972), (46, 13140), (49, 13185), (51, 13236), (52, 13239), (59, 13323), (73, 13530), (75, 13539), (79, 13557), (80, 13560), (83, 13599), (101, 13800), (106, 13851), (114, 13905), (129, 13998), (133, 14022), (148, 14091), (151, 14103), (153, 14109), (154, 14112), (159, 14136), (166, 14166), (171, 14187), (179, 14235), (183, 14250), (185, 14256), (187, 14265), (191, 14289), (193, 14301), (194, 14307), (197, 14322), (198, 14328), (199, 14331), (205, 14367), (206, 14373), (208, 14382), (212, 14400), (213, 14406), (216, 14421), (218, 14430), (221, 14448), (227, 14472), (228, 14475), (231, 14487), (235, 14505), (242, 14571), (245, 14586), (252, 14616), (254, 14625), (257, 14640), (263, 14685), (267, 14736), (273, 14772), (285, 14868), (286, 14871), (292, 14925), (295, 14964), (303, 15021), (305, 15045), (311, 15087), (315, 15114), (325, 15183),

Gene: Moki\_14 Start: 9720, Stop: 12287, Start Num: 5

Candidate Starts for Moki\_14:

(3, 9699), (Start: 5 @9720 has 80 MA's), (10, 9768), (18, 9849), (20, 9873), (30, 9945), (34, 9993), (35, 10008), (36, 10014), (46, 10176), (50, 10269), (51, 10272), (52, 10275), (55, 10305), (60, 10362), (68, 10500), (69, 10521), (73, 10566), (79, 10593), (82, 10626), (85, 10644), (91, 10686), (94, 10743), (125, 11007), (129, 11034), (132, 11052), (133, 11058), (138, 11082), (143, 11103), (151, 11139), (157, 11166), (164, 11196), (166, 11202), (173, 11253), (183, 11286), (191, 11325), (192, 11331), (193, 11337), (195, 11346), (197, 11358), (198, 11364), (202, 11388), (206, 11409), (208, 11418), (216, 11457), (220, 11475), (227, 11508), (228, 11511), (231, 11523), (234, 11538), (240, 11589), (245, 11622), (249, 11640), (255, 11664), (260, 11706), (267, 11772), (269, 11784), (276, 11829),

(285, 11904), (286, 11907), (292, 11961), (295, 12000), (299, 12027), (303, 12057), (304, 12069), (305, 12081), (306, 12090), (315, 12156), (322, 12198), (325, 12228),

Gene: Moss\_18 Start: 10335, Stop: 12755, Start Num: 6

Candidate Starts for Moss\_18:

(Start: 6 @10335 has 8 MA's), (16, 10422), (26, 10527), (29, 10539), (34, 10599), (40, 10710), (47, 10791), (56, 10917), (58, 10932), (62, 10986), (77, 11160), (88, 11244), (91, 11265), (94, 11307), (108, 11433), (113, 11454), (116, 11487), (127, 11544), (134, 11586), (137, 11601), (148, 11652), (158, 11688), (160, 11694), (180, 11796), (186, 11817), (194, 11859), (205, 11919), (206, 11925), (216, 11973), (236, 12069), (269, 12246), (271, 12258), (279, 12309), (288, 12390), (295, 12459), (300, 12495), (310, 12576), (313, 12591), (323, 12663), (326, 12687),

Gene: MrGloopy\_18 Start: 12558, Stop: 15119, Start Num: 5

Candidate Starts for MrGloopy\_18:

(3, 12537), (Start: 5 @12558 has 80 MA's), (10, 12606), (14, 12639), (18, 12687), (20, 12711), (21, 12723), (30, 12783), (34, 12831), (35, 12846), (36, 12852), (44, 12972), (46, 13014), (51, 13110), (52, 13113), (55, 13143), (59, 13197), (68, 13338), (69, 13359), (71, 13383), (73, 13404), (75, 13413), (82, 13464), (85, 13482), (100, 13668), (119, 13812), (125, 13845), (129, 13872), (132, 13890), (133, 13896), (138, 13920), (140, 13929), (151, 13977), (157, 14004), (164, 14034), (166, 14040), (173, 14091), (178, 14106), (181, 14118), (183, 14124), (184, 14127), (186, 14136), (191, 14163), (193, 14175), (195, 14184), (197, 14196), (198, 14202), (201, 14223), (208, 14256), (216, 14295), (227, 14346), (228, 14349), (230, 14358), (231, 14361), (234, 14376), (246, 14466), (255, 14502), (267, 14610), (273, 14646), (285, 14742), (286, 14745), (292, 14799), (295, 14838), (302, 14886), (303, 14895), (305, 14919), (308, 14937), (315, 14988), (319, 15012), (322, 15030), (325, 15060),

Gene: MrGreen\_12 Start: 7553, Stop: 9658, Start Num: 11

Candidate Starts for MrGreen\_12:

(Start: 11 @7553 has 105 MA's), (13, 7574), (32, 7751), (34, 7760), (37, 7784), (39, 7856), (41, 7880), (42, 7886), (48, 7979), (50, 8036), (53, 8057), (54, 8069), (56, 8078), (70, 8285), (74, 8303), (95, 8390), (114, 8459), (117, 8471), (127, 8519), (136, 8549), (141, 8564), (157, 8627), (163, 8651), (169, 8672), (172, 8696), (174, 8702), (182, 8729), (191, 8762), (198, 8801), (204, 8834), (207, 8849), (209, 8864), (222, 8891), (233, 8927), (234, 8933), (239, 8981), (260, 9065), (265, 9092), (266, 9113), (274, 9176), (278, 9200), (284, 9257), (297, 9362), (299, 9383), (301, 9395), (305, 9437), (309, 9458), (311, 9479), (327, 9608),

Gene: Naby\_12 Start: 7240, Stop: 9339, Start Num: 11

Candidate Starts for Naby\_12:

(Start: 11 @7240 has 105 MA's), (12, 7255), (13, 7261), (19, 7321), (26, 7375), (32, 7438), (34, 7447), (37, 7471), (39, 7543), (41, 7567), (48, 7666), (50, 7723), (54, 7756), (56, 7765), (82, 8032), (95, 8077), (115, 8149), (120, 8179), (136, 8236), (141, 8251), (159, 8320), (170, 8365), (172, 8383), (174, 8389), (191, 8449), (192, 8455), (195, 8470), (198, 8488), (203, 8515), (218, 8557), (230, 8602), (234, 8620), (237, 8647), (253, 8734), (260, 8752), (265, 8779), (268, 8821), (274, 8863), (275, 8866), (278, 8887), (291, 8998), (299, 9070), (301, 9082), (304, 9112), (305, 9124), (309, 9145), (312, 9169), (324, 9253), (327, 9289),

Gene: Namsahir\_12 Start: 7603, Stop: 9708, Start Num: 11

Candidate Starts for Namsahir\_12:

(Start: 11 @7603 has 105 MA's), (13, 7624), (32, 7801), (34, 7810), (37, 7834), (39, 7906), (41, 7930), (48, 8029), (53, 8107), (54, 8119), (56, 8128), (70, 8335), (74, 8353), (95, 8440), (114, 8509), (117, 8521), (127, 8569), (136, 8599), (141, 8614), (155, 8668), (162, 8698), (163, 8701), (169, 8722), (174, 8752), (182, 8779), (191, 8812), (198, 8851), (203, 8878), (204, 8884), (207, 8899), (209, 8914), (222, 8941), (223, 8944), (230, 8965), (233, 8977), (234, 8983), (239, 9031), (245, 9067), (260, 9115), (265, 9142), (266, 9163), (274, 9226), (278, 9250), (284, 9307), (297, 9412), (299, 9433), (305, 9487), (309,

9508), (311, 9529),

Gene: Nancia\_14 Start: 9717, Stop: 12278, Start Num: 5

Candidate Starts for Nancia\_14:

(3, 9696), (Start: 5 @9717 has 80 MA's), (10, 9765), (18, 9846), (20, 9870), (30, 9942), (34, 9990), (35, 10005), (36, 10011), (44, 10131), (46, 10173), (51, 10269), (52, 10272), (55, 10302), (64, 10440), (69, 10518), (73, 10563), (75, 10572), (82, 10623), (85, 10641), (86, 10653), (90, 10677), (109, 10893), (120, 10983), (125, 11004), (129, 11031), (132, 11049), (133, 11055), (138, 11079), (140, 11088), (151, 11136), (157, 11163), (164, 11193), (173, 11250), (178, 11265), (181, 11277), (183, 11283), (184, 11286), (186, 11295), (191, 11322), (193, 11334), (195, 11343), (197, 11355), (198, 11361), (202, 11385), (206, 11406), (208, 11415), (211, 11430), (216, 11454), (227, 11505), (228, 11508), (231, 11520), (241, 11595), (246, 11625), (255, 11661), (267, 11769), (269, 11781), (273, 11805), (285, 11901), (286, 11904), (290, 11937), (292, 11958), (295, 11997), (298, 12015), (302, 12045), (303, 12054), (305, 12078), (316, 12153), (325, 12219),

Gene: NeumannU\_12 Start: 7546, Stop: 9651, Start Num: 11

Candidate Starts for NeumannU\_12:

(Start: 11 @7546 has 105 MA's), (13, 7567), (32, 7744), (34, 7753), (37, 7777), (39, 7849), (41, 7873), (42, 7879), (50, 8029), (53, 8050), (54, 8062), (56, 8071), (70, 8278), (74, 8296), (95, 8383), (114, 8452), (117, 8464), (127, 8512), (136, 8542), (141, 8557), (149, 8593), (157, 8620), (162, 8641), (169, 8665), (172, 8689), (174, 8695), (182, 8722), (191, 8755), (198, 8794), (203, 8821), (207, 8842), (209, 8857), (222, 8884), (223, 8887), (230, 8908), (233, 8920), (234, 8926), (239, 8974), (255, 9049), (260, 9058), (265, 9085), (266, 9106), (274, 9169), (278, 9193), (284, 9250), (297, 9355), (299, 9376), (301, 9388), (305, 9430), (309, 9451), (311, 9472),

Gene: Niffler\_12 Start: 7621, Stop: 9726, Start Num: 11

Candidate Starts for Niffler\_12:

(Start: 11 @7621 has 105 MA's), (13, 7642), (32, 7819), (34, 7828), (37, 7852), (39, 7924), (41, 7948), (48, 8047), (50, 8104), (53, 8125), (54, 8137), (56, 8146), (70, 8353), (74, 8371), (95, 8458), (114, 8527), (117, 8539), (127, 8587), (136, 8617), (141, 8632), (162, 8716), (163, 8719), (169, 8740), (174, 8770), (182, 8797), (191, 8830), (198, 8869), (203, 8896), (204, 8902), (207, 8917), (209, 8932), (223, 8962), (230, 8983), (233, 8995), (234, 9001), (239, 9049), (245, 9085), (260, 9133), (265, 9160), (266, 9181), (274, 9244), (278, 9268), (284, 9325), (297, 9430), (299, 9451), (305, 9505), (309, 9526), (311, 9547),

Gene: Nobel\_12 Start: 7648, Stop: 9753, Start Num: 11

Candidate Starts for Nobel\_12:

(Start: 11 @7648 has 105 MA's), (13, 7669), (32, 7846), (34, 7855), (37, 7879), (39, 7951), (41, 7975), (48, 8074), (50, 8131), (53, 8152), (54, 8164), (56, 8173), (70, 8380), (74, 8398), (95, 8485), (114, 8554), (117, 8566), (127, 8614), (136, 8644), (141, 8659), (162, 8743), (163, 8746), (169, 8767), (174, 8797), (182, 8824), (191, 8857), (198, 8896), (203, 8923), (204, 8929), (207, 8944), (209, 8959), (223, 8989), (230, 9010), (233, 9022), (234, 9028), (239, 9076), (245, 9112), (260, 9160), (265, 9187), (266, 9208), (274, 9271), (278, 9295), (284, 9352), (297, 9457), (299, 9478), (305, 9532), (309, 9553), (311, 9574),

Gene: Noelani\_12 Start: 7514, Stop: 9619, Start Num: 11

Candidate Starts for Noelani\_12:

(Start: 11 @7514 has 105 MA's), (13, 7535), (31, 7703), (32, 7712), (37, 7745), (39, 7817), (41, 7841), (50, 7997), (53, 8018), (56, 8039), (70, 8246), (74, 8264), (95, 8351), (114, 8420), (127, 8480), (136, 8510), (141, 8525), (149, 8561), (157, 8588), (162, 8609), (169, 8633), (172, 8657), (174, 8663), (182, 8690), (198, 8762), (203, 8789), (207, 8810), (209, 8825), (222, 8852), (223, 8855), (230, 8876), (233, 8888), (234, 8894), (239, 8942), (255, 9017), (260, 9026), (265, 9053), (266, 9074), (274, 9137), (278, 9161), (282, 9185), (284, 9218), (291, 9272), (299, 9344), (301, 9356), (305, 9398), (309, 9419), (311,

9440), (321, 9518), (327, 9569),

Gene: Nubia\_18 Start: 12596, Stop: 15157, Start Num: 5

Candidate Starts for Nubia\_18:

(3, 12575), (Start: 5 @12596 has 80 MA's), (15, 12686), (18, 12725), (21, 12761), (30, 12821), (34, 12869), (35, 12884), (46, 13052), (49, 13097), (51, 13148), (52, 13151), (59, 13235), (71, 13421), (76, 13457), (79, 13469), (83, 13511), (114, 13820), (129, 13913), (132, 13931), (133, 13937), (151, 14018), (153, 14024), (159, 14051), (166, 14081), (177, 14144), (181, 14159), (183, 14165), (184, 14168), (187, 14180), (191, 14204), (193, 14216), (194, 14222), (197, 14237), (198, 14243), (199, 14246), (202, 14267), (205, 14282), (206, 14288), (208, 14297), (212, 14315), (213, 14321), (216, 14336), (218, 14345), (220, 14354), (227, 14387), (228, 14390), (231, 14402), (232, 14408), (235, 14420), (240, 14468), (242, 14486), (245, 14501), (252, 14531), (254, 14540), (263, 14600), (267, 14651), (273, 14687), (276, 14708), (285, 14783), (286, 14786), (292, 14840), (295, 14879), (303, 14936), (305, 14960), (311, 15002), (315, 15029), (325, 15098),

Gene: OMalley\_14 Start: 9738, Stop: 12296, Start Num: 5

Candidate Starts for OMalley\_14:

(Start: 5 @9738 has 80 MA's), (7, 9747), (8, 9777), (18, 9867), (30, 9963), (33, 10008), (35, 10026), (46, 10194), (51, 10290), (52, 10293), (53, 10308), (61, 10395), (76, 10599), (77, 10602), (88, 10686), (119, 10992), (129, 11052), (132, 11070), (133, 11076), (140, 11109), (143, 11121), (151, 11157), (157, 11184), (162, 11208), (164, 11214), (173, 11271), (180, 11295), (183, 11304), (187, 11319), (191, 11343), (193, 11355), (197, 11376), (198, 11382), (201, 11403), (206, 11427), (208, 11436), (212, 11454), (216, 11475), (217, 11481), (220, 11493), (227, 11526), (228, 11529), (231, 11541), (234, 11556), (235, 11559), (246, 11646), (262, 11736), (263, 11739), (267, 11790), (276, 11847), (277, 11856), (280, 11868), (285, 11922), (286, 11925), (292, 11979), (295, 12018), (302, 12066), (303, 12075), (305, 12099), (307, 12111), (322, 12207), (325, 12237),

Gene: Oaklynn\_12 Start: 7555, Stop: 9639, Start Num: 13

Candidate Starts for Oaklynn\_12:

(Start: 11 @7534 has 105 MA's), (13, 7555), (32, 7732), (34, 7741), (37, 7765), (39, 7837), (41, 7861), (42, 7867), (50, 8017), (53, 8038), (54, 8050), (56, 8059), (70, 8266), (74, 8284), (95, 8371), (114, 8440), (117, 8452), (127, 8500), (136, 8530), (141, 8545), (157, 8608), (162, 8629), (163, 8632), (174, 8683), (182, 8710), (191, 8743), (198, 8782), (203, 8809), (207, 8830), (209, 8845), (222, 8872), (230, 8896), (233, 8908), (234, 8914), (239, 8962), (260, 9046), (265, 9073), (266, 9094), (274, 9157), (278, 9181), (282, 9205), (283, 9226), (297, 9343), (299, 9364), (301, 9376), (305, 9418), (309, 9439), (311, 9460), (327, 9589),

Gene: Octopus\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for Octopus\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: Otwor\_12 Start: 7552, Stop: 9657, Start Num: 11

Candidate Starts for Otwor\_12:

(Start: 11 @7552 has 105 MA's), (13, 7573), (32, 7750), (34, 7759), (37, 7783), (39, 7855), (41, 7879), (42, 7885), (50, 8035), (53, 8056), (54, 8068), (56, 8077), (70, 8284), (74, 8302), (95, 8389), (114, 8458), (117, 8470), (127, 8518), (136, 8548), (141, 8563), (149, 8599), (157, 8626), (162, 8647), (169, 8671), (172, 8695), (174, 8701), (182, 8728), (191, 8761), (198, 8800), (203, 8827), (207, 8848), (209,



8863), (222, 8890), (223, 8893), (230, 8914), (233, 8926), (234, 8932), (239, 8980), (255, 9055), (260, 9064), (265, 9091), (266, 9112), (274, 9175), (278, 9199), (284, 9256), (297, 9361), (299, 9382), (301, 9394), (305, 9436), (309, 9457), (311, 9478),

Gene: OurGirlNessie\_14 Start: 9709, Stop: 12270, Start Num: 5

Candidate Starts for OurGirlNessie\_14:

(3, 9688), (Start: 5 @9709 has 80 MA's), (10, 9757), (18, 9838), (20, 9862), (30, 9934), (34, 9982), (35, 9997), (36, 10003), (46, 10165), (51, 10261), (55, 10294), (64, 10432), (69, 10510), (71, 10534), (73, 10555), (75, 10564), (82, 10615), (85, 10633), (86, 10645), (90, 10669), (109, 10885), (120, 10975), (125, 10996), (129, 11023), (132, 11041), (133, 11047), (138, 11071), (140, 11080), (151, 11128), (157, 11155), (164, 11185), (173, 11242), (178, 11257), (181, 11269), (183, 11275), (184, 11278), (186, 11287), (191, 11314), (193, 11326), (195, 11335), (197, 11347), (198, 11353), (202, 11377), (206, 11398), (208, 11407), (211, 11422), (216, 11446), (220, 11464), (227, 11497), (228, 11500), (231, 11512), (241, 11587), (246, 11617), (255, 11653), (259, 11674), (267, 11761), (269, 11773), (272, 11794), (273, 11797), (285, 11893), (286, 11896), (290, 11929), (292, 11950), (295, 11989), (298, 12007), (302, 12037), (303, 12046), (316, 12145), (325, 12211),

Gene: Owens\_12 Start: 7546, Stop: 9651, Start Num: 11

Candidate Starts for Owens\_12:

(Start: 11 @7546 has 105 MA's), (13, 7567), (32, 7744), (34, 7753), (37, 7777), (39, 7849), (41, 7873), (42, 7879), (50, 8029), (53, 8050), (54, 8062), (56, 8071), (70, 8278), (74, 8296), (95, 8383), (114, 8452), (117, 8464), (127, 8512), (136, 8542), (141, 8557), (149, 8593), (157, 8620), (162, 8641), (169, 8665), (172, 8689), (174, 8695), (182, 8722), (191, 8755), (198, 8794), (203, 8821), (207, 8842), (209, 8857), (222, 8884), (223, 8887), (230, 8908), (233, 8920), (234, 8926), (239, 8974), (255, 9049), (260, 9058), (265, 9085), (266, 9106), (274, 9169), (278, 9193), (284, 9250), (297, 9355), (299, 9376), (301, 9388), (305, 9430), (309, 9451), (311, 9472),

Gene: Oxynfrius\_18 Start: 12609, Stop: 15170, Start Num: 5

Candidate Starts for Oxynfrius\_18:

(3, 12588), (Start: 5 @12609 has 80 MA's), (15, 12699), (18, 12738), (21, 12774), (30, 12834), (34, 12882), (35, 12897), (46, 13065), (49, 13110), (51, 13161), (52, 13164), (59, 13248), (71, 13434), (76, 13470), (79, 13482), (83, 13524), (94, 13635), (114, 13833), (129, 13926), (133, 13950), (134, 13953), (151, 14031), (153, 14037), (159, 14064), (166, 14094), (177, 14157), (181, 14172), (184, 14181), (185, 14184), (187, 14193), (191, 14217), (193, 14229), (194, 14235), (197, 14250), (198, 14256), (199, 14259), (202, 14280), (205, 14295), (208, 14310), (212, 14328), (213, 14334), (216, 14349), (218, 14358), (220, 14367), (227, 14400), (228, 14403), (231, 14415), (232, 14421), (235, 14433), (242, 14499), (245, 14514), (252, 14544), (254, 14553), (267, 14664), (273, 14700), (276, 14721), (285, 14796), (286, 14799), (292, 14853), (295, 14892), (303, 14949), (305, 14973), (311, 15015), (315, 15042), (325, 15111),

Gene: PaoPu\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for PaoPu\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: PartyCup\_18 Start: 12644, Stop: 15199, Start Num: 5

Candidate Starts for PartyCup\_18:

(3, 12623), (Start: 5 @12644 has 80 MA's), (10, 12692), (18, 12773), (20, 12797), (30, 12869), (34, 12917), (35, 12932), (36, 12938), (46, 13100), (49, 13145), (51, 13196), (52, 13199), (55, 13229), (64, 13367), (73, 13490), (82, 13550), (85, 13568), (87, 13583), (92, 13634), (114, 13865), (126, 13934), (129, 13958), (132, 13976), (133, 13982), (145, 14036), (147, 14048), (153, 14069), (158, 14093), (175, 14180), (181, 14204), (183, 14210), (184, 14213), (187, 14225), (190, 14246), (191, 14249), (192, 14255), (193, 14261), (196, 14279), (197, 14282), (198, 14288), (206, 14333), (208, 14342), (212, 14360), (216, 14381), (218, 14390), (220, 14399), (227, 14432), (228, 14435), (230, 14444), (231, 14447), (238, 14498), (255, 14588), (267, 14696), (269, 14708), (272, 14729), (273, 14732), (285, 14828), (286, 14831), (292, 14885), (295, 14924), (303, 14981), (308, 15023), (315, 15071), (322, 15113), (325, 15143),

Gene: Picnic\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for Picnic\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: PinkFriday\_14 Start: 9750, Stop: 12308, Start Num: 5

Candidate Starts for PinkFriday\_14:

(Start: 5 @9750 has 80 MA's), (7, 9759), (18, 9879), (34, 10023), (35, 10038), (46, 10206), (51, 10302), (57, 10347), (60, 10392), (71, 10575), (73, 10596), (75, 10605), (76, 10611), (79, 10623), (82, 10656), (92, 10743), (125, 11037), (128, 11058), (129, 11064), (132, 11082), (133, 11088), (138, 11112), (151, 11169), (157, 11196), (164, 11226), (166, 11232), (173, 11283), (178, 11298), (181, 11310), (184, 11319), (186, 11328), (191, 11355), (193, 11367), (195, 11376), (197, 11388), (198, 11394), (208, 11448), (212, 11466), (215, 11484), (216, 11487), (218, 11496), (220, 11505), (222, 11517), (227, 11538), (228, 11541), (231, 11553), (234, 11568), (245, 11652), (246, 11658), (255, 11694), (263, 11751), (267, 11802), (269, 11814), (276, 11859), (285, 11934), (286, 11937), (289, 11967), (290, 11970), (295, 12030), (298, 12048), (302, 12078), (303, 12087), (305, 12111), (307, 12123), (322, 12219), (325, 12249),

Gene: PitaDog\_14 Start: 9708, Stop: 12269, Start Num: 5

Candidate Starts for PitaDog\_14:

(3, 9687), (Start: 5 @9708 has 80 MA's), (10, 9756), (18, 9837), (20, 9861), (30, 9933), (34, 9981), (35, 9996), (36, 10002), (46, 10164), (51, 10260), (55, 10293), (64, 10431), (69, 10509), (73, 10554), (75, 10563), (82, 10614), (85, 10632), (90, 10668), (109, 10884), (120, 10974), (125, 10995), (129, 11022), (132, 11040), (133, 11046), (138, 11070), (140, 11079), (151, 11127), (157, 11154), (164, 11184), (173, 11241), (178, 11256), (181, 11268), (183, 11274), (184, 11277), (186, 11286), (191, 11313), (193, 11325), (195, 11334), (197, 11346), (198, 11352), (202, 11376), (206, 11397), (208, 11406), (211, 11421), (216, 11445), (220, 11463), (227, 11496), (228, 11499), (231, 11511), (246, 11616), (255, 11652), (267, 11760), (269, 11772), (273, 11796), (285, 11892), (286, 11895), (290, 11928), (292, 11949), (295, 11988), (298, 12006), (302, 12036), (303, 12045), (305, 12069), (316, 12144), (325, 12210),

Gene: PoRanda\_12 Start: 7615, Stop: 9720, Start Num: 11

Candidate Starts for PoRanda\_12:

(Start: 11 @7615 has 105 MA's), (13, 7636), (32, 7813), (34, 7822), (37, 7846), (39, 7918), (41, 7942), (48, 8041), (50, 8098), (53, 8119), (54, 8131), (56, 8140), (70, 8347), (74, 8365), (95, 8452), (114, 8521), (117, 8533), (127, 8581), (136, 8611), (141, 8626), (155, 8680), (162, 8710), (163, 8713), (169, 8734), (174, 8764), (182, 8791), (191, 8824), (198, 8863), (203, 8890), (204, 8896), (207, 8911), (209,

8926), (223, 8956), (230, 8977), (233, 8989), (234, 8995), (239, 9043), (245, 9079), (260, 9127), (265, 9154), (266, 9175), (274, 9238), (278, 9262), (284, 9319), (297, 9424), (299, 9445), (301, 9457), (305, 9499), (309, 9520), (311, 9541),

Gene: Pondwater\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for Pondwater\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: Potatoes\_18 Start: 12619, Stop: 15180, Start Num: 5

Candidate Starts for Potatoes\_18:

(3, 12598), (Start: 5 @12619 has 80 MA's), (10, 12667), (14, 12700), (18, 12748), (20, 12772), (21, 12784), (30, 12844), (34, 12892), (35, 12907), (36, 12913), (44, 13033), (46, 13075), (50, 13168), (51, 13171), (52, 13174), (55, 13204), (59, 13258), (68, 13399), (69, 13420), (71, 13444), (73, 13465), (75, 13474), (82, 13525), (85, 13543), (89, 13567), (100, 13729), (119, 13873), (125, 13906), (129, 13933), (132, 13951), (133, 13957), (138, 13981), (140, 13990), (151, 14038), (157, 14065), (162, 14089), (164, 14095), (166, 14101), (173, 14152), (178, 14167), (181, 14179), (183, 14185), (184, 14188), (186, 14197), (191, 14224), (193, 14236), (195, 14245), (197, 14257), (198, 14263), (201, 14284), (208, 14317), (216, 14356), (227, 14407), (228, 14410), (230, 14419), (231, 14422), (234, 14437), (245, 14521), (246, 14527), (255, 14563), (267, 14671), (269, 14683), (273, 14707), (285, 14803), (286, 14806), (292, 14860), (295, 14899), (302, 14947), (303, 14956), (305, 14980), (308, 14998), (315, 15049), (319, 15073), (322, 15091), (325, 15121),

Gene: Preamble\_14 Start: 9721, Stop: 12279, Start Num: 5

Candidate Starts for Preamble\_14:

(3, 9700), (Start: 5 @9721 has 80 MA's), (10, 9769), (18, 9850), (30, 9946), (33, 9991), (35, 10009), (36, 10015), (45, 10156), (46, 10177), (49, 10222), (51, 10273), (52, 10276), (55, 10306), (67, 10489), (73, 10567), (75, 10576), (76, 10582), (79, 10594), (82, 10627), (88, 10669), (92, 10714), (100, 10834), (101, 10837), (119, 10975), (129, 11035), (132, 11053), (133, 11059), (139, 11089), (151, 11140), (153, 11146), (161, 11188), (166, 11203), (168, 11212), (175, 11257), (177, 11266), (183, 11287), (186, 11299), (187, 11302), (190, 11323), (191, 11326), (192, 11332), (193, 11338), (197, 11359), (198, 11365), (201, 11386), (206, 11410), (208, 11419), (212, 11437), (216, 11458), (227, 11509), (228, 11512), (230, 11521), (231, 11524), (246, 11629), (250, 11644), (254, 11662), (264, 11731), (267, 11773), (269, 11785), (272, 11806), (273, 11809), (285, 11905), (286, 11908), (292, 11962), (295, 12001), (298, 12019), (302, 12049), (303, 12058), (308, 12100), (325, 12220),

Gene: Pterodactyl\_14 Start: 9710, Stop: 12271, Start Num: 5

Candidate Starts for Pterodactyl\_14:

(3, 9689), (Start: 5 @9710 has 80 MA's), (10, 9758), (18, 9839), (20, 9863), (30, 9935), (34, 9983), (35, 9998), (36, 10004), (46, 10166), (51, 10262), (55, 10295), (64, 10433), (69, 10511), (73, 10556), (75, 10565), (82, 10616), (85, 10634), (86, 10646), (90, 10670), (109, 10886), (125, 10997), (129, 11024), (132, 11042), (133, 11048), (138, 11072), (140, 11081), (151, 11129), (157, 11156), (164, 11186), (173, 11243), (178, 11258), (181, 11270), (183, 11276), (184, 11279), (186, 11288), (191, 11315), (193, 11327), (195, 11336), (197, 11348), (198, 11354), (202, 11378), (206, 11399), (208, 11408), (211, 11423), (216, 11447), (227, 11498), (228, 11501), (231, 11513), (241, 11588), (246, 11618), (255, 11654), (267, 11762), (269, 11774), (273, 11798), (285, 11894), (286, 11897), (290, 11930), (292, 11951), (295, 11990), (298, 12008), (302, 12038), (303, 12047), (316, 12146), (325, 12212),

Gene: Publix\_12 Start: 7603, Stop: 9708, Start Num: 11

Candidate Starts for Publix\_12:

(Start: 11 @7603 has 105 MA's), (13, 7624), (32, 7801), (34, 7810), (37, 7834), (39, 7906), (41, 7930), (48, 8029), (53, 8107), (54, 8119), (56, 8128), (70, 8335), (74, 8353), (95, 8440), (114, 8509), (117, 8521), (127, 8569), (136, 8599), (141, 8614), (155, 8668), (162, 8698), (163, 8701), (169, 8722), (174, 8752), (182, 8779), (191, 8812), (198, 8851), (203, 8878), (204, 8884), (207, 8899), (209, 8914), (222, 8941), (223, 8944), (230, 8965), (233, 8977), (234, 8983), (239, 9031), (245, 9067), (260, 9115), (265, 9142), (266, 9163), (274, 9226), (278, 9250), (284, 9307), (297, 9412), (299, 9433), (305, 9487), (309, 9508), (311, 9529),

Gene: Puddles3\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for Puddles3\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: PuffyCat\_12 Start: 7573, Stop: 9678, Start Num: 11

Candidate Starts for PuffyCat\_12:

(Start: 11 @7573 has 105 MA's), (13, 7594), (32, 7771), (34, 7780), (37, 7804), (39, 7876), (41, 7900), (48, 7999), (50, 8056), (53, 8077), (54, 8089), (56, 8098), (70, 8305), (74, 8323), (95, 8410), (114, 8479), (117, 8491), (127, 8539), (136, 8569), (141, 8584), (162, 8668), (163, 8671), (169, 8692), (174, 8722), (182, 8749), (191, 8782), (198, 8821), (203, 8848), (204, 8854), (207, 8869), (209, 8884), (223, 8914), (230, 8935), (233, 8947), (234, 8953), (239, 9001), (245, 9037), (260, 9085), (265, 9112), (266, 9133), (274, 9196), (278, 9220), (284, 9277), (297, 9382), (299, 9403), (305, 9457), (309, 9478), (311, 9499),

Gene: Pumancara\_14 Start: 9749, Stop: 12307, Start Num: 5

Candidate Starts for Pumancara\_14:

(Start: 5 @9749 has 80 MA's), (7, 9758), (18, 9878), (34, 10022), (35, 10037), (46, 10205), (51, 10301), (57, 10346), (60, 10391), (71, 10574), (73, 10595), (75, 10604), (76, 10610), (79, 10622), (82, 10655), (92, 10742), (101, 10865), (111, 10940), (119, 11003), (125, 11036), (128, 11057), (129, 11063), (132, 11081), (133, 11087), (138, 11111), (147, 11153), (151, 11168), (153, 11174), (171, 11252), (175, 11285), (177, 11294), (183, 11315), (186, 11327), (191, 11354), (193, 11366), (195, 11375), (197, 11387), (198, 11393), (199, 11396), (202, 11417), (208, 11447), (212, 11465), (215, 11483), (216, 11486), (218, 11495), (220, 11504), (227, 11537), (228, 11540), (231, 11552), (234, 11567), (245, 11651), (246, 11657), (255, 11693), (263, 11750), (267, 11801), (269, 11813), (276, 11858), (285, 11933), (286, 11936), (289, 11966), (295, 12029), (302, 12077), (303, 12086), (305, 12110), (307, 12122), (325, 12248),

Gene: Quaker\_12 Start: 7533, Stop: 9638, Start Num: 11

Candidate Starts for Quaker\_12:

(Start: 11 @7533 has 105 MA's), (13, 7554), (32, 7731), (34, 7740), (37, 7764), (39, 7836), (41, 7860), (42, 7866), (48, 7959), (50, 8016), (53, 8037), (54, 8049), (56, 8058), (70, 8265), (74, 8283), (95, 8370), (114, 8439), (117, 8451), (127, 8499), (136, 8529), (141, 8544), (157, 8607), (163, 8631), (169, 8652), (172, 8676), (174, 8682), (182, 8709), (191, 8742), (198, 8781), (207, 8829), (209, 8844), (222, 8871), (223, 8874), (233, 8907), (234, 8913), (239, 8961), (260, 9045), (265, 9072), (266, 9093), (274, 9156), (278, 9180), (284, 9237), (297, 9342), (299, 9363), (301, 9375), (305, 9417), (309, 9438), (311, 9459), (327, 9588),

Gene: RAP15\_18 Start: 12624, Stop: 15185, Start Num: 5

Candidate Starts for RAP15\_18:

(3, 12603), (Start: 5 @12624 has 80 MA's), (10, 12672), (14, 12705), (18, 12753), (20, 12777), (21, 12789), (30, 12849), (34, 12897), (35, 12912), (36, 12918), (44, 13038), (46, 13080), (51, 13176), (52, 13179), (55, 13209), (59, 13263), (60, 13266), (68, 13404), (69, 13425), (71, 13449), (73, 13470), (75, 13479), (82, 13530), (85, 13548), (100, 13734), (119, 13878), (125, 13911), (129, 13938), (132, 13956), (133, 13962), (138, 13986), (140, 13995), (151, 14043), (157, 14070), (158, 14073), (162, 14094), (164, 14100), (166, 14106), (173, 14157), (178, 14172), (181, 14184), (183, 14190), (184, 14193), (186, 14202), (191, 14229), (193, 14241), (195, 14250), (197, 14262), (198, 14268), (201, 14289), (208, 14322), (216, 14361), (227, 14412), (228, 14415), (230, 14424), (231, 14427), (234, 14442), (246, 14532), (255, 14568), (267, 14676), (273, 14712), (285, 14808), (286, 14811), (292, 14865), (295, 14904), (302, 14952), (303, 14961), (305, 14985), (308, 15003), (315, 15054), (319, 15078), (322, 15096), (325, 15126),

Gene: RcigaStruga\_18 Start: 12617, Stop: 15178, Start Num: 5

Candidate Starts for RcigaStruga\_18:

(3, 12596), (Start: 5 @12617 has 80 MA's), (15, 12707), (18, 12746), (21, 12782), (30, 12842), (35, 12905), (46, 13073), (49, 13118), (50, 13166), (51, 13169), (52, 13172), (59, 13256), (60, 13259), (68, 13397), (73, 13463), (79, 13490), (83, 13532), (114, 13841), (119, 13874), (129, 13934), (133, 13958), (151, 14039), (153, 14045), (154, 14048), (159, 14072), (166, 14102), (171, 14123), (179, 14171), (183, 14186), (187, 14201), (191, 14225), (193, 14237), (194, 14243), (197, 14258), (198, 14264), (205, 14303), (206, 14309), (208, 14318), (212, 14336), (213, 14342), (215, 14354), (216, 14357), (218, 14366), (221, 14384), (227, 14408), (228, 14411), (231, 14423), (235, 14441), (242, 14507), (245, 14522), (252, 14552), (254, 14561), (263, 14621), (267, 14672), (273, 14708), (285, 14804), (286, 14807), (292, 14861), (295, 14900), (299, 14927), (303, 14957), (305, 14981), (311, 15023), (315, 15050), (325, 15119),

Gene: Rhogar\_12 Start: 7546, Stop: 9651, Start Num: 11

Candidate Starts for Rhogar\_12:

(Start: 11 @7546 has 105 MA's), (13, 7567), (32, 7744), (34, 7753), (37, 7777), (39, 7849), (41, 7873), (42, 7879), (50, 8029), (53, 8050), (54, 8062), (56, 8071), (70, 8278), (74, 8296), (95, 8383), (114, 8452), (117, 8464), (127, 8512), (136, 8542), (141, 8557), (149, 8593), (157, 8620), (162, 8641), (169, 8665), (172, 8689), (174, 8695), (182, 8722), (191, 8755), (198, 8794), (203, 8821), (207, 8842), (209, 8857), (222, 8884), (223, 8887), (230, 8908), (233, 8920), (234, 8926), (239, 8974), (255, 9049), (260, 9058), (265, 9085), (266, 9106), (274, 9169), (278, 9193), (284, 9250), (297, 9355), (299, 9376), (301, 9388), (305, 9430), (309, 9451), (311, 9472),

Gene: Rhysand\_12 Start: 7552, Stop: 9657, Start Num: 11

Candidate Starts for Rhysand\_12:

(Start: 11 @7552 has 105 MA's), (13, 7573), (32, 7750), (34, 7759), (37, 7783), (39, 7855), (41, 7879), (42, 7885), (50, 8035), (53, 8056), (54, 8068), (56, 8077), (70, 8284), (74, 8302), (95, 8389), (114, 8458), (117, 8470), (127, 8518), (136, 8548), (141, 8563), (149, 8599), (157, 8626), (162, 8647), (169, 8671), (172, 8695), (174, 8701), (182, 8728), (191, 8761), (198, 8800), (203, 8827), (207, 8848), (209, 8863), (222, 8890), (223, 8893), (230, 8914), (233, 8926), (234, 8932), (239, 8980), (255, 9055), (260, 9064), (265, 9091), (266, 9112), (274, 9175), (278, 9199), (284, 9256), (297, 9361), (299, 9382), (301, 9394), (305, 9436), (309, 9457), (311, 9478),

Gene: Riovina\_14 Start: 9738, Stop: 12296, Start Num: 5

Candidate Starts for Riovina\_14:

(Start: 5 @9738 has 80 MA's), (7, 9747), (8, 9777), (18, 9867), (30, 9963), (33, 10008), (35, 10026), (46, 10194), (51, 10290), (52, 10293), (53, 10308), (61, 10395), (76, 10599), (77, 10602), (88, 10686), (119, 10992), (129, 11052), (132, 11070), (133, 11076), (140, 11109), (143, 11121), (151, 11157), (157, 11184), (162, 11208), (164, 11214), (173, 11271), (180, 11295), (183, 11304), (187, 11319),

(191, 11343), (193, 11355), (197, 11376), (198, 11382), (201, 11403), (206, 11427), (208, 11436), (212, 11454), (216, 11475), (217, 11481), (220, 11493), (227, 11526), (228, 11529), (231, 11541), (234, 11556), (235, 11559), (246, 11646), (262, 11736), (263, 11739), (267, 11790), (276, 11847), (277, 11856), (280, 11868), (285, 11922), (286, 11925), (292, 11979), (295, 12018), (302, 12066), (303, 12075), (305, 12099), (307, 12111), (322, 12207), (325, 12237),

Gene: Riverdale\_18 Start: 12554, Stop: 15115, Start Num: 5

Candidate Starts for Riverdale\_18:

(3, 12533), (Start: 5 @12554 has 80 MA's), (10, 12602), (14, 12635), (18, 12683), (20, 12707), (21, 12719), (30, 12779), (34, 12827), (35, 12842), (36, 12848), (44, 12968), (46, 13010), (51, 13106), (52, 13109), (55, 13139), (59, 13193), (68, 13334), (69, 13355), (71, 13379), (73, 13400), (75, 13409), (82, 13460), (85, 13478), (119, 13808), (125, 13841), (129, 13868), (132, 13886), (133, 13892), (138, 13916), (140, 13925), (151, 13973), (157, 14000), (164, 14030), (166, 14036), (173, 14087), (178, 14102), (181, 14114), (183, 14120), (184, 14123), (191, 14159), (193, 14171), (195, 14180), (197, 14192), (198, 14198), (201, 14219), (208, 14252), (216, 14291), (220, 14309), (227, 14342), (228, 14345), (230, 14354), (231, 14357), (234, 14372), (246, 14462), (255, 14498), (267, 14606), (273, 14642), (276, 14663), (285, 14738), (286, 14741), (292, 14795), (295, 14834), (302, 14882), (303, 14891), (305, 14915), (308, 14933), (315, 14984), (319, 15008), (322, 15026), (325, 15056),

Gene: RoscoWindex\_12 Start: 7553, Stop: 9658, Start Num: 11

Candidate Starts for RoscoWindex\_12:

(Start: 11 @7553 has 105 MA's), (13, 7574), (32, 7751), (34, 7760), (37, 7784), (39, 7856), (41, 7880), (42, 7886), (50, 8036), (53, 8057), (54, 8069), (56, 8078), (70, 8285), (74, 8303), (95, 8390), (114, 8459), (117, 8471), (127, 8519), (136, 8549), (141, 8564), (149, 8600), (157, 8627), (162, 8648), (169, 8672), (172, 8696), (174, 8702), (182, 8729), (191, 8762), (198, 8801), (203, 8828), (207, 8849), (209, 8864), (222, 8891), (223, 8894), (230, 8915), (233, 8927), (234, 8933), (239, 8981), (255, 9056), (260, 9065), (265, 9092), (266, 9113), (274, 9176), (278, 9200), (284, 9257), (297, 9362), (299, 9383), (301, 9395), (305, 9437), (309, 9458), (311, 9479),

Gene: Rozby\_18 Start: 12555, Stop: 15116, Start Num: 5

Candidate Starts for Rozby\_18:

(3, 12534), (Start: 5 @12555 has 80 MA's), (10, 12603), (14, 12636), (18, 12684), (20, 12708), (21, 12720), (30, 12780), (34, 12828), (35, 12843), (36, 12849), (44, 12969), (46, 13011), (51, 13107), (52, 13110), (55, 13140), (59, 13194), (68, 13335), (69, 13356), (71, 13380), (73, 13401), (75, 13410), (82, 13461), (85, 13479), (100, 13665), (119, 13809), (125, 13842), (129, 13869), (132, 13887), (133, 13893), (138, 13917), (140, 13926), (151, 13974), (157, 14001), (164, 14031), (166, 14037), (173, 14088), (178, 14103), (181, 14115), (183, 14121), (184, 14124), (191, 14160), (193, 14172), (195, 14181), (197, 14193), (198, 14199), (201, 14220), (208, 14253), (216, 14292), (220, 14310), (227, 14343), (228, 14346), (230, 14355), (231, 14358), (234, 14373), (246, 14463), (255, 14499), (267, 14607), (273, 14643), (276, 14664), (285, 14739), (286, 14742), (292, 14796), (295, 14835), (302, 14883), (303, 14892), (305, 14916), (308, 14934), (315, 14985), (319, 15009), (322, 15027), (325, 15057),

Gene: Sage7\_13 Start: 7552, Stop: 9657, Start Num: 11

Candidate Starts for Sage7\_13:

(Start: 11 @7552 has 105 MA's), (13, 7573), (32, 7750), (34, 7759), (37, 7783), (39, 7855), (41, 7879), (42, 7885), (50, 8035), (53, 8056), (54, 8068), (56, 8077), (70, 8284), (74, 8302), (95, 8389), (114, 8458), (117, 8470), (127, 8518), (136, 8548), (141, 8563), (149, 8599), (157, 8626), (162, 8647), (169, 8671), (172, 8695), (174, 8701), (182, 8728), (191, 8761), (198, 8800), (203, 8827), (207, 8848), (209, 8863), (222, 8890), (223, 8893), (230, 8914), (233, 8926), (234, 8932), (239, 8980), (255, 9055), (260, 9064), (265, 9091), (266, 9112), (274, 9175), (278, 9199), (284, 9256), (297, 9361), (299, 9382), (301, 9394), (305, 9436), (309, 9457), (311, 9478),

Gene: SantasSleigh\_13 Start: 7576, Stop: 9681, Start Num: 11

Candidate Starts for SantasSleigh\_13:

(Start: 11 @7576 has 105 MA's), (13, 7597), (32, 7774), (34, 7783), (37, 7807), (39, 7879), (41, 7903), (42, 7909), (50, 8059), (53, 8080), (54, 8092), (56, 8101), (70, 8308), (74, 8326), (95, 8413), (114, 8482), (117, 8494), (127, 8542), (136, 8572), (141, 8587), (149, 8623), (157, 8650), (162, 8671), (169, 8695), (172, 8719), (174, 8725), (182, 8752), (191, 8785), (198, 8824), (203, 8851), (207, 8872), (209, 8887), (222, 8914), (223, 8917), (230, 8938), (233, 8950), (234, 8956), (239, 9004), (255, 9079), (260, 9088), (265, 9115), (266, 9136), (274, 9199), (278, 9223), (284, 9280), (297, 9385), (299, 9406), (301, 9418), (305, 9460), (309, 9481), (311, 9502),

Gene: Sara\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for Sara\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: Savage2526\_18 Start: 12618, Stop: 15179, Start Num: 5

Candidate Starts for Savage2526\_18:

(3, 12597), (Start: 5 @12618 has 80 MA's), (10, 12666), (14, 12699), (18, 12747), (20, 12771), (21, 12783), (30, 12843), (34, 12891), (35, 12906), (36, 12912), (44, 13032), (46, 13074), (51, 13170), (52, 13173), (55, 13203), (59, 13257), (68, 13398), (69, 13419), (71, 13443), (73, 13464), (75, 13473), (82, 13524), (85, 13542), (100, 13728), (119, 13872), (125, 13905), (129, 13932), (132, 13950), (133, 13956), (138, 13980), (140, 13989), (151, 14037), (157, 14064), (164, 14094), (166, 14100), (173, 14151), (178, 14166), (181, 14178), (183, 14184), (184, 14187), (186, 14196), (191, 14223), (193, 14235), (195, 14244), (197, 14256), (198, 14262), (201, 14283), (206, 14307), (208, 14316), (216, 14355), (220, 14373), (227, 14406), (228, 14409), (230, 14418), (231, 14421), (234, 14436), (246, 14526), (255, 14562), (267, 14670), (273, 14706), (285, 14802), (286, 14805), (292, 14859), (295, 14898), (302, 14946), (303, 14955), (305, 14979), (308, 14997), (315, 15048), (319, 15072), (322, 15090), (325, 15120),

Gene: Scamander\_12 Start: 7552, Stop: 9657, Start Num: 11

Candidate Starts for Scamander\_12:

(Start: 11 @7552 has 105 MA's), (13, 7573), (32, 7750), (34, 7759), (37, 7783), (39, 7855), (41, 7879), (42, 7885), (50, 8035), (53, 8056), (54, 8068), (56, 8077), (70, 8284), (74, 8302), (95, 8389), (114, 8458), (117, 8470), (127, 8518), (136, 8548), (141, 8563), (149, 8599), (157, 8626), (162, 8647), (169, 8671), (172, 8695), (174, 8701), (182, 8728), (191, 8761), (198, 8800), (203, 8827), (207, 8848), (209, 8863), (222, 8890), (223, 8893), (230, 8914), (233, 8926), (234, 8932), (239, 8980), (255, 9055), (260, 9064), (265, 9091), (266, 9112), (274, 9175), (278, 9199), (284, 9256), (297, 9361), (299, 9382), (301, 9394), (305, 9436), (309, 9457), (311, 9478),

Gene: Scrunchy\_12 Start: 7546, Stop: 9651, Start Num: 11

Candidate Starts for Scrunchy\_12:

(Start: 11 @7546 has 105 MA's), (13, 7567), (32, 7744), (34, 7753), (37, 7777), (39, 7849), (41, 7873), (42, 7879), (50, 8029), (53, 8050), (54, 8062), (56, 8071), (70, 8278), (74, 8296), (95, 8383), (114, 8452), (117, 8464), (127, 8512), (136, 8542), (141, 8557), (149, 8593), (157, 8620), (162, 8641), (169, 8665), (172, 8689), (174, 8695), (182, 8722), (191, 8755), (198, 8794), (203, 8821), (207, 8842), (209, 8857), (222, 8884), (223, 8887), (230, 8908), (233, 8920), (234, 8926), (239, 8974), (255, 9049), (260, 9058), (265, 9085), (266, 9106), (274, 9169), (278, 9193), (284, 9250), (297, 9355), (299, 9376), (301, 9388), (305, 9430), (309, 9451), (311, 9472),

Gene: Scuttle\_18 Start: 12623, Stop: 15184, Start Num: 5

Candidate Starts for Scuttle\_18:

(3, 12602), (Start: 5 @12623 has 80 MA's), (10, 12671), (14, 12704), (18, 12752), (20, 12776), (21, 12788), (30, 12848), (34, 12896), (35, 12911), (36, 12917), (44, 13037), (46, 13079), (51, 13175), (52, 13178), (55, 13208), (59, 13262), (68, 13403), (69, 13424), (71, 13448), (73, 13469), (75, 13478), (82, 13529), (85, 13547), (89, 13571), (100, 13733), (119, 13877), (125, 13910), (129, 13937), (132, 13955), (133, 13961), (138, 13985), (140, 13994), (151, 14042), (157, 14069), (162, 14093), (164, 14099), (166, 14105), (173, 14156), (178, 14171), (181, 14183), (183, 14189), (184, 14192), (186, 14201), (191, 14228), (193, 14240), (195, 14249), (197, 14261), (198, 14267), (201, 14288), (208, 14321), (216, 14360), (227, 14411), (228, 14414), (230, 14423), (231, 14426), (234, 14441), (245, 14525), (246, 14531), (255, 14567), (267, 14675), (273, 14711), (285, 14807), (286, 14810), (292, 14864), (295, 14903), (302, 14951), (303, 14960), (305, 14984), (308, 15002), (315, 15053), (319, 15077), (322, 15095), (325, 15125),

Gene: SeaWolves\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for SeaWolves\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: Sergei\_14 Start: 9744, Stop: 12302, Start Num: 5

Candidate Starts for Sergei\_14:

(Start: 5 @9744 has 80 MA's), (7, 9753), (8, 9783), (18, 9873), (21, 9909), (34, 10017), (35, 10032), (46, 10200), (51, 10296), (71, 10569), (73, 10590), (80, 10620), (82, 10650), (92, 10737), (101, 10860), (111, 10935), (119, 10998), (125, 11031), (128, 11052), (129, 11058), (132, 11076), (133, 11082), (138, 11106), (147, 11148), (151, 11163), (153, 11169), (159, 11196), (171, 11247), (175, 11280), (177, 11289), (183, 11310), (186, 11322), (191, 11349), (193, 11361), (195, 11370), (197, 11382), (198, 11388), (199, 11391), (202, 11412), (208, 11442), (212, 11460), (216, 11481), (218, 11490), (220, 11499), (227, 11532), (228, 11535), (231, 11547), (234, 11562), (245, 11646), (246, 11652), (255, 11688), (263, 11745), (264, 11754), (267, 11796), (276, 11853), (285, 11928), (286, 11931), (289, 11961), (292, 11985), (298, 12042), (302, 12072), (303, 12081), (305, 12105), (307, 12117), (325, 12243),

Gene: Sippinontea\_12 Start: 7533, Stop: 9638, Start Num: 11

Candidate Starts for Sippinontea\_12:

(Start: 11 @7533 has 105 MA's), (13, 7554), (32, 7731), (34, 7740), (37, 7764), (39, 7836), (41, 7860), (42, 7866), (48, 7959), (50, 8016), (53, 8037), (54, 8049), (56, 8058), (70, 8265), (74, 8283), (95, 8370), (114, 8439), (117, 8451), (127, 8499), (136, 8529), (141, 8544), (149, 8580), (157, 8607), (163, 8631), (169, 8652), (172, 8676), (174, 8682), (182, 8709), (191, 8742), (198, 8781), (203, 8808), (207, 8829), (209, 8844), (222, 8871), (223, 8874), (233, 8907), (234, 8913), (239, 8961), (245, 8997), (260, 9045), (265, 9072), (266, 9093), (274, 9156), (278, 9180), (284, 9237), (297, 9342), (299, 9363), (301, 9375), (305, 9417), (309, 9438), (311, 9459), (327, 9588),

Gene: Slentz\_12 Start: 7546, Stop: 9651, Start Num: 11

Candidate Starts for Slentz\_12:

(Start: 11 @7546 has 105 MA's), (13, 7567), (32, 7744), (34, 7753), (37, 7777), (39, 7849), (41, 7873), (42, 7879), (50, 8029), (53, 8050), (54, 8062), (56, 8071), (70, 8278), (74, 8296), (95, 8383), (114, 8452), (117, 8464), (127, 8512), (136, 8542), (141, 8557), (149, 8593), (157, 8620), (162, 8641), (169,



8665), (172, 8689), (174, 8695), (182, 8722), (191, 8755), (198, 8794), (203, 8821), (207, 8842), (209, 8857), (222, 8884), (223, 8887), (230, 8908), (233, 8920), (234, 8926), (239, 8974), (255, 9049), (260, 9058), (265, 9085), (266, 9106), (274, 9169), (278, 9193), (284, 9250), (297, 9355), (299, 9376), (301, 9388), (305, 9430), (309, 9451), (311, 9472),

Gene: Slizam\_11 Start: 7579, Stop: 9684, Start Num: 11

Candidate Starts for Slizam\_11:

(Start: 11 @7579 has 105 MA's), (13, 7600), (32, 7777), (34, 7786), (37, 7810), (39, 7882), (41, 7906), (48, 8005), (53, 8083), (54, 8095), (56, 8104), (70, 8311), (74, 8329), (95, 8416), (114, 8485), (117, 8497), (127, 8545), (136, 8575), (141, 8590), (155, 8644), (162, 8674), (163, 8677), (169, 8698), (174, 8728), (182, 8755), (191, 8788), (198, 8827), (203, 8854), (204, 8860), (207, 8875), (209, 8890), (222, 8917), (223, 8920), (230, 8941), (233, 8953), (234, 8959), (239, 9007), (245, 9043), (260, 9091), (265, 9118), (266, 9139), (274, 9202), (278, 9226), (284, 9283), (297, 9388), (299, 9409), (305, 9463), (309, 9484), (311, 9505),

Gene: Snuffles\_12 Start: 7751, Stop: 9856, Start Num: 11

Candidate Starts for Snuffles\_12:

(Start: 11 @7751 has 105 MA's), (13, 7772), (32, 7949), (34, 7958), (37, 7982), (39, 8054), (41, 8078), (48, 8177), (53, 8255), (54, 8267), (56, 8276), (70, 8483), (74, 8501), (95, 8588), (114, 8657), (117, 8669), (127, 8717), (136, 8747), (141, 8762), (155, 8816), (162, 8846), (163, 8849), (169, 8870), (174, 8900), (182, 8927), (191, 8960), (198, 8999), (203, 9026), (204, 9032), (207, 9047), (209, 9062), (222, 9089), (223, 9092), (230, 9113), (233, 9125), (234, 9131), (239, 9179), (245, 9215), (260, 9263), (265, 9290), (266, 9311), (274, 9374), (278, 9398), (284, 9455), (297, 9560), (299, 9581), (305, 9635), (309, 9656), (311, 9677),

Gene: Stem\_11 Start: 7579, Stop: 9684, Start Num: 11

Candidate Starts for Stem\_11:

(Start: 11 @7579 has 105 MA's), (13, 7600), (32, 7777), (34, 7786), (37, 7810), (39, 7882), (41, 7906), (48, 8005), (50, 8062), (53, 8083), (54, 8095), (56, 8104), (70, 8311), (74, 8329), (95, 8416), (114, 8485), (117, 8497), (127, 8545), (136, 8575), (141, 8590), (155, 8644), (162, 8674), (163, 8677), (169, 8698), (174, 8728), (182, 8755), (191, 8788), (198, 8827), (203, 8854), (204, 8860), (207, 8875), (209, 8890), (222, 8917), (223, 8920), (230, 8941), (233, 8953), (234, 8959), (239, 9007), (245, 9043), (260, 9091), (265, 9118), (266, 9139), (274, 9202), (278, 9226), (284, 9283), (297, 9388), (299, 9409), (305, 9463), (309, 9484), (311, 9505),

Gene: Supakev\_14 Start: 9740, Stop: 12298, Start Num: 5

Candidate Starts for Supakev\_14:

(Start: 5 @9740 has 80 MA's), (7, 9749), (8, 9779), (18, 9869), (30, 9965), (33, 10010), (35, 10028), (46, 10196), (51, 10292), (52, 10295), (53, 10310), (61, 10397), (76, 10601), (77, 10604), (88, 10688), (119, 10994), (129, 11054), (132, 11072), (133, 11078), (140, 11111), (143, 11123), (151, 11159), (157, 11186), (162, 11210), (164, 11216), (173, 11273), (180, 11297), (183, 11306), (187, 11321), (191, 11345), (193, 11357), (197, 11378), (198, 11384), (201, 11405), (206, 11429), (208, 11438), (212, 11456), (216, 11477), (217, 11483), (220, 11495), (227, 11528), (228, 11531), (231, 11543), (234, 11558), (235, 11561), (246, 11648), (262, 11738), (263, 11741), (267, 11792), (276, 11849), (277, 11858), (285, 11924), (286, 11927), (292, 11981), (295, 12020), (302, 12068), (303, 12077), (305, 12101), (307, 12113), (322, 12209), (325, 12239),

Gene: Suppi\_18 Start: 12647, Stop: 15202, Start Num: 5

Candidate Starts for Suppi\_18:

(3, 12626), (Start: 5 @12647 has 80 MA's), (10, 12695), (18, 12776), (20, 12800), (30, 12872), (34, 12920), (35, 12935), (36, 12941), (46, 13103), (49, 13148), (51, 13199), (52, 13202), (55, 13232), (64, 13370), (73, 13493), (82, 13553), (85, 13571), (87, 13586), (92, 13637), (114, 13868), (126, 13937), (129, 13961), (132, 13979), (133, 13985), (145, 14039), (147, 14051), (153, 14072), (158, 14096),

(175, 14183), (181, 14207), (183, 14213), (184, 14216), (187, 14228), (190, 14249), (191, 14252), (192, 14258), (193, 14264), (195, 14273), (196, 14282), (197, 14285), (198, 14291), (202, 14315), (206, 14336), (208, 14345), (212, 14363), (216, 14384), (218, 14393), (220, 14402), (227, 14435), (228, 14438), (230, 14447), (231, 14450), (238, 14501), (255, 14591), (267, 14699), (269, 14711), (272, 14732), (273, 14735), (285, 14831), (286, 14834), (292, 14888), (295, 14927), (303, 14984), (308, 15026), (315, 15074), (322, 15116), (325, 15146),

Gene: TattModd\_18 Start: 12617, Stop: 15178, Start Num: 5

Candidate Starts for TattModd\_18:

(3, 12596), (Start: 5 @12617 has 80 MA's), (10, 12665), (14, 12698), (18, 12746), (20, 12770), (21, 12782), (30, 12842), (34, 12890), (35, 12905), (36, 12911), (44, 13031), (46, 13073), (51, 13169), (52, 13172), (55, 13202), (59, 13256), (68, 13397), (69, 13418), (71, 13442), (73, 13463), (75, 13472), (82, 13523), (85, 13541), (100, 13727), (119, 13871), (125, 13904), (129, 13931), (132, 13949), (133, 13955), (138, 13979), (140, 13988), (151, 14036), (157, 14063), (164, 14093), (166, 14099), (173, 14150), (178, 14165), (181, 14177), (183, 14183), (184, 14186), (186, 14195), (191, 14222), (193, 14234), (195, 14243), (197, 14255), (198, 14261), (201, 14282), (206, 14306), (208, 14315), (216, 14354), (220, 14372), (227, 14405), (228, 14408), (230, 14417), (231, 14420), (234, 14435), (246, 14525), (255, 14561), (267, 14669), (273, 14705), (285, 14801), (286, 14804), (292, 14858), (295, 14897), (302, 14945), (303, 14954), (305, 14978), (308, 14996), (315, 15047), (319, 15071), (322, 15089), (325, 15119),

Gene: TeddyBoy\_12 Start: 7547, Stop: 9652, Start Num: 11

Candidate Starts for TeddyBoy\_12:

(Start: 11 @7547 has 105 MA's), (13, 7568), (32, 7745), (34, 7754), (37, 7778), (39, 7850), (41, 7874), (42, 7880), (50, 8030), (53, 8051), (54, 8063), (56, 8072), (70, 8279), (74, 8297), (95, 8384), (114, 8453), (117, 8465), (127, 8513), (136, 8543), (141, 8558), (149, 8594), (157, 8621), (162, 8642), (169, 8666), (172, 8690), (174, 8696), (182, 8723), (191, 8756), (198, 8795), (203, 8822), (207, 8843), (209, 8858), (222, 8885), (223, 8888), (230, 8909), (233, 8921), (234, 8927), (239, 8975), (255, 9050), (260, 9059), (265, 9086), (266, 9107), (274, 9170), (278, 9194), (284, 9251), (297, 9356), (299, 9377), (301, 9389), (305, 9431), (309, 9452), (311, 9473),

Gene: Temper16\_14 Start: 9744, Stop: 12302, Start Num: 5

Candidate Starts for Temper16\_14:

(Start: 5 @9744 has 80 MA's), (7, 9753), (8, 9783), (18, 9873), (21, 9909), (34, 10017), (35, 10032), (46, 10200), (51, 10296), (71, 10569), (73, 10590), (80, 10620), (82, 10650), (92, 10737), (101, 10860), (111, 10935), (119, 10998), (125, 11031), (128, 11052), (129, 11058), (132, 11076), (133, 11082), (138, 11106), (147, 11148), (151, 11163), (153, 11169), (159, 11196), (171, 11247), (175, 11280), (177, 11289), (183, 11310), (186, 11322), (191, 11349), (193, 11361), (195, 11370), (197, 11382), (198, 11388), (199, 11391), (202, 11412), (208, 11442), (212, 11460), (216, 11481), (218, 11490), (220, 11499), (227, 11532), (228, 11535), (231, 11547), (234, 11562), (245, 11646), (246, 11652), (255, 11688), (263, 11745), (264, 11754), (267, 11796), (276, 11853), (285, 11928), (286, 11931), (289, 11961), (292, 11985), (298, 12042), (302, 12072), (303, 12081), (305, 12105), (307, 12117), (325, 12243),

Gene: TimoTea\_12 Start: 7528, Stop: 9633, Start Num: 11

Candidate Starts for TimoTea\_12:

(Start: 11 @7528 has 105 MA's), (13, 7549), (32, 7726), (34, 7735), (37, 7759), (39, 7831), (41, 7855), (42, 7861), (50, 8011), (53, 8032), (54, 8044), (56, 8053), (70, 8260), (74, 8278), (95, 8365), (114, 8434), (117, 8446), (127, 8494), (136, 8524), (141, 8539), (149, 8575), (157, 8602), (162, 8623), (169, 8647), (172, 8671), (174, 8677), (182, 8704), (191, 8737), (198, 8776), (203, 8803), (207, 8824), (209, 8839), (222, 8866), (223, 8869), (230, 8890), (233, 8902), (234, 8908), (239, 8956), (255, 9031), (260, 9040), (265, 9067), (266, 9088), (274, 9151), (278, 9175), (284, 9232), (297, 9337), (299, 9358), (301, 9370), (305, 9412), (309, 9433), (311, 9454),

Gene: TinyTruffula\_12 Start: 7648, Stop: 9753, Start Num: 11

Candidate Starts for TinyTruffula\_12:

(Start: 11 @7648 has 105 MA's), (13, 7669), (32, 7846), (34, 7855), (37, 7879), (39, 7951), (41, 7975), (48, 8074), (50, 8131), (53, 8152), (54, 8164), (56, 8173), (70, 8380), (74, 8398), (95, 8485), (114, 8554), (117, 8566), (127, 8614), (136, 8644), (141, 8659), (162, 8743), (163, 8746), (169, 8767), (174, 8797), (182, 8824), (191, 8857), (198, 8896), (203, 8923), (204, 8929), (207, 8944), (209, 8959), (223, 8989), (230, 9010), (233, 9022), (234, 9028), (239, 9076), (245, 9112), (260, 9160), (265, 9187), (266, 9208), (274, 9271), (278, 9295), (284, 9352), (297, 9457), (299, 9478), (305, 9532), (309, 9553), (311, 9574),

Gene: TomBrady12\_12 Start: 7580, Stop: 9685, Start Num: 11

Candidate Starts for TomBrady12\_12:

(Start: 11 @7580 has 105 MA's), (13, 7601), (32, 7778), (34, 7787), (37, 7811), (39, 7883), (41, 7907), (48, 8006), (53, 8084), (54, 8096), (56, 8105), (70, 8312), (74, 8330), (95, 8417), (114, 8486), (117, 8498), (127, 8546), (136, 8576), (141, 8591), (155, 8645), (162, 8675), (163, 8678), (169, 8699), (174, 8729), (182, 8756), (191, 8789), (198, 8828), (203, 8855), (204, 8861), (207, 8876), (209, 8891), (222, 8918), (223, 8921), (230, 8942), (233, 8954), (234, 8960), (239, 9008), (245, 9044), (260, 9092), (265, 9119), (266, 9140), (274, 9203), (278, 9227), (284, 9284), (297, 9389), (299, 9410), (305, 9464), (309, 9485), (311, 9506),

Gene: Trireme\_12 Start: 7646, Stop: 9751, Start Num: 11

Candidate Starts for Trireme\_12:

(Start: 11 @7646 has 105 MA's), (13, 7667), (32, 7844), (34, 7853), (37, 7877), (39, 7949), (41, 7973), (48, 8072), (50, 8129), (53, 8150), (54, 8162), (56, 8171), (70, 8378), (74, 8396), (95, 8483), (114, 8552), (117, 8564), (127, 8612), (136, 8642), (141, 8657), (155, 8711), (162, 8741), (163, 8744), (169, 8765), (174, 8795), (182, 8822), (191, 8855), (198, 8894), (203, 8921), (204, 8927), (207, 8942), (209, 8957), (223, 8987), (230, 9008), (233, 9020), (234, 9026), (239, 9074), (245, 9110), (260, 9158), (265, 9185), (266, 9206), (274, 9269), (278, 9293), (284, 9350), (297, 9455), (299, 9476), (305, 9530), (309, 9551), (311, 9572),

Gene: Upsilon\_12 Start: 7615, Stop: 9720, Start Num: 11

Candidate Starts for Upsilon\_12:

(Start: 11 @7615 has 105 MA's), (13, 7636), (32, 7813), (34, 7822), (37, 7846), (39, 7918), (41, 7942), (48, 8041), (50, 8098), (53, 8119), (54, 8131), (56, 8140), (70, 8347), (74, 8365), (95, 8452), (114, 8521), (117, 8533), (127, 8581), (136, 8611), (141, 8626), (155, 8680), (162, 8710), (163, 8713), (169, 8734), (174, 8764), (182, 8791), (191, 8824), (198, 8863), (203, 8890), (204, 8896), (207, 8911), (209, 8926), (223, 8956), (230, 8977), (233, 8989), (234, 8995), (239, 9043), (245, 9079), (260, 9127), (265, 9154), (266, 9175), (274, 9238), (278, 9262), (284, 9319), (297, 9424), (299, 9445), (301, 9457), (305, 9499), (309, 9520), (311, 9541),

Gene: Urla\_14 Start: 9754, Stop: 12303, Start Num: 5

Candidate Starts for Urla\_14:

(Start: 5 @9754 has 80 MA's), (18, 9883), (21, 9919), (34, 10027), (35, 10042), (45, 10189), (46, 10210), (51, 10306), (60, 10396), (73, 10600), (82, 10660), (83, 10669), (119, 10996), (128, 11050), (129, 11056), (132, 11074), (140, 11113), (151, 11161), (166, 11224), (175, 11278), (181, 11302), (183, 11308), (191, 11347), (193, 11359), (196, 11377), (197, 11380), (198, 11386), (199, 11389), (201, 11407), (208, 11440), (212, 11458), (216, 11479), (218, 11488), (220, 11497), (227, 11530), (228, 11533), (230, 11542), (231, 11545), (234, 11560), (245, 11644), (255, 11686), (267, 11794), (269, 11806), (276, 11851), (277, 11860), (285, 11926), (286, 11929), (292, 11983), (295, 12022), (302, 12070), (303, 12079), (305, 12103), (307, 12115), (315, 12172), (316, 12178), (325, 12244), (328, 12286),

Gene: UtzChips\_14 Start: 9915, Stop: 12263, Start Num: 6

Candidate Starts for UtzChips\_14:

(Start: 6 @9915 has 8 MA's), (25, 10098), (37, 10194), (43, 10302), (47, 10362), (62, 10557), (65, 10620), (72, 10704), (74, 10716), (77, 10719), (84, 10770), (91, 10821), (98, 10908), (105, 10968), (110, 10992), (121, 11073), (135, 11133), (142, 11154), (157, 11214), (162, 11235), (165, 11244), (176, 11295), (196, 11382), (198, 11391), (224, 11487), (225, 11493), (234, 11526), (248, 11622), (260, 11661), (278, 11799), (285, 11862), (298, 11973), (311, 12078), (315, 12114),

Gene: VResidence\_16 Start: 10828, Stop: 13143, Start Num: 6

Candidate Starts for VResidence\_16:

(Start: 6 @10828 has 8 MA's), (9, 10861), (16, 10915), (21, 10984), (37, 11116), (38, 11143), (43, 11224), (46, 11275), (47, 11284), (50, 11368), (62, 11479), (63, 11530), (70, 11620), (77, 11644), (81, 11671), (93, 11764), (118, 11956), (122, 11983), (131, 12016), (144, 12049), (150, 12067), (152, 12073), (163, 12115), (166, 12124), (169, 12136), (182, 12190), (189, 12214), (197, 12256), (198, 12262), (207, 12310), (216, 12355), (220, 12373), (222, 12385), (235, 12430), (242, 12496), (244, 12505), (283, 12730), (285, 12748), (286, 12751), (293, 12817), (298, 12862), (300, 12880), (303, 12901), (318, 13012), (326, 13078),

Gene: Vallejo\_18 Start: 12556, Stop: 15117, Start Num: 5

Candidate Starts for Vallejo\_18:

(3, 12535), (Start: 5 @12556 has 80 MA's), (10, 12604), (14, 12637), (18, 12685), (20, 12709), (21, 12721), (30, 12781), (34, 12829), (35, 12844), (36, 12850), (44, 12970), (46, 13012), (51, 13108), (52, 13111), (55, 13141), (59, 13195), (60, 13198), (68, 13336), (69, 13357), (71, 13381), (73, 13402), (75, 13411), (82, 13462), (85, 13480), (100, 13666), (119, 13810), (125, 13843), (129, 13870), (132, 13888), (133, 13894), (138, 13918), (140, 13927), (151, 13975), (157, 14002), (158, 14005), (162, 14026), (164, 14032), (166, 14038), (173, 14089), (178, 14104), (181, 14116), (183, 14122), (184, 14125), (186, 14134), (191, 14161), (193, 14173), (195, 14182), (197, 14194), (198, 14200), (201, 14221), (208, 14254), (216, 14293), (227, 14344), (228, 14347), (230, 14356), (231, 14359), (234, 14374), (246, 14464), (255, 14500), (267, 14608), (273, 14644), (285, 14740), (286, 14743), (292, 14797), (295, 14836), (302, 14884), (303, 14893), (305, 14917), (308, 14935), (315, 14986), (319, 15010), (322, 15028), (325, 15058),

Gene: Vanisius\_12 Start: 7552, Stop: 9657, Start Num: 11

Candidate Starts for Vanisius\_12:

(Start: 11 @7552 has 105 MA's), (13, 7573), (32, 7750), (34, 7759), (37, 7783), (39, 7855), (41, 7879), (42, 7885), (50, 8035), (53, 8056), (54, 8068), (56, 8077), (70, 8284), (74, 8302), (95, 8389), (114, 8458), (117, 8470), (127, 8518), (136, 8548), (141, 8563), (149, 8599), (157, 8626), (162, 8647), (169, 8671), (172, 8695), (174, 8701), (182, 8728), (191, 8761), (198, 8800), (203, 8827), (207, 8848), (209, 8863), (222, 8890), (223, 8893), (230, 8914), (233, 8926), (234, 8932), (239, 8980), (255, 9055), (260, 9064), (265, 9091), (266, 9112), (274, 9175), (278, 9199), (284, 9256), (297, 9361), (299, 9382), (301, 9394), (305, 9436), (309, 9457), (311, 9478),

Gene: VitulaEligans\_12 Start: 7636, Stop: 9741, Start Num: 11

Candidate Starts for VitulaEligans\_12:

(Start: 11 @7636 has 105 MA's), (13, 7657), (32, 7834), (34, 7843), (37, 7867), (39, 7939), (41, 7963), (42, 7969), (50, 8119), (53, 8140), (54, 8152), (56, 8161), (70, 8368), (74, 8386), (95, 8473), (114, 8542), (117, 8554), (127, 8602), (136, 8632), (141, 8647), (157, 8710), (162, 8731), (169, 8755), (172, 8779), (174, 8785), (182, 8812), (191, 8845), (198, 8884), (203, 8911), (207, 8932), (209, 8947), (222, 8974), (223, 8977), (230, 8998), (233, 9010), (234, 9016), (239, 9064), (245, 9100), (255, 9139), (260, 9148), (265, 9175), (266, 9196), (274, 9259), (278, 9283), (284, 9340), (297, 9445), (299, 9466), (301, 9478), (305, 9520), (309, 9541), (311, 9562), (327, 9691),

Gene: Vulture\_14 Start: 9738, Stop: 12296, Start Num: 5

Candidate Starts for Vulture\_14:

(Start: 5 @9738 has 80 MA's), (7, 9747), (8, 9777), (18, 9867), (30, 9963), (35, 10026), (46, 10194), (51, 10290), (52, 10293), (53, 10308), (61, 10395), (64, 10461), (76, 10599), (77, 10602), (88, 10686), (119, 10992), (129, 11052), (132, 11070), (133, 11076), (140, 11109), (143, 11121), (151, 11157), (157, 11184), (162, 11208), (164, 11214), (173, 11271), (180, 11295), (183, 11304), (187, 11319), (191, 11343), (193, 11355), (197, 11376), (198, 11382), (201, 11403), (206, 11427), (208, 11436), (212, 11454), (216, 11475), (217, 11481), (220, 11493), (227, 11526), (228, 11529), (231, 11541), (234, 11556), (235, 11559), (246, 11646), (262, 11736), (263, 11739), (267, 11790), (276, 11847), (277, 11856), (280, 11868), (285, 11922), (286, 11925), (292, 11979), (295, 12018), (302, 12066), (303, 12075), (305, 12099), (307, 12111), (322, 12207), (325, 12237),

Gene: Wawa\_18 Start: 12593, Stop: 15154, Start Num: 5

Candidate Starts for Wawa\_18:

(3, 12572), (Start: 5 @12593 has 80 MA's), (10, 12641), (14, 12674), (18, 12722), (20, 12746), (21, 12758), (30, 12818), (34, 12866), (35, 12881), (36, 12887), (44, 13007), (46, 13049), (51, 13145), (52, 13148), (55, 13178), (59, 13232), (68, 13373), (69, 13394), (71, 13418), (73, 13439), (75, 13448), (82, 13499), (85, 13517), (100, 13703), (119, 13847), (125, 13880), (129, 13907), (132, 13925), (133, 13931), (138, 13955), (140, 13964), (151, 14012), (157, 14039), (158, 14042), (162, 14063), (164, 14069), (166, 14075), (173, 14126), (178, 14141), (181, 14153), (183, 14159), (184, 14162), (186, 14171), (191, 14198), (193, 14210), (195, 14219), (197, 14231), (198, 14237), (201, 14258), (208, 14291), (216, 14330), (227, 14381), (228, 14384), (230, 14393), (231, 14396), (234, 14411), (246, 14501), (255, 14537), (267, 14645), (273, 14681), (285, 14777), (286, 14780), (292, 14834), (295, 14873), (302, 14921), (303, 14930), (305, 14954), (308, 14972), (315, 15023), (319, 15047), (322, 15065), (325, 15095),

Gene: Wayne\_18 Start: 12693, Stop: 15248, Start Num: 5

Candidate Starts for Wayne\_18:

(3, 12672), (Start: 5 @12693 has 80 MA's), (10, 12741), (18, 12822), (20, 12846), (30, 12918), (34, 12966), (35, 12981), (36, 12987), (46, 13149), (49, 13194), (51, 13245), (52, 13248), (55, 13278), (64, 13416), (73, 13539), (82, 13599), (85, 13617), (87, 13632), (92, 13683), (114, 13914), (126, 13983), (129, 14007), (132, 14025), (133, 14031), (145, 14085), (147, 14097), (153, 14118), (158, 14142), (175, 14229), (181, 14253), (183, 14259), (184, 14262), (187, 14274), (190, 14295), (191, 14298), (192, 14304), (193, 14310), (196, 14328), (197, 14331), (198, 14337), (206, 14382), (208, 14391), (212, 14409), (216, 14430), (218, 14439), (220, 14448), (227, 14481), (228, 14484), (230, 14493), (231, 14496), (238, 14547), (255, 14637), (267, 14745), (269, 14757), (272, 14778), (273, 14781), (285, 14877), (286, 14880), (292, 14934), (295, 14973), (303, 15030), (308, 15072), (315, 15120), (322, 15162), (325, 15192),

Gene: Witch\_12 Start: 7541, Stop: 9646, Start Num: 11

Candidate Starts for Witch\_12:

(Start: 11 @7541 has 105 MA's), (13, 7562), (32, 7739), (34, 7748), (37, 7772), (39, 7844), (41, 7868), (42, 7874), (50, 8024), (53, 8045), (54, 8057), (56, 8066), (70, 8273), (74, 8291), (95, 8378), (114, 8447), (117, 8459), (127, 8507), (136, 8537), (141, 8552), (149, 8588), (157, 8615), (162, 8636), (169, 8660), (172, 8684), (174, 8690), (182, 8717), (191, 8750), (198, 8789), (203, 8816), (207, 8837), (209, 8852), (222, 8879), (223, 8882), (230, 8903), (233, 8915), (234, 8921), (239, 8969), (245, 9005), (260, 9053), (265, 9080), (266, 9101), (274, 9164), (278, 9188), (284, 9245), (297, 9350), (299, 9371), (301, 9383), (305, 9425), (309, 9446), (311, 9467), (327, 9596),

Gene: Wolfpack\_12 Start: 7533, Stop: 9638, Start Num: 11

Candidate Starts for Wolfpack\_12:

(Start: 11 @7533 has 105 MA's), (13, 7554), (32, 7731), (34, 7740), (37, 7764), (39, 7836), (41, 7860), (42, 7866), (48, 7959), (50, 8016), (53, 8037), (54, 8049), (56, 8058), (70, 8265), (74, 8283), (95, 8370), (114, 8439), (117, 8451), (127, 8499), (136, 8529), (141, 8544), (149, 8580), (157, 8607), (163,

8631), (169, 8652), (172, 8676), (174, 8682), (182, 8709), (191, 8742), (198, 8781), (203, 8808), (207, 8829), (209, 8844), (222, 8871), (223, 8874), (233, 8907), (234, 8913), (239, 8961), (245, 8997), (260, 9045), (265, 9072), (266, 9093), (274, 9156), (278, 9180), (284, 9237), (297, 9342), (299, 9363), (301, 9375), (305, 9417), (309, 9438), (311, 9459), (327, 9588),

Gene: WonderBoy\_14 Start: 9710, Stop: 12271, Start Num: 5

Candidate Starts for WonderBoy\_14:

(3, 9689), (Start: 5 @9710 has 80 MA's), (10, 9758), (18, 9839), (20, 9863), (30, 9935), (34, 9983), (35, 9998), (36, 10004), (46, 10166), (51, 10262), (52, 10265), (55, 10295), (64, 10433), (69, 10511), (73, 10556), (75, 10565), (82, 10616), (85, 10634), (86, 10646), (90, 10670), (109, 10886), (120, 10976), (125, 10997), (129, 11024), (132, 11042), (133, 11048), (138, 11072), (140, 11081), (151, 11129), (157, 11156), (164, 11186), (173, 11243), (178, 11258), (181, 11270), (183, 11276), (184, 11279), (186, 11288), (191, 11315), (193, 11327), (195, 11336), (197, 11348), (198, 11354), (202, 11378), (206, 11399), (208, 11408), (211, 11423), (216, 11447), (227, 11498), (228, 11501), (231, 11513), (235, 11531), (246, 11618), (255, 11654), (267, 11762), (269, 11774), (272, 11795), (273, 11798), (276, 11819), (285, 11894), (286, 11897), (290, 11930), (292, 11951), (295, 11990), (298, 12008), (302, 12038), (303, 12047), (316, 12146), (325, 12212),

Gene: Yami\_11 Start: 7552, Stop: 9636, Start Num: 13

Candidate Starts for Yami\_11:

(Start: 11 @7531 has 105 MA's), (13, 7552), (32, 7729), (34, 7738), (37, 7762), (39, 7834), (41, 7858), (48, 7957), (50, 8014), (53, 8035), (54, 8047), (56, 8056), (70, 8263), (74, 8281), (95, 8368), (114, 8437), (117, 8449), (127, 8497), (136, 8527), (141, 8542), (162, 8626), (163, 8629), (169, 8650), (174, 8680), (182, 8707), (191, 8740), (198, 8779), (203, 8806), (204, 8812), (207, 8827), (209, 8842), (223, 8872), (230, 8893), (233, 8905), (234, 8911), (239, 8959), (245, 8995), (260, 9043), (265, 9070), (266, 9091), (274, 9154), (278, 9178), (284, 9235), (297, 9340), (299, 9361), (305, 9415), (309, 9436), (311, 9457),

Gene: Yasuo\_12 Start: 7537, Stop: 9642, Start Num: 11

Candidate Starts for Yasuo\_12:

(Start: 11 @7537 has 105 MA's), (13, 7558), (32, 7735), (34, 7744), (37, 7768), (39, 7840), (41, 7864), (42, 7870), (50, 8020), (53, 8041), (54, 8053), (56, 8062), (70, 8269), (74, 8287), (95, 8374), (114, 8443), (117, 8455), (127, 8503), (136, 8533), (141, 8548), (149, 8584), (157, 8611), (162, 8632), (169, 8656), (172, 8680), (174, 8686), (182, 8713), (191, 8746), (198, 8785), (203, 8812), (207, 8833), (209, 8848), (222, 8875), (223, 8878), (230, 8899), (233, 8911), (234, 8917), (239, 8965), (255, 9040), (260, 9049), (265, 9076), (266, 9097), (274, 9160), (278, 9184), (284, 9241), (297, 9346), (299, 9367), (301, 9379), (305, 9421), (309, 9442), (311, 9463),

Gene: YertPhresh\_12 Start: 7540, Stop: 9645, Start Num: 11

Candidate Starts for YertPhresh\_12:

(Start: 11 @7540 has 105 MA's), (13, 7561), (32, 7738), (34, 7747), (37, 7771), (39, 7843), (41, 7867), (42, 7873), (50, 8023), (53, 8044), (54, 8056), (56, 8065), (70, 8272), (74, 8290), (95, 8377), (114, 8446), (117, 8458), (127, 8506), (136, 8536), (141, 8551), (149, 8587), (157, 8614), (162, 8635), (169, 8659), (172, 8683), (174, 8689), (182, 8716), (191, 8749), (198, 8788), (203, 8815), (207, 8836), (209, 8851), (222, 8878), (223, 8881), (230, 8902), (233, 8914), (234, 8920), (239, 8968), (245, 9004), (260, 9052), (265, 9079), (266, 9100), (274, 9163), (278, 9187), (284, 9244), (297, 9349), (299, 9370), (301, 9382), (305, 9424), (309, 9445), (311, 9466), (327, 9595),

Gene: Yubaba\_12 Start: 7574, Stop: 9679, Start Num: 11

Candidate Starts for Yubaba\_12:

(Start: 11 @7574 has 105 MA's), (13, 7595), (32, 7772), (34, 7781), (37, 7805), (39, 7877), (41, 7901), (42, 7907), (50, 8057), (53, 8078), (54, 8090), (56, 8099), (70, 8306), (74, 8324), (95, 8411), (114, 8480), (117, 8492), (127, 8540), (136, 8570), (141, 8585), (149, 8621), (157, 8648), (162, 8669), (169,

8693), (172, 8717), (174, 8723), (182, 8750), (191, 8783), (198, 8822), (203, 8849), (207, 8870), (209, 8885), (222, 8912), (223, 8915), (230, 8936), (233, 8948), (234, 8954), (239, 9002), (245, 9038), (260, 9086), (265, 9113), (266, 9134), (274, 9197), (278, 9221), (284, 9278), (297, 9383), (299, 9404), (301, 9416), (305, 9458), (309, 9479), (311, 9500), (327, 9629),

Gene: Zeta1847\_14 Start: 9068, Stop: 11329, Start Num: 4

Candidate Starts for Zeta1847\_14:

(Start: 4 @9068 has 1 MA's), (17, 9158), (19, 9203), (22, 9230), (25, 9254), (27, 9260), (37, 9350), (43, 9458), (47, 9518), (62, 9713), (65, 9776), (77, 9875), (79, 9884), (96, 9986), (119, 10118), (123, 10139), (133, 10184), (160, 10283), (169, 10319), (170, 10325), (179, 10364), (192, 10415), (198, 10448), (205, 10487), (219, 10523), (234, 10580), (248, 10673), (249, 10679), (260, 10712), (266, 10760), (285, 10910), (287, 10922), (296, 11006), (320, 11186),

Gene: Zorro\_18 Start: 12572, Stop: 15133, Start Num: 5

Candidate Starts for Zorro\_18:

(3, 12551), (Start: 5 @12572 has 80 MA's), (10, 12620), (14, 12653), (18, 12701), (20, 12725), (21, 12737), (30, 12797), (34, 12845), (35, 12860), (36, 12866), (44, 12986), (46, 13028), (51, 13124), (52, 13127), (55, 13157), (59, 13211), (68, 13352), (69, 13373), (71, 13397), (73, 13418), (75, 13427), (82, 13478), (85, 13496), (100, 13682), (119, 13826), (125, 13859), (129, 13886), (132, 13904), (133, 13910), (138, 13934), (140, 13943), (151, 13991), (157, 14018), (158, 14021), (162, 14042), (166, 14054), (173, 14105), (178, 14120), (181, 14132), (184, 14141), (186, 14150), (191, 14177), (193, 14189), (195, 14198), (197, 14210), (198, 14216), (201, 14237), (206, 14261), (208, 14270), (216, 14309), (227, 14360), (228, 14363), (230, 14372), (231, 14375), (234, 14390), (246, 14480), (255, 14516), (267, 14624), (273, 14660), (285, 14756), (286, 14759), (292, 14813), (295, 14852), (302, 14900), (303, 14909), (305, 14933), (308, 14951), (315, 15002), (319, 15026), (322, 15044), (325, 15074),