





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 304758 Report

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

Pham number 304758 has 163 members, 19 are drafts.

Phages represented in each track:

- Track 1 : Ranunculus\_20
- Track 2 : Wilde\_20, Tank\_20
- Track 3 : Rizwana\_19
- Track 4 : BetaFish\_26, Hive\_26, Beagle\_27, Pointis\_26, PhuzzTulsa\_24, RIPWilbur\_24, DogYard\_26, Pureglobe5\_28, Popstraw\_24, Kubulix\_27
- Track 5 : Odyssey395\_28
- Track 6 : NyleyClemson\_21, RazzB\_22
- Track 7 : Ren19\_19, Nikan\_21
- Track 8 : Forrestell\_23, MellowYellow\_23
- Track 9 : Ollypop\_24
- Track 10 : BruhMoment\_21
- Track 11 : SilentRX\_21
- Track 12 : AWGoat\_19
- Track 13 : Jambalaya\_19, TillyBobJoe\_19, Savbucketdawg\_19, Shinji\_19, Portcullis\_19, JohnPork\_19
- Track 14 : Mutzi\_21
- Track 15 : Danyall\_21, VanDeWege\_22, CoveyB\_21, CherryCola\_22, Twister6\_21, RogerDodger\_22, Valary\_22
- Track 16 : Sixsevenium\_20, Bakery\_20
- Track 17 : Salvador\_19, SmokingBunny\_19, Nubi\_19, Evamon\_19, Togo\_19
- Track 18 : KimmyK\_21, PinkCoffee\_21, ClamChowder\_21, Fugax\_21, Barb\_21
- Track 19 : SharkTale\_19
- Track 20 : Halo3\_20
- Track 21 : Gezellig\_19, Sendy\_20, Egi03\_19, Wizard\_19, Fireball\_20
- Track 22 : Phlop\_19, PullumCavea\_19
- Track 23 : YungMoney\_21
- Track 24 : Arri\_22
- Track 25 : Clown\_23
- Track 26 : Baumdotcom\_20, Saronaya\_20, Gustavo\_20
- Track 27 : Lennon\_22, Stultus\_20, Bibwit\_21, Sedona\_22, Ailee\_20, Sitar\_22
- Track 28 : Fosterous\_18, Love\_22, MoontowerMania\_19, Shivanishola\_20, Brandonk123\_22, Kamashten\_21, BobBob\_18, Sanjuju\_18, Jabberwocky\_18, Charming\_18, Tangent\_18, Thing3\_21, Brawn1\_18, Paries\_21, Geodirt\_19
- Track 29 : Gaea\_20, Tycho\_20, Kroos\_21, Kwobi\_22, Flatwoods\_21, Bizzy\_21
- Track 30 : McKinley\_21, Kewpiedoll\_21, ChadMasterC\_20, FuegoCuervo\_23, McCrothy\_21, Vivi2\_20, Barsten\_21, Fitzgerald\_18, Galadriel\_22
- Track 31 : Derg\_16, LilHam\_18, SchottB\_19, Stichling\_19

- Track 32 : RiverRaider\_21
- Track 33 : Ashertheman\_21, StorminNorm\_20, Tangerine\_20
- Track 34 : Affeca\_20, Angelicage\_20
- Track 35 : JKSyngboy\_19
- Track 36 : Rofo\_20
- Track 37 : Keitabear\_22
- Track 38 : Baddon\_20
- Track 39 : YorkOnyx\_21
- Track 40 : Ribeye\_21
- Track 41 : Nordenberg\_15
- Track 42 : Leonard\_21, Ali17\_19, Phinally\_21
- Track 43 : Belphegor\_18
- Track 44 : EMoore\_16
- Track 45 : MelBins\_22
- Track 46 : Hans\_23
- Track 47 : Phauci\_14
- Track 48 : Inspectinfecti\_22
- Track 49 : Chickadee\_20, Tiamoceli\_21
- Track 50 : Kwekel\_20
- Track 51 : Twonlo\_18
- Track 52 : GTE6\_20
- Track 53 : RoadKill\_18, EdmundFerry\_19, Dexdert\_21
- Track 54 : Scioto\_21, Natkenzie\_21, Sampson\_21, Abblin\_21
- Track 55 : DoctorFroggo\_21, Zipp\_21, Delrey21\_21, Verity\_21
- Track 56 : Pumpkiney\_23
- Track 57 : Zitch\_23
- Track 58 : BigHunkinEater\_24
- Track 59 : APunk\_23
- Track 60 : ViaConlectus\_22
- Track 61 : Tardus\_22
- Track 62 : Lilbeanie\_18
- Track 63 : GodonK\_76, Phendrix\_74
- Track 64 : Sixama\_81
- Track 65 : Mareelih\_85, BlueNGold\_86, Forza\_87, Boopy\_87
- Track 66 : GMA2\_16
- Track 67 : Boise\_16, RomansRevenge\_16
- Track 68 : Kithara\_25
- Track 69 : Sunfish\_32

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

The start number called the most often in the published annotations is 5, it was called in 116 of the 144 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- APunk\_23, Abblin\_21, Affeca\_20, Ailee\_20, Ali17\_19, Angelicage\_20, Arri\_22, Ashertheman\_21, Baddon\_20, Bakery\_20, Barb\_21, Barsten\_21, Baumdotcom\_20, Belphegor\_18, Bibwit\_21, BigHunkinEater\_24, Bizzy\_21, BobBob\_18, Brandonk123\_22, Brawn1\_18, ChadMasterC\_20, Charming\_18, CherryCola\_22, Chickadee\_20, ClamChowder\_21, Clown\_23, CoveyB\_21, Danyall\_21, Delrey21\_21,

Derg\_16, Dxdert\_21, DoctorFroggo\_21, EMoore\_16, EdmundFerry\_19, Egi03\_19, Evamon\_19, Fireball\_20, Fitzgerald\_18, Flatwoods\_21, Fosterous\_18, FuegoCuervo\_23, Fugax\_21, GTE6\_20, Gaea\_20, Galadriel\_22, Geodirt\_19, Gezellig\_19, Gustavo\_20, Halo3\_20, Hans\_23, Inspectinfecti\_22, JKSyngboy\_19, Jabberwocky\_18, Jambalaya\_19, JohnPork\_19, Kamashten\_21, Keitabear\_22, Kewpiedoll\_21, KimmyK\_21, Kroos\_21, Kwekel\_20, Kwobi\_22, Lennon\_22, Leonard\_21, LilHam\_18, Lilbeanie\_18, Love\_22, McCrothy\_21, McKinley\_21, MelBins\_22, MoontowerMania\_19, Mutzi\_21, Natkenzie\_21, Nordenberg\_15, Nubi\_19, Paries\_21, Phauci\_14, Phinally\_21, Phlop\_19, PinkCoffee\_21, Portcullis\_19, PullumCavea\_19, Pumpkiney\_23, Ribeye\_21, RiverRaider\_21, RoadKill\_18, Rofo\_20, RogerDodger\_22, Salvador\_19, Sampson\_21, Sanjuju\_18, Saronaya\_20, Savbucketdawg\_19, SchottB\_19, Scioto\_21, Sedona\_22, Sendy\_20, SharkTale\_19, Shinji\_19, Shivanishola\_20, Sitar\_22, Sixsevenium\_20, SmokingBunny\_19, Stichling\_19, StorminNorm\_20, Stultus\_20, Tangent\_18, Tangerine\_20, Tardus\_22, Thing3\_21, Tiamoceli\_21, TillyBobJoe\_19, Togo\_19, Twister6\_21, Twonlo\_18, Tycho\_20, Valary\_22, VanDeWege\_22, Verity\_21, ViaConlectus\_22, Vivi2\_20, Wizard\_19, YorkOnyx\_21, YungMoney\_21, Zipp\_21, Zitch\_23,

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

- Beagle\_27, BetaFish\_26, DogYard\_26, Forrestell\_23, Hive\_26, Kubulix\_27, MellowYellow\_23, Nikan\_21, NyleyClemson\_21, Odyssey395\_28, Ollypop\_24, PhuzzTulsa\_24, Pointis\_26, Popstraw\_24, Pureglobe5\_28, RIPWilbur\_24, RazzB\_22, Ren19\_19, Rizwana\_19, Tank\_20, Wilde\_20,

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

- AWGoat\_19, BlueNGold\_86, Boise\_16, Boopy\_87, BruhMoment\_21, Forza\_87, GMA2\_16, GodonK\_76, Kithara\_25, Mareelih\_85, Phendrix\_74, Ranunculus\_20, RomansRevenge\_16, SilentRX\_21, Sixama\_81, Sunfish\_32,

### Summary by start number:

Start 4:

- Found in 9 of 163 ( 5.5% ) of genes in pham
- Manual Annotations of this start: 1 of 144
- Called 11.1% of time when present
- Phage (with cluster) where this start called: Kithara\_25 (singleton),

Start 5:

- Found in 147 of 163 ( 90.2% ) of genes in pham
- Manual Annotations of this start: 116 of 144
- Called 85.7% of time when present
- Phage (with cluster) where this start called: APunk\_23 (DE4), Abblin\_21 (DE4), Affeca\_20 (DE1), Ailee\_20 (DE1), Ali17\_19 (DE2), Angelicage\_20 (DE1), Arri\_22 (DC1), Ashertheman\_21 (DE1), Baddon\_20 (DE1), Bakery\_20 (DC1), Barb\_21 (DC1), Barsten\_21 (DE1), Baumdotcom\_20 (DE1), Belphegor\_18 (DE2), Bibwit\_21 (DE1), BigHunkinEater\_24 (DE4), Bizzy\_21 (DE1), BobBob\_18 (DE1), Brandonk123\_22 (DE1), Brawn1\_18 (DE1), ChadMasterC\_20 (DE1), Charming\_18 (DE1), CherryCola\_22 (DC1), Chickadee\_20 (DE3), ClamChowder\_21 (DC1), Clown\_23 (DC2), CoveyB\_21 (DC1), Danyall\_21 (DC1), Delrey21\_21 (DE4), Derg\_16 (DE1), Dxdert\_21 (DE3), DoctorFroggo\_21 (DE4), EMoore\_16 (DE2), EdmundFerry\_19 (DE3), Egi03\_19 (DC1), Evamon\_19 (DC1), Fireball\_20 (DC1), Fitzgerald\_18 (DE1), Flatwoods\_21 (DE1), Fosterous\_18 (DE1), FuegoCuervo\_23

(DE1), Fugax\_21 (DC1), GTE6\_20 (DE3), Gaea\_20 (DE1), Galadriel\_22 (DE1), Geodirt\_19 (DE1), Gezellig\_19 (DC1), Gustavo\_20 (DE1), Halo3\_20 (DC1), Hans\_23 (DE2), Inspectinfecti\_22 (DE2), JKSyngboy\_19 (DE1), Jabberwocky\_18 (DE1), Jambalaya\_19 (DC1), JohnPork\_19 (DC1), Kamashten\_21 (DE1), Keitabear\_22 (DE1), Kewpiedoll\_21 (DE1), KimmyK\_21 (DC1), Kroos\_21 (DE1), Kwekel\_20 (DE3), Kwobi\_22 (DE1), Lennon\_22 (DE1), Leonard\_21 (DE2), LilHam\_18 (DE1), Lilbeanie\_18 (DE5), Love\_22 (DE1), McCrothy\_21 (DE1), McKinley\_21 (DE1), MelBins\_22 (DE2), MoontowerMania\_19 (DE1), Mutzi\_21 (DC1), Natkenzie\_21 (DE4), Nordenberg\_15 (DE1), Nubi\_19 (DC1), Paries\_21 (DE1), Phauci\_14 (DE2), Phinally\_21 (DE2), Phlop\_19 (DC1), PinkCoffee\_21 (DC1), Portcullis\_19 (DC1), PullumCavea\_19 (DC1), Pumpkiney\_23 (DE4), Ribeye\_21 (DE1), RiverRaider\_21 (DE1), RoadKill\_18 (DE3), Rofo\_20 (DE1), RogerDodger\_22 (DC1), Salvador\_19 (DC1), Sampson\_21 (DE4), Sanjuju\_18 (DE1), Saronaya\_20 (DE1), Savbucketdawg\_19 (DC1), SchottB\_19 (DE1), Scioto\_21 (DE4), Sedona\_22 (DE1), Sendy\_20 (DC1), SharkTale\_19 (DC1), Shinji\_19 (DC1), Shivanishola\_20 (DE1), Sitar\_22 (DE1), Sixsevenium\_20 (DC1), SmokingBunny\_19 (DC1), Stichling\_19 (DE1), StorminNorm\_20 (DE1), Stultus\_20 (DE1), Tangent\_18 (DE1), Tangerine\_20 (DE1), Tardus\_22 (DE4), Thing3\_21 (DE1), Tiamoceli\_21 (DE3), TillyBobJoe\_19 (DC1), Togo\_19 (DC1), Twister6\_21 (DC1), Twonlo\_18 (DE3), Tycho\_20 (DE1), Valary\_22 (DC1), VanDeWege\_22 (DC1), Verity\_21 (DE4), ViaConlectus\_22 (DE4), Vivi2\_20 (DE1), Wizard\_19 (DC1), YorkOnyx\_21 (DE1), YungMoney\_21 (DC1), Zipp\_21 (DE4), Zitch\_23 (DE4),

#### Start 10:

- Found in 2 of 163 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 144
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Boise\_16 (FT), RomansRevenge\_16 (FT),

#### Start 13:

- Found in 27 of 163 ( 16.6% ) of genes in pham
- Manual Annotations of this start: 18 of 144
- Called 92.6% of time when present
- Phage (with cluster) where this start called: AWGoat\_19 (AP4), Beagle\_27 (AP2), BetaFish\_26 (AP2), BruhMoment\_21 (AP3), DogYard\_26 (AP2), Forrestell\_23 (AP2), Hive\_26 (AP2), Kubulix\_27 (AP2), MellowYellow\_23 (AP2), Nikan\_21 (AP2), NyleyClemson\_21 (AP2), Odyssey395\_28 (AP2), Ollypop\_24 (AP2), PhuzzTulsa\_24 (AP2), Pointis\_26 (AP2), Popstraw\_24 (AP2), Pureglobe5\_28 (AP2), RIPWilbur\_24 (AP2), Ranunculus\_20 (AP), RazzB\_22 (AP2), Ren19\_19 (AP2), Rizwana\_19 (AP1), SilentRX\_21 (AP4), Tank\_20 (AP1), Wilde\_20 (AP1),

#### Start 14:

- Found in 1 of 163 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 144
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sunfish\_32 (singleton),

#### Start 17:

- Found in 2 of 163 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 2 of 144
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GodonK\_76 (DK), Phendrix\_74 (DK),

Start 18:

- Found in 6 of 163 ( 3.7% ) of genes in pham
- Manual Annotations of this start: 5 of 144
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BlueNGold\_86 (DS), Boopy\_87 (DS), Forza\_87 (DS), GMA2\_16 (DS), Mareelih\_85 (DS), Sixama\_81 (DS),

**Summary by clusters:**

There are 16 clusters represented in this pham: singleton, AP1, FT, DK, AP2, DE1, DE2, DE3, DE4, DE5, AP4, AP, AP3, DC2, DS, DC1,

Info for manual annotations of cluster AP:

- Start number 13 was manually annotated 1 time for cluster AP.

Info for manual annotations of cluster AP1:

- Start number 13 was manually annotated 3 times for cluster AP1.

Info for manual annotations of cluster AP2:

- Start number 13 was manually annotated 11 times for cluster AP2.

Info for manual annotations of cluster AP3:

- Start number 13 was manually annotated 1 time for cluster AP3.

Info for manual annotations of cluster AP4:

- Start number 13 was manually annotated 2 times for cluster AP4.

Info for manual annotations of cluster DC1:

- Start number 5 was manually annotated 32 times for cluster DC1.

Info for manual annotations of cluster DC2:

- Start number 5 was manually annotated 1 time for cluster DC2.

Info for manual annotations of cluster DE1:

- Start number 5 was manually annotated 53 times for cluster DE1.

Info for manual annotations of cluster DE2:

- Start number 5 was manually annotated 9 times for cluster DE2.

Info for manual annotations of cluster DE3:

- Start number 5 was manually annotated 7 times for cluster DE3.

Info for manual annotations of cluster DE4:

- Start number 5 was manually annotated 13 times for cluster DE4.

Info for manual annotations of cluster DE5:

- Start number 5 was manually annotated 1 time for cluster DE5.

Info for manual annotations of cluster DK:

- Start number 17 was manually annotated 2 times for cluster DK.

Info for manual annotations of cluster DS:

- Start number 18 was manually annotated 5 times for cluster DS.

Info for manual annotations of cluster FT:

- Start number 10 was manually annotated 1 time for cluster FT.

### **Gene Information:**

Gene: APunk\_23 Start: 16314, Stop: 18233, Start Num: 5

Candidate Starts for APunk\_23:

(Start: 5 @16314 has 116 MA's), (25, 16530), (27, 16545), (38, 16719), (52, 16866), (56, 16935), (58, 16941), (61, 16995), (64, 17019), (96, 17271), (98, 17289), (100, 17295), (103, 17358), (105, 17370), (106, 17373), (107, 17385), (114, 17475), (118, 17502), (135, 17661), (144, 17739), (160, 17835), (188, 18105), (193, 18150),

Gene: AWGoat\_19 Start: 13739, Stop: 15430, Start Num: 13

Candidate Starts for AWGoat\_19:

(6, 13679), (7, 13691), (9, 13694), (Start: 13 @13739 has 18 MA's), (98, 14555), (102, 14609), (106, 14639), (107, 14651), (115, 14735), (116, 14738), (117, 14741), (125, 14810), (132, 14882), (138, 14930), (156, 15047), (163, 15113), (179, 15230), (189, 15317), (190, 15323),

Gene: Abblin\_21 Start: 15527, Stop: 17449, Start Num: 5

Candidate Starts for Abblin\_21:

(Start: 5 @15527 has 116 MA's), (25, 15743), (27, 15758), (38, 15932), (51, 16070), (52, 16079), (56, 16148), (58, 16154), (61, 16208), (64, 16232), (96, 16484), (98, 16502), (100, 16508), (103, 16571), (105, 16583), (106, 16586), (107, 16598), (114, 16688), (118, 16715), (135, 16874), (144, 16952), (160, 17048), (163, 17084), (173, 17204), (177, 17237), (188, 17321), (193, 17366),

Gene: Affeca\_20 Start: 15348, Stop: 17258, Start Num: 5

Candidate Starts for Affeca\_20:

(Start: 5 @15348 has 116 MA's), (27, 15579), (30, 15597), (43, 15867), (59, 16005), (65, 16074), (71, 16107), (98, 16332), (100, 16338), (105, 16413), (106, 16416), (107, 16428), (108, 16464), (114, 16515), (129, 16638), (131, 16674), (151, 16818), (159, 16869), (174, 17013), (175, 17016), (176, 17019), (182, 17067), (188, 17124),

Gene: Ailee\_20 Start: 15256, Stop: 17172, Start Num: 5

Candidate Starts for Ailee\_20:

(Start: 5 @15256 has 116 MA's), (27, 15487), (30, 15505), (43, 15781), (59, 15919), (65, 15988), (71, 16021), (98, 16246), (100, 16252), (103, 16315), (105, 16327), (106, 16330), (107, 16342), (114, 16429), (129, 16552), (131, 16588), (151, 16732), (159, 16783), (174, 16927), (175, 16930), (176, 16933), (182, 16981), (188, 17038), (202, 17155),

Gene: Ali17\_19 Start: 14661, Stop: 16580, Start Num: 5

Candidate Starts for Ali17\_19:

(Start: 5 @14661 has 116 MA's), (24, 14862), (37, 14985), (43, 15156), (52, 15201), (53, 15222), (59, 15279), (73, 15405), (81, 15456), (84, 15465), (88, 15516), (91, 15567), (98, 15630), (100, 15636), (103, 15699), (107, 15726), (114, 15813), (134, 15996), (143, 16071), (146, 16086), (151, 16110), (156, 16143), (159, 16161), (164, 16218), (173, 16329), (183, 16398), (184, 16410), (188, 16446), (198, 16512),

Gene: Angelicage\_20 Start: 15771, Stop: 17681, Start Num: 5

Candidate Starts for Angelicage\_20:

(Start: 5 @15771 has 116 MA's), (27, 16002), (30, 16020), (43, 16290), (59, 16428), (65, 16497), (71, 16530), (98, 16755), (100, 16761), (105, 16836), (106, 16839), (107, 16851), (108, 16887), (114, 16938), (129, 17061), (131, 17097), (151, 17241), (159, 17292), (174, 17436), (175, 17439), (176, 17442), (182, 17490), (188, 17547),

Gene: Arri\_22 Start: 12537, Stop: 14423, Start Num: 5

Candidate Starts for Arri\_22:

(Start: 5 @12537 has 116 MA's), (28, 12774), (30, 12786), (35, 12840), (45, 13062), (62, 13224), (66, 13257), (100, 13509), (104, 13581), (108, 13638), (111, 13650), (124, 13767), (129, 13812), (130, 13815), (143, 13938), (145, 13950), (156, 14010), (167, 14112), (173, 14163), (175, 14172), (184, 14244), (187, 14274), (198, 14346), (201, 14370),

Gene: Ashertheman\_21 Start: 14855, Stop: 16762, Start Num: 5

Candidate Starts for Ashertheman\_21:

(Start: 5 @14855 has 116 MA's), (19, 14990), (27, 15086), (43, 15368), (53, 15437), (57, 15485), (59, 15509), (61, 15545), (65, 15578), (68, 15602), (84, 15695), (98, 15836), (100, 15842), (103, 15905), (105, 15917), (106, 15920), (107, 15932), (114, 16019), (129, 16142), (131, 16178), (143, 16283), (151, 16322), (159, 16373), (173, 16511), (174, 16517), (175, 16520), (182, 16571), (188, 16628), (189, 16640), (191, 16649), (203, 16748),

Gene: Baddon\_20 Start: 15702, Stop: 17609, Start Num: 5

Candidate Starts for Baddon\_20:

(Start: 5 @15702 has 116 MA's), (19, 15837), (23, 15870), (27, 15933), (43, 16215), (53, 16284), (57, 16332), (59, 16356), (65, 16425), (68, 16449), (84, 16542), (98, 16683), (100, 16689), (103, 16752), (105, 16764), (106, 16767), (107, 16779), (114, 16866), (129, 16989), (131, 17025), (135, 17058), (139, 17088), (143, 17130), (151, 17169), (159, 17220), (174, 17364), (175, 17367), (182, 17418), (188, 17475), (189, 17487), (191, 17496), (193, 17520),

Gene: Bakery\_20 Start: 11735, Stop: 13636, Start Num: 5

Candidate Starts for Bakery\_20:

(Start: 5 @11735 has 116 MA's), (28, 11972), (30, 11984), (35, 12038), (62, 12425), (66, 12458), (71, 12482), (84, 12563), (87, 12590), (100, 12728), (108, 12857), (111, 12869), (114, 12908), (124, 12986), (129, 13031), (130, 13034), (131, 13055), (136, 13097), (139, 13118), (143, 13160), (145, 13172), (184, 13466), (187, 13496), (190, 13520), (194, 13550),

Gene: Barb\_21 Start: 12512, Stop: 14410, Start Num: 5

Candidate Starts for Barb\_21:

(Start: 5 @12512 has 116 MA's), (28, 12749), (30, 12761), (35, 12815), (62, 13208), (66, 13241), (71, 13265), (100, 13505), (108, 13634), (111, 13646), (124, 13763), (129, 13808), (130, 13811), (136, 13871), (138, 13889), (143, 13934), (145, 13946), (146, 13949), (150, 13970), (163, 14069), (167, 14108), (175, 14168), (184, 14240), (187, 14270), (190, 14294), (193, 14321), (194, 14324), (199, 14351),

Gene: Barsten\_21 Start: 15284, Stop: 17188, Start Num: 5

Candidate Starts for Barsten\_21:

(Start: 5 @15284 has 116 MA's), (27, 15515), (30, 15533), (43, 15800), (59, 15938), (65, 16007), (71, 16040), (98, 16265), (100, 16271), (103, 16334), (105, 16346), (106, 16349), (107, 16361), (114, 16448), (129, 16571), (131, 16607), (151, 16751), (159, 16802), (174, 16946), (175, 16949), (176, 16952), (182, 17000), (188, 17057),

Gene: Baumdotcom\_20 Start: 14471, Stop: 16378, Start Num: 5

Candidate Starts for Baumdotcom\_20:

(Start: 5 @14471 has 116 MA's), (19, 14606), (27, 14702), (43, 14984), (53, 15053), (57, 15101), (59, 15125), (61, 15161), (65, 15194), (68, 15218), (84, 15311), (98, 15452), (100, 15458), (103, 15521), (105, 15533), (106, 15536), (107, 15548), (114, 15635), (129, 15758), (131, 15794), (143, 15899), (151, 15938), (159, 15989), (173, 16127), (174, 16133), (175, 16136), (182, 16187), (188, 16244), (189, 16256), (191, 16265),

Gene: Beagle\_27 Start: 14234, Stop: 15961, Start Num: 13

Candidate Starts for Beagle\_27:

(Start: 5 @14171 has 116 MA's), (Start: 13 @14234 has 18 MA's), (66, 14843), (101, 15131), (102, 15143), (106, 15173), (115, 15269), (116, 15272), (117, 15275), (122, 15335), (142, 15497), (153, 15557), (154, 15563), (156, 15581), (163, 15644), (178, 15755), (190, 15854),

Gene: Belphegor\_18 Start: 13765, Stop: 15693, Start Num: 5

Candidate Starts for Belphegor\_18:

(Start: 5 @13765 has 116 MA's), (24, 13969), (29, 14008), (37, 14092), (44, 14272), (59, 14392), (68, 14485), (81, 14569), (84, 14578), (88, 14629), (91, 14680), (98, 14743), (100, 14749), (103, 14812), (107, 14839), (114, 14926), (143, 15184), (146, 15199), (151, 15223), (159, 15274), (164, 15331), (172, 15427), (173, 15442), (183, 15511), (184, 15523), (188, 15559), (195, 15610),

Gene: BetaFish\_26 Start: 14437, Stop: 16164, Start Num: 13

Candidate Starts for BetaFish\_26:

(Start: 5 @14374 has 116 MA's), (Start: 13 @14437 has 18 MA's), (66, 15046), (101, 15334), (102, 15346), (106, 15376), (115, 15472), (116, 15475), (117, 15478), (122, 15538), (142, 15700), (153, 15760), (154, 15766), (156, 15784), (163, 15847), (178, 15958), (190, 16057),

Gene: Bibwit\_21 Start: 15528, Stop: 17423, Start Num: 5

Candidate Starts for Bibwit\_21:

(Start: 5 @15528 has 116 MA's), (27, 15759), (30, 15777), (43, 16032), (59, 16170), (65, 16239), (71, 16272), (98, 16497), (100, 16503), (103, 16566), (105, 16578), (106, 16581), (107, 16593), (114, 16680), (129, 16803), (131, 16839), (151, 16983), (159, 17034), (174, 17178), (175, 17181), (176, 17184), (182, 17232), (188, 17289), (202, 17406),

Gene: BigHunkinEater\_24 Start: 14639, Stop: 16555, Start Num: 5

Candidate Starts for BigHunkinEater\_24:

(Start: 5 @14639 has 116 MA's), (25, 14855), (27, 14870), (38, 15044), (52, 15191), (56, 15257), (58, 15263), (61, 15317), (64, 15341), (67, 15365), (96, 15593), (98, 15611), (100, 15617), (103, 15680), (105, 15692), (106, 15695), (107, 15707), (114, 15797), (118, 15824), (135, 15983), (144, 16061), (160, 16157), (188, 16427), (190, 16445), (194, 16475),

Gene: Bizzy\_21 Start: 14750, Stop: 16663, Start Num: 5

Candidate Starts for Bizzy\_21:

(Start: 5 @14750 has 116 MA's), (19, 14885), (27, 14981), (43, 15269), (53, 15338), (57, 15386), (59, 15410), (61, 15446), (65, 15479), (68, 15503), (84, 15596), (98, 15737), (100, 15743), (103, 15806), (105, 15818), (106, 15821), (107, 15833), (114, 15920), (129, 16043), (131, 16079), (135, 16112), (143, 16184), (151, 16223), (159, 16274), (173, 16412), (174, 16418), (175, 16421), (182, 16472), (188, 16529), (189, 16541), (191, 16550),

Gene: BlueNGold\_86 Start: 42025, Stop: 43677, Start Num: 18

Candidate Starts for BlueNGold\_86:

(Start: 18 @42025 has 5 MA's), (32, 42172), (33, 42184), (51, 42451), (74, 42664), (85, 42739), (91, 42790), (95, 42832), (110, 42979), (115, 43030), (118, 43051), (119, 43054), (147, 43285), (155, 43333), (157, 43348), (176, 43486), (186, 43579),

Gene: BobBob\_18 Start: 14138, Stop: 16045, Start Num: 5

Candidate Starts for BobBob\_18:

(Start: 5 @14138 has 116 MA's), (27, 14369), (30, 14387), (43, 14654), (59, 14792), (65, 14861), (71, 14894), (98, 15119), (100, 15125), (103, 15188), (105, 15200), (106, 15203), (107, 15215), (114, 15302), (121, 15356), (129, 15425), (131, 15461), (151, 15605), (159, 15656), (174, 15800), (175, 15803), (176, 15806), (182, 15854), (188, 15911),

Gene: Boise\_16 Start: 11444, Stop: 13249, Start Num: 10

Candidate Starts for Boise\_16:

(Start: 10 @11444 has 1 MA's), (Start: 13 @11492 has 18 MA's), (22, 11582), (39, 11834), (40, 11849), (46, 11942), (59, 12053), (60, 12062), (66, 12131), (74, 12176), (80, 12218), (92, 12323), (100, 12380), (106, 12458), (114, 12548), (116, 12557), (126, 12647), (138, 12749), (156, 12866), (163, 12929), (176, 13013), (183, 13070), (184, 13082), (190, 13136),

Gene: Boopy\_87 Start: 42037, Stop: 43689, Start Num: 18

Candidate Starts for Boopy\_87:

(Start: 18 @42037 has 5 MA's), (32, 42184), (33, 42196), (51, 42463), (74, 42676), (85, 42751), (91, 42802), (95, 42844), (110, 42991), (115, 43042), (118, 43063), (119, 43066), (147, 43297), (155, 43345), (157, 43360), (176, 43498), (186, 43591),

Gene: Brandonk123\_22 Start: 14830, Stop: 16737, Start Num: 5

Candidate Starts for Brandonk123\_22:

(Start: 5 @14830 has 116 MA's), (27, 15061), (30, 15079), (43, 15346), (59, 15484), (65, 15553), (71, 15586), (98, 15811), (100, 15817), (103, 15880), (105, 15892), (106, 15895), (107, 15907), (114, 15994), (121, 16048), (129, 16117), (131, 16153), (151, 16297), (159, 16348), (174, 16492), (175, 16495), (176, 16498), (182, 16546), (188, 16603),

Gene: Brawn1\_18 Start: 14513, Stop: 16420, Start Num: 5

Candidate Starts for Brawn1\_18:

(Start: 5 @14513 has 116 MA's), (27, 14744), (30, 14762), (43, 15029), (59, 15167), (65, 15236), (71, 15269), (98, 15494), (100, 15500), (103, 15563), (105, 15575), (106, 15578), (107, 15590), (114, 15677), (121, 15731), (129, 15800), (131, 15836), (151, 15980), (159, 16031), (174, 16175), (175, 16178), (176, 16181), (182, 16229), (188, 16286),

Gene: BruhMoment\_21 Start: 13658, Stop: 15379, Start Num: 13

Candidate Starts for BruhMoment\_21:

(6, 13598), (Start: 13 @13658 has 18 MA's), (59, 14171), (66, 14249), (68, 14264), (102, 14558), (106, 14588), (115, 14684), (116, 14687), (117, 14690), (125, 14759), (138, 14879), (145, 14936), (151, 14963), (156, 14996), (171, 15116), (177, 15170), (180, 15188), (188, 15254), (190, 15272), (194, 15302),

Gene: ChadMasterC\_20 Start: 15249, Stop: 17144, Start Num: 5

Candidate Starts for ChadMasterC\_20:

(Start: 5 @15249 has 116 MA's), (27, 15480), (30, 15498), (43, 15753), (59, 15891), (65, 15960), (71, 15993), (98, 16218), (100, 16224), (103, 16287), (105, 16299), (106, 16302), (107, 16314), (114, 16401), (129, 16524), (131, 16560), (151, 16704), (159, 16755), (174, 16899), (175, 16902), (176, 16905), (182, 16953), (188, 17010),

Gene: Charming\_18 Start: 14140, Stop: 16047, Start Num: 5

Candidate Starts for Charming\_18:

(Start: 5 @14140 has 116 MA's), (27, 14371), (30, 14389), (43, 14656), (59, 14794), (65, 14863), (71, 14896), (98, 15121), (100, 15127), (103, 15190), (105, 15202), (106, 15205), (107, 15217), (114, 15304), (121, 15358), (129, 15427), (131, 15463), (151, 15607), (159, 15658), (174, 15802), (175,

15805), (176, 15808), (182, 15856), (188, 15913),

Gene: CherryCola\_22 Start: 12733, Stop: 14619, Start Num: 5

Candidate Starts for CherryCola\_22:

(Start: 5 @12733 has 116 MA's), (28, 12970), (30, 12982), (35, 13036), (45, 13258), (62, 13420), (66, 13453), (100, 13705), (104, 13777), (108, 13834), (111, 13846), (124, 13963), (129, 14008), (130, 14011), (143, 14134), (145, 14146), (156, 14206), (173, 14359), (175, 14368), (184, 14440), (187, 14470), (198, 14542), (201, 14566),

Gene: Chickadee\_20 Start: 13744, Stop: 15633, Start Num: 5

Candidate Starts for Chickadee\_20:

(Start: 4 @13735 has 1 MA's), (Start: 5 @13744 has 116 MA's), (12, 13810), (27, 13978), (30, 13996), (45, 14269), (57, 14365), (79, 14557), (83, 14572), (91, 14650), (100, 14719), (103, 14782), (105, 14794), (106, 14797), (112, 14881), (114, 14896), (126, 14995), (131, 15049), (143, 15154), (159, 15244), (166, 15325), (173, 15382), (184, 15463), (188, 15499), (198, 15565),

Gene: ClamChowder\_21 Start: 12512, Stop: 14410, Start Num: 5

Candidate Starts for ClamChowder\_21:

(Start: 5 @12512 has 116 MA's), (28, 12749), (30, 12761), (35, 12815), (62, 13208), (66, 13241), (71, 13265), (100, 13505), (108, 13634), (111, 13646), (124, 13763), (129, 13808), (130, 13811), (136, 13871), (138, 13889), (143, 13934), (145, 13946), (146, 13949), (150, 13970), (163, 14069), (167, 14108), (175, 14168), (184, 14240), (187, 14270), (190, 14294), (193, 14321), (194, 14324), (199, 14351),

Gene: Clown\_23 Start: 14522, Stop: 16378, Start Num: 5

Candidate Starts for Clown\_23:

(3, 14495), (Start: 5 @14522 has 116 MA's), (11, 14543), (15, 14624), (27, 14756), (30, 14774), (36, 14840), (60, 15146), (66, 15212), (68, 15227), (72, 15239), (100, 15479), (104, 15551), (108, 15608), (111, 15620), (114, 15659), (124, 15737), (128, 15767), (129, 15782), (143, 15908), (145, 15920), (146, 15923), (163, 16043), (164, 16052), (173, 16133), (181, 16187), (184, 16214), (193, 16295), (194, 16298),

Gene: CoveyB\_21 Start: 12369, Stop: 14255, Start Num: 5

Candidate Starts for CoveyB\_21:

(Start: 5 @12369 has 116 MA's), (28, 12606), (30, 12618), (35, 12672), (45, 12894), (62, 13056), (66, 13089), (100, 13341), (104, 13413), (108, 13470), (111, 13482), (124, 13599), (129, 13644), (130, 13647), (143, 13770), (145, 13782), (156, 13842), (173, 13995), (175, 14004), (184, 14076), (187, 14106), (198, 14178), (201, 14202),

Gene: Danyall\_21 Start: 12369, Stop: 14255, Start Num: 5

Candidate Starts for Danyall\_21:

(Start: 5 @12369 has 116 MA's), (28, 12606), (30, 12618), (35, 12672), (45, 12894), (62, 13056), (66, 13089), (100, 13341), (104, 13413), (108, 13470), (111, 13482), (124, 13599), (129, 13644), (130, 13647), (143, 13770), (145, 13782), (156, 13842), (173, 13995), (175, 14004), (184, 14076), (187, 14106), (198, 14178), (201, 14202),

Gene: Delrey21\_21 Start: 14990, Stop: 16909, Start Num: 5

Candidate Starts for Delrey21\_21:

(Start: 5 @14990 has 116 MA's), (15, 15089), (25, 15206), (26, 15218), (27, 15221), (38, 15395), (48, 15509), (52, 15542), (56, 15608), (58, 15614), (61, 15668), (64, 15692), (69, 15728), (96, 15944), (98, 15962), (100, 15968), (103, 16031), (105, 16043), (106, 16046), (107, 16058), (114, 16148), (118, 16175), (135, 16334), (144, 16412), (152, 16448), (160, 16508), (164, 16553), (173, 16664), (177, 16697), (188, 16781), (190, 16799), (194, 16829),

Gene: Derg\_16 Start: 14345, Stop: 16255, Start Num: 5

Candidate Starts for Derg\_16:

(Start: 5 @14345 has 116 MA's), (19, 14480), (27, 14576), (43, 14861), (53, 14930), (57, 14978), (59, 15002), (61, 15038), (65, 15071), (68, 15095), (84, 15188), (98, 15329), (100, 15335), (103, 15398), (105, 15410), (106, 15413), (107, 15425), (114, 15512), (129, 15635), (131, 15671), (135, 15704), (143, 15776), (151, 15815), (159, 15866), (174, 16010), (175, 16013), (182, 16064), (188, 16121), (189, 16133), (191, 16142),

Gene: Dxdert\_21 Start: 14191, Stop: 16077, Start Num: 5

Candidate Starts for Dxdert\_21:

(Start: 4 @14182 has 1 MA's), (Start: 5 @14191 has 116 MA's), (12, 14257), (27, 14425), (30, 14443), (45, 14713), (57, 14809), (83, 15016), (91, 15094), (100, 15163), (103, 15226), (105, 15238), (106, 15241), (112, 15325), (114, 15340), (126, 15439), (131, 15493), (143, 15598), (159, 15688), (166, 15769), (173, 15826), (176, 15838), (183, 15895), (184, 15907), (188, 15943), (198, 16009),

Gene: DoctorFroggo\_21 Start: 14990, Stop: 16909, Start Num: 5

Candidate Starts for DoctorFroggo\_21:

(Start: 5 @14990 has 116 MA's), (15, 15089), (25, 15206), (26, 15218), (27, 15221), (38, 15395), (48, 15509), (52, 15542), (56, 15608), (58, 15614), (61, 15668), (64, 15692), (69, 15728), (96, 15944), (98, 15962), (100, 15968), (103, 16031), (105, 16043), (106, 16046), (107, 16058), (114, 16148), (118, 16175), (135, 16334), (144, 16412), (152, 16448), (160, 16508), (164, 16553), (173, 16664), (177, 16697), (188, 16781), (190, 16799), (194, 16829),

Gene: DogYard\_26 Start: 14304, Stop: 16031, Start Num: 13

Candidate Starts for DogYard\_26:

(Start: 5 @14241 has 116 MA's), (Start: 13 @14304 has 18 MA's), (66, 14913), (101, 15201), (102, 15213), (106, 15243), (115, 15339), (116, 15342), (117, 15345), (122, 15405), (142, 15567), (153, 15627), (154, 15633), (156, 15651), (163, 15714), (178, 15825), (190, 15924),

Gene: EMoore\_16 Start: 13023, Stop: 14942, Start Num: 5

Candidate Starts for EMoore\_16:

(Start: 5 @13023 has 116 MA's), (29, 13263), (49, 13551), (81, 13818), (84, 13827), (86, 13845), (88, 13878), (98, 13992), (100, 13998), (103, 14061), (107, 14088), (114, 14175), (134, 14358), (143, 14433), (145, 14445), (151, 14472), (159, 14523), (164, 14580), (173, 14691), (183, 14760), (184, 14772), (188, 14808), (189, 14820), (190, 14826),

Gene: EdmundFerry\_19 Start: 13775, Stop: 15661, Start Num: 5

Candidate Starts for EdmundFerry\_19:

(Start: 4 @13766 has 1 MA's), (Start: 5 @13775 has 116 MA's), (12, 13841), (27, 14009), (30, 14027), (45, 14297), (57, 14393), (83, 14600), (91, 14678), (100, 14747), (103, 14810), (105, 14822), (106, 14825), (112, 14909), (114, 14924), (126, 15023), (131, 15077), (143, 15182), (159, 15272), (166, 15353), (173, 15410), (176, 15422), (183, 15479), (184, 15491), (188, 15527), (198, 15593),

Gene: Egi03\_19 Start: 11979, Stop: 13871, Start Num: 5

Candidate Starts for Egi03\_19:

(Start: 5 @11979 has 116 MA's), (28, 12216), (30, 12228), (35, 12282), (45, 12507), (62, 12669), (66, 12702), (72, 12729), (108, 13095), (111, 13107), (124, 13224), (129, 13269), (130, 13272), (136, 13332), (138, 13350), (143, 13395), (145, 13407), (146, 13410), (163, 13530), (167, 13569), (175, 13629), (184, 13701), (187, 13731), (190, 13755), (193, 13782), (194, 13785), (199, 13812),

Gene: Evamon\_19 Start: 11844, Stop: 13742, Start Num: 5

Candidate Starts for Evamon\_19:

(Start: 5 @11844 has 116 MA's), (28, 12081), (30, 12093), (35, 12147), (45, 12378), (62, 12540), (66, 12573), (100, 12837), (108, 12966), (111, 12978), (124, 13095), (129, 13140), (130, 13143), (136, 13203), (138, 13221), (141, 13236), (143, 13266), (145, 13278), (146, 13281), (163, 13401), (167, 13440), (175, 13500), (184, 13572), (187, 13602), (190, 13626), (193, 13653), (194, 13656), (199, 13683),

Gene: Fireball\_20 Start: 11982, Stop: 13874, Start Num: 5

Candidate Starts for Fireball\_20:

(Start: 5 @11982 has 116 MA's), (28, 12219), (30, 12231), (35, 12285), (45, 12510), (62, 12672), (66, 12705), (72, 12732), (108, 13098), (111, 13110), (124, 13227), (129, 13272), (130, 13275), (136, 13335), (138, 13353), (143, 13398), (145, 13410), (146, 13413), (163, 13533), (167, 13572), (175, 13632), (184, 13704), (187, 13734), (190, 13758), (193, 13785), (194, 13788), (199, 13815),

Gene: Fitzgerald\_18 Start: 14566, Stop: 16473, Start Num: 5

Candidate Starts for Fitzgerald\_18:

(Start: 5 @14566 has 116 MA's), (27, 14797), (30, 14815), (43, 15082), (59, 15220), (65, 15289), (71, 15322), (98, 15547), (100, 15553), (103, 15616), (105, 15628), (106, 15631), (107, 15643), (114, 15730), (129, 15853), (131, 15889), (151, 16033), (159, 16084), (174, 16228), (175, 16231), (176, 16234), (182, 16282), (188, 16339),

Gene: Flatwoods\_21 Start: 14757, Stop: 16682, Start Num: 5

Candidate Starts for Flatwoods\_21:

(Start: 5 @14757 has 116 MA's), (19, 14892), (27, 14988), (43, 15288), (53, 15357), (57, 15405), (59, 15429), (61, 15465), (65, 15498), (68, 15522), (84, 15615), (98, 15756), (100, 15762), (103, 15825), (105, 15837), (106, 15840), (107, 15852), (114, 15939), (129, 16062), (131, 16098), (135, 16131), (143, 16203), (151, 16242), (159, 16293), (173, 16431), (174, 16437), (175, 16440), (182, 16491), (188, 16548), (189, 16560), (191, 16569),

Gene: Forrestell\_23 Start: 12942, Stop: 14669, Start Num: 13

Candidate Starts for Forrestell\_23:

(Start: 5 @12879 has 116 MA's), (Start: 13 @12942 has 18 MA's), (66, 13551), (96, 13779), (101, 13839), (102, 13851), (106, 13881), (115, 13977), (116, 13980), (117, 13983), (122, 14043), (142, 14205), (151, 14256), (153, 14265), (156, 14289), (163, 14352), (173, 14427), (174, 14433), (176, 14439), (177, 14460), (190, 14562),

Gene: Forza\_87 Start: 41953, Stop: 43605, Start Num: 18

Candidate Starts for Forza\_87:

(Start: 18 @41953 has 5 MA's), (32, 42100), (33, 42112), (51, 42379), (74, 42592), (85, 42667), (91, 42718), (95, 42760), (110, 42907), (115, 42958), (118, 42979), (119, 42982), (147, 43213), (155, 43261), (157, 43276), (176, 43414), (186, 43507),

Gene: Fosterous\_18 Start: 15029, Stop: 16936, Start Num: 5

Candidate Starts for Fosterous\_18:

(Start: 5 @15029 has 116 MA's), (27, 15260), (30, 15278), (43, 15545), (59, 15683), (65, 15752), (71, 15785), (98, 16010), (100, 16016), (103, 16079), (105, 16091), (106, 16094), (107, 16106), (114, 16193), (121, 16247), (129, 16316), (131, 16352), (151, 16496), (159, 16547), (174, 16691), (175, 16694), (176, 16697), (182, 16745), (188, 16802),

Gene: FuegoCuervo\_23 Start: 14318, Stop: 16225, Start Num: 5

Candidate Starts for FuegoCuervo\_23:

(Start: 5 @14318 has 116 MA's), (27, 14549), (30, 14567), (43, 14834), (59, 14972), (65, 15041), (71, 15074), (98, 15299), (100, 15305), (103, 15368), (105, 15380), (106, 15383), (107, 15395), (114, 15482), (129, 15605), (131, 15641), (151, 15785), (159, 15836), (174, 15980), (175, 15983), (176,

15986), (182, 16034), (188, 16091),

Gene: Fugax\_21 Start: 12512, Stop: 14410, Start Num: 5

Candidate Starts for Fugax\_21:

(Start: 5 @12512 has 116 MA's), (28, 12749), (30, 12761), (35, 12815), (62, 13208), (66, 13241), (71, 13265), (100, 13505), (108, 13634), (111, 13646), (124, 13763), (129, 13808), (130, 13811), (136, 13871), (138, 13889), (143, 13934), (145, 13946), (146, 13949), (150, 13970), (163, 14069), (167, 14108), (175, 14168), (184, 14240), (187, 14270), (190, 14294), (193, 14321), (194, 14324), (199, 14351),

Gene: GMA2\_16 Start: 15295, Stop: 16959, Start Num: 18

Candidate Starts for GMA2\_16:

(16, 15280), (Start: 18 @15295 has 5 MA's), (23, 15349), (32, 15442), (33, 15454), (35, 15481), (50, 15718), (51, 15724), (55, 15781), (95, 16114), (119, 16336), (159, 16636), (165, 16696), (186, 16861),

Gene: GTE6\_20 Start: 14261, Stop: 16150, Start Num: 5

Candidate Starts for GTE6\_20:

(Start: 4 @14252 has 1 MA's), (Start: 5 @14261 has 116 MA's), (12, 14327), (27, 14495), (30, 14513), (45, 14786), (57, 14882), (83, 15089), (91, 15167), (100, 15236), (103, 15299), (105, 15311), (106, 15314), (112, 15398), (114, 15413), (126, 15512), (131, 15566), (143, 15671), (159, 15761), (166, 15842), (173, 15899), (177, 15932), (184, 15980), (188, 16016), (198, 16082),

Gene: Gaea\_20 Start: 14451, Stop: 16370, Start Num: 5

Candidate Starts for Gaea\_20:

(Start: 5 @14451 has 116 MA's), (19, 14586), (27, 14682), (43, 14976), (53, 15045), (57, 15093), (59, 15117), (61, 15153), (65, 15186), (68, 15210), (84, 15303), (98, 15444), (100, 15450), (103, 15513), (105, 15525), (106, 15528), (107, 15540), (114, 15627), (129, 15750), (131, 15786), (135, 15819), (143, 15891), (151, 15930), (159, 15981), (173, 16119), (174, 16125), (175, 16128), (182, 16179), (188, 16236), (189, 16248), (191, 16257),

Gene: Galadriel\_22 Start: 14888, Stop: 16786, Start Num: 5

Candidate Starts for Galadriel\_22:

(Start: 5 @14888 has 116 MA's), (27, 15119), (30, 15137), (43, 15395), (59, 15533), (65, 15602), (71, 15635), (98, 15860), (100, 15866), (103, 15929), (105, 15941), (106, 15944), (107, 15956), (114, 16043), (129, 16166), (131, 16202), (151, 16346), (159, 16397), (174, 16541), (175, 16544), (176, 16547), (182, 16595), (188, 16652),

Gene: Geodirt\_19 Start: 15093, Stop: 17003, Start Num: 5

Candidate Starts for Geodirt\_19:

(Start: 5 @15093 has 116 MA's), (27, 15324), (30, 15342), (43, 15612), (59, 15750), (65, 15819), (71, 15852), (98, 16077), (100, 16083), (103, 16146), (105, 16158), (106, 16161), (107, 16173), (114, 16260), (121, 16314), (129, 16383), (131, 16419), (151, 16563), (159, 16614), (174, 16758), (175, 16761), (176, 16764), (182, 16812), (188, 16869),

Gene: Gezellig\_19 Start: 11982, Stop: 13874, Start Num: 5

Candidate Starts for Gezellig\_19:

(Start: 5 @11982 has 116 MA's), (28, 12219), (30, 12231), (35, 12285), (45, 12510), (62, 12672), (66, 12705), (72, 12732), (108, 13098), (111, 13110), (124, 13227), (129, 13272), (130, 13275), (136, 13335), (138, 13353), (143, 13398), (145, 13410), (146, 13413), (163, 13533), (167, 13572), (175, 13632), (184, 13704), (187, 13734), (190, 13758), (193, 13785), (194, 13788), (199, 13815),

Gene: GodonK\_76 Start: 36704, Stop: 38413, Start Num: 17

Candidate Starts for GodonK\_76:

(Start: 17 @36704 has 2 MA's), (21, 36731), (31, 36851), (32, 36860), (34, 36881), (36, 36911), (42, 37100), (51, 37178), (55, 37241), (62, 37319), (82, 37454), (91, 37526), (109, 37712), (114, 37760), (115, 37766), (119, 37790), (120, 37811), (121, 37814), (133, 37922), (136, 37940), (151, 38042), (155, 38069), (171, 38189), (177, 38243), (197, 38384),

Gene: Gustavo\_20 Start: 14562, Stop: 16469, Start Num: 5

Candidate Starts for Gustavo\_20:

(Start: 5 @14562 has 116 MA's), (19, 14697), (27, 14793), (43, 15075), (53, 15144), (57, 15192), (59, 15216), (61, 15252), (65, 15285), (68, 15309), (84, 15402), (98, 15543), (100, 15549), (103, 15612), (105, 15624), (106, 15627), (107, 15639), (114, 15726), (129, 15849), (131, 15885), (143, 15990), (151, 16029), (159, 16080), (173, 16218), (174, 16224), (175, 16227), (182, 16278), (188, 16335), (189, 16347), (191, 16356),

Gene: Halo3\_20 Start: 12297, Stop: 14195, Start Num: 5

Candidate Starts for Halo3\_20:

(Start: 5 @12297 has 116 MA's), (28, 12534), (30, 12546), (35, 12600), (62, 12993), (66, 13026), (100, 13290), (108, 13419), (111, 13431), (113, 13467), (124, 13548), (129, 13593), (130, 13596), (136, 13656), (143, 13719), (145, 13731), (146, 13734), (167, 13893), (175, 13953), (184, 14025), (187, 14055), (190, 14079), (193, 14106), (194, 14109),

Gene: Hans\_23 Start: 15322, Stop: 17238, Start Num: 5

Candidate Starts for Hans\_23:

(Start: 5 @15322 has 116 MA's), (24, 15523), (37, 15646), (43, 15814), (53, 15880), (59, 15937), (81, 16114), (84, 16123), (88, 16174), (91, 16225), (98, 16288), (100, 16294), (103, 16357), (107, 16384), (114, 16471), (118, 16498), (134, 16654), (143, 16729), (146, 16744), (151, 16768), (156, 16801), (159, 16819), (164, 16876), (173, 16987), (183, 17056), (184, 17068), (188, 17104), (198, 17170),

Gene: Hive\_26 Start: 14318, Stop: 16045, Start Num: 13

Candidate Starts for Hive\_26:

(Start: 5 @14255 has 116 MA's), (Start: 13 @14318 has 18 MA's), (66, 14927), (101, 15215), (102, 15227), (106, 15257), (115, 15353), (116, 15356), (117, 15359), (122, 15419), (142, 15581), (153, 15641), (154, 15647), (156, 15665), (163, 15728), (178, 15839), (190, 15938),

Gene: Inspectinfecti\_22 Start: 15744, Stop: 17663, Start Num: 5

Candidate Starts for Inspectinfecti\_22:

(Start: 5 @15744 has 116 MA's), (24, 15945), (37, 16068), (43, 16239), (52, 16284), (53, 16305), (59, 16362), (81, 16539), (84, 16548), (88, 16599), (91, 16650), (98, 16713), (100, 16719), (103, 16782), (107, 16809), (114, 16896), (118, 16923), (123, 16971), (134, 17079), (143, 17154), (146, 17169), (151, 17193), (156, 17226), (159, 17244), (164, 17301), (173, 17412), (183, 17481), (184, 17493), (188, 17529), (198, 17595),

Gene: JKSyngboy\_19 Start: 15221, Stop: 17128, Start Num: 5

Candidate Starts for JKSyngboy\_19:

(Start: 5 @15221 has 116 MA's), (19, 15356), (23, 15389), (27, 15452), (43, 15734), (53, 15803), (57, 15851), (59, 15875), (65, 15944), (68, 15968), (84, 16061), (98, 16202), (100, 16208), (103, 16271), (105, 16283), (106, 16286), (107, 16298), (114, 16385), (129, 16508), (131, 16544), (135, 16577), (143, 16649), (151, 16688), (159, 16739), (174, 16883), (175, 16886), (182, 16937), (188, 16994), (189, 17006), (191, 17015),

Gene: Jabberwocky\_18 Start: 15000, Stop: 16907, Start Num: 5

Candidate Starts for Jabberwocky\_18:

(Start: 5 @15000 has 116 MA's), (27, 15231), (30, 15249), (43, 15516), (59, 15654), (65, 15723), (71, 15756), (98, 15981), (100, 15987), (103, 16050), (105, 16062), (106, 16065), (107, 16077), (114,

16164), (121, 16218), (129, 16287), (131, 16323), (151, 16467), (159, 16518), (174, 16662), (175, 16665), (176, 16668), (182, 16716), (188, 16773),

Gene: Jambalaya\_19 Start: 11635, Stop: 13521, Start Num: 5

Candidate Starts for Jambalaya\_19:

(Start: 5 @11635 has 116 MA's), (28, 11872), (30, 11884), (35, 11938), (62, 12319), (66, 12352), (72, 12379), (108, 12745), (111, 12757), (124, 12874), (129, 12919), (130, 12922), (136, 12982), (138, 13000), (143, 13045), (145, 13057), (146, 13060), (163, 13180), (167, 13219), (175, 13279), (184, 13351), (187, 13381), (190, 13405), (193, 13432), (194, 13435), (199, 13462),

Gene: JohnPork\_19 Start: 11883, Stop: 13769, Start Num: 5

Candidate Starts for JohnPork\_19:

(Start: 5 @11883 has 116 MA's), (28, 12120), (30, 12132), (35, 12186), (62, 12567), (66, 12600), (72, 12627), (108, 12993), (111, 13005), (124, 13122), (129, 13167), (130, 13170), (136, 13230), (138, 13248), (143, 13293), (145, 13305), (146, 13308), (163, 13428), (167, 13467), (175, 13527), (184, 13599), (187, 13629), (190, 13653), (193, 13680), (194, 13683), (199, 13710),

Gene: Kamashten\_21 Start: 15684, Stop: 17591, Start Num: 5

Candidate Starts for Kamashten\_21:

(Start: 5 @15684 has 116 MA's), (27, 15915), (30, 15933), (43, 16200), (59, 16338), (65, 16407), (71, 16440), (98, 16665), (100, 16671), (103, 16734), (105, 16746), (106, 16749), (107, 16761), (114, 16848), (121, 16902), (129, 16971), (131, 17007), (151, 17151), (159, 17202), (174, 17346), (175, 17349), (176, 17352), (182, 17400), (188, 17457),

Gene: Keitabear\_22 Start: 17233, Stop: 19128, Start Num: 5

Candidate Starts for Keitabear\_22:

(Start: 5 @17233 has 116 MA's), (27, 17464), (30, 17482), (43, 17737), (59, 17875), (65, 17944), (71, 17977), (98, 18202), (100, 18208), (105, 18283), (106, 18286), (107, 18298), (108, 18334), (114, 18385), (129, 18508), (131, 18544), (151, 18688), (159, 18739), (174, 18883), (175, 18886), (176, 18889), (182, 18937), (188, 18994), (202, 19111),

Gene: Kewpiedoll\_21 Start: 15069, Stop: 16979, Start Num: 5

Candidate Starts for Kewpiedoll\_21:

(Start: 5 @15069 has 116 MA's), (27, 15300), (30, 15318), (43, 15588), (59, 15726), (65, 15795), (71, 15828), (98, 16053), (100, 16059), (103, 16122), (105, 16134), (106, 16137), (107, 16149), (114, 16236), (129, 16359), (131, 16395), (151, 16539), (159, 16590), (174, 16734), (175, 16737), (176, 16740), (182, 16788), (188, 16845),

Gene: KimmyK\_21 Start: 12512, Stop: 14410, Start Num: 5

Candidate Starts for KimmyK\_21:

(Start: 5 @12512 has 116 MA's), (28, 12749), (30, 12761), (35, 12815), (62, 13208), (66, 13241), (71, 13265), (100, 13505), (108, 13634), (111, 13646), (124, 13763), (129, 13808), (130, 13811), (136, 13871), (138, 13889), (143, 13934), (145, 13946), (146, 13949), (150, 13970), (163, 14069), (167, 14108), (175, 14168), (184, 14240), (187, 14270), (190, 14294), (193, 14321), (194, 14324), (199, 14351),

Gene: Kithara\_25 Start: 14593, Stop: 16431, Start Num: 4

Candidate Starts for Kithara\_25:

(Start: 4 @14593 has 1 MA's), (9, 14623), (27, 14836), (44, 15118), (84, 15439), (94, 15559), (104, 15661), (126, 15850), (137, 15946), (140, 15958), (160, 16096), (164, 16141), (181, 16249), (187, 16306), (188, 16312), (191, 16333),

Gene: Kroos\_21 Start: 15314, Stop: 17227, Start Num: 5

Candidate Starts for Kroos\_21:

(Start: 5 @15314 has 116 MA's), (19, 15449), (27, 15545), (43, 15833), (53, 15902), (57, 15950), (59, 15974), (61, 16010), (65, 16043), (68, 16067), (84, 16160), (98, 16301), (100, 16307), (103, 16370), (105, 16382), (106, 16385), (107, 16397), (114, 16484), (129, 16607), (131, 16643), (135, 16676), (143, 16748), (151, 16787), (159, 16838), (173, 16976), (174, 16982), (175, 16985), (182, 17036), (188, 17093), (189, 17105), (191, 17114),

Gene: Kubulix\_27 Start: 14427, Stop: 16154, Start Num: 13

Candidate Starts for Kubulix\_27:

(Start: 5 @14364 has 116 MA's), (Start: 13 @14427 has 18 MA's), (66, 15036), (101, 15324), (102, 15336), (106, 15366), (115, 15462), (116, 15465), (117, 15468), (122, 15528), (142, 15690), (153, 15750), (154, 15756), (156, 15774), (163, 15837), (178, 15948), (190, 16047),

Gene: Kwekel\_20 Start: 13711, Stop: 15594, Start Num: 5

Candidate Starts for Kwekel\_20:

(Start: 4 @13702 has 1 MA's), (Start: 5 @13711 has 116 MA's), (27, 13945), (30, 13963), (45, 14233), (57, 14329), (83, 14536), (91, 14614), (98, 14677), (100, 14683), (103, 14746), (105, 14758), (106, 14761), (112, 14845), (114, 14860), (131, 15013), (143, 15118), (159, 15208), (166, 15289), (173, 15346), (183, 15415), (184, 15427), (188, 15463), (198, 15529),

Gene: Kwobi\_22 Start: 15290, Stop: 17209, Start Num: 5

Candidate Starts for Kwobi\_22:

(Start: 5 @15290 has 116 MA's), (19, 15425), (27, 15521), (43, 15815), (53, 15884), (57, 15932), (59, 15956), (61, 15992), (65, 16025), (68, 16049), (84, 16142), (98, 16283), (100, 16289), (103, 16352), (105, 16364), (106, 16367), (107, 16379), (114, 16466), (129, 16589), (131, 16625), (135, 16658), (143, 16730), (151, 16769), (159, 16820), (173, 16958), (174, 16964), (175, 16967), (182, 17018), (188, 17075), (189, 17087), (191, 17096),

Gene: Lennon\_22 Start: 16336, Stop: 18231, Start Num: 5

Candidate Starts for Lennon\_22:

(Start: 5 @16336 has 116 MA's), (27, 16567), (30, 16585), (43, 16840), (59, 16978), (65, 17047), (71, 17080), (98, 17305), (100, 17311), (103, 17374), (105, 17386), (106, 17389), (107, 17401), (114, 17488), (129, 17611), (131, 17647), (151, 17791), (159, 17842), (174, 17986), (175, 17989), (176, 17992), (182, 18040), (188, 18097), (202, 18214),

Gene: Leonard\_21 Start: 15339, Stop: 17258, Start Num: 5

Candidate Starts for Leonard\_21:

(Start: 5 @15339 has 116 MA's), (24, 15540), (37, 15663), (43, 15834), (52, 15879), (53, 15900), (59, 15957), (73, 16083), (81, 16134), (84, 16143), (88, 16194), (91, 16245), (98, 16308), (100, 16314), (103, 16377), (107, 16404), (114, 16491), (134, 16674), (143, 16749), (146, 16764), (151, 16788), (156, 16821), (159, 16839), (164, 16896), (173, 17007), (183, 17076), (184, 17088), (188, 17124), (198, 17190),

Gene: LilHam\_18 Start: 13869, Stop: 15788, Start Num: 5

Candidate Starts for LilHam\_18:

(Start: 5 @13869 has 116 MA's), (19, 14004), (27, 14100), (43, 14394), (53, 14463), (57, 14511), (59, 14535), (61, 14571), (65, 14604), (68, 14628), (84, 14721), (98, 14862), (100, 14868), (103, 14931), (105, 14943), (106, 14946), (107, 14958), (114, 15045), (129, 15168), (131, 15204), (135, 15237), (143, 15309), (151, 15348), (159, 15399), (174, 15543), (175, 15546), (182, 15597), (188, 15654), (189, 15666), (191, 15675),

Gene: Lilbeanie\_18 Start: 10655, Stop: 12583, Start Num: 5

Candidate Starts for Lilbeanie\_18:

(2, 10613), (Start: 5 @10655 has 116 MA's), (15, 10754), (25, 10871), (27, 10886), (43, 11204), (72, 11441), (78, 11489), (100, 11672), (113, 11846), (126, 11948), (129, 11972), (145, 12107), (158, 12179), (159, 12185), (169, 12287), (170, 12299), (180, 12377), (188, 12443), (190, 12461), (193, 12488),

Gene: Love\_22 Start: 15199, Stop: 17106, Start Num: 5

Candidate Starts for Love\_22:

(Start: 5 @15199 has 116 MA's), (27, 15430), (30, 15448), (43, 15715), (59, 15853), (65, 15922), (71, 15955), (98, 16180), (100, 16186), (103, 16249), (105, 16261), (106, 16264), (107, 16276), (114, 16363), (121, 16417), (129, 16486), (131, 16522), (151, 16666), (159, 16717), (174, 16861), (175, 16864), (176, 16867), (182, 16915), (188, 16972),

Gene: Mareelih\_85 Start: 41455, Stop: 43107, Start Num: 18

Candidate Starts for Mareelih\_85:

(Start: 18 @41455 has 5 MA's), (32, 41602), (33, 41614), (51, 41881), (74, 42094), (85, 42169), (91, 42220), (95, 42262), (110, 42409), (115, 42460), (118, 42481), (119, 42484), (147, 42715), (155, 42763), (157, 42778), (176, 42916), (186, 43009),

Gene: McCrothy\_21 Start: 15065, Stop: 16975, Start Num: 5

Candidate Starts for McCrothy\_21:

(Start: 5 @15065 has 116 MA's), (27, 15296), (30, 15314), (43, 15584), (59, 15722), (65, 15791), (71, 15824), (98, 16049), (100, 16055), (103, 16118), (105, 16130), (106, 16133), (107, 16145), (114, 16232), (129, 16355), (131, 16391), (151, 16535), (159, 16586), (174, 16730), (175, 16733), (176, 16736), (182, 16784), (188, 16841),

Gene: McKinley\_21 Start: 15222, Stop: 17132, Start Num: 5

Candidate Starts for McKinley\_21:

(Start: 5 @15222 has 116 MA's), (27, 15453), (30, 15471), (43, 15741), (59, 15879), (65, 15948), (71, 15981), (98, 16206), (100, 16212), (103, 16275), (105, 16287), (106, 16290), (107, 16302), (114, 16389), (129, 16512), (131, 16548), (151, 16692), (159, 16743), (174, 16887), (175, 16890), (176, 16893), (182, 16941), (188, 16998),

Gene: MelBins\_22 Start: 15543, Stop: 17459, Start Num: 5

Candidate Starts for MelBins\_22:

(Start: 5 @15543 has 116 MA's), (24, 15744), (37, 15867), (43, 16035), (53, 16101), (59, 16158), (81, 16335), (84, 16344), (88, 16395), (91, 16446), (98, 16509), (100, 16515), (103, 16578), (107, 16605), (114, 16692), (134, 16875), (143, 16950), (146, 16965), (151, 16989), (156, 17022), (159, 17040), (164, 17097), (173, 17208), (183, 17277), (184, 17289), (188, 17325), (198, 17391),

Gene: MellowYellow\_23 Start: 12969, Stop: 14696, Start Num: 13

Candidate Starts for MellowYellow\_23:

(Start: 5 @12906 has 116 MA's), (Start: 13 @12969 has 18 MA's), (66, 13578), (96, 13806), (101, 13866), (102, 13878), (106, 13908), (115, 14004), (116, 14007), (117, 14010), (122, 14070), (142, 14232), (151, 14283), (153, 14292), (156, 14316), (163, 14379), (173, 14454), (174, 14460), (176, 14466), (177, 14487), (190, 14589),

Gene: MoontowerMania\_19 Start: 14205, Stop: 16112, Start Num: 5

Candidate Starts for MoontowerMania\_19:

(Start: 5 @14205 has 116 MA's), (27, 14436), (30, 14454), (43, 14721), (59, 14859), (65, 14928), (71, 14961), (98, 15186), (100, 15192), (103, 15255), (105, 15267), (106, 15270), (107, 15282), (114, 15369), (121, 15423), (129, 15492), (131, 15528), (151, 15672), (159, 15723), (174, 15867), (175, 15870), (176, 15873), (182, 15921), (188, 15978),

Gene: Mutzi\_21 Start: 12236, Stop: 14134, Start Num: 5

Candidate Starts for Mutzi\_21:

(Start: 5 @12236 has 116 MA's), (28, 12473), (30, 12485), (35, 12539), (62, 12932), (66, 12965), (71, 12989), (100, 13229), (111, 13370), (124, 13487), (129, 13532), (130, 13535), (136, 13595), (143, 13658), (167, 13832), (175, 13892), (176, 13895), (184, 13964), (187, 13994), (190, 14018), (193, 14045), (194, 14048),

Gene: Natkenzie\_21 Start: 15527, Stop: 17449, Start Num: 5

Candidate Starts for Natkenzie\_21:

(Start: 5 @15527 has 116 MA's), (25, 15743), (27, 15758), (38, 15932), (51, 16070), (52, 16079), (56, 16148), (58, 16154), (61, 16208), (64, 16232), (96, 16484), (98, 16502), (100, 16508), (103, 16571), (105, 16583), (106, 16586), (107, 16598), (114, 16688), (118, 16715), (135, 16874), (144, 16952), (160, 17048), (163, 17084), (173, 17204), (177, 17237), (188, 17321), (193, 17366),

Gene: Nikan\_21 Start: 13481, Stop: 15208, Start Num: 13

Candidate Starts for Nikan\_21:

(Start: 5 @13418 has 116 MA's), (8, 13433), (Start: 13 @13481 has 18 MA's), (20, 13547), (66, 14087), (102, 14390), (106, 14420), (115, 14516), (116, 14519), (117, 14522), (122, 14582), (142, 14744), (151, 14795), (156, 14828), (163, 14891), (176, 14978), (178, 15002), (183, 15035), (192, 15125),

Gene: Nordenberg\_15 Start: 13519, Stop: 15426, Start Num: 5

Candidate Starts for Nordenberg\_15:

(Start: 5 @13519 has 116 MA's), (27, 13750), (30, 13768), (43, 14035), (59, 14173), (65, 14242), (71, 14275), (98, 14500), (100, 14506), (103, 14569), (105, 14581), (106, 14584), (107, 14596), (114, 14683), (129, 14806), (131, 14842), (151, 14986), (159, 15037), (173, 15175), (174, 15181), (175, 15184), (176, 15187), (182, 15235), (188, 15292),

Gene: Nubi\_19 Start: 11864, Stop: 13762, Start Num: 5

Candidate Starts for Nubi\_19:

(Start: 5 @11864 has 116 MA's), (28, 12101), (30, 12113), (35, 12167), (45, 12398), (62, 12560), (66, 12593), (100, 12857), (108, 12986), (111, 12998), (124, 13115), (129, 13160), (130, 13163), (136, 13223), (138, 13241), (141, 13256), (143, 13286), (145, 13298), (146, 13301), (163, 13421), (167, 13460), (175, 13520), (184, 13592), (187, 13622), (190, 13646), (193, 13673), (194, 13676), (199, 13703),

Gene: NyleyClemson\_21 Start: 12914, Stop: 14641, Start Num: 13

Candidate Starts for NyleyClemson\_21:

(Start: 5 @12851 has 116 MA's), (Start: 13 @12914 has 18 MA's), (66, 13523), (101, 13811), (102, 13823), (106, 13853), (115, 13949), (116, 13952), (117, 13955), (122, 14015), (142, 14177), (151, 14228), (153, 14237), (156, 14261), (163, 14324), (173, 14399), (174, 14405), (176, 14411), (177, 14432), (190, 14534),

Gene: Odyssey395\_28 Start: 14429, Stop: 16156, Start Num: 13

Candidate Starts for Odyssey395\_28:

(Start: 5 @14366 has 116 MA's), (Start: 13 @14429 has 18 MA's), (66, 15038), (97, 15275), (101, 15326), (102, 15338), (106, 15368), (115, 15464), (116, 15467), (117, 15470), (122, 15530), (142, 15692), (153, 15752), (154, 15758), (156, 15776), (163, 15839), (178, 15950), (190, 16049),

Gene: Ollypop\_24 Start: 13443, Stop: 15170, Start Num: 13

Candidate Starts for Ollypop\_24:

(Start: 5 @13380 has 116 MA's), (8, 13395), (Start: 13 @13443 has 18 MA's), (20, 13509), (42, 13833), (58, 13953), (66, 14049), (102, 14352), (106, 14382), (115, 14478), (116, 14481), (117, 14484), (122, 14544), (142, 14706), (151, 14757), (156, 14790), (163, 14853), (176, 14940), (180, 14979), (183,

14997),

Gene: Paries\_21 Start: 14887, Stop: 16794, Start Num: 5

Candidate Starts for Paries\_21:

(Start: 5 @14887 has 116 MA's), (27, 15118), (30, 15136), (43, 15403), (59, 15541), (65, 15610), (71, 15643), (98, 15868), (100, 15874), (103, 15937), (105, 15949), (106, 15952), (107, 15964), (114, 16051), (121, 16105), (129, 16174), (131, 16210), (151, 16354), (159, 16405), (174, 16549), (175, 16552), (176, 16555), (182, 16603), (188, 16660),

Gene: Phauci\_14 Start: 11906, Stop: 13825, Start Num: 5

Candidate Starts for Phauci\_14:

(Start: 5 @11906 has 116 MA's), (24, 12107), (37, 12230), (43, 12401), (52, 12446), (53, 12467), (59, 12524), (81, 12701), (84, 12710), (88, 12761), (91, 12812), (98, 12875), (100, 12881), (103, 12944), (107, 12971), (114, 13058), (134, 13241), (143, 13316), (146, 13331), (151, 13355), (156, 13388), (159, 13406), (164, 13463), (173, 13574), (183, 13643), (184, 13655), (188, 13691), (198, 13757),

Gene: Phendrix\_74 Start: 36572, Stop: 38281, Start Num: 17

Candidate Starts for Phendrix\_74:

(Start: 17 @36572 has 2 MA's), (21, 36599), (31, 36719), (32, 36728), (34, 36749), (36, 36779), (42, 36968), (51, 37046), (55, 37109), (62, 37187), (82, 37322), (91, 37394), (109, 37580), (114, 37628), (115, 37634), (119, 37658), (120, 37679), (121, 37682), (133, 37790), (136, 37808), (151, 37910), (155, 37937), (171, 38057), (177, 38111), (197, 38252),

Gene: Phinally\_21 Start: 15336, Stop: 17255, Start Num: 5

Candidate Starts for Phinally\_21:

(Start: 5 @15336 has 116 MA's), (24, 15537), (37, 15660), (43, 15831), (52, 15876), (53, 15897), (59, 15954), (73, 16080), (81, 16131), (84, 16140), (88, 16191), (91, 16242), (98, 16305), (100, 16311), (103, 16374), (107, 16401), (114, 16488), (134, 16671), (143, 16746), (146, 16761), (151, 16785), (156, 16818), (159, 16836), (164, 16893), (173, 17004), (183, 17073), (184, 17085), (188, 17121), (198, 17187),

Gene: Phlop\_19 Start: 11937, Stop: 13826, Start Num: 5

Candidate Starts for Phlop\_19:

(Start: 5 @11937 has 116 MA's), (28, 12174), (30, 12186), (35, 12240), (45, 12465), (62, 12627), (66, 12660), (71, 12684), (100, 12912), (104, 12984), (108, 13041), (124, 13170), (129, 13215), (130, 13218), (143, 13341), (145, 13353), (156, 13413), (173, 13566), (175, 13575), (184, 13647), (187, 13677), (193, 13728), (198, 13749), (201, 13773),

Gene: PhuzzTulsa\_24 Start: 14216, Stop: 15943, Start Num: 13

Candidate Starts for PhuzzTulsa\_24:

(Start: 5 @14153 has 116 MA's), (Start: 13 @14216 has 18 MA's), (66, 14825), (101, 15113), (102, 15125), (106, 15155), (115, 15251), (116, 15254), (117, 15257), (122, 15317), (142, 15479), (153, 15539), (154, 15545), (156, 15563), (163, 15626), (178, 15737), (190, 15836),

Gene: PinkCoffee\_21 Start: 12521, Stop: 14419, Start Num: 5

Candidate Starts for PinkCoffee\_21:

(Start: 5 @12521 has 116 MA's), (28, 12758), (30, 12770), (35, 12824), (62, 13217), (66, 13250), (71, 13274), (100, 13514), (108, 13643), (111, 13655), (124, 13772), (129, 13817), (130, 13820), (136, 13880), (138, 13898), (143, 13943), (145, 13955), (146, 13958), (150, 13979), (163, 14078), (167, 14117), (175, 14177), (184, 14249), (187, 14279), (190, 14303), (193, 14330), (194, 14333), (199, 14360),

Gene: Pointis\_26 Start: 14433, Stop: 16160, Start Num: 13

Candidate Starts for Pointis\_26:

(Start: 5 @14370 has 116 MA's), (Start: 13 @14433 has 18 MA's), (66, 15042), (101, 15330), (102, 15342), (106, 15372), (115, 15468), (116, 15471), (117, 15474), (122, 15534), (142, 15696), (153, 15756), (154, 15762), (156, 15780), (163, 15843), (178, 15954), (190, 16053),

Gene: Popstraw\_24 Start: 14219, Stop: 15946, Start Num: 13

Candidate Starts for Popstraw\_24:

(Start: 5 @14156 has 116 MA's), (Start: 13 @14219 has 18 MA's), (66, 14828), (101, 15116), (102, 15128), (106, 15158), (115, 15254), (116, 15257), (117, 15260), (122, 15320), (142, 15482), (153, 15542), (154, 15548), (156, 15566), (163, 15629), (178, 15740), (190, 15839),

Gene: Portcullis\_19 Start: 11883, Stop: 13769, Start Num: 5

Candidate Starts for Portcullis\_19:

(Start: 5 @11883 has 116 MA's), (28, 12120), (30, 12132), (35, 12186), (62, 12567), (66, 12600), (72, 12627), (108, 12993), (111, 13005), (124, 13122), (129, 13167), (130, 13170), (136, 13230), (138, 13248), (143, 13293), (145, 13305), (146, 13308), (163, 13428), (167, 13467), (175, 13527), (184, 13599), (187, 13629), (190, 13653), (193, 13680), (194, 13683), (199, 13710),

Gene: PullumCavea\_19 Start: 11937, Stop: 13826, Start Num: 5

Candidate Starts for PullumCavea\_19:

(Start: 5 @11937 has 116 MA's), (28, 12174), (30, 12186), (35, 12240), (45, 12465), (62, 12627), (66, 12660), (71, 12684), (100, 12912), (104, 12984), (108, 13041), (124, 13170), (129, 13215), (130, 13218), (143, 13341), (145, 13353), (156, 13413), (173, 13566), (175, 13575), (184, 13647), (187, 13677), (193, 13728), (198, 13749), (201, 13773),

Gene: Pumpkiney\_23 Start: 14240, Stop: 16156, Start Num: 5

Candidate Starts for Pumpkiney\_23:

(Start: 5 @14240 has 116 MA's), (25, 14456), (27, 14471), (38, 14645), (52, 14792), (56, 14858), (58, 14864), (61, 14918), (64, 14942), (67, 14966), (96, 15194), (98, 15212), (100, 15218), (103, 15281), (105, 15293), (106, 15296), (107, 15308), (114, 15398), (118, 15425), (135, 15584), (144, 15662), (160, 15758), (188, 16028), (193, 16073),

Gene: Pureglobe5\_28 Start: 14443, Stop: 16170, Start Num: 13

Candidate Starts for Pureglobe5\_28:

(Start: 5 @14380 has 116 MA's), (Start: 13 @14443 has 18 MA's), (66, 15052), (101, 15340), (102, 15352), (106, 15382), (115, 15478), (116, 15481), (117, 15484), (122, 15544), (142, 15706), (153, 15766), (154, 15772), (156, 15790), (163, 15853), (178, 15964), (190, 16063),

Gene: RIPWilbur\_24 Start: 13579, Stop: 15306, Start Num: 13

Candidate Starts for RIPWilbur\_24:

(Start: 5 @13516 has 116 MA's), (Start: 13 @13579 has 18 MA's), (66, 14188), (101, 14476), (102, 14488), (106, 14518), (115, 14614), (116, 14617), (117, 14620), (122, 14680), (142, 14842), (153, 14902), (154, 14908), (156, 14926), (163, 14989), (178, 15100), (190, 15199),

Gene: Ranunculus\_20 Start: 13327, Stop: 15048, Start Num: 13

Candidate Starts for Ranunculus\_20:

(6, 13264), (Start: 13 @13327 has 18 MA's), (66, 13921), (70, 13942), (85, 14044), (101, 14218), (102, 14230), (106, 14260), (116, 14359), (117, 14362), (135, 14527), (142, 14584), (148, 14626), (151, 14635), (153, 14644), (156, 14668), (163, 14731), (176, 14818), (180, 14857), (183, 14875),

Gene: RazzB\_22 Start: 12742, Stop: 14469, Start Num: 13

Candidate Starts for RazzB\_22:

(Start: 5 @12679 has 116 MA's), (Start: 13 @12742 has 18 MA's), (66, 13351), (101, 13639), (102, 13651), (106, 13681), (115, 13777), (116, 13780), (117, 13783), (122, 13843), (142, 14005), (151, 14056), (153, 14065), (156, 14089), (163, 14152), (173, 14227), (174, 14233), (176, 14239), (177, 14260), (190, 14362),

Gene: Ren19\_19 Start: 13481, Stop: 15208, Start Num: 13

Candidate Starts for Ren19\_19:

(Start: 5 @13418 has 116 MA's), (8, 13433), (Start: 13 @13481 has 18 MA's), (20, 13547), (66, 14087), (102, 14390), (106, 14420), (115, 14516), (116, 14519), (117, 14522), (122, 14582), (142, 14744), (151, 14795), (156, 14828), (163, 14891), (176, 14978), (178, 15002), (183, 15035), (192, 15125),

Gene: Ribeye\_21 Start: 15768, Stop: 17690, Start Num: 5

Candidate Starts for Ribeye\_21:

(Start: 5 @15768 has 116 MA's), (27, 15999), (43, 16296), (53, 16365), (57, 16413), (59, 16437), (65, 16506), (68, 16530), (84, 16623), (98, 16764), (100, 16770), (103, 16833), (105, 16845), (106, 16848), (107, 16860), (114, 16947), (129, 17070), (131, 17106), (135, 17139), (143, 17211), (151, 17250), (159, 17301), (173, 17439), (174, 17445), (175, 17448), (182, 17499), (188, 17556), (189, 17568), (191, 17577),

Gene: RiverRaider\_21 Start: 14172, Stop: 16070, Start Num: 5

Candidate Starts for RiverRaider\_21:

(1, 14094), (Start: 5 @14172 has 116 MA's), (27, 14403), (30, 14421), (37, 14496), (43, 14670), (53, 14751), (59, 14817), (65, 14886), (98, 15144), (100, 15150), (103, 15213), (105, 15225), (106, 15228), (107, 15240), (114, 15327), (129, 15450), (131, 15486), (143, 15591), (151, 15630), (159, 15681), (161, 15714), (174, 15825), (175, 15828), (176, 15831), (177, 15852), (182, 15879), (185, 15906), (188, 15936), (189, 15948),

Gene: Rizwana\_19 Start: 13218, Stop: 14954, Start Num: 13

Candidate Starts for Rizwana\_19:

(Start: 5 @13155 has 116 MA's), (Start: 13 @13218 has 18 MA's), (42, 13608), (47, 13644), (75, 13878), (89, 13986), (94, 14049), (96, 14058), (99, 14079), (106, 14160), (116, 14259), (117, 14262), (121, 14304), (124, 14328), (126, 14349), (127, 14355), (142, 14484), (153, 14544), (159, 14583), (162, 14625), (176, 14718), (190, 14841), (194, 14871),

Gene: RoadKill\_18 Start: 13249, Stop: 15138, Start Num: 5

Candidate Starts for RoadKill\_18:

(Start: 4 @13240 has 1 MA's), (Start: 5 @13249 has 116 MA's), (12, 13315), (27, 13483), (30, 13501), (45, 13774), (57, 13870), (83, 14077), (91, 14155), (100, 14224), (103, 14287), (105, 14299), (106, 14302), (112, 14386), (114, 14401), (126, 14500), (131, 14554), (143, 14659), (159, 14749), (166, 14830), (173, 14887), (176, 14899), (183, 14956), (184, 14968), (188, 15004), (198, 15070),

Gene: Rofo\_20 Start: 15139, Stop: 17046, Start Num: 5

Candidate Starts for Rofo\_20:

(Start: 5 @15139 has 116 MA's), (27, 15370), (30, 15388), (43, 15655), (59, 15793), (65, 15862), (71, 15895), (98, 16120), (100, 16126), (103, 16189), (105, 16201), (106, 16204), (107, 16216), (129, 16426), (131, 16462), (151, 16606), (159, 16657), (174, 16801), (175, 16804), (176, 16807), (182, 16855), (188, 16912),

Gene: RogerDodger\_22 Start: 12733, Stop: 14619, Start Num: 5

Candidate Starts for RogerDodger\_22:

(Start: 5 @12733 has 116 MA's), (28, 12970), (30, 12982), (35, 13036), (45, 13258), (62, 13420), (66, 13453), (100, 13705), (104, 13777), (108, 13834), (111, 13846), (124, 13963), (129, 14008), (130, 14011), (143, 14134), (145, 14146), (156, 14206), (173, 14359), (175, 14368), (184, 14440), (187,

14470), (198, 14542), (201, 14566),

Gene: RomansRevenge\_16 Start: 11444, Stop: 13249, Start Num: 10

Candidate Starts for RomansRevenge\_16:

(Start: 10 @11444 has 1 MA's), (Start: 13 @11492 has 18 MA's), (22, 11582), (39, 11834), (40, 11849), (46, 11942), (59, 12053), (60, 12062), (66, 12131), (74, 12176), (80, 12218), (92, 12323), (100, 12380), (106, 12458), (114, 12548), (116, 12557), (126, 12647), (138, 12749), (156, 12866), (163, 12929), (176, 13013), (183, 13070), (184, 13082), (190, 13136),

Gene: Salvador\_19 Start: 11842, Stop: 13740, Start Num: 5

Candidate Starts for Salvador\_19:

(Start: 5 @11842 has 116 MA's), (28, 12079), (30, 12091), (35, 12145), (45, 12376), (62, 12538), (66, 12571), (100, 12835), (108, 12964), (111, 12976), (124, 13093), (129, 13138), (130, 13141), (136, 13201), (138, 13219), (141, 13234), (143, 13264), (145, 13276), (146, 13279), (163, 13399), (167, 13438), (175, 13498), (184, 13570), (187, 13600), (190, 13624), (193, 13651), (194, 13654), (199, 13681),

Gene: Sampson\_21 Start: 15472, Stop: 17394, Start Num: 5

Candidate Starts for Sampson\_21:

(Start: 5 @15472 has 116 MA's), (25, 15688), (27, 15703), (38, 15877), (51, 16015), (52, 16024), (56, 16093), (58, 16099), (61, 16153), (64, 16177), (96, 16429), (98, 16447), (100, 16453), (103, 16516), (105, 16528), (106, 16531), (107, 16543), (114, 16633), (118, 16660), (135, 16819), (144, 16897), (160, 16993), (163, 17029), (173, 17149), (177, 17182), (188, 17266), (193, 17311),

Gene: Sanjuju\_18 Start: 14651, Stop: 16558, Start Num: 5

Candidate Starts for Sanjuju\_18:

(Start: 5 @14651 has 116 MA's), (27, 14882), (30, 14900), (43, 15167), (59, 15305), (65, 15374), (71, 15407), (98, 15632), (100, 15638), (103, 15701), (105, 15713), (106, 15716), (107, 15728), (114, 15815), (121, 15869), (129, 15938), (131, 15974), (151, 16118), (159, 16169), (174, 16313), (175, 16316), (176, 16319), (182, 16367), (188, 16424),

Gene: Saronaya\_20 Start: 14562, Stop: 16469, Start Num: 5

Candidate Starts for Saronaya\_20:

(Start: 5 @14562 has 116 MA's), (19, 14697), (27, 14793), (43, 15075), (53, 15144), (57, 15192), (59, 15216), (61, 15252), (65, 15285), (68, 15309), (84, 15402), (98, 15543), (100, 15549), (103, 15612), (105, 15624), (106, 15627), (107, 15639), (114, 15726), (129, 15849), (131, 15885), (143, 15990), (151, 16029), (159, 16080), (173, 16218), (174, 16224), (175, 16227), (182, 16278), (188, 16335), (189, 16347), (191, 16356),

Gene: Savbucketdawg\_19 Start: 11635, Stop: 13521, Start Num: 5

Candidate Starts for Savbucketdawg\_19:

(Start: 5 @11635 has 116 MA's), (28, 11872), (30, 11884), (35, 11938), (62, 12319), (66, 12352), (72, 12379), (108, 12745), (111, 12757), (124, 12874), (129, 12919), (130, 12922), (136, 12982), (138, 13000), (143, 13045), (145, 13057), (146, 13060), (163, 13180), (167, 13219), (175, 13279), (184, 13351), (187, 13381), (190, 13405), (193, 13432), (194, 13435), (199, 13462),

Gene: SchottB\_19 Start: 15551, Stop: 17470, Start Num: 5

Candidate Starts for SchottB\_19:

(Start: 5 @15551 has 116 MA's), (19, 15686), (27, 15782), (43, 16076), (53, 16145), (57, 16193), (59, 16217), (61, 16253), (65, 16286), (68, 16310), (84, 16403), (98, 16544), (100, 16550), (103, 16613), (105, 16625), (106, 16628), (107, 16640), (114, 16727), (129, 16850), (131, 16886), (135, 16919), (143, 16991), (151, 17030), (159, 17081), (174, 17225), (175, 17228), (182, 17279), (188, 17336), (189, 17348), (191, 17357),

Gene: Scioto\_21 Start: 15527, Stop: 17449, Start Num: 5

Candidate Starts for Scioto\_21:

(Start: 5 @15527 has 116 MA's), (25, 15743), (27, 15758), (38, 15932), (51, 16070), (52, 16079), (56, 16148), (58, 16154), (61, 16208), (64, 16232), (96, 16484), (98, 16502), (100, 16508), (103, 16571), (105, 16583), (106, 16586), (107, 16598), (114, 16688), (118, 16715), (135, 16874), (144, 16952), (160, 17048), (163, 17084), (173, 17204), (177, 17237), (188, 17321), (193, 17366),

Gene: Sedona\_22 Start: 16968, Stop: 18863, Start Num: 5

Candidate Starts for Sedona\_22:

(Start: 5 @16968 has 116 MA's), (27, 17199), (30, 17217), (43, 17472), (59, 17610), (65, 17679), (71, 17712), (98, 17937), (100, 17943), (103, 18006), (105, 18018), (106, 18021), (107, 18033), (114, 18120), (129, 18243), (131, 18279), (151, 18423), (159, 18474), (174, 18618), (175, 18621), (176, 18624), (182, 18672), (188, 18729), (202, 18846),

Gene: Sendy\_20 Start: 11979, Stop: 13871, Start Num: 5

Candidate Starts for Sendy\_20:

(Start: 5 @11979 has 116 MA's), (28, 12216), (30, 12228), (35, 12282), (45, 12507), (62, 12669), (66, 12702), (72, 12729), (108, 13095), (111, 13107), (124, 13224), (129, 13269), (130, 13272), (136, 13332), (138, 13350), (143, 13395), (145, 13407), (146, 13410), (163, 13530), (167, 13569), (175, 13629), (184, 13701), (187, 13731), (190, 13755), (193, 13782), (194, 13785), (199, 13812),

Gene: SharkTale\_19 Start: 12583, Stop: 14484, Start Num: 5

Candidate Starts for SharkTale\_19:

(Start: 5 @12583 has 116 MA's), (28, 12820), (30, 12832), (35, 12886), (62, 13276), (66, 13309), (71, 13333), (84, 13414), (87, 13441), (100, 13579), (108, 13708), (111, 13720), (114, 13759), (124, 13837), (129, 13882), (130, 13885), (136, 13945), (143, 14008), (145, 14020), (184, 14314), (187, 14344), (190, 14368), (193, 14395), (194, 14398), (196, 14404),

Gene: Shinji\_19 Start: 11824, Stop: 13710, Start Num: 5

Candidate Starts for Shinji\_19:

(Start: 5 @11824 has 116 MA's), (28, 12061), (30, 12073), (35, 12127), (62, 12508), (66, 12541), (72, 12568), (108, 12934), (111, 12946), (124, 13063), (129, 13108), (130, 13111), (136, 13171), (138, 13189), (143, 13234), (145, 13246), (146, 13249), (163, 13369), (167, 13408), (175, 13468), (184, 13540), (187, 13570), (190, 13594), (193, 13621), (194, 13624), (199, 13651),

Gene: Shivanishola\_20 Start: 14945, Stop: 16852, Start Num: 5

Candidate Starts for Shivanishola\_20:

(Start: 5 @14945 has 116 MA's), (27, 15176), (30, 15194), (43, 15461), (59, 15599), (65, 15668), (71, 15701), (98, 15926), (100, 15932), (103, 15995), (105, 16007), (106, 16010), (107, 16022), (114, 16109), (121, 16163), (129, 16232), (131, 16268), (151, 16412), (159, 16463), (174, 16607), (175, 16610), (176, 16613), (182, 16661), (188, 16718),

Gene: SilentRX\_21 Start: 13505, Stop: 15193, Start Num: 13

Candidate Starts for SilentRX\_21:

(6, 13445), (7, 13457), (9, 13460), (Start: 13 @13505 has 18 MA's), (102, 14372), (106, 14402), (107, 14414), (115, 14498), (116, 14501), (117, 14504), (125, 14573), (132, 14645), (138, 14693), (156, 14810), (163, 14876), (179, 14993), (189, 15080), (190, 15086),

Gene: Sitar\_22 Start: 16336, Stop: 18231, Start Num: 5

Candidate Starts for Sitar\_22:

(Start: 5 @16336 has 116 MA's), (27, 16567), (30, 16585), (43, 16840), (59, 16978), (65, 17047), (71, 17080), (98, 17305), (100, 17311), (103, 17374), (105, 17386), (106, 17389), (107, 17401), (114,

17488), (129, 17611), (131, 17647), (151, 17791), (159, 17842), (174, 17986), (175, 17989), (176, 17992), (182, 18040), (188, 18097), (202, 18214),

Gene: Sixama\_81 Start: 41770, Stop: 43428, Start Num: 18

Candidate Starts for Sixama\_81:

(16, 41755), (Start: 18 @41770 has 5 MA's), (32, 41917), (33, 41929), (51, 42202), (62, 42331), (74, 42415), (77, 42439), (85, 42490), (90, 42535), (95, 42583), (114, 42775), (115, 42781), (119, 42805), (147, 43036), (171, 43204), (186, 43330), (188, 43339),

Gene: Sixsevenium\_20 Start: 11735, Stop: 13636, Start Num: 5

Candidate Starts for Sixsevenium\_20:

(Start: 5 @11735 has 116 MA's), (28, 11972), (30, 11984), (35, 12038), (62, 12425), (66, 12458), (71, 12482), (84, 12563), (87, 12590), (100, 12728), (108, 12857), (111, 12869), (114, 12908), (124, 12986), (129, 13031), (130, 13034), (131, 13055), (136, 13097), (139, 13118), (143, 13160), (145, 13172), (184, 13466), (187, 13496), (190, 13520), (194, 13550),

Gene: SmokingBunny\_19 Start: 11842, Stop: 13740, Start Num: 5

Candidate Starts for SmokingBunny\_19:

(Start: 5 @11842 has 116 MA's), (28, 12079), (30, 12091), (35, 12145), (45, 12376), (62, 12538), (66, 12571), (100, 12835), (108, 12964), (111, 12976), (124, 13093), (129, 13138), (130, 13141), (136, 13201), (138, 13219), (141, 13234), (143, 13264), (145, 13276), (146, 13279), (163, 13399), (167, 13438), (175, 13498), (184, 13570), (187, 13600), (190, 13624), (193, 13651), (194, 13654), (199, 13681),

Gene: Stichling\_19 Start: 14115, Stop: 16025, Start Num: 5

Candidate Starts for Stichling\_19:

(Start: 5 @14115 has 116 MA's), (19, 14250), (27, 14346), (43, 14631), (53, 14700), (57, 14748), (59, 14772), (61, 14808), (65, 14841), (68, 14865), (84, 14958), (98, 15099), (100, 15105), (103, 15168), (105, 15180), (106, 15183), (107, 15195), (114, 15282), (129, 15405), (131, 15441), (135, 15474), (143, 15546), (151, 15585), (159, 15636), (174, 15780), (175, 15783), (182, 15834), (188, 15891), (189, 15903), (191, 15912),

Gene: StorminNorm\_20 Start: 14442, Stop: 16349, Start Num: 5

Candidate Starts for StorminNorm\_20:

(Start: 5 @14442 has 116 MA's), (19, 14577), (27, 14673), (43, 14955), (53, 15024), (57, 15072), (59, 15096), (61, 15132), (65, 15165), (68, 15189), (84, 15282), (98, 15423), (100, 15429), (103, 15492), (105, 15504), (106, 15507), (107, 15519), (114, 15606), (129, 15729), (131, 15765), (143, 15870), (151, 15909), (159, 15960), (173, 16098), (174, 16104), (175, 16107), (182, 16158), (188, 16215), (189, 16227), (191, 16236), (203, 16335),

Gene: Stultus\_20 Start: 14947, Stop: 16842, Start Num: 5

Candidate Starts for Stultus\_20:

(Start: 5 @14947 has 116 MA's), (27, 15178), (30, 15196), (43, 15451), (59, 15589), (65, 15658), (71, 15691), (98, 15916), (100, 15922), (103, 15985), (105, 15997), (106, 16000), (107, 16012), (114, 16099), (129, 16222), (131, 16258), (151, 16402), (159, 16453), (174, 16597), (175, 16600), (176, 16603), (182, 16651), (188, 16708), (202, 16825),

Gene: Sunfish\_32 Start: 15117, Stop: 16874, Start Num: 14

Candidate Starts for Sunfish\_32:

(Start: 14 @15117 has 1 MA's), (41, 15489), (43, 15534), (60, 15681), (76, 15807), (146, 16431), (148, 16446), (149, 16449), (151, 16455), (183, 16695), (190, 16761), (193, 16788),

Gene: Tangent\_18 Start: 14140, Stop: 16047, Start Num: 5

Candidate Starts for Tangent\_18:

(Start: 5 @14140 has 116 MA's), (27, 14371), (30, 14389), (43, 14656), (59, 14794), (65, 14863), (71, 14896), (98, 15121), (100, 15127), (103, 15190), (105, 15202), (106, 15205), (107, 15217), (114, 15304), (121, 15358), (129, 15427), (131, 15463), (151, 15607), (159, 15658), (174, 15802), (175, 15805), (176, 15808), (182, 15856), (188, 15913),

Gene: Tangerine\_20 Start: 14448, Stop: 16355, Start Num: 5

Candidate Starts for Tangerine\_20:

(Start: 5 @14448 has 116 MA's), (19, 14583), (27, 14679), (43, 14961), (53, 15030), (57, 15078), (59, 15102), (61, 15138), (65, 15171), (68, 15195), (84, 15288), (98, 15429), (100, 15435), (103, 15498), (105, 15510), (106, 15513), (107, 15525), (114, 15612), (129, 15735), (131, 15771), (143, 15876), (151, 15915), (159, 15966), (173, 16104), (174, 16110), (175, 16113), (182, 16164), (188, 16221), (189, 16233), (191, 16242), (203, 16341),

Gene: Tank\_20 Start: 13083, Stop: 14846, Start Num: 13

Candidate Starts for Tank\_20:

(Start: 5 @13017 has 116 MA's), (Start: 13 @13083 has 18 MA's), (47, 13521), (54, 13590), (58, 13614), (63, 13683), (75, 13764), (89, 13872), (93, 13923), (94, 13935), (96, 13944), (114, 14136), (116, 14145), (117, 14148), (124, 14214), (126, 14235), (127, 14241), (129, 14259), (142, 14370), (153, 14430), (159, 14469), (162, 14511), (176, 14604), (180, 14643), (200, 14796),

Gene: Tardus\_22 Start: 14807, Stop: 16726, Start Num: 5

Candidate Starts for Tardus\_22:

(Start: 5 @14807 has 116 MA's), (25, 15023), (26, 15035), (27, 15038), (38, 15212), (48, 15326), (51, 15350), (52, 15359), (56, 15425), (58, 15431), (61, 15485), (64, 15509), (96, 15761), (98, 15779), (100, 15785), (103, 15848), (105, 15860), (106, 15863), (107, 15875), (114, 15965), (118, 15992), (135, 16151), (144, 16229), (160, 16325), (177, 16514), (188, 16598), (190, 16616), (194, 16646),

Gene: Thing3\_21 Start: 15684, Stop: 17591, Start Num: 5

Candidate Starts for Thing3\_21:

(Start: 5 @15684 has 116 MA's), (27, 15915), (30, 15933), (43, 16200), (59, 16338), (65, 16407), (71, 16440), (98, 16665), (100, 16671), (103, 16734), (105, 16746), (106, 16749), (107, 16761), (114, 16848), (121, 16902), (129, 16971), (131, 17007), (151, 17151), (159, 17202), (174, 17346), (175, 17349), (176, 17352), (182, 17400), (188, 17457),

Gene: Tiamoceli\_21 Start: 14601, Stop: 16490, Start Num: 5

Candidate Starts for Tiamoceli\_21:

(Start: 4 @14592 has 1 MA's), (Start: 5 @14601 has 116 MA's), (12, 14667), (27, 14835), (30, 14853), (45, 15126), (57, 15222), (79, 15414), (83, 15429), (91, 15507), (100, 15576), (103, 15639), (105, 15651), (106, 15654), (112, 15738), (114, 15753), (126, 15852), (131, 15906), (143, 16011), (159, 16101), (166, 16182), (173, 16239), (184, 16320), (188, 16356), (198, 16422),

Gene: TillyBobJoe\_19 Start: 11638, Stop: 13524, Start Num: 5

Candidate Starts for TillyBobJoe\_19:

(Start: 5 @11638 has 116 MA's), (28, 11875), (30, 11887), (35, 11941), (62, 12322), (66, 12355), (72, 12382), (108, 12748), (111, 12760), (124, 12877), (129, 12922), (130, 12925), (136, 12985), (138, 13003), (143, 13048), (145, 13060), (146, 13063), (163, 13183), (167, 13222), (175, 13282), (184, 13354), (187, 13384), (190, 13408), (193, 13435), (194, 13438), (199, 13465),

Gene: Togo\_19 Start: 11842, Stop: 13740, Start Num: 5

Candidate Starts for Togo\_19:

(Start: 5 @11842 has 116 MA's), (28, 12079), (30, 12091), (35, 12145), (45, 12376), (62, 12538), (66, 12571), (100, 12835), (108, 12964), (111, 12976), (124, 13093), (129, 13138), (130, 13141), (136,

13201), (138, 13219), (141, 13234), (143, 13264), (145, 13276), (146, 13279), (163, 13399), (167, 13438), (175, 13498), (184, 13570), (187, 13600), (190, 13624), (193, 13651), (194, 13654), (199, 13681),

Gene: Twister6\_21 Start: 12280, Stop: 14166, Start Num: 5

Candidate Starts for Twister6\_21:

(Start: 5 @12280 has 116 MA's), (28, 12517), (30, 12529), (35, 12583), (45, 12805), (62, 12967), (66, 13000), (100, 13252), (104, 13324), (108, 13381), (111, 13393), (124, 13510), (129, 13555), (130, 13558), (143, 13681), (145, 13693), (156, 13753), (173, 13906), (175, 13915), (184, 13987), (187, 14017), (198, 14089), (201, 14113),

Gene: Twonlo\_18 Start: 13218, Stop: 15107, Start Num: 5

Candidate Starts for Twonlo\_18:

(Start: 4 @13209 has 1 MA's), (Start: 5 @13218 has 116 MA's), (12, 13284), (27, 13452), (30, 13470), (45, 13743), (57, 13839), (79, 14031), (83, 14046), (91, 14124), (100, 14193), (103, 14256), (105, 14268), (106, 14271), (112, 14355), (114, 14370), (126, 14469), (131, 14523), (143, 14628), (159, 14718), (166, 14799), (173, 14856), (183, 14925), (184, 14937), (188, 14973), (198, 15039),

Gene: Tycho\_20 Start: 14565, Stop: 16484, Start Num: 5

Candidate Starts for Tycho\_20:

(Start: 5 @14565 has 116 MA's), (19, 14700), (27, 14796), (43, 15090), (53, 15159), (57, 15207), (59, 15231), (61, 15267), (65, 15300), (68, 15324), (84, 15417), (98, 15558), (100, 15564), (103, 15627), (105, 15639), (106, 15642), (107, 15654), (114, 15741), (129, 15864), (131, 15900), (135, 15933), (143, 16005), (151, 16044), (159, 16095), (173, 16233), (174, 16239), (175, 16242), (182, 16293), (188, 16350), (189, 16362), (191, 16371),

Gene: Valary\_22 Start: 12733, Stop: 14619, Start Num: 5

Candidate Starts for Valary\_22:

(Start: 5 @12733 has 116 MA's), (28, 12970), (30, 12982), (35, 13036), (45, 13258), (62, 13420), (66, 13453), (100, 13705), (104, 13777), (108, 13834), (111, 13846), (124, 13963), (129, 14008), (130, 14011), (143, 14134), (145, 14146), (156, 14206), (173, 14359), (175, 14368), (184, 14440), (187, 14470), (198, 14542), (201, 14566),

Gene: VanDeWege\_22 Start: 12661, Stop: 14547, Start Num: 5

Candidate Starts for VanDeWege\_22:

(Start: 5 @12661 has 116 MA's), (28, 12898), (30, 12910), (35, 12964), (45, 13186), (62, 13348), (66, 13381), (100, 13633), (104, 13705), (108, 13762), (111, 13774), (124, 13891), (129, 13936), (130, 13939), (143, 14062), (145, 14074), (156, 14134), (173, 14287), (175, 14296), (184, 14368), (187, 14398), (198, 14470), (201, 14494),

Gene: Verity\_21 Start: 14990, Stop: 16909, Start Num: 5

Candidate Starts for Verity\_21:

(Start: 5 @14990 has 116 MA's), (15, 15089), (25, 15206), (26, 15218), (27, 15221), (38, 15395), (48, 15509), (52, 15542), (56, 15608), (58, 15614), (61, 15668), (64, 15692), (69, 15728), (96, 15944), (98, 15962), (100, 15968), (103, 16031), (105, 16043), (106, 16046), (107, 16058), (114, 16148), (118, 16175), (135, 16334), (144, 16412), (152, 16448), (160, 16508), (164, 16553), (173, 16664), (177, 16697), (188, 16781), (190, 16799), (194, 16829),

Gene: ViaConlectus\_22 Start: 15542, Stop: 17461, Start Num: 5

Candidate Starts for ViaConlectus\_22:

(Start: 5 @15542 has 116 MA's), (25, 15758), (27, 15773), (38, 15947), (52, 16094), (56, 16160), (58, 16166), (61, 16220), (64, 16244), (67, 16268), (96, 16496), (98, 16514), (100, 16520), (103, 16583), (105, 16595), (106, 16598), (107, 16610), (114, 16700), (118, 16727), (135, 16886), (144, 16964),

(160, 17060), (163, 17096), (168, 17159), (170, 17189), (173, 17216), (177, 17249), (188, 17333), (193, 17378),

Gene: Vivi2\_20 Start: 15311, Stop: 17209, Start Num: 5

Candidate Starts for Vivi2\_20:

(Start: 5 @15311 has 116 MA's), (27, 15542), (30, 15560), (43, 15818), (59, 15956), (65, 16025), (71, 16058), (98, 16283), (100, 16289), (103, 16352), (105, 16364), (106, 16367), (107, 16379), (114, 16466), (129, 16589), (131, 16625), (151, 16769), (159, 16820), (174, 16964), (175, 16967), (176, 16970), (182, 17018), (188, 17075),

Gene: Wilde\_20 Start: 13011, Stop: 14774, Start Num: 13

Candidate Starts for Wilde\_20:

(Start: 5 @12945 has 116 MA's), (Start: 13 @13011 has 18 MA's), (47, 13449), (54, 13518), (58, 13542), (63, 13611), (75, 13692), (89, 13800), (93, 13851), (94, 13863), (96, 13872), (114, 14064), (116, 14073), (117, 14076), (124, 14142), (126, 14163), (127, 14169), (129, 14187), (142, 14298), (153, 14358), (159, 14397), (162, 14439), (176, 14532), (180, 14571), (200, 14724),

Gene: Wizard\_19 Start: 11982, Stop: 13874, Start Num: 5

Candidate Starts for Wizard\_19:

(Start: 5 @11982 has 116 MA's), (28, 12219), (30, 12231), (35, 12285), (45, 12510), (62, 12672), (66, 12705), (72, 12732), (108, 13098), (111, 13110), (124, 13227), (129, 13272), (130, 13275), (136, 13335), (138, 13353), (143, 13398), (145, 13410), (146, 13413), (163, 13533), (167, 13572), (175, 13632), (184, 13704), (187, 13734), (190, 13758), (193, 13785), (194, 13788), (199, 13815),

Gene: YorkOnyx\_21 Start: 14834, Stop: 16753, Start Num: 5

Candidate Starts for YorkOnyx\_21:

(Start: 5 @14834 has 116 MA's), (19, 14969), (27, 15065), (43, 15359), (53, 15428), (57, 15476), (59, 15500), (61, 15536), (65, 15569), (68, 15593), (84, 15686), (98, 15827), (100, 15833), (103, 15896), (105, 15908), (106, 15911), (107, 15923), (108, 15959), (112, 15995), (114, 16010), (121, 16064), (129, 16133), (131, 16169), (135, 16202), (143, 16274), (151, 16313), (159, 16364), (173, 16502), (174, 16508), (175, 16511), (182, 16562), (188, 16619), (189, 16631), (191, 16640),

Gene: YungMoney\_21 Start: 13292, Stop: 15184, Start Num: 5

Candidate Starts for YungMoney\_21:

(Start: 5 @13292 has 116 MA's), (28, 13529), (30, 13541), (35, 13595), (62, 13982), (66, 14015), (71, 14039), (100, 14279), (108, 14408), (111, 14420), (113, 14456), (124, 14537), (129, 14582), (130, 14585), (136, 14645), (143, 14708), (145, 14720), (175, 14942), (184, 15014), (187, 15044), (190, 15068), (193, 15095), (194, 15098),

Gene: Zipp\_21 Start: 15639, Stop: 17558, Start Num: 5

Candidate Starts for Zipp\_21:

(Start: 5 @15639 has 116 MA's), (15, 15738), (25, 15855), (26, 15867), (27, 15870), (38, 16044), (48, 16158), (52, 16191), (56, 16257), (58, 16263), (61, 16317), (64, 16341), (69, 16377), (96, 16593), (98, 16611), (100, 16617), (103, 16680), (105, 16692), (106, 16695), (107, 16707), (114, 16797), (118, 16824), (135, 16983), (144, 17061), (152, 17097), (160, 17157), (164, 17202), (173, 17313), (177, 17346), (188, 17430), (190, 17448), (194, 17478),

Gene: Zitch\_23 Start: 14769, Stop: 16688, Start Num: 5

Candidate Starts for Zitch\_23:

(Start: 5 @14769 has 116 MA's), (25, 14988), (26, 15000), (27, 15003), (35, 15075), (38, 15177), (52, 15324), (56, 15390), (58, 15396), (61, 15450), (64, 15474), (67, 15498), (96, 15726), (98, 15744), (100, 15750), (103, 15813), (105, 15825), (106, 15828), (107, 15840), (114, 15930), (118, 15957), (135, 16116), (144, 16194), (160, 16290), (188, 16560), (190, 16578), (194, 16608),

