





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 157722 Report

This analysis was run 04/13/24 on database version 558.

Pham number 157722 has 114 members, 8 are drafts.

Phages represented in each track:

- Track 1 : Chargerpower\_26
- Track 2 : Snape\_26, Et2Brutus\_25, Munch\_26, Bud\_26
- Track 3 : Flaverint\_26, Salz\_26, Hutc2\_26, Insomnia\_25, Mulciber\_26, Jabith\_26, Lucivia\_26, Orange\_26, Bowtie\_26, Gilberta\_26, Mabel\_26, MaCh\_26, Sham4\_26
- Track 4 : Joselito\_26
- Track 5 : Bachome\_26, Ebony\_26
- Track 6 : Aneem\_26
- Track 7 : Petersenfast\_25
- Track 8 : Timothy\_26, Fibonacci\_26
- Track 9 : TinyTimmy\_25
- Track 10 : Phlei\_21
- Track 11 : Soups\_28, Waits\_28, Switzerland\_28, Boohoo\_28, Remus\_28, LastResort\_28, Rosalind\_28, Epsocamisio\_28, Strosahl\_28, ShayRa\_29, Oofda\_29, ReMo\_28, Looper\_29
- Track 12 : Anon\_26
- Track 13 : MinecraftSteve\_29, Battleship\_29, JSwag\_28, Anaysia\_28
- Track 14 : KatherineG\_28, DekHockey33\_28
- Track 15 : Nebulosus\_28
- Track 16 : Nedarya\_27
- Track 17 : Lucyedi\_27
- Track 18 : PainterBoy\_27
- Track 19 : EagleEye\_28
- Track 20 : 40AC\_29
- Track 21 : MyraDee\_23
- Track 22 : GaugeLDP\_28
- Track 23 : Loser\_29
- Track 24 : RedRock\_29
- Track 25 : AnnaL29\_29
- Track 26 : BabyBack\_27
- Track 27 : Anthony\_25
- Track 28 : Theia\_20, MarysWell\_21, Dublin\_21
- Track 29 : UnionJack\_22
- Track 30 : Swirley\_22
- Track 31 : EITiger69\_22
- Track 32 : Conspiracy\_22, Discoknowium\_22, Bluefalcon\_21, Lev2\_22, ForGetIt\_22, Aragog\_22, Phlorence\_22, Jovo\_22, Archetta\_22, AgentM\_22, PickleBack\_22

- Track 33 : Scorpia\_23
- Track 34 : Milcery\_22
- Track 35 : George\_21
- Track 36 : PetterN\_23
- Track 37 : LittleCherry\_22, Tarynearal\_21, Bonamassa\_22
- Track 38 : Coog\_22, Midas2\_22, Cuco\_22
- Track 39 : Chadwick\_23
- Track 40 : Benedict\_22
- Track 41 : Jabiru\_22
- Track 42 : Micasa\_21
- Track 43 : Zolita\_21, Ghoulboy\_22, SydNat\_22
- Track 44 : Tiger\_22
- Track 45 : Airmid\_22
- Track 46 : Naca\_22
- Track 47 : HuhtaEnerson15\_22
- Track 48 : Sheen\_27
- Track 49 : PP\_35
- Track 50 : DroogsArmy\_26
- Track 51 : HINdeR\_25
- Track 52 : Timshel\_26
- Track 53 : Phillis\_22
- Track 54 : Smeadley\_22, Expelliarmus\_21, Astro\_22
- Track 55 : Stephig9\_22, Groundhog\_21, Danforth\_21
- Track 56 : Dixon\_22
- Track 57 : NearlyHeadless\_22
- Track 58 : Roary\_22
- Track 59 : Saintus\_22

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

The start number called the most often in the published annotations is 1, it was called in 48 of the 106 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AgentM\_22, Airmid\_22, Aragog\_22, Archetta\_22, Astro\_22, Benedict\_22, Bluefalcon\_21, Bonamassa\_22, Chadwick\_23, Conspiracy\_22, Coog\_22, Cuco\_22, Danforth\_21, Discoknowium\_22, Dixon\_22, Dublin\_21, ElTiger69\_22, Expelliarmus\_21, ForGetIt\_22, George\_21, Ghoulboy\_22, Groundhog\_21, HuhtaEnerson15\_22, Jabiru\_22, Jovo\_22, Lev2\_22, LittleCherry\_22, MarysWell\_21, Micasa\_21, Midas2\_22, Milcery\_22, Naca\_22, NearlyHeadless\_22, PetterN\_23, Phillis\_22, Phlorence\_22, PickleBack\_22, Roary\_22, Saintus\_22, Scorpia\_23, Smeadley\_22, Stephig9\_22, Swirley\_22, SydNat\_22, Tarynearal\_21, Theia\_20, Tiger\_22, UnionJack\_22, Zolita\_21,

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

- Anthony\_25,

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

- 40AC\_29, Anaysia\_28, Aneem\_26, AnnaL29\_29, Anon\_26, BabyBack\_27, Bachome\_26, Battleship\_29, Boohoo\_28, Bowtie\_26, Bud\_26, Chargerpower\_26,

DekHockey33\_28, DroogsArmy\_26, EagleEye\_28, Ebony\_26, Epsocamisio\_28, Et2Brutus\_25, Fibonacci\_26, Flaverint\_26, GaugeLDP\_28, Gilberta\_26, HINdeR\_25, Hutc2\_26, Insomnia\_25, JSwag\_28, Jabith\_26, Joselito\_26, KatherineG\_28, LastResort\_28, Looper\_29, Loser\_29, Lucivia\_26, Lucyedi\_27, MaCh\_26, Mabel\_26, MinecraftSteve\_29, Mulciber\_26, Munch\_26, MyraDee\_23, Nebulosus\_28, Nedarya\_27, Oofda\_29, Orange\_26, PP\_35, PainterBoy\_27, Petersenfast\_25, Phlei\_21, ReMo\_28, RedRock\_29, Remus\_28, Rosalind\_28, Salz\_26, Sham4\_26, ShayRa\_29, Sheen\_27, Snape\_26, Soups\_28, Strosahl\_28, Switzerland\_28, Timothy\_26, Timshel\_26, TinyTimmy\_25, Waits\_28,

### Summary by start number:

#### Start 1:

- Found in 50 of 114 ( 43.9% ) of genes in pham
- Manual Annotations of this start: 48 of 106
- Called 98.0% of time when present
- Phage (with cluster) where this start called: AgentM\_22 (A5), Airmid\_22 (A5), Aragog\_22 (A5), Archetta\_22 (A5), Astro\_22 (A8), Benedict\_22 (A5), Bluefalcon\_21 (A5), Bonamassa\_22 (A5), Chadwick\_23 (A5), Conspiracy\_22 (A5), Coog\_22 (A5), Cuco\_22 (A5), Danforth\_21 (A8), Discoknowium\_22 (A5), Dixon\_22 (A8), Dublin\_21 (A5), EITiger69\_22 (A5), Expelliarmus\_21 (A8), ForGetIt\_22 (A5), George\_21 (A5), Ghoulboy\_22 (A5), Groundhog\_21 (A8), HuhtaEnerson15\_22 (A5), Jabiru\_22 (A5), Jovo\_22 (A5), Lev2\_22 (A5), LittleCherry\_22 (A5), MarysWell\_21 (A5), Micasa\_21 (A5), Midas2\_22 (A5), Milcery\_22 (A5), Naca\_22 (A5), NearlyHeadless\_22 (A8), PetterN\_23 (A5), Phillis\_22 (A8), Phlorence\_22 (A5), PickleBack\_22 (A5), Roary\_22 (A8), Saintus\_22 (A8), Scorpia\_23 (A5), Smeadley\_22 (A8), StepHig9\_22 (A8), Swirley\_22 (A5), SydNat\_22 (A5), Tarynearal\_21 (A5), Theia\_20 (A5), Tiger\_22 (A5), UnionJack\_22 (A5), Zolita\_21 (A5),

#### Start 2:

- Found in 1 of 114 ( 0.9% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Phlei\_21 (A13),

#### Start 3:

- Found in 3 of 114 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 3 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: EagleEye\_28 (A16), Lucyedi\_27 (A16), PainterBoy\_27 (A16),

#### Start 5:

- Found in 1 of 114 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anthony\_25 (A20),

#### Start 17:

- Found in 5 of 114 ( 4.4% ) of genes in pham
- Manual Annotations of this start: 5 of 106
- Called 100.0% of time when present

- Phage (with cluster) where this start called: DroogsArmy\_26 (A7), HINdeR\_25 (A7), PP\_35 (A7), Sheen\_27 (A7), Timshel\_26 (A7),

#### Start 36:

- Found in 26 of 114 ( 22.8% ) of genes in pham
- Manual Annotations of this start: 20 of 106
- Called 84.6% of time when present
- Phage (with cluster) where this start called: Aneem\_26 (A11), Bowtie\_26 (A11), Bud\_26 (A11), Et2Brutus\_25 (A11), Fibonacci\_26 (A11), Flaverint\_26 (A11), Gilberta\_26 (A11), Hutc2\_26 (A11), Insomnia\_25 (A11), Jabith\_26 (A11), Joselito\_26 (A11), Lucivia\_26 (A11), MaCh\_26 (A11), Mabel\_26 (A11), Mulciber\_26 (A11), Munch\_26 (A11), Orange\_26 (A11), Salz\_26 (A11), Sham4\_26 (A11), Snape\_26 (A11), Timothy\_26 (A11), TinyTimmy\_25 (A11),

#### Start 37:

- Found in 6 of 114 ( 5.3% ) of genes in pham
- Manual Annotations of this start: 4 of 106
- Called 83.3% of time when present
- Phage (with cluster) where this start called: 40AC\_29 (A17), AnnaL29\_29 (A2), GaugeLDP\_28 (A2), Loser\_29 (A2), RedRock\_29 (A2),

#### Start 39:

- Found in 29 of 114 ( 25.4% ) of genes in pham
- Manual Annotations of this start: 2 of 106
- Called 10.3% of time when present
- Phage (with cluster) where this start called: Bachome\_26 (A11), Ebony\_26 (A11), Petersenfast\_25 (A11),

#### Start 51:

- Found in 3 of 114 ( 2.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 33.3% of time when present
- Phage (with cluster) where this start called: BabyBack\_27 (A2),

#### Start 55:

- Found in 21 of 114 ( 18.4% ) of genes in pham
- Manual Annotations of this start: 1 of 106
- Called 4.8% of time when present
- Phage (with cluster) where this start called: Nebulosus\_28 (A15),

#### Start 56:

- Found in 1 of 114 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MyraDee\_23 (A18),

#### Start 60:

- Found in 21 of 114 ( 18.4% ) of genes in pham
- Manual Annotations of this start: 4 of 106
- Called 19.0% of time when present
- Phage (with cluster) where this start called: Anaysia\_28 (A15), Battleship\_29 (A15), JSwag\_28 (A15), MinecraftSteve\_29 (A15),

Start 69:

- Found in 28 of 114 ( 24.6% ) of genes in pham
- Manual Annotations of this start: 1 of 106
- Called 3.6% of time when present
- Phage (with cluster) where this start called: Chargerpower\_26 (A),

Start 85:

- Found in 1 of 114 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 106
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anon\_26 (A15),

Start 88:

- Found in 21 of 114 ( 18.4% ) of genes in pham
- Manual Annotations of this start: 15 of 106
- Called 76.2% of time when present
- Phage (with cluster) where this start called: Boohoo\_28 (A15), DekHockey33\_28 (A15), Epsocamisio\_28 (A15), KatherineG\_28 (A15), LastResort\_28 (A15), Looper\_29 (A15), Nedarya\_27 (A15), Oofda\_29 (A15), ReMo\_28 (A15), Remus\_28 (A15), Rosalind\_28 (A15), ShayRa\_29 (A15), Soups\_28 (A15), Strosahl\_28 (A15), Switzerland\_28 (A15), Waits\_28 (A15),

**Summary by clusters:**

There are 12 clusters represented in this pham: A15, A, A17, A16, A11, A13, A18, A20, A2, A5, A7, A8,

Info for manual annotations of cluster A:

- Start number 69 was manually annotated 1 time for cluster A.

Info for manual annotations of cluster A11:

- Start number 36 was manually annotated 20 times for cluster A11.
- Start number 39 was manually annotated 2 times for cluster A11.

Info for manual annotations of cluster A15:

- Start number 55 was manually annotated 1 time for cluster A15.
- Start number 60 was manually annotated 4 times for cluster A15.
- Start number 85 was manually annotated 1 time for cluster A15.
- Start number 88 was manually annotated 15 times for cluster A15.

Info for manual annotations of cluster A16:

- Start number 3 was manually annotated 3 times for cluster A16.

Info for manual annotations of cluster A18:

- Start number 56 was manually annotated 1 time for cluster A18.

Info for manual annotations of cluster A2:

- Start number 37 was manually annotated 4 times for cluster A2.

Info for manual annotations of cluster A20:

- Start number 5 was manually annotated 1 time for cluster A20.

Info for manual annotations of cluster A5:

- Start number 1 was manually annotated 37 times for cluster A5.

Info for manual annotations of cluster A7:

- Start number 17 was manually annotated 5 times for cluster A7.

Info for manual annotations of cluster A8:

- Start number 1 was manually annotated 11 times for cluster A8.

### **Gene Information:**

Gene: 40AC\_29 Start: 18647, Stop: 21385, Start Num: 37

Candidate Starts for 40AC\_29:

(Start: 37 @18647 has 4 MA's), (51, 18758), (Start: 69 @18836 has 1 MA's), (73, 18860), (76, 18884), (100, 18989), (104, 18998), (108, 19028), (114, 19064), (130, 19145), (131, 19151), (132, 19154), (133, 19157), (147, 19265), (165, 19352), (169, 19364), (170, 19373), (183, 19457), (189, 19499), (206, 19595), (212, 19631), (218, 19673), (224, 19709), (230, 19736), (237, 19796), (294, 20042), (308, 20111), (310, 20123), (349, 20273), (379, 20399), (416, 20549), (419, 20561), (431, 20645), (454, 20831), (471, 20936), (475, 20966), (476, 20975), (487, 21074), (493, 21104), (501, 21170), (503, 21182), (526, 21323),

Gene: AgentM\_22 Start: 15319, Stop: 18660, Start Num: 1

Candidate Starts for AgentM\_22:

(Start: 1 @15319 has 48 MA's), (31, 15757), (80, 16069), (95, 16147), (96, 16177), (105, 16234), (131, 16381), (133, 16387), (134, 16393), (152, 16519), (156, 16531), (181, 16681), (186, 16717), (191, 16747), (194, 16762), (198, 16792), (200, 16804), (204, 16828), (216, 16897), (227, 16963), (256, 17119), (269, 17188), (270, 17191), (274, 17218), (276, 17242), (311, 17380), (315, 17401), (325, 17446), (336, 17488), (381, 17680), (388, 17710), (395, 17734), (398, 17746), (406, 17767), (416, 17809), (429, 17896), (433, 17932), (436, 17953), (439, 17974), (450, 18052), (452, 18073), (456, 18094), (459, 18115), (464, 18136), (467, 18160), (476, 18223), (488, 18316), (490, 18334), (497, 18415), (500, 18427), (502, 18439), (504, 18448), (511, 18502), (523, 18586), (525, 18595),

Gene: Airmid\_22 Start: 15088, Stop: 17901, Start Num: 1

Candidate Starts for Airmid\_22:

(Start: 1 @15088 has 48 MA's), (10, 15277), (61, 15625), (80, 15760), (83, 15766), (122, 15859), (134, 15910), (140, 15946), (154, 16036), (166, 16102), (171, 16123), (181, 16198), (185, 16231), (196, 16285), (200, 16318), (203, 16330), (219, 16429), (225, 16462), (246, 16591), (293, 16756), (307, 16789), (325, 16822), (353, 16903), (355, 16912), (357, 16915), (390, 17026), (392, 17035), (413, 17101), (416, 17110), (433, 17173), (439, 17215), (448, 17287), (452, 17314), (455, 17329), (459, 17356), (464, 17377), (476, 17464), (480, 17494), (488, 17557), (497, 17656), (500, 17668), (502, 17680), (504, 17689), (525, 17836),

Gene: Anaysia\_28 Start: 15755, Stop: 18112, Start Num: 60

Candidate Starts for Anaysia\_28:

(Start: 55 @15746 has 1 MA's), (Start: 60 @15755 has 4 MA's), (Start: 88 @15923 has 15 MA's), (151, 16166), (152, 16172), (167, 16241), (177, 16298), (198, 16442), (205, 16484), (213, 16532), (214, 16535), (232, 16646), (234, 16664), (256, 16769), (266, 16817), (305, 16922), (322, 16982), (339, 17036), (348, 17072), (354, 17096), (356, 17105), (374, 17168), (382, 17189), (386, 17204), (391, 17228), (397, 17240), (410, 17294), (417, 17315), (423, 17345), (447, 17516), (448, 17537), (463, 17621), (504, 17924), (523, 18047), (526, 18059),



Gene: Aneem\_26 Start: 17163, Stop: 19709, Start Num: 36

Candidate Starts for Aneem\_26:

(Start: 36 @17163 has 20 MA's), (Start: 39 @17181 has 2 MA's), (65, 17355), (Start: 69 @17364 has 1 MA's), (87, 17439), (104, 17493), (112, 17547), (115, 17562), (116, 17565), (119, 17583), (131, 17646), (134, 17658), (147, 17721), (162, 17784), (163, 17799), (165, 17808), (170, 17829), (176, 17853), (178, 17868), (190, 17955), (191, 17958), (194, 17973), (197, 17994), (199, 18006), (210, 18072), (222, 18135), (223, 18144), (228, 18168), (242, 18249), (245, 18258), (249, 18270), (256, 18312), (268, 18369), (283, 18423), (313, 18531), (323, 18570), (367, 18711), (400, 18807), (407, 18828), (414, 18861), (421, 18894), (422, 18897), (432, 18981), (439, 19026), (440, 19029), (454, 19143), (459, 19176), (472, 19248), (476, 19284), (484, 19356), (493, 19434), (498, 19488), (503, 19512), (510, 19560), (518, 19623),

Gene: AnnaL29\_29 Start: 18479, Stop: 20977, Start Num: 37

Candidate Starts for AnnaL29\_29:

(Start: 37 @18479 has 4 MA's), (57, 18608), (63, 18647), (73, 18692), (102, 18794), (107, 18815), (110, 18833), (117, 18869), (134, 18953), (146, 19004), (160, 19073), (162, 19079), (163, 19094), (165, 19103), (169, 19115), (170, 19124), (208, 19334), (211, 19361), (215, 19376), (224, 19430), (230, 19451), (240, 19517), (252, 19556), (256, 19589), (262, 19619), (296, 19742), (301, 19757), (304, 19784), (327, 19856), (332, 19871), (334, 19877), (338, 19886), (349, 19928), (352, 19943), (360, 19952), (363, 19973), (366, 19979), (380, 20012), (390, 20039), (399, 20069), (404, 20081), (410, 20111), (415, 20123), (430, 20210), (433, 20243), (437, 20273), (442, 20306), (443, 20318), (445, 20330), (464, 20456), (475, 20537), (476, 20546), (478, 20555), (490, 20666), (493, 20696), (503, 20777), (526, 20918),

Gene: Anon\_26 Start: 16290, Stop: 18746, Start Num: 85

Candidate Starts for Anon\_26:

(28, 15978), (29, 15987), (Start: 39 @16038 has 2 MA's), (41, 16047), (46, 16068), (Start: 85 @16290 has 1 MA's), (90, 16311), (99, 16356), (106, 16383), (114, 16431), (128, 16509), (135, 16542), (136, 16545), (137, 16551), (145, 16620), (147, 16635), (148, 16638), (149, 16641), (150, 16656), (175, 16773), (181, 16827), (185, 16860), (191, 16890), (194, 16905), (195, 16911), (196, 16914), (197, 16926), (205, 16977), (212, 17013), (216, 17034), (234, 17151), (258, 17268), (262, 17286), (263, 17289), (270, 17322), (277, 17370), (285, 17394), (374, 17739), (418, 17901), (421, 17922), (429, 17976), (448, 18135), (451, 18153), (452, 18162), (456, 18183), (464, 18225), (465, 18237), (485, 18402), (493, 18474), (505, 18561), (506, 18567), (523, 18678),

Gene: Anthony\_25 Start: 14775, Stop: 17657, Start Num: 5

Candidate Starts for Anthony\_25:

(Start: 1 @14736 has 48 MA's), (Start: 5 @14775 has 1 MA's), (10, 14934), (11, 14946), (15, 14979), (19, 15024), (21, 15045), (23, 15063), (25, 15072), (26, 15117), (33, 15165), (64, 15288), (84, 15381), (107, 15438), (123, 15468), (143, 15525), (156, 15603), (158, 15612), (162, 15630), (165, 15654), (173, 15684), (181, 15753), (191, 15819), (192, 15822), (196, 15843), (221, 15993), (260, 16209), (270, 16257), (290, 16338), (291, 16341), (322, 16503), (326, 16515), (346, 16596), (353, 16638), (376, 16728), (388, 16776), (402, 16809), (438, 16998), (440, 17010), (441, 17019), (449, 17082), (455, 17121), (456, 17127), (464, 17169), (477, 17247), (499, 17436), (502, 17454), (503, 17457), (509, 17502), (522, 17586), (529, 17634),

Gene: Aragog\_22 Start: 15349, Stop: 18690, Start Num: 1

Candidate Starts for Aragog\_22:

(Start: 1 @15349 has 48 MA's), (31, 15787), (80, 16099), (95, 16177), (96, 16207), (105, 16264), (131, 16411), (133, 16417), (134, 16423), (152, 16549), (156, 16561), (181, 16711), (186, 16747), (191, 16777), (194, 16792), (198, 16822), (200, 16834), (204, 16858), (216, 16927), (227, 16993), (256, 17149), (269, 17218), (270, 17221), (274, 17248), (276, 17272), (311, 17410), (315, 17431), (325,

17476), (336, 17518), (381, 17710), (388, 17740), (395, 17764), (398, 17776), (406, 17797), (416, 17839), (429, 17926), (433, 17962), (436, 17983), (439, 18004), (450, 18082), (452, 18103), (456, 18124), (459, 18145), (464, 18166), (467, 18190), (476, 18253), (488, 18346), (490, 18364), (497, 18445), (500, 18457), (502, 18469), (504, 18478), (511, 18532), (523, 18616), (525, 18625),

Gene: Archetta\_22 Start: 15062, Stop: 18403, Start Num: 1

Candidate Starts for Archetta\_22:

(Start: 1 @15062 has 48 MA's), (31, 15500), (80, 15812), (95, 15890), (96, 15920), (105, 15977), (131, 16124), (133, 16130), (134, 16136), (152, 16262), (156, 16274), (181, 16424), (186, 16460), (191, 16490), (194, 16505), (198, 16535), (200, 16547), (204, 16571), (216, 16640), (227, 16706), (256, 16862), (269, 16931), (270, 16934), (274, 16961), (276, 16985), (311, 17123), (315, 17144), (325, 17189), (336, 17231), (381, 17423), (388, 17453), (395, 17477), (398, 17489), (406, 17510), (416, 17552), (429, 17639), (433, 17675), (436, 17696), (439, 17717), (450, 17795), (452, 17816), (456, 17837), (459, 17858), (464, 17879), (467, 17903), (476, 17966), (488, 18059), (490, 18077), (497, 18158), (500, 18170), (502, 18182), (504, 18191), (511, 18245), (523, 18329), (525, 18338),

Gene: Astro\_22 Start: 14549, Stop: 17626, Start Num: 1

Candidate Starts for Astro\_22:

(Start: 1 @14549 has 48 MA's), (7, 14633), (16, 14801), (18, 14825), (22, 14873), (35, 14993), (54, 15065), (79, 15215), (80, 15218), (83, 15224), (143, 15410), (151, 15470), (152, 15476), (166, 15542), (173, 15569), (175, 15584), (180, 15635), (181, 15638), (185, 15671), (191, 15704), (220, 15872), (254, 16055), (256, 16079), (266, 16127), (269, 16148), (270, 16151), (302, 16295), (313, 16352), (317, 16382), (329, 16421), (346, 16493), (351, 16523), (373, 16622), (383, 16652), (395, 16697), (433, 16895), (436, 16916), (438, 16928), (452, 17036), (464, 17099), (467, 17123), (473, 17153), (476, 17186), (481, 17219), (488, 17279), (491, 17306), (503, 17405), (504, 17411), (515, 17501), (519, 17522), (525, 17561), (530, 17609),

Gene: BabyBack\_27 Start: 18341, Stop: 20749, Start Num: 51

Candidate Starts for BabyBack\_27:

(Start: 37 @18230 has 4 MA's), (51, 18341), (65, 18410), (Start: 69 @18419 has 1 MA's), (76, 18461), (107, 18584), (108, 18593), (110, 18602), (117, 18638), (119, 18647), (122, 18656), (146, 18773), (158, 18830), (160, 18842), (162, 18848), (163, 18863), (169, 18884), (170, 18893), (208, 19103), (212, 19133), (215, 19145), (224, 19199), (230, 19220), (238, 19277), (240, 19286), (296, 19511), (301, 19526), (304, 19553), (321, 19610), (327, 19625), (332, 19640), (338, 19655), (344, 19670), (347, 19676), (349, 19697), (363, 19742), (380, 19781), (390, 19808), (410, 19880), (427, 19952), (430, 19979), (432, 20009), (433, 20012), (437, 20042), (445, 20099), (448, 20135), (459, 20204), (475, 20303), (476, 20312), (478, 20321), (490, 20432), (496, 20519), (502, 20546), (503, 20549), (530, 20726),

Gene: Bachome\_26 Start: 17172, Stop: 19700, Start Num: 39

Candidate Starts for Bachome\_26:

(Start: 36 @17154 has 20 MA's), (Start: 39 @17172 has 2 MA's), (65, 17346), (Start: 69 @17355 has 1 MA's), (87, 17430), (104, 17484), (112, 17538), (115, 17553), (116, 17556), (119, 17574), (131, 17637), (134, 17649), (147, 17712), (162, 17775), (163, 17790), (165, 17799), (170, 17820), (176, 17844), (178, 17859), (190, 17946), (191, 17949), (194, 17964), (197, 17985), (199, 17997), (210, 18063), (218, 18105), (222, 18126), (223, 18135), (228, 18159), (242, 18240), (245, 18249), (249, 18261), (256, 18303), (268, 18360), (283, 18414), (313, 18522), (323, 18561), (367, 18702), (400, 18798), (407, 18819), (414, 18852), (421, 18885), (422, 18888), (432, 18972), (439, 19017), (440, 19020), (454, 19134), (459, 19167), (472, 19239), (476, 19275), (484, 19347), (493, 19425), (498, 19479), (503, 19503), (518, 19614),

Gene: Battleship\_29 Start: 15870, Stop: 18224, Start Num: 60

Candidate Starts for Battleship\_29:

(Start: 55 @15861 has 1 MA's), (Start: 60 @15870 has 4 MA's), (Start: 88 @16038 has 15 MA's), (151, 16278), (152, 16284), (167, 16353), (177, 16410), (198, 16554), (205, 16596), (213, 16644), (214, 16647), (232, 16758), (234, 16776), (256, 16881), (266, 16929), (305, 17034), (322, 17094), (339, 17148), (348, 17184), (354, 17208), (356, 17217), (374, 17280), (382, 17301), (386, 17316), (391, 17340), (397, 17352), (410, 17406), (417, 17427), (423, 17457), (447, 17628), (448, 17649), (463, 17733), (504, 18036), (523, 18159), (526, 18171),

Gene: Benedict\_22 Start: 15091, Stop: 17904, Start Num: 1

Candidate Starts for Benedict\_22:

(Start: 1 @15091 has 48 MA's), (10, 15280), (61, 15628), (80, 15763), (83, 15769), (122, 15862), (134, 15913), (140, 15949), (154, 16039), (166, 16105), (171, 16126), (181, 16201), (185, 16234), (196, 16288), (200, 16321), (201, 16324), (203, 16333), (219, 16432), (221, 16441), (225, 16465), (246, 16594), (268, 16708), (293, 16759), (325, 16825), (357, 16918), (365, 16951), (392, 17038), (405, 17071), (408, 17083), (416, 17113), (433, 17176), (439, 17218), (448, 17290), (449, 17293), (452, 17317), (455, 17332), (459, 17359), (464, 17380), (476, 17467), (480, 17497), (481, 17500), (488, 17560), (497, 17659), (500, 17671), (502, 17683), (504, 17692), (525, 17839),

Gene: Bluefalcon\_21 Start: 15319, Stop: 18660, Start Num: 1

Candidate Starts for Bluefalcon\_21:

(Start: 1 @15319 has 48 MA's), (31, 15757), (80, 16069), (95, 16147), (96, 16177), (105, 16234), (131, 16381), (133, 16387), (134, 16393), (152, 16519), (156, 16531), (181, 16681), (186, 16717), (191, 16747), (194, 16762), (198, 16792), (200, 16804), (204, 16828), (216, 16897), (227, 16963), (256, 17119), (269, 17188), (270, 17191), (274, 17218), (276, 17242), (311, 17380), (315, 17401), (325, 17446), (336, 17488), (381, 17680), (388, 17710), (395, 17734), (398, 17746), (406, 17767), (416, 17809), (429, 17896), (433, 17932), (436, 17953), (439, 17974), (450, 18052), (452, 18073), (456, 18094), (459, 18115), (464, 18136), (467, 18160), (476, 18223), (488, 18316), (490, 18334), (497, 18415), (500, 18427), (502, 18439), (504, 18448), (511, 18502), (523, 18586), (525, 18595),

Gene: Bonamassa\_22 Start: 15244, Stop: 18582, Start Num: 1

Candidate Starts for Bonamassa\_22:

(Start: 1 @15244 has 48 MA's), (31, 15682), (80, 15994), (95, 16072), (96, 16102), (105, 16159), (120, 16243), (131, 16306), (133, 16312), (151, 16432), (170, 16522), (171, 16525), (181, 16600), (188, 16645), (191, 16663), (198, 16708), (202, 16729), (233, 16921), (260, 17059), (270, 17107), (286, 17185), (313, 17311), (315, 17323), (318, 17347), (336, 17410), (381, 17602), (388, 17632), (395, 17656), (398, 17668), (416, 17731), (433, 17854), (436, 17875), (439, 17896), (450, 17974), (452, 17995), (459, 18037), (464, 18058), (476, 18145), (480, 18175), (488, 18238), (490, 18256), (497, 18337), (500, 18349), (502, 18361), (504, 18370), (511, 18424), (523, 18508), (528, 18547),

Gene: Boohoo\_28 Start: 15923, Stop: 18112, Start Num: 88

Candidate Starts for Boohoo\_28:

(Start: 55 @15746 has 1 MA's), (Start: 60 @15755 has 4 MA's), (Start: 88 @15923 has 15 MA's), (151, 16166), (152, 16172), (167, 16241), (177, 16298), (198, 16442), (205, 16484), (213, 16532), (214, 16535), (232, 16646), (234, 16664), (256, 16769), (266, 16817), (305, 16922), (322, 16982), (339, 17036), (348, 17072), (354, 17096), (356, 17105), (374, 17168), (382, 17189), (386, 17204), (391, 17228), (397, 17240), (410, 17294), (417, 17315), (423, 17345), (447, 17516), (448, 17537), (463, 17621), (504, 17924), (523, 18047), (526, 18059),

Gene: Bowtie\_26 Start: 17163, Stop: 19709, Start Num: 36

Candidate Starts for Bowtie\_26:

(Start: 36 @17163 has 20 MA's), (Start: 39 @17181 has 2 MA's), (65, 17355), (Start: 69 @17364 has 1 MA's), (87, 17439), (104, 17493), (112, 17547), (115, 17562), (116, 17565), (119, 17583), (131, 17646), (134, 17658), (147, 17721), (162, 17784), (163, 17799), (165, 17808), (170, 17829), (176, 17853), (178, 17868), (190, 17955), (191, 17958), (194, 17973), (197, 17994), (199, 18006), (210,

18072), (223, 18144), (228, 18168), (242, 18249), (245, 18258), (249, 18270), (256, 18312), (268, 18369), (283, 18423), (313, 18531), (323, 18570), (367, 18711), (400, 18807), (407, 18828), (414, 18861), (421, 18894), (422, 18897), (432, 18981), (439, 19026), (440, 19029), (454, 19143), (459, 19176), (472, 19248), (476, 19284), (484, 19356), (493, 19434), (498, 19488), (503, 19512), (518, 19623),

Gene: Bud\_26 Start: 17169, Stop: 19715, Start Num: 36

Candidate Starts for Bud\_26:

(Start: 36 @17169 has 20 MA's), (Start: 39 @17187 has 2 MA's), (65, 17361), (Start: 69 @17370 has 1 MA's), (87, 17445), (104, 17499), (112, 17553), (115, 17568), (116, 17571), (119, 17589), (131, 17652), (134, 17664), (147, 17727), (162, 17790), (163, 17805), (165, 17814), (170, 17835), (176, 17859), (178, 17874), (190, 17961), (191, 17964), (194, 17979), (197, 18000), (199, 18012), (210, 18078), (222, 18141), (223, 18150), (228, 18174), (242, 18255), (245, 18264), (249, 18276), (256, 18318), (268, 18375), (283, 18429), (313, 18537), (323, 18576), (367, 18717), (400, 18813), (407, 18834), (414, 18867), (421, 18900), (422, 18903), (432, 18987), (439, 19032), (440, 19035), (454, 19149), (459, 19182), (472, 19254), (476, 19290), (484, 19362), (493, 19440), (498, 19494), (503, 19518), (518, 19629),

Gene: Chadwick\_23 Start: 15059, Stop: 17872, Start Num: 1

Candidate Starts for Chadwick\_23:

(Start: 1 @15059 has 48 MA's), (10, 15248), (61, 15596), (80, 15731), (83, 15737), (122, 15830), (134, 15881), (154, 16007), (166, 16073), (171, 16094), (181, 16169), (185, 16202), (196, 16256), (200, 16289), (201, 16292), (203, 16301), (219, 16400), (225, 16433), (246, 16562), (268, 16676), (293, 16727), (325, 16793), (357, 16886), (365, 16919), (392, 17006), (405, 17039), (408, 17051), (416, 17081), (433, 17144), (439, 17186), (448, 17258), (449, 17261), (452, 17285), (455, 17300), (459, 17327), (464, 17348), (476, 17435), (480, 17465), (481, 17468), (488, 17528), (497, 17627), (500, 17639), (502, 17651), (504, 17660), (521, 17789), (525, 17807),

Gene: Chargerpower\_26 Start: 15837, Stop: 18245, Start Num: 69

Candidate Starts for Chargerpower\_26:

(Start: 69 @15837 has 1 MA's), (72, 15855), (75, 15873), (78, 15894), (105, 15990), (113, 16032), (129, 16119), (144, 16161), (155, 16215), (174, 16299), (178, 16329), (181, 16362), (185, 16395), (194, 16440), (198, 16470), (202, 16491), (239, 16716), (241, 16731), (243, 16737), (258, 16830), (273, 16902), (296, 16977), (343, 17151), (347, 17163), (349, 17184), (359, 17211), (378, 17262), (380, 17271), (411, 17382), (428, 17469), (437, 17541), (439, 17553), (441, 17565), (444, 17589), (461, 17727), (464, 17739), (467, 17763), (475, 17817), (477, 17829), (494, 17976), (503, 18045), (514, 18135), (526, 18186), (530, 18222),

Gene: Conspiracy\_22 Start: 15069, Stop: 18410, Start Num: 1

Candidate Starts for Conspiracy\_22:

(Start: 1 @15069 has 48 MA's), (31, 15507), (80, 15819), (95, 15897), (96, 15927), (105, 15984), (131, 16131), (133, 16137), (134, 16143), (152, 16269), (156, 16281), (181, 16431), (186, 16467), (191, 16497), (194, 16512), (198, 16542), (200, 16554), (204, 16578), (216, 16647), (227, 16713), (256, 16869), (269, 16938), (270, 16941), (274, 16968), (276, 16992), (311, 17130), (315, 17151), (325, 17196), (336, 17238), (381, 17430), (388, 17460), (395, 17484), (398, 17496), (406, 17517), (416, 17559), (429, 17646), (433, 17682), (436, 17703), (439, 17724), (450, 17802), (452, 17823), (456, 17844), (459, 17865), (464, 17886), (467, 17910), (476, 17973), (488, 18066), (490, 18084), (497, 18165), (500, 18177), (502, 18189), (504, 18198), (511, 18252), (523, 18336), (525, 18345),

Gene: Coog\_22 Start: 15213, Stop: 18551, Start Num: 1

Candidate Starts for Coog\_22:

(Start: 1 @15213 has 48 MA's), (31, 15651), (80, 15963), (95, 16041), (96, 16071), (105, 16128), (131, 16275), (133, 16281), (151, 16401), (153, 16410), (170, 16491), (171, 16494), (181, 16569), (188,

16614), (191, 16632), (198, 16677), (202, 16698), (233, 16890), (260, 17028), (270, 17076), (286, 17154), (313, 17280), (315, 17292), (318, 17316), (336, 17379), (381, 17571), (388, 17601), (395, 17625), (398, 17637), (416, 17700), (433, 17823), (436, 17844), (439, 17865), (450, 17943), (452, 17964), (459, 18006), (464, 18027), (476, 18114), (480, 18144), (488, 18207), (490, 18225), (497, 18306), (500, 18318), (502, 18330), (504, 18339), (511, 18393), (523, 18477), (528, 18516),

Gene: Cuco\_22 Start: 15243, Stop: 18581, Start Num: 1

Candidate Starts for Cuco\_22:

(Start: 1 @15243 has 48 MA's), (31, 15681), (80, 15993), (95, 16071), (96, 16101), (105, 16158), (131, 16305), (133, 16311), (151, 16431), (153, 16440), (170, 16521), (171, 16524), (181, 16599), (188, 16644), (191, 16662), (198, 16707), (202, 16728), (233, 16920), (260, 17058), (270, 17106), (286, 17184), (313, 17310), (315, 17322), (318, 17346), (336, 17409), (381, 17601), (388, 17631), (395, 17655), (398, 17667), (416, 17730), (433, 17853), (436, 17874), (439, 17895), (450, 17973), (452, 17994), (459, 18036), (464, 18057), (476, 18144), (480, 18174), (488, 18237), (490, 18255), (497, 18336), (500, 18348), (502, 18360), (504, 18369), (511, 18423), (523, 18507), (528, 18546),

Gene: Danforth\_21 Start: 14528, Stop: 17605, Start Num: 1

Candidate Starts for Danforth\_21:

(Start: 1 @14528 has 48 MA's), (7, 14612), (16, 14780), (18, 14804), (22, 14852), (35, 14972), (54, 15044), (79, 15194), (80, 15197), (83, 15203), (143, 15389), (151, 15449), (152, 15455), (166, 15521), (173, 15548), (175, 15563), (180, 15614), (181, 15617), (185, 15650), (191, 15683), (220, 15851), (254, 16034), (256, 16058), (266, 16106), (269, 16127), (270, 16130), (302, 16274), (313, 16331), (317, 16361), (329, 16400), (346, 16472), (351, 16502), (373, 16601), (383, 16631), (395, 16676), (406, 16709), (433, 16874), (436, 16895), (438, 16907), (448, 16988), (452, 17015), (464, 17078), (467, 17102), (473, 17132), (476, 17165), (481, 17198), (488, 17258), (491, 17285), (503, 17384), (504, 17390), (515, 17480), (519, 17501), (525, 17540), (530, 17588),

Gene: DekHockey33\_28 Start: 16045, Stop: 18231, Start Num: 88

Candidate Starts for DekHockey33\_28:

(Start: 55 @15868 has 1 MA's), (Start: 60 @15877 has 4 MA's), (Start: 88 @16045 has 15 MA's), (151, 16285), (152, 16291), (167, 16360), (177, 16417), (197, 16552), (198, 16561), (205, 16603), (213, 16651), (214, 16654), (232, 16765), (234, 16783), (256, 16888), (266, 16936), (305, 17041), (322, 17101), (339, 17155), (348, 17191), (354, 17215), (356, 17224), (374, 17287), (382, 17308), (386, 17323), (391, 17347), (397, 17359), (410, 17413), (417, 17434), (423, 17464), (447, 17635), (448, 17656), (463, 17740), (504, 18043), (523, 18166), (526, 18178),

Gene: Discoknowium\_22 Start: 15358, Stop: 18699, Start Num: 1

Candidate Starts for Discoknowium\_22:

(Start: 1 @15358 has 48 MA's), (31, 15796), (80, 16108), (95, 16186), (96, 16216), (105, 16273), (131, 16420), (133, 16426), (134, 16432), (152, 16558), (156, 16570), (181, 16720), (186, 16756), (191, 16786), (194, 16801), (198, 16831), (200, 16843), (204, 16867), (216, 16936), (227, 17002), (256, 17158), (269, 17227), (270, 17230), (274, 17257), (276, 17281), (311, 17419), (315, 17440), (325, 17485), (336, 17527), (381, 17719), (388, 17749), (395, 17773), (398, 17785), (406, 17806), (416, 17848), (429, 17935), (433, 17971), (436, 17992), (439, 18013), (450, 18091), (452, 18112), (456, 18133), (459, 18154), (464, 18175), (467, 18199), (476, 18262), (488, 18355), (490, 18373), (497, 18454), (500, 18466), (502, 18478), (504, 18487), (511, 18541), (523, 18625), (525, 18634),

Gene: Dixon\_22 Start: 14547, Stop: 17624, Start Num: 1

Candidate Starts for Dixon\_22:

(Start: 1 @14547 has 48 MA's), (7, 14631), (16, 14799), (18, 14823), (22, 14871), (35, 14991), (54, 15063), (79, 15213), (80, 15216), (83, 15222), (143, 15408), (151, 15468), (152, 15474), (166, 15540), (173, 15567), (175, 15582), (180, 15633), (181, 15636), (185, 15669), (191, 15702), (220, 15870), (254, 16053), (256, 16077), (266, 16125), (269, 16146), (270, 16149), (302, 16293), (313, 16350),

(317, 16380), (329, 16419), (346, 16491), (351, 16521), (373, 16620), (383, 16650), (395, 16695), (406, 16728), (433, 16893), (436, 16914), (438, 16926), (448, 17007), (452, 17034), (459, 17076), (464, 17097), (467, 17121), (473, 17151), (476, 17184), (481, 17217), (488, 17277), (491, 17304), (503, 17403), (515, 17499), (519, 17520), (525, 17559), (530, 17607),

Gene: DroogsArmy\_26 Start: 17266, Stop: 20634, Start Num: 17

Candidate Starts for DroogsArmy\_26:

(Start: 17 @17266 has 5 MA's), (27, 17395), (34, 17449), (40, 17491), (58, 17653), (81, 17803), (96, 17905), (118, 18040), (152, 18238), (164, 18304), (170, 18331), (171, 18334), (174, 18346), (181, 18409), (182, 18418), (185, 18442), (191, 18472), (198, 18517), (203, 18541), (219, 18685), (226, 18727), (229, 18754), (231, 18769), (234, 18808), (235, 18823), (238, 18844), (247, 18901), (250, 18910), (251, 18919), (269, 19060), (287, 19138), (298, 19192), (309, 19255), (312, 19270), (316, 19300), (319, 19312), (320, 19315), (324, 19333), (326, 19342), (331, 19357), (333, 19375), (342, 19408), (345, 19426), (358, 19489), (369, 19555), (370, 19564), (371, 19567), (372, 19576), (375, 19579), (377, 19588), (379, 19597), (387, 19630), (389, 19642), (394, 19666), (402, 19696), (420, 19774), (421, 19786), (423, 19795), (424, 19798), (425, 19807), (427, 19816), (434, 19894), (438, 19918), (444, 19963), (446, 19981), (453, 20038), (457, 20056), (460, 20080), (462, 20089), (466, 20110), (468, 20131), (470, 20143), (474, 20164), (479, 20203), (482, 20236), (490, 20317), (494, 20350), (498, 20401), (502, 20422), (507, 20446), (513, 20512), (516, 20527), (517, 20533),

Gene: Dublin\_21 Start: 15212, Stop: 18550, Start Num: 1

Candidate Starts for Dublin\_21:

(Start: 1 @15212 has 48 MA's), (31, 15650), (80, 15962), (92, 16004), (95, 16040), (96, 16070), (105, 16127), (120, 16211), (131, 16274), (133, 16280), (149, 16382), (151, 16400), (171, 16493), (181, 16568), (188, 16613), (191, 16631), (198, 16676), (202, 16697), (233, 16889), (246, 16949), (260, 17027), (270, 17075), (286, 17153), (313, 17279), (315, 17291), (318, 17315), (336, 17378), (381, 17570), (388, 17600), (395, 17624), (398, 17636), (416, 17699), (433, 17822), (436, 17843), (439, 17864), (450, 17942), (452, 17963), (459, 18005), (464, 18026), (469, 18062), (476, 18113), (480, 18143), (488, 18206), (490, 18224), (497, 18305), (500, 18317), (502, 18329), (504, 18338), (511, 18392), (523, 18476), (528, 18515),

Gene: EagleEye\_28 Start: 16836, Stop: 19898, Start Num: 3

Candidate Starts for EagleEye\_28:

(Start: 3 @16836 has 3 MA's), (9, 17010), (20, 17127), (Start: 39 @17304 has 2 MA's), (65, 17460), (68, 17466), (96, 17568), (111, 17664), (131, 17772), (133, 17778), (152, 17892), (166, 17958), (173, 17985), (181, 18054), (185, 18087), (186, 18090), (200, 18177), (201, 18180), (214, 18258), (224, 18318), (233, 18378), (289, 18612), (297, 18642), (299, 18645), (303, 18669), (341, 18798), (393, 18975), (396, 18987), (433, 19182), (436, 19203), (448, 19296), (452, 19323), (456, 19344), (459, 19365), (492, 19605), (493, 19623), (499, 19680), (514, 19791),

Gene: Ebony\_26 Start: 17224, Stop: 19752, Start Num: 39

Candidate Starts for Ebony\_26:

(Start: 36 @17206 has 20 MA's), (Start: 39 @17224 has 2 MA's), (65, 17398), (Start: 69 @17407 has 1 MA's), (87, 17482), (104, 17536), (112, 17590), (115, 17605), (116, 17608), (119, 17626), (131, 17689), (134, 17701), (147, 17764), (162, 17827), (163, 17842), (165, 17851), (170, 17872), (176, 17896), (178, 17911), (190, 17998), (191, 18001), (194, 18016), (197, 18037), (199, 18049), (210, 18115), (218, 18157), (222, 18178), (223, 18187), (228, 18211), (242, 18292), (245, 18301), (249, 18313), (256, 18355), (268, 18412), (283, 18466), (313, 18574), (323, 18613), (367, 18754), (400, 18850), (407, 18871), (414, 18904), (421, 18937), (422, 18940), (432, 19024), (439, 19069), (440, 19072), (454, 19186), (459, 19219), (472, 19291), (476, 19327), (484, 19399), (493, 19477), (498, 19531), (503, 19555), (518, 19666),

Gene: EITiger69\_22 Start: 15089, Stop: 17902, Start Num: 1

Candidate Starts for EITiger69\_22:

(Start: 1 @15089 has 48 MA's), (10, 15278), (80, 15761), (83, 15767), (122, 15860), (134, 15911), (140, 15947), (154, 16037), (166, 16103), (171, 16124), (181, 16199), (185, 16232), (196, 16286), (200, 16319), (201, 16322), (203, 16331), (219, 16430), (225, 16463), (246, 16592), (293, 16757), (307, 16790), (325, 16823), (353, 16904), (357, 16916), (365, 16949), (392, 17036), (405, 17069), (408, 17081), (416, 17111), (433, 17174), (439, 17216), (448, 17288), (452, 17315), (455, 17330), (459, 17357), (464, 17378), (476, 17465), (480, 17495), (488, 17558), (497, 17657), (500, 17669), (502, 17681), (504, 17690), (525, 17837),

Gene: Epsocamisio\_28 Start: 15923, Stop: 18109, Start Num: 88

Candidate Starts for Epsocamisio\_28:

(Start: 55 @15746 has 1 MA's), (Start: 60 @15755 has 4 MA's), (Start: 88 @15923 has 15 MA's), (151, 16163), (152, 16169), (167, 16238), (177, 16295), (198, 16439), (205, 16481), (213, 16529), (214, 16532), (232, 16643), (234, 16661), (256, 16766), (266, 16814), (305, 16919), (322, 16979), (339, 17033), (348, 17069), (354, 17093), (356, 17102), (374, 17165), (382, 17186), (386, 17201), (391, 17225), (397, 17237), (410, 17291), (417, 17312), (423, 17342), (447, 17513), (448, 17534), (463, 17618), (504, 17921), (523, 18044), (526, 18056),

Gene: Et2Brutus\_25 Start: 17166, Stop: 19712, Start Num: 36

Candidate Starts for Et2Brutus\_25:

(Start: 36 @17166 has 20 MA's), (Start: 39 @17184 has 2 MA's), (65, 17358), (Start: 69 @17367 has 1 MA's), (87, 17442), (104, 17496), (112, 17550), (115, 17565), (116, 17568), (119, 17586), (131, 17649), (134, 17661), (147, 17724), (162, 17787), (163, 17802), (165, 17811), (170, 17832), (176, 17856), (178, 17871), (190, 17958), (191, 17961), (194, 17976), (197, 17997), (199, 18009), (210, 18075), (222, 18138), (223, 18147), (228, 18171), (242, 18252), (245, 18261), (249, 18273), (256, 18315), (268, 18372), (283, 18426), (313, 18534), (323, 18573), (367, 18714), (400, 18810), (407, 18831), (414, 18864), (421, 18897), (422, 18900), (432, 18984), (439, 19029), (440, 19032), (454, 19146), (459, 19179), (472, 19251), (476, 19287), (484, 19359), (493, 19437), (498, 19491), (503, 19515), (518, 19626),

Gene: Expelliarmus\_21 Start: 14514, Stop: 17591, Start Num: 1

Candidate Starts for Expelliarmus\_21:

(Start: 1 @14514 has 48 MA's), (7, 14598), (16, 14766), (18, 14790), (22, 14838), (35, 14958), (54, 15030), (79, 15180), (80, 15183), (83, 15189), (143, 15375), (151, 15435), (152, 15441), (166, 15507), (173, 15534), (175, 15549), (180, 15600), (181, 15603), (185, 15636), (191, 15669), (220, 15837), (254, 16020), (256, 16044), (266, 16092), (269, 16113), (270, 16116), (302, 16260), (313, 16317), (317, 16347), (329, 16386), (346, 16458), (351, 16488), (373, 16587), (383, 16617), (395, 16662), (433, 16860), (436, 16881), (438, 16893), (452, 17001), (464, 17064), (467, 17088), (473, 17118), (476, 17151), (481, 17184), (488, 17244), (491, 17271), (503, 17370), (504, 17376), (515, 17466), (519, 17487), (525, 17526), (530, 17574),

Gene: Fibonacci\_26 Start: 17160, Stop: 19706, Start Num: 36

Candidate Starts for Fibonacci\_26:

(Start: 36 @17160 has 20 MA's), (Start: 39 @17178 has 2 MA's), (65, 17352), (Start: 69 @17361 has 1 MA's), (87, 17436), (112, 17544), (115, 17559), (116, 17562), (119, 17580), (131, 17643), (134, 17655), (147, 17718), (162, 17781), (163, 17796), (165, 17805), (170, 17826), (176, 17850), (178, 17865), (190, 17952), (191, 17955), (194, 17970), (197, 17991), (199, 18003), (210, 18069), (218, 18111), (222, 18132), (223, 18141), (228, 18165), (242, 18246), (245, 18255), (249, 18267), (256, 18309), (268, 18366), (283, 18420), (313, 18528), (323, 18567), (367, 18708), (400, 18804), (407, 18825), (414, 18858), (421, 18891), (422, 18894), (432, 18978), (439, 19023), (440, 19026), (454, 19140), (459, 19173), (472, 19245), (476, 19281), (484, 19353), (493, 19431), (498, 19485), (503, 19509), (518, 19620),

Gene: Flaverint\_26 Start: 17157, Stop: 19703, Start Num: 36

Candidate Starts for Flaverint\_26:

(Start: 36 @17157 has 20 MA's), (Start: 39 @17175 has 2 MA's), (65, 17349), (Start: 69 @17358 has 1 MA's), (87, 17433), (104, 17487), (112, 17541), (115, 17556), (116, 17559), (119, 17577), (131, 17640), (134, 17652), (147, 17715), (162, 17778), (163, 17793), (165, 17802), (170, 17823), (176, 17847), (178, 17862), (190, 17949), (191, 17952), (194, 17967), (197, 17988), (199, 18000), (210, 18066), (223, 18138), (228, 18162), (242, 18243), (245, 18252), (249, 18264), (256, 18306), (268, 18363), (283, 18417), (313, 18525), (323, 18564), (367, 18705), (400, 18801), (407, 18822), (414, 18855), (421, 18888), (422, 18891), (432, 18975), (439, 19020), (440, 19023), (454, 19137), (459, 19170), (472, 19242), (476, 19278), (484, 19350), (493, 19428), (498, 19482), (503, 19506), (518, 19617),

Gene: ForGetIt\_22 Start: 15094, Stop: 18435, Start Num: 1

Candidate Starts for ForGetIt\_22:

(Start: 1 @15094 has 48 MA's), (31, 15532), (80, 15844), (95, 15922), (96, 15952), (105, 16009), (131, 16156), (133, 16162), (134, 16168), (152, 16294), (156, 16306), (181, 16456), (186, 16492), (191, 16522), (194, 16537), (198, 16567), (200, 16579), (204, 16603), (216, 16672), (227, 16738), (256, 16894), (269, 16963), (270, 16966), (274, 16993), (276, 17017), (311, 17155), (315, 17176), (325, 17221), (336, 17263), (381, 17455), (388, 17485), (395, 17509), (398, 17521), (406, 17542), (416, 17584), (429, 17671), (433, 17707), (436, 17728), (439, 17749), (450, 17827), (452, 17848), (456, 17869), (459, 17890), (464, 17911), (467, 17935), (476, 17998), (488, 18091), (490, 18109), (497, 18190), (500, 18202), (502, 18214), (504, 18223), (511, 18277), (523, 18361), (525, 18370),

Gene: GaugeLDP\_28 Start: 17905, Stop: 20424, Start Num: 37

Candidate Starts for GaugeLDP\_28:

(Start: 37 @17905 has 4 MA's), (51, 18016), (65, 18085), (66, 18088), (77, 18142), (107, 18259), (108, 18268), (110, 18277), (119, 18322), (122, 18331), (146, 18448), (158, 18505), (160, 18517), (162, 18523), (163, 18538), (169, 18559), (170, 18568), (208, 18778), (212, 18808), (215, 18820), (224, 18874), (230, 18895), (240, 18961), (248, 18988), (252, 19000), (281, 19141), (296, 19186), (301, 19201), (304, 19228), (306, 19231), (321, 19285), (334, 19321), (338, 19330), (347, 19351), (350, 19375), (352, 19387), (362, 19414), (363, 19417), (380, 19456), (384, 19468), (390, 19483), (427, 19627), (430, 19654), (432, 19684), (433, 19687), (437, 19717), (443, 19762), (445, 19774), (448, 19810), (459, 19879), (475, 19978), (476, 19987), (478, 19996), (490, 20107), (496, 20194), (503, 20224), (530, 20401),

Gene: George\_21 Start: 15244, Stop: 18582, Start Num: 1

Candidate Starts for George\_21:

(Start: 1 @15244 has 48 MA's), (31, 15682), (80, 15994), (95, 16072), (96, 16102), (105, 16159), (120, 16243), (131, 16306), (133, 16312), (151, 16432), (170, 16522), (171, 16525), (181, 16600), (188, 16645), (191, 16663), (198, 16708), (202, 16729), (233, 16921), (260, 17059), (270, 17107), (286, 17185), (313, 17311), (315, 17323), (318, 17347), (336, 17410), (381, 17602), (388, 17632), (395, 17656), (398, 17668), (416, 17731), (433, 17854), (436, 17875), (439, 17896), (450, 17974), (452, 17995), (459, 18037), (464, 18058), (476, 18145), (480, 18175), (488, 18238), (490, 18256), (497, 18337), (500, 18349), (502, 18361), (504, 18370), (511, 18424), (528, 18547),

Gene: Ghoulboy\_22 Start: 15349, Stop: 18750, Start Num: 1

Candidate Starts for Ghoulboy\_22:

(Start: 1 @15349 has 48 MA's), (6, 15409), (12, 15562), (14, 15601), (31, 15787), (53, 16015), (59, 16027), (62, 16039), (80, 16171), (95, 16249), (96, 16279), (105, 16336), (131, 16483), (133, 16489), (134, 16495), (152, 16621), (156, 16633), (181, 16783), (186, 16819), (191, 16849), (194, 16864), (198, 16894), (200, 16906), (204, 16930), (216, 16999), (227, 17065), (256, 17221), (269, 17290), (270, 17293), (274, 17320), (276, 17344), (311, 17482), (315, 17503), (325, 17536), (336, 17578), (381, 17770), (388, 17800), (395, 17824), (398, 17836), (406, 17857), (416, 17899), (429, 17986),



(433, 18022), (436, 18043), (439, 18064), (450, 18142), (452, 18163), (456, 18184), (459, 18205), (464, 18226), (467, 18250), (476, 18313), (488, 18406), (490, 18424), (497, 18505), (500, 18517), (502, 18529), (504, 18538), (511, 18592), (523, 18676), (525, 18685),

Gene: Gilberta\_26 Start: 17154, Stop: 19700, Start Num: 36

Candidate Starts for Gilberta\_26:

(Start: 36 @17154 has 20 MA's), (Start: 39 @17172 has 2 MA's), (65, 17346), (Start: 69 @17355 has 1 MA's), (87, 17430), (104, 17484), (112, 17538), (115, 17553), (116, 17556), (119, 17574), (131, 17637), (134, 17649), (147, 17712), (162, 17775), (163, 17790), (165, 17799), (170, 17820), (176, 17844), (178, 17859), (190, 17946), (191, 17949), (194, 17964), (197, 17985), (199, 17997), (210, 18063), (223, 18135), (228, 18159), (242, 18240), (245, 18249), (249, 18261), (256, 18303), (268, 18360), (283, 18414), (313, 18522), (323, 18561), (367, 18702), (400, 18798), (407, 18819), (414, 18852), (421, 18885), (422, 18888), (432, 18972), (439, 19017), (440, 19020), (454, 19134), (459, 19167), (472, 19239), (476, 19275), (484, 19347), (493, 19425), (498, 19479), (503, 19503), (518, 19614),

Gene: Groundhog\_21 Start: 14515, Stop: 17592, Start Num: 1

Candidate Starts for Groundhog\_21:

(Start: 1 @14515 has 48 MA's), (7, 14599), (16, 14767), (18, 14791), (22, 14839), (35, 14959), (54, 15031), (79, 15181), (80, 15184), (83, 15190), (143, 15376), (151, 15436), (152, 15442), (166, 15508), (173, 15535), (175, 15550), (180, 15601), (181, 15604), (185, 15637), (191, 15670), (220, 15838), (254, 16021), (256, 16045), (266, 16093), (269, 16114), (270, 16117), (302, 16261), (313, 16318), (317, 16348), (329, 16387), (346, 16459), (351, 16489), (373, 16588), (383, 16618), (395, 16663), (406, 16696), (433, 16861), (436, 16882), (438, 16894), (448, 16975), (452, 17002), (464, 17065), (467, 17089), (473, 17119), (476, 17152), (481, 17185), (488, 17245), (491, 17272), (503, 17371), (504, 17377), (515, 17467), (519, 17488), (525, 17527), (530, 17575),

Gene: HINdeR\_25 Start: 17367, Stop: 20738, Start Num: 17

Candidate Starts for HINdeR\_25:

(Start: 17 @17367 has 5 MA's), (30, 17529), (49, 17679), (58, 17754), (81, 17904), (93, 17955), (96, 18006), (118, 18141), (152, 18342), (159, 18375), (170, 18435), (171, 18438), (174, 18450), (177, 18477), (182, 18522), (185, 18546), (189, 18570), (198, 18621), (203, 18645), (226, 18831), (229, 18858), (231, 18873), (234, 18912), (235, 18927), (238, 18948), (244, 18990), (247, 19005), (249, 19011), (250, 19014), (257, 19098), (259, 19113), (265, 19140), (266, 19143), (272, 19176), (275, 19212), (284, 19239), (287, 19242), (291, 19251), (316, 19404), (319, 19416), (320, 19419), (324, 19437), (326, 19446), (328, 19452), (331, 19461), (333, 19479), (337, 19488), (342, 19512), (345, 19530), (358, 19593), (364, 19626), (369, 19659), (370, 19668), (371, 19671), (372, 19680), (375, 19683), (379, 19701), (387, 19734), (394, 19770), (402, 19800), (412, 19845), (421, 19890), (423, 19899), (424, 19902), (425, 19911), (427, 19920), (444, 20067), (446, 20085), (453, 20142), (457, 20160), (458, 20172), (460, 20184), (462, 20193), (466, 20214), (468, 20235), (470, 20247), (475, 20280), (477, 20292), (478, 20298), (481, 20322), (482, 20340), (483, 20343), (490, 20421), (495, 20484), (498, 20505), (502, 20526), (507, 20550), (513, 20616), (516, 20631), (517, 20637),

Gene: HuhtaEnerson15\_22 Start: 15244, Stop: 18582, Start Num: 1

Candidate Starts for HuhtaEnerson15\_22:

(Start: 1 @15244 has 48 MA's), (31, 15682), (80, 15994), (95, 16072), (96, 16102), (105, 16159), (120, 16243), (131, 16306), (133, 16312), (151, 16432), (170, 16522), (171, 16525), (181, 16600), (188, 16645), (191, 16663), (193, 16675), (198, 16708), (202, 16729), (233, 16921), (260, 17059), (270, 17107), (313, 17311), (315, 17323), (318, 17347), (336, 17410), (381, 17602), (388, 17632), (395, 17656), (398, 17668), (416, 17731), (433, 17854), (436, 17875), (439, 17896), (450, 17974), (452, 17995), (459, 18037), (464, 18058), (476, 18145), (480, 18175), (488, 18238), (490, 18256), (497, 18337), (500, 18349), (502, 18361), (504, 18370), (511, 18424), (523, 18508), (525, 18517), (528, 18547),

Gene: Hutc2\_26 Start: 17160, Stop: 19706, Start Num: 36

Candidate Starts for Hutc2\_26:

(Start: 36 @17160 has 20 MA's), (Start: 39 @17178 has 2 MA's), (65, 17352), (Start: 69 @17361 has 1 MA's), (87, 17436), (104, 17490), (112, 17544), (115, 17559), (116, 17562), (119, 17580), (131, 17643), (134, 17655), (147, 17718), (162, 17781), (163, 17796), (165, 17805), (170, 17826), (176, 17850), (178, 17865), (190, 17952), (191, 17955), (194, 17970), (197, 17991), (199, 18003), (210, 18069), (223, 18141), (228, 18165), (242, 18246), (245, 18255), (249, 18267), (256, 18309), (268, 18366), (283, 18420), (313, 18528), (323, 18567), (367, 18708), (400, 18804), (407, 18825), (414, 18858), (421, 18891), (422, 18894), (432, 18978), (439, 19023), (440, 19026), (454, 19140), (459, 19173), (472, 19245), (476, 19281), (484, 19353), (493, 19431), (498, 19485), (503, 19509), (518, 19620),

Gene: Insomnia\_25 Start: 17215, Stop: 19761, Start Num: 36

Candidate Starts for Insomnia\_25:

(Start: 36 @17215 has 20 MA's), (Start: 39 @17233 has 2 MA's), (65, 17407), (Start: 69 @17416 has 1 MA's), (87, 17491), (104, 17545), (112, 17599), (115, 17614), (116, 17617), (119, 17635), (131, 17698), (134, 17710), (147, 17773), (162, 17836), (163, 17851), (165, 17860), (170, 17881), (176, 17905), (178, 17920), (190, 18007), (191, 18010), (194, 18025), (197, 18046), (199, 18058), (210, 18124), (223, 18196), (228, 18220), (242, 18301), (245, 18310), (249, 18322), (256, 18364), (268, 18421), (283, 18475), (313, 18583), (323, 18622), (367, 18763), (400, 18859), (407, 18880), (414, 18913), (421, 18946), (422, 18949), (432, 19033), (439, 19078), (440, 19081), (454, 19195), (459, 19228), (472, 19300), (476, 19336), (484, 19408), (493, 19486), (498, 19540), (503, 19564), (518, 19675),

Gene: JSwag\_28 Start: 15741, Stop: 18095, Start Num: 60

Candidate Starts for JSwag\_28:

(Start: 55 @15732 has 1 MA's), (Start: 60 @15741 has 4 MA's), (Start: 88 @15909 has 15 MA's), (151, 16149), (152, 16155), (167, 16224), (177, 16281), (198, 16425), (205, 16467), (213, 16515), (214, 16518), (232, 16629), (234, 16647), (256, 16752), (266, 16800), (305, 16905), (322, 16965), (339, 17019), (348, 17055), (354, 17079), (356, 17088), (374, 17151), (382, 17172), (386, 17187), (391, 17211), (397, 17223), (410, 17277), (417, 17298), (423, 17328), (447, 17499), (448, 17520), (463, 17604), (504, 17907), (523, 18030), (526, 18042),

Gene: Jabiru\_22 Start: 15139, Stop: 17952, Start Num: 1

Candidate Starts for Jabiru\_22:

(Start: 1 @15139 has 48 MA's), (10, 15328), (61, 15676), (80, 15811), (83, 15817), (122, 15910), (134, 15961), (140, 15997), (154, 16087), (166, 16153), (171, 16174), (181, 16249), (185, 16282), (196, 16336), (200, 16369), (201, 16372), (203, 16381), (219, 16480), (225, 16513), (246, 16642), (293, 16807), (307, 16840), (325, 16873), (353, 16954), (357, 16966), (365, 16999), (390, 17077), (392, 17086), (413, 17152), (416, 17161), (433, 17224), (439, 17266), (448, 17338), (452, 17365), (455, 17380), (459, 17407), (464, 17428), (476, 17515), (480, 17545), (488, 17608), (497, 17707), (500, 17719), (502, 17731), (504, 17740), (525, 17887),

Gene: Jabith\_26 Start: 17215, Stop: 19761, Start Num: 36

Candidate Starts for Jabith\_26:

(Start: 36 @17215 has 20 MA's), (Start: 39 @17233 has 2 MA's), (65, 17407), (Start: 69 @17416 has 1 MA's), (87, 17491), (104, 17545), (112, 17599), (115, 17614), (116, 17617), (119, 17635), (131, 17698), (134, 17710), (147, 17773), (162, 17836), (163, 17851), (165, 17860), (170, 17881), (176, 17905), (178, 17920), (190, 18007), (191, 18010), (194, 18025), (197, 18046), (199, 18058), (210, 18124), (223, 18196), (228, 18220), (242, 18301), (245, 18310), (249, 18322), (256, 18364), (268, 18421), (283, 18475), (313, 18583), (323, 18622), (367, 18763), (400, 18859), (407, 18880), (414, 18913), (421, 18946), (422, 18949), (432, 19033), (439, 19078), (440, 19081), (454, 19195), (459,

19228), (472, 19300), (476, 19336), (484, 19408), (493, 19486), (498, 19540), (503, 19564), (518, 19675),

Gene: Joselito\_26 Start: 17163, Stop: 19709, Start Num: 36

Candidate Starts for Joselito\_26:

(Start: 36 @17163 has 20 MA's), (Start: 39 @17181 has 2 MA's), (65, 17355), (Start: 69 @17364 has 1 MA's), (87, 17439), (104, 17493), (112, 17547), (115, 17562), (116, 17565), (119, 17583), (131, 17646), (134, 17658), (147, 17721), (162, 17784), (163, 17799), (165, 17808), (170, 17829), (176, 17853), (178, 17868), (190, 17955), (191, 17958), (194, 17973), (197, 17994), (199, 18006), (210, 18072), (222, 18135), (223, 18144), (228, 18168), (242, 18249), (245, 18258), (249, 18270), (256, 18312), (268, 18369), (283, 18423), (313, 18531), (323, 18570), (367, 18711), (400, 18807), (407, 18828), (414, 18861), (421, 18894), (422, 18897), (432, 18981), (439, 19026), (440, 19029), (454, 19143), (459, 19176), (476, 19284), (484, 19356), (493, 19434), (498, 19488), (503, 19512), (518, 19623),

Gene: Jovo\_22 Start: 15350, Stop: 18691, Start Num: 1

Candidate Starts for Jovo\_22:

(Start: 1 @15350 has 48 MA's), (31, 15788), (80, 16100), (95, 16178), (96, 16208), (105, 16265), (131, 16412), (133, 16418), (134, 16424), (152, 16550), (156, 16562), (181, 16712), (186, 16748), (191, 16778), (194, 16793), (198, 16823), (200, 16835), (204, 16859), (216, 16928), (227, 16994), (256, 17150), (269, 17219), (270, 17222), (274, 17249), (276, 17273), (311, 17411), (315, 17432), (325, 17477), (336, 17519), (381, 17711), (388, 17741), (395, 17765), (398, 17777), (406, 17798), (416, 17840), (429, 17927), (433, 17963), (436, 17984), (439, 18005), (450, 18083), (452, 18104), (456, 18125), (459, 18146), (464, 18167), (467, 18191), (476, 18254), (488, 18347), (490, 18365), (497, 18446), (500, 18458), (502, 18470), (504, 18479), (511, 18533), (523, 18617), (525, 18626),

Gene: KatherineG\_28 Start: 16045, Stop: 18231, Start Num: 88

Candidate Starts for KatherineG\_28:

(Start: 55 @15868 has 1 MA's), (Start: 60 @15877 has 4 MA's), (Start: 88 @16045 has 15 MA's), (151, 16285), (152, 16291), (167, 16360), (177, 16417), (197, 16552), (198, 16561), (205, 16603), (213, 16651), (214, 16654), (232, 16765), (234, 16783), (256, 16888), (266, 16936), (305, 17041), (322, 17101), (339, 17155), (348, 17191), (354, 17215), (356, 17224), (374, 17287), (382, 17308), (386, 17323), (391, 17347), (397, 17359), (410, 17413), (417, 17434), (423, 17464), (447, 17635), (448, 17656), (463, 17740), (504, 18043), (523, 18166), (526, 18178),

Gene: LastResort\_28 Start: 15923, Stop: 18112, Start Num: 88

Candidate Starts for LastResort\_28:

(Start: 55 @15746 has 1 MA's), (Start: 60 @15755 has 4 MA's), (Start: 88 @15923 has 15 MA's), (151, 16166), (152, 16172), (167, 16241), (177, 16298), (198, 16442), (205, 16484), (213, 16532), (214, 16535), (232, 16646), (234, 16664), (256, 16769), (266, 16817), (305, 16922), (322, 16982), (339, 17036), (348, 17072), (354, 17096), (356, 17105), (374, 17168), (382, 17189), (386, 17204), (391, 17228), (397, 17240), (410, 17294), (417, 17315), (423, 17345), (447, 17516), (448, 17537), (463, 17621), (504, 17924), (523, 18047), (526, 18059),

Gene: Lev2\_22 Start: 15062, Stop: 18403, Start Num: 1

Candidate Starts for Lev2\_22:

(Start: 1 @15062 has 48 MA's), (31, 15500), (80, 15812), (95, 15890), (96, 15920), (105, 15977), (131, 16124), (133, 16130), (134, 16136), (152, 16262), (156, 16274), (181, 16424), (186, 16460), (191, 16490), (194, 16505), (198, 16535), (200, 16547), (204, 16571), (216, 16640), (227, 16706), (256, 16862), (269, 16931), (270, 16934), (274, 16961), (276, 16985), (311, 17123), (315, 17144), (325, 17189), (336, 17231), (381, 17423), (388, 17453), (395, 17477), (398, 17489), (406, 17510), (416, 17552), (429, 17639), (433, 17675), (436, 17696), (439, 17717), (450, 17795), (452, 17816), (456, 17837), (459, 17858), (464, 17879), (467, 17903), (476, 17966), (488, 18059), (490, 18077), (497,

18158), (500, 18170), (502, 18182), (504, 18191), (511, 18245), (523, 18329), (525, 18338),

Gene: LittleCherry\_22 Start: 15245, Stop: 18583, Start Num: 1

Candidate Starts for LittleCherry\_22:

(Start: 1 @15245 has 48 MA's), (31, 15683), (80, 15995), (95, 16073), (96, 16103), (105, 16160), (120, 16244), (131, 16307), (133, 16313), (151, 16433), (170, 16523), (171, 16526), (181, 16601), (188, 16646), (191, 16664), (198, 16709), (202, 16730), (233, 16922), (260, 17060), (270, 17108), (286, 17186), (313, 17312), (315, 17324), (318, 17348), (336, 17411), (381, 17603), (388, 17633), (395, 17657), (398, 17669), (416, 17732), (433, 17855), (436, 17876), (439, 17897), (450, 17975), (452, 17996), (459, 18038), (464, 18059), (476, 18146), (480, 18176), (488, 18239), (490, 18257), (497, 18338), (500, 18350), (502, 18362), (504, 18371), (511, 18425), (523, 18509), (528, 18548),

Gene: Looper\_29 Start: 15923, Stop: 18109, Start Num: 88

Candidate Starts for Looper\_29:

(Start: 55 @15746 has 1 MA's), (Start: 60 @15755 has 4 MA's), (Start: 88 @15923 has 15 MA's), (151, 16163), (152, 16169), (167, 16238), (177, 16295), (198, 16439), (205, 16481), (213, 16529), (214, 16532), (232, 16643), (234, 16661), (256, 16766), (266, 16814), (305, 16919), (322, 16979), (339, 17033), (348, 17069), (354, 17093), (356, 17102), (374, 17165), (382, 17186), (386, 17201), (391, 17225), (397, 17237), (410, 17291), (417, 17312), (423, 17342), (447, 17513), (448, 17534), (463, 17618), (504, 17921), (523, 18044), (526, 18056),

Gene: Loser\_29 Start: 18399, Stop: 20897, Start Num: 37

Candidate Starts for Loser\_29:

(28, 18336), (Start: 37 @18399 has 4 MA's), (57, 18528), (63, 18567), (73, 18612), (102, 18714), (107, 18735), (110, 18753), (117, 18789), (134, 18873), (146, 18924), (160, 18993), (162, 18999), (163, 19014), (165, 19023), (169, 19035), (170, 19044), (208, 19254), (211, 19281), (215, 19296), (224, 19350), (230, 19371), (240, 19437), (252, 19476), (262, 19539), (296, 19662), (301, 19677), (321, 19761), (327, 19776), (332, 19791), (334, 19797), (338, 19806), (347, 19827), (349, 19848), (360, 19872), (363, 19893), (366, 19899), (380, 19932), (385, 19947), (390, 19959), (399, 19989), (404, 20001), (410, 20031), (415, 20043), (430, 20130), (433, 20163), (437, 20193), (442, 20226), (443, 20238), (475, 20457), (476, 20466), (478, 20475), (490, 20586), (493, 20616), (503, 20697), (526, 20838),

Gene: Lucivia\_26 Start: 17212, Stop: 19758, Start Num: 36

Candidate Starts for Lucivia\_26:

(Start: 36 @17212 has 20 MA's), (Start: 39 @17230 has 2 MA's), (65, 17404), (Start: 69 @17413 has 1 MA's), (87, 17488), (104, 17542), (112, 17596), (115, 17611), (116, 17614), (119, 17632), (131, 17695), (134, 17707), (147, 17770), (162, 17833), (163, 17848), (165, 17857), (170, 17878), (176, 17902), (178, 17917), (190, 18004), (191, 18007), (194, 18022), (197, 18043), (199, 18055), (210, 18121), (223, 18193), (228, 18217), (242, 18298), (245, 18307), (249, 18319), (256, 18361), (268, 18418), (283, 18472), (313, 18580), (323, 18619), (367, 18760), (400, 18856), (407, 18877), (414, 18910), (421, 18943), (422, 18946), (432, 19030), (439, 19075), (440, 19078), (454, 19192), (459, 19225), (472, 19297), (476, 19333), (484, 19405), (493, 19483), (498, 19537), (503, 19561), (518, 19672),

Gene: Lucyedi\_27 Start: 16773, Stop: 19835, Start Num: 3

Candidate Starts for Lucyedi\_27:

(Start: 3 @16773 has 3 MA's), (9, 16947), (20, 17064), (Start: 39 @17241 has 2 MA's), (65, 17397), (68, 17403), (96, 17505), (111, 17601), (131, 17709), (133, 17715), (152, 17829), (166, 17895), (173, 17922), (181, 17991), (185, 18024), (186, 18027), (200, 18114), (201, 18117), (214, 18195), (224, 18255), (289, 18549), (297, 18579), (299, 18582), (341, 18735), (393, 18912), (396, 18924), (433, 19119), (436, 19140), (448, 19233), (452, 19260), (456, 19281), (459, 19302), (493, 19560), (499, 19617), (514, 19728),

Gene: MaCh\_26 Start: 17154, Stop: 19700, Start Num: 36

Candidate Starts for MaCh\_26:

(Start: 36 @17154 has 20 MA's), (Start: 39 @17172 has 2 MA's), (65, 17346), (Start: 69 @17355 has 1 MA's), (87, 17430), (104, 17484), (112, 17538), (115, 17553), (116, 17556), (119, 17574), (131, 17637), (134, 17649), (147, 17712), (162, 17775), (163, 17790), (165, 17799), (170, 17820), (176, 17844), (178, 17859), (190, 17946), (191, 17949), (194, 17964), (197, 17985), (199, 17997), (210, 18063), (223, 18135), (228, 18159), (242, 18240), (245, 18249), (249, 18261), (256, 18303), (268, 18360), (283, 18414), (313, 18522), (323, 18561), (367, 18702), (400, 18798), (407, 18819), (414, 18852), (421, 18885), (422, 18888), (432, 18972), (439, 19017), (440, 19020), (454, 19134), (459, 19167), (472, 19239), (476, 19275), (484, 19347), (493, 19425), (498, 19479), (503, 19503), (518, 19614),

Gene: Mabel\_26 Start: 17215, Stop: 19761, Start Num: 36

Candidate Starts for Mabel\_26:

(Start: 36 @17215 has 20 MA's), (Start: 39 @17233 has 2 MA's), (65, 17407), (Start: 69 @17416 has 1 MA's), (87, 17491), (104, 17545), (112, 17599), (115, 17614), (116, 17617), (119, 17635), (131, 17698), (134, 17710), (147, 17773), (162, 17836), (163, 17851), (165, 17860), (170, 17881), (176, 17905), (178, 17920), (190, 18007), (191, 18010), (194, 18025), (197, 18046), (199, 18058), (210, 18124), (223, 18196), (228, 18220), (242, 18301), (245, 18310), (249, 18322), (256, 18364), (268, 18421), (283, 18475), (313, 18583), (323, 18622), (367, 18763), (400, 18859), (407, 18880), (414, 18913), (421, 18946), (422, 18949), (432, 19033), (439, 19078), (440, 19081), (454, 19195), (459, 19228), (472, 19300), (476, 19336), (484, 19408), (493, 19486), (498, 19540), (503, 19564), (518, 19675),

Gene: MarysWell\_21 Start: 15213, Stop: 18551, Start Num: 1

Candidate Starts for MarysWell\_21:

(Start: 1 @15213 has 48 MA's), (31, 15651), (80, 15963), (92, 16005), (95, 16041), (96, 16071), (105, 16128), (120, 16212), (131, 16275), (133, 16281), (149, 16383), (151, 16401), (171, 16494), (181, 16569), (188, 16614), (191, 16632), (198, 16677), (202, 16698), (233, 16890), (246, 16950), (260, 17028), (270, 17076), (286, 17154), (313, 17280), (315, 17292), (318, 17316), (336, 17379), (381, 17571), (388, 17601), (395, 17625), (398, 17637), (416, 17700), (433, 17823), (436, 17844), (439, 17865), (450, 17943), (452, 17964), (459, 18006), (464, 18027), (469, 18063), (476, 18114), (480, 18144), (488, 18207), (490, 18225), (497, 18306), (500, 18318), (502, 18330), (504, 18339), (511, 18393), (523, 18477), (528, 18516),

Gene: Micasa\_21 Start: 15213, Stop: 18557, Start Num: 1

Candidate Starts for Micasa\_21:

(Start: 1 @15213 has 48 MA's), (31, 15651), (80, 15963), (95, 16041), (96, 16071), (105, 16128), (120, 16212), (131, 16275), (133, 16281), (151, 16401), (171, 16494), (181, 16569), (188, 16614), (191, 16632), (198, 16677), (202, 16698), (233, 16890), (260, 17028), (270, 17076), (286, 17154), (288, 17157), (307, 17253), (313, 17280), (318, 17316), (321, 17328), (336, 17385), (381, 17577), (388, 17607), (395, 17631), (398, 17643), (416, 17706), (433, 17829), (436, 17850), (439, 17871), (450, 17949), (452, 17970), (459, 18012), (464, 18033), (476, 18120), (480, 18150), (488, 18213), (490, 18231), (497, 18312), (500, 18324), (502, 18336), (504, 18345), (511, 18399), (523, 18483), (528, 18522),

Gene: Midas2\_22 Start: 15213, Stop: 18551, Start Num: 1

Candidate Starts for Midas2\_22:

(Start: 1 @15213 has 48 MA's), (31, 15651), (80, 15963), (95, 16041), (96, 16071), (105, 16128), (131, 16275), (133, 16281), (151, 16401), (153, 16410), (170, 16491), (171, 16494), (181, 16569), (188, 16614), (191, 16632), (198, 16677), (202, 16698), (233, 16890), (260, 17028), (270, 17076), (286, 17154), (313, 17280), (315, 17292), (318, 17316), (336, 17379), (381, 17571), (388, 17601), (395,

17625), (398, 17637), (416, 17700), (433, 17823), (436, 17844), (439, 17865), (450, 17943), (452, 17964), (459, 18006), (464, 18027), (476, 18114), (480, 18144), (488, 18207), (490, 18225), (497, 18306), (500, 18318), (502, 18330), (504, 18339), (511, 18393), (523, 18477), (528, 18516),

Gene: Milcery\_22 Start: 15249, Stop: 18587, Start Num: 1

Candidate Starts for Milcery\_22:

(Start: 1 @15249 has 48 MA's), (31, 15687), (80, 15999), (95, 16077), (96, 16107), (105, 16164), (120, 16248), (131, 16311), (133, 16317), (151, 16437), (170, 16527), (171, 16530), (181, 16605), (188, 16650), (191, 16668), (198, 16713), (202, 16734), (233, 16926), (260, 17064), (270, 17112), (286, 17190), (313, 17316), (315, 17328), (318, 17352), (336, 17415), (381, 17607), (388, 17637), (395, 17661), (398, 17673), (416, 17736), (433, 17859), (436, 17880), (439, 17901), (450, 17979), (452, 18000), (459, 18042), (464, 18063), (476, 18150), (480, 18180), (488, 18243), (490, 18261), (497, 18342), (500, 18354), (502, 18366), (504, 18375), (511, 18429), (523, 18513), (525, 18522), (528, 18552),

Gene: MinecraftSteve\_29 Start: 15877, Stop: 18231, Start Num: 60

Candidate Starts for MinecraftSteve\_29:

(Start: 55 @15868 has 1 MA's), (Start: 60 @15877 has 4 MA's), (Start: 88 @16045 has 15 MA's), (151, 16285), (152, 16291), (167, 16360), (177, 16417), (198, 16561), (205, 16603), (213, 16651), (214, 16654), (232, 16765), (234, 16783), (256, 16888), (266, 16936), (305, 17041), (322, 17101), (339, 17155), (348, 17191), (354, 17215), (356, 17224), (374, 17287), (382, 17308), (386, 17323), (391, 17347), (397, 17359), (410, 17413), (417, 17434), (423, 17464), (447, 17635), (448, 17656), (463, 17740), (504, 18043), (523, 18166), (526, 18178),

Gene: Mulciber\_26 Start: 17157, Stop: 19703, Start Num: 36

Candidate Starts for Mulciber\_26:

(Start: 36 @17157 has 20 MA's), (Start: 39 @17175 has 2 MA's), (65, 17349), (Start: 69 @17358 has 1 MA's), (87, 17433), (104, 17487), (112, 17541), (115, 17556), (116, 17559), (119, 17577), (131, 17640), (134, 17652), (147, 17715), (162, 17778), (163, 17793), (165, 17802), (170, 17823), (176, 17847), (178, 17862), (190, 17949), (191, 17952), (194, 17967), (197, 17988), (199, 18000), (210, 18066), (223, 18138), (228, 18162), (242, 18243), (245, 18252), (249, 18264), (256, 18306), (268, 18363), (283, 18417), (313, 18525), (323, 18564), (367, 18705), (400, 18801), (407, 18822), (414, 18855), (421, 18888), (422, 18891), (432, 18975), (439, 19020), (440, 19023), (454, 19137), (459, 19170), (472, 19242), (476, 19278), (484, 19350), (493, 19428), (498, 19482), (503, 19506), (518, 19617),

Gene: Munch\_26 Start: 17163, Stop: 19709, Start Num: 36

Candidate Starts for Munch\_26:

(Start: 36 @17163 has 20 MA's), (Start: 39 @17181 has 2 MA's), (65, 17355), (Start: 69 @17364 has 1 MA's), (87, 17439), (104, 17493), (112, 17547), (115, 17562), (116, 17565), (119, 17583), (131, 17646), (134, 17658), (147, 17721), (162, 17784), (163, 17799), (165, 17808), (170, 17829), (176, 17853), (178, 17868), (190, 17955), (191, 17958), (194, 17973), (197, 17994), (199, 18006), (210, 18072), (222, 18135), (223, 18144), (228, 18168), (242, 18249), (245, 18258), (249, 18270), (256, 18312), (268, 18369), (283, 18423), (313, 18531), (323, 18570), (367, 18711), (400, 18807), (407, 18828), (414, 18861), (421, 18894), (422, 18897), (432, 18981), (439, 19026), (440, 19029), (454, 19143), (459, 19176), (472, 19248), (476, 19284), (484, 19356), (493, 19434), (498, 19488), (503, 19512), (518, 19623),

Gene: MyraDee\_23 Start: 14094, Stop: 16709, Start Num: 56

Candidate Starts for MyraDee\_23:

(Start: 56 @14094 has 1 MA's), (66, 14151), (70, 14175), (97, 14274), (98, 14292), (126, 14394), (127, 14400), (140, 14445), (141, 14454), (166, 14592), (174, 14625), (181, 14688), (191, 14751), (194, 14766), (198, 14796), (201, 14811), (205, 14838), (220, 14925), (225, 14955), (234, 15018), (254,

15099), (255, 15114), (256, 15123), (258, 15141), (335, 15507), (341, 15528), (408, 15813), (409, 15825), (419, 15858), (433, 15963), (439, 16005), (449, 16080), (451, 16095), (452, 16104), (459, 16146), (477, 16245), (488, 16335), (497, 16434), (498, 16437), (502, 16458), (508, 16485), (519, 16581), (520, 16593), (524, 16608), (525, 16638),

Gene: Naca\_22 Start: 15172, Stop: 18438, Start Num: 1

Candidate Starts for Naca\_22:

(Start: 1 @15172 has 48 MA's), (13, 15409), (22, 15511), (24, 15520), (32, 15613), (Start: 36 @15640 has 20 MA's), (61, 15715), (80, 15850), (94, 15904), (96, 15958), (120, 16099), (124, 16123), (131, 16162), (141, 16225), (142, 16228), (151, 16288), (158, 16315), (171, 16381), (184, 16480), (191, 16519), (198, 16564), (203, 16588), (216, 16669), (256, 16891), (260, 16915), (270, 16963), (278, 17020), (279, 17026), (300, 17098), (313, 17167), (325, 17224), (330, 17242), (336, 17266), (351, 17338), (395, 17512), (398, 17524), (416, 17587), (429, 17674), (433, 17710), (436, 17731), (439, 17752), (452, 17851), (459, 17893), (464, 17914), (476, 18001), (480, 18031), (481, 18034), (488, 18094), (497, 18193), (500, 18205), (502, 18217), (504, 18226), (525, 18373),

Gene: NearlyHeadless\_22 Start: 14564, Stop: 17641, Start Num: 1

Candidate Starts for NearlyHeadless\_22:

(Start: 1 @14564 has 48 MA's), (7, 14648), (16, 14816), (18, 14840), (22, 14888), (35, 15008), (54, 15080), (79, 15230), (80, 15233), (83, 15239), (143, 15425), (145, 15446), (151, 15485), (166, 15557), (173, 15584), (175, 15599), (180, 15650), (181, 15653), (191, 15719), (220, 15887), (256, 16094), (266, 16142), (269, 16163), (270, 16166), (302, 16310), (313, 16367), (317, 16397), (329, 16436), (346, 16508), (351, 16538), (373, 16637), (383, 16667), (395, 16712), (433, 16910), (436, 16931), (438, 16943), (448, 17024), (452, 17051), (459, 17093), (464, 17114), (467, 17138), (473, 17168), (476, 17201), (481, 17234), (488, 17294), (491, 17321), (503, 17420), (515, 17516), (519, 17537), (525, 17576), (530, 17624),

Gene: Nebulosus\_28 Start: 15746, Stop: 18109, Start Num: 55

Candidate Starts for Nebulosus\_28:

(Start: 55 @15746 has 1 MA's), (Start: 60 @15755 has 4 MA's), (Start: 88 @15923 has 15 MA's), (151, 16163), (152, 16169), (167, 16238), (177, 16295), (198, 16439), (205, 16481), (213, 16529), (214, 16532), (232, 16643), (234, 16661), (256, 16766), (266, 16814), (305, 16919), (322, 16979), (339, 17033), (348, 17069), (354, 17093), (356, 17102), (374, 17165), (382, 17186), (386, 17201), (391, 17225), (397, 17237), (410, 17291), (417, 17312), (423, 17342), (447, 17513), (448, 17534), (463, 17618), (504, 17921), (523, 18044), (526, 18056),

Gene: Nedarya\_27 Start: 16578, Stop: 18761, Start Num: 88

Candidate Starts for Nedarya\_27:

(Start: 55 @16404 has 1 MA's), (Start: 60 @16413 has 4 MA's), (67, 16467), (Start: 88 @16578 has 15 MA's), (145, 16782), (147, 16797), (151, 16821), (152, 16827), (171, 16914), (172, 16917), (177, 16953), (181, 16989), (185, 17022), (191, 17052), (194, 17067), (197, 17088), (203, 17121), (214, 17190), (232, 17301), (233, 17310), (261, 17442), (263, 17451), (305, 17565), (339, 17679), (374, 17811), (383, 17838), (386, 17847), (403, 17904), (417, 17958), (423, 17988), (430, 18033), (447, 18159), (523, 18693), (526, 18705),

Gene: Oofda\_29 Start: 15894, Stop: 18083, Start Num: 88

Candidate Starts for Oofda\_29:

(Start: 55 @15717 has 1 MA's), (Start: 60 @15726 has 4 MA's), (Start: 88 @15894 has 15 MA's), (151, 16137), (152, 16143), (167, 16212), (177, 16269), (198, 16413), (205, 16455), (213, 16503), (214, 16506), (232, 16617), (234, 16635), (256, 16740), (266, 16788), (305, 16893), (322, 16953), (339, 17007), (348, 17043), (354, 17067), (356, 17076), (374, 17139), (382, 17160), (386, 17175), (391, 17199), (397, 17211), (410, 17265), (417, 17286), (423, 17316), (447, 17487), (448, 17508), (463, 17592), (504, 17895), (523, 18018), (526, 18030),

Gene: Orange\_26 Start: 17163, Stop: 19709, Start Num: 36

Candidate Starts for Orange\_26:

(Start: 36 @17163 has 20 MA's), (Start: 39 @17181 has 2 MA's), (65, 17355), (Start: 69 @17364 has 1 MA's), (87, 17439), (104, 17493), (112, 17547), (115, 17562), (116, 17565), (119, 17583), (131, 17646), (134, 17658), (147, 17721), (162, 17784), (163, 17799), (165, 17808), (170, 17829), (176, 17853), (178, 17868), (190, 17955), (191, 17958), (194, 17973), (197, 17994), (199, 18006), (210, 18072), (223, 18144), (228, 18168), (242, 18249), (245, 18258), (249, 18270), (256, 18312), (268, 18369), (283, 18423), (313, 18531), (323, 18570), (367, 18711), (400, 18807), (407, 18828), (414, 18861), (421, 18894), (422, 18897), (432, 18981), (439, 19026), (440, 19029), (454, 19143), (459, 19176), (472, 19248), (476, 19284), (484, 19356), (493, 19434), (498, 19488), (503, 19512), (518, 19623),

Gene: PP\_35 Start: 21773, Stop: 24784, Start Num: 17

Candidate Starts for PP\_35:

(Start: 17 @21773 has 5 MA's), (26, 21896), (27, 21902), (42, 22010), (43, 22013), (44, 22022), (48, 22034), (50, 22115), (82, 22229), (89, 22253), (96, 22325), (98, 22346), (101, 22355), (103, 22361), (138, 22526), (139, 22547), (149, 22604), (157, 22643), (161, 22673), (163, 22691), (167, 22706), (168, 22709), (171, 22724), (175, 22745), (181, 22799), (191, 22862), (197, 22898), (198, 22907), (202, 22928), (205, 22949), (236, 23138), (253, 23216), (256, 23249), (266, 23297), (280, 23348), (282, 23351), (295, 23396), (340, 23567), (348, 23615), (361, 23660), (369, 23714), (372, 23735), (384, 23768), (398, 23834), (402, 23846), (412, 23891), (420, 23924), (423, 23945), (424, 23948), (436, 24056), (443, 24110), (444, 24113), (446, 24131), (453, 24188), (458, 24218), (470, 24293), (474, 24314), (479, 24353), (484, 24407), (490, 24467), (494, 24500), (501, 24563), (502, 24572), (513, 24662), (516, 24677), (526, 24728),

Gene: PainterBoy\_27 Start: 16773, Stop: 19835, Start Num: 3

Candidate Starts for PainterBoy\_27:

(Start: 3 @16773 has 3 MA's), (9, 16947), (20, 17064), (Start: 39 @17241 has 2 MA's), (65, 17397), (68, 17403), (96, 17505), (111, 17601), (131, 17709), (133, 17715), (152, 17829), (166, 17895), (173, 17922), (181, 17991), (185, 18024), (186, 18027), (200, 18114), (201, 18117), (214, 18195), (224, 18255), (233, 18315), (289, 18549), (297, 18579), (299, 18582), (341, 18735), (393, 18912), (396, 18924), (433, 19119), (436, 19140), (448, 19233), (452, 19260), (456, 19281), (459, 19302), (492, 19542), (493, 19560), (499, 19617), (514, 19728),

Gene: Petersenfast\_25 Start: 17178, Stop: 19706, Start Num: 39

Candidate Starts for Petersenfast\_25:

(Start: 36 @17160 has 20 MA's), (Start: 39 @17178 has 2 MA's), (65, 17352), (Start: 69 @17361 has 1 MA's), (87, 17436), (104, 17490), (112, 17544), (115, 17559), (116, 17562), (119, 17580), (131, 17643), (134, 17655), (147, 17718), (162, 17781), (163, 17796), (165, 17805), (170, 17826), (176, 17850), (178, 17865), (190, 17952), (191, 17955), (194, 17970), (197, 17991), (199, 18003), (210, 18069), (223, 18141), (228, 18165), (242, 18246), (245, 18255), (249, 18267), (256, 18309), (268, 18366), (283, 18420), (313, 18528), (323, 18567), (367, 18708), (400, 18804), (407, 18825), (414, 18858), (421, 18891), (422, 18894), (432, 18978), (439, 19023), (440, 19026), (454, 19140), (459, 19173), (472, 19245), (476, 19281), (484, 19353), (493, 19431), (498, 19485), (503, 19509), (518, 19620),

Gene: PetterN\_23 Start: 15059, Stop: 17872, Start Num: 1

Candidate Starts for PetterN\_23:

(Start: 1 @15059 has 48 MA's), (10, 15248), (80, 15731), (83, 15737), (122, 15830), (134, 15881), (140, 15917), (154, 16007), (166, 16073), (171, 16094), (181, 16169), (185, 16202), (196, 16256), (200, 16289), (201, 16292), (203, 16301), (219, 16400), (221, 16409), (225, 16433), (246, 16562), (268, 16676), (292, 16718), (293, 16727), (325, 16793), (357, 16886), (365, 16919), (392, 17006),



(405, 17039), (408, 17051), (416, 17081), (433, 17144), (439, 17186), (448, 17258), (452, 17285), (455, 17300), (459, 17327), (464, 17348), (476, 17435), (480, 17465), (481, 17468), (488, 17528), (497, 17627), (500, 17639), (502, 17651), (504, 17660), (525, 17807),

Gene: Phillis\_22 Start: 14522, Stop: 17599, Start Num: 1

Candidate Starts for Phillis\_22:

(Start: 1 @14522 has 48 MA's), (7, 14606), (16, 14774), (18, 14798), (22, 14846), (35, 14966), (38, 14993), (54, 15038), (79, 15188), (80, 15191), (83, 15197), (143, 15383), (151, 15443), (173, 15542), (175, 15557), (180, 15608), (181, 15611), (185, 15644), (191, 15677), (220, 15845), (254, 16028), (256, 16052), (266, 16100), (269, 16121), (270, 16124), (302, 16268), (313, 16325), (317, 16355), (329, 16394), (346, 16466), (351, 16496), (373, 16595), (383, 16625), (395, 16670), (406, 16703), (433, 16868), (436, 16889), (438, 16901), (448, 16982), (452, 17009), (464, 17072), (467, 17096), (473, 17126), (476, 17159), (481, 17192), (488, 17252), (491, 17279), (503, 17378), (504, 17384), (515, 17474), (519, 17495), (525, 17534), (530, 17582),

Gene: Phlei\_21 Start: 17431, Stop: 20733, Start Num: 2

Candidate Starts for Phlei\_21:

(2, 17431), (4, 17455), (8, 17557), (16, 17701), (20, 17746), (27, 17836), (45, 17962), (47, 17968), (52, 18067), (74, 18178), (109, 18352), (111, 18364), (118, 18403), (125, 18439), (143, 18547), (151, 18607), (158, 18634), (162, 18652), (163, 18667), (181, 18775), (187, 18820), (189, 18832), (194, 18853), (198, 18883), (220, 19009), (234, 19102), (255, 19198), (264, 19252), (266, 19255), (267, 19258), (271, 19285), (275, 19309), (279, 19321), (314, 19468), (372, 19711), (393, 19786), (401, 19810), (426, 19927), (429, 19957), (433, 19993), (435, 20005), (436, 20014), (437, 20023), (448, 20107), (452, 20134), (459, 20176), (464, 20197), (486, 20386), (489, 20413), (499, 20512), (502, 20530), (503, 20533), (512, 20608),

Gene: Phlorence\_22 Start: 15349, Stop: 18690, Start Num: 1

Candidate Starts for Phlorence\_22:

(Start: 1 @15349 has 48 MA's), (31, 15787), (80, 16099), (95, 16177), (96, 16207), (105, 16264), (131, 16411), (133, 16417), (134, 16423), (152, 16549), (156, 16561), (181, 16711), (186, 16747), (191, 16777), (194, 16792), (198, 16822), (200, 16834), (204, 16858), (216, 16927), (227, 16993), (256, 17149), (269, 17218), (270, 17221), (274, 17248), (276, 17272), (311, 17410), (315, 17431), (325, 17476), (336, 17518), (381, 17710), (388, 17740), (395, 17764), (398, 17776), (406, 17797), (416, 17839), (429, 17926), (433, 17962), (436, 17983), (439, 18004), (450, 18082), (452, 18103), (456, 18124), (459, 18145), (464, 18166), (467, 18190), (476, 18253), (488, 18346), (490, 18364), (497, 18445), (500, 18457), (502, 18469), (504, 18478), (511, 18532), (523, 18616), (525, 18625),

Gene: PickleBack\_22 Start: 15063, Stop: 18404, Start Num: 1

Candidate Starts for PickleBack\_22:

(Start: 1 @15063 has 48 MA's), (31, 15501), (80, 15813), (95, 15891), (96, 15921), (105, 15978), (131, 16125), (133, 16131), (134, 16137), (152, 16263), (156, 16275), (181, 16425), (186, 16461), (191, 16491), (194, 16506), (198, 16536), (200, 16548), (204, 16572), (216, 16641), (227, 16707), (256, 16863), (269, 16932), (270, 16935), (274, 16962), (276, 16986), (311, 17124), (315, 17145), (325, 17190), (336, 17232), (381, 17424), (388, 17454), (395, 17478), (398, 17490), (406, 17511), (416, 17553), (429, 17640), (433, 17676), (436, 17697), (439, 17718), (450, 17796), (452, 17817), (456, 17838), (459, 17859), (464, 17880), (467, 17904), (476, 17967), (488, 18060), (490, 18078), (497, 18159), (500, 18171), (502, 18183), (504, 18192), (511, 18246), (523, 18330), (525, 18339),

Gene: ReMo\_28 Start: 15923, Stop: 18109, Start Num: 88

Candidate Starts for ReMo\_28:

(Start: 55 @15746 has 1 MA's), (Start: 60 @15755 has 4 MA's), (Start: 88 @15923 has 15 MA's), (151, 16163), (152, 16169), (167, 16238), (177, 16295), (198, 16439), (205, 16481), (213, 16529), (214, 16532), (232, 16643), (234, 16661), (256, 16766), (266, 16814), (305, 16919), (322, 16979),

(339, 17033), (348, 17069), (354, 17093), (356, 17102), (374, 17165), (382, 17186), (386, 17201), (391, 17225), (397, 17237), (410, 17291), (417, 17312), (423, 17342), (447, 17513), (448, 17534), (463, 17618), (504, 17921), (523, 18044), (526, 18056),

Gene: RedRock\_29 Start: 18558, Stop: 21056, Start Num: 37

Candidate Starts for RedRock\_29:

(Start: 37 @18558 has 4 MA's), (57, 18687), (63, 18726), (73, 18771), (102, 18873), (107, 18894), (110, 18912), (134, 19032), (146, 19083), (160, 19152), (162, 19158), (163, 19173), (165, 19182), (169, 19194), (170, 19203), (208, 19413), (211, 19440), (215, 19455), (224, 19509), (230, 19530), (240, 19596), (252, 19635), (262, 19698), (296, 19821), (301, 19836), (327, 19935), (332, 19950), (334, 19956), (338, 19965), (347, 19986), (349, 20007), (352, 20022), (360, 20031), (363, 20052), (366, 20058), (380, 20091), (390, 20118), (399, 20148), (404, 20160), (410, 20190), (415, 20202), (430, 20289), (433, 20322), (437, 20352), (442, 20385), (443, 20397), (475, 20616), (476, 20625), (478, 20634), (490, 20745), (493, 20775), (503, 20856), (526, 20997),

Gene: Remus\_28 Start: 15884, Stop: 18073, Start Num: 88

Candidate Starts for Remus\_28:

(Start: 55 @15707 has 1 MA's), (Start: 60 @15716 has 4 MA's), (Start: 88 @15884 has 15 MA's), (151, 16127), (152, 16133), (167, 16202), (177, 16259), (198, 16403), (205, 16445), (213, 16493), (214, 16496), (232, 16607), (234, 16625), (256, 16730), (266, 16778), (305, 16883), (322, 16943), (339, 16997), (348, 17033), (354, 17057), (356, 17066), (374, 17129), (382, 17150), (386, 17165), (391, 17189), (397, 17201), (410, 17255), (417, 17276), (423, 17306), (447, 17477), (448, 17498), (463, 17582), (504, 17885), (523, 18008), (526, 18020),

Gene: Roary\_22 Start: 14513, Stop: 17590, Start Num: 1

Candidate Starts for Roary\_22:

(Start: 1 @14513 has 48 MA's), (7, 14597), (16, 14765), (18, 14789), (22, 14837), (35, 14957), (54, 15029), (79, 15179), (80, 15182), (83, 15188), (143, 15374), (151, 15434), (152, 15440), (166, 15506), (173, 15533), (175, 15548), (180, 15599), (181, 15602), (185, 15635), (191, 15668), (220, 15836), (254, 16019), (256, 16043), (266, 16091), (269, 16112), (270, 16115), (302, 16259), (313, 16316), (317, 16346), (329, 16385), (346, 16457), (351, 16487), (373, 16586), (383, 16616), (395, 16661), (433, 16859), (436, 16880), (438, 16892), (448, 16973), (452, 17000), (464, 17063), (467, 17087), (473, 17117), (476, 17150), (481, 17183), (488, 17243), (491, 17270), (503, 17369), (504, 17375), (515, 17465), (519, 17486), (525, 17525), (530, 17573),

Gene: Rosalind\_28 Start: 16045, Stop: 18231, Start Num: 88

Candidate Starts for Rosalind\_28:

(Start: 55 @15868 has 1 MA's), (Start: 60 @15877 has 4 MA's), (Start: 88 @16045 has 15 MA's), (151, 16285), (152, 16291), (167, 16360), (177, 16417), (198, 16561), (205, 16603), (213, 16651), (214, 16654), (232, 16765), (234, 16783), (256, 16888), (266, 16936), (305, 17041), (322, 17101), (339, 17155), (348, 17191), (354, 17215), (356, 17224), (374, 17287), (382, 17308), (386, 17323), (391, 17347), (397, 17359), (410, 17413), (417, 17434), (423, 17464), (447, 17635), (448, 17656), (463, 17740), (504, 18043), (523, 18166), (526, 18178),

Gene: Saintus\_22 Start: 14528, Stop: 17605, Start Num: 1

Candidate Starts for Saintus\_22:

(Start: 1 @14528 has 48 MA's), (7, 14612), (16, 14780), (18, 14804), (22, 14852), (35, 14972), (54, 15044), (79, 15194), (80, 15197), (83, 15203), (143, 15389), (151, 15449), (152, 15455), (166, 15521), (173, 15548), (175, 15563), (180, 15614), (181, 15617), (191, 15683), (220, 15851), (248, 16010), (254, 16034), (256, 16058), (266, 16106), (269, 16127), (270, 16130), (302, 16274), (313, 16331), (317, 16361), (329, 16400), (346, 16472), (351, 16502), (373, 16601), (383, 16631), (395, 16676), (433, 16874), (436, 16895), (438, 16907), (448, 16988), (452, 17015), (459, 17057), (464, 17078), (467, 17102), (473, 17132), (476, 17165), (481, 17198), (488, 17258), (491, 17285), (503, 17384),

(515, 17480), (519, 17501), (525, 17540), (530, 17588),

Gene: Salz\_26 Start: 17154, Stop: 19700, Start Num: 36

Candidate Starts for Salz\_26:

(Start: 36 @17154 has 20 MA's), (Start: 39 @17172 has 2 MA's), (65, 17346), (Start: 69 @17355 has 1 MA's), (87, 17430), (104, 17484), (112, 17538), (115, 17553), (116, 17556), (119, 17574), (131, 17637), (134, 17649), (147, 17712), (162, 17775), (163, 17790), (165, 17799), (170, 17820), (176, 17844), (178, 17859), (190, 17946), (191, 17949), (194, 17964), (197, 17985), (199, 17997), (210, 18063), (223, 18135), (228, 18159), (242, 18240), (245, 18249), (249, 18261), (256, 18303), (268, 18360), (283, 18414), (313, 18522), (323, 18561), (367, 18702), (400, 18798), (407, 18819), (414, 18852), (421, 18885), (422, 18888), (432, 18972), (439, 19017), (440, 19020), (454, 19134), (459, 19167), (472, 19239), (476, 19275), (484, 19347), (493, 19425), (498, 19479), (503, 19503), (518, 19614),

Gene: Scorpio\_23 Start: 15062, Stop: 17875, Start Num: 1

Candidate Starts for Scorpio\_23:

(Start: 1 @15062 has 48 MA's), (10, 15251), (61, 15599), (80, 15734), (83, 15740), (122, 15833), (134, 15884), (140, 15920), (154, 16010), (166, 16076), (171, 16097), (181, 16172), (185, 16205), (196, 16259), (200, 16292), (201, 16295), (203, 16304), (219, 16403), (225, 16436), (246, 16565), (268, 16679), (293, 16730), (325, 16796), (357, 16889), (365, 16922), (392, 17009), (405, 17042), (408, 17054), (416, 17084), (433, 17147), (439, 17189), (448, 17261), (452, 17288), (455, 17303), (459, 17330), (464, 17351), (476, 17438), (480, 17468), (481, 17471), (488, 17531), (497, 17630), (500, 17642), (502, 17654), (504, 17663), (521, 17792), (525, 17810),

Gene: Sham4\_26 Start: 17160, Stop: 19706, Start Num: 36

Candidate Starts for Sham4\_26:

(Start: 36 @17160 has 20 MA's), (Start: 39 @17178 has 2 MA's), (65, 17352), (Start: 69 @17361 has 1 MA's), (87, 17436), (104, 17490), (112, 17544), (115, 17559), (116, 17562), (119, 17580), (131, 17643), (134, 17655), (147, 17718), (162, 17781), (163, 17796), (165, 17805), (170, 17826), (176, 17850), (178, 17865), (190, 17952), (191, 17955), (194, 17970), (197, 17991), (199, 18003), (210, 18069), (223, 18141), (228, 18165), (242, 18246), (245, 18255), (249, 18267), (256, 18309), (268, 18366), (283, 18420), (313, 18528), (323, 18567), (367, 18708), (400, 18804), (407, 18825), (414, 18858), (421, 18891), (422, 18894), (432, 18978), (439, 19023), (440, 19026), (454, 19140), (459, 19173), (472, 19245), (476, 19281), (484, 19353), (493, 19431), (498, 19485), (503, 19509), (518, 19620),

Gene: ShayRa\_29 Start: 16045, Stop: 18231, Start Num: 88

Candidate Starts for ShayRa\_29:

(Start: 55 @15868 has 1 MA's), (Start: 60 @15877 has 4 MA's), (Start: 88 @16045 has 15 MA's), (151, 16285), (152, 16291), (167, 16360), (177, 16417), (198, 16561), (205, 16603), (213, 16651), (214, 16654), (232, 16765), (234, 16783), (256, 16888), (266, 16936), (305, 17041), (322, 17101), (339, 17155), (348, 17191), (354, 17215), (356, 17224), (374, 17287), (382, 17308), (386, 17323), (391, 17347), (397, 17359), (410, 17413), (417, 17434), (423, 17464), (447, 17635), (448, 17656), (463, 17740), (504, 18043), (523, 18166), (526, 18178),

Gene: Sheen\_27 Start: 17618, Stop: 20998, Start Num: 17

Candidate Starts for Sheen\_27:

(Start: 17 @17618 has 5 MA's), (58, 18005), (66, 18062), (71, 18089), (86, 18170), (91, 18194), (93, 18206), (96, 18257), (111, 18353), (121, 18404), (151, 18587), (152, 18593), (159, 18626), (161, 18638), (178, 18731), (179, 18752), (181, 18764), (207, 18920), (209, 18944), (217, 19007), (226, 19082), (231, 19124), (235, 19178), (238, 19199), (247, 19256), (249, 19262), (250, 19265), (257, 19349), (259, 19364), (265, 19391), (267, 19397), (284, 19490), (291, 19502), (292, 19505), (316, 19655), (320, 19670), (324, 19688), (331, 19712), (333, 19730), (334, 19733), (337, 19739), (358,

19844), (368, 19907), (369, 19910), (383, 19967), (384, 19973), (394, 20021), (402, 20051), (420, 20129), (421, 20141), (423, 20150), (434, 20249), (444, 20318), (446, 20336), (457, 20420), (458, 20432), (460, 20444), (468, 20495), (473, 20516), (479, 20567), (482, 20600), (490, 20681), (494, 20714), (495, 20744), (502, 20786), (507, 20810), (513, 20876), (516, 20891), (517, 20897), (527, 20948),

Gene: Smeadley\_22 Start: 14546, Stop: 17623, Start Num: 1

Candidate Starts for Smeadley\_22:

(Start: 1 @14546 has 48 MA's), (7, 14630), (16, 14798), (18, 14822), (22, 14870), (35, 14990), (54, 15062), (79, 15212), (80, 15215), (83, 15221), (143, 15407), (151, 15467), (152, 15473), (166, 15539), (173, 15566), (175, 15581), (180, 15632), (181, 15635), (185, 15668), (191, 15701), (220, 15869), (254, 16052), (256, 16076), (266, 16124), (269, 16145), (270, 16148), (302, 16292), (313, 16349), (317, 16379), (329, 16418), (346, 16490), (351, 16520), (373, 16619), (383, 16649), (395, 16694), (433, 16892), (436, 16913), (438, 16925), (452, 17033), (464, 17096), (467, 17120), (473, 17150), (476, 17183), (481, 17216), (488, 17276), (491, 17303), (503, 17402), (504, 17408), (515, 17498), (519, 17519), (525, 17558), (530, 17606),

Gene: Snape\_26 Start: 17160, Stop: 19706, Start Num: 36

Candidate Starts for Snape\_26:

(Start: 36 @17160 has 20 MA's), (Start: 39 @17178 has 2 MA's), (65, 17352), (Start: 69 @17361 has 1 MA's), (87, 17436), (104, 17490), (112, 17544), (115, 17559), (116, 17562), (119, 17580), (131, 17643), (134, 17655), (147, 17718), (162, 17781), (163, 17796), (165, 17805), (170, 17826), (176, 17850), (178, 17865), (190, 17952), (191, 17955), (194, 17970), (197, 17991), (199, 18003), (210, 18069), (222, 18132), (223, 18141), (228, 18165), (242, 18246), (245, 18255), (249, 18267), (256, 18309), (268, 18366), (283, 18420), (313, 18528), (323, 18567), (367, 18708), (400, 18804), (407, 18825), (414, 18858), (421, 18891), (422, 18894), (432, 18978), (439, 19023), (440, 19026), (454, 19140), (459, 19173), (472, 19245), (476, 19281), (484, 19353), (493, 19431), (498, 19485), (503, 19509), (518, 19620),

Gene: Soups\_28 Start: 16045, Stop: 18231, Start Num: 88

Candidate Starts for Soups\_28:

(Start: 55 @15868 has 1 MA's), (Start: 60 @15877 has 4 MA's), (Start: 88 @16045 has 15 MA's), (151, 16285), (152, 16291), (167, 16360), (177, 16417), (198, 16561), (205, 16603), (213, 16651), (214, 16654), (232, 16765), (234, 16783), (256, 16888), (266, 16936), (305, 17041), (322, 17101), (339, 17155), (348, 17191), (354, 17215), (356, 17224), (374, 17287), (382, 17308), (386, 17323), (391, 17347), (397, 17359), (410, 17413), (417, 17434), (423, 17464), (447, 17635), (448, 17656), (463, 17740), (504, 18043), (523, 18166), (526, 18178),

Gene: Stephig9\_22 Start: 14527, Stop: 17604, Start Num: 1

Candidate Starts for Stephig9\_22:

(Start: 1 @14527 has 48 MA's), (7, 14611), (16, 14779), (18, 14803), (22, 14851), (35, 14971), (54, 15043), (79, 15193), (80, 15196), (83, 15202), (143, 15388), (151, 15448), (152, 15454), (166, 15520), (173, 15547), (175, 15562), (180, 15613), (181, 15616), (185, 15649), (191, 15682), (220, 15850), (254, 16033), (256, 16057), (266, 16105), (269, 16126), (270, 16129), (302, 16273), (313, 16330), (317, 16360), (329, 16399), (346, 16471), (351, 16501), (373, 16600), (383, 16630), (395, 16675), (406, 16708), (433, 16873), (436, 16894), (438, 16906), (448, 16987), (452, 17014), (464, 17077), (467, 17101), (473, 17131), (476, 17164), (481, 17197), (488, 17257), (491, 17284), (503, 17383), (504, 17389), (515, 17479), (519, 17500), (525, 17539), (530, 17587),

Gene: Strosahl\_28 Start: 15884, Stop: 18073, Start Num: 88

Candidate Starts for Strosahl\_28:

(Start: 55 @15707 has 1 MA's), (Start: 60 @15716 has 4 MA's), (Start: 88 @15884 has 15 MA's), (151, 16127), (152, 16133), (167, 16202), (177, 16259), (198, 16403), (205, 16445), (213, 16493),

(214, 16496), (232, 16607), (234, 16625), (256, 16730), (266, 16778), (305, 16883), (322, 16943), (339, 16997), (348, 17033), (354, 17057), (356, 17066), (374, 17129), (382, 17150), (386, 17165), (391, 17189), (397, 17201), (410, 17255), (417, 17276), (423, 17306), (447, 17477), (448, 17498), (463, 17582), (504, 17885), (523, 18008), (526, 18020),

Gene: Swirley\_22 Start: 15214, Stop: 18558, Start Num: 1

Candidate Starts for Swirley\_22:

(Start: 1 @15214 has 48 MA's), (31, 15652), (80, 15964), (95, 16042), (96, 16072), (105, 16129), (120, 16213), (131, 16276), (133, 16282), (151, 16402), (170, 16492), (171, 16495), (181, 16570), (188, 16615), (191, 16633), (193, 16645), (198, 16678), (202, 16699), (233, 16891), (260, 17029), (270, 17077), (286, 17155), (288, 17158), (307, 17254), (313, 17281), (318, 17317), (321, 17329), (336, 17386), (381, 17578), (388, 17608), (395, 17632), (398, 17644), (416, 17707), (433, 17830), (436, 17851), (439, 17872), (450, 17950), (452, 17971), (459, 18013), (464, 18034), (476, 18121), (480, 18151), (488, 18214), (490, 18232), (497, 18313), (500, 18325), (502, 18337), (504, 18346), (511, 18400), (523, 18484), (528, 18523),

Gene: Switzerland\_28 Start: 16038, Stop: 18224, Start Num: 88

Candidate Starts for Switzerland\_28:

(Start: 55 @15861 has 1 MA's), (Start: 60 @15870 has 4 MA's), (Start: 88 @16038 has 15 MA's), (151, 16278), (152, 16284), (167, 16353), (177, 16410), (198, 16554), (205, 16596), (213, 16644), (214, 16647), (232, 16758), (234, 16776), (256, 16881), (266, 16929), (305, 17034), (322, 17094), (339, 17148), (348, 17184), (354, 17208), (356, 17217), (374, 17280), (382, 17301), (386, 17316), (391, 17340), (397, 17352), (410, 17406), (417, 17427), (423, 17457), (447, 17628), (448, 17649), (463, 17733), (504, 18036), (523, 18159), (526, 18171),

Gene: SydNat\_22 Start: 15349, Stop: 18762, Start Num: 1

Candidate Starts for SydNat\_22:

(Start: 1 @15349 has 48 MA's), (6, 15409), (12, 15562), (14, 15601), (31, 15787), (53, 16015), (59, 16027), (62, 16039), (80, 16171), (95, 16249), (96, 16279), (105, 16336), (131, 16483), (133, 16489), (134, 16495), (152, 16621), (156, 16633), (181, 16783), (186, 16819), (191, 16849), (194, 16864), (198, 16894), (200, 16906), (204, 16930), (216, 16999), (227, 17065), (256, 17221), (269, 17290), (270, 17293), (274, 17320), (276, 17344), (311, 17482), (315, 17503), (325, 17548), (336, 17590), (381, 17782), (388, 17812), (395, 17836), (398, 17848), (406, 17869), (416, 17911), (429, 17998), (433, 18034), (436, 18055), (439, 18076), (450, 18154), (452, 18175), (456, 18196), (459, 18217), (464, 18238), (467, 18262), (476, 18325), (488, 18418), (490, 18436), (497, 18517), (500, 18529), (502, 18541), (504, 18550), (511, 18604), (523, 18688), (525, 18697),

Gene: Tarynearal\_21 Start: 15242, Stop: 18580, Start Num: 1

Candidate Starts for Tarynearal\_21:

(Start: 1 @15242 has 48 MA's), (31, 15680), (80, 15992), (95, 16070), (96, 16100), (105, 16157), (120, 16241), (131, 16304), (133, 16310), (151, 16430), (170, 16520), (171, 16523), (181, 16598), (188, 16643), (191, 16661), (198, 16706), (202, 16727), (233, 16919), (260, 17057), (270, 17105), (286, 17183), (313, 17309), (315, 17321), (318, 17345), (336, 17408), (381, 17600), (388, 17630), (395, 17654), (398, 17666), (416, 17729), (433, 17852), (436, 17873), (439, 17894), (450, 17972), (452, 17993), (459, 18035), (464, 18056), (476, 18143), (480, 18173), (488, 18236), (490, 18254), (497, 18335), (500, 18347), (502, 18359), (504, 18368), (511, 18422), (523, 18506), (528, 18545),

Gene: Theia\_20 Start: 15180, Stop: 18518, Start Num: 1

Candidate Starts for Theia\_20:

(Start: 1 @15180 has 48 MA's), (31, 15618), (80, 15930), (92, 15972), (95, 16008), (96, 16038), (105, 16095), (120, 16179), (131, 16242), (133, 16248), (149, 16350), (151, 16368), (171, 16461), (181, 16536), (188, 16581), (191, 16599), (198, 16644), (202, 16665), (233, 16857), (246, 16917), (260, 16995), (270, 17043), (286, 17121), (313, 17247), (315, 17259), (318, 17283), (336, 17346), (381,

17538), (388, 17568), (395, 17592), (398, 17604), (416, 17667), (433, 17790), (436, 17811), (439, 17832), (450, 17910), (452, 17931), (459, 17973), (464, 17994), (469, 18030), (476, 18081), (480, 18111), (488, 18174), (490, 18192), (497, 18273), (500, 18285), (502, 18297), (504, 18306), (511, 18360), (523, 18444), (528, 18483),

Gene: Tiger\_22 Start: 15067, Stop: 18402, Start Num: 1

Candidate Starts for Tiger\_22:

(Start: 1 @15067 has 48 MA's), (31, 15505), (80, 15817), (95, 15895), (96, 15925), (105, 15982), (120, 16066), (131, 16129), (133, 16135), (151, 16255), (170, 16345), (171, 16348), (181, 16423), (191, 16486), (198, 16531), (202, 16552), (233, 16744), (255, 16849), (260, 16882), (270, 16930), (286, 17008), (288, 17011), (307, 17107), (313, 17134), (318, 17170), (336, 17230), (381, 17422), (388, 17452), (395, 17476), (398, 17488), (416, 17551), (433, 17674), (436, 17695), (439, 17716), (450, 17794), (452, 17815), (459, 17857), (464, 17878), (476, 17965), (480, 17995), (488, 18058), (490, 18076), (497, 18157), (500, 18169), (502, 18181), (504, 18190), (511, 18244), (523, 18328), (525, 18337), (528, 18367),

Gene: Timothy\_26 Start: 17157, Stop: 19703, Start Num: 36

Candidate Starts for Timothy\_26:

(Start: 36 @17157 has 20 MA's), (Start: 39 @17175 has 2 MA's), (65, 17349), (Start: 69 @17358 has 1 MA's), (87, 17433), (112, 17541), (115, 17556), (116, 17559), (119, 17577), (131, 17640), (134, 17652), (147, 17715), (162, 17778), (163, 17793), (165, 17802), (170, 17823), (176, 17847), (178, 17862), (190, 17949), (191, 17952), (194, 17967), (197, 17988), (199, 18000), (210, 18066), (218, 18108), (222, 18129), (223, 18138), (228, 18162), (242, 18243), (245, 18252), (249, 18264), (256, 18306), (268, 18363), (283, 18417), (313, 18525), (323, 18564), (367, 18705), (400, 18801), (407, 18822), (414, 18855), (421, 18888), (422, 18891), (432, 18975), (439, 19020), (440, 19023), (454, 19137), (459, 19170), (472, 19242), (476, 19278), (484, 19350), (493, 19428), (498, 19482), (503, 19506), (518, 19617),

Gene: Timshel\_26 Start: 17496, Stop: 20864, Start Num: 17

Candidate Starts for Timshel\_26:

(Start: 17 @17496 has 5 MA's), (27, 17625), (34, 17679), (40, 17721), (58, 17883), (81, 18033), (96, 18135), (118, 18270), (152, 18468), (164, 18534), (170, 18561), (171, 18564), (174, 18576), (181, 18639), (182, 18648), (185, 18672), (191, 18702), (198, 18747), (203, 18771), (219, 18915), (226, 18957), (229, 18984), (231, 18999), (234, 19038), (235, 19053), (238, 19074), (247, 19131), (250, 19140), (251, 19149), (257, 19224), (269, 19290), (287, 19368), (298, 19422), (309, 19485), (312, 19500), (316, 19530), (319, 19542), (320, 19545), (324, 19563), (326, 19572), (331, 19587), (333, 19605), (342, 19638), (345, 19656), (358, 19719), (369, 19785), (370, 19794), (371, 19797), (372, 19806), (375, 19809), (377, 19818), (379, 19827), (387, 19860), (389, 19872), (394, 19896), (402, 19926), (420, 20004), (421, 20016), (423, 20025), (424, 20028), (425, 20037), (427, 20046), (434, 20124), (438, 20148), (444, 20193), (446, 20211), (453, 20268), (457, 20286), (460, 20310), (462, 20319), (466, 20340), (468, 20361), (470, 20373), (474, 20394), (479, 20433), (482, 20466), (490, 20547), (494, 20580), (498, 20631), (502, 20652), (507, 20676), (513, 20742), (516, 20757), (517, 20763),

Gene: TinyTimmy\_25 Start: 17200, Stop: 19746, Start Num: 36

Candidate Starts for TinyTimmy\_25:

(Start: 36 @17200 has 20 MA's), (Start: 39 @17218 has 2 MA's), (65, 17392), (Start: 69 @17401 has 1 MA's), (87, 17476), (104, 17530), (112, 17584), (115, 17599), (116, 17602), (119, 17620), (131, 17683), (134, 17695), (147, 17758), (162, 17821), (163, 17836), (165, 17845), (170, 17866), (176, 17890), (178, 17905), (190, 17992), (191, 17995), (194, 18010), (197, 18031), (199, 18043), (210, 18109), (218, 18151), (222, 18172), (223, 18181), (228, 18205), (242, 18286), (245, 18295), (249, 18307), (256, 18349), (268, 18406), (283, 18460), (313, 18568), (323, 18607), (367, 18748), (400, 18844), (407, 18865), (414, 18898), (421, 18931), (422, 18934), (432, 19018), (439, 19063), (440,

19066), (454, 19180), (459, 19213), (472, 19285), (476, 19321), (484, 19393), (493, 19471), (498, 19525), (503, 19549), (518, 19660),

Gene: UnionJack\_22 Start: 14796, Stop: 17609, Start Num: 1

Candidate Starts for UnionJack\_22:

(Start: 1 @14796 has 48 MA's), (10, 14985), (80, 15468), (83, 15474), (134, 15618), (140, 15654), (154, 15744), (166, 15810), (171, 15831), (179, 15894), (181, 15906), (185, 15939), (196, 15993), (200, 16026), (203, 16038), (219, 16137), (225, 16170), (246, 16299), (268, 16413), (293, 16464), (325, 16530), (353, 16611), (357, 16623), (365, 16656), (390, 16734), (392, 16743), (413, 16809), (416, 16818), (433, 16881), (439, 16923), (448, 16995), (452, 17022), (455, 17037), (459, 17064), (464, 17085), (476, 17172), (480, 17202), (488, 17265), (497, 17364), (500, 17376), (502, 17388), (504, 17397), (525, 17544),

Gene: Waits\_28 Start: 15890, Stop: 18079, Start Num: 88

Candidate Starts for Waits\_28:

(Start: 55 @15713 has 1 MA's), (Start: 60 @15722 has 4 MA's), (Start: 88 @15890 has 15 MA's), (151, 16133), (152, 16139), (167, 16208), (177, 16265), (198, 16409), (205, 16451), (213, 16499), (214, 16502), (232, 16613), (234, 16631), (256, 16736), (266, 16784), (305, 16889), (322, 16949), (339, 17003), (348, 17039), (354, 17063), (356, 17072), (374, 17135), (382, 17156), (386, 17171), (391, 17195), (397, 17207), (410, 17261), (417, 17282), (423, 17312), (447, 17483), (448, 17504), (463, 17588), (504, 17891), (523, 18014), (526, 18026),

Gene: Zolita\_21 Start: 15350, Stop: 18763, Start Num: 1

Candidate Starts for Zolita\_21:

(Start: 1 @15350 has 48 MA's), (6, 15410), (12, 15563), (14, 15602), (31, 15788), (53, 16016), (59, 16028), (62, 16040), (80, 16172), (95, 16250), (96, 16280), (105, 16337), (131, 16484), (133, 16490), (134, 16496), (152, 16622), (156, 16634), (181, 16784), (186, 16820), (191, 16850), (194, 16865), (198, 16895), (200, 16907), (204, 16931), (216, 17000), (227, 17066), (256, 17222), (269, 17291), (270, 17294), (274, 17321), (276, 17345), (311, 17483), (315, 17504), (325, 17549), (336, 17591), (381, 17783), (388, 17813), (395, 17837), (398, 17849), (406, 17870), (416, 17912), (429, 17999), (433, 18035), (436, 18056), (439, 18077), (450, 18155), (452, 18176), (456, 18197), (459, 18218), (464, 18239), (467, 18263), (476, 18326), (488, 18419), (490, 18437), (497, 18518), (500, 18530), (502, 18542), (504, 18551), (511, 18605), (523, 18689), (525, 18698),