



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 171353 Report

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

Pham number 171353 has 101 members, 7 are drafts.

Phages represented in each track:

- Track 1 : Babsiella\_16
- Track 2 : QueenHazel\_16
- Track 3 : Xula\_15
- Track 4 : Brujita\_16, Island3\_16
- Track 5 : HC\_16
- Track 6 : Sbash\_15
- Track 7 : Che9c\_15
- Track 8 : Panchino\_16, SkinnyPete\_16, Rebel\_16
- Track 9 : PhancyPhin\_16
- Track 10 : Journey\_17, Andies\_16, Smurph\_16, Silvafighter\_16, Duplicity\_16, Tapioca\_16, Gex\_16, Aggie\_16, Bosection6\_16, Chewbacca\_16, Pipsqueaks\_16, Philonius\_16, Xerxes\_16, Carcharodon\_16, Fulbright\_16, Charlie\_16, Silvy\_16, Melville\_16, Xeno\_16, Schnauzer\_16, Phloss\_16, Magsby\_16, Scitech\_16, Parmesanjohn\_16
- Track 11 : Kevin1\_16, Butters\_16, Rubeelu\_16
- Track 12 : Snekmaggedon\_16, Shweta\_16, Raymond7\_16, Jamie19\_16, SpongeBob\_16
- Track 13 : Phrann\_16
- Track 14 : MichelleMyBell\_16
- Track 15 : ShrimpFriedEgg\_16, Nenae\_16, Purgamenstris\_16, BabeRuth\_16, Redi\_16
- Track 16 : Jebeks\_17, HUHilltop\_17, Langerak\_17, Fishburne\_17, Zilizebeth\_17, Necropolis\_17, Bartholomew\_17, Dynamo\_17, Vidya\_17, Venti\_17, Phineas\_17, StevieRay\_17, Kari\_17, FirstPlacePfu\_17
- Track 17 : Bogie\_16
- Track 18 : KilKor\_17, Phalm\_17, StressBall\_17, Megiddo\_17, CactusJack\_17, Malithi\_17, Glaske\_17
- Track 19 : Mangethe\_17, Majeke\_17, Arib1\_17, Phegasus\_17
- Track 20 : Sonah\_17, Donovan\_17, Techage\_17
- Track 21 : Jung\_17
- Track 22 : Shipwreck\_16
- Track 23 : Polkaroo\_17
- Track 24 : Ksquared\_17, Bunnies\_17, Juniormint\_17
- Track 25 : Camster\_17
- Track 26 : Thespis\_17, Brusacoram\_17
- Track 27 : Pygmy\_16
- Track 28 : GreaseLightnin\_17

- Track 29 : Willsammy\_17
- Track 30 : Atcoo\_17
- Track 31 : Tortellini\_16
- Track 32 : Xavia\_17
- Track 33 : BigNuz\_16
- Track 34 : Nazo\_16
- Track 35 : Phayonce\_16
- Track 36 : ThulaThula\_16
- Track 37 : Purky\_16
- Track 38 : MooMoo\_14

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

The start number called the most often in the published annotations is 2, it was called in 44 of the 94 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Arib1\_17, Atcoo\_17, Bartholomew\_17, BigNuz\_16, Bogie\_16, Brusacoram\_17, Bunnies\_17, CactusJack\_17, Donovan\_17, Dynamo\_17, FirstPlacePfu\_17, Fishburne\_17, Glaske\_17, GreaseLightnin\_17, HUHilltop\_17, Jebeks\_17, Jung\_17, Juniormint\_17, Kari\_17, KilKor\_17, Ksquared\_17, Langerak\_17, Majeke\_17, Malithi\_17, Mangethe\_17, Megiddo\_17, Nazo\_16, Necropolis\_17, Phalm\_17, Phayonce\_16, Phegasus\_17, Phineas\_17, Polkaroo\_17, Purky\_16, Shipwreck\_16, Sonah\_17, StevieRay\_17, StressBall\_17, Techage\_17, Thespis\_17, ThulaThula\_16, Tortellini\_16, Venti\_17, Vidya\_17, Willsammy\_17, Xavia\_17, Zilizebeth\_17,

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

- Camster\_17, Pygmy\_16,

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

- Aggie\_16, Andies\_16, BabeRuth\_16, Babsiella\_16, Bosection6\_16, Brujita\_16, Butters\_16, Carcharodon\_16, Charlie\_16, Che9c\_15, Chewbacca\_16, Duplicity\_16, Fulbright\_16, Gex\_16, HC\_16, Island3\_16, Jamie19\_16, Journey\_17, Kevin1\_16, Magsby\_16, Melville\_16, MichelleMyBell\_16, MooMoo\_14, Nenae\_16, Panchino\_16, Parmesanjohn\_16, PhancyPhin\_16, Philonius\_16, Phloss\_16, Phrann\_16, Pipsqueaks\_16, Purgamenstris\_16, QueenHazel\_16, Raymond7\_16, Rebel\_16, Redi\_16, Rubeelu\_16, Sbash\_15, Schnauzer\_16, Scitech\_16, ShrimpFriedEgg\_16, Shweta\_16, Silvafighter\_16, Silvy\_16, SkinnyPete\_16, Smurph\_16, Snekmaggedon\_16, SpongeBob\_16, Tapioca\_16, Xeno\_16, Xerxes\_16, Xula\_15,

### **Summary by start number:**

Start 1:

- Found in 9 of 101 ( 8.9% ) of genes in pham
- Manual Annotations of this start: 9 of 94
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Babsiella\_16 (I1), Brujita\_16 (I1), Che9c\_15 (I2), HC\_16 (I1), Island3\_16 (I1), MooMoo\_14 (singleton), QueenHazel\_16 (I1), Sbash\_15 (I2), Xula\_15 (I1),

#### Start 2:

- Found in 49 of 101 ( 48.5% ) of genes in pham
- Manual Annotations of this start: 44 of 94
- Called 95.9% of time when present
- Phage (with cluster) where this start called: Arib1\_17 (P1), Atcoo\_17 (P1), Bartholomew\_17 (P1), BigNuz\_16 (P4), Bogie\_16 (P1), Brusacoram\_17 (P1), Bunnies\_17 (P1), CactusJack\_17 (P1), Donovan\_17 (P1), Dynamo\_17 (P1), FirstPlacePfu\_17 (P1), Fishburne\_17 (P1), Glaske\_17 (P1), GreaseLightnin\_17 (P1), HUHilltop\_17 (P1), Jebeks\_17 (P1), Jung\_17 (P1), Juniormint\_17 (P1), Kari\_17 (P1), KilKor\_17 (P1), Ksqared\_17 (P1), Langerak\_17 (P1), Majeke\_17 (P1), Malithi\_17 (P1), Mangethe\_17 (P1), Megiddo\_17 (P1), Nazo\_16 (P4), Necropolis\_17 (P1), Phalm\_17 (P1), Phayonce\_16 (P5), Phegasus\_17 (P1), Phineas\_17 (P1), Polkaroo\_17 (P1), Purky\_16 (P6), Shipwreck\_16 (P1), Sonah\_17 (P1), StevieRay\_17 (P1), StressBall\_17 (P1), Techage\_17 (P1), Thespis\_17 (P1), ThulaThula\_16 (P5), Tortellini\_16 (P2), Venti\_17 (P1), Vidya\_17 (P1), Willsammy\_17 (P1), Xavia\_17 (P3), Zilizebeth\_17 (P1),

#### Start 3:

- Found in 41 of 101 ( 40.6% ) of genes in pham
- Manual Annotations of this start: 2 of 94
- Called 4.9% of time when present
- Phage (with cluster) where this start called: Camster\_17 (P1), Pygmy\_16 (P1),

#### Start 8:

- Found in 43 of 101 ( 42.6% ) of genes in pham
- Manual Annotations of this start: 39 of 94
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aggie\_16 (N), Andies\_16 (N), BabeRuth\_16 (N), Bosection6\_16 (N), Butters\_16 (N), Carcharodon\_16 (N), Charlie\_16 (N), Chewbacca\_16 (N), Duplicity\_16 (N), Fulbright\_16 (N), Gex\_16 (N), Jamie19\_16 (N), Journey\_17 (N), Kevin1\_16 (N), Magsby\_16 (N), Melville\_16 (N), MichelleMyBell\_16 (N), Nенаe\_16 (N), Panchino\_16 (N), Parmesanjohn\_16 (N), PhancyPhin\_16 (N), Philonius\_16 (N), Phloss\_16 (N), Phrann\_16 (N), Pipsqueaks\_16 (N), Purgamenstris\_16 (N), Raymond7\_16 (N), Rebel\_16 (N), Redi\_16 (N), Rubeelu\_16 (N), Schnauzer\_16 (N), Scitech\_16 (N), ShrimpFriedEgg\_16 (N), Shweta\_16 (N), Silvafighter\_16 (N), Silvy\_16 (N), SkinnyPete\_16 (N), Smurph\_16 (N), Snekmaggedon\_16 (N), SpongeBob\_16 (N), Tapioca\_16 (N), Xeno\_16 (N), Xerxes\_16 (N),

#### Summary by clusters:

There are 10 clusters represented in this pham: P2, P3, singleton, P1, P6, P4, P5, I1, I2, N,

#### Info for manual annotations of cluster I1:

- Start number 1 was manually annotated 6 times for cluster I1.

#### Info for manual annotations of cluster I2:

- Start number 1 was manually annotated 2 times for cluster I2.

#### Info for manual annotations of cluster N:

- Start number 8 was manually annotated 39 times for cluster N.

Info for manual annotations of cluster P1:

- Start number 2 was manually annotated 37 times for cluster P1.
- Start number 3 was manually annotated 2 times for cluster P1.

Info for manual annotations of cluster P2:

- Start number 2 was manually annotated 1 time for cluster P2.

Info for manual annotations of cluster P3:

- Start number 2 was manually annotated 1 time for cluster P3.

Info for manual annotations of cluster P4:

- Start number 2 was manually annotated 2 times for cluster P4.

Info for manual annotations of cluster P5:

- Start number 2 was manually annotated 2 times for cluster P5.

Info for manual annotations of cluster P6:

- Start number 2 was manually annotated 1 time for cluster P6.

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

Gene: Aggie\_16 Start: 10124, Stop: 13267, Start Num: 8

Candidate Starts for Aggie\_16:

(Start: 8 @10124 has 39 MA's), (9, 10133), (11, 10154), (12, 10175), (14, 10208), (26, 10472), (29, 10487), (30, 10496), (34, 10541), (35, 10550), (44, 10715), (49, 10748), (51, 10772), (56, 10817), (57, 10826), (61, 10859), (62, 10880), (93, 11381), (94, 11384), (107, 11453), (109, 11543), (110, 11552), (111, 11585), (122, 11645), (124, 11663), (127, 11684), (130, 11726), (133, 11765), (136, 11807), (141, 11849), (144, 11903), (145, 11906), (147, 11987), (155, 12104), (168, 12257), (187, 12479), (201, 12617), (206, 12635), (215, 12656), (230, 12719), (233, 12764), (237, 12833), (239, 12854), (241, 12863), (251, 12998), (253, 13016), (255, 13058), (257, 13166),

Gene: Andies\_16 Start: 10123, Stop: 13263, Start Num: 8

Candidate Starts for Andies\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12253), (187, 12475), (201, 12613), (206, 12631), (215, 12652), (230, 12715), (233, 12760), (237, 12829), (239, 12850), (241, 12859), (251, 12994), (253, 13012), (255, 13054), (257, 13162),

Gene: Arib1\_17 Start: 10864, Stop: 14649, Start Num: 2

Candidate Starts for Arib1\_17:

(Start: 2 @10864 has 44 MA's), (Start: 3 @10867 has 2 MA's), (4, 10873), (6, 10960), (7, 10975), (14, 11092), (19, 11221), (22, 11263), (37, 11473), (38, 11530), (45, 11626), (64, 11842), (72, 11992), (74, 12046), (75, 12079), (77, 12130), (80, 12187), (85, 12358), (86, 12382), (91, 12436), (93, 12442), (101, 12508), (122, 12751), (124, 12778), (128, 12820), (132, 12862), (135, 12895), (141, 12967), (143, 12982), (144, 13021), (146, 13054), (152, 13162), (156, 13228), (161, 13324), (176, 13474), (179, 13495), (188, 13636), (191, 13687), (192, 13693), (194, 13717), (195, 13720), (214, 13867), (217, 13897), (229, 14074), (240, 14233), (243, 14278), (246, 14335), (252, 14392), (254, 14404), (258, 14551), (259, 14584),

Gene: Atcoo\_17 Start: 10877, Stop: 14518, Start Num: 2

Candidate Starts for Atcoo\_17:

(Start: 2 @10877 has 44 MA's), (Start: 3 @10880 has 2 MA's), (4, 10886), (6, 10973), (7, 10988), (14, 11105), (19, 11234), (22, 11276), (37, 11486), (45, 11639), (64, 11855), (72, 12005), (74, 12059), (77, 12143), (80, 12200), (85, 12371), (86, 12395), (91, 12449), (93, 12455), (122, 12767), (124, 12791), (128, 12833), (132, 12875), (135, 12908), (143, 12995), (144, 13034), (146, 13067), (147, 13118), (152, 13175), (156, 13241), (160, 13325), (161, 13328), (169, 13376), (170, 13379), (172, 13409), (174, 13436), (187, 13583), (190, 13607), (191, 13637), (193, 13661), (219, 13844), (225, 13913), (229, 13943), (237, 14075), (240, 14102), (243, 14147), (252, 14261), (254, 14273), (258, 14420), (259, 14453),

Gene: BabeRuth\_16 Start: 10169, Stop: 13270, Start Num: 8

Candidate Starts for BabeRuth\_16:

(Start: 8 @10169 has 39 MA's), (9, 10178), (11, 10199), (14, 10253), (21, 10409), (30, 10541), (32, 10553), (45, 10763), (48, 10781), (49, 10793), (51, 10817), (57, 10871), (61, 10904), (62, 10925), (69, 11033), (70, 11036), (71, 11066), (73, 11111), (81, 11261), (83, 11321), (88, 11390), (93, 11426), (94, 11429), (100, 11444), (105, 11477), (110, 11573), (111, 11606), (118, 11651), (120, 11666), (122, 11669), (127, 11708), (130, 11750), (133, 11789), (137, 11834), (143, 11888), (144, 11927), (145, 11930), (155, 12128), (168, 12278), (178, 12401), (187, 12500), (199, 12626), (214, 12650), (228, 12716), (230, 12725), (233, 12764), (234, 12779), (237, 12836), (249, 12980), (251, 13001), (255, 13061), (257, 13169), (261, 13235),

Gene: Babsiella\_16 Start: 10772, Stop: 14539, Start Num: 1

Candidate Starts for Babsiella\_16:

(Start: 1 @10772 has 9 MA's), (5, 10847), (17, 11105), (28, 11327), (29, 11330), (31, 11342), (34, 11384), (36, 11408), (38, 11486), (47, 11600), (50, 11636), (65, 11819), (68, 11885), (72, 11948), (74, 12002), (75, 12035), (79, 12134), (87, 12341), (99, 12473), (104, 12512), (106, 12524), (108, 12605), (113, 12719), (122, 12758), (128, 12812), (129, 12833), (131, 12836), (133, 12875), (138, 12923), (139, 12938), (140, 12944), (143, 12974), (144, 13013), (146, 13046), (150, 13121), (155, 13214), (157, 13238), (158, 13256), (165, 13331), (171, 13355), (181, 13484), (183, 13505), (196, 13646), (200, 13670), (203, 13688), (204, 13697), (224, 13937), (231, 14012), (236, 14111), (237, 14123), (242, 14180), (245, 14240), (247, 14252), (256, 14375), (260, 14495), (263, 14531),

Gene: Bartholomew\_17 Start: 10873, Stop: 14643, Start Num: 2

Candidate Starts for Bartholomew\_17:

(Start: 2 @10873 has 44 MA's), (Start: 3 @10876 has 2 MA's), (4, 10882), (6, 10969), (7, 10984), (14, 11101), (19, 11230), (22, 11272), (37, 11482), (45, 11635), (64, 11851), (72, 12001), (74, 12055), (77, 12139), (80, 12196), (84, 12334), (85, 12367), (86, 12391), (91, 12445), (93, 12451), (101, 12520), (122, 12763), (124, 12790), (128, 12832), (132, 12874), (135, 12907), (141, 12979), (143, 12994), (144, 13033), (146, 13066), (152, 13174), (156, 13240), (161, 13336), (176, 13486), (179, 13507), (188, 13648), (191, 13699), (192, 13705), (194, 13729), (195, 13732), (214, 13879), (217, 13909), (229, 14068), (240, 14227), (243, 14272), (252, 14386), (254, 14398), (258, 14545), (259, 14578),

Gene: BigNuz\_16 Start: 10599, Stop: 14387, Start Num: 2

Candidate Starts for BigNuz\_16:

(Start: 2 @10599 has 44 MA's), (Start: 3 @10602 has 2 MA's), (4, 10608), (7, 10710), (19, 10956), (22, 10998), (37, 11208), (46, 11370), (64, 11577), (72, 11727), (122, 12480), (128, 12543), (132, 12585), (135, 12618), (144, 12744), (146, 12777), (162, 13071), (172, 13143), (183, 13287), (186, 13329), (197, 13464), (205, 13518), (226, 13755), (229, 13815), (237, 13947), (246, 14076), (248, 14088), (254, 14145), (258, 14289), (259, 14322),

Gene: Bogie\_16 Start: 10596, Stop: 14366, Start Num: 2

Candidate Starts for Bogie\_16:

(Start: 2 @10596 has 44 MA's), (Start: 3 @10599 has 2 MA's), (4, 10605), (6, 10692), (7, 10707), (14, 10824), (19, 10953), (22, 10995), (37, 11205), (45, 11358), (72, 11724), (74, 11778), (77, 11862), (80, 11919), (85, 12090), (86, 12114), (91, 12168), (93, 12174), (101, 12243), (122, 12486), (124, 12513), (128, 12555), (132, 12597), (135, 12630), (141, 12702), (143, 12717), (144, 12756), (146, 12789), (152, 12897), (156, 12963), (161, 13059), (176, 13209), (179, 13230), (188, 13371), (191, 13422), (192, 13428), (194, 13452), (195, 13455), (214, 13602), (217, 13632), (229, 13791), (240, 13950), (243, 13995), (252, 14109), (254, 14121), (258, 14268), (259, 14301),

Gene: Bosection6\_16 Start: 10123, Stop: 13266, Start Num: 8

Candidate Starts for Bosection6\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12256), (187, 12478), (201, 12616), (206, 12634), (215, 12655), (230, 12718), (233, 12763), (237, 12832), (239, 12853), (241, 12862), (251, 12997), (253, 13015), (255, 13057), (257, 13165),

Gene: Brujita\_16 Start: 10774, Stop: 14604, Start Num: 1

Candidate Starts for Brujita\_16:

(Start: 1 @10774 has 9 MA's), (5, 10849), (17, 11107), (28, 11329), (29, 11332), (31, 11344), (34, 11386), (36, 11410), (37, 11431), (38, 11488), (47, 11602), (50, 11638), (65, 11821), (68, 11887), (72, 11950), (74, 12004), (75, 12037), (79, 12136), (87, 12343), (99, 12475), (104, 12514), (106, 12526), (108, 12607), (113, 12721), (115, 12742), (122, 12766), (128, 12820), (129, 12841), (131, 12844), (133, 12883), (138, 12931), (139, 12946), (140, 12952), (143, 12982), (144, 13021), (146, 13054), (150, 13129), (155, 13222), (157, 13246), (183, 13537), (187, 13582), (204, 13741), (209, 13780), (210, 13804), (211, 13810), (212, 13816), (215, 13849), (220, 13927), (221, 13930), (222, 13945), (223, 13960), (231, 14077), (236, 14176), (237, 14188), (240, 14212), (241, 14215), (242, 14245), (245, 14305), (247, 14317), (256, 14440), (260, 14560), (263, 14596),

Gene: Brusacoram\_17 Start: 10876, Stop: 14643, Start Num: 2

Candidate Starts for Brusacoram\_17:

(Start: 2 @10876 has 44 MA's), (Start: 3 @10879 has 2 MA's), (4, 10885), (6, 10972), (7, 10987), (14, 11104), (19, 11233), (22, 11275), (37, 11485), (45, 11638), (64, 11854), (72, 12004), (74, 12058), (77, 12142), (80, 12199), (85, 12370), (86, 12394), (91, 12448), (93, 12454), (122, 12766), (124, 12790), (128, 12832), (132, 12874), (135, 12907), (141, 12979), (143, 12994), (144, 13033), (146, 13066), (152, 13174), (156, 13240), (161, 13336), (176, 13486), (179, 13507), (188, 13648), (191, 13699), (192, 13705), (194, 13729), (195, 13732), (214, 13879), (217, 13909), (229, 14068), (240, 14227), (243, 14272), (252, 14386), (254, 14398), (258, 14545), (259, 14578),

Gene: Bunnies\_17 Start: 10889, Stop: 14665, Start Num: 2

Candidate Starts for Bunnies\_17:

(Start: 2 @10889 has 44 MA's), (Start: 3 @10892 has 2 MA's), (4, 10898), (6, 10985), (7, 11000), (14, 11117), (19, 11246), (22, 11288), (37, 11498), (45, 11651), (64, 11867), (72, 12017), (74, 12071), (77, 12155), (80, 12212), (86, 12407), (91, 12461), (93, 12467), (122, 12788), (124, 12812), (128, 12854), (132, 12896), (135, 12929), (141, 13001), (143, 13016), (144, 13055), (146, 13088), (147, 13139), (152, 13196), (156, 13262), (176, 13508), (179, 13529), (188, 13670), (191, 13721), (192, 13727), (194, 13751), (195, 13754), (214, 13901), (217, 13931), (229, 14090), (240, 14249), (243, 14294), (252, 14408), (254, 14420), (258, 14567), (259, 14600),

Gene: Butters\_16 Start: 10144, Stop: 13233, Start Num: 8

Candidate Starts for Butters\_16:

(Start: 8 @10144 has 39 MA's), (9, 10153), (11, 10174), (14, 10228), (27, 10495), (30, 10516), (32, 10528), (45, 10738), (48, 10756), (49, 10768), (51, 10792), (57, 10846), (61, 10879), (62, 10900), (69, 11008), (70, 11011), (73, 11086), (81, 11236), (83, 11296), (88, 11365), (93, 11401), (94, 11404), (100, 11419), (105, 11452), (110, 11548), (111, 11581), (120, 11641), (122, 11644), (130, 11725), (133, 11764), (137, 11809), (141, 11848), (143, 11863), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (159, 12187), (168, 12253), (178, 12376), (187, 12475), (189, 12487), (233, 12727), (237, 12799), (249, 12943), (251, 12964), (253, 12982), (255, 13024), (257, 13132),

Gene: CactusJack\_17 Start: 10881, Stop: 14531, Start Num: 2

Candidate Starts for CactusJack\_17:

(Start: 2 @10881 has 44 MA's), (4, 10890), (6, 10977), (7, 10992), (14, 11109), (19, 11238), (22, 11280), (37, 11490), (45, 11643), (64, 11859), (72, 12009), (74, 12063), (75, 12096), (77, 12147), (80, 12204), (85, 12375), (86, 12399), (91, 12453), (93, 12459), (122, 12771), (124, 12795), (128, 12837), (132, 12879), (135, 12912), (143, 12999), (144, 13038), (146, 13071), (147, 13122), (152, 13179), (156, 13245), (161, 13332), (164, 13359), (169, 13386), (170, 13389), (172, 13419), (174, 13446), (187, 13593), (190, 13617), (191, 13647), (193, 13671), (219, 13854), (225, 13923), (229, 13956), (240, 14115), (243, 14160), (252, 14274), (254, 14286), (258, 14433), (259, 14466),

Gene: Camster\_17 Start: 10877, Stop: 14644, Start Num: 3

Candidate Starts for Camster\_17:

(Start: 2 @10874 has 44 MA's), (Start: 3 @10877 has 2 MA's), (4, 10883), (6, 10970), (7, 10985), (14, 11102), (19, 11231), (22, 11273), (37, 11483), (45, 11636), (46, 11645), (64, 11852), (72, 12002), (74, 12056), (75, 12089), (77, 12140), (80, 12197), (85, 12368), (86, 12392), (91, 12446), (93, 12452), (122, 12764), (124, 12791), (128, 12833), (132, 12875), (135, 12908), (141, 12980), (143, 12995), (144, 13034), (146, 13067), (152, 13175), (156, 13241), (161, 13337), (176, 13487), (179, 13508), (188, 13649), (191, 13700), (192, 13706), (194, 13730), (195, 13733), (214, 13880), (217, 13910), (229, 14069), (240, 14228), (243, 14273), (252, 14387), (254, 14399), (258, 14546), (259, 14579),

Gene: Carcharodon\_16 Start: 10123, Stop: 13266, Start Num: 8

Candidate Starts for Carcharodon\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12256), (187, 12478), (201, 12616), (206, 12634), (215, 12655), (230, 12718), (233, 12763), (237, 12832), (239, 12853), (241, 12862), (251, 12997), (253, 13015), (255, 13057), (257, 13165),

Gene: Charlie\_16 Start: 10123, Stop: 13266, Start Num: 8

Candidate Starts for Charlie\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12256), (187, 12478), (201, 12616), (206, 12634), (215, 12655), (230, 12718), (233, 12763), (237, 12832), (239, 12853), (241, 12862), (251, 12997), (253, 13015), (255, 13057), (257, 13165),

Gene: Che9c\_15 Start: 10303, Stop: 13944, Start Num: 1

Candidate Starts for Che9c\_15:

(Start: 1 @10303 has 9 MA's), (16, 10627), (24, 10843), (25, 10858), (28, 10873), (29, 10876), (31, 10888), (34, 10930), (36, 10954), (37, 10975), (47, 11146), (52, 11194), (54, 11209), (58, 11242), (68, 11431), (74, 11548), (75, 11581), (79, 11680), (108, 12118), (122, 12265), (123, 12271), (128, 12322),



(129, 12343), (133, 12385), (140, 12454), (143, 12484), (144, 12523), (146, 12556), (150, 12631), (185, 13057), (187, 13078), (208, 13255), (229, 13408), (232, 13456), (235, 13504), (236, 13519), (237, 13531), (241, 13558), (247, 13660),

Gene: Chewbacca\_16 Start: 10123, Stop: 13266, Start Num: 8

Candidate Starts for Chewbacca\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12256), (187, 12478), (201, 12616), (206, 12634), (215, 12655), (230, 12718), (233, 12763), (237, 12832), (239, 12853), (241, 12862), (251, 12997), (253, 13015), (255, 13057), (257, 13165),

Gene: Donovan\_17 Start: 10865, Stop: 14632, Start Num: 2

Candidate Starts for Donovan\_17:

(Start: 2 @10865 has 44 MA's), (Start: 3 @10868 has 2 MA's), (4, 10874), (6, 10961), (7, 10976), (14, 11093), (19, 11222), (22, 11264), (28, 11372), (37, 11474), (38, 11531), (45, 11627), (64, 11843), (72, 11993), (74, 12047), (75, 12080), (77, 12131), (85, 12359), (91, 12437), (93, 12443), (101, 12509), (122, 12752), (124, 12779), (128, 12821), (132, 12863), (135, 12896), (141, 12968), (143, 12983), (144, 13022), (146, 13055), (152, 13163), (156, 13229), (161, 13325), (176, 13475), (179, 13496), (188, 13637), (191, 13688), (192, 13694), (194, 13718), (195, 13721), (214, 13868), (217, 13898), (229, 14057), (240, 14216), (243, 14261), (252, 14375), (254, 14387), (258, 14534), (259, 14567),

Gene: Duplicity\_16 Start: 10123, Stop: 13266, Start Num: 8

Candidate Starts for Duplicity\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12256), (187, 12478), (201, 12616), (206, 12634), (215, 12655), (230, 12718), (233, 12763), (237, 12832), (239, 12853), (241, 12862), (251, 12997), (253, 13015), (255, 13057), (257, 13165),

Gene: Dynamo\_17 Start: 10873, Stop: 14652, Start Num: 2

Candidate Starts for Dynamo\_17:

(Start: 2 @10873 has 44 MA's), (Start: 3 @10876 has 2 MA's), (4, 10882), (6, 10969), (7, 10984), (14, 11101), (19, 11230), (22, 11272), (37, 11482), (45, 11635), (64, 11851), (72, 12001), (74, 12055), (77, 12139), (80, 12196), (84, 12334), (85, 12367), (86, 12391), (91, 12445), (93, 12451), (101, 12529), (122, 12772), (124, 12799), (128, 12841), (132, 12883), (135, 12916), (141, 12988), (143, 13003), (144, 13042), (146, 13075), (152, 13183), (156, 13249), (161, 13345), (176, 13495), (179, 13516), (188, 13657), (191, 13708), (192, 13714), (194, 13738), (195, 13741), (214, 13888), (217, 13918), (229, 14077), (240, 14236), (243, 14281), (252, 14395), (254, 14407), (258, 14554), (259, 14587),

Gene: FirstPlacePfu\_17 Start: 10873, Stop: 14643, Start Num: 2

Candidate Starts for FirstPlacePfu\_17:

(Start: 2 @10873 has 44 MA's), (Start: 3 @10876 has 2 MA's), (4, 10882), (6, 10969), (7, 10984), (14, 11101), (19, 11230), (22, 11272), (37, 11482), (45, 11635), (64, 11851), (72, 12001), (74, 12055), (77, 12139), (80, 12196), (84, 12334), (85, 12367), (86, 12391), (91, 12445), (93, 12451), (101, 12520), (122, 12763), (124, 12790), (128, 12832), (132, 12874), (135, 12907), (141, 12979), (143, 12994), (144, 13033), (146, 13066), (152, 13174), (156, 13240), (161, 13336), (176, 13486), (179, 13507), (188, 13648), (191, 13699), (192, 13705), (194, 13729), (195, 13732), (214, 13879), (217, 13909), (229, 14068), (240, 14227), (243, 14272), (252, 14386), (254, 14398), (258, 14545), (259, 14578),

Gene: Fishburne\_17 Start: 10873, Stop: 14643, Start Num: 2

Candidate Starts for Fishburne\_17:

(Start: 2 @10873 has 44 MA's), (Start: 3 @10876 has 2 MA's), (4, 10882), (6, 10969), (7, 10984), (14, 11101), (19, 11230), (22, 11272), (37, 11482), (45, 11635), (64, 11851), (72, 12001), (74, 12055), (77, 12139), (80, 12196), (84, 12334), (85, 12367), (86, 12391), (91, 12445), (93, 12451), (101, 12520), (122, 12763), (124, 12790), (128, 12832), (132, 12874), (135, 12907), (141, 12979), (143, 12994), (144, 13033), (146, 13066), (152, 13174), (156, 13240), (161, 13336), (176, 13486), (179, 13507), (188, 13648), (191, 13699), (192, 13705), (194, 13729), (195, 13732), (214, 13879), (217, 13909), (229, 14068), (240, 14227), (243, 14272), (252, 14386), (254, 14398), (258, 14545), (259, 14578),

Gene: Fulbright\_16 Start: 10123, Stop: 13263, Start Num: 8

Candidate Starts for Fulbright\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12253), (187, 12475), (201, 12613), (206, 12631), (215, 12652), (230, 12715), (233, 12760), (237, 12829), (239, 12850), (241, 12859), (251, 12994), (253, 13012), (255, 13054), (257, 13162),

Gene: Gex\_16 Start: 10122, Stop: 13262, Start Num: 8

Candidate Starts for Gex\_16:

(Start: 8 @10122 has 39 MA's), (9, 10131), (11, 10152), (12, 10173), (14, 10206), (26, 10470), (29, 10485), (30, 10494), (34, 10539), (35, 10548), (44, 10713), (49, 10746), (51, 10770), (56, 10815), (57, 10824), (61, 10857), (62, 10878), (93, 11379), (94, 11382), (107, 11451), (109, 11541), (110, 11550), (111, 11583), (122, 11643), (124, 11661), (127, 11682), (130, 11724), (133, 11763), (136, 11805), (141, 11847), (144, 11901), (145, 11904), (147, 11985), (155, 12102), (168, 12252), (187, 12474), (201, 12612), (206, 12630), (215, 12651), (230, 12714), (233, 12759), (237, 12828), (239, 12849), (241, 12858), (251, 12993), (253, 13011), (255, 13053), (257, 13161),

Gene: Glaske\_17 Start: 10881, Stop: 14531, Start Num: 2

Candidate Starts for Glaske\_17:

(Start: 2 @10881 has 44 MA's), (4, 10890), (6, 10977), (7, 10992), (14, 11109), (19, 11238), (22, 11280), (37, 11490), (45, 11643), (64, 11859), (72, 12009), (74, 12063), (75, 12096), (77, 12147), (80, 12204), (85, 12375), (86, 12399), (91, 12453), (93, 12459), (122, 12771), (124, 12795), (128, 12837), (132, 12879), (135, 12912), (143, 12999), (144, 13038), (146, 13071), (147, 13122), (152, 13179), (156, 13245), (161, 13332), (164, 13359), (169, 13386), (170, 13389), (172, 13419), (174, 13446), (187, 13593), (190, 13617), (191, 13647), (193, 13671), (219, 13854), (225, 13923), (229, 13956), (240, 14115), (243, 14160), (252, 14274), (254, 14286), (258, 14433), (259, 14466),

Gene: GreaseLightnin\_17 Start: 10873, Stop: 14649, Start Num: 2

Candidate Starts for GreaseLightnin\_17:

(Start: 2 @10873 has 44 MA's), (Start: 3 @10876 has 2 MA's), (4, 10882), (6, 10969), (7, 10984), (14, 11101), (19, 11230), (22, 11272), (37, 11482), (45, 11635), (64, 11851), (72, 12001), (74, 12055), (77, 12139), (80, 12196), (85, 12367), (86, 12391), (91, 12445), (93, 12451), (122, 12772), (124, 12796), (128, 12838), (132, 12880), (135, 12913), (141, 12985), (143, 13000), (144, 13039), (146, 13072), (152, 13180), (156, 13246), (161, 13342), (176, 13492), (179, 13513), (188, 13654), (191, 13705), (192, 13711), (194, 13735), (195, 13738), (214, 13885), (217, 13915), (229, 14074), (237, 14206), (240, 14233), (243, 14278), (252, 14392), (254, 14404), (258, 14551), (259, 14584),

Gene: HC\_16 Start: 10774, Stop: 14595, Start Num: 1

Candidate Starts for HC\_16:

(Start: 1 @10774 has 9 MA's), (5, 10849), (17, 11107), (28, 11329), (29, 11332), (31, 11344), (34, 11386), (36, 11410), (37, 11431), (38, 11488), (47, 11602), (50, 11638), (65, 11821), (68, 11887), (72, 11950), (75, 12037), (79, 12136), (87, 12343), (99, 12475), (104, 12514), (106, 12526), (108, 12607), (113, 12721), (122, 12760), (128, 12814), (129, 12835), (131, 12838), (133, 12877), (138, 12925), (139, 12940), (140, 12946), (143, 12976), (144, 13015), (146, 13048), (150, 13123), (155, 13216), (157, 13240), (183, 13531), (187, 13576), (204, 13735), (209, 13774), (210, 13798), (211, 13804), (212, 13810), (215, 13840), (220, 13918), (221, 13921), (222, 13936), (223, 13951), (231, 14068), (236, 14167), (237, 14179), (242, 14236), (245, 14296), (247, 14308), (256, 14431), (260, 14551), (263, 14587),

Gene: HUHilltop\_17 Start: 10873, Stop: 14643, Start Num: 2

Candidate Starts for HUHilltop\_17:

(Start: 2 @10873 has 44 MA's), (Start: 3 @10876 has 2 MA's), (4, 10882), (6, 10969), (7, 10984), (14, 11101), (19, 11230), (22, 11272), (37, 11482), (45, 11635), (64, 11851), (72, 12001), (74, 12055), (77, 12139), (80, 12196), (84, 12334), (85, 12367), (86, 12391), (91, 12445), (93, 12451), (101, 12520), (122, 12763), (124, 12790), (128, 12832), (132, 12874), (135, 12907), (141, 12979), (143, 12994), (144, 13033), (146, 13066), (152, 13174), (156, 13240), (161, 13336), (176, 13486), (179, 13507), (188, 13648), (191, 13699), (192, 13705), (194, 13729), (195, 13732), (214, 13879), (217, 13909), (229, 14068), (240, 14227), (243, 14272), (252, 14386), (254, 14398), (258, 14545), (259, 14578),

Gene: Island3\_16 Start: 10774, Stop: 14604, Start Num: 1

Candidate Starts for Island3\_16:

(Start: 1 @10774 has 9 MA's), (5, 10849), (17, 11107), (28, 11329), (29, 11332), (31, 11344), (34, 11386), (36, 11410), (37, 11431), (38, 11488), (47, 11602), (50, 11638), (65, 11821), (68, 11887), (72, 11950), (74, 12004), (75, 12037), (79, 12136), (87, 12343), (99, 12475), (104, 12514), (106, 12526), (108, 12607), (113, 12721), (115, 12742), (122, 12766), (128, 12820), (129, 12841), (131, 12844), (133, 12883), (138, 12931), (139, 12946), (140, 12952), (143, 12982), (144, 13021), (146, 13054), (150, 13129), (155, 13222), (157, 13246), (183, 13537), (187, 13582), (204, 13741), (209, 13780), (210, 13804), (211, 13810), (212, 13816), (215, 13849), (220, 13927), (221, 13930), (222, 13945), (223, 13960), (231, 14077), (236, 14176), (237, 14188), (240, 14212), (241, 14215), (242, 14245), (245, 14305), (247, 14317), (256, 14440), (260, 14560), (263, 14596),

Gene: Jamie19\_16 Start: 10169, Stop: 13270, Start Num: 8

Candidate Starts for Jamie19\_16:

(Start: 8 @10169 has 39 MA's), (9, 10178), (11, 10199), (12, 10220), (14, 10253), (21, 10409), (30, 10541), (32, 10553), (45, 10763), (48, 10781), (49, 10793), (51, 10817), (57, 10871), (61, 10904), (62, 10925), (69, 11033), (70, 11036), (71, 11066), (73, 11111), (81, 11261), (83, 11321), (88, 11390), (93, 11426), (94, 11429), (100, 11444), (105, 11477), (110, 11573), (111, 11606), (118, 11651), (120, 11666), (122, 11669), (127, 11708), (130, 11750), (133, 11789), (137, 11834), (143, 11888), (144, 11927), (145, 11930), (155, 12128), (168, 12278), (178, 12401), (187, 12500), (214, 12650), (228, 12716), (230, 12725), (233, 12764), (237, 12836), (244, 12920), (249, 12980), (251, 13001), (255, 13061), (257, 13169), (261, 13235), (262, 13250),

Gene: Jebeks\_17 Start: 10858, Stop: 14628, Start Num: 2

Candidate Starts for Jebeks\_17:

(Start: 2 @10858 has 44 MA's), (Start: 3 @10861 has 2 MA's), (4, 10867), (6, 10954), (7, 10969), (14, 11086), (19, 11215), (22, 11257), (37, 11467), (45, 11620), (64, 11836), (72, 11986), (74, 12040), (77, 12124), (80, 12181), (84, 12319), (85, 12352), (86, 12376), (91, 12430), (93, 12436), (101, 12505), (122, 12748), (124, 12775), (128, 12817), (132, 12859), (135, 12892), (141, 12964), (143, 12979), (144, 13018), (146, 13051), (152, 13159), (156, 13225), (161, 13321), (176, 13471), (179, 13492), (188, 13633), (191, 13684), (192, 13690), (194, 13714), (195, 13717), (214, 13864), (217, 13894), (229, 14053), (240, 14212), (243, 14257), (252, 14371), (254, 14383), (258, 14530), (259, 14563),

Gene: Journey\_17 Start: 10123, Stop: 13266, Start Num: 8

Candidate Starts for Journey\_17:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12256), (187, 12478), (201, 12616), (206, 12634), (215, 12655), (230, 12718), (233, 12763), (237, 12832), (239, 12853), (241, 12862), (251, 12997), (253, 13015), (255, 13057), (257, 13165),

Gene: Jung\_17 Start: 10919, Stop: 14569, Start Num: 2

Candidate Starts for Jung\_17:

(Start: 2 @10919 has 44 MA's), (4, 10928), (6, 11015), (7, 11030), (14, 11147), (19, 11276), (22, 11318), (37, 11528), (45, 11681), (64, 11897), (72, 12047), (74, 12101), (77, 12185), (80, 12242), (85, 12413), (86, 12437), (91, 12491), (93, 12497), (122, 12809), (124, 12833), (128, 12875), (132, 12917), (135, 12950), (143, 13037), (144, 13076), (146, 13109), (147, 13160), (152, 13217), (156, 13283), (161, 13370), (164, 13397), (169, 13424), (170, 13427), (172, 13457), (174, 13484), (187, 13631), (190, 13655), (191, 13685), (193, 13709), (219, 13892), (225, 13961), (229, 13994), (240, 14153), (243, 14198), (252, 14312), (254, 14324), (258, 14471), (259, 14504),

Gene: Juniormint\_17 Start: 10893, Stop: 14669, Start Num: 2

Candidate Starts for Juniormint\_17:

(Start: 2 @10893 has 44 MA's), (Start: 3 @10896 has 2 MA's), (4, 10902), (6, 10989), (7, 11004), (14, 11121), (19, 11250), (22, 11292), (37, 11502), (45, 11655), (64, 11871), (72, 12021), (74, 12075), (77, 12159), (80, 12216), (86, 12411), (91, 12465), (93, 12471), (122, 12792), (124, 12816), (128, 12858), (132, 12900), (135, 12933), (141, 13005), (143, 13020), (144, 13059), (146, 13092), (147, 13143), (152, 13200), (156, 13266), (176, 13512), (179, 13533), (188, 13674), (191, 13725), (192, 13731), (194, 13755), (195, 13758), (214, 13905), (217, 13935), (229, 14094), (240, 14253), (243, 14298), (252, 14412), (254, 14424), (258, 14571), (259, 14604),

Gene: Kari\_17 Start: 10873, Stop: 14643, Start Num: 2

Candidate Starts for Kari\_17:

(Start: 2 @10873 has 44 MA's), (Start: 3 @10876 has 2 MA's), (4, 10882), (6, 10969), (7, 10984), (14, 11101), (19, 11230), (22, 11272), (37, 11482), (45, 11635), (64, 11851), (72, 12001), (74, 12055), (77, 12139), (80, 12196), (84, 12334), (85, 12367), (86, 12391), (91, 12445), (93, 12451), (101, 12520), (122, 12763), (124, 12790), (128, 12832), (132, 12874), (135, 12907), (141, 12979), (143, 12994), (144, 13033), (146, 13066), (152, 13174), (156, 13240), (161, 13336), (176, 13486), (179, 13507), (188, 13648), (191, 13699), (192, 13705), (194, 13729), (195, 13732), (214, 13879), (217, 13909), (229, 14068), (240, 14227), (243, 14272), (252, 14386), (254, 14398), (258, 14545), (259, 14578),

Gene: Kevin1\_16 Start: 10145, Stop: 13234, Start Num: 8

Candidate Starts for Kevin1\_16:

(Start: 8 @10145 has 39 MA's), (9, 10154), (11, 10175), (14, 10229), (27, 10496), (30, 10517), (32, 10529), (45, 10739), (48, 10757), (49, 10769), (51, 10793), (57, 10847), (61, 10880), (62, 10901), (69, 11009), (70, 11012), (73, 11087), (81, 11237), (83, 11297), (88, 11366), (93, 11402), (94, 11405), (100, 11420), (105, 11453), (110, 11549), (111, 11582), (120, 11642), (122, 11645), (130, 11726), (133, 11765), (137, 11810), (141, 11849), (143, 11864), (144, 11903), (145, 11906), (147, 11987), (155, 12104), (159, 12188), (168, 12254), (178, 12377), (187, 12476), (189, 12488), (233, 12728), (237, 12800), (249, 12944), (251, 12965), (253, 12983), (255, 13025), (257, 13133),

Gene: KilKor\_17 Start: 10881, Stop: 14531, Start Num: 2

Candidate Starts for KilKor\_17:

(Start: 2 @10881 has 44 MA's), (4, 10890), (6, 10977), (7, 10992), (14, 11109), (19, 11238), (22, 11280), (37, 11490), (45, 11643), (64, 11859), (72, 12009), (74, 12063), (75, 12096), (77, 12147), (80, 12204), (85, 12375), (86, 12399), (91, 12453), (93, 12459), (122, 12771), (124, 12795), (128, 12837), (132, 12879), (135, 12912), (143, 12999), (144, 13038), (146, 13071), (147, 13122), (152, 13179), (156, 13245), (161, 13332), (164, 13359), (169, 13386), (170, 13389), (172, 13419), (174, 13446), (187, 13593), (190, 13617), (191, 13647), (193, 13671), (219, 13854), (225, 13923), (229, 13956), (240, 14115), (243, 14160), (252, 14274), (254, 14286), (258, 14433), (259, 14466),

Gene: Ksquared\_17 Start: 10889, Stop: 14665, Start Num: 2

Candidate Starts for Ksquared\_17:

(Start: 2 @10889 has 44 MA's), (Start: 3 @10892 has 2 MA's), (4, 10898), (6, 10985), (7, 11000), (14, 11117), (19, 11246), (22, 11288), (37, 11498), (45, 11651), (64, 11867), (72, 12017), (74, 12071), (77, 12155), (80, 12212), (86, 12407), (91, 12461), (93, 12467), (122, 12788), (124, 12812), (128, 12854), (132, 12896), (135, 12929), (141, 13001), (143, 13016), (144, 13055), (146, 13088), (147, 13139), (152, 13196), (156, 13262), (176, 13508), (179, 13529), (188, 13670), (191, 13721), (192, 13727), (194, 13751), (195, 13754), (214, 13901), (217, 13931), (229, 14090), (240, 14249), (243, 14294), (252, 14408), (254, 14420), (258, 14567), (259, 14600),

Gene: Langerak\_17 Start: 10857, Stop: 14627, Start Num: 2

Candidate Starts for Langerak\_17:

(Start: 2 @10857 has 44 MA's), (Start: 3 @10860 has 2 MA's), (4, 10866), (6, 10953), (7, 10968), (14, 11085), (19, 11214), (22, 11256), (37, 11466), (45, 11619), (64, 11835), (72, 11985), (74, 12039), (77, 12123), (80, 12180), (84, 12318), (85, 12351), (86, 12375), (91, 12429), (93, 12435), (101, 12504), (122, 12747), (124, 12774), (128, 12816), (132, 12858), (135, 12891), (141, 12963), (143, 12978), (144, 13017), (146, 13050), (152, 13158), (156, 13224), (161, 13320), (176, 13470), (179, 13491), (188, 13632), (191, 13683), (192, 13689), (194, 13713), (195, 13716), (214, 13863), (217, 13893), (229, 14052), (240, 14211), (243, 14256), (252, 14370), (254, 14382), (258, 14529), (259, 14562),

Gene: Magsby\_16 Start: 10123, Stop: 13263, Start Num: 8

Candidate Starts for Magsby\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12253), (187, 12475), (201, 12613), (206, 12631), (215, 12652), (230, 12715), (233, 12760), (237, 12829), (239, 12850), (241, 12859), (251, 12994), (253, 13012), (255, 13054), (257, 13162),

Gene: Majeke\_17 Start: 10864, Stop: 14649, Start Num: 2

Candidate Starts for Majeke\_17:

(Start: 2 @10864 has 44 MA's), (Start: 3 @10867 has 2 MA's), (4, 10873), (6, 10960), (7, 10975), (14, 11092), (19, 11221), (22, 11263), (37, 11473), (38, 11530), (45, 11626), (64, 11842), (72, 11992), (74, 12046), (75, 12079), (77, 12130), (80, 12187), (85, 12358), (86, 12382), (91, 12436), (93, 12442), (101, 12508), (122, 12751), (124, 12778), (128, 12820), (132, 12862), (135, 12895), (141, 12967), (143, 12982), (144, 13021), (146, 13054), (152, 13162), (156, 13228), (161, 13324), (176, 13474), (179, 13495), (188, 13636), (191, 13687), (192, 13693), (194, 13717), (195, 13720), (214, 13867), (217, 13897), (229, 14074), (240, 14233), (243, 14278), (246, 14335), (252, 14392), (254, 14404), (258, 14551), (259, 14584),

Gene: Malithi\_17 Start: 10918, Stop: 14568, Start Num: 2

Candidate Starts for Malithi\_17:

(Start: 2 @10918 has 44 MA's), (4, 10927), (6, 11014), (7, 11029), (14, 11146), (19, 11275), (22, 11317), (37, 11527), (45, 11680), (64, 11896), (72, 12046), (74, 12100), (75, 12133), (77, 12184), (80,

12241), (85, 12412), (86, 12436), (91, 12490), (93, 12496), (122, 12808), (124, 12832), (128, 12874), (132, 12916), (135, 12949), (143, 13036), (144, 13075), (146, 13108), (147, 13159), (152, 13216), (156, 13282), (161, 13369), (164, 13396), (169, 13423), (170, 13426), (172, 13456), (174, 13483), (187, 13630), (190, 13654), (191, 13684), (193, 13708), (219, 13891), (225, 13960), (229, 13993), (240, 14152), (243, 14197), (252, 14311), (254, 14323), (258, 14470), (259, 14503),

Gene: Mangethe\_17 Start: 10864, Stop: 14649, Start Num: 2

Candidate Starts for Mangethe\_17:

(Start: 2 @10864 has 44 MA's), (Start: 3 @10867 has 2 MA's), (4, 10873), (6, 10960), (7, 10975), (14, 11092), (19, 11221), (22, 11263), (37, 11473), (38, 11530), (45, 11626), (64, 11842), (72, 11992), (74, 12046), (75, 12079), (77, 12130), (80, 12187), (85, 12358), (86, 12382), (91, 12436), (93, 12442), (101, 12508), (122, 12751), (124, 12778), (128, 12820), (132, 12862), (135, 12895), (141, 12967), (143, 12982), (144, 13021), (146, 13054), (152, 13162), (156, 13228), (161, 13324), (176, 13474), (179, 13495), (188, 13636), (191, 13687), (192, 13693), (194, 13717), (195, 13720), (214, 13867), (217, 13897), (229, 14074), (240, 14233), (243, 14278), (246, 14335), (252, 14392), (254, 14404), (258, 14551), (259, 14584),

Gene: Megiddo\_17 Start: 10881, Stop: 14531, Start Num: 2

Candidate Starts for Megiddo\_17:

(Start: 2 @10881 has 44 MA's), (4, 10890), (6, 10977), (7, 10992), (14, 11109), (19, 11238), (22, 11280), (37, 11490), (45, 11643), (64, 11859), (72, 12009), (74, 12063), (75, 12096), (77, 12147), (80, 12204), (85, 12375), (86, 12399), (91, 12453), (93, 12459), (122, 12771), (124, 12795), (128, 12837), (132, 12879), (135, 12912), (143, 12999), (144, 13038), (146, 13071), (147, 13122), (152, 13179), (156, 13245), (161, 13332), (164, 13359), (169, 13386), (170, 13389), (172, 13419), (174, 13446), (187, 13593), (190, 13617), (191, 13647), (193, 13671), (219, 13854), (225, 13923), (229, 13956), (240, 14115), (243, 14160), (252, 14274), (254, 14286), (258, 14433), (259, 14466),

Gene: Melville\_16 Start: 10123, Stop: 13266, Start Num: 8

Candidate Starts for Melville\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12256), (187, 12478), (201, 12616), (206, 12634), (215, 12655), (230, 12718), (233, 12763), (237, 12832), (239, 12853), (241, 12862), (251, 12997), (253, 13015), (255, 13057), (257, 13165),

Gene: MichelleMyBell\_16 Start: 10163, Stop: 13264, Start Num: 8

Candidate Starts for MichelleMyBell\_16:

(Start: 8 @10163 has 39 MA's), (9, 10172), (11, 10193), (14, 10247), (18, 10361), (27, 10514), (30, 10535), (32, 10547), (45, 10757), (48, 10775), (49, 10787), (51, 10811), (57, 10865), (61, 10898), (62, 10919), (69, 11027), (70, 11030), (73, 11105), (81, 11255), (83, 11315), (88, 11384), (93, 11420), (94, 11423), (100, 11438), (105, 11471), (110, 11567), (111, 11600), (120, 11660), (122, 11663), (133, 11783), (137, 11828), (141, 11867), (143, 11882), (144, 11921), (145, 11924), (155, 12122), (168, 12269), (173, 12320), (175, 12362), (178, 12392), (187, 12491), (189, 12503), (199, 12617), (214, 12644), (228, 12710), (230, 12719), (233, 12758), (237, 12830), (244, 12914), (249, 12974), (251, 12995), (255, 13055), (257, 13163),

Gene: MooMoo\_14 Start: 9011, Stop: 12727, Start Num: 1

Candidate Starts for MooMoo\_14:

(Start: 1 @9011 has 9 MA's), (13, 9260), (17, 9344), (20, 9452), (24, 9551), (28, 9581), (29, 9584), (33, 9623), (34, 9638), (36, 9662), (37, 9683), (40, 9773), (41, 9785), (45, 9836), (46, 9845), (52, 9902), (59, 9971), (63, 10037), (65, 10073), (66, 10103), (67, 10118), (68, 10139), (72, 10202), (75, 10289),

(78, 10361), (79, 10388), (82, 10430), (108, 10835), (119, 10985), (125, 11018), (128, 11057), (129, 11078), (131, 11081), (133, 11120), (136, 11162), (139, 11183), (140, 11189), (142, 11207), (144, 11258), (146, 11291), (148, 11351), (149, 11363), (150, 11366), (151, 11384), (153, 11402), (154, 11411), (163, 11582), (166, 11591), (167, 11594), (174, 11681), (182, 11792), (184, 11816), (187, 11846), (198, 11969), (207, 12020), (213, 12068), (216, 12086), (218, 12116), (236, 12296), (237, 12308), (238, 12311), (241, 12335), (246, 12434), (247, 12437), (255, 12533),

Gene: Nazo\_16 Start: 10599, Stop: 14387, Start Num: 2

Candidate Starts for Nazo\_16:

(Start: 2 @10599 has 44 MA's), (Start: 3 @10602 has 2 MA's), (4, 10608), (7, 10710), (19, 10956), (22, 10998), (37, 11208), (46, 11370), (64, 11577), (72, 11727), (74, 11781), (122, 12480), (128, 12543), (132, 12585), (135, 12618), (144, 12744), (146, 12777), (162, 13071), (172, 13143), (183, 13287), (186, 13329), (197, 13464), (205, 13518), (226, 13755), (229, 13815), (237, 13947), (246, 14076), (248, 14088), (254, 14145), (258, 14289), (259, 14322),

Gene: Necropolis\_17 Start: 10873, Stop: 14643, Start Num: 2

Candidate Starts for Necropolis\_17:

(Start: 2 @10873 has 44 MA's), (Start: 3 @10876 has 2 MA's), (4, 10882), (6, 10969), (7, 10984), (14, 11101), (19, 11230), (22, 11272), (37, 11482), (45, 11635), (64, 11851), (72, 12001), (74, 12055), (77, 12139), (80, 12196), (84, 12334), (85, 12367), (86, 12391), (91, 12445), (93, 12451), (101, 12520), (122, 12763), (124, 12790), (128, 12832), (132, 12874), (135, 12907), (141, 12979), (143, 12994), (144, 13033), (146, 13066), (152, 13174), (156, 13240), (161, 13336), (176, 13486), (179, 13507), (188, 13648), (191, 13699), (192, 13705), (194, 13729), (195, 13732), (214, 13879), (217, 13909), (229, 14068), (240, 14227), (243, 14272), (252, 14386), (254, 14398), (258, 14545), (259, 14578),

Gene: Nенаe\_16 Start: 10169, Stop: 13270, Start Num: 8

Candidate Starts for Nенаe\_16:

(Start: 8 @10169 has 39 MA's), (9, 10178), (11, 10199), (14, 10253), (21, 10409), (30, 10541), (32, 10553), (45, 10763), (48, 10781), (49, 10793), (51, 10817), (57, 10871), (61, 10904), (62, 10925), (69, 11033), (70, 11036), (71, 11066), (73, 11111), (81, 11261), (83, 11321), (88, 11390), (93, 11426), (94, 11429), (100, 11444), (105, 11477), (110, 11573), (111, 11606), (118, 11651), (120, 11666), (122, 11669), (127, 11708), (130, 11750), (133, 11789), (137, 11834), (143, 11888), (144, 11927), (145, 11930), (155, 12128), (168, 12278), (178, 12401), (187, 12500), (199, 12626), (214, 12650), (228, 12716), (230, 12725), (233, 12764), (234, 12779), (237, 12836), (249, 12980), (251, 13001), (255, 13061), (257, 13169), (261, 13235),

Gene: Panchino\_16 Start: 10145, Stop: 13243, Start Num: 8

Candidate Starts for Panchino\_16:

(Start: 8 @10145 has 39 MA's), (9, 10154), (11, 10175), (12, 10196), (14, 10229), (18, 10343), (21, 10385), (30, 10517), (32, 10529), (35, 10571), (44, 10736), (45, 10739), (48, 10757), (49, 10769), (51, 10793), (57, 10847), (61, 10880), (62, 10901), (69, 11009), (70, 11012), (71, 11042), (73, 11087), (83, 11297), (86, 11363), (88, 11366), (93, 11402), (94, 11405), (100, 11420), (105, 11453), (110, 11549), (111, 11582), (118, 11627), (120, 11642), (122, 11645), (127, 11684), (130, 11726), (133, 11765), (137, 11810), (143, 11864), (144, 11903), (145, 11906), (155, 12104), (168, 12254), (178, 12377), (187, 12476), (214, 12626), (228, 12692), (230, 12701), (233, 12740), (237, 12809), (244, 12893), (249, 12953), (251, 12974), (255, 13034), (257, 13142), (261, 13208), (262, 13223),

Gene: Parmesanjohn\_16 Start: 10123, Stop: 13266, Start Num: 8

Candidate Starts for Parmesanjohn\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806),

(141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12256), (187, 12478), (201, 12616), (206, 12634), (215, 12655), (230, 12718), (233, 12763), (237, 12832), (239, 12853), (241, 12862), (251, 12997), (253, 13015), (255, 13057), (257, 13165),

Gene: Phalm\_17 Start: 10881, Stop: 14531, Start Num: 2

Candidate Starts for Phalm\_17:

(Start: 2 @10881 has 44 MA's), (4, 10890), (6, 10977), (7, 10992), (14, 11109), (19, 11238), (22, 11280), (37, 11490), (45, 11643), (64, 11859), (72, 12009), (74, 12063), (75, 12096), (77, 12147), (80, 12204), (85, 12375), (86, 12399), (91, 12453), (93, 12459), (122, 12771), (124, 12795), (128, 12837), (132, 12879), (135, 12912), (143, 12999), (144, 13038), (146, 13071), (147, 13122), (152, 13179), (156, 13245), (161, 13332), (164, 13359), (169, 13386), (170, 13389), (172, 13419), (174, 13446), (187, 13593), (190, 13617), (191, 13647), (193, 13671), (219, 13854), (225, 13923), (229, 13956), (240, 14115), (243, 14160), (252, 14274), (254, 14286), (258, 14433), (259, 14466),

Gene: PhancyPhin\_16 Start: 10169, Stop: 13267, Start Num: 8

Candidate Starts for PhancyPhin\_16:

(Start: 8 @10169 has 39 MA's), (9, 10178), (11, 10199), (12, 10220), (14, 10253), (21, 10409), (30, 10541), (32, 10553), (45, 10763), (49, 10793), (51, 10817), (57, 10871), (61, 10904), (62, 10925), (69, 11033), (70, 11036), (71, 11066), (73, 11111), (81, 11261), (83, 11321), (88, 11390), (93, 11426), (94, 11429), (100, 11444), (105, 11477), (110, 11573), (111, 11606), (118, 11651), (120, 11666), (122, 11669), (127, 11708), (130, 11750), (133, 11789), (137, 11834), (143, 11888), (144, 11927), (145, 11930), (155, 12128), (168, 12278), (178, 12401), (187, 12500), (189, 12512), (199, 12626), (214, 12650), (228, 12716), (230, 12725), (233, 12764), (237, 12833), (249, 12977), (251, 12998), (253, 13016), (255, 13058), (257, 13166), (261, 13232), (262, 13247),

Gene: Phayonce\_16 Start: 10531, Stop: 14337, Start Num: 2

Candidate Starts for Phayonce\_16:

(Start: 2 @10531 has 44 MA's), (Start: 3 @10534 has 2 MA's), (7, 10642), (10, 10696), (19, 10888), (22, 10930), (24, 11008), (28, 11038), (37, 11140), (38, 11197), (53, 11359), (55, 11383), (60, 11434), (64, 11509), (72, 11659), (74, 11713), (76, 11758), (80, 11854), (83, 11953), (84, 11992), (85, 12025), (89, 12073), (112, 12355), (116, 12388), (122, 12409), (128, 12478), (132, 12520), (134, 12550), (135, 12553), (144, 12679), (146, 12712), (152, 12820), (176, 13135), (188, 13297), (194, 13381), (217, 13561), (227, 13738), (229, 13768), (246, 14029), (248, 14041), (254, 14098),

Gene: Phegasus\_17 Start: 10864, Stop: 14649, Start Num: 2

Candidate Starts for Phegasus\_17:

(Start: 2 @10864 has 44 MA's), (Start: 3 @10867 has 2 MA's), (4, 10873), (6, 10960), (7, 10975), (14, 11092), (19, 11221), (22, 11263), (37, 11473), (38, 11530), (45, 11626), (64, 11842), (72, 11992), (74, 12046), (75, 12079), (77, 12130), (80, 12187), (85, 12358), (86, 12382), (91, 12436), (93, 12442), (101, 12508), (122, 12751), (124, 12778), (128, 12820), (132, 12862), (135, 12895), (141, 12967), (143, 12982), (144, 13021), (146, 13054), (152, 13162), (156, 13228), (161, 13324), (176, 13474), (179, 13495), (188, 13636), (191, 13687), (192, 13693), (194, 13717), (195, 13720), (214, 13867), (217, 13897), (229, 14074), (240, 14233), (243, 14278), (246, 14335), (252, 14392), (254, 14404), (258, 14551), (259, 14584),

Gene: Philonius\_16 Start: 10123, Stop: 13266, Start Num: 8

Candidate Starts for Philonius\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12256), (187, 12478), (201, 12616), (206, 12634), (215, 12655), (230, 12718), (233, 12763), (237, 12832), (239, 12853),



(241, 12862), (251, 12997), (253, 13015), (255, 13057), (257, 13165),

Gene: Phineas\_17 Start: 10861, Stop: 14640, Start Num: 2

Candidate Starts for Phineas\_17:

(Start: 2 @10861 has 44 MA's), (Start: 3 @10864 has 2 MA's), (4, 10870), (6, 10957), (7, 10972), (14, 11089), (19, 11218), (22, 11260), (37, 11470), (45, 11623), (64, 11839), (72, 11989), (74, 12043), (77, 12127), (80, 12184), (84, 12322), (85, 12355), (86, 12379), (91, 12433), (93, 12439), (101, 12517), (122, 12760), (124, 12787), (128, 12829), (132, 12871), (135, 12904), (141, 12976), (143, 12991), (144, 13030), (146, 13063), (152, 13171), (156, 13237), (161, 13333), (176, 13483), (179, 13504), (188, 13645), (191, 13696), (192, 13702), (194, 13726), (195, 13729), (214, 13876), (217, 13906), (229, 14065), (240, 14224), (243, 14269), (252, 14383), (254, 14395), (258, 14542), (259, 14575),

Gene: Phloss\_16 Start: 10123, Stop: 13266, Start Num: 8

Candidate Starts for Phloss\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12256), (187, 12478), (201, 12616), (206, 12634), (215, 12655), (230, 12718), (233, 12763), (237, 12832), (239, 12853), (241, 12862), (251, 12997), (253, 13015), (255, 13057), (257, 13165),

Gene: Phrann\_16 Start: 10169, Stop: 13270, Start Num: 8

Candidate Starts for Phrann\_16:

(Start: 8 @10169 has 39 MA's), (9, 10178), (11, 10199), (12, 10220), (14, 10253), (21, 10409), (30, 10541), (32, 10553), (45, 10763), (49, 10793), (51, 10817), (57, 10871), (61, 10904), (62, 10925), (69, 11033), (70, 11036), (71, 11066), (73, 11111), (81, 11261), (83, 11321), (88, 11390), (93, 11426), (94, 11429), (100, 11444), (105, 11477), (110, 11573), (111, 11606), (118, 11651), (120, 11666), (122, 11669), (127, 11708), (130, 11750), (133, 11789), (137, 11834), (143, 11888), (144, 11927), (145, 11930), (155, 12128), (168, 12278), (178, 12401), (187, 12500), (199, 12626), (214, 12650), (228, 12716), (230, 12725), (233, 12764), (237, 12836), (244, 12920), (249, 12980), (251, 13001), (255, 13061), (257, 13169), (261, 13235), (262, 13250),

Gene: Pipsqueaks\_16 Start: 10123, Stop: 13266, Start Num: 8

Candidate Starts for Pipsqueaks\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12256), (187, 12478), (201, 12616), (206, 12634), (215, 12655), (230, 12718), (233, 12763), (237, 12832), (239, 12853), (241, 12862), (251, 12997), (253, 13015), (255, 13057), (257, 13165),

Gene: Polkaroo\_17 Start: 10889, Stop: 14659, Start Num: 2

Candidate Starts for Polkaroo\_17:

(Start: 2 @10889 has 44 MA's), (Start: 3 @10892 has 2 MA's), (4, 10898), (6, 10985), (7, 11000), (14, 11117), (19, 11246), (22, 11288), (37, 11498), (38, 11555), (45, 11651), (64, 11867), (72, 12017), (74, 12071), (75, 12104), (77, 12155), (80, 12212), (85, 12383), (86, 12407), (91, 12461), (93, 12467), (101, 12536), (122, 12779), (124, 12806), (128, 12848), (132, 12890), (135, 12923), (141, 12995), (143, 13010), (144, 13049), (146, 13082), (152, 13190), (156, 13256), (161, 13352), (176, 13502), (179, 13523), (188, 13664), (191, 13715), (192, 13721), (194, 13745), (195, 13748), (214, 13895), (217, 13925), (229, 14084), (240, 14243), (243, 14288), (252, 14402), (254, 14414), (258, 14561), (259, 14594),

Gene: Purgamenstris\_16 Start: 10169, Stop: 13270, Start Num: 8

Candidate Starts for Purgamenstris\_16:

(Start: 8 @10169 has 39 MA's), (9, 10178), (11, 10199), (14, 10253), (21, 10409), (30, 10541), (32, 10553), (45, 10763), (48, 10781), (49, 10793), (51, 10817), (57, 10871), (61, 10904), (62, 10925), (69, 11033), (70, 11036), (71, 11066), (73, 11111), (81, 11261), (83, 11321), (88, 11390), (93, 11426), (94, 11429), (100, 11444), (105, 11477), (110, 11573), (111, 11606), (118, 11651), (120, 11666), (122, 11669), (127, 11708), (130, 11750), (133, 11789), (137, 11834), (143, 11888), (144, 11927), (145, 11930), (155, 12128), (168, 12278), (178, 12401), (187, 12500), (199, 12626), (214, 12650), (228, 12716), (230, 12725), (233, 12764), (234, 12779), (237, 12836), (249, 12980), (251, 13001), (255, 13061), (257, 13169), (261, 13235),

Gene: Purky\_16 Start: 10549, Stop: 14229, Start Num: 2

Candidate Starts for Purky\_16:

(Start: 2 @10549 has 44 MA's), (Start: 3 @10552 has 2 MA's), (4, 10558), (7, 10660), (10, 10714), (22, 10945), (23, 10987), (28, 11053), (37, 11155), (39, 11233), (42, 11284), (47, 11326), (50, 11362), (68, 11611), (74, 11728), (75, 11761), (90, 12115), (95, 12145), (96, 12151), (103, 12211), (108, 12301), (112, 12403), (121, 12463), (124, 12493), (128, 12535), (132, 12577), (135, 12610), (143, 12697), (144, 12736), (146, 12769), (152, 12877), (159, 13027), (164, 13054), (169, 13081), (170, 13084), (172, 13114), (187, 13288), (190, 13312), (191, 13342), (193, 13366), (219, 13549), (225, 13618), (237, 13786), (240, 13813), (243, 13858), (246, 13915), (248, 13927), (254, 13984), (259, 14164),

Gene: Pygmy\_16 Start: 10599, Stop: 14366, Start Num: 3

Candidate Starts for Pygmy\_16:

(Start: 2 @10596 has 44 MA's), (Start: 3 @10599 has 2 MA's), (4, 10605), (6, 10692), (7, 10707), (14, 10824), (19, 10953), (22, 10995), (37, 11205), (45, 11358), (72, 11724), (74, 11778), (77, 11862), (80, 11919), (85, 12090), (86, 12114), (91, 12168), (93, 12174), (101, 12243), (122, 12486), (124, 12513), (128, 12555), (132, 12597), (135, 12630), (141, 12702), (143, 12717), (144, 12756), (146, 12789), (152, 12897), (156, 12963), (161, 13059), (176, 13209), (179, 13230), (188, 13371), (191, 13422), (192, 13428), (194, 13452), (195, 13455), (214, 13602), (217, 13632), (229, 13791), (240, 13950), (243, 13995), (252, 14109), (254, 14121), (258, 14268), (259, 14301),

Gene: QueenHazel\_16 Start: 10779, Stop: 14600, Start Num: 1

Candidate Starts for QueenHazel\_16:

(Start: 1 @10779 has 9 MA's), (5, 10854), (17, 11112), (28, 11334), (29, 11337), (31, 11349), (34, 11391), (36, 11415), (38, 11493), (47, 11607), (50, 11643), (65, 11826), (68, 11892), (72, 11955), (74, 12009), (75, 12042), (79, 12141), (87, 12348), (99, 12480), (104, 12519), (106, 12531), (108, 12612), (113, 12726), (122, 12765), (128, 12819), (129, 12840), (131, 12843), (133, 12882), (138, 12930), (139, 12945), (140, 12951), (143, 12981), (144, 13020), (146, 13053), (150, 13128), (155, 13221), (157, 13245), (173, 13410), (178, 13482), (180, 13509), (183, 13536), (187, 13581), (204, 13740), (209, 13779), (210, 13803), (211, 13809), (212, 13815), (215, 13845), (220, 13923), (221, 13926), (222, 13941), (223, 13956), (231, 14073), (236, 14172), (237, 14184), (242, 14241), (245, 14301), (247, 14313), (256, 14436), (260, 14556), (263, 14592),

Gene: Raymond7\_16 Start: 10169, Stop: 13270, Start Num: 8

Candidate Starts for Raymond7\_16:

(Start: 8 @10169 has 39 MA's), (9, 10178), (11, 10199), (12, 10220), (14, 10253), (21, 10409), (30, 10541), (32, 10553), (45, 10763), (48, 10781), (49, 10793), (51, 10817), (57, 10871), (61, 10904), (62, 10925), (69, 11033), (70, 11036), (71, 11066), (73, 11111), (81, 11261), (83, 11321), (88, 11390), (93, 11426), (94, 11429), (100, 11444), (105, 11477), (110, 11573), (111, 11606), (118, 11651), (120, 11666), (122, 11669), (127, 11708), (130, 11750), (133, 11789), (137, 11834), (143, 11888), (144, 11927), (145, 11930), (155, 12128), (168, 12278), (178, 12401), (187, 12500), (214, 12650), (228,

12716), (230, 12725), (233, 12764), (237, 12836), (244, 12920), (249, 12980), (251, 13001), (255, 13061), (257, 13169), (261, 13235), (262, 13250),

Gene: Rebel\_16 Start: 10169, Stop: 13267, Start Num: 8

Candidate Starts for Rebel\_16:

(Start: 8 @10169 has 39 MA's), (9, 10178), (11, 10199), (12, 10220), (14, 10253), (18, 10367), (21, 10409), (30, 10541), (32, 10553), (35, 10595), (44, 10760), (45, 10763), (48, 10781), (49, 10793), (51, 10817), (57, 10871), (61, 10904), (62, 10925), (69, 11033), (70, 11036), (71, 11066), (73, 11111), (83, 11321), (86, 11387), (88, 11390), (93, 11426), (94, 11429), (100, 11444), (105, 11477), (110, 11573), (111, 11606), (118, 11651), (120, 11666), (122, 11669), (127, 11708), (130, 11750), (133, 11789), (137, 11834), (143, 11888), (144, 11927), (145, 11930), (155, 12128), (168, 12278), (178, 12401), (187, 12500), (214, 12650), (228, 12716), (230, 12725), (233, 12764), (237, 12833), (244, 12917), (249, 12977), (251, 12998), (255, 13058), (257, 13166), (261, 13232), (262, 13247),

Gene: Redi\_16 Start: 10169, Stop: 13270, Start Num: 8

Candidate Starts for Redi\_16:

(Start: 8 @10169 has 39 MA's), (9, 10178), (11, 10199), (14, 10253), (21, 10409), (30, 10541), (32, 10553), (45, 10763), (48, 10781), (49, 10793), (51, 10817), (57, 10871), (61, 10904), (62, 10925), (69, 11033), (70, 11036), (71, 11066), (73, 11111), (81, 11261), (83, 11321), (88, 11390), (93, 11426), (94, 11429), (100, 11444), (105, 11477), (110, 11573), (111, 11606), (118, 11651), (120, 11666), (122, 11669), (127, 11708), (130, 11750), (133, 11789), (137, 11834), (143, 11888), (144, 11927), (145, 11930), (155, 12128), (168, 12278), (178, 12401), (187, 12500), (199, 12626), (214, 12650), (228, 12716), (230, 12725), (233, 12764), (234, 12779), (237, 12836), (249, 12980), (251, 13001), (255, 13061), (257, 13169), (261, 13235),

Gene: Rubeelu\_16 Start: 10144, Stop: 13233, Start Num: 8

Candidate Starts for Rubeelu\_16:

(Start: 8 @10144 has 39 MA's), (9, 10153), (11, 10174), (14, 10228), (27, 10495), (30, 10516), (32, 10528), (45, 10738), (48, 10756), (49, 10768), (51, 10792), (57, 10846), (61, 10879), (62, 10900), (69, 11008), (70, 11011), (73, 11086), (81, 11236), (83, 11296), (88, 11365), (93, 11401), (94, 11404), (100, 11419), (105, 11452), (110, 11548), (111, 11581), (120, 11641), (122, 11644), (130, 11725), (133, 11764), (137, 11809), (141, 11848), (143, 11863), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (159, 12187), (168, 12253), (178, 12376), (187, 12475), (189, 12487), (233, 12727), (237, 12799), (249, 12943), (251, 12964), (253, 12982), (255, 13024), (257, 13132),

Gene: Sbash\_15 Start: 10276, Stop: 13941, Start Num: 1

Candidate Starts for Sbash\_15:

(Start: 1 @10276 has 9 MA's), (5, 10351), (16, 10600), (24, 10816), (25, 10831), (28, 10846), (29, 10849), (31, 10861), (34, 10903), (36, 10927), (37, 10948), (47, 11119), (52, 11167), (54, 11182), (58, 11215), (68, 11404), (71, 11446), (74, 11521), (75, 11554), (79, 11653), (92, 11908), (95, 11938), (96, 11944), (98, 11962), (102, 12001), (103, 12004), (108, 12094), (114, 12214), (117, 12223), (122, 12241), (123, 12247), (126, 12268), (128, 12298), (129, 12319), (131, 12322), (133, 12361), (140, 12430), (143, 12460), (144, 12499), (146, 12532), (150, 12607), (182, 13006), (187, 13060), (202, 13198), (229, 13405), (235, 13501), (236, 13516), (237, 13528), (241, 13555), (247, 13657), (255, 13753),

Gene: Schnauzer\_16 Start: 10123, Stop: 13266, Start Num: 8

Candidate Starts for Schnauzer\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12256), (187, 12478),

(201, 12616), (206, 12634), (215, 12655), (230, 12718), (233, 12763), (237, 12832), (239, 12853), (241, 12862), (251, 12997), (253, 13015), (255, 13057), (257, 13165),

Gene: Scitech\_16 Start: 10123, Stop: 13263, Start Num: 8

Candidate Starts for Scitech\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12253), (187, 12475), (201, 12613), (206, 12631), (215, 12652), (230, 12715), (233, 12760), (237, 12829), (239, 12850), (241, 12859), (251, 12994), (253, 13012), (255, 13054), (257, 13162),

Gene: Shipwreck\_16 Start: 10574, Stop: 14344, Start Num: 2

Candidate Starts for Shipwreck\_16:

(Start: 2 @10574 has 44 MA's), (Start: 3 @10577 has 2 MA's), (4, 10583), (6, 10670), (7, 10685), (14, 10802), (19, 10931), (22, 10973), (37, 11183), (45, 11336), (64, 11552), (72, 11702), (74, 11756), (77, 11840), (80, 11897), (85, 12068), (86, 12092), (91, 12146), (93, 12152), (122, 12464), (124, 12491), (128, 12533), (132, 12575), (135, 12608), (141, 12680), (143, 12695), (144, 12734), (146, 12767), (152, 12875), (156, 12941), (161, 13037), (176, 13187), (179, 13208), (188, 13349), (191, 13400), (192, 13406), (194, 13430), (195, 13433), (214, 13580), (217, 13610), (229, 13769), (240, 13928), (243, 13973), (252, 14087), (254, 14099), (258, 14246), (259, 14279),

Gene: ShrimpFriedEgg\_16 Start: 10169, Stop: 13270, Start Num: 8

Candidate Starts for ShrimpFriedEgg\_16:

(Start: 8 @10169 has 39 MA's), (9, 10178), (11, 10199), (14, 10253), (21, 10409), (30, 10541), (32, 10553), (45, 10763), (48, 10781), (49, 10793), (51, 10817), (57, 10871), (61, 10904), (62, 10925), (69, 11033), (70, 11036), (71, 11066), (73, 11111), (81, 11261), (83, 11321), (88, 11390), (93, 11426), (94, 11429), (100, 11444), (105, 11477), (110, 11573), (111, 11606), (118, 11651), (120, 11666), (122, 11669), (127, 11708), (130, 11750), (133, 11789), (137, 11834), (143, 11888), (144, 11927), (145, 11930), (155, 12128), (168, 12278), (178, 12401), (187, 12500), (199, 12626), (214, 12650), (228, 12716), (230, 12725), (233, 12764), (234, 12779), (237, 12836), (249, 12980), (251, 13001), (255, 13061), (257, 13169), (261, 13235),

Gene: Shweta\_16 Start: 10169, Stop: 13270, Start Num: 8

Candidate Starts for Shweta\_16:

(Start: 8 @10169 has 39 MA's), (9, 10178), (11, 10199), (12, 10220), (14, 10253), (21, 10409), (30, 10541), (32, 10553), (45, 10763), (48, 10781), (49, 10793), (51, 10817), (57, 10871), (61, 10904), (62, 10925), (69, 11033), (70, 11036), (71, 11066), (73, 11111), (81, 11261), (83, 11321), (88, 11390), (93, 11426), (94, 11429), (100, 11444), (105, 11477), (110, 11573), (111, 11606), (118, 11651), (120, 11666), (122, 11669), (127, 11708), (130, 11750), (133, 11789), (137, 11834), (143, 11888), (144, 11927), (145, 11930), (155, 12128), (168, 12278), (178, 12401), (187, 12500), (214, 12650), (228, 12716), (230, 12725), (233, 12764), (237, 12836), (244, 12920), (249, 12980), (251, 13001), (255, 13061), (257, 13169), (261, 13235), (262, 13250),

Gene: Silvafighter\_16 Start: 10123, Stop: 13266, Start Num: 8

Candidate Starts for Silvafighter\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12256), (187, 12478), (201, 12616), (206, 12634), (215, 12655), (230, 12718), (233, 12763), (237, 12832), (239, 12853),

(241, 12862), (251, 12997), (253, 13015), (255, 13057), (257, 13165),

Gene: Silvy\_16 Start: 10124, Stop: 13267, Start Num: 8

Candidate Starts for Silvy\_16:

(Start: 8 @10124 has 39 MA's), (9, 10133), (11, 10154), (12, 10175), (14, 10208), (26, 10472), (29, 10487), (30, 10496), (34, 10541), (35, 10550), (44, 10715), (49, 10748), (51, 10772), (56, 10817), (57, 10826), (61, 10859), (62, 10880), (93, 11381), (94, 11384), (107, 11453), (109, 11543), (110, 11552), (111, 11585), (122, 11645), (124, 11663), (127, 11684), (130, 11726), (133, 11765), (136, 11807), (141, 11849), (144, 11903), (145, 11906), (147, 11987), (155, 12104), (168, 12257), (187, 12479), (201, 12617), (206, 12635), (215, 12656), (230, 12719), (233, 12764), (237, 12833), (239, 12854), (241, 12863), (251, 12998), (253, 13016), (255, 13058), (257, 13166),

Gene: SkinnyPete\_16 Start: 10169, Stop: 13267, Start Num: 8

Candidate Starts for SkinnyPete\_16:

(Start: 8 @10169 has 39 MA's), (9, 10178), (11, 10199), (12, 10220), (14, 10253), (18, 10367), (21, 10409), (30, 10541), (32, 10553), (35, 10595), (44, 10760), (45, 10763), (48, 10781), (49, 10793), (51, 10817), (57, 10871), (61, 10904), (62, 10925), (69, 11033), (70, 11036), (71, 11066), (73, 11111), (83, 11321), (86, 11387), (88, 11390), (93, 11426), (94, 11429), (100, 11444), (105, 11477), (110, 11573), (111, 11606), (118, 11651), (120, 11666), (122, 11669), (127, 11708), (130, 11750), (133, 11789), (137, 11834), (143, 11888), (144, 11927), (145, 11930), (155, 12128), (168, 12278), (178, 12401), (187, 12500), (214, 12650), (228, 12716), (230, 12725), (233, 12764), (237, 12833), (244, 12917), (249, 12977), (251, 12998), (255, 13058), (257, 13166), (261, 13232), (262, 13247),

Gene: Smurph\_16 Start: 10123, Stop: 13266, Start Num: 8

Candidate Starts for Smurph\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12256), (187, 12478), (201, 12616), (206, 12634), (215, 12655), (230, 12718), (233, 12763), (237, 12832), (239, 12853), (241, 12862), (251, 12997), (253, 13015), (255, 13057), (257, 13165),

Gene: Snekmaggedon\_16 Start: 10169, Stop: 13270, Start Num: 8

Candidate Starts for Snekmaggedon\_16:

(Start: 8 @10169 has 39 MA's), (9, 10178), (11, 10199), (12, 10220), (14, 10253), (21, 10409), (30, 10541), (32, 10553), (45, 10763), (48, 10781), (49, 10793), (51, 10817), (57, 10871), (61, 10904), (62, 10925), (69, 11033), (70, 11036), (71, 11066), (73, 11111), (81, 11261), (83, 11321), (88, 11390), (93, 11426), (94, 11429), (100, 11444), (105, 11477), (110, 11573), (111, 11606), (118, 11651), (120, 11666), (122, 11669), (127, 11708), (130, 11750), (133, 11789), (137, 11834), (143, 11888), (144, 11927), (145, 11930), (155, 12128), (168, 12278), (178, 12401), (187, 12500), (214, 12650), (228, 12716), (230, 12725), (233, 12764), (237, 12836), (244, 12920), (249, 12980), (251, 13001), (255, 13061), (257, 13169), (261, 13235), (262, 13250),

Gene: Sonah\_17 Start: 10866, Stop: 14633, Start Num: 2

Candidate Starts for Sonah\_17:

(Start: 2 @10866 has 44 MA's), (Start: 3 @10869 has 2 MA's), (4, 10875), (6, 10962), (7, 10977), (14, 11094), (19, 11223), (22, 11265), (28, 11373), (37, 11475), (38, 11532), (45, 11628), (64, 11844), (72, 11994), (74, 12048), (75, 12081), (77, 12132), (85, 12360), (91, 12438), (93, 12444), (101, 12510), (122, 12753), (124, 12780), (128, 12822), (132, 12864), (135, 12897), (141, 12969), (143, 12984), (144, 13023), (146, 13056), (152, 13164), (156, 13230), (161, 13326), (176, 13476), (179, 13497), (188, 13638), (191, 13689), (192, 13695), (194, 13719), (195, 13722), (214, 13869), (217, 13899), (229, 14058), (240, 14217), (243, 14262), (252, 14376), (254, 14388), (258, 14535), (259, 14568),

Gene: SpongeBob\_16 Start: 10169, Stop: 13270, Start Num: 8

Candidate Starts for SpongeBob\_16:

(Start: 8 @10169 has 39 MA's), (9, 10178), (11, 10199), (12, 10220), (14, 10253), (21, 10409), (30, 10541), (32, 10553), (45, 10763), (48, 10781), (49, 10793), (51, 10817), (57, 10871), (61, 10904), (62, 10925), (69, 11033), (70, 11036), (71, 11066), (73, 11111), (81, 11261), (83, 11321), (88, 11390), (93, 11426), (94, 11429), (100, 11444), (105, 11477), (110, 11573), (111, 11606), (118, 11651), (120, 11666), (122, 11669), (127, 11708), (130, 11750), (133, 11789), (137, 11834), (143, 11888), (144, 11927), (145, 11930), (155, 12128), (168, 12278), (178, 12401), (187, 12500), (214, 12650), (228, 12716), (230, 12725), (233, 12764), (237, 12836), (244, 12920), (249, 12980), (251, 13001), (255, 13061), (257, 13169), (261, 13235), (262, 13250),

Gene: StevieRay\_17 Start: 10864, Stop: 14634, Start Num: 2

Candidate Starts for StevieRay\_17:

(Start: 2 @10864 has 44 MA's), (Start: 3 @10867 has 2 MA's), (4, 10873), (6, 10960), (7, 10975), (14, 11092), (19, 11221), (22, 11263), (37, 11473), (45, 11626), (64, 11842), (72, 11992), (74, 12046), (77, 12130), (80, 12187), (84, 12325), (85, 12358), (86, 12382), (91, 12436), (93, 12442), (101, 12511), (122, 12754), (124, 12781), (128, 12823), (132, 12865), (135, 12898), (141, 12970), (143, 12985), (144, 13024), (146, 13057), (152, 13165), (156, 13231), (161, 13327), (176, 13477), (179, 13498), (188, 13639), (191, 13690), (192, 13696), (194, 13720), (195, 13723), (214, 13870), (217, 13900), (229, 14059), (240, 14218), (243, 14263), (252, 14377), (254, 14389), (258, 14536), (259, 14569),

Gene: StressBall\_17 Start: 10881, Stop: 14531, Start Num: 2

Candidate Starts for StressBall\_17:

(Start: 2 @10881 has 44 MA's), (4, 10890), (6, 10977), (7, 10992), (14, 11109), (19, 11238), (22, 11280), (37, 11490), (45, 11643), (64, 11859), (72, 12009), (74, 12063), (75, 12096), (77, 12147), (80, 12204), (85, 12375), (86, 12399), (91, 12453), (93, 12459), (122, 12771), (124, 12795), (128, 12837), (132, 12879), (135, 12912), (143, 12999), (144, 13038), (146, 13071), (147, 13122), (152, 13179), (156, 13245), (161, 13332), (164, 13359), (169, 13386), (170, 13389), (172, 13419), (174, 13446), (187, 13593), (190, 13617), (191, 13647), (193, 13671), (219, 13854), (225, 13923), (229, 13956), (240, 14115), (243, 14160), (252, 14274), (254, 14286), (258, 14433), (259, 14466),

Gene: Tapioca\_16 Start: 10123, Stop: 13266, Start Num: 8

Candidate Starts for Tapioca\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12256), (187, 12478), (201, 12616), (206, 12634), (215, 12655), (230, 12718), (233, 12763), (237, 12832), (239, 12853), (241, 12862), (251, 12997), (253, 13015), (255, 13057), (257, 13165),

Gene: Techage\_17 Start: 10867, Stop: 14634, Start Num: 2

Candidate Starts for Techage\_17:

(Start: 2 @10867 has 44 MA's), (Start: 3 @10870 has 2 MA's), (4, 10876), (6, 10963), (7, 10978), (14, 11095), (19, 11224), (22, 11266), (28, 11374), (37, 11476), (38, 11533), (45, 11629), (64, 11845), (72, 11995), (74, 12049), (75, 12082), (77, 12133), (85, 12361), (91, 12439), (93, 12445), (101, 12511), (122, 12754), (124, 12781), (128, 12823), (132, 12865), (135, 12898), (141, 12970), (143, 12985), (144, 13024), (146, 13057), (152, 13165), (156, 13231), (161, 13327), (176, 13477), (179, 13498), (188, 13639), (191, 13690), (192, 13696), (194, 13720), (195, 13723), (214, 13870), (217, 13900), (229, 14059), (240, 14218), (243, 14263), (252, 14377), (254, 14389), (258, 14536), (259, 14569),

Gene: Thespis\_17 Start: 10876, Stop: 14643, Start Num: 2

Candidate Starts for Thespis\_17:

(Start: 2 @10876 has 44 MA's), (Start: 3 @10879 has 2 MA's), (4, 10885), (6, 10972), (7, 10987), (14, 11104), (19, 11233), (22, 11275), (37, 11485), (45, 11638), (64, 11854), (72, 12004), (74, 12058), (77, 12142), (80, 12199), (85, 12370), (86, 12394), (91, 12448), (93, 12454), (122, 12766), (124, 12790), (128, 12832), (132, 12874), (135, 12907), (141, 12979), (143, 12994), (144, 13033), (146, 13066), (152, 13174), (156, 13240), (161, 13336), (176, 13486), (179, 13507), (188, 13648), (191, 13699), (192, 13705), (194, 13729), (195, 13732), (214, 13879), (217, 13909), (229, 14068), (240, 14227), (243, 14272), (252, 14386), (254, 14398), (258, 14545), (259, 14578),

Gene: ThulaThula\_16 Start: 10537, Stop: 14343, Start Num: 2

Candidate Starts for ThulaThula\_16:

(Start: 2 @10537 has 44 MA's), (Start: 3 @10540 has 2 MA's), (7, 10648), (10, 10702), (19, 10894), (22, 10936), (24, 11014), (28, 11044), (37, 11146), (38, 11203), (53, 11365), (55, 11389), (60, 11440), (64, 11515), (72, 11665), (74, 11719), (80, 11860), (83, 11959), (84, 11998), (85, 12031), (89, 12079), (112, 12361), (116, 12394), (122, 12415), (128, 12484), (132, 12526), (134, 12556), (135, 12559), (144, 12685), (146, 12718), (152, 12826), (176, 13141), (188, 13303), (194, 13387), (217, 13567), (227, 13744), (229, 13774), (246, 14035), (248, 14047), (254, 14104),

Gene: Tortellini\_16 Start: 10557, Stop: 14246, Start Num: 2

Candidate Starts for Tortellini\_16:

(Start: 2 @10557 has 44 MA's), (Start: 3 @10560 has 2 MA's), (4, 10566), (7, 10668), (15, 10818), (22, 10956), (24, 11034), (37, 11166), (43, 11310), (45, 11319), (50, 11373), (74, 11739), (75, 11772), (82, 11913), (90, 12126), (95, 12156), (97, 12180), (100, 12204), (103, 12222), (108, 12312), (112, 12414), (121, 12474), (124, 12507), (128, 12549), (131, 12573), (132, 12591), (135, 12624), (143, 12711), (144, 12750), (146, 12783), (152, 12891), (159, 13041), (164, 13077), (169, 13104), (174, 13164), (177, 13206), (178, 13212), (187, 13311), (190, 13335), (191, 13365), (193, 13389), (214, 13506), (219, 13563), (225, 13632), (229, 13668), (232, 13716), (240, 13827), (243, 13872), (246, 13929), (250, 13965), (254, 13998), (259, 14181),

Gene: Venti\_17 Start: 10873, Stop: 14643, Start Num: 2

Candidate Starts for Venti\_17:

(Start: 2 @10873 has 44 MA's), (Start: 3 @10876 has 2 MA's), (4, 10882), (6, 10969), (7, 10984), (14, 11101), (19, 11230), (22, 11272), (37, 11482), (45, 11635), (64, 11851), (72, 12001), (74, 12055), (77, 12139), (80, 12196), (84, 12334), (85, 12367), (86, 12391), (91, 12445), (93, 12451), (101, 12520), (122, 12763), (124, 12790), (128, 12832), (132, 12874), (135, 12907), (141, 12979), (143, 12994), (144, 13033), (146, 13066), (152, 13174), (156, 13240), (161, 13336), (176, 13486), (179, 13507), (188, 13648), (191, 13699), (192, 13705), (194, 13729), (195, 13732), (214, 13879), (217, 13909), (229, 14068), (240, 14227), (243, 14272), (252, 14386), (254, 14398), (258, 14545), (259, 14578),

Gene: Vidya\_17 Start: 10873, Stop: 14643, Start Num: 2

Candidate Starts for Vidya\_17:

(Start: 2 @10873 has 44 MA's), (Start: 3 @10876 has 2 MA's), (4, 10882), (6, 10969), (7, 10984), (14, 11101), (19, 11230), (22, 11272), (37, 11482), (45, 11635), (64, 11851), (72, 12001), (74, 12055), (77, 12139), (80, 12196), (84, 12334), (85, 12367), (86, 12391), (91, 12445), (93, 12451), (101, 12520), (122, 12763), (124, 12790), (128, 12832), (132, 12874), (135, 12907), (141, 12979), (143, 12994), (144, 13033), (146, 13066), (152, 13174), (156, 13240), (161, 13336), (176, 13486), (179, 13507), (188, 13648), (191, 13699), (192, 13705), (194, 13729), (195, 13732), (214, 13879), (217, 13909), (229, 14068), (240, 14227), (243, 14272), (252, 14386), (254, 14398), (258, 14545), (259, 14578),

Gene: Willsammy\_17 Start: 10879, Stop: 14535, Start Num: 2

Candidate Starts for Willsammy\_17:

(Start: 2 @10879 has 44 MA's), (Start: 3 @10882 has 2 MA's), (4, 10888), (6, 10975), (7, 10990), (14, 11107), (19, 11236), (22, 11278), (37, 11488), (45, 11641), (64, 11857), (72, 12007), (74, 12061), (75,

12094), (77, 12145), (80, 12202), (85, 12373), (86, 12397), (91, 12451), (93, 12457), (122, 12778), (124, 12802), (128, 12844), (132, 12886), (135, 12919), (143, 13006), (144, 13045), (146, 13078), (147, 13129), (152, 13186), (156, 13252), (161, 13339), (164, 13366), (169, 13393), (170, 13396), (172, 13426), (174, 13453), (187, 13600), (190, 13624), (191, 13654), (193, 13678), (219, 13861), (225, 13930), (229, 13960), (240, 14119), (243, 14164), (252, 14278), (254, 14290), (258, 14437), (259, 14470),

Gene: Xavia\_17 Start: 10877, Stop: 14647, Start Num: 2

Candidate Starts for Xavia\_17:

(Start: 2 @10877 has 44 MA's), (Start: 3 @10880 has 2 MA's), (4, 10886), (6, 10973), (7, 10988), (14, 11105), (19, 11234), (22, 11276), (37, 11486), (45, 11639), (64, 11855), (72, 12005), (74, 12059), (75, 12092), (77, 12143), (80, 12200), (85, 12371), (86, 12395), (91, 12449), (93, 12455), (122, 12767), (124, 12794), (128, 12836), (132, 12878), (135, 12911), (141, 12983), (143, 12998), (144, 13037), (146, 13070), (152, 13178), (156, 13244), (176, 13490), (179, 13511), (188, 13652), (191, 13703), (192, 13709), (194, 13733), (195, 13736), (214, 13883), (217, 13913), (229, 14072), (237, 14204), (240, 14231), (243, 14276), (252, 14390), (254, 14402), (258, 14549), (259, 14582),

Gene: Xeno\_16 Start: 10123, Stop: 13263, Start Num: 8

Candidate Starts for Xeno\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12253), (187, 12475), (201, 12613), (206, 12631), (215, 12652), (230, 12715), (233, 12760), (237, 12829), (239, 12850), (241, 12859), (251, 12994), (253, 13012), (255, 13054), (257, 13162),

Gene: Xerxes\_16 Start: 10123, Stop: 13263, Start Num: 8

Candidate Starts for Xerxes\_16:

(Start: 8 @10123 has 39 MA's), (9, 10132), (11, 10153), (12, 10174), (14, 10207), (26, 10471), (29, 10486), (30, 10495), (34, 10540), (35, 10549), (44, 10714), (49, 10747), (51, 10771), (56, 10816), (57, 10825), (61, 10858), (62, 10879), (93, 11380), (94, 11383), (107, 11452), (109, 11542), (110, 11551), (111, 11584), (122, 11644), (124, 11662), (127, 11683), (130, 11725), (133, 11764), (136, 11806), (141, 11848), (144, 11902), (145, 11905), (147, 11986), (155, 12103), (168, 12253), (187, 12475), (201, 12613), (206, 12631), (215, 12652), (230, 12715), (233, 12760), (237, 12829), (239, 12850), (241, 12859), (251, 12994), (253, 13012), (255, 13054), (257, 13162),

Gene: Xula\_15 Start: 10408, Stop: 14232, Start Num: 1

Candidate Starts for Xula\_15:

(Start: 1 @10408 has 9 MA's), (5, 10483), (17, 10741), (28, 10963), (29, 10966), (31, 10978), (34, 11020), (36, 11044), (38, 11122), (47, 11236), (50, 11272), (65, 11455), (68, 11521), (72, 11584), (74, 11638), (75, 11671), (79, 11770), (87, 11977), (99, 12109), (104, 12148), (106, 12160), (108, 12241), (113, 12355), (122, 12394), (128, 12448), (129, 12469), (131, 12472), (133, 12511), (138, 12559), (139, 12574), (140, 12580), (143, 12610), (144, 12649), (146, 12682), (150, 12757), (155, 12850), (157, 12874), (173, 13039), (178, 13111), (180, 13138), (187, 13210), (204, 13369), (209, 13408), (210, 13432), (211, 13438), (212, 13444), (215, 13477), (220, 13555), (221, 13558), (222, 13573), (223, 13588), (231, 13705), (236, 13804), (237, 13816), (242, 13873), (245, 13933), (247, 13945), (256, 14068), (260, 14188), (263, 14224),

Gene: Zilizebeth\_17 Start: 10873, Stop: 14643, Start Num: 2

Candidate Starts for Zilizebeth\_17:

(Start: 2 @10873 has 44 MA's), (Start: 3 @10876 has 2 MA's), (4, 10882), (6, 10969), (7, 10984), (14, 11101), (19, 11230), (22, 11272), (37, 11482), (45, 11635), (64, 11851), (72, 12001), (74, 12055), (77,



12139), (80, 12196), (84, 12334), (85, 12367), (86, 12391), (91, 12445), (93, 12451), (101, 12520),  
(122, 12763), (124, 12790), (128, 12832), (132, 12874), (135, 12907), (141, 12979), (143, 12994),  
(144, 13033), (146, 13066), (152, 13174), (156, 13240), (161, 13336), (176, 13486), (179, 13507),  
(188, 13648), (191, 13699), (192, 13705), (194, 13729), (195, 13732), (214, 13879), (217, 13909),  
(229, 14068), (240, 14227), (243, 14272), (252, 14386), (254, 14398), (258, 14545), (259, 14578),