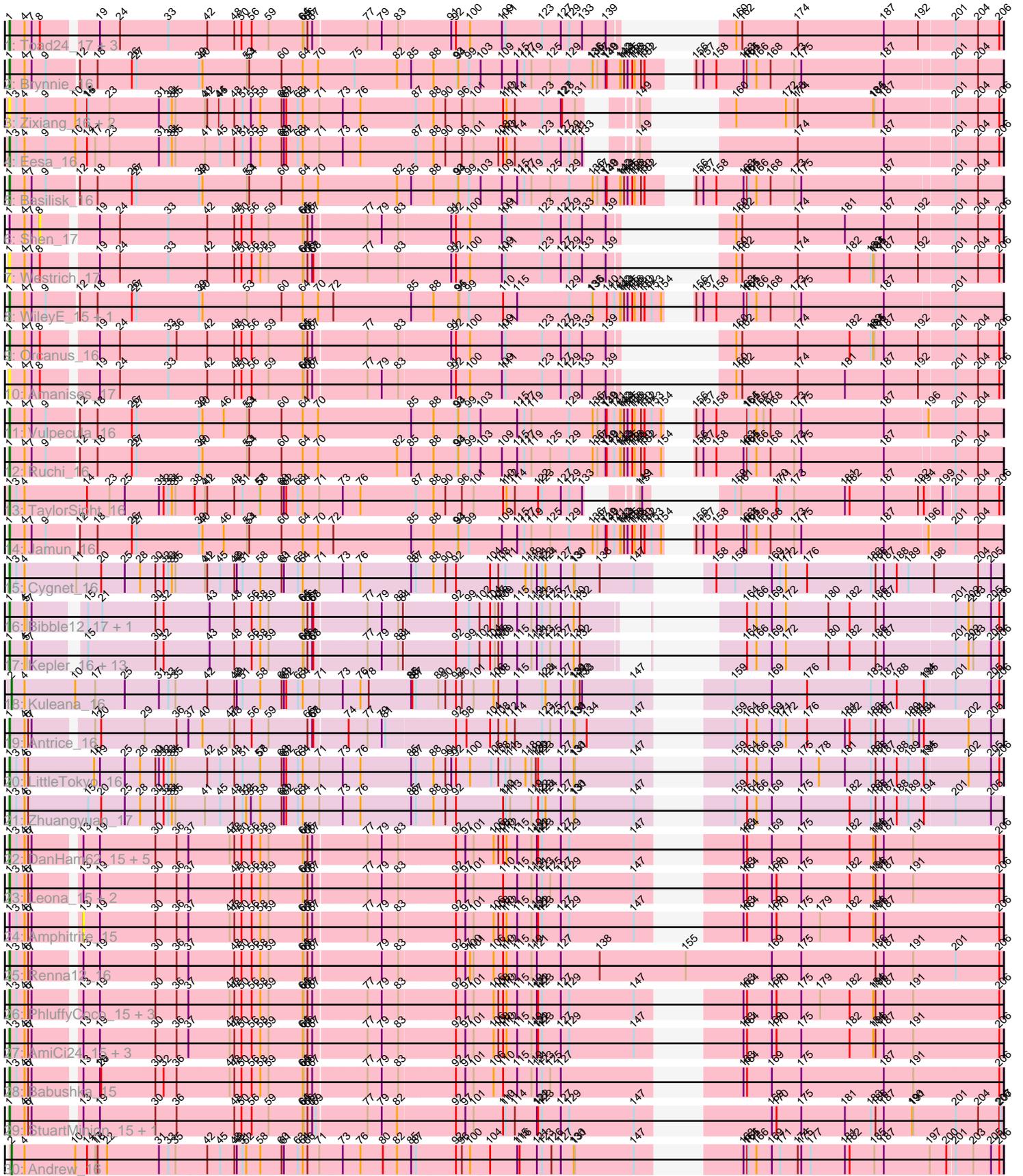


Pham 291163



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 291163 Report

This analysis was run 03/28/26 on database version 641.

Pham number 291163 has 64 members, 22 are drafts.

Phages represented in each track:

- Track 1 : Toad24_17, Pelletreau_17, Gravel_17, KendraB23_17
- Track 2 : Brynnie_16
- Track 3 : Zixiang_16, Niblet_16, Chicken_16
- Track 4 : Eesa_16
- Track 5 : Basilisk_16
- Track 6 : Shen_17
- Track 7 : Westrich_17
- Track 8 : WileyE_15, Chickaboom_15
- Track 9 : Orcanus_16
- Track 10 : Amanises_17
- Track 11 : Vulpecula_16
- Track 12 : Ruchi_16
- Track 13 : TaylorSipht_16
- Track 14 : Jamun_16
- Track 15 : Cygnet_16
- Track 16 : Bible12_17, HannahPhantana_17
- Track 17 : Kepler_16, Amelia_17, Melons_17, Coral_16, Polka_16, Cote_17, OtsoOtso_16, Colusalem_16, Bedetta_17, PhirstandPhine_17, Jerole_17, Lunar_17, Daob_17, Pineda_17
- Track 18 : Kuleana_16
- Track 19 : Antrice_16
- Track 20 : LittleTokyo_16
- Track 21 : Zhuangyuan_17
- Track 22 : DanHam62_15, Fingolfin_15, Juno112_15, Atlantica_15, RedFox_15, AdoptaAdorbs_15
- Track 23 : Leona_15, Rattail_15, Azaz_15
- Track 24 : Amphitrite_15
- Track 25 : Renna12_16
- Track 26 : PhluffyCoco_15, Camara_15, HamCheese_15, Laphuphu24k_15
- Track 27 : AmiCi24_15, KHumphrey_15, Glotell_15, Oppalora_15
- Track 28 : Babushka_15
- Track 29 : StuartMinion_15, AlexMinion_16
- Track 30 : Andrew_16

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 40 of the 42 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AdoptaAdorbs_15, AlexMinion_16, Amanises_17, Amelia_17, AmiCi24_15, Antrice_16, Atlantica_15, Azaz_15, Babushka_15, Basilisk_16, Bedetta_17, Bibble12_17, Brynnie_16, Camara_15, Chickaboom_15, Chicken_16, Colusalem_16, Coral_16, Cote_17, Cygnet_16, DanHam62_15, Daob_17, Eesa_16, Fingolfin_15, Glotell_15, Gravel_17, HamCheese_15, HannahPhantana_17, Jamun_16, Jerole_17, Juno112_15, KHumphrey_15, KendraB23_17, Kepler_16, Laphuphu24k_15, Leona_15, LittleTokyo_16, Lunar_17, Melons_17, Niblet_16, Oppalora_15, Orcanus_16, OtsoOtso_16, Pelletreau_17, PhirstandPhine_17, PhluffyCoco_15, Pineda_17, Polka_16, Rattail_15, RedFox_15, Renna12_16, Ruchi_16, StuartMinion_15, TaylorSipt_16, Toad24_17, Vulpecula_16, Westrich_17, WileyE_15, Zhuangyuan_17, Zixiang_16,

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

- Amphitrite_15, Shen_17,

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

- Andrew_16, Kuleana_16,

Summary by start number:

Start 1:

- Found in 62 of 64 (96.9%) of genes in pham
- Manual Annotations of this start: 40 of 42
- Called 96.8% of time when present
- Phage (with cluster) where this start called: AdoptaAdorbs_15 (AS3), AlexMinion_16 (AS3), Amanises_17 (AS1), Amelia_17 (AS2), AmiCi24_15 (AS3), Antrice_16 (AS2), Atlantica_15 (AS3), Azaz_15 (AS3), Babushka_15 (AS3), Basilisk_16 (AS1), Bedetta_17 (AS2), Bibble12_17 (AS2), Brynnie_16 (AS1), Camara_15 (AS3), Chickaboom_15 (AS1), Chicken_16 (AS1), Colusalem_16 (AS2), Coral_16 (AS2), Cote_17 (AS2), Cygnet_16 (AS2), DanHam62_15 (AS3), Daob_17 (AS2), Eesa_16 (AS1), Fingolfin_15 (AS3), Glotell_15 (AS3), Gravel_17 (AS1), HamCheese_15 (AS3), HannahPhantana_17 (AS2), Jamun_16 (AS1), Jerole_17 (AS2), Juno112_15 (AS3), KHumphrey_15 (AS3), KendraB23_17 (AS1), Kepler_16 (AS2), Laphuphu24k_15 (AS3), Leona_15 (AS3), LittleTokyo_16 (AS2), Lunar_17 (AS2), Melons_17 (AS2), Niblet_16 (AS1), Oppalora_15 (AS3), Orcanus_16 (AS1), OtsoOtso_16 (AS2), Pelletreau_17 (AS1), PhirstandPhine_17 (AS2), PhluffyCoco_15 (AS3), Pineda_17 (AS2), Polka_16 (AS2), Rattail_15 (AS3), RedFox_15 (AS3), Renna12_16 (AS3), Ruchi_16 (AS1), StuartMinion_15 (AS3), TaylorSipt_16 (AS1), Toad24_17 (AS1), Vulpecula_16 (AS1), Westrich_17 (AS1), WileyE_15 (AS1), Zhuangyuan_17 (AS2), Zixiang_16 (AS1),

Start 2:

- Found in 2 of 64 (3.1%) of genes in pham
- Manual Annotations of this start: 2 of 42
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Andrew_16 (AS3), Kuleana_16 (AS2),

Start 8:

- Found in 8 of 64 (12.5%) of genes in pham
- No Manual Annotations of this start.
- Called 12.5% of time when present
- Phage (with cluster) where this start called: Shen_17 (AS1),

Start 13:

- Found in 22 of 64 (34.4%) of genes in pham
- No Manual Annotations of this start.
- Called 4.5% of time when present
- Phage (with cluster) where this start called: Amphitrite_15 (AS3),

Summary by clusters:

There are 3 clusters represented in this pham: AS3, AS2, AS1,

Info for manual annotations of cluster AS1:

- Start number 1 was manually annotated 11 times for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 1 was manually annotated 16 times for cluster AS2.
- Start number 2 was manually annotated 1 time for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 1 was manually annotated 13 times for cluster AS3.
- Start number 2 was manually annotated 1 time for cluster AS3.

Gene Information:

Gene: AdoptaAdorbs_15 Start: 9788, Stop: 12076, Start Num: 1

Candidate Starts for AdoptaAdorbs_15:

(Start: 1 @9788 has 40 MA's), (3, 9800), (4, 9821), (6, 9830), (7, 9839), (13, 9941), (19, 9983), (30, 10121), (36, 10175), (37, 10205), (47, 10307), (48, 10319), (50, 10337), (56, 10361), (58, 10382), (59, 10403), (64, 10484), (65, 10487), (66, 10496), (67, 10508), (77, 10628), (79, 10658), (83, 10700), (92, 10826), (97, 10850), (101, 10871), (106, 10919), (108, 10931), (110, 10943), (112, 10952), (115, 10979), (119, 11015), (121, 11027), (122, 11030), (123, 11039), (127, 11087), (129, 11108), (147, 11273), (163, 11420), (164, 11429), (169, 11492), (175, 11567), (182, 11690), (184, 11750), (186, 11756), (187, 11777), (191, 11852), (206, 12068),

Gene: AlexMinion_16 Start: 9820, Stop: 12108, Start Num: 1

Candidate Starts for AlexMinion_16:

(Start: 1 @9820 has 40 MA's), (4, 9853), (6, 9862), (7, 9871), (13, 9973), (19, 10015), (30, 10153), (36, 10207), (48, 10351), (50, 10369), (56, 10393), (59, 10435), (64, 10516), (65, 10519), (66, 10528), (67, 10540), (69, 10549), (77, 10660), (79, 10690), (82, 10729), (92, 10858), (97, 10882), (101, 10903), (110, 10975), (111, 10981), (114, 11005), (121, 11059), (122, 11062), (123, 11071), (127, 11119), (129, 11140), (147, 11305), (169, 11524), (170, 11536), (175, 11599), (181, 11710), (183, 11776), (186, 11788), (187, 11809), (190, 11881), (191, 11884), (201, 11986), (204, 12043), (206, 12097), (207, 12100),

Gene: Amanises_17 Start: 10381, Stop: 12531, Start Num: 1

Candidate Starts for Amanises_17:

(Start: 1 @10381 has 40 MA's), (4, 10417), (7, 10435), (8, 10456), (19, 10576), (24, 10627), (33, 10747), (42, 10843), (48, 10912), (50, 10930), (56, 10954), (59, 10996), (64, 11077), (65, 11080), (66, 11089), (67, 11101), (77, 11221), (79, 11251), (83, 11293), (91, 11407), (92, 11419), (100, 11455), (109, 11533), (111, 11542), (123, 11632), (127, 11680), (129, 11701), (133, 11734), (139, 11794), (160, 11863), (162, 11878), (174, 12019), (181, 12139), (187, 12238), (192, 12325), (201, 12409), (204, 12466), (206, 12520),

Gene: Amelia_17 Start: 10375, Stop: 12510, Start Num: 1

Candidate Starts for Amelia_17:

(Start: 1 @10375 has 40 MA's), (4, 10408), (5, 10414), (7, 10426), (15, 10531), (30, 10696), (32, 10717), (43, 10831), (48, 10894), (56, 10936), (58, 10957), (59, 10978), (64, 11059), (65, 11062), (66, 11071), (67, 11083), (68, 11086), (77, 11203), (79, 11233), (83, 11275), (84, 11284), (92, 11401), (99, 11434), (102, 11461), (104, 11485), (107, 11497), (108, 11506), (109, 11515), (115, 11554), (119, 11590), (121, 11602), (123, 11614), (125, 11635), (127, 11662), (130, 11695), (132, 11710), (164, 11872), (166, 11896), (169, 11935), (172, 11971), (180, 12079), (182, 12133), (186, 12199), (187, 12220), (201, 12391), (202, 12424), (203, 12436), (205, 12481), (206, 12502),

Gene: AmiCi24_15 Start: 9786, Stop: 12074, Start Num: 1

Candidate Starts for AmiCi24_15:

(Start: 1 @9786 has 40 MA's), (3, 9798), (4, 9819), (6, 9828), (7, 9837), (13, 9939), (19, 9981), (30, 10119), (36, 10173), (37, 10203), (47, 10305), (48, 10317), (50, 10335), (56, 10359), (58, 10380), (59, 10401), (64, 10482), (65, 10485), (66, 10494), (67, 10506), (77, 10626), (79, 10656), (83, 10698), (92, 10824), (97, 10848), (101, 10869), (106, 10917), (108, 10929), (110, 10941), (112, 10950), (115, 10977), (119, 11013), (121, 11025), (122, 11028), (123, 11037), (127, 11085), (129, 11106), (147, 11271), (163, 11418), (164, 11427), (169, 11490), (170, 11502), (175, 11565), (182, 11688), (184, 11748), (186, 11754), (187, 11775), (191, 11850), (206, 12066),

Gene: Amphitrite_15 Start: 9939, Stop: 12074, Start Num: 13

Candidate Starts for Amphitrite_15:

(Start: 1 @9786 has 40 MA's), (3, 9798), (4, 9819), (6, 9828), (7, 9837), (13, 9939), (19, 9981), (30, 10119), (36, 10173), (37, 10203), (47, 10305), (48, 10317), (50, 10335), (56, 10359), (58, 10380), (59, 10401), (64, 10482), (65, 10485), (66, 10494), (67, 10506), (77, 10626), (79, 10656), (83, 10698), (92, 10824), (97, 10848), (101, 10869), (106, 10917), (108, 10929), (110, 10941), (112, 10950), (115, 10977), (119, 11013), (121, 11025), (122, 11028), (123, 11037), (127, 11085), (129, 11106), (147, 11271), (163, 11418), (164, 11427), (169, 11490), (170, 11502), (175, 11565), (179, 11613), (182, 11688), (184, 11748), (186, 11754), (187, 11775), (206, 12066),

Gene: Andrew_16 Start: 10166, Stop: 12529, Start Num: 2

Candidate Starts for Andrew_16:

(Start: 2 @10166 has 2 MA's), (4, 10199), (10, 10328), (14, 10358), (17, 10379), (18, 10385), (22, 10409), (31, 10541), (33, 10565), (35, 10583), (42, 10661), (45, 10694), (48, 10730), (49, 10736), (51, 10751), (52, 10760), (58, 10796), (60, 10850), (61, 10856), (63, 10892), (64, 10901), (66, 10913), (71, 10943), (73, 10997), (76, 11042), (80, 11099), (82, 11135), (85, 11168), (87, 11180), (92, 11279), (96, 11294), (100, 11315), (104, 11363), (115, 11432), (116, 11438), (121, 11480), (123, 11492), (126, 11516), (127, 11540), (130, 11573), (131, 11576), (147, 11726), (163, 11873), (164, 11882), (165, 11885), (166, 11906), (169, 11945), (171, 11966), (174, 12011), (175, 12020), (177, 12044), (181, 12131), (182, 12143), (185, 12206), (187, 12230), (197, 12347), (200, 12389), (201, 12407), (203, 12452), (205, 12497), (206, 12518),

Gene: Antrice_16 Start: 10127, Stop: 12421, Start Num: 1

Candidate Starts for Antrice_16:

(Start: 1 @10127 has 40 MA's), (4, 10163), (6, 10172), (7, 10181), (17, 10316), (20, 10331), (29, 10442), (36, 10520), (37, 10550), (40, 10583), (47, 10652), (48, 10664), (56, 10706), (59, 10748), (66,

10841), (67, 10853), (68, 10856), (74, 10928), (77, 10973), (79, 11003), (81, 11012), (92, 11171), (98, 11198), (104, 11255), (108, 11276), (112, 11297), (114, 11318), (123, 11384), (125, 11405), (127, 11432), (130, 11465), (131, 11468), (134, 11498), (147, 11618), (159, 11744), (164, 11774), (166, 11798), (169, 11837), (171, 11858), (172, 11873), (176, 11927), (181, 12023), (182, 12035), (183, 12089), (186, 12101), (187, 12122), (189, 12185), (191, 12197), (193, 12212), (194, 12224), (202, 12332), (205, 12389),

Gene: Atlantica_15 Start: 9788, Stop: 12076, Start Num: 1

Candidate Starts for Atlantica_15:

(Start: 1 @9788 has 40 MA's), (3, 9800), (4, 9821), (6, 9830), (7, 9839), (13, 9941), (19, 9983), (30, 10121), (36, 10175), (37, 10205), (47, 10307), (48, 10319), (50, 10337), (56, 10361), (58, 10382), (59, 10403), (64, 10484), (65, 10487), (66, 10496), (67, 10508), (77, 10628), (79, 10658), (83, 10700), (92, 10826), (97, 10850), (101, 10871), (106, 10919), (108, 10931), (110, 10943), (112, 10952), (115, 10979), (119, 11015), (121, 11027), (122, 11030), (123, 11039), (127, 11087), (129, 11108), (147, 11273), (163, 11420), (164, 11429), (169, 11492), (175, 11567), (182, 11690), (184, 11750), (186, 11756), (187, 11777), (191, 11852), (206, 12068),

Gene: Azaz_15 Start: 9839, Stop: 12127, Start Num: 1

Candidate Starts for Azaz_15:

(Start: 1 @9839 has 40 MA's), (3, 9851), (4, 9872), (6, 9881), (7, 9890), (13, 9992), (19, 10034), (30, 10172), (36, 10226), (37, 10256), (48, 10370), (50, 10388), (56, 10412), (58, 10433), (59, 10454), (64, 10535), (65, 10538), (66, 10547), (67, 10559), (77, 10679), (79, 10709), (83, 10751), (92, 10877), (97, 10901), (101, 10922), (110, 10994), (115, 11030), (119, 11066), (121, 11078), (123, 11090), (125, 11111), (127, 11138), (129, 11159), (147, 11324), (163, 11471), (164, 11480), (169, 11543), (170, 11555), (175, 11618), (182, 11741), (184, 11801), (186, 11807), (187, 11828), (191, 11903), (206, 12119),

Gene: Babushka_15 Start: 9836, Stop: 12124, Start Num: 1

Candidate Starts for Babushka_15:

(Start: 1 @9836 has 40 MA's), (3, 9848), (4, 9869), (6, 9878), (7, 9887), (13, 9989), (19, 10031), (20, 10034), (30, 10169), (32, 10190), (36, 10223), (47, 10355), (48, 10367), (50, 10385), (56, 10409), (58, 10430), (59, 10451), (64, 10532), (65, 10535), (66, 10544), (67, 10556), (77, 10676), (79, 10706), (83, 10748), (92, 10874), (97, 10898), (101, 10919), (106, 10967), (110, 10991), (115, 11027), (119, 11063), (121, 11075), (123, 11087), (125, 11108), (127, 11135), (163, 11468), (164, 11477), (169, 11540), (175, 11615), (187, 11825), (191, 11900), (206, 12116),

Gene: Basilisk_16 Start: 10798, Stop: 13203, Start Num: 1

Candidate Starts for Basilisk_16:

(Start: 1 @10798 has 40 MA's), (4, 10834), (7, 10852), (9, 10888), (12, 10963), (18, 11008), (26, 11095), (27, 11107), (39, 11266), (40, 11275), (53, 11383), (54, 11389), (60, 11470), (64, 11524), (70, 11563), (82, 11764), (85, 11800), (88, 11854), (93, 11914), (94, 11917), (99, 11944), (103, 11974), (109, 12028), (115, 12067), (117, 12085), (119, 12103), (125, 12151), (129, 12196), (136, 12256), (137, 12268), (139, 12289), (140, 12292), (142, 12325), (143, 12328), (144, 12334), (145, 12343), (146, 12355), (148, 12361), (150, 12376), (152, 12385), (156, 12439), (157, 12457), (158, 12490), (163, 12559), (164, 12568), (165, 12571), (166, 12592), (168, 12628), (173, 12688), (175, 12706), (187, 12916), (201, 13081), (204, 13138),

Gene: Bedetta_17 Start: 10375, Stop: 12510, Start Num: 1

Candidate Starts for Bedetta_17:

(Start: 1 @10375 has 40 MA's), (4, 10408), (5, 10414), (7, 10426), (15, 10531), (30, 10696), (32, 10717), (43, 10831), (48, 10894), (56, 10936), (58, 10957), (59, 10978), (64, 11059), (65, 11062), (66, 11071), (67, 11083), (68, 11086), (77, 11203), (79, 11233), (83, 11275), (84, 11284), (92, 11401), (99, 11434), (102, 11461), (104, 11485), (107, 11497), (108, 11506), (109, 11515), (115, 11554), (119,

11590), (121, 11602), (123, 11614), (125, 11635), (127, 11662), (130, 11695), (132, 11710), (164, 11872), (166, 11896), (169, 11935), (172, 11971), (180, 12079), (182, 12133), (186, 12199), (187, 12220), (201, 12391), (202, 12424), (203, 12436), (205, 12481), (206, 12502),

Gene: Bible12_17 Start: 10378, Stop: 12513, Start Num: 1

Candidate Starts for Bible12_17:

(Start: 1 @10378 has 40 MA's), (4, 10411), (5, 10417), (7, 10429), (15, 10534), (21, 10567), (30, 10699), (32, 10720), (43, 10834), (48, 10897), (56, 10939), (58, 10960), (59, 10981), (64, 11062), (65, 11065), (66, 11074), (67, 11086), (68, 11089), (77, 11206), (79, 11236), (83, 11278), (84, 11287), (92, 11404), (99, 11437), (102, 11464), (104, 11488), (107, 11500), (108, 11509), (109, 11518), (115, 11557), (119, 11593), (121, 11605), (123, 11617), (125, 11638), (127, 11665), (130, 11698), (132, 11713), (164, 11875), (166, 11899), (169, 11938), (172, 11974), (180, 12082), (182, 12136), (186, 12202), (187, 12223), (201, 12394), (202, 12427), (203, 12439), (205, 12484), (206, 12505),

Gene: Brynnie_16 Start: 10610, Stop: 13015, Start Num: 1

Candidate Starts for Brynnie_16:

(Start: 1 @10610 has 40 MA's), (4, 10646), (7, 10664), (9, 10700), (12, 10775), (18, 10820), (26, 10907), (27, 10919), (39, 11078), (40, 11087), (53, 11195), (54, 11201), (60, 11282), (64, 11336), (70, 11375), (75, 11468), (82, 11576), (85, 11612), (88, 11666), (93, 11726), (94, 11729), (99, 11756), (103, 11786), (109, 11840), (115, 11879), (117, 11897), (119, 11915), (125, 11963), (129, 12008), (135, 12065), (136, 12068), (137, 12080), (139, 12101), (140, 12104), (142, 12137), (143, 12140), (144, 12146), (145, 12155), (146, 12167), (148, 12173), (150, 12188), (152, 12197), (156, 12251), (157, 12269), (158, 12302), (163, 12371), (164, 12380), (165, 12383), (166, 12404), (168, 12440), (173, 12500), (175, 12518), (187, 12728), (201, 12893), (204, 12950),

Gene: Camara_15 Start: 9789, Stop: 12077, Start Num: 1

Candidate Starts for Camara_15:

(Start: 1 @9789 has 40 MA's), (3, 9801), (4, 9822), (6, 9831), (7, 9840), (13, 9942), (19, 9984), (30, 10122), (36, 10176), (37, 10206), (47, 10308), (48, 10320), (50, 10338), (56, 10362), (58, 10383), (59, 10404), (64, 10485), (65, 10488), (66, 10497), (67, 10509), (77, 10629), (79, 10659), (83, 10701), (92, 10827), (97, 10851), (101, 10872), (106, 10920), (108, 10932), (110, 10944), (112, 10953), (115, 10980), (119, 11016), (121, 11028), (122, 11031), (123, 11040), (127, 11088), (129, 11109), (147, 11274), (163, 11421), (164, 11430), (169, 11493), (170, 11505), (175, 11568), (179, 11616), (182, 11691), (184, 11751), (186, 11757), (187, 11778), (191, 11853), (206, 12069),

Gene: Chickaboom_15 Start: 10149, Stop: 12554, Start Num: 1

Candidate Starts for Chickaboom_15:

(Start: 1 @10149 has 40 MA's), (4, 10185), (7, 10203), (9, 10239), (12, 10314), (18, 10359), (26, 10446), (27, 10458), (39, 10617), (40, 10626), (53, 10734), (60, 10821), (64, 10875), (70, 10914), (72, 10953), (85, 11151), (88, 11205), (94, 11268), (95, 11271), (99, 11295), (110, 11382), (115, 11418), (129, 11547), (135, 11604), (136, 11607), (140, 11643), (141, 11661), (142, 11676), (143, 11679), (144, 11685), (145, 11694), (146, 11706), (148, 11712), (150, 11727), (152, 11736), (153, 11754), (154, 11778), (156, 11790), (157, 11808), (158, 11841), (163, 11910), (164, 11919), (165, 11922), (166, 11943), (168, 11979), (173, 12039), (175, 12057), (187, 12267), (201, 12432),

Gene: Chicken_16 Start: 10182, Stop: 12410, Start Num: 1

Candidate Starts for Chicken_16:

(Start: 1 @10182 has 40 MA's), (3, 10197), (4, 10218), (9, 10272), (10, 10347), (14, 10377), (15, 10380), (23, 10434), (31, 10560), (33, 10584), (34, 10593), (35, 10602), (41, 10674), (42, 10680), (44, 10710), (45, 10713), (48, 10749), (51, 10770), (55, 10791), (58, 10815), (60, 10869), (61, 10875), (62, 10881), (63, 10911), (64, 10920), (71, 10962), (73, 11016), (76, 11061), (87, 11199), (88, 11241), (90, 11271), (96, 11313), (101, 11343), (110, 11415), (112, 11424), (114, 11445), (123, 11511), (127, 11559), (128, 11562), (131, 11595), (149, 11673), (160, 11742), (172, 11868), (173, 11889), (174,

11898), (184, 12090), (185, 12093), (187, 12117), (201, 12288), (204, 12345), (206, 12399),

Gene: Colusalem_16 Start: 10214, Stop: 12349, Start Num: 1

Candidate Starts for Colusalem_16:

(Start: 1 @10214 has 40 MA's), (4, 10247), (5, 10253), (7, 10265), (15, 10370), (30, 10535), (32, 10556), (43, 10670), (48, 10733), (56, 10775), (58, 10796), (59, 10817), (64, 10898), (65, 10901), (66, 10910), (67, 10922), (68, 10925), (77, 11042), (79, 11072), (83, 11114), (84, 11123), (92, 11240), (99, 11273), (102, 11300), (104, 11324), (107, 11336), (108, 11345), (109, 11354), (115, 11393), (119, 11429), (121, 11441), (123, 11453), (125, 11474), (127, 11501), (130, 11534), (132, 11549), (164, 11711), (166, 11735), (169, 11774), (172, 11810), (180, 11918), (182, 11972), (186, 12038), (187, 12059), (201, 12230), (202, 12263), (203, 12275), (205, 12320), (206, 12341),

Gene: Coral_16 Start: 10214, Stop: 12349, Start Num: 1

Candidate Starts for Coral_16:

(Start: 1 @10214 has 40 MA's), (4, 10247), (5, 10253), (7, 10265), (15, 10370), (30, 10535), (32, 10556), (43, 10670), (48, 10733), (56, 10775), (58, 10796), (59, 10817), (64, 10898), (65, 10901), (66, 10910), (67, 10922), (68, 10925), (77, 11042), (79, 11072), (83, 11114), (84, 11123), (92, 11240), (99, 11273), (102, 11300), (104, 11324), (107, 11336), (108, 11345), (109, 11354), (115, 11393), (119, 11429), (121, 11441), (123, 11453), (125, 11474), (127, 11501), (130, 11534), (132, 11549), (164, 11711), (166, 11735), (169, 11774), (172, 11810), (180, 11918), (182, 11972), (186, 12038), (187, 12059), (201, 12230), (202, 12263), (203, 12275), (205, 12320), (206, 12341),

Gene: Cote_17 Start: 10375, Stop: 12510, Start Num: 1

Candidate Starts for Cote_17:

(Start: 1 @10375 has 40 MA's), (4, 10408), (5, 10414), (7, 10426), (15, 10531), (30, 10696), (32, 10717), (43, 10831), (48, 10894), (56, 10936), (58, 10957), (59, 10978), (64, 11059), (65, 11062), (66, 11071), (67, 11083), (68, 11086), (77, 11203), (79, 11233), (83, 11275), (84, 11284), (92, 11401), (99, 11434), (102, 11461), (104, 11485), (107, 11497), (108, 11506), (109, 11515), (115, 11554), (119, 11590), (121, 11602), (123, 11614), (125, 11635), (127, 11662), (130, 11695), (132, 11710), (164, 11872), (166, 11896), (169, 11935), (172, 11971), (180, 12079), (182, 12133), (186, 12199), (187, 12220), (201, 12391), (202, 12424), (203, 12436), (205, 12481), (206, 12502),

Gene: Cygnet_16 Start: 10164, Stop: 12530, Start Num: 1

Candidate Starts for Cygnet_16:

(Start: 1 @10164 has 40 MA's), (3, 10179), (4, 10200), (11, 10332), (20, 10395), (25, 10455), (28, 10494), (30, 10533), (32, 10554), (33, 10566), (34, 10575), (35, 10584), (41, 10656), (42, 10662), (45, 10695), (48, 10731), (49, 10737), (51, 10752), (58, 10797), (60, 10851), (61, 10857), (63, 10893), (64, 10902), (71, 10944), (73, 10998), (76, 11043), (85, 11169), (87, 11181), (88, 11223), (90, 11253), (92, 11280), (104, 11364), (108, 11385), (111, 11403), (118, 11454), (119, 11469), (121, 11481), (123, 11493), (124, 11502), (127, 11541), (130, 11574), (131, 11577), (138, 11640), (147, 11727), (158, 11805), (159, 11853), (169, 11946), (171, 11967), (172, 11982), (176, 12036), (183, 12198), (186, 12210), (187, 12231), (188, 12264), (189, 12294), (198, 12354), (204, 12465), (205, 12498),

Gene: DanHam62_15 Start: 9788, Stop: 12076, Start Num: 1

Candidate Starts for DanHam62_15:

(Start: 1 @9788 has 40 MA's), (3, 9800), (4, 9821), (6, 9830), (7, 9839), (13, 9941), (19, 9983), (30, 10121), (36, 10175), (37, 10205), (47, 10307), (48, 10319), (50, 10337), (56, 10361), (58, 10382), (59, 10403), (64, 10484), (65, 10487), (66, 10496), (67, 10508), (77, 10628), (79, 10658), (83, 10700), (92, 10826), (97, 10850), (101, 10871), (106, 10919), (108, 10931), (110, 10943), (112, 10952), (115, 10979), (119, 11015), (121, 11027), (122, 11030), (123, 11039), (127, 11087), (129, 11108), (147, 11273), (163, 11420), (164, 11429), (169, 11492), (175, 11567), (182, 11690), (184, 11750), (186, 11756), (187, 11777), (191, 11852), (206, 12068),

Gene: Daob_17 Start: 10378, Stop: 12513, Start Num: 1

Candidate Starts for Daob_17:

(Start: 1 @10378 has 40 MA's), (4, 10411), (5, 10417), (7, 10429), (15, 10534), (30, 10699), (32, 10720), (43, 10834), (48, 10897), (56, 10939), (58, 10960), (59, 10981), (64, 11062), (65, 11065), (66, 11074), (67, 11086), (68, 11089), (77, 11206), (79, 11236), (83, 11278), (84, 11287), (92, 11404), (99, 11437), (102, 11464), (104, 11488), (107, 11500), (108, 11509), (109, 11518), (115, 11557), (119, 11593), (121, 11605), (123, 11617), (125, 11638), (127, 11665), (130, 11698), (132, 11713), (164, 11875), (166, 11899), (169, 11938), (172, 11974), (180, 12082), (182, 12136), (186, 12202), (187, 12223), (201, 12394), (202, 12427), (203, 12439), (205, 12484), (206, 12505),

Gene: Eesa_16 Start: 10396, Stop: 12624, Start Num: 1

Candidate Starts for Eesa_16:

(Start: 1 @10396 has 40 MA's), (3, 10411), (4, 10432), (9, 10486), (10, 10561), (14, 10591), (17, 10612), (23, 10648), (31, 10774), (33, 10798), (34, 10807), (35, 10816), (41, 10888), (45, 10927), (48, 10963), (51, 10984), (55, 11005), (58, 11029), (60, 11083), (61, 11089), (62, 11095), (63, 11125), (64, 11134), (71, 11176), (73, 11230), (76, 11275), (87, 11413), (88, 11455), (90, 11485), (96, 11527), (101, 11557), (108, 11617), (110, 11629), (112, 11638), (114, 11659), (123, 11725), (127, 11773), (129, 11794), (131, 11809), (133, 11827), (149, 11887), (174, 12112), (187, 12331), (201, 12502), (204, 12559), (206, 12613),

Gene: Fingolfin_15 Start: 9789, Stop: 12077, Start Num: 1

Candidate Starts for Fingolfin_15:

(Start: 1 @9789 has 40 MA's), (3, 9801), (4, 9822), (6, 9831), (7, 9840), (13, 9942), (19, 9984), (30, 10122), (36, 10176), (37, 10206), (47, 10308), (48, 10320), (50, 10338), (56, 10362), (58, 10383), (59, 10404), (64, 10485), (65, 10488), (66, 10497), (67, 10509), (77, 10629), (79, 10659), (83, 10701), (92, 10827), (97, 10851), (101, 10872), (106, 10920), (108, 10932), (110, 10944), (112, 10953), (115, 10980), (119, 11016), (121, 11028), (122, 11031), (123, 11040), (127, 11088), (129, 11109), (147, 11274), (163, 11421), (164, 11430), (169, 11493), (175, 11568), (182, 11691), (184, 11751), (186, 11757), (187, 11778), (191, 11853), (206, 12069),

Gene: Glotell_15 Start: 9786, Stop: 12074, Start Num: 1

Candidate Starts for Glotell_15:

(Start: 1 @9786 has 40 MA's), (3, 9798), (4, 9819), (6, 9828), (7, 9837), (13, 9939), (19, 9981), (30, 10119), (36, 10173), (37, 10203), (47, 10305), (48, 10317), (50, 10335), (56, 10359), (58, 10380), (59, 10401), (64, 10482), (65, 10485), (66, 10494), (67, 10506), (77, 10626), (79, 10656), (83, 10698), (92, 10824), (97, 10848), (101, 10869), (106, 10917), (108, 10929), (110, 10941), (112, 10950), (115, 10977), (119, 11013), (121, 11025), (122, 11028), (123, 11037), (127, 11085), (129, 11106), (147, 11271), (163, 11418), (164, 11427), (169, 11490), (170, 11502), (175, 11565), (182, 11688), (184, 11748), (186, 11754), (187, 11775), (191, 11850), (206, 12066),

Gene: Gravel_17 Start: 10380, Stop: 12530, Start Num: 1

Candidate Starts for Gravel_17:

(Start: 1 @10380 has 40 MA's), (4, 10416), (7, 10434), (8, 10455), (19, 10575), (24, 10626), (33, 10746), (42, 10842), (48, 10911), (50, 10929), (56, 10953), (59, 10995), (64, 11076), (65, 11079), (66, 11088), (67, 11100), (77, 11220), (79, 11250), (83, 11292), (91, 11406), (92, 11418), (100, 11454), (109, 11532), (111, 11541), (123, 11631), (127, 11679), (129, 11700), (133, 11733), (139, 11793), (160, 11862), (162, 11877), (174, 12018), (187, 12237), (192, 12324), (201, 12408), (204, 12465), (206, 12519),

Gene: HamCheese_15 Start: 9788, Stop: 12076, Start Num: 1

Candidate Starts for HamCheese_15:

(Start: 1 @9788 has 40 MA's), (3, 9800), (4, 9821), (6, 9830), (7, 9839), (13, 9941), (19, 9983), (30, 10121), (36, 10175), (37, 10205), (47, 10307), (48, 10319), (50, 10337), (56, 10361), (58, 10382), (59,

10403), (64, 10484), (65, 10487), (66, 10496), (67, 10508), (77, 10628), (79, 10658), (83, 10700), (92, 10826), (97, 10850), (101, 10871), (106, 10919), (108, 10931), (110, 10943), (112, 10952), (115, 10979), (119, 11015), (121, 11027), (122, 11030), (123, 11039), (127, 11087), (129, 11108), (147, 11273), (163, 11420), (164, 11429), (169, 11492), (170, 11504), (175, 11567), (179, 11615), (182, 11690), (184, 11750), (186, 11756), (187, 11777), (191, 11852), (206, 12068),

Gene: HannahPhantana_17 Start: 10378, Stop: 12513, Start Num: 1

Candidate Starts for HannahPhantana_17:

(Start: 1 @10378 has 40 MA's), (4, 10411), (5, 10417), (7, 10429), (15, 10534), (21, 10567), (30, 10699), (32, 10720), (43, 10834), (48, 10897), (56, 10939), (58, 10960), (59, 10981), (64, 11062), (65, 11065), (66, 11074), (67, 11086), (68, 11089), (77, 11206), (79, 11236), (83, 11278), (84, 11287), (92, 11404), (99, 11437), (102, 11464), (104, 11488), (107, 11500), (108, 11509), (109, 11518), (115, 11557), (119, 11593), (121, 11605), (123, 11617), (125, 11638), (127, 11665), (130, 11698), (132, 11713), (164, 11875), (166, 11899), (169, 11938), (172, 11974), (180, 12082), (182, 12136), (186, 12202), (187, 12223), (201, 12394), (202, 12427), (203, 12439), (205, 12484), (206, 12505),

Gene: Jamun_16 Start: 10816, Stop: 13221, Start Num: 1

Candidate Starts for Jamun_16:

(Start: 1 @10816 has 40 MA's), (4, 10852), (7, 10870), (9, 10906), (12, 10981), (18, 11026), (26, 11113), (27, 11125), (39, 11284), (40, 11293), (46, 11344), (53, 11401), (54, 11407), (60, 11488), (64, 11542), (70, 11581), (72, 11620), (85, 11818), (88, 11872), (93, 11932), (94, 11935), (99, 11962), (109, 12046), (115, 12085), (117, 12103), (119, 12121), (125, 12169), (129, 12214), (136, 12274), (137, 12286), (139, 12307), (140, 12310), (141, 12328), (142, 12343), (143, 12346), (144, 12352), (145, 12361), (146, 12373), (148, 12379), (150, 12394), (152, 12403), (153, 12421), (154, 12445), (156, 12457), (157, 12475), (158, 12508), (163, 12577), (164, 12586), (165, 12589), (166, 12610), (168, 12646), (173, 12706), (175, 12724), (187, 12934), (196, 13042), (201, 13099), (204, 13156),

Gene: Jerole_17 Start: 10375, Stop: 12510, Start Num: 1

Candidate Starts for Jerole_17:

(Start: 1 @10375 has 40 MA's), (4, 10408), (5, 10414), (7, 10426), (15, 10531), (30, 10696), (32, 10717), (43, 10831), (48, 10894), (56, 10936), (58, 10957), (59, 10978), (64, 11059), (65, 11062), (66, 11071), (67, 11083), (68, 11086), (77, 11203), (79, 11233), (83, 11275), (84, 11284), (92, 11401), (99, 11434), (102, 11461), (104, 11485), (107, 11497), (108, 11506), (109, 11515), (115, 11554), (119, 11590), (121, 11602), (123, 11614), (125, 11635), (127, 11662), (130, 11695), (132, 11710), (164, 11872), (166, 11896), (169, 11935), (172, 11971), (180, 12079), (182, 12133), (186, 12199), (187, 12220), (201, 12391), (202, 12424), (203, 12436), (205, 12481), (206, 12502),

Gene: Juno112_15 Start: 9789, Stop: 12077, Start Num: 1

Candidate Starts for Juno112_15:

(Start: 1 @9789 has 40 MA's), (3, 9801), (4, 9822), (6, 9831), (7, 9840), (13, 9942), (19, 9984), (30, 10122), (36, 10176), (37, 10206), (47, 10308), (48, 10320), (50, 10338), (56, 10362), (58, 10383), (59, 10404), (64, 10485), (65, 10488), (66, 10497), (67, 10509), (77, 10629), (79, 10659), (83, 10701), (92, 10827), (97, 10851), (101, 10872), (106, 10920), (108, 10932), (110, 10944), (112, 10953), (115, 10980), (119, 11016), (121, 11028), (122, 11031), (123, 11040), (127, 11088), (129, 11109), (147, 11274), (163, 11421), (164, 11430), (169, 11493), (175, 11568), (182, 11691), (184, 11751), (186, 11757), (187, 11778), (191, 11853), (206, 12069),

Gene: KHumphrey_15 Start: 9786, Stop: 12074, Start Num: 1

Candidate Starts for KHumphrey_15:

(Start: 1 @9786 has 40 MA's), (3, 9798), (4, 9819), (6, 9828), (7, 9837), (13, 9939), (19, 9981), (30, 10119), (36, 10173), (37, 10203), (47, 10305), (48, 10317), (50, 10335), (56, 10359), (58, 10380), (59, 10401), (64, 10482), (65, 10485), (66, 10494), (67, 10506), (77, 10626), (79, 10656), (83, 10698), (92, 10824), (97, 10848), (101, 10869), (106, 10917), (108, 10929), (110, 10941), (112, 10950), (115,

10977), (119, 11013), (121, 11025), (122, 11028), (123, 11037), (127, 11085), (129, 11106), (147, 11271), (163, 11418), (164, 11427), (169, 11490), (170, 11502), (175, 11565), (182, 11688), (184, 11748), (186, 11754), (187, 11775), (191, 11850), (206, 12066),

Gene: KendraB23_17 Start: 10381, Stop: 12531, Start Num: 1

Candidate Starts for KendraB23_17:

(Start: 1 @10381 has 40 MA's), (4, 10417), (7, 10435), (8, 10456), (19, 10576), (24, 10627), (33, 10747), (42, 10843), (48, 10912), (50, 10930), (56, 10954), (59, 10996), (64, 11077), (65, 11080), (66, 11089), (67, 11101), (77, 11221), (79, 11251), (83, 11293), (91, 11407), (92, 11419), (100, 11455), (109, 11533), (111, 11542), (123, 11632), (127, 11680), (129, 11701), (133, 11734), (139, 11794), (160, 11863), (162, 11878), (174, 12019), (187, 12238), (192, 12325), (201, 12409), (204, 12466), (206, 12520),

Gene: Kepler_16 Start: 10213, Stop: 12348, Start Num: 1

Candidate Starts for Kepler_16:

(Start: 1 @10213 has 40 MA's), (4, 10246), (5, 10252), (7, 10264), (15, 10369), (30, 10534), (32, 10555), (43, 10669), (48, 10732), (56, 10774), (58, 10795), (59, 10816), (64, 10897), (65, 10900), (66, 10909), (67, 10921), (68, 10924), (77, 11041), (79, 11071), (83, 11113), (84, 11122), (92, 11239), (99, 11272), (102, 11299), (104, 11323), (107, 11335), (108, 11344), (109, 11353), (115, 11392), (119, 11428), (121, 11440), (123, 11452), (125, 11473), (127, 11500), (130, 11533), (132, 11548), (164, 11710), (166, 11734), (169, 11773), (172, 11809), (180, 11917), (182, 11971), (186, 12037), (187, 12058), (201, 12229), (202, 12262), (203, 12274), (205, 12319), (206, 12340),

Gene: Kuleana_16 Start: 10172, Stop: 12535, Start Num: 2

Candidate Starts for Kuleana_16:

(Start: 2 @10172 has 2 MA's), (4, 10205), (10, 10334), (17, 10385), (25, 10460), (31, 10547), (33, 10571), (35, 10589), (42, 10667), (48, 10736), (49, 10742), (51, 10757), (58, 10802), (60, 10856), (61, 10862), (62, 10868), (63, 10898), (64, 10907), (71, 10949), (73, 11003), (76, 11048), (78, 11069), (85, 11174), (86, 11177), (87, 11186), (89, 11240), (90, 11258), (92, 11285), (96, 11300), (101, 11330), (106, 11378), (108, 11390), (115, 11438), (123, 11498), (124, 11507), (127, 11546), (130, 11579), (131, 11582), (132, 11594), (133, 11600), (147, 11732), (159, 11858), (169, 11951), (176, 12041), (183, 12203), (187, 12236), (188, 12269), (194, 12338), (195, 12344), (201, 12413), (205, 12503), (206, 12524),

Gene: Laphuphu24k_15 Start: 9788, Stop: 12076, Start Num: 1

Candidate Starts for Laphuphu24k_15:

(Start: 1 @9788 has 40 MA's), (3, 9800), (4, 9821), (6, 9830), (7, 9839), (13, 9941), (19, 9983), (30, 10121), (36, 10175), (37, 10205), (47, 10307), (48, 10319), (50, 10337), (56, 10361), (58, 10382), (59, 10403), (64, 10484), (65, 10487), (66, 10496), (67, 10508), (77, 10628), (79, 10658), (83, 10700), (92, 10826), (97, 10850), (101, 10871), (106, 10919), (108, 10931), (110, 10943), (112, 10952), (115, 10979), (119, 11015), (121, 11027), (122, 11030), (123, 11039), (127, 11087), (129, 11108), (147, 11273), (163, 11420), (164, 11429), (169, 11492), (170, 11504), (175, 11567), (179, 11615), (182, 11690), (184, 11750), (186, 11756), (187, 11777), (191, 11852), (206, 12068),

Gene: Leona_15 Start: 9839, Stop: 12127, Start Num: 1

Candidate Starts for Leona_15:

(Start: 1 @9839 has 40 MA's), (3, 9851), (4, 9872), (6, 9881), (7, 9890), (13, 9992), (19, 10034), (30, 10172), (36, 10226), (37, 10256), (48, 10370), (50, 10388), (56, 10412), (58, 10433), (59, 10454), (64, 10535), (65, 10538), (66, 10547), (67, 10559), (77, 10679), (79, 10709), (83, 10751), (92, 10877), (97, 10901), (101, 10922), (110, 10994), (115, 11030), (119, 11066), (121, 11078), (123, 11090), (125, 11111), (127, 11138), (129, 11159), (147, 11324), (163, 11471), (164, 11480), (169, 11543), (170, 11555), (175, 11618), (182, 11741), (184, 11801), (186, 11807), (187, 11828), (191, 11903), (206, 12119),

Gene: LittleTokyo_16 Start: 10123, Stop: 12486, Start Num: 1

Candidate Starts for LittleTokyo_16:

(Start: 1 @10123 has 40 MA's), (3, 10138), (4, 10159), (6, 10168), (16, 10336), (19, 10351), (25, 10414), (28, 10453), (30, 10492), (31, 10501), (32, 10513), (33, 10525), (34, 10534), (35, 10543), (42, 10621), (45, 10654), (48, 10690), (51, 10711), (57, 10753), (58, 10756), (60, 10810), (61, 10816), (62, 10822), (63, 10852), (64, 10861), (71, 10903), (73, 10957), (76, 11002), (85, 11128), (87, 11140), (88, 11182), (90, 11212), (91, 11227), (92, 11239), (100, 11275), (105, 11326), (108, 11344), (111, 11362), (113, 11374), (118, 11413), (119, 11428), (120, 11437), (122, 11443), (123, 11452), (127, 11500), (130, 11533), (131, 11536), (147, 11686), (159, 11812), (164, 11842), (166, 11866), (169, 11905), (175, 11980), (178, 12025), (181, 12091), (183, 12157), (186, 12169), (187, 12190), (188, 12223), (189, 12253), (194, 12292), (195, 12298), (202, 12397), (205, 12454), (206, 12475),

Gene: Lunar_17 Start: 10375, Stop: 12510, Start Num: 1

Candidate Starts for Lunar_17:

(Start: 1 @10375 has 40 MA's), (4, 10408), (5, 10414), (7, 10426), (15, 10531), (30, 10696), (32, 10717), (43, 10831), (48, 10894), (56, 10936), (58, 10957), (59, 10978), (64, 11059), (65, 11062), (66, 11071), (67, 11083), (68, 11086), (77, 11203), (79, 11233), (83, 11275), (84, 11284), (92, 11401), (99, 11434), (102, 11461), (104, 11485), (107, 11497), (108, 11506), (109, 11515), (115, 11554), (119, 11590), (121, 11602), (123, 11614), (125, 11635), (127, 11662), (130, 11695), (132, 11710), (164, 11872), (166, 11896), (169, 11935), (172, 11971), (180, 12079), (182, 12133), (186, 12199), (187, 12220), (201, 12391), (202, 12424), (203, 12436), (205, 12481), (206, 12502),

Gene: Melons_17 Start: 10375, Stop: 12510, Start Num: 1

Candidate Starts for Melons_17:

(Start: 1 @10375 has 40 MA's), (4, 10408), (5, 10414), (7, 10426), (15, 10531), (30, 10696), (32, 10717), (43, 10831), (48, 10894), (56, 10936), (58, 10957), (59, 10978), (64, 11059), (65, 11062), (66, 11071), (67, 11083), (68, 11086), (77, 11203), (79, 11233), (83, 11275), (84, 11284), (92, 11401), (99, 11434), (102, 11461), (104, 11485), (107, 11497), (108, 11506), (109, 11515), (115, 11554), (119, 11590), (121, 11602), (123, 11614), (125, 11635), (127, 11662), (130, 11695), (132, 11710), (164, 11872), (166, 11896), (169, 11935), (172, 11971), (180, 12079), (182, 12133), (186, 12199), (187, 12220), (201, 12391), (202, 12424), (203, 12436), (205, 12481), (206, 12502),

Gene: Niblet_16 Start: 10182, Stop: 12410, Start Num: 1

Candidate Starts for Niblet_16:

(Start: 1 @10182 has 40 MA's), (3, 10197), (4, 10218), (9, 10272), (10, 10347), (14, 10377), (15, 10380), (23, 10434), (31, 10560), (33, 10584), (34, 10593), (35, 10602), (41, 10674), (42, 10680), (44, 10710), (45, 10713), (48, 10749), (51, 10770), (55, 10791), (58, 10815), (60, 10869), (61, 10875), (62, 10881), (63, 10911), (64, 10920), (71, 10962), (73, 11016), (76, 11061), (87, 11199), (88, 11241), (90, 11271), (96, 11313), (101, 11343), (110, 11415), (112, 11424), (114, 11445), (123, 11511), (127, 11559), (128, 11562), (131, 11595), (149, 11673), (160, 11742), (172, 11868), (173, 11889), (174, 11898), (184, 12090), (185, 12093), (187, 12117), (201, 12288), (204, 12345), (206, 12399),

Gene: Oppalora_15 Start: 9786, Stop: 12074, Start Num: 1

Candidate Starts for Oppalora_15:

(Start: 1 @9786 has 40 MA's), (3, 9798), (4, 9819), (6, 9828), (7, 9837), (13, 9939), (19, 9981), (30, 10119), (36, 10173), (37, 10203), (47, 10305), (48, 10317), (50, 10335), (56, 10359), (58, 10380), (59, 10401), (64, 10482), (65, 10485), (66, 10494), (67, 10506), (77, 10626), (79, 10656), (83, 10698), (92, 10824), (97, 10848), (101, 10869), (106, 10917), (108, 10929), (110, 10941), (112, 10950), (115, 10977), (119, 11013), (121, 11025), (122, 11028), (123, 11037), (127, 11085), (129, 11106), (147, 11271), (163, 11418), (164, 11427), (169, 11490), (170, 11502), (175, 11565), (182, 11688), (184, 11748), (186, 11754), (187, 11775), (191, 11850), (206, 12066),

Gene: Orcanus_16 Start: 10174, Stop: 12324, Start Num: 1

Candidate Starts for Orcanus_16:

(Start: 1 @10174 has 40 MA's), (4, 10210), (7, 10228), (8, 10249), (19, 10369), (24, 10420), (33, 10540), (36, 10561), (42, 10636), (48, 10705), (50, 10723), (56, 10747), (59, 10789), (64, 10870), (65, 10873), (66, 10882), (67, 10894), (77, 11014), (83, 11086), (91, 11200), (92, 11212), (100, 11248), (109, 11326), (111, 11335), (123, 11425), (127, 11473), (129, 11494), (133, 11527), (139, 11587), (160, 11656), (162, 11671), (174, 11812), (182, 11944), (183, 11998), (184, 12004), (185, 12007), (187, 12031), (192, 12118), (201, 12202), (204, 12259), (206, 12313),

Gene: OtsoOtso_16 Start: 10214, Stop: 12352, Start Num: 1

Candidate Starts for OtsoOtso_16:

(Start: 1 @10214 has 40 MA's), (4, 10250), (5, 10256), (7, 10268), (15, 10373), (30, 10538), (32, 10559), (43, 10673), (48, 10736), (56, 10778), (58, 10799), (59, 10820), (64, 10901), (65, 10904), (66, 10913), (67, 10925), (68, 10928), (77, 11045), (79, 11075), (83, 11117), (84, 11126), (92, 11243), (99, 11276), (102, 11303), (104, 11327), (107, 11339), (108, 11348), (109, 11357), (115, 11396), (119, 11432), (121, 11444), (123, 11456), (125, 11477), (127, 11504), (130, 11537), (132, 11552), (164, 11714), (166, 11738), (169, 11777), (172, 11813), (180, 11921), (182, 11975), (186, 12041), (187, 12062), (201, 12233), (202, 12266), (203, 12278), (205, 12323), (206, 12344),

Gene: Pelletreau_17 Start: 10380, Stop: 12530, Start Num: 1

Candidate Starts for Pelletreau_17:

(Start: 1 @10380 has 40 MA's), (4, 10416), (7, 10434), (8, 10455), (19, 10575), (24, 10626), (33, 10746), (42, 10842), (48, 10911), (50, 10929), (56, 10953), (59, 10995), (64, 11076), (65, 11079), (66, 11088), (67, 11100), (77, 11220), (79, 11250), (83, 11292), (91, 11406), (92, 11418), (100, 11454), (109, 11532), (111, 11541), (123, 11631), (127, 11679), (129, 11700), (133, 11733), (139, 11793), (160, 11862), (162, 11877), (174, 12018), (187, 12237), (192, 12324), (201, 12408), (204, 12465), (206, 12519),

Gene: PhirstandPhine_17 Start: 10375, Stop: 12510, Start Num: 1

Candidate Starts for PhirstandPhine_17:

(Start: 1 @10375 has 40 MA's), (4, 10408), (5, 10414), (7, 10426), (15, 10531), (30, 10696), (32, 10717), (43, 10831), (48, 10894), (56, 10936), (58, 10957), (59, 10978), (64, 11059), (65, 11062), (66, 11071), (67, 11083), (68, 11086), (77, 11203), (79, 11233), (83, 11275), (84, 11284), (92, 11401), (99, 11434), (102, 11461), (104, 11485), (107, 11497), (108, 11506), (109, 11515), (115, 11554), (119, 11590), (121, 11602), (123, 11614), (125, 11635), (127, 11662), (130, 11695), (132, 11710), (164, 11872), (166, 11896), (169, 11935), (172, 11971), (180, 12079), (182, 12133), (186, 12199), (187, 12220), (201, 12391), (202, 12424), (203, 12436), (205, 12481), (206, 12502),

Gene: PhluffyCoco_15 Start: 9788, Stop: 12076, Start Num: 1

Candidate Starts for PhluffyCoco_15:

(Start: 1 @9788 has 40 MA's), (3, 9800), (4, 9821), (6, 9830), (7, 9839), (13, 9941), (19, 9983), (30, 10121), (36, 10175), (37, 10205), (47, 10307), (48, 10319), (50, 10337), (56, 10361), (58, 10382), (59, 10403), (64, 10484), (65, 10487), (66, 10496), (67, 10508), (77, 10628), (79, 10658), (83, 10700), (92, 10826), (97, 10850), (101, 10871), (106, 10919), (108, 10931), (110, 10943), (112, 10952), (115, 10979), (119, 11015), (121, 11027), (122, 11030), (123, 11039), (127, 11087), (129, 11108), (147, 11273), (163, 11420), (164, 11429), (169, 11492), (170, 11504), (175, 11567), (179, 11615), (182, 11690), (184, 11750), (186, 11756), (187, 11777), (191, 11852), (206, 12068),

Gene: Pineda_17 Start: 10375, Stop: 12510, Start Num: 1

Candidate Starts for Pineda_17:

(Start: 1 @10375 has 40 MA's), (4, 10408), (5, 10414), (7, 10426), (15, 10531), (30, 10696), (32, 10717), (43, 10831), (48, 10894), (56, 10936), (58, 10957), (59, 10978), (64, 11059), (65, 11062), (66, 11071), (67, 11083), (68, 11086), (77, 11203), (79, 11233), (83, 11275), (84, 11284), (92, 11401), (99,

11434), (102, 11461), (104, 11485), (107, 11497), (108, 11506), (109, 11515), (115, 11554), (119, 11590), (121, 11602), (123, 11614), (125, 11635), (127, 11662), (130, 11695), (132, 11710), (164, 11872), (166, 11896), (169, 11935), (172, 11971), (180, 12079), (182, 12133), (186, 12199), (187, 12220), (201, 12391), (202, 12424), (203, 12436), (205, 12481), (206, 12502),

Gene: Polka_16 Start: 10214, Stop: 12352, Start Num: 1

Candidate Starts for Polka_16:

(Start: 1 @10214 has 40 MA's), (4, 10250), (5, 10256), (7, 10268), (15, 10373), (30, 10538), (32, 10559), (43, 10673), (48, 10736), (56, 10778), (58, 10799), (59, 10820), (64, 10901), (65, 10904), (66, 10913), (67, 10925), (68, 10928), (77, 11045), (79, 11075), (83, 11117), (84, 11126), (92, 11243), (99, 11276), (102, 11303), (104, 11327), (107, 11339), (108, 11348), (109, 11357), (115, 11396), (119, 11432), (121, 11444), (123, 11456), (125, 11477), (127, 11504), (130, 11537), (132, 11552), (164, 11714), (166, 11738), (169, 11777), (172, 11813), (180, 11921), (182, 11975), (186, 12041), (187, 12062), (201, 12233), (202, 12266), (203, 12278), (205, 12323), (206, 12344),

Gene: Rattail_15 Start: 9839, Stop: 12127, Start Num: 1

Candidate Starts for Rattail_15:

(Start: 1 @9839 has 40 MA's), (3, 9851), (4, 9872), (6, 9881), (7, 9890), (13, 9992), (19, 10034), (30, 10172), (36, 10226), (37, 10256), (48, 10370), (50, 10388), (56, 10412), (58, 10433), (59, 10454), (64, 10535), (65, 10538), (66, 10547), (67, 10559), (77, 10679), (79, 10709), (83, 10751), (92, 10877), (97, 10901), (101, 10922), (110, 10994), (115, 11030), (119, 11066), (121, 11078), (123, 11090), (125, 11111), (127, 11138), (129, 11159), (147, 11324), (163, 11471), (164, 11480), (169, 11543), (170, 11555), (175, 11618), (182, 11741), (184, 11801), (186, 11807), (187, 11828), (191, 11903), (206, 12119),

Gene: RedFox_15 Start: 9788, Stop: 12076, Start Num: 1

Candidate Starts for RedFox_15:

(Start: 1 @9788 has 40 MA's), (3, 9800), (4, 9821), (6, 9830), (7, 9839), (13, 9941), (19, 9983), (30, 10121), (36, 10175), (37, 10205), (47, 10307), (48, 10319), (50, 10337), (56, 10361), (58, 10382), (59, 10403), (64, 10484), (65, 10487), (66, 10496), (67, 10508), (77, 10628), (79, 10658), (83, 10700), (92, 10826), (97, 10850), (101, 10871), (106, 10919), (108, 10931), (110, 10943), (112, 10952), (115, 10979), (119, 11015), (121, 11027), (122, 11030), (123, 11039), (127, 11087), (129, 11108), (147, 11273), (163, 11420), (164, 11429), (169, 11492), (175, 11567), (182, 11690), (184, 11750), (186, 11756), (187, 11777), (191, 11852), (206, 12068),

Gene: Renna12_16 Start: 9997, Stop: 12417, Start Num: 1

Candidate Starts for Renna12_16:

(Start: 1 @9997 has 40 MA's), (3, 10009), (4, 10030), (6, 10039), (7, 10048), (13, 10150), (19, 10192), (30, 10330), (36, 10384), (37, 10414), (48, 10528), (50, 10546), (56, 10570), (58, 10591), (59, 10612), (64, 10693), (65, 10696), (66, 10705), (67, 10717), (79, 10867), (83, 10909), (92, 11035), (97, 11059), (100, 11071), (101, 11080), (106, 11128), (110, 11152), (112, 11161), (115, 11188), (119, 11224), (121, 11236), (127, 11296), (138, 11395), (155, 11614), (169, 11833), (175, 11908), (186, 12097), (187, 12118), (191, 12193), (201, 12298), (206, 12409),

Gene: Ruchi_16 Start: 10744, Stop: 13149, Start Num: 1

Candidate Starts for Ruchi_16:

(Start: 1 @10744 has 40 MA's), (4, 10780), (7, 10798), (9, 10834), (12, 10909), (18, 10954), (26, 11041), (27, 11053), (39, 11212), (40, 11221), (53, 11329), (54, 11335), (60, 11416), (64, 11470), (70, 11509), (82, 11710), (85, 11746), (88, 11800), (93, 11860), (94, 11863), (99, 11890), (103, 11920), (109, 11974), (115, 12013), (117, 12031), (119, 12049), (125, 12097), (129, 12142), (136, 12202), (137, 12214), (139, 12235), (140, 12238), (141, 12256), (142, 12271), (143, 12274), (144, 12280), (145, 12289), (146, 12301), (148, 12307), (150, 12322), (152, 12331), (154, 12373), (156, 12385), (157, 12403), (158, 12436), (163, 12505), (164, 12514), (165, 12517), (166, 12538), (168, 12574),

(173, 12634), (175, 12652), (187, 12862), (201, 13027), (204, 13084),

Gene: Shen_17 Start: 10456, Stop: 12531, Start Num: 8

Candidate Starts for Shen_17:

(Start: 1 @10381 has 40 MA's), (4, 10417), (7, 10435), (8, 10456), (19, 10576), (24, 10627), (33, 10747), (42, 10843), (48, 10912), (50, 10930), (56, 10954), (59, 10996), (64, 11077), (65, 11080), (66, 11089), (67, 11101), (77, 11221), (79, 11251), (83, 11293), (91, 11407), (92, 11419), (100, 11455), (109, 11533), (111, 11542), (123, 11632), (127, 11680), (129, 11701), (133, 11734), (139, 11794), (160, 11863), (162, 11878), (174, 12019), (181, 12139), (187, 12238), (192, 12325), (201, 12409), (204, 12466), (206, 12520),

Gene: StuartMinion_15 Start: 9820, Stop: 12108, Start Num: 1

Candidate Starts for StuartMinion_15:

(Start: 1 @9820 has 40 MA's), (4, 9853), (6, 9862), (7, 9871), (13, 9973), (19, 10015), (30, 10153), (36, 10207), (48, 10351), (50, 10369), (56, 10393), (59, 10435), (64, 10516), (65, 10519), (66, 10528), (67, 10540), (69, 10549), (77, 10660), (79, 10690), (82, 10729), (92, 10858), (97, 10882), (101, 10903), (110, 10975), (111, 10981), (114, 11005), (121, 11059), (122, 11062), (123, 11071), (127, 11119), (129, 11140), (147, 11305), (169, 11524), (170, 11536), (175, 11599), (181, 11710), (183, 11776), (186, 11788), (187, 11809), (190, 11881), (191, 11884), (201, 11986), (204, 12043), (206, 12097), (207, 12100),

Gene: TaylorSipt_16 Start: 10274, Stop: 12499, Start Num: 1

Candidate Starts for TaylorSipt_16:

(Start: 1 @10274 has 40 MA's), (3, 10289), (4, 10310), (14, 10469), (23, 10526), (25, 10565), (31, 10652), (32, 10664), (33, 10676), (34, 10685), (35, 10694), (38, 10742), (41, 10766), (42, 10772), (48, 10841), (51, 10862), (57, 10904), (58, 10907), (60, 10961), (61, 10967), (62, 10973), (63, 11003), (64, 11012), (71, 11054), (73, 11108), (76, 11153), (87, 11291), (88, 11333), (90, 11363), (96, 11405), (101, 11435), (110, 11507), (112, 11516), (114, 11537), (122, 11594), (123, 11603), (127, 11651), (129, 11672), (133, 11705), (149, 11765), (151, 11771), (159, 11831), (161, 11846), (170, 11936), (171, 11945), (173, 11981), (181, 12110), (182, 12122), (187, 12209), (192, 12296), (194, 12311), (199, 12353), (201, 12380), (204, 12437), (206, 12491),

Gene: Toad24_17 Start: 10381, Stop: 12531, Start Num: 1

Candidate Starts for Toad24_17:

(Start: 1 @10381 has 40 MA's), (4, 10417), (7, 10435), (8, 10456), (19, 10576), (24, 10627), (33, 10747), (42, 10843), (48, 10912), (50, 10930), (56, 10954), (59, 10996), (64, 11077), (65, 11080), (66, 11089), (67, 11101), (77, 11221), (79, 11251), (83, 11293), (91, 11407), (92, 11419), (100, 11455), (109, 11533), (111, 11542), (123, 11632), (127, 11680), (129, 11701), (133, 11734), (139, 11794), (160, 11863), (162, 11878), (174, 12019), (187, 12238), (192, 12325), (201, 12409), (204, 12466), (206, 12520),

Gene: Vulpecula_16 Start: 10814, Stop: 13219, Start Num: 1

Candidate Starts for Vulpecula_16:

(Start: 1 @10814 has 40 MA's), (4, 10850), (7, 10868), (9, 10904), (12, 10979), (18, 11024), (26, 11111), (27, 11123), (39, 11282), (40, 11291), (46, 11342), (53, 11399), (54, 11405), (60, 11486), (64, 11540), (70, 11579), (85, 11816), (88, 11870), (93, 11930), (94, 11933), (99, 11960), (103, 11990), (115, 12083), (117, 12101), (119, 12119), (129, 12212), (136, 12272), (137, 12284), (139, 12305), (140, 12308), (141, 12326), (142, 12341), (143, 12344), (144, 12350), (145, 12359), (146, 12371), (148, 12377), (150, 12392), (152, 12401), (153, 12419), (154, 12443), (156, 12455), (157, 12473), (158, 12506), (164, 12584), (165, 12587), (166, 12608), (167, 12626), (168, 12644), (173, 12704), (175, 12722), (187, 12932), (196, 13040), (201, 13097), (204, 13154),

Gene: Westrich_17 Start: 10369, Stop: 12519, Start Num: 1

Candidate Starts for Westrich_17:

(Start: 1 @10369 has 40 MA's), (4, 10405), (7, 10423), (8, 10444), (19, 10564), (24, 10615), (33, 10735), (42, 10831), (48, 10900), (50, 10918), (56, 10942), (58, 10963), (59, 10984), (64, 11065), (65, 11068), (66, 11077), (67, 11089), (68, 11092), (77, 11209), (83, 11281), (91, 11395), (92, 11407), (100, 11443), (109, 11521), (111, 11530), (123, 11620), (127, 11668), (129, 11689), (133, 11722), (139, 11782), (160, 11851), (162, 11866), (174, 12007), (182, 12139), (183, 12193), (184, 12199), (185, 12202), (187, 12226), (192, 12313), (201, 12397), (204, 12454), (206, 12508),

Gene: WileyE_15 Start: 10149, Stop: 12554, Start Num: 1

Candidate Starts for WileyE_15:

(Start: 1 @10149 has 40 MA's), (4, 10185), (7, 10203), (9, 10239), (12, 10314), (18, 10359), (26, 10446), (27, 10458), (39, 10617), (40, 10626), (53, 10734), (60, 10821), (64, 10875), (70, 10914), (72, 10953), (85, 11151), (88, 11205), (94, 11268), (95, 11271), (99, 11295), (110, 11382), (115, 11418), (129, 11547), (135, 11604), (136, 11607), (140, 11643), (141, 11661), (142, 11676), (143, 11679), (144, 11685), (145, 11694), (146, 11706), (148, 11712), (150, 11727), (152, 11736), (153, 11754), (154, 11778), (156, 11790), (157, 11808), (158, 11841), (163, 11910), (164, 11919), (165, 11922), (166, 11943), (168, 11979), (173, 12039), (175, 12057), (187, 12267), (201, 12432),

Gene: Zhuangyuan_17 Start: 10550, Stop: 12916, Start Num: 1

Candidate Starts for Zhuangyuan_17:

(Start: 1 @10550 has 40 MA's), (3, 10565), (4, 10586), (6, 10595), (15, 10748), (20, 10781), (25, 10841), (28, 10880), (30, 10919), (32, 10940), (33, 10952), (34, 10961), (35, 10970), (41, 11042), (45, 11081), (48, 11117), (51, 11138), (52, 11147), (55, 11159), (58, 11183), (60, 11237), (61, 11243), (62, 11249), (63, 11279), (64, 11288), (71, 11330), (73, 11384), (76, 11429), (85, 11555), (87, 11567), (88, 11609), (90, 11639), (92, 11666), (110, 11783), (111, 11789), (113, 11801), (119, 11855), (122, 11870), (123, 11879), (124, 11888), (127, 11927), (130, 11960), (131, 11963), (147, 12113), (159, 12239), (164, 12269), (166, 12293), (169, 12332), (175, 12407), (182, 12530), (183, 12584), (186, 12596), (187, 12617), (188, 12650), (189, 12680), (194, 12719), (201, 12794), (205, 12884),

Gene: Zixiang_16 Start: 10182, Stop: 12410, Start Num: 1

Candidate Starts for Zixiang_16:

(Start: 1 @10182 has 40 MA's), (3, 10197), (4, 10218), (9, 10272), (10, 10347), (14, 10377), (15, 10380), (23, 10434), (31, 10560), (33, 10584), (34, 10593), (35, 10602), (41, 10674), (42, 10680), (44, 10710), (45, 10713), (48, 10749), (51, 10770), (55, 10791), (58, 10815), (60, 10869), (61, 10875), (62, 10881), (63, 10911), (64, 10920), (71, 10962), (73, 11016), (76, 11061), (87, 11199), (88, 11241), (90, 11271), (96, 11313), (101, 11343), (110, 11415), (112, 11424), (114, 11445), (123, 11511), (127, 11559), (128, 11562), (131, 11595), (149, 11673), (160, 11742), (172, 11868), (173, 11889), (174, 11898), (184, 12090), (185, 12093), (187, 12117), (201, 12288), (204, 12345), (206, 12399),