

Pham 216219

1: Rona_17 + 3	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
2: Albright_18	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
3: Kenzers_18 + 1	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
4: Milomuti_20 + 1	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
5: Sharkboy_17	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
6: Doobus_18	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
7: Sparcetus_32 + 2	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
8: Ajin_32	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
9: Bramble_33	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
10: TinyMiny_32	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
11: RikSengupta_32	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
12: Sucha_18	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
13: Milani_22	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
14: IndiRoo_22	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
15: SBlackberry_21	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
16: Htur_21 + 1	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
17: Goodman_22 + 1	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
18: Rasovi_21	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
19: Zanella_21 + 1	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
20: PermaG_22	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
21: Cicada_23	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
22: Benry_21	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
23: Typher_23	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
24: Jera_22	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
25: Olympi_22	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
26: FireCastle_21	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
27: Antuna_24 + 2	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
28: Dropshot_23 + 1	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
29: Phingu_26	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
30: Carnilo_25	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
31: Violeta_25 + 1	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
32: Appa_23	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
33: Phonegingi_23	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
34: PhillyJawn_24	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
35: CookieDog_24	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
36: Bush_24	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
37: Warren_24	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
38: Guzman_25	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
39: Pickles13_23	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
40: Gingerbug_20	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288
41: Wrackline_28	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288

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 216219 Report

This analysis was run 02/22/25 on database version 588.

Pham number 216219 has 55 members, 17 are drafts.

Phages represented in each track:

- Track 1 : Rona\_17, Kieran\_17, ChiliPepper\_17, Dismas\_17
- Track 2 : Albright\_18
- Track 3 : Kenzers\_18, Lynlen\_18
- Track 4 : Milomuff\_20, Solea\_20
- Track 5 : Sharkboy\_17
- Track 6 : Doobus\_18
- Track 7 : Sparcetus\_32, Kors\_33, LordBart\_32
- Track 8 : Ajin\_32
- Track 9 : Bramble\_33
- Track 10 : TinyMiny\_32
- Track 11 : RikSengupta\_32
- Track 12 : Sucha\_18
- Track 13 : Milani\_22
- Track 14 : IndiRoo\_22
- Track 15 : SBlackberry\_21
- Track 16 : Htur\_21, Linayshia\_21
- Track 17 : Goodman\_22, Johann\_22
- Track 18 : Rasovi\_21
- Track 19 : Zanella\_21, TurboVicky\_21
- Track 20 : PermaG\_22
- Track 21 : Cicada\_23
- Track 22 : Benry\_21
- Track 23 : Typher\_23
- Track 24 : Jera\_22
- Track 25 : Olympi\_22
- Track 26 : FireCastle\_21
- Track 27 : Antuna\_24, Losacky\_26, MenE\_24
- Track 28 : Dropshot\_23, Blett\_24
- Track 29 : Phingu\_26
- Track 30 : Carrillo\_25
- Track 31 : Violeta\_25, Jakelyne\_26
- Track 32 : Appa\_23
- Track 33 : Phonegingi\_23
- Track 34 : PhillyJawn\_24
- Track 35 : CookieDog\_24
- Track 36 : Bush\_24
- Track 37 : Warren\_24

- Track 38 : Guzman\_25
- Track 39 : Pickles13\_23
- Track 40 : Gingerbug\_20
- Track 41 : Wrackline\_28

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

The start number called the most often in the published annotations is 18, it was called in 35 of the 38 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Ajin\_32, Albright\_18, Antuna\_24, Appa\_23, Benry\_21, Blett\_24, Bush\_24, Carrillo\_25, ChiliPepper\_17, Cicada\_23, CookieDog\_24, Dismas\_17, Doobus\_18, Dropshot\_23, FireCastle\_21, Goodman\_22, Guzman\_25, Htur\_21, IndiRoo\_22, Jakelyne\_26, Jera\_22, Johann\_22, Kenzers\_18, Kieran\_17, Linayshia\_21, Losacky\_26, Lynlen\_18, MenE\_24, Milani\_22, Milomuff\_20, Olympi\_22, PermaG\_22, PhillyJawn\_24, Phingu\_26, Phonegingi\_23, Pickles13\_23, Rasovi\_21, Rona\_17, SBlackberry\_21, Sharkboy\_17, Solea\_20, Sucha\_18, TinyMiny\_32, TurboVicky\_21, Typher\_23, Violeta\_25, Warren\_24, Wrackline\_28, Zanella\_21,

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

- Bramble\_33, Kors\_33, LordBart\_32, RikSengupta\_32, Sparcetus\_32,

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

- Gingerbug\_20,

**Summary by start number:**

Start 1:

- Found in 1 of 55 ( 1.8% ) of genes in pham
- Manual Annotations of this start: 1 of 38
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gingerbug\_20 (GF),

Start 14:

- Found in 25 of 55 ( 45.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 4.0% of time when present
- Phage (with cluster) where this start called: Bramble\_33 (EF),

Start 16:

- Found in 7 of 55 ( 12.7% ) of genes in pham
- Manual Annotations of this start: 2 of 38
- Called 57.1% of time when present
- Phage (with cluster) where this start called: Kors\_33 (EF), LordBart\_32 (EF), RikSengupta\_32 (EF), Sparcetus\_32 (EF),

Start 18:

- Found in 54 of 55 ( 98.2% ) of genes in pham
- Manual Annotations of this start: 35 of 38

- Called 90.7% of time when present
- Phage (with cluster) where this start called: Ajin\_32 (EF), Albright\_18 (EB), Antuna\_24 (GA), Appa\_23 (GA), Benry\_21 (EJ), Blett\_24 (GA), Bush\_24 (GA), Carrillo\_25 (GA), ChiliPepper\_17 (EB), Cicada\_23 (EJ), CookieDog\_24 (GA), Dismas\_17 (EB), Doobus\_18 (EB), Dropshot\_23 (GA), FireCastle\_21 (EJ), Goodman\_22 (EJ), Guzman\_25 (GA), Htur\_21 (EJ), IndiRoo\_22 (EJ), Jakelyne\_26 (GA), Jera\_22 (EJ), Johann\_22 (EJ), Kenzers\_18 (EB), Kieran\_17 (EB), Linayshia\_21 (EJ), Losacky\_26 (GA), Lynlen\_18 (EB), MenE\_24 (GA), Milani\_22 (EJ), Milomuff\_20 (EB), Olympi\_22 (EJ), PermaG\_22 (EJ), PhillyJawn\_24 (GA), Phingu\_26 (GA), Phonegingi\_23 (GA), Pickles13\_23 (GA), Rasovi\_21 (EJ), Rona\_17 (EB), SBlackberry\_21 (EJ), Sharkboy\_17 (EB), Solea\_20 (EB), Sucha\_18 (EJ), TinyMiny\_32 (EF), TurboVicky\_21 (EJ), Typher\_23 (EJ), Violeta\_25 (GA), Warren\_24 (GA), Wrackline\_28 (GF), Zanella\_21 (EJ),

### Summary by clusters:

There are 5 clusters represented in this pham: GF, EF, EJ, GA, EB,

Info for manual annotations of cluster EB:

- Start number 18 was manually annotated 9 times for cluster EB.

Info for manual annotations of cluster EF:

- Start number 16 was manually annotated 2 times for cluster EF.
- Start number 18 was manually annotated 2 times for cluster EF.

Info for manual annotations of cluster EJ:

- Start number 18 was manually annotated 15 times for cluster EJ.

Info for manual annotations of cluster GA:

- Start number 18 was manually annotated 9 times for cluster GA.

Info for manual annotations of cluster GF:

- Start number 1 was manually annotated 1 time for cluster GF.

### Gene Information:

Gene: Ajin\_32 Start: 18502, Stop: 20436, Start Num: 18

Candidate Starts for Ajin\_32:

(14, 18472), (15, 18475), (Start: 16 @18487 has 2 MA's), (17, 18499), (Start: 18 @18502 has 35 MA's), (24, 18562), (34, 18613), (43, 18703), (49, 18733), (55, 18790), (56, 18793), (65, 18883), (74, 18970), (83, 19051), (90, 19135), (98, 19210), (101, 19270), (110, 19351), (116, 19402), (122, 19474), (124, 19495), (125, 19498), (127, 19504), (139, 19582), (145, 19618), (149, 19636), (162, 19792), (169, 19876), (177, 19900), (215, 20116), (222, 20158), (237, 20275), (239, 20296), (247, 20347),

Gene: Albright\_18 Start: 13896, Stop: 15746, Start Num: 18

Candidate Starts for Albright\_18:

(Start: 18 @13896 has 35 MA's), (43, 14085), (51, 14127), (52, 14142), (53, 14154), (65, 14277), (69, 14316), (81, 14409), (104, 14667), (131, 14895), (137, 14928), (138, 14937), (154, 15060), (191, 15285), (202, 15351), (219, 15453), (221, 15468), (231, 15537), (237, 15585), (241, 15612), (242, 15621), (250, 15672),

Gene: Antuna\_24 Start: 14563, Stop: 16431, Start Num: 18

Candidate Starts for Antuna\_24:

(9, 14338), (14, 14533), (Start: 18 @14563 has 35 MA's), (27, 14623), (30, 14644), (33, 14656), (38, 14710), (41, 14743), (43, 14749), (67, 14965), (86, 15121), (90, 15175), (91, 15178), (94, 15208), (100, 15280), (112, 15403), (118, 15475), (121, 15508), (124, 15532), (133, 15580), (142, 15643), (174, 15877), (186, 15928), (189, 15946), (193, 15973), (196, 15991), (198, 16006), (223, 16153), (226, 16180), (234, 16243), (245, 16330), (261, 16423),

Gene: Appa\_23 Start: 14425, Stop: 16293, Start Num: 18

Candidate Starts for Appa\_23:

(9, 14200), (14, 14395), (Start: 18 @14425 has 35 MA's), (27, 14485), (30, 14506), (33, 14518), (38, 14572), (41, 14605), (60, 14734), (86, 14983), (90, 15037), (91, 15040), (94, 15070), (100, 15142), (112, 15265), (118, 15337), (121, 15370), (124, 15394), (133, 15442), (174, 15739), (186, 15790), (189, 15808), (193, 15835), (196, 15853), (198, 15868), (223, 16015), (226, 16042), (234, 16105), (245, 16192), (261, 16285),

Gene: Benry\_21 Start: 14670, Stop: 16571, Start Num: 18

Candidate Starts for Benry\_21:

(Start: 18 @14670 has 35 MA's), (26, 14721), (28, 14739), (38, 14817), (39, 14820), (41, 14850), (59, 14967), (60, 14979), (62, 14997), (70, 15099), (71, 15111), (74, 15138), (77, 15183), (88, 15273), (90, 15303), (91, 15306), (94, 15336), (111, 15528), (116, 15570), (121, 15636), (124, 15660), (126, 15666), (132, 15705), (133, 15708), (135, 15726), (138, 15744), (139, 15747), (148, 15798), (153, 15858), (159, 15906), (204, 16194), (211, 16242), (217, 16275), (226, 16329), (231, 16362), (237, 16410), (243, 16452),

Gene: Blett\_24 Start: 14578, Stop: 16446, Start Num: 18

Candidate Starts for Blett\_24:

(9, 14353), (14, 14548), (Start: 18 @14578 has 35 MA's), (27, 14638), (30, 14659), (33, 14671), (38, 14725), (41, 14758), (60, 14887), (67, 14980), (90, 15190), (91, 15193), (94, 15223), (100, 15295), (112, 15418), (121, 15523), (124, 15547), (133, 15595), (174, 15892), (186, 15943), (189, 15961), (193, 15988), (196, 16006), (198, 16021), (223, 16168), (226, 16195), (234, 16258), (245, 16345), (261, 16438),

Gene: Bramble\_33 Start: 18438, Stop: 20402, Start Num: 14

Candidate Starts for Bramble\_33:

(14, 18438), (15, 18441), (Start: 16 @18453 has 2 MA's), (17, 18465), (Start: 18 @18468 has 35 MA's), (24, 18528), (34, 18579), (43, 18669), (49, 18699), (55, 18756), (56, 18759), (65, 18849), (74, 18936), (83, 19017), (90, 19101), (98, 19176), (101, 19236), (110, 19317), (116, 19368), (124, 19461), (125, 19464), (127, 19470), (139, 19548), (145, 19584), (149, 19602), (162, 19758), (177, 19866), (215, 20082), (222, 20124), (237, 20241), (239, 20262),

Gene: Bush\_24 Start: 14559, Stop: 16421, Start Num: 18

Candidate Starts for Bush\_24:

(9, 14334), (14, 14529), (Start: 18 @14559 has 35 MA's), (27, 14619), (30, 14640), (33, 14652), (38, 14706), (41, 14739), (60, 14868), (86, 15117), (88, 15141), (90, 15171), (91, 15174), (94, 15204), (100, 15276), (112, 15399), (121, 15504), (124, 15528), (133, 15576), (142, 15639), (174, 15867), (198, 15996), (207, 16041), (226, 16170), (245, 16320), (259, 16386), (261, 16413),

Gene: Carrillo\_25 Start: 14532, Stop: 16400, Start Num: 18

Candidate Starts for Carrillo\_25:

(9, 14307), (14, 14502), (Start: 18 @14532 has 35 MA's), (27, 14592), (30, 14613), (33, 14625), (38, 14679), (41, 14712), (67, 14934), (86, 15090), (90, 15144), (91, 15147), (94, 15177), (100, 15249), (112, 15372), (118, 15444), (121, 15477), (124, 15501), (133, 15549), (142, 15612), (174, 15846),

(186, 15897), (189, 15915), (193, 15942), (196, 15960), (198, 15975), (223, 16122), (226, 16149), (234, 16212), (245, 16299), (261, 16392),

Gene: ChiliPepper\_17 Start: 13661, Stop: 15667, Start Num: 18

Candidate Starts for ChiliPepper\_17:

(Start: 18 @13661 has 35 MA's), (36, 13778), (42, 13847), (46, 13865), (48, 13877), (52, 13907), (57, 13958), (58, 13961), (59, 13970), (63, 14003), (69, 14081), (73, 14123), (82, 14180), (85, 14204), (92, 14267), (97, 14321), (101, 14393), (104, 14432), (105, 14435), (121, 14594), (124, 14618), (131, 14660), (132, 14663), (137, 14693), (147, 14747), (149, 14759), (151, 14795), (152, 14804), (155, 14837), (156, 14849), (175, 14978), (192, 15065), (200, 15122), (201, 15125), (202, 15137), (209, 15185), (216, 15221), (249, 15437), (253, 15455), (255, 15461), (263, 15611), (264, 15620),

Gene: Cicada\_23 Start: 16468, Stop: 18345, Start Num: 18

Candidate Starts for Cicada\_23:

(9, 16243), (Start: 18 @16468 has 35 MA's), (35, 16597), (38, 16636), (39, 16639), (50, 16708), (54, 16753), (59, 16789), (70, 16918), (90, 17098), (91, 17101), (95, 17134), (102, 17239), (103, 17260), (106, 17278), (107, 17281), (124, 17455), (136, 17527), (139, 17542), (142, 17566), (144, 17572), (148, 17593), (152, 17641), (178, 17809), (179, 17812), (183, 17833), (185, 17845), (197, 17920), (228, 18115), (231, 18136), (232, 18145), (235, 18178), (245, 18244), (252, 18274), (260, 18316),

Gene: CookieDog\_24 Start: 14559, Stop: 16421, Start Num: 18

Candidate Starts for CookieDog\_24:

(9, 14334), (14, 14529), (Start: 18 @14559 has 35 MA's), (27, 14619), (30, 14640), (33, 14652), (38, 14706), (41, 14739), (68, 14973), (86, 15117), (90, 15171), (91, 15174), (94, 15204), (100, 15276), (112, 15399), (118, 15471), (121, 15504), (124, 15528), (133, 15576), (174, 15867), (223, 16143), (226, 16170), (234, 16233), (245, 16320), (261, 16413),

Gene: Dismas\_17 Start: 13661, Stop: 15667, Start Num: 18

Candidate Starts for Dismas\_17:

(Start: 18 @13661 has 35 MA's), (36, 13778), (42, 13847), (46, 13865), (48, 13877), (52, 13907), (57, 13958), (58, 13961), (59, 13970), (63, 14003), (69, 14081), (73, 14123), (82, 14180), (85, 14204), (92, 14267), (97, 14321), (101, 14393), (104, 14432), (105, 14435), (121, 14594), (124, 14618), (131, 14660), (132, 14663), (137, 14693), (147, 14747), (149, 14759), (151, 14795), (152, 14804), (155, 14837), (156, 14849), (175, 14978), (192, 15065), (200, 15122), (201, 15125), (202, 15137), (209, 15185), (216, 15221), (249, 15437), (253, 15455), (255, 15461), (263, 15611), (264, 15620),

Gene: Doobus\_18 Start: 14247, Stop: 16097, Start Num: 18

Candidate Starts for Doobus\_18:

(Start: 18 @14247 has 35 MA's), (43, 14436), (51, 14478), (52, 14493), (53, 14505), (65, 14628), (69, 14667), (81, 14760), (104, 15018), (131, 15246), (137, 15279), (138, 15288), (154, 15411), (191, 15636), (194, 15657), (202, 15702), (219, 15804), (221, 15819), (231, 15888), (237, 15936), (241, 15963), (242, 15972), (250, 16023),

Gene: Dropshot\_23 Start: 14425, Stop: 16293, Start Num: 18

Candidate Starts for Dropshot\_23:

(9, 14200), (14, 14395), (Start: 18 @14425 has 35 MA's), (27, 14485), (30, 14506), (33, 14518), (38, 14572), (41, 14605), (60, 14734), (67, 14827), (90, 15037), (91, 15040), (94, 15070), (100, 15142), (112, 15265), (121, 15370), (124, 15394), (133, 15442), (174, 15739), (186, 15790), (189, 15808), (193, 15835), (196, 15853), (198, 15868), (223, 16015), (226, 16042), (234, 16105), (245, 16192), (261, 16285),

Gene: FireCastle\_21 Start: 16238, Stop: 18142, Start Num: 18

Candidate Starts for FireCastle\_21:

(Start: 18 @16238 has 35 MA's), (26, 16289), (29, 16313), (37, 16361), (38, 16385), (39, 16388), (47, 16448), (53, 16484), (59, 16535), (66, 16628), (72, 16694), (88, 16841), (90, 16871), (91, 16874), (97, 16934), (105, 17048), (114, 17111), (119, 17183), (121, 17204), (124, 17228), (132, 17273), (135, 17294), (140, 17321), (148, 17366), (153, 17426), (167, 17540), (203, 17756), (204, 17765), (211, 17813), (226, 17900), (231, 17933), (243, 18023),

Gene: Gingerbug\_20 Start: 14337, Stop: 16679, Start Num: 1

Candidate Starts for Gingerbug\_20:

(Start: 1 @14337 has 1 MA's), (2, 14445), (3, 14460), (4, 14484), (5, 14487), (6, 14523), (7, 14574), (8, 14595), (10, 14652), (11, 14664), (12, 14679), (13, 14715), (23, 14871), (25, 14883), (30, 14934), (40, 15018), (43, 15051), (44, 15054), (47, 15078), (76, 15345), (87, 15453), (90, 15486), (91, 15489), (92, 15495), (93, 15504), (94, 15519), (98, 15561), (99, 15579), (102, 15627), (121, 15819), (124, 15843), (126, 15849), (128, 15855), (129, 15876), (130, 15879), (134, 15900), (142, 15954), (143, 15957), (148, 15981), (151, 16020), (153, 16041), (156, 16074), (183, 16188), (228, 16452), (230, 16464), (234, 16503), (244, 16563), (248, 16587),

Gene: Goodman\_22 Start: 16381, Stop: 18258, Start Num: 18

Candidate Starts for Goodman\_22:

(Start: 18 @16381 has 35 MA's), (35, 16510), (38, 16549), (39, 16552), (50, 16621), (54, 16666), (59, 16702), (70, 16831), (90, 17011), (91, 17014), (95, 17047), (102, 17152), (103, 17173), (106, 17191), (107, 17194), (124, 17368), (132, 17413), (136, 17440), (139, 17455), (142, 17479), (144, 17485), (148, 17506), (152, 17554), (178, 17722), (179, 17725), (183, 17746), (185, 17758), (197, 17833), (228, 18028), (231, 18049), (232, 18058), (235, 18091), (245, 18157), (252, 18187), (260, 18229),

Gene: Guzman\_25 Start: 14840, Stop: 16702, Start Num: 18

Candidate Starts for Guzman\_25:

(9, 14615), (14, 14810), (Start: 18 @14840 has 35 MA's), (27, 14900), (30, 14921), (33, 14933), (38, 14987), (41, 15020), (60, 15149), (88, 15422), (90, 15452), (91, 15455), (93, 15470), (94, 15485), (100, 15557), (112, 15680), (118, 15752), (121, 15785), (124, 15809), (130, 15845), (133, 15857), (142, 15920), (174, 16148), (223, 16424), (226, 16451), (234, 16514), (245, 16601), (261, 16694),

Gene: Htur\_21 Start: 16411, Stop: 18312, Start Num: 18

Candidate Starts for Htur\_21:

(Start: 18 @16411 has 35 MA's), (21, 16432), (22, 16438), (35, 16540), (38, 16579), (39, 16582), (50, 16651), (59, 16732), (62, 16762), (70, 16861), (74, 16903), (89, 17044), (90, 17065), (91, 17068), (95, 17101), (102, 17206), (106, 17245), (107, 17248), (115, 17308), (123, 17416), (124, 17422), (136, 17494), (139, 17509), (142, 17533), (144, 17539), (148, 17560), (152, 17608), (157, 17659), (160, 17680), (178, 17776), (183, 17800), (185, 17812), (195, 17875), (205, 17932), (213, 17986), (223, 18043), (226, 18070), (227, 18076), (228, 18082), (230, 18094), (235, 18145), (260, 18283),

Gene: IndiRoo\_22 Start: 14680, Stop: 16581, Start Num: 18

Candidate Starts for IndiRoo\_22:

(Start: 18 @14680 has 35 MA's), (26, 14731), (38, 14827), (39, 14830), (41, 14860), (47, 14890), (59, 14977), (60, 14989), (62, 15007), (70, 15109), (71, 15121), (74, 15148), (88, 15283), (90, 15313), (91, 15316), (94, 15346), (100, 15418), (112, 15541), (121, 15646), (124, 15670), (132, 15715), (133, 15718), (135, 15736), (137, 15745), (138, 15754), (139, 15757), (141, 15766), (148, 15808), (153, 15868), (159, 15916), (167, 15982), (180, 16048), (183, 16072), (203, 16195), (204, 16204), (211, 16252), (217, 16285), (226, 16339), (231, 16372), (243, 16462), (256, 16525),

Gene: Jakelyne\_26 Start: 14641, Stop: 16509, Start Num: 18

Candidate Starts for Jakelyne\_26:

(9, 14416), (14, 14611), (Start: 18 @14641 has 35 MA's), (27, 14701), (30, 14722), (33, 14734), (38, 14788), (41, 14821), (60, 14950), (67, 15043), (86, 15199), (90, 15253), (91, 15256), (94, 15286), (100,

15358), (112, 15481), (121, 15586), (124, 15610), (133, 15658), (174, 15955), (186, 16006), (189, 16024), (193, 16051), (196, 16069), (198, 16084), (223, 16231), (226, 16258), (234, 16321), (245, 16408), (261, 16501),

Gene: Jera\_22 Start: 15478, Stop: 17370, Start Num: 18

Candidate Starts for Jera\_22:

(Start: 18 @15478 has 35 MA's), (35, 15607), (38, 15646), (50, 15718), (59, 15799), (60, 15811), (70, 15928), (78, 15994), (89, 16087), (90, 16108), (91, 16111), (95, 16144), (102, 16249), (107, 16291), (108, 16309), (123, 16459), (124, 16465), (136, 16537), (139, 16552), (142, 16576), (144, 16582), (148, 16603), (152, 16651), (174, 16816), (176, 16822), (184, 16852), (188, 16876), (189, 16885), (190, 16891), (193, 16912), (198, 16945), (220, 17080), (225, 17110), (226, 17119), (227, 17125), (257, 17314), (259, 17335),

Gene: Johann\_22 Start: 16381, Stop: 18258, Start Num: 18

Candidate Starts for Johann\_22:

(Start: 18 @16381 has 35 MA's), (35, 16510), (38, 16549), (39, 16552), (50, 16621), (54, 16666), (59, 16702), (70, 16831), (90, 17011), (91, 17014), (95, 17047), (102, 17152), (103, 17173), (106, 17191), (107, 17194), (124, 17368), (132, 17413), (136, 17440), (139, 17455), (142, 17479), (144, 17485), (148, 17506), (152, 17554), (178, 17722), (179, 17725), (183, 17746), (185, 17758), (197, 17833), (228, 18028), (231, 18049), (232, 18058), (235, 18091), (245, 18157), (252, 18187), (260, 18229),

Gene: Kenzers\_18 Start: 13986, Stop: 15836, Start Num: 18

Candidate Starts for Kenzers\_18:

(Start: 18 @13986 has 35 MA's), (43, 14175), (51, 14217), (52, 14232), (53, 14244), (69, 14406), (104, 14757), (131, 14985), (137, 15018), (149, 15084), (191, 15375), (194, 15396), (202, 15441), (215, 15519), (221, 15558), (231, 15627), (237, 15675), (241, 15702), (242, 15711), (250, 15762),

Gene: Kieran\_17 Start: 13664, Stop: 15670, Start Num: 18

Candidate Starts for Kieran\_17:

(Start: 18 @13664 has 35 MA's), (36, 13781), (42, 13850), (46, 13868), (48, 13880), (52, 13910), (57, 13961), (58, 13964), (59, 13973), (63, 14006), (69, 14084), (73, 14126), (82, 14183), (85, 14207), (92, 14270), (97, 14324), (101, 14396), (104, 14435), (105, 14438), (121, 14597), (124, 14621), (131, 14663), (132, 14666), (137, 14696), (147, 14750), (149, 14762), (151, 14798), (152, 14807), (155, 14840), (156, 14852), (175, 14981), (192, 15068), (200, 15125), (201, 15128), (202, 15140), (209, 15188), (216, 15224), (249, 15440), (253, 15458), (255, 15464), (263, 15614), (264, 15623),

Gene: Kors\_33 Start: 18533, Stop: 20482, Start Num: 16

Candidate Starts for Kors\_33:

(14, 18518), (15, 18521), (Start: 16 @18533 has 2 MA's), (17, 18545), (Start: 18 @18548 has 35 MA's), (24, 18608), (34, 18659), (43, 18749), (49, 18779), (55, 18836), (56, 18839), (65, 18929), (74, 19016), (83, 19097), (90, 19181), (98, 19256), (101, 19316), (110, 19397), (116, 19448), (124, 19541), (125, 19544), (127, 19550), (139, 19628), (145, 19664), (149, 19682), (162, 19838), (169, 19922), (177, 19946), (215, 20162), (222, 20204), (237, 20321), (239, 20342),

Gene: Linayshia\_21 Start: 16403, Stop: 18304, Start Num: 18

Candidate Starts for Linayshia\_21:

(Start: 18 @16403 has 35 MA's), (21, 16424), (22, 16430), (35, 16532), (38, 16571), (39, 16574), (50, 16643), (59, 16724), (62, 16754), (70, 16853), (74, 16895), (89, 17036), (90, 17057), (91, 17060), (95, 17093), (102, 17198), (106, 17237), (107, 17240), (115, 17300), (123, 17408), (124, 17414), (136, 17486), (139, 17501), (142, 17525), (144, 17531), (148, 17552), (152, 17600), (157, 17651), (160, 17672), (178, 17768), (183, 17792), (185, 17804), (195, 17867), (205, 17924), (213, 17978), (223, 18035), (226, 18062), (227, 18068), (228, 18074), (230, 18086), (235, 18137), (260, 18275),



Gene: LordBart\_32 Start: 18449, Stop: 20398, Start Num: 16

Candidate Starts for LordBart\_32:

(14, 18434), (15, 18437), (Start: 16 @18449 has 2 MA's), (17, 18461), (Start: 18 @18464 has 35 MA's), (24, 18524), (34, 18575), (43, 18665), (49, 18695), (55, 18752), (56, 18755), (65, 18845), (74, 18932), (83, 19013), (90, 19097), (98, 19172), (101, 19232), (110, 19313), (116, 19364), (124, 19457), (125, 19460), (127, 19466), (139, 19544), (145, 19580), (149, 19598), (162, 19754), (169, 19838), (177, 19862), (215, 20078), (222, 20120), (237, 20237), (239, 20258),

Gene: Losacky\_26 Start: 14705, Stop: 16573, Start Num: 18

Candidate Starts for Losacky\_26:

(9, 14480), (14, 14675), (Start: 18 @14705 has 35 MA's), (27, 14765), (30, 14786), (33, 14798), (38, 14852), (41, 14885), (43, 14891), (67, 15107), (86, 15263), (90, 15317), (91, 15320), (94, 15350), (100, 15422), (112, 15545), (118, 15617), (121, 15650), (124, 15674), (133, 15722), (142, 15785), (174, 16019), (186, 16070), (189, 16088), (193, 16115), (196, 16133), (198, 16148), (223, 16295), (226, 16322), (234, 16385), (245, 16472), (261, 16565),

Gene: Lynlen\_18 Start: 13986, Stop: 15836, Start Num: 18

Candidate Starts for Lynlen\_18:

(Start: 18 @13986 has 35 MA's), (43, 14175), (51, 14217), (52, 14232), (53, 14244), (69, 14406), (104, 14757), (131, 14985), (137, 15018), (149, 15084), (191, 15375), (194, 15396), (202, 15441), (215, 15519), (221, 15558), (231, 15627), (237, 15675), (241, 15702), (242, 15711), (250, 15762),

Gene: MenE\_24 Start: 14693, Stop: 16561, Start Num: 18

Candidate Starts for MenE\_24:

(9, 14468), (14, 14663), (Start: 18 @14693 has 35 MA's), (27, 14753), (30, 14774), (33, 14786), (38, 14840), (41, 14873), (43, 14879), (67, 15095), (86, 15251), (90, 15305), (91, 15308), (94, 15338), (100, 15410), (112, 15533), (118, 15605), (121, 15638), (124, 15662), (133, 15710), (142, 15773), (174, 16007), (186, 16058), (189, 16076), (193, 16103), (196, 16121), (198, 16136), (223, 16283), (226, 16310), (234, 16373), (245, 16460), (261, 16553),

Gene: Milani\_22 Start: 15329, Stop: 17206, Start Num: 18

Candidate Starts for Milani\_22:

(Start: 18 @15329 has 35 MA's), (26, 15380), (38, 15476), (39, 15479), (47, 15539), (62, 15656), (70, 15758), (71, 15770), (78, 15845), (88, 15932), (90, 15962), (91, 15965), (94, 15995), (97, 16025), (98, 16037), (100, 16067), (113, 16199), (121, 16295), (124, 16319), (132, 16364), (133, 16367), (137, 16394), (139, 16406), (141, 16415), (148, 16457), (153, 16517), (181, 16685), (199, 16802), (208, 16859), (211, 16877), (214, 16889), (215, 16892), (219, 16916), (226, 16964), (231, 16997), (238, 17051),

Gene: Milomuff\_20 Start: 14384, Stop: 16222, Start Num: 18

Candidate Starts for Milomuff\_20:

(Start: 18 @14384 has 35 MA's), (43, 14573), (51, 14615), (52, 14630), (60, 14705), (66, 14777), (69, 14804), (70, 14816), (104, 15155), (131, 15383), (137, 15416), (154, 15548), (166, 15614), (168, 15653), (170, 15668), (187, 15737), (214, 15905), (219, 15932), (224, 15962), (232, 16022), (233, 16025), (241, 16088), (242, 16097),

Gene: Olympi\_22 Start: 16368, Stop: 18245, Start Num: 18

Candidate Starts for Olympi\_22:

(Start: 18 @16368 has 35 MA's), (35, 16497), (38, 16536), (39, 16539), (50, 16608), (54, 16653), (59, 16689), (70, 16818), (90, 16998), (91, 17001), (95, 17034), (96, 17058), (102, 17139), (106, 17178), (107, 17181), (117, 17271), (124, 17355), (136, 17427), (139, 17442), (142, 17466), (144, 17472), (148, 17493), (152, 17541), (178, 17709), (179, 17712), (183, 17733), (185, 17745), (197, 17820), (228, 18015), (231, 18036), (232, 18045), (235, 18078), (245, 18144), (252, 18174), (260, 18216),

Gene: PermaG\_22 Start: 16442, Stop: 18325, Start Num: 18

Candidate Starts for PermaG\_22:

(14, 16412), (Start: 18 @16442 has 35 MA's), (35, 16571), (38, 16610), (39, 16613), (50, 16682), (59, 16763), (70, 16892), (80, 16970), (90, 17072), (91, 17075), (102, 17213), (106, 17252), (107, 17255), (120, 17399), (124, 17429), (139, 17516), (142, 17540), (144, 17546), (148, 17567), (152, 17615), (178, 17783), (179, 17786), (183, 17807), (185, 17819), (210, 17975), (223, 18050), (225, 18068), (234, 18137), (245, 18224), (246, 18227), (254, 18260),

Gene: PhillyJawn\_24 Start: 14425, Stop: 16293, Start Num: 18

Candidate Starts for PhillyJawn\_24:

(9, 14200), (14, 14395), (Start: 18 @14425 has 35 MA's), (27, 14485), (30, 14506), (33, 14518), (38, 14572), (41, 14605), (60, 14734), (67, 14827), (86, 14983), (90, 15037), (91, 15040), (94, 15070), (100, 15142), (112, 15265), (121, 15370), (124, 15394), (133, 15442), (174, 15739), (186, 15790), (189, 15808), (196, 15853), (198, 15868), (223, 16015), (226, 16042), (234, 16105), (245, 16192), (261, 16285),

Gene: Phingu\_26 Start: 14644, Stop: 16512, Start Num: 18

Candidate Starts for Phingu\_26:

(9, 14419), (14, 14614), (Start: 18 @14644 has 35 MA's), (27, 14704), (30, 14725), (33, 14737), (38, 14791), (41, 14824), (60, 14953), (67, 15046), (86, 15202), (90, 15256), (91, 15259), (94, 15289), (100, 15361), (112, 15484), (118, 15556), (121, 15589), (124, 15613), (133, 15661), (142, 15724), (174, 15958), (186, 16009), (189, 16027), (196, 16072), (198, 16087), (223, 16234), (226, 16261), (234, 16324), (245, 16411), (261, 16504),

Gene: Phonegingi\_23 Start: 14486, Stop: 16339, Start Num: 18

Candidate Starts for Phonegingi\_23:

(9, 14261), (14, 14456), (Start: 18 @14486 has 35 MA's), (27, 14546), (30, 14567), (33, 14579), (38, 14633), (41, 14666), (60, 14795), (79, 14984), (86, 15044), (90, 15098), (91, 15101), (94, 15131), (100, 15203), (112, 15326), (116, 15365), (118, 15398), (121, 15431), (124, 15455), (133, 15503), (137, 15530), (141, 15551), (148, 15593), (150, 15620), (186, 15851), (189, 15869), (212, 16016), (226, 16103), (228, 16115), (234, 16160), (235, 16172), (240, 16193), (252, 16268), (260, 16310), (261, 16331),

Gene: Pickles13\_23 Start: 14850, Stop: 16718, Start Num: 18

Candidate Starts for Pickles13\_23:

(9, 14625), (14, 14820), (Start: 18 @14850 has 35 MA's), (27, 14910), (30, 14931), (33, 14943), (38, 14997), (41, 15030), (42, 15033), (88, 15432), (90, 15462), (91, 15465), (94, 15495), (100, 15567), (112, 15690), (118, 15762), (121, 15795), (124, 15819), (130, 15855), (133, 15867), (137, 15894), (142, 15930), (154, 16026), (174, 16164), (189, 16233), (193, 16260), (223, 16440), (226, 16467), (234, 16530), (245, 16617), (261, 16710),

Gene: Rasovi\_21 Start: 16411, Stop: 18312, Start Num: 18

Candidate Starts for Rasovi\_21:

(Start: 18 @16411 has 35 MA's), (21, 16432), (22, 16438), (35, 16540), (39, 16582), (50, 16651), (59, 16732), (62, 16762), (70, 16861), (74, 16903), (89, 17044), (90, 17065), (91, 17068), (95, 17101), (102, 17206), (106, 17245), (107, 17248), (115, 17308), (123, 17416), (124, 17422), (136, 17494), (139, 17509), (142, 17533), (144, 17539), (148, 17560), (152, 17608), (157, 17659), (160, 17680), (178, 17776), (183, 17800), (185, 17812), (195, 17875), (205, 17932), (213, 17986), (223, 18043), (226, 18070), (227, 18076), (228, 18082), (230, 18094), (235, 18145), (260, 18283),

Gene: RikSengupta\_32 Start: 18570, Stop: 20519, Start Num: 16

Candidate Starts for RikSengupta\_32:

(14, 18555), (15, 18558), (Start: 16 @18570 has 2 MA's), (17, 18582), (Start: 18 @18585 has 35 MA's), (24, 18645), (34, 18696), (43, 18786), (49, 18816), (55, 18873), (56, 18876), (61, 18906), (65, 18966), (74, 19053), (83, 19134), (90, 19218), (98, 19293), (101, 19353), (110, 19434), (116, 19485), (124, 19578), (125, 19581), (127, 19587), (139, 19665), (145, 19701), (149, 19719), (162, 19875), (169, 19959), (177, 19983), (215, 20199), (222, 20241), (237, 20358), (239, 20379),

Gene: Rona\_17 Start: 13661, Stop: 15667, Start Num: 18

Candidate Starts for Rona\_17:

(Start: 18 @13661 has 35 MA's), (36, 13778), (42, 13847), (46, 13865), (48, 13877), (52, 13907), (57, 13958), (58, 13961), (59, 13970), (63, 14003), (69, 14081), (73, 14123), (82, 14180), (85, 14204), (92, 14267), (97, 14321), (101, 14393), (104, 14432), (105, 14435), (121, 14594), (124, 14618), (131, 14660), (132, 14663), (137, 14693), (147, 14747), (149, 14759), (151, 14795), (152, 14804), (155, 14837), (156, 14849), (175, 14978), (192, 15065), (200, 15122), (201, 15125), (202, 15137), (209, 15185), (216, 15221), (249, 15437), (253, 15455), (255, 15461), (263, 15611), (264, 15620),

Gene: SBlackberry\_21 Start: 16237, Stop: 18123, Start Num: 18

Candidate Starts for SBlackberry\_21:

(Start: 18 @16237 has 35 MA's), (35, 16366), (38, 16405), (50, 16477), (59, 16558), (60, 16570), (70, 16687), (76, 16729), (89, 16846), (90, 16867), (91, 16870), (95, 16903), (102, 17008), (106, 17047), (107, 17050), (109, 17080), (123, 17218), (124, 17224), (136, 17296), (139, 17311), (142, 17335), (144, 17341), (148, 17362), (152, 17410), (158, 17467), (171, 17566), (174, 17575), (176, 17581), (188, 17635), (193, 17671), (228, 17893), (231, 17914), (232, 17923), (235, 17956), (245, 18022), (252, 18052), (260, 18094),

Gene: Sharkboy\_17 Start: 13660, Stop: 15654, Start Num: 18

Candidate Starts for Sharkboy\_17:

(Start: 18 @13660 has 35 MA's), (32, 13753), (46, 13864), (52, 13906), (59, 13969), (69, 14080), (75, 14149), (92, 14266), (97, 14320), (124, 14617), (131, 14659), (137, 14692), (146, 14740), (151, 14794), (172, 14971), (175, 14977), (182, 15001), (200, 15106), (214, 15199), (229, 15292), (236, 15355), (253, 15457), (258, 15478), (262, 15544),

Gene: Solea\_20 Start: 14384, Stop: 16222, Start Num: 18

Candidate Starts for Solea\_20:

(Start: 18 @14384 has 35 MA's), (43, 14573), (51, 14615), (52, 14630), (60, 14705), (66, 14777), (69, 14804), (70, 14816), (104, 15155), (131, 15383), (137, 15416), (154, 15548), (166, 15614), (168, 15653), (170, 15668), (187, 15737), (214, 15905), (219, 15932), (224, 15962), (232, 16022), (233, 16025), (241, 16088), (242, 16097),

Gene: Sparcetus\_32 Start: 18449, Stop: 20398, Start Num: 16

Candidate Starts for Sparcetus\_32:

(14, 18434), (15, 18437), (Start: 16 @18449 has 2 MA's), (17, 18461), (Start: 18 @18464 has 35 MA's), (24, 18524), (34, 18575), (43, 18665), (49, 18695), (55, 18752), (56, 18755), (65, 18845), (74, 18932), (83, 19013), (90, 19097), (98, 19172), (101, 19232), (110, 19313), (116, 19364), (124, 19457), (125, 19460), (127, 19466), (139, 19544), (145, 19580), (149, 19598), (162, 19754), (169, 19838), (177, 19862), (215, 20078), (222, 20120), (237, 20237), (239, 20258),

Gene: Sucha\_18 Start: 13667, Stop: 15568, Start Num: 18

Candidate Starts for Sucha\_18:

(Start: 18 @13667 has 35 MA's), (26, 13718), (38, 13814), (39, 13817), (41, 13847), (45, 13856), (59, 13964), (60, 13976), (62, 13994), (70, 14096), (71, 14108), (74, 14135), (79, 14186), (88, 14270), (90, 14300), (91, 14303), (94, 14333), (116, 14567), (121, 14633), (124, 14657), (132, 14702), (133, 14705), (138, 14741), (139, 14744), (148, 14795), (153, 14855), (159, 14903), (203, 15182), (204, 15191), (211, 15239), (217, 15272), (221, 15293), (226, 15326), (243, 15449),

Gene: TinyMiny\_32 Start: 18483, Stop: 20417, Start Num: 18

Candidate Starts for TinyMiny\_32:

(14, 18453), (15, 18456), (Start: 16 @18468 has 2 MA's), (17, 18480), (Start: 18 @18483 has 35 MA's), (24, 18543), (34, 18594), (43, 18684), (49, 18714), (55, 18771), (56, 18774), (65, 18864), (74, 18951), (83, 19032), (90, 19116), (98, 19191), (101, 19251), (110, 19332), (116, 19383), (124, 19476), (125, 19479), (127, 19485), (139, 19563), (145, 19599), (149, 19617), (162, 19773), (169, 19857), (177, 19881), (215, 20097), (222, 20139), (237, 20256), (239, 20277),

Gene: TurboVicky\_21 Start: 16231, Stop: 18123, Start Num: 18

Candidate Starts for TurboVicky\_21:

(Start: 18 @16231 has 35 MA's), (35, 16360), (38, 16399), (39, 16402), (50, 16471), (59, 16552), (60, 16564), (70, 16681), (89, 16840), (90, 16861), (91, 16864), (95, 16897), (102, 17002), (106, 17041), (107, 17044), (108, 17062), (109, 17074), (123, 17212), (124, 17218), (136, 17290), (139, 17305), (142, 17329), (144, 17335), (148, 17356), (152, 17404), (174, 17569), (176, 17575), (184, 17605), (189, 17638), (190, 17644), (198, 17698), (206, 17737), (220, 17833), (227, 17878), (230, 17896), (245, 18022), (257, 18067), (259, 18088),

Gene: Typher\_23 Start: 16361, Stop: 18253, Start Num: 18

Candidate Starts for Typher\_23:

(Start: 18 @16361 has 35 MA's), (35, 16490), (38, 16529), (39, 16532), (50, 16601), (59, 16682), (60, 16694), (70, 16811), (89, 16970), (90, 16991), (91, 16994), (95, 17027), (102, 17132), (106, 17171), (107, 17174), (108, 17192), (109, 17204), (123, 17342), (124, 17348), (136, 17420), (139, 17435), (142, 17459), (144, 17465), (148, 17486), (152, 17534), (174, 17699), (176, 17705), (184, 17735), (189, 17768), (190, 17774), (198, 17828), (220, 17963), (226, 18002), (230, 18026), (257, 18197), (259, 18218),

Gene: Violeta\_25 Start: 14523, Stop: 16391, Start Num: 18

Candidate Starts for Violeta\_25:

(9, 14298), (14, 14493), (Start: 18 @14523 has 35 MA's), (27, 14583), (30, 14604), (33, 14616), (38, 14670), (41, 14703), (60, 14832), (67, 14925), (86, 15081), (90, 15135), (91, 15138), (94, 15168), (100, 15240), (112, 15363), (121, 15468), (124, 15492), (133, 15540), (174, 15837), (186, 15888), (189, 15906), (193, 15933), (196, 15951), (198, 15966), (223, 16113), (226, 16140), (234, 16203), (245, 16290), (261, 16383),

Gene: Warren\_24 Start: 14623, Stop: 16491, Start Num: 18

Candidate Starts for Warren\_24:

(9, 14398), (14, 14593), (Start: 18 @14623 has 35 MA's), (27, 14683), (30, 14704), (33, 14716), (38, 14770), (41, 14803), (67, 15025), (86, 15181), (90, 15235), (91, 15238), (94, 15268), (100, 15340), (112, 15463), (118, 15535), (124, 15592), (133, 15640), (142, 15703), (154, 15799), (174, 15937), (186, 15988), (189, 16006), (193, 16033), (226, 16240), (245, 16390), (257, 16435), (261, 16483),

Gene: Wrackline\_28 Start: 15957, Stop: 17840, Start Num: 18

Candidate Starts for Wrackline\_28:

(Start: 18 @15957 has 35 MA's), (19, 15963), (20, 15972), (26, 16008), (27, 16017), (28, 16026), (31, 16038), (38, 16104), (47, 16167), (52, 16191), (60, 16266), (64, 16320), (70, 16386), (84, 16509), (90, 16587), (91, 16590), (94, 16620), (98, 16662), (100, 16692), (102, 16728), (105, 16764), (116, 16854), (120, 16914), (124, 16944), (126, 16950), (128, 16956), (130, 16980), (132, 16989), (133, 16992), (137, 17019), (138, 17028), (142, 17055), (148, 17082), (151, 17121), (153, 17142), (161, 17202), (163, 17205), (164, 17214), (165, 17226), (169, 17280), (173, 17295), (211, 17508), (214, 17520), (218, 17544), (222, 17565), (236, 17676), (237, 17679), (241, 17706), (242, 17715), (251, 17766),

Gene: Zanella\_21 Start: 16234, Stop: 18126, Start Num: 18

Candidate Starts for Zanella\_21:

(Start: 18 @16234 has 35 MA's), (35, 16363), (38, 16402), (39, 16405), (50, 16474), (59, 16555), (60, 16567), (70, 16684), (89, 16843), (90, 16864), (91, 16867), (95, 16900), (102, 17005), (106, 17044), (107, 17047), (108, 17065), (109, 17077), (123, 17215), (124, 17221), (136, 17293), (139, 17308), (142, 17332), (144, 17338), (148, 17359), (152, 17407), (174, 17572), (176, 17578), (184, 17608), (189, 17641), (190, 17647), (198, 17701), (206, 17740), (220, 17836), (227, 17881), (230, 17899), (245, 18025), (257, 18070), (259, 18091),