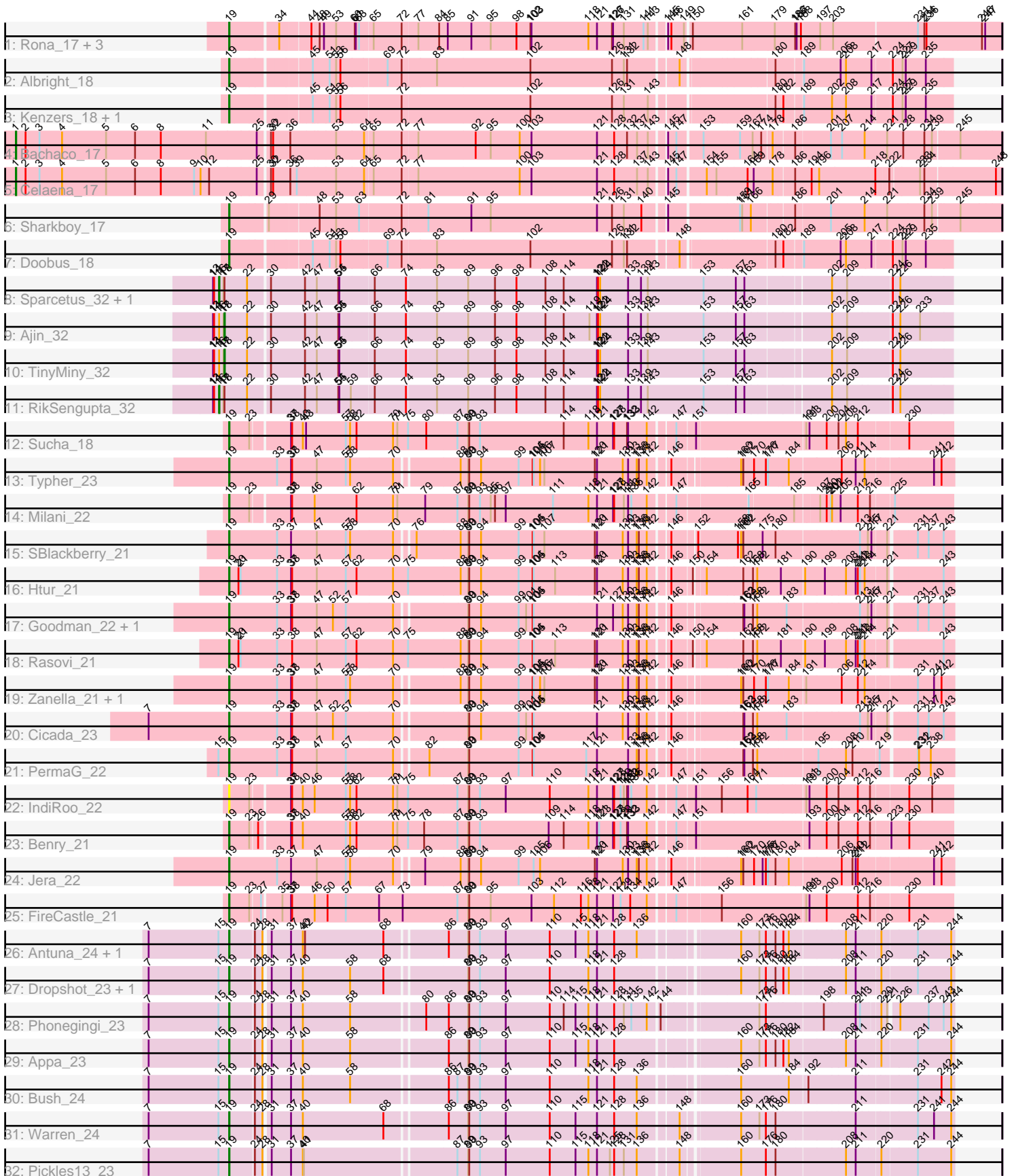


Pham 196662



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 196662 Report

This analysis was run 12/09/24 on database version 580.

Pham number 196662 has 41 members, 2 are drafts.

Phages represented in each track:

- Track 1 : Rona_17, ChiliPepper_17, Dismas_17, Kieran_17
- Track 2 : Albright_18
- Track 3 : Kenzers_18, Lynlen_18
- Track 4 : Bachaco_17
- Track 5 : Celaena_17
- Track 6 : Sharkboy_17
- Track 7 : Doobus_18
- Track 8 : Sparcetus_32, Kors_33
- Track 9 : Ajin_32
- Track 10 : TinyMiny_32
- Track 11 : RikSengupta_32
- Track 12 : Sucha_18
- Track 13 : Typher_23
- Track 14 : Milani_22
- Track 15 : SBlackberry_21
- Track 16 : Htur_21
- Track 17 : Goodman_22, Johann_22
- Track 18 : Rasovi_21
- Track 19 : Zanella_21, TurboVicky_21
- Track 20 : Cicada_23
- Track 21 : PermaG_22
- Track 22 : IndiRoo_22
- Track 23 : Benry_21
- Track 24 : Jera_22
- Track 25 : FireCastle_21
- Track 26 : Antuna_24, MenE_24
- Track 27 : Dropshot_23, Blett_24
- Track 28 : Phonegingi_23
- Track 29 : Appa_23
- Track 30 : Bush_24
- Track 31 : Warren_24
- Track 32 : Pickles13_23

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

The start number called the most often in the published annotations is 19, it was called in 33 of the 39 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Albright_18, Antuna_24, Appa_23, Berry_21, Blett_24, Bush_24, ChiliPepper_17, Cicada_23, Dismas_17, Doobus_18, Dropshot_23, FireCastle_21, Goodman_22, Htur_21, IndiRoo_22, Jera_22, Johann_22, Kenzers_18, Kieran_17, Lynlen_18, MenE_24, Milani_22, PermaG_22, Phonegingi_23, Pickles13_23, Rasovi_21, Rona_17, SBlackberry_21, Sharkboy_17, Sucha_18, TurboVicky_21, Typher_23, Warren_24, Zanella_21,

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

-

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

- Ajin_32, Bachaco_17, Celaena_17, Kors_33, RikSengupta_32, Sparcetus_32, TinyMiny_32,

Summary by start number:

Start 1:

- Found in 2 of 41 (4.9%) of genes in pham
- Manual Annotations of this start: 2 of 39
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bachaco_17 (EB), Celaena_17 (EB),

Start 16:

- Found in 5 of 41 (12.2%) of genes in pham
- Manual Annotations of this start: 2 of 39
- Called 60.0% of time when present
- Phage (with cluster) where this start called: Kors_33 (EF), RikSengupta_32 (EF), Sparcetus_32 (EF),

Start 18:

- Found in 5 of 41 (12.2%) of genes in pham
- Manual Annotations of this start: 2 of 39
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Ajin_32 (EF), TinyMiny_32 (EF),

Start 19:

- Found in 34 of 41 (82.9%) of genes in pham
- Manual Annotations of this start: 33 of 39
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Albright_18 (EB), Antuna_24 (GA), Appa_23 (GA), Berry_21 (EJ), Blett_24 (GA), Bush_24 (GA), ChiliPepper_17 (EB), Cicada_23 (EJ), Dismas_17 (EB), Doobus_18 (EB), Dropshot_23 (GA), FireCastle_21 (EJ), Goodman_22 (EJ), Htur_21 (EJ), IndiRoo_22 (EJ), Jera_22 (EJ), Johann_22 (EJ), Kenzers_18 (EB), Kieran_17 (EB), Lynlen_18 (EB), MenE_24 (GA), Milani_22 (EJ), PermaG_22 (EJ), Phonegingi_23 (GA), Pickles13_23 (GA), Rasovi_21 (EJ), Rona_17 (EB), SBlackberry_21 (EJ), Sharkboy_17 (EB), Sucha_18 (EJ), TurboVicky_21 (EJ), Typher_23 (EJ), Warren_24 (GA), Zanella_21 (EJ),

Summary by clusters:

There are 4 clusters represented in this pham: EF, EJ, GA, EB,

Info for manual annotations of cluster EB:

- Start number 1 was manually annotated 2 times for cluster EB.
- Start number 19 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 19 was manually annotated 15 times for cluster EJ.

Info for manual annotations of cluster GA:

- Start number 19 was manually annotated 9 times for cluster GA.

Gene Information:

Gene: Ajin_32 Start: 18502, Stop: 20436, Start Num: 18

Candidate Starts for Ajin_32:

(13, 18472), (14, 18475), (Start: 16 @18487 has 2 MA's), (17, 18499), (Start: 18 @18502 has 2 MA's), (22, 18562), (30, 18613), (42, 18703), (47, 18733), (54, 18790), (55, 18793), (66, 18883), (74, 18970), (83, 19051), (89, 19135), (96, 19210), (98, 19270), (108, 19351), (114, 19402), (119, 19474), (121, 19495), (122, 19498), (124, 19504), (133, 19582), (139, 19618), (143, 19636), (153, 19792), (157, 19876), (163, 19900), (202, 20116), (209, 20158), (224, 20275), (226, 20296), (233, 20347),

Gene: Albright_18 Start: 13896, Stop: 15746, Start Num: 19

Candidate Starts for Albright_18:

(Start: 19 @13896 has 33 MA's), (45, 14085), (51, 14127), (53, 14142), (56, 14154), (69, 14277), (72, 14316), (83, 14409), (102, 14667), (126, 14895), (131, 14928), (132, 14937), (148, 15060), (180, 15285), (189, 15351), (205, 15453), (208, 15468), (217, 15537), (224, 15585), (227, 15612), (229, 15621), (235, 15672),

Gene: Antuna_24 Start: 14563, Stop: 16431, Start Num: 19

Candidate Starts for Antuna_24:

(7, 14338), (15, 14533), (Start: 19 @14563 has 33 MA's), (24, 14623), (28, 14644), (31, 14656), (37, 14710), (40, 14743), (42, 14749), (68, 14965), (86, 15121), (89, 15175), (90, 15178), (93, 15208), (97, 15280), (110, 15403), (115, 15475), (118, 15508), (121, 15532), (128, 15580), (136, 15643), (160, 15877), (173, 15928), (176, 15946), (180, 15973), (182, 15991), (184, 16006), (208, 16153), (211, 16180), (220, 16243), (231, 16330), (244, 16423),

Gene: Appa_23 Start: 14425, Stop: 16293, Start Num: 19

Candidate Starts for Appa_23:

(7, 14200), (15, 14395), (Start: 19 @14425 has 33 MA's), (24, 14485), (28, 14506), (31, 14518), (37, 14572), (40, 14605), (58, 14734), (86, 14983), (89, 15037), (90, 15040), (93, 15070), (97, 15142), (110, 15265), (115, 15337), (118, 15370), (121, 15394), (128, 15442), (160, 15739), (173, 15790), (176, 15808), (180, 15835), (182, 15853), (184, 15868), (208, 16015), (211, 16042), (220, 16105), (231, 16192), (244, 16285),

Gene: Bachaco_17 Start: 13521, Stop: 16133, Start Num: 1

Candidate Starts for Bachaco_17:

(Start: 1 @13521 has 2 MA's), (2, 13548), (3, 13587), (4, 13650), (5, 13773), (6, 13854), (8, 13926), (11, 14052), (25, 14190), (30, 14217), (32, 14223), (36, 14271), (53, 14388), (64, 14463), (65, 14484), (72, 14562), (77, 14604), (92, 14760), (95, 14802), (100, 14883), (103, 14916), (121, 15099), (128, 15147), (132, 15183), (137, 15210), (143, 15240), (145, 15276), (147, 15297), (153, 15357), (159, 15453), (167, 15483), (174, 15507), (178, 15531), (186, 15585), (201, 15678), (207, 15708), (214, 15771), (221, 15834), (228, 15879), (234, 15936), (239, 15957), (245, 16023),

Gene: Benry_21 Start: 14670, Stop: 16571, Start Num: 19

Candidate Starts for Benry_21:

(Start: 19 @14670 has 33 MA's), (23, 14721), (26, 14739), (37, 14817), (38, 14820), (40, 14850), (57, 14967), (58, 14979), (62, 14997), (70, 15099), (71, 15111), (75, 15138), (78, 15183), (87, 15273), (89, 15303), (90, 15306), (93, 15336), (109, 15528), (114, 15570), (118, 15636), (121, 15660), (123, 15666), (127, 15705), (128, 15708), (129, 15726), (132, 15744), (133, 15747), (142, 15798), (147, 15858), (151, 15906), (193, 16194), (200, 16242), (204, 16275), (212, 16329), (216, 16362), (223, 16410), (230, 16452),

Gene: Blett_24 Start: 14578, Stop: 16446, Start Num: 19

Candidate Starts for Blett_24:

(7, 14353), (15, 14548), (Start: 19 @14578 has 33 MA's), (24, 14638), (28, 14659), (31, 14671), (37, 14725), (40, 14758), (58, 14887), (68, 14980), (89, 15190), (90, 15193), (93, 15223), (97, 15295), (110, 15418), (118, 15523), (121, 15547), (128, 15595), (160, 15892), (173, 15943), (176, 15961), (180, 15988), (182, 16006), (184, 16021), (208, 16168), (211, 16195), (220, 16258), (231, 16345), (244, 16438),

Gene: Bush_24 Start: 14559, Stop: 16421, Start Num: 19

Candidate Starts for Bush_24:

(7, 14334), (15, 14529), (Start: 19 @14559 has 33 MA's), (24, 14619), (28, 14640), (31, 14652), (37, 14706), (40, 14739), (58, 14868), (86, 15117), (87, 15141), (89, 15171), (90, 15174), (93, 15204), (97, 15276), (110, 15399), (118, 15504), (121, 15528), (128, 15576), (136, 15639), (160, 15867), (184, 15996), (192, 16041), (211, 16170), (231, 16320), (242, 16386), (244, 16413),

Gene: Celaena_17 Start: 13457, Stop: 16075, Start Num: 1

Candidate Starts for Celaena_17:

(Start: 1 @13457 has 2 MA's), (2, 13484), (3, 13523), (4, 13586), (5, 13709), (6, 13790), (8, 13862), (9, 13955), (10, 13973), (12, 13997), (25, 14126), (30, 14153), (32, 14159), (36, 14207), (39, 14225), (53, 14324), (64, 14399), (65, 14420), (72, 14498), (77, 14540), (100, 14819), (103, 14852), (121, 15035), (128, 15083), (137, 15146), (143, 15176), (145, 15212), (147, 15233), (154, 15302), (155, 15329), (164, 15407), (169, 15422), (178, 15473), (186, 15527), (194, 15572), (196, 15593), (218, 15746), (222, 15779), (233, 15857), (234, 15869), (248, 16058),

Gene: ChiliPepper_17 Start: 13661, Stop: 15667, Start Num: 19

Candidate Starts for ChiliPepper_17:

(Start: 19 @13661 has 33 MA's), (34, 13778), (44, 13847), (48, 13865), (49, 13877), (53, 13907), (60, 13958), (61, 13961), (63, 13970), (65, 14003), (72, 14081), (77, 14123), (84, 14180), (85, 14204), (91, 14267), (95, 14321), (98, 14393), (102, 14432), (103, 14435), (118, 14594), (121, 14618), (126, 14660), (127, 14663), (131, 14693), (141, 14747), (143, 14759), (145, 14795), (146, 14804), (149, 14837), (150, 14849), (161, 14978), (179, 15065), (186, 15122), (187, 15125), (188, 15137), (197, 15185), (203, 15221), (231, 15437), (234, 15455), (236, 15461), (246, 15611), (247, 15620),

Gene: Cicada_23 Start: 16468, Stop: 18345, Start Num: 19

Candidate Starts for Cicada_23:

(7, 16243), (Start: 19 @16468 has 33 MA's), (33, 16597), (37, 16636), (38, 16639), (47, 16708), (52, 16753), (57, 16789), (70, 16918), (89, 17098), (90, 17101), (94, 17134), (99, 17239), (101, 17260), (104, 17278), (105, 17281), (121, 17455), (130, 17527), (133, 17542), (136, 17566), (138, 17572), (142, 17593), (146, 17641), (162, 17809), (163, 17812), (168, 17833), (172, 17845), (183, 17920), (213, 18115), (215, 18136), (217, 18145), (221, 18178), (231, 18244), (237, 18274), (243, 18316),

Gene: Dismas_17 Start: 13661, Stop: 15667, Start Num: 19

Candidate Starts for Dismas_17:

(Start: 19 @13661 has 33 MA's), (34, 13778), (44, 13847), (48, 13865), (49, 13877), (53, 13907), (60, 13958), (61, 13961), (63, 13970), (65, 14003), (72, 14081), (77, 14123), (84, 14180), (85, 14204), (91, 14267), (95, 14321), (98, 14393), (102, 14432), (103, 14435), (118, 14594), (121, 14618), (126, 14660), (127, 14663), (131, 14693), (141, 14747), (143, 14759), (145, 14795), (146, 14804), (149, 14837), (150, 14849), (161, 14978), (179, 15065), (186, 15122), (187, 15125), (188, 15137), (197, 15185), (203, 15221), (231, 15437), (234, 15455), (236, 15461), (246, 15611), (247, 15620),

Gene: Doobus_18 Start: 14247, Stop: 16097, Start Num: 19

Candidate Starts for Doobus_18:

(Start: 19 @14247 has 33 MA's), (45, 14436), (51, 14478), (53, 14493), (56, 14505), (69, 14628), (72, 14667), (83, 14760), (102, 15018), (126, 15246), (131, 15279), (132, 15288), (148, 15411), (180, 15636), (182, 15657), (189, 15702), (205, 15804), (208, 15819), (217, 15888), (224, 15936), (227, 15963), (229, 15972), (235, 16023),

Gene: Dropshot_23 Start: 14425, Stop: 16293, Start Num: 19

Candidate Starts for Dropshot_23:

(7, 14200), (15, 14395), (Start: 19 @14425 has 33 MA's), (24, 14485), (28, 14506), (31, 14518), (37, 14572), (40, 14605), (58, 14734), (68, 14827), (89, 15037), (90, 15040), (93, 15070), (97, 15142), (110, 15265), (118, 15370), (121, 15394), (128, 15442), (160, 15739), (173, 15790), (176, 15808), (180, 15835), (182, 15853), (184, 15868), (208, 16015), (211, 16042), (220, 16105), (231, 16192), (244, 16285),

Gene: FireCastle_21 Start: 16238, Stop: 18142, Start Num: 19

Candidate Starts for FireCastle_21:

(Start: 19 @16238 has 33 MA's), (23, 16289), (27, 16313), (35, 16361), (37, 16385), (38, 16388), (46, 16448), (50, 16484), (57, 16535), (67, 16628), (73, 16694), (87, 16841), (89, 16871), (90, 16874), (95, 16934), (103, 17048), (112, 17111), (116, 17183), (118, 17204), (121, 17228), (127, 17273), (129, 17294), (134, 17321), (142, 17366), (147, 17426), (156, 17540), (191, 17756), (193, 17765), (200, 17813), (212, 17900), (216, 17933), (230, 18023),

Gene: Goodman_22 Start: 16381, Stop: 18258, Start Num: 19

Candidate Starts for Goodman_22:

(Start: 19 @16381 has 33 MA's), (33, 16510), (37, 16549), (38, 16552), (47, 16621), (52, 16666), (57, 16702), (70, 16831), (89, 17011), (90, 17014), (94, 17047), (99, 17152), (101, 17173), (104, 17191), (105, 17194), (121, 17368), (127, 17413), (130, 17440), (133, 17455), (136, 17479), (138, 17485), (142, 17506), (146, 17554), (162, 17722), (163, 17725), (168, 17746), (172, 17758), (183, 17833), (213, 18028), (215, 18049), (217, 18058), (221, 18091), (231, 18157), (237, 18187), (243, 18229),

Gene: Htur_21 Start: 16411, Stop: 18312, Start Num: 19

Candidate Starts for Htur_21:

(Start: 19 @16411 has 33 MA's), (20, 16432), (21, 16438), (33, 16540), (37, 16579), (38, 16582), (47, 16651), (57, 16732), (62, 16762), (70, 16861), (75, 16903), (88, 17044), (89, 17065), (90, 17068), (94, 17101), (99, 17206), (104, 17245), (105, 17248), (113, 17308), (120, 17416), (121, 17422), (130, 17494), (133, 17509), (136, 17533), (138, 17539), (142, 17560), (146, 17608), (150, 17659), (154, 17680), (162, 17776), (168, 17800), (172, 17812), (181, 17875), (190, 17932), (199, 17986), (208,

18043), (211, 18070), (212, 18076), (213, 18082), (214, 18094), (221, 18145), (243, 18283),

Gene: IndiRoo_22 Start: 14680, Stop: 16581, Start Num: 19

Candidate Starts for IndiRoo_22:

(Start: 19 @14680 has 33 MA's), (23, 14731), (37, 14827), (38, 14830), (40, 14860), (46, 14890), (57, 14977), (58, 14989), (62, 15007), (70, 15109), (71, 15121), (75, 15148), (87, 15283), (89, 15313), (90, 15316), (93, 15346), (97, 15418), (110, 15541), (118, 15646), (121, 15670), (127, 15715), (128, 15718), (129, 15736), (131, 15745), (132, 15754), (133, 15757), (135, 15766), (142, 15808), (147, 15868), (151, 15916), (156, 15982), (164, 16048), (171, 16072), (191, 16195), (193, 16204), (200, 16252), (204, 16285), (212, 16339), (216, 16372), (230, 16462), (240, 16525),

Gene: Jera_22 Start: 15478, Stop: 17370, Start Num: 19

Candidate Starts for Jera_22:

(Start: 19 @15478 has 33 MA's), (33, 15607), (37, 15646), (47, 15718), (57, 15799), (58, 15811), (70, 15928), (79, 15994), (88, 16087), (89, 16108), (90, 16111), (94, 16144), (99, 16249), (105, 16291), (106, 16309), (120, 16459), (121, 16465), (130, 16537), (133, 16552), (136, 16576), (138, 16582), (142, 16603), (146, 16651), (160, 16816), (162, 16822), (170, 16852), (175, 16876), (176, 16885), (177, 16891), (180, 16912), (184, 16945), (206, 17080), (210, 17110), (211, 17119), (212, 17125), (241, 17314), (242, 17335),

Gene: Johann_22 Start: 16381, Stop: 18258, Start Num: 19

Candidate Starts for Johann_22:

(Start: 19 @16381 has 33 MA's), (33, 16510), (37, 16549), (38, 16552), (47, 16621), (52, 16666), (57, 16702), (70, 16831), (89, 17011), (90, 17014), (94, 17047), (99, 17152), (101, 17173), (104, 17191), (105, 17194), (121, 17368), (127, 17413), (130, 17440), (133, 17455), (136, 17479), (138, 17485), (142, 17506), (146, 17554), (162, 17722), (163, 17725), (168, 17746), (172, 17758), (183, 17833), (213, 18028), (215, 18049), (217, 18058), (221, 18091), (231, 18157), (237, 18187), (243, 18229),

Gene: Kenzers_18 Start: 13986, Stop: 15836, Start Num: 19

Candidate Starts for Kenzers_18:

(Start: 19 @13986 has 33 MA's), (45, 14175), (51, 14217), (53, 14232), (56, 14244), (72, 14406), (102, 14757), (126, 14985), (131, 15018), (143, 15084), (180, 15375), (182, 15396), (189, 15441), (202, 15519), (208, 15558), (217, 15627), (224, 15675), (227, 15702), (229, 15711), (235, 15762),

Gene: Kieran_17 Start: 13664, Stop: 15670, Start Num: 19

Candidate Starts for Kieran_17:

(Start: 19 @13664 has 33 MA's), (34, 13781), (44, 13850), (48, 13868), (49, 13880), (53, 13910), (60, 13961), (61, 13964), (63, 13973), (65, 14006), (72, 14084), (77, 14126), (84, 14183), (85, 14207), (91, 14270), (95, 14324), (98, 14396), (102, 14435), (103, 14438), (118, 14597), (121, 14621), (126, 14663), (127, 14666), (131, 14696), (141, 14750), (143, 14762), (145, 14798), (146, 14807), (149, 14840), (150, 14852), (161, 14981), (179, 15068), (186, 15125), (187, 15128), (188, 15140), (197, 15188), (203, 15224), (231, 15440), (234, 15458), (236, 15464), (246, 15614), (247, 15623),

Gene: Kors_33 Start: 18533, Stop: 20482, Start Num: 16

Candidate Starts for Kors_33:

(13, 18518), (14, 18521), (Start: 16 @18533 has 2 MA's), (17, 18545), (Start: 18 @18548 has 2 MA's), (22, 18608), (30, 18659), (42, 18749), (47, 18779), (54, 18836), (55, 18839), (66, 18929), (74, 19016), (83, 19097), (89, 19181), (96, 19256), (98, 19316), (108, 19397), (114, 19448), (121, 19541), (122, 19544), (124, 19550), (133, 19628), (139, 19664), (143, 19682), (153, 19838), (157, 19922), (163, 19946), (202, 20162), (209, 20204), (224, 20321), (226, 20342),

Gene: Lynlen_18 Start: 13986, Stop: 15836, Start Num: 19

Candidate Starts for Lynlen_18:

(Start: 19 @13986 has 33 MA's), (45, 14175), (51, 14217), (53, 14232), (56, 14244), (72, 14406), (102, 14757), (126, 14985), (131, 15018), (143, 15084), (180, 15375), (182, 15396), (189, 15441), (202, 15519), (208, 15558), (217, 15627), (224, 15675), (227, 15702), (229, 15711), (235, 15762),

Gene: MenE_24 Start: 14693, Stop: 16561, Start Num: 19

Candidate Starts for MenE_24:

(7, 14468), (15, 14663), (Start: 19 @14693 has 33 MA's), (24, 14753), (28, 14774), (31, 14786), (37, 14840), (40, 14873), (42, 14879), (68, 15095), (86, 15251), (89, 15305), (90, 15308), (93, 15338), (97, 15410), (110, 15533), (115, 15605), (118, 15638), (121, 15662), (128, 15710), (136, 15773), (160, 16007), (173, 16058), (176, 16076), (180, 16103), (182, 16121), (184, 16136), (208, 16283), (211, 16310), (220, 16373), (231, 16460), (244, 16553),

Gene: Milani_22 Start: 15329, Stop: 17206, Start Num: 19

Candidate Starts for Milani_22:

(Start: 19 @15329 has 33 MA's), (23, 15380), (37, 15476), (38, 15479), (46, 15539), (62, 15656), (70, 15758), (71, 15770), (79, 15845), (87, 15932), (89, 15962), (90, 15965), (93, 15995), (95, 16025), (96, 16037), (97, 16067), (111, 16199), (118, 16295), (121, 16319), (127, 16364), (128, 16367), (131, 16394), (133, 16406), (135, 16415), (142, 16457), (147, 16517), (165, 16685), (185, 16802), (197, 16859), (200, 16877), (201, 16889), (202, 16892), (205, 16916), (212, 16964), (216, 16997), (225, 17051),

Gene: PermaG_22 Start: 16442, Stop: 18325, Start Num: 19

Candidate Starts for PermaG_22:

(15, 16412), (Start: 19 @16442 has 33 MA's), (33, 16571), (37, 16610), (38, 16613), (47, 16682), (57, 16763), (70, 16892), (82, 16970), (89, 17072), (90, 17075), (99, 17213), (104, 17252), (105, 17255), (117, 17399), (121, 17429), (133, 17516), (136, 17540), (138, 17546), (142, 17567), (146, 17615), (162, 17783), (163, 17786), (168, 17807), (172, 17819), (195, 17975), (208, 18050), (210, 18068), (219, 18137), (231, 18224), (232, 18227), (238, 18260),

Gene: Phonegingi_23 Start: 14486, Stop: 16339, Start Num: 19

Candidate Starts for Phonegingi_23:

(7, 14261), (15, 14456), (Start: 19 @14486 has 33 MA's), (24, 14546), (28, 14567), (31, 14579), (37, 14633), (40, 14666), (58, 14795), (80, 14984), (86, 15044), (89, 15098), (90, 15101), (93, 15131), (97, 15203), (110, 15326), (114, 15365), (115, 15398), (118, 15431), (121, 15455), (128, 15503), (131, 15530), (135, 15551), (142, 15593), (144, 15620), (173, 15851), (176, 15869), (198, 16016), (211, 16103), (213, 16115), (220, 16160), (221, 16172), (226, 16193), (237, 16268), (243, 16310), (244, 16331),

Gene: Pickles13_23 Start: 14850, Stop: 16718, Start Num: 19

Candidate Starts for Pickles13_23:

(7, 14625), (15, 14820), (Start: 19 @14850 has 33 MA's), (24, 14910), (28, 14931), (31, 14943), (37, 14997), (40, 15030), (41, 15033), (87, 15432), (89, 15462), (90, 15465), (93, 15495), (97, 15567), (110, 15690), (115, 15762), (118, 15795), (121, 15819), (125, 15855), (128, 15867), (131, 15894), (136, 15930), (148, 16026), (160, 16164), (176, 16233), (180, 16260), (208, 16440), (211, 16467), (220, 16530), (231, 16617), (244, 16710),

Gene: Rasovi_21 Start: 16411, Stop: 18312, Start Num: 19

Candidate Starts for Rasovi_21:

(Start: 19 @16411 has 33 MA's), (20, 16432), (21, 16438), (33, 16540), (38, 16582), (47, 16651), (57, 16732), (62, 16762), (70, 16861), (75, 16903), (88, 17044), (89, 17065), (90, 17068), (94, 17101), (99, 17206), (104, 17245), (105, 17248), (113, 17308), (120, 17416), (121, 17422), (130, 17494), (133, 17509), (136, 17533), (138, 17539), (142, 17560), (146, 17608), (150, 17659), (154, 17680), (162, 17776), (168, 17800), (172, 17812), (181, 17875), (190, 17932), (199, 17986), (208, 18043), (211,

18070), (212, 18076), (213, 18082), (214, 18094), (221, 18145), (243, 18283),

Gene: RikSengupta_32 Start: 18570, Stop: 20519, Start Num: 16

Candidate Starts for RikSengupta_32:

(13, 18555), (14, 18558), (Start: 16 @18570 has 2 MA's), (17, 18582), (Start: 18 @18585 has 2 MA's), (22, 18645), (30, 18696), (42, 18786), (47, 18816), (54, 18873), (55, 18876), (59, 18906), (66, 18966), (74, 19053), (83, 19134), (89, 19218), (96, 19293), (98, 19353), (108, 19434), (114, 19485), (121, 19578), (122, 19581), (124, 19587), (133, 19665), (139, 19701), (143, 19719), (153, 19875), (157, 19959), (163, 19983), (202, 20199), (209, 20241), (224, 20358), (226, 20379),

Gene: Rona_17 Start: 13661, Stop: 15667, Start Num: 19

Candidate Starts for Rona_17:

(Start: 19 @13661 has 33 MA's), (34, 13778), (44, 13847), (48, 13865), (49, 13877), (53, 13907), (60, 13958), (61, 13961), (63, 13970), (65, 14003), (72, 14081), (77, 14123), (84, 14180), (85, 14204), (91, 14267), (95, 14321), (98, 14393), (102, 14432), (103, 14435), (118, 14594), (121, 14618), (126, 14660), (127, 14663), (131, 14693), (141, 14747), (143, 14759), (145, 14795), (146, 14804), (149, 14837), (150, 14849), (161, 14978), (179, 15065), (186, 15122), (187, 15125), (188, 15137), (197, 15185), (203, 15221), (231, 15437), (234, 15455), (236, 15461), (246, 15611), (247, 15620),

Gene: SBlackberry_21 Start: 16237, Stop: 18123, Start Num: 19

Candidate Starts for SBlackberry_21:

(Start: 19 @16237 has 33 MA's), (33, 16366), (37, 16405), (47, 16477), (57, 16558), (58, 16570), (70, 16687), (76, 16729), (88, 16846), (89, 16867), (90, 16870), (94, 16903), (99, 17008), (104, 17047), (105, 17050), (107, 17080), (120, 17218), (121, 17224), (130, 17296), (133, 17311), (136, 17335), (138, 17341), (142, 17362), (146, 17410), (152, 17467), (158, 17566), (160, 17575), (162, 17581), (175, 17635), (180, 17671), (213, 17893), (215, 17914), (217, 17923), (221, 17956), (231, 18022), (237, 18052), (243, 18094),

Gene: Sharkboy_17 Start: 13660, Stop: 15654, Start Num: 19

Candidate Starts for Sharkboy_17:

(Start: 19 @13660 has 33 MA's), (29, 13753), (48, 13864), (53, 13906), (63, 13969), (72, 14080), (81, 14149), (91, 14266), (95, 14320), (121, 14617), (126, 14659), (131, 14692), (140, 14740), (145, 14794), (159, 14971), (161, 14977), (166, 15001), (186, 15106), (201, 15199), (214, 15292), (221, 15355), (234, 15457), (239, 15478), (245, 15544),

Gene: Sparcetus_32 Start: 18449, Stop: 20398, Start Num: 16

Candidate Starts for Sparcetus_32:

(13, 18434), (14, 18437), (Start: 16 @18449 has 2 MA's), (17, 18461), (Start: 18 @18464 has 2 MA's), (22, 18524), (30, 18575), (42, 18665), (47, 18695), (54, 18752), (55, 18755), (66, 18845), (74, 18932), (83, 19013), (89, 19097), (96, 19172), (98, 19232), (108, 19313), (114, 19364), (121, 19457), (122, 19460), (124, 19466), (133, 19544), (139, 19580), (143, 19598), (153, 19754), (157, 19838), (163, 19862), (202, 20078), (209, 20120), (224, 20237), (226, 20258),

Gene: Sucha_18 Start: 13667, Stop: 15568, Start Num: 19

Candidate Starts for Sucha_18:

(Start: 19 @13667 has 33 MA's), (23, 13718), (37, 13814), (38, 13817), (40, 13847), (43, 13856), (57, 13964), (58, 13976), (62, 13994), (70, 14096), (71, 14108), (75, 14135), (80, 14186), (87, 14270), (89, 14300), (90, 14303), (93, 14333), (114, 14567), (118, 14633), (121, 14657), (127, 14702), (128, 14705), (132, 14741), (133, 14744), (142, 14795), (147, 14855), (151, 14903), (191, 15182), (193, 15191), (200, 15239), (204, 15272), (208, 15293), (212, 15326), (230, 15449),

Gene: TinyMiny_32 Start: 18483, Stop: 20417, Start Num: 18

Candidate Starts for TinyMiny_32:

(13, 18453), (14, 18456), (Start: 16 @18468 has 2 MA's), (17, 18480), (Start: 18 @18483 has 2 MA's), (22, 18543), (30, 18594), (42, 18684), (47, 18714), (54, 18771), (55, 18774), (66, 18864), (74, 18951), (83, 19032), (89, 19116), (96, 19191), (98, 19251), (108, 19332), (114, 19383), (121, 19476), (122, 19479), (124, 19485), (133, 19563), (139, 19599), (143, 19617), (153, 19773), (157, 19857), (163, 19881), (202, 20097), (209, 20139), (224, 20256), (226, 20277),

Gene: TurboVicky_21 Start: 16231, Stop: 18123, Start Num: 19

Candidate Starts for TurboVicky_21:

(Start: 19 @16231 has 33 MA's), (33, 16360), (37, 16399), (38, 16402), (47, 16471), (57, 16552), (58, 16564), (70, 16681), (88, 16840), (89, 16861), (90, 16864), (94, 16897), (99, 17002), (104, 17041), (105, 17044), (106, 17062), (107, 17074), (120, 17212), (121, 17218), (130, 17290), (133, 17305), (136, 17329), (138, 17335), (142, 17356), (146, 17404), (160, 17569), (162, 17575), (170, 17605), (176, 17638), (177, 17644), (184, 17698), (191, 17737), (206, 17833), (212, 17878), (214, 17896), (231, 18022), (241, 18067), (242, 18088),

Gene: Typher_23 Start: 16361, Stop: 18253, Start Num: 19

Candidate Starts for Typher_23:

(Start: 19 @16361 has 33 MA's), (33, 16490), (37, 16529), (38, 16532), (47, 16601), (57, 16682), (58, 16694), (70, 16811), (88, 16970), (89, 16991), (90, 16994), (94, 17027), (99, 17132), (104, 17171), (105, 17174), (106, 17192), (107, 17204), (120, 17342), (121, 17348), (130, 17420), (133, 17435), (136, 17459), (138, 17465), (142, 17486), (146, 17534), (160, 17699), (162, 17705), (170, 17735), (176, 17768), (177, 17774), (184, 17828), (206, 17963), (211, 18002), (214, 18026), (241, 18197), (242, 18218),

Gene: Warren_24 Start: 14623, Stop: 16491, Start Num: 19

Candidate Starts for Warren_24:

(7, 14398), (15, 14593), (Start: 19 @14623 has 33 MA's), (24, 14683), (28, 14704), (31, 14716), (37, 14770), (40, 14803), (68, 15025), (86, 15181), (89, 15235), (90, 15238), (93, 15268), (97, 15340), (110, 15463), (115, 15535), (121, 15592), (128, 15640), (136, 15703), (148, 15799), (160, 15937), (173, 15988), (176, 16006), (180, 16033), (211, 16240), (231, 16390), (241, 16435), (244, 16483),

Gene: Zanella_21 Start: 16234, Stop: 18126, Start Num: 19

Candidate Starts for Zanella_21:

(Start: 19 @16234 has 33 MA's), (33, 16363), (37, 16402), (38, 16405), (47, 16474), (57, 16555), (58, 16567), (70, 16684), (88, 16843), (89, 16864), (90, 16867), (94, 16900), (99, 17005), (104, 17044), (105, 17047), (106, 17065), (107, 17077), (120, 17215), (121, 17221), (130, 17293), (133, 17308), (136, 17332), (138, 17338), (142, 17359), (146, 17407), (160, 17572), (162, 17578), (170, 17608), (176, 17641), (177, 17647), (184, 17701), (191, 17740), (206, 17836), (212, 17881), (214, 17899), (231, 18025), (241, 18070), (242, 18091),