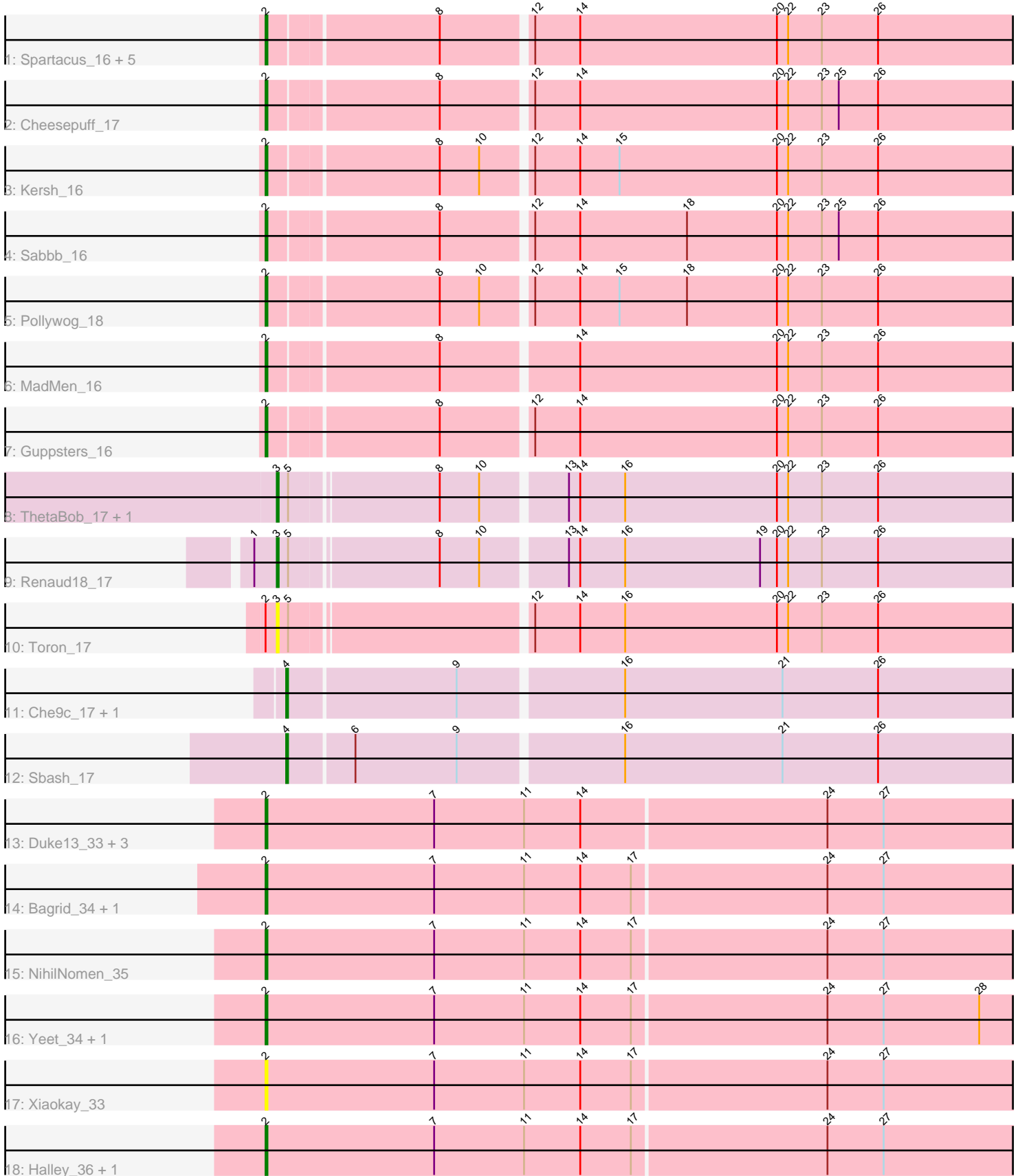


# Zoomed Pham 306702



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 306702 Report

This analysis was run 06/27/26 on database version 652.

Pham number 306702 has 31 members, 6 are drafts.

Phages represented in each track:

- Track 1 : Spartacus\_16, Polo2Bam\_17, Enzomatic\_17, SeaLumen\_16, NewHope4\_16, LunaBlu\_16
- Track 2 : Cheesepuff\_17
- Track 3 : Kersh\_16
- Track 4 : Sabbb\_16
- Track 5 : Pollywog\_18
- Track 6 : MadMen\_16
- Track 7 : Guppsters\_16
- Track 8 : ThetaBob\_17, Cornie\_17
- Track 9 : Renaud18\_17
- Track 10 : Toron\_17
- Track 11 : Che9c\_17, Stuck\_17
- Track 12 : Sbash\_17
- Track 13 : Duke13\_33, HokkenD\_31, EricMillard\_36, Beem\_36
- Track 14 : Bagrid\_34, Dallas\_37
- Track 15 : NihilNomen\_35
- Track 16 : Yeet\_34, Pound\_37
- Track 17 : Xiaokay\_33
- Track 18 : Halley\_36, JuicyJay\_38

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

The start number called the most often in the published annotations is 2, it was called in 19 of the 25 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Bagrid\_34, Beem\_36, Cheesepuff\_17, Dallas\_37, Duke13\_33, Enzomatic\_17, EricMillard\_36, Guppsters\_16, Halley\_36, HokkenD\_31, JuicyJay\_38, Kersh\_16, LunaBlu\_16, MadMen\_16, NewHope4\_16, NihilNomen\_35, Pollywog\_18, Polo2Bam\_17, Pound\_37, Sabbb\_16, SeaLumen\_16, Spartacus\_16, Xiaokay\_33, Yeet\_34,

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

- Toron\_17,

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

- Che9c\_17, Cornie\_17, Renaud18\_17, Sbash\_17, Stuck\_17, ThetaBob\_17,

### Summary by start number:

Start 2:

- Found in 25 of 31 ( 80.6% ) of genes in pham
- Manual Annotations of this start: 19 of 25
- Called 96.0% of time when present
- Phage (with cluster) where this start called: Bagrid\_34 (J), Beem\_36 (J), Cheesepuff\_17 (F1), Dallas\_37 (J), Duke13\_33 (J), Enzomatic\_17 (F1), EricMillard\_36 (J), Guppsters\_16 (F1), Halley\_36 (J), HokkenD\_31 (J), JuicyJay\_38 (J), Kersh\_16 (F1), LunaBlu\_16 (F1), MadMen\_16 (F1), NewHope4\_16 (F1), NihilNomen\_35 (J), Pollywog\_18 (F1), Polo2Bam\_17 (F1), Pound\_37 (J), Sabbb\_16 (F1), SeaLumen\_16 (F1), Spartacus\_16 (F1), Xiaokay\_33 (J), Yeet\_34 (J),

Start 3:

- Found in 4 of 31 ( 12.9% ) of genes in pham
- Manual Annotations of this start: 3 of 25
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cornie\_17 (F5), Renaud18\_17 (F4), ThetaBob\_17 (F4), Toron\_17 (F6),

Start 4:

- Found in 3 of 31 ( 9.7% ) of genes in pham
- Manual Annotations of this start: 3 of 25
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Che9c\_17 (I2), Sbash\_17 (I2), Stuck\_17 (I2),

### Summary by clusters:

There are 6 clusters represented in this pham: F1, J, F4, F5, F6, I2,

Info for manual annotations of cluster F1:

- Start number 2 was manually annotated 9 times for cluster F1.

Info for manual annotations of cluster F4:

- Start number 3 was manually annotated 2 times for cluster F4.

Info for manual annotations of cluster F5:

- Start number 3 was manually annotated 1 time for cluster F5.

Info for manual annotations of cluster I2:

- Start number 4 was manually annotated 3 times for cluster I2.

Info for manual annotations of cluster J:

- Start number 2 was manually annotated 10 times for cluster J.

### **Gene Information:**

Gene: Bagrid\_34 Start: 26769, Stop: 27986, Start Num: 2

Candidate Starts for Bagrid\_34:

(Start: 2 @26769 has 19 MA's), (7, 26859), (11, 26907), (14, 26937), (17, 26964), (24, 27066), (27, 27096), (29, 27195), (32, 27231), (33, 27237), (34, 27258), (43, 27330), (45, 27339), (47, 27360), (53, 27429), (56, 27468), (57, 27471), (58, 27486), (63, 27525), (66, 27573), (68, 27585), (69, 27591), (70, 27639), (71, 27648), (75, 27669), (76, 27687), (79, 27735), (86, 27837), (90, 27909), (91, 27954), (92, 27966),

Gene: Beem\_36 Start: 27335, Stop: 28552, Start Num: 2

Candidate Starts for Beem\_36:

(Start: 2 @27335 has 19 MA's), (7, 27425), (11, 27473), (14, 27503), (24, 27632), (27, 27662), (29, 27761), (32, 27797), (34, 27824), (43, 27896), (45, 27905), (47, 27926), (53, 27995), (56, 28034), (57, 28037), (58, 28052), (63, 28091), (66, 28139), (68, 28151), (69, 28157), (70, 28205), (71, 28214), (75, 28235), (76, 28253), (79, 28301), (86, 28403), (90, 28475), (91, 28520), (92, 28532),

Gene: Che9c\_17 Start: 15832, Stop: 17493, Start Num: 4

Candidate Starts for Che9c\_17:

(Start: 4 @15832 has 3 MA's), (9, 15919), (16, 16003), (21, 16087), (26, 16138), (34, 16297), (37, 16315), (38, 16321), (40, 16333), (46, 16393), (48, 16411), (54, 16483), (55, 16498), (56, 16504), (57, 16507), (61, 16543), (63, 16561), (67, 16615), (72, 16687), (73, 16690), (81, 16762), (84, 16822), (85, 16831), (87, 16855), (89, 16918), (95, 17074), (96, 17437), (97, 17473),

Gene: Cheese puff\_17 Start: 15599, Stop: 16831, Start Num: 2

Candidate Starts for Cheese puff\_17:

(Start: 2 @15599 has 19 MA's), (8, 15686), (12, 15731), (14, 15755), (20, 15860), (22, 15866), (23, 15884), (25, 15893), (26, 15914), (30, 16019), (35, 16079), (39, 16100), (40, 16109), (42, 16133), (47, 16175), (49, 16208), (50, 16211), (51, 16220), (52, 16235), (53, 16241), (54, 16259), (55, 16274), (56, 16280), (58, 16298), (59, 16301), (60, 16316), (61, 16319), (62, 16331), (63, 16337), (66, 16385), (68, 16397), (69, 16403), (72, 16463), (77, 16511), (78, 16523), (82, 16544), (84, 16598), (85, 16607), (87, 16631), (88, 16661),

Gene: Cornie\_17 Start: 15669, Stop: 16895, Start Num: 3

Candidate Starts for Cornie\_17:

(Start: 3 @15669 has 3 MA's), (5, 15675), (8, 15750), (10, 15771), (13, 15813), (14, 15819), (16, 15843), (20, 15924), (22, 15930), (23, 15948), (26, 15978), (30, 16083), (36, 16152), (40, 16173), (41, 16176), (44, 16212), (48, 16251), (51, 16284), (52, 16299), (53, 16305), (54, 16323), (55, 16338), (56, 16344), (59, 16365), (60, 16380), (63, 16401), (64, 16419), (66, 16449), (72, 16527), (77, 16575), (78, 16587), (83, 16620), (84, 16662), (85, 16671), (87, 16695), (88, 16725), (90, 16770), (94, 16887),

Gene: Dallas\_37 Start: 26860, Stop: 28077, Start Num: 2

Candidate Starts for Dallas\_37:

(Start: 2 @26860 has 19 MA's), (7, 26950), (11, 26998), (14, 27028), (17, 27055), (24, 27157), (27, 27187), (29, 27286), (32, 27322), (33, 27328), (34, 27349), (43, 27421), (45, 27430), (47, 27451), (53, 27520), (56, 27559), (57, 27562), (58, 27577), (63, 27616), (66, 27664), (68, 27676), (69, 27682), (70, 27730), (71, 27739), (75, 27760), (76, 27778), (79, 27826), (86, 27928), (90, 28000), (91, 28045), (92, 28057),

Gene: Duke13\_33 Start: 26890, Stop: 28107, Start Num: 2

Candidate Starts for Duke13\_33:

(Start: 2 @26890 has 19 MA's), (7, 26980), (11, 27028), (14, 27058), (24, 27187), (27, 27217), (29, 27316), (32, 27352), (34, 27379), (43, 27451), (45, 27460), (47, 27481), (53, 27550), (56, 27589), (57,

27592), (58, 27607), (63, 27646), (66, 27694), (68, 27706), (69, 27712), (70, 27760), (71, 27769), (75, 27790), (76, 27808), (79, 27856), (86, 27958), (90, 28030), (91, 28075), (92, 28087),

Gene: Enzomatic\_17 Start: 14802, Stop: 16034, Start Num: 2

Candidate Starts for Enzomatic\_17:

(Start: 2 @14802 has 19 MA's), (8, 14889), (12, 14934), (14, 14958), (20, 15063), (22, 15069), (23, 15087), (26, 15117), (30, 15222), (35, 15282), (39, 15303), (40, 15312), (42, 15336), (54, 15462), (55, 15477), (56, 15483), (60, 15519), (61, 15522), (62, 15534), (63, 15540), (66, 15588), (68, 15600), (69, 15606), (72, 15666), (74, 15678), (77, 15714), (78, 15726), (84, 15801), (85, 15810), (86, 15828), (87, 15834), (88, 15864),

Gene: EricMillard\_36 Start: 27621, Stop: 28838, Start Num: 2

Candidate Starts for EricMillard\_36:

(Start: 2 @27621 has 19 MA's), (7, 27711), (11, 27759), (14, 27789), (24, 27918), (27, 27948), (29, 28047), (32, 28083), (34, 28110), (43, 28182), (45, 28191), (47, 28212), (53, 28281), (56, 28320), (57, 28323), (58, 28338), (63, 28377), (66, 28425), (68, 28437), (69, 28443), (70, 28491), (71, 28500), (75, 28521), (76, 28539), (79, 28587), (86, 28689), (90, 28761), (91, 28806), (92, 28818),

Gene: Guppsters\_16 Start: 14937, Stop: 16169, Start Num: 2

Candidate Starts for Guppsters\_16:

(Start: 2 @14937 has 19 MA's), (8, 15024), (12, 15069), (14, 15093), (20, 15198), (22, 15204), (23, 15222), (26, 15252), (30, 15357), (35, 15417), (39, 15438), (40, 15447), (42, 15471), (54, 15597), (55, 15612), (56, 15618), (60, 15654), (61, 15657), (62, 15669), (63, 15675), (66, 15723), (68, 15735), (69, 15741), (72, 15801), (74, 15813), (77, 15849), (78, 15861), (82, 15882), (84, 15936), (85, 15945), (87, 15969),

Gene: Halley\_36 Start: 27334, Stop: 28551, Start Num: 2

Candidate Starts for Halley\_36:

(Start: 2 @27334 has 19 MA's), (7, 27424), (11, 27472), (14, 27502), (17, 27529), (24, 27631), (27, 27661), (29, 27760), (32, 27796), (33, 27802), (34, 27823), (43, 27895), (45, 27904), (47, 27925), (56, 28033), (57, 28036), (58, 28051), (63, 28090), (66, 28138), (68, 28150), (69, 28156), (70, 28204), (71, 28213), (75, 28234), (76, 28252), (79, 28300), (86, 28402), (90, 28474), (91, 28519), (92, 28531),

Gene: HokkenD\_31 Start: 26883, Stop: 28100, Start Num: 2

Candidate Starts for HokkenD\_31:

(Start: 2 @26883 has 19 MA's), (7, 26973), (11, 27021), (14, 27051), (24, 27180), (27, 27210), (29, 27309), (32, 27345), (34, 27372), (43, 27444), (45, 27453), (47, 27474), (53, 27543), (56, 27582), (57, 27585), (58, 27600), (63, 27639), (66, 27687), (68, 27699), (69, 27705), (70, 27753), (71, 27762), (75, 27783), (76, 27801), (79, 27849), (86, 27951), (90, 28023), (91, 28068), (92, 28080),

Gene: JuicyJay\_38 Start: 29084, Stop: 30301, Start Num: 2

Candidate Starts for JuicyJay\_38:

(Start: 2 @29084 has 19 MA's), (7, 29174), (11, 29222), (14, 29252), (17, 29279), (24, 29381), (27, 29411), (29, 29510), (32, 29546), (33, 29552), (34, 29573), (43, 29645), (45, 29654), (47, 29675), (56, 29783), (57, 29786), (58, 29801), (63, 29840), (66, 29888), (68, 29900), (69, 29906), (70, 29954), (71, 29963), (75, 29984), (76, 30002), (79, 30050), (86, 30152), (90, 30224), (91, 30269), (92, 30281),

Gene: Kersh\_16 Start: 14921, Stop: 16141, Start Num: 2

Candidate Starts for Kersh\_16:

(Start: 2 @14921 has 19 MA's), (8, 15008), (10, 15029), (12, 15053), (14, 15077), (15, 15098), (20, 15182), (22, 15188), (23, 15206), (26, 15236), (30, 15341), (35, 15401), (40, 15431), (42, 15455), (49, 15530), (50, 15533), (52, 15557), (53, 15563), (54, 15581), (55, 15596), (56, 15602), (60, 15638), (62, 15653), (63, 15659), (66, 15707), (68, 15719), (69, 15725), (72, 15785), (74, 15797), (77, 15833), (78,

15845), (84, 15920), (85, 15929), (86, 15947), (87, 15953), (88, 15983),

Gene: LunaBlu\_16 Start: 14832, Stop: 16064, Start Num: 2

Candidate Starts for LunaBlu\_16:

(Start: 2 @14832 has 19 MA's), (8, 14919), (12, 14964), (14, 14988), (20, 15093), (22, 15099), (23, 15117), (26, 15147), (30, 15252), (35, 15312), (39, 15333), (40, 15342), (42, 15366), (54, 15492), (55, 15507), (56, 15513), (60, 15549), (61, 15552), (62, 15564), (63, 15570), (66, 15618), (68, 15630), (69, 15636), (72, 15696), (74, 15708), (77, 15744), (78, 15756), (84, 15831), (85, 15840), (86, 15858), (87, 15864), (88, 15894),

Gene: MadMen\_16 Start: 14990, Stop: 16210, Start Num: 2

Candidate Starts for MadMen\_16:

(Start: 2 @14990 has 19 MA's), (8, 15077), (14, 15146), (20, 15251), (22, 15257), (23, 15275), (26, 15305), (30, 15410), (35, 15470), (39, 15491), (40, 15500), (42, 15524), (49, 15599), (50, 15602), (52, 15626), (53, 15632), (54, 15650), (55, 15665), (56, 15671), (60, 15707), (62, 15722), (63, 15728), (66, 15776), (68, 15788), (69, 15794), (72, 15854), (74, 15866), (77, 15902), (78, 15914), (84, 15989), (85, 15998), (86, 16016), (87, 16022), (88, 16052),

Gene: NewHope4\_16 Start: 14802, Stop: 16034, Start Num: 2

Candidate Starts for NewHope4\_16:

(Start: 2 @14802 has 19 MA's), (8, 14889), (12, 14934), (14, 14958), (20, 15063), (22, 15069), (23, 15087), (26, 15117), (30, 15222), (35, 15282), (39, 15303), (40, 15312), (42, 15336), (54, 15462), (55, 15477), (56, 15483), (60, 15519), (61, 15522), (62, 15534), (63, 15540), (66, 15588), (68, 15600), (69, 15606), (72, 15666), (74, 15678), (77, 15714), (78, 15726), (84, 15801), (85, 15810), (86, 15828), (87, 15834), (88, 15864),

Gene: NihilNomen\_35 Start: 27379, Stop: 28596, Start Num: 2

Candidate Starts for NihilNomen\_35:

(Start: 2 @27379 has 19 MA's), (7, 27469), (11, 27517), (14, 27547), (17, 27574), (24, 27676), (27, 27706), (29, 27805), (32, 27841), (33, 27847), (34, 27868), (43, 27940), (45, 27949), (47, 27970), (53, 28039), (56, 28078), (57, 28081), (58, 28096), (63, 28135), (66, 28183), (68, 28195), (69, 28201), (71, 28258), (75, 28279), (76, 28297), (79, 28345), (86, 28447), (90, 28519), (91, 28564), (92, 28576),

Gene: Pollywog\_18 Start: 15957, Stop: 17177, Start Num: 2

Candidate Starts for Pollywog\_18:

(Start: 2 @15957 has 19 MA's), (8, 16044), (10, 16065), (12, 16089), (14, 16113), (15, 16134), (18, 16170), (20, 16218), (22, 16224), (23, 16242), (26, 16272), (30, 16377), (35, 16437), (40, 16467), (42, 16491), (49, 16566), (50, 16569), (52, 16593), (53, 16599), (54, 16617), (55, 16632), (56, 16638), (60, 16674), (62, 16689), (63, 16695), (66, 16743), (68, 16755), (69, 16761), (72, 16821), (74, 16833), (77, 16869), (78, 16881), (82, 16902), (84, 16956), (85, 16965), (86, 16983), (87, 16989), (88, 17019),

Gene: Polo2Bam\_17 Start: 14802, Stop: 16034, Start Num: 2

Candidate Starts for Polo2Bam\_17:

(Start: 2 @14802 has 19 MA's), (8, 14889), (12, 14934), (14, 14958), (20, 15063), (22, 15069), (23, 15087), (26, 15117), (30, 15222), (35, 15282), (39, 15303), (40, 15312), (42, 15336), (54, 15462), (55, 15477), (56, 15483), (60, 15519), (61, 15522), (62, 15534), (63, 15540), (66, 15588), (68, 15600), (69, 15606), (72, 15666), (74, 15678), (77, 15714), (78, 15726), (84, 15801), (85, 15810), (86, 15828), (87, 15834), (88, 15864),

Gene: Pound\_37 Start: 28610, Stop: 29827, Start Num: 2

Candidate Starts for Pound\_37:

(Start: 2 @28610 has 19 MA's), (7, 28700), (11, 28748), (14, 28778), (17, 28805), (24, 28907), (27, 28937), (28, 28988), (29, 29036), (32, 29072), (33, 29078), (34, 29099), (43, 29171), (45, 29180), (47,

29201), (56, 29309), (57, 29312), (58, 29327), (63, 29366), (66, 29414), (68, 29426), (69, 29432), (70, 29480), (71, 29489), (75, 29510), (76, 29528), (79, 29576), (86, 29678), (90, 29750), (91, 29795), (92, 29807),

Gene: Renaud18\_17 Start: 15238, Stop: 16464, Start Num: 3

Candidate Starts for Renaud18\_17:

(1, 15226), (Start: 3 @15238 has 3 MA's), (5, 15244), (8, 15319), (10, 15340), (13, 15382), (14, 15388), (16, 15412), (19, 15484), (20, 15493), (22, 15499), (23, 15517), (26, 15547), (30, 15652), (36, 15721), (40, 15742), (41, 15745), (51, 15853), (53, 15874), (54, 15892), (55, 15907), (56, 15913), (60, 15949), (62, 15964), (63, 15970), (64, 15988), (66, 16018), (69, 16036), (72, 16096), (77, 16144), (78, 16156), (80, 16168), (83, 16189), (84, 16231), (85, 16240), (87, 16264), (90, 16339), (94, 16456),

Gene: Sabbb\_16 Start: 14978, Stop: 16210, Start Num: 2

Candidate Starts for Sabbb\_16:

(Start: 2 @14978 has 19 MA's), (8, 15065), (12, 15110), (14, 15134), (18, 15191), (20, 15239), (22, 15245), (23, 15263), (25, 15272), (26, 15293), (30, 15398), (34, 15452), (35, 15458), (36, 15467), (39, 15479), (40, 15488), (42, 15512), (46, 15548), (47, 15554), (49, 15587), (50, 15590), (51, 15599), (52, 15614), (53, 15620), (54, 15638), (55, 15653), (56, 15659), (58, 15677), (59, 15680), (60, 15695), (61, 15698), (62, 15710), (63, 15716), (65, 15746), (66, 15764), (68, 15776), (69, 15782), (72, 15842), (74, 15854), (77, 15890), (78, 15902), (82, 15923), (84, 15977), (85, 15986), (87, 16010), (88, 16040),

Gene: Sbash\_17 Start: 15662, Stop: 17323, Start Num: 4

Candidate Starts for Sbash\_17:

(Start: 4 @15662 has 3 MA's), (6, 15695), (9, 15749), (16, 15833), (21, 15917), (26, 15968), (31, 16094), (34, 16127), (35, 16133), (37, 16145), (38, 16151), (40, 16163), (46, 16223), (48, 16241), (54, 16313), (55, 16328), (56, 16334), (57, 16337), (60, 16370), (63, 16391), (67, 16445), (72, 16517), (73, 16520), (81, 16592), (84, 16652), (85, 16661), (87, 16685), (89, 16748), (95, 16904), (96, 17267), (97, 17303),

Gene: SeaLumen\_16 Start: 14802, Stop: 16034, Start Num: 2

Candidate Starts for SeaLumen\_16:

(Start: 2 @14802 has 19 MA's), (8, 14889), (12, 14934), (14, 14958), (20, 15063), (22, 15069), (23, 15087), (26, 15117), (30, 15222), (35, 15282), (39, 15303), (40, 15312), (42, 15336), (54, 15462), (55, 15477), (56, 15483), (60, 15519), (61, 15522), (62, 15534), (63, 15540), (66, 15588), (68, 15600), (69, 15606), (72, 15666), (74, 15678), (77, 15714), (78, 15726), (84, 15801), (85, 15810), (86, 15828), (87, 15834), (88, 15864),

Gene: Spartacus\_16 Start: 14836, Stop: 16068, Start Num: 2

Candidate Starts for Spartacus\_16:

(Start: 2 @14836 has 19 MA's), (8, 14923), (12, 14968), (14, 14992), (20, 15097), (22, 15103), (23, 15121), (26, 15151), (30, 15256), (35, 15316), (39, 15337), (40, 15346), (42, 15370), (54, 15496), (55, 15511), (56, 15517), (60, 15553), (61, 15556), (62, 15568), (63, 15574), (66, 15622), (68, 15634), (69, 15640), (72, 15700), (74, 15712), (77, 15748), (78, 15760), (84, 15835), (85, 15844), (86, 15862), (87, 15868), (88, 15898),

Gene: Stuck\_17 Start: 15829, Stop: 17490, Start Num: 4

Candidate Starts for Stuck\_17:

(Start: 4 @15829 has 3 MA's), (9, 15916), (16, 16000), (21, 16084), (26, 16135), (34, 16294), (37, 16312), (38, 16318), (40, 16330), (46, 16390), (48, 16408), (54, 16480), (55, 16495), (56, 16501), (57, 16504), (61, 16540), (63, 16558), (67, 16612), (72, 16684), (73, 16687), (81, 16759), (84, 16819), (85, 16828), (87, 16852), (89, 16915), (95, 17071), (96, 17434), (97, 17470),

Gene: ThetaBob\_17 Start: 15156, Stop: 16382, Start Num: 3

Candidate Starts for ThetaBob\_17:

(Start: 3 @15156 has 3 MA's), (5, 15162), (8, 15237), (10, 15258), (13, 15300), (14, 15306), (16, 15330), (20, 15411), (22, 15417), (23, 15435), (26, 15465), (30, 15570), (36, 15639), (40, 15660), (41, 15663), (44, 15699), (48, 15738), (51, 15771), (52, 15786), (53, 15792), (54, 15810), (55, 15825), (56, 15831), (59, 15852), (60, 15867), (63, 15888), (64, 15906), (66, 15936), (72, 16014), (77, 16062), (78, 16074), (83, 16107), (84, 16149), (85, 16158), (87, 16182), (88, 16212), (90, 16257), (94, 16374),

Gene: Toron\_17 Start: 15256, Stop: 16887, Start Num: 3

Candidate Starts for Toron\_17:

(Start: 2 @15250 has 19 MA's), (Start: 3 @15256 has 3 MA's), (5, 15262), (12, 15382), (14, 15406), (16, 15430), (20, 15511), (22, 15517), (23, 15535), (26, 15565), (30, 15670), (36, 15739), (40, 15760), (41, 15763), (44, 15799), (53, 15892), (54, 15910), (55, 15925), (56, 15931), (60, 15967), (63, 15988), (64, 16006), (66, 16036), (68, 16048), (69, 16054), (72, 16114), (77, 16162), (84, 16249), (85, 16258), (87, 16282), (88, 16312), (93, 16465), (95, 16498),

Gene: Xiaokay\_33 Start: 26885, Stop: 28102, Start Num: 2

Candidate Starts for Xiaokay\_33:

(Start: 2 @26885 has 19 MA's), (7, 26975), (11, 27023), (14, 27053), (17, 27080), (24, 27182), (27, 27212), (29, 27311), (32, 27347), (33, 27353), (34, 27374), (43, 27446), (45, 27455), (47, 27476), (53, 27545), (56, 27584), (57, 27587), (58, 27602), (63, 27641), (66, 27689), (68, 27701), (69, 27707), (70, 27755), (71, 27764), (75, 27785), (76, 27803), (79, 27851), (86, 27953), (89, 28013), (90, 28025), (91, 28070), (92, 28082),

Gene: Yeet\_34 Start: 26605, Stop: 27822, Start Num: 2

Candidate Starts for Yeet\_34:

(Start: 2 @26605 has 19 MA's), (7, 26695), (11, 26743), (14, 26773), (17, 26800), (24, 26902), (27, 26932), (28, 26983), (29, 27031), (32, 27067), (33, 27073), (34, 27094), (43, 27166), (45, 27175), (47, 27196), (56, 27304), (57, 27307), (58, 27322), (63, 27361), (66, 27409), (68, 27421), (69, 27427), (70, 27475), (71, 27484), (75, 27505), (76, 27523), (79, 27571), (86, 27673), (90, 27745), (91, 27790), (92, 27802),