Hello,

I am happy to submit *Streptomyces* phage Abt2graduatex2 for QC and GenBank submission. It was isolated on *Streptomyces* *griseus* subsp. *griseus*, ATCC 10137, and collected from a soil sample collected on or about 8/25/2016, in Baltimore, MD.

The annotations are routine, for the most part, with only a couple of any note.

Abt2graduatex2\_55

MRIEIISFGYLHGDPPAAHLTLDLRHHFRDPHVNPELRHMTAEDEPVRTAVLNTPGIVTLIVAAEMAVRAFEMGPSAGTVRVAVGCAGGRHRAATVAQTLASALDADSLTHRDLSKPVVDRDAKGNRSZ

This gene had lots of Blast hits to ATPase, which seems like a repeated strange call. What’s an ATPase? That’s a very vague call, and perhaps a call like ATPase domain would be OK, but an enzyme that has one who function: breaking down ATP, seems a bit odd. However, when you look at the HHPred and Blast hits (I can send them to you if you like), a better call would be RNase adaptor protein. We chose to add putative to be cautious.

Abt2graduatex2\_57

MNATTTTELRDAATATAQLNRVRDALTTAVDNLCGRTDSLVDHVVRVRPQGLLTVDEMAEAIGRDRNYVDSIWSSHGETTKGRQTRVPVAEGVDPEAARRAYETLADSAADLKRARNQVTTARAERDRVVSLVYGSKLLGPSAIAAAVDVDRNHVLRIARKAGVKPVHRTGSKNQYTNTSSZ

This is an interesting gene as well. It has no significant BlastP hits, but does return an 89% HHPred hit to transposase that covers much of the gene, which is very interesting. However, after looking deeper, we backed off and went with "putative DNA-binding protein.” It might just be NKF, but I think we are ok with it.

Abt2graduatex2\_67

MAAGQTREMAKLIKTLSAARYGCTIGRTKKGHWTVKREGRPMVIISHSPSDAHAVRNAKADLKRYLDIVLZ

This is a very neat find. It has a strong HHPred and PSI-BLAST hits to HicA toxin (aka YcfA/nrd). The standardized functions would potentially call it toxin/anti-toxin, HicA-like, but we haven’t identified an anti-toxin in the phage, so have no idea if it is part of a system like that. So, we went with HicA-like toxin, which we are very confident about. It would be cool to know if there is an anti-toxin gene in the phage somewhere, though!

Thank you, and please feel free to contact us with any questions at all,

Steve Caruso

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