Annotation of the *Kytococcus sedentarius* Genome from DNA Coordinates 907975 to 911269

Elizabeth Hartley, Joshua Smith, Sierra Tuller and Paula Ferneza

Frewsburg Jr.-Sr. High School and the Western New York Genetics in Research Partnership

**Abstract**

A group of three genes from the microorganism *Kytococcus sedentarius* (Ksed_08890 – Ksed_08910) were annotated using the collaborative genome annotation website GENI-ACT. The Genbank proposed gene product name for each gene was assessed in terms of the general genomic information, amino acid sequence-based similarity data, and structure-based evidence from the amino acid sequence. The Genbank proposed gene product name did not differ significantly from the proposed gene annotation for 2 of these genes (based on Modules1-3), but we propose the name (Ksed_08890) should have its annotation changed to energy-dependent translational throttle protein EBA based on the three top hits in the Swiss-Prot database for Ksed_08900.

**Introduction**

*Kytococcus sedentarius* is a bacterium that is capable of degrading human hair. *K. sedentarius* is a marine dwelling gram positive, that is aerobic respiration, meaning they require free oxygen to create energy. *K. sedentarius* is a marine dwelling gram positive, that is aerobic respiration, meaning they require free oxygen to create energy. 

According to C.M. Longshaw, this bacterium is of scientific interest for its acid stability, suggesting that *K. sedentarius* should be annotated as an acid stable bacterial species.

**Results**

*Kytococcus sedentarius* is a bacterium with a genome containing roughly 2785204 nucleotides, 2554 protein genes, and 55 RNA genes. Even with all of this information hidden within its genome, this species has one of the smaller microbial genomes curated. Interest in the genome is partially due to its membership in a poorly studied family located in the actinobacterial suborder *Micrrococcineae* and from its ability to produce oligopeptide antibiotics.

**Conclusions**

The Genbank proposed gene product name did not differ significantly from the proposed gene annotation for 2 of these genes (based on Modules1-3), but we propose that (Ksed_08870) should have its annotation changed to energy-dependent translational throttle protein EBA based on the three top hits in the Swiss-Prot database for Ksed_08900.