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Global Alignment with Affine Gap Penalty for TERT Comparison

Project:

Stress may cause critical shortening in telomeres, a buffer that protects the coding region of DNA. Work in humans has found that, in addition to shorter telomeres, chronically stressed caregivers of sick relatives have lower than average levels of telomerase, the enzyme responsible for elongating telomeres. The goal of this project was to create a program that mimicked the EMBOSS program used by Au et al. (2009) for comparing hTERT protein sequence, one component of human telomerease, to Japanese medaka (oTERT), pufferfish (fTERT), and zebrafish (zTERT). Au et al. compared several fish TERT proteins to hTERT to determine which would be a model organism for studying telomerase biology. I decided to perform the same task on the TERT protein sequence of *A. burtoni*, an African cichlid fish, because it's manipulate social structure makes it an interesting organism for studying the effects of stress on telomerase. If *A.*