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## Bioinformatics Engineering Program

Uppsala University School of Engineering

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| Author   | <b>Ingemar Ohlsson</b>  |   |
| Title (English)  | <b>Stealth tRNAs: Strategies for mining orthogonal tRNA candidates from genomic data</b>  |   |
| Title (Swedish)  |   |   |
| Abstract   | <p>Pairs of orthogonal tRNAs and aminoacyl-tRNA synthetases can potentially be used to augment the genetic code of a chosen host organism. Contemporary methods for finding candidate orthogonal tRNAs - ones that do not interact with the host's aminoacylation enzymes - are based on resource-intensive <i>in vivo</i> assays. In this project, I have evaluated several bioinformatics approaches to finding candidate orthogonal tRNAs, dubbed "Stealth tRNAs." Information logos obtained with the logofun software package, and rough set classification using the ROSETTA software package, show some ability to distinguish known orthogonal tRNAs from others. With further study and proper adaptation of the software, mining Stealth tRNAs from genomic data appears entirely possible.</p> |   |
| Keywords   | Bioinformatics, tRNA, orthogonal, genomic, data-mining  |   |
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