J Appl Bioinforma Comput Biol 2018, Volume 7
DOI: 10.4172/2329-9533-C1-006

The conserved structure of the DUF 2419 family

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The DUF 2419 superfamily has emerged as a remarkably versatile protein scaffold for the evolution of diverse catalytic activities. The DUF 2419 protein family was recently discovered and thus it is not well understood by the scientific community but some evidence from its orthologs indicates that it is likely involved in tRNA processing. This project is a preliminary effort to structure and function discovery. Here we overexpress the DUF 2419 using both human and bacterial cell lines to produce crystals that can be further analyzed using X-ray crystallography. C9orf64 is a gene located on chromosome 9, that in humans encodes the protein queuosine (Q) salvage protein. Queuosine is a micronutrient modification found on the wobble position of tRNAs. Recent publications indicate that DUF 2419 is involved in the methylation of cell lines in ovarian cancer, breast cancer, colon cancer, and acute myeloid leukemia. There is still much to learn regarding its function in the cells of various cancers. In humans, the expression of the gene of interest is highest in the duodenum and small intestine but is also expressed in 24 other tissues. The protein was then exposed to JCSG and Salt Rx conditions for a total of 192 separate conditions in both 4mg/ml and 8mg/ml which are used to generate high-quality crystals that can then be further analyzed to confirm

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