Jaroslaw Blaszczyk, J Cell Sci Ther 2016, 7:1 (Suppl)
http://dx.doi.org/10.4172/2157-7013.C1.036

OMICS International
conferenceseries.com

6th World Congress on
Cell & Stem Cell Research
February 29-March 02, 2016 Philadelphia, USA

Ribonuclease III in action: Catalytic photographs of the enzyme determined by X-ray crystallography

Jaroslaw Blaszczyk
Polish Academy of Sciences, Poland

RNase III endonucleases cleave double-stranded RNA, transforming precursor RNAs into mature RNAs that act in pre-mRNA splicing, RNA modification, translation, gene silencing, and the regulation of developmental timing. The structure of endonuclease domain, determined, by author, in 2001, provided, first time after 33 years from first isolation of the enzyme, a hint at how this family of ribonucleases functions. First structure of full-length, unligated RNase III, was solved in 2002. First structure of full-length enzyme in complex with dsRNA was solved, by author, in 2004. After that, a significant number of RNase III structures in complex with dsRNA variants were determined. The 'key' structure is an enzyme-product complex, published in Cell in 2006. The following years resulted in determination of the large variety of RNase III structures: from different organisms, in form of a complex with different dsRNAs, metal ions, and/or other entities. All these structures constitute a set of snapshots of the mechanism of double-stranded RNA processing by the enzyme. This presentation is dedicated to Professor Wojciech J. Stec on the occasion of his 75th birthday. Financial support by the Polish National Science Center (NCN), grant No. DEC-2012/05/B/ST4/00075, is gratefully acknowledged.

Biography

Jaroslaw Blaszczyk has completed his PhD at the age of 30 years from Technical University of Lodz and postdoctoral studies from NIH, National Cancer Institute at Frederick. He became a research assistant professor at Michigan State University. After that he served as the PDB annotator at Rutgers University of New Jersey. Currently he is an assistant professor at the Centre of Molecular and Macromolecular Studies of the Polish Academy of Sciences. He has published more than 67 papers in reputed journals and has been serving at several grant review panels at NCN, the Polish National Science Center

blaszcz8@cbmm.lodz.pl

Notes: