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Prediction of T-cell and B-cell epitopes for merozoite surface protein 119(MSP119) for *Plasmodium yeolli* using computational techniques

Kalyani Dhusia and Pramod Kumar Yadav
Sam Higginbottom Institute of Agriculture, Technology and Sciences, India

Malaria is a disease which is spread around the globe. It causes hundreds of millions of clinical infections and at least a million deaths per annum. This disease is caused by the transmission of *Plasmodium*. The *Plasmodium yoelii* is a rodent malaria parasite. The malarial parasite maturation occurs within the erythrocyte. In final phase a large plasmodial protein which becomes a significant surface protein of merozoite (MSP119) is synthesized. Hence epitopes against MSP119 protein could be helpful in study to develop the vaccine against malaria. In the present work merozoite surface protein (msp119) of *Plasmodium yoelii* was selected as an immunogenic protein. The T-cell and B-cell epitopes for MSP119 were predicted using a range of computational tools/servers. The epitopes being expressed by the protozoa were identified. Subsequent to epitope (small peptides) prediction, the 3D structures of predicted epitopes were modeled by homology modeling followed by validation. Further the MHC molecules of human were identified and their structures were obtained from the Protein Data Bank. The predicted epitope were docked with their respective MHC alleles. The epitopes which were having lowest docking energy scores were selected as most promising epitopes for MSP119.Those predicted epitopes for MSP119 might act as potential vaccine candidates against the *Plasmodium yoelii*. In future those epitopes (small peptides) can be synthesized in wet laboratory and their immunogenic property can be validated.

Biography

Ph.D. scholar at Sam Higginbottom Institute of Agriculture, Technology and Sciences, Allahabad, UP, India under the supervision of Prof. Pramod W. Ramteke. She has achieved her Master's degree (M Sc) in bioinformatics with CGPA of 8.67 (out of 10) and graduated as First-ranking student in her class with silver medal. Was elected President to the Zoological Society at Ewing Christian College, Allahabad, India (2010-2011) and Vice-President to the Society of Bioinformatics at Sam Higginbottom Institute of Agriculture, Technology and Sciences in 2014. Her Publications involve: Dhusia, K., Rizvi, A. and Ramteke, P. W. (2015) Pathway analysis tools: A comparative study over the generations. International Journal of Scientific and Engineering Research, Volume 6, Issue 4, Pages 1605-1613.

pramod.yadav@shiats.edu.in

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