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IASST fabricates protein to help study diseases like multiple sclerosis

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The research group used a technique called the Langmuir-Blodgett during the study



Scientists at the Institute of Advanced Study in Science and Technology (IASST), Guwahati, an autonomous institute of North-East India under the Department of Science and Technology, have fabricated monolayers of pure myelin basic protein (MBP), a major protein component of myelin sheath, which is a protective membrane that wraps around the axon of nerve cells and acts as a model protein in studying diseases like multiple sclerosis (MS).

MBP helps in compactification of the myelin sheath, and the fabricated tailored monolayers can give an in-depth understanding of the role of MBP in forming multi-lamellar myelin sheath structure as well as preserving the integrity, stability, and compactness of the sheath.

The research group used a technique called the Langmuir-Blodgett (LB) technique to form monolayers of pure myelin basic protein at the air-water and air-solid interfaces.

The behaviour of the protein under variable pH conditions was investigated from different areas of the monolayer formed at the air-water interface. The rigidity of the monolayers were correlated with the specific domains formed and the area occupied by the domains on the water surface.

The closely packed MBP layer formed at the air-water and also on solid surfaces fabricated by the LB method will be helpful in studying different chemical and physical properties in 2D in the vicinity of protein environment. The deposited LB films of MBP may also be considered as protein nanotemplates to crystallise proteins of interest.