

Optimizing Sonication and Chromatography Conditions in the Purification of LGN Protein for X-Ray Crystallography

LGN protein is a critical component for the division of mammalian cells, as it functions in the maintenance of cell polarity and the alignment of mitotic spindles during mitosis. In order to optimize a purification scheme for LGN, the protein is first expressed in *E. coli*, and then is sonicated and centrifuged to respectively lyse and separate the cells and other debris from the expressed proteins. Afterwards, the protein mixture is passed through chromatography columns and the LGN protein is assessed for purity using SDS-PAGE, followed by Western blotting to verify the presence of LGN. The goal of the purification scheme is to attain samples of LGN protein at least 95% pure in order for crystallization conditions to be determined for X-ray crystallography. Western blot detection has verified the expression of LGN and the sonication and chromatography conditions are currently being optimized in order to obtain pure LGN.

Keywords: LGN, GPSM2, protein purification, protein structure, X-ray crystallography