

Expression and purification of ^{15}N , ^{13}C -labeled HMGA2 for NMR structural studies

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Abstract Details

The mammalian high mobility group protein AT-hook 2 (HMGA2) is a nuclear oncoprotein, and its abnormal expression is directly linked to tumorigenesis. The HMGA2 gene is located on the chromosomal bands 12q13-15. Rearrangement of these bands disrupts the normal functions of HMGA2 and causes the formation of benign tumors, such as lipomas, and malignant tumors, such as lung cancer. In this study, our objective was to make sufficient amounts of ^{15}N -, ^{13}C -labeled HMGA2 for NMR studies to obtain a high-resolution structure of HMGA2-DNA complexes. In order to label this protein, *E. coli* strain BLR(DE3), containing a plasmid expressing HMGA2, was grown in minimal M9 medium containing $^{15}\text{NH}_4\text{Cl}$ and ^{13}C -glucose. The ^{15}N -, ^{13}C -labeled HMGA2 protein was purified according to a purification protocol previously published by our research group. SDS-PAGE, Western Blotting, and Mass Spectrometry were used to demonstrate the successful expression and purification of the ^{15}N -, ^{13}C -labeled HMGA2. HMGA2 protein samples were sent to our collaborators at the University of Bayreuth, Germany for NMR structural studies.

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