Molecular Modeling of the *Neurospora crassa* NCU06679 ORF Product Suggests as a Putative Histone Acetyltransferase. Production and Purification of the Recombinant Protein

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The fungus *Neurospora crassa* has been widely used as a model organism for fundamental aspects of eukaryotic biology. We have been studying the biochemical and molecular mechanisms involved in glycogen metabolism regulation in this fungus. In an attempt to get information related to regulation of expression of the gene encoding glycogen synthase (*gsn*), experiments were performed to identify proteins that bind to the *gsn* promoter and therefore might be involved in the regulation of gene expression. One of the proteins identified was the NCU06679 ORF product, which has WD40 domains along the protein polypeptide sequence. Proteins with this domain have several functions, among them signal transduction and transcriptional control. The protein NCU06679 was annotated as ortholog of the *Saccharomyces cerevisiae* Cac3p (chromatin assembly-3), a protein member of the complex Caf-I (Chromatin assembly factor I), which is involved in processes such as chromatin remodeling. The protein structure was determined by molecular modeling using the Modeller software and based on the Nurf55 structure (PDB 2xyi) from *Drosophila melanogaster*, a component of different chromatin-modifying complexes. Nurf55 forms a seven-bladed β-propeller characteristic for the WD40 family of proteins. The ORF sequence was amplified by RT-PCR, cloned into pET28a vector, confirmed by DNA sequencing, and the recombinant protein was produced in Rosetta(DE3) *E. coli* strain. The recombinant protein was purified by affinity chromatography and will be used in crystallization trials and functional studies.

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