

## Purification and characterization of an *N*-acetyl-D-galactosamine-specific lectin from the edible mushroom *Schizophyllum commune*

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Received 28 June 2005; received in revised form 20 January 2006; accepted 25 January 2006

Available online 20 February 2006

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### Abstract

An *N*-acetyl-D-galactosamine (GalNAc)-specific lectin was purified from the edible mushroom, *Schizophyllum commune*, using affinity chromatography on a porcine stomach mucin (PSM)-Sepharose 4B column. Under reducing and non-reducing conditions, SDS-polyacrylamide gel electrophoresis gave a major band of 31.5 kDa. The *Schizophyllum commune* lectin (SCL) showed high affinity toward rat erythrocytes and the sugar inhibition assay exhibited its sugar specificity highly toward lactose and *N*-acetyl-D-galactosamine. It was stable at 55 °C for 30 min and at pH 3–10 for 18-h test. The lectin was shown to be a glycoprotein with cytotoxic activity against human epidermoid carcinoma cells. The N-terminus of SCL was blocked but amino acid sequences of internal tryptic peptides showed moderately sequence similarities with some other fungal and plant lectins. Crystals of SCL were obtained by the sitting drop vapour-diffusion method using polyethylene glycol 8000 as the precipitant, and gave an X-ray diffraction pattern to approximately 3.8 Å resolution.

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**Keywords:** Lectin; Edible mushroom; *N*-acetyl-D-galactosamine-specific lectin; Lectin crystal; *Schizophyllum commune*; X-ray diffraction

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