Crystal and Cryo-EM structure of PPL, a novel hexameric R-type lectin from the poisonous mushroom *Pleurocybella porrigens*

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Abstract

Pleurocybella porrigens is a mushroom that grows widely around the temperate northern hemisphere, and was once considered edible, especially in Japan. Following a number of deaths in 2004, investigations revealed the presence of various toxins, including a lectin (PPL) that apparently survives cooking and enters the bloodstream via the stomach. We have cloned PPL and solved its structure by X-ray crystallography and cryo-EM. We report the sugar binding properties of this β-trefoil lectin, which has a novel hexameric structure.