

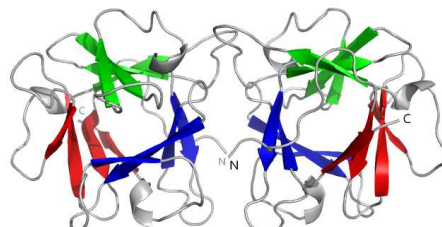
# BEL $\beta$ -Trefoil. A novel lectin with antitumoral properties in king bolete (*Boletus edulis*) mushrooms – P20

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A novel lectin completely different from the formerly described member of the saline soluble family of mushroom specific lectins (named BEL, *Boletus edulis* lectin, Bovi et al., 2011) was purified from the fruiting bodies of king bolete mushrooms (also called porcino, cep or penny bun). The lectin was structurally characterized: its amino acid sequence and three dimensional structure were determined. The protein is a homodimer and each protomer folds as  $\beta$ -trefoil domain and therefore we propose the name BEL  $\beta$ -trefoil to distinguish it from the other lectin that has been described in these mushrooms: BEL. The new lectin has potent anti-proliferative effects on human epithelial cancer cells which confers to it an interesting therapeutic potential as an antineoplastic agent. Several crystal forms of the apoprotein and of complexes with different carbohydrates were studied by X-ray diffraction. The interaction of the lectin with lactose, galactose, N-acetylgalactosamine and the T-antigen disaccharide, Gal $\beta$ 1-3GalNAc, was examined in detail. All the three potential binding sites present in the  $\beta$ -trefoil fold are occupied in at least one crystal form and will be described in detail in our poster. No important conformational changes are observed in the lectin when comparing its co-crystals with carbohydrates with those of the ligand free protein.