

## Letters to the Editor

### Sequential resonance assignment of the human BMP type II receptor extracellular domain

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Proteins of the transforming growth factor-beta (TGF $\beta$ ) superfamily, including activins, bone morphogenetic proteins (BMPs), growth and differentiation factors (GDFs), and TGF- $\beta$ s, signal via two single-pass transmembrane kinases, known as receptor types I and II. The five type II receptors of the superfamily that have been identified differ in their specificity. To complement the existing structural information for the TGF $\beta$  and activin type II receptor extracellular domains (ecT $\beta$ R-II and ecActR-II, respectively) and to better understand the specificity determinants, we sought to structurally characterize the BMP type II receptor extracellular domain (ecBMPr-II). Triple-resonance methods were used to obtain the backbone and sidechain assignments for 112 of the 125 residues of ecBMPr-II. All unassigned residues were nearby or overlapped with the corresponding unassigned residues of ecT $\beta$ R-II (Hinck et al., 2000) indicating that a common mechanism might underlie the missing signals. Analysis of secondary shifts show that the protein is comprised entirely of  $\beta$ -sheet, which is consistent with expectations based on the X-ray structure of the most closely related type II receptor whose structure is known, ecActR-II (Greenwald et al., 1999). BMRB deposit accession 6582.

References: Hinck et al. (2000) *J. Biomol. NMR*, **18**, 369–370; Greenwald et al. (1999) *Nat. Struct. Biol.*, **6**, 18–22.

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### Complete assignment and secondary structure of the Brazil nut allergen Ber e 1

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Ber e 1, the major 2S albumin allergen from Brazil nut (Alcocer et al., 2002), has gained notoriety when engineered into soybean in order to increase the nutritional value of the legume. As the first food allergen transferred from one plant to another it has triggered strong international debate. Recent studies have demonstrated that purified Ber e 1 protein alone does not induce an IgE response in animal models (unpublished results). This observation suggests that other factors associated with Ber e 1 might be involved in the allergenicity of the protein. To further investigate the allergenic properties of Ber e 1, we set out to determine the tertiary structure of this food allergen. 3D heteronuclear NMR experiments with <sup>13</sup>C/<sup>15</sup>N labelled Ber e 1 were conducted and analyzed with NMRViewC to obtain <sup>1</sup>H, <sup>13</sup>C and <sup>15</sup>N assignments. The secondary structure is similar to the homologous, but non-allergenic, 2S albumin from Sunflower, includes: helix 1 (residues 6 to 14), helix 2 (residues 17 to 30), helix 3 (residues 44 to 56), helix 4 (residues 63 to 75) and helix 5 (residues 81 to 101). BMRB deposit: Accession No. 6529.

Reference: Alcocer et al. (2002) *J. Mol. Biol.*, **324**, 165–175.

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