Journal of Biomolecular NMR (2005) 32: 178

Letters to the Editor

Main chain ^{1}H, ^{13}C, and ^{15}N resonance assignments of the 42-kDa enzyme arginine kinase

DOI 10.1007/s10858-005-6731-8

Arginine kinase (AK), a 42-kDa enzyme, reversibly catalyzes phosphoryl transfer between ATP and arginine, regulating cellular ATP levels in invertebrates. Eight phosphagen kinases are known from the animal kingdom, the human orthologue is creatine kinase (Ellington, 2001). Conformational changes for this family of enzymes, not the chemistry, are rate limiting on the reaction (Yousef et al.,2003). As a first step towards investigating these conformational changes, main chain resonance assignments of recombinant AK from the horseshoe crab *Limulus polyphemus* are reported here. 2D and 3D heteronuclear NMR experiments on uniformly ^{2}H, ^{13}C, ^{15}N-labeled AK and ^{15}N-amino acid type specific labeled AK were recorded. Main chain resonance assignments are 95% complete and have been deposited (BMRB accession #6542).

References: Ellington, W.R. (2001) *Annu. Rev. Physiol.*, **63**, 289–325; Yousef, M.S., Clark, S.A., Pruett, P.K., Somasundaram, T., Ellington, W.R., and Chapman, M.S. (2003) *Protein Sci.*, **12**, 103–111

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Supplementary material to this paper is available in electronic format at http://dx.doi.org/10.1007/s10858-005-6731-8.

NMR assignment of the vaccinia virus envelope protein A27L

DOI 10.1007/s10858-005-7061-6

A27L is a viral envelope protein responsible for the entry of viral particle into host cell (Smith et al., 2003). It consists of four functional domains, including the signal peptide (residues 1–20), the lysine/arginine rich region (21–32) essential for heparin binding, the coiled-coil domain (43–84) (Lin et a1., 2002), and the remaining residues (85–110) which have been shown to interact with another vaccinia viral protein. It is confirmed that the A27L binds to heparin sulfate on the cell surface to mediate virus entry; however, the detail mechanism is not fully understood. In this work, we carried out a NMR structural study of recombinant A27L expressed in *E. coli*. The ^{1}H, ^{13}C, and ^{15}N NMR resonances assignments of a full-length A27L are essentially completed. Backbone NH resonances were assigned for 107 of the 110 non-proline residues (97%). The unassigned non-proline residues are: Q63, L68, E80, R88, E91, R95 and N98. 99% of the C_{α}, 97% of the C_{β}, and 100% of the H_{α}, and H_{β} resonances in the protein have been unambiguously assigned for the A27L. In total, more than 80% of aliphatic side-chain ^{1}H and ^{13}C resonances were assigned. BMRB deposits with the Accession No. 6512.

References: Lin, et al. (2002) *J. Biol. Chem.*, **277**, 20949–20959; Smith, et al. (2003) *Annu. Rev. Microbiol.*, **57**, 323–342.

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Supplementary material to this paper is available in electronic format at http://dx.doi.org/10.1007/s10858-005-7061-6.