

Publication

A doublet-separated sensitivity-enhanced HSQC for the determination of scalar and dipolar one-bond J-couplings

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A simple, sensitivity-enhanced HSQC experiment is described which separates the upfield and downfield components in the indirect dimension into different subspectra. The sequence is similar to the generalized TROSY scheme; however, decoupling of the X-nucleus is used during detection. A detailed analysis of relaxation effects, precision and sensitivity of the method is presented. The approach is demonstrated in a two-dimensional water flip-back ¹H-¹⁵N HSQC which measures ¹J_{HN} splittings in isotropic and oriented samples of ubiquitin and the hepatitis C protease. The results are in excellent agreement with splittings obtained from a conventional ¹H-coupled HSQC.

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