# Satellite-selective 1D TOCSY experiments for measuring long-range $^{1}H$-$^{13}C$ coupling constants and two-bond $^{13}C$ isotopic effects on proton chemical shifts

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We present a simple methodology for determining the sign and the magnitude of long-range heteronuclear $^{1}H$-$^{13}C$ coupling constants between protons and proton-bearing carbons[1] and for the first experimental measurement of the effect of the substitution of $^{12}C$ by $^{13}C$ on the chemical shifts of protons separated by two bonds in small molecules in their natural abundance[2]. The approach involves recording two 1D-TOCSY experiments in which the offset of the selective proton pulse is set on the low- and high-frequency $^{13}C$ satellites of an isolated proton signal. The application of this method to a number of organic molecules is described.

[1] Vidal, P., Esturau, N., Parella, T., Espinosa, J. F. *J. Org. Chem.* **2007**, *72*, 3166-3170.

[2] Espinosa, J. F., Parella, T. *Tetrahedron Lett.* **2008**, *49*, 2562-2565.