



Measurement of the intersystem crossing yield of s4U within tRNA

Z. Shaqiri^{1,*}, D. Angelov¹, E. Vidolova-Angelova¹, N. Shaqiri², S. Berisha³, A. Veseli⁴

¹Institute of Solid State Physics, Bulgarian Academy of Sciences, 72, Tsarigradsko Shaussee Blvd., 1784 Sofia, Bulgaria; ²Academy of Medicine, Sofia, Bulgaria; ³Faculty of Technology, Mitrovica, Kosova; ⁴Faculty of Natural Sciences, Prishtina

Received November 19, 2008; Accepted February 12, 2009

Abstract: The rare base 4-thiouridine (s4U), present in various transfer RNA (tRNA) molecule from *Escherichia coli*, occupies usually the strategically important 8-th position between the double helices of the acceptor and the dihydrouridine stems of the cloverleaf. This unusual base is largely used as an intrinsic build in probe for RNA conformational and RNA (DNA)-protein interaction studies through triplet excited state photochemistry related to covalent adducts formation. Here, by applying laser transient absorption saturation spectroscopy, we measured the intersystem crossing yield ϕ_{ST} and the excited triplet state absorption ϵ_{T-T} of s4U within tRNA. While the incorporation of s4U in tRNA induced appreciable changes in the latter, no important variation of the intersystem crossing yield was observed which is in contrast with the published data.

Keywords: Photocrosslinks, flash photolysis, saturation, spectroscopy, fluorescent, ionization, pulse energy, measuring.

*Corresponding: E-mail: zekiinst@yahoo.com; Tel: +381 38 245 072; Fax: + 381 38 244 187