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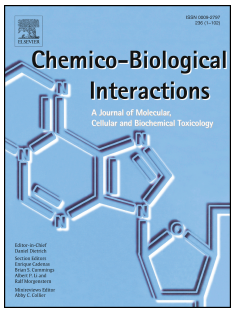

Synthesis, spectroscopic, physicochemical and structural characterization of tetrandrine-based macrocycles functionalized with acridine and anthracene groups: DNA binding and anti-proliferative activity

Viviana Calvillo-Páez, Rogerio R. Sotelo-Mundo, Mario Leyva-Peralta, Juan Carlos Gálvez-Ruiz, David Corona-Martínez, Ramón Moreno-Corral, Raymundo Escobar-Picos, Herbert Höpfl, Octavio Juárez-Sánchez, Karen Ochoa Lara

PII: S0009-2797(17)30954-7

DOI: 10.1016/j.cbi.2018.02.013

Reference: CBI 8224

To appear in: *Chemico-Biological Interactions*

Received Date: 7 September 2017

Revised Date: 14 January 2018

Accepted Date: 12 February 2018

Please cite this article as: V. Calvillo-Páez, R.R. Sotelo-Mundo, M. Leyva-Peralta, J.C. Gálvez-Ruiz, D. Corona-Martínez, Ramó. Moreno-Corral, R. Escobar-Picos, H. Höpfl, O. Juárez-Sánchez, K. Ochoa Lara, Synthesis, spectroscopic, physicochemical and structural characterization of tetrandrine-based macrocycles functionalized with acridine and anthracene groups: DNA binding and anti-proliferative activity, *Chemico-Biological Interactions* (2018), doi: 10.1016/j.cbi.2018.02.013.

Graphical abstract

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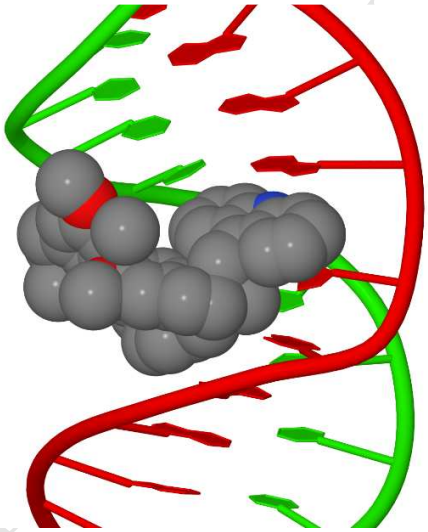

In this work we report on the synthesis and characterization of two new tetrandrine-based receptors and their binding properties towards a series of nucleotides and ds-DNA, in aqueous at pH = 7.2, by UV-Vis and fluorescence spectroscopy. Both receptors exhibit high affinity ($K \sim 10^5$ M^{-1}) and sequence selectivity for ds-DNA, in an intercalation binding mode. These studies were accompanied with single-crystal X-ray diffraction analysis and molecular modeling. Additionally, the anti-proliferative studies of the derivatives on different cancer cell lines reveal promising activities of the compounds.