Short Term Scientific Mission funded by the COST Action CA22131

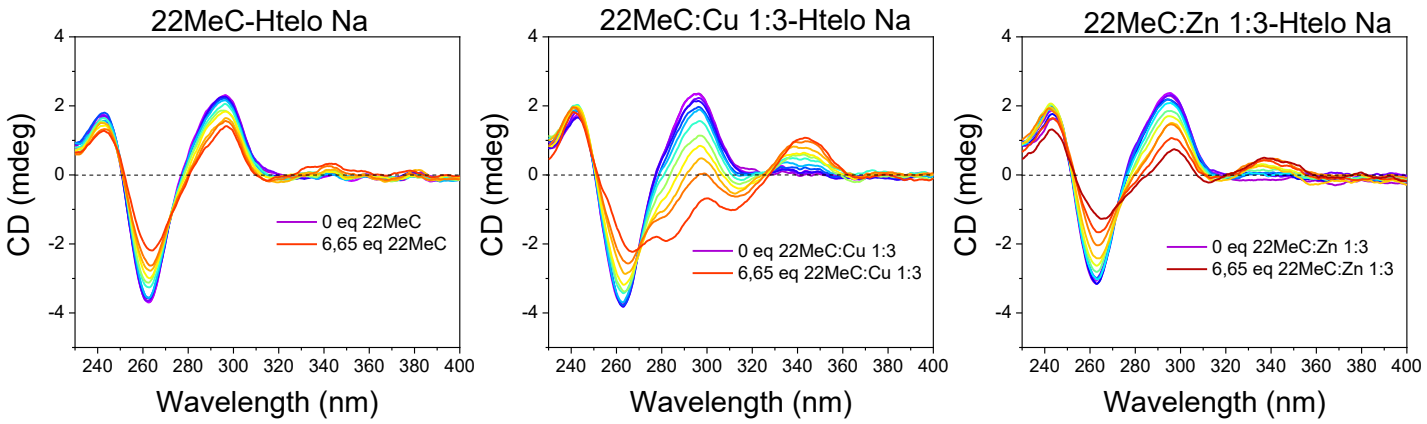
Supramolecular LUminescent Chemosensors for Environmental Security

Upgrade of Circular Dichroism Analysis by Fluorescence Detected CD study of Ligand-Induced Structural Modulation in Telomeric G-Quadruplex DNA Mediated by Polynuclear Cu(II)/Zn(II) Complexes.

AIM OF THE STSM

The aim of this STSM is to use Circular Dichroism (CD) spectroscopy to monitor ligand-induced conformational changes in G-quadruplex (G4) DNA induced by a series of ligands developed by the Supramolecular Chemistry Group at the University of Valencia. In particular, this work aims to complement experiments performed during a previous research stay by investigating the influence of metal complex formation on binding affinity and binding modes to G4 structures.

RESULTS



CD titration spectra of antiparallel G4 Htelo DNA in Na+ buffer upon interaction with ligand 22MeC (left), and its trinuclear Cu (center) and Zn complexes (right).

CD titrations of various G4 and double-helical DNA structures in the presence of a series of ligands and their trinuclear metal complexes were carried out. The results demonstrated ligand-induced conformational changes, including shifts from hybrid to antiparallel G4 topologies, together with enhanced DNA interactions upon metal complexation.

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