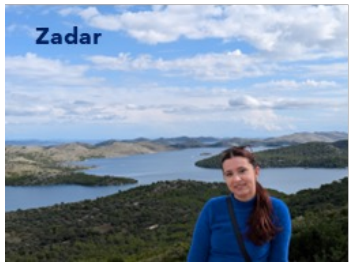
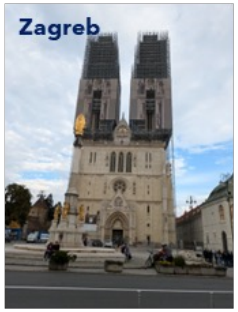
Short Term Scientific Mission funded by the COST Action CA22131

Supramolecular LUminescent Chemosensors for Environmental Security

Sensing telomeric G-quadruplex structures using a combination of circular dichroism and fluorescence spectroscopies.



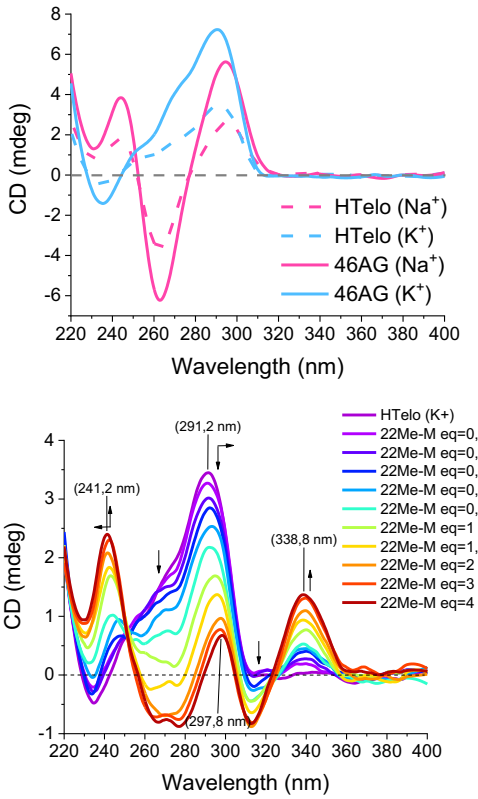


AIM OF THE STSM

To use Circular Dichroism (CD) spectroscopy in order to monitor the conformational changes of G4 DNA induced by a series of ligands prepared in the Supramolecular Chemistry Group of the University of Valencia. In particular, the objective is to explore the different conformations generated by the human telomeric G-quadruplex DNA (HTelo) and its dimer (46AG), which can adopt antiparallel or hybrid topologies depending on the cation present in solution.

RESULTS

CD-titrations of both G4 DNA and their conformations in Na^+ and K^+ were performed with three ligands. Those titrations showed the conformational changes induced by ligands, changing from hybrid to antiparallel topologies. In addition to that, CD-monitored DNA thermal denaturation experiments were also measured to assess the stabilization of the studied G4 by the ligands.



CD spectra of G4 DNA and its different conformations (top panel) and CD specra titration of G4 DNA with a ligand (bottom panel).

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