ABSTRACT:

The field of foldamer chemistry was inspired from the investigation of natural biological systems in which covalent and non-covalent molecular interactions between specific units in their sequence assist folding into a well-defined three-dimensional structure of higher order architectures. Recreating this feature on synthetic systems would not only allow reproducing biological functions but also developing new functions that suitable for our technological needs. In this work, we mainly focused on foldamer designing and synthesis of a π-electron rich polymer in which conformational preferences can be induced through different non-covalent and covalent interactions. The target polymer mainly consists of Dialkoxy naphthalene units, a potential candidate to facilitate charge transport through space when confined those units into a well-organized foldameric system. All other structural features of the backbone are meant to assist the folding process. The major outcome of the work is a functionalized polymer backbone with an optimized spacer chain length, having the potential to adopt higher order architectures