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Squaramide-based supramolecular polymers : from self-assembly to in vivo application

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Squaramide-based supramolecular polymers: from self-assembly to in vivo application

1. Engineering supramolecular polymers that remain robust in a biological environment while keeping their adaptivity is a great challenge to be achieved. Here, the main aim is to use these structures in combination with biomolecular building blocks to allow them to respond specifically to their environment. *Chapter 1, this thesis*
2. Squaramides are excellent ditopic hydrogen-bonding synthons to be used as building blocks for the construction of supramolecular polymers. *Chapter 2, this thesis*
3. Besides the common parameters to control hydrogen bonding interactions, *aromaticity gain* should be considered in the molecular design of self-assembling monomers for the construction of supramolecular polymers, and more widely in the field of supramolecular chemistry. *Chapter 2 and 3, this thesis*
4. The combination of several techniques in diverse areas leading to the same answer is the most accurate way to prove your hypothesis. *Chapters 2 and 3, this thesis*
5. Cryo-TEM is an important tool to visualize the morphological aspect of supramolecular polymers in aqueous media at the nanoscale. *Chapters 2, 3 and 4, this thesis*
6. The *in vivo* distribution of self-assembled structures is highly governed by their size and shape, and equally important, their surface chemistry. *Chapters 4 and 5, this thesis*
7. The zebrafish embryo model is an excellent system to study the behavior of nanoparticulate carriers *in vivo* due to its small size, reproducibility, transparency and the genetic modifications that they can be outfitted with. *Chapter 5, this thesis*
8. The best therapy to surmount mental challenges during a PhD or simply after a hard-working day is easily solved by a good session of music.
9. The support of family is strongly correlated with the achievements of an individual.