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ABSTRACT BOOK

Therapeutic Cancer Vaccines Based on C_{60} Fullerene and Artificial Glycopeptides

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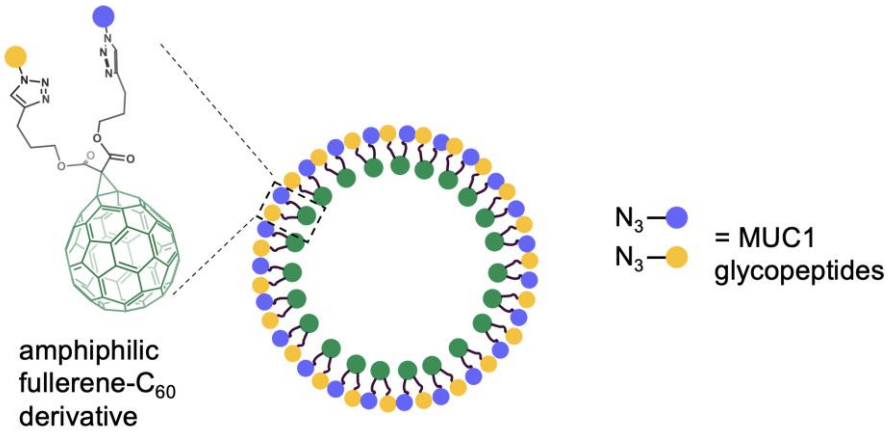
Cancer is one of the leading causes of death worldwide. Despite research efforts in this field, treatments remain largely ineffective. Traditionally, treatment has barely evolved, mainly consisting of surgery followed by sublethal doses of cytotoxic compounds and/or radiation. In this context, cancer immunotherapy emerges as a crucial advancement, reducing side effects and enabling more personalized treatments. This methodology involves stimulating the immune system through the recognition of tumor antigens.[1] GalNAc-glycopeptides derived from mucin MUC1 are an important class of tumor-associated antigens. Partially glycosylated MUC1 derivatives have been used to prepare immunogenic formulations for the development of therapeutic cancer vaccines.[2]

In this project, our aim is to develop a more effective cancer vaccine using fullerene C_{60} conjugated with several copies of artificial MUC1-like glycopeptides developed following a structure-based design.[3] We will synthesize an amphiphilic molecule with a tendency to form micelles,[4] which presumably will favor the multipresentation of unnatural MUC1-derived glycopeptides and, consequently, stimulate the immune system more effectively.[4]



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