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ABSTRACTS BOOK

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DESIGN OF CANCER VACCINES BASED ON MUC1-LIKE GLYCOPEPTIDES AND MESOPOROUS SILICA NANOPARTICLES

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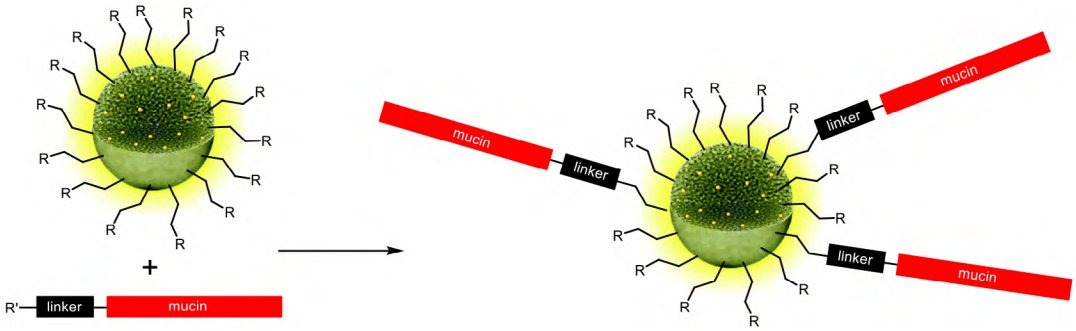
The Tn antigen (GalNAc-α-1-*O*-Thr) is a well-known tumor-associated carbohydrate determinant. The use of glycopeptides incorporating this structure (such as mucin 1, MUC1) has become a promising research field thanks to their potential use as cancer vaccines.[1] Nevertheless, current vaccine candidates generally show only a weak immune response in vivo due to their low stability and immunogenicity.[2]

Fortunately, advances in nanotechnology have led to the development of various synthetic nanoparticles that can be used as vaccine delivery platforms.[3] Mesoporous silica nanoparticles (MSNs) are particularly promising because of their versatile formulation, boosting abilities, lack of side effects, and depot effect. Studies have shown that MSNs can enhance loading capacity, sustained release profile, easy surface functionalization and potential adjuvant activity, which makes them ideal candidates for use in cancer vaccines. Furthermore, MSNs have shown effective immune potentiation *in vivo.* [4]

In this work, we have synthesized and characterized conjugates of MSNs and glycopeptides derived from MUC1 via an appropriate linker. These novel derivatives will be used as potential cancer vaccines candidates that will be tested in mice in a near future.



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