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ABSTRACT BOOK

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DEVELOPMENT OF THERAPEUTIC VACCINES BASED ON Tn ANTIGEN MIMETICS

C. Breton, M. Torres, P. Oroz, I. Compañón, A. Avenoza, M. M. Zurbano, J. H. Busto, F. Corzana and J. M. Peregrina

Departamento de Química, Instituto de Investigación en Química de la Universidad de La Rioja (IQUR), Universidad de La Rioja, 26006 Logroño, La Rioja, Spain.

e-mail: carmen.breton@unirioja.es

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Immunotherapy, one of the most modern methods of treating cancer, relies on patients' immune system to successfully identify and destroy cancer cells. The development of this immunotherapy requires the study of new biomarkers, as MUC1 mucin. In cancer cells, unlike healthy cells, alterations occur in their glycosylation, exposing different antigens that can trigger an immune response, such as the Tn antigen (GalNAc-α-*O*-Ser/Thr). Consequently, therapeutic cancer vaccines have been developed using peptides that include the Tn antigen. However, because *O*-glycopeptides are quickly degraded in biological systems, their therapeutic utility is generally limited. Therefore, different mimetics of the Tn antigen are currently being developed, including those that involve changes in the *O*-glycosidic linkage[1].

As shown in **Figure 1**, several mimetics of the Tn antigen have been synthesized and incorporated into different positions of the MUC1 tandem repeat peptide sequence using the solid-phase peptide synthesis (SPPS) methodology[2]. Experimental analysis using surface plasmon resonance (SPR) were developed to determine the affinity (K_D) of each non-natural glycopeptide to the 5E5 anti-MUC1 antibody. The best surrogates in terms of affinity were selected as candidates for the development of cancer therapies.

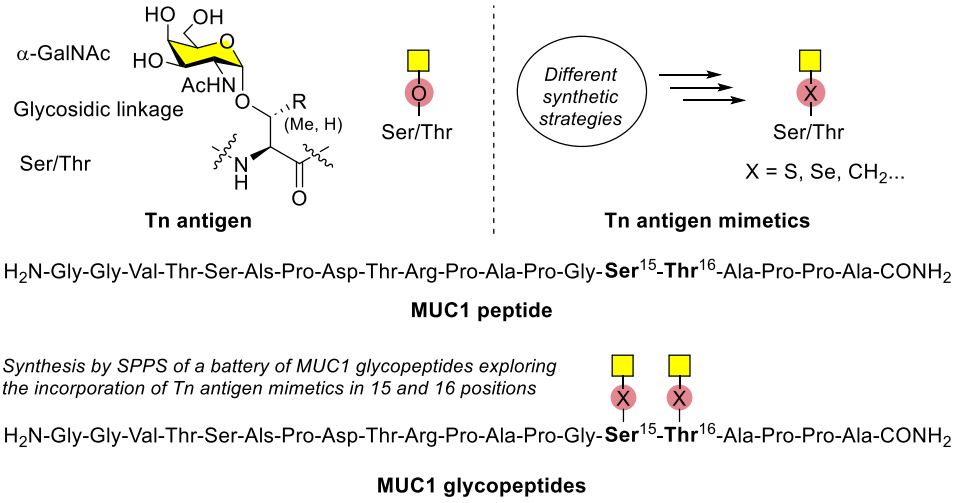

Figure 1: Tn antigen mimetics and glycopeptides synthesized in this work.

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