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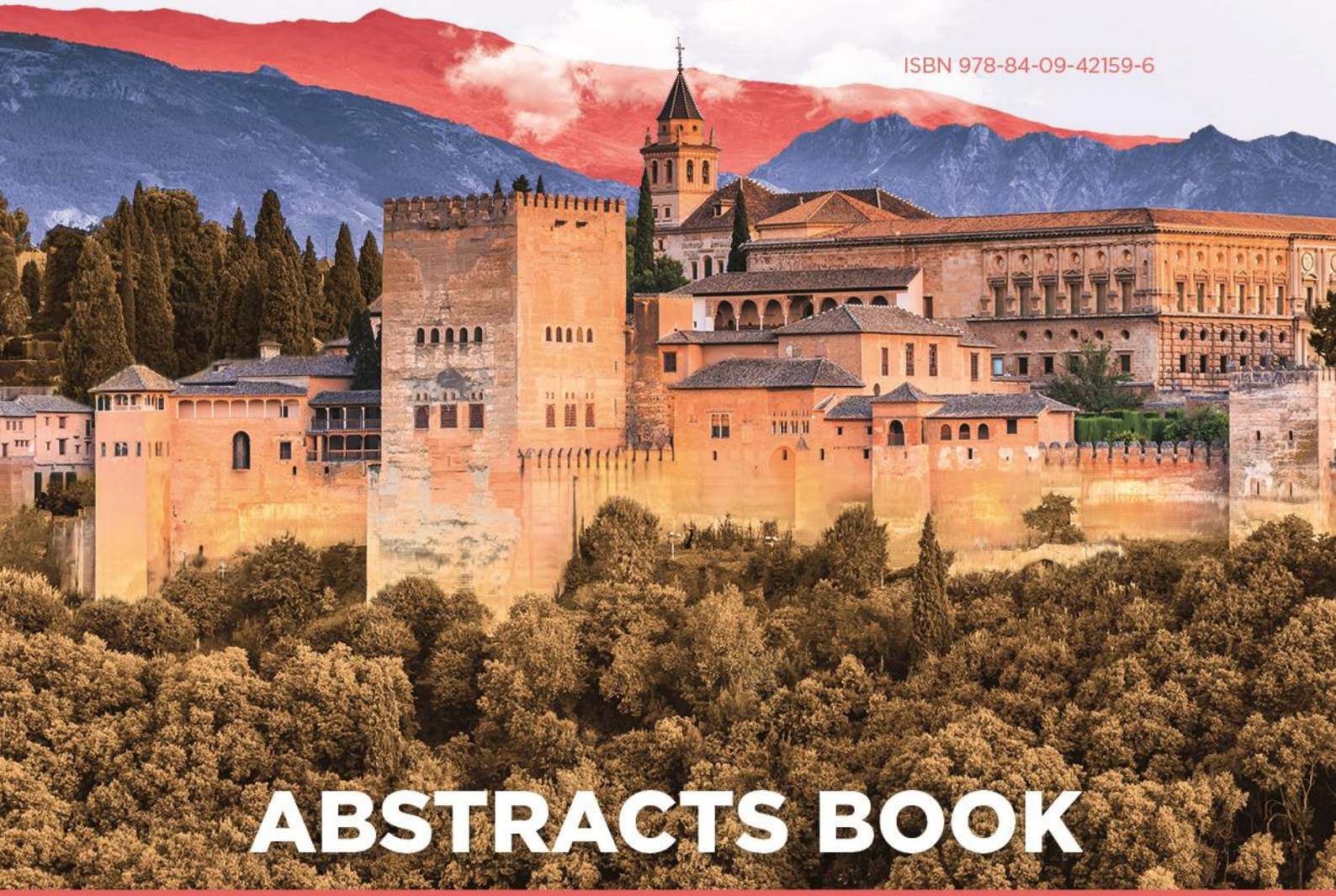

ABSTRACTS BOOK

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DESIGN OF CANCER VACCINES BASED ON MUC1-LIKE GLYCOPEPTIDES CONTAINING NON-NATURAL AMINO ACIDS

Ó. Suárez,[a] A. Avenoza,[a] J.M. Peregrina,[a] M. Zurbano,[a] F.Corzana,[a] J.H. Busto,[a] F. García-Martín[a]

[a]*Departamento de Química. Centro de Investigación en Síntesis Química. Universidad de La Rioja. 26006 Logroño, España*

e-mail: oscar.suarezgarcia@unirioja.es

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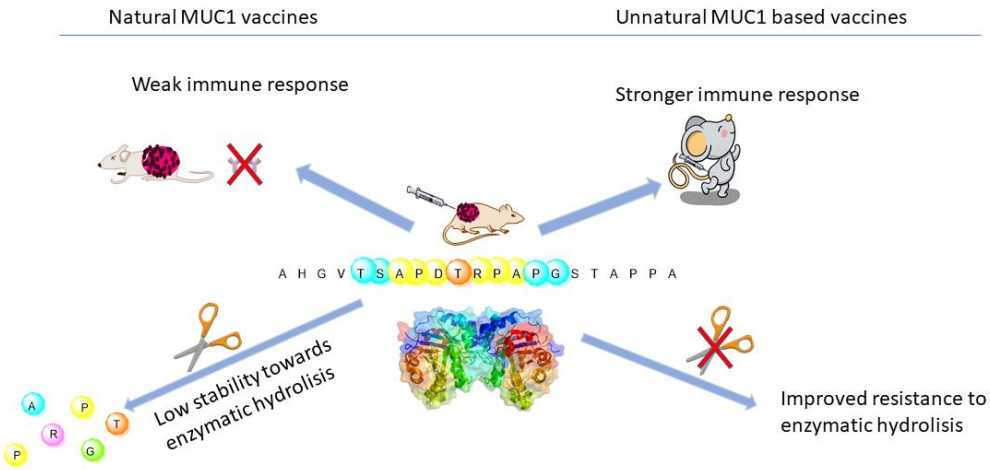
The Tn antigen (GalNAc-α-1-*O*-Thr) is a well-known tumor-associated carbohydrate determinant. The use of glycopeptides with this structure (e.g., mucin 1, MUC1) has become a promising field of research due to their potential use as cancer vaccines.[1] However, current vaccine candidates generally have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

To address these drawbacks, we will modify several residues in the peptide sequence of MUC1 by unnatural amino acids, such as β-amino acids,[3] or surrogates of arginine residue.

In this study, the synthetic routes and challenges encountered in obtaining the various homologues will be described. The affinity of a library of glycopeptides containing β-amino acids for the anti-MUC1 SM3 antibody will be presented and preliminary results will be discussed along with future prospects.



References

[1] I. A. Bermejo, C. D. Navo, et al. *Chem. Sci.* **2020**, *11*, 3996–4006.

[2] I. Compañón, A. Guerreiro et al. *J. Am. Chem. Soc.* **2019**, *141*, 4063–4072.

[3] R. Gibadullin, C. J. Randall, J. Sidney, A. Sette, S. H. Gellman. *J. Am. Chem. Soc.* **2021**, *143*, 6470–6481.