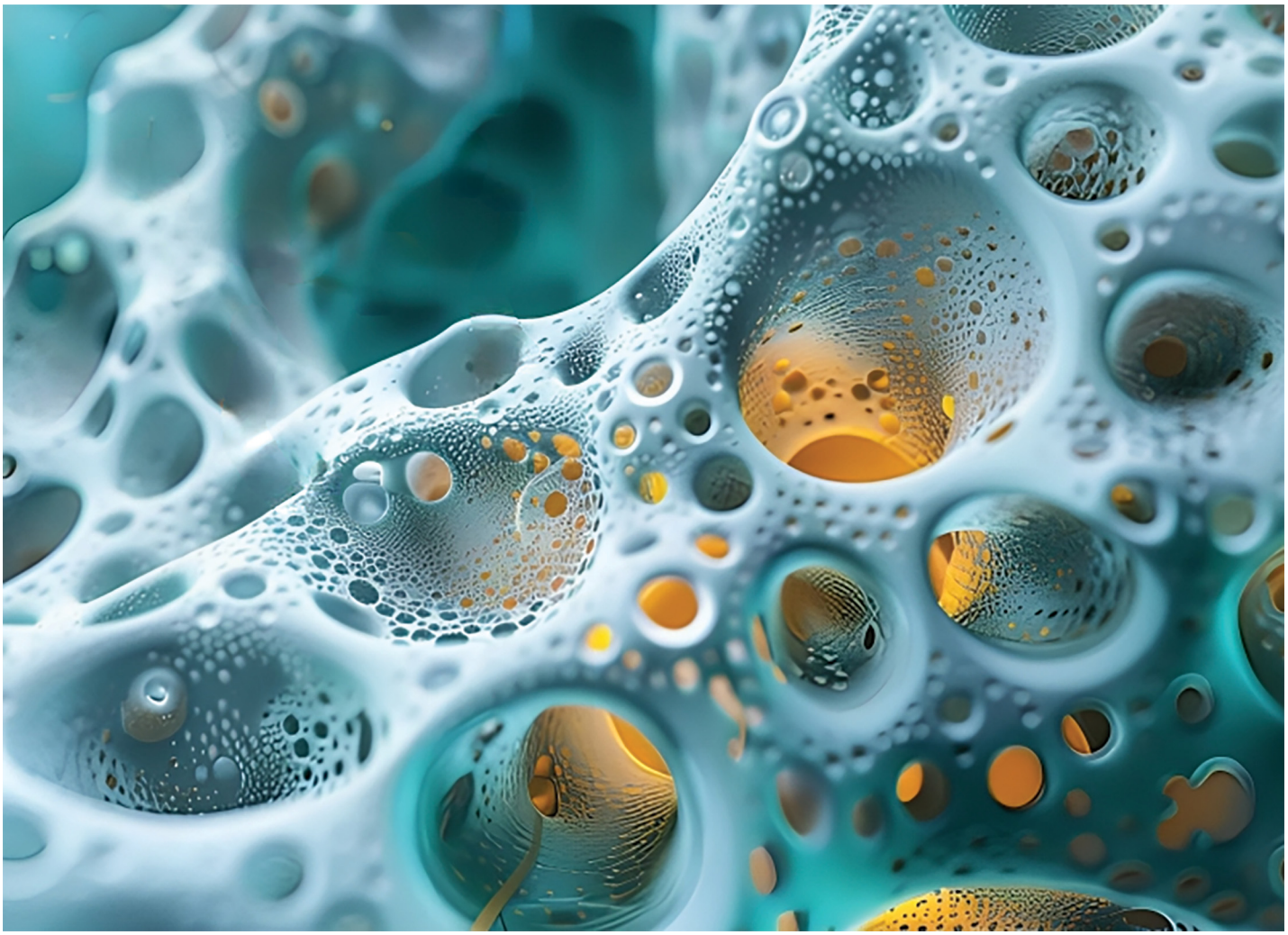

Showcasing research from the Organic Chemistry Laboratory at the Department of Drug and Health Sciences, University of Catania

Supramolecular biomaterials as drug nanocontainers with iron depletion properties for antimicrobial applications

This study introduces a novel bacteria-killing material composed of maltol derivatives and β-cyclodextrin cryogels. The maltol within the polymer network efficiently chelates iron ions, hindering bacterial survival. Additionally, β-cyclodextrin's hydrophobic cavities act as nanocontainers for drug release, enhancing bactericidal effects. Tested successfully with and without lomefloxacin complexation, the material exhibits potent activity against Gram-positive and Gram-negative bacteria. Its dual-action mechanism, combining chelation and drug release, holds promise for diverse therapeutic applications, particularly in wound dressing.

The authors would like to thank Salvatore Borzì for the image design.

As featured in:

See Giuseppe Floresta *et al.*, *Mater. Adv.*, 2024, **5**, 3675.

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