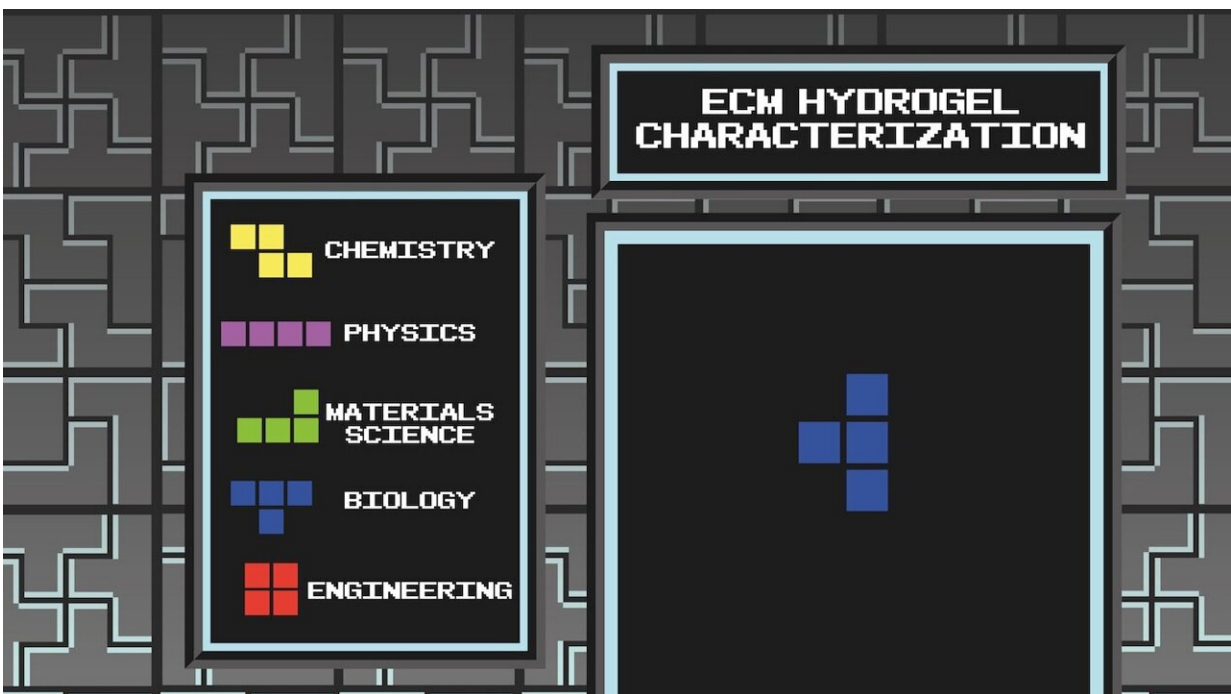


A first-of-its-kind framework to characterize hydrogels for biomedical scientists and engineers

November 3 2022



ECM hydrogel characterization involves a vast interdisciplinary body of research, which includes the disciplines of chemistry, material science, physics, biology and engineering. This is represented and inspired by the popular puzzle video game Tetris. Credit: Dr. Merari Tumin Chevalier

Researchers at CÚRAM have this week published an interdisciplinary framework that enables the development of extracellular matrix-inspired

hydrogels for biomedical applications.

An [extracellular matrix](#) (ECM) is a three-dimensional cementing material that gives structural support to our cells. Hydrogels mimicking this extracellular matrix (ECM) have become increasingly attractive in biomedical science research due to their tunability and biocompatibility. However, hydrogel development and characterization require an [interdisciplinary approach](#) that is seldom fully achieved as it needs an extraordinary degree of researcher skill.

This review is a first-of-its-kind approach that will provide information on [available tools](#) for properly characterizing ECM-based hydrogels and interpreting the resulting data. It also provides an accurate roadmap that can be used by biomedical researchers when attempting to bridge the gap between [material science](#) and biomedicine.

The review paper was published by *Matter*.

Lead author and Director of CÚRAM Professor Abhay Pandit says that "with this proposed review, we aim to combine the knowledge of chemistry, material science, and biology by critically discussing the available tools to properly characterize ECM-based hydrogels and interpreting the resulting data, leading to an accurate roadmap to be applied in this exciting field."

ECM hydrogel development and characterization involve a wide array of interdisciplinary tools; this review will appeal to chemists, material scientists, engineers, and biologists working in the field. This review provides a concise, complete, and easy-to-follow guide for advanced undergraduates, early postgraduate researchers, industry (MedTech, Pharmaceutical, and BioTech), and experts in this interdisciplinary field.

Professor Pandit further explains that "the impact of this review is an

attempt to facilitate further interdisciplinary work to create solutions for [chronic illnesses](#) in the future aligning with CÚRAM's mission of improving quality of life for people living with chronic illness. It will be a go-to resource for researchers in academia and industry and a source of inspiration for the next generation of materials scientists and engineers."

More information: Sergio Martin-Saldaña et al, An interdisciplinary framework for the characterization of extracellular matrix-hydrogels for biomedical applications, *Matter* (2022). [DOI: 10.1016/j.matt.2022.09.020](#)

Provided by National University of Ireland, Galway

Citation: A first-of-its-kind framework to characterize hydrogels for biomedical scientists and engineers (2022, November 3) retrieved 22 June 2024 from <https://phys.org/news/2022-11-first-of-its-kind-framework-characterize-hydrogels-biomedical.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.