QUANTIS

Where Human Biology Meets Precision Biofabrication

TERMIS EU-Chapter 2026 PALMA DE MALLORCA 21-24 APRIL / SPAIN

termis EUROPE

Chemically-Free Production of a Native Human ECM (QMatrix) using a 3D-Bioprinted Bioreactor

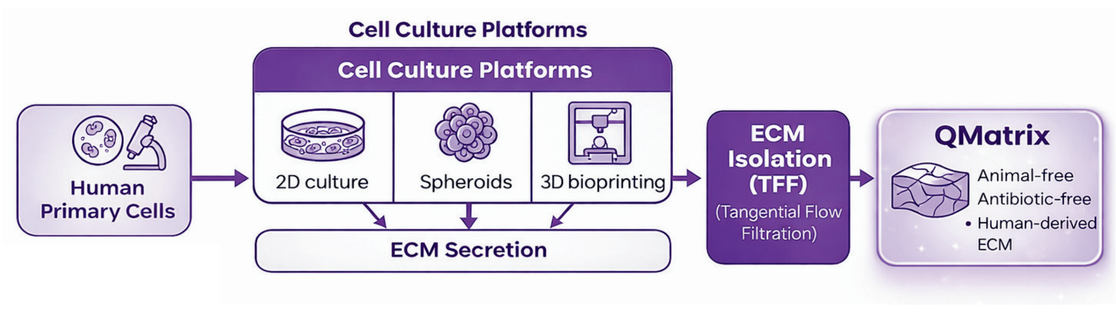
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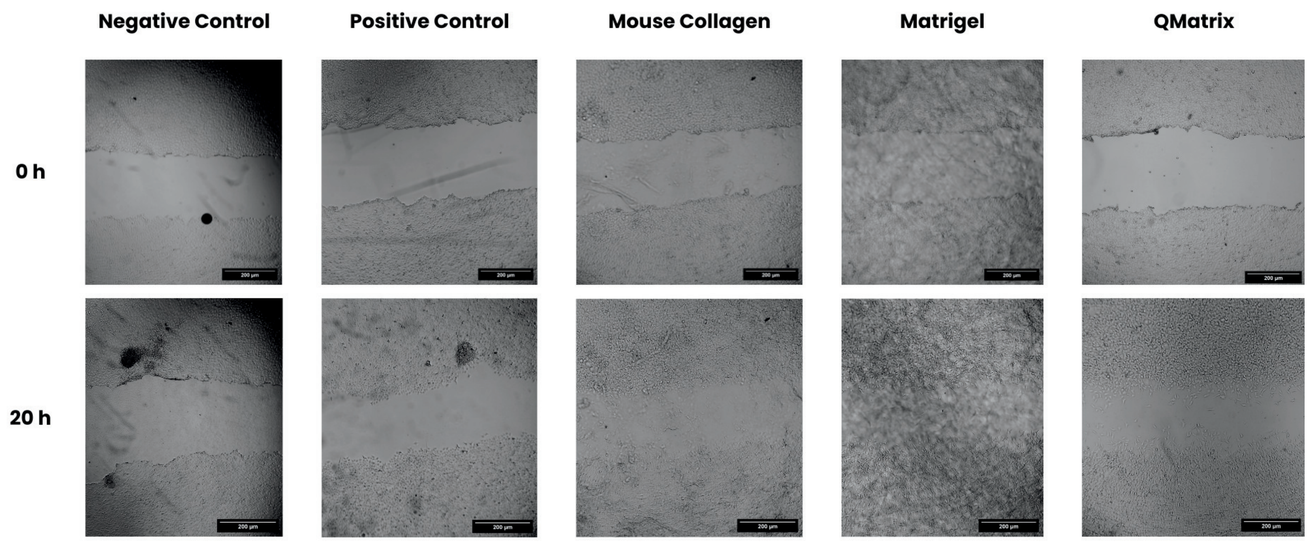
Introduction

- ECM regulates key cellular functions, including migration and proliferation.
- Conventional biomaterials (collagen, Matrigel) present limitations in complexity and reproducibility.
- Human-derived ECM may provide enhanced biomimetic and bioactive properties.
- Here, we evaluate QMatrix and compare its composition, structure, and cellular response to standard biomaterials.

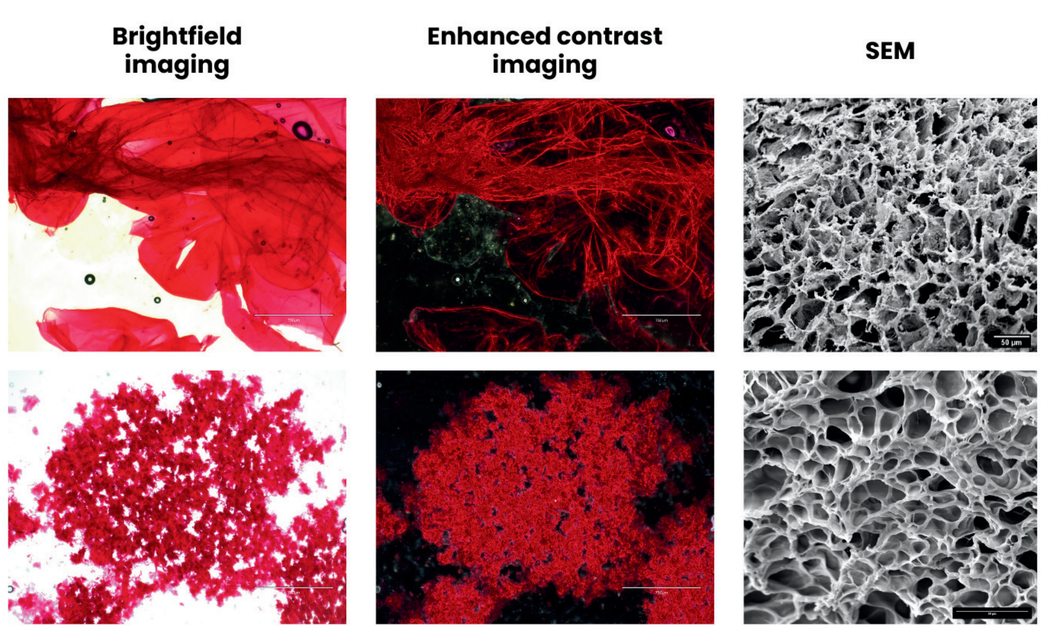
Approach



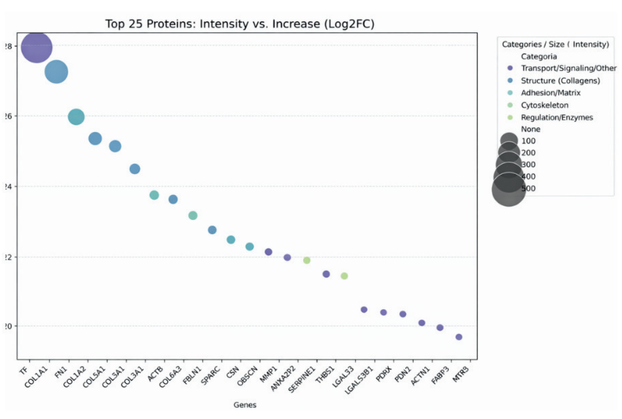
QMatrix Enhances Cell Migration

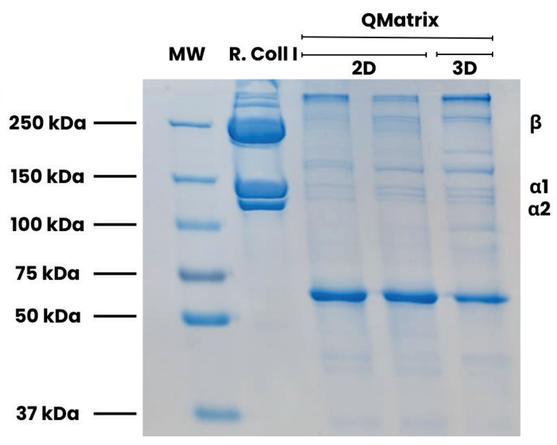


QMatrix Shows a More Condensed ECM Structure



QMatrix Displays a Protein-Rich ECM Composition

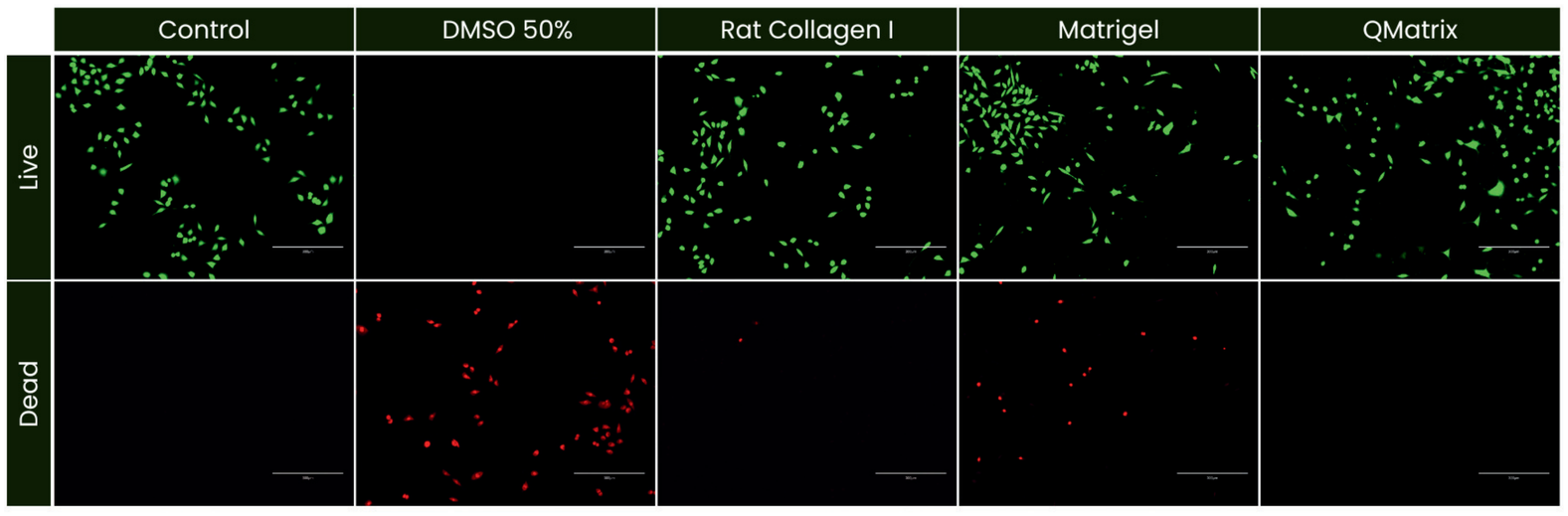


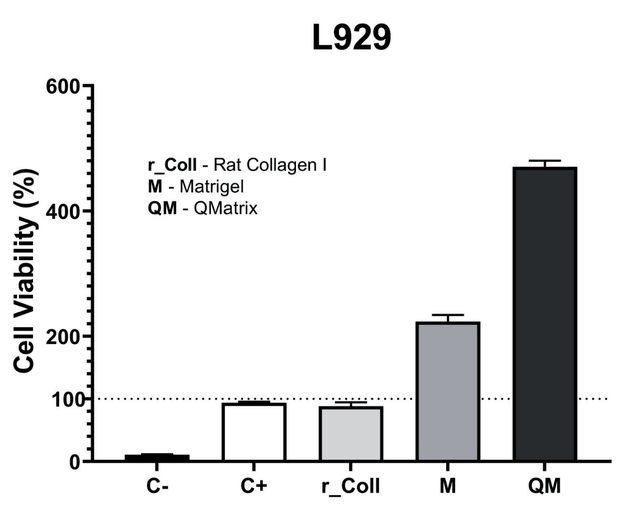


Rat Collagen I

QMatrix

QMatrix Increases Cell Viability





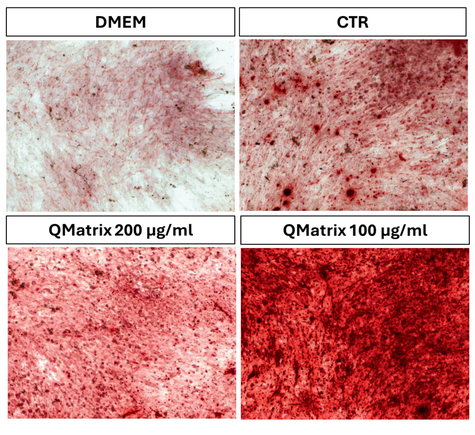
Conclusions

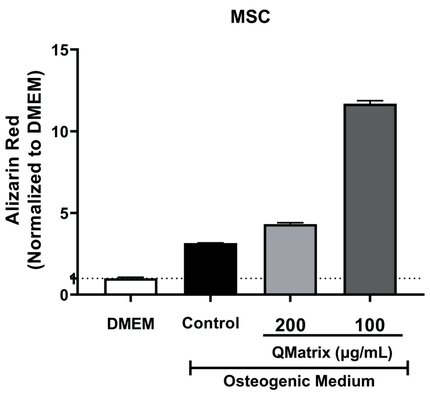
- QMatrix creates a bioactive and biomimetic microenvironment.
- Its complex composition and structure enhance cell–matrix interactions.
- Increased migration and viability indicate improved cellular response.
- Human-derived ECM is a more physiologically relevant alternative.

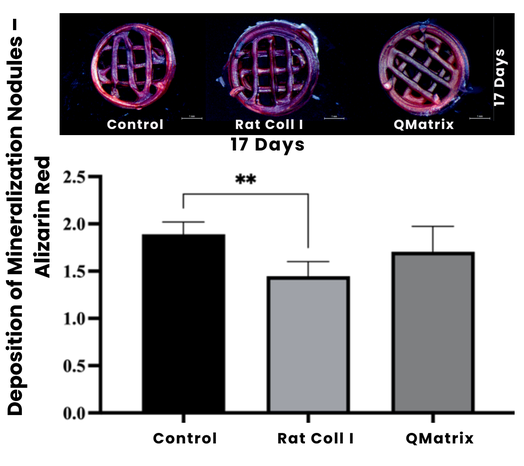
Future Directions

- Scalable production of QMatrix.
- Regulatory advancement (Class II, ANVISA).
- Applications in cosmetics and high-value markets.

QMatrix Promotes Mineralization in MSCs and MC3T3-E1







Acknowledgements

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INSTITUTO BUTANTAN A serviço da vida

Anton Paar