



Biomaterials and Tissue Engineering Center

Co-directors

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Tissue engineering is an emerging multidisciplinary field involving biology, medicine, materials and engineering that is likely to revolutionize the ways we improve the health and quality of life for millions of people worldwide by restoring, maintaining, or enhancing tissue and organ function. For therapeutic applications, the tissue can be regenerated within the patient or outside the patient and then gets transplanted.

Tissue engineering can also have diagnostic applications where the engineered tissue can be used to test drug metabolism and uptake, toxicity, and pathogenicity.

Important research areas in tissue engineering include biomaterials and bioprinting, stem cell engineering, biomolecular engineering, cell and biomechanics, etc.

The mission of the **IEM Biomaterials and Tissue Engineering Center (BMTEC)** is to synergize the expertise in biomaterials, bioprinting, cell and developmental biology, and medical research in the San Diego community and to translate it for clinical applications. Given its multiscale and multidisciplinary nature, tissue engineering can benefit immensely from collaboration between Engineering, Physical Sciences, and the Health Sciences.

The IEM Biomaterials and Tissue Engineering Center will emphasize translational research so that fundamental knowledge in tissue science and engineering can be applied to clinical problems.

UCSD has a strong team of faculty with expertise in tissue engineering and stem cell in the Jacobs School of Engineering, the School of Medicine, Division of Biological Sciences, and Skaggs School of Pharmacy and Pharmaceutical Sciences.

Our expertise covers a variety of tissues such as bone, cartilage, muscle, neuron, cardiac, liver, kidney, eye, and brain using various biomaterials. The BMTEC investigators have a unique capability in addressing the lengthscale issues of tissue growth from nanometer to micrometer and organ scale using novel biomaterials and bioprinting techniques. Biomechanics issues involved in various cell and tissue types are also important research topics at BMTEC.



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