

Sina Rabbany

Dean, School of Engineering and Applied Science, Professor of Engineering at Hofstra University

Hempstead, NY, US

Dean, School of Engineering and Applied Science, The Jean Nerken Distinguished Professor in Engineering and Professor of Engineering

Biography

Dr. Rabbany is currently doing research in the field of cellular and tissue engineering as applied to the vascular system. One of the major obstacles in engineering vascularized tissue is induction of endothelial vessel networks. To this end, his research applies engineering principles to the advancements being made in the differentiation of embryonic stem (ES) cells toward engineering vascularized tissue. The focus of the research is to expand pure populations of stem cells in vitro, and influence their cell fate decisions to direct differentiation into vascular cells including functional transplantable endothelial (EC) and smooth muscle (SM) cells. Understanding the mechanistic basis of ES cell differentiation into functional ECs is critical to various aspects of tissue engineering and regenerative medicine. In addition, tissue explants generated by these vascular cells can be introduced in vivo to restore function by augmenting vessel growth, in the ischemic myocardium or limbs of patients after heart attacks or diabetic vascular diseases. The projects range from elucidating the role of physical forces such as cyclic stretch, simulated microgravity, and shear stress on vascular cells and engineering of vascularized constructs. In the past, he has done research in the areas of cardiovascular Mechanics and Biosensors, and cell & receptor biomechanics.

Industry Expertise

Research, Education/Learning

Areas of Expertise

Cellular and Tissue Engineering, Biomedical Engineering, Bioengineering, Biomechanics, Stem Cell Biology

Affiliations

American Institute for Medical & Biological Engineering : Fellow, Scientific Advisory Board, AcelleRx Therapeutics, Inc. : Member.

Education

University of Pennsylvania
Ph.D.

University of Pennsylvania
MSE

University of Pennsylvania
BSE

Accomplishments

Athanasios Papoulis Award

Awarded by the Institute of Electrical and Electronics Engineers.

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