

CARNEGIE MELLON UNIVERSITY BME 2021 FALL SEMINAR SERIES

Using 3D engineered human adipose tissues as in vitro models and replacement substitutes



PRESENTED BY

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SCHEDULE

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(10:15AM-11:15AM)**

Beyond their use for regenerative medicine, human engineered tissues are powerful 3D models to study key biological and pathological processes. Our core technology is based on the self-assembly approach of tissue engineering. The latter exploits the capacity of adult mesenchymal stem/stromal cells to secrete and assemble extracellular matrix elements upon ascorbic acid supplementation in vitro, leading to constructs devoid of exogenous or synthetic biomaterials. Highly natural connective and adipose tissues were produced from adipose-derived stromal cells (ASCs). Examples of their uses in preclinical studies will be presented, namely as soft tissue material for reconstructive surgery or as temporary biological dressings for skin wound healing. Microvascularized tissues featuring capillary-like networks formed in vitro by microvascular endothelial cells (hMVECs) were also engineered and used to study the impact of inflammation on angiogenesis.

