

CARNEGIE MELLON UNIVERSITY

BME 2024 SPRING SEMINAR SERIES

The Whey Forward: Recapturing dairy production residuals for a circular food system



PRESENTED BY

Rachael Floreani, Ph.D.

Associate Professor
Mechanical Engineering
Biomedical Engineering
Materials Science
Food Systems
University of Vermont

SCHEDULE

Doherty Hall (DH) 2315

**Thursday,
April 18, 2024
(11:00-12:00PM)**

The rising global population and increasing prevalence of food insecurity brings a need for alternative food sources, to support the global food supply. New developments in biotechnology have given rise to many alternative food and protein options, including the research and development of cultivated meat. Cultured meat is produced via in vitro animal cell culture and their incorporation into manufactured scaffolds. Plant-based, alginate scaffolds are a common material used during manufacturing, due to the tunability of their mechanical properties through modification of molecular weight, chemical composition, and structure; however, alginate does not have the necessary cell adhesion ligands. Whey protein isolate (WPI) is a byproduct of the dairy processing industry, is a food additive, and has recently been shown in the literature to encourage cell adhesion in bone and cartilage tissue engineering. The objective of our study was to investigate the effect of WPI-based scaffolds on muscle cell adhesion and viability for the production of scaffolding for cultured meat.

