



**Karen McDonald, PhD**

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Dr. McDonald is a Professor of Chemical Engineering at the University of California at Davis. She received her B.S. from Stanford University, her M.S. from the University of California, Berkeley and her Ph.D. from the University of Maryland, College Park, all in Chemical Engineering. Professor McDonald's research is focused on synthetic biology in plants, including the development of novel plant viral expression systems, as well as bioprocess engineering technologies to produce recombinant proteins (including human therapeutic proteins, enzymes for cellulose degradation, and bioscavengers for use as medical countermeasure protection agents biotreatments) using whole plants, harvested plant tissues or plant cells grown *in vitro* in bioreactors. She has also developed and published techno-economic simulation models for a variety of plant-based biomanufacturing facilities. Prof. McDonald teaches courses in Biotechnology Facility Design and Regulatory Compliance, Biotechnology Fundamentals and Applications, as well as Engineering Economics, Process Modelling and Control, and the Biochemical Engineering Capstone Design Course.

Over the past 35+ years at UC Davis her research has generated over 100 referred journal articles and six issued patents in the area of plant-based expression of recombinant proteins, with practical applications in human therapeutics, industrial enzymes, and biodefense countermeasures. From 2006-2013, she was the PI and Director of the National Science Foundation CREATE-IGERT, an interdisciplinary graduate training program with a focus on applications of plant biotechnology to biopharmaceuticals, biorefineries and sustainable agriculture. She served as the PI of a multi-investigator team project funded by the Defense Threat Reduction Agency focused on understanding and modifying glycosylation in plant-made bioscavengers against organophosphate nerve agents and anthrax toxins. Prof. McDonald is also currently a Co-I and Lead for the Food and Pharmaceutical Synthesis Division of a multi-university NASA-funded Center, the Center for the Utilization of Biological Engineering in Space, which supports biomanufacturing for deep space exploration and a co-PI on an NSF-funded Growing Convergence Center on enabling technologies for cultured meat. In 2013 she cofounded Inserogen, Inc., a plant biotechnology company which focusses on early stage pre-clinical process development for production of biologics for treatment of rare diseases. She is a Fellow of the American Institute of Chemical Engineers.