

= Cabral Lab Seminar =
“Engineering Polymer Therapeutics for Infectious Disease and Global Health”

Speaker: Prof. Patrick S. Stayton
Distinguished Career Professor
Department of Bioengineering
University of Washington, Seattle, USA

Place & time: Engineering Bld. #5, Room #57.
September 10th (Tuesday), 16:00 PM



Abstract: Although 70-80% of disease target space resides within the intracellular compartment of cells, many biologic and poorly lipophilic drugs have limited access to these targets. We have been developing polymeric drug carriers for protein and nucleic acid biologic drugs that contain active endosomal releasing mechanisms and activities.¹⁻³ More recently we've developed a polymer therapeutic platform for small molecule drug therapies that work against intracellular infectious disease reservoirs.⁴⁻⁶ These macromolecular prodrug therapeutics display improved targeting and pharmaco-kinetic profiles that can be tuned and engineered to match antibiotic requirements. We have initially developed this platform termed “drugamers” against pulmonary intracellular infections where they have shown excellent activity against highly lethal aerosolized tularemia disease models. The platform has been further broadened to include other infectious disease targets such as malaria and HIV, as well as for oncology drug therapy.

CV: Patrick Stayton serves as the Distinguished Career Professor, *Department of Bioengineering, University of Washington*. Dr. Stayton is the founding Director of the *Institute for Molecular Engineering and Sciences* (<http://www.moles.washington.edu>), and the *Center for Intracellular Delivery of Biologics*. His own eclectic research group works at the interface of fundamental molecular science and applied molecular bioengineering. His laboratory develops new materials for application to unmet medical needs in the therapeutics, diagnostics, and regenerative medicine fields. He has published over *250 scientific papers*. Dr. Stayton has a strong interest in translating the group's research, has been awarded many patents, and is a co-founder of the startup companies *Jewel Biotherapeutics* based their cell and drugamer therapy work, *PhaseRx Inc.* based on his group's biologic drug delivery work, and *Nexgenia Inc.* based on their biopharma manufacturing technologies. Dr. Stayton has also been elected as a *Fellow of the American Institute for Medical and Biological Engineering*, and has been the recipient of the *Clemson Award from the Society For Biomaterials* and the *CRS-Cygnus Recognition Award from the Controlled Release Society*. He has also been awarded the *College of Engineering's Faculty Innovator Award*, the *Distinguished Teacher and Mentor Award from the Department of Bioengineering*, and an *Honorary Award from the College of Engineering's Minority Science and Engineering Program*. He has also been elected to the *Washington State Academy of Sciences*. Many graduate students and postdoctoral fellows trained in his lab and gone on to impactful academic and industry careers.