



# South College School of Pharmacy



## Pharmaceutical Sciences Contract R&D Services

*The South College School of Pharmacy offers cost-effective, responsive, and high-quality pharmaceutical research and development consulting and support services.*

### Technical Capabilities:

- Compounding Pharmacy analytical services: Potency, Dissolution, Drug Release from semi-solid products, Stability Testing
- Formulation development:
- HPLC – Assay development and pharmaceutical testing (active ingredient/impurities and degradants)
- Pharmaceutical Stability and Dissolution Testing
- *In vitro* skin/membrane permeability
- Real-time, Quantitative PCR
- *In vitro* drug discovery screening
- Cell/Tissue Culture
- Immunoassay
- Western Blot
- Pharmacokinetics & PK Modeling

### Major equipment:

- HPLC System with UV Detection
- Dissolution Tester (USP 1 & 2)
- Microplate Reader
- Electrophoresis
- Real-Time, Quantitative PCR
- Fluorescence Microscopy
- High-speed, Refrigerated Centrifuge
- Refrigerated Microcentrifuge
- Flow-through Skin Diffusion System
- Ultrapure water system
- UV/VIS Spectrophotometer
- -80°C Freezer
- Laminar Flow Hoods/Biosafety Cabinet
- CO<sub>2</sub> Incubator
- Turbidimeter
- Lyophilizer
- Gako auto/hand unguator
- EXAKT ointment mill

### Contact:

Jacob R. Dunbar, Ph.D.  
South College School of Pharmacy  
400 Goody's Lane  
Knoxville, TN 37922  
865-288-5830  
jdunbar@southcollegetn.edu

### Consulting Faculty

**Jacob R. Dunbar, B.S., M.S., Ph.D.**, Chair, Department of Pharmaceutical Sciences  
In addition to his experience in academic research, Dr. Dunbar has over 20 years' experience in pharmaceutical development with a sustained track record of success in executive decision making, oversight and direction of operations, policy and process; technical innovation; and strategic planning & implementation in a regulated, science-driven organization. He has broad, in-depth leadership experience, particularly in key aspects of preclinical drug development including pharmaceutical product development, pharmaceutical analysis and bioanalysis, DMPK and associated regulatory and compliance requirements (cGMP/GLP), technology transfer, and technical support of pharmaceutical manufacturing.

**Maha Abdalla, Pharm.D. Ph.D.**, Assistant Professor of Pharmaceutical Sciences  
Dr. Abdalla's research focuses on understanding the molecular mechanisms governing pulmonary and cardiac fibrosis and identifying therapeutic strategies to manage idiopathic pulmonary fibrosis and associated complications, particularly heart failure. Dr. Abdalla has expertise in multiple analytical techniques including western blot, immunoassay development, cell and tissue culture, and real time PCR.

**Eric Dadey, B.S., M.S., M.S., Ph.D.**, Associate Professor of Pharmaceutical Sciences  
Dr. Dadey's research interests lie in the use of dynamic and static light scattering techniques to characterize physical interactions between biocompatible macromolecules and endogenous biomolecules and their application to design of smart drug delivery systems Dr. Dadey has more than 20 years pharmaceutical industry experience in development of oral and parenteral drug products utilizing novel drug delivery systems. His expertise spans the entire product development process, from API characterization, formulation, analytical method development, preclinical and GLP safety assessment studies, through clinical study design and conduct, pharmacokinetic assessment, technology transfer, scale-up and cGMP manufacture, management of US and international regulatory submissions and correspondence, and generation of new intellectual property.

**Eytan Klausner, B.Pharm., Ph.D.**, Associate Professor of Pharmaceutical Sciences  
Dr. Eytan Klausner has almost 20 years of professional pharmacy experience in practice and research. His preclinical and clinical research included the design and characterization of novel gastro-retentive dosage forms with the resulting patent leading to the formation of Intec Pharma, a publicly traded biopharmaceutical company with a focus on gastric retention technology. Dr. Klausner's current line of investigation is in the area of plasmid delivery of genes to the cornea.

**Karen Mark, Ph.D., M.T. (ASCP)**, Associate Professor of Pharmaceutical Sciences  
Dr. Mark's research is in characterization of the impact of chronic inflammation on the blood-brain barrier and resulting neurological complications. Dr. Mark has significant experience and expertise in transport studies (uptake and efflux) and biotechnology tools including western blot, immunoassay development, fluorescence microscopy, cell and tissue culture, and PCR

**Erica Rowe, A.S., B.S., Ph.D.**, Assistant Professor of Pharmaceutical Sciences  
Through Dr. Rowe's research in modulators of protein folding, she has experience in immune-staining, fluorescence microscopy, flow cytometry, electron microscopy, and protein folding kinetics.

**Zhihong Xu, B.S., M.S., Ph.D., Ph.D.**, Associate Professor of Pharmaceutical Sciences  
Dr. Xu's research is centered on the synthesis, isolation, and structural elucidation of bioactive compounds; small molecule - target interaction (hits); and lead optimization. She has significant expertise in novel techniques for chemical synthesis, as well as quantitative and qualitative analysis including HPFC, HPLC, IR, UV, LC-MS & NMR.

<http://www.teknoovation.biz/2015/09/27/south-college-making-pharmacy-labs-life-science->