

## CENTER FOR DERMAL RESEARCH (CDR) CAPABILITIES

*CDR is a dedicated research center at Rutgers, The State University of New Jersey providing skin formulation expertise and testing facilities (pharmaceutical, cosmetic and personal care). Project scope ranges from formulation screening to interdisciplinary development programs.*



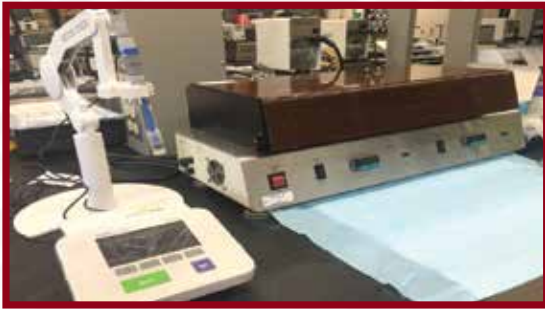
**RUTGERS**  
THE STATE UNIVERSITY  
OF NEW JERSEY

CENTER FOR  
DERMAL RESEARCH

- Design and testing of novel formulations for skin delivery of actives
- Formulation design, characterization, optimization and evaluation of topical, transdermal and transmucosal delivery
- Visualization of skin transport pathways using Raman, Fourier Transform Infra-Red spectroscopy, electron and confocal microscopy
- Development of novel human tissue cultured skin equivalents for permeability testing of actives
- Design and evaluation of novel dermal penetration enhancers and retardants & their structure-activity relationships
- Physical approaches to enhancing dermal delivery of actives
- Biorelevant drug release/dissolution testing of semisolid and transdermal pharmaceutical dosage forms
- Protein extraction from different skin layers and proteomic evaluations
- Exploring various skin relevant genes for potential anti-ageing and anti-inflammatory activity
- Evaluation of penetration of actives in different skin layers using microtoming
- Skin surface pH studies using Mettler Toledo In-Lab Surface pH electrode and confocal laser scanning imaging system
- Cytotoxicity evaluations for skin actives: cellular as well as skin equivalents
- Research, technical and regulatory support by experienced and proficient research scientists with hands on experience and more than a decade of experience in pharmaceutical industry
- Design and development of SOPs for topical and transdermal studies, prepare proposals, stability protocols, budgets and scientific reports.







## CENTER FOR DERMAL RESEARCH FACILITIES

The Center for Dermal Research houses the “Laboratory for Drug Delivery” (LDD) dedicated towards topical and transdermal drug delivery. It occupies 1400 sq. ft. and is housed within the Life Sciences Building on Rutgers University Busch campus.

### The LDD is equipped with:

- Two Agilent 1100 HPLCs with diode array and ChemStation software, autosamplers, UV/vis and fluorescent detectors
- Ten water jacketed Franz diffusion cell module
- Four heat block Logan Instruments FDC-24 Franz cell modules for skin penetration studies
- Leica® Cryotome instrument (Leica® CM1850, Nussloch, Germany)
- Mettler Toledo pH meter with InLab® micro and surface pH electrodes for skin surface pH studies
- Light and stereomicroscopes
- Vankel VK 7010 Dissolution Test Station with VK 8000 Sampling Station
- Buchler vortex evaporator
- Mettler electronic balances
- 8 feet chemical fume hood
- Revco chest freezers & Forma Scientific upright freezer, dishwashers and refrigerators.
- Shared Biology Suite (Room 207, 720 sq.ft.) with four Biosafety II hoods is located adjacent to the LDD
- Double CO<sub>2</sub> incubator, centrifuge apparatus
- Deionized water, vacuum, and compressed air facility

### The CDR has access to:

- Confocal laser scanning (Zeiss LSM410) and confocal multiphoton microscopy (Leica TCS S2 AOBS), TEM, SEM, skin and other tissue imaging (Raman confocal, etc.)
- NMRs, AFM-atomic force microscopy, LC-MS-liquid chromatography mass spectrometry and FTIR analytical techniques
- UV-Vis Spectroscopy,
- GPC-gel permeation chromatography,
- DSC-differential scanning calorimetry,
- Mechanical tester with environmental chamber, quartz crystal microbalance with dissipation monitoring,
- TGA-thermogravimetric analyzer, DMA-dynamic mechanical analyzer,
- Polymer synthesis and characterization facility
- In-vivo studies facility
- Rheological and histological facilities
- Conference and event facilities in the Life Sciences building

CDR also has close collaborations with the Dermatology Department of the Robert Wood Johnson Medical School at Rutgers University with access to patients for skin biopsies and other clinical protocols. Research group of Dr. Michniak-Kohn consists of around 20-25 members including General Manager for industrial projects, Ph.D. students, post-doctoral associates, research professors, and undergraduates from several Rutgers University graduate programs including Pharmacy, Biomedical Engineering, Business and Science, Chemistry and Chemical Engineering.

Contact information: Louli Kourkounakis, Program Coordinator, New Jersey Center for Biomaterials  
145 Bevier Rd., Piscataway, NJ 08854; (848) 445-9566; Website: [www.njbiomaterials.org](http://www.njbiomaterials.org)