DIVISION OF PHARMACEUTICAL SCIENCE  
COLLEGE OF PHARMACY  

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE WOMEN  
APPLICATION DEADLINE: 03/01/2018  

PROJECT TITLE: Mechanistic Understanding of Skin Biomarker and Impact of Air Pollution using Innovative Human Skin Explant Model  

Yuhang Zhang, Ph.D.  
College of Pharmacy  
231 Albert Sabin Way  
Cincinnati, OH 45229  
yuhang.zhang@uc.edu  
Phone: 513-558-0740  

Ana Luisa Kadekaroo, Ph.D.  
Assistant Professor  
Clinical Trials Manager  
Department of Dermatology  
University of Cincinnati College of Medicine  
MSB room 1201  
231 Albert Sabin Way  
Cincinnati, OH 45267-0592  
Office: (513) 558-6659  
Laboratory: (513) 558-6251  
Fax: (513) 558-0198  

Project Description  
Currently, there is a lack of in-depth research efforts assessing the impact of air pollution on skin health. Particle pollution, also known as particulate matter or PM, is a mixture of solids and liquid droplets floating in the air. PM2.5 is commonly used as standard for air pollution assessment and refers to particles that have a diameter less than 2.5 micrometers. Studies have indicated the association of heavily polluted areas with an increase in skin detrimental conditions such as loss of skin moisture, compromised barrier function, rash and atopic dermatitis. However, very little is known about the pollution effects on the biology of the skin and how it affects skin homeostasis. Air pollution is a global challenge and studies addressing its direct effect on the skin are in pressing need. The student will work with a team of researcher to characterize the damage of air pollution particles on human skin using an ex vivo human skin culture model. It is expected that the student has the biology background and are interested in biology, skin science and cosmetic science.