UCSF Aging Skin Collaborative

Investigating how the skin can serve as a window into health and longevity
The skin is the body’s largest organ, constituting about 15% of the average person’s total weight and functioning as a barrier to protect against toxins and pathogens. Despite the skin’s importance, a large gap exists in our understanding of its role in aging; nearly all skin-related aging research has focused on the appearance of the skin rather than its impact on systemic health.

UCSF’s Aging Skin Collaborative seeks to fill that gap through innovative research investigating how the skin can serve as a window into overall health and the aging process. The effort stems from a unique partnership between basic scientists, population scientists, clinical researchers, and physicians working closely together to address an important clinical problem. The Aging Skin Collaborative is working to understand the causes of itch and other skin symptoms by testing new treatments, developing guidelines for clinical care, and training a cadre of providers who are better equipped to manage patients, especially in older age. Research piloted by this team of experts will reveal how changes in the skin relate to the immune system, inflammation throughout the body, and major health outcomes like cardiovascular disease and dementia. The ultimate goal is to translate these discoveries into simple, low-risk, low-cost topical therapies to improve conditions of the aging skin and extend the health span.

Collaborations Across Research, Education, and Clinical Care

UCSF is uniquely positioned to advance the goals of the Aging Skin Collaborative because we have a mix of experts dedicated to basic science, population science, clinical research, and patient care who share a passion for improving health. UCSF faculty members founded the American Academy of Dermatology’s first geriatric dermatology expert resource group, and our geriatric dermatology clinic is the first of its kind in the country. Through the Aging Skin Collaborative, the faculty members below aim to develop sub-specialties focused on the unique needs of older adults.
Faculty Collaborators

Clinical care and education
Timothy Berger, MD, professor and vice chair of the UCSF Department of Dermatology, is a leader in the field of itch and complex medical dermatology. With his decades of work in his world-renowned clinic for complex patients with itch, Dr. Berger helped establish UCSF as the referral center for the most challenging cases. In addition to his clinical expertise, Dr. Berger has mentored several generations of early career-dermatologists, and his imprint on the field of dermatology is vast.

Daniel Butler, MD, assistant professor in the UCSF Department of Dermatology, came to UCSF to work with established world leaders in aging as well as to start the geriatric dermatology clinic. Through research, education at the UCSF School of Medicine, and clinical care, Dr. Butler hopes to create an infrastructure for the improvement of skin disease in older adults.

Basic Science
Theodora Mauro, MD, professor in the UCSF Department of Dermatology, is a National Institutes of Health (NIH)-funded scientist whose long-term interests include elucidating how aging affects the skin barrier, or the outermost layer of skin cells. Most recently, Dr. Mauro has concentrated on the “outside-in” barrier that protects the body from toxins, allergens, and microbes and studied how it changes with aging. Her group found that restoring the skin barrier also decreased overall body inflammation. Currently, Dr. Mauro’s lab is working to find therapies that specifically improve the epidermal barrier in aging.

Epidemiology and clinical research
Katrina Abuabara, MD, MA, MSCE, associate professor in the UCSF Department of Dermatology, is a physician-scientist with degrees in epidemiology and sociology. Her unique background in population health and social science enables her to take a comprehensive approach to understanding chronic inflammatory disease. Dr. Abuabara’s team is dedicated to developing interventions that address pathophysiological and socio-environmental factors to improve the lives of patients. By integrating genetic, clinical, environmental, and social data with advanced analytic methods, their research focuses on discovering age-related differences in determinants of skin disease and identifying long-term outcomes of skin inflammation.
Opportunities for Impact

Empowering future leaders

Early-career support is essential to building a strong foundation for the understudied field of aging-skin research and patient care. Funding from philanthropy will help provide training opportunities and seed grants for junior faculty members and medical students. This type of support will enable them to pursue outside-the-box ideas that have the potential to advance our understanding of aging skin.

Accelerating scientific discovery

Philanthropic support helps launch novel lines of inquiry as well as accelerate the research efforts currently underway, including the following projects:

- **Skin Barrier Research**
  UCSF researchers have shown that skin-barrier decline causes increased inflammation in both the skin and the blood, and that skin-barrier restoration with emollients may actually reduce levels of inflammatory markers. Members of the Aging Skin Collaborative are developing better measures of skin-barrier function and testing low-cost, low-risk topical strategies to improve longevity.

- **Eczema Research**
  Pediatric eczema rates in children have increased around the world in the last 50 years. New findings from UCSF researchers show that eczema is also increasing among older adults and is now as common among those over age 70 as it is among children. Little is known, however, about the environmental triggers and pathophysiology of eczema in older adults. The UCSF Aging Skin Collaborative team is working to better characterize the immune profile in a cohort of older patients with the goal of identifying targeted treatment strategies.

To learn more about supporting the UCSF Aging Skin Collaborative, please contact Emily Wozniak, director of development, at emily.wozniak@ucsf.edu or 415-745-0079.