The UCLA CTSI Research Associates Program (CTSI-RAP) works toward simultaneously exposing undergraduate students to the interdisciplinary fields of medicine and clinical research in a hospital-based setting. By promoting a collaborative network among undergraduate students and principal investigators, the program serves primarily to build upon students' knowledge and experience in the clinical environment and patient-oriented research. Students assume their roles as Research Associates by becoming instrumental in the implementation of the research protocol, recording and analyzing securitized data, leading patient recruitment efforts, and contributing to publications, poster presentations and abstracts. In addition, students are able to shadow UCLA faculty physicians and become acquainted with the multitude of research studies conducted at UCLA by rouding with investigators at the Clinical and Translational Research Center (CTRC). Weekly meetings directed by CTSI-RAP's advisors serve as didactic teaching sessions through the literature reviews, ethics discussions, and presentations on research methodology. The mentorship provided within the program allows students the opportunity to cultivate skills in professionalism, patient advocacy, and the competency needed to serve as leaders within their respective projects. Over time, students gain independence in the ability to spearhead research studies, collaborate with medical staff, and exercise skills necessary to pursue a future career in healthcare.

### Myocardial Infarction Biomarker Study
**PI:** Linda Cai, Ph.D.

**Background:**
The Myocardial Infarction (MI) Biomarker study aims to examine the relationship between the neuronal developmental protein netrin-1 and heart attacks. Previous studies have established the role of netrin-1 in the signaling of the cardiovascular system, and as an important factor in the formation of blood vessels. Furthermore, netrin-1 has been shown to reduce ischemia-reperfusion injury by 50% while simultaneously improving cardiac function. While underlying molecular mechanisms have been uncovered, the present study aims to examine the correlations between endogenous pathways of netrin-1-DCC signaling and characteristics of myocardial infarction.

**Research Associate Responsibilities:**
Research Associates are involved in data collection, data management, and attending weekly clinical staff meetings.

**Figure:** Example of patient room used for conducting clinical research in the CTRC

### Teen Resilience Project
**PI:** Kate Ryan Kuhlman, Ph.D.

**Background:**
Childhood adversity is linked to treatment resistant depression across the lifespan, and exaggerated inflammatory responses to stress. Acute inflammatory responses can lead to reduced motivation for rewards and enhanced fear responses. Both of these effects are mediated by netrin-1, a molecule which is elevated in individuals with depression. The Teen Resilience Project aims to examine behavioral and inflammatory responses to acute stress during the key developmental phase (age 12-15) in at risk youth. By identifying the three modifiable risk factors of depression (threat sensitivity, reward motivation, inflammation), the study hopes to support the development of a program of research dedicated to mitigating these effects before the onset of persistent and recurrent illness.

**Research Associate Responsibilities:**
Research Associates administer psychological stress to each study participant via the Trier Social Stress Test (TSST). Afterwards, students are responsible for gauging the level of stress induced on each adolescent through a quantitative survey. Moreover, students are given the opportunity to further pursue their interests in research by participating in systematic review projects, proposing testable hypotheses, developing abstracts and presenting posters at research conferences.

### Clinical and Translational Research Center Rounds
**Background:**
The Clinical and Translational Research Center (CTRC) is dedicated to bringing tangible improvements in healthcare, disease prevention, and treatment through the application of research. It is the primary outpatient unit for clinical studies conducted at UCLA, specializing in areas of research including but are not limited to Maternal Medicine, Pediatrics, Endocrinology, Cardiology, Gene Therapy, and Neuro-oncology.

**Research Associate Responsibilities:**
Research Associates are given the opportunity to interact with patients while observing clinical research directed in the CTRC. Research Associates receive individualized attention from nurses experienced in research methodology, and under their mentorship are able to observe common procedures such as intravenous (IV) injections, blood draws and ultrasound testing. Furthermore, rounding in the CTRC alongside physicians, nurses, basic science researchers, and clinical research coordinators offers student the exposure needed to solidify their future career goals as healthcare professionals.

**Advisors**

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