CAMM JR. FELLOWS
CALL FOR APPLICATIONS 2018

MISSION
The USC Center for Applied Molecular Medicine (CAMM) and the Westside Cancer Center (WCC) of USC have developed a unique program to foster scientific achievement for rising high school seniors interested in clinical or research oncology. We believe that passion, coupled to outstanding aptitude, are the hallmarks for success. This program fosters scientific education by incorporating hands-on experimentation in a collaborative environment.

APPLICATION PROCESS
The application consists of an essay and a copy of the student’s transcript. The essay should be used as a forum to convey the student’s passion for science/medicine. We will be accepting applications from January 29th through April 5th, 2018. The program beings on June 13th and requires the students to commit 6 hours a day until June 29th at the Health Science Campus of USC. Please contact Dr. Kian Kani (kani@usc.edu) for more information.

ONLINE APPLICATIONS CAN BE COMPLETED HERE:
www.BeARebel.org/junior-fellows-application

PROGRAM
The CAMM Jr. Fellows are presented with one challenge – how to determine which drug is bested suited (most effective) for their mock patient. During this process, the Fellows will become familiar with one of the most important aspects of medicine which currently confronts clinical and research oncologists. Resolution of this challenge will require integration of science, mathematics and technology. The program culminates with a discussion of their findings with Dr. David Agus at the Westside Cancer Center.
The unique aspects of this program are listed below:

- Hands-on learning with state-of-the-art laboratory equipment on a University Campus
- Integrates students from various socio-economic groups within Southern California
- Mentored by USC faculty and staff
- Team based problem solving
- Access to medical clinic
- Required writing component
- Guidance with college applications
- Guidance during college/transition to graduate school

COURSE OUTLINE:

PREP HOMEWORK (to be done prior to June 13th)

WEEK 1:

- Discuss Hallmarks of Cancer paper
- Einstein’s challenge
- Lab safety (what to touch and what not to)
- Lab equipment (learn the tools of research)
- USC biological safety class
- Seminar with Dr. Agus
- Pipetting challenge (accuracy vs. precision)

WEEK 1 HOMEWORK
Describe personalized therapy options in colon, breast, lung or leukemia patients. Why is this important? How is it different from systemic chemotherapy?
WEEK 2:

Work individually and in groups to solve the following case study. CAMM has obtained samples from six colon cancer patients. The goal is to determine which patient would be treated with targeted therapeutics.

- How to identify which assay to use
- Pick a technique to determine the concentration of the six unknowns
  - Bradford assay
  - Lowery’s assay
- Implement that assay
- Determine controls
- Data analysis (error, confidence, plot results in Excel)
- Troubleshoot
- Kian’s challenge

WEEK 2 HOMEWORK:
Writing a scientific manuscript. Begin working on Introduction, Methods and Data.

WEEK 3:

The students will integrate their results from week 2 and learn two new analytical methods in order to determine which patient should be given targeted vs. systemic therapies. Once they identified the correct sample (protein) they will have to recommend a therapeutic and convey their results in a scientific report.

- Gel electrophoresis (SDS-PAGE)
- Immunoblot/Western blot
- Proteomics (theory)
- Clinic day – Dr. David Agus, Dr. Mitchell Gross, physician assistant and nurses
- Submit results in a formal scientific report
- Feedback and career discussion
ALUMNI OF THE CAMM JR. FELLOWS PROGRAM

2017
KELLY B.
SANTA MONICA HIGH SCHOOL
WILL B.
WILDWOOD
CORNELL UNIVERSITY
JAOQUIN G.
WINDWARD
SKYLAR L.
SAUGUS HIGH
JENNY N.
ALHAMBRA HIGH SCHOOL
MIA M.
PALISADES CHARTER FELLOWS

2016
BRANDON S.
LOYOLA
YALE UNIVERSITY
EZRA L.
CROSSROADS
WESLEYAN UNIVERSITY
GWEN G.
NORTH HOLLYWOOD HIGH
LAFAYETTE COLLEGE
JACOB R.
WILDWOOD
UNIVERSITY OF MICHIGAN
MADISON S.
SANTA MONICA HIGH
BERKELEY
MEGAN B.
WINDWARD
TUFTS UNIVERSITY

2015
ANNA L.
SMIDT TECH. HIGH
UNIVERSITY OF CALIFORNIA BERKELEY
avery s.
NEW TRIER TOWNSHIP (IL)
TULANE UNIVERSITY
DANIEL S.
HARVARD-WESTLAKE
CARNEGIE MELLON UNIVERSITY
KALLI D.
MONROVIA HIGH
SANTA CLARA UNIVERSITY

KIMBERLY H.
WINDWARD
UNIVERSITY OF PENNSYLVANIA
VICTORIA Y.
ACRADIA HIGH
UNIVERSITY OF SOUTHERN CALIFORNIA

2014
GEORDAN N.
NEW COMMUNITY JEWISH HIGH
WASHINGTON UNIVERSITY (ST. LOUIS)
MICHAEL K.
HARVARD-WESTLAKE
DARTMOUTH COLLEGE
SAMANTHA M.
WILDWOOD
TAE B.
WINDWARD HIGH
STANFORD
YU-SHIEN N.
MARLBOROUGH
UNIVERSITY OF CALIFORNIA BERKELEY

2013
AMANDA C.
PALOS VERDES HIGH
UNIVERSITY OF CALIFORNIA LOS ANGELES
KAYLA J.
WILDWOOD
BUCKNELL UNIVERSITY
LIZETTE L.
UNIVERSITY HIGH
UNIVERSITY OF CALIFORNIA LOS ANGELES
SEAN H.
WINDWARD HIGH
TUFTS UNIVERSITY
SHARON S.
MASS MAGNET
UNIVERSITY OF SANTA CRUZ
SOPHIE M.
MARLBOROUGH
UNIVERSITY OF SOUTHERN CALIFORNIA
ZITA B.
HARVARD-WESTLAKE
UNIVERSITY OF NOTRE DAME