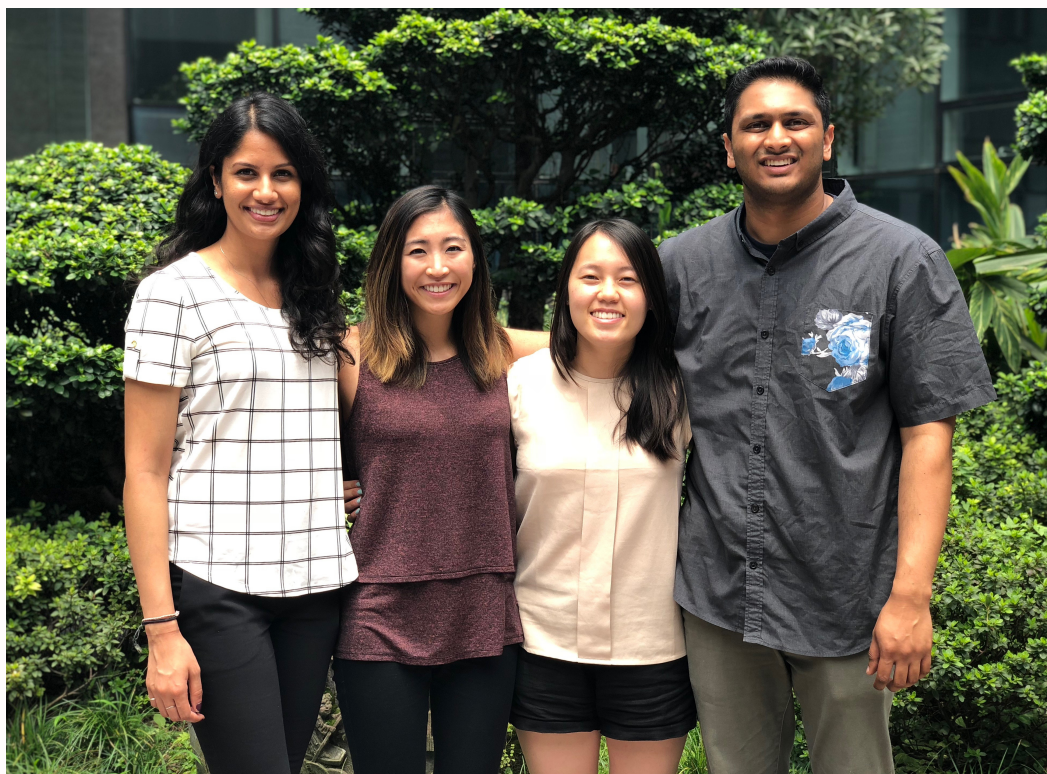


EXPLORATIONS

John C. Greene Society Newsletter
Fall Issue 2018



Punam, Stephanie, Cari, and Neil (D2's, left to right) spent a part of their summer at the West China School of Stomatology Exchange Program (WCSS). During their 2-weeks stay, they attended classes, participated in specialty rotations, and of course explored China! **Go to Page 9** to read more about it!

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President's Message



Dear Members of the UCSF Dental Community:

I hope everyone had a fantastic summer and is re-energized to fuel through another eventful year. This is my first letter as president of John C. Greene Society (JGS), and I must admit that it is truly humbling to serve such an honorable society. I look forward to working with the board members who are just as passionate and dedicated in making JGS flourish. UCSF School of Dentistry attracts some of the brightest students with inquisitive nature and ambition to make an impact in the world through research. This has manifested through impressive presentations and awards in various events including Research & Clinical Excellence Day and AADR/IADR. JGS has worked closely with the school to help these students intertwine their passion for science with high-caliber research that takes place around the campus. I would like to thank the previous board members for making this possible, and we hope to continue the legacy.

As most of you know, Research and Clinical Excellence Day is right around the corner. It is a campus-wide celebration allowing basic, translational, and clinical sciences, as well as public health research, to come together and share exciting discoveries in respective fields. Our keynote speaker, Dr. Isabelle Lombaert from the University of Michigan School of Dentistry, will be sharing her insight on the development of exocrine glands, such as the salivary gland. In addition, 24 wonderful Summer Dental Research Fellows will be presenting the fruition of their research as well, so please stay tuned!

Moving forward, JGS has planned several events throughout this quarter. The JGS-hosted elective, titled *Current Issues in Dental Research*, offers a unique opportunity to learn about the diverse research conducted at UCSF. I highly recommend this course not only for those interested in applying for the Summer Dental Research Fellowship, but also for anyone interested in cutting-edge research on campus. In addition, we are planning a research proposal writing workshop to help students apply for the Summer Dental Research Fellowship and for AADR. This workshop will be led by previous summer research fellows, who will share their knowledge on writing successful proposals as well as their insight on their summer research experience. We will announce the time and location for the event as the date comes close.

As I close this letter, I would like to remind everyone about the extensive connection between clinic and research. The advancement of rudimentary dentistry, such as leeching therapy, to today's evidence-based dentistry would not have taken place without the collective effort of scientists and clinicians. It is in our common interest to bring the two fields together for mutual benefit, and it is our duty as clinicians to strive towards providing better clinical care based on scientific evidence. I hope you will join me in contributing to this passion and value of making dentistry better. JGS is always open to anyone with a passion for research and better healthcare.

Sincerely,

A handwritten signature in black ink that reads "Rebecca Kim".

Rebecca Kim | John C. Greene Society

Step-by-step Guide for the Summer Dental Research Fellowship

1. Find your Potential Mentor



- Visit jgsucsf.com, and look at the list of the '2018-2019 summer research fellowship mentors' under the resources tab.
- Ask your upperclassmen their thoughts and experiences on summer research to see if it's the right for you.
- Come out to JGS Summer Fellow Social to hear the previous summer fellows' research experience

2. Meet and Greet



- Reach out to potential mentors, and meet with them in person to see if the project/lab/mentor is a good fit.
- Do not get discouraged! It might not happen right away but eventually you'll find the right mentor for you!

3. Make it Official



- **Starting October 22**, email **Roger Mraz**, copying your faculty mentor, to declare your intention to work together for summer research.

4. Write your Research Proposal



- Time to write your proposal! Work with your mentor to write the proposal for the program. Ask for previous proposals from the lab for reference.
- Attend the JGS Proposal Writing Workshop on **November 8** during lunch.
- Communication is key! You and your mentor should be on the same timeline for preparing for the proposal submission.
- Start sooner rather than later. Remember that the deadline for the proposal submission is right after the holidays. Try to avoid sending drafts while your mentor's away on a holiday vacation!
- Submit your proposal to **Roger Mraz** by **January 3**.

5. Prepare for the Summer



- Communicate with your mentor on what is expected of you going into the summer. This includes reading pertinent papers and finishing the necessary trainings.
- Enroll in JGS-hosted electives to practice critically reading papers and presenting!

2018 Summer Dental Research Fellows



24 dental students participated in the UCSF Summer Dental Research Fellowship this past summer. Their project topics included biomaterials, public health, craniofacial sciences, bone repair, and so much more! (See next page)

Check out the Summer Fellows' Presentations at
**Research and
Clinical Excellence Day**

Thursday, October 11

9am-4pm

Cole Hall - Medical Sciences

Project Titles and Mentors

Alex Kryger

PEGDMA microrods for localized and controlled release of NGF
Mentor: Dr. Chelsea Bahney

Alison Riley

Sensor to induce and quantify interproximal forces during tooth movement
Mentor: Dr. Sunita Ho

Amelia Herrera

HPV16 E5 Contributes to EGFR Overexpression and Activation in HNSCC
Mentor: Joel Palefsky, MD

Benjamin Cheung

Charge-modified 14P2 peptide of amelogenin assembles nanoribbons
Mentor: Dr. Stefan Habelitz

Christina Shih

Outreach program for establishing early pipeline of diverse dental workforce
Mentors: Dr. Brent Lin and Dr. Jyu-Lin Chen

Daphne Chung

The Economic Impact of Tobacco use on Oral Healthcare Costs
Mentor: Jing Cheng MD, MS, PhD

Esther Jang

Characterization of RH3CC1 in the development and homeostasis of mouse dentition
Mentor: Dr. Andrew Jheon

Goutam Krish

Runx2 Protein Levels Increase During Embryonic Development
Mentor: Dr. Rich Schneider

Jin Han

Antibiotic prescribing trends in periodontal surgeries with and without bone grafting
Mentor: Dr. Yvonne Kapila

JJ Lin

Reliability testing of caries risk assessment tools utilizing a synthetic database
Mentor: Dr. Joel White

Jonathan Han

Characterizing Phenotypic Variation of Craniofacial Development in NOSIP-Knockdown Mice
Mentor: Dr. Ralph Marcucio

Kate Tran

Correlation of PRX1 and SCX biomolecules at dentoalveolar joint ligament-entheses
Mentors: Dr. Daniel Bikle and Dr. Sunita Ho

Leticia Chavez

Third party reimbursement manipulation among dental professionals in California
Mentors: Dr. Elsbeth Kalendarian and Dr. Enihomo Obadan-Udoh

Megan Do

Understanding axon patterning in secondary palate development
Mentor: Dr. Jeffrey Bush

Merissa Ferrar

Bridging the gap between patient care x-ray-CT and micro x-ray-CT
Mentors: Dr. Marshall Stoller and Dr. Sunita Ho

Navi Dhillon

Near-infrared image guided laser ablation of root surface lesions
Mentor: Dr. Daniel Fried

Ifunanya (Naya) Okeke

Understanding the Impact of the Sugar Associations' Regional Nutrition Information Program on Oral Health Policies"
Mentors: Dr. Cristin Kearns and Dr. Dorie Apollonio

Nevatha Mathialagan

'I don't need perfect': stakeholder perspectives of direct-to-consumer orthodontic companies
Mentor: Dr. Kristin Hoeft

Niloufar Mohajerani

Multispectral imaging of enamel demineralization
Mentor: Dr. Cynthia Darling

Parisa Moravedje

The roles of SATB1 on the morphogenesis of secretory ameloblasts
Mentor: Dr. Yan Zhang

Paul Asfour

The effect of different RUNX2 isoforms on cellular proliferation
Mentors: Dr. Tamara Alliston and Dr. Richard Schneider

Sina Nazeri

Patient-reported adverse events and near misses in the dental office
Mentor: Dr. Eni Obadan-Udoh

Stephen Gigli

Evaluation of Buccal Cortical Plate Thickness Using CBCT
Mentor: Dr. Sneha Oberoi

Will Lee

Tobacco Industry Involvement in Periodontal Research: A Case Study
Mentors: Dorie Apollonio PhD and Cristin Kearns DDS MBA

Giving Back to the Community:

Albert Schweitzer Fellowship with Noah Koryam



Noah Koryam (D2)

Noah Koryam (D2), began his project in April to expose students from low-income populations to STEM careers through the Albert Schweitzer Fellowship

What is the Albert Schweitzer Fellowship?

The goal of my Schweitzer Fellowship, and every other fellow, is to alter the culture of professional schools so they can more effectively address the needs of the surrounding disadvantaged communities. This is done by influencing the professional development of students in the health professions in ways that strengthen their commitment to, and skills in, public service.

Tell us the issue that you are trying to address and how you plan to resolve it.

My project builds relationships between the professional schools at UCSF and James Denman Middle School. I have worked on creating interactive projects for students coming from low income populations to help them gain more exposure to STEM and other professional fields. My goals are simply to give them the ability to explore their potential and, in turn, find a voice to advocate for themselves.

How do you see this project changing in the future?

My project is continuously changing. It has already taken many turns, and that has been part of the beauty of creating something new and different. I have to prove the time spent with these students is worth the school's commitment and that there is something tangible being gained. Class proposals are continuously being changed, staff changes have occurred, and I have had to learn how to adjust. I plan on incorporating more classes involved in the health and well-being of the students – that has been something new that the children have asked me to introduce.

What was your most memorable experience during your D1 year that led you to pursuing more avenues of service?

My most memorable moment of my D1 year was grabbing my classmate Will Lee and heading out to Martin de Porres serving locals in need. We prepared locally produced and donated fruits and vegetables - making a healthy and nutritious meal for the homeless of San Francisco. We treated them as guests and served them in with the dignity that they deserved. There are plenty of ways to serve – sometimes it's just about taking the time to make that a priority, which we can often forget about during the often strenuous time that is Dental School.

Do you have advice for those interested in helping out their communities through the Schweitzer Fellowship?

It is important to find something that you are passionate about. I am a firm believer that is what brings out the best form of internal growth but also brings about a solid sense of satisfaction. I love the Schweitzer Fellowship for these reasons: it allows you to build your own project. You can collaborate with other interprofessional faculty, students, and members of the community to accomplish your goals. But you really don't have to look far to find other avenues to help out.



Noah volunteering at Martin de Porres in San Francisco.

There's First Time for Everything: Catching up with Alex Kryger on his First Research Experience

Alex Kryger, a second-year dental student, decided to break out of his comfort zone this summer and try something new, basic science research. To see the type of research that was of interest to him, he looked through the list of possible mentors and read papers that were pertinent to their current research. He scheduled meetings with mentors whom he wanted to work with and, after interviewing with them, matched with his top choice, Dr. Chelsea Bahney!

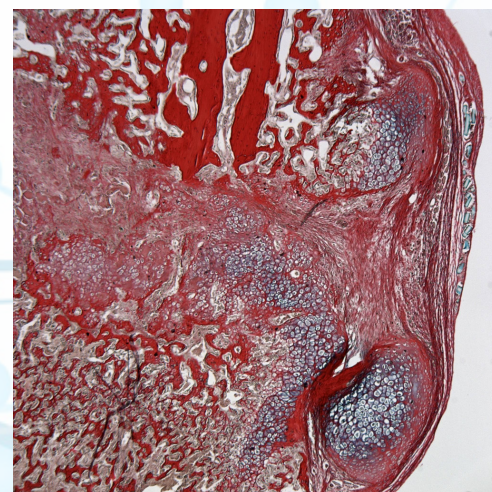
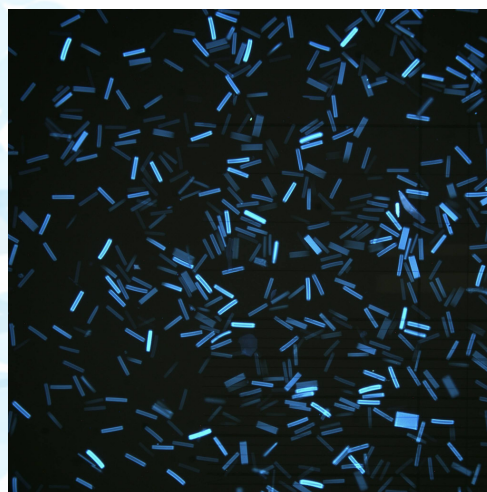


Alex Kryger (D2)

Together, Alex and Dr. Bahney developed a project to improve bone fracture repair. They hypothesized that delivery of nerve growth factor (NGF) to fracture calluses can assist repair by inducing vascularization and preventing complications, such as non-unions. To deliver NGF, Alex developed poly(ethylene glycol) dimethacrylate (PEGDMA) microrods.

With this innovative project, Alex was nominated as one of five students for the AADR Student Research Fellowship award. Alex says his summer research experience broadened his perspective of dentistry. The experience taught Alex about the incorporation of medicine, biotechnology, and biomaterial sciences into the field of dentistry, and how these disciplines will shape the future practice of clinicians. In addition, he was able to develop his problem-solving skills as troubleshooting was often necessary to optimize his research experiments. This skill allowed Alex to produce significant data and made him firmly believe that anyone, regardless of their research experience, can take on a meaningful project during the summer.

He recommends that interested students thoroughly research the lab they want to work in and to make sure that they are comfortable with the work environment. Lastly, he suggests that students should meet mentors early to allow enough time to make an informed decision on which mentors they want to work with.



(Left) Alex with his mentor, Dr. Chelsea Bahney. (Middle) Fluorescent microscopy of PEGDMA microrods. (Right) Histological section of fracture callus in mouse tibia at 7 days post injection of microrods.

Spending the Summer on the Other Coast: Katherine Le's Summer Research Experience at the NIH/NIDCR

Katherine Le (D2) was the recipient of the 2018 NIDCR Summer Dental Student Award. Through this award, she had an exciting research opportunity to investigate salivary gland stem cell populations as a potential cell-based therapy in Dr. Matthew Hoffman's lab in the National Institute of Health/National Institute of Dental and Craniofacial Research (NIH/NIDCR).

Can you tell us a little bit about yourself and your research background?

I first became interested in research while attending the International Baccalaureate program in high school. The program emphasized the importance of research and novel ways of thinking to continue pushing boundaries of our current knowledge. During high school, I joined the laboratory of Dr. Daniel Oerther at the Missouri University of Science and Technology, where I participated in investigating how variations in 16S rRNA can contribute to obesity.

When I was making my college decision, I knew I wanted to attend a university that focused on research, leading me to attend Johns Hopkins University. During my time here, I became involved in Dr. Jeff Mumm's lab where I studied beta-cell neogenesis and regeneration as a novel toolset for diabetic patients. During college, my appreciation for and interest in research continued to grow. I enjoyed the intellectually stimulating aspect of research, and was fortunate to be in the institution that was the center of research and discovery. In addition, I was able to make many connections and thoroughly enjoyed being a part of a collaborative scientific community that extended outside of my immediate lab environment to even international collaborators and being able to ask questions and subsequently test those questions. My time at Johns Hopkins piqued my interest in research, and I knew I wanted to continue throughout my time in dental school and career. This led me to join UCSF School of Dentistry, as I knew I could continue to pursue my interest in research in this high-caliber environment.

What was the most challenging aspect of the fellowship?

A lot of the time, the data did not match our hypothesis or what we were expecting. At times, it even conflicted with other data that we had. However, the thing with research is no matter what you get, you have to present it as is and provide your best explanation for what happened. We did exactly that and ended up running different experiments that may explain why the data may have conflicted with each other. In the end, by utilizing the proper experiments and following procedures, we were able to resolve the conflicts that arose in our research.



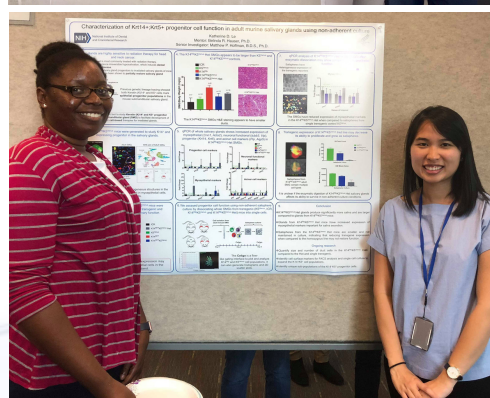
Kat receiving her award with Dr. Belinda Hauser and Dr. Deborah Philp, NIDCR Director of Education

How was your experience at the NIH this summer?

I worked in the laboratory of Dr. Matthew Hoffman at the NIDCR, where I studied salivary gland stem cell populations as a potential cell-based regeneration therapy. We tried to reestablish salivary gland function for patients who lost it due to head and neck cancer radiation. What stood out to me was the emphasis on work-life balance not only within the NIDCR, but campus-wide throughout the NIH. There were numerous events and activities that took place weekly for employees across the campus. Having these resources both inside and outside the lab really boosted my morale and motivation. It made me realize how important it is to balance between professional and personal life. Furthermore, the mentorship I received was phenomenal because of how they helped me troubleshoot problems and plan my experiments. From my direct postdoctoral supervisor to the Director of Education who was always accessible to answer questions, I felt welcomed into the institute and NIH family.

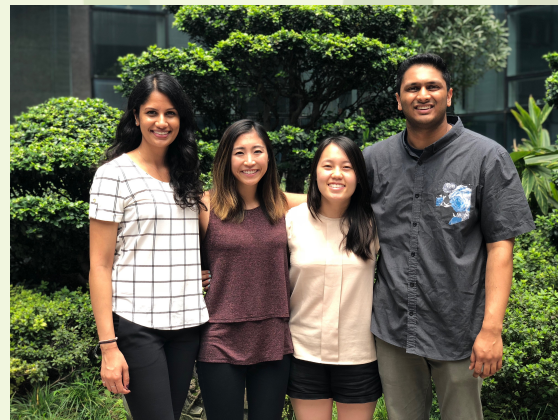


(Top) Kat and Roger Mraz, program administrator for Office of Graduate Research Affairs, at the NIDCR. (Bottom) Kat and her postdoctoral mentor, Dr. Belinda Hauser, at NIDCR Summer Session Poster Day



Insight into the West China School of Stomatology Exchange Program

with Cari, Neil, Punam, and Stephanie



The West China School of Stomatology (WCSS), Sichuan University at Chengdu, P. R. China, invited four UCSF dental students to participate in an international summer camp in July, 2018 in Chengdu, China. This program is aimed to bring together dental students and residents worldwide and to give all participants an opportunity to network, make friends, and raise their global awareness and inter-cultural communication. Local accommodation was provided by the WCSS, and most of the travel costs were covered by WCSS and the UCSF School of Dentistry Program in Global Oral Health.

What was one of the highlights of the program?

Cari Yang (D2): We had the unique opportunity to use virtual reality dental technology to practice drilling and prepping crowns. It was very insightful to learn how other countries are teaching advanced dentistry.

Punam Patel (D2): Having the opportunity to partner with a host student from WCSS during the program was such an amazing and unique experience. We were immersed into the Chinese culture and learned about the differences in their education/curriculum.

Neil Patel (D2): Having the chance to meet and interact with dental students from around the world. The most interesting part was seeing how different dentistry was taught around the globe.

Stephanie Shimizu (D2): When at the dental school, we were able to try the Moog Simodont Dental Trainer, which allowed us to experience performing dental procedures with virtual reality technology. Another highlight was visiting the famous Chengdu Research Base of Giant Pandas with the group!

During the program, what were some insights you gained or new experiences you had?

Cari: I had the opportunity to take part in the virtual reality drilling and tooth drawing competition. It was eye opening to see the different hand skills training Chinese dental students are taught in their dental school curriculum, such as sewing and drawing teeth anatomy.

How were the classes? What were they about?

Neil: The classes were interesting! They were taught by researchers that were brought in from around the globe. From schools like Harvard and ACTA (Netherlands). The content varied from craniofacial development to microbiology of the oral cavity.

(Right) Stephanie using the Moog Simodont Dental Trainer to simulate a crown preparation



What would you say to those interested in the program?

Punam: I encourage anyone interested to apply! It is an opportunity unlike any other full of learning, new experiences, and new friendships. Don't hesitate to reach out if you have any questions or would like to know more!

Cari: Be open-minded to the culture and academic setting in China. Try all the different kinds of food and just have fun! Not only will you make friendships with dental students all around the world, but you get to make more meaningful relationships with your D1 cohort!

Stephanie: Don't hesitate and definitely apply for this program if you have the chance! Mingling and sharing ideas with dental students from across the globe is such a unique experience, and I came back viewing dentistry through a different lens. Additionally, we had the most kind-hearted host students who made us feel at home. You will walk away with new knowledge, friendships, and a desire to go back!

Neil: For the people interested in the program I would say, it was an amazing opportunity to travel, learn, and explore. I was lucky enough to have a great group with me that made the experience all the more worth it! If interested, reach out to any of us and we would all be more than happy to give you advice

How do you feel the program further enriches your experience as a dental student?

Neil: The experience brought into light how dentistry is taught and executed in different places. Many of the specialties in China are the same as the ones we know here in the States with one difference being their scope of treatment is much wider. For example, the WCSS has a large multi-floor fully functioning hospital with both in-patient and out-patient centers.



Neil, Stephanie, and Punam exploring the Great Wall of China



Cari, Steph, Neil, Punam, and other dental students from around the world had a blast! whether dressed up and ready for school (left) or out exploring China (right).



Interested students should expect an email around March to apply!
For questions, please contact Dr. Ling Zhan (Ling.Zhan@ucsf.edu)

The John C. Greene Society was founded in 2002 under the mentorship of Dr. John S. Greenspan and Dr. John C. Greene, whose leadership was instrumental in the dental school's rise to prominence as a premier research institution. A major goal at the time was to encourage active student participation in meaningful research, bringing student research into alignment with the quality investigations being conducted by the UCSF dental faculty.

Since that time, the John C. Greene Society has grown into one of the most recognizable, vocal and respected student groups on campus. Student research participation at UCSF is at an all-time high, with dozens of students conducting fellowships each year, and many more traveling to present their findings at conferences across California, the country and the world.

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Special Thanks to:

Thomas Lang, PhD

Benjamin Chaffee, DDS, MPH, PhD

Lisa Chung, DDS, MPH

Roger Mraz

If you have any questions or are interested, please email JGS@ucsf.edu

Website: www.jgsucsf.com

Facebook page: The John C. Greene Society

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Newsletter Editor Notes

The UCSF JGS Newsletter would like to welcome Goutam Krish as another Newsletter-Editor-in-Chief! Goutam brings experience as a writer, new ideas, and a passion for dental research!

We are excited to showcase the research opportunities and accomplishments at the UCSF School of Dentistry this year. We hope to bring new ideas to the newsletter while continuing to maintain the high level of excellence expected from the UCSF JGS Newsletter.

Best,
JGS 2018-19 Newsletter Editor in Chief
Jonathan Han
(Jonathan.Han@ucsf.edu)



Goutam Krish (D2), Jonathan Han (D2)