Author, Mentor and Extraordinary Maternal Fetal Medicine Specialist
Robert Resnik Retires

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The Laurent Lab, a member of the exRNA consortium, detects trace levels of exRNA across different isolation platforms and body fluids.

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Letter from the Chair

Dear Colleagues,

This issue of Fimbria finds us at the end of the academic year. This has several implications, but one of the most exciting is the new trainees arriving and a cadre of residents, fellows and friends leaving us and carrying their UCSD training forward in their careers. In our "Meet" section, we talk to three of the incoming residents.

This issue will add the theme of education, with articles celebrating the success of our educators across our disciplines. Contributions here and in the future will focus on the efforts and approaches being used to execute the training mission here at UCSD.

Importantly, we also celebrate the retirement of Robert Resnik, a giant in the field of MFM. In addition to a lifetime of contributions within the field, Dr. Resnik is also author of Creasy & Resniks Maternal-Fetal Medicine: Principles and Practice. This is technically a second retirement for Bob, who has been professor emeritus at UCSD for more than a decade, and we will miss him dearly.

In our research mission we continue to push into new areas, securing funding for research ranging from microbiome to tumor immunology. These are important new areas of study, and we continue to work at the forefront.

Of course, grant support only comes with publication, and we are happy to feature these supporting efforts as well. More than two dozen manuscripts have been published in the last quarter by department researchers. Notably, Louise Laurent and colleagues had impactful manuscripts in Cell.

We hope you enjoy this issue of FQ and find it informative. Please forward it on to colleagues if you do.

We’ll see you next time.

Charles Nager

Distinguished Professor and Samuel Yen Chair
Department of Obstetrics, Gynecology & Reproductive Sciences

You can read more about Louise’s work in the Bench to Bedside section. While many researchers have not even heard of exRNA, Louise and collaborators have been analyzing biofluids to determine the best practices to follow to isolate and quantify it. ExRNA, or extracellular RNA, can provide clues as to a patient’s health and the current progression of disease. While still in its infancy, the work holds significant promise for the future.

Charles Nager, MD

Distinguished Professor and Samuel Yen Chair
Department of Obstetrics, Gynecology & Reproductive Sciences

Department of Obstetrics, Gynecology & Reproductive Sciences Division Chiefs

Family Planning
Sheila Mody

Gynecologic Oncology
Michael McHale

Maternal Fetal Medicine
Thomas Kelly

Obstetrics and Gynecology
Pamela Deak

Hospitalist
Urogynecology
Mimi Lukacz

Gina Frugoni

Reproductive Endocrinology and Infertility
Antoni Duleba

Hospitalist
Karen Perdion

Midwife Director

Contact us at: FIMBRIA@UCSD.EDU

Follow us on Twitter: @UCSDObgyn
Congratulations to our new Grantees

We continue to attract funding, climbing to number five nationally. Varykina Thackray just received an R01 award to study the Role of the Gut Microbiome in Polycystic Ovary Syndrome. Lauren Chun just received an F32 training award to study The Homeodomain Transcription Factors, Six6 and Six3, in the Circadian Regulation of Reproduction. Congratulations to Lauren and to her mentor, Pam Mellon. David Schlaepfer & Dwayne Stupack just received a DOD Pilot award Targeting Ovarian Cancer Immune resistance. Charlotte Conturie received a training award correlating maternal and neonatal microbiome profiles with pregnancy and postnatal outcomes: Urinary Microbiome vs. Vaginal and Rectal Microbiome during Pregnancy. Congratulations to Charlotte and to her mentor Louise Laurent.

Incoming Residents!

Welcome!

Incoming Fellows!

We heartily congratulate this year’s graduating residents and wish them well in all their future endeavors:

Lindsey Burnett – to UCSD Urogyn Fellowship
Julia Kabacka to Kaiser San Diego OB/GYN
Sarah Lederhandler – to UCSD OB/GYN Generalist
David Lingenfelter to Kaiser San Diego OB/GYN
Dora Melber – to UCSD MFM Fellowship

Allison Brodsky
NYU

Estefania Fernandez
Wash U. St Louis

Diana Ha
UC Davis

Tatyanna Henderson
Duke University

Joseph Mimms Jr.
Case Western

Christine Zacheck
UC San Francisco

Nicole Economou
Family Planning
University of Southern California

Marianne Hom
Gynecologic Oncology
University of Southern California

Dora Melber
Maternal Fetal Medicine
UC San Diego

Beth Zhou – Reproductive Endocrinology
Baylor College of Medicine

Lindsey Burnett – Female Pelvic Medicine
UC San Diego
Foundational Discovery: Standardizing methods for exRNA detection in clinical samples

The discovery of extracellular RNAs (exRNAs) in biofluids has opened new avenues for translation to the clinic. ExRNAs may have both diagnostic and prognostic values for a variety of clinical conditions. The exRNA content in a particular bodily fluid is influenced by the principal organ where the fluid is made, as well as the age and health of that organ. The ease of detection makes exRNA particularly attractive in an era of increasing health care costs. However, a major problem has been determining how best to detect and accurately quantify these fluid-borne polynucleotides. Prior studies have detected a variety of different types of exRNA from a number of different types of bodily fluid, and the results were not always precisely concordant. If exRNA are to be useful diagnostics, reproducible and concordant approaches will be critical.

Studying this problem with collaborators in five other labs from across the country, the Laurent Lab focused on ways to optimize the isolation of exRNA from each fluid. Blood plasma or blood serum, bile, urine, or liquid samples taken from the fluids of cells grown in the lab were used. Each of the participating labs used an overlapping array of techniques to isolate the different exRNA types studied. The results were published last month in *Cell* (1).

“Each fluid presented its own particular challenges,” said senior author Louise Laurent, MD, PhD, “Because the exRNA we detect can be in a number of forms. It can be in a simple particle, such as a ribonucleoprotein or lipoprotein complex, or enclosed in a lipid capsule called an exosome. As you might expect, we found that different approaches worked best for each particle and fluid type. But what was amazing is the variation among different types of ‘similar’ extraction methods, and even using different brands of scientific instruments:”

1. https://doi.org/10.1016/j.cell.2019.03.024

The image depicts the approaches used in the study. Among the different labs, fluids subjected to different isolation methods, and different targets were found to be enriched (red regions on the small RNA map in the right panel or lost (blue regions). The data reveals which types of exRNA are enriched in which types of bio-fluids (lower left), permitting development of mirDaR, an online data base.

This was only the tip of the iceberg. Depending upon the different types of exRNA the researchers were looking for, different types of isolation procedures might be more, or less, efficient. But consensus was reached.

“We now know how deep to push our sequencing efforts in each fluid,” Laurent said. She continued “Moreover, because of the unbiased approach we used, we were able to develop an interactive web-based application, miRDaR, that should assist other researchers looking for a particular type of exRNA in a particular fluid.”

The study did not focus on the diagnosis of any specific disease, although it did use several exRNA molecules that may be disease-associated. Rather, the key result in the study was simply determining how to take highly variable results and translate these to data that was consistent and amenable to research use. This will permit different labs to more directly compare the results of their research, and will ultimately pave the way for the development of exRNA-based serological testing.
Meet the New Residents

Fimbria Quarterly recently spoke with Estefania (Nia), Allison, and Christy. (We hope to catch up with Diana, Tatyanna and Joe in our next newsletter).

FQ: We frequently get residents that grew up on the left coast. Nobody here is from California?

Nia: Well, I was born on a left coast, it’s just that it was South America! I was born in Cali, Colombia, but I grew up in Miami, Florida.

Christy: My hometown is Raleigh, North Carolina.

Allison: ...and I grew up in Wayne, Pennsylvania.

FQ: A common question that residents get is what attracted you to the program at UCSD. It’s the elephant in the room. So, let’s ask this now.

Allison: Aside from the wonderful location, there were many aspects that attracted me to USCD, including the intensity of the surgical training. I was also attracted to the high volume of deliveries, and the research opportunities. I really liked that the rotations average ~10 weeks rather than 4-6 weeks. Often in medical school, just when I was starting to get the hang of things, the rotation was over and I had to start again, which at times was frustrating.

Christy: I would echo Allison’s answer. For me, UCSD was the complete package of strong clinical and surgical training, an emphasis on medical education, and research opportunities.

FQ: Where are you coming from?

Christy: I did my undergraduate work at Georgetown University and received a Masters in Public Health from Boston University.

FQ: Nia, what was the most memorable part of your interview here at UCSD?

Nia: Everything! It started with how comfortable and welcomed I felt during the pre-interview dinner and really just continued after that point. I felt the faculty were passionate about their respective fields and about being involved in resident education. The residents were friendly from the beginning and spoke highly of their training but more important for me, they felt like people I would be friends with outside of work. I cannot emphasize enough how genuine the excitement and happiness felt and how contagious it was.

FQ: Allison, Christy, what about you?

Christy: The sense of community was what really stood out for me -- everyone was so warm, welcoming, and genuinely excited to have us there. I can’t wait to get to know you all soon!

Allison: I completely agree with Christy and Nia. The most memorable part about interviewing at UCSD was the comfort that I felt during the day. I found it so easy to talk with the residents, attendings and staff throughout the two day process. My interviews felt like conversations with good friends, I knew that I had found people I would love to work with day in and day out.

FQ: Do you have any hobbies outside of medicine?

Christy: Traveling, outdoor adventures, following college basketball, and always searching for delicious street food and strong coffee.
New Residents can’t

Nia: I’m a pretty standard medical student- traveling and eating delicious food from other countries. I like working out, particularly running, but more recently, I’ve also started weight training. Baking or cooking in general. I like reading, especially if there is a book club involved. I’m always open to discovering a new netflix show to binge watch.

Allison: My hobbies outside of medicine include long-distance hiking/backpacking, reading, cooking... or anything really that has me outside. I love traveling. During fourth year I was able to take trips to Hong Kong, Vietnam, France, Germany and Portugal.

FQ: It seems like we recruited a well-rounded crew. We’ll meet the rest of them next issue, but until then, we are looking forward to the first pot-luck BBQ.

At the Frontier

Recent Publications:
Since February, OBS/GYN Repro Sci staff have enjoyed outstanding productivity, including these 27 publications (including Nature, Cell and JAMA journals):


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At the Frontier continued


This month one of the giants in the field of OB/Gyn is retiring after 44 years in our department. Robert Resnik earned his medical degree from Case Western Reserve University in 1965 and followed with a Residency in Obstetrics and Gynecology at Yale University in 1970. Dr. Resnik completed an NIH Research Fellowship in Perinatal Medicine at the University of Colorado in 1974, before coming to the relatively young medical school at UCSD in 1974 as an Assistant Professor and Director of Obstetrics. He served as Chair of the Department from 1983-1995. It is no understatement to say that in the 1970’s thru the 1990’s he was the national face of this department. Afterwards he served as Associate Dean for Admissions and Dean for Clinical Affairs.

In 2007 he became Professor Emeritus, yet he has continued to be an active clinician and teacher at Director’s Place and the High Risk Obstetrics clinic. In 2017 Dr. Resnik was elected to the physician board of the American Health Council.

Dr. Resnik is an Elected Fellow ad eundem to the Royal College of Obstetricians and Gynaecologists, United Kingdom and is a fellow of the American College of Obstetrics and Gynecology. He is a member of the Society for Maternal Fetal Medicine.

Within the department, Bob is a 3 time winner of our resident teaching award, and 4 time winner of the medical student teaching award. At the university level, he has been honored as the UCSD Faculty Mentor of the Year across all disciplines. Testament to his involvement in the education of our medical trainees, the invited speaker at the Annual Departmental Research Day now holds the title of Resnik Invited Speaker.

Dr. Resnik’s scholarly accomplishments in the field of Maternal Fetal Medicine are remarkable. His landmark textbook, Creasy and Resnik’s Maternal-Fetal Medicine: Principles and Practice is now on its 8th edition and is the reference standard in the field.

His national prominence includes being President of American Gynecologic and Obstetric Society (2009-2010), the American Gynecological Club (2002), and the Perinatal Research Society (1985). His awards include the Society for Maternal Fetal Medicine lifetime Achievement Award. His achievements are recognized internationally and he is an honorary fellow of the Royal College of Obstetricians and Gynaecologists.

We will be honoring Dr. Resnik with a retirement party at the faculty Club on the second Friday in July. In this issue of the Fimbria we acknowledge and thank this man for everything he has done to elevate our department and to place us on the short list of training centers for MFM nation wide.

The entire department thanks you, Dr. Robert Resnik.
Every quarter we will be highlighting one resident (or fellow) teacher, and one faculty teacher identified by the medical students as being particularly exceptional.

We celebrate Dr. Erin Mowers, who was elected by the 3rd year medical students for the 2019 University of California San Diego School of Medicine Humanism in Medicine Resident Award in Obstetrics and Gynecology. Only 6 residents from across all of UCSD are given this award each year.

With this award, she is invited to join UCSD School of Medicine’s chapter of the Gold Humanism Honor Society (GHHS). Members of the GHHS are chosen because they exemplify a compassionate, dedicated, and humanistic approach to patient care and serve as role models for others. Dr. Mowers’ election means she is seen as the kind of physician students and colleagues would choose as their own. This honor carries responsibilities, which include:

* Promoting humanism in medicine through your interactions with students, patients, and peers.
* Assisting the Dean in fulfilling the Mission, Goals and Objectives of the School

Membership in the Gold Humanism Honor Society is for life.

Ramez Eskander
Teacher of the Quarter

“Dr. Eskander allowed me a safe and professional learning environment to perform exams on female patients. He also modeled amazing bedside manner and rapport with his patients, especially when discussing very serious topics that inevitably arise on an oncology service.”

FQ: Ramez, congratulations. What is your favorite part of your responsibilities in teaching the medical students?

Ramez: Helping them understand that they have an opportunity to impact the lives of patients that they are going to treat and take care of in the future, particularly in these dynamic times of drug development and discovery.

“Dr. Eskander is a fantastic physician to have the opportunity to learn from as a medical student. He has a gift for teaching, and boiling down complex concepts so students can take away the most critical points. He is also an exceptional mentor in terms of modeling truly compassionate care in his interaction with patients.”

FQ: What strategy do you use, when things are busy, to ensure your students are still learning?

Ramez: I don’t try to force myself to accomplish a certain number of educational “tasks”. Whatever I can teach in a limited amount of time will still have value for our students. Our day-to-day activities inherently encompass teaching, whether it is talking to patients and their families, interacting with residents or fellows, spending time rounding or in the operating room – all are opportunities for students to learn. I am fortunate enough to be able to care for women suffering from gynecologic cancers, and I view this as a privilege. Ultimately, the teaching becomes a byproduct of patient care rather than a burden.

“Dr. Eskander showed me more about medicine and caring for one’s patients than I have seen exemplified to date in medical school. Aside from being a phenomenal teacher that creates a warm and engaging learning environment both inside the clinic and OR, taking time to directly and formally teach students, and giving students the space and time to practice and improve their skills with appropriate constructive feedback; he emphasized humanity in medicine. I remember going home after a particularly emotional Saturday rounding on the service and just thinking: that is how I want to practice medicine.”

FQ: How do you prevent burnout that comes with having different students rotate on every two weeks?

Ramez: Mentorship and education were incredibly important to my growth as an academic clinician. Throughout my training I can clearly recall teachers who instilled in me a passion for medicine. When I think about these personal experiences, it is easy to reflect on my time with current students, remembering that even a brief interaction can have lasting implications. Ultimately, it is my hope that these students will then become the teachers and educators for subsequent learners.

“Dr. Eskander is truly a hero of medical school for me. He embodied and modeled every great quality that a doctor should possess.”