Anesthesia *News*

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UCSF Department of Anesthesia and Perioperative Care

Professor Lawrence Poree and Pain Medicine Fellow Lauren Friedman confer.

Is This Neuromodulation's Moment?

In the five years since a 2011 Institute of Medicine report revealed that 116 million Americans suffer from chronic, undertreated pain, clinicians have scrambled to address their patients' suffering. The increased attention on pain relief has come even as physicians are increasingly reluctant to prescribe opioids due to headline grabbing concerns about addiction. Those concerns have accelerated the search for alternative treatments.

UCSF anesthesiologist Lawrence Poree, MD, PhD, would contend that for many types of pain, a viable alternative already exists in the form of neuromodulation, which encompasses a number of treatment modalities for neuropathic pain and other conditions. Recently, Poree's clinic in Aptos was one of 22 sites nationwide that tested a first of its kind device for dorsal root ganglion stimulation in cases of focal pain. The study showed very positive results and the device recently received FDA approval for the management of complex regional pain syndrome I and II of the lower extremities.

But neuromodulation has a long history of success and reaches well beyond focal pain, says Poree. Typically it involves implanting a device that either electronically stimulates nerves to modulate nervous system activity or serves as a drug delivery system to infuse medications into the spinal canal. Poree adds that because neuromodulation has become increasingly refined and precise, it is poised for explosive growth.

continued on page 4

Also in this issue:

Message from the Chair

Inspired by Our History, Department Pursues New Pathways

The arrival of spring brings the promise of renewal. In addition to Easter and Passover, March marks the annual ritual of the residency match. Starting in the fall, the residency office goes into high gear, receiving applications, coordinating interviews, and ultimately developing the match list that is submitted to the National Residency Matching Program. We received over 800 applications and interviewed 150 individuals. On March 18th, we learned the names of the 23 outstanding applicants that will be joining us for residency training on July 1, 2017. I'd like to salute the tireless efforts of Melissa Patrick, Kristina Sullivan, and Manny Pardo, who lead the Education Office efforts, and especially Chief Residents Tina Dong and Jeremy Pearl, who coordinate dinner with the applicants the night before the interviews, and serve as ambassadors for our program. In June, we will bid farewell to many of our exceptional trainees, who will serve as envoys to academic and other programs, reminding them of the extraordinary training provided by the department.

The use and abuse of opiates has become a public health crisis. While opiates serve many patients well, their efficacy can be limited in patients with severe, chronic pain. In this issue, **Lawrence Poree** describes cutting-edge research and clinical care in the emerging field of neruomodulation. Lawrence is a nationally recognized figure in the field, and leads research and clinical trials focusing on this important patient population. Neuromodulation is very much a multidisciplinary effort, with contributions from anesthesiology, neurosurgery, neurology, psychology, and other disciplines.

In our basic science research labs, studying the mechanisms of chronic pain constitutes a major effort by department faculty. You will read how **Zhonghui Guan** has published a seminal paper on how nerve injury can lead to chronic neuropathic pain. Our pain faculty are working in a number of areas to both elucidate the mechanisms of chronic pain and develop new treatments.

Linda Liu describes our innovative Critical Care Scholars program. This is a unique program that recruits residents to a 5-year pathway that results in board certification in both anesthesiology and critical care medicine. The program has been very successful, with all of our graduates transitioning into both academic and private practice jobs combining anesthesiology and critical care medicine.

In May, the newly-built Zuckerberg San Francisco General Hospital and Trauma Center will open. **Jim Marks** describes this beautiful, state of the art hospital and trauma center, which will provide care to all San Franciscans, regardless of their ability to pay. In future editions, we will describe the planning for a dedicated research building, led by Sue Carlisle.

Our department has a long history of leadership in obstetric anesthesia, and **Mark Rollins**, Chief of Obstetric Anesthesia at the Betty Irene Moore Children's Hospital describes changes in clinical practice that have led to improved maternal outcomes.

The greatness of a department is determined by its people, and we are fortunate to have excellence across the board, from trainees, to staff, to our faculty and CRNAs. Faculty who have worked at Moffitt-Long, Mt. Zion, or Mission Bay for the last 10 years are aware of the extraordinary contributions of **Judith Chan**. Working with **Dave Robinowitz**, pediatric anesthesiologist and IT guru, Judith has the Herculean task of scheduling and organizing over 100 faculty, across multiple sites, including managing bonus compensation. Judy's calm demeanor and attention to detail are extraordinary, and I personally am so thankful for her professionalism and excellence. We couldn't succeed without her and her team. We also highlight **Christina Inglis-Arkell**, who has led the transition of Mount Zion Hospital from a full-service cancer hospital to a 23-hour stay ambulatory surgery center. Although only a few years out of training, Christy has built a high-efficiency operation with outstanding patient and staff satisfaction.

UCSF will host two important anesthesia meetings this spring. We are the host institution for the 54th Annual Western Anesthesia Residents Conference (WARC). This meeting was started by Ted Eger, and has grown into a highly successful event, with 300 residents from 19 western programs presenting their work. In addition, in May, we will host the 63rd Annual Association of University Anesthesiologists meeting. In addition to the usual focus on research and education, UCSF will present a host program with the theme of precision medicine, featuring high-profile faculty from across the campus.

As we forge new pathways in anesthesia clinical care, education, and research, we must stay grounded in our history. In this issue, Professor Merlin Larson discusses the **Arthur E. Guedel Anesthesia Collection**, recently acquired by the UCSF Kalmanovitz Library. The collection includes anesthesia related artifacts that demonstrate essential contributions to the field, such as the development of muscle relaxants. A special thanks to Morgen Ahearn, department historian/archivist, Polina E. Ilieva, Head of UCSF Archives and Special Collections, and David Uhlich, Assistant Archivist, UCSF Archives and Special Collections, for curating the collection photos for the story.

Finally, we are delighted to announce the completion of fundraising of $2.5M to endow the **Ronald D. Miller, MD, Distinguished Professorship**. This professorship will help support the recruitment of a world-class clinician-scientist and mentor in the mold of Ronald D. Miller, MD. I would like to thank the numerous alumni and faculty that contributed to this successful effort. We will now begin the exciting task of recruiting an outstanding faculty member to fill the position. We look forward to your ongoing support of the department.

Michael Gropper, MD, PhD
Professor and Chair

The Heart of the City

UCSF Department of Anesthesia Plays Key Role in Move to Zuckerberg San Francisco General Hospital and Trauma Center

The UCSF Department of Anesthesia and Perioperative Care has always had an essential role at Zuckerberg San Francisco General Hospital and Trauma Center, which is the city's safety net hospital, its busiest emergency room and its only Level One trauma center.

Now, as clinicians and patients prepare to move into the newly named Zuckerberg San Francisco General Hospital and Trauma Center (ZSFG), the sense of excitement is palpable. The reasons include the $75 million donation from Facebook founder and CEO Mark Zuckerberg and his wife, UCSF pediatrician Priscilla Chan.

"The Zuckerbergs' commitment to support access to quality care for all, regardless of ability to pay really helps elevate what we can do here," says anesthesiologist Jim Marks, MD, PhD, who is the hospital's chief of the medical staff.

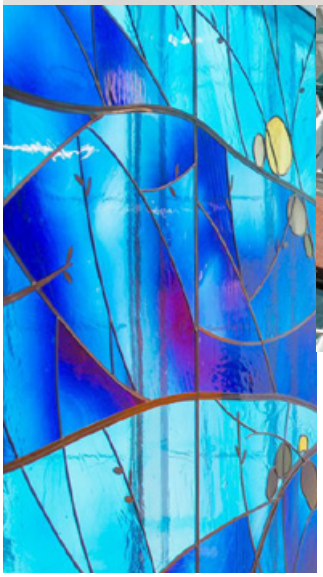
In that role – which he assumed in the summer of 2014 – Marks has been instrumental in shepherding a project that will come in on time and on budget. Since 2007, he also has been deeply involved in planning the new operating rooms and was a major contributor to the vision of placing all procedural services that require anesthesia or procedural sedation on one floor.

"We will have a single intake point and recovery area, with the same standards and staff," says Marks. "Many hospitals are coming to this type of approach, because it has a positive impact on both the quality and safety of care – and our staff and patients are going to be safer and more satisfied."

The emphasis on quality and safety will be a boon for people throughout San Francisco and speaks to what Zuckerberg himself emphasized at the new facility's ribbon-cutting ceremony in November 2015.

In describing the priorities he shares with his wife, Zuckerberg called SFGH, "…the heart of the city…. We support this hospital because we believe good health should not be out of anyone's reach."

We will update you on this exciting move after the new hospital opens in May 2016. ■



"We support this hospital because we believe good health should not be out of anyone's reach."

– Mark Zuckerberg

Top photo, from left: Jim Marks, MD, PhD; Mark Zuckerberg, Priscilla Chan, MD; Sue Carlisle, MD, PhD

Neuromodulation

continued from front cover

Refinements Yield Results

Poree began studying neuromodulation during his time as a PhD student at UC Berkeley and continued that work as a scientist at both Johns Hopkins and Stanford – all before he became a physician. After medical school, he completed a pain fellowship at UCSF and in addition to serving as a clinical professor in the UCSF Department of Anesthesia and Perioperative Care, is today treasurer of the North American Neuromodulation Society.

He says that neuromodulation researchers and clinicians have begun to take advantage not just of new insights into how pain occurs, but also of advances that range from miniaturization and enhanced computing power to better understanding of how to modify the levels and frequency of neuromodulation "doses" in accordance with patients' individual needs. All of these advances have resulted in improved efficacy and fewer side effects.

"Two years ago, we talked about 50 percent of people getting 50 percent benefit from neuromodulation, which is fairly good, but there's new technology every day and recent studies have shown approximately 80 percent or more of people – both during the trial period and with the actual implants – got more than 50 percent pain relief," says Poree.

He notes as well that the devices' risk profile is similar to any invasive procedure, and that there are few side effects, mostly paraesthesia. He says those side effects will become even less common with the newer technologies that enable more precise targeting of problem areas.

Proving the Efficacy, Cost-Effectiveness

In Poree's own clinical work he says, "We can treat a broad spectrum of neuropathic pain using neuromodulation techniques."

He also believes we are not using neuromodulation to its fullest potential and turning to it far too late in the paradigm of pain treatment.

"It's a travesty to wait for patients to meet the definition of chronic pain," he says. "Many patients don't find someone who can provide this type of relief for many years and their condition worsens with the passage of time," he says.

"Many patients don't find someone who can provide this type of relief for many years and their condition worsens with the passage of time."

— Lawrence Poree, MD

He adds that if patients are treated early, neuromodulation is much more cost-effective than its upfront cost of $30-50,000 for a full implant would cause people to believe.

"When we've compared that to the cost of medications, addictions, repeat spine surgery and physical therapy over the course of two years, neuromodulation is actually cheaper in many cases," he says. "Our dorsal root ganglion study, for example, looked at treating complex regional pain syndrome using neuromodulation and the cost was equivalent over roughly two to two and a half years." He adds the Medicare has been covering neuromodulation for decades and many private insurers cover it as well, though often not with a great deal of enthusiasm.

Excitement is Building

Poree believes, however, that a confluence of recent studies is generating real excitement about neuromodulation, even as pain researchers are beginning to achieve much deeper understanding about the nature of various types of pain.

Some of that work is happening at UCSF. Poree, for example, is engaged in discussions with fellow pain physician Zhonghui Guan, MD, (see accompanying story) who recently published a study in *Nature Neuroscience* that identified a protein essential in activating neuropathic pain. The two hope their work can have some genuine synergy.

In addition, other major institutions have begun to show real interest in neuromodulation. The military, says Poree, has already begun using dorsal root ganglion stimulation to treat wounded soldiers experiencing neuropathic pain from what were originally peripheral injuries. Many of these soldiers, says Poree, were able to return to regular activity without any need for pain medications. The military's work in this area will be a major focus of the 2017 North American Neuromodulation Society Scientific Meeting, which Poree will co-chair.

He believes that as these factors converge, the advances will begin to accelerate, especially in concert with President Obama's BRAIN initiative, announced in 2013.

"Soon," says Poree, "We'll be talking about individual neural stimulation with the goal of having clinical control over the most sophisticated electrical network imaginable." ■

Ask the Expert: Mark Rollins, MD, PhD

What Changes in Clinical Practice Could Improve Obstetric Care?

There are always things we can do to improve obstetric (OB care), but over the last few years one important focus has been reducing maternal mortality. From the 1930's through the 1980's the rate of maternal death in the United States decreased substantially from approximately 1 in 100 to about 1 in 8,000. Yet over the last decade, data emerged revealing that the United States not only had the highest mortality rate of any high resource country, but also was the only developed country to have had an increase in maternal mortality since 1990 – and that the rise was not explained by increases in risk factors.

In the mid 2000s, California, physicians and other health care leaders began to examine how we deliver OB care and how to improve that care, which led to the formation of the California Maternal Quality Care Collaborative (CMQCC) in 2006. In the wake of a major study that found of 8.5 million hospital deliveries in the US from 1999 to 2008, the rate of severe postpartum hemorrhage (PPH) had more than doubled, the CMQCC created an effort to reduce the incidence of PPH. Elliot Main, MD, led this statewide effort with Mark Rosen, MD, UCSF director of OB Anesthesia at the time and involved from the outset, along with Audrey Lyndon from UCSF School of Nursing. In 2009, I joined the effort as part of a multi-disciplinary expert panel, whose charge was to work with hospitals throughout the state to incorporate the CMQCC recommendations into clinical practice.

The effort began with a survey of California hospitals on their PPH clinical practices. That survey found, among other things, that 40 percent of hospitals in the state did not have a hemorrhage protocol, used inconsistent definitions of hemorrhage, were not regularly participating in drills for the condition and did not have access to all possible treatment methods.

In response, the CMQCC devised a toolkit for hospital teams aimed at addressing PPH and went about disseminating it in partnership with the California Partnership for Maternal Safety. The primary goals were for all participating hospitals to develop and implement a multidisciplinary team response, with the expectation that this could reduce major complications associated with massive hemorrhage by 75 percent.

The toolkit is extensive but, in brief, it contains a set of best practices for addressing PPH, a checklist for managing the condition and other tools that range from sample policies and procedures to charting examples and implementation hints.

To help ensure success, the toolkit had elements that each hospital could modify slightly to its unique logistics and clinical needs and the CMQCC's multidisciplinary expert panel assisted clinical leaders from numerous California hospitals with implementation.

Since its creation, more than 100 California hospitals – which provide services for an estimated 230,000 births per year – have implemented the toolkit. Though we can't prove causality, it's striking that since 2008 California's maternal mortality rate is significantly reduced when compared with the rest of the United States. We were the only state using the toolkit during much of this time. The disparity is even greater when you understand that California's birth rate is about 1/7 of the entire United States.

The toolkit is now getting much wider exposure in other parts of the country and around the world, and it has led to the development of another organization focused on maternal safety (safehealthcareforeverywoman.org).

Moreover, the success we've had with PPH has led the CMQCC to begin to extend its focus to other factors associated with maternal mortality during childbirth, including pre-eclampsia and pulmonary embolism. ■

The toolkit addresses four key areas:

- **Readiness:** How to assess patient risk levels, train and drill staff and have the necessary supplies readily available, including a hemorrhage cart and medications
- **Recognition:** Guidance and best practices for assessing and documenting blood loss, such as using under-buttock drapes with graduated markers during vaginal birth for early recognition of hemorrhage
- **Response:** Checklists and procedures for addressing hemorrhage with stepped, evidence-based interventions
- **Reporting:** How to assess hemorrhage-related quality improvement measures, including establishing a culture of huddles and post-event debriefings for high-risk patients

Education

Critical Care Scholars Program Celebrates Successes

"The vision was for an innovative track that would attract residents interested in critical care by blending the anesthesia residency and critical care fellowship," says Linda Liu, MD, who directs the Critical Care Scholars program in the UCSF Department of Anesthesia and Perioperative Care.

In contrast with the more traditional route of four years of residency and a one-year fellowship, the program integrates the anesthesia residency and critical care fellowship across the entire five years. Scholars are exposed to more critical care situations than is typical in years one through three and then move back and forth between their fellowship and their anesthesia residency in years four and five.

Liu says, "By tying people into their fellowship early, we hoped it would help them better meet the needs of critically ill patients and encourage them to remain in academic medicine."

By both of these measures, the program's early years – it enrolled its first two participants in 2009 and accepts up to two participants each year – have been an unqualified success. All of the program's first five graduates have taken faculty positions in critical care, four of them at UCSF.

Informal Mentoring Leads to a Genuine Community

Participants say the successes of the program are attributable to a number of factors: the quality and reputation of the department and its leadership in critical care medicine; exposure to challenging cases; the faculty's willingness to attend to the scholars' interest in critical care from day one, and; the creation of a supportive, informal mentoring community among the critical care scholars themselves.

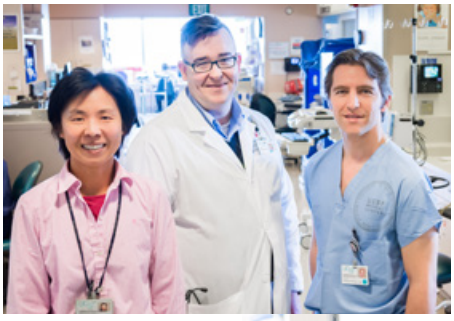
The last was an unplanned, though not unexpected outgrowth of a program that draws people with similar interests and temperaments.

"One of the common stories is that we were all interested in critical care, even before anesthesia," says Anne Donovan, MD, who was part of the first official class to complete the program and is now a member of the Department's faculty. "And as we work to make this not just a track, but a community, we're looking for that same type of thought process when trying to pick new members."

"I think because we all start out as like-minded people with similar goals, we quickly get to know each other well and feel comfortable going to each other with personal or professional concerns," says Lindsey Huddleston, MD, who was in the second graduating group and also has joined the department's faculty.

Those who are in the midst of the program agree. "Early in residency, you can always turn to people who were above you in the program to ask questions… in the ICU, or just about getting through residency and how to navigate the UCSF system," says Thomas (TJ) Krall, MD, who is in his fourth year of residency, where the scholars begin to toggle back and forth between their critical care fellowship and their anesthesia residency.

"I tend to text [the other scholars]… because I'm so comfortable with them. I interviewed at other places and this place was just more personable," says Joyce Chang, MD, who is in year five.



Professor Linda Liu, Critical Care Medicine Track Scholar Matthew Dudley, and Assistant Professor Andrew Schober, in the ML ICU

Rising to Challenges

Donovan says that by year four, the critical care scholars already are more senior residents and that attendings value the scholars because of the experience they've already attained.

"Residents who do this track are asked to do advanced clinical situations earlier in their training process – with a lot of peer mentorship at transition points and I feel like I've been well prepared to be a good fellow," says Chang.

"It definitely made me a better resident and as I transitioned to ICU fellow and then back to the OR, I noticed a huge difference in myself, especially in my comfort in working independently and in thinking more globally about the patients' entire perioperative course," says Huddleston. "In the OR we get comfortable taking care of all of a patient's needs – managing hemodynamics, the ventilator, continuously assessing how the drugs we're administering change physiology. That translates when we get to the ICU, where we may be more comfortable with ordering certain things at the bedside. And when you flip it and you've taken care of very sick patients in the ICU, it increases your comfort level taking care of a very sick patient in the OR."

"The program has really evolved," says Liu. "The original notion was to turn out critical care intensivists, but thanks to the quality of our department and the sense of community, most of our scholars have stayed on here as faculty who have a real respect for each other both personally and professionally." ■

Below, Assistant Professor Anne Donovan leads critical care medicine rounds.

"The program has really evolved...most of our scholars have stayed on here as faculty."
– Linda Liu, MD

Inglis-Arkell Plays Essential Role in Mount Zion Transformation

In February 2015, anesthesiologist Christina Inglis-Arkell, MD, assumed the positions of anesthesia director and medical director of the surgery center at UCSF's Mount Zion campus.

Both roles have been important, as Mount Zion has transformed itself into a facility focused on ambulatory care and 23-hour stays in the wake of many services moving to the Mission Bay campus when it opened a year ago. And both roles present a challenge for someone who was just three years removed from her physician training.

"Though I had some leadership experience at Mount Zion and learned a lot by working under Spencer Yost there, the chair showed a lot of faith in me by offering me this position," says Inglis-Arkell.

A Commitment to Mount Zion

At the start of her residency, Inglis-Arkell moved to the Bay Area from southern California, because UCSF has "the best anesthesia program in country" – and because her husband is from the area. After the birth of her second child, she and her family moved to Mill Valley, where they take advantage of the area's physical beauty and opportunities for outdoor activities.

Still, part of her heart remains in San Francisco, particularly at Mount Zion where she has developed strong relationships with her colleagues. That's been important as Inglis-Arkell has thrown herself into formulating new patient criteria and assessing staffing and facility needs to accommodate a broad range of patients for ambulatory surgeries and 23-hour stays.

"The 23-hour rule expands the number of surgeries we can perform here, but it also creates challenges because we need to be able to monitor and respond to patients overnight, who have some slightly more complex issues," says Inglis-Arkell. For example, initially sleep apnea patients were not appropriate, but after Inglis-Arkell ensured appropriate equipment availability and respiratory therapy staffing, she was able to expand the criteria to include sleep apnea patients.

Nevertheless, she says, because patient selection remains an ongoing challenge, it's important to carefully track morbidity, mortality and adverse events so she can consistently refine patient selection criteria and make improvements to patient care.

Another focus for Inglis-Arkell has been maintaining a smooth flow from preoperative care through post-acute care units. "It's important for us to function efficiently if we're to make sure each of our patients has a safe, high quality experience," she says.

A Supportive Environment

Though not without bumps, Inglis-Arkell says the transition process has been relatively smooth and the facility has increased its volumes while also seeing increases in surveyed patients' satisfaction scores. Achieving those aims has demanded not just research on similar centers around the country but, especially, close collaboration among current faculty and staff.

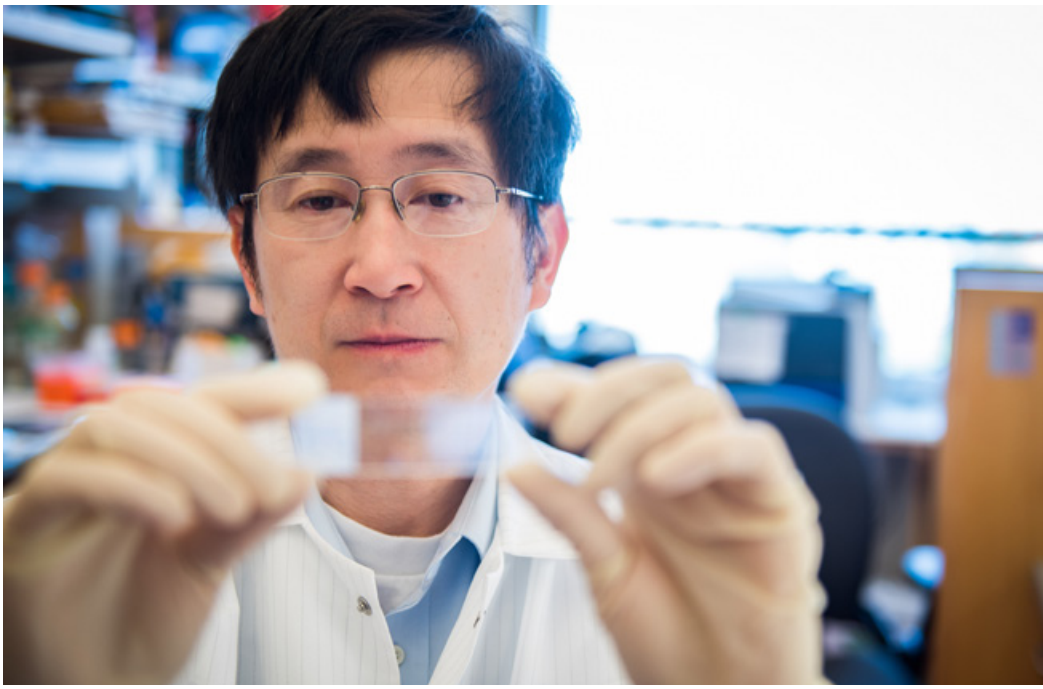
"One of the reasons Mount Zion works very well is that it's a really great, collaborative environment with a small hospital feel," she says. "There's outstanding communication and teamwork among the nurses, surgeons and anesthesiologists, which enables us to accomplish a lot." ■

"One of the reasons Mount Zion works very well is that it's a really great, collaborative environment with a small hospital feel." – Christina Inglis-Arkell, MD

Research

How Peripheral Nerve Injury Generates Chronic Neuropathic Pain

Anesthesiologist and pain specialist Zhonghui Guan, MD, recently published a paper in *Nature Neuroscience* that opened a new window of understanding on how peripheral nerve injuries lead to chronic neuropathic pain. Guan, who studies the mechanisms of pain in the lab of Allan Basbaum, PhD, has filed a patent based on the findings.



"Today, our attempts to treat neuropathic pain often fail because we've known so little about the cellular and molecular mechanisms that cause it. That's why I believe this discovery has significant clinical relevance." – Zhonghui Guan, MD

What and How the Discovery Was Made

Specifically, Guan's studies found that after peripheral nerve injury, the injured sensory neurons in dorsal root ganglion (DRG) express a chemokine called colony-stimulating factor 1 (CSF1) and send it to the spinal cord to activate microglia through the CSF1 receptor (CSF1R), which is expressed only in microglia in the spinal cord. Microglia, the tissue macrophages in the central nervous system (CNS), are the only immune cells in CNS and are implicated in nearly all neurological diseases.

Prior to Guan's work, we knew that injured neurons activate microglia, but we didn't know how. Guan's team set about answering this question by severing a peripheral sensory nerve in mice, testing whether the injury generated chronic neuropathic pain and using RNA sequencing to discover the increased expression of CSF1 in DRG and CSF1R in the spinal cord.

The researchers then removed the CSF1 gene from the DRG and found that this stopped the activation of microglia and eliminated the chronic pain. Conversely, injecting CSF1 intrathecally into the mice – without injuring the peripheral nerves – resulted in both microglial activation and chronic pain.

"Our work clearly shows that neuro-inflammation in the spinal cord occurs when there is neuropathic pain, and that this neuro-inflammation is the direct consequence of an injury to the peripheral nerve, even though the injury site is anatomically far away from the spinal cord," says Guan.

Accelerating the Race for Better Treatments

Since the Institute of Medicine issued a report in 2011 that found some 116 million Americans live with untreated chronic pain, clinicians have sought ways to ease their patients' suffering. To date, however, progress has been disappointing.

"Chronic neuropathic pain treatments are still very poor," says Guan. "The medications we use are only about 30 percent effective in 30 percent of patients."

He says in cases of neuro-inflammation, typically the most effective option is to flood the area with steroids, such as epidural steroid injection, but it's not clear why these treatments succeed and they have to be used with real caution.

Guan believes his findings might offer a much better option, because, "If we can find the right medication, we have the tools now to deliver it right to the target. And we not only discovered CSF1's role, but also found that it was activated on day one, so perhaps rather than wait three months [as is typically done now], we can address the pain when it is acute and head off the chronic phase."

Thus, one key next step for Guan is to develop a version of an already existing antibody that physicians can deliver epidurally or intrathecally near the spinal cord.

"Another potential approach is to block the induction of CSF1 if we can identify the signal. In that case, maybe one treatment can solve the problem," says Guan.

While the current focus of this research is on peripheral nerve injuries that lead to chronic neuropathic pain, the involvement of microglia and the discovery of CSF1's role imply that, ultimately, the findings could lead to treatments for many other neuropathic pain conditions.

"We are very excited to move ahead to the next phase of this work," says Guan. ■

Staff Profile

Nothing Less Than Success: The Essential Role of Judith Chan

"For any large project or enterprise activity to be successful, somebody needs to take ownership, someone committed to success who will stay until the work is done," says anesthesiologist David Robinowitz, MD, of Judith Chan, clinical manager for the UCSF Department of Anesthesia and Perioperative Care. "Judy has that role as regards scheduling and compensation for our department."

After originally joining the department as a temporary employee, Chan assumed a full-time position in April 2005, eventually transitioning into her current role where she works closely with the scheduling team, human resources, E1s, service chiefs, the IT group and department leadership.

As the department transitions to a new software system for scheduling and compensation, her role has only increased in importance.

Managing Puzzle-Like Scheduling Demands

"Scheduling is a giant puzzle that affects peoples' lives every day," says Chan. "I like the ongoing challenge of trying to accommodate people's needs while still keeping our calendar full… there's always something new to learn."

She says working with clinical leadership, a chair and a compensation committee she likes and respects eases the challenges of coping with faculty departures, leaves, vacations, diverse locations, increased workloads – and the fact that few days are the same.

On Mondays, for example, "Things often happen over the weekend that result in staffing variances, so we have to start talking to team members and E1s to figure out what work needs to be accomplished," says Chan. "We then need to call faculty and CRNAs to start filling empty slots, but they are really supportive of each other and committed to helping out when there is a need."

"Judy is the last line of defense – she's the one who makes sure there's an appropriate person for every assignment every day," says Robinowitz.

Getting People Paid Properly

On the payment side, Chan ensures quarterly pay and per diem payments are accurate while processing administrative payments such as housing allowances and special research study payments.

"The hardest part is making sure that the clinical data is reflected accurately," she says.

"Judy has to look at and validate the data, which isn't easy since information that comes out of APeX (UCSF's electronic medical record) can have documentation mistakes and there can be different rates during different periods of the day," says Robinowitz. "We do tens of thousands of cases a year and yet she makes sure everyone gets the pay due them."

Implementing a New System

Even as she wrestles with her complex everyday challenges, Chan must now be among those leading the implementation of a new scheduling platform – a transition from a largely homegrown system to a more standardized system from a third party vendor.

"It's important that we take advantage of technology advances, but it won't be easy," says Robinowitz.

"There are so many new rules," says Chan. "Not only is this a new system, but numerous changes happen every quarter on the basis of compensation committee changes that Judy and Adam [Jacobson, director of IT] have to operationalize," says Robinowitz. "They have to take these concepts and figure out how to make them happen in the hard and fast rules of a computer system."

"We need to get staff fully trained and up to speed by the end of December," says Chan.

Robinowitz is confident that she will be a crucial cog in ensuring it all gets done and done well. "She is very results-oriented and takes ownership of making sure things work and doesn't accept anything less than success," he says. ■

Arthur E. Guedel Memorial Anesthesia Center

Finding Insight and Inspiration in Anesthesia History

When the UCSF library held its monthly history lecture in December 2015, those who attended likely got more than they bargained for. The lecture – The Transformation of Anesthesia, 1900-1960 – was a combination of riveting storytelling, revelations about the treasure trove of anesthesia history now housed at UCSF and a powerful argument for history's relevance.

Discovery Stories

Faculty emeritus John Severinghaus, MD, and faculty member Merlin Larson, MD, were the evening's storytellers.

Severinghaus told of the remarkably productive correspondence in the 1930s and 1940s between UCSF pharma-cologist Chauncey Leake, PhD – who spent much of his career investigating anesthetic agents – and anesthesiologist Arthur Guedel, MD, who is credited with perfecting the endotracheal tube among other anesthesia-related discoveries.

Their collaboration was the inspiration for what is now the Arthur E. Guedel Memorial Anesthesia Center, which after many years at California Pacific Medical Center was recently moved to the Kalmanovitz Library on UCSF's Parnassus campus. The Center, says Larson, houses an extensive collection of historical materials on anesthesia – and, likely, the most extensive documentation of West Coast contributions.

Larson's talk centered on an adventurer named Richard Gill, who in the 1930s wound up working for a rubber company in Lima, Peru. After buying land on the eastern slope of the Andes, Gill and his wife immersed themselves in what Larson calls "the jungle pharmacy…where he learned how to make curare in the hope – at first – that it would help alleviate his own painful muscle spasms, which he developed after falling from his horse."

The treatment for muscle spasms never worked out, but Gill came to believe that curare might be used as an effective muscle relaxant for a variety of ailments. He spent years earning the trust of local Indians, which eventually enabled him to return to the U.S. with 25 pounds of curare paste. After his return in 1938, he found no takers, except a psychiatrist, who thought he might be able use the curare to prevent bone fractures, which often followed convulsive therapy for schizophrenia.

Eventually, however, word of curare's properties reached Stuart Cullen, MD, before he arrived at UCSF as the first chair for the Department of Anesthesia. Cullen quickly understood that drugs like curare might be an effective way to provide muscle relaxation during abdominal surgery.

"Curare was originally used as a very crude preparation called Intocostrin, but chemists learned rapidly to purify the drug and study its structural formula. Eventually this arrow poison of the Jivaro Indians evolved into the modern muscle relaxants that we use today. The development of paralyzing agents (muscle relaxants) used in anesthesia provides us

Eventually this arrow poison of the Jivaro Indians evolved into the modern muscle relaxants that we use today.

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with a microscopic view of how advances happen in clinical science," says Larson. "Each step along the way, someone had an ill-conceived idea and the next person improved on it until we got it right. That's important, because at any research institution, we have to do original research and so [at the very least] history helps us avoid repetition and mistakes."

That belief drives Larson's dedication to preserving his profession's history, especially through the Guedel Center, which among other things has a large collection of Leake's papers and books (including his correspondence with Guedel), a copy of Humphrey Davy's 1800 book which describes the analgesic properties of nitrous oxide, multiple photographs and films and Guedel's original tracheal tubes and cuffs.

Exploring New Ways to Remind People of History's Relevance

"It was Leake's idea [upon Guedel's death in 1956] to create a museum, one that highlights ideas and inventions that really advanced anesthesia," says Larson, who finds their correspondence particularly moving, because it reveals such things as how a physician's emotional pain over losing patients can drive discovery – and how physicians' expertise and experience does, indeed save lives.

"The material also demonstrates the essential contributions of other West Coast anesthesiologists, including Severinghaus, [Edmund] Eger and [Sol] Shnider who all grew out of this department; modern anesthesia really started here," says Larson.

Yet he's also aware that history can be a hard sell to this generation of physicians who often emerge from training deeply in debt and desperate to find a job. History can be the last thing on their minds, but Larson believes this only makes it more important.

"They have a 30-year career ahead of them and knowing at least a little bit [of history] enhances their professional life," says Larson. These materials, he insists, articulate important issues that still challenge anesthesiologists today, whether it's how to integrate into a hospital system or how to cope with those times when physicians cannot save or help their patients.

With that in mind, the Guedel Center is intent on finding new ways for the next generation of physicians to access the materials – perhaps a virtual library, digital displays or other uses of modern technology.

"As a practitioner, you might find someone in history you admired and decide you want to live that type of life," says Larson. "History has that ability, to not just inform but inspire." ■

"Each step along the way, someone had an ill-conceived idea and the next person improved on it until we got it right."

– Merlin Larson

Merlin Larson and Selma Calmes signing the agreement to transfer the Arthur E. Guedel Anesthesia Collection to the UCSF Archives & Special Collections, March 2015.

Ronald D. Miller Distinguished Professorship

Preserving a Historic Legacy

Late in 2015, the UCSF Department of Anesthesia and Perioperative Care successfully completed fundraising to establish the $2.5 million Ronald D. Miller Distinguished Professorship of Anesthesia and Perioperative Care. In the piece below, Dr. Miller responds to the generosity of his colleagues and alumni – and speaks about his hopes for this position.

I was pleased and honored that so many people were so generous – and extremely gratified that we will be able to use this Professorship to perpetuate an important component of our department's legacy. That's what's important here. This professorship is not so much about me as it is about ensuring that the components and approaches that made this department great, even historic, can live on and inspire the next generation of anesthesia leaders.

In particular, I hope the professorship can help us maintain two simple attributes. The first is the opportunity to be surrounded by very smart people. It's fun and productive to be around people who inspire you and that's the main reason I've stayed at UCSF for such a long time. My chances of being around smart people, including those from other departments, were greater here than any place I've ever been.

The second attribute – and this is what I think the professorship can play a crucial role in sustaining – is the opportunity to perform groundbreaking clinical research. One might easily focus on basic science research as UCSF's calling card – think of our Nobel Prize winners – but in my mind, clinical research is equally important. It is a major reason this department has flourished since its inception.

The challenge, I believe, is that clinical research has become increasingly difficult to perform and fund. This challenge steadily progressed during the 25 years I was chairman and has continued since then. There are several factors, most notably increased regulatory oversight and reduced funding. Yet surrendering to those obstacles cannot be an option. My hope, in my advancing years, is that this professorship will fund a leading clinical investigator to guide and even lead our department in stimulating and training residents who want to pursue clinical research as a career goal.

When I arrived at UCSF as a first-year resident in 1965, I knew nothing about research. Then, for the first time, I saw anesthesia personnel performing studies in the operating room. After attending some faculty presentations regarding clinical research, I began to realize there was a world out there I wanted to join. And even though I was just an average student in medical school, I was able to perform clinical research for a year under careful faculty guidance from our department, the Cardiovascular Research Institute, and the Department of Pharmacology. The research was published and even won first prize in the 1968 ASA Resident's Essay Contest. That training also provided me with the proficiency to successfully perform clinical research with massive blood transfusions in Vietnam. The results of my research in Da Nang during the Vietnam conflict were a major reason I was subsequently elected into the Institute of Medicine. Without the training in clinical research I received at UCSF, my research would not have occurred.

The Value of Hands-On Clinical Research

My approach to research is different from today's basic research or computer-based clinical research. Both of those are important and can improve clinical care. Yet neither replaces the valuable information gleaned from original data collected from patients undergoing clinical anesthesia care in the perioperative period. Furthermore, the respect, cooperation and working relationships that evolve from hands-on

"I hope the professorship can help us maintain two simple attributes. The first is the opportunity to be surrounded by very smart people.... The second is the opportunity to perform groundbreaking clinical research."

– Ronald D. Miller

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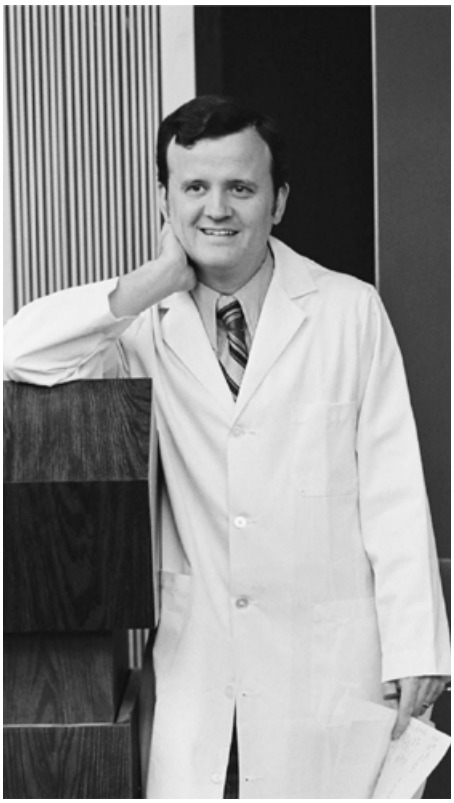


"I hope the professorship will foster the type of excitement and collaboration that make this work so rewarding and such a tremendous inspiration for excellence in anesthesia care."
– Ronald D. Miller

clinical research are very valuable in many ways.

One example: In one of my early studies, I was trying to determine the extent to which neuromuscular blocking drugs (i.e., muscle relaxants) were dependent on renal exertion for their elimination. I needed the cooperation of kidney transplant surgeons as we developed a protocol and an assay that could measure these drugs in plasma and urine. I also needed help from pharmacologists to create the assays. In addition, William K. Hamilton, the chair of our department at the time, sent me to London to attend a muscle relaxant meeting – my first time east of New York. That led to a sabbatical in Holland where pilot studies were performed with a new drug called vecuronium. We published a few papers and I started presenting at the UCSF School of Pharmacy where people told me the compounds we were using had metabolites and that they could develop an assay to detect these pharmacologically active metabolites. This even resulted in a *New England Journal of Medicine* publication.

Equally important, these studies facilitated cooperation among surgeons, operating room, and intensive care physicians. We all could see that changing the muscle relaxant regimen was better for patient care and our colleagues encouraged us to do more. Often, when we did those types of studies, they would have outcomes we didn't anticipate, leading to two or three additional questions. But in all of these cases, the studies depended in part on physicians' clinical judgment and observation to generate important, relevant inquiries.

The result was not only that we improved patient care, but also that many people from different disciplines worked together to complete those studies, which created an inter-departmental atmosphere of intellectual cooperation that was rewarding to everyone involved.

Unfortunately, as noted above this type of innovative clinical research is increasingly difficult to perform and fund – despite being vitally important. Thus, I hope this distinguished professorship will facilitate the survival and growth of meaningful, prospective clinical research. Companion to that, I hope the professorship will foster the type of excitement and collaboration that make this work so rewarding and such a tremendous inspiration for excellence in anesthesia care.■

Honors, Awards & Appointments

Faculty

Pedro Gambus, MD, PhD
EXTRAMURAL APPOINTMENT
Member, Association of University Anesthesiologists, 2015

Michael Gropper, MD, PhD
EXTRAMURAL APPOINTMENTS
President, Western Association of Anesthesia Chairs
VISITING PROFESSORSHIPS
Department of Anesthesia and Perioperative Medicine, Rutgers University, 2015
Department of Anesthesia, University of Colorado, Denver, 2015
Department of Anesthesia, Duke University School of Medicine, 2015
EXTRAMURAL HONORS
FAER-Helrich Research Lecture Keynote Speaker, Anesthesiology and Critical Care Medicine Symposium of West China, Chengdu, China
Hermann B. Stein Lectureship, University of Colorado

Tomoki Hashimoto, MD
EXTRAMURAL APPOINTMENT
Association of University Anesthesiologists Scientific Advisory Board, 2016

Irfan Kathiriya, MD, PhD
EXTRAMURAL AWARD
Society for Pediatric Anesthesia Inaugural Young Investigator Research Grant
"Mechanisms for Ventricular Septation"
Mentor: Benoit Bruneau, PhD

Michael Lipnick, MD
CAMPUS AWARD
UCSF Academic Senate, 2016
Development and Support of a Global Health Faculty Program

Jennifer Lucero, MD
CAMPUS APPOINTMENT
Director, Undergraduate Research Internship (URI) – Anesthesia, 2016

Ronald D. Miller, MD
CAMPUS HONOR
Ronald D. Miller Distinguished Professorship of Anesthesia and Perioperative Care, established 2015

Arun Prakash, MD, PhD
EXTRAMURAL APPOINTMENT
Associate Member, Association of University Anesthesiologists, 2015

Oliver Radke, MD, PhD
EXTRAMURAL APPOINTMENTS
Local Residency Director, Medical Board of Bremen, Germany, 2016
Member, Scientific Sub-Committee "Outpatient Anesthesia," German Society of Anesthesia and Intensive Care Medicine, 2016

Mark Rollins, MD, PhD
EXTRAMURAL APPOINTMENT
Member, Association of University Anesthesiologists, 2015

Jeffrey Sall, MD, PhD
EXTRAMURAL HONOR
Faculty Mentor: UCSF Medical Student Anesthesia Interest Group
American Society of Anesthesiologists
Best Anesthesia Interest Group in the US, 2015

Charlene Swift, MD, PhD
CAMPUS APPOINTMENT
UCSF School of Medicine
John A. Watson Scholar, 2015

Kevin Thornton, MD
EXTRAMURAL APPOINTMENT
Member, Association of University Anesthesiologists, 2015

Staff

Melissa Patrick, MBA
EXTRAMURAL HONOR
Poster Presentation, "The Impact of Implementing an Additional Verbal and Written Feedback System for Anesthesia Residents," accepted for California's Macy Regional Conference on Innovations in GME, 2016

Department

UCSF Department of Anesthesia and Perioperative Care Medical Student Anesthesia Interest Group
EXTRAMURAL HONOR
American Society of Anesthesiologists
Best Anesthesia Interest Group in the US, 2015

New Faculty

Odinakachukwu Ehie, MD
Health Sciences
Assistant Clinical Professor
Joined Faculty February 2016

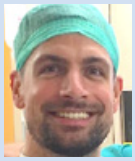
MEDICAL SCHOOL
University of Wisconsin
School of Medicine and Public Health
INTERNSHIP
Internal Medicine,
SUNY Downstate Medical Center
RESIDENCY
Anesthesiology,
New York University Langone Medical Center
FELLOWSHIPS
Pediatric Anesthesia
Stanford University /
Lucile Packard Children's Hospital
PREVIOUS EMPLOYMENT
Clinical Instructor, Stanford University / Lucile Packard Children's Hospital

Mark Singleton, MD
Health Sciences Clinical Professor
Joined Faculty October 2015

MEDICAL SCHOOL
UCSF
INTERNSHIP
Surgery, University Hospital, Ann Arbor, Michigan
RESIDENCY
Anesthesiology, UCSF
FELLOWSHIPS
Clinical Anesthesiology,
Children's Hospital of Philadelphia
Pediatric Anesthesiology Research, UCSF
PREVIOUS EMPLOYMENT
Clinical Professor of Anesthesiology,
Stanford University School of Medicine

Visiting Faculty

Dieter Adelmann, MD, PhD
Visiting Clinical Instructor



Joined Faculty October 2015
ADVANCED DEGREE
PhD, Clinical Neurosciences
Medical University of Vienna, Austria
MEDICAL SCHOOL
Medical University of Vienna, Austria
INTERNSHIP
Internal Medicine, HELIOS Hospital Berlin-Buch, Berlin, Germany
RESIDENCY
Anesthesiology and Intensive Care,
Medical University of Vienna, Austria
PREVIOUS EMPLOYMENT
Attending, Medical University of Vienna, Austria

Peer Reviewed Publications

Abla AA, **Nelson J**, **Kim H**, Hess CP, Tihan T, Lawton MT. Silent arteriovenous malformation hemorrhage and the recognition of "unruptured" arteriovenous malformation patients who benefit from surgical intervention. *Neurosurgery.* 2015 May;76(5):592-600; discussion 600.

Abla AA, Rutledge WC, Seymour ZA, **Guo D**, **Kim H**, Gupta N, Sneed PK, Barani IJ, Larson D, McDermott MW, Lawton MT. A treatment paradigm for high-grade brain arteriovenous malformations: volume-staged radiosurgical downgrading followed by microsurgical resection. *J Neurosurg.* 2015 Feb;122(2):419-32.

Abou-Arab MH, **Feiner JR**, Spigset O, Heier T. Alfentanil during rapid sequence induction with thiopental 4 mg/kg and rocuronium 0.6 mg/kg: tracheal intubation conditions. *Acta Anaesthesiol Scand.* 2015 Nov;59(10):1278-86.

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American Geriatrics Society Expert Panel on Postoperative Delirium in Older Adults. (Inouye SK, Robinson T, Blaum C, Busby-Whitehead J, Boustani M, Chalian A, Deiner S, Fick D, Hutchison L, Johanning J, Katlic M, Kempton J, Kennedy M, Kimchi E, Ko C, **Leung J**, Mattison M, Mohanty S, Nana A, Needham D, Neufeld K, Richter H.) Postoperative delirium in older adults: best practice statement from the American Geriatrics Society. *J Am Coll Surg.* 2015 Feb;220(2):136-48.e1.

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Anderson WG, Cimino JW, Ernecoff NC, Ungar A, Shotsberger KJ, Pollice LA, Buddadhumaruk P, Carson SS, Curtis JR, Hough CL, Lo B, **Matthay MA**, Peterson MW, Steingrub JS, White DB. A multicenter study of key stakeholders' perspectives on communicating with surrogates about prognosis in intensive care units. *Ann Am Thorac Soc.* 2015 Feb;12(2):142-52.

Bailly S, **Pirracchio R**, Timsit JF. What's new in the quantification of causal effects from longitudinal cohort studies: a brief introduction to marginal structural models for intensivists. *Intensive Care Med.* 2015 Jun 24.

Barrett JS, Hirankarn S, Holford N, Hammer GB, Drover DR, Cohane CA, Anderson B, Dombrowski E, Reece T, Zajicek A, **Schulman SR**. A hemodynamic model to guide blood pressure control during deliberate hypotension with sodium nitroprusside in children. *Front Pharmacol.* 2015 Jul 28;6:151.

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Chau A, **Markley JC**, Juang J, Tsen LC. Cytokines in the perinatal period – Part II. *Int J Obstet Anesth.* 2016 Jan 5.

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Fan Y, Dong J, **Lou J**, Wen W, Conrad F, Geren IN, Garcia-Rodriguez C, Smith TJ, Smith LA, Ho M, Pires-Alves M, Wilson BA, **Marks JD**. Monoclonal Antibodies that Inhibit the Proteolytic Activity of Botulinum Neurotoxin Serotype/B. *Toxins (Basel).* 2015 Aug 26;7(9):3405-3423.

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Flexman AM, **Meng L**, **Gelb AW**. Outcomes in neuroanesthesia: What matters most? *Can J Anaesth.* 2015 Oct 23.

Foster MC, Coresh J, Bonventre JV, Sabbisetti VS, Waikar SS, Mifflin TE, Nelson RG, Grams M, Feldman HI, Vasan RS, Kimmel PL, Hsu CY, **Liu KD**; CKD Biomarkers Consortium. Urinary Biomarkers and Risk of ESRD in the Atherosclerosis Risk in Communities Study. *Clin J Am Soc Nephrol.* 2015 Nov 6;10(11):1956-63.

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Peer Reviewed Publications *continued*

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Active Research Grants

Jon Matt Aldrich

Principal Investigator
UC San Diego/UCOP,
1/1/2014–12/31/2016
Advanced Resuscitation Training (ART)
$113,599

Pedram Aleshi

Principal Investigator
Anesthesia Dept,
10/1/2014–9/30/2016
Anesthesia Department Clinical Research Award
$16,000

Benedict Alter

Principal Investigator
Foundation for Anesthesia Education & Research,
7/1/2016-6/30/2017
Mechanisms and translational application of conditioned analgesia in post-operative pain
$75,000

Roland Bainton

Principal Investigator
Anesthesia Dept,
7/1/2015–6/30/2016
Anesthesia Department Research Award
$80,000

Principal Investigator
NIH/NINDS,
2/1/2013–1/31/2017
Discovering fundamental metabolic control processes of the blood brain barrier
$430,002

Matthias Behrends

Principal Investigator
Anesthesia Dept,
10/1/2014–9/30/2016
Anesthesia Department Clinical Research Award
$16,000

Philip Bickler
John Feiner

Principal Investigator
Various Industry Sponsors,
9/1/1986–12/31/2016
Accuracy of pulse oximeters with profound hypoxia
$400,000

Marek Brzezinski

Principal Investigator
Anesthesia Dept,
7/1/2014–6/30/2016
Anesthesia Department Research Award
$70,800

Lee-lynn Chen

Principal Investigator
UCSF Center for Healthcare Value, 7/1/2015–6/30/2016
Perioperative Surgical Homes
$50,000

Helene Choquet

Principal Investigator
American Heart Association,
7/1/2014–9/30/2016
Contribution of Cardio-vascular Risk Factors and Inflammation to Familial CCM1 Disease Severity
$94,000

Richard Fidler

Principal Investigator
UCSF Catalyst Program,
7/1/2015–7/1/2016
SuperAlarm
$40,000

Michael Gropper

Principal Investigator
Gordon and Betty Moore Foundation,
10/1/2014–6/30/2016
Implementation Grant for EMERGE at University of California, San Francisco
$4,000,000

Principal Investigator
FAER, 1/1/2016–12/31/2016
2016 Medical Student Anesthesia Research Fellowship Program
$6,200

Zhonghui Guan

Principal Investigator
NIH/NINDS,
9/30/2012–8/31/2017
Epigenetic regulation in neuropathic pain
$947,160

Monica Harbell

Principal Investigator
Anesthesia Dept,
10/1/2014–9/30/2016
Anesthesia Department Clinical Research Award
$16,000

Principal Investigator
Mt Zion Health Fund,
4/1/2015–3/31/2017
Enhanced Recovery Program for Total Mastectomy Patients
$29,420

Tomoki Hashimoto

Principal Investigator
NIH/NINDS,
3/15/2011–2/28/2017
Intracranial aneurysm pathogenesis-roles of vascular remodeling and inflammation
$1,674,637

Principal Investigator
NIH/NINDS,
9/1/2013–5/31/2018
The Role of Mast Cells in the Pathophysiology of Intracranial Aneurysm
$1,726,306

Judith Hellman

Program Director
NIH/NIGMS,
7/1/2012–6/30/2017
Comprehensive Anesthesia Research Training
$1,034,946

Principal Investigator
San Francisco Foundation,
1/1/2016–12/31/2016
San Francisco Foundation Award
$125,000

Principal Investigator
International Anesthesia Research Society,
7/1/2015–6/30/2018
Endothelial Inflammatory Pathways in Septic Vasculopathy and Organ Injury
$750,000

Principal Investigator
Massachusetts General Hospital/DARPA,
11/1/2015–10/31/2017
Species Inspired Research for Innovative Treatments (SPIRIT)
$276,000

Jan Hirsch
Richard Fidler

Principal Investigator
VA Office of Academic Affairs,
7/1/2013–6/30/2016
VA Advanced Fellowship Program in Simulation
$700,000

Irfan Kathiriya

Principal Investigator
Anesthesia Dept,
7/1/2015–6/30/2016
Anesthesia Department Research Award
$80,000

Principal Investigator
FAER, 7/1/2013–6/30/2016
Gene regulation during cardiac differentiation
$175,000

Principal Investigator
Society for Pediatric Anesthesia,
1/1/2016–12/31/2016
Mechanisms for Ventricular Septation
$25,000

Helen Kim

Principal Investigator
NIH/NINDS,
7/1/2013–6/30/2018
Predictors of spontaneous cerebral AVM hemorrhage
$2,335,649

Co-Leader, Center Grant Project 1
NIH/NINDS,
9/30/2014–7/31/2019
Modifiers of disease severity and progression in cerebral cavernous malformation
$563,366

Kerstin Kolodzie

Principal Investigator
Anesthesia Dept,
10/1/2014–9/30/2016
Anesthesia Department Clinical Research Award
$6,000

Jens Krombach

Principal Investigator
Anesthesia Dept,
10/1/2014–9/30/2016
Anesthesia Department Clinical Research Award
$16,000

Philip Kurien

Principal Investigator
Anesthesia Dept,
7/1/2015–6/30/2016
Anesthesia Department Research Award
$40,000

Principal Investigator
FAER, 1/1/2016–12/31/2017
Accelerated Recovery of Circadian Rhythm and Monocyte Function
$175,000

Michael Lawton

Principal Investigator
NIH/NINDS,
9/30/2014–7/31/2019
Brain Vascular Malformation Consortium: Predictors of Clinical Course
$6,179,248

Jae-Woo Lee

Principal Investigator
NIH/NHLBI,
5/1/2012–4/30/2017
Human mesenchymal stem cell microvesicles for the treatment of acute lung injury
$1,899,191

Jae-Woo Lee

Co-Principle Investigator
Nina Ireland Program for Lung Health,
1/1/2015–12/31/2016
Integrin Alpha-v Beta-5 Drive Pulmonary Vascular Leak from Ischemia-Reperfusion in Lung Transplantation
$24,083

continued on next page

Active Research Grants *continued*

Susan M. Lee

Principal Investigator
Anesthesia Dept,
7/1/2014–6/30/2016
Anesthesia Department Research Award
$18,569

Jacqueline Leung

Principal Investigator
NIH/NIA, 6/1/2015–5/31/2017
The Effects of Light vs Deep Anesthesia on Postoperative Cognitive Outcomes
$444,033

Bin Liu

Principal Investigator
NIH/NCI, 8/6/2012–7/31/2017
Internalizing human antibody-targeted nanosized siRNA therapeutics
$1,607,090

Principal Investigator
Multiple Myeloma Research Foundation,
10/1/2015–9/30/2017
Translational Development of a Novel Antibody-Drug Conjugates Against Myeloma
$200,000

Martin London

Principal Investigator
Anesthesia Dept,
7/1/2015–6/30/2016
Anesthesia Department Research Award
$5,500

Jennifer Lucero

Principal Investigator
Anesthesia Dept,
7/1/2014–6/30/2016
Anesthesia Department Research Award
$20,520

Principal Investigator
UCSF Academic Senate,
8/1/2015–1/31/2017
Intravenous Nitroglycerin for Prevention of Hysterotomy Extension During Cesarean Delivery in the Second Stage of Labor
$29,321

James Marks

Principal Investigator
NIH/NIAID,
2/1/2013–1/31/2018
Generation of therapeutic antibodies for serotype F botulism
$5,448,316

Principal Investigator
CA Dept of Public Health,
10/15/2012–10/14/2016
Identification of monoclonal antibody combinations that neutralize variant botulinum neurotoxins
$0

Principal Investigator
NIH/NCI,
9/24/2014–8/31/2019
Antibody Technology Research Center
$5,779,613

Principal Investigator
NIH/NIAID,
6/20/2014–5/31/2017
Trispecific Monoclonal Antibody for Botulinum Neurotoxin Intoxication Therapy
$1,336,571

Principal Investigator
DNA 2.0 Inc,
2/5/2013–2/5/2018
Improve the CHO Expression of a scFv Fragment that is moving towards the clinic optimizing the DNA sequence of the scFv and/or leader sequence
$0

Mervyn Maze

Principal Investigator
NIH/NIGMS,
9/1/2013–8/31/2017
Inflammation resolving mechanism dysregulation in postoperative cognitive decline
$1,212,399

Claus Niemann

Principal Investigator
Oregon Health & Science University/Laura and John Arnold Foundation,
1/1/2016–1/1/2019
Organ Donor Management Research Institute
$2,782,000

Jonathan Pan

Principal Investigator
FAER, 7/1/2014–6/30/2016
Dexmedetomidine Renders Neuroprotection via Modulation of Systemic and Local Immune Responses Following Rodent Spinal Cord Injury
$175,000

Ludmila Pawlikowska

Co-Leader, Center Grant Core
NIH/NINDS,
9/30/2014–7/31/2019
Genetic and Statistical Analysis Core (GSAC)
$417,458

Romain Pirracchio

Principal Investigator
UC Berkeley/PCORI,
1/26/2015–3/31/2017
Semiparametric Causal Inference Methods for Adaptive Statistical Learning in Trauma Patient-Centered Outcomes Research
$141,170

Arun Prakash Budde

Principal Investigator
Anesthesia Dept,
7/1/2015–6/30/2016
Anesthesia Department Research Award
$25,000

Principal Investigator
NIH/NIGMS,
2/1/2015–1/31/2019
Role of Innate Immune Cells and Pathways in Ventilated Lung Ischemia Reperfusion
$790,560

James Ramsay

Principal Investigator
Tenax Therapeutics, Inc.,
5/15/2015–4/30/2020
A Double-Blind, Randomized, Placebo-Controlled Study of Levosimendan in Patients with Left Ventricular Systolic Dysfunction Undergoing Cardiac Surgery Requiring Cardiopulmonary Bypass
$206,097.08

Jeffrey Sall

Principal Investigator
SmartTots,
8/1/2013–6/30/2016
Recognition memory following early childhood anesthesia
$200,000

Principal Investigator
NIH/NIGMS,
3/1/2015–2/29/2020
Testosterone's role in sex-specific outcomes after early anesthesia
$1,524,496

Mark Schumacher

Principal Investigator
Anesthesia Dept,
7/1/2015–6/30/2016
Anesthesia Department Research Award
$80,000

Project Director
NIH/NIDA,
7/15/2015–7/14/2016
NIH Pain Consortium Centers of Excellence in Pain Education
$77,867

David Shimabukuro Michael Gropper

Principal Investigator
Vanderbilt University/NIH,
8/15/2012–6/30/2017
The MENDS II Study
$200,304.45

Una Srejic

Principal Investigator
Anesthesia Dept,
7/1/2015–6/30/2016
Anesthesia Department Clinical Research Award
$20,000

Hua Su

Principal Investigator
NIH/NINDS,
1/1/2014–12/31/2018
Hemodynamics of Cerebral Arteriovenous Malformations
$1,633,785.65

Principal Investigator
NIH/NINDS,
4/15/2014–3/31/2017
Soluble VEGF Receptor Therapy for Brain Arteriovenous Malformation
$790,313

Principal Investigator
NIH/NHLBI,
1/16/2015–12/31/2018
Cell Type-Specific Influences on HHT Pathogenesis
$1,582,037

Principal Investigator
Michael Ryan Zodda Foundation,
1/1/2013–Ongoing
The Community Foundation of Orange & Sullivan
$10,000

Steven Takemoto

Principal Investigator
Anesthesia Dept,
7/1/2014–6/30/16
Anesthesia Department Research Award
$70,576

Pekka Talke

Principal Investigator
Masimo,
8/14/2013–12/31/2016
Noninvasive hemoglobin (SpHb) measured with Pulse CO-Oximetry technology
$42,266

Arthur Wallace

Principal Investigator
NCIRE, 3/1/2012–3/1/2017
Perioperative Outcomes Epidemiologic Consortium
$150,000

Principal Investigator
Sponsor VA National Anesthesia Office,
1/2/2014–1/1/2017
VA_AnesQIP
$100,000

Xiaobing Yu

Principal Investigator
FAER, 7/1/2013–6/30/2016
Treating neuropathic pain with spinal cord transplants of genetically modified human pluripotent stem cell-derived GABAergic inhibitory neurons
$175,000

Principal Investigator
Anesthesia Dept,
7/1/2013–6/30/2016
Anesthesia Department Research Award
$50,000

Wan Zhu

Principal Investigator
Hereditary Hemorrhagic Telangiectasia Foundation,
6/1/2015–9/30/2016
An Innovative Gene Therapy by Selective and Regulative Neutralizing VEGF in HHT Associated Brain Arteriovenous Malformation
$30,000

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Upcoming Events

WARC 2016: April 29–May 1

The 54th Annual Western Anesthesia Residents Conference (WARC) will be hosted by the UCSF Department of Anesthesia and Perioperative Care from April 29 – May 1, 2016, at the Westin St. Francis Hotel in the Union Square area of San Francisco.

This year's conference promises to be both exciting and informative, with 19 anesthesiology programs participating.

As usual, the conference will include both oral and poster presentations authored by participating residents, along with the 5th Annual Eger Lecture and a special closing banquet lecture.

The Eger lecture will be presented by Dr. George Gregory who will discuss his 50 years of anesthesia practice at UCSF and around the world. We are particularly excited about this lecture, as Dr. Gregory has spent much of his groundbreaking career here at UCSF Anesthesia and Perioperative Care, and it will be especially impressive to hear about all of the accomplishments that he has been a part of over the past decades.

The banquet lecture will be presented by Jesse Levinson, PhD, who is the Co-Founder and CTO of Zooks, a venture-backed startup seeking to redefine transportation by creating ground-up, fully autonomous vehicles for point-to-point mobility in cities.

For more information about WARC 2016, we invite you to visit the WARC 2016 website: http://anesthesia.ucsf.edu/warc/.

The 2017 WARC meeting will be hosted by Oregon Health & Science University.

AUA 2016: May 19–20

The 63rd Annual Association of University Anesthesiologists meeting will be hosted by the UCSF Department of Anesthesia and Perioperative Care from May 19–20, 2016.

The host program has adopted the theme of the UCSF campus, which is precision medicine. Although it's tempting to think of precision medicine as a laboratory endeavor, we take a much broader view. At UCSF, we are driven by the idea that when the best research, the best teaching, and the best patient care converge, we can deliver breakthroughs that help heal the world.

Although it's tempting to think of precision medicine as a laboratory endeavor, we take a much broader view.

The host program will highlight our leadership in a number of important areas: basic laboratory discovery, translational research in neurosciences, cutting-edge care of the underserved with HIV/AIDS, and importantly, our strong commitment to building a workforce that represents the incredible diversity of the San Francisco Bay Area and California. The sessions promise to be both enlightening and entertaining.

In addition to this robust program focused on cutting-edge topics, we're excited to hold our May 19 social event at the California Academy of Sciences, "an aquarium, planetarium and natural history museum – all under one living roof."

Finally, San Francisco's unparalleled cultural diversity has underpinned our department's storied history of innovation in anesthesia, critical care, and pain medicine since its inception in 1958. We invite you to explore each of San Francisco's distinct and charming neighborhoods. We are enormously proud of our department, our university, and our city, and look forward to sharing them with you. ■