



Stanford University Reproductive Endocrinology & Infertility Fellowship

Our Mission

To prepare our trainees to be compassionate academic leaders through a balanced education in the full spectrum of reproductive medicine, fertility treatments, research methods, and laboratory techniques in a supportive environment.

Faculty

Lusine Aghajanova, MD, PhD – Clinical Assistant Professor
Ruben Alvero, MD, Professor and Division Director
Barry Behr, PhD, HCLD, Professor
Ruth Lathi, MD, Professor
Amin Milki, MD, Professor
Gayathree Murugappan, MD, Instructor and WRHR Scholar
Steven Nakajima, MD, Clinical Professor
Anna Sokalska, MD, PhD, Clinical Assistant Professor
Bo Yu, MD, PhD – Assistant Professor

Fellows

Brindha Bavan, MD, class of 2022
Brent Monseur, MD, ScM, class of 2023
Edward Nguyen, MD, PhD, class of 2024
Michael Strug, DO, PhD, class of 2024

Reproductive Biology and Stem Cell Program

Vittorio Sebastiano, PhD, Assistant Professor
Roger Pedersen, PhD, Adjunct Professor
Virginia Winn, MD, PhD, Associate Professor

Male Infertility

Michael Eisenberg, MD, Associate Professor
Evan Mulloy, MD, Fellow

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Located within Stanford University and Stanford School of Medicine, the Stanford REI fellowship offers a program with a balanced education in all aspects of reproductive medicine. Fellows will have access to the breadth of interests of an internationally recognized research university with several graduate level programs, including medicine, law, ethics, business and basic science departments. The REI program is an integral part of the Department of Obstetrics and Gynecology, chaired by Leslee Subak, MD. The fellowship program director is Ruth Lathi, MD.

Table 1. Percent Time Spent Each Year

| Year | Clinical REI | Laboratory & Research |
|-------------|---------------------|----------------------------------|
| 1 | 90% | 10% |
| 2 | 10% | 90% |
| 3 | 50% | 50% |

The program consists of 36 months of training, split between clinical experience and protected research time. The first year is spent primarily in the REI clinic, where fellows will gain experience in all aspects of reproductive medicine, including infertility, fertility preservation, PCOS, primary ovarian insufficiency, recurrent pregnancy loss, transgender medicine and reproductive surgery.

Throughout the fellowship, fellows have opportunities to see patients in a continuity clinic for fertility patients within the REI clinic as well as act as consultants to residents in general gynecology clinics dedicated to REI topics.

First-year fellows are given research time to explore research opportunities, identify mentors and funding sources. Primary data collection for fellowship thesis projects occurs in the second year. Fellows have the opportunity to take graduate courses during the second year as well. These courses are tailored to the individual fellows needs, but often include statistics, genetics, scientific writing and communications.

Third year fellows spend their time completing their research and doing clinical selectives. While the primary goal of the third year is to complete and present a publishable thesis project, the majority of fellows complete several additional projects. The third year clinical selectives include opportunities to gain further experience in the REI clinic, IVF laboratory techniques, genetics, pediatric endocrinology, medical endocrinology, transgender medicine, urology, menopause clinic, sexual dysfunction, radiology and REI clinic in order to prepare them to be subspecialty consultants.

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Clinical Experience

All fellows have a broad exposure to patients with a variety of gynecologic, endocrine and infertility problems. While the bulk of first year is in the REI clinic, the third year includes a broad range of clinical selectives. Stanford REI clinic is a high volume clinic with a diverse faculty. Faculty interests include general infertility, recurrent pregnancy loss, primary ovarian insufficiency, PCOS, endometrial health, reproductive surgery and reproductive genetics. During clinical rotations, the fellow is involved in procedures such as intrauterine inseminations, ultrasounds, saline infusion ultrasounds, hysteroscopies, oocyte retrievals and embryo transfers. The REI Division has its own ultrasound equipment, and the faculty, fellows and residents monitor patients undergoing fertility treatments. Having been permitted progressively greater amounts of responsibility, each fellow finishing the program will be fully capable of initiating and performing all appropriate diagnostic and therapeutic procedures in the subspecialty.

During the first and third years, fellows will participate in reproductive surgery including myomectomy, ovarian cystectomy, excision of endometriosis, and resection of mullerian anomalies including uterine and vaginal septums. These surgeries are performed via laparotomy, laparoscopy and with assistance of the Da Vinci Robotic Surgery System. Fellows will be allowed increasing amounts of autonomy in their surgical practice commensurate with their surgical experience. The first year fellow will also receive significant experience performing diagnostic and operative hysteroscopy and uterine dilation and curettage.

During the third year, fellows attend endocrine, menopause, pediatric endocrine and genetics clinics and have hands-on experience in the laboratories of the Reproductive Endocrinology & Infertility Division. The laboratory rotation provides training in preparation of buffers, the identification and classification of oocytes, cell culture, and the preparation of embryos for transfer. Didactic exposure to all in vitro fertilization procedures, cryopreservation, micro-manipulation of embryos, embryo biopsy for pre-implantation genetic testing and other advanced reproductive technologies. In addition, fellows learn the principles of and have some practice in the performance of immunoassays, semen analysis, and some clinically applied immunologic tests.

Graduating fellows will have clinical competence in the diagnosis and management of pituitary and central nervous system abnormalities and of disorders of the ovary, testes, thyroid, and adrenal glands as they influence reproduction. The fellows will be competent to diagnose and manage problems of puberty, menopause, gender dysphoria, and menstrual dysfunction, as well as be able to recognize and interpret gross and microscopic pathology related to reproductive endocrinology. Each will have first hand working knowledge of modern reproductive technology, including in vitro fertilization and embryo transfer techniques. A highlight of our program is the continuity clinic.

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Research:

The three-year program is designed to increase the fellows' experience in basic and clinical research. The Stanford REI fellowship provides a diverse range of clinical and laboratory exposure to enable the fellows to find a thesis project that both meets the criteria for REI board certification and supports the fellows individual interests and goals. Typically, fellows will work with several mentors throughout the 3 years but choose one research mentor to be the thesis mentor. Past fellows have completed basic science projects, clinical trials, or IVF laboratory research. Working with a specific mentor, the fellows will be able to enhance their understanding of the latest scientific techniques and to use the opportunity to make a greater scholarly contribution in reproductive endocrinology. The additional research training should increase their chance to obtain research funding of their own and to identify suitable future academic positions.

All fellows are expected to participate in the conduct and analysis of at least one clinical research study and one quality improvement project. Participation in the gathering of data for these studies is usually done during the clinical rotation. The fellow should begin to develop plans for their thesis during their first year. Additionally, each fellow is expected to write a grant proposal as preparation for an academic career, usually early in his or her fellowship.

Prior to the end of the third year, fellows should be able to present a publishable manuscript to the Division of Reproductive Endocrinology of the American Board of Obstetrics and Gynecology in partial fulfillment of the requirements for a certificate of special accomplishment in the subspecialty. Fellows will assume progressively greater responsibility and all are expected to get involved in ongoing faculty research and conduct independent studies at the completion of their training.

- Ongoing REI Clinical Research:
 - PERFORM
 - TAME (Transfer of abnormal and mosaic embryos)
 - PRP for recurrent implantation failure
 - BIOBANK (for reproductive tissues & embryos)
 - Multi-center, parallel-group, randomized controlled trial of modified natural versus programmed cycles for frozen embryo and their association with preeclampsia and live births (NatPro)
 - Trio Analysis of Recurrent Pregnancy Loss Integrated Bioinformatics Genomics Study (TRIOS)
 - PRIDE study in Gynecology Division (Population Research in Identity and Disparities for Equality) Long-term study of sexual and gender minority health.

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Residency and Fellowships

The residency program at Stanford is an independent, four-year program that admits six PGY1 residents each year. The PGY2 year includes a one month rotation in the REI clinic. Residents interested in further training can do electives in their 3rd or 4th years. Fellows are actively involved in teaching the residents and may be a consultant in the residents clinics.

The department has fellowships in maternal-fetal medicine, urogynecology, family planning, gynecologic oncology, and urology. Dr. Kate Shaw as the associate chair of education in the Department of OB/GYN has organized a Fellows' College for all fellows in the department of OB/GYN. This monthly meeting provides training in a shared curriculum. Topics for the Fellows' College include leadership, research, ethics, scientific writing, quality improvement, advocacy, study design, financial planning, and implicit bias.

Wellness resources

We support the wellness of our trainees and strive to create a flexible and supportive learning environment. Despite this, sometimes trainees need additional support. There are several resources available to fellows and faculty at Stanford including:

- PRN Connect- Peer support <http://wellmd.stanford.edu/get-help/prn-support.html>
- Well-Being Panel: 12 free counseling sessions; call and leave a message 650.346.3241
- Well Connect: 24-hour line/immediate support; Department of Psychiatry 650.724.1395

Conference Attendance

Fellows are expected and encouraged to attend and present at regional, national and international conferences that reflect their research interests. Fellows are encouraged to attend the SREI and ASRM meetings at least twice during their fellowship. Fellows typically also attend PCRS, NICHD and SRI as well.

Educational Activities

Each week the fellows attend OB/GYN Grand Rounds in the Department. The Division has a weekly one-hour Educational Forum where we discuss current research and best practices in reproductive medicine. This forum is organized by the division chief, fellowship coordinator and the faculty. The division also has a weekly case review meeting during which the most complex and challenging cases are presented and discussed by the faculty and fellows. Additionally, biweekly fellow didactics are organized by the REI faculty to address ABOG objectives and textbook chapter reviews to ensure that all fellows are adequately prepared for written boards. Due to strong relationships with medical endocrinology and genetics departments, fellows attend didactic sessions and grand rounds in these departments when relevant topics are presented. Joint case conferences are organized by the departments' leadership 2-4 times per year. Fellows

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are expected to attend 80% of these meetings during all three years and will be excused from clinical work to attend these educational events. Each fellow has the opportunity to give medical student and resident lectures on reproductive medicine topics and are expected to present grand rounds at least once during their training.

Fellows are invited to audit courses through the university and medical school which enhance their research and career interests. Many courses are available such as Biostatistics, Biochemistry, Computer-Assisted Medical Decision-Making, Developmental Biology, Cell Biology, and Genetics. By the end of the fellowship, through a combination of these courses, research seminars, and informal methods of instruction, each trainee will acquire a working knowledge of experimental design, and the analysis of clinical and laboratory data using biostatistical methods.

Fellows may be eligible to get a Masters degree through a tuition grant program through the Maternal and Child Health Research Institute. Additionally, fellows could gain the training and knowledge base to pursue an High Complexity Clinical Laboratory Director (HCLD) certification if their thesis involves ART laboratory research. Three years of fellowship are inadequate for a fellow to obtain a doctorate, but there are Masters level programs available for fellows who are interested. Support for such post-fellowship studies may be possible through programs like the Reproductive Scientist Development Program (RSDP).

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