

The Obstetrics, Gynecology and Reproductive Biology Review

Michigan State University College of Human Medicine

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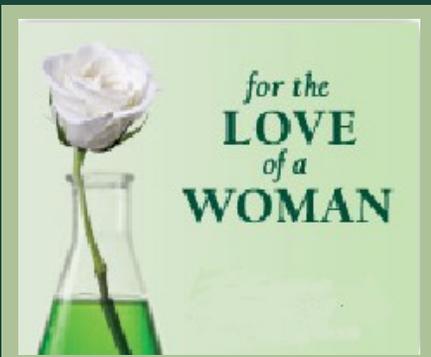


Message from the Chair

Welcome to the first edition of the OB/GYN and Reproductive Biology newsletter! Spring is in the air and it is an exciting time for our team. In this issue, we give you a sneak peek at the recently approved Grand Rapids Biomedical Research Facility. This state-of-the-art facility will anchor Grand Rapids' Medical Mile and greatly enhance the research capabilities of the College of Human Medicine and the OB/GYN and Reproductive Biology team. Stay tuned for more information about this groundbreaking project.

I hope you enjoy hearing from our research, clinical, and medical education groups throughout the year. 2015 is off to a tremendous start for our department and we look forward to sharing our news. Thank you for the work you do and your continued support of women's health research.

Richard M. Leach, M.D., FACOG, FACS
Professor and Chair
Department of Obstetrics, Gynecology and Reproductive Biology



To contribute to For The Love of a Woman Discovery Fund, which supports new discoveries in gynecological cancer, reproductive health and maternal infant health go to:
www.obgyn.msu.edu. For more information please contact the Advancement Office at 1-855-678-7444.

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Research News

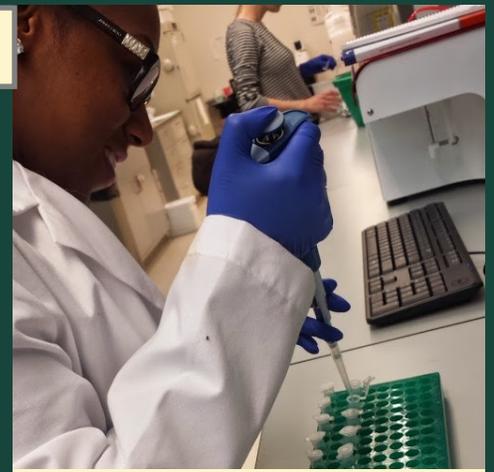
The OB/GYN research team is eagerly anticipating the construction of its future home — the **Grand Rapids Biomedical Research Center** — expected to open in late 2017. The MSU Board of Trustees approved the project in December 2014. Construction is set to begin after demolition of the former Grand Rapids Press building on Michigan Street and Monroe, the site of the new facility. The 160,000-square-foot building is expected to house 44 investigator teams and create 180 jobs. A webcam showing the demolition can be found at: <http://oxblue.com/open/msu/grrc>



Grand Rapids Biomedical Research Facility
Coming 2017



Former Grand Rapids Press Building
Demolition has begun to make way for
the new research facility.



Our Areas of Research

- Uterine Biology—Maternal Fetal Interactions
- Endometriosis, adenomyosis, and leiomyomas
- Gynecologic Oncology
- Epidemiology of Infertility
- Maternal Child Health
- Cancer Disparities

Society for Reproductive Investigation

The Grand Rapids research team was actively involved at the 62nd Annual Society for Reproductive Investigation conference in San Francisco, March 25—28. Principal Investigator **Dr. Asgi Fazleabas** organized a Satellite Workshop on the Endometrium. **Michael Strug**, DO/PhD candidate and mentee of Dr. Fazleabas, presented a late

breaking abstract at the meeting describing their studies of the effects of hCG on modifying the endometrium of women undergoing controlled ovarian hyperstimulation.

Amanda Patterson, postdoctoral fellow in **Dr. Jose Teixeira's** lab, gave an oral presentation on their research investigating the isolation and characterization of putative stem/progenitor cells in human myometrium and fibroids.

Y. Sangeeta Devi (Sangeeta Devi Yendrembam), assistant professor in the Reproductive and Developmental Sciences Program, presented a paper on the prevention of inflammation-mediated preterm birth by curcumin.



Society for Reproductive Investigation

About the Clinical Team

The **MSU HealthTeam** is the multi-specialty medical group practice comprised of teaching faculty from Michigan State University's College of Human Medicine, Osteopathic Medicine, and Nursing. We are continuing to grow, offering primary and specialty health care services to the general public. MSU HealthTeam is comprised of approximately 230 physicians and nurse practitioners from 14 clinical departments, as well as many allied health professionals such as nurses, psychologists, social workers, therapists and nutritionists. MSU HealthTeam providers are also actively involved in teaching and clinical research, keeping them on the forefront of the latest medical advances.



Left to Right: Drs. Anita Avery, Denny Martin, Nancy Herta, and Joel Maurer.

OBGYN presence at the CREOG/APGO 2015 Annual Meeting in San Antonio, Texas

Our medical education mission was recently well represented by our clerkship directors, division director, residency directors for our affiliated residency programs, and residents at the 2015 CREOG/APGO annual meeting in San Antonio, Texas. Oral presentations were made and a poster was presented by our educators.



Pictured left to right: Drs. John Hebert, Vicki Mello, Mark Lewis, Patricia Obando, Denny Martin, Michael Werkema, Matthew Allswede and Sheila Drnec.

Faculty Spotlight

Karen Racicot, PhD
Assistant Professor

Reproductive and Developmental
Sciences Program

Please welcome the newest addition to our research team! Dr. Racicot joined us in September 2014 and is currently Assistant Professor in the Department of Obstetrics, Gynecology and Reproductive Biology in the College of Human Medicine at Michigan State University.



Left to Right: Elle Lehman, Dr. Karen Racicot, Sharra Poncil, and Betsy Witte.

RESEARCH:

My research focuses on the regulation of inflammation and innate immune cells at the maternal-fetal interface to determine how they affect fetal development and maternal health. The lab uses human clinical samples, primary cells, immortalized cell lines, and has developed multiple animal models of pregnancy and infection(s) that are used to dissect the mechanisms of placental and maternal responses to pathogens and other environmental challenges.

My major research projects have included:

1) Defining how in utero inflammation caused by environmental factors results in atypical fetal development and offspring disease. Maternal adiposity, viral/bacterial infection and toxins have all been shown to induce placental inflammation and are associated with the development of multiple diseases in future offspring. These studies

address how dysregulation of the placenta or maternal immune response affects fetal programming and development of diseases such as allergic asthma.

2) Characterizing the role of placental microflora in fetal immune development. While historically the upper reproductive tract was thought to be a sterile environment during pregnancy, there is now evidence that the healthy placenta is home to a vibrant microflora. We hypothesize that the fetal environment is influenced by both the presence of these microflora and the placental/maternal response that they elicit contributing to the development

and maturation of the fetal immune system.

3) Identification of non-invasive biomarkers that are predictive of placental function in early pregnancy. My research also aims to identify “biological signatures” during early pregnancy that are associated with abnormal or insufficient placental development and offspring disease. This test will have the potential to be a screening tool used to determine if women require treatment to ensure placental and fetal health.

Karen Elizabeth Racicot received a BS degree in animal biology from the University of Florida in 2002 and completed a PhD in 2009 at Pennsylvania State University majoring in Animal Science with a focus on Reproductive Biology and Immunology. Afterwards, she completed post-doctoral training in the Department of Obstetrics, Gynecology and Reproductive Sciences at the Yale School of Medicine, primarily working with murine models of polymicrobial infections during pregnancy.



Bio Engineering Facility, MSU, East Lansing. Coming late 2015.

Upcoming Events

2015 MARTS Conference

Tuesday, May 5, 2015

Michigan State University College of Human Medicine

15 Michigan Avenue

Grand Rapids, MI 49503

The aim of the **Michigan Alliance for Reproductive Technologies and Sciences** is to accelerate the growth of the reproductive sciences in Michigan by enhancing the communication and collaboration of researchers, clinicians, and educators within our state. This forum continues to highlight the exemplar basic and clinical translational research programs of the reproductive scientists and clinicians throughout the state of Michigan and neighboring regions.

Registration fee: \$40 for faculty | \$25 all others

RSVP by April 30, 2015 to:



MSU Secchia Center — College of Human Medicine Grand Rapids.

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PUBLICATIONS

- ◆ Armant DR, Fritz R, Kilburn BA, Kim YM, Nien JK, Maihle NJ, Romero R, **Leach RE**. Reduced expression of the epidermal growth factor signaling system in preeclampsia. *Placenta*. 2015 Mar;36(3):270-8. doi: 10.1016/j.placenta.2014.12.006. Epub 2014 Dec 27. PubMed PMID: 25589361; PubMed Central PMCID: PMC4331205.
- ◆ Bhattacharya I, Basu S, Sarda K, Gautam M, Nagarajan P, Pradhan BS, Sarkar H, **Devi YS**, and Majumdar SS (2015). Low levels of Gαs and Ric8b in testicular Sertoli cells may underlie restricted FSH action during infancy in primates. *Endocrinology*. 156(3):1143-55
- ◆ **Devi YS, DeVine M, DeKuiper J**, Ferguson S, and **Fazleabas AT** (2015). Inhibition of IL-6 signaling pathway by curcumin in uterine decidual cells. *PLOS ONE* (accepted).
- ◆ Hood BL, Liu B, Alkhas A, **Shoji Y, Challa R**, Wang G, Ferguson S, Litzi T, Zahn CM, Hamilton CA, Payson M, Lessey B, **Fazleabas AT**, Maxwell G L , Conrads TP, and **Risinger JI** (2015). Differential proteomics of the endometrial glandular epithelium and stroma from the proliferative and secretory phases of the menstrual cycle. *Biol Reprod* (E-Pub Feb 18, 2015).
- ◆ Joung KH, **Jeong JW**, and Ku BJ (2015). The association between type 2 diabetes mellitus and women cancer: The epidemiological evidences and putative mechanisms. *BioMed Research International* 2015 Jan 17;1853(5):1060-1072. PMID: 25603536
- ◆ **Kim BG, Yoo JY, Kim TH**, Shin JH, Langenheim JF, Ferguson SD, **Fazleabas AT** , Young SL, Lessey BA, and **Jeong JW** (2015). Aberrant activation of signal transducer and activator of transcription-3 (STAT3) signaling in endometriosis. *Hum Reprod*. 2015 Mar 6. pii: devo50. [Epub ahead of print] PMID: 25750101
- ◆ Maxwell GL, **Shoji Y**, Darcy K, Litzi T, Berchuck A, Hamilton CA, Conrads TP, and **Risinger JI** (2015). MicroRNAs in endometrial cancers from black and white patients. *Am J Obstet Gynecol*. 2015 Feb;212(2):191.e1-191.e10. doi: 10.1016/j.ajog.2014.08.028. Epub Aug 28, 2014. PMID: 25174797
- ◆ **Obando CP, Maurer J**, Plantegenest G, and Dokter C. The use of e-learning modules to improve student knowledge in obstetrics and gynecology. MedEdPORTAL Publications; 2014. Available from: <https://www.mededportal.org/publication/9920> http://dx.doi.org/10.15766/mep_2374-8265.9920.
- ◆ Park SY, Choi HK, Jo SH, Seo JS, Han EJ, Choi KC, **Jeong JW**, Choi Y, and Yoon HG (2015) YAF2 promotes p53-mediated genotoxic stress response via stabilization of PDCD5. *Biochem Biophys Acta*. 2015 Jan 17;1853(5):1060-1072 PMID: 25603536
- ◆ **Su RW, Strug MR, Joshi NR, Jeong JW**, Miele L, Lessey BA, Young SL, and **Fazleabas AT** (2014). Decreased notch pathway signaling in the endometrium of women with endometriosis impairs decidualization contributing to infertility. *J Clin Endocrinol & Metab*. E-Pub Dec 29, 2014. PMID: 25546156
- ◆ **Yoo JY, Kim TH**, Kong S, Lee JH, Choi W, Kim KS, Kim HJ, **Jeong JW**, and Ku BJ (2015) Role of Mig-6 in hepatic glucose metabolism. *J Diabetes*. Jan 7, 2015. doi: 10.1111/1753-0407.12261. [Epub ahead of print] PMID: 25594850

PRESENTATIONS

- ◆ **Devi YS**, VanWyk M, and **Fazleabas AT**. Prevention of inflammation-mediated preterm birth by curcumin. 62nd SRI Annual Scientific Meeting, San Francisco, CA, Mar 26 2015
- ◆ **Fazleabas AT**. Keynote Speaker, International Congress on “Embryo implantation: Intricacies and strategies for its success” National Institute of Immunology, New Delhi, India, Mar 2015.
- ◆ **Fazleabas AT**. Invited Speaker, Department of Physiology, All India Institute for Medicine, New Delhi, India, Mar 2015.
- ◆ **Luke B**, Stern JE, Kotelchuck M, Declercq E, Cohen B, Gopal D, Hoang L, and Diop H. Adverse pregnancy outcomes after in vitro fertilization: Effect of number of embryos transferred and plurality at conception. 35th Annual meeting Society for Maternal-Fetal Medicine, San Diego, California, Feb 2-7, 2015. [poster presentation]
- ◆ **Luke B**, Brown MB, Wantman E, Stern JE, Baker VL, Widra E, Coddington CC, Gibbons WE, Van Voorhis BJ, and Ball GD. The effect of transferring fewer embryos over more cycles: A prediction model for live birth and multiple births with in vitro fertilization. 35th Annual meeting Society for Maternal-Fetal Medicine, San Diego, California, Feb 2-7, 2015. [oral presentation]
- ◆ **Obando CP**, **Martin D**, and Alfaro-Albertazzi F. A series of fortunate events: Strategies to create a sustainable global health program overseas. Round table presentation. 2015 APGO/CREOG Annual Meeting. Mar 4-7. San Antonio, TX.
- ◆ **Obando CP**, **Martin D**, and Wagner D. Enhancing the OB/GYN clerkship: Tracking student competencies using Practice and Feedback Simulations (PF-SIMS). 2015 APGO/CREOG Annual Meeting. Mar 4-7. San Antonio, TX.
- ◆ **Obando CP**, Werkema M, Allswede M, Herbert J, and **Leach R**. Filling in the gaps in our residents Basic Science knowledge. Poster presentation. 2015 APGO/CREOG Annual Meeting. Mar 4-7. San Antonio, TX.

FUNDED GRANTS

- ◆ **Fazleabas AT**. Mentor to Michael Strug DO/PhD– NICHD F30 HD 082951 (01-02). “The Role of Recombinant Signal Binding Protein-J-kappa in Pregnancy.” Apr 1, 2015 – Mar 31, 2017.
- ◆ **Fazleabas AT**. Principal Investigator – NICHD R21 HD082453 (01-02). “Role of MicroRNA 451 in the Pathophysiology of Endometriosis”, Apr 1, 2015 – Mar 31, 2017.
- ◆ **Shoji Y**. Liz Tilberis Early Career Award. “ARID1A regulates ATAD2 in ovarian cancer.” Feb 1, 2015 — Jan 31, 2018.