NIH Award from the Eunice Kennedy Shriver National Institute of Child Health and Human Development

Principal investigator: Teresa Woodruff, obstetrics and gynecology
Feinberg School of Medicine

- **Project**: Center for Reproductive Research at Northwestern University
- **Start Date**: September 30, 2009
- **Total Award Amount**: $220,679

**Our Purpose**
The center for Reproductive Research (CRR) at Northwestern University supports a multidisciplinary group of scientists who use innovative approaches to expand the understanding of female fertility and infertility. The purpose of our center is to shed light on the structure-function relationships between cells in the ovary and the hormones that regulate follicle development.

**Our Approach**
The overall objectives of the CRR are 1) to conduct and support reproductive research at the interface of biochemistry, biophysics, reproductive science, structure biology and biomaterial science; 2) to translate the findings of this research to women with infertility; 3) to communicate research findings in an authoritative manner to the community; 4) to develop and conduct reproductive science education programs to train the next generation of reproductive scientists and clinical investigators.

**Our Projects**
The theme of our center is “structure-function relationships in reproductive biology.” One of the most important and far-reaching new ideas to emerge from our center is that the biomechanical structure of the ovary informs follicle function. As women age, their reproductive capacity diminishes and the ovary becomes more rigid. One of our studies is to examine whether the physical environment of the ovary contributes to age-related infertility. We are also studying the hormones that regulate female fertility. The development of biopharmaceuticals that regulate these hormones could make a profound impact on women’s fertility in the next decade. Finally, technology advancement in reproductive medicine is slow. Women must endure invasive procedures to evaluate their reproductive health and these technologies are not relevant to longitudinal studies of health and disease and are not appropriate for use in adolescents. We are attempting to overcome these hurdles by introducing and developing a new MR method that in a non-invasive way, could diagnose a structural feature of the PCOS ovaries, physical rigidity.

**Our Contribution**
The center brought a new kind of fertility preservation option to women with a fertility-threatening cancer diagnosis, which is now being offered around the globe. We coined the term oncofertility and edited the first book on this interdisciplinary topic. Each of our continuing projects reaffirms our commitment to translate findings to the patient and we will remain at the forefront of new discoveries in the structure function relationships of reproductive biology, and thereby contribute to the overall health of women.

This award is funded under the American Recovery and Reinvestment Act of 2009, NIH Award number: U54HD041857-07S1.