

The Next 50 Years
Advancing Science, Improving Lives
Transforming the Culture of Science

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NICHHD 50th Anniversary Colloquium
Masur Auditorium
NIH Clinical Center
December 5, 2012



The Nobel Prize in Physiology or Medicine 1977



Roger Guillemin



Andrew V. Schally



Rosalyn Yalow

The Nobel Prize in Physiology or Medicine 1977 was divided, one half jointly to Roger Guillemin and Andrew V. Schally "for their discoveries concerning the peptide hormone production of the brain" (**GnRH**) and the other half to Rosalyn Yalow "for the development of radioimmunoassays of peptide hormones".



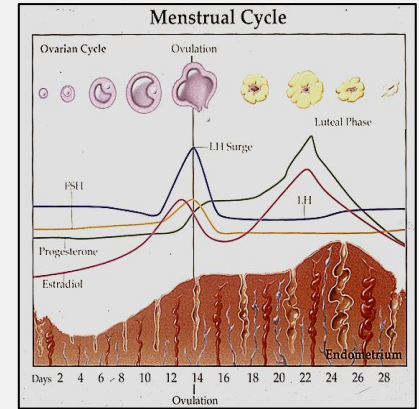
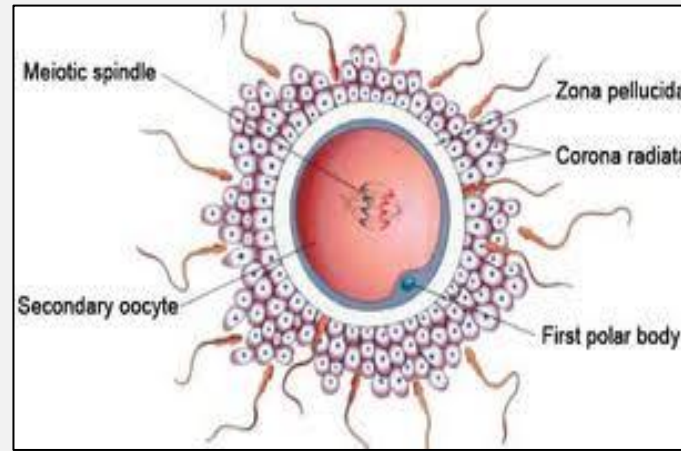
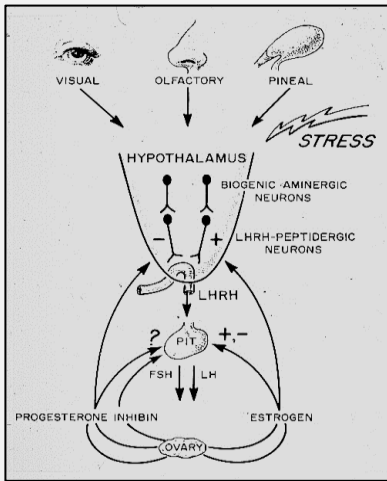
The Nobel Prize in Physiology or Medicine 2010

in vitro
fertilization

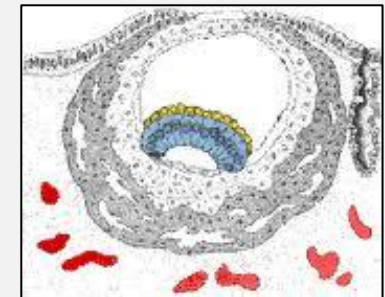
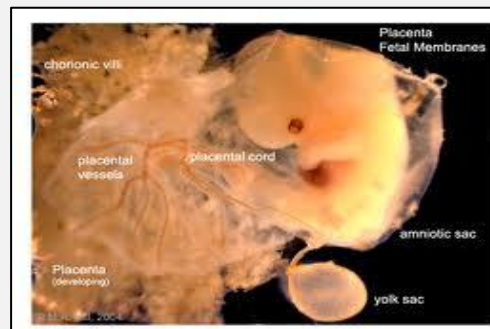
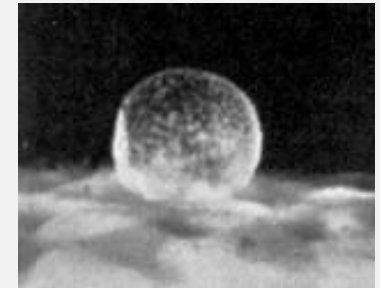


Robert G. Edwards, PhD

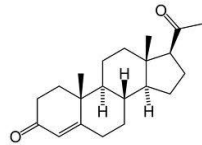
- transformed infertility/oncofertility research & therapy
 - enabled human gamete and embryo research
 - enabled human embryonic stem cell research
 - enabled pre-implantation genetic diagnosis



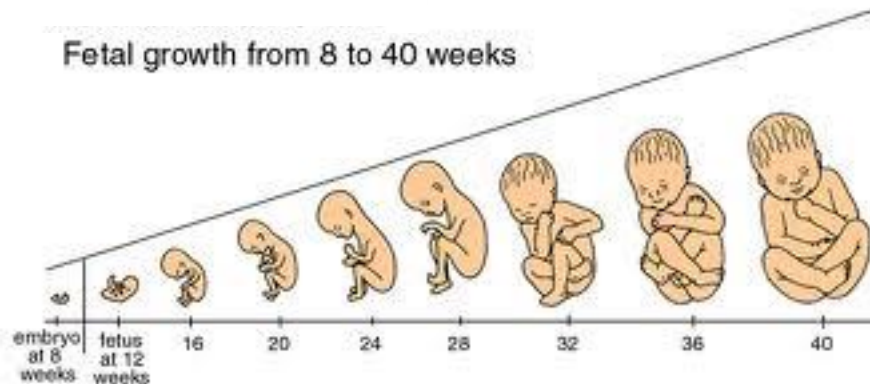
Complexities of Human Reproduction and Development



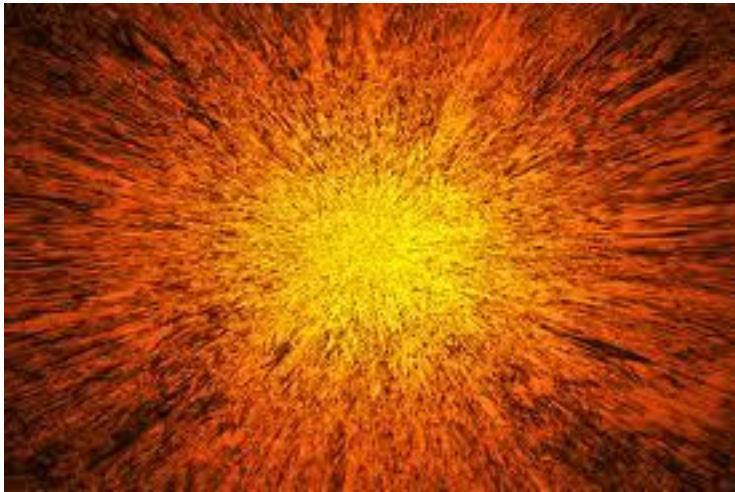
NICHD: Wanted and Healthy Pregnancies, Healthy Babies, Healthy Families



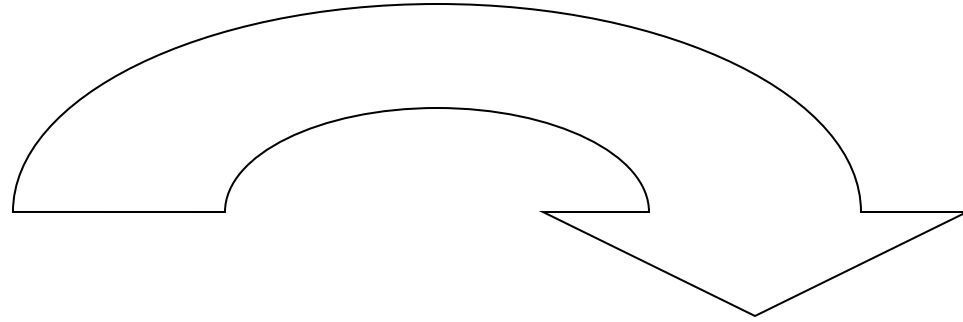
Fetal growth from 8 to 40 weeks



We have entered a New Age

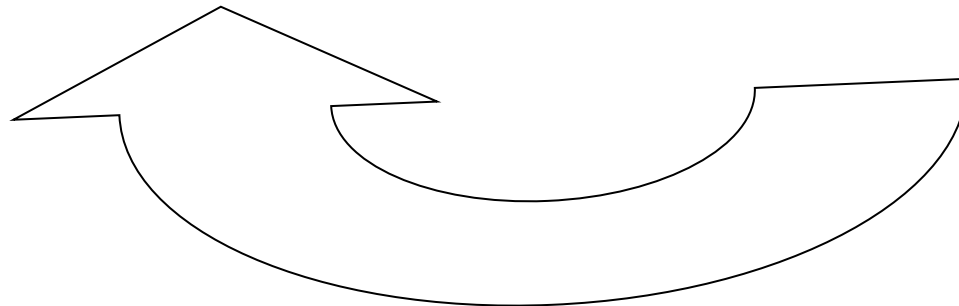


of Science and Medicine



**HYPOTHESIS-
DRIVEN
RESEARCH**

**DISCOVERY-
DRIVEN
RESEARCH**

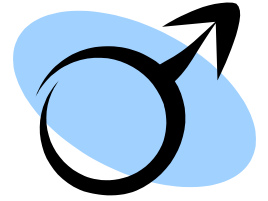


Multidisciplinary Teams

- Traditional basic scientists
- Traditional clinical scientists
 - Quantitative scientists
 - computational biologists*
 - statisticians*
 - mathematicians*
 - bioinformaticians*
 - computer scientists*
 - engineers*
 - physicists*
 - Clinicians
 - Nurses
 - Genetic Counselors
 - Community Leaders
 - Community Advocates
 - Patient Advocates

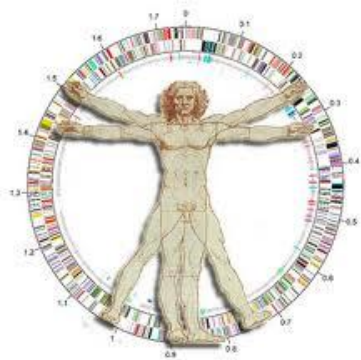


Relevance to Human Reproduction and Human Development



basic biology and personalized medicine

- Genetic basis of human reproductive and developmental disorders and pregnancy outcomes.
- Environmental basis of human reproductive disorders , pregnancy outcomes, childhood disease and personal health.
- Prevent, diagnose, monitor (biomarkers), and treat reproductive and developmental disorders, minimize risks, and improve QOL.



An Eye to the Future



- Big science
- Team science
- Comprehensive databases
- Comprehensive bio-repositories
 - Clinical care
 - Clinical collaborations
- Community engagement
 - Ethics
 - Law

“The Future Ain’t What It Used to Be.”



Thank You!