

Reproductive Biology

Founders & History
Ford Foundation, Govt. of India & Director
(Prof. BB Dixit) AIIMS



International Conference on Hormonal Steroid
Prof. KR Lomas (HOD), President of India,
Prof. L Martini (President, steroid hormone society)

Sheldon J. Segal worked in RBRU as advisor of Ford Foundation (just before joining as Director, Population Council). Similarly, Dr. T Hayashida (Consultant, Ford Foundation) also worked as advisor as well as visiting scientist to guide reproductive research in early days of the department

Education

- Only center in India providing teaching & training in Reproductive Biology
- PhD in Reproductive Biology
- MSc in Reproductive Biology & Clinical Embryology
- WHO Fellowship in Reproductive Endocrinology
- Diploma course in Clinical Embryology (coming soon)
- Diploma course in Molecular Diagnostics (coming soon)
- Annual workshop on molecular cytogenetics



MSc student Teaching

Year of Establishment- 1963 (as unit) & 1970 (as dept.)

The original **vision** of the department was to create an infrastructure for research in reproduction. Initial thrust was on contraception (female followed by male), steroid biochemistry (estrogen, progesterone, etc) and prostaglandins. Gradually, vision shifted to increase knowledge of biomics, genomics and proteomics related to reproductive process along with training of highly ranked medical students and scientists who, through research, teaching and service, will provide new understanding of reproductive issues that have an impact on public reproductive health. The vision is to foster education and research into reproductive sciences, in particular, reproductive disorders. The focus of the Department is to study molecular and cellular biology of male and female reproduction along with reproductive cancers. Advanced molecular and genetic approaches on these models are used to develop novel concepts and tools for the study of physiology and pathology of reproduction in humans.

Services

- State of art RIA (Radio-Immuno Assay), first time in India used for reproductive hormone analysis and still continuing with 100' s of test parameters carried out daily on various hormones, tumor markers and other biomarkers
- Prostaglandin estimation first time in India (discontinued)
- Hormone Receptor Assay Laboratory first time in India (discontinued)
- State of art molecular cytogenetics laboratory providing national resources in molecular cytogenetic techniques
- Specialized semen analysis laboratory
- Sophisticated cell culture laboratory
- Clinical embryology (under standardization)
- Cryopreservation (under standardization)
- PGD & NIPT (under standardization)

Achievements

- WHO Research & Training Centre in Human Reproduction from 1972 to 1978 (WHO-RTC)
- WHO Collaborating Center for Reproductive Research until 1999 (WHO-CCR)
- Development of Norethisterone acetate and Norgestrel based silastic implants for fertility control (single silastic implant-D for the long term contraception in women); Initial research work on reversible, non-occlusive intravascular copper device (IVD) in monkey as well as anti-progestin RU486 (part of basic research conducted)
- Research on progesterone & steroid biochemistry
- World congress on Hormonal Steroid, 1978

Patient care

- Counseling: Over 300 annually (Reproductive Genetic Counseling programme is operational with national and international patients)
- Molecular Cytogenetic for diagnosis of microdeletion syndrome, chromosomal abnormality and disorder of sex development
- Indirect: Over 1.5 lakh tests per annum through CRIA unit
- Semen analysis: 150-160 specialized tests (annually)



Workshop on Male Reproduction



WHO Training course on Reproductive Endocrinology



Diagnostic Service

Research Areas

- Malformation
- Male Infertility
- PCOS
- POF
- Hyperprolactinemia
- Biological Basis of Skewed Sex Ratio
- Chromosomal Abnormality in Preimplantation Embryo
- Thyroid hormones in testicular function
- Mechanism of steroid hormones
- Phytoestrogen
- Endocrine disruptors
- Reproductive cancers (prostate, breast, ovary, etc)



Molecular Laboratory



Biochemical laboratory



Patient in que for blood sampling



Various Microscope



Automated Hybridization Station



Microarray Scanner



Gene Scanner



Cryopreservation Unit

Statistical Data

- Number of Faculty, Residents, technical staff, etc (present):
- Faculty: 04
- Scientist: 03
- PhD Student: 04
- Technical Staff: 13
- Publication (annual)
 - Papers: 6-8
 - Book chapters: 3-4
 - General article: 1-2
 - Conference abstract: 10-15

The **future vision** of the department is to foster education, research and specialized research oriented patient care in reproductive sciences through Reproductive Research Clinic. The areas of work in the department will be Reproductive genetics, Reproductive endocrinology, Reproductive toxicology, Clinical embryology and Cryopreservation, Developmental genetics, Sex differentiation and development, Aging, Gametogenesis, Phytohormones, Andrology, Reproductive oncology, etc besides in depth work on specific disorders like Sexual dysfunction, unexplained infertility, primary amenorrhoea, oligo/azoospermia, Premature ovarian failure, Poly cystic ovarian disease, Endometriosis, Recurrent unexplained abortions, intrauterine growth restrictions, fetal malformations, Pregnancy induced hypertension, etc.

- Department is also working to establish NIPS (non invasive prenatal screening) and PGS (preimplantation genetic screening)
- Department also is working on creating & maintaining semen & gonadal tissue bank for cancer and infertile patients

