

## **DEPARTMENT OF REPRODUCTIVE BIOLOGY**

Initial Name:	Reproductive Biology Research Unit
Year of Establishment:	1963 as Reproductive Biology Research Unit 1970 as Department of Reproductive Biology
Founders and history:	Ford Foundation, Govt. of India & Director (Prof. BB Dixit), AIIMS

Department of Reproductive Biology is the oldest specialized department of Reproductive Biology in the country. The inception of the department was in April 1963 as Reproductive Biology Research Unit (RBRU) through a grant from Ford Foundation, USA with its first coordinator as Prof. BB Dixit, director, AIIMS. Ford foundation proposed for a grant to government of India for research in reproduction (physiology of reproduction) at various Institute's in India, including AIIMS in 1961. Director, AIIMS (Prof. BB Dixit) accepted ford foundation proposal as well government of India's request resulting creation of Reproductive Biology Research Unit in 1963. Dr. KR Laumas became assistant coordinator and research associate of the RBRU in April 1963. Prof. BK Anand, who was also Dean of the Institute, became coordinator of RBRU in 1965. RBRU became a full flagged independent department (Department of Reproductive Biology) in 1970 with its coordinator as Prof. BK Anand and head as Dr. Kesho Ram Laumas, Associate Professor of the Department as well as assistant coordinator. The first head of the department Dr. Kesho Ram Laumas became professor in 1976. He was a pioneer in the field of Reproductive Endocrinology and female contraception. The department has been a center of excellence in the promotion of research in Human Reproduction and was Human Reproduction Training Center of WHO from 1972 to 1978. The Department of Reproductive Biology was involved in the WHO Collaborating Center of Reproductive Research until 1999. Dr. Laumas organized the fifth International Congress on Hormonal Steroid in New Delhi in 1978, the first of its kind event in India and inaugurated by late President of India Neelam Sanjiva Reddy and was attended by over a thousand delegates from all around the world. Prof. Subhash Mukharjee was special invitee to present his work on first test tube baby of India in this international congress. Subsequently, department conducted big international events like International Congress on Reproductive Immunology (1998), International Symposium on Molecular & Clinical aspects of Ovarian Function (1999) and International Conference on Gonadotropins (2008) and so on besides various workshops as well as training program. The department was one of the earliest centres in the country to have started sophisticated investigations in fertility assessment.

### **Vision Statement**

The original vision of the department was to create an infrastructure for research in reproduction/physiology of reproduction. Initial thrust was on contraception (female followed by male), steroid biochemistry (estrogen, progesterone, etc), 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 scientist 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 for the Department is the study of molecular and cellular biology of the 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.

## **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 basis international collaborative research work)

Research on progesterone & steroid biochemistry

World congress on Hormonal Steroid, 1978

## **Significant facilities in patient care/education/research/others**

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

Reproductive Genetic Counseling programme is operational with national and international patients

Only center in India providing teaching & training in Reproductive Biology

Sheldon J. Segal was 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

## **Awards/Recognition**

### ***Prof. Kesho Ram Laumas***

Fellow of Indian National Science Academy

Member of National Academy of Medical Sciences

Dr. Dossibha JR Dadabhoy Silver Jubilee Oration by Bombay OG Society (1976)

Oration of the Endocrine Society of India

President, Endocrine Society of India (1980)

President, North India Chapter on Endocrinology, New Delhi (1979-80)

Founder President of the Hormone Foundation, New Delhi (1979-81)

Hosting Vth International Congress on Hormonal Steroids (Delhi, 1978; chairman)

National Family Planning Award (1969-70 by the Ministry of Health and Family Welfare, India)

Chairman of WHO Symposium on the Metabolic Effects of Contraceptive Steroids

Chaired Symposium on "Steroid Receptors and Hormone Action" at 6<sup>th</sup> International Congress of Endocrinology, 1980, Australia

### ***Prof. M Farooq***

Fellow of National Academy of Sciences, India

Dr. Subhash Mukherjee Memorial Oration Award by Endocrine Society of India, 1992

***Prof. M Rajalakshmi***

Fellow National Academy of Medical Sciences  
Life Time Achievement Award (ISSRF, 2012)  
Shakuntala Amir Chand Prize (ICMR, 1972)  
Dr. Subhash Mukherjee Memorial Oration Award (Endocrine Society of India, 1994)  
Kshanika Oration Awardby (ICMR, 1997)  
Achanta Lakshmipati Oration Award (NAMS, 1992)  
Swaran Kanta Dingley Oration (ICMR, 1986)  
Dr. Viswanth Oration Award (2010)  
UNDP/UNFPA/WHO/World Bank Certificate of Appreciation (2000)  
Consultant to MCI, ICMR & NAMS

***Prof. Anand Kumar***

Fellow National Academy of Medical Sciences  
Prof. Ramesh Prasad Oration by Indian Academy of Pediatrics, UP Chapter, 2005  
Dr. Subhash Mukherjee Memorial Oration by Endocrine Society of India, 2012

***Dr. Urmila Viz***

Kshanika Oration Awardby ICMR

***Prof. Ashutosh Halder***

Fellow National Academy of Medical Sciences  
Commonwealth scholar  
ICMR Sr. Scientist Fellowship award

***Prof. PK Chaturvedi***

Member National Academy of Medical Sciences & Rockefeller foundation fellow

***Patient Care/Related Services (annual):***

Reproductive and/or Genetic counseling	Over 400 annually
Laboratory Services	Biomarkers: 700-800/day
	Molecular Cytogenetic Test: 10/day
	Semen analysis (specialized): 5/week

***Teaching (till day)***

PhD 39 students awarded and 4 ongoing  
MSc (Reproductive Biology & Clinical Embryology): started from 2016 (5 student/year)  
Other teaching activities WHO Fellowship (6 month training) in Reproductive Endocrinology  
>100 short-term training on RIA, Cell culture, FISH & other molecular techniques

***Future Vision***

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. For this we need to create:

State of art Molecular Genetics Laboratory (rapid preimplantation, prenatal & postnatal aneuploidies diagnosis; rapid prognostication, relapse/remission detection, treatment response identification, etc in reproductive oncology; investigate cause of early embryo failures, developmental disorders including malformations, etc)

State of art Clinical Embryology laboratory (will be utilized to investigate early embryonal failures, intersexuality in particular to evaluate mechanism of true hermaphroditism, etc; to extend service for successful IVF program) including embryonic stem cell & spermatogonial stem cell research

State of art gamete, embryo & gonad cryo-preservation laboratory including tissue repository/biobanking (first of this kind in our country at Government level; will be useful in young patient undergoing cancer treatment to preserve their future fertility; Gonad banking is not yet established in the world)

To create a Reproductive Research Clinic with sub-divisions of Reproductive Genetics, Reproductive Endocrinology, Reproductive Toxicology and Reproductive Oncology