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**Professional Exposure:**

- **DBT Postdoctoral fellow, Department of Biochemistry, Indian Institute of Science, Bangalore, October 1999 to May 2001.**
- **Fogarty International Trainee, Laboratories for Reproductive Biology, University of North Carolina, Chapel Hill, USA – June 2001 to May 2004**
- **DST Young Scientist Award - 2006**

Areas of Research:

My broad area of research is reproductive endocrinology, with specific emphasis on male reproductive tract immunology and contraception. The male reproductive tract is considered to be a vital organ system because of its indispensable functions. It plays a crucial role during development and fertility. In the recent years, attempts to understand male reproductive tract immunology has increased many fold due to the fact that identification of reproductive tract specific innate immune responses can help to combat sexually transmitted diseases, a serious problem on our country. When compared to other organ systems including the female reproductive tract, the male reproductive tract is known to express the highest number of defensins till date, suggesting the existence of sophisticated innate immune machinery. Defensins are a class of antimicrobial peptides that form the first line of defense. Besides the defensins, the male reproductive tract expresses a wide variety of proteins that conserve the characteristics of defensins, which have been shown to play a significant role in innate immunity besides their role in sperm maturation. Because of their dual role in immunity and sperm maturation, our goal is to identify the natural antimicrobial peptides of the male reproductive tract and exploit them to treat sexually transmitted diseases in place of conventional antibiotics, against which a variety of pathogens have developed resistance and also to use them as potential male contraceptives.

Another area of study is to understand the molecular mechanisms governing the beneficial actions of polyunsaturated fatty acids and prostaglandins in diabetes mellitus.

Research Group:

Barnali Biswas (PhD student)

Mr. Madhubabu (MSc Project student)

Mr. Vincent (MSc Project student)

Ten best publications:

1. **Suresh Y** and Das U.N. Protective action of arachidonic acid against alloxan-induced cytotoxicity and diabetes mellitus. *Prostaglandins, Leukotrienes and Essential Fatty acids*. 2001; **64(1): 37-52**.
2. **Suresh Y** and Das U.N. Long chain polyunsaturated fatty acids and chemically induced diabetes mellitus: Effect of omega-6 fatty acids. *Nutrition* 2003; **19(2): 93-114**.
3. **Suresh Y** and Das U.N. Long chain polyunsaturated fatty acids and chemically induced diabetes mellitus: Effect of omega-3 fatty acids. *Nutrition* 2003; **19(3): 213-228**.
4. **Suresh Y** and Das UN. Differential effect of saturated, monounsaturated, and polyunsaturated fatty acids on alloxan-induced diabetes mellitus. *Prostaglandins Leukot Essent. Fatty Acids* 2006; **74(3):199-213**.
5. **Yenugu S**, Hamil KG, Birse C.E, Ruben S.M, French F.S, Hall S.H. Antibacterial properties of the sperm-binding proteins and peptides of human epididymis 2 (HE2) family; salt sensitivity, structural dependence and their interaction with outer and cytoplasmic membranes of *Escherichia coli*. *Biochem J*. 2003; **372(2): 473-483**.
6. **Yenugu S**, Hamil KG, Radhakrishnan Y, French FS, Hall SH. The androgen regulated epididymis sperm-binding protein, ESC42, is an antimicrobial beta-defensin. *Endocrinology*. 2004; **145(7): 3165-3173**.
7. **Yenugu S**, Richardson RT, Sivashanmugam P, Wang Z, O'Rand MG, French FS, Hall SH. Antimicrobial activity of Eppin, an androgen regulated sperm bound protein with a whey acidic protein motif. *Biology of Reproduction* 2004; **71(5): 1484-1490**.
8. **Yenugu S**, Hamil KG, French FS, Hall SH. Antimicrobial actions of human epididymis 2 (HE2) protein isoforms, HE2 α , HE2 β 1 and HE2 β 2. 2004; *Reproductive Biology and Endocrinology* 2004; **2: 61**.
9. **Yenugu S**, Hamil KG, French FS, Hall SH. Antimicrobial actions of the Human and Macaque sperm associated antigen 11 (SPAG11) isoforms: influence of the N-terminal peptide. *Molecular and Cellular Biochemistry* 2006; **May: 1-13**.
10. **Yenugu S** et al., Identification, cloning and functional characterization of novel beta-defensins in the rat (*Rattus norvegicus*). *Reproductive Biology and Endocrinology*. 2006; **4: 7**.