National Institute of Animal Biotechnology

# NIAB SEMINAR

## 21th March 2014

## "Nuclear receptors in biology and diseases"


*Speaker*

**Dr. P. S. Suresh**

Assistant Professor, Division of Biomedical Sciences,
School of Biosciences and Technology
Vellore Institute of Technology University, Vellore, T.N.


## Biography:

- ✓ **Post doctoral research: Wexner Medical Centre/Ohio state University/USA 2013.**
- ✓ **Post doctoral research: Medical College of Wisconsin/USA 2011-2013 .**
- ✓ **Research Scientist: Clement J. Zablocki Medical centre, Milwaukee, USA 2011-2013**
- ✓ **Ph.D. in Reproductive Endocrinology and Signal Transduction 2004-2009 , IISC, Banglore.**


Abstract: Nuclear receptors sense hormones (steroid & thyroid) and other molecules and directly bind to the DNA to elicit the response. They belong to large super family of DNA binding transcriptional factors. Over the last decade, many nuclear receptors have been discovered that coordinate various physiological functions and are attractive drug targets for various cancers (e.g., tamoxifen for estradiol receptor responsive breast cancers). Estrogen receptor α (ERα or ER) is the only target of breast cancer therapy using antiestrogens. However, about 50% of ER-expressing breast cancer is intrinsically refractory to the antihormone therapy and strategies to improve the therapeutic response are urgently needed. Dynamic ER phosphorylation and dephosphorylation play an important role in ER activity and antihormone response. Our *in vitro* and *in vivo* studies showed that PTPH1 dephosphorylates ER at Tyr537 in vitro and in breast cancer cells. Moreover, PTPH1 stimulates ER nuclear accumulation and increases breast cancer sensitivity to tamoxifen (TAM) and/or fulvestrant in cell culture and in a xenograft model. Further analysis revealed that PTPH1 depends on its catalytic activity to stimulate ER nuclear accumulation and to enhance breast cancer antihormone sensitivity. These studies thus identified PTPH1 as a novel ER phosphatase and further demonstrate a therapeutic potential of enhancing breast cancer sensitivity to antiestrogens through dephosphorylating ER by PTPH1. Next part of my talk will focus on studies elucidating the intracrine regulation of ovarian function by progesterone/progesterone receptor in rodents and macaques. These studies identified target genes of Progesterone signaling in ovaries/corpus luteum in monkeys and rats.


**All are cordially invited.** **Director, NIAB**

**Venue: Auditorium,** NIAB, D. No. 1-121/1, 4th & 5th Floors, Axis Clinicals Building, Opp. Talkie Town, Miyapur, Hyderabad

**Time:** 4 PM to 5 PM