

Dept. of Biophysics and Chd. Chapter of NASI(Allahabad) are organizing
TALK on

Nobel Prize Winning Work in Physiology or Medicine 2017

SPEAKER: Dr. Pallab Ray
Professor In-charge Bacteriology section
Dept of Medical Microbiology, PGIMER, Chandigarh

TITLE: The circadian rhythm and the biological clock

DATE & DAY: 21 November 2017, Tuesday

VENUE: Seminar Hall, BMS Block 2, Sector 25 Campus, PU. Chd.

TIME: 3.30 P.M.

Abstract: Since the origin of earth 4.6 billion years ago, day and night cycle has been an integral proof of the planet's rotation on its axis and Circadian rhythms affecting physical, mental, and behavioral changes that follow a daily cycle has been a universal controller of biological systems. Living beings respond primarily to light and darkness in their environment. Sleeping at night and being awake during the day is the classical reflection of a light-related circadian rhythm. Circadian rhythms are found in most living things, including animals, plants, and many tiny microbes. The study of circadian rhythms is called chronobiology.

Biological clocks are an organism's innate timing device. They're composed of specific molecules (proteins) that interact in cells throughout the body. Biological clocks are found in nearly every living system and every tissue and organ studied. Researchers have identified similar genes in man, fruit flies, mice, fungi, and several other organisms.

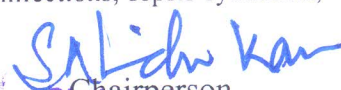
Physiological processes and behaviors often occur at specific times. Like human societies that follow not only the pace of the clock but also that of the calendar, many organisms adapt their behavior and physiology not only to the regular cycles generated by the changes of sun (daily and seasonal timing) but also the cycles of the moon (monthly timing or lunar rhythm). Moreover, different timing regimes can also be used in combination, for instance, to synchronizing reproduction to a season of the year, specific days of the month and specific hours during these days. The genetic circuits that regulate the internal clock or pacemaker are conserved from bacteria to plants and humans, though the individual components or the cogs of these genetic circuits differ. These circadian pacemakers can make an approximate measurement of time and so their phase needs to be set daily to keep the internal clock in synchrony with the environmental clock. Thus, it is not surprising to know that light is the leading entrainment cue for all circadian circuits encompassing organisms from unicellular ones to mammals.

Circadian rhythms control when we're at our peak performance physically and mentally each day, keeping our lives ticking in time with Earth's day/night cycle. **This year's Nobel Prize in Physiology or Medicine was awarded to three American scientists, Jeffrey Hall and Michael Rosbash of Brandeis University and Michael Young of Rockefeller University, for shedding light on how time is measured each day in biological systems,** including our own bodies. The fact that research in biological clock won the Nobel indicates the importance of the biological clock and its role in health and diseases in living systems and the promising future of research in this field.

About the Speaker:

Dr. Ray did his MBBS from Medical College, Calcutta, MD (Microbiol) in 1987 from PGIMER, Chandigarh and presently Professor In-charge, Bacteriology section, Faculty in Dept. of Microbiology, at PGIMER. He has guided more than 150 thesis and dissertations, and has 200 publications, mostly international journals. His special interests are in the areas of: antimicrobial chemotherapy, staphylococcal infections, sepsis syndrome, HAI and medical education & teaching technology.

All are interested are cordially invited to attend


Chairperson,
Deptt. of Biophysics,
Panjab University,
Chandigarh-160 014