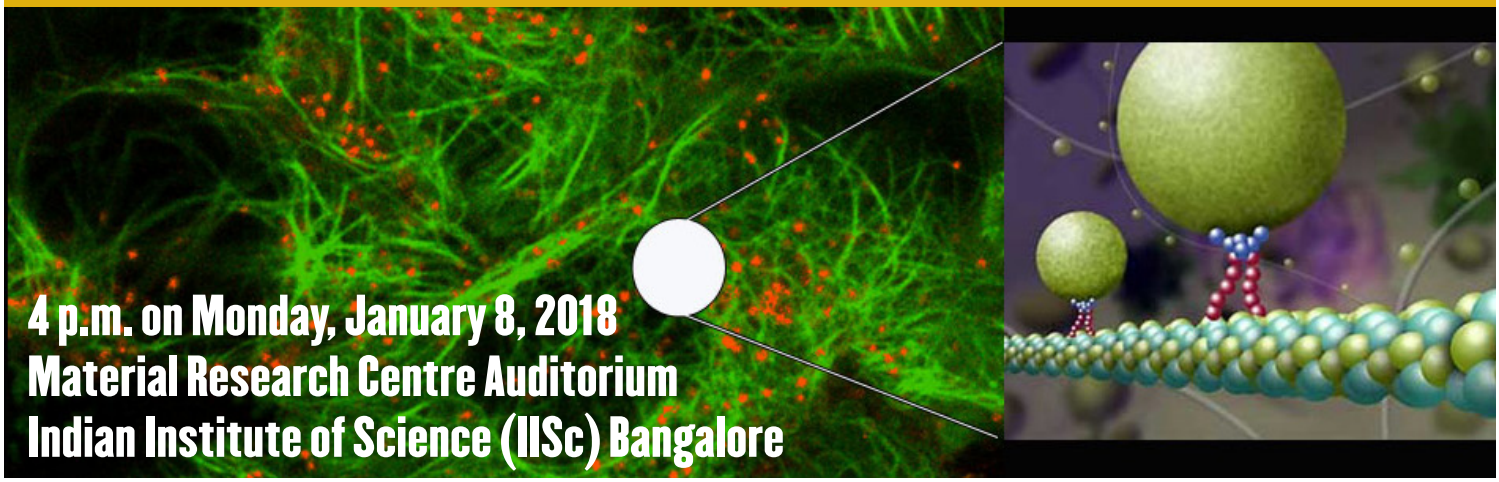
India-Purdue Collaborative Lecture Series in Honor of Professor C.N.R. Rao



4 p.m. on Monday, January 8, 2018
Material Research Centre Auditorium
Indian Institute of Science (IISc) Bangalore

Dr. Philip Low

Dr. Low is the Presidential Scholar in Drug Discovery and Corley Distinguished Professor of Chemistry. Dr. Low has spent more than 40 years exploring targeted therapeutic and imaging agents for human diseases (including cancers, autoimmune, and infectious diseases), and the structure, function, and pathologies of the erythrocyte membrane. He has published over 400 scientific articles and has more than 60 U.S. patents/patents pending. Eight drugs stemming from his research are undergoing human clinical trials and three companies (Endocyte Inc., OnTarget Laboratories Inc., and HuLow LLC) have been founded to commercialize these discoveries. Dr. Low received his B.S. in Chemistry from Brigham Young University and his Ph.D. in Biochemistry from UCSD.

New Targeted Therapies for Cancer, Autoimmune, and Infectious Diseases

Philip S. Low, Presidential Scholar in Drug Discovery, Distinguished Professor of Chemistry, Purdue University, West Lafayette IN USA

Abstract

We have developed small molecule ligands for use in targeting attached drugs to pathologic cells, thereby avoiding collateral toxicity to healthy cells. In the case of cancer, we began by exploiting up-regulation of the folate receptor on cancers of the ovary, lung, kidney, endometrium and breast to target imaging and therapeutic agents to these cancers. Clinical trials of six folate-linked drugs demonstrate that the ligand-targeting strategy holds promise for increasing drug potency while reducing unwanted toxicity. Data on treatment of tumor-bearing mice, dogs, and humans will be presented.

We have also developed low-molecular-weight targeting ligands to deliver attached drugs selectively to cancers that over-express tumor-specific receptors. Imaging and therapeutic studies suggest that these targeting ligands improve the diagnosis of cancers and enhance treatment of these malignant diseases. Recent preclinical and/or clinical data on these new targeting ligands confirm this anticipation.

These cancer-specific ligands have also been exploited to "light up" cancer tissues with tumor-targeted fluorescent dyes during surgeries. This revolutionary technology is now enabling surgeons to find and remove far more cancer nodules than was ever previously possible. Videos of several of these surgeries will be presented.

Finally, ligand-targeted imaging and therapeutic agents are being developed for a number of autoimmune, inflammatory, and infectious diseases (e.g. malaria, rheumatoid arthritis, multiple sclerosis, psoriasis, atherosclerosis, osteoarthritis, etc.). New exciting clinical and preclinical data on their remarkable efficacies will also be described.

Opening remarks by Bharat Ratna Professor C.N.R. Rao
High tea to follow lecture at 5:30 p.m.

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