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**PHILIP S. LOW, PH.D.**

LIGAND-TARGETED THERAPEUTIC AND  
IMAGING AGENTS FOR MULTIPLE HUMAN DISEASES

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APRIL 14, 2016

4:00 P.M.

208 LIGHT HALL



SPONSORED BY:  
VANDERBILT INSTITUTE OF CHEMICAL BIOLOGY

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Upcoming Discovery Lecture:

**HUDA Y. ZOGHBI, M.D.**

*Professor of Pediatrics, Neurology, Neuroscience, and Molecular and Human Genetics  
Baylor College of Medicine*

*April 21, 2016*

*208 Light Hall / 4:00 P.M.*

VANDERBILT  UNIVERSITY  
MEDICAL CENTER

## LIGAND-TARGETED THERAPEUTIC AND IMAGING AGENTS FOR MULTIPLE HUMAN DISEASES

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We have been developing methods to target drugs specifically to pathologic cells, thereby avoiding collateral toxicity to healthy cells. In the case of cancer, we have exploited 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 a targeting ligand that selectively delivers attached drugs to PSMA on prostate cancer cells. Imaging and therapeutic studies suggest that this targeting ligand can not only improve the diagnosis of prostate cancer, but also enhance treatment of the disease. Recent pre-clinical and clinical data on this targeting ligand confirm this anticipation. Additional cancer-specific ligands that target malignancies of the bladder, pancreas, stomach, brain, liver, colon, skin and esophagus are also under investigation. Moreover, use of these ligands to “light up” cancer tissues with tumor-targeted fluorescent dyes during surgeries are being developed and videos of recent surgeries of ovarian and lung cancers will be presented. Finally, ligand-targeted imaging and therapeutic agents for a number of autoimmune, inflammatory, and infectious diseases (e.g. malaria, rheumatoid arthritis, multiple sclerosis, psoriasis, atherosclerosis, osteoarthritis, etc.) will also be described.

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### **PHILIP S. LOW, PH.D.**

**DIRECTOR OF THE PURDUE CENTER  
FOR DRUG DISCOVERY**

**RALPH C. CORLEY DISTINGUISHED PROFESSOR  
DEPARTMENT OF CHEMISTRY  
MEMBER, NATIONAL ACADEMY OF INVENTORS**

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Dr. Philip S. Low is the Director of the Purdue Center for Drug Discovery and the Ralph C. Corley Distinguished Professor of Chemistry. Dr. Low has spent over 39 years 1) exploring novel methods of targeted drug development, and 2) characterizing the structure and function of the human erythrocyte membrane. During this period, he has published over 350 scientific articles in refereed journals and has over 50 US patents/patents pending (and many foreign patents). His drug delivery research has focused on the design and synthesis of targeting ligands that have proven successful in the targeted delivery of therapeutic and imaging agents to both cancer cells and aberrant immune cells involved in inflammatory and autoimmune diseases. Eight drugs stemming from this research are currently undergoing human clinical trials and three companies (Endocyte Inc., OnTarget Laboratories Inc., and HuLow Inc.) have been founded to commercialize these discoveries. Dr. Low has received an NIH MERIT Award, the ACS Award for Cancer Research (Sosnovsky Award), AACR Award for Outstanding Achievement in Chemistry in Cancer Research, both of Purdue's awards for outstanding research, the University's highest career achievement award (Morrill Award), and numerous other National and International awards, including election to the National Academy of Inventors. Dr. Low received his B.S. in Chemistry from Brigham Young University in 1971 and his Ph.D. in Biochemistry from the University of California, San Diego in 1975.

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