

BIOLOGY COLLOQUIUM

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3:50 PM, Room 111, Life Sciences

*“Overview of current research projects in the Cancer
Research Laboratory at IIT Research Institute”*

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It has often been a mystery as to how a drug is discovered and progressed from bench to bedside. We have focused on a composite approach to identify new potent agents derived from natural agents and evaluated in various cancer cells from different target organs. Once the agents appear to be efficacious and appropriate targets are selected their activity in experimental animal models are evaluated. Simultaneously, molecular mechanism of action for an efficacious chemopreventive or chemotherapeutic agent(s) is investigated. The sequence then is switched to preclinical toxicity followed by the FDA approval for testing the drug in clinical trials. We have focused our attention mainly to breast and colon cancer and more recently to lung and pancreatic cancer. Selectively, we developed a relatively non-toxic vitamin D analog, which has been approved for clinical trials. Although not currently studied in the lab, in the past we also identified Fenretinide (vitamin A analog), Resveratrol (from grapes and red wine) and deguelin (from African plant) which are at various stages of clinical trials. Current projects include functional significance of VDR polymorphism in breast cancer, treatment strategies for aromatase inhibitor resistance, steroid receptors and colon cancer, molecular mechanism of action of vitamin D, development of Zapotin for colon, lung and pancreatic cancer, determination of molecular distinction between the physiological and pharmacological effects of vitamin D. In addition effort is continued towards synthesizing analogs of active chemopreventive agents and their evaluation using screening approaches at cell and organ level. Collectively a bird-eye view will be presented for all the projects.