PURDUE UNIVERSITY Discovery Park

BINDLEY BIOSCIENCE CENTER

1) Historical Accomplishments: The Bindley Bioscience Center (BBC) was one of the original four Discovery Park centers. Originally conceived of as a bioengineering center, it quickly evolved as a bioscience center, incorporating components of instrumentation and engineering together with life science applications. It was initially formed in early 2002, with V. Jo Davisson (Medicinal Chemistry) and George Wodicka (Biomedical Engineering) serving as interim co-directors. The space for the BBC was completed in August 2005, and faculty and staff moved into specifically designated interdisciplinary laboratories. The BBC has invested in more than $10 million in capital equipment, has helped recruit with $ or equipment in more than 10 faculty hires, and has 35 faculty engaged in projects funded through the BBC. The BBC has worked toward creating a new research environment to: (a) engage biosciences in a broader perspective; (b) utilize new and emerging technologies and to apply technologies in new areas; and (c) incorporate engineering principles for analysis and reverse engineering of biological systems. Collectively, the BBC is attempting to address major limitations of systems biology, especially those of measurement.

2) Recent successes at the BBC include

Large funded projects:

a. Analytical Proteomics Team (Clinical Proteomics Technology Assessment for Cancer biomarkers, CPTAC), F. Regnier, PI
   i. NIH/NCI , 9/01/06 – 8/31/11; ~$1.2M/year
   ii. Cancer biomarker studies in consortium with 4 other national centers.
b. Ethanologenic Yeast Characterization, N. Ho, PI; Jiri Adamec, Bindley investigator
   i. Department of Energy, 10/01/07 – 9/30/10; ~$5M total
   ii. Metabolomic analyses of yeast strains
c. Assembly of a Lignin Modification Toolbox, C. Chapple, PI; A. Friedman, co-PI
   i. Global Climate Energy Project, Stanford University, 6/1/08 – 5/31/11; $1.9M total for 3 years
   ii. Generation of novel lignin modification enzymes and reagents
d. Clinical Translational Sciences Institute, C. Weaver, Purdue PI
   i. NIH, NCRR, 6/1/08-5/31/13 and ~25M$ (Total Purdue ~ 5 M$)
   ii. Transformational approach to translational research in the institution and community (technology liaison position from Bindley- Charles Buck)
e. Global Research Laboratory, J. Leary and K.Park, co-PIs
   i. Korean Ministry of Science to Korean Institute of Science and Technology (KIST), 6/1/07-5/31/16; $4.5M (funding at KIST for collaborative research in DP)
   ii. International collaboration for “Molecular Imaging and Theragnosis.”

Corporate partners in active research efforts: total = 17; Indiana companies = 11

Intelimmune (Fort Wayne)
Kylin Therapeutics (WLAF)
Eli Lilly & Co. (Indy)
Amgen (CA)
TechShot (Greenville)
LECO (St. Joseph, MI)
Quadraspec (WLAF)
Prosolia (Indy)
Monarch (Indy)
Neoclone (Madison)
iCyt Visionary Bioscience (Champagne)
MathSpec (Chicago)
MatrixBio (WLAF)
Cyntellect (San Jose)
SnapFire (WLAF)
Seyet (WLAF)
Kymera (WLAF)

3) Future Opportunities: The near term goals of the BBC are to establish key areas of research that are recognized nationally. The membership is pursuing three central scientific themes in cancer biology, pathogens, and nutrition and diet. These scientific themes are supported by the underlying technical strengths of the Bindley in analytical instrumentation (a new center will start in July 2008), chemical and structural biology, tissue and cellular engineering, and the emerging area of nanomedicine. The BBC will work closely with other DP centers (e.g. Oncological Sciences, Cyber, Energy, Birck Nanotechnology) to assembly large multi-investigator proposals in these key research areas.