



**Purdue-UAB Botanicals Center for Age-Related Disease**

**2002 Training Course**  
***Mass Spectrometry Methods in***  
***Botanicals Research***

**University of Alabama at Birmingham**

**September 9-10th, 2002**

***Directors: Stephen Barnes, PhD and Helen Kim, PhD***



# Purdue-UAB Botanicals Center for Age-Related Disease

- **Joint Center between Purdue University and UAB**  
*Connie Weaver, Director: Stephen Barnes, Co-Director*
- **Established in September, 2000 with funding from NIH**
- **Focus:** Role of polyphenols in aging and chronic disease
- **Topics:** Osteoporosis, Neurodegeneration, Cancer and Inflammatory Disease
- **Compounds/botanicals:** Isoflavones (soy, red clover, kudzu), proanthocyanins (grape seed), catechins (green tea)

# University of Alabama at Birmingham

- **Urban university with 15,688 undergraduate and graduate students plus a work force of 16,127 (of which 1,934 are faculty)**
- **3,144 degrees awarded - 121 PhDs and 241 MD/OMD/ODs**
- **Associated University Hospital with 833 beds and 407,579 annual outpatient visits**



**UAB Hospital**



**Kirklin Clinic**

# Research at UAB

- **Excluding students, \$325 million in active grants at UAB**
- **School of Medicine (SOM) is ranked 17th nationally in NIH funded research with over \$200 million research support**
- **SOM consists of:**
  - 13 Clinical Departments**
  - 10 Basic Science Departments**
  - 55 Centers and Programs**
- **Combined University/Hospital budget is \$1.363 billion**



# Goals of the Training Course

- *To appreciate the value of mass spectrometry in the identification, quantitation and validation of individual botanical agents*
- *To develop approaches based on proteomics and mass spectrometry for the identification of target proteins of botanical agents*

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- *To understand mass spectrometry terms such as electrospray ionization, MALDI, Time-of-flight, parent ion, daughter ion, tandem mass spectrometry, peptide sequencing*
- *To understand proteomics terms such as isoelectric focusing, 2DE, tryptic finger print analysis, posttranslational modification, ICAT, MUDPIT, MASCOT, Protein Prospector, etc.*

# Overview of the Course

## Monday

8:15 am	Introductions
8:45 am	Proteomics intro
10:00 am	Ionization/Sample prep
10:30 am	MS-MS of peptides
11:00 am	LC-MS and MS-MS of botanicals
11:30 am	High sensitivity MS
12 noon	Lunch
1:00 pm	Laboratory sessions <i>2D-gels</i> <i>MS-MS peptides</i> <i>LC-MS-MS polyphenols</i> <i>microdialysates</i>
3:30 pm	<i>Gel scanning/spot</i> <i>Problem solving</i>
5:00 pm	Reception

## Tuesday

8:15 am	MALDI-TOF
8:45 am	Tryptic fingerprinting
9:15 am	Bioinformatics
10:00 am	Laboratory sessions <i>Polyphenol quantitation</i> <i>MALDI analysis</i>
12 noon	Lunch
1:00 pm	Laboratory sessions <i>2D-spot analysis</i> <i>Informatics</i>

# Basics

- **Bathrooms are next to room 637**
- **Coffee/tea breaks will be held in the foyer outside room 602 at 9:30 am and 3:15 pm on Monday, and at 9:45 am on Tuesday**
- **Lunches will be at 12 noon in room 637 on Monday and Tuesday**
- **A reception will be held in room 637 on Monday at 5 pm**
- **Faxes and other messages can be received by Ms. Ann Moore in room 602 -**  
***Fax # (205) 934-6944; Tel # (205) 934-6766***