

PROTEIN CHEMISTRY

Bioanalytical Characterization and Production

Consultative oriented services for the isolation, analysis, characterization, and production of proteins and peptides. Our breadth of services and experience in rational design can support the entire array of discovery and development needs for drug and diagnostic development organizations, from discovery to market. GLP and CLIA compliance with BSL-3 facilities.

Proteomics

- ◆ 2-D gel electrophoresis and proteome analysis from gels
- ◆ Protein isolation, purification, and characterization from gels
- ◆ Informatics by UniProt, PIR, GenEmbl

Peptide Synthesis and Mapping

- ◆ Milligram to hundred gram range solid phase, solution phase
- ◆ Fully automated and manual approaches
- ◆ Peptide libraries
- ◆ Peptide modifications: Radiolabel, chromogenic, fluorogenic, stable isotope, non-natural amino acids
- ◆ Peptide Mapping
 - RP HPLCC
 - MALDITOF/MS
 - LC/ES/MS

Biochemical Analysis

- ◆ Chromatographic mapping
- ◆ Mass spectral analysis and mapping by MALDI-TOF/MS, ES/MS, or PSD/CID/CAF
- ◆ Mass spectral protein sequencing
- ◆ 2D-gels
- ◆ SDS-Page with and without reduction
- ◆ FPLC SEC for apparent mol. Wt.
- ◆ Light Scattering for determination of aggregates

Amino Acid Composition

- ◆ Quantitative determination of all free occurring amino acids
- ◆ Determination of free amino acids
- ◆ Unusual amino acids: HyPro, HyLys
- ◆ Physiological amino acids
- ◆ Solution phase, PVDF membrane, PAGE gel samples

Biophysical Characterization and Ligand Binding

- ◆ Protein and ligand binding studies by isothermal titration calorimetry (ITC).
 - Determination the binding constant and stoichiometry of binding between molecules, as well as the molar heat, free energy, and entropy of binding.
- ◆ Protein and peptide thermal stability characterization by differential scanning calorimetry (DSC)
 - Thermal stability, determination of melting points, temperature and molar heat of unfolding, interpretations can be made as to the mechanism of unfolding.
- ◆ Protein structural analysis by Circular Dichroism, Fluorescence Spectroscopy, Protein Fluorescence, Light Scattering Spectroscopy (SEC)

Recombinant Protein Expression

Antibody Production

