**Research Infrastructure and Capabilities**

**Nanotechnology Applications in Drug Delivery, Drug Metabolism and Pharmacokinetics, Polymer and Biomaterial Characterization, Drug-Receptor Binding and Enzymatic Assays**

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**Liquid Chromatography**
- Shimadzu Class VP and Prominence IIPLCs
  - Fully automated with autosampler
  - Photodiode array and fluorescence detection
  - Separate, identify, purify and quantify chemicals in complex mixtures

**Mass Spectrometry**
- API 2000 LC/MS/MS System
  - State-of-the-art technology in chemical analysis
  - Revolutionary LIMAC™ collision cell technology
  - Automated method development
  - Robust ion sources and proven Curtain Gas™ interface
  - Single point control of LC and built-in syringe pump

**Thermal Analysis**
- Perkin Elmer Diamond DSC
  - HyperDSC™, the leading fast scan DSC technique
  - High caloric accuracy
  - Superior signal resolution and sensitivity
  - Multiple cooling options for temp. -170°C to 725°C
  - StepScan for Modulated Temperature DSC

**Nanoparticle Fabrication**
- Microfluidizer 110L
- Silverson SL2T Homogenizer
- Beckman L8M Ultracentrifuge
- Labconco Freezone 2.5 Lyophilizer
- Fabricate, isolate and freeze dry polymer, lipid and biomaterial based nanoparticles
- Entrap, embed or encapsulate choice of materials, including drugs, in nanoparticles

**Liquid Scintillation Counting**
- Perkin-Elmer Tri-Carb® Liquid Scintillation counter
  - Detects small amounts of radiolabeled chemicals
  - 80-97% of background radiation removed
  - Automatic efficiency control
  - Adjusts counting regions for highest accuracy
  - Direct DPM measurements eliminate the necessity of quench correction

**Mammalian Cell Culture**
- Hirayama HiClave HV-45 Autoclave
- SafeAire Vertical Laminar Flow Hood
- Fisher Scientific Floor Model Incubator
- Thermolyne nitrogen dewar, tabletop centrifuges, ovens, shakers and supporting equipment

**Particle Size Characterization**
- Malvern Instruments Mastersizer 2000
  - Proprietary analysis can split close bimodal size distributions
  - Zeta potential and zeta size
  - High sensitivity for measuring dilute dispersions
  - Size range (1nm – 5μm)
  - Low sample volume (10 μl)

**Drug Stability Analysis**
- VWR Low-Temperature/B.O.D. Incubator Model 2020
  - Microprocessor control
  - Temp. –10°C to +45°C (±0.5°C)
  - Equipped with chart recorder
  - Analysis supported by HPLC, mass spectrometry and thermal analysis