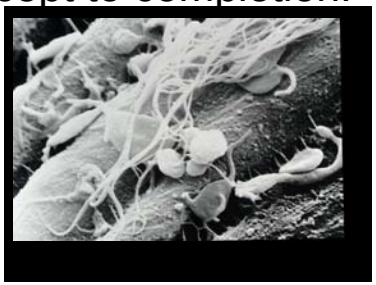
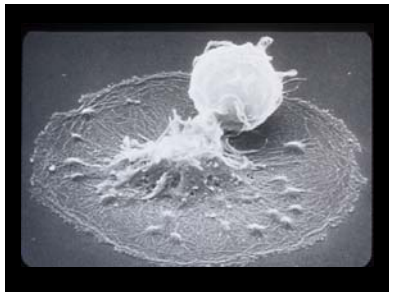
Blood Biocompatibility Laboratory (BBL)

Gundu Rao (PI), Debra Cocking Johnson
Biomedical Engineering Institute, University of Minnesota

NNIN Facility utilized: Characterization Facility

- **WHAT WE DO**
  - Provide a convenient central access for testing biomaterials and medical devices for medical device companies and faculty at the University of Minnesota.
  - Initiate collaborative studies in the area of blood biocompatibility and thrombosis research
  - Customize laboratory techniques to meet the needs of a diverse clientele
  - Link customer with various University units and work with them to take their project from concept to completion.





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- In Vitro Studies
  - Human Blood
  - Biomaterial / Blood Interaction
  - Medical Device / Blood Interaction
- Visualization of Blood Cells and Blood Proteins on Surfaces
  - Light Microscopy
  - Scanning Electron Microscopy
  - Transmission Electron Radiolabeling
  - Specific Antibody Interaction
  - Cytoskeletal Protein Labeling
- Post Exposure Studies on Activated Platelets
  - Shape Change
  - Adhesion
  - Aggregation
  - P-selectin Expression
  - Activation of GPIIbIIIa
  - Tissue Factor Expression
  - Thromboxane B_2 assay
- In Vivo Animal and Human Studies
  - Animal and human studies on drugs and devices
  - Design, supervision and facilitation of animal studies in conjunction with U of MN's Experimental Surgical Services
- Thrombosis and Stroke Research
  - Design and development of non-thrombogenic biomaterials for cardiovascular applications
  - In vitro / in vivo testing of devices for compatibility
- Drug Evaluation on Blood/Biomaterial Interaction
  - Effect of anti-platelet drugs on:
    - Adhesion
    - Shape Change
    - Secrestion – ATP
    - P-selectin Expression
    - Vessel-wall interaction under flow conditions
- Targeted Drug Delivery
  - Biopolymer-based techniques for the delivery of drugs to targeted areas
  - Thrombus Generation
  - In vitro and in vivo anti-stroke studies
  - Biopolymer and surface modification techniques for the management of cerebral aneurysms