Atomic Force Microscopy Core Facility

Atomic Force Microscopy (AFM) is a noninvasive technique that reproduces topographic images under physiological-like conditions. Scanning can be performed in air or in a liquid environment. A range of samples, from living cells down to single molecules, can be imaged. AFM is also an attractive tool for studying the dynamics of cellular endocytosis of nanovectors and the systemic response to biological processes. An area of major interest is to determine the stiffness of a sample (Elastic Modulus). The elasticity of the cell membrane can vary between cell types as a function of growth, differentiation, disease or treatment. In addition, non-cellular structures can also be imaged.

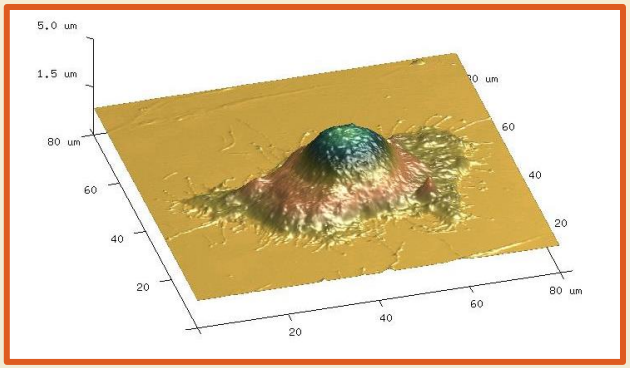
The Core uses a BioScope™ II atomic force microscope (Bruker Corporation; Santa Barbara, CA) that requires minimal sample preparation. The BioScope™ II is integrated with a Nikon TE2000 inverted optical microscope to simultaneously acquire bright-field and fluorescence images .

BioScope II scanner (Bruker Inc).

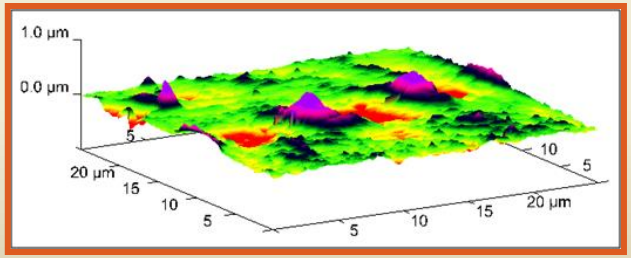
The services of the Atomic Force Microscopy Core include:

- Topographical imaging of samples in air or liquid environments
- High-resolution imaging
- Time-lapse experiments that show real-time changes in sample morphology or structure
- Nano-probing of samples to measure molecular interactive forces
- Studies of local micromechanical properties (elasticity, stiffness, adhesion, roughness)
- Data analysis for determination of homogeneity of samples, size distribution, position, mapping and 3D imaging

(Services provided to internal, external and public sector).



3D AFM image of a HeLa cell



3D AFM image of liposomes during internalization

FOR FURTHER INFORMATION CONTACT :

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