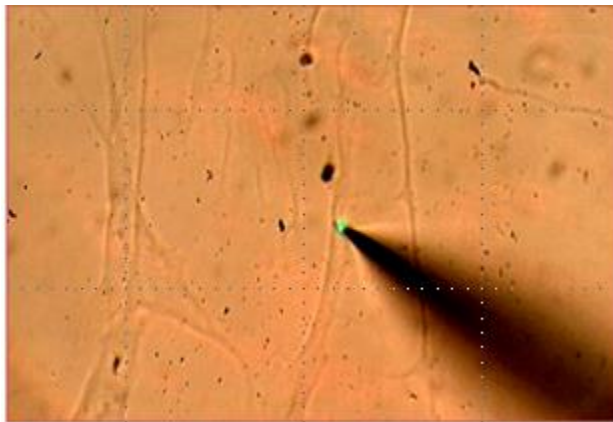


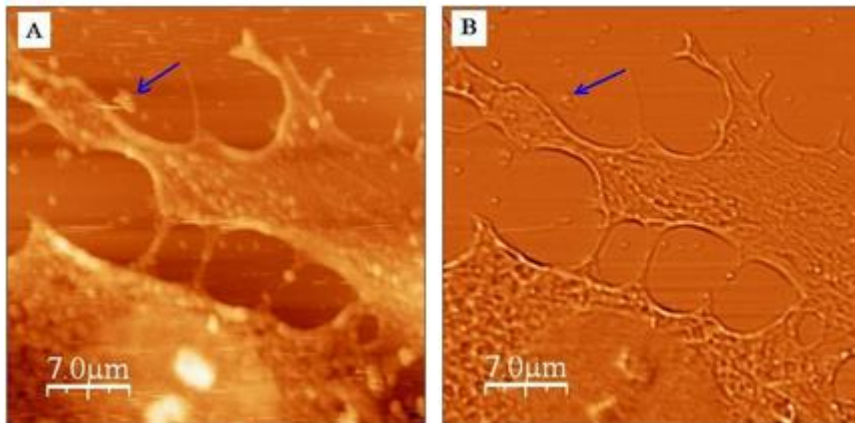
NSOM images of biological cells

Nanonics systems are designed to overcome the difficulties associated with imaging live, soft tissue samples under fluids. The [Hydra](#) instrument is specifically designed for biological applications. The transparent probes employed in our systems allow easy viewing of samples in liquid via a versatile and user-friendly liquid cell accessory. Furthermore, the open architecture of the SPM head allows completely unobstructed viewing of the sample both from above and below. Nanonics SPMs are easily integrated into dual microscopes that combine both upright and inverted format for complete characterization. On the AFM side, all imaging modes are possible including intermittent contact mode, the more gentle method of choice commonly employed for soft biological materials.

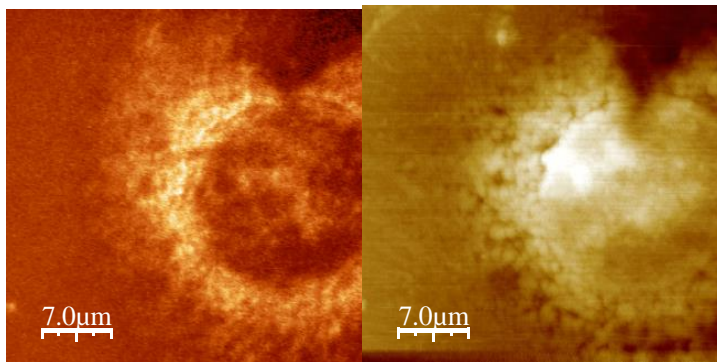
NSOM and AFM has successfully imaged fibroblast cells. Below is an optical image captured with the CCD camera showing the sample cell on the surface with the SPM/NSOM probe that can be accurately positioned at the point of imaging interest.



Below, an AFM topography image on the left (A) and a corresponding NSOM image on the right is shown of fibroblast cells. Even though the cantilever optical NSOM fiber probe has a slightly larger diameter than a conventional AFM probe, the AFM image collected with this probe is certainly comparable to that collected with an optically insensitive conventional Si cantilever. The NSOM shows distinct features and improved resolution over the topography image where the cell membrane is clearly visualized in the NSOM image. Also, the blue arrow denotes differentiation within the cluster of particles in the NSOM image whereas the AFM image just shows one large domain.



The open architecture of the Nanonics Hydra system further enables easy fluorescence and absorption spectra to be collected simultaneously with the AFM image. Below is shown AFM (right) and fluorescence image (left) of murine stem cells where the excitation was at 514.5nm. The fluorescence around the membrane of the cell is clearly observed as well as some fluorescence within the cell.



Best instrument for this application

Hydra