



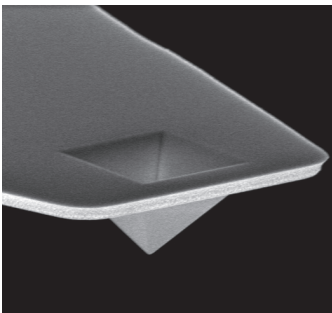
MLCT-Bio AFM Probes

Industry Benchmark for Molecular Force Spectroscopy and Contact Mode Imaging

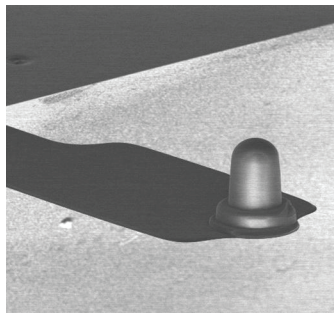
MLCT-Bio probes set the industry standard for imaging in fluid and for force spectroscopy of biological samples. The MLCT-Bio probes incorporate larger tip radii and apex angles for consistent cell imaging, and utilize proprietary design to improve the success rate of force pulling experiments. The MLCT-Bio-DC probe model is a low thermal-sensitivity version directed at minimizing probe bending or drift during long-term studies conducted at elevated temperatures. These drift-compensated probes have a small laser-reflection enhancing gold pad, constrained to the distal end of the cantilever, to significantly reduce probe bending. The MLCT-SPH range features the same quality cantilevers and drift-compensated cantilevers but with the choice of a colloid-like sphere of 1, 5, or 10 μm radius.

MLCT-Bio AFM probes provide:

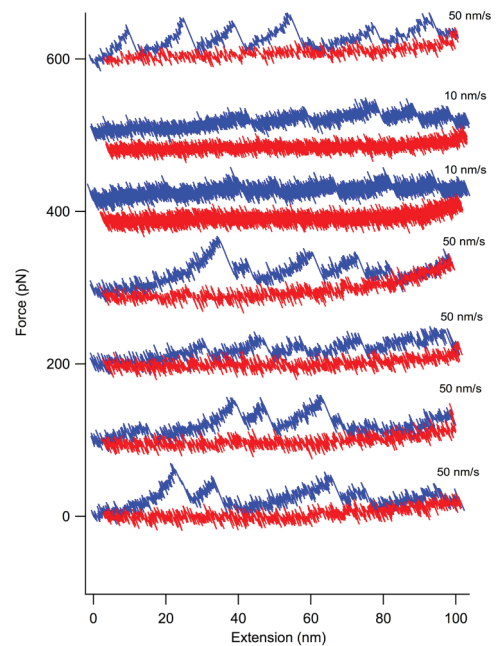
- No disruption of cells during imaging
- Optimal catch rate for protein unfolding experiments
- Minimized probe bending at elevated temperatures (with low thermal sensitivity version of the probe)



MLCT-Bio probe for imaging biological samples.



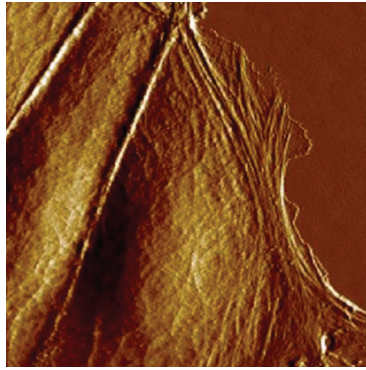
MLCT-SPH-5UM probe with spherical tip.



Consecutive unfolding curves of the (NuG2)₈ protein obtained in PBS buffer environment using MLCT-Bio probes. Data courtesy of Dr. Hongbin Li, University of British Columbia.

AFM Expertise Built into Every Probe

Bruker is the only AFM instrument company that also manufactures AFM probes. Our extensive line of AFM Probe products include highest quality silicon, silicon nitride, and proprietary PeakForce Tapping® and specialty probes to meet the needs of most AFM users. Our dedication to manufacturing probes, coupled with our expertise in AFM instrument design, ensures that Bruker is uniquely equipped to deliver the most complete AFM solutions for the widest variety of applications.



Above and cover image inset: Contact mode deflection error image of live MDCK cell using MLCT-Bio probe (0.01 N/m).

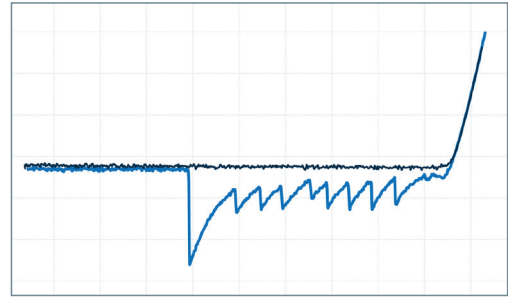


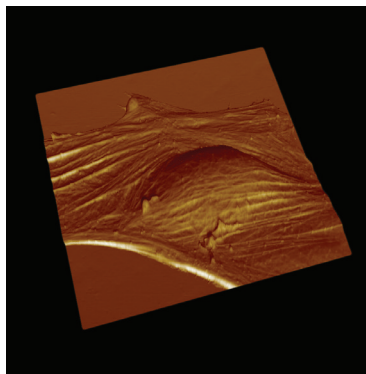
Image of Titin protein pulling force curve using MLCT-Bio probe (0.01 N/m).

“People really like to use these tips. There is no other tip with nominal 0.01 N/m and negligible drift giving a good sum signal. The drift of the MLCT-Bio-DC cantilevers is almost negligible!”

– Dr. Hermann Schillers,
University of Muenster

“The MLCT-Bio probe meets the performance standard I have come to expect from the MLCT product line.”

– Dr. Andreea Trache, Texas
A&M Health Science Center



Contact mode deflection image of live vascular smooth muscle cells in culture using MLCT-Bio-DC probe. Image taken with 90x90 µm scan size at 50 micron/sec. Data courtesy of Harini Sreenivasappa and Andreea Trache, Texas A&M Health Science Center.

MLCT-Bio and MLCT-Bio-DC Specifications

Tip

Material	Silicon Nitride
Type	Pyramidal
Tip ROC	20 nm
Tip Height, H	3.2 µm
Tip Setback	4.5 µm

Body

Material	Single Crystal Si
Type	Anisotropic Etch
Resistivity	0.018 Ω-cm
Dopant	Antimony
Thickness	300 µm

Cantilevers

Material	Silicon Nitride
Type	Deposited Film
Cantilever Thickness	550 nm
Bend Tolerance	0°

Note: All specifications are nominal

Cantilever Options	A	B	C	D	E	F
Shape	Triangular	Rectangular	Triangular	Triangular	Triangular	Triangular
Flexural Stiffness, k	0.070 N/m	0.020 N/m	0.010 N/m	0.030 N/m	0.10 N/m	0.60 N/m
Flexural Resonant Frequency, f ₀	22 kHz	15 kHz	7 kHz	15 kHz	38 kHz	125 kHz

Note: All specifications are nominal

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