

# Sensing of Living Cells' Mechanical Behavior



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<b>Keywords</b>	Cytoskeleton, Cellular response, Mechanical stimuli, Bio-sensing		
<b>Technical Support Skills</b>	<ul style="list-style-type: none"> <li>• Mechanical sensing of living cells and tissues</li> <li>• Micro three-dimensional actuator</li> <li>• Control of in-vitro culture environment</li> </ul>		

## Research Contents

1. Development of mechanical sensor based on a principle of electro capacitance for living cells and tissues.
2. Development of bio-scanner to detect three-dimensional shape for tissues.
3. Development of bio-actuator for three-dimensional micromanipulation of cultured cells.
4. Development of culture environment maintenance device for long-term observation.
5. Construction of new experimental system incorporating above devices.

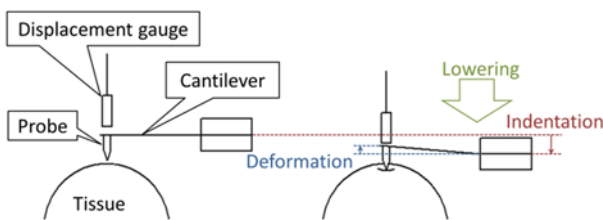
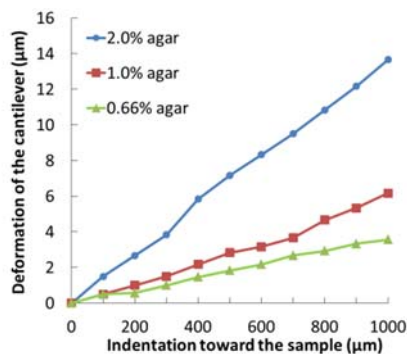
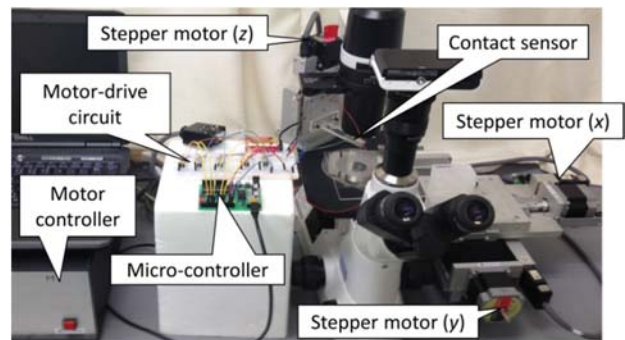


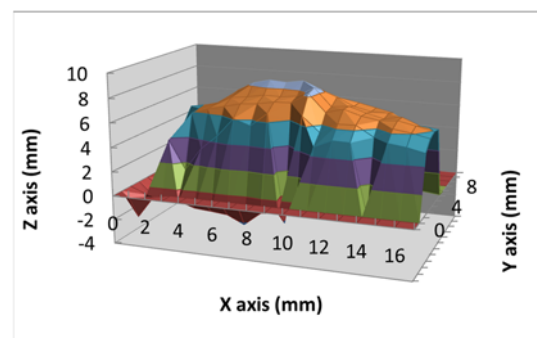
Fig.1 Principle of the sensing method. The deformation amount depends on local mechanical properties of the tissue.



Results of agar sample. The method detected the difference in mechanical properties.



3D shape detection system.



Detected shape of Chicken's diaphyseal end.

## Available Facilities and Equipment

Bio-clean bench VCUT-840 (Oriental Giken)	Inverted phase-contrast microscope TF100LED-F (Nikon)
CO2 incubator 4020 type (Asahi Life Science)	Ultracold freezer MDF-C8V1 (Panasonic healthcare)
Digital spectrum analyzer R9211A/E (Advantest)	Autoclave LBS-325 (Tomy Seiko)
Function synthesizer 1915 (NF)	Centrifuge LC-200 (Tomy Seiko)
Noncontact displacement gauge ST3541 (Iwatsu)	