

# Nano-Micro Devices for Analysis of Single Cells and Single Molecules

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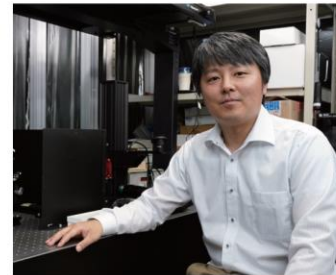
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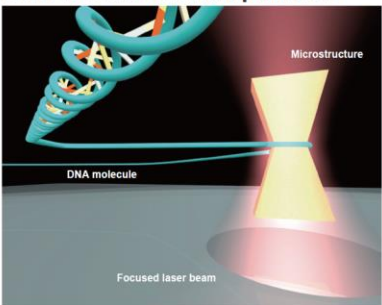
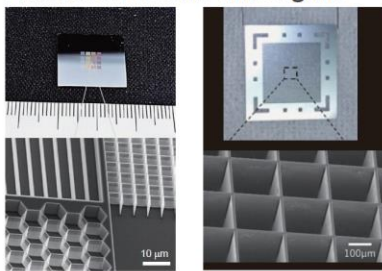
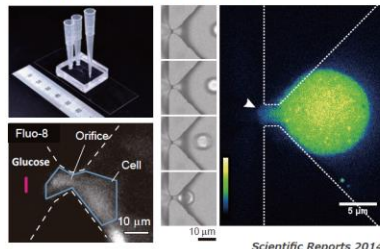
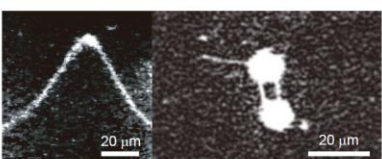
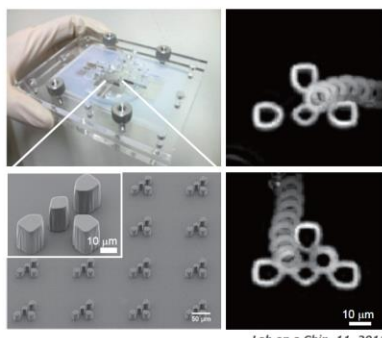
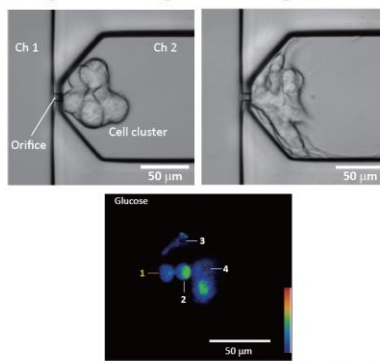
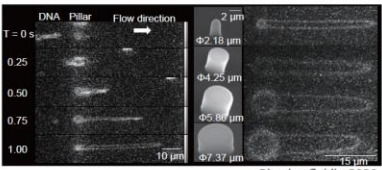
## Research topics

Our group focuses on the applications of nano-micro structures in the research fields of biology and medical science. The research topics are 1) manipulation of single cells and single molecules using optically driven nanotools in combination with microfluidic devices, 2) “mechanical” processing of single cells with nano-structures, and 3) cell response analysis on microfluidic devices reproducing in-vivo situation. The goal of our researches is to contribute the biological fields through the development of nanotechnology-oriented methodology.



**keywords:** nano/microfabrication, microfluidics, BioMEMS, single cell biology, single molecule analysis, regenerative medicine, bionanotechnology

## Single Cells and Single Molecules

Manipulation	Processing	Analysis
<p><b>DNA molecular manipulation</b></p>  <p><i>IET Nanobiotechnology, 2015</i> Single molecule manipulation by a microtool</p>	<p><b>Dissection of cells and organs</b></p>  <p><i>MEMS2017</i> Nano-micro blade array for cutting cells/organs</p>	<p><b>Chemical stimulation</b></p>  <p><i>Scientific Reports 2014</i> Response to drug stimulation mimicking in vivo situation</p>
 <p><i>Lab on a Chip, 8, 2008</i> Picking-up and winding of a DNA molecule</p>	<p><b>Single cell assembly</b></p>  <p><i>Lab on a Chip, 11, 2011</i> Cell positioning for cell interaction studies</p>	<p><b>Responses in pseudo organs</b></p>  <p><i>Pacificchem2015</i> Measurement of response propagation</p>
<p><b>DNA trap and extension</b></p>  <p><i>Biomicrofluidics2020</i> Molecular ring toss of circular DNA</p>		