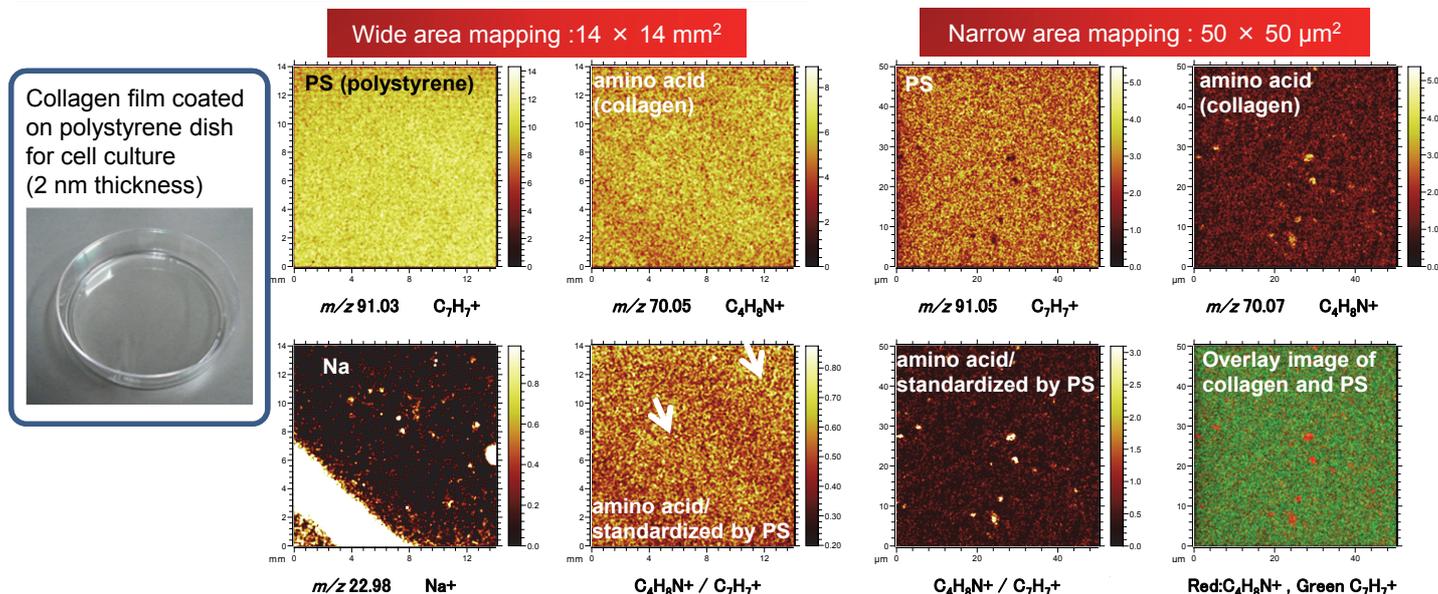


Evaluation of in-plane Homogeneity of Thickness and Mechanical Property of Collagen as a Scaffolding Member Using TOF-SIMS and AFM in Fluid

To evaluate the thickness uniformity and mechanical property of a scaffolding member is important because those properties affect the efficiency of cell culture remarkably. TOF-SIMS and AFM in fluid enable us to evaluate in-plane homogeneity of a scaffolding member such as collagen.

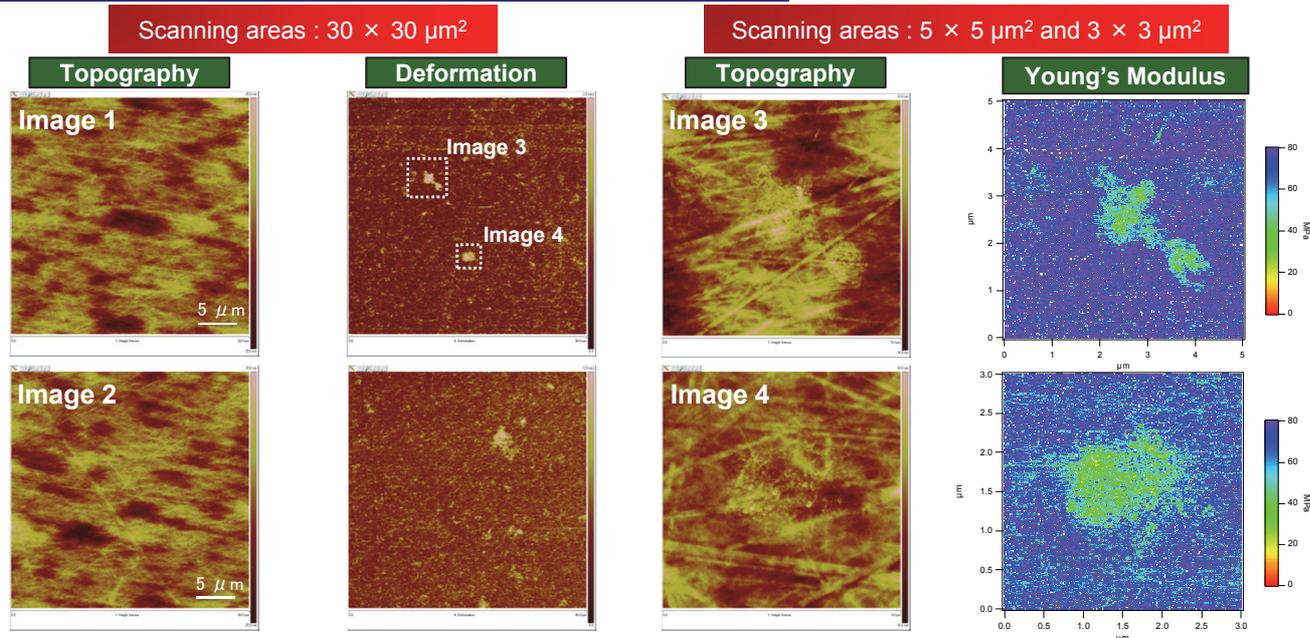
Composition mapping of collagen dish using TOF-SIMS



- Collagen existed ununiformly in millimeter region.
- A trace amount of impurity such as Na^+ was observed locally.
- TOF-SIMS measurement is available for mapping of the multicomponent including impurities at the same time.

- It was indicated some areas of thick collagen with several micrometers size existed locally.

Nanomechanical mapping of collagen dish in water using AFM



- AFM enables us to evaluate the irregularity of collagen thickness and Young's modulus mapping in fluid or medium assay.
- Some areas of thick collagen with several micrometers size exist locally, and the Young's modulus of which was lower.

➔ TOF-SIMS and AFM enable us to evaluate in-plane homogeneity of a scaffolding member such as collagen by a combination of surface morphology and composition, nanomechanical mapping.