Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Effect of terminal functional group of self-assembled monolayers formed on gold surface on the adsorption of Amyroid fibrils by AFM[1]
KOHEI UOSAKI, MASAYA TSUKAMOTO, KAZUYASU SAKAGUCHI, YUYA ASANOMI, Hokkaido University — Amyroid fibril, which is known to cause BSE and Alzheimer disease, is a solid and stable fiber of several tens of nm wide and several μ m long and has a potential to be used as nano-materials because functional molecules and metal and semiconductor nano-particles can be attached. However, it is not yet possible to align the Amyroid fibrils on a solid surface as programmed. In this study, interaction between Amyroid β (Aβ) fibrils and self-assembled monolayers (SAMs) with various functional groups constructed on a gold surface was investigated by in situ AFM. Amyroid β10-35 (Aβ10-35) peptide was synthesized and the peptide was incubated at 37 deg. for more than a week to obtain the fibril. SAMs of alkylthiols with methyl, OH, COOH, NH2, and SO3 groups were formed on Au(111) surface and AFM images were obtained by MAC mode in a solution containing the fibrils. It was clarified that electrostatic and hydrophobic interactions play important roles in adsorption behavior of the fibrils.

[1]This work was supported by MEXT, Japan for Promotion of Novel Interdisciplinary Fields

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Date submitted: 23 Dec 2007 Electronic form version 1.4