

Amyloid fibrils thin films obtained by MAPLE process

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Abstract

Amyloid fibrils have attracted a great deal of attention because of their association with neurodegenerative conditions like Alzheimer's, Huntington's, Parkinson's, but also systemic diseases such as type II diabetes.

Here, we report the deposition of thin films of amyloid fibrils by Matrix Assisted Pulsed Laser Evaporation (MAPLE) technique. Matrices with 3 and 5wt% frozen solutions were used as solid targets. For the irradiation of the targets a Q-switched Nd:YAG pulsed laser was used at different fluences. Glass, silicon and fused silica plates were used as substrates.

We have shown that by varying the laser parameters such as fluence and number of pulses we can obtain excellent control over several film parameters, including roughness, homogeneity, and reliability.

These results highlight the expanding role of matrix assisted pulsed laser evaporation process in biomaterials, drug delivery, and tissue engineering.

Keywords: amyloid fibrils, roughness, homogeneity

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