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Protein crystallization by anodic porous alumina (APA) template

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In this communication, we report Anodic Porous Alumina (APA) template induced crystallization. The APA nanotemplate was prepared on the glass substrate for the Hen Egg White Lysozyme (HEWL) crystal growth. The changes in the lysozyme crystals morphology, namely in the a/c axis ratio, were observed in the crystal grown by APA nanotemplate, but not in the crystal obtained with classical hanging drop vapor diffusion method, under the same experimental conditions. The comparison of the diffraction data of the two crystals as well as bioinformatics and data mining approaches and molecular dynamics simulations suggest a possible explanation of the nanotemplate crystallization phenomenon and shed light on the APA-induced nanocrystallography.

Biography

Eugenia Pechkova is presently an Assistant Professor of Biochemistry and Biophysics at the University of Genova Medical School. After taking her Doctoral degree in Chemistry at Moscow State Lomonosov University in 1998, and the PhD in Biophysics at University of Genova in 2003, was Scientific Director of Fondazione EL.B.A. (Electronic Biotechnology Advanced) and Principle Investigator of a big FIRB research grant on Organic Nanotechnology. Later she acquired the scientific responsibility of the laboratory of Nanobiocrystallography at the Nanoworld Institute, University of Genova. In 2007, she worked as a visiting Scientist at the European Synchrotron Radiation Facility (ESRF) in Grenoble in Macromolecular Crystallography and Soft Condensed Matter, remaining up to now one of the PI of Radiation Damage BAG. She is an Author of more than 50 international scientific publications (ISI-SCI), 2 patents, several chapters to books and textbooks, author of *"Proteomics and Nanocrystallography"* and editor of *"Synchrotron Radiation and Nanobiosciences"* (*"Synchrotron Radiation and Structural Proteomics"* within the Pan Stanford Series on Nanobiotechnology). Her main scientific interests are structural proteomics, functional nanoproteomics and nanocrystallography.