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Mass spectrometry and florescence analysis of SNAP NAPPA arrays

Claudio Nicolini
University of Genova, Italy

Abstract

Results are here presented about the analysis of an improved version of an innovative kind of self-assembling protein microarray, the SNAP-NAPPA (Nucleic Acid Programmable Protein Array). For the first time NAPPA arrays have been expressed with a SNAP tag and expressed in an *E. coli* coupled cell-free expression system (1). The goal of our research is to develop a standardized nanotechnological procedure for Clinical and Basic Applications (2) able to analyze the protein-protein interactions occurred on SNAP-NAPPA array in a label free manner. For this aim we analyzed SNAP NAPPAs by two Matrix Assisted Laser Desorption Ionization Time-of-Flight (MALDI TOF), namely a Voyager and an Ultraflex Bruker, and Liquid Chromatography-Electrospray Ionization (LC-ESI-MS) Mass Spectrometry (3,4) and the results have been analyzed with the aid of a complex package of *in house* made software (5). A fluorescence analysis of SNAP NAPPA has been contemporarily performed, to fully characterize this new SNAP-NAPPA array.

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Biography

Claudio Nicolini was born in Udine, Italy. He received the doctoral degree in physics from the University of Padua, in 1967. After serving as Adjunct Professor at the University of Bari, he moved for 17 years to the United States , of which he became citizen since 1974, and was originally at Brown University, MIT, and BNL. He then moved to Temple University School of Medicine, Philadelphia, where after a period of intensive training and research in pathology he became Associate Professor of Pathology and then Professor and Chairman of the Biophysics in 1976. In 1985, he was called as “eminent scientist” to the Chair of Biophysics of the University of Genoa, in Italy until 2012 , where he was successively Director of Biophysics Institute, DISTBIMO and CIRSDNNOB. From 1993 until now is Life President of the Fondazione ELBA Nicolini and of the Nanoworld Institute. On 2008 has been elected as a Foreign Member of the Russian Academy of Sciences and on 2010 Honoris Causa Professor of Biophysics and Nanobiotechnology at Moscow State University . He was Chief Editor of Cell Biophysics (USA) , Science and Technology Advisor to Italian Prime Minister Craxi, Member of the National Science and Technology Council upon Parliament election, Scientific Director Industrial Consortium CIREF, Founder Technobiochip; President Polo National Bioelectronics , President Scientific Technological Park of Elba Island. He received several awards and prizes and has authored more than 480 publications in international scientific journals (SCI), 35 patents (WPI) , 28 books and Series Editor in Bioelectronics (Plenum) and Nanobiotechnology (Pan Stanford). His main scientific activities concerned cancer research, biophysics and nanotechnology, pioneering world-wide chromatin structure-function, bioelectronics and nanobiotechnology.