OMICS Group Conferences
Accelerating Scientific Discovery

International Expo and Conference on
Analytrix & HPLC

October 22-24, 2012 DoubleTree by Hilton Chicago-North Shore, USA

On-chip detection of Neurotransmitters from biological cells

Rafael Taboryski
Technical University of Denmark, Denmark

The vast amount of diseases associated with malfunctioning of the central nervous system (CNS) emphasizes the importance of increasing the knowledge of this complicated function at the cellular level. Moreover, the exocytotic secretion of neurotransmitters is an important target for drug discovery in CNS related diseases. Examples are Parkinson's and Alzheimer's disease, schizophrenia, attention deficit hyperactivity disorder (ADHD) as well as anorexia and bulimia nervosa. Electrochemical methods are sensitive, quantitative, dynamic, and therefore widely used in bioanalytical approaches targeting transmitter detection[1] The release of transmitters from individual vesicles can be detected using constant potential amperometry performed at single cells [2]. Chip-based devices for measuring exocytosis have been developed using e.g. mercapto-propionic acid modified gold [3]. Here we present an all-in-polymer chip [4], with micropatterned conducting polymer (PEDOT:tosylate) microelectrodes.

Biography

Rafael Taboryski (RT) is associate professor at DTU at the Department of Micro- and Nanotechnology. Rafael Taboryski graduated in Physics from the University Of Copenhagen (KU) and acquired his PhD degree in 1992 also from KU. Rafael Taboryski's employment record comprises University of Cambridge as Postdoc, Danish Fundamental Metrology as Staff Scientist and Sophion Bioscience, where he headed the development of the company's biochip. Rafael Taboryski 's current research focuses on developing methods for micro-and nanostructuring of polymer microfluidic chips for biotechnological applications, and functionalization of surfaces with superhydrophobic and self-cleaning properties.

rata@nanotech.dtu.dk