



Vás zve na seminář:

NOVÉ ZPŮSOBY DETEKCE A ANALÝZY BIOMOLEKUL III

Semináře se zaměřují na využití moderních technologií pro analýzu biomolekul. Výsledky získané podporou projektu jsou zveřejněny ve zvláštním čísle časopisu *Journal of Electrochemical Sciences*.

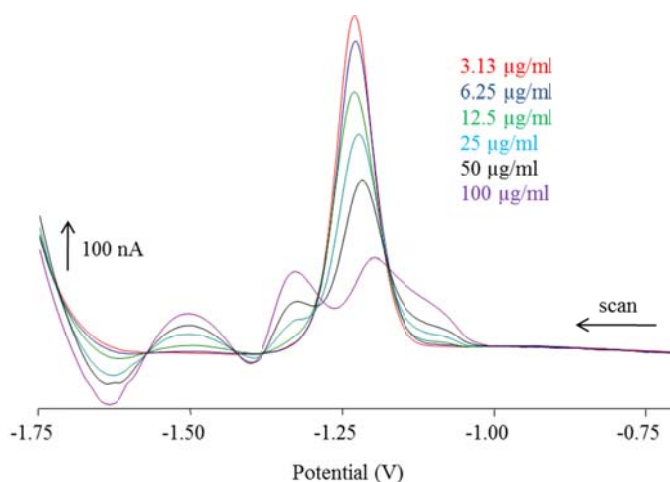
GFP-AZT KOMPLEX V LIPOSOMU, ELEKTROCHEMICKÁ STUDIE

10:00 – 11:30

Mgr. Bc. Markéta Komínková

Anotace/Annotation

Due to green fluorescent proteins considerable stability and possibility to be readily permuted or mutated, they may be exploited in multiple ways to enhance a functionality of *in vitro* biosensors. Many possibilities such as formation of chimeras with other proteins or antibodies, as well as Förster resonance emission transfer performance may be used for very sensitive and specific detection of target molecules. The review considers the high potential of green fluorescent proteins as the fluorescent recognition biomolecules in various *in vitro* biosensors application, as well as the obstacles connected with their utilization.



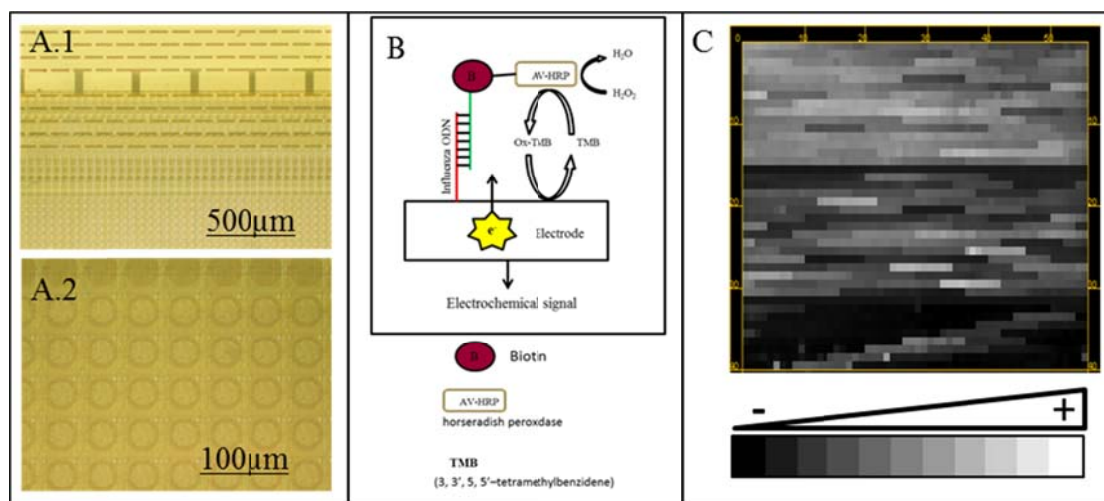


ELECTROCHEMICAL MICROARRAY FOR IDENTIFICATION PATHOGENS AGENTS

12:30 – 13:30

DEA. Miguel Angel Merlos Rodrigo
Anotace/Annotation

Numerous analytical methods are used to detect pathogens agents including methods based on the direct isolation followed by real time-polymerase chain reaction, or immunology tests. There have not been published numerous papers on the using of electrochemical microarrays for detection of viruses and/or bacteria but there is great potential. Electrochemical detection has been developed and assay performances studied for the CombiMatrix oligonucleotide microarray platform. CombiMatrix core technology is based on a specially modified semiconductor adapted for biological applications, which contains arrays of platinum microelectrodes. The ElectraSense™ principle is the detection of redox active chemistries proximal to specific electrodes. The target molecules are labeled with a redox enzyme via biotin–streptavidin (or avidin) interaction. Enzymatic oxidation of an electron donor substrate then occurs. The detection current is generated due to electro-reduction of the enzymatic reaction product. Thus, the ElectraSense™ platform has been used to develop nucleic acid assays for highly accurate genotyping of a variety of pathogens including bio-threat agents. We show in this review recent studies on the detection and identification of pathogens by electrochemical microarrays technology.



13:30 -14:00 h - Diskuse a závěr, předání certifikátů

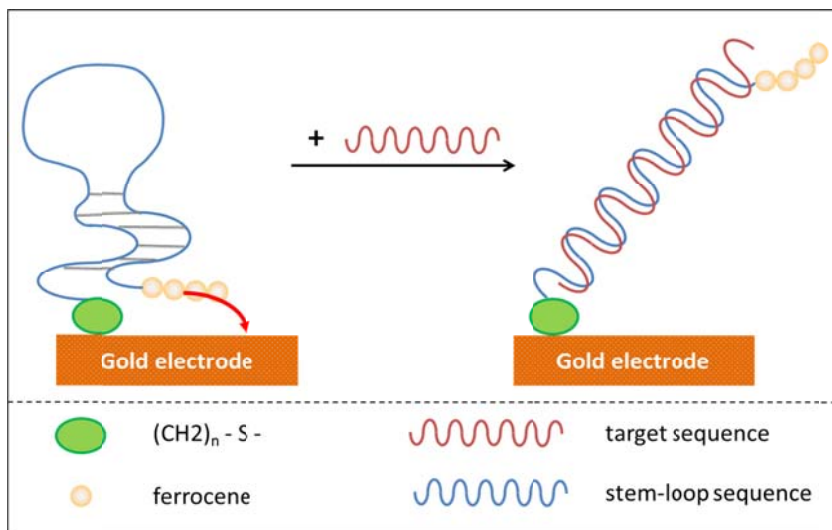
ELECTROCHEMICAL SENSORS AND BIOSENSORS FOR INFLUENZA DETECTION - UPDATE 2012-2013

11:30 – 12:30

Ing. et Ing. David Hynek, Ph.D.

Anotace/Annotation

Because of high perspectives mentioned in the literature about the “pathogen determination and quantification” are taking into consideration, this review is the natural next step following our last review focused on sensors and biosensors in the field of electrochemical detection of influenza virus. Very fast development of this global research area leading to the application of new methods and materials in pathogen determination is obvious. Therefore update of electrochemical detection approaches of influenza virus in the years 2012 and 2013 is summarized in this text.



Family of influenza viruses contains three genera: Influenza A, Influenza B and Influenza C. These three genera differ from each other in inside, species-specific nucleo-protein antigen, the number of gene segments, host specificity and clinical manifestations protein. Because of individual subtypes of influenza virus differ from each other by the

variations in membrane virus constitution (membrane protein, ion channels, matrix proteins), various ways of detection based on individual parts of virus are investigated. Utilization of individual specificities could help in detection of individual subtypes of influenza virus.

variations in membrane virus constitution (membrane protein, ion channels, matrix proteins), various ways of detection based on individual parts of virus are investigated. Utilization of individual specificities could help in detection of individual subtypes of influenza virus.

28. 02. 2014, začátek v 10:00-14:00 h

Laboratoř metalomiky a nanotechnologií

Kontakt: kizek@sci.muni.cz