

# 7<sup>th</sup> EURO BIOSENSORS AND BIOELECTRONICS CONFERENCE

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### New ultrasensitive BDD-biosensor for influenza virus detection

Influenza is a contagious disease caught by humans and caused by viruses belonging to the family Orthomyxoviridae. Each year, the influenza virus infects millions of people and kills hundreds of thousands of them. Economic losses caused by employee absenteeism are counted in the hundreds of millions of dollars a year. In order to successfully treat influenza virus infections, it is necessary to detect virus during initial development phase of the infection when tens to hundreds of viruses are present in pharynx of the patient. Here, we show a new universal diamond biosensor which enables detection of the virus at ultralow concentration even before clinical symptoms. A diamond electrode is modified with polyclonal anti-M1 antibodies and then a universal biomarker of influenza virus – M1 protein can be captured. In this assay, we observe a change in electrochemical impedance spectra. A detection limit of  $1 \times 10^{-14}$  g/mL in saliva buffer is achieved with M1 biomarker corresponds with 5-10 virus particles in samples. Also the universality of the assay was confirmed analyzing different strains of influenza A virus.

### Biography

Dawid Nidzworski is an Entrepreneur and Scientist. He completed his graduation at Faculty of Chemistry, Gdansk University of Technology (GUT), Poland and Intercollegiate Faculty of Biotechnology of the University of Gdansk and Medical University of Gdansk (IFB UG-MUG). He also completed his PhD at IFB UG-MUG. He developed biosensor (FluSensDx) which will identify influenza virus in the patient's throat swab. He is also working on an edible vaccine against influenza virus for poultry (LIDER). He has received many awards and scholarships. He is Co-author of several publications, congress reports and patent applications. His start-up company SensDx will revolutionize the way of medical diagnostics in the world.

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