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The new device for monitoring of epidemiology of upper respiratory tract infections

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 the initial development phase of the infection when tens to hundreds of viruses are present in the pharynx of the patient. Streptococcus pyogenes belongs to the family *Streptococcaceae* and is one of the most popular pathogen causing bacterial infections of upper respiratory tracts. The early symptoms of infections of influenza virus and Streptococcus pyogenes are very similar and there is a huge problem to recognize and distinguish those pathogens and start appropriate treatment. Here, we present results of pre-clinical study of novel mobile technology for detection of influenza virus and Streptococcus. Our team developed single-use biosensor (MultiSensDx), universal reader and mobile application for early detection of two types of pathogens in only 5 minutes. Our technology is a useful tool in telediagnostic procedure and may be an internal part of many telecommunication platforms. We strong believe that this solution will have a huge impact on Public Health in the near future. In our labs, we have developed a single-use test for detection of influenza virus, the universal reader (ready to detect other pathogens and biomarkers) and user friendly mobile application which helps in whole procedure of analysis.

Complete system for introduction to telecommunications platforms

Recent Publications

1. Nidzworski, D., Siuzdak, K., Niedziałkowski, P., Bogdanowicz, R., Sobaszek, M., Ryl, J., Weiher, P., Sawczak, M., Wnuk, E., Goddard III, W.A., Jaramillo-Botero, A., Ossowski, T. 2017. A rapid-response ultrasensitive biosensor for influenza virus detection using antibody modified boron-doped diamond. Scientific Reports 7: 15707 | DOI:10.1038/s41598-017-15806-7
2. Nidzworski, D., Pranszke, P., Grudniewska, M., Król, E., Gromadzka, B. 2014. Universal biosensor for detection of Influenza virus. Biosensors and Bioelectronics. 15 (59), 239-242.

Biography

Dawid Nidzworski is an entrepreneur and scientist. A graduate both: The Faculty of Chemistry GUT and the IFB UG-MUG. He holds his PhD from IFB UG-MUG. Laureate of programs VENTURES FNP, IMPULS FNP, LIDER (NCRD), the SME Instrumens (H2020), “Fast Track” (NCRD), Masovia programme, TechMatStrateg and 4.1.4 PIOR Programme. 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 is the winner of many awards and scholarships. 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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