Innovative technology for the detection of enzyme activity in milk

Results

Project information

FORMILK

Grant agreement ID: 690898

Funded under: H2020-EU.1.3.3.

Overall budget: € 1 323 000

EU contribution € 1 228 500

Coordinated by: UNIVERZITA KOMENSKEHO V BRATISLAVE Slovakia

Status Closed project

Start date 1 January 2016 End date 31 December 2019

Deliverables

Documents, reports (7)

Peer reviewed articles

Publication of scientific articles in peer reviewed journals

Report on secondments

Reports on secondments finished. Will be prepared continuously during whole project duration.

Protocol of enzyme assay in a volume

Protocol of enzyme assay in a volume applicable for Industrial project partners and end-users

Data Management Plan

"Participation in the "Open Research Data Pilot" in Horizon2020 which aims to improve and maximise access to and re-use of research data generated by actions, a data management plan will be written. The plan will describe which of the research data that
Publications

will be generated during the project will be made open.

First progress report
First project progress report.

Protocol of enzyme assay at surfaces
Protocol of enzyme assay at surfaces applicable for Industrial project partners and end users

Second progress report
Third project progress report.

Open Research Data Pilot (1)

Open Research Data Pilot
Report on the realization of ORDP

Other (1)

Mid-term meeting
There will be only 1 review meeting per project with timing between month 14 and 18, definitive date is to be confirmed by the COO and preferably linked to a consortium event

Demonstrators, pilots, prototypes (2)

Workshops and summer schools
Organisation of summer schools and workshops

Miniature potentiostat, software and sensor
Construction of miniature potentiostat and software development for application by Industrial project partners and end users

Websites, patent fillings, videos etc. (1)

Website
Establishment of the web site of the project.

Publications

Conference proceedings (11)
Application of High-Resolution Ultrasonic Spectroscopy for real-time monitoring of trypsin activity in β-casein solution

Author(s): S. Melikishvili, Mark Dizon, B. O'Driscoll, V. Buckin, T. Hianik

Published in: "International workshop "Recent applications of high-resolution ultrasonic spectroscopy for monitoring of hydrolytic activities in milks"", Issue November 2017, 2017, Page(s) 16

Development of acoustic sensor for detection chymotrypsin activity at surfaces

Author(s): I. Piovarci, A. Poturnayova, J. Nagy, R. Sarok, T. Hianik

Published in: BioSensor 2017, 1st European and 10th German BioSensor Symposium, Issue 2017, 2017, Page(s) 218

Determination of aflatoxin M1 in milk and milk samples using ELISA

Author(s): R. Sarok, A. Poturnayova, K. Szabo, A. Hucker, T. Hianik

Published in: "International workshop "Recent applications of high-resolution ultrasonic spectroscopy for monitoring of hydrolytic activities in milks", Issue November 2017, 2017, Page(s) 10

Tunable size gold nanoparticle-enzyme substrate conjugates: possible sensor applications

Author(s): T. Szabo, B. Csupor, P. Pekker, Z. Keresztes

Published in: Book of Abstracts, Matrafured 2019, International Conference on Chemical Sensors, Visegrad, Hungary, 2019, Issue June 16-21, 2019, 2019, Page(s) 176

Colief® lactase enzyme infant drops product origin and application development

Author(s): J. Byrne

Published in: "International workshop "Recent applications of high-resolution ultrasonic spectroscopy for monitoring of hydrolytic activities in milks", Issue November 2017, 2017, Page(s) 9

Low-cost scalable quartz crystal microbalance array for environmental sensing

Author(s): Eric S. Muckley, Cristain Anazagasty, Christopher B. Jacobs, Tibor Hianik, Ilia N. Ivanov

Published in: Organic Sensors and Bioelectronics IX, 2016, Page(s) 99440Y

DOI: 10.1117/12.2237942

Detection of microorganisms in food products by atomic force microscopy


Published in: "International workshop "Recent applications of high-resolution ultrasonic spectroscopy for monitoring of hydrolytic activities in milks", Issue November 2017, 2017, Page(s) 12
Stability monitoring of casein layer on hydrophilic SiO2 surface using quartz crystal microbalance with dissipation

**Author(s):** M. Tatarko, I.N. Ivanov, T. Hianik

**Published in:** BioSensor 2017. 1st European and 10th German BioSensor Symposium, Issue March 2017, 2017, Page(s) 178

Stability monitoring of casein layer on hydrophilic SO2 surface using quartz crystal microbalance with dissipation

**Author(s):** Marek Tatarko, Ilia N. Ivanov, Tibor Hianik

**Published in:** BioSensors 2017, 1st European and 10th German BioSensor Symposium, Potsdam, Germany, Issue 2017, 2017, Page(s) 178

Application of high resolution ultrasonic spectroscopy (HR–US) on realtime monitoring of whey protein hydrolysis

**Author(s):** M. Dizon, M. Caras-Altas, V. Buckin

**Published in:** Book of Abstracts, Third Year PhD Talks 2018, Dublin Chemistry Graduate Seminars 2017-18, Issue 29th May, 2018, 2018

Detection of plasmin based on specific peptide substrate and casein using acousttic transducer

**Author(s):** A. Poturnayova, M. Tatarko, I. Karpisova, G. Castillo, Z. Keresztes, T. Hianik

**Published in:** 26 Aniversary World Congress on Biosensors, Gothenburg, Sweden, Issue 25-27 May 2016, 2016, Page(s) P3.161

Peer reviewed articles (10)

**Electrochemical Aptasensor Based on Poly(Neutral Red) and Carboxylated Pillar[5]arene for Sensitive Determination of Aflatoxin M1**

**Author(s):** Vladimir Smolko, Dmitry Shurpik, Anna Porfireva, Gennady Evtugyn, Ivan Stoikov, Tibor Hianik

**Published in:** Electroanalysis, Issue 30/3, 2018, Page(s) 486-496, ISSN 1040-0397

**DOI:** 10.1002/elan.201700735

**Electrochemical Immuno- and Aptasensors for Mycotoxin Determination**

**Author(s):** Gennady Evtugyn, Tibor Hianik

**Published in:** Chemosensors, Issue 7/1, 2019, Page(s) 10, ISSN 2227-9040

**DOI:** 10.3390/chemosensors7010010

**Combination of Ruthenium Dendrimers and Acoustically Propelled Gold Nanowires as a Platform for Active Intracellular Drug Delivery Towards Breast Cancer Therapy**
Author(s): Zuzana Garaiová, Gulcin Bolat, Berta Esteban-Fernández de Ávila, Hua Gong, Natalia Sanz del Olmo, Paula Ortega, Francisco Javier de la Mata, Sylwia Michlewska, Joseph Wang, Tibor Hianik

Published in: Clinical Oncology and Research, 2019, Page(s) 1-5, ISSN 2613-4942

DOI: 10.31487/j.cor.2019.04.08

Machine learning enabled acoustic detection of sub-nanomolar concentration of trypsin and plasmin in solution

Author(s): Marek Tatarko, Eric S. Muckley, Veronika Subjakova, Monojoy Goswami, Bobby G. Sumpter, Tibor Hianik, Ilia N. Ivanov

Published in: Sensors and Actuators B: Chemical, Issue 272, 2018, Page(s) 282-288, ISSN 0925-4005

DOI: 10.1016/j.snb.2018.05.100

Casein probe–based fast plasmin determination in the picomolar range by an ultra-high frequency acoustic wave biosensor

Author(s): Loránd Románszki, Marek Tatarko, Mengchi Jiao, Zsófia Keresztes, Tibor Hianik, Michael Thompson

Published in: Sensors and Actuators B: Chemical, Issue 275, 2018, Page(s) 206-214, ISSN 0925-4005

DOI: 10.1016/j.snb.2018.08.025

Ultrasonic Monitoring of Biocatalysis in Solutions and Complex Dispersions

Author(s): V. Buckin, M. Altas

Published in: Catalysts, Issue 7/11, 2017, Page(s) 336, ISSN 2073-4344

DOI: 10.3390/catal7110336

High-resolution ultrasonic spectroscopy

Author(s): Vitaly Buckin

Published in: Journal of Sensors and Sensor Systems, Issue 7/1, 2018, Page(s) 207-217, ISSN 2194-878X

DOI: 10.5194/jsss-7-207-2018

DNA-Polylactide Modified Biosensor for Electrochemical Determination of the DNA-Drugs and Aptamer-Aflatoxin M1 Interactions

Author(s): Veronika Stepanova, Vladimir Smolko, Vladimir Gorbatchuk, Ivan Stoikov, Gennady Evtugyn, Tibor Hianik

Published in: Sensors, Issue 19/22, 2019, Page(s) 4962, ISSN 1424-8220

DOI: 10.3390/s19224962
Label-Free and Redox Markers-Based Electrochemical Aptasensors for Aflatoxin M1 Detection
Author(s): Stefanos Karapetis, Dimitrios Nikolelis, Tibor Hianik
Published in: Sensors, Issue 18/12, 2018, Page(s) 4218, ISSN 1424-8220
DOI: 10.3390/s18124218

Surface properties of polyene glycol phospholipid monolayers
Author(s): Tibor Hianik, Christer L. Øpstad, Jana Šandorová, Zuzana Garaiová, Vassilia Partali, Hans-Richard Sliwka
Published in: Chemistry and Physics of Lipids, Issue 202, 2017, Page(s) 13-20, ISSN 0009-3084
DOI: 10.1016/j.chemphyslip.2016.11.007