

HORIZON
2020

Deeping collaboration on novel biomolecular electronics based on “smart” nanomaterials

Results

Project Information

BIONANOSENS

Grant agreement ID: 951887

[Project website](#) 

DOI

[10.3030/951887](https://doi.org/10.3030/951887) 

Project closed

EC signature date

11 June 2020

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1 October 2020

End date

31 May 2024

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Twinning of research institutions

Total cost

€ 901 725,00

EU contribution

€ 895 573,00

Coordinated by

INSTYTUT MOLEKULARNOI
BIOLOGII I GENETYKY NAN
UKRAINY



Ukraine

CORDIS provides links to public deliverables and publications of HORIZON projects.

Links to deliverables and publications from FP7 projects, as well as links to some specific result types such as dataset and software, are dynamically retrieved from [OpenAIRE](#) .

Deliverables

Documents, reports (11)

[Report on the results of the Call for Start-ups](#) 

Report on the results of the Call for Startups

[Dissemination and exploitation toolbox](#) 

Dissemination and exploitation toolbox .

[Final Joint Scientific Meeting Programme and Resolution](#) 

Final Joint Scientific Meeting Programme and Resolution.

[Dissemination and Exploitation plan \(and update\)](#) 

Dissemination and Exploitation plan and update

[IMBG Research and Innovation Strategy in biomolecular electronics adopted](#) 

IMBG Research and Innovation Strategy in biomolecular electronics adopted .

[10 joint scientific publications and 15 abstracts of conferences reports](#) 

[Second Scientific Meeting provisional Programme and Resolution](#) 

Second Scientific Meeting Programme and Resolution

[Initial Scientific Meeting Programme and Resolution](#) 

Initial Scientific Meeting Programme and Resolution

[Train the trainers workshop report](#) 

Train the trainers workshop report.

[Report on the Summer school results](#) 

Report on the Summer school results.

[IMBG PhD and Masters programmes](#) 

IMBG PhD and Masters programmes .

Websites, patent fillings, videos etc. (4)

[Project website](#) 

[Statement on the completion of the publication list](#) 

Statement on the completion of the publication list.

[Report about 2 round tables with mass-media, 3 open days in IMBG, 6 lectures](#)

Report about 2 round tables with mass-media, 3 open days in IMBG, 6 lectures .

[Collection of the project booklets, leaflets, 2 press releases and 3 publications](#)

Collection of the project booklets, leaflets, 2 press releases and 3 publications .

Open Research Data Pilot (1)

[Data Management Plan \(and update\)](#)

Data Management Plan and update

Publications

Peer reviewed articles (17)

[Electrochemical biosensors based on enzyme inhibition effect](#)

Author(s): V.Arkhypova, O.Soldatkin, A.Soldatkin, S.Dzyadevych

Published in: Chemical Records, Issue 24 (2), e202300214 (2024), 2024, Page(s) e202300214, ISSN 1527-8999

Publisher: John Wiley & Sons Inc.

DOI: 10.1002/tcr.202300214

[Physical model of temporary current instability in ion-selective field-effect transistors with silicon oxide/nitride dielectric layers](#)

Author(s): O.L. Kukla, A.S. Pavluchenko, S.V. Dzyadevych, V.M. Arkhypova, N.Jaffrezic-Renault

Published in: Sensor Electronics and Microsystem Technologies, Issue 20 (3), P. 79-91 (2023), 2023, Page(s) 79-91, ISSN 1815-7459

Publisher: Odesa National University

DOI: 10.18524/1815-7459.2023.3.288163

[Semi-interpenetrating Network-Coated Silica Gel Based on Green Resources for the Efficient Adsorption of Aromatic Pollutants from Waters](#)

Author(s): Rania Mechichi, Taha Chabbah, Saber Chatti, Ibtissem Jlalja, Corinne Sanglar, Hervé Casabianca, Emmanuelle Vulliet, Catherine Marestin, Regis Mercier, Steffen M. Weidner, Abdelhamid Errachid, Mohamed Hammami, Nicole Jaffrezic-Renault, Houyem Abderrazak

Published in: Chemistry Africa, Issue 5, 2022, Page(s) 2241-2258, ISSN 2522-

5758

Publisher: Springer

DOI: 10.1007/s42250-022-00463-9

[Solutions for enhancement of sensitivity and metrological reliability of conductometric biosensor systems](#)

Author(s): Volodymyr G Melnyk, Aleksandr D Vasylenko, Liudmila N Semenycheva, Oleksandr V Slitskiy, Olga Y Saiapina, Sergei V Dzyadevych

Published in: Engineering Research Express, Issue 3, 2021, Page(s) 045008, ISSN 2631-8695

Publisher: IOP Publishing

DOI: 10.1088/2631-8695/ac2a0d

[A Novel Cortisol Immunosensor Based on a Hafnium Oxide/Silicon Structure for Heart Failure Diagnosis](#)

Author(s): Hamdi Ben Halima; Nadia Zine; Joan Bausells; Nicole Jaffrezic-Renault; Abdelhamid Errachid

Published in: Micromachines, Issue 13, 2235 (2022), 2022, Page(s) 2235, ISSN 2072-666X

Publisher: Multidisciplinary Digital Publishing Institute (MDPI)

DOI: 10.3390/mi13122235

[Hardware and software complex for conductometric measurements with high metrological reliability](#)

Author(s): V.G.Melnyk, S.V.Dzyadevych, P.I.Borshchov, V.K.Beliaev, O.D.Vasylenko, N.Jaffrezic-Renault

Published in: Sensor Electronics and Microsystem Technologies, Issue 20 (3), P. 59-78 (2023), 2023, Page(s) 59-78, ISSN 1815-7459

Publisher: Odesa National University

DOI: 10.18524/1815-7459.2023.3.288160

[Mathematical Model and Numerical Simulation of Conductometric Biosensor of Urea](#)

Author(s): Fares Zouaoui, Nadia Zine, Abdelhamid Errachid, Nicole Jaffrezic-Renault

Published in: Electroanalysis, Issue 34, 2023, Page(s) 1131-1140, ISSN 1040-0397

Publisher: Wiley - V C H Verlag GmbbH & Co.

DOI: 10.1002/elan.202100610

[Determination of the influence of temperature and UV treatment on the characteristics of differential ISFET electrodes](#)

Author(s): O.L. Kukla, A.S. Pavluchenko, V.M. Arkhypova, A.Errachid, S.V. Dzyadevych

Published in: Sensor Electronics and Microsystem Technologies, Issue 20 (4), P. 4-18 (2023), 2023, Page(s) 4-18, ISSN 1815-7459

Publisher: Odesa National University

DOI: 10.18524/1815–7459.2023.4.294628

[An ImmunoFET Coupled with an Immunomagnetic Preconcentration Technique for the Sensitive EIS Detection of HF Biomarkers](#)

Author(s): Ben Halima, H.; Zine, N.; Nemeir, I.A.; Pfeiffer, N.; Heuberger, A.; Bausells, J.; Elaissari, A.; Jaffrezic-Renault, N.; Errachid, A

Published in: Micromachines, Issue 15, 296 (2024), 2024, Page(s) 296, ISSN 2072-666X

Publisher: Multidisciplinary Digital Publishing Institute (MDPI)

DOI: 10.3390/mi15030296

[Selective Antibody-Free Sensing Membranes for Picogram Tetracycline Detection](#)

Author(s): Hamdi Ben Halima, Abdoullatif Baraket, Clara Vinas, Nadia Zine, Joan Bausells, Nicole Jaffrezic-Renault, Francesc Teixidor and Abdelhamid Errachid

Published in: Biosensors, Issue 13, 71 (2023), 2023, Page(s) 71, ISSN 2079-6374

Publisher: Multidisciplinary Digital Publishing Institute (MDPI)

DOI: 10.3390/bios13010071

[Impedimetric sensors based on diethylphosphonate-containing poly\(arylene ether nitrile\)s films for the detection of lead ions](#)

Author(s): Taha Chabbah, Saber Chatti, Nicole Jaffrezic-Renault, Steffen Weidner, Catherine Marestin, Regis Mercier

Published in: Polymers for Advanced Technologies, Issue 34, 2023, Page(s) 2471-2481, ISSN 1042-7147

Publisher: John Wiley & Sons Inc.

DOI: 10.1002/pat.6065

[Electrochemical Multiplexed N-Terminal Natriuretic Peptide and Cortisol Detection in Human Artificial Saliva: Heart Failure Biomedical Application](#)

Author(s): El Kahina Ghedir; Abdoullatif Baraket; Messaoud Benounis; Nadia Zine; Abdelhamid Errachid

Published in: Chemosensors, Issue 11 (7), P.416 (2023), 2023, Page(s) 416, ISSN 2227-9040

Publisher: MDPI

DOI: 10.3390/chemosensors11070416

[Split Aptamers Immobilized Array Microelectrodes for Detection of Chlorpyrifos Pesticide Using Electrochemical Impedance Spectroscopy](#)

Author(s): Waralee Ruankham, Tanawut Tantimongcolwat, Kamonrat Phopin, Joan Bausells, Marie Hangouet, Marie Martin, Nadia Zine, Abdelhamid Errachid

Published in: SSRN Electronic Journal, Issue 372, 132614 (2022), 2023,

Page(s) 132614, ISSN 0925-4005

Publisher: Elsevier BV

DOI: 10.2139/ssrn.4156363

[A Molecularly Imprinted Polypyrrole/GO@Fe₃O₄ Nanocomposite Modified Impedimetric Sensor for the Routine Monitoring of Lysozyme](#)

Author(s): Pablo Montoro-Leal; Isaac A. M. Frías; Elisa Vereda Alonso; Abdelhamid Errachid; Nicole Jaffrezic-Renault

Published in: Biosensors, Issue 12 (9), 727 (2022), 2022, Page(s) 727, ISSN 2079-6374

Publisher: Multidisciplinary Digital Publishing Institute (MDPI)

DOI: 10.3390/bios12090727

[Practical application of electrochemical enzyme biosensors](#)

Author(s): Dzyadevych, S, V; Soldatkin, O, O; Arkhypova, V, M; Shkotova, L, V; Pyeshkova, V, M; Saiapina, O, Ya; Jaffrezic-Renault, Nicole; Soldatkin, A, P; Elskaya, A, V

Published in: Biopolymers and Cell, Issue 38, 71 - 92 (2022), 2022, Page(s) 71-92, ISSN 0233-7657

Publisher: Naukova Dumka

DOI: 10.7124/bc.000a76

[Electrochemical Affinity Sensors Using Field Effect Transducer Devices for Chemical Analysis](#)

Author(s): Hamdi Ben Halima, Abdelhamid Errachid, Nicole Jaffrezic-Renault

Published in: Electroanalysis, Issue 35, 2023, Page(s) e202100451, ISSN 1040-0397

Publisher: Wiley - V C H Verlag GmbbH & Co.

DOI: 10.1002/elan.202100451

[Mathematical Modelling of Glyphosate Molecularly Imprinted Polymer-Based Microsensor with Multiple Phenomena](#)

Author(s): Fares Zouaoui; Saliha Bourouina-Bacha; Mustapha Bourouina; Nadia Zine; Abdelhamid Errachid; Nicole Jaffrezic-Renault

Published in: Molecules, Issue 27(2), 493 (2022), 2022, Page(s) 493, ISSN 1420-3049

Publisher: Multidisciplinary Digital Publishing Institute (MDPI)

DOI: 10.3390/molecules27020493

Conference proceedings (22)



Flexible and printed electronics: from interactive on-skin devices to bio/medical applications

Author(s): D. Makarov

Published in: Joint European Magnetic Symposia, Issue 24.-29 July 2022, Warsaw, Poland, 2022

Publisher: Warsaw University

Optimization of enzyme inhibition based biosensor for silver ions determination to control wastewater treatment in textile industry

Author(s): V.A.Bakhmat, O.O.Soldatkin, V.M.Pyeshkova, S.V.Dzyadevych

Published in: International research and practice conference “Nanotechnology and nanomaterials (NANO-2023)”, Issue 16-19 August 2023.- Bukovel, Ukraine, 2023, Page(s) 349

Publisher: Institute of Physics

Mathematical and Computer Simulation of the Response of a Potentiometric Biosensor for the Determination of α -chaconine

Author(s): V.Martsenyuk, O.Bahrii-Zaiats, A.Sverstiuk, S.Dzyadevych, B.Shelestovskyi

Published in: 1st International Workshop on Computer Information Technologies in Industry 4.0., Issue 14-16 June 2023, Ternopil, Ukraine, 2023, Page(s) 1-11

Publisher: Ternopil University

PoC devices for real time monitoring of biohazard and man-made chemical contaminants in the marine environment

Author(s): Abdelhamid Errachid

Published in: 5th International symposium on medical Plants & Materials, Issue 09-12 May 2024, Monastir, Tunisia, 2024

Publisher: Tunisian Chemical Society

Development and probation of the amperometric biosensor for determining the AST activity level in blood serum samples

Author(s): D.O.Mruga, S.V.Dzydevych, N. Jaffrezic-Renault, O.O.Soldatkin

Published in: XVIII All-Ukrainian Conference of Young Scientists, Issue May 21-22, 2024, Kyiv, Ukraine, 2024, Page(s) 39

Publisher: IMBG

Development of amperometric biosensor for pyruvate concentration and ALT activity analysis

Author(s): D.Mruga, R.Berketa, S.Dzyadevych, O.Soldatkin

Published in: XXV International Conference for Students, PhD Students and Young Scientists “Modern Chemistry Problems”, Issue 15-17 May 2024.-Kyiv, Ukraine, 2024, Page(s) 49-50

Publisher: Kyiv University

The use of metal nanoparticles of the platinum group to improve the analytical characteristics of enzyme biosensors for application in biotechnological industries

Author(s): L.V.Shkotova, S.V.Dzyadevych

Published in: International research and practice conference "Nanotechnology and nanomaterials (NANO-2022)", Issue 25-27 August 2022, Lviv, Ukraine, 2022, Page(s) 285

Publisher: Institute of Physics

Novel method of involving catalase as an auxiliary enzyme for analytical characteristics enhancement in oxidase-based biosensors

Author(s): K.Berketa, S.Dzyadevych, N. Jaffrezic-Renault, O.Soldatkin

Published in: "X All-Ukrainian scientific and practical conference of young scientists and students ""Scientific and practical developments of young scientists in the chemical, food and cosmetic industries""", Issue November 24, 2023, Khmelnytskyi, Ukraine, 2023, Page(s) 77-78

Publisher: Kherson National Technical University

Development and characteristics research of ALT-sensitive biosensor

Author(s): D.O.Mruga, S.V.Dzyadevych, O.O.Soldatkin

Published in: International research and practice conference "Nanotechnology and nanomaterials (NANO-2022)", Issue 25-27 August 2022, Lviv, Ukraine, 2022, Page(s) 521

Publisher: Institute of Physics

Electrochemical enzyme biosensors and their practical application

Author(s): S.Dzyadevych, O.Soldatkin, V.Arkhypova, L.Shkotova, V.Pyeshkova, O.Saiapina, N. Jaffrezic-Renault, A.Soldatkin, A.Elskaya

Published in: Deuxièmes Rencontres Capteurs de l'Université Bourgogne Franche-Comté, Issue 24-25 Novembre 2022.- Dijon, France, 2022, Page(s) 26

Publisher: l'Université Bourgogne Franche-Comté

Hybridization biosensor system based on surface plasmon resonance for detection of the sequence of oligonucleotides of the Philadelphia chromosome

Author(s): M.S.Sobolevskyi, O.O.Soldatkin, A.M.Lopatynskyi, V.I.Chegel, A.V.Samoylov, M.J.Matsishin, S.V.Dzyadevych, A.P.Soldatkin

Published in: International research and practice conference "Nanotechnology and nanomaterials (NANO-2023)", Issue 16-19 August 2023.- Bukovel, Ukraine, 2023, Page(s) 554

Publisher: Institute of Physics

Using gold nanoparticles for the development of a biosensor based on urease and potentiometric transducers

Author(s): S.V.Marchenko, L.S.Reznichenko, S.M.Dybko, S.V.Dzyadevych, A.P.Soldatkin

Published in: International research and practice conference “Nanotechnology and nanomaterials (NANO-2022)”, Issue 25-27 August 2022, Lviv, Ukraine, 2022, Page(s) 168

Publisher: Institute of Physics

Development of conductometric creatinine deiminase based biosensor for creatinine detection

Author(s): V.A.Bakhmat, O.O.Soldatkin, V.M.Arkhypova, S.V.Dzyadevych

Published in: XXV International Conference for Students, PhD Students and Young Scientists “Modern Chemistry Problems”, Issue 15-17 May 2024.-Kyiv, Ukraine, 2024, Page(s) 31-32

Publisher: Kyiv University

Enzyme biosensors based on inhibition effect

Author(s): V.M. Arkhypova, O.O. Soldatkin, N. Jaffrezic-Renault, A.P. Soldatkin S.V. Dzyadevych

Published in: IX Congress of Ukraine biophysical society, Issue 30 October - 2 November 2023, Kyiv, Ukraine, 2023, Page(s) 96

Publisher: Kyiv National University

Development of new approaches for improving the analytical characteristics of enzyme biosensors

Author(s): K.O.Berketa, S.V.Dzyadevych, O.O.Soldatkin

Published in: International research and practice conference “Nanotechnology and nanomaterials (NANO-2023)”, Issue 16-19 August 2023.- Bukovel, Ukraine, 2023, Page(s) 339

Publisher: Institute of Physics

Urease inhibition based biosensor for heavy metal ions determination to control wastewater treatment in textile industry

Author(s): V.A.Bakhmat, O.O.Soldatkin, V.M.Pyeshkova, S.V.Dzyadevych

Published in: International research and practice conference “Nanotechnology and nanomaterials (NANO-2023)”, Issue 16-19 August 2023.- Bukovel, Ukraine, 2023, Page(s) 330

Publisher: Institute of Physics

Adaptation of the functioning of an arginine-sensitive biosensor for the measurement of arginine in pharmaceutical samples

Author(s): K. Berketa, O. Saiapina, L. Fayura, A. Sibirny, N.Jaffrezic, S. Dzyadevych, O. Soldatkin

Published in: XVIII All-Ukrainian Conference of Young Scientists, Issue May 21-22, 2024, Kyiv, Ukraine, 2024, Page(s) 9

Publisher: IMBG

Optimizing the analytical characteristics of a biosensor for glucose determination due to the co-immobilization of glucose oxidase and catalase

Author(s): K.Berketa, S.Dzyadevych, N. Jaffrezic-Renault, O.Soldatkin

Published in: IX Congress of Ukraine biophysical society, Issue 30 October - 2 November 2023, Kyiv, Ukraine, 2023, Page(s) 77-78

Publisher: Kyiv University

Amperometric biosensor based on pyruvate oxidase for selective ALT measurement

Author(s): D. Mruga, O.Soldatkin, N. Jaffrezic-Renault, A. Errachid

Published in: IX Congress of Ukraine biophysical society, Issue 30 October - 2 November 2023, Kyiv, Ukraine, 2023, Page(s) 97

Publisher: Kyiv University

New continuous monitoring system integrated with electrochemical biosensor for the determination of heavy metal ions in water

Author(s): V.Bakhmat, O.Soldatkin, S.Dzyadevych, A.Errachid, V.Pyeshkova

Published in: XVIII All-Ukrainian Conference of Young Scientists, Issue May 21-22, 2024, Kyiv, Ukraine, 2024, Page(s) 7

Publisher: IMBG

Development of AST-sensitive amperometric enzyme biosensor

Author(s): D.O.Mruga, O.O.Soldatkin S.V.Dzyadevych, A.P.Soldatkin

Published in: International research and practice conference “Nanotechnology and nanomaterials (NANO-2023)”, Issue 16-19 August 2023.- Bukovel, Ukraine, 2023, Page(s) 338

Publisher: Institute of Physics

Advanced materials for the development of point-of-care systems for biomedical and environmental applications

Author(s): Abdelhamid Errachid

Published in: The 5th International conference on Advanced Materials for Photonics, Sensing and Energy Applications, Issue 25-26 May, 2023, Marrakech, Morocco, 2023

Publisher: Universit Hassan

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Permalink: <https://cordis.europa.eu/project/id/951887/results>

European Union, 2025

