Deeping collaboration between EU and Ukraine on novel biomolecular electronics is supported by EU through BIONANOSENS Horizon 2020 project

The Institute of Molecular Biology and Genetics of the National Academy of Sciences of Ukraine (IMBG NASU) http://imbg.org.ua/en/ was founded in 1973 by prominent Ukrainian scientists — Academicians of the NASU B.E.Paton, S.M.Gershenson, V.P.Zosymovych, P.K.Shkvarnikov, and G.Kh.Matsuka (who was the first Director of the IMBG NASU, 1973–2003). Ganna Elska, Professor, Academician of the NASU, Honoured Worker of Science and Technology of Ukraine was the second Director of the Institute (2003–2019). Since 2019, the Institute is headed by Honoured Worker of Science and Technology of Ukraine, Academician of the NASU, Professor Mykhailo Tukalo.

Currently, the IMBG NASU is represented by 14 Scientific Departments and 6 Scientific Laboratories. The research potential of the Institute is one of the highest in Ukraine, including many prominent scientists working here. Presently its staff is comprised of 300 employees (including 217 researchers), 23 Doctors of Sciences (Dr.Sc) and 100 Doctors of Philosophy (PhD), 3 Full Members of the NASU and 5 Corresponding Members of the NASU. On average 25 PhD students are trained at the Institute each year.

The sources of the IMBG NASU funding include the state funding of the NASU as well as the grants of national and international research organizations (50 %).

The key research areas of the IMBG NASU represent major trends in molecular biology, genetics, and molecular biotechnology .Today major fields the Institute specializes in include:

- Development of new molecular and cell biotechnologies;
- Fundamental and practical aspects of structural and functional genomics;
- Proteomics and protein engineering;
- Bioinformatics, computational modelling and new drugs design.

The IMBG NASU is one of the leading research centres in Ukraine in the field of analytical biotechnology and our current goal is the development of market-driven innovations.

For almost 40 years the Institute actively collaborates with different international research institutions. It participates in joint projects with colleagues from Germany, France, Great Britain, Poland, Italy, Greece, and others. In total, the IMBG has had long-term cooperation with universities, research and medical institutions in 34 different countries. The IMBG international donors currently include CNRS (Centre national de la recherche scientifique, France), NATO (North Atlantic Treaty Organisation), STCU (Science and Technology Centre in Ukraine), earlier — NIH (National Institute of Health, USA), Welcome Trust Fund (United Kingdom), *etc.*

The Institute has successfully completed its first project of European Framework Programmes for Research and Innovation under FP5, and continues to participate in a number of projects until the most recent Horizon 2020, namely:

5th Framework Program project: ECS "European collaborative study on pregnant HIV-infected women and their children" (2000–2004), coordinated by the University College of London (United Kingdom), where IMBG was subcontractor of the Odessa Regional Hospital, Department of Obstetrics Gynecology https://cordis.europa.eu/project/id/QLK2-CT-2000-00002

6th Framework Program project: IMPRESMAN-COEUR4LIFE project, "Improving project & research management skills in third countries to stimulate their cooperation with Europe for life sciences" (2004–2006), coordinated by European Research and Project Office (Germany), where IMBG was subcontractor of the Ukrainian Association of Internal Medicine https://cordis.europa.eu/project/id/512108/reporting/es

7th Framework Program projects:

- COMBIOM ERA-WIDE project "Strengthening cooperation in Molecular Biomedicine between EU and Ukraine" (2011–2015), where IMBG was the Coordinator and the Leader of several work packages.
- CHERISH project, "Improving diagnoses of mental retardation in children in Central Eastern Europe and Central Asia through genetic characterisation and bioinformatics/statistics" (2009–2012), coordinated by University of Bologna (Italy) — IMBG was one of the project participants https://cordis.europa.eu/project/id/223692
- IMBG FP7 International Research Staff Exchange Scheme (IRSES) projects:
  - NANOBIOSENS IRSES project, "Nanosensors based on nanomaterials" (2009–2011), coordinated by the Middle East Technical University (Turkey), where IMBG was the WP Leader https://cordis.europa.eu/project/id/318524
  - NANODEV IRSES project, "Integrated nanomaterials and nanodevices" (2013–2015), coordinated by the PHILIPS Electronic Nederland B.V. (Netherlands) https://cordis.europa.eu/project/id/510103
  - SMARTCANCERSENS IRSES project, "Micro/nanosensors for early cancer warning system — diagnostic and prognostic information" (2013–2016), coordinated by the Institute of Technology Tallaght (Ireland) https://cordis.europa.eu/article/id/170406-biosensors-for-cancer-diagnosis

Horizon 2020 projects:

- Waste2Fresh Innovation Action project, "Smart innovative system for recycling wastewater and creating closed loops in textile manufacturing industrial processes" (2020–2023), coordinated by Konya Taknik University (Turkey), where IMBG was one of the project participants and the WP Leader https://cordis.europa.eu/project/id/958491
- ERASMUS+ project "Elemental metabolomics as a new tool for food safety and health care"

The most recent EU funded Horizon 2020 project coordinated by the IMBG is **BIONANOSENS** "Deeping collaboration on novel biomolecular electronics based on "smart" nanomaterials". It is funded under the call H2020-WIDESPREAD-2020-5 (for which the overall success rate was only 13 %). BIONANOSENS, coordinated by the IMBG, is the only project, coordinated by a Ukrainian participant, funded under the Horizon 2020 Twinning scheme in 2020. The BIONANOSENS project **www.bionanosens.eu (**2020–2023) aims at positioning the IMBG as an international Centre for Excellence in the area of analytical biotechnology both inside the country and abroad.

The IMBG NASU as the initiator, the main beneficiary and the Coordinator of BIONANOSENS is supported by four high-profile research and innovation institutes from Europe, that form the **BIONANOSENS consortium:**

IMBG NASU

Prof. Sergey Dzyadevych,
Dr. Yanina Mishchuk,
Dr. Oleksandr Skorohod

UCBL — Université Claude Bernard Lyon 1, France

Prof. Abdelhamid Errachid-el-Salhi,
Prof. Nicole Jaffrezic-Reno,
Prof. Jean-Marc Chovelon)

HZDR — Helmholtz-Zentrum Dresden-Rossendorf, Germany

Dr. Denys Makarov

ZSI — Zentrum für Soziale Innovation, Austria

Gorazd Weiss,
Philipp Brugner,
Andrea C. Mayr

LIP — Lyon Ingénierie Projets, France

Javier Olaiz, Patricia Odet

What are the activities of BIONANOSENS?

BIONANOSENS implements tailor-made twinning actions aimed at helping to further develop and strengthen capacities for the IMBG. Both the overall goal of the project and its specific objectives take into account the IMBG current operational state.

The ultimate ambition goal of BIONANOSENS is the creation of the International Centre for Excellence in Analytical Biotechnology on the base of the IMBG NASU, including:

- Establishment of institutional grant management procedures in accordance with the EU standards
- Establishment of an innovation unit at the IMBG to support the institute's staff in project management tasks
- Providing better access to international networks for the Institute in view of the development of future proposals
- Staff training on project proposal writing and project management
- Promotion and training of young researchers,
- Facilitating the dissemination and exploitation of research results obtained by the IMBG

Accordingly to these goals, the following key activities are planned to be implemented during the BIONANOSDENS period of operation:

- Strengthening collaboration with the European partners in research and innovations through numerous mutual visits, workshops and scientific trainings.
- Building the IMBG NASU capacities for successful participation in the innovative European collaborative research.
- Promoting young scientists and early stage researchers, meaning special trainings, start-up call and the Summer school on biomolecular electronics.
- Joint development of the IMBG NASU Research and Innovation Strategy in biomolecular electronics for the nearest future after the project completion to ensure sustainability of the results obtained.

- Public outreach: communication, dissemination and exploitation of knowledge and the project results inside the country and abroad. For Ukrainian stakeholders strengthening the IMBG NASU competitiveness in corresponding research areas will be a case of successful story of effective involvement in ERA, improving the IMBG responses to the socio-economic needs of Ukraine. Several actions aimed at increasing of the IMBG visibility in Ukraine and in ERA also are planned.
- Everyday management of a rather large international consortium, established for the IMBG NASU benefit in boosting its innovations

BIONANOSENS further exploits the results of the SWOT analysis, conducted for the IMBG within the previous EC **COMBIOM project** #294932 (FP7).

Also, a new SWOT analysis for the IMBG will be performed as part of the BIONANOSENS work plan.

Recently, a BIONANOSENS "Call for Start-ups on biomolecular electronics" has been announced, aimed at searching for and supporting new ideas, innovative initiatives and expertise in the field of biomolecular electronics in Ukraine, with the special focus on early-stage researchers. The Call is a competition of start-ups and innovations, which includes 2 rounds with a final pitch contest at the end of February, 2022 (Kyiv, Ukraine). It starts on November 15 with the application deadline on December 20, 2021. The finalists will be selected by the Experts from Ukraine and EU countries — partners of the IMBG NASU in the BIONANOSENS project (Austria, Germany, France). High-score applicants will be invited to participate in the final pitch session contest. The winners will have an opportunity to attend the Summer school on smart devices and their applications., which is planned to be held in Germany in 2022.

All activities are carried out in compliance with the state-of-the-art standards of management established for the EU funded R&I projects, including Responsible Research and Innovation, gender balance, open access (data management, Intellectual Property management), exploitation and commercialisation orientation and ethics.

Acknowledgement

This work is supported by the EC grant #951887 BIONANOSENS «Deeping collaboration on novel biomolecular electronics based on "smart" nanomaterials»

BIONANOSENS *Project Coordinator:*
Vice-Director of IMBG NAS of Ukraine
Corresponding Academician of NAS of Ukraine,
Professor Sergiy V.Dzyadevych, DSci
dzyad@yahoo.com

BIONANOSENS *Project Manager:*
Scientific Secretary of IMBG NAS of Ukraine
Yanina R. Mishchuk, PhD
mishchuk@imbg.org.ua

ПЕРЕДПЛАТА
2022 рік

Передплату на журнал можна оформити через передплатне агентство «Укрінформнаука».

Вартість передплати:

на 2 місяці — 75,00 грн

на 4 місяці — 150,00 грн

на 6 місяців — 225,00 грн

Для оформлення передплати необхідно заповнити бланк-замовлення (бланк) і відправити його на адресу Агенції електронною поштою (innovation@nas.gov.ua).

ПЕРЕДПЛАТА на 2022 рік	
Платник	
Адреса	
Реквізити платнитка (для юридичних осіб)	ЄДРПОУ Свідоцтво платника податку № ІПН
Поштова адреса доставки	
Отримувач	
Контактна особа (ПІБ повністю, телефон, факс, e-mail)	
Термін передплати	
Кількість примірників	

З питань організації передплати, оформлення замовлень і обробки передплатної документації звертайтеся за телефонами:
тел. +38(044) 288-03-46, моб. +38(050) 154-77-83; http://u-i-n.com.ua/ua/

E-mail: ukrinformnauka@gmail.com.

Поштова адреса: оф.57, вул. Терещенківська 3, м. Київ, Україна

Під час заповнення бланку-замовлення просимо уважно заповнювати всі його пункти.

Рахунок-фактура

На підставі отриманого замовлення буде оформлено рахунок-фактуру. Рахунок буде надіслано Вам для оплати по факсу (або електронною поштою), оригінал рахунку буде відправлено на вашу поштову адресу. Після отримання рахунку-фактури Вам необхідно оплатити його через відділення банку. Оплату необхідно виконати в терміни, визначені в рахунку-фактурі шляхом безготівкового перерахування на банківський рахунок, вказаний у рахунку-фактурі.

Договір

При необхідності Ви можете укласти договір з Агенцією «На поставку періодичних видань». Договір вступає в силу після його підписання і діє до моменту виконання зобов'язань. Після закінчення строку дії договору на Вашу вимогу Вам видадуть акт виконаних робіт.

Податкові накладні

Якщо Вам потрібна податкова накладна, то в спеціальній графі бланку-заявки обов'язково вкажіть необхідні дані на підставі свідоцтва платника податку.