

Expression of interest for research cooperation

Description of institution

Interested institution:	<u>Institute of Biotechnology, University of Rzeszów</u>
Department carrying out the proposed research	<u>Laboratory of Cell Biology</u>
Address and webpage	Address: Pigoń 1a, 35-310 Rzeszów, Poland http://www.ur.edu.pl/wydzialy/pozawydzialowy-instytut-biotechnologii
Contact person (name, e-mail address, phone)	Contact person: Anna Lewinska PhD, Head of Laboratory, e-mail: lewinska@ur.edu.pl

Research offer

Brief description of the department (key research facilities, infrastructure, equipment)

(up to 1000 characters)

Modern equipment used in molecular biology, biochemistry and genetics is available in following laboratories:

The mammalian cell culture laboratory with laminar flow cabinets Thermo Fisher Scientific and Alpina, cell incubators Thermo Fisher Scientific with the regulation of oxygen tension, inverted fluorescence microscope Olympus BX71, centrifuge Thermo Fisher Scientific, electroporation system, Cell Analyzer MUSE Merck Millipore.

The molecular biology laboratory with real-time PCR, centrifuge Thermo Fisher Scientific, protein electrophoresis equipment (Biorad), including SDS-PAGE as well as 2D-electrophoresis, gel imager PharoSXF (Biorad), 16 capillary sequencer Applied Biosystem, DNA, RNA electrophoresis equipment, fluorescence and chemiluminescence gel imaging system G:BOX Syngene, thermocyclers MasterCycler Eppendorf, real-time PCR StepOne Applied Biosystem, real-time PCR LightCycler®480 (Roche), Nanodrop, multifunctional (absorbance/fluorescence/luminescence) microplate reader (TECAN).

The microscopy laboratory with fluorescence microscope Olympus BX61 and CellF and metasystem software dedicated to analysis of mFISH and Telo-FISH, CGH.

The microbiological laboratory with laminar flow cabinets Thermo Fisher Scientific, incubator Thermo Fisher Scientific, New Brunswick Bioflo110 Reactor, centrifuge Thermo Fisher Scientific, incubators, CHEF system BIORAD, etc.

Scientific area

<input type="checkbox"/> Chemistry	<input type="checkbox"/> Social Sciences and Humanities
<input type="checkbox"/> Economic Sciences	<input type="checkbox"/> Information Science and Engineering
<input type="checkbox"/> Environment and Geosciences	<input type="checkbox"/> <u>Life Sciences</u>
<input type="checkbox"/> Mathematics	<input type="checkbox"/> Physics

Research field

(up to 500 characters)

Search for novel mechanisms underlining the inhibition of cancer cell proliferation by plant-derived nutraceuticals:

Lewinska A, Bednarz D, Adamczyk-Grochala J, Wnuk M. Phytochemical-induced nucleolar stress results in the inhibition of breast cancer cell proliferation. Redox Biol. 2017 Aug;12:469-482. doi: 10.1016/j.redox.2017.03.014. Epub 2017 Mar 14.

Lewinska A, Adamczyk-Grochala J, Kwasniewicz E, Deregowska A, Wnuk M. Ursolic acid-mediated changes in glycolytic pathway promote cytotoxic autophagy and apoptosis in phenotypically different breast cancer cells. Apoptosis. 2017 Jun;22(6):800-815.

Lewinska A, Adamczyk-Grochala J, Kwasniewicz E, Deregowska A, Wnuk M. Diosmin-induced senescence, apoptosis and autophagy in breast cancer cells of different p53 status and ERK activity. Toxicol Lett. 2017 Jan 4;265:117-130.

Molecular mechanisms of cellular senescence:

Lewinska A, Adamczyk-Grochala J, Kwasniewicz E, Wnuk M. Downregulation of methyltransferase Dnmt2 results in condition-dependent telomere shortening and senescence or apoptosis in mouse fibroblasts. J Cell Physiol. 2017 Feb 8. doi: 10.1002/jcp.25848

The proposed research/project description

(up to 1000 characters)

Regenerative medicine and therapeutic applications of stem cells.

Identification of new molecular targets in cancer treatment. Development and testing of new therapeutic agents.

Additional information (key Persons and Expertise; additional trainings, research programme, other)

(up to 1000 characters)

Contact person: Anna Lewinska PhD, Head of Laboratory, Pigońia 1a, 35-310 Rzeszów, Poland e-mail: lewinska@ur.edu.pl