

1. Scientific grants:

2011: Zastosowanie mikrowiązki promieniowania synchrotronowego w badaniach dynamiki zmian biochemicznych hipokampa szczura w pilokarpinowym modelu epilepsji; **Polish Ministry of Science and Higher Education** grant IUVENTUS PLUS no. JP2010005370, project leader – J. Chwiej (195 000 PLN).

2011-2015: Biochemiczne podłoże zmian neurodegeneracyjnych w epileptycznym mózgu szczura; **Polish Ministry of Science and Higher Education/National Science Centre** grant no. 2921/B/T02/2011/40, project leader – J. Chwiej (272 500 PLN).

2014-2015: Neuroprotective action of ketogenic diet in the pilocarpine model of temporal lobe epilepsy; **Foundation for Polish Science** grant POMOST/2013-8/3, project leader – J. Chwiej (268 000 PLN).

2022-2027: Spectroscopic and microscopic techniques in nano-probing, modeling and recognition of interactions between erythrocytes and vascular endothelial cells at the molecular level; **National Science Centre** grant no. 2020/38/E/ST4/00197, project leader – K. Marzec (3 985 000 PLN).

2. Measurement grants in synchrotron facilities:

2007-2009: The role of trace elements in the pathogenesis and progress of epileptic seizures; project I-20070053 EC (**HASYLAB**, Hamburg, Germany), project leader – J. Chwiej.

2007: Postepileptic changes in the distribution of main organotrophic components in selected regions of the rat brain; project **SOLEIL**, Gif-sur-Yvette, France, project leader – J. Chwiej.

2008-2011: The distribution of selected trace metals in the epileptic rat brain. Neurodegenerative changes and possible role of neuroprotective agents after brain injury; project II-20080009 EC (**HASYLAB**, Hamburg, Germany), project leader – J. Chwiej.

2008-2009: The investigation of changes of Fe and Cu chemical state in epileptic and control rat brain; project I-20080025 EC (**HASYLAB**, Hamburg, Germany), project leader – J. Chwiej.

2009: The role of main biomolecules in the process of epileptogenesis; project 20085318 (**ELETTRA**, Trieste, Italy), project leader – J. Chwiej.

2009: Investigations of biochemical changes in the epileptic rat brain. Neurodegenerative changes and possible role of neuroprotective agents after brain injury; project 20080451 (**SOLEIL**, Gif-sur-Yvette, France), project leader.

2010: The role of creatine in the process of pilocarpine induced epilepsy; project 20090749 (**SOLEIL**, Gif-sur-Yvette, France), project leader – J. Chwiej.

2010: The biochemical changes of hippocampal formation tissue in different models of epileptic seizures; project 20100166 (**SOLEIL**, Gif-sur-Yvette, France), project leader – J. Chwiej.

2011: The dynamic of biochemical changes occurring in rat brain as a result of pilocarpine evoked seizures; project 20100664 (**SOLEIL**, Gif-sur-Yvette, France), project leader – J. Chwiej.

2011: A comparison of biochemical changes of rat hippocampal formation during the acute and silent periods in the pilocarpine model of epileptic seizures; project 20110130 (**SOLEIL**, Gif-sur-Yvette, France), project leader – J. Chwiej.

2011: The analysis of the dynamics of the elemental changes occurring in the rat brain as a result of pilocarpine induced seizures; project BIO-1 (**ANKA**, Karlsruhe, Germany), project leader – J. Chwiej.

2012: The influence of ketogenic diet on the biochemical composition of hippocampal formation tissue; project 20110716 (**SOLEIL**, Gif-sur-Yvette, France), project leader – J. Chwiej.

2013: The influence of ketogenic diet on the biochemical composition of the epileptic brain; project 20120868 (**SOLEIL**, Gif-sur-Yvette, France), project leader – J. Chwiej.

2014: Neuroprotective action of ketogenic diet in the pilocarpine model of temporal lobe epilepsy - X-ray fluorescence microspectroscopy study; project A2013-022-004153 (**ANKA**, Karlsruhe, Germany), project leader – J. Chwiej.

2014: The influence of ketogenic diet on the biochemical composition of the epileptic brain. Correlation analysis of biochemical and histological anomalies with the parameters describing animal behavior after pilocarpine administration; project 20140151 (**SOLEIL**, Gif-sur-Yvette, France), project leader – J. Chwiej.

2015: The correlations between elemental anomalies and the progress of seizures in epileptic animals on ketogenic and standard laboratory diet; project A2014-024-006393 (**ANKA**, Karlsruhe, Germany), project leader – J. Chwiej.

2015: The influence of ketogenic diet on the hippocampal accumulation of creatine in normal and seizure experiencing brain; project 20150190 (**SOLEIL**, Gif-sur-Yvette, France), project leader – J. Chwiej.

2016: The influence of high fat diets with different ketogenic ratios on the hippocampal creatine accumulation of the epileptic rats; project 20160175 (**SOLEIL**, Gif-sur-Yvette, France), project leader – J. Chwiej.

2017: The analysis of biochemical anomalies occurring in selected body organs as a result of exposure to the IONPs; project 20170174 (**SOLEIL**, Gif-sur-Yvette, France), project leader – J. Chwiej.

2020: The analysis of elemental changes occurring in selected body organs as a result of exposure to the IONPs; project 20195201 (**ELETTRA**, Trieste, Italy), project leader – K. Matusiak.

2020: Minor and trace elements as potential markers of the invasiveness of the primary brain tumors implanted to the rat brain; project 20195109 (**ELETTRA**, Trieste, Italy), project leader – J. Chwiej.

2020: Elemental changes in selected body organs as the result of animal exposure to IONPs; project A2020-031-017753 (**ANKA**, Karlsruhe, Germany), project leaders – J. Chwiej and K. Matusiak.

2020: Minor and trace elements as potential markers of the invasiveness of the primary brain tumors implanted to the rat brain; project A2020-030-017733 (**ANKA**, Karlsruhe, Germany), project leader – J. Chwiej.

2021: Element anomalies in brains of the rat progeny fed with ketogenic drugs during pregnancy; project A2021-031-019293 (**KARA** light source, Karlsruhe, Germany), project leader – J. Chwiej.

2023: X-ray fluorescence microscopy analysis of element anomalies in brain linked to the glial scar development; project 20220045 (**ELETTRA**, Trieste, Italy), project leader – J. Chwiej.

3. Others:

COST ACTION CA18130 ENFORCE TXRF, European Network for Chemical Elemental Analysis by Total Reflection X-Ray Fluorescence, substitute member – J. Chwiej.

COST ACTION CA20101 PRIORITY, Plastics monitoring detection Remediation recovery – working groups member – J. Chwiej.

Funds granted for purchase of the WITec Alpha300R Raman microscope in frame of the **“Excellence Initiative – Research University” project (Action 8.) granted to AGH UST** – J. Chwiej.

Effect of core material on in vivo toxicity/biocompatibility of magnetic iron oxide nanoparticles with theranostic potential. Project realized in frame of the funds granted to the AGH University of Krakow in the frame of the **“Excellence Initiative – Research University” project (Action 4: A system of university grants for research carried out with the participation of doctoral students and young scientists)** – J. Chwiej.

In vitro toxicity testing of microplastics. Subcellular identification of particles and the biochemical changes they cause. Project realized in frame of the funds granted to the AGH University of Krakow in the frame of the **“Excellence Initiative – Research University” project (Action 12: Integration of the educational process with scientific research)** – J. Chwiej.