



Department of Animal and Human Physiology

Faculty of Biology, University of Gdańsk

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Head: Jan J. Kaczor, PhD (hab.), associate professor

Laboratory of Bioenergetics

Research areas:

- Skeletal muscle energy metabolism under physiological and pathological conditions, the role of mitochondria.
- Metabolic changes in the organism as a result of physical exercise and training.
- The role of reactive oxygen and nitrogen species in physiology and pathology.
- The impact and action of vitamin D, aging, and neurodegenerative diseases.

Staff:

- Jan J. Kaczor, PhD (hab.), associate professor - Head
- Katarzyna Dzik, PhD, associate professor
- Mateusz Karnia, PhD, assistant profesor
- Daria Korewo, MSc, PhD student
- Natalia Piekarczyk, MSc, PhD student

Current grants:

- Projekt NCN PRELUDIUM 2018/29/N/NZ7/01627 pt. Wpływ treningu pływackiego na przebieg autofagii i stres oksydacyjny w rdzeniu kręgowym myszy ze Stwardnieniem Zanikowym Boczny; kierownik projektu - Katarzyna Dzik
- Projekt NCN PRELUDIUM 2018/31/N/NZ7/03680 pt. Korzystny wpływ witaminy D na metabolizm, stres oksydacyjny oraz atrofię w mięśni szkieletowym, podczas długotrwałego podwyższenia poziomu glikokortykoidów; kierownik projektu - Mateusz Karnia

Publications (since 2017):

- Cieminski K., Flis D., Dzik K., Kaczor J., Czyrko E., Halon-Gołąbek M., Więckowski M., Antosiewicz J., Ziółkowski W. Swim training affects Akt signaling and ameliorates loss of skeletal muscle mass in a mouse model of amyotrophic lateral sclerosis, *Scientific Reports*, Nature Publishing Group, vol. 11, 2021, s. 1-10
- 2. Dzik K., Flis D., Bytowska Z., Karnia M., Ziółkowski W., Kaczor J. Swim training ameliorates hyperlocomotion of ALS mice and increases glutathione peroxidase activity in the spinal cord, *International Journal of Molecular Sciences*, vol. 22, nr 21, 2021, s. 1-15

- Karnia M., Korewo D., Myślińska D., Ciepielewski Z., Puchalska M., Konieczna-Wolska K., Kowalski K., Kaczor J. The positive impact of vitamin D on glucocorticoid-dependent skeletal muscle atrophy *Nutrients*, 2021 : vol. 13, nr 3, art. nr 936, s. 1-15
- Chromiec P., Urbaś Z., Jacko M., Kaczor J. The Proper Diet and Regular Physical Activity Slow Down the Development of Parkinson Disease *Aging and Disease*, 2021 Oct 1;12(7):1605-1623
- Kaczorowska-Hań B., Łuszczuk M., Wasilewska E., Antosiewicz J., Kaczor J. Erythropoietin concentration in boys with p.His63Asp polymorphism of the HFE gene *Journal of Pediatric Hematology Oncology*, 2021, s. 1-6
- Karnia M., Myślińska D., Dzik K., Flis D., Podlacha M., Kaczor J. BST stimulation induces atrophy and changes in aerobic energy metabolism in rat skeletal muscles - the biphasic action of endogenous glucocorticoids *International Journal of Molecular Sciences*, : vol. 21, 2020, nr 8, art. S.1-13
- Skrobot W., Perzanowska E., Krasowska K., Flis D., Dzik K., Kloc W., Kaczor J., Antosiewicz J. Vitamin D supplementation improves the effects of the rehabilitation program on balance and pressure distribution in patients after anterior cervical interbody fusion-randomized control trial *Nutrients*, : vol. 12, 2020, nr 12, s. 1-14
- Przewłocka K., Folwarski M., Kaźmierczak-Siedlecka K., Skonieczna-Żydecka K., Kaczor J. Gut-muscle axis exists and may affect skeletal muscle adaptation to training *Nutrients*, vol. 12, 2020, nr 5, art. nr 1451, s. 1-19
- Dzik K., Kaczor J. Mechanisms of vitamin D on skeletal muscle function : oxidative stress, energy metabolism and anabolic state *European Journal of Applied Physiology*, : vol. 119, 2019, s. 825-839
- Dzik K., Skrobot W., Kaczor K., Flis D., Karnia M., Libionka W., Antosiewicz J., Kloc W., Kaczor J. Vitamin D deficiency is associated with muscle atrophy and reduced mitochondrial function in patients with chronic low back pain *Oxidative Medicine and Cellular Longevity*, 2019 : vol. 2019, art. ID 6835341, s. 1-11
- Flis D., Dzik K., Kaczor J., Ciemiński K., Hań-Gołąbek M., Antosiewicz J., Więckowski M., Ziółkowski W. Swim training modulates mouse skeletal muscle energy metabolism and ameliorates reduction in grip strength in a mouse model of amyotrophic lateral sclerosis *International Journal of Molecular Sciences*, 2019 : vol. 20, nr 2, nr 233, s. 1-14
- Krasowska K., Skrobot W., Liedtke E., Sawicki P., Flis D., Dzik K., Libionka W., Kloc W., Kaczor J. The preoperative supplementation with vitamin D attenuated pain intensity and reduced the level of pro-inflammatory markers in patients after posterior lumbar interbody fusion *Frontiers in Pharmacology*, 2019 : vol. 10, art. nr 527, s. 1-8, rys
- Skrobot W., Liedtke E., Krasowska K., Dzik K., Flis D., Samoraj-Dereszkiewicz A., Libionka W., Kortas J., Kloc W., Antosiewicz J., Kaczor J. Early rehabilitation program and vitamin D supplementation improves sensitivity of balance and the postural control in patients after posterior lumbar interbody fusion : a randomized trial *Nutrients*, 2019 : vol. 11, nr 9, art. nr 2202, s. 1-11
- Dzik K., Skrobot W., Flis D., Karnia M., Libionka W., Kloc W., Kaczor J. Vitamin D supplementation attenuates oxidative stress in paraspinal skeletal muscles in patients with low back pain *European Journal of Applied Physiology*, 2018 : vol. 118, nr 1, s. 143-151
- Flis D., Dzik K., Kaczor J., Hań-Gołąbek M., Antosiewicz J., Więckowski M., Ziółkowski W. Swim training modulates skeletal muscle energy metabolism, oxidative stress, and mitochondrial cholesterol content in amyotrophic lateral sclerosis mice *Oxidative Medicine and Cellular Longevity*, 2018 : vol. 2018, art. ID 5940748, s. 1-12
- Karnia M., Myślińska D., Dzik K., Flis D., Ciepielewski Z., Podlacha M., Kaczor J. The electrical stimulation of the bed nucleus of the stria terminalis causes oxidative stress in skeletal muscle of rats *Oxidative Medicine and Cellular Longevity*, 2018 : vol. 2018, art. ID 4671213, s. 1-11
- Hań-Gołąbek M., Borkowska A., Kaczor J., Ziółkowski W., Flis D., Knap N., Kasperuk K., Antosiewicz J. hmSOD1 gene mutation-induced disturbance in iron metabolism is mediated by impairment of Akt signalling pathway *Journal of Cachexia Sarcopenia and Muscle*, 2018 : vol. 9, nr 3, s. 557-569
- Kaszubowska L., Foerster J., Kaczor J., Schetz D., Ślebioda T., Kmieć Z. NK cells of the oldest seniors represent constant and resistant to stimulation high expression of cellular protective proteins SIRT1 and HSP70 *Immunity & Ageing*, 2018 : vol. 15, art. ID 12, s. 1-16
- Sawicki P., Dornowski M., Grzywacz T., Kaczor J. The effects of gymnastics training on selected parameters of anaerobic capacity in 12-year-old boys *Journal of Sports Medicine and Physical Fitness*, 2018 : vol. 58, nr 5, s. 591-596
- Sawicki P., Kaczor J. The preliminary analysis of protein catabolism and nitrogen balance in young gymnasts *Science & Sports*, 2018 : vol. 33, nr 1, s. 33-38

- Kaszubowska L., Foerster J., Kaczor J., Schetz D., Ślebioda T., Kmieć Z. Expression of cellular protective proteins SIRT1, HSP70 and SOD2 correlates with age and is significantly higher in NK cells of the oldest seniors *Immunity & Ageing*, 2017 : vol. 14, art. ID 3, s. 1-13
- Kaczorowska-Hań B., Łuszczuk M., Antosiewicz J., Ziółkowski W., Adamkiewicz-Drożyńska E., Myśliwiec M., Miłosz E., Kaczor J. HFE gene mutations and iron status in 100 healthy Polish children *Journal of Pediatric Hematology Oncology*, 2017 : vol. 39, nr 5, s. e240-e243
- Kaczor J., Robertshaw H., Tarnopolsky M. Higher oxidative stress in skeletal muscle of McArdle disease patients *Molecular Genetics and Metabolism Reports*, 2017 : vol. 12, s. 69-75

Laboratory of Neurobiology

Research areas:

- Mechanisms underlying pathophysiology and therapy in animal model of Alzheimer's disease and Parkinson's disease,
- Relationship between psychobehavioral characteristics, psychostimulant and antidepressant treatment and immune response,
- Neuroimmune pharmacology
- Brain area involved in immune system regulation

Staff:

- Danuta Lewandowska, PhD, associate professor - Head
- Prof. UG Wojciech Glac, PhD, associate professor
- Beata Grembecka, PhD, assistant profesor
- Irena Majkutewicz, PhD, assistant profesor
- Joanna Dunacka, MSc, PhD student
- Grzegorz Świątek, MSc, PhD student

Current grants:

- UGrants First, nr 533-D000-GF52-21, 2021, kierownik: dr Beata Grembecka

Publications (since 2016):

- Wrona D., Majkutewicz I., Świątek G., Dunacka J., Grembecka B., Glac W.: Dimethyl fumarate as the peripheral blood inflammatory mediators inhibitor in prevention of streptozotocin-induced neuroinflammation in aged rats. *Journal of Inflammation Research*, 2022, vol. 15, s. 33-52.
- Glac W., Dunacka J., Grembecka B., Świątek G., Majkutewicz I., Lewandowska D.: Prolonged peripheral immunosuppressive responses as consequences of random amphetamine treatment, amphetamine withdrawal and subsequent amphetamine challenges in rats, *Journal of NeuroImmune Pharmacology*, 2021, vol. 16, s. 870-887, DOI:10.1007/s11481-021-09988-1
- Grembecka B., Glac W., Listowska M., Jerzemowska G., Plucińska K., Majkutewicz I., Badtke P., Wrona D.: Subthalamic deep brain stimulation affects plasma corticosterone concentration and peripheral immunity changes in rat model of Parkinson's disease, *Journal of NeuroImmune Pharmacology*, vol. 16, nr 2, 2021, s. 454-469, DOI:10.1007 /s11481-020-09934-7

- Pierzynowska K., Podlacha M., Gaffke L., Majkutewicz I., Mantej J., Węgrzyn A., Osiały M., Myślińska D., Węgrzyn G.: Autophagy-dependent mechanism of genistein-mediated elimination of behavioral and biochemical defects in the rat model of sporadic Alzheimer's disease, *Neuropharmacology*, vol. 148, 2019, s. 332-346, DOI:10.1016/j.neuropharm.2019.01.030
- Grygier B., Kubera M., Wrona D., Roman A., Basta-Kaim A., Gruca P., Papp M., Rogoz Z., Leskiewicz M., Budziszewska B.: Stimulatory effect of desipramine on lung metastases of adenocarcinoma MADB 106 in stress highly-sensitive and stress non-reactive rats, *Progress in Neuro-Psychopharmacology & Biological Psychiatry*, vol. 80, nr C, 2018, s. 279-290, DOI:10.1016/j.pnpbp.2017.04.024
- Majkutewicz I., Kurowska E., Podlacha M., Myślińska D., Grembecka B., Ruciński J., Pierzynowska K., Wrona D.: Age-dependent effects of dimethyl fumarate on cognitive and neuropathological features in the streptozotocin-induced rat model of Alzheimer's disease, *Brain Research*, vol. 1686, 2018, s. 19-33, DOI:10.1016/j.brainres.2018.02.016
- Kuzyniak W., Schmidt J., Glac W., Berkholtz J., Steinemann G., Hoffmann B., Ermilov E., Gürek A., Ahsen V., Nitzsche B.: Novel zinc phthalocyanine as a promising photosensitizer for photodynamic treatment of esophageal cancer, *International Journal of Oncology*, vol. 50, nr 3, 2017, s. 953-963, DOI:10.3892/ijo.2017.3854
- Majkutewicz I., Kurowska E., Podlacha M., Myślińska D., Grembecka B., Ruciński J., Plucińska K., Jerzemowska G., Wrona D.: Dimethyl fumarate attenuates intracerebroventricular streptozotocin-induced spatial memory impairment and hippocampal neurodegeneration in rats, *Behavioural Brain Research*, vol. 308, 2016, s. 24-37, DOI:10.1016/j.bbr.2016.04.012
- Podlacha M., Glac W., Listowska M., Grembecka B., Majkutewicz I., Myślińska D., Plucińska K., Jerzemowska G., Grzybowska M., Wrona D.: Medial septal NMDA glutamate receptors are involved in modulation of blood natural killer cell activity in rats, *Journal of Neuroimmune Pharmacology*, vol. 11, nr 1, 2016, s. 121-132, DOI:10.1007/s11481-015-9632-y

Completed grants:

- dr Wojciech Glac – Mechanism and individual differences of amphetamine effects on the immune system in rats, NCN, nr 2012/07/B/N24/00216, 2013-2019, kierownik: dr Wojciech Glac
- Wpływ fumaranu dimetylu na obwodowe markery stanów zapalnych u zróżnicowanych behawioralnie szczurów z modelem choroby Alzheimera, *Młodzi Naukowcy*, nr 538-L124-B145-18, 2018, kierownik: mgr Joanna Dunacka
- The influence of dimethyl fumarate on the spatial memory, neurogenesis neurodegeneration and cerebral inflammation in the rat model of Alzheimer's disease, NCN, nr 2013/09/D/NZ4/01658, 2014-2017, kierownik: dr Irena Majkutewicz
- The impact of the subthalamic nucleus stimulation on lymphocytes apoptosis in rat model of Parkinson's disease, UG, nr 538-L124-B240-16, 2016, kierownik: dr Beata Grembecka
- The role of the subthalamic nucleus in the regulation of natural killer (NK) cell function in rats (KBN/N N303 299937, 2009-2011, kierownik: dr hab. Danuta Lewandowska, prof. UG
- Individual differentiation of anti-tumor activity of NK cells in condition of behavioral depression and antidepressant drug administration in rats, KBN, nr N N303 333536, 2009-2012, kierownik: dr hab. Danuta Lewandowska, prof. UG
- The impact of high frequency subthalamic nucleus stimulation on inflammation and c-Fos expression in hemiparkinsonian rats, UG, nr 538-L125-0776-1, 2011, kierownik: dr Beata Grembecka

Laboratory of Neurophysiology and Neurochemistry

Research areas:

- The role of subcortical structures of extended hippocampal system in memory and learning processes.
- The involvement of the centers of the mammillary bodies - the anterior nuclei system in the regulation of the hippocampal EEG in rats,
- Effect of the pharmacological activation and inactivation of the ventral tegmental area (VTA) on the pattern of the hippocampal EEG in rats,

- Functional relationships between selected brainstem centers and the midbrain ventral tegmental area in the regulation of hippocampal electrical activity,
- Interrelationships between selected structures of mesolimbic system and brainstem involved in electrical stimulation-induced food and exploratory responses, as well as modification of these responses by intracerebral injection or lesion.
- Interrelationships in particular structures of the mesolimbic system, regarding dopaminergic, cholinergic, and glutaminergic transmission systems, operate in dynamic equilibrium, an important element in regulating motivational behavior.
- The influence of induced inflammation on the process of neurogenesis.
- Stimulation of limbic structures (including: the amygdala) versus anxiety behavior and stress response and modifying its effects.

Staff:

- Jolanta Orzeł-Gryglewska, PhD (hab.), associate professor - Head
- Grażyna Jerzemowska, PhD - assistant professor
- Witold Żakowski, PhD - assistant professor
- Paweł Matulewicz, PhD - assistant professor
- Ziemowit Ciepielewski, PhD - assistant professor
- Ewelina Kurowska, MSc - assistant
- Jan Ruciński, MSc - assistant
- Aleksandra Piwka, MSc – assistant
- Piotr Zawistowski, MSc – PhD student

Current grants:

- NCN Prelude 18 - Jan Ruciński MSc (2021)
- Research Projects of Young Scientists - Aleksandra Piwka MSc (2021)

Publications:

- Animal Use in Neurobiological Research. Żakowski W. Neuroscience. 2020;433:1-10. doi: 10.1016/j.neuroscience.2020.02.049. Review.
- NMDA receptor modulation of the pedunclopontine tegmental nucleus underlies the motivational drive for feeding induced by midbrain dopaminergic neurons. Jerzemowska G, Plucińska K, Piwka A, Ptaszek K, Podlacha M, Orzeł-Gryglewska J. Brain Res. 2019;1715:134-147. doi: 10.1016/j.brainres.2019.03.028.
- Activity of tyrosine hydroxylase and C-Fos protein in the retrorubral field in rats with differential novelty-induced locomotion. Jerzemowska G, Plucińska K, Ptaszek K, Piwka A, Orzeł-Gryglewska J. Neuropsychiatry. 2018; 8(4):1391-1399. doi: 10.4172/Neuropsychiatry.1000469.
- The effect of pharmacological inactivation of the mammillary body and anterior thalamic nuclei on hippocampal theta rhythm in urethane-anesthetized rats. Żakowski W, Zawistowski P, Braszka Ł, Jurkowlaniec E. Neuroscience. 2017;362:196-205. doi: 10.1016/j.neuroscience.2017.08.043.
- Neurochemistry of the Anterior Thalamic Nuclei. Żakowski W. Mol Neurobiol. 2017;54(7):5248-5263. doi: 10.1007/s12035-016-0077-y. Review.
- Inactivation of the medial mammillary nucleus attenuates theta rhythm activity in the hippocampus in urethane-anesthetized rats. Żakowski W, Braszka Ł, Zawistowski P, Orzeł-Gryglewska J, Jurkowlaniec E. Neurosci Lett. 2017;645:19-24. doi: 10.1016/j.neulet.2017.02.057.

- Hypothalamic and midbrain cells, tyrosine hydroxylase and implications for drug addiction. In: *The Neuropathology Of Drug Addictions And Substance Misuse, Neuropathology of Addiction*, (Ed. V.R.Preedy), Jerzemowska G. Academic Press, London, 2016; 3(7):71-81. doi: 10.1016/b978-0-12-800634-4.00007-x.
- Brainstem system of hippocampal theta induction: The role of the ventral tegmental area. Orzeł-Gryglewska J, Matulewicz P, Jurkowlaniec E. *Synapse*. 2015;69(11):553-75. doi: 10.1002/syn.21843. Review.
- Hippocampal theta rhythm after local administration of procaine or amphetamine into the ventral tegmental area in fear conditioned rats. Matulewicz P, Orzeł-Gryglewska J, Braszka Ł, Zawistowski P, Jurkowlaniec E. *Neurosci Lett*. 2015;589:132-7. doi: 10.1016/j.neulet.2015.01.049.
- NMDA-glutamatergic activation of the ventral tegmental area induces hippocampal theta rhythm in anesthetized rats. Matulewicz P, Orzeł-Gryglewska J, Kuśmierczak M, Jurkowlaniec E. *Brain Res Bull*. 2014;107:43-53. doi: 10.1016/j.brainresbull.2014.06.001.
- Theta activity in local field potential of the ventral tegmental area in sleeping and waking rats. Orzeł-Gryglewska J, Matulewicz P, Jurkowlaniec E. *Behav Brain Res*. 2014;265:84-92. doi: 10.1016/j.bbr.2014.02.023.
- Locomotor response to novelty correlates with differences in number and morphology of hypothalamic tyrosine hydroxylase positive cells in rats. Jerzemowska G, Plucińska K, Kuśmierczak M, Myślińska D, Orzeł-Gryglewska J. *Brain Res Bull*. 2014;101:26-36. doi: 10.1016/j.brainresbull.2013.12.009.
- Dopaminergic transmission in the midbrain ventral tegmental area in the induction of hippocampal theta rhythm. Orzeł-Gryglewska J, Kuśmierczak M, Matulewicz P, Jurkowlaniec E. *Brain Res*. 2013;1510:63-77. doi: 10.1016/j.brainres.2013.03.021.
- Hippocampal theta rhythm induced by rostral pontine nucleus stimulation in the conditions of pedunclopontine tegmental nucleus inactivation. Matulewicz P, Kuśmierczak M, Orzeł-Gryglewska J, Jurkowlaniec E. *Brain Res Bull*. 2013;96:10-8. doi: 10.1016/j.brainresbull.2013.04.005.
- Behavioral response elicited by stimulation of the mesolimbic system after procaine and bicuculline injection into the pedunclopontine tegmental nucleus in rats. Jerzemowska G, Plucińska K, Majkutewicz I, Orzeł-Gryglewska J, Trojnar W. *Behav Brain Res*. 2013;241:161-72. doi: 10.1016/j.bbr.2012.12.012.
- Induction of hippocampal theta rhythm by electrical stimulation of the ventral tegmental area and its loss after septum inactivation. Orzeł-Gryglewska J, Kuśmierczak M, Majkutewicz I, Jurkowlaniec E. *Brain Res*. 2012;1436:51-67. doi: 10.1016/j.brainres.2011.12.003.
- Locomotor response to novelty correlates with the number of midbrain tyrosine hydroxylase positive cells in rats. Jerzemowska G, Plucińska K, Kulikowski M, Trojnar W, Wrona D. *Brain Res Bull*. 2012;87(1):94-102. doi: 10.1016/j.brainresbull.2011.10.014.
- Proximal perimeter encoding in the rat rostral thalamus. Matulewicz P, Ulrich K, Islam MN, Mathiasen ML, Aggleton JP, O'Mara SM. *Sci Rep*. 2019;9(1):2865. doi: 10.1038/s41598-019-39396-8.
- Dimethyl fumarate attenuates intracerebroventricular streptozotocin-induced spatial memory impairment and hippocampal neurodegeneration in rats. Majkutewicz I, Kurowska E, Podlacha M, Myślińska D, Grembecka B, Ruciński J, Plucińska K, Jerzemowska G, Wrona D. *Behav Brain Res*. 2016;308:24-37. doi: 10.1016/j.bbr.2016.04.012.
- NMDA receptor antagonist-enhanced high frequency oscillations: are they generated broadly or regionally specific? Olszewski M, Dolowa W, Matulewicz P, Kasicki S, Hunt MJ. *Eur Neuropsychopharmacol*. 2013;23(12):1795-805. doi: 10.1016/j.euroneuro.2013.01.012.
- Subthalamic Deep Brain Stimulation Affects Plasma Corticosterone Concentration and Peripheral Immunity Changes in Rat Model of Parkinson's Disease. Grembecka B, Glac W, Listowska M, Jerzemowska G, Plucińska K, Majkutewicz I, Badtke P, Wrona D. *J Neuroimmune Pharmacol*. 2021;16(2):454-469. doi: 10.1007/s11481-020-09934-7.
- Medial Septal NMDA Glutamate Receptors are Involved in Modulation of Blood Natural Killer Cell Activity in Rats. Podlacha M, Glac W, Listowska M, Grembecka B, Majkutewicz I, Myślińska D, Plucińska K, Jerzemowska G, Grzybowska M, Wrona D. *J Neuroimmune Pharmacol*. 2016;11(1):121-32. doi: 10.1007/s11481-015-9632-y.
- Stress-induced differences in the limbic system Fos expression are more pronounced in rats differing in responsiveness to novelty than social position. Majkutewicz I, Myślińska D, Jerzemowska G, Plucińska K, Listowska M, Grembecka B, Podlacha M, Wrona D. *Brain Res Bull*. 2012;89(1-2):31-40. doi: 10.1016/j.brainresbull.2012.06.011.

Laboratory of Behavior and Stress Physiology

Research areas:

- Effects of harmful environment on animal behavior.
- The role of behavior in the maintenance of homeostasis
- The sense of taste in humans
- The influence of gustatory/olfactory stimuli on emotional reactions and behaviour in humans and animals
- Neurobiological basis of cognitive functions

Staff:

- Artur H. Świergiel, PhD (hab.), full professor - Head
- Emilia Leszkowicz, PhD - assistant professor

Collaboration:

- Institute of Agriculture and Food Biotechnology – State Research Institute (Warszawa, Poland)
- Monell Chemical Senses Center (Philadelphia, USA)
- 2nd Division of Radiology, Medical University of Gdansk
- Laznia Center for Contemporary Art (Gdańsk, Poland)

Selected publications:

- Ziętek M., Barłowska K., Wijas B., Szablisty E., Atanasov A.G., Modliński J.A., Świergiel A.H., Sampino S. Preconceptional resveratrol supplementation partially counteracts age-related reproductive complications in C57BL/6J female mice. *Molecules*, 2021, 26(7):1934. doi: 10.3390/molecules26071934
- Miękus N., Marszałek K., Podlacha M., Iqbal A., Puchalski C., Świergiel A.H. Health Benefits of plant-derived sulfur compounds, glucosinolates, and organosulfur compounds. *Molecules*, 2020, 25(17):3804. doi:10.3390/molecules25173804
- Miękus N., Iqbal A., Marszałek K., Puchalski C., Świergiel A. Green chemistry extractions of carotenoids from *Daucus carota* L.- supercritical carbon dioxide and enzyme-assisted methods. *Molecules*, 2019, 24(23):4339. doi:10.3390/molecules24234339
- Siudak M., Ziętek M., Tober-Marczewska A., Sideris E., Świergiel A. H. Correlation between salivary cortisol and psychological stress indicators during a driving course. *Acta Neuropsychologica*, 2018, 16(3): 259-266. doi:10.5604/01.3001.0012.4701
- Siudak M., Ziętek M., Tober-Marczewska A., Sideris E., Świergiel A. H. Badania zależności pomiędzy biomarkerami stresu a parametrami psychologicznymi wśród strażaków Państwowej Straży Pożarnej - praktyczne wykorzystanie. W: Konieczny J., Kamprowski R. (red.): *Bezpieczne miasto w zagrożeniach środowiskowych: ochrona ludności i ratownictwo*, 2016, Poznań; Inowrocław, Garmond Oficyna Wydawnicza, ISBN 978-83-89250-34-6
- Leszkowicz E., Linden D. E. J., Maio G. R., Ihssen N. Neural coding of human values is underpinned by brain areas representing the core self in the cortical midline region. *Social Neuroscience*, 2021, 16(5): 486-499. doi: 10.1080/17470919.2021.1953582

- Leszkowicz E. Fostering creative thinking in ageing may prevent cognitive decline: selected behavioural and neural data. *Rocznik Andragogiczny*, 2019, 26: 189-196. doi:10.12775/RA.2019.011
- Leszkowicz E., Linden D. E. J., Maio G. R., Ihssen N. Neural evidence of motivational conflict between social values. *Social Neuroscience*, 2017, 12(5): 494-505. doi: 10.1080/17470919.2016.1183517
- Leszkowicz E. Selected neuroplastic effects of cognitive training in aging in MRI/fMRI studies. *Rocznik Andragogiczny*, 2017, 24: 201-211. doi: 10.12775/RA.2017.014
- Leszkowicz E., Khan S., Ng S., Ved N., Swallow D.L., Brennan P.A. Noradrenaline-induced enhancement of oscillatory local field potentials in the mouse accessory olfactory bulb does not depend on disinhibition of mitral cells. *European Journal of Neuroscience*, 2012, 35(9): 1433-1445. doi: 10.1111/j.1460-9568.2012.08070.x

[Laboratory of Experimental Animals](#)

Staff:

- Dorota Myślińska, PhD, assistant professor - Head
- Adriana Janicka, vet.
- Michał Kulikowski, MSc, assistant