

Department of Experimental Physiology and Pathophysiology



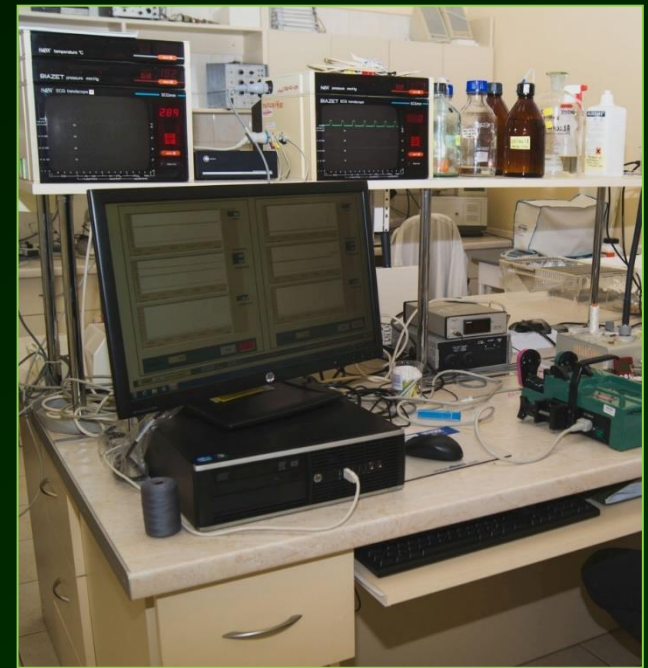
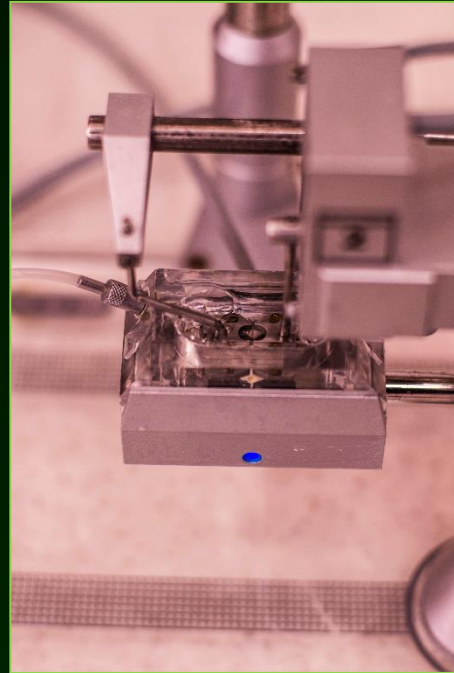
**Faculty of Pharmacy
with the Division of Laboratory Medicine**

Medical University of Białystok

Research & Science

Scope of scientific activity

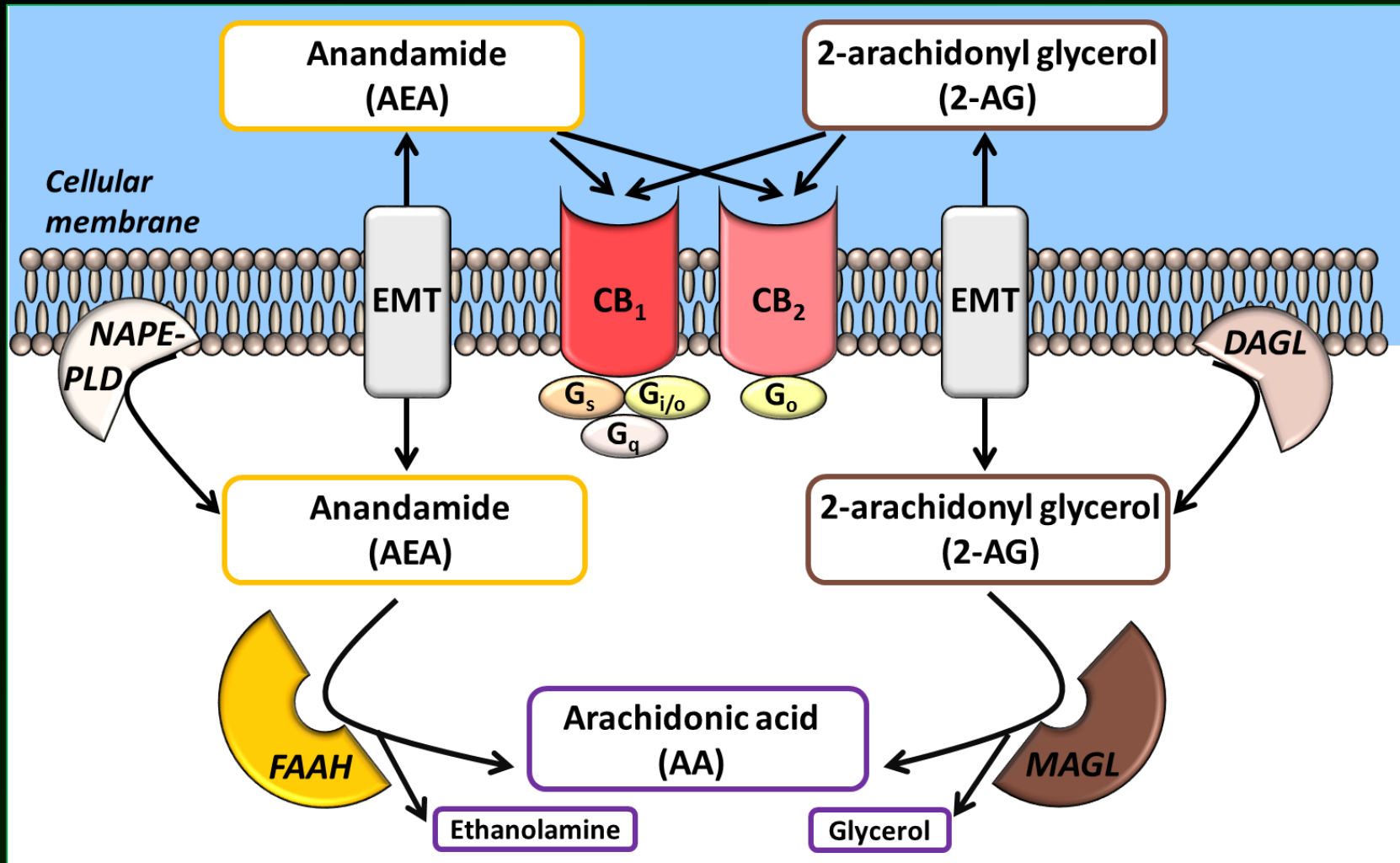
Physiology, pathophysiology and pharmacology
of the **cardiovascular system**



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Research & Science

Scope of scientific activity



Role of endocannabinoids in cardiovascular system

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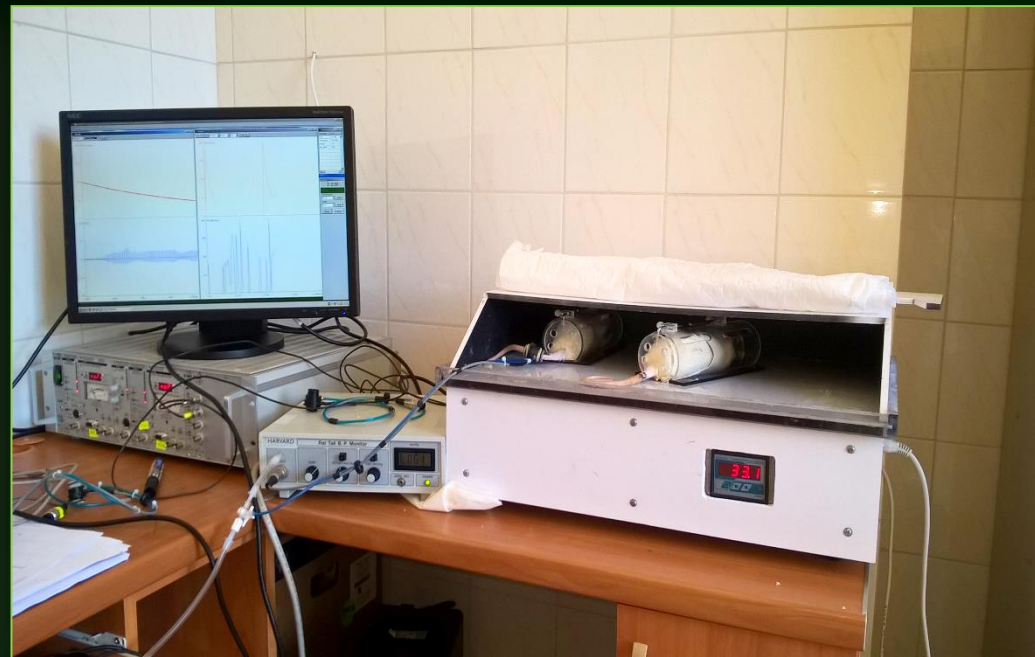


**Rat models of pulmonary and systemic hypertension
(SHR and DOCA-salt)**

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Research & Science

In vivo methods



- noninvasive blood pressure measurement
- evaluation of cardiovascular responses in anaesthetized and pithed rat model (heart rate, blood pressure, left ventricular pressure, mesenteric and renal blood flow)
- electrical stimulation of preganglionic sympathetic nerve fibers innervating the heart and resistance vessels

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In vivo methods



**Stereotaxic microinjections
into the paraventricular nucleus (PVN)**

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In vitro methods

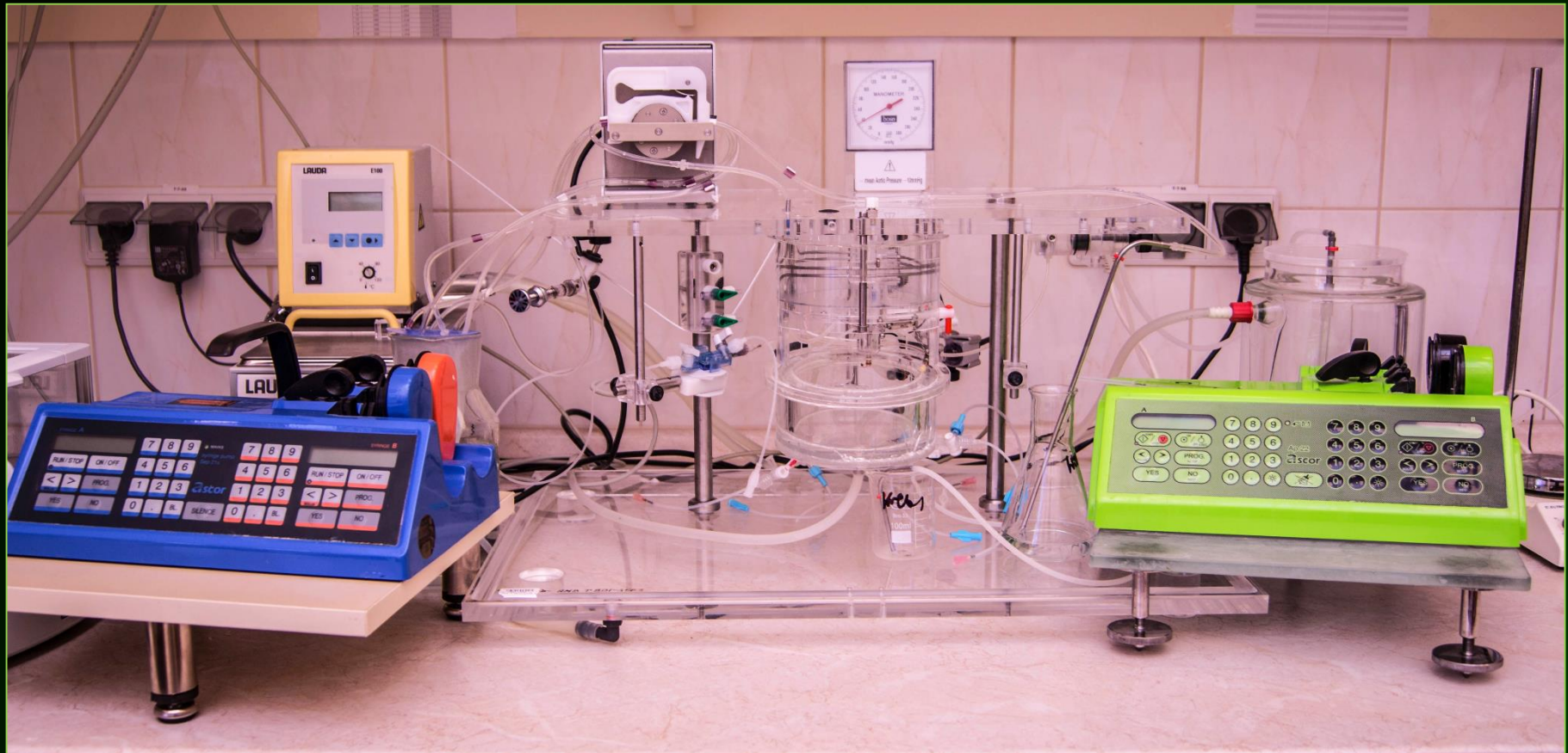


Evaluation of mechanistic responses (isometric contraction) of **isolated blood vessels of the rat** (mesenteric, renal and pulmonary arteries and aorta) **and human** (pulmonary artery)

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In vitro methods



Evaluation of **isolated rat heart** responses
in the Langendorff system

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In vitro methods



Evaluation of responses of the isolated rat atria and the human right atrial appendages

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Grants

- Complex effects of cannabidiol on the cardiovascular system, oxidative stress and heart metabolism in experimental models of hypertension (**OPUS**; 2016 – 2019, principal investigator: **prof. Barbara Malinowska**)
- Role of endocannabinoids in the regulation of the cardiovascular system, oxidative stress and heart metabolism in the models of primary and secondary hypertension (**OPUS**; 2012 – 2016, principal investigator: **prof. Barbara Malinowska**)



Grants

- The comprehensive evaluation of potentially protective action of cannabidiol in the experimental model of pulmonary arterial hypertension (**PRELUDIUM**; 2018 – 2020, principal investigator: MSc Olga Karpińska, supervisor: PhD Hanna Kozłowska)
- The influence of simultaneous inhibition of endocannabinoid degrading enzymes FAAH and MAGL by JZL195 on the cardiovascular system, oxidative stress and inflammation in spontaneously hypertensive and normotensive rats (**PRELUDIUM**; 2017 – 2019, principal investigator: MSc Marek Toczek, supervisor: prof. Barbara Malinowska)



Grants

- Cannabidiol as a potential cardioprotective agent in isolated rat atrium under hypoxic conditions (**MINIATURA**; 2019 – 2020, principal investigator: PhD A. Pędzińska-Betiuk,)

