

CHOLINESTERASES IN RAT AORTA

Szmicseková K.^{1,2}, Kiliánová Z.¹, Krejci E.², Paul Hrabovská A.¹

¹*Dpt. of Pharmacology and Toxicology, Faculty of Pharmacy of Comenius University in Bratislava, Bratislava, Slovak Republic*

²*Cognition and Action Group, Université Paris Descartes, Paris, France*

INTRODUCTION. Our previous results confirmed aorta to be a non-neuronal cholinergic tissue carrying full machinery for synthesis, storage and release of acetylcholine (ACh). However, there is still a lack of information about the enzymes responsible for ACh deactivation, cholinesterases (ChE). **AIMS.** The aim of this project was to provide a full picture about ChE in rat aorta, including relative quantitation of the mRNA expression, protein and activity visualization and their localization within the tissue, as well as determination of the ChE molecular forms. **METHODS:** Aortas of 12 weeks old male normotensive Wistar rats were used. Target-specific primers were used in RT-qPCR for determination of relative expression of investigated proteins. ChE were visualized by immunohistochemistry using commercially available antibodies. Specific markers of smooth muscle and endothelium were used for colocalization. Tsuji's activity staining protocol was used for ChE-activity visualization. Molecular forms of ChE were analyzed by sucrose gradients. **RESULTS.** Both ChE were present in all aortic segments with BChE being a predominant ChE, as confirmed by qRT-PCR, immunohistochemistry and activity staining. ChE activities were localized in a smooth muscle of aorta, but not in endothelium. Both AChE and BChE were present mainly in PRiMA anchored form.

ACKNOWLEDGEMENT. This project was supported by a grant from the Faculty of Pharmacy of Comenius University in Bratislava (FaF/13/2019) and Bourse du Gouvernement Français.