ENIKŐ TARI

National Academy of Scientist Education, 2nd year

University of Pécs,
Faculty of Sciences, Biology, 3rd year

YEAR OF BIRTH:

2001

FORMER SZENT-GYÖRGYI PUPIL:

no

SZENT-GYÖRGYI MENTOR:

Tamás Atlasz

JUNIOR MENTOR:

Alexandra Váczy

SPECIALIZATION:

ophthalmology

SECONDARY SCHOOL:

Nagy Lajos High School and College of the Cistercian Order

NAME OF TEACHER:

Zsolt Nyisztor,
Eszter Dénes,
Éva Csikyné Radnai

LANGUAGES:

English/advanced

IMPORTANCE, AIMS AND POSSIBLE OUTCOME OF RESEARCH

It is estimated that the number of people blind from glaucoma in 2020 globally is 11.1 million, which makes it the second most common cause of blindness worldwide. Glaucoma is a group of optic disorders with the common attribute that they lead to the apoptosis of retinal ganglion cells. This disease develops because of the blockage of the aqueous humor drainage system leading to intraocular hypertension. Glaucoma has several subtypes, but the most common one is primary open-angle glaucoma. Pituitary adenylate cyclase activating polypeptide (PACAP) belongs to the vasoactive intestinal peptide (VIP)/glucagon/growth hormone releasing factor/secretin superfamily. It has two active forms PACAP1-27 and PACAP1-38 and both of them are naturally found in the retina. PACAP exerts its effects through three different G-protein coupled receptors: VPAC1, VPAC2 and PAC1. While VPAC1 and VPAC2 receptors show similar affinity for VIP and PACAP, PAC1 is a specific receptor to PACAP. PACAP can be easily hydrolyzed by dipeptidyl-peptidase IV (DPP IV). The cyclopeptide synthesized from the cyclization of PACAP1–5 has been revealed as an activator of PAC1 and DDP IV hydrolyzation is more difficult due to the cyclization. Therefore, cyclized PACAP1-5 can be potentially suitable for the study of PAC1 receptor signaling as a potential pharmacon candidate in the field of ophthalmic diseases.

AMBITIONS AND CAREER GOALS

The use of PACAP1-5 and other PACAP analogs may provide an opportunity to specifically investigate signalling pathways of PAC1 receptor. Our aim is to better understand the mechanism of PACAP and the PAC1 receptor which it may form the basis of a future therapeutic option in common retinal diseases such as glaucoma. In addition, treatment as eye drops is an easy-to-use, non-invasive method and may be suitable for clinical use.

HONORS AND PRIZES

–

PUBLICATIONS

–