



(<https://san2022.saneurociencias.org.ar/>)

237 | The absence of the potassium channel KCNQ4 affects the visual function

Sensory and Motor Systems

Author: Marcela Sonia Vera | email: marceverita@gmail.com

Marcela Vera ^{1°2°}, Sofía Stupniki ^{1°2°}, Manuel Bruera ^{3°}, María Constanza Paz ^{3°}, Leonardo Dionisio ^{1°2°}, Alan Vater ^{4°5°}, Paula Schaiquevich ^{4°5°}, María Ana Contín ^{3°}, Guillermo Spitzmaul ^{1°2°}

1° Instituto de Investigaciones Bioquímicas de Bahía Blanca (INIBIBB), CONICET/UNS.

2° Departamento de Biología, Bioquímica y Farmacia (BByF), UNS.

3° Departamento de Química Biológica de Córdoba, RC. CIQUIBIC-CONICET/UNC

4° Hospital de Pediatría J.P. Garrahan, Buenos Aires, Argentina

5° Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET)

Voltage-gated KCNQ potassium channel subunits are responsible for the M-current that regulates neuronal excitability. We found expression of KCNQ4 in the retinal pigmented epithelium (RPE) and in the ciliary body (CB) of mouse eyes, suggesting that it could participate in visual processing and aqueous humor formation. Using *Kcnq4* knockout (KO) and wild-type (WT) mice we studied the role of KCNQ4 in vision. First, we analyzed *Kcnq* gene expression by qPCR. We found that in KO mice, the expression of *Kcnq3* and *-5* in the RPE/retina did not change. On the other hand, in CB the expression of *Kcnq3* increased 2.5-fold while the expression of *Kcnq5* decreased 30%. Then, we tested light perception by testing the innate aversion of rodents to it. We did not find any differences between the KO and WT in the test performance. To analyze the function of the neuronal visual pathway, we recorded electroretinogram (ERG) in both genotypes. We observed no differences in a- and b-wave peaks and latency times between WT and KO in young animals, whereas in 50 weeks-old mice we observed a reduction trend in b-wave peak in KO while a-wave showed no differences. We also measured intraocular pressure (IOP) in young animals to evaluate CB function. We found a slight increase in the IOP in KO mice (13.6±1.0 to 15.8±1.1 mm Hg). In conclusion, the presence of the KCNQ4 subunit is necessary for the proper expression of the other *Kcnq* subunits and it would contribute to CB and retinal function.

Search

Search

MENU

About the meeting

Welcome! (<https://san2022.saneurociencias.org.ar/index.php/welcome-message/>)

Organizing Committee (<https://san2022.saneurociencias.org.ar/index.php/organizing-committee/>)

Registration Fees (<https://san2022.saneurociencias.org.ar/index.php/registration-fees/>)

Venue (<https://san2022.saneurociencias.org.ar/index.php/venue/>)

Code of Conduct (<https://san2022.saneurociencias.org.ar/index.php/code-of-conduct/>)

Program at a Glance (<https://san2022.saneurociencias.org.ar/index.php/program-at-a-glance/>)

Program (<https://san2022.saneurociencias.org.ar/index.php/program/>)

Program (<https://san2022.saneurociencias.org.ar/index.php/program/>)

Plenary Lectures (<https://san2022.saneurociencias.org.ar/index.php/plenary-lectures/>)

Symposia (<https://san2022.saneurociencias.org.ar/index.php/symposia/>)

Posters (<https://san2022.saneurociencias.org.ar/index.php/posters/>)

Session 1 (<https://san2022.saneurociencias.org.ar/index.php/posters-session-1/>)

Session 2 (<https://san2022.saneurociencias.org.ar/index.php/posters-session-2/>)

Oral Communications (<https://san2022.saneurociencias.org.ar/index.php/oral-communications/>)

Young Investigators Talks (<https://san2022.saneurociencias.org.ar/index.php/young-investigators/>)

Roundtables (<https://san2022.saneurociencias.org.ar/index.php/round-tables/>)

Registration (<https://san2022.saneurociencias.org.ar/index.php/registration-san-2022/>)

SAN2022 MEETING

.

(<https://saneurociencias.org.ar/>)

LOGIN

Login (<https://san2022.saneurociencias.org.ar/index.php/login/>)

Register (<https://san2022.saneurociencias.org.ar/index.php/register-2>)

SEARCH

Search ...

FOLLOW US



(<https://twitter.com/SAN2022>) (<https://www.facebook.com/SAN2022>) (<https://www.instagram.com/SAN2022>) (<https://www.youtube.com/channel/UCETHMsRY0AwAsTtdUWOFgg/videos>)