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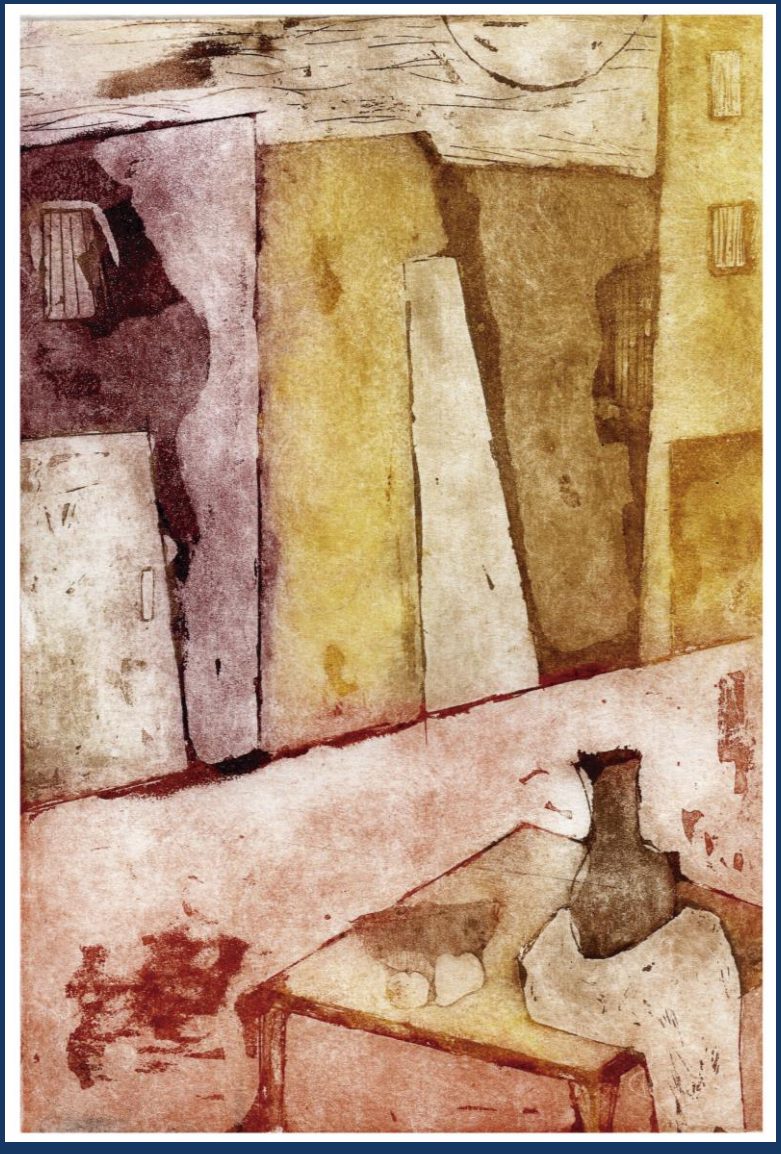

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La Tapa (Ver pág. 4)
Atardecer en la tarde
Antonella Ricagni

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REUNIÓN ANUAL DE SOCIEDADES DE BIOCIENCIA 2019

LXIV Reunión Anual de la
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LI Reunión Anual de la
Asociación Argentina de Farmacología Experimental (SAFE)

XXI Reunión Anual de la
Sociedad Argentina de Biología (SAB)

XXXI Reunión Anual de la
Sociedad Argentina de Protozoología (SAP)

IX Reunión Anual de la
Asociación Argentina de Nanomedicinas
(NANOMED-ar)

VI Reunión Científica Regional de la Asociación Argentina de Ciencia y Tecnología de Animales de Laboratorio (AACyTAL)

con la participación de
The Histochemical Society

13 - 16 de noviembre de 2019
Hotel 13 de Julio - Mar del Plata

EDITORES RESPONSABLES

Dra. Mónica Costas
Dra. Gabriela Marino
Dr. Pablo Azurmendi

define the active compound/s and the molecular mechanisms involved in this effect.

0329 - A NOVEL INHIBITOR OF C. ELEGANS GLUTAMATE-ACTIVATED CHLORIDE CHANNEL WITH POTENTIAL ANTHELMINTIC ACTIVITY

Ornella TURANI (1) | María Julia CASTRO(1) | María Belén FARAONI(2) | Dario Cesar GERBINO(2) | Cecilia BOUZAT(1)

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Abstract/Resumen: Nematode parasitoses cause mortality and morbidity in humans and considerable losses in livestock, domestic animals and food crops. The acquisition of resistance to current anthelmintic drugs has prompted the search for new compounds. The free-living nematode Caenorhabditis elegans has emerged as a valuable platform for anthelmintic drug discovery. We have previously synthetized a small library of oxygenated tricyclic compounds and tested anthelmintic actions by measuring rapid effects on C. elegans. Exposure to dibenzo[b,e]oxepin-11(6H)-one (C1a) induced paralysis of C. elegans. We here sought to identify its target site and mechanism of action. Given that Cys-loop receptors are involved in worm locomotion and are targets of classical antiparasitic drugs, we tested the effects of C1a on several C. elegans mutant strains lacking these receptors. We found that a mutant strain that lacks the invertebrate glutamate-gated chloride-selective channel (GluClR), which is the target of the widely used antiparasitic ivermectin, is resistant to C1a. Thus, the paralysis assays revealed that GluClR is the main drug target of C1a. To unravel the molecular mechanism underlying the paralyzing action, we expressed in mammalian cells GluClα and β subunits to form GluClRs and evaluated the effects of C1a by electrophysiological whole-cell recordings. Glutamate elicited macroscopic currents from cells expressing GluClα/β heteromeric receptors whereas C1a was not capable of eliciting responses, thus indicating that it is not an agonist of GluClRs and that its mechanism differs from that of ivermectin. We found that C1a acts as an inhibitor of glutamate-responses: Preincubation of the cell with C1a produced a statistically significant decrease of the decay time constant and total charge and a slight decrease of the peak of currents elicited by glutamate. We here propose C1a as a novel compound or scaffold with promising antiparasitic activity mediated through inhibition of GluClRs.

0399 - ACTIVATION AND MODULATION OF THE CAENORHABDITIS ELEGANS SEROTONIN-GATED CHLORIDE CHANNEL

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INIBIBB-CONICET, DEPTO. BIOLOGÍA, BIOQUÍMICA Y FARMACIA-UNS

Abstract/Resumen: Serotonin-gated ion channels (5-HT3) belong to the family of Cys-loop receptors, which are pentameric proteins that mediate fast synaptic transmission. In mammals, 5-HT3 are non-selective cationic channels that can be found as homomers (5-HT3A) or heteromers. The free-leaving nematode Caenorhabditis elegans is a model for the study of the nervous system and for antiparasitic drug discovery. As parasitic nematodes, C. elegans contains a homomeric serotonin-gated chloride channel, MOD-1, that modulates locomotory behavior. The absence of this receptor in vertebrates, converts MOD-1 into a potential antiparasitic drug target. We expressed MOD-1 in mammalian cells and explored by patch-clamp recordings its activation and modulation properties. Dose-response curves revealed an EC50 for 5-HT activation of about 1 µM, which is in the same range as that of human 5-HT3A receptors. The analysis of whole-cell currents determined that MOD-1 channels do not show rectification, desensitize slowly in the presence of 5-HT, and recover from desensitization with a time constant of about 1 s. In contrast to their actions at mammalian 5-HT3 receptors, 5-hydroxyindol and thymol do not potentiate MOD-1 currents. The antiparasitic drug ivermectin (IVM), which acts as activator or potentiator of different Cys-loop receptors, neither activates nor potentiates MOD-1 but pre-exposure to IVM inhibits MOD-1 currents. To gain further insights into the molecular function of the native MOD-1, we sought to identify serotonin-activated chloride channels from C. elegans neurons expressing MOD-1 and compared to MOD-1 channels heterologously expressed in mammalian cells. The understanding of the molecular pharmacology of MOD-1 contributes to our knowledge of the Cys-loop receptor family and to its potential as a novel drug target for anthelmintic therapy

0424 - POLYMERIC NANOPARTICLES ENHANCE THE PHOTOTOXICITY OF MONOBROMINATED AZURE B AGAINST GRAM-POSITIVE AND GRAM-NEGATIVE BACTERIA

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Abstract/Resumen: Phenothiazine are commonly used photosensitizer (PS) due to their low toxicity, high binding affinity for both Gram-positive and Gram-negative bacteria. In order to optimize the properties of these dyes, monobrominated derivative of Azure B (AzBBr) was synthesized. Although halogenation increased the singlet oxygen quantum yield of this PS, also increased the lipophilicity, favored aggregation and affected its phototoxic efficiency. The vehiculization of this PS in different Polyacrylamide Nanoparticles (PAA-NP) was employed to overcome these disadvantages. In this work we evaluated the photodynamic efficacy of AzBBr, free and loaded in two PAA-NP (NIPA and BIS, according to its components), against Gram-positive and Gram-negative bacteria. The inactivation of Staphylococcus aureus sensitive and resistant to methicillin (MSSA and MRSA), Pseudomonas aeruginosa and Escherichia coli was tested in bacterial suspensions. Different concentrations of the PS (7.5-250 µM) and light doses (7.6-15.1 J/cm^2) were applied in the treatment. The results showed that AzBBr, free and loaded in PAA-NP, were not toxic and caused significant photodynamic inactivation of all bacteria studied. S. aureus was the most sensitive bacterium to photodynamic treatment, evidencing a similar behavior in the inactivation of MSSA and MRSA. After 15 min of irradiation, the PAA-NP produced a reduction greater than 3 Log CFU/mL. Regarding Gram-negative bacteria, AzBBr loaded in NIPA-NP eradicated P. aeruginosa and caused a drop greater than 3 Log CFU/mL of E. coli. On the other hand, the BIS-NP enhanced the phototoxic activity of the PS, reaching a drop of 3 Log CFU/mL of P. aeruginosa and 2 Log CFU/mL of E. coli. In conclusion, the employ of PAA-NP in the vehiculization of AzBBr increased the photodynamic efficacy of PS against Gram-positive and Gram-negative bacteria. Particularly NIPA-NP is a promising alternative for the use of AzBBr in the treatment of infections caused by these microorganisms.

0494 - EDUCATIONAL INTERVENTION TENDING TO AVOID MEDICATION ERRORS IN A SOCIAL SECURITY INSTITUTE OF CORRIENTES.

Sergio Daniel MORALES | **Maria Teresa ROCHA** | Isabel HARTMAN | María Eugenia HORNA | María Mercedes GONZÁLEZ | Lorena DOS SANTOS ANTOLA

UNIVERSIDAD NACIONAL DEL NORDESTE