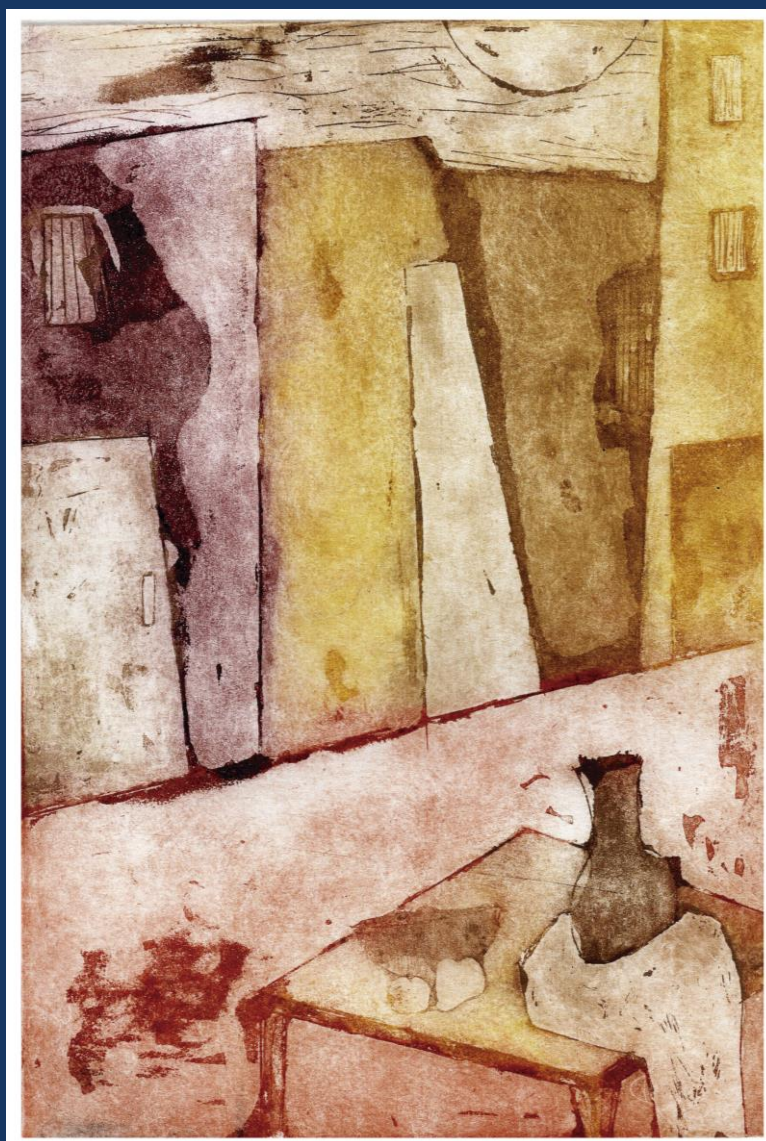


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La Tapa (Ver pág. 4)
Atardecer en la tarde
Antonella Ricagni

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REUNIÓN ANUAL DE SOCIEDADES DE BIOCIENCIA 2019

**LXIV Reunión Anual de la
Sociedad Argentina de Investigación Clínica (SAIC)**

**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

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ANNUAL MEETING OF BIOSCIENCE SOCIETIES 2019

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

initiatives have emerged. For example various countries have investigated how 3R implementation on a national level can be improved. Various stakeholders, including researchers, journals, funders and legislators have been working on the development and implementation of guidelines such as the

ARRIVE and PREPARE. To further promote the implementation of Directive 2010/63/EU, the European Commission issued calls for a number of related projects last year, including development of education. During this presentation various initiatives and their output will be presented and discussed.

CYS-LOOP RECEPTORS IN CAENORHABDITIS ELEGANS AS PHARMACOLOGICAL DRUG TARGETS

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The free-living nematode *Caenorhabditis elegans* has emerged as a powerful model for the study of the nervous system and human diseases and as a model for antiparasitic drug discovery. This nematode has also shown promise in the pharmaceutical industry search for new therapeutic compounds by high-throughput screening. Pentameric ligand-gated ion channels, which include Cys-loop receptors, mediate rapid synaptic transmission by converting the chemical signal given by the neurotransmitter into an electrical one. These receptors play key roles in physiological processes, such as neuromuscular transmission, cognition, memory, and are targets of pharmacological compounds of clinical relevance. *C. elegans* has one of the most extended families of Cys-loop receptors, which have multiple functions including neuromuscular transmission. In particular, nicotinic (nAChR) and GABA receptors are essential for worm locomotion and

are of clinical importance as targets of antiparasitic drugs. We combined paralysis assays, locomotion measurements and electrophysiological recordings from *C. elegans* cultured cells to identify the subunit composition, molecular function and antiparasitic drug modulation of muscle nAChR and GABA receptors. We also identified plant terpenoids and novel synthetic compounds that emerge as potential antiparasitic compounds by inducing rapid paralysis of *C. elegans* and deciphered the main drug targets and mechanisms underlying their anthelmintic actions. In order to use *C. elegans* as a model of human neuromuscular diseases, we generated transgenic strains containing mutant nAChRs that mimic those found in congenital myasthenic syndromes. We found that it is possible to recapitulate the molecular functional changes observed in patients, thus validating *C. elegans* as a model for these disorders.

MASS SPECTROMETRY TECHNOLOGY AND DRIED BLOOD SPOT METHODOLOGY IN ACCORDANCE WITH THE RUSSELL AND BURCH'S 3RS PRINCIPLES

MATÍAS BALDO

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In the area of Health Sciences, the main purpose of analytical chemist is to achieve reliable measurements without compromising the health of the subjects involved in the study. In this sense, the pharmacokinetic (PK) analysis of a given product requires a considerable number of experimental units to achieve a reliable statistical result. In mammals, PK analysis is performed in plasma obtained from whole blood at different time intervals¹. The first issue arises from the large volume of blood required by conventional sample preparation techniques, finally compromising the survival of the animals. For small animals (rats, mice, rabbits), this volume is large enough to demand the sacrifice of the animal per time point. This is unacceptable due to the intrinsic variation added to the assay and the practical and ethical considerations^{1, 2}. Therefore, the block designs are usually an option to address this problem. In recent years, the use of dried blood spot (DBS) for the miniaturization of analytical procedures has become more important due to the large number of

advantages, which leads to significant benefits in accordance with the 3Rs principles for animal research. In addition, liquid chromatography coupled to triple quadrupole tandem mass spectrometry (LC-MS/MS) represents the "Elite" instrument for analytical quantifications due to its high sensitivity and specificity, and the reduction of sample preparations. In this context, the aim of this presentation is to show the development of an alternative methodology for the determination of phenytoin in rabbits and its application to PK studies. The comparison of two types of experimental designs (classical and block) was addressed by coupling a methodology such as DBS with LC-MS/MS technology.

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PRECLINICAL RESEARCH IN PARASITOLOGY: IMPROVING THE REPRODUCIBILITY THROUGH APPLYING THE 3RS PRINCIPLES