40th ANNIVERSARY OF THE CROATIAN PHARMACOLOGICAL SOCIETY

(1979-2019)

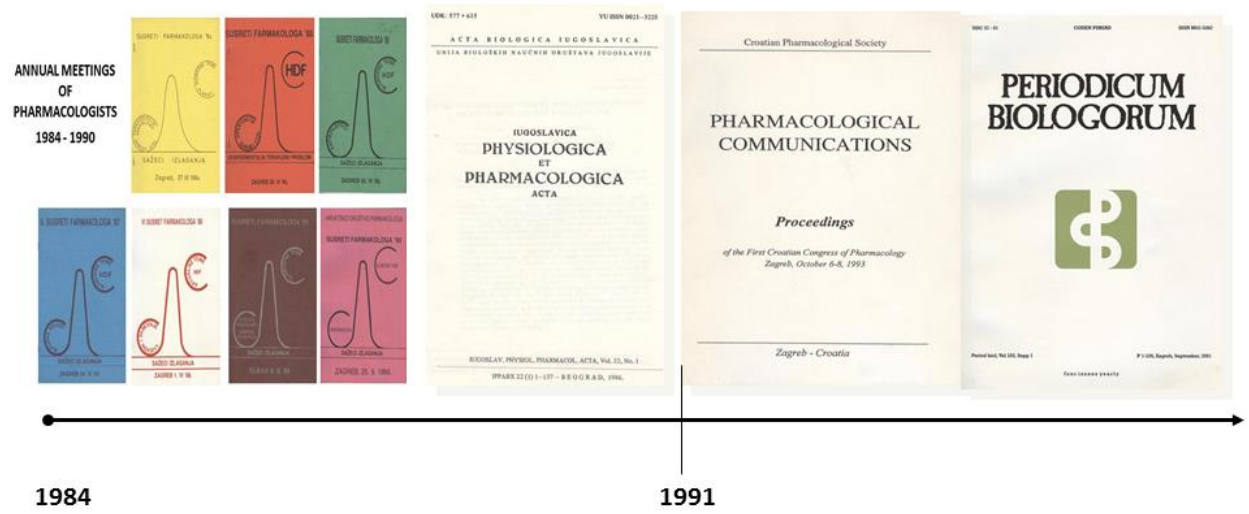
The year 2019 will mark the 40th anniversary of the Croatian Pharmacological Society (*Hrvatsko društvo farmakologa, HDF*). But the tradition of pharmacology as a scientific discipline in Croatia is considerably longer. A hundred years ago, in 1919, Professor Miroslav Mikuličić founded the Institute for General Experimental Pathology and Pharmacology at the School of Medicine in Zagreb. Mikuličić was educated abroad and, among his other appointments, also worked as an assistant to the future Nobel Prize winner Otto Loewi (1936), who visited the Pharmacology Institute in Zagreb in 1934 to demonstrate his discovery of "Vagusstoff" (acetylcholine). In Zagreb, Professor Mikuličić initiated the building of patient wards and obtained a diagnostic Roentgen apparatus, led by his visionary idea to develop a joint basic pharmacology and experimental therapy. However, this idea was never realized.



The second period began in 1936 under the guidance of Professor Ivo Ivančević. He intensified the scientific work and publishing activities and initiated the periodical *Radovi Instituta za farmakologiju i toksikologiju.* In 1948 he published the first textbook of pharmacology and pathophysiology in the Croatian language.

The election of Professor Zlatko Supek as Head of the Institute in 1964 marked the beginning of the third period in the development of pharmacology in Croatia. Professor Supek was one of the founders of modern Croatian pharmacology, who brought together pharmacology-oriented scientists from the Rudjer Bošković Institute and the Zagreb School of Medicine. He was personally responsible for the introduction of clinical pharmacology in Croatia, which was afterwards further developed by Professor Božidar Vrhovec. Over the past 100 years, the Department of Pharmacology at the School of Medicine in Zagreb has been a nursery for the pharmacological profession and science, not only in Croatia but in the entire region. Namely, the departmental staff members were the founders of pharmacology departments at the medical schools in Sarajevo, Ljubljana, Pristina, Osijek, and Split, as well as at the

Proceedings of the meetings and congresses of the Croatian Pharmacological Society 1979 - 2019



Pharmaceutical, Veterinary, and Dental Schools in Zagreb. In the 60s, the Croatian pharmacologists joined the physiologists to constitute a joint community of physiologists and pharmacologists within the Union of the Biological Societies of Yugoslavia. Therefore, until 1991 the official journal of the Croatian pharmacologists was *Yugoslavica Physiologica et Pharmacologica Acta*. However, in that period Croatian pharmacologists practiced their professional activities independently, acting almost as an independent society. Every year they held annual assemblies, and from 1984 to 1990 organized annual meetings of pharmacologists (*Susreti farmakologa*). In February 1979, in preparation for the annual assembly, the founding committee decided to establish an independent Croatian Society of Pharmacologists (HDF), and the proposal was unanimously adopted at the assembly. Since then, HDF members have frequently been publishi ng in the Periodicum Biologorum journal, which became the official journal of the HDF in 1997. The first president of the HDF was Professor Veljko Gjuriš from the



The First Croatian Congress of Pharmacology organized by the Croatian Pharmacological Society in Zagreb, 1993.

Department of Pharmacology at the University of Zagreb School of Medicine, a position which was afterwards held by Professors Marin Bulat, Juraj Geber, Ante Simonić, Zdravko Lacković, Mladen Boban, Marijan Klarica, Gordana Župan, Vlasta Bradamante, and, currently, Melita

Šalković-Petrišić. After the dissolution of former Yugoslavia, the Croatian Society of Pharmacologists, as an independent pharmacological society, was admitted to IUPHAR in 1994 and EPHAR in 1995. This was primarily achieved by Professor Marin Bulat, who was president of the HDF at that time. Since 2000 the HDF has had its own websites with information on its activities as well as news in the pharmacological science (http://hdf-pharma.mef.hr/).



Professor Krešimir K Krnjević during his plenary lecture on his major discovery of GABA and glutamate as neurotranssmitters at the opening ceremony of the Third Croatian Congress of Pharmacology with International Participation in Zagreb, 2001.

Every three years since Croatia gained independence, the Croatian Pharmacological Society has been traditionally organizing a congress with international participation (Zagreb 1993, Rijeka 1997, Zagreb 2001, Split 2004, Osijek 2007, Rijeka 2010, Zagreb 2013, Split 2016), gathering renowned scientists and experts of different profiles from Croatia and abroad, who present the latest research results in their respective fields of pharmacology through plenary sessions, symposia, round tables, workshops, and poster presentations. Over the years these congresses have been well established as a platform for the exchange of knowledge and ideas, as well as the initiation of new collaborations between Croatian pharmacologists and scientists from abroad, and sometimes with the pharmaceutical industry as well. The congress has also become a bond between pharmacologists in Croatia and those working in the diaspora. For example, the most prominent pharmacologist of Croatian origin, Krešimir K. Krnjević, who discovered GABA and glutamate as neurotransmitters, held a lecture in his homeland for the first time at the HDF Congress in 2001. The special significance of the upcoming 2019 HDF Congress lies with the fact that it will mark all the aforementioned important anniversaries: 100 years since the founding of the Department of Pharmacology in Zagreb, the cradle of the pharmacology in Croatia, 40 years since the founding of the HDF, as well as 25 years of the HDF membership in IUPHAR.

It should be pointed out that the HDF is also active in helping to form public opinion on important pharmacological issues. With the support of universities, relevant ministries, and the Olympic Committee, in 2001 the HDF initiated and organized a major action against the abuse of pharmacology, focusing on non-informed drug use, doping, and drug abuse. To that end, HDF members delivered about 20 lectures to secondary school and university students and participated in th e education of schoolteachers organized by the Ministry of Education, Science, and Sport. On that occasion the well-known late Croatian painter Nives Kavurić Kurtović created a number of original graphics that can nowadays be found in many European universities. Additionally, individual HDF members as well as the HDF Executive Committee publicly reacted several times to unsubstantiated claims about the therapeutic value of certain substances. A notorious example was the case of natural zeolite (clinoptylolite), sold under the brand name *Megamin* and claimed to have definitive anticancer properties. Skillful advertising in Croatia lured the majority of cancer patients into using this substance despite lacking evidence-based proof of its anticancer activity, until the situation became a public health problem. A public statement by the HDF Executive Committee and subsequent TV debates stopped the massive use of this substance for non-substantiated indications.



Presentation of the preliminary proposal for the implementation of the EPHAR's program for European certified pharmacologists (EuCP program) in Croatia by Professor Vladimir Trkulja, at the mini-symposium organized by the Croatian Pharmacological Society in Zagreb, 2017.

Beside established HDF activities which have been continuing over the years, the mission of the HDF today focuses on two additional goals: the implementation of the initiative of the Federation of European Pharmacological Societies (EPHAR) for standardized educational programs for individuals working in the field of pharmacology to become certified as European Certified Pharmacologists (the EuCP Program), and the promotion of pharmacology as a discipline among the undergraduate students of biomedical schools. The former goal aims at contributing to the acknowledgement of "pharmacologist" as a profession in Croatia, since it currently does not exist as such. Hopefully, this will help not only in the further development of the professional careers of individuals already active in the field of pharmacology, but also aid young graduates in deciding on future careers in pharmacology, finally leading to a growing pharmacology-minded population in Croatia. In support of that cause, the HDF has recently formulated a second goal: to sensitize undergraduates to the significance of pharmacology by

organizing a program for mentoring undergraduate students in performing their first small research projects on pharmacological topics. The students present their work at the annual HDF assemblies where the best three projects are awarded, and may use the project results to apply for the Rector's Award or develop them into their graduate theses.

Recently, the HDF has been participating in the IUPHAR and EPHAR activities by organizing several workshops based on research activities of HDF members, such as gastropharmacology. Additionally, our members were also active in the IUPHAR sections (the current treasurer of the IUPHAR Education Section). Several HDF members have recently been awarded the State Award for Science.



The first generation of the undergraduate students who underwent the program of popularization of pharmacology in Croatia and were awarded for the best research projects in pharmacology, as evaluated by Professor Mojca Kržan, vice-president in 2017 and the current president of EPHAR, and Professor Thomas Griesbacher, former president of EPHAR, at the Annual Assembly of the Croatian Pharmacological Society in 2017.

Although currently not exciding 180 members, the HDF is the umbrella organization in the area of pharmacology in Croatia. It is undertaking continuous efforts towards the dissemination of novel findings on the development of new drugs, as well as new knowledge on old ones, among Croatian researchers, clinicians, as well as public healthcare and pharmaceutical industry workers, in its ultimate goal of the promotion and advancement of pharmacology for the benefit of both patients and the society in general.

Juraj Geber, Zdravko Lacković, Melita Šalković-Petrišić