



## TRILATERAL COOPERATION IN THE FIELDS OF UNIVERSITY ACTIVITIES

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**Abstract:** *The Faculties of Pharmacy in Szeged and in Targu-Mures take part in the active trilateral cooperation in the graduate and postgraduate education of students and pharmacists, and in the scientific cooperation and medical treatment of the population in this region. The staff and students of the two Universities have excellent connections in practically all possible fields of cooperation.*

**Keywords:** *cooperation, education, research, medical treatment, management.*

### 1. INTRODUCTION

The important Hungarian town of Szeged is located on the banks of the River Tisza, very close to the borders with Romania and Yugoslavia, in an excellent position for international cooperation. One of the universities that participates in active cooperation with the University of Szeged is the University of Medicine and Pharmacy in the central Romanian town of Targu-Mures. This inter-university collaboration includes the graduate and the postgraduate education, joint research, the joint publication of scientific results, medical treatment of the population and management. The present article relates to the cooperation as concerns the field of pharmacy.

### 2. EDUCATION OF STUDENTS

The education of students at the Faculty of Pharmacy in Szeged started in 1921. During the last 80 years, more than 5000 pharmacists have completed their university pharmacy studies. Since 1964, students from abroad may also take part in the education, and since 1986, they may study pharmacy in English language courses, too. So far, 370 foreign pharmacists from 37 countries have received their pharmacy diploma in Szeged. Most of those taking part in the Hungarian course were citizens of Yugoslavia or Romania: 82 and 27 persons, respectively, while 55 and 45 students on the English course were from Greece or Jordan, respectively.

More than 50% of the pharmaceutical students of Targu-Mures can speak Hungarian. They may take part in partial education at the universities in Budapest and Szeged. For them, it is important to carry out laboratory experiments and to prepare highlevel diploma work.

Students from Targu-Mures may spend their summer practice at the Departments of the Faculty of Pharmacy in Szeged. They generally perform scientific investigations and make acquaintance with the cultural and pharmaceutical background in Szeged and the county of Csongrád. They already number nearly 100.

For the best students, pharmaceutical factories such as Chinoin and G. Richter in Budapest provide possibilities for industrial practice during 4 weeks.

The Scientific Student Association organizes large-scale, nationwide and now international meetings each year in Targu-Mures, where pharmaceutical and medical students from Budapest and Szeged may also present their results. The best Hungarian students and young teachers from the Faculty in Targu-Mures may also make presentations at the Rozsnyay scientific meetings in Hungary.

As concerns the postgraduate education of pharmacists in Szeged, during the past 80 years 494 pharmacists have received their Dr. Pharmacy, and 40 their PhD in the past decade. Of the foreign students, 12 have received their Dr. Pharmacy and 10 their PhD (earlier CSc); one of them has also received his DSc and 2 have become professors. Examples of the young PhD candidates who prepared excellent theses in Szeged are Ildikó Fejér (Timisoara) and Ljiljana Tasic (Beograd).

### **3. SCIENTIFIC COOPERATION and SCHOLARSHIPS**

Cooperation between scientific researchers is also very important. Since 1990, Prof. Gyéresi in Targu-Mures has carried out joint research work on the stability and application of 1,4-dihydropyridine dye derivatives and their inclusion complexes with Judith Hohmann and Gábor Nagy at the Department of Pharmacognosy (TLC, HPLC and UV spectrometry), with György Dombi at the Department of Pharmaceutical Chemistry (nuclear magnetic resonance) and with Géza Regdon sen. and M. Kata at the Department of Pharmaceutical Technology in Szeged.

Prof. Gyéresi also conducts joint HPLC experiments on the separation of stereo-isomers of  $\beta$ -receptor blockers with Ferenc Fülöp and Mária Péter at the Department of Pharmaceutical Chemistry in Szeged and with Miklós Józán, György Szász and Béla Noszál at the Department of Pharmaceutical Chemistry of Semmelweis University in Budapest. Prof. Gyéresi was recently awarded a Domus Hungarica Fellowship for 3 months.

The scholarship systems in Hungary, such as the "Domus Hungarica Artium et Scientiarum" of the Hungarian Academy of Sciences, ensure good possibilities for experimental and bibliographical studies during periods of 1-3 months and they give help for participation in different conferences. These possibilities sometimes prove very important in the preparation of the doctoral dissertations of young colleagues, as was the case for Emese Sípos, Hajnal Kelemen and Erzsébet Varga, who worked with Géza Regdon jr. and Erzsébet Csányi at the Department of Pharmaceutical Technology in Szeged.

Prof. Imre Máthé and Prof. Károly Csedő, heads of the Departments of Pharmacognosy in Szeged and Targu-Mures, collaborate actively on topics of pharmaceutical vegetables. They work jointly in the framework of agreements between the Hungarian and Romanian Academies of Sciences. In recent years, many young Hungarian researchers have taken part in botanical expeditions in Transylvania in Romania.

### **4. PARTICIPATION IN SCIENTIFIC PROGRAMMES**

In the past 14 years, many experts from Targu-Mures have taken part in professional programmes in Hungary, very often as invited lecturers at congresses or on visits to the University of Szeged. The most important such events included:

- The participation of Transylvanian pharmacists in the Symposium of Clinical Pharmacy in Szeged in 1994.

- The meeting of pharmacists and veterinarians in Szeged in 1996, when Prof. Gyéresi made a professional presentation.
- The annual meetings of the Society of Phytotherapy, with participation by Prof. Csedő and H. Mária Péter.
- Prof. Gyéresi lectured on the "Separation technology of isomers of chiral drug compounds" at the Department of Pharmaceutical Chemistry in Szeged.
- The Congressus Pharmaceuticus Hungaricus in 1993, 1999 and 2003.
- The Rozsnyay Memorial Competitions. Since 1995, lecturers have been invited from Transylvania, such as Prof. Gyéresi, Prof. Csedő, H. Mária Péter and two young participants, as guests of the Hungarian Pharmaceutical Society and the Hungarian Chamber of Pharmacists. In 2003, we had a lecturer from Bratislava, too.
- The Ottó Clauder Memorial Competitions. Since 1996, Prof. Gyéresi has been among the invited lecturers from Transylvania.
- Participation in the symposium "Medicines at the turn of the millenium" in Sopron by Emese Sípos and Hajnal Kelemen.
- Participation in the History of Pharmacy meetings in Kőszeg by Prof. Gyéresi, H. Mária Péter and Hajnal Kelemen.

Many Hungarian lecturers have also taken part in the work of the meetings in Transylvania or in Targu-Mures:

- The presentation by Prof. Kata at the Faculty of Pharmacy in Targu-Mures in 1994.
- The annual meetings of the Medical and Pharmaceutical Sections of the Museum Society of Transylvania since 1994, the invited Hungarian guest lecturers including Prof. Kata, Géza Regdon sen. and jr., Lajos Simon and László Tóth, all from Szeged, and Prof. Noszál, Zoltán Hankó and Imre Klebovich from Budapest.
- The presentation by Sándor Szabó, President of the Hungarian Chamber of Pharmacists, at the Faculty of Pharmacy in Targu-Mures.
- Prof. Nyiredy and Klára Mikita took part as invited guests at the Romanian National Conference of Pharmacists in Targu-Mures in 1996.
- The presentation by Prof. István Erős to pharmacists at the Museum Society of Transylvania in 1998.
- The presentation by Prof. Zoltán Vincze (Budapest) at the meeting of the Scientific Association of Hungarian Students in Targu-Mures in 1999.
- The presentation by Prof. György Falkay, Dean of the Faculty of Pharmacy in Szeged, in Targu-Mures in 2000.
- The participation of guest lecturers at the annual meetings of the Scientific Association of Hungarian Students at Targu-Mures: Prof. Erős and Prof. Falkay from Szeged, and Prof. Vincze from Budapest.
- Miklós Gyarmathy, an expert from the Béres Pharmaceutical Works, has held a number of very interesting scientific lectures in Transylvania.
- The Society of Hospital Pharmacists organized a 2-day meeting in Szeged and in Subotica in 1991.

Within the framework of the Hungarian Pharmaceutical Days, the Hungarian Chamber of Pharmacists received professors and students from Targu-Mures as guests in the towns of Gyula and Balatonfüred in 2001 and 2002.

## 5. JOINT PUBLICATIONS

As a result of joint scientific cooperation, many manuscripts have been published in excellent professional periodicals, such as Acta Pharmaceutica Hungarica, Farmacia, Gyógyszerészet (Pharmacy), Orvosi és Gyógyszerészi Szemle (Medical and Pharmaceutical Review), Orvostudományi Értesítő (Bulletin of Medical Sciences), Revista de Medicina si Farmacie, etc. The joint publications and abstracts number more than 20. The number of joint lecture presentations is about 50. Thin-layer chromatographic (TLC) methods are frequently used, important analytical methods for the rapid control of basic drug materials. On the basis of seven significant Pharmacopoeias (the American, British, European, German, Hungarian, Italian and Romanian Pharmacopoeias), the authors earlier compiled a book describing the TLC analyses of 840 basic drug materials. The title: "Thin-layer chromatographic techniques for quality control of pharmaceuticals", published by Prof. Gyéresi and Prof. Kata in 2000 (pp. 545).

## 6. REGULAR CONNECTIONS

In 1990, János Szilárd, Rector, and Emil Minker, Vice-Rector of Albert Szent-Györgyi Medical University in Szeged, paid a visit to Targu-Mures to initiate cooperation between the two universities. In 1994, a collaboration contract was signed between the two Faculties and some Departments, too. In 2001, the management of the Hungarian Chamber of Pharmacists visited the Faculty of Pharmacy in Targu-Mures. In the autumn of 2001, the Dean and management of the Faculty of Pharmacy at the University of Szeged entertained a delegation from the Faculty of Pharmacy at Targu-Mures to improve and enhance the connections between the Faculties.

## 7. MISCELLANEOUS

Hungarian pharmaceutical authors regularly publish their manuscripts in the accredited journal Orvostudományi Értesítő (Bulletin of Medical Sciences), a periodical of the Museum Society of Transylvania.

To improve the education of the students in Targu-Mures, assistance amounting to one million HUFs has been provided by the Hungarian Chamber of Pharmacists. Since 1997, one of the professors in Szeged each year offers a financial prize for the best young lecturers at the meetings of the Museum Society of Transylvania. The Faculty of Szeged has provided the Faculty in Targu-Mures with university hand-outs, laboratory instruments, apparatus and personal computers. New hand-outs too will be handed over. Prof. Kálmán Szendrei from Szeged, a well-known WHO expert on narcotic drugs, earlier delivered professional presentations in Transylvania. In 2001, he was awarded an honorary doctorate by the University of Medicine and Pharmacy in Targu-Mures.

Professors from the Universities in Targu-Mures, in Novi Sad and in Szeged often meet and cooperate in the framework of the World Association of Hungarian Professors. The clinical departments at the Medical Faculty of the University of Szeged also play a very important role in the medical treatment of the population, providing health care service in this geographical area. Visiting professors from Targu-Mures, including Á. Gyéresi, physicians and pharmacists often take part in the postgraduate education at the departments and clinics in Szeged. Closing opinion: this trilateral cooperation is really international and successful, as far as possible.