



# International Symposium on Pharma Industry: Changing Scenarios

## Final Programme



Semmelweis Salon, Semmelweis University  
Budapest, Hungary  
September 4, 2023

**We know how hard  
it can be to get  
better. That's why,  
for over sixty years,  
we've been getting  
better at helping  
our pharmaceutical  
and nutraceutical  
partners to make  
people better.**



**ACG**

Make it better.



# International Symposium on Pharma Industry: Changing Scenarios

# Final Programme



Semmelweis Salon, Semmelweis University  
Budapest, Hungary  
September 4, 2023



**Final Programme**  
4 September 2023, Budapest, Hungary

**Editors-in-chief:**  
**Imre Klebovich, Vinod P. Shah**

Technical editors: Balázs Baksa, Róbert Hohol

All rights are reserved for the Symposium Organisers, except the right of the authors to (re)publish their materials wherever they decide.

This book is a working material for the  
**International Symposium on  
Pharma Industry: Changing Scenarios**

The professional and grammatical level of the materials is the authors' responsibility.

ISBN 978-615-01-8650-4

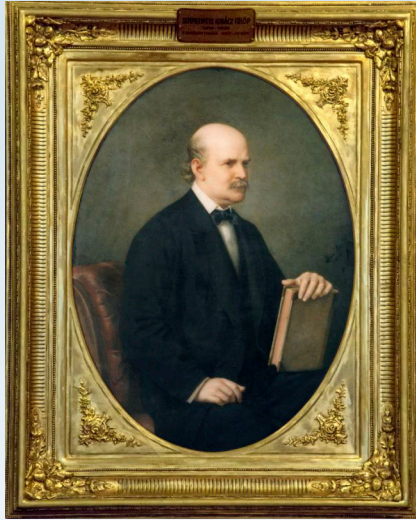


Printed in Hungary – 2023  
Dorpress Ltd., Budapest, Hungary

Preface .....	7
Organisers of the PICS 2023 Symposium .....	8
Co-Chairs .....	8
International Scientific Advisory Board, Local Organising Committee, Conference Secretariat .....	9
Participants from All over the World (country flags, map) .....	12
Scientific Programme .....	13
Opening - Welcome Ceremony .....	14
Session I .....	15
Session II .....	16
Panel Discussion .....	17
Closing Ceremony .....	17
General Information .....	19
Date and Venue .....	19
Sponsors .....	25
Acknowledgement .....	27
Biographies of Invited Speakers, Members of International Scientific Advisory Board and Organising Committee, Moderators, Chairs and Panelists .....	29
List of Participants .....	49
Advertisements .....	59

# Semmelweis University

1769-2023



**Ignác Semmelweis, the “Saviour of Mothers”  
(1818-1865)**

**The old building of the Medical University in Budapest  
in the 19<sup>th</sup> century**



## Distinguished Participants, Ladies and Gentlemen,

The International Symposium on Pharma Industry: Changing Scenarios (PICS 2023 Symposium) will be held at Semmelweis University on September 4, 2023. The symposium will focus on the changing scenarios in Pharma Industry: increase in science-based regulations helping in lowering the regulatory burden; growth of the Brand and Generic Industry and its impact on pharma world globally; and current trends in the pharma industry.

With advancing science, the newer formulations are more complex, making it difficult for generic development. A significant amount of research is being conducted to aid in developing methodologies and *in vitro* bioequivalence development for the generic industry.

The establishment of a unique organisation dealing with dissolution science and educational activities will be presented. Current trends in pharma industry research including newer drug delivery systems to increase patient awareness, compliance, and adherence will be presented along with the new drug approval process.

This is a unique type of symposium dealing with changes taking place in the big and small pharma industry. Panel Discussion will provide plenty of opportunities for participants to interact with the experts in the area.

This International Symposium is organised by the Semmelweis University, Department of Pharmaceuticals in the famous Semmelweis Salon of Semmelweis University.

Semmelweis University is a leading institution of higher education in Hungary and the Central European region within the area of medicine and health sciences. Its main commitment is based on the integrity of education, research, and healing, which make Semmelweis University an internationally renowned center of knowledge.

The Co-Chairs and the Organising Committee cordially welcome you to PICS 2023 Symposium in Budapest at Semmelweis University. We are pleased to see that the event is full of registered participants, which show a keen interest in the topic.

We would like to express our sincere gratitude to all the lecturers who have accepted our invitation to debate the newest results of this important discipline. Finally, our thanks go to all the sponsors and Diamond Congress who have contributed in many ways to the success of the Symposium. We wish all participants an enriching stay in our beautiful milieu and the exciting science that will be presented.

Yours sincerely,

Prof. Imre Klebovich

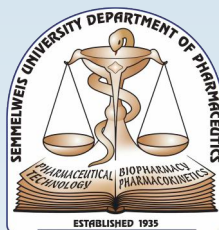


Prof. Vinod P. Shah



Co-Chairs of the  
Symposium

## Organised by the



Semmelweis University,  
Department of Pharmaceutics,  
Budapest, Hungary

## Co-Chairs

**Prof. Imre Klebovich**, Budapest, Hungary  
klebovich.imre@semmelweis.hu

**Prof. Vinod. P. Shah**, North Potomac, MD, USA  
dr.vpshah@comcast.net



**István Antal**, Budapest, Hungary  
**Péter Ferdinandy**, Budapest, Hungary  
**Balázs Hankó**, Budapest, Hungary  
**Imre Klebovich**, Budapest, Hungary  
**Balázs Lendvai**, Budapest, Hungary  
**Gábor Orbán**, Budapest, Hungary  
**Lakshmanan Ramaswamy**, Mumbai, India  
**Vinod P. Shah**, North Potomac, MD, USA  
**Ajit Singh**, Mumbai, India  
**Tamás Szolyák**, Budapest, Hungary  
**Romána Zelkó**, Budapest, Hungary

## Organising Committee

**Imre Klebovich** (Chair), Budapest  
**István Antal**, Budapest  
**Krisztina Ludányi**, Budapest  
**Tamás Tábi**, Budapest  
**Romána Zelkó**, Budapest

## Symposium Secretariat

Diamond Congress Ltd.  
Mr. Attila Varga  
H-1255 Budapest, P.O. Box 48, Hungary



E-mail: [diamond@diamond-congress.hu](mailto:diamond@diamond-congress.hu)  
Phone: +36 1 225 0210

# PICS 2023

Budapest, Semmelweis University, September 4, 2023, Hungary  
Participants from 3 continents, 12 countries



Austria



Croatia



Hungary



India



Iran



Kazakhstan



Lebanon



Libya



Romania



Serbia



Syria



USA



# Semmelweis University from a bird's eye view



## Scientific Programme

**Welcome addresses by:**

**Prof. Dr. Béla Merkely**

*Rector of Semmelweis University, Budapest, Hungary  
The Main Patron of the PICS 2023 Symposium  
Video Message*

**Prof. Dr. Balázs Hankó**

*State Secretary for Innovation and Higher Education  
Ministry of Culture and Innovation, Budapest, Hungary  
Former Vice-Rector for Strategy and Development of Semmelweis  
University, Budapest, Hungary*

**Prof. Dr. Péter Ferdinandy**

*Vice-Rector of Science and Innovations, Semmelweis University,  
Budapest, Hungary  
Director of Department of Pharmacology and Pharmacotherapy,  
Semmelweis University, Budapest, Hungary  
President of the Hungarian Society for Experimental and Clinical  
Pharmacology (HUPHAR), Budapest, Hungary*

**Prof. Dr. Imre Klebovich**

*Co-Chair of the PICS 2023 Symposium  
Chair of the Organising Committee  
Department of Pharmaceutics, Semmelweis University,  
Budapest, Hungary*

**Prof. Dr. Vinod P. Shah**

*Co-Chair of the PICS 2023 Symposium  
Formerly with US FDA,  
Pharmaceutical Consultant, North Potomac, MD, USA*

Chairs:

**Imre Klebovich**, Budapest, Hungary

**Lakshmanan Ramaswamy**, Mumbai, India

**10:30**

***PL-1***

**Regulatory Science – Science-Based Regulations Helping Pharma Industry**

***Vinod P. Shah***

Formerly with US FDA,

Pharmaceutical Consultant, North Potomac, MD, USA

**10:55**

***PL-2***

**The Huge Growth of the Generic Pharma Industry in India and how it Impacts the World**

***Ajit Singh***

Chairman of ACG Worldwide,

Formerly Associated Capsules Group, Mumbai, India

**11:20**

***PL-3***

**Drug Delivery Systems for the Improvement of Patient-Centricity, Compliance, and Adherence**

***István Antal***

Dean of Faculty of Pharmaceutical Sciences, Semmelweis University,

Director of Department of Pharmaceutics, Semmelweis University,

Budapest, Hungary

**11:45**

**Coffee Break**

## Session II

### Pharma Industry: Moving Forward

Chairs:

**Vinod P. Shah**, North Potomac, MD, USA

**Ajit Singh**, Mumbai, India

12:15

**PL-4**

**Dissolution – an Important Scientific Discipline and Establishment of Society for Pharmaceutical Dissolution Science (SPDS) and Dissolution Research Presentations International (DRPI)**

**Lakshmanan Ramaswamy**

General Secretary, Society of Pharmaceutical Dissolution Science (SPDS),  
Mumbai, India

Managing Director, SOTAX India Pvt. Ltd., Mumbai, India

12:40

**PL-5**

**Current Trends in Original Drug Research**

**Balázs Lendvai**

Head of Division, Pharmacological and Drug Safety Research,  
Gedeon Richter Plc., Budapest, Hungary

Director of Department of Richter, Semmelweis University, Budapest, Hungary

13:05

**PL-6**

**Challenges and Opportunities of Regulatory Science**

**Tamás Szolyák**

Director Global Regulatory Science, Gedeon Richter Plc., Budapest, Hungary

Formerly Deputy Director General, National Institute of Pharmacy and Nutrition,  
Budapest, Hungary



13:30

## Panel Discussion

A Forward-Looking Practical Value of Regulatory Science:  
Brand and Generic Industry

### Moderators:

**Prof. Romána Zelkó**

Director of University Pharmacy Department of Pharmacy Administration,  
Semmelweis University, Budapest, Hungary

**Prof. István Antal**

Director of Department of Pharmaceutics, Semmelweis University,  
Budapest, Hungary

### Panelists:

**Balázs Lendvai**, *Budapest, Hungary*

**Lakshmanan Ramaswamy**, *Mumbai, India*

**Vinod P. Shah**, *North Potomac, MD, USA*

**Ajit Singh**, *Mumbai, India*

**Tamás Szolyák**, *Budapest, Hungary*

13:55

## Closing Ceremony

**Gábor Orbán**

*CEO, Gedeon Richter Plc., Budapest, Hungary*

*Chairman of the Board of Trustees of the Foundation for National  
Health Care and Medical Education, Semmelweis University,  
Budapest, Hungary*

*Video Message*

**Vinod P. Shah**

*Co-Chair of the PICS 2023 Symposium*

*North Potomac, MD, USA*

**Imre Klebovich**

*Co-Chair of the PICS 2023 Symposium*

*Chair of the Organising Committee*

*Semmelweis University, Budapest, Hungary*

14:15

**End of Symposium**

**Lunch** in the Central Building Aula of the Semmelweis University



**Semmelweis Salon, the venue of the Symposium**



## General Information

# General Information

## Date and Venue

The Symposium is held at the Semmelweis University, Semmelweis Salon.

Address: Üllői Str. 26., 1<sup>st</sup> Floor, H-1085 Budapest, Hungary

The Conference venue can be accessed by metro line M3. or M4. and tram number 4, 6.

## Website of the Symposium

[www.pics2023.hu](http://www.pics2023.hu)

## Language of the Symposium

The official language of the Symposium is English.  
No simultaneous translation will be provided.

## Symposium Assistance

Symposium assistants will be recognisable by their badge.  
They will help you in all practical aspects of symposium participation at the registration desk.

## Registration and Information Desk

The registration desk is located near the Semmelweis Salon on the 1<sup>st</sup> floor.

### Opening hours:

8:00 – 14:00 Monday, 4 September 2023

## Badges

All participants and accompanying persons will receive a personal badge upon registration.  
You are kindly requested to wear your name badge when attending the meeting.  
Only participants who are wearing their name badge will be admitted to the lecture hall and the lunch.

## General Information

### Internet Access

As a courtesy to all delegates, free WiFi is available within the building for your own devices. The name of the network is **KONFERENCIA** Password: **Semmelweis**.

### Car Parking

Parking places are available in the parking lot, located in front of the Central Building of the Semmelweis University.

### Mobile Phones

Delegates are cordially requested to keep their mobile phones switched off in the meeting room during all sessions.

### Smoking

Smoking is strictly prohibited within the building. It is only possible at more than 5-meters from the main entrance of the Central Building.

### Liability and Insurance

The organisers cannot accept liability for personal accidents, loss of belongings or damage to private property of participants and accompanying persons that may occur during the Symposium. Participants are advised to make their own arrangements to obtain health, travel and property insurance.

### Public Transport in Budapest

Public transport in Budapest is provided by Budapest Transport Ltd. (known to all Hungarians simply as BKV). Budapest has an efficient public transport network. In general, the buses, trams and trolleybuses operate between 4:30 and 23:00. All night bus service operates on the major thoroughfares in the city (night bus timetables are posted at stops and in most metro stations). The three metro lines intersect at Deák Square in the centre of the town, close to the venue. Metros run at 2- to 15-minute intervals from about 4:30 to 23:15.

# General Information

## Telephone

The international code for Hungary is 36, the area code for Budapest is 1. To call a number within Hungary, first dial 06. Budapest telephone numbers have seven digits, all other areas have six digits (in addition to the area codes). To make an international call from Hungary, first dial 00, then the country code followed by the area code and the subscriber's telephone number.

## Important Phone Numbers

(English is usually spoken at the emergency numbers listed below.)

**Central help number: 112**

**24/7 medical assistance in English: +36 1 200 0100**

**Hungarian Automobile Club help number: 188**

**Budapest Airport Call Center: +36 1 296-7000**

## Time

Hungary is in the Central European Time Zone. In the summer months clocks are set at GMT + 1 hours.

## Weather

The weather in Hungary in September is warm. Temperatures are ranging between around 20-25 °C during the day.

## Advice for your Departure

### Airport Shuttle Service

The company miniBUD is the official airport shuttle service provider for Budapest Airport. They provide comfortable, fast and favorable transfer solutions for passengers wishing to travel from the airport to the districts of Budapest, and from the city to the airport.

You can buy the ticket at the arrival hall immediately or order it online.

### miniBUD CONTACT INFORMATION

**E-mail: [info@minibud.hu](mailto:info@minibud.hu), Web: [www.minibud.hu](http://www.minibud.hu)**

**miniBUD call center: +36 1 550 0000**

### Public transport

Bus number 200E connects Terminal 2 and "Kőbánya-Kispest" metro station (metro line M3). From the "Kőbánya-Kispest" metro terminal, you can get to the city center by the M3 metro, boarding in the direction to "Újpest központ".

### Phone numbers of some taxi companies:

**Főtaxi: +36 1 222-2222** (main airport taxi),

**City Taxi: +36 1 211-1111,**

**Tele5 Taxi: +36 1 555-5555,**

**Budapest Taxi: +36 1 777-7777,**

**Taxi 2000: +36 1 200-0000.**

**6x6 Taxi: +36 1 666-6666**

### Catering Services in the Venue

**Coffee break** will be located near the Semmelweis Salon (1st Floor) and at the registration.

**Lunch** will be located at the Central Building Aula of the Semmelweis University (Ground Floor).

#### Dedicated time for the catering:

**Monday, 4 September 2023**

11:45 – 12:15 Coffee break

14:15 – 15:30 Lunch

### Presenters' Guidelines

#### Presentation preparation

**Official language:** English

**Recommended format:** Microsoft Office PowerPoint (.ppt, .pptx) and Adobe Acrobat (.pdf)

Use standard fonts such as Times New Roman, Arial, Calibri, Montserrat or Verdana which will be installed on the session room computers. If you use any unique fonts, your presentation may not operate correctly on the session room computer.

Even if you are giving a presentation by means of PowerPoint, please make Adobe Acrobat file (.pdf) of the same contents and bring it for backing up defects of the display.

**Please optimize your ppt slide to conform the 16:9 aspect ratio.**

#### Presentation material submission

Please bring your presentation files on a USB drive to the file upload room at least 20 minutes before your session to avoid congestion.

#### Allocated presentation time

Please check your presentation schedule on the website.

It is important that you arrive at your session room at least 10 minutes before the start of session to make sure that everything is prepared for your presentation.

Please refer to the time standard below.

**Plenary presentation: 25 minutes per each**

**Panel discussion: 25 minutes in total**

#### Presentation equipment

Presenters will be able to control their presentation slides by using wireless remote pointer at the podium.

There will be our staff stationed in each session room to assist with any technical issues.

## Danube at evening





## Sponsors

## Diamond Sponsor



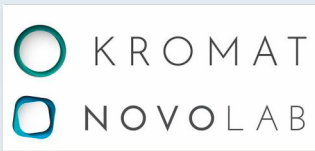
## Platinum Sponsors



## Gold Sponsors



## Supporters



## Acknowledgement

## Acknowledgement

**Prof. Imre Klebovich**, the **Chair of the Local Organising Committee** of the **International Symposium on Pharma Industry: Changing Scenarios (PICS 2023)** and its Members wish to express their special thanks to the **Co-Chair Prof. Vinod P. Shah** and the **Members of the International Advisory Board**, to our **Session Chairs, Moderators, Speakers, Panelists** and to the following individuals for their generous and professional assistance with organising this special Symposium.

The Co-Chairs and the Organising Committee would like to express their special thanks to **Prof. Béla Merkely, Rector of Semmelweis University and Main Patron of the PICS 2023 Symposium**, for organising this special and highly interested Symposium on Pharmaceutical Research at the Semmelweis Salon.

Special thanks go to **Prof. Romána Zelné** for her outstanding scientific and technical personal assistance.

Without the self-sacrificing work of the distinguished colleagues and friends listed below, **PICS 2023** would not have been made possible at such a high level.

Our gratitude goes to

**Mr. Balázs Baksa**, graphic artist, designer

**Mr. Róbert Hohol**, website editor, copy editor

**Ms. Dóra Szepesi**, directorate general of marketing and communication of Semmelweis University

**Ms. Anna N. Nádai**, event organiser at Semmelweis University

**Mr. Attila Kovács**, photographer of Semmelweis University

**Mr. Attila Varga**, CEO, **Ms. Gabriella Bánfalvi**, **Mrs. Ildikó Gémes-Kruppa**, **Mrs. Nóra Éles-Etele** and **Mr. Gergely Szakáts**, of **Diamond Congress Ltd.** who contributed with their unparalleled professional work to the success of this human-centered conference...

...and all those who helped in any other way in organising the Symposium.

In addition to the above, we would like to express our sincere gratitude to our **Sponsors** listed in this Programme Book for their continuous valuable support which secured the financial background of this prestigious Symposium.



**Biographies of Invited Speakers, Members of  
International Scientific Advisory Board and  
Organising Committee,  
Moderators, Chairs and Panelists**

## Professor István Antal

*Department of Pharmaceutics,  
Semmelweis University, Budapest, Hungary*

*Dean of the Faculty of Pharmaceutical Sciences,  
Semmelweis University, Budapest, Hungary*



**Professor István Antal** studied pharmaceutics at the Semmelweis University, where he obtained Ph.D. in 1995, Dr. Habil. degree in 2003. He is working as professor and director at the Department of Pharmaceutics of the Semmelweis University. In addition, he is the Dean of the Faculty since 2020.

His teaching experiences in Hungarian, in English and in German cover courses in a broad spectrum of Pharmaceutical Technology, including Industrial Pharmaceutical Technology, Biopharmacy-pharmacokinetics, Drug Innovation and Approval, and NIR spectroscopy. In addition, István Antal is the program leader of the “Modern trends in pharmaceutical sciences” Ph.D. program of the Semmelweis University, 12 Ph.D. theses, were written under his supervision. Besides, he has been responsible for several postgraduate residential training programs and scientific workshops for years.

István Antal's main research interest is related to pharmaceutical formulation technology related to biopharmacy, such as development drug delivery systems, characterization of pharmaceutical excipients, multiparticulate systems, *in vitro-in vivo* relationships of drug release, pharmacokinetics, drug formulation, physical pharmacy, drug stability, experimental design, mathematical-statistical modelling, scale-up and near-infrared reflectance spectroscopy.

During his research work he has built close cooperation with the pharmaceutical industry. He is coinventor in 6 patents, one developed extended-release preparation has got approval by the FDA, too. Two developed veterinary medicinal products are marketed in 17 EU countries. His study trip locations include the R&D Center of Sterling Health (Princeton, NJ, USA, 1992), and he was also invited several times as a guest lecturer (e.g., by Glatt Technology Training Center, Germany and BeneoPalatinit GmbH, Germany).

As president of the Pharmaceutical Technological Section, he focused on strengthening the collaborations and scientific network, as well as supporting young colleagues.

István Antal has published more than 150 written papers, more than 300 conference lectures, and posters. The number of his independently cited scientific references is more than 2000.

He is awarded with the 1st Prize of Sándor Mozsonyi Foundation for Education (1993), the Merit of Rector praise (Semmelweis University, 1994), as well as with the Bolyai Research Scholarship of Hungarian Academy of Sciences (1998-2001). He is the Excellent Worker of the Semmelweis University (2003), the Excellent tutor of Student Research (2005) and the Excellent Lecturer of the Semmelweis University (2010). He is the owner of the Hintz György Award (2017, Pharm. Tech. Section of the Hung. Soc. Pharm. Sciences), being as well an Excellent Ph.D. teacher (Semmelweis University, 2018).

István Antal participated in the organization of several meetings (e.g., Conference on Pharmaceutical Technology branded as "Siófok", CPH, BBBB), and the 6th Central European Symposium on Pharmaceutical Technology and Biotechnology in Siófok, Hungary, 2005, when he was also a guest editor for the European Journal of Pharmaceutical Sciences Supplement.

*antal.istvan@semmelweis.hu*

## Professor Péter Ferdinandy

*Vice-Rector of Science and Innovations,  
Semmelweis University, Budapest, Hungary*

*Director of Department of Pharmacology and  
Pharmacotherapy, Semmelweis University,  
Budapest, Hungary*

*President of the Hungarian Society for Experimental  
and Clinical Pharmacology (HUPHAR),  
Budapest, Hungary*



**Professor Péter Ferdinandy** (M.D., Ph.D., MBA) received an M.D. diploma in 1991 and a Ph.D. degree in 1995 from the University of Szeged. He became a registered clinical pharmacologist in 1999 and completed MBA studies in Finance and Quality Management in 2004 at the Budapest University of Technology and Economics. He was a postdoctoral fellow for 2 years at the Department of Pharmacology, University of Alberta, Edmonton, Canada. He was the president of the International Society for Heart Research, European Section, chair of the Working Group of Cellular Biology of the Heart, European Society of Cardiology. He has been listed among the most influential scientists in the field of pharmacology and toxicology on the “highly cited” researcher list in 2014, 2017, 2020, 2021 and 2022.

*ferdinandy.peter@semmelweis.hu*



*State Secretary for Innovation and Higher Education,  
Ministry of Culture and Innovation,  
Budapest, Hungary*

*Former Vice-Rector for Strategy and  
Development of Semmelweis University,  
Budapest, Hungary*



**Professor Balázs Hankó** graduated at the Faculty of Pharmacy of Semmelweis University (Pharm.D.), where he obtained his Ph.D. degree *summa cum laude* in 2005. Over the years, he has obtained specialist qualifications in pharmaceutical organization, administration, pharmaceutical supply, hospital-clinical pharmacy and pharmaceutical care.

He started as a pharmacist in residence at the University Pharmacy Department of Pharmacy Administration at Semmelweis University, later becoming Chief Pharmacist, and then Deputy Rector for Strategy and Development. In addition to management and organisational development, he has two decades of teaching experience and is currently a habilitated (Pharm. Habil.) professor.

From 2010 to 2014, he was a pharmaceutical advisor to the Ministry of National Resources, then to the State Secretariat for Health of the Ministry of Human Resources. From 2011 to 2016, he was the advisor to the Director General of Pharmacy at the Institute for Pharmacy, Health Quality and Organisational Development, later the State Health Care Centre. Between 2017 and 2020, Ministerial Commissioner for the Development of Higher Education Institutions for Medical and Health Sciences at the Ministry of Human Resources, then at the State Secretariat for Higher Education of the Ministry for Innovation and Technology.

From 2020 to 2022, he was Deputy State Secretary for Higher Education at the Ministry for Innovation and Technology, then at the Ministry for Culture and Innovation. From December 2022, he is the State Secretary for Higher Education, Innovation, Vocational and Adult Education.

Married, father of four children.

*balazs.hanko@kim.gov.hu*

## Professor Imre Klebovich

*Department of Pharmaceutics,  
Semmelweis University,  
Budapest, Hungary*

*Former Dean of the Faculty of Pharmaceutical  
Sciences, Semmelweis University,  
Budapest, Hungary*



**Professor Imre Klebovich** (Pharm.D., Ph.D., D.Sc.) is an emeritus professor of the Department of Pharmaceutics of the Faculty of Pharmaceutical Sciences at Semmelweis University Budapest, Hungary and, further on, Private Professor of the Budapest University of Technology and Economics, Faculty of Chemical Engineering since 1990. He was a professor of the Pázmány Péter Catholic University, Faculty of Information Technology and Bionic in 2013-2019.

He was a visiting professor at the University of Katowice, Faculty of Chemistry (Poland) in 2016.

He graduated as a pharmacist in 1975 at the Semmelweis University of Medicine and obtained his Pharm.D. in 1977. He postgraduated as a pharmacologist in 1983 at Haynal Imre University of Health Sciences, and he received isotope diploma in 1978 at Budapest University of Technology and Economics. He received the degree of Biomedical Research Management of Harvard University and Copenhagen University in 1990. He obtained his Candidate of Science (C.Sc.-Ph.D.) and Doctor of Science (D.Sc.) degrees at the Hungarian Academy of Sciences in 1989 and 1999, respectively.

He became a research scientist at the Biochemical Institute of the Hungarian Academy of Sciences in 1975, and he continued his research activity in the field of pharmacokinetics and drug metabolism at Gedeon Richter Ltd. in 1977 (senior scientist). In 1989 he founded the Department of Pharmacokinetics and Drug Metabolism of EGIS Pharmaceuticals Ltd., and he was the Head of this Department for 15 years. In 2004 he was applied and accepted the position of being Head of Department of Pharmaceutics (2004 - 2014) of the Faculty of Pharmaceutical Sciences at Semmelweis University. In 2008 he was applied and accepted the position of being Dean of the Faculty of Pharmaceutical Sciences (2008-2009). He is a member of the Board of Drug Discovery and Safety Centre in Semmelweis University (2008-2017). He is a member of the Rectors' Advisory Board of the Semmelweis University (PSK) (2018-), Member of the Public Benefit Supervisory Board of the Semmelweis University (2021-).

His main research interests are bioanalytics-radioanalytics, pharmacokinetics, metabolism, biopharmaceutics, bioequivalence, food-drug interaction, *in-vitro* dissolution studies for the prediction of different types of interactions (IVIVC) and retard drug delivery. He has 26 patents, published more than 270 journal papers, 18 books, 25 book chapters as well as co-editorial works in books, and more than 530 lectures on

Hungarian and International Conferences. He was the chairman and member of the International Advisory Boards of more than 50 national and international conferences.

He has contributed to the research/development and registration of 3 original drugs and 39 generic drugs in Hungary and abroad.

His awards and honours are: Award of Innovative Engineering (1998, 1992, 1994), Honorary Lecturer of the Budapest University of Technology and Economics (2001), Honorary Member of the Slovak Society for Pharmaceutical Sciences (2009), the Schulek Elemér Award (2009), the Bruckner Győző Award (2011), the Issekutz Béla Award (2011), the CEGSS Central European Group for Separation Sciences Medal & Award (2013), Géza Zemplén Medal (2013), Jedlik Ányos Award (2015), SPDS Mumbai-India "Lifetime Achievement Award" in the area of Pharmaceutical Dissolution Science, Biopharmaceutics, Pharmacokinetics, Metabolism, Bioanalytics and MIVC Research (2019), Officer's Cross – Hungarian Order of Merit (2020), Dr. Orbán István Commemorative Medal (Hungarian Pharmaceutical Manufacturers Association, 2020).

He is the elected representative of doctors (D.Sc.) (2007-2013), furthermore elected secretary (2003-2008), co-chair (2011-2014) and elected chair (2015-2018) of the Committee on Pharmaceutical Sciences and elected president of the Working Committee on Separation Sciences (2012-2018) of the Hungarian Academy of Sciences. He was a member of the Section of Chemical Sciences (2007-2018) and the Section of Medical Sciences (2009-2018) of the Hungarian Academy of Sciences.

He is the editor of Journal of Planar Chromatography (JPC) (2006-2017), Acta Chromatographica (AC) (2008-2018), and the Acta Pharmaceutica Hungarica (APhH) (1994-2005; 2018-), member of the Editorial Board of the Journal of Chromatographic Sciences (JCS) (1998-2017), and reviewer of the Journal of Pharmaceutical and Biomedical Analysis (JPBA), Journal of Controlled Release (JCR), British Journal of Clinical Pharmacology (BJCP) and Biomedical Chromatography.

He is a member of the International Society for the Study of Xenobiotics (ISSX) (1985-2016), European Society for Clinical Pharmacy (ESCP) (1992-2004), International Society for Planar Separations (ISCS) (1998-2017), International Pharmaceutical Federation (FIP) (2007-2017), and a former member of the American Association of Pharmaceutical Scientists (AAPS), European Federation for Pharmaceutical Sciences (EUFEPS), and the Hungarian Chemical Society.

He was the founder (1996) and the member of the board (1996-2022), and the elected president of the Hungarian Society for Separation Sciences (2006-2009), and currently he is a honorary board member. Furthermore, he was the president (2008-2009) of the Central European Group for Separation Sciences (CEGSS), and the Hungarian Society for Experimental and Clinical Pharmacology: president of the Section of Pharmacokinetics and Drug Metabolism (1999-2009), and member of the board of the Society, at present he is an honorary board member, and he was the elected president of the Hungarian Society for Pharmaceutical Sciences (2008-2010).

*klebovich.imre@semmelweis.hu*

## Professor Balázs Lendvai

*Head of Division, Pharmacological and Drug Safety Research, Gedeon Richter Plc., Budapest, Hungary*

*Director of Department of Richter, Semmelweis University, Budapest, Hungary*



**Professor Balázs Lendvai** (M.D., Ph.D., D.Sc.) graduated from general medicine in Semmelweis University Medical School with summa cum laude in 1993. Then, he accomplished the doctoral programme of Semmelweis University in the area of neurosciences/neuro-pharmacology and received Ph.D. degree in 1998. In 2000 he made a medical board exam for Clinical Pharmacology Specialist in Semmelweis University. He received the Doctor of Science (D.Sc.) degree in neuropharmacology by the Hungarian Academy of Sciences in 2011. In 2023 he was appointed as a head of the Richter Department, a newly organized unit at Semmelweis University.

Currently he has been the Head of Pharmacological and Drug Safety Research at Gedeon Richter Plc. since 2010. As the head of Pharmacological and Drug Safety Research department of Gedeon Richter Plc. he is responsible for preclinical biology studies in original research. The department covers research activities from *in vitro* studies, through *in vivo* and ADME work, up to safety prediction including toxicology and safety pharmacology. Besides maintaining regular screening of novel molecular structures over several years the Pharmacology department contributed to the identification of several clinical candidate molecules with mode of action in the central nervous system under his supervision. In addition, he established significant translational research at the Pharmacology department to increase the predictive power of preclinical research.

Formerly, between 2004 and 2009 he was the Executive Head of Department of Pharmacology in the Institute of Experimental Medicine, Hungarian Academy of Sciences (IEM HAS), in Budapest. Between 2002 and 2009 he also led a laboratory (Laboratory of Cellular Pharmacology) at the Department of Pharmacology, IEM HAS. From 1998 he was a postdoctoral fellow in the Svoboda Lab at Cold Spring Harbor Laboratory (Cold Spring Harbor, NY, USA) for 2 years. In 1994 and 1997 he spent 3-3 months as a visiting scientist at Center for Neurochemistry, The Nathan S. Kline Institute for Psychiatric Research (Rockland Psychiatric Center, NY, USA). Between 1993-98 he was a research fellow in the Department of Pharmacology IEM HAS.

He was awarded with Issekutz Béla medal by the Hungarian Society for Experimental and Clinical Pharmacology in 2023. So far he published 73 peer-reviewed papers in international journals and gained 281 cumulative impact factor and more than 3100 citations. His most cited paper was published in Nature (Lendvai et al., Nature, 2000 - 963 citations).

*B.Lendvai@richter.hu*

## Associate Professor Krisztina Ludányi

*Deputy Director of Department of Pharmaceutics,  
Semmelweis University,  
Budapest, Hungary*

*Vice Dean of the Faculty of Pharmaceutical Sciences,  
Semmelweis University,  
Budapest, Hungary*



**Dr. Krisztina Ludányi** (Ph.D.) is an associate professor, in the Department of Pharmaceutics at the Faculty of Pharmaceutical Sciences at Semmelweis University, Budapest, Hungary. She also serves as the Vice Dean of the Faculty of Pharmaceutical Sciences.

She graduated as a chemical engineer (M.Sc.) at Veszprém University, Veszprém, in 1993. She obtained her Ph.D. at Eötvös Loránd University, Budapest, in 2000.

She started her career in 1993 at the Chemical Research Center of the Hungarian Academy of Sciences, in the Mass Spectrometry Research Unit. Here, she developed and applied novel mass spectrometry techniques in various biopharmaceutical projects. She was awarded a scholarship at University of Warwick (UK, 1995), a post-doc position at FOM-AMOLF (Amsterdam, Netherlands, 1999), and a Bolyai scholarship (2006). In 2005, she joined the Department of Pharmaceutics at Semmelweis University, where she became the Head of the Bioanalytical Laboratory. Later, she was nominated as an associate professor (2009) and became the Deputy Head of the Department of Pharmaceutics (2018) and Vice Dean of the Faculty (2023).

Dr. Ludányi teaches a variety of subjects at Semmelweis University, including Biotechnology, Biological drugs, Colloids, Physical Chemistry, Drug Technology, Pharmacokinetics and Biopharmacy, and the Use of Bioanalytical Methods in Pharmacokinetics. She is also responsible for various laboratory practices. In post-graduate teaching, she gives lectures on Methods for protein analysis. Additionally, she delivers lectures at Budapest University of Technology. Throughout her career, she has supervised over 20 M.Sc. and 3 Ph.D. students.

Krisztina Ludányi's main research interest lies in the application of various analytical methods in biopharmaceutical and biomedical projects. She is a leading expert in analyzing protein glycosylation – one of the most common and elusive post-translational modifications, which also has potential as an early disease biomarker. Currently, she investigates the degradation of enzyme-containing drugs during formulation or due to environmental effects, which has become of major importance recently. Furthermore, she is also involved in several traditional pharmaceutical analyses, including metabolite research, pharmacokinetics (mainly using HPLC-MS), and the identification of trace levels of impurities. She has over 140 publications with more than 1500 citations.

She is a member of various professional organizations, including the Hungarian Chemical Society and the Mass Spectrometry Society (1994-), a member of the executive board (2007-) and president (2022-) of the Mass Spectrometry Society; Hungarian Society of Separation Sciences (1998-); Hungarian Pharmaceutical Society (2005-); and a member of the Committee of Analytical and Environmental Chemistry of the Hungarian Academy of Sciences (2014-).

She has been granted various prizes and awards; the most prestigious ones are the Rector's Praise (2019), the Hugonnai Vilma Prize of Semmelweis University (2013), and the Bruckner Prize of the Hungarian Academy of Sciences (under the 40 category, 2009).

*ludanyi.krisztina@semmelweis.hu*

*CEO, Gedeon Richter Plc.,  
Budapest, Hungary*

*Chairman of the Board of Trustees of the  
Foundation for National Health Care and Medical  
Education, Semmelweis University,  
Budapest, Hungary*



**Gábor Orbán** was appointed Chief Executive Officer of Gedeon Richter Plc. as of November 1, 2017. Began his professional career as an economist for the National Bank of Hungary and the European Central Bank.

He later joined Aegon Asset Management where he worked as a fund manager and the head of the fixed income desk. He served as the state secretary in charge of taxation and the financial sector at the Ministry for National Economy for two and a half years, followed by a year spent at Banque Rothschild where he worked as a consultant. He earned his MA degree at the Budapest University of Economics and studied also in the United States. Richter's Director of Corporate Strategy since September 2016, Chief Operating Officer since 2017. Member of the Company's Board of Directors from April 2017.

He is the chairman of the Foundation for National Health Care and Medical Education, maintainer of Semmelweis University from August 2021. Member of the National Science Policy Council and board member of the Stock Exchange Advisory Body. Member of the board of trustees at UNICEF Hungary.

*[gabor.orban@richter.hu](mailto:gabor.orban@richter.hu)*

## Doctor Lakshmanan Ramaswamy

*General Secretary, Society of Pharmaceutical Dissolution Science (SPDS), Mumbai, India*

*Managing Director, SOTAX India Pvt. Ltd., Mumbai, India*



**Dr. Lakshmanan Ramaswamy** (MMM, MHRDM, Ph.D.), a graduate in chemistry (1973-78) from University of Calicut, (Govt Victoria College, Palakkad), Double post graduated in management Marketing & HR from NMIMS, Mumbai) and a doctorate in pharmaceutical Business Administration. A Professional having nearly 45 years of successful and experience in various capacities in Indian Pharmaceutical Industry. He is currently the Managing Director of SOTAX India Pvt. Ltd., a company head quartered at Switzerland, pioneer pharmaceutical & Dissolution Testing.

Currently working as the Managing Director of Sotax India Pvt. Ltd., a fully owned subsidiary of SOTAX AG, Switzerland since October 2010. Global leader in pharmaceutical testing services and high-end lab instruments Dr Ramaswamy has also conceived the idea and need to found a Society for Pharmaceutical Dissolution Science and initiated the movement by bringing the Pharma Industry Scientists, Pharmaceutics Faculties from various pharmacy colleges, & Regulators under one roof and registered this Society as Society for Pharmaceutical Dissolution Science (SPDS) under the Board of Charitable Trust at Mumbai which is now emerged as a Global organisation in promoting Pharmaceutical Dissolution Research among Masters and Ph.D. students, Industry professionals & Pharm.D. and thereby enhancing the quality of the drug produced world over since 2012.

Due to the immense & creative honorary work done by Dr Ramaswamy to the Pharma world, The SPDS recognised and honoured him with a special award titled as Creative Legend Award by the hands of none other than the Drugs Controller General of India, Dr Rajeev Raghuvanshi, & AAPS president Dr Patrick Sinko, Former AAPS and FIP Scientific Secretary, Dr Vinod P. Shah, Mr Ajit Singh, Chairman ACG, Current President SPDS-Dr Padma Devarajan, and many other dignitaries on the Diaz, on 25th July 2023.

Prior to SOTAX India, worked with Ambalal Sarabhai Enterprises Ltd., a public limited company listed at NSE and BSE (generally known as Sarabhai Chemicals) as a full time Board of Director and CEO, for 4 years. (2006 to 2010). In 2007 Dr Ramaswamy Represented the BioTechnology Delegation organized by Govt of India to Canada.

In the year 2000, appointed as the country head of Stiefel India Pvt. Ltd. (Which is merged with GSK later).

From 1985 to 2000 worked with Unichem Laboratories in various positions till the General Manager – Marketing & Sales.



Dr. Ramaswamy has been a visiting faculty in reputed management Institutes in Mumbai and given many guest lectures including at IIM (Bang), Madurai Kamaraj University, NMIMS, etc. He has published many articles on Management and Human Resources Development and Brand Building.

Nominated as a member in the International Scientific Advisory Board and session chair of 3rd International Symposium on Scientific and Regulatory Advances in Biological and Non-Biological Complex Drugs (SRACD 2018) at Budapest, Hungary.

Undertaken multiple international travel to many Asian countries, US, UK, Europe including Swiss and USA to spread SPDS and actively participated international Dissolution science conferences like Disso America, Disso Europe.

*Lakshmanan.Ramaswamy@sotax.com*

## Professor Vinod P. Shah

*Formerly with US FDA,  
Pharmaceutical Consultant,  
Member of NBCD Working Group,  
Chairman of Society of Pharmaceutical Dissolution  
Science (SPDS) International,  
North Potomac, MD, USA*



**Professor Shah** (Ph.D., FAAPS, FFIP) is a Pharmaceutical Consultant. He is a member of Steering Committee of Non-Biological Complex Drugs (NBCD) hosted at Lygature in The Netherlands (2011-Present); is a Chairman of Society of Pharmaceutical Dissolution Science (SPDS) International (2012 – Present); and expert consultant with NDA Partners (2016 – Present).

Dr. Shah retired from US FDA (Food and Drug Administration) as a Senior Research Scientist after 30 years of service in July 2005. At FDA, he has developed several Regulatory Guidances for Pharmaceutical Industry in the area of dissolution, SUPAC, bioanalytical, bioequivalence and biopharmaceutics. He has received several FDA Awards including Award of Merit, Scientific Achievement Award and Distinguished Career Service Award.

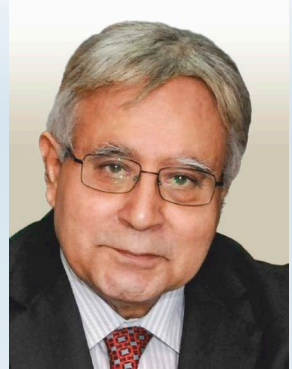
Dr. Shah was Scientific Secretary (2003 – 2011) of International Pharmaceutical Federation (FIP), and Chair of Regulatory Sciences Special Interest Group of FIP (2011-2016). He was Biopharmaceutics Consultant at USP (2005-2014). Dr. Shah is author/co-author of over 300 scientific papers and is a co-editor of four books.

Dr. Shah was the President of American Association of Pharmaceutical Scientists (AAPS) in 2003. He is a Fellow of AAPS and FIP. Dr. Shah is a recipient of AAPS Distinguished Service Award; IDMA Eminent Pharmaceutical Analyst Award; FIP Lifetime Achievement Award in Pharmaceutical Sciences; Honorary Doctorate from Semmelweis University, Budapest, Hungary; SPDS Award of Excellence; Honorary Doctorate from University of Medicine and Pharmacy Carol Davila Bucharest, Romania; American Association of Indian Pharmaceutical Scientists (AAIPS) Lifetime achievement award; AAPS Distinguished Pharmaceutical Scientist Award; AAPS Global Leader Award; Marquis Who's Who Albert Nelson Marquis Lifetime Achievement Award; and Pro Universitate Order of Merit Award from Semmelweis University, Budapest, Hungary.

*dr.vpshah@comcast.net*

*Founder & Chairman of ACG Worldwide,  
Mumbai, India*

*Former Chairman, Board of Trustees of the Bombay  
College of Pharmacy,  
Mumbai, India*



**Ajit Singh** was educated at Millfield School, U.K. and Cambridge University, U.K. and Harvard Business School, USA.

He is the Chairman of ACG Worldwide (formerly the Associated Capsules Group). The Company is one of the world's leading suppliers of pharma machinery, empty capsules, blister films and other products. His group is headquartered in India with manufacturing facilities on three continents and offices worldwide presently serving 128 countries.

Ajit Singh has received five lifetime achievement awards for service to the pharma industry and also designated as a "Doyen of the Pharmacy Profession" by the Drugs Inspectors Association of India.

He has been an active member of the boards or managing committees of most of the pharmaceutical associations in India, as also Chairman, Board of Trustees of the Bombay College of Pharmacy.

Ajit Singh is a former President of the Indian Pharmaceutical Congress Association (IPCA), the Apex Pharma body. He was also an Advisor to the U.S. Pharmacopoeia (India) when it first set up in India.

He has brought several Global Pharma Scientific Associations to India for the benefit of pharma technologists and academia. His group received an Award from UNIDO for Pharma Research and Training.

Ajit Singh has visited and assisted over 500 pharma factories in over 50 countries. His organization trains over 2000 pharma professionals annually in India and overseas.

*[ajit.singh@acg-world.com](mailto:ajit.singh@acg-world.com)*

## Doctor Tamás Szolyák

*Director Global Regulatory Science,  
Gedeon Richter Plc.,  
Budapest, Hungary*

*Formerly Deputy Director General,  
National Institute of Pharmacy and Nutrition,  
Budapest, Hungary*

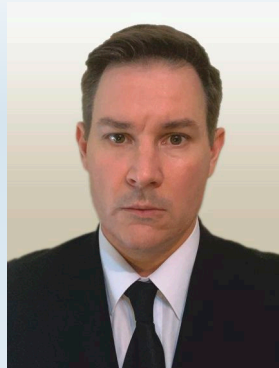


“I graduated as pharmacist. As I was interested in economy and was curious how the pharma business works so I joined to Ciba Geigy after my graduation. I spent 21 years with the company, participated in the merger with Sandoz, and experienced the creation of Novartis and the expansion of our business in pharmaceuticals. I worked mainly in Sales & Marketing, various positions. I was the GM of our local, Hungarian affiliate for 6 years. I have a broad understanding of our industry, was able to follow our development trends. This drive my attention to health care development opportunities, and I left Novartis to work on mainly big, HC development projects. My performance in this public field had been recognized, and our National Competent Authority – National Institute of Pharmacy and Nutrition – offered me an opportunity to work in the regulatory arena. I accepted the challenge and led the fields of regulatory, clinical trials, pharmacovigilance and HTA. It was a great experience with continuous learnings and development. I could understand the way EMA works, drives its decision, the very professional approach they have, their think tanks which deliver strategic directions. Due to some changes towards the Institute’s role and strategy I have decided to change direction. I turned back to the industry and joined to Richter Gedeon. I am leading the Global Regulatory Science activities. I am very happy to serve our company with my professional leadership background and regulatory knowledge to achieve the aspirations and expectations had been formulated by our leadership.”

*szolyakt@richter.hu*

*Director of Department of Pharmacodynamics,  
Semmelweis University,  
Budapest, Hungary*

*Vice Dean of the Faculty of Pharmaceutical  
Sciences, Semmelweis University,  
Budapest, Hungary*



**Dr. Tamás Tábi** (Pharm.D., Ph.D.) has graduated as a pharmacist at the Faculty of Pharmacy, Semmelweis University, Budapest, Hungary. He gained his Ph.D. degree in 2006 and his habilitation degree in 2021 at the Semmelweis University. He has specialized for Pharmacology in 2015.

He works as Associate Professor at the Department of Pharmacodynamics, Semmelweis University and is the Head of the Department since 2020. He is the head-teacher of Pharmacology and Toxicology and also takes part in teaching of other compulsory and elective courses.

His research interest covers the interdisciplinary fields of bioanalytics and pharmacology. He is an expert of capillary electrophoresis technique that is used primarily for analysis of biological samples and pharmacological approaches ranging from metabolism studies to neurochemical analysis of amino acid neurotransmitters or glycolipids of neuronal membranes. He is also interested in the research of neuro- and cytoprotective mechanisms and compounds and pain pharmacology. He actively takes part in the doctoral program as supervisor of Ph.D. and M.D.-Ph.D. students.

He is the Vice Dean of Faculty of Pharmaceutical Sciences responsible for Educational Affairs since 2020 and represents the Faculty in the Council of Students' Scientific Association since 2010.

He is the member of Executive Committee of Hungarian Society for Pharmaceutical Sciences since 2016. Currently he works as Secretary General of the Society. He is also a board member of Hungarian Society of Experimental and Clinical Pharmacology and member of supervisory board of RECOOP HST Association. He works as deputy editor of the scientific journal of Acta Pharmaceutica Hungarica.

He was awarded by several honors including the Excellence in Education, Merit Award and Excellent Scientific Student Tutor of Semmelweis University among others. He is the author of more than 50 scientific papers with more than 1,000 citations.

*tabi.tamas@semmelweis.hu*

## Professor Romána Zerkó

*University Pharmacy Department of Pharmacy Administration, Semmelweis University, Budapest, Hungary*

*Former Dean of the Faculty of Pharmaceutical Sciences, Semmelweis University, Budapest, Hungary*



**Professor Romána Zerkó** (Pharm.D., Ph.D., D.Sc.) is a full professor and the former dean of the Faculty of Pharmaceutical Sciences of Semmelweis University, Budapest. She graduated as a pharmacist from Semmelweis University of Medicine in 1991. In 1993 she received a doctorate (dr. univ.), and a Ph.D. in 1996. She gained her habilitation degree in 2003 at the Semmelweis University, and in 2008 she received the Doctor of Science (D.Sc.) title from the Hungarian Academy of Sciences. Since graduating, she has been employed at Semmelweis University in various positions. In 2005 she was appointed director of the University Pharmacy Department of Pharmacy Administration. She was appointed full professor in 2009. She was the Dean of the Faculty of Pharmaceutical Sciences at Semmelweis University for two terms (2013-2020), before which she was Deputy Dean for 6 years.

Her research work focuses on polymeric drug delivery systems, the physical aging of polymers, microstructural characterization of dosage forms associated with their functionality-related characteristics, and the quality aspects of pharmacy. She is the author of several scientific (more than 230 journal papers with more than 3000 citations, 6 patents) and expert works. Her expertise covers the planning, development, solid-state characterization, and quality assurance of different dosage forms, including novel nanofiber-based scaffolds for various pharmaceutical and biomedical purposes. Her research interests include the aging of excipients used in the manufacture of pharmaceuticals, and the stability of the pharmaceutical dosage form by monitoring the changes in the secondary chemical structure.

Since 2017, she is a member of the CELSA Research Fund Evaluation Committee (Pharmaceutical Science, Leuven), and since 2007 she has been involved in the European Pharmacopoeia Commission as a member of the Experts and Working Party (Excipient performance).

She has supervised 17 Ph.D. students and is currently the supervisor of 3 Ph.D. students.

Since 2005 she has been the Responsible Editor of the journal *Acta Pharmaceutica Hungarica*, and since 2019 she has been Editor-in-Chief of the journal. She is a member of the editorial board of several international journals (*International Journal of Pharmaceutical Investigation*, *International Journal of Nanomaterials*, *Nanotechnology and Nanomedicine*, *Pharmaceutics*, and an Associate Editor of the *Heliyon Pharmaceutical Science, Pharmacology and Toxicology* section).

In 2003 she was awarded the Excellent Academic Student Educator of Semmelweis University, in 2006 the Hungarian Research Award of Sanofi-Aventis, and in 2007 the Outstanding Researcher Award of the Aesculap Foundation. In 2011 she was awarded the Hugonnai Vilma Medal of Semmelweis University, and in 2014 the Kempler Kurt Memorial Medal of the Hungarian Society for Pharmaceutical Sciences. In 2020 she received the Excellent Ph.D. Teacher Award of Semmelweis University. In 2022 she was awarded the Officer's Cross of the Hungarian Order of Merit, and the Richter Gedeon Medal of the Semmelweis University.

*zelko.romana@semmelweis.hu*





## Advertisements

# Semmelweis University

H-1085 Budapest, Üllői út 26. Hungary

## Over 250 years of tradition, innovation and excellence

Semmelweis University's history started more than 250 years ago, when Hungarian queen Maria Theresa added a faculty of medicine to the University of Nagyszombat in 1769. Semmelweis University is the oldest medical school in Hungary still in operation today. With its 6 faculties and as a university specialising in health sciences, it occupies a prestigious place in Hungarian medical higher education. Its main commitment is based on the integrity of education, research and healthcare, which make Semmelweis University an internationally renowned centre of knowledge.

## Worldwide Recognition

Semmelweis University ranks among the top 250 universities in the world according to the Times Higher Education Rankings 2023. It is among the top 250 universities in pharmaceutical education in the QS Ranking 2022. The university and its predecessor institutions have issued more than 100,000 diplomas so far. The degrees are accepted in numerous countries around the world, and the university is listed in the World Health Organisation's World Directory of Medical Schools.

## Education in three languages

In the academic year 2022/2023, Semmelweis University has celebrated the 40<sup>th</sup> anniversary of launching its international medical training. German and English language programmes have been available at the Faculty of Medicine, Dentistry and Pharmaceutical Sciences for over three decades. German language programmes have been run at Semmelweis University since 1983, while the English language programme was founded in 1989. Almost a third of the nearly 14,000 students enrolled at the six faculties of Semmelweis University are international students. They come from 110 countries of five continents. The ratio of international students is the highest at the Faculty of Medicine, where they outnumber Hungarian students. 48% of the student body at the Faculty of Dentistry is also international. In addition, Semmelweis University was among the first in Europe to introduce international campus training. Its programmes include the medical programme in Germany, the physiotherapy master's programme in Switzerland and the health manager master's programme in Slovakia.

## Excellence in all six faculties

The Faculty of Medicine, the Faculty of Dentistry and the Faculty of Pharmaceutical Sciences are the largest training institutes in their fields, and the Faculty of Health Sciences is the country's leading higher education institution training healthcare professionals. The Faculty of Health and Public Administration operates with a multidisciplinary approach on the boundary of natural and social sciences. András Pető Faculty is the cradle of conductive education and is the only accredited conductor training institution in the world.

## Outstanding scientific results

Semmelweis University is a regional centre of excellence in science and innovation in the field of life sciences. As a biomedical institution, the approach of translational research is dominant, but also basic research serves the prevention and treatment of diseases. The diversity and broad spectrum of the university's RDI activities is illustrated by the more than 300 research groups, a wide range of research areas and the intensive scientific publication activity. Numerous research groups publish regularly in internationally recognised and highly ranked scientific journals.



## Top healthcare provider

The university is one of the largest health care institutions in Hungary today, handling 2.7 million cases each year. It has nearly 40 departments distributed among the 4 main clinical centres. The university covers the health care needs of approximately 6.4 percent of the Hungarian population, treating over 200,000 patients each month. The university clinics are practical training sites and patient care is carried out on the highest level as it has several departments catering for patients in critical condition or requiring complex treatment. Cutting edge technology enables the establishment of the most accurate diagnosis, like in the case of organ transplantations, and certain procedures are available only at the university.

<http://semmelweis.hu/english/>

<https://www.facebook.com/semmelweisuniversity>

<https://www.linkedin.com/school/semmelweisuniversity>

<https://twitter.com/semmelweishu>

<https://www.youtube.com/semmelweisuniversity>

[https://www.instagram.com/semmelweis\\_egyetem/](https://www.instagram.com/semmelweis_egyetem/)



SEMMELWEIS  
IGNÁC FÜLÖP  
1818 - 1865

# Everyone on Earth deserves access to better health.

Having a presence in 138 countries on six continents, ACG is now the world's largest integrated supplier of inputs for manufacturing oral solid dosage products and services. We provide hard-shell capsules, barrier packaging materials, pharmaceutical manufacturing machinery, and fully integrated track and trace solutions.

## **ACG Capsules**

Medicine is only as good  
as how well it's delivered.

With 'reliability' at the centre of all we do, ACG has a hard-shell gelatine and HPMC capsule solution for almost every application. Plus, our customisation options are virtually limitless.

## **ACG Engineering**

Medicine is only as good as  
how well it's manufactured.

ACG provides a full spectrum of oral dosage manufacturing equipment. Our global design team takes a customer-led approach, and we're renowned for exceptional after-sales service.

## **ACG Packaging Materials**

Medicine is only as good  
as how well it's protected.

We supply the world's largest range of both film and foil barrier materials, with almost everything produced in-house for greater quality control. Expert advice is the key to your perfect solution.





**ACG**

Make it better.

**ACG is the world's  
most integrated  
provider of oral  
dosage products  
and services.**





**Granulation**



**Encapsulation and tableting**



**Blister packing**



**Vision inspection**



**Cartoning**



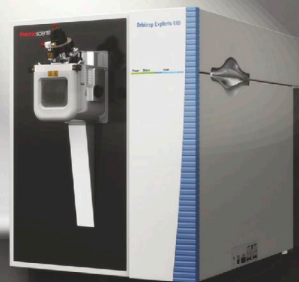
**Traceability**



**Make it better.**

# Impressive performance Unmatched value

## Now you can afford your first choice



## What is the Velocity LFQ HR-DIA platform?

Thermo Scientific™ Velocity label-free quantitation (LFQ) high-resolution (HR)-DIA platform — our exclusive unmatched DIA solution for quantitative proteomics is now available at a more affordable price. We provide an award-winning standard for quantitative accuracy, precision and data completeness for deep proteome coverage. You choose the mass spectrometer that is right for your research. Both the Thermo Scientific™ Orbitrap Exploris™ 240 and Thermo Scientific™ Orbitrap Exploris™ 480 mass spectrometers are outstanding options for DIA analysis.

**High-throughput high-resolution data-independent acquisition  
workflow for accurate label-free quantitation**



Are you ready to learn more about our DIA promotion?

Go to [thermofisher.com/DIAValue](https://thermofisher.com/DIAValue)  
to get the details.



**UNICAM**  
Magyarország Kft.

thermo scientific

For Research Use Only. Not for use in diagnostic procedures. © 2023 Thermo Fisher Scientific Inc. All rights reserved. All trademarks are the property of Thermo Fisher Scientific and its subsidiaries unless otherwise specified. FL002089S-EN 0423S





# Rethink what is possible

## Orbitrap Astral mass spectrometer

Realize the promise of proteomics at scale to better understand biology and disease mechanisms with the novel technology of the Thermo Scientific™ Orbitrap™ Astral™ mass spectrometer. Powered by the synergy of the high resolution quadrupole mass filter, Thermo Scientific™ Orbitrap™ mass analyzer and the novel Thermo Scientific™ Astral™ mass analyzer, this revolutionary new instrument achieves unsurpassed performance with industry leading usability. The combination of these three mass analyzers enables the rapid acquisition of exceptional quality high resolution accurate mass (HRAM) data with high sensitivity and dynamic range. Expect whole proteome coverage at a depth of 12,000 proteins in an hour, the sensitivity to accurately and precisely quantify over 3,000 proteins from 80 single cells in a day and the throughput to analyze over a million protein groups across 180 samples in a day.

- **Faster throughput** – identify over 8,000 proteins with an 8-minute injection-to-injection cycle
- **Deeper coverage** – unlock near whole-proteome depth of coverage with the identification of 12,000 proteins in 1 hour from a single-shot experiment
- **Higher sensitivity** – increase throughput and depth of coverage with higher sensitivity by identifying over 5,000 proteins from 130 pg of HeLa at a rate of 80 samples per day
- **Accurate and precise quantitation** – achieve accurate and precise quantitation with a large dynamic range for label-free Quantitation (LFQ) using Data Independent Acquisition (DIA) and achieve faster throughput and deeper coverage with multiple quantitation using Tandem Mass Tags (TMT)

These ground-breaking capabilities empower you to comprehend the dynamic, temporal and spatial complexity of biology.

# UNICAM

Magyarország Kft.

DMA850



SDT650



TGA5500



DSC2500

Do you also expect the best solution?

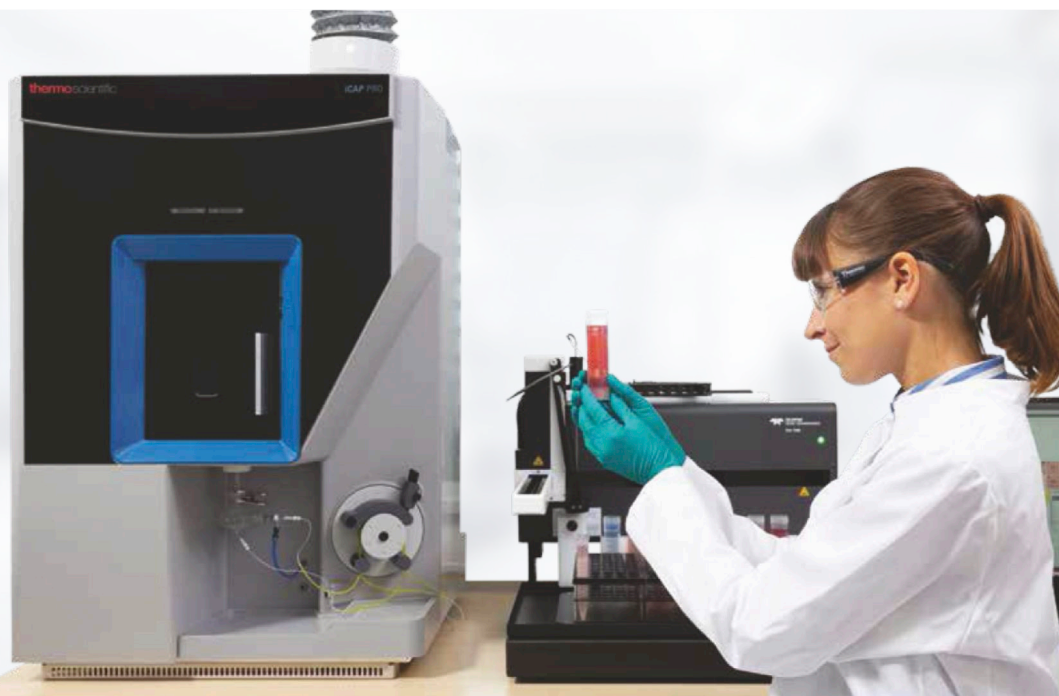
**DISCOVER** the **BEST** DSC, TGA, SDT, DVS, DMA and Rheometer systems **EVER** designed.

Choose the best service for:

- Research and Discovery
- Drug Formulation and Development
- Manufacturing, Production and Quality Control
- Scale up and Engineering

**UNICAM**  
Magyarország Kft.

The logo for TA Instruments, featuring a stylized blue wave graphic to the left of the text "TA Instruments".



### **iCAP PRO ICP-OES and iCAP PRO X ICP-OES**

Deliver robust, uncomplicated trace elemental analysis for your laboratory with the Thermo Scientific iCAP PRO ICP-OES and Thermo Scientific iCAP PRO X ICP-OES systems. These systems offer fast start-up, easy-to-use software and incredible speed, providing multi-element detection technology far superior to that of single-element AAS.

### **iCAP PRO XP ICP-OES**

Analyze high-matrix trace elemental samples with sensitive multi-element detection and meet your data requirements with the optimal performance of the Thermo Scientific iCAP PRO XP ICP-OES. Rugged on all fronts, this system needs surprisingly little bench space or user maintenance.

### **iCAP PRO XPS ICP-OES**

Experience high-speed analysis of your trace elemental samples with the Thermo Scientific iCAP PRO XPS ICP-OES. It meets your specific regulatory requirements with unmatched throughput and versatility.

**UNICAM**

Magyarország Kft.

Find out more at [thermofisher.com/icp-oes](https://thermofisher.com/icp-oes)

For Research Use Only. Not for use in diagnostic procedures. © 2020 Thermo Fisher Scientific Inc. All rights reserved. All trademarks are the property of Thermo Fisher Scientific and its subsidiaries unless otherwise specified. BR44428-EN 0320C

**ThermoFisher**  
SCIENTIFIC



We research,  
we innovate, we care.  
Since 1901

[www.gedeonrichter.com](http://www.gedeonrichter.com)



**GEDeon RICHTER**  
Health is our mission

# Dissolution Testing

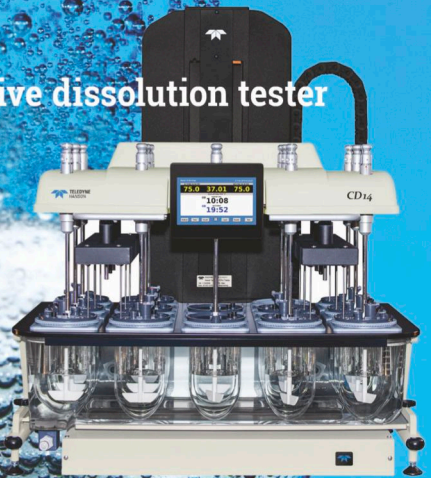
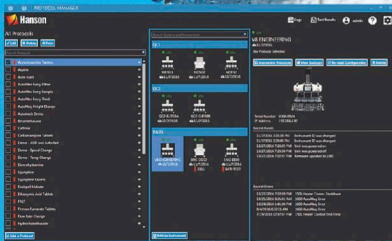
Classic6 and Elite8 dissolution baths

AutoPlus samplers

AutoFill  
collector

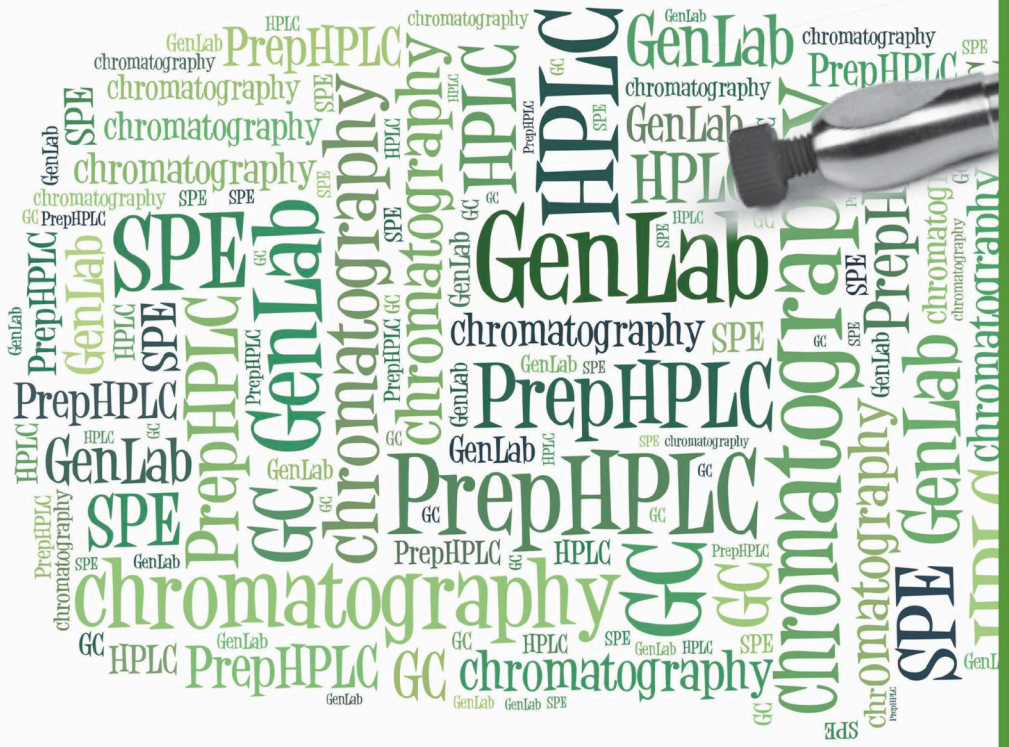
CD14 comparative dissolution tester

Protocol Manager software



Manufacturer: Teledyne Hanson Research  
[www.teledynehanson.com](http://www.teledynehanson.com)

Albania, Austria, Bosnia and Herzegovina, Bulgaria, Croatia,  
the Czech Republic, Hungary, Moldova, Montenegro, North Macedonia,  
Poland, Romania, Serbia, Slovakia, Slovenia  
[www.ablelab.com](http://www.ablelab.com)



# Minden, ami kromatográfia

H-1119 Budapest, Hadak útja 41.  
Tel.: +36 (1) 206-2455  
Fax: +36 (1) 206-2451  
Web: [www.gen-lab.hu](http://www.gen-lab.hu)  
E-mail: [info@gen-lab.hu](mailto:info@gen-lab.hu)

# VisionSafety Cap

Brings you safety and comfort into your laboratory.

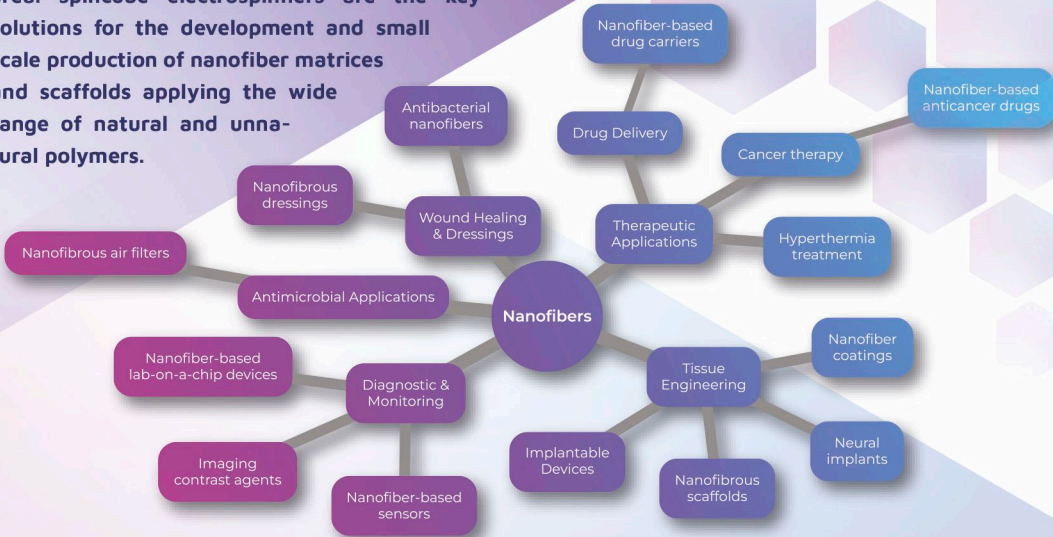


VISION

<https://www.visionsafetycap.com>

# WHY CHOOSE ELECTROSPINNING?

From biomedical applications to high-performance textiles and filtration systems, electrospinning offers unparalleled versatility and customizability. This cutting-edge technology allows you to create ultrafine fibers with precise control, unmatched by traditional manufacturing methods. Electrospun nanofibers offer enhanced material properties, increased surface area, and improved mechanical strength, providing you with a competitive edge in your research area. spincube electrosp spinners are the key solutions for the development and small scale production of nanofiber matrices and scaffolds applying the wide range of natural and unnatural polymers.

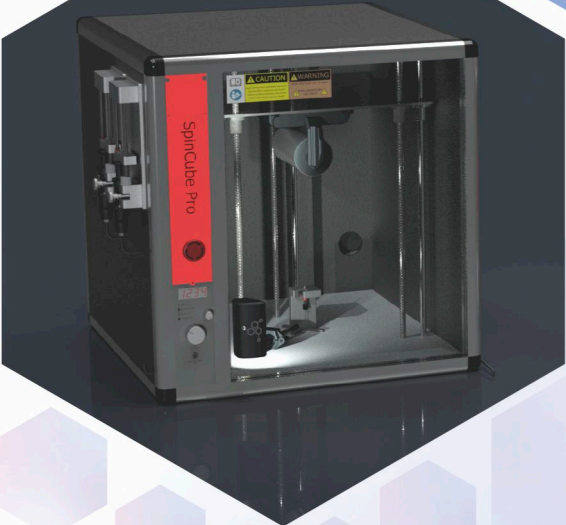


## NANOFIBERS IN THE HEALTH INDUSTRY

In the modern health industry, nanofibers have emerged as remarkable game-changers. These ultrafine structures, with diameters in the nanometer range, are revolutionizing the medical and pharmaceutical technologies with their diverse applications. From regenerative medicine to drug delivery, nanofibers hold immense potential for transforming patient care. By mimicking the extracellular matrix, nanofiber-based scaffolds promote tissue regeneration and wound healing. Their high surface-area-to-volume ratio and fine-tunable

polymer composition allows for precise interactions at the cellular level, enabling targeted and controlled drug delivery. Additionally, functionalized nanofibers show promise as antimicrobial agents in combating infectious diseases. Although nanofibers may play a crucial role in personalized and effective healthcare solutions, their formulation presents a distinct set of challenges that must be overcome. spincube and spincube Pro\* electrosp spinners are designed to meet your challenges in nanofiber research..





# spincube

The **spincube** and **spincube Pro**\* electrospinners are designed to address the challenges of nanofiber research, offering tailored solutions for your needs.

\* Available for pre-order



With high voltage capabilities of up to 40 kV and enhanced safety features, it is safe for users of all levels of expertise.



Experience unparalleled convenience with quick and tool-free changes of collectors and emitters, and template projects in **spinstudio**.



Continuously control\* and monitor humidity and temperature within the cabinet for enhanced reproducibility.

\* with **spincube Pro**



Utilize the **spinstudio** software to design experiments, analyze, compare, and share experimental data effortlessly.



Enjoy flexible and precise precursor feed options from glass or disposable syringes with multiple syringe pumps.



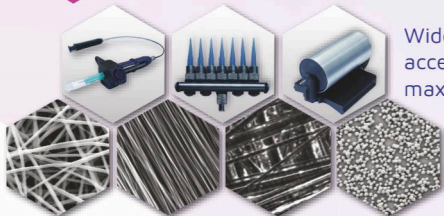
Reduced dead volume allows small sample quantities with the innovative **HydroDrive** system.



Observe jet formation remotely with industrial grade imaging system.



Control processes remotely from the **spinstudio** application.



Widen your research opportunities by exploring our range of available accessories, carefully designed to cater to your unique needs and maximize the potential of your **spincube** electrospinner.

**spincube** is capable of producing a diverse array of materials, including randomly oriented nanofibers, oriented nanofibers, core-shell nanofibers, and spherical nanoparticles.

ATF Xtend  
Fully Automated  
Dissolution Testing System

SOTAX

# Dissolution. 100 % Unattended.

The new ATF Xtend™ - Worlds most compact, USP compliant fully automated dissolution testing system. Perform a series of 100 % unattended dissolution runs including media preparation, vessel filling and self-cleaning of the system.



Xtend

Solutions for Pharmaceutical Testing



SOTAX AG  
Nordring 1  
4147 Aesch  
Switzerland

Phone : +41 61 487 54 54  
Email : [sales@sotax.com](mailto:sales@sotax.com)  
[www.sotax.com](http://www.sotax.com)



[sotax.com/ATF](http://sotax.com/ATF)

CE 7smart  
Flow-Through  
Dissolution Testing System

SOTAX

# Flexible. Precise. Predictive.

The CE 7smart flow-through dissolution tester allows you to see differences in your formulations that paddle and basket methods simply won't show. Widely recommended for poorly soluble, MR / ER, and low dose products, it is also frequently used for IVIVC studies and a growing range of novel dosage forms.



Solutions for Pharmaceutical Testing

SOTAX AG  
Nordring 1  
4147 Aesch  
Switzerland

Phone : +41 61 487 54 54  
Email : [sales@sotax.com](mailto:sales@sotax.com)  
[www.sotax.com](http://www.sotax.com)



[sotax.com/CE7smart](http://sotax.com/CE7smart)

## Agilent dissolution systems

Online/offline



### 708-DS Specifications

<b>Condition</b>	Performance may vary depending on environmental conditions (temperature, humidity, altitude, etc.)		
<b>Evaporation</b>	Less than 1% evaporative loss under specific conditions		
<b>Ambient temperature</b>	5 °C to 40 °C		
<b>Humidity (non-condensing)</b>	Not more than 80% RH		
<b>Requirements</b>	<b>Voltage</b>	<b>Current 708-DS (operating)</b>	<b>Current Wide Input Range Heater (operating)</b>
	90-250V, 50-60 Hz	2.5-1.0A	13.0-4.5A
	115 V, 60 Hz	2.0 A	10.0 A
	230 V, 50 Hz	1.0 A	5.0 A
<b>Spindle</b>	<b>Speed Range</b>	<b>Speed Accuracy</b>	<b>Speed Selection</b>
	10-250 RPM	±1% over 25 RPM ±2% 10-25 RPM	Via touch screen
<b>Bath</b>	<b>Temperature Range</b>	<b>Probe Accuracy</b>	
	Ambient +5 to 55 °C	±0.1 °C	
<b>Sampling</b>	Manifold option available for automated sampling		
<b>Display</b>	LCD with integral touch screen		
<b>Spindle shaft material</b>	Stainless steel		
<b>Drive unit lift</b>	Manual or motor drive		
<b>Dimensions</b>	67.31 cm (w) x 67.95 cm (operating h) / 99.06 cm (clearance h) x 76.2 cm (d)		
	26.5 in. (w) x 26.75 in. (operating h) / 39 in. (clearance h) x 30 in. (d)		
<b>Weight</b>	54.4 kg (120 lb) machine dry with vessels and paddles		
<b>Optional features</b>	Manual or motorized drive unit lift, Dosage Delivery Module (DDM), Auto Sampling, AutoTemp, resident sampling cannulas, handheld temperature probe, printer		



Digital dissolution testing

# The DT 950 Series

for the requirements of today and the challenges of the future



powered by  
digital embedded  
technology



100%

100% USP/EP  
compliant



Intuitive user interface  
with the new TestAssist for  
easy dissolution testing



Upgradeable at  
any time



USP 1, 2, 5 and 6

ERWEKA – Magyarország Kft.  
2030 Erd  
Onto u. 22.  
Hungary  
erweka@erweka.hu  
+3623 523 797

**ERWEKA**  
www.erweka.com

# Sample preparation workstation



Manufacturer: **accroma labtec Ltd.**  
[www.accroma.com](http://www.accroma.com)

**BULGARIA • THE CZECH REPUBLIC • HUNGARY • POLAND  
ROMANIA • SERBIA • SLOVAKIA**  
[www.ablelab.com](http://www.ablelab.com)



# Society for Pharmaceutical Dissolution Science (SPDS)



## VISION

To be one of the most prominent professional body focusing on Dissolution Science among the Pharmaceutical Industry and Academia



## MISSION

To disseminate the science & advancement taking place in the field of dissolution related to clinical application and methods

## SPDS Flagship Events

Disso India - International Conference on Dissolution Science and Applications which promotes the, advancement in the field of Dissolution Science, introduction of new technology, innovation & various aspects of Dissolution Testing and its applications

Dissolution Research Presentations International (DRPI) - a unique platform for researchers from academia and industry to showcase their research in field of dissolution science, technology and applications

### Registered Office:

Society for Pharmaceutical Dissolution Science  
7, Prabhat Nagar, Near 24 Carat, SV Road,  
Jogeshwari West, Mumbai - 400102.  
Email: [contact@spds.in](mailto:contact@spds.in)

SPDS - US Chapter  
2400 Computer Drive  
Westborough, MA 01581  
E-mail: [info@spds.us](mailto:info@spds.us)



# Expertise on every level

to craft science and technology  
solutions in life science

**Supelco**

Analytical Products

**Milli-Q**

Lab Water Solutions

**Sigma-Aldrich**

Lab & Production Materials

**BioReliance**

Pharma & Biopharma  
Manufacturing &  
Testing Services

**SAFC**

Pharma & Biopharma Raw  
Material Solutions

**Millipore**

Preparation, Separation,  
Filtration & Monitoring Products



Merck has brought together the world's leading Life Science brands, so whatever your life science problem, you can benefit from our expert products and services.

To find out how the Life Science Business of Merck can help you work, visit [SigmaAldrich.com/advancinglifescience](http://SigmaAldrich.com/advancinglifescience)

#howwesolve

The life science business of Merck operates as MilliporeSigma in the U.S. and Canada.

Merck, the vibrant M, Milli-Q, Millipore, SAFC, BioReliance, Supelco and Sigma-Aldrich are trademarks of Merck KGaA, Darmstadt, Germany or its affiliates. All other trademarks are the property of their respective owners. Detailed information on trademarks is available via publicly accessible resources. © 2019 Merck KGaA, Darmstadt, Germany and/or its affiliates. All Rights Reserved.

**MERCK**

# Biophysical characterization solutions

Technologies and expertise to  
accelerate bioscience research  
and pharmaceutical development



- Particle size
- Particle concentration
- Surface charge
- Stability assessment
- Particle count
- Aggregation analysis

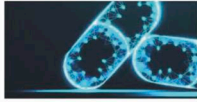


**PCT Ipari, Szolgáltató és Kereskedelmi Kft.**  
H-9200 Mosonmagyaróvár Juhar u. 10, Tel: +3696237199,  
e-mail:pct@pct.hu, web: www.pct.hu

## EXPLORE PHARMACEUTICAL SOLUTIONS



Research and  
discovery



API development



Pharmaceutical  
formulation  
development



Pharmaceutical  
manufacturing  
and quality  
control



In vitro  
bioequivalence  
(IVBE)



Analytical  
instrument  
qualification



**Morphologi 4-ID**



**Mastersizer 3000**



**NanoSight Pro**



**Zetasizer range**



**MicroCal PEAQ-ITC**



**MicroCal PEAQ-DSC  
Automated**





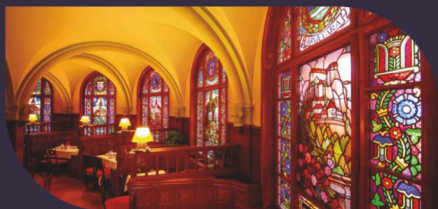
HOTEL  
*Palota*



LILLAFÜRED

+36 46 331 411 | [info@hotelpalota.hu](mailto:info@hotelpalota.hu)

[www.hotelpalota.hu](http://www.hotelpalota.hu)





**VIAVI**

VIAVI Solutions

memtech

# MicroNIR™ Handheld and Process Spectrometers

One product line, one solution for all your process control requirements

VIAVI MicroNIR™ spectrometers are designed for one purpose: to help you improve the quality and reduce the cost of your products. With models and accessories to suit every stage of pharmaceutical manufacturing, full GMP compliance, and low total cost of ownership, MicroNIR instruments are ready and able to take you where you want to go.

- Use the handheld, wireless OnSite-W at the loading dock for raw material identification and qualification (RMID)
- Use the USB-powered PAT-U for real-time monitoring of drying, granulation, tableting, and coating
- Use the compact, wireless PAT-W on a tumble blender for a rotation-by-rotation readout of blend uniformity

MicroNIR Pro software, a complete, easy-to-use chemometric modeling suite, is included with every instrument and supports compliance with USP 1856 and EP 2.2.40 standards.

Contact your local MicroNIR reseller today for more information.

Memtech Kft. | +36 30 891 2640 | [memtech@memtech.hu](mailto:memtech@memtech.hu) | [www.memtech.hu](http://www.memtech.hu)





SEMMELWEIS  
IGNÁC FÜLÖP  
1818 - 1865

ISBN 978-615-01-8650-4



9 786150 186504



**SEMMELWEIS**  
UNIVERSITY 1769