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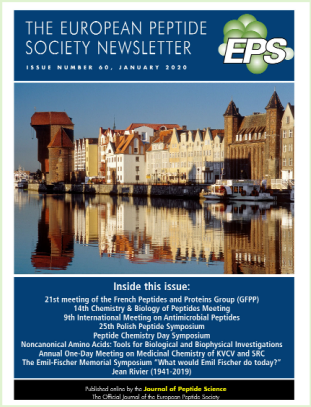

Cover photo: Gdansk Mirrored in Motlawa. Photo by Stanislaw Skladanowski

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NEWSLETTER EDITOR

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SOCIETY NEWSLETTER

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wileyonlinelibrary.com/journal/jpepsci

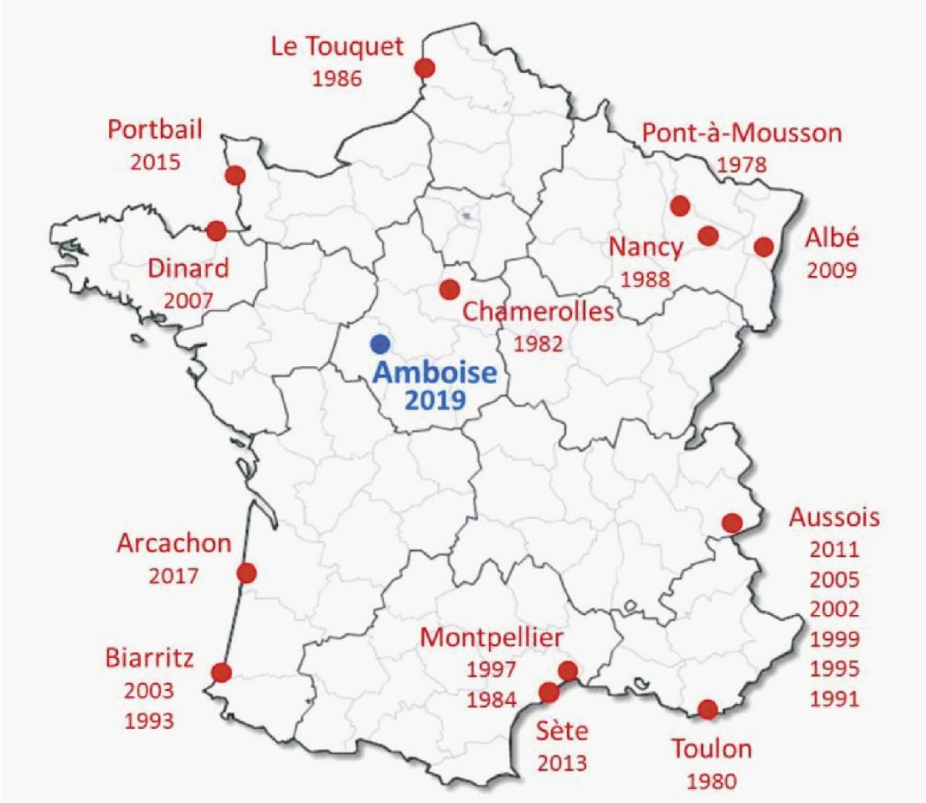
CONFERENCE REPORT

21st GFPP Meeting

Amboise, France 12–16 May 2019

The 21st meeting of the French Peptides and Proteins Group (GFPP) was held in Amboise 500 years and a couple of days after the death of Leonardo Da Vinci, who spent his last years in the Chateau du Clos-Lucé, located a few kilometers away from conference center, in the beautiful and historic Loire valley area.

This conference followed earlier meetings that have taken place all around France every two years since 1978: the GFPP symposium series is among the longest-running peptide events in Europe. Our meetings seek to promote inter-disciplinarity and to facilitate contact between different scientific communities: chemists and biologists, academics and private enterprise delegates. This symposium had a high attendance: it brought



Location of the twenty-one GFPP meetings organized since 1978

Group photo of the 21st GFPP meeting participants

together almost 200 attendees, including 20% foreign visitors. The official language of the 21st edition was English, in order to make this national event accessible to international participants. More than one third of the registered participants were PhD students and post-doctoral researchers. In keeping with tradition, the GFPP executive board awarded fellowships to many young researchers (seventeen in total) in order to give them the opportunity to present and discuss their research work with their peers in the peptide and protein research community.

The Scientific Committee was composed of the elected members of the GFPP executive board, while the local organizing committee was co-chaired by Dr. Vincent Aucagne and Dr. Agnès Delmas (both from the CNRS Center for Molecular Biophysics, Orléans).

The Symposium started with an inaugural conference given by **Jean-Alain Fehrentz** (Montpellier) whose outstanding contributions to peptide science include the recent FDA approval of Macrilen for the diagnosis of growth hormone deficiency. Invited lectures covered a wide range of hot topics in contemporary peptide science and included presentations by **Pau Bernado** (CBS, Montpellier, France) on structural aspects of the intrinsically-disordered protein huntigtin, **Jonathan Clayden** (University of Bristol, UK) on the design of switchable foldamers as GPCR mimics for transmembrane signal transduction, **Peter Faller** (ICS, Strasbourg, France) on bioinorganic chemistry of amyloidogenic peptides, **Arnaud Gautier** (Ecole Normale Supérieure, Paris, France) on genetically-encoded protein-based fluorescent probes, **Beate Koksch** (Free University of Berlin, Germany) on bacterial life based on fluorinated amino acids, **Sandrine Ongeri** (BioCIS, Chatenay-Malabry, France) on the design of peptidomimetics to inhibit protein-protein interactions involving beta-sheet structures, **Sandrine Sagan** (LBM, Paris, France) on the understanding of cell-penetrating peptides at a molecular level, **Denis Servent** (CEA, Saclay, France) on the pharmacology and engineering of disulfide-rich miniprotein toxins, **David Spring** (University of Cambridge, UK) on diversity-oriented synthesis of stapled peptide, **Hiroaki Suga** (The University of Tokyo, Japan) on combinatorial biochemistry tools aimed at

A: the GFPP executive board (from left to right: Vincent Aucagne, David Aitken, Fréderic Bihel, Sonia Cantel, Sophie Faure, Grégory Chaume, Olivier Sénèque, Elisabeth Garanger, Françoise Ochsenbein, Samuel Couve-Bonnaire, Emeric Miclet, Florine Cavelier); B: poster session (93 poster were presented); C: a view of the lecture room; D: opening ceremony by GFPP president and vice-president.

The twelve invited speakers: from left to right and top to bottom: B. Koksch, H. Suga, S. Sagan, D. Servent, S. Ongeri, P. Faller, J. Clayden, J.-A. Fehrentz, P. Bernado, D. Spring, A. Gautier, D. Woolfson.

Social events. A: wine-tasting in a troglodyte cave; B: playing pétanque; C: preparation for canoeing on the Loire; D: Wednesday night fever.

revolutionizing drug discovery and **Dek Woolfson** (University of Bristol, UK) on *de novo* peptide/protein design for synthetic biology.

Full details on the program can be found at the GFPP website: www.gfpp.fr

During the Tuesday afternoon break from the scientific program, participants chose between a trip to the Chenonceau château and the international garden festival of Chaumont-sur-Loire, a visit of two wine cellars including wine tasting sessions, and an aquatic excursion by canoe on the river Loire to discover some of Loire Valley's most popular tourist attractions.

The comprehensive and high-level scientific program, combined with the

informal and friendly atmosphere and the sunny weather made this meeting a great success, as testified by the very positive feedback received from participants.

Special thanks go to the sixteen sponsoring companies that exhibited during the symposium and their representatives, who interacted constructively with the participants during the coffee and lunch breaks. We also very warmly thank all other industrial sponsors of the symposium, as well as the University of Orléans, the Région Centre-Val-de-Loire, the French Chemical Society (SCF), and the European Peptide Society. Without their generous financial support, all this would not have been possible!

Contributed by Vincent Aucagne

CONFERENCE REPORT

14th Chemistry & Biology of Peptides Meeting: Hot Topics

Wolverhampton, UK **25th July 2019**

On 25th July and in the midst of the latest European heatwave, the University of Wolverhampton hosted the *14th Chemistry & Biology of Peptides Meeting*. Undeterred by such climatic extremes, 120 delegates assembled into the historic Chancellors Hall, a laudable testament to their commitment to peptide science as soaring temperatures broke record levels for the UK in July.

This annual mini-symposium is organised by the *British Peptide Society* under the auspices of the *Protein and Peptide Science Group of the Royal Society of Chemistry* and the *EPS*. This year, in what was a truly international gathering, the meeting focussed on advances made in the field of Cell Penetrating Peptides (CPPs). The scientific committee included Dr Sarah Jones and Prof. John Howl (University of Wolverhampton, UK), Dr Fabienne Burlina (Sorbonne University, France), Dr John Offer (British Peptide Society) and Dr Peter White (Merck, UK). Both young and established researchers, from

Clockwise from top left, Dr Sandrine Sagan, Prof. Dehua Pei and Prof. Christian Hackenberger. Photography by Ben Mantel

Clockwise from top left, Prof. Pirjo Laakkonen, Dr Ian Eggleston, Prof. Shiroh Futaki and Prof. John Howl. Photography by Ben Mantel

academia and industry, were brought together so as to explore and debate many chemical and biological aspects of peptide science in relation to intracellular delivery.

Participants from the UK and other countries (Denmark, Finland, France, Germany, Japan, Nigeria, South Africa, Switzerland and USA) were treated to an impressive array of internationally renowned speakers from afar as the USA, Japan, Finland, France, Germany and Wales. The symposium started with a lecture by Prof. Dehua Pei (The Ohio State University) who presented new strategies for "Drugging undruggable targets with macrocyclic peptides" and it was concluded by Dr Mike Gait (Laboratory of Molecular Biology, Cambridge) who showed impressive results on the development of "Peptide conjugates of morpholino oligonucleotides as treatments for neuromuscular diseases". The program also included seven other invited lectures given by international experts in the field: Dr Ian Eggleston (University of Bath), Prof. Shiroh Futaki (University of Kyoto), Prof. Christian Hackenberger (FMP, Humboldt University, Berlin), Prof. John Howl (University of

Clockwise from top left, Mathilde Le Jeune, Dr Fabienne Burlina, Dr Laurent Caron, Dr Peter White, Dr Richard Raz, Prof. Arwyn Tomos Jones and Dr Sarah Jones. Photography by Ben Mantel

Wolverhampton), Prof. Arwyn Tomos Jones (Cardiff University), Prof. Pirjo Laakkonen (University of Helsinki) and Dr Sandrine Sagan (Sorbonne University).

In a convivial and engaged atmosphere, the interdisciplinary program covered different aspects of cellular delivery, from the design of metabolically-stable cyclic CPPs to the therapeutic applications of peptide carriers. New data on the cellular uptake mechanisms of CPPs and targeting approaches were presented at the meeting, which stimulated much discussion amongst the attendees. Innovative strategies for cancer therapy were also presented with the use of homing peptides and novel targets, or with the combined application of CPPs and photodynamic therapy. Last but not least, exciting developments towards a non-hormonal male contraceptive using CPP technologies were revealed. In summary, following some extremely positive feedback, this year's symposium spanned a diversity of CPP topics whilst synergising the disciplines of Chemistry & Biology within the world of Peptide Science.

The organisers would like thank the University of Wolverhampton for hosting

the meeting and providing such a convenient city centre venue. We are also extremely grateful to those who provided invaluable assistance on the day including, Dr Mark Hewitt, Dr Mark Honey, Christine Djuku, Rachel Fellows, Ben Mantel, Gilly and Tina (G&T), Abhishek Gupta and Dr Sarah Brown: The meeting was a success thanks in particular to Laura Wickens and Dipisha Patel who helped with organisation and logistics and made sure that conditions remained comfortable for the attendees despite the remarkably high temperature.

The organisers would also like to thank the European Peptide Society, the Protein and Peptide Science Group, the Royal Society of Chemistry, our gold sponsors Merck and CS Bio, as well as Almac, Alta Bioscience, Bachem, CEM, CRB, Gyros Protein Technology, Peptides International and Sygnature Discovery for their generous financial support.

Contributed by Sarah Jones

CONFERENCE REPORT

9th International Meeting on Antimicrobial Peptides

Utrecht, The Netherlands **28–30 August 2019**

The 9th IMAP (International Meeting on Antimicrobial Peptides) was held at the University of Utrecht, The Netherlands, from the 28th to the 30th of August, 2019 http://peptideconferences.org/imap-2019.

Since its birth in 2012 in Leipzig, this annual Meeting has significantly attracted a growing number of participants, especially among young scientists with a common interest in peptide science. This has fostered an intensive interaction among them, encouraging interpersonal relationships and the establishment of scientific collaborations. The current conference has covered different topics within the field of antimicrobial peptides (AMPs), from their design and synthesis; mechanism of action to their development for biomaterials and therapeutic application(s). The Organizing Committee consisted of Eefjan Breukink & Edwin Veldhuizen, Utrecht University (Co-Chairs); Lidia Feliu (Universitat de Girona); Kai Hilpert (St. George's University of London) Ralf Hoffmann (Leipzig University); Karl Lohner (University of Graz); Maria Luisa Mangoni (Sapienza University of Rome). As with previous IMAPs, it was agreed that such a meeting should favor the involvement of PhD students and postdocs offering them plenty of space to present their skills and to divulge the results of their scientific work.

Photo 1: Group photo of Participants of the 9th IMAP

Ralf Hoffmann organized the first meeting which was held in Leipzig in 2008 as a one-day meeting in the course of an European project with about 40 participants from eight countries and published as a special issue in the 'International Journal of Peptide Research & Therapeutics'. The 9th IMAP was able to gather a total of 144 international participants among renowned speakers on the subject including 51 senior scientists, 22 postdocs and 54 PhD students who enjoyed the exchange of experiences and ideas in a friendly and informal atmosphere.

EPS sponsorship was acknowledged by the organizers during the meeting and the logo of the Society was displayed on the printed material of the conference as well as on the website of the IMAP meeting.

Meeting	Location	Attendants/Participants
IMAP 2008	Leipzig, Germany	40 participants from 8 countries
IMAP 2012	Leipzig, Germany	110 participants from 9 countries
IMAP 2013	London, UK	55 participants from 22 countries
IMAP 2014	Graz, Austria	65 participants from 15 countries
IMAP 2015	London, UK	78 participants from 14 countries
IMAP 2016	Leipzig, Germany	120 participants from 26 countries
IMAP 2017	Copenhagen, Denmark	105 participants from 23 countries
IMAP 2018	Edinburgh, UK	144 participants from 29 countries
IMAP 2019	Utrecht, Netherlands	144 participants from 27 countries

Scientific and Social Programme

We kicked-off the first morning session with the keynote lecture by Prof. Robert E. Hancock (University of British Columbia), a pioneer in the field of antimicrobial peptides, who spoke about the "Development of peptides as therapeutics – the big issues".

During the Symposium there were seven presented lectures (Photo 2) by the following invited speakers:

- *Kevin Bicker,* from Middle Tennessee State University who spoke about "High-throughput identification and characterization of antifungal peptoids effective against Cryptococcus neoformans"
- *Alessandro Tossi*, University of Trieste *Cathelicidin defence peptides – variations on a variable theme*
- *Paula Gomes*, from University of Porto who spoke about "*Only a click away: antibacterial coatings upon grafting antimicrobial peptides onto chitosan using click chemistry"*
- *Alison McDermott*, from Northumbria University *who spoke about Antimicrobial peptides at the ocular surface: functional roles and pharmaceutical potential*
- *Markus Weingarth*, Utrecht University *who spoke about High resolution studies of peptide-antibiotics in cellular membranes*
- *Mike Dawson*, from Spero Therapeutics who spoke about *Discovery and development of SPR206: a next generation polymyxin analogue*
- *Sebastian Zaat*, University Medical Center, Amsterdam who spoke about *Antimicrobial peptides; selective synergy, and supramolecular systems*

Photo 2: View of the Lecture Room

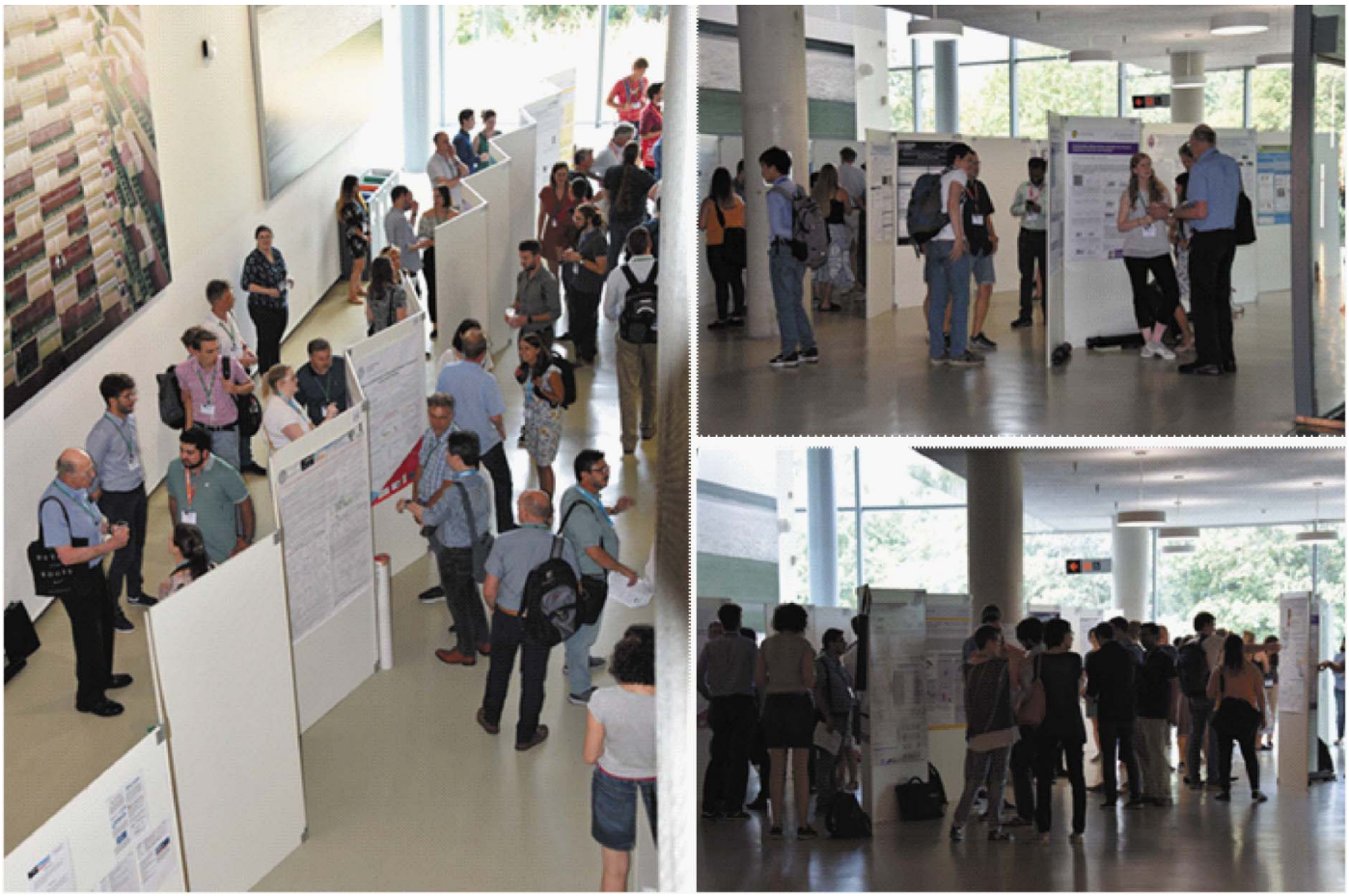


Photo 3: Participants viewing and discussing the posters

Among 99 submitted abstracts, the Scientific Board selected 25 of them for oral presentation and seven of them for rapid oral presentation.

In total, there were four sessions, each one including at least one lecture by invited speakers. The first session was dedicated to Peptide synthesis and design; the second one was focused on the Mechanism of action; the third one was dedicated to Biomaterials and Surface action followed by the last session on AMP/Host Defence Peptides in Immunomodulation & Therapeutics.

The 65 abstracts which were not selected for oral communication were presented by scientists during poster sessions which were held during Lunch break of August 28 and 29.

BBA-Biomembranes sponsored the prizes for students and postdocs.

Photo 4: Winners of both Oral and Poster competitions

Photo 5: Participants during coffee/lunch break and exhibitors space

The winners of the Oral / Rapid Oral Presentation were:

- 1st place Samuel Moorcroft, University of Leeds for his talk 'Light controlled release of antimicrobial peptides and photothermal enhancement of bactericidal properties from a hydrogel wound dressing'.
- 2nd place Melanie Balhuizen, Utrecht University for her talk 'Application of PMAP-36 in OMV biogenesis and immune modulation for vaccine purposes'.

The winners of the Poster Presentation were:

- 1st place Shehrazade Jekhmane, Utrecht University for her poster 'The mode of action of antibiotic-peptide plectasin in membranes'.
- 2nd place Simon Loosli, ETH Zurich, for his poster 'Proline-Rich Peptides Bind Bacterial Second Messengers'.

The social events of IMAP included five coffee-breaks, one welcome reception and three lunches, all served at the Conference Venue. The social dinner took place at the historic restaurant Stadskasteel Oudaen and was enjoyed by 85 delegates, organizing committee members and speakers.

Dates and Venue for the Next IMAP 2020 were announced: it will held in Trieste presumably from 26th to the 28th of August.

Contributed by Maria Luisa Mangoni

CONFERENCE REPORT

25th Polish Peptide Symposium

Wojanów, Poland **8–12 September 2019**

The history of Polish Peptides Symposia begun in Gdańsk, where the first meeting has been organized by Prof. G. Kupryszewski in 1967. The second Symposium was also organized near Gdańsk by Prof. A. Chimiak. Since then, this conference has become an important, permanent point in the calendar of Polish scientists associated with peptides. Now, after 52 years since the first Symposium, we met for the 25th time in the south of Poland, in Wojanów near Wroclaw.

This year 150 participants took part in the 25th Polish Peptide Symposium, including 40 PhD students and few young students before master degree who represented about 35 different scientific centers. 35% of participants were foreign guests. Moreover, ten companies exhibited their offers of laboratory equipment and devices. The Organizing Committee from Wroclaw Medical University included Prof. Justyna Brasuń (chairperson), Aleksandra Kotynia, Aleksandra Marciniak, Edward Krzyzak, Monika Liebenthal. The Symposium was financially supported by the Wroclaw Medical University Foundation, Lower Silesian Pharmacy Foundation and the European Peptide Society. The sponsors were acknowledged by exhibiting their logos in the conference area, on the screen in lecture hall during session breaks, symposium website (http://25pps.pl/) and abstract book.

The scientific programme of the Symposium consisted of ten lecture and two poster sessions. During 40 lectures

Photo of conference participants. Photography by Klaudia Cieplińska

Photos of moments at 25th PPS. Photography by Edward Krzyzak

and 72 poster presentations there were raised different aspects connected with peptides. The main topics were as follow:

- *Peptides as diagnostic tolls*
- *Peptides in biomedical research*
- *Theoretical calculation in peptide studies*
- *The new approach to metal-peptide interactions*
- *Structure-activity-relationship studies*
- *Foldamers*
- *Peptides synthesis and analysis*
- *Peptide in dermatology and cosmetology*
- *Peptides as potential drugs.*

The plenary lectures were performed by appreciated professors from the field of chemistry and pharmacy of peptides:

- Prof. Michael Chorev from Harvard Medical School, Boston, Masachusetts, USA
- Prof. Prof. Anna Maria Papini from University of Florence, Italy and University Paris-Seine, France
- Prof. Paula A. C. Gomes, University of Porto, Portugal
- Prof. Norbert Sewald, Bielefeld University, Germany
- Prof. Paolo Rovero, University of Florence, Italy

- Prof. Henryk Kozlowski, University of Wroclaw and Opole Medical School, Poland
- Prof. Dariusz Matosiuk, Medical University of Lublin, Poland.

Additionally, there were ten keynote lectures. Noteworthy are two lectures given by young scientists before master degree: Aleksandra Hawrylkiewicz and Valeria Tagliavini who received Travel Grants sponsored by Able Jasco, Poland. Furthermore, Paulina Bachurska from University of Warsaw, who participated in poster session was awarded with the third Travel Grant for students. Six the best poster presentation were awarded:

- 1st place – Anna Puszko, University of Warsaw
- 2nd place – Olga Kerber, University of Wroclaw
- 3rd place – Malgorzata Walczak, Lodz University of Technology
- 1st distinguished places – Wojciech Lipiński, Radboud University
- 2nd distinguished places – Malgorzta Kogut, University of Gdańsk
- 3rd distinguished places Rafal Chojnacki – University of Warsaw

The prizes were sponsored by Peptydy.pl, Merck and Trimen Chemicals.

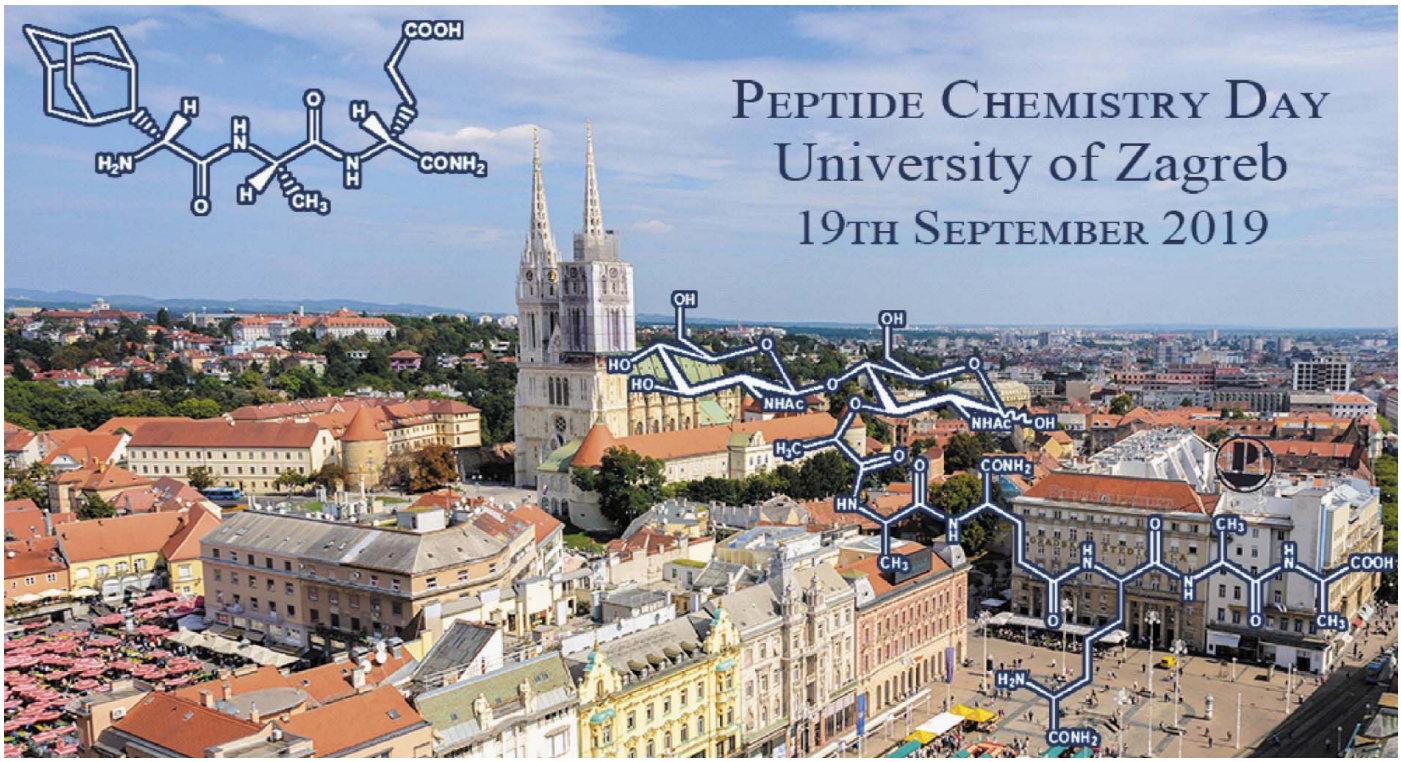
Contributed by Aleksandra Kotynia and Aleksandra Marciniak

The Winners of Poster competition. Photography by Edward Krzyzak

CONFERENCE REPORT

Peptide Chemistry Day Symposium

Zagreb, Croatia **19 September 2019**



Flyer of the symposium „Peptide Chemistry Day"

The Peptide Chemistry Day Symposium was held on September 19, 2019 at the University of Zagreb. Members of the organizing and scientific committee were:

Dr. sc. Ruza Frkanec, University of Zagreb, president

Dr. sc. Andreja Jakas, Ruder Bosković Institute

Dr. sc. Adela Stimac, University of Zagreb

Prof. dr. sc. Leo Frkanec, Ruder Bosković Institute

Arijana Mihalić, University of Zagreb, Croatia.

The aim of the symposium „Peptide Chemistry Day" was to bring together all the research scientists who work on different aspects of the field of peptide science and present a part of the research of peptides which is carried out in the scientific community in Croatia. This was indeed fulfilled in the meeting. Besides presentations of research results, the organizers wanted to stimulate all forms of collaboration and networking, especially for younger colleagues and students.

Research in the field of peptide chemistry in Croatian science has a tradition lasting for almost half a century. Investigations of the structure of the insulin derivative where scientists from academia and those from PLIVA

pharmaceutical company worked together marks the beginning of peptide chemistry in Croatia. Numerous domestic and foreign patents of Pliva's researchers bear witness to this period. Up to now, investigations in the field of synthetic chemistry, biochemistry as well as biology of peptides are very intensive and scientifically significant.

Furthermore, the scientists who worked in the field of peptide science in Croatia have continuously participated at international scientific meetings and Croatia has had a representative in the Council of the European Peptide Society since the Society was established.

This symposium was organized by the University of Zagreb. The symposium was a scientific part of the celebration of the 350th academic year of the University of Zagreb and also celebrates 45 years of systematic scientific research of peptides in Croatia.

The symposium was sponsored by Croatian Science Foundation, (IP-2018-01-6910), European Peptide Society, Croatian Chemical Society, Institute Rudjer Bosković and PLIVA.

At the symposium, twelve lectures of prominent researchers from the University of Zagreb, Rudjer Bosković Institute, and the scientific research institution Fidelta were held. One lecture was given by a scientist from abroad, namely, from the University of Ljubljana in Slovenia.

Professor Damir Boras, rector of the University of Zagreb opened the symposium

The lectures covered different fields of research: crystallization and structural analysis of some insulin derivatives, synthesis of biologically active peptides and glycopeptides, different aspects of peptidomimetic chemistry, from macrocycle-inspired peptidomimetics synthesis, assembly of peptidomimetics by multicomponent reactions to feroccene peptidomimetics. Synthesis, characterization and self-assembly of small peptidic gelators based on amyloid β-protein was presented. Significant challenges in peptide vaccine development were also presented and the synthesis of desmuramylpeptides as potent novel adjuvants was described. The interaction of positively charged peptides in water and phospholipid bilayers was discussed and studies of biomolecular interactions of plant lectin and self-assembled hybrid bilayers modified with bacterial peptidoglycan was presented. An overview of IUPAC-recommendations for nomenclature and graphical representation in peptide chemistry was given.

As a part of the symposium, the Book of Abstracts was published (ISBN 978-953-8250-03-3) by University of Zagreb and Croatian Chemical Society. The editors are dr. sc. Ruza Frkanec and Danijel Namjesnik.

This symposium takes part in the

Conference venue: University of Zagreb, Ulica kralja Zvonimira 8, HR-10000 Zagreb, Croatia; http://www.unizg.hr/

promotion of science at the University of Zagreb, which is recognized as an important center in the research of chemistry, biochemistry, biology, and pharmacology of peptides in Croatia, as well as an institution whose scientists participate in the work of recognized and distinguished European Peptide Society (EPS).

The symposium allowed scientists and students who deal with any form of research peptides in Croatia to be informed with networking capabilities and mobility into european laboratories using scholarships of the European Peptide Society.

The members of Organizing committee are grateful to the University of Zagreb and all the sponsors, especially European Peptide Society, whose support was invaluable for the success of the Symposium.

They express their sincere thanks to all of the speakers and participants for sharing their research achievements, therefore contributing to the excellence of the symposium.

Finally, the organizers and the participants who witnessed the scientific excellency of the symposium as well as its friendly atmosphere are already looking forward to the next Peptide Chemistry Day!

Contributed by Ruza Frkanec

Dr. sc. Goran Kragol, Fidelta Ltd., Zagreb, Croatia, gave a lecture entitled „Macrocycle-inspired peptidomimetics for challenging targets"

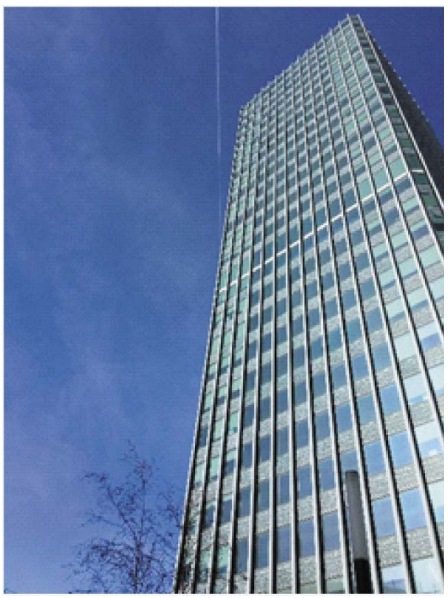
Dr. sc. Andreja Jakas, Ruder Bosković Institute, Zagreb, Croatia, lectured about biologically active peptides and glycopeptides as a result of chemical modification of natural compounds

CONFERENCE REPORT

Noncanonical Amino Acids (NcAAs):

Tools for Biological and Biophysical Investigations

Paris, France **21–22 October 2019**



On October 21–22, 2019, Sorbonne University hosted the first international symposium which focuses on the emergent use of "Non-Canonical Amino Acids" (ncAAs) in Peptide and Protein Science. The conference was held in the University of Pierre and Marie Curie campus, Paris. Nearly 100 researchers from France and ten other countries (Belgium, Germany, Italy, Switzerland, Poland, Finland, United Kingdom, Finland, Ukraine and USA) attended the meeting and shared their latest developments of ncAAs as well as their applications to biological questions.

This symposium was co-organized by the Sorbonne University, the Institute of Advanced studies of the University of Cergy-Pontoise (IAS) and the French Peptides and Protein Group (GFPP). The scientific committee included Dr. Frederic Bihel (Strasbourg University), Pr. Thierry Brigaud and Dr. Gregory Chaume (Cergy-Pointoise University), Dr. Elodie Laine, Pr. Olivier Lequin, Dr. Emeric Miclet and Dr. Shixin Ye-Lehmann (Sorbonne University). Both young and established researchers of a variety of backgrounds from chemistry, biochemistry, biology and biophysics were brought together so as to discuss a wide range of topics from synthetic methodologies to applications in biology and biophysics. A total of 19 oral communications and 12 posters were presented during this two-day meeting.

The ability to introduce ncAA into peptides and proteins with precision through either chemical synthesis or genetic code reprograming has allowed the sampling of new functional space unavailable via the 20 natural amino acids. The symposium started with the section focused on peptides led by a keynote lecture given by Prof. Helma Wennemers (ETH, Switzerland) who presented peptides with incorporated proline-derivatives as templates for the controlled formation of novel supramolecular assemblies and biomaterials. It was concluded by a section focused on site-specific labeling of proteins to investigate their structural function relationship, with Prof. Thomas P. Sakmar (Rockefeller University, USA) presenting the keynote lecture on the genetic code expansion technology to probe the functionality of cryptic ligand-binding pockets in GPCRs for drug discovery. The program also included three other keynote lectures given by international experts in the field: Prof. Dafydd Jones (Cardiff University), Dr. Muriel Gondry (University of Paris-Saclay) and Prof. Irene Coin (Leipzig University).

In a convivial and engaged atmosphere, the interdisciplinary program covered different aspects of ncAA, from methodological developments in solid phase peptide synthesis with fluorinated amino acids, cell-free expression and engineered host strains or aminoacyl-tRNA synthetase engineering to enable genetic reprograming, as well as applications in the field of chemical biology, medical chemistry, biomaterial science and biophysical studies. Last but not least, exciting developments towards drug discovery using ncAA technologies were revealed. In summary, following some extremely positive feedback, this symposium spanned a diversity of topics whilst synergizing the disciplines of Chemistry & Biology within the world of Peptide Science.

The organizers would like to thank the

Participants of the NcAAs Symposium

Sorbonne University for hosting the meeting and providing the center of Paris as an attraction hub for scientists. We are also extremely grateful to the students who provided invaluable assistance on the day, including, Soha Abou Ibrahim, Edward Chalouhi, Guy Gouarin and Diego Zea. The meeting was a great success thanks in particular to Eliane Moulinie and Karine Gherdi who helped with organization and logistics and made sure that conditions remained comfortable for the attendees.

The organizers would also like to thank their academic partners: the Chemistry and Biology departments of Sorbonne University, the Michem Labex, the Institute of Advanced Studies of the Cergy-Pontoise University, the Protein and Peptide Science Group (GFPP), the EPS as well as the industrial sponsors Bachem, Iris Biotech, Eurisotop, RNA Smart Health and SiChem for their generous financial support.

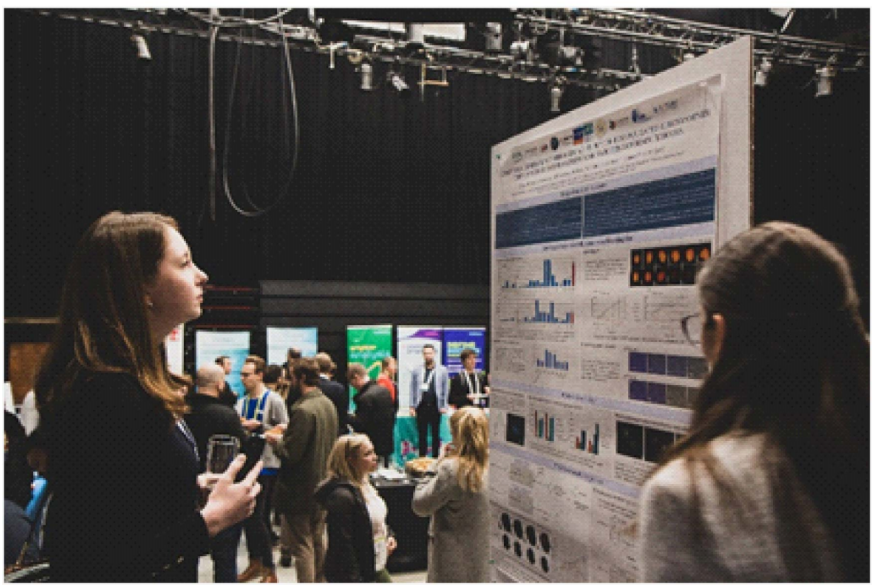
Contributed by Grégory Chaume and Emeric Miclet

CONFERENCE REPORT

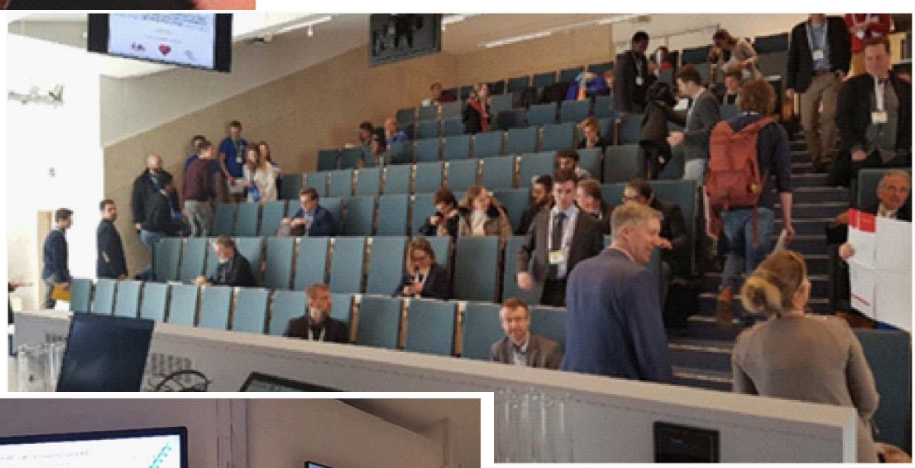
Annual One-Day Meeting on Medicinal Chemistry of KVCV and SRC, entitled: Peptide Drug Discovery: a Niche Area?

Brussels, Belgium **2 November 2019**

The Medicinal Chemistry Divisions of the two Belgian Chemical Societies, **the Koninklijke Vlaamse Chemische Vereniging (KVCV)** and **the Société Royale de Chimie (SRC)**, organise every year an international one-day symposium with the aim to update participants on selected areas of pharmaceutical research by specialists in their respective field. **MedChem 2019** was held on **Friday November 22, 2019**, in Brussels. This year, the symposium delved into the **developments in the therapeutic use of peptides.** The programme of the day included six invited lectures and three oral communications selected from submitted abstracts. A diverse set of lectures was assembled comprising topics such as peptide macrocycles (Prof. Eric Marsault, University of Sherbrooke, Québec, Canada), the use of peptidic shuttles to address CNS therapies (Dr. Meritxell Teixido, Institute for Research in Biomedicine, Barcelona, Spain), new anticancer strategies by targeting the lactate dehydrogenase tetramerization process (Mr. Léopold Thabault, UCLouvain, Brussels, Belgium), targeting receptor complexes by means of peptides (Prof. Kristian Stromgaard, University of Copenhagen, Copenhagen, Denmark), peptide-based approaches to immuno-



The Pilar BOX at VUB was used as an exhibitor and poster session hall



Snapshots of the used lecture room during the one-day symposium

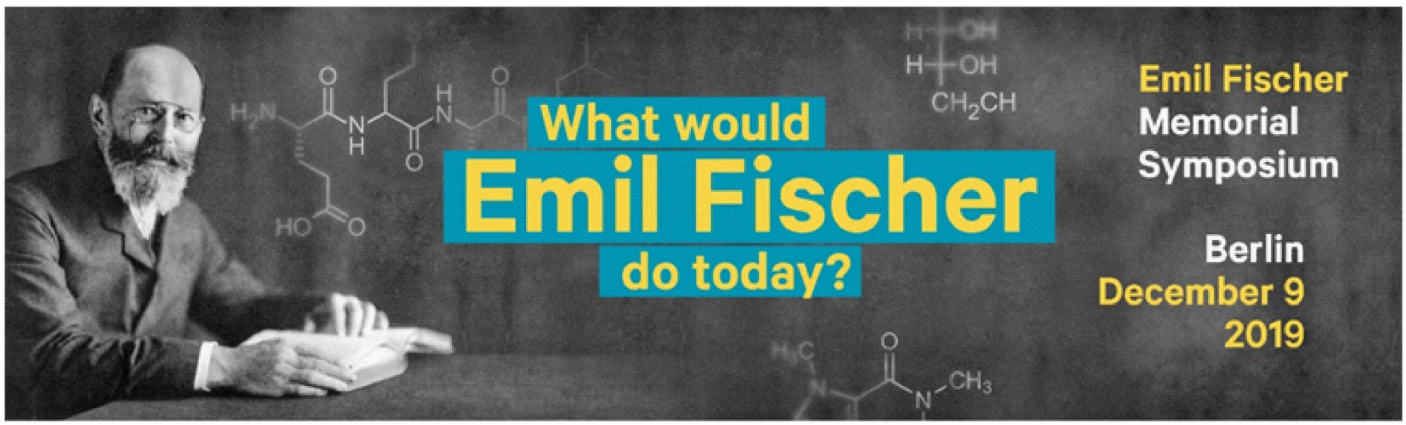
oncology (Prof. Christian Becker, University of Vienna, Vienna, Austria), the synthesis of mirror-image monobodies for cancer therapies (Dr. Timothy Reichart, Ecole Polytechnique de Lausanne, Lausanne, Switzerland), self-assembling peptides for controlled-drug release (Prof. Charlotte Martin, Vrije Universiteit Brussel, Brussels, Belgium), the process of transferring natural peptides to a laboratory setting (Prof. Fernando Albericio, University of Kwazulu Natal, Durban, South Africa) and structural biology of G protein-coupled receptors (Dr. Annette Kaiser, University of Leipzig, Leipzig, Germany). The meeting was furthermore supported by the European Federation for Medicinal Chemistry (EFMC), the European Peptide Society (EPS) and Vrije Universiteit Brussel (VUB). Whereas further financial support was provided by sponsors such as BCI Pharma, Janssen Pharmaceutica, UCB and ChemPubSoc Europe, the exhibitors Biotage, BioSPX, Iris Biotech, Merck, Polypeptide Group and Waters could actively interact with the attendees over the scheduled coffee breaks and lunch period. With approximately one third of all attendees (124 in total) coming from abroad, the topic 'therapeutic peptides' did attract the needed attention beyond the Belgian borders (15 different nationalities were represented at the meeting). Interestingly, a very balanced audience of students, academics and industrials guaranteed lively Q&A sessions after each presentation. Altogether, the meeting was a big success and the answer to the question 'Peptide Drug Discovery: a Niche Area?' was answered even before the first lecture started!!

Contributed by Steven Ballet

CONFERENCE REPORT

The Emil-Fischer Memorial Symposium "What would Emil Fischer do today?"

Berlin, Germany **9 December 2019**



Graphic design by Jakob Straub (Grafisches Gestalten)

Emil Fischer, the great explorer of carbohydrates, peptides, enzymes and nucleosides, died 100 years ago. On December 9th, 2019, scientists in Berlin celebrated his pioneering work and the dawn of a new scientific discipline with a One-Day Symposium. Eleven speakers from six countries followed the invitation from the conference chairs **Oliver Seitz (HU Berlin)** and **Christian Hackenberger (FMP Berlin und HU Berlin)** to update Emil Fischer's ingenious approach and provided a breath-taking tour through the contemporary world of chemistry-driven exploration of life.

In memoriam Fischer's first steps into nucleoside chemistry, the symposium was opened with a presentation from **Thomas Carell (LMU Munich)**. He shared latest results on the occurrence and significance of modified cytidines; the components, which make up the 2nd code in DNA. New data suggests that the cofactors required to erase epigenetic marks are produced on site within the nucleus. Afterwards **Helma Wennemers (ETH Zurich)** referred to Fischer's discovery of proline and its importance as the main component of collagen. She showed how proline modification chemistry enables the creation of peptide tools for imaging of modified collagens formed upon inflammatory processes. **Yasuhiro Kajihara (Osaka University)** reported on the biological effects of protein glycosylation. Using precision chemical synthesis to overcome the microheterogeneity of natural proteins enabled him to pinpoint the biological activity of erythropoetin to specific glycan structures. Perturbations of hydration shells seem to play important roles. In the next talk, **Don Hilvert (ETH Zurich)** alluded to Fischer's lock-and-key metaphor in enzymology. He presented how the catalytic efficiency of a *de novo* aldolase can be improved by five orders of magnitude. The process involves a computer program to select a suitable protein that accommodates the transition state. Subsequent high-throughput molecular evolution introduces a hydrogen bonding network required for efficient acid-base catalysis. **Hermen Overkleeft (Leiden University)** referenced Fischer's usage of glycosidases in analysis. Glycosidases are prime targets for the development of drugs for the treatment of, amongst others, lipid storage

Invited speakers and organizers of the Emil-Fischer Memorial Symposium "What would Emil Fischer do today?" (from left to right: Christian Hackenberger, Eric Kool, Steve Kent, Catherine Jackson, Sam Gellman, Geert-Jan Boons, Hermen Overkleeft, Yael David, Oliver Seitz, Thomas Carell, Don Hilvert, Yasuhiro Kajihara, Roderich Süßmuth). Photography by Carsten Rogall

diseases. Hermen Overkleeft introduced an impressive panel of selective glycosidase inhibitors for usage in chemical biology and as potential leads for inhibitor development.

In the footsteps of Fischer's landmark achievements on peptide synthesis, **Steve Kent (University of Chicago)** highlighted the power of chemical protein synthesis. His development of native chemicalligation, a capture-rearrangement strategy to chemically ligate a peptide-thioester with an *N*-terminal cysteine-containing peptide, enabled the synthesis of a metabolically stable D-protein antagonist of a growth factor receptor; an impressive achievement, which can only be made by chemical synthesis. The next talk by **Samuel Gellman (UW Madison)** introduced peptidic oligomers with defined secondary

Lecture theatre in the Kaiserin-Friedrich House in Berlin. Photography by Carsten Rogall

structures. These so-called foldamers have been used for the engineering of bioactive or catalytically active scaffolds in organic reactions. He showed that spatially arranged pyrrolidine-containing β-amino acids worked in tandem to catalyse a crossed aldol reaction. This unique example of a rationally designed bifunctional catalyst enabled crossed aldol cyclization reactions and the synthesis of natural products. Afterwards, **Geert-Jan Boons (Utrecht University)** delivered a talk on chemoenzymatic oligosaccharide synthesis, thereby extending Fischer's first glycoside synthesis to the present. Highlights included the synthesis of complex multi-antennary N-glycans by a "stop and go"-strategy and the development of an automated synthesis platform relying on a catch-and-release approach. The methods facilitate investigations of host-virus interactions and glycoimmunology. **Eric Kool (Stanford University)** highlighted Fischer's first steps into nucleotide chemistry and showed how designer nucleotides are fashioned into DNA probes that report on the activity of DNA repair enzymes. The new probe molecules enabled the discovery of small molecules that activate DNA repair. This could provide a means to protect DNA from damage during over-reacting

inflammatory responses, which are the hallmark of sepsis and stroke. Finally, **Yael David (Sloan Kettering)** delivered the last natural science talk and simultaneously closed the circle on epigenetic research, which opened this symposium. She showed her latest findings on enzymatic and non-enzymatic covalent histone modifications, for which she uses a whole array of semi-synthetic methods for their site-specific incorporation. A major part of her talk was devoted to probe histone glycation, which allowed her to link perturbed metabolism with epigenetic misregulation in cancer.

The evening session was opened by welcome remarks from German chemical society's representative Hans-Günther Schmalz (Universität Köln), who referred to the huge impact of Emil Fischer on the German chemical science landscape in general. Afterwards, Alexander Kraft awarded as the representative of the ACS section for the history of sciences, the ACS citation for chemical breakthrough award to the Humboldt-Universität Berlin. This award honored Emil Fischer's first synthesis of a peptide bond in his laboratories in the Hessische Straße, which occurred just a few steps away from the conference venue.

Last but not least, **Catherine Jackson (Oxford University)** gave the symposium's final highlight. Based on original archival research, her presentation "*Emil Fischer and the art of chemical experimentation*" showed how Fischer elucidated the structures of carbohydrates, work for which he was awarded the 1902 Nobel Prize. Key to his success were his ingenious and flawless command of essential analytical techniques of nineteenth-century chemistry. Together with his ability to manage large-scale research, this enabled Fischer to assign the three-dimensional composition of carbohydrates correctly, thereby laying the foundations of the modern discipline. Fischer linked experiment with abstract knowledge, beginning to establish stereochemical theory's predictive power.

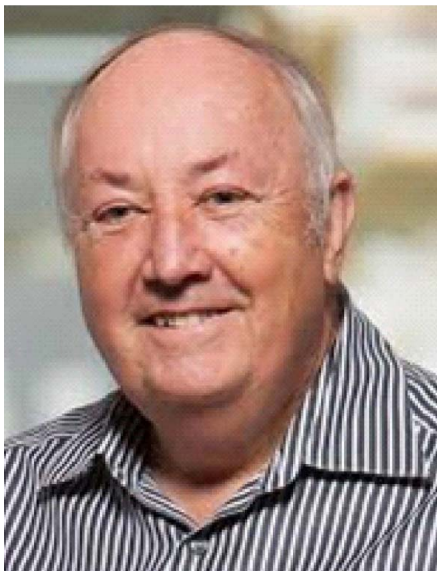
After this firework of science, the audience in the fully seeded lecture of the Kaiserin-Friedrich House unanimously agreed: It is time to toast the chemical genius and founding father of the chemical life sciences Emil Fischer, without whom this most active research field would not exist!

Contributed by Oliver Seitz and Christian Hackenberger

In Memoriam

Jean Rivier
(1941–2019)

The European Peptide Society mourns the passing of Prof. Jean Rivier, a pioneer of peptide research and a dear friend over many years. Jean was a world-class scientist who made fundamental contributions to our field of peptides, as well as a gracious, congenial individual who had significant impact on the careers of many colleagues, including quite a few Europeans. During his peak period of activity Jean was a frequent presence in European peptide-related events, including many European Peptide Symposia where his European roots made him naturally feel quite at home.



Jean was born in Casablanca, Morocco, in 1941, then went to Brazil with his family in 1956, where he obtained the French baccalauréat. He then moved to Switzerland in 1960, where he earned a bachelor's degree in chemical engineering from the Ecole Polytechnique de l'Université de Lausanne and a doctorate in organic chemistry from Université de Lausanne. Jean went on to complete a postdoctoral fellowship at Rice University in Houston, Texas, before joining the Salk Institute in 1970 with his wife, Catherine.

As a professor at the Salk Institute's Clayton Foundation Laboratories for Peptide Biology, Jean spent his career studying corticotropin-releasing factors (CRFs). He showed that CRFs are responsible for many of the body's reactions to stress, including disabling the immune system in irritable bowel syndrome (IBS). To develop treatments for these conditions, he designed CRF receptor-selective antagonists. His work resulted in eight drugs used to diagnose and treat endometriosis, precocious puberty, neuroendocrine tumors, prostate cancer, hypogonadism, pituitary dwarfism and intractable pain. Among his many accomplishments, he was author or coauthor on more than 1,000 refereed papers and the coinventor on more than 120 patents.

On behalf of the European Peptide Society, we extend our heartfelt sympathies to his wife, Catherine Rivier, a Salk professor emerita, and their children, Lauraine Rivier and Cédric Rivier.

Contributed by David Andreu

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CALENDAR of Forthcoming Events

4TH CHEMICAL LIGATION MEETING
Orléans, France
27–29 January 2020
URL: https://www.gfpp.fr/en/quatrieme-journee-ligation-en/

17TH IBERIAN PEPTIDE MEETING
Madrid, Spain
5–7 February 2020
URL: http:// http://epi2020.iqfr.csic.es/

CELL-PENETRATING PEPTIDES: NEXT GENERATION DELIVERY SYSTEMS
Montpellier, France
27–29 April 2020
URL: https://www.gfpp.fr/cpp-montpellier-fr-2020/

17TH NAPLES WORKSHOP ON BIOACTIVE PEPTIDES
Naples, Italy
18–20 June 2020
URL:
https://www.peptidesnaplesworkshop.it/

11TH PEPTOID SUMMIT
Berkeley, California, USA
12–14 August 2020
URL: https://www.peptoids.org/The_Peptoid_Summit/11th_Peptoid_Summit.html

36TH EUROPEAN PEPTIDE SYMPOSIUM AND 12TH INTERNATIONAL PEPTIDE SYMPOSIUM
Sitges, Spain
30 August – 4 September 2020
URL: http://www.eps2020.com/general-information/