Société de Chimie Thérapeutique

NEWSLETTER 2014

EDITORIAL

The 50th RICT Meeting: when Chemistry and Biology meet

Virtually every drug is, to begin with, a molecule capable of interacting with one or more proteins *in vivo*. Even though many additional attributes are required in order to turn a binding molecule into the active ingredient of a successful pharmaceutical product, the identification of relevant target proteins and the isolation of specific binding molecules represent crucial steps in the drug discovery process.

The "**Golden Jubilee**" of the "Rencontres Internationales de Chimie Thérapeutique" (**RICT**) will focus on "Interfacing Chemical Biology and Drug Discovery". Chemical Biology can be defined as the use of chemical tools to unravel biological processes. The chemical approach to Biology may not only contribute a quantitative framework for the description (and prediction!) of complex biological events, but also tools for the generation of probes and binding molecules. Indeed, a part of the Congress will focus on experimental and theoretical approaches for the study of molecular interactions, exploring molecular space for the isolation of protein ligands and for the development of new drugs.

Most pharmaceutical agents on the market are either small organic molecules (typically smaller than 600 Daltons) or therapeutic proteins (typically larger than 20'000 Daltons). There is, however, a growing scientific and applicative interest in molecules of intermediate size (i.e., 1000 to 3000 Daltons). In this context, peptides and peptide derivatives offer unique opportunities to "drug" targets, which may be elusive for other classes of pharmaceutical agents. Very large combinatorial libraries of peptides can be constructed and screened, using biological or biochemical methods (e.g., phage display, mRNA display). Chemical ingenuity and pharmaceutical vision are needed, in order to convert initial hits into pharmaceutical products.
Leading scientists in the field will guide us through some of the most exciting developments in the field.

The conference will also feature lectures on targets and pathways. The characterization of biochemical pathways makes increasing use of chemical tools, such as inhibitors, probes or even strategies for selective chemical modification of proteins of interest. The target validation process is a long journey, which may only end when suitable drugs are developed and introduced into the market.

The organizers of the RICT Meeting have, once again, put together an excellent program, with leading researchers from Industry and Academia. The 50th RICT meeting promises to be one of the most attractive Medicinal Chemistry events of the year. The seminal interaction among Chemistry, Biology and Pharmaceutical Sciences will facilitate the discovery and development of the drugs of the future.

Pr Dario NERI
Swiss Federal Institute of Technology
(ETH Zürich, Switzerland)

Société de Chimie Thérapeutique

OUR HOSTS

Laboratoire Cobra — Chimie organique, Bioorganique, Réactivité et Analyse.

Laboratoire d'excellence SynOrg — Des molécules pour le vivant

COBRA : Organic and Bioorganic Chemistry, Reactivity and Analysis
UMR-6014 CNRS-University of Rouen - INSA Rouen

The **COBRA** laboratory, directed by Xavier Pannecoucke is a research unit (UMR-6014) associated with the **CNRS**, **University of Rouen** and **INSA Rouen**. It is located in the IRCOF (*Institut de Recherche en Chimie Organique Fine*) building in Mont Saint Aignan. COBRA was created on January 1, 1996 and is comprised of 161 people (59 C-EC, 20 ITA-BIATOSS, 65 doctoral students, 20 post-doctoral researchers).

The scientific aim of the COBRA laboratory is to develop new and innovative methods in organic synthesis with a wide scope of applications (bioorganic chemistry, medicinal chemistry, green chemistry, chemistry for material sciences), with the strong support of an analytical department.

These scientific aims are underlined through three main objectives: 1) Develop new synthetic methods in the fields of heterocycles, fluorine chemistry and metals mediated chemistry; 2) Identify reaction intermediates and elucidate reaction mechanisms in order to perform high yielding and highly selective reactions 3) Develop new, flexible and adaptable tools (both analytical and chemical) aimed at studying the mechanisms involved in Life Sciences. The unit is structured around 6 general scientific themes.

The COBRA laboratory produces around 70 publications and 4 patents per year. The group's activities have in recent years strongly developed its interaction with Life Sciences. This interaction can be understood by the group's incorporation into various national and international research networks of *Haute-Normandie (*CBS, INC3M CNRS FR 3038; IRIB and ISCE Chem).

The teams of UMR 6014 benefit from national and international recognition, which is shown by the numerous invitations, collaborations, and financed projects (ANR, *Oséo*, FEDER, *Interreg*, PAI-PHC). The group has developed strong working relationships with academics and industrial leaders in pharmacy and biotechnology by the ***Technopole Chimie-Biologie Santé***, the "center for competitiveness" **Cosmetic Valley**. Most of the teams of the group have developed during this period strong and durable partnerships with the industry of the pharmaceutical sector (SERVIER, ORIL, SANOFI-AVENTIS, JANSSEN/CILAG, VALDEPHARM, NUFARM, ISOCHEM, EXONHIT Therapeutics, ROQUETTE Bros., AAA) and from foundational chemistry (TOTAL, ARKEMA).

Thanks to multiple abilities in synthesis and associated structural analysis to an exceptional technical level, COBRA has become important to its industrial partners. These partnerships are materialized by 17 PhD thesis (CIFRE, sponsorships…) and the establishment of a common laboratory, UMR-Janssen (2011). The group also brings important support for the creation of start-ups in biotechnology and chemistry by welcoming the parties involved on its premises. Thus, **QUIDD** (medical imagery) and **POLYINTELL** (Innovative polymers for diagnostics) have been hosted for several years in the group and two start-ups have been created on the basis of the results of the group, **TFChem** in 2007 (fluorinated sugar for the pharmaceutical industry) and **CNS vector** in 2011 (vectorization of biologically active molecules and radiotracers to the central nervous system).

COBRA with ICOA in Orléans, IMT in Tours and the LCMT in Caen are the laboratories of the **Labex *SynOrg***, the largest group of French organic synthesis laboratories. ***SynOrg*** is based on the excellence of its laboratories. It has the objective to become one of the European centers of excellence in the field of methodology applied to organic syntheses. Joining the force and expertise of the laboratories of the PharmaValley area, four axes of excellence were chosen to address to these scientific locks: 1. Innovation in heteroelement chemistry; 2. Metal-mediated transformations; 3. From innovation in heterocyclic chemistry to therapeutic developments; 4. Innovative organic chemistry in glycosciences.

To reach these objectives and in addition to the excellence in synthetic methodologies, ***SynOrg*** will be supported by the highly renowned analytical teams of the LABEX, relying on

existing high level equipments (Mass spectrometry, NMR, various chromatographic equipments…), and on their expertise in the development of innovative analytical techniques, required to allow further improvements through the understanding of the underlying mechanisms involved in the projects. ***http://www.lab-cobra.fr/laboratoire***

PeReNe: Peptide Research Network of Excellence

To place the transchannel area at the forefront of peptide research, a ***Peptide Research Network of Excellence (PeReNe)*** was created aimed at gathering the necessary skills and tools to build a unique peptide discovery and development platform which will serve the scientific community, from small laboratories to big companies at the national and international level.

To develop this project, Institutes with complementary expertise on peptide research have joined, to create a high-added value cluster with outstanding peptide know-how and state-of-the art technological tools open to researchers from the private and public sectors with the most state-of-the art facilities in the field of peptide research including the ***Plate-forme de recherche en imagerie cellulaire de Haute-Normandie*** (PRIMACEN; http://www.primacen.fr); the ***plateforme instrumentale en sciences séparatives et analytiques de Rouen*** (PISSARO; http://plateforme-proteomique.crihan.fr) and the ***Plate-forme de protéomiqe Biogenouest*** (http://proteome.genouest.org).

The **PeReNe** laboratories publish over 250 articles per year. **PeReNe** gets additional support from the Chemistry-Biology-Health (CBS) Technopole and from Science Action Haute-Normandie to develop partnerships with the industry and to communicate toward the lay public.

PeReNE
Peptide Research Network of Excellence

france (manche channel) england
interreg

European Regional Development Fund
The European Union, investing in your future

Fonds européen de développement régional
L'Union européenne investit dans votre avenir

PeReNe also benefits from the combination of 23 support teams, the International Associate Laboratory Samuel de Champlain, 2 SMEs (BIOSIMS and Root Lines Technology) and the Cosmetic Valley, which bring to the network specific complementary resources and skills for peptide research. Based on our expertise and mutual interest, the research teams have set up 14 collaborative research activities on bioactive peptides with innovative industrial opportunities in the biomedical, cosmetic and food industries.

PeReNe can provide expertise for the identification of novel bioactive or biomarker peptides, the synthesis of peptidomimetics, the production of peptides *in planta*, the evaluation of peptide activities on cellular and animal models...

For more information, please visit our website: www.perene-project.eu

Contact: David Vaudry (david.vaudry@univ-rouen.fr)
Laboratoire de Communication Neuronale et Neuroendocrine, Unité INSERM U982, Laboratoire International Associé Samuel de Champlain, Université de Rouen, 76821 Mont-Saint-Aignan.

Chimie Biologie Santé technopole

A network of excellence in the chemistry, biology and health sectors in Normandy

CBH Technopole's mission is to develop exchanges and cooperation between research and industry in the chemistry, biology and health sectors in Normandy, Centre and Western Paris regions, which forms the most important base of pharmaceutical production in France.

Labeled "cluster" by the French State, the **CBH Technopole** now has sixty members, including large pharmaceutical firms. It is a mark of recognition in an ecosystem where industry operators, start-ups and academia work on the mode of "cross-fertilization" to innovate, improve their competitiveness or promote their skills abroad.

The priorities of the cluster are:
• Support for growth and competitiveness to foster business development of member companies,
• Development of Research Development Innovation projects by facilitating intermediation research/industry and deployment of major projects (LABEX SynOrg, Academy-Industry Chemistry Channel project (A-I CHEM Channel), Peptide Research Network of Excellence (PeReNE)).

For more information: *www.technopole-cbs.com*

The Chemistry, Biology and Health sectors in Haute-Normandie – Key figures

- The second largest French region in pharmaceutical chemistry
- Number five in France for production of drugs
- 8,000 employees in pharmaceuticals
- 3 dedicated technological parks
- 2 Universities (Rouen, Le Havre)
- 1 Research Institute: The Rouen Institute for Research and Innovation in Biomedicine (IRIB)
- 2,000 researchers and experts in the sector
- 1 University Hospital and 1 Clinical Investigation Centre INSERM (Rouen)

The Technopole is supported by

The **Paul Ehrlich Prize** sponsored by **Janssen-Cilag** is attributed to researchers of international reputation or research teams for their important contributions to medicinal chemistry.

This year the Paul Ehrlich Prize goes to Professor Karl-Heinz ALTMANN

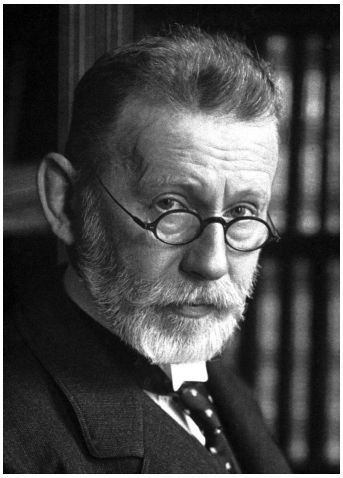
Dr. Paul Janssen, Founder, Janssen Pharmaceutical, N.V.

Janssen is a division of Johnson & Johnson Pharmaceutical Research and Development. Their strategy is to identify the biggest unmet medical needs and match them with the best science, internal or external, to find solutions for patients worldwide. The activity of Janssen is focused on discovering, developing and delivering differentiated medicines in five therapeutic areas: neuroscience, infectious diseases and vaccines, oncology, immunology and cardiovascular / metabolism.

Paul Ehrlich

More than hundred years ago Paul Ehrlich shared the Nobel Prize for Medicine or Physiology with Elie Metchnikov. Even if this award was the crowning recognition of his contributions to immunology, today he is considered to be the founder of medicinal chemistry.
Paul Ehrlich starts his research career by developing a method for selective staining of cells. From this work he pursues the idea that dyes form very specific bonds to cell receptors. This concept will lead him to the “side-chain theory” to explain the properties of antibodies. An organism infected by a toxin develops a huge number of “side-chains” which will prevent a repeated infection.
From the principle of the “key and lock” and the “magic bullets” there is only one step for Paul Ehrlich to become director of the Royal Prussian Institute of Experimental Therapy. There at first he devotes himself to the trypanosomes. The trypanosomes could indeed be successfully killed with the dye Tryptan Red. Hereafter he deals with Atoxyl, in current use for treating sleeping sickness presenting however intolerable side effects.

He engages himself in modifying its structure and carrying out tests which even nowadays would be considered as a high throughput *in-vivo* screening. He should go to the 606th analogue to obtain a really efficient compound evidenced on a model test on mice infected by trypanosome.



In 1905 the pathogen of the syphilis, the *treponema pallidum* is identified and with a model infection on a rabbit Paul Ehrlich shows the efficiency of the compound 606 which he names Salvarsan. A test with 50 patients will produce remarkable results. Unfortunately, general usage of Salvarsan is accompanied by the occurrence of numerous side effects. A program involving the synthesis of a new series of 300 compounds which would today be qualified as "structure-properties relationship optimisation" results in the water soluble "compound 914" to make career under the name of Neosalvarsan.

Pr Karl-Heinz Altmann, Paul Ehrlich Prize 2014 Laureate

Karl-Heinz Altmann is a Professor of Pharmaceutical Sciences at the Swiss Federal Institute of Technology (ETH) Zürich, Switzerland. He obtained his undergraduate education in chemistry at the University of Mainz, Germany, and he holds a PhD degree in organic chemistry from the University of Basel, Switzerland.

After postdoctoral work at Cornell University, USA, from 1987-1989 and at the University of Lausanne, Switzerland, from 1989-1990, Karl-Heinz Altmann joined Ciba-Geigy Central Research in 1990, where he rose to the position of Group Leader and Deputy Section Head.

After the merger of Sandoz and Ciba-Geigy to form Novartis he moved to Oncology Research at Novartis Pharma, where he was a project leader. In 2000 he was promoted to the position of Senior Scientific Expert Chemistry of Novartis Pharma Research and he became a member of the Global Research Management Board. Before taking up his current position at the ETH Zürich Karl-Heinz Altmann was Acting Head of Global Discovery Chemistry of the Novartis Institutes of Biomedical Research.

Karl-Heinz Altmann's research is centered on the chemical synthesis of pharmaceutically relevant natural products/natural product analogs and their biological evaluation. Summarily, this work aims at the improved molecular understanding of the interactions of natural products with their biological target systems and, ultimately, at the identification of new leads for drug discovery or potential drug candidates. Major aspects of this work are (i) the total synthesis of biologically active natural products and their profiling; (ii) the elucidation of the structural requirements for biological activity of individual natural products; (iii) the assessment of opportunities for structural simplification and molecular editing of complex natural products, in order to produce simplified analogs and/or new chemotypes. Of particular interest are natural products with activity against cancer-relevant molecular targets, such as tubulin modulators or kinase inhibitors, and those that are related to infectious diseases, with a current focus on new anti-TB agents. A significant part of the work on tubulin modulators has focused on the mycobacterial secondary metabolites epothilones and Karl-Heinz Altmann's group has made significant contributions to the epothilone field at the level of organic synthesis and medicinal chemistry. For example, his group has created structurally simplified hypermodified epothilones with similar antiproliferative activity as the natural products

epothilones A/B. This has included functionalized analogs that lend themselves to conjugation with different types of tumor-targeting moieties as well as non-natural natural products where the regular polyketide backbone is disrupted by the replacement of C12 by a nitrogen atom. The latter family of analogs represents a new structural class of microtubule-stabilizing agents with a unique SAR. More recent work in the area of tubulin modulators has included total syntheses of the marine microtubule stabilizer (-)-zampanolide and the bacterial tubulin assembly inhibitor rhizoxin F (WF-1360F) and associated SAR studies. Importantly, the work on (-)-zampanolide has enabled the first high resolution X-ray crystal structure of a complex between tubulin and a microtubule-stabilizing agent. The structure of this complex has provided fundamental new insights not only into the nature of the interactions between tubulin and microtubule-stabilizing low molecular weight ligands, but also into the molecular mechanism of microtubule assembly in cells in general.

In the infectious disease area, recent work in Karl-Heinz Altmann's group has included the total synthesis of and SAR studies on the bacterial RNA polymerase inhibitor ripostatin B and the mycobacterial toxins mycolactones A/B, C, and F by RCM-based strategies. Mycolactones A/B are the causative pathogenic agents of Buruli ulcer and the group has also prepared conjugates of mycolactones or mycolactone partial structures for the generation of antibodies and/or antisera, which could provide the basis for the development of more efficient diagnostic tests for Buruli infections. In addition, the group also pursues the development of analogs of the newly identified InhA inhibitor pyridomycin as potential anti-TB agents. In this context they were able to establish that the enol ester moiety in pyridomycin is not an indispensable requirement for potent antimycobacterial activity and that dihydropyridomycins can serve as an alternative and more readily accessible scaffold for SAR studies and lead optimization.

Professor Altmann is author, coauthor of more than 200 publications and patents. Throughout his career Karl-Heinz Altmann has been a member of numerous committees and advisory boards. Currently, he is the Chair of the Scientific Advisory Board of the Novartis Institute for Tropical Diseases (NITD) in Singapore and his a member of the SABs of Evolva AG, Nextech Venture Ltd., the Helmholtz Institute of Pharmaceutical Sciences in Saarbrücken, the Institute of Chemistry and Biochemistry of the Czech Academy of Sciences (IOCB) in Prague, and the Leibniz Institute of Molecular Pharmacology in Berlin. He has been a Board member of the Division of Medicinal Chemistry (now Division of Medicinal Chemistry and Chemical Biology) of the Swiss Chemical Society since 2002 and has served as the President of the Division from 2011-2013. During that same period he was also a Board member of the Swiss Chemical Society. Since 2007 Karl-Heinz Altmann has been the Director of Studies for all study programs in Pharmaceutical Sciences offered by the ETH Zürich.

The **French Medicinal Chemistry Society** (Société de Chimie Thérapeutique, **SCT**) was founded in 1966 with the aim to disseminate scientific results and promote interdisciplinary knowledge in the major pharmaceutical research and development domains covering the whole panel of drug discovery and related sciences from target identification to drug registration. The SCT is also involved in advancing medicinal chemistry by initiating cooperation, networking, providing training and rewarding scientific excellence. The SCT is interested in developing and maintaining scientific contacts with industrial and academic research groups, medicinal chemistry related associations, federations, both on national and international level. The SCT is an active member of the European Federation of Medicinal Chemistry.

Our Society organises each year **three-four** dedicated **scientific events** from which the most important is the "***Rencontres Internationales de Chimie Thérapeutique"* RICT** an international congress devoted to the main scientific areas in medicinal chemistry. Generally these highly successful meetings bring together more than 25 internationally recognized speakers from Europe, Asia and North-America presenting their outstanding results in every aspect of modern medicinal chemistry.

In 2014 the **50th RICT** entitled "*Interfacing Chemical Biology and Drug Discovery*" is held in Rouen, in Normandy. For this "Golden Jubilee" meeting we propose a very dense scientific program with 25 plenary lectures and 4 short communications and we hope to welcome more than 500 attendees coming from 45 countries.

Each year the "**Ehrlich Prize"** is attributed to researchers or teams for their outstanding contribution to medicinal chemistry. This work is presented by the Ehrlich Prize Laureate at the RICT meeting.

This year, in the memory of the late Pierre Fabre, founder of the eponymous pharmaceutical and cosmetics company, a special prize, the "**Pierre Fabre Award for Therapeutic Innovation"** has completed the scientific program. This prestigious prize will be attributed to **Professor Sebastien Papot**, from the University of Poitiers for his project entitled "Design of 'Smart' Molecular Systems Programmed for the Selective Delivery of Anticancer Drugs".

By offering reduced registration and accommodation fees and the possibility of poster and career sessions, SCT encourages young scientists to attend these prestigious meetings. The best posters are rewarded by the "*Prix de Vocation*" allowing the awardees to participate free of charge in the next RICT.

For several years we have proposed **Fall One-Day Meeting**s on a particular topic in medicinal chemistry. In November 2013 this meeting dedicated to "*Chemical Biology: Contribution to Molecular Innovation – A New Role for Chemistry*?" gathered more than 200 scientists. The scientific program was focused on chemical biology, especially its contribution to molecular therapeutic innovation and the pivotal role of chemists.

In April 2014 a successful **SFNano - SCT One-Day Joint Meeting** (SFNano: French Society for Nanomedicine) has been organised with more than 140 attendees of main pharmaceutical companies, biotechs, academic groups from France and from some neighbouring European countries.

Special scientific days (***Journées de Jeunes Chercheurs*, JJC**) are organised for young PhD students and postdocs each year. In accordance with the decision of our Board this year's JJC was organised in Montpellier by the end of March. This two-day meeting, held entirely in English, offered the opportunity for more than 200 PhD students and postdocs (25% arrived from abroad) to present their results in 30 oral communications and poster sessions.

The **JJC** provides unique occasion for attendees to meet human resources representatives of pharmaceutical companies, small biotechs, start-ups for simulated job interviews. Special service to ameliorate their CV and round-tables on career orientation have also been organised.

The **forthcoming JJC** will be held in Paris (Biocitech in Romainville) in February 2015.

To modernize our Society a series of measures has been introduced. SCT Board was reorganised, a new **Scientific Advisory Board** (SAB) of experts covering the main fields of medicinal chemistry was set up to promote the attractiveness and quality of our events.

Thematic days were launched to cater to special demands of pharmaceutical R&D.

Partnership contracts were established with pharmaceutical companies, public and governmental institutions as well as sister societies in neighbouring countries.

Communication of ongoing activities has been intensified to encourage subscriptions and thus power up the position of the SCT within the European Federation of Medicinal Chemistry and French Federation for Chemical Societies.

For inscription please feel free to visit our website (**www2.sct-asso.fr**) and you can be informed on our activities, events at **www.sct-asso.fr**.

Dr Pascal George
SCT President

Pr Janos Sapi
SCT Vice-President

Société de Chimie Thérapeutique

SCT : Website and Social Networks

Web Site

http://www.sct-asso.fr

The SCT website has been designed as a platform presenting the activities of the Society as well as a relay of communication between members. It is divided in two parts: a public part, and a private part accessible only to SCT members with a login and a password. Everyone has a direct access to the News and Events directly on the homepage. They are classified in three categories (from the SCT, from our privileged partners, or from others).

Going to **http://www2.sct-asso.fr** provides access in French or in English to the membership application, or to the registration form for some of our meetings (Young Research Fellow Meeting or Fall one-day thematic meeting).
SCT members have access to the coordinates of all SCT members that have accepted to share their address by filling out the form as below:

SCT members can also retrieve their membership number required to pay the reduced fee for SCT organized meetings (such as RICT). By filling out the form “Find your membership number” they will receive an e-mail where are mentioned the membership number, login, password, and status of the membership for the current year.

Social Networks

SCT is also present on the 2 most popular **social networks**, ***LinkedIn*** and ***Facebook***.

You can become a “**Com. Committee SCT**” relation on **LinkedIn** and a member of the “RICT - International Conference on Medicinal Chemistry” and “SCT - Journées Jeunes Chercheurs” groups.

On **Facebook**, make “**Societe Chimie-Therapeutique**” a friend of yours and become a member of “Journées Jeunes Chercheurs” groups.

You will thus be permanently connected to the SCT and its members: you will so have the opportunity to be linked to French (and European) medicinal and biotech community. You will be informed of News and Events organized by the SCT. RICT and JJC speaker profiles and sponsors will be made immediately available to you and you will be alerted to new job offers and to other information concerning particularly young medicinal chemistry scientist career.

“Journées Jeunes Chercheurs” group on **Facebook**:

https://www.facebook.com/login.php?next=http%3A%2F%2Fwww.facebook.com%2Fgroups%2F235361546525890%2F

“RICT” group on **LinkedIn**:

http://www.linkedin.com/groups/RICT-International-Conference-on-Medicinal-3734237/about

RICT on LinkedIn

JJC on Facebook

The SCT Communication Board:

Dr. **Frédéric Schmidt** (Institut Curie, Paris)
Pr. Nicolas Willand (Université de Lille 2)
Dr. Terence Beghyn (Université de Lille 2)
Dr. Aline Moulin (Flamel Technologies)

Awards, Prizes attributed by the SCT and its sponsors

For more information visit our website: **www.sct-asso.fr**

1. **Ehrlich Prize** with Lecture on RICTs (Sponsored by Janssen a pharmaceutical company of Johnson & Johnson)
   This prestigious award is attributed each year to researchers of international reputation or research teams for their outstanding contributions to medicinal chemistry.

2. **SCT Prize for Young Medicinal Chemist** (Sponsored by Laboratoires Servier).
   This award ("Prix d'Encouragement à la Recherche en Chimie Thérapeutique") is for researchers no older than 36. The recipient of this prize is invited to give a talk at the French Annual Meeting of Young Medicinal Chemists (Journées de Jeunes Chercheurs, JJC).

3. **Best Poster Award** for young medicinal chemist (Sponsored by Laboratoires Servier).
   Two prizes are offered each year for the best two posters presented by young researchers at the RICT. The recipients are invited to deliver a talk at the next SCT Annual Meeting of Young Medicinal Chemists (Journées de Jeunes Chercheurs, JJC).

4. **The Pierre Fabre Award for Therapeutic Innovation** is awarding a talented researcher who has accomplished a decisive action, a scientific discovery, an innovative technology contributing to a substantial therapeutic innovation. This prize is sponsored by the company "Pierre Fabre Médicament", in memory of its founder.

Grants attributed each year by the SCT

1. **Congress Grants**
   Several grants are offered each year for young medicinal chemists to attend meetings such as the ACS (American Chemical Society) Meeting and RICTs.
   These grants are attributed to Young Medicinal Chemists who presented the best talks and the best posters. Other grants to attend meetings are also given at the RICTs rewarding poster presentations.

2. **Research Grants** (sponsored by Laboratories Servier)
   Each year a call for project is launched by Servier. The SCT announces the subject of the call for project and organizes the selection of the applications.

This year the subject was: *"Looking for treatments for osteoarthritis: Search for agents that prevent neovascularisation processes at the osteochondral junction"*

One or two projects are selected each year by a Jury including scientists from Servier and from the SCT. Financial support corresponds to a 3-year PhD Fellowship or a 2-year Postdoctoral Fellowship.

Other companies are strongly encouraged to propose calls for project!

Pr Hervé Galons
Université de Paris Descartes

IPSEN (Euronext: IPN; ADR: IPSEY) is a global specialty-driven pharmaceutical company with total sales exceeding €1.2 billion in 2013. With the ambition to become a leader in specialty healthcare solutions for targeted debilitating diseases, the Group employs close to 4,600 persons worldwide. Based on peptides and toxins engineering platforms, Ipsen's R&D expenditure totaled close to €260 million in 2013, representing more than 21% of total sales.

The Group focuses its resources and investments on three franchises structured by three biopharmaceutical specialties: **urology-oncology** (Décapeptyl®), **endocrinology** (Somatuline®) and **neurology** (Dysport®); yet a historical know-how in gastroenterology and cognitive disorders is maintained with significant sales of primary care drugs in France and in emerging territories, notably Eastern Europe and China.
Ipsen is widely open to the outside and supports an active policy of partnerships and collaborations with world-renown research centers and international medical centers of excellence. Focused on its peptide and toxin technology platforms, Ipsen R&D aims to translate basic science from bench to bedside with significant improvement to patient care in targeted debilitating diseases.

Recent Milestones

May 2014: to establish a single "Ipsen" brand globally, the North-America R&D center currently relocating in Cambridge, MA is now named *Ipsen Bioscience, Inc*

April 2014*:* first set of results on a positive phase III clinical study of Dysport® in the treatment of adults suffering from Upper Limb Spasticity presented at the 8th World Congress for Neuro-Rehabilitation

February 2014*:* positive results from phase III clinical study of Decapeptyl® subcutaneous formulation in patients with prostate cancer

October 2013*:* PeptiDream and Ipsen expand the scope of their collaboration for the discovery of peptide drugs to treat serious endocrine diseases

September 2013*:* results from CLARINET® Phase III clinical trial presented at the 2013 European Cancer Congress show antiproliferative effect of Somatuline® in the treatment of non-functioning gastroentero and pancreatic neuroendocrine tumors ("GEP-NETs")

Key Figures

- **Total sales : 1.2 billion €**
- **Affiliates in 44 countries and territories**
- **Manufacturing in 4 countries: France, Ireland, United Kingdom, China**
- **R&D staff: 900**
- **Percent sales dedicated to R&D: 21%**

Further information: www.ipsen.com

TFCHEM

A Drug Discovery Company which uses the fluorine atom properties to develop new glycomimetics drug candidates and cosmetic ingredients.

www.tfchemistry.com

TFChem located in Val de Reuil and composed of 9 people, was founded in 2007. The company is since April 2011 a subsidiary of Sirona Biochem, a Canadian based company (TSX.V: SBM.V). TFChem develops a technology that allows it to create carbohydrate mimics that maintain all the potential of natural carbohydrates but solves all their drawbacks (instability, low biodisponibility, low affinity...).
The company portfolio is currently dedicated to the development of:

1. ***Drug candidates*** **(**SGLT inhibitors to treat type 2 Diabetes; Antigen for the development of cancer vaccine; Anti-inflammatory)
2. ***Cosmetic ingredients*** **(**Anti Aging glycoprotein; Depigmenting agent)
3. ***Biological adjuvants*** **(**Glycoprotein for cell preservation (stem cells, Beta islet cells); Inducer for recombinant protein production in *E. coli*)

With its technology which unlocks the potential of carbohydrates for drug development ***TFChem*** received the Vermeil Medal of innovation and Research in 2006 from Francinov and Regional laureate of the "Innovation Award 2012" by the INPI.
TFChem received support from BPI France (ex OSEO), Seinari and more recently from European Regional Development Fund (F.E.D.E.R.), State and District of Haute-Normandie for the BETACLEAR project on depigmenting agents (F.U.I).
TFChem is looking for partners in the pharmaceutical and cosmetic sector to license out its current portfolio. ***TFChem*** proposed also to pharmaceutical, cosmetic and biotech companies to access to its expertise and knowhow and improve their current portfolio of glycoside drugs or ingredients. Since 2014, the company has confirmed its progression: two license agreements were signed with Wanbang Pharma and Obagi Medical Products. TFChem through its mother company Sirona Biochem is targeting its next round of financing.

Géraldine Deliencourt-Godefroy
Founder & CSO

« Our mission is to innovate, discover, develop and commercialize new, safe and efficient drug candidates»

Looking for partners for licensing out our different projects.

BETACLEAR is cofinanced by the European Union. Europe witnesses in Haute-Normandie with the support of European Regional Development Fund

Pharma Societies, Our Partners

BioSIMS was founded in 2010 to develop high sensitive technologies dedicated to the robust and multiplex quantification of biomolecules.

We commit ourselves to help Drug Discovery teams to:

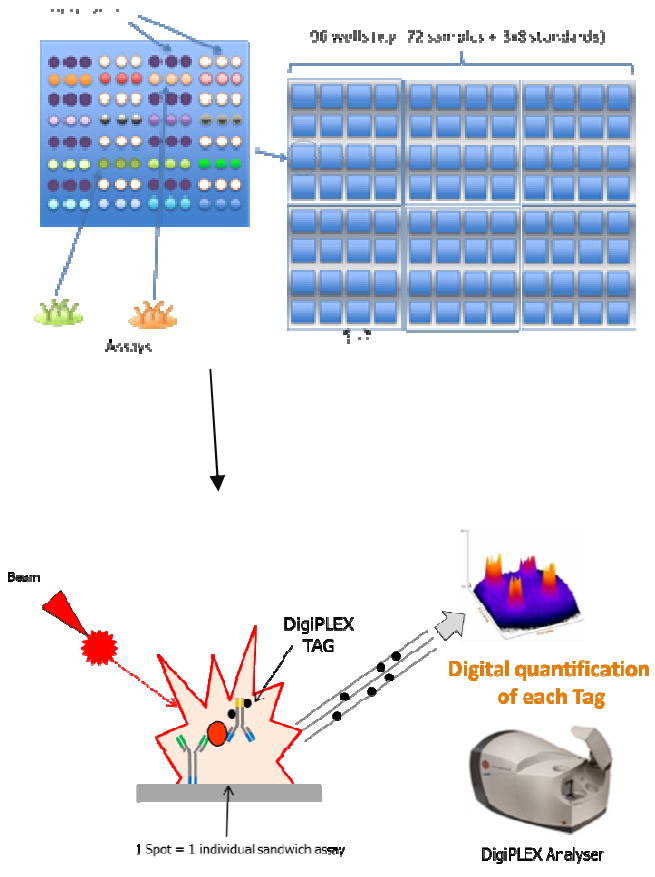
- **UNDERSTAND :**
  Gain insights into disease mechanisms
  Study drug resistances
- **DISCOVER :**
  Identify new targets
  Research disease and surrogate biomarkers
- **ASSESS**
  Demonstrate the relevance of pathology models
  Screen compound mode of action
  Quantify pharmaco-dynamic biomarkers

Our awards winning **DigiPLEX**® technology provides an unmet sensitivity, allowing it to quantify proteins panels down to the fg/ml range !

The measurement techniques most commonly used in immuno-assays are based on absorbance or emission of light. However, problems with data quality from these assays are well known. Optical detection is indeed subject to wavelength overlaps, and to ozone or photobleaching, leading to a lack of consistency and reproducibility.
Moreover, amounts of biomolecules below some minimum will stay undetectable because the light won't be measurable.

The **DigiPLEX** detection is based on the digital counting of element tags, <u>needing no fluorescence and no signal amplification</u>.
This new type of quantification is as disruptive as was the switch from film camera to digital camera!

The benchtop **DigiPLEX** instrument is able to quantify less than 2000 target molecules from 10µL of sample (3 zeptomoles) : Never a technology was so close to the Avogadro number. Undetectable? Now you can !!



Depending on our clients' needs, we provide multiple options:
- Catalog of verified assays (kits)
- Custom development of assays
- Full testing service

Each project is designed and directed by a PhD project leader, and we collaborate with a scientific committee of multi-disciplined partners: CROs, pharmacists, biologists and clinicians.

BioSIMS has won awards at the French Ministry of Research's 11th and 12th National Innovation Prizes (2009 and 2010). Our offices and laboratories are situated on "ROUEN INNOVATION SANTE": the business Biopark of the Rouen Urban Authority dedicated to health development projects within the environment of the Rouen University Hospital Campus.

Société de Chimie Thérapeutique

European Journal of Medicinal Chemistry

Published under the auspices of the French "Société de Chimie Thérapeutique" (SCT)

Editor-in-Chief: **Prof. Hervé Galons**

Associate Editors: **Prof. Salvatore Guccione**
Prof. A. Monge-Vega

Honorary Editor-in-Chief: **Prof. Olivier Lafont**

More than 2000 papers are submitted each year and approximately 700 are published.

The ***European Journal of Medicinal Chemistry*** is a global journal that publishes studies on **all aspects of medicinal chemistry**:

- organic synthesis;
- biological behavior;
- pharmacological activity;
- drug design;
- QSAR; molecular modeling;
- drug-receptor interactions;
- molecular aspects of drug metabolism;
- prodrug synthesis and drug targeting.

It provides a medium for publication of original papers, laboratory notes, short or preliminary communications, and invited reviews.

The impact factor of EJMC (3.49) is one of the highest of all medicinal chemistry journals.

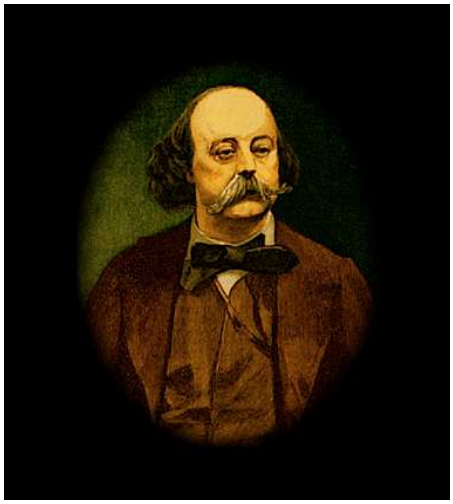
Gustave Flaubert Museum in Rouen

If you have time before or after the working sessions, but not during, make sure you visit the **Gustave Flaubert Museum**. It was extraordinarily interesting. The museum which was founded in 1901, is devoted to the life of famous novelist, Flaubert, particularly his formative experiences as the son of the chief surgeon of the Hôtel-Dieu. Since 1947, its collections have been exhibited in the former surgeon's house at the Hôtel-Dieu hospital, dating from the 18th century.

Ten rooms are open to visitors, including the room in which the writer was born, a curiosity cabinet, a hospital ward, an apothecary, and an area devoted to childbirth and early childhood. The rich and varied collections (paintings, sculptures, hospital furniture, faience, medical and surgical instruments, an obstetrical mannequin and a collection of babies' bottles) retrace the history of medicine from Antiquity to the early 20th century. A medicinal plant garden is also open to visitors to the museum [1].

It constantly relates the writings of Flaubert to the various exhibits on 19th century medicine. Among them is the "Madame Bovary [2]: *The clubfoot operation*". Emma Rouault, daughter of a rich country farmer, married Charles Bovary who is a country medical practitioner, mediocre, a simple man, not the brightest, but not unambitious. He had recently a eulogy on a new method for curing club-foot. He reads that a simple tendon cutting operation could cure the village stable boy's club foot, perhaps also bringing recognition to himself and celebrity to the village. He succeeds in convincing Hippolyte Tautain with the help of the pharmacist Homais who was exhorting the lad at the inn, to submit to the operation. "However," continued the chemist, "it doesn't concern me. It's for your sake, for pure humanity! I should like to see you, my friend, rid of your hideous caudication, together with that waddling of the lumbar regions which, whatever you say, must considerably interfere with you in the exercise of your calling."

But when he tries to operate on Hippolyte's leg, it develops gangrene and has to be removed [3].



Another curiosity is a cabinet of anatomical curiosities, and among them, an exhibit on phrenology. Phrenology is the study of the shape and protuberances of the skull, based on the now discredited belief that they reveal character and mental capacity. Phrenology was developed by a German physician named Franz Joseph Gall in the late 1700s. Gall noticed that the cerebral cortex of humans was much larger than that of animals, which he believed was what made humans intellectually superior.

Eventually, he became convinced that the physical features of the cortex could also be seen in the shape and size of the skull. After examining the heads of a number of young pickpockets, Gall found that many of them had bumps on their skull just above their ears. He then suggested that the bumps, indentations and shape of the skull could be linked to different aspects of a person's personality, character and abilities. With his young pickpockets, for example, he suggested that the bump behind their ears was associated with a tendency to steal, lie or deceive. While phrenology has long been identified as a pseudoscience, it did help make important contributions to the field of neurology.[4,5]

However, according to several opinions, the best parts were the sections on childbirth and

the dangers of childhood in the 19th century. The former section had a completely handsewn 18th century birthing dummy set to help future midwives practice delivering and recognizing problems with babies. The latter talked about abandonment, feeding problems, disease, etc., and various advancements in 19th century medicine

Unfortunately, you could not attend the exposition “quintuplates dione” which was closed on June 15. Just remember, on May 28, 1934, on a farm in the village of Corbeil, Ontario, near the Quebec border, a French-Canadian mother, Elzire Dionne, gave birth to five identical girls — Annette, Emilie, Yvonne, Cecile, and Marie. In spite of difficulties, they did survive. Women from nearby villages brought breast milk, the Canadian Red Cross sent nurses and an incubator, and they became the first quintuplets known to have survived infancy.

Soon the world was referring to the Dionne quintuplets as "miracle babies," and they became a world-wide symbol of fortitude and joy during the Great Depression.

Have a good stay!

1. The cruelty and failings of therapies for neurological diseases in French literature. Walusinski O, *et al*. *Prog Brain Res.* 2013; 206:171-99
2. Gustave Flaubert, Charles Dickens, and Isaac Pulvermacher's "magic band". Waits RK. Prog. Brain Res. 2013; 205: 219-39.
3. Hyppolite legs. A parallel for Emma Michael Hoisie.: www.csua.berkeley.edu/~mbh/madame_bovary.new.doc
4. Flaubert Gustave. *Madame Bovary*. New York: The book league of America, 1936.
5. What is phrenology? An early Pseudoscience. Kendra Cherry. *Psychology about.com/od/…: phrenology.ht*.
6. Dans les méandres de la phrénologie. Eric Sartori. Revue La Recherche 2011: 451: 92. In French.

Dr Claude Monneret
Institut Curie, Paris

Upcoming events organized under the auspices of the SCT:

French Annual Meeting of Young Medicinal Chemists (Journées de Jeunes Chercheurs, JJC)

February 2015, Biocitech Industrial Park, Romainville (near Paris)

One-Day Thematic Meeting on RNA-research

April-May 2015, Paris

51st International Conference on Medicinal Chemistry RICT 2015

July 2-4 2015, Avignon

SCT- Swiss Chemical Society Medicinal Chemistry Division Joint Meeting

October 16 2015, Dijon

For more information: www.sct-asso.fr
