Société de Chimie Thérapeutique

NEWSLETTER 2016

EDITORIAL

RICT2016 INTERNATIONAL CONFERENCE ON MEDICINAL CHEMISTRY
INTERFACING CHEMICAL BIOLOGY AND DRUG DISCOVERY

This year's International Conference on Medicinal Chemistry marks a turning point for chemical biology: New convergences point towards an accelerated path to the discovery of new medicines.

The means by which new drugs are discovered has irreversibly changed, moving from empirical approaches to the emerging chemical biology discipline, which also includes computational and robotic approaches. An interdisciplinary strategy involving chemistry, life sciences and physics has always been the key to hacking major biomedical problems and to provide solutions to drug discovery. New convergences point towards an accelerated path to the discovery of new medicines. The changes in our laboratories are already visible as we have introduced new technologies and new competences among collaborators.

So it is great news that an increasing level of dialogue between chemists, biologists, medicinal chemists, pharmacologists, and physicians has emerged in recent years, with the completion of the Human Genome Project, a milestone in this productive integration of how to think about achieving these objectives. And all of this comes at the same time as technology has transformed our laboratories. We have to think of progress in high-throughput screening initiatives, DNA microarrays, proteomics, protein microarrays, computational inference methods, availability of large collections of diverse datasets, and could go on.

The two main aspects of modern drug discovery are directed towards identification of new targets, and discovery and development of active small molecules against them. Identification of new targets is a crucial process. It can be approached by direct biochemical techniques, genetic interactions or computational inference.

Identification and development of new active molecules, using target-based approaches associated with molecular and cellular bioassays for the newly identified targets, then becomes the crucial step in the drug discovery process.

The objective is then to investigate the basic questions in biology, and one aspect is to study interactions between small molecules and proteins to open new avenues for future drug discovery. Nowadays, chemical biology has become widely accepted to discover drug leads and represents the prevailing path of therapeutic innovation in which identification and validation of novel targets of drug action are of major concern.

An example among others of the new direction of drug discovery integrating chemical biology includes the field of peptides. They are important natural compounds possessing diverse and interesting biological and physiological functions. However, this far, they only attracted scant attention from pharmaceutical companies. Perhaps they need to think again. The directed evolution techniques, the potential of peptides in modulating protein-protein interactions, and the progress in technologies to deliver peptides, makes this class of compounds among the most interesting on the block.

None of this makes our task necessarily easier. All these techniques and technologies have to be integrated in a combination of methodologies to fully characterise on-target and off-target effects of a therapeutic molecule, to better understand disease and discover new drugs.

Further complicating this are the connections in this new world between the public sector with its strong role in fundamental and basic research

including target discovery and technology improvements, and the private sector, which is able to perform target validation and drug development. They have to be strengthened.

Now the question is whether we can deliver the goods.

It is worth getting this as optimal as possible because there is an urgent necessity to develop new therapeutic agents using the most advanced technologies, to treat under-served common pathologies including bacterial infections and metabolic disorders, as well as diseases associated with ageing (e.g. neurological diseases).

Interfacing Chemical Biology and Drug Discovery is the topic chosen by the organisers of the RICT 2016. At this conference we will learn more about the convergence of developments in medicinal chemistry, robotics and computation that could indeed be about to spark a revolution in the discovery of new medicines.

Through the program that has been set up, leading researchers from academia and industry will present important topics in the area of chemical biology, and for sure will stimulate discussions and result in sharing information and the further collaborations that will help all of us to make a contribution to drug discovery.

Jean Martinez
Professor of Medicinal Chemistry
University of Montpellier
IBMM, UMR 5247

Société de Chimie Thérapeutique

OUR HOSTS

Centre d'Etudes et de Recherche sur le Médicament de Normandie (CERMN)

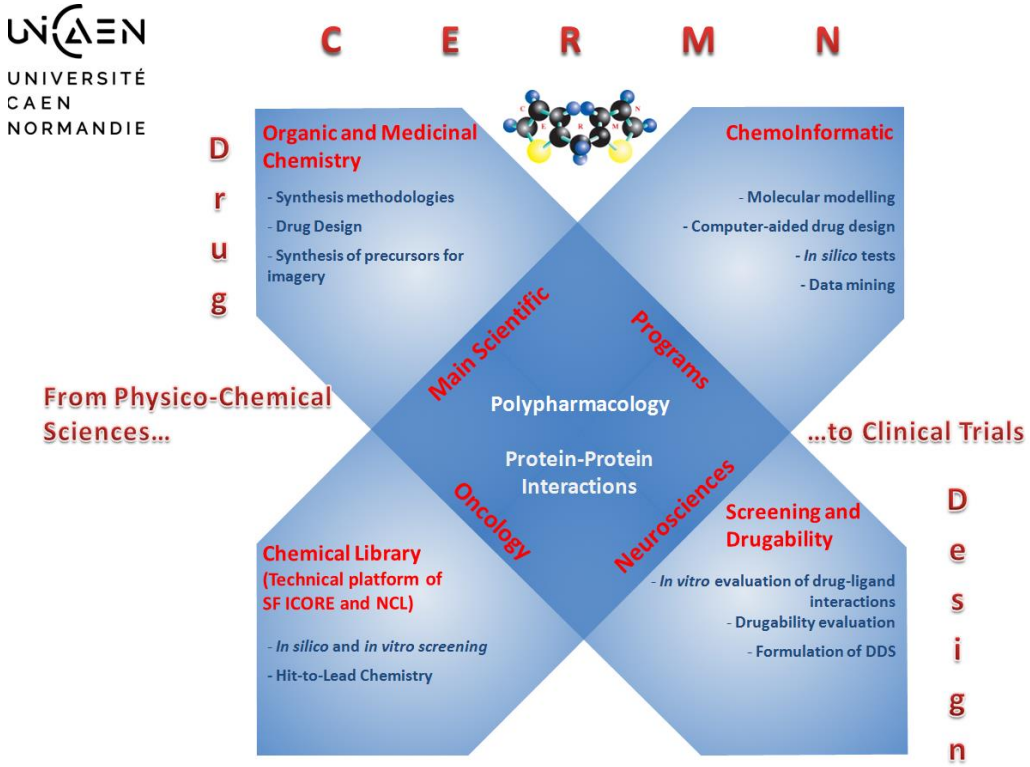
UFR des Sciences Pharmaceutiques

Université de Caen Normandie, Caen - FRANCE

The *Centre d'Etudes et de Recherche sur le Médicament de Normandie* (**CERMN**) is a research unit of the University of Caen Normandy that was set up in 1974 by Professor Max Robba. Today, the team hosts thirty permanent staff and about twenty PhD students, post-doctoral researchers or visiting staff. With its four platforms and considerable analytical capacity, CERMN is recognized as an interdisciplinary drug design unit at the interface between the physicochemical and the biological sciences.

CERMN has the expertise to design and produce novel derivatives with therapeutic or diagnostic interest. Compounds whose *in vitro* activity and drugability have been attested are then engaged in preclinical trials in association with biologists and pharmacologists. CERMN's experience in this field contributed also to the creation in 2012 of a Master's degree in Drug Design.

The CERMN's development strategy is to pursue its organization in the form of an interdisciplinary research unit, organized on the basis of four research platforms – organic and medicinal chemistry, chemoinformatic, chemical library, and screening and drugability – which share their cutting edge thematic research expertise to develop innovative activities in drug design. More precisely, the CERMN's scientific expertise and resources are dedicated to two scientific topics – polypharmacology and protein-protein interactions – in order to identify new active agents, using these approaches to attest their therapeutic or diagnostic interest more especially in the fields of oncology and neurosciences.



Polypharmacology Programme

For a number of years CERMN has been developing several research programmes in the field of polypharmacology. The programmes aim at both improving by means of data mining the characterization of pharmacological networks that cause certain pathologies and suggesting innovative therapeutic approaches to multi-factorial pathologies. The PLEIAD programme is thus designed to develop pleiotropic molecules of interest in the treatment of Alzheimer's disease (AD). It consists in studying the relevance and the possibility to give a single molecule activities that are selectively oriented towards several targets of interest in AD treatment. A translational and multithematic research programme is developed in association with the *Institut de Génomique Fonctionnelle* (IGF) in Montpellier and the *Groupe Mémoire et Plasticité comportementale* (GMPc) in Caen. Targets, which could be the objects of a possible association in this field, are 5-HT_4 and 5-HT_6 serotonergic receptors, H_3 histaminergic receptor, the catalytic and peripheral sites of acetylcholinesterase (AChE) and the aggregation of beta-amyloid peptides and TAU protein. The research programme has notably led to the recent discovery of Donecopride, a dual 5-HT_4 receptor agonist and AChE inhibitor, which is currently under preclinical investigation.[1,2]

Protein-Protein Interactions Programme

Protein-protein interactions (or PPIs) play a fundamental role in the signal transduction regulating many cellular functions such as programmed cell death. Any disturbance to the apoptosis is linked to the phenomena of cancer and/or escape from conventional forms of chemo- and radiation therapy. The process of apoptosis is controlled by a diversity of signal pathways and involved in particular proteins from the Bcl-2 family (pro-apoptotics [Bax, Bak] and anti-apoptotics [Mcl-1, Bcl-2, Bcl-xL]) which interact via a helicoidal BH3 crucial domain. The anti-apoptotic proteins Bcl-xL and Mcl-1 work together to protect the cancer ovarian cells from apoptosis and their simultaneous inhibition results in the death of the chemo-resistant cells. The inhibition of Bcl-xL can be obtained by using Navitoclax. However, the inhibition of Mcl-1 remains problematic and the quest to find useable clinical pharmacological tools therefore represents a major challenge, since the protein has been shown to be a priority therapeutic target in many tumour locations.

The CERMN's research is interested in designing BH3-mimetic PPI-disruptive foldamers in the treatment of chemo-resistant ovarian cancers. The synthesis of a chemical library containing BH3-mimetic foldamers, characterization of foldamers by X-ray diffractive radiocrystallography and by NMR and their biological evaluation towards ovarian cancer lines led to Pyridoclax whose potent pro-apoptotic activity is directly linked to the inhibition of the Mcl-1 anti-apoptotic protein.[3] Pyridoclax is also currently under preclinical investigation.

The CERMN's Chemical Library

The CERMN's chemical library manages the collection of more than 17,000 original derivatives produced by researchers at CERMN and constitutes the largest original academic library in France. The collection contains annotations on all the biological results obtained and constitutes a priceless data base used in-house for the discovery of novel hits in the CERMN's research programmes. Furthermore, the CERMN's chemical library is an integral part of the French National Chemical Library and is its main contributor. Within this frame, the platform is open to external partnerships.

The CERMN's Screening and Drugability Platform

The Screening and Drugability platform develops *in vitro* assays to provide early evaluation of the activity of novel compounds on defined biological targets, *i.e.* activity on cholinesterases, β-amyloid peptide, serotonin receptors, and also antioxidant activity and chelating ability. Physico-chemical properties of compounds, *i.e.* solubility, log P, permeability through digestive and hematoencephalic barriers, membrane interactions, and stability may be also experimentally determined to define the drugability of new compounds. If necessary, innovative drug delivery systems based on nanotechnologies (passive or active lipid nanoparticles and nanoemulsions) are developed to improve the apparent solubility of identified leads and/or to optimize their biodistribution after oral or intravenous administration. These various methodologies are used within the programs developed in the lab, but also in collaboration with academic or private laboratories in the field of external partnerships.

More information is available at : **www.cermn.unicaen.fr**

[1] Lecoutey, C. *et al. PNAS*, **2014**, *111*, E3825-E3830
[2] Rochais, C. *et al. J. Med .Chem.*, **2015**, *58*, 3172-3187
[3] Gloaguen, C. *et al J. Med. Chem.* **2015**, *58*, 1644-1668

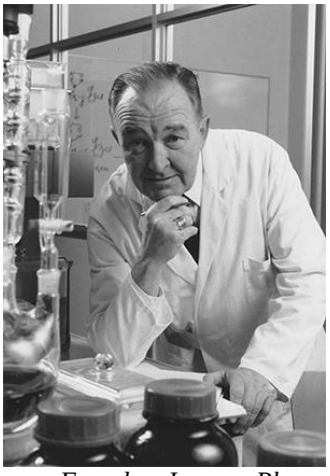
Société de Chimie Thérapeutique

Paul Ehrlich Prize

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 is awarded to Professor Jean-Daniel BRION

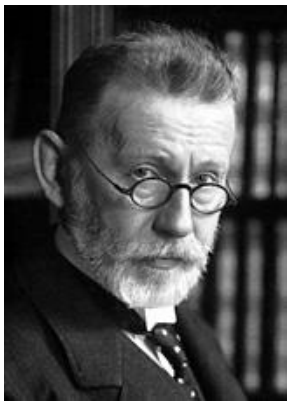
Janssen represents the Pharmaceutical R&D Division of Johnson & Johnson. Their strategy is to identify the biggest unmet medical needs and match them with the best science, internal or external, to find solutions for patients worldwide. The activity of Janssen is focused on discovering, developing and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



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

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 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 use 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.

Professor Jean-Daniel BRION Paul Ehrlich Prize 2016 Laureate

Jean-Daniel Brion is currently Professor of Medicinal Chemistry at the School of Pharmacy of the University Paris-Sud (Châtenay-Malabry) and mission head at the Institute of Chemistry of CNRS until four years. As pharmacist, he defended his PhD thesis in medicinal chemistry in 1978, then passed the *Aggregation* of Pharmacy in 1983. In the same year, he was appointed as Full Professor at the University of Nantes. From 1989 to 1995, he was director of a medicinal chemistry division at Servier Research Institute at Suresnes (near Paris).

In 1995, Jean-Daniel Brion was appointed as Full Professor at the University Paris-Sud. From 1998 to 2007, he was head of a joint research centre of CNRS (UMR CNRS 8076 BioCIS) at the University Paris-Sud. The activity of this research unit is essentially centred on the chemistry of natural products, development of new methodologies in organic and organometallic syntheses and medicinal chemistry. In recent years, he was appointed as director of the Federative Institute of Research (IPSIT, Institute Paris-South of Therapeutic Innovation) at the University Paris-Sud, which gathers more than five hundred scientists, among them, there are chemists, biologists, clinicians and engineers.

Jean-Daniel Brion's and Mouad Alami's team is a member of the research unit UMR 8076 BioCIS and a member of the Laboratory of Excellence in Research on Medication and Innovative Therapeutics (LabEx LERMIT) and it consists of more than twenty scientists. Their group is involved in the design, synthesis, and evaluation of biologically active agents. Current therapeutic areas include mainly cancer, but also pulmonary arterial hypertension, epilepsy and neurodegenerative diseases. These projects require the development of new synthetic methods and structure-activity relationship studies aimed at improving the therapeutic efficacy of lead compounds, including natural products and hits from high throughput screenings.
J.-D. Brion is co-author of more than 200 scientific publications in peer-reviewed journals and co-inventor of 20 patents. He was also a co-author of various chapters in the series of the handbook of Medicinal Chemistry (AFECT, 7 volumes). He is also a member of the National Academy of Pharmacy and *Chevalier de l'Ordre du Mérite*.

Société de Chimie Thérapeutique

Pierre Fabre Award for Therapeutic Innovation

Pierre Fabre is the 3rd largest French pharmaceutical group and the 2nd largest dermo-cosmetics laboratory in the world. In 2014, its sales reached €2.1 Billion, with **Pierre Fabre Pharmaceuticals** accounting for 44% of total sales and international sales for 55%. Founded and its headquarters still based in the South-West of France, Pierre Fabre currently has branches in 44 countries and distribution agreements in over 130 countries. Covering a continuum of healthcare products, from prescription drugs (oncology, primary care) and consumer health care products (family care, oral care, natural health) to dermo-cosmetics (*Eau Thermale Avène, Klorane, Ducray*), Pierre Fabre Laboratories employ over 10,000 people worldwide. In oncology, Pierre Fabre achieves 90% of its revenues outside of its home country. In 2014, Pierre Fabre dedicated more than 17% of its drug revenues to R&D with a focus on oncology, SNC and dermatology.

Dr Pierre Fabre, after obtaining his pharmacist diploma, opened his own pharmacy in Castres (South-West of France) in 1951. Interested in studying the virtues of *Ruscus aculeatus* (an abundant plant in Castres region) he founded his Laboratory in 1962 by launching the first veinotonic natural product, Cyclo 3. A few years later he strengthens his position in pharmaceutical branch by acquisition of *Inava Laboratories*. As part of diversification and opening towards dermo-cosmetic products *Klorane Laboratories* was bought in 1965.

Dr Pierre Fabre (1926-2013)

This strategy continued and prestigious pharmaceutical and para-pharmaceutical brands have been acquired such as *Ducray* in 1969 and *René Furterer* in 1978. The main steps of international expansion were the opening of subsidiares in Spain, Portugal, Italy, Germany, the acquisition of *Genesis US* in 2002 and in 2006 the Brazilian *Darros Laboratorios*, specialized in oncology and dermo-cosmetic products.

His fidelity to his native region is legendary, most of his production plants and research centres are located in *Midi-Pyrénées*. Dr Fabre was very present in the Company, he closely followed all the activities of his group until his death.

The name of Pierre Fabre is definitively associated with the spirit of "Therapeutic Innovation". The company "*Pierre Fabre*", in memory of its founder and in partnership with the French Medicinal Chemistry Society (SCT), has decided to recognise decisive actions, scientific discoveries, innovative technologies that result in substantial therapeutic innovations.

Pierre Fabre

In 2016 the **Pierre Fabre Award for Therapeutic Innovation** has been awarded to Dr **Alain WAGNER** of Strasbourg University.

Dr Alain WAGNER, Laureate of Pierre Fabre Award for Therapeutic Innovation 2016

Dr Alain Wagner is currently 1st class CNRS Research Director, Vice Director of LabEx MEDALIS and UMR 7199. He is member of the CNRS section 16, and member of the Scientific Advisory Board of eNovalys SAS, Innoviem SAS and Syndivia SAS.

Alain Wagner was born in 1964, he obtained a PhD degree in synthetic organic chemistry at the University of Strasbourg in 1991 under the supervision of Dr. Charles Mioskowski. During his post-doctoral training in a start-up of the Silicon Valley (Affymax, 1991-1994) under the supervision of Prof. Peter G. Schultz, he got interested in the promising domains of catalytic antibodies and combinatorial synthesis. Alain Wagner joined CNRS in 1994 as a research assistant 1st class to develop projects involving solid phase chemistry, combinatorial screening and medicinal chemistry. Alain Wagner was promoted Research Director in 2001.

Between 2002 and 2008 Alain took a 5 years sabbatical to found and lead Novalyst Discovery SAS, a chemical technology-based company conducting drug development programs for mid-size and big pharmaceutical companies. By merging with a structural biology company, Alix, Novalyst became NovAliX Pharma in 2008. Alain participated actively in the creation of a spin-off, eNovalys (2009), a company that stakes on the digital technology to remodel the research workflow by funneling and exploiting raw experimental data as a source of innovation. eNovalys exploits proprietary algorithm for chemical knowledge extraction.

In 2008 Alain resigned from NovAliX to return to academia.

He founded the team of Functional ChemoSystem to investigate the possibilities offered by controlling exogenous chemistry in living organisms. The objective of LFCS is to proceed toward first hybrid bio-synthetic living systems using dynamic and adaptive interactions of chemical and biological systems. To this end LFCS searches for reactions and catalysts capable of reacting specifically with defined biocomponents (proteins, metabolites, sugars…) in their native environments.

Among latest achievements, one can cite the development of novel bio-conjugation and bio-orthogonal chemical procedures. This has led to the publication of several papers and the filing of four patents. Building on this particular expertise, with former LFCS PhDs and collaborators Alain has created Syndivia SAS (2014). This start-up has the ambition to become a key technology provider in the field of Antibody Drug Conjugates (ADC).

Altogether Alain Wagner published more than 130 articles in peer-reviewed journals, he is an inventor of 17 patents and founder of 4 start-ups employing 100 peoples, directed 18 PhD's and supervised more than 20 post-docs. He obtained several grants from the EEC, the ANR, the ICFRC, as well as industrial supports from pharma companies.

ACTIVITIES

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** or **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 and chemical biology. 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 2016 the **52nd RICT** entitled "*Interfacing Chemical Biology and Drug Discovery"* is held in Caen, in Normandy. For this meeting we propose a dense scientific program with 23 plenary lectures and 8 keynote lectures and we hope to welcome more than 350 attendees coming from more than 30 countries.

Each year the "**Ehrlich Prize"** and the "**Pierre Fabre Award for Therapeutic Innovation"** is awarded to researchers or teams for their outstanding contribution to medicinal chemistry and therapeutic innovation. This work is presented by the Ehrlich Prize and the Pierre Fabre Award Laureate at the RICT meeting.

In the frame of our collaborations with neighbouring countries, a **common scientific day** with the Medicinal Chemistry and Chemical Biology Division of the Swiss Chemical Society on the theme *"The Expanding Toolbox of Medicinal Chemistry: From Chemical Biology to Clinical Applications"* was hold on October 16, 2015. in Dijon (Burgundy).

A second congress **"Frontiers in Medicinal Chemistry (FiMC 2016)**", was jointly organized with the Medicinal Chemistry Division of the German Chemical Society (**GDCh**) and the German Pharmaceutical Society (**DPhG**) between March 13th and 16th, 2016 in Bonn (Germany). This symposium gathered more than 330 attendees from 20 countries.

Special scientific days (***Journées de Jeunes Chercheurs***, **JJC**) are organised for young PhD students and postdocs each year. This year the SCT **Young Research Fellows Meeting** (**YRFM**) was organised at the Faculty of Pharmacy of Lille in February. This two and a half-day meeting knew a great success giving the opportunity for more than 230 PhD students and postdocs registered from 23 countries, to present their results in 25 oral communications and poster sessions. The **YRFM** provides a 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 24th YRFM** will be held in Châtenay-Malabry (South of Paris) in February 2017.

For several years the SCT has been engaged in supporting young talented researchers in medicinal chemistry. 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.

In recent years the SCT continued its transformation in order to better meet the expectations of researchers, academic and industrial partners. Thus, in 2015 a 'Business Development Unit' under the guidance of Pascal George was created in order to build interactions with SMEs, CROs and Biotechs and deals with their specific demands (advise, coaching, expertise…).

Our web site has been refurbished, 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.

For inscription and for more information on our activities, events please feel free to visit our website **www.sct-asso.fr**.

Prof Janos Sapi
SCT President

Dr Luc Van Hijfte
SCT Vice-President

Société de Chimie Thérapeutique

News from the SCT Communication

A new SCT website is online

The SCT website has been completely redesigned as a platform presenting the activities of the Society as well as a relay of communication between members. On the homepage (http://www.sct-asso.fr, see below), you will find various information about the Society, prices, job offers, links, and texts written by SCT members on the left-hand menu. The meetings and events organized by the SCT are located on the right-hand menu, while the member access with the directory and SCT registration is in the center.

You can also add information to the site by contacting us at communication@sct-asso.fr

The SCT now has its Twitter Account

SCT was already present on LinkedIn, now we are also on Twitter: **@SCT_asso**
Our Twitter account will smoothly gain in productivity. Following our tweets will help you get at your fingertips news about SCT activities, meetings and other events as well as information from our members and partners.
With this added feature, the SCT will keep you alert and informed on various topics in our SCT expertise domain.

The SCT Communication Board:

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

Société de Chimie Thérapeutique

SCT Awards, Prizes

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 Pharmaceutical R&D a division of Janssen-Cilag) is attributed each year to researchers of international reputation or research teams for their outstanding contributions to medicinal chemistry.

2. **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.

3. **Reaxys' Award for Medicinal Chemistry** is proposed jointly by **SCT** and **Elsevier** to grant a **special award** to a Laureate working in medicinal chemistry, in order to recognize the quality of his/her work, at the interface of CADD, chemistry, biology, pharmacology and promoting the use of databases or IT applications to manage these research programs. This prize will be attributed for the first time to the best **keynote speaker** at **RICT 2016.**

4. **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 Young Research Fellows Meeting (*Journées de Jeunes Chercheurs*, JJC).

5. **SCT Award for Young Researchers in Medicinal Chemistry** (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 SCT Young Research Fellows Meeting (*Journées de Jeunes Chercheurs*, JJC).

Grants attributed each year by the SCT and its sponsors

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 is: "*Targeting cancer stem-like cells / tumour-initiating cells"*

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 Alain Gueiffier
SCT General Secretary, Université de Tours

Pharma Societies, Our Partners

Our Activity

Founded over 20 years ago by Dr Philippe Genne, the Company's CEO and Chairman, **Oncodesign** is a biotechnology company that maximises the pharmaceutical industry's chances of success in discovering new therapeutic molecules to fight cancer and other serious illnesses with no known effective treatment.

We care about cancer

With its unique experience along with its comprehensive technological platform combining state-of-the-art medicinal chemistry, *in vitro* and *in vivo* pharmacology, advanced cancer animal modelling and medical imaging, **Oncodesign** is able to predict and identify, at a very early stage, each molecule's therapeutic usefulness and potential to become an effective drug. Applied to kinase inhibitors, which represent a market estimated at over $40 billion in 2016 and accounting for almost 25% of the pharmaceutical industry's R&D expenditure, **Oncodesign**'s technology has already enabled the targeting of several promising molecules with substantial therapeutic potential, in oncology and elsewhere, along with partnerships with pharmaceutical groups such as Bristol-Myers Squibb, Ipsen and UCB.

Key figures

- **Sales in 2015: € 14.52 M, an increase of +102% over 2014**
- **More than 500 clients, including the world's largest pharmaceutical companies**
- **An attractive pipeline of first in class and next generation kinase inhibitors programs, starting from the Nanocyclix® technology**
- **28% of revenues invested in 2015 to discover and develop new drugs and access innovative technologies**
- **Subsidiaries in Canada and the USA**
- **103 employees**
- **>150 scientific publications**
- **Over 3,000 compounds evaluated for >10 therapeutic classes in oncology; 80% of marketed therapies have been evaluated by our team.**

Oncodesign is based in Dijon, France, in the heart of the town's university and hospital hub.

For further information on **Oncodesign**, please visit the website at: **www.oncodesign.com**
or
send an email to contact@oncodesign.fr

QUIID designs innovative computational solutions that extract knowledge from omics data. We help pharmaceutical and healthcare companies to identify patterns inside their data and use them to build predictive *in silico* models. All our solutions aim to accelerate the decision making process, the innovation creation and profitability of R&D operations.

These economic players have been generating large high-quality databases from their R&D processes. However, a lot of valuable pieces of information often remain untapped. QUIID provides tailored solutions to tackle this challenge.

Our innovation has begun with an algorithm aimed to study the structure-activity relationships of chemical structures. It automatically brings to light parts of chemicals which influence biological properties. As this algorithm is able to identify relationships between a potential polypharmacological profile and molecular features, it has been successfully used to support decisions during early steps of drug-design processes. Our pioneering technology has since been applied to other types of data such as metabolomics data.

At QUIID we offer you customised solutions which go from bespoke software development to on-demand data analysis and expert case studies analyses in collaboration with the CENTRE D'ETUDES ET DE RECHERCHE SUR LE MÉDICAMENT DE NORMANDIE (CERMN). QUIID has been rewarded by BPI FRANCE (I-LAB 2015) and has already demonstrated its effectiveness in collaboration with TECHNOLOGY SERVIER.

QUIID – Knowledge Discovery Technologies **www.quiid.tech - contact@quiid.tech**

Tech2Market contribution : New business opportunities for the development of collaboration programs with private companies in order to enhance the academic research valorisation.

The historical way of collaboration between the academic world and the business was based on a one-way transfer of technologies and knowledge that the companies used to pay for upfront in a one-way collaboration.
Actually those collaborations are changing and evolving to something more complex and on a win-win base. The big pharma now collaborates much earlier with academia, but acquires the final product after the first safety data and the phase 1 or phase 2 when the application domain is risky as in the field of Alzheimer. Academics can really benefit from collaboration with the private sector. Those collaborations need to be set up as soon as possible.

In order to identify both the right partner for the right projects, companies like **Tech2Market** can provide research Institute and academics with proper support. In the previous years, several start-up or research structures managed to secure their product and IP by setting up early stage collaboration with private actors.

The future of the chemistry and all the related domains will probably be based on this model where the academics bring both the technique and the knowledge whereas the private sector is fulfilling the financial and business support bringing the right needs to the developed technologies.

More information: www.tech2market.fr

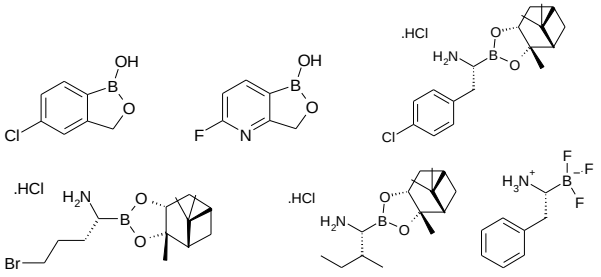
Contact: Renaud Confavreux , Senior Innovation Strategy Advisor **Tech2Market**
email: rconfavreux@tech2market.fr

BOROCHEM PBO
Powered By OmegaChem

www.borochem.fr

BoroChem PBO is a subsidiary of the OmegaChem company, aiming to **design, synthesize, develop** and **manufacture** rare or unprecedent organoboron building blocks. The latter are highly popular synthetic intermediates in organic synthesis for both their ease of conversion to other functional groups and their efficiency in metal-catalysed cross coupling reactions, and can be used in a wide range of fields (medicine, industrial process…).

BoroChem PBO possesses a **unique** and **recognized experience** in the synthesis of boronic species. Thanks to our high level of expertise in boron chemistry, we provide **aromatic** and **heterocyclic boronic species**, **trifluoroborates** and **halogenated heterocycles**. Over the past few years, our team has already successfully synthesized some of the most unique and useful products: **Benzoxaboroles, Pyridoxaboroles**, new enzyme inhibitors: **Boroamino acids** and **Trifluoroboroamino acids**. Our focus is providing our customers the best quality service, time to delivery and budget. We offer services that range from milligram quantity to kilo scale.



In addition, we offer specialty contract services that include **multi-step custom synthesis** and **engineering of new boron-based bioactive molecules**

VFP Therapies
Drugs: Highway to the Brain

Design and development of innovative therapies focusing on brain diseases

VFP Therapies is a French biopharmaceutical company (6 employees) at the forefront of drug delivery and development focusing on brain diseases. The innovation of the company, based on a specific platform technology, allows to administer smart drugs which are able to reach the brain while limiting potential side-effects on peripheral organs.

VFP Therapies' objectives are to design new chemical entities, so called bioprecursors, able to:

- **Go through the BBB for treating brain diseases before being biotransformed into active forms,**
- **Act selectively on specific biological receptors and hence inducing their therapeutic effect**
- **Reduce side effects in peripheral by directing mainly to the sole brain site.**

Such bioprecursors are "super" prodrugs resulting from a reversible chemical modification of the corresponding active form: the choice of the active form is made by mimicking known APIs with the goal to design competing and/or innovative drugs.

- **THE BUSINESS MODEL: pipeline development and partnership with pharma companies**
- **THE TECHNOLOGICAL PLATFORM: an innovative approach based on "super" prodrugs**
- **THE COMPETITIVE ADVANTAGE: a pretty secure drug brain targeting technology**

Contact:
VFP Therapies - 15, rue François Couperin 76000 ROUEN - France
Francis MARSAIS, President ☎ +33 (0)680 325 764 @ contact@vfp-therapies.com

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SYNTHENOVA

www.synthenova.com

We provide various services in fine organic chemistry intended for companies specialized in biotechnology and for pharmaceutical, cosmetic and chemical industries.

1. **Research**
   For customers who are interested in obtaining new products for their tests.
2. **Development**
   For known or new products produced on a small scale (milligram / gram). By developing appropriate synthesis processes, we can scale up to an industrial production.
3. **Custom synthesis**
   We offer customs personalized synthesis

Analysis
We can ensure the quality of products supplied to our customers and undertake analytical studies.

The analytical tools which we use are:

* Infrared spectrometry (medium range IR)
* Spectrometry NMR ^{1}H, ^{13}C, ^{31}P, ^{19}F et ^{28}Si
* Mass spectrometry
* Liquid chromatography coupled to mass spectrometry (LC/MS)
* Gaseous chromatography coupled to mass spectrometry (GC/MS)
* Elementary microanalysis
* Polarimetry.

Company information
Our experience concerns a wide range of chemical compounds: Alkaloids, Aminoacids, Alkanes, Heterocycles, Oligonucleotides, Organoboron compounds, Organometallic compounds, Peptides, Polymers, Steroids, Synthetics drugs…

SYNTHENOVA is located in the north-east of CAEN urban area, at the 15 rue Lamarck in Hérouville Saint Clair in a new laboratory setup in 2012 and dedicated to chemistry.

Email: synthenova@orange.fr Phone: +33(0)231946863 / Fax: +33(0)231940150

LABORATOIRES
Synth-Innove

Innovation in organic synthesis

A FULL SERVICE IN PHARMACEUTICAL CHEMISTRY

RESEARCH
Research of innovating synthetic pathways for the highest level of quality

Our main domain of activity:
- orphan drugs APIs,
- fluorescent labeling dyes for medical use,
- amino-acid derivatives, small peptides,
- rare chemicals for research.

MANUFACTURING
cGMP manufacturing for small quantities of APIs

We synthesize batches from the gram to the kilo, according to cGMP (ICH Q7A), with very special care in order to avoid cross-contamination and to reach the highest level of purity.

ANALYTICAL DEVELOPMENT
Development and validation of analytical methods

Our large array of materials (HPLC - DAD, HPLC - ion trap MS, GC - MS, IR, UV, spectrofluorimetry, ^{1}H NMR, ^{13}C NMR…) allows sophisticated analytical developments and their validation.

REGULATORY AFFAIRS
Elaboration of registration files and resolution of regulatory issues

We have a strong expertise in the constitution of registration files (ASMF, IND, MAA, NDA) in compliance with international official standards (ICH, European or FDA guidelines) and in solving scientific issues.

A partnership with Synth-Innove laboratories will accelerate your move from in-vitro concept to medical drug commercialization

François Scherninski, *Research Manager*
Tél. : +33 (0)1 45 58 36 90
Mobile : 33 (0) 6 86 66 49 97
Fax : +33 (0)1 47 00 89 84
Email : lablsi@aol.com
33, Boulevard du Général Martial Valin 75015 Paris

Cancéropôle Nord-Ouest (CNO) was set up in 2003 under France's first Cancer Plan and encompasses the regions of Hauts-de-France and Normandy, covering a population of almost 10 million people that are more frequently affected by cancer than in any other French region. Providing a common framework for cancer research in the North of France, **CNO** is a central cancer research hub and a key field actor with a thorough knowledge of the need of its population, its research team and its partner institutions.

More than 60 recognized research teams (from universities, INSERM and CNRS) collaborate with clinical and laboratory hospital departments on the unifying theme "From cancer screening to innovative treatments", organized around 5 key cancer research topics.

Through several meetings organized all year long, **CNO** offers scientific support and coordination in cancer research field. It also identifies and helps to develop emerging and structuration projects by annual calls for proposals, and supports researchers by offering them guidance and advice, helping to submit projects to national and international calls for proposals, enhancing mobility or organizing scientific events.

CNO is also strongly implied in clinical research development, by its partnership with Northwest GIRCI and the regional oncology networks and mobile clinical research teams. The ERNU project ('Randomised clinical research in non-university hospitals') aims to assess the impact of **CNO** structured assistance on increasing recruitment of patients to clinical trials, among patients cared for in non-university healthcare facilities in the Northwest interregion.

Lastly, **CNO** was also part of the development of two facilities, which constitute a new venture in France: Cancer and Cognition platform provides expertise on the assessment of cognitive problems in oncology. **CNO**'s Social Inequalities platform is the dedicated national resource center for measuring social inequalities in health that provides and is continuing to develop innovative methodological support for research projects relating to social inequalities.

All these informations and more precisions can be found on **CNO** website:

www.canceropole-nordouest.org

Société de Chimie Thérapeutique

European Journal of Medicinal Chemistry

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

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More than 2500 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.

EJMECH wishes to strengthen its Editorial team. New Editors are to be appointed soon. Ideally they should come from pharmaceutical industry or biotech companies. Candidacies should be sent to the Editor in Chief.

Coming soon:

Call for papers, special issue: *Short reviews in anticancer drugs*.

The impact factor of EJMECH (3.902) is one of the highest of all medicinal chemistry journals.

Pr Hervé Galons
Université de Paris Descartes

Upcoming events organized under the auspices of the SCT:

53rd International Conference on Medicinal Chemistry RICT 2017

July 5-7, 2017, Toulouse, France

24th SCT Young Research Fellows Meeting (Journées de Jeunes Chercheurs, JJC)

February 8-10, 2017, Châtenay-Malabry (South of Paris), France

For more information: www.sct-asso.fr
