

## CONTACTS

Fabrice BIREBAUT  
xl-chem@normandie-univ.fr  
Tel. (+33)2 31 56 69 91

Pierre-Yves RENARD  
pierre-yves.renard@univ-rouen.fr  
Tel. (+33)2 35 52 24 76

**XL-CHEM**  
GRADUATE SCHOOL OF RESEARCH

# XL-CHEM

## GRADUATE SCHOOL OF RESEARCH

### RESEARCH



2 of the 4 SynOrg laboratories (Institut CARMeN)

INSTITUT CARMEN (ROUEN / CAEN)  

XL-Chem brings together all the units of medicinal, molecular and macromolecular chemistry in a territory that is the 2<sup>nd</sup> production area in Europe for medicines. It is supported by the regional poles (Polepharma, Cosmetic Valley, Pôle Polymère et Plasturgie...). It is based on the excellence of the research carried out within the LabEx SynOrg "Synthèse organique pour le vivant", obtained in the framework of PIA 1, which represents the largest French organic synthesis laboratory dedicated to the discovery and synthesis of new pharmacologically active compounds, and a better understanding of biology through innovative synthetic technologies for bioconjugate chemistry and medical imaging.

### LABEX ACADEMIC EXCELLENCE CHAIRS

- André CHARETTE (Montreal, Canada)
- Marc LAUTENS (Toronto, Canada)
- Norio SHIBATA (Nagoya, Japon)
- Yoschinori KONDO (Sendai, Japon)
- Paul WILLIARD (Brown University, Providence, USA)

### PARTNERSHIPS



8 Carnot I2C laboratories

INSTITUT CARMEN (ROUEN / CAEN)



The XL-Chem players work closely with the competitiveness clusters and are involved in transferring knowledge to the socio-economic fabric, within the framework of the Carnot I2C since 2017 for partnership research. The Carnot I2C Institute is positioned as a privileged partner to support innovation in the pharmaceutical, cosmetics, sustainable development, specialty chemistry and polymer materials sectors. XL-Chem can also rely on Normandie Valorisation for technology transfer. The laboratories involved in XL-Chem also have long-standing links with industry, for example through joint laboratories with large groups and the creation of start-ups from the research work of the laboratories.

### Partner organisations

- Cosmetic Valley
- Polepharma
- France Chimie Normandie...

### Start-ups: 10 Spin-offs over the past 10 years

- TFChem
- Aquistain
- VFP Therapies
- Kalain
- Polyintel
- Borochem
- Holodiag
- Holochem
- ChemForAse
- Holopharm

### Joint laboratories

- Janssen/Institut CARMeN
- Oril/Institut CARMeN
- Servier/CERMN
- Total/Institut CARMeN
- Hermès/PBS-Institut CARMeN

### Industrial partnerships (2.1 M€ contracts/year)

- Servier
- Janssen
- Oril
- Total
- Arkéma
- Adisséo
- L'Oréal
- Hermès
- BioMérieux
- Sanofi

# XL-CHEM

## GRADUATE SCHOOL OF RESEARCH

UNIVERSITY GRADUATE SCHOOL OF CHEMISTRY RESEARCH

LET'S SYNTHESIZE,  
OUR FUTURE  
TOGETHER

This work has benefited from State aid, managed by the National Research Agency under the investment for the future Programme (ANR-18-EURE-0020) and from the Normandy Region.



[www.eur-xl-chem.com](http://www.eur-xl-chem.com)



# XL-CHEM: A CENTRE FOR MOLECULAR CHEMISTRY TRAINING AND RESEARCH IN EUROPE

The **University Graduate Schools (GS)**, funded under PIA 3, aim to structure and strengthen the impact and international attractiveness of training and research at French universities in one or more scientific fields, linking research and training.

The **XL-Chem GS** takes fully part in this dynamic with a strong ambition: **to become a reference training and research center in molecular chemistry in Europe**. Anchored in the "Chemistry, Biology, Health and Well-being" cluster of the Normandy region, it plays a key role in the fields of **Organic Synthesis, Polymer Chemistry, Spectrochemistry and Cosmetics**.

## TRAINING OF EXCELLENCE FOR FUTURE CHEMISTS

XL-Chem's mission is to train **innovative and enterprising chemists**, capable of seizing opportunities and mastering modern management tools:

- **Agility**
- **Responsiveness**
- **Innovation**
- **Change management**

Thanks to this approach, XL-Chem strengthens the position of Normandy universities in research and offers its **students a high-level international profile**. They thus acquire all the technical and transversal skills necessary to succeed, whether in **academic research** or in **industry**.

## RESOURCES AND STRATEGIC PARTNERSHIPS

XL-Chem is receiving **€4.1 million over 10 years (2018-2028)** to achieve its objectives and builds on the success of Norman chemists in the context of **Investments for the Future**.

The objective: **to strengthen the attractiveness of Normandy universities and make Normandy a major European pole in molecular chemistry**.

- **Pure research**: support for **two internationally renowned laboratories** from the **SynOrg LabEx**, certified in 2012 and renewed in 2019.
- **Applied research and technology transfer**: support of the **eight laboratories of the Institut Carnot I2C** in Normandy, awarded the **Tremplin** label in 2017, then the **Institut Carnot** in 2020.

## A UNIQUE PATH MASTER-DOCTORATE

XL-Chem trains future executives in the **health, cosmetics, specialty chemistry and sustainability industries**, while integrating a **strong entrepreneurial culture**.

Its training offer is based on an **innovative Master's and PhD course**, which combines:

- **Training through in excellence research** with an international dimension.
- **In-depth training in entrepreneurship and management**.

## A UNIQUE ECOSYSTEM IN FRANCE

The **articulation between EUR XL-Chem – LabEx SynOrg – Institut Carnot I2C** creates a unique **continuum Training – Research – Transfer/Valorisation** at regional and national level. By strengthening its links with companies, XL-Chem has established itself as a key player in the chemical industry in Europe.

## THEMATICS

- Organic chemistry and synthesis methodology
- Pharmaceutical chemistry
- Chemical biology
- Cosmetics
- Analytical chemistry
- Polymer chemistry

## KEY FIGURES

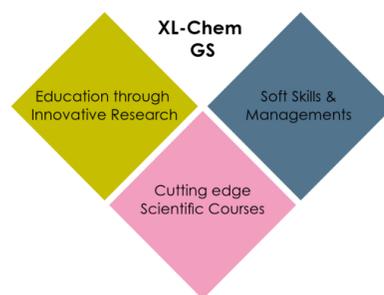
- **200 Teaching staff**
- **8 research labs based in Normandy**
- **1 LabEx SynOrg (11.1M €, PIA1 and PIA 2)**
- **1 I2C "CARNOT" Institute (PIA3, €2.1M of partner turnover)**
- **€ 4.1 million over 10 years (2018-2028) of financing (PIA 3)**
- **1 research federation (INC3M)**
- **Several ERC starting grants**
- **Many international awards**
- **1 Erasmus programme**

## TRAINING

The **objectives of XL-Chem**, which fit within the scope of the **Norman Doctoral School of Chemistry (EDNC 508)** are:

- To strengthen the attractiveness of Normandie Université.
- Make the Normandy region a major European research and training centre for molecular chemistry.

In order to **train tomorrow's executives**, XL-Chem offers **innovative "à la carte" courses at the Master and PhD level**, combining **training through excellence research, project management and management**, in line with the candidate's professional project.



## A springboard for the futur leaders as



## THE STRENGTHS OF XL-CHEM

XL-Chem offers excellent training in chemistry, based on personalised support, immersion in high-level research and international openness.

### A PERSONALISED APPROACH

- Each master's student benefits from a dedicated mentor, who accompanies them in the choice of scientific courses and conferences and entrusts him with an innovative research project.
- An in-depth training through research, with a three-month internship in M1 carried out within the laboratories of the Institut Carnot I2C and LabEx SynOrg, and a six-month internship in M2 which must be carried out in a renowned international partner laboratory or in industry.

### A TAILOR-MADE AND RECOGNIZED TRAINING

- An "à la carte" selection of chemistry courses and lectures, taught in English by nationally and internationally recognised experts (CNRS, professors-researchers).
- A training adapted to each student's career plan.
- **Double degrees** with prestigious universities.
- A training dedicated to the **writing of research projects**, with the possibility of obtaining thesis funding for the best projects.
- **Management courses** in partnership with a large management school, designed in collaboration with the professional branches (France Normandie Chimie, Cosmetic Valley, Polepharma) and supported by more than twenty companies in the sector (Oril, Sanofi, Janssen, SGS, Total, Solvay, L'Oréal, Hermès, etc.).

- **An alternance course** in Analysis and Spectrochemistry, meeting the expectations of companies and relying on a unique instrumental park.

### UNIQUE OPPORTUNITIES

- **Excellence scholarship of 600 € per month**, automatically awarded to all students accepted in Master (not subject to social criteria).
- **Many opportunities for international mobility** to enrich your academic and professional career.

### A DIFFERENTIATED EUROPEAN PHD

- XL-Chem offers doctoral students an exceptional course with **internships of 6 to 18 months** in internationally recognized research laboratories.
- An "à la carte" training in **management and entrepreneurship**, aligned with the doctoral student's professional project.

DISCOVER XL-CHEM  
IN VIDEO!



XL-CHEM  
GRADUATE SCHOOL OF RESEARCH