



CNRS Research Director

Team MESOO

Tel : +33 2 35 52 29 06

Team MESOO

 0000-0002-4807-7897



<https://www.linkedin.com/in/julien-legros-6b74a846/>

Dr Julien LEGROS



E-mail : julien.legros@univ-rouen.fr

PROFESSIONAL EXPERIENCES

2019- Head of the French national network on flow chemistry (GDR CNRS Synth Flux)

2018- Research Director (CNRS) in the COBRA laboratory at the University of Rouen Normandy / Group leader of the Team MESOO

Research activities: chemical synthesis in non-conventional media (flow chemistry, very high pressure, fluoruous phase)

2011- Research Scientist (CNRS) in the COBRA laboratory at the University of Rouen Normandy

2004-2011 Research Scientist (CNRS) in the BioCIS laboratory at the Faculty of Pharmacy of Paris South

2002-2004 Alexander von Humboldt fellow at the RWTH Aachen University (Germany; group of Prof. BOLM)

EDUCATION

2009 Habilitation degree (Faculty of Pharmacy-Univ. Paris South, Châtenay-Malabry)

2002 PhD in organic chemistry (Faculty of Pharmacy-Univ. Paris South, Châtenay-Malabry; group of Dr BEGUE)

RESEARCH MANAGEMENT & INSTITUTIONAL COMMITMENTS

2022- Co-coordinator of 'NormandieFlowChem' Platform

2021-2023 Co-Coordinator of the National Project 'Autonomie Pharmaceutique Industrielle'

2017-2023 CNRS Coordinator of the European INTERREG FMA projects "Transforming laboratories into factories (LabFact)" and "Intelligent Textiles (SmartT)"

2019- Head of the French National Network on Flow Chemistry Group (GDR CNRS "Synth Flux")

2018- Head of the MESOO/Member of the UMR COBRA Management Team

2014- Member of the Joint Administrative Commission of the CNRS

2008-2012 Scientific Secretary of Section 12 of the National Committee for Scientific Research

2009-2011 Member of the Council of the Faculty of Pharmacy-Paris Sud

- ✓ Member of 7 selection committees for Lecturer competitions
- ✓ Member of 2 HCERES visiting committees
- ✓ Occasional expert for press on chemical weapons (AFP, Le Monde, RFI, Radio Canada, La Recherche, Sciences & Vie, Planète+)

RESEARCH INTERESTS

Julien Legros (PhD 2002 with Drs Bégue and Bonnet-Delpon at University Paris South, then Alexander von Humboldt fellow with Prof. Bolm at RWTH Aachen), is currently CNRS Research Director at the University of Rouen Normandy (France) and head of the CNRS French Network on Flow Chemistry ([GDR Synth Flux](#)). Group leader of the "MESOO" research team within the COBRA laboratory in Rouen, his research is oriented toward the use of alternative reactors, namely hyperbaric reactors and miniaturized continuous flow reactors for the detoxification of chemical warfare agents, the synthesis of active pharmaceutical ingredients and methodological development in organic and organometallic chemistry. He has been CNRS coordinator for the European France(Chanel)England program INTERREG Turning Laboratories into Factories (LabFact) and Smart Textiles (SmartT).

SCIENTIFIC ACHIEVEMENTS

Academic record (h-index: 27)

88 publications, 4 book chapters, 1 patents, 38 invited lectures (academia & industry)

SUPERVISION ACTIVITIES

14 PhD thesis supervised • 17 post-doctoral research associates • 2 Engineers

TEACHING ACTIVITIES

Lecture courses in Flow synthesis, Neoteric media and Hyperbaric synthesis (Master degree-University of Rouen and Graduate School of Chemistry-Normandy) and Industrial organic chemistry (Technician degree-University of Rouen)

10 REPRESENTATIVE LECTURES

1. Chemistry in continuous flow reactors: synthesis of active pharmaceutical ingredients and decontamination of chemical warfare agents
SECO 60, Arêches Beaufort, 21-26 May 2023

2. Chimie des organolithiés en réacteurs miniaturisés à flux continu: de la chimie éclair à la synthèse de principes actifs
Journée de Chimie Organométallique, Université de Lorraine, 26 October 2022
3. Selectivity Control by Flow Chemistry: From Organolithium Chemistry to the Neutralisation Of Chemical Warfare Agents
36th GRAMS Open Meeting (Japanese Group for Research on Automated Flow and Microreactor Synthesis), Osaka, Japan, 5 August 2022 (*hybrid*).
4. Selectivity under microflow conditions
Symposium on flow chemistry and reagentless synthesis, Southampton, Grande-Bretagne, 30 September 2019
5. Continuous flow microreactors for safe chemical synthesis with hazardous reagents
Workshop on green and sustainable chemistry: fostering chemical safety and security through innovation, Organisation pour l'Interdiction des Armes Chimiques, La Haye, Pays-Bas, 4-5 December 2018
6. Neutralisation d'agents chimiques de guerre en flux continu
Journée DRAGON NRBC, NexterSystems, Versailles-Satory, 6 July 2022
7. Chimie en flux: Contrôle de sélectivité en chimie organométallique et en neutralisation de composés organosoufrés
Laboratoire de Chimie de Coordination, Toulouse, 7 July 2023
8. Taming unstable and hazardous species by flow reactors
Universidade Federal do Paraná, Curitiba, Brazil, 13 October 2022
9. Selectivity control in organic synthesis by mean of flow microreactors
Institut Favorsky de l'Académie des Sciences de Russie, Irkutsk, Russia, 25 novembre 2016
10. Use of fluorous compounds for the synthesis and recovery of amines
Kyoto University, Japon, 30 November 2012

10 REPRESENTATIVE PUBLICATIONS

- (1) Silva, V. B.; Mansour, S.; Delaune, A.; Felpin, F.-X.; Legros, J. Flow Detoxification of a Sulfur Mustard Simulant with Organometallic Compounds Enabled by an Optimization Algorithm. *React. Chem. Eng.* **2023**, *in press*, <https://doi.org/10.1039/D3RE00264K>.
- (2) Faye, Y.; Rkein, B.; Bigot, A.; Lequeux, T.; Legros, J.; Chataigner, I. Photocatalyzed (3+2) Cycloaddition for the Dearomatization of Electron-Poor Arenes under Flow Conditions. *Chem. Eur. J.* **2023**, *in press*, e202301567. <https://doi.org/10.1002/chem.202301567>.
- (3) Monbaliu, J.-C. M.; Legros, J. Will the next Generation of Chemical Plants Be in Miniaturized Flow Reactors? *Lab Chip* **2023**, *23* (5), 1349–1357. <https://doi.org/10.1039/D2LC00796G>.
- (4) Cordier, A.; Klinksiek, M.; Held, C.; Legros, J.; Leveneur, S. Biocatalyst and Continuous Microfluidic Reactor for an Intensified Production of N-Butyl Levulinate: Kinetic Model Assessment. *Chem. Eng. J.* **2023**, *451*, 138541. <https://doi.org/10.1016/j.cej.2022.138541>.

- (5) Mansour, S.; Silva, V. B.; Orth, E. S.; Legros, J. Soft Detoxification of Chemical Warfare Agent Simulants and Pesticides under Pressure. *Org. Biomol. Chem.* **2022**, *20* (38), 7604–7608. <https://doi.org/10.1039/D2OB01217K>.
- (6) Brégent, T.; Ivanova, M. V.; Poisson, T.; Jubault, P.; Legros, J. Continuous-Flow Divergent Lithiation of 2,3-Dihalopyridines: Deprotolithiation versus Halogen Dance. *Chem. Eur. J.* **2022**, *28* (71), e202202286. <https://doi.org/10.1002/chem.202202286>.
- (7) Mansour, S.; Delaune, A.; Manneveau, M.; Picard, B.; Claudel, A.; Vallières, C.; Sigot, L.; Renard, P.-Y.; Legros, J. Soft and Effective Detoxification of a VX Simulant in a Nylon 3D Printed Basic Flow Reactor. *Green Chem.* **2021**, *23* (19), 7522–7527. <https://doi.org/10.1039/D1GC01961A>.
- (8) Delaune, A.; Mansour, S.; Picard, B.; Carrasqueira, P.; Chataigner, I.; Jean, L.; Renard, P.-Y.; Monbaliu, J.-C. M.; Legros, J. Flow Neutralisation of Sulfur-Containing Chemical Warfare Agents with Oxone: Packed Bed vs. Aqueous Solution. *Green Chem.* **2021**, *23* (8), 2925–2930. <https://doi.org/10.1039/D1GC00449B>.
- (9) Picard, B.; Gouilleux, B.; Lebleu, T.; Maddaluno, J.; Chataigner, I.; Penhoat, M.; Felpin, F.-X.; Giraudeau, P.; Legros, J. Oxidative Neutralization of Mustard-Gas Simulants in an On-Board Flow Device with In-Line NMR Monitoring. *Angew. Chem. Int. Ed.* **2017**, *56* (26), 7568–7572. <https://doi.org/10.1002/anie.201702744>.
- (10) Pérez, K.; Picard, B.; Vuluga, D.; Burel, F.; Hreiz, R.; Falk, L.; Commenge, J.-M.; Nagaki, A.; Yoshida, J.; Chataigner, I.; Maddaluno, J.; Legros, J. Bromine–Lithium Exchange on a Gem-Dibromoalkene, Part 2: Comparative Performance of Flow Micromixers. *Org. Process Res. Dev.* **2020**, *24* (5), 787–791. <https://doi.org/10.1021/acs.oprd.0c00203>.