



Prof Géraldine GOUHIER



Bioorganic team

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PROFESSIONAL EXPERIENCES

- 2007- Professor Rouen Normandy University, France.
- 1996-2007 Lecturer, Rouen Normandy University, France.
- 1993-1994 Postdoctoral Associate; Advisor: Dr. J. Lusztyk, NRC of Ottawa, Canada.

EDUCATION

- 1995-1996 M.S. Industrial Extractive Processes, ENSCR of Rennes and Archimex, France.
- 1991-1993 Ph.D. Organic Chemistry, University of Bordeaux I, France.
- 1990-1991 M.S. Organic Chemistry, University of Caen, France.

ADMINISTRATIVE & INSTITUTIONAL RESPONSIBILITIES

- 2017- Elected Member of Administrative Board
- 2017- Business Manager of Carnot I2C
- 2015-2016 Vice-President of International Affairs
- 2013 Vice-President of Valorization and Industrial Partnerships
- 2012-2013 Elected Member of Scientific Council of University of Rouen
- 2008-2013 Vice-Dean of Research and International Affairs of Faculty of Sciences
- 2004-2013 Elected Member of Scientific Council of Faculty of Sciences
- 2003-2013 Elected Member of Laboratory Council UMR 6014, COBRA
- 1996-2013 Elected Member of Chemistry Department

RESEARCH INTERESTS

Functionalization of cyclodextrins, Formation of inclusion complexes, MRI contrast agents for diagnosis and theranostic, Biomimetics scavengers, Supported chemistry, Green catalysts, Depollution supports

SCIENTIFIC ACHIEVEMENTS

Academic record: 37 publications, 1 book chapters, 2 patents, 14 invited lectures (academia & industry)

Exemples d'autres rubriques possibles (sans restriction de place)

SUPERVISION ACTIVITIES

Supervising: 14 PhD, 6 post-doc, 3 PhD under progress

GRANTS AND FELLOWSHIPS

2008 Programme soutien à la prise de risques du CNRS, 2009 France/Maroc CNRS/CNRST, 2009 OSEO, 2012 FEDER, 2012 Fond de maturation Seinari, 2012 AIChem, 2013 Erasmus Mundus Battuta, 2016 Erasmus Mundus Battuta, 2017 Labex SynOrg international, 2018 Erasmus Mundus Volubilis, 2019 Apur, 2020 RIN Tremplin, 2020 SynOrg

TEACHING ACTIVITIES

Organic Chemistry: nomenclature et stereochemistry, mesomer and electronic effects, simple and bifunctional functions, Health and safety, supported Chemistry, Tandem Chemistry

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

- Member of Labex SynOrg since 2013
- Member of EUR XL Chem created in 2019
- Member of Carnot I2C created in 2017
- Member of Imaging GDR created in 2018
- Member of the IRIB network
- Member of the Club Français des cyclodextrines
- Member of the Health Biology Chemistry (CBSB)
- Member of the Research Federation FR3038 INC3M (Normand Institute of Molecular, Medicinal and Macromolecular Chemistry)
- Member of Western Cancer Centre

EDITORIAL ACTIVITIES

Co-Editor with F. Estour of special issue "Calixarene and Cyclodextrin Derivatives: Design and Applications" published in open access journal in categorie "Engineering, Chemical" MDPI Journal 2020.

CONFERENCES

- High-relaxivity and High-stability Supramolecular MRI Contrast Agent Based on

Modified β -Cyclodextrin / Gadolinium Complexes, EuroCD, October 2019, St Jacques de Compostelle, Spain

- Cyclodextrins: an appropriate scaffold for new MRI theranostic probes, Drug Discovery & Therapy World Congress, July 2017, Boston, USA
- Cyclodextrins as Scaffolds of New Smart MRI Contrast Agents, Being Smart in Coordination Chemistry: Medical Applications, Orléans, September 2016
- New MRI Contrast Agent Based on Modified Cyclodextrins. Hydration Spheres Effects Studies, 18th International Cyclodextrin Symposium, May 2016, Gainesville, Florida, USA
- New contrast agents for MRI, University of KSU, April 2013, Riyadh, Saudi Arabia
- New contrast agents for MRI, University of Brest, 2013
- Cyclodextrins : new applications, University of Orléans, 2012
- New contrast agents for MRI, University of Toulouse, 2012
- New smart contrast agents for MRI, 2nd European Conference on Cyclodextrins, 2011, Asti, Italy
- Development of new molecular contrast agent, 2010, University of Marseille
- Homologation of cyclodextrin supported on ionic liquids and new applications in MRI, Université de l'Île du Prince Edward (UPEI), 2009, Canada
- Phosphonyl and difluorophosphonyl radicals and their sulphur analogues, Université de Columbia, New York, USA, 2004

52 Oral Communications in congress

PUBLICATIONS

37. Organotin Catalyst Supported on Ionic Liquid for Ring Opening Polymerization of ϵ -Caprolactone, Bouyahya, A.; Balieu, S.; Beniazza, R.; Raihane, M.; Elkadib, A.; Le Cerf, D.; Thébault, P.; Gouhier, G.*; Lahcini M.*, *New J. Chem.* **2019**, *43*, 5872-5878
36. Synthesis and Unprecedented Complexation Properties of β -Cyclodextrin-Based Ligand for Lanthanide Ions, Champagne, P.-L.; Barbot, C.; Zhang, P.; Han, X.; Gaamoussi, I.; Hubert-Roux, M.; Bertolesi, G. E.; Gouhier, G.*; Ling C.-C*., *Inorg. Chem.* **2018**, *57*, 8964-8977
35. MRI probes based on C6-peracetate β -cyclodextrins: synthesis, gadolinium complexation and *in vivo* relaxivity studies, Biscotti, A.; Barbot, C.; Nicol, L.; Mulder, P.; Sappei, C.; Roux, M-H.; Déchamps-Olivier, I.; Estour, F.; Gouhier, G.*, *Polyhedron* **2018** *148*, 32-43
34. Structure-efficiency relationships of cyclodextrin scavengers in the hydrolytic degradation of organophosphorus compounds, Letort, S.; Bosco, M.; Cornelio, B.; Brégier, F.; Daulon, S.; Gouhier, G.; Estour, F.*, *Beilstein J. Org. Chem.* **2017**, *13*, 417-427
33. Positive Variation of MRI Signal via Intramolecular Inclusion Complexation of C-2 functionalized β -Cyclodextrin, Zgani, I.; Idriss, H.; Barbot, C.; Djedaïni-Pilard, F.; Petit, S.; Hubert-Roux, M.; Estour, F.; Gouhier, G.* *Org. Biomol. Chem.*, **2017**, *15*, 564-569
32. Ionic liquids and cyclodextrin inclusion complexes: limitation of the affinity capillary electrophoresis technique, Mofaddel, N.; Fourmentin, S.; Guillen, F.; Landy, D.; Gouhier, G.* *Anal. Bioanal. Chem.* **2016**, *408*, 8211-8220
31. Interactions of Cyclodextrins and their Derivatives with Toxic Organophosphorus Compounds, Letort, S.; Balieu, S.; Erb, W.; Gouhier, G.; Estour, F.*, *Beilstein J. Org. Chem.* **2016**, *12*, 204-228

30. Structure-Binding Effects: Comparative Binding of 2-Anilino-6-naphthalene Sulfonate by a Series of Alkyl- and Hydroxyalkyl-Substituted β -Cyclodextrins, Favrelle, A.; Gouhier, G.*; Guillen, F.; Martin, C.; Mofaddel, N.; Mundy, K.; Pitre, S.; Wagner, B.*, *J. Phys. Chem. B* **2015**, *119*, 12921-12930
29. The Use of Ionic Liquids as an Organocatalyst for controlled Ring-Opening Polymerization of ϵ -Caprolactone, Kaoukabi, A.; Guillen, F.; Qayouh, H.; Bouyahya, A.; Balieu, S.; Belachemi, L.; Gouhier, G.*; Lahcini, M.*, *Industrial Crops and Products* **2015**, *72*, 16-23
28. The first 2IB,3IA-heterodifunctionalized β -cyclodextrin derivatives as artificial enzymes, Letort, S.; Mathiron, D.; Grel, T.; Albaret, C.; Perrier, N.; Pilard, S.; Djedaïni-Pilard, F.; Gouhier, G.; Estour, F.*, *Chem. Commun.* **2015**, *51*, 2601-2604
27. Crystal Growth, Structure, and Polymorphic Behavior of an Ionic Liquid: Phthalate Derivative of *N*-Butyl, *N*-methylimidazolium Hexafluorophosphate, Brandel, C.; Gbabode, G.; Cartigny, Y.; Martin, C.; Gouhier, G.; Petit, S.; Coquerel, G.*, *Chem. Mater.* **2014**, *26*, 4151-4162
26. Synthesis and preliminary screening: evaluation of the detoxification using a half-quantitative enzymatic assay. New modified β -cyclodextrin derivatives as detoxifying agents of chemical warfare agents (I), Kalakuntla, R.K.; Wille, T.; Le Provost, R.; Letort, S.; Reiter, G.; Müller, S.; Thiermann, H.; Worek, F.; Gouhier, G.; Lafont, O.; Estour, F.*, *Toxicol Lett.* **2013**, *216*, 200-205
25. Effect of the Second Coordination Sphere on New Contrast Agents Based on Cyclodextrin Scaffold for MRI Signal, Idriss, H.; Estour, F.; Zgani, I.; Barbot, C.; Biscotti, A.; Petit, S.; Galaup, C.; Hubert-Roux, M.; Nicol, L.; Mulder, P.; Gouhier, G.*, *RSC Adv.* **2013**, *3*, 4531-4534
24. Functionalized Cyclodextrins – A Promising Way to Degrade Nerve Agents, Estour, F.; Letort, S.; Müller, S.; Kalakuntla, R.K.; Le Provost, R.; Wille, T.; Reiter, G.; Worek, F.; Lafont, O.; Gouhier, G.*, *Chem. Biol. Interact.* **2013**, *203*, 202-207
23. First use of supramolecular recognition to extract and stabilize an enzymatic inhibitor of coagulation process, Grandeury, A.; Martin, C.; Petit, S.; Craescu, C. T.; Gouhier, G.*, *New J. Chem.* **2010**, *34*, 1089-1093
22. First examples of alpha-(1-4)-glycosylation reactions supported on ionic liquid, Pepin, M.; Huber-Roux, M.; Martin, C.; Guillen, F.; Lange, C.; Gouhier, G.*, *Eur. J. Org. Chem.* **2010**, 6366-6371
21. Chiral discrimination in host-guest supramolecular complexes. Understanding enantioselectivity and solid solution behaviours by using spectroscopic methods and chemical sensors, Grandeury, A.; Condamine, E.; Hilfert, L.; Gouhier, G.; Petit, S.; Coquerel, G.*, *J. Phys. Chem. B.* **2007**, *111*, 7017-7026
20. Phosphonodifluoromethyl and phosphonothiodifluoromethyl radicals. Generation and addition onto alkenes and alkynes, Pignard, S.; Lopin, C.; Gouhier, G.; Piettre, S. R.*, *J. Org. Chem.* **2006**, *71*, 31-37
19. Nucleotides and nucleic acids: A source of inspiration for the development of new, phosphorus-centered functional groups, Lopin, C.; Garipova, G.; Kalinina, I.; Raboisson, P.; Osaki, T.; Gautier, A.; Balieu, S.; Salcedo, C.; Gouhier, G.; Piettre, S. R.*, *Nucleic Acids Symposium Series* **2006**, *50*, 53-54
18. The preparation of new phosphorus-centered functional groups for modified oligonucleotides and other natural phosphates, Gautier, A.; Lopin, C.; Garipova, G.; Dubert, O.; Kalinima, I.; Salcedo, C.; Balieu, S.; Glatigny, S.; Valnot, J.-Y.; Gouhier, G.; Piettre, S. R.*, *Molecules* **2005**, *10*, 1048-1073
17. On the use of Boronates in the Petasis Reaction, Jourdan, H.; Gouhier, G.; Van Hijfte, L.; Angibau, P.; Piettre, S. R.*, *Tetrahedron Lett.* **2005**, *46*, 8027-8031

16. Development of cross-linked polystyrene-supported chiral amines featuring a fluorinated linker for gel-phase ^{19}F NMR spectrometry monitoring of reactions, Hourdin, M.; Gouhier, G.; Gautier, A.; Condamine, E.; Piettre, S. R.*, *J. Comb. Chem.* **2005**, *7*, 285-297
15. New synthesis of (*E,Z*)-2,7-bis(4-cyanobenzylidene)cycloheptan-1-one under stereospecific constraints induced by host-guest interactions, Grandeur, A.; Petit, P.; Coste, S.; Coquerel, G.; Perrio, C.; Gouhier, G.*, *Chem. Commun.* **2005**, 4007-4009
14. Chiral resolution by crystallization of host-guest supramolecular complexes. A paradoxal situation with an efficient discrimination despite structural similarities, Grandeur, A.; Renou, L.; Dufour, F.; Petit, S.; Gouhier, G.; Coquerel, G.*, *J. Thermal Analysis and Calorimetry* **2004**, *77*, 377-390
13. Enantioseparation of 1-(*p*-bromophenyl)ethanol by crystallization of host-guest complexes with permethylated β -cyclodextrin: crystal structures and mechanisms of chiral recognition, Grandeur, A.; Petit, S.; Gouhier, G.; Agasse, V.; Coquerel, G.*, *Tetrahedron: Asymmetry* **2003**, *14*, 2143-2152
12. Crystallization of supramolecular complexes as an alternative route for the separation of racemic *p*-X-phenylethanol, Grandeur, A.; Tisse, S.; Gouhier, G.; Agasse, V.; Petit, S.; Coquerel, G.*, *Chem. Eng. Technol.* **2003**, *26*, 354-358
11. First synthesis of *S,S*-dialkyl difluorophosphonodithioates and difluorophosphonotrithioates, Lopin, C.; Gouhier, G.; Piettre, S. R.*, *Tetrahedron Lett.* **2003**, *44*, 8837-8840
10. Phosphonyl, phosphonothioyl, phosphonodithioyl, and phosphonotrithioyl radicals: generation and study of their addition onto alkenes, Lopin, C.; Gouhier, G.; Gautier, A.; Piettre, S. R.*, *J. Org. Chem.* **2003**, *68*, 9916-9923
9. First and efficient synthesis of phosphonodifluoromethylene. Analogues of nucleoside 3'-phosphates: crucial role played by sulfur on construction of the target molecules, Lopin, C.; Gautier, A.; Gouhier, G.; Piettre, S. R.*, *J. Am. Chem. Soc.* **2002**, *124*, 14668-14675
8. Sulfanyl- and selenyldifluoromethylphosphonates as a source of phosphonodifluoromethyl radicals and their addition onto alkenes, Lequeux, T.; Lebouc, F.; Lopin, C.; Yang, H.; Gouhier, G.; Piettre, S. R.*, *Org. Lett.* **2001**, *3*, 185-188
7. Generation of dialkyl phosphonodithioyl radicals and their addition onto alkenes. Synthesis of 3-phosphonodithiomethyl-3-deoxofuranosides, Lopin, C.; Gauthier, A.; Gouhier, G.; Piettre, S. R.*, *Tetrahedron Lett.* **2000**, *41*, 10195-10200
6. Absolute kinetics of aminium radical reactions with olefins in acetonitrile solution, Wagner, B. D.; Ruel, G.; Luszyk, J.*, *J. Am. Chem. Soc.* **1996**, *118*, 13-19
5. Electrostatic effects on the C_{60} surface of alkyl- C_{60} radicals, Morton, J. R.*; Negri, F.; Preston, K. F.; Ruel, G., *J. Chem. Soc., Perkin Trans. 2* **1995**, 2141-2145
4. The EPR spectra of partially-fluorinated alkyl- C_{60} radicals and a theoretical study of interactions on the C_{60} surface, Morton, J. R.*; Negri, F.; Preston, K. F.; Ruel, G., *J. Phys. Chem.* **1995**, *22*, 1014-1017
3. Towards no-polluting organotin reagents for synthesis, Ruel, G.; Dumartin, G.; Delmond, B.; Lalère, B.; Donard, O. F. X.; Pereyre, M.*, *Applied Organometal. Chem.* **1995**, *9*, 591-595
2. Straightforward synthesis and reactivity of polymer-supported organotin hydrides, Dumartin, G.; Ruel, G.; Kharboutli, J.; Delmond, B.; Connil, M. F.; Jouseaume, B.; Pereyre, M.*, *Synlett* **1994**, *12*, 952-954
1. Un nouvel hydrure organostannique greffé sur un support insoluble, Ruel, G.; The, N. K.; Dumartin, G.; Delmond, B.; Pereyre, M.*, *J. Organometal. Chem.* **1993**, *444*, C18-20