CURRICULUM VITAE

PERSONNAL DETAILS

Géraldine GOUHIER
Nationality: French
Language: French, English, Gulf Arabic (notions)

ADMINISTRATIVE ADDRESS

UMR 6014 CNRS COBRA
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University of Rouen
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ACADEMIC EDUCATION

1991	**Master's Degree** in Chemistry, University of Bordeaux I, France
1993	**PhD thesis** in Organic Chemistry, University of Bordeaux I, France
1994	**Post-doctoral position**, National Research Council of Ottawa, Canada, Laboratory of Chemistry of Molecular Sciences
1996	**Professional Master's Degree** in Extractive process for Industries for HMR Biotechnologies, France
2005	**Authorization for research leading** in Organic Chemistry, University of Rouen, France

CAREER HISTORY

1996-2007	**Assistant Professor** in Organic Chemistry, University of Rouen
2007-2012	**Full Professor PR 2** in Organic Chemistry, University of Rouen
2012-	**Full Professor PR 1** in Organic Chemistry, University of Rouen
2012	**Knight** of the Orders of Academic Palms

ACADEMIC DEGREE RESPONSIBILITIES

1996-2007	Manager of 2 Teaching Laboratories and 3 Technicians
1996-2010	Responsible of safety trainings for Research Laboratories
2008-2013	Vice-Dean in Research of College of Sciences and Technologies
June 2013-Dec 2013	Vice-Rector of University of Rouen (research valorization and industries)
Jan 2014-Aug 2015	Consultant at Princess Nourah University for the Vice-Rectorate of Graduate Studies and Scientific Research (Riyadh, Saudi Arabia)
September 2015-	Vice-President for international affairs of University of Rouen

ADMINISTRATIVE AND COLLECTIVE RESPONSIBILITIES

1996-Dec 2013	Elected representative member of the Chemistry Department Board
2003-Dec 2013	Elected representative member of Council of laboratory
2004-Dec 2013	Elected representative member of College of Sciences and Techniques Council
2008-Dec 2013	Leader of a new research team "Supported and Supramolecular Chemistry" (10 permanents staff: 2 PR, 8 lecturers, 25 persons with students)
2012-Dec 2013	Elected representative member of the Scientific Council of University

RESEARCH ACTIVITIES

Research structures

Laboratory of Organic Chemistry, BioReactivity and Analysis, COBRA
UMR 6014 CNRS
IRCOF, Faculty of Sciences and Techniques, University of Rouen
Web site: http://ircof.crihan.fr/V2/rubrique.php3?id_rubrique=93

Member of a Labeled Excellence laboratory in Organic Chemisty, SynOrg
Web Site: http://www.labex-synorg.fr/?lang=en

Member of Institute for Research and Innovation in Biomedicine (IRIB), University of Rouen
Web site: http://irib.univ-rouen.fr/

Research thematics

1990-1993: Organotin compound grafted on polystyrene: Supported Chemistry for green chemistry (PhD)
1993-1994: Laser Flash Photolysis and Electronic Paramagnetic Resonance: studies of radical mechanism (Post-doc)
1995-1996: Extraction of natural product and purification of protein (Industry)

1996-2008: (Assistant Professor)
1) Synthesis of difluoromethylphosphonate and sulfur analogues by ionic and radical ways: synthesis of no hydrolysable phosphate (bioisosters)
2) Synthesis of chiral amine on solid support with new fluorine tracer for NMR
3) Petasis tandem multicomponent reactions on liquid and solid phases: automated synthesis of library

2008- Research based on chemical modification of cyclodextrins and ionic liquids (synthesis and analysis) for environmental (studies of soil, air, water pollution), biological (smart molecular MRI probe and mimic of enzyme to neutralize neurotoxics) and analytical applications (new chiral phases and biosensors)

2009- International Patent: Development of smart MRI probes to visualize and quantify *in vivo* molecular extracellular biological phenomena. A flexible technology with high molecular diversity

To increase the accuracy of the diagnosis
To control the treatment efficiency
To reduce secondary effects
To improve the prognostics of survival of the patients

International collaborations

Scientific Collaborations with Canada, Morocco, Saudi Arabia

Publication activity: 30 Published articles in international journal rank A and 1 patent

14 Supervising of PhD
Other supervising
- 9 Post-doctoral researchers
- 11 Research Master Degree

Co-Organization of symposium and trainings at University of Rouen

1) Glyco-Sciences in Normandy, 2011
2) SFCy: Congress of French Society of Cyclodextrins, 2008

3) Training for CNRS (Nation Center for Scientific Research): synthesis, purification and analysis in parallel, 2005
4) CFCOF: Congress on the Organic Chemistry on Fluorine, 2002
5) Training ASPS (Approach Solid Solution-phase): simulation of synthesis on solid phase and solution on Quest ASW and FirstMate with association with Argonaut Technologies, 2001
6) ANORCQ V: colloQuium Fifth Anglo Norman Organic Chemistry, 1999

Member of Committees

Examining boards of HDR, PhD, Master, Bachelor Degree
Committee of recruitment of technicians, engineers, lecturers, professors

TEACHING ACTIVITIES

From first year Bachelor Degree to last year Master Degree:
Thermodynamic, Organic Chemistry, Organometallic Chemistry, Supported Chemistry, Total synthesis, Hygiene and Security: Chemical risks
5 x 1 Week of Consulting in Riyadh to improve the curriculum in Sciences College

PUBLICATIONS ACTIVITIES

Patent

1. Smart contrast agents for MRI imaging. Gouhier, G.; Estour F.; 2009, PCT/EP2009/067587, international 2011

International Publications

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. Accepted **2015**, IF=4.835
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 accepted **2015**, IF=3.208
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, IF=6.718
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**,** IF=8.53
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, IF=3.14
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 Advances Journal **2013**, *3*, 4531-4534, IF=3.708

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, IF=2.97

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, IF=2.97

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, IF=3.154

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, IF=4.835

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, IF=4.638

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, IF=2.095

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, IF=2.391

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, IF=4.933

15. New synthesis of (*E,Z*)-2,7-bis(4-cyanobenzylidene)cycloheptan-1-one under stereospecific constraints induced by host-guest interactions
Grandeury, A.; Petit, P.; Coste, S.; Coquerel, G.; Perrio, C.; Gouhier, G.
Chem. Commun. **2005**, 4007-4009, IF=6.718

14. Chiral resolution by crystallization of host-guest supramolecular complexes. A paradoxal situation with an efficient discrimination despite structural similarities
Grandeury, A.; Renou, L.; Dufour, F.; Petit, S.; Gouhier, G.; Coquerel, G.
J. Thermal Analysis and Calorimetry **2004**, *77*, 377-390, IF=2.21

13. Enantioseparation of 1-(*p*-bromophenyl)ethanol by crystallization of host-guest complexes with permethylated β-cyclodextrin: crystal structures and mechanisms of chiral recognition
Grandeury, A.; Petit, S.; Gouhier, G.; Agasse, V.; Coquerel, G.
Tetrahedron: Asymmetry **2003**, *14*, 2143-2152, IF=2.165

12. Crystallization of supramolecular complexes as an alternative route for the separation of racemic *p*-X-phenylethanol
Grandeury, A.; Tisse, S.; Gouhier G.; Agasse, V.; Petit, S.; Coquerel, G.

Chem. Eng. Technol. **2003**, *26*, 354-358, IF=2.18
11. First synthesis of *S,S*-dialkyl difluorophosphonodithioates and difluorophosphonotrithioates
Lopin, C.; Gouhier, G.; Piettre, S. R.
Tetrahedron Lett. **2003**, *44*, 8837-8840, IF=2.391
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, IF=4.638
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, IF=11.444
8. Sulfanyl- and selanyldifluoromethylphosphonates 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, IF=6.324
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, IF=2.391
6. Absolute kinetics of aminium radical reactions with olefins in acetonitrile solution
Wagner, B. D.; Ruel, G.; Lusztyk, J.
J. Am. Chem. Soc. **1996**, *118*, 13-19, IF=11.444
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, IF=4.835
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, IF=2.017
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, IF=2.463
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, IF=2.302

General Review

Chimie supportée sur phase solide. Techniques de l'ingénieur Editions TI, **2008**, K 1 260, 1-20

Conferences
11. New contrast agents for MRI, Université de KSU, Riyadh, Saudi Arabia, 2013
10. Nouveaux agents de contraste pour l'IRM, Brest, France 2013
9. Cyclodextrines : nouvelles applications, Orléans, France 2012
8. Nouveaux agents de contraste pour IRM, Toulouse, France 2012
7. New smart contrast agents for MRI, 2nd European Conference on Cyclodextrins, Asti, Italy, 2011
6. Les cyclodextrines et les sucres supportés, Journée GlycoSciences, Rouen, France 2011
5. Développement de nouveaux agents de contraste moléculaire pour l'IRM, Rouen, France, 2011
4. Développement de sondes moléculaires pour l'IRM, Journées Janssen, Rouen, France, 2010
3. Développement d'un nouvel agent de contraste moléculaire pour l'IRM, Marseille, France, 2010

2. Homologation of cyclodextrin supported on ionic liquids and new applications in MRI, Université de l'Ile du Prince Edward (UPEI), Canada, 2009
1. Phosphonyl and difluorophosphonyl radicals and their suphur analogues, Université de Columbia, New York, USA, 2004

SUPERVISING ACTIVITY

14 Supervising of PhD (year of evaluation)
1. Chrystel Lopin (2002)
Analogues soufrés de difluorophosphonates. Méthodologies et application à la préparation de 3'-déoxy-3'-phosphono(thio)difluorométhylnucléosides.
2. Reynald Déléens (2002)
Contribution au développement de nouvelles carbofonctionnalisations d'alcènes.
Préparation de polycycles aminofonctionnalisés en jonction de cycles et synthèse d'un disélénure chiral de symétrie C_2.
3. Marie-Agnès Hourdin (2002)
Introduction d'un marqueur fluoré pour la synthèse d'amines chirales supportées. Suivi réactionnel par spectrométrie de RMN phase-gel du ^{19}F. Applications comme auxiliaires et organocatalyseurs chiraux.
4. Arnaud Grandeury (2004)
Complexes supramoléculaires de type hôte-invité avec des cyclodextrines perméthylées : étude des mécanismes lors de la séparation chirale. Extension à la complexation d'un inhibiteur enzymatique.
5. Sébastien Pignard (2005)
Nouvelles méthodologies synthétiques visant à l'introduction du groupement difluorométhylphosphonate et de ses analogues soufrés.
6. Hélène Jourdan (2007)
Doubles réactions de Petasis. Nouveaux processus tandem séquentiel et cascade en solution et sur phase solide.
7. Matthieu Pépin (2010)
Glycosylation et macrocyclisation d'oligosaccharides en liquide ionique. Application à l'homologation de cyclodextrines.
8. Idriss Hussein (2013)
Synthèse de nouveaux agents de contraste pour l'IRM.
9. Jinan Abdelkadder (2013)
Synthèse d'un nouveau nanovecteur pour augmenter l'efficacité antibiotique vis-à-vis de biofilms bactérien.
10. Sophie Letort (2013)
Nouvelles voies d'accès des épurateurs oligosaccharidiques d'organophosphorés neurotoxiques. Développement de relations structure réactivité.
11. Jeremy Dubay (2014)
Glycosylation supportée sur liquides ioniques. Homologation de cyclodextrines.
12. Anais Biscotti (2015)
Nouveaux agents de contraste intelligents.
13. Asmaa Bouyahya (2016)
Nouveaux catalyseurs supportée sur liquide ionique pour la synthèse de biopolymère.
14. Celia Sappei (2017)
Nouveaux agents de contraste pour l'IRM à base de cyclodextrines