

Dr. Sabrina Touchet

Associate Professor (Maître de conférences)
Organic & Therapeutic Chemistry

sabrina.touchet@univ-lorraine.fr · +33 (0)6.15.06.50.98 · 42 years old
Research: L2CM – UMR CNRS 7053 · Teaching: Faculty of Pharmacy
Université de Lorraine, Nancy



RESEARCH INTERESTS

Polar & transition organometallic chemistry · Synthesis of complex heterocycles (O, N) · Mg/Li bimetallic ate complexes (structure & reactivity) · Design of metal-chelating molecules for antiviral applications (herpesvirus metalloenzymes)

WORK EXPERIENCE

Associate Professor in Organic & Medicinal Chemistry

L2CM – UMR CNRS 7053 · Université de Lorraine
2016 – present

Post-doctoral position — Medicinal Chemistry

BioCIS – UMR CNRS 8076 · Université Paris-Sud
Dr S. Messaoudi, Dr. M. Alami and Pr. J.-D. Brion
2014 – 2016

Synthesis & biological evaluation of novel bis-heterocycles for childhood epilepsies.

Research Associate — Chemical Biology

Cardiff University (UK) · Pr. R. K. Allemann
2011 – 2014

Biosynthesis of terpene synthases; chemoenzymatic preparation of terpene pheromone analogues.

PhD in Organic Synthesis

ISCR – UMR CNRS 6226 · Université de Rennes 1
Dr. F. Carreaux and Dr. B. Carboni
2007 – 2010

New routes to α -aminoboronic acids; allylboration for 5- and 7-membered heterocycles.

RESEARCH INTERNSHIPS

Organometallic chemistry · Pr. G. A. Molander

University of Pennsylvania (USA)
2009 · 3 months

Synthesis and reactivity of organotrifluoroborates.

Organic chemistry · Dr. E. Barbu

University of Portsmouth (UK)
2006 · 3 months

Chemical modification of chitosan as a drug carrier in the brain.

Organometallic chemistry · Dr. V. Michelet

IRCP – ENSCR, Paris
2004 · 3 months

Enyne cyclization by platinum & palladium catalysis.

EDUCATION

PhD in Organic Synthesis (with honours)

Université de Rennes 1 · 2010

Master degree in Molecular Organic Chemistry

(3^r / 33) Université de Rennes 1 · 2007

Engineering degree — ENSCR Ecole Nationale

Supérieure de Chimie de Rennes · 2007

HND in Chemistry (DUT) (top of class) Université

du Maine · 2004

SCIENTIFIC OUTPUT

14

publications

2

patents

2+1

PhDs supervised

6 oral communications + 1 invited conference (abroad)

16 posters

International collaboration: C. O'Hara, Strathclyde, UK

SKILLS

Scientific: Polar & transition organometallic catalysis · Medicinal chemistry · Multi-step organic synthesis · Boron chemistry · Biocatalysis · Enzymology

Analytical: NMR (1D/2D, ¹H ¹³C ¹⁹F ³¹P ⁷Li) · MS · IR · UV · GC (MS & FID) · HPLC · FPLC · Flash chromatography

IT: ChemDraw · MestReNova · EndNote · SciFinder · TopSpin · Pack Office

Languages: French (native) · English (fluent) · Spanish (in progress)

Management: Supervision of PhD students, trainees & research engineers/technicians (Organic Synthesis Platform SynBioN – L2CM) · Reports in French & English

PUBLICATIONS IN PEER-REVIEWED JOURNALS

14. Hammas, L.; Touchet, S.; Adach, S.; Comoy, C. Organometallic Reagents: Efficient Tools for the Synthesis of Fused Pyridinyl-Lactones, *Eur. J. Org. Chem.*, **2023**, 26, e202300800.
13. Gataullina, S.; Galvani, G.; Touchet, S.; Nous, C.; Lemaire, E.; Laschet, J.; Chiron, C.; Dulac, O.; Dossi, E.; Brion, J.-D.; Messaoudi, S.; Alami, M.; Huberfeld, G. GluN2C selective inhibition is a target to develop new antiepileptic compounds, *Epilepsia*, **2022**, 63, 2911-2924.
12. Touchet, S.; Yeardley, C.; O'Hara, C.; Gros, P. Critical Ligand and Salt Effects in Organomagnesiato-Promoted 3,3-Disubstituted Phthalides Synthesis from 2-Iodobenzoate Derivatives, *Eur. J. Org. Chem.*, VIP, **2021**, 4835.
11. El-Marrouki, D.; Touchet, S.; Abdelli, A.; M'rabet, H.; Lotfi Efrif, M.; Gros P. Tuneable access to indole, indolone, and cinnoline derivatives from a common 1,4-diketone Michael acceptor, *Beilstein J. Org. Chem.*, **2020**, 16, 1722.
10. Yeardley, C.; Kennedy, A.; Gros, P.; Touchet, S.; Fairley, Mclellan, M. R.; Martínez-Martínez, A.; O'Hara, C. Structural and metal-halogen exchange reactivity studies of sodium magnesiato biphenolate complexes, *Dalton Transactions*, **2020**, 5257.
9. Touchet, S.; Kommidi, S. S. R.; Gros, P. C. Organomagnesiato-Promoted Enantioselective Cascade Process: Straightforward Access to Chiral 3-Substituted Isobenzofuranones, *ChemistrySelect*, **2018**, 3, 3939.
8. Luong, T. T. H.; Touchet, S.; Alami, M.; Messaoudi, S. Selective Palladium-Catalyzed Domino Heck/Buchwald-Hartwig Arylations of N-Glycosylcinnamamides: An Efficient Route to 4-Aryl N-Glycosyl Quinolin-2-ones, *Adv. Synth. Catal.*, **2017**, 359, 1320.
7. Macé, A.; Touchet, S.; Andres, P.; Cossío, F.; Dorcet, V.; Carreaux, F.; Carboni, B. [3,3]-Sigmatropic Rearrangement/Allylboration/Cyclization Sequence: Enantioenriched Seven-Membered-Ring Carbamates and Ring Contraction to Pyrrolidines, *Angew. Chem. Int. Ed.*, **2016**, 55, 1025 (Synfacts 2016, 12(3), 0237).
6. Touchet, S.; Chamberlain, K.; Woodcock, C. M.; Miller, D. J.; Birkett, M. A.; Pickett, J. A.; Allemann, R. K. Novel olfactory ligands via terpene synthases, *Chem. Commun.*, **2015**, 51, 7550.
5. Gonzalez, V.; Touchet, S.; Grundy, D. J.; Faraldos, J. A.; Allemann, R. K. Evolutionary and Mechanistic Insights from the Reconstruction of α -Humulene Synthases from a Modern (+)-Germacrene A Synthase, *J. Am. Chem. Soc.*, **2014**, 136, 14505.
4. Touchet, S.; Macé, A.; Roisnel, T.; Carreaux, F.; Bouillon, A.; Carboni, B. [3,3]-sigmatropic rearrangement of boronated allylcyanates: a new route to α -aminoboronates derivatives and trisubstituted tetrahydrofurans, *Org. Lett.*, **2013**, 15, 2712.
3. Cascón, O.; Touchet, S.; Miller, D. J.; Gonzalez, V.; Faraldos, J. A.; Allemann, R. K. Chemoenzymatic preparation of germacrene analogues, *Chem. Commun.*, **2012**, 48, 9702.
2. Touchet, S.; Carreaux, F.; Molander, G. A.; Carboni, B.; Bouillon, A. Iridium-catalyzed allylic amination route to α -aminoboronates: illustration of the decisive role of boron substituents, *Adv. Synth. Catal.*, **2011**, 353, 3391.
1. Touchet, S.; Carreaux, F.; Carboni, B.; Bouillon, A.; Boucher, J.-L. Aminoboronic acids and esters: from synthetic challenges to the discovery of unique classes of enzyme inhibitors, *Chem. Soc. Rev.*, **2011**, 40, 3895.

PATENTS

2. Touchet, S.; Alami, M.; Messaoudi, S.; Brion, J.-D.; Galvani G.; Nous, C.; Gataullina, S.; Dulac, O. NMDA receptor modulators, compositions comprising same and use of these compounds in the treatment of diseases involving the central nervous system, Patent WO 2018224359-A1 20181213 & Patent FR3067028-A1 20181207 ; US201816619263 20180529.
1. Touchet, S.; Alami, M.; Messaoudi, S.; Brion, J.-D.; Laschet J.; Gataullina, S.; Dulac, O. Preparation of 2-quinolin-2-one derivatives, particularly indol-1-yl-1H-quinolin-2-ones and indol-3-yl-1H-quinolin-2-ones, as NMDA receptor modulators, especially NMDA antagonists, compositions including them and use of these compounds in the treatment of diseases of the central nervous system, Patent WO 2018042096-A1 20180308 & FR3055331-A1 20180302.