CONTACT

Faculté de pharmacie
74 route du Rhin
67400 Illkirch
(+33)3 68 85 42 95
chaubet@unistra.fr
biofunctional.eu
@BFC_UMR7199

SKILLS

/Technical
Stereoselective synthesis
Bioconjugation
Bioorthogonal chemistry
Total synthesis
Transition-metal catalysis
Analytical chemistry

/Professional and personal
Problem-solving
Management
Teamwork
Rigorous
Reporting
Planning

LANGAGES

French ●●●●●
English ●●●●●
German ●●●●●

GUILHEM CHAUBET

CHARGÉ DE RECHERCHE CNRS • HDR

CO-DIRECTOR OF THE BIOFUNCTIONAL CHEMISTRY TEAM (UMR7199)

I joined the CNRS in 2017. As a research fellow in UMR 7199 at the Faculty of Pharmacy of Strasbourg, I have developed my research activity in chemical biology, mainly bioconjugation and *in vivo* chemistry. This research work has led to several publications and funding, including an International Training Networks that I coordinate. I obtained my HDR in December 2020 and became the co-director of the Biofunctional Chemistry team alongside Dr Alain Wagner. I am now looking to develop our protein bioconjugation applications further to access new classes of antibody-drug conjugates and use multicomponent reactions to construct complex drug-like structures.

WORK EXPERIENCE

CNRS – FACULTY OF PHARMACY OF STRASBOURG / Chargé de Recherche
Since January 2017

I have mainly developed research projects on the chemical conjugation of proteins, focusing on site-selective strategies using multicomponent reactions and new families of reagents (publications #8, 9 and 12; *vide infra*). In parallel, I also took part in the development of new families of cleavable linkers for antibody-drug conjugates applications (#1), in bioorthogonal chemistry (#4 and 5) and in the late-stage modification of bioactive substances (#3 and 7).

Funding and management activities

- Coordinator of the Innovative Training Networks "Targeted Anti-Cancer Therapies" (TACT, grant agreement #859458) funded by the European Union under the Marie Skłodowska-Curie Actions. This 3.2 M€ ITN gathers six academic and three industrial partners and permitted the recruitment of 11 PhD students.
- Coordinator of the *ANR Jeunes Chercheuses Jeunes Chercheurs* "BioconjUgi".
- In total, ~4.0-M€ worth of funding secured from various national and international entities since 2017.
- Co-director of the research group (15 people); currently supervising 5 PhD students.

Administrative responsibilities

- Member of the thesis commission of the doctoral school Chemical Sciences (ED 222)
- IT manager and member of the laboratory council of UMR 7199

UNIVERSITY OF OXFORD / Postdoctoral Research Assistant in the Anderson group
February 2014 – January 2017

I worked on two main projects: the total synthesis of the natural product rubriflordilactone A (#13, 15 and 16) and the development of a new palladium-catalyzed synthesis of furans (#11) as a Marie Skłodowska-Curie fellow (grant agreement #656012).

EDUCATION

PhD / University of Montpellier 2 in the Martinez group
« New ring contraction reactions : tools for the construction of organised edifices »
October 2010 – December 2013

I used α-amino acids as chiral building blocks to access foldamers via multistep synthetic routes relying on key ring-contraction reactions (#17 and 18). I was awarded the French Chemical Society prize for best PhD in chemistry in the Languedoc-Roussillon region.

MASTER'S DEGREE / University of Montpellier 2
October 2008 – June 2010

I received an extensive training in biomolecular chemistry (e.g. peptide and oligonucleotide synthesis, lipid and carbohydrate chemistry) punctuated with three internships in the groups of Jean Martinez and Christian Périgaud (#19 and 20).

COLLABORATIONS

National

Pr Jean Cavarelli (IGBMC, UMR 7104)
Dr Sarah Cianferani (LSMBO, UMR 7178)

International

Pr Jérôme Waser (EPFL, Lausanne, Suisse)
Dr Jaideep Saha (CBR, Lucknow, Inde)

In the frame of the ITN 'TACT'

Pr Vijay Chudasama (UCL, Londres, Royaume-Uni)
Pr Chris Scott (QUB, Belfast, Royaume-Uni)
Pr Floris van Delft (WUR, Wageningue, Pays-Bas)
Pr Arne Skerra (TUM, Munich, Allemagne)
Dr Graham Cotton (Almac Discovery, Royaume-Uni)
Dr Andreas Pahl (Heidelberg Pharma, Allemagne)
Dr Thomas Fessard (Spirochem, Suisse)

INVITED SPEAKER

- **2nd Young Investigator Workshop of the EuChemS – Life Sciences Division**
  Lisbon, Portugal ● 1st Sep. 2022 ● *Challenges in the site-selective chemical conjugation of proteins*
- **RSC Chemical Biology & Bio-Organic Group Forum**
  Online ● 8th Jan. 2021 ● *Investigating multicomponent approaches for the site-selective conjugation of native antibodies*
- **National-scale conferences**
  ● LIT, UMR 7200, Strasbourg ● 11th Jan. 2022 ● *Native protein chemical conjugation: a challenging playground for synthetic chemists*
  ● LIMA, UMR 7042, Strasbourg ● 25th Jan. 2022 ● *Chemo- and regioselective approaches for the conjugation of native proteins*
  ● ICMUB, UMR 6302, Dijon ● 29th April 2022 ● *Chemo- and regioselective approaches for the conjugation of native proteins*

PUBLICATIONS

#1 ● "**A novel family of acid-cleavable linker based on cyclic acetal motifs for the production of antibody-drug conjugates with high potency and selectivity**" T. Rady, L. Turelli, M. Nothisen, E. Tobaldi, S. Erb, F. Thoreau, O. Hernandez-Alba, S. Cianferani, F. Daubeuf, A. Wagner*, and G. Chaubet*; *Bioconjugate. Chem.*, 2022, DOI: 10.1021/acs.bioconjchem.2c00314

#2 ● "**An overview of chemo- and site-selectivity aspects in the chemical conjugation of proteins**" C. Sornay, V. Vaur, A. Wagner, and G. Chaubet*, *R. Soc. Open Sci.*, 2022, **9**, 9211563

#3 ● "**Antischistosomal evaluation of stem bark's extract and chemical constituents from *anonidium mannii* against *schistosoma mansoni***" J. L. T. Matchi, D. T. Noungoue, G. Chaubet, J. Boissier, I. Kuhn, J.-C. Tchouankeu, M. Nothisen, S. Ursuegui, S. A. Ngouela, A. Wagner, *Pharmacog. Mag.*, 2021, **17**, 752

#4 ● "**Bicyclo[6.1.0]nonyne carboxylic acid for the production of stable molecular probes**" T. Rady, M. Mosser, M. Nothisen, S. Erb, I. Dovgan, S. Cianférani, A. Wagner*, and G. Chaubet*, *RSC Adv.*, 2021, **11**, 36777

#5 ● "**Plasma induced acceleration and selectivity in strain-promoted azide–alkyne cycloadditions**" D. Warther, E. Dursun, M. Recher, S. Ursuegui, M. Mosser, J. Sobska, W. Krezel, G. Chaubet*, and A. Wagner*, *Org. Biomol. Chem.*, 2021, **19**, 5063 ● part of the "2021 Organic & Biomolecular Chemistry HOT article collection" and included in the "OBC Editor's Collection"

#6 ● "**Non-specific interactions of antibody-oligonucleotide conjugates with living cells**" V. Lehot, I. Kuhn, M. Nothisen, S. Erb, S. Kolodych, S. Cianférani, G. Chaubet, and A. Wagner*, *Sci Rep*, 2021, **11**, 5881

#7 ● "**Manniindole, an indole derivative from the roots of *Anonidium mannii* and combined antischistosomal and enzymatic activities"** J. L. Toussi Matchi, D. T. Noungoue*, I. Kuhn, J. Boissier, J.-C. Tchouankeu, M. Nothisen, G. Chaubet, D. Garnier, S. Ursuegui, S. Augustin, and A. Wagner*; *Nat. Prod. Res.*, 2020, **35**, 5665

#8 ● "**Investigating multicomponent approaches for the site-selective conjugation of native proteins"** C. Sornay, S. Hessmann, S. Erb, I. Dovgan, A. Ehkirch, T. Botzanowski, S. Cianferani, A. Wagner, and G. Chaubet*, *Chem. Eur. J.,* 2020, **26**, 13797

#9 ● "**Ethynylation of cysteines from peptides to proteins in living cells"** R. Tessier, R. K. Nandi, B. Dwyer, D. Abegg, C. Sornay, J. Ceballos, S. Erb, S. Cianferani, A. Wagner, G. Chaubet*, A. Adibekian**, and J. Waser***, *Angew. Chem. Int. Ed.*, 2020, **132**, 11054 ● selected as "Hot Paper"

#10 ● "**Recent, non-classical, approaches to antibody lysine modification**" G. Chaubet*, F. Thoreau, and A. Wagner, *Drug Discov. Today Technol.*, 2018, **30**, 21

#11 ● "**Dual oxidation state tandem catalysis in the palladium-catalyzed isomerization of alkynyl epoxides to furans**" C. Arroniz, G. Chaubet, and E. A. Anderson*, *ACS Catal.*, 2018, **8**, 8290

#12 ● "**Arginine-selective bioconjugation with 4-azidophenyl glyoxal: application to the single and dual functionalisation of native antibodies**" I. Dovgan, S. Erb, S. Hessmann, S. Ursuegui, C. Michel, C. Muller, G. Chaubet, S. Cianférani, and A. Wagner*, *Org. Biomol. Chem.*, 2018, **16**, 1305

#13 ● "**Total synthesis of the schisandraceae nortriterpenoid rubriflordilactone A**" G. Chaubet, S. S. Goh, M. Mohammad, B. Gockel, M.-C. A. Cordonnier, H. Baars, A. W. Phillips, and E. A. Anderson*, *Chem. Eur. J.*, 2017, **23**, 14080 ● selected as "Hot Paper"

#14 ● "**Microwave-assisted hydantoins synthesis on solid support**" G. Chaubet and I. Parrot*, *Comprehensive Organic Chemistry Experiments for the Laboratory Classroom,* Royal Society of Chemistry, 2016, **ISBN**: 978-1-84973-963-4

#15 ● "**Total synthesis of (+)-rubriflordilactone A**" S. S. Goh, G. Chaubet, B. Gockel, M.-C. A. Cordonnier, H. Baars, A. W. Phillips, and E. A. Anderson*, *Angew. Chem. Int. Ed.*, 2015, **54**, 12618

#16 ● "**Enantioselective synthesis of the predominant AB ring system of the schisandra nortriterpenoid natural products**" B. Gockel, S. S. Goh, E. Puttock, H. Baars, G. Chaubet, and E. A. Anderson*, *Org. Lett.*, 2014, **16**, 4480

#17 ● "**From diketopiperazines to hydantoins: an unprecedented rearrangement**" G. Chaubet, G. Cazals, A. Lebrun, J. Martinez, and I. Parrot*, *Synlett*, 2014, **25**, 0574

#18 ● "**Stereoselective synthesis of original spirolactams displaying promising folded structures**" G. Chaubet, T. Coursindel, X. Morelli, S. Betzi, P. Roche, Y. Guari, A. Lebrun, L. Toupet, Y. Collette, I. Parrot*, and J. Martinez, *Org. Biomol. Chem.* 2013, **11**, 4719

#19 ● "**A tandem aza-Friedel–Crafts reaction/Hantzsch cyclization: a simple procedure to access polysubstituted 2-amino-1,3-thiazoles**" G. Chaubet, L. T. Maillard*, J. Martinez, and N. Masurier, *Tetrahedron* 2011, **67**, 4897

#20 ● "**Synthetic studies towards new nucleoside analogues: preparation of (±)-1′,4′-dimethyladenosine**" G. Chaubet, D. Bourgeois*, and C. Périgaud, *Eur. J. Org. Chem.* 2011, 319