

Thomas CAILLY

Associate Professor / Maître de Conférences
in bio-inorganic chemistry

Group leader ([CERMN](#)-synthetic methodology and radiochemistry)

[IMOGERE](#) head

Date of Birth: November 28, 1978

Nationality: French

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Affiliations

- Centre d'Etudes et de Recherche sur le Médicament de Normandie (CERMN EA4258), Caen, France.
- Department of Nuclear Medicine, CHU de Caen France.
- IMOGERE, Université de Caen, France
- Institut Blood and Brain@Caen Normandie (BB@C)

Elective Function

Since Jan. 2017

- 1) Member of the research council of the University of Caen / Membre de la commission de la recherche de l'Université de Caen
- 2) ACS 85 Coordinator / Coordinateur de l'ACS de 85^{ème} section

Area of interest

Synthetic methodologies for labelling and imaging techniques
Synthetic methodologies for medicinal chemistry
Diagnostic and/or therapeutic tools

Education

2014 "Habilitation à Diriger des Recherches"

2006 PhD in Pharmacy

Director Pr. S. Rault

University of Caen, France, Faculty of Pharmaceutical Sciences.

2003 Master in Organic Chemistry (DEA)

University of Caen, France, Faculty of Sciences.

Experience

Since Sept. 2021

Head of the IMOGERE facilities at University of Caen

Since March 2018

Associate member of the nuclear medicine department @Caen University hospital

Since Jan. 2018

Group leader @CERMN

Sept. 2014-Sept.2015

Academic Visitor - Congé Pour Recherche

Oxford University - Pr. Véronique Gouverneur Group

Since Sept. 2009

Associate Professor / Maître de conférences in bio-inorganic chemistry

CERMN, Chemical Tools for Diagnostic and Imaging, University of Caen, France, Faculty of Pharmaceutical Sciences

Feb. 2008-Sept. 2009

Post-Doctoral position

Synthesis group - Pr. M.Begtrup

University of Copenhagen, Denmark, Faculty of Pharmaceutical Sciences

Oct. 2007-Jan. 2008

Research Engineer

CERMN-Servier Laboratoire Mixte de Recherche - Pr. S. Rault

University of Caen, France, Faculty of Pharmaceutical Sciences

Oct. 2006-Oct. 2007

Post-Doctoral position - Attaché Temporaire d'Enseignement et de Recherche (ATER)

CERMN - Pr. S. Rault

University of Caen, France, Faculty of Pharmaceutical Sciences

Oct. 2003-Oct. 2006

PhD in Pharmacy

CERMN - Pr. S. Rault

University of Caen, France, Faculty of Pharmaceutical Sciences

Oct. 2002-Oct. 2006

Trainings in organic and medicinal chemistry

CERMN - Pr. S. Rault / Pr D. Dallemagne / Pr. F. Fabis

University of Caen, France, Faculty of Pharmaceutical Sciences

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Publication list

- (1) Cailly, T.; Fabis, F.; Lemaître, S.; Bouillon, A.; Rault, S. Synthesis of Ortho-Substituted Cyanopyridines through Lithio Intermediate Trapping. *Tetrahedron Lett.* **2005**, *46*, 135–137.
- (2) Omran, Z.; Cailly, T.; Lescot, E.; Santos, J. S. O.; Agondanou, J.-H.; Lisowski, V.; Fabis, F.; Godard, A.-M.; Stiebing, S.; Le Flem, G.; Boulouard, M.; Dauphin, F.; Dallemagne, P.; Rault, S. Synthesis and Biological Evaluation as AChE Inhibitors of New Indanones and Thiaindanones Related to Donepezil. *Eur. J. Med. Chem.* **2005**, *40*, 1222–1245.
- (3) Cailly, T.; Fabis, F.; Bouillon, A.; Lemaître, S.; Sopkova, J.; de Santos, O.; Rault, S. Synthesis of Ortho -Cyanopyridylboronic Acids and Esters toward Cyano-Functionalized Bipyridines. *Synlett* **2006**, 0053–0056.
- (4) Cailly, T.; Fabis, F.; Rault, S. A New, Direct, and Efficient Synthesis of Benzonaphthyridin-5-Ones. *Tetrahedron* **2006**, *62*, 5862–5867.
- (5) Cailly, T.; Fabis, F.; Legay, R.; Oulyadi, H.; Rault, S. The Synthesis of Three New Heterocycles: The pyrido[4,3 or 3,4 or 2,3-c]-1,5-Naphthyridines. *Tetrahedron* **2007**, *63*, 71–76.
- (6) Cailly, T.; Lemaître, S.; Fabis, F.; Rault, S. Straightforward Access to Ethyl 3-Aminofuopyridine-2-Carboxylates from 1-Chloro-2-Cyano- or 1-Hydroxy-2-Cyano-Substituted Pyridines. *Synthesis* **2007**, *2007*, 3247–3251.
- (7) Cailly, T.; Begtrup, M. Regioselective Functionalization of 2-(2'-Fluorophenyl)-3-Cyanopyridine and Its Cyclization to Benzo[h]-1,6-Naphthyridines. *Tetrahedron* **2010**, *66*, 1299–1307.
- (8) Cailly, T.; Dumas, N.; Millet, P.; Lemaître, S.; Fabis, F.; Charnay, Y.; Rault, S. Synthesis and Characterization of a Iodine-125-Labeled pyrrolo[1,2-a]thieno[3,2-E]pyrazine and Evaluation as a Potential 5-HT4R SPECT Tracer. *Eur. J. Med. Chem.* **2010**, *45*, 5465–5467.
- (9) Dubost, E.; Magnelli, R.; Cailly, T.; Legay, R.; Fabis, F.; Rault, S. General Method for the Synthesis of Substituted Phenanthridin-6(5H)-Ones Using a KOH-Mediated Anionic Ring Closure as the Key Step. *Tetrahedron* **2010**, *66*, 5008–5016.
- (10) Lefebvre, V.; Cailly, T.; Fabis, F.; Rault, S. Two-Step Synthesis of Substituted 3-Aminoindazoles from 2-Bromobenzonitriles. *J. Org. Chem.* **2010**, *75*, 2730–2732.
- (11) Dubost, E.; Fossey, C.; Cailly, T.; Rault, S.; Fabis, F. Selective Ortho-Bromination of Substituted Benzaldoximes Using Pd-Catalyzed C-H Activation: Application to the Synthesis of Substituted 2-Bromobenzaldehydes. *J. Org. Chem.* **2011**, *76*, 6414–6420.
- (12) Rochais, C.; Yougnia, R.; Cailly, T.; Sopková-de Oliveira Santos, J.; Rault, S.; Dallemagne, P. One-Pot Synthesis of New Aza- and Diaza-Aminophenanthrenes. *Tetrahedron* **2011**, *67*, 5806–5810.
- (13) Dubost, E.; Dumas, N.; Fossey, C.; Magnelli, R.; Butt-Gueulle, S.; Ballandonne, C.; Caignard, D. H.; Dulin, F.; Sopkova de-Oliveira Santos, J.; Millet, P.; Charnay, Y.; Rault, S.; Cailly, T.; Fabis, F. Synthesis and Structure-Affinity Relationships of Selective High-Affinity 5-HT(4) Receptor Antagonists: Application to the Design of New Potential Single Photon Emission Computed Tomography Tracers. *J. Med. Chem.* **2012**, *55*, 9693–9707.
- (14) Péron, F.; Fossey, C.; Cailly, T.; Fabis, F. N-Tosylcarboxamide as a Transformable Directing Group for Pd-Catalyzed C-H Ortho-Arylation. *Org. Lett.* **2012**, *14*, 1827–1829.
- (15) Fontenelle, C. Q.; Wang, Z.; Fossey, C.; Cailly, T.; Linclau, B.; Fabis, F. Design of Fluorinated 5-HT4R Antagonists: Influence of the Basicity and Lipophilicity toward the 5-HT4R Binding Affinities. *Bioorg. Med. Chem.* **2013**, *21*, 7529–7538.
- (16) Fresneau, N.; Cailly, T.; Fabis, F.; Bouillon, J.-P. Synthesis of Substituted Diazino[c]quinolin-5(6H)-Ones, Diazino[c]isoquinolin-6(5H)-Ones, Diazino[c]naphthyridin-6(5H)-Ones and Diazino[c]naphthyridin-5(6H)-Ones. *Tetrahedron* **2013**, *69*, 5393–5400.
- (17) Johansson, H.; Cailly, T.; Rojas Bie Thomsen, A.; Bräuner-Osborne, H.; Sejer Pedersen, D. Synthesis of the Calcilytic Ligand NPS 2143. *Beilstein J. Org. Chem.* **2013**, *9*, 1383–1387.
- (18) Dubost, E.; Stiebing, S.; Ferrary, T.; Cailly, T.; Fabis, F.; Collot, V. A General Synthesis of Diversely Substituted Indazoles and Hetero-Aromatic Derivatives from O-Halo-(Het)arylaldehydes or -Phenones. *Tetrahedron* **2014**, *70*, 8413–8418.
- (19) Dumas, N.; Moulin-Sallanon, M.; Ginovart, N.; Tournier, B. B.; Suzanne, P.; Cailly, T.; Fabis, F.; Rault, S.; Charnay, Y.; Millet, P. Small-Animal Single-Photon Emission Computed Tomographic Imaging of the Brain Serotonergic Systems in Wild-Type and mdr1a Knockout Rats. *Mol. Imaging* **2014**, *13*, 1–12.
- (20) Cailly, T.; Fabis, F.; Laayoun, A.; Laurent, A.; Ursuegui, S. RNA ribose functionalization methods and reagents using an azaisatoic anhydride or a derivative, functionalized RNA, and kits for detecting target RNA. *PCT Int. Appl.* **2014**, WO 2014019966.
- (21) Péron, F.; Fossey, C.; Sopkova-de Oliveira Santos, J.; Cailly, T.; Fabis, F. Room-Temperature Ortho-Alkoxylation and -Halogenation of N-Tosylbenzamides by Using Palladium(II)-Catalyzed C-H Activation. *Chem. Eur. J.* **2014**, *20*, 7507–7513.
- (22) Ursuegui, S.; Chivot, N.; Moutin, S.; Burr, A.; Fossey, C.; Cailly, T.; Laayoun, A.; Fabis, F.; Laurent, A. Biotin-Conjugated N-Methylisatoic Anhydride: A Chemical Tool for Nucleic Acid Separation by Selective 2'-hydroxyl Acylation of RNA. *Chem. Commun.* **2014**, *50*, 5748–5751.
- (23) Fresneau, N.; Dumas, N.; Tournier, B. B.; Fossey, C.; Ballandonne, C.; Lesnard, A.; Millet, P.; Charnay, Y.; Cailly, T.; Bouillon, J.-P.; Fabis, F. Design of a Serotonin 4 Receptor Radiotracer with Decreased Lipophilicity for Single Photon Emission Computed Tomography. *Eur. J. Med. Chem.* **2015**, *94*, 386–396.

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- (24) Ursuegui, S.; Yougnia, R.; Moutin, S.; Burr, a; Fossey, C.; Cailly, T.; Laayoun, a; Laurent, a; Fabis, F. A Biotin-Conjugated Pyridine-Based Isatoic Anhydride, a Selective Room Temperature RNA-Acylating Agent for the Nucleic Acid Separation. *Org. Biomol. Chem.* **2015**, *13*, 3625–3632.
- (25) Lalut, J.; Tournier, B. B.; Cailly, T.; Lecoutey, C.; Corvaisier, S.; Davis, A.; Ballandonne, C.; Since, M.; Millet, P.; Fabis, F.; Dallemagne, P.; Rochais, C. Synthesis and Evaluation of Novel Serotonin 4 Receptor Radiotracers for Single Photon Emission Computed Tomography. *Eur. J. Med. Chem.* **2016**, *116*, 90–101.
- (26) Lam, B. V.; Berhault, Y.; Stiebing, S.; Fossey, C.; Cailly, T.; Collot, V.; Fabis, F. Iodoindazoles with Selective Magnesium at Position 3: A Route to Highly Functionalized Indazoles. *Chem. - A Eur. J.* **2016**, *22*, 4440–4446.
- (27) Preshlock, S.; Calderwood, S.; Verhoog, S.; Tredwell, M.; Huiban, M.; Hienzsch, A.; Gruber, S.; Wilson, T. C.; Taylor, N. J.; Cailly, T.; Schedler, M.; Collier, T. L.; Passchier, J.; Smits, R.; Mollitor, J.; Hoeping, A.; Mueller, M.; Genicot, C.; Mercier, J.; Gouverneur, V. Enhanced Copper-Mediated 18 F-Fluorination of Aryl Boronic Esters Provides Eight Radiotracers for PET Applications. *Chem. Commun.* **2016**, 52.
- (28) Wilson, T. C.; McSweeney, G.; Preshlock, S.; Verhoog, S.; Tredwell, M.; Cailly, T.; Gouverneur, V. Radiosynthesis of SPECT Tracers via a Copper Mediated 123 I Iodination of (Hetero)aryl Boron Reagents. *Chem. Commun.* **2016**, *52*, 13277–13280.
- (29) Wilson, T. C.; Cailly, T.; Gouverneur, V. Boron Reagents for Divergent Radiochemistry. *Chem. Soc. Rev.* **2018**, 6990–7005.
- (30) Dubost, E.; Babin, V.; Benoist, F.; Hébert, A.; Barbey, P.; Chollet, C.; Bouillon, J.-P.; Manrique, A.; Pieters, G.; Fabis, F.; Cailly, T. Palladium-Mediated Site-Selective C–H Radio-Iodination. *Org. Lett.* **2018**, *20* (19), 6302–6305.
- (31) Tournier, B. B.; Tsartsalis, S.; Rigaud, D.; Fossey, C.; Cailly, T.; Fabis, F.; Pham, T.; Grégoire, M.-C.; Kövari, E.; Moulin-Sallanon, M.; et al. TSPO and Amyloid Deposits in Sub-Regions of the Hippocampus in the 3xTgAD Mouse Model of Alzheimer's Disease. *Neurobiol. Dis.* **2019**, *121*, 95–105.
- (32) Dubost, E.; Babin, V.; Benoist, F.; Hébert, A.; Pigrée, G.; Bouillon, J.-P.; Fabis, F.; Cailly, T. Improvements of C–H Radio-Iodination of N-Acylsulfonamides toward Implementation in Clinics. *Synthesis* **2019**, *51* (23), 4393–4400.
- (33) Babin, V.; Tournier, B. B.; Davis, A.; Dubost, E.; Pigrée, G.; Lohier, J.; Reboul, V.; Cailly, T.; Bouillon, J.; Millet, P.; Fabis, F. Design of Iodinated Radioligands for SPECT Imaging of Central Human 5-HT4R Using a Ligand Lipophilicity Efficiency Approach. *Bioorg. Chem.* **2020**, *96* (December 2019), 103582.
- (34) Dubost, E.; McErlain, H.; Babin, V.; Sutherland, A.; Cailly, T. Recent Advances in Synthetic Methods for Radioiodination. *J. Org. Chem.* **2020**, *85* (13), 8300–8310. (ACS Editor's choice)
- (35) Clergé, A.; Le Goff, J.; Lopez-Piffet, C.; Meier, S.; Lagadu, S.; Vaudorne, I.; Babin, V.; Cailly, T.; Delépée, R. Investigation by Mass Spectrometry and 32P Post-Labeling of DNA Adducts Formation from 1,2-Naphthoquinone, an Oxidated Metabolite of Naphthalene. *Chemosphere* **2021**, *263*, 128079.
- (36) Vigier, C.; Fossé, P.; Fabis, F.; Cailly, T.; Dubost, E. Controlled Access to C 1 -Symmetrical Cyclotrimeratrylenes (CTVs) by Using a Sequential Barluenga Boronic Coupling (BBC) Approach. *Adv. Synth. Catal.* **2021**, *363* (15), 3756–3761.
- (37) Tessaire, T.; De Neef, L.; Cailly, T.; Peyronnet, D.; Vigne, J. Transferability of a Two-Strip Method for the Quality Control of Technetium-99m Mercaptoacetyltriglycine ([^{99m}Tc]Tc-MAG3). *Eur. J. Hosp. Pharm.* **2021**, ejhpharm-2021-002804.
- (38) K. Ceyzériat, Y. Gloria, S. Tsartsalis, C. Fossey, T. Cailly, F. Fabis, P. Millet, B. B. Tournier, *Brain Commun.* **2021**, *3*, DOI 10.1093/braincomms/fcab029.
- (39) Vera, G.; Mangeant, R.; Stiebing, S.; Berhault, Y.; Fabis, F.; Cailly, T.; Collot, V. Thiofunctionalization of Electron-Rich Heteroarenes through Magnesium and Trapping with Octasulfur. *Adv. Synth. Catal.* **2021**, *363* (22), 5099–5105.