

## Tatiana BESSET

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**Nationality:** French

**Date of birth:** 12/07/1983

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## EDUCATION

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- 2006-2009** **Ph. D. in Synthetic Organic Chemistry**, University Joseph Fourier, Grenoble (France).
- 2005-2006** **Research Master (M. Sc.)** with honours in Organic, Bioorganic and Environmental Chemistry, University Blaise Pascal, Clermont-Ferrand (France).
- 2003-2006** **Chemical Engineering Degree** at the National Graduate School of Chemistry and Chemical Engineering (ENSCCF) in Clermont-Ferrand (France).

## PROFESSIONAL EXPERIENCES

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- Since 10/2012** **CNRS Researcher (CR2)** in the group of Prof. X. Pannecoucke, UMR 6014-CNRS COBRA, University of Rouen (France).  
*Development of new transition metal catalysis based strategies for the synthesis of fluorinated building blocks and the functionalization of fluorinated scaffolds.*
- 2011-2012** **Industrial postdoctoral fellow** in the group of Prof. Dr. Joost N. H. Reek, University of Amsterdam (UvA), van 't Hoff Institute for Molecular Sciences (HIMS), Amsterdam (Netherlands) in collaboration with the company Eastman.  
*Application of supramolecular catalysts for industrial relevant hydroformylation processes of terminal olefins.*
- 2009-2011** **Postdoctoral fellow** in the group of Prof. Dr. Frank Glorius, Westfälische Wilhelms Universität Münster (Germany).  
*Transition metal catalyzed C-H bond activation.*
- 2006-2009** **Ph. D. studies** in Dr. Andrew E. Greene's research group (DCM: Département de Chimie Moléculaire, Grenoble, France) under the supervision of Dr. Christophe Morin (University Joseph Fourier).  
*Synthesis of a functionalized podocarpane and preparation of heteroquinones as phosphatases and reductases inhibitors.*
- 2006** **Engineering training** in development under the supervision of Dr. Ronan Guevel at Archemis (a subsidiary of Sanofi-Aventis) (Lyon, France).  
*Studies on processing of pharmaceutical compounds.*

## TEACHING and OTHER INFORMATIONS

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- 2016-2017** **Practical courses** (20h), in Inorganic Chemistry (B.Sc. Students), INSA Rouen.  
**Teaching courses (hygiene, safety and security, 3h)**, (PhD students), Rouen University.
- 2015-2016** **Practical courses** (20h), in Inorganic Chemistry (B.Sc. Students), INSA Rouen.
- 2014-2015** **Practical courses** (40h), in Inorganic Chemistry (B.Sc. Students), INSA Rouen.  
**Lecture** (6h) in Organic Chemistry (“Molécules bifonctionnelles”, B.Sc. Students, License 2), Rouen University.
- 2013-2014** **Practical courses** (20h), in Inorganic Chemistry (B.Sc. Students), INSA Rouen; **lecture** (6h) and **tutorials** (16h), in Organic Chemistry (“Molécules bifonctionnelles”, B.Sc. Students, License 2), Rouen University.
- 2012-2013** **Teaching courses (hygiene, safety and security, 20h)**, University Princess Nora Bint Abdul Rahman (Saudi Arabia).
- 2009-2010** **Practical courses** in Organic Chemistry (B.Sc. Students), Westfälische Wilhelms-Universität Münster, Germany.
- 2006-2009** **Teaching assistantship (Monitorat, 64 h/year)** in General and Organic Chemistry (B.Sc. Students), University Joseph Fourier (Grenoble, France).

**Languages:** French: Mother language  
English: Fluent ([Test of English for International Communication \(TOEIC, 800/990, Feb., 2006\)](#))  
Italian: Intermediate level

## RESEARCH INTERESTS

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Fluorine chemistry  
C-H activation  
Catalysis and methodology  
Organometallic chemistry

## ACADEMIC RECORD

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**36 Publications** in peers reviewed international journals (ie. 6 *ACIE*, 2 *JACS*) & **2 patents**  
**5 Oral communications** (international conferences and symposium) and **1 lecture**  
**23 Poster presentations** (international conferences and national congresses)

## PUBLICATIONS

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- [36] M. V. Ivanova, A. Bayle, T. Besset, X. Pannecoucke, T. Poisson, *Angew. Chem. Int. Ed.* **2016**, 55, 14141.  
“Copper Salt-Controlled Divergent Reactivity of  $[Cu]CF_2PO(OEt)_2$  with  $\alpha$ -Diazocarbonyl Derivatives”
- [35] H.-Y. Xiong, X. Pannecoucke, T. Besset, *Angew. Chem. Int. Ed.* **2016**, 55, 13490.  
“A New Electrophilic Reagent for the Direct Introduction of the  $SCF_2PO(OEt)_2$  Group onto Molecules”

- [34] H.-Y. Xiong, X. Pannecoucke, **T. Besset**, *Chem. Eur. J.* **2016**, 22, 16734.  
“Recent Advances in the Synthesis of SCF<sub>2</sub>H- and SCF<sub>2</sub>FG-containing Molecules”
- [33] H.-Y. Xiong, D. Cahard, X. Pannecoucke, **T. Besset**, *Eur. J. Org. Chem.* **2016**, 3625.  
“Pd-Catalyzed Directed Chlorination of Unactivated C(sp<sup>3</sup>)-H Bonds at Room Temperature”
- [32] **T. Besset**, P. Jubault, X. Pannecoucke, T. Poisson, *Org. Chem. Front.* **2016**, 3, 1004.  
“New Entries Toward the Synthesis of OCF<sub>3</sub>-Containing Molecules”
- [31] M. V. Ivanova, A. Bayle, **T. Besset**, X. Pannecoucke, T. Poisson, *Chem. Eur. J.* **2016**, 22, 10284.  
“New Prospects Toward the Synthesis of Difluoromethylated Phosphate Mimics.”
- [30] H.-Y. Xiong, X. Pannecoucke, **T. Besset**, *Org. Chem. Front.* **2016**, 3, 620.  
“Oxidative Trifluoromethylthiolation and Thiocyanation of Amines: a General Approach to N–S Bond Formation”
- [29] Q. Zhao, **T. Besset**, T. Poisson, J.-P. Bouillon, X. Pannecoucke, *Eur. J. Org. Chem.* **2016**, 76.  
“Palladium-Catalysed Synthesis of  $\alpha$ -(Trifluoromethyl)styrenes by Means of Directed C–H Bond Functionalization”
- [28] M. I. Ivanova, A. Bayle, **T. Besset**, T. Poisson, X. Pannecoucke, *Angew. Chem., Int. Ed.* **2015**, 54, 13406.  
“Copper-Mediated Formation of Aryl, Heteroaryl, Vinyl and Alkynyl Difluoromethylphosphonates: A General Approach to Fluorinated Phosphate Mimics”
- [27] **T. Besset**, T. Poisson, X. Pannecoucke, *J. Fluorine Chem.* **2015**, 178, 225.  
“1,4-Addition of the CF<sub>3</sub> Group, Perfluoroalkyl Groups and Functionalized Difluoromethylated Moieties: An Overview.” (Review)
- [26] M.-C. Belhomme, **T. Besset**, T. Poisson, X. Pannecoucke, *Chem. Eur. J.* **2015**, 21, 12836.  
“Recent Progress Toward the Introduction of Functionalized Difluoromethylated building blocks”. (Review)
- [25] H.-Y. Xiong, **T. Besset**, D. Cahard, X. Pannecoucke, *J. Org. Chem.* **2015**, 80, 4204.  
“Palladium(II)-Catalyzed Directed Trifluoromethylthiolation of Unactivated C(sp<sup>3</sup>)-H Bonds.”
- [24] **T. Besset**, T. Poisson, X. Pannecoucke, *Eur. J. Org. Chem.* **2015**, 2765.  
“Direct Vicinal Difunctionalization of Alkynes: An Efficient Approach Towards the Synthesis of Highly Functionalized Fluorinated Alkenes.” (Review)
- [23] **T. Besset**, T. Poisson, X. Pannecoucke, *Chem. Eur. J.* **2014**, 20, 16830.  
“Recent Progress in Direct Introduction of Fluorinated Groups on Alkenes and Alkynes by means of C-H Bond Functionalization.” (Review)

- [22] **T. Besset**, T. Poisson, X. Pannecoucke, *Eur. J. Org. Chem.* **2014**, 7220.  
“Access to Difluoromethylated Alkynes through the Castro-Stephens Reaction.”
- [21] **T. Besset**, D. Cahard, X. Pannecoucke, *J. Org. Chem.* **2014**, 79, 413.  
“A Regio- and Diastereoselective Direct Cu-Mediated Trifluoromethylation of Functionalized Alkenes.”
- [20] M.-C. Belhomme, D. Dru, H.-Y. Xiong, D. Cahard, **T. Besset**, T. Poisson, X. Pannecoucke, *Synthesis* **2014**, 1859.  
“Copper Mediated Direct Functionalization of Unsaturated C–C Bonds using BrCF<sub>2</sub>CO<sub>2</sub>Et: a Straightforward Access to Highly Valuable Difluoroacetylated Alkenes.” (Special Topic Issue on “Copper Chemistry” ed. Prof. E. M. Carreira)
- [19] V. Bizet, **T. Besset**, J. A. Ma, D. Cahard, *Curr. Top. Med. Chem.* **2014**, 14, 901.  
“Recent Progress in Asymmetric Fluorination and Trifluoromethylation Reactions.” (Review)
- [18] C. S. Fuchs, M. Hollauf, M. Meissner, R. C. Simon, **T. Besset**, J. N. H. Reek, W. Riethorst, F. Zepeck, W. Kroutil, *Adv. Synth. Catal.* **2014**, 356, 2257.  
“Dynamic Kinetic Resolution of 2-Phenylpropanal Derivatives to Yield  $\beta$ -Chiral Primary Amines via Bioamination.”
- [17] T. Ferrary, E. David, G. Milanole, **T. Besset**, P. Jubault, X. Pannecoucke, *Org. Lett.* **2013**, 15, 5598.  
“A Straightforward and Highly Diastereoselective Access to Functionalized Monofluorinated Cyclopropanes via a Michael Initiated Ring Closure Reaction.”
- [16] **T. Besset**, R. Gramage-Doria, J. N. H. Reek, *Angew. Chem. Int. Ed.* **2013**, 52, 8795.  
“Remotely Controlled Iridium-Catalyzed Asymmetric Hydrogenation of Terminal 1,1-Diaryl Alkenes.” (Highlight)
- [15] **T. Besset**, R. Gramage-Doria, J. N. H. Reek, *Curr. Org. Chem.* **2013**, 17, 1489.  
“Transition-Metal Encapsulation within Supramolecular Diphosphine Capsules.”  
Special issue on "Nanoreactors and molecular prisons" (Review)
- [14] D. Anselmo, R. Gramage-Doria, **T. Besset**, M. V. Escárcega-Bobadilla, G. Salassa, E. C. Escudero-Adán, M. Martínez Belmonte, E. Martin, J. N. H. Reek, A. W. Kleij, *Dalton Trans.* **2013**, 42, 7595.  
“Supramolecular Bulky Phosphines Comprising of 1,3,5-Triaza-7-phosphaadamantane and Zn(salphen)s: Structural Features and Application in Hydrosilylation Catalysis.”
- [13] **T. Besset**, D. W. Norman, J. N. H. Reek, *Adv. Synth. Catal.* **2013**, 355, 348.  
“Supramolecular Encapsulated Rhodium Catalysts for Branched Selective Hydroformylation of Alkenes at High Temperature.”
- [12] F. W. Patureau, **T. Besset**, F. Glorius, checked by T. Harada, T. Fukuyama, *Org. Synth.* **2013**, 90, 41.  
“Preparation of (E)-N,N-Diethyl-2-styrylbenzamide by Rh-catalyzed C-H Activation.”

- [11] **T. Besset**, C. Schneider, D. Cahard, *Angew. Chem. Int. Ed.* **2012**, *51*, 5048.  
“Tamed (Hetero)Arene Trifluoromethylation.” (Highlight)
- [10] F. W. Patureau, **T. Besset**, R. Fröhlich, F. Glorius, *C. R. Chim.* **2012**, *15*, 1081.  
“On the Selectivity in Some Rh(III) Catalyzed C-H Activation Cross-Couplings; De la Sélectivité dans des Réactions d'Hétéro-Couplage par C-H Activation Catalysées au Rh(III).”
- [9] N. Schroder, **T. Besset**, F. Glorius, *Adv. Synth. Catal.* **2012**, *354*, 579.  
“Synthesis of Olefin-Oxazoline-Ligands (OleFOx) by Rhodium(III)-Catalyzed Oxidative Olefination.”
- [8] **T. Besset**, N. Kuhl, F. W. Patureau, F. Glorius, *Chem. Eur. J.* **2011**, *17*, 7167.  
“Rh(III)-Catalyzed Oxidative Olefination of Vinylic C-H Bonds: Efficient and Selective Access to Di-unsaturated  $\alpha$ -Amino Acid Derivatives and other Linear 1,3-Butadienes.”
- [7] **T. Besset**, E. Braud, C. Garbay, S. Kolb, P.-M. Léo, C. Morin, *Eurjchem* **2011**, *2*, 433.  
“Preparation and Evaluation of a Set of Bis-(methoxycarbonyl-methylthio)-heteroquinones as CDC25B Phosphatase Inhibitors.”
- [6] S. Rakshit, C. Grohmann, **T. Besset**, F. Glorius, *J. Am. Chem. Soc.* **2011**, *133*, 2350.  
“Rh[III]-Catalyzed Directed C-H Olefination using an Internal Oxidant: Mild, Efficient and Versatile.”
- [5] F. W. Patureau, **T. Besset**, N. Kuhl, F. Glorius, *J. Am. Chem. Soc.* **2011**, *133*, 2154.  
“Diverse Strategies Towards Indenol and Fulvene Derivatives: Rh-Catalyzed C-H Activation of Aryl Ketones Followed by Coupling with Internal Alkynes.”
- [4] F. W. Patureau, **T. Besset**, F. Glorius, *Angew. Chem. Int. Ed.* **2011**, *50*, 1064.  
“Rhodium-Catalyzed Oxidative Olefination of C-H Bonds in Acetophenones and Benzamides.”
- [3] **T. Besset**, C. Morin, *Synthesis* **2009**, 1753.  
“Synthesis of 3,6-Dimethoxybenzene-1,2-diamine and of 4,7-Dimethoxy-2-methyl-1H-benzimidazole.”
- [2] C. Morin, **T. Besset**, J.-C. Moutet, M. Fayolle, M. Brueckner, D. Limosin, K. Becker, E. Davioud-Charvet, *Org. Biomol. Chem.* **2008**, *6*, 2731.  
“The Aza-Analogues of 1,4-Naphthoquinones are Potent Substrates and Inhibitors of Plasmodial Thioredoxin and Glutathione Reductases and of Human Erythrocyte Glutathione Reductase.”
- [1] I. Abrunhosa-Thomas, O. Roy, M. Barra, **T. Besset**, P. Chalard, Y. Troin, *Synlett* **2007**, 1613.  
“Diastereoselective Synthesis of 2-Monosubstituted and 2,6-Disubstituted Piperidines.”

## GRANTS and AWARDS

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- 2014** Royal Society of Chemistry poster prize at the [2<sup>nd</sup> International Symposium on C-H Activation](#).
- 2006** MESR grant for Ph.D. studies.

## OUTREACH

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- Since 2006** Member of the French Chemical Society (SCF) (treasurer assistant).
- Since 2013** Member of the GIS-Fluor. <http://www.reseau-fluor.fr/index.php/en/>
- 2014-2016** Member of the « CCSE restreinte élue » for 2 years (2014-2016).
- Since 09/2015** Safety assistant.
- 2015** Organizer of the symposium “Journées Nord-Ouest Européennes des Jeunes Chercheurs (JNOEJC 2015),” May 11-12<sup>th</sup>, 2015 (Rouen, France).
- 2015** Member of the COST action “CHAOS for C-H Activation in Organic Synthesis”: one of the two French Management Committee members and one of the three Short Term Scientific Mission managers. <http://cost-chaos.org/>
- 2015** Committee member as expert for the recruitment of an engineer assistant CNRS