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CONTACT DETAILS
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BIOSKETCH

Born in Anderlecht (BE) on Sept. 23, 1982

EDUCATION

Ph.D. (Organic Chemistry)	Nov. 2008
Université catholique de Louvain	Belgium
Postgraduate (Organic Chemistry)	June 2006
Université catholique de Louvain	Belgium
Ms. Sc. (Chemistry)	June 2004
Université catholique de Louvain	Belgium

EMPLOYMENT HISTORY

Minjiang Scholar Chair Professor of Fujian (part-time)	2020-to date
Fuzhou University	(China)
Associate Professor *(Chargé de Cours)*	2019-to date
University of Liège	Belgium
Senior Lecturer *(Chef de Travaux)*	2018-to 2019
University of Liège	Belgium
Lecturer *(Premier Assistant)*	2013 – 2017
University of Liège	Belgium
Postdoctoral Fellow	2012 – 2013
Massachusetts Institute of Technology	USA
Postdoctoral Fellow	2010 – 2012
University of Florida	USA
Postdoctoral Researcher	2010-2013
FWO-Vlaanderen	Belgium
Postdoctoral Associate	2008 – 2010
Ghent University	Belgium

FELLOWSHIPS and AWARDS

International Expert – Fujian Hundred Talents Pogram	2020
Tongjiang Scholar Chair Professor of Quanzhou	2020
Minjiang Scholar Chair Professor of Fujian	2020
Belgian nominee for the EuChemS Young Investigator Award	2017
Belgian American Educational Foundation	2011

Research Foundation – Flanders	2010
Special Funds for Research	2009
FRIA-F.N.R.S PhD fellowship	2004
Royal Society of Chemistry-Belgium	2004
Solvay Annual Award	2004

MEMBERSHIP

Organizing Committee of the Belgian Organic Synthesis Symposium (BOSS)
International Solvay Institute – Belgian chemistry committee
Flow Chemistry Society
American Chemical Society
Belgian American Educational Foundation – Alumni

RESEARCH INTERESTS

My research interests revolve around synthetic organic chemistry but are multidisciplinary in essence. They encompass (*i*) the development of innovative strategies, at various scales, targeting bioorganic molecules using flow chemistry and (*ii*) the understanding at the molecular level of selectivities and mechanisms by means of computational chemistry.

TEACHING

1. Organic Chemistry I (Bachelor 1)
2. Organic Chemistry II (Bachelor 2)
3. Advanced Organic Chemistry (Master 1)
4. Introduction to Continuous Flow Organic Synthesis (Master 1)
5. Physical Organic Chemistry (Master 2)
6. Organic Chemistry Labs and Practice (Bachelor 1 and 2)
7. Integrated Spectroscopy Labs (Bachelor 3)
8. Bibliographic research, research project (Bachelor 3)

OTHER SCIENTIFIC ACTIVITIES

Referee for: *Org. Lett., J. Org. Chem., J. Flow Chem., Tetrahedron, Tetrahedron Lett., J. Mol Cat. A*, *Beilstein J. Org. Chem. J. Chem. Edu., J. Cat., ChemSusChem, Green Chem., Polym. Chem., React. Chem. Eng., Org. Process. Res. Dev.*, *Catal. Sci. Technol., Angew. Chem. Int. Ed.*

Consultant for: Janssen Pharmaceutica, Institut de Recherches Servier

PUBLICATION LIST:

69. "Continuous Flow Upgrading of Selected C2-C6 Platform Chemicals Derived from Biomass" R. Gérardy, D. P. Debecker, J. Estager, P. Luis and J.-C. M. Monbaliu* *Chem. Rev.* **2020**, **Accepted** (doi: 10.1021/acs.chemrev.9b00846)
68. "The deoxydehydration (DODH) reaction: a versatile technology for accessing olefins from bio-based polyols" N. Ntumba Tshibalonza and J.-C. M. Monbaliu*, *Green Chem.* **2020**, **Accepted** (doi: 10.1039/D0GC00689K)
    Front cover
67. "Scalable and robust photochemical flow process towards small spherical gold nanoparticles" P. Bianchi, G. Petit and J.-C. M. Monbaliu*, *React. Chem. Eng.* **2020**, *5*, 1224-1236 (doi: 10.1039/D0RE00092B)
    Front cover
66. "Continuous flow organophosphorus chemistry" R. Morodo, P. Bianchi and J.-C. M. Monbaliu*, *Eur. J. Org. Chem.* **2020**, **Accepted** (doi: 10.1002/ejoc.202000430)
    Front cover
    Tagged as *Very Important Paper*
    Featured in the Special Collection YourJOC Talents 2020
65. "A safe and compact flow platform for the neutralization of a mustard gas simulant with air and light" N. Emmanuel, P. Bianchi, J. Legros and J.-C. M. Monbaliu*, *Green Chem.* **2020**, *22*, 4105-4115 (doi: 10.1039/D0GC01142H)
    Back cover
64. "Separation of bio-based chemicals using pervaporation" W. Li, J. Estager, J.-C. M. Monbaliu, D. Debecker and P. Luis, *J. Chem. Technol. Biotechnol.* **2020, Accepted** (doi: 10.1002/jctb.6434)
63. "Radiosynthesis of [18F]difluoromethyl heteroaryl-sulfones for radical C-H 18F-difluoromethylation of heteroarenes by visible light photoredox catalysis" A Lemos, L. Trump, B. Lallemand, P. Pasau, J. Mercier, C. Lemaire, J.-C. M. Monbaliu, C. Genicot and A. Luxen, *Catalysts* **2020**, *10*, 275 (doi: 10.3390/catal10030275)
62. "Supported ionic liquid membranes for the separation of methanol/dimethyl carbonate mixtures by pervaporation" W. Li, C. Molina Fernandez, J. Estager, J.-C. M. Monbaliu, D. Debecker and P. Luis, *J. Membr. Sci.* **2020**, *598*, 117790 (doi: 10.1016/j.memsci.2019.+117790)
61. "Metal-free hydroxylation of tertiary ketones under intensified and scalable continuous flow conditions" V.-E. H. Kassin, T. Toupy, G. Petit, P. Bianchi, E. Salvadeo and J.-C. M. Monbaliu*, *J. Flow Chem.* **2020**, *10*, 167–179 (doi: 10.1007/s41981-019-00073-6)
60. "Development of a sustainable continuous flow approach toward allantoin" E. Salvadeo and J.-C. M. Monbaliu, *J. Flow Chem.* **2020**, *10*, 251–257 (doi: 10.1007/s41981-019-00056-7)
59. "Versatile and scalable synthesis of cyclic organic carbonates under organocatalytic continuous flow conditions" R. Gérardy, J. Estager, P. Luis, D. P. Debecker and J.-C. M. Monbaliu*, *Catal. Sci. Technol.* **2019**, *9*, 6841-6851 (doi: 10.1039/C9CY01659G)
    Front cover (here)

58. “Understanding chemical interaction between phosphonate-derivative molecules and silver surface cluster in SERS: a combined experimental and computational approach” G. Emonds-Alt, B. Mignolet, C. Malherbe, J.-C. M. Monbaliu, F. Remacle and G. Eppe *Phys. Chem. Chem. Phys*. **2019**, *21*, 22180-22187 (doi: 10.1039/C9CP01615E)
57. “Continuous flow upgrading of glycerol toward oxiranes and active pharmaceutical ingredients thereof” R. Morodo, R. Gérardy, G. Petit and J.-C. M. Monbaliu**, Green Chem.*, **2019**, *21*, 4422-4433 (doi: 10.1039/C9GC01819K)
56. “Expedient preparation of active pharmaceutical ingredient ketamine under sustainable continuous flow conditions” V.-E. Kassin, R. Gérardy, T. Toupy, D. Collin, E. Salvadeo, F. Toussaint, K. Van Hecke and J.-C. M. Monbaliu*, *Green Chem.* **2019**, *21*, 2952-2966 (doi: 10.1039/C9GC00336C)
    Featured as a 2019 Green Chemistry Hot Article (here)
    Front inside cover (here)
55. “Solubility Determination and Correlation of Warfarin Sodium 2-Propanol Solvate in Pure, Binary, and Ternary Solvent Mixture” M. V. George De la Rosa, R. Santiago, J. Malavé Romero, J. Duconge, Jorge, J.-C. M. Monbaliu, V. López-Mejías and T. Stelzer, *J. Chem. Eng. Data* **2019**, *64*, 1399-1413 (doi: 10.1021/acs.jced.8b00977)
54. “Development of a continuous fluidic reactor for the photocatalytic treatment of liquid effluents” M. Pelzer, S. L. Pirard, C. A. Páez, J.-C. M. Monbaliu and B. Heinrichs, *J. Mater. Sci. Nanotechnol*. **2019**, *7*, (3), 301.
53. "Native chemical ligation and extended methodologies. Mechanisms, catalysis, scope and limitations" V. Agouridas, O. El Mahdi, V. Diemer, M. Cargoët, J.-C. M. Monbaliu* and O. Melnyk, *Chem. Rev.* **2019**, *119*, 7328-7443.
52. “Finding the perfect match: a combined computational and experimental study towards efficient and scalable photosensitized [2+2] cycloadditions in flow” J. Williams, M. Nakano, R. Gérardy, J. A. Rincon, O. de Frutos, C. Mateos, J.-C. M. Monbaliu and C. O. Kappe, *Org. Process Res. Dev*. **2019**, *23*, 78-87 (doi: 10.1021/acs.oprd.8b00375)
51. “Solvent-free organocatalytic preparation of cyclic organic carbonates under scalable continuous flow conditions” Z. Wang, R. Gérardy, G. Gauron, C. Damblon and J.-C. M. Monbaliu*, *React. Chem. Eng.* **2019**, *4,* 17-26 (doi: 10.1039/c8re00209f)
50. “Sustaining the transition from petro- to biobased chemical industry with flow chemistry” R. Gérardy, R. Morodo, J. Estager, P. Luis, D. P. Debecker, and J.-C. M. Monbaliu*, *Top. Curr. Chem.* **2019**, 377: 1 (doi: 10.1007/s41061-018-0222-3)
49. “A versatile biobased continuous flow strategy for the production of 3-butene-1,2-diol and vinyl ethylene carbonate from erythritol” N. Ntumba Tshibalonza, R. Gérardy, Z. Alsafra, G. Eppe and J.-C. M. Monbaliu*, *Green Chem*. **2018**, *20*, 5147-5157 (doi: 10.1039/C8GC02468E)
    Featured as a 2018 Green Chemistry Hot Article (here)
48. “Improving Continuous Flow Singlet Oxygen Photooxygenations with Functionalized Mesoporous Silica Nanoparticles” C. Mendoza, N. Emmanuel, C. A. Páez, L. Dreesen, J.-C. M. Monbaliu* and B. Heinrichs, *ChemPhotoChem* **2018,** *2*, 890-897 (doi: 10.1002/cptc.201800148)
47. “Sorption and pervaporation study of methanol/dimethyl carbonate mixture with poly(etheretherketone) (PEEK-WC) membrane” W. Li,F. Galiano, J. Estager, J.-C. M.

Monbaliu, D. P. Debecker, A. Figoli and P. Luis, *J. Memb. Sci.* **2018**, *132*, 127-136 (doi: 10.1016/j.memsci.2018.09.040)

46. "Application of pervaporation in the bio-production of glycerol carbonate" W. Li, R. Sreerangappa, J. Estager, J.-C. M. Monbaliu, D. P. Debecker and P. Luis, *Chem. Eng. Process.* **2018**, *132*, 127-136 (doi: 10.1016/j.cep.2018.08.014)
45. "Accelerated microfluidic native chemical ligation at difficult amino acids toward cyclic peptides" N. Ollivier, T. Toupy, J.-C. M. Monbaliu* and O. Melnyk, *Nat. Commun.* **2018**, *9*, 2847 (doi: 10.1038/s41467-018-05264-8).
    Featured in the 2018 Synthetic and Medicinal Chemistry issue of Nature Communication (here)
    Highlighted as "SYNFACTS of the month" (here)
44. "Continuous Flow Organic Chemistry: Successes and Pitfalls at the Interface with Current Societal Challenges" R. Gérardy, N. Emmanuel, T. Toupy, V. Kassin, N. Ntumba Tshibalonza, M. Schmitz, J.-C. M. Monbaliu*, *Eur. J. Org. Chem.* **2018**, 2301–2351 (doi:10.1002/ejoc.201800149)
    Tagged as *Very Important Paper* (here)
    Most accessed paper in June 2018 (here)
    Featured in the Special Collection EurJOC Readers' Choice 2019 (here)
43. "NOTA–PRGD2 and NODAGA–PRGD2: Bioconjugation, Characterization, Radiolabelling & Design Space", M. Salvé, H. T. Avohou, J.-C. M. Monbaliu, P. Lebrun, C. Lemaire, C. Damblon, P. de Tullio, R. Hustinx and A. Luxen, *J. Label. Cmpd. Radiopharm.* **2018**, *61*, 487-500 (doi:10.1002/jlcr.3613)
42. "Transitioning from macroscopic batch to microfluidic processes for the efficient singlet oxygen photooxygenation of methionine" C. Mendoza, N. Emmanuel, C. Paez, L. Dreesen, J.-C. M. Monbaliu* and B. Heinrichs, *J. Photochem. Photobiol. A* **2018**, *356*, 193-200 (doi:10.1016/j.jphotochem.2017.12.028)
41. "Continuous-flow preparation of g-butyrolactone scaffolds from renewable fumaric and itaconic acids under photosensitized conditions" R. Gérardy, M. Winter, C. R. Horn., A. Vizza, K. Van Hecke and J.-C. M. Monbaliu*, *Org. Process Res. Dev.* **2017**, *21*, 2012–2017 (doi:10.1021/acs.oprd.7b00314)
40. "Scalable Photocatalytic Oxidation of Methionine under Continuous-Flow Conditions" N. Emmanuel, C. Mendoza, M. Winter, C. Horn, A. Vizza, L. Dreesen, B. Heinrichs and J.-C. M. Monbaliu*, *Org. Process Res. Dev.* **2017**, *21*, 1435–1438 (doi:10.1021/acs.oprd.7b00212)
39. "Revisiting the deoxydehydration of glycerol towards allyl alcohol under continuous-flow conditions" N. Ntumba Tshibalonza and J.-C. M. Monbaliu*, *Green Chem.* **2017**, *19*, 3006-3013 (doi:10.1039/C7GC00657H)
38. "Exploring the Fundamentals of Microreactor Technology with Multidisciplinary Lab Experiments Combining the Synthesis and the Characterization of Inorganic Nanoparticles" N. Emmanuel, G. Emonds-Alt, M. Lismont*, G. Eppe* and J.-C. M. Monbaliu*, *J. Chem. Edu.* **2017**, *94*, 775–780 (doi:10.1021/acs.jchemed.6b00899)
37. "Assessing inter- and intramolecular continuous-flow strategies towards methylphenidate (Ritalin) hydrochloride" R. Gérardy, M. Winter, A. Vizza and J.-C. M. Monbaliu*, *React. Chem. Eng.* **2017**, *2*, 149-158 (doi:10.1039/C6RE00184J)
    Featured in the *2017 Emerging Investigators Issue of React. Chem. Eng.*
36. "Expanding chemistry's horizon with continuous-flow reactors" J.-C. M. Monbaliu*, N. Emmanuel and R. Gérardy, *Chimie Nouvelle* **2016**, *122*, 18-26 (here)

35. "Compact and integrated approach for advanced end-to-end production, purification, and aqueous formulation of lidocaine hydrochloride", J.-C. M. Monbaliu, T. Stelzer, E. Revalor, N. Weeranoppanant, K. F. Jensen, A. S. Myerson, *Org. Process Res. Dev.* **2016**, *20*, 1347-1353 (doi: 10.1021/acs.oprd.6b00165)
34. "On-demand continuous flow production of pharmaceuticals in a compact, reconfigurable system", A. Adamo, R. L. Beingessner, M. Behnam, J. Chen, T. F. Jamison, K. F. Jensen, J.-C. M. Monbaliu, A. S. Myerson, E. Revalor, D. R. Snead, T. Stelzer, N. Weeranoppanant, S. Y. Wong, P. Zhang, *Science* **2016**, *352*, 61-67 (doi: 10.1126/science.aaf1337)
    Featured in the 2016 C&EN review of notable chemistry research
33. "Continuous-flow N-heterocyclic carbenes generation and organocatalysis", L. Di Marco, M. Hans, L. Delaude and J.-C. M. Monbaliu*, *Chem. Eur. J.* **2016**, *22*, 4508–4514 (doi:10.1002/chem.201505135)
    Tagged as *hot paper* and highlighted on Chemistry Views (here)
32. "Accelerating chemoselective peptide bond formation using bis(2-selenylethyl)amido peptide selenoester surrogates", L. Raibaut, M. Cargoët, N. Ollivier, Y.-M. Chang, H. Drobecq, E. Boll, R. Desmet, J.-C. M. Monbaliu* and Oleg Melnyk*, *Chem. Sci.* **2016**, *7*, 2657-2665 (doi: 10.1039/C5SC03459K)
31. "Continuous-flow thermolysis for the preparation of vinylglycine derivatives", N. Lamborelle, J. Simon, A. Luxen and J.-C. M. Monbaliu*, *Org. Biomol. Chem.* **2015**, *13*, 11602-11606 (doi: 10.1039/C5OB02036K)
30. "Preparation, reactivity and synthetic utility of simple benzotriazole derivatives", R. Gérardy and J.-C. M. Monbaliu*, *Top. Heterocycl. Chem.* **2015**, 1-66 (doi: 110.1007/7081_2015_179)
29. "Efficient continuous flow benzotriazole activation and coupling of amino acids", S. Seghers, F. E. A. Van Waes, A. Cukalovic, J.-C. M. Monbaliu *et al., J. Flow Chem.*, **2015**, *5*, 220-227 (doi: 10.1556/1846.2015.00029)
28. "New benzotriazole-based reagents for the phosphonylation of various N-, O- and S-nucleophiles", Pandmand, A. D. Tiwari, S. Panda, J.-C. M. Monbaliu *et al., Tetrahedron Lett.* **2014**, *55*, 5898-5901 (doi: 10.1016/j.tetlet.2014.07.057)
27. "L'intensification des procédés chimiques, une approche radicale", C. Henneuse, J.-C. M. Monbaliu, *Athena* **2014**, 18-21 (here)
26. "Feruloyl benzotriazole and Weinreb amide as bioinspired building blocks: a reactivity study towards O-, N-, S- and C-nucleophiles", B. I. Roman, J.-C. M. Monbaliu *et al., Eur. J. Org. Chem.* **2014**, 2594-2611. (doi: 10.1002/ejoc.201301895)
25. "Capture of benzotriazole-based Mannich electrophiles by CH-acidic compounds", J.-C. M. Monbaliu, L. K. Beagle *et al., RSC Advances* **2013**, *3*, 4152-4155 (doi: 10.1039/C3RA22826F)
24. "Governing parameters of long-range intramolecular S-to-N acyl transfers within chemical ligation of peptides", J.-C. M. Monbaliu, G. Dive *et al., J. Chem. Theory Comp.* **2013**, 927-934 (doi: 10.1021/ct300830k)
23. "Development, optimization and scale-up of biodiesel production from crude palm oil and effective use in developing countries", A. Cukalovic, J.-C. M. Monbaliu *et al., Biomass & Bioenerg.* **2013**, *56*, 62-69 (doi: 10.1016/j.biombioe.2013.04.015)
22. "Recent trends in Cys- and Ser/Thr-based chemical ligations for the elaboration of peptide constructs", J.-C. M. Monbaliu and A. R. Katritzky, *Chem. Commun.* **2012**, *48*, 11601-11622 (doi: 10.1039/C2CC34434C)

21. "A convenient synthesis of difficult medium-sized cyclic peptides by Staudinger-mediated ring closure", K. Ha, J.-C. M. Monbaliu *et al., Org. Biomol. Chem.* **2012**, *10*, 8055-8058 (doi: 10.1039/C2OB25996F)
20. "En route towards α-benzotriazoyl nitroso derivatives", J.-C. M. Monbaliu, Lucas Beagle *et al., RSC Advances* **2012**, *2*, 8941-8945 (doi: 10.1039/C2RA21311G)
19. "Efficient synthesis of 2,5-diketopiperazines by Staudinger-mediated cyclization", L. Beagle, F. Hansen, J.-C. M. Monbaliu *et al., Synlett* **2012**, *23*, 2337-2340 (doi: 10.1055/s-0031-1290446)
18. "User-friendly and flexible Kiliani-Fisher reaction on ketoses using microreaction technology", J.-C. M. Monbaliu, A. Cukalovic *et al., J. Flow Chem.* **2012**, *2*, 43-46 (doi: 10.1556/JFC-D-12-00003)
17. "Long-range intramolecular *S-N* acyl migration: a study of the formation of native peptide analogs via 13-, 15- and 16-membered cyclic transition states", K. Ha, M. Chahar, J.-C. M. Monbaliu *et al., J. Org. Chem.* **2012**, *77*, 2637-2648 (doi: 10.1021/jo2023125)
16. "A new benzotriazole-mediated stereoflexible gateway to hetero-2,5-diketopiperazines", J.-C. M. Monbaliu, F. K. Hansen *et al., Chem. Eur. J.* **2012**, *18*, 2632-2638 (doi: 10.1002/chem.201103143)
15. "Continuous-flow production of alkyl nitrites", J.-C. M. Monbaliu*, J. Jorda *et al., Chemistry Today* **2011**, *29*, 80-82 (here)
14. "Electron-deficient 1- and 2-aza-1,3-dienes: a comprehensive survey of their synthesis and reactivity
J.-C. M. Monbaliu, K. G. R. Masschelein and C. V. Stevens, *Chem. Soc. Rev.* **2011**, *40*, 4708-4739 (doi: 10.1039/C1CS15070G)
13. "Effective production of the biodiesel additive STBE by a continuous flow process", J.-C. M. Monbaliu, M. Winter *et al., Bioresour. Technol.* **2011**, *102*, 9304-9307 (doi: 10.1016/j.biortech.2011.07.007)
12. "Straightforward hetero Diels-Alder cycloadditions of nitroso dienophiles by microreactor technology",J.-C. M. Monbaliu, A. Cukalovic *et al., Tetrahedron Lett.* **2010**, *51*, 5830-5833 (doi: 10.1016/j.tetlet.2010.08.117)
11. "Feasibility study for industrial production of fuel additives from glycerol", J.-C. M. Monbaliu, M. Winter *et al., Chemistry Today* **2010**, *28*, 42-45 (here)
10. "[4+2] Cycloaddition of 1-phosphono-1,3-butadienes with nitroso-heterodienophiles: a new and versatile entry to polyfunctionalized α- and δ-aminophosphonic derivatives", J.-C. M. Monbaliu, B. Tinant *et al., J. Org. Chem.* **2010**, *75*, 5478-5486 (doi: 10.1021/jo100230r)
9. "HD-A cycloadditions of 1-diethoxyphosphoryl-1,3-butadiene with nitroso- and azo-heterodienophiles: a theoretical investigation", J.-C. M. Monbaliu*, G. Dive *et al., J. Mol. Struct.: THEOCHEM.* **2010**, *959*, 49-54 (doi: 10.1016/j.theochem.2010.08.004)
8. "Three unrelated sphingomyelin analogs spontaneously cluster into plasma membrane micrometric domains", D. Tyteca, L. D'Auria, P. Van Der Smissen, T. Medts, S. Carpentier, J.-C. M. Monbaliu *et al., BBA-Biomembrane* **2010**, *1978*, 909-927 (doi: 10.1016/j.bbamem.2010.01.021)
7. "Novel chiral 1-phosphono-1,3-butadiene for asymmetric hetero Diels-Alder cycloadditions with nitroso and azodicarboxylate dienophiles", J.-C. M. Monbaliu, D. Peeters *et al., Tetrahedron Lett.* **2010**, *51*, 1052-1055 (doi: 10.1016/j.tetlet.2009.12.063)

6. "Is anthracene cofactor or spectator for the thermolysis of anthracenyl acylnitroso cycloadducts in the presence of a diene?", J.-C. M. Monbaliu*, J. Marchand-Brynaert *et al., Tetrahedron Lett.* **2009**, *50*, 2555-2558 (doi: 10.1016/j.tetlet.2009.03.062)
5. "A practical synthesis of 3-diethoxyphosphoryl-1,2-pyridazine derivatives", J.-C. M. Monbaliu, J. Marchand-Brynaert*, Synthesis* **2009**, *11*, 1876-1880 (doi: 10.1055/s-0028-1088056)
4. "(R)-4-phenyloxazolidin-2-thione: an efficient chiral auxiliary for [4+2] cycloaddition of 1-aminodienes and activated phosphonodienophiles", J.-C. M. Monbaliu, R. Robiette *et al, Tetrahedron Lett.* **2009**, *50*, 1314-1317 (doi: 10.1016/j.tetlet.2009.01.036)
3. "Reactivity of (R)-4-phenyloxazolidin-2-thione chiral auxiliary: from deprotection to heterocyclic interconversion", J.-C. M. Monbaliu, B. Tinant *et al., Heterocycles* **2008**, *75*, 2459-2475 (doi: 10.3987/COM-08-11410)
2. "[4+2] Cycloaddition of 1-phosphono-1,3-butadiene with azo- and nitroso-heterodienophiles", J.-C. M. Monbaliu and J. Marchand-Brynaert*, Tetrahedron Lett.* **2008**, *49*, 1839-1842 (doi: 10.1016/j.tetlet.2008.01.050)
1. "NMR and X-ray diffraction analysis of 3-thioamido-5-phosphono-1-cyclohexene derivatives: Conformational and stereochemical assignments", J.-C. M. Monbaliu, B. Tinant *et al, J. Mol. Struct.* **2008**, *879*, 113-118 (doi: 10.1016/j.molstruc.2007.08.018)

BOOKS AND BOOK CHAPTERS

5. Multistep continuous-flow processes for the preparation of heterocyclic active pharmaceutical ingredients, in *Topics in Heterocyclic Chemistry*, in *Topics in Heterocyclic Chemistry: Flow Chemistry for the Synthesis of Heterocycles*, (Editor: E. V. Van der Eycken), Vol. 56, 1-102, Springer, **2018**
   R. Gérardy and J.-C. M. Monbaliu
4. The chemistry of benzotriazole derivatives: a tribute to Alan Roy Katritzky, *Topics in Heterocyclic Chemistry* (Editor: J.-C. M. Monbaliu), Springer, **2015**
3. Safety Aspects related to Microreactor Technology, in *Flow Chemistry* (Editors: Darvas, F.; Dormán, G.; Hessel, V.), Vol. 2, 247-276, De Gruyter, Berlin, **2014**
   J.-C. M. Monbaliu, A. Cukalovic and C.V. Stevens
2. Microreactor technology as an efficient tool for multicomponent reactions, in *Topics in Heterocyclic Chemistry: Synthesis of Heterocycles via Multicomponent Reactions*, (Editors: R. V. A. Orru and E. Ruijter), Vol. 23, 161-198, Springer, **2010**
   A. Cukalovic, J.-C. M. Monbaliu and C. V. Stevens
1. Hetero Diels-Alder (HDA) reactions of 1-phosphono-1,3-butadienes with azo and nitroso dienophiles: an entry towards versatile heterocyclic synthons for aminophosphonic compounds in *Targets in Heterocyclic Systems*, (Editors: O. A. Attanasi, and D. Spinelli), Vol. 14, 49-79, Springer: Berlin, **2010**
   J.-C. M. Monbaliu, E. Villemin, B. Elias and J. Marchand-Brynaert

PATENTS

5. “Improvements in or relating to organic material”, J.-C. M. Monbaliu, D. Collin, V.-E. Kassin (**2017**), **Patent application No. EP17211200.5**
4. "Process for the production of allyl compounds by deoxydehydration of glycerol" J.-C. M. Monbaliu, N. N Tshibalonza (**2017**) **Patent application No. EP17159230**
3. "Continuous flow process for the polymerization of an alkylene oxide" J.-C. M. Monbaliu, M. Hans (**2018**) WO 2018/114416 – EP3339350 (link to Espacenet).
2. "Method for the preparation of alkyl phenidates", J.-C. M. Monbaliu, R. Gérardy (**2018**) **WO 2018/050546 - EP73296292** (link to Espacenet).
1. "Systems and Methods for Synthesizing Chemical Products, Including Active Pharmaceutical Ingredients", K. F. Jensen, T. F. Jamison, A. Myerson, J.-C. M. Monbaliu, *et al.* (**2016**) **WO 2016/025803** (link to Espacenet).

CONFERENCES (invited, selection)

Flow Chemistry Europe (2020), March 3-4 **2020**, Cambridge - UK (invited Lecture, "Continuous flow upgrading of biobased platforms")

Frontiers in Organic Synthesis Technology (FROST 7 **2019**), October 16-18 **2019**, Budapest – Hungary (invited Lecture, "Ultrafast Electrophilic Hydroxylamination under Safe and Scalable Continuous Flow Conditions")

Corning Annual Flow Technology Workshop, March 6-7 **2019**, Avon – France (invited Plenary Lecture, "Advanced continuous flow strategies for the preparation of high valued-added targets")

Corning Annual Flow Technology Event, March 6-7 **2019**, Changzhou – China (invited Plenary Lecture, "Continuous flow chemistry at the interface of current societal challenges")

Flow Chemistry Europe (2019), February 26-27 **2019**, Cambridge - UK (invited Lecture, "A journey toward ketamine")

Seminars of the School of Chemical Engineering, Fuzhou University, September 5 **2018**, Fuzhou – China (invited Lecture, "Complex multistep continuous flow processes: from lab to pilot scale")

Flow Chemistry Europe (2018), February 6-7 **2018**, Cambridge - UK (invited Lecture, "Boosting Multistep Synthetic Organic Chemistry with Corning® Advanced-Flow Reactors")

Flow Chemistry Europe (2018), February 6-7 **2018**, Cambridge - UK (invited Lecture, "Upgrading of biosourced platforms under continuous flow conditions")

UK Automated Synthesis Forum (UKASF 2017), November 7-8 **2017**, Northampton – UK (invited Lecture, "Expanding chemistry's horizon with continuous-flow reactors")

Frontiers in Organic Synthesis Technology (FROST 6 **2017**), October 18-20 **2017**, Budapest – Hungary (invited Lecture, "Exploring molecular antipodes with continuous-flow chemistry")

ULB-TIPS seminars, September 8 **2017**, Brussels (ULB) – Belgium (invited seminar, "Expanding chemistry's horizon with continuous-flow reactors")

Young Investigator Workshop - EuCheMs (YIW 2017), July 6-8 **2017**, Cologne – Germany (invited Lecture, "Expanding chemistry's horizon with continuous-flow reactors")

Solvay Workshop on "Chemical reactions and separation in flows", April 19-21 **2017**, ULB Brussels – Belgium (invited Lecture, "Expanding chemistry's horizon with continuous-flow reactors")

Corning's Flow Technology Event, March 6-7 **2017**, Changzhou – China (invited Plenary Lecture, "Expanding chemistry's horizon with continuous-flow reactors")

Corning's Flow Technology Event, March 6-7 **2017**, Changzhou – China (invited Lecture, "Flow Chemistry Education Seminar")

Annual meeting of the *Société Royale de Chimie*, October 13 **2016**, Liège – Belgium (invited Plenary Lecture, "End-to-end Continuous Manufacturing")

Seminars of the Institut Pasteur de Lille, March 6 **2016**, Lille – France (invited Seminar, "Multistep Reaction Telescoping in Continuous-Flow Reactors")

Flow Chemistry Workshop 2016, January 18-19 **2016**, Hasselt – Belgium (invited Lecture, "Multistep reaction telescoping")

Florida Heterocyclic and Synthetic Conference (FloHet 16 2015), March 1-4 **2015**, Gainesville – Fl USA (invited Lecture, "Enabling technologies and methods for the synthesis of (bio)organic molecules")

Liège Créative, February 6 **2015**, Liège – Belgium, (invited Talk, "Microfluidique et procédés continus : les outils du chimiste de demain")

Heinrich-Heine-Universität Düsseldorf Seminars, May 21 **2014** Düsseldorf – Germany (invited Lecture, "Continuous manufacturing")

SUPERVISION and/or EXAMINATION of THESES

Bachelor in Chemistry (Institut Paul Lambin)

- "Aminations électrophiles en processus fluidique pour la production de composés pharmaceutiques", B. J.Takam Mba, **2018**
- "Élaboration et mise au point de procédé de synthèse de composés tropaniques", P. Gröb, **2018**
- "Contribution à la synthèse de la ketamine", J. Delaisse, **2017**
- "Photooxydation de dérivés de la (L)-méthionine par l'oxygène singulet en flux continu & thermolyse", M. Schmitz, **2017**
- "Préparation de dérivés de type alpha-chloronitroso en microréacteur, G. Vandendeyck", **2016**
- "Thermolyse de la méthionine sulfone pour la préparation de la vinylglycline, K. Gosseye", **2015**
- "Préparation de 2,5-dicétopipérazines en microréacteurs", C. Maegerman, **2015**

Master

(S = Supervisor, C = Co-supervisor)

- **S** "Scalable continuous flow technology for the preparation of high-value added nanoparticles", P. Bianchi, **2020**.
- **S** "Innovative strategy towards (bicyclo)-3,6-dihydro-1,2-oxazines from a novel class of photocleavable acylnitroso", T. Tilmant, **2019**.
- **S** "α-Hydroxylation of enolizable ketones under continuous flow conditions", F. Toussain, **2019**.
- **S** "Développement de stratégies pour la préparation de motifs tropaniques", M. Clavier, **2018**.
- **S** "Continuous Flow Upgrading of Glycerol towards Epichlorohydrin", R. Morodo-Martinez, **2018**.
- **S** "SEA ligation assisted preparation of cyclic peptides under microfluidic conditions", T. Toupy, **2017** (Co-promotor O. Melnyk, Institut Pasteur de Lille).
- **S** "New strategies toward the preparation and use of unstable nitroso species", V.-E. Kassin, **2017**.
- **S** "Development of innovative strategies for the preparation and purification of Ketamine", D. Collin, **2017** (Co-promotor T. Leyssens, Université catholique de Louvain).
- **S** "Continuous-flow strategies towards bio-based glycerol carbonate", G. Ernotte, **2017** (Co-promotor J. Estager, Certech).
- **C** "Contribution to the development of a microphotoreactor for the production of pharmaceutical compounds", G. Palm, **2017** (Promotor B. Heinrichs, Liège Université)
- **S** "Assessing inter- and intramolecular continuous-flow strategies towards methylphenidate hydrochloride", R. Gérardy, **2016**.
- **C** "Mise au point d'une méthode dosage en ligne par le couplage microfluidique-détection par diffusion Raman exaltée de surface (SERS)", G. Emonds-Alt, **2015** (Promotor G. Eppe, Liège Université).
- **S** "Nouvelle stratégie de synthèse de thioesters analogues à S2e", T. De Vléminck, **2015** (Co-promotor A. Luxen, Liège Université).

(Examination Committee)

- "Total synthesis of LL-783,277 based on a Z-selective RCM", P. Delmée, **2020** (Sup. S. Lanners, University of Namur)
- "Multistep synthesis of a fluorogenic substrates for *in vivo* imaging of a novel glycosidase from *Mycobacterium tuberculosis*" A. Caudron, **2020** (Sup. S. Vincent, University of Namur)
- "Utilisation de catalyseurs au cuivre et d'un liquide ionique pour la synthèse de carbonates cycliques de type α-alkylidène à partir de CO_2", A. Briquemont, **2019** (Sup. C. Jérôme, University of Liège)
- "Étude théorique des propriétés structurales et optiques de nanoparticules de CdSe et de leur mécanisme de formation", L. Jadin, **2019** (Sup. F. Remacle, University of Liège)
- "Bifunctional boron/nitrogen metallomimetic Lewis Pair catalyst for small molecule activation" L. Mineur, **2019** (Sup. G. Berionni, University of Namur)
- "Evaluation d'un ylure d'iodonium et d'un dérivé organostannique en vue de la synthèse de la [18F]fluorobenzylamine", A. Tchernychev, **2018** (Sup. A. Luxen, Liège Université).
- "Polyphosphate-based copolymers as Solid Polymer Electrolytes in Lithium-Metal betteries", H. Ouadoud, **2018** (Sup. P. Lecomte, Liège Université).
- "Evaluation d'ylures d'iodonium et de sels d'uronium comme précurseurs de la synthèse de la para-[18F]fluorobenzylamine", C. Georges, **2017** (Sup. A. Luxen, Liège Université).
- "From CO_2 to novel regioregular isocyanate-free poly(oxo-urethane)s", C. G. Ngassam Tounzoua, **2017** (Sup. C. Jérôme, Liège Université).
- "Synthèse contrôlée de (co)polymères à base de poly(vinylamine) et d'alcool polyvinylique par voie radicalaire en présence de complexes organométalliques", P. Stiernet, **2017** (Sup. A. Debuigne, Liège Université).
- "Marquage de cycles aromatiques au 18F à partir de sels d'iodonium pour la tomographie par émission de positons", N. Emmanuel, **2016** (Sup. A. Luxen, Liège Université).
- Manon Pelzer (Promotor B. Heinrichs, Liège Université), **2015**
- R. Carlet (Promotor L. Delaude, Liège Université), **2015**
- Q. Chau Ngoc Do (Promotor C. Detrembleur, Liège Université), **2014**
- F. Goffart (Promotor L. Delaude, Liège Université), **2014**
- E. Nkurikiye (Promotor A. Demonceau, Liège Université), **2014**

PhD

(S = Supervisor, C = Co-supervisor)

- **S** "Innovative continuous flow approaches for the preparation of nanoparticles", G. Petit (2019-2023)
- **S** "Continuous flow preparation of high value-added organophosphorus monomers and polymers", R. Morodo Martinez (2019-2023)
- **S** "Advanced electrophilic aminations towards active pharmaceutical ingredients", V.-E. Kassin (2018-2022)

- **S** "Microfluidic strategies towards advanced synthetic peptides", T. Toupy (2018-2022)
- **S** "Integrated continuous-flow photoreactors for singlet oxygen oxidations", N. Emmanuel (2016-2020)
- **S** "Process intensification under continuous-flow conditions for the valorization of biosourced platform molecules", R. Gérardy (2016-2020)
- **C** "Implementation of SERS methods for in-line analysis of organic trace compounds", G. Emonds-Alt (2016-2022, Promotor G. Eppe, Liège Université).
- **S** "Upgrading of biobased polyols toward industrially relevant molecules", N. Ntumba Tshibalonza (2015-2019)

(Examination Committee)

- "Fluorine-18 radiolabeling of biomolecules for PET imaging applications", S. Dammicco, **2019** (Promotor A. Luxen, Université de Liège)
- "Mass Spectrometry supported by microsampling and microfluidics: application to complex biomedical challenges", G. Nys, **2019** (Promotor M. Fillet, Université de Liège)
- "Divergent and selective rearrangements of vinylcuclopropanes into 1,4-dienes and cyclopentenes", M. Richald, **2019** (Promotor R. Robiette, Université catholique de Louvain)
- "Maîtrise de la sélectivité par application de la technologie microfluidique à des réactions rapides concurrentes : application à la génération de carbénoïdes vinyliques et à la neutralisation d'agents chimiques de guerre soufrés", B. Picard, **2018** (Promotor J. Legros and I. Chataigner, Université de Rouen Normandie)
- "Exploration of continuous flow strategies for the synthesis of industrially relevant building blocks", M. Movsisyan, **2018** (Promotor C. V. Stevens, Ghent University)
- "Organocobalt complexes as sources of radicals for macromolecular engineering based on ethylene or α-olefins", J. Demarteau**, 2017** (Promotor C. Detrembleur, Université de Liège)
- "Design of reprocessable poly(ε-caprolactone)-based shape-memory materials", T. Defize, **2017** (Promotor C. Jérôme, Université de Liège)
- "On the GMP production of [18]FUCB-H : Imaging neurotransmission" C. Warnier, **2016** (Promotor A. Luxen, Université de Liège)
- "Radiosynthesis and preclinical development of [18F]labeled tryptophan for human indoleamine 2,3-dioxygenase PET imaging", J. Henrottin, **2016** (Promotor A. Luxen, Université de Liège)
- "Precision synthesis of poly(ionic liqui)s in aqueous media by cobalt-mediated radical polymerization", D. Cordella, **2016** (Promotor C. Detrembleur, Liège Université)
- "Development of the (4+1) annulation reaction between 1,3-dienes and sulfonium ylides" O. Rousseau, **2016** (Promotor R. Robiette, Université catholique de Louvain)

GRANTS AND FUNDING (selection)

12. Supporting organism: FRS-FNRS (National Science Foundation) 2020-2022
Title: Incentive grant for Scientific Research (MIS)
Concatenation w/ reactive R-N=O species
Role: Principal Investigator

11. Supporting organism: SPW-DG06 (Wallonia) 2019-2023
Title: QD3DROPS
Role: Co-Principal Investigator

10. Supporting organism: FRS-FNRS (National Science Foundation) 2019-2022
Title: Continuous flow upgrading of biobased platform molecules
Role: Principal Investigator

9. Supporting organism: European Union (Interreg) 2019-2021
Title: InFlow
Role: Co-Principal Investigator

8. Supporting organism: French community of Belgium 2017-2019
Title: Microfluidic Platforms towards Fully Synthetic Peptides
Role: Principal Investigator

7. Supporting organism: FRS-FNRS (National Science Foundation) 2017-2020
Title: µFluidic ligation toward peptides
Role: Principal Investigator

6. Supporting organism: European Union (ERDF) 2016-2020
Title: Intense4Chem-Flow4Syn
Role: Principal Investigator

5. Supporting organism: French Community of Belgium 2015-2019
Title: Integrated Continuous Flow Photoreactors
Role: Principal Investigator

4. Supporting organism: FRS-FNRS (National Science Foundation) 2014-2016
Title: Reaction telescoping w/ unstable species
Role: Principal Investigator

3. Supporting organism: SPW-DG06 (Wallonia) 2015-2016
Title: CARbon based MAtrix for PHARMaceutical purpose (CARMAPHARM)
Role: Principal Investigator

2. Supporting organism: European Science Foundation 2014-2018
Title: Valorisation of lignocellulosic biomass side streams for sustainable production of chemicals, materials & fuels using low environmental impact technologies
Role: Principal Investigator

1. Supporting organism: University of Liège (Welcome Grant) 2013-2018
Title: Enabling technologies and methods for the synthesis of bioorganic molecules
Role: Principal Investigator

RESEARCH CONTRACTS WITH INDUSTRY (selection)

12. Lebsa 2020-present
Continuous flow strategies for R&D and pharmaceutical applications

11. Novalix 2018-present
Consulting

10. Servier 2018-present
Continuous flow strategies for R&D

9. Janssen Pharmaceutica 2018-present
Consulting

8. Donau Chemie 2018
Continuous flow oxidation of inorganic materials

7. Corning 2017-present
Corning Qualified Laboratory

6. WeylChem US 2017-2018
Continuous-flow preparation of chemicals

5. E-protein 2017-2019
Consulting and preparation of chemical intermediates

4. Trasis 2017-2018
Preparation of pharmaceutical intermediates

3. Immunodiagnostic Systems 2016-present
Development of microfluidic platforms

2. Belgagri 2016-present
Development of new biocides

1. Arysta/Agriphar 2015-2016
Continuous-flow preparation of fungicides/phytosanitary compounds