Flow Chemistry Publications

The following (non-exhaustive) list of papers shows peer reviewed work that has been published using the Vapourtec R-Series and E-Series flow chemistry systems. As new work is continually published, please check on our website for updates.

Continuous-Flow Accelerated Sulfation of Heparan Sulfate Intermediates
Saurabh Anand, Sandhya Mardhekar, Rakesh Raigawali, Nirmala Mohanta, Prashant Jain, Chethan D. Shanthamurthy & Boopathy Gnanaprakasam* & Raghavendra Kikkeri*
Indian Institute of Science Education and Research, Dr. Homi Bhabha Road, Pune-411 008, India

https://pubs.acs.org/doi/abs/10.1021/acs.orglett.0c00878

Development of a Large-Scale Cyanation Process Using Continuous Flow Chemistry en Route to the Synthesis of Remdesivir
Tiago Vieira**, Andrew C. Stevens**, Andrei Chtchemelinine2, Detian Gao1, Pavel Badalov†, Lars Heumann2
1Gilead Alberta ULC, 1021 Hayter Road, Edmonton, Alberta T6S 1A1, Canada
2Gilead Sciences, Inc. 333 Lakeside Drive, Foster City, California 94404, United States

https://pubs.acs.org/doi/abs/10.1021/acs.oprd.0c00172

Tropylium-promoted prenylation reactions of phenols in continuous flow
Klaus Omoregbee1,2, Kevin N. H. Luc3, An H. Dinh3, Thanh Vinh Nguyen1
1School of Chemistry, University of New South Wales, Sydney, Australia
2Department of Biology, Chemistry and Pharmacy, Freie Universität Berlin, Berlin, Germany


Making electrochemistry easily accessible to the synthetic chemist
Christiane Schotten**, Thomas P. Nicholls5, Richard A. Bourn5, Nikil Kapur5, Bao N. Nguyen5, Charlotte E. Willans**
5School of Chemistry, University of Leeds, Leeds LS2 9JT, UK

https://pubs.rsc.org/en/content/articlehtml/2020/gc/d0gc01247e

Scale-up and Optimization of a Continuous Flow Synthesis of an α-Thio-β-chloroacrylamide
Olga C. Dennehy1, Denis Lynch1, Stuart G. Collins1*, Anita R. Maguire2*, Humphrey A. Moynihan1*
1School of Chemistry and School of Pharmacy, Analytical and Biological Chemistry Research Facility, Synthesis and Solid State Pharmaceutical Centre, University College Cork, Cork T12 K8AF, Ireland.
2School of Chemistry and School of Biology, Analytical and Biological Chemistry Research Facility, Synthesis and Solid State Pharmaceutical Centre, University College Cork, Cork T12 K8AF, Ireland

https://pubs.acs.org/doi/abs/10.1021/acs.oprd.0c00079

Automated Glycan Assembly in a Variable-Bed Flow Reactor Provides Insights into Oligosaccharide–Resin Interactions
Eric T. Sletten1, José Danglad-Flores3, Manuel Nuño3, Duncan Guthrie6 & Peter H. Seeberger1
1Department of Biomolecular Systems, Max Planck Institute of Colloids and Interfaces, Am Mühlenberg 1, 14476 Potsdam, Germany
3Vapourtec, Ltd., Park Farm Business Centre, Fornham St. Genevieve, Bury St. Edmunds, Suffolk IP28 6TS, United Kingdom

https://pubs.acs.org/doi/full/10.1021/acs.orglett.0c01264

Photocatalytic α-Tertiary Amine Synthesis via C–H Alkylation of Unmasked Primary Amines
Alison S. H. Ryder2, William B. Cunningham5, George Ballantyne4, Tom Mules5, Anna G. Kinsella5, Jacob Turner-Dore5, Catherine M. Alder5, Lee J. Edwards6, Blandine S. J. McKay7, Matthew N. Grayson5 & Alexander J. Cresswell5*
2Centre for Sustainable Chemical Technologies, 1 South, University of Bath, Claverton Down, Bath, BA2 7AY (UK)
5Department of Chemistry, 1 South, University of Bath, Claverton Down, Bath, BA2 7AY (UK)

Medicines Design, GSK Medicines Research Centre, Gunnels Wood Rd, Stevenage, SG1 2NY (UK)


Electrochemistry in continuous systems
Thomas P. Nicholls, Christiane Schotten & Charlotte E. Willans
School of Chemistry, University of Leeds, Leeds, LS2 9JT, UK


Dynamic Crystallization Pathways of Polymorphic Pharmaceuticals Revealed in Segmented Flow with Inline Powder XRD
Mark Alan Levenstein, Lois E Wayment, C. Daniel Scott, Ruth A Lunt, Pierre-Baptiste Flandrin, Sarah Day, Chiu Tang, Chick C. Wilson, Fiona C. Meldrum & Nikil Kapur
School of Mechanical Engineering, University of Leeds, Woodhouse Lane, Leeds LS2 9JT, UK
School of Chemistry, University of Leeds, Woodhouse Lane, Leeds LS2 9JT, UK
Department of Chemistry, University of Bath, Claverton Down, Bath BA2 7AY, UK
CMAC Future Manufacturing Hub, University of Bath, Claverton Down, Bath BA2 7AY, UK
Diamond Light Source, Harwell Campus, Didcot, Oxfordshire OX11 0DE, UK
Centre for Sustainable Chemical Technologies, University of Bath, Claverton Down, Bath BA2 7AY, UK

https://pubs.acs.org/doi/abs/10.1021/acs.analchem.0c00860

A Metallaphotoredox Method for the Expansion of Benzyl SAR on Electron-Deficient Amines
Meghan D. Shea, Umar Faruk Mansoor & Brett A. Hopkins*
Discovery Chemistry, Merck & Co., Inc., 33 Avenue Louis Pasteur, Boston, Massachusetts 02115, United States

https://pubs.acs.org/doi/abs/10.1021/acs.oprd.0c00109

Management of the Heat of Reaction under Continuous Flow Conditions Using In-Line Monitoring Technologies
Masahiro Hosoya, Shogo Nishijima & Noriyuki Kurose
API R&D Laboratory, CMC R&D Division, Shionogi and Co., Ltd., 1-3, Kuise Terajima 2-chome, Amagasaki, Hyogo 660-0813, Japan

https://pubs.acs.org/doi/abs/10.1021/acs.oprd.0c00109

Use of Photon Equivalents as a Parameter for Scaling Photoredox Reactions in Flow: the translation of a photocatalytic C-N cross-coupling from lab scale to multikilogram scale
Emily B. Corcoran, Jonathan P. McMullen, François Lévesque, Michael K. Wismer, John R. Naber
Process Research & Development, Merck & Co., Inc., Boston, MA 02115 (USA)
Process Research & Development, Merck & Co., Inc., Rahway, NJ 07065 (USA)
Scientific Engineering & Design, Merck & Co., Inc., Kenilworth, NJ 07033 (USA)


Disposable Cartridge Concept for On-Demand Synthesis of Turbo Grignards, Knochel-Hauser Amides and Magnesium Alkoxides
Mateo Berton*, Kevin Sheehan, Andrea Adamo, Tyler McQuade*
Department of Chemical and Life Sciences Engineering, Virginia Commonwealth University, Biotech Eight, 737 N. 5th St, Box 980100, Richmond, VA 23219, USA
Zaiput Flow Technologies, 300 2nd Avenue, Waltham, MA 02451, USA.

https://www.beilstein-journals.org/xiv/preprints/202040

A Flow Process Built upon a Batch Foundation—Preparation of a Key Amino Alcohol Intermediate via Multistage Continuous Synthesis
Chemical Development, API Chemistry, GlaxoSmithKline, Upper Providence, Pennsylvania 19426, United States
Department of Chemistry, University of Victoria, Victoria, BC V8P 5C2, Canada
A Continuous Flow Sulfuryl Chloride Based Reaction – Synthesis of a Key Intermediate in a New Route Toward Emtricitabine and Lamivudine
Juliana M. de Souza, Mateo Berton, David R. Snead*, D. Tyler McQuade
Department of Chemical and Life Science Engineering, Virginia Commonwealth University, Richmond, VA, 23284-3068, USA.

Automated radial synthesis of organic molecules
Sourav Chatterjee 1, Mara Guidi 1,2, Peter H. Seeberger 1,2 & Kerry Gilmore 1
1 Department of Biomolecular Systems, Max-Planck-Institute of Colloids and Interfaces, Potsdam, Germany
2 Freie Universität Berlin, Institute of Chemistry and Biochemistry, Berlin, Germany

An Enzymatic Flow-Based Preparative Route to Vidarabine
Lucia Tamborini1, Clelia Prevalidi 1, Francesca Annunziata 1, Teodora Bavaro 2, Marco Terreni 2, Enrica Calleri 2, Francesca Rinaldi 2, Andrea Pinto 3, Giovanna Sporanza 4, Daniela Ubiali 2* & Paola Conti 1
1 Department of Pharmaceutical Sciences, University of Milan, via Mangiagalli 25, 20133 Milano, Italy
2 Department of Drug Sciences, University of Pavia, viale Taramelli 12, 27100 Pavia, Italy
3 Department of Food, Environmental and Nutritional Sciences, University of Milan, via Celoria 2, 20133 Milano, Italy
4 Department of Chemistry, University of Milan, via Golgi 19, 20133 Milano, Italy

Continuous-flow synthesis and application of polymer-supported BODIPY Photosensitisers for the generation of singlet oxygen; process optimised by in-line NMR spectroscopy
Christopher G. Thomson 1, Callum M. S. Jones 2, Georgina Rosair 1, David Ellis, Jose Marques-Hueso 2, Ai-Lan Lee 1 & Filipe Vilela 1
1 Institute of Chemical Sciences, School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh, Scotland, EH14 4AS, UK
2 Institute of Sensors, Signals and Systems, School of Engineering & Physical Sciences, Heriot-Watt University, Edinburgh, EH14 4AS, UK

Preparation of 5-Hydroxymethylfurfural from High Fructose Corn Syrup Using Organic Weak Acid in Situ as Catalyst
College of Biotechnology and Pharmaceutical Engineering, Nanjing Tech University, 30 South Puzhu Road, Nanjing 211816, P. R. China

Amino Alcohol Acrylonitriles as Activators of the Aryl hydrocarbon Receptor Pathway, An Unexpected MTT Phenotypic Screening Outcome
Jennifer Baker1, Cecilia C Russel1, Jayne Gilbert2, Jennette Sakoff2, Adam McCluskey1
1The University of Newcastle, Department of Chemistry, University Drive, Callaghan, 2308 Newcastle, AUSTRALIA
2Calvary Mater Hospital, Medical Oncology, Eidith Street, Waratah, 2308 Newcastle, AUSTRALIA

Continuous flow aminolysis under high temperature and pressure
Bryan Li, Scott Bader, Steve M. Guinness, Sally Gut Ruggeri, Cheryl M. Hayward, Steve Hoagland, John Lucas, Ruizhi Li, David Limburg, J. Christopher McWilliams, Jeffrey Ragoon & John Van Alsten
Worldwide Research and Development, Pfizer Inc., Eastern Point Road, Groton, CT, 06340, USA
Continuous Flow Photochemistry for the Preparation of Bioactive Molecules
Mara Di Filippo, Cormac Bracken and Marcus Baumann *
School of Chemistry, University College Dublin, Science Centre South, Belfield, Dublin 4, Ireland
https://www.mdpi.com/1420-3049/25/2/356

Development of a Continuous Flow Photoisomerization Reaction Converting Isoxazoles into Diverse Oxazole Products
Cormac Bracken, Marcus Baumann*
School of Chemistry, University College Dublin, Science Centre South, Belfield, Dublin 4, Ireland
https://pubs.acs.org/doi/abs/10.1021/acs.joc.9b03399

Continuous-Flow Biocatalytic Process for the Synthesis of the Best Stereoisomers of the Commercial Fragrances Leather Cyclohexanol (4-Isopropylcyclohexanol) and Woody Acetate (4-(Tert-Butyl)Cyclohexyl Acetate)
Francesca Tentori 1,7, Elisabetta Brenna 1,2,*, Michele Cotti 3, Giuseppe Pedrocchi-Fantoni 2, Maria Chiara Ghezzi 1 and Davide Tessaro 1
1 Dipartimento di Chimica, Materiali ed Ingegneria Chimica “Giulio Natta”, Politecnico di Milano, Via Mancinelli 7, 20133 Milano, Italy
2 Istituto di Scienze e Tecnologie Chimiche – CNR, Via Mancinelli 7, 20131 Milano, Italy
https://www.mdpi.com/2073-4344/10/1/102

Visible Light-Mediated (Hetero)aryl Amination Using Ni(II) Salts and Photoredox Catalysis in Flow: A Synthesis of Tetracaine
Boyoung Y. Park, Michael T. Pirnot andStephen L. Buchwald*
Department of Chemistry, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139, United States
https://pubs.acs.org/doi/abs/10.1021/acs.joc.9b03107

In-Line Purification: A Key Component to Facilitate Drug Synthesis and Process Development in Medicinal Chemistry
Noopenh Weeranopp,artan, Noopenh Weeranopp,artan
Department of Chemical Engineering, Faculty of Engineering, Burapha University, 169 Longhard Bangsaen Road, Muang, Chonburi 02131, Thailand
School of Biomolecular Science and Engineering, Vidyasirimedhi Institute of Science and Technology (VISTEC), Wangchan Valley 555 Moo 1 Payupnai, Wangchan, Rayong 21210 Thailand
https://pubs.acs.org/doi/abs/10.1021/acsmedchemlett.9b00491

Use of Immobilized Amine Transaminase from Vibrio fluvialis under Flow Conditions for the Synthesis of (S)-1-(5-Fluoropyrimidin-2-yl)-ethanamine
Riccardo Sempri [a], Gianmarco Vaccaro [a,b], Erica E. Ferrandi [c], Marta Vanoni [c], Teodora Bavaro [a], Giorgio Marrubini [a], Francesca Annunziata [b], Paola Conti [b], Giovanna Speranza [d], Daniela Monti * [c], Lucia Tamborini *[b], Daniela Ubiali * [a]
[a] R. Sempri, G. Vaccaro, Dr. G. Marrubini, Dr. T. Bavaro, Prof. D. Ubiali, Department of Drug Sciences, University of Pavia, Viale Taramelli 12, I-27100 Pavia, Italy
[b] G. Vaccaro, F. Annunziata, Prof. P. Conti, Prof. L. Tamborini, Department of Pharmaceutical Sciences, University of Milano, Via Mangiagalli 25, I-20133 Milano, Italy
[c] Dr. E. E. Ferrandi, M. Vanoni, Dr. D. Monti, Istituto di Scienze e Tecnologie Chimiche "Giulio Natta" (SCITEC) – CNR, Via Bianco 9, I-20131 Milano, Italy
[d] Prof. G. Speranza, Department of Chemistry, University of Milano, Via Golgi 19, I-20133 Milano, Italy
Continuous Flow Enables Metallaphotoredox Catalysis in a Medicinal Chemistry Setting: Accelerated Optimization and Library Execution of a Reductive Coupling between Benzyl Chlorides and Aryl Bromides
Zachary G. Brill,†† Casey B. Ritts, † Umar Faruk Mansoor, Nunzio Sciamaletta
Department of Discovery Chemistry, MRL, Merck & Co., Inc., 33 Avenue Louis Pasteur, Boston, MA 02115 USA.
https://pubs.acs.org/doi/10.1021/acs.oglett.9b04117

Continuous Flow Synthesis of Methyl Oximino Acetoacetate: Accessing Greener Purification Methods with Inline Liquid-Liquid Extraction and Membrane Separation Technology
René Lebl, Trevor Murray, Andrea Adamo, David Cantillo, C. Oliver Kappe
https://pubs.acs.org/doi/abs/10.1021/acssuschemeng.9b05954

Cellulose fast pyrolysis for platform chemicals: assessment of potential targets and suitable reactor technology
Anurag Parihar, Sankar Bhattacharya
Department of Chemical Engineering, Monash University, Clayton, VIC, Australia

Continuous and green microflow synthesis of azobenzene compounds catalyzed by consecutively prepared tetrahedron CuBr
Hong Qin,† Chengkou Liu,† Niuniu Lv, Wei He, Jingjing Meng, Zheng Fang, Kai Guo
a College of Biotechnology and Pharmaceutical Engineering, Nanjing Tech University, No. 30 Puzhu South Road, Nanjing, China
b State Key Laboratory of Materials-Oriented Chemical Engineering, Nanjing Tech University, Nanjing, 211816, China

Safe and Scalable Continuous Flow Azidophenylelenylation of Galactal to Prepare Galactosamine Building Blocks
Mónica Guberman, Bartholomäus Pieber, Peter H. Seeberger*
Department of Biomolecular Systems, Max Planck Institute of Colloids and Interfaces, Am Mühlenberg 1, 14476 Potsdam, Germany
Department of Chemistry and Biochemistry, Freie Universität Berlin, Arnimalle 22, 14195 Berlin, Germany
https://pubs.acs.org/doi/10.1021/acs.oprd.9b00456?gto=supporting-info

A Practical Method for Continuous Production of sp3-Rich Compounds from (Hetero)Aryl Halides and Redox-Active Esters
Dr. Eiichi Watanabe,a Dr. Yiding Chen,b Oliver May,b Prof. Steven V. Ley*b
a New Path Molecular Ltd. Building 580, Babraham Research Campus, Cambridge (UK)
b Department of Chemistry, University of Cambridge, Lensfield Road, Cambridge (UK)

Metal-Free Visible-Light-Mediated Hydrotrifluoromethylation of Unactivated Alkenes and Alkynes in Continuous Flow
Anne-Laure Barthelemy, Guillaume Dagousset, Emmanuel Magnier
Institut Lavoisier de Versailles, UMR 8180, Université de Versailles-Saint-Quentin, 78035 Versailles Cedex, France

Stereospecific Amination of Mesylated Cyclobutanol in Continuous Flow
Matthieu Tissot, Jérôme Jacq, Patrick Pasau
UCB Biopharma SPRL, Avenue de l’industrie, 1420 Braine l’Alleud, Belgium
https://pubs.acs.org/doi/abs/10.1021/acs.oprd.9b00381

Stereospecific Amination of Mesylated Cyclobutanol in Continuous Flow
Matthieu Tissot, Jérôme Jacq, Patrick Pasau
UCB Biopharma SPRL, Avenue de l’industrie, 1420 Braine l’Alleud, Belgium
https://pubs.acs.org/doi/abs/10.1021/acs.oprd.9b00381

A new formulation for symbolic regression to identify physico-chemical laws from experimental data
Pascal Neumann, Liwei Cao, Danilo Russo, Vasiliios Vassiliadis, Alexei A. Lapkin
a Aachener Verfahrenstechnik – Process Systems Engineering, RWTH Aachen University, Aachen, Germany
b Department of Chemical Engineering and Biotechnology, University of Cambridge, Cambridge CB3 0AS, UK
c Cambridge Centre for Advanced Research and Education in Singapore, CARES Ltd., 1 CREATE Way, CREATE Tower #05-05,
Real-Time Monitoring of Solid-Phase Peptide Synthesis Using a Variable Bed Flow Reactor  
Eric T. Sletten\textsuperscript{a}, Manuel Nuno\textsuperscript{b}, Duncan Guthrie\textsuperscript{b} Peter Seeberger\textsuperscript{a,c}  
\textsuperscript{a}Department of Biomolecular Systems, Max Planck Institute of Colloids and Interfaces, Am Mühlenberg 1, 14476 Potsdam, Germany  
\textsuperscript{b}Vapourtec Ltd, Park Farm Business Centre, Fornham St Genevieve, Bury St Edmunds, Suffolk IP28 6TS, U.K  
\textsuperscript{c}Department of Chemistry and Biochemistry, Freie Universität Berlin, Arnimallee 22, 14195, Berlin, Germany  
https://pubs.rsc.org/en/content/articlelanding/2019/CC/C9CC08421E#divAbstract  

Electroorganic Synthesis under Flow Conditions  
Mohamed Elsherbini, Thomas Wirth  
School of Chemistry, Cardiff University, Main Building, Park Place, Cardiff CF10 3AT, United Kingdom  
https://pubs.acs.org/doi/abs/10.1021/acs.accounts.9b00497  

Lilly Research Award Program (LRAP): A Successful Academia–Industry Partnership Model in the Context of Flow Chemistry for Drug Discovery  
Mateos, Carlos  
https://www.ingentaconnect.com/content/scs/chimia/2019/00000073/00000010/art00003  

In situ non-invasive Raman spectroscopic characterisation of succinic acid polymorphism during segmented flow crystallisation  
Anuradha R. Pallipurath\textsuperscript{a}, Pierre-Baptiste Flandrin\textsuperscript{a}, Lois E. Wayment\textsuperscript{b},\textsuperscript{c}, Chick C. Wilson\textsuperscript{a},\textsuperscript{b}, Karen Robertson\textsuperscript{a}  
\textsuperscript{a}Department of Chemistry, University of Bath, Claverton Down, BA2 7AY, UK  
\textsuperscript{b}CMAC Future Manufacturing Hub, University of Bath, Claverton Down, Bath BA2 7AY, UK  
\textsuperscript{c}Diamond Light Source, Harwell Campus, Didcot, Oxfordshire OX11 0DE, UK  
https://pubs.rsc.org/en/content/articlelanding/2019/me/c9me00103d#divAbstract  

Microfluidic synthesis of fatty acid esters: Integration of dynamic combinatorial chemistry and scale effect  
Wei He\textsuperscript{a}, Yuan Gao\textsuperscript{a}, Guiqin Zhu\textsuperscript{a}, Hao Wu\textsuperscript{a}, Zheng Fang\textsuperscript{a}, Kai Guo\textsuperscript{ab}  
\textsuperscript{a}College of Biotechnology and Pharmaceutical Engineering, Nanjing Tech University, Nanjing 211816, PR China  
\textsuperscript{b}State Key Laboratory of Materials-Oriented Chemical Engineering, Nanjing Tech University, Nanjing 210009, PR China  

Continuous Flow Aminolysis of RAFT Polymers Using Multistep Processing and Inline Analysis  
Tiago Vieira\textsuperscript{a*b}, Andrew C. Christian H. Hornung\textsuperscript{a}, Karin von Känel, Ivan Martinez-Botella, Maria Espiritu, Xuan Nguyen, Almar Postma, Simon Saubern, John Chiefari & San H. Thang  
CSIRO Manufacturing Flagship, Bag 33, Clayton South, Victoria 3169, Australia  
https://pubs.acs.org/doi/10.1021/ma501628f  

Development of a continuous flow synthesis of propranolol: tackling a competitive side reaction  
Sonia De Angelis\textsuperscript{1, 2}, Paolo Celestini\textsuperscript{2}, Rosa Purgatorio\textsuperscript{1}, Leonardo Degennaro\textsuperscript{1, 2}, Gabriele Rebuzzini\textsuperscript{2}, Renzo Luisi\textsuperscript{1, 2}, Claudia Carlucci\textsuperscript{1, 2}  
\textsuperscript{1}Department of Pharmacy - Drug Sciences, University of Bari "A. Moro" Via E. Orabona 4, Bari, Italy  
\textsuperscript{2}Flow Chemistry and Microreactor Technology FLAME-Lab, Bari, Italy  

Photochemical flow synthesis of 3-hydroxyazetidines  
Michele Ruggeri\textsuperscript{1}, Amanda Worthy Dombrowski\textsuperscript{2}, Stevan W. Djuric\textsuperscript{2}, Ian Richard Baxendale\textsuperscript{1}  
\textsuperscript{1}University of Durham, Department of Chemistry, South Road, DH1 3LE Durham, UNITED KINGDOM  
\textsuperscript{2}AbbVie, Inc., 1 North Waukegan Road, North Chicago, IL 60064 Chicago, UNITED STATES  

Flow nanoprecipitation of size-controlled D-leucine nanoparticles for spray-drying formulations  
Bruno Cerra, Gabriele Mosca, Maurizio Ricci, Aurélie Schoubben and Antimo Gioiello
Visible-Light-Mediated Cross-Couplings and C–H Activation via Dual Photoredox/Transition-Metal Catalysis in Continuous-Flow Processes
Soo Dong Kim, Jonghyun Lee, Nam-Jung Kim, Boyoong Park
Kyung Hee University, Department of Pharmacy, Kyungheedaero 26, 02447 Seoul, Republic of Korea

A flow platform for degradation-free CuAAC bioconjugation
Marine Z. C. Hatit1, Linus F. Reichenbach1, John M. Tobin2, Filipe Vilela2, Glenn A. Burley2, Allan J. B. Watson3
1Department of Pure and Applied Chemistry, University of Strathclyde, 295 Cathedral Street, Glasgow G1 1XL, UK
2Chemical Sciences, Heriot-Watt University, Edinburgh EH14 4AS, UK
3School of Chemistry, University of St Andrews, North Haugh, St Andrews, UK
https://www.nature.com/articles/s41467-018-06551-0

Batch Versus Flow Lithiation-Substitution of 1,3,4-Oxadiazoles: Exploitation of Unstable Intermediates Using Flow Chemistry
Jeff Y. F. Wong, John M. Tobin, Filipe Vilela and Graeme Barker*
Institute of Chemical Sciences, Heriot-Watt University, Edinburgh EH11 4AS, Scotland, UK.

A Photoredox Coupling Reaction of Benzylboronic Esters and Carbonyl Compounds in Batch and Flow
Yiding Chen†, Oliver May†, David C. Blakemore‡ and Steven V. Ley†*
† Department of Chemistry, University of Cambridge, Lensfield Road, Cambridge CB2 1EW, U.K.
‡ Medicine Design, Pfizer Inc., Eastern Point Road, Groton, Connecticut 06340, United States
https://pubs.acs.org/doi/full/10.1021/acs.orglett.9b02307

Heumann Indole Flow Chemistry Process
Cynthia Crifar, Fenja Leena Dücker, Sacha Nguyen Thanh, Vanessa Kairouz, William D. Lubell
https://pubs.acs.org/doi/abs/10.1021/acs.joc.9b01516

Integrated plug flow synthesis and crystallisation of pyrazinamide
C. Daniel Scott, Ricardo Labes, Martin Depardieu, Claudio Battilocchio, Matthew G. Davidson, Steven V. Ley, Chick C. Wilson and Karen Robertson*
Centre for Sustainable Chemical Technologies, Department of Chemistry, University of Bath, UK
Department of Chemistry, University of Cambridge, UK
Department of Chemistry, University of Bath, UK
EPSRC Future Continuous Manufacturing and Advanced Crystallisation Research Hub, University of Bath, UK
https://pubs.rsc.org/en/content/articlelanding/2018/re/c8re00087e#!divAbstract

Conjugated porous polymers for photocatalytic applications
Y. L. Wong, J. M. Tobin, Z. Xu, F. Vilela
Department of Biology and Chemistry, City University of Hong Kong, 83 Tat Chee Avenue, Kowloon, Hong Kong
School of Engineering and Physical Sciences, Heriot Watt University, Edinburgh, UK
https://pubs.rsc.org/en/content/articlelanding/2016/ta/c6ta07697a#!divAbstract

In-Flow Flash Nanoprecipitation of Size-Controlled D-Leucine Nanoparticles for Spray-Drying Formulations
Bruno Cerra, Gabriele Mosca, Maurizio Ricci, Aurélie Schoubben, and Antimo Gioiello
Department of Pharmaceutical Sciences, University of Perugia, Via del Liceo 1, I-06122 Perugia, Italy
https://chemrxiv.org/articles/In-Flow_Flash_Nanoprecipitation_of_Size-Controlled_D-Leucine_Nanoparticles_for_Spray-Drying_Formulations/8074508

The Role of Single-Atom Catalysis in Potentially Disruptive Technologies
Mario Pagliaro
Instituto per lo Studio dei Materiali Nanostutturati, CNR, Palermo, Italy

A Simple and Efficient Flow Preparation of Pyocyanin a Virulence Factor of Pseudomonas Aeruginosa
Frederik B. Mortzfeld, Jörg Pietruska, and Ian Baxendale**
Electrophilic Bromination in Flow: A safe and Sustainable Alternative to the Use of Molecular Bromine in Batch
Reinout Van Kerrebroeck, Pieter Naert, Thomas S. A. Heugebaert, Matthias D’hooghe, and Christian V. Stevens*
SynBioC research group, Department of Green Chemistry and Technology, Ghent University, Coupure Links 653, 9000 Ghent, Belgium.


Microfluidic process intensification for synthesis and formulation in the pharmaceutical industry
Aliaa I. Shallan,§ Craig Priest,a,b
1Future industries institute, University of South Australia, Mawson Lakes, SA, 5095, Australia
2Faculty of Pharmacy, Helwan University, Cairo, 11795, Egypt
3School of Engineering, University of South Australia, Mawson Lakes, SA, 5095, Australia

https://www.mdpi.com/1420-3049/24/11/2116/htm

Continuous flow chemo-enzymatic Baeyer-Villiger oxidation with superactive and extra-extra stable enzyme/carbon nanotube catalyst: an efficient upgrade from batch to flow
Anna Szelwicka,a Przemyslaw Zawadzki,b Magdalena Sitko,a Sławomir Boncelc,b Wojciech Czardybonb, Anna Chrobok*c
1Department of Chemical Organic Technology and Petrochemistry, Silesian University of Technology, Krzywoustego 4, 44-100 Gliwice, Poland
2Selvita S.A., Bobrzynskiego 14, 30-348 Cracow, Poland
3Department of Organic Chemistry, Bioorganic Chemistry, and Biotechnology, Silesian University of Technology, Krzywoustego 4, 44-100 Gliwice, Poland

https://pubs.acs.org/doi/full/10.1021/acs.oprd.9b00132

Synthetic route design of AZD4635, an A2AR agonist
Mairi M. Littleson*a, Andrew D. Campbellb, Adam Clarkeb, Mark Dowc, Gareth Ensord, Matthew C. Evansb, Adam Hellend, Bethany A. Jacksonb, Lucinda V. Jacksona, Staffan Karlssone, David J. Klaubere, Danny H. Leggef, Kevin W. Leslieg, Stefan Moravcik, Chris D. Parsonsb, Thomas O. Ronson, Rebecca E. Meadows

1Chemical Development, Pharmaceutical Technology and Development, AstraZeneca, Macclesfield Campus, SK10 2NA, Macclesfield, U.K.
2Early Chemical Development, Pharmaceutical Sciences, IMED Biotech Unit, AstraZeneca, Gothenburg, SE-431 83 Mölndal, Sweden
3Early Chemical Development, Pharmaceutical Sciences, IMED Biotech Unit, AstraZeneca, Macclesfield Campus, SK10 2NA, Macclesfield, U.K.

https://pubs.acs.org/doi/full/10.1021/acs.oprd.9b00171

Continuous flow knitting of a triptycene hypercrosslinked polymer
Cher Hon Lau,†a, Tian-dan Luba, Shi-Peng Sunb, Xianfeng Chenc, Mariolino Carta and Daniel M. Dawson†

1School of Engineering, The University of Edinburgh, Robert Stevenson Road, Edinburgh EH9 3FB, UK
2State Key Laboratory of Materials-Oriented Chemical Engineering, College of Chemical Engineering, Nanjing Tech. University, Nanjing 210009, China
3Department of Chemistry, College of Science, Swansea University, Grove Building, Singleton Park, Swansea SA2 8PP, UK
4School of Chemistry, EaStCHEM and Centre of Magnetic Resonance, University of St. Andrews, KY16 9ST, UK

https://pubs.rsc.org/en/content/articlelanding/2019/cc/c9cc03731d#IdivAbstract

Transaminase-catalyzed continuous synthesis of biogenic aldehydes
Martina L. Contentea and Francesca Paradisi*a,b

1School of Chemistry, University of Nottingham, University Park, Nottingham, NG7, 2RD, United Kingdom
2Department of Chemistry and Biochemistry, University of Bern, Freiestrasse 3, 3012 Bern, Switzerland


A Novel and Efficient Continuous-Flow Route To Prepare Trifluoromethylated N-Fused Heterocycles for Drug Discovery and Pharmaceutical Manufacturing
Lara Amini-Rentsch, Ennio Vanoli, Sylvia Richard-Bildstein, Roger Marti, Gianvito Viel*
Idorsia Pharmaceuticals Ltd., Chemistry Technologies & Lead Discovery, Department of Drug Discovery Chemistry, Hegenheimermattweg 91, CH-4123 Allschwil, Switzerland

Flow Hydrodediazoniation of Aromatic Heterocycles
Liesa Röder 1, Alexander J. Nicholls 2 and Ian R. Baxendale 2,*
1 Department of Biology, Chemistry, and Pharmacy, Freie Universität Berlin, 14195 Berlin, Germany
2 Department of Chemistry, University of Durham, South Road, Durham, DH1 3LE, UK

Continuous-Flow Electrochemical Generator of Hypervalent Iodine Reagents: Synthetic Applications
Dr Mohamed Elsherbini, Bethan Winterson, Haifa Alharbi, Ana A. Folgueiras-Amador, Clínia Gnot, and Thomas Wirth *
School of Chemistry, Cardiff University, Main Building, Park Place, Cardiff, CF10 3AT UK

Definitive screening designs for multistep kinetic models in flow
Christopher A. Hone a, Alistair Boyd b, Anne O'Kearney-McMullan b, Richard A. Bourne a,* and Frans L. Muller a,*
a Institute of Process Research and Development (iPRD), School of Chemistry and School of Chemical and Process Engineering, University of Leeds, LS2 9JT, UK.
b Global Development, AstraZeneca, Macclesfield, Cheshire, UK, SK10 2NA, UK.

Visible light-promoted Fe‐catalyzed Csp2‐Csp3 Kumada cross‐coupling in flow
Xiao‐Jing Wei, Irini Abdiaj, Carlo Sambiagio, Chenfei Li, Eli Zysman-Colman, Jesus Alcazar, Timothy Noel
Department of Chemical Engineering and Chemistry, Micro Flow Chemistry and Synthetic Methodology, Eindhoven University of Technology, Den Dolech 2, 5612 AZ, Eindhoven, The Netherlands

Experimental Methods in Chemical Engineering: Micro-Reactors
Arturo Macchi a, Patrick Plouffe a, Gregory S. Patience b, Dominique M. Roberge c
a Centre for Catalysis Research and Innovation, Department of Chemical and Biological Engineering, University of Ottawa, Ottawa, ON, K1N 6N5 Canada
b Department of Chemical Engineering - Ecole Polytechnique de Montreal, QC, H3C 3A7 Canada
c Chemical Manufacturing Technologies, Lonza AG, CH, 3930 Visp, Switzerland

Continuous Flow Synthesis of Highly Substituted Tetrahydrofurans
Patrick Hoffmeyer, Christoph Schneider
Institute of Organic Chemistry, University of Leipzig, Johannisallee 29, D, 04103 Leipzig Germany

Peroxidation of 2-oxindole and barbituric acid derivatives under batch and continuous flow using an eco-friendly ethyl acetate solvent
Moreshwar B. Chaudhari a, Nirmala Mohanta a, Akanksha M. Pandey b, Madhusoodhanan Vandana b, Krishanpal Karmodiya b and Boopathy Gnanaprakasam a,a
a Department of Chemistry, Indian Institute of Science Education and Research (IISER) Pune, Dr. Homi Bhabha Road, Pune 411008, India
b Department of Biology, Indian Institute of Science Education and Research (IISER) Pune, Dr. Homi Bhabha Road, Pune 411008, India

Rapid and Multigram Synthesis of Vinylogous Esters under Continuous Flow: An Access to Transetherification and Reverse Reaction of Vinylogous Esters
Nirmala Mohanta, Moreshwar B. Chaudhari, Naveen Kumar Digrawal, Boopathy Gnanaprakasam *
Department of Chemistry, Indian Institute of Science Education and Research, Pune 411008, India

Continuous manufacturing – the Green Chemistry promise?
Luke Rogers and Klavs F. Jensen
Department of Chemical Engineering, MIT, 77 Massachusetts Avenue, Cambridge, MA 02139-4307, USA
Practical and regioselective amination of arenes using alkyl amines
Alessandro Ruffoni 1, Fabio Juliá 1, Thomas D. Svejstrup 2, Alastair J. McMillan 1, James J. Douglas 2 & Daniele Leonori 1
1 School of Chemistry, University of Manchester, Oxford Road, Manchester M13 9PL, UK.
2 Early Chemical Development, Pharmaceutical Sciences, IMED Biotech Unit, AstraZeneca, Macclesfield SK10 2NA, UK.
Investigation of a Weak Temperature–Rate Relationship in the Carbamoylation of a Barbituric Acid Pharmaceutical Intermediate
Alexander G. O’Brien†, Yangmu Chloe Liu†, Mark J. Hughes†, John Jin Lim†, Neil S. Hodnett†, and Nicholas Falco†
† GlaxoSmithKline, 1250 South Collegeville Road, Collegeville, Pennsylvania 19426, United States
‡ GlaxoSmithKline, Medicines Research Centre, Gunnels Wood Road, Stevenage, Hertfordshire SG1 2NY, United Kingdom

Rapid and Multigram Synthesis of Vinylogous Esters under Continuous Flow: An Access to Transesterification and Reverse Reaction of Vinylogous Esters
Nirmala Mohanta, Moreshwar B. Chaudhari, Naveen Kumar Digrawal, and Boopath Nnanprakasam*
Department of Chemistry, Indian Institute of Science Education and Research, Pune 411008, India

Protection-Group-Free Synthesis of Sequence-Defined Macromolecules via Precision λ-Orthogonal Photochemistry
Waldemar Konrad, Christian Fengler, Sarrah Putwa, and Christopher Barner-Kowollik*
Macromolecular Architectures, Institut für Technische Chemie und Polymerchemie, Karlsruhe Institute of Technology (KIT), Engesserstr. 18, 76131 Karlsruhe, Germany
School of Chemistry, Physics and Mechanical Engineering, Queensland University of Technology (QUT), 2 George Street, QLD, 4000 Brisbane, Australia

Decarboxylative Intramolecular Arene Alkylation Using N-(Acyloxy)phthalimides, an Organic Photocatalyst, and Visible Light
Trevor C. Sherwood†, Hai-Yun Xiao†, Roshan G. Bhaskar†, Eric M. Simmons‡, Serge Zaretsky‡, Martin P. Rauch§, Robert R. Knowles§, and T. G. Murali Dhar†
† Research and Development, Bristol-Myers Squibb Company, P.O. Box 4000, Princeton, New Jersey 08543-4000, United States
‡ Chemical and Synthetic Development, Bristol-Myers Squibb, 1 Squibb Drive, New Brunswick, New Jersey 08903, United States
§ Department of Chemistry, Princeton University, Princeton, New Jersey 08544, United States

Flow Electrochemical Cyclizations via Amidyl Radicals: Easy Access to Cyclic Ureas
Nisar Ahmed*, b, J, Aggeliki Vgenopoulou*
[a] School of Chemistry, Cardiff University, Park Place, Cardiff, CF10 3AT, UK
[b] School of Chemistry, University of Bristol, Bristol, BS8 1TS, UK

Efficient Flow Electrochemical Alkoxylolation of Pyrrolidine-1-Carbaldehyde
Nasser Amri*, Ryan A. Skilton*, Duncan Guthrie*, Thomas Wirth†
[a] School of Chemistry, Cardiff University, Park Place, Cardiff, CF10 3AT, UK
[b] Vapourtec Ltd., 21 Park Farm Business Centre, Bury St Edmonds, IP28 6TS, UK

Overcoming Water Insolubility in Flow: Enantioselective Hydrolysis of Naproxen Ester
David Roura Padrosa†, Valerio De Vitis‡, Martina Letizia Conte‡*, Francesco Molinari‡ and Francesca Paradisi‡*
† School of Chemistry, University of Nottingham, University Park, Nottingham NG7 2RD, UK;
‡ Department of Food, Environmental and Nutritional Sciences (DeFENS), Università degli studi di Milano, Via Mongiagalli 25, 20133 Milan, Italy;
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9372866&scisig=AAGBfm1JTkGZDwbCoVlolsHeAX8_NVeueQ&noss=1&oi=scholaralt

A solid-supported arylobonic acid catalyst for direct amidation
Yihao Du†, Thomas Barber,† Sol Ee Lim,† Henry S. Rzepe‡, Ian R. Baxendale** and Andrew Whiting†
[a] Centre for Sustainable Chemical Processes, Department of Chemistry, Durham University, Science Laboratories, South Road, Durham, UK
[b] Department of Chemistry, Imperial College, South Kensington Campus, London, UK
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Visible Light-Promoted Beckmann Rearrangements: Separating Sequential Photochemical and Thermal Phenomena in a Continuous Flow Reactor
Yuesu Chen, David Cantillo, C. Oliver Kappe
Karl-Franzens-Universitat Graz, Institute of Chemistry, 8010 Graz, AUSTRIA

A Consolidated and Continuous Synthesis of Ciprofloxacin from a Vinylogous Cyclopropyl Amide
N. Perrer Tosso, Bimbisar K. Desai, Eliseu De Oliveira, Juekun Wen, John Tomlin, and B. Frank Gupton*
Department of Chemistry and Department of Chemical and Life Science Engineering, Virginia Commonwealth University, 601 West Main Street, Richmond, Virginia 23220, United States
https://pubs.acs.org/doi/abs/10.1021/acs.joc.8b03222

Emerging Trends in Flow Chemistry and Applications to the Pharmaceutical Industry
Andrew R Bogdan and Amanda W Dombrowski
Discovery Chemistry and Technologies, AbbVie, Inc., 1 North Waukegan Road, North Chicago, Illinois 60064, United States
https://pubs.acs.org/doi/abs/10.1021/acs.jmedchem.8b01760

Towards a Scalable Synthesis of 2-Oxabicyclo[2.2.0]hex-5-en-3-one Using Flow Photochemistry
Jason D. Williams\textsuperscript{a, b}, Yuma Otake\textsuperscript{a}, Guilhem Coussanes\textsuperscript{a}, Iakovos Saridakis\textsuperscript{a}, Nuno Maulide\textsuperscript{a}, C. Oliver Kappe\textsuperscript{a, b}
\textsuperscript{a} Center for Continuous Flow Synthesis and Processing (CC FLOW), Research Center Pharmaceutical Engineering GmbH (RCPE), Inffeldgasse 13, 8010 Graz, Austria
\textsuperscript{b} Institute of Chemistry, University of Graz, NAWI Graz, Heinrichstrasse 28, 8010 Graz, Austria

Continuous flow processing as a tool for the generation of terpene-derived monomer libraries
Renan Galaverna,\textsuperscript{a} Lucas P. Fernandes,\textsuperscript{a} Duncan L. Browne\textsuperscript{b} and Julio C. Pastre\textsuperscript{a, a}
\textsuperscript{a} Institute of Chemistry, University of Campinas – UNICAMP, Campinas, Brazil
\textsuperscript{b} School of Chemistry, Cardiff University, Main Building, Park Place, Cardiff CF10 3AT, UK
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Rapid Photochemical Reaction Studies under Continuous-flow Conditions in the Vapourtec UV-150 Reactor-A Technical Note
Richard Hunter\textsuperscript{a}, Sam Josland\textsuperscript{a}, Joseph Moore\textsuperscript{b}, Duncan Guthrie\textsuperscript{b}, Mark J. Robertson\textsuperscript{c}; Michael Oelgemöller \textsuperscript{a}
\textsuperscript{a} College of Science and Engineering, James Cook University, Townsville, QLD 4811, Australia
\textsuperscript{b} Vapourtec Ltd, Park Farm Business Centre, Fornham St Genevieve, Bury St Edmunds, Suffolk, IP28 6TS, UK
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Enabling synthesis in fragment-based drug discovery by reactivity mapping: photoredox-mediated cross-dehydrogenative heteroarylation of cyclic amines
Rachel Grainger\textsuperscript{a, a}, Tom D. Heightman\textsuperscript{a}, Steven V. Ley\textsuperscript{b}, Fabio Lima\textsuperscript{b, c}, Christopher N. Johnson\textsuperscript{a, a}
\textsuperscript{a} Astex Pharmaceuticals, 436 Cambridge Science Park, Milton Road, Cambridge, UK
\textsuperscript{b} Department of Chemistry, University of Cambridge, Lensfield Road, Cambridge CB2 1EW, UK
\textsuperscript{c} Novartis Pharma AG, Novartis Campus, 4002 Basel, Switzerland
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Enhanced mixing of biphasic liquid-liquid systems for the synthesis of gem-dihalocyclopropanes using packed bed reactors
T von Keutz \textsuperscript{1, 2}, D Cantillo \textsuperscript{1, 2}, CO Kappe \textsuperscript{1, 2}
\textsuperscript{1} Center for Continuous Flow Synthesis and Processing (CCFLOW) Research Center Pharmaceutical Engineering GmbH (RCPE) Graz, Austria
\textsuperscript{2} Institute of Chemistry, NAWI Graz, University of Graz, Graz, Austria

Deprotection of N-Boc Groups Under Continuous Flow High Temperature Conditions
Bryan Li, Ruizhi Li, Peter Dorff, James Christopher McWilliams, Robert M Guinn, Steven M. Guinness, Lu Han, Ke Wang, and Shu Yu
A Laser Driven Flow Chemistry Platform for Scaling Photochemical Reactions with Visible Light
Kaid C. Harper, Eric G. Moschetta, Shailendra V. Bordawekar, Steven J. Wittenberger
Process Research and Development, AbbVie Inc., 1 North Waukegan Road, North Chicago, Illinois 60064, United States
https://pubs.acs.org/doi/10.1021/acscentsci.8b00728

De novo design of organic photocatalysts: bithiophene derivatives for the visible-light induced C-H functionalization of heteroarenes
Cecilia Bottecchi a, Raul Martin 2, Irini Abdiaj 3, Ettore Crovini 4, Jesus Alcazar 5, Jesus Jorduna, Maria Blesa, Jose Carrillo 5,
Pilar Prieto, Timothy Noel 1
1 TU Eindhoven, Netherlands
2 Universidad de Castilla-La Mancha Facultad de Ciencias y Tecnologias Quimicas de Ciudad Real, Spain
3 Janssen Research and Development, Spain
4 University of Saint Andrews School of Chemistry, United Kingdom

Integrating reactive distillation with continuous flow processing
Marcus Baumann
School of Chemistry, University College Dublin, Science Centre South, Belfield, Dublin 4, Ireland
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Enabling tools for continuous-flow biphasic liquid-liquid reaction
Nopphon Weeranoppanant a
Department of Chemical Engineering, Faculty of Engineering, Burapha University, 169 Longhard Bangsaen, Saensook, Muang, Thailand
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High-Throughput Template-Free Continuous Flow Synthesis of Polyaniline Nanofibers
Rekha Singh 1, Karuna Veeramani 1, Rishab Bajpai 1, and Anil Kumar* 1
1 Department of Chemistry, IIITB-Monash Research Academy, 2 National Centre for Excellence in Technologies for Internal Security (NCETIS), Indian Institute of Technology Bombay, Powai, Mumbai, 400076, India
https://pubs.acs.org/doi/10.1021/acseicr.8b04507

A Continuous Flow Strategy for the Facile Synthesis and Elaboration of Semi-Saturated Heterobicyclic Fragments
Nicola Luise, Eleanor Wyatt, Gary Tarver, Paul Graham Wyatt
University of Dundee, School of Life Sciences, DD1 5EH Dundee, UNITED KINGDOM

Continuous Flow Chlorination of Alkenyl Iodides Promoted by Copper Tubing
Antoine Nitelet 2, Vanessa Kairouz 2, Hélène Lebel 2, André B. Charette 2, and Gwilherm Evano 2
2 Laboratoire de Chimie Organique, Service de Chimie et Physico, Chimie Organiques, Université libre de Bruxelles (ULB), Avenue F. D. Roosevelt 50, CP160/06, 1050 Brussels, Belgium
2 Centre in Green Chemistry and Catalysis, Faculty of Arts and Sciences, Department of Chemistry, Université de Montréal, P.O. Box 6128, Station Downtown, Montréal, Québec, H3C 3J7, Canada

Continuous flow palladium-catalyzed trifluoromethylthiolation of C-H bonds
Alexanne Bouchard 1, Vanessa Kairouz 1, Maxime Manneveau 2, Heng-Ying Xiong 2, Tatiana Besset 2
1 Department of Chemistry and Continuous Flow Synthesis Laboratory, Université de Montréal, Montréal, Canada
2 INSA Rouen, CNRS, COBRA (UMR 6014), Normandie Université, Rouen, France

Continuous preparation for rifampicin
Xin Li 1, Zhuang Liu 1, Hao Qi 1, Zheng Fang 1, Siyu Huang 1, Shanshan Miao 1, Kai Guo 1,2

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Using Carbon Dioxide as a Building Block in Continuous Flow Synthesis
Hyowon Seo, Long V. Nguyen, Timothy F. Jamison
Department of Chemistry, Massachusetts Institute of Technology, Cambridge, Massachusetts, 02139 USA

Chemoselective Synthesis of Amines from Ammonium Hydroxide and Hydroxylamine in Continuous Flow
Clément Audubert, Alexanne Bouchard, Gary Mathieu, and Hélène Lebel*
Department of Chemistry and Centre in Green Chemistry and Catalysis (CGCC), Université de Montréal, P.O. Box 6128, Station Downtown, Montréal, QC H3C 3J7, Canada
https://pubs.acs.org/doi/abs/10.1021/acs.joc.8b02387

Enantiospecific cyclization of methyl N-(tert-butoxycarbonyl)-N-(3-chloropropyl)-D-alanine to 2-methylproline derivative via 'memory of chirality' in flow
Gianvito Vilé ṣ, Gunther Schmidt ṫ, Sylvia Richard-Bildstein ṣ, Stefan Abele ṫ
¹ Drug Discovery Chemistry, Idorsia Pharmaceuticals Ltd., Allschwil, Switzerland
² Chemical Development, Idorsia Pharmaceuticals Ltd., Allschwil, Switzerland

Mg-Catalyzed OPPenauer Oxidation—Application to the Flow Synthesis of a Natural Pheromone
Virginie Liautard, Mélodie Birepinte, Camille Bettoli and Mathieu Pucheuult *
Institut des Sciences Moléculaires (ISM), UMR 5255 CNRS—Université de Bordeaux, 351 Cours de la Libération, 33405 Talence CEDEX, France

Dehydration of an Insoluble Urea Byproduct Enables the Condensation of DCC and Malonic Acid in Flow
Alexander G. O’Brien*, Eric M. Ricci, and Michel Journet
GlaxoSmithKline, 709 Swedeland Road, King of Prussia, Pennsylvania 19406, United States
https://pubs.acs.org/doi/abs/10.1021/acs.oprd.7b00375

Self-Sufficient Flow-Biocatalysis by Coimmobilization of Pyridoxal 5’-Phosphate and ω-Transaminases onto Porous Carriers
Ana I. Benítez-Mateos†, Martina L. Contente§, Susana Velasco-Lozano*, Francesca Paradisi*, and Fernando López-Gallego*‡†
1 Heterogeneous Biocatalysis Laboratory, CICbiomaGUNE, Paseo Miriamón 182, Edificio empresarial C", 20014 San Sebastián, Spain
2 School of Chemistry, University of Nottingham, University Park, Nottingham NG7 2RD, U.K.
3 Heterogeneous biocatalysis laboratory, Instituto de Síntesis Química y Catálisis Homogéneas (ISQCH-CSIC), University of Zaragoza, C/Pedro Curbuna 12, 50009 Zaragoza, Spain
4 ARAID, Aragon I+D foundation, Zaragoza, Spain
https://pubs.acs.org/doi/abs/10.1021/acssuschemeng.8b02672

A Convergent Continuous Multistep Process for the Preparation of C4-Oxime-Substituted Thiazoles
Edouard Godineau *,†, Claudio Battilocchio ‡, Matthias Lehmann †, Steven V. Ley ‡, Ricardo Labes †, Letitia Birnoschi †, Srinivas Subramanian ‡, C.S Prasanna ‡, Amol Gorde ‡, Mahesh Kalbagh ‡, Vivek Khade ‡, Anton Scherrer †, Anthony C. O’Sullivan †
1 Syngenta Crop Protection, Process Research, Schaffhauserstrasse 101, CH-4332, Switzerland
2 Innovative Technology Centre, Department of Chemistry, University of Cambridge, Lensfield Road, CB2 1EW, UK
3 Syngenta Research and Technology Centre, Santa Monica Works, Corlim, Goa India, 403110
https://pubs.acs.org/doi/abs/10.1021/acssuschemeng.8b00995

Additive Free Fe-Catalyzed Conversion of Nitro to Aldehyde under Continuous Flow Module
Sandip G. Agalave, Moreshwar B. Chaudhari, Girish Singh Bish and Boopathy Gnanaprakasam*
Department of Chemistry, Indian Institute of Science Education and Research Pune-411008, India
https://pubs.acs.org/doi/abs/10.1021/acssuschemeng.8b02090

Recent Advances in Photodecarboxylations Involving Phthalimides
Saira Mumtaz A, Mark J. Robertson A and Michael Oelgemöller A B

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C–H functionalisation of aldehydes using light generated, non-stabilised diazo compounds in flow†
Paul Dingwall a, Andreas Greb a, Lorène N. S. Crespin a, Ricardo Labes a, Biagia Musio a, Jian-Siang Poh b, Patrick Pasaü b, David C. Blakemore c and Steven V. Ley a,a
a Department of Chemistry, University of Cambridge, Lensfield Road, Cambridge CB2 1EW, UK.
b UCB Biopharma SPRL, Chemical Research R5, Chemin du Foriest 1420, Braine-l’Alleud, Belgium
c Department of Chemistry, Pfizer Inc., Eastern Point Road, Groton, Connecticut 06340, USA

Catalytic Static Mixers for the Continuous Flow Hydrogenation of a Key Intermediate of Linezolid (Zyvox)
James Gardiner †, Xuan Nguyen †, Charlotte Genet †, Mike D. Horne †, Christian Hornung †, John Tsanaktsidis †
†CSIRO Manufacturing, Bayview Avenue, VIC 3169, Australia
‡CSIRO Mineral Resources, Bayview Avenue, Clayton, VIC 3169, Australia

Photoinduced Palladium Negishi Cross-Coupling Through Visible Light Absorption of Palladium-Organozinc complexes
Irini Abdiaj a,b, Lena Huck a,b, José Miguel Mateo b, Antonio de la Hoza b, M. Victoria Gomez c, Angel Díaz-Ordóñez c, and Jesús Alcázar a,c
a Lead Discovery, Janssen Research and Development, Janssen Research & Development, LCC, 6001 US 301, Raynham, MA 02767, USA
b Facultad de Ciencias y Tecnologías Químicas, Universidad de Castilla-La Mancha, Av. Camilo José Cela 10, 13071 Ciudad Real, Spain
c Instituto Regional de Investigación Científica Aplicada, Universidad de Castilla-La Mancha, Av. Camilo José Cela, sn, 13071 Ciudad Real, Spain

Three-component assembly of multiply substituted homoallylic alcohols and amines using a flow chemistry photoreactor
Yiding Chen †, David Blakemore †, Patrick Pasaü † and Steven V. Ley †
† Department of Chemistry, University of Cambridge, Lensfield Road, Cambridge CB2 1EW, U.K.
‡ Medicine Design, Pfizer Inc., Eastern Point Road, Groton, Connecticut 06340, United States
§ UCB Biopharma SPRL, Chemical Research R5, Chemin du Foriest 1420, Braine-l’Alleud, Belgium

Mild Homologation of Esters via Continuous Flow Chloroacetate Claisen Reactions
Maximilian A. Ganiek, Maria V. Ivanova, Benjamin Martin* and Paul Knochel*
Department of Chemistry, Ludwig-Maximilians-Universität Munich, Butenandtstr. 5 – 13, 81377 Munich, Germany

Regioselective Chlorination of Quinoline Derivatives via Fluorine Mediation in a Microfluidic Reactor
Hao Qi, Xin Li, Zhuang Liu, Shan-Shan Miao, Prof. Zheng Fang, Lin Chen, Zheng Fang, Prof. Kai Guo
College of Biotechnology and Pharmaceutical Engineering, Nanjing Tech University, Nanjing, China
State Key Laboratory of Materials-Oriented Chemical Engineering, Nanjing Tech University, Nanjing, China

Continuous flow synthesis of a carbon-based molecular cage macrocycle via a three-fold homocoupling reaction
Melanie Kitchin, a,b Kristina Konstas, a Christopher J. Sumby, a Milena L. Czyz, a Peter Valente, b Matthew R. Hill, a,b,ab Anastasios Polyzos a,b,c and Christian J. Doonan a,b,c
a CSIRO Manufacturing Flagship, Bayview Avenue, Clayton, Australia
b Centre for Advanced Nanomaterials and the School of Physical Sciences, The University of Adelaide, Adelaide, Australia

c Department of Drug Sciences, University of Pavia, Viale Taramelli 12, 27100 Pavia, Italy

Flow-based biocatalysis: Application to peracetylated arabinofuranosyl-1,5-arabinofuranose synthesis
Teodora Bavaro a, Andrea Pinto a, Federica Dall’Oglio b, Maria J. Hernández b, Carlo F. Morelli b, Paolo Zambelli b, Carlo De Micheli b, Paolo Conti c, Lucia Tamborini c, Marco Terreni a
a Department of Drug Sciences, University of Pavia, Viale Taramelli 12, 27100 Pavia, Italy
b Department of Food Environmental and Nutritional Science (DeFENS), University of Milan, Via Mangiagalli 25, 20133 Milan, Italy

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https://pubs.rsc.org/en/content/articlelanding/2015/cc/c5cc05181a#!divAbstract
Continuous Flow Photochemical Benzylic Bromination of a Key Intermediate in the Synthesis of a 2-Oxazolidinone
Y Chen, O de Frutos, C Mateos, JA Rincon, D Cantillo, C Olivier Kappe

Native Chemical Ligation–Photodesulfurization in Flow
School of Chemistry, The University of Sydney, Sydney, NSW 2006, Australia

Continuous flow biocatalysis
Joshua Britton, Sudpta Majumdar, Gregory A. Weiss
Department of Chemistry, Molecular Biology and Biochemistry, University of California, Irvine, USA
http://pubs.rsc.org/en/content/articlelanding/2018/cs/c7cs00906b/unauth#!divAbstract

Reductive aminations using a 3D printed supported metal(0) catalyst system
Charlotte Genet¹, Xuan Nguyen¹, Bita Bayatsarmadi², Mike D. Horne³, James Gardiner¹, Christian H. Hornung¹
¹CSIRO Manufacturing, Clayton, South Australia
²CSIRO Minerals Resources, Clayton, South Australia

Flow Synthesis of Coumaric Acid and its Derivatization
Laura K. Smith and Ian R. Baxendale
Department of Chemistry, University of Durham, South Road, Durham, DH1 3LE, UK.
https://pubs.rsc.org/en/content/articlelanding/2018/re/c8re00116b#!divAbstract

Combining CH functionalisation and flow photochemical heterocyclic metamorphosis (FP-HM) for the Combining CH functionalisation and flow photochemical heterocyclic metamorphosis (FP-HM) for the synthesis of benzo [1, 3] oxazepines
Jasraj S. Babra, Andrew T. Russell, Christopher D. Smith, Yuxiong Zhang
Department of Chemistry, University of Reading, Whiteknights, Reading, RG6 6AD, UK

Studies toward the scaling of gas-liquid photocycloadditions
Dr. Emily B. Corcoran, Dr. François Lévesque, Dr. Jonathan P. McMullen, Dr. John R. Naber
Department of Process Research and Development, Merck Sharp & Dohme Corp., Rahway, USA

Photooxygenation in an advanced led-driven flow reactor module: Experimental investigations and modelling
Robbie Radjagobalouab, Jean-François Blancoa, Odile Dechy-Cabaretb, Michael Oelgemöllerc, Karine Loubière
abLaboratoire de Génie Chimique LGC, Université de Toulouse, CNRS, Toulouse, France
bLaboratoire de Chimie de Coordination LCC, CNRS, Toulouse, France
cJames Cook University, College of Science and Engineering, Townsville, Queensland 4811, Australia

P-121: Successive and scalable synthesis of highly stable Cs₄PbBr₆ perovskite microcrystal by microfluidic system and their application in backlight display
Hung-Chia Wang, Zhen Bao, Ru-Shi Liu
Department of Chemistry, National Taiwan UniversityTaipei, Taiwan
Department of Mechanical Engineering and Graduate Institute of Manufacturing Technology, National Taipei University of TechnologyTaipei, Taiwan

Self-sustaining closed-loop multienzyme-mediated conversion of amines into alcohols in continuous reactions
Martina L. Contente, Francesca Paradisi
School of Chemistry, University of Nottingham, Nottingham, United Kingdom

https://www.nature.com/articles/s41929-018-0082-9

Dichlorophenylacrylonitriles as AhR Ligands displaying selective breast cancer cytotoxicity in vitro

Jennifer R Selective Oxidation of Sulfides in Flow Chemistry
1, Jayne Gilbert2, Stefan Paula3, Xiao Zhu3, Jennette A Sakoff3, Adam McCluskey1
1 The University of Newcastle, Chemistry, Newcastle, Australia
2 Calvary Mater Hospital, Medical Oncology, Newcastle, Australia
3 Purdue University, Chemistry, West Lafayette, United States


Combining C-H functionalisation and flow photochemical heterocyclic metamorphosis (FP-HM) for the synthesis of benz[1,3]oxazepines
Jasraj S. Babra, Andrew T. Russell, Christopher D. Smith, Yuxiong Zhang
Department of Chemistry, University of Reading, Whiteknights, Reading, RG6 6AD, UK


Multistep Continuous-Flow Processes for the Preparation of Heterocyclic Active Pharmaceutical Ingredients
Romaric Gérardy, Jean-Christophe M. Monbaliu
Center for Integrated Technology and Organic Synthesis, Department of Chemistry, University of Liège, Liège, Belgium

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Flow Chemistry Approaches Applied to the Synthesis of Saturated Heterocycles
Marcus Baumann, Ian R. Baxendale
Department of Chemistry, University of Durham, Durham, UK

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An efficient benzo[b]oxaborole one-pot synthesis by SiliaCat DPP-Pd heterogeneous catalysis using diboronic acid
Kana kunihiro, Laurence Dumais, Guillaume Lafitte, Emeric Varvier, Loïc Tomas, Craig Harris
Nestlé Skin Health, Galderma R&D, France
Ecole Nationale Supérieure des Ingenieurs en Arts Chimiques et Technologiques, France


Total Synthesis of Neomarchantin A: Key Bond Constructions Performed Using Continuous Flow Methods
Émilie Morin, Michaël Raymond, Amaury Dubart, and Shawn K. Collins
Department of Chemistry and Centre for Green Chemistry and Catalysis, Université de Montréal, CP 6128 Station Downtown, Montréal, Québec, Canada H3C 3J7

https://pubs.acs.org/doi/10.1021/acs.orglett.7b01127

In situ epoxide generation by dimethyldioxirane oxidation and the use of epichlorohydrin in the flow synthesis of a library of β-amino alcohols
Peter J. Cossar, Jennifer R. Baker, Nicholas Cain, Adam McCluskey
Chemistry, The University of Newcastle, University Drive Callaghan, New South Wales 2308, Australia

http://rsos.royalsocietypublishing.org/content/5/4/171190

Safe Use of Hazardous Chemicals in Flow
MT Rahman, T Wirth
1 School of Chemistry and Chemical Engineering, Queen’s University Belfast, Belfast, UK
2 School of Chemistry, Cardiff University, Cardiff, UK

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Photochemical Synthesis of Heterocycles: Merging Flow Processing and Metal-Catalyzed Visible Light Photoredox Transformations
T Glasnov

Flow Chemistry Publications
Flow Chemistry as a Drug Discovery Tool: A Medicinal Chemistry Perspective

Andrew R. Bogdan, Michael G. Organ

1 Department of Chemistry and Biomolecular Sciences, University of Ottawa, Ottawa, Canada
2 Discovery Chemistry and Technology, AbbVie Inc., North Chicago, USA

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Copper mediated, heterogeneous, enantioselective intramolecular Buchner reactions of α-diazoketones using continuous flow processing

DC Crowley, D Lynch, AR Maguire

1 School of Chemistry, Analytical and Biological Chemistry Research Facility, University College Cork, Cork T12 K8AF, Ireland
2 School of Chemistry and School of Pharmacy, Analytical and Biological Chemistry Research Facility, Synthesis and Solid State Pharmaceutical Centre, University College Cork, Cork T12 K8AF, Ireland

https://pubs.acs.org/doi/abs/10.1021/acs.oprd.8b00018

Functionalization of Heteroarenes Under Continuous Flow

Joachim Demaerel, Vidmantas Bieliūnas, Wim M. De Borggraeve

Molecular Design and Synthesis, Department of Chemistry, KU Leuven, Leuven, Belgium

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Photoredox Iridium–Nickel Dual-Catalyzed Decarboxylative Arylation Cross-Coupling: From Batch to Continuous Flow via Self-Optimizing Segmented Flow Reactor

Hsiao-Wu Hsieh, Connor W. Coley, Lorenz M. Baumgartner, Klavs F. Jensen, and Richard I. Robinson

1 Global Discovery Chemistry – Chemical Technology Group, Novartis Institutes for Biomedical Research, 250 Massachusetts Avenue, Cambridge, Massachusetts 02139, United States
2 School of Chemistry and Technology, Novartis Institutes for Biomedical Research, 250 Massachusetts Avenue, Cambridge, Massachusetts 02139, United States

https://pubs.acs.org/doi/abs/10.1021/acs.oprd.8b00018

A combination of flow and batch mode processes for the efficient preparation of mGlu2/3 receptor negative allosteric modulators (NAMs)

Raveendra Panickar Dhanya, Ananda Herath, Douglas J. Sheffler, Nicholas D.P. Cosford

Cancer Metabolism and Signaling Networks Program, NCI-Designated Cancer Center, Sanford Burnham Prebys Medical Discovery Institute, 10901 N. Torrey Pines Rd., La Jolla, CA 92037, USA


On-demand synthesis of organo zinc halides under continuous flow conditions

Mateo Berton, Lena Huck, Jesús Alcázar

Lead Discovery, Janssen Research and Development, Janssen<br>Avenue, Cambridge, Massachusetts 02139, United States

https://www.nature.com/articles/nprot.2017.141

Generation of Diversity Sets with High sp3 Fraction Using the Photoredox Coupling of Organotri fluoroborates and Organosilicates with Heteroaryl/Aryl Bromides in Continuous Flow

Kevin D Raynor, Gregory D May, Upul K. Bandarage, and Michael J. Boyd

Vertex Pharmaceuticals Inc., 50 Nothern Avenue, Boston, Massachusetts 02210, United States


Iron-Catalyzed Batch/Continuous Flow C-H Functionalization Module for the Synthesis of Anticancer Peroxides

Moreshwar Bhagwan Chaudhari, Suresh Moorthy, Sohan Patil, Girish Singh Bisht, Haneef Mohamed, Sudipta Basu, and Boopathy Gnanapakasam

Department of Chemistry, Indian Institute of Science Education and Research, Pune 411008, India

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Selective N-monomethylation of primary anilines with dimethyl carbonate in continuous flow

Hyowon Seo, Anne-Catherine Bédard, Willie P. Chen, Robert W. Hicklin, Alexander Alabugin, Timothy F. Jamison

Department of Chemistry, Massachusetts Institute of Technology, 77 Massachusetts Ave., Cambridge, MA 02139, USA

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Continuous flow multistep synthesis of α-functionalized esters via lithium enolate intermediates
Timo von Keutz\textsuperscript{ab}, Franz J. Strauss\textsuperscript{b}, David Cantillo\textsuperscript{ab}, C. Oliver Kappe\textsuperscript{ab}
\textsuperscript{a} Center for Continuous Flow Synthesis and Processing (CC FLOW), Research Center Pharmaceutical Engineering GmbH (RCPE), Inffeldgasse 13, 8010 Graz, Austria
\textsuperscript{b} Institute of Chemistry, NAWI Graz, University of Graz, Heinrichstrasse 28, 8010 Graz, Austria

A concise flow synthesis of indole-3-carboxylic ester and its derivatisation to an auxin mimic
Marcus Baumann, Ian R. Baxendale and Fabien Deplante
Department of Chemistry, University of Durham, South Road, Durham, DH1 3LE, UK

Synthesis, physicochemical properties, and biological activity of bile acids 3-glucuronides: Novel insights into bile acid signalling and detoxification
Serena Mostarda\textsuperscript{a}, Daniela Passeri\textsuperscript{b,1}, Andrea Carotti\textsuperscript{b,1}, Bruno Cerra\textsuperscript{a}, Carolina Colliva\textsuperscript{b}, Tiziana Benicchi\textsuperscript{b}, Antonio Macchiura\textsuperscript{a}, Roberto Pellicciari\textsuperscript{b}, Antimo Gioiello\textsuperscript{a}
\textsuperscript{a} Department of Pharmaceutical Sciences, University of Perugia, Via del Liceo, 1, 06123 Perugia, Italy
\textsuperscript{b} TES Pharma, Corso Vannucci, 47, 06121 Perugia, Italy

Conjugated polymers via direct arylation polymerization in continuous flow: minimizing the cost and batch-to-batch variations for high-throughput energy conversion
Nemal S. Gobalasingham\textsuperscript{1}, Jon E. Carlé\textsuperscript{2}, Frederik C. Krebs\textsuperscript{2}, Barry C. Thompson\textsuperscript{1}, Eva Bundgaard\textsuperscript{2}, Martin Helgesen*\textsuperscript{2}
\textsuperscript{1} Department of Chemistry and Loker Hydrocarbon Research Institute, University of Southern California, Los Angeles, California, 90089-1661
\textsuperscript{2} DTU Energy, Technical University of Denmark, Roskilde, DK-4000, Denmark

Recent advances of microfluidics technologies in the field of medicinal chemistry
László Ürge*, Jesus Alcazar†, Lena Huck‡, György Dormán†
* DBH Group, Budapest, Hungary
† Janssen Research and Development, Toledo, Spain
‡ Innostudio Inc., Budapest, Hungary

Sustainable flow synthesis of a versatile cyclopentenone building block
Marcus Baumann†, Ian R. Baxendale and Fabien Deplante
Department of Chemistry, University of Durham, South Road, Durham, DH1 3LE, UK.

Auto-tandem catalysis: Pd(II)-catalysed dehydrogenation/oxidative Heck of Cyclopentane-1,3-diones
Claire J C Lamb, Bryan G Nderitu, Gemma McMurdo, John MTobin, Filipe Vilela, and Ai-Lan Lee
Institute of Chemical Sciences, Heriot-Watt University, Edinburgh EH14 4AS, United Kingdom

Exploring effects of intermittent light upon visible light promoted water oxidations
Dominic Walsh\textsuperscript{a,}, Pascaline Patureau\textsuperscript{a,}, Karen Robertson\textsuperscript{a,}, Shaun Reeksting\textsuperscript{b}, Anneke Lubben\textsuperscript{b,}, Salvador Eslava\textsuperscript{c} and Mark T. Wellera\textsuperscript{a}
\textsuperscript{a} Department of Chemistry, University of Bath, Bath, BA2 7AY, UK.
\textsuperscript{b} Chemical Characterization and Analysis Facility, University of Bath, Bath, BA2 7AY, UK
\textsuperscript{c} Department of Chemical Engineering, University of Bath, BA2 7AY, UK

Telescoped continuous flow generation of a library of highly substituted 3-thio-1,2,4-triazoles.
Targeting a mirabegron precursor by BH₃-mediated continuous flow reduction process

Sonia De Angelis, Claudia Carlucci, Modesto de Cândia, Gabriele Rebuzzini, Paolo Celestini, Massimiliano Riscazzi, Renzo Luisi, Leonardo Degennaro

a FLAME-Lab – Flow Chemistry and Microreactor Technology Laboratory, Department of Pharmacy — Drug Sciences, University of Bari “A. Moro” Via E. Orabona 4, Bari 70125, Italy
b COSMA S.p.A, Via Colleoni 15/17, Ciserano, BG 24040, Italy


In situ preparation and consumption of O-Mesitylsulfonylhydroxylamine (MSH) in continuous flow for the amination of pyridines

Cara E. Brocklehurst, Guido Koch, Stephanie Rothe-Pöllet, Luigi La Vecchia

Synthesis and Technologies, Global Discovery Chemistry, Novartis Institutes for Biomedical Research, Klybeckstrasse 141, 4057 Basel, Switzerland


Highly efficient oxidation of amines to aldehydes with flow-based biocatalysis

Dr. Martina L. Contente, Federica Dall’Oglio, Dr. Lucia Tamborini, Prof. Francesco Molinari, Prof. Francesca Paradisi

1 School of Chemistry, University of Nottingham, Nottingham, UK
2 UCD School of Chemistry, University College Dublin, Dublin, Ireland
3 Department of Pharmaceutical Sciences, DISFARM, University of Milan, Milan, Italy
4 Department of Food, Environmental and Nutritional Science, DeFENS, University of Milan, Milan, Italy


Novel polystyrene-immobilized chiral amino alcohols as heterogeneous ligands for the enantioselective Arylation of Aldehydes in Batch and Continuous Flow Regime

José Augusto Forni, Luiz Fernando Toneto Novaes, Renan Galaverna, Julio C. Pastre

Institute of Chemistry, University of Campinas – UNICAMP, PO Box 6154, 13083-970, Campinas, SP, Brazil


An efficient and green pathway for continuous Friedel-Crafts acylation over α-Fe₃O₃ and CaCO₃ nanoparticles prepared in the microreactors

Zheng Fang, Wei He, Tao Tu, Niuniu Lv, Chuanhong Qiu, Xin Li, Ning Zhu, Li Wan, Kai Guo

a College of Biotechnology and Pharmaceutical Engineering, Nanjing Technology University, No. 30 Puzhu South Road, Nanjing, China
b Department of Chemistry, Fudan University, 220 Handan Road, 200433 Shanghai, China
c State Key Laboratory of Materials-Oriented Chemical Engineering, Nanjing Technology University, Nanjing 211816, PR China


A nanoporous graphene analog for superfast heavy metal removal and continuous-flow visible-light photoredox catalysis

Ran Xiao, John Michael Tobin, Meiqin Zha, Yunlong Hou, Jun He, Filipe Vilela and Zhengtao Xu

a Department of Chemistry, City University of Hong Kong, 83 Tat Chee Avenue, Kowloon, Hong Kong
b School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh, UK
c School of Chemical Engineering and Light Industry, Guangdong University of Technology, Guangzhou 510006, China

http://pubs.rsc.org/en/content/articlelanding/2017/ta/c7ta05534j#!divAbstract

A novel micro-flow system under microwave irradiation for continuous synthesis of 1, 4-dihydropyridines in the absence of solvents via Hantzsch reaction

Wei He, Zheng Fang, Kai Zhang, Tao Tu, Niuniu Lv, Chuanhong Qiu, Kai Guo

Department of Chemistry, Fudan University, No. 220 Handan Road, Shanghai, 200433, PR China
b College of Biotechnology and Pharmaceutical Engineering, Nanjing Technology University, No. 30 Puzhu South Road, Nanjing, 211816, PR China
Methanolysis of epoxidized soybean oil in continuous flow conditions
Vincenzo Pantone, Amelita Grazia Laurensa, Cosimo Annese, Francesco Fracassi, Caterina Fusco, Angelo Nacci, Antonella Russo, Lucia D’Accolti

Greenswitch s.r.l., Ferrandina MT, Italy

Dipartimento di Chimica, Università di Bari Aldo Moro, Via E. Orabona 4, 70126 Bari, Italy

State Key Laboratory of Materials-Oriented Chemical Engineering, Nanjing Technology University, No. 30 Puzhu South Road, Nanjing, 211816, PR China


Visible-light-induced trifluoromethylation of highly functionalized arenes and heteroarenes in continuous flow
Irini Abdiaj, Cecilia Bottecchia, Jesus Alcazar, Timothy Noël

Janssen Research & Development, Jarama 75A, 45007 Toledo, Spain

Department of Chemical Engineering and Chemistry, Micro Flow Chemistry & Process Technology, Eindhoven University of Technology, Den Dolech 2, 5612 AZ Eindhoven, The Netherlands


Continuous preparation and use of dibromoformaldoxime as a reactive intermediate for the synthesis of 3-bromoisoxazolines
Claudio Battilocchio, Francesco Bosica, Sam M. Rowe, Bruna Lacerda Abreu, Edouard Godineau, Matthias Lehmann, and Steven V Ley

http://pubs.acs.org/doi/abs/10.1021/acs.oprd.7b00229

Chemoenzymatic synthesis in flow reactors: a rapid and convenient preparation of captopril
Dr. Valerio De Vitis, Dr. Federica Dall’Oglio, Dr. Andrea Pinto, Prof. Carlo De Micheli, Prof. Francesco Molinari, Prof. Paola Conti, Dr. Diego Romano, Dr. Lucia Tamborini

Department of Food Environmental and Nutritional Science, University of Milan, Milan, Italy

Department of Pharmaceutical Sciences, University of Milan, Milan, Italy


Preparation of polyfunctional diorgano-magnesium and -zinc reagents using in situ trapping halogen-lithium exchange of highly functionalized (hetero)aryl halides in continuous flow
Marthe Ketels, Maximilian Andreas Ganiek, Niels Weidmann, Paul Knochel

LMU München, Department of Chemistry, München, Germany


Flow assisted synthesis: a key fragment of SR 142948A
Matthew Oliver Kitching, Olivia E Dixon, Marcus Baumann, Ian Richard Baxendale

University of Durham, Chemistry, Durham, UK


Singlet oxygen oxidations in homogeneous continuous flow using a gas–liquid membrane reactor
Antonia Kouridaki, Kevin Huvaere

EcoSynth NV, Industrielaan 12, 9800 Deinze, Belgium

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A convenient, mild and green synthesis of NH-sulfoximines in flow reactors
Leonardo DeGennaro, Arianna Tota, Sonia De Angelis, Michael Andresini, Cosimo Cardellicchio, Maria Annunziata Capozzi, Giuseppe Romanazzi, Renzo Luisi

University of Bari, Department of Pharmacy - Drug Sciences, Bari, Italy

CNR ICCOM, Department of Chemistry, Bari, Italy

Politecnico di Bari, DICATECh, Bari, Italy


A Continuous flow method for the desulfurization of substituted thioimidazoles applied to the synthesis of new etomidate derivatives

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Marcus Baumann, Ian R Baxendale
Durham University, Department of Chemistry, Durham, UK

High throughput photo-oxidations in a packed bed reactor system
Caleb J. Kong, Daniel Fisher, Bimbisar K. Desai, Yuan Yang, Saeed Ahmad, Katherine Belecki, B. Frank Gupton
Department of Chemistry and Department of Chemical and Life Science Engineering, Virginia Commonwealth University, 601 W. Main St. Richmond, VA 23220, USA

Phase separation macrocyclization in a complex pharmaceutical setting: application toward the synthesis of Vaniprevir
Éric Godin, Anne-Catherine Bédard, Michaël Raymond, and Shawn K. Collins*
Département de Chimie, Centre for Green Chemistry and Catalysis, Université de Montréal, CP 6128 Station Downtown, Montréal, Québec, H3C 3J7 Canada

Grignard Reagents on a Tab: Direct Magnesium Insertion under Flow Conditions
Lena Huck, Antonio de la Hoz, Angel Díaz-Ortiz, and Jesus Alcázar*
†Facultad de Ciencias Químicas, Universidad de Castilla-La Mancha, 13071 Ciudad Real, Spain

Efficient synthesis of 5-(chloromethyl) furfural (CMF) from high fructose corn syrup (HFCS) using continuous flow processing
T. M. Kohl, B. Bizet, P. Kevan, C. Sellwood, J. Tsanaktsidis and C. H. Hornung*
CSIRO Manufacturing Flagship, Bag 10, Clayton South, Australia

Direct valorisation of waste cocoa butter triglycerides via catalytic epoxidation, ring-opening and polymerisation
Dorota D Plaza, Vinzent Strobel, Parminder Kaur KS Heer, Andrew B Sellars, Seng-Soi Hoong, Andrew J Clark, Alexei A Lapkin*
School of Engineering, University of Warwick, Coventry, UK
Department of Chemical Engineering and Biotechnology, University of Cambridge, UK
Aachener Verfahrenstechnik – Process Systems Engineering, RWTH Aachen University, Aachen, Germany
Department of Chemistry, University of Warwick, Coventry, UK

Hydrogen sulfide chemistry in continuous flow: Efficient synthesis of 2-oxopropanethioamide
David Cantillo, Phillip A. Inglesby, Alistair Boyd and C. Oliver Kappe

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Utilizing on- and off-line monitoring tools to follow a kinetic resolution step during flow synthesis
Kathleen A. Farley, USA Reilly, Dennis P. Anderson, Brian P. Boscoe, Mark W. Bundesmann, David A. Foley, Manjinder S. Lall, Chao Li, Matthew R. Reese, Jiangli Yan
Medicinal Sciences, Pfizer Worldwide Research and Development, Groton, CT, United States

http://www.beilstein-journals.org/bjoc/articles/13/97/i2

Continuous Flow α-Arylation of N,N-Dialkylhydrazones under Visible-Light Photoredox Catalysis
Juan A. Vega, José Manuel Alonso, Gabriela Méndez, Myriam Ciordia, Francisca Delgado, and Andrés A. Trabanco
Neuroscience Medicinal Chemistry, Janssen Research & Development, Jarama 75A, 45007 Toledo, Spain

http://pubs.acs.org/doi/ipdf/10.1021/acs.orglett.7b00117

Continuous-flow synthesis of highly functionalized imidazo-oxadiazoles facilitated by microfluidic extraction
Ananda Herath and Nicholas D. P. Cosford*
Cancer Metabolism & Signaling Networks Program, Sanford Burnham Prebys Medical Discovery Institute, 10901 North Torrey Pines Road, La Jolla, California 92037, USA


Preparation of Forced Gradient Copolymers Using Tube-in-Tube Continuous Flow Reactors
Simon Saubern, Xuan Nguyen, Van Nguyen, James Gardiner, John Tsanaktsidis, John Chiefari
CSIRO Manufacturing, Clayton, VIC, Australia


A Continuous Flow Synthesis and Derivatization of 1,2,4-Thiadiazoles
Marcus Baumann, Ian R. Baxendale
Department of Chemistry, University of Durham, South Road, DH1 3LE Durham, United Kingdom.


Self-optimisation and model-based design of experiments for developing a C–H activation flow process
Alexander Echtermeyer1,2, Yehea Amar, Jacek Zakrzewski1 and Alexei Lapkin1
1Aachener Verfahrenstechnik – Process Systems Engineering, RWTH Aachen University, Aachen, Germany
2Department of Chemical Engineering and Biotechnology, University of Cambridge, Cambridge, United Kingdom

http://www.beilstein-journals.org/bjoc/single/articleFullText.htm?publicId=1860-5397-13-18

Flow Synthesis of Cyclobutanones via [2+2] Cycloaddition of Keteneiminium Salts and Ethylene Gas
Claudio Battilocchioa, Grazia Iannuccib, Shihi Wanga, Edouard Godineaub, Amandine Kriegerb, Alain De Mesmaekera, and Steven V. Leyab

a Innovative Technology Centre, Department of Chemistry, University of Cambridge, Lensfield Road, CB2 1EW, UK
b Syngenta Crop Protection AG, Crop Protection Research, Schaffhauserstrasse 101, CH-4332, Switzerland


Automating multistep flow synthesis: approach and challenges in integrating chemistry, machines and logic
Chinmay A. Shukla1,2, and Amol A. Kulkarni1,2

1 Academy of Scientific and Innovative Research (AcSIR), CSIR-National Chemical Laboratory (NCL) Campus, Pune 411008, India
2 Chem. Eng. & Proc. Dev. Div., CSIR-National Chemical Laboratory, Dr. Homi Bhabha Road, Pashan, Pune 411008, India

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Diels–Alder reactions of myrcene using intensified continuous-flow reactors
Christian H. Hornung, Miguel Á. Álvarez-Diéguez, Thomas M. Kohl and John Tsanaktsidis
CSIRO Manufacturing, Bag 10, Clayton South, Victoria 3169, Australia

Active Site-Mapping of Xylan-Deconstructing Enzymes with Arabinoxylan Oligosaccharides Produced by Automated Glycan Assembly
Deborah Senf, Colin Ruprecht, Goswinus de Kruijff, Sebastian Simonetti, Frank Schuhmacher, Peter Seeberger, Fabian Pfrengle
Max-Planck-Institute of Colloids and Interfaces, Biomolecular Systems, Potsdam, Germany

Mixed-Linkage Glucan Oligosaccharides Produced by Automated Glycan Assembly Serve as Tools to Determine the Substrate Specificity of Lichenase
Pietro Dallabernardina, Frank Schuhmacher, Peter H Seeberger, Fabian Pfrengle
Max-Planck-Institute of Colloids and Interfaces, Biomolecular Systems, Potsdam, Germany

Improving the throughput of batch photochemical reactions using flow: Dual photoredox and nickel catalysis in flow for C(sp²)–C(sp³) cross-coupling
Irini Abdiaj, Jesús Alcázar
Janssen Research and Development, Janssen-Cilag, S.A., C/Jarama 75, 45007 Toledo, Spain

Synthesis of Cycloalkyl Substituted 7-Azaindoles via Photoredox Nickel Dual Catalytic Cross-Coupling in Batch and Continuous Flow
Natalie Palaychuk, Travis J. DeLano, Michael J. Boyd, Jeremy Green, and Upul K. Bandarage
Vertex Pharmaceuticals Incorporated, 50 Northern Avenue, Boston, Massachusetts 02210, United States
http://pubs.acs.org/doi/abs/10.1021/acs.orglett.6b03223?journalCode=orlef7

Acridinium-Based Photocatalysts: A Sustainable Option in Photoredox Catalysis
Amruta Joshi-Pangu†, François Lévesque†, Hudson G. Roth‡, Steven F. Oliver†, Louis-Charles Campeau†, David Nicewicz‡, and Daniel A. DiRocco*†
† Process Research & Development, Merck Research Laboratories, P.O. Box 2000, Rahway, New Jersey 07065, United States
‡ Department of Chemistry, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina 27599-3290, United States
http://pubs.acs.org/doi/abs/10.1021/acs.joc.6b01240?journalCode=jocleh

Halogenation of organic compounds using continuous flow and microreactor technology
David Cantilloab and C. Oliver Kappea,b
* Corresponding authors
a Institute of Chemistry, University of Graz, NAWI Graz, Heinrichstrasse 28, Graz, Austria
b Research Center Pharmaceutical Engineering GmbH (RCPE), Inffeldgasse 13, 8010 Graz, Austria
http://pubs.rsc.org/en/content/articlelanding/2017/re/c6re00186f/unauth#!divAbstract

Application of the Photoredox Coupling of Trifluoroborates and Aryl Bromides to Analog Generation Using Continuous Flow
Travis J. DeLano, Upul K. Bandarage, Natalie Palaychuk, Jeremy Green, and Michael J. Boyd
Vertex Pharmaceuticals Incorporated, 50 Northern Avenue, Boston, Massachusetts 02210, United States
http://pubs.acs.org/doi/abs/10.1021/acs.joc.6b02408?journalCode=jocleh

Design and Development of Pd-catalyzed Aerobic N-Demethylation Strategies for the Synthesis of Noroxymorphone in Continuous Flow Mode
Bernhard Gutmanna,b, David Cantilloa,b, Ulrich Weiglc, D Phillip Coxd and C. Oliver Kappea,b*
a,b Institute of Chemistry, University of Graz, Nawi Graz, Heinrichstrasse 28, 8010 Graz, Austria and Research Center Pharmaceutical Engineering (RCPE), Inffeldgasse 13, 8010 Graz, Austria
C Cilag AG, Hochstrasse 201, 8200 Schaffhausen, Switzerland
d Noramco Inc., 503 Carr Road, Suite 200, Wilmington, DE 19809, USA
y-Glutamyl-dipeptides: Easy tools to rapidly probe the stereoelectronic properties of the ionotropic glutamate receptor binding pocket
Lucia Tamborini, Veronica Nicosia, Paola Conti, Federica Dall’Oglio, Carlo De Micheli, Birgitte Nielsen, Anders A. Jensen, Darryl S. Pickering, Andrea Pinto

a Department of Pharmaceutical Sciences (DISFARM), University of Milan, Via Mangiagalli 25, 20133 Milan, Italy
b Department of Drug Design and Pharmacology, Faculty of Health and Medical Sciences, University of Copenhagen, Universitetsparken 2, 2100 Copenhagen OE, Denmark


Expedited access to thieno[3,2-c]quinolin-4(5H)-ones and benzo[h]-1,6-naphthyridin-5(6H)-ones via a continuous flow photocyclization method
Y. Fang and G. K. Tranmer

* Corresponding authors

a College of Pharmacy, Faculty of Health Science, University of Manitoba, Winnipeg, Canada
b Department of Chemistry, Faculty of Science, University of Manitoba, Winnipeg, Canada

http://pubs.rsc.org/en/content/articlelanding/2016/ob/c6ob02279k#!divAbstract

A benchtop NMR spectrometer as a tool for monitoring mesoscale continuous-flow organic synthesis: equipment interface and assessment in four organic transformations
Cynthia M. Archambault and Nicholas E. Leadbeater

* Corresponding authors

a Department of Chemistry, University of Connecticut, 55 North Eagleville Road, Storrs, USA
b Department of Biology and Chemistry, City University of Hong Kong, 83 Tat Chee Avenue, Kowloon, China

http://pubs.rsc.org/en/content/articlelanding/2016/ra/c6ra19662d#!divAbstract

BODIPY-based conjugated microporous polymers as reusable heterogeneous photosensitisers in a photochemical flow reactor

* Corresponding authors

a School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh, UK
b Department of Biology and Chemistry, City University of Hong Kong, 83 Tat Chee Avenue, Kowloon, China

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Reformatsky and Blaise reactions in flow as a tool for drug discovery. One pot diversity oriented synthesis of valuable intermediates and heterocycles
L. Huck, M. Berton, A. de la Hoz, A. Díaz-Ortiz and J. Alcázar

* Corresponding authors

a Janssen Research and Development, Janssen-Cilag, S.A., C/ Jarama 75, Toledo, Spain
b Facultad de Ciencias Químicas, Universidad de Castilla-La Mancha, Ciudad Real, Spain

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Visible light activation of Boronic Esters enables efficient photoredox C(sp²)–C(sp³) cross-couplings in flow
Fabio Lima, Mikhail A. Kabeshov, Duc N. Tran, Claudio Battilocchio, Dr. Joerg Sedelmeier, Dr. Gottfried Sedelmeier, Dr. Berthold Schenkel, Prof. Steven V. Ley

* Corresponding authors

a Department of Chemistry, University of Cambridge, Cambridge, UK
b Novartis Pharma AG, Basel, Switzerland


Engineering chemistry: integrating batch and flow reactions on a single, automated reactor platform
D. E. Fitzpatrick and S. V. Ley

* Corresponding authors

a Department of Chemistry, University of Cambridge, Lensfield Road, Cambridge CB2 1EW, UK

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Triphenylphosphine-grafted, RAFT-synthesised, porous monoliths as catalysts for Michael addition in flow synthesis
Kristine J. Barlow, Victor Bernabeu, Xiaojuan Hao, Timothy C. Hughes, Oliver E. Hutt, Anastasios Polyzos, Kathleen A. Turner, Graeme Moad

a CSIRO Manufacturing Flagship, Bag 10, Clayton South, Victoria 3169, Australia

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An approach to the synthesis of 4-aryl and 5-aryl substituted thiazole-2(3H)-thiones employing flow processing

Carl J. Mallia\textsuperscript{a}, Paul M. Burton\textsuperscript{a}, Alexander M. R. Smith\textsuperscript{a}, Gary C. Walter\textsuperscript{a} and Ian R. Baxendale\textsuperscript{a}
\textsuperscript{a} Department of Chemistry, Durham University, South Road, Durham, DH1 3LE, United Kingdom
\textsuperscript{b} Syngenta CP R&D Chemistry, Jeollett’s Hill International Research Centre, Bracknell, Berkshire, RG42 6EY, United Kingdom

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Monaem Baltia, Shelli A. Millerb, Mohamed Lotfi Efrita and Nicholas E. Leadbeater*ab
* Corresponding authors
a Université Tunis El Manar, Laboratory of Organic Synthesis and Heterocyclic Chemistry, Faculty of Science of Tunis, Department of Chemistry, 1060 Tunis, Tunisia
b Department of Chemistry, University of Connecticut, 55 North Eagleville Road, Storrs, USA
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Flow carbonylation of sterically hindered ortho-subsituted iodoarenes
Carl J. Mallia1, Gary C. Walter2 and Ian R. Baxendale3
1 Department of Chemistry, Durham University, South Road, Durham, DH1 3LE, United Kingdom
2 Syngenta CP R&D Chemistry, Jealott’s Hill International Research Centre, Bracknell, Berkshire, RG42 6EY, United Kingdom
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Exploring flow procedures for diazonium formation
Te Hu, Ian R. Baxendale and Marcus Baumann*
*Department of Chemistry, University of Durham, South Road, Durham DH1 3LE, UK
http://www.mdpi.com/1420-3049/21/7/918/htm

Catalytic macrocyclization strategies using continuous flow: formal total synthesis of ivorenolide A
Mylène de Léséleuc, Eric Godin, Shawn Parisien-Collette, Alexandre Levesque, and Shawn K. Collins*
*University of Montréal, Department of Chemistry, Montréal, Canada
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Delivering enhanced efficiency in the synthesis of α-diazosulfoxides by exploiting the process control enabled in flow
Patrick G. McCaw1, Benjamin J. Deadman1, Anita R. Maguire1,2, Stuart G. Collins1
1 Department of Chemistry, Analytical and Biological Chemistry Research Facility, Synthesis and Solid State Pharmaceutical Centre, University College Cork, Cork, Ireland
2 Department of Chemistry and School of Pharmacy, Analytical and Biological Chemistry Research Facility, Synthesis and Solid State Pharmaceutical Centre, University College Cork, Cork, Ireland

Continuous-flow synthesis and derivatization of aziridines through palladium-catalyzed C(sp3)−H activation
Jacek Zakrzewski1, Adam P. Smalley1, Dr. Mikhail A. Kabeshov2, Prof. Matthew J. Gaunt2, Prof. Alexei A. Lapkin1
1 Department of Chemical Engineering and Biotechnology, University of Cambridge, Cambridge, UK
2 Chemistry Department, University of Cambridge, Cambridge, UK

Metal-free borylation of electron-rich aryl(pseudo)halides under continuous-flow photolytic conditions
* Corresponding authors
Kai Chena, Man Sing Cheungb, Zhenyang Linb and Pengfei Lib
a Center for Organic Chemistry, Frontier Institute of Science and Technology (FIST) and Frontier Institute of Chemistry, Xi’an Jiaotong University, 99 Yanxiang Road, Xi’an, China
b Department of Chemistry, The Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, China
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Difluorocarbene addition to alkenes and alkynes in continuous flow
Pauline Rulliére, Patrick Cyr, and André B. Charetté*
Université de Montréal, Centre in Green Chemistry and Catalysis, Department of Chemistry, Faculty of Arts and Science, P.O. Box 6128, Station Downtown, Québec, Canada H3C 3J7
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A simple setup for transfer hydrogenations in flow chemistry
Matthew Hutchings, Thomas Wirth*
School of Chemistry, Cardiff University, Cardiff CF10 3AT, UK

A scalable and operationally simple radical trifluoromethylation
Joel W. Beatty4, James J. Douglas1,2, Kevin P. Cole3, Corey R. J. Stephenson1
Photoactive and metal-free polyamide-based polymers for water and wastewater treatment under visible light irradiation
Junjie Shen, Roman Steinbach, John Tobin, Mayumi Mouro Nakata, Matthew Bower, Martin McCoustra, Helen Bridle,
Valeria Arrighi, Filipe Vilela

School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh, EH14 4AS, United Kingdom
Drinking Water Quality Regulator for Scotland, Edinburgh, EH6 6WW, United Kingdom


Biodiesel synthesis using integrated acid and base catalysis in continuous flow
Mossa Asadi, Joel F. Hooper, David W. Lupton
School of Chemistry, Monash University, Clayton 3800, Victoria, Australia


The generation of a library of bromodomain-containing protein modulators expedited by continuous flow synthesis
Paolo Filipponi and Ian R. Baxendale


An efficient etherification of Ginkgo biloba extracts with fewer side effects in a micro-flow system
Yin-Lin Qin, Wei He, Mei Su, Zheng Fang, Ping-Kai Ouyang, Kai Guo

College of Biotechnology and Pharmaceutical Engineering, Nanjing Technology University, Nanjing 210009, China
Jiangsu Carephar Pharmaceutical Co., Ltd., Nanjing 210014, China
School of Pharmaceutical, Nanjing Technology University, Nanjing 210009, China
State Key Laboratory of Materials-Oriented Chemical Engineering, Nanjing Technology University, Nanjing 211816, China


Fine chemical syntheses under flow using SiliaCat catalysts
Rosaria Ciriminna, Valeria Pandarus, François Béland and Mario Pagliaro

Istituto per lo Studio dei Materiali Nanostrutturati, CNR, via U. La Malfa 153, 90146 Palermo, Italy
SiliCycle, 2500, Parc-Technologique Blvd, Québec, G1P 4S6 Canada

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Continuous-flow synthesis of 2H-azirines and their diastereoselective transformation to aziridines
Marcus Baumann, Ian R. Baxendale
Department of Chemistry, University of Durham, South Road, Durham, DH1 3LE, UK

http://community.dur.ac.uk/i.r.baxendale/papers/Synlett2016.27.159.pdf

Continuous flow magnesiation or zincation of acrylonitriles, acrylates, and nitroolefins. Application to the synthesis of butenolides
Maximilian A. Ganiek, Matthias R. Becker, Marthe Ketels, and Paul Knochel

Department of Chemistry, Ludwig-Maximilians-Universität, Butenandtstr. 5-13, 81377 Munich, Germany

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Continuous flow photo-initiated RAFT polymerisation using a tubular photochemical reactor
James Gardiner, Christian H. Hornung, John Tsanaktsidis, Duncan Guthrie
CSIRO Manufacturing, Bag 10, Clayton South, Victoria 3169, Australia
Vapourtec Ltd, Park Farm Business Centre, Bury St Edmunds IP28 6TS, United Kingdom


Continuous-flow photochemistry: a need for chemical engineering
Karine Loubière, Michael Oelgemöller, Tristan Allet, Odile Dechy-Cabaret, Laurent Prat
CNRS, Laboratoire de Génie Chimique (LGC UMR 5503), 4 allée Emile Monso, BP 84234, 31432 Toulouse, France
Université de Toulouse, INPT, ENSICT, F-31432 Toulouse, France
James Cook University, College of Science, Technology and Engineering, Townsville, Queensland 4811, Australia

Efficient metal-free photochemical borylation of aryl halides under batch and continuous-flow conditions†
Kai Chen, Shuai Zhang, Pei He and Pengfei Li*
Center for Organic Chemistry, Frontier Institute of Science and Technology (FIST), Xi’an Jiaotong University, 99 Yanxiang Road, Xi’an, Shaanxi 710054, China
http://pubs.rsc.org/en/content/articlelanding/2016/sc/c5sc04521e

Continuous flow photochemistry as an enabling synthetic technology: synthesis of substituted-6(5H)-phenanthridinones for use as poly (ADP-ribose) polymerase inhibitors
Y. Fang* and G. K. Tranmer*†
* Corresponding authors
† College of Pharmacy, Faculty of Health Sciences, University of Manitoba, Winnipeg, Canada
‡ Department of Chemistry, Faculty of Science, University of Manitoba, Winnipeg, Canada
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Controlled generation and use of CO in continuous flow‡
Steffen V. F. Hansen ‡‡, Zoe E. Wilson ‡, Trond Ulven ‡ and Steven V. Ley ‡‡
‡ Department of Chemistry, University of Cambridge Lensfield Road, Cambridge, CB2 1EW, UK.
© Department of Physics, Chemistry and Pharmacy, University of Southern Denmark, Campusvej 55, 5230 Odense M, Denmark.
http://pubs.rsc.org/en/content/articlehtml/2016/re/c6re00020g

The solid copper-mediated C-N cross-coupling of phenylboronic acids under continuous flow conditions
Jennifer Bao†, Geoffrey K. Tranmer‡,§,∥
† College of Pharmacy, Faculty of Health Science, University of Manitoba, Winnipeg, MB R3E 0T5, Canada
§ Department of Chemistry, Faculty of Science, University of Manitoba, Winnipeg, MB R3T 2N2, Canada

Visible-light photoredox catalysis using a macrocyclic ruthenium complex: reactivity and recovery by size-exclusion nanofiltration in continuous flow†
Javier Guerra ‡, David Cantillo ‡ and C. Oliver Kappe ‡‡
‡ Institute of Chemistry, University of Graz, NAWI Graz, Heinrichstrasse 2B, A-8010 Graz, Austria.
∥ Crystal Pharma, Gadea Pharmaceutical Group, a division of AMRI, Parque Tecnológico de Boecillo, Valladolid, 47151, Spain
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Integrating multicomponent flow synthesis and computational approaches for the generation of a tetrahydroquinoline compound based library
Bruno Cerra,† Serena Mostarda,§ Chiara Custodi,§ Antonio Macchiarulo§ and Antimo Gioiello‡‡
† Department of Pharmaceutical Sciences, University of Perugia, Vial del Liceo 1, I-06122 Perugia, Italy
‡‡* Corresponding authors
§ Institute of Chemistry, University of Perugia, Via del Liceo 1, I-06122 Perugia, Italy
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The expanding utility of continuous flow hydrogenation
Peter J. Cossar,*, Lacey Hizartzidis,‡ Michela I. Simone,§ Adam McCluskey‡‡ and Christopher P. Gordon*∗
* Corresponding authors
‡ Centre for Chemical Biology, Chemistry Building, School of Environmental and Life Science, The University of Newcastle, University Drive, Callaghan, Australia
§ Nanoscale Organisation and Dynamics Group, School of Science and Health, University of Western Sydney, Locked Bag, Penrith, Australia
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Highly efficient and safe procedure for the synthesis of ary1,2,3-triazoles from aromatic amine in a continuous flow reactor
Federica Stazi,† Damiano Cancogni,† Lucilla Turco†, Pieter Westerduin†, Sergio Bacchi†,§
† GlaxoSmithKline Spa, Chemical Development Department, Synthetic Chemistry, Via Fleming 4, 37135 Verona, Italy
§ GlaxoSmithKline Spa, Analytical Chemistry, Via Fleming 4, 37135 Verona, Italy
Studies of a diastereoselective electrophilic fluorination reaction employing a cryo-flow reactor
Keiji Nakayama,a Duncan L. Browne,b Ian R. Baxendale,b,† Steven V. Leya,b
a Process Technology Research Laboratories, Pharmaceutical Technology Division, Daiichi Sankyo, Shinomiya, Hiratsuka,
Kanagawa, 254-0014, Japan
b Innovative Technology Centre, Department of Chemistry, University of Cambridge, Lensfield Road, Cambridge, CB2 1EW, UK

The changing face of organic synthesis
Authors: Ley, Steven V.; Baxendale, Ian R.

A novel internet-based reaction monitoring, control and autonomous self-optimization platform for chemical synthesis
Daniel E. Fitzpatricka, Claudio Battilocchia, and Steven V. Leya
† Innovative Technology Centre, Department of Chemistry, University of Cambridge, Lensfield Road, Cambridge CB2 1EW, U.K.
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Thermolysis of 1,3-dioxin-4-ones: fast generation of kinetic data using in-line analysis under flow
Thomas Durand,a Cyril Henry,a David Bolien,a David C. Harrowven,a Sally Bloodworth,a Xavier Franckb and Richard J.
Whitby**
α Chemistry, Departments of Natural and Fundamental Sciences, University of Southampton, Southampton, UK
β Normandie Université, COBRA, UMR 6014 & FR 3038, Université de Rouen, INSIA Rouen, CNRS, 1 rue Tesnière, 76821 Mont-
Saint-Aignan Cedex, France
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Continuous heterogeneously catalyzed oxidation of benzyl alcohol in a ceramic membrane packed-bed reactor
Achilleas Constantinou,a,b Gaowei Wu,a Albert Corredera,a Peter Ellisb, Donald Bethellob, Graham J. Hutchingsb, Simon Kuhn1, and
Asterios Gavriilidisa,b,c
† Division of Chemical and Petroleum Engineering, School of Engineering, University of Cambridge, Lensfield Road, Cambridge, CB2 1EW, U.K.
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Automated glycan assembly of xyloglucan oligosaccharides
Pietro Dallabernardina,a,b Frank Schuhmacher,a,b Peter H. Seebergerab and Fabian Pfrenglea,b
α Department of Biomolecular Systems, Max-Planck-Institute of Colloids and Interfaces, Am Mühlenberg 1, 14476 Potsdam,
Germany
β Freie Universität Berlin, Institute of Chemistry and Biochemistry, Arnimallee 22, 14195 Berlin, Germany
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Continuous flow Buchwald–Hartwig amination of a pharmaceutical intermediate†
Polina Yaseneva a, Paul Hodgson a, Jacek Zakrzewski a, Sebastian Faiib, Rebecca E. Meadows c and Alexei A. Lapkin a,c
α Department of Chemical Engineering and Biotechnology, University of Cambridge, Cambridge CB2 3RA, UK. E-mail:
aoi35@cam.ac.uk; Fax: +44 (0)1223 334796
β INVITE GmbH, Champark Leverkusen, 51373 Leverkusen, Germany
γ Pharmaceutical Development, AstraZeneca, Silk Road Business Park, Macclesfield SK10 2NA, UK
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An efficient continuous flow process for the synthesis of a non-conventional mixture of fructooligosaccharides
Paolo Zambelli,a Lucia Tamborinib, Samuele Cazzamallia, Andrea Pintob, Stefania Arolib, Silvia Balzarettia, Francisco J. Ploub,
Lucia Fernandez-Arrojoa, Francesco Molinaria, Paola Contib, Diego Romanoa,c
α Department of Food Environmental and Nutritional Science (DeFENS), University of Milan, Via Mangiagalli, 20133 Milan, Italy
β Department of Pharmaceutical Sciences (DISFARM), University of Milan, Via Mangiagalli 25, 20133 Milan, Italy
γ Instituto de Catálisis y Petroquímica, CSIC, 28049 Madrid, Spain
**Dynamic flow synthesis of porous organic cages**

Michael E. Briggs, Anna G. Slater, Neil Lunt, Shan Jiang, Marc A. Little, Rebecca L. Greenaway, Tom Hasell, Claudio Battilocchio, Steven V. Ley and Andrew I. Cooper

Department of Chemistry and Centre for Materials Discovery, University of Liverpool, Crown Street, Liverpool, UK

Innovative Technology Centre, Department of Chemistry, University of Cambridge, Lensfield Road, Cambridge, UK

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**Continuous photochemistry: the flow synthesis of ibuprofen via a photo-Favorskii rearrangement**

M. Baumann and Ian R. Baxendale

Department of Chemistry, University of Durham, South Road, Durham, UK

[http://pubs.rsc.org/en/content/articlelanding/2016/re/c5re00037h/unauth#!divAbstract](http://pubs.rsc.org/en/content/articlelanding/2016/re/c5re00037h/unauth#!divAbstract)

**Making ends meet: flow synthesis as the answer to reproducible high-performance conjugated polymers on the scale that roll-to-roll processing demands**

Martin Helgesen, Jon E. Carlé, Gisele A. dos Reis Benatto, Roar R. Søndergaard, Mikkel Jørgensen, Eva Bundgaard, Frederik C. Krebs

Department of Energy Conversion and Storage, Technical University of Denmark, Roskilde, Denmark


**Amination of aryl halides and esters using intensified continuous flow processing**

Thomas M. Kohl, Christian H. Hornung and John Tsanaktsidis

CSIRO Manufacturing Flagship, Bag 10, Clayton South, Victoria 3169, Australia

[http://www.mdpi.com/1420-3049/20/10/17860/htm](http://www.mdpi.com/1420-3049/20/10/17860/htm)

**An integrated flow and microwave approach to a broad spectrum protein kinase inhibitor**

Cecilia Russell, Andrew J. S. Lin, Peter Hains, Michela I. Simone, Phillip J. Robinson and Adam McCluskey

A Centre for Chemical Biology, Chemistry, School of Environmental and Life Science, The University of Newcastle, University Drive, Callaghan, Australia

B Children's Medical Research Institute, 214 Hawkesbury Road, Westmead, Australia

[http://pubs.rsc.org/en/content/articlelanding/2015/ra/c5ra09426g#!divAbstract](http://pubs.rsc.org/en/content/articlelanding/2015/ra/c5ra09426g#!divAbstract)

**Light-induced C-H arylation of (hetero)arenes by in situ generated diazo anhydrides**

Dr. David Cantillo, Dr. Carlos Mateos, Dr. Juan A. Rincon, Dr. Oscar de Frutos and Prof. Dr. C. Oliver Kappe

1. Institute of Chemistry, University of Graz, NAWI Graz, Heinrichstrasse 28, 8010 Graz (Austria)
2. Centro de Investigación Lilly S. A. Avda. de la Industria 30, 28108 Alcobendas-Madrid (Spain)


**Photodecarboxylative benzylation of N-methoxyphthalimide under batch and continuous-flow conditions**

Hossein Mohammadkhani Pordanjani, Christian Faderl, Jun Wang, Cherie A. Motti, Peter C. Junk and Michael Oelgemöller

A James Cook University, College of Science, Technology and Engineering, Townsville, Qld 4811, Australia.

B Faculty of Chemistry, Bu-Ali Sina University, Hamedan, 6517838683, Iran.

C Institut für Organische Chemie, Universität Regensburg, Universitätsstr. 31, D-93053 Regensburg, Germany.

D Australian Institute of Marine Science (AIMS), Biomolecular Analysis Facility, Townsville, Qld 4810, Australia.

E Corresponding author.


**A short multi-step flow synthesis of a potential spirocyclic fragrance component**

Ian R. Baxendale

Department of Chemistry, University of Durham, South Road, Durham, DH1 3LE, UK


**Flow synthesis of 2-methylpyridines via α-methylation**

Camille Manansala and Geoffrey K. Tranmer

1. College of Pharmacy, Faculty of Health Science, University of Manitoba, Winnipeg, MB R3E 0T6, Canada
2. Department of Chemistry, Faculty of Science, University of Manitoba, Winnipeg, MB R3T 2N2, Canada

The development of a short route to the API ropinirole hydrochloride
Zeshan Yousuf, Andrew K. Richards, Andrew N. Dwyer, Bruno Linclau and David C. Harrowven
Chemistry, University of Southampton, Highfield, Southampton, UK
GlaxoSmithKline Medicines Research Centre, Gunnels Wood Road, Stevenage, UK
Formally at GlaxoSmithKline Innovation and Sustainable Manufacturing COE, Worthing, UK
http://pubs.rsc.org/en/content/articlelanding/2015/ob/c5ob01739d#!divAbstract

A practical deca-gram scale ring expansion of (R)-(−)-carvone to (R)-(−)-3-methyl-6-isopropenyl-cyclohept-3-enone-1
Leandro de C. Alves, André L. Desiderá, Kleber T. de Oliveira, Sean Newton, Steven V. Ley and Timothy J. Brocksom
Departamento de Química, Universidade Federal de São Carlos, P.O. Box 676, São Carlos – SP, Brazil
Department of Chemistry, University of Cambridge, Lensfield Road, Cambridge, UK
http://pubs.rsc.org/en/content/articlelanding/2015/ob/c5ob00525f/unauth#!divAbstract

A flow-based synthesis of telmisartan
Alex Martin, Ali Siamaki, Katherine Belecki, B. Gupton
Department of Chemistry and Department of Chemical and Life Science Engineering Virginia Commonwealth University 601 W. Main St. Richmond Virginia 23284 United States

Two-stage flow synthesis of coumarin via O-acetylation of salicylaldehyde
Xin Li, Anbang Chen, Yangzhi Zhou, Lingling Huang, Zheng Fang, Haifeng Gan and Kai Guo
College of Biotechnology and Pharmaceutical Engineering, Nanjing Tech University, 30 Puzhu Rd S., Nanjing 211816, PR China
School of Pharmaceutical Sciences, Nanjing Tech University, 30 Puzhu Rd S., Nanjing 211816, PR China
State Key Laboratory of Materials-Oriented Chemical Engineering, Nanjing Tech University, 30 Puzhu Rd S., Nanjing 211816, PR China

The preparation of ethyl levulinate facilitated by flow processing: the catalyzed and uncatalyzed esterification of levulinic acid
Meghan P. Negus, Andrew C. Mansfield, Nicholas E. Leadbeater
Department of Chemistry, University of Connecticut, 55 North Eagleville Road, Storrs, CT 06269, United States
Vapourtec Ltd., Park Farm Business Centre, Bury St. Edmunds IP28 6TS, United Kingdom
Department of Community Medicine and Health Care, University of Connecticut Health Center, The Exchange, 263 Farmington Ave, Farmington, CT 06030, United States

Photodecarboxylations in an advanced meso-scale continuous flow photoreactor
Sam Josland, Saira Mumtaz and Michael Oelgemöller
University of Southampton, Department of Chemistry, University Road, Southampton, SO17 1BJ, United Kingdom
Neem Biotech, Willowbrook Technical Units, Llandogo Road, St. Mellons, Cardiff CF3 0EF, UK

Flow alkylation of thiols, phenols, and amines using a heterogenous base in a packed-bed reactor
Alastair Baker, Michael Graz, Robert Saunders, Gareth J. S. Evans, Ilaria Pitotti, Thomas Wirth
School of Chemistry, Cardiff University, Park Place, Main Building, Cardiff CF10 3AT, UK
Neem Biotech, Willowbrook Technical Units, Llandogo Road, St. Mellons, Cardiff CF3 0EF, UK

Generation and trapping of ketenes in flow
Cyril Henry, David Bollien, Bogdan Ibanescu, Sally Bloodworth, David C. Harrowven, Xunli Zhang, Andy Craven, Helen F. Sneddon and Richard J. Whitby
Chemistry, University of Southampton, Southampton, HANTS, SO17 1BJ, UK
Bioengineering Group, Faculty of Engineering and the Environment, University of Southampton, Southampton, HANTS, SO17 1BJ, UK
A concise flow synthesis of efavirenz†
Dr. Camille A. Correia1, Dr. Kerry Gilmore1, Prof. Dr. D. Tyler McQuade3 and Prof. Dr. Peter H. Seeberger1,2,*
1Department of Biomolecular Systems, Max Planck Institute of Colloids and Interfaces, Am Mühlenberg 1, 14476 Potsdam (Germany)
2Institute for Chemistry and Biochemistry, Freie Universität Berlin, Arnimallee 22, 14195 Berlin (Germany)
3Department of Chemistry and Biochemistry, Florida State University, Tallahassee, FL 32306 (USA)

A monolith immobilised iridium Cp* catalyst for hydrogen transfer reactions under flow conditions
Maria Victoria Rojo,*,1 Lucie Guetzoyan1 Ian. R. Baxendale1,2
1Department of Chemistry, University of Cambridge, Lensfield Road, Cambridge, UK
2Department of Chemistry, University of Durham, South Road, Durham, UK
http://pubs.rsc.org/en/content/articlelanding/2015/ob/c4ob02376e#!divAbstract

Development of a flow method for the hydroboration/oxidation of olefins
José A. Souto,*,1,2 Robert A. Stockman3 Steven V. Ley1
1Department of Chemistry, University of Cambridge, Lensfield Road, Cambridge CB2 1EW, UK
2Departamento de Química Orgánica, Universidade de Vigo, Vigo, Spain
3School of Chemistry, University of Nottingham, Nottingham, UK
http://pubs.rsc.org/en/content/articlelanding/2015/ob/c5ob00170f#!divAbstract

Reevaluation of the 2-nitrobenzyl protecting group for nitrogen containing compounds: an application of flow photochemistry
Chloe I. Wendell, Michael J. Boyd·
Vertex Pharmaceuticals Inc., 50 Northern Avenue, Boston, MA, United States

Flow synthesis of ethyl isocyanoacetate enabling the telescoped synthesis of 1,2,4-triazoles and pyrrolo-[1,2-c]pyrimidines
Marcus Baumann,1 Antonio M. Rodríguez García1,2 Ian R. Baxendale*1
1Department of Chemistry, Durham University, South Road, Durham, UK
2Universidad de Castilla-La Mancha, Departamento de Química Orgánica, Facultad de Ciencias y Tecnologías Químicas, Avd. Camilo José Cela, 10, 13071 Ciudad Real, Spain
http://pubs.rsc.org/en/content/articlelanding/2015/ob/c5ob00245a#!divAbstract

Heterogenization of Pd–NHC complexes onto a silica support and their application in Suzuki–Miyaura coupling under batch and continuous flow conditions
Alberto Martínez,1 Jamin L. Krinsky,1 Itziar Peñafiel,1 Sergio Castillón,2 Konstantin Loponov,3 Alexei Lapkin,3 Cyril Godard,*1 Carmen Claver*1
1Department of Physical and Inorganic Chemistry, Universitat Rovira i Virgili, C/ Marcel li Domingo s/n, Campus Sescelades, Tarragona, Spain
2Department of Analytical and Organic Chemistry, Universitat Rovira i Virgili, C/ Marcel li Domingo s/n, Campus Sescelades, Tarragona, Spain
3Department of Chemical Engineering and Biotechnology, University of Cambridge, New Museum
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The direct α-C(sp3)–H functionalisation of N-aryl tetrahydroisoquinolines via an iron-catalysed aerobic nitro-Mannich reaction and continuous flow processing
Martin Brzozowski Jose A. ForniG. Paul Savage Anastasios Polyzos
CSIRO Manufacturing Flagship, Bayview Avenue, Clayton 3168, Australia
http://pubs.rsc.org/en/content/articlelanding/2015/CC/c4cc07913b#!divAbstract

Efficient continuous-flow synthesis of macrocyclic triazoles
Anne-Catherine Bédard Jeffrey Santandrea Shawn Collins
Factors Influencing the regioselectivity of the oxidation of asymmetric secondary amines with singlet oxygen
Dr. Dmitry B. Ushakov 1,†, Matthew B. Plutschack 1,†, Dr. Kerry Gilmore 1,* and Prof. Dr. Peter H. Seeberger 1.
Max Planck Institute of Colloids and Interfaces, Am Mühlenberg 1, 14476 Potsdam (Germany)

Glucuronidation of bile acids under flow conditions: design of experiments and Koenigs–Knorr reaction optimization
Serena Mostarda a, Paolo Filipponi a, Roccaldo Sardella a, Francesco Venturoni a, Benedetto Natalini a, Roberto Pelliciari a and Antimo Gioiello b
a Laboratory of Medicinal and Advanced Synthetic Chemistry (Lab MASC), Department of Pharmaceutical Sciences, University of Perugia, Via del Liceo 1, 06123 Perugia, Italy
b Palmiro Togliatti 22bis, I-06073 Loc. Ternioli, Corciano, Italy
http://pubs.rsc.org/en/content/articlelanding/2014/ob/c4ob01911c#!divAbstract

Electroactive and photoactive poly[Isoindigo-alt-EDOT] synthesized using direct (hetero)arylation polymerization in batch and in continuous flow
Franckois Grenier,† Badrou Réda Aich,†,‡ Yu-Ying Lai,§ Maxime Guérette,† Andrew B. Holmes,§ Ye Tao,‡ Wallace W. H. Wong,*,§ and Mario Leclerc*,†
† Département de Chimie, Université Laval, Québec City, QC G1V 0A6, Canada
‡ Information and Communications Technologies Portfolio, National Research Council of Canada, Ottawa, ON K1A 0R6, Canada
§ School of Chemistry, Bio21 Institute, the University of Melbourne, 30 Flemington Road, Parkville, Victoria 3010, Australia
http://dx.doi.org/10.1021/acs.chemmater.5b00083

Chemical assembly systems: layered control for divergent, continuous, multistep syntheses of active pharmaceutical ingredients†
Dr. Diego Ghislieri, Dr. Kerry Gilmore and Prof. Dr. Peter H. Seeberger*
Department of Biomolecular Systems, Max-Planck Institute for Colloids and Interfaces, Universität Berlin, Germany
http://dx.doi.org/10.1002/anie.201409765

Continuous reductions and reductive aminations using solid NaBH₄
Kerry Gilmore 1, Stella Vukelić 2, D. Tyler McQuade 13, Beate Koksch 4, and Peter H. Seeberger **††
1 Max Planck Institute of Colloids and Interfaces, Germany
2 Institute of Chemistry and Biochemistry, Freie Universität Berlin, Germany
3 Department of Chemistry and Biochemistry, Florida State University, United States
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Versatile, high quality and scalable continuous flow production of metal-organic frameworks
Marta Rubio-Martinez, Michael P. Batten, Anastasios Polyzos, Keri-Constanti Carey, James I. Mardel, Kok-Seng Lim & Matthew R. Hill
CSIRO Materials Science and Engineering, Australia
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Flow synthesis and biological activity of aryl sulphonamides as selective carbonic anhydrase IX and XII inhibitors
Emiliano Rosatelli 1, Andrea Carotti 1, Mariangela Ceruso 2, Claudiu T. Supuran 3, Antimo Gioiello 3,†
1 Laboratory of Medicinal and Advanced Synthetic Chemistry (Lab MASC), Department of Pharmaceutical Sciences, University of Perugia, Via del Liceo 1, Perugia I-06123, Italy
2 Laboratory of Bioinorganic Chemistry, University of Florence, Via della Lastruccia 3, Sesto Fiorentino (Firenze) I-50019, Italy
3 Neurofarba Dept., Section of Pharmaceutical and Nutriceutical Sciences, University of Florence, Via U. Schiff 6, Sesto Fiorentino (Firenze) I-50019, Italy

Facilitating biomimetic syntheses of borerine derived alkaloids by means of flow-chemical methods.
Sonja B. Kapptmann 4 and Steven V. Ley
Department of Chemistry, University of Cambridge, Lensfield Road, Cambridge CB2 1EW, UK.
Synthesis of a carprofen analogue using a continuous flow UV-reactor
Antoine Caron, Augusto C. Hernandez-Perez, and Shawn K. Collins*
Department of Chemistry and Centre for Green Chemistry and Catalysis, Université de Montréal, Québec, Canada.
http://dx.doi.org/10.1071/CH14530

Continuous synthesis of organozinc halides coupled to negishi reactions
Nerea Alonso2,3, L. Zane Miller1, Juan de M. Muñoz2, Jesus Alcázar2,5 and D. Tyler McQuade3,*
1Department of Chemistry and Biochemistry, Florida State University, USA
2Janssen Research and Development, Janssen-Cilag, Toledo, Spain
3Facultad de Química, Universidad de Castilla-La Mancha, Spain
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Efficient synthesis of panaxadiol derivatives using continuous-flow microreactor and evaluation of anti-tumor activity
Yan Wu1,2, Wei-Qi Chen1, Yu-Qing Zhao1, Hu-Ri Piao1
1Key Laboratory of Natural Resources and Functional Molecules of the Changbai Mountain, Affiliated Ministry of Education, Yanbian University College of Pharmacy, China
2Department of Chemistry, Fudan University, Shanghai, China
3School of Traditional Chinese Materia Medica, Shenyang Pharmaceutical University, Shenyang, China
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Continuous flow magnesiation of functionalized heterocycles and acrylates with TMPMgCl·LiCl
Dr. Trine P. Petersen, Matthias R. Becker and Prof. Dr. Paul Knochel*
Ludwig-Maximilians-Universität München, Department Chemie, München, Germany
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A continuous-flow approach to 3,3,3-trifluoromethylpropenes: bringing together Grignard addition, Peterson elimination, inline extraction, and solvent switching
Trevor A. Hamlin†, Gillian M. L. Lazarus†, Christopher B. Kelly†, and Nicholas E. More**
†Department of Chemistry, University of Connecticut, United States
‡Department of Community Medicine & Health Care, University of Connecticut Health Center, United States
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Development of a Grignard-type reaction for manufacturing in a continuous-flow reactor
Fabrice G. J. Odille†§, Anna Stenemyr†§, and Fritiof Pontén*
†Pharmaceutical Development R&D, Chemical Science, AstraZeneca, SE-151 85 Södertälje, Sweden
‡Innovative Medicines, Cardiovascular and Metabolic Diseases, Medicinal Chemistry, AstraZeneca R&D, Sweden
§SP Process Development, Forskargatan, Sweden
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First example of alkyl-aryl Negishi cross-coupling in flow: mild, efficient and clean introduction of functionalized alkyl groups
Brecht Egle2, Juan de Muñoz1, Nerea Alonso1, Wim M. De Borggraeve2, Antonio de la Hoz2, Angel Díaz-Ortiz3, Jesús Alcázar1
1Janssen Research and Development Department of Medicinal Chemistry Janssen-Cilag, Toledo Spain
2Department of Chemistry, Molecular Design and Synthesis University of Leuven, Heverlee Belgium
3Universidad de Castilla-La Mancha Facultad de Ciencias y Tecnologías Químicas, Spain
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A general continuous flow method for palladium catalysed carbonylation reactions using single and multiple tube-in-tube gas-liquid microreactors
Ulrike Gross1, Peter Koos1, Matthew O'Brien1,2,*, Anastasios Polyzos1,3 and Steven V. Ley1
1Whiffen Laboratory, Department of Chemistry, University of Cambridge, Cambridge, UK
2School of Physical and Geographical Sciences, Keele University, Staffordshire, UK
3CSIRO, Materials Science and Engineering, Clayton South, Australia
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Flow chemistry meets advanced functional materials
Dr. Rebecca M. Myers, Daniel E. Fitzpatrick, Dr. Richard M. Turner and Prof. Steven V. Ley*
Department of Chemistry, University of Cambridge, Cambridge, UK
http://dx.doi.org/10.1002/chem.201402801

Multistep flow synthesis of 5-amino-2-aryl-2H-[1,2,3]-triazole-4-carbonitrides
Dr. Jérôme Jacq and Dr. Patrick Pasau†
UCB Biopharma, Avenue de l’Industrie, 1420 Braine l’Alleud (Belgium)
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The generation of a library of bromodomain-containing Protein modulators expedited by continuous flow synthesis
Paolo Filippini * and Ian R. Baxendale†a
Department of Chemistry, University of Durham South Road, Durham, DH1 3LE, United Kingdom

An efficient etherification of Ginkgo biloba extracts with fewer side effects in a micro-flow system
Yin-Lin Qin, Wei He, Mei Su, Zheng Fang, Ping-Kai Ouyang, Kai Guo, and Antimo Gioiello†
College of Biotechnology and Pharmaceutical Engineering, Nanjing Technology University, Nanjing 210009, China
College of Chemical Engineering, Jiangsu Carephar Pharmaceutical Co., Ltd., Nanjing 210014, China
School of Pharmaceutical, Nanjing Technology University, Nanjing 210009, China
State Key Laboratory of Materials-Oriented Chemical Engineering, Nanjing Technology University, Nanjing 211816, China

Continuous flow synthesis of thieno[2,3-c]isoquinolin-5(4H)-one scaffold: a valuable source of PARP-1 inhibitors
Paolo Filippini, Carmine Ostacolo, Ettoire Novellino, Roberto Pellicciari, and Antimo Gioiello
Dipartimento di Scienze Farmaceutiche, Università di Perugia, Via del Liceo 1, I-06123 Perugia, Italy
Dipartimento di Farmacia, Università degli Studi di Napoli Federico II, Napoli, Italy
TES Pharma S.r.l., Corciano (Perugia), Italy
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Regioselective synthesis of 3-aminoimidazo[1,2-a]-pyrimidines under continuous flow conditions
Ashlie J. E. Butler, Mark J. Thompson, Patrick J. Maydom, James A. Newby, Kai Guo, Harry Adams, and Beining Chen*
Department of Chemistry, University of Sheffield, Sheffield, U.K.
Microwave irradiation and flow chemistry for a straightforward synthesis of piano-stool iron complexes
Anastassiya Pagnoux-Ozherelyeva, David Bolien, Sylvain Gaillard, Flavie Peudru, Jean-François Lohier, Richard J. Whitby, Jean-Luc Renaud
Normandie University, University of Caen Basse Normandie, Laboratoire de Chimie Moléculaire et Thioorganique, CNRS, Caen, France
Chemistry, University of Southampton, Southampton, UK
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Continuous flow macrocyclization at high concentrations: synthesis of macrocyclic lipids
Anne-Catherine Bédard, Sophie Régnier and Shawn K. Collins
Département de Chimie, Centre for Green Chemistry and Catalysis, Université de Montréal, Montréal, Canada
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Continuous synthesis of artemisinin-derived medicines
Kerry Gilmore, Daniel Kopetzki, Ju Weon Lee, Zoltan Horvath, D. Tyler McQuade, Andreas Seidel-Morgenstern, and Peter H. Seeberger
Max-Planck-Institute of Colloids and Interfaces, Department of Biomolecular Systems, Germany
Max-Planck-Institute for Dynamics of Complex Technical Systems, Germany
Otto-von-Guericke-University, Chair for Chemical Process Technology, Germany
Freie Universität Berlin, Institute of Chemistry and Biochemistry, Berlin, Germany
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Consecutive oxygen-based oxidations convert amines to α-cyanoepoxides
Dmitry B. Ushakov, Kerry Gilmore, and Peter H. Seeberger
Max Planck Institute of Colloids and Interfaces, Potsdam, Germany
Institute of Chemistry and Biochemistry, Freie Universität Berlin, Berlin, Germany
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Continuous-flow oxidative cyanation of primary and secondary amines using singlet oxygen
Dmitry B. Ushakov, Kerry Gilmore, Daniel Kopetzki, D. Tyler McQuade, and Peter H. Seeberger
Department für Biomolekulare Systeme, Max-Planck-Institut für Kolloid- und Grenzflächenforschung, Potsdam, Germany
Institut für Chemie und Biochemie, Freie Universität Berlin, Berlin, Germany
Department of Chemistry and Biochemistry, Florida State University, Tallahassee, USA
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Flow synthesis of a versatile fructosamine mimic and quenching studies of a fructose transport probe
Matthew B. Plutschack, D. Tyler McQuade, Giulio Valenti, and Peter H. Seeberger
Department of Chemistry and Biochemistry, Florida State University, Tallahassee, USA
Max Planck Institute of Colloids and Interfaces, Germany
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Synthesis of all four stereoisomers of 3-(tert-Butyloxycarbonyl)-3-azabicyclo[3.1.0]hexane-2-carboxylic acid
Bettina Bakonyi, Markus Furegati, Christian Kramer, Luigi La Vecchia, and Flavio Ossola
Doetsch Grether AG, Falkensteinerstrasse 37, 4132 Muttenz, Switzerland
Preparations Laboratories, Global Discovery Chemistry, Novartis Institutes for Biomedical Research, Klybeckstrasse 141, 4057 Basel, Switzerland
Institute of General, Inorganic and Theoretical Chemistry and Center for Molecular Biosciences Innsbruck (CMBI), University of Innsbruck, Innsbruck, Austria
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Seamless integration of dose-response screening and flow chemistry: efficient generation of structure–activity relationship data of β-Secretase (BACE1) inhibitors
Dr. Michael Werner, Christoph Kuratli, Dr. Rainer E. Martin, Dr. Remo Hochstrasser, David Wechsler, Thilo Enderle, Alexander I. Alanine and Prof. Dr. Horst Vogel
Medicinal Chemistry, Small Molecule Research, Pharma Research & Early Development (pRED), Hoffmann-La Roche AG,
Controlled synthesis of poly(3-hexylthiophene) in continuous flow
Helga Seyler, Jegadesan Subbiah, David J. Jones, Andrew B. Holmes and Wallace H. Wong*
School of Chemistry, Bio21 Institute, University of Melbourne, 30 Flemington Road, Parkville, Victoria 3010, Australia
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Integration of enabling methods for the automated flow preparation of piperazine-2-carboxamide
Richard J. Ingham¹, Claudio Battilocchio¹, Joel M. Hawkins² and Steven V. Ley¹
¹Innovative Technology Centre, Department of Chemistry, University of Cambridge, Lensfield Road, CB2 1EW, Cambridge, UK
²Pfizer Worldwide Research and Development, Eastern Point Road, Groton, CT 06340, USA
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Sequential flow process for the controlled polymerisation and thermolysis of RAFT-synthesised polymers
CH Hornung, A Postma, S Saubern, J Chiefari
CSIRO Materials Science and Engineering, Victoria, Australia
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Robust and reusable supported palladium catalysts for cross-coupling reactions in flow
William R. Reynolds,abc Pawel Plucinskibc and Christopher G. Frost*a
a Centre for Sustainable Chemical Technologies, University of Bath, Claverton Down, Bath, UK
b Department of Chemistry, University of Bath, Claverton Down, Bath, UK
c Department of Chemical Engineering, University of Bath, Claverton Down, Bath, UK
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Investigating the continuous synthesis of a nicotinonitrile precursor to nevirapine
Ashley R. Longstreet, Suzanne M. Opalka, Brian S. Campbell, B. Frank Gupton, Tyler McQuade
¹Department of Chemistry and Biochemistry, Florida State University, United States
²Department of Chemistry, Virginia Commonwealth University, United States
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Porous, functional, poly(styrene-co-divinylbenzene) monoliths by RAFT polymerization
Kristine J. Barlow (née Tan), Xiaojuan Hao, Timothy C. Hughes, Oliver E. Hutt, Anastasios Polyzos, Kathleen A. Turner, Graeme Moad
Commonwealth Scientific and Industrial Research Organisation (CSIRO), Materials Science & Engineering, Australia
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New insights into cyclobutenone rearrangements: a total synthesis of the natural ROS-generating anti-cancer agent cribostatin 6†
Mubina Mohamed², Théo P. Gonçalves², Prof. Richard J. Whitby¹, Dr. Helen F. Sneddon², Prof. David C. Harrowven²
¹Chemistry, University of Southampton, UK
²GlaxoSmithKline Medicines Research Centre, UK
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Hypervalent iodine/TEMPO-mediated oxidation in flow systems: a fast and efficient protocol for alcohol oxidation
Nida Ambreen, Ravi Kumar and Thomas Wirth
Cardiff University, School of Chemistry, Park Place, Cardiff, UK
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The application of a monolithic triphenylphosphine reagent for conducting Ramirez gem-dibromoolefination reactions in flow
Kimberley A. Roper, Malcolm B. Berry and Steven V. Ley
Flow-based, cerium oxide enhanced, low-level palladium sonogashira and heck coupling reactions by perovskite catalysts
Claudio Battilocchio, Benjamin N. Bhawal, Rajeev Chorghade, Benjamin J. Deadman, Joel M. Hawkins, Steven V. Ley
1 Innovative Technology Centre, Department of Chemistry, University of Cambridge, UK
2 Pfizer Worldwide Research & Development, Groton, USA

The fit for purpose development of S1P1 receptor agonist GSK2263167 using a Robinson annulation and Saegusa oxidation to access an advanced phenol intermediate
Robert M. Harris, Benjamin I. Andrews, Stacy Clark, Jason W. B. Cooke, John C. S. Gray, and Stephanie Q. Q. Ng
Chemical Development, GlaxoSmithKline Research and Development Ltd., UK

Raman spectroscopy as a tool for monitoring mesoscale continuous-flow organic synthesis: Equipment interface and assessment in four medicinally-relevant reactions
Trevor A. Hamlin and Nicholas E. Leadbeater
Department of Chemistry, University of Connecticut, USA

Biotransformation with whole microbial systems in a continuous flow reactor: resolution of (RS)-flurbiprofen using Aspergillus oryzae by direct esterification with ethanol in organic solvent
Lucia Tamborini, Diego Romano, Andrea Pinto, Martina Contente, Maria C. Iannuzzi, Paola Conti, Francesco Molinari
a Dipartimento di Scienze Farmaceutiche, Università degli Studi di Milano, Italy
b Dipartimento di Scienze per gli Alimenti, la Nutrizione e l’Ambiente (DEFENS), Università degli Studi di Milano, Italy

Continuous flow synthesis of Coumarin
Anbang Chen, Xin Li, Yangzhi Zhou, Lingling Huang, Zheng Fang, Haifeng Gan and Kai Guo
1 College of Biotechnology and Pharmaceutical Engineering, Nanjing University of Technology
2 School of Pharmaceutical Sciences, Nanjing University of Technology

Continuous flow-processing of organometallic reagents using an advanced peristaltic pumping system and the telescoped flow synthesis of (E/Z)-tamoxifen
Philip R D Murray, Duncan L Browne, Julio C Pastre, Chris Butters, Duncan Guthrie, Steven V Ley
1 Department of Chemistry, University of Cambridge, UK
2 Instituto de Química, University of Campinas, Brazil.
3 Vapourtec Ltd, UK

Integrated synthesis and testing of substituted xanthine based DPP4 inhibitors: application to drug discovery
Werngard Czechtizky, Juergen Dedio, Bimbisar Desai, Karen Dixon, Elizabeth Farrant, Qixing Feng, Trevor Morgan, David M. Parry, Manoj K. Ramjee, Christopher N. Selway, Thorsten Schmidt, Gary J. Tarver, Adrian G. Wright
1 Sanofi-Aventis.
2 Cyclofluidic Ltd.

Applying flow chemistry: methods, materials, and multistep synthesis
D. Tyler McQuade, Peter H. Seeberger
1 Department of Biomolecular Systems, Max Planck Institute of Colloids and Interfaces
2 Institute for Chemistry and Biochemistry, Freie Universitität Berlin,
3 Department of Chemistry and Biochemistry, Florida State University

Controlled synthesis of poly(3-hexylthiophene) in continuous flow

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http://dx.doi.org/10.1021/ml400171b
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Building a sulfonamide library by eco-friendly flow synthesis
Antimo Gioiello,* Emiliano Rosatelli, Michela Teofrastì, Paolo Filipponi, and Roberto Pellicciari
Dipartimento di Chimica e Tecnologia del Farmaco, Università di Perugia, Via del Liceo, 1, 06123 Perugia, Italy.

The rapid generation of isocyanates in flow
Marcus Baumann, Ian R. Baxendale
Department of Chemistry, University of Durham

Continuous synthesis of pyridocarbazoles and initial photophysical and bioprobe characterization
D. Tyler McQuadeab, Alexander G. O’Brien, Markus Dörrb, Rajathees Rajaratnamc, Ursula Eisoldd, Bopanna Monnanda, Tomoya Nobutab, Hans-Gerd Löhmansröbben, Eric Meggersc, Peter H. Seebergerae
a Department for Biomolecular Systems, Max Planck Institute for Colloids and Interfaces
b Department of Chemistry and Biochemistry, Florida State University
c Fachbereich Chemie, Philipps-Universität Marburg
d Potsdam Institut für Chemie
e Freie Universität Berlin

Microwave heating and conventionally-heated continuous-flow processing as tools for performing cleaner palladium-catalyzed decarboxylative couplings using oxygen as the oxidant – a proof of principle study
Nicholas Leadbeater1, DiAndra M. Rudzinski1
1 Department of Chemistry, University of Connecticut.

Rapid discovery of a novel series of Abl kinase inhibitors by application of an integrated microfluidic synthesis and screening platform
Bimbisar Desai†, Karen Dixon†, Elizabeth Farrant†, Qixing Feng†, Karl R. Gibson‡, Willem P. van Hoorn§, James Mills‡, Trevor Morgan†, David M. Parry†, Manoi K. Ramjee‖, Christopher N. Selway⁎†, Gary J. Tarver†, Gavin Whitlock‡, and Adrian G. Wright†
† Cyclofluidic Ltd, Biopark, Broadwater Road, Welwyn Garden City, AL7 3AX, U.K.
‡ Sandexis LLP, Discovery Park, Sandwich, Kent CT13 9ND, U.K.
§ Accelrys Ltd, 334 Cambridge Science Park, Cambridge, CB4 0WN, U.K.

A multi-step continuous flow process for the N-demethylation of alkaloids
Yuji Nakano1, G. Paul Savage1, Simon Saubern1, Peter J. Scammells2, Anastasios Polyzos1
1 CSIRO Materials Science and Engineering, Victoria, Australia.
2 Medicinal Chemistry, Monash Institute of Pharmaceutical Sciences, Monash University, Victoria, Australia.

A two-stage continuous-flow synthesis of spirooxazine photochromic dyes
Mark York123, Adriana Edenharter1
1 CSIRO Materials Science and Engineering, Clayton, Vic. 3169, Australia.
2 Cooperative Research Centre for Polymers, Notting Hill, Vic. 3168, Australia.
3 Advanced Polymerik Pty Ltd, Notting Hill, Vic. 3168, Australia

Ozonolysis of some complex organic substrates in flow
M. D. Roydhouse1, W. B. Motherwell2, A. Constantinou2, A. Gavriliidis2, R. Wheeler3, Down3, Campbell3
1 Dept of Chemistry, University College London, UK
2 Dept of Chemical Engineering, University College London, UK
3 GSK, Stevenage, UK
Continuous synthesis and use of N-heterocyclic carbene copper(I) complexes from insoluble Cu2O
Suzanne M. Opalka 1, Jin Kyoon Park 3, Ashley R. Longstreet 2, D. Tyler McQuade 2
1 Department of Chemistry and Biochemistry, Florida State University, USA
2 Department of Chemistry and Chemical Biology, Cornell University, USA
3 Department of Chemistry and Chemical Institute for Functional Materials, Pusan National University, Korea

An expeditious synthesis of imatinib and analogues utilising flow chemistry methods
Mark D Hopkin, Ian Baxendale, Steven V Ley
Dept of Chemistry, University of Cambridge, UK

Continuous-flow generation of diazoesters and their direct use in S-H and P-H insertion reactions: synthesis of a-sulfanyl, a-sulfonyl and a-phosphono carboxylates
Hannah E. Bartrum ¹, David C. Blakemore ², Christopher J. Moody ¹, Christopher J. Hayes ¹
¹ School of Chemistry, University of Nottingham, UK
² Pfizer Neusentis, Cambridge, UK

Synthesis of carbohydrate-functionalised sequence-defined oligo (amidoamine)s by photochemical thiol-ene coupling in a continuous flow reactor
Felix Wojcik ¹,², Alexander G. O’Brien ¹,², Sebastian Götte ³, Peter H. Seeberger ², Laura Hartmann ²
¹ Department of Biomolecular Systems, Max Planck Institute of Colloids and Interfaces, Potsdam (Germany)
² Institute for Chemistry and Biochemistry, Freie Universität Berlin, Germany

Synthesis of RAFT block copolymers in a multi-stage continuous flow process inside a tubular reactor
Christian H. Hornung, Xuan Nguyen, Stella Kyi, John Chieffi, Simon Sautern
CSIRO Materials Science & Engineering, Victoria, Australia.

Preparation of arene chromium tricarbonyl complexes using continuous-flow processing: (η6-C6H5CH3)Cr(CO)3 as an example
Christopher (Xiang) Lee ¹, Elizabeth A. Pedrick ¹, Nicholas E. Leadbeater ¹,²
¹ Department of Chemistry, University of Connecticut, USA
² Department of Community Medicine and Health Care, University of Connecticut Health Center, USA

Visible light-initiated preparation of functionalized polystyrene monoliths for flow chemistry
Farhan R. Bou-Hamdan ¹, Kathleen Krüger ¹, Klaus Tauer ³, Tyler McQuade ¹,², Peter H. Seeberger ¹,²
¹ Max Planck Institute of Colloids and Interfaces Potsdam, Germany.
² Institute of Chemistry and Biochemistry, Freie Universität Berlin, Germany.
³ Department of Chemistry & Biochemistry, Florida State University, USA.

Integrated continuous processing and flow characterization of RAFT polymerization in tubular flow reactors
Christian H. Hornung, Xuan Nguyen, Geoff Dumday, Simon Sautern*
CSIRO Materials Science and Engineering, Victoria, Australia.
Synthesis of an H3 antagonist via sequential one-pot additions of a magnesium ate complex and an amine to a 1,4-ketoester followed by carbonyl-directed fluoride addition
Joel M. Hawkins, Pascal Dubé, Mark T. Maloney, Lulin Wei, Marcus Ewing, Stephen M. Chesnut, Joshua R. Denette, Brett M. Lillie, Rajappa Vaidyanathan
Pharmaceutical Sciences, Pfizer Inc., Groton, USA
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A "catch-react-release" method for the flow synthesis of 2-aminopyrimidines and preparation of the imatinib base
Richard J. Ingham, Elena Riva, Nikzad Nikbin, Ian R. Baxendale, and Steven V. Ley*
Innovative Technology Centre, University of Cambridge, U.K.
http://dx.doi.org/10.1021/ol301673q

Sustainable and efficient methodology for CLA synthesis and identification
Andres Moreno, María Moreno, María Victoria Gómez, Cristina Cebrian, Pilar Prieto, Antonio de la Hoz
Departamento de Química Inorgánica, Universidad de Castilla-La Mancha, Ciudad Real, Spain.
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Continuous synthesis and purification by direct coupling of a flow reactor with simulated moving-bed chromatography
Alexander G. O’Brien¹, Zoltán Horváth³, François Lévesque¹, Ju Weon Lee³, Andreas Seidel-Morgenstern³, Peter H. Seeberger¹,²
¹ Department for Biomolecular Systems, Max-Planck Institute for Colloids and Interfaces, Potsdam, Germany
² Freie Universität Berlin, Germany
³ Max-Planck Institute for Dynamics of Complex Technical Systems, Magdeburg, Germany
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A continuous flow process for the radical induced end group removal of RAFT polymers
Christian H. Hornung, Almar Postma, Simon Saubern, John Chiefari
CSIRO Materials Science & Engineering, Victoria, Australia
http://dx.doi.org/10.1002/mren.201200007

Continuous flow synthesis of secondary amides by tandem azidation-amidation of anilines
Christian Spiteri, John E. Moses*
School of Chemistry, University of Nottingham, UK
http://dx.doi.org/10.1055/s-0031-1291013

Asymmetric homogeneous hydrogenation in flow using a tube-in-tube reactor
Sean Newton¹, Steven V. Ley¹, Eva Casas Arcé², Damian M. Grainger²
¹ Department of Chemistry, University of Cambridge, U.K.
² Johnson Matthey Catalysis & Chiral Technology, Cambridge, U.K.
http://dx.doi.org/10.1002/adsc.201200073

Continuous flow hydrogenation using an on-demand gas delivery reactor
Michael A. Mercadante, Christopher B. Kelly, Christopher (Xiang) Lee, Nicholas E. Leadbeater*
Department of Chemistry, University of Connecticut, USA
http://dx.doi.org/10.1021/op300019w

An efficient method for the lipase-catalysed resolution and in-line purification of racemic flurbiprofen in a continuous-flow reactor
Lucia Tamborini¹, Diego Romano², Andrea Pinto¹, Arianna Bertolani¹,², Francesco Molinari², Paola Conti¹
¹ Dipartimento di Scienze Farmaceutiche ‘Pietro Pratesi’, Università degli Studi di Milano, Italy
² Dipartimento di Scienze e Tecnologie Alimentari e Microbiologiche, Università degli Studi di Milano, Italy
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Soluble polymer-supported flow synthesis: A green process for the preparation of heterocycles
Nicolò Prosa, Raphaël Turgis, Riccardo Piccardi, Marie-Christine Scherrman
Institut de Chimie Moléculaire et des Matériaux d’Orsay, Université Paris-Sud, France
http://dx.doi.org/10.1021/ ejoc.1101726
Continuous flow synthesis and scale-up of glycine- and taurine-conjugated bile salts
Francesco Venturoni, Antimo Gioiello, Roccaldo Sardella, Benedetto Natalini and Roberto Pellicciari
Dipartimento di Chimica e Tecnologia del Farmaco, Università di Perugia, Italy
http://dx.doi.org/10.1039/C2OB255528F

Development of a continuous flow scale-up approach of reflux inhibitor AZD6906
Tomas Gustafsson, Henrik Sörensen, Fritiof Pontén*
Medicinal Chemistry, AstraZeneca R&D Mölndal, Sweden
http://dx.doi.org/10.1021/op200340c

Phase-transfer catalysis under continuous flow conditions: an alternative approach to the biphasic liquid/liquid O-alkylation of phenols
Daniele De Zani², Matteo Colombo¹
¹NiKem Research 20021 via Zambeletti 25 Milan Baranzate, Italy
²Erregierre, San Paolo D’Argon Bergamo, Italy
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Continuous-flow synthesis of the anti-malaria drug artemisinin
François Lévesque¹, Peter H. Seeberger²,³
¹Department for Biomolecular Systems, Max-Planck Institute for Colloids and Interfaces, Potsdam, Germany
²Institute for Chemistry and Biochemistry, Freie Universität Berlin, Germany
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Continuous proline catalysis via leaching of solid proline
Suzanne M. Opalka², Ashley R. Longstreet² and D. Tyler McQuade³
¹Department of Chemistry and Chemical Biology, Cornell University, USA
²Department of Chemistry and Biochemistry, Florida State University, USA
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Scale-up of flow-assisted synthesis of C2-symmetric chiral PyBox ligands
Claudio Battilocchio¹3, Marcus Baumann¹, Ian R. Baxendale¹, Mariangela Biava³, Matthew O. Kitching³, Steven V. Ley¹, Rainer E. Martin*²
¹Department of Chemistry, University of Cambridge, UK
²F. Hoffmann-La Roche Ltd., Pharmaceuticals Division, Basel, Switzerland
³Department of Pharmaceutical Chemistry and Technology, Sapienza University of Rome, Italy
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Application of flow chemistry to the selective reduction of esters to aldehydes
Juan de M. Muñoz¹, Jesús Alcázar¹, Antonio de la Hoz², Angel Díaz-Ortíz²
¹Janssen, Toledo, Spain
²Facultad de Ciencias Químicas, Universidad de Castilla-La Mancha, Spain
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Synthesis of annulated pyridines by intramolecular inverse-electron-demand hetero-diels-alder reaction under superheated continuous flow conditions
Rainer E. Martin¹, Falk Morawitz¹, Christoph Kuratli¹, André M. Alker², Alexander I. Alanine¹
¹Chemistry Technology and Innovation, F. Hoffmann-La Roche Ltd, Basel, Switzerland
²Biostructure Section, F. Hoffmann-La Roche Ltd, Basel Switzerland
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The application of a monolithic triphenylphosphine reagent for conducting appel reactions in flow microreactors
Kimberley A. Roper¹, Heiko Lange¹, Anastasios Polyzos¹, Malcolm B. Berry², Ian R. Baxendale³ and Steven V. Ley¹
¹Innovative Technology Centre, University of Cambridge
²GlaxoSmithKline, Stevenage, UK
http://dx.doi.org/10.3762/bjoc.7.194

Continuous preparation of arylmagnesium reagents in flow with inline IR monitoring
Tobias Brodmann¹, Peter Koos¹, Albrecht Metzger¹, Paul Knochel*², Steven V. Ley*¹
¹Department of Chemistry, University of Cambridge, U.K.
New insights into cyclobutenone rearrangements: a total synthesis of the natural ROS-generating anti-cancer agent cribrostatin (ROS=reactive-oxygen species)
Mubina Mohamed¹, Théo P. Gonçalves¹, Richard J. Whitby¹, Helen F. Sneddon², David C. Harrowven¹
¹Dept of Chemistry, University of Southampton, UK
²GSK Medicines Research Centre, Stevenage, UK
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The oxygen-mediated synthesis of 1,3-butadiynes in continuous flow: using teflon AF-2400 to effect gas/liquid contact
Trine P. Petersen¹²³, Dr. Anastasios Polyzos¹⁴, Dr. Matthew O’Brien¹, Dr. Trond Ulven², Dr. Ian R. Baxendale¹, Prof. Steven V. Ley¹
¹Whiffen Laboratory, University of Cambridge, UK
²Department of Physics and Chemistry, University of Southern Denmark
³Discovery Chemistry and DMPK, H. Lundbeck A/S, Denmark
⁴CSIRO, Materials Science and Engineering, Australia
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The oxygen-mediated synthesis of 1,3-butadiynes in continuous flow: using teflon AF-2400 to effect gas/liquid contact
Trine P. Petersen¹²³, Dr. Anastasios Polyzos¹⁴, Dr. Matthew O’Brien¹, Dr. Trond Ulven², Dr. Ian R. Baxendale¹, Prof. Steven V. Ley¹
¹Whiffen Laboratory, University of Cambridge, UK
²Department of Physics and Chemistry, University of Southern Denmark
³Discovery Chemistry and DMPK, H. Lundbeck A/S, Denmark
⁴CSIRO, Materials Science and Engineering, Australia
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Continuous flow synthesis of conjugated polymers
Helga Seyler, David J. Jones, Andrew B. Holmes and Wallace W. H. Wong
Bio21 Institute, University of Melbourne, Australia
http://dx.doi.org/10.1039/C1CC14315H

Continuous-flow, palladium-catalysed alkoxy carbonylation reactions using a prototype reactor in which it is possible to load gas and heat simultaneously
Michael A. Mercadante and Nicholas E. Leadbeater
Department of Chemistry, University of Connecticut, USA
http://dx.doi.org/10.1039/C10805808H

Teflon AF-2400 mediated gas–liquid contact in continuous flow methoxycarbonylations and in-line FTIR measurement of
CO concentration
Peter Koos, Ulrike Gross, Anastasios Polyzos, Matthew O'Brien, Ian Baxendale and Steven V. Ley

Innovative Technology Centre, University of Cambridge, UK

http://dx.doi.org/10.1039/C1OB06017A

Rapid access to α-alkoxy and α-amino acid derivatives through safe continuous-flow generation of diazoesters
Hannah E. Bartrum, David C. Blakemore, Christopher J. Moody, Christopher J. Hayes

2School of Chemistry, University of Nottingham, UK
2Pfizer Global Research and Development, Sandwich, UK

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Continuous flow photolysis of aryl azides: preparation of 3H-azepinones
Farhan R. Bou-Hamdan, François Lévesque, Alexander G. O'Brien, Peter H. Seeberger

Max Planck Institute of Colloids and Interfaces, Berlin, Germany

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Ozonolysis in flow using capillary reactors
M. D. Roydhouse, A. Ghaini, A. Constantinou, A. Cantu-Perez, W. B. Motherwell, and A. Gavrilidis

1Department of Chemistry, University College London, UK
2Department of Chemical Engineering, University College London, UK

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Nitrile oxide 1,3-dipolar cycloaddition by dehydration of nitromethane derivatives under continuous flow conditions
Malte Brasholz, Simon Saubern and G. Paul Savage

CSIRO Materials Science and Engineering, Victoria, Australia.

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Nitration chemistry in continuous flow using fuming nitric acid in a commercially available flow reactor
Cara E. Brocklehurst, Hansjörg Lehmann, and Luigi La Vecchia

Global Discovery Chemistry, Novartis, Basel, Switzerland

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Synthesis of a drug-like focused library of trisubstituted pyrrolidines using integrated flow chemistry and batch methods
Marcus Baumann, Ian R. Baxendale, Steven V. Ley, Christoph Kuratli, Rainer E. Martin, Josef Schneider

1Innovative Technology Centre, University of Cambridge, U.K.
2F. Hoffmann-La Roche Ltd., Basel, Switzerland.

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Synthesis of (+)-dumetorine and congeners by using flow chemistry technologies
Elena Riva, Anna Rencurosi, Stefania Gagliardi, Daniele Passarella, Marisa Martinelli

1NiKem Research S.r.l., Milan, Italy
2Università degli Studi di Milano, Milan, Italy

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Preparation of fluoxetine by multiple flow processing steps
Batoul Ahmed-Omer, Adam J. Sanderson

Eli Lilly and Co. Ltd., Lilly Research Centre, UK.

http://dx.doi.org/10.1039/C0OB00906G

Oxidation reactions in segmented and continuous flow chemical processing using an N-(tert-Butyl) phenylsulfinimidoyl chloride monolith
Paul P. Lange, Matthew J. Capener, Alexander X. Jones, Catherine J. Smith, Nikzad Nikbin, Ian R. Baxendale, Steven V. Ley

Innovative Technology Centre, University of Cambridge, UK

http://dx.doi.org/10.1055/s-0030-1259923

Decarboxylative biaryl synthesis in a continuous flow reactor
Paul P. Lange, Lukas J. Gooßen, Philip Podmore, Toby Underwood, Nunzio Sciammetta
Diastereoselective chain-elongation reactions using microreactors for applications in complex molecule assembly
Catherine F. Carter¹, Heiko Lange¹, Daiki Sakai², Ian R. Baxendale¹, Steven V. Ley¹
¹ Innovative Technology Centre, University of Cambridge, UK, CB2 1EW, UK
² Mitsubishi Tanabe Pharma Corporation, Yokohama, Japan

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One-flow, multistep synthesis of nucleosides by Brønsted acid-catalyzed glycosylation
Adam Sniady, Matthew W. Bedore, Timothy F. Jamison
Novartis Institutes for Biomedical Research Inc., Cambridge, USA
MIT, Cambridge, USA

http://dx.doi.org/10.1002/chem.201003148

An integrated flow and batch-based approach for the synthesis of o-methyl siphonazole
Marcus Baumann, Ian R. Baxendale, Malte Brasholz, John J. Hayward, Steven V. Ley, Nikzad Nikbin
Innovative Technology Centre, Cambridge, UK

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Flow synthesis of organic azides and the multistep synthesis of imines and amines using a new monolithic triphenylphosphine reagent
Catherine J. Smith, Christopher D. Smith, Nikzad Nikbin, Steven V. Ley, Ian R. Baxendale
Innovative Technology Centre, Cambridge, UK

http://dx.doi.org/10.1039/C0OB00813C

A fully automated, multistep flow synthesis of 5-amino-4-cyano-1,2,3-triazoles
Catherine J. Smith, Nikzad Nikbin, Steven V. Ley, Heiko Lange, Ian R. Baxendale
Innovative Technology Centre, Cambridge, UK

http://dx.doi.org/10.1039/C0OB00815J

A general, one-step synthesis of substituted indazoles using a flow reactor
Rob C. Wheeler, Emma Baxter, Ian B. Campbell, Simon J. F. Macdonald
GlaxoSmithKline, Stevenage, UK

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Continuous flow synthesis of fullerene derivatives
Helga Seyler, Wallace Wing Ho Wong, Dave Jones, Andrew B. Holmes
University Of Melbourne, Australia

http://dx.doi.org/10.1021/jo2001879

Controlled RAFT polymerization in a continuous flow microreactor
Christian H. Hornung , Carlos Guerrero-Sanchez, Malte Brasholz, Simon Saubern, John Chiefari, Graeme Moad, Ezio Rizzardo, San H. Thang
CSIRO Materials Science & Engineering, Victoria, Australia

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Highly efficient dehydration of carbohydrates to 5-(chloromethyl)furfural (CMF), 5-(hydroxymethyl)furfural (HMF) and levulinic acid by biphasic continuous flow processing
Malte Brasholz, Karin von Känel, Christian H. Hornung, Simon Saubern, John Tsanaktsidis
CSIRO Materials Science & Engineering, Victoria, Australia

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Continuous flow thermolysis of azidoacrylates for the synthesis of heterocycles and pharmaceutical intermediates
Alexander G. O’Brien, François Lévesque and Peter H. Seeberger
Max Planck Institute of Colloids and Interfaces, Potsdam, Germany
Safe and reliable synthesis of diazoketones and quinoxalines in a continuous flow reactor
Laetitia J. Martin¹, Andreas L. Marzinik¹, Steven V. Ley², Ian R. Baxendale²
¹ Novartis Institute for BioMedical Research, Basel, Switzerland
² Innovative Technology Centre, Cambridge, UK

The continuous-flow synthesis of carboxylic acids using CO2 in a tube-in-tube gas permeable membrane reactor
Anastasios Polyzos, Matthew O'Brien, Trine P. Petersen, Ian R. Baxendale, Steven V. Ley
Innovative Technology Centre, Cambridge, UK

A breakthrough method for the accurate addition of reagents in multi-step segmented flow processing
Heiko Lange¹, Catherine F. Carter¹, Mark D. Hopkin¹, Adrian Burke², Jon G. Goode², Ian R. Baxendale¹, Steven V. Ley¹
¹ Innovative Technology Centre, University of Cambridge, UK
² Mettler-Toledo AutoChem, UK

Continuous flow coupling and decarboxylation reactions promoted by copper tubing
Yun Zhang¹, Timothy F. Jamison², Sejal Patel¹, Nello Mainolfi²
¹ Novartis Institutes for Biomedical Research Inc., Cambridge, USA
² MIT, Cambridge, USA

Synthesis of β-Keto esters in-flow and rapid access to substituted pyrimidines
Hannah E. Bartrum¹, David C. Blakemore², Christopher J. Moody³, and Christopher J. Hayes¹
¹ School of Chemistry, University of Nottingham, UK
² Pfizer Global Research and Development, Sandwich, UK

Synthesis of 3-aryl/benzyl-4,5,6,6a-tetrahydro-3aH-pyrrolo[3,4-d]isoxazole derivatives: a comparison between conventional, microwave-assisted and flow-based methodologies
Sabrina Castellano¹, Lucia Tamborini², Monica Viviano³, Andrea Pinto², Gianluca Sbardella¹, and Paola Conti²
¹ Dipartimento di Scienze Farmaceutiche, Universit degli Studi di Salerno, Italy
² Dipartimento di Scienze Farmaceutiche “Pietro Pratesi”, Universit degli Studi di Milano, Italy

Flow synthesis of tricyclic spiropiperidines as building blocks for the histrionicotoxin family of alkaloids
Malte Brasholz², Brian A. Johnson³, James M. Macdonald¹, Anastasios Polyzos¹, John Tsanaktsidis¹, Simon Saubern¹, Andrew B. Holmes³,² and John H. Ryan³,¹
¹ CSIRO Molecular and Health Technologies, Victoria, Australia
² School of Chemistry, Bio 21 Institute, University of Melbourne, Victoria, Australia

A continuous flow process using a sequence of microreactors with in-line IR analysis for the preparation of N,N-diethyl-4-(3-fluorophenylpiperidin-4-ylidenemethyl)benzamide as a potent and highly selective δ-opioid receptor agonist
Zizheng Qian, Ian R. Baxendale, Steven V. Ley
Innovative Technology Centre, University of Cambridge

Preparation of arylsulfonyl chlorides by chlorosulfonylation of in situ generated diazonium salts using a continuous flow reactor
Laia Malet-Sanz, Julia Madrzak, Steven V.Ley and Ian R.Baxendale
Innovative Technology Centre, University of Cambridge
KMnO₄-mediated oxidation as a continuous flow process
Jorg Sedelmeier, Steven V. Ley, Ian R. Baxendale and Marcus Baumann
Innovative Technology Centre, University of Cambridge

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Synthesis of highly substituted nitropyrrrolidines, nitropyrrrolizines and nitropyrrroles via multicomponent-multistep sequences within a flow reactor
Marcus Baumann, Ian R. Baxendale, Andreas Kirschning, Steven V. Ley,* and Jens Wegner
Department of Chemistry, University of Cambridge

http://dx.doi.org/10.3987/COM-10-S(E)77

A gram-scale batch and flow total synthesis of perhydrohistrionicotin
Dr. Malte Brasholz¹, Dr. James M. Macdonald¹, Dr. Simon Sauberner², Dr. John H. Ryan¹, Prof. Dr. Andrew B. Holmes¹, ²
¹CSIRO Molecular and Health Technologies, Victoria, Australia
²School of Chemistry, Bio 21 Institute, University of Melbourne, Victoria, Australia

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Effect of phase transfer chemistry, segmented fluid flow, and sonication on the synthesis of cinnamic esters
Mauro Riccaboni, Elena La Porta, Andrea Martorana and Roberta Attanasio
Department of Medicinal Chemistry, NiKem Research Srl, Milan, Italy

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Continuous flow palladium (II)-catalyzed oxidative heck reactions with arylboronic acids
Luke R. Odell¹, Jonas Lindh¹, Tomas Gustafsson², Mats Larhed¹
¹Organic Pharmaceutical Chemistry, Department of MedChem, Uppsala University, Sweden
²AstraZeneca R&D Mölndal, Sweden

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Reaction of Grignard reagents with carbonyl compounds under continuous flow conditions
E. Riva¹, S. Gagliardi², M. Martinelli², D. Passarella³, D. Vigo² and A. Rencurosi²
¹Dipartimento di Chimica Organica e Industriale, Università degli Studi di Milano, Via Venezian 21, 20133 Milano, Italy
²NiKem Research S.r.l., Milan, Italy

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[3+2] Dipolar cycloadditions of an unstabilised azomethine ylide under continuous flow conditions
Mark Grafton, Andrew C. Mansfield and M. Jonathan Fray
Pfizer Global Research and Development, Sandwich, UK

http://dx.doi.org/10.1016/j.tetlet.2009.12.071

A highly efficient flow reactor process for the synthesis of N-Boc-3,4-dehydro-l-proline methyl ester
Lucia Tamborini, Paola Conti, Andrea Pinto and Carlo De Micheli
Dipartimento di Scienze Farmaceutiche ‘Pietro Pratesi’, Università degli Studi di Milano, Italy

http://dx.doi.org/10.1016/j.tetasy.2009.12.023

Efficient continuous flow synthesis of hydroxamic acids and suberoylanilide hydroxamic acid preparation
E. Riva¹, S. Gagliardi², Caterina Mazzoni², M. Martinelli², D. Passarella³, D. Vigo² and A. Rencurosi²
¹Dipartimento di Chimica Organica e Industriale, Università degli Studi di Milano, Via Venezian 21, 20133 Milano, Italy
²NiKem Research S.r.l., Milan, Italy

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The application of flow microreactors to the preparation of a family of casein kinase I inhibitors
Francesco Venturoni, Nikzad Nikbin, Steven V. Ley and Ian R. Baxendale
Innovative Technology Centre, Cambridge, UK

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Multi-step synthesis by using modular flow reactors: the preparation of YneOnes and their use in heterocycle synthesis
Ian R. Baxendale¹, Søren C. Schou², Jörg Sedelmeier³, Steven V. Ley¹
¹ITC, Department of Chemistry, University of Cambridge

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A flow process using microreactors for the preparation of a quinolone derivative as a potent 5HT\textsubscript{1B} antagonist
Zizheng Qian, Ian R. Baxendale, Steven V. Ley
Innovative Technology Centre, Cambridge, UK
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A flow-based synthesis of Imatinib: the API of Gleevec
Mark D. Hopkin, Ian R. Baxendale and Steven V. Ley
Innovative Technology Centre, Cambridge, UK
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ReactIR flow cell: a new analytical tool for continuous flow chemical processing
Catherine F. Carter\textsuperscript{1}, Heiko Lange\textsuperscript{1}, Steven V. Ley\textsuperscript{1}, Ian R. Baxendale\textsuperscript{1}, Brian Wittkamp\textsuperscript{2}, Jon G. Goode\textsuperscript{1} and Nigel L. Gaunt\textsuperscript{3}
\textsuperscript{1}Innovative Technology Centre, Department of Chemistry, University of Cambridge
\textsuperscript{2}Mettler-Toledo AutoChem, USA
\textsuperscript{3}Mettler-Toledo AutoChem, UK
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A safe and reliable procedure for the iododeamination of aromatic and heteroaromatic amines in a continuous flow reactor
Laia Malet-Sanz, Julia Madrzak, Rhian S. Holvey and Toby Underwood
Research Chemistry, Pfizer Global Research and Development, Sandwich, UK
http://dx.doi.org/10.1016/j.tetlet.2009.10.007

Development of fluorination methods using continuous-flow microreactors
Marcus Baumann, Ian R. Baxendale, Laetitia J. Martin, Steven V. Ley
Innovative Technology Centre, Cambridge, UK
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Multistep synthesis using modular flow reactors: Bestmann-Ohira reagent for the formation of alkynes and triazoles
Ian R. Baxendale\textsuperscript{1}, Steven V. Ley\textsuperscript{1}, Andrew C. Mansfield\textsuperscript{2}, Christopher D. Smith\textsuperscript{1}
\textsuperscript{1}ITC, Department of Chemistry, University of Cambridge,
\textsuperscript{2}Pfizer Global R&D Research Centre, Sandwich, (UK)
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A bifurcated pathway to thiazoles and imidazoles using a modular flow microreactor
Ian R. Baxendale, Steven V. Ley, Christopher D. Smith, Lucia Tamborini and Ana-Florina Voica
Innovative Technology Centre, Cambridge, UK
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The use of diethylaminosulfur trifluoride (DAST) for fluorination in a continuous-flow microreactor
Marcus Baumann, Ian R. Baxendale, Steven V. Ley
Innovative Technology Centre, Cambridge, UK
http://dx.doi.org/10.1055/s-2008-1078026

A modular flow reactor for performing Curtius rearrangements as a continuous flow process
Marcus Baumann\textsuperscript{1}, Ian R. Baxendale\textsuperscript{1}, Steven V. Ley\textsuperscript{1}, Nikzad Nikbin\textsuperscript{1}, Christopher D. Smith\textsuperscript{1} and Jason P. Tierney\textsuperscript{2}
\textsuperscript{1}Innovative Technology Centre, Department of Chemistry, University of Cambridge
\textsuperscript{2}Neurology Lead Discovery Chemistry, GlaxoSmithKline R and D, Harlow, UK
http://dx.doi.org/10.1039/b801631n

[3 + 2] Cycloaddition of acetylenes with azides to give 1,4-disubstituted 1,2,3-triazoles in a modular flow reactor
Christopher D. Smith\textsuperscript{1}, Ian R. Baxendale\textsuperscript{1}, Steve Lanners\textsuperscript{1}, John J. Hayward\textsuperscript{1}, Steven V. Ley\textsuperscript{1}, Stephen C. Smith\textsuperscript{2}
\textsuperscript{1}Innovative Technology Centre, University of Cambridge, UK
\textsuperscript{2}Syngenta, Jealots Hill International Research Centre, UK
http://dx.doi.org/10.1039/b702995k
Azide monoliths as convenient flow reactors for efficient Curtius rearrangement reactions
Marcus Baumann, Ian R. Baxendale, Steven V. Ley, Nikzad Nikbin and Christopher D. Smith
Innovative Technology Centre, Cambridge, UK
http://dx.doi.org/10.1039/b801634h

A microcapillary flow disc reactor for organic synthesis
Christian H. Hornung¹, Malcolm R. Mackley², Ian R. Baxendale¹, Steven V. Ley¹
¹ Department of Chemistry, University of Cambridge
² Department of Chemical Engineering, University of Cambridge
http://dx.doi.org/10.1021/op700015f

A flow reactor process for the synthesis of peptides utilizing immobilized reagents, scavengers and catch and release protocols
Ian R. Baxendale, Steven V. Ley, Christopher D. Smith and Geoffrey K. Tranmer
Innovative Technology Centre, Cambridge, UK
http://dx.doi.org/10.1039/b612197g

Fully automated flow-through synthesis of secondary sulfonamides in a binary reactor system
Charlotte M. Griffiths-Jones, Mark D. Hopkin, Daniel Jönsson, Steven V. Ley, David J. Tapolczay, Emma Vickerstaffe, and Mark Ladlow
GlaxoSmithKline Cambridge Technology Centre, Cambridge
http://dx.doi.org/10.1021/cc060152b

Fully automated continuous flow synthesis of 4,5-disubstituted oxazoles
Marcus Baumann, Ian R. Baxendale, Steven V. Ley, Christopher D. Smith, and Geoffrey K. Tranmer
Innovative Technology Center, University of Cambridge
http://dx.doi.org/10.1021/ol061975c

Continuous flow ligand-free heck reactions using monolithic Pd [0] nanoparticles
Nikzad Nikbin, Mark Ladlow, and Steven V. Ley
Department of Chemistry, University of Cambridge, UK
http://dx.doi.org/10.1021/op7000436

Tagged phosphine reagents to assist reaction work-up by phase-switched scavenging using a modular flow reactor
Christopher D. Smith, Ian Baxendale, Geoffrey Tranmer, Marcus Baumann, Stephen Smith, Russell Lewthwaite and Steven V. Ley
Department of Chemistry, University of Cambridge, UK
http://dx.doi.org/10.1039/b703033a

A flow process for the multi-step synthesis of the alkaloid natural product oxomaritidine: a new paradigm for molecular assembly
Ian R. Baxendale, Jon Deeley, Charlotte M. Griffiths-Jones, Steven V. Ley, Steen Saaby and Geoffrey K. Tranmer
Innovative Technology Centre, University of Cambridge
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