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« Organometallic : Materials & Catalysis»

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CURRENT POSITION

- Since Sept. 2010 Scientific Consultant – Omega Cat System SARL
Since Oct. 2010 CNRS Research Director 2nd class – UMR 6226 Institute of Chemical Sciences of Rennes
Oct. 2001 – 2010 CNRS Research Fellow – UMR CNRS 6226 Institute of Chemical Sciences of Rennes

EDUCATION

- **Habilitation** (2007) – Rennes 1 university
- **Post-doctoral training** (1999-2001) Montréal University (Supervisor: Pr. S. HANESSIAN)
- **PhD in Organic Chemistry** (1996-1999) Paris XI-Orsay University (Supervisor: Pr. Y. LANGLOIS)

PUBLICATIONS & PATENTS

71 publications; 19 Patents and 4 Chapters - h index = 27 (Web of Sci. 2015)

RESEARCH TOPICS: ORGANOMETALLIC CHEMISTRY

- Design of homogeneous & heterogeneous Ru-complexes for Olefin Metathesis
- Development of NHC-based Transition Metal complexes (Cu, Au, Pd, Ag, Ti, Rh, Ir)
- Asymmetric Catalyzed Cross-Coupling (Conjugate Addition & Allylic Alkylation)

SELECTED PUBLICATIONS

1. "Multicomponent Synthesis of (a)chiral Unsymmetrical Unsaturated N-Heterocyclic Carbene (U₂-NHC) Precursors; and Their Related Transition-Metal Complexes" P. Queval, C. Jahier, M. Rouen, I. Artur, J.-C. Legeay, L. Falivene, L. Toupet, C. Crévisy, L. Cavallo, O. Baslé, M. Mauduit, *Angew. Chem. Int. Ed.* **2013**, 52, 14103-14107.
2. "Bidentate Hydroxyalkyl-NHC Ligands for Copper-Catalyzed Asymmetric Allylic Substitution of Allyl Phosphates with Grignard Reagents." M. Magrez, Y. Le Guen, O. Baslé, C. Crévisy, M. Mauduit *Chem. Eur. J.*, **2013**, 19, 1199. (Highlighted in *Synfacts* **2013**, 9, 427)
3. "Synergic Effects Between N-Heterocyclic Carbene and Chelating-Benzylidene-Ether Ligands Towards the Initiation Step of Hoveyda-Grubbs Type Ru-Complexes" D. J. Nelson, P. Queval, M. Rouen, M. Magrez, F. Caijo, E. Borré, I. Laurent, C. Crévisy, O. Baslé, M. Mauduit, J. M. Percy *ACS Catalysis*, **2013**, 3, 259-264
4. "Enantioselective 1,6-Conjugate Addition of Dialkylzinc Reagents to Acyclic Dienones Catalyzed by Cu-DiPPAM Complex. Extension to asymmetric sequential 1,6/1,4 Conjugate Addition" M. Magrez-Chiquet, M. S. T. Morin, J. Wencel-Delord, S. Drissi Amraoui, O. Baslé, A. Alexakis, C. Crévisy, M. Mauduit *Chem. Eur. J.*, **2013**, 19, 13663-13667. (Highlighted in *Synfacts* **2014**, 10, 42)
5. "Biopolymer Supported Ionic Liquid Phase (bio-SILP) Ruthenium Catalyst for Olefin Metathesis" N. Clousier, A. Filippi, E. Borré, E. Guibal, C. Crévisy, M. Mauduit, I. Dez, A.-C. Gaumont *Chem. Sus. Chem.*, **2014**, 7, 1040-1043.
6. "Multicomponent Synthesis of Chiral Bidentate Unsymmetrical Unsaturated N-Heterocyclic Carbenes: Copper-Catalyzed Asymmetric C-C Bond Formation" C. Jahier, M. S. T. Morin, P. Querard, P. Queval, M. Rouen, I. Artur, L. Toupet, C. Crévisy, L. Cavallo, O. Baslé, M. Mauduit *Chem. Eur. J.*, **2015**, 21, 993-997. (Highlighted in *Synfacts* **2015**, 11, 159)

RESEARCH PROGRAM COORDINATOR

Coordinator of the ANR «CFLOW-OM 2012-2015» project (8 partners) & ANR «SCATE 2012-2016» project (5 partners)

AWARDS

French Chemical Society AWARDS 2013 – Industrial Division
Distinguished Junior Member of the French Chemical Society 2013
CNRS Award of Scientific Excellence 2010 and 2014

RECENT PUBLICATIONS



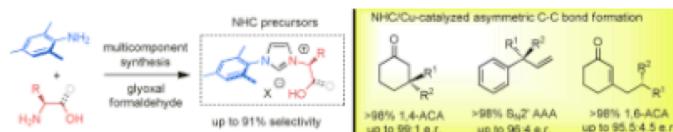
January 12, 2015
Volume 21, Issue 3
Pages 917–1369
Previous Issue | Ne

Highlighted in SYNFACT
2015, 11, 159

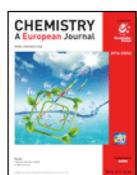
Multicomponent Synthesis of Chiral Bidentate Unsymmetrical Unsaturated N-Heterocyclic Carbenes: Copper-Catalyzed Asymmetric C—C Bond Formation (pages 993–997)

Dr. Claire Jahier-Diallo, Dr. Marie S. T. Morin, Dr. Pierre Queval, Dr. Mathieu Rouen, Isabelle Artur, Pierre Querard, Dr. Loïc Toupet, Dr. Christophe Crévisy, Dr. Olivier Baslé and Dr. Marc Mauduit

Article first published online: 24 NOV 2014 | DOI: 10.1002/chem.201405765



Bifunctional ligands: A multicomponent strategy was applied to the synthesis of chiral bidentate unsaturated hydroxyalkyl- and carboxyalkyl-*N*-heterocyclic carbene (NHC) precursors. The newly developed low-cost chiral bifunctional ligands were evaluated in copper-catalyzed asymmetric conjugated addition (ACA) and asymmetric allylic alkylation (AAA; see scheme).

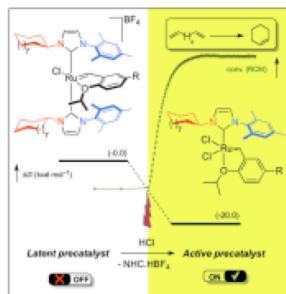


October 13, 2014
Volume 20, Issue 42
Pages 13409–13814
Previous Issue | Ne

Cationic Bis-N-Heterocyclic Carbene (NHC) Ruthenium Complex: Structure and Application as Latent Catalyst in Olefin Metathesis (pages 13716–13721)

Dr. Mathieu Rouen, Dr. Pierre Queval, Laura Falivene, Jessica Allard, Loïc Toupet, Dr. Christophe Crévisy, Frédéric Caijo, Dr. Olivier Baslé, Prof. Luigi Cavallo and Dr. Marc Mauduit

Article first published online: 11 SEP 2014 | DOI: 10.1002/chem.201403934



Double U: A cationic bis-*N*-heterocyclic carbene (NHC) benzylidene ether based Ru complex was prepared by double incorporation of the unsymmetrical unsaturated NHC ligand (see scheme). Characterization of key synthetic intermediates along with theoretical calculations allowed us to understand the mechanism of the cationization step. Finally, the newly developed cationic complex displayed interesting latent behavior during ring-closing metathesis, which could be “switched on” under acidic conditions.



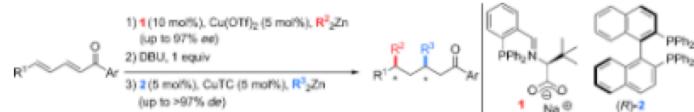
October 4, 2013
Volume 19, Issue 41
Pages 13605–13986
Previous Issue | Ne

Highlighted in SYNFACT
2014, 10, 42

Enantioselective 1,6-Conjugate Addition of Dialkylzinc Reagents to Acyclic Dienones Catalyzed by Cu-DiPPAM Complex—Extension to Asymmetric Sequential 1,6/1,4-Conjugate Addition (pages 13663–13667)

Magaly Magrez-Chiquet, Dr. Marie S. T. Morin, Dr. Joanna Wencel-Delord, Sammy Drissi Amraoui, Dr. Olivier Baslé, Prof. Alexandre Alexakis, Dr. Christophe Crévisy and Dr. Marc Mauduit

Article first published online: 13 SEP 2013 | DOI: 10.1002/chem.201302649



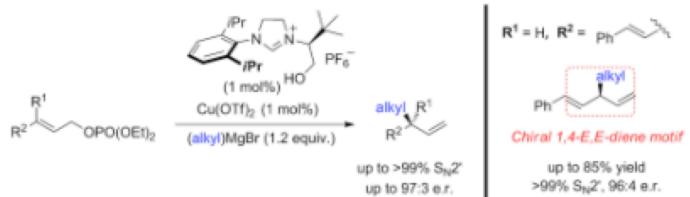
C—C coupling: DiPPAM **1** and BINAP **2** ligands led to divergent behaviors in the asymmetric conjugate addition (ACA) of dialkylzinc reagents to linear arylidienones, which were applied to the development of a highly selective sequential asymmetric 1,6/1,4-ACA process (see scheme; Tf = triflate, DBU = 1,8-diazabicyclo[5.4.0]undec-7-ene).



January 21, 2013
Volume 19, Issue 4
Pages 1137–1510
[Previous Issue](#) |

Highlighted in SYNFACT
2013, 9, 427

Bidentate Hydroxyalkyl NHC Ligands for the Copper-Catalyzed Asymmetric Allylic Substitution of Allyl Phosphates with Grignard Reagents (pages 1199–1203)
Magaly Magrez, Yann Le Guen, Dr. Olivier Baslé, Dr. Christophe Crévisy and Dr. Marc Mauduit
Article first published online: 19 DEC 2012 | DOI: 10.1002/chem.201203969



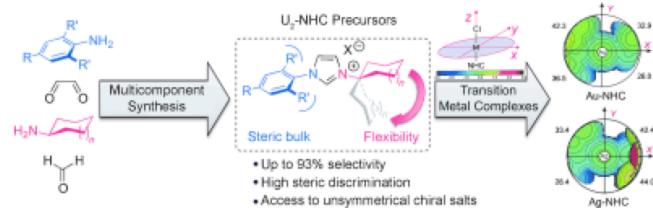
Demonstrating their potential: Bidentate alkoxy NHC ligands have been used in the copper-catalyzed asymmetric allylic alkylation of allyl phosphates with Grignard reagents (see scheme). The method provides access to tertiary and quaternary chiral centers with high regio- and enantioselectivity. The system is also applied to the synthesis of chiral E,E-dienes, a key structural motif prevalent in natural products.



December 23, 2013
Volume 52, Issue 52
Pages 13825–14251
[Previous Issue](#) |

Multicomponent Synthesis of Unsymmetrical Unsaturated N-Heterocyclic Carbene Precursors and Their Related Transition-Metal Complexes (pages 14103–14107)

Dr. Pierre Queval, Dr. Claire Jahier, Dr. Mathieu Rouen, Isabelle Artur, Dr. Jean-Christophe Legeay, Laura Falivene, Loïc Toupet, Dr. Christophe Crévisy, Prof. Luigi Cavallo, Dr. Olivier Baslé and Dr. Marc Mauduit
Article first published online: 4 DEC 2013 | DOI: 10.1002/anie.201308873



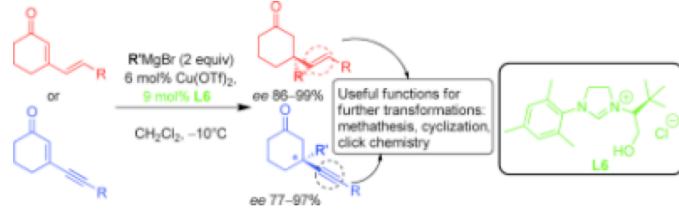
A low-cost, modular, and easily scalable multicomponent procedure, affording access to a wide range of (a)chiral unsymmetrical 1-aryl-3-cycloalkyl-imidazolium salts in good yields and excellent selectivities, is disclosed. Electronic and steric properties of the corresponding unsymmetrical unsaturated N-heterocyclic carbene (U₂-NHC) ligands were evaluated and evidenced strong electron-donor ability, high steric discrimination, and modular steric demand.



July 9, 2012
Volume 18, Issue 28
Pages 8549–8847
[Previous Issue](#) |

Formation of Quaternary Stereogenic Centers by NHC–Cu-Catalyzed Asymmetric Conjugate Addition Reactions with Grignard Reagents on Polyconjugated Cyclic Enones (pages 8731–8747)

Mathieu Tissot, Daniele Poggiali, Dr. Hélène Hénon, Daniel Müller, Dr. Laure Guénée, Dr. Marc Mauduit and Prof. Alexandre Alexakis
Article first published online: 11 JUN 2012 | DOI: 10.1002/chem.201200502



Along came poly: The copper-catalyzed conjugate addition of

Grignard reagents to polyconjugated cyclic enones allows for the formation of all-carbon chiral quaternary centers (see scheme). An N-heterocyclic carbene (NHC) acts as an efficient chiral ligand for this transformation. High enantioselectivities (up to 99 %) and regioselectivities (1,4 selectivity) were obtained for a broad range of substrates and nucleophiles.

Very Important Publication