

# JOC

*The Journal of Organic Chemistry*

AUGUST 15, 2014 VOLUME 79, NUMBER 16 [pubs.acs.org/joc](http://pubs.acs.org/joc)



**ON THE COVER:** Flavones and chromones are important ingredients of our diet, and many are efficient antioxidants. It was of interest to develop a short and general route for the synthesis of fluoroflavones and fluorochromones. Elemental fluorine was found to be an excellent tool for this purpose. See Rozen and co-workers, p 7261.

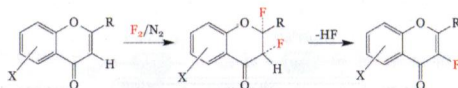
## Articles

7261 **S**

dx.doi.org/10.1021/jo5009542

### Fluorination of Flavones and Chromones Using Elemental Fluorine

Inna Vints and Shlomo Rozen\*



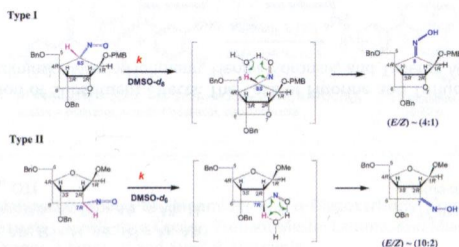
X = H, Br, Cl, OAc; R = Ph, H

7266 **S**

dx.doi.org/10.1021/jo500266k

### Distal Two-Bond versus Three-Bond Electronegative Oxo-Substituent Effect Controls the Kinetics and Thermodynamics of the Conversion of a C-Nitroso Function to the Corresponding Oxime in the Conformationally Locked Pentofuranose (Bicyclo[2.2.1]heptane) System

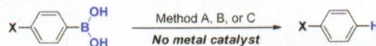
Mansoureh Karimiahmadabadi, Sayeh Erfan, Andras Földesi, and Jyoti Chattopadhyaya\*



### Metal-Free Protodeboronation of Electron-Rich Arene Boronic Acids and Its Application to *ortho*-Functionalization of Electron-Rich Arenes Using a Boronic Acid as a Blocking Group

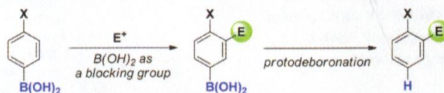
Su-Jin Ahn, Chun-Young Lee, Nak-Kyoon Kim, and Cheol-Hong Cheon\*

Metal-free thermal protodeboronation of electron-rich arene boronic acids



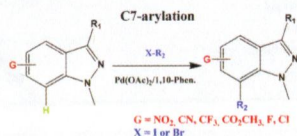
X = NR<sub>2</sub>, and OH      Method A: H<sub>2</sub>O, DMSO, 100 °C  
 X = NHAc, and OR      Method B: AcOH, dioxane, 100 °C  
 X = NHAc, and OH      Method C: K<sub>2</sub>CO<sub>3</sub>, DMSO, 100 °C

*ortho*-Functionalization of electron-rich arenes

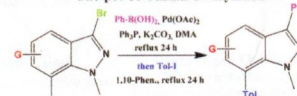


### Palladium-Catalyzed Direct C7-Arylation of Substituted Indazoles

Mohammed Naas, Saïd El Kazzouli,\* El Mokhtar Essassi, Mosto Bousmina, and Gérald Guillaumet\*

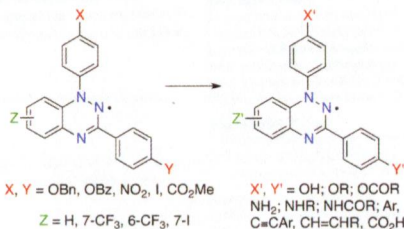


One-pot C3 Suzuki/C7 arylation



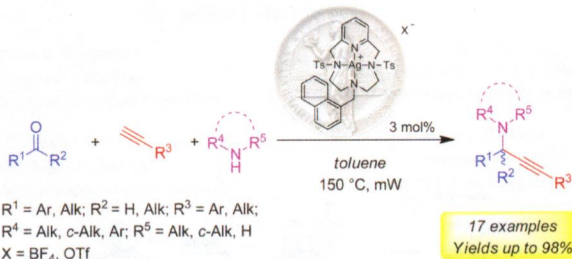
### Functional Group Transformations in Derivatives of 1,4-Dihydrobenzo[1,2,4]triazinyl Radical

Agnieszka Bodzioch, Minyan Zheng, Piotr Kaszyński,\* and Greta Utecht



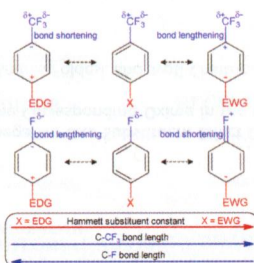
[Silver(I)(Pyridine-Containing Ligand)] Complexes As Unusual Catalysts for  $A^3$ -Coupling Reactions

Michael Trose, Monica Dell'Acqua, Tommaso Pedrazzini, Valentina Pirovano, Emma Gallo, Elisabetta Rossi, Alessandro Caselli,\* and Giorgio Abbiati\*

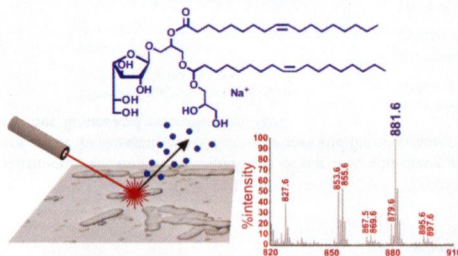


## Toward a Physical Interpretation of Substituent Effects: The Case of Fluorine and Trifluoromethyl Groups

Tomasz Siodła,\* Wojciech P. Ozimiński, Marcin Hoffmann, Henryk Korniak, and Tadeusz M. Krygowski\*

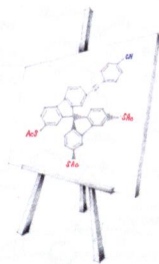
Discovery of Lipids from *B. longum* subsp. *infantis* using Whole Cell MALDI Analysis

Mattie S. M. Timmer,\* Janelle Sauvageau, Amy J. Foster, Jason Ryan, Kirill Lagutin, Odette Shaw, Jacquie L. Harper, Ian M. Sims, and Bridget L. Stocker\*



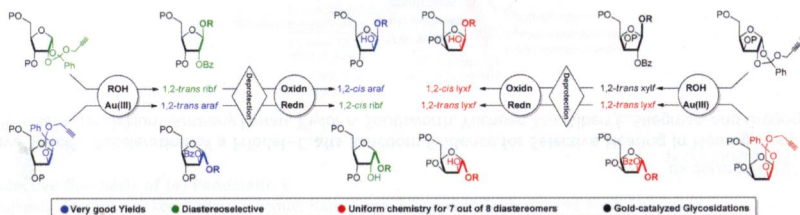
### Synthesis of Molecular Tripods Based on a Rigid 9,9'-Spirobifluorene Scaffold

Michal Valášek, Kevin Edelmann, Lukas Gerhard, Olaf Fuhr, Maya Lukas, and Marcel Mayor\*



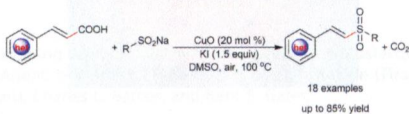
### Gold(III)-Catalyzed Glycosidations for 1,2-*trans* and 1,2-*cis* Furanosides

Shivaji A. Thadke, Bijoyananda Mishra, and Srinivas Hotha\*



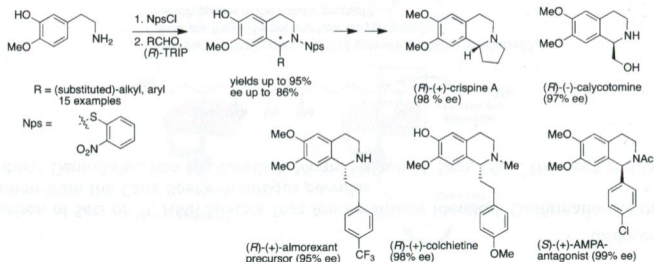
### Copper-Catalyzed Aerobic Decarboxylative Sulfonation of Cinnamic Acids with Sodium Sulfinate: Stereospecific Synthesis of (*E*)-Alkenyl Sulfones

Qing Jiang, Bin Xu, Jing Jia, An Zhao, Yu-Rou Zhao, Ying-Ying Li, Na-Na He, and Can-Cheng Guo\*



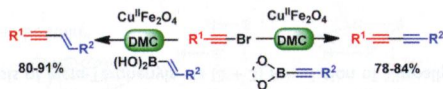
### Organocatalytic Enantioselective Pictet–Spengler Reactions for the Syntheses of 1-Substituted 1,2,3,4-Tetrahydroisoquinolines

Elma Mons, Martin J. Wanner, Steen Ingemann, Jan H. van Maarseveen, and Henk Hiemstra\*



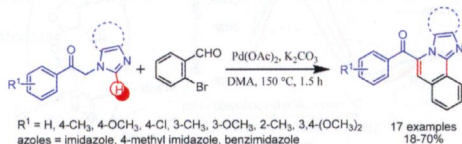
### Cu-Catalyzed Fe-Driven $C_{sp}-C_{sp}$ and $C_{sp}-C_{sp^2}$ Cross-Coupling: An Access to 1,3-Diynes and 1,3-Enynes

Sabir Ahammed, Debasish Kundu, and Brindaban C. Ranu\*



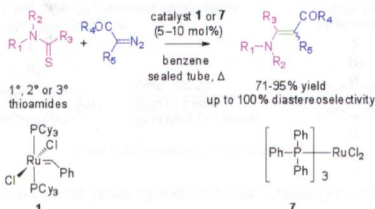
### Synthesis of Aza-Fused Isoquinolines through Domino Cross-Aldol Condensation and Palladium-Catalyzed Intramolecular Direct Arylation

Shiv Dhiman, Kasiviswanadharaju Pericherla, Nitesh K. Nandwana, Dalip Kumar, and Anil Kumar\*

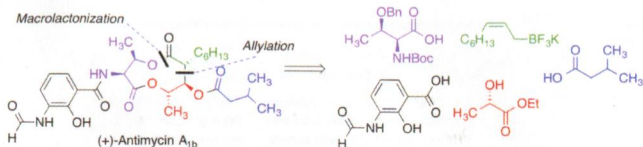


### Enaminones via Ruthenium-Catalyzed Coupling of Thioamides and $\alpha$ -Diazocarbonyl Compounds

Naga D. Koduri, Zhiguo Wang, Garrett Cannell, Kate Cooley, Tsebaot Mesfin Lemma, Kun Miao, Michael Nguyen, Bram Frohock, Maria Castaneda, Halee Scott, Dragos Albinescu, and Syed R. Hussaini\*

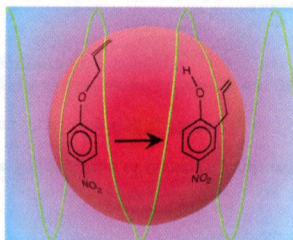


**Organoboron-Based Allylation Approach to the Total Synthesis of the Medium-Ring Dilactone (+)-Antimycin A<sub>1b</sub>**  
 John Janetzko and Robert A. Batey\*



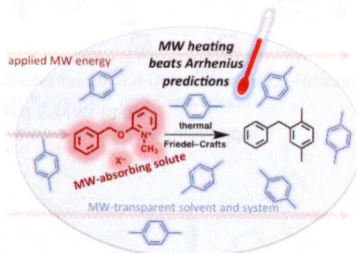
**Parameters Affecting the Microwave-Specific Acceleration of a Chemical Reaction**

Po-Kai Chen, Michael R. Rosana, Gregory B. Dudley, and A. E. Stiegman\*



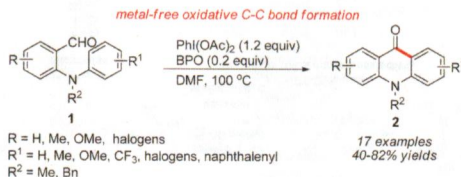
**Microwave-Specific Acceleration of a Friedel–Crafts Reaction: Evidence for Selective Heating in Homogeneous Solution**

Michael R. Rosana, Jacob Hunt, Anthony Ferrari, Taylor A. Southworth, Yuchuan Tao, Albert E. Stiegman, and Gregory B. Dudley\*



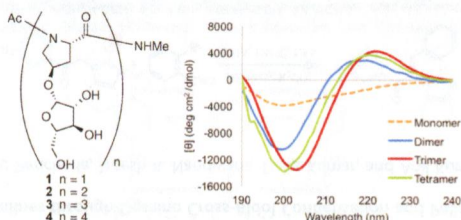
**PhI(OAc)<sub>2</sub>-Mediated Intramolecular Oxidative Aryl-Aldehyde Csp<sup>2</sup>-Csp<sup>2</sup> Bond Formation: Metal-Free Synthesis of Acridone Derivatives**

Zisheng Zheng, Longyang Dian, Yucheng Yuan, Daisy Zhang-Negrerie, Yunfei Du,\* and Kang Zhao\*



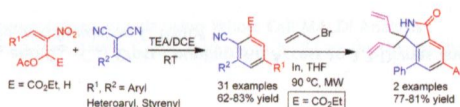
**Synthesis of Oligomers of β-L-Arabinofuranosides of (4R)-4-Hydroxy-L-proline Relevant to the Mugwort Pollen Allergen, Art v 1**

Ning Xie and Carol M. Taylor\*



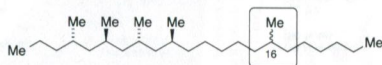
**One-Pot Regioselective Synthesis of meta-Terphenyls via [3 + 3] Annulation of Nitroallylic Acetates with Alkylidenemalonitriles**

Elumalai Gopi and Irishi N. N. Namboothiri\*



**Systematic Comparison of Sets of <sup>13</sup>C NMR Spectra That Are Potentially Identical. Confirmation of the Configuration of a Cuticular Hydrocarbon from the Cane Beetle *Antitrogus parvulus***

Norazah Basar, Krishnan Damodaran, Hao Liu, Gareth A. Morris, Hasnah M. Sirat, Eric J. Thomas,\* and Dennis P. Curran\*

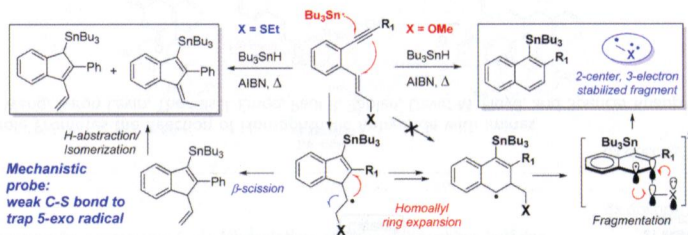


- are the <sup>13</sup>C NMR spectra of C16 epimers the same or different?
- how are they different and how do you know?
- which epimer is the natural product?



### Retouring Radical Cascades: Intercepting the Homoallyl Ring Expansion in Enyne Cyclizations via C–S Scission

Sayantan Mondal, Brian Gold, Rana K. Mohamed, Hoa Phan, and Igor V. Alabugin\*



### Organocatalytic Syntheses of Benzoxazoles and Benzothiazoles using Aryl Iodide and Oxone via C–H Functionalization and C–O/S Bond Formation

Santhosh Kumar Alla, Pradeep Sadhu, and Tharmalingam Punniyamurthy\*



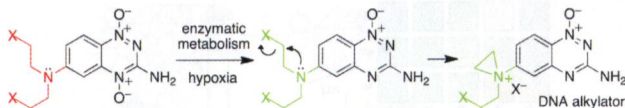
### Enantioselective Synthesis of (+)-Penostatin E

Kosuke Fujioka, Hiromasa Yokoe,\* Atsushi Inoue, Kana Soga, Masayoshi Tsubuki, and Koza Shishido\*



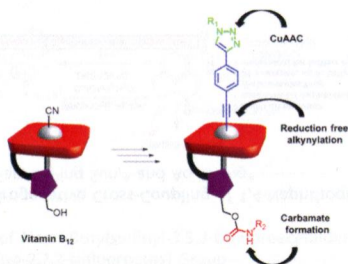
### Toward Hypoxia-Selective DNA-Alkylating Agents Built by Grafting Nitrogen Mustards onto the Bioreductively Activated, Hypoxia-Selective DNA-Oxidizing Agent 3-Amino-1,2,4-benzotriazine 1,4-Dioxide (Tirapazamine)

Kevin M. Johnson, Zachary D. Parsons, Charles L. Barnes, and Kent S. Gates\*

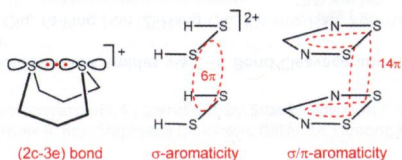


Vitamin B<sub>12</sub> Derivatives for Orthogonal Functionalization

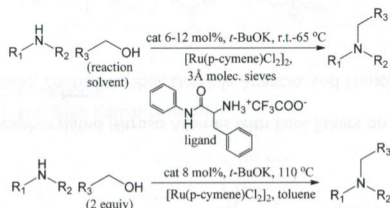
Mikołaj Chromiński, Agnieszka Lewalska, Maksymilian Karczewski, and Dorota Gryko\*

Long Chalcogen–Chalcogen Bonds in Electron-Rich Two and Four Center Bonds: Combination of  $\pi$ - and  $\sigma$ -Aromaticity to a Three-Dimensional  $\sigma/\pi$ -Aromaticity

Rolf Gleiter\* and Gebhard Haberhauer\*

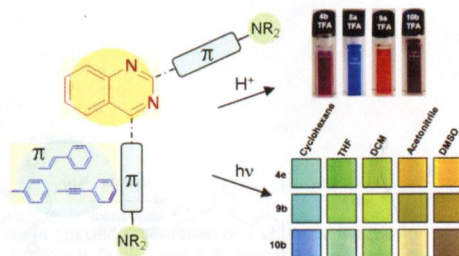
Ruthenium-Catalyzed *N*-Alkylation of Amines with Alcohols under Mild Conditions Using the Borrowing Hydrogen Methodology

Arrey B. Enyong\* and Bahram Moasser



### Synthesis and Photophysical Studies of a Series of Quinazoline Chromophores

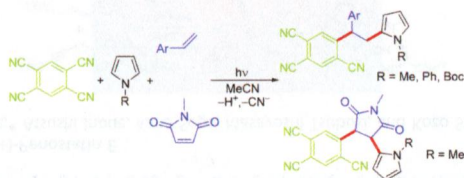
Sylvain Achelle,\* Julián Rodríguez-López,\* and Françoise Robin-le Guen

7572 **5**

dx.doi.org/10.1021/jo5013114

### A Three-Component Reaction by Photoinduced Electron Transfer Mechanism with *N*-Protected Pyrroles as Neutral Carbon Nucleophiles

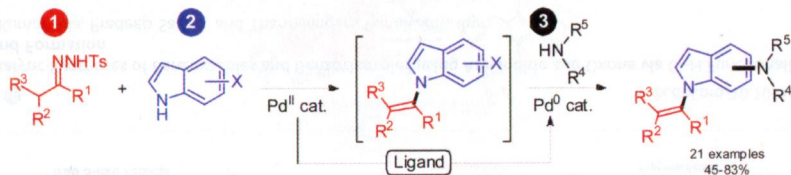
Jian Tang, Jiā-Jun Yue, Fei-Fei Tao, Guenter Grampp, Bing-Xiang Wang, Fang Li, Xue-Zheng Liang, Yong-Miao Shen,\* and Jian-Hua Xu\*

7583 **5**

dx.doi.org/10.1021/jo501315q

### Tandem One-Pot Palladium-Catalyzed Coupling of Hydrazones, Haloindoles, and Amines: Synthesis of Amino-*N*-vinylindoles and Their Effect on Human Colon Carcinoma Cells

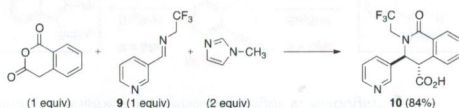
Maxime Roche, Jérôme Bignon, Jean-Daniel Brion, Abdallah Hamze,\* and Mouad Alami\*

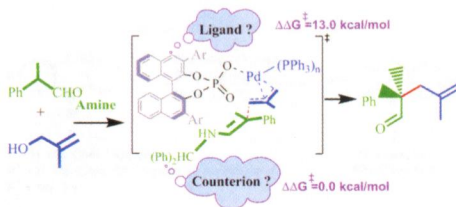
7593 **5**

dx.doi.org/10.1021/jo501316m

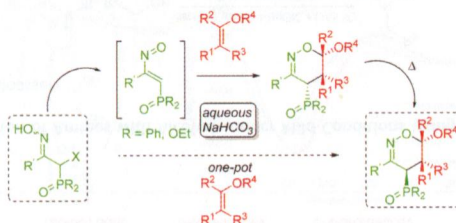
### *N*-Methylimidazole Promotes the Reaction of Homophthalic Anhydride with Imines

Jian Liu, Zheng Wang, Aaron Levin, Thomas J. Emge, Paul R. Rablen, David M. Floyd, and Spencer Knapp\*

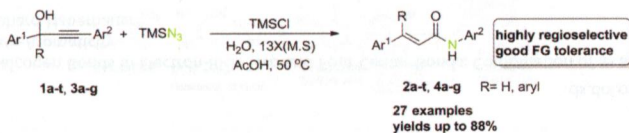




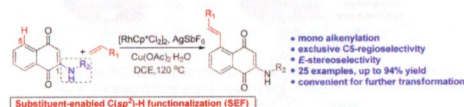
Jesús M. de los Santos, Roberto Ignacio, Zouhair Es Sbai, Domitila Aparicio, and Francisco Palacios\*



Xian-Rong Song, Bo Song, Yi-Feng Qiu, Ya-Ping Han, Zi-Hang Qiu, Xin-Hua Hao, Xue-Yuan Liu, and Yong-Min Liang\*

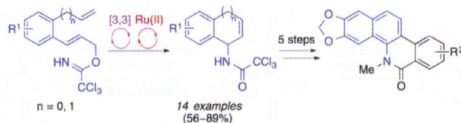


Chi Zhang, Meining Wang, Zhoulong Fan, Li-Ping Sun,\* and Ao Zhang\*



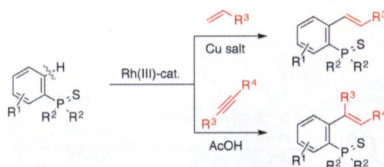
### Preparation of Amino-Substituted Indenes and 1,4-Dihydronaphthalenes Using a One-Pot Multireaction Approach: Total Synthesis of Oxybenzo[c]phenanthridine Alkaloids

Ewen D. D. Calder, Fiona I. McGonagle, Alexander H. Harkiss, Grant A. McGonagle, and Andrew Sutherland\*



### Rhodium(III)-Catalyzed Regioselective C–H Alkenylation of Phenylphosphine Sulfides

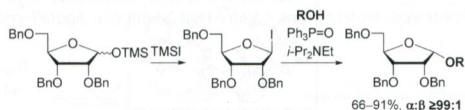
Yuki Yokoyama, Yuto Unoh, Koji Hirano, Tetsuya Satoh,\* and Masahiro Miura\*



## Notes

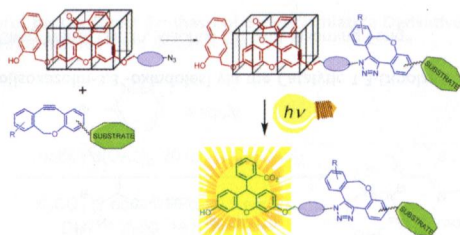
### $\alpha$ -Selective Ribofuranosylation of Alcohols with Ribofuranosyl Iodides and Triphenylphosphine Oxide

Natsuhisa Oka,\* Rin Kajino, Kaoru Takeuchi, Haruna Nagakawa, and Kaori Ando



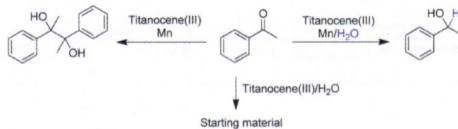
### Photoactivatable Fluorescein Derivatives Caged with a (3-Hydroxy-2-naphthalenyl)methyl Group

Emmanuel E. Nekongo and Vladimir V. Popik\*



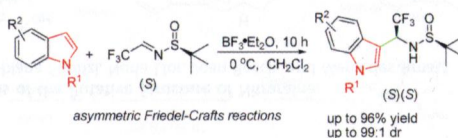
### Selective Reduction of Aromatic Ketones in Aqueous Medium Mediated by Ti(III)/Mn: A Revised Mechanism

Antonio Rosales,\* Juan Muñoz-Bascón, Esther Roldan-Molina, Mayra A. Castañeda, Natalia M. Padial, Andreas Gansäuer, Ignacio Rodríguez-García, and J. Enrique Oltra\*



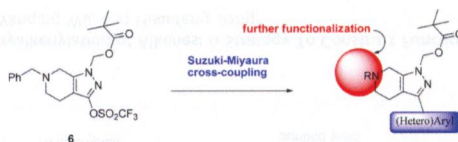
### Asymmetric Friedel–Crafts Reactions of *N*-*tert*-Butylsulfinyl-3,3,3-trifluoroacetaldimines: General Access to Enantiomerically Pure Indoles Containing a 1-Amino-2,2-trifluoroethyl Group

Lingmin Wu, Chen Xie, Haibo Mei, Vadim A. Soloshonok, Jianlin Han,\* and Yi Pan



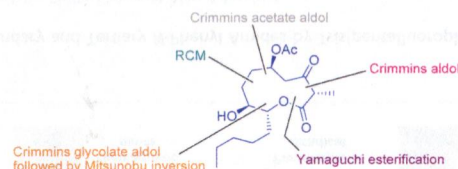
### Synthesis of 3-(Hetero)aryl Tetrahydropyrazolo[3,4-c]pyridines by Suzuki–Miyaura Cross-Coupling Methodology

Paul D. Kemmitt,\* Kevin Blades, Matthew R. Box, Stephanie Dickinson, Gillian M. Lamont, Katrina Madden, William McCoull, and Jason Williams



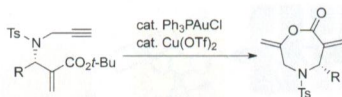
### Stereoselective Total Synthesis of Crimposide P

Shamba Chatterjee, Sandip Guichait, and Rajib Kumar Goswami\*



**Gold(I)-Catalyzed Synthesis of Optically Active 1,4-Oxazepan-7-ones**

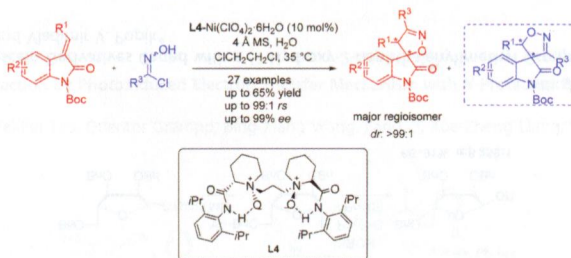
Akio Kamimura,\* Yu Yamane, Ryuichiro Yo, Toshiyuki Tanaka, and Hidemitsu Uno

**7703 S**

dx.doi.org/10.1021/jo5012625

**Asymmetric Synthesis of Spiro[isoxazolin-3,3'-oxindoles] via the Catalytic 1,3-Dipolar Cycloaddition Reaction of Nitrile Oxides**

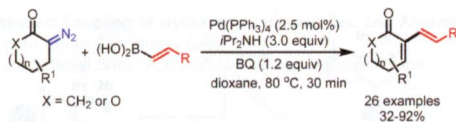
Xiangjin Lian, Songsong Guo, Gang Wang, Lili Lin, Xiaohua Liu, and Xiaoming Feng\*

**7711 S**

dx.doi.org/10.1021/jo5012703

**Palladium-Catalyzed Cross-Coupling Reaction of Diazo Compounds and Vinyl Boronic Acids: An Approach to 1,3-Diene Compounds**

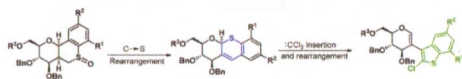
Yamu Xia, Ying Xia, Zhen Liu, Yan Zhang, and Jianbo Wang\*

**7718 S**

dx.doi.org/10.1021/jo5012762

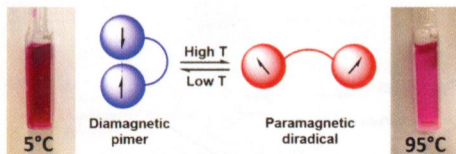
**Regiospecific Synthesis of 2-Halo-3-(2'-glucyl)benzo[*b*]thiophenes**

Henok H. Kinfe,\* Felix L. Makolo, and Christian K. Adokoh



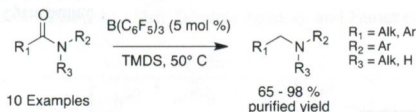
### An Organic Spin Crossover Material in Water from a Covalently Linked Radical Dyad

Margarita R. Geraskina, Alexander T. Buck, and Arthur H. Winter\*



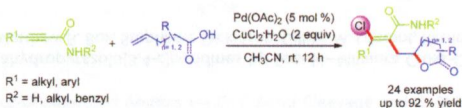
### Metal-Free Reduction of Secondary and Tertiary *N*-Phenyl Amides by Tris(pentafluorophenyl)boron-Catalyzed Hydro-silylation

Ryan C. Chadwick, Vladimir Kardelis, Philip Lim, and Alex Adronov\*



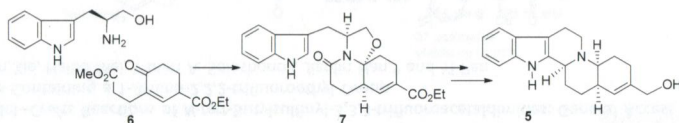
### Nucleopalladation-Initiated Oxyalkenylation of Alkenes: A Strategy To Construct Functionalized Oxygenated Heterocycles

Liangbin Huang, Qian Wang, Wanqing Wu, and Huanfeng Jiang\*



### Stereoselective Total Synthesis of the Putative Structure of Nitraine

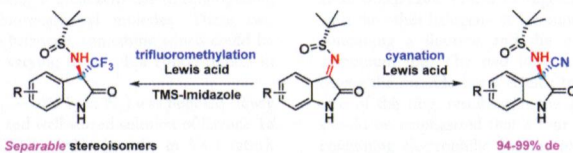
Federica Arioli, Maria Pérez, Fabiana Subrizi, Núria Llor, Joan Bosch, and Mercedes Amat\*





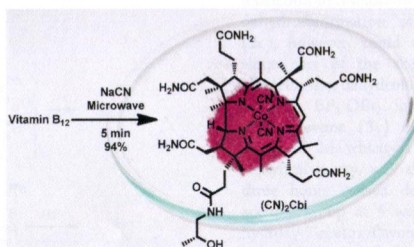
### Lewis Acid Promoted Diastereoselective Addition of TMSCN and TMSCF<sub>3</sub> to Isatin-Derived *N*-Sulfinyl Ketimines: Synthesis of Optically Active Tetrasubstituted 3-Aminooxindoles

Diao Chen and Ming-Hua Xu\*



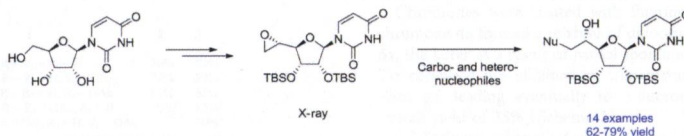
### Microwave-Assisted Cobinamide Synthesis

Keith ó Proinsias, Maksymilian Karczewski, Anna Zieleniewska, and Dorota Gryko\*



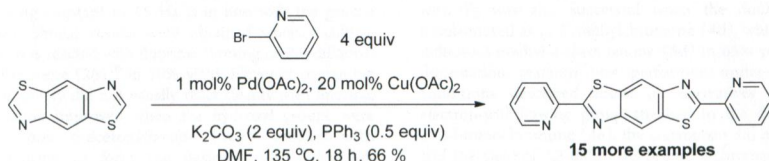
### A Diastereoselective Synthesis of 5'-Substituted-Uridine Derivatives

Mickaël J. Fer, Pierre Doan, Thierry Prangé, Sandrine Calvet-Vitale,\* and Christine Gravier-Pelletier\*



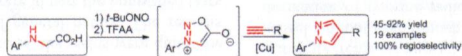
### A C–H Functionalization Protocol for the Direct Synthesis of Benzobisthiazole Derivatives

Jennifer L. Bon, Daijun Feng, Seth R. Marder,\* and Simon B. Blakey\*



### One-Pot Synthesis of 1,4-Disubstituted Pyrazoles from Arylglycines via Copper-Catalyzed Sydnone–Alkyne Cycloaddition Reaction

Simon Specklin, Elodie Decuypere, Lucie Plougastel, Soifia Aliani, and Frédéric Taran\*



### Synthesis of Aromatic Sphingosine Analogues by Diastereoselective Amination of Enantioenriched *trans*- $\gamma,\delta$ -Unsaturated $\beta$ -Hydroxyesters

Zhipeng Dai and Thomas K. Green\*

