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# JOC

*The Journal of Organic Chemistry*

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**ON THE COVER:** The vinylpalladium species obtained by nucleopalladation of an alkyne is a highly useful synthon. The chloropalladation-initiated intermolecular oxyvinylcyclization of alkenes with alkynoic acids or alkynols provides a series of 3-methylene  $\gamma$ -lactone and tetrahydrofuran derivatives for the construction of C–Cl, C(sp<sup>2</sup>)–C(sp<sup>3</sup>), and C–O bonds in a single step. See Jiang and co-workers, p 10734.

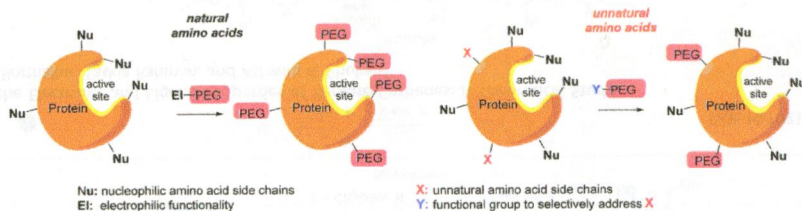
## JOCSynopsis

10727

DOI: 10.1021/jo502136n

### Site-specific PEGylation of Proteins: Recent Developments

Nicole Nischan and Christian P. R. Hackenberger\*



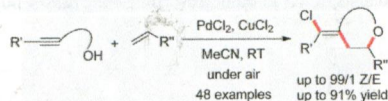
## Featured Articles

10734 **S**

DOI: 10.1021/jo501606c

### Palladium-Catalyzed Intermolecular Oxyvinylcyclization of Alkenes with Alkynes: An Approach to 3-Methylene $\gamma$ -Lactones and Tetrahydrofurans

Zhenming Zhang, Lu Ouyang, Wanqing Wu,\* Jianxiao Li, Zhicai Zhang, and Huanfeng Jiang\*

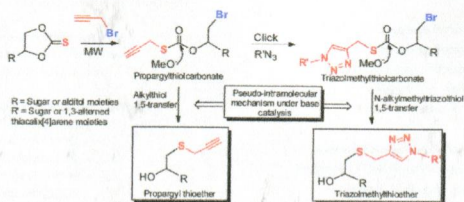


10743 

DOI: 10.1021/jo5015504

### Synthesis of Unsymmetrical Thioethers Using an Uncommon Base-Triggered 1,5-Thiol Transfer Reaction of 1-Bromo-2-alkylthiolcarbonates

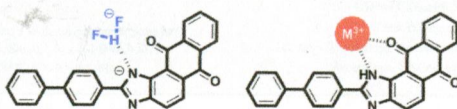
Marwa Taouai, Rym Abidi, Julien Garcia, Aloysius Siriwardena, and Mohammed Benazza\*

10752 

DOI: 10.1021/jo501515e

### Imidazoanthraquinone Derivatives for the Chromofluorogenic Sensing of Basic Anions and Trivalent Metal Cations

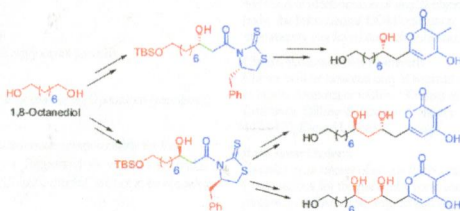
Cristina Marín-Hernández, Luis E. Santos-Figueroa, María E. Moragues, M. Manuela M. Raposo,\* Rosa M. F. Batista, Susana P. G. Costa, Teresa Pardo, Ramón Martínez-Máñez,\* and Félix Sanecnón

10762 

DOI: 10.1021/jo5015382

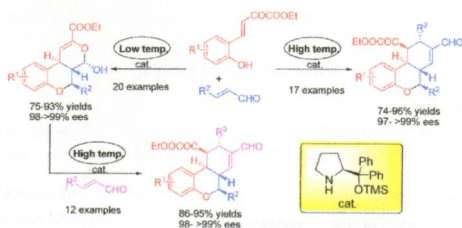
### Synthesis and Determination of Absolute Configuration of $\alpha$ -Pyrones Isolated from *Penicillium corylophilum*

J. S. Yadav,\* B. Ganganna, Palash Dutta, and Kiran K Singarapu



## Organocatalytic Diversity-Oriented Asymmetric Synthesis of Tricyclic Chroman Derivatives

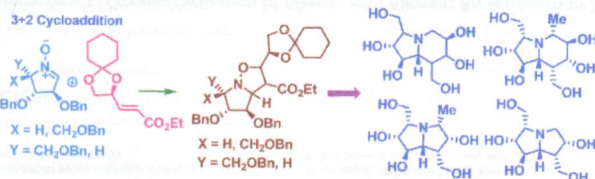
Zhi-Cong Geng, Shao-Yun Zhang, Nai-Kai Li, Ning Li, Jian Chen, Hai-Yan Li, and Xing-Wang Wang\*

10786 **S**

DOI: 10.1021/jo5016745

Synthesis of Isofagomine–Pyrrolidine Hybrid Sugars and Analogues of (–)-Steviamine and (+)-Hyacinthacine C<sub>5</sub> Using 1,3-Dipolar Cycloaddition Reactions

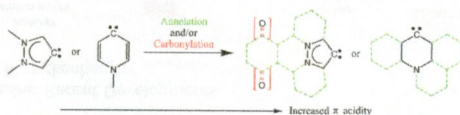
Rima Lahiri, Ashokkumar Palarivel, Sudhir A. Kulkarni, and Yashwant D. Vankar\*

10801 **S**

DOI: 10.1021/jo5016807

## Tuning the Electronic and Ligand Properties of Remote Carbenes: A Theoretical Study

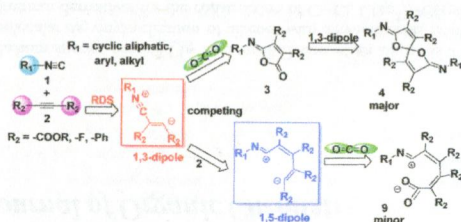
Bitupon Borthakur, Taskia Rahman, and Ashwini K. Phukan\*

10811 **S**

DOI: 10.1021/jo5017053

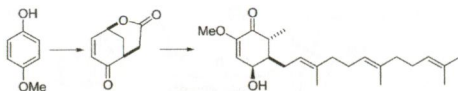
Theoretical Investigations on the Mechanism of Dual 1,3-Dipolar Cycloaddition of CO<sub>2</sub> with Isocyanides and Alkynes

Weiyi Li,\* Dongfeng Huang, and Yajing Lv

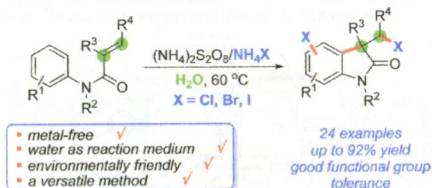


**Total Synthesis of (±)-Antroquinol D**

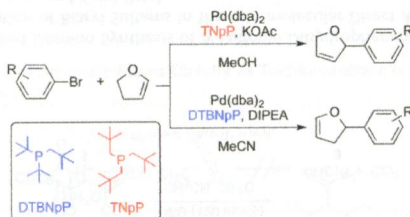
Rohidas S. Sulake, Yan-Feng Jiang, Hsiao-Han Lin, and Chinpiao Chen\*

**Metal-Free Synthesis of Oxindoles via  $(\text{NH}_4)_2\text{S}_2\text{O}_8$ -Mediated Halocarbo-cyclization of Alkenes in Water**

Ming-Zhong Zhang, Wen-Bing Sheng, Qing Jiang, Mi Tian, Yong Yin, and Can-Cheng Guo\*

**Controlling Olefin Isomerization in the Heck Reaction with Neopentyl Phosphine Ligands**

Matthew G. Lauer, Mallory K. Thompson, and Kevin H. Shaughnessy\*

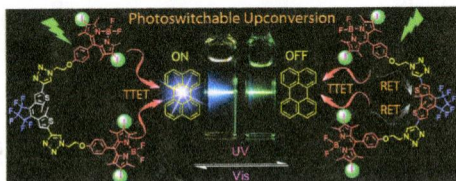
**Calculations for the Properties and Reactions of the NH, PH, and AsH Counterparts of Dimethyl Ether and Acetone**

Kenneth B. Wiberg\*



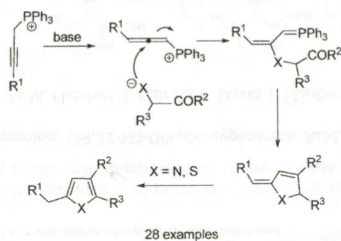
**Photoswitching of the Triplet Excited State of DiiodoBodipy-Dithienylethene Triads and Application in Photo-Controllable Triplet–Triplet Annihilation Upconversion**

Jie Ma, Xiaoneng Cui, Fen Wang, Xueyan Wu, Jianzhang Zhao,\* and Xingwei Li\*



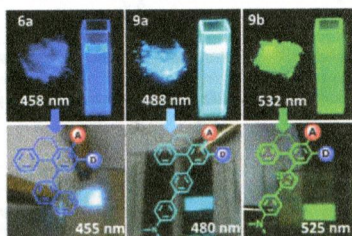
**Synthesis of Cyclopentenes, Pyrroles, and Thiophenes via a Sequence of Propargyl–Allenyl Isomerizations, Michael Additions, and Intramolecular Wittig Reactions**

Guoqing Zhao, Qianyun Zhang, and Hongwei Zhou\*



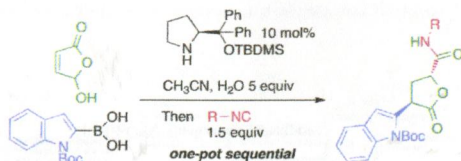
**Synthesis of Fluorescent C<sub>2</sub>-Bridged Teraryls and Quateraryls for Blue, Sky-Blue, and Green Color Light-Emitting Devices**

Atul Goel,\* Ashutosh Sharma, Madhu Rawat, R. S. Anand, and Ruchir Kant



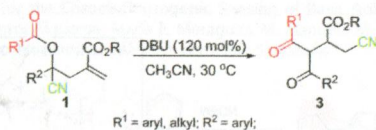
### Synthesis of Chiral $\gamma$ -Lactones by One-Pot Sequential Enantioselective Organocatalytic Michael Addition of Boronic Acids and Diastereoselective Intramolecular Passerini Reaction

Maxence Bos and Emmanuel Riguët\*



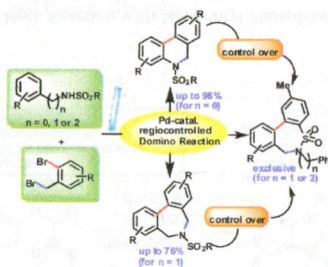
### Lewis Base-Promoted Rearrangement of Allylic Cyanohydrins: Construction of Functionalized Nitriles Bearing 1,3-Diketone Moieties

Yan-Jing Zhang, Qi-Lan Hou, Hai-Jing Wang,\* and Wei-Wei Liao\*



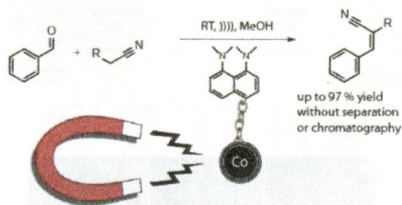
### Palladium-Catalyzed Regiocontrolled Domino Synthesis of *N*-Sulfonyl Dihydrophenanthridines and Dihydrodibenzo[*c,e*]azepines: Control over the Formation of Biaryl Sultams in the Intramolecular Direct Arylation

Joydev K. Laha,\* Neetu Dayal, Roli Jain, and Ketul Patel

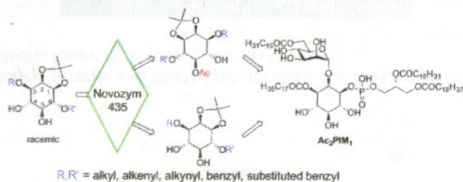


## Magnetic Superbasic Proton Sponges Are Readily Removed and Permit Direct Product Isolation

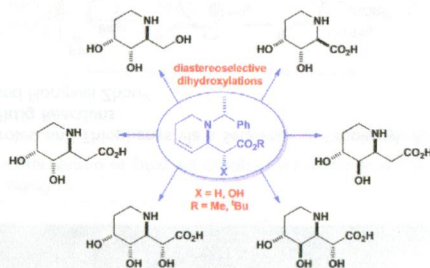
Elia M. Schneider, Renzo A. Raso, Corinne J. Hofer, Martin Zeltner, Robert D. Stettler, Samuel C. Hess, Robert N. Grass, and Wendelin J. Stark\*

Resolution of Orthogonally Protected *myo*-Inositols with Novozym 435 Providing an Enantioconvergent Pathway to  $\text{Ac}_2\text{PIM}_1$ 

Alastair M. M. Lee, Gavin F. Painter, Benjamin J. Compton,\* and David S. Larsen\*

Asymmetric Syntheses of (–)-3-*epi*-Fagomine, (2*R*,3*S*,4*R*)-Dihydroxypiperelic Acid, and Several Polyhydroxylated Homopiperelic Acids

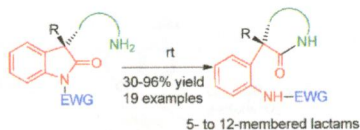
Kristina Csatayová, Stephen G. Davies,\* Ai M. Fletcher, J. Gair Ford, David J. Klauber, Paul M. Roberts, and James E. Thomson





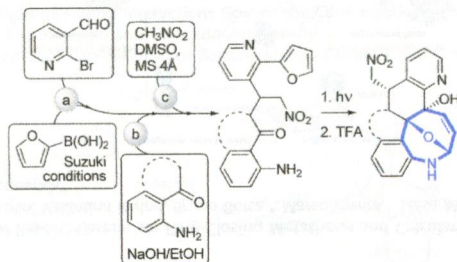
### Synthesis of Lactams by Isomerization of Oxindoles Substituted at C-3 by an $\omega$ -Amino Chain

Daad Sarraf, Nicolas Richy, and Joëlle Vidal\*



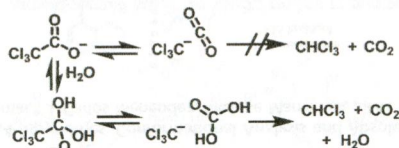
### Photoassisted Diversity-Oriented Synthesis: Accessing 2,6-Epoxyazocane (Oxamorphan) Cores

Olga A. Mukhina, N. N. Bhuvan Kumar, Teresa M. Cowger, and Andrei G. Kutateladze\*



### Decarboxylation without CO<sub>2</sub>: Why Bicarbonate Forms Directly as Trichloroacetate Is Converted to Chloroform

Graeme W. Howe and Ronald Kluger\*



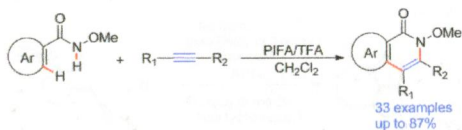
### Masking and Demasking Strategies for the BF<sub>2</sub>-BODIPYs as a Tool for BODIPY Fluorophores

Ankush B. More, Soumyaditya Mula, Shrikant Thakare, Nagaiyan Sekar,\* Alok K. Ray, and Subrata Chattopadhyay\*

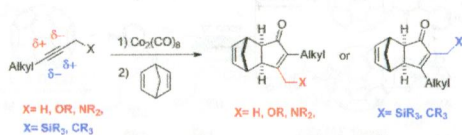


**Metal-Free Iodine(III)-Promoted Synthesis of Isoquinolones**

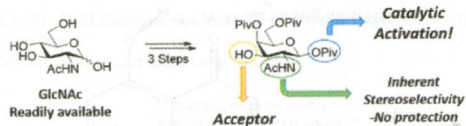
Zhi-Wei Chen, Yi-Zhou Zhu,\* Jin-Wang Ou, Ya-Ping Wang, and Jian-Yu Zheng\*

**Regioselectivity of Intermolecular Pauson–Khand Reaction of Aliphatic Alkynes: Experimental and Theoretical Study of the Effect of Alkyne Polarization**

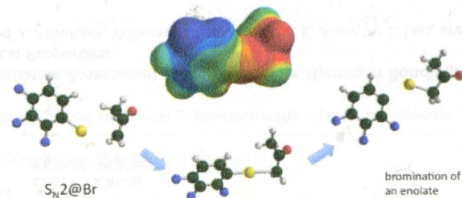
Erika Fager-Jokela, Mikko Muuronen, Héléa Khaizourane, Ana Vázquez-Romero, Xavier Verdaguer, Antoni Riera,\* and Juho Helaja\*

**A Protocol for Metal Triflate Catalyzed Direct Glycosylations with GalNAc 1-OPiv Donors**

Michelle R. Rasmussen, Mikkel H. S. Marqvorsen, Steffan K. Kristensen, and Henrik H. Jensen\*

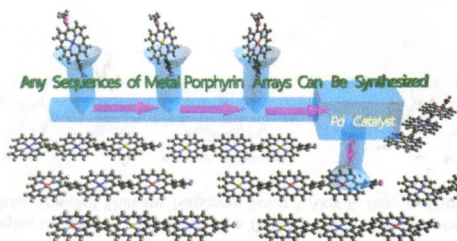
**Dehalogenation of Arenes via S<sub>N</sub>2 Reactions at Bromine: Competition with Nucleophilic Aromatic Substitution.**

Scott Gronert,\* John M. Garver, Charles M. Nichols, Benjamin B. Worker, and Veronica M. Bierbaum\*



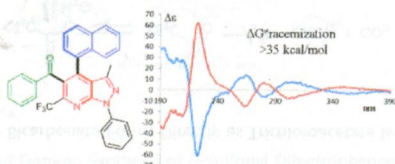
### Synthesis of a Series of Zinc(II)/Freebase Porphyrin Dimers and Trimers with Programmable Sequences from a Common Key Molecule

Takashi Tamaki, Takenori Nosaka, and Takuji Ogawa\*



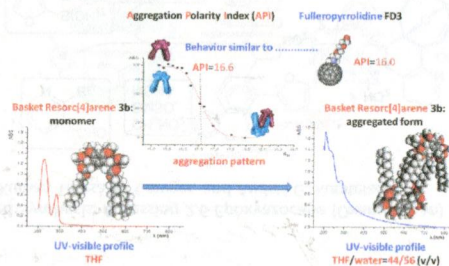
### Axial Chirality of 4-Arylpyrazolo[3,4-b]pyridines. Conformational Analysis and Absolute Configuration

Pethaiah Gunasekaran, Subbu Perumal,\* J. Carlos Menéndez, Michele Mancinelli, Silvia Ranieri, and Andrea Mazzanti\*



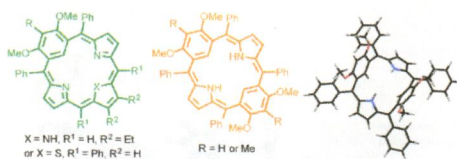
### Synthesis of a Double-Spanned Resorc[4]arene via Ring-Closing Metathesis and Calculation of Aggregation Propensity

Francesca Ghirga, Deborah Quaglio, Valentina Iovine, Bruno Botta,\* Marco Pierini,\* Luisa Mannina, Anatoly P. Sobolev, Franco Ugozzoli, and Ilaria D'Acquarica\*



### Synthesis and Metalation of Dimethoxybenzporphyrins, Thiabenzporphyrins, and Dibenzporphyrins

Stacy C. Fosu, Gregory M. Ferrence, and Timothy D. Lash\*

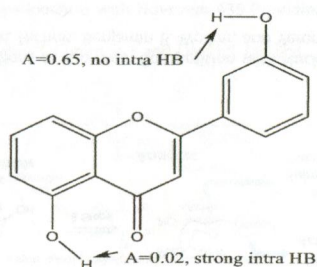


11075

DOI: 10.1021/jo502080p

### An NMR Method for the Quantitative Assessment of Intramolecular Hydrogen Bonding; Application to Physicochemical, Environmental, and Biochemical Properties

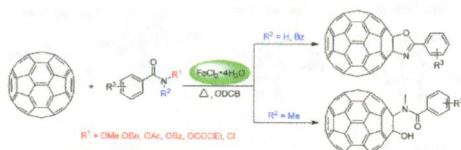
Michael H. Abraham,\* Raymond J. Abraham, William E. Acree Jr., Abil E. Aliev, Al J. Leo, and William L. Whaley

11084 **S**

DOI: 10.1021/jo5020883

### Iron-Mediated Internal-Oxidant Relay Cascade Reaction: Strategy to Synthesize Fullerenoioxazoles and Hydroxyfullerenyl Amides

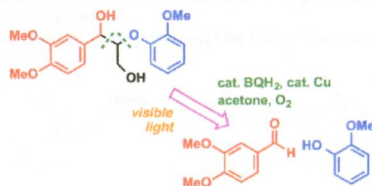
Tong-Xin Liu,\* Yuquan Liu, Di Chao, Pingle Zhang, Qingfeng Liu, Lei Shi, Zhiguo Zhang, and Guisheng Zhang\*



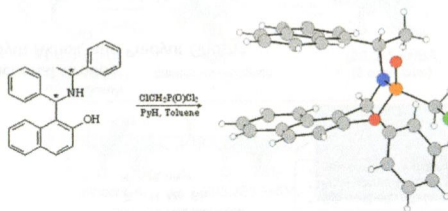
Iron Dual Role: Reductant and Oxidant  
 N-C or N-Cl Bond Dual Role: the Internal Oxidant and Amidyl Radical Source

**Solar Photochemical Oxidation of Alcohols using Catalytic Hydroquinone and Copper Nanoparticles under Oxygen: Oxidative Cleavage of Lignin Models**

Lorna J. Mitchell and Christopher J. Moody\*


**Stacked Naphthyls and Weak Hydrogen-Bond Interactions Govern the Conformational Behavior of *P*-Resolved Cyclic Phosphonamides: A Combined Experimental and Computational Study**

Maria Annunziata M. Capozzi, Francesco Capitelli, Andrea Bottoni, Matteo Calvaresi, and Cosimo Cardellicchio\*

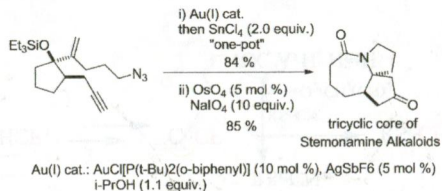

**Four-Component Bicyclization Approaches to Skeletally Diverse Pyrazolo[3,4-*b*]pyridine Derivatives**

Xing-Jun Tu, Wen-Juan Hao, Qin Ye, Shuang-Shuang Wang, Bo Jiang,\* Guigen Li, and Shu-Jiang Tu\*



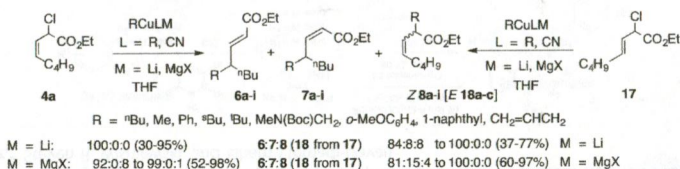
### Synthesis of the Tricyclic Core in Stemonamine Alkaloids via One-Pot Gold(I)-Catalyzed Cyclization and Schmidt Rearrangement: Formal Synthesis of (±)-Stemonamine

Cheoljae Kim, Soyeong Kang, and Young Ho Rhee\*



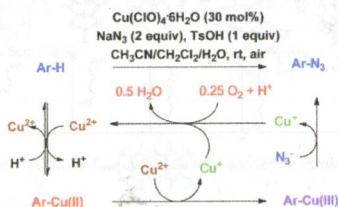
### Regio- and Stereocontrol in the Reactions of $\alpha$ -Halo- $\beta,\gamma$ -enoates and $\alpha$ -O-Phosphono- $\beta,\gamma$ -enitriles with Organocuprates

R. Karl Dieter\* and Alfredo Picado



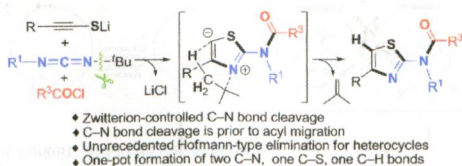
### Designing a Cu(II)–ArCu(II)–ArCu(III)–Cu(I) Catalytic Cycle: Cu(II)-Catalyzed Oxidative Arene C–H Bond Azidation with Air as an Oxidant under Ambient Conditions

Bo Yao, Yang Liu, Liang Zhao, De-Xian Wang, and Mei-Xiang Wang\*



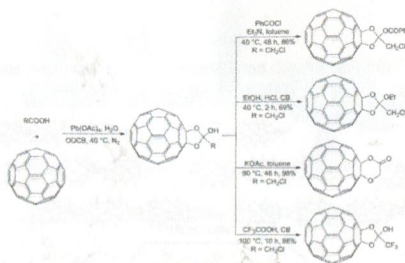
### Substituent-Controlled Selective Synthesis of *N*-Acyl 2-Aminothiazoles by Intramolecular Zwitterion-Mediated C–N Bond Cleavage

Yang Wang, Fei Zhao, Yue Chi, Wen-Xiong Zhang,\* and Zhenfeng Xi



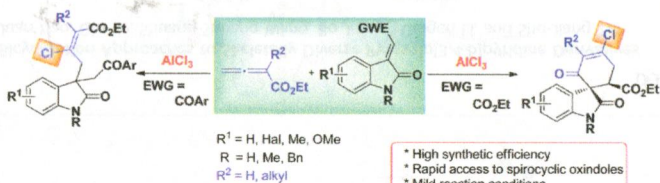
### Synthesis of Ortho Acid Ester-Type 1,3-Dioxolanofullerenes: Radical Reaction of [60]Fullerene with Halocarboxylic Acids Promoted by Lead(IV) Acetate

Xun You, Fa-Bao Li, and Guan-Wu Wang\*



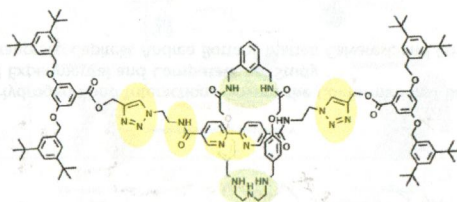
### $\text{AlCl}_3$ -Promoted Selective Michael Addition with Allenolate and Methyleneindolinone: Synthesis of Spirocyclic Oxindole by Using Allenolate as a Four-Carbon Component Building Block

Shibo Xu, Chunju Li, Xueshun Jia,\* and Jian Li\*



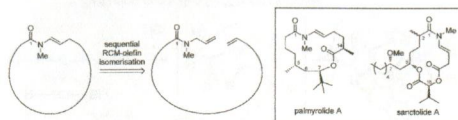
### [2]Rotaxane with Multiple Functional Groups

Subrata Saha, Saikat Santra, Bidyut Akhuli, and Pradyut Ghosh\*

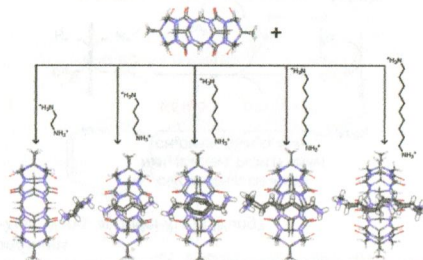


Total Synthesis of the Macrocyclic *N*-Methyl Enamides Palmyrolide A and 2*S*-Sanctolide A

Andrew D. Wadsworth, Daniel P. Furkert, and Margaret A. Brimble\*

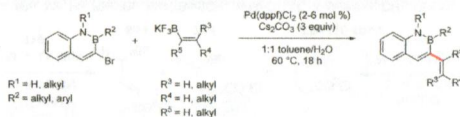
Extended and Contorted Conformations of Alkanediammonium Ions in Symmetrical  $\alpha,\alpha',\delta,\delta'$ -Tetramethylcurbit[6]uril Cavity

Bo Yang, Li-Mei Zheng, Zhong-Zheng Gao, Xin Xiao,\* Qian-Jiang Zhu, Sai-Feng Xue, Zhu Tao, Jing-Xin Liu,\* and Gang Wei



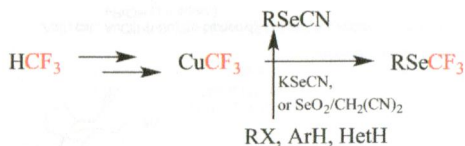
## Suzuki–Miyaura Cross-Coupling of Brominated 2,1-Borazaronaphthalenes with Potassium Alkenyltrifluoroborates

Gary A. Molander,\* Steven R. Wisniewski, and Elham Etemadi-Davan



## General Synthesis of Trifluoromethyl Selenides Utilizing Selenocyanates and Fluoroform

Shay Potash and Shlomo Rozen\*



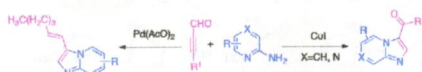


11209 **S**

DOI: 10.1021/jo501671x

**Transition Metal-Mediated C=O and C=C Bond-Forming Reactions: A Regioselective Strategy for the Synthesis of Imidazo[1,2-*a*]pyridines and Imidazo[1,2-*a*]pyrazines**

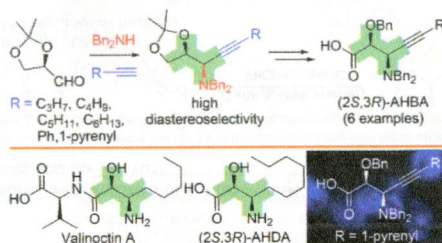
Hua Cao,\* Xiaohang Liu, Jinqiang Liao, Jianping Huang, Huifang Qiu, Qinlin Chen, and Yaoyi Chen

11215 **S**

DOI: 10.1021/jo501751u

**Stereoselective Synthesis of (2*S*,3*R*)- $\alpha$ -Hydroxy- $\beta$ -Amino Acids (AHBAs): Valinocetin A, (2*S*,3*R*)-3-Amino-2-Hydroxydecanoic Acid, and a Fluorescent-Labeled (2*S*,3*R*)-AHBA**

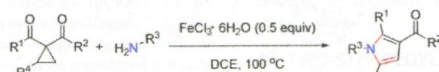
Sharad Chandrakant Deshmukh and Pinaki Talukdar\*

11226 **S**

DOI: 10.1021/jo5018487

**Synthesis of Multisubstituted Pyrroles from Doubly Activated Cyclopropanes Using an Iron-Mediated Oxidation Domino Reaction**

Zhiguo Zhang,\* Wei Zhang, Junlong Li, Qingfeng Liu, Tongxin Liu, and Guisheng Zhang\*



R<sup>1</sup> = Alkyl, Aryl; R<sup>2</sup> = Acylamino or Ester group; R<sup>3</sup> = Alkyl, Aryl; R<sup>4</sup> = Me.  
37 Examples; Up to 86% yield

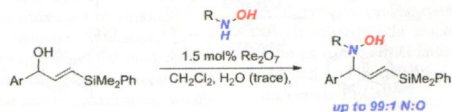
Tandem Reactions of Ring-opening/Cyclization/Dehydrogenation!

11234 **S**

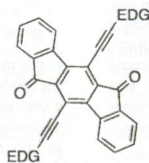
DOI: 10.1021/jo501992p

**Silicon-Directed Rhenium-Catalyzed Allylic Substitutions with *N*-Hydroxycarbamates, *N*-Hydroxysulfonamides, and Hydroxamic Acids**

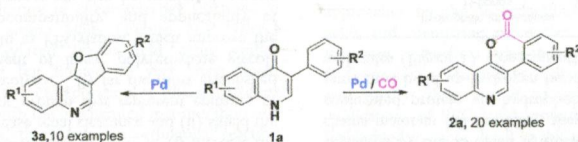
Sanjay W. Chavhan, Catherine A. McAdam, and Matthew J. Cook\*



**Synthesis and Optoelectronic Properties of Indeno[1,2-*b*]fluorene-6,12-dione Donor–Acceptor–Donor Triads**  
 Conerd K. Frederickson and Michael M. Haley\*

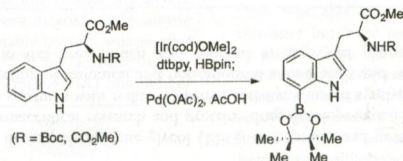


**Palladium-Catalyzed Oxidative Carbonylation for the Synthesis of Polycyclic Aromatic Hydrocarbons (PAHs)**  
 Fanghua Ji, Xianwei Li, Wanqing Wu, and Huanfeng Jiang\*



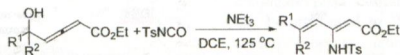
**C7-Derivatization of C3-Alkylindoles Including Tryptophans and Tryptamines**

Richard P. Loach, Owen S. Fenton, Kazuma Amaike, Dustin S. Siegel, Erhan Ozkal, and Mohammad Movassaghi\*



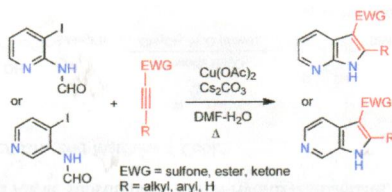
**Regio- and Stereoselective Synthesis of 2-Amino-dienes via Decarboxylative Amination of 4-(Ethoxycarbonyl)-2,3-allenols**

Lijun Wu, Hui Huang, Yun Liang,\* and Pi Cheng\*



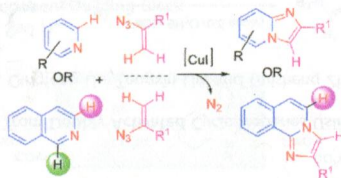
**Preparation of 1,7- and 3,9-Dideazapurines from 2-Amino-3-iodo- and 3-Amino-4-iodopyridines and Activated Acetylenes by Conjugate Addition and Copper-Catalyzed Intramolecular Arylation**

Ying Zhu and Thomas G. Back\*



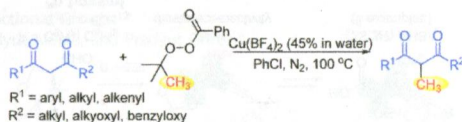
**Copper-Catalyzed C–H Functionalization of Pyridines and Isoquinolines with Vinyl Azides: Synthesis of Imidazole Heterocycles**

Ramachandra Reddy Donthiri, Venkatanarayana Pappula, N. Naresh Kumar Reddy, Dipayan Bairagi, and Subbarayappa Adimurthy\*



***tert*-Butyl Peroxybenzoate-Promoted  $\alpha$ -Methylation of 1,3-Dicarbonyl Compounds**

Songjin Guo, Qian Wang, Yan Jiang, and Jin-Tao Yu\*



**Total Synthesis of Tricladins A and B and Identification of Their Absolute Configuration**

He Zhao,\* Zhongping Huang, and Wen Chen

