

## Emilio E. Bunel

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### Professional Experience

- **October 2008-Present.** Director of the Chemical Sciences and Engineering Division at Argonne National Laboratory
- **January 2008-October 2008.** Research Fellow at Pfizer Inc.
- **November 2006-October 2007.** Director of Research at Amgen Inc.
- **December 2003-October 2006.** Associate Director at Amgen Inc.
- **February 2001-December 2003.** Sr. Research Scientist at Eli Lilly
- **December 1988-January 2001.** Sr. Research Associate at DuPont

### Education

- Ph.D., Organometallic Chemistry, Caltech, 1988
- M.S., Chemical Engineering, University of Chile, 1980

### Research Interests

- Organometallic synthesis with particular emphasis on applications to homogeneous catalysis
- *In-situ* characterization techniques
- High throughput techniques applied to catalyst discovery
- Catalysis applied to energy problems such as carbon dioxide activation and water splitting

### Selected Publications

Xiang Wang, Anil Guram, Emilio Bunel, Guo-Qiang Cao, Jennifer R. Allen, and Margaret M. Faul, "Palladium-Catalyzed One-Pot Synthesis of 2-Alkyl-2-arylcynoacetates," *Journal of Organic Chemistry* 2008, 73(4), 1643-1645.

Jinkun Huang, Emilio Bunel, and Margaret Faul, "Palladium Catalyzed  $\alpha$ -Vinylolation of Carbonyl Compounds," *Organic Letters* 2007, 9(21), 4343-4346.

Jamie L. Zigterman, Jacqueline C. S. Woo, Shawn D. Walker, Jason Tedrow, Christopher J. Borths, Emilio E. Bunel, and Margaret Faul. "Highly Selective Rhodium-Catalyzed Conjugate Addition of 4-oxobutenamides," *Journal of Organic Chemistry* 2007, 72(23), 8870-8876.

Anil S. Guram, Xiang Wang, Emilio E. Bunel, Margaret M. Faul, Robert D. Larsen, and Michael J. Martinelli, "New Catalysts for Suzuki-Miyaura Coupling Reactions of Heteroatom-Substituted Heteroaryl Chlorides," *Journal of Organic Chemistry* 2007, 72(14), 5104-5112.

P. Aguirre, S. Zolezzi, J. Parada, E. Bunel, S. A. Moya, and R. Sariago, "Ruthenium carbonyl complexes in catalytic epoxidation of olefins co-catalyzed by isobutyl-aldehyde," *Applied Organometallic Chemistry* 2006, 20(4), 260-263.

Anil S. Guram, Anthony O. King, John G. Allen, Xianghong Wang, Laurie B. Schenkel, Johann Chan, Emilio E. Bunel, Margaret M. Faul, Robert D. Larsen, Michael J. Martinelli, and Paul J. Reider, "New air-stable catalysts for general and efficient Suzuki-Miyaura cross-coupling reactions of heteroaryl chlorides," *Organic Letters* 2006, 8(9), 1787-1789.

Jinkun Huang, Emilio Bunel, Alan Allgeier, Jason Tedrow, Thomas Storz, J. Preston, Tiffany Correll, Deana Manley, Troy Soukup, Randy Jensen, Rashid Syed, George Moniz, Robert Larsen, Michael Martinelli, and Paul J. Reider, "A highly enantioselective catalyst for asymmetric hydroformylation of [2.2.1]-bicyclic olefins," *Tetrahedron Letters* 2005, 46(45), 7831-7834.

Christopher C. Scarborough, Michael J. W. Grady, Iliia A. Guzei, Bhavesh A. Gandhi, Emilio E. Bunel, and Shannon S. Stahl, "PdII complexes possessing a seven-membered N-heterocyclic carbene ligand," *Angewandte Chemie, International Edition* 2005, 44(33), 5269-5272.

Pedro J. Perez, Joseph C. Calabrese, and Emilio E. Bunel, "Synthesis, Characterization and Reactivity of  $[(^i\text{Pr})_2\text{P}(\text{CH}_2)_3\text{P}(^i\text{Pr})_2](\text{PCy}_3)\text{PdH}[\text{OR}]$ ," *Organometallics* 2005, 20(2), 337-345.

## Patents

Emilio Bunel, Anil Guram, and Qingyian Liu, "Catalyzed process of making C-5-substituted heterocyclic inhibitors of 11- $\beta$ -hydroxy steroid dehydrogenase type 1. " U.S. Pat. Appl. Publ. 2007, US 2007117985 A1 20070524.

Emilio Enrique Bunel, Robert Peter Gajewski, Charles David Jones, Jianliang Lu, Sunil Nagpal, Tianwei Ma, Ying Kwong Yee, Preparation of non-steroidal vitamin D receptor modulators. PCT Int. Appl. 2005, WO 2005051893.