## **Author Profile**



V. L. Pecoraro

The author presented on this page has recently published his 10th article since 2000 in Angewandte Chemie: "Design of a Three-Helix Bundle Capable of Binding Heavy Metals in a Triscysteine Environment": S. Chakraborty, J. Yudenfreund Kravitz, P. W. Thulstrup, L. Hemmingsen, W. F. DeGrado, V. L. Pecoraro, Angew. Chem. 2011, 123, 2097-2101; Angew. Chem. Int. Ed. 2011, 50, 2049 - 2053.



The work of V. L. Pecoraro has been featured on the cover of Angewandte Chemie: "Heterochromia in Designed Metallopeptides:

Geometry-Selective Binding of Cd<sup>II</sup> in a De Novo Peptide": O. Iranzo, C. Cabello, V. L. Pecoraro, Angew. Chem. 2007, 119, 6808-6811; Angew. Chem. Int. Ed. 2007, 46, 6688-6691.

## Vincent L. Pecoraro

Date of birth: August 31, 1956

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Position: John T. Groves Collegiate Professor of Chemistry, University of Michigan, Ann Arbor (USA)

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**Education**: 1974–1977 BS UCLA, Los Angeles (USA) 1977-1981 PhD with Ken Raymond at the University of California, Berkeley (USA)

1981-1984 NIH Postdoctoral Fellow with W. W. Cleland, University of Wisconsin, Madison

1986-1989 G. D. Searle Biomedical Research Scholar; 1989-1990 Alfred P. Sloan Fellow; 1998-Awards:

1999 Alexander von Humboldt Research Award; 2010 Vanadis Award; 2011–2012 Blaise Pascal

International Chair for Research

The use of de novo designed peptides for the development of new metalloprotein catalysts and **Current research** interests: in order to understand heavy metal biochemistry. Development of the chemistry of metal-

lacrowns and their applications as molecular magnets, porous materials, imaging agents, and catalysts. Elucidation of the chemical mechanism of manganese enzymes, particularly the Oxygen-Evolving Complex of Photosystem II. Clarification of the biological chemistry of

vanadium, especially the chemical mechanism of vanadium haloperoxidases.

Hobbies: Travelling, photography, history, languages, enjoying good food, wine, and friends

## My best investment was ... my education.

The best advice I have ever been given is ... "Don't get bogged down in BS".

My favorite place on earth is ... oscillating between Paris and Kauai.

The biggest problem that scientists face is ... the increasing emphasis on the acquisition of money, rather than high quality scholarship, as the driving force for defining the best scientific problems.

My favorite food is ... my mom's eggplant parmigiana.

The most important thing I learned from my parents is ... respect others.

If I won the lottery, I would ... buy a château close to Paris, outfit it with the latest scientific equipment, move my research group, and then pursue what I felt were the most interesting scientific paths (if Peggy—my wife—would let me, of course).

f I were not a scientist, I would be ... an architect.

## My 5 top papers:

- 1. "Stability constants of magnesium and cadmium complexes of adenine nucleotides and thionucleotides and rate constants for formation and dissociation of magnesium-ATP and magnesium-ADP": V. L. Pecoraro, J. D. Hermes, W. W. Cleland, Biochemistry 1984, 23, 5262-5271. (Provided a quantitative basis for understanding phosphorothioate reversal studies, which are important in clarifying the mechanism of nucleophosphate-utilizing enzymes and ribozymes.)
- 2. "Isolation and characterization [Mn<sup>III</sup>(salicylhydroximate)]<sub>4</sub> (acetate)<sub>2</sub>(DMF)<sub>6</sub>}· 2DMF: An Inorganic Analogue of M2+ (12-crown-4)": M. S. Lah, V. L. Pecoraro, J. Am. Chem. Soc., 1989, 111, 7258-7259. (The first report of a metallacrown, one of the earliest examples of a complete metallamacrocycle.)
- 3. "A proposal for water oxidation in photosystem II": V. L. Pecoraro, M. J. Baldwin, M. T. Caudle, W.-Y. Hsieh, N. A. Law, Pure & Appl. Chem., 1998, 70, 925 -929. (This article provided a mechanism for the

- formation of an O-O bond using water/hydroxide ions bound to calcium attacking a high-valent Mn oxo atom in a tetranuclear cluster.)
- "Synthesis, Structure, and Magnetic Properties of a Novel Lanthanide-Transition Metal Complex: Dy<sub>6</sub>Mn<sub>6</sub>(salicylhydroximate)<sub>16</sub>": C. M. Zaleski, E. C. Depperman, J. W. Kampf, M. L. Kirk, V. L. Pecoraro, Angew. Chem. 2004, 116, 4002-4004; Angew. Chem. Int. Ed. 2004, 43, 3912 – 3914. (The first paper to report a Mn-lanthanide single-molecule magnet.)
- 5. "Heterochromia in Designed Metallopeptides: Geometry-Selective Binding of CdII in a De Novo Peptide": O. Iranzo, C. Cabello, V. L. Pecoraro, Angew. Chem. 2007, 119, 6808-6811; Angew. Chem. Int. Ed. 2007, 46, 6688-6691. (Demonstrated how one could completely control the coordination number of the same ion in different parts of the same de novo peptide, which eventually allowed for the present design of mixed metal metallohydrolases and metalloredox proteins.)

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