CURRICULUM VITAE

Vittorio Farina

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EDUCATION

1977	Laurea degree (*Summa cum Laude*) in Chemistry at the University of Pisa, Italy.
1982	Ph.D. in Organic Chemistry, the University of Alberta (Edmonton, AB, Canada)
1981-83	Post-doctoral fellowship, Cornell University (Ithaca, NY, USA)

WORK EXPERIENCE

1977-81	University of Alberta. Ph.D. work with **Prof. D.L.J. Clive** on organoselenium chemistry and new cuprate reagents.
1981-83	Postdoctoral Fellow, Cornell University. Research with **Prof. J.E. McMurry** on the total synthesis of morphinanes, Amaryllidaceae alkaloids, and digitoxin.
1983-86	Research Scientist at **Bristol-Myers in Syracuse, NY, Dept. of Chemical Process Development**. Work included the discovery of new processes in the area of cephalosporin and nucleoside chemistry in support of scale-up efforts toward clinical APIs.
1986-87	Senior Research Scientist, **Bristol-Myers**, Process Development.
1987-89	Senior Research Scientist, **Bristol-Myers Wallingford, CT**, **Dept. of Antitumor Chemistry**. Areas of research were in the development of enzyme inhibitors and in site-selective drug delivery, utilizing new strategies in conjunction with tumor- specific monoclonal antibodies.
1989-91	Senior Research Investigator II, **Bristol-Myers Squibb**, Antitumor Chemistry.
1991-1993	Principal Scientist, **Bristol-Myers Squibb**, Antitumor Chemistry. Primary responsibility for the development of the taxol analog program.

Research was oriented toward the study of natural products as chemotherapeutic agents and their synthetic modifications.

4/93-4/94 Associate Director, Medicinal Chemistry, **Boehringer-Ingelheim** in Ridgefield, CT. Responsible for programs in Virology and Cardiovascular Diseases, as well as early scale-up.

4/94-11/03 Director, Dept. of Chemical Development, **Boehringer-Ingelheim,** Ridgefield, CT. Built department from ground zero, responsible for Process Research, Pilot Plant operations, outsourcing activities, Solid State Characterization activities, and In-Process Control group at Ridgefield CT site as well as the Richmond, VA operations. Activities include bulk synthesis of drug substances, new process exploration and establishment of commercially viable synthetic routes of new NCEs. Responsibility for IND and DMF filing. Some experience with process validation and FDA pre-approval inspections. Technology transfer to late development groups in Ingelheim, Germany and Petersburg, VA.

4/03-11/03 Sabbatical at **BI Pharma KG, Ingelheim, Germany**.

10/03-11/06 Highly Distinguished Scientist, Department of Chemical Development, **Boehringer-Ingelheim.**

12/06-12/09 Senior Research Fellow, **Johnson and Johnson Pharmaceutical R&D, Beerse, Belgium**. Responsibilities include development of new processes from early development to production.

1/2010-12/2018 Senior Scientific Director and Janssen Fellow, Pharmaceutical Development and Manufacturing Sciences, **Janssen Pharmaceutica, Beerse, Belgium**. Responsible for development of APIs from pre-development to post-approval.

2/2019-date **President, Farinachem Consulting GmbH,** Aachen, Germany. Consulting on all aspects of chemical process development in the Pharma Industry.

LANGUAGES

Italian (mother tongue); **English** (bilingual level); **German** (fluent); **Dutch** (basic); **French** (basic).

EXTERNAL AWARDS

Date	Award
1981	Research Grant, Alberta Heritage Foundation for Medical Research
1979-81	Izaak Walton Killam Fellowship, University of Alberta
1978	H.H. Parlee Memorial Fellowship, Univ. of Alberta
2014	Award for Organic Chemistry in its Industrial Applications, from the Società Chimica Italiana

SCIENTIFIC ACTIVITIES

April 1995	*Chairman*, Symposium "Transition Metal-Catalyzed Cross-Coupling Reactions", ACS National Meeting, Anaheim, California
2000-2015	*Editorial Board,* Organic Reactions
2015-present	*Advisory Board,* Organic Reactions
2004	*Guest Editor*, Special Issue of *Advanced Synthesis and Catalysis*
2009	*Chairman,* ACS Prospectives on Process Chemistry, Durham, NC (USA)
2010-present	*Editorial Advisory Board,* Advanced Synthesis and Catalysis
2012	*Chairman,* Gordon Research Conference on Stereochemistry, Newport, RI (USA)
2016-present	*International Advisory Board,* Ischia Advanced School of Organic Chemistry
2017-2021	*Editorial Advisory Board,* Beilstein Journal of Organic Chemistry
2017-present	*International Advisory Board,* International Symposium on Homogeneous Catalysis

TEACHING EXPERIENCE

2002-2006 Visiting Professor, Università del Piemonte Orientale, Novara, IT.

Courses taught: Organometallic Chemistry; Stereochemistry in Drug Discovery and Development; Cross-Coupling Chemistry; Process Development in the Pharmaceutical Industry.

2017-present: Founder and Faculty Member, International School of Process Chemistry (ISPROCHEM), held annually in Gargnano (BS, Italy).

2018-2020: Visiting Professor, Università del Piemonte Orientale, Novara, IT.

2020-2021: Visiting Professor, Università di Torino, Torino, IT.

2020-present: Founder and Faculty Member, MS Program in Pharmaceutical Process Development, Università di Milano, Milano, IT.

Courses taught: Transition Metal Catalysis; Process Development in the Pharmaceutical Industry, Stereochemistry in Drug Development.

ADDITIONAL: 51 lectures at conferences and universities, 19 patent families, 119 refereed publications, 2 books.

Vittorio Farina
Most significant publications

1. Hernan-Gomez, A.; Orr, S. A.; Uzelac, M.; Kennedy, A. R.; Barroso, S.; Jusseau, X.; Lemaire, S.; **Farina, V.**; Hevia, E., "Exploiting Synergistic Effects in Organozinc Chemistry for Direct Stereoselective C-Glycosylation Reactions at Room Temperature" *Angew. Chem. Int. Ed*. **2018**, *57*, 10630. **[7 citations]**

2. Hübner, S.; De Vries, J.; **Farina, V**. "Why does Industry not Use Immobilized Transition Metal Complexes as Catalysts?", *Adv. Synth. Catal*. **2016**, *358*, 1. **[231 citations]**

3. Lu, B.; Wei, H.-X.; Zhao, Y.; Dufour, M.; Li, G.; **Farina, V**.; Senanayake, C. "One-pot Regiospecific Synthesis of 2,3-Disubstituted Indoles from 2-Bromoanilides via Consecutive Palladium-Catalyzed Sonogashira Coupling, Amidopalladation and Reductive Elimination", *J. Org. Chem*., **2013**, *78,* 4558**. [52 citations]**

4. Shu, C.; Zeng, X.; Hao, M.-H.; Wei, X.; Yee, N.K.; Busacca, C.A.; Han, Z.; **Farina, V**.; Senanayake, C.H. "RCM Macrocyclization at Practical Conditions: An Efficient Synthesis of HCV Protease Inhibitor BILN2061", *Org. Lett*. **2008**, *10*, 1303. **[96 citations]**

5. Zeng, X.; Wei, X.; **Farina, V**.; Napolitano, E.; Xu, Y.; Zhang, L.; Haddad, N.; Yee, N. K.; Grinberg, N.; Shen, S.; Senanayake, C. H., "Epimerization Reaction of a Substituted Vinylcyclopropane Catalyzed by Ruthenium Carbenes: Mechanistic Analysis", *J. Org. Chem.* **2006**, *71*, 8864. **[36 citations]**

6. Yee, N. K.; **Farina, V**.; Houpis, I. N.; Haddad, N.; Frutos, R. P.; Gallou, F.; Wang, X.-J.; Wei, X.; Simpson, R.D.; Feng, X.; Fuchs, V.; Xu, Y.; Tan, J.; Zhang, L.; Xu, J.; Smith-Keenan, L. L.; Vitous, J.; Ridges, M. D.; Spinelli, E. M.; Johnson, M.; Donsbach, K.; Nicola, T.; Brenner, M.; Winter, E.; Kreye, P.; Samstag, W., **"**Efficient Large-Scale Synthesis of BILN 2061, a Potent HCV Protease Inhibitor, by a Convergent Approach Based on Ring-Closing Metathesis", *J. Org. Chem*. **2006**, *71*, 7133. **[156 citations]**

7. Lu, B. Z.; Zhao, W.; Wei, H.-X.; Dufour, M.; **Farina, V**.; Senanayake, C. H., "A Practical, Mild, One-Pot, Regiospecific Synthesis of 2, 3-Disubstituted Indoles via Consecutive Sonogashira and Cacchi Reactions", *Org. Lett.* **2006**, *8*, 3271. **[130 citations]**

8. **Farina, V.**; Reeves, J. T.; Senanayake, C. H.; Song, J. J. **"**Asymmetric Synthesis of Active Pharmaceutical Ingredients"**,** *Chem. Rev*. **2006,** 106, 2734. **[434 citations]**

9. **Farina, V**. "High-Turnover Catalysts in Cross-Coupling and Heck Chemistry: A Critical Overview", *Adv. Synth. Catal*. **2004**, *346*, 1553**. [655 citations]**

10. **Farina, V**.; Krishnamurthy, V.; Scott, W.J. "The Stille Reaction", *Organic Reactions* **1997**, *50*, 1**. [936 citations]**

11. **Farina, V**.; Kapadia, S.; Krishnan, B.; Wang, C.; Liebeskind, L.S. "On the Nature of the Copper Effect in the Stille Cross-Coupling", *J. Org. Chem.* **1994**, *59*, 5905. **[477 citations]**

12. **Farina, V**.; Krishnan, B. "Large Rate Accelerations in the Stille Reaction with Tri-(2-Furyl) Phosphine and Triphenylarsine as Palladium Ligands: Mechanistic and Synthetic Implications", *J. Am. Chem. Soc.* **1991**, *113*, 9585. **[1029 citations]**