

BIOGRAPHICAL SKETCH

Gregory A. Armstrong

Assistant Professor, Department of Plant Cellular and Molecular Biology, The Ohio State University
500 Aronoff Laboratory, 318 West 12th Avenue, Columbus, OH 43210
E-mail: armstrong.275@osu.edu; Telephone: 614.292.4817; FAX: 614.292.6345

Professional Preparation:

Massachusetts Institute of Technology	Chemistry	B.Sc.	1983
Massachusetts Institute of Technology	Biology	B.Sc.	1983
University of California, Berkeley	Chemistry	Ph.D.	1989
University of California, Berkeley	Chemistry	Postdoctoral	1989
Max Planck Institute for Plant Breeding, Cologne	Biochemistry	Postdoctoral	1990-1991
Institute for Plant Sciences, ETH, Zurich	Plant Genetics	Postdoctoral	1991-1992

Appointments:

2002 – to date	Assistant Professor Department of Plant Cellular and Molecular Biology, The Ohio State University
1996 – 2001	Group Leader (“Oberassistent”) Institute for Plant Sciences, Swiss Federal Institute of Technology (ETH), Zurich
1992 – 1996	Junior Group Leader (“Assistant”) Institute for Plant Sciences, Swiss Federal Institute of Technology (ETH), Zurich

Five Publications Most Relevant to the Current Proposal:

Frick, G., Su, Q., Apel, K. and Armstrong, G. A. (2003) An *Arabidopsis porB porC* double mutant lacking light-dependent NADPH:protochlorophyllide oxidoreductases B and C is highly chlorophyll-deficient and developmentally arrested. *Plant J.*, 35, 141-153.

Su, Q., Frick, G., Armstrong, G. and Apel, K. (2001) POR C of *Arabidopsis thaliana*: A third light- and NADPH-dependent protochlorophyllide oxidoreductase that is differentially regulated by light, *Plant Mol. Biol.*, 47, 805-813.

Armstrong, G. A., Apel, K. and Rüdiger, W. (2000) Does a light-harvesting protochlorophyllide *a/b*-binding protein complex exist? *Trends Plant Sci.*, 5, 40-44.

Franck, F., Sperling, U., Frick, G., Pochert, B., van Cleve, B., Apel, K. and Armstrong, G. A. (2000) Regulation of etioplast pigment-protein complexes, inner membrane architecture, and protochlorophyllide *a* chemical heterogeneity by light-dependent NADPH:protochlorophyllide oxidoreductases A and B. *Plant Physiol.*, 124, 1678-1696.

Sperling, U., Franck, F., van Cleve, B., Frick, G., Apel, K. and Armstrong, G. A. (1998) Etioplast differentiation in *Arabidopsis*: Both PORA and PORB restore the prolamellar body membrane and photoactive protochlorophyllide-F655 to the *cop1* photomorphogenic mutant. *Plant Cell*, 10, 283-296.

Five Other Significant Publications:

Ougham, H. J., Thomas, A. M., Thomas, B. J., Frick, G. A. and Armstrong, G. A. (2001) Both light-dependent protochlorophyllide oxidoreductase A and protochlorophyllide oxidoreductase B are down-regulated in the *slender* mutant of barley, *J. Exp. Bot.*, 52, 1447-1454.

Armstrong, G. A. (1999) Carotenoid genetics and biochemistry. In Cane, D. E. (ed.), *Comprehensive Natural Products Chemistry, Volume 2: Isoprenoids Including Carotenoids and Steroids*. Elsevier Science Ltd., Oxford, United Kingdom, pp. 321-352.

Sperling, U., van Cleve, B., Frick, G., Apel, K. and Armstrong, G. A. (1997) Overexpression of light-dependent PORA or PORB in plants depleted of endogenous POR by far-red light enhances seedling survival in white light and protects against photooxidative damage. *Plant J.*, 12, 649-658.

Burkhardt, P. K., Beyer, P., Wünn, J., Klöti, A., Armstrong, G. A., Schledz, M., v. Lintig, J. and Potrykus, I. (1997) Transgenic rice (*Oryza sativa* L.) endosperm expressing daffodil (*Narcissus pseudonarcissus*) phytoene synthase accumulates phytoene, a key intermediate of provitamin A biosynthesis. *Plant J.*, 11, 1071-1078.

Armstrong, G. A. (1997) Genetics of eubacterial carotenoid biosynthesis: a colorful tale. *Annu. Rev. Microbiol.*, 51, 629-659.

Synergistic Activities:

2002 – to date: Curriculum development for undergraduate and graduate plant physiology lecture courses (PCMB 436, PCMB 630) in the Department of Plant Cellular and Molecular Biology, Ohio State University. Videoconferenced presentation to middle school students via the COSI science museum, Columbus, OH. Participation as a judge at school science fairs. Consultant for high school science projects. Member of the Ohio Plant Biotechnology Consortium.

1998 – to date: Ad hoc grant reviewer for NSF, DOE, USDA, BARD and HFSP.

1994 – 2001: Curriculum development for undergraduate and graduate plant molecular biology lab and plant physiology lecture courses, Institute for Plant Sciences, ETH, Zurich.

1994 – 1997: Consultant for the Rockefeller Foundation Rice Biotechnology Program “Golden Rice” project to genetically engineer provitamin A biosynthesis in rice endosperm, headed by Ingo Potrykus, Institute for Plant Sciences, Plant Biotechnology, ETH, Zurich.

Collaborators and Other Affiliations:

Collaborators.

Klaus Apel (ETH, Zurich, Switzerland), Fabrice Franck (Université de Liège, Liège, Belgium), Geneviève Frick (Swiss Federal Research Station for Animal Production, Posieux, Switzerland), Helen Ougham (Institute of Grassland and Environmental Research (IGER), Aberystwyth, United Kingdom), Babette Pochert (public school system, Chur, Switzerland), Wolfhart Rüdiger (Universität-München, Munich, Germany), Ulrich Sperling (Prionics AG, Zurich, Switzerland), Qingxiang Su (ETH, Zurich, Switzerland), A. M. Thomas (IGER, Aberystwyth, United Kingdom), B. J. Thomas (IGER, Aberystwyth, United Kingdom), Barbara van Cleve.

Graduate and Postdoctoral Advisors.

John E. Hearst—Ph.D. advisor (University of California, Berkeley, CA (emeritus) and Cerus Corporation, Concord, CA); Klaus Hahlbrock—Postdoctoral advisor (Max Planck Institute for Plant Breeding, Cologne, Germany (emeritus)); Klaus Apel—Postdoctoral advisor (ETH, Zurich, Switzerland).

Thesis Advisor and Postgraduate-Scholar Sponsor.

Maria del Rosario Barbieri and Troy Paddock—current Ph. D. students (Ohio State University, Columbus, OH). Dr. Daewon Lee—visiting faculty (Dongguk University, Republic of South Korea). Dr. Ulrich Sperling—Ph.D. student (Prionics AG, Zurich, Switzerland). Dr. Bernd Geiges—Ph.D. student (Postdoctoral researcher with Thomas Laux, Universität-Freiburg, Freiburg, Germany). Babette Pochert—Masters student (“Diplom”) (public school system, Chur, Switzerland).

Total Students Supervised and Postgraduate-Scholars Sponsored.

3 B.S. (1 current), 1 M.S., 4 Ph.D. (2 current), 1 postgraduate faculty scholar