Yingbin Fu

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EDUCATION

Peking University, Beijing, P. R. China (1987-1991)
Bachelor of Science in Biochemistry, 1991

Michigan State University, East Lansing, Michigan (1992-1998)
Doctor of Philosophy in Biochemistry, 1998

- Graduate Judiciary Committee member of Biochemistry Department

HONORS

PHI BETA DELTA (Honor Society for International Scholars)

Invited speaker, *2003 FASEB Summer Research Conference: The Biology and Chemistry of Vision,* Tucson, Arizona, June 21-26, 2003

Presentation award, *2005 FASEB Summer Research Conference: The Biology and Chemistry of Vision,* Tucson, Arizona, June 18-23, 2005

TEACHING EXPERIENCE

Michigan State University, East Lansing, Michigan

- Teaching Assistant, undergraduate course "Biochemistry Laboratory I" 1993
- Teaching Assistant, undergraduate course "Introduction to Biochemistry" 1994

Johns Hopkins University School of Medicine, Baltimore, Maryland

- Supervising undergraduate student research projects in Neuroscience 2004-present

RESEARCH EXPERIENCE

Michigan State University, East Lansing, Michigan 1992-1998
Graduate Assistant
Carcinogenesis Laboratory (1992-1993)
Starch Bio-Engineering Group, Department of Biochemistry (1993-1998)

- Examination of the mechanisms of the hypermutability of xeroderma pigmentosum variant cells.
- Investigation of the possible role of PDGF expression in the development of tumors of mesenchymal origin in humans.
- Mutagenesis studies on the substrate binding site of potato tuber ADP-glucose pyrophosphorylase, a key regulatory enzyme in starch biosynthesis.
- Structure-function studies on ADP-glucose pyrophosphorylase leading to the concept that its small subunit is the catalytic subunit and the discovery on the reductive activation mechanism of this enzyme.

Johns Hopkins University School of Medicine, Baltimore, Maryland 1998-present
Postdoctoral Fellow, Department of Neuroscience

- Investigate the role of visual pigments in the differences between rod and cone phototransductions.
- Role of melanopsin in intrinsically photosensitive retinal ganglion cells.
- Role of G protein βγ subunits in phototransduction cascade.

PERSONAL

Date of Birth: October 1, 1970
Citizenship: P. R. China, Permanent Resident of USA
Marital Status: Married

PUBLICATIONS

Refereed Publications

Ballicora, M. A., Laughlin, M. J., **Fu, Y.**, Okita, T. W., Barry, G. F., and Preiss, J. (1995) Adenosine 5'-diphosphate pyrophosphorylase from potato tuber. Significance of the N-terminus of the small subunit for catalytic properties and heat stability. *Plant Physiol.* 109: 245-251.

Fu, Y., Ballicora, M. A., and Preiss, J. (1998) Mutagenesis of the glucose-1-phosphate binding site of potato tuber ADP-glucose pyrophosphorylase. *Plant Physiol.* 117: 989-996.

Ballicora, M. A, **Fu, Y.**, Nesbitt, N. M., and Preiss, J. (1998) ADP-glucose pyrophosphorylase from potato tubers. Site-directed mutagenesis study on the regulatory sites. *Plant Physiol.* 118: 265-274.

Fu, Y., Ballicora, M. A., and Preiss, J. (1998) Mechanism of reductive activation of potato tuber ADP-glucose pyrophosphorylase. *J. Biol. Chem.* 273: 25045-25052.

Ballicora, M. A, **Fu, Y.**, Frueauf, J. B., and Preiss, J. (1999) Heat stability of the potato tuber ADP-glucose pyrophosphorylase: Role of Cys residue 12 in the small subunit. *Biochem. Biophys. Res. Commun.* 257: 782-786.

Ballicora, M. A., Frueauf, J.B., **Fu, Y.**, Schurmann, P., Preiss, J. (2000) Activation of the potato tuber ADP-glucose pyrophosphorylase by thioredoxin. *J. Biol. Chem.* 275:1315-1320.

Kefalov, V.*, **Fu, Y.***, Marsh-Armstrong, N., Yau, K.W. (2003) Role of visual pigment properties in rod and cone phototransduction. *Nature.* 425:526-531.
***Equal contribution co-first authors.**

Fu, Y., Zhong, H., Wang, M. H., Luo, D. G., Liao, H. W., Maeda, H., Hattar, S., Frishman, L. J., Yau, K. W. (2005) Intrinsically photosensitive retinal ganglion cells detect light with a vitamin A-based photopigment, melanopsin. *Proc Natl Acad Sci U S A* 102(29):10339-10244.

Fu, Y.*, Kefalov, V.*, Yau, K. W. Intrinsic noise of human red cone pigment. *Manuscript to be submitted to Neuron.*
***Equal contribution co-first authors.**

Wang, Z.*, **Fu Y***, Kefalov, V., Shulga-Morskoy, S. V., Yau, K. W., Lem, J. Role of Gβγ in activation and termination of phototransduction. *Manuscript in preparation.*
***Equal contribution co-first authors.**

Review & Book Chapters

Preiss, J., Ballicora, M. A., Laughlin, M. J., **Fu, Y.**, Okita, T. W., Barry, G. F., Guan, H. P., and Sivak, M. N. (1995) Studies on the starch biosynthetic enzymes for manipulation of starch content and quality. In: *Current Topics in Plant Physiology, Vol 13: Carbon partitioning and source-sink interactions in plants* (Madore, M. A. and Lucas, W. J., Eds.), Amer. Soc. Plant Physiol., Rockville, MD, pp. 91-99.

Preiss, J., Guan, H. P., **Fu, Y.**, Ballicora, M. A., and Sivak, M. (1995) Can we assign specific roles for the starch synthetic enzymes with respect to starch biosynthesis? In: *Current Topics in Plant Physiology, Vol 14: Sucrose metabolism, biochemistry, physiology and molecular biology* (Pontis, H. G., Salerno, G. and Echeverria, E. D., Eds.), Amer. Soc. Plant Physiol., Rockville, MD, pp. 128-142.

Preiss, J., Sheng, J., **Fu, Y.**, and Ballicora, M. A. (1996) Studies on the catalytic and regulatory sites of the cyanobacterial and higher plant ADP-glucose pyrophosphorylase, a regulatory enzyme of starch synthesis. In: *Proceedings of the Xth international Photosynthesis Congress*, (Mathis, P., Ed.) Kluwer academic publishers. Vol. 5: 47-52.

Ballicora, M. A, **Fu, Y.**, Wu, M. X., Sheng, J., Nesbitt, N. M., and Preiss, J. (1996) Studies on the catalytic and regulatory sites of bacterial and plant ADP-glucose pyrophosphorylases. In: *Regulation and Manipulation of Starch and Sucrose Metabolism in Plants*, (Nakamura, Y., Ed.) , NIAR/COE International Symposium, Tsukuba, Japan, November 11-12, 1996. pp. 5-11.

Preiss, J. Ballicora, M. and **Fu, Y.** (1999) Allosteric regulation and reductive activation of AGPase. In: *Plant Carbohydrate Biochemistry* (Bryant, J.A., Burrel, M.M. and Kruger, N.J., Eds.) BIOS Scientific Publishers Ltd, Oxford, UK. pp. 103-125.

Preiss, J. Ballicora, M.A., **Fu, Y.**, Sheng, J. And Wu, M. X. (1999) Regulation of higher plant leaf and reserve tissue starch synthesis. In: *Plant Biotechnology and in vitro Biology in the 21st Century.* (Altman, A., Ziv, M., Izhar, S., Eds.) Kluwer Academic Publishers, Dordrecht/Boston/London. pp. 315-319.

Fu, Y., Liao, H. W., Do, M. T., Yau, K. W. (2005) Non-image-forming ocular photoreception in vertebrates. *Curr Opin Neurobiol.* 15(4):415-22.

Conference Papers

Fu, Y., Kefalov, V., Lai, J., and Yau, K.W. Study of cone pigment function with a transgenic mouse model. *ARVO 2002.* Fort Lauderdale, Florida, May 5-10, 2002.

Kefalov, V., **Fu, Y.**, Marsh-Armstrong, N., Yau, K.W. Functional Expression of Human Red Cone Opsin in *Xenopus Laevis* Rods. *ARVO 2002.* Fort Lauderdale, Florida, May 5-10, 2002.

Fu, Y. Rod/cone differences. *2003 FASEB Summer Research Conference: The Biology and Chemistry of Vision,* Tucson, Arizona, June 21-26, 2003

Kefalov, V., **Fu, Y.**, Yau, K.W. Higher Rate of Thermal Activation of Red Cone Pigments With 11–*Cis* A2 Compared to 11–*Cis* A1 Retinal as Chromophore. *ARVO 2005.* Fort Lauderdale, Florida, May 1-5, 2005.

Fu, Y., Zhong, H., Wang, M. H., Luo, D. G., Liao, H. W., Maeda, H., Hattar, S., Frishman, L. J., Yau, K. W. Intrinsically photosensitive retinal ganglion cells detect light with a vitamin A-based photopigment, melanopsin. *2005 FASEB Summer Research Conference: The Biology and Chemistry of Vision,* Tucson, Arizona, June 18-23, 2005.