
BIOGRAPHICAL SKETCH

NAME	POSITION TITLE		
Donnelly, Mark I.	Biochemist		
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
University of Minnesota	BS	1973	Biology
University of Minnesota	PhD	1980	Biochemistry
Oak Ridge National Laboratory	Postdoctoral	1981-83	Biochemistry
University of Illinois	Postdoctoral	1983-86	Microbiology

Professional Experience:

1975-1980 - *Graduate Student* (Dr. Stanley Dagley)

University of Minnesota, Department of Biochemistry, St. Paul, Minnesota

Methanol production in the degradation of aromatic methoxyl groups by *Pseudomonads*

1981–1983 - *Postdoctoral Investigator* (Dr. Fred Hartman)

Oak Ridge National Laboratory, Biology Division, Oak Ridge, Tennessee

Activation of *R. rubrum* ribulosebisphosphate carboxylase by carbon dioxide

1983-1986 - *Postdoctoral Investigator* (Dr. Ralph Wolfe)

University of Illinois, Urbana-Champaign, Illinois

Enzymes and intermediates involved in methanogenesis from carbon dioxide and hydrogen

1986-1992 - *Scientist*

Amoco Technology Company, Naperville, Illinois

Oxidation of methane by methane monooxygenase of *Methylosinus trichosporium*

1992-2007 - *Biochemist*

Argonne National Laboratory, Argonne National Laboratory

Protein expression and enzymology, Metabolic engineering for production of chemicals

2007-present – *STA Biochemist (retired)*

Argonne National Laboratory, Argonne National Laboratory

Selected Publications (peer reviewed – total from 42):

Graslund, S., et al. (2008) Protein production and purification *Nature Methods* 5, 135-146.

L. Stols, M. Zhou, W.H. Eschenfeldt, C.S. Millard, J. Abdullah, F.R. Collart, Y. Kim, and M.I. Donnelly (2007) New vectors for co-expression of proteins: Structure of *Bacillus subtilis* ScoAB obtained by high-throughput protocols. *Protein Expr. Purif.* 53, 396-403.

Donnelly MI, Zhou M, Millard CS, Clancy S, Stols L, Eschenfeldt WH, Collart FR, Joachimiak A. (2006) An expression vector tailored for large-scale, high-throughput purification of recombinant proteins. *Protein Expr Purif.* 47, 446-54.

K. M. Kemner, S. D. Kelly, E. J. O'Loughlin, T. Khare, L. A. Moe, B. G. Fox, M. I. Donnelly, Y. Londer, M. Schiffer and C.S. Giometti (2005) XRF and XAFS Analysis of Electrophoretically Isolated Nondenatured Proteins. *Physica Scripta* Vol.T115, 940–942.

Eirich, L. D., D. L. Craft, L. Steinberg, A. Asif, W. H. Eschenfeldt, L. Stols, M. I. Donnelly, and C. R. Wilson (2004) Cloning and Characterization of Three Fatty Alcohol Oxidase Genes from *Candida tropicalis* Strain ATCC 20336. *Appl. Environ. Micro.* 70, 4872-4879.

Stols, L., C. Sanville Millard, I. Dementieva, and M. I. Donnelly (2004) Production of selenomethionine-labeled proteins in two-liter plastic bottles for structure determination. *J. Struct. Funct. Genomics* 5, 95-102.

-
- William H. Eschenfeldt, Yeyan Zhang, Hend Samaha, Lucy Stols, L. Dudley Eirich, C. Ronald Wilson, and Mark I. Donnelly (2003) Transformations of Fatty Acids Catalyzed by Cytochrome P450 Monooxygenase Enzymes of *Candida tropicalis*. *Appl. Environ. Microbiol.* 69, 5992-5999.
- Millard, C.S., Stols, L., Quartey, P., Kim, Y., Demetieva, I., and Donnelly, M.I. (2003) A less laborious approach to the high-throughput production of recombinant proteins in *Escherichia coli* using 2-liter plastic bottles *Prot. Express. Purif.* (In Press).
- Stols, L., Gu, M., Dieckman, L., Raffin, R., Collart, F.R., and Donnelly, M.I. (2002) A New Vector for High Throughput, Ligation Independent Cloning Encoding a TEV Protease Cleavage Site. *Prot. Expr. Purif.* 25, 8-15.
- Dieckman, L., Gu, M., Stols, L., Donnelly, M.I., and Collart, F.R. (2002) High Throughput Methods for Gene Cloning and Expression, *Prot. Expr. Purif.* 25, 1-7.
- Eschenfeldt, W.H., L. Stols, H. Rosenbaum, Z. S. Khambatta, E. Quait-Randall, S. Wu, D.C. Kilgore, J.D. Trent, and M.I. Donnelly (2001) DNA from Uncultured Organisms as a Source of 2,5-Diketo-D-Gluconic Acid Reductases. *Appl. Environ. Microbiol.* 67, 4206-4214.
- Donnelly, M.I., P. Wilkins Stevens, L. Stols, S. X. Su, S. Tollaksen, C.S. Giometti, and A. Joachimiak (2001) Expression of a Highly Toxic Protein, Bax, in *Escherichia coli* by Attachment of a Leader Peptide Derived from the GroES Co-chaperone. *Protein Expr. Purif.* 22, 422-429.
- Chatterjee, R., C. S. Millard, K. M. Champion, D. P. Clark, and M. I. Donnelly (2001) Mutation of the *ptsG* Gene Results in Increased Production of Succinate in the Fermentation of Glucose by *Escherichia coli*. *Appl. Environ. Microbiol.* 67, 148-154.
- Donnelly, M.I., Sanville, C.M., Clark, D.P., Chen, M.J., and Rathke, J.W. (1998) A new fermentation pathway to succinic acid in a mutant *Escherichia coli*. *Appl. Biochem. Biotechnol.* 70-72, 187-198.
- Stols, L. and Donnelly, M.I. (1997) Production of succinic acid through overexpression of NAD⁺ dependent malic enzyme in an *Escherichia coli* mutant. *Appl. Environ. Microbiol.* 63, 2695-2701.
- Millard, C.S., Chao, Y.-P., Liao, J.C., and Donnelly, M.I. (1996) Enhanced production of succinic acid by overexpression of phosphoenolpyruvate carboxylase in *Escherichia coli*. *Appl. Environ. Microbiol.* 62, 1808-1810.
- Boernke, W.E., Millard, C.M., Wilkins-Stevens, P., Stevens, F.J., and Donnelly, M.I. (1995) Stringency of substrate specificity of *Escherichia coli* malate dehydrogenase. *Arch. Biochem Biophys.* 322, 43-52.
- Weaver, T.M., Levitt, D.G., Wilkins Stevens, P., Donnelly, M.I., and Banaszak, L.J. (1995) The multisubunit active site of fumarase C from *Escherichia coli*. *Nature Struct. Biol.* 2, 654-662.
- Rataj, M.J., Kauth, J.E., and Donnelly, M.I. (1991) Oxidation of deuterated compounds by high specific activity methane monooxygenase from *methylosinus trichosporium*: Mechanistic implications. *J. Biol. Chem.* 266, 18684-18690.
- Donnelly, M.I. and Wolfe, R.S. (1986) The role of formylmethanofuran:tetrahydromethanopterin formyltransferase in methanogenesis from carbon dioxide. *J. Biol. Chem.* 261, 166532-16659.
- Donnelly, M.I., Hartman, F.C., and Ramakrishnan, V.R. (1984) The shape of ribulosebisphosphate carboxylase/oxygenase in solution as inferred from small angle neutron scattering. *J. Biol. Chem.* 259, 406-411.
- Donnelly, M.I., and Dagley, S. (1980) Production of methanol from aromatic acids by *Pseudomonas putida*. *J. Bacteriol.* 142, 916-924.

Patents

Donnelly, M.I., Production of a Highly Active, Soluble Form of the Cytochrome P450 Reductase (CPRA) from *Candida tropicalis*, 7,083,960, August 1, 2006.

Donnelly, M.I., Eschenfeldt, W.H., and Trent, J., 2,5-Diketo-L-Gluconic Acid Reductases and Methods of Use. 6,864,075, March 30, 2005.

Donnelly, M.I., Millard, C.S, and Nghiem, N. Method to produce succinic acid from raw hydrolysates. USPTO Patent 6,743,610, June 1, 2004.

Donnelly, M.I., and Joachimiak, A., "Methods for Production of Proteins in Host Cells," 6,677,139, January 13, 2004.

Donnelly, M.I., Chatterjee,R., Millard, C.S. Method for construction of bacterial strains with increased succinic acid production. USPTO Patent 6,159,738, Dec. 12, 2000.

Ngheim, N.P., Donnelly, M.I., Millard, C.S., and Stols, L. Method for the production of dicarboxylic acids. USPTO Patent 5,869,301, Feb. 9, 1999.

Donnelly, M.I., Millard, C.S., and Stols, L. Mutant Escherichia coli strain with increased production of succinic acid. USPTO Patent 5,770,435, Jun. 23, 1998.

Research Support:

Ongoing

P50 GM62414 (A. Joachimiak, P.I.)
National Institute of Health
Midwest Center for Structural Genomics

09/30/03-current