

Curriculum Vitae **David R. Nelson, Ph.D.**

Address: Department of Biochemistry
858 Madison Ave. Suite G01
University of Tennessee Memphis
Memphis, TN 38163

Education:

Undergraduate

1972-1977 B.S. Chemistry and Biology
University of Washington, Seattle, WA
1972-1977 B.S. Mathematics (Numerical Analysis)
University of Washington, Seattle, WA

Graduate

1978-1985 Ph.D. Biochemistry
University of Texas Health Science Center at San Antonio
Supervising Professor: Donald J. Hanahan, Ph.D.
Dissertation Title: Studies on a Membrane Protein: The Lipid Requirement and Topology of Human Erythrocyte (Ca²⁺ + Mg²⁺)-ATPase

Postgraduate

1985-1988 Postdoctoral Fellow, Department of Biochemistry and Molecular Biology, University of Texas Medical School at Houston, Laboratory of Henry W. Strobel, Ph.D.
Research: Membrane protein interactions between cytochrome P450 and cytochrome P450 reductase.
Membrane protein topology
Computer analysis of P450 protein sequences
Evolution of the P450 protein superfamily.

1988-1989 Postdoctoral Fellow, Department of Pharmacology, University of NC at Chapel Hill, Chapel Hill, NC Laboratory: Gene Scarborough, Ph.D.
Research: Membrane protein topology of *Neurospora crassa* H⁺ ATPase.

1989-1993 Postdoctoral Fellow, Department of Biochemistry and Biophysics, University of North Carolina at Chapel Hill, Chapel Hill, NC Laboratory: Michael G. Douglas, Ph.D.
Research: Structure of ADP/ATP Translocator of yeast by molecular and genetic methods.

Honors:

Recipient NIH National Research Service Award, November 1990 to Oct. 1993
Nov. 1999 invited to Celera Genomics in early Jan. 2000 to help name and annotate the *Drosophila* genome cytochrome P450s. Celera Genomics is Craig Venter's genomics company that has finished sequencing the fly genome in only four months and later sequenced the human genome.

Dec. 1999 joined the Scientific Advisory Board of Cytochroma, a Canadian company that is developing agents targeting cytochrome P450s.

Society Memberships:

Member of the American Society for Biochemistry and Molecular Biology ASBMB.

Member of the American Association for the Advancement of Science.

University and College Appointments:

2000-present Associate Professor, Department of Molecular Sciences
University of Tennessee, Memphis TN

1994-2000 Assistant Professor, Department of Biochemistry
University of Tennessee, Memphis TN
Research: Structure and function of the ADP/ATP carrier of yeast
Cytochrome P450 evolution, comparative genomics

Invited Lectures:

1. December 11, 1986 -- Evolution of cytochrome P-450 proteins, Department of Demographics and Population Genetics, University of Texas Graduate School of Biomedical Sciences, Houston, TX
2. September 15, 1987 -- Evolution and topology of cytochrome P-450, Department of Cutaneous Hazards, Letterman Army Institute of Research, The Presidio, San Francisco, CA
3. August 1, 1991 -- The use of small computers in analysis of cytochrome P450 sequences. 7th International Conference on the Biochemistry and Biophysics of Cytochrome P450. Moscow, USSR
4. August 20, 1992 -- Studying the structure of membrane proteins by genetic methods in yeast: Application to the mitochondrial adenine nucleotide carrier. Department of Biochemistry, The University of Tennessee, Memphis TN.
5. January 25, 1993 -- Evolution and genetics of Cytochrome P450. Gordon Research Conference on Cytochrome P450 and its relation to agricultural sciences. Oxnard CA Jan. 25-29, 1993.
6. April 21, 1993 -- A charge ratchet model for mitochondrial adenine nucleotide transport.
International conference on "The molecular basis of biological membrane protein structure and function". Aquafreda di Maratea, Italy April 17-22 1993.
7. April 22, 1994 -- Charge Pairs in the yeast ADP/ATP carrier.
Conference on "Structural, Functional and Physiological Aspects of Transport". Munich, Germany.
8. Oct. 10, 1995 -- 450 cytochrome P450s.
Third International Symposium: Cytochrome P450 Biodiversity
Woods Hole MA Oct. 8-12 1995
9. Dec. 15, 1995 -- How many human cytochrome P450s are there? Making sense of 350,000 Expressed Sequence Tags.
Center in Molecular Toxicology, Vanderbilt University
10. June 7, 1996 -- Charge-pair networks in the yeast ADP/ATP carrier.
The Cystic Fibrosis Research Center University of Alabama, Birmingham
11. Aug. 22, 1996 -- Charge pairs in mitochondrial carrier structure.
Catholic University of Louvain at Louvain-la-Neuve, Belgium

- The 9th European Bioenergetics Conference, Aug. 17-22 1996
12. July 12, 1998 -- Five Kingdoms of Cytochrome P450s: The success of a gene. Strasbourg, France. The IVth International Symposium on Cytochrome P450 Biodiversity and Biotechnology.
 13. July 21, 1998 -- Looking for disease causing mutations in human ANT1 and progress on AAC2
 14. Feb. 15, 1999 -- Searching for Mutations in the Human ANT1 Gene. University of Tennessee, Dept. of Pediatrics
 15. July 2, 2000 -- P450s as evolutionary landmarks in the history of life. Copenhagen, Denmark
The Vth International Symposium on Cytochrome P450 Biodiversity and Biotechnology.
 16. July 7, 2000 -- Making phylogenetic trees out of phylogenetic lawns. How far back can we see? Moscow, Russia
Meeting to honor Alexander Archakov's 60th Birthday
 17. July 10, 2000 -- P450 genes, Bioinformatics and Mining the Human Genome. Microsomes and Drug Oxidations 2000, Stressa, Italy
First Plenary session co-chair with Ron Estabrook
 18. Sept. 14, 2001 -- P450s of the lower eukaryote world
12 International Conference on Cytochrome P450
La Grande Motte, France
 19. May 2, 2002 -- Comparative genomics and evolution of Cytochrome P450
Institute of Environmental health Sciences, Wayne State University
Detroit, Michigan
 20. August 21, 2002 -- From Chamydomonas to rice: the evolution of green p450s (session chair)
Sixth International Symposium on P450 Biodiversity: *Functional Biochemistry & Molecular Biology of P450 Cytochromes in Microorganisms, Plants and Insects*
University of California, Los Angeles (UCLA), August 20-25, 2002.
 21. July 26, 2002 – The yield of information from the human genome
Microsomes and Drug Oxidations 2002
Sapporo, Japan July 22-26, 2002
 22. October 4, 2002 – 2.7 billion years of eukaryotic cytochrome p450 evolution.
Woods Hole Oceanographic Institution
Woods Hole, MA
 23. August 2, 2004 – P450 Monogatari. Seventh International Symposium on P450 Biodiversity and Biotechnology. Awaji Island, Japan, August 1-5, 2004.

Editorial Appointments:

I have served as an *ad hoc* reviewer for the following Journals

Archives of Biochemistry and Biophysics

Biochimica et Biophysica Acta

DNA and Cell Biology

Comparative Biochemistry and Physiology

Genomics

Molecular Biology and Evolution

Molecular Pharmacology

Pharmacogenetics

Plant Physiology

Science

Xenobiotica

I have also served as a reviewer for three grants from the National Science Foundation

International Committees

Current member of the Committee on Standardized Cytochrome P450 Gene

Nomenclature

This is an international committee formed for the purpose of maintaining a unified nomenclature for cytochrome P450 genes (over 1000 known sequences)

Members include:

Nelson, D.R., Koymans, L., Kamataki, T., Stegeman, J.J., Feyereisen, R., Waxman, D.J., Waterman, M.R., Gotoh, O., Coon, M.J., Estabrook, R.W., Gunsalus, I.C. and Nebert, D.W.

I am the working member of this committee, meaning I do all the naming with occasional help from others as needed.

Service to the Academic Community

I began a Cytochrome P450 web server in 1995 that I have maintained and expanded ever since as a service to the cytochrome P450 research community. This server now receives about 3000 hits per day (1,000,000 hits per year). This is the official site for cytochrome P450 nomenclature.

The site won a Key Resource Award from Links to Go. The site was reviewed and chosen by ISI (The Institute for Scientific Information) for inclusion in Current Web Contents. As the working member of the Committee on Standardized Cytochrome P450 Nomenclature I name P450 genes from around the world and post those names on my website. I have named about 4000 P450 genes. These include all 80 P450s from *Caenorhabditis elegans* the first animal genome to be sequenced, 272 genes from *Arabidopsis* 455 gene from rice and 90 P450s from the fly genome. I was asked by Celera Genomics to help them annotate the P450 genes of *Drosophila*, which they finished sequencing in Sept. 1999.

Currently I am working on annotation of the rat P450s and 550 cottonwood P450s. The website contains phylogenetic trees, alignments, nomenclature, and information on P450s from various genome projects. There are comments on some of my papers and discussions on evolutionary aspects of cytochrome P450.

URL <http://drnelson.utmem.edu/CytochromeP450.html>

Research and Other External Support:

UT Medical Group

Genetic Approaches to Mitochondrial ADP/ATP transport.

\$12,500 for one year Nov. 1994 to Oct. 1995

National Heart, Lung and Blood Institute grant HL54248

Mitochondrial Carrier Structure and function

\$376,801 total direct costs, \$529,185 total costs

June 1, 1995 to May 31, 1999

No cost extension from June 1, 1999 to May 31, 2000

The Dupont Company

Support for my Cytochrome P450 web site

\$1,000 Sept. 1, 1999

Publications:

Book Chapters:

1. Nelson, D.R. and Robinson, N.C. (1983) Membrane proteins: A summary of known structural information. *Methods in Enzymology* **97**, 571-618.
2. Strobel, H.W., Fang, W.F., Takazawa, R.S., Stralka, D.J., Newaz, S.N., Kurzban, G.P., Nelson, D.R. and Beyer, R.S. (1986) Cytochromes P-450 and the activation and inactivation of mutagens and carcinogens. In: Shankel, D.M., Hartman, P.E., Kada, T. and Hollaender, A., eds., Antimutagenesis and Anticarcinogenesis Mechanisms, Plenum, N.Y. pp. 61-71.
3. Nebert, D.W. and Nelson, D.R. (1991) The naming of cytochrome P450 genes. *Methods in Enzymology* **206**, 3-11.
4. Nelson, D.R. (1992) P450 Sequence Analysis on IBM Compatible Computers. Cytochrome P450: Biochemistry and Biophysics, Proceedings of the 7th International Conference on the Biochemistry and Biophysics of Cytochrome P450. Archakov, A.I. and Bachmanova, G.I., eds, INCO-TNC, Moscow pp. 702-707.
5. Nelson, D.R., Lawson, J.E., Klingenberg, M. and Douglas, M.G. (1992) A genetic approach to studying the structure of membrane transport proteins. Application to the yeast adenine nucleotide translocator. In Molecular Mechanisms of Transport. Quagliariello, E. and Palmieri, F., eds. Elsevier Science Publishers, Amsterdam pp. 197-204.
6. Nelson, D.R. (1995) Cytochrome P450 nomenclature and selected sequences. in Cytochrome P450: Structure, Mechanism and Biochemistry. Ortiz de Montellano, P.R. editor, Plenum, New York, pp. 575-606.
7. Klingenberg, M. and Nelson, D.R. (1995) Structure-function relationships in the mitochondrial carrier family. in: Biochemistry of Cell Membranes: A Compendium of Selected Papers. Papa, S. and Tages, J.B. editors, Birkhauser Verlag, Basel pp. 191-219.
8. Nelson, D. R. Cytochrome P450 nomenclature in: Methods in Molecular Biology Vol. 107, editors Phillips, I.R. and Shephard, E.A., Humana Press Inc., Totowa, NJ
1998 pp. 15-24.
9. Nebert, D.W. and Nelson, D.R. (2002) Cytochrome P450 (*CYP*) Gene Superfamily.
in "Encyclopedia of the Human Genome", Cooper, D.N. (ed.), Macmillan, *in press*
The EHG is scheduled for initial launch in 2002.
10. Nelson, D. R. Cytochrome P450 nomenclature 2004 in: Methods in Molecular Biology
Vol. XXX, editors Phillips, I.R. and Shephard, E.A., Humana Press Inc., Totowa, NJ
2005 *in press*.

Peer-Reviewed Journal Articles:

1. Mostafa, M.H., Nelson, D.R., Shukla, S.D. and Hanahan, D.J. (1984) Rabbit platelet calcium ATPase differs from the human erythrocyte ($\text{Ca}^{2+} + \text{Mg}^{2+}$)-ATPase in its response to three purified phospholipases A₂, exogenous phospholipids and calmodulin. *Biochimica et Biophysica Acta* **776**, 259-266.
2. Hanahan, D.J. and Nelson, D.R. (1984) Phospholipids as dynamic participants in biological processes. *Journal of Lipid Research* **25**, 1528-1535.
3. Nelson, D.R. and Hanahan, D.J. (1985) Phospholipid and detergent effects on ($\text{Ca}^{2+} + \text{Mg}^{2+}$)-ATPase purified from human erythrocytes. *Archives of Biochemistry and Biophysics* **236**, 720-730.
4. Tokumura, A., Mostafa, M.H., Nelson, D.R. and Hanahan, D.J. (1985) Stimulation of ($\text{Ca}^{2+} + \text{Mg}^{2+}$)-ATPase activity in human erythrocyte membranes by synthetic lysophosphatidic acids and lysophosphatidylcholines. Effects of chain length and degree of unsaturation of the fatty acid groups. *Biochimica et Biophysica Acta* **812**, 568-574.
5. Nelson, D.R. and Strobel, H.W. (1987) Evolution of Cytochrome P-450 Proteins. *Molecular Biology and Evolution* **4**, 572-593.
6. Nelson, D.R. and Strobel, H.W. (1988) On the membrane topology of vertebrate cytochrome P-450 proteins. *Journal of Biological Chemistry* **263**, 6038-6050.
7. Nelson, D.R. and Strobel, H.W. (1989) Secondary structure prediction of 52 membrane bound cytochromes P450 shows a strong structural similarity to P450_{cam}. *Biochemistry* **28**, 656-660.
8. Nebert, D.W., Nelson, D.R., Adesnik, M.A., Coon, M.J., Estabrook, R.W., Gonzalez, F.J., Guengerich, F.P., Gunsalus, I.C., Johnson, E.F., Kemper, B., Levin, W., Phillips, I.A., Sato, R. and Waterman, M.R. (1989) The P450 superfamily: update on listing of all genes and recommended nomenclature of the chromosomal loci. *DNA* **8**, 1-13.
9. Nebert, D.W., Nelson, D.R. and Feyereisen, R. (1989) The evolution of cytochrome P450 genes. *Xenobiotica* **19**, 1149-1160.
10. Strobel, H.W., Nadler, S.N. and Nelson, D.R. (1989) Cytochrome P450: Cytochrome P450 reductase interactions. *Drug Metabolism Reviews* **20**, 519-533.
11. Nebert, D.W., Nelson, D.R., Coon, M.J., Estabrook, R.W., Fujii-Kuriyama, Y., Gonzalez, F.J., Guengerich, F.P., Gunsalus, I.C., Johnson, E.F., Loper, J.C., Sato, R., Waterman, M.R. and Waxman, D.J. (1991), The P450 superfamily: update on new sequences, gene mapping and recommended nomenclature. *DNA and Cell Biology* **10**, 1-14.
12. Nebert, D.W., Nelson, D.R., Coon, M.J., Estabrook, R.W., Fujii-Kuriyama, Y., Gonzalez, F.J., Guengerich, F.P., Gunsalus, I.C., Johnson, E.F., Loper, J.C., Sato, R., Waterman, M.R. and Waxman, D.J. (1991), Corrigendum. The P450 superfamily: update on new sequences, gene mapping and recommended nomenclature. *DNA and Cell Biology* **10**, 397-398.

13. Burchell B., Nebert, D.W., Nelson, D.R., Bock, K.W., Iyanagi, T., Jansen, P.L.M., Lancet, D., Mulder, G.J., Chowdhury, J.R., Siest, G., Tephly, T.R. and MacKenzie, P.I. (1991) The UDP Glucuronosyltransferase Gene Superfamily. Suggested Nomenclature Based on Evolutionary Divergence. *DNA and Cell Biol.* **10**, 487-494.
14. Nelson, D.R., Lawson, J.E., Klingenberg, M. and Douglas, M.G. (1993) Site directed mutagenesis of the yeast mitochondrial ADP/ATP translocator. Six arginines and one lysine are essential. *J. Molec. Biol.* **231**, 1159-1170.
15. Nelson, D.R. and Douglas, M.G. (1993) Function based mapping of a membrane transport protein by selection for second site revertants. *J. Molec. Biol.* **230**, 1171-1182.
16. Nelson, D.R., Kamataki, T., Waxman, D.J., Guengerich, F.P., Estabrook, R.W., Feyereisen, R., Gonzalez, F.J. Coon, M.J., Gunsalus, I.C., Gotoh, O., Okuda, K. and Nebert, D.W.(1993) The P450 superfamily: update on new sequences, gene mapping, accession numbers, early trivial names of enzymes and nomenclature. *DNA and Cell Biol.* **12**, 1- 51.
17. Klingenberg, M. and Nelson, D.R. (1994) Structure-function relationships of the ADP/ATP carrier. *Biochim. Biophys. Acta* **1187**, 241-244.
18. Durst, F. and Nelson, D.R. (1995) Diversity and Evolution of plant P450 and P450 reductases. *Drug Metabolism and Drug Interactions* **12**, 189-206.
19. Nelson, D.R., Koymans, L., Kamataki, T., Stegeman, J.J., Feyereisen, R., Waxman, D.J., Waterman, M.R., Gotoh, O., Coon, M.J., Estabrook, R.W., Gunsalus, I.C. and Nebert, D.W. (1996) P450 Superfamily: Update on new sequences, gene mapping, accession numbers and nomenclature. *Pharmacogenetics* **6**, 1-41.
This paper has received more than **1000 citations** since it appeared.
20. Nelson, D.R. (1996) The yeast ADP/ATP carrier. Mutagenesis and second-site revertants. *Biochim. Biophys. Acta* **1276**, 133-137.
21. Müller, V., Basset, G., Nelson, D.R. and Klingenberg, M. (1996) Probing the role of positive residues in the ADP/ATP carrier from yeast. The effect of six arginines on oxidative phosphorylation and AAC expression. *Biochemistry* **35**, 16132-16143.
22. Heidkämper, D., Müller, V., Nelson, D.R. and Klingenberg, M. (1996) Probing the role of positive residues in the ADP/ATP carrier from yeast. The effect of six arginine mutations on transport and the four ATP versus ADP exchange modes. *Biochemistry* **35**, 16144-16152.
23. Kaplan, R.S., Mayor, J.A., Kakhniashvili, D., Gremse, D.A., Wood, D.O. and Nelson, D.R. (1996) Deletion of the nuclear gene encoding the mitochondrial citrate transport protein from *Saccharomyces cerevisiae*. *Biochem. Biophys. Res. Commun.* **226**, 657-662.
24. Kawashima, H., Sequeira, D.J., Nelson, D.R. and Strobel, H.W. (1996) Genomic cloning and protein expression of a novel rat brain cytochrome P450 CYP2D18 catalyzing imipramine N-demethylation . *J. Biol. Chem.* **271**, 28176-28180.
25. Heidkämper, D., Müller, V., Nelson, D.R. and Klingenberg, M. (1997) Mutagenesis of some

- positive and negative residues occurring in repeat triad residues in the ADP/ATP carrier from yeast. *Biochemistry* **36**, 16008-16018.
26. Nelson, D.R. (1998) Metazoan Cytochrome P450 Evolution. *Comparative Biochemistry and Physiology Part C* **121**, 15-22.
27. Nelson, D.R., Felix, C.M. and Swanson, J.M. (1998) Highly conserved charge-pair networks in the mitochondrial carrier family. (with Appendix 35 mitochondrial carriers from yeast.) *J. Molec. Biol.*, **277**, 285-308.
28. Nelson D.R. Cytochrome P450 and the individuality of species. (1999) *Arch. Biochem. Biophys.* **369**, 1-10.
29. Nelson, D.R. (1999) A second CYP26 P450 in humans and zebrafish: CYP26B1. *Arch. Biochem. Biophys.* **371**, 345-347.
30. Adams, M.D., Celniker, S.E., Holt, R.A., Evans, C.A., Gocayne, J.D., Amanatides, P.G., Scherer, S.E., Li, P.W., Hoskins, R.A., Galle, R.F., George, R.A., Lewis, S.E., Richards, S., Ashburner, M., Henderson, S.N., Sutton, G.G., Wortman, J.R., Yandell, M.D., Zhang, Q., Chen, L.X., Brandon, R.C., Rogers, Y.-H.C., Blazej, R.G., Champe, M., Pfeiffer, B.D., Wan, K.H., Doyle, C., Baxter, E.G., Helt, G., Nelson, C.R., Gabor, G.L., Miklos, Abril, J.F., Agbayani, A., An, H.-J., Andrews-Pfannkoch, C., Baldwin, D., Ballew, R.M., Basu, A., Baxendale, J., Bayraktaroglu, L., Beasley, E.M., Beeson, K.Y., Benos, P.V., Berman, B.P., Bhandari, D., Bolshakov, S., Borkova, D., Botchan, M.R., Bouck, J., Brokstein, P., Brottier, P., Burtis, K.C., Busam, D.A., Butler, H., Cadieu, E., Center, A., Chandra, I., Cherry, J.M., Cawley, S., Dahlke, C., Davenport, L.B., Davies, P., de Pablos, B., Delcher, A., Deng, Z., Deslattes Mays, A., Dew, I., Dietz, S.M., Dodson, K., Doup, L.E., Downes, M., Dugan-Rocha, S., Dunkov, B.C., Dunn, P., Durbin, K.J., Evangelista, C.C., Ferraz, C., Ferreira, S., Fleischmann, W., Fosler, C., Gabrielian, A.E., Garg, N.S., Gelbart, W.M., Glasser, K., Glodek, A., Gong, F., Gorrell, J.H., Gu, Z., Guan, P., Harris, M., Harris, N.L., Harvey, D., Heiman, T.J., Hernandez, J.R., Houck, J., Hostin, D., Houston, K.A., Howland, T.J., Wei, M.-H., Ibegwam, C., Jalali, M., Kalush, F., Karpen, G.H., Ke, Z., Kennison, J.A., Ketchum, K.A., Kimmel, B.E., Kodira, C. D., Kraft, C., Kravitz, S., Kulp, D., Lai, Z., Lasko, P., Lei, Y., Levitsky, A.A., Li, J., Li, Z., Liang, Y., Lin, X., Liu, X., Mattei, B., McIntosh, T.C., McLeod, M.P., McPherson, D., Merkulov, G., Milshina, N.V., Mobarry, C., Morris, J., Moshrefi, A., Mount, S.M., Moy, M., Murphy, B., Murphy, L., Muzny, D.M., Nelson, D.L., Nelson, D.R., Nelson, K.A.,

- Nixon, K., Nusskern, D.R., Pacleb, J.M., Palazzolo, M., Pittman, G.S., Pan, S., Pollard, J., Puri, V., Reese, M.G., Reinert, K., Remington, K., Saunders, R.D.C., Scheeler, F., Shen, H., Shue, B.C., Sidén-Kiamos, I., Simpson, M., Skupski, M.P., Smith, T., Spier, E., Spradling, A.C., Stapleton, M., Strong, R., Sun, E., Svirskas, R., Tector, C., Turner, R., Venter, E., Wang, A.H., Wang, X., Wang, Z.-Y., Wassarman, D.A., Weinstock, G.M., Weissenbach, J., Williams, S.M., Woodage, T., Worley, K.C., Wu, D., Yang, S., Yao, Q.A., Ye, J., Yeh, R.-F., Zaveri, J.S., Zhan, M., Zhang, G., Zhao, Q., Zheng, L., Zheng, X.H., Zhong, F.N., Zhong, W., Zhou, X., Zhu, S., Zhu, X., Smith, H.O., Gibbs, R.A., Myers, E.W., Rubin, G.M. and J.C. Venter (2000) The Genome Sequence of *Drosophila melanogaster*. *Science* **287**, 2185-2195.
31. Cui X. Nelson, D.R. Strobel, H.W. (2000) A New Human 4F Isoform(CYP4F11): cDNA Cloning, Expression and Genomic Structure Characterization. *Genomics*, **68**,161-166.
 32. Hoffman, S.M.G., Nelson, D.R. and Keeney, D.S. (2001) Organization, structure and evolution of the CYP2 gene cluster on human chromosome 19 *Pharmacogenetics* **11**, 687-98.
 33. Nelson, D.R. (2002) Introductory remarks on human CYPs *Drug Metabolism Reviews* **34**, 1-5.
 34. Nelson, D.R. (2002) Mining databases for cytochrome P450 genes. *Methods in Enzymology* (vol 357, issue on Cytochrome P450) Waterman, M. and Johnson, E. eds. *in press*
 35. Nelson, D.R. (2003) Comparison of P450s from Human and Fugu. 420 Million Years of Vertebrate P450 Evolution. *Archives of Biochemistry and Biophysics* 409, 18-24. (special issue honoring Ron Estabrook)
 36. David C. Lamb, Haruo Ikeda, David R. Nelson, Ishikawa, J. Tove Skaug, Colin Jackson, Omura, S., Michael R. Waterman and Steven L. Kelly
Cytochrome P450 complement (CYPome) of the avermectin-producer *Streptomyces avermitilis* and comparison to that of *Streptomyces coelicolor A3(2)* *Biochem. Biophys. Res. Commun.* 307, 610-619 (2003)
 37. Nelson, D.R., Zeldin, D.C., Hoffman, S.M.G., Maltais, L., Wain,H., and Nebert, D.W. (2004)
Comparison of Cytochrome P450 (CYP) Genes from the Mouse and Human Genomes including Nomenclature Recommendations for Genes, Pseudogenes, and Alternative-Splice Variants. *Pharmacogenetics* **14**, 1-18.
 38. Nelson, D. R. and Nebert, D.W. (2004) The truth about mouse, human, worms and yeast. *Human Genomics* **1**, 146-149.
 39. Nelson, D.R., Schuler, M.A., Paquette, S.M., Werck-Reichhart, D. and Bak, S. (2004)

- Comparative genomics of *Oryza sativa* and *Arabidopsis thaliana*. Analysis of 727 Cytochrome P450 genes and pseudogenes from a monocot and a dicot. *Plant Physiology* **135**, 756-772.
40. Nebert, D.W., Anastassios, N. Vasiliou, V. and Nelson, D. R. (2004) Frankenstein genes, or the Mad Magazine version of the human pseudogenome. *Human Genomics* **1**, 310-316.
 41. Nebert, D.W., Anastassios, N. Vasiliou, V. and Nelson, D. R. (2004) Cyclophilin Nomenclature Problems, or, "A Visit from the Sequence Police" *Human Genomics* **1**, 381-388
 42. Nelson, D. R. (2004) "A variant of uncertain significance" and the proliferation of human disease gene databases. *Human Genomics* **1**, *in press*.