CURRICULUM VITAE

OF

SIEGFRIED DETKE

Department of Biochemistry and Molecular Biology
University of North Dakota School of Medicine
Grand Forks, ND 58202

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EDUCATION:

Ph.D. in Biochemistry, 1976, Colorado State University, Fort Collins, Colorado.

B.S. in Biology, 1972, Case Western Reserve University, Cleveland, Ohio.

PROFESSIONAL POSITIONS AND PROJECTS UNDERTAKEN:

Associate Professor (7/94 to present) University of North Dakota--Regulation of nucleoside transport

Assistant Professor (1/88 to 6/94) University of North Dakota--Stress response at the molecular level in the human protozoan parasite, Leishmania; drug resistance mechanisms.

Research Assistant Professor (9/82 to 12/87), University of Health Sciences/Chicago Medical School--The molecular basis for X chromosome inactivation; characterization of the amplified DNA associated with tunicamycin resistance; and expression of the heat shock genes.

Postdoctoral Fellow with Dr. John Keller (6/79 to 12/81), University of Health Sciences/The Chicago Medical School--Comparison of nuclear and chromosomal structural components.

Postdoctoral Fellow with Dr. Gary Stein (12/76 to 6/79), University of Florida-- Control mechanisms regulating histone gene expression and the effect of antineoplastic drugs.

Graduate Student with Dr. Marv Paule (9/72 to 12/76), Colorado State University--The role of DNA dependent RNA polymerases during differentiation.

PROFESSIONAL ORGANIZATIONS:

American Association for the Advancement of Science
American Society of Microbiology
North Dakota Academy of Science
Counselor (2003-2006)
Secretary/Treasurer (2006 – Present)

PERSONAL INFORMATION:

Birthdate: April 30, 1950
Marital status: Married
Children: Two

SERVICE COMMITTEES:

Academic and Professional Qualifications
Faculty Academic Council
Institutional BioSafety Committee
Vice chairman since 2004
Chair of the Biosafety Inspection Committee 2007 - present
Physiology Chair Search Committee
Department of Biochemistry & Molecular Biology Chair Search Committee
Department of Biochemistry & Molecular Biology Faculty Search Committee (5 positions)
Department of Biochemistry & Molecular Biology Committee on Tenure and Promotions (1994 – present)
Department of Biochemistry & Molecular Biology Liaison to the Harley French Library (2002-2004)
Department of Biochemistry & Molecular Biology Strategic Planning Committee (2004)
University North Dakota School of Medicine Library Committee
(Chairman 2000-2005)
University of North Dakota School of Medicine Educational Technology Committee
University of North Dakota School of Medicine and Health Sciences Medical Curriculum Committee (2005 – 2006)
IPC Curriculum Assessment Subcommittee
University Senate Library Committee
(Chairman 1992-1993)
University Research Council - Information Technology Subcommittee
(2004 - present)
University North Dakota Faculty Research Seed Money Committee
BRIN Faculty Exchange Program
Member of the Block I design team , 2004 - present

ADMINISTRATIVE POSITIONS:

Associate Director Graduate Education, Department of Biochemistry and Molecular Biology, 2004 - present
Course Director BMB 533 (Advanced Biochemistry) 2004 - present
Course Director BMB 301 (Biochemistry Lecture) 2007 – present
Block I Director, Medical Education 2007- present

GRADUATE STUDENTS:

Steve Siembieda	MS (1989)
Bryan Kirby	MS (1990)
Shawn Gallagher	MS (1995)
Rania Elsabroughty	PhD (2006)

These were my graduate students and I was the chairman of these graduate committees.

ORGANIZATIONS REVIEWED FOR:

Ramsey Foundation, St. Paul, MN
(ad hoc reviewer for in house research proposal)

Veterans Administration
(ad hoc reviewer for in house research proposals)

Journal Biological Chemistry

GENE

Lippincott Williams & Wilkins (review textbooks)

John Wiley and Sons, Inc. (review textbooks and web based media resources)

W. H. Freeman & Co. (review textbooks)

PUBLICATIONS:

Detke, S. and Paule, M. (1975) DNA-dependent RNA polymerases from *Acanthamoeba castellanii*: Properties and levels of activity during encystment. Biochim. Biophys. Acta 383: 67-77.

Detke, S. and Paule, M. (1976) Multiple RNA polymerases from *Acanthamoeba castellanii*; Lack of alterations in subunit architecture and levels during encystment. In "Molecular Mechanism in the Control of Gene Expression" (D.P. Nierlich, W.J. Rutter and C.F. Fox, eds.), pp. 261-266, Academic Press, New York.

Detke, S. and Paule, M. (1978) DNA-dependent RNA polymerase I from *Acanthamoeba castellanii*: Comparison of the catalytic properties and subunit architecture of trophozoite and ten hour cysts. Arch. Biochem. Biophys. 185: 333-343.

Detke, S. and Paule, M. (1978) DNA-dependent RNA polymerase II from *Acanthamoeba castellanii*: Comparison of the catalytic properties and subunit architecture of trophozoites and ten hour cysts. Biochim. Biophys. Acta 520: 376-392.

Detke, S. and Paule, M. (1978) DNA-dependent RNA polymerases from *Acanthamoeba castellanii*: Multiple forms of the class III enzyme and levels of activity of the polymerase classes during encystment. Biochim. Biophys. Acta 520: 131-138.

Detke, S. and Paule, M. (1979) DNA-dependent RNA polymerase III from *Acanthamoeba castellanii*: Comparison of the catalytic properties of the trophozoite and cyst enzymes. J. Protozology 26: 319-323.

Stein, G., Stein, J., Kleinsmith, L., Park, W., Thomson, J., Jansing, R., Shephard, E. and **Detke, S**. Chromatin as a model system for studying the regulation of histone gene expression in mammalian cells. In: Stadler Genetics Symposia, Vol. 9 (G.P. Rédei, ed.) University of Missouri Agricultural Experiment Station, Columbia, Missouri, p. 179-214, 1977.

Stein, G., Stein, J.L., Park, W., **Detke, S**., Lichtler, A., Shephard, E. and Phillips, I. (1978) Regulation of histone gene expression in HeLa S3 cells. Cold Spring Harbor Symp. Quant. Biol. 42: 1107-1119.

Detke, S., Stein, J.L. and Stein, G. (1978) Synthesis of histone messenger RNAs by RNA polymerase II in nuclei from S phase HeLa S3 cells. Nuc. Acids Res. 5: 1515-1528.

Stein, G.S., Stein, J.L., Laipis, P.J., Chattopadhyay, S.K., Lichtler, A.C., **Detke, S**., Thomson, J.A., Phillips, I.R. and Shephard, E.A. (1978) Regulation of gene expression in normal and neoplastic cells. In: Differentiation and Development. Miami Winter Symposia, Vol. 15 (F. Ahmed, T. Russell, J. Schultz and R. Werner, eds.) Academic Press, New York, p.125-148.

Detke, S., Lichtler, A., Phillips, I., Stein, J. and Stein, G. (1979) Reassessment of histone gene expression during the cell cycle in human cells using homologous H4 histone cDNA. Proc. Nat. Acad. Sci. USA 76:4995-4999.

Stein, G.S., Stein, J.L., Park, W.D., **Detke, S.,** Lichtler, A.C., Shephard, E.A., Jansing, R.L. and Phillips, I.R. (1979) Regulation of histone gene expression in HeLa S3 cells. Proceedings of the Second International Symposium on the Regulation in the Biosynthesis of Macromolecules. Archivos de Biologia y Medicina Experimentales 12:439-455.

Lichtler, A., **Detke, S**., Phillips, I., Stein, J. and Stein, G. (1980) Evidence for multiple forms of H4 histone messenger RNA in HeLa S3 cells. Proc. Nat. Acad. Sci. USA 77: 1941-1946.

Detke, S., Stein, J. and Stein, G. (1980) The Influence of Chlorambucil, a bifunctional alkylating agent, on DNA replication and histone gene expression in HeLa S3 Cells. Cancer Res. 40: 967-974.

Detke, S. and Keller, J. (1982) Comparison of the proteins present in the interphase nucleoskeleton and metaphase chromosome scaffolds from HeLa cells. J. Biol. Chem. 257: 3905-3911.

Detke, S. (1984) Comparison of the effectiveness of S phase inhibitors in altering Gene Expression. Biochem. Biophys. Res. Comm. 125, 812-816.

Vanik, J., **Detke, S.** and Albach, R.A. (1986) Partial characterization of DNA-dependent RNA polymerase from *Entamoeba histolytica*. Arch. Invest. Medica, 17 (Supl.) 101-106.

Chang, K.P., Kink, J.A. and **Detke, S.** (1986) Tunicamycin-resistant Leishmania mexicana: DNA amplification, increased N- acetylglucoaminyl-transferase activity and virulence, In "Molecular Strategies of Parasitic Invasion ", pp. 77-86, Alan R. Liss, Inc.

Detke, S., Chaudhuri, G., Kink, J.A. and Chang, K-P (1988) DNA amplification in tunicamycin resistant *Leishmania mexicana*, J. Biol. Chem. 263, 3418-3424.

Detke, S., Katakura, K. and Chang, K-P (1989) DNA amplification in arsenite resistant *Leishmania mexicana*, Exp. Cell. Res. 180, 161-170.

Chang, K-P, Chaudhuri, G., Chaudhuri, M., Katakura, K., **Detke, S**., and Pithawalla, R. (1989) Molecular determinants of Leishmania virulence: Surface metalloprotein, N-glycosylation and DNA amplification. In "Immunological and Molecular Basis of Pathogenesis in Parasitic Diseases", Ko, R.C., ed., pp 111-127.

Katakura, K., Peno, Y., Pithawalla, R., **Detke, S.** and Chang, K-P (1991) Tunicamycin-resistant variants of Leishmania contain amplified DNA in extrachromosomal circles of different sizes with a transcriptionally active homologous region, Mol. Biochem. Parasit. 44, 233-244.

Kerby, B.R. and **Detke S**. (1993) Reduced purine accumulation is encoded on an amplified DNA in *Leishmania mexicana amazonensis* resistant to toxic nucleosides, Mol. Biochem. Parasit. 60, 171-186.

Detke, S. (1997) Identification of a transcription factor like protein at the TOR locus in *Leishmania mexicana amazonensis*. Mol. Biochem. Parasit. 90, 505-511.

Detke, S. (1998) Cloning of the *Candida albicans* nucleoside transporter by complementation of nucleoside transport deficient Saccharomyces. Yeast 14, 1257-1265.

Detke, S. (2007) *Leishmania mexicana amazonensis*: Development of a peptide tag useful for labeling and purifying biotinylated recombinant proteins. Exp. Parasit. 115, 221-225.

Detke, S. (2007) TOR induced resistance to toxic adenosine analogs in Leishmania brought about by the internalization and degradation of the adenosine permease. Experimental Cell Research 313, 1963-1978.

Detke, S. and Elsabrouty, R. (2008) Identification of a mitochondrial ATP synthase-adenine nucleotide translocator complex in Leishmania. Acta Tropica 105:16-20.

Detke, S. and Elsabrouty, R. (2008) *Leishmania mexicana amazonensis*: Plasma membrane adenine nucleotide translocator and chemotaxis. Experimental Parasitology (In press). [Epub ahead of print] doi:10.1016/j.exppara.2007.10.010

Manuscripts Submitted:

Detke, S. (2007**)** Mapping of the functional domains of Leishmania TOR, an atypical multidrug resistance protein. Molecular Microbiology (submitted).

Manuscripts in Revision:

Detke, S. and Elsabrouty, R. (2007) Interaction of TOR with adenine nucleotide translocator in mitochondria and altered trafficking of plasma membrane ANT in Leishmania with high TOR levels. Cellular Microbiology

Detke, S. (2004) TOR in wild type Leishmania. Molecular Biochemical Parasitology, In revision.

The reviewers wanted to know how TOR exerts its effect which were not know at the time the paper was submitted. Will resubmit after the papers describing TOR's structure and its affects on the adenosine permase are completed and submitted (see manuscripts in preparation)

Detke, S. (2004) Detection of TOR activity in *Trypanosoma cruzi.* In revision.

I finished cloning one of the *T. cruzi* proteins recognized by the TOR antibodies from a phage display library I made. Its properties are different from that of Leishmania TOR as it renders cells sensitive to toxic nucleosides. This paper is currently being completely rewritten.

Manuscripts in Preparation:

Detke, S. (In preparation) TOR induced elevation in S-adenosylmethionine levels elicits resistance to sinefungin and paromomycin

Detke, S. (In preparation) Identification of an atypical multidrug resistance phenotype by Leishmania expressing high levels of TOR.

Elsabrouty, R. and **Detke, S.** (In preparation) Multiple locations of TOR within Leishmania.

GENBANK ENTRIES IN PREPARATION:

Detke, S. *Trypanosoma cruzi* TARP (will submit immediately prior to submittingaccompanying paper describing the cloning of this gene to a reviewed journal). Over 10,000 nucleotides were sequenced for this task. Included in this region is the *T. cruzi* fumerase gene (based on homology comparisons) which has not been previously sequenced as well as another uncharacterized/unknown gene.

PUBLISHED ABSTRACTS (from poster or oral presentations at national meetings)

Paule, M., **Detke, S.** and Canney, P. (1975) Multiple DNA-dependent RNA polymerases from *Acanthamoeba castellanii*, Fed. Proc. Fed. Am. Soc. Exp. Biol. 34, 701.

Paule, M.R. and **Detke, S.** (1977) Multiple RNA polymerases from *Acanthamoeba castellanii*: Lack of alteration in subunit architecture and levels during encystment, Fed. Proc. Fed. Am. Soc. Exp. Biol. 36, 806.

McMaster, G., Lichtler, A., Shephard, E., **Detke, S**., Stein, J. and Stein, G. (1979) Cloned human H4 histone sequences. J. Cell. Biol. 83: 195a.

Detke, S. and Keller, J.M. (1980) Similarities of the proteins present in the interphase nucleoskeleton and metaphase chromosome scaffolds from HeLa cells. *J. Cell Biol. 87*, 43a.

Detke, S. and Keller, J.M. (1982) The interphase nucleoskeleton - A component of mitotic chromosomes. *Fed. Proc. 41*, 1462.

Detke, S., Kink, J.A. & Chang, K.-P. (1986) Characterization of amplified DNA from tunicamycin resistant *Leishmania mexicana***.** *J. Cell. Biochem*. 10a (Suppl.), 129.

Chang, K.-P., Kink, J.A**., Detke, S**., & Chang, C.S. (1986) Molecular mechanism of parasite virulence in leishmaniasis: Possible role of a 63 kDa membrane glycoprotein and glycoglytransferase gene amplification. 1st SCBA Int. Symp., p. 37.

Chang, K.-P., Chaudhuri, G., Peng, Y**., Detke, S**., Chang, C.S. & Fong, D. (1986) *Leishmania* gp63 as a major surface glycoprotein: Molecular heterogeneity and possible biological functions, NATO ARW "Host-parasite molecular recognition and interactions in protozoal infections", Proc. p. 6.

Detke, S., Kink, J.A., Chaudhuri, G. & Chang, K.-P. (1986) Structure of the amplified DNA in tunicamycin-resistant *Leishmania mexicana.* NATO ARW "Host-parasite molecular recognition and interactions in protozoal infections", Proc. p. 10.

Detke, S. (1992) Amplification of the ribonucleoside diphosphate reductase gene in hydroxyurea resistant Leishmania, J. Cell. Biochem. 16A (Supplement) C117.

Detke, S. (1993) Increased expression of the Leishmania TOR gene arises from its separation from a silencer during DNA amplification, J. Cell. Biochem. 17A (Supplement) B327.

ORAL PRESENTATIONS AT NATIONAL/REGIONAL MEETINGS

Detke, S. (2004) Mapping of the functional domains of TOR, progenitor of an new atypical multidrug resistance mechanism in Leishmania, North Dakota Academy of Science, Fargo, North Dakota April 29,2004.

Detke, S. (2005) Comparison of the levels of the splicing factor PSF in individuals with Dystonia, North Dakota Academy of Science, Grand Forks, North Dakota April 29,2005.

Elsabrouty, R. and **Detke, S.** (2005) Co-localization of the Leishmania ADP/ATP transporter with Toxic nucleoside Resistance protein (TOR) North Dakota Academy of Science, Grand Forks, North Dakota April 29,2005.

POSTERS:

Paule, M.R., **Detke, S.** and Canney, Multiple DNA-dependent RNA polymerases from *Acanthamoeba castellanii*, P.J., Pacific Slope Biochemical Conference, Riverside, California, 1417 (1974).

Detke, S. and Paule, M.R., (1976) (Multiple RNA polymerases from *Acanthamoeba castellanii*: Lack of alteration in subunit architecture and levels during encystment, ICN-UCLA Winter Conference on Molecular and Cellular Biology, Keystone, Colorado, March 21-26, 701.

Katakura, K., Peng, Y., Liu, X., Pithawalla, R., Chaudhuri, M**., Detke, S**., Chang, K.-P. (1989). DNA amplification in five species of tunicamycin-resistant *Leishmania*: Extrachromosomal circles of different sizes with a 20-kb consensus DNA region and overexpression of N-acetylglucosamine-1-phosphate transferase protein. Gordon Research Conference, New Hampshire.

Detke, S., Hemmer, S. And Guo, D. (2002) Identification of the TOR recognition sequence in the Leishmania adenosine permease. Keystone Symposia, Drugs Against Tropical Protozoan Parasites: Target Selection, Structural Biology, and Rational Medicinal Chemistry, March 3 - 8,. Keystone, Colorado,

Elsabrouty, R. and **Detke, S.** (2002) Interaction of TOR with the adenine nucleotide translocator. Federation of American Societies for Experimental Biology Meetings, April 20-24, 2002. New Orleans, Louisiana.

Elsabrouty, R. and **Detke, S.** (2003) Interaction of TOR with adenine nucleotide translocase. University of Manitoba, Winnipeg, Manitoba, Canada. May 13-14, 2003 "Diabetes Symposium". Rania shared first prize for her poster.

Elsabrouty, R. and **Detke, S.** (2004) Interaction of TOR with adenine nucleotide translocase. University of North Dakota, Grand Forks, North Dakota. Frank Low Research Day, April 15, 2004. Rania won first prize for her poster.

Elsabrouty, R. and Detke, S. (2004) Co-localization of leishmania Resistance protein (TOR) with ADP/ATP carrier. Poster at the Frank N. Low Research Day, April 7, 2005

GenBank ENTRIES:

McGwire, B.S., Chaudhuri, G., Chaudhuri, M. M., **Detke, S.**, Latshaw, S., Kemp, R.G., and Chang, K.-P. (1995) Leishmania amazonensis ecto-metalloprotease (gp63) gene, complete cds., L46798.

Detke, S. (1997) Complete sequence of Candida purine nucleoside permease, AF016246.

Detke, S. (1997) *Leishmania mexicana* NupM1 (TOR) gene, complete cds., AF016581.

Detke, S. (1998) Open reading frame of the *Leishmania mexicana* ribonucleotide reductase M2 subunit, AF049129.

Detke, S. (1998) *Trypamosoma brucei brucei* ADP/ATP carrier mRNA, AF049130.

Detke, S. (1998) *Trypamosoma brucei brucei* pteridine reductase (ptr1) mRNA, AF049903.

Detke, S. (2001) Leishmania mexicana amazonensis NupM1 (TOR) gene, complete cds., AF016581 (revision of previous entry with the additional of sequence upstream of the TOR open reading frame).

Detke, S. (2001) Leishmania mexicana amazonensis guanosine permease gene, complete cds. AF452413.

Detke, S. (2001) Leishmania mexicana amazonensis adenosine permease gene, complete cds. AF452412.

Detke, S. (2002) Leishmania mexicana amazonensis ADP/ATP carier open reading frame, complete cds. AY187877

SEMINARS & INVITED LECTURES:

Heat shock response of the human parasite, Leishmania. Department of Biochemistry, North Dakota State University, Fargo, North Dakota, October 1989

Expression Hosts. Presented at the USDA Human Nutrition Facility Seminar series entitled Molecular Biology Techniques. Grand Forks, North Dakota. July, 1999.

TORS, TOTS & MOTS: Elements of a new multidrug resistance mechanism. Presented in the BIMD 512 Seminar Series. Grand Forks, North Dakota. December 2000.

Drug resistance in Parasites (2001) Advanced biology class, Red River High School, Grand Forks, North Dakota, February 9, 2001.

TOR, progenitor of a new atypical multidrug resistance mechanism in Leishmania (and other organisms?) Frank Low Research Day, University of North Dakota, Grand Forks, North Dakota, April 18, 2002

TOR in Leishmania and other Trypanosomatids, Valley City State University, Valley City, North Dakota, May 1, 2002

TOR, progenitor of a new, atypical multidrug resistance mechanism in Leishmania, University of North Dakota Biochemistry and Molecular Biology Seminar Series, October 9, 2003