

## CURRICULUM VITAE

### Daniel J. Eichinger, Ph.D.

Chief Scientific Officer  
CDI Laboratories, Inc.  
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### Personal Information:

Date of birth: August 8, 1956  
Citizenship: USA  
Married: Donna M. Rogan, MD; three children

Home address: 51 Choate Lane  
Pleasantville, New York 10570  
914-741-6945

### Education:

B.S., Biology, 1978  
State University of New York, College at Oneonta

M.S., Basic Medical Science, 1984  
New York University School of Medicine

Ph.D., Basic Medical Science, 1986  
New York University School of Medicine

### Employment/Research Experience:

9/81-12/86 Ph.D. candidate, New York University School of Medicine, Department of Pathology, Laboratories of Victor Nussenzweig and Vincenzo Enea  
Characterization of the gene encoding the circumsporozoite protein of *Plasmodium berghei*

1/87-12/89 Postdoctoral Fellow, The Johns Hopkins University School of Medicine, Department of Molecular Biology and Genetics, Laboratory of Jef Boeke  
Transposition mechanism of the yeast retrotransposon Ty1

1/1990-11/1995 Assistant Professor  
New York University School of Medicine  
Department of Pathology  
Encystation of *Entamoeba*; Structure/function analysis of trypanosome sialidase and trans-sialidase

12/1995-8/2000 Assistant Professor  
New York University School of Medicine  
Department of Medical and Molecular Parasitology  
Encystation of *Entamoeba*; Structure/function analysis of trypanosome sialidase and trans-sialidase

9/2000 to 10/2014 Associate Professor  
Division of Medical Parasitology  
Department of Microbiology  
New York University School of Medicine

Signal transduction during, and influence of colonic bacteria on, encystment of *Entamoeba*

9/2008-8/2009 Sabbatical, CDI Laboratories, Mayaguez, Puerto Rico  
7/2010 to 12/2010 Interim Chair, Department of Medical Parasitology, NYUSoM  
12/2010 to 10/2013 Director, Division of Medical Parasitology, Dept. Microbiology, NYUSoM  
11/2014 to present Chief Scientific Officer, CDI Laboratories

### **Research Grant Awards:**

New York University Whitehead Fellowship  
Award period: 6/92-5/93  
Direct costs: \$15,000  
Title: Molecular studies of *Entamoeba*

Mizutani Foundation for Glycoscience  
Award period: 10/93-3/95  
Direct costs: \$56,100  
Title: Structure/function study of trypanosome trans-sialidase

NIH 1 R29 AI33716  
National Institute of Allergy and Infectious Diseases  
Award period: 6/94-5/99  
Direct costs: \$350,000  
Title: Studies of *Entamoeba* cyst formation

MCB-9418190  
National Science Foundation  
Award period: 4/95-3/98  
Direct costs: \$270,000  
Title: Structure/function analysis of trans-sialidase

MCB-9727826  
National Science Foundation  
Award period: 4/98-3/01  
Direct costs: \$300,000  
Title: Structure/function analysis of trans-sialidase

New York University School of Medicine, Research Support Fund  
Award period 9/99-8/00  
Direct costs: \$50,000  
Title: Pathways regulating amoebic cyst formation

Burroughs Wellcome Fund  
New Investigator in Molecular Parasitology  
Award period: 7/00-6/03  
Direct costs: \$210,000  
Title: Control of encystation-specific gene expression in *Entamoeba*

NIH 1 R01 AI044893  
National Institute of Allergy and Infectious Diseases  
Award period: 4/00-3/04  
Direct costs: \$900,000  
Title: Pathways regulating amoebic cyst formation

NIH 2 R01 AI44893

National Institute of Allergy and Infectious Diseases  
Award period: 5/05-1/10  
Direct costs: \$1,250,000  
Title: Pathways regulating amoebic cyst formation

Gates Foundation (Yang, PI)  
Award period: 11/09-10/10  
Direct costs: \$33,000  
Title: Lensless CMOS Microscope

NIH R01 AI 096226-02 (Yang, PI)  
Award period: 8/11-7/16  
Direct costs: \$1,700,000  
Title: Optofluidic microscopy for stool parasite diagnosis

NIH 1R44 CA210822-01 LaCava (PI)  
7/1/2016 – 6/31/2017  
\$64,286 (annual direct cost)  
Monospecific monoclonal antibodies against human protein complexes on an interactome-wide scale

NIH 1R01 AI122935-01 Lasalde, Baerga (Co-PIs)  
07/01/2016 – 06/30/2020  
\$1,335,802 (annual direct cost)  
Optimization of HIV glycoproteins as vaccine candidates

NIH 1RF1MH121270-01 (Kwanghun, Chung PI)  
09/26/2019 – 08/31/2022  
Highly specific, renewable, and cost-effective antibody toolbox for 3D proteomic phenotyping of the brain

### **Teaching:**

Fall 1993- 1997	Medical Parasitology (Second year medical students)
Spring 1998 to 2014	Medical Parasitology (First year medical students)
Fall 1999 2001 2003 2005 2007 2009	Molecular Parasitology (First-third year graduate students)
Fall 2000 2002 2004 2006 2010	Introduction to Parasitology (First-third year graduate students)

### **Committees:**

Faculty Council, NYU School of Medicine, 1995-1997

Departmental Advancement and Promotion Committee, Department of Medical

Parasitology, 2001-2010

Department Graduate Advisor and member of Sackler Institute Graduate Admissions Committee, 2000-2010

Medical Scientist Training Program (MD/PhD) Admissions Committee, 2004-2012

**Trainees:** Haruki Uemura, PhD, postdoctoral fellow, 1992-94  
Lidya Sanchez, graduate student, 1991-94  
Lynne Smith, graduate student, 1992-96  
Guangxing Bai, PhD, postdoctoral fellow, 1996-98  
Alida Coppi, graduate student, 1997-2001  
Jesse Frederick, graduate student, 2000-2004  
Jennifer Byers, graduate student, 2002 to 2005  
Neil Turner, PhD, postdoctoral fellow, 2002-2004  
Melissa Carter, graduate student, 2003-2004  
Daniella Kovacsics, graduate student, 2006-2010  
Paloma Vargas, graduate student, 2006-2009  
Biswa Nath Mitra, PhD, postdoctoral fellow, 2006-2009  
Maria Fernandez, MD, ID Fellow, 2009-2010  
Julie Martin, MD, ID Fellow, 2010-2013  
Veena Ramachandran, MD, ID Fellow, 2011-2014  
Susmita Bagchi, PhD, postdoctoral fellow, 2012-2014

Summer students:

Justin Chura, Boston College, 1994  
Amanda Heron, Boston College, 1995  
Emily Speelmon, Boston College, 1996  
John Cho, Stuyvesant High School, 1994-96  
Viviana Risca, Roosevelt High School, 1996  
Ian Kash, Pleasantville High School, 1998-00, Intel semifinalist  
Tim Parsons, New York University, Honors Thesis, 1999-00  
Tina Cheung, Millwood High School, 2000-01  
David Gottesman, Roslyn High School, 2002-03, Intel semifinalist  
Chihunt Wong, Univ. California, Berkeley, 2002  
Yelena Gimelshteyn, New York University, Honors Thesis, 2002-03  
Colin Eichinger, Pleasantville High School, 2003-04, Intel semifinalist  
Karen Kao, Bronx High School of Science, 2006-07  
Robert Sobbecki, St. Regis High School, 2006-07  
Ilya Belopolski, New Caanan High School, 2006-07, Intel semifinalist  
Clare Eichinger, Pleasantville High School, 2009-2010  
Elen Halimou, Pleasantville High School, 2012-2013

**Speaking Invitations:**

20th Annual Meeting on Basic Research in Chagas' Disease, Caxambu, Brazil, September 1993

MacArthur Foundation Meeting on Parasites and the Invertebrate Vector, Hamilton Park, New Jersey, November 1993

Second Annual International Meeting on Sialidases, Rigi Kaltbad, Switzerland, April 1994

Annual Meeting of the American Society of Tropical Medicine and Hygiene, Symposium on Amebiasis, Cincinnati, Ohio, November 1994

XIII Seminar on Amebiasis, Mexico City, Mexico, January 1997

Annual Meeting of the American Society of Protozoologists, Symposium on Protozoan Encystation, San Juan, P.R., June 2000

Symposium on Amebiasis, Bernhard Nocht Institute, Hamburg, Germany, July 2000

Annual Meeting of the American Society of Tropical Medicine and Hygiene, Houston, Texas, October 2000

Conference on Amebiasis and the Biology of Entamoeba, Agra, India, February, 2002

International Congress of Parasitology X, Vancouver, Canada, August, 2002

Visiting Professor, University of Antofagasta, Chile, November 23 to December 15, 2002

Grand Rounds, Department of Medicine, Division of Infectious Disease, NYU School of Medicine, October, 2004

Seminar speaker, University of Virginia School of Medicine, November, 2005

Seminar speaker, Roger Williams University, February, 2006

Visiting Professor, University of Guanajuato, Mexico, September 9-15, 2006

Seminar speaker, Northeastern University, February, 2008

Visiting Professor, CINVESTAV, Mexico City, Mexico, October 4-8, 2009

Seminar speaker, Lehman College, Bronx, NY, February, 2010

Visiting Professor, University of Guanajuato, Mexico, June 16-23, 2012

#### **Journal and Society Affiliations:**

1995-2014	Member, American Society for Microbiology
1995-2014	Member, American Society of Protozoologists
2008-2010	NIH SBIR IDM-P(12) Study Section member
2008-2014	Associate Editor, PLoS Neglected Tropical Diseases
2008-2014	Associate Editor, Open Parasitology Journal
2008-2014	Board Member, Parasitology International (journal)
2009	NIH NIAID Special Emphasis Panel member

#### **Bibliography:**

Ferreira, A. and **D. Eichinger**. 1981. A simplified two-dimensional electrophoretic technique. J. Immunol. Meth. 43:291-299.

Ferreira, A., **D. Eichinger** and V. Nussenzweig. 1982. The murine sex-limited protein (Slp): Reassessment of its sex limitation. J. Immunol. 129:1505-1508.

**Eichinger, D.J.**, D.E. Arnot, J.P. Tam, V. Nussenzweig and V. Enea. 1986. Circumsporozoite protein of *Plasmodium berghei*: Gene cloning and identification of the immunodominant epitopes. Mol. Cell. Biol. 6:3965-3972.

Boeke, J.D., **D.J. Eichinger**, D. Castrillon and G. Fink. 1988. The yeast genome contains functional and nonfunctional copies of transposon Ty1. Mol. Cell. Biol. 8:1432-1442.

Boeke, J.D., **D.J. Eichinger** and G.R. Fink. 1988. Regulation of yeast Ty element

transposition. Banbury Report 30: Eukaryotic transposable elements as mutagenic agents. Cold Spring Harbor, New York: Cold Spring Harbor Laboratory. pp.169-180.

**Eichinger, D.J.** and J.D. Boeke. 1988. The DNA intermediate in yeast Ty1 element transposition copurifies with virus-like particles. Cell-free Ty1 transposition. Cell 54:955-966.

**Eichinger, D.J.** and J.D. Boeke. 1989. Optical fibers as tetrad dissection needles. Yeast 6:139.

**Eichinger, D.J.** and J.D. Boeke. 1990. A specific terminal structure is required for Ty1 transposition. Genes and Develop. 4:324-330.

Boeke, J.D., **D.J. Eichinger** and G. Natsoulis. 1991. Doubling Ty1 element copy number in *Saccharomyces cerevisiae*: Host genome stability and phenotypic effects. Genetics 129:1043-1052.

Uemura, H., S. Schenkman, V. Nussenzweig, and **D. Eichinger**. 1992. Only some members of a gene family in *Trypanosoma cruzi* encode proteins which express both trans-sialidase and neuraminidase activities. EMBO J. 11:3837-3844.

Schenkman, S., and **D. Eichinger**. 1993. *Trypanosoma cruzi* trans-sialidase and cell invasion. Parasitol. Today 9:218-222.

Tsuji, M., D. Mattei, R.S. Nussenzweig, **D. Eichinger**, and F. Zavala. 1994. Demonstration of heat-shock protein 70 in the sporozoite stage of malaria parasites. Parasitol. Res. 80:16-21

Braiterman, L.T., G.M. Monokian, **D.J. Eichinger**, S.L. Merbs, A. Gabriel, and J.D. Boeke. 1994. In-frame insertion mutagenesis of yeast transposon Ty1: phenotypic analysis. Gene 139:19-26.

Schenkman, S., L.B. Chaves, L.C. Pontes de Carvalho, and **D. Eichinger**. 1994. A proteolytic fragment of *Trypanosoma cruzi* trans-sialidase lacking the carboxy-terminal domain is active, monomeric, and generates antibodies that inhibit enzymatic activity. J. Biol. Chem. 269:7970-7975.

Schenkman, S., **D. Eichinger**, M.E.A. Pereira, and V. Nussenzweig. 1994. Structural and functional properties of *Trypanosoma* trans-sialidase. Ann. Rev. Microbiol. 48:499-523.

Sanchez, L., V. Enea, and **D. Eichinger**. 1994. Identification of a developmentally regulated transcript expressed during cyst formation of *Entamoeba invadens*. Mol. Biochem. Parasitol. 67:125-135.

Sanchez, L., V. Enea, and **D. Eichinger**. 1994. Increased levels of polyadenylated histone H2B mRNA accumulate during *Entamoeba* cyst formation. Mol. Biochem. Parasitol. 67:137-146.

Briones, M.R.S., C.M. Egima, **D. Eichinger**, and S. Schenkman. 1995. Trans-sialidase gene expressed in mammalian forms of *Trypanosoma cruzi* evolved from ancestor genes expressed in insect forms of the parasite. J. Mol. Evol. 41:120-131.

Smith, L.E., H. Uemura, and **D. Eichinger**. 1996. Isolation and expression of an open reading frame encoding sialidase from *Trypanosoma rangeli*. Mol. Biochem. Parasitol. 79:21-33.

Smith, L.E., and **D. Eichinger**. 1997 Directed mutagenesis of the *Trypanosoma cruzi* trans-sialidase enzyme identifies two domains involved in its sialyltransferase activity. Glycobiol. 7:445-451.

Rodriguez, E.G., F. Zavala, **D. Eichinger**, J.M. Wilson, and M. Tsuji. 1997. Single immunizing dose of recombinant adenovirus efficiently induces CD8+ T cell-mediated protective immunity against malaria. J. Immunol. 158:1268-1274.

De la Vega, H., C.A. Specht, C.E. Semino, P.W. Robbins, **D. Eichinger**, D. Caplivski, S. Ghosh, and J. Samuelson. 1997. Cloning and expression of chitinases of *Entamoeba*. Mol. Biochem. Parasitol. 85:139-147.

Gonzalez, J., U. Frevert, E.J. Corey, V. Nussenzweig and **D. Eichinger**. 1997. Proteasome function is required for encystation of *Entamoeba invadens*. Arch. Med. Res. (Mex.) 28: Suppl. S139-S140.

**Eichinger, D.** 1997. Encystation of *Entamoeba* parasites. BioEssays. 19:633-639.

Ribeirao, M., V.L. Pereira-Chioccoa, **D. Eichinger**, M.M. Rodrigues, and S. Schenkman. 1997. Trans-glycosylation and hydrolysis catalyzed by *Trypanosoma cruzi* trans-sialidase can be distinguished at different temperatures. Glycobiol. 7: 1237-1246.

Cho, J. and **D. Eichinger**. 1998. *Crithidia fasciculata* induces encystation of *Entamoeba invadens* in a galactose-dependent manner. J. Parasitol. 84:705-710.

Gonzalez, J., A. Coppi, U. Frevert, E.J. Corey, V. Nussenzweig, and **D. Eichinger**. 1999. Proteasome-dependent cyst formation and stage-specific ubiquitin mRNA accumulation in *Entamoeba invadens*. Eur. J. Biochem. 264:897-904.

Coppi, A. and **D. Eichinger**. 1999. Regulation of *Entamoeba invadens* encystation and gene expression with galactose and N-acetylglucosamine. Mol. Biochem. Parasitol. 102:67-77.

Manque, P.M., **D. Eichinger**, M.A. Juliano, J.E. Araya, and N. Yoshida. 2000. Characterization of the cell adhesion site of *Trypanosoma cruzi* metacyclic stage surface glycoprotein gp82. Infect. Immun. 68:478-484.

**Eichinger, D.** 2001 A role for a galactose lectin and its ligand during encystment of *Entamoeba*. J. Eukaryot. Microbiol. 48:17-21.

**Eichinger, D.** 2001. Encystation in parasitic protozoa. Cur. Opin. Microbiol. 4:421-426.

Coppi, A., S. Merali, and **D. Eichinger**. 2002. The enteric parasite *Entamoeba* uses an autocrine catecholamine system during differentiation into the infectious cyst stage. J. Biol. Chem. 277: 8083-8090.

**Eichinger, D.** 2002. Catecholamines in *Entamoebae*: recent (re)discoveries. J. Biosci. 27: 589-593.

Wang, Z., J. Samuelson, C.G. Clark, **D. Eichinger**, J. Paul, K. Van Dellen, N. Hall, I. Anderson, and B. Loftus. 2003. Gene discovery in the *Entamoeba invadens* genome. Mol. Biochem. Parasitol. 129:23-31.

Frederick, J., and **D. Eichinger**. 2004. *Entamoeba invadens* contains the components of a classical adrenergic signaling system. Mol. Biochem. Parasitol. 137:339-343.

Alcantara-Neves, N.A., R. Ribiero-dos-Santos, A. L. Moreno Amor, H. Uemura, S. J. Silva-Neto, **D. Eichinger** and L. Pontes-de-Carvalho. 2004. Parasite-derived *trans*-sialidase binds to heart tissue in *Trypanosoma cruzi*-infected animals. Micro. Path. 37:273-278.

Byers, J., W. Faigle and **D. Eichinger**. 2005. Colonic short-chain fatty acids inhibit encystation of *Entamoeba invadens*. Cell. Microbiol. 7:269-279.

Byers, J., and **D. Eichinger**. 2005. Short chain fatty acids restrict the ploidy of *Entamoeba invadens*. Exp. Parasitol. 110:203-206.

Teixeira, M.C., G.G.S. Oliviera, M.A. Silvany, N.A. Alcantara-Neves, M.B.P. Soares, R. Ribiero-dos-Santos, S. M. B. Jeronimo, C.H. Costa, W.L.C. dos-Santos, **D. Eichinger** and L. Pontes-de-Carvalho. 2007. A strategy for identifying serodiagnostically relevant antigens of

*Leishmania* or other pathogens in genetic libraries. *Biologicals* 35:51-54.

Ehrenkaufner, G.M., R. Haque, J.A. Hackney, **D.J. Eichinger** and U. Singh. 2007. Identification of developmentally regulated genes in *Entamoeba histolytica*: insights into mechanisms of stage conversion in a protozoan parasite. *Cell. Microbiol.* 9:1426-1444.

Turner, N.A., **D. Eichinger**. 2007. The requirement for galactose ligands during encystment of *Entamoeba invadens*. *Exp. Parasitol.* 116:467-474.

Byers, J., and **D. Eichinger**. 2007. Acetylation of the *Entamoeba* histone H4 N-terminal domain is influenced by short chain fatty acids that enter trophozoites in a pH-dependent manner. *Int. J. Parasitol.* 38:57-64.

Ehrenkaufner, G., **D. Eichinger**, U. Singh. 2007. Transcriptional activation of the encystation pathway by trichostatin A in the protozoan parasite *Entamoeba histolytica*. *BMC Genomics* 8:216.

**Eichinger, D.** 2009. *Entamoeba*. In: *Parasitology*, Satoskar, A.R., Simon, G., Hotez, P., Tsuji, M., eds. Landes Bioscience, USA.

Mitra, B., **D. Eichinger**. 2010. Compounds of the upper gastrointestinal tract induce rapid and efficient excystation of *Entamoeba invadens*. *Int. J. Parasitol.* 40:751-760.

Quintas-Granados, L.I., **D. Eichinger**, B.I. Carvajal-Gamez, J. Ortega-Lopez, R. Arroyo, M.E. Alvarez-Sanchez. 2011. Hypusination of TveIF5A is performed only by the deoxyhypusine synthase from *Trichomonas vaginalis*. (submitted).

Mitra, B., **D. Eichinger**. 2012. Identification of small molecule inhibitors of *Entamoeba invadens* encystment and excystment. (in preparation).

Vargas, P., B. Goldberg, C. Barrero, E. Jarroll, S. Merali, **D. Eichinger**. 2012. Heteromers containing active and inactive subunits are required for maximal catalytic activity of *Entamoeba histolytica* deoxyhypusine synthase. (submitted).

Kovacsics, D., E. Jarroll, B. Goldberg, **D. Eichinger**. 2012. Characterization of the *Entamoeba histolytica* glucosamine phosphate isomerase/acetylase. (in preparation).

Jun Seop Jeong, Lizhi Jiang, Edisa Albino, Josean Marrero, Hee Sool Rho, Jianfei Hu, Shaohui Hu, Carlos Vera, Diane Bayron-Poueymiroy, Zully Ann Rivera-Pacheco, Leonardo Ramos, Cecil Torres-Castro, Jiang Qian, Joseph Bonaventura, Jef D. Boeke, Wendy Y. Yap, Ignacio Pino, **Daniel J. Eichinger**, Heng Zhu, and Seth Blackshaw. 2012. Rapid identification of monospecific monoclonal antibodies using a human proteome microarray. *Mol. Cell. Proteomics* mcp.O111.016253.

Imaging and identification of waterborne parasites using a chip-scale microscope.

Seung Ah Lee, Jessey Erath, Guoan Zheng, Xiaoze Ou, Phil Willems, **Daniel Eichinger**, Ana Rodriguez, Changhui Yang. *PLoS One* 2014 26;9(2):e89712. Epub 2014 Feb 26.

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Paolo Mita , Tenzin Lhakang, Donghui Li, **Daniel J. Eichinger**, David Fenyo, Jef D. Boeke. 2016. Fluorescence ImmunoPrecipitation (FLIP): A Novel Assay for High-Throughput IP. *Biological Procedures Online*, December 2016, 18:16



Jianbo Pan, Guang Song, Dunyan Chen, Yadong Li, Shuang Liu, Shaohui Hu, Christian Rosa, **Daniel J. Eichinger**, Ignacio Pino, Heng Zhu, Jiang Qian and Yi Huang 2017. Identification of serological biomarkers for early diagnosis of lung cancer using a protein array-based approach Molecular and Cellular Proteomics 16(12) 20692078.

Guang Song, Hee-Sool Rho, Jianbo Pan, Pedro Ramos, Ki-Jun Yoon, Freddy A. Medina, Emily M. Lee, **Daniel Eichinger**, Guo-li Ming, Jorge L. Muñoz-Jordan, Hengli Tang, Ignacio Pino, Hongjun Song, Jiang Qian and Heng Zhu 2107 Multiplexed biomarker panels discriminate Zika and Dengue virus infection in humans. Molecular and Cellular Proteomics mcp.RA117.000310

GuanDa Syu, ShihChin Wang, Guangzhong Ma, Shuang Liu, Donna Pearce, Atish Prakash, Brandon Henson, LienChun Weng, Devlina Ghosh, Pedro Ramos, **Daniel Eichinger**, Ignacio Pino, Xinzhong Dong, Jie Xiao, Shaopeng Wang, Nongjian Tao, Kwang Sik Kim, Prashant J. Desai, Heng Zhu, 2018 Development and Application of a High-Content Virion Display Human GPCR Array **doi:** <https://doi.org/10.1101/377754>