

**CURRICULUM VITAE**  
**JENNIFER K. LODGE**

**ADDRESS:** Jennifer Lodge  
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**EDUCATION:**

1979 B.A. with Honors, Oberlin College, Oberlin, OH  
1988 Ph.D., Washington University, St. Louis, MO

**PROFESSIONAL ORGANIZATIONS:**

American Society for Microbiology

**HONORS:**

Burroughs Wellcome New Investigator in Molecular Pathogenic Mycology (1998-2001)  
G-POP Predoctoral Fellowship (1982-85)

**PROFESSIONAL EXPERIENCE:**

2005–present Associate Dean for Research, Saint Louis University School of Medicine, St. Louis, MO.  
2003- present Associate Professor, Department of Biochemistry and Molecular Biology,  
Saint Louis University School of Medicine, St. Louis, MO.  
1998-2003 Assistant Professor, Department of Biochemistry and Molecular Biology,  
Saint Louis University School of Medicine, St. Louis, MO.  
2002-present Adjunct Appointment, Department of Molecular Microbiology and Immunology,  
Saint Louis University School of Medicine, St. Louis, MO  
1995-1997 Research Assistant Professor, Department of Molecular Biology and  
Pharmacology, Washington University School of Medicine, St. Louis, MO.  
1993-1995 Research Instructor, Department of Molecular Biology and Pharmacology, Washington  
University School of Medicine, St. Louis, MO.  
1991-1993 Post-Doctoral Fellow, Department of Molecular Biology and Pharmacology,  
Washington University School of Medicine, St. Louis, MO. Dr. Jeffrey I. Gordon, advisor.  
1989-1991 Post-Doctoral Fellow, Plant Sciences Group, Monsanto Company, St. Louis, MO.  
Dr. Nilgun Tumer, advisor.  
1982-1988 Ph.D. Candidate, Department of Microbiology, Washington University School of  
Medicine, St. Louis, MO. Dr. Douglas E. Berg, Advisor.  
1981-1982 Research Assistant, Dana-Farber Cancer Institute, Boston, MA. (with Dr. Thomas  
Roberts).  
1979-1981 Research Assistant, Harvard University, Cambridge, MA. (with Dr. Mark Ptashne).  
1978-1979 Undergraduate Honors Research Project, Oberlin College, Oberlin, OH. (Dr. Jeff Knight)

## **CURRENT GRANT SUPPORT:**

Lodge (PI) "Functional genomics of *C. neoformans* pathogenesis".  
R01-AI50184, NIH-NIAID,  
3/15/02 – 2/28/07 \$250,000/year direct costs

Lodge (PI) "Proteomic approaches to antifungal discovery"  
R01 AI051209-01, NIH-NIAID,  
01/01/2003 – 2/28/2006 \$250,000/year direct costs  
(note – currently in no cost extension)

Selitrennikoff (PI), "How is *Cryptococcus* resistant to echinocandins?"  
R21 AI058833, NIH/NIAID  
9/30/03-8/29/05 \$34,014/year direct costs for subcontract to JKL  
(note – currently in no cost extension)

Selitrennikoff (PI) "A novel vaccine against *Cryptococcus*"  
R41AI062482-01, NIH-NIAID  
7/01/04 – 6/30/05 \$34,013/year direct costs for subcontract to JKL  
(note – currently in no cost extension)

## **PENDING GRANT SUPPORT:**

Lodge (PI) "Oxidative and nitrosative stress resistance of *Cryptococcus neoformans*."  
R01 AI051209-04, NIH-NIAID,  
Submitted 1/1/06, competitive renewal of "Proteomic approaches to antifungal discovery"  
Requested \$250,000/year for five years  
Status - pending council

Lodge (PI) "Chitin and chitosan production in *Cryptococcus neoformans*."  
R01 GM078323, NIH-NIAID,  
Submitted 10/1/05 new application  
Requested \$250,000/year for five years  
Status – scored, will resubmit 07/01/06

Lodge (PI) Mechanism of *Cryptococcus* resistance to echinocandins.  
R01 AI073164-01, NIH-NIAID  
Submitted 5/1/06 new application  
Requested \$250,000/year for five years  
Status – pending SRG review

Lodge (PI) "Signal Transduction and cell wall integrity in "*Cryptococcus neoformans*".  
R01 AI50184-06, NIH-NIAID,  
To be submitted 11/1/06, competitive renewal of "Functional genomics of *C. neoformans* pathogenesis"  
Requested \$250,000/year for five years

## PAST GRANT SUPPORT:

Lodge (PI) "Genetic screen for virulence genes in *C. neoformans*" K02-AI01577, Independent Scientist Award from NIH-NIAID. March 1, 1999 - February 29, 2004. \$101,250 per year.

Lodge (PI) "Identification of *Cryptococcus neoformans* virulence genes" R29-AI41962, FIRST award, NIH NIAID. September 1, 1997 - October 31, 2002. Approximately \$70,000 per year.

Lodge (PI) "Identification of virulence-related determinants in *Cryptococcus neoformans*" Burroughs Wellcome New Investigator Award in Pathogenic Mycology July 1, 1998 - June 30, 2001. \$65,000 per year.

"2nd *Cryptococcus neoformans* genomics meeting." Burroughs Wellcome Fund December 15, 2001 - August 1, 2001, \$18,000

*Cryptococcus neoformans* genomics meeting." Burroughs Wellcome Fund December 15, 1998 - May 1, 1999, \$13,000

Lodge (PI) "Identification of New Antifungal Targets" Washington University/Monsanto Biomedical Agreement for \$50,000 per year. January 1, 1996-December 31, 1997.

## SERVICE:

### International:

1999 - present Chairman, *Cryptococcus neoformans* genomics steering committee

### Saint Louis:

2005 – present Vandeventer Board of Directors

2005 – present Coalition for Plant and Life Sciences

### Saint Louis University:

1999 - present Director, Department of Biochemistry DNA sequencing Facility

1998 - present Organizer, Department of Biochemistry and Molecular Biology Annual Retreat

1999 – 2002 Department of Biochemistry Graduate Admissions Com./Brochure/Public

Relations

1998 - 2002 Department of Biochemistry Faculty search committee

2000 - 2002 Chair, Department of Biochemistry Faculty search committee

1998 - 2004 Department of Biochemistry Graduate Curriculum committee

2001 – 2004 Chair, Department of Biochemistry Graduate Curriculum Committee

2001 – present Department of Biochemistry Student Progress Evaluation/Promotions Committee

2002 – present Core graduate student admissions committee

2004 – present Research Building Fund Raising Committee

2004 – present Research Building Advisory Committee

2005 – present Research Planning Committee

2005 – present School of Medicine Executive Committee

2005 – present Institutional Biosafety Committee

2005 – present eRA committee

2006 – present Research Space Review Committee

2006 – present Blue Ribbon Panel - Strategy to survive NIH funding cutbacks

**GRANT REVIEWS:**

Ad Hoc member, NIH study section ZRG-1 EVR 01  
Ad Hoc member, NIH study section ZRG-1 BM1  
Ad Hoc member, NIH study section EVR ZRG5-1  
Ad Hoc member, Veterans Administration Biomedical Research Foundation study section  
Howard Hughs Medical Institute Predoctoral Fellowships  
Ad Hoc Member, NIH study section NIH - SEP  
Ad Hoc Member, NIH study section NIH - ZRG1 BM-2 02  
Ad Hoc Member, NIH study section NIH-DMID-BAA-03-38,  
Ad Hoc Member, NIH study section NIH- RFA-03-021  
Ad Hoc Member, NIH study section NIH- ZRG AOIC  
Ad Hoc Member, NIH study section NIH-PTHE  
Member, NIH-AOIC 7/1/06-6/30/09

**EDITORIAL BOARDS:**

*Eukaryotic Cell*

**PEER REVIEWS:**

*Trends in Microbiology*  
*Molecular Microbiology*  
*Fungal Genetics and Biology*  
*Clinical Microbiology Reviews*  
*Infection and Immunity*  
*Genetics*  
*Current Genetics*  
*Eukaryotic Cell*  
*Genome Research*  
*Journal of Infectious Disease*  
*Microbiology*

## TEACHING EXPERIENCE:

|                |  |
|----------------|--|
| 1994           | Lecturer, Advanced Biochemistry, Washington University College             |
| 1996 - 1997    | Laboratory teacher, Microbiology, Washington University School of Medicine |
| 1998           | Course Director, Advanced Topics, Saint Louis University                   |
| 1999           | Lecturer, Medical Mycology Course, Woods Hole                              |
| 1999 - 2000    | Discussion Leader, Ethics for Research Scientists, Saint Louis University  |
| 1999 - Present | Tutor, Molecular Biology and Genetics, Saint Louis University              |
| 2001           | Course Director, Advanced Topics, Saint Louis University                   |
| 2002 - 2004    | Course Director, Special Topics in Biomedical Science                      |
| 2002 - Present | Lecturer, Introduction to Genomics and Bioinformatics                      |
| 2004           | Lecturer, Medical Mycology Course, Woods Hole                              |

## MEETINGS ORGANIZED:

February 12 - 13, 1999. The *Cryptococcus neoformans* genome project. St. Louis MO.  
June 22-23, 2001 The 2nd *Cryptococcus neoformans* genome project meeting. St. Louis MO.  
March 2, 2002, Workshop on *Cryptococcus neoformans* genomics. Adelaide, Australia  
June 24, 2005, Workshop on *Cryptococcus neoformans* genomics, Boston, MA

## PATENTS:

Kaniewski, W., J. K. Lodge and N. E. Tumer. Virus resistant potato plants (1992) Patent 6,015,940 38-21(10547)A

## PUBLICATIONS:

### Peer Reviewed Publications:

1. Roberts, T. M., Schaffhausen, B., Benjamin, T. L., Bikel, I. **Lodge, J.**, and Kaplan D. (1983) Expression of SV40 and polyoma T antigens in *E. coli*. *Gene Amplif. Anal.* 3:135-146.
2. Schaffhausen, B., T. L. Benjamin, **J. Lodge**, D. Kaplan, and T. M. Roberts (1985). Expression of polyoma early gene products in *E. coli*. *Nucleic Acids Research* 13: 501-519.
3. **Lodge, J. K.**, Weston-Hafer, K., and Berg, D. E.. (1988) Transposon Tn5 insertion specificity: preference for insertion at G/C pairs. *Genetics* 120: 645-650.
4. **Lodge, J. K.**, T. Kazic, and D. E. Berg. (1989) Formation of supercoiling domains in plasmid pBR322. *J. Bacteriol.* 171: 2181-2187.
5. **Lodge, J. K.** and D. E. Berg. (1990) Mutations that affect Tn5 insertion into its major hotspot of pBR322: Importance of local DNA supercoiling. *J. Bacteriol.* 172: 5956-60.
6. **Lodge, J. K.**, K. Weston-Hafer, and D. E. Berg. (1991) Tn5 insertion specificity is not influenced by IS50 end sequences in target DNA. *MGG* 228: 312-5.

7. Tumer, N. E., W. Kaniewski, L. Haley, L. Gehrke, **J. K. Lodge**, and P. Saunders. (1991) The second amino acid of alfalfa mosaic virus coat protein is critical for coat protein-mediated protection. *Proc. Nat. Acad. Sci. USA* 88:2331-2335.
8. **Lodge, J. K.**, W. Kaniewski and N. Tumer. (1993) Broad-spectrum virus resistance in transgenic plants expressing pokeweed antiviral protein. *Proc. Nat. Acad. Sci. USA* 90: 7089-93.
9. Langner, C. A., **Lodge, J. K.**, Travis, S. J. Caldwell, Lu, T. Li, Q., Bryant, M. L., Devadas, B, Gokel, G. W., Kobayashi, G. S. and Gordon, J. I. (1992) 4-Oxytetradecanoic acid is fungicidal for *Cryptococcus neoformans* and inhibits replication of human immunodeficiency virus. *J. Biol. Chem.* 267: 17159-69.
10. **Lodge, J. K.**, R. L. Johnson, R. A. Weinberg, and J. I. Gordon (1994) Comparison of myristoylCoA:protein *N*-myristoyltransferases from three pathogenic fungi - *Cryptococcus neoformans*, *Histoplasma capsulatum* and *Candida albicans*. *J. Biol. Chem.* 269: 2996-3009.
11. **Lodge, J. K.**, E. Jackson-Machelski, D. L. Toffaletti, J. R. Perfect, and J. I. Gordon. (1994) Targeted gene replacement demonstrates that myristoylCoA:protein *N*-myristoyltransferase is essential for the viability of *Cryptococcus neoformans*. *Proc. Natl. Acad. Sci. USA* 91: 12008-12012.
12. **Lodge, J. K.**, Jackson-Machelski, E., Devadas, B., Zupec, M. E., Getman, D. P., Kishore, N., Freeman, S. K., McWherter, C. A., Sikorski, J. A., and Gordon, J. I. (1997) *N*-myristoylation of Arf proteins in *Candida albicans*: an in vivo assay for evaluating antifungal inhibitors of myristoylCoA:protein *N*-myristoyltransferase. *Microbiology* 143:357-366.
13. Devadas, B., Freeman, S. K., Zupec, M. E., Lu, H-F., Nagarajan, S. R., Kishore, N. S., **Lodge, J.K.**, Kuneman, D. W., McWherter, C. A., Vinjamoori, D. V., Getman, D. P., Gordon, J. I., and Sikorski, J. A. (1997) Design and synthesis of novel imidazole-substituted dipeptide amides as potent and selective inhibitors of *Candida albicans* MyristoylCoA:protein *N*-myristoyl transferase and identification of related tripeptide inhibitors with mechanism-based antifungal activity. *J. Med. Chem.* 40:2609-2625.
14. Ares, X., Calamante, G., Cabral, S., **Lodge, J.**, Hemenway, P., Beachy, R. N., and Mentaberry, A. (1998) Transgenic plants expressing potato virus X ORF2 protein (p24) are resistant to tobacco mosaic virus and Ob tobaviruses. *J. Virol.* 72:731-738.
15. Devadas, B., Freeman, S. K., McWherter, C. A., Kishore, N. S., **Lodge, J.K.**, Jackson Machelski, I., Gordon, J. I., and Sikorski, J. A. (1998) Novel biologically active nonpeptidic inhibitors of Myristoyl-CoA:Protein *N*-myristoyltransferase (Nmt). *J. Med. Chem.* 41: 996-1000.
16. **Lodge, J. K.**, Jackson-Machelski, E. Higgins, M., Devadas, B., McWherter, C.A., and Gordon, J. I. (1998) Genetic and biochemical studies establish that the fungicidal effect of a fully depeptidized inhibitor of *Cryptococcus neoformans* myristoylCoA:protein *N*-myristoyltransferase is Nmt dependent. *J. Biol. Chem.* 273: 12482-12491.
17. Hua, J., Meyers, J. and **Lodge, J. K.** (2000) Positive selectable markers for use in *Cryptococcus neoformans*. (2000) *Clin. Diag. Labor. Immun.* 7:125-127.
18. Heitman, J., Casadevall, A., **Lodge, J. K.** and Perfect, J. R. (2000) The *Cryptococcus neoformans* genome sequencing project. (2000) *Mycopathologia* 148: 1-7

19. Nelson, R.T., Hua, J., Pryor, B., and **Lodge, J.K.** (2001) Identification of virulence mutants of the fungal pathogen, *Cryptococcus neoformans* using signature tagged mutagenesis. *Genetics* 157:935-947.
20. Nelson, R.T., Pryor, B., and **Lodge, J.K.** (2003) Sequence length required for homologous recombination in *Cryptococcus neoformans*. *Fungal Genetics and Biology* 38:1-9.
21. Missall, T. A., Pusateri, M. E. and **Lodge, J. K.** (2004) Thiol peroxidase is critical for virulence and resistance to nitric oxide and peroxide in the fungal pathogen, *Cryptococcus neoformans*. *Mol. Microbiology* 51:1447-1458.
22. Missall, T. A., **Lodge, J. K.** and McEwen, J. E. (2004) Mechanisms of resistance to oxidative and nitrosative stress: Implications for fungal survival in mammalian hosts. *Eukaryotic Cell* 3:835-846.
23. Tenney A. E., Brown, R. H., Vaske, C., **Lodge, J.K.**, Doering, T. L., and Brent, M. R. (2004) Gene Prediction and verification in a compact genome with numerous small introns. *Genome Research*, 14:2330-2335.
24. Missall T. A. and **Lodge, J.K.** (2005) Thioredoxin reductase is essential for viability in the fungal pathogen, *Cryptococcus neoformans* *Eukaryotic Cell* 4:487-9
25. Missall, T. A., Moran, J. M., Corbett, J. A., and **Lodge, J. K.** (2005) Distinct stress responses of two functional laccases in *Cryptococcus neoformans* is revealed in the absence of the thiol-specific antioxidant, Tsa1. *Eukaryotic Cell*. 4:202-8
26. Loftus, B, Eula Fung E, Roncaglia P, Rowley D, Amedeo P, Bruno D, Vamathevan J, Miranda M, Anderson I, Fraser JA, Allen J, Bosdet I, Brent MR, Chiu R, Doering TL, Donlin MJ, D'Souza CL, Fox DS, Grinberg V, Fu J, Fukushima M, Haas B, Huang JC, Janbon G, Jones, S, Krzywinski MI, Kwon-Chung J, Lengeler KB, Maiti R, Marra M, Marra RE, Mathewson C, Mitchell TG, Pertea M, Riggs F, Salzberg SL, Schein J, Shvartsbeyn A, Shin, H, Specht C, Suh B, Tenney A, Utterback T, Wickes BL, Wye N, Kronstad JW, **Lodge JK**, Heitman J, Davis RW, Fraser CM, and Hyman RW. (2005) The genome and transcriptome of *Cryptococcus neoformans*, a basidiomycetous fungal pathogen of humans *Science* 307:1321-1324
27. Gerik, K.J., Donlin, M.J., Soto C.E., Banks, A.M., Banks I.R., Maligie, M.A., Selitrennikoff, C.P. and **Lodge, J.K.** (2005) Cell wall integrity is dependent on the *PKCI* signal transduction pathway in *Cryptococcus neoformans*. 58: 393-408
28. Missall, T.A., Cherry-Harris, J.F. and **Lodge, J.K.** (2005) Two glutathione peroxidases in the fungal pathogen, *Cryptococcus neoformans*, are expressed in the presence of specific substrates. *Microbiology* 151: 2573-2581
29. Missall, T.A. and **Lodge, J.K.** (2005) Function of the thioredoxin proteins in *Cryptococcus neoformans* during stress or virulence and regulation by putative transcriptional modulators. *Molecular Microbiology*, 57:847-858
30. Banks, I. R., Specht, C. A., Donlin M.J., Gerik K. J., and **Lodge J.,K.** (2005) Chitin and Chitosan are critical for growth in the fungal pathogen *Cryptococcus neoformans*. *Eukaryotic Cell*, 4:1902-12

31. Tang, R.J., Breger, J., Idnurm, A., Gerik, K., **Lodge, J.K.**, Heitman, J., Calderwood, S.B., Mylonakis, E. (2005) A screen for *Caenorhabditis elegans* progeny used to identify genes of *Cryptococcus neoformans* involved in mammalian pathogenesis. *Infection and Immunity* 73:8219-25
32. Missall T.A, Pusateri M.E., Donlin M.J., Chambers K.T., Corbett J.A., and **Lodge J.K.** (2006) Post-translational, translational, and transcriptional responses to nitric oxide stress in *Cryptococcus neoformans*: implications for virulence. *Eukaryotic Cell*. 5:518-529.
33. Goins C. L., Gerik K. J., and **Lodge J. K.** (2006) Improvements to gene deletion in the fungal pathogen *Cryptococcus neoformans*: Absence of Ku proteins increases homologous recombination, and co-transformation of independent DNA molecules allows rapid complementation of deletion phenotypes. *Fungal Genetics and Biology*. May 19 epub ahead of print.

#### **Other Publications:**

1. Berg, D. E., **Lodge, J. K.**, Sasakawa, C., Nag, D. K., Phadnis, S. H., Weston-Hafer, K., and Carle, G. F.. (1984) Transposon Tn5: Specific sequence recognition and conservative transposition. *Cold Spring Harbor Symp. Quant. Biol.* 49: 215-226.
2. **Lodge, J. K.**, K. Weston-Hafer, J. B. Lowe, K. W. Dodson, and D. E. Berg. (1985) Determinants of Tn5 insertion specificity. In: *Genome Rearrangement*. Edited by Simon, M. and I. Herskowitz. Alan R. Liss, Inc. New York. pp. 37-42.
3. Berg, D. E., Kazic, T., Phadnis, S. H., Dodson, K. W., and **Lodge, J. K.**. (1988) Mechanism and regulation of transposition. In: *Transposition*. Edited by Kingsman, A., S. Kingsman, and K. Chater. Society for General Microbiology Symposium, 43:107-129. Cambridge University Press.
4. **Lodge, J. K.** and Gordon, J. I. (1994) Isolation and characterization of genes encoding myristoylCoA:protein *N*-myristoyltransferase (Nmt) and one of its principal substrates, ADP-ribosylation factor (Arf), from *Cryptococcus neoformans* and *Histoplasma capsulatum*. In *Molecular Biology of Pathogenic Fungi: A Laboratory Manual* (Maresca, B. and G. S. Kobayashi Eds.), pp. 413-431, Telos Press, New York, NY.
5. Maresca, B., Bennett, J., Fonzi, W., Hitchcock, C. A., **Lodge, J. K.**, and Williamson, P. R. (1994) Molecular approaches to identify novel targets for future development of antifungal drugs. *J. Med. Vet. Mycology* 32s: 287-98.
6. **Lodge, J. K.** and Perfect J. R. (2002) *Cryptococcus neoformans*: A molecular model for the study of fungal pathogenesis and drug discovery in the genomic era. K. J. Shaw, ed. *Pathogen genomics*. Human Press Inc.
7. Nelson, R. T. and **Lodge, J. K.** (2006) *Cryptococcus neoformans* pathogenicity. In *The Mycota, Vol. XIII Fungal Genomics and Proteomics*. Ed. A. J. P. Brown Springer-Verlag Berlin Heidelberg. pp237-266
8. **Lodge, J.K.** and Lorenz M. C. (2006) Genetic and Proteomic Analysis of Fungal Virulence. In *Molecular Principles of Fungal Pathogenesis*. Eds. Heitman J, Filler S, and Mitchell A. ASM Press, Chapter 43.