

BIOGRAPHICAL SKETCH

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| | | | |
|---|----------------------------------|---------------------------------------|------------------|
| NAME Douglas F. Lake | | POSITION TITLE Associate Professor | |
| eRA COMMONS USER NAME douglake | | | |
| EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i> | | | |
| INSTITUTION AND LOCATION | DEGREE <i>(if applicable)</i> | YEAR(s) | FIELD OF STUDY |
| Texas Tech University | B.S. | 1986 | Microbiology |
| University of Arizona | Ph.D. | 1993 | Microbiology and |

A. Professional Positions

- 1987-1989 Research Assistant, Department of Hematology and Oncology, Arizona Cancer Center, University of Arizona, Tucson, AZ
- 1989-1993 Graduate Research Assistant in laboratory of E.M. Hersh, M.D., Department of Microbiology and Immunology, University of Arizona, Tucson, AZ
- 1993-1995 Research Associate, Post-doctoral training with J.J. Marchalonis, Ph.D., Department of Microbiology and Immunology, University of Arizona, Tucson, AZ
- 1995-2001 Assistant Professor, Dept of Microbiology and Immunology / Arizona Cancer Center, University of Arizona, Tucson, AZ
- 1999-present Director of Flow cytometry Shared Service, Arizona Cancer Center
- 2001-2005 Associate Professor, Dept of Microbiology and Immunology / Arizona Cancer Center, University of Arizona, Tucson, AZ
- 2006-present Associate Professor, Center for Innovations in Medicine, Biodesign Institute, Arizona State University, Tempe, AZ

Honors, Awards and Other Professional Activities

- 2001-2002 Deans' Teaching Scholar, University of Arizona College of Medicine
- Study section reviews
- Transplantation, Tolerance and Tumor Immunity (TTT), Member
- California TRDRP for Cancer, Member
- VA infectious diseases study section, Member

Ad Hoc Reviewer for:

- Cancer Research
- Clinical Cancer Research
- Cancer Immunology and Immunotherapy
- Clinical Immunology and Immunopathology
- Journal of Immunotherapy
- Cellular Immunology
- AIDS Research and Human Retroviruses

B. Selected Publications

- Lake D**, Sugano T, Matsumoto Y, Masuho Y, Petersen E, Feorino P, and Hersh E. A hybridoma producing human monoclonal antibody specific for glycoprotein 120kDa of HIV-1. *Life Sciences*. 45; iii-x (1989).
- Robinson WE Jr, Kawamura T, Gorny MK, Montefiori DC, Mitchell WM, **Lake D**, Xu J-Y, Matsumoto Y, Sugano T, Masuho Y, Hersh E, and Zolla-Pazner S. Human monoclonal antibodies to HIV-1

- transmembrane glycoprotein gp41 enhance HIV-1 infection in vitro. Proc. Nat. Acad. Sci. USA 87; 3185-3189 (1990).
3. Robinson WE Jr, Kawamura T, **Lake D**, Masuho Y, Montefiori DC, Hersh, E and Mitchell WM. Antibodies to the primary immunodominant domain of human immunodeficiency virus type 1 (HIV-1) glycoprotein gp41 enhance HIV-1 infection in vitro. J. Virol. 64; 5301-5 (1990).
 4. Pincus SH, Cole RL, Hersh EM, **Lake D**, Masuho Y, Durda PJ and McClure J. In vitro efficacy of anti-HIV immunotoxins targeted by various antibodies to the envelope protein. J. Immunol. 146; 4315-24 (1991).
 5. Montefiori DC, Zhou J, Barnes B, **Lake D**, Hersh EM, Masuho Y and Lefkowitz LB Jr. Homotypic antibody responses to fresh clinical isolates of human immunodeficiency virus. Virology 182; 635-643 (1991).
 6. Tomiyama T, **Lake D**, Masuho Y, and Hersh EM. Recognition of human immunodeficiency virus glycoproteins by natural anti-carbohydrate antibodies in human serum. Biochem. Biophys. Res. Commun. 177; 279-85 (1991).
 7. **Lake DF**, Kawamura T, Tomiyama T, Robinson WE Jr, Matsumoto Y, Masuho Y, and Hersh EM. Generation and characterization of a human monoclonal antibody that neutralizes diverse HIV-1 isolates in vitro. AIDS 6; 17-24 (1992).
 8. **Lake DF**, Lam KS, Peng L, Hersh EM. Molecular cloning, expression and mutagenesis of an anti-insulin single chain Fv (scFv). Molecular Immunology 31; 845-856 (1994).
 9. Lam KS, Lebl M, Krchnak V, **Lake, DF**, Smith J, Wade S, Ferguson R, Ackerman-Berrier M, Wertman K. Application of Selectide technology in identifying (i) a mimotope for a discontinuous epitope, and (ii) D-amino acid ligands. In Peptides: Chemistry, Structure and Biology (proceedings of the Twelfth American Peptide Symposium) Hodges RS (ed) Escom, Leiden, 1994.
 10. **Lake DF**, Schluter SF, Wang E, Bernstein RM, Edmundson AB, Marchalonis JJ. Autoantibodies to the alpha-beta T-cell receptors in human immunodeficiency virus (HIV) infection: dysregulation and mimicry. Proc. Natl. Acad. Sci., USA. 91; 10849-10853 (1994).
 11. **Lake DF**, Bernstein RM, Hersh EM, Kaymaz H, Schluter SF, Marchalonis JJ. Construction and serological characterization of a recombinant human single chain T cell receptor (scTcr). Biochem. Biophys. Res. Comm. 201; 1502-1509 (1994).
 12. **Lake DF**, Bernstein RM, Schluter SF, Marchalonis JJ. A novel method for generating diverse single chain proteins using a universal (Gly₄Ser)₃ encoding oligonucleotide. Biotechniques, 19; 700-702 (1995).
 13. Lam KS, **Lake D**, Salmon SE, Smith J, Chen M, Wade S, Abdul-Latif F, Leblova Z, Ferguson RD, Krchnak V, Sepetov NF, Lebl M. Application of a one-bead one-peptide combinatorial library method for B-cell epitope mapping. Methods in Enzymology, 9; 482-493 (1996).
 14. Zhang H, **Lake D**, Barbuto JAM, Bernstein RM, Grimes WJ, Hersh EM. A human monoclonal antimelanoma single-chain Fv antibody derived from tumor-infiltrating lymphocytes. Cancer Res. 55; 3584-3591 (1995).
 15. Marchalonis JJ, **Lake DF**, Schluter, SF, Dehghanpisheh K, Watson R, Ampel NM, Galgiani JN. Autoantibodies against peptide-defined epitopes of T-cell receptors in retrovirally infected humans and mice. Immunobiology of Proteins and Peptides VIII. 211-222 (1995).
 16. **Lake, DF**, Landsperger, WJ, Bernstein, RM, Schluter, SF and Marchalonis, JJ Characterization of autoantibodies directed against T cell receptors. Adv. Exp. Med. Bio. 383:223-229 (1995).
 17. **Lake DF**, Helgerson S, Landsperger, WJ, Marchalonis JJ. Physical and epitope analysis of a recombinant human Tcr V α /V β construct support the similarity to immunoglobulin. J. Protein Chem. 16: 309-320 (1997).
 18. **Lake DF** and Hartvigsen N. Microbiology and Immunology computer laboratory teaching modules. <http://www.lrc.arizona.edu/courses/mmiweb/lake/> (1998).
 19. Zhao Z-G, Im J-S, Lam KS, **Lake DF**. Site-specific modification of a recombinant protein containing an N-terminal cysteine. *Bioconjugate Chemistry* 10: 424-430 (1999).
 20. **Lake DF**, Salgaller MS, van der Bruggen P, Bernstein RM, Marchalonis JJ. Construction and Binding Analysis of Recombinant scTcrs Derived from Tumor Infiltrating Lymphocytes and a CTL clone Directed Against MAGE-1. *International Immunology* 11:745-751 (1999).
 21. **Lake DF**, Huynh W, Hersh, E.M. Natural and Induced Human Antibody Response to Cancer. *Cancer Investigation*. 18 (5) 480-489 (2000).

22. Richards JO, Ampel NM, Galgiani JN **Lake DF**. *Coccidioides immitis* lysate induces dendritic cell maturation and activates naïve T cells. *Journal of Infectious Diseases* 184:1220-1224 (2001).
23. Dionne SO, Smith MH, **Lake DF**. CTL stimulation elicited by bead-bound antigenic peptides. *Cellular Immunology* 214:139-144 (2001).
24. Richards JO, Ampel NM, **Lake DF**. Reversal of coccidioidal anergy by dendritic cells from patients with disseminated coccidioidomycosis. *J. Immunol* 169:2020-2025 (2002).
25. Dionne SO, Smith MH, Marincola, FM, **Lake DF**. Functional Characterization of CTL Against gp100 Altered Peptide Ligands. *Cancer Immunol and Immunother.* 52:199-206 (2003).
26. Dionne SO, Myers CE, Smith MH, **Lake DF**. Reactivity of anti-Her-2/neu CTL to Her-2/neu modified peptides. *Cancer Immunol. Immunother* 53:307-314 (2004).
27. Im J-S, Quinn A, Sercarz EE, **Lake DF**. Molecular Profile of the T Cell Receptors of regulatory and effector CD4+ T cells recognizing overlapping determinants on Glutamic Acid Decarboxylase (524-543). *Molecular immunology* 40:971-980 (2004).
28. Klotz SA, Gaur NK, **Lake DF**, Chan V, Rauceo J, Lipke PN. Degenerate Peptide Recognition by *Candida albicans* Adhesins Als5p and Als1p. *Infection and Immunity* 72:2029-2034 (2004).
29. Dionne SO, **Lake DF**, Grimes WJ, Smith MH. Identification of HLA-Cw6.02 and -Cw7.01 allele-specific binding motifs by screening synthetic peptide libraries. *Immunogenetics* 56:391-398 (2004).
30. Klotz SA, Gaur NK, Rauceo J, **Lake DF**, Park Y, Hahm KS, Lipke PN. Inhibition of adherence and killing of *Candida albicans* with a 23-Mer peptide (Fn/23) with dual antifungal properties. *Antimicrob Agents Chemother.* 48:4337-4341. (2004).
31. Tang X, Yocum DE, Dejonghe D, Nordensson K, **Lake DF**, Richards J. Increased activation-induced cell death in peripheral lymphocytes of rheumatoid arthritis patients: the mechanism of action. *Immunology* 112:496-505 (2004).
32. Ampel NM, Nelson DK, Li L, Dionne SO, **Lake DF**, Simmons KA, Pappagianis D. The mannose receptor mediates the cellular immune response in human coccidioidomycosis. *Infect Immun.* 73:2554-5 (2005).
33. Dionne SO, Podany AB, Ruiz YW, Ampel NM, Galgiani JN, **Lake DF**. Spherules derived from *Coccidioides posadasii* promote dendritic cell maturation and activation. *Infect. Immun.* 74:2415-22 (2006)

C. Research Support

Custom-Designing Peptides for Cancer Immunotherapy

Principle Investigator: Douglas F. Lake, Ph.D.

Agency: NIH, NCI, Grant Number: RO1 CA94852

Period: 03/04/02 – 03/03/07 (extended)

The major goal of this project is to develop and test modified peptides from the Her-2 tumor associated antigen for anti-tumor CTL activity.

Engineered and Proteolytic Antibodies Specific for HIV-1 gp120

Agency: NIH, NIAID, Grant Number: R21 AI058752-01A1

Period: 09/30/04 – 8/31/07 (extended)

The goal of this project is to isolate anti-gp120 catalytic antibodies by pairing a human heavy chain from an anti-gp120 neutralizing antibody with a phage display library of human light chains with proteolytic potential.

Dendritic Cells and Immunity in Valley Fever

Agency: Arizona Biomedical Research Commission Grant# 9008

Period: 07/01/04 – 06/30/07

The goal of this project is to evaluate a coccidioides fungal lysate, T27K, in the human DC setting in the presence of various adjuvant formulations.