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## BIOGRAPHICAL SKETCH

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NAME David M. Markovitz	POSITION TITLE Professor		
eRA COMMONS USER NAME dmarkov			
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
University of Minnesota, Minneapolis, MN	B.A.	1976	Middle Eastern Studies
University of Minnesota, Minneapolis, MN	M.D.	1981	Medicine
University of Rochester, Rochester, NY	Resident	1984	Internal Medicine
University of Rochester, Rochester, NY	Fellow	1986	Infectious Diseases
University of North Carolina, Chapel Hill, NC	Post-Doc	1988	Virology

### A. Positions and Honors.

#### Positions and Employment

1988-1994	Assistant Professor Division of Infectious Diseases, Department of Internal Medicine University of Michigan Medical Center, Ann Arbor, Michigan
1994-2002	Associate Professor (with tenure), Division of Infectious Diseases, Department of Internal Medicine, University of Michigan Medical Center, Ann Arbor, Michigan
2002-present	Professor (with tenure), Division of Infectious Diseases, Department of Internal Medicine University of Michigan Medical Center, Ann Arbor, Michigan

#### Other Experience and Professional Memberships

Central Society for Clinical Research; American Society for Clinical Investigation; Association of American Physicians; Editorial Board – Journal of Virology, 2002-2007; FDA Vaccines and Related Biological Products Advisory Committee, 2002-2006

#### Honors

University of Minnesota, B.A., Magna Cum Laude 1976; National Cancer Institute – Clinical Investigator Award, 1990; Life and Health Insurance Medical Research Fund Scholar, 1991; American Society for Clinical Investigation, 1997; Burroughs Wellcome Clinical Scientist Award in Translational Research, 2003; Association of American Physicians, 2004.

### B. Selected peer-reviewed publications (in chronological order).

1. Gartner, S., Markovits, P., Markovitz, D.M., Kaplan, M.H., Gallo, R.C., and Popovic, M. The role of mononuclear phagocytes in HTLV-III/LAV infection. *Science* 1986; 233:215-219.
2. Markovitz, D.M., Kenney, S., Kamine, J., Smith, M.S., Davis, M., Huang, E-S., Rosen, C., and Pagano, J.S. Disparate effects of two Herpesvirus immediate-early gene trans-activators on the HIV-1 LTR. *Virology* 1989; 173:363-367.
3. Markovitz, D.M., Hannibal, M., Perez, V.L., Gauntt, C., Folks, T.M., and Nabel, G.J. Differential regulation of human immunodeficiency viruses (HIVs): a specific regulatory element in HIV-2 responds to stimulation of the T cell antigen receptor. *Proc. Natl. Acad. Sci. USA* 1990; 87:9098-9102.
4. Markovitz, D.M., Hannibal, M.C., Smith, M.J., Cossman, R., and Nabel, G.J. Activation of the human immunodeficiency virus type 1 enhancer is not dependent on NFAT-1. *J. Virology* 1992; 66(6):3961-3965.
5. Markovitz, D.M., Smith, M.J., Hilfinger, J., Hannibal, M.C., Petryniak, B., and Nabel, G.J. Activation of the human immunodeficiency virus type 2 enhancer is dependent on purine box and  $\kappa$ B regulatory elements. *J. Virology* 1992; 66(9):5479-5484.
6. Markovitz, D.M. Infection with the human immunodeficiency virus type 2. *Ann. Intern. Med.* 1993; 118(3):211-218.
7. Hilfinger, J.M., Clark, N., Smith, M., Robinson, K., and Markovitz, D.M. Differential regulation of the human immunodeficiency virus type 2 enhancer in monocytes at various stages of differentiation. *J. Virology* 1993; 67(7):4448-4453.
8. Clark, N.M., Smith, M.J., Hilfinger, J., and Markovitz, D.M. Activation of the human T-cell leukemia virus type I enhancer is mediated by binding sites for Elf-1 and the p63 factor. *J. Virology* 1993; 67(9):5522-5528.

9. Clark, N.M., Hannibal, M.C., and Markovitz, D.M. The peri- $\kappa$ B site mediates human immunodeficiency virus type 2 enhancer activation in monocytes but not T cells. *J. Virology* 1995; 69(8):4854-4862.
10. Fu, G.K. and Markovitz, D.M. Purification of the pets factor. *J. Biol. Chem.* 1996; 271(32):19599-19605.
11. Fu, G.K., Grosveld, G., and Markovitz, D.M. DEK, an autoantigen involved in a chromosomal translocation in acute myelogenous leukemia, binds to the human immunodeficiency virus type 2 enhancer. *Proc. Natl. Acad. Sci., USA* 1997; 94:1811-1815.
12. Fu, G.K., Smith, M.J., and Markovitz, D.M. Bacterial Protease Lon is a site-specific DNA-binding protein. *J. Biol. Chem.* 1997; 272(1):534-538.
13. Coffey, M.J., Woffendin, C., Phare, S.M., Strieter, R.M., and Markovitz, D.M. RANTES inhibits HIV-1 replication in human peripheral blood monocytes and alveolar macrophages. *Am. J. Physiol.* 1997; 272:L1025-L1029.
14. Browning, C., Hilfinger, J.M., Rainier, S., Lin, V., Hedderwick, S., Smith, M., and Markovitz, D.M. The sequence and structure of the 3' arm of the first stem-loop of the human immunodeficiency virus type 2 trans-activation responsive region mediate Tat-2 transactivation. *J. Virology* 1997; 71(10):8048-8055.
15. Fu, G.K. and Markovitz, D.M. The human LON protease binds to mitochondrial promoters in a single-stranded, site-specific, strand-specific manner. *Biochemistry* 1998; 37(7):1905-1909.
16. Browning, C.M., Cagnon, L., Good, P.D., Rossi, J., Engelke, D.R., and Markovitz, D.M. Potent inhibition of human immunodeficiency virus type 1 (HIV-1) gene expression and virus production by an HIV-2 Tat activation response RNA decoy. *J. Virology* 1999; 73(6):5191-5195.
17. Lane, B.R., Markovitz, D.M., Woodford, N.L., Rochford, R., Strieter, R.M., and Coffey, M.J. TNF- $\alpha$  inhibits HIV-1 replication in peripheral blood monocytes and alveolar macrophages by inducing the production of RANTES and decreasing C-C chemokine receptor 5 (CCR5) expression. *Journal of Immunology* 1999; 163:3653-3661.
18. Lane, B.R., Strieter, R.M., Coffey, M.J., and Markovitz, D.M. Human immunodeficiency virus type 1 (HIV-1)-induced GRO- $\alpha$  production stimulates HIV-1 replication in macrophages and T lymphocytes. *J. Virology* 2001; 75(13):5812-5822.
19. Smith, M.J., Gitlin, S.D., Browning, C.M., Lane, B.R., Clark, N.M., Shah, N., Rainer, S., and Markovitz, D.M. GLI-2 modulates retroviral gene expression. *J. Virology* 2001; 75(5):2301-2313.
20. Browning, C.M., Smith, M.J., Clark, N.M., Lane, B.R., Parada, C., Montano, M., KewalRamani, V.N., Littman, D.R., Essex, M., Roeder, R.G., and Markovitz, D.M. Human GLI-2 is a Tat activation response element-independent Tat cofactor. *J. Virology* 2001; 75(5):2314-2323.
21. Lane, B.R., Lore, K., Bock, P.J., Andersson, J., Coffey, M.J., Strieter, R.M., and Markovitz, D.M. Interleukin-8 stimulates human immunodeficiency virus type 1 replication and is a potential new target for antiretroviral therapy. *J. Virology* 2001; 75(17):8195-8202.
22. Faulkner, N.E., Hilfinger, J.M., and Markovitz, D.M. Protein phosphatase 2A activates the HIV-2 promoter through enhancer elements that include the pets site. *J. Biol. Chem.* 2001; 276(28):25804-25812.
23. Hayes, M.M., Lane, B.R., King, S.R., Markovitz, D. M., and Coffey, M.J. Peroxisome proliferator-activated receptor gamma agonists inhibit HIV-1 replication in macrophages by transcriptional and post-transcriptional effects. *J. Biol. Chem.* 2002; 277(19):16913-16919.
24. Lane, B.R., Liu, J., Bock, P.J., Schols, D., Coffey, M.J., Strieter, R.M., Polverini, P.J., and Markovitz, D.M. IL-8 and GRO- $\alpha$  mediate angiogenesis in Kaposi's Sarcoma. *J. Virology* 2002; 76(22):11570-11583.
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26. Lane, B.R., King, S.R., Bock, P.J., Strieter, R.M., Coffey, M.J., and Markovitz, D.M. The C-X-C chemokine IP-10 stimulates HIV-1 replication. *Virology* 2003; 307:122-134.
27. Mor-Vaknin, N., Punturieri, A., Sitwala, K., and Markovitz, D.M. Vimentin is secreted by activated macrophages. *Nature Cell Biology* 2003; 5:59-63.
28. Faulkner, N.E., Lane, B.R., Bock, P.J., and Markovitz, D.M. Protein phosphatase 2A enhances activation of HIV-1 by PMA. *J. Virology* 2003; 77(3):2276-2281.
29. Adams, B.S., Cha, C.C., Cleary, J., Tan, H., Wang, H., Sitwala, K., and Markovitz, D.M. DEK binding to class II MHC Y-box sequences is gene-and allele-specific. *Arthritis Research and Therapy* 2003; 5(4):R226-R233.
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36. Devany, M., Kappes, F., Chen, K-M., Markovitz, D.M., and Matsuo, H. Solution NMR structure of the N-terminal domain of the human DEK protein. *Protein Science* 17:1-11, 2008.
37. Kappes, F., Fahrner, J., Khodadoust, M.S., Tabbert, A., Strasser, C., Mor-Vaknin, N., Moreno-Villanueva, M., Burkle, A., Markovitz, D.M., and Ferrando-May, E. DEK is a poly(ADP-ribose)-acceptor in apoptosis and mediates resistance to genotoxic stress. *Molecular and Cellular Biology* 28(10):3245-3257, 2008.
38. Contreras-Galindo, R., Kaplan, M.H., Leissner, P., Verjat, T., Ferlenghi, I., Bagnoli, F., Giusti, F., Dosik, M.H., Hayes, D.F., Gitlin, S.D., and Markovitz, D.M. Human Endogenous Retrovirus-K (HML-2) elements in the plasma of people with lymphoma and breast cancer. *J. Virology* 82(19):9329-9336, 2008.
39. Khodadoust, M.S., Verhaegen, M., Kappes, F., Riveiro-Falkenbach, E., Cigudosa, J.C., Kim, D.S.L., Chinnaiyan, A.M., Markovitz, D.M.,\* and Soengas, M.S.\* Melanoma proliferation and chemoresistance controlled by the DEK oncogene. *Cancer Research* 69(16):6405-6413, 2009.