

CURRICULUM VITAE**Saul J. Silverstein**

Born: August 23, 1946

Work

Department of Microbiology
Columbia University
College of Physicians and Surgeons
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Home

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Personal

Married, Dr. Cheryl Hutt
four children,

Alyson,
Lauren,
Jason,
Steven,

08 - 25 - 71
10 - 29 - 84
06 - 25 - 87
10 - 28 - 93

Education

Cornell University
Ithaca, New York
University of Florida
Gainesville, Florida

B.S.
Ph.D.

1968
1971

Training and Positions

Predocctoral Fellow, Department of Immunology and Medical Microbiology,
U. of Florida

1968 - 1971
1971

Postdoctoral Fellow, Laboratory of Radiation Biology, U. of Florida

Research Associate, Department of Microbiology, The University of Chicago

1971 - 1974

Assistant Professor, Department of Microbiology, Columbia University

1974 - 1980

Associate Professor, Department of Microbiology, Columbia University

1980 - 1987

Professor, Department of Microbiology, Columbia University

1987

Vice-Director, Integrated Program in Cellular, Molecular and Biophysical Studies

1984 - 1987

Director, Integrated Program in Cellular, Molecular and Biophysical Studies

1987 - 1989

Visiting Professor, Japanese National Cancer Center

1987

Acting Chairman, Department of Microbiology, Columbia University

1989 - 2001

Deputy Director, Comprehensive Cancer Center, Columbia University

1990 - 2000

Chair, Department of Microbiology, Columbia University

2002 - 2005

Professor Emeritus

2020

Society Memberships

American Association for the Advancement of Science

American Society for Microbiology

American Society for Virology

Harvey Society

Honors and Awards

N.Y. State Regents Scholarship

1964 - 1968

NIH Predocctoral Fellowship

1969 - 1971

Damon Runyon Memorial Postdoctoral Fellow

1971 - 1973

RCDA from USPHS, NCI

1978 - 1983

Fellow American Society for Microbiology

2001

Fellow American Academy for the Advancement of Science

2011

University Committees

Institutional Biohazards Committee	1978
Medical School Admissions Committee	1978 - 1981
Basic Science Chairman's Committee	1989 - 2005
Cancer Center Training Committee	1989 - 2006
University Housing Committee	1989 - 1992
Executive Committee Comprehensive Cancer Center	1990 - 2001
Dean's Science and Technology Committee	1990 - 2005
Committee on Conduct of Science	1992 - 2005
Executive Committee to the Dean of the College of Medicine	1992 - 1994
Advisory Committee to the Audubon Biotechnology Center	1995 - 2000
Search Committee for Chairman of Anesthesiology	1994 - 1995
Chair, Committee on Conduct of Science	1996 - 2006
Search Committee for Chairman of Orthopedics	1997
Advisory Committee to the Dean on Honors and Awards	1997 - 2008
Search Committee for Dean of the School of Dental and Oral Surgery	2000
Executive Committee MD – PhD Program	2000 - 2007
Search Committee for Chairman of Medicine	2001
Chairman, Dean's Research Resources Committee	2003
Search Committee for Cancer Center Director	2004
Chair, Committee on Stem Cell Research	2005 - 2019
Tenure Review Advisory Committee	2006 – 2009
Member Medical School Compensation Committee	2008 – 2019
Director P&S SURF Program	2014 – 2017
Chair, Committee to the Dean on Honors and Awards	2016 – 2019

Consultations

Member ACS Scientific Advisory Panel on Virology and Molecular Genetics	1992 - 1996
Chairman ACS Scientific Advisory Panel on Virology and Molecular Genetics	1995
Member NSF Advisory Panel for Eukaryotic Genetics	1991 - 1993
Member Experimental Virology Study Section	1982 - 1986
Member, Board of Directors, Varicella Zoster Foundation	1991 - 2001
Member ACS Executive Committee on Extramural Grants Genetics	2005 - 2009
North Carolina University Cancer Center	
Smith Kline & French	
Enzo Biochem Inc.	
Sterling-Winthrop	
Forest Laboratories	
GenProbe	
Genetix Pharmaceuticals	
Lab Velocity	
Castlevax Pharmaceuticals	

External Reviewer

Journal of Virology, Editorial Board	1980 - 2003
Intervirology, Editorial Board	1986 - 1990
Somatic Cell Genetics, Editor	1980 - 1984

Teaching Responsibilities

Advanced Microbiology, first year team - taught lecture course for graduate students (1976 – 1998)
Molecular Virology, team taught seminar course for graduate students (1984 – present)
Medical Microbiology, Course director (1981-1985), lecturer in the Virology section (1975 – 2000)
Cancer Biology, lectures on DNA tumor viruses and mechanism of oncogenesis (1990 - 1996)
Virology, W3310, an undergraduate survey course (2010 - present)

Patents

- U.S. Patent 4,399,216:** Processes for Inserting DNA into Eucaryotic Cells and for Producing Proteinaceous Materials, 1983
- U.S. Patent 4,634,665:** Processes for Inserting DNA into Eucaryotic Cells and for Producing Proteinaceous Materials, 1987
- U.S. Patent 5,179,017:** Processes for Inserting DNA into Eucaryotic Cells and for Producing Proteinaceous Materials, 1993
- U.S. Patent 5,543,294:** Polymerase Chain Reaction/Restriction Fragment Length Polymorphism Method for the Detection and Typing of Mycobacteria, 1996
- U.S. Patent 5,814,448:** Polymerase Chain Reaction/Restriction Fragment Length Polymorphism Method for the Detection and Typing of Human Papillomaviruses, 1998
- U.S. Patent 5,888,724:** Detection of high oncogenic-risk papilloma virus in high grade cervical lesions and cancers by a PCR/ELISA assay, 1999
- U.S. Patent 6,455,275:** DNA Construct to Produce Proteinaceous Materials in Eukaryotic Cells, 2002
- U.S. Patent 6,756,368:** Use of Cobalt Chelates for Treating or Preventing Virus Infection, 2004
- U.S. Patent 6,809,182:** VZV ORF29p Protein-Related Compositions and Methods, 2004
- U.S. Patent 7,273,616:** Genetically Engineered Cell Lines and Systems for Propagating Varicella Zoster Virus and Methods of Use Thereof, 2007

Legal Expert Witness Experience

Kenyon and Kenyon	1992
Anderson, Kill, Olick & Oshinsky	1994
Leiberman and Nowak	1995
Cooper Dunham	1997
Hale and Doerr	1997
Fish and Neave	1998
Kalow and Springut	2002
Kirkland and Ellis	2005
Cravath, Swain and Moore	2011
Foley & Lardner	2011
O'Melveny and Meyers	2012
Simpson Thacher & Bartlett LLP	2012, 2017
Paul, Weiss, Rifkind, Wharton & Garrison LLP	2013
Mayer Brown	2013
McClellan Law Firm	2014

Publications Saul J. Silverstein

Original Manuscripts:

Thesis: Control of DNA Synthesis and Initiation in Bacteria, August, 1971.

1. Silverstein, S. and Billen, D. Transcription: Role in the Initiation and Replication of Deoxyribonucleic Acid Synthesis in *Escherichia coli* and Φ X174. *Biochem. Biophys. Acta* 247: 383, 1971.
2. Billen, D., Carreira, L. and Silverstein, S. Utilization of Deoxyribonucleotide Triphosphates in the Cellular Synthesis of DNA by *Bacillus subtilis*. *Biochem. Biophys. Res. Comm.* 43: 1150, 1971.
3. Billen, D., Carreira, L., Hadden, C. and Silverstein, S. Evidence Suggestive of Compartmentalization of Deoxyribonucleic Acid Synthesizing Systems in Freeze-Treated *Bacillus subtilis*. *J. Bact.* 108: 1250, 1971.
4. Frenkel, N., Silverstein, S., Cassai, E. and Roizman, B. RNA Synthesis in Cells Productively Infected with Herpes Simplex Virus. VIII. Control of Transcription and of Transcript Abundancies of Unique and Common Sequences of Herpes Simplex 1 and 2. *J. Virol.* 11: 101, 1973.
5. Silverstein, S., Bachenheimer, S., Frenkel, N. and Roizman, B. RNA Synthesis in Cells Productively Infected with Herpes Simplex Virus. VIII. Relationship Between Post-Transcriptional Adenylation in Herpes Virus RNA and Messenger Abundance. *Proc. Natl. Acad. Sci.* 70: 2101, 1973.
6. Silverstein, S., Millette, R., Jones, P. and Roizman, B. RNA Synthesis in Cells Productively Infected with Herpes Simplex Virus XII. Sequence Complexity and Properties of RNA Differing in the Extent of Adenylation. *J. Virol.* 18: 977, 1976.
7. Wigler, M., Silverstein, S., Lee, L.-S. Pellicer, A., Cheng, Y-C. and Axel, R. Transfer of Purified Herpesvirus Thymidine Kinase Gene to Cultured Mouse Cells. *Cell*, 11: 223, 1977.
8. Nishioka, Y. and Silverstein, S. Degradation of Cellular mRNA During Herpes Simplex Virus Infection. *Proc. Natl. Acad. Sci.* 74: 2370, 1977.
9. Nishioka, Y. and Silverstein, S. Alterations in the Protein Synthetic Apparatus of Friend Erythroleukemia Cells Infected with Vesicular Stomatitis Virus or Herpes Simplex Virus. *J. Virol.* 25: 422, 1978.
10. Nishioka, Y. and Silverstein, S. Alterations in Protein Synthesis in Friend Erythroleukemia Cells During Erythroid Differentiation. *J. Cell Physiol.* 95: 323, 1978.
11. Pellicer, A., Wigler, M., Axel, R. and Silverstein, S. The Transfer and Stable Integration of the HSV Thymidine Kinase Gene into Mouse Cells. *Cell*, 14: 133, 1978.
12. Nishioka, Y. and Silverstein, S. Requirement of Protein Synthesis for the Degradation of Host mRNA in Friend Erythroleukemia Cells Infected with Herpes Simplex Virus Type I. *J. Virol.* 27: 618, 1978.
13. Wigler, M., Pellicer, A., Silverstein, S. and Axel, R. Transfer of Single Copy Eukaryotic Genes Using Total Cellular DNA as Donor. *Cell*, 14: 725, 1978.
14. Nishioka, Y., Nudel, U., Ramirez, F. and Silverstein, S. Differential Stability of α and β Globin mRNAs after Infection with Herpes Simplex Virus. *FEBS Letters*, 92: 283, 1978.
15. Scangos, G., Huttner, K.M., Silverstein, S. and Ruddle, F. Molecular Analysis of Chromosome-Mediated Gene Transfer. *Proc. Natl. Acad. Sci.* 76: 3987, 1979.
16. Silverstein, S. and Engelhardt, D.L. Alterations in the Protein Synthetic Apparatus of Cells Infected with Herpes Simplex Virus. *Virology*, 95: 334, 1979.
17. Wigler, M., Pellicer, A. Silverstein, S. Axel, R., Urlaub, G. and Chasin, L. Transformation of the APRT Locus in Mammalian Cells. *Proc. Natl. Acad. Sci.* 76: 1373, 1979.
18. Wigler, M., Sweet, R., Sim, G.-K., Wold, B., Pellicer, A., Lacy, E., Maniatis, T., Silverstein, S. and Axel, R. Transformation of Mammalian Cells with Genes from Prokaryotes and Eukaryotes. *Cell*, 16: 777, 1979.

19. Young, C.S.H. and Silverstein, S. Kinetics of Adenovirus Recombination in Homotypic and Heterotypic Genetic Crosses. *Virology*, 101: 503, 1980.
20. Wold, B., Wigler, M., Lacy, E., Maniatis, T., Silverstein, S., and Axel, R. Introduction and Expression of the Rabbit β -globin Gene in Mouse Fibroblasts. *Proc. Natl. Acad. Sci.* 76: 5684, 1979.
21. Pellicer, A., Wagner, E.F., El Kareh, A., Dewy, M.J., Reuser, A.J., Silverstein, S., Axel, R. and Mintz, B. Introduction of a Viral Thymidine Kinase Gene and the Human β -Globin Gene into Developmentally Multipotential Mouse Teratocarcinoma Cells. *Proc. Natl. Acad. Sci.* 77: 2098, 1980.
22. Pellicer, A., Robins, D., Wold, B., Sweet, R., Jackson, J., Lowy, I., Roberts, J.M. Sim, G.K., Silverstein, S. and Axel, R. Altering the Genotype and Phenotype of Animal Cells by DNA Mediated Gene Transfer. *Science*, 209: 1414, 1980.
23. Wigler, M., Perucho, M., Kurtz, D., Dana, S., Pellicer, A., Axel, R. and Silverstein, S. Transformation of Mammalian Cells with an Amplifiable Dominant Acting Gene. *Proc. Natl. Acad. Sci.* 77: 3657, 1980.
24. Lowy, I., Pellicer, A., Jackson, J.F., Sim, G.-K., Silverstein, S. and Axel, R. Isolation of Transforming DNA: Cloning the Hamster APRT Gene. *Cell*, 22: 817, 1980.
25. Henderson, A.S., Yu, M.T. and Silverstein, S. Chromosomal DNA Homologous to Herpes Simplex Virus 1 in a Mouse L-Cell Line. *Cytogen. Cell Gen.* 29: 107, 1981.
26. Ostrander, M., Vogel, S. and Silverstein, S. Phenotypic Switching in Cells Transformed with the Herpes Simplex Virus Thymidine Kinase Gene. *Molec. and Cell. Biol.* 2: 708, 1982.
27. Nishioka, Y., Jones, G. and Silverstein, S. Inhibition by Vesicular Stomatitis Virus of Herpes Simplex Virus-Directed Protein Synthesis. *Virology*, 124: 238, 1983.
28. El Kareh, A., Silverstein, S. and Smiley, J. Control of Expression of the Herpes Simplex Virus Thymidine Kinase Gene in Biochemically Transformed Cells. *J. Gen. Virol.* 65: 19, 1984.
29. Young, C.S.H., Cachianes, G., Munz, P. and Silverstein, S. Replication and Recombination in Adenovirus-Infected Cells are Temporally and Functionally Related. *J. Virol.* 51: 571, 1984.
30. Tackney, C., Cachianes, G. and Silverstein, S. Transduction of the Chinese Hamster Ovary APRT Gene by Herpes Simplex Virus. *J. Virol.* 52: 606, 1984.
31. El Kareh, A., Murphy, A., Fichter, T., Efstratiadis, A. and Silverstein, S. Transactivation Control Signals in the Promoter of the Herpes Simplex Virus Thymidine Kinase Gene. *Proc. Natl. Acad. Sci.* 82: 1002, 1985.
32. Crum, C.P., Mitao, M., Levine, R. U. and Silverstein, S. Cervical Papillomaviruses Segregate Within Morphologically Distinct Precancerous Lesions. *J. Virol.* 54: 675, 1985.
33. Gelman, I.H. and Silverstein, S. Identification of Immediate Early Genes from Herpes Simplex Virus that Transactivate the Virus Thymidine Kinase Gene. *Proc. Natl. Acad. Sci.* 82: 5265, 1985.
34. Mitao, M., Nagai, N., Levine, R.U., Silverstein, S. and Crum, C. Human Papillomavirus Type 16 Infection: A Morphological Spectrum with Evidence of Late Gene Expression. *Intl. J. Gyn. Path.* 5: 287, 1986.
35. Ferenczy, A., Mitao, M., Nagai, N., Silverstein, S. and Crum, C. Latent Papillomaviruses and Recurring Genital Warts. *New England J. of Med.* 313: 784, 1985.
36. Gelman, I.H. and Silverstein, S. Coordinate Regulation of Herpes Simplex Virus Gene Regulation is Controlled by the Interaction of Two Immediate Early Genes. *J. Mol. Biol.* 191: 395, 1986.
37. Crum, C.P., Nagai, N., Levine, R.U. and Silverstein, S. In Situ Hybridization Analysis of HPV 16 DNA Sequences in Early Cervical Neoplasia. *Am. J. Path.* 123: 174, 1986.
38. Marashi, F., Helms S., Shiels, A., Silverstein, S., Greenspan, D.S., Stein, G., Stein, J. Enhancer-Facilitated Expression of Prokaryotic and Eukaryotic Genes Using Human Histone Gene 5' Regulatory Sequences. *Biochem. Cell Biol.* 64: 277, 1986.
39. Zeitlin, S., Parent, A., Silverstein, S. and Efstratiadis, A. Pre-mRNA Splicing and the Nuclear Matrix. *Molec. and Cell. Biol.* 7: 111, 1987.

40. Gelman, I. and Silverstein, S. Herpes Simplex Virus Immediate Early Promoters are Responsive to Virus and Cell Trans-Acting Factors. *J. Virol.* 61: 2286, 1987.
41. Crum, C.P., Nuovo, G., Friedman, D. and Silverstein, S. A Comparison of Biotin and Isotope-Labeled RNA Probes for In-Situ Detection of Papillomavirus RNA in Genital Neoplasms. *Lab. Invest.* 58: 354, 1988.
42. Crum, C.P., Nuovo, G., Friedman, D. and Silverstein, S. Accumulation of RNA Homologous to Human Papillomavirus 16 Open Reading Frames in Genital Precancers. *J. Virol.* 62: 84, 1988.
43. Gelman, I.H. and Silverstein, S. Dissection of Immediate Early Gene Promoters from Herpes Simplex Virus: Sequences that Respond to the Virus Transcriptional Activators. *J. Virol.* 61: 3167, 1987.
44. Nuovo, G.J., Nuovo, M.A., Cottral, S., Gordon, S. Silverstein, S. and Crum, C.P. Histological Correlates of Clinically Occult Human Papillomavirus Infection of the Uterine Cervix. *Am. J. Surg. Pathol.* 12(3): 198, 1988.
45. Nuovo, G.J., Crum, C.P., de Villiers, E.-M., Levine, R. and Silverstein, S. Isolation of a Novel Human Papillomavirus (HPV-51) from a Cervical Condyloma. *J. Virol.* 62: 1452, 1988.
46. Nuovo, G.J., Blanco, J.S., Silverstein, S. and Crum, C.P. Histological Correlates of Papillomavirus Infection of the Vagina. *Ob. Gyn.* 72: 770, 1988.
47. Nuovo, G.J. and Silverstein, S. Comparison of Formalin, and Bouin's Fixation on the Detection of Human Papillomavirus DNA from Genital Lesions. *Lab. Invest.* 59: 720, 1988.
48. Moy, R.L., Eliezri, Y.D., Nuovo, G.J., Zitelli, J.A., Bennet, R.G. and Silverstein, S. Squamous Cell Carcinoma of the Finger is Associated with Human Papillomavirus Type 16 DNA. *J.A.M.A.* 261: 2669, 1989.
49. Zhu, X., Young, C.S.H. and Silverstein, S. An Adenovirus Vector Expressing Functional Herpes Simplex Virus ICP0. *J. Virol.* 62: 4544, 1988.
50. Harris, R.A., Everett, R.D., Zhu, X., Silverstein, S. and Preston, C.M. The HSV Immediate Early Protein VMW110 Reactivates Latent HSV Type 2 in an In Vitro Latency System. *J. Virol.* 63: 3513, 1989.
51. del Angel, R.M., Papavassiliou, A.G., Fernandez-Tomas, Silverstein, S. and Racaniello, V.R. Multiple Protein Binding Sites Within the 5'-Untranslated Region of Poliovirus RNA. *Proc. Natl. Acad. Sci. USA.* 86: 8299, 1989.
52. Papavassiliou, A.G. and Silverstein, S. Characterization of DNA-Protein Complex Formation in Nuclear Extracts with a Sequence from the Herpes Simplex Virus Thymidine Kinase Gene. *J. Biol. Chem.* 265: 1648, 1990.
53. Nuovo, G.J., O'Connell, M., Blanco, J.S., Levine, R.U., and Silverstein, S. Correlation of Histology and Human Papillomavirus DNA Detection in Condyloma Acuminatum and Condyloma-like Vulvar Lesions. *Am. J. Surg. Pathol.* 13: 700, 1989.
54. Papavassiliou, A.G. and Silverstein, S. Interaction of Cell and Virus Proteins with the Promoter/Regulatory and Leader Sequences of the Herpes Simplex Virus Thymidine Kinase Gene. *J. Biol. Chem.* 265: 9402, 1990.
55. Eliezri, Y.E., Silverstein, S. and Nuovo, G.J. Occurrence of Human Papillomavirus 16 DNA in Cutaneous Squamous and Basal Cell Neoplasms. *J. Am. Acad. Derm.* 23: 836, 1990.
56. Gaitanaris, G.A., Papavassiliou, A.G., Rubock, P., Silverstein, S. and Gottesman, M.E. Renaturation of Denatured λ Repressor Requires Heat-Shock Proteins. *Cell*, 61: 1013, 1990.
57. Zhu, X., Chen, J., Young, C.S.H. and Silverstein, S. Reactivation of Latent Herpes Simplex Virus by Adenovirus Recombinants Encoding Mutant IE-0 Gene Products. *J. Virol.* 64: 4489, 1990.
58. Kemp, L.M., Gelman, I.H., Silverstein, S., Latchman, D.S. Regulation of HSV Immediate-Early Promoters in Mouse Neuroblastoma Cells. *Neurosci. Lett.* 118: 185, 1990.

59. Martin, S., Silverstein, S., Zhu, X., Courtney, R.J., Yao, F., Jenkins, F. and Rouse, B.T. Murine Cytotoxic T Lymphocytes Specific for Herpes Simplex Virus Type 1 Recognize the Immediate Early Protein ICP4 but not ICP0. *J. Gen. Virol.* 71: 2391, 1990.
60. Chen, J., Zhu, X. and Silverstein, S. Mutational Analysis of the Sequence Encoding ICP0 from Herpes Simplex Virus Type 1. *Virology*, 180: 207, 1991.
61. Papavassiliou, A.G., Wilcox, K.W. and Silverstein, S. Phosphorylation of ICP4, the Major Regulatory Protein of Herpes Simplex Virus, Controls Differential Recognition of DNA Sequences. *EMBO J.* 10: 397, 1991.
62. Zhu, X., Chen, J. and Silverstein, S. Isolation and Characterization of a Functional cDNA Encoding ICP0 from Herpes Simplex Virus Type-1. *J. Virol.* 65: 957, 1991.
63. Flanagan, W.M., Papavassiliou, A.G., Rice, M., Hecht, L.B., Silverstein, S and Wagner, E.K. Analysis of the HSV-1 Promoter Controlling the Expression of U_L38, a True Late Gene Involved in Capsid Assembly. *J. Virol.* 65: 769, 1991.
64. Zhu, X., Papavassiliou, A.G., Stunnenberg, H. and Silverstein, S. Expression of Herpes Simplex Virus Immediate Early Proteins ICP's 4 and 0 in a Vaccinia Virus Vector. *Virology*, 184: 67, 1991.
65. Lungu, O., Crum, C.P. and Silverstein, S. Biologic Properties and Nucleotide Sequence Analysis of Human Papillomavirus Type-51. *J. Virol.* 65: 4216, 1991.
66. Lungu, O., Wright, T.C. and Silverstein, S. Typing of Human Papillomaviruses by Polymerase Chain Reaction Amplification with L₁ Consensus Primers and RFLP Analysis. *Molec. and Cell. Probes.* 6: 145, 1992.
67. La Russa, P., Lungu, O., Hardy, I., Gershon, A., Steinberg, S. and Silverstein, S. Restriction Fragment Length Polymorphism of Polymerase Chain Reaction Products from Vaccine and Wild-Type Varicella-Zoster Virus Isolates. *J. Virol.* 66: 1016, 1992.
68. Chen, J. and Silverstein, S. Herpes Simplex Viruses with Mutations in the Gene Encoding ICP0 are Defective in Gene Expression. *J. Virol.* 66: 2916, 1992.
69. Chen, J., Panagiotidis, C. and Silverstein, S. Multimerization of ICP0, a Herpes Simplex Virus Immediate-Early Protein. *J. Virol.* 66: 5598, 1992.
70. Lungu, O., Sun, X.W., Felix, J., Richart, R.M., Silverstein, S. and Wright, T.C. Relationship of Human Papillomavirus Type to Grade of Cervical Intraepithelial Neoplasia. *J.A.M.A.* 267: 2493, 1992.
71. Lungu, O. and Silverstein, S. A PCR Strategy that Differentiates Two Alleles for a Single Base Insertion Within a T Repeat. *Biotechniques*, 14: 4, 1992.
72. Bohenzky, R., Papavassiliou, A.G., Gelman, I.H. and Silverstein, S. Identification of a Promoter Mapping Within the Reiterated Sequences that Flank the Herpes Simplex Virus Type 1 U_L Region. *J. Virol.* 67: 632, 1993.
73. Lungu, O., Della-Latta, P., Weitzman, I. and Silverstein, S. Differentiation of *Nocardia* from Rapidly Growing *Mycobacterium* Species by PCR-RFLP Analysis. *Diag. Micro. Infect. Dis.* 18: 13, 1994.
74. Panagiotidis, C.A., Burkholder, W.F., Gaitanaris, G.A., Gragerov, A., Gottesman, M.E. and Silverstein, S.J. Inhibition of DnaK Autophosphorylation by Heat-Shock Proteins and Polypeptide Substrates. *J. Biol. Chem.* 269: 16643, 1994.
75. Burkholder, W.F., Panagiotidis, C.A., Silverstein, S.J., Cegielska, A., Gottesman, M.E. and Gaitanaris, G.A. Isolation and Characterization of an *Escherichia coli* DnaK Mutant with Impaired ATPase Activity. *J. Mol. Biol.* 242: 364, 1994.
76. Lungu, O., Sun, X.W., Wright, T.C., Ferenczy, A., Richart, R.M. and Silverstein, S. A PCR-ELISA Method for Detecting Human Papillomaviruses in Cervical Carcinomas and High Grade Cervical Cancer Precursors. *Obstet. & Gyn.* 85: 337, 1995.
77. Panagiotidis, C.A., Artandi, S., Calame, K. and Silverstein, S. Polyamines Alter Sequence-Specific DNA-Protein Interactions. *Nucl. Acids Res.* 23: 1800, 1995.

78. Bohenzky, R., Lagunoff, M., Roizman, B., Wagner, E.K. and Silverstein, S. Two Overlapping Transcription Units Which Map to the Joint Region of Herpes Simplex Virus Type 1. *J. Virol.* 69: 2889, 1995.
79. Panagiotidis, C.A. and Silverstein, S.J. p-ALEX, A Dual-tag Prokaryotic Expression Vector for the Purification of Full-length Proteins. *Gene*, 164: 45, 1995.
80. Lungu, O., Annunziato, P.W., Gershon, A., Staugaitis, S., Josefson, D., LaRussa, P. and Silverstein, S. Reactivated and Latent Varicella-Zoster Virus in Dorsal Root Ganglia. *Proc. Natl. Acad. Sci. U.S.A.* 92: 10980, 1995.
81. Lium, E.K., Panagiotidis, C.A., Wen, W. and Silverstein, S. Repression of the $\alpha 0$ Gene by ICP4 During a Productive Herpes Simplex Virus Infection. *J. Virol.* 70: 3488, 1996.
82. Annunziato, P., Lungu, O., Gershon, A., Silvers, D.N., LaRussa, P. and Silverstein, S. *In Situ* Hybridization Detection of Varicella Zoster Virus in Paraffin-Embedded Skin Biopsy Specimens. *Clin. and Diag. Virol.* 7: 69, 1996.
83. Panagiotidis, C.A., Lium, E.K. and Silverstein, S. Physical and Functional Interactions Between Herpes Simplex Virus Immediate Early Proteins ICP4 and ICP27. *J. Virol.* 71: 1547, 1997.
84. Lium, E. and Silverstein, S. Mutational Analysis of the HSV-1 ICP0 C₃HC₄ Zinc-finger Reveals a Requirement for ICP0 in the Expression of the Essential $\alpha 27$ Gene. *J. Virol.* 71: 8602, 1997.
85. Soliman, T., Sandri-Goldin, R. and Silverstein, S. Shuttling Between the Nucleus and Cytoplasm of the Herpes Simplex Virus Type 1 Regulatory Protein ICP27 Mediates the Expression of Late Proteins. *J. Virol.* 71: 9188, 1997.
86. Lungu, O., Panagiotidis, C.A., Annunziato, P., Gershon, A. and Silverstein, S. Aberrant Intracellular Localization of Varicella-Zoster Virus Regulatory Proteins During Latency. *Proc. Nat'l Acad. Sci. USA.* 95: 7080, 1998.
87. Annunziato, P., LaRussa, P., Lee, P., Steinberg, S., Lungu, O., Gershon, A., and Silverstein, S. Evidence of Latent Varicella-Zoster Virus in Rat Dorsal Root Ganglia. *J.I.D.* 178: 48. 1998.
88. Ussery, X.T., Annunziato, P., Gershon, A.A., Reid, B.S., Lungu, O., Langston, C., Silverstein, S., Lee, K., Baker, C.J. Congenital Varicella Zoster Infection and Barrett's Esophagus. *J.I.D.* 178: 539, 1998.
89. Lium, E.K., Panagiotidis, C.A., Wen, X. and Silverstein, S. The NH₂-Terminus of the Herpes Simplex Virus Type 1 Regulatory Protein ICP0 Contains a Promoter-Specific Transcription Activation Domain. *J. Virol.* 72: 7785, 1998.
90. Panagiotidis, C.A. and Silverstein, S.J. The Host-Cell Architectural Protein HMG I(Y) Modulates Binding of Herpes Simplex Virus Type 1 ICP4 to its Cognate Promoter. *Virology*, 256: 64, 1999.
91. Soliman, T. and Silverstein, S. Virus mRNAs are Sorted for Export via Crm1-Dependent and Independent Pathways. *J. Virol.* 74: 2814, 2000.
92. Annunziato, P., Lungu, O., Panagiotidis, C.A., Gershon, A., Silvers, D. and Silverstein, S. Immunohistochemical Analysis of Varicella Zoster Virus Proteins in the Skin During Chickenpox and Zoster. *J. Virol.* 74: 2005, 2000.
93. Soliman, T. and Silverstein, S. Identification of an export control sequence and a requirement for the KH domains in ICP27 from herpes simplex virus type 1. *J. Virol.* 74: 7600, 2000.
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