PETER PALESE

Professor
Department of Microbiology
Icahn School of Medicine at Mount Sinai
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ACADEMIC DEGREES

1969	University of Vienna, Ph.D., Chemistry
1970	University of Vienna Pharmacy (Mag. Pharm. Degree)

PROFESSIONAL APPOINTMENTS

1970 - 1971	Postdoctoral Fellow, Roche Institute of Molecular Biology, Department of Cell Biology, Nutley, NJ
1971 - 1974	Assistant Professor, Department of Microbiology, Icahn School of Medicine at Mount Sinai (formerly Mount Sinai School of Medicine), New York, NY
1974 - 1977	Associate Professor, Department of Microbiology, Icahn School of Medicine at Mount Sinai, New York, NY
1976	Visiting Associate Professor, Department of Microbiology and Immunology, School of Medicine, University of California, Los Angeles
1978 - Present	Professor, Department of Microbiology, Icahn School of Medicine at Mount Sinai, New York, NY
1987 - 2023	Chair, Department of Microbiology, Icahn School of Medicine at Mount Sinai, New York, NY
2006 - Present	Professor, Department of Medicine, Icahn School of Medicine at Mount Sinai, New York, NY

SELECTED AWARDS AND PROFESSIONAL ACTIVITIES

1980	Gustave Stern Award for Virology
1978-1981	Member, NSF Grant Review Panel for Genetic Biology
1977-2001	Associate Editor of Virology
1984-2001	Editorial Board, Virus Research
1988-2001	Editorial Board, Journal of Virology
1990-1994, 1999-2003	Member, Virology Study Section, NIAID
1990-1996	Section Editor, Antiviral Research
1991-1995	Recipient, Bristol-Myers Squibb Company Unrestricted Infectious Disease Research Grant
1992-1997	Review Board, Max-Planck Society, Munich (Fachbeirat, Biochemistry)
1995	Co-organizer, Third Annual Bristol-Myers Squibb Symposium on Infectious Diseases, NYC
1996	Irvington Institute Lecturer, The Irvington Institute, NY, NY
1996	The Morse Memorial Lecture, Downstate Medical Center, Brooklyn, NY

1996	Co-organizer, National Academy of Sciences Colloquium: Genetic Engineering of Viruses and Viral Vectors, Irvine, CA
1996-2000	Editorial Board, Clinical Virology
1997	The Richard Klein Memorial Lecture, New York University, NY
1997	The Maurice R. Hilleman Lecture, University of Chicago, IL
1997	Co-organizer, Gordon Research Conference on Viruses and Cells, Tilton, NH
1997	The Maurice R. Hilleman Lecture, University of Chicago, IL
1997-2000	U. S. Medical Licensing Examination (USMLE) Committee for Microbiology
1998	Fellow, American Association for the Advancement of Science
1998	Corresponding Member, Gesellschaft für Virologie
1999	The Julius A. Kasel Memorial Lecture, Baylor College of Med., Houston, TX
2000	Fellow, American Academy of Microbiology
2000	Election to the National Academy of Sciences
2001-2011	Editor, Journal of Virology
2001-2005	Food and Drug Administration, Advisory Committee for Vaccines and Related Biological Products
2001-Present	Editorial Board, Proceedings, National Academy of Sciences
2002	Corresponding Member, Austrian Academy of Sciences
2002	The Bill Joklik Lecturer, 21st American Society for Virology Meeting, Lexington, KY
2002-2003	Member of Institute of Medicine ABC Commission (Acceleration of Bio-warfare Counter Measures)
2002	Senior Scholar Award in Global Infectious Disease, Ellison Medical Foundation
2003-2004	President, The Harvey Society
2004	The Fifth Richard H. Clemons Memorial Lecture (The University of Alabama at Birmingham), Bethesda, MD
2005	Theobald Smith Annual Lecture, Albany Medical College
2005	Howard Taylor Ricketts Award, University of Chicago
2005	Bicknell Lecturer, Boston University, MA
2005	Ehrenzeichen für Wissenschaft und Kunst, Vienna, Austria
2005-2006	President, American Society for Virology
2006	Jacobi Medallion, Mount Sinai School of Medicine
2006	Dr. J. Lester Gabrilove Award for Significant Contributions to Medicine, Mount Sinai Medical Center
2006	Charles C. Shepard Science Award, Centers for Disease Control, Atlanta
2006	James H. Nakano Citation, The National Center for Infectious Diseases of the Centers for Disease Control and Prevention
2006	Dr. honoris causa, Mount Sinai School of Medicine
2006-2009	Committee on Biodefense, American Society for Microbiology, Washington, DC
2006	Robert Koch Prize, Berlin, Germany
2006	Elected Member, The German Academy of Sciences Leopoldina
2006	Co-organizer, 22nd Ernst Klenk Symposium in Molecular Medicine, Emerging Infectious Diseases, Cologne, Germany
2006	Honorary Member, Medical Society, Linz, Austria
2007	Recipient, Wilhelm Exner Medal
2006-2009	Selection Committee of Abbott-American Society of Microbiology Lifetime Achievement Award
2006-2020	Jury Member, Vilcek Prize for Creative Promise in Biomedical Science
2007	Institute of Medicine, Committee on Review of the DOD-GEIS Influenza Programs: Strengthening Global Surveillance and Response

2007	IOM Committee, Assessment of DoD-Geis Influenza Surveillance and Response Programs
2008-Present	Member, Scientific Advisory Board, Robert Koch Foundation, Berlin, Germany
2008	Charles C. Shepard Science Award, Centers for Disease Control, Atlanta
2009-2015	Forschungskuratorium (Council), Austrian Academy of Sciences, Vienna
2009-Present	Committee on International Security and Arms Control (CISAC), National Academy of Sciences
2009	Institute of Medicine, Committee on Respiratory Protection for Healthcare Workers in the Workplace against Novel H1N1 Influenza A
2009	Report to the President on U.S. Preparations for 2009-H1N1 Influenza (Member of PCAST H1N1 study group
2009	The Norman Heatley Lecture, Sir William Dunn School of Pathology, University of Oxford
2010	European Virology Award (EVA), European Society for Virology
2010	6th Annual Johnson-Sokatch Lectureship, University of Oklahoma Health Sciences Center
2010	Student Council Lifetime Achievement Award, Mount Sinai School of Medicine
2011	Institute of Medicine, Committee on Preventing Transmission of Pandemic Influenza and other Viral Respiratory Diseases. Personal Protective Equipment for Healthcare Personnel
2011-Present	Editorial Board, Journal of Virology
2012-Present	Board of Advisors, Institute of Human Virology, Baltimore
2012	Sanofi-Institut Pasteur 2012 Award
2012	Election to the National Academy of Medicine
2014	Elected Fellow of the American Academy of Arts and Sciences
2014	Honorary Doctorate, Baylor College of Medicine
2014	Elected Fellow of the International Society for Vaccines
2014-2016	Membership Committee (Section 2 Vice Chair), National Academy of Medicine
2015	Beijerinck Virology Prize, Royal Netherlands Academy of Arts and Sciences
2015	Chair, New Innovator Award Study Section, NIH
2015	Inventor of the Year Award, Icahn School of Medicine at Mount Sinai
2016	Member, Infectious Diseases Society of America (IDSA)
2016	Honorary Doctorate, McMaster University
2016	Maurice Hilleman/Merck Award, American Society for Microbiology
2016-2018	Membership Committee (Section 2 Chair), National Academy of Medicine
2017	Visiting Professor Lecture, The Hormel Institute, Austin, MN
2017	Honorary Medal of the State of Upper Austria (Goldene Ehrenzeichen des Landes Oberösterreich), Government of Upper Austria, Linz
2017	IHV Lifetime Achievement Award for Scientific Contributions, Institute of Human Virology, University of Maryland School of Medicine
2017	Drexel Prize in Translational Medicine
2017-Present	Board of Directors, Global Virus Network
2018-Present	Member, Scientific Advisory Board, Institute of Human Virology
2018	Presidential Award, the Institute of Science and Technology, hosted by the Austrian Academy of Sciences
2018	Florida Genetics Symposium, University of Florida, Gainesville, FL, Keynote Speaker
2019	R.W. Compans Distinguished Lecturer, Emory University School of Medicine, Atlanta GA
2019	Julius Yougner Memorial Lecture, University of Pittsburgh School of Medicine, Pittsburgh, PA

2019-2020	Member, PNAS Committee on Conflict of Interest, National Academy of Sciences
2019-2020	Member, Committee on Class and Section Structure, National Academy of Sciences
2020	Fellow of the National Academy of Inventors
2021	Elected to the Subcommittee on Elections of the American Academy of Microbiology
2023	Member of the National Academy of Science and Medicine Committee on Examining Working Definition for Long-COVID

PUBLICATIONS

1. Tuppy, H. and Palese, P. Pig kidney neuraminidase. Hoppe-Seyler's, Z. Physiolog. Chemie. 349:1169-1178, 1968.

2. Tuppy, H. and Palese, P. A chromogenic substrate for the investigation of neuraminidase. FEBS Letters, 3:72-75, 1969.

3. Palese, P. Neuraminidase from pig kidneys. Thesis, University of Vienna, 1969.

4. Palese, P., Bodo, G., and Tuppy, H. Quantitative determination of neuraminidase active foci in cell monolayer cultures infected with influenza or Newcastle disease virus. J Virol. 6:556-8, 1970.

5. Horak, I., Hilfenhaus, J., Siegert, W., Jungwirth, C., Bodo, G., and Palese, P. Interferon action: Effect on the formation of poxvirus specific polysomes and viral RNA. Z. Naturforschg, 25b:1164-1170, 1970.

6. Bodo, G., Palese, P., and Lindner, J. Activity of mouse interferon in human cells. Proc. Soc. Exper. Biol. and Med., 137:1392-1395, 1971.

7. Meindl, P., Bodo, G., Lindner, J. and Palese, P. Influence of 2-deoxy-2, 3-dehydro-N-acetylneuraminic acid on myxovirus neuraminidases and the replication of influenza and Newcastle disease virus. Z. Naturforsch, 26b:792-797, 1971.

8. Aubertin, A., Palese, P., Tan, K.B, and McAuslan, B.R. Proteins of a polyhedral cytoplasmic deoxyvirus. J Virol., 8:643-8, 1971.

9. Palese, P. and McAuslan, B.R. Virus-associated DNase: endonuclease in a polyhedral cytoplasmic deoxyvirus, Virology, 49:319-21, 1973.

10. Palese, P. and Koch, G. Degradation of a single and double-stranded RNA by frog virus 3. Proc. Natl. Acad. Sci., 69:698-701, 1972.

11. Palese, P., Bucher, D., and Kilbourne, E.D. Applications of a synthetic neuraminidase substrate. Appl. Microbiol., 25:195-201, 1973.

12. Palese, P. and Schulman, J.L. Isolation and characterization of influenza virus recombinants with high and low neuraminidase activity: use of 2-(3'-methoxphenyl)-N-acetylneuraminic acid (MPN) to identify cloned populations. Virology, 57:227-237, 1974.

13. Meindl, P., Bodo, G., Palese, P., Schulman, J.L., and Tuppy, H. Inhibition of neuraminidase activity by derivatives of 2-deoxy-3, 3-dehydro-N-acetylneuraminic acid. Virology, 58:457-463, 1974.

14. Palese, P., Schulman, J.L., Bodo, G., and Meindl, P. Inhibition of influenza and parainfluenza virus replication in tissue culture by 2-deoxy-2, 3-dehydro-N-trifluoracetylneuraminic acid (FANA). Virology, 59:490-498, 1974.

15. Kilbourne, E.D., Palese, P., and Schulman, J.L. Inhibition of viral neuraminidase as a new approach to the prevention and treatment of influenza. Perspect. Virol, IX:99-113, 1974.

16. Palese, P., Schulman, J.L., and Tobita, K. The requirement of neuraminidase activity for influenza virus replication. Behring Institute Research Communications, Behringwerke, Marburg, Germany. 55:11-18, 1974.

17. Compans, R.W., Meier-Ewert, H., and Palese, P. Assembly of lipid containing viruses. J. Supramol. Structure, 2:296-511, 1974.

18. Palese, P., Tobita, K., Ueda, M., and Compans, R.W. Characterization of temperature-sensitive influenza virus mutants defective in neuraminidase. Virology, 61:397-410, 1974.

19. Schulman, J.L. and Palese, P. Susceptibility of different strains of influenza A virus to the inhibitory effects of 2-deoxy-2, 3-dehydro-N-trifluoroacetylneuraminic acid. Virology, 63:98-104, 1975.

20. Krug, R.M., Ueda, M., and Palese, P. Temperature-sensitive mutants of influenza WSN virus defective in virus-specific RNA synthesis. J Virol., 16:790-6, 1975.

21. Bucher, D. and Palese, P. The biologically active proteins of influenza virus: Neuraminidase. In: The Influenza Viruses and Influenza (E.D. Kilbourne, ed.), Academic Press, New York, pp. 84-123, 1975.

22. Palese, P. and Compans, R.W. Inhibition of influenza virus replication in tissue culture by 2-deoxy-2, 3-dehydro-N-trifluoroacetylneuraminic acid: Mechanism of action. J. GeneralVirology, 33:159-163, 1976.

23. Palese, P., and Schulman, J.L. Differences in RNA pattern of influenza viruses. J Virol., 17:876, 1976.

24. Ritchey, M., Palese, P., and Kilbourne, E.D. RNAs of influenza A, B, and C viruses. J Virol., 18:738-44, 1976.

25. Ritchey, M., and Palese, P. In vitro translation of influenza virus messenger RNAs. Virology, 72:410, 1976.

26. Schulman, J.L., and Palese, P. Selection and identification of influenza virus recombinants of defined genetic composition. J Virol., 20:248-54, 1976.

27. Palese, P., Ritchey, M.B., Schulman, J.L., and Kilbourne, E.D. Genetic composition of a high yielding influenza A virus recombinant: a vaccine strain against "swine" influenza. Science, 194:334-335, 1976.

28. Palese, P. and Schulman, J.L. RNA pattern of "swine" influenza virus isolated from man is similar to those of other swine influenza viruses. Nature, 263:528-530, 1976.

29. Palese, P. and Schulman, J.L. Mapping of the influenza virus genome: Identification of the hemagglutinin and neuraminidase genes. Proc. Natl. Acad. Sci., USA. 73:2142-2146, 1976.

30. Palese, P., Ritchey, M.B., and Schulman, J.L. Mapping of the influenza virus genome: II. Identification of the P1, P2, and P3 genes. Virology, 76:114-121, 1977.

31. Ritchey, M.B., Palese, P., and Schulman, J.L. Mapping of the influenza virus genome: III. Identification of the genes coding for nucleoprotein, membrane protein, and nonstructural protein. J Virol., 20:307-13, 1976.

32. Ritchey, M.B., Palese, P., and Schulman, J.L. Differences in protein patterns of influenza A viruses. Virology, 76:122-128, 1977.

33. Palese, P. and Ritchey, M.B. P1 and P3 proteins of influenza virus are required for complementary RNA synthesis. J Virol., 21:1187-95, 1977.

34. Ritchey, M.B. and Palese, P. Identification of the defective genes in three mutant groups of influenza virus. J Virol., 21:1196-1204, 1977.

35. Palese, P. and Ritchey, M.B. Live attenuated influenza virus vaccines: Strains with temperature-sensitive defects in P3 protein and nucleoprotein. Virology, 78:183-191,1977.

36. Palese, P. and Schulman, J.L. "Inhibitors of Viral Neuraminidase as Potential Antiviral Drugs." In: *Chemoprophylaxis and Viral Infections of the Respiratory Tract*, edited by J. Oxford, 189-206, Ohio: CRC Press, 1977.

37. Palese, P. and Ritchey, M.B. "Myxovirus: Orthomyxovirus- Influenza Virus." In: *Handbook in Clinical laboratory Sciences*.*Virology and Rickettsiology* edited by G.D. Hsiung and R. Green, 337-359, Ohio: CRC Press, 1977.

38. Palese, P. The genes of influenza virus. Cell, 10:1-10, 1977.

39. Schulman, J.L. and Palese, P. Virulence factors of influenza A viruses: WSN virus neuraminidase required for productive infection in MDCK cells. J Virol., 24:170-6, 1977.

40. Palese, P., Schulman, J.L., and Ritchey, M.B. Influenza virus genes: characterization and biological activity. In: *Perspectives in Virology*, edited by M. Pollard, 57-71, New York: Raven Press, 1978.

41. Palese, P. and Ritchey, M.B. Polyacrylamide gel electrophoresis of the RNAs of new influenza virus strains: An epidemiological tool. IABS Symposium on Influenza Immunization, WHO, Geneva, S. Karger, Basel, 39:411-415, 1977.

42. Racaniello, V.R. and Palese, P. "The Genes of Influenza Virus: Analysis of Influenza B Virus Strains." In: *Negative Strand Viruses and the Host Cell*, edited by R.D. Barry and B.W.J. Mahy, 27-36, London: Academic Press,1978.

43. Schulman, J.L. and Palese, P. "Biological Properties of Recombinants of Influenza A/Hong Kong and A/PR8 Viruses: Effects of Genes for Matrix Protein and Nucleoprotein on Virus Yield in Embryonated Eggs. In: *Negative Strand Viruses and the Host Cell* R.D. Barry and B.W.J. Mahy, 663-674, London: Academic Press, 1978.

44. Moss, B., Keith, J.M., Gershowitz, A., Ritchey, M.B. and Palese, P. Common sequence at the 5' - ends of the segmented RNA genomes of influenza A and B viruses. J Virol., 25:312-8, 1978.

45. Lubeck, M.D., Schulman, J.L. and Palese, P. Susceptibility of influenza A viruses to amantadine is determined by the gene coding for M protein. J Virol., 28:710-6, 1978.

46. Desselberger, U., Nakajima, K., Alfino, P., Pedersen, F.S., Haseltine, W.A., Hannoun, C., and Palese, P. Biochemical evidence that "new " influenza virus strains in nature may arise by recombination (reassortment). Proc. Natl. Acad. Sci., USA. 75:3341-3345, 1978.

47. Desselberger, U. and Palese, P. Molecular weights of RNA segments of influenza A and B viruses. Virology, 88:394-399, 1978.

48. Palese, P. "The Hemagglutinin Gene of Influenza Viruses." The Influenza Virus Hemagglutinin, Topics in *Infectious Diseases*, edited by W.G. Laver, H. Bachmayer and R. Weill, 49-57, Vienna: Springer-Verlag, 1978.

49. Nakajima, K., Desselberger, U. and Palese, P. Recent human influenza A (H1N1) viruses are closely related genetically to strains isolated in 1950. Nature, 274:334-339, 1978.

50. Racaniello, V.R. and Palese, P. The influenza B virus genome: Assignment of viral polypeptides to RNA segments. J Virol. 29:361-73, 1979.

51. Lubeck, M.D., Palese, P. and Schulman, J.L. Nonradon association of parental genes in influenza A virus recombinants. Virology, 95:269-274, 1979.

52. Palese, P., Racaniello, V.R., Desselberger, U., Young, J.F., and Baez, M. Genetic structure and genetic variation of influenza viruses. Phil. Trans. R. Soc. Lond. B288:299-305, 1980.

53. Desselberger, U., Racaniello, V.R., Zazra, J.J., and Palese, P. The 3' and 5' terminal sequences of influenza A, B, and C, virus genes are highly conserved and show partial inverted complementarity. Gene, 8:315-328, 1980.

54. Young, J.F., Desselberger, U., and Palese P. Evolution of new H1N1 influenza A viruses in nature. Cell, 18:73-83, 1979.

55. Palese, P. Genetic variation of human influenza viruses. Trends in Biochemical Sciences, 5:III-V, 1980.

56. Baez, M., Palese, P., and Kilbourne, E.D. Gene composition of high yielding influenza vaccine strains obtained by recombination. J. Infectious Diseases, 141:362-365, 1980.

57. Young, J.F., and Palese, P. Evolution of human influenza A viruses in nature: recombination contributes to genetic variation of H1N1 strains. Proc. Natl. Acad. Sci. USA, 76:6547-6551, 1979.

58. Racaniello, V.R., and Palese, P. Isolation of influenza C virus recombinants. J Virol., 32:1006-14, 1979.

59. Lubeck, M.D., Schulman, J.L., and Palese, P. Antigenic variants of influenza viruses: Marked differences in the frequencies of variants selected with different monoclonal antibodies. Virology, 102:458-462, 1980.

60. Desselberger, U., Zamecnik, P., and Palese, P. "3'-Terminal Sequences of Hemagglutinin and Neuraminidase Genes of Different Influenza A Viruses." In: *Proceedings of the International Workshop on Structure and Variation in the Influenza Virus in Thredbo*, *Australia* edited by W.G. Laver and G.M. Air, 169-179, New York: Elsevier Sci. Publishers, 1980.

61. Young, J.F., Berkowitz, E.M., and Palese, P. Mechanisms of genetic variation in human influenza viruses. Annals of the New York Academy of Sciences, 354:135, 1980.

62. Brand, C., and Palese, P. Sequential passage of influenza virus in embryonated eggs or tissue culture: Emergence of mutants. Virology, 107:424, 1980.

63. Palese, P., Brand, C., Young, J.F., Baez, M., Six, H.R., and Kasel, J.A. Molecular epidemiology of influenza viruses. Perspectives in Virology, 11:115, 1981.

64. Baez, M., Taussig, R., Zazra, J.J., Young, J.F., Palese, P., Reisfeld, A., and Skalka, A.M. Complete nucleotide sequence of the influenza A/PR/8/34 virus NS gene and comparison with the NS genes of the A/Udorn/72 and A/FPV/Rostock/34 strains. Nucleic Acids Research, 8:5845, 1980.

65. Young, J.F., Taussig, R., Aaronson, R.P., and Palese, P. "Advantages and Llimitations of the Oligonucleotide Mapping Technique for the Aanalysis of Viral RNAs." In: *Replication of Negative Strand Viruses,* edited by D.H.L. Bishop and R.W. Compans, 209-215, New York: Elsevier Science Publishers, 1981.

66. Palese, P. New biochemical techniques for the characterization of viruses to assist the epidemiologist. J. Infectious Diseases, 142:633, 1980.

67. Baez, M., Zazra, J.J., Elliott, R.M., Young, J.F., and Palese, P. Nucleotide sequence of the influenza A/duck/Alberta/60/76 virus NS RNA: Conservation of the NS1/NS2 overlapping gene structure in a divergent influenza virus RNA segment. Virology, 113:397, 1981.

68. Aaronson, R.P., Young, J.F., and Palese, P. Oligonucleotide mapping: Evaluation of its sensitivity by computer simulation. Nucleic Acids Research, 10:237, 1981.

69. Mitsialis, S.A., Young, J.F., Palese, P. and Guntaka, R.V. An avian tumor virus promoter directs expression of plasmid genes in E. coli. Gene, 16:217, 1981.

70. Palese, P. and Young, J.F. Variation of influenza A, B, and C viruses. Science, 215:1468, 1982.

71. Palese, P., Elliott, R.M., Baez, M., Zazra, J.J., and Young, J.F. Genome diversity among influenza A, B, and C viruses and genetic structure of RNA 7 and RNA 8 of influenza A viruses. In: *Genetic Variation Among Influenza Viruses* edited by D. Nayak, 127-140, New York: Academic Press, 1981.

72. Krystal, M., Elliott, R.M., Benz, E.W., Young, J.F., and Palese, P. Evolution of influenza A and B viruses: conservation of structural features in the hemagglutinin genes. Proc. Natl. Acad. Sci., USA, 79:4800, 1982.

73. Young, J.F., Desselberger, U., Graves, P., Palese, P., Shatzman, A, and Rosenberg, M. "Cloning and Expression of Influenza Virus Genes. In: *The Origin of Pandemic Viruses*, edited by W.G. Laver, 129-138, New York: Elsevier Science Publishers, 1982.

74. Krystal, M., Buonogurio, D., Young, J.F., and Palese, P. Sequential mutations in the NS genes of influenza virus field strains. J Virol., 45:547, 1983.

75. Krystal, M., Young, J.F., Palese, P., Wilson, I.A., Skehel, J.J., and Wiley, D.C. Sequential mutations in the hemagglutinins of influenza B virus isolates: definition of antigenic domains. Proc. Natl. Acad. Sci. USA, 80:4257, 1983.

76. Graves, P.N., Schulman, J.L., Young, J.F., and Palese, P. Preparation of influenza virus subviral particles lacking the HA1 subunit of hemagglutinin: unmasking of cross-reactive HA2 determinants. Virology, 126:106, 1983.

77. Parvin, J.D., Young, J.F., Palese, P. Nonsense mutations affecting the lengths of the NS1 nonstructural proteins of influenza A virus isolates. Virology, 128:512, 1983.

78. Palese, P., and Young, J.F. "Molecular Epidemiology of Influenza Virus." In: *Genetics of Influenza Viruses,* edited by P. Palese and D.W. Kingsbury, 321-336, Vienna: Springer-Verlag, 1983.

79. Young, J.F., Capecchi, M., Laski, F.A., RajBhandary, U., Sharp, P.A., and Palese, P. Measurement of suppressor tRNA activity. Science, 221:873, 1983.

80. Young, J.F., Desselberger, U., Palese, P., Ferguson, B., Shatzman, A.R., and Rosenberg, M. Efficient expression of influenza virus NS1 nonstructural proteins in E. coli. Proc. Natl. Acad. Sci., USA, 80:6105, 1983.

81. Krystal, M., Nakada, S., Buonagurio, D.A., DeBorde, D.C., Maasab, J.F., and Palese, P. "The Nonstructural Gene Segment of Influenza A Virus: Expression of NS1 Protein in Mammalian Cells; Analysis of a Deletion Mutant." In: *Proceedings of the 5th International Symposium on Negative Strand Viruses*, edited by D.H.L. Bishop and R.W. Compans, 147-157, New York: Elsevier Sci. Publishers, 1984.

82. Nakada, S., Creager, R.S., Krystal, M., Aaronson, R.P. and Palese, P. Influenza C virus hemagglutinin: comparison with influenza A and B virus hemagglutinins. J Virol., 50:118, 1984.

83. Buonagurio, D.A., Krystal, M., Palese, P., Maassab, H.F., and DeBorde, D.C. Analysis of an influenza A virus mutant with a deletion in the NS segment. J Virol., 49:418, 1984.

84. Palese, P. "Reassortment Continuum." In: *Concepts in Viral Pathogenesis* edited by A.L. Notkins and M.B.A. Oldstone, 144-151, New York: Springer-Verlag, 1984.

85. Townsend, A.R.M., Skehel, J.J., Taylor, P.M. and Palese, P. Recognition of influenza A virus nucleoprotein by an H-2-restricted cytotoxic T-cell clone. Virology, 133:456, 1984.

86. Nakada, S., Creager, R.S., Krystal, M., and Palese, P. Complete nucleotide sequence of the influenza C/California/78 virus nucleoprotein gene. Virus Research, 1:433, 1984.

87. Laski, F.A., Belagaje, R., Hudziak, R.M., Capecchi, M.R., Norton, G.P., Palese, P., RajBhandary, U.L., Sharp, P.A. Synthesis of an ochre suppressor tRNA gene and expression in mammalian cells. EMBO, 3:2445, 1984.

88. Palese, P. " Variation Influenza Viruses." In: *Reye's Syndrome IV: Proceedings of the Fourth International Conference on Reye's Syndrome*, edited by J.D. Pollack, 100-106, Ohio:The National Reye's Sundrome Foundation, 1985.

89. Greenspan, D., Krystal, M., Nakada, S., Arnheiter, H., Lyles, D.S., and Palese, P. Expression of NS2 nonstructural protein in bacteria and localization of NS2 in infected eukaryotic cells. J Virol., 54:833-843, 1985.

90. Nakada, S., Graves, P.N., Desselberger, U., Creager, R.S., Krystal, M., and Palese, P. Influenza C virus RNA 7 codes for a nonstructural protein. J Virol., 56:221-226, 1985.

91. Buonagurio, D.A., Nakada, S., Desselberger, U., Krystal, M. and Palese, P. Noncumulative sequence changes in the hemagglutinin genes of influenza C virus isolates. Virology, 146:221-232, 1985.

92. Parvin, J.D., Smith, F.I., and Palese, P. Rapid DNA sequencing using double-stranded template DNA, SP6 polymerase and 3'-deoxy nucleotide triphosphates. DNA, **5**:167-171, 1986.

93. Krystal, M., Li, R., Lyles, D., Pavlakis, G., and Palese, P. Expression of the three influenza virus polymerase proteins in a single cell allows for growth complementation of viral mutants. Proc. Natl. Acad. Sci., 83:2709-2713, 1986.

94. Smith, F.I., Parvin, J.D., and Palese, P. Detection of single base substitutions in influenza virus RNA molecules by denaturing gradient gel electrophoresis of RNA-RNA or DNA-RNA heteroduplexes. Virology, 150:55-64, 1986.

95. Palese, P. "Rapid Evolution of Human Influenza Viruses" In: *Evolutionary Processes and Theory*, edited by S. Karlin, and E. Nevo, New York: Academic Press, 1986.

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