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Professional Profile

Dr. Moolgavkar has more than 40 years of experience in the fields of epidemiology, biostatistics, and quantitative risk assessment. He is internationally known for his work in developing mechanistically based dose-response models for carcinogenesis, and, specifically, for the two-stage clonal expansion (TSCE) model, also known as the Moolgavkar-Venzon-Knudson (MVK) model. As new scientific information becomes available, this model is extended and updated by Dr. Moolgavkar and colleagues and both the original and extended models have been used for analyses of epidemiological and toxicological data.

Dr. Moolgavkar has also been keenly interested in air pollution epidemiology and has published on the impact of criteria pollutants, including fine particulate matter (PM) and other criteria pollutants, on human health.

Dr. Moolgavkar retired from his position at the Fred Hutchinson Cancer Research Center in August 2015, where he was a Full Member between 1984 and 2007 and affiliate investigator beginning in 2007 and assumed the position of Emeritus Member. At the same time, he retired from his positions as Professor of Epidemiology and Adjunct Professor of Applied Mathematics at the University of Washington. He continues to be an Affiliate Professor of Applied Mathematics.

Dr. Moolgavkar has served on the faculties of the Johns Hopkins University, Indiana University, University of Pennsylvania, and the Fox Chase Cancer Center. He has been a visiting scientist at the Radiation Effects Research Foundation (RERF) in Hiroshima, the International Agency for Research on Cancer (IARC) in Lyon, France, and the German Cancer Research Center in Heidelberg, Germany. Dr. Moolgavkar has served on numerous review panels and as a consultant to the National Cancer Institute, U.S. Environmental Protection Agency (EPA), Health and Welfare, Canada, IARC, the California Air Resources Board (CARB), and the Chemical Industry Institute of Toxicology (CIIT) Centers for Health Research, and Health Effects Institute, among others.

Dr. Moolgavkar is the author or co-author of more than 180 papers and contributed chapters in the areas of epidemiology, biostatistics, and quantitative risk assessment, and has edited three books in these areas. He was the senior editor of a monograph, Quantitative Estimation and Prediction of Human Cancer Risk, published by the IARC. He is an elected member of the American Epidemiological Society. Dr. Moolgavkar has served on the editorial boards of Genetic Epidemiology and Inhalation Toxicology. In 2012, he stepped down from his position as an Associate Editor of Risk Analysis — An International Journal, but continues to serve on the editorial board.

Dr. Moolgavkar has published numerous epidemiological and toxicological papers on carcinogenesis, including, specifically, lung cancer, including lung cancer associated with smoking, radiation, diesel exhaust emissions and exposure to fibers, including asbestos. Dr. Moolgavkar was a member of the working group involved in the writing of the IARC monograph on tobacco smoking in 1986 (IARC monograph 38) and was an Invited Expert at the workshop, “Mechanisms of Fiber Carcinogenesis,” held

at IARC in Lyon, France, in early November of 2005. He was also the lead panelist for a symposium on fiber carcinogenesis held in Brussels, Belgium, in 2005.

Dr. Moolgavkar was given the Founders' Award by the CIIT Centers for Health Research in 1990, the Distinguished Achievement Award by the Society for Risk Analysis (SRA) in 2001, and the Outstanding Service Award by SRA in 2012. He is one of a few members of SRA to have received both the Distinguished Achievement and Outstanding Service Awards. He is a Fellow of SRA, the pre-eminent international scientific society for risk assessment.

Dr. Moolgavkar's research has been supported largely by grants from the National Institutes of Health, the U.S. Department of Energy, and EPA.

Academic Credentials & Professional Honors

Ph.D., Mathematics, Johns Hopkins University, 1973

M.B., B.S. (M.D.), University of Bombay, India, 1965

Fellow, Society for Risk Analysis

Outstanding Service Award, Society for Risk Analysis, 2012

Senior Fellow, Department of Epidemiology, University of Washington, 1976-1977

Postdoctoral Fellow, Departments of Pharmacology and Biophysics, Johns Hopkins Medical School, Baltimore, Maryland, 1966-1968

Elected Member, American Epidemiological Society

Distinguished Achievement Award, Society for Risk Analysis, 2001

Founders' Award, Chemical Industry Institute of Toxicology, 1990

Lester R. Ford Award of Mathematical Association of America, 1977

Faculty Research Fellowship of Indiana University, 1974-1976

Academic Appointments

Emeritus Member, Fred Hutchinson Cancer Research Center, 9/2015-present

Affiliate Professor, Department of Applied Mathematics, University of Washington, 9/2015-present

Professor, Department of Epidemiology, University of Washington, 6/1984-8/2015

Adjunct Professor, Department of Applied Mathematics, University of Washington, 2004-2015

Adjunct Professor, Department of Biostatistics, University of Washington, 1984-2009

Member, The Fred Hutchinson Cancer Research Center, Seattle, 1984-2008

Member, Graduate Faculty, University of Washington, 1984-present

Prior Experience

Adjunct Associate Professor, Department of Research Medicine, University of Pennsylvania School of Medicine, 1980-1984

Research Physician, The Institute for Cancer Research, Fox Chase Cancer Center, Philadelphia, 1979-1984

Clinical Assistant Professor, Department of Research Medicine, University of Pennsylvania School of Medicine, 1977-1980

Associate, American Oncologic Hospital, Philadelphia, 1977-1984

Epidemiologist, The Fox Chase Cancer Center, Philadelphia, 1977-1984

Member, Graduate Group in Epidemiology, University of Pennsylvania, 1977-1984

Assistant Professor of Mathematics, Indiana University, Bloomington, 1973-1977

Instructor in Mathematics, Johns Hopkins University, 1972-1973

Publications

Moolgavkar S, Chang ET, Luebeck EG. 2023. Multistage carcinogenesis: Impact of age, genetic, and environmental factors on the incidence of malignant mesothelioma. Environ Res. E-pub ahead of print. Available at https://doi.org/10.1016/j.envres.2022.114582.

Cox LA, Bogen K, Conolly R, Graham U, Moolgavkar S, Oberdorster G, Roggli V, Turci F, Mossman BT. 2023. Mechanisms and shapes of causal exposure-response functions for asbestos in mesotheliomas and lung cancers. Environ Res. E-pub ahead of print. Available at https://doi.org/10.1016/j.envres.2023.115607.

Mezei G, Chang ET, Mowat FS, Moolgavkar SH. Comment on recent case-control study of malignant mesothelioma of the pericardium and the tunica vaginalis testis. Scand J Work Environ 2021;47(1):85–86.

Fordyce TA, Leonhard MJ, Mowat FS, Moolgavkar SH. Letter to the editor: Misrepresentation by Egilman et al. of the Fordyce et al. (2019) Vermont talc miners and millers cohort study update. J Occup Environ Med 2020; 62(1):e19–e21.

Fordyce TA, Leonhard M, Mowat F, Moolgavkar S. Response to Finkelstein re: the Fordyce et al. Vermont talc miners and millers cohort study update. J Occup Environ Med 2020;62(4):e172–e173.

Mezei G, Chang ET, Mowat FS, Moolgavkar SH. Comments on Vimercati et al., 2019, “Asbestos exposure and malignant mesotheliomas of the tunica vaginalis testis: A systematic review and the experience of the Apulia (southern Italy) mesothelioma register.” Environ Health 2019; 18:111.

Moolgavkar S, Luebeck G. Multistage carcinogenesis: A unified framework for cancer data analysis. In Statistical Modeling for Biological Systems. Almudevar A., Oakes, D., Hall, J., (eds) Springer, Cham. https://doi.org/10.1007/978-3-030-34675-1_7, 115-133.

Fordyce TA, Leonhard MJ, Mowat FS, Moolgavkar SH. A 37-year update on mortality patterns in an expanded cohort of Vermont talc miners and millers. J Occup Environ Med. 2019; 61(11):916-923

Fordyce TA, Leonhard MJ, Mowat FS, Moolgavkar SH. A 37-year update on mortality patterns in an expanded cohort of Vermont talc miners and millers. J Occup Environ Med. 2019; 916-923

Chang ET, Lau EC, Van Landingham C, Crump KS, McClellan RO, Moolgavkar SH. Response to Silverman DT "Diesel exhaust and lung cancer - aftermath of becoming an IARC Group 1 carcinogen." Am J Epidemiol 2018; 188(2):489–491.

Chang ET, Lau EC, Van Landingham C, Crump KS, McClellan RO, Moolgavkar SH. Reanalysis of diesel engine exhaust and lung cancer mortality in the Diesel Exhaust in Miners Study (DEMS) cohort using alternative exposure estimates and radon adjustment. Am J Epidemiol 2018; 187(6): 1210-1219.

Moolgavkar SH, Chang ET, Watson HT, Lau E. An evaluation of the Cox proportional hazards model for epidemiologic studies. Risk Anal, 2018; 38(4):777-794.

Moolgavkar SH, Chang ET, Mezei G, Mowat FS. Epidemiology of mesothelioma. In Asbestos and Mesothelioma. Joseph R. Testa. Ed. Springer 2017: pp 43-72.

Mezei G, Chang ET, Mowat FS, Moolgavkar SH. Epidemiology of mesothelioma of the pericardium and tunica vaginalis testis. Ann Epidemiol 2017; 27(5):348-359.e11.

Moolgavkar SH; Commentary: Multistage carcinogenesis and epidemiological studies of cancer. Int J Epidemiol 2016; 45(3):645-649.

Moolgavkar SH. Invited Commentary. Fine particulate matter pollution and mortality. Risk Anal. 2016; 36:1766-1769.

Moolgavkar, SH. Commentary: Frailty and heterogeneity in epidemiological studies. Int J Epidemiol. 2015; 44(4):1425-1426

Moolgavkar SH, Chang ET, Luebeck G, Lau EC, Watson HM, Crump KS, Boffetta P, McClellan R. Diesel engine exhaust and lung cancer mortality: Time-related factors in exposure and risk. Risk Anal. 2015; 35(4):663-675.

Boffetta P, La Vecchia C, Moolgavkar SH. Chronic effects of air pollution are probably overestimated. Risk Anal. 2015; 35(5):766-769.

Crump KS, Van Landingham C, Moolgavkar SH, McClellan R. Reanalysis of the DEMS nested case-control study of lung cancer and diesel exhaust: Suitability for quantitative risk assessment. Risk Anal. 2015; 35(4):676-700.

McMahon PM, Meza R, Plevritis SK, Black WC, Tammegagi MC, Erdogan SA, ten Haaf K, Hazelton WD, Holford TR, Jeon J, Clarke L, Kong CY, Choi SE, Munshi V, Han S, van Rosmalen J, Pinsky PF, Moolgavkar SH, de Koning HJ, Feuer EJ. Comparing benefits from many possible computed tomography lung cancer screening programs: Extrapolating from the National Lung Screening Trial using comparative modeling. PLoS One 2014; 9(6):e99978.

Moolgavkar SH, Anderson EL, Chang ET, Lau EC, Turnham P, Hoel DG. A review and critique of U.S. EPA's risk assessments for asbestos. Crit Rev Toxicol. 2014; 44:499-522.

Boffetta P, Donaldson K, Moolgavkar SH, Mandel JS. A systematic review of occupational exposure to synthetic vitreous fibers and mesothelioma. Crit Rev Toxicol 2014; 44:436-449.

Chang ET, Adami HO, Bailey WH, Boffetta P, Krieger RI, Moolgavkar SH, Mandel JS. Validity of geographically modeled environmental exposure estimates. Crit Rev Toxicol 2014; 44:450-466.

Holford TR, Meza R, Warner KE, Meernik C, Jeon J, Moolgavkar SH, Levy DT. Tobacco control and the reduction smoking-related premature deaths in the United States, 1964-2012. JAMA 2014; 311:164-171.

Moolgavkar SH, Chang ET, Watson H, Lau EC. Cancer mortality and quantitative oil production in the

Amazon region of Ecuador, 1990-2010. Cancer Causes Control. 2014; 25(1):59-72.

de Koning HJ, Meza R, Plevritis SK, ten Haaf K, Munshi VN, Jeon J, Erdogan SA, Kong CY, Han SS, van Rosmalen J, Choi SE, Miller M, Moolgavkar S, Pinsky PF, Berg CD, Berrington de Gonzalez A, Black WC, Tammemagi CM, Hazelton WD, Feuer EJ, McMahon PM. Benets and harms of computed tomography lung cancer screening programs for high-risk populations. AHRQ Publication No. 13-05196-EF-2. Rockville, MD: Agency for Healthcare Research and Quality, 2013.

Moolgavkar SH, McClellan RO, Dewanji A, Turim J, Luebeck G, Edwards M. Time-series analyses of air pollution and mortality in the United States: A subsampling approach. 2013; 121.1:73-78.

McCarthy WJ, Meza R, Jeon J, Moolgavkar SH. Chapter 6. Lung cancer in never-smokers. Risk Anal. 2012; 32(Suppl 1):S69-S84.

Hazelton WD, Jeon J, Meza R, Moolgavkar SH. Chapter 8. FHCRC lung cancer model. Risk Anal 2012; 32 (Suppl 1):S99-S116.

Boer R, Moolgavkar SH, Levy DT. Impact of tobacco control on lung cancer mortality in the United States over the period 1975-2000 — Summary and limitations. Risk Anal. 2012; 32:S190-S202.

Moolgavkar SH, Holford TR, Levy DT, Kong CY, Foy M, Clarke L, Jeon J, Hazelton W, Meza R, Schultz F, McCarthy W, Boer R, Gorlova O, Gazelle GS, Kimmel M, McMahon PM, de Koning HJ, Feuer EJ Impact of reduced tobacco smoking on lung cancer mortality in United States during 1975-2000. JNCI 2012; doi. 10.1093/jnci/djs 136

Meza R, Jeon J, Moolgavkar SH. Quantitative cancer risk assessment of nongenotoxic carcinogens. In: Cancer Risk Assessment: Chemical Carcinogenesis, Hazard Evaluation, and Risk Quantification. New York, John Wiley & Sons, 2010.

Moolgavkar SH, Turim J, Alexander D, Lau E, Cushing C. Potency factors for risk assessment at Libby, Montana. Risk Anal. 2010; 30:1240-1248.

McClellan RO, Frampton MW, Koutrakis P, McDonnell WF, Moolgavkar S, et al. Critical considerations in evaluating scientific evidence of health effects of ambient ozone: A conference report. Inhalat Toxicol. 2009; 21(S2):1-36.

Moolgavkar SH, Meza R, Turim J. Pleural and peritoneal mesothelioma in SEER: Age effects and temporal trends, 1973-2005. Cancer Causes Control 2009; 20(6):935-944.

Meza R, Jeon J, Moolgavkar SH, Luebeck EG. The age-specific incidence of cancer: phases, transitions and biological implications. Proc Natl Acad Sci U.S.A. 2008; 105:16284-16289.

Meza R, Jeon J, Moolgavkar SH, Luebeck EG. The age-specific incidence of cancer: Phases, transitions and biological implications. PNAS. 105:16284-16289.

Luebeck EG, Moolgavkar SH, Liu A, Ulrich N. Does folic acid supplementation prevent or promote colon cancer? Results from model-based predictions. Cancer Epidemiol Biomarkers Prevent 2008; 17:1360-1367.

Little M, Heidenreich W, Moolgavkar SH, Schoellnberger H, Thomas DC. Systems biological and mechanistic modelling of radiation-induced cancer. Rad Environ Biophys 2008; 47:39-47.

Meza R, Hazelton WD, Colditz GA, Moolgavkar SH. Analysis of lung cancer incidence in the nurses' health and the health professionals' follow-up studies using a multistage carcinogenesis model. Cancer Causes Control 2008; 19:317-328.

Jeon J, Meza R, Moolgavkar SH, Luebeck EG. The evaluation of cancer screening strategies using multistage carcinogenesis models. Math Biosci 2008; 213:56-70.

Reiss R, Anderson EL, Cross CE, Hidy G, Hoel D, McClellan R, Moolgavkar S. Evidence of health impacts of sulfate and nitrate containing particles in ambient air. Inhal Toxicol 2007; 19:419-449.

Moolgavkar SH. Pollution analysis flawed by statistical model. Correspondence. Nature 2007; 445:21.

Hazelton WD, Moolgavkar SH, Curtis SB, Zielinski JM, Ashmore JP, Krewski D. Biologically based analysis of lung cancer incidence in a large Canadian occupational cohort with low-dose ionizing radiation exposure, and comparison with Japanese atomic bomb survivors. J Toxicol Environ Health 2006; 69:1013-1038.

Moolgavkar SH. Fine particles and mortality. Inhal Toxicol 2006; 18:93-94.

Jeon J, Luebeck EG, Moolgavkar SH. Age effects and temporal trends in adenocarcinoma of esophagus and gastric cardia. Cancer Causes Control 2006; 17:971-981.

Clements MS, Hakulinen T, Moolgavkar SH. Bayesian projections: What are the effects of excluding data from the younger age groups? Am J Epidemiol 2006; 164:292-293.

Luebeck EG, Moolgavkar SH. Biological and mathematical aspects of multistage carcinogenesis. In: Quantitative Methods for Cancer and Human Health Risk Assessment. Edler I, Kitsos CP (eds), Wiley-Liss, 2005.

Luebeck EG, Buchmann A, Schneider D, Moolgavkar SH, Schwarz M. Modulation of liver tumorigenesis in Connexin32-deficient mouse. Mutat Res 2005; 570:33-47.

Moolgavkar SH. A review and critique of the EPA's rationale for a fine particle standard. Regulat Toxicol Pharmacol 2005; 42:123-144.

Hazelton WD, Clements MS, Moolgavkar SH. Multistage carcinogenesis and lung cancer mortality in three cohorts. Cancer Epidemiol Biomarkers Prevent 2005; 14:1171-1181.

Clements MS, Armstrong B, Moolgavkar SH. Lung cancer rate predictions using generalized additive models. Biostatistics 2005; 6:576-589.

Dewanji A, Luebeck EG, Moolgavkar SH. A generalized Luria-Delbrück process. Math Biosci 2005; 197:140-152.

Meza R, Luebeck EG, Moolgavkar SH. Gestational mutations and carcinogenesis. Math Biosci 2005; 197:188-210.

Zheng CJ, Luebeck EG, Byers B, Moolgavkar SH. On the number of founding germ cells in humans. Theor Biol Med Model 2005; 24:2, 32.

Curtis SB, Hazelton WD, Luebeck EG, Moolgavkar SH. From mechanism to risk estimation — bridging the chasm. Adv Space Res 2004; 34:1404-1409.

Moolgavkar SH. Fifty years of the multistage model: Remarks on a landmark paper. Int J Epidemiol 2004; 33:1182-1183.

Little MP, Blettner M, Boice JD Jr, Bridges BA, Cardis E, Charles MW, de Vathaire F, Doll R, Fujimoto K, Goodhead D, Grosche B, Hall P, Heidenreich WF, Jacob P, Moolgavkar SH, Muirhead CR, Niwa O, Paretzke HG, Richardson RB, Samet JM, Sasaki Y, Shore RE, Straume T, Wakeford R. Potential funding crisis for the Radiation Effects Research Foundation. Lancet 2004; 364:557-558.

Heidenreich WF, Luebeck EG, Hazelton WD, Paretzke HG, Moolgavkar SH. Response to the commentary of Donald A. Pierce (Radiat Res 2003; 160:718-723). Radiat Res 2004; 161:369-370.

Heidenreich WF, Luebeck EG, Moolgavkar SH. Effects of exposure uncertainties in the TSCE model and application to the Colorado miners data. Radiat Res 2004; 161:72-81.

Moolgavkar SH, Luebeck EG. Multistage carcinogenesis and the incidence of human cancer. Genes Chromosomes Cancer 2003; 38:302-306.

Moolgavkar SH. Air pollution and daily mortality in two U.S. counties: season-specific analyses and exposure-response relationships. Inhal Toxicol 2003; 15:877-907.

Moolgavkar SH. Air pollution and daily deaths and hospital admissions in Los Angeles and Cook counties. pp. 183-198. In: Health Effects Institute Special Report, Revised Analyses of Time-Series Studies of Air Pollution and Health. Health Effects Institute, 2003.

Krewski D, Zielinski JM, Hazelton WD, Garner MJ, Moolgavkar SH. The use of biologically based cancer risk models in radiation epidemiology. Radiat Prot Dosimetry 2003; 104:367-76.

Gregori G, Hanin L, Luebeck G, Moolgavkar S, Yakovlev A. Testing goodness of fit for stochastic models of carcinogenesis. Math Biosci 2002; 175:13-29.

Heidenreich WF, Luebeck EG, Hazelton WD, Paretzke HG, Moolgavkar SH. Multistage models and the incidence of cancer in the cohort of A-bomb survivors. Rad Res 2002; 158:607-614.

Dewanji A, Moolgavkar SH. Choice of stratification in Poisson process analysis of recurrent event data with environmental covariates. Statist Med 2002; 21:3383-3393.

Curtis SB, Luebeck EG, Hazelton WD, Moolgavkar SH. Does radiation enhance promotion of already-initiated cells via a bystander effect? Int Congress Series 2002; 1236:283-287.

Curtis SB, Luebeck EG, Hazelton WD, Moolgavkar SH. A new perspective of carcinogenesis from protracted high-LET radiation arises from the two-stage clonal expansion model. Adv Space Res 2002; 30:937-944.

Luebeck EG, Moolgavkar SH. Multistage carcinogenesis and the incidence of colorectal cancer. Proc National Acad Sci 2002; 99:15095-15100.2.

Moolgavkar SH, Turim J, Brown RC, Luebeck EG. Long man-made fibers and lung cancer risk. Regulat Toxicol Pharmacol 2001; 33:138-146.

Hazelton WD, Luebeck EG, Heidenreich WF, Moolgavkar SH. Analysis of a historical cohort of Chinese tin miners with arsenic, radon, cigarette, and pipe smoke exposures using the biologically-based two-stage clonal expansion model. Rad Res 2001; 156:7-94.

Moolgavkar SH, Turim J, Brown RC. The power of the European Union protocol to test for carcinogenicity of inhaled fibers. Regulat Toxicol Pharmacol 2001; 33:350-355.

Moolgavkar SH, Brown RC, Turim J. Biopersistence, fiber length, and cancer risk assessment for inhaled fibers. Inhal Toxicol 2001; 13:755-772.

Moolgavkar SH, Luebeck EG, Turim J, Brown RC. Lung cancer risk associated with exposure to man-made fibers. Drug Chem Toxicol 2000; 23:223-242.

Moolgavkar SH, Hazelton WF, Luebeck EG, Levy D, Sheppard L. Air pollution, pollens, and admissions

for chronic respiratory disease in King County. Inhal Toxicol 2000; 12(Supplement 1):157-171.

Dewanji A, Moolgavkar SH. A Poisson process approach for recurrent event data with environmental covariates. Environmetrics 2000; 11:665-673.

Moolgavkar SH. Air pollution and hospital admissions for diseases of the circulatory system in three U.S. metropolitan areas. J. Air Waste Manage Assoc 2000; 50:1199-1206.

Moolgavkar SH. Air pollution and daily mortality in three U.S. counties. Environ Health Perspect 2000; 108:777-784.

Moolgavkar SH. Air pollution and hospital admissions for chronic obstructive pulmonary disease in three metropolitan areas in the US. Inhal Toxicol 2000; 12(Suppl 4):75-90.

Luebeck EG, Buchmann A, Stinchcombe S, Moolgavkar SH, Schwarz M. Effects of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) on initiation and promotion of GSTP-positive foci in rat liver: A quantitative analysis of experimental data using a stochastic model. Toxicol Appl Pharmacol 2000; 167:63-73.

Grasl-Kraupp B, Luebeck G, Wagner A, Loew-Baselli A, De Gunst M, Waldhor T, Moolgavkar S, Schulte-Hermann R. Quantitative analysis of tumor initiation in rat liver: Role of cell replication and cell death (apoptosis). Carcinogenesis 2000; 21:1411-1421.

Moolgavkar SH, Moller H, Woodward A. Principles of the epidemiologic approach to quantitative estimation and prediction of cancer risk. pp. 61-74. In: Quantitative Estimation and Prediction of Cancer Risk. Moolgavkar SH, Krewski D, Zeise L, Cardis E, Moller H (eds), IARC Scientific Publications, 1999.

Moolgavkar SH, Krewski D, Schwarz M. Mechanisms of carcinogenesis and biologically-based models for quantitative estimation and prediction of cancer risk. pp. 179-238. In: Quantitative Estimation and Prediction of Cancer Risk. Moolgavkar SH, Krewski D, Zeise L, Cardis E, Moller H (eds), IARC Scientific Publications, 1999.

Moolgavkar SH, Woodward A, Krewski D, Cardis E, Zeise L. Future perspectives and research needs. pp. 305-322. In: Quantitative Estimation and Prediction of Cancer Risk. Moolgavkar SH, Krewski D, Zeise L, Cardis E, Moller H (eds), IARC Scientific Publications, 1999.

Cardis E, Zeise L, Schwarz M, Moolgavkar S. Review of specific examples of QEP. pp. 239-304. In: Quantitative Estimation and Prediction of Cancer Risk. Moolgavkar SH, Krewski D, Zeise L, Cardis E, Moller H (eds), IARC Scientific Publications, 1999.

Moolgavkar SH, Luebeck EG, Turim J, Hanna L. Quantitative assessment of the risk of lung cancer associated with occupational exposure to refractory ceramic fibers. Risk Anal 1999; 19:599-611.

Dewanji A, Goddard M, Krewski D, Moolgavkar SH. Two stage model for carcinogenesis: Number and size distributions of premalignant clones in longitudinal studies. Math Biosci 1999; 155:1-12.

Luebeck EG, Heidenreich WF, Hazelton WD, Paretzke HG, Moolgavkar SH. Biologically-based analysis of the data for the Colorado Plateau uranium miners cohort: Age, dose and dose-rate effects. Rad Res 1999; 152:339-351.

Moolgavkar SH. Stochastic models for estimation and prediction of cancer risk. pp. 237-259. In: Statistics for the Environment 4: Pollution Assessment and Control. Barnett V, Stein A, Feridun Turkman K (eds), John Wiley, NY, 1999.

Moolgavkar SH, Luebeck EG, Anderson EL. Estimation of unit risk for coke oven emissions. Risk Anal 1998; 18:813-825.

Gaylor DW, Moolgavkar S, Krewski D, Goldstein LS. Recent bioassay results on coal tars and benzo[a]pyrene: Implications for risk assessment. Regul Toxicol Pharmacol 1998; 28:178-179.

Moolgavkar SH. Dose-response assessment: quantitative methods for the investigation of dose-response relationships. In: Risk Assessment and Indoor Air Quality. Ed: Anderson EL and Albert R. Lewis Publishers. 1998. Pp 73-96.

Moolgavkar SH. Comments on papers on U-shaped dose-response relationships for carcinogens. Hum Exper Toxicol 1998; 17:708-710.

Moolgavkar SH. Two-mutation carcinogenesis model. pp. 4635-4639. In: Encyclopedia of Biostatistics. Armitage P, Colton T (eds), John Wiley, 1998.

Moolgavkar SH, Lee JAH, Stevens RG. Analysis of vital statistical data. In: Modern Epidemiology. 2nd edition. Rothman K, Greenland S (eds), Lippincott-Raven, PA, 1998.

Moolgavkar SH, Luebeck EG, Anderson, EL. Air pollution and hospital admissions for respiratory causes in Minneapolis-St. Paul and Birmingham. Epidemiology 1997; 8(4):364-370.

Heidenreich W, Luebeck EG, Moolgavkar SH. Some properties of the hazard function of the two-mutation lonal expansion model. Risk Anal 1997; 17:391-399.

Moolgavkar SH. Stochastic cancer models: application to analyses of solid cancer incidence in the cohort of A-bomb survivors. Nucl Ener 1997; 36(6):447-451.

Kai M, Luebeck EG, Moolgavkar SH. Analysis of solid cancer incidence among atomic bomb survivors using a two-stage model of carcinogenesis. Rad Res 1997; 148:348-358.

Luebeck EG, Moolgavkar SH. Biologically based cancer modelling. Drug Chem Toxicol 1996; 19:221-243.

Luebeck EG, Curtis SB, Cross FT, Moolgavkar SH. Two-stage model of radon-induced malignant lung tumors in rats: effects of cell killing. Rad Res 1996; 145:163-173.

Moolgavkar SH, Luebeck EG, Buchmann A, Bock KW. Quantitative analysis of enzyme-altered foci in rats initiated with dieethylnitrosamine and promoted with 2,3,7,8-tetrachlorodibenzo-p-dioxin or 1,2,3,4,6,7,8-heptachloro-p-dioxin. Toxicol Appl Pharmacol 1996; 138:31-42.

Moolgavkar SH, Luebeck EG, Hall TA, Anderson EL. Particulate air pollution and mortality. Letter to the Editor. Epidemiology 1996; 7:212-213.

Moolgavkar SH, Luebeck EG. A critical review of the evidence on particulate air pollution and mortality. Epidemiology 1996; 7:420-428.

Leroux BG, Lesenring WM, Moolgavkar SH, Faustman EM. A biologically based dose-response model for developmental toxicology. Risk Anal 1996; 16:449-458.

Dewanji A, Luebeck EG, Moolgavkar SH. A biologically-based model for the analysis of premalignant foci of arbitrary shape. Math Biosci 1996; 135:55-68.

Moolgavkar SH, Luebeck EG, Hall TA, Anderson EL. Particulate air pollution, sulfur dioxide, and daily mortality: A reanalysis of the Steubenville data. Inhal Toxicol 1995; 7:35-44.

Schwarz M, Buchmann A, Stinchcombe S, Luebeck EG, Moolgavkar SH, Bock KW. Role of receptors in human and rodent hepatocarcinogenesis. Mutat Res 1995.

Luebeck EG, Grasl-Kraupp B, Timmermann-Trosiener I, Bursch W, Schulte-Hermann R, Moolgavkar SH. Growth kinetics of enzyme altered liver foci in rats treated with phenobarbital or α-hexachlorocyclohexane. Toxicol Appl Pharmacol 1995; 130:30-315.

Luebeck EG, Moolgavkar SH. Biologically based cancer modeling. pp. 533-555. In: Toxicology and Risk Assessment. Fan AM, Chang LW (eds), Marcel Dekker, Inc., New York, 1995.

Moolgavkar SH. When and how to combine results from multiple epidemiological studies in risk assessment. pp. 77-90. In: The Proper Role of Epidemiology in Regulatory Risk Assessment. Graham J (ed), Elsevier, New York, 1995.

Moolgavkar SH, Luebeck EG, Hall TA, Anderson EL. Air pollution and daily mortality in Philadelphia. Epidemiology 1995; 6:476-484.

Moolgavkar SH, Luebeck EG. Incorporating cell proliferation kinetics into models for cancer risk assessment. Toxicology 1995; 102:141-147.

Stayner L, Smith R, Bailer J, Luebeck EG, Moolgavkar SH. Methods for modelling occupational studies for cancer risk assessment. Am J Indust Med 1995; 27:155-170.

Luebeck EG, Moolgavkar SH. Simulating the process of carcinogenesis. Math Biosci 1994; 123:127-146.

Moolgavkar SH. Air pollution and mortality (letter). N Eng J Med 1994; 330:1237-1238.

Moolgavkar SH. Biological models of carcinogenesis and quantitative cancer risk assessment. Guest Editorial. Risk Anal 1994; 14:879-882.

Moolgavkar SH. Cell proliferation and carcinogenesis models: General principles with illustrations from the rodent liver system. Environ Health Perspect 1993; 101(Suppl. 5):91-94.

Moolgavkar SH, Luebeck EG, Krewski D, Zielinski JM. Radon, cigarette smoke, and lung cancer: A reanalysis of the Colorado Plateau miners' data. Epidemiology 1993; 4:204-217.

Moolgavkar SH, Luebeck EG. A two-mutation model for radiation carcinogenesis in humans and rodents. pp. 199-210. In: New Frontiers in Cancer Causation. Iversen OH (ed). Taylor and Francis, Washington, DC, 1993.

Zheng CJ, Byers B, Moolgavkar SH. Allelic instability in mitosis: A unified model for dominant disorders. Proc Natl Acad Sci 1993; 90:10178-10182.

Moolgavkar SH, Luebeck EG. Interpretation of labelling indices in the presence of cell death. Carcinogenesis 1992; 13:1007-1010.

Moolgavkar SH, Luebeck EG. Risk assessment of non-genotoxic carcinogens. Toxicol Lett 1992; 64/65:631-636.

Moolgavkar SH. A population perspective on multistage carcinogenesis. pp. 381-392. In: Multistage Carcinogenesis. Proc. 22nd International Symposium of The Princess Takamatsu Cancer Research Fund. Harris CC, Hirohashi S, Ito N, Pitot HC, Sugimura T, Terada M Yokota J (eds), Japan Scientific Societies Press, Tokyo, 1992.

Moolgavkar SH. Cancer models. pp. 239-252. In: Biophysical Modelling of Radiation Effects. Chadwick K, Moschini G, Varma M (eds), Adam Hilger, Bristol, 1992.

Moolgavkar SH. Carcinogenesis models: An overview. pp. 767-781. In: Indoor Radon and Lung Cancer:

Reality or Myth? Cross FT (ed), Battelle Press, 1992.

Luebeck EG, Moolgavkar SH. Stochastic analysis of intermediate lesions in carcinogensis experiments. Risk Anal 1991; 11:149-157.

Dewanji A, Moolgavkar SH, Luebeck EG. Two-mutation model for carcinogenesis: Joint analysis of premalignant and malignant lesions. Math Biosci 1991; 104:97-109.

Nandakumar A, Davis S, Moolgavkar S, Witherspoon R, Schwartz S. Myeloid leukemia following therapy for a first primary cancer. Br J Cancer 1991; 63:782-788.

Moolgavkar SH. Cell proliferation in carcinogenesis (letter). Science 1991; 251:143.

Moolgavkar SH, Luebeck EG. The role of somatic mutations and cell replication kinetics in quantitative cancer risk assessment. pp. 469-479. In: Chemically Induced Cell Proliferation: Implications for Risk Assessment. Butterworth BE, Slaga TJ, Farland W, McClain M (eds), Wiley Liss, 1991.

Luebeck EG, Moolgavkar SH, Buchman A, Schwarz M. Effects of polychlorinated biphenyls in rat liver: Quantitative analysis of enzyme altered foci. Toxicol Appl Pharmacol 1991; 111:469-484.

Moolgavkar SH, Luebeck EG. Multistage carcinogenesis: A population-based model for colon cancer. JNCI 1991; 84:610-618.

Luebeck EG, Moolgavkar SH. Stochastic description of initiation and promotion in experimental carcinogenesis. Annali dell'Istituto Superiore di Sanita 1991; 27: 575-580.

Moolgavkar SH. Stochastic models of carcinogenesis. pp. 373-393. In: Handbook of Statistics, Volume 8. Rao CR, Chakraborty R (eds), Elsevier, 1991.

Moolgavkar SH, Cross FT, Luebeck G, Dagle GE. A two-mutation model for radon-induced lung tumors in rats. Rad Res 1990; 121:28-37.

Moolgavkar SH, Luebeck G. Two-event model for carcinogenesis: Biological, mathematical and statistical considerations. Risk Anal 1990; 10:323-341.

Moolgavkar SH, Luebeck G, DeGunst M. Two mutation model for carcinogenesis: Relative roles of somatic mutations and cell proliferation in determining risk. pp. 136-152. In: Scientific Issues in Quantitative Cancer Risk Assessment. Moolgavkar SH (ed), Birkhauser, Boston, 1990.

Moolgavkar SH, Luebeck G., de Gunst M, Port RE, Schwarz M. Quantitative analysis of enzyme altered foci in rat hepatocarcinogenesis experiments. Carcinogenesis 1990; 11:1271-1278.

Moolgavkar SH. Cancer models, invited editorial. Epidemiology 1990; 1:419-420.

Dewanji A, Venzon DJ, Moolgavkar SH. A stochastic two-stage model for cancer risk assessment II: The number and size of premalignant clones. Risk Anal 1989; 9:179-186.

Moolgavkar SH. Multistage models for cancer risk assessment. pp. 9-20. In: Biologically Based Methods for Cancer Risk Assessment. Travis C (ed). NATO ASI Series A: Life Science Vol. 159, Plenum NY, 1989.

Moolgavkar SH, Dewanji A, Luebeck G. Cigarette smoking and lung cancer: A reanalysis of the British doctors' data. JNCI 1989; 81:415-420.

Moolgavkar SH. Dominant inheritance of colonic polyps and adenocarcinomas. N Engl J Med 1989; 320:316.

Hahn RA, Moolgavkar SH. Nulliparity, decade of first birth and breast cancer in Connecticut cohorts. Am. J. Public Health 1989; 79:1503-1507.

Moolgavkar SH. A two-stage carcinogenesis model for risk assessment. Cell Biol Toxicol 1989; 5:445-460.

Moolgavkar SH, Dewanji A. Combined effect of childbearing, menstrual events, and body size on age-specific breast cancer risk. Am J Epidemiol 1988; 128:1177-1178.

Venzon DJ, Moolgavkar SH. Origin invariant relative risk functions for case-control and survival studies. Biometrika 1988; 75:325-333.

Venzon DJ, Moolgavkar SH. An algorithm for computing profile-likelihood-based confidence intervals. Appl Stat 1988; 37:87-94.

Moolgavkar SH, Dewanji A. Biologically-based models for cancer risk assessment: A cautionary note. Risk Anal 1988; 8:5-6.

Moolgavkar SH, Dewanji A. Discussion of "From Mouse to Man: The Quantitative Assessment of Cancer Risks" by D.A. Freedman and H. Zeisel. Stat Sci 1988; 3:39-41.

Moolgavkar SH, Dewanji A, Venzon DJ. A stochastic two-stage model for cancer risk assessment. I: The hazard function and the probability of tumor. Risk Anal 1988; 8:383-392.

Moolgavkar SH. Some remarks on general relative risk regression models. Proc. Biopharmaceutical Section of ASA, 1988.

Moolgavkar SH. Biologically motivated two-stage model for cancer risk assessment. Toxicol Lett 1988; 43:139-150.

Moolgavkar SH, Venzon DJ. Confidence regions in curved exponential families: Application to matched case-control and survival studies with general relative risk function. Ann Stat 1987; 15:346-359.

Moolgavkar SH, Venzon DJ. Confidence regions for parameters of the proportional hazards model: A simulation study. Scand J Stat 1987; 14:43-56.

Lustbader ED, Moolgavkar SH. Some problems of inference in cohort studies. J Chron Dis 1987; 40(Suppl. 2):133-137.

Moolgavkar SH, Prentice RL. Discussion of the paper "Parameter Orthogonality and Approximate Conditional Inference," by D.R. Cox and N. Reid. JR Statist Soc 1987; B 49:34-35.

Moolgavkar SH, Venzon DJ. General relative risk models for epidemiologic studies. Am J Epidemiol 1987; 126:949-961.

Moolgavkar SH. Carcinogenesis modelling: From molecular biology to epidemiology. Ann Rev Pub Health 1986; 7:151-170.

Moolgavkar SH, Venzon DJ. Confidence regions for case-control and survival studies with general relative risk functions. In: Modern Statistical Methods in Chronic Disease Epidemiology. Proc. SIMS Conference. Moolgavkar SH, Prentice RL (eds), John Wiley, 1986.

Knudson AG, Moolgavkar SH. Inherited influences on susceptibility to radiation carcinogenesis. In: Radiation Carcinogenesis. Upton AC (ed), Elsevier/North Holland, 1986.

Prentice RL, Moolgavkar SH, Farewell VT. Biostatistical issues and concepts in epidemiologic research. J Chron Dis 1986; 38:1169-1183.

Moolgavkar SH. Hormones and multistage carcinogenesis. Cancer Surv 1986; 5:635-648.

Moolgavkar SH. Antioncogenes and cancer. pp. 19-30. In: Pathophysiological Aspects of Cancer Epidemiology. Mathe' G, Reizenstein P (eds), Pergamon Press, 1985.

Moolgavkar SH. Mutation and human cancer. pp. 31-38. In: Pathophysiological Aspects of Cancer Epidemiology. Mathe' G, Reizenstein P (eds), Pergamon Press, 1985.

Venzon DJ, Moolgavkar SH. Cohort analysis of malignant melanoma in five countries. Am J Epidemiol 1984; 119:1, 62-70.

Stevens RG, Moolgavkar SH. A cohort analysis of lung cancer and smoking in British males. Am J Epidemiol 1984; 119:624-641.

Stevens RG, Moolgavkar SH. Malignant melanoma: Dependence of site-specific risk on age. Am J Epidemiol 1984; 119:890-895.

Moolgavkar SH, Lustbader ED, Venzon DJ. A geometric approach to non-linear regression diagnostics with application to matched case-control studies. Ann Stat 1984; 12:816-826.

Stevens RG, Moolgavkar SH. Smoking and cancer in Britain. Proc. 5th World Conference on Smoking and Health, 1984.

Moolgavkar SH. Some comments on the resources at RERF. pp. 274-279. In: Utilization and Analysis of Radiation Effects Research Foundation Data. Proc. SIMS Conference. Prentice RL, Thompson DJ (eds), SIAM, 1984.

Lustbader ED, Moolgavkar SH, Venzon DJ. Tests of the null hypothesis in case-control studies. Biometrics 1984; 1017-1024.

Moolgavkar SH. Model for human carcinogenesis: Action of environmental agents. Environ Health Perspect 1983; 50:285-291.

Moolgavkar SH. A model for human carcinogenesis: Hereditary cancers and premalignant lesions. Proc. 7th Chicago Cancer Symposium, Cancer: Etiology and Prevention. Crispen RG (ed). Elsevier Science Publishing Co., Inc., 1983.

Stevens RG, Moolgavkar SH, Lee JAH. Temporal trends in breast cancer. Am J Epidemiol 1982; 115:759-777.

Moolgavkar SH. Risk assessment using vital data. pp. 175-192. In: Environmental Epidemiology: Risk Assessment. Proc. SIMS Conference. Prentice RL, Whittemore AS (eds), SIAM, 1982.

Moolgavkar SH, Knudson AG. Mutation and cancer: A model for human carcinogenesis. JNCI 1981; 66:1037-1052.

Moolgavkar SH, Stevens RG. Smoking and cancers of bladder and pancreas: Risks and temporal trends. JNCI 1981; 67:15-23.

Stevens RG, Lee JAH, Moolgavkar SH. No association between oral contraceptives and malignant melanoma. N Engl J Med 1980; 302:966.

Moolgavkar SH. The Neyman-Scott carcinogenesis model for low-dosage extrapolation. Math Biosci

1980; 50:155-156.

Moolgavkar SH, Day NE, Stevens RG. Two-stage model for carcinogenesis: Epidemiology of breast cancer in females. JNCI 1980; 65:550-569.

Moolgavkar SH. Multistage models for carcinogenesis. JNCI 1980; 65:25.

Moolgavkar S, Stevens RG, Lee JAH: The effect of age on the incidence of breast cancer in females. JNCI 1979; 62:493-501.

Moolgavkar SH, Venzon DJ. Two-event model for carcinogenesis: Incidence curves for childhood and adult tumors. Math Biosci 1979; 47:55-77.

Stevens RG, Moolgavkar SH. Estimation of relative risk from vital data: Smoking and cancers of the lung and bladder. JNCI 1979; 63:1351-1357.

Moolgavkar S, Lee JAH, Hade RD. Comparison of age-specific mortality from breast cancer in males in the U.S. and Japan. JNCI 1978; 60:1223-1225.

Moolgavkar S. The multistage theory of carcinogenesis and the age distribution of cancer in man. JNCI 1978; 61:49-52.

Moolgavkar S. The multistage theory of carcinogenesis. Int J Cancer 1977; 19:730.

Jarabak R, Colvin M, Moolgavkar S, Talalay P. Δ5-3-ketosteroid isomerase of Pseudomonas Testosteroni. pp. 642-651. In: Methods in Enzymology, Vol. XV. Clayton RB (ed). Academic Press, NY, 1970.

Mathematical

Ewing J, Moolgavkar S, Smith L, Stong RE. Stable parallelizability of lens spaces. J Pure Appl Algebra 1977; 10:177-191.

Ewing J, Moolgavkar S. Euler characteristics of complete intersections. Proc Am Math Soc 1976; 56:390-391.

Ewing J, Gustafson E, Halmos P, Moolgavkar S, Wheeler W, Ziemer W. American mathematics from 1940 to the day before yesterday. Am Math Monthly 1976; 83:503□516.

Ewing J, Moolgavkar S. On a conjecture of Atiyah and Thom. Preprint, Indiana University, 1976.

Ewing J, Moolgavkar S. On the group of holomorphic line bundles on an algebraic surface. Preprint, Indiana University, 1976.

Moolgavkar S. On the existence of a universal germ of deformations for elliptic pseudo group structures on compact manifolds. Trans Am Math Soc 1975; 212:173-197.

Ewing J, Moolgavkar S. On the signature of Fermat surfaces. Michigan Math J 1975; 22:257□268.

Books

Moolgavkar SH, Krewski D, Zeise L, Cardis E, Moller H (eds). Quantitative estimation and prediction of human cancer risk. IARC Scientific Publications, Volume 131, 1999.

Moolgavkar SH (ed). Scientific issues in quantitative cancer risk assessment. Birkhauser Boston, 1990.

Moolgavkar SH, Prentice RL (eds). Modern statistical methods in chronic disease epidemiology. John Wiley, 1986.

Tobacco Smoking. IARC monographs on the evaluation of the carcinogenic risk of chemicals to humans. IARC, Volume 38, Lyon, 1986 (member of the working group).

Selected Invited Presentations

Moolgavkar SH. False discoveries: Challenges for understanding the environment. AAAS annual meeting, San Diego, February 2010.

Moolgavkar SH. Effects of education and primary prevention on lung cancer mortality trends. Erasmus University, Rotterdam, June 2009.

Moolgavkar SH. Multistage carcinogenesis and epidemiologic studies of cancer. University of Rochester Symposium in honor of Professor Andrei Yakovlev, April 2009.

Moolgavkar SH. Clonal expansion and carcinogenesis. International Conference on Systems Biology in Radiation Carcinogenesis, Munich, Germany, February 2007.

Moolgavkar SH. Epidemiology of colon cancer. AEK Cancer Congress, Frankfurt, Germany, February 2007.

Moolgavkar SH. Multistage carcinogenesis and epidemiologic studies of cancer. Distinguished Seminar Series, Fox Chase Cancer Center, PA, October 2005.

Moolgavkar SH. Multistage carcinogenesis and lung cancer prevention. IARC Seminar Series, Lyon, France, July 2004.

Moolgavkar SH. Radiation-induced gestational mutations and cancer. COSPAR meeting, Paris, France, July 2004.

Moolgavkar SH. Multistage carcinogenesis and radiation risk assessment. International Congress of Radiation Research, Brisbane, Australia, August 2003.

Moolgavkar SH. Cancer models and risk assessment. Environmental Mutagen Society, Annual Meeting, Miami, May 2003.

Moolgavkar SH. Methodological issues in time-series analyses of air pollution data. Meeting the Environmental Challenge of the 21st Century, Monterey, CA, March 2003.

Moolgavkar SH. Multistage carcinogenesis and risk assessment. International Biometrics Conference, Homburg, Germany, March 2001.

Moolgavkar SH. Multistage models of carcinogenesis: Historical perspective, overview, implications for radiation carcinogenesis. International Workshop on Mathematical Models in Radiation Carcinogenesis, Kyoto, March 2001.

Moolgavkar SH. Modeling altered hepatic foci: issues and outstanding problems. 6th European Meeting on Hepatocarcinogenesis, Vienna, September 1999.

Moolgavkar SH. Intermediate lesions in carcinogenesis. Netherlands Institute for Health and the Environment Seminar Series, 1997.

Moolgavkar SH. Multistage model for lung cancer. International meeting of the Bernoulli Society, Calcutta, India, 1997.

Moolgavkar SH. Stochastic cancer models: Application to analyses of solid cancer incidence in the cohort of A-bomb survivors. Keynote Speaker, International symposium on low-dose and low-dose-rate radiation, Stratford-on-Avon, UK, 1997.

Moolgavkar SH. Stochastic models for estimation and prediction of cancer risk. International Symposium on Statistics in the Environment, Enschede, The Netherlands, 1997.

Moolgavkar SH. Time-series analyses of air pollution data. International Symposium on Health Effects of Particulate Air Pollution, Prague, 1997.

Moolgavkar SH. Multistage carcinogenesis, benzene exposure and leukemia risk. Berkeley Symposium on Benzene and Leukemia, Napa Valley, 1996.

Moolgavkar SH. Mutations and cell proliferation in cancer risk assessment. AACR International Workshop on Risk Assessment, Whistler BC, 1994.

Moolgavkar SH. Analysis of altered foci in rodent hepatocarcinogenesis experiments. European Toxicology Meeting, Mainz, Germany, 1993.

Moolgavkar SH. Biologically-based cancer risk assessment. International Symposium on Quantitative Risk Assessment, Research Triangle Park, NC, 1993.

Moolgavkar SH. Analysis of altered foci in rodent hepatocarcinogenesis experiments. International Workshop on Mouse Liver Tumors, Washington DC, 1992.

Moolgavkar SH. Cancer models and low-dose extrapolation of risk. Workshop on Risk Assessment and Low Dose Extrapolation, Zurich, Switzerland, 1992.

Moolgavkar SH. Cell proliferation and carcinogenesis. International Conference on Cell Proliferation in Carcinogenesis, NIEHS, North Carolina, 1992.

Moolgavkar SH. Multistage carcinogenesis and risk assessment. International Toxicology Conference, Rome, Italy, 1992.

Moolgavkar SH. A population perspective on multistage carcinogenesis. Princess Takamatsu Cancer Congress, Tokyo, Japan, 1991.

Moolgavkar SH. Cancer models. International Workshop on Biophysical Modelling of Radiation Carcinogenesis, Padua, Italy, 1991.

Moolgavkar SH. Carcinogenesis models: An overview. Hanford Symposium on Health and the Environment, Battelle PNL, Richland, WA, October 1990.

Moolgavkar SH. Analyses of altered foci in rat hepatocarcinogenesis experiments. University of Vienna Cancer Center, Vienna, Austria, July 1990.

Moolgavkar SH. Multistage models of carcinogenesis. University of Tübingen Seminar Series, Tübingen, July 1990.

Moolgavkar SH. Analyses of intermediate lesions in experimental carcinogenesis. German Cancer Research Center, Heidelberg, Germany, June 1990.

Moolgavkar SH. Analyses of altered foci in rat hepatocarcinogenesis experiments. BASF, Toxicology Group, Mannheim, 1990.

Moolgavkar SH. Cell proliferation and carcinogenesis. International Cancer Congress, Hamburg, 1990.

Moolgavkar SH. Multistage carcinogenesis. University of Pittsburgh, Department of Biostatistics Seminar Series, 1990.

Moolgavkar SH. Analysis of altered foci in hepatocarcinogenesis experiments. McArdle Laboratory, University of Wisconsin, Madison, WI, 1989.

Moolgavkar SH. Biologically-based cancer risk assessment. Society for Risk Analysis, Annual Meeting, San Francisco, CA, 1989.

Moolgavkar SH. Multistage carcinogenesis and radiation risk assessment. Radiation Research Society, Annual Meeting, Seattle, WA, 1989.

Moolgavkar SH. The role of somatic mutations and cell replication kinetics in quantitative cancer risk assessment. International Conference on Chemically Induced Cell Proliferation: Implications for Risk Assessment, Austin, TX, 1989.

Moolgavkar SH. Two mutation model for carcinogenesis: Relative roles of somatic mutations and cell proliferation in determining risk. SIMS Conference on Scientific Issues in Quantitative Cancer Risk Assessment, Alta, Utah, 1989.

Moolgavkar SH. Cancer models and risk assessment. NATO Workshop on Biologically-based Methods for Cancer Risk Assessment, Corfu, Greece, June 1988.

Moolgavkar SH. A two-stage model for carcinogenesis and its implications for risk assessment. University of Nebraska Medical Center, May 1988.

Moolgavkar SH. Biologically-based carcinogenesis models for risk assessment. Risk Assessment Workshop, Washington, DC, March 1988.

Moolgavkar SH. Biologically-based carcinogenesis models for risk assessment. Health and Welfare, Ottawa, Canada, March 1988.

Moolgavkar SH. Curvature and inference in exponential families: Application to Relative Risk Regression Models. Carleton University, Ottawa, Canada, March 1988.

Moolgavkar SH. Cox regression for the innocent bystander. Fox Chase Cancer Center Seminar, Philadelphia, PA, December 1987.

Moolgavkar SH, Prentice R. Modern statistical methods in chronic disease epidemiology. Biopharmaceutical Section of ASA (tutorial and short course), Newark, NJ, December 1987.

Moolgavkar SH. Biologically motivated two-stage model for carcinogenesis. 17th Conference on Toxicology, Wright-Patterson Air Force Base, Dayton, OH, November 1987.

Moolgavkar SH. Two-stage model for carcinogenesis. University of Wisconsin Seminars, "Curvature and Inference in Exponential Families: Application to Relative Risk Regression Models," Department of Human Oncology, Madison, OH, November 1987.

Moolgavkar SH. Two mutation model for cancer risk assessment. EPA Toxicology and Microbiology Seminar Series, Cincinnati, OH, October 1987.

Moolgavkar SH. Origin invariant relative risk functions: Multi-stage models for cancer risk assessment. American Statistical Association Annual Meeting, San Francisco, CA, August 1987.

Moolgavkar SH. Biologically-based carcinogenesis models for risk assessment. Risk Assessment Workshop, Washington, DC, March 1987.

Moolgavkar SH. Two-stage model for carcinogenesis: Implications for risk assessment. Symposium on Quantitative Assessment of Cancer Risk, Washington, DC, February 1987.

Moolgavkar SH. A cohort analysis of smoking and cancers of the lung, bladder and pancreas. School of Public Health grand rounds, Department of Biostatistics Seminar on General Relative Risk Regression Models for Epidemiologic Studies, University of Pittsburgh, Pittsburgh, PA, January 1987.

Moolgavkar SH. Two-stage model for carcinogenesis and the IPI protocol. Battelle PNL, Richland, WA, 1986.

Moolgavkar SH. Modern statistical methods in chronic disease epidemiology. SIMS conference, Alta, UT, June 1985.

Moolgavkar SH. Time related factors in cancer epidemiology. NIH International Symposium, April 1985.

Moolgavkar SH. General relative risk models for case-control studies. Johns Hopkins University, School of Public Health, Baltimore, MD, 1985.

Moolgavkar SH. Stochastic models for carcinogenesis and risk assessment. EPA, Washington, DC, 1985.

Moolgavkar SH. Risk assessment using vital data. SIMS Conference on Environmental Epidemiology and Risk Assessment, Alta, UT, June 1982.Mathematical

Editorships & Editorial Review Boards

Editorial Board, *Inhalation Toxicology*, 2006-2008

Guest Editor, *Modeling and Data Analysis in Cancer Studies*, special issue of Mathematical and Computer Modelling, 33(12-13), 2001

Associate Editor, *Risk Analysis—An International Journal*, 2000-2011

Editorial Board, Risk Analysis-An International Journal, 2011-present

Editor, *Risk Analysis - An International Journal*, special issue on impact of reduced tobacco smoking on lung cancer mortality in the U.S., 1975-2000

Senior Editor, *Quantitative Estimation and Prediction of Human Cancer Risk*, International Agency for Research on Cancer, Scientific Publications 131, 1999

Editor, *Scientific Issues in Quantitative Cancer Risk Assessment*, Birkhauser, Boston, 1990

Co-Editor, *Modern Statistical Methods in Chronic Disease Epidemiology*, John Wiley, 1986

Editorial Board, *Genetic Epidemiology*, 1984-1988