April 2002

CURRICULUM VITAE

Name: Meryl H. Karol
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EDUCATION AND TRAINING

1957-1961	Cornell University Ithaca, New York	B.S. 1961	Microbiology
1961-1967	Columbia University New York, New York	Ph.D. 1967	Immunochemistry
1967-1968	State University of New York Stony Brook, New York	Post Doctoral Fellow	Department of Biochemistry

ACADEMIC POSITIONS

1974-1976	University of Pittsburgh Graduate School of Public Health Department of Epidemiology Pittsburgh, Pennsylvania 15261	Research Associate
1976-1979	University of Pittsburgh Graduate School of Public Health Department of Environmental and Occupational Health	Research Assistant Professor
1979-1985	University of Pittsburgh	Associate Professor
1985-Present 2002	University of Pittsburgh Global Studies Program,	Professor (tenured) Core Faculty Affiliate

	University of Pittsburgh	
1993-2000	University of Pittsburgh	Associate Department Chair
1991-1992	University of Padova, Italy Institute of Occupational Medicine	Visiting Professor of Medicine

NON-ACADEMIC POSITIONS

1988-Present	Pittsburgh Cancer Institute	Member

MEMBERSHIP IN PROFESSIONAL AND SCIENTIFIC SOCIETIES

1983-Present	Society of Toxicology (1994 President of the Society)
1988-	American Thoracic Society
1986-	American Association of Immunologists
1986-	American Chemical Society
	American Conference of Governmental Industrial Hygienists, Committee on Biological Monitoring
	American Industrial Hygiene Association
	New York Academy of Science
	American Association for the Advancement of Science
	Sigma Xi

HONORS

2002-	Delta Omega Honorary Society in Public Health
2001-04	National Research Council, Committee on Toxicology
2001-04	International Program Committee, Tenth International Congress of Toxicology, Tampere, FINLAND
2001-04	Board of Directors, Academy of Toxicological Sciences
2001	Nominations Committee, Society of Toxicology, USA (elected)
2000-2003	External Advisory Panel, U Texas Medical Branch training program
2000	Fellow, Academy of Toxicological Sciences
2001-2003	Chair, Scientific Advisory Panel, Mickey Leland National Urban Air Toxics Research Center, Member Scientific Advisory Panel 1997-99.
2000	Society of Toxicology, USA, Member Task Force on 40th Anniversary
2000	Organizing Committee, *Isocyanates 2002,* Second International
2001	Congress on Isocyanates
2000	Outstanding Contributor to Public Health (University of Pittsburgh Award)
1999-	Society of Toxicology, Speaker's Bureau
1999	Society of Toxicology, Nominating Committee (elected)
1999-2000	Consultant, EPA
2001	External Advisory Committee, Environmental and Occupational Health

	Sciences Center, Robert Wood Johnson Medical College, Rutgers University
1998-2004	Secretary-General, International Union of Toxicologists
2002	Editorial Board, InScight
1997-	Associate Editor, *Toxicological Sciences*
1997-2000	Chair, External Advisory Board, Center for Toxicology, Southwest Environmental Health Sciences, University of Arizona, Tucson, AZ (member 1994-)
1997-	Editorial Board, Inhalation Toxicology
1996	Who's Who in Medicine and Healthcare
1996	Man of the Year, American Biographical Institute, Inc.
1996-	Editorial Board, Biomedical and Environmental Sciences
1996-1998	National Toxicology Program, Board of Scientific Counselors
1996-Present	Advisory Board, Toxicology Desk Reference, Taylor & Francis Publishers
1995-Present	External Advisory Board, Environmental Health Sciences Center, University of West Virginia, Morgantown, WV
1995-1998	Board of Directors, International Union of Toxicologists
1995-	Who's Who in Medicine and Health Care
1995	Toxicology Scholar, University of Connecticut, Program in Toxicology
1995	Outstanding Faculty, University of Pittsburgh
1994-Present	External Advisory Board, Center for Toxicology, Southwest Environmental Health Sciences, University of Arizona. Tucson, AZ
1994-1997	Advisory Board, Chemical Research in Toxicology
1994-1998	Editorial Board, Toxicology and Ecotoxicology News
1994-1997	Board of Scientific Counselors, Office of the Assistant Secretary for Health (NTP)
1993	Outstanding Faculty, University of Pittsburgh
1992-1998	Journal of Toxicology and Environmental Health, Associate Editor
1991-2000	Health Effects Institute, Research Committee
1991-1995	Department of the Army, Armed Forces Epidemiological Board, Member
1991-1994	Burroughs Wellcome Toxicology Scholar Advisory Committee, Chair
1990-1991	Burroughs Wellcome Toxicology Scholar Advisory Committee, Member
1990	U.S. Congress, Office Technology Assessment, Advisor
1990	NIH Pharmacology Study Section, Reviewer Reserve Member
1989-1992	National Research Council, Board of Agriculture, Committee on Pesticides and Children
1989	EPA Panel, Health Assessment of Toluene Diisocyanate
1989	CIIT, Science Advisory Board on Immunotoxicology
1987-Present	International Directory of Distinguished Leadership
1987-1990	Immunotoxicology Discussion Group, Steering Committee
1986-1987	National Research Council, Chairperson, Committee on Arthropod Repellents 1986
1986	Society of Toxicology, Nominating Committee (elected)

1986-1988	NCI Study Section, Biological Markers of Exposure
1986	EPA Workshop Environmental Chemical Exposures and the Immune System
1985-1989	NIH Toxicology Study Section, Member
1985	University of Michigan, Woman in Science Award
1985	CIIT Science Advisory Board
1984	EPA Task Force Exposure Assessment
1984-1990	Editorial Board, Fundamental and Applied Toxicology
1984-1987	National Research Council, Committee on Toxicology
1984	NIH Study Sections: Special Reviewer Toxicology Study Section, Ad hoc Study Sections, (1) Safety and Occupational Health Study Sections; (2) Immunotoxicology
1983	EPA National Task Force on Non-Oncogenic Lung Disease
1982	Biology Advisory Board Chatham College
1981	Frank R. Blood Award, Society of Toxicology
1981, 1978	Invited Speaker: Gordon Research Conference, Toxicology and Safety Evaluations; Chemistry and Physics of Coatings and Films
1976-Present	Who's Who in the East, American Men and Women of Science

PUBLICATIONS

Refereed Articles

Karol, M.H. and Tanenbaum, S.W. Antibodies to hapten-conjugated proteins which cross-react with RNA. Proc. Natl. Acad. Sci. 57: 713, 1967.

Karol, M.H. and Simpson, M.V. DNA biosynthesis by isolated mitochondria: A replicative rather than a repair process. Science 162: 470, 1968.

Cypess, R.H., Karol, M.H., Zidian, J.L., Glickman, L.T. and Gitlin, D. Larva-specific antibodies in patients with visceral larva migrans. J. Infect. Dis. 135: 663, 1977.

Karol, M.H., Ioset, H.H. and Alarie, Y.C. Tolyl-specific IgE antibodies in workers with hypersensitivity to toluene diisocyanate. Am. Ind. Hyg. Assoc. J. 39: 454-458, 1978.

Karol, M.H., Ioset, H.H., Riley, E.J. and Alarie, Y.C. Hapten-specific respiratory hypersensitivity in guinea pigs. Am. Ind. Hyg. Assoc. J. 39: 546-556, 1978.

Karol, P.J. and Karol, M.H. Isotachophoresis. J. Chem. Educ. 55: 626-630, 1978.

Karol, M.H. and Alarie, Y.C. Serologic test for toluene diisocyanate (TDI) antibodies. J. Occup. Med. 20: 383, 1979.

Karol, M.H., Hauth, B.A. and Alarie, Y. Pulmonary hypersensitivity to hexyl isocyanate-ovalbumin aerosol in guinea pigs. Toxicol. Appl. Pharmacol. 51: 73-80, 1979.

Karol, M.H., Ioset, H.H. and Alarie, Y.C. Effect of coal dust inhalation on pulmonary immunologic responses. Am. Ind. Hyg. Assoc. J. 40: 283-290, 1979.

Karol, M.H., Riley, E.J. and Alarie, Y. Presence of tolyl-specific IgE and absence of IgG antibodies in workers exposed to toluene diisocyanate. J. Environ. Health Sci. C. 13(3): 221-232, 1979.

Karol, M.H., Sandberg, T., Riley, E.J. and Alarie, Y. Longitudinal study of tolyl-reactive IgE antibodies in workers sensitive to TDI. J. Occup. Med. 21: 354-358, 1979.

Karol, M.H. Study of guinea pig and human antibodies to toluene diisocyanate. Am. Rev. Dis. 122: 965-970, 1980.

Karol, M.H. and Alarie, Y.C. Antigens which detect IgE antibodies in workers sensitive to toluene diisocyanate. Clin. Allergy 10: 101-109, 1980.

Karol, M.H. and Alarie, Y. IgE antibodies in TDI workers. J. Allergy Clin. Immunol. 65: 162, 1980.

Karol, M.H., Dixon, C., Brady, M. and Alarie, Y. Immunologic sensitization and pulmonary hypersensitivity by repeated inhalation of aromatic isocyanates. Toxicol. Appl. Pharmacol. 53: 260-270, 1980.

Karol, M.H. Survey of industrial workers for antibodies to toluene diisocyanate. J. Occup. Med. 23: 741-747, 1981.

Karol, M.H. and Alarie, Y. Serologic assays for antibcdies to HDI and MDI (letter). J. Occ. Med. 1980, Am. Ind. Hyg. Assoc. J. 1980, Contact Derm. 1980, Arch Dermat. 1981.

Karol, M.H., Hauth, B.A., Riley, E.J. and Magreni, C.M. Dermal contact with toluene diisocyanate (TDI) produces respiratory tract hypersensitivity in guinea pigs. Toxicol. Appl. Pharmacol. 58: 221-230, 1981.

Karol, M.H., Stadler, J., Underhill, D. and Alarie, Y. Monitoring delayed-onset pulmonary hypersensitivity in guinea pigs. Toxicol. Appl. Pharmacol. 61: 277-285, 1981.

Brown, W.E., Green, A.H., Karol, M.H. and Alarie, Y.C.E. Inhibition of cholinesterase activity by isocyanates. Toxicol. Appl. Pharmacol. 63: 45-52, 1982.

Karol, M.H. and Hauth, B.A. Use of hexyl isocyanate antigen to detect antibodies to hexamethylene diisocyanate (HDI) in sensitized guinea pigs and in a sensitized worker. Fund. Appl. Toxicol. 2: 108-113, 1982.

Karol, M.H. and Magreni, C.M. Extensive skin sensitization with minimal antibody production in guinea pigs as a result of exposure to dicyclohexylmethane-4-4'diisocyanate. Toxicol. Appl. Pharmacol. 65: 291-301, 1982.

Stadler, J. and Karol, M.H. Experimental delayed-onset pulmonary sensitivity: Identification of

retest reactions in the lung. Toxicol. Appl. Pharmacol. 65: 323-328, 1982.

Sykora, J., Karol, M., Keleti, G., and Novak, D. Amoebae as sources of hypersensitivity pneumonitis. Env. Int. 8: 343-347, 1982.

Karol, M.H. Concentration-dependent immunologic response to toluene diisocyanate (TDI) following inhalation exposure. Toxicol. Appl. Pharmacol. 68: 229-241, 1983.

Karol, M.H., Magreni, C.M. and Stadler, J. Application of animal models for immediate and delayed pulmonary hypersensitivity: Characteristics of delayed reactions to tuberculin protein. In:
Proceedings of the 13th Conference on Environmental Toxicology, Dayton, OH, 1983.

Shapiro, M., Karol, M.H., Keleti, G., Sykora, J.L. and Martinez, A.J. The role of free-living amoebae occurring in heated effluents as causative agents of human disease. Wat. Sci. Tech. 15: 135-147, 1983.

Stadler, J. and Karol, M.H. Experimental delayed hypersensitivity following inhalation of dicyclohexylmethane-4,4'diisocyanate: A concentration-response relationship. Toxicol. Appl. Pharmacol. 74: 244-249, 1984.

Alarie, Y., Ellakkani, M., Weyel, D., Mazumdar, S. and Karol, M.H. Monday postshift respiratory response in guinea pigs following inhalation of cotton dust. 8th Cotton Dust Research Conference, Atlanta, GA, 1984, pp. 84-86.

Brown, W.E., Shamoo, A.Y., Hill, B.L. and Karol, M.H. Immobilized cholinesterase to detect airborne concentrations of hexamethylene diisocyanate (MDI). Toxicol. Appl. Pharmacol. 73: 105-109, 1984.

Chang, K.C. and Karol, M.H. Diphenylmethane diisocyanate (MDI)-induced asthma: Evaluation of the IgE response and application of an animal model for isocyanate sensitivity. Clin. Allergy 14: 329-339, 1984.

Ellakkani, M., Alarie, Y., Weyel, D. and Karol, M. Concentration-response relationship for the acute respiratory response to inhaled cotton dust in guinea pigs. 8th Cotton Dust Research Conference, Atlanta, GA, 1984, pp. 82-83.

Ellakkani, M., Alarie, Y., Weyel, D., Mazumdar, S. and Karol, M.H. Pulmonary reactions to inhaled cotton dust: An animal model for byssinosis. Toxicol. Appl. Pharmacol. 74: 267-284, 1984.

Karol, M.H., Hansen, G.A. and Brown, W.E. Effects of inhaled hexamethylene diisocyanate (HDI) on guinea pig cholinesterases. Fund. Appl. Toxicol. 4: 284-287, 1984.

Karol, M.H., Sinagoga, L.A., Burke, S., Ellakkani, M., Keleti, G., Sykora, J., Alarie, Y. and Weyel, D. Characterization of the bacterial and endotoxin content of cotton dust causing respiratory reactions in guinea pigs. 8th Cotton Dust Research Conference, Atlanta, GA, 1984, pp. 80-81.

Lee, J., Macina, O.T. and Karol, M.H. Development of a database and structure-activity model of chemicals that cause respiratory hypersensitivity. Toxicological Sciences 60: 173, 2001.

Matheson, J.M., Lange, R.W., Lemus, R., Karol, M.H. and Luster, M.I. The role of tumor necrosis factor (TNF)α in toluene diisocyanate (TDI) asthma. Toxicological Sciences 60: 174, 2001.

Lemus, R, Lukinskeine, L., and Karol, M.H. Immunological detection of hexamethylene diisocyanate adducts in sera from autobody shop workers. Toxicological Sciences 66: 2002.

APPEARS THIS WAY
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OTHER

Patents

Karol, M.H. and Alarie, Y. Tolyl-isocyanate test antigens: Methods for their preparation and use in detecting diisocyanates and antibodies to diisocyanates. U.S. Patent, granted August, 1979.

Karol, M.H. and Alarie, Y. Tolyl-isocyanate and toluene diisocyanate test antigens, methods for their preparation and use in detecting diisocyanates and antibodies to diisocyanates. U.S. Patent, granted May 1983.

Karol, M.H. and Ryan, L. Polymyxin agarose-lipopolysaccharide antigen and associated method. U.S. Patent, granted February 1988.

STUDENTS

Tutorial Thesis:

Apprenticeships:

, Department of Pharmacy, 1985.
, PCOHP, 1985.

Undergraduate Research Projects:

Carnegie-Mellon University (co-sponsor
1979-1980
, 1981-1982
1982-1983

Carnegie-Mellon University
1998-present
118-present

University of Pittsburgh
1983-1984

Chatham College
1989-1990
1996
1996

Masters Thesis:

Doctoral Thesis:

Research Grants

1975-1976	Health Research and Sciences Foundation, Pittsburgh, PA The Development of a Diagnostic Test for Visceral Larva Migrans (Principal Investigator)
1976-1979	PPG Foundation Respiratory Anaphylaxis to Industrial Chemicals (Co-Principal Investigator)
1976-1977	Pennsylvania Department of Health Pulmonary Immunologic Responses to Coal Dust (Principal Investigator)
1977-1992	NIEHS Respiratory Anaphylaxis to Industrial Chemicals (Principal Investigator)
1980-1983	NIOSH Antigens for Detecting Industrial Hypersensitivity (Principal Investigator)
1981-1999	Bayer Corporation Fellowship in Toxicology (Principal Investigator)
1982-1989	International Isocyanate Institute Detecting Delayed Isocyanate Sensitivity (Principal Investigator)
1982-1986	U.S. Department of Agriculture Development of an Animal Model to Reflect Byssinotic Condition (Principal Investigator)
1985-1990	U.S. Department of Agriculture Effect of Standard and Treated Cotton Dust on the Acute and Chronic

	Pulmonary Function of Guinea Pigs (Principal Investigator)
1989-1991	Procter & Gamble, Co.; PPG Isolation and Characterization of Guinea Pig Immunoglobulin Classes (Principal Investigator)
1989-1993	International Isocyanate Institute Potential of Dermal Application of MDI to Cause Pulmonary Sensitivity (Principal Investigator)
1990-1995	U.S. Department of Agriculture Effect of Selected Cotton Dusts on the Acute Pulmonary Function of Guinea Pigs (Principal Investigator)
1991-1992	International Isocyanate Institute International Travel Fellowship (Principal Investigator)
1992-1999	Bayer Corporation Immunotoxicology: Cyanuric Chloride Investigations (Principal Investigator)
1992-Present	NIEHS Chemically-Induced Chronic Allergic Lung Disease (Principal Investigator)
1996-1998	DHHS/PHS/CDC NIOSH Molecular Modeling for Workplace-Related Contact Irritants (Principal Investigator)
1998-Present	NIH Epidemiological Study of Isocyanate Asthma in Autobody Shops (Principal Investigator, subcontract from Yale University)

APPEARS THIS WAY
ON ORIGINAL

Lee, H.K., Alarie, Y. and Karol, M.H. Induction of formaldehyde sensitivity in guinea pigs. Toxicol. Appl. Pharmacol. 75: 147-155, 1984.

Venezia, C. and Karol, M.H. Comparison of cobalt and chromium binding to blood elements. Toxicology 30: 125-133, 1984.

Weyel, D., Alarie, Y., Ellakkani, M., Sasser, P. and Karol, M. Systems for generation of respirable particles from bulk cotton dust. 8th Cotton Dust Research Conference, Atlanta, GA, 1984, pp. 78-79.

Weyel, D.A., Ellakkani, M., Alarie, Y. and Karol, M. An aerosol generator for the resuspension of cotton dust. Toxicol. Appl. Pharmacol. 76: 544-547, 1984.

Alarie, J.P., Karol, M.H. and Gauss, W.F. Psyllium-a gum, not a protein. Chest 88: 313, 1985.

Berni, R.J., Domelsmith, L.N., Goynes, W.R. and Karol, M.H. Proximate, elemental, and microscopical analyses of "Standard Cotton Dusts". Ninth Cotton Research Conf. Proc., 1985, 32-36.

Ellakkani, M., Alarie, Y., Weyel, D. and Karol, M.H. Concentration-dependent respiratory response of guinea pigs to a single exposure of cotton dust. Toxicol. Appl. Pharmacol. 80: 357-366, 1985.

Ellakkani, M.A., Alarie, Y., Weyel, D. and Karol, M. Effects from 12-month inhalation of cotton dust. Ninth Cotton Dust Research Conf. Proc., 1985, 167-170.

Fischer, J.J., Ellakkani, M., Thorne, P.S., Weyel, D., Alarie, Y. and Karol, M. Endotoxin activity and microbial study of cotton dust particles of known sizes. Ninth Cotton Dust Research Conf. Proc., 1985, 144-145.

Gauss, W.F., Alarie, J.P. and Karol, M.H. Experimental assessment of the allergenicity of a psyllium-containing laxative. Allergy 40: 535-539, 1985.

Gauss, W.F., Alarie, J.P. and Karol, M.H. Workplace allergenicity of a psyllium-containing bulk laxative. Allergy 40: 73-76, 1985.

Karol, M., Barnett, M., Ellakkani, M., Alarie, Y. and Fischer, J.J. Comparison of the respiratory response of guinea pigs to cotton dust and endotoxin from *Enterobacter agglomerans*. Ninth Cotton Dust Research Conf. Proc., 1985, 146-147.

Karol, M.H., Stadler, J. and Magreni, C. Immunotoxicologic evaluation of the respiratory system: animal models for immediate- and delayed-onset pulmonary hypersensitivity. Fundamental and Applied Toxicology 5: 459-472, 1985.

Stadler, J.C. and Karol, M.H. Use of dose-response data to compare the skin sensitizing abilities of dicyclohexylmethane-4,4'-diisocyanate and picryl chloride in two animal species. Toxicol. Appl. Pharmacol. 78: 445-450, 1985.

Weyel, D., Ellakkani, M., Alarie, Y. and Karol, M. Use of a parallel stage impactor to assess the

particle size distribution of cotton dusts. Ninth Cotton Dust Research Conf. Proc., 1985, 163-164.

Wong, K.L., Karol, M.H. and Alarie, Y. Use of repeated CO_2 challenges to evaluate the pulmonary performance of guinea pigs exposed to toluene diisocyanate. J. Toxicol. and Env. Hlth. 15: 137-148, 1985.

Cockrell, B., Ellakkani, M.E., Thorne, P.S. and Karol, M.H. Histopathology of guinea pigs exposed for twelve months to cotton dust. Proc. Tenth Cotton Dust Res. Conf., 1986, 138-139.

Ellakkani, M.E., Alarie, Y., Weyel, D. and Karol, M.H. Respiratory patterns in guinea pigs during twelve months of cotton dust exposure. Proc. Tenth Cotton Dust Res. Conf., 1986, 131-133.

Grunewalder, E. and Karol, M.H. Nitrocellulose-based RAST to detect IgE antibodies in workers hypersensitive to diphenylmethane-4,4'-diisocyanate (MDI). Allergy 41: 203-209, 1986.

Karol, M.H. Respiratory effects of inhaled isocyanates. C.R.C. Crit. Rev. Toxicol. 16: 1986, 349-379.

Karol, M.H., Ogundiran, N., Ellakkani, M., Fischer, J. and Foarde, K. Inhalation studies of *Enterobacter agglomerans* derived solutions. Proc. Tenth Cotton Dust Res. Conf., 1986, 129-130.

Ogundiran, N., Ellakkani, M. E., Karol, M.H. and Fischer, J. Pulmonary response of guinea pigs to repeated inhalation of *Pseudomonas syringae*/cellulose powder. Proc. Tenth Cotton Dust Res. Conf., 1986, 126-128.

Olaniran, N.S., Thorne, P., Ellakkani, M.E. and Karol, M.H. Serologic evaluation of guinea pigs exposed during twelve months to cotton dust. Proc. Tenth Cotton Dust Res. Conf., 1986, 134-137.

Thorne, P.S., Hillebrand, J., Magreni, C., Riley, E.J. and Karol, M.H. Experimental sensitization to subtilisin. I. Production of immediate-and late-onset reactions. Toxicol. Appl. Pharmacol. 86: 112-123, 1986.

Ellakkani, M.A., Alarie, Y., Weyel, D. and Karol, M.H. Chronic pulmonary effects in guinea pigs from prolonged inhalation of cotton dust. Toxicol. Appl. Pharmacol. 88: 354-369, 1987.

Gatty, C., Spear, K., Ogundiran, A., Vyas, I., Karol, M. and Fischer, J.J. Acute respiratory response of guinea pigs to endotoxin from *Enterobacter agglomerans*, *Pseudomonas syringae* and *Escherichia coli*. Proc. Eleventh Cotton Dust Res. Conf. Eds. R.R. Jacobs and P.J. Wakelyn, 1987, 87-88.

Hillebrand, J.A., Thorne, P.S. and Karol, M.H. Experimental sensitization to subtilisin. II. Production of specific antibodies following inhalation exposure of guinea pigs. Toxicol. Appl. Pharmacol. 89: 449-456, 1987.

Karol, M.H., Taskar, S., Gangal, S., Rubanoff, B.F. and Kamat, S.R. The antibody response to methyl isocyanate: experimental and clinical findings. Env. Hlth. Perspect. 72: 169-175, 1987.

Ogundiran, A., Gatty, C., Spear, K., Vyas, I., Karol, M. and Fischer, J.J. Relationship of the respiratory potencies of cotton dusts to their content of *Enterobacter agglomerans* and *Pseudomonas syringae*. Proc. Eleventh Cotton Dust Res. Conf. Eds. R.R. Jacobs and P.J. Wakelyn, 1987, 84-86.

Olaniran, N.S. and Karol, M.H. Characterization of immunologic components in cotton dust. Proc. Eleventh Cotton Dust Res. Conf. Eds. R.R. Jacobs and P.J. Wakelyn, 1987, 89-92.

Ryan, L.K. and Karol, M.H. Immune response to a lipopolysaccharide polymyxin-B complex. Proc. Eleventh Cotton Dust Res. Conf. Eds. R.R. Jacobs and P.J. Wakelyn, 1987, 45-46.

Thorne, P.S., Hillebrand, J.A., Lewis, G.R. and Karol, M. H. Contact sensitivity by diisocyanates: Potencies and cross-reactivities. Toxicol. Appl. Pharmacol. 87: 155-165, 1987.

Thorne, P.S., Yeske, C.P. and Karol, M.H. Monitoring guinea pig core temperature by telemetry during inhalation exposures. Fund Appl. Toxicol. 9: 398-408, 1987.

Cockrell, B., Rehfeld, C., Ogundiran, A., Vyas, I., Gatty, C., Spear, K. and Karol, M. Histologic and morphometric examination of guinea pig lungs following subchronic exposure to 1.6 mg/m3 cotton dust 1182 DB. Proc. Twelfth Cotton Dust Res. Conf. Eds. R.R. Jacobs and P.J. Wakelyn, 1988, 161-162.

Gatty, C., Spear, K., Vyas, I. and Karol, M. Respiratory responses of guinea pigs to dusts treated for detoxification. Proc. Twelfth Cotton Dust Res. Conf. Eds. R.R. Jacobs and P.J., Wakelyn, 1988, 65-68.

Jin, R. and Karol, M.H. Diisocyanate antigens that detect specific antibodies in exposed workers and guinea pigs. Chem. Res. in Toxicol. 1: 288-293, 1988.

Jin, R. and Karol, M.H. Intra-and intermolecular reactions of 4,4'-diisocyanatodiphenylmethane with human serum albumin. Chem. Res. in Toxicol. 1: 281-287, 1988.

Karol, M.H. The development of an animal model for TDI asthma. Bull. Eur. Physiopathol. Respir. 23: 571-576, 1988.

Karol, M.H. and Kamat, S.R. Antibody response to methyl isocyanate: Experimental and clinical findings. Bull. Eur. Physiopathol. Respir. 23: 591-597, 1988.

Olaniran, N.S. and Karol, M.H. Serologic study of guinea pigs exposed for 12 months to cotton dust. J. Toxicol. Env. Hlth. 25: 185-199, 1988.

Ryan, L., Erdal, S. and Karol, M. Acute respiratory response of guinea pigs to lipopolysaccharide from *Salmonella minnesota* and the Re 595 mutant. Proc. Twelfth Cotton Dust Res. Conf. Eds. R.R. Jacobs and P.J. Wakelyn, 1988, 47-49.

Ryan, L.S. and Karol, M.H. Production of antibody to lipopolysaccharide (LPS) following immunization with LPS-polymyxin B-agarose immunogen. J. Appl. Bact. 64: 487-495, 1988.

Thorne, P.S. and Karol, M.H. Assessment of airway reactivity in guinea pigs: Comparison of methods employing whole body plethysmography. Toxicology 52: 141-163, 1988.

Griffiths-Johnson, D., Ryan, L., Spear, K. and Karol, M.H. Pulmonary response of guinea pigs to a chemically-treated crude preparation of *E. agglomerans* cells. Proc. Thirteenth Annual Beltwide Cotton Dust Res. Conf. Eds. R.R. Jacobs and P.J. Wakelyn, 1989, 101-104.

Griffiths-Johnson, D., Spear, K. and Karol, M.H. Response of guinea pigs to solvent-extracted cotton dust. Proc. Thirteenth Annual Beltwide Cotton Dust Res. Conf. Eds. R.R. Jacobs and P.J. Wakelyn, 1989, 94-96.

Karol, M.H. What is byssinosis? What research remains to be done? Proc. Thirteenth Annual Beltwide Cotton Dust Res. Conf. Eds. R.R. Jacobs and P.J. Wakelyn, 1989, 152-154.

Karol, M.H., Hillebrand, J.A. and Thorne, P.S. Characteristics of weekly pulmonary hypersensitivity responses elicited in the guinea pig by inhalation of ovalbumin aerosols. Toxicol. Appl. Pharmacol. 100: 234-246, 1989.

Karol, M.H., Jin, R. and Rubanoff, B. Clinical and experimental evaluation of isocyanate lung injury. Comments Toxicol. 3: 117-130, 1989.

Karol, M.H., Spear, K., Griffiths-Johnson, D. and Fischer, J.J. Comparative changes in pulmonary toxicity and microbiologic activity of cotton dust during five years of storage. Proc. Thirteenth Annual Beltwide Cotton Dust Res. Conf. Eds. R.R. Jacobs and P.J. Wakelyn, 1989, 118-120.

Ryan, L.K. and Karol, M.H. Acute respiratory response of guinea pigs to lipopolysaccharide, lipid A, and monophosphoryl lipid A from *Salmonella minnesota*. Am. Rev. Respir. Dis. 140: 1429-1435, 1989.

Ryan, L. and Karol, M.H. Acute respiratory response of guinea pigs to monophosphoryl and diphosphoryl lipid A from the *Salmonella minnesota* Re 595 mutant. Proc. Thirteenth Annual Beltwide Cotton Dust Res. Conf. Eds. R.R. Jacobs and P.J. Wakelyn, 1989, 121-124.

Spear, K., Griffiths-Johnson, D. and Karol, M.H. Acute pulmonary toxicity of guinea pigs to cotton dust DB 1/88. Proc. Thirteenth Annual Beltwide Cotton Dust Res. Conf. Eds. R.R. Jacobs and P.J. Wakelyn, 1989, 134-138.

Thorne, P.S. and Karol, M.H. Association of fever with late-onset pulmonary hypersensitivity responses in the guinea pig. Toxicol. Appl. Pharmacol. 100: 247-258, 1989.

Karol, M.H. and Lemp, J. Production of antibodies in guinea pigs following inhalation of cotton dusts. Proc. Fourteenth Annual Cotton Dust Research Conference. Eds. R.R. Jacobs and P.J. Wakelyn, 1990, 128-129.

Ryan, L.K. and Karol, M.H. The effect of cotton dust exposure on the release of tumor necrosis factor from guinea pig alveolar macrophages. Proc. Fourteenth Annual Cotton Dust Research Conference. Eds. R.R. Jacobs and P.J. Wakelyn, 1990, 146-150.

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