

# Psychoneuroimmunology and the “Faith Factor” in Human Health

A Research Symposium  
Monday, July 12, 1999  
Duke University  
Durham, North Carolina

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## PURPOSE



Research carried out over the past decade has produced new insights about how our bodies process stress. Epidemiological studies have shown an association between stress and illness, and scientists in the emerging field of psychoneuroimmunology are working out the mechanisms of the noxious relationship. They are especially interested in examining the effects of stress on endocrine and immune functioning. Recent investigations have elucidated the neurological and hormonal activities connecting psychological stress and increased susceptibility to infection, cancer and cardiovascular disease. While the mind-body link expressed in the familiar flight-or-fight response to perceived danger had an evolutionary purpose, defenses that once assured survival often appear more damaging than the challenges, real or imaginary, that elicited them. Cultural evolution, however, may have given us powerful ways to cope with life's unavoidable stresses. Throughout human history, religion has brought comfort and consolation to believers in the face of sickness and experiences of loss. Now research groups around the world are reporting scientific evidence that religious belief and spiritual practices may be associated with health. Fourteen distinguished scientists and social scientists and an eminent theologian come together at Duke University to reflect on the implications for science and religion of research that broadly links a faith factor with a range of other factors that promote longevity and physical well-being, and to focus, in particular, on the promising but largely under-investigated area that explores the ties between spirituality and the enhanced action of the human immune system.



## CHAIRS



A specialist in geriatric medicine, immune function and cancer in the elderly, **Harvey Jay Cohen** is the director of the Center for the Study of Aging and Human Development, chief of the Division of Geriatric Medicine, and professor of medicine at the Duke University Medical Center (DUMC). He also serves as associate chief of staff for geriatrics and extended care and director of the Geriatric Research, Education and Clinical Center of the Department of Veterans Affairs Medical Center in Durham. A 1961 *cum laude* graduate of Brooklyn College who earned his M.D. *cum laude* in 1965 from Downstate Medical College, SUNY, Dr. Cohen received his post-doctoral training at DUMC, where he has spent his professional career. Elected to the Association of American Physicians in 1997, he is a fellow of the Clinical Medicine Section of the Gerontological Society of America, American Geriatrics Society, and American College of Physicians. Dr. Cohen is the author or co-author of seven books on medical immunology, geriatric medicine and cancer in older patients, nearly fifty book chapters and two hundred journal articles. A former president and chair of the board of directors of the American Geriatric Society, he serves on numerous national medical boards and committees.

**Harold G. Koenig** is a psychiatrist who directs the Duke University Center for the Study of Religion, Spirituality, and Health. The author of some one hundred journal articles, he has conducted extensive clinical research on depression in older people and the impact of religion and other emotion-regulating coping strategies on their health. After graduating from Stanford University in 1974, he began the study of medicine at the University of California, San Francisco, received an R.N. from the San Joaquin Delta Nursing School in 1980 and, returning to UC/San Francisco, earned an M.D. in 1982. Dr. Koenig did an internship and residency in family medicine at the University of Missouri and obtained further training in geriatric medicine, biometry and psychiatry at Duke University Medical Center. He joined the Duke faculty in 1992 as a clinical assistant professor of psychiatry and was promoted to associate professor of psychiatry in 1996 and associate professor of medicine in 1998. He has won a number of research awards and prizes for published papers. A reviewer for scores of professional journals and NIH (National Institutes of Health) grants, he is a member of the Board of Advisors of the John Templeton Foundation.



## PARTICIPANTS



The George L. Engel Professor of Psychosocial Medicine at the University of Rochester School of Medicine and Dentistry, **Robert Ader** is the director of the Division of Behavioral and Psychosocial Medicine in the school's department of psychiatry and its interdepartmental Center for Psycho-neuroimmunology Research. He is a 1953 graduate of Tulane University and earned a Ph.D. in experimental psychology at Cornell in 1957, the year he joined the Rochester faculty. Since 1969, Dr. Ader has held a continuing Research Scientist Award from the National Institute of Mental Health. He edited *Psychoneuroimmunology*, referred to as the signature volume of a new field of research, in 1981; served as senior editor of the second edition (1991); and is the author of more than two hundred research articles. A founding member, past president and fellow of the Academy of Behavioral Medicine Research, he is also a fellow of the Society of Behavioral Medicine and a member of Sigma Xi. He serves on the editorial boards of several professional journals and is the editor-in-chief of *Brain, Behavior and Immunity*, the first scientific journal in this interdisciplinary field. The founding president of the Psycho-neuroimmunology Research Society, he also has been president of the American Psychosomatic Society and the International Society for Developmental Psychobiology. Dr. Ader was awarded an honorary M.D. degree from the University of Trondheim in Norway.



**Warren S. Brown** is professor of psychology at the Graduate School of Psychology at Fuller Theological Seminary where he has taught for the past seventeen years. He is also director of Fuller's Lee Edward Travis Institute for Biopsychosocial Research and an adjunct professor in the department of psychiatry and behavioral medicine at the

UCLA (University of California, Los Angeles) School of Medicine. A member of the UCLA Brain Research Institute, he was a research scientist there for eleven years before joining the Fuller faculty. He also has taught at Point Loma Nazarene University, from which he graduated *magna cum laude* in 1966. Dr. Brown earned a Ph.D. in experimental psychology from the University of Southern California in 1971. His research has involved studies of neuropsychological changes associated with aging and dementia, and the interactions between human cerebral hemispheres among several other areas. The author of more than sixty articles appearing in scholarly journals, he has won a National Institute of Mental Health Research Career Development Award and a National Science Foundation Exchange of Scientists and Engineers Grant as well as numerous NIMH and U.S. Public Health Service contracts and grants. He is the principal editor of a volume on the integration of science and Christian faith, *Whatever Happened to the Soul? Scientific and Theological Portraits of Human Nature* (Fortress Press, 1998).



The author of the classic study linking stress to the common cold, **Sheldon Cohen** has been a professor of psychology at Carnegie Mellon University since 1982. He is also an adjunct professor of pathology and psychiatry at the University of Pittsburgh School of Medicine and a member of the Pittsburgh Cancer Institute. Since the founding in 1990 of Pittsburgh's Brain Behavior and Immunity Center, Dr. Cohen has been its co-director. A 1969 graduate of Montieith College of Wayne State University, he earned his Ph.D. in social psychology from New York University in 1973 and subsequently taught at the University of Oregon for nine years. His work focuses on the roles of stress and social support systems in health and well-being. The current holder of a five-year Senior Scientist Award given by the National Institute of Mental Health (NIMH) and the recipient of two NIMH Research Scientist Development Awards, Dr. Cohen was the Distinguished Scientist Lecturer of the American Psychological Association (APA) in 1997. He is a fellow of the APA, American Psychological Society, the Academy of Behavioral Medicine Research and the Society of Behavioral Medicine. A co-author of four books, including *Social Support Measurements and Interventions: A Guide for Health and Social Scientists* (Oxford, in press), he also has contributed chapters to more than forty books and published some eighty-five research articles.



**Fawzy I. Fawzy** is a professor of psychiatry and executive vice chair of the department of psychiatry and biobehavioral medicine at the University of California, Los Angeles (UCLA) School of Medicine, as well as medical director of the UCLA Neuropsychiatric Hospital. His main research focus is on psycho-oncology. A native of Cairo, he was graduated with honors from Cairo University in 1963 and received his M.D. there five years later. After post-doctoral training in Egypt and England, he came to the United States in 1972 to take up a residency at the Brentwood Veterans Administration Hospital in Los Angeles and then the UCLA School of Medicine, whose faculty he joined in 1976. The co-author of four books and nearly one hundred journal articles and book chapters, Dr. Fawzy is a fellow of the Royal Society of Medicine, the American Psychiatric Association, the American College of Psychiatrists, the Pacific Rim of Psychiatrists and the Academy of Psychosomatic Medicine. He is a past president of the American Society of Psychiatric Oncology and AIDS and the International Psycho-Oncology Society. He serves on the editorial boards of numerous professional journals.



**Ronald Glaser** is a virologist who has spent a quarter century studying the oncogenic potential of human herpesviruses, the association between stress and infectious disease and cancer, and immune function in people caring for spouses with dementia. He is a professor of medical microbiology and immunology at The Ohio State University Medical Center. He holds the Gilbert and Kathryn Mitchell Endowed Chair in Medicine, is director of the Institute for Behavioral Medicine Research and serves as the university's associate vice president for health sciences research. Dr. Glaser graduated from the University of Bridgeport in 1962, received a M.S. in zoology at the University of Rhode Island in 1964 and earned a Ph.D. in virology at the University of Connecticut in 1968. After completing a postdoctoral fellowship in virology at Baylor College of Medicine, he became a member of the faculty of the M.S. Hershey Medical Center of The Pennsylvania State University before joining The Ohio State University College of Medicine faculty as professor and chair of the department of medical microbiology and immunology in 1978. Elected to the Academy for Behavioral Medicine Research in 1984, Dr. Glaser is the recipient of a Leukemia Society Scholar Award, the first Simson First Foundation Research Award and the Dow Chemical SPHERE Research Award, among other honors. He serves on the editorial boards of four professional journals and is author or co-author of some 240

research articles and the co-editor of four books.



A scholar of Indian Buddhist thought, **Paul J. Griffiths** is a professor of the philosophy of religions in The Divinity School of the University of Chicago and in the university's South Asian languages and civilizations department. His wide-ranging intellectual interests also include Christian theology and inter-religious dialogue and apologetics. A 1978 graduate of Oxford University, where he took first-class honors in theology, he received a MPhil in classical Indian religion and Sanskrit from Oxford in 1980 and a Ph.D. in Buddhist studies from the University of Wisconsin in 1983. After teaching South Asian studies for a year at Wisconsin, he went on to Chicago as an assistant professor of South Asian languages and civilization in 1984, joined the University of Notre Dame faculty as an assistant professor of theology in 1986, and returned to Chicago in 1990. Dr. Griffiths is the author or co-author of more than thirty journal articles and book chapters, the editor or co-editor of four volumes, and the author of five books, including *On Being Buddha: The Classical Doctrine of Buddhahood* (State University of New York Press, 1994) and the just-published *Religious Reading: The Place of Reading in the Practice of Religion* (Oxford University Press, 1999). Elected to the American Society for the Study of Religion in 1993, he has been the recipient of an American Academy of Religion research grant and a Luce Fellowship.



**Ronald B. Herberman** is the founding director of the University of Pittsburgh Cancer Institute (UPCI) and has also served as the Associate Vice Chancellor for Research, Health Sciences at the University of Pittsburgh. He has a joint professorship in medicine and pathology at the University of Pittsburgh School of Medicine, where he also holds the Hillman Chair of Oncology, and he serves as a staff physician at Presbyterian University and Montefiore University Hospitals of the University of Pittsburgh Medical Center. A 1960 *summa cum laude* graduate of New York University, where he was elected to Phi Beta Kappa, Dr. Herberman earned his M.D. at New York University School of Medicine in 1964. He completed an internship and first-year residency at Massachusetts General Hospital before joining the Immunology Branch of the National Cancer Institute (NCI) as a clinical associate. In 1968, he was appointed a senior investigator there and organized a research program related to cellular and tumor immunology. He became head of the newly-established Cellular and Tumor Immunology Section in the NCI's Laboratory of Cell Biology in 1971. A new category of lymphocyte, termed the natural killer (NK) cells, was discovered in his laboratory, and he subsequently focused his research on the characterization of these natural effector cells and on their role in resistance to cancer growth. Dr. Herberman was named chief of a new NCI intramural and extramural research group, the Laboratory of Immunodiagnosis, in 1975. Six years later, he was asked to assume responsibility for another new NCI arm, the Biological Therapeutics Branch of the Biological Response Modifiers Program. After serving as its acting director for two years, he left the NCI in 1985 to establish UPCI. In 1988, he was appointed chairman of the Biological Response Modifiers Committee of the National Institute of Allergy and Infectious Diseases, AIDS Clinical Drug Development Committee, and he has also served as interim chair of the National Surgical Adjuvant Breast and Bowel Project. The author of more than 625 published research papers, Dr. Herberman has contributed chapters to or edited some 325 books. Currently editor-in-chief of the international journal, *Natural Immunity*, he has served on the editorial boards of numerous other scientific journals. Recipient of the Award for Excellence in the Sciences given by the Governor of Pennsylvania and the Lifetime Science Award of the Institute for Advanced Study in Immunology and Aging, he is a fellow of the American Academy of Microbiology and the American College of Physicians, and a member of the Academy of Behavioral Medicine Research. He has been president of the Society for Natural Immunity and the Ohio Valley and Lake Erie Association of Cancer Centers and is the president-elect of the American Association of Cancer Institutes.



A sociologist who has written extensively on the attempts of modern biologists to extract some broader meaning — social, political, moral, or existential — from their scientific work, **Howard L. Kaye** draws upon his rich background in the social sciences and the humanities to examine how theoretical and technological developments in biology and related disciplines appear to be challenging established conceptions of human nature. A 1974 *magna cum laude* graduate of the University of Pennsylvania, he received his M.A. in comparative literature at the University of Chicago before returning to Penn to earn a Ph.D. in sociology in 1981. Dr. Kaye taught at St. Joseph's University in Philadelphia while completing his dissertation and then joined the faculty of Franklin and Marshall College, where he



was appointed a full professor in 1996. He is a member of Phi Beta Kappa and the recipient of a National Endowment for the Humanities Fellowship for College Teachers. The author of *The Social Meaning of Modern Biology* (2nd edition, Transaction, 1997), he has published journal articles on bioethics, Freud, and sociological theory, as well as on sociobiology. He lectures widely as he continues to explore how the biology of the turn of the twentieth century may alter profoundly how we live and organize our social world.



A professor of psychiatry and psychology at The Ohio State University College of Medicine, **Janice Kiecolt-Glaser** is director of the Division of Health Psychology in the medical college's department of psychiatry. Her research is focused primarily in the area of stress and immune function. Conducted frequently in collaboration with her husband, Ronald Glaser, it has demonstrated such health consequences of stress as slower wound healing and impaired influenza vaccine responses in older people. Dr. Kiecolt-Glaser is a 1972 graduate of the University of Oklahoma, where she was elected to Phi Beta Kappa, and she received her Ph.D. in clinical psychology from the University of Miami in 1976. After an internship in clinical psychology at Baylor College of Medicine and a postdoctoral fellowship in adult clinical psychology at the University of Rochester School of Medicine, she joined the Ohio State medical faculty in 1978. She co-edited (with Ronald Glaser) the *Handbook of Human Stress and Immunity* (Academic Press, 1994) and has published eighteen book chapters as well as some 115 papers in professional journals. She is also the author of two mystery novels. The recipient of several National Institutes of Health grants, Dr. Kiecolt-Glaser is a fellow of the American Psychological Association and president of its Division of Health Psychology. She received the division's Award for Outstanding Contributions to Health Psychology in 1988.



**Bruce S. Rabin** is the founding director of a major stress and immune system research program at the Brain, Behavior and Immunity Center at the University of Pittsburgh Medical Center. Since its establishment in 1990, his laboratory has made significant contributions to understanding how the brain and immune system interact and influence each other's function. Dr. Rabin holds joint appointments as a professor of pathology and a professor of psychiatry in the University of Pittsburgh School of Medicine. A 1962 graduate of Case Western Reserve University, he earned an M.D. and a Ph.D. in immunology at the State University of New York at Buffalo in 1969. Following post-graduate training in clinical pathology at the Medical College of Virginia, he joined the Buffalo faculty as an assistant professor of pathology in 1970. Two years later, he accepted an academic appointment at the University of Pittsburgh, where he became director of the Division of Clinical Immunopathology in the department of pathology of the School of Medicine in 1974, and medical director of the Clinical Pathology Laboratories at the Pittsburgh Medical Center in 1985. The author or co-author of more than three hundred scientific publications, his book, *Stress, Immune Function, and Health: The Connection*, was published earlier this year by John Wiley & Sons. Dr. Rabin is a fellow of the American Society for Microbiology, and he has served as president of the Association of Medical Laboratory Immunologists (AMLI) and of the Psychoneuroimmunology Research Society. He received the AMLI's Erwin Neter Memorial Award in 1999.



The James L. Knight Professor of Health Psychology, Psychiatry and Behavioral Sciences, Medicine and Biomedical Engineering at the University of Miami, **Neil Schneiderman** is the director of the university's Behavioral Medicine Research Center. He is also program director of the National Institute of Mental Health (NIMH) program project entitled "Behavioral Management and Stress Responses in HIV/AIDS" and program director of a NIMH training grant entitled "Psychoneuroimmunology and HIV/AIDS." In addition, Dr. Schneiderman is program director for a National Heart Lung and Blood Institute (NHLBI) program project entitled "Behavioral Bases of CHD Risk and Management," program director of a NHLBI training grant entitled "Behavioral Medicine Research in Cardiovascular Disease," and principal investigator of the Miami Clinical Unit for the NHLBI multi-center intervention trial "Enhancing Recovery in Coronary Heart Disease." A 1960 graduate of Brooklyn College, Dr. Schneiderman earned a Ph.D. in psychology from Indiana University in 1964 and joined the faculty of the University of Miami in 1965 after post-doctoral training in neurophysiology and neuropharmacology at the Physiological Institute of the University of Basle. He has published more than 300 journal articles, textbook chapters and books. He is currently president of the International Society of Behavioral Medicine and a member of the executive committee of the Board of Scientific Affairs of the American Psychological Association (APA). Previously president of the Academy of Behavioral Medicine Research and editor-in-

chief of *Health Psychology* and the *International Journal of Behavioral Medicine*. Dr. Schneiderman received the Distinguished Scientist Award from the APA in 1994 and from the Society of Behavioral Medicine in 1997.



**George F. Solomon**, professor emeritus of psychiatry and biobehavioral sciences at the University of California, Los Angeles (UCLA), is the co-author (with Rudolf H. Moss) of the pioneering 1964 study, "Emotions, Immunity and Disease," that postulated central nervous (CNS) involvement in the regulation of the immune system. A graduate of Stanford University, where he was elected to Phi Beta Kappa, and of Stanford's School of Medicine, he interned at Barnes Hospital of Washington University in St. Louis and took a residency in psychiatry at the Langley Porter Psychiatric Institute of the University of California, San Francisco (UCSF), where he was also a U.S. Public Health Service Career Teaching Fellow. Joining the faculty of the Stanford School of Medicine in 1962, he continued a series of studies, begun at UCSF, of personality and emotional factors in the onset and course of the autoimmune disease, rheumatoid arthritis, and became interested in immunologic factors in immunologically-related diseases, psychiatric manifestations of immunologic disorders and immunologic abnormalities in mental illness. At Stanford, he also began research on CNS and experimental influences on immunity in rodents in his then uniquely-named "Psychoimmunology Laboratory." As chief of the Psychiatric Training and Research Section of the Stanford-affiliated Palo Alto Veterans Administration Hospital, Dr. Solomon observed and made the controversy-inducing earliest reports on psychiatric sequelae of the experiences of soldiers in the Vietnam War. With Mardi Horowitz, he published a prediction of "delayed stress response syndromes" among the veterans. In 1974, he accepted a clinical professorship of psychiatry at UCLA and, for the next twenty years, simultaneously held academic positions on UCSF medical faculty. Named professor of psychiatry and behavioral sciences at UCLA in 1984, he was a member of the university's Norman Cousins Task Force in Psychoneuroimmunology before his retirement. Since then, he has continued research in a variety of areas, including psycho-neuroimmunologic aspects of HIV/AIDS and of aging in the healthy elderly. The author of some 135 scientific articles and book chapters, Dr. Solomon is a fellow of the American Psychiatric Association, Royal College of Psychiatrists, Society of Behavioral Medicine, Academy of Behavioral Medicine Research, International College of Psychosomatic Medicine, and the American College of Forensic Psychiatry.



Chief of the Section on Neuroendocrine Immunology and Behavior, as well as associate branch chief of the Clinical Neuroendocrinology Branch of the National Institute of Mental Health (NIMH) Research Program at the National Institutes of Health (NIH), **Esther M. Sternberg** is a tenured NIH senior scientist. She also serves as a research professor at American University. Dr. Sternberg earned a B.S. with great distinction at McGill University in 1972 and an M.D. at McGill in 1974. After post-graduate medical training in rheumatology at McGill's Royal Victoria Hospital and in the Division of Allergy and Immunology at the Barnes Hospital of Washington University in St. Louis, she became an associate in the Howard Hughes Institute of Washington University and an instructor in the Rheumatology Division of the School of Medicine. She joined the NIMH in 1986. Dr. Sternberg is widely recognized for ground-breaking work in the area of central nervous system - immune system interactions. Her discoveries defined the role of the brain's stress response in susceptibility to rheumatoid arthritis and other inflammatory diseases, as well as shedding new light on the underlying mechanisms for the connection between stress, depression and autoimmune disease: the molecular basis of the so-called mind-body interaction. She is also among the world's foremost authorities on the L-Tryptophan Eosinophilia Myalgia Syndrome (EMS), which swept the United States in epidemic proportions in 1989 in persons taking the amino acid food supplement, L-tryptophan. The first to describe this syndrome in relation to a similar drug, L-5 hydroxytryptophan, she published a landmark article in 1980 in the *New England Journal of Medicine*. Her work in this area, along with her work on the interactions between the brain and the immune system, has been recognized by many awards, including the Food and Drug Administration Commissioner's Special Citation, two Public Health Service Superior Service Awards, the Arthritis Foundation William R. Felts Award for Excellence in Rheumatology Research and the U.S. Department of Health and Human Services Public Health Service Staff Recognition Award for Special Achievement. Dr. Sternberg is a fellow of the American College of Rheumatology, an elected member of the American Society for Clinical Investigation, and a member of a standing committee of the Institute of Medicine of the National Academy of Sciences. The author of more than one hundred scientific articles, textbook chapters and reviews, she served as guest editor of a special 1997 *Journal of Clinical Investigation Perspectives Series* on cytokines and the brain. Her book for general readers on mind-body interactions in disease, *A Delicate Balance*, will be published next year by W.H. Freeman & Company.



**Redford B. Williams**, a professor of psychiatry at Duke University Medical School, is the author (with his wife, Virginia P. Williams) of the best-selling book, *Anger Kills: Seventeen Strategies for Controlling the Hostility That Can Harm Your Health* (Times Books, 1993; Harper Collins, 1994) and the recently published *Lifeskills* (Times Books, 1998). He serves as director of the Duke Behavioral Medicine Research Center, and he is also a professor of psychology at Duke and an adjunct professor of epidemiology in the School of Public Health at the University of North Carolina, Chapel Hill. A 1963 *cum laude* graduate of Harvard, Dr. Williams received his M.D. in 1967 from Yale University School of Medicine, where he received the Perkins Prize for the highest scholastic record in basic medical sciences. After post-graduate training at the Yale-New Haven Medical Center, he was a clinical associate at the National Institute of Mental Health (NIMH) before coming to the Duke School of Medicine for individual supervision psychotherapy. Joining the Duke faculty in 1972, he became a full professor in 1978. For the past twenty-five years, he has received continuous grant support from the NIMH and, since 1977, from the National Heart, Lung and Blood Institute. His research has been primarily focused on behavioral approaches to treating cardiovascular disease. Dr. Williams is the author or co-author of some 150 articles, more than thirty textbook chapters and, in addition to *Anger Kills*, nine books. He has been president of the three leading societies concerned with mind-body medicine, the American Psychosomatic Society, the Society of Behavioral Medicine, and the Academy of Behavioral Medicine Research (ABMR). In 1992, he was the first recipient of the ABMR's Upjohn Distinguished Scientist Award.



*The Humble Approach Initiative*

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