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Brain, Behavior, and Immunity

journal homepage: www.elsevier.com/locate/ybrbi

In Memoriam

In memoriam Steven S. Zalcman (1956–2011)



Steve Zalcman passed away suddenly on Sunday, December 25, 2011 while on vacation with family in Florida. Family, colleagues and friends will all attest that there was hardly a day on which Steve did not carry a large briefcase filled with data to analyze, manuscripts to write, grants to develop, and papers and grants to review. His last vacation, itself a rare event, was no exception. Steve was a full time scholar whose mastery of psychology, neuroscience, and neuroimmunology were masterfully integrated in an all-too-brief, stellar career in psychoneuroimmunology (PNI). He was passionately devoted to PNI, its staunch defender from international meetings to the halls of NIH, a passion that extended to and engaged many friends and colleagues. Steve was fascinated by the behavioral effects of cytokines and by the neurochemical mechanisms of those effects. That fascination is reflected in a wave of compelling and seminal publications, beginning in the laboratory of Hymie Anisman in 1991 and yet to come to rest. At least nine formal publications remain in process with students and colleagues. Steve's most recent funded research, primarily with mouse models, include studies of IL-2 effects on stereotypic behavior and the role of dopaminergic receptors; effects of virus-induced immune activation in pregnancy on autism-associated neurobehavioral disturbances in offspring; the role of sexual dimorphism and developmental stage in IL-2 effects on behavior and the

HPA-axis; and the role of serotonin and cytokines in the neural circuitry and the neurochemical and neurophysiological mechanisms of aggression.

Steve Zalcman was tenacious and extraordinarily careful in his approach to experimental problems. He approached his writing with the same tenacity and care, his papers reflecting impeccable scientific standards. Steve was much admired and respected by his colleagues, students, research assistants and, really, anyone with whom he made contact. He was a sought after and welcomed collaborator and mentor within his own institution, the UMDNJ-New Jersey Medical School, and throughout the world. It would be difficult to find a research colleague, co-faculty member or trainee who is not reminded of the 5–10 min brief scientific question that ended an hour or two later, punctuated by Steve's hilarious scientific anecdotes and resulting in a new direction for research. We were not surprised to learn recently that, as an undergraduate at McGill, Steve wrote comedy, much of it satirical and philosophical, and performed in a comedy troupe. After winning a Canadian Broadcasting radio competition, he was offered a professional contract, which, to the benefit of science, he declined. Other scholarly roads that he traveled before those of psychology, neuroscience, and neuroimmunology, and which clearly contributed to his incisive and expansive science, included those of Genetics and Philosophy at McGill, and, in high school, the paths of Talmudic logic. As he completed college, Steve was accepted into a doctoral program in Philosophy. He also briefly considered going to law school. Fortunately for us, science won out over all. Steve, as a Canadian, naturally loved hockey and, growing up in Montreal, the Canadiens. He played on street hockey teams and in more formal leagues until a young adult. As an undergraduate, he coached a soccer team of underprivileged children from the league cellar to a championship. He wrote novels and short stories for fun, as well as to hone his writing skills. And Steve loved music. He loved classic rock and jazz and acquired an encyclopedic knowledge of those genres. He was a solid guitarist and hosted a popular night-time program on Radio McGill.

Steve was born in Montreal to very caring parents, survivors of the Holocaust who raised him and his sister Dorothy to love people and knowledge. After a rigorous Jewish Day School education and his undergraduate studies at McGill in Genetics and Philosophy, he elected to do another Bachelor's degree in Psychology, at the University of Ottawa. There he met the late Howard S. Rosenblatt, Professor of Psychology at the University of Hartford, a pivotal teacher and mentor, who encouraged Steve to complete a Master's in Neuroscience in Hartford. Steve then returned to Ottawa to pursue a Ph.D. in Psychology/Behavioral Neuroscience with Hymie

Anisman at Carleton University, with a focus on PNI. His graduate work resulted in some of the first reports on central changes in catecholamines during immune challenge and during stress-induced suppression of innate immunity. In 1990, Steve joined the laboratory of the late Arnold Greenberg at the University of Manitoba as a postdoctoral fellow. At Manitoba, he met Dwight Nance, a mentor and colleague with whom he developed a strong and continuing professional relationship. Dwight recalls Steve's arrival in the middle of the Manitoba winter, enthusiastic, with a head full of ideas. The lab was publishing on conditioning of responses to cytokines and other immune stimuli, on sympathetic innervation of immune organs, and on the brain effects of stress, pharmacologic and neuroanatomical manipulation, and immune activation. With his already established interest in the behavioral and neurochemical effects of cytokines, Steve undertook the first systematic examination of the differential effects of cytokines on central monoamines, and discovered the behavior activating effects of interleukins. This work served as the foundation for the research program that emerged through his career. In a typical (among Steve's favorite) elegant series of experiments, he demonstrated that IL-2 could enhance the plaque-forming-cell (PFC) response, that the effect was mediated by β -adrenergic receptors and that it was mediated via the sympathetic splenic nerve.

Following his post-doc, Steve returned briefly to Ottawa and then accepted a faculty position in the Department of Psychology at Concordia University in Montreal. In 1998, we had the great fortune of recruiting him to the Department of Psychiatry at the UMDNJ-New Jersey Medical School in Newark, where he established an exceptional basic science program in PNI. Steve was also active in the school's Interdisciplinary PhD program and in the Rutgers-UMDNJ Integrative Neuroscience Program, mentoring numerous pre-doctoral students and post-doctoral fellows. He became a key member of our largely clinical Department of Psychiatry, admired and sought after by clinical Residents as a teacher and research mentor, and appointed Director of Research in the department in 2009.

Steve's expertise, his respect for science and for colleagues, and his exceptional common sense made him a highly regarded member of NIH Study Sections and of the Editorial Board of BBI. His colleagues recall him as an outstanding champion of PNI research on study sections that often had only limited understanding of the

field. Important funded research in PNI might never have happened if not for Steve's erudite and articulate advocacy. And he stayed with the task, even at the cost of having less time for his own work. Keith Kelley, who served on an NIH study section with Steve and then asked him to serve on the editorial board of BBI in 2006, noted his insightful, inquisitive mind and his knack for recognizing good science, as well as his warm, welcoming smile and infectious love for biomedical research. Recently, Steve co-edited "The Neuroimmunological Basis of Behavior and Mental Disorders" with Allan Siegel, a fitting expression of the scope of his interests. His trail-blazing collaboration with Siegel on cytokines and aggression has transformed that field, most recently elucidating TNF-alpha effects on aggressive behavior. At the time of his death, Steve was especially excited about findings concerning effects of soluble IL-2 and IL-6 receptors on stereotypic behaviors and on the role of anti-streptococcus IgM and dopamine in mediating stereotypic movements. The first report, by Steve and his colleagues, on the specific role of IgM in precipitating unique behavioral disturbances is presented elsewhere in this issue of BBI (Zhang et al., 2012).

Steve Zalzman devoted himself fully and unconditionally to the people he loved, the activities he valued, and the ideas he cherished. He inspired those around him, opening many minds to new ways of thinking and perceiving. He was individualistic and meticulous, with an unquenchable curiosity and an elegant mind. He challenged conventions with intellectual and personal integrity. Steve was taken from us as he was approaching the peak of his career. Tragically, his creativity and productivity is now lost to the scientific, and especially the PNI, community. We have lost a great colleague and friend. Those of us who had the privilege of knowing him can only be grateful for that opportunity. Steve is survived by his sister and her family who live in Montreal. We will miss him greatly.

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