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Cancer Immunology Research
Illuminating the Interplay of Cancer and the Immune System
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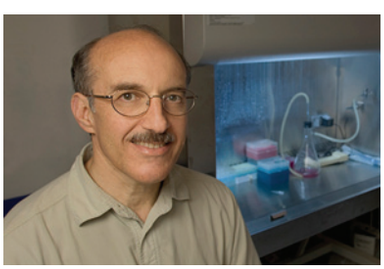
ABOUT THE COVER

Paul Ehrlich shared the 1908 Nobel Prize with Elie Metchnikoff for their contributions to immunology. Ehrlich described and named mast cells (MC, or, in German *mastzellen* for "well-fed cells") in his doctoral thesis in 1878, identifying them in human connective tissue as cells containing abundant intracellular granules that stain purple with certain aniline dyes. Ehrlich noted that MCs were particularly abundant in some human tumors. MCs are long-lived secretory cells derived from hematopoietic precursors that are found in small numbers in the blood but complete their differentiation and maturation in the microenvironments of almost all vascularized tissues. In addition to their known function as effector cells in antigen-induced anaphylaxis and other acute IgE-dependent allergic reactions, MCs have been proposed to have diverse immunomodulatory and several other functions, spanning many aspects of health, host defense, and disease. In tumor biology, individual products of MCs have been shown to have the potential to negatively or positively regulate such processes as the proliferation and survival of tumor cells, tumor-associated angiogenesis and tissue remodeling, metastasis and distant growth of tumor cells, and the ability of tumors to modulate the immune system.

The cover image is a photograph of Paul Ehrlich superimposed on a high-power photomicrograph of a specimen of infiltrating ductal carcinoma of the breast stained by immunohistochemistry to detect tryptase, which identifies mast cells as cells with intensely brown-stained cytoplasm. (The photomicrograph was provided by Matt van de Rijn and Norm Cyr of Stanford University.) For details, see the "Masters of Immunology" article by Marichal, Tsai, and Galli starting on page 269 of this issue.

ABOUT THE MASTER



Stephen J. Galli, MD, has been chair of the Department of Pathology, the Mary Hewitt Loveless, MD Professor, and a professor of pathology and of microbiology and immunology at Stanford University School of Medicine since February 1999. He received his BA in biology in 1968 from Harvard College, a BMS in 1970 from Dartmouth Medical School (then a two-year school), and the MD in 1973 from Harvard Medical School (HMS) and completed a residency in Anatomic Pathology at Massachusetts General Hospital (MGH) in 1977. After postdoctoral training with Harold F. Dvorak at MGH, he joined the HMS faculty in 1979 as assistant professor of pathology, became professor of pathology in 1993, and, until moving to Stanford in 1999, served as director of the Division of Experimental Pathology at Beth Israel Deaconess Medical Center and a faculty member of the HMS Graduate Program in Immunology.

Steve Galli's research focuses on the development and function of mast cells and basophils (the major effector cells of asthma and anaphylaxis) and the development of new animal models for studying the roles of these cells in health and disease. These models include so-called "mast cell knock-in mice" (i.e., genetically mast cell-deficient mice, bearing mutations affecting c-kit structure or expression, which have been selectively engrafted with wild type or genetically altered mast cells generated *in vitro*) and, more recently, mice rendered genetically deficient in mast cells and basophils by a mechanism that does not involve mutations affecting c-*kit*. The Galli group has used these models extensively in efforts to elucidate the roles of mast cells in health and disease.

Dr. Galli was president of the American Society for Investigative Pathology (ASIP; 2005–2006) and has been elected to the Pluto Club (Association of University Pathologists), the Collegium Internationale Allergologicum (for which he serves as president from 2010–2014), the American Society for Clinical Investigation, the Association of American Physicians, and the Institute of Medicine of the U.S. National Academies. He is also a foreign member of the Accademia Nazionale dei Lincei (National Academy of the Lynxes) in Rome, regarded as the oldest secular scientific society in the Western World.

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