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## Thomas J. Macvittie, PhD

Academic Title:

Professor

Primary Appointment:

Radiation Oncology

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## Education and Training

Biology, Alfred University, BS, Biology

State University of New York, MS, Natural Sciences/Radiation Biophysics

State University of New York, PhD, Radiation Biology

## Biosketch

Dr. MacVittie, is recognized internationally as an expert on the effects of radiation on the hematopoietic and gastrointestinal systems in large animal models and their treatment, in vivo, with supportive care and selected organ-specific medical countermeasures against acute and delayed effects of acute radiation exposure.

He earned M.S. and Ph.D. degrees in radiation biology at the State University of New York (SUNY) at Buffalo and has more than 40 years of experience as a radiobiologist in the field of experimental hematology. He has published 184 peer-reviewed manuscripts and 47 chapters in books or proceedings. He has co-edited 5 books published from international meetings organized on radiation effects and treatment of the ARS.

Dr. MacVittie has served as an advisor to the WHO Collaborating Centers in Radiation Emergency Medical Preparedness and Assistance and as a member of NATO Radiation Research Study groups. He was a member of a Task Group for the International Council on Radiation Protection entitled "Radiation Effects on Normal Tissue", the CDC Strategic National Stockpile Radiation Working Group, the American Society of Hematology, the International Society of Experimental Hematology and Radiation Research. Dr. MacVittie has served on the editorial board of the journal *Experimental Hematology* and is currently a member of the editorial board of the journal *Stem Cells* and serves as an ad hoc reviewer for numerous journals and National Institutes of Health and Department of Defense grants and contracts. Dr. MacVittie was invited by the Secretary, U.S. Department of Health and Human Services, to serve on the inaugural National Biodefense Science Board Federal Advisory Committee from 2007 to 2011.

His early work clearly demonstrated the efficacy of supportive care and hematopoietic growth factors on increasing lineage-specific cell recovery and survival in myelosuppressed and lethally irradiated large animal models. The MacVittie laboratory has the most extensive data base demonstrating the effect of cytokines on enhancing survival and recovery of hematopoiesis after total-body irradiation to include autologous stem cell transplantation and cytokine-induced mobilization of stem cells. The accumulated data base served as the focal point for recent efforts to design the initial "pivotal" trials under the FDA's "animal rule" to determine the treatment efficacy of neupogen and neulasta to treat potentially lethally irradiated personnel. These are the first two FDA-approved MCM (March and October, 2015) to treat the H-ARS.

Dr. MacVittie was the principal investigator of the recent sole research contract (\$50 million/five years from 2005-2015) awarded by NIAID to assess the efficacy and mechanism of action for Medical Countermeasures Against Radiological Threats (MCART). The MCART consortium had 15 research and administrative components in the United States and England. The MacVittie laboratory has recently developed an Animal Model Research Platform (focused on mouse and nonhuman primates) for the Acute Radiation Syndrome and the Delayed Effects of Acute Radiation Exposure that positions the MacVittie laboratory with the MCART Research Consortium to carry the lead in an integrated effort to develop the best products to treat radiation-induced hematopoietic and gastrointestinal sub-syndromes, immunosuppression, inflammation and lung injury in potentially lethally irradiated personnel.

## Research/Clinical Keywords

Radiation effects, acute radiation syndrome, delayed effects of acute radiation exposure, large animal models, medical management, medical countermeasures, FDA animal rule

## Highlighted Publications

1. MacVittie, T. J., Bennett A, Booth C, Tudor G, Garofalo M, Ward A, Shea-Donohue T, Jackson III W. (2012) The prolonged gastrointestinal syndrome in rhesus macaques: The relationship between gastrointestinal, hematopoietic and delayed multi-organ sequelae following acute radiation exposure. *J Health Phys.* 103(4):427-453.
1. Garofalo, M. C., Bennett, A., Farese, A. M., Ward, A. A., Taylor-Howell, C., Cui, W., Gibbs, A., Lasio, G., Jackson, W., MacVittie, T. J. (2014) The Delayed Pulmonary Syndrome Following Acute High-Dose Irradiation: A rhesus macaque model. *J Health Phys* 106(1):56-72.

1. Farese, AM, Cohen, MV, Katz, BP, Smith, CP, Gibbs, AM, Cohen, DM, MacVittie, TJ. (2013) Filgrastim Improves Survival in Lethally Irradiated Nonhuman Primates. Rad Research, 179(1):89-100

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