

MICHAEL G. HANNA, JR., Ph.D.

CHAIRMAN AND CHIEF EXECUTIVE OFFICER, VACCINOGEN, INC.

EDUCATION

Ph.D., Experimental Pathology and Immunology, University of Tennessee, 1964.

M.S., Biology, Notre Dame, 1960.

B.S., Biology, Baldwin-Wallace College, 1958.

BACKGROUND

2007 – Present	Chairman and Chief Executive Officer, Vaccinogen, Inc.
2002 – 2007	Chairman (Emeritus) and Chief Scientific Officer, Intracel Resources LLC (Reorganization of Intracel Corporation)
1998 - 2002	Chairman of the Board, President and Chief Scientific Officer, Intracel Corporation (Merge of PerImmune, Inc., and Intracel Corporation)
1994 - 1998	President and Chief Executive Officer, PerImmune, Inc. (Formerly, Organon Teknika/Biotechnology Research Institute)
1992 - 1994	Chief Operating Officer, Organon Teknika/Biotechnology Research Institute, Sr. Vice President, Organon Teknika Corporation, Rockville, Maryland.
1985 - 1992	Sr. Vice President, Organon Teknika Corporation; Director, Biotechnology Research Institute (formerly Litton Bionetics, Inc.), Rockville, Maryland.
1982 - 1985	Director, Litton Institute of Applied Biotechnology, Litton Bionetics, Inc., Rockville, Maryland.
1979 - 1982	Director, National Cancer Institute, Frederick Cancer Research Facility (NCI-FCRF), Operations Division, Litton Bionetics, Inc., Frederick, Maryland.

- 1975 - 1979 Director, Cancer Biology Program; Head, Host-Tumor Interaction Section, Cancer Biology Program, National Cancer Institute, Frederick Cancer Research Facility (NCI-FCRF), Frederick, Maryland.
- 1968 - 1975 Director, Immunobiology of Carcinogenesis Group, Biology Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.
- 1964 - 1968 Research Biologist, Biology Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.
- 1962 - 1964 Predoctoral Fellow, Oak Ridge Institute of Nuclear Studies, University of Tennessee, Knoxville, Tennessee.
- 1961 - 1962 Public Health Service Fellowship, University of Tennessee, Knoxville, Tennessee.
- 1960 - 1961 Teaching Fellowship, University of Tennessee, Knoxville, Tennessee.
- 1959 - 1960 AEC Research Fellowship, Notre Dame University, South Bend, Indiana.
- 1958 - 1959 Teaching Fellowship, Notre Dame University, South Bend, Indiana.

MEMBERSHIPS

- Society of Experimental Pathology
- American Association of Cancer Research
- American Association of Immunologists
- American Association of the Advancement of Science
- Reticuloendothelial Society
- Sigma Xi

HONORS

Delafield Lecturer, Columbia University College of Physicians and Surgeons, 1972.

General Editor, Contemporary Topics in Immunology, 1971-present.

Scientific Program Committee, American Association Cancer Research, 1972-1973.

Organizer, American Association of Immunologists' Annual Survey Course in Immunology, 1975-1981.

Co-chairman, Education Committee, American Association of Immunologists, 1978-1980.

Chairman, Education Committee, American Association of Immunologists, 1980-1982.

AAAS-Newcomb Cleveland Prize Selection Committee, 1981-1982.

Distinguished Oncologist Lecturer, Dayton Oncology Society, 1982.

Wadsworth Memorial Lecturer, Rush-Presbyterian-St. Luke's Medical Center, Rush Medical College, 1983.

Associate Editor, Cancer Research.

Editorial Board, Immunopharmacology.

Editorial Board, Journal of Metastases.

Editorial Board, Journal of Biological Response Modifiers.

International Editorial Board, "Advances in Immunity and Cancer Therapy," Springer-Verlag, New York, 1984.

Charles B. Thornton Advanced Technology Achievement Award, 1984.

Member, Board of Overseers, Center for Advanced Research in Biotechnology, 1984-1988.

Chairman, U.S. Dept. of Commerce, Biotechnology Advisory Committee, 1984-1986.

Member, U.S. Dept. of Commerce, Biotechnology Advisory Committee, 1984-1989.

Member, U.S. Dept. of Defense, Technology Working Group in Biotechnology, 1984-1989.

Member of Scientific Committee of the Society for Biological Therapy, 1987.

Elected to the Council of the International Society of Immunopharmacology, 1991-present.

Editor-in-Chief, *Vaccine Research*, 1991-1998.

Editorial Board Member, *Biotechnology and Applied Biochemistry*, 1995-present.

Trustee, Baldwin Wallace College Governing Board, 1999-present.

Honoree Doctor of Science Award and Commencement Speaker, Baldwin Wallace College, 2002.

Associate Editor, *Human Vaccines*, January 2005-present.

ISSUED PATENTS

Inventors: Nicholas Pomato, Ebo S. Bos, Janet H. Ransom, Michael G. Hanna, Jr.,
For: CTAA 28A32, The Antigen Recognized by MCA 28A32
Filed: April 1, 1993
Assignee: Akzo, N.V., Arnhem, The Netherlands
Present Status: Issued as U.S. Patent 5,521,285 on May 28, 1996

Inventors: Michael G. Hanna, Jr., et al. (Organon and Organon Teknika)
For: Active Specific Immunotherapy
Filed: November 1, 1993
Assignee: Akzo, N.V., Arnhem, The Netherlands
Present Status: Issued as U.S. Patent 5,484,596 on January 16, 1996

Inventors: Michael G. Hanna, Jr., et al. (Organon and Organon Teknika)
For: Tumor Associated Monoclonal Antibodies Derived from Human B-Cell Line
Filed: April 15, 1987
Assignee: Akzo, N.V., Arnhem, The Netherlands
Present Status: Issued as U.S. Patent 4,997,762 on March 5, 1991.

Inventors: Michael G. Hanna, Jr., et al. (Organon and Organon Teknika)
For: Tumor Specific Monoclonal Antibodies
Filed: January 31, 1985
Assignee: Akzo N.V., Arnhem, The Netherlands
Present Status: Issued as U.S. Patent 4,828,991 on May 9, 1989.

Inventors: Michael G. Hanna, Jr., et al. (Organon and Organon Teknika)
For: Tumor Specific Monoclonal Antibodies
Filed: January 25, 1989
Assignee: Akzo N.V., Arnhem, The Netherlands
Present Status: Issued as U.S. Patent 5,106,738 on April 21, 1992.

Inventors: Alvaro Morales (Kingston, Canada) and Michael G. Hanna, Jr. (Organon and Organon Teknika)
For: Urethral Catheter and Catheterization Process
Filed: Sept. 28, 1992
Serial No.: 589,721
Assignee: Akzo N.V., Arnhem, The Netherlands
Present Status: Issued as U.S. Patent 5,120,316 on June 9, 1992.

Inventors: Michael G. Hanna, Jr., et al. (Organon and Organon Teknika)
For: Tumor Specific Monoclonal Antibodies
Filed: January 22, 1991
Assignee: Akzo N.V., Arnhem, The Netherlands

Present Status: Issued as U.S. Patent 5,180,814 on January 19, 1993.

Inventors: Michael G. Hanna, Jr., et al. (Organon and Organon Teknika)
For: Antigen Recognized by MCA 16-88
Filed: August 13, 1992
Assignee: Akzo N.V., Velperweg, The Netherlands
Present Status: Issued as U.S. Patent 5,338,832 on August 16, 1994.

Inventors: Michael G. Hanna, Jr., et al. (Organon and Organon Teknika)
For: Tumor Associated Monoclonal Antibody 81AV/78
Filed: July 20, 1993
Assignee: Akzo N.V., Arnhem, The Netherlands
Present Status: Issued as U.S. Patent 5,348,880 on September 20, 1994.

Inventors: Michael G. Hanna, Jr., Martin V. Haspel, Herbert C. Hoover, Jr.,
Marie Elana Dembinsky, Barry J. Kobrin
For: Tumor Associated Monoclonal Antibodies
Filed: July 19, 1995
Assignee: Akzo N.V., Arnhem, The Netherlands
Present Status: Issued as U.S. Patent 5,474,755 on December 12, 1995

Inventors: Martin V. Haspel, Nicholas Pomato, Michael G. Hanna, Jr.
For: Sterile Immunogenic Non-Tumorigenic Tumor Cell Compositions
and Methods
Filed: February 21, 2003
Assignee: Intracel Resources, LLC
Present Status: Serial No. 10/370,081

PENDING PATENTS

Inventors: Nicholas Pomato, Michael G. Hanna, Jr.
For: A High Throughput Method for the Production and Manufacture of
Heptavalent De-Speciated Equine Serotherapeutic for Botulinum
Neurotoxin Intoxication
Filed:

Assignee: Intracel Resources, LLC
Present Status: Pending

EXPERIENCE

Dr. Michael G. Hanna, Jr., presently serves as Chairman and Chief Executive Officer of Vaccinogen, Inc. Dr. Hanna formed the Company and successfully licensed/acquired the OncoVAX related assets from Intracel in October 2007. Dr. Hanna is the founder of the OncoVAX technology which is the first vaccine to demonstrate efficacy for the post-surgical treatment of Stage II colon cancer. The Company is planning to initiate a pivotal Phase III clinical trial for OncoVAX for Stage II colon cancer and a Phase III trial for OncoVAX in combination with chemotherapy for Stage III colon cancer. Based upon the results of the Phase III clinical trials, the Company is preparing a Biologics License Application (BLA) for its OncoVAX cancer vaccine for the post-surgical treatment of Stage II colon cancer, the most common form of colon cancer.

Dr. Hanna served as Chairman (Emeritus) and Chief Scientific Officer of Intracel Resources, LLC (reorganization of Intracel Corporation) from 2002 to March 2007. Dr. Hanna previously served as Founder, Chairman and Chief Scientific Officer of Intracel Corporation, a biotechnology company with corporate headquarters in Rockville, Maryland, and manufacturing facilities in Issaquah, Washington. In January 1998, PerImmune, Inc. merged with Intracel Corporation.

Intracel was an integrated biopharmaceutical company focused on the development and commercialization of cancer vaccines and immunotherapeutic and diagnostic products for cancers and infectious diseases. In addition, the Company marketed a portfolio of in vitro diagnostic products and introduced a number of new diagnostic products for detecting and monitoring various cancers, AIDS and heart disease.

Under Dr. Hanna's direction the following progress was made regarding:

Business Strategy:

Restructured to focus on the development of immunotherapy products for the treatment of solid tumors.

Commercial manufacturing capability for autologous tumor vaccine products.

Progress during 2005 and 2006:

Established sterile manufacturing process for autologous cell-based products.

Received approval for a cGMP manufacturing facility by Dutch and Swiss Health Authorities.

Commercially launched OnxoVAX in Switzerland.

Completed pharmacoeconomic analysis, i.e., pricing below or competitive with approved therapies in colon cancer treatment.

Established a clear path to a pivotal study based on recent FDA meetings, i.e., revised clinical protocol with a three-year endpoint and automated FACS-based potency, identity and product characterization assays and release specifications in place.

FDA granted Intracel Special Protocol Assessment for a pivotal corroborative phase III study in Stage II colon carcinoma.

FDA granted Intracel Fast Track Designation for the Development its colon cancer vaccine.

Dr. Hanna served as Chief Operating Officer of Organon Teknika/Biotechnology Research and Sr. Vice President of Organon Teknika Corporation a subsidiary of Akzo Nobel, N.V., The Netherlands. This industry-supported internal research and development program is an instrument for technology transfer in the areas of molecular biology, genetic engineering, and immunology. It was established in 1982.

From July 1996 to January 1998, Dr. Hanna was the President and Chief Executive Officer of PerImmune, Inc. PerImmune was established through a management buy-out from Organon Teknika, a subsidiary of Akzo Nobel, N.V., The Netherlands. The Management buy-out executed by Dr. Hanna provided an extraordinary level of management ownership and company control. The buy-out was executed with a high level of flexibility in collateral agreements including fixed assets being free and clear after a short-term note is paid off and the ownership of all intellectual property including 24 U.S. issued patents and 17 U.S. Patent applications pending. These patents cover all technology products in PerImmune's development pipeline.

Under Dr. Hanna the following technological and commercial accomplishments have occurred:

The preclinical and clinical development of the concept of active specific immunotherapy for colon cancer, including completion of a prospectively randomized phase II study and establishment and completion of two multicenter phase III studies. Results aimed toward submission of a new treatment BLA to the FDA. Application for other tumors (renal cell and melanoma) underway.

Securing the license for Tice BCG from the University of Illinois, renovation, and regulatory approval of the manufacturing facility, and submission of PLA for Tice BCG for treatment of CIS bladder cancer to the FDA. Worldwide registration was achieved in 1991 and it is a licensed product reaching \$40 million in annual sales.

Development, screening, production, and phase I-III clinical testing of a variety of human monoclonal antibodies to several solid cancers. Application for radioimmunoscintigraphy of colorectal cancer completed with registration applications to be submitted in 1997. European approval obtained in 1998 with FDA approval expected in 1998. Phase I and phase II clinical studies presently underway with radioisotope and drug-conjugated human monoclonal antibodies for other in vivo diagnostic and therapeutic application.

Development of Salmonella, Listeria, and hemorrhagic E. Coli EIA tests for the food industry. Present market 6 million in sales in 1995.

Basic research and genetic engineering of a novel anti-cancer cytokine (Leukoregulin).

Establish over \$10 million in government and corporate contracts, \$3 million in product sales, and over \$10 million in IR&D operation.

Prior to this position, Dr. Hanna served as the Director of the Frederick Cancer Research Facility (NCI-FCRF), located in Frederick, Maryland, a position he assumed in 1979. As Director, he was principal investigator of an internationally recognized center for cancer research founded in 1972, which grew to a unique complex of laboratories with a broad base of activities ranging from fundamental investigator-initiated research to developmental and applied research. The facility, operated for the National Cancer Institute, NIH, by Litton Bionetics, Inc., had approximately 800 full- and part-time employees, among whom 132 held doctorate degrees.

Under Dr. Hanna's leadership, several accomplishments in the operation of the NCI-FCRF occurred:

Renovation and occupancy of an additional 120,915 square feet of laboratory, animal holding, and administrative office space, bringing the total to 813,208 square feet at the Frederick facility, maintained and operated by Litton Bionetics, Inc.

Development and implementation of a strong Intramural Support Program capable of accommodating the NIH/NCI Intramural programs at Frederick.

Expansion of the Fermentation Laboratories, both physical plant and labor effort, for the production of daunorubicin and interferon.

Strengthening of centralized finance function which developed operation budgets for the second and third year operations at a flat \$23.7 million with no decrease in the scientific level of effort, despite a high inflation rate.

Received Facility-wide AAALAC accreditation for the NCI-FCRF Animal Production and Animal Holding Facilities.

Developed centralized media production and serum distribution programs at Frederick that resulted in substantial cost savings.

Developed a laboratory-wide cost savings incentive program financially sponsored by Litton Bionetics for the identification of cost-effective and/or more efficient methods of operation.

Installation of the Biological Response Modifiers Program which placed heavy demands on the support activities at Frederick for the renovations of building 567, the subcontract with the Frederick Memorial Hospital, and the procurement of major scientific and clinical equipment within a short time.

Prior to this position, he was Director of the Cancer Biology Program, NCI-FCRF, an appointment which came about as a result of a 1973 decision by the National Cancer Advisory Board (NCAB). An NCAB subcommittee, created to review the NCI-FCRF, recommended that a strong commitment to basic research be made at the Facility under the "direction of a scientist of high repute and acknowledged leadership in cancer research." Dr. Hanna was selected for this position and became the Director of Basic Research at the NCI-FCRF in 1975. In this position, Dr. Hanna successfully recruited and implemented at the NCI-FCRF a basic cancer research program consisting of approximately 200 professionals, which rapidly became internationally recognized as a center of "research excellence." He held this position until 1979 when he became Director of the Facility.

In addition to being Director of the NCI-FCRF, Dr. Hanna was also a principal investigator and Head of the Immunotherapy Section of the Cancer Metastasis and Treatment Laboratory. His personal research developed from basic immunology and experimental pathology. His laboratory investigations on

relevant animal model studies have provided an understanding of the mechanisms of host control of tumors and are the basis for clinical trials of immunotherapeutic approaches by collaborators in several medical institutions.

Before his arrival in Frederick, Dr. Hanna was the Head of the Immunobiology of Carcinogenesis Group at the Oak Ridge National Laboratory, having been a research immunologist in the Biology Division at Oak Ridge from 1964 to 1968.

PUBLICATIONS

Hanna, M.G., Jr. An autoradiographic study of the germinal centers in white spleen pulp during early intervals of the immune response. *Lab. Invest.* 13:95, 1964.

Hanna, M.G., Jr. An autoradiographic and histologic study of spleen white pulp germinal centers during early intervals of the primary immune response. ORNL-3595, UC-48-Biology and Medicine: 1-102, 1964. Doctoral Dissertation, University of Tennessee, Knoxville, 1964.

Hanna, M.G., Jr. Germinal center changes and plasma cell reaction during the primary immune response. *Int. Arch. Allergy*, 26:230, 1965.

Hanna, M.G. Jr., Wust, C.J. Actinomycin D effect on the primary immune response in mice. *Lab Invest.*, 14:272, 1965.

Swartzendruber, D.C., Hanna, M.G., Jr. Electron microscopic autoradiography of germinal center cells in mouse spleen. *J. Cell Biol.*, 25:109, 1965.

Wust, C.J., Hanna, M.G., Jr. Time relationship of injection of Actinomycin D and antigen to the immune response. *Proc. Soc. Exp. Biol. Med.*, 118:1027, 1965.

Kastenbaum, M.A., Hanna, M.G., Jr. Statistical analysis of autoradiographic and histologic data. *Arch. Pathol.*, 79:462, 1965.

Hanna, M.G., Jr., Swartzendruber, D.C., Congdon, C.C. Morphologic changes in spleen lymphatic tissue during antibody production. *Exp. Mol. Pathol.*, 3:75, 1966.

Hanna, M.G., Jr., Congdon, C.C., Wust, C.J. Effect of antigen dose on lymphatic tissue germinal center changes. *Proc. Soc. Exp. Biol. Med.*, 121:286, 1966.

Wust, C.J., Hanna, M.G., Jr. The effect of Actinomycin D on the immune response to two antigens given in sequence. *J. Reticuloendothel. Soc.*, 3:415, 1966.

Congdon, C.C., Hanna, M.G., Jr. Comparison of existing theories on the function of germinal centers. *In* *Germinal Centers in Immune Responses*. H. Cottier, N. Odartchenko, R. Schindler, C.C. Congdon, eds. Springer-Verlag, 1967, pp. 1-3.

Hanna, M.G., Jr., Makinodan, T., Fisher, W.D. Lymphatic tissue germinal center localization of ¹²⁵I-labeled heterologous and isologous macroglobulin. *In* *Germinal Centers in Immune Responses*. H. Cottier, N. Odartchenko, R. Schindler, C.C. Congdon, eds. Springer-Verlag, 1967, pp. 86-94.

Hanna, M.G., Jr., Swartzendruber, D.C., Congdon, C.C. Morphological and autoradiographic studies of spleen white pulp germinal centers after antigen injection. *In* *Germinal Centers in Immune Responses*. H. Cottier, N. Odartchenko, R. Schindler, C.C. Congdon, eds. Springer-Verlag, 1967, pp. 181-198.

Hanna, M.G., Jr., Nettesheim, P., Ogden, L., Makinodan, T. Reduced immune potential of aged mice: Significance of morphological changes in lymphatic tissue. *Proc. Soc. Exp. Biol. Med.*, 125:822, 1967.

Hanna, M.G., Jr., Nettesheim, P., Fisher, W.D., Peters, L.C., Francis, M.W. Serum alpha globulin fraction: Survival-and-recovery effect in irradiated mice. *Science*, 157:1458, 1967.

Szakai, A.K., Hanna, M.G., Jr. The ultrastructure of antigen localization and virus-like particles in mouse spleen germinal centers. *Exp. Mol. Pathol.*, 8:75, 1968.

Hanna, M.G., Jr., Francis, M.W., Peters, L.C. Studies of ¹²⁵I-labeled antigen localization in mouse spleen germinal centers: Effects of competitive injection of specific or non-crossing-reacting antigen. *Immunology*, 15:75, 1968.

Nettesheim, P., Hanna, M.G., Jr., Fisher, W.D. Further studies on the effect of serum γ -macroglobulin on regeneration of hemopoietic tissue after X-irradiation. *Radiat. Res.*, 35:378, 1968.

Hanna, M.G., Jr., Szakal, A.K. Localization of ^{125}I -labeled antigen in germinal centers of mouse spleen: Histologic and ultrastructure autoradiologic studies of the secondary immune reaction. *J. Immunol.*, 101:949, 1968.

Hanna, M.G., Jr., Nettesheim, P., Walburg, H.E., Jr. A comparative study of the immune reaction in germfree and conventional mice. *In* *Advances in Experimental Medicine and Biology*, Vol. 3. Gnotobiology: Experimental and Clinical Aspects. E.S. Mirand, N.W. Back, eds., Plenum Press, 1968, pp. 237-248.

Hanna, M.G., Jr., Szakal, A.K., Walburg, H.E., Jr. The relation of antigen and virus localization to the development and growth of lymphoid germinal centers. *In* *Advances in Experimental Medicine and Biology*, Vol. 5: Lymphatic Tissue and Germinal Centers in Immune Response. L. Fiore-Donati, M.G. Hanna, Jr., eds. Plenum Press, 1969, pp. 149-165.

Nettesheim, P., Hanna, M.G., Jr. Radiosensitivity of the antigen-trapping mechanism and its relation to the suppression of the immune response. *In* *Advances in Experimental Medicine and Biology*, Vol. 5: Lymphatic Tissue and Germinal Centers in Immune Response. L. Fiore-Donati, M.G. Hanna, Jr., eds. Plenum Press, 1969, pp. 167-175.

Hanna, M.G., Jr., Nettesheim, P., Francis, M.W. Requirement for continuous antigenic stimulation in the development and differentiation of antibody forming cells: The effect of passive antibody on the primary and secondary response. *J. Exp. Med.*, 129:953, 1969.

Hanna, M.G., Jr., Francis, M.W. Specific inhibition of immunocompetence. *Nature*, 223:1161, 1969.

Hanna, M.G., Jr., Szakal, A.K., Tyndall, R.L. Murine leukemia virus localization in lymphatic germinal centers: Relation between immune response and leukemo-genesis. *In* *Immunity and Tolerance in Oncogenesis*. L. Severi, ed. Div. Cancer Res., Perugia, 1970, pp. 661-685.

Hanna, M.G., Jr., Peters, L.C. The effect of antigen competition on both the primary and secondary immune capacity in mice. *J. Immunol.*, 104:166, 1970.

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Mazur, P., Liebo, S.P., Farrant, J., Chu, E.H.Y., Hanna, M.G., Jr., Smith, L.H. Interactions of cooling rate, warming rate, and protective additive on the survival of frozen mammalian cells. In *The Frozen Cell*, CIBA Symp. 70. G.E.W. Wolstenholme, ed. Churchill, 1970, pp. 69-88.

Hanna, M.G., Jr., Szakal, A.K., Tyndall, R.L. Histoproliferative effect of Rauscher leukemia virus on lymphatic tissue. I. Histologic and ultrastructural studies of germinal centers and their relation to leukemogenesis. *Cancer Res.*, 30:1748, 1970.

Nettesheim, P., Hanna, M.G., Jr., Doherty, D.G., Newell, R.F., Hellman, A. Effects of chronic exposure to artificial smog and chromium oxide dust on the incidence of lung tumors in mice. *In* Inhalation Carcinogenesis. Proceedings of a Conference held in Gatlinburg, Tennessee, October 8-11, 1969. AEC Symposium Series No. 19 (CONF-691001). M.G. Hanna, Jr., P. Nettesheim, J.R. Gilbert, eds., 1970, pp. 305-317.

Hanna, M.G., Jr., Walburg, H.E., Jr., Tyndall, R.L., Snodgrass, M.J. Histoproliferative effect of Rauscher leukemia virus on lymphatic tissue. II. Antigen-stimulated germfree and conventional BALB/c mice. *Proc. Soc. Exp. Biol. Med.*, 134:1132, 1970.

Snodgrass, M.J., Hanna, M.G., Jr. Histoproliferative effect of Rauscher leukemia virus on lymphatic tissue: III. Alterations in the thymic-dependent area induced by the passenger lactic dehydrogenase virus. *J. Natl. Cancer Inst.*, 45:741, 1970.

Nettesheim, P., Hanna, M.G., Jr., Doherty, D.G., Newell, R.F., Hellman, A. Effect of chronic exposure to air pollutants on the respiratory tracts of mice: Histopathological findings. *In* Morphology of Experimental Respiratory Carcinogenesis. AEC Symposium Series No. 21. P. Nettesheim, M.G. Hanna, Jr., J.W. Deatherage, Jr., eds., 1970, pp. 437-448.

Hanna, M.G., Jr., R.L. Hunter. Localization of antigen and immune complexes in lymphatic tissue with special reference to germinal centers. *In* Advances in Experimental Medicine and Biology, Vol. 12: Morphological and Functional Aspects of Immunity. K. Lindahl-Kiessling, G. Alm, M.G. Hanna, Jr., eds. Plenum Press, 1971, pp. 257-280.

Hanna, M.G., Jr., Nettesheim, P., Snodgrass, M.J. Decreasing immune competence and development of reticulum cell sarcomas in lymphatic tissue of aged mice. *J. Natl. Cancer Inst.*, 46:809, 1971.

Hanna, M.G., Jr., Peters, L.C. Requirement for continuous antigenic stimulation in the development and differentiation of antibody-forming cells: Effect of antigen dose. *Immunology*, 20:707, 1971.

Hanna, M.G., Jr., Tennant, R.W., Coggin, J.H., Jr. Suppressive effect of immunization with mouse fetal antigens on growth cells infected with leukemia virus and on plasma cell tumors. *Proc. Natl. Acad. Sci. USA*, 68:1748, 1971.

Hanna, M.G., Jr., Nettesheim, P., Peters, L.C. Evidence of functional micro-environments in lymphatic tissue response to antigen. *Nature New. Biol.*, 232:204, 1971.

Nettesheim, P., Hanna, M.G., Jr., Doherty, D.G., Newel, R.F., Hellman, A. Effect of calcium chromate dust, influenza virus infection and 100 R whole-body X-irradiation on lung tumor incidence in mice. *J. Natl. Cancer Inst.*, 47:1129, 1971.

Hanna, M.G., Jr., Tennant, R.W., Coggin, J.H., Treber, J. Immunization with mouse fetal antigens: Suppressive effect on growth of leukemia virus infected cells and on plasma cells tumors. *In Proc. First Conference and Workshop on Embryonic and Fetal Antigens in Cancer.* N.G. Anderson, J.H. Coggin, Jr., eds. USAEC, 1971, pp. 267-278.

Tennant, R.W., Hanna, M.G., Jr., Thompson, S.A. Cytotoxicity of fetal-primed spleen cells against cell cultures infected with Moloney leukemia virus. *In Proc. First Conference and Workshop on Embryonic and Fetal Antigens in Cancer.* N.G. Anderson, J.H. Coggin, Jr., eds. USAEC, 1971, pp. 249-256.

Hanna, M.G., Jr., Szakal, A.K., Tennant, R.W. Interaction of RNA tumor viruses and the immune system. *Proc. 2nd Int. Congress for Virology, 1971.* J.L. Melnick, ed., Karger, AGT, Basel, 1972, pp. 312-315.

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Snodgrass, M.J., Lowrey, D., Hanna, M.G., Jr. Changes induced by lactic dehydrogenase virus in thymus and thymus-dependent areas of lymphatic tissue. *J. Immunol.*, 108:877, 1972.

Hanna, M.G., Jr., Zbar, B., Rapp, H.J. Histology of tumor regression following intralesional injection of Mycobacterium bovis (BCG). I. Tumor growth and metastasis. *J. Natl. Cancer Ins.*, 48:1441, 1972.

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Mycobacterium bovis (Bacillus Calmette-Guerin). J. Natl. Cancer Inst., 49:119, 1972.

Salinas, F.A., Smith, J.A., Hanna, M.G., Jr. Modification of the spleen colony-forming assay to demonstrate immunologic cross-reactivity of antigens common to tumor and fetal cells. In Embryonic and Fetal Antigens in Cancer, Vol. 2., N.G. Anderson, J.H. Coggin, Jr., E. Cole, J.W. Holleman, eds., USAEC, 1972, pp. 187-191.

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