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Ray A. Matulka, Ph.D.

CURRICULUM VITAE

**Burdock Group
Orlando, Florida**

2003 – Present

Director of Toxicology

Dr. Matulka provides the safety and toxicity evaluation of data from drugs, foods, food additives and contaminants. He imparts safety and toxicity information to various clients including corporations, law firms and individuals for regulatory petitions, Generally Recognized As Safe (GRAS) petitions and/or notifications. Dr. Matulka generates a number of technical reports as a consultant and as a scientist.

**University of North Carolina-Chapel Hill
U.S.EPA/RTP, North Carolina.**

1999-2003

Postdoctoral Toxicologist, Curriculum in Toxicology

Dr. Matulka determined the effects of immunosuppressive drugs on the developing immune system of pre- and post-natal subjects in a rodent model system. His responsibilities included working with ELISAs, flow cytometry, ribonuclease protection assays and *in vivo* immunoassays. He wrote both the preliminary grant application and full grant proposal to the American Chemical Council; both were accepted. Dr. Matulka also supervised a part-time employee.

**Genesys Research, Inc.
RTP, North Carolina**

1998-1999

Senior Genetic Toxicologist.

Dr. Matulka conducted research on a novel variation of the Mouse Lymphoma Cell Mutagenesis Assay for a Small Business Innovation Research grant, which resulted in the submission of a Phase II grant. He was instrumental in conducting *in vivo* bone marrow mouse mutagenesis assays. He gained experience in Ames and standard mouse lymphoma mutagenesis assays, which were completed under rigorous GLP standards. Dr. Matulka supervised laboratory personnel, and reviewed study reports.

**Boston University School of Medicine, Dept. of Environmental Health
Boston, MA**

1995–1998

Postdoctoral Fellow.

Dr. Matulka deciphered the effects of polycyclic aromatic hydrocarbons (PAH) on the signaling pathways leading to the apoptosis of preB (immature) lymphocytes. His primary project consisted of the determination of the effects of cytochrome P-450 inhibitors and inducers on the apoptosis of preB cells when exposed to PAH, to determine if reactive oxygen species might be involved in this specific apoptotic pathway. Dr. Matulka worked in a team setting to develop methods to determine which factors released from stromal cells may be responsible for the apoptosis of the preB cells. This research required extensive use of immunofluorescence staining and flow cytometry, cell sorting, culturing of primary bone marrow cultures from mice, use and breeding of AhR knockout mice, extended cell culture techniques, DNA gels, Southern and Western blotting and analyzing *in situ* hybridization results.

**Medical College of Virginia/Virginia Commonwealth University
Richmond, VA**

1992-1994

Research Technician

Supervisor: Kate Nicholson, DVM. Research focus: Mr. Matulka facilitated the determination of the effects of chemical stimuli on the behavioral studies and reaction times of large primates. His primary responsibilities included the care and maintenance of large primates, administration of study drugs and acquisition of data results.

**Medical College of Virginia/Virginia Commonwealth University
Richmond, VA**

1990-1995

Graduate Research Assistant

Mr. Matulka's primary project was based on the determination of the neuro-immunological and toxicological effects of cocaine in a murine animal system. His research required various immunological techniques (ELISA, plaque assay, reverse plaque assay, immunofluorescence staining and flow cytometry and radioimmunoassay), functional bioassays, Western blotting, extended cell culture, histology, the handling of controlled substances and extensive rodent handling.

**Nebraska Department of Environmental Control
Lincoln, NE**

1988-1990

Laboratory Technician.

Supervisor: Saiid Dabestani, Ph.D. Focus: Mr. Matulka analyzed environmental pollutant concentrations in effluent wastewater, drinking wells, area lakes and streams, and hazardous waste sites (Superfund Sites). Job responsibilities included utilizing an Atomic Absorption Unit, Gas Chromatograph, HPLC, Spectrometer, as well as bacterial culture of water contaminants and various extraction processes. Mr. Matulka also jointly supervised up to four undergraduate work-study students, maintaining efficient functioning of the lab.

EDUCATION

Ph.D. Pharmacology and Toxicology. Medical College of Virginia (MCV)/Virginia Commonwealth University (VCU), Richmond, VA. 1995

BA. Chemistry and Biology. University of Nebraska-Lincoln, Lincoln, NE. 1990

PROFESSIONAL ORGANIZATIONS MEMBERSHIPS

Society of Toxicology, Full Member

AWARDS AND HONORS

NIEHS Predoctoral Fellowship, MCV/VCU, 1991-1994.

Society of Toxicology, Immunotoxicology Specialty Section Student Presentation Award, 1994.

RESEARCH PAPERS

Dolan LC, Gietl E, La Cognata U, Landschütze V, Ann Marone P, **Matulka RA**. Safety evaluation of fibermalt. *Food and Chemical Toxicology*. 2012 Jul;50(7):2515-23. doi: 10.1016/j.fct.2012.03.081. Epub 2012 Apr 9.

Szabo NJ, **Matulka RA**, Kiss L, Licari P. Safety evaluation of a high lipid Whole Algalin Flour (WAF) from *Chlorella protothecoides*. *Regulatory Toxicology and Pharmacology*. 2012 Jun;63(1):155-65. doi: 10.1016/j.yrtph.2012.03.011. Epub 2012 Mar 28.

Dolan LC, **Matulka RA**, Burdock GA. Naturally occurring food toxins. *Toxins (Basel)*. 2010 Sep;2(9):2289-332. doi: 10.3390/toxins2092289. Epub 2010 Sep 20.

Dolan, LC. and **Matulka, RA**. (2010). Coloring options. *Prepared Foods*, July issue, p. 87- 92.

Williams LD, Burdock GA, Shin E, Kim S, Jo TH Jones KN, **Matulka RA**. Safety studies conducted on a proprietary high-purity aloe vera inner leaf fillet preparation, Qmatrix®. *Regulatory Toxicology and Pharmacology*. 2010 [Epub ahead of print] 2010 Jan 22.

Matulka RA, Matsuura I, Uesugi T, Ueno T, Burdock G. Developmental and reproductive effects of SE5-OH: an equol-rich soy-based ingredient. *Journal of Toxicology*. 2009 Epub 2008 Dec 15.

Matulka RA, Lyon MR, Wood S, Ann Marone P, Merkel DJ, Burdock GA. The safety of PolyGlycopleX (PGX) as shown in a 90-day rodent feeding study. *Nutrition Journal*. 2009 Jan 16;8-1.

Matulka RA, Thompson DV, Burdock GA. Lack of toxicity by medium chain triglycerides (MCT) in canines during a 90-day feeding study. *Food and Chemical Toxicology*. 2009 Jan;47(1):35-9.

Magnuson BA, Appleton J, Ryan B, **Matulka RA**. Oral developmental toxicity study of methylsulfonylmethane in rats. *Food and Chemical Toxicology*. 2007 Jun;45(6):977-84. Epub 2006 Dec 13.

Griffiths JC, **Matulka RA**, Power, R. Genotoxicity studies on Sel-Plex, a standardized, registered high-selenium yeast. *International Journal of Toxicology*. 2006 Nov-Dec;25(6):477-85.

Griffiths JC, **Matulka RA**, Power R. Acute and subchronic toxicity studies on Sel-Plex, a standardized, registered high-selenium yeast. *International Journal of Toxicology*. 2006 Nov-Dec;25(6):465-76.

Matulka RA, Noguchi O, Nosaka N. Safety evaluation of a medium- and long-chain triacylglycerol oil produced from medium-chain triacylglycerols and edible vegetable oil. *Food and Chemical Toxicology*. 2006 Sep;44(9):1530-8. Epub 2006 Apr 25.

Matulka, RA. Understanding Ingredient Consumption Analysis. *Natural Products Industry Insider*. Vol. 10 (8): 46-47. 2005.

Matulka, RA, Hood, AM, and Griffiths, JC. Safety Evaluation of a Natural Tomato Oleoresin Extract Derived From Food-Processing Tomatoes. *Regulatory Toxicology and Pharmacology* 39: 390-402. 2004.

Allan LL, Mann KK, **Matulka RA**, Ryu HY, Schlezinger JJ, Sherr DH. Bone marrow stromal-B cell interactions in polycyclic aromatic hydrocarbon-induced pro/pre-B cell apoptosis. *Toxicological Sciences*. 2003 Dec;76(2):357-65. Epub 2003 Sep 26.

Rooney AA, **Matulka RA**, Luebke RW. Developmental atrazine exposure suppresses immune function in male, but not female Sprague-Dawley rats. *Toxicological Sciences*. 2003 Dec;76(2):366-75. Epub 2003 Sep 26.

Trombino, AF, Near, RI, **Matulka, RA**, Yang, S, Hafer, LJ, Toselli, PI, Kim, DW, Rogers, AE, Sonenshein, GE, and Sherr, DH. Expression of the Aryl Hydrocarbon Receptor/Transcription Factor (AhR) and AhR-Regulated CYP1 Gene Transcripts in a Rat Model of Mammary Tumorigenesis. *Breast Cancer Research and Treatment*. 63(2): 117-131. 2000.

Mann, K., **Matulka, R.A.**, Taghizadieh, K., Lafleur, A., Lawrence, B.P., Kerkvliet, N. and Sherr, D.H.: The role of polycyclic aromatic hydrocarbon metabolism in dimethylbenz[a]anthracene-induced pre-B lymphocyte apoptosis. *Toxicology and Applied Pharmacology* 1999; 161(1): 10-22.

Near, R.I., **Matulka, R.A.**, Mann, K.K., Gogate, S.U., Trombino, A.F. and Sherr, D.H.: Regulation of preB cell apoptosis by aryl hydrocarbon receptor/transcription factor-expressing stromal/adherent cells. *Proceedings of the Society for Experimental Biology and Medicine* 1999; 221(3): 242-252.

Matulka, R.A., Morris, D.L., Wood, S.W., Kaminski, N.E. and Holsapple, M.P.: Characterization of the role played by antigen challenge in the suppression of the *in vivo* humoral immunity by 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). *Archives of Toxicology* 1997; 72(1):45-51.

Cui, H., Matsui, K., Omura, S., Schauer, S.L., **Matulka, R.A.**, Sonenshein, G.E. and Ju, S.T.: Proteasome regulation of activation-induced T cell death. *Proceedings of the National Academies of Science USA* 1997; 94: 7515-7520.

Yamaguchi, K., Near, R.I., **Matulka, R.A.**, Shneider, A., Toselli, P., Trombino, A. and Sherr, D.H.: Activation of the aryl hydrocarbon receptor/transcription factor in bone marrow stromal cells results in stromal cell-dependent, preB cell apoptosis. *Journal of Immunology* 1997; 158(5):2165-73.

Jeong, T.C., Jordan, S.D., **Matulka, R.A.**, Stanulis, E.D., Park, S.S. and Holsapple, M.P.: Immunosuppression induced by acute exposure to cocaine is dependent on metabolism by cytochrome P-450. *Journal of Pharmacology and Experimental Therapeutics* 1996; 276(3):1257-1265.

Kump, D.F., **Matulka, R.A.**, Burton, G.F., Jordan, S.D. and Holsapple, M.P.: Alternations in splenocyte and thymocyte subpopulations in B6C3F1 mice exposed to cocaine plus diazinon. *Journal of Pharmacology and Experimental Therapeutics* 1996; 277(3): 1477-85.

Karras, J.G., Morris, D.L., **Matulka, R.A.**, Kramer, C.M. and Holsapple, M.P.: 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) elevates basal B-cell intracellular calcium concentration and suppresses surface Ig- but not CD40-induced antibody secretion. *Toxicology and Applied Pharmacology* 1996; 137(2):275-84.

Matulka, R.A., Jordan, S.D., Jeong, T.C. and Holsapple, M.P.: Evaluation of sex- and strain-dependency of cocaine-induced immunosuppression in B6C3F1 and DBA/2 mice. *Journal of Pharmacology and Experimental Therapeutics* 1996; 279(1): 12-7.

Stanulis, E.D., **Matulka, R.A.**, Jordan, S.D., Rosecrans, J.A. and Holsapple, M.P.: Role of Corticosterone in the enhancement of the antibody response after acute cocaine administration. *Journal of Pharmacology and Experimental Therapeutics* 1996; 280(1): 284-91.

Jeong, T.C., **Matulka, R.A.**, Jordan, S.D., Yang, K.H. and Holsapple, M.P.: Role of metabolism in cocaine-induced immunosuppression in splenocyte cultures from B6C3F1 female mice. *Immunopharmacology* 1995; 29(1):37-46.

Jeong, T.C., Jordan, S.D., **Matulka, R.A.**, Stanulis, E.D., Kaminski, E.J. and Holsapple, M.P.: Role of metabolism by esterase and cytochrome P-450 in cocaine-induced suppression of the antibody response. *Journal of Pharmacology and Experimental Therapeutics* 1995; 272:407-416.

Kump, D.F., **Matulka, R.A.**, Edinboro, L.E., Poklis, A. and Holsapple, M.P.: Disposition of cocaine and norcocaine in blood and tissues of B6C3F1 mice. *Journal of Analytical Toxicology* 1994; 18:342-345.

CHAPTERS

Holsapple, M.P., **Matulka, R.A.**, Stanulis, E.D., Kaminski, E.J. and Jordan, S.D.: Cocaine-induced changes in immunocompetence are indirect consequences of exposure. In: *NIDA Research Monographs*, 1994.

Holsapple, M.P., **Matulka, R.A.**, Stanulis, E.D. and Jordan, S.D.: Cocaine and immunocompetence: Possible role of reactive metabolites. In: *Drugs of Abuse, Immunity and AIDS*. (ed. by H. Friedman and T. Klein; Plenum Publishing Co., New York, NY). *Adv. Exp. Med. Biol.* 335:121-126, 1993.

RECENT ABSTRACTS

Risk assessment of oleic acid as a food ingredient. Matulka, R.A. and Burdock, G.A. Burdock Group, Orlando, FL 32801 USA. Institute of Food Technologists, Annual Meeting and Food Expo, Anaheim, California. June, 2009.

Risk assessment of dandelion root extract solid as a food ingredient. Matulka, R.A. Burdock Group, Orlando, FL 32801 USA. 48th Annual SOT Meeting, Baltimore, Maryland. March, 2009.

Assessment of the toxicity and mutagenicity of a novel soluble polysaccharide. Matulka, R.A., Burdock, G.A., Wood, S., Lyon, M. and Marone, P.A. Burdock Group, Orlando, FL 32801 USA. 48th Annual SOT Meeting, Baltimore, Maryland. March, 2009.

Pharmacokinetic and developmental safety studies of methylsulfonylmethane in rats. Matulka, R.A. and Magnuson, B.A. Burdock Group, Vero Beach, FL 32960 USA. 46th Annual SOT Meeting, Charlotte, North Carolina. March, 2007.

Safety evaluation of a natural tomato oleoresin extract derived from food processing tomatoes. **Matulka, R.A.**, Hood, A.M., and Griffiths, J.C. Burdock Group, Vero Beach, FL 32962 USA. 43rd Annual SOT Meeting, Baltimore, Maryland. March, 2004.

Perinatal exposure to the pesticide heptachlor produces alterations in immune function parameters in Sprague Dawley rats. **Matulka, R.A.**¹, Rooney, A.A.³, Williams, W.², Copeland, C.B.² and Smialowicz, R.J.² ¹Curriculum in Toxicology, UNC, RTP, NC; ²ITB, ETD, NHEERL, USEPA, RTP, NC, USA; ³Dept. Anat Phys Sci and Radiology, NCSU/USEPA, Raleigh, NC, USA. 42nd Annual SOT Meeting, Salt Lake City, Utah. March, 2003.

Perinatal exposure to atrazine suppresses juvenile immune function in male, but not female Sprague-Dawley rats. Rooney, A.A.², Luebke, R.W.¹ and **Matulka, R.A.**³. ¹USEPA, RTP, NC, USA; ²Dept. Anat Phys Sci and Radiology, NCSU/USEPA, Raleigh, NC; ³Curriculum in Toxicology, UNC, Chapel Hill, NC. 42nd Annual SOT Meeting, Salt Lake City, Utah. March, 2003.

Identification of the age at which Immunotoxicological parameters can be evaluated in rats. **Matulka, R.A.**¹ and Smialowicz, R.J.² ¹Curriculum in Toxicology, UNC, Chapel Hill, NC and ²ITB, ETD, USEPA, Research Triangle Park, NC. 41st Annual SOT Meeting, 2002.