Radu Marches, Ph.D.
The Jackson Laboratory for Genomic Medicine
radu.marches@jax.org
860-856-2418 (office)
972-859-0962 (cell)

EDUCATION

Doctorate Degree (Ph.D.), Major: Biochemistry, Institute of Biochemistry, Bucharest, Romania
Bachelor of Science (B.Sc.), Major: Biochemistry, Polytechnic Institute, Bucharest, Romania

PROFESSIONAL EXPERIENCE

ASSOCIATE RESEARCH SCIENTIST
Jackson Laboratory for Genomic Medicine, Farmington, CT 2014-

RESEARCH SCIENTIST
Baylor Institute for Immunology Research, Dallas, TX 2012-2014

RESEARCH ASSISTANT PROFESSOR
Cancer Immunobiology Center, UT Southwestern Medical Center, Dallas, TX 1998–2012

ASSISTANT INSTRUCTOR
Department of Microbiology, UT Southwestern Medical Center, Dallas, TX 1996–1998

POSTDOCTORAL FELLOW
Department of Microbiology, UT Southwestern Medical Center, Dallas, TX 1993–1996

RESEARCH INTERESTS

Past research interests lay at the interface between immunology, signal transduction, and nanobiotechnology and were focused on targeted immunotherapy of tumor cells of hematopoetic and epithelial origin. The study of the multiple facets of targeted therapy included, but not limited to the mechanisms of regulation of cell cycle progression, relationship between cell cycle regulatory proteins and cell viability, modulation of intracellular pH, modulation of multidrug resistance pumps, and selective photothermal ablation of tumor cells using nanoparticles. The more recent topic of my research was focused on the relation between the chemistry of pneumococcal polysaccharides in pneumococcal vaccines and their potential to stimulate a T-mediated immune response. The current research is related to the study of epigenetic, transcriptional and splice-variant transcriptome changes in innate and adaptive immune cells in the context of aging and vaccination.

COMPLETED GRANTS

American Cancer Society (PI) ($431,000 Total) 1999-2002
Role of $p21^{WAF-1}$ in cell cycle arrest of human B lymphomas

Immunicon Corporation (PI) ($40,000 Total) 2001-2002
Longitudinal enumeration of circulating tumor cells in patients with metastatic breast carcinoma

NCI (Co-Pi, PI: Uhr) ($748,000 Total) 2005-2007
Isolation of human tumor cells in dormant cancer

DOD (Co-PI, PI: Vitetta) ($849,000 Total) 2007-2009
Targeted delivery of carbon nanotubes to cancer cells

Texas Higher Education Coordinating Board (Co-PI, PI: Vitetta) 2008-2009
Antibody-conjugated carbon nanotubes for selective photothermal ablation of human tumors

PUBLICATIONS

1. Marches R, Ghetie V. Interaction between human IgD and ricinus agglutinin. *Scand J Immunol* 24: 45-48, 1986.
2. Marches R, Medesan C. Isolation and purification of human ß$_2$-microglobulin. *Rev Roum Biochem* 24: 239-243, 1987.
3. Mota G, Margineanu M, Marches R, Nicolae M, Bancu A, Moraru I. Experimental model for testing the efficiency of immunotoxins administered *in vivo*: evaluation of two ricin A-chain multivalent antibody immunotoxins. *Immunol Lett* 20: 283-292, 1989.
4. Marches R, Laky M, Margineanu M. Protein A-ricin toxin conjugates with altered lectin activity. *Rev Roum Biochem* 27: 33-37, 1990.
5. Marches R, Mota G, Margineanu M, Stavri H, Nicolae M, Savi G, Bancu A, Moraru I. Treatment of murine EL4 leukemia in ascitic form with anti-Thy 1.2 specific immunotoxins. *Neoplasma* 37: 573-578, 1990.
6. Marches R, Moraru I. Antitumoral treatment with ricin immunotoxins. *St Cerc Biochim* 33: 69-79, 1990.
7. Margineanu M, Marches R, Dima S, Cialacu V, Kozma E, Savi G, Stavri H, Badea E, Bancu A, Mota G. IL-2 enhances the efficiency of immunotoxins in the treatment of mice with ascitic tumors. *Neoplasma* 38: 633-638, 1991.
8. Mota G, Dima S, Marches R, Margineanu M, Cialacu V, Halalau F, Moraru I. Treatment of solid EL4 lymphoma tumors with multivalent immunotoxins in association with interleukin 2. *Cancer J* 4: 391-396, 1991.
9. Racila E, Scheuermann R, Picker L, Yefenof E, Tucker T, Chang W, Marches R, Street N, Vitetta ES, Uhr JW. Tumor dormancy and cell signaling. II. Antibody as an agonist in inducing dormancy of a B cell lymphoma in SCID mice. *J Exp Med* 181: 1539-1550, 1995.
10. Marches R, Racila E, Tucker T, Picker L, Mongini P, Hsueh R, Vitetta ES, Scheuermann RH, Uhr JW. Tumour dormancy and cell signalling III. Role of hypercrosslinking of IgM and CD40 on the induction of cell cycle arrest and apoptosis in lymphoma cells. *Ther Immunol* 2: 125-136, 1995.
11. Racila E, Hsueh R, Marches R, Tucker T, Krammer PH, Scheuermann RH, Uhr JW. Tumor dormancy and cell signaling: Anti-μ-induced apoptosis in human lymphoma cells is not caused by an APO-1-Apo-1 ligand interaction. *Proc Natl Acad Sci USA.* 95: 2165-2168, 1996.
12. Scheuermann RH, Racila E, Hsueh R, Marches R, Tucker T, Uhr JW. Growth control and dormancy in malignant lymphoma. In: *Premalignancy and Tumor Dormancy*. Yefenof E, Scheuermann RH, eds. R.G. Landes, Austin. pp. 123-136, 1996.
13. Uhr JW, Marches R, Racila E, Tucker TF, Hsueh R, Street NE, Vitetta ES, Scheuermann RH. Role of antibody signaling in inducing tumor dormancy. *Adv Exp Med Biol* 406: 69-74, 1996.
14. Mota G, Marches R, Cialacu V, Roman V, Kozma E, Margineanu M, Moraru II. Mouse multivalent IgG(2a,b) antibody-ricin A-chain immunotoxin combined with homologous or heterologous interleukin 2 in the treatment of a murine malignant lymphoproliferation (EL4). *Arch Immunol Ther Exp* 44: 131-136, 1996.
15. Vitetta ES, Tucker TF, Racila E, Huang YW, Marches R, Lane N, Scheuermann RH, Street NE, Watanabe T, Uhr JW. Tumor dormancy and cell signaling. V. Regrowth of the BCL_1 tumor after dormancy is established. *Blood* 89: 4425-4436, 1997.

16. Marches R, Scheuermann RH, Uhr JW. Cancer dormancy: Role of cyclin-dependent kinase inhibitors in induction of cell cycle arrest mediated via membrane IgM. *Cancer Res* 58: 691-697, 1998.
17. Hsueh RC, Hammill AK, Marches R, Uhr JW, Scheuermann RH. Antigen receptor signaling induces differential tyrosine kinase activation and population stability in B-cell lymphoma. *Curr Topics Microbiol Immunol* 246: 299-305, 1999.
18. Marches R, Hsueh R, Uhr JW. Cancer dormancy and cell signaling: Induction of $p21^{Waf1}$ initiated by membrane IgM engagement increases survival of B lymphoma cells. *Proc Natl Acad Sci USA.* 96: 8711-8715, 1999.
19. Marches R, Vitetta ES, Uhr JW. A role for intracellular pH in membrane IgM-mediated cell death of human B lymphomas. *Proc Natl Acad Sci USA.* 98: 3434-3439, 2001.
20. Uhr JW, Marches R. Dormancy in a model of murine B cell lymphoma. *Semin Cancer Biol* 11: 277-283, 2001.
21. Spiridon CI, Ghetie MA, Uhr J, Marches R, Li JL, Shen GL, Vitetta ES. Targeting multiple Her-2 epitopes with monoclonal antibodies results in improved antigrowth activity of a human breast cancer cell line *in vitro* and *in vivo*. *Clin Cancer Res* 8: 1720-1730, 2002.
22. Ghetie MA, Marches R, Kufert S, Vitetta ES. An anti-CD19 antibody inhibits the interaction between P-glycoprotein (P-gp) and CD19, causes P-gp to translocate out of lipid rafts, and chemosensitizes a multidrug-resistant (MDR) lymphoma cell line. *Blood* 104: 178-183, 2004.
23. Marches R, Uhr JW. Enhancement of the $p27^{kip1}$- mediated antiproliferative effect of trastuzumab (Herceptin) on HER2-overexpressing tumor cells. *Int J Cancer* 112: 492-501, 2004.
24. Alarcon T, Marches R, Page K. Mathematical models of the fate of lymphoma B cells after antigen receptor ligation with specific antibodies. *J Theor Biol* 250: 54-71, 2006.
25. Marches R, Scheuermann R, Uhr J. Cancer dormancy from mice to man. *Cell Cycle* 5: 1772-1778, 2006.
26. Chakravarty P, Marches R, Zimmerman NS, Swafford AD, Bajaj P, Musselman IH, Pantano P, Draper RK, Vitetta ES. Thermal ablation of tumor cells with antibody-functionalized single-walled carbon nanotubes. *Proc Natl Acad Sci USA* 105: 8697-702, 2008.
27. Fehm T, Mueller V, Marches R, Klein G, Gueckel B, Neubauer H, Solomayer E, Becker S. Tumor cell dormancy: implications for the biology and treatment of breast cancer. *APMIS* 116: 742-753, 2008.
28. Marches R, Chakravarty P, Musselman IH, Azad, R, Draper RK, Vitetta ES. Selective thermal ablation of tumor cells using a monoclonal antibody covalently coupled to single-wall carbon nanotubes. *Int J Cancer* 125: 2970-2977, 2009.
29. Marches R, Mikoryak C, Wang RH, Pantano P, Draper RK, Vitetta ES. The importance of cellular internalization of antibody-targeted carbon nanotubes in the photothermal ablation of breast cancer cells. *Nanotechnology* 22: 095101, 2011.