Biographical Profile

Alan Rosmarin, MD

Position/Title

Professor of Medicine, University of Massachusetts Medical School, Worcester, MA

Education

AB, Vassar College, Poughkeepsie, NY; Biology
MD, Rutgers Medical School, Newark, NJ; Medicine

Beth Israel Hospital (BIH), Boston, MA; Resident in Medicine
BIH, Harvard Medical School, Boston, MA; Clinical Fellow, Hem-Onc
BIH, Harvard Medical School, Boston, MA; Research Fellow, Medicine
Harvard Medical School, Boston, MA; Instructor in Medicine
Beth Israel Hospital, Boston, MA; Associate in Medicine

In His Own Words

The Rosmarin laboratory studies hematopoiesis and leukemogenesis and, more specifically, investigates the growth and differentiation of hematopoietic stem cells and leukemic stem cells (LSCs) of chronic myelogenous leukemia (CML). The primary interest of the lab is transcriptional regulation, with a focus on GABP transcription factor. We developed a mouse conditional knock-out model of *Gabpa* (the DNA-binding component of the tetrameric GABP complex), stem cell transplantation, and related technologies to examine the role of GABP in hematopoietic stem cells, leukemic stem cells, and myeloid differentiation. I am a practicing Hematologist-Oncologist who focuses on hematologic malignancies, including CML, and a leader of investigator-initiated clinical trials that target the leukemic stem cell in CML which arose from laboratory-based observations at UMass. We routinely bank bone marrow specimens, including diagnostic and follow-up evaluation of leukemias, and white blood cell disorders. As Director of the Division of Hematology-Oncology at the University of Massachusetts and co-Director of the UMass Cancer Center of Excellence, I have substantial administrative experience and I am responsible for leading the outstanding clinical care and clinical and translational investigation of cancer at UMass.

Work History

1989-1997	Assistant Professor of Medicine, Brown University, Providence, RI
1989-2007	Attending Physician, Miriam Hospital, Providence, RI
1994-2006	Interim Director, Division of Hematology, Brown University, Providence, RI
1997-2007	Associate Professor of Medicine, Brown University, Providence, RI
1998-2006	Director, Brown University Hematology/Oncology Fellowship, Brown University
1999-2007	Associate Professor of Molecular Biology, Cell Biology, and Biochemistry, Brown University
2000-2007	Director, Brown University Oncology Group (BrUOG), Brown University, Providence, RI
2007-	Professor of Medicine, University of Massachusetts Medical School, Worcester, MA
2007-	Deputy Director, University of Massachusetts Cancer Center of Excellence
2007-	Director, Division of Hematology/Oncology, University of Massachusetts Medical School

Other Background and Professional Associations

1999-2004	Member, Vice-Chair, 2000-2001; Chairman, 2001-2003; Peer Review Committee on Leukemia, Immunology, and Blood Cell Development; American Cancer Society

2000-2005	Member, Scientific Subcommittee on Myeloid Biology, American Society of Hematology
2003-2008	Member, Subcommittee C, National Cancer Institute, NIH
2004-2010	Member, Council for Extramural Grants, American Cancer Society (Vice Chair, 2007-2008; Chair, 2009-2010)
2011-	Co-Chair, Sam Waxman Cancer Research Foundation Scientific Advisory Board

Editorial Boards

2004-	Stem Cells
2005-	American Cancer Society, Cancer Information Database
2006-	Experimental Hematology

Honors

1976	Phi Beta Kappa, Junior Year
1977	Mary Pemberton Nourse Fellowship in Medicine
1980	Alpha Omega Alpha, Junior Year
1986	Beth Israel Hospital, Basic Research Service Award
1987	Harvard Medical School, Milton Fund Award
1992	American Federation for Clinical Research – Henry Christian Award
1998	Brown University, Master of Arts, ad eundem
2007	Gladys Smith Martin Professor of Oncology

Selected Peer-reviewed Publications

Rosmarin AG, Caprio DG, Levy R, Simkevich CP. CD18 (β2 leukocyte integrin) promoter requires PU.1 transcription factor for myeloid activity. Proc. Natl. Acad. Sci. USA, 92:801-805, 1995.

Rosmarin AG, Caprio DG, Kirsch D, Rockwell N, Handa H, Simkevich CP. Two different ETS related transcription factors - PU.1 and GABP - compete for binding sites in the promoter of the β2 leukocyte integrin, CD18. J. Biol. Chem. 270:23627-33, 1995.

Nuchprayoon I, Simkevich CP, Luo ML, Friedman AD, **Rosmarin** AG, GABP cooperates with c-Myb and C/EBP to activate neutrophil elastase. Blood, 89: 4546-4554, 1997.

Rosmarin AG, Luo ML, Caprio, DG, Shang J, Simkevich, CP. Sp1 cooperates with the ets factor, GABP, to Activate the CD18 (β2 Leukocyte Integrin) Promoter. J. Biol. Chem. 273:13097-13103, 1998.

Sedivy JM, Vogelstein B, Liber HL, Hendrickson E, **Rosmarin** AG: Gene Targeting in Human Cells without
Isogenic DNA. Science, 283: 5, 1999.

Nuchprayoon I, Simkevich CP, Luo ML, Friedman AD, **Rosmarin** AG. An enhancer located between the neutrophil elastase and proteinase 3 promoters is activated by Sp1 and ETS factor. J. Biol. Chem. 274:
1085-1091, 1999.

Gupta AK, Zibello T, Simkevich CP, **Rosmarin** AG, Berliner N. Sp1 and C/EBP are necessary to activate the lactoferrin gene promoter during myeloid differentiation. Blood, 95:3734-3741, 2000.

Bush TS, St. Coeur M, Resendes KK, **Rosmarin** AG. GA Binding Protein (GABP) and Sp1 are required, along with Retinoid Receptors to mediate retinoic acid responsiveness of CD18 (β2 Leukocyte

Integrin): a novel mechanism of transcriptional regulation in myeloid cells. Blood, 101:311-317, 2003.

Rosmarin AG, Yang Z, Resendes KK. Transcriptional Regulation in Myelopoiesis: Hematopoietic Fate Choice, Myeloid Differentiation, and Leukemogenesis, Experimental Hematology, 33: 131-143, 2005.

Resendes KK, **Rosmarin** AG. GABP and p300 are essential components of a retinoic acid induced enhanceosome in myeloid cells. Molecular and Cellular Biology, 26:3060-3070, 2006.

Yang Z-Y, Mott S, **Rosmarin** AG. The ets transcription factor GABP is required for cell cycle progression. Nature Cell Biology, 9:339-346, 2007.

Drumea K, Yang Z-Y, **Rosmarin** AG. Retinoic Acid Signaling in Myelopoiesis. Current Opinions in Hematology, 15:37-41, 2008.

Peng C, Chen Y, Yang Z, Zhang H, Osterby L, **Rosmarin** AG, Li S. PTEN is a tumor suppressor in CML stem cells and BCR-ABL- induced leukemias in mice. Blood, 115:626-35, 2010.

Yang Z-Y, Drumea K, Cormier J, Wang J, Zhu, X, **Rosmarin**, AG GABP Transcription Factor is Required for Myeloid Differentiation, in Part, Through its Regulation of Gfi-1. Blood, 118:2243-53, 2011.

Zhu X-J, Yang Z-F, Chen Y, Wang J, **Rosmarin** AG. PU.1 is essential for CD11c expression in CD8+/CD8- lymphoid and monocyte-derived Dendritic Cells during GM-CSF or FLT3L-induced differentiation PLoSOne, 7:e52141, 2012.

Cerny J, Yu H, Ramanathan M, Raffel GD, Walsh WV, Fortier N, Shanahan L, O'Rourke E, Bednarik J, Barton B, Kroll-Desrosiers A, Hao S, Woda B, Hutchinson L, M Evens A, **Rosmarin** AG, Nath R. Expression of CD25 independently predicts early treatment failure of acute myeloid leukaemia (AML). Br J Haematol 160:262-6, 2013.

Yang Z-F, Zhang H, Ma L, Peng C, Chen Y, Wang J, Green M, Li S, **Rosmarin** AG. GABP transcription factor is required for development of Chronic Myelogenous Leukemia via its control of PRKD2. Proc Natl Acad Sci USA, 110:2312-7, 2013.

Ongoing Support

Phase I/II Investigator-Initiated trial of Zileuton and Imatinib, and Phase I/II Investigator-Initiated trial of Zileuton and Dasatinib in Chronic Myelogenous Leukemia (CML). The goal of these trials is to examine the safety and efficacy of the Alox5 inhibitor, Zileuton, in combination with tyrosine kinase inhibitors, imatinib and dasatinib, for targeting the CML leukemic stem cell.
Role: co-Investigator (with Drs. Shaoguang Li and Jan Cerny)