

Contact information

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Ed van Bavel is Professor of Vascular Biophysics and co-chair of the Dept of Biomedical Engineering and Physics.

Education and training

- 1978-1979 Technical Physics, Technical University, Delft
- 1979-1985 MSc Biology, Leiden University (cum laude)
Specialized in biophysics and biomathematics
- 1985-1989 PhD, University of Amsterdam (cum laude)
Thesis: metabolic and myogenic control of blood flow studied on isolated small arteries
- 1989-1992 Post-doc, University of Amsterdam, funded by Dutch Heart foundation

Academic appointments

- 1991 Visiting scientist, Mulvany lab, Aarhus University, Denmark
- 1992-2002 Assistant Professor, Dept of Medical Physics, University of Amsterdam
- 2002-2005 Associate Professor, Dept of Medical Physics, University of Amsterdam
- 2005-2009 Strategic Professor of Vascular Biophysics, University of Amsterdam
- 2007-current Principal Investigator, Academic Medical Center, Amsterdam
- 2009-current Professor and co-chair, Dept of Biomedical Engineering and Physics, UvA.

Other activities

- 2000-2008 President of the Netherlands Society for Microcirculation and vascular biology
- 2004-2006 President of the European Society for Microcirculation
- 2005-current Council member, European Vascular Biology Organization
- 2006 President, 24th European Conference on Microcirculation
- 2007-current Consulting editor, Journal of Vascular Research

Field of research

My current research is devoted to the control of tone and remodeling of blood vessels, with a special interest in the role of physical factors (blood pressure and blood flow) in these processes and the biomechanics of the vascular wall. Using amongst others in vivo approaches, perfused arteries and arterioles of human and animal origin in organoid culture, and cell-based experimental models, my group aims to combine biophysical and functional experiments with analysis of molecular parameters. The scientific objectives range from

unraveling of basic mechanisms to understanding the pathogenesis and vascular consequences of notably hypertension, coronary artery disease, pre-eclampsia and cerebral aneurysms. Our philosophy is to perform integrative science and utilize a systems approach in order to correlate molecular mechanisms with structure and function of blood vessels and vascular networks in health and disease.

Selected publications

- 1: Matlung HL, Groen HC, de Vos J, van Walsum T, van der Lugt A, Niessen WJ, Wentzel JJ, Vanbavel E, Bakker EN. Calcification Locates to Transglutaminases in Advanced Human Atherosclerotic Lesions. *Am J Pathol.* 2009 (epub)
- 2: Bakker EN, Matlung HL, Bonta P, de Vries CJ, van Rooijen N, Vanbavel E. Blood flow-dependent arterial remodelling is facilitated by inflammation but directed by vascular tone. *Cardiovasc Res.* 2008 May 1;78(2):341-8.
- 3: Bakker EN, Pisteia A, VanBavel E. Transglutaminases in vascular biology: relevance for vascular remodeling and atherosclerosis. *J Vasc Res.* 2008;45(4):271-8.
- 4: Bakker EN, Pisteia A, Spaan JA, Rolf T, de Vries CJ, van Rooijen N, Candi E, VanBavel E. Flow-dependent remodeling of small arteries in mice deficient for tissue-type transglutaminase: possible compensation by macrophage-derived factor XIII. *Circ Res.* 2006 Jul 7;99(1):86-92.
- 5: Pisteia A, Bakker EN, Spaan JA, VanBavel E. Flow inhibits inward remodeling in cannulated porcine small coronary arteries. *Am J Physiol Heart Circ Physiol.* 2005 Dec;289(6):H2632-40.
- 6: Bakker EN, Buus CL, Spaan JA, Perree J, Ganga A, Rolf TM, Sorop O, Bramsen LH, Mulvany MJ, Vanbavel E. Small artery remodeling depends on tissue-type transglutaminase. *Circ Res.* 2005 Jan 7;96(1):119-26.
- 7: VanWijk MJ, VanBavel E, Sturk A, Nieuwland R. Microparticles in cardiovascular diseases. *Cardiovasc Res.* 2003 Aug 1;59(2):277-87.
- 8: Sorop O, Spaan JA, Sweeney TE, VanBavel E. Effect of steady versus oscillating flow on porcine coronary arterioles: involvement of NO and superoxide anion. *Circ Res.* 2003 Jun 27;92(12):1344-51.
- 9: Bakker EN, van Der Meulen ET, Spaan JA, VanBavel E. Organoid culture of cannulated rat resistance arteries: effect of serum factors on vasoactivity and remodeling. *Am J Physiol Heart Circ Physiol.* 2000 Apr;278(4):H1233-40.
- 10: VanBavel E, Wesselman JP, Spaan JA. Myogenic activation and calcium sensitivity of cannulated rat mesenteric small arteries. *Circ Res.* 1998 Feb 9;82(2):210-20.