

HELLMUT G. AUGUSTIN, PROF. DR. MED. VET. PH.D.

Professor and Director

(*1959)

Joint Research Division Vascular Biology,

Medical Faculty Mannheim (CBTM), Heidelberg University, and

German Cancer Research Center Heidelberg (DKFZ-ZMBH-Alliance)

Email: augustin@angiogenese.de

Web: www.angiolab.de



EDUCATION

- 1984 DVM, School of Veterinary Medicine Hannover, Germany
- 1984-1987 Residency and graduate training in Veterinary Pathology
- 1987 Doctoral degree Dr. med. vet.
- 1992 PhD, Cornell University, Ithaca, NY, USA
- 1997 Venia legendi (Habilitation) in Molecular Cell Biology, University of Göttingen, Germany

PROFESSIONAL EXPERIENCE AND APPOINTMENTS

- 1992-2001 Research Assistant Professor (C1, C2), University of Göttingen, Germany
- 2001-2006 Head, Dept. of Vascular Biology & Angiogenesis Research, Tumor Biology Center, Freiburg, Germany
- 2002-2006 Adjunct Professor, Medical Faculty of the Albert-Ludwigs-University Freiburg, Germany
- 2006- Avenir Foundation-endowed Chair for Vascular Biology and Angiogenesis Research, Medical Faculty Mannheim (CBTM), Heidelberg University, and German Cancer Research Center Heidelberg, Germany
- 2011- Speaker, Cell and Tumor Biology Research Program, German Cancer Research Center, Heidelberg
- 2011- Director, Center for Molecular Biology and German Cancer Research Center Alliance
- 2011- Deputy Director, Center for Biomedicine and Medical Technology Mannheim (CBTM), Medical Faculty Mannheim, Heidelberg University

RESEARCH INTERESTS

The lab studies 1) the molecular mechanisms of tumor angiogenesis focusing on angiogenesis regulating receptor tyrosine kinases, 2) the molecular mechanisms of physiological blood and lymphatic vessel formation, assembly, and maturation 3) the molecular mechanisms of tumor progression focusing on tumor-vessel interactions during metastasis and 4) translational tumor angiogenesis experiments aimed at defining the therapeutic window of anti-angiogenic tumor therapies.

SCIENTIFIC COMMUNITY SERVICES

2/1997: Founder of the German vascular biology network (bi-annual meeting series); 9/1998-5/2006: Coordinator of nationwide German angiogenesis Priority Research Grant (SPP1069; www.angiogenese.de); 5/2005-12/2012: Coordinator of the nationwide German tumor-vessel interaction Priority Research Grant (SPP1190; www.tumorstessel.de); 5/2005-pres.: Founding member and elected Chairman of VWFB e.V. (www.vwfb.de); 7/2005-6/2009: Vice Speaker of the SFB-TR23 "Vascular Differentiation and Remodeling" of the Universities Frankfurt, Heidelberg, and Freiburg; 7/2009-pres.: Speaker of the SFB-TR23 "Vascular Differentiation and Remodeling" of the Universities Heidelberg and Frankfurt (www.transregio23.de); 3/2012-pres.: Senior Editor, Cancer Research; 05/2013-pres.: Director of the Helmholtz Alliance "Preclinical Comprehensive Cancer Center" (PCCC; www.helmholtz-pccc.de).

PUBLICATIONS (SELECTED PUBLICATIONS OF THE LAST 10 YEARS [OF >100])

1. Fiedler U, Scharpfenecker M, Koidl S, Hegen A, Grunow V, Schmidt JM, Kriz W, Thurston G, Augustin HG: The Tie-2 ligand Angiopoietin-2 is stored in and rapidly released upon stimulation from endothelial cell Weibel-Palade bodies. **Blood** 103:4150-4156, 2004.
2. Müller SM, Terszowski G, Blum C, Haller C, Anquez V, Kuschert S, Carmeliet P, Augustin HG, Rodewald HR: Gene targeting of VEGF-A in thymus epithelium disrupts thymus blood vessel architecture. **Proc Natl Acad Sci USA**, 102:10597-10592, 2005.
3. Korff T, Dandekar G, Pfaff D, Füller T, Goettsch W, Morawietz H, Schaffner F, Augustin HG: Endothelial ephrinB2 is controlled by microenvironmental determinants and associates context dependently with CD31. **Arterioscl Thromb Vasc Biol**, 26:468-474, 2006.
4. Fiedler U, Christian S, Koidl S, Kerjaschki D, Emmett MS, Bates DO, Christofori G, Augustin HG: The sialomucin CD34 is a marker of tumor-associated lymphatic endothelial cells in human tumors. **Am J Pathol**, 168: 1045-1053, 2006.
5. Krneta J, Kroll J, Alves F, Prahst C, Sananbenesi F, Dullin C, Kimmina S, Phillips DJ, Augustin HG: Dissociation of angiogenesis and tumorigenesis in activin and follistatin expressing tumors. **Cancer Res**, 66:5685-5695, 2006.

6. Fiedler U, Reiss Y, Scharpfenecker M, Grunow V, Koidl S, Thurston G, Gale NW, Witzenrath M, Rosseau S, Suttorp N, Sobke A, Herrmann M, Preissner K, Vajkoczy P, Augustin HG: Angiopoietin-2 sensitizes endothelial cells to TNF α and plays a crucial role in the induction of inflammation. **Nature Med**, 12:235-239, 2006.
7. Alajati A, Laib AM, Weber H, Boos AM, Bartol A, Ikenberg K, Korff T, Zentgraf H, Obodozie C, Graeser R, Christian S, Finkenzeller G, Stark GB, Héroult M, Augustin HG: Spheroid-based engineering of a human vasculature in mice. **Nature Methods**, 5:439-445, 2008.
8. Korff T, Braun J, Pfaff D, Augustin HG, Hecker M: Role of ephrinB2 expression in endothelial cells during arteriogenesis: impact on smooth muscle cell migration and monocyte recruitment. **Blood**, 112:73-81, 2008.
9. Kanasaki K, Palmsten K, Sugimoto H, Ahmad S, Hamano Y, Xie L, Parry S, Augustin HG, Gattone VH, Folkman J, Strauss JF, Kalluri R: Deficiency in catechol-O-methyltransferase and 2-methoxyoestradiol is associated with pre-eclampsia. **Nature**, 453:1117-21, 2008.
10. Prahst C, Héroult M, Lanahan AA, Uziel N, Kessler O, Shraga-Heled N, Simons M, Neufeld G, Augustin HG: Neuropilin-1/VEGFR-2 complexing requires the PDZ-binding domain of neuropilin-1. **J Biol Chem**, 283:25110-4, 2008.
11. Pfaff D, Héroult M, Riedel N, Reiss Y, Kirmse R, Ludwig L, Korff T, Hecker M, Augustin HG: Involvement of endothelial ephrinB2 in adhesion and transmigration of EphB expressing monocytes. **J Cell Sci**, 121:3842-50, 2008.
12. Nasarre P, Thomas M, Kruse K, Helfrich I, Wolter V, Deppermann C, Schadendorf D, Thurston G, Fiedler U, Augustin HG: Host-derived angiopoietin-2 affects early stages of tumor development and vessel maturation but is dispensable for later stages of tumor growth. **Cancer Res**, 69:1324-33, 2009.
13. Thomas M, Felcht M, Kruse K, Kretschmer S, Deppermann C, Biesdorf A, Rohr K, Benest AV, Fiedler U, Augustin HG: Angiopoietin-2 stimulation of endothelial cells induces α v β 3 integrin internalization and degradation. **J Biol Chem**. 285:23842-9, 2010.
14. Wüstehube J, Bartol A, Liebler SS, Brüttsch R, Zhu Y, Felbor U, Sure U, Augustin HG, Fischer A: Cerebral cavernous malformation protein CCM1 inhibits sprouting angiogenesis by activating DELTA-NOTCH signaling. **Proc Natl Acad Sci USA**, 107:12640-5, 2010.
15. Héroult M, Schaffner F, Pfaff D, Prahst C, Kirmse R, Kutschera S, Riedel M, Ludwig T, Vajkoczy P, Graeser R, Augustin HG: EphB4 promotes site-specific metastatic tumor cell dissemination by interacting with endothelial cell expressed ephrinB2. **Mol Cancer Res**. 8:1297-3, 2010.
16. Helfrich I, Scheffrahn I, Bartling S, Weis J, von Felbert V, Middleton M, Kato M, Ergün S, Augustin HG*, Schadendorf D*: Resistance to antiangiogenic therapy is directed by vascular phenotype, vessel stabilization, and maturation in malignant melanoma. **J Exp Med**, 207:491-503, 2010 (*equal contribution).
17. Kutschera S, Weber H, Weick A, De Smet F, Genove G, Takemoto M, Prahst C, Riedel M, Mikelis C, Baulande S, Champseix C, Kummerer P, Conseiller E, Multon MC, Héroult M, Bicknell R, Carmeliet P, Betsholtz C, Augustin HG: Differential endothelial transcriptomics identifies Semaphorin 3G as a vascular class 3 semaphorin. **Arterioscler Thromb Vasc Biol.**, 31:151-9, 2011.
18. Testori J, Schweighofer B, Helfrich I, Sturtzel C, Lipnik K, Gesierich S, Nasarre P, Hofer-Warbinek R, Bilban M, Augustin HG, Hofer E: The VEGF-regulated transcription factor HLX controls the expression of guidance cues and negatively regulates sprouting of endothelial cells. **Blood**, 117:2735-44, 2011.
19. Felcht M, Luck R, Schering A, Seidel P, Srivastava K, Hu J, Bartol A, Kienast Y, Vettel C, Loos EK, Kutschera S, Bartels S, Appak S, Besemfelder E, Terhardt D, Chavakis E, Wieland T, Klein C, Thomas M, Uemura A, Goerdts S, Augustin HG: Angiopoietin-2 differentially regulates angiogenesis through TIE2 and integrin signaling. **J Clin Invest**, 122:1991-2005, 2012.
20. Benest AV, Kruse K, Savant S, Thomas M, Laib AM, Loos EK, Fiedler U, Augustin HG: Angiopoietin-2 is critical for cytokine-induced vascular leakage. **PLoS One**, 8:e70459, 2013.
21. Hu J, Srivastava K, Wieland M, Runge A, Mogler C, Besemfelder E, Terhardt D, Vogel MJ, Cao L, Korn C, Bartels S, Thomas M, Augustin HG: Endothelial cell-derived Angiopoietin-2 controls liver regeneration as a spatiotemporal rheostat. **Science** 343:416-9, 2014.
22. Korn C, Scholz B, Hu J, Srivastava K, Wojtarowicz J, Arnsperger T, Adams RH, Boutros M, Augustin HG, Augustin I: Endothelial cell-derived non-canonical Wnt ligands control vascular pruning in angiogenesis. **Development**, 141(8):1757-66, 2014.
23. Runge A, Hu J, Wieland M, Bergeest JP, Mogler C, Neumann A, Géraud C, Arnold B, Rohr K, Komljenovic D, Schirmacher P, Goerdts S, Augustin HG: An Inducible Hepatocellular Carcinoma Model for Preclinical Evaluation of Antiangiogenic Therapy in Adult Mice. **Cancer Res**, 74:4157-69, 2014
24. Zheng W, Nurmi H, Appak S, Sabine A, Bovay E, Korhonen EA, Orsenigo F, Lohela M, D'Amico G, Holopainen T, Leow CC, Dejana E, Petrova TV, Augustin HG, Alitalo K: Angiopoietin 2 regulates the transformation and integrity of lymphatic endothelial cell junctions. **Genes Dev**, 28:1592-603, 2014.
25. Srivastava K*, Hu J*, Korn C, Savant S, Teichert M, Kapel S, Jugold M, Besemfelder E, Thomas M, Pasparakis M, Augustin HG: Postsurgical adjuvant tumor therapy by combining anti-Angiopoietin-2 and metronomic chemotherapy limits metastatic growth. **Cancer Cell**, 26:880-95, 2014.