

BIOSKETCH

Name and academic title: Prof. Dr. rer. nat. Sven Brandau, PhD

Date & Place of birth: 17 January, 1964, Hamburg, Germany

Current Position: Head of Research, Department of Otorhinolaryngology, University of Duisburg-Essen, Hufelandstrasse 55, D-45122 Essen, Germany, Email: sven.brandau@uk-essen.de

Academic degrees and academic education:

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| 2009 | Associate Professor, Medical Faculty, University Duisburg-Essen |
| 2008 | Habilitation and venia legendi in Immunology at the Medical Faculty of the University of Duisburg-Essen |
| 2003 | Habilitation and venia legendi in Immunology and Cell Biology at the Medical Faculty of the University of Luebeck |
| 1996 | Doctor of Natural Sciences (PhD) |
| 1993-1996 | PhD program of the Bernhard-Nocht-Institute for Tropical Medicine in Hamburg, stress response in Leishmania parasites |
| 1992 | Diploma in Biology |
| 1988-1989 | Biology program of the California State University Los Angeles (USA) |
| 1985-1992 | Study of Biology at the University of Hamburg |

Professional appointments:

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| Since 2007 | Head of Research, Department of Otorhinolaryngology, University of Duisburg-Essen |
| 2003-2007 | Head of the Division of Immunotherapy, Department of Immunology and Cell Biology, Research Center Borstel, Leibniz Center for Medicine and Biosciences |
| 2000-2002 | senior scientist and principal investigator, Division of Immunotherapy, Research Center Borstel |
| 1996-1999 | post-doctoral fellow, Division of Cellular Immunology, Research Center Borstel |

Scientific Awards

- Mechanisms of Immune-Gene-Therapy: Activation of Dendritic Cells by Ad-CD154 Transduced Tumor Cells. Annual Award of the British Association of Urological Surgeons, 2002 Meeting of the European Association of Urology in Birmingham.
- Therapeutic modulation of bladder carcinoma cell adhesion. 2000, Maximilian-Nitze-Award of the German Society for Urology.
- In vitro and in vivo analyses on the use of adenoviral CD154 gene therapy for urologic cancers. Avanti Award at the 11th Conference of the International Society for Cancer Gene Therapy 2002, London.
- A new mechanism of immune deviation in head and neck cancer: neutrophilic myeloid-derived suppressor cells in the peripheral blood. Research prize for experimental head and neck oncology. Leipzig 2011, Oncology working group of the German Society of Otorhinolaryngology, Head and Neck Surgery.

Academic and scientific activities

- 2014-2018 Chairman of the EU COST-Action Mye-EUNITER; www.mye-euniter.eu; a pan-european network of investigators working on myeloid regulatory cells in cancer, infection, inflammation and autoimmunity.
- 2013/2015 Local coordinator School of Oncology and member of the local steering committee (lokaler Lenkungsausschuss) of the partner site Essen-Düsseldorf, German Cancer Consortium (DKTK)
- 2011 Co-Chairman of the Graduate School of Biomedical Sciences (BIOME), Medical Faculty, University Duisburg-Essen, Coordinator of the core "Cellular and Molecular Immunology".

Primary fields of research and selected publications:

Immunoregulation in the tumor host:

- Brandau S, Trellakis S, Bruderek K, Schmaltz D, Steller G, Elian M, Suttman H, Schenck M, Welling J, Zabel P, Lang S. (2011) Myeloid-derived suppressor cells in the peripheral blood of cancer patients contain a subset of immature neutrophils with impaired migratory properties. *J Leukoc Biol.* 89(2), 311-317
- Bergmann C, Wild CA, Narwan M, Lotfi R, Lang S, Brandau S (2011) Human tumor-induced Treg and naturally occurring Treg differentially affect NK cells activated by interleukin-2 or target cells. *Eur J Immunol* 41(12), 3564-73
- Davey MS, Tamassia N, Rossato M, Bazzoni F, Calzetti F, Bruderek K, Sironi M, Zimmer L, Bottazzi B, Mantovani A, Brandau S, Moser B, Eberl M, Cassatella MA. (2011) Failure to detect production of IL-10 by activated human neutrophils. *Nat Immunol.* (correspondence) 12(11):1017-8.
- Dumitru CA, Fechner MK, Hoffmann TK, Lang S, Brandau S. (2012) A Novel p38-MAPK Signaling Axis Modulates Neutrophil Biology in Head and Neck Cancer. *J Leukoc Biol.* 91 (4), 591-599
- Hasenberg A, Hasenberg M, Männ L, Neumann F, Borkenstein L, Stecher M, Kraus A, Engel DR, Klingberg A, Seddigh P, Abdullah Z, Klebow S, Engelmann S, Reinhold A, Brandau S, Seeling M, Waisman A, Schraven B, Göthert JR, Nimmerjahn F, Gunzer M. (2015) Catchup: a mouse model for imaging-based tracking and modulation of neutrophil granulocytes. *Nat Methods.* 12(5):445-52

Immunotherapy of Cancer:

- Busche A, Goldmann T, Naumann U, Steinle A, Brandau S. (2006) NK-mediated rejection of experimental human lung cancer by genetic overexpression of MICA. *Hum Gene Ther* 17 (2), 135-146
- Suttman H, Riemensberger J, Bentien G, Schmaltz D, Stöckle M, Jocham D, Böhle A, Brandau S. (2006) Neutrophil granulocytes are required for effective BCG-immunotherapy of bladder cancer and orchestrate local immune responses. *Cancer Res* 66 (16), 8250-8257
- Vahle AK, Kerem A, Oztürk E, Bankfalvi A, Lang S, Brandau S. (2011) Optimization of an orthotopic murine model of head and neck squamous cell carcinoma in fully immunocompetent mice - role of toll-like-receptor 4 expressed on host cells. *Cancer Lett.* 317(2), 199-206
- Pogorzelski M, Ting S, Gauler TC, Breitenbuecher F, Vossebein I, Hoffarth S, Markowetz J, Lang S, Bergmann C, Brandau S, Jawad JA, Schmid KW, Schuler M, Kasper S. Impact of human papilloma virus infection on the response of head and neck cancers to anti-epidermal growth factor receptor antibody therapy. *Cell Death Dis.* 2014 Feb 27;5:e1091. doi: 10.1038/cddis.2014.62.

Cell biology and immunobiology of mesenchymal stromal cells:

- Jakob M, Hemeda H, Janeschik S, Bootz F, Rotter N, Lang S, Brandau S (2010) Human nasal mucosa contains tissue-resident immunologically responsive mesenchymal stromal cells. *Stem Cells Dev* 19(5), 635-644
- Hemeda H, Jakob M, Ludwig A, Giebel B, Lang S, Brandau S. (2010) Interferon-gamma and Tumor Necrosis Factor-alpha Differentially Affect Cytokine Expression and Migration Properties of Mesenchymal Stem Cells. *Stem Cells Dev* 19(5), 693-706
- Brandau S, Jakob M, Hemeda H, Bruderek K, Janeschik S, Bootz F, Lang S. (2010) Tissue-resident mesenchymal stem cells attract peripheral blood neutrophils and enhance their inflammatory activity in response to microbial challenge. *J Leukoc Biol.* 88(5), 1005-15
- Kansy BA, Dißmann PA, Hemeda H, Bruderek K, Westerkamp AM, Jagalski V, Schuler P, Kansy K, Lang S, Dumitru CA, Brandau S. (2014) The bidirectional tumor - mesenchymal stromal cell interaction promotes the progression of head and neck cancer. *Stem Cell Res Ther.* 5(4):95.
- Schuler PJ, Westerkamp AM, Kansy BA, Bruderek K, Dissmann PA, Dumitru CA, Lang S, Jackson EK, Brandau S. (2017) Adenosine metabolism of human mesenchymal stromal cells isolated from patients with head and neck squamous cell carcinoma. *Immunobiology.* 222(1):66-74

Selected Reviews

- Böhle A., Brandau S. (2003) Immune mechanisms in bacillus Calmette-Guerin immunotherapy for superficial bladder cancer. *J. Urol.*, 170 (39), 964-969
- Brandau S, Suttman H (2007) Thirty years of BCG immunotherapy for non-muscle invasive bladder cancer – a success story with room for improvement. *Biomed Pharmacother* 61 (6), 299-305
- Dumitru CA, Moses K, Trellakis S, Lang S, Brandau S. (2012) Neutrophils and granulocytic myeloid-derived suppressor cells: immunophenotyping, cell biology and clinical relevance in human oncology. *Cancer Immunol Immunother.* 61 (8), 1155-1167
- Brandau S, Dumitru CA, Lang S. (2013) Pro-Tumor and Anti-Tumor Functions of Neutrophil Granulocytes. *Seminars Immunopathol* 35 (2), 163-176
- Schuler PJ, Hoffmann TK, Gauler TC, Bergmann C, Brandau S, Lang S. [Immunotherapy of head and neck cancer : Current developments.]. *HNO.* 2012 Dec 19. [Epub ahead of print]
- Dumitru CA, Lang S, Brandau S. (2013) Modulation of neutrophil granulocytes in the tumor microenvironment: Mechanisms and consequences for tumor progression. *Semin Cancer Biol.* 23 (3), 141-148
- Moses K, Brandau S. (2016) Human neutrophils: Their role in cancer and relation to myeloid-derived suppressor cells. *Semin Immunol.* 28 (2), 187-96.
- Bronte V, Brandau S, Chen SH, Colombo MP, Frey AB, Greten TF, Mandruzzato S, Murray PJ, Ochoa A, Ostrand-Rosenberg S, Rodriguez PC, Sica A, Umansky V, Vonderheide RH, Gabrilovich DI. (2016) Recommendations for myeloid-derived suppressor cell nomenclature and characterization standards. *Nat Commun.* 7:12150.