



## PD Dr. Maximilian Bösch

Pneumologie und Schlafmedizin, Medizinische Onkologie und Hämatologie ·  
Dept. I

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### Additional Information

Doctor of Molecular Oncology  
Venia Docendi for Experimental Internal Medicine and Hematology and Oncology  
CAS ETH in Digital Health  
CAS HSG in KMU Management

### Units

Pneumologie und Schlafmedizin, Medizinische Onkologie und Hämatologie

### Research Area

Immune-Oncology | Precision Medicine | Digital Health | Jazz Guitar

### Affiliations

Lung Center, HOCH Health Ostschweiz  
Medical Oncology and Hematology, HOCH Health Ostschweiz

## Patents

Vav3 as a marker for cancer (WO2016066604A1)

## Publications (39)

Baty F, Cvetković D, Bösch M, Bauer F, Martins N, Rossi R, Schoch O, Annaheim S, Brutsche M. Validation of a Textile-Based Wearable Measuring Electrocardiogram and Breathing Frequency for Sleep Apnea Monitoring. *Sensors (Basel)* 2024; 24

Bösch M, Baty F, Bilz S, Brutsche M, Rassouli F. Tracking Real-World Physical Activity in Chronic Obstructive Pulmonary Disease Over One Year: Results from a Monocentric, Prospective, Observational Cohort Study. *Int J Chron Obstruct Pulmon Dis* 2024; 19:1921-1929.

Bösch M, Baty F, Rassouli F, Brutsche M. What is disease modification and is this concept even helpful?. *Eur J Intern Med* 2024; 124:1-4.

Bösch M, Baty F, Rassouli F, Kowatsch T, Jörgen M, Früh M, Brutsche M. Non-pharmaceutical interventions to optimize cancer immunotherapy. *Oncoimmunology* 2023; 12:2255459.

Bösch M, Rassouli F, Baty F, Schwärzler A, Widmer S, Tinschert P, Shih I, Cleres D, Barata F, Fleisch E, Brutsche M. Smartphone-based cough monitoring as a near real-time digital pneumonia biomarker. *ERJ Open Res* 2023; 9

Barata F, Cleres D, Tinschert P, Shih I, Rassouli F, Bösch M, Brutsche M, Fleisch E. Nighttime continuous contactless smartphone-based cough monitoring for the ward: A validation study. *JMIR Form Res* 2023

Bösch M, Horvath L, Baty F, Pircher A, Wolf D, Spahn S, Straussman R, Tilg H, Brutsche M. Compartmentalization of the host microbiome: how tumor microbiota shapes checkpoint immunotherapy outcome and offers therapeutic prospects. *J Immunother Cancer* 2022; 10

Bösch M, Baty F, Albrich W, Flatz L, Rodriguez R, Rothschild S, Jörgen M, Früh M, Brutsche M. Local tumor microbial signatures and response to checkpoint blockade in non-small cell lung cancer. *Oncoimmunology* 2021; 10:1988403.

Braun F, Ferrario D, Brutsche M, Annaheim S, Bösch M, Baty F, Proust Y, Proenca M, Theurillat P, Bonnier G, Lemay M. Influence of Measurement Location on Reflectance Pulse Oximetry in Sleep Apnea Patients: Wrist vs. Upper Arm. *Annu Int Conf IEEE Eng Med Biol Soc* 2021; 2021:1297-1300.

Scheibelhofer S, Drothler S, Braun W, Braun R, Bösch M, Weiss R. Laser facilitated epicutaneous peptide immunization using dry patch technology. *Vaccine* 2021; 39:5259-5264.

Bauer M, Brunner P, Bösch M, Braun R, Braun W, Böhler C, Ling V, Pajenda S, Al Jalali V, Matzneller P, Lackner E, Zeitlinger M. Phase I Study to Assess Safety of Laser-Assisted Topical Administration of an Anti-TNF Biologic in Patients With Chronic Plaque-Type Psoriasis. *Front Med (Lausanne)* 2021; 8:712511.

Bösch M, Sykora M, Gasteiger S, Baty F, Brutsche M, Sopper S. OMIP 077: Definition of all principal human leukocyte populations using a broadly applicable 14-color panel. *Cytometry A* 2021

Scheibelhofer S, Drothler S, Braun W, Braun R, Bösch M, Weiss R. Laser-facilitated epicutaneous immunization of mice with SARS-CoV-2 spike protein induces antibodies inhibiting spike/ACE2 binding. *Vaccine* 2021; 39:4399-4403.

Bösch M, Baty F, Rothschild S, Tamm M, Jörgen M, Früh M, Brutsche M. Tumour neoantigen mimicry by microbial species in cancer immunotherapy. *Br J Cancer* 2021; 125:313-323.

Bösch M, Khan P, Geiser T, Gazdhar A, Knudsen L, Roux J, Tamm M, Brutsche M, Baty F, Hostettler K. Transcriptomic profiling reveals disease-specific characteristics of epithelial cells in idiopathic pulmonary fibrosis. *Respir Res* 2020; 21:165.

Baty F, Bösch M, Widmer S, Annaheim S, Fontana P, Camenzind M, Rossi R, Schoch O, Brutsche M. Classification of Sleep Apnea Severity by Electrocardiogram Monitoring Using a Novel Wearable Device. *Sensors (Basel)* 2020; 20

Wolf D, Reimer D, Hartmann G, Sopper S, Sprung S, Marth C, Wieser V, Zeimet A, Fiegl H, Bösch M. High RIG-I expression in ovarian cancer associates with an immune-escape signature and poor clinical outcome. *Int J Cancer* 2019

Fontana P, Martins N, Camenzind M, Bösch M, Baty F, Schoch O, Brutsche M, Rossi R, Annaheim S. Applicability of a Textile ECG-Belt for Unattended Sleep Apnoea Monitoring in a Home Setting. *Sensors (Basel)* 2019; 19

Schoch O, Baty F, Bösch M, Benz G, Niedermann J, Brutsche M. Telemedicine for Continuous Positive Airway Pressure in Sleep Apnea: A Randomized, Controlled Study. *Ann Am Thorac Soc* 2019

Bösch M, Baty F, Rumpold H, Sopper S, Wolf D, Brutsche M. Fibroblasts in cancer: Defining target structures for therapeutic intervention. *Biochim Biophys Acta Rev Cancer* 2019; 1872:111-121.

Fontana P, Martins N, Camenzind M, Rossi R, Baty F, Bösch M, Schoch O, Brutsche M, Annaheim S. Clinical Applicability of a Textile 1-Lead ECG Device for Overnight Monitoring. *Sensors (Basel)* 2019; 19

Hatina J, Bösch M, Sopper S, Kripnerova M, Wolf D, Reimer D, Marth C, Zeimet A. Ovarian Cancer Stem Cell Heterogeneity. *Adv Exp Med Biol* 2019; 1139:201-221.

Bösch M, Reimer D, Wolf D, Hatina J, Rössler J, Wiedemair A, Fiegl H, Marth C, Sopper S, Zeimet A. Evaluation of Vav3.1 as prognostic marker in endometrial cancer. *J Cancer Res Clin Oncol* 2018; 144:2067-2076.

Bösch M, Reimer D, Sopper S, Wolf D, Zeimet A. (Iso-)form Matters: Differential Implication of Vav3 Variants in Ovarian Cancer. *Oncologist* 2018; 23:757-759.

Bösch M, Spizzo G, Seeber A. Concise Review: Aggressive Colorectal Cancer: Role of Epithelial Cell Adhesion Molecule in Cancer Stem Cells and Epithelial-to-Mesenchymal Transition. *Stem Cells Transl Med* 2018; 7:495-501.

Cheng H, Brutsche M, Jochum W, Schneider T, Rodriguez R, Tarantino I, Pikor N, Novkovic M, Bösch M, Cupovic J, Onder L, Ludewig B. CCL19-producing fibroblastic stromal cells restrain lung carcinoma growth by promoting local antitumor T-cell responses. *J Allergy Clin Immunol* 2018

Bösch M, Knauer M, Ruhstaller T, Jochum W, Gastl G, Sopper S, Mörbe U, Novkovic M, Cheng H, Onder L, Ludewig B. Interleukin 7-expressing fibroblasts promote breast cancer growth through sustenance of tumor cell stemness. *Oncoimmunology* 2018; 7:e1414129.

Bösch M, Cosma A, Sopper S. Flow Cytometry: To Dump or Not To Dump. *J Immunol* 2018; 201:1813-1815.

Reimer D, Hackl H, Parson W, Altevogt P, Hatina J, Sopper S, Marth C, Wolf D, Bösch M, Zeimet A. Truncated isoform Vav3.1 is highly expressed in ovarian cancer stem cells and clinically relevant in predicting prognosis and platinum-response. *Int J Cancer* 2017; 142:1640-1651.

Bösch M, Hoflehner E, Wolf D, Gastl G, Sopper S. Harnessing the DNA Dye-triggered Side Population Phenotype to Detect and Purify Cancer Stem Cells from Biological Samples. *J Vis Exp* 2017

Bösch M, Sopper S, Zeimet A, Reimer D, Gastl G, Ludwig B, Wolf D. Heterogeneity of Cancer Stem Cells: Rationale for Targeting the Stem Cell Niche. *Biochim Biophys Acta* 2016; 1866:276–289.

Bösch M, Sopper S, Wolf D. Ionophore Antibiotics as Cancer Stem Cell-Selective Drugs: Open Questions. *Oncologist* 2016; 21:1291–1293.

Bösch M, Zeimet A, Fiegl H, Wolf B, Huber J, Klocker H, Gastl G, Sopper S, Wolf D. High prevalence of side population in human cancer cell lines. *Oncoscience* 2016; 3:85–87.

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Bösch M, Wolf D, Hatina J, Spoeck F, Parson W, Gastl G, Schmidt S, Reimer D, Zeimet A, Sopper S. The side population of ovarian cancer cells defines a heterogeneous compartment exhibiting stem cell characteristics. *Oncotarget* 2014; 5:7027–39.

Chiocchetti A, Klauck S, Lottspeich F, Kellermann J, Breitenbach M, Hintner H, Bauer J, Scheibe B, Poustka F, Freitag C, Wiemann S, Karl T, Bösch M, Haslinger D, Breitenbach-Koller L. Protein signatures of oxidative stress response in a patient specific cell line model for autism. *Mol Autism* 2014; 5:10.

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Zeimet A, Pesta M, Wolf D, Marth C, Fiegl H, Müller-Holzner E, Hofstetter G, Concin N, Untergasser G, Rumpold H, Wiedemair A, Roessler J, Martowicz A, Bösch M, Sopper S, Reimer D, Hatina J. Ovarian cancer stem cells. *Neoplasma* 2012; 59:747–55.

## Projects (7)

### **Profiling of quitting trajectories during smoking cessation attempt (SMOKEPROFILE-Study)**

*Fundamental Research - May 1, 2021 - Dec 30, 2023*

*Automatically Closed*

### **Comparison of the effect of outdoor eccentric versus indoor concentric exercise training on physical capacity and qualityof-life in patients with advanced COPD (DOWNHILL-study)**

*Fundamental Research - May 1, 2021 - Apr 30, 2025*

*Ongoing*

### **Smartphone-Enabled Detection of COugh in COvid-19 (COCO): An Exploratory, Single-Center, Observational Cohort Study**

*Clinical Studies - Dec 3, 2020 - Dec 3, 2020*

*Automatically Closed*

### **Predictive markers for checkpoint-based immunotherapy in advanced non-small cell lung cancer**

*Fundamental Research - Jan 1, 2020 - Dec 31, 2021*

*Completed*

### **The role of physical activity, malnutrition and sarcopenia for the prediction of acute exacerbations and the evolution of COPD assessment test (CAT) in patients with COPD**

*Clinical Studies - Nov 29, 2018 - Jun 30, 2021*

*Completed*

### **Targeting breast cancer through manipulation of IL-7 producing tumor fibroblasts**

*Fundamental Research - Jan 1, 2016 - Dec 31, 2017*

*Automatically Closed*

### **Selection and education of heart-specific Th cells by thymic and lymph node stromal cells**

*Fundamental Research - Apr 1, 2013 - Mar 31, 2016*

*Completed*