Curriculum Vitae

Name	Maries van den Broek
Date of birth	24.1.1960
Place of birth	Vught, The Netherlands
Nationality	Swiss

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Education

1978-1985	Undergraduate student in Biology, University of Nijmegen, The Netherlands.
December 1985	Diploma in Biology.
October 1988	PhD in Biology (Immunology), University of Nijmegen, The Netherlands.

Employment history including current position:

1988-1990	Postdoctoral fellow at the University of Nijmegen, The Netherlands (Experimental Rheumatology).
1991- 1992	Postdoctoral fellow at the University of Nijmegen, The Netherlands (Medical Parasitology).
1992-1993	Postdoctoral fellow at the University of Amsterdam, The Netherlands (CLB).
1994-1999	Senior scientist at the University of Zurich (Institute of Experimental Immunology).
2000-2008	Group leader at the University of Zurich (Institute of Experimental Immunology).
2008-2012	Group leader at the University of Zurich (Oncology).
Since 2013	Professor *ad personam* at the University of Zurich (Institute of Experimental Immunology).

Approved competitive research projects (currently running, Maries van den Broek as PI)

2013-2020	University Research Priority Project "translational cancer research".
2017-2018	Hortenstiftung. Topic: The role of exosomes in metastasis and response to radiotherapy.
2017-2018	Swiss Cancer League. Topic: The role of NK and NKT cells in development and progression of liver metastasis.
2018-2021	Swiss National Science Foundation. Topic: Impact of radiotherapy-induced inflammation on local tumor-specific immunity and metastasis.
2018-2021	Swiss National Science Foundation (Sinergia with Burkhard Ludewig, Mark Robinson and Bernd Bodenmiller). Topic: Defining the identity and differentiation pathways of the immune-stimulating fibroblastic tumor stroma.

Supervision of junior researchers

Supervision of 15 PhD students, 8 Postdocs and >20 Master students since 1997.

Current teaching activities

My current teaching volume is 3 h per week on average and includes:

- Immunology lectures (ETHZ, UZH).
- Participation in and organization of Bachelor, Master and Ph.D. courses (UZH).
- Mantelstudium (UZH medicine).
- Practical courses Immunology (ETHZ, UZH).
- Tutorials (problem-oriented learning, UZH medicine).

Current membership in panels, boards, etc

Since 2012	Board member/Director of the Cancer Network Zurich (elected president on 26.3.2017). www.cnz.uzh.ch
Since 2013	Scientific coordinator University Research Priority Project "Translational Cancer Research" (www.cancer.uzh.ch).
Since 2016	Director of the Cancer Biology Ph.D. program (Lifescience Zurich Graduate School) (www.lszgs.ch).
Since 1994	PhD committee member. Until now, I have served as a PhD committee member for >40 PhD students.
Since 2015	Editorial board of The European Journal of Immunology and Cellular Immunology.
Since 2017	Member of the board of directors of the Cancer Research Center Zurich (currently director).

Reviewer activities

- Reviewing of manuscripts for scientific journals. I regularly review submissions for following journals: Blood, Cancer Research, Clinical Cancer Research, European Journal of Immunology, Immunity, Journal of Experimental Medicine, Journal of Immunology, Nature, Nature Immunology, Nature Medicine, PNAS, Science, and others.
- Reviewing of grant proposals for scientific societies. Swiss National Science Foundation (SNSF), European Community/ERC, Deutsche Forschungsgesellschaft (DFG), Deutsche Krebshilfe, Oncosuisse, NIH, Dutch Organisation for Science (NWO), Cancer UK, Dutch Cancer Foundation (NKF), and others.

Organisation of conferences

- Co-initiator and co-organizer of the International ENII Summerschool for Immunology on Sardinia, which is attended by 130 PhD students and young Post Docs from over 40 countries on average and which was held every year since 2006. In 2010, 2011, 2014 and 2016 I was scientific director of the School (www.enii.org).
- Biennial Cancer Network Zurich retreat.

Major prizes, awards, fellowships

1988	Prof. Dr. J. Gosling prize (PhD. Thesis).
2006	Pfizerforschungspreis (H.C. Probst; Resting dendritic cells induce peripheral CD8+ T cell tolerance in vivo through PD-1 and CTLA-4).
2013	Dr. Ernst Th. Jucker-Prize for cancer research (Aldara activates TLR7-independent immune defence).

Major contributions to the field of tumor immunology

- While analyzing biopsies from patients with non-melanoma skin cancer we noticed that biopsies from patients treated with Aldara showed a changed infiltrate, which suggested involvement of immune mechanisms in therapeutic efficacy. Upon further analysis, we found that Aldara activates an array of unexpected innate defense pathways in mice and cancer patients (Walter A et al, Nature Communications 2013). I received the Ernst Jucker Prize for this work.
- Radiotherapy is a standard treatment for cancer and induces irreversible DNA damage, but recent data suggest that concomitant immune stimulation is an integral part of the therapeutic action of ionizing radiation. We have significantly contributed to this knowledge by showing that radiotherapy induces a signature typical for protective immunity in human sarcoma patients (Sharma A et al, Clin Cancer Res 2013). Furthermore, we discovered that radiotherapy induces immune-stimulating inflammation when given as a single dose. We were the first to identify local production of anaphylatoxins as essential to radiotherapy-induced maturation of dendritic cells and development of protective tumor-specific immunity (Surace L et al, Immunity 2015). We showed that, in contrast to single-dosed radiotherapy, conventional radiotherapy induces immunosuppressive, chronic inflammation (Surace L et al, Oncotarget 2015), a finding with high clinical relevance and translational potential. Understanding the local and systemic response to different, clinically relevant regimens of radiotherapy is the aim of the current proposal.
- Myeloid leukocytes are essentially involved in both tumor progression and control. We showed that a clinically relevant drug – a small-molecule inhibitor of CSF1R – results in an expected loss of CD115+ myeloid cells including tumor-promoting macrophages. Unexpectedly, however, we discoved that CSF1R-inhibition promotes metastasis in a preclinical model for spontaneous metastasis when given as neo-adjuvant therapy (Beffinger et al., revised manuscript submitted). We identified concomitant depletion of NK cells as underlying mechanism and showed that administration of the NK cell survival factor IL-15 reverts this process.
- Tertiary lymphoid structures (TLS) are associated with survival in various cancers, but how TLS develop in this context is poorly understood. We used multi-spectral microscopy, quantitative pathology and gene expression profiling to investigate TLS formation in human lung squamous cell carcinoma (LSCC). We discovered a niche of $CXCL13^+$ perivascular and $CXCL12^+LT\beta^+$ and $PD\text{-}L1^+$ epithelial cells that support TLS formation. We characterized sequential stages of TLS maturation that culminate in germinal center (GC) formation. The number of GC-positive TLS independently predicts survival of lung squamous cell carcinoma patients. In chemotherapy-treated patients, however, GC formation was significantly impaired and the prognostic value of TLS was lost. We show that corticosteroids that are administered concomitantly with chemotherapy inhibit the development of TLS and GC, suggesting that steroids impair the immune control of cancer (Silina et al, Cancer Res 2018).