# Remote control: the cancer cell-intrinsic mechanisms that dictate systemic inflammation and anti-tumor immunity

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## Curriculum vitae

Max Daniël Wellenstein was born on December 2nd 1989 in Voorburg. He graduated pre-university secondary education (Gymnasium) in 2008 from Dalton Voorburg, where he developed a fascination for the molecules that govern life. In 2009 he started his studies of Biology at Utrecht University (UU), obtaining his BSc. degree in 2012. During this time, he worked as a research assistant at the department of Molecular Plant Physiology (UU) with Dr. Henriette Schlüpmann, examining metabolic pathways in *Arabidopsis thaliana* plants. He also worked on microtubule dynamics as a research intern at the department of Cell Biology (UU) with Prof. Anna Akhmanova, and as a teaching assistant for courses on molecular biology and metabolism. Following his interest in cell biology gone awry, he enrolled in the Cancer Genomics and Developmental Biology MSc. program at UU in 2012. As part of his MSc., he studied regulators of DNA interstrand crosslink repair at the Hubrecht Institute in Utrecht under supervision of Dr. Puck Knipscheer. Subsequently, at Weill Cornell Medical College of Cornell University in New York, he studied matrix metalloproteinase signaling in the lung cancer microenvironment with Prof. Vivek Mittal, triggering his interest in the study of complex cellular interplay in tumors. This prompted him to join the lab of Prof. Karin de Visser at the Netherlands Cancer Institute in Amsterdam as a Ph.D. candidate in 2014, for further exploration of the inner workings of the tumor microenvironment and systemic inflammation in breast cancer. The results of this work are presented in this thesis. From 2020 onwards, he continues examining cancer and immune heterogeneity as a postdoctoral researcher in the lab of Prof. Alexander van Oudenaarden at the Hubrecht Institute.

## Publications

***In vitro* assessment of cancer cell-induced polarization of macrophages**
Danique E.M. Duits, Max D. Wellenstein, Karin E. de Visser*
*Methods in Enzymology*. 2020 Feb; 632:133-154. doi: 10.1016/bs.mie.2918.06.011.

**Loss of p53 triggers WNT-dependent systemic inflammation to drive breast cancer metastasis**
Max D. Wellenstein#, Seth B. Coffelt#, Danique E.M. Duits, Martine H. van Miltenburg, Maarten Slagter, Iris de Rink, Linda Henneman, Sjors M. Kas, Stefan Prekovic, Cheei-Sing Hau, Kim Vrijland, Anne Paulien Drenth, Renske de Korte-Grimmerink, Eva Schut, Ingrid van der Heijden, Wilbert Zwart, Lodewyk F.A. Wessels, Ton N. Schumacher, Jos Jonkers*, Karin E. de Visser*
*Nature*. 2019 Aug; 572(7770): 538-542. doi: 10.1038/s41586-019-1450-6.

**Fatty acids corrupt neutrophils in cancer**
Max D. Wellenstein, Karin E. de Visser*
*Cancer Cell*. 2019 Jun; 35(6):827-829. doi: 10.1016/j.ccell.2019.05.007.

**Cancer-cell-intrinsic mechanisms shaping the tumor immune landscape**
Max D. Wellenstein, Karin E. de Visser*
*Immunity*. 2018 Mar; 48(3):399-416. doi: 10.1016/j.immuni.2018.03.004.

**Mammary tumor-derived CCL2 enhances pro-metastatic systemic inflammation through upregulation of IL1β in tumor-associated macrophages**
Kelly Kersten, Seth B. Coffelt, Marlous Hoogstraat, Niels J.M. Verstegen, Kim Vrijland, Metamia Ciampricotti, Chris W. Doornebal, Cheei-Sing Hau, Max D. Wellenstein, Camilla Salvagno, Parul Doshi, Esther H. Lips, Lodewyk F.A. Wessels, Karin E. de Visser*
*Oncoimmunology*. 2017 Jun; 19;6(8):e1334744. doi: 10.1080/2162402X.2017.1334744.

**Matrix Metalloproteinase 14 promotes lung cancer by cleavage of Heparin-Binding EGF-like Growth Factor**
Marcin Stawowczyk#, Max D. Wellenstein#, Sharrell B. Lee#, Shira Yomtoubian, Anna Durrans, Hyejin Choi, Navneet Narula, Nasser K. Altorki, Dingcheng Gao*, Vivek Mittal*
*Neoplasia*. 2017 Feb; 19(2):55-64. doi: 10.1016/j.neo.2016.11.005.

**Neutrophils in cancer: neutral no more**
Seth B. Coffelt, Max D. Wellenstein, Karin E. de Visser*
*Nature Reviews Cancer*. 2016 Jul; 16(7):431-446. doi: 10.1038/nrc.2016.52.

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## Manuscripts in revision, under review or in preparation

**Distinct p53 hotspot mutations in breast cancer regulate immunotherapy response through differential activation of autophagy**
Max D. Wellenstein, Stefan Prekovic#, Isabel Mayayo-Peralta#, Onno B. Bleijerveld, Liesbeth Hoekman, Cheei-Sing Hau, Kevin Kos, Elisabeth A.M. Raeven, Kim Vrijland, Daphne Kaldenbach, Danique E.M. Duits, Anni Laine, Maarten Altelaar, Wilbert Zwart, Karin E. de Visser*
*In revision (Nature Cancer).* 2020

**Glucocorticoids regulate cancer cell dormancy**
Stefan Prekovic#, Karianne Schuurman#, Anna González Manjón, Mark Buijs, Isabel Mayayo-Peralta, Max D. Wellenstein, Seçuk Yavuz, Alejandro Barrera, Kim Monkhorst, Anne Huber, Ben Morris, Cor Lieftink, Joana Silva, Balázs Győrffy, Liesbeth Hoekman, Bram van den Broek, Hans Teunissen, Timothy Reddy, William Faller, Roderick Beijersbergen, Jos Jonkers, Maarten Altelaar, Karin E. de Visser, Elzo de Wit, Rene Medema, and Wilbert Zwart*
*Under review. Preprint at bioRxiv.* 2019 Sep; doi: 10.1101/750406

**Proteomic characterization of neutrophils in metastatic breast cancer reveals tissue- and maturation state-specific phenotypes**
Max D. Wellenstein, Seth B. Coffelt, Onno B. Bleijerveld, Hannah Garner, Cheei-Sing Hau, Kim Vrijland, Maarten Altelaar, Karin E. de Visser*
*In preparation.*

**MET controls the immune landscape of triple-negative breast cancer**
Danique E.M. Duits#, Max D. Wellenstein#, Linda Henneman, Martine H. van Miltenburg, Seth B. Coffelt, Celine Sewnath, Kevin Kos, Anni Laine, Chris Doornebal, Kim Vrijland, Cheei-Sing Hau, Elisabeth A.M. Raeven, Daphne Kaldenbach, Anne Paulien Drenth, Renske de Korte-Grimmerink, Eva Schut, Jos Jonkers, Karin E. de Visser*
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