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Intercellular communication between glioma and innate immune cells

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List of publications

Abels ER, Nieland L, Hickman S, Broekman MLD, El Khoury J and Maas SLN. Comparative Analysis Identifies Similarities between the Human and Murine Microglial Sensomes. *International Journal of Molecular Sciences*. 2021

Nieland L, Morsett LM, Broekman MLD, Breakefield XO and **Abels ER**. Extracellular Vesicle-Mediated Bilateral Communication Between Glioblastoma and Astrocytes. *Trends in Neuroscience*. 2020

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Intracranial Glioma. *Cell Reports*. 2019

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Abels ER, Breakefield XO. Introduction to Extracellular Vesicles: Biogenesis, RNA Cargo Selection, Content, Release, and Uptake. *Cellular and Molecular Neurobiology*. 2016

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van der Vos KE, **Abels ER**, Zhang X, Lai C, Carrizosa E, Oakley D, Prabhakar S, Mardini O, Crommentuijn MH, Skog J, Krichevsky AM, Stemmer-Rachamimov A, Mempel TR, El Khoury J, Hickman SE and Breakefield XO. Directly Visualized Glioblastoma-Derived Extracellular Vesicles Transfer RNA to Microglia/macrophages in the Brain. *Neuro-Oncology*. 2016



Curriculum Vitae

Erik Abels was born in Hilversum, the Netherlands (March 18th, 1987). He finished his Gymnasium in 2006, at the Comenius College in Hilversum. His academic studies started with the Bachelors Biomedical Science (completed in 2010) at the Vrije Universiteit (VU) in Amsterdam followed by the Master Oncology (completed in 2013). During this Master Erik did an internship at the lab of prof. dr. Xandra Breakefield at the Massachusetts General Hospital in Boston. The research topic and the intellectual environment as well as the experience of living abroad were the deciding factor to pursue an external PhD in the lab of prof. dr. Xandra Breakefield. The focus of the research was on extracellular vesicles and their role in the intercellular communication between innate immune cells and tumor cells in a brain tumor model. In detail, he studied the interaction between tumor cells and microglia. Currently he works in the group of prof. dr. Jacques Neefjes, investigating how anthracyclines penetrate into tissue from one cell layer to the next.

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First and foremost, I would like to thank my mentor, prof. dr. Xandra Breakefield, for supporting during my PhD in her lab. Your persistent enthusiasm for science and overall positivity were a major motivator for me to pursue an academic career. All the experiences gained working in the lab has helped me develop, whether it was to critically analyze all experimental data also when all seems lost or your will and openness to collaborate in order to advance science.

Many thanks to my promotor and co-promoters, prof. dr. Wilco Peul, dr. Marike Broekman and dr. Niek Maas. Prof. Peul thanks for supporting me and facilitating me to complete an external PhD at the LUMC. Marike your positivity and everlasting energy have been a great motivator. I very much enjoyed the work and research we have been able to do over the last years and hope we can continue this, exploring the role of microglia in the tumor microenvironment. Niek, our journey started in Boston and so far, has taken us back to the Randstad. During this time, I very much enjoyed working together, whether it was late night experiments, discussing data or publishing many papers together. Also, our time outside the lab, celebrating Thanksgivings, visiting Heidelberg or having beers in Utrecht have always been fun.

Special thanks to Joe El Khoury for being able to work and collaborate on all our projects, your infinite knowledge regarding microglia biology has been enormously educational for me. Working so close together with your lab has been a joy. To that extent I also want to thank Suzanne Hickman for all the help in the numerous projects and animal experiments, as well as Liza Morsett who has helped and performed many immunostainings.

Spending a substantial time in the Breakefield lab has had the advantage of meeting many people who spend various amounts of time doing research in the lab. It has always been a great atmosphere to work in the lab and to meet new people and make new friends. First of all, I would like to thank Shilpa who is a great lab manager and helped me throughout my stay. Xuan Zhang, you have taught and helped me with many lab techniques during the start of my PhD. I would also like to thank Pixie for sharing her great knowledge on animal surgeries, primary cultures and being such a happy-spirited colleague. But also, all the other (former) members of the Breakefield lab: Naoto, Leonora, Kristan, Charles, Osama, Mikolaj, Bence, Alessandro, Killian, Koen, Stefano, Lilian, Jamal and Robin. Having fellow Dutchies, Tommy and Lisa, among the lab members creates a special band in and outside the lab. I am glad to be able to still work with Lisa, who I hope to transfer my experience of being a PhD student in the Breakefield lab to. My thanks also extend to the labs that were part of the unit, including the Tannous lab, Badr

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While living abroad means that you leave friends behind in your home country it also means that you got to make and meet a lot of new friends. Having both friends at both sides of the Atlantic has been such a privilege. Traveling around the US attending hockey tournaments or camping in New England but also heading to India has enriched the period of doing a PhD abroad. In addition, flying back to and spending time at home still hanging out with my friends from the motherland has helped me appreciate the people I have around me.

Mijn dank gaat uit naar mijn familie, met natuurlijk extra aandacht voor mijn vader en moeder, welke mij altijd ondersteund heeft en zelfs als geheel gezin als surprise mijn 30^e verjaardag in Boston kwam vieren. Alhoewel ik ver van huis was, zorgde dit er ook voor dat de momenten dat jullie langskwamen extra speciaal waren. En als laatste mijn lieve echtgenoot, Nonet, welke mij achterna wilde en durfde te reizen en met wie ik talloze avonturen, mooie momenten, national parks heb ervaren en met wie ik samen veel nieuwe vrienden heb leren kennen. Jij heb een extra dimensie gegeven aan mijn tijd in Boston en zal nooit meer zonder je kunnen.

