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Modelling the role of cytotoxic T lymphocytes in tumour regression

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Curriculum Vitae

Richard Beck was born in Whitehaven, England on February 2nd 1993. In 2011, he began his studies in Engineering Science at the University of Oxford. At Oxford, Richard specialised in biomedical engineering and during his Masters he developed mathematical models of the acid-sensing ion channel. He graduated with the degree Master of Engineering in 2015, whereupon he immediately began his PhD at the Leiden Academic Centre for Drug Research, on the project: "Modelling the role of cytotoxic T lymphocytes in tumour regression". The research was conducted under the supervision of Prof. Bob van de Water and Dr. Joost B. Beltman. From August 2021 Richard will begin a postdoctoral position at the department of integrated mathematical oncology at the Moffit cancer center in Florida.

List of publications

Beck, Richard J., Maarten Slagter, and Joost B. Beltman. "Contact-dependent killing by cytotoxic T lymphocytes is insufficient for EL4 tumor regression in vivo." *Cancer research* 79, no. 13 (2019): 3406-3416.

Cazaux, Marine, Capucine L. Grandjean, Fabrice Lemaître, Zacarias Garcia, **Richard J. Beck**, Idan Milo, Jérémy Postat, Joost B. Beltman, Eleanor J. Cheadle, and Philippe Bousso. "Single-cell imaging of CAR T cell activity in vivo reveals extensive functional and anatomical heterogeneity." *Journal of Experimental Medicine* 216, no. 5 (2019): 1038-1049.

Beck, Richard J., Dario I. Bijker, and Joost B. Beltman. "Heterogeneous, delayed-onset killing by multiple-hitting T cells: Stochastic simulations to assess methods for analysis of imaging data." *PLoS computational biology* 16, no. 7 (2020): e1007972.

Beck, Richard J., Bettina Weigelin, and Joost B. Beltman. "Mathematical modelling based on in vivo imaging suggests CD137-stimulated cytotoxic T lymphocytes exert superior tumour control due to an enhanced antimitotic effect" *Cancers*, in press.

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