Imaging the (un)imaginable of the Barrier Immune system

Guo, N.

Curriculum vitae

Nannan Guo was born on the 25th of June in 1992 in Changchun, China, where she grew up. In 2010, She started her studies Biotechnology at Jilin University in Changchun, and obtained her Bachelor's degree in 2014. She then attended the Biochemistry and Molecular Biology at Jilin University as a master under the supervision of Prof. Ouyang Hongsheng. In 2017, she obtained her master degree with research project on "Screening of the paired heavy chain-light chain gene sequences from a single cell secreting neutralizing antibody of swine fever virus". After obtaining funding for a four-year PhD study abroad from the Chinese scholarship, thereby, she started her PhD study in January 2018 at the department of Immunology (IMMU) at Leiden University Medical Center (LUMC) under the supervision of Prof. Frits Koning.

As described in this thesis, her research focused on investigate immune compartmentalization in the developing human intestine, and lesional/healthy skin tissue from patients with mycosis fungoides and psoriasis by single-cell spectral flow cytometry, suspension mass cytometry, single-cell RNA-sequencing, functional assays, RNAscope and imaging mass cytometry during her PhD study. Since 2021, Nannan collaborated with the group of Prof. Dr. Stephan Weidinger from University Hospital Schleswig-Holstein for clinical trial of Atopic Dermatitis by IL-13 antibody treatment. During her PhD studies, she visited seven conferences related to Immunology, of which she attended four with an oral presentation.

List of publications

Guo N, Li N, Li J, Jiang Q, Schreurs M, van Unen V, Chuva de Sousa Lopes SM, Vloemans SA, Eggermont J, Lelieveldt BPF, Staal FJT, de Miranda NFCC, Pascutti MF, Koning F. Immune subset-committed proliferating cells populate the human foetal intestine throughout the second trimester of gestation.
Nature Communications 2023, 10;14(1):1318

Guo N, Jia L, Out-Luiting C, Miranda N, Willemze R, Koning F, Vermeer M, Quint K. Mass Cytometric Analysis of Early-Stage Mycosis Fungoides.
Cells 2022, 11(7), 1062.

Guo N, van Unen V, Ijsselsteijn ME, Ouboter LF, van der Meulen AE, Chuva de Sousa Lopes SM, de Miranda N, Koning F, Li N. A 34-Marker Panel for Imaging Mass Cytometric Analysis of Human Snap-Frozen Tissue.
Frontiers in Immunology 2020, 11:1466.

Li N, van Unen V, **Guo N**, Abdelaal T, Somarakis A, Eggermont J, Mahfouz A, Chuva de Sousa Lopes SM, Lelieveldt BPF, Koning F. Early-Life Compartmentalization of Immune Cells in Human Fetal Tissues Revealed by High-Dimensional Mass Cytometry.
Frontiers in Immunology 2019, 10:1932.

Li N, van Unen V, Abdelaal T, **Guo N**, Kasatskaya SA, Ladell K, McLaren JE, Egorov ES, Izraelson M, Chuva de Sousa Lopes SM, Höllt T, Britanova OV, Eggermont J, de Miranda NFCC, Chudakov DM, Price DA, Lelieveldt BPF, Koning F. Memory CD4+ T cells are generated in the human fetal intestine.
Nature Immunology 2019, 20:301-312.

Raeber ME, Caspar D, Zurbuchen Y, **Guo N**, Schmid J, Michler J, Steiner UC, Moor AE, Koning F, Boyman O. Interleukin-2 immunotherapy reveals human regulatory T cell subsets with distinct functional and gatekeeper features.
Submitted

Guo N, Schreurs M, Eggermont J, Kieras E, Eleuteri D, Niedecken SC, Ty C, Leieveldt BPF, de Miranda NFCC, Page KM, Koning F. Immune Profiling of Psoriasis by Imaging Mass Cytometry.
In preparation

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