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## Glycosylation analysis of immune-related molecules

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## CURRICULUM VITAE

Iwona Borošak (*née* Wójcik) was born on September 18<sup>th</sup>, 1989 in Sosnowiec, Poland. Her insatiable curiosity and endless fascination with the natural world manifested at an early stage, nurturing a profound interest in biology and chemistry.

Her passion for the natural sciences led her to pursue her academic career at Jagiellonian University, where she obtained both her Bachelor's and Master's degrees in Biotechnology. Her education was broadly focused on various aspects of molecular biology and biochemistry, equipping her with a versatile skill set that included techniques in analytical chemistry, molecular biology, and cell culture. During her Master's she specialized in proteomics and mass spectrometry while focusing her research on the proteomic analysis of *Staphylococcus aureus* virulence factors. This period solidified her fascination with the intricate biochemical processes within the human body.

Motivated by her desire to unravel the complexities of the human body, in 2017, she decided to pursue her scientific career in interdisciplinary and international research settings applying for the prestigious Marie Skłodowska-Curie fellowship. Upon approval, she joined the interdisciplinary European Industrial Doctorate program (GlySign) at Leiden University Medical Centre (LUMC) in the Netherlands. While primarily enrolled in a doctorate program at LUMC and engaged in research projects led by Prof. Manfred Wuhrer, she spent a significant portion of her time at the industrial partner Genos Ltd led by Prof. Gordan Lauc. This dual engagement in both industry and academia provided her with valuable experience. At Genos, supervised by Maja Pučić-Baković, she mastered high-throughput techniques for immunoglobulin G and plasma N-glycosylation analysis. She also contributed to developing novel methods for N-glycan analysis. At LUMC, mentored by Dr. David Falck, she refined her expertise in LC-MS N-glycosylation analysis. During her work there, she mapped the N-glycosylation of Fc gamma receptor IIIb and analyzed subclass-specific IgG N-glycosylation in different pathological conditions. Her research led to several publications in peer-reviewed journals.

Currently, Iwona is employed as a Researcher at Genos Ltd., Zagreb, within the group of Gordan Lauc, where she is deepening her understanding of glycans as potential biomarkers and leveraging high-throughput glycomic techniques. Her scientific interests are focused on glycobiology, mass-spectrometry-based proteomics, protein chemistry, and biomarker discovery.



## LIST OF PUBLICATIONS

### First author papers

- 1) **Site-Specific Glycosylation Mapping of Fc Gamma Receptor IIIb from Neutrophils of Individual Healthy Donors**  
Iwona Wojcik, Thomas Sénard, Erik L de Graaf, George MC Janssen, Arnoud H de Ru, Yassene Mohammed, Peter A van Veelen, Gestur Vidarsson, Manfred Wuhrer and David Falck  
  
Analytical Chemistry 92(19):13172-13181, 2022
- 2) **A functional spleen contributes to afucosylated IgG in humans**  
Iwona Wojcik, David E. Schmidt, Lisa A. de Neef, Minke A.E. Rab, Bob Meek, Okke de Weerd, Manfred Wuhrer, C. Ellen van der Schoot, Jaap J. Zwaginga, Masja de Haas, David Falck and Gestur Vidarsson  
  
Scientific Reports 15;11(1):24045, 2021
- 3) **Seminal plasma N-glycome as a new biomarker of environmental exposure associated with semen quality**  
Maric T, Wójcik I, Katusic Bojanac A, Matijevic A, Ceppi M, Bruzzzone M, Evgeni E, Petrovic T, Trbojevic-Akmacic I, Lauc G, Jezek D and Fucic A  
  
Reproductive Toxicology 113:96-102, 2022
- 4) **Specific IgG glycosylation differences precede relapse in PR3-ANCA PR3-ANCA-associated vasculitis patients with and without ANCA rise**  
Iwona Wojcik<sup>1,2</sup>, Manfred Wuhrer<sup>1</sup>, Peter Heeringa<sup>3</sup>, Coen Stegeman<sup>4</sup>, Abraham Rutgers<sup>5</sup>, David Falck<sup>1</sup>  
  
Frontiers in Immunology 14:1214945, 2023



## ACKNOWLEDGMENTS

Dear reader, thank you for taking the time to read my thesis and reaching this section, where I would like to acknowledge the exceptional individuals who made this thesis possible. From my esteemed promotors and co-promotors to my amazing friends. Thanks to all of them, I am about to defend my PhD thesis, filled with profound gratitude and appreciation. First, I would like to express my sincere gratitude to my promotor, Manfred, for allowing me to pursue my doctorate and explore the exciting field of glycobiology. I am deeply thankful for your immense support, expert guidance, and encouragement. Your brilliance, wisdom, and analytical knowledge command respect, while your care for students and remarkable organizational skills are truly admirable!

I wish to extend my deepest gratitude to my promotor, Gordan, for offering me the life-changing opportunity to relocate to Croatia and participate in the GlySign project. I could not have asked for a better mentor and ultimately a boss and I am profoundly grateful for your unwavering friendliness, genius, and support throughout my efforts.

I am immensely grateful for the unconditional guidance and exceptional support I received, even from a distance, from my co-promotor, David. I am deeply thankful for reading and re-reading my manuscripts, always providing insightful, constructive feedback and invaluable advice. I admire your analytical mind, and extensive knowledge, and consider myself truly fortunate to have had you as my supervisor!

I would like to extend my sincere thanks to Maja and Mislav, who have been great daily supervisors at Genos. I am grateful for their profound belief in my abilities, their helpful advice and practical suggestions. It has been an immense pleasure to work with you and I look forward to having an opportunity to collaborate with you in the future.

I would like to thank our collaborators from Sanquin, especially Gestur, for expanding my knowledge in immunology. I enjoyed our insightful discussions, and I found myself continually impressed by your expertise, knowledge and dedication. It was a pleasure to work with you.

I shared my PhD time between Leiden University Medical Center and Glycoscience Research Laboratory in Zagreb. A special thanks go to my Genos colleagues, Olga, Tomislav, Marija, and Anne-Marie for sharing the office with me, engaging in discussions, and offering words of advice and encouragement. I am also grateful to my colleagues at LUMC for their warm welcome, inspiring discussions, and tremendous support.

My PhD journey would not have been the same without my friends Aniela and Daniel. Aniela, you are an inspiring person and a very talented scientist, I learnt so much from you. Daniel, you are the most fun and intelligent person I know! Thank you for always being there

for me, and I am happy to have you by my side during my upcoming defence. I look forward to continuing to support each other through life's ups and downs.

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I would also like to thank my student Eva for her excellent work and for bringing out the best in me as a supervisor.

GlySign fellows, it was a great adventure exploring both the Netherlands and Croatia, and participating in various training sessions together. I truly enjoyed our time together, and wish you all the best in your careers.

I am grateful to my husband, not only for prioritizing my career alongside our lives, but also for sharing this incredible journey with me. Thank you for your unwavering support, smile and optimism over the long working weekends.

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*Twona*