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Survival of the littlest: improving preterm outcomes through metabolomics and microsampling

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Citation

Thangavelu, M. U. (2026, February 26). *Survival of the littlest: improving preterm outcomes through metabolomics and microsampling*. Retrieved from <https://hdl.handle.net/1887/4293294>

Version: Publisher's Version

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Note: To cite this publication please use the final published version (if applicable).

Curriculum Vitae

Manchu Umarani Thangavelu was born in Vellore, India, on 12 May 1993. She obtained a Bachelor of Engineering in Electrical and Electronics Engineering from M.S. Ramaiah Institute of Technology, Bangalore, India, in 2015. Her undergraduate thesis focused on the design and implementation of ultrasound sensor-based safety systems in automobiles for detecting road surface anomalies. Following her graduation, she worked for two years as a Systems Engineer in Infosys Limited, Bangalore, where she acquired experience in programming and enterprise messaging systems, supporting the operations of the Global Messaging Hub within the banking domain. Driven by a growing interest in the intersection of engineering and healthcare, she pursued a Master of Science in Biomedical Engineering at KU Leuven, Leuven, Belgium, graduating in 2019. During her studies, she completed an internship at Materialise NV, Leuven, where she contributed to personalized surgical planning by designing and 3D printing patient-specific spacer guides for radial osteotomy using proprietary software. Her Master's thesis focused on the mechanical characterization of surgical meshes, integrating experimental testing with finite-element simulations to improve implant performance. In 2020, she joined the Metabolomics and Analytics Centre at Leiden University as a PhD candidate under the supervision of Prof. dr. Thomas Hankemeier. Her doctoral research has been dedicated to applying targeted metabolomics and advanced microsampling techniques to improve clinical outcomes in preterm neonates. She has presented her work at several conferences, including the 2024 Metabolomics Conference in Osaka, Japan, and the Nordic Metabolomics Conference in Turku, Finland, for which she received a competitive travel grant. Her work has been published in reputable peer-reviewed journals, such as *Analytical Science Advances*, the *Journal of Proteome Research*, and *Scientific Reports*. In addition to traditional scientific communication, she engaged in creative science outreach, and was the Runner-Up in the EMN MetaboArt competition 2024, organized by the Early Career Members Network of the Metabolomics Society. Since September 2025, she has been working as a postdoctoral researcher at the National Centre for Register-based Research, Department of Public Health, Aarhus University, Denmark. Her current research examines the interplay between biology and environment to predict eating disorder risk and course through a comprehensive analysis of neonatal metabolic, immune, and neurotrophic biomarkers, epidemiological factors from Danish registers, and genetics.

List of Publications

1. ***Thangavelu, M. U., *Ronde, E., Lamont, L., Elfrink, H., Harms, A., de Rijke, Y.B., Franx, A., de Meij, T.G.J., A. Kindt, A., Irwin K.M. Reiss, & Schoenmakers, S. & Hankemeier, T.** (2025, December 04). Maternal urinary metabolic signatures preceding spontaneous preterm birth: A pilot study. *Scientific Reports*. <https://doi.org/10.1038/s41598-025-28436-1>.
2. **Thangavelu, M. U., Kindt, A., Hassan, S., Geerlings, J.J.B., Nijgh-van Kooij, C., Reiss, I. K. M., Wouters, B., Taal, H.R., & Hankemeier, T.** (2025, April 30). Survival of the littlest: Navigating sepsis diagnosis beyond inflammation in preterm neonates. *Journal of Proteome Research*. <https://doi.org/10.1021/acs.jproteome.4c01072>
3. **Thangavelu, M. U., Wouters, B., Kindt, A., Reiss, I. K. M., & Hankemeier, T.** (2023, May 18). Blood microsampling technologies: Innovations and applications in 2022. *Analytical Science Advances*. Wiley. <http://doi.org/10.1002/ansa.202300011>
4. **Thangavelu, M. U., Kindt, A., Wouters, B., Lamont, L., Elfrink, H., Harms, A., & Hankemeier, T.** Volumetric absorptive microsampling for profiling of signaling lipids: A comparative analysis with whole blood and dried blood spots. *Analytical and Bioanalytical Chemistry*. *Manuscript Accepted*

**Shared first authors*

Acknowledgements

This thesis represents the culmination of a long, fulfilling academic journey, enriched by scientific exploration and personal development, and made possible by the support and guidance of many.

First and foremost, I would like to express my sincere gratitude to Prof. dr. Thomas Hankemeier for the opportunity to pursue my doctoral research within his research group. Thomas, your curiosity-driven approach to science and ambitious ideas have been a constant source of inspiration. Our discussions often introduced perspectives I had not considered before, and your ability to view scientific questions from unique angles has profoundly shaped the way I think about and conduct research.

Prof. dr. Irwin Reiss, I am deeply grateful for your role in defining the scope, direction, and conceptual framework of this PhD. Your careful manuscript reviews and critical feedback have significantly strengthened this thesis.

I am grateful to Dr. Bert Wouters for his technical expertise and guidance during the first year of my PhD, which established a strong foundation. Bert, the feedback you provided during my first annual review marked a turning point in my development toward greater independence and confidence as a researcher. Even after relocating to Singapore, your continued involvement remained of great value and is deeply appreciated.

A special mention goes to Dr. Alida Kindt, who stepped in at a critical moment to assume daily supervision in Bert's absence. Alida, you are truly the reason I developed a deep passion for data analysis. Your patience, curiosity, and genuine enthusiasm for discussion created a space in which I felt encouraged to ask questions freely. You were a constant pillar of strength during my PhD journey, continuously supporting and motivating me, and I am deeply thankful for your mentorship.

To my collaborators, Rob, Shaawen, Sam, and Emma, I am deeply grateful for your dedicated efforts at the clinical front line which was essential to the success of these projects. Yolanda, thank you for your guidance during the initial phase of PhD, and for supporting the early presentation of my work. Alex Eggink, I appreciate the opportunities you provided to present my work at symposia and conferences, which enriched my PhD experience and broadened my scientific exposure. I would also like to thank Raphael, Koen, and Beau for generously sharing their expertise beyond my own, which enabled the exploration of innovative ideas that shape part of the future work of this thesis.

Thank you, Amy, Lieke, and Hyung, for your insightful inputs on method development, experimental protocols, and study design that refined my approaches and strengthened this

work's foundation; Zeinab, Jelte, Sam, Tim, Charlotte, and Gerwin, for your assistance with hands-on lab work and instrumentation fixes that ensured smooth progress; Michael and Pascal, for your software tools that made data preprocessing dramatically easier; and Cathy, Ina and Ariadne for ensuring all administrative processes ran smoothly throughout the PhD.

I am grateful to my students, Julia Zinger, Julia Labeur, Ruchira, and Asli, whose extensive preliminary work and protocol optimization contributed meaningfully to these projects' success.

To Mariyana, who started this PhD with me, you have been my constant through every high and low. We struggled, celebrated, doubted, and pushed forward together and I cannot imagine this journey without you. Among everything this PhD has given me, your friendship is one of the most valuable things I will carry forward. Kanchana, Madhu, and Ashok, your presence has meant more than words can capture. Your warmth, laughter, and the sense of home sustained me when it was most needed. Sabrina and Merys, although we met later, you quickly came to hold a very special place in my life, and I will always treasure the moments we shared. Thank you all for being my chosen family here.

Marielle and Hyung, thank you for your assistance with the Dutch summary. To all my colleagues over the years, thank you for creating an inclusive, supportive, and enjoyable work environment. To Zhengzheng, Pingping, Wei, Bingshu, Yupeng, Congrou, Mengle, Chunyuan, Yu, Lu, Yiwei, and Grace, your dedication and strong work ethic have been truly inspiring, and the hotpot gatherings remain cherished memories. To Farideh, Ischa, Barbara, Simon, Nicolas, Marlien, Marielle, Isabelle, Laura, Sabine, Guus, Laurens, Marissa, Mai, Elham, and Melissa, thank you for the many shared conversations and moments that brought laughter, perspective, and a strong sense of community to everyday work life.

Last but not the least, I thank my parents for their unconditional love and support throughout my academic journey. I am also grateful to my sister and brother-in-law for influencing my decision to move to Europe to pursue my higher education, a choice that was challenging at the time but has since proven deeply rewarding and ultimately shaped the path leading to this PhD.

Finally, to everyone who contributed to this journey, directly or indirectly, thank you for making this work possible.

Appendix