



Universiteit
Leiden

The Netherlands

Exploring the clinical applicability of quantitative near-infrared fluorescence imaging with indocyanine green: towards objective and standardized assessment of tissue perfusion

Tange, F.P.

Citation

Tange, F. P. (2026, September 15). *Exploring the clinical applicability of quantitative near-infrared fluorescence imaging with indocyanine green: towards objective and standardized assessment of tissue perfusion*. Retrieved from <https://hdl.handle.net/1887/4309589>

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/4309589>

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

Exploring the clinical applicability of quantitative near-infrared fluorescence imaging with indocyanine green

Towards objective and standardized assessment
of tissue perfusion

Floris P. Tange

Copyright 2026 Floris P. Tange ©
ISBN: 978-94-6537-647-9

The author gratefully acknowledges financial support for the printing of this thesis from, among others, the Department of Surgery of Leiden University Medical Center, Leiden University Libraries, ChipSoft, and the Hippocrates Studiefonds.

Design and layout: Joey Roberts | www.ridderprint.nl
Printing: Ridderprint | www.ridderprint.nl

Exploring the clinical applicability of quantitative near-infrared fluorescence imaging with indocyanine green

Towards objective and standardized assessment of tissue perfusion

Proefschrift
ter verkrijging van
de graad van doctor aan de Universiteit Leiden,
op gezag van rector magnificus prof.dr. S. de Rijcke,
volgens besluit van het college voor promoties
te verdedigen op dinsdag 15 september 2026
klokke 11:30 uur

door

Floris Pieter Tange
geboren te Venlo
in 1998

Promotoren

Prof. Dr. J.F. Hamming

Prof. Dr. A.L. Vahrmeijer

Dr. J.R. van der Vorst

Leden promotiecommissie

Prof. dr. N.D. Bouvy

Dr. H.H. Hartgrink

Prof. dr. C. Verhoef (Erasmus Medisch Centrum, Rotterdam)

Prof. dr. J.P.P.M. de Vries (Universitair Medisch Centrum Groningen, Groningen)

Voor mijn ouders en zussen
Voor Frédérique

Table of contents

Chapter 1	Introduction and thesis outline	8
Chapter 2	Near-infrared fluorescence imaging with indocyanine green to predict clinical outcome after revascularization in lower extremity arterial disease. <i>Angiology (2024)</i>	16
Chapter 3	Evaluation of the angiosome concept using near-infrared fluorescence imaging with indocyanine green. <i>Annals of Vascular Surgery (2023)</i>	34
Chapter 4	Quantitative assessment of bowel tissue perfusion using indocyanine green near-infrared fluorescence imaging in colorectal surgery. <i>Surgical Endoscopy (2023)</i>	52
Chapter 5	A quantitative assessment of perfusion of the gastric conduit after oesophagectomy using near-infrared fluorescence with indocyanine green. <i>European Journal of Surgical Oncology (2023)</i>	72
Chapter 6	Indocyanine green for perfusion assessment of DIEP flaps: a Dutch multicenter randomized controlled trial. <i>Contemporary Clinical Trials Communications (2023)</i>	88
Chapter 7	Establishing reference curves for vital tissue perfusion using quantitative near-infrared fluorescence imaging with indocyanine green. <i>Langenbeck's Archives of Surgery (2025)</i>	100
Chapter 8	Summary, discussion and future perspectives	120
Chapter 9	Dutch summary	132
	Curriculum Vitae	135
	List of publications	136
	Acknowledgements	139