

Curriculum Vitae

Neil Lagali

Date of birth: May 6, 1973

Citizenship: Canadian, Swedish

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Current title

Docent i experimentell oftamologi

(Lecturer in experimental ophthalmology)

Current position

Associate Professor and Docent, Ophthalmology

Department of Clinical and Experimental Medicine, Linköping University

From 2012-02-01

Previous positions (academic)

EU-FP7 Marie Curie International Incoming Research Fellow 2009-04-01 to 2011-04-01

Department of Clinical and Experimental Medicine, IKE

Linköping University, Sweden

Visiting Postdoctoral Research Fellow 2007-11-01 to 2009-03-31

County Council of Östergötland

Department of Ophthalmology, Linköping University Hospital, Sweden

Research Associate 2007-04-01 to 2007-10-15

University of Ottawa Eye Institute, Ottawa Hospital, Ottawa, Canada

CIHR Postdoctoral Research Fellow 2003-09-01 to 2007-03-31

Ottawa Hospital Research Institute, Ottawa Hospital, Ottawa, Canada

NSERC International Postdoctoral Research Fellow 1999-10-01 to 2000-09-01
MESA⁺ Research Institute, University of Twente, Enschede, The Netherlands

Previous Positions (industry)

Senior Optical Designer 2001-09-15 to 2003-08-01
Photonics Group, Ceyba Inc., Ottawa, Canada

Senior Optical Engineer and Team Leader 2000-10-01 to 2001-08-01
Optical Design Group, DuPont Photonics, Wilmington, MA, USA

Education

Doctor of Philosophy, Granted June 8, 2000
Electrical and Computer Engineering
University of Alberta, Edmonton, Canada

Bachelor of Engineering Physics and Management, Granted June 1996
McMaster University, Hamilton, Canada

Major grants as principal or co-applicant, last 5 years

EU Horizon2020 PHC-16-2015 Tools and technologies for advanced therapies. Project title: Advanced Regenerative and Restorative Therapies to combat Corneal Blindness (ARREST BLINDNESS). Grant Period 2016-2020. Principal Applicant and Consortium Coordinator: Neil Lagali
57 MSEK / 4 years

Swedish Research Council (Vetenskåpsrådet), Medicine and Health, Project Grant
Grant awarded 2013-2017. Principal Applicant: Neil Lagali
Title: Intussusception as a mechanism of evasive resistance to anti-angiogenic therapy.
2.4 MSEK / 4 years

EU-FP7 Marie Curie International Incoming Research Fellowship. Grant awarded 2009-2011.
Principal Applicant: Neil Lagali, Title: MICROCORNEA
2.4 MSEK / 2 years

Networking activities

EU FP7 COST Consortium member. Cooperation on Science and Technology, COST Action BM1302: Joining Forces in Corneal Regeneration. (<http://www.biocornea.eu/nl/Home/COST-Action-BM1302>)

Referee assignments in international peer-reviewed journals

Reviewed for 24 peer-reviewed journals, 75 registered and validated reviews.
(see entire list at: <https://publons.com/author/451175/neil-lagali>)

BMC Ophthalmology (5-6x per year)
Investigative Ophthalmology and Visual Science (4-5x per year)
Acta Ophthalmologica Scandinavica (3x per year)

Ophthalmology (2x per year)
Clinical and Experimental Ophthalmology
Clinical Ophthalmology
Microscopy Research and Technique
International Journal of Nanomedicine
Eye
Molecular Vision
Current Eye Research
Experimental Eye Research

Editorial board memberships

Associate Editor, [BMC Ophthalmology](#)
Associate Editor, [Journal of Ophthalmology](#)

Expert missions

Publication of 'Meeting Report' for ISER 2010 conference, published in Dec 2010 in *Expert Review of Ophthalmology*.

Lagali N, Fagerholm P, Griffith M. Biosynthetic corneas – prospects for supplementing the human donor cornea supply. *Expert Review of Medical Devices*. Invited Editorial, in March 2011 issue.

Academic assignments

Internal Referee for Docent Competency Examination
Candidate: Björn Johansson, MD, PhD, Linköping University, 5 September 2012.

External Referee for Doctoral Thesis Half-time Control
Candidate: Gunnar Zoega, MD, Uppsala University, 26 October 2012.

External Grant Reviewer:
NWO, Dutch Science Foundation
Fight for Sight, UK

Educational activities

Main Supervisor for:

Beatrice Bourghardt-Peebo MD, Ophthalmology, PhD, granted Jan 2012
Johan Germundsson MD, Ophthalmology, PhD, granted May 2014
Anthonny Mukwaya MSc, Ophthalmology, PhD candidate
Pierfrancesco Mirabelli MD, Ophthalmology, PhD candidate
Maria Xeroudaki MD, Ophthalmology Resident, PhD candidate
Abbas Al-Hawasi MD, Ophthalmology Specialist, PhD candidate
Marlen Parissi, Medical Student, Oslo University, PhD candidate
Reza Danyali. Biomedical Technology, MSc Thesis, 2010
Yasaman Mostaghimi. Cell Biology, MSc Thesis, 2011
Marcus Rinaldo. Medical Student Term 7 project, 2010

Co-supervisor for:

Marina Koulikovska, PhD, granted March 2015

Publication List

Peer-Reviewed Journal Articles (Published or in press)

1. **Lagali N**, Poletti E, Patel DV, McGhee CN, Hamrah P, Kheirkhah A, Tavakoli M, Petropoulos IN, Malik RA, Utheim TP, Zhivov A, Stachs O, Falke K, Peschel S, Guthoff R, Chao C, Golebiowski B, Stapleton F, Ruggeri A. Focused Tortuosity Definitions Based on Expert Clinical Assessment of Corneal Subbasal Nerves. *Invest Ophthalmol Vis Sci* 2015;56:5102-9.
2. Koulikovska M, Szymanowski O, **Lagali N**, Fagerholm P. Platelet-Rich Plasma Prolongs Myofibroblast Accumulation in Corneal Stroma with Incisional Wound. *Curr Eye Res*. 2015 Apr 7:1-9. [Epub ahead of print]
3. Koulikovska M, Rafat M, Petrovski G, Veréb Z, Akhtar S, Fagerholm P, **Lagali N**. Enhanced Regeneration of Corneal Tissue Via a Bioengineered Collagen Construct Implanted by a Nondisruptive Surgical Technique. *Tissue Eng Part A*. 2015 Mar;21(5-6):1116-30.
4. Mirabelli P, Peebo BB, Xeroudaki M, Koulikovska M, **Lagali N**. Early effects of dexamethasone and anti-VEGF therapy in an inflammatory corneal neovascularization model. *Exp Eye Res* 2014;125:118-27.
5. Germundsson J, **Lagali N**. Pathologically reduced nerve density in epithelial basement membrane dystrophy is unaltered by phototherapeutic keratectomy treatment. *Invest Ophthalmol Vis Sci*. 2014;55:1835-41.
6. Fagerholm P*, **Lagali NS***, Ong JA, Merrett K, Jackson WB, Polarek JW, Suuronen EJ, Liu Y, Brunette I, Griffith M. Stable Corneal Regeneration Four Years After Implantation of a Cell-Free Recombinant Human Collagen Scaffold. *Biomaterials* 2014;35:2420-7.
*equal contributions
7. Parissi M, Karanis G, Randjelovic S, Germundsson J, Poletti E, Ruggeri A, Utheim TP, **Lagali NS**. Standardized Baseline Human Corneal Subbasal Nerve Density for Clinical Investigations with Laser-scanning in Vivo Confocal Microscopy. *Invest Ophthalmol Vis Sci* 2013;54:7091-7102.
8. Ihnatko R, Eden U, **Lagali N**, Dellby A, Fagerholm P. Analysis of protein composition and protein expression in the tear fluid of patients with congenital aniridia *Journal of Proteomics*. *J Proteomics* 2013;94C:78-88.
9. Germundsson J, Karanis G, Fagerholm P, **Lagali N**. Age-related thinning of Bowman's layer in the human cornea in vivo. *Invest Ophthalmol Vis Sci* 2013;54:6143-9.
10. **Lagali N**, Edén U, Utheim TP, Chen X, Riise R, Dellby A, Fagerholm P. In vivo morphology of the limbal palisades of vogt correlates with progressive stem cell deficiency in aniridia-related keratopathy. *Invest Ophthalmol Vis Sci*. 2013;54:5333-42.
11. Edén U, **Lagali N**, Dellby A, Utheim TP, Riise R, Chen X, Fagerholm P. Cataract development in Norwegian patients with congenital aniridia. *Acta Ophthalmol*. 2013;92:e165-7.
12. Peebo BB, Fagerholm P, **Lagali N**. An in vivo method for visualizing flow dynamics of cells within corneal lymphatics. *Lymphat Res Biol* 2013;11:93-100.
13. **Lagali N**, Griffith M, Fagerholm P. In vivo confocal microscopy of the cornea to assess tissue regenerative response after biomaterial implantation in humans. *Methods Mol Biol* 2013;1014:211-23.
14. Eden U, Fagerholm P, Danyali R, **Lagali N**. Pathologic epithelial and anterior corneal nerve morphology in early-stage congenital aniridic keratopathy. *Ophthalmology* 2012;119:1803-10.
15. Germundsson J, Fagerholm P, Koulikovska M, **Lagali N**. An accurate method to determine Bowman's layer thickness in vivo in the human cornea. *Invest Ophthalmol Vis Sci* 2012;53:2354-2359.
16. Peebo BB, Fagerholm P, **Lagali N**. In vivo confocal microscopy of lymph vessels in a case of corneal transplant rejection. *Clin Experiment Ophthalmol* 2011;39:832-834.

17. Peebo BB, Fagerholm P, Traneus-Röckert C, **Lagali N**. Cellular level characterization of capillary regression in inflammatory angiogenesis using an in vivo corneal model. *Angiogenesis* 2011;14:393-405.
18. **Lagali N**, Fagerholm P, Griffith M. Biosynthetic corneas – prospects for supplementing the human donor cornea supply. *Expert Rev Med Devices* 2011;8:127-130.
19. Peebo BB, Fagerholm P, Traneus-Röckert C, **Lagali N**. Time-lapse in vivo imaging of corneal angiogenesis: the role of inflammatory cells in capillary sprouting. *Invest Ophthalmol Vis Sci* 2011;52:3060-8.
20. Germundsson J, Fagerholm P, **Lagali N**. Clinical outcome and recurrence of epithelial basement membrane dystrophy after phototherapeutic keratectomy: a cross-sectional study. *Ophthalmology* 2011;118:515-522.
21. Hackett J*, **Lagali N***, Merrett K, Edelhauser H, Sun Y, Gan L, Griffith M, Fagerholm P. Biosynthetic corneal implants for replacement of pathologic corneal tissue: performance in a controlled rabbit alkali burn model. *Invest Ophthalmol Vis Sci* 2011;52:651-657.
*equal contributions
22. Fagerholm P*, **Lagali NS***, Merrett K, Jackson WB, Munger R, Liu Y, Polarek JW, Söderqvist M, Griffith M. A biosynthetic alternative to human donor tissue for inducing corneal regeneration: 24 month follow-up of a Phase I clinical study. *Sci Transl Med* 2010;2:46ra61.
*equal contributions
23. Bourghardt Peebo B, Fagerholm P, **Lagali N**. Transient anterior corneal deposits in a human immunodeficiency virus-positive patient. *Cornea* 2010;29:1323-1327.
24. Peebo BB, Fagerholm P, Traneus-Röckert C, **Lagali N**. Cellular-level characterization of lymph vessels in live, unlabelled corneas by in-vivo confocal microscopy. *Invest Ophthalmol Vis Sci* 2010;51:830-835.
25. **Lagali N**, Stenevi U, Claesson M, Fagerholm P, Hanson C, Weijdegård B, Strömbeck AS, and the Swedish Society of Corneal Surgeons. Donor and recipient endothelial cell population of the transplanted human cornea: a two-dimensional imaging study. *Invest Ophthalmol Vis Sci* 2010;51:1898-904.
26. Hammar B, **Lagali N**, Ek S, Seregard S, Dellby A, Fagerholm P. Dystrophia Smolandiensis – recurrent corneal erosions with a novel morphological picture. *Acta Ophthalmologica Scandinavica* 2010;88:394-400.
27. **Lagali N**, Fagerholm P. A case of chronic ocular irritation associated with progressive corneal opacification. *Acta Ophthalmol Scand* 2009 Nov;87:932-4.
28. **Lagali N**, Dellby A, Fagerholm P. In-vivo confocal microscopy of the cornea in Darier-White disease. *Arch Ophthalmol* 2009;127:816-818.
29. **Lagali N**, Germundsson J, Fagerholm P. The role of Bowman’s layer in anterior corneal regeneration after shallow-depth phototherapeutic keratectomy: a prospective, morphological study using in-vivo confocal microscopy. *Invest Ophthalmol Vis Sci* 2009;50:4192-4198.
30. Fagerholm P*, **Lagali N***, Carlsson D, Merrett K, Griffith M. Corneal regeneration following implantation of a biomimetic tissue-engineered substitute. *Clin Transl Sci* 2009;2:162-164.
*equal contributions
31. **Lagali N**, Fagerholm P. Delayed mustard gas keratitis: clinical course and in-vivo confocal microscopy findings. *Cornea* 2009;28:458-62.
32. Liu W, Deng C, McLaughlin CR, Fagerholm P, **Lagali N**, Heyne B, Scaiano JC, Watsky MA, Kato Y, Munger R, Shinozaki N, Li F, Griffith M. Collagen-phosphorylcholine interpenetrating network hydrogels as corneal substitutes. *Biomaterials* 2009;30:1551-1559.
33. **Lagali N**, Stenevi U, Claesson M, Fagerholm P, Hanson C, Weijdegård B, and the Swedish Society of Corneal Surgeons. Survival of donor-derived cells after human corneal transplantation. *Invest Ophthalmol Vis Sci* 2009;50:2673-2678.

34. Griffith M, Jackson WB, **Lagali N**, Merrett K, Li F, Fagerholm P. Artificial corneas: a regenerative medicine approach. *Eye* 2009;23:1985-1989.
35. **Lagali N**, Fagerholm P. Corneal injury by formic acid: 1-year clinical course and in-vivo confocal microscopic evaluation. *Clin Exp Ophthalmol*, 2008;36:692-694.
36. Rafat M, Li F, Fagerholm P, **Lagali N**, Watsky MA, Munger R, Matsuura T, Griffith M. PEG-stabilized carbodiimide crosslinked collagen-chitosan hydrogels for corneal tissue engineering. *Biomaterials*, 2008;29:3960-3972.
37. McLaughlin CR, Fagerholm P, Muzakare L, **Lagali N**, Forrester JV, Kuffova L, Rafat MA, Liu Y, Shinozaki N, Vascotto SG, Munger R, Griffith M. Regeneration of corneal cells and nerves in an implanted collagen corneal substitute. *Cornea*, 2008;27:580-9.
38. Merrett K, Fagerholm P, Tsai RJF, Dravida S, **Lagali N**, Shinozaki N, Watsky MA, Munger R, Kato Y, Marmo CJ, Griffith M. Tissue engineered recombinant human collagen-based corneal substitutes for implantation: performance of type I vs type III collagen. *Invest Ophthalmol Vis Sci*, 2008;49:3887-3894.
39. **Lagali N**, Griffith M, Fagerholm P, Merrett K, Huynh M, Munger R. Innervation of tissue-engineered recombinant human collagen-based corneal substitutes: a comparative in-vivo confocal microscopy study. *Invest Ophthalmol Vis Sci*, 2008;49:3895-3902.
40. Liu W, Merrett K, Griffith M, Fagerholm P, Dravida S, Heyne B, Scaiano JC, Watsky MA, Shinozaki N, **Lagali N**, Munger R, Li F. Recombinant human collagen for tissue engineered corneal substitutes. *Biomaterials* 2008, 29(9):1147-58.
41. **Lagali N**, Griffith M, Shinozaki N, Fagerholm P, Munger R. Innervation of tissue-engineered corneal implants in a porcine model: a 1-year in-vivo confocal microscopy study. *Invest Ophthalmol Vis Sci* 2007; 48:3537-3544.
42. **Lagali N**, Zimmerman D, Burns K, Munger R. Spectroscopic whole blood indicators of end-stage renal disease and the hemodialysis treatment. *Photochem Photobiol* 2007;83:1186-1192.
43. **Lagali N**, Zimmerman D, Burns K, Munger R. Hemodialysis monitoring in whole blood using transmission and diffuse reflection spectroscopy: a pilot study. *J Biomed Opt* 2006;11:054003.
44. Liu Y, Gan L, Carlsson DJ, Fagerholm P, **Lagali N**, Watsky MA, Munger R, Hodge WG, Priest D, and Griffith M. A simple, cross-linked collagen tissue substitute for corneal implantation. *Invest Ophthalmol Vis Sci* 2006;47:1869-75.
45. **Lagali NS**, Klunder DJW, Gerritsma GJ, Driessen A. Ultra-efficient electro-optic polymer modulators for short-distance high-speed optical interconnects. *Nonlinear Optics* 2000;25:253-258.
46. **Lagali NS**, Paiam MR, MacDonald RI. Analysis of generalized Mach-Zehnder interferometers for variable-ratio power splitting and optimized switching. *J Lightwave Technol* 1999;17:2542-2550.
47. **Lagali NS**, Paiam MR, MacDonald RI. Theory of variable-ratio power splitters using multimode interference couplers. *IEEE Photon Tech Lett* 1999;11:665-667.

Scholarly Correspondence

Germundsson J, Fagerholm P, **Lagali N**. Author Reply. *Ophthalmology* 2011;118:1223-4.

Lagali N, Stenevi U, Claesson M, Fagerholm P. Author Reply. *Invest Ophthalmol Vis Sci* 2010;51:3843-5.

Lagali N. Eye Research 2010: A broad international perspective. *Expert Reviews of Ophthalmology* 2010;5:727-729.

Books

Laser Confocal Microscopy: Applications in Medicine, Biology, and the Food Sciences. (2013) **N. Lagali** (Ed.), ISBN: 978-953-51-1056-9, InTech, DOI: 10.5772/55216.

Book Chapters

Lagali N, Bourghardt Peebo B, Germundsson J, Eden U, Danyali R, Rinaldo M, Fagerholm P (2013). Laser-scanning in vivo confocal microscopy of the cornea: imaging and analysis methods for preclinical and clinical applications. In: Laser Confocal Microscopy: Applications in Medicine, Biology, and the Food Sciences. Ph.D. Neil Lagali (Ed.), ISBN: 978-953-51-1056-9, InTech, DOI: 10.5772/55216.

Lagali N, Griffith M, Fagerholm P. Protocol for in vivo confocal microscopy of the cornea to assess in vivo tissue regenerative response after biomaterial implantation in humans. In: Regenerative Methods: Methods and Protocols. Ed. Bernice Wright (2013). Humana Press (in press).

Griffith M, Kuffova L, Forrester J, **Lagali N**, Fagerholm P, Garagorri N, Fuchsluger T. Biosynthetic alternatives to human donor tissue. (2012). In: Principles and Practice of Cornea. Copeland and Afshari, Eds., Jaypee Brothers Medical Publisher, New Delhi, India, pp. 966-977.

Griffith M, Fagerholm P, **Lagali N**, Hackett J, Sheardown H. Regenerative Medicine in the Cornea. In: Principles of Regenerative Medicine, Second Edition, Eds. Anthony Atala, James A. Thomson, Robert Nerem and Robert Lanza (2010). Elsevier. Chapter 49;911-924.

Granted Patents

Khetani A, Najj M, **Lagali N**, Munger R, Anis H. Method for using a photonic crystal fiber as a Raman biosensor. US Patent 7,738,097 (2010).

Munger R, **Lagali N**. Apparatus and method for optical measurements in the eye. International Patent WO2008037090 (2008) US Patent 2010/0245764 A1, granted 30 Sept 2010.

Munger R, **Lagali N**. Correlation technique for analysis of clinical condition. International Patent WO2008037068 (2008).

Fujita J, **Lagali N**, Gerhardt R, Eldada L. Polarization independent waveguide optical isolator and circulator. US Patents 6,947,619 (2005), 7,043,100 (2006), and 7,035,492 (2006).

Lagali NS, MacDonald RI, Paiam MR. An integrated $1 \times N$ optical switch. US Patent 6,222,955 (2001).

Lagali NS, MacDonald RI, Paiam MR. An $N \times N$ non-blocking optical switch. US Patent 6,292,597 (2001).