



Annual Report

Research Activity 2018



Division of Head, Neck and Reconstructive Surgery
University of Oslo and Oslo University Hospital





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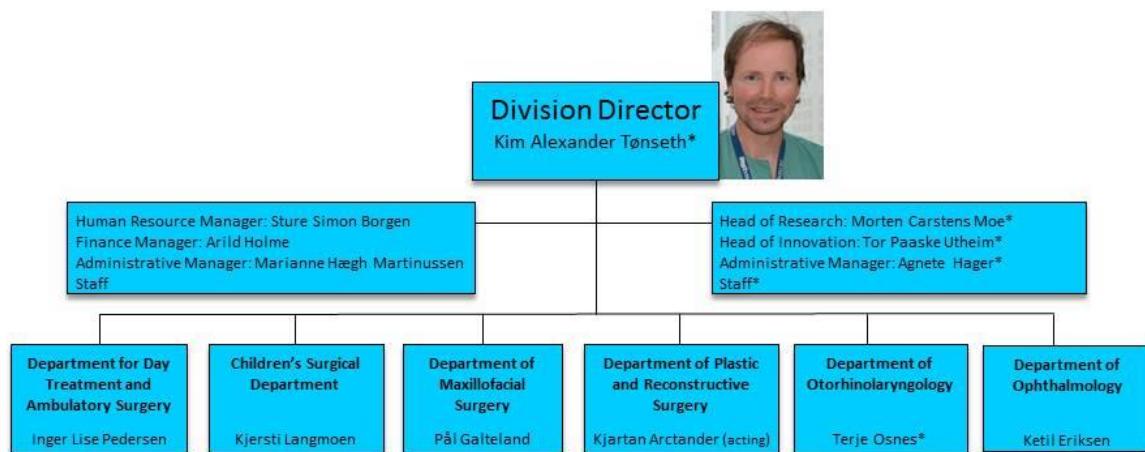
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Organization Chart

Division of Head, Neck and Reconstructive Surgery (HHA)



* UiO employee(s)





Oslo University Hospital and University of Oslo

Oslo University Hospital (OUH) is Norway's largest hospital with over 20 000 employees. The Hospital has a local function for parts of Oslo's population. Being the largest hospital in Norway, Oslo University Hospital provides highly specialized health care services to the citizens of Oslo and the Southeast health region. In addition, the Hospital has a nationwide responsibility for a number of national and multi-regional assignments. The Hospital is responsible for the majority of medical research and education of health personnel in Norway. The University of Oslo (UiO) is Norway's largest research and educational institution with 28 000 students and 7 000 employees.

From Division Director Kim Tønseth and Head of Research Morten C. Moe

The Division of Head, Neck and Reconstructive surgery (HHA) encompasses the fields otorhinolaryngology/head and neck surgery, reconstructive plastic surgery, orthodontics and dentofacial orthopedics, maxillofacial surgery, pediatric surgery (ward) and ophthalmology. The proximity to patients and their medical issues are the cornerstones for the research conducted in our Hospital, which is aimed at improving patient care. High ethical standards ensure the confidentiality, and our goal is to continuously improve diagnostics, treatment and management for all our patients.

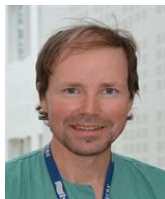
The Division's research aim is *to be the country's leading research institution within our field of expertise*. The research activity is organized into 6 different research groups covering a broad range of basic, translational and clinical research with an overall aim to improve patient care. In order to further build up research activity in the clinic, we have included the following topics as our main research aims:

- Interdisciplinary health research combining medicine and health science
- Registry-based quality control - and research based on large patient volume
- Translation research focusing on "tissue engineering"
- Collaboration with industry (pharmaceutical industry and medical technical equipment suppliers) on specific research projects
- Innovation

Throughout the last years we have steadily increased our research activity; compared to 28 and 52 scientific publications registered from HHA in 2015 and 2016, the Division published 65 papers in 2017 and 63 in 2018. The Division had 4 PhD dissertations in 2018, of which one was awarded the H.M. King Harald gold medal. We have also had a steadily increase in external funding for research, and aim to further strengthen and develop research focus in the coming years.



Research in plastic and reconstructive surgery



Group Leader

Kim A. Tønseth, Ass. Prof., Dept. of Plastic and Reconstructive Surgery, UiO
(k.a.tonseth@medisin.uio.no) / Division Director, Head, Neck and Reconstructive
Surgery OUH (ktonseth@ous-hf.no)

Group Members

- Hans Erik Høgevold, MD/PhD, OUH
- Thomas Moe Berg, MD/PhD, OUH
- Charles Filip, MD/PhD, OUH
- Gunvor Semb, PhD, OUH
- Nina Lindberg, PhD Fellow, OUH
- Davide Impieri, MD/PhD fellow, UiO
- Haris Mesic, MD/PhD Fellow, OUH
- Michael Schneider, MD, OUH
- Christoffer Aam Ingvaldsen, MD, PhD fellow, OUH
- Tor P. Utheim, MD, PhD, OUH
- Other physicians in the department are involved in isolated projects

Research profile and aims

Plastic and reconstructive surgery is performed to restore normal anatomy and function in patients with congenital and acquired disorders, and in patients with tissue defects after trauma or cancer surgery. During the last decades research in plastic and reconstructive surgery has led to development of a large number of treatment options for patients with different kinds of disorders and defects. These methods are often based on experimental research which has been refined through clinical procedures. The main outcome is improved quality of life and patient satisfaction, based on restoration of anomalies and dysfunction.

Ongoing projects

- Nina Lindberg. Mothers' experiences of feeding infants with cleft lip and palate and the effects of a follow-up program on parental information needs, parental stress and infant growth. Supervisor: KA Tønseth
- Davide Impieri. Outcome after treatment of velopharyngeal insufficiency. Supervisor: C Filip/KA Tønseth
- Christoffer Ingvaldsen: Bloodperfusion of the abdominal skin related to the DIEP-flap procedure. Supervisor: KA Tønseth
- Johan Sandberg. Treatment of lymfodema with lymfovenous bypass. Supervisor: KA Tønseth
- Haris Mesic. Microcirculation in perforator flaps. Supervisor: KA Kirkebøen
- TP Utheim/KA Tønseth. Projects regarding storage and treatment with cultured epidermal cells

Planned PhD-project:

- Berit Skraastad. QoL, patient satisfaction and cosmetic outcome after breast reconstruction. Supervisor: KA Tønseth





Other projects:

- Lymphatic malformations
- Surgical treatment in transsexuals
- Surgical treatment in patients with facial palsy
- Breast reconstruction using ADM

Most important national and international collaborators

National

- Plast. surg. dep., Haukeland

International

- Plast. surg. dep., Linköping, Sweden
- Plast. surg. dep., Ghent, Belgium
- Plast. surg. dep., Vienna, Austria

Funding

- OUH
- HSØ

Scientific production of the research group in 2018

Peer reviewed original research articles: 24

Selected publications:

Lång E, Połec A, Lång A, Valk M, Blicher P, Rowe AD, Tønseth KA, Jackson CJ, Utheim TP, Janssen LMC, Eriksson J, Bøe SO (2018)

“Coordinated collective migration and asymmetric cell division in confluent human keratinocytes without wounding”

Nat Commun, 9 (1), 3665

DOI 10.1038/s41467-018-05578-7, PubMed 30202009, WoS 000444078300008 Cistin 1629450 (Details)

Impieri D, Tønseth KA, Hide Ø, Brinck EL, Høgevold HE, Filip C (2018)

“Impact of orthognathic surgery on velopharyngeal function by evaluating speech and cephalometric radiographs”

J Plast Reconstr Aesthet Surg, 71 (12), 1786-1795

DOI 10.1016/j.bjps.2018.07.018, PubMed 30172730, WoS 000451342200015 Cistin 1628148 (Details)

Ingvaldsen CA, Tindholdt TT, Tønseth KA (2018)

“DIEAP Flap Patients Equally as Satisfied with the Abdomen as Abdominoplasty Patients”

Plast Reconstr Surg Glob Open, 6 (8), e1876

DOI 10.1097/GOX.0000000000001876, PubMed 30324061, WoS 000444969900016 Cistin 1613314 (Details)



Cochlear implant, hearing and ear surgery



Group Leader

Marte Myhrum, MSc/PhD, OUS/UiO (marte.myhrum@medisin.uio.no)

Group members

- Arne Kirkhorn Rødsvik, MSc/PhD fellow, OUH, UiO/ISP
- Jacob Skalleberg, MD/PhD fellow, OUH
- Christiane Haukedal, MD/PhD fellow, UiO/ISP
- Torstein Grønseth, MD/PhD fellow, OUH
- Andreas Løchen, Audiologist, OUH
- Berit Jensen, Audiologist, OUH
- Beth Eksveen, Cand. Paed. Spec, OUH
- Borghild Landsvik, Cand. Paed. Spec, OUH
- Greg Eigner Jablonski, MD/ PhD, Ass Professor, UiO/OUH
- Hanne Nergaard, Audiologist, OUH
- Ingerid Raftevoll, Audiologist, OUH
- Ingun Grytli, Cand. Paed. Spec, OUH
- Jens Jørgen Dammerud, MSc/PhD, OUH
- Kjell Rasmussen, Leader of the CI team
- Leif Runar Opheim, Leader of the Ear section
- Lisbeth Wingaard, Leader of Audiologists
- Mari Schmedling, Audiologist, OUH
- Mariann Gjervik Heldahl, MSc/PhD, OUH
- Marie Bunne, MD/PhD, OUH
- Muneera Iftikar, MD, OUH
- Nina Manh, Audiologist, OUH
- Ole Tvette, Cand. Scient, OUH
- Ona Bø Wie, Cand.Paed.Spec/PhD, Prof ISP/OUH
- Ralf Greisiger, MSc/PhD, OUH
- Siri Aker, MSc, OUH
- Synne Norgren, MSpecial Needs, OUH
- Tone Landfastøien, OUH
- Torquill Sørensen, MSc/PhD, OUH

Research profile and aims

Carry out research related to ear and hearing, and to investigate how patients benefit from intervention, treatment, rehabilitation and ear surgery including cochlear implantation. The team is a multidisciplinary team consisting of medical doctors/ear surgeons, audio physicists (MSc/PhD), audio pedagogues (special needs pedagogues), and audiologists. This opens up for research within different disciplines and across disciplines.



Strengths of the research group:

- CI surgery and ear surgery
- National treatment center for children with CI
- Children with CI - one country's total population (an internationally unique population)
- Knowledge of speech perception and language development after cochlear implantation
- Special expertise in Auditory Verbal Therapy
- Adults with CI (50% of the adults with CI population in Norway)
- Radiological visualization during CI surgery (Facilities at the Intervention centre)
- Special expertise in measurements during cochlear implant (CI) surgeries with ongoing research projects with and without industrial collaborators
- Industrial collaborators and possible future innovations
- Diagnosis of hearing impairment of infants and small children, hearing aids to small children
- Special expertise in auditory evoked electrophysiologic measurements (ABR / ASSR)
- Special expertise in visual reinforcement audiometry (VRA) used for small children
- Special expertise in fitting hearing aids to small children and to patients with special needs
- Diagnosis of specific patient groups (e.g. Superior Canal Dehiscence)

Ongoing projects

- Arne Rødsvik , Overview of speech sound confusions for adults and children with cochlear implants, 2013–2017 (PhD project). Poster presentation CI Pediatric Symp SF, USA jun.17
- Torstein Grønseth, Otitis media chronica and cholesteatoma: bacteriology and antibacterial treatment, 2014–2018 (PhD project). (Gronseth et al., 2017)
- Jacob Skalleberg, Long term hearing loss and tinnitus after platinum based chemotherapy, (PhD project). (Skalleberg et al., 2017)
- Christiane L. Haukedal, When the Gap is not Closing: Difference in Utilization of Cochlear Implants in Children (PhD project). (Torkildsen, Arciuli, Haukedal, & Wie, 2017)
- Project funded from The Norwegian Directorate of Health: A survey of hearing, language and quality of life in persons who received cochlear implants as children, Collaboration Helsedir, OUS, UiO/Ona Bø Wie, 2012–2018
- Visualization of cochlear implant electrode and measurements of electrode insertion angle, Ralf Greisiger, Greg Eigner Jablonski
- Electrode position of electrode type CI532, Ralf Greisiger, Marie Bunne, Greg Eigner Jablonski, and Kjell Rasmussen
- Electrocochleography using cochlear implant electrode (- can it be used for trauma detection), Torquill Sørensen
- Speech perception in noise in CI participants, Marte Myrum





- Visual statistical learning in typically developing children, children with specific language impairment and children with hearing impairment, Janne von Koss Torkildsen (University of Oslo), Joanne Arciuli (University of Sydney), Christiane Lingås Haukedal, Marit Gismarvik and Ona Bø Wie, 2014–2017

Retrospective studies

Retrospective studies of different patient groups are included in the research group assignment. Therefore, all employees (100% clinical employment) at the Ear section are members of the research group, some more active than others.

Investigator initiated research clinical projects

We have collaboration with the three largest companies of cochlear implant technology: Advanced Bionics, Cochlear, Med-EL. Some of the projects are investigator initiated projects with external funding. The investigator initiated research clinical projects are within the areas of 1) Hearing preservation and electrocochleography, and 2) Cochlear implant electrode position with intraop measurements and real-time X-ray imaging. Ongoing projects:

- Electrocochleography and Fluoroscopy using Advanced Bionics cochlear implants, Torquil Macdonald Sørensen (2018-2020)
- Intra-operativ Trauma Detection with help of Electrocochleography an Fluoroscopy video, Ralf Greisiger primary investigator (2017-2019)
- Effect of proximity for the Cochlear CI532 Slim Mod elect array in terms of ECAP and programming levels, Ralf Greisiger primary investigator (2017-2019)

Selected oral presentation

- *Cochlear Implant Electrode Array Position Monitored during CI Surgery with Fluoroscopy, Electrocochleography and Evoked Compound Action Potentials* (Ralf Greisiger), 10th Int. Symp. on Objective Measures in Auditory Implants 9.-12.10.18; Tel Aviv, Israel

Robotic Cochlear implantation

Robotic Cochlear implantation study on cadavers (research and innovation projects) in cooperation with Cascination AG and Medel GmbH. The project started in 2018 with one cadaver study, and will continue in 2019.

Participation in external projects

- Collaboration PhD project, “Radiologic visualization of tuba audiiva”, with the Department of Radiology, Benedicte Falkenberg-Jensen, Greg Eigner Jablonski (co-supervisor), Juha Silvola (co-supervisor)
- Collaboration PhD project, “Tinnitus in Helicopter pilots”, Institute of Aviation Medicine and Institute for Health and Society, Greg Eigner Jablonski (co-supervisor)



Most important national and international collaborators

National

- Department of Special Needs Education, UiO
- Department of Linguistics and Scandinavian studies, UiO
- Department of Informatics, UiO
- Department of Medical Genetics, OUS
- The Norwegian Directorate of Health
- Central Norway Regional Health Authority
- Northern Norway Regional Health Authority
- Norwegian Institute of Public Health

International

- Cochlear Corporation
- Advanced Bionics AG
- Medel GmbH, Austria
- University of Wisconsin, US (Ruth Litovsky)
- University of Sydney, Australia
- University of Tampere, Finland
- Harvard University, Boston, US (Dennis Poe)
- Linköping University, Sweden

Funding

- South-Eastern Norway Regional Health Authority
- University of Oslo
- The Norwegian Directorate of Health
- Cochlear Corporation
- Advanced Bionics AG

Scientific production of the research group in 2018

Peer reviewed original research articles: 5

Selected publications:

Haukedal, C. L., von Koss Torkildsen, J., Lyxell, B., & Wie, O. B. (2018)

"Parents' Perception of Health-Related Quality of Life in Children With Cochlear Implants: The Impact of Language Skills and Hearing"

Journal of Speech, Language, and Hearing Research 61(8), 2084-2098. doi: 10.1044/2018_JSLHR-H-17-0278

Rodvik, A. K., von Koss Torkildsen, J., Wie, O. B., Storaker, M. A., & Silvola, J. T. (2018)

"Consonant and Vowel Identification in Cochlear Implant Users Measured by Nonsense Words: A Systematic Review and Meta-Analysis"

Journal of Speech, Language, and Hearing Research, 61(4), 1023-1050. doi: 10.1044/2018_JSLHR-H-16-0463

Torkildsen, J. V. K., Arciuli, J., Haukedal, C. L., & Wie, O. B. (2018)

"Does a lack of auditory experience affect sequential learning?"

Cognition, 170, 123-129. doi:10.1016/j.cognition.2017.09.017

HPV in Head and Neck



Group Leader

Harriet Akre, MD/PhD, Consultant, dept. of Otorhinolaryngology & Head and Neck Surgery, OUH / Professor, UiO
(harriet.akre@medisin.uio.no)

Group Members

- Terje Andreas Osnes, MD/PhD, Professor
- Kjell Brøndbo, MD/PhD, Professor
- Jesper Bradstorp Boesen, MD/PhD candidate
- Sinan Dheyauldeen MD/PhD, Consultant
- Bianca Lorntzen, MD, PhD candidate
- Jon Mork, MD/PhD, Consultant
- Turid Omland, MD/PhD, Consultant
- Johan Steiniger, MD, fellow
- Jakob Skalleberg, MD/PhD fellow
- Maria Tyse Aarneæs, MD, Consultant
- Arild Østhus, MD/Phd fellow

Ongoing projects

- Health related quality of life in thyroid cancer patients, and in patients with thyroid nodules suspicious of cancer
- Angiogenic factors in hereditary hemorrhagic telangiectasia and their relation to epistaxis severity
- The effect of intranasal bevacizumab therapy for in hereditary hemorrhagic telangiectasia associated epistaxis on the quality of life
- The outcome of surgical correction of congenital choanal atresia. 10 years' experience
- Correction of Congenital nasal pyriform aperture stenosis. 10 years' experience
- Look into the association between Human Papilloma Virus (HPV) infections and Head and neck cancers
- Treatment and quality of life in patient with hereditary hemorrhagic teleangiectasia-associated epistaxis
- Tracheal resections outcomes, a retrospective study in all patients treated with surgery
- Larynx cancer, Clinical and epidemiological aspects (PhD)
- Head and Neck Paraganglioma: 2004–2015
- High grade skull base malignancies, a multidisciplinary approach (PhD)
- Serial Serum Antibodies to HPV16 in Oropharyngeal Squamous Cell Carcinoma Among Cases and Controls Participating in the Janus Serum Bank
- Cisplatinium indusert ototoxicitet og tinnitus (PhD)
- Sleep apnea syndrome in patients with paroxysmal atrial fibrillation
- Sleep apnea in children referred for adenotonsilectomi
- Stridor in infants, diagnose and surgical treatment
- Co-investigator in an international phase IV study for the reliability and validity of the EORTC Thyroid Cancer Module THY34. Expects to include patients as of fall 2018





Most important national and international collaborators

National

- Dept. of Biostatistics OUH
- Dept. of Oncology OUH
- Dept. of Genetics OUH
- Dept. of Neurosurgery OUH
- Craniofacial team OUH
- Unit of Sleep medicine, Lovisenberg Diakonal Hospital
- Dept. of Pathology, OUH
- Dept. of Medicine, OUH

International

- Several departments, Karolinska Institutet, Stockholm

Funding

- UiO

Scientific production of the research group in 2018

Peer reviewed original research articles: 9

Invited lectures at international congresses: 2

Selected publications:

Steineger J, Ueland T, Aukrust P, Michelsen A, Osnes T, Heimdal K, Dheyauldeen S

“Pentraxin 3 level is elevated in hereditary hemorrhagic telangiectasia and reflects the severity of disease-associated epistaxis”

Laryngoscope. 2019Jan;129(1):E44-E49

doi: 10.1002/lary.27548. Epub 2018 Oct 17. PubMed PMID:30329172.

Steineger J, Osnes T, Heimdal K, Dheyauldeen S

“Long-term experience with intranasal bevacizumab therapy”

Laryngoscope. 2018 Oct;128(10):2237-2244

doi:10.1002/lary.27147. Epub 2018 Feb 22. PubMed PMID: 29469958



Center for Eye Research



Group Leader

Goran Petrovski, MD, PhD, Dr habil

Professor, Dept. of Ophthalmology, Oslo University Hospital and University of Oslo
(goran.petrovski@medisin.uio.no)

Group Members

- Pål Andresen, MD
- Jovana Bisevac, MD, PhD student
- Helgi Davíð Björnsson, MD
- Ragnheidur Bragadottir, MD, PhD, Professor
- Symira Cholidis, MD
- Yolanda Lorenzo Corrales, PhD/Researcher
- Marius Dalby, MD, PhD student
- Liv K. Drolsum, MD, PhD, Professor
- Jon Roger Eidet, MD, PhD, Researcher
- Torleif T. Gjølberg, MSc, PhD student
- Camilla Gram, MD, PhD student
- Anne M. Hagem, MD, PhD student
- Safia Esmail Hassaf, MSc, Optometrist
- Silvia NW Hertzber, MSc, Health economist/Researcher
- Dag Krohn-Hansen, MD, PhD, Researcher
- Henrik H. Jacobsen, MD PhD student
- Mia Karabeg, MOPtom, Optometrist
- Kirankumar Katta, PhD, Postdoctoral Researcher
- Olav Kristianslund, MD, PhD
- Anne Kari Kvernebo, MD, PhD Student
- Linn Lillevold, Registered Nurse
- Heidrun Elisabeth Lode, MSc, PhD student
- Morten C. Moe, MD, PhD, Professor
- Richard Nagymihaly, Postdoctoral Researcher
- Jesintha Navaratnam, MD, PhD student
- Giang Huong Nguyen, Technician
- Dragana Drobnjak Nes, MD PhD/Researcher
- Charlotte Larsen Ness, MD, PhD student
- Sigrid Næss, MD, PhD, Researcher
- Agate Noer, PhD, Senior Scientist
- Meeta Pathak, MD, PhD student
- Geir A. Qvale, 1. Consultant
- Øyvind Osnes-Ringen, MD, PhD student
- Amund Ringvold, MD, PhD, Professor Emeritus
- Marianne Råen, Optometrist/Researcher
- Aboulghassem Shahdadfar, PhD, Senior scientist

Group Members cont.

- Jon K. Slettedal, MD, PhD, Associate professor
- Hanne Hvatum Sweeney, Registered Nurse
- Marit Sæthre, MD, PhD
- Andreas Thorsrud, MD, PhD student
- Kristine Ustgård-Andersen, MSc
- Gunnhild Fallet Sandvik, PhD student
- Tiril Sandell, MD, PhD, Researcher
- Nina Charlotte Veiby, MD, PhD, Postdoctoral Researcher

Associated group members

- Linda H. Bergersen, PhD, Professor
- Andrew R. Collins, PhD, Professor
- Leiv Sandvik, PhD, Professor
- Hans Christian Dalsbotten Aass, MSc
- Ole Kristoffer Olstad, PhD

Research profile and aims

The Department of Ophthalmology, with The Center for Eye Research and The Norwegian Eye Bank, is one of the largest eye clinics in Scandinavia. The main objective of our research is to improve medical and surgical treatment of eye disorders.

Clinical research

This line of research aims at improving treatment of eye diseases, such as those of the cornea, conjunctiva, cataract and retina, through advancing methods for transplantation of tissues.

In different projects during 2018, the main focus was on the outcome after corneal transplant surgery and cataract surgery, as well as CXL-surgery. Results, when using traditional and new procedures for surgical treatment of blindness due to corneal- and ocular surface, have been compared. Such new procedures included transplantation of layers of corneal tissue stored in an eye bank and of tissue engineered in laboratory facilities. Our clinic has the first program in Scandinavia for transplantation of *ex vivo* generated ocular tissue for treatment of corneal and conjunctival disorders (<http://sciencenordic.com/eye-eye-saves-sight>).

During 2018, the preparatory steps for *ex vivo* expansion of human primary retinal pigment epithelium continued towards adaptation of GMP requirements for cultivation of these cells, as a final step towards transplantation into animals (pigs), which was carried out in collaboration with a partner in Czech Republic – this research line has importance for the future treatment of retinal disorders, such as age-related macular degeneration.

The Group continued successfully the uveitis research and molecular characterization of the disease using proteomics on collected tear fluid. All preparatory work and ethical approvals towards a proteomic analysis of serum obtained from retinopathy of prematurity patients treated by anti-VEGF intravitreally compared to that of laser treated have also taken place in 2018.

The Group successfully implemented the use of oximetry not only for vascular diameter and oxygen saturation research (all being non-invasive diagnostic/research tools) as early markers in diabetes and diabetic retinopathy, but also to multiple sclerosis and vitreo-macular disorder patients. In addition, health economy research line has been initiated in ocular surgery to optimize the use of resources and, thus, the outcome.

Interdisciplinary research

This line of research aims to identify how different factors affect cells, tissues and molecules including DNA, in healthy tissue and in various eye disorders. Such information may allow for improvements in the treatment of eye diseases. Tissues for transplantation may be cultured or produced in laboratories. We examine how various conditions influence the cells and their molecules including DNA in order to modify and improve the current methods, and ultimately the quality of tissues destined for transplantation. In addition, our Group is working on developing new methods for treating corneal ulcers using mesenchymal- and adipose- derived stem cells, as well as, now, developed 3D printed corneal tissue for future use in preparatory studies for corneal transplantation.

Basic research

Stem cells are central in tissue repair. In projects, characteristics of stem cells derived from normal and from diseased tissues are examined, and factors that regulate their ability for production of differentiated cells and for tissue repair are mapped. In the laboratory, differentiated cells may be stimulated to develop into stem cells, and this opens for entirely new treatment options. In projects, mechanisms that regulate such a development and the potential use of the cells in treatment of eye diseases are being explored.

Basic research in cornea limbal and uveal melanoma epigenetics research is performed in the Group with the aim of developing methods for enriching stem cells or stopping tumor cell growth, respectively.

On-going, under final processing (*) and completed (**) PhD projects

- Dragana D. Nes. Retinal Vessel Diameters in relation to Clinical Parameters, Cardiovascular Disease, Retinopathy and Mortality in a Population-Based Cohort of Adults and Heritability of Optic Disc Dimensions in Adult Twins (**)
- Meeta Pathak. Characterization and treatment of limbal epithelial stem cell deficiency (*)
- Charlotte Larsen Ness. Characterization of stem-like cells in uveal melanoma
- Øyvind Osnes-Ringen. Pathogenesis and treatment of cataract (*)
- Rebecca C. Frøen. Retinal stem cells in the adult human eye (**)
- Camilla Gram. Ocular surfacd reconstruction by oral mucosa
- Olav Kristianslund. Surgery of late in-the-bag intraocular lens dislocation. A randomized clinical trial (**)
- Jovana Bisevac. Epigenetics research in cornea limbal epithelial stem cells
- Andreas Thorsrud. Corneal collagen cross linking for kerato ectasia: studies on new treatment method with emphasize on effect and security
- Anne M. Hagem. Keratoconus – normal variations in the corneal surface in the Norwegian population



- Gunhild Falleth Sandvik. Marfans syndrome and eye complications
- Anne Kari Kvernebo. Conjunctival microcirculation
- Marius Dalby. Late in-the-bag IOL dislocation – LION Trial
- Torleif Gjølberg and Heidrun E. Lode: Improving the efficacy of drug therapy in the treatment of retinal diseases.
- Henrik H. Jacobsen: - Advanced retinal imaging – a novel window to explore fluid dynamics in patients with anomalous cerebrospinal fluid dynamics

Most important national and international collaborators

National

- Linda H. Bergersen, PhD, Prof., UiO
- Andrew R. Collins, PhD, Prof., UiO
- Leiv Sandvik, PhD, Prof., OUS
- Ole Kristoffer Olstad, PhD, UiO
- Group of National Center for Stem Cell Research
- Jan Terje Andersen, PhD, Ass. Prof., UiO/OUS

International

- Prof. Sarah Coupland, Liverpool Ocular Oncology, University of Liverpool, UK
- Prof. Jesper Hjortdal, Inst. for Klinisk Medicin, Aarhus, Denmark
- Prof. Martine Jæger, Leiden University medical center, Netherlands
- Prof. Francisco Javier Romero, Fundacion Oftalmologica del Mediterraneo, Valencia, Spain
- Prof. Kai Kaamiranta, Dept. of Ophthalmology, University of Eastern Finland, Finland
- Assoc. Prof. Miriam Kolko, Chief Glaucoma Specialist, Dept. of Ophthalmology, University of Copenhagen, Denmark
- Prof. Vinagolu Rajasekhar, Senior researcher, Memorial Sloan Kettering Institute, New York, USA
- Assoc. Prof. Heli Skottman/Prof. Hannu Uusitaalo, BioMediTech/Dept. Ophthalmology, University of Tampere, Finland
- Prof. Einar Stefánsson, Dept. of Ophthalmology, University of Iceland, Iceland
- Dr. Xiaohe Yan, University of Jinan, Dept. of Ophthalmology, Shenzhen, China
- Prof. Jan Motlik, Czech Academy of Sciences, PIGMOD Center, Libechov, Czech Republic





Funding/ Funding sources

- Blindemissionen IL
- Norges Blindeforbund
- South-Eastern Norway Regional Health Authority
- Norsk Oftalmologisk forening
- UNIFOR LEGACY
- Aase og Knut Tønjums oftalmologiske fond
- Futura Fond
- Legat til fremme av kreftforskning
- Jon S. Larsen foudation

Scientific production of the research group in 2018

Peer reviewed original research articles: 26

Selected publications:

Szabó DJ, Nagymihály R, Veréb Z, Josifovska N, Noer A, Liskova P, Facskó A, Moe MC, Petrovski G.
“Ex vivo 3D human corneal stroma model for Schnyder corneal dystrophy - role of autophagy in its pathogenesis and resolution”
Histol Histopathol. 2018 May;33(5):455-462. doi: 10.14670/HH-11-928. Epub 2017 Sep 5

Sivertsen MS, Jørstad ØK, Grevys A, Foss S, Moe MC, Andersen JT (2018)
“Pharmaceutical compounding of aflibercept in prefilled syringes does not affect structural integrity, stability or VEGF and Fc binding properties”
Sci Rep, 8 (1), 2101

Sandvik GF, Vanem TT, Rand-Hendriksen S, Cholidis S, Saethre M, Drolsum L (2018)
“Ten-year reinvestigation of ocular manifestations in Marfan syndrome”
Clin Exp Ophthalmol (in press)
DOI 10.1111/ceo.13408, PubMed 30260057 Crisitin 1639173 (Details)
DOI 10.1038/s41598-018-20525-8, PubMed 29391560, WoS 000423787500076 Crisitin 1593525 (Details)



Clinical Retina Research



Group Leader

Morten Carstens Moe, MD/PhD, Professor II, Dept. of Ophthalmology, OUH / UiO
(m.c.moe@medisin.uio.no)

Group Members

- Agnieszka Bober, MD
- Anca Roald, MD PhD
- Carol Rivera Sumague ophthalmic nurse, research nurse
- Dag Fosmark, MD PhD
- Elma Jelin, ophthalmic nurse MSc, PhD fellow
- Erke Maja Gran, MD PhD
- Goran Petrovski MD PhD
- Henrik Holvin Jacobsen, MD PhD
- Jesintha Navaratnam. MD PhD
- Josephine Prener Holtan, MD, PhD fellow
- Karina Berg, MD, PhD
- Kathrine Blom, MD
- Katrine Holen, ophthalmic nurse, MSc
- Live Lund Hareide MD, PhD fellow
- Magne Sand Sivertsen MD PhD
- Marianne Strøm MD, PhD fellow
- Marta Haugstad, MD
- Monica Sneve MD PhD
- Morten C. Moe, MD PhD
- Nils Andreas Eide, MD
- Panagiotis Salvanos, MD, PhD fellow
- Pål Andresen MD
- Ragnheiður Bragadóttir, MD, PhD
- Rowan Faber, MD
- Sonja Lerdal, research assistant and technician
- Thomas Bærland, MD
- Tiril Sandel, MD PhD
- Øystein Kalsnes Jørstad, MD, PhD fellow

Research profile and aims

Clinical implementation and evaluation of new treatment – and diagnostic modalities for vitreoretinal disorders.

Ongoing projects

- Lucentis compared to Avastin study. Randomised, double-blind, prospective multicentre study of the effect of intravitreal injection of bevacizumab (Avastin®) compared to ranibizumab (Lucentis®) in patients with exudative Age Related Macular degeneration (AMD) in Norway. PhD project Karina Berg. Supervisors: Ragnheidur Bragadóttir, Terje Pedersen and Leiv Sandvik
- PASS-study. Epiretinal strontium-90 brachytherapy combined with intravitreal injection of bevacizumab (Avastin) for treatment of patients with exudative AMD resistant to anti-VEGF treatment. Ragnheidur Bragadóttir, Agnieszka Monika Bober and Thomas Bærland
- Torfinn Nilssen, head of Dept. and Bernt Louni Rekstad consultant engineer, Cancer and Surgery Division, Dept. of Medical Physics, OUH
- Register for vitreoretinal surgery. Thomas Bærland, Martha Haugstad, Ragnheidur Bragadóttir et al
- Mapping of patients with hereditary retinal disease in Norway. Josephine Prener Holtan, Kaja Selmer, Dept of Medical Genetics, OUH, Ketil Heimdal, Dept. of Medical Genetics, OUH, Ragnheidur Bragadóttir. PhD project Josephine Prener Holtan
- Ultra-Widefield Fundus Autofluorescence in the Diagnosis and Evaluation of Retinal Detachment and Intraocular tumors. Panagiotis Salvanos, Morten Carstens Moe, Thor Paaske Utheim, Ragnheidur Bragadóttir. PhD project Panagiotis Salvanos
- Uveal melanoma – clinical follow-up and cellular characterization. Nils Eide, Rowan Faber, Thomas Bærland. Clinical follow-up and cellular characterization in bone marrow and primary tumours
- Correlation between visual function and retinal anatomical parameters using optical coherence topography. PhD project Øystein K. Jørstad. Supervisors: Morten C. Moe and Arild Evang.
- DiTAMD – Dimensions of Treatment in Age-related Macular Degeneration. Patient derived tool to measure most important dimensions for patients being treated for neovascular AMD. PhD project Elma Jelin. Supervisors: Morten C. Moe, Turid Heiberg and Torbjørn Wisløff
- Age related macular degeneration; incidence, progression and predictors for disease 2007-2016: The Tromsø study7 & Tromsø Eye Study 2. Maja Gran Erke and Marianne Strøm. PhD project Marianne Strøm
- The vitreomacular interface: Prevalence and associated risk factors of vitreomacular traction, epiretinal membrane, lamellar macular hole and macular hole. Progression and predictors of diseases on the vitreomacular interface 2007-2016. PhD project Live L. Hareide. Supervisors: Monica Sneve and Maja G. Erke
- Storage stability of anti-VEGF drugs repackaged for intravitreal injection. Magne S. Sivertsen, Øystein K. Jørstad and Morten C. Moe
- Advanced retinal imaging – a novel window to explore fluid dynamics and glial activation in patients with anomalous cerebrospinal fluid dynamics. PhD project Henrik H. Jacobsen. Supervisors: Tiril Sandell, Per Kristian Eide and Morten C. Moe
- Endophthalmitis incidence, aetiology, pathogenic causes, treatment and visual outcomes. Kathrine Blom, Øystein K. Jørstad and Ragnheidur Bragadóttir
- TENecteplase in Central Retinal Artery Occlusion Study: TEN-CRAOS. Øystein K. Jørstad, Anne H. Aamodt and Morten C. Moe et al.
- Ultra-Widefield Fundus Imaging in the Diagnosis and Evaluation of vitreoretinal diseases. PhD-project Jesintha Navaratnam. Supervisor: Ragnheidur Bragadóttir

- A prospective observational study of retinal perfusion, metabolic state and anatomy in patients with diabetes macular oedema. Morten C. Moe et al. (funded by Bayer)
- RTH258 compared to aflibercept for treatment of neovascular age-related macular degeneration – the HARRIER study and RTH258 compared to aflibercept for treatment of diabetes macular oedema –the KITE study. Anca Roald et al (funded by Novartis)
- ROBIN BI1386.12 study for Diabetic Rethinopatya Maja G. Erke al (funded by Boehringer)

Most important national and international collaborators

National

- Dr.med. Vet. Ernst O. Ropstad, Norwegian School of Veterinary Science
- Geir Bertelsen, MD, PhD, Dept. of Ophthalmology, University of Tromsø, University Hospital of North Norway
- Per Kristian Eide, MD/PhD, Prof. of Neurosurgery, UiO/OUS
- Jan Terje Andersen, Associate Prof., Dept. of Pharmacology, UiO/OUS
- Anne Hege Aamodt, Consultant neurologist, Dept. of Neurology, UiO/OUS

International

- Prof dr. Med. Vet. Kristina Narfström, University of Missouri, Columbia, US
- Prof MD/PhD Barbara Wilhelm, University of Tübingen, Germany
- Prof. Einar Stefánsson, Head of Dept. of Ophthalmology, University of Iceland, Reykjavik, Iceland

Funding

- South-Eastern Norway Regional Health Authority
- OUH
- UiO
- The Norwegian Association of the Blind and Partially Sighted (NABP)
- Blind mission IL
- Novartis, Bayer, Boehringer

Scientific production of the research group in 2018

Peer reviewed original research articles: 14



Selected publications:

Delcourt C, Le Goff M, von Hanno T, Mirshahi A, Khawaja AP, Verhoeven VJM, Hogg RE, Anastosopoulos E, Cachulo ML, Höhn R, Wolfram C, Bron A, Miotto S, Carrière I, Colijn JM, Buitendijk GHS, Evans J, Nitsch D, Founti P, Yip JLY, Pfeiffer N, Creuzot-Garcher C, Silva R, Piermarocchi S, Topouzis F, Bertelsen G, Foster PJ, Fletcher A, Klaver CCW, Korobelnik JF; European Eye Epidemiology Consortium

“The Decreasing Prevalence of Nonrefractive Visual Impairment in Older Europeans: A Meta-analysis of Published and Unpublished Data”

Ophthalmology. 2018 Aug; 125(8):1149-1159

Sivertsen MS, Jørstad ØK, Grevys A, Foss S, Moe MC, Andersen JT

“Pharmaceutical compounding of aflibercept in prefilled syringes does not affect structural integrity, stability or VEGF and Fc binding properties”

Sci Rep, 8 (1), 2101, 2018

Navaratnam J, Dedi L, Tjølsen AM, Bragadóttir R

“Identification of Dietzia Species in a Patient with Endophthalmitis following Penetrating Injury with Retained Intraocular Metallic Foreign Body”

Case Reports in Infectious Diseases 2018 Sep 25;2018:3027846



Unit for research-driven innovation



Group Leader

Tor Paaske Utheim, Professor, Institute of Oral Biology, Faculty of Dentistry, University of Oslo (t.p.utheim@odont.uio.no)

Group Members

- Amer Sehic
- Catherine Jackson
- Erlend Sommer Landsend
- Farrukh Chaudhry
- Haakon Ringstad
- Kim Alexander Tønseth
- Lara Pasovic
- Linda Hildegard Bergersen
- Mads Istre
- Morten Carstens Moe
- Padmapriya Kumar
- Sjur Reppe

Research profile and aims

The group has a particular focus on innovation and ophthalmology.

Ongoing projects

- Stem cell therapy of blindness by applying cells from oral mucosa, skin and cornea (basic research)
- Treatment of retinal diseases in retinal pigment epithelial cells (basic research)
- Stem cell therapy of traumatic skin injuries (basic research)
- Optimization of storage and transport conditions for cultured stem cells
- Electrostimulation in treating certain eye diseases (several projects, including rodent models, at Harvard Medical School)
- Improvements in diagnostics and treatment of dry eye in collaboration with public hospitals and The Norwegian Dry Eye Clinic (Tørreøyneklínikken; torreoyneklínikken.no)
- Enamel research (led by Amer Sehic)
- The molecular mechanisms of the transport proteins involved in the glutamate/GABA-glutamine cycle, and their physiological and pathophysiological roles in variety of disease conditions (led by Farrukh Chaudhry)
- Physical exercise and brain performance. The role of the lactate receptor HCAR1 (led by Linda Hildegard Bergersen)



PhD projects

- Congenital Aniridia: Exploring visual disabling manifestations in the ocular surface and ocular fundus through clinical and translational approaches
- Research in enamel and enamel injuries, including rodent models

Selected international collaborators

- Darlene A Dartt, Schepens Eye Research Institute/Massachusetts Eye and Ear, Dept. of Ophthalmology, Harvard Medical School, US
- Dong Feng Chen, Schepens Eye Research Institute/Massachusetts Eye and Ear, Dept. of Ophthalmology, Harvard Medical School, US
- Neil Lagali, Department of Clinical and Experimental Medicine, Linköping University, Sweden

Funding

- Oslo University Hospital
- Aniridia Norway
- Dr. Jon S. Larsen's Foundation
- Inger Holm's Memorial Foundation
- The Norwegian Association of the Blind and Partially Sighted
- The Norwegian Ophthalmological Society

Scientific production of the research group in 2018

Peer reviewed original research articles: 23





Selected publications:

Lång E, Połec A, Lång A, Valk M, Blicher P, Rowe AD, Tønseth KA, Jackson CJ, Utheim TP, Janssen LMC, Eriksson J, Bøe SO (2018)

“Coordinated collective migration and asymmetric cell division in confluent human keratinocytes without wounding”

Nat Commun, 9 (1), 3665

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Utheim OA, Lyberg T, Eidet JR, Raeder S, Sehic A, Roald B, Messelt E, de la Paz MF, Dartt DA, Utheim TP (2018)

“Effect of Transportation on Cultured Limbal Epithelial Sheets for Worldwide Treatment of Limbal Stem Cell Deficiency”

Sci Rep, 8 (1), 10502

DOI 10.1038/s41598-018-28553-0, PubMed 30002380, WoS 000438343600012 Cristin 1628953

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Adil MY, Xiao J, Olafsson J, Chen X, Lagali NS, Ræder S, Utheim ØA, Dartt DA, Utheim TP (2018)

“Meibomian Gland Morphology is a Sensitive Early Indicator of Meibomian Gland Dysfunction”

Am J Ophthalmol (in press)

DOI 10.1016/j.ajo.2018.12.006, PubMed 30578784 Cristin 1668522 (Details)





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Am J Ophthalmol, 200, 16-25
DOI [10.1016/j.ajo.2018.12.006](https://doi.org/10.1016/j.ajo.2018.12.006), PubMed [30578784](https://pubmed.ncbi.nlm.nih.gov/30578784/), WoS [000464625600003](https://www.scopus.com/search/form.do?prf=pub&id=000464625600003) Cristin [1668522](https://www.cristin.no/urn:nbn:no:ctin-1668522) ([Details](#))

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Transcriptomic analysis of MicroRNA expression in enamel-producing cells
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Int Arch Allergy Immunol, 178 (2), 141-149

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Coordinated collective migration and asymmetric cell division in confluent human keratinocytes without wounding

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Clinical diagnosis of Larsen syndrome, Stickler syndrome and Loews-Dietz syndrome in a 19-year old male: a case report

BMC Med Genet, 19 (1), 155

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