Best Nordic Paper **Awards**

Submit your manuscript by October 1 to be considered for the Best Nordic Paper Awards 2021 (NOK 125,000). More information on these and other awards can be found on our webpage, oftalmolog.com

We are very grateful to our sponsor, **Théa**, for their donation and support in making these awards possible.

#NeverStopLearning

Evaluation Committee **2020**

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Yrsa Yngvadóttir, *Ophthalmology resident at Landspítali, The National University Hospital of Iceland*

We are grateful to our committee for their diligence in evaluating the great work of their peers.

The following articles were excluded from evaluation at the request of the authors:

- "In the middle of (K)nowhere where medicine, science, and discovery come together." by Kai Kaarniranta
- "Professor Kai Kaarniranta – appointed new chief editor of Acta Ophthalmologica." by Szabolcs Felszeghy, Mikko Liukkonen, and Tor Paaske Utheim

GOLD

2020 AWARD WINNER

BEST NORDIC PAPER 2020

First Prize

*Award of NOK **80,000***

KEY POINTS

- Our ability to correctly assess other people by observing their faces is essential for us to connect and interact socially.
- Face recognition differs from all other visual tasks, with an occipital face area that reacts selectively to facial details and a temporal fusiform face area that reassembles defragmented signals.
- The human attention to faces is so strong that we detect facial patterns even where none exists.
- A vital part of the facial analysis is the encoding of emotional content by the amygdala.
- A parietal memory network is activated if faces are familiar, allowing faster recognition, but the recollection process can be erratic, leading to false memories and mistakes in identifying other people.

Atle Einar Østern, *Oslo University Hospital HF (Ullevål), Oslo, Norway*

How **you** recognize **Mona Lisa**

ATLE EINAR ØSTERN, CONSULTANT, DEPARTMENT OF OPHTHALMOLOGY, OSLO UNIVERSITY HOSPITAL

The most famous piece of artwork in the world is probably "La Gioconda." For centuries the enigmatic smile of a young woman, Lisa Gherardini, has inspired and challenged countless artists, scientists, and other people. The portrait, also called the "Mona Lisa," was painted by Leonardo da Vinci over several years from 1503. It displays an ambiguous facial expression, which contributes to making it compelling and intriguing. Her face is instantly recognizable.

This highlights a fundamental tendency among humans: We are drawn to facial images. That is how we connect. Our ability to correctly assess others' state of mind by observing their faces is essential for us to coexist socially and interact. Humans are exceptionally adept at distinguishing and identifying people at a glance. All this is done with such ease, speed, and precision, that we may underestimate the stunning complexity. Newer research suggests that face recognition differs from all other visual tasks. That begs the question: how?

Representations of the physical world, in the form of retinal images of objects, are transmitted in a topographic order to the primary visual area, V1 (area striata or area 17), in the occipital lobe of the brain. From here, neurons convey sorted information to extrastriatal areas with specific tasks (Figure 1). For instance, V2 identifies complex forms, V3d orientation and direction, V3a movement, V4d colour, MT/V5 direction of motion, V7 symmetry perception, and V8 colour aspects. Thus, single features are decoded here (Carter 2014). Researches have found a small sector in the inferior posterior occipital cortex, the *occipital face area* (OFA), which reacts selectively to facial details, like the mouth and eyes. The OFA is activated about 100 milliseconds after light strikes the retina (Liu et al., 2009).

Within and from the occipital cortex, visual stimuli go through two parallel channels, the dorsal and ventral pathways, although the division is not absolute (Figure 2). The dorsal, superior stream carries sensory information to parietal, motoric areas. It is fast, unconscious, and instructional about how to interact with objects. Neurons will identify the spatial or relative localization of items, their motion, and particular aspects of size and shape (labeled as 'where' and 'how'). The ventral, lower stream, via the temporal cortex, is relatively slow, but more important for object recognition. This pathway ensures that what the

Figure 1: Diverse brain regions interpret visual input (OFA = occipital face area, FFA = fusiform face area). Illustration: Atle Østern

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"I am very grateful for this inspirational prize, which made me smile more than Mona Lisa!"

The full article can be found on our website at www.oftalmolog.com/articles/ For direct access, scan the QR code.

Second Prize

*Award of NOK **30,000***

SILVER

2020 AWARD WINNER

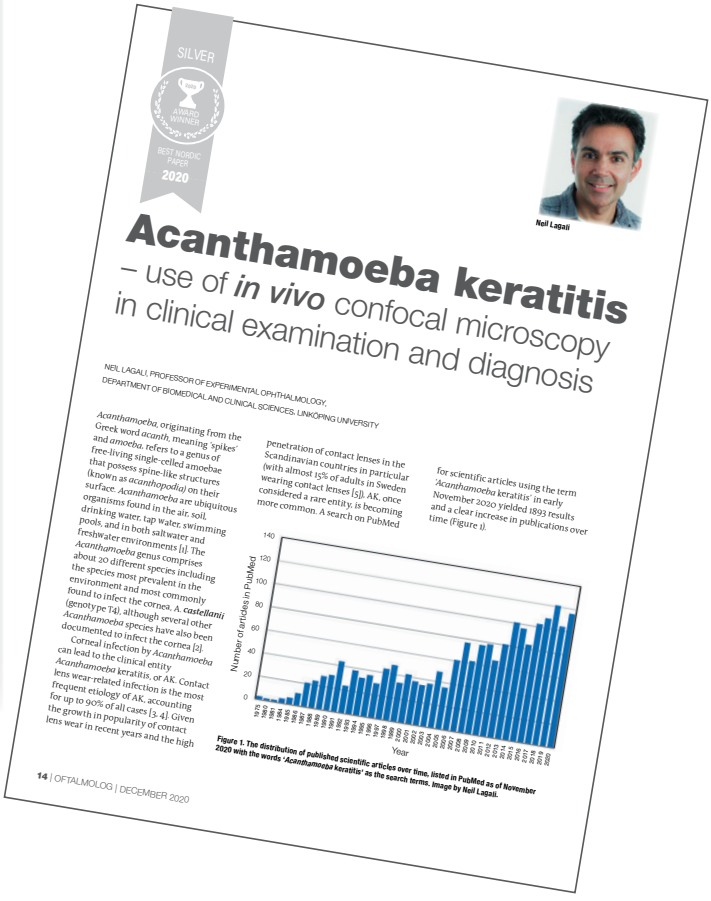
BEST NORDIC PAPER 2020

Neil Lagali, *Experimental Ophthalmology*
Department of Biomedical and Clinical Sciences, BKV

"I am honored and humbled to receive this award from Oftalmolog. *Cases of* Acanthamoeba *keratitis have been increasing in recent years, and I am grateful for the opportunity to describe our experiences in detection and diagnosis, in the hope that it can help clinics in the management of this difficult and serious condition."*

KEY POINTS

- Cases of Acanthamoeba keratitis are rising, particularly in the Nordic countries.
- Detection of Acanthamoeba by culture or PCR methods is sample-dependent and time consuming.
- In vivo confocal microscopy (IVCM) is a rapid diagnostic tool capable of detecting Acanthamoeba at various stages in its life cycle.
- IVCM must be performed methodically, repeatedly, and ideally by operators and observers trained in image interpretation.
- Good clinical management of suspected (and confirmed) Acanthamoeba infections should include IVCM as part of an integrated strategy.



SILVER

BEST NORDIC PAPER 2020

Neil Lagali

Acanthamoeba keratitis

– use of ***in vivo*** confocal microscopy in clinical examination and diagnosis

NEIL LAGALI, PROFESSOR OF EXPERIMENTAL OPHTHALMOLOGY, DEPARTMENT OF BIOMEDICAL AND CLINICAL SCIENCES, LINKÖPING UNIVERSITY

Acanthamoeba, originating from the Greek word *acanth*, meaning 'spikes' and *amoeba*, refers to a genus of free-living single-celled amoebae that possess spine-like structures (known as *acanthopodia*) on their surface. *Acanthamoeba* are ubiquitous organisms found in the air, soil, drinking water, tap water, swimming pools, and in both saltwater and freshwater environments [1]. The *Acanthamoeba* genus comprises about 20 different species including the species most prevalent in the environment and most commonly found to infect the cornea, *A. castellanii* (genotype T4), although several other *Acanthamoeba* species have also been documented to infect the cornea [2].

Corneal infection by *Acanthamoeba* can lead to the clinical entity *Acanthamoeba* keratitis, or AK. Contact lens wear-related infection is the most frequent etiology of AK, accounting for up to 90% of all cases [3, 4]. Given the growth in popularity of contact lens wear in recent years and the high penetration of contact lenses in the Scandinavian countries in particular (with almost 15% of adults in Sweden wearing contact lenses [5]), AK, once considered a rare entity, is becoming more common. A search on PubMed for scientific articles using the term *'Acanthamoeba* keratitis' in early November 2020 yielded 1893 results and a clear increase in publications over time (Figure 1).

Figure 1. The distribution of published scientific articles over time, listed in PubMed as of November 2020 with the words 'Acanthamoeba keratitis' as the search terms. Image by Neil Lagali.

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The full article can be found on our website at www.oftalmolog.com/articles/ For direct access, scan the QR code.

BRONZE

2020 AWARD WINNER

BEST NORDIC PAPER 2020

Third Prize

*Award of NOK **15,000***

"We are extremely honored and grateful for the recognition that the shared bronze award presents. As a research team, it is appreciative and motivating to see our work getting rewarded and it pushes us to be even more curious and hardworking for future research projects."


Internetbasert perimetri
– en mulig screeningsmetode for uopdagede synsfeltsdefekter?

Alvilda T. Steensberg, *Department Of Drug Design And Pharmacology, University Of Copenhagen, Denmark*

KEY POINTS

- Autoperimetry is the gold standard when examining a patient's visual field, but both the equipment and medical professionals' time required are costly.
- Glaucoma presents with visual field defects but is often asymptomatic until advanced stage.
- Using internet-based perimetry as a screening method for glaucoma could potentially reduce blindness and reduced vision from the disease.
- There are some challenges to standardize internet-based perimetry, including ensuring pupil fixation, avoiding head movements, and unifying light intensity.
- Internet-based perimetry has been tested as a screening method but has not yet been validated for professional use.

Ane Sophie Olsen, *Departments Of Ophthalmology, Rigshospitalet-Glostrup, Copenhagen, Denmark*

Miriam Kolko, *Department of Ophthalmology, Copenhagen University Hospital*

The full article can be found on our website at www.oftalmolog.com/articles/ For direct access, scan the QR code.

BRONZE

2020 AWARD WINNER

BEST NORDIC PAPER

2020

Zaynab Ahmad Mouhammad, *Department Of Drug Design And Pharmacology, University Of Copenhagen*

Daniel Tiedemann, *Department Of Drug Design And Pharmacology, University Of Copenhagen*

Steffen Heegaard, *Departments Of Ophthalmology, Copenhagen University Hospital, Rigshospitalet-Glostrup, Copenhagen, Denmark*

Miriam Kolko, *Department Of Drug Design And Pharmacology, University Of Copenhagen, Departments Of Ophthalmology, Copenhagen University Hospital, Rigshospitalet-Glostrup, Copenhagen, Denmark*

"We are very grateful for this award and humbly thank the evaluation committee for acknowledging this article as valuable information in this unique time during the pandemic, in which we as clinicians were forced think 'outside the box.'"

COVID-19: Do's and Don'ts

The full article can be found on our website at www.oftalmolog.com/articles/ For direct access, scan the QR code.

KEY POINTS

- SARS CoV-2 has a higher potential of spreading compared to other coronaviruses.
- Previous coronaviruses show that the risk of contracting SARS-CoV-2 is increased in hospitals.
- SARS CoV-2 causes different symptoms from multiple organs, including conjunctival congestion. Thus, COVID-19 should always be considered as a differential diagnosis during the pandemic.
- As former coronaviruses have led to severe sight-threatening diseases in other species, we cannot rule this out with SARS CoV-2 as well.
- Since many sight-threatening diseases are found in the elderly, ophthalmologists have a responsibility to take extra precautions.

BRONZE

2020 AWARD WINNER

BEST NORDIC PAPER 2020

Jakob Grauslund, *Department of Ophthalmology, Odense University Hospital; Department of Clinical Research, University of Southern Denmark; & Steno Diabetes Center Odense, Odense, Denmark.*

Screening for **diabetisk retinopati**

– etablering af en regional screeningsklinik

I am deeply honored and grateful for this prize. Thank you for considering me among the many high-quality contributions in Oftalmolog.

KEY POINTS

- Diabetic retinopathy (DR) screening can detect sight-threatening complications before irreversible vision loss.
- The national Danish DR-screening program screens more than 100,000 patients each year.
- Most patients are screened by ophthalmologists, but hospital-based screening is offered for many patients with type 1 and complicated type 2 diabetes.
- Steno Diabetes Center Odense (SDCO) established DR-screening in 2019, as part of a regional collaboration between 7 diabetes departments and the Department of Ophthalmology at Odense University Hospital. Over 7,000 patients are screened annually, many as part of a same-day-initiative with examinations for multiple diabetes complications.
- A virtual learning platform (VIOLA), implemented as part of the DR-screening at SDCO, is becoming a national and international DR-learning course.

The full article can be found on our website at www.oftalmolog.com/articles/ For direct access, scan the QR code.