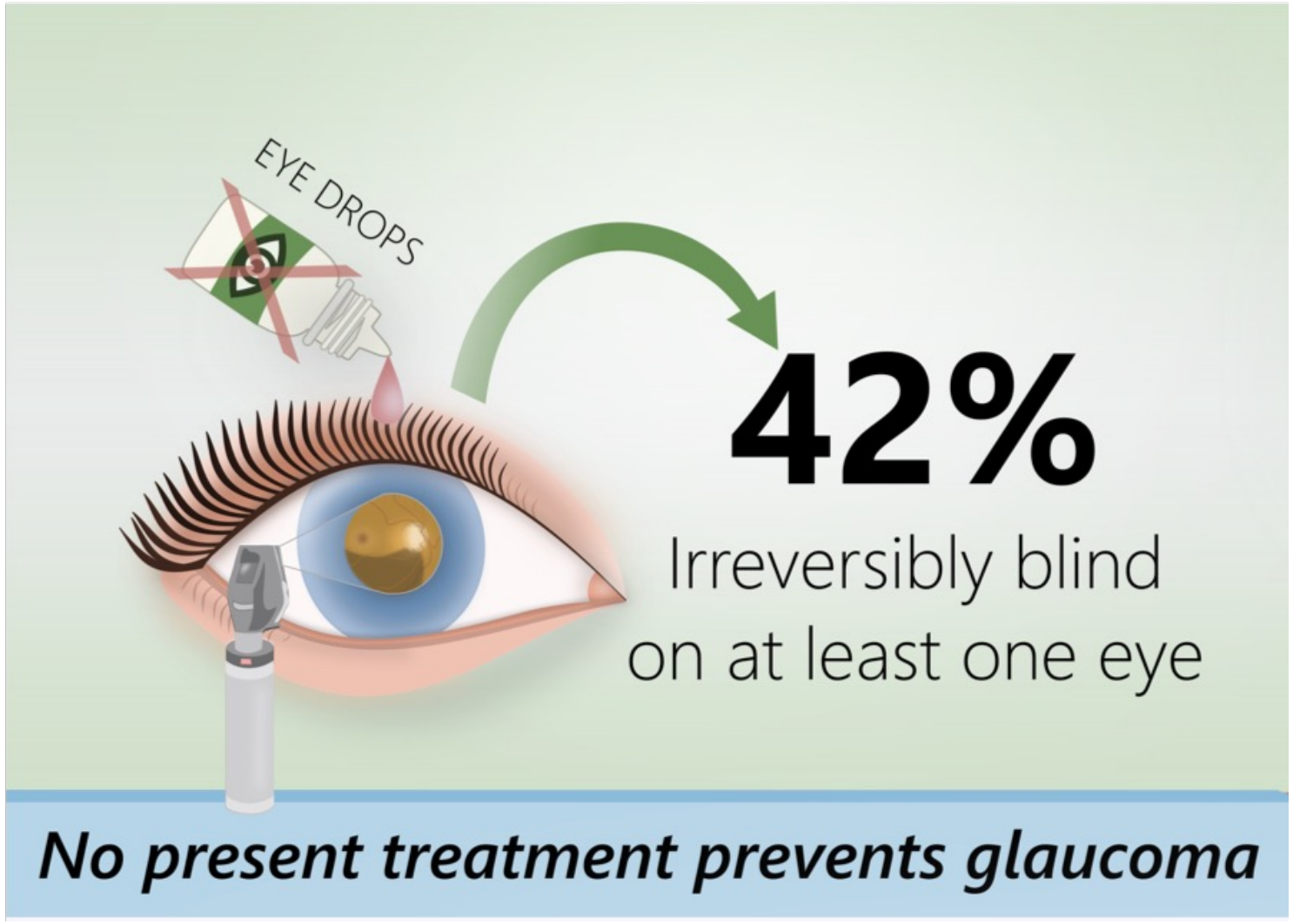
Stamcelleudviklede nethinder fra patienter med grøn stær kan bane vejen til forebyggelse af synshandicap og blindhed

MD, Phd student: Sarkis Saruhanian

Supervisor:
Miriam Kolko
Kristine Freude

UNIVERSITY OF COPENHAGEN

Grøn stær?

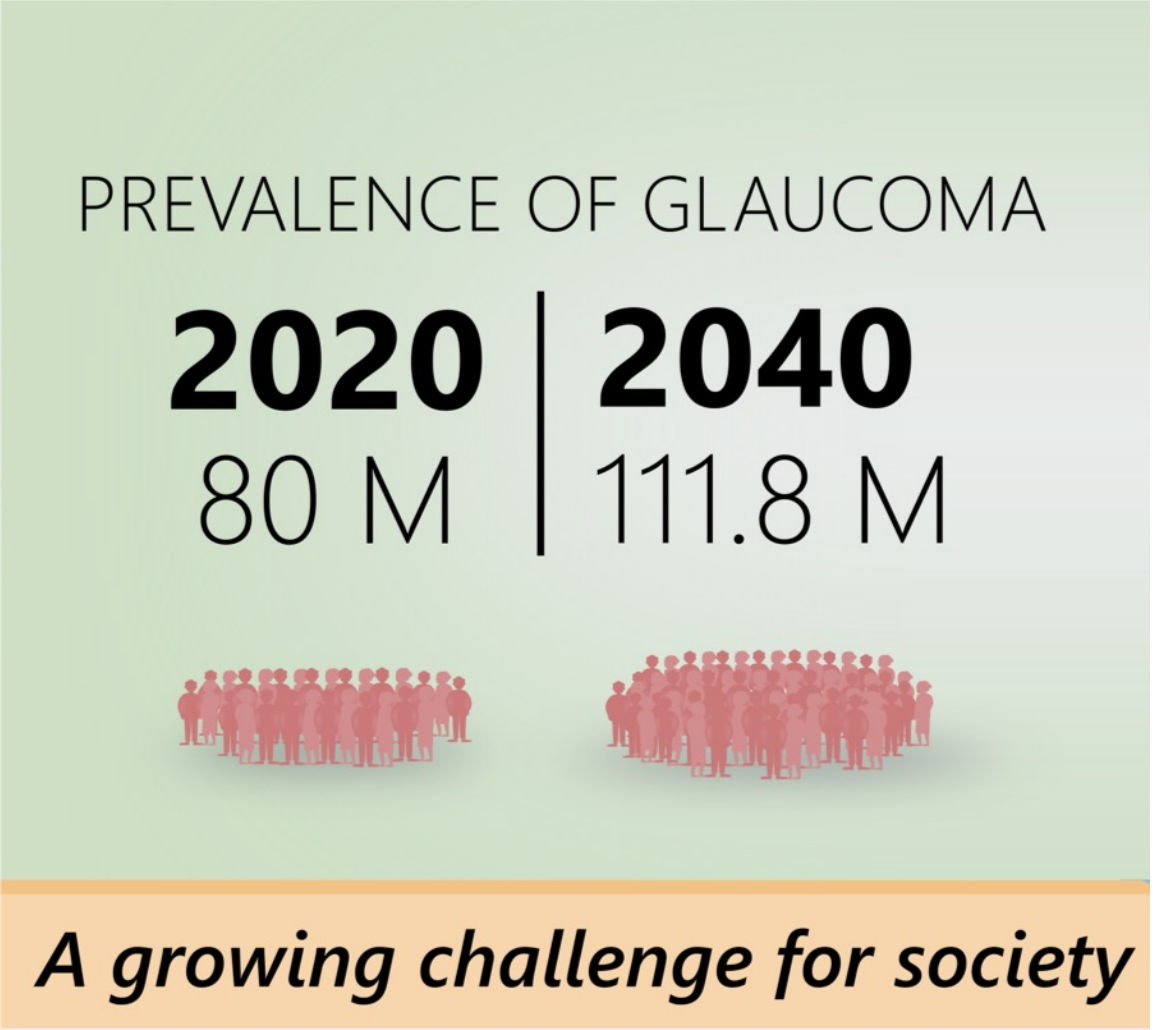


Am J Ophthalmol. 2013 Oct;156(4):724-30. doi: 10.1016/j.ajo.2013.05.027. Epub 2013 Aug 7.

Lifetime risk of blindness in open-angle glaucoma.

Peters D[1], Bengtsson B, Heijl A.

Forekomst



Ophthalmology. 2014 Nov;121(11):2081-90. doi: 10.1016/j.ophtha.2014.05.013. Epub 2014 Jun 26.

Global prevalence of glaucoma and projections of glaucoma burden through 2040: a systematic review and meta-analysis.

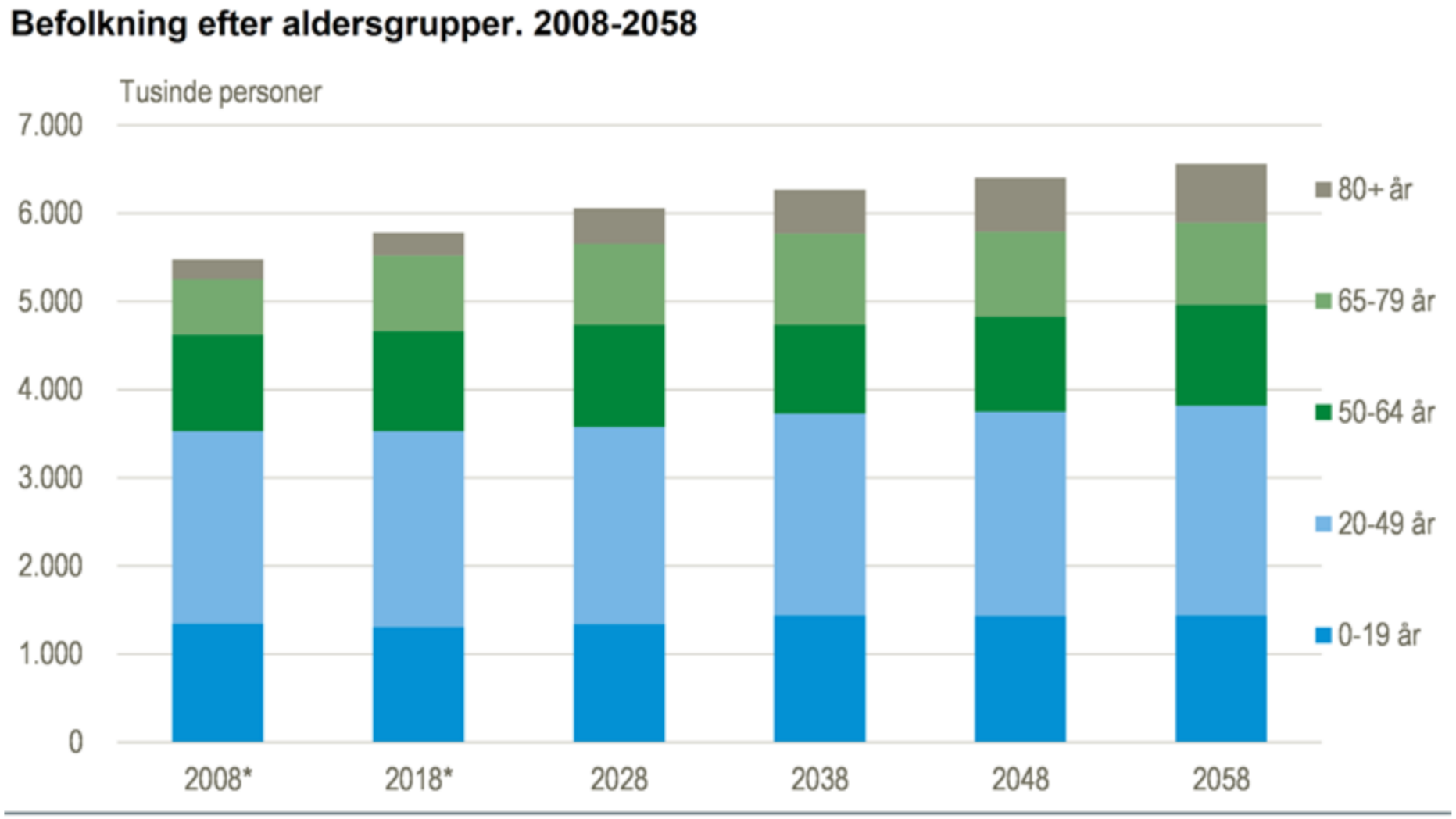
Tham YC[1], Li X[2], Wong TY[1], Quigley HA[3], Aung T[1], Cheng CY[4].

Ugeskr Laeger. 2017 Jan 30;179(5). pii: V06160444.

[Detection and prevention of blindness in patients with glaucoma is a socio-economical challenge].

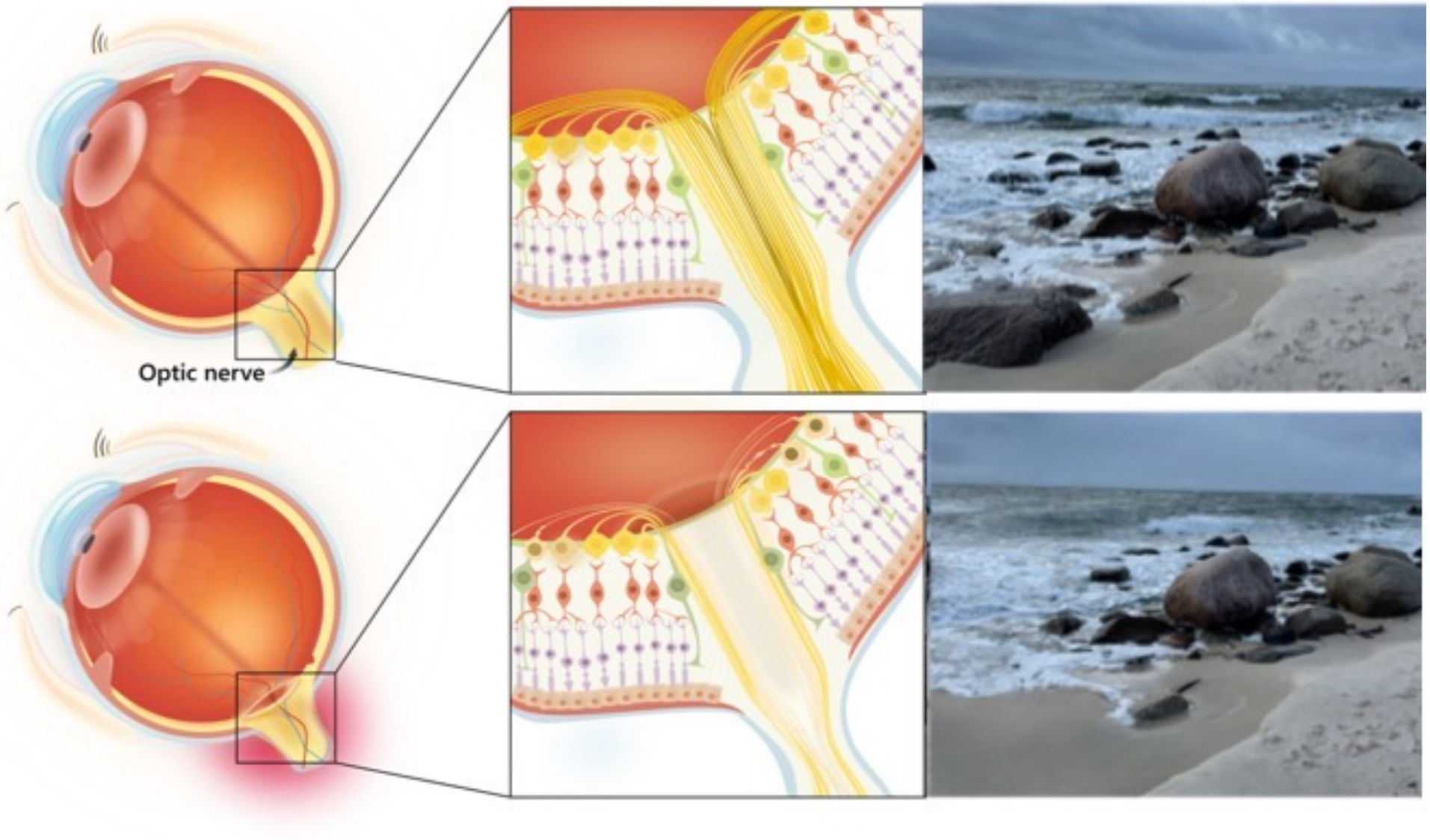
[Article in Danish]
Kolko M[1].

Forekomst



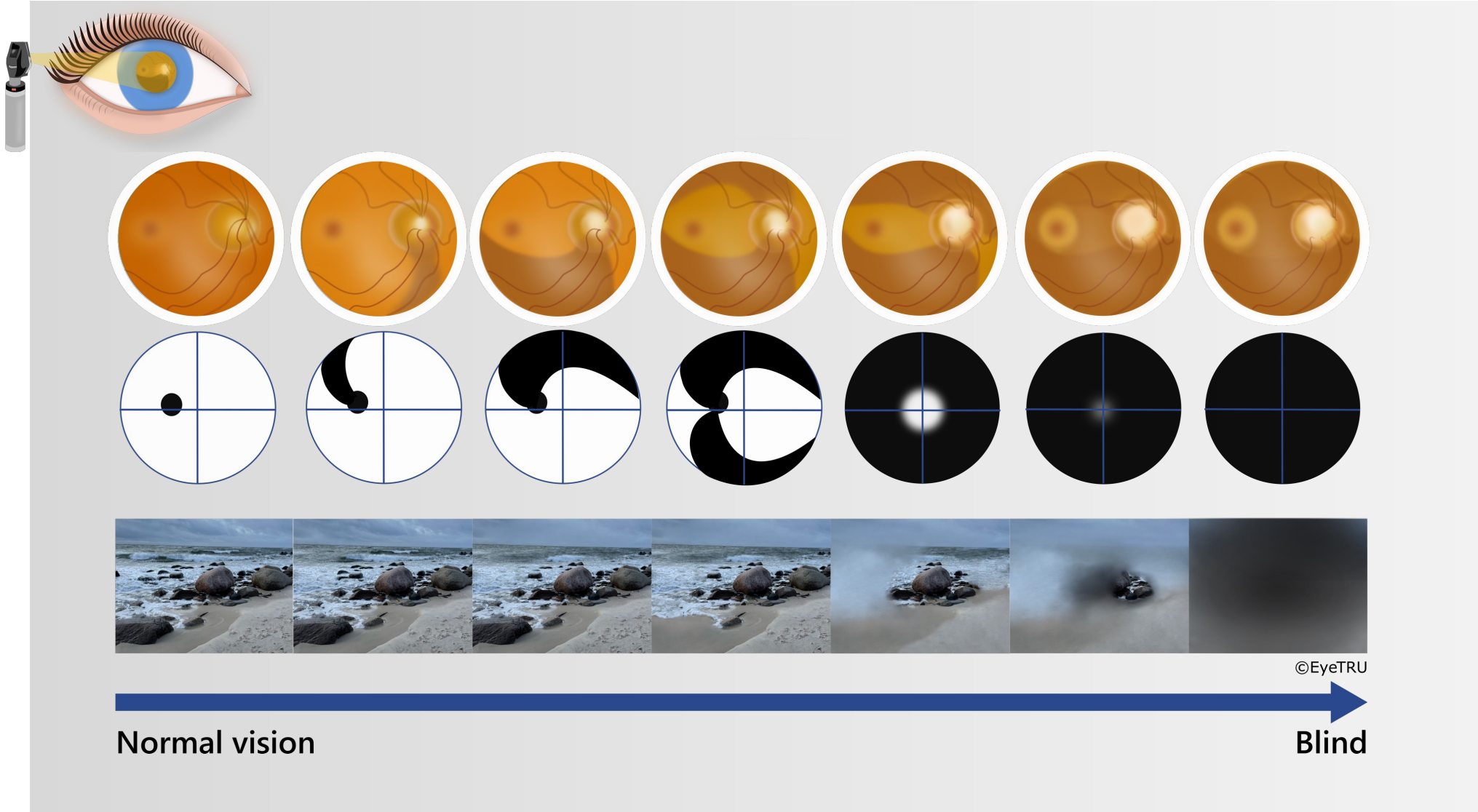
https://www.dst.dk/da/Statistik/nyheder-analyser-publ/nyt/NytHtml?cid=26827

Hvad er grøn stær?



Figur fra EyeTRU

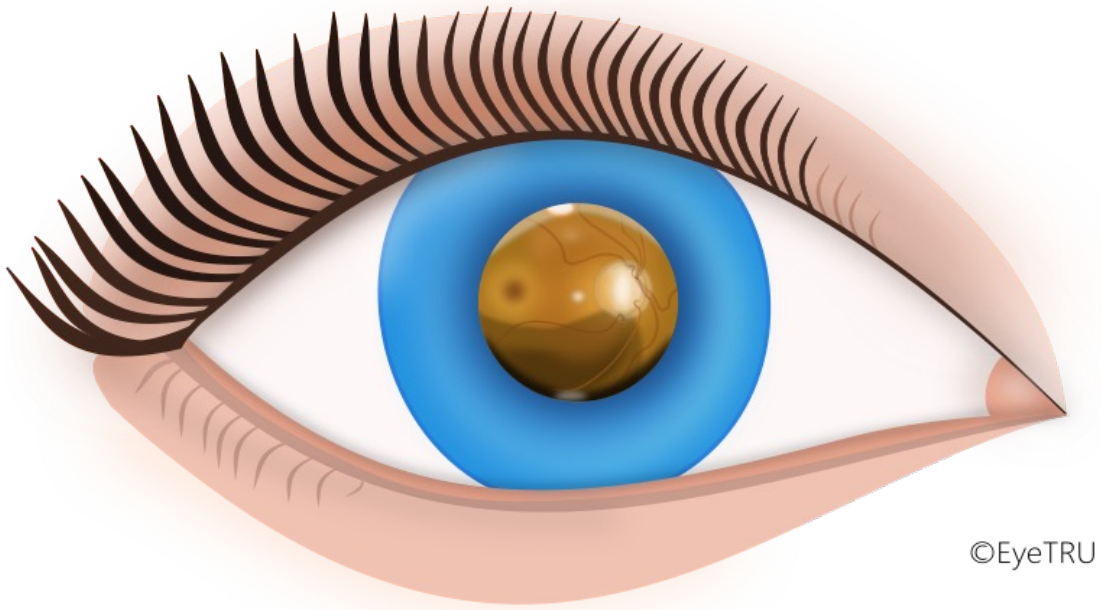
Hvad er grøn stær?



Figur fra EyeTRU

Formål

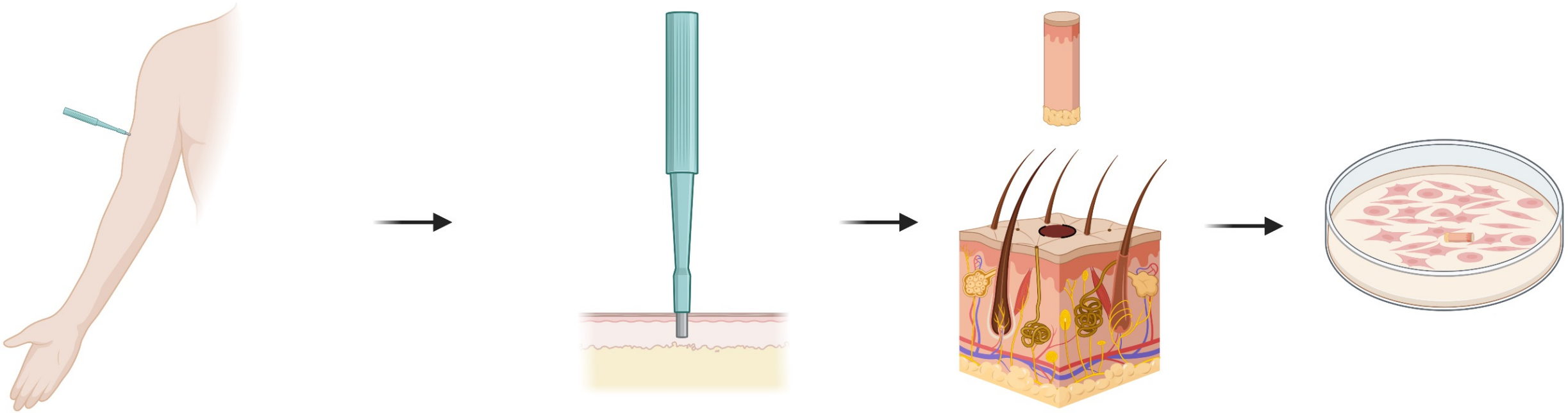
- At generere en human stamcellemodel til at undersøge sygdomskarakteristika og sygdomsmekanismer i nethinden hos patienter med grøn stær



Strategi

Hudbiopsi

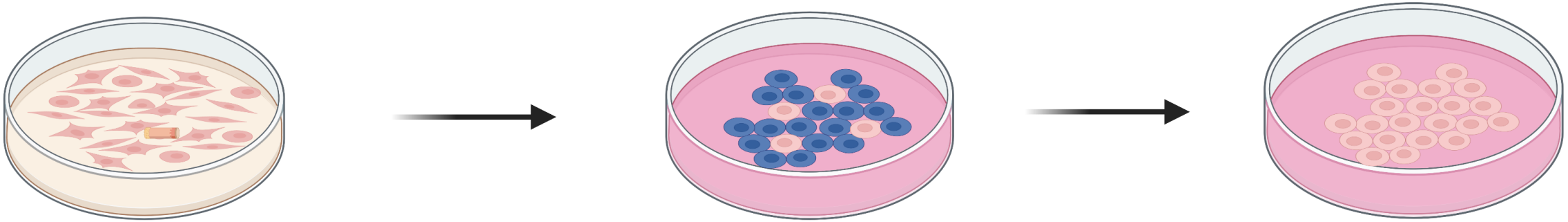
Hudceller



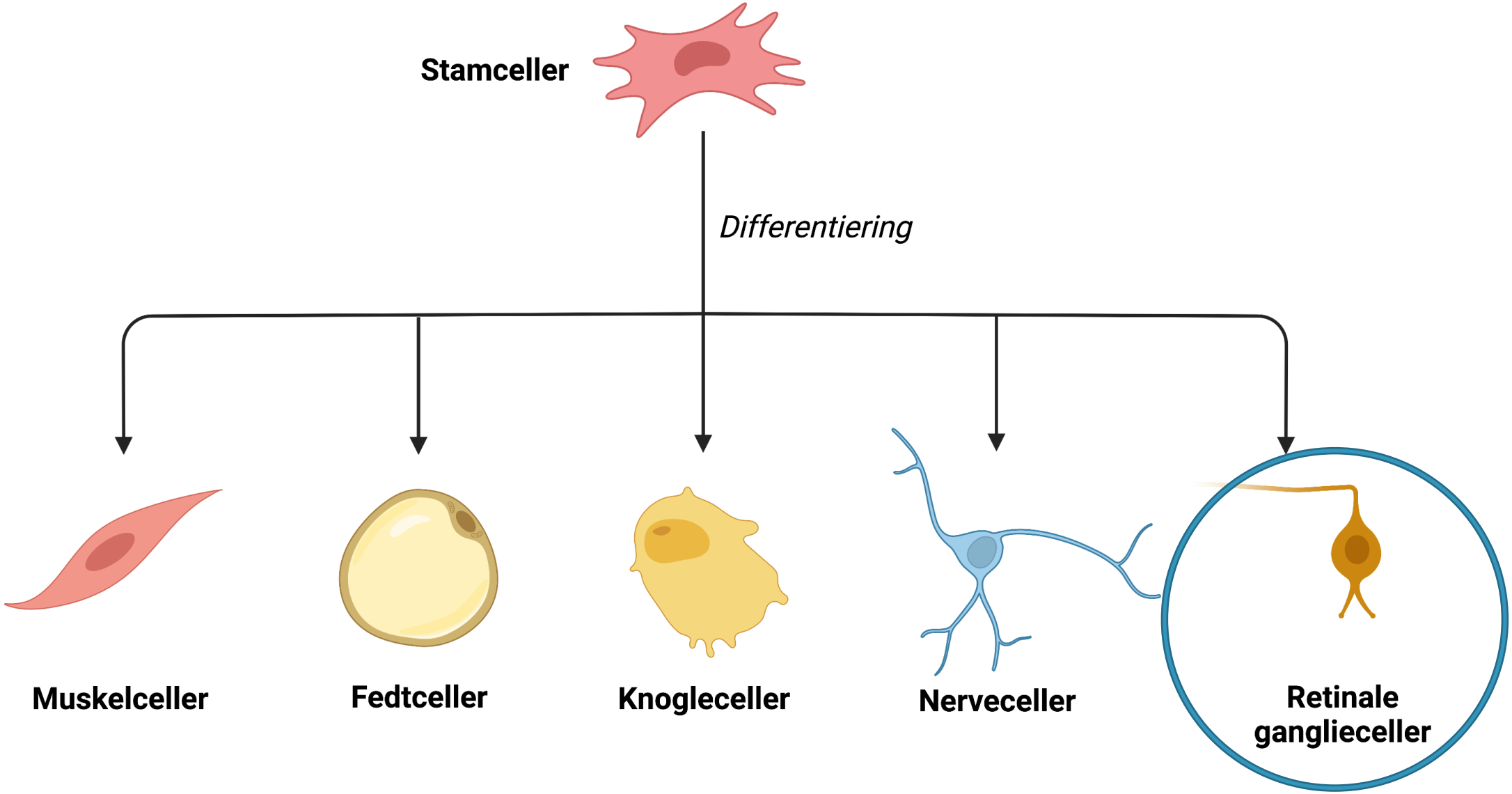
Strategi - fortsat

Hudceller

Inducederede stamceller

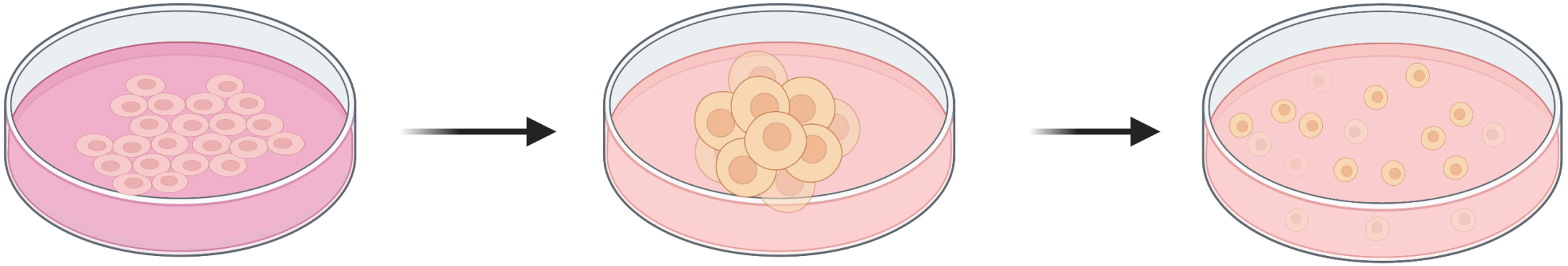


Strategi - fortsat

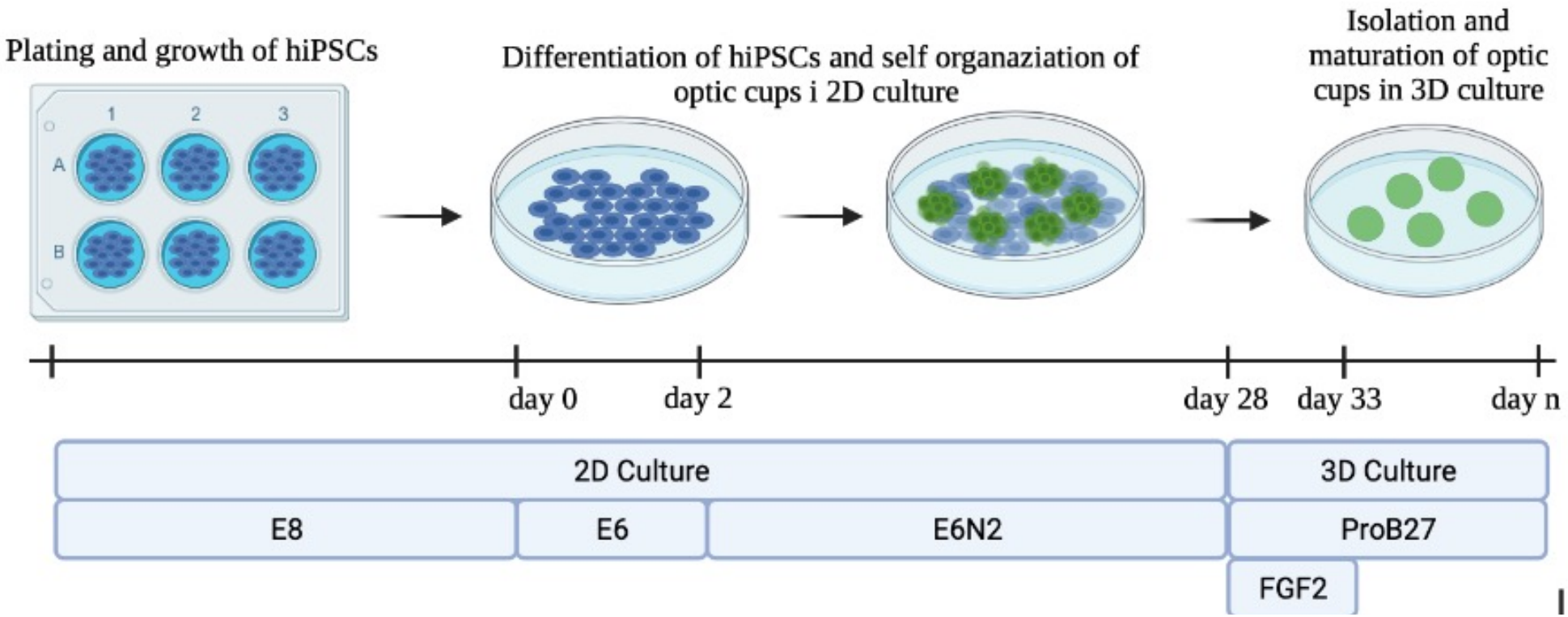


Strategi - fortsat

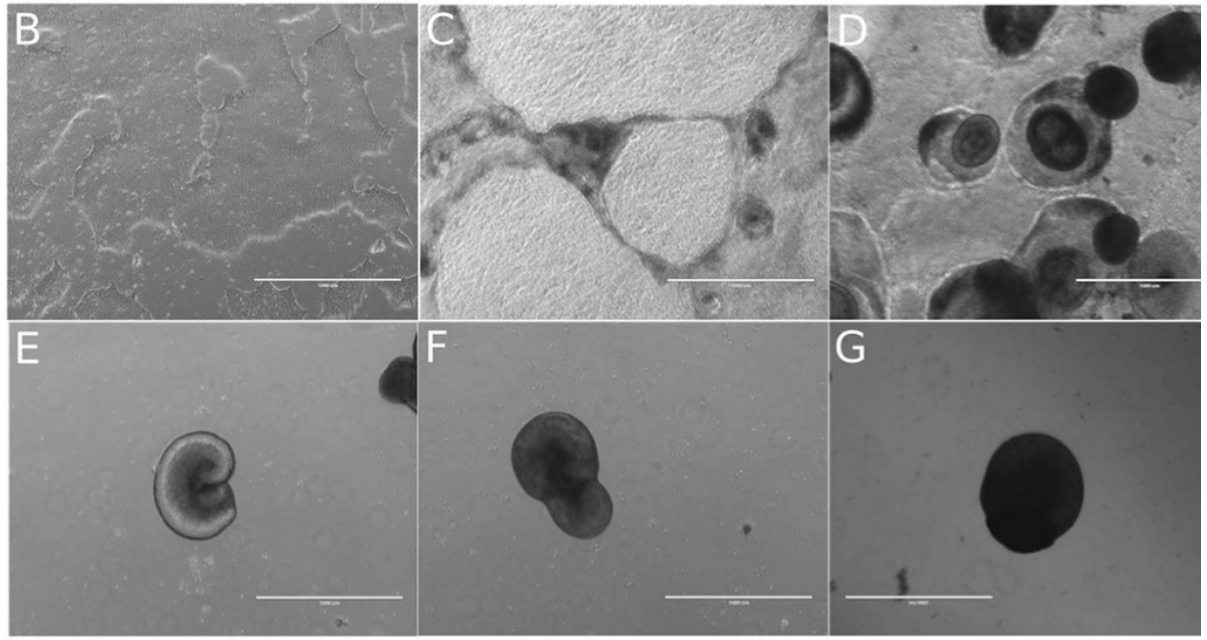
Fra stamceller til nethindeceller

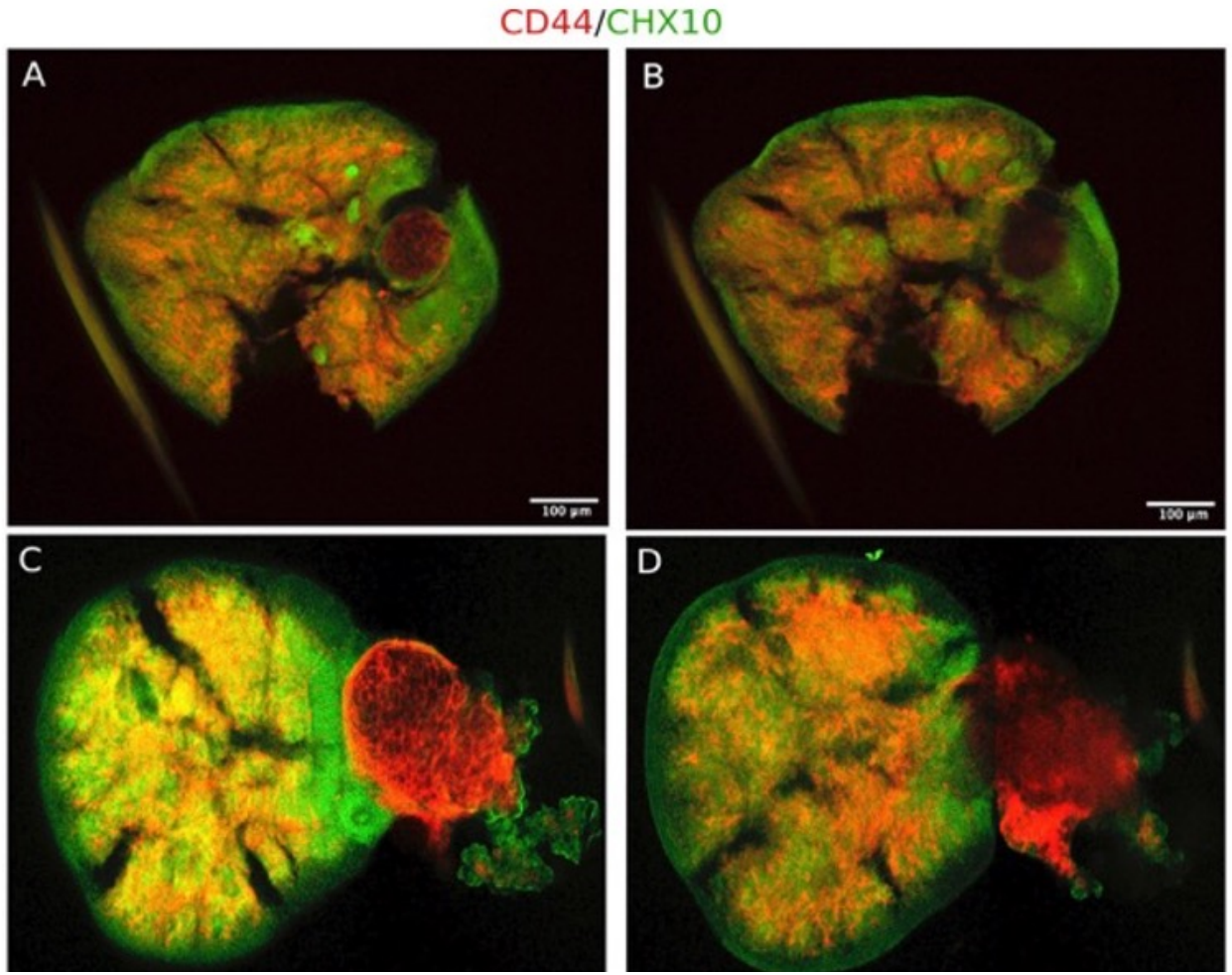


Strategi - fortsat



Resultater





World Journal of Stem Cells

Submit a Manuscript: https://www.f6publishing.com

World J Stem Cells 2020 October 26; 12(10): 1171-1183

DOI: 10.4252/wjsc.v12.i10.1171

ISSN 1948-0210 (online)

ORIGINAL ARTICLE

Basic Study

Enrichment of retinal ganglion and Müller glia progenitors from retinal organoids derived from human induced pluripotent stem cells - possibilities and current limitations

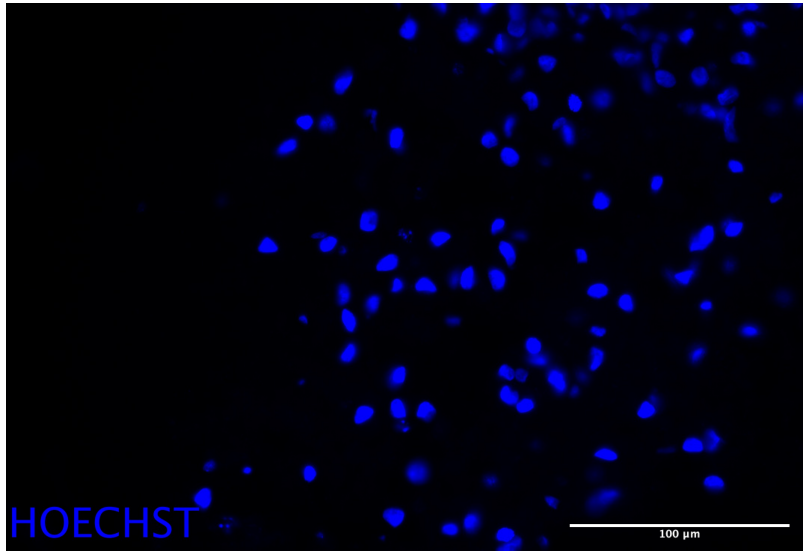
Kristine Karla Freude, Sarkis Saruhanian, Alanna McCauley, Colton Paterson, Madeleine Odette, Annika Oostenink, Poul Hyttel, Mark Gillies, Henriette Haukedal, Miriam Kolko

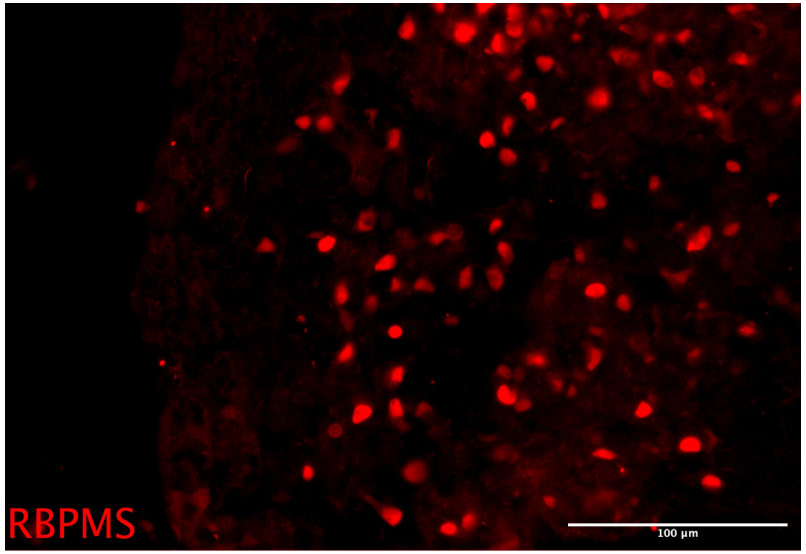
ORCID number: Kristine Karla Freude 0000-0001-9480-2386; Sarkis Saruhanian 0000-0001-7143-7654; Alanna McCauley 0000-0002-6062-0629; Colton Paterson 0000-0002-1894-2712; Madeleine Odette 0000-0003-2214-8324; Annika Oostenink 0000-0003-2218-3875; Poul Hyttel

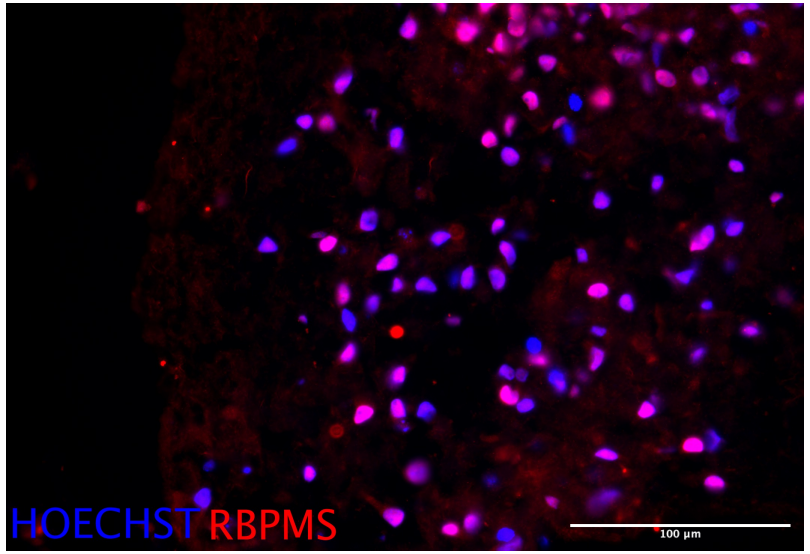
Kristine Karla Freude, Alanna McCauley, Colton Paterson, Madeleine Odette, Annika Oostenink, Poul Hyttel, Henriette Haukedal, Department of Veterinary and Animal Sciences, Group of Stem Cell Models for Studies of Neurodegenerative Diseases, Section for Pathobiological Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Frederiksberg 1870, Denmark

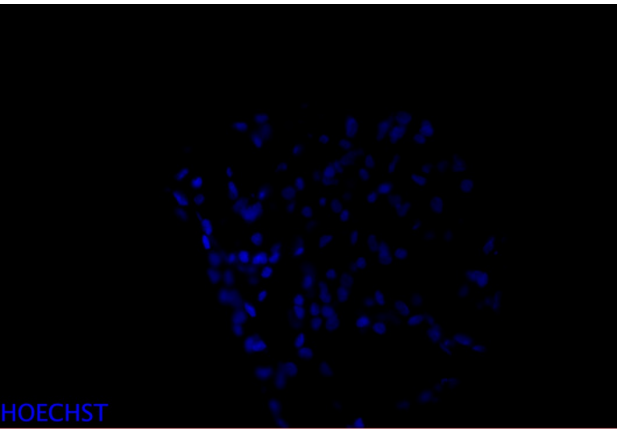
Sarkis Saruhanian, Miriam Kolko, Department of Drug Design and Pharmacology, University of Copenhagen, Copenhagen 2100, Denmark

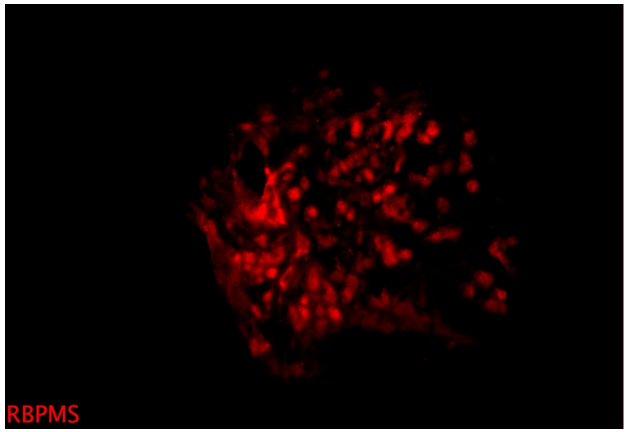
Nye resultater - retinale ganglieceller

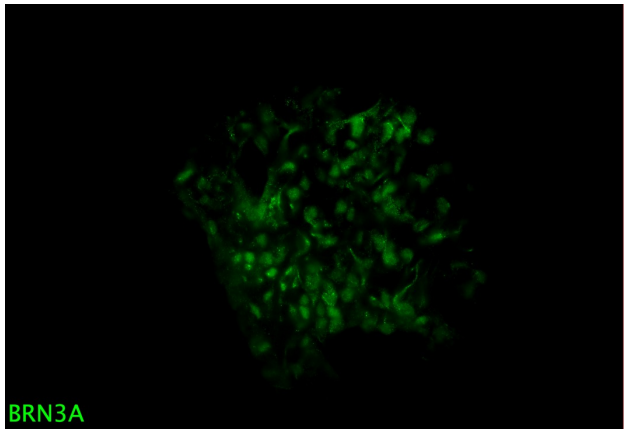


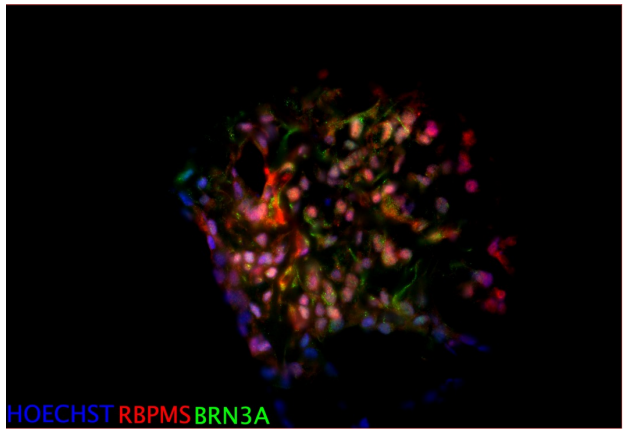




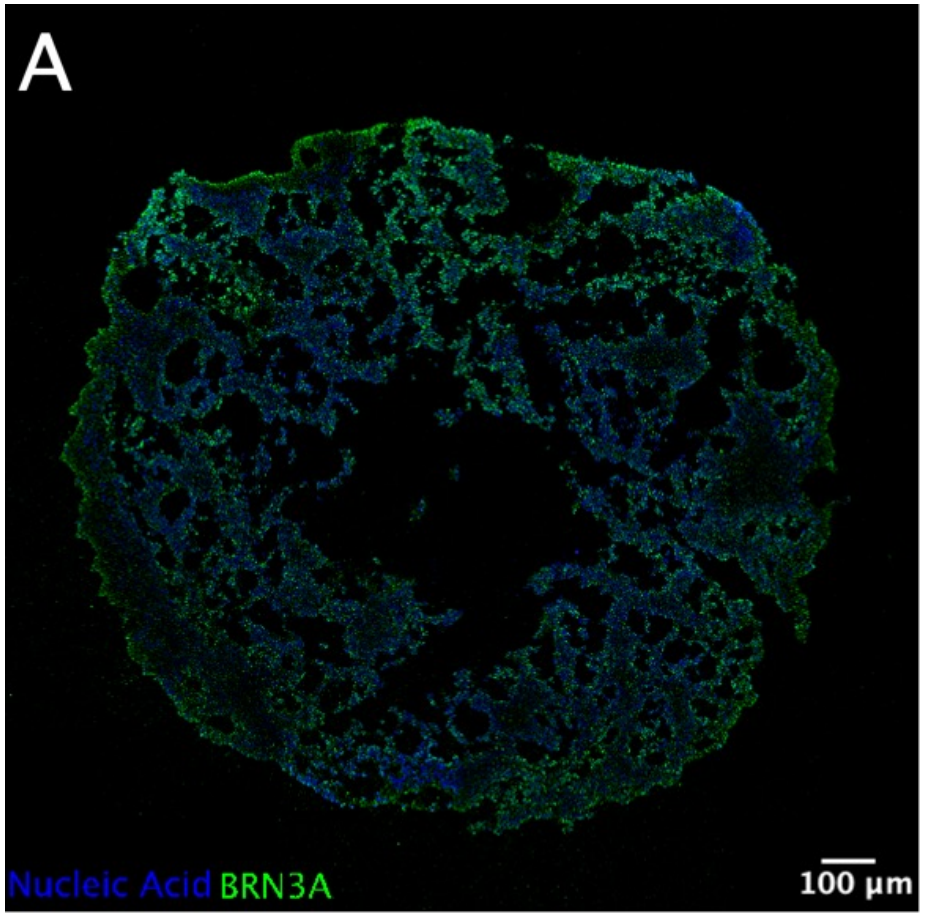


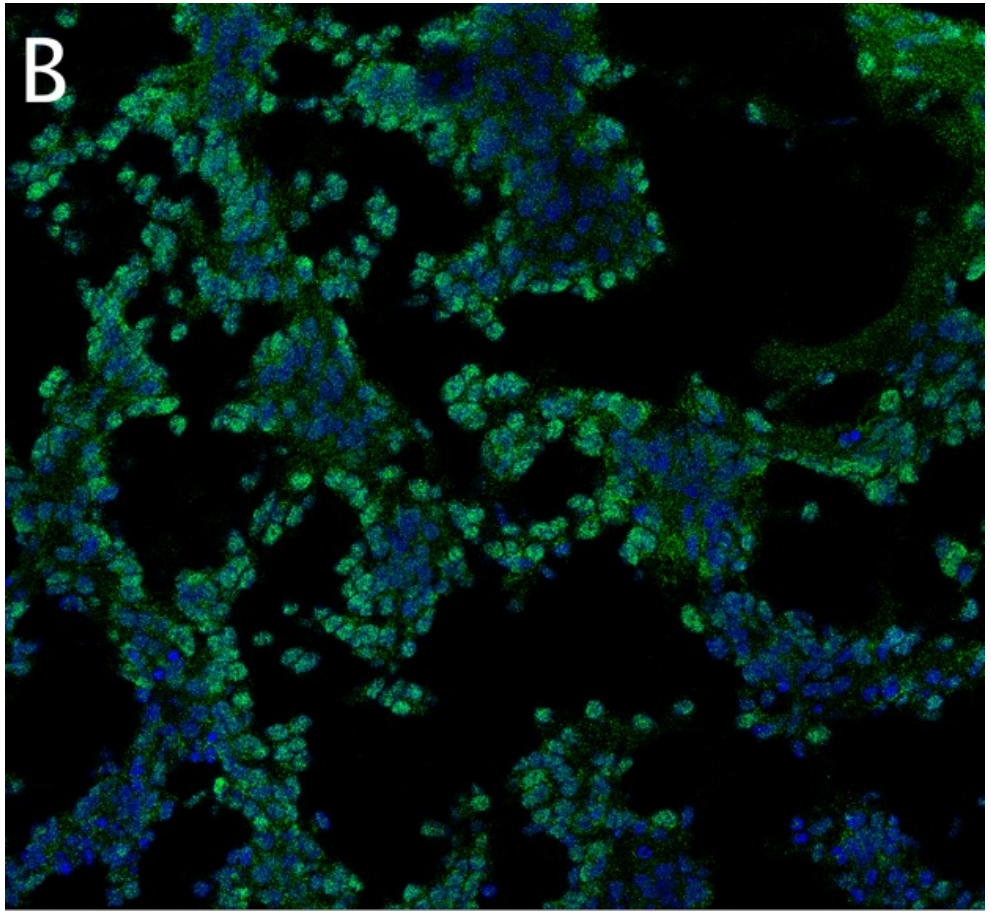






Nye resultater - seneste optimering

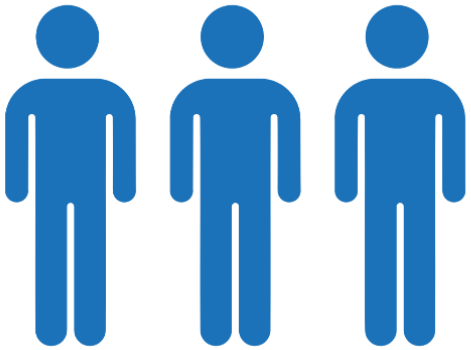




Perspektiv

Generere retinale organoider fra grøn stær patienters fibroblaster

- Udforske sygdomsmekanismerne samt tabet af de retinale ganglieceller hos patienter med grøn stær



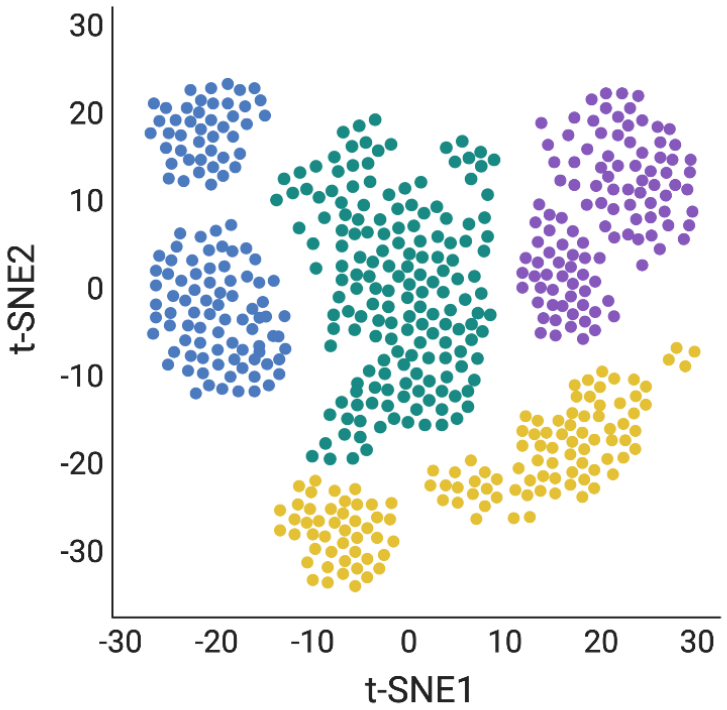
Grøn stær patienter

Raske individer

Næste skridt

Genetisk analyse

- Potentielt bane vej for nye behandlingsstrategier



Clustering & cell type identification

Tak for opmærksomheden

Miriam Kolko
Professor, Senior Consultant

Kristine Freude
Associate Professor

Charlotte Taul
Laborant

Rupali Vohra
Post.doc.

Jens Rovelt Andreasen
PhD student

Arevak Saruhanian
Scholar

Jens Peter Hertel

EyeTRU

VELUX FONDEN

Øjenforeningen

Bagenkop Nielsens Øjen-Fond

GLAUCOMA RESEARCH FOUNDATION

BRIDGE TRANSLATIONAL EXCELLENCE PROGRAMME

Aase og Ejnar Danielsens Fond

Miriam Kolko
Professor, Senior Consultant

Charlotte Taul
Laborant

Rupali Vohra
Senior forsker

Sarkis Saruhanian
PhD student

Conny Graae

Josefine Freiberg
PhD student

Jens Rovelt Andreasen
PhD student

Anne Hedengran Nagstrup
PhD student

Mariana García
PhD student

Pernille Rævdal
PhD student

Mia Langbøl
PhD student

Zaynab Mouhammad
Scholar

Anna-Sophie Thein
Bachelor

Arevak Saruhanian
Scholar

Rubin Hadad
Scholar

Alexander Von Spreckelsen
Scholar

Emilie Gug Møller-Kongshaug

Created with BioRender.com and EyeTRU