CRB1 gene therapy coming of age: mechanistic insight and rAAV assays on mouse & human retinal organoid models

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ISBN: 978-94-6419-586-6.

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Back cover art: Müller glial cell extracted from a human iPSC-derived control retinal organoid. Stained & imaged for glutamine synthetase (green), CD44 (red), vimentin (cyan), and DNA/DAPI (gray). © Drawing T.M. Buck, Leiden 2022

Printed by Gildeprint - www.gildeprint.nl

The printing of this thesis was financially supported by Stichting Blindenhulp, Den Haag.

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Proefschrift

ter verkrijging van

de graad van doctor aan de Universiteit Leiden,

op gezag van rector magnificus prof. dr. ir. H. Bijl,

volgens besluit van het college voor promoties

te verdedigen op woensdag 28 september 2022

klokke 16.15 uur

door

Thilo M. Buck

geboren te Esslingen am Neckar, Germany

in 1988

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The research here described was conducted at the Department of Ophthalmology, at the Leiden University Medical Center (LUMC). The studies described in this thesis were financially supported by Foundation Fighting Blindness, The Netherlands Organisation for Health Research and Development: ZonMw, Curing Retinal Blindness Foundation, Stichting Retina Nederland Fonds, Landelijke St. Blinden en Slechtzienden, Rotterdamse Stichting Blindenbelangen, St. Blindenhulp, St. Blinden-Penning, Algemene Nederlandse Vereniging ter Voorkoming van Blindheid (ANVVB), Gelderse Blinden Stichting and MaculaFonds.

CONTENTS

to Claartje and Luna

ABBREVIATION

AAV	adeno-associated virus
AAV2-tYF	rAAV2-Y444F+Y500F+Y730F
Ad	adenovirus
AMD	age-related macular degeneration
AON	antisense oligonucleotides
BAA	biological activity assay
bGH	bovine growth hormone
CAG/CBA/ pCAGGS	CMV early enhancer element, promoter of the first exon and the first intron of chicken β-actin gene, splice acceptor of the rabbit β-globin intron
CB7	shortened CMV early enhancer element and a chicken β-actin promoter
CBh	CMV early enhancer element, a chicken β-actin promoter and a chimeric chicken β-Actin / minute virus of mice (MVM) viral protein (VP) intron
CB-SB	shortened CBA promoter containing a CMV early enhancer element
CMV	cytomegalovirus early enhancer element and promoter
EBV	Epstein Barr Virus
ERG	Electroretinogram (retinal function)
GCL	Ganglion cell layer
GMP	good manufacturing practice
hCAR	human cone arrestin
hCNGA3	Human (cone PRC) Cyclic Nucleotide Gated Channel Subunit Alpha 3
hCHM	Human CHM gene (encodes for the Rab escort protein 1 [REP1])
hGH	human growth hormone
hGRK1/hRK	human G protein-coupled rhodopsin kinase 1 promoter
hiPSC	human induced pluripotent stem cells
hRPE65p	human retinal pigment epithelium-specific 65 kDa protein (RPE65) promoter
hVMD2	human vitelliform macular dystrophy type 2 promoter (aka BEST1)
ILM	Inner Limiting Membrane
INL	Inner Nuclear Layer
IPL	Inner Plexiform Layer
IONs	inherited optic neuropathies
IRBP	interphotoreceptor retinoid-binding protein
IRDs	inherited retinal dystrophies
IRES	Internal ribosome entry site
ITR	palindromic inverted terminal repeats
ITR2	palindromic inverted terminal repeats AAV serotype 2
LCA	Leber congential amaurosis

LV	lentivirus
mCAR	mouse cone arrestin
mRNA	Messenger RNA
miRNA	microRNA
MGC	Müller glial cell
MVM	minute virus of mice viral protein (VP intron)
NMT	novel medical therapy
OKT	Optokinetic headtracking response
OLM	Outer Limiting Membrane
ONL	Outer Nuclear Layer
OPL	Outer Plexiform Layer
pA	polyadenylation sequence
PBGD	Porphobilinogen deaminase
PRC	photoreceptor
PRE	post-transcriptional regulatory element
rAAV	recombinant adeno-associated virus
rBG	rabbit β-globin
rHSV	replication-defective recombinant herpes virus
RPE	Retinal Pigment Epithelium
SpA	synthetic polyadenylation signal
sBHK	suspension-adapted Baby Hamster Kidney fibroblasts
scAAV	self-complementary recombinant adeno-associated virus
Sf9	a clonal isolate of *Spodoptera frugiperda* (Fall Army worm) Sf21 cells
smCBA	truncated chimeric CMV/CBA promoter
ssAAV	single-stranded recombinant adeno-associated virus
SV40	late simian virus 40
TEA	transgene expression assay
TFBS	transcription factor binding sites
vg	viral genomes (*aka* gc, genome copies)
WPRE	Woodchuck hepatitis virus post-transcriptional regulatory element
wtAAV	Wild-type adeno-associated virus