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Cellular therapy after spinal cord injury using neural progenitor cells

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Abbreviations

APC	adenomatous polyposis coli
Ara-C	cytosine arabinoside
ATP	adenosine 5'triphosphate
BBB	blood-brain barrier
BDA	biotinylated dextran amine
BDNF	brain derived neurotrophic factor
BLBP	brain lipid binding protein
BrdU	bromodeoxyuridine
BSA	bovine serum albumine
cAMP	cyclic-adenosine 5'-monophosphate
cGMP	cyclic-guanosine 5'-monophosphate
CMV	Cytomegalovirus
CNS	central nervous system
CPG	central pattern generator
CSPG	chondroitin sulphate proteoglycan
CST	corticospinal tract
DAB	3,38-diaminobenzidine
DCX	doublecortin
DMEM	Dulbecco's modified essential medium
DNA	deoxyribonucleic acid
ECG	electrocardiogram
ECM	extracellular matrix
EDTA	Ethylenediaminetetraacetic acid
EGF	epidermal growth factor
FACS	fluorescence-activated cell sorting
FCS	fetal calf serum
FF	fibroblasts
FGF-2	fibroblast growth factor-2
FOV	field of view
Gal-C	galactocerebroside
GAP-43	growth-associated protein-43
GDNF	glial-derived neurotrophic factor
GFP	green fluorescent protein
HBSS	Hank's balanced salt solution
LTR	long terminal repeat
MACS	magnet-activated cell separation
MAG	myelin-associated glycoprotein
MLV	murine leukemia virus
MRI	magnet resonance imaging
MW	molecular weight
NB medium	Neurobasal medium
N-CAM	neuronal cell adhesion molecule
NF200	Neurofilament 200 kD fragment
NGF	nerve growth factor
Ng-R	Nogo receptor
NPC	neural progenitor cells

Abbreviations

NSC	neural stem cell
NT-3	neurotrophic factor-3
NT-4/5	neurotrophic factor-4/5
OEC	olfactory ensheathing cells
OMGP	oligodendrocyte myelin glycoprotein
p75-LNGR	p75 low affinity NGF receptor
PBS	phosphate-buffered saline
PFA	paraformaldehyde
PNS	peripheral nervous system
P-Orn/Lam	poly-L-Ornithin/laminin
RAG	regeneration-associated genes
RF	radiofrequency
SC	Schwann cells
SC	spinal cord
SCI	spinal cord injury
SD	standard deviation
SEM	standard error of the mean
SNR	signal-to-noise ratio
SVZ	subventricular zone
TBS	Tris-buffered saline
TE	echo time
TGF- β	transforming growth factor- β
TR	repetition time
TX-100	Triton X-100

Curriculum vitae

De auteur van dit proefschrift werd geboren op 14 november 1973 te Heerlen en groeide op in het Limburgse Ulestraten. Na het behalen van het VWO diploma in het jaar 1993 aan het Stella Maris College te Meerssen, begon hij in hetzelfde jaar de studie Biologie aan de Universiteit Leiden. Tijdens zijn studie koos hij voor de medische afstudeerrichting en volgde hij een stage met het thema “In vivo effects of E2F-1 and E2F-2 deficiency on proliferation in the adult mouse brain” bij de Klinik und Poliklinik für Neurologie der Universität Regensburg, Duitsland. Vervolgens volgde hij een stage met het thema “Effects of pharmacological protein kinase C inhibitors on MTLn3 rat mammary tumor cells” aan de afdeling toxicologie van het Leiden Amsterdam Center for Drug Research te Leiden. Na het behalen van het doctoraal diploma in 1999, keerde hij in 2000 terug naar de Klinik und Poliklinik für Neurologie der Universität Regensburg en verrichte aldaar het onderzoek dat beschreven is in dit proefschrift. Momenteel is hij werkzaam als post-doc aan een gezamenlijk project van Klinik und Poliklinik für Neurologie der Universität Regensburg, de Urologische Klinik und Poliklinik van het Klinikum rechts der Isar der technischen Universität München, Duitsland en de firma Innovacell te Innsbruck, Oostenrijk met als thema “Generation of autologous Schwann cell coated nerve conduits for cavernosal nerve reconstruction after radical prostatectomy”.

The author of this thesis was born on November 14 1973 in Heerlen, the Netherlands and grew up in Ulestraten. After obtaining his secondary school diploma in the year 1993 at the Stella Maris college in Meerssen, the Netherlands, he started to study biology in the same year at Leiden University. During his study, he decided to specialize in Medical Biology and conducted an internship at the Klinik und Poliklinik für Neurologie der Universität Regensburg, Germany investigating the in vivo effects of E2F-1 and E2F-2 deficiency on proliferation in the adult mouse brain and at Leiden Amsterdam Center for Drug Research, Leiden, investigating Effects of pharmacological protein kinase C inhibitors on MTLn3 rat mammary tumor cells. After obtaining his Masters degree, he returned to the Klinik und Poliklinik für Neurologie der Universität Regensburg to conduct the research that is described in this thesis. At the moment, he is working as a post-doc researcher on a cooperative project between the Klinik und Poliklinik für Neurologie der Universität Regensburg, the Urologische Klinik und Poliklinik of the Klinikum rechts der Isar der technischen Universität München, Germany and the company Innovacell from Innsbruck, Austria establishing the generation of autologous Schwann cell coated nerve conduits for cavernosal nerve reconstruction after radical prostatectomy.

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