



Universiteit  
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## **In vivo high field magnetic resonance imaging and spectroscopy of adult zebrafish**

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***In Vivo* High Field Magnetic  
Resonance Imaging and  
Spectroscopy of Adult Zebrafish**

**Samira Kabli**

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***In Vivo* High Field Magnetic Resonance  
Imaging and Spectroscopy of Adult Zebrafish**

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Voor mijn ouders



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# List of abbreviations

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μMRI	Magnetic Resonance micro-Imaging
1D	One-dimensional
2D	Two-dimensional
3D	Three-dimensional
Ala	Alanine
Asp	Aspartate
ATP	Adenosine-5'-triphosphate
ADP	Adenosine diphosphate
Cho	Choline
COSY	Correlation Spectroscopy
CNR	Contrast-to-Noise Ratio
Cr	Creatine
EDTA	Ethylenediaminetetraacetic acid
FASTMAP	Automatic shimming method
FID	Free induction decay
fMRI	Functional Magnetic Resonance Imaging
FOV	Field of View
FSE	Fast Spin Echo
GABA	γ-Aminobutyric acid
GE	Gradient Echo
GFP	Green fluorescent protein
Glc	Glucose

Gln	Glutamine
Glu	Glutamate
Glx	Glutamine + Glutamate
GPC	Glycerophosphocholine
Gro	Glycerol
GSH	Glutathione
HCar	Homocarnosine
HRas	Human Ras
Ins	Inositol
IR-RARE	Inversion Recovery RARE
Lac	Lactate
mI	<i>myo</i> -Inositol
mitf	Mammalian microphthalmia-associated transcription factor
MPTP	methyl-4-phenyl- 1,2,3,6- tetrahydropyridine
MRA	Magnetic Resonance Angiography
MRI	Magnetic Resonance Imaging
MRS	Magnetic Resonance Spectroscopy
MS222	Ethyl meta aminobenzoate metanesulfonic acid salt
MSME	Multi-Slice Multi-Echo
MTX	Matrix
NA	Number of Averages
NAA	N-Acetylaspartate
NAAG	N-acetylaspartylglutamate
NEX	Number of Excitations
NMR	Nuclear Magnetic Resonance
OVS	Outer Volume Suppression

PCh	Phosphocholine
PCr	Phosphocreatine
PE	Phosphoethanolamine
P <sub>i</sub>	Inorganic Phosphate
PRESS	Point REsolved SpectroScopy
PS1, PS2	Presenilin 1, Presenilin 2
P53	53 kDa tumor protein, which suppresses tumor growth
RARE	Rapid Acquisition with Relaxation Enhancement
RAS	A protein which regulates the oncogenic pathways
RF	Radio frequency
RNA	Ribonucleic acid
ROI	Region Of Interest
SE	Spin Echo
sI	<i>scyllo</i> -Inositol
SNR	Signal-to-Noise Ratio
T	Tesla
T <sub>1</sub>	Longitudinal or spin-lattice relaxation time
T <sub>2</sub>	Transverse or spin-spin relaxation time
Tau	Taurine
tCr	Total Creatine (Creatine + Phosphocreatine)
TE	Echo Time
Thr	Threonine
TR	Repetition Time
TSP	2,2,3,3-tetradeutero-3-trimethylsilylpropionic acid
Tyr	Tyrosine
VAPOR	Variable Pulse power and Optimized Relaxation delays
VOI	Volume Of Interest

