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Monitoring Alzheimer's disease in transgenic mice with ultra high field magnetic resonance imaging

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**Monitoring Alzheimer's disease in
transgenic mice with ultra high field
magnetic resonance imaging**

Firat Kara

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Monitoring Alzheimer's disease in transgenic mice with ultra high field magnetic resonance imaging
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Knowledge should mean a full grasp of knowledge:
Knowledge means to know yourself, heart and soul.

If you have failed to understand yourself,
then all of your reading has missed its call.

-Yunus Emre

English version by Namik Kemal Zeybek

Voor mijn ouders

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List of abbreviations

μ MRI	Magnetic Resonance micro-Imaging
1D	One-dimensional
2D	Two-dimensional
3D	Three-dimensional
AD	Alzheimer's Disease
A	Absolute bias
AC	Anterior commissure
ACA	Anterior cerebral artery
AComA	Anterior communicating artery
ANOVA	Analysis of variance
APP	Amyloid precursor protein
ASL	Arterial Spin Labeling
azACA	Anterior azygos cerebral artery
azPA	Azygos pericallosal artery
A β	Amyloid β
BA	Basilar artery
BS	Brain stem
C	Cingulate cortex
CAA	Cerebral amyloid angiopathy
CB	Cerebellum
CC	Corpus callosum
CCA	Common carotid artery
CNR	Contrast to noise ratio
CPMG	Carr-Purcell-Meiboom-Gill
Cpu	Caudate putamen
CSF	Cerebrospinal fluid
CX	Cortex
DKI	Diffusion Kurtosis Imaging
DTI	Diffusion tensor imaging
ECA	External carotid artery

FAD	Familial type of AD
FCX	Frontal cortex
FDG	¹⁸ F-2-fluoro-2-deoxy-D-glucose
FID	Free-induction decay
FOV	Field of view
GABA	γ -Aminobutyric acid
GE	Gradient echo
GFAP	Glial fibrillary acidic protein
GL	Glomerular layer
Gln	Glutamine
Glu	Glutamate
H&E	Hematoxylin and eosin
HC	Hippocampus
HT	Hypothalamus
IBA-1	Ionized calcium binding adaptor molecule 1
ICA	Internal carotid artery
ICC2,1	intra-class correlation coefficient
ISA	image sequence analysis
LFB	Luxol fast blue
LOAD	Late-onset form of the AD
M	Muscle
MAPT	Microtubular associated protein tau
MCA	Middle cerebral artery
MCI	Mild cognitive impairment
MIP	Maximum intensity projection
mIns	Myo-Inositol
MRA	Magnetic resonance angiography
MRI	Magnetic resonance imaging
MRS	Magnetic resonance spectroscopy
MS	Multiple sclerosis
MSME	Multi-Slice, Multi-Echo
MTC	Magnetization Transfer Contrast
NA	Number of averages
NAA	N-acetylaspartate
NAAG	N-acetylaspartylglutamate
NFT	Neurofibrillary tangle

NMR	Nuclear magnetic resonance
NS	Number of slices
O CX	Occipital cortex
OB	Olfactory bulb
OlfA	Olfactory artery
PCA	Posterior cerebral artery
pCX	Pariatal cortex
PET	Positron emission tomography
PPP	Palatine portion of pterygopalatine
PRESS	Point Resolved Spectroscopy
PrP	Prion protein
PS1, PS2	Presenilin-1, Presenilin-2
RARE	Rapid acquisition with relaxation-enhancement
RF	Radiofrequency pulses
ROIs	Regions of interest
ROS	Reactive oxygen species
rs-fc	Resting state functional connectivity
RSP	Retrosplenial cortex
r_2	Transverse relaxivity
R_2	Transverse relaxation rate
SB	Subiculum
SB/PSB	Subiculum/parasubiculum
SCA	Superior cerebellar artery
SE	Spin echo
SNR	Signal-to-Noise Ratio
T	Tesla
T_1	Longitudinal or spin-lattice relaxation time
T_2	Transverse or spin-spin relaxation time
Tau	Taurine
tCr	Total Creatine (Creatine + Phosphocreatine)
TE	Echo Time
TH	Thalamus
Tg	Transgenic
TR	Repetition Time
WT	Wild-type

