

# Robin A De Graaf

## List of Publications by Year in descending order

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111  
papers

6,635  
citations

57758

44  
h-index

76900

74  
g-index

128  
all docs

128  
docs citations

128  
times ranked

6431  
citing authors

#	ARTICLE	IF	CITATIONS
1	2-Hydroxyglutarate produced by neomorphic IDH mutations suppresses homologous recombination and induces PARP inhibitor sensitivity. <i>Science Translational Medicine</i> , 2017, 9, .	12.4	420
2	The contribution of GABA to glutamate/glutamine cycling and energy metabolism in the rat cortex in vivo. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2005, 102, 5588-5593.	7.1	308
3	High magnetic field water and metabolite protonT1 andT2 relaxation in rat brain in vivo. <i>Magnetic Resonance in Medicine</i> , 2006, 56, 386-394.	3.0	271
4	<sup>13</sup> C MRS studies of neuroenergetics and neurotransmitter cycling in humans. <i>NMR in Biomedicine</i> , 2011, 24, 943-957.	2.8	249
5	Altered Brain Mitochondrial Metabolism in Healthy Aging as Assessed by <i>in vivo</i> Magnetic Resonance Spectroscopy. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2010, 30, 211-221.	4.3	223
6	Deuterium metabolic imaging (DMI) for MRI-based 3D mapping of metabolism in vivo. <i>Science Advances</i> , 2018, 4, eaat7314.	10.3	194
7	Diffusion NMR spectroscopy. <i>NMR in Biomedicine</i> , 2001, 14, 94-111.	2.8	172
8	The effects of ketamine on prefrontal glutamate neurotransmission in healthy and depressed subjects. <i>Neuropsychopharmacology</i> , 2018, 43, 2154-2160.	5.4	146
9	Glutamatergic Neurotransmission and Neuronal Glucose Oxidation are Coupled during Intense Neuronal Activation. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2004, 24, 972-985.	4.3	141
10	In vivo <sup>1</sup> H- <sup>13</sup> C-NMR spectroscopy of cerebral metabolism. <i>NMR in Biomedicine</i> , 2003, 16, 339-357.	2.8	134
11	Dynamic multi-coil shimming of the human brain at 7T. <i>Journal of Magnetic Resonance</i> , 2011, 212, 280-288.	2.1	126
12	In Vivo <sup>31</sup> P-NMR Diffusion Spectroscopy of ATP and Phosphocreatine in Rat Skeletal Muscle. <i>Biophysical Journal</i> , 2000, 78, 1657-1664.	0.5	118
13	Evidence that GAD65 mediates increased GABA synthesis during intense neuronal activity <i>in vivo</i> . <i>Journal of Neurochemistry</i> , 2006, 97, 385-396.	3.9	107
14	State of the art direct <sup>13</sup> C and indirect <sup>1</sup> H- <sup>13</sup> C NMR spectroscopy <i>in vivo</i> . A practical guide. <i>NMR in Biomedicine</i> , 2011, 24, 958-972.	2.8	101
15	Changes in the Diffusion of Water and Intracellular Metabolites after Excitotoxic Injury and Global Ischemia in Neonatal Rat Brain. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 1999, 19, 341-349.	4.3	92
16	Contribution of macromolecules to brain <sup>1</sup> H MR spectra: Experts' consensus recommendations. <i>NMR in Biomedicine</i> , 2021, 34, e4393.	2.8	92
17	Differentiation of Glucose Transport in Human Brain Gray and White Matter. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2001, 21, 483-492.	4.3	90
18	Regional glucose metabolism and glutamatergic neurotransmission in rat brain in vivo. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2004, 101, 12700-12705.	7.1	88

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19	Detection of [1,6-13C2]-glucose metabolism in rat brain by in vivo 1H-[13C]-NMR spectroscopy. <i>Magnetic Resonance in Medicine</i> , 2003, 49, 37-46.	3.0	86
20	Quantitative <sup>1</sup> H NMR Spectroscopy of Blood Plasma Metabolites. <i>Analytical Chemistry</i> , 2003, 75, 2100-2104.	6.5	84
21	[2,4-13C2]- <sup>1</sup> H-Hydroxybutyrate Metabolism in Human Brain. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2002, 22, 890-898.	4.3	83
22	Measurements of the anaplerotic rate in the human cerebral cortex using <sup>13</sup> C magnetic resonance spectroscopy and [1- <sup>13</sup> C] and [2- <sup>13</sup> C] glucose. <i>Journal of Neurochemistry</i> , 2007, 100, 73-86.	3.9	82
23	Evaluation of Cerebral Acetate Transport and Metabolic Rates in the Rat Brain <i>in vivo</i> Using <sup>1</sup> H- <sup>13</sup> C-NMR. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2010, 30, 1200-1213.	4.3	78
24	Magnetic field modeling with a set of individual localized coils. <i>Journal of Magnetic Resonance</i> , 2010, 204, 281-289.	2.1	76
25	B0 magnetic field homogeneity and shimming for <i>in vivo</i> magnetic resonance spectroscopy. <i>Analytical Biochemistry</i> , 2017, 529, 17-29.	2.4	76
26	Reproducibility measurement of glutathione, GABA, and glutamate: Towards <i>in vivo</i> neurochemical profiling of multiple sclerosis with MR spectroscopy at 7T. <i>Journal of Magnetic Resonance Imaging</i> , 2017, 45, 187-198.	3.4	75
27	Spectral editing in <sup>1</sup> H magnetic resonance spectroscopy: Experts' consensus recommendations. <i>NMR in Biomedicine</i> , 2021, 34, e4411.	2.8	74
28	A ketogenic diet increases transport and oxidation of ketone bodies in RG2 and 9L gliomas without affecting tumor growth. <i>Neuro-Oncology</i> , 2016, 18, 1079-1087.	1.2	72
29	Dynamic shim updating (DSU) for multislice signal acquisition. <i>Magnetic Resonance in Medicine</i> , 2003, 49, 409-416.	3.0	71
30	A comparison of <sup>13</sup> C NMR measurements of the rates of glutamine synthesis and the tricarboxylic acid cycle during oral and intravenous administration of [1- <sup>13</sup> C]glucose. <i>Brain Research Protocols</i> , 2003, 10, 181-190.	1.6	70
31	Dynamic shim updating on the human brain. <i>Journal of Magnetic Resonance</i> , 2006, 180, 286-296.	2.1	70
32	Terminology and concepts for the characterization of <i>in vivo</i> MR spectroscopy methods and MR spectra: Background and experts' consensus recommendations. <i>NMR in Biomedicine</i> , 2021, 34, e4347.	2.8	69
33	Dynamic shimming of the human brain at 7 T. <i>Concepts in Magnetic Resonance Part B</i> , 2010, 37B, 116-128.	0.7	67
34	Dynamic multi-coil technique (DYNAMITE) shimming for echo-planar imaging of the human brain at 7 Tesla. <i>NeuroImage</i> , 2015, 105, 462-472.	4.2	63
35	Adiabatic rf pulses: Applications to <i>in vivo</i> NMR. <i>Concepts in Magnetic Resonance</i> , 1997, 9, 247-268.	1.3	62
36	Multislice <sup>1</sup> H MRSI of the human brain at 7 T using dynamic <i>B<sub>0</sub></i> and <i>B<sub>1</sub></i> shimming. <i>Magnetic Resonance in Medicine</i> , 2012, 68, 662-670.	3.0	62

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37	Elevated $\beta$ -Hydroxybutyrate and Branched-Chain Amino Acid Levels Predict Deterioration of Glycemic Control in Adolescents. <i>Journal of Clinical Endocrinology and Metabolism</i> , 2017, 102, 2473-2481.	3.6	62
38	B <sub>0</sub> shimming for in vivo magnetic resonance spectroscopy: Experts' consensus recommendations. <i>NMR in Biomedicine</i> , 2021, 34, e4350.	2.8	60
39	Adiabatic water suppression using frequency selective excitation. <i>Magnetic Resonance in Medicine</i> , 1998, 40, 690-696.	3.0	58
40	Magnetic field homogenization of the human prefrontal cortex with a set of localized electrical coils. <i>Magnetic Resonance in Medicine</i> , 2010, 63, 171-180.	3.0	58
41	Off-resonance metabolite magnetization transfer measurements on rat brain in situ. <i>Magnetic Resonance in Medicine</i> , 1999, 41, 1136-1144.	3.0	55
42	In vivo detection and quantification of scalar coupled <sup>1</sup> H NMR resonances. <i>Concepts in Magnetic Resonance</i> , 2001, 13, 32-76.	1.3	54
43	Deuterium metabolic imaging – “Back to the future”. <i>Journal of Magnetic Resonance</i> , 2021, 326, 106932.	2.1	51
44	Quantification of High-Resolution <sup>1</sup> H NMR Spectra from Rat Brain Extracts. <i>Analytical Chemistry</i> , 2011, 83, 216-224.	6.5	49
45	Single-shot diffusion trace <sup>1</sup> H NMR spectroscopy. <i>Magnetic Resonance in Medicine</i> , 2001, 45, 741-748.	3.0	48
46	Detection of cerebral NAD <sup>+</sup> by <i>in vivo</i> <sup>1</sup> H NMR spectroscopy. <i>NMR in Biomedicine</i> , 2014, 27, 802-809.	2.8	47
47	On the magnetic field dependence of deuterium metabolic imaging. <i>NMR in Biomedicine</i> , 2020, 33, e4235.	2.8	46
48	Multicoil shimming of the mouse brain. <i>Magnetic Resonance in Medicine</i> , 2011, 66, 893-900.	3.0	45
49	Chronic Riluzole Treatment Increases Glucose Metabolism in Rat Prefrontal Cortex and Hippocampus. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2008, 28, 1892-1897.	4.3	42
50	Cerebral pyruvate carboxylase flux is unaltered during bicuculline-seizures. <i>Journal of Neuroscience Research</i> , 2005, 79, 128-138.	2.9	41
51	<i>In vivo</i> neurochemical profiling of rat brain by <sup>1</sup> H- <sup>13</sup> C NMR spectroscopy: cerebral energetics and glutamatergic/GABAergic neurotransmission. <i>Journal of Neurochemistry</i> , 2010, 112, 24-33.	3.9	41
52	Acute regulation of steady-state GABA levels following GABA-transaminase inhibition in rat cerebral cortex. <i>Neurochemistry International</i> , 2006, 48, 508-514.	3.8	40
53	Dynamically shimmed multivoxel <sup>1</sup> H magnetic resonance spectroscopy and multislice magnetic resonance spectroscopic imaging of the human brain. <i>Magnetic Resonance in Medicine</i> , 2007, 57, 587-591.	3.0	40
54	<i>In situ</i> 3D magnetic resonance metabolic imaging of microwave-irradiated rodent brain: a new tool for metabolomics research. <i>Journal of Neurochemistry</i> , 2009, 109, 494-501.	3.9	40

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55	Theoretical and experimental evaluation of broadband decoupling techniques for in vivo nuclear magnetic resonance spectroscopy. <i>Magnetic Resonance in Medicine</i> , 2005, 53, 1297-1306.	3.0	39
56	Recurrent Antecedent Hypoglycemia Alters Neuronal Oxidative Metabolism In Vivo. <i>Diabetes</i> , 2009, 58, 1266-1274.	0.6	38
57	Detection of cerebral NAD <sup>+</sup> in humans at 7T. <i>Magnetic Resonance in Medicine</i> , 2017, 78, 828-835.	3.0	38
58	Multi-coil magnetic field modeling. <i>Journal of Magnetic Resonance</i> , 2013, 236, 95-104.	2.1	34
59	In vivo <sup>13</sup> C and <sup>1</sup> H- <sup>13</sup> C MRS studies of neuroenergetics and neurotransmitter cycling, applications to neurological and psychiatric disease and brain cancer. <i>NMR in Biomedicine</i> , 2019, 32, e4172.	2.8	34
60	Water and lipid suppression techniques for advanced <sup>1</sup> H MRS and MRSI of the human brain: Experts' consensus recommendations. <i>NMR in Biomedicine</i> , 2021, 34, e4459.	2.8	34
61	Deuterium metabolic imaging in the human brain at 9.4 Tesla with high spatial and temporal resolution. <i>NeuroImage</i> , 2021, 244, 118639.	4.2	34
62	<sup>1</sup> H/ <sup>13</sup> C MR spectroscopic imaging of regionally specific metabolic alterations after experimental stroke. <i>Brain</i> , 2008, 131, 2209-2219.	7.6	33
63	Detection of <sup>13</sup> Aminobutyric Acid (GABA) by Longitudinal Scalar Order Difference Editing. <i>Journal of Magnetic Resonance</i> , 2001, 152, 124-131.	2.1	30
64	High resolution NMR spectroscopy of rat brain in vivo through indirect zero-quantum-coherence detection. <i>Journal of Magnetic Resonance</i> , 2007, 187, 320-326.	2.1	30
65	DYNAMIC Multi-coil TEchnique (DYNAMITE) shimming of the rat brain at 11.7%T. <i>NMR in Biomedicine</i> , 2014, 27, 897-906.	2.8	30
66	Cortical Substrate Oxidation during Hyperketonemia in the Fasted Anesthetized Rat <i>in Vivo</i> . <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2011, 31, 2313-2323.	4.3	28
67	Adiabatic refocusing pulses for volume selection in magnetic resonance spectroscopic imaging. <i>Magnetic Resonance in Medicine</i> , 2007, 57, 548-553.	3.0	26
68	Brain region and activity-dependent properties of M for calibrated fMRI. <i>NeuroImage</i> , 2016, 125, 848-856.	4.2	26
69	Characterization of Kinetic Isotope Effects and Label Loss in Deuterium-Based Isotopic Labeling Studies. <i>ACS Chemical Neuroscience</i> , 2021, 12, 234-243.	3.5	25
70	In vivo observation of lactate methyl proton magnetization transfer in rat C6 glioma. <i>Magnetic Resonance in Medicine</i> , 1999, 41, 676-685.	3.0	24
71	Quantification of High-Resolution <sup>1</sup> H- <sup>13</sup> C NMR Spectra from Rat Brain Extracts. <i>Analytical Chemistry</i> , 2014, 86, 5032-5038.	6.5	24
72	Functional MRS with J-edited lactate in human motor cortex at 4T. <i>NeuroImage</i> , 2019, 184, 101-108.	4.2	24

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73	Hypofrontality and Posterior Hyperactivity in Early Schizophrenia: Imaging and Behavior in a Preclinical Model. <i>Biological Psychiatry</i> , 2017, 81, 503-513.	1.3	22
74	NMR visibility of deuterium-labeled liver glycogen <i>in vivo</i> . <i>Magnetic Resonance in Medicine</i> , 2021, 86, 62-68.	3.0	22
75	Deuterium Metabolic Imaging of the Healthy and Diseased Brain. <i>Neuroscience</i> , 2021, 474, 94-99.	2.3	22
76	Natural abundance <sup>17</sup> O NMR spectroscopy of rat brain <i>in vivo</i> . <i>Journal of Magnetic Resonance</i> , 2008, 193, 63-67.	2.1	20
77	Quantification of <sup>1</sup> H NMR spectra from human plasma. <i>Metabolomics</i> , 2015, 11, 1702-1707.	3.0	19
78	Selective proton-observed, carbon-edited (selPOCE) MRS method for measurement of glutamate and glutamine <sup>13</sup> C-labeling in the human frontal cortex. <i>Magnetic Resonance in Medicine</i> , 2018, 80, 11-20.	3.0	19
79	Intramolecular zero-quantum coherence 2D NMR spectroscopy of lipids in the human breast at 7 T. <i>Magnetic Resonance in Medicine</i> , 2014, 71, 451-457.	3.0	18
80	High-sensitivity, broadband-decoupled <sup>13</sup> C MR spectroscopy in humans at 7T using two-dimensional heteronuclear single-quantum coherence. <i>Magnetic Resonance in Medicine</i> , 2015, 74, 903-914.	3.0	18
81	Simultaneous Recording of the Uptake and Conversion of Glucose and Choline in Tumors by Deuterium Metabolic Imaging. <i>Cancers</i> , 2021, 13, 4034.	3.7	17
82	Effects of <sup>13</sup> C-Aminobutyric acid transporter 1 inhibition by tiagabine on brain glutamate and <sup>13</sup> C-Aminobutyric acid metabolism in the anesthetized rat <i>in vivo</i> . <i>Journal of Neuroscience Research</i> , 2015, 93, 1101-1108.	2.9	16
83	Metabolic underpinnings of activated and deactivated cortical areas in human brain. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2021, 41, 986-1000.	4.3	16
84	CHAPTER 4. B0 Shimming Technology. <i>New Developments in NMR</i> , 2016, , 166-207.	0.1	16
85	Human brain functional MRS reveals interplay of metabolites implicated in neurotransmission and neuroenergetics. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2022, 42, 911-934.	4.3	16
86	Adiabatic RARE imaging. <i>NMR in Biomedicine</i> , 2003, 16, 29-35.	2.8	15
87	Multi-slice MRI with the dynamic multi-coil technique. <i>NMR in Biomedicine</i> , 2015, 28, 1526-1534.	2.8	15
88	Quantification of glutathione transverse relaxation time T <sub>2</sub> using echo time extension with variable refocusing selectivity and symmetry in the human brain at 7 Tesla. <i>Journal of Magnetic Resonance</i> , 2018, 290, 1-11.	2.1	15
89	Elliptical localization with pulsed second-order fields (ECLIPSE) for robust lipid suppression in proton MRSI. <i>NMR in Biomedicine</i> , 2018, 31, e3949.	2.8	15
90	Quantum coherence spectroscopy to measure dietary fat retention in the liver. <i>JCI Insight</i> , 2016, 1, e84671.	5.0	14

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91	Comparison of direct $^{13}\text{C}$ and indirect $^1\text{H}$ -[ $^{13}\text{C}$ ] MR detection methods for the study of dynamic metabolic turnover in the human brain. <i>Journal of Magnetic Resonance</i> , 2017, 283, 33-44.	2.1	12
92	Superconductor Analog-to-Digital Converter for High-Resolution Magnetic Resonance Imaging. <i>IEEE Transactions on Applied Superconductivity</i> , 2015, 25, 1-5.	1.7	11
93	In vivo MRS measurement of $^2\text{-}\alpha$ -hydroxyglutarate in patient-derived IDH-mutant xenograft mouse models versus glioma patients. <i>Magnetic Resonance in Medicine</i> , 2020, 84, 1152-1160.	3.0	11
94	Proton observed phosphorus editing (POPE) for <i>in vivo</i> detection of phospholipid metabolites. <i>NMR in Biomedicine</i> , 2016, 29, 1222-1230.	2.8	10
95	The public multi-coil information (PUMCIN) policy. <i>Magnetic Resonance in Medicine</i> , 2017, 78, 2042-2047.	3.0	8
96	Interleaved fluid-attenuated inversion recovery (FLAIR) MRI and deuterium metabolic imaging (DMI) on human brain in vivo. <i>Magnetic Resonance in Medicine</i> , 2022, 88, 28-37.	3.0	8
97	Prefrontal Glutamate Neurotransmission in PTSD: A Novel Approach to Estimate Synaptic Strength in Vivo in Humans. <i>Chronic Stress</i> , 2022, 6, 247054702210927.	3.4	8
98	In Vivo NMR Spectroscopy – Static Aspects. , 0, , 43-110.		7
99	Measurement of lipid composition in human skeletal muscle and adipose tissue with $^1\text{H}$ -MRS homonuclear spectral editing. <i>Magnetic Resonance in Medicine</i> , 2018, 79, 619-627.	3.0	7
100	Robust outer volume suppression utilizing elliptical pulsed second order fields (ECLIPSE) for human brain proton MRSI. <i>Magnetic Resonance in Medicine</i> , 2020, 83, 1539-1552.	3.0	7
101	Dynamic multi-coil tailored excitation for transmit $B_1$ correction at 7 Tesla. <i>Magnetic Resonance in Medicine</i> , 2016, 76, 83-93.	3.0	6
102	Combined imaging and shimming with the dynamic multi-coil technique. <i>Magnetic Resonance in Medicine</i> , 2019, 81, 1424-1433.	3.0	6
103	Dynamic multicoil technique (DYNAMITE) MRI on human brain. <i>Magnetic Resonance in Medicine</i> , 2020, 84, 2953-2963.	3.0	5
104	Methods   $^{13}\text{C}$ MRS Measurements of in Vivo Rates of the Glutamate/Glutamine and GABA/Glutamine Neurotransmitter Cycles. , 2021, , 688-700.		2
105	ECLIPSE utilizing gradient-modulated offset-independent adiabaticity (GOIA) pulses for highly selective human brain proton MRSI. <i>NMR in Biomedicine</i> , 2021, 34, e4415.	2.8	2
106	In Vivo NMR Spectroscopy - Techniques; Direct Detection; MRS; Kinetics and Labels; Fluxes; Concentrations. , 2005, , 7-29.		1
107	In Vivo NMR Spectroscopy – Dynamic Aspects. , 0, , 111-190.		1
108	“What to eat or what not to eat” that is still the question – Reply. <i>Neuro-Oncology</i> , 2017, 19, 596-597.	1.2	1

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109	Minimum echo time <sc>PRESS</sc>-based proton observed carbon edited (<sc>POCE</sc>) <sc>MRS</sc> in rat brain using simultaneous editing and localization pulses. Magnetic Resonance in Medicine, 2018, 80, 1279-1288.	3.0	1
110	Short symmetric and highly selective asymmetric first and second order gradient modulated offset independent adiabaticity (GOIA) pulses for applications in clinical MRS and MRSI. Journal of Magnetic Resonance, 2022, 341, 107247.	2.1	1
111	Techniques-MRS, fMRI, 13C NMR, Indirect Detection of 13C. , 2005, , 31-52.		0