

Real-time assessment of Krebs cycle metabolism using spectroscopy

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Citation Report

#	ARTICLE	IF	CITATIONS
1	Kinetics of hyperpolarized ¹³ C ¹ -pyruvate transport and metabolism in living human breast cancer cells. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 18131-18136.	3.3	202
2	NMR-based mixture analysis—metabolomics and beyond. Magnetic Resonance in Chemistry, 2009, 47, S1.	1.1	3
3	Biomedical applications of hyperpolarized ¹³ C magnetic resonance imaging. Progress in Nuclear Magnetic Resonance Spectroscopy, 2009, 55, 285-295.	3.9	121
4	Hyperpolarized [2- ¹³ C]-Fructose: A Hemiketal DNP Substrate for In Vivo Metabolic Imaging. Journal of the American Chemical Society, 2009, 131, 17591-17596.	6.6	106
5	Tissue-specific Short Chain Fatty Acid Metabolism and Slow Metabolic Recovery after Ischemia from Hyperpolarized NMR in Vivo. Journal of Biological Chemistry, 2009, 284, 36077-36082.	1.6	76
6	T ₂ relaxation times of ¹³ C metabolites in a rat hepatocellular carcinoma model measured <i>in vivo</i> using ¹³ C-MRS of hyperpolarized [1- ¹³ C]pyruvate. NMR in Biomedicine, 2010, 23, n/a-n/a.	1.6	58
7	Imaging metabolic syndrome. EMBO Molecular Medicine, 2010, 2, 196-210.	3.3	10
8	Rapid multislice imaging of hyperpolarized ¹³ C pyruvate and bicarbonate in the heart. Magnetic Resonance in Medicine, 2010, 64, 1323-1331.	1.9	144
9	Multi-compound polarization by DNP allows simultaneous assessment of multiple enzymatic activities <i>in vivo</i> . Journal of Magnetic Resonance, 2010, 205, 141-147.	1.2	154
10	In vivo ¹³ C spectroscopy in the rat brain using hyperpolarized [1- ¹³ C]pyruvate and [2- ¹³ C]pyruvate. Journal of Magnetic Resonance, 2010, 206, 210-218.	1.2	81
11	Effects of substitution of Cx43 by Cx32 on myocardial energy metabolism, tolerance to ischaemia and preconditioning protection. Journal of Physiology, 2010, 588, 1139-1151.	1.3	47
12	Measuring intracellular pH in the heart using hyperpolarized carbon dioxide and bicarbonate: a ¹³ C and ³¹ P magnetic resonance spectroscopy study. Cardiovascular Research, 2010, 86, 82-91.	1.8	114
13	Inhibition of the malate-aspartate shuttle by pre-ischaemic aminooxyacetate loading of the heart induces cardioprotection. Cardiovascular Research, 2010, 88, 257-266.	1.8	50
14	Challenges for Molecular Magnetic Resonance Imaging. Chemical Reviews, 2010, 110, 3019-3042.	23.0	728
15	Is MR Spectroscopy of the Heart Ready for Humans?. Heart Lung and Circulation, 2010, 19, 154-160.	0.2	8
16	Analysis of Cancer Metabolism by Imaging Hyperpolarized Nuclei: Prospects for Translation to Clinical Research. Neoplasia, 2011, 13, 81-97.	2.3	623
17	Magnetic resonance spectroscopy of <i>in vivo</i> tissue metabolism in small animals. Drug Discovery Today: Technologies, 2011, 8, e95-e102.	4.0	0
18	Systems level studies of mammalian metabolomes: the roles of mass spectrometry and nuclear magnetic resonance spectroscopy. Chemical Society Reviews, 2011, 40, 387-426.	18.7	689

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19	Facile Synthesis [5- ¹³ C-4- ² H ₂]-L-Glutamine for Hyperpolarized MRS Imaging of Cancer Cell Metabolism. Academic Radiology, 2011, 18, 932-939.	1.3	34
20	Metabolic pathway visualization in living yeast by DNP-NMR. Molecular BioSystems, 2011, 7, 2834.	2.9	87
21	Metabolomics as a tool for cardiac research. Nature Reviews Cardiology, 2011, 8, 630-643.	6.1	229
22	Transfer of hyperpolarization from long T1 storage nuclei to short T1 neighbors using FLOPSY-8. Journal of Magnetic Resonance, 2011, 213, 187-191.	1.2	3
23	Clinical Cardiac Magnetic Resonance Spectroscopy. Progress in Cardiovascular Diseases, 2011, 54, 320-327.	1.6	34
24	Real-time detection of central carbon metabolism in living <i>Escherichia coli</i> and its response to perturbations. FEBS Letters, 2011, 585, 3133-3138.	1.3	63
25	Cardiovascular Applications of Hyperpolarized MRI. Current Cardiovascular Imaging Reports, 2011, 4, 108-115.	0.4	29
26	Validation of the <i>in vivo</i> assessment of pyruvate dehydrogenase activity using hyperpolarised ¹³ C MRS. NMR in Biomedicine, 2011, 24, 201-208.	1.6	85
27	¹³ C MR reporter probe system using dynamic nuclear polarization. NMR in Biomedicine, 2011, 24, 514-520.	1.6	32
28	Could ¹³ C MRI assist clinical decision-making for patients with heart disease?. NMR in Biomedicine, 2011, 24, 973-979.	1.6	40
29	Environmentally Sensitive Paramagnetic and Diamagnetic Contrast Agents for Nuclear Magnetic Resonance Imaging and Spectroscopy. Current Topics in Medicinal Chemistry, 2011, 11, 115-130.	1.0	15
30	Flux through hepatic pyruvate carboxylase and phosphoenolpyruvate carboxykinase detected by hyperpolarized ¹³ C magnetic resonance. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 19084-19089.	3.3	129
31	Role of Pyruvate Dehydrogenase Inhibition in the Development of Hypertrophy in the Hyperthyroid Rat Heart. Circulation, 2011, 123, 2552-2561.	1.6	98
32	Hyperpolarized Magnetic Resonance. Circulation, 2011, 124, 1580-1594.	1.6	120
33	Dynamic nuclear polarization in metabolic imaging of metastasis: Common sense, hypersense and compressed sensing. Cancer Biomarkers, 2011, 7, 189-199.	0.8	7
34	The Cycling of Acetyl-Coenzyme A Through Acetylcarnitine Buffers Cardiac Substrate Supply. Circulation: Cardiovascular Imaging, 2012, 5, 201-209.	1.3	91
35	In vivo alterations in cardiac metabolism and function in the spontaneously hypertensive rat heart. Cardiovascular Research, 2012, 95, 69-76.	1.8	77
36	Hyperpolarized Nuclear Magnetic Resonance Spectroscopy: A New Method for Metabolomic Research. , 0, , 446-471.		0

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37	Hyperpolarized ¹³ C metabolic imaging using dissolution dynamic nuclear polarization. <i>Journal of Magnetic Resonance Imaging</i> , 2012, 36, 1314-1328.	1.9	98
38	Impact of Gd ³⁺ on DNP of [1- ¹³ C]Pyruvate Doped with Trityl OX063, BDPA, or 4-Oxo-TEMPO. <i>Journal of Physical Chemistry A</i> , 2012, 116, 5129-5138.	1.1	96
39	Fumarate Is Cardioprotective via Activation of the Nrf2 Antioxidant Pathway. <i>Cell Metabolism</i> , 2012, 15, 361-371.	7.2	231
40	Analysis of Changes in Gene Expression and Metabolic Profiles Induced by Silica-Coated Magnetic Nanoparticles. <i>ACS Nano</i> , 2012, 6, 7665-7680.	7.3	82
41	Magnetic Resonance Spectroscopy of Cancer Metabolism and Response to Therapy. <i>Radiation Research</i> , 2012, 177, 398-435.	0.7	16
42	<i>In Vivo</i> Detection of Brain Krebs Cycle Intermediate by Hyperpolarized Magnetic Resonance. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2012, 32, 2108-2113.	2.4	72
43	Hyperpolarized ¹³ C-pyruvate magnetic resonance imaging in cancer diagnostics. <i>Expert Opinion on Medical Diagnostics</i> , 2012, 6, 335-345.	1.6	10
44	Isotope Enhanced Approaches in Metabolomics. <i>Advances in Experimental Medicine and Biology</i> , 2012, 992, 147-164.	0.8	13
45	Use of hyperpolarized [1- ¹³ C]pyruvate and [2- ¹³ C]pyruvate to probe the effects of the anticancer agent dichloroacetate on mitochondrial metabolism in vivo in the normal rat. <i>Magnetic Resonance Imaging</i> , 2012, 30, 1367-1372.	1.0	40
46	NMR Methodologies for Studying Mitochondrial Bioenergetics. <i>Methods in Molecular Biology</i> , 2012, 810, 281-309.	0.4	3
47	Imaging Cerebral 2-Ketoisocaproate Metabolism with Hyperpolarized ¹³ C Magnetic Resonance Spectroscopic Imaging. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2012, 32, 1508-1514.	2.4	33
48	Real-Time Molecular Imaging of Tricarboxylic Acid Cycle Metabolism in Vivo by Hyperpolarized 1- ¹³ C Diethyl Succinate. <i>Journal of the American Chemical Society</i> , 2012, 134, 934-943.	6.6	135
49	Mitochondrial Bioenergetics. <i>Methods in Molecular Biology</i> , 2012, , .	0.4	19
50	Cardiomyocyte Metabolism. , 2012, , 187-202.		1
51	Slow relaxation of longitudinal multispin orders in weakly and strongly coupled two-spin systems. <i>Magnetic Resonance in Chemistry</i> , 2012, 50, 443-448.	1.1	1
52	Developing Hyperpolarized ¹³ C Spectroscopy and Imaging for Metabolic Studies in the Isolated Perfused Rat Heart. <i>Applied Magnetic Resonance</i> , 2012, 43, 275-288.	0.6	9
53	DNP Methods for Cardiac Metabolic Imaging with Hyperpolarized [1- ¹³ C]pyruvate Large Dose Injection in Pigs. <i>Applied Magnetic Resonance</i> , 2012, 43, 299-310.	0.6	12
54	Simultaneous investigation of cardiac pyruvate dehydrogenase flux, Krebs cycle metabolism and pH, using hyperpolarized [1,2- ¹³ C] ₂ pyruvate <i>in vivo</i> . <i>NMR in Biomedicine</i> , 2012, 25, 305-311.	1.6	65

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55	Metabolism of hyperpolarized [¹³ C]pyruvate in the isolated perfused rat lung – an ischemia study. <i>NMR in Biomedicine</i> , 2012, 25, 1113-1118.	1.6	18
56	Application of hyperpolarized [¹³ C]lactate for the <i>in vivo</i> investigation of cardiac metabolism. <i>NMR in Biomedicine</i> , 2012, 25, 1119-1124.	1.6	39
57	Integrated Bloch-Siegert ¹ mapping and multislice imaging of hyperpolarized ¹³ C pyruvate and bicarbonate in the heart. <i>Magnetic Resonance in Medicine</i> , 2012, 67, 62-71.	1.9	28
58	Reproducibility study for free-breathing measurements of pyruvate metabolism using hyperpolarized ¹³ C in the heart. <i>Magnetic Resonance in Medicine</i> , 2013, 69, 1063-1071.	1.9	24
59	Towards high resolution analysis of metabolic flux in cells and tissues. <i>Current Opinion in Biotechnology</i> , 2013, 24, 933-939.	3.3	21
61	Spin hyperpolarization in NMR to address enzymatic processes <i>in vivo</i> . <i>Mendeleev Communications</i> , 2013, 23, 299-312.	0.6	19
62	Application of NMR techniques to the determination of the composition of tobacco, coffee, and tea products. <i>Journal of Analytical Chemistry</i> , 2013, 68, 1021-1032.	0.4	5
63	<i>In Vivo</i> hyperpolarized carbon-13 magnetic resonance spectroscopy reveals increased pyruvate carboxylase flux in an insulin-resistant mouse model. <i>Hepatology</i> , 2013, 57, 515-524.	3.6	77
64	Computational estimation of tricarboxylic acid cycle fluxes using noisy NMR data from cardiac biopsies. <i>BMC Systems Biology</i> , 2013, 7, 82.	3.0	5
65	Recent advances in metabolic imaging. <i>Journal of Nuclear Cardiology</i> , 2013, 20, 1147-1172.	1.4	22
66	Magnetic resonance imaging and spectroscopy of the murine cardiovascular system. <i>American Journal of Physiology - Heart and Circulatory Physiology</i> , 2013, 304, H633-H648.	1.5	22
67	Which way does the citric acid cycle turn during hypoxia? The critical role of ¹ ketoglutarate dehydrogenase complex. <i>Journal of Neuroscience Research</i> , 2013, 91, 1030-1043.	1.3	105
68	Clinical Implications of Cardiac Hyperpolarized Magnetic Resonance Imaging. <i>Journal of Cardiovascular Magnetic Resonance</i> , 2013, 15, 93.	1.6	83
69	Treatment with the MEK inhibitor U0126 induces decreased hyperpolarized pyruvate to lactate conversion in breast, but not prostate, cancer cells. <i>NMR in Biomedicine</i> , 2013, 26, 299-306.	1.6	59
70	<i>In vivo</i> magnetic resonance of hyperpolarized [¹³ C ₁]pyruvate: metabolic dynamics in stimulated muscle. <i>American Journal of Physiology - Endocrinology and Metabolism</i> , 2013, 305, E1165-E1171.	1.8	8
71	<i>In vivo</i> investigation of cardiac metabolism in the rat using MRS of hyperpolarized [¹³ C] and [¹³ C]pyruvate. <i>NMR in Biomedicine</i> , 2013, 26, 1680-1687.	1.6	37
72	Accelerating hyperpolarized metabolic imaging of the heart by exploiting spatiotemporal correlations. <i>NMR in Biomedicine</i> , 2013, 26, 1380-1386.	1.6	17
73	Hyperpolarized ¹³ C magnetic resonance reveals early and late onset changes to <i>in vivo</i> pyruvate metabolism in the failing heart. <i>European Journal of Heart Failure</i> , 2013, 15, 130-140.	2.9	133

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74	Metabolic imaging of acute and chronic infarction in the perfused rat heart using hyperpolarised [¹³ C]pyruvate. NMR in Biomedicine, 2013, 26, 1441-1450.	1.6	40
75	Enhancing the [¹³ C]bicarbonate signal in cardiac hyperpolarized [¹³ C]pyruvate MRS studies by infusion of glucose, insulin and potassium. NMR in Biomedicine, 2013, 26, 1496-1500.	1.6	21
76	Imaging the cardiac diet. European Journal of Heart Failure, 2013, 15, 123-124.	2.9	3
77	Measuring mitochondrial metabolism in rat brain <i>in vivo</i> using MR Spectroscopy of hyperpolarized [¹³ C]pyruvate. NMR in Biomedicine, 2013, 26, 1197-1203.	1.6	58
78	Detection of radiation-induced lung injury using hyperpolarized ¹³ C magnetic resonance spectroscopy and imaging. Magnetic Resonance in Medicine, 2013, 70, 601-609.	1.9	37
79	Protection against Myocardial Ischemia-Reperfusion Injury at Onset of Type 2 Diabetes in Zucker Diabetic Fatty Rats Is Associated with Altered Glucose Oxidation. PLoS ONE, 2013, 8, e64093.	1.1	40
81	Hyperpolarized NMR Probes for Biological Assays. Sensors, 2014, 14, 1576-1597.	2.1	46
82	Role of Acetylcholinesterase Inhibitors and Alzheimer Disease. , 2014, , 387-425.		6
83	Hyperpolarized ¹³ C-Magnetic Resonance Spectroscopy. Circulation: Cardiovascular Imaging, 2014, 7, 854-856.	1.3	2
84	Dynamic metabolic imaging of hyperpolarized [¹³ C]pyruvate using spiral chemical shift imaging with alternating spectral band excitation. Magnetic Resonance in Medicine, 2014, 71, 2051-2058.	1.9	34
85	Hyperpolarized [¹³ C]pyruvate in lysed human erythrocytes: effects of co-substrate supply on reaction time courses. NMR in Biomedicine, 2014, 27, 1203-1210.	1.6	10
86	Hyperpolarized [1,4- ¹³ C]-diethylsuccinate: a potential DNP substrate for <i>in vivo</i> metabolic imaging. NMR in Biomedicine, 2014, 27, 356-362.	1.6	14
87	Neural brain activation imaging. , 2014, , 112-162.		4
88	Anatomical, functional and metabolic imaging of radiation-induced lung injury using hyperpolarized MRI. NMR in Biomedicine, 2014, 27, 1515-1524.	1.6	17
89	Noninvasive identification and assessment of functional brown adipose tissue in rodents using hyperpolarized ¹³ C imaging. International Journal of Obesity, 2014, 38, 126-131.	1.6	38
90	Hyperpolarized butyrate: A metabolic probe of short chain fatty acid metabolism in the heart. Magnetic Resonance in Medicine, 2014, 71, 1663-1669.	1.9	68
91	Chemistry and biochemistry of ¹³ C hyperpolarized magnetic resonance using dynamic nuclear polarization. Chemical Society Reviews, 2014, 43, 1627-1659.	18.7	308
92	Hyperpolarized Magnetic Resonance as a Sensitive Detector of Metabolic Function. Biochemistry, 2014, 53, 7333-7357.	1.2	143

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93	Quantitative Radiology. <i>Advances in Cancer Research</i> , 2014, 124, 1-30.	1.9	1
94	Real-time assessment of ¹³ C metabolism reveals an early lactate increase in the brain of rats with acute liver failure. <i>NMR in Biomedicine</i> , 2015, 28, 17-23.	1.6	14
96	MRS: a noninvasive window into cardiac metabolism. <i>NMR in Biomedicine</i> , 2015, 28, 747-766.	1.6	26
97	<i>F₁-analysis</i> : Rapid and direct estimation of relaxation and kinetic parameters from dynamic nuclear polarization time courses. <i>Magnetic Resonance in Medicine</i> , 2015, 73, 2075-2080.	1.9	6
98	Hyperpolarized ¹³ C NMR detects rapid drug-induced changes in cardiac metabolism. <i>Magnetic Resonance in Medicine</i> , 2015, 74, 312-319.	1.9	35
99	Technological Innovations in Magnetic Resonance for Early Detection of Cardiovascular Diseases. <i>Current Pharmaceutical Design</i> , 2015, 22, 77-89.	0.9	5
100	Redox Characterization of Functioning Skeletal Muscle. <i>Frontiers in Physiology</i> , 2015, 6, 338.	1.3	48
101	In vivo assessment of cardiac metabolism and function in the abdominal aortic banding model of compensated cardiac hypertrophy. <i>Cardiovascular Research</i> , 2015, 106, 249-260.	1.8	40
102	<i>IDH1</i> Mutation Induces Reprogramming of Pyruvate Metabolism. <i>Cancer Research</i> , 2015, 75, 2999-3009.	0.4	106
103	An intact small animal model of myocardial ischemia-reperfusion: Characterization of metabolic changes by hyperpolarized ¹³ C MR spectroscopy. <i>American Journal of Physiology - Heart and Circulatory Physiology</i> , 2015, 309, H2058-H2066.	1.5	36
104	Cardiac Metabolism in a Pig Model of Ischemia-Reperfusion by Cardiac Magnetic Resonance with Hyperpolarized ¹³ C-Pyruvate. <i>IJC Metabolic & Endocrine</i> , 2015, 6, 17-23.	0.5	7
105	Production of hyperpolarized ¹³ CO ₂ from [1- ¹³ C]pyruvate in perfused liver does reflect total anaplerosis but is not a reliable biomarker of glucose production. <i>Metabolomics</i> , 2015, 11, 1144-1156.	1.4	20
107	Imaging Metabolism with Hyperpolarized ¹³ C-Labeled Cell Substrates. <i>Journal of the American Chemical Society</i> , 2015, 137, 6418-6427.	6.6	171
108	Direct noninvasive estimation of myocardial tricarboxylic acid cycle flux in vivo using hyperpolarized ¹³ C magnetic resonance. <i>Journal of Molecular and Cellular Cardiology</i> , 2015, 87, 129-137.	0.9	30
109	NMR Insights into the Inner Workings of Living Cells. <i>Analytical Chemistry</i> , 2015, 87, 119-132.	3.2	41
110	Potential Clinical Roles for Metabolic Imaging with Hyperpolarized [1- ¹³ C]Pyruvate. <i>Frontiers in Oncology</i> , 2016, 6, 59.	1.3	49
112	Cardiac Metabolism in Perspective. , 2016, 6, 1675-1699.		28
113	Cardiac perfusion imaging using hyperpolarized ¹³ C urea using flow sensitizing gradients. <i>Magnetic Resonance in Medicine</i> , 2016, 75, 1474-1483.	1.9	39

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114	Robust and high resolution hyperpolarized metabolic imaging of the rat heart at 7 t with 3d spectralâ€spatial EPI. <i>Magnetic Resonance in Medicine</i> , 2016, 75, 1515-1524.	1.9	48
115	Hyperpolarized ^{13}C Metabolic Magnetic Resonance Spectroscopy and Imaging. <i>Journal of Visualized Experiments</i> , 2016, , .	0.2	6
116	The von Hippel-Lindau Chuvash mutation in mice alters cardiac substrate and high-energy phosphate metabolism. <i>American Journal of Physiology - Heart and Circulatory Physiology</i> , 2016, 311, H759-H767.	1.5	11
117	Volumetric spiral chemical shift imaging of hyperpolarized $[2\text{â}\cdot^{13}\text{c}]$ pyruvate in a rat c6 glioma model. <i>Magnetic Resonance in Medicine</i> , 2016, 75, 973-984.	1.9	38
118	Applications of NMR spectroscopy to systems biochemistry. <i>Progress in Nuclear Magnetic Resonance Spectroscopy</i> , 2016, 92-93, 18-53.	3.9	164
119	Hyperpolarized Metabolic MR Imaging of Acute Myocardial Changes and Recovery after Ischemia-Reperfusion in a Small-Animal Model. <i>Radiology</i> , 2016, 278, 742-751.	3.6	31
120	The Potential of Metabolic Imaging. <i>Seminars in Nuclear Medicine</i> , 2016, 46, 28-39.	2.5	31
121	Development of high resolution 3D hyperpolarized carbon-13 MR molecular imaging techniques. <i>Magnetic Resonance Imaging</i> , 2017, 38, 152-162.	1.0	20
122	<i>MRI.</i> , 2017, , 227-324.		2
123	Magnetic resonance imaging with hyperpolarized agents: methods and applications. <i>Physics in Medicine and Biology</i> , 2017, 62, R81-R123.	1.6	43
124	Imaging oxygen metabolism with hyperpolarized magnetic resonance: a novel approach for the examination of cardiac and renal function. <i>Bioscience Reports</i> , 2017, 37, .	1.1	13
125	Imaging porcine cardiac substrate selection modulations by glucose, insulin and potassium intervention: A hyperpolarized $[1\text{â}\langle\sup>^{13}\langle\sup>^{\text{C}}]$ pyruvate study. <i>NMR in Biomedicine</i> , 2017, 30, e3702.	1.6	16
126	Hyperpolarized $[1\text{-}^{13}\text{C}]$ -acetate Renal Metabolic Clearance Rate Mapping. <i>Scientific Reports</i> , 2017, 7, 16002.	1.6	30
127	^{13}C Dynamic Nuclear Polarization Using a Trimeric Gd^{3+} Complex as an Additive. <i>Journal of Physical Chemistry A</i> , 2017, 121, 5127-5135.	1.1	12
128	Hyperpolarized MRS: New tool to study real-time brain function and metabolism. <i>Analytical Biochemistry</i> , 2017, 529, 270-277.	1.1	16
129	The use of hyperpolarized carbon-13 magnetic resonance for molecular imaging. <i>Advanced Drug Delivery Reviews</i> , 2017, 113, 3-23.	6.6	32
130	Tracking the Orchestration of the Tricarboxylic Acid Pathway in Plants, 80 Years After the Discovery of the Krebs Cycle. <i>Advances in Photosynthesis and Respiration</i> , 2017, , 285-298.	1.0	6
131	How Energy Metabolism Supports Cerebral Function: Insights from ^{13}C Magnetic Resonance Studies In vivo. <i>Frontiers in Neuroscience</i> , 2017, 11, 288.	1.4	64

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132	Increasing cardiac pyruvate dehydrogenase flux during chronic hypoxia improves acute hypoxic tolerance. <i>Journal of Physiology</i> , 2018, 596, 3357-3369.	1.3	12
134	In Vivo Heteronuclear Magnetic Resonance Spectroscopy. <i>Methods in Molecular Biology</i> , 2018, 1718, 169-187.	0.4	8
135	From Lab to Life. <i>JACC: Cardiovascular Imaging</i> , 2018, 11, 1607-1610.	2.3	0
136	Targeted AKT Inhibition in Prostate Cancer Cells and Spheroids Reduces Aerobic Glycolysis and Generation of Hyperpolarized [1-13C] Lactate. <i>Molecular Cancer Research</i> , 2018, 16, 453-460.	1.5	16
137	Hyperpolarized carbon-13 magnetic resonance spectroscopic imaging: a clinical tool for studying tumour metabolism. <i>British Journal of Radiology</i> , 2018, 91, 20170688.	1.0	20
138	Using a local low rank plus sparse reconstruction to accelerate dynamic hyperpolarized 13 C imaging using the bSSFP sequence. <i>Journal of Magnetic Resonance</i> , 2018, 290, 46-59.	1.2	8
139	Cardiac metabolic imaging: current imaging modalities and future perspectives. <i>Journal of Applied Physiology</i> , 2018, 124, 168-181.	1.2	8
140	Probing the cardiac malate-aspartate shuttle non-invasively using hyperpolarized [1,2- ¹³ C ₂]pyruvate. <i>NMR in Biomedicine</i> , 2018, 31, e3845.	1.6	6
141	Myocyte Metabolic Imaging with Hyperpolarised MRI. , 2018, , 111-173.		1
142	Glyoxalase activity in human erythrocytes and mouse lymphoma, liver and brain probed with hyperpolarized 13C-methylglyoxal. <i>Communications Biology</i> , 2018, 1, 232.	2.0	8
143	Brain metabolism under different anesthetic conditions using hyperpolarized [1- ¹³ C]pyruvate and [2- ¹³ C]pyruvate. <i>NMR in Biomedicine</i> , 2018, 31, e4012.	1.6	17
144	Cardiac applications of hyperpolarised magnetic resonance. <i>Progress in Nuclear Magnetic Resonance Spectroscopy</i> , 2018, 106-107, 66-87.	3.9	14
145	Early Imaging Biomarker of Myocardial Glucose Adaptations in High-Fat-Diet-Induced Insulin Resistance Model by Using 18F-FDG PET and [U-13C]glucose Nuclear Magnetic Resonance Tracer. <i>Contrast Media and Molecular Imaging</i> , 2018, 2018, 1-10.	0.4	3
146	A novel inhibitor of pyruvate dehydrogenase kinase stimulates myocardial carbohydrate oxidation in diet-induced obesity. <i>Journal of Biological Chemistry</i> , 2018, 293, 9604-9613.	1.6	24
147	Metabolic and Molecular Imaging with Hyperpolarised Tracers. <i>Molecular Imaging and Biology</i> , 2018, 20, 902-918.	1.3	18
148	Molecular Sensors for NMR-Based Detection. <i>Chemical Reviews</i> , 2019, 119, 195-230.	23.0	82
149	Monitoring of hydrogenation by benchtop NMR with parahydrogen-induced polarization. <i>Magnetic Resonance in Chemistry</i> , 2019, 57, 44-48.	1.1	10
150	Zero-field nuclear magnetic resonance of chemically exchanging systems. <i>Nature Communications</i> , 2019, 10, 3002.	5.8	36

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151	First hyperpolarized [2-13C]pyruvate MR studies of human brain metabolism. <i>Journal of Magnetic Resonance</i> , 2019, 309, 106617.	1.2	63
152	In-Cell NMR: Analysis of Protein-Small Molecule Interactions, Metabolic Processes, and Protein Phosphorylation. <i>International Journal of Molecular Sciences</i> , 2019, 20, 378.	1.8	14
153	Metabolic Profiling of the Diabetic Heart: Toward a Richer Picture. <i>Frontiers in Physiology</i> , 2019, 10, 639.	1.3	27
154	In-Cell Determination of Lactate Dehydrogenase Activity in a Luminal Breast Cancer Model – ex vivo Investigation of Excised Xenograft Tumor Slices Using dDNP Hyperpolarized [1-13C]pyruvate. <i>Sensors</i> , 2019, 19, 2089.	2.1	11
155	Hyperpolarized ¹³ C MRI: State of the Art and Future Directions. <i>Radiology</i> , 2019, 291, 273-284.	3.6	210
156	Molecular Imaging of the Heart. , 2019, 9, 477-533.		7
157	Cancer in the crosshairs: targeting cancer metabolism with hyperpolarized carbon-13 MRI technology. <i>NMR in Biomedicine</i> , 2019, 32, e3937.	1.6	10
158	Metabolic alterations in acute myocardial ischemia-reperfusion injury and necrosis using in vivo hyperpolarized [1-13C] pyruvate MR spectroscopy. <i>Scientific Reports</i> , 2019, 9, 18427.	1.6	18
159	Kinetic Analysis of Hepatic Metabolism Using Hyperpolarized Dihydroxyacetone. <i>Journal of Chemical Information and Modeling</i> , 2019, 59, 605-614.	2.5	6
160	Early detection of doxorubicin-induced cardiotoxicity in rats by its cardiac metabolic signature assessed with hyperpolarized MRI. <i>Communications Biology</i> , 2020, 3, 692.	2.0	25
161	On-Tissue Derivatization Strategy for Mass Spectrometry Imaging of Carboxyl-Containing Metabolites in Biological Tissues. <i>Analytical Chemistry</i> , 2020, 92, 12126-12131.	3.2	37
162	Use of cardiac magnetic resonance to detect changes in metabolism in heart failure. <i>Cardiovascular Diagnosis and Therapy</i> , 2020, 10, 583-597.	0.7	9
163	Detection of myocardial medium-chain fatty acid oxidation and tricarboxylic acid cycle activity with hyperpolarized [1- ¹³ C]octanoate. <i>NMR in Biomedicine</i> , 2020, 33, e4243.	1.6	8
164	Design of Nuclear Magnetic Resonance Molecular Probes for Hyperpolarized Bioimaging. <i>Angewandte Chemie - International Edition</i> , 2021, 60, 14779-14799.	7.2	22
165	Entwicklung molekularer Sonden für die hyperpolarisierte NMR-Bildgebung im biologischen Bereich. <i>Angewandte Chemie</i> , 2021, 133, 14904-14925.	1.6	0
166	Measuring Myocardial Energetics with Cardiovascular Magnetic Resonance Spectroscopy. <i>Heart Failure Clinics</i> , 2021, 17, 149-156.	1.0	4
167	Correlation between lactate dehydrogenase/pyruvate dehydrogenase activities ratio and tissue pH in the perfused mouse heart: A potential noninvasive indicator of cardiac pH provided by hyperpolarized magnetic resonance. <i>NMR in Biomedicine</i> , 2021, 34, e4444.	1.6	4
168	MRI of [2- ¹³ C]Lactate without J-coupling artifacts. <i>Magnetic Resonance in Medicine</i> , 2021, 85, 1522-1539.	1.9	3

#	ARTICLE	IF	CITATIONS
169	Biomedical Applications of the Dynamic Nuclear Polarization and Parahydrogen Induced Polarization Techniques for Hyperpolarized ^{13}C MR Imaging. <i>Magnetic Resonance in Medical Sciences</i> , 2021, 20, 1-17.	1.1	11
170	New Insights into Metabolic Regulation from Hyperpolarized ^{13}C MRS/MRI Studies. , 2021, , 181-203.		0
171	Post-Infarction Inflammatory Alterations. , 2021, , 109-159.		0
172	Novel Views on Heart Function from Dynamic Hyperpolarized NMR. , 2021, , 205-235.		0
173	Successive Detection of Zinc Ion and Citrate Using a Schiff Base Chemosensor for Enhanced Prostate Cancer Diagnosis in Biosystems. <i>ACS Applied Bio Materials</i> , 2021, 4, 1932-1941.	2.3	17
174	Comparison of selective excitation and multi-echo chemical shift encoding for imaging of hyperpolarized $[1-^{13}\text{C}]$ pyruvate. <i>Journal of Magnetic Resonance</i> , 2021, 325, 106927.	1.2	4
175	^{13}C -Labeled Diethyl Ketoglutarate Derivatives as Hyperpolarized Probes of 2 Ketoglutarate Dehydrogenase Activity. <i>Analysis & Sensing</i> , 2021, 1, 156-160.	1.1	3
176	Hyperpolarized Molecules in Solution. <i>Methods in Molecular Biology</i> , 2011, 771, 205-226.	0.4	10
177	Applications of Hyperpolarized Agents in Solutions. <i>Methods in Molecular Biology</i> , 2011, 771, 655-689.	0.4	4
178	Imaging Myocardial Metabolism. , 2018, , 243-279.		1
179	Studies of Metabolism Using ^{13}C MRS of Hyperpolarized Probes. <i>Methods in Enzymology</i> , 2015, 561, 1-71.	0.4	42
180	Imaging Regional Metabolic Changes in the Ischemic Rat Heart In Vivo Using Hyperpolarized $[1-^{13}\text{C}]$ Pyruvate. <i>Tomography</i> , 2017, 3, 123-130.	0.8	3
181	MR spectroscopy in heart failure. <i>Frontiers in Bioscience - Scholar</i> , 2011, S3, 331-340.	0.8	12
182	Metabolomics in Cardiovascular Disease: Towards Clinical Application. , 0, , .		2
184	Ischemic Heart Disease and Heart Failure: Advanced Magnetic Resonance Spectroscopy and Metabolic Imaging. <i>Cardiovascular Imaging Asia</i> , 2018, 2, 176.	0.1	1
185	Imaging Metabolic Processes in Living Systems with Hyperpolarised ^{13}C Magnetic Resonance. <i>New Developments in NMR</i> , 2018, , 280-309.	0.1	0
186	Hyperpolarized Magnetic Resonance Spectroscopy and Imaging. <i>Advances in Magnetic Resonance Technology and Applications</i> , 2020, , 953-977.	0.0	0
187	Development of a human heart-sized perfusion system for metabolic imaging studies using hyperpolarized $[1-^{13}\text{C}]$ pyruvate MRI. <i>Magnetic Resonance in Medicine</i> , 2021, 85, 3510-3521.	1.9	3

#	ARTICLE	IF	CITATIONS
188	Chapter 11. Molecular Imaging. RSC Drug Discovery Series, 0, , 277-306.	0.2	1
189	HP agents and biochemical interactions. Advances in Magnetic Resonance Technology and Applications, 2021, 3, 93-127.	0.0	0
190	Hyperpolarized MR in cardiology: probing the heart of life. Advances in Magnetic Resonance Technology and Applications, 2021, 3, 217-256.	0.0	2
191	In Vivo Magnetic Resonance Spectroscopy Methods for Investigating Cardiac Metabolism. Metabolites, 2022, 12, 189.	1.3	3
192	Insights Into the Metabolic Aspects of Aortic Stenosis With the Use of Magnetic Resonance Imaging. JACC: Cardiovascular Imaging, 2022, 15, 2112-2126.	2.3	2
193	Assessment of higher-order singular value decomposition denoising methods on dynamic hyperpolarized [1-13C]pyruvate MRI data from patients with glioma. NeuroImage: Clinical, 2022, 36, 103155.	1.4	11