

# Charles Nicholson

## List of Publications by Citations

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

37  
papers

7,486  
citations

25  
h-index

39  
g-index

39  
ext. papers

8,851  
ext. citations

7  
avg, IF

6.02  
L-index

| #  | Paper  | IF   | Citations |
|----|--|------|-----------|
| 37 | Sleep drives metabolite clearance from the adult brain. <i>Science</i> , <b>2013</b> , 342, 373-7  | 33.3 | 2329      |
| 36 | Diffusion in brain extracellular space. <i>Physiological Reviews</i> , <b>2008</b> , 88, 1277-340  | 47.9 | 891       |
| 35 | Clearance systems in the brain-implications for Alzheimer disease. <i>Nature Reviews Neurology</i> , <b>2015</b> , 11, 457-70  | 15   | 759       |
| 34 | Extracellular space structure revealed by diffusion analysis. <i>Trends in Neurosciences</i> , <b>1998</b> , 21, 207-15  | 13.3 | 724       |
| 33 | In vivo diffusion analysis with quantum dots and dextrans predicts the width of brain extracellular space. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2006</b> , 103, 5567-72       | 11.5 | 442       |
| 32 | Diffusion and related transport mechanisms in brain tissue. <i>Reports on Progress in Physics</i> , <b>2001</b> , 64, 815-884  | 8.4  | 343       |
| 31 | Enhanced striatal dopamine transmission and motor performance with LRRK2 overexpression in mice is eliminated by familial Parkinson's disease mutation G2019S. <i>Journal of Neuroscience</i> , <b>2010</b> , 30, 1788-97            | 6.6  | 270       |
| 30 | Perspectives on spreading depression. <i>Brain Research Reviews</i> , <b>2000</b> , 32, 215-34   |      | 198       |
| 29 | Ion-selective microelectrodes and diffusion measurements as tools to explore the brain cell microenvironment. <i>Journal of Neuroscience Methods</i> , <b>1993</b> , 48, 199-213   | 3    | 141       |
| 28 | Diffusion of epidermal growth factor in rat brain extracellular space measured by integrative optical imaging. <i>Journal of Neurophysiology</i> , <b>2004</b> , 92, 3471-81   | 3.2  | 139       |
| 27 | Brain Extracellular Space: The Final Frontier of Neuroscience. <i>Biophysical Journal</i> , <b>2017</b> , 113, 2133-2142   | 2.9  | 133       |
| 26 | Aquaporin-4-deficient mice have increased extracellular space without tortuosity change. <i>Journal of Neuroscience</i> , <b>2008</b> , 28, 5460-4   | 6.6  | 112       |
| 25 | The migration of substances in the neuronal microenvironment. <i>Annals of the New York Academy of Sciences</i> , <b>1986</b> , 481, 55-71   | 6.5  | 105       |
| 24 | In vivo diffusion of lactoferrin in brain extracellular space is regulated by interactions with heparan sulfate. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2008</b> , 105, 8416-21 | 11.5 | 100       |
| 23 | Measurement of nanomolar dopamine diffusion using low-noise perfluorinated ionomer coated carbon fiber microelectrodes and high-speed cyclic voltammetry. <i>Analytical Chemistry</i> , <b>1989</b> , 61, 1805-10                    | 7.8  | 90        |
| 22 | Calcium diffusion enhanced after cleavage of negatively charged components of brain extracellular matrix by chondroitinase ABC. <i>Journal of Physiology</i> , <b>2009</b> , 587, 4029-49  | 3.9  | 78        |
| 21 | Diffusion of molecules in brain extracellular space: theory and experiment. <i>Progress in Brain Research</i> , <b>2000</b> , 125, 129-54  | 2.9  | 77        |

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|----|--|-----|----|
| 20 | Dead-space microdomains hinder extracellular diffusion in rat neocortex during ischemia. <i>Journal of Neuroscience</i> , <b>2003</b> , 23, 8351-9   | 6.6 | 72 |
| 19 | Contribution of dead-space microdomains to tortuosity of brain extracellular space. <i>Neurochemistry International</i> , <b>2004</b> , 45, 467-77   | 4.4 | 68 |
| 18 | Quantitative analysis of extracellular space using the method of TMA+ iontophoresis and the issue of TMA+ uptake. <i>Canadian Journal of Physiology and Pharmacology</i> , <b>1992</b> , 70 Suppl, S314-22 | 2.4 | 66 |
| 17 | Brain Extracellular Space as a Diffusion Barrier. <i>Computing and Visualization in Science</i> , <b>2011</b> , 14, 309-325  |     | 65 |
| 16 | Independence of extracellular tortuosity and volume fraction during osmotic challenge in rat neocortex. <i>Journal of Physiology</i> , <b>2002</b> , 542, 515-27   | 3.9 | 60 |
| 15 | Diffusion of flexible random-coil dextran polymers measured in anisotropic brain extracellular space by integrative optical imaging. <i>Biophysical Journal</i> , <b>2008</b> , 95, 1382-92                | 2.9 | 46 |
| 14 | Water compartmentalization and spread of ischemic injury in thick-slice ischemia model. <i>Journal of Cerebral Blood Flow and Metabolism</i> , <b>2002</b> , 22, 80-8                                      | 7.3 | 29 |
| 13 | Dextran decreases extracellular tortuosity in thick-slice ischemia model. <i>Journal of Cerebral Blood Flow and Metabolism</i> , <b>2000</b> , 20, 1306-10   | 7.3 | 27 |
| 12 | Brain extracellular space: geometry, matrix and physiological importance. <i>Basic and Clinical Neuroscience</i> , <b>2013</b> , 4, 282-6  | 1.4 | 25 |
| 11 | Light scattering in rat neocortical slices differs during spreading depression and ischemia. <i>Brain Research</i> , <b>2002</b> , 952, 290-300  | 3.7 | 24 |
| 10 | Real-time Iontophoresis with Tetramethylammonium to Quantify Volume Fraction and Tortuosity of Brain Extracellular Space. <i>Journal of Visualized Experiments</i> , <b>2017</b> ,                         | 1.6 | 12 |
| 9  | Interactions between insulin and diet on striatal dopamine uptake kinetics in rodent brain slices. <i>European Journal of Neuroscience</i> , <b>2019</b> , 49, 794-804                                     | 3.5 | 11 |
| 8  | Characterizing molecular probes for diffusion measurements in the brain. <i>Journal of Neuroscience Methods</i> , <b>2008</b> , 171, 218-25  | 3   | 11 |
| 7  | The quest for a better insight into physiology of fluids and barriers of the brain: the exemplary career of Joseph D. Fenstermacher. <i>Fluids and Barriers of the CNS</i> , <b>2015</b> , 12, 1           | 7   | 10 |
| 6  | Anomalous diffusion inspires anatomical insights. <i>Biophysical Journal</i> , <b>2015</b> , 108, 2091-3   | 2.9 | 9  |
| 5  | Measurement of diffusion parameters using a sinusoidal iontophoretic source in rat cortex. <i>Journal of Neuroscience Methods</i> , <b>2002</b> , 122, 97-108  | 3   | 9  |
| 4  | Rapid volume pulsation of the extracellular space coincides with epileptiform activity in mice and depends on the NBCe1 transporter. <i>Journal of Physiology</i> , <b>2021</b> , 599, 3195-3220           | 3.9 | 3  |
| 3  | Reduction of Dimensionality in Monte Carlo Simulation of Diffusion in Extracellular Space Surrounding Cubic Cells. <i>Neurochemical Research</i> , <b>2020</b> , 45, 42-52                                 | 4.6 | 3  |

2 Brain Interstitial Structure Revealed Through Diffusive Spread of Molecules **2018**, 93-114 2

1 The secret world in the gaps between brain cells. *Physics Today*, **2022**, 75, 26-32 0.9 0