

## REFERENCES

- Abe, K., Aoki, M., Kawagoe, J., Yoshida, T., Hattori, A., Kogure, K. and. Itoyama, Y. (1995). Ischemic Delayed Neuronal Death. *Stroke*, [online] 26(8), pp.1478–1489. doi:<https://doi.org/10.1161/01.str.26.8.1478>.
- Alfieri, D.F., Lehmann, M.F., Oliveira, S.R., Flauzino, T., Delongui, F., de Araújo, M.C.M., Dichi, I., Delfino, V.D., Mezzaroba, L., Simão, A.N.C. and Reiche, E.M.V. (2016). Vitamin D deficiency is associated with acute ischemic stroke, C-reactive protein, and short-term outcome. *Metabolic Brain Disease*, [online] 32(2), pp.493–502. doi:<https://doi.org/10.1007/s11011-016-9939-2>.
- Al-Hassani, Z.K., Al-Mousawi, N.R., Shukri, M.A.A.-R., and Mahboba, W. (2017). Effect Of Amlodipine In Amelioration Of Global Cerebral I/R Injury In Rat. *AL-QADISIYAH MEDICAL JOURNAL*, [online] 11(19), pp.16–25. doi:<https://doi.org/10.28922/qmj.2015.11.19.16-25>.
- Amiri, F., Virdis, A., Neves, M.F., Iglarz, M., Seidah, N.G., Touyz, R.M., Reudelhuber, T.L. and Schiffrin, E.L. (2004). Endothelium-Restricted Overexpression of Human Endothelin-1 Causes Vascular Remodeling and Endothelial Dysfunction. *Circulation*, [online] 110(15), pp.2233–2240. doi:<https://doi.org/10.1161/01.cir.0000144462.08345.b9>.
- Anand, K.S. and Dhikav, V. (2012). Hippocampus in health and disease: An overview. *Annals of Indian Academy of Neurology*, [online] 15(4), pp.239–239. doi:<https://doi.org/10.4103/0972-2327.104323>.
- Arfian, N., Kusuma, M.Hh., Anggorowati, N., Nugroho, D.B., Jeffilano, A., Suzuki, Y., Ikeda, K. and Emoto, N. (2018). Vitamin D Upregulates Endothelin-1, ETBR, eNOS mRNA Expression and Attenuates Vascular Remodelling and Ischemia in Kidney Fibrosis Model in Mice Vitamin D Upregulates Endothelin-1, ETBR, eNOS mRNA Expression and Attenuates Vascular Remodelling and Ischemia in Kidney Fibrosis Model in Mice. *Physiological Research*, [online] pp.137–147. doi:<https://doi.org/10.33549/physiolres.933823>.
- Arfian, N., Muflikhah, K., Soeyono, S.K., Sari, D.C.R., Tranggono, U., Anggorowati, N. and Romi, M.M. (2016). Vitamin D Attenuates Kidney Fibrosis via Reducing Fibroblast Expansion, Inflammation, and Epithelial Cell Apoptosis. *The Kobe journal of medical sciences*, [online] 62(2), pp.38-44. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5425134/> [Accessed 10 Mar. 2024].
- Auer, R.N., Jensen, M.L. and Whishaw, I.Q. (1989). Neurobehavioral deficit due to ischemic brain damage limited to half of the CA1 sector of the

- hippocampus. *The Journal of Neuroscience*, [online] 9(5), pp.1641–1647. doi:<https://doi.org/10.1523/jneurosci.09-05-01641.1989>.
- Batchelder, M., Keller, L.S., Sauer, M.B. and West, W.L. (2012). Gerbils. *Elsevier eBooks*, [online] pp.1131–1155. doi:<https://doi.org/10.1016/b978-0-12-380920-9.00052-3>.
- Bliss, T.V. and Collingridge, G.L. (1993). A synaptic model of memory: long-term potentiation in the hippocampus. *Nature*, [online] 361(6407), pp.31–39. doi:<https://doi.org/10.1038/361031a0>.
- Böhm, F. and Pernow, J. (2007). The importance of endothelin-1 for vascular dysfunction in cardiovascular disease. *Cardiovascular Research*, [online] 76(1), pp.8–18. doi:<https://doi.org/10.1016/j.cardiores.2007.06.004>.
- Cappaert, N.L.M., Strien, N.M.V. and Witter, M.P. (2015). Hippocampal Formation. *Elsevier eBooks*, [online] pp.511–573. doi:<https://doi.org/10.1016/b978-0-12-374245-2.00020-6>.
- Carlberg, C. (2019). Vitamin D: A Micronutrient Regulating Genes. *Current Pharmaceutical Design*, [online] 25(15), pp.1740–1746. doi:<https://doi.org/10.2174/1381612825666190705193227>.
- Chang, J.C. (2020). Stroke Classification: Critical Role of Unusually Large von Willebrand Factor Multimers and Tissue Factor on Clinical Phenotypes Based on Novel ‘Two-Path Unifying Theory’ of Hemostasis. *Clinical and Applied Thrombosis/Hemostasis*, [online] 26, p.107602962091363-107602962091363. doi:<https://doi.org/10.1177/1076029620913634>.
- Chauhan, P., Jethwa, K., Rathawa, A., Chauhan, G. and Mehra, S. (2021). The Anatomy of the Hippocampus. *Exon Publications eBooks*, [online] pp.17–30. doi:<https://doi.org/10.36255/exonpublications.cerebralischemia.2021.hippocampus>.
- Chen, X., Touyz, R.M., Park, J.B. and Schiffrin, E.L. (2001). Antioxidant Effects of Vitamins C and E Are Associated With Altered Activation of Vascular NADPH Oxidase and Superoxide Dismutase in Stroke-Prone SHR. *Hypertension*, [online] 38(3), pp.606–611. doi:<https://doi.org/10.1161/hy09t1.094005>.
- Chiang, W.C., Huang, Y.C., Fu, T.I., Chen, P.M., Chang, F.C., Lai, C.F., Wu, V.C., Lin, S.L. and Chen, Y.M. (2019). Angiopoietin 1 influences ischemic reperfusion renal injury via modulating endothelium survival and regeneration. *Molecular Medicine*, [online] 25(1). doi:<https://doi.org/10.1186/s10020-019-0072-7>.

- Chistiakov, D.A., Orekhov, A.N. and Bobryshev, Y.V. (2015). Endothelial Barrier and Its Abnormalities in Cardiovascular Disease. *Frontiers in Physiology*, [online] 6. doi:<https://doi.org/10.3389/fphys.2015.00365>.
- Colotta, F., Jansson, B. and Bonelli, F. (2017). Modulation of inflammatory and immune responses by vitamin D. *Journal of Autoimmunity*, [online] 85, pp.78–97. doi:<https://doi.org/10.1016/j.jaut.2017.07.007>.
- Cowled, P. and Fitridge, R. (2011). *Pathophysiology of Reperfusion Injury*. [online] Nih.gov. Available at: [https://www.ncbi.nlm.nih.gov/books/NBK534267/#:~:text=Ischaemia%20DReperfusion%20injury%20\(IRI\),essential%20to%20salvage%20ischaemic%20tissues](https://www.ncbi.nlm.nih.gov/books/NBK534267/#:~:text=Ischaemia%20DReperfusion%20injury%20(IRI),essential%20to%20salvage%20ischaemic%20tissues). [Accessed 18 Feb. 2024].
- Coyle, P. (1976). Vascular patterns of the rat hippocampal formation. *Experimental Neurology*, [online] 52(3), pp.447–458. doi:[https://doi.org/10.1016/0014-4886\(76\)90216-8](https://doi.org/10.1016/0014-4886(76)90216-8).
- Curatola, A.M., Xu, J. and Hendricks-Munoz, K.D. (2011). Cyclic GMP protects endothelial progenitors from oxidative stress. *Angiogenesis*, [online] 14(3), pp.267–279. doi:<https://doi.org/10.1007/s10456-011-9211-7>.
- Daubail, B., Jacquin, A., Guiland, J.-C., Hervieu, M., Osseby, G.-V., Rouaud, O., Giroud, M. and Béjot, Y. (2012). Serum 25-hydroxyvitamin D predicts severity and prognosis in stroke patients. *European Journal of Neurology*, [online] 20(1), pp.57–61. doi:<https://doi.org/10.1111/j.1468-1331.2012.03758.x>.
- Day, Y.J., Huang, L., Ye, H., Li, L., Linden, J. and Okusa, M.D. (2006). Renal Ischemia-Reperfusion Injury and Adenosine 2A Receptor-Mediated Tissue Protection: The Role of CD4<sup>+</sup> T Cells and IFN- $\gamma$ . *Journal of Immunology*, [online] 176(5), pp.3108–3114. doi:<https://doi.org/10.4049/jimmunol.176.5.3108>.
- Desita, E.A.N., Arfian, N., Setyaningsih, W.A.W. and Sari, D.C.R. (2022). Calcitriol attenuates vascular remodeling in association with alteration of ppET-1/ET<sub>B</sub>R/eNOS and ET<sub>A</sub>R expression in acute and chronic phases of kidney ischemia–reperfusion injury in mice. *Canadian Journal of Physiology and Pharmacology*, [online] 101(1), pp.8–17. doi:<https://doi.org/10.1139/cjpp-2022-0130>.
- Diwakar, L., Gowaikar, R., Chithanathan, K., Gnanabharathi, B., Tomar, D.S. and Ravindranath, V. (2021). Endothelin-1 mediated vasoconstriction leads to memory impairment and synaptic dysfunction. *Scientific Reports*, [online] 11(1). doi:<https://doi.org/10.1038/s41598-021-84258-x>.
- Ekici, F., Ozyurt, B. and Erdogan, H. (2009). The combination of vitamin D3 and dehydroascorbic acid administration attenuates brain damage in focal

ischemia. *Neurological Sciences*, [online] 30(3), pp.207–212.  
doi:<https://doi.org/10.1007/s10072-009-0038-6>.

Endemann, D.H. and Schiffrin, E.L. (2004). Endothelial Dysfunction. *Journal of The American Society of Nephrology*, [online] 15(8), pp.1983–1992.  
doi:<https://doi.org/10.1097/01.asn.0000132474.50966.da>.

Enkhjargal, B., Malaguit, J., Ho, W.M., Jiang, W., Wan, W., Wang, G., Tang, J. and Zhang, J.H. (2017). Vitamin D attenuates cerebral artery remodeling through VDR/AMPK/eNOS dimer phosphorylation pathway after subarachnoid hemorrhage in rats. *Journal of Cerebral Blood Flow and Metabolism*, [online] 39(2), pp.272–284.  
doi:<https://doi.org/10.1177/0271678x17726287>.

Esper, R.J., Nordaby, R.A., Vilariño, J.O., Paragano, A., Cacharrón, J.L. and Machado, R.A. (2006). *Cardiovascular Diabetology*, [online] 5(1), pp.4–4.  
doi:<https://doi.org/10.1186/1475-2840-5-4>.

Evans, M.A., Kim, H.A., Ling, Y.H., Uong, S., Vinh, A., De Silva, T.M., Arumugam, T.V., Clarkson, A.N., Zosky, G.R., Drummond, G.R., Broughton, B.R.S. and Sobey, C.G. (2018). Vitamin D3 Supplementation Reduces Subsequent Brain Injury and Inflammation Associated with Ischemic Stroke. *Neuromolecular Medicine*, [online] 20(1), pp.147–159.  
doi:<https://doi.org/10.1007/s12017-018-8484-z>.

Farokhi-Sisakht, F., Sadigh-Eteghad, S., Mohaddes, G., Ebrahimi-Kalan, A., Karimi, P. and Farhodi, M. (2020). Physical and cognitive training attenuate hippocampal ischemia-induced memory impairments in rat. *Brain Research Bulletin*, [online] 155, pp.202–210.  
doi:<https://doi.org/10.1016/j.brainresbull.2019.10.007>.

Furtak, S.C., Wei, S.-M., Agster, K.L. and Burwell, R.D. (2007). Functional neuroanatomy of the parahippocampal region in the rat: The perirhinal and postrhinal cortices. *Hippocampus*, [online] 17(9), pp.709–722.  
doi:<https://doi.org/10.1002/hipo.20314>.

Gallo, G., Volpe, M. and Savoia, C. (2022). Endothelial Dysfunction in Hypertension: Current Concepts and Clinical Implications. *Frontiers in Medicine*, [online] 8. doi:<https://doi.org/10.3389/fmed.2021.798958>.

Gao, M., Jolanta Gorecka, Liu, J. and Dardik, A. (2021). Assessment of female sex in preclinical vascular models. *Elsevier eBooks*, [online] pp.349–385.  
doi:<https://doi.org/10.1016/b978-0-12-822959-0.00005-5>.

Graesser, D., Solowiej, A., Bruckner, M., Osterweil, E., Juedes, A., Davis, S., Ruddle, N.H., Engelhardt, B. and Madri, J.A. (2002). Altered vascular permeability and early onset of experimental autoimmune encephalomyelitis in PECAM-1-deficient mice. *Journal of Clinical*

*Investigation*, [online] 109(3), pp.383–392.  
doi:<https://doi.org/10.1172/jci13595>.

Guo, X., Yuan, J., Wang, J., Cui, C. and Jiang, P. (2019). Calcitriol alleviates global cerebral ischemia-induced cognitive impairment by reducing apoptosis regulated by VDR/ERK signaling pathway in rat hippocampus. *Brain Research*, [online] 1724, pp.146430–146430. doi:<https://doi.org/10.1016/j.brainres.2019.146430>.

Harrison, D.G. (1997). Cellular and molecular mechanisms of endothelial cell dysfunction. *Journal of Clinical Investigation*, 100(9), pp.2153–2157. doi:<https://doi.org/10.1172/jci119751>.

Hasdan, G., Benchetrit, S., Rashid, G., Green, J., Bernheim, J. and Rathaus, M. (2002). Endothelial dysfunction and hypertension in 5/6 nephrectomized rats are mediated by vascular superoxide. *Kidney International*, [online] 61(2), pp.586–590. doi:<https://doi.org/10.1046/j.1523-1755.2002.00166.x>.

Heitzer, T., Schlinzig, T., Krohn, K., Meinertz, T. and Münzel, T. (2001). Endothelial Dysfunction, Oxidative Stress, and Risk of Cardiovascular Events in Patients With Coronary Artery Disease. *Circulation*, [online] 104(22), pp.2673–2678. doi:<https://doi.org/10.1161/hc4601.099485>.

Hermawati, E., Arfian, N., Mustofa, M. and Partadiredja, G. (2019). Chlorogenic acid ameliorates memory loss and hippocampal cell death after transient global ischemia. *European Journal of Neuroscience*, [online] 51(2), pp.651–669. doi:<https://doi.org/10.1111/ejn.14556>.

Hermawati, E., Arfian N., Mustofa, M. and Partadiredja, G. (2018). Spatial Memory Disturbance Following Transient Brain Ischemia is Associated with Vascular Remodeling in Hippocampus. *The Kobe journal of medical sciences*, [online] 64(3). Available at: <https://pubmed.ncbi.nlm.nih.gov/30666039/> [Accessed 26 Feb. 2024].

Hernández-Reséndiz, S., Muñoz-Vega, M., Contreras, W.E., Crespo-Avilan, G.E., Rodriguez-Montesinos, J., Arias-Carrión, O., Pérez-Méndez, O., Boisvert, W.A., Preissner, K.T. and Cabrera-Fuentes, H.A. (2018). Responses of Endothelial Cells Towards Ischemic Conditioning Following Acute Myocardial Infarction. *Conditioning medicine*, [online] 1(5), pp.247–258. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6191189/> [Accessed 25 Feb. 2024].

Holt, D.J., Öngür, D., Wright, C.I., Dickerson, B.C. and Rauch, S.L. (2008). Neuroanatomical Systems Relevant to Neuropsychiatric Disorders. *Elsevier eBooks*, [online] pp.975–995. doi:<https://doi.org/10.1016/b978-0-323-04743-2.50073-1>.



- Huang, P.L. (2003). Endothelial nitric oxide synthase and endothelial dysfunction. *Current Hypertension Reports*, [online] 5(6), pp.473–480. doi:<https://doi.org/10.1007/s11906-003-0055-4>.
- Hui, C., Prasanna Tadi and Patti, L. (2022). *Ischemic Stroke*. [online] Nih.gov. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK499997/> [Accessed 29 Jan. 2024].
- Iwasaki, Y., Ito, S., Suzuki, M., Nagahori, T., Yamamoto, T. and Konno, H. (1989). Forebrain ischemia induced by temporary bilateral common carotid occlusion in normotensive rats. *Journal of the Neurological Sciences*, [online] 90(2), pp.155–165. doi:[https://doi.org/10.1016/0022-510x\(89\)90098-1](https://doi.org/10.1016/0022-510x(89)90098-1).
- Jain, S.K. and Micinski, D. (2013). Vitamin D upregulates glutamate cysteine ligase and glutathione reductase, and GSH formation, and decreases ROS and MCP-1 and IL-8 secretion in high-glucose exposed U937 monocytes. *Biochemical and Biophysical Research Communications*, [online] 437(1), pp.7–11. doi:<https://doi.org/10.1016/j.bbrc.2013.06.004>.
- Janaszak-Jasiecka, A., Płoska, A., Wierońska, J.M., Dobrucki, L.W. and Kalinowski, L. (2023). Endothelial dysfunction due to eNOS uncoupling: molecular mechanisms as potential therapeutic targets. *Cellular & Molecular Biology Letters*, [online] 28(1). doi:<https://doi.org/10.1186/s11658-023-00423-2>.
- Johnson, D. (1998). Endothelial damage due to ischemia and reperfusion is prevented with SIN-1. *Cardiovascular Surgery*, [online] 6(4), pp.367–372. doi:[https://doi.org/10.1016/s0967-2109\(98\)00026-x](https://doi.org/10.1016/s0967-2109(98)00026-x).
- Kagitani, F., Uchida, S., Hotta, H. and Sato, A. (2000). Effects of Nicotine on Blood Flow and Delayed Neuronal Death Following Intermittent Transient Ischemia in Rat Hippocampus. *Japanese Journal of Physiology*, [online] 50(6), pp.585–595. doi:<https://doi.org/10.2170/jjphysiol.50.585>.
- Kakei, Y., Akashi, M., Shigeta, T., Hasegawa, T. and Komori, T. (2014). Alteration of Cell–Cell Junctions in Cultured Human Lymphatic Endothelial Cells with Inflammatory Cytokine Stimulation. *Lymphatic Research and Biology*, [online] 12(3), pp.136–143. doi:<https://doi.org/10.1089/lrb.2013.0035>.
- Kalogeris, T., Baines, C.P., Krenz, M. and Korthuis, R.J. (2012). Cell Biology of Ischemia/Reperfusion Injury. *International Review of Cell and Molecular Biology*, [online] pp.229–317. doi:<https://doi.org/10.1016/b978-0-12-394309-5.00006-7>.
- Khaku, A.S. and Tadi, P. (2023). *Cerebrovascular Disease*. [online] Nih.gov. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK430927/> [Accessed 12 Feb. 2024].

- Khan, A., Dawoud, H. and Malinski, T. (2018). Nanomedical studies of the restoration of nitric oxide/peroxynitrite balance in dysfunctional endothelium by 1,25-dihydroxy vitamin D<sub>3</sub> – clinical implications for cardiovascular diseases. *International Journal of Nanomedicine*, [online] Volume 13, pp.455–466. doi:<https://doi.org/10.2147/ijn.s152822>.
- Kim, D.H., Meza, C.A., Clarke, H., Kim, J.S. and Hickner, R.C. (2020). Vitamin D and Endothelial Function. *Nutrients*, [online] 12(2), pp.575–575. doi:<https://doi.org/10.3390/nu12020575>.
- Kirino, T. (2000). Delayed neuronal death. *Neuropathology*, [online] 20(s1), pp.95–97. doi:<https://doi.org/10.1046/j.1440-1789.2000.00306.x>.
- Kloner, R.A., King, K.S. and Harrington, M.G. (2018). No-reflow phenomenon in the heart and brain. *American Journal of Physiology-heart and Circulatory Physiology*, [online] 315(3), pp.H550–H562. doi:<https://doi.org/10.1152/ajpheart.00183.2018>.
- Kreisman, N.R., Soliman, S. and Gozal, D. (2000). Regional Differences in Hypoxic Depolarization and Swelling in Hippocampal Slices. *Journal of Neurophysiology*, [online] 83(2), pp.1031–1038. doi:<https://doi.org/10.1152/jn.2000.83.2.1031>.
- Kumphune, S., Seenak, P., Paiyabhrom, N., Songjang, W., Pankhong, P., Jumroon, N., Thaisakun, S., Phaonakrop, N., Roytrakul, S., Malakul, W., Jiraviriyakul, A. and Nernpermpisooth, N. (2024). Cardiac endothelial ischemia/reperfusion injury-derived protein damage-associated molecular patterns disrupt the integrity of the endothelial barrier. *Heliyon*, [online] 10(2), pp.24600–24600. doi:<https://doi.org/10.1016/j.heliyon.2024.e24600>.
- Kurata, H., Takaoka, M., Kubo, Y., Katayama, T., Tsutsui, H., Takayama, J., Ohkita, M. and Matsumura, Y. (2005). Protective effect of nitric oxide on ischemia/reperfusion-induced renal injury and endothelin-1 overproduction. *European Journal of Pharmacology*, [online] 517(3), pp.232–239. doi:<https://doi.org/10.1016/j.ejphar.2005.05.026>.
- Lai, C.C., Juang, W.C., Sun, G.C., Tseng, Y.K., Jhong, R.C., Tseng, C.J., Wong, T.Y. and Cheng, P.W. (2020). Vitamin D Attenuates Loss of Endothelial Biomarker Expression in Cardio-Endothelial Cells. *International Journal of Molecular Sciences*, [online] 21(6), pp.2196–2196. doi:<https://doi.org/10.3390/ijms21062196>.
- Lee, T.-K., Kim, H., Song, M., Lee, J.-C., Park, J.H., Ahn, J.H., Yang, G.E., Kim, H., Ohk, T.G., Shin, M.C., Cho, J.H. and Won, M.-H. (2019). Time-course pattern of neuronal loss and gliosis in gerbil hippocampi following mild, severe, or lethal transient global cerebral ischemia. *Neural Regeneration Research*, [online] 14(8), pp.1394–1394. doi:<https://doi.org/10.4103/1673-5374.253524>.

- Lee, N.T., Ong, L.K., Gyawali, P., Nassir, C.M.N.C.M., Mustapha, M., Nandurkar, H.H. and Sashindranath, M. (2021). Role of Purinergic Signalling in Endothelial Dysfunction and Thrombo-Inflammation in Ischaemic Stroke and Cerebral Small Vessel Disease. *Biomolecules*, [online] 11(7), pp.994–994. doi:<https://doi.org/10.3390/biom11070994>.
- León-Moreno, L.C., Castañeda-Arellano, R., Rivas-Carrillo, J.D. and Dueñas-Jiménez, S.H. (2020). Challenges and Improvements of Developing an Ischemia Mouse Model Through Bilateral Common Carotid Artery Occlusion. *Journal of Stroke and Cerebrovascular Diseases*, [online] 29(5), pp.104773–104773. doi:<https://doi.org/10.1016/j.jstrokecerebrovasdis.2020.104773>.
- Lertkiatmongkol, P., Liao, D., Mei, H., Hu, Y. and Newman, P.J. (2016). Endothelial functions of platelet/endothelial cell adhesion molecule-1 (CD31). [online] 23(3), pp.253–259. doi:<https://doi.org/10.1097/moh.0000000000000239>.
- Leung, J.W.C., Ho, M.C.Y., Lo, A.C.Y., Chung, S.S.M. and Chung, S.K. (2004). Endothelial Cell-specific Over-expression of Endothelin- 1 Leads to More Severe Cerebral Damage following Transient Middle Cerebral Artery Occlusion. *Journal of Cardiovascular Pharmacology*, [online] 44(Supplement 1), pp.293–S300. doi:<https://doi.org/10.1097/01.fjc.0000166277.70538.b0>.
- Lin, L., Wang, X. and Yu, Z. (2016). Ischemia-reperfusion Injury in the Brain: Mechanisms and Potential Therapeutic Strategies. [online] 5(4). doi:<https://doi.org/10.4172/2167-0501.1000213>.
- Makariou, S.E., Michel, P., Tzoufi, M.S., Challa, A. and Milionis, H.J. (2014). Vitamin D and Stroke: Promise for Prevention and Better Outcome. *Current Vascular Pharmacology*, [online] 12(1), pp.117–124. doi:<https://doi.org/10.2174/15701611113119990119>.
- Mamo, Y.A. (2015). Cerebrovascular effects of vasoactive drugs: In vitro, in vivo and clinical investigations. [online] Available at: [https://www.researchgate.net/publication/280830140\\_Cerebrovascular\\_effects\\_of\\_vasoactive\\_drugs\\_In\\_vitro\\_in\\_vivo\\_and\\_clinical\\_investigations](https://www.researchgate.net/publication/280830140_Cerebrovascular_effects_of_vasoactive_drugs_In_vitro_in_vivo_and_clinical_investigations).
- Marek, K., Cichoń, N., Saluk-Bijak, J., Bijak, M. and Miller, E. (2022). The Role of Vitamin D in Stroke Prevention and the Effects of Its Supplementation for Post-Stroke Rehabilitation: A Narrative Review. *Nutrients*, [online] 14(13), pp.2761–2761. doi:<https://doi.org/10.3390/nu14132761>.
- Masaki, T. and Sawamura, T. (2006). Endothelin and endothelial dysfunction. *Proceedings of the Japan Academy. Series B, Physical and biological sciences*, [online] 82(1), pp.17–24. doi:<https://doi.org/10.2183/pjab.82.17>.



- Maulana, A.M., (2016). *Pengaruh Hiperurisemia terhadap Vascular Remodelling Arteriae Coronariae, Ekspresi eNOS dan ET-1 pada Jantung Mencit*. [online] Ugm.ac.id. Available at: [https://etd.repository.ugm.ac.id/home/detail\\_pencarian/102458](https://etd.repository.ugm.ac.id/home/detail_pencarian/102458) [Accessed 24 Feb. 2024].
- Murphy, S.J.X. and Werring, D.J. (2020). Stroke: causes and clinical features. *Medicine*, [online] 48(9), pp.561–566. doi:<https://doi.org/10.1016/j.mpmed.2020.06.002>.
- Nair, R. and Maseeh, A. (2012). Vitamin D: The ‘sunshine’ vitamin. *PubMed*. [online] doi:<https://doi.org/10.4103/0976-500x.95506>.
- Nakazawa, K., McHugh, T.J., Wilson, M.A. and Tonegawa, S. (2004). NMDA receptors, place cells and hippocampal spatial memory. *Nature Reviews Neuroscience*, [online] 5(5), pp.361–372. doi:<https://doi.org/10.1038/nrn1385>.
- Narasimhan, S. and Balasubramanian, P. (2017). Role of Vitamin D in the Outcome of Ischemic Stroke- A Randomized Controlled Trial. *Journal of Clinical and Diagnostic Research*. [online] doi:<https://doi.org/10.7860/jcdr/2017/24299.9346>.
- Nishiyama, S.K., Zhao, J., Wray, D.W. and Richardson, R.S. (2017). Vascular function and endothelin-1: tipping the balance between vasodilation and vasoconstriction. *Journal of Applied Physiology*, [online] 122(2), pp.354–360. doi:<https://doi.org/10.1152/japplphysiol.00772.2016>.
- Ozaki, M., Kawashima, S., Yamashita, T., Ohashi, Y., Yoshiyuki Rikitake, Inoue, N., Hirata, K.-I., Hayashi, Y., Itoh, H. and Yokoyama, M. (2001). Reduced Hypoxic Pulmonary Vascular Remodeling by Nitric Oxide From the Endothelium. *Hypertension*, [online] 37(2), pp.322–327. doi:<https://doi.org/10.1161/01.hyp.37.2.322>.
- Palen, D.I. and Matrougui, K. (2008). Role of elevated EGFR phosphorylation in the induction of structural remodelling and altered mechanical properties of resistance artery from type 2 diabetic mice. *Diabetes/Metabolism Research and Reviews*, [online] 24(8), pp.651–656. doi:<https://doi.org/10.1002/dmrr.905>.
- Peng, C., Zeng, W., Su, J., Kuang, Y., He, Y., Zhao, S., Zhang, J., Ma, W., Bode, A.M., Dong, Z. and Chen, X. (2015). Cyclin-dependent kinase 2 (CDK2) is a key mediator for EGF-induced cell transformation mediated through the ELK4/c-Fos signaling pathway. *Oncogene*, [online] 35(9), pp.1170–1179. doi:<https://doi.org/10.1038/onc.2015.175>.
- Perry, H.M. and Okusa, M.D. (2016). Endothelial Dysfunction in Renal Interstitial Fibrosis. *Nephron*, [online] 134(3), pp.167–171. doi:<https://doi.org/10.1159/000447607>.

- Perveen, S., Patel, H., Arif, A., Younis, S., Codipilly, C.N. and Ahmed, M. (2012). Role of EC-SOD Overexpression in Preserving Pulmonary Angiogenesis Inhibited by Oxidative Stress. *PLOS ONE*, [online] 7(12), pp.51945–51945. doi:<https://doi.org/10.1371/journal.pone.0051945>.
- Privratsky, J.R., Paddock, C.M., Florey, O., Newman, D.K., Muller, W.A. and Newman, P.J. (2011). Relative contribution of PECAM-1 adhesion and signaling to the maintenance of vascular integrity. *Journal of Cell Science*, [online] 124(9), pp.1477–1485. doi:<https://doi.org/10.1242/jcs.082271>.
- Rahmawati, R.Y., Mulyaningrum, U. and Handayani, E.S. (2022). Routine Blood Profiles of Global Ischemic Rats Based on Ischemia Durations. *Eksakta*, [online] pp.50–58. doi:<https://doi.org/10.20885/eksakta.vol3.iss1.art6>.
- Renke, G., Starling-Soares, B., Baesso, T., Petronio, R., Aguiar, D. and Paes, R. (2023). Effects of Vitamin D on Cardiovascular Risk and Oxidative Stress. *Nutrients*, [online] 15(3), pp.769–769. doi:<https://doi.org/10.3390/nu15030769>.
- Renna, N.F., de Las Heras, N. and Miatello, R.M. (2013). Pathophysiology of Vascular Remodeling in Hypertension. *International Journal of Hypertension*, [online] 2013, pp.1–7. doi:<https://doi.org/10.1155/2013/808353>.
- Rezaei, O., Ramezani, M., Roozbeh, M., Fazeli, B., Hajiesmaeili, M., Pakdaman, H. and Simani, L. (2021). Does vitamin D administration play a role in outcome of patients with acute ischemic stroke? A randomized controlled trial. *Current journal of neurology*. [online] doi:<https://doi.org/10.18502/cjn.v20i1.6374>.
- Rochel, N. (2022). Vitamin D and Its Receptor from a Structural Perspective. *Nutrients*, [online] 14(14), pp.2847–2847. doi:<https://doi.org/10.3390/nu14142847>.
- Rudic, R.D. and Sessa, W.C. (1999). Nitric oxide in endothelial dysfunction and vascular remodeling: clinical correlates and experimental links. *The American Journal of Human Genetics*, 64(3), pp.673–677.
- Rusinek, H., Brys, M., Glodzik, L., Switalski, R., Tsui, W.-H., Haas, F., McGorty, K., Chen, Q. and de Leon, M.J. (2010). Hippocampal blood flow in normal aging measured with arterial spin labeling at 3T. *Magnetic Resonance in Medicine*, [online] 65(1), pp.128–137. doi:<https://doi.org/10.1002/mrm.22611>.
- Saghari, Y., Movahedi, M., Tebianian, M. and Entezari, M. (2024). The Neuroprotective Effects of Curcumin Nanoparticles on The Cerebral Ischemia-Reperfusion Injury in The Rats-The Roles of The Protein Kinase RNA-Like ER Kinase/Extracellular Signal-Regulated Kinase and

- Transcription Factor EB proteins. *Cell journal*, [online] 26(1), pp.62–69. doi:<https://doi.org/10.22074/cellj.2023.1995696.1257>.
- Sarti, C., Pantoni, L., Bartolini, L. and Domenico Inzitari (2002). Persistent impairment of gait performances and working memory after bilateral common carotid artery occlusion in the adult Wistar rat. *Behavioural Brain Research*, [online] 136(1), pp.13–20. doi:[https://doi.org/10.1016/s0166-4328\(02\)00090-6](https://doi.org/10.1016/s0166-4328(02)00090-6).
- Saul, L., Mair, I., Ivens, A., Brown, P., Samuel, K., John, Soong, D.Y., Kamenjarin, N. and Mellanby, R.J. (2019). 1,25-Dihydroxyvitamin D3 Restrains CD4+ T Cell Priming Ability of CD11c+ Dendritic Cells by Upregulating Expression of CD31. *Frontiers in Immunology*, [online] 10. doi:<https://doi.org/10.3389/fimmu.2019.00600>.
- Seal, J.B. and Gewertz, B.L. (2005). Vascular Dysfunction in Ischemia-Reperfusion Injury. *Annals of Vascular Surgery*, [online] 19(4), pp.572–584. doi:<https://doi.org/10.1007/s10016-005-4616-7>.
- Sepidarkish, M., Farsi, F., Fakhrabadi, M.A., Namazi, N., Hashiani, A.A., Hagiagha, A.M. and Heshmati, J. (2019). The effect of vitamin D supplementation on oxidative stress parameters: A systematic review and meta-analysis of clinical trials. *Pharmacological Research*, [online] 139, pp.141–152. doi:<https://doi.org/10.1016/j.phrs.2018.11.011>.
- Sharifi, A., Vahedi, H., Nedjat, S., Rafiei, H. and Hosseinzadeh-Attar, M.J. (2019). Effect of single-dose injection of vitamin D on immune cytokines in ulcerative colitis patients: a randomized placebo-controlled trial. *APMIS*, [online] 127(10), pp.681–687. doi:<https://doi.org/10.1111/apm.12982>.
- Sheynikhovich, D. (2007). Spatial navigation in geometric mazes. [online] doi:<https://doi.org/10.5075/epfl-thesis-3922>.
- Sizar, O., Khare, S., Goyal, A. and Givler, A. (2023). *Vitamin D Deficiency*. [online] Nih.gov. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK532266/#:~:text=Vitamin%20D%20is%20a%20fat,healthy%20level%20of%20vitamin%20D>. [Accessed 17 May 2023].
- Soares, L.M., Schiavon, A.P., Milani, H. and de Oliveira, R.M.W. (2013). Cognitive impairment and persistent anxiety-related responses following bilateral common carotid artery occlusion in mice. *Behavioural Brain Research*, [online] 249, pp.28–37. doi:<https://doi.org/10.1016/j.bbr.2013.04.010>.
- Song, Y.-S., Jamali, N., Sorenson, C.M. and Sheibani, N. (2023). Vitamin D Receptor Expression Limits the Angiogenic and Inflammatory Properties of Retinal Endothelial Cells. *Cells*, [online] 12(2), pp.335–335. doi:<https://doi.org/10.3390/cells12020335>.

- Soya, H., Okamoto, M., Matsui, T., Lee, M., Inoue, K., Nishikawa, S., Soya, S., Fujikawa, T., Randeep, R., Chang, H. and Nishijima, T. (2011). Brain Activation via Exercise: Exercise Conditions Leading to Neuronal Activation & Hippocampal Neurogenesis. *Journal of Exercise Nutrition & Biochemistry*, 15(1), pp.1–10. doi:<https://doi.org/10.5717/jenb.2011.15.1.1>.
- Sundaresan, S., John, S., Paneerselvam, G., Andiappan, R., Christopher, G. and Selvam, G.S. (2021). Gallic acid attenuates cadmium mediated cardiac hypertrophic remodelling through upregulation of Nrf2 and PECAM-1 signalling in rats. *Environmental Toxicology and Pharmacology*, [online] 87, pp.103701–103701. doi:<https://doi.org/10.1016/j.etap.2021.103701>.
- Taddei, S., Virdis, A., Ghiadoni, L., Magagna, A. and Salvetti, A. (1998). Vitamin C Improves Endothelium-Dependent Vasodilation by Restoring Nitric Oxide Activity in Essential Hypertension. *Circulation*, [online] 97(22), pp.2222–2229. doi:<https://doi.org/10.1161/01.cir.97.22.2222>.
- Takenaka, T., Inoue, T., Ohno, Y., Miyazaki, T., Nishiyama, A., Ishii, N. and Suzuki, H. (2014). Calcitriol Supplementation Improves Endothelium-Dependent Vasodilation in Rat Hypertensive Renal Injury. *Kidney & Blood Pressure Research*, [online] 39(1), pp.17–27. doi:<https://doi.org/10.1159/000355773>.
- Tanaka, T. (2016). Leukocyte Adhesion Molecules. *Elsevier eBooks*, [online] pp.505–511. doi:<https://doi.org/10.1016/b978-0-12-374279-7.07015-6>.
- Venketasubramanian, N., Yudiarto, F. and Tugasworo, D. (2022). Stroke Spectrum Stroke Burden and Stroke Services in Indonesia. *Cerebrovasc Dis Extra*, [online] 12, pp.53–57. doi:<https://doi.org/10.1159/000524161>.
- Vestweber, D. (2007). Molecular Mechanisms that Control Leukocyte Extravasation Through Endothelial Cell Contacts. *Ernst Schering Research Foundation workshop*, [online] pp.151–167. doi:[https://doi.org/10.1007/2789\\_2007\\_063](https://doi.org/10.1007/2789_2007_063).
- Wahul, A.B., Joshi, P.C., Kumar, A. and Chakravarty, S. (2018). Transient global cerebral ischemia differentially affects cortex, striatum and hippocampus in Bilateral Common Carotid Arterial occlusion (BCCAo) mouse model. *Journal of Chemical Neuroanatomy*, [online] 92, pp.1–15. doi:<https://doi.org/10.1016/j.jchemneu.2018.04.006>.
- Wang, Q., Zhu, Z., Liu, Y., Tu, X. and He, J. (2018). Relationship between serum vitamin D levels and inflammatory markers in acute stroke patients. *Brain and behavior*, [online] 8(2). doi:<https://doi.org/10.1002/brb3.885>.
- Wee, C.L., Mokhtar, S.S., Kaur, K. and Hanum, A. (2021). Vitamin D deficiency attenuates endothelial function by reducing antioxidant activity and vascular eNOS expression in the rat microcirculation. *Microvascular Research*,

[online] 138, pp.104227–104227.  
doi:<https://doi.org/10.1016/j.mvr.2021.104227>.

Wiseman, H. (1993). Vitamin D is a membrane antioxidant Ability to inhibit iron-dependent lipid peroxidation in liposomes compared to cholesterol, ergosterol and tamoxifen and relevance to anticancer action. *FEBS Letters*, [online] 326(1-3), pp.285–288. doi:[https://doi.org/10.1016/0014-5793\(93\)81809-e](https://doi.org/10.1016/0014-5793(93)81809-e).

Won, S., Sayeed, I., Peterson, B.L., Wali, B., Kahn, J.S. and Stein, D.G. (2015). Vitamin D Prevents Hypoxia/Reoxygenation-Induced Blood-Brain Barrier Disruption via Vitamin D Receptor-Mediated NF- $\kappa$ B Signaling Pathways. *PLOS ONE*, [online] 10(3), pp.0122821–0122821. doi:<https://doi.org/10.1371/journal.pone.0122821>.

Woodfin, A., Voisin, M.B. and Nourshargh, S. (2007). PECAM-1: A Multi-Functional Molecule in Inflammation and Vascular Biology. *Arteriosclerosis, Thrombosis, and Vascular Biology*, [online] 27(12), pp.2514–2523. doi:<https://doi.org/10.1161/atvbaha.107.151456>.

Xin, Y., Li, G., Liu, H. and Ai, D. (2015). AS-IV protects against kidney IRI through inhibition of NF- $\kappa$ B activity and PUMA upregulation. *International journal of clinical and experimental medicine*, [online] 8(10), pp.18293–301. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4694331/> [Accessed 13 Mar. 2024].

Yang, Q., He, G.-W., Underwood, M.J. and Yu, C.-M. (2016). Cellular and molecular mechanisms of endothelial ischemia/reperfusion injury: perspectives and implications for postischemic myocardial protection. *American journal of translational research*, [online] 8(2), pp.765–77. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4846925/#:~:text=I%2FR%20induces%20vascular%20endothelial,etc%20%5B7%2C8%5D>. [Accessed 13 Mar. 2024].

Yarlagadda, K., Ma, N. and Sylvain Doré (2020). Vitamin D and Stroke: Effects on Incidence, Severity, and Outcome and the Potential Benefits of Supplementation. [online] 11. doi:<https://doi.org/10.3389/fneur.2020.00384>.

Yin, K. and Agrawal, D.K. (2014). Vitamin D and inflammatory diseases. *Journal of Inflammation Research*, [online] pp.69–69. doi:<https://doi.org/10.2147/jir.s63898>.

Yuan, J., Guo, X., Liu, Z., Zhao, X., Feng, Y., Song, S., Cui, C. and Jiang, P. (2017). Vitamin D receptor activation influences the ERK pathway and protects



against neurological deficits and neuronal death. *International Journal of Molecular Medicine*. [online] doi:<https://doi.org/10.3892/ijmm.2017.3249>.

Zhang, D., Jia, N., Xiang, J., Zhong, Y., Chen, W. and Hu, Y. (2023). Future perspectives and trends in inflammation in cerebral ischemia-reperfusion injury: Based on bibliometric analysis. *Brain Disorders*, [online] 11, pp.100087–100087. doi:<https://doi.org/10.1016/j.dscb.2023.100087>.

Zhang, Z.-H., Shi, G.-X., Li, Q.-Q., Wang, Y.-J., Li, P., Zhao, J.-X., Yang, J.-W. and Liu, C.-Z. (2014). Comparison of cognitive performance between two rat models of vascular dementia. *International Journal of Neuroscience*, [online] 124(11), pp.818–823. doi:<https://doi.org/10.3109/00207454.2014.880435>.

Zhang, X., Yeung, P.K.K., McAlonan, G.M., Chung, S.M.M. and Chung, S.K. (2013). Transgenic mice over-expressing endothelial endothelin-1 show cognitive deficit with blood–brain barrier breakdown after transient ischemia with long-term reperfusion. *Neurobiology of Learning and Memory*, [online] 101, pp.46–54. doi:<https://doi.org/10.1016/j.nlm.2013.01.002>.

Zhang, L., Fu, F., Zhang, X., Zhu, M., Wang, T. and Fan, H. (2010). Escin attenuates cognitive deficits and hippocampal injury after transient global cerebral ischemia in mice via regulating certain inflammatory genes. *Neurochemistry International*, [online] 57(2), pp.119–127. doi:<https://doi.org/10.1016/j.neuint.2010.05.001>.