

## 5. References

- Adachi M, Nara Y, Mano M, et al. 1993. Intralymphocytic free calcium and magnesium in stroke-prone spontaneously hypertensive rats and effects of blood pressure and various antihypertensive agents. *Clin Exp Pharmacol Physiol* 20:587-593.
- Aickin CC, Brading AF, Walmsley D. 1987. An investigation of sodium-calcium exchange in the smooth muscle of guinea-pig ureter. *J Physiol* 391:325-346.
- Allen TJ. 1990. The effects of manganese and changes in internal calcium on Na-Ca exchange fluxes in the intact squid giant axon. *Biochim Biophys Acta* 1030(1):101-110. [http://doi.org/10.1016/0005-2736\(90\)90244-i](http://doi.org/10.1016/0005-2736(90)90244-i).
- Allender PS, Cutler JA, Follmann D, et al. 1996. Dietary calcium and blood pressure: A meta-analysis of randomized clinical trials. *Ann Intern Med* 124(9):825-831.
- Allie S, Rodgers A. 2003. Effects of calcium carbonate, magnesium oxide and sodium citrate bicarbonate health supplements on the urinary risk factors for kidney stone formation. *Clin Chem Lab Med* 41(1):39-45. <http://doi.org/10.1515/cclm.2003.008>.
- Amos-Kroohs RM, Bloor CP, Qureshi MA, et al. 2015. Effects of developmental exposure to manganese and/or low iron diet: Changes to metal transporters, sucrose preference, elevated zero-maze, open-field, and locomotion in response to fenfluramine, amphetamine, and MK-801. *Toxicol Rep* 2:1046-1056. <http://doi.org/10.1016/j.toxrep.2015.07.015>.
- Amos-Kroohs RM, Davenport LL, Gutierrez A, et al. 2016. Developmental manganese exposure in combination with developmental stress and iron deficiency: Effects on behavior and monoamines. *Neurotoxicol Teratol* 56:55-67. <http://doi.org/10.1016/j.ntt.2016.06.004>.
- Amos-Kroohs RM, Davenport LL, Atanasova N, et al. 2017. Developmental manganese neurotoxicity in rats: Cognitive deficits in allocentric and egocentric learning and memory. *Neurotoxicol Teratol* 59:16-26. <http://doi.org/10.1016/j.ntt.2016.10.005>.
- Anderson JG, Cooney PT, Erikson KM. 2007. Brain manganese accumulation is inversely related to gamma-amino butyric acid uptake in male and female rats. *Toxicol Sci* 95(1):188-195. <http://doi.org/10.1093/toxsci/kfl130>.
- Andon MB, Ilich JZ, Tzagournis MA, et al. 1996. Magnesium balance in adolescent females consuming a low- or high-calcium diet. *Am J Clin Nutr* 63(6):950-953. <http://doi.org/10.1093/ajcn/63.6.950>.
- Andrade V, Mateus ML, Santos D, et al. 2014. Arsenic and manganese alter lead deposition in the rat. *Biol Trace Elem Res* 158(3):384-391. <http://doi.org/10.1007/s12011-014-9954-2>.
- Appel LJ, Brands MW, Daniels SR, et al. 2006. Dietary approaches to prevent and treat hypertension. A scientific statement from the American Heart Association. *Hypertension* 47:296-308.
- Arjona FJ, de Baaij JHF. 2018. CrossTalk opposing view: CNNM proteins are not  $\text{Na}^+$  / $\text{Mg}^{2+}$  exchangers but  $\text{Mg}^{2+}$  transport regulators playing a central role in transepithelial  $\text{Mg}^{2+}$  (re)absorption. *J Physiol* 596(5):747-750. <http://doi.org/10.1113/JP275249>.
- Ascherio A, Hennekens C, Willett WC, et al. 1996. Prospective study of nutritional factors, blood pressure, and hypertension among US women. *Hypertension* 27(5):1065-1072.
- Aschner M, Aschner JL. 1990. Manganese transport across the blood-brain barrier: relationship to iron homeostasis. *Brain Res Bull* 24(6):857-860.
- Aschner M, Erikson KM, Dorman DC. 2005. Manganese dosimetry: Species differences and implications for neurotoxicity. *Crit Rev Toxicol* 35(1):1-32.
- ATSDR. 2004a. Guidance manual for the assessment of joint toxic action of chemical mixtures. Agency for Toxic Substances Disease Registry. <http://www.atsdr.cdc.gov/interactionprofiles/IP-ga/ipga.pdf>. September 8, 2015.
- ATSDR. 2012. Toxicological profile for manganese. Agency for Toxic Substances Disease Registry. <http://www.atsdr.cdc.gov/ToxProfiles/tp151.pdf>. September 3, 2015.

- ATSDR. 2018. Framework for assessing health impacts of multiple chemicals and other stressors (update). Atlanta, GA: Agency for Toxic Substances and Disease Registry.  
<https://www.atsdr.cdc.gov/interactionprofiles/ip-ga/ipga.pdf>. December 22, 2020.
- Ayachi S. 1979. Increased dietary calcium lowers blood pressure in the spontaneously hypertensive rat. *Metabolism* 28(12):1234-1238.
- Baldassare FJ, McCaffrey MA, Harper JA. 2014. A geochemical context for stray gas investigations in the northern Appalachian Basin: Implications of analyses of natural gases from Neogene-through Devonian-age strata. *AAPG Bulletin (American Association of Petroleum Geologists)* 98(2):341-372.
- Barbot E, Vidic NS, Gregory KB, et al. 2013. Spatial and temporal correlation of water quality parameters of produced waters from Devonian-Age shale following hydraulic fracturing. *Environ Sci Technol* 47(6):2562-2569. <http://doi.org/10.1021/es304638h>.
- Bartley JC, Reber EF. 1961. Metabolism of radiostrontium in young pigs and in lactating rats fed stable strontium. *J Dairy Sci* 44(9):1754-1762.
- Barton JC, Conrad ME, Parmley RT. 1983. Calcium inhibition of inorganic iron absorption in rats. *Gastroenterology* 84(1):90-101.
- Belfort MA, Anthony J, Saade GR, et al. 2003. A comparison of magnesium sulfate and nimodipine for the prevention of eclampsia. *N Engl J Med* 348:304-311.
- Bendich A. 2001. Calcium supplementation and iron status of females. *Nutrition* 17(1):46-51.
- Berg D, Gerlach M, Youdim MBH, et al. 2001. Brain iron pathways and their relevance to Parkinson's disease. *J Neurochem* 79:225-236.
- Berthelot A, Esposito J. 1983. Effects of dietary magnesium on the development of hypertension in the spontaneously hypertensive rat. *J Am Coll Nutr* 4:343-353.
- Blaustein MP, Lederer WJ. 1999. Sodium/calcium exchange: Its physiological implications. *Physiol Rev* 79(3):763-854. <http://doi.org/10.1152/physrev.1999.79.3.763>.
- Blaustein MP, Leenen FHH, Chen L, et al. 2012. How NaCl raises blood pressure: A new paradigm for the pathogenesis of salt-dependent hypertension. *Am J Physiol Heart Circ Physiol* 302:H1031-H1049.
- Bolton TB, MacKenzie I, Aaronson PI. 1988. Voltage-dependent calcium channels in smooth muscle cells. *J Cardiovasc Pharmacol* 12 Suppl 6:S3-7. <http://doi.org/10.1097/00005344-198812006-00003>.
- Bonny O, Rubin A, Huang CL, et al. 2008. Mechanism of urinary calcium regulation by urinary magnesium and pH. *J Am Soc Nephrol* 19(8):1530-1537. <http://doi.org/10.1681/asn.2007091038>.
- Bostancı MO, Bagirici F. 2013. Blocking of L-type calcium channels protects hippocampal and nigral neurons against iron neurotoxicity. The role of L-type calcium channels in iron-induced neurotoxicity. *Int J Neurosci* 123(12):876-882. <http://doi.org/10.3109/00207454.2013.813510>.
- Bouron A, Kiselyov K, Oberwinkler J. 2015. Permeation, regulation and control of expression of TRP channels by trace metal ions. *Pflugers Arch* 467(6):1143-1164. <http://doi.org/10.1007/s00424-014-1590-3>.
- Brown EM. 2003. Is the calcium receptor a molecular target for the actions of strontium on bone? *Osteoporos Int* 14 Suppl 3:S25-34. <http://doi.org/10.1007/s00198-002-1343-6>.
- Brown VJ. 2014. Radionuclides in fracking wastewater: Managing a toxic blend. *Environ Health Perspect* 122(2):A50-55. <http://doi.org/10.1289/ehp.122-A50>.
- Browning LC, Cowieson AJ. 2015. Interactive effects of vitamin D3 and strontium on performance, nutrient retention and bone mineral composition in laying hens. *J Sci Food Agric* 95(5):1080-1087. <http://doi.org/10.1002/jsfa.6801>.
- Bucher HC, Cook RJ, Guyatt GH, et al. 1996. Effects of dietary calcium supplementation on blood pressure. *J Am Med Assoc* 275:1016-1022.
- Campos MS, Barrionuevo M, Alferez MJ, et al. 1998. Interactions among iron, calcium, phosphorus and magnesium in the nutritionally iron-deficient rat. *Exp Physiol* 83(6):771-781.

- Cao Y-J, Houamed KM. 1999. Activation of recombinant human SK4 channels by metal cations. *FEBS Lett* 446(1):137-141. [http://doi.org/10.1016/s0014-5793\(99\)00194-5](http://doi.org/10.1016/s0014-5793(99)00194-5).
- Cappuccio FP, Markandu ND, Benyon GW, et al. 1985. Lack of effect of oral magnesium on high blood pressure: A double blind study. *Br Med J* 291:235-239.
- Cappuccio FP, Elliott P, Allender PS, et al. 1995. Epidemiologic association between dietary calcium intake and blood pressure: A meta-analysis of published data. *Am J Epidemiol* 142(9):935-945.
- Chance B, Mela L. 1966. Calcium and manganese interactions in mitochondrial ion accumulation. *Biochemistry* 5(10):3220-3223.
- Chen MP, Cabantchik ZI, Chan S, et al. 2014. Iron overload and apoptosis of HL-1 cardiomyocytes: effects of calcium channel blockade. *PLoS ONE* 9(11):e112915. <http://doi.org/10.1371/journal.pone.0112915>.
- Chen Y, Payne K, Perara VS, et al. 2012. Inhibition of the sodium-calcium exchanger via SEA0400 altered manganese-induced T1 changes in isolated perfused rat hearts. *NMR Biomed* 25(11):1280-1285. <http://doi.org/10.1002/nbm.2799>.
- Chen P, Totten M, Zhang Z, et al. 2019. Iron and manganese-related CNS toxicity: mechanisms, diagnosis and treatment. *Expert Rev Neurother* 19(3):243-260. <http://doi.org/10.1080/14737175.2019.1581608>.
- Cheng Y, Huang L, Wang Y, et al. 2019. Strontium promotes osteogenic differentiation by activating autophagy via the AMPK/mTOR signaling pathway in MC3T3E1 cells. *Int J Mol Med* 44(2):652-660. <http://doi.org/10.3892/ijmm.2019.4216>.
- Chornock C, Guerrant NB, Adams Dutcher R. 1942. Effect of manganese on calcification in the growing rat. *J Nutr* 23:445-448.
- Chua AC, Morgan EH. 1996. Effects of iron deficiency and iron overload on manganese uptake and deposition in the brain and other organs of the rat. *Biol Trace Elem Res* 55(1-2):39-54.
- Condrescu M, Chernaya G, Kalaria V, et al. 1997. Barium influx mediated by the cardiac sodium-calcium exchanger in transfected Chinese hamster ovary cells. *J Gen Physiol* 109(1):41-51. <http://doi.org/10.1085/jgp.109.1.41>.
- Cook JD, Dassenko SA, Whittaker P. 1991. Calcium supplementation: Effect on iron absorption. *Am J Clin Nutr* 53(1):106-111. <http://doi.org/10.1093/ajcn/53.1.106>.
- Corradino RA, Ebel JG, Craig PH, et al. 1971a. Calcium absorption and the Vitamin D3-dependent calcium-binding protein. *Calcif Tissue Res* 7:81-92.
- Corradino RA, Ebel JG, Craig PH, et al. 1971b. Calcium absorption and the vitamin D 3-dependent calcium-binding protein. II. Recovery from dietary strontium inhibition. *Calcif Tissue Res* 7(2):93-102.
- Cukierman S, Krueger BK. 1990. Modulation of sodium channel gating by external divalent cations: differential effects on opening and closing rates. *Pflugers Arch* 416(4):360-367. <http://doi.org/10.1007/BF00370741>.
- Curhan GC. 2007. Epidemiology of stone disease. *Urol Clin North Am* 34(3):287-293. <http://doi.org/10.1016/j.ucl.2007.04.003>.
- Curhan GC, Willett WC, Rimm EB, et al. 1993. A prospective study of dietary calcium and other nutrients and the risk of symptomatic kidney stones. *N Engl J Med* 328(12):833-838.
- Curhan GC, Willett WC, Knight EL, et al. 2004. Dietary factors and the risk of incident kidney stones in younger women. *Arch Intern Med* 164:885-891.
- Curhan GC, Willett WC, Speizer FE, et al. 1997. Comparison of dietary calcium with supplemental calcium and other nutrients as factors affecting the risk for kidney stones in women. *Ann Intern Med* 126(7):497-504.
- Dalton MA, Sargent JD, O'Connor GT, et al. 1997. Calcium and phosphorus supplementation of iron-fortified infant formula: No effect on iron status of healthy full-term infants. *Am J Clin Nutr* 65(4):921-926. <http://doi.org/10.1093/ajcn/65.4.921>.

- Darrah TH, Vengosh A, Jackson RB, et al. 2014. Noble gases identify the mechanisms of fugitive gas contamination in drinking-water wells overlying the Marcellus and Barnett Shales. *Proc Natl Acad Sci* 111(39):14076-14081. <http://doi.org/10.1073/pnas.1322107111>.
- Davis CD, Malecki EA, Greger JL. 1992a. Interactions among dietary manganese, heme iron, and nonheme iron in women. *Am J Clin Nutr* 56(5):926-932.
- Davis CD, Wolf TL, Greger JL. 1992b. Varying levels of manganese and iron affect absorption and gut endogenous losses of manganese by rats. *J Nutr* 122(6):1300-1308.
- Delva P, Pastori C, Montesi G, et al. 1998. Intralymphocyte free magnesium and calcium and insulin tolerance test in a group of essential hypertensive patients. *Life Sci* 63(16):1405-1415.
- Deshpande CN, Ruwe TA, Shawki A, et al. 2018. Calcium is an essential cofactor for metal efflux by the ferroportin transporter family. *Nat Commun* 9(1):3075. <http://doi.org/10.1038/s41467-018-05446-4>.
- Dickinson HO, Nicolson DJ, Campbell F, et al. 2010. Magnesium supplementation for the management of primary hypertension in adults. In: The Cochrane Collaboration. Cochrane Library-Cochrane database of systematic reviews. New York, NY: John Wiley & Sons, Ltd., 1-13.
- Diez-Ewald M, Weintraub LR, Crosby WH. 1968. Interrelationship of iron and manganese metabolism. *Proc Soc Exp Biol Med* 129(2):448-451.
- DiPolo R, Beaugé L. 2006. Sodium/calcium exchanger: influence of metabolic regulation on ion carrier interactions. *Physiol Rev* 86(1):155-203. <http://doi.org/10.1152/physrev.00018.2005>.
- Doris PA. 1985. Sodium and hypertension: Effect of dietary calcium supplementation on blood pressure. *Clin Exp Hypertens* 7(10):1441-1456.
- Double KL, Gerlach M, Youdim MBH, et al. 2000. Impaired iron homeostasis in Parkinson's disease. *J Neural Transm [Suppl]* 60:21-42.
- Dusek P, Litwin T, Czlonkowska A. 2015a. Wilson disease and other neurodegenerations with metal accumulations. *Neurol Clin* 33(1):175-204. <http://doi.org/10.1016/j.ncl.2014.09.006>.
- Dusek P, Roos PM, Litwin T, et al. 2015b. The neurotoxicity of iron, copper and manganese in Parkinson's and Wilson's diseases. *J Trace Elem Med Biol* 31:193-203. <http://doi.org/10.1016/j.jtemb.2014.05.007>.
- EFSA. 2006. Tolerable upper intake levels for vitamins and minerals. European Food Safety Authority. [https://www.efsa.europa.eu/sites/default/files/efsa\\_rep/blobserver\\_assets/ndatolerableuil.pdf](https://www.efsa.europa.eu/sites/default/files/efsa_rep/blobserver_assets/ndatolerableuil.pdf). February 26, 2019.
- EFSA. 2012. Scientific opinion on the tolerable upper intake level of calcium. European Food Safety Authority. EFSA J 10(7):2814. [www.efsa.europa.eu/efsajournal](http://www.efsa.europa.eu/efsajournal). November 13, 2018.
- Ehrnstorfer IA, Manatschal C, Arnold FM, et al. 2017. Structural and mechanistic basis of proton-coupled metal ion transport in the SLC11/NRAMP family. *Nat Commun* 8:14033. <http://doi.org/10.1038/ncomms14033>.
- EPA. 2016a. Hydraulic fracturing for oil and gas: Impacts from the hydraulic fracturing water cycle on drinking water resources in the United States. Washington, DC: U.S. Environmental Protection Agency. EPA600R16236Fa. <https://cfpub.epa.gov/ncea/hfstudy/recordisplay.cfm?deid=332990>. May 12, 2022.
- EPA. 2016b. Hydraulic fracturing for oil and gas: Impacts from the hydraulic fracturing water cycle on drinking water resources in the United States: Appendices. Washington, DC: U.S. Environmental Protection Agency. EPA600R16236Fb. [https://ordspub.epa.gov/ords/eims/eimscomm.getfile?p\\_download\\_id=530160](https://ordspub.epa.gov/ords/eims/eimscomm.getfile?p_download_id=530160). May 12, 2022.
- EPA. 2016c. Review of well operator files for hydraulically fractured oil and gas production wells: Hydraulic fracturing operations. Washington, DC: U.S. Environmental Protection Agency. EPA601R14004. [https://www.epa.gov/sites/default/files/2016-07/documents/wfr2\\_final\\_07-28-16\\_508.pdf](https://www.epa.gov/sites/default/files/2016-07/documents/wfr2_final_07-28-16_508.pdf). May 12, 2022.
- Erikson KM, Aschner M. 2002. Iron deficiency causes manganese accumulation in developing rat brains. *Toxicologist* 66(1-S):127.

- Erikson KM, Shihabi ZK, Aschner JL, et al. 2002. Manganese accumulates in iron-deficient rat brain regions in a heterogeneous fashion and is associated with neurochemical alterations. *Biol Trace Elem Res* 87(1-3):143-156. <http://doi.org/10.1385/bter:87:1-3:143>.
- Erikson KM, Syversen T, Steinnes E, et al. 2004. Globus pallidus: A target brain region for divalent metal accumulation associated with dietary iron deficiency. *J Nutr Biochem* 15(6):335-341. <http://doi.org/10.1016/j.jnutbio.2003.12.006>.
- Erikson KM, John CE, Jones SR, et al. 2005a. Manganese accumulation in striatum of mice exposed to toxic doses is dependent upon a functional dopamine transporter. *Environ Toxicol Pharmacol* 20(3):390-394. <http://doi.org/10.1016/j.etap.2005.03.009>.
- Erikson KM, Syversen T, Aschner JL, et al. 2005b. Interactions between excessive manganese exposures and dietary iron-deficiency in neurodegeneration. *Environ Toxicol Pharmacol* 19(3):415-421. <http://doi.org/10.1016/j.etap.2004.12.053>.
- Evans GH, Weaver CM, Harrington DD, et al. 1990. Association of magnesium deficiency with the blood pressure-lowering effects of calcium. *J Hypertens* 8(4):327-337.
- Fernsebner K, Zorn J, Kanawati B, et al. 2014. Manganese leads to an increase in markers of oxidative stress as well as to a shift in the ratio of Fe(II)/(III) in rat brain tissue. *Metalomics* 6:921-931.
- Ferrara LA, Iannuzzi R, Castaldo A, et al. 1992. Long-term magnesium supplementation in essential hypertension. *Cardiology* 81:25-33.
- Ferre S, Hoenderop JG, Bindels RJ. 2012. Sensing mechanisms involved in Ca<sup>2+</sup> and Mg<sup>2+</sup> homeostasis. *Kidney Int* 82(11):1157-1166. <http://doi.org/10.1038/ki.2012.179>.
- Fitsanakis VA, Zhang N, Garcia S, et al. 2010. Manganese (Mn) and iron (Fe): interdependency of transport and regulation. *Neurotox Res* 18(2):124-131. <http://doi.org/10.1007/s12640-009-9130-1>.
- Fitsanakis VA, Zhang N, Avison MJ, et al. 2011. Changes in dietary iron exacerbate regional brain manganese accumulation as determined by magnetic resonance imaging. *Toxicol Sci* 120(1):146-153. <http://doi.org/10.1093/toxsci/kfq376>.
- Fitsanakis VA, Thompson KN, Deery SE, et al. 2009. A chronic iron-deficient/high-manganese diet in rodents results in increased brain oxidative stress and behavioral deficits in the morris water maze. *Neurotox Res* 15(2):167-178. <http://doi.org/10.1007/s12640-009-9017-1>.
- Foster ML, Bartnikas TB, Maresca-Fichter HC, et al. 2017. Interactions of manganese with iron, zinc, and copper in neonatal C57BL/6J and parkin mice following developmental oral manganese exposure. *Data Brief* 15:908-915. <http://doi.org/10.1016/j.dib.2017.10.050>.
- Foster ML, Bartnikas TB, Maresca-Fichter HC, et al. 2018. Neonatal C57BL/6J and parkin mice respond differently following developmental manganese exposure: Result of a high dose pilot study. *Neurotoxicology* 64:291-299.
- Freeland-Graves JH, Lin PH. 1991. Plasma uptake of manganese as affected by oral loads of manganese, calcium, milk, phosphorus, copper, and zinc. *J Am Coll Nutr* 10(1):38-43.
- Frenkel Y, Weiss M, Shefi M, et al. 1994. Mononuclear cell magnesium content remains unchanged in various hypertensive disorders of pregnancy. *Gynecol Obstet Invest* 38:220-222.
- Fukuda J, Kawa K. 1977. Permeation of manganese, cadmium, zinc, and beryllium through calcium channels of an insect muscle membrane. *Science* 196(4287):309-311.
- Funato Y, Furutani K, Kurachi Y, et al. 2018. CrossTalk proposal: CNM proteins are Na(+) /Mg(2+) exchangers playing a central role in transepithelial Mg(2+) (re)absorption. *J Physiol* 596(5):743-746. <http://doi.org/10.1111/JP275248>.
- Gaitan DA, Flores S, Pizarro F, et al. 2012. The effect of calcium on non-heme iron uptake, efflux, and transport in intestinal-like epithelial cells (Caco-2 cells). *Biol Trace Elem Res* 145(3):300-303. <http://doi.org/10.1007/s12011-011-9207-6>.
- Gaitan D, Flores S, Saavedra P, et al. 2011. Calcium does not inhibit the absorption of 5 milligrams of nonheme or heme iron at doses less than 800 milligrams in nonpregnant women. *J Nutr* 141(9):1652-1656. <http://doi.org/10.3945/jn.111.138651>.
- Galletti F, Strazzullo P. 2016. The blood pressure salt sensitivity paradigm: Pathophysiologically sound yet of no practical matter. *Nephrol Dial Transplant* 31:1-6.

- Garcia SJ, Gellein K, Syversen T, et al. 2006. A manganese-enhanced diet alters brain metals and transporters in the developing rat. *Toxicol Sci* 92(2):516-525. <http://doi.org/10.1093/toxsci/kfl017>.
- Garcia SJ, Gellein K, Syversen T, et al. 2007. Iron deficient and manganese supplemented diets alter metals and transporters in the developing rat brain. *Toxicol Sci* 95(1):205-214. <http://doi.org/10.1093/toxsci/kfl139>.
- Gatto C, Arnett KL, Milanick MA. 2007. Divalent cation interactions with Na,K-ATPase cytoplasmic cation sites: implications for the para-nitrophenyl phosphatase reaction mechanism. *J Membr Biol* 216(1):49-59. <http://doi.org/10.1007/s00232-007-9028-x>.
- Gavin CE, Gunter KK, Gunter TE. 1999. Manganese and calcium transport in mitochondria: Implications for manganese toxicity. *Neurotoxicology* 20:445-454.
- Ge SY, Ruan DY, Yu K, et al. 2001. Effects of Fe(2+) on ion channels: Na(+) channel, delayed rectified and transient outward K(+) channels. *Food Chem Toxicol* 39(12):1271-1278. [http://doi.org/10.1016/s0278-6915\(01\)00069-2](http://doi.org/10.1016/s0278-6915(01)00069-2).
- Geleijnse JM, Witteman JCM, den Breeijen JH, et al. 1996. Dietary electrolyte and blood pressure in older subjects: The Rotterdam Study. *J Hypertens* 14(6):737-741.
- Gerlach M, Double KL, Ben-Shachar D, et al. 2003. Neuromelanin and its interaction with iron as a potential risk factor for dopaminergic neurodegeneration underlying Parkinson's disease. *Neurotox Res* 5(1-2):35-44. <http://doi.org/10.1007/BF03033371>.
- Gleerup A, Rossander-Hulten L, Hallberg L. 1993. Duration of the inhibitory effect of calcium on non-haem iron absorption in man. *Eur J Clin Nutr* 47(12):875-879.
- Gleerup A, Rossander-Hulthen L, Gramatkovski E, et al. 1995. Iron absorption from the whole diet: Comparison of the effect of two different distributions of daily calcium intake. *Am J Clin Nutr* 61(1):97-104. <http://doi.org/10.1093/ajcn/61.1.97>.
- Gomez-Ayala AE, Campos MS, Lopez-Aliaga I, et al. 1997. Effect of source of iron on duodenal absorption of iron, calcium, phosphorous, magnesium, copper and zinc in rats with ferropoenic anaemia. *Int J Vitam Nutr Res* 67(2):106-114.
- Greene MF. 2003. Magnesium sulfate for preeclampsia. *N Engl J Med* 384(4):275-276.
- Greger JL, Smith SA, Snedeker SM. 1981. Effect of dietary calcium and phosphorus levels on the utilization of calcium, phosphorus, magnesium, manganese, and selenium by adult males. *Nutr Res* 1:315-325.
- Griffith LE, Guyatt GH, Cook RJ, et al. 1999. The influence of dietary and nondietary calcium supplementation on blood pressure. An updated metaanalysis of randomized controlled trials. *Am J Hypertens* 12(1):84-89.
- Grinder-Pedersen L, Bukhave K, Jensen M, et al. 2004. Calcium from milk or calcium-fortified foods does not inhibit nonheme-iron absorption from a whole diet consumed over a 4-d period. *Am J Clin Nutr* 80(2):404-409. <http://doi.org/10.1093/ajcn/80.2.404>.
- Gujja P, Rosing DR, Tripodi DJ, et al. 2010. Iron overload cardiomyopathy. *J Am Coll Cardiol* 56(13):1001-1012.
- Gunter TE, Gerstner B, Gunter KK, et al. 2013. Manganese transport via the transferrin mechanism. *Neurotoxicology* 34:118-127. <http://doi.org/10.1016/j.neuro.2012.10.018>.
- Gunther T, Hollriegel V, Vormann J, et al. 1995. Vitamin E, iron content and lipid peroxidation in tissues of Mg-sufficient and Mg-deficient rats treated with streptozotocin and insulin. *Magnesium Bulletin* 2:52-55.
- Günther T, Vormann J, Förster R. 1984. Regulation of intracellular magnesium by Mg<sup>2+</sup> efflux. *Biochem Biophys Res Commun* 119(1):124-131. [http://doi.org/10.1016/0006-291X\(84\)91627-9](http://doi.org/10.1016/0006-291X(84)91627-9).
- Hallberg L, Rossander-Hulthen L, Brune M, et al. 1993. Inhibition of haem-iron absorption in man by calcium. *Br J Nutr* 69(2):533-540.
- Hallberg L, Brune M, Erlandsson M, et al. 1991. Calcium: Effect of different amounts on nonheme-and heme-iron absorption in humans. *Am J Clin Nutr* 53:112-119.

- Haluszczak LO, Rose AW, Kump LR. 2013. Geochemical evaluation of flowback brine from Marcellus gas wells in Pennsylvania, USA. *Appl Geochem* 28:55-61.  
<http://doi.org/10.1016/j.apgeochem.2012.10.002>.
- Hanck DA, Sheets MF. 1992. Extracellular divalent and trivalent cation effects on sodium current kinetics in single canine cardiac Purkinje cells. *J Physiol* 454:267-298.  
<http://doi.org/10.1113/jphysiol.1992.sp019264>.
- He FJ, Li J, MacGregor GA. 2013. Effect of longer term modest salt reduction on blood pressure: Cochrane systematic review and meta-analysis of randomised trials. *Br Med J* 346:f1325.  
<http://doi.org/10.1136/bmj.f1325>.
- Health Canada. 2010. Human health risk assessment for inhaled manganese-document summary. Health Canada. HC pub: 100122. <http://healthycanadians.gc.ca/publications/healthy-living-vie-saine/manganese/index-eng.php>. September 2, 2015.
- Heilig E, Molina R, Donaghey T, et al. 2005. Pharmacokinetics of pulmonary manganese absorption: evidence for increased susceptibility to manganese loading in iron-deficient rats. *Am J Physiol Lung Cell Mol Physiol* 288(5):L887-893. <http://doi.org/10.1152/ajplung.00382.2004>.
- Heilig EA, Thompson KJ, Molina RM, et al. 2006. Manganese and iron transport across pulmonary epithelium. *Am J Physiol Lung Cell Mol Physiol* 290(6):L1247-1259.  
<http://doi.org/10.1152/ajplung.00450.2005>.
- Hidalgo C, Nunez MT. 2007. Calcium, iron and neuronal function. *IUBMB Life* 59(4-5):280-285.  
<http://doi.org/10.1080/15216540701222906>.
- Hoorn EJ, Zietse R. 2013. Disorders of calcium and magnesium balance: a physiology-based approach. *Pediatr Nephrol* 28:1195-1206.
- Hoppe M, Hulthén L. 2012. The interaction between calcium and iron: choice of methodology is crucial for outcome and conclusions. *J Nutr* 142(3):581; author reply 582.  
<http://doi.org/10.3945/jn.111.150979>.
- Huang DY, Osswald H, Vallon V. 2000. Sodium reabsorption in thick ascending limb of Henle's loop: effect of potassium channel blockade in vivo. *Br J Pharmacol* 130(6):1255-1262.  
<http://doi.org/10.1038/sj.bjp.0703429>.
- Huat TJ, Camats-Perna J, Newcombe EA, et al. 2019. Metal toxicity links to Alzheimer's disease and neuroinflammation. *J Mol Biol* 431(9):1843-1868. <http://doi.org/10.1016/j.jmb.2019.01.018>.
- Hurtel-Lemaire AS, Mentaverri R, Caudrillier A, et al. 2009. The calcium-sensing receptor is involved in strontium ranelate-induced osteoclast apoptosis. New insights into the associated signaling pathways. *J Biol Chem* 284(1):575-584. <http://doi.org/10.1074/jbc.M801668200>.
- Iancu TC, Shiloh H, Link G, et al. 1987. Ultrastructural pathology of iron-loaded rat myocardial cells in culture. *Br J Exp Pathol* 68:53-65.
- Ilich-Ernst JZ, McKenna AA, Badenhop NE, et al. 1998. Iron status, menarche, and calcium supplementation in adolescent girls. *Am J Clin Nutr* 68:880-887.
- Ishizaki N, Kotani M, Funaba M, et al. 2011. Hepcidin expression in the liver of rats fed a magnesium-deficient diet. *Br J Nutr* 106(8):1169-1172. <http://doi.org/10.1017/S0007114511001553>.
- Iwamoto T. 2005. Sodium-calcium exchange inhibitors: therapeutic potential in cardiovascular diseases. *Future Cardiol* 1(4):519-529. <http://doi.org/10.2217/14796678.1.4.519>.
- Jackson RE, Gorody AW, Mayer B, et al. 2013b. Groundwater protection and unconventional gas extraction: The critical need for field-based hydrogeological research. *Groundwater* 51(4):488-510.  
<http://doi.org/10.1111/gwat.12074>.
- Jackson RB, Vengosh A, Darrah TH, et al. 2013a. Increased stray gas abundance in a subset of drinking water wells near Marcellus shale gas extraction. *Proc Natl Acad Sci* 110(28):11250-11255.  
<http://doi.org/10.1073/pnas.1221635110>.
- Jackson RD, LaCroix AZ, Gass M, et al. 2006. Calcium plus vitamin D supplementation and the risk of fractures. *N Engl J Med* 354(7):669-683.
- Jee SH, Miller ER, Guallar E, et al. 2002. The effect of magnesium supplementation on blood pressure: A meta-analysis of randomized clinical trials. *Am J Hypertens* 15:691-696.

- Jenkitkasemwong S, Akinyode A, Paulus E, et al. 2018. SLC39A14 deficiency alters manganese homeostasis and excretion resulting in brain manganese accumulation and motor deficits in mice. *Proc Natl Acad Sci* 115(8):E1769-E1778. <http://doi.org/10.1073/pnas.1720739115>.
- Joffres MR, Reed DM, Yano K. 1987. Relationship of magnesium intake and other dietary factors to blood pressure: The Honolulu heart study. *Am J Clin Nutr* 45:469-475.
- Kadhim MJ, Gamaj MI. 2020. Estimation of the diffusion coefficient and hydrodynamic radius (Stokes Radius) for inorganic ions in solution depending on molar conductivity as electro-analytical technique-a review. *J Chem Rev* 2(3):182-188. <http://doi.org/10.33945/SAMI/JCR.2020.3.5>.
- Kalkwarf HJ, Harrast SD. 1998. Effects of calcium supplementation and lactation on iron status. *Am J Clin Nutr* 67(6):1244-1249. <http://doi.org/10.1093/ajcn/67.6.1244>.
- Kamer KJ, Sancak Y, Fomina Y, et al. 2018. MICU1 imparts the mitochondrial uniporter with the ability to discriminate between Ca(2+) and Mn(2+). *Proc Natl Acad Sci* 115(34):E7960-E7969. <http://doi.org/10.1073/pnas.1807811115>.
- Kh R, Khullar M, Kashyap M, et al. 2000. Effect of oral magnesium supplementation on blood pressure, platelet aggregation and calcium handling in deoxycorticosterone acetate induced hypertension in rats. *J Hypertens* 18(7):919-926.
- Khan N, Gray IP, Obejero-Paz CA, et al. 2008. Permeation and gating in CaV3.1 (alpha1G) T-type calcium channels effects of Ca2+, Ba2+, Mg2+, and Na+. *J Gen Physiol* 132(2):223-238. <http://doi.org/10.1085/jgp.200809986>.
- Khananishvili D. 2013. The SLC8 gene family of sodium-calcium exchangers (NCX) - structure, function, and regulation in health and disease. *Mol Aspects Med* 34(2-3):220-235. <http://doi.org/10.1016/j.mam.2012.07.003>.
- Kim E, Giri SN, Pessah IN. 1995. Iron(II) is a modulator of ryanodine-sensitive calcium channels of cardiac muscle sarcoplasmic reticulum. *Toxicol Appl Pharmacol* 130(1):57-66. <http://doi.org/10.1006/taap.1995.1008>.
- Kim J, Li Y, Buckett PD, et al. 2012. Iron-responsive olfactory uptake of manganese improves motor function deficits associated with iron deficiency. *PLoS ONE* 7(3):e33533. <http://doi.org/10.1371/journal.pone.0033533>.
- Kimura M, Itokawa Y. 1989. Inefficient utilization of iron and minerals in magnesium deficient rats. In: Itokawa Y, Durlach J, eds. *Magnesium in health and disease*. John Libbey & Co., Ltd., 95-102.
- Kimura J, Miyamae S, Noma A. 1987. Identification of sodium-calcium exchange current in single ventricular cells of guinea-pig. *J Physiol* 384:199-222.
- Kirichok Y, Krapivinsky G, Clapham DE. 2004. The mitochondrial calcium uniporter is a highly selective ion channel. *Nature* 427(6972):360-364.
- Kisters K, Hausberg M, Kosch M. 2001. Effect of oral magnesium supplementation on blood pressure, platelet aggregation and calcium handling in deoxycorticosterone acetate-induced hypertension in rats. *J Hypertens* 19(1):161-162.
- Kisters K, Niedner W, Fafera I, et al. 1990. Plasma and intracellular Mg<sup>2+</sup> concentration in pre-eclampsia. *J Hypertens* 8:303-306.
- Knudsen T. 1995. The Na<sup>+</sup>/K<sup>(+)</sup>-pump in rat peritoneal mast cells: some aspects of regulation of activity and cellular function. *Dan Med Bull* 42(5):441-454.
- Kolisek M, Sponder G, Pilchova I, et al. 2019. Magnesium extravaganza: A critical compendium of current research into cellular Mg<sup>(2+)</sup> transporters other than TRPM6/7. *Rev Physiol Biochem Pharmacol* 176:65-105. [http://doi.org/10.1007/112\\_2018\\_15](http://doi.org/10.1007/112_2018_15).
- Konrad O, Lankau T. 2005. Solubility of methane in water: the significance of the methane-water interaction potential. *J Phys Chem B* 109(49):23596-23604. <http://doi.org/10.1021/jp0464977>.
- Kornacki AS, McCaffrey MA. 2011. Composition, nature, and origin of produced gas, well headspace gas, and water solution gas samples; Parker County and Hood County, Texas. Houston, TX: Weatherford Laboratories, Inc.

- Kumfu S, Chattipakorn S, Fucharoen S, et al. 2013. Ferric iron uptake into cardiomyocytes of beta-thalassemic mice is not through calcium channels. *Drug Chem Toxicol* 36(3):329-334.  
<http://doi.org/10.3109/01480545.2012.726625>.
- Kumfu S, Chattipakorn S, Srichairatanakool S, et al. 2011. T-type calcium channel as a portal of iron uptake into cardiomyocytes of beta-thalassemic mice. *Eur J Haematol* 86(2):156-166.  
<http://doi.org/10.1111/j.1600-0609.2010.01549.x>.
- Kuryshev YA, Brittenham GM, Fujioka H, et al. 1999. Decreased sodium and increased transient outward potassium currents in iron-loaded cardiac myocytes. Implications for the arrhythmogenesis of human diserotic heart disease. *Circulation* 100:675-683.
- Kwik-Uribe CL, Reaney S, Zhu Z, et al. 2003. Alterations in cellular IRP-dependent iron regulation by *in vitro* manganese exposure in undifferentiated PC12 cells. *Brain Res* 973:1-15.
- Ladipo CO, Gebe PE, Ibu JO, et al. 2006. Interactions between sodium intake, calcium supplement, renal excretion and blood pressure in Sprague-Dawley rats. *Niger Postgrad Med J* 13(4):282-290.
- Lameris AL, Nevalainen PI, Reijnen D, et al. 2015. Segmental transport of Ca(2)(+) and Mg(2)(+) along the gastrointestinal tract. *Am J Physiol Gastrointest Liver Physiol* 308(3):G206-216.  
<http://doi.org/10.1152/ajpgi.00093.2014>.
- Lampe DJ, Stoltz JF. 2015. Current perspectives on unconventional shale gas extraction in the Appalachian Basin. *J Environ Sci Health A Tox Hazard Subst Environ Eng* 50(5):434-446.  
<http://doi.org/10.1080/10934529.2015.992653>.
- Laurant P, Kantelip JP, Berthelot A. 1995. Dietary magnesium supplementation modifies blood pressure and cardiovascular function in mineralocorticoid-salt hypertensive rats but not in normotensive rats. *J Nutr* 125:830-841.
- Lee US, Cui J. 2010. BK channel activation: structural and functional insights. *Trends Neurosci* 33(9):415-423. <http://doi.org/10.1016/j.tins.2010.06.004>.
- Lee DG, Park J, Lee HS, et al. 2016. Iron overload-induced calcium signals modulate mitochondrial fragmentation in HT-22 hippocampal neuron cells. *Toxicology* 365:17-24.  
<http://doi.org/10.1016/j.tox.2016.07.022>.
- Lee CT, Lien YH, Lai LW, et al. 2012. Variations of dietary salt and fluid modulate calcium and magnesium transport in the renal distal tubule. *Nephron Physiol* 122(3-4):19-27.  
<http://doi.org/10.1159/000353199>.
- Levitsky DO, Takahashi M. 2013. Interplay of Ca<sup>2+</sup> and Mg<sup>2+</sup> in sodium-calcium exchanger and in other Ca<sup>2+</sup>-binding proteins: Magnesium, watchdog that blocks each turn if able. *Adv Exp Med Biol* 961(1):65-78.
- Li GJ, Zhao Q, Zheng W. 2005. Alteration at translational but not transcriptional level of transferrin receptor expression following manganese exposure at the blood-CSF barrier *in vitro*. *Toxicol Appl Pharmacol* 205(2):188-200. <http://doi.org/10.1016/j.taap.2004.10.003>.
- Li GJ, Choi BS, Wang X, et al. 2006. Molecular mechanism of distorted iron regulation in the blood-CSF barrier and regional blood-brain barrier following *in vivo* subchronic manganese exposure. *Neurotoxicology* 27(5):737-744. <http://doi.org/10.1016/j.neuro.2006.02.003>.
- Li Z, Lu WW, Chiu PK, et al. 2009. Strontium-calcium coadministration stimulates bone matrix osteogenic factor expression and new bone formation in a large animal model. *J Orthop Res* 27(6):758-762. <http://doi.org/10.1002/jor.20818>.
- Liao J, Marinelli F, Lee C, et al. 2016. Mechanism of extracellular ion exchange and binding-site occlusion in a sodium/calcium exchanger. *Nat Struct Mol Biol* 23(6):590-599.  
<http://doi.org/10.1038/nsmb.3230>.
- Lonnerdal B. 2010. Calcium and iron absorption- mechanisms and public health relevance. *Int J Vitam Nutr Res Suppl* 80(4-5):293-299.
- Loomer DB, Macquarrie K TB, Al TA, et al. 2018. Temporal variability of dissolved methane and inorganic water chemistry in private well water in New Brunswick, Canada. *Appl Geochem* 94:53-66.

- Lopin KV, Gray IP, Obejero-Paz CA, et al. 2012. Fe(2)(+) block and permeation of CaV3.1 (alpha1G) T-type calcium channels: candidate mechanism for non-transferrin-mediated Fe(2)(+) influx. *Mol Pharmacol* 82(6):1194-1204. <http://doi.org/10.1124/mol.112.080184>.
- Lucas MJ, Leveno KJ, Cunningham G. 1995. A comparison of magnesium sulfate with phenytoin for the prevention of eclampsia. *N Engl J Med* 333(4):201-205.
- Ludwigczek S, Theurl I, Muckenthaler MU, et al. 2007. Ca<sup>2+</sup> channel blockers reverse iron overload by a new mechanism via divalent metal transporter-1. *Nat Med* 13(4):448-454. <http://doi.org/10.1038/nm1542>.
- Lukacs GL, Fonyo A. 1986. The Ba<sup>2+</sup> sensitivity of the Na<sup>+</sup>-induced Ca<sup>2+</sup> efflux in heart mitochondria: the site of inhibitory action. *Biochim Biophys Acta* 858(1):125-134. [http://doi.org/10.1016/0005-2736\(86\)90298-1](http://doi.org/10.1016/0005-2736(86)90298-1).
- Lutz TA, Schroff A, Scharrer E. 1993. Effects of calcium and sugars on intestinal manganese absorption. *Biol Trace Elem Res* 39(2-3):221-227. <http://doi.org/10.1007/bf02783192>.
- Mackenzie B, Shawki A, Ghio AJ, et al. 2010. Calcium-channel blockers do not affect iron transport mediated by divalent metal-ion transporter-1. *Blood* 115(20):4148-4149. <http://doi.org/10.1182/blood-2010-03-274738>.
- Makynen H, Kahonen M, Arvola P, et al. 1995. Dietary calcium and magnesium supplements in spontaneously hypertensive rats and isolated arterial reactivity. *Br J Pharmacol* 115(8):1455-1462.
- Mate Z, Horvath E, Papp A, et al. 2017. Neurotoxic effects of subchronic intratracheal Mn nanoparticle exposure alone and in combination with other welding fume metals in rats. *Inhal Toxicol* 29(5):227-238. <http://doi.org/10.1080/08958378.2017.1350218>.
- McCarron DA. 1985. Is calcium more important than sodium in the pathogenesis of essential hypertension? *Hypertension* 7(4):607-627.
- McCarron DA, Yung NN, Ugoretz BA, et al. 1981. Disturbances of calcium metabolism in the spontaneously hypertensive rat. *Hypertension* 3(1):1-162-161-167.
- McDermott SD, Kies C. 1987. Manganese usage in humans as affected by use of calcium supplements. In: *Nutritional bioavailability of manganese*. Washington, DC: American Chemical Society, ACS Symposium Series, 146-151.
- McLarnon JG, Sawyer D. 1993. Effects of divalent cations on the activation of a calcium-dependent potassium channel in hippocampal neurons. *Pflugers Arch* 424(1):1-8. <http://doi.org/10.1007/BF00375095>.
- Mead RH, Clusin WT. 1984. Origin of the background sodium current and effects of sodium removal in cultured embryonic cardiac cells. *Circ Res* 55(1):67-77. <http://doi.org/10.1161/01.res.55.1.67>.
- Meltzer HM, Brantsaeter AL, Borch-Johnsen B, et al. 2010. Low iron stores are related to higher blood concentrations of manganese, cobalt and cadmium in non-smoking, Norwegian women in the HUNT 2 study. *Environ Res* 110(5):497-504. <http://doi.org/10.1016/j.envres.2010.03.006>.
- Mena I, Horiuchi K, Burke K, et al. 1969. Chronic manganese poisoning. Individual susceptibility and absorption of iron. *Neurology* 19(10):1000-1006.
- Meunier PJ, Roux C, Seeman E, et al. 2004. The effects of strontium ranelate on the risk of vertebral fracture in women with postmenopausal osteoporosis. *N Engl J Med* 350:459-468.
- Michel LY, Hoenderop JG, Bindels RJ. 2015. Towards understanding the role of the Na(2)(+)-Ca(2)(+) exchanger isoform 3. *Rev Physiol Biochem Pharmacol* 168:31-57. [http://doi.org/10.1007/112\\_2015\\_23](http://doi.org/10.1007/112_2015_23).
- Miller KB, Newman SM, Caton JS, et al. 2004. Manganese alters mitochondrial integrity in the hearts of swine marginally deficient in magnesium. *Biofactors* 20(2):85-96.
- Miller KB, Caton JS, Schafer DM, et al. 2000. High dietary manganese lowers heart magnesium in pigs fed a low-magnesium diet. *J Nutr* 130(8):2032-2035. <http://doi.org/10.1093/jn/130.8.2032>.
- Minihane AM, Fairweather-Tait SJ. 1998. Effect of calcium supplementation on daily nonheme-iron absorption and long-term iron status. *Am J Clin Nutr* 68:96-102.
- Mizushima S, Cappuccio FP, Nichols R, et al. 1998. Dietary magnesium intake and blood pressure: A qualitative overview of the observational studies. *J Hum Hypertens* 12:447-453.

- Molgaard C, Kaestel P, Michaelsen KF. 2005. Long-term calcium supplementation does not affect the iron status of 12-14-y-old girls. *Am J Clin Nutr* 82(1):98-102. <http://doi.org/10.1093/ajcn.82.1.98>.
- Molofsky LJ, Connor JA, Wylie AS, et al. 2013. Evaluation of methane sources in groundwater in Northeastern Pennsylvania. *Groundwater* 51(3):333-349.
- Mullin EJ, Wegst-Uhrich SR, Ding D, et al. 2015. Effect of manganese treatment on the accumulation on biologically relevant metals in rat cochlea and brain by inductively coupled plasma mass spectrometry. *Biometals* 28(6):1009-1016. <http://doi.org/10.1007/s10534-015-9885-1>.
- Naito Y, Hirotani S, Sawada H, et al. 2011. Dietary iron restriction prevents hypertensive cardiovascular remodeling in Dahl salt-sensitive rats. *Hypertension* 57(3):497-504. <http://doi.org/10.1161/HYPERTENSIONAHA.110.159681>.
- Naito Y, Fujii A, Sawada H, et al. 2012. Effect of iron restriction on renal damage and mineralocorticoid receptor signaling in a rat model of chronic kidney disease. *J Hypertens* 30(11):2192-2201. <http://doi.org/10.1097/JHH.0b013e3283581a64>.
- Naito Y, Fujii A, Sawada H, et al. 2013a. Dietary iron restriction prevents further deterioration of renal damage in a chronic kidney disease rat model. *J Hypertens* 31(6):1203-1213. <http://doi.org/10.1097/JHH.0b013e328360381d>.
- Naito Y, Sawada H, Oboshi M, et al. 2013b. Increased renal iron accumulation in hypertensive nephropathy of salt-loaded hypertensive rats. *PLoS ONE* 8(10):e75906. <http://doi.org/10.1371/journal.pone.0075906>.
- Nakamichi N, Ohno H, Nakamura Y, et al. 2002. Blockade by ferrous iron of Ca<sup>2+</sup> influx through N-methyl-D-aspartate receptor channels in immature cultured rat cortical neurons. *J Neurochem* 83(1):1-11.
- NAS. 2011. Dietary reference intakes for calcium and vitamin D. National Academies of Sciences.
- Nelson MT. 1986. Interactions of divalent cations with single calcium channels from rat brain synaptosomes. *J Gen Physiol* 87(2):201-222. <http://doi.org/10.1085/jgp.87.2.201>.
- Neth K, Lucio M, Walker A, et al. 2015. Changes in brain metallome/metabolome pattern due to a single i.v. injection of manganese in rats. *PLoS ONE* 10(9):e0138270.
- Norman DA, Strowig SM, Pak CY. 1981. Jejunal and ileal adaptation to alterations in dietary calcium: Changes in calcium and magnesium absorption and pathogenetic role of parathyroid hormone and 1,25-dihydroxyvitamin D. *J Clin Invest* 67(6):1599-1603.
- Omdahl JL, DeLuca HF. 1972. Rachitogenic activity of dietary strontium. I. Inhibition of intestinal calcium absorption and 1,25-dihydroxycholecalciferol synthesis. *J Biol Chem* 247(17):5520-5526.
- Osborn SG, Vengosh A, Warner NR, et al. 2011. Methane contamination of drinking water accompanying gas-well drilling and hydraulic fracturing. *Proc Natl Acad Sci* 108(20):8172-8176. <http://doi.org/10.1073/pnas.1100682108>.
- Oudit GY, Trivieri MG, Khaper N, et al. 2006. Role of L-type Ca<sup>2+</sup> channels in iron transport and iron-overload cardiomyopathy. *J Mol Med* 84:349-364.
- Oudit GY, Sun H, Trivieri MG, et al. 2003. L-Type Ca<sup>2+</sup> channels provide a major pathway for iron entry into cardiomyocytes in iron-overload cardiomyopathy. *Nat Med* 9(9):1187-1194.
- PA DEP. 2019. Water supply determination letters. Pennsylvania Department of Environmental Protection. [http://files.dep.state.pa.us/OilGas/BOGM/BOGMPortalFiles/OilGasReports/Determination\\_Letters/Regional\\_Determination\\_Letters.pdf](http://files.dep.state.pa.us/OilGas/BOGM/BOGMPortalFiles/OilGasReports/Determination_Letters/Regional_Determination_Letters.pdf). April 24, 2019.
- Pamnani MB, Bryant HJ, Clough DL, et al. 2003. Increased dietary potassium and magnesium attenuate experimental volume dependent hypertension possibly through endogenous sodium-potassium pump inhibitor. *Clin Exp Hypertens* 25(2):103-115.
- Panahifar A, Chapman LD, Weber L, et al. 2018. Biodistribution of strontium and barium in the developing and mature skeleton of rats. *J Bone Miner Metab* June:epub ahead of print. <http://doi.org/10.1007/s00774-018-0936-x>.
- Park S, Sim CS, Lee H, et al. 2013. Blood manganese concentration is elevated in infants with iron deficiency. *Biol Trace Elem Res* 155(2):184-189. <http://doi.org/10.1007/s12011-013-9782-9>.

- Parkes JG, Liu Y, Sirna JB, et al. 2000. Changes in gene expression with iron loading and chelation in cardiac myocytes and non-myocytic fibroblasts. *J Mol Cell Cardiol* 32:233-246.
- Payen C, Dellinger A, Pulce C, et al. 2011. Intoxication by large amounts of barium nitrate overcome by early massive K supplementation and oral administration of magnesium sulphate. *Hum Exp Toxicol* 30(1):34-37. <http://doi.org/10.1177/0960327110366781>.
- Philipson KD, Nicoll DA. 2000. Sodium-calcium exchange: a molecular perspective. *Annu Rev Physiol* 62:111-133. <http://doi.org/10.1146/annurev.physiol.62.1.111>.
- Piomelli S, Jansen V, Dancis J. 1973. The hemolytic anemia of magnesium deficiency in adult rats. *Blood Cells* 41(3):451-459.
- Pörsti I, Arvola P, Wuorela H, et al. 1992. High calcium diet augments vascular potassium relaxation in hypertensive rats. *Hypertension* 19:85-92.
- Potreau D, Richard S, Nargeot J, et al. 1987. Tension activation and relaxation in frog atrial fibres. *Pflugers Arch* 410(3):326-334. <http://doi.org/10.1007/bf00580284>.
- Price NO, Bunce GE. 1972. Effect of nitrogen and calcium on balance of copper, manganese, and zinc in man. *Nutr Rep Int* 5:275-280.
- Przybyla J, McClure PR, Zaccaria KJ, et al. 2021. Chemical interactions and mixtures in public health risk assessment: An analysis of ATSDR's interaction profile database. *Regul Toxicol Pharmacol* 125:104981. <http://doi.org/10.1016/j.yrtph.2021.104981>.
- Quinn SJ, Thomsen AR, Egbuna O, et al. 2013. CaSR-mediated interactions between calcium and magnesium homeostasis in mice. *Am J Physiol Endocrinol Metab* 304(7):E724-733. <http://doi.org/10.1152/ajpendo.00557.2012>.
- Rafii B, Coutinho C, Otlakowski G, et al. 2000. Oxygen induction of epithelial Na(+) transport requires heme proteins. *Am J Physiol Lung Cell Mol Physiol* 278(2):L399-406. <http://doi.org/10.1152/ajplung.2000.278.2.L399>.
- Raja KB, Simpson RJ, Peters TJ. 1987. Effect of Ca<sup>2+</sup> and Mg<sup>2+</sup> on the uptake of Fe<sup>3+</sup> by mouse intestinal mucosa. *Biochim Biophys Acta* 923:46-51.
- Reddy MB, Cook JD. 1997. Effect of calcium intake on nonheme-iron absorption from a complete diet. *Am J Clin Nutr* 65(6):1820-1825. <http://doi.org/10.1093/ajcn/65.6.1820>.
- Reginster JY, Seeman E, De Verneuil MC, et al. 2005. Strontium ranelate reduces the risk of nonvertebral fractures in postmenopausal women with osteoporosis: Treatment of peripheral osteoporosis (TROPOS) study. *J Clin Endocrinol Metab* 90(5):2816-2822.
- Reid JT. 1947. Mineral metabolism studies in dairy cattle. 1. The effect of manganese and other trace elements on the metabolism of calcium and phosphorus during early lactation. Sussex, NJ: New Jersey Agricultural Experiment Station. 661-676.
- Resnick LM, Laragh JH, Sealey JE, et al. 1983. Divalent cations in essential hypertension. *N Engl J Med* 309:888-891.
- Resnick LM, Sosa RE, Corbett ML, et al. 1986. Effect of dietary calcium on sodium volume vs. renin-dependent forms of experimental hypertension. *Trans Assoc Am Physicians* 99:172-179.
- Rich GM, McCullough M, Olmedo A, et al. 1991. Blood pressure and renal blood flow responses to dietary calcium and sodium intake in humans. *Am J Hypertens* 4:642S-645S.
- Riley JM, Kim H, Averch TD, et al. 2013. Effect of magnesium on calcium and oxalate ion binding. *J Endourol* 27(12):1487-1492. <http://doi.org/10.1089/end.2013.0173>.
- Rios-Castillo I, Olivares M, Brito A, et al. 2014. One-month of calcium supplementation does not affect iron bioavailability: a randomized controlled trial. *Nutrition* 30(1):44-48. <http://doi.org/10.1016/j.nut.2013.06.007>.
- Ritchie G, Kerstan D, Dai LJ, et al. 2001. 1,25(OH)(2)D(3) stimulates Mg<sup>2+</sup> uptake into MDCT cells: modulation by extracellular Ca<sup>2+</sup> and Mg<sup>2+</sup>. *Am J Physiol Renal Physiol* 280(5):F868-878. <http://doi.org/10.1152/ajprenal.2001.280.5.F868>.
- Robinson JD. 1981. Effect of cations on (Ca<sup>2+</sup> + Mg<sup>2+</sup>)-activated ATPase from rat brain. *J Neurochem* 37(1):140-146.

- Rodriguez-Ortiz ME, Canalejo A, Herencia C, et al. 2014. Magnesium modulates parathyroid hormone secretion and upregulates parathyroid receptor expression at moderately low calcium concentration. *Nephrol Dial Transplant* 29(2):282-289. <http://doi.org/10.1093/ndt/gft400>.
- Rosanoff A, Dai Q, Shapses SA. 2016. Essential nutrient interactions: Does low or suboptimal magnesium status interact with vitamin D and/or calcium status? *Adv Nutr* 7(1):25-43. <http://doi.org/10.3945/an.115.008631>.
- Rosenlund M, Berglind N, Hallqvist J, et al. 2005. Daily intake of magnesium and calcium from drinking water in relation to myocardial infarction. *Epidemiology* 16(4):570-576.
- Rossander-Hulten L, Brune M, Sandstrom B, et al. 1991. Competitive inhibition of iron absorption by manganese and zinc in humans. *Am J Clin Nutr* 54(1):152-156.
- Roux C, Reginster JY, Fechtenbaum J, et al. 2006. Vertebral fracture risk reduction with strontium ranelate in women with postmenopausal osteoporosis is independent of baseline risk factors. *J Bone Miner Res* 21(4):536-542.
- Sabatini-Smith S, Holland WC. 1969. Influence of manganese and ouabain on the rate of action of calcium on atrial contractions. *Am J Physiol* 216(2):244-248. <http://doi.org/10.1152/ajplegacy.1969.216.2.244>.
- Sachs JR. 1988. Interaction of magnesium with the sodium pump of the human red cell. *J Physiol* 400:575-591.
- Saito K, Sano H, Furuta Y, et al. 1989. Effect of oral calcium on blood pressure response in salt-loaded borderline hypertensive patients. *Hypertension* 13:219-226.
- Sakai K, Uchida MK. 1986. The calcium receptor for Ca reversal is blocked by manganese in rat uterine smooth muscle. *Gen Pharmacol* 17(3):347-350.
- Sanchez-Morito N, Planells E, Aranda P, et al. 1999. Magnesium-manganese interactions caused by magnesium deficiency in rats. *J Am Coll Nutr* 18(5):475-480.
- Sanchez-Morito N, Planells E, Aranda P, et al. 2000. Influence of magnesium deficiency on the bioavailability and tissue distribution of iron in the rat. *J Nutr Biochem* 11(2):103-108.
- Sanders R, Konijnenberg A, Hijgen HJ, et al. 1998. Intracellular and extracellular, ionized and total magnesium in pre-eclampsia and uncomplicated pregnancy. *Clin Chem Lab Med* 37(1):55-59.
- Sasaki S, Oshima T, Matsuura H, et al. 2000. Abnormal magnesium status in patients with cardiovascular diseases. *Clin Sci* 98:175-181.
- Schumann K, LeBeau A, Gresser U, et al. 1997. On the origin of the increased tissue iron content in graded magnesium deficiency states in the rat. *Br J Nutr* 77:475-490.
- Schwartz BF, Bruce J, Leslie S, et al. 2001. Rethinking the role of urinary magnesium in calcium urolithiasis. *J Endourol* 15(3):233-235. <http://doi.org/10.1089/089277901750161638>.
- Scroggin KE, Hatton DC, McCarron DA. 1991. The interactive effects of dietary sodium chloride and calcium on cardiovascular stress responses. *Am J Physiol* 261(4 Pt 2):R945-949. <http://doi.org/10.1152/ajpregu.1991.261.4.R945>.
- Seelig MS. 1964. The requirement of magnesium by the normal adult. *Am J Clin Nutr* 14:342-390.
- Seo YA, Li Y, Wessling-Resnick M. 2013. Iron depletion increases manganese uptake and potentiates apoptosis through ER stress. *Neurotoxicology* 38:67-73. <http://doi.org/10.1016/j.neuro.2013.06.002>.
- Shakoor A, Zahoor M, Sadaf A, et al. 2014. Effect of L-type calcium channel blocker (amlodipine) on myocardial iron deposition in patients with thalassaemia with moderate-to-severe myocardial iron deposition: protocol for a randomised, controlled trial. *BMJ Open* 4(12):e005360. <http://doi.org/10.1136/bmjopen-2014-005360>.
- Shawki A, Mackenzie B. 2010. Interaction of calcium with the human divalent metal-ion transporter-1. *Biochem Biophys Res Commun* 393(3):471-475. <http://doi.org/10.1016/j.bbrc.2010.02.025>.
- Shawki A, Anthony SR, Nose Y, et al. 2015. Intestinal DMT1 is critical for iron absorption in the mouse but is not required for the absorption of copper or manganese. *Am J Physiol Gastrointest Liver Physiol* 309(8):G635-647. <http://doi.org/10.1152/ajpgi.00160.2015>.

- Sheets MF, Hanck DA. 1992. Mechanisms of extracellular divalent and trivalent cation block of the sodium current in canine cardiac Purkinje cells. *J Physiol* 454:299-320. <http://doi.org/10.1113/jphysiol.1992.sp019265>.
- Silinsky EM. 2000. Antagonism of calcium currents and neurotransmitter release by barium ions at frog motor nerve endings. *Br J Pharmacol* 129(2):360-366. <http://doi.org/10.1038/sj.bjp.0703036>.
- Simons-Morton DG, Hunsberger SA, Van Horn L, et al. 1997. Nutrient intake and blood pressure in the dietary intervention study in children. *Hypertension* 29(4):930-936.
- Smith OB, Kabaija E. 1986. Effect of high dietary calcium and wide calcium-phosphorus ratios in broiler diets. *Poult Sci* 64:1713-1720.
- Spencer H, Asmussen CR, Holtzman RB, et al. 1979. Metabolic balances of cadmium, copper, manganese, and zinc in man. *Am J Clin Nutr* 32:1867-1875.
- Spencer H, Fuller H, Norris C, et al. 1994. Effect of magnesium on the intestinal absorption of calcium in man. *J Am Coll Nutr* 13(5):485-492.
- Sripetchwandee J, KenKnight SB, Sanit J, et al. 2014. Blockade of mitochondrial calcium uniporter prevents cardiac mitochondrial dysfunction caused by iron overload. *Acta Physiol (Oxf)* 210(2):330-341. <http://doi.org/10.1111/apha.12162>.
- Stonell LM, Savigni DL, Morgan EH. 1996. Iron transport into erythroid cells by the  $\text{Na}^+/\text{Mg}^{2+}$  antiport. *Biochim Biophys Acta* 1282:163-170.
- Streifel KM, Miller J, Mouneimne R, et al. 2013. Manganese inhibits ATP-induced calcium entry through the transient receptor potential channel TRPC3 in astrocytes. *Neurotoxicology* 34:160-166. <http://doi.org/10.1016/j.neuro.2012.10.014>.
- Striggow F, Ehrlich BE. 1996. The inositol 1,4,5-trisphosphate receptor of cerebellum Mn  $2+$  permeability and regulation by cytosolic Mn  $2+$ . *J Gen Physiol* 108:115-124.
- Subasinghe AK, Arabshahi S, Busingye D, et al. 2016. Association between salt and hypertension in rural and urban populations of low to middle income countries: a systematic review and meta-analysis of population based studies. *Asia Pac J Clin Nutr* 25(2):402-413.
- Sugihira N, Aoki Y, Suzuki KT. 1992. ATP-dependent strontium uptake by basolateral membrane vesicles from rat renal cortex in the absence or presence of calcium. *Biol Trace Elem Res* 34(1):45-54. <http://doi.org/10.1007/bf02783897>.
- Swaminathan R. 2003. Magnesium metabolism and its disorders. *Clin Biochem Rev* 24:47-66.
- Swann K, Lai FA. 1997. A novel signalling mechanism for generating  $\text{Ca}^{2+}$ -oscillations at fertilization in mammals. *Bioessays* 19(5):371-378.
- Taylor DM, Bligh PH, Duggan MH. 1962. The absorption of calcium, strontium, barium and radium from the gastrointestinal tract of the rat. *Biochem J* 83(1):25-29. <http://doi.org/10.1042/bj0830025>.
- The Eclampsia Trial Collaborative Group. 1995. Which anticonvulsant for women with eclampsia: Evidence from the Collaborative Eclampsia Trial. *Lancet* 345:1455-1463.
- The Magpie Trial Collaborative Group. 2002. Do women with pre-eclampsia, and their babies, benefit from magnesium sulfate? The Magpie Trial: A randomised placebo-controlled trial. *Lancet* 359:1877-1890.
- Thompson BA, Sharp PA, Elliott R, et al. 2010. Inhibitory effect of calcium on non-heme iron absorption may be related to translocation of DMT-1 at the apical membrane of enterocytes. *J Agric Food Chem* 58(14):8414-8417. <http://doi.org/10.1021/jf101388z>.
- Thompson K, Molina R, Donaghey T, et al. 2006. The influence of high iron diet on rat lung manganese absorption. *Toxicol Appl Pharmacol* 210(1-2):17-23. <http://doi.org/10.1016/j.taap.2005.05.014>.
- Thompson K, Molina RM, Donaghey T, et al. 2007. Olfactory uptake of manganese requires DMT1 and is enhanced by anemia. *FASEB J* 21(1):223-230. <http://doi.org/10.1096/fj.06-6710com>.
- Thomsen AR, Worm J, Jacobsen SE, et al. 2012. Strontium is a biased agonist of the calcium-sensing receptor in rat medullary thyroid carcinoma 6-23 cells and correction paper. *J Pharmacol Exp Ther* 343(3):638-649. <http://doi.org/10.1124/jpet.112.197210>.
- Thomson AB, Olatunbosun D, Valverg LS. 1971. Interrelation of intestinal transport system for manganese and iron. *J Lab Clin Med* 78(4):642-655.

- Tjalkens RB, Zoran MJ, Mohl B, et al. 2006. Manganese suppresses ATP-dependent intercellular calcium waves in astrocyte networks through alteration of mitochondrial and endoplasmic reticulum calcium dynamics. *Brain Res* 1113(1):210-219. <http://doi.org/10.1016/j.brainres.2006.07.053>.
- Touyz RM, Milne FJ. 1999. Magnesium supplementation attenuates, but does not prevent, development of hypertension in spontaneously hypertensive rats. *Am J Hypertens* 12:757-765.
- Touyz RM, Sontia B. 2009. Magnesium and hypertension. In: Calcium and Magnesium in drinking water. Geneva, Switzerland: World Health Organization, 68-76.
- Townsend MS, Fulgoni VL, 3rd, Stern JS, et al. 2005. Low mineral intake is associated with high systolic blood pressure in the Third and Fourth National Health and Nutrition Examination Surveys. *Am J Hypertens* 18:261-269.
- Trosper TL, Philipson KD. 1983. Effects of divalent and trivalent cations on Na<sup>+</sup>-Ca<sup>2+</sup> exchange in cardiac sarcolemmal vesicles. *Biochim Biophys Acta* 731(1):63-68. [http://doi.org/10.1016/0005-2736\(83\)90398-x](http://doi.org/10.1016/0005-2736(83)90398-x).
- Tsien RW, Hess P, McCleskey EW, et al. 1987. Mechanisms of selectivity, permeation, and block. *Annu Rev Biophys Chem* 16(1):265-290. <http://doi.org/10.1146/annurev.bb.16.060187.001405>.
- Tsushima RG, Wickenden AD, Bouchard RA, et al. 1999. Modulation of iron uptake in heart by L-Type Ca<sup>2+</sup> channel modifiers. *Circ Res* 84:1302-1309.
- Turi JL, Piantadosi CA, Stonehuerner JD, et al. 2008. Iron accumulation in bronchial epithelial cells is dependent on concurrent sodium transport. *Biometals* 21(5):571-580. <http://doi.org/10.1007/s10534-008-9143-x>.
- Uehara A, Iwamoto T, Kita S, et al. 2005. Different cation sensitivities and binding site domains of Na<sup>+</sup>-Ca<sup>2+</sup>-K<sup>+</sup> and Na<sup>+</sup>-Ca<sup>2+</sup> exchangers. *J Cell Physiol* 203(2):420-428. <http://doi.org/10.1002/jcp.20231>.
- Van Barneveld AA, Van den Hamer CJ. 1984. The influence of calcium and magnesium on manganese transport and utilization in mice. *Biol Trace Elem Res* 6(6):489-505. <http://doi.org/10.1007/bf02987203>.
- van der Wijst J, Tutakhel OAZ, Bos C, et al. 2018. Effects of a high-sodium/low-potassium diet on renal calcium, magnesium, and phosphate handling. *Am J Physiol Renal Physiol* 315(1):F110-F122. <http://doi.org/10.1152/ajprenal.00379.2017>.
- van Leer EM, Seidell JC, Kromhout D. 1995. Dietary calcium, potassium, magnesium and blood pressure in the Netherlands. *Int J Epidemiol* 24(6):1117-1123.
- van Mierlo LAJ, Arends LR, Streppel MT, et al. 2006. Blood pressure response to calcium supplementation: A meta-analysis of randomized controlled trials. *J Hum Hypertens* 20:571-580.
- Vengosh A, Jackson RB, Warner N, et al. 2014. A critical review of the risks to water resources from unconventional shale gas development and hydraulic fracturing in the United States. *Environ Sci Technol* 48(15):8334-8348. <http://doi.org/10.1021/es405118y>.
- Venkataramani V, Doeppner TR, Willkommen D, et al. 2018. Manganese causes neurotoxic iron accumulation via translational repression of amyloid precursor protein (APP) and H-Ferritin. *J Neurochem*. <http://doi.org/10.1111/jnc.14580>.
- Vincent JB, Love S. 2012. The binding and transport of alternative metals by transferrin. *Biochim Biophys Acta* 1820(3):362-378. <http://doi.org/10.1016/j.bbagen.2011.07.003>.
- Vinogradow A, Scarpa A. 1973. the initial velocities of calcium uptake by rat liver mitochondria. *J Biol Chem* 248(15):5527-5531.
- Walter SJ, Shirley DG, Folkerd EJ, et al. 2001. Effects of the potassium channel blocker barium on sodium and potassium transport in the rat loop of Henle in vivo. *Exp Physiol* 86(4):469-474. <http://doi.org/10.1113/eph8602210>.
- Wang X, Li GJ, Zheng W. 2008a. Efflux of iron from the cerebrospinal fluid to the blood at the blood-CSF barrier: Effect of manganese exposure. *Exp Biol Med* 233(12):1561-1571. <http://doi.org/10.3181/0803-rm-104>.

- Wang X, Miller DS, Zheng W. 2008b. Intracellular localization and subsequent redistribution of metal transporters in a rat choroid plexus model following exposure to manganese or iron. *Toxicol Appl Pharmacol* 230(2):167-174. <http://doi.org/10.1016/j.taap.2008.02.024>.
- Wang T, Wang WH, Klein-Robbenhaar G, et al. 1995. Effects of glyburide on renal tubule transport and potassium-channel activity. *Ren Physiol Biochem* 18(4):169-182. <http://doi.org/10.1159/000173914>.
- Wang QM, Xu YY, Liu S, et al. 2017. Isradipine attenuates MPTP-induced dopamine neuron degeneration by inhibiting up-regulation of L-type calcium channels and iron accumulation in the substantia nigra of mice. *Oncotarget* 8(29):47284-47295. <http://doi.org/10.18632/oncotarget.17618>.
- Warner NR, Christie CA, Jackson RB, et al. 2013. Impacts of shale gas wastewater disposal on water quality in western Pennsylvania. *Environ Sci Technol* 47(20):11849-11857. <http://doi.org/10.1021/es402165b>.
- Waschek JA, Eiden LE. 1988. Calcium requirements for barium stimulation of enkephalin and vasoactive intestinal peptide biosynthesis in adrenomedullary chromaffin cells. *Neuropeptides* 11(1):39-45.
- Wauben IP, Atkinson SA. 1999. Calcium does not inhibit iron absorption or alter iron status in infant piglets adapted to a high calcium diet. *J Nutr* 129(3):707-711. <http://doi.org/10.1093/jn/129.3.707>.
- Weaver J, Porasuphatana S, Tsai P, et al. 2004. The effect of divalent cations on neuronal nitric oxide synthase activity. *Toxicol Sci* 81(2):325-331. <http://doi.org/10.1093/toxsci/kfh211>.
- Whang R, Chrysant S, Dillard B, et al. 1982. Hypomagnesemia and hypokalemia in 1,000 treated ambulatory hypertensive patients. *J Am Coll Nutr* 1(4):317-322.
- Whelton PK, Klag MJ. 1989. Magnesium and blood pressure: Review of the epidemiologic and clinical trial experience. *Am J Cardiol* 63:26G-30G.
- Widman L, Wester PO, Stegmayr BK, et al. 1993. The dose-dependent reduction in blood pressure through administration of magnesium. A double blind placebo controlled cross-over study. *Am J Hypertens* 6(1):41-45.
- Wienk KJ, Marx JJ, Lemmens AG, et al. 1996. Mechanism underlying the inhibitory effect of high calcium carbonate intake on iron bioavailability from ferrous sulphate in anaemic rats. *Br J Nutr* 75(1):109-120.
- Wilgus HS, Patton AR. 1939. Factors affecting manganese utilization in the chicken. *J Nutr* 18:35-45.
- Wongjaikam S, Kumfu S, Khamseeckaew J, et al. 2017. Restoring the impaired cardiac calcium homeostasis and cardiac function in iron overload rats by the combined deferiprone and N-acetyl cysteine. *Sci Rep* 7:44460. <http://doi.org/10.1038/srep44460>.
- Wuorela H, Arvola P, Porsti I, et al. 1992. The effect of high calcium intake on Ca<sup>2+</sup> ATPase and the tissue Na:K ratio in spontaneously hypertensive rats. *Naunyn Schmiedebergs Arch Pharmacol* 345(1):117-122.
- Xin Y, Gao H, Wang J, et al. 2017. Manganese transporter Slc39a14 deficiency revealed its key role in maintaining manganese homeostasis in mice. *Cell Disc* 3:17025. <http://doi.org/10.1038/celldisc.2017.25>.
- Yamaguchi S, Ishikawa T. 2008. The electrogenic Na<sup>+</sup>-HCO<sub>3</sub><sup>-</sup> cotransporter NBCe1-B is regulated by intracellular Mg<sup>2+</sup>. *Biochem Biophys Res Commun* 376(1):100-104. <http://doi.org/10.1016/j.bbrc.2008.08.104>.
- Yan L, Prentice A, Dibba B, et al. 1996. The effect of long-term calcium supplementation on indices of iron, zinc and magnesium status in lactating Gambian women. *Br J Nutr* 76:821-831.
- Yang CY, Chiu HF. 1999. Calcium and magnesium in drinking water and the risk of death from hypertension. *Am J Hypertens* 12(9):894-899.
- Yao Y, Chen T, Shen SS, et al. 2015. Malignant human cell transformation of Marcellus Shale gas drilling flow back water. *Toxicol Appl Pharmacol* 288:121-130.
- Yin W, Jiang G, Takeyasu K, et al. 2003. Stimulation of Na,K-ATPase by low potassium is dependent on transferrin. *J Membr Biol* 193(3):177-184. <http://doi.org/10.1007/s00232-003-2016-x>.

- Zemel MB, Gualdoni SM, Sowers JR. 1986. Sodium excretion and plasma renin activity in normotensive and hypertensive black adults as affected by dietary calcium and sodium. *J Hypertens* 4((Suppl 6)):S343-S345.
- Zhang J. 2013. New insights into the contribution of arterial NCX to the regulation of myogenic tone and blood pressure. *Adv Exp Med Biol* 961:329-343.
- Zhang D, Pan L, Yang LH, et al. 2005. Strontium promotes calcium oscillations in mouse meiotic oocytes and early embryos through InsP<sub>3</sub> receptors, and requires activation of phospholipase and the synergistic action of InsP<sub>3</sub>. *Hum Reprod* 20(11):3053-3061. <http://doi.org/10.1093/humrep/dei215>.
- Zhang H, Gilbert ER, Pan S, et al. 2016. Dietary iron concentration influences serum concentrations of manganese in rats consuming organic or inorganic sources of manganese. *Br J Nutr* 115(4):585-593. <http://doi.org/10.1017/s0007114515004900>.
- Zheng W, Zhao Q. 2001. Iron overload following manganese exposure in cultural neuronal, but not neurological cells. *Brain Res* 897:175-179.
- Zheng W, Zhao Q, Slavkovich V, et al. 1999. Alteration of iron homeostasis following chronic exposure to manganese in rats. *Brain Res* 833:125-132.
- Zhou Y, Zeng XH, Lingle CJ. 2012. Barium ions selectively activate BK channels via the Ca<sup>2+</sup>-bowel site. *Proc Natl Acad Sci* 109(28):11413-11418. <http://doi.org/10.1073/pnas.1204444109>.
- Zhou X, Yin W, Doi SQ, et al. 2003. Stimulation of Na,K-ATPase by low potassium requires reactive oxygen species. *Am J Physiol Cell Physiol* 285(2):C319-326. <http://doi.org/10.1152/ajpcell.00536.2002>.