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MAJOR RESEARCH INTERESTS

Research in my laboratory concentrates on the molecular mechanisms of free radical (including nitric oxide) –induced damage, how it can be affected by endogenous and diet-derived antioxidants and the significance of this for human disease and nutrition. The research group is affiliated to several research institutes in Singapore and overseas, including the Karolinska Institute and the University of California. Current projects include

1. Cellular mechanisms of toxicity by abnormal proteins in neurodegenerative disease.
2. Elucidation of the role of iron in the development of atherosclerosis.
3. Mechanisms of sulphite toxicity in the brain
4. The role of lipid peroxidation as a possible prognostic factor for the development of diabetes
5. Oxidative DNA damage in the nuclear and mitochondrial genomes, its molecular relationship to mutation and cancer, and its possible modulation by diet
6. Isolating, purifying, testing *in vivo*, and examining the mechanisms of action of antioxidants from regional foods and traditional Chinese medicines

RECENT PUBLICATIONS

1. B. Halliwell (2000) The antioxidant paradox. *Lancet* **355**, 1179 – 1180.
2. McNaught, K St P, Olanow, CW, Halliwell B, Isacson, O and Jenner P. (2001) Failure of the ubiquitin – proteasome system in Parkinson's disease. *Nature Reviews in Neuroscience* **2**, 589 – 594.
3. Clement MV, Long LH, Ramalingam J and Halliwell B. (2002) The cytotoxicity of dopamine may be an artefact of cell culture. *J. Neurochem.* **81**, 414-421.
4. Hyun DH, Lee MH, Hattori N, Kubo SI, Mizuno Y, Halliwell B and Jenner P. (2002) Effect of wild-type or mutant parkin on oxidative damage, nitric oxide, antioxidant defences and the proteasome. *J. Biol. Chem.* **277**, 28572-28577.
5. Whiteman M, Hooper DC, Scott GS, Koprowski H and Halliwell B. (2002) Inhibition of hypochlorous acid-induced cellular toxicity by nitrite. *Proc. Natl. Acad. Sci. USA.* **99**, 12061-12066.
6. Whiteman M, Siau JL and Halliwell B. (2003) Lack of tyrosine nitration by hypochlorous acid in the presence of physiological concentrations of nitrite: implications for the role of nitryl chloride in tyrosine nitration *in vivo*. *J. Biol. Chem.* **278**, 8380-8384.
7. Halliwell B and Whiteman M (2004) Measuring reactive species and oxidative damage *in vivo* and in cell culture: how should you do it and what do the results mean? *Br. J. Pharmacol.* **142**, 231-255.
8. Hyun DH, Gray DA, Halliwell B and Jenner, P (2004) Interference with ubiquitination causes oxidative damage and increased protein nitration: implications for neurodegenerative diseases. *J. Neurochem.* **90**, 422-430.
9. Lee DH, Folsom AR, Harnack L, Halliwell B and Jacobs DR Jr. (2004) Does supplemental vitamin C increase cardiovascular disease risk in women with diabetes? *Am. J. Clin. Nutr.* **80**, 1194-1200.
10. Tang SY, Whiteman M, Peng ZF, Jenner A, Yong EL and Halliwell B (2004) Characterization of antioxidant and antiglycation properties and isolation of active ingredients from traditional chinese medicines. *Free Radic. Biol. Med.* **36**, 1575-1587.
11. Whiteman M, Armstrong JS, Cheung NS, Siau JL, Rose P, Schantz JT, Jones DP and Halliwell B (2004) Peroxynitrite mediates calcium-dependent mitochondrial dysfunction and cell death via activation of calpains. *Faseb. J.* **18**, 1395-1397.
12. Halliwell B, Rafter J and Jenner A (2005) Health promotion by flavonoids, tocopherols, tocotrienols, and other phenols: direct or indirect effects? Antioxidant or not? *Am. J. Clin. Nutr.* **81**, 268S-276S.
13. Minqin R, Rajendran R, Pan N, Tan BK, Ong WY, Watt F and Halliwell B (2005) The iron chelator desferrioxamine inhibits atherosclerotic lesion development and decreases lesion iron concentrations in the cholesterol-fed rabbit. *Free Radic. Biol. Med.* **38**, 1206-1211.

14. Wong PTH, Qu K, Chimon GN, Seah ABH, Chang HM, Wong MC, Ng YK, Rumpel H, Halliwell B, Chen CPLH (2006) High plasma cyst(e)ine level may indicate poor clinical outcome in patients with acute stroke: Possible involvement of hydrogen sulfide. *J. Neuropathol. Exp. Neurol.* **65**, 109-115.
15. Halliwell B (2006) Oxidative stress and neurodegeneration; where are we now? *J. Neurochem.* **97**, 1634-1658.
16. B. Halliwell, JMC Gutteridge (2006) *Free Radicals In Biology And Medicine* Fourth Edition, Oxford University Press, UK **In press**