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Title: "Nitratative Stress: A Physiologically Relevant Covalent Modification?"

Abstract: The interaction of nitric oxide and superoxide give rise to the powerful pro-oxidant peroxynitrite which can inhibit cellular respiration, oxidise sulphhydryl groups in proteins, initiate lipid peroxidation and nitrate aromatic amino acids such as tyrosine thus affecting many signal transduction pathways. Characteristically it nitrates tyrosine residues in proteins, a covalent modification that results in either gain or loss of function. Low levels of protein nitration may be a physiologic regulatory mechanism in redox regulation of signal pathways whereas at high levels the effect may be pathologic. Growing evidence implicates nitratative stress in the development of cardiovascular disease. We have identified several nitrated proteins in the human placenta and are exploring the functional relevance to control of fetal growth and development.