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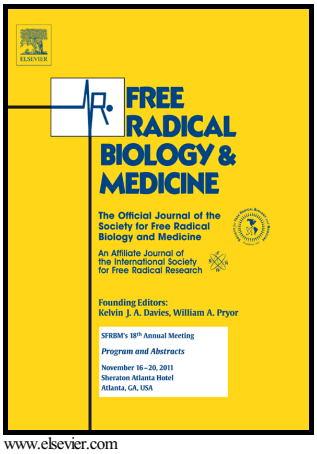

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4-Hydroxynonenal (HNE) modified proteins in metabolic diseases

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Abstract:

4-Hydroxynonenal (HNE) is one of the quantitatively most important products of lipid peroxidation. Due to its high toxicity it is quickly metabolized, however, a small share of HNE avoids enzymatic detoxification and reacts with biomolecules including proteins.

The formation of HNE-protein-adducts is one of the accompanying processes in oxidative stress or redox disbalance. The modification of proteins might occur at several amino acids side chains, leading to a variety of products and having effects on the protein function and fate.

This review summarizes current knowledge on the formation of HNE-modified proteins, their fate in mammalian cells and their potential role as a damaging mechanism during oxidative stress. Furthermore, the potential of HNE-modified proteins as biomarkers for several diseases are highlighted.