Malondialdehyde

Reactive oxygen species degrade polyunsaturated lipids, forming malondialdehyde.

This compound is a reactive aldehyde and is one of the many reactive electrophile species that cause toxic stress in cells and form covalent protein adducts referred to as advanced lipoxidation end-products (ALE), in analogy to advanced glycation end-products (AGE).

The production of this aldehyde is used as a biomarker to measure the level of oxidative stress in an organism.

Malondialdehyde reacts with deoxyadenosine and deoxyguanosine in DNA, forming DNA adducts, the primary one being M1G, which is mutagenic.

The guanidine group of arginine residues condense with malondialdehyde to give 2-aminopyrimidines.

Human ALDH1A1 aldehyde dehydrogenase is capable of oxidizing malondialdehyde.