

“Isoprostanes, neuroprostanes, phytoprostanes: what we could do with those non enzymatic oxidized lipids?”

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Cyclic oxygenated metabolites, commonly known as isoprostanes are formed *in vivo* through non-enzymatic free radical reaction of n-6 and n-3 polyunsaturated fatty acids (PUFA) such as arachidonic acid (AA, C20:4 n-6), α -linolenic acid (ALA, C18:3 n-3), eicosapentaenoic acid (EPA, C20:5 n-3) and docosahexaenoic acid (DHA, C22:6 n-3).¹⁻³ Evidences have emerged for their use as biomarkers of oxidative stress and more recently as bioactive lipids acting at molecular level as secondary messengers; the latter ones are mostly related to n-3 PUFAs.⁴ Collectively, the existence of these metabolites are not limited to mammalian specimens, they are found as well in our food such as nuts and seeds depending on the type of PUFA.⁵ This lecture will focus on isoprostanes, phytoprostanes and neuroprostanes as well as isofurans, phytofurans and neurofurans generated from AA, ALA, EPA and DHA respectively and precisely their role in human, plants, nuts, seeds, oils or macroalgae.

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