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Abstract

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Protein carbonyls (PC) are oxidative damage observed in many diseases. Proteins are possibly the most immediate vehicle for inflicting oxidative damage on cells because they are often catalysts [1]. A fluorometric and UV-absorption method have been developed to quantify PC in blood and tissues samples by labeling with two hydrazines: 7-hydrazino-4-nitrobenzo-2,1,3-oxadiazole (NBDH) and dinitrophenylhydrazine (DNPH), respectively [2,3]. These methods are based on the selective hydrazone formation between the carbonyls group of oxidized protein to yield a strong fluorescent/UV-absorption adduct that is then quantified.

Here, we will describe our study on NBDH's and DNPH's derivatives to generate new PC-probes bearing an alkyne moiety. In a first step, the hydrazine moiety reacted specifically with protein carbonyls and in a second step, a click reaction was performed between the alkyne moiety and a cleavable resin [4] to yield a PC's enrichment. Theses probes have been explored on oxidized bovine serum albumin (OxBSA) for PC-labeling, and the possible sites of oxidation of isolated labelled PC will be studied by LC-MS and proteomics experiments.

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