Riboflavin-photosensitized anaerobic modification of rat lens proteins. A correlation with age-related changes

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When rat lens homogenate or its soluble protein fractions are irradiated in the presence of riboflavin, a photo-adduct is obtained between this vitamin and the lens proteins. Irradiation of these proteins in the presence of riboflavin also leads to a modification in the chromatographic elution pattern with an increase in the high-molecular-weight fraction. In an aging study with rats, it was shown that the proportion of the high-molecular-weight protein fraction significantly increased with age, whereas the proportion of the low-molecular-weight protein fraction concomitantly decreased. It is postulated that aging produces an increase in the accessibility of the tryptophan residues of the lens proteins, as established by iodide fluorescence quenching experiments.