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Effects of temperature and sodium hyaluronate on fluorescence of type-I calf skin solutions at physiological pH

Mammalian collagens contain several age-related fluorescent chromophores derived from tyrosyl residues that are unstable to solar UV wavelengths and to ground state thermal autoxidation. Our preliminary studies on UV-induced photochemistry have shown that dityrosine, formed by UVC (mainly 254 nm) is unstable to longer wavelength solar UV. Age related tyrosine oxidation products are also unstable to UV-wavelengths and they also tend to destabilize the overall collagen supramolecular structure. Because dermal collagen is in close contact with the surrounding extracellular matrix (ECM), we wish to know whether the ECM provides extra chemical stability collagen fibrils *in vivo*. *In vitro* work with collagen-sodium hyaluronate (HA) mixtures (1:2) at pH 7.4 suggested that HA might have a slightly stabilizing effect but the results were inconclusive. In this work, we investigated the effect of temperature and HA on fluorescence emission. Our results suggest that added HA practically no effect on either the intensities or the Arrhenius like plots of the collagen fluorescence bands. This result suggests that there is little or no physical interaction between the collagen telopeptide (which contains the tyrosine residues) and the HA domains *in vitro*.

Biography

Julian M Menter has received his PhD degree in Chemistry from the George Washington University in 1969. He has completed his Postdoctoral Fellowship with Prof. Dr. Theodor Foerster at the University of Stuttgart, Germany. Subsequently, he was at the University of Alabama, Birmingham and the VA Medical Center, Atlanta. He currently serves as Research Professor of Biochemistry at Morehouse School of Medicine. He is recognized internationally for his work in the areas of collagen photochemistry and melanin photobiology as pertaining to redox reactivity.

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