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Effect of temperature on photochemical and thermal changes in calf-skin collagen solutions at physiological pH

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Mammalian collagens exhibit weak intrinsic age- and history-dependent UV fluorescence that. UV radiation can cause longer wavelength fluorescent oxidative bands. The fluorescence of both unirradiated and UVC – irradiated acid-soluble calf skin collagen also reflects considerable autoxidation. We have been studying the ground-and excited state behavior of type I acid – soluble collagens from commercial calf skin and from acid-extracted hairless mouse skin as judged by their temperature and wavelength dependence of their fluorescence properties. As the age-related oxidation products destabilize the overall collagen supramolecular structure, we wondered whether the surrounding extracellular matrix affects the ground- and excited state behavior of the collagen polymer in situ. Added sodium hyaluronate (2:1 ratio) shows little or no effect on fluorescence behavior or Arrhenius – type plots. This latter result may indicate that there is little physical interaction between the collagen telopeptide and HA domains *in vitro*. Other possibilities will also be discussed. Acknowledgements: DOD Grant # 911 NF-10-1 0448, MBRS #GM08248, RCMI #8G12MD007602

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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