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FCS of molecules fluorescing in the ultra violet region

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Alain Sillen, Don C Lamb, and Enrico Gratton.

**FCS of molecules fluorescing in the ultra violet region.**

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**Abstract**

Fluorescence correlation spectroscopy (FCS) is a technique used to measure diffusion coefficients and concentration of molecules in thermal equilibrium. A drawback of this technique is that a chromophore must be covalently attached to the molecule of interest since few molecules absorb or fluoresce in the visible and near infra red wavelength region. This is particularly true for proteins and they must be chemically linked with a fluorescent dye molecule or genetically linked to any of a number of the newly discovered fluorescence proteins. This fluorescent label can influence the properties of the protein under investigation. Since many proteins naturally fluoresce in the UV region, we have developed a fluorescence microscope for performing FCS measurements in the UV. Here we present FCS measurements on a multitryptophan containing protein. These results show that it is now possible to study proteins by their intrinsic fluorescent probes. This work was supported by NIH, PHS 5 P41 RR03155.