

SPECTROSCOPIC
STUDIES OF THE INTERACTION
BETWEEN DNA AND FLUORENE DYES

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S u m m a r y

Making use of electron spectroscopy (absorption and fluorescence) and infrared vibrational spectroscopy methods, the interaction of the DNA taken from the normal and tumor (the yield strain of the Guerin carcinoma) tissues of rats of the Vistar line with two types of fluorene dyes, namely, (7-benzothiazol-2-yl-9,9-didecylfluoren-2-yl) diphenylamine (FD1) and {4-[2-(7-diphenylamino-9,9-diethylfluoren-2-yl)vinyl]phenyl} of the diethyl ester of phosphoric acid (FD2), has been investigated. The addition of the dyes to the tumor DNA in the *in vivo* experiment has been shown to disrupt the DNA secondary structure and to induce the transition into a partially unpaired form. In the IR experiment, different linkages of both dyes with the sugar-phosphate DNA frame have been detected, but it did not result in the features of the fluorescence spectra in the FD1 case. The fluorescence spectra of the FD2 interacting with the reference DNA show two bands, in contrast to what is measured at the interaction with the tumor DNA. The appearance of the short-wave band may be stipulated by an essential reconstruction in the part of the dye molecules due to their interaction with DNA ones. Experimental results evidence for that the dyes link more efficiently to the reference DNA than to the tumor one, and that the FD2 dye with a strong acceptor group reveals an enhanced activity during the interaction. The *in vivo* experiment shows that additional sites appear in the dyes for their linkage with DNA.