Modification of the age-dependent increase of plasma fibronectin in cancer patients

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Fibronectin (FN) was shown to be present on the surface of several mesenchymal cells, such as fibroblasts and smooth muscle cells, as well as in the intercellular matrix synthesized by those cells (Hynes, 1981; Yamada, 1981). It was shown by Hynes (1973) that most malignant transformed cells lose the capacity to retain FN on their membrane.

A similar loss of cell membrane-bound FN was shown to occur in a variety of solid human tumours (Labat-Robert et al., 1980, 1981a) accompanied by a fragmentation followed by a disappearance of FN in glandular basement membranes, but with an increase in the intensity of FN-immunofluorescence in the tumour matrix (Labat-Robert et al., 1981a).

Although there are structural differences between plasma and tissue FN and separate genes may well be coding for them (Yamada, 1983) it appeared to be of interest to study a possible relationship between these two forms of FN in cancer patients. Recent results (R. Hynes, personal communication) prove the existence of one single gene. Plasma FN was determined by laser immunonephelometry. Previous studies showed an exponential increase of plasma FN with age in a control population (Labat-Robert et al., 1981b).

Abbreviation used: FN, fibronectin.

We therefore studied the age dependence of plasma FN in 126 mammary cancer patients. As shown in Fig. 1, the cancer patients exhibited a slight increase of plasma FN with age, but this was not significant when compared with the highly significant and much stronger increase with age of plasma FN in the control population (130 persons studied). The difference in the slopes of the two correlation lines (control and cancer patients, see Fig. 1) is significant ($P < 0.05$). The two lines intersect at about 40 years of age. This could be interpreted as a decreased rate of synthesis and/or increased rate of catabolism of plasma FN above this age in mammary cancer patients. Below this age increased or unchanged plasma FN levels may be expected.

This modified age dependence of plasma FN was also found in several other forms of malignancies and especially in sarcomas (J. P. Potazman et al., unpublished work). These results confirm our previous conclusion that pathological variations of plasma FN cannot be interpreted without the use of age-matched controls.


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**Fig. 1. Age dependence of plasma FN in mammary cancer patients (●) and in a control population (○)**