ANTIBODIES TO INTERMEDIATE FILAMENTS AS A TOOL IN TUMORDIAGNOSIS.
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Intermediate filaments (IF) are tissue specific in so far that epithelial, mesenchymal, muscle
and neural tissue types can be distinguished by the use of monospecific antibodies to keratin,
vimentin, desmin and neurofilaments or glia filaments respectively. We have examined
the possibility of using these sera in the differential diagnosis of human malignant tumors. Using antisera to human nail
keratin and bovine lens vimentin we could differentiate between carcinomas (keratin +) and sarcomas (vimentin +) (see figs.
1-3). Furthermore, we could show that when cells become malignant and metastasize, they retain their original IF and do
not develop additional IF

Fig. 1. Human squamous cell carcinoma reacting positively with antibodies to keratin in the indirect immunofluorescence

system. When epithelial (tumor; e.g. hepatoma) cells are brought into culture, however, they develop vimentin IF in addition
to keratin filaments. In the case of human hepatoma cells, these vimentin IF are no longer detectable in solid tumors

formed by these cells in nude mice. It seems therefore that

Fig. 2. Mixed mesodermal sarcoma in the uterus staining strongly positive with anti-vimentin. bar = 20 μm.

this additional vimentin cytoskeleton is necessary for an epithelial cell to survive in vitro and is rapidly lost when the cells grow solidly in the body.

Fig. 3. Metastasis of a uterine adenosquamous carcinoma in a para-aortic lymph node, positive for keratin. bar = 20 μm.

Studies on malignant cells obtained from human ascites and other body fluids are in progress to see whether these cells also obtain a vimentin containing "transport" cytoskeleton when they metastasize.

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