

Stanley, who isolated the virus protein of the Shope rabbit papilloma virus in a crystalline form, expressed the opinion that this virus protein is a pathological protein formed autocatalytically by the cells. It corresponds in general character to the pathological proteins generated in an organism, as reaction products (antibodies) to infections (Hughes), and its production is analogous to the autocatalytic synthesis of enzymatic biocatalysts from inactive protein molecules (Von Euler). This ability of cells to synthesize clearly defined proteins in their normal or pathological metabolism, and to transmit this property through cellular inheritance cannot be explained in any other way than through the assumption that organizers are required for the synthesis of proteins (Bergmann and Niemann). It is apparently by such a chain of events that virus proteins enter into the cellular metabolism, and may even undergo in this course mutations (Stanley).

One may define carcinogenic viruses as cellular, ready-made, carcinogenic, protein complexes which have acquired, through the special circumstances surrounding and conditioning their development, tissue specific properties, such as possessed normally by protein components of many types of tissues. The isolation of macromolecular proteins from chick embryo extracts has shown that macromolecularity is not a characteristic quality of virus tumor proteins (Stern and Duran-Reynals). The differences in the chemical composition of the Shope tumor virus protein (consisting of nucleic acids and proteinic matter in a ratio similar to that prevailing in nucleo-proteins) and the virus proteins of Rous sarcomas and fowl leucoses (thymonucleic acid and proteinic matter in a ratio similar to that of the cytoplasmic proteins) suggest different sources of origin and different types of tissue affinities, resulting in different varieties of tumors.

An allergic theory of cancerigenesis possesses the advantage that it can be coordinated with a virus genesis in a much more plausible way than any of the other theories advanced. The failure to recover the papilloma virus from malignant growths resulting from its inoculation into domesticated rabbits does not militate against this conception, as similar difficulties are encountered in the isolation of allergic immune bodies, in those types of allergies characterized by cellularly fixed reaction products (Michael; and Urbach).

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