Evidence for a New Mechanically Transmissible Tumour-inducing Principle in Tobacco1)

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With one figure

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The development of teratomas on the stems of *Nicotiana clevelandii* under greenhouse conditions was observed in 1971 in the Department of Plant Pathology at the University of California, Berkely, USA.

The tumour-inducing principle (TIP) was mechanically transmissible by inoculation of crude extracts of tumour cells at the base of the stems of tobacco plants by needle pricking, and by brush inoculation of the leaves combined with needle pricking at the stems immediately or several days after inoculation with a sterilized needle (see fig.).

The tumour tissue could be cultivated in axenic culture using the medium of Murashige and Skoog (Physiol. Plant. 15, 473—497, 1962). Under these conditions sterile tissue of healthy tobacco plants also developed teratoma cells after inoculation with ultrafiltrated extract of tumour tissues.

Tumour development was restricted to plants in the genus *Nicotiana*. The inoculation of other solanaceous plants, legumes and species of *Chenopodium* did not result in teratoma formation. *Datura stramonium* was systemically infected by mechanical inoculation or grafting of diseased tobacco, but did not develop any symptom.

The TIP was ultrafiltrable (pore size 0.2 μ, Sartorius membrane filters) and was sedimented within 60 minutes of ultracentrifugation at 100,000 g. Resuspended samples of centrifuged pellets induced specific antibodies in rabbits.

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causing a characteristic precipitin line in the agar gel diffusion test. The thermal inactivation point was between 56 and 60 °C (10 minutes of incubation), the longevity in vitro at room temperature 8—12 days. By electron microscopical techniques no virus particles could be demonstrated. The TIP was seed- and soil-transmissible.

Even though virus particles were not demonstrated by electron microscopy, so far, we believe the results indicate that the TIP, actually, is an undescribed virus.

Zusammenfassung

Nachweis eines neuen mechanisch übertragbaren, tumor-induzierenden Prinzips in Tabakpflanzen

Ein mechanisch übertragbares tumor-induzierendes Prinzip in Tabakarten wird nachgewiesen, das aufgrund der bisherigen Ergebnisse für ein noch nicht beschriebenes Virus gehalten werden muß.

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