

### On a New Test to Show Whether Exogenous Sensitization Can Develop

According to the data in the literature, there is a relation between the development of exogenous sensitization and the lymphatic system of the skin. We refer to the papers of RAJKA<sup>1</sup> and MIESCHER<sup>2</sup>. Since 1941, it has been known that substances having a molecular weight exceeding 20,000 are absorbed via the lymph capillaries<sup>3,4</sup>. In the course of studying the absorption of dyes, KIRÁLY<sup>5</sup> has made very interesting observations; but – so far as we know – from the point of view of exogenous sensitization, the transport of giant molecules has not yet been examined.

**Methods.** 0.5 g of Congo red was dissolved in a 77.25 ml 0.2M aqueous disodium hydrophosphate solution and 22.75 ml of a 0.1M citric acid solution was added. The preparation was completed by adding 5.0 g of polyvinylpyrrolidon (PVP) (patent name: Luviskol K 90, average molecular weight 750,000<sup>6</sup>). The solution was autoclaved and poured into 1 ml ampoules (pH 6.795–6.845), and 0.1 ml of this solution was given intracutaneously in the intact non-inflamed skin of the upper arm over the insertion of the deltoid muscle. Readings were made 48 h after application. The intracutaneous inoculation was performed on a large number of subjects<sup>7</sup>. The colour reaction visible at the site of the inoculation showed the extent of the transport. With the exception of the pemphigus vulgaris cases, we differentiated 4 grades (types) of absorption. Type I (transport<sub>1</sub> = T<sub>1</sub>): hardly noticeable pale red spot; very rapid transport (Figure 1). Type II (transport<sub>2</sub> = T<sub>2</sub>): darker red spot, the middle of which may be a little lighter; somewhat slower transport than that of type I, but still good. Type III (transport<sub>3</sub> = T<sub>3</sub>): remnant of a purple-red ring situated on a red background; transport fairly retarded and proportional to the ring remnant. Type IV (transport<sub>4</sub> = T<sub>4</sub>): completely closed dark purple-red ring situated on a red background; macromolecular transport very retarded (Figure 2). The fate of the substance introduced into the skin was also examined by means of biopsy.

The sensitization of the individuals was examined by means of 25 substances with Jadassohn-Bloch's patch tests<sup>8</sup>. It was revealed that there is a close correlation

between the two, inasmuch as the sensitized hypersensitive individuals belong to the accelerated types of transport (T<sub>1</sub>, T<sub>2</sub>, T<sub>3</sub>). On the other hand, in the subjects belonging to the most retarded types of transport (T<sub>4</sub>) sensitization could not be demonstrated by means of epicutaneous tests.

The test is based on the transport of macromolecules with suitable electrostatical charge adjusted by means of the pH<sup>8,9</sup>.

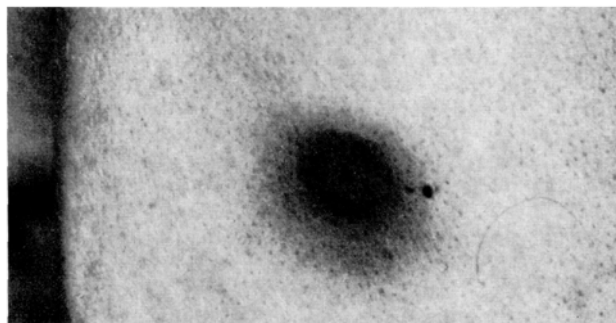


Fig. 2. Grade IV/T<sub>4</sub>: most retarded transport type.

**Zusammenfassung.** Der makromolekuläre Transport im Lymphapparat der Haut wurde mit Hilfe von intracutaner Injektion von mit Kongorot gefärbter hochmolekulärer Polyvinylpyrrolidonlösung (pH 6,8) untersucht. Zwischen dem Zustandekommen der exogenen Sensibilisierung und dem makromolekulären Transport des Lymphapparates der Haut bestehen nahe Zusammenhänge.

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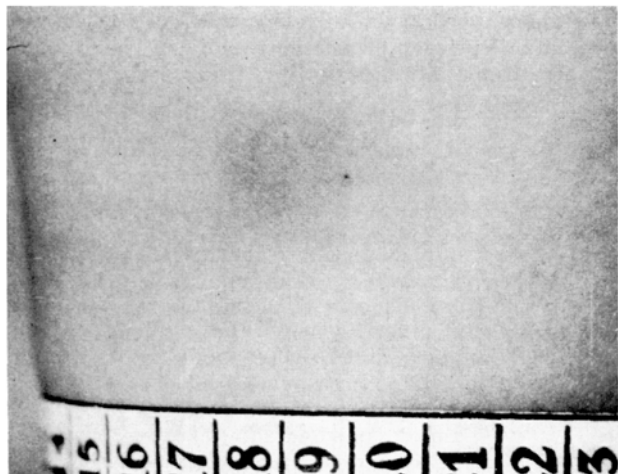


Fig. 1. Grade I/T<sub>1</sub>: most accelerated transport type.

<sup>1</sup> G. RAJKA JR., in E. RAJKA, *Allergie und allergische Erkrankungen* (Akademai Kiadó, Budapest 1959), vol. 2, p. 446.

<sup>2</sup> G. MIESCHER, in A. MARCHIONINI, *Handbuch der Haut und Geschlechtskrankheiten* (J. JADASSOHN Ergänzungswerk; Springer, Berlin-Göttingen-Heidelberg 1962), vol. II/1, p. 34.

<sup>3</sup> J. M. BARNES and J. TRUETA, *Lancet* 1941 i, 623.

<sup>4</sup> I. RUSZNYÁK, M. FÖLDI, and Gy. SZABÓ, *Lymphatics and Lymph Circulation* (Pergamon Press Ltd., Oxford-London-New York-Paris 1960).

<sup>5</sup> K. KIRÁLY, in *Debreceni Emlékkönyv* (Tudományegyetemi Nyomda, Debrecen 1946) (Hungarian), p. 188.

<sup>6</sup> The authors express their gratitude to the Badische Anilin und Soda-Fabrik AG, Ludwigshafen am Rhein, for kindly providing the PVP.

<sup>7</sup> A. NAGY and L. FORRÓ, *Exper.* 21, im Druck (1965).

<sup>8</sup> H. WEESE and W. SCHOLTAN, *Dtsch. med. Wschr.* 76, 1492 (1951).

<sup>9</sup> H. FÖPPINGER, *Die Permeabilitätspathologie als die Lehre vom Krankheitsbeginn* (Springer, Wien 1949), p. 48.