ragt ein mehrschichtiger Bindegewebssack, in dessen Mitte einige Urgeschlechtszellen liegen. Nicht immer sind die Urgeschlechtszellen in dieser Lage anzutreffen. In einigen Fällen liegen sie einzeln zwischen den Nierenkanälchen. Die Blase wird von Muskulatur eingeschlossen, die sich aus Spender- und Wirtsmaterial differenziert hat. Das Nierengewebe wird von zahlreichen Kapillaren durchzogen, die mit dem Gefäßsystem des Wirtes in Verbindung stehen. Die Haut, die sich aus dem transplantierten Ektoderm entwickelt hat, ist von der des Wirtes nicht zu unterscheiden, obgleich beide Hautanteile ein unterschiedliches Alter haben.

Auffällig ist, dass bei der 21 mm langen Wirtslarve noch Dotterplättchen zu sehen sind. Doch liegen sie nicht innerhalb, sondern zwischen den Zellen im Transplantatgewebe und in unmittelbarer Nähe des Transplantats. Es scheint, als können Dotterplättchen, die bei der Transplantation aus verletzten Spenderzellen verstreut wurden, nicht mehr oder nur sehr langsam abgebaut werden.

Die Experimente zeigen, dass die embryonalen Spenderzellen unter dem Einfluss differenzierter Gewebe in ihrer Entwicklung qualitativ nicht von der Norm abweichen. Es könnte möglich sein, durch Transplantation embryonaler Organanlagen Organteile oder ganze Organe zu ergänzen oder zu ersetzen. Versuche, in denen die Entwicklung der Transplantate bis zu einer Larvenlänge von 41 mm verfolgt wird, werden gegenwärtig durchgeführt.

Summary. The intermediate mesoderm (8th–12th somite) of early tailbuds of *Triturus alpestris* was transplanted into the lateral body wall of 12 mm larvae. The differentiation of opisthonephros tubules, primordial gonad and a new coelom was observed in 21 mm larvae 23 days after implantation.

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Effect of Imipramine on the Norepinephrine and Histamine-Induced Capillary Response in the Rat

Experimental evidence is accumulating that catecholamines regulate the immediate inflammatory vascular response by opposing the vasodilator amines[1,2], while at a delayed time they aggravate the vascular syndrome of inflammation[3]. Intradermal injection of catecholamines interferes with capillary endothelial filtration, and the amines inhibit the increased vascular permeability provoked by stimuli[3]. Pletscher[4] demonstrated recently that thymoleptic drugs prevent the reentry of norepinephrine (NE) into the storage pools and so potentiate the effect of NE. The implications of Pletscher's results were investigated, and pertinent results are presented in this communication.

An intradermal injection of 20 μg histamine provokes vasodilatation and increased permeability, indicated as 100% vascular response. When 1 μg NE is injected intradermally with 20 μg histamine, the vascular response is completely inhibited within 5 min at the same site in the abdominal skin. Smaller doses of NE have proportionally less inhibiting effect. 0.1 μg has no measurable inhibition on the histamine-induced vascular response. When imipramine or desipramine was injected intramuscularly in doses ranging from 7.5–20 mg/kg 2 h before histamine, the resulting vasodilatation and increased permeability were the same as in the control animals. When 0.1–0.05 μg NE was injected intradermally and 20 μg histamine was administered into the same skin site, there was a 100% vascular response to histamine. In rats pretreated with 20 mg/kg imipramine or desipramine intramuscularly 2 h before, a 0.01 μg dose of NE reduced the response to histamine by 60%. This inhibiting effect increased up to 90% with a 0.1 μg dose of NE. A 10 mg/kg dose of imipramine or desipramine pretreatment still permitted a strong potentiation of the NE effect on the histamine-induced inflammatory response. Results obtained with imipramine are shown in Figure 1.

In another experiment all rats received an intramuscular injection of 10 mg/kg imipramine at 0 time. At different time intervals thereafter NE was injected intradermally in decreasing doses, and a constant dose of 20 μg histamine was given within 5 min into the same site of separate groups of rats. Figure 2 shows that even 3 h after imipramine treatment, 0.125 μg NE had a considerable inhibitory effect on the histamine-induced vascular response. When desipramine was used instead of imi-

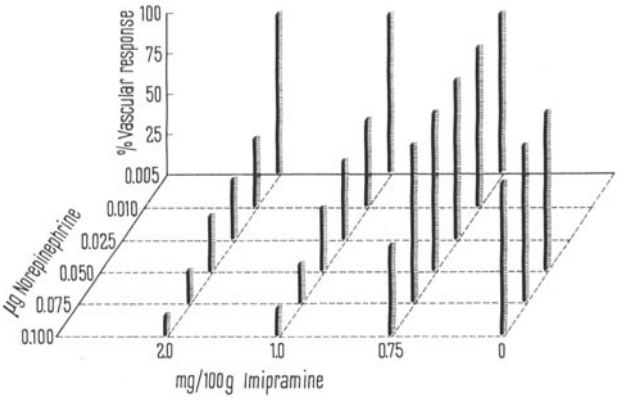

Fig. 1. % vascular response to intradermal injection of 20 μg histamine and increasing amounts of 1-norepinephrine bitartarate 2 h after intramuscular injection of different doses of imipramine. Each column represents the average readings of 8 rats.

[1] W. G. Spector and D. A. Willoughby, J. Path. Bact. *80*, 271 (1960).
[2] D. A. Willoughby and W. G. Spector, J. Path. Bact. *88*, 159 (1964).
[3] B. Gözsy and L. Kátó, Nature, Lond., in press.
[4] A. Pletscher, Arzneimittel-Forsch. *14*, 479 (1964).

pramine the potentiation of NE effect was of similar intensity and lasted for 3 h.

It is but a fraction of free NE, released by stimuli or in the process of normal turnover, which exercises a physiological effect[5]. Another fraction is carried away by the blood stream or is inactivated by catechol-*o*-methyltransferase (COMT). Most of the released free NE is inactivated by reentry into the storage pools[4]. It is this process which is inhibited by the thymoleptic agents[4], as also evidenced by the presented results.

The prolonged vasoconstricting effect of NE below the threshold doses in the imipramine and in the desipramine pretreated rats is indirect but strong evidence that the thymoleptic drug itself as well as its metabolic product, desipramine, prevents the reentry of free (and probably the injected) NE into the storage pools. To this free NE, protected by the 2 thymoleptic drugs, the injected NE provides an additional amount, resulting in effective and prolonged inhibition of the histamine-induced vascular response. The fact that imipramine and desipramine pretreatment resulted in the same potentiation of NE effect, without differences in time-course and intensity, suggests that both the drug and its metabolic product have similar effects on the histamine-induced vascular alterations[6].

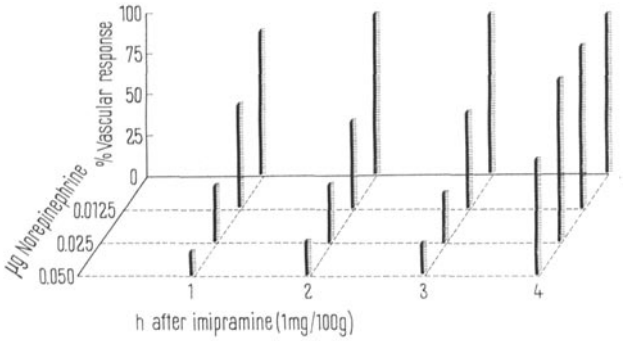

Fig. 2. % vascular response to intradermal injection of 20 µg histamine and increasing doses of l-norepinephrine bitartarate administered at different time intervals after intramuscular treatment with a constant dose of 1 mg/100 g imipramine. Each column represents the average readings of 8 rats.

Résumé. Les résultats rapportés nous autorisent à postuler l'hypothèse que la norépinéphrine est un inhibiteur hormonal naturel dans les premières phases de la réaction inflammatoire et que l'imipramine et la désipramine, qui empêchent l'accumulation de la norépinéphrine dans les réserves, augmentent et prolongent l'action de la norépinéphrine sur le réseau capillaire. En aucune façon les effets de l'imipramine sur le réseau capillaire se sont montrés différents de ceux causés par la désipramine.

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Institut de Microbiologie et d'Hygiène de l'Université de Montréal and Hôpital des Laurentides, Annonciation (P.Q., Canada), June 17, 1966.

[5] R. Y. WURTMAN, New England J. Med. *273*, 637, 693, 746 (1965).

[6] This work was partially supported by grants from the Ministry of Health of the Province of Quebec (Federal-Provincial Health Research Grants).

Experimental Studies on Embryonic Development of *Dendrocoelum lacteum* O. F. Müller

The embryonic development of *Tricladida* takes place within a cocoon consisting of a hard non-transparent tunic. Nevertheless, the course of development processes can be observed in vivo if, immediately after the cocoon of *Planaria torva* is laid, its content is sucked out by means of a capillary tube, spread on a cover-slip and protected against drying[1]. The span of life of such a culture is, however, limited. The embryos die early, when the syncytium becomes surrounded by the cells of provisional ectoderm. By aid of the method described above SEILERN-ASPANG[1] could state that the deformation (flattening) of the embryonic buds (embryonic area) caused by the conditions of culture results in polyembryony. Since, in the course of normal embryonic development of *Dendrocoelum lacteum*, undisturbed by any experimental factor, polyembryony was observed[2], it seemed to be of interest to study the behaviour of the embryos of this species under experimental conditions, i.e. raised on cover-slips.

The content of a newly laid coccoon of *D. lacteum* was spread all over a cover-slip of a moist chamber by means of a glass pipette. The moist chamber consisted of 2 cover-slips separated by a 3 mm thick vinidur ring whose diameter was 20 mm. A small tampon of wet cotton was inserted into the moist chamber. The edges of the slides were tightened with sterile vaseline. The cocoons, before being punctured, were put into penicillin and streptomycin solution for 5–10 min. The pipettes, slides, ring, cotton etc. were sterilized by means of UV-radiation. The temperature of the culture was 20–25 °C.

A few hours after the cocoon content is spread on the cover-slip of the moist chamber, some vitelline cells encircle the egg-cell and form a compact layer. After 24 h, when the dissolving vitelline cells form syncytia, the germs become more or less flat, depending on the thickness of the mass of cells spread all over the cover-slip. In such a flattened syncytium one can clearly distinguish a more granulous external part and a more homogeneous inner part containing the blastomeres (Figure 1). After 3 days the embryo assumes a spherical shape, and sometimes if the layer of the spread mass of cells is sufficiently thin, it bulges over the surface. On 1 pole of the spherical embryo one can easily see the formation of embryonic pharynx. The embryo containing an embryonic pharynx is, strictly speaking, a specific larva which is able to

[1] F. SEILERN-ASPANG, Zool. Anz. *159*, 193 (1957).

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