l'on trouve dans les synapses cholinergiques de l'unité motrice des Vertébrés[9]. Mais cette synapse montre aussi des granules à centre foncé et bordure plus claire «membrane» du type trouvé dans la Figure 2; précisément DE ROBERTIS[9] a observé dans des nerfs adrénergiques des vésicules synaptiques à noyaux denses. La présence de vésicules au contenu uniforme et de ces granules dans une même formation synaptique de la Figure 3 laisse entendre qu'il pourrait s'agir d'une fonction adrénergique-cholinergique; mais l'on doit cependent se demander si les différenciations vésiculaires ne représentent pas des granules à membrane vidés de leur contenu opaque, comme si la membrane de ces granules constituait l'interface limitante de ce qui se manifeste comme vésicules; s'il en était ainsi, il en découlerait que la structure synaptique que nous décrivons aurait un caractère purement orthosympathique dont le rôle multiplicateur d'impulsions intra-cardiaques neuro-neuroniques, suggéré par UDELNOV et KOPYLOVA[10], devrait alors être considéré. Quoi qu'il en soit, l'existence d'éléments granulaires ressemblant à des sécrétions de catécholamines pourrait rendre compte de la réanimation du ventricule soumis à des excitations vagales par libération, à partir des fibres orthosympathiques de ce nerf mixte, d'hormones antagonistes de l'acétylcholine, l'adrénaline étant connue pour faciliter l'échappement ventriculaire[11].

Summary. In the basal part of the ventricle of the heart of *R. esculenta* axon and synapse show granules of catecholamine type. The fact is tentatively related with the phenomenon of 'ventricle escape'.

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[9] E. DE ROBERTIS, in: *Regional Neurochemistry* (Eds S. S. KETY et J. ELKES; Pergamon Press, 1961), p. 248. Consulter aussi: E. DE ROBERTIS, *Histophysiologie des synapses et neurosécrétion*, Monographies de Physiologie causale IV (Gauthier-Villars, Paris 1965), p. 252.

[10] M. G. UDELNOV et G. N. KOPYLOVA, Vest. mosk. gorn Akad. VI, Biol. Pochvov *18*, 14 (1963).

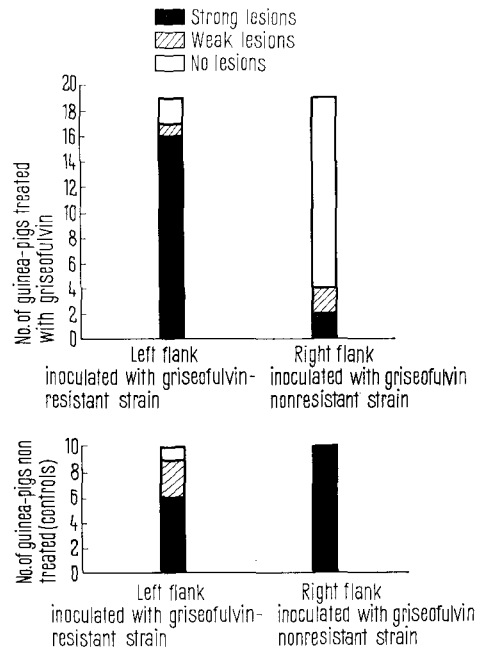
[11] E. G. T. LIDDELL et C. SHERRINGTON, *Mammalian Physiology* (Clarendon Press, Oxford 1929).

Induced Griseofulvin. Resistance of *Achorion quinckeanum* in vitro and in vivo[1]

Griseofulvin-resistant strains of dermatophytes have been cultivated in the past by other investigators. We obtained a griseofulvin-resistant strain of *Achorion quinckeanum* in the following manner: We used blotting-paper strips impregnated with a saturated (0.3%) griseofulvin solution in acetone, which were then dried in air. The blotting-paper strips treated in this way were immersed in test tubes containing wort of beer[2]. The fungi grew on the paper strips impregnated with griseofulvin only after 3 weeks, while on the control paper strips without griseofulvin growth was observed after 3 or 4 days. When re-inoculated on griseofulvin-impregnated paper, the fungi grew much quicker. After 3 re-inoculations the *A. quinckeanum* grew as quickly on the strips impregnated with griseofulvin as on the controls.

The griseofulvin-resistant strain obtained after 4 passages was used to inoculate guinea-pigs, which were fed with griseofulvin ($^1/_2$ a tablet 'Grisovin Glaxo' or 200 mg/kg body weight daily). Both flanks were inoculated with the fungi by scarification: the left flank with the griseofulvin-resistant strain of *A. quinckeanum*; the right flank with the same *A. quinckeanum* strain but which had had no prior contact with griseofulvin. 19 griseofulvin-treated guinea-pigs were inoculated in the same manner.

No lesions appeared on the right flanks of 15 guinea-pigs inoculated with the strain not treated with griseofulvin (and very sensitive to it in vitro). On the left flanks of the same 19 griseofulvin-treated animals inoculated with the griseofulvin-resistant strain in vitro, only 2 showed no lesions.



[1] This work was made possible by a subsidy from the Swiss National Fund for Scientific Research.

[2] W. JADASSOHN and H. E. FIERZ, Experientia *1*, 6 (1945).

Thus, this experiment demonstrates that the in-vitro-resistant strain of *A. quinckeanum* is also resistant in vivo.

It is important to mention the results of our experiments on control animals. 10 guinea-pigs were inoculated in the same way with the same strains, but were not treated with griseofulvin. The griseofulvin non-resistant strain gave stronger lesions than the resistant one in all guinea-pigs.

The results of the above experiments prove that the in vitro resistant strain (less pathogenic than the non-resistant one) is resistant also in vivo (Figure).

Résumé. Avec une souche d'*Achorion quinckeanum*, devenue résistante à la griséofulvine in vitro, on a inoculé des cobayes et montré que la souche résistante in vitro est aussi résistante in vivo.

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Occurrence of a Physalaemin-Like Polypeptide (Uperolein) and Other Active Polypeptides in the Skin of *Uperoleia rugosa*[1]

Crude methanol extracts of the dried skin of *Uperoleia rugosa*, a small Australian amphibian, display potent pharmacological actions on a number of test systems, as shown in the accompanying Table.

Since some of the above effects are abolished by trypsin digestion and all are abolished by chymotrypsin digestion, it may be assumed that they are due to polypeptides.

Parallel biological assay of crude methanol extracts and eluates from alumina columns, paper chromatograms and pherograms, demonstrate that *Uperoleia* skin contains at least two main active peptides, possibly accompanied by minor active constituents.

One of the main polypeptides is characterized by its potent stimulant action on the rat uterus and rat colon. The other has a very poor action on rat uterus and rat colon but possesses a remarkably potent hypotensive action in the dog and rabbit, a powerful stimulant action on the rabbit large intestine, and an intense sialogenous effect in the rat.

The biological effects elicited by the hypotensive polypeptide, for which the name *uperolein* is suggested, are similar to those elicited by eledoisin[2,3] and physalaemin[4] It is likely that work which is in progress on the isolation of uperolein and on its amino acid composition and sequence will also show its chemical similarity to these two tachykinins.

However, it should be stressed that high-voltage paper electrophoresis and paper chromatography enable uperolein to be readily separated and distinguished from either eledoisin or physalaemin.

Uperolein is also present, in variable amounts, in the skin of the closely related species *Uperoleia marmorata*.

Riassunto. Gli estratti metanolici della pelle di *Uperoleia rugosa*, piccolo anfibio australiano, contengono, oltre ad eventuali costituenti attivi minori, due polipeptidi altamente attivi. Il primo è caratterizzato da una intensa azione stimolante sul colon e sull'utero di ratto; il secondo, per il quale viene proposto il nome di *uperoleina*, è dotato di potente azione ipotensiva nel cane e nel coniglio, di potente azione stimolante sul colon di coniglio e di potente azione scialagoga nel ratto. L'uperoleina è strettamente vicina da un punto di vista biologico, e presumibilmente anche chimico, alla eledoisina e alla fisalemina.

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Test systems	Activity of extracts of *U. rugosa* skin expressed in mg physalaemin (Phys) or bradykinin (Br) per g dry tissue			
	Skin sample I		Skin sample II	
	Phys	Br	Phys	Br
Dog blood pressure	0.17–0.23	60–100	0.3	90–150
Rabbit blood pressure	0.15	9	–	–
Rabbit large intestine	0.40–0.45	–	0.67	–
Guinea-pig ileum	0.5	3.8	1.15	8
Rat colon	200	–	360	–
Rat oestrous uterus	1600	0.15	2400	0.25
Rat salivary glands	0.15–0.24	–	0.55	–

[1] Supported by a grant from the Consiglio Nazionale delle Ricerche, Roma.

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