

pléides sont fréquemment anormales (perte ou non-disjonction de chromosomes). L'un de nous a déjà signalé la présence dans l'épiderme, chez certaines larves aneuploïdes, de mitoses ségrégatives accentuant le degré d'aneuploïdie initial^{4,5}. Il ne semble pas, cependant, que ces mitoses soient également fréquentes dans les diverses pontes et ici encore l'hérédité maternelle paraît jouer un rôle déterminant dans la fréquence de leur apparition (BEETSCHEN, FAURIE et LE ROUX, inédit). Nous n'en avons observé que très rarement dans les tissus des embryons appartenant aux deux pontes étudiées en détail.

Les nucléoles des noyaux interphasiques ont une morphologie souvent altérée; ils sont fréquemment vacuolaires et hétérogènes. La synthèse de l'ARN y est sans doute perturbée par l'aneuploïdie. D'autre part on peut

observer dans certains cas l'extrusion de nucléoles entiers dans le cytoplasme, où ils dégénèrent probablement.

Summary. A comparison is made between aneuploid offsprings of triploid females mated with diploid or triploid males of *Pleurodeles waltlii*. In the latter case, embryonic lethality is raised, and abnormalities are more severe. The disturbances affect morphogenesis, embryonic growth and physiological differentiation. At the cellular level, nuclear and nucleolar degenerative changes are conspicuous.

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Histochemical Localisation of β -Glucuronidase in Healing Wounds of the Natterjack Toad *Bufo calamita*

It is a well-known fact that β -glucuronidase is related to cell proliferation and the formation of connective-tissue ground-substance. This enzyme has been demonstrated in the basal layers of the oral mucous membrane and the epidermis, the blood vessels of the normal corium, in healing wounds of the skin of the back, the tongue and the palate of the rat¹⁻³, and in healing wounds of the dorsal skin and the tongue of the common iguana and the axolotl⁴. In continuation of this investigation we have examined the activity of β -glucuronidase in healing wounds of the dorsal skin and the tongue of the toad *Bufo calamita*, the animals being killed after 4, 8, 15, 22, 32 and 40 days. After excision of the wound with an extensive zone of normal surrounding tissue and fixation in formalin/chloral hydrate, the enzymatic activity was determined by the method of FISHMAN and BAKER⁵ on frozen sections with different incubation times.

In the superficial necrotic band of the connective tissue in the 4-day specimens a negative reaction was found, whereas immediately beneath this negative zone there was an intensely positive zone due to the presence of inflammatory exudate, and particularly leucocytes.

As healing of the wounds progressed, the fibroblastic proliferation zone reacted moderately but consistently. The histiocytes and giant cells appeared to react more in-

tensely. In the 22-day specimens the epidermis, which had proliferated over the margins of the wound, exhibited a significant increase in enzymatic activity.

In the light of these results we conclude that epithelial proliferations is closely related to β -glucuronidase activity. In connective-tissue this enzyme is associated with tissue formation. As these results correspond with those obtained in the rat¹, the common iguana and the axolotl⁴, more extensive significance must no doubt be attached to the β -glucuronidase.

Zusammenfassung. Histochemischer Nachweis von β -Glucuronidase bei der Wundheilung der Kröte *Bufo calamita*.

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¹ R. L. CABRINI and F. A. CARRANZA, *Naturwiss.* 45, 533 (1958); 48, 131 (1961); *Arch. oral Biol.* 2, 28 (1960).

² A. M. SELIGMAN, K. C. TSOU, S. H. RUTENBURG, and R. B. COHEN, *J. Histochem. Cytochem.* 2, 209 (1954).

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The Biogenesis of Helminthosporal

The isolation¹ and elucidation of the structure² of the fungal toxin helminthosporal (1) from *Helminthosporium sativum* has recently been reported. This toxin, which is responsible for considerable losses in cereal production, is a sesquiterpenoid, but the structure, though derived from three isoprene units, cannot be formed by the cyclisation of a farnesyl type precursor. This phenomenon, although comparatively uncommon, is not unknown and led Ruzicka to propose the biogenetic isoprene rule wherein the derivation from a farnesyl precursor may be followed by subsequent, and consequently biogenetically trivial, chemical steps³. The classic instance of this, is eremophilone, a concluding biogenetic step being a methyl migration. An-

other mode of transformation from a farnesyl precursor in the sesquiterpenoids is found in the genesis of elemol, where a Cope rearrangement has been proposed⁴.

Neither of these schemes appears to be relevant to the biogenesis of helminthosporal. Inspection of the structure suggested that the substance might be derived from a precursor such as (2) (itself derivable from farnesyl cycli-

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³ L. RUZICKA, *Exper.* 9, 357 (1953); *Proc. chem. Soc.* 1951, 341.

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