

conditions not related to their intrinsic aptitude to multiply.

Zusammenfassung. Werden Lunge und Milz von Yoshida-Sarkomratten bereits fünf Tage nach der Tumortransplantation entnommen und in normale Ratten implantiert, so zeigt der Umstand, dass sich aus diesen Organen Tumoren entwickeln, *in situ* belassen aber keine Metastasenknötchen bilden, dass dies auf andere Bedin-

gungen als solche, die mit der Lebensfähigkeit der Zellen zusammenhängen, zurückzuführen ist.

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Changes in the Distribution of Glucose-¹⁴C in Alternative Catabolic Pathways Induced by Kinetin-Analogue in the Callus Tissue of Carrot (*Daucus carota* L.)

It is known that kinetin affects growth and differentiation of tissue callus cultures¹. It appeared to be of interest whether the action of this type of substance bears some relationship to the regulation of the activity of alternative pathways of glucose catabolism, as had been demonstrated that β -indoleacetic acid^{2,3} and animal hormones^{4,5} are able to change the distribution of glucose in these pathways.

This report contains the results of measurements of the production of ¹⁴CO₂ from glucose-(1-¹⁴C) and glucose-(6-¹⁴C) by the callus tissue of carrot (*Daucus carota* L.) after a short treatment with 6-benzylaminopurine. The experimental material was obtained from the Institute for Plant Physiology of Poznań (Poland). The tissue was passaged four times in the course of four months in our laboratory and maintained on a modified GAUTHERET's medium⁶ at 22–24°C in daylight. Callus tissue was sectioned to pieces about 1–3 mm³, and washed in water. 0.5 g material thus prepared was incubated in 50 ml Erlenmeyer flasks with 6 ml 0.033 M phosphate buffer of pH 5.3, containing different concentrations of 6-benzylaminopurine which was synthesised at the Department of Radiobiology of this Institute. Darkened flasks were shaken in a water bath at 25°C. After 2 h, 1 ml glucose-(1-¹⁴C) or glucose-(6-¹⁴C) of a total activity of 330 μ C and

mass of 4 mg was added. Carbon dioxide was trapped in 28% KOH placed in a cup suspended from the stopper of the flask. After terminating the incubation, the K₂¹⁴CO₃ was converted to Ba¹⁴CO₃,⁷ which was collected on a filter paper. This filter paper was then used for measuring the radioactivity with an end-window GM counting tube (Frieseke-Hoepfner apparatus). The values of radioactivity were referred to zero mass of Ba¹⁴CO₃. The efficiency of measurement was 1 μ C = 10⁶ c.p.m.

As may be seen from the Table 6-benzylaminopurine affects the release of ¹⁴CO₂ from glucose-(1-¹⁴C) and from glucose-(6-¹⁴C) in the course of a 4 h incubation of tissue with glucose so that the ratio of C₆/C₁ is somewhat raised. This effect, indicating the change of the ratio between the alternative respiratory pathways, is marked at concentrations when the total release of ¹⁴CO₂ is reduced (0.80 and 4.00 mg/l) as well as at the lowest concentration used when 6-benzylaminopurine is observed to stimulate the overall formation of ¹⁴CO₂ (0.20 mg/l).

It follows from the above results that 6-benzylaminopurine exhibits a pronounced effect on the catabolism of glucose-¹⁴C in the callus tissue of carrot in the sense that it decreases the activity of the pentose cycle and increases that of glycolysis.

Zusammenfassung. Im Callusgewebe von *Daucus carota* L. wurde mittels speziell markierter Glucose nach 6stündiger Behandlung mit 6-Benzylaminopurin (0,2–4,0 mg/l) der vergrößerte Anteil der Atmung vom glycolytischen Typ festgestellt.

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The effect of 6 h treatment with 6-benzylaminopurine on the catabolism of specifically labelled glucose in the callus tissue of carrot (*Daucus carota* L.). The tissue was pretreated with 6-benzylaminopurine for 2 h, whereafter labelled glucose was added and incubation prolonged for further 4 h

Concentration of 6-benzylaminopurine in mg/l in solution with labelled glucose	Radioactivity of Ba ¹⁴ CO ₃ in c.p.m./0.1 g dry weight. Mean values and standard deviations		C ₆ /C ₁ and coefficient of variation %
	Glucose-(1- ¹⁴ C)	-(6- ¹⁴ C)	
0	1885 ± 11	662 ± 6	0.35 ± 3.4
0.20	1910 ± 12	723 ± 7	0.38 ± 3.4
0.80	1666 ± 11	740 ± 7	0.44 ± 3.5
4.00	1481 ± 10	773 ± 7	0.52 ± 3.5

Über die Beziehung zwischen Muttertier und Jungen beim Mufflon (*Ovis aries musimon*, Pall.)

SCHLOETH¹ gibt an, dass sich bei Camargue-Rindern Mutter und Kind gegenseitig optisch und akustisch kennen. Über die Mutter-Kind-Beziehung entwickelt sich nach COLLIAS² und SCOTT³ bei Schafen und Ziegen die

Herdensozietät. HEDIGER⁴ lässt offen, ob sich diese Beziehung durch Prägung im Lorenzschen Sinn oder durch

¹ R. SCHLOETH, *Säugetierkundl. Mitt.* 5, 145 (1958).

² N. E. COLLIAS, *Ecology* 37, 228 (1956).

³ J. P. SCOTT, *Animal Behaviour* (Univ. Press, Chicago 1958).

⁴ H. HEDIGER, *Tierpsychologie im Zoo und im Zirkus* (Verlag Reinhardt, Basel 1961).