Summary. Unlike the lymphocytes from eczematous subjects which are stimulated to mitosis and cell transformation by skin extract of either autologous or homologous skin, lymphocytes from normal individuals are stimulated only by extracts of homologous skin. The mitogenic property of skin appears to be closely associated with certain RNA fractions.

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Amphetamine: Augmentation of Pressor Effects of Tyramine in Rats. (31325)

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We have found(1) that intravenous amphetamine potentiates the pressor response to intravenous tyramine in the dog. This potentiation of tyramine by amphetamine in the dog is comparable to the potentiation of tyramine by monoamine oxidase inhibitors reported by Goldberg and Sjoerdsma(2)

Tedeschi and Fellows(3) and others(4,5) have demonstrated the potentiation of the pressor responses to tyramine by monoamine oxidase inhibitors in other species and have suggested the possible dangers associated with the ingestion of cheeses containing high concentrations of tyramine by patients on monoamine oxidase therapy. This is a report of results which show that amphetamine potentiates intraduodenally administered tyramine in the rat.

Methods and materials. Adult male albino rats (Harlan Industries) weighing 400-550 g were anesthetized with pentobarbital (45 mg/kg) intraperitoneally. The trachea was cannulated with a short piece of polyethylene tubing. Blood pressure from the carotid artery was measured with a Statham transducer (Model P-23-AC) and all recordings were made on a Honeywell Visicorder (Model 1508). A jugular vein was catheterized for the intravenous injections. Intraduodenal administration of drugs was achieved by needle puncture following exposure of the duodenum by a midline abdominal incision. (In early experiments tyramine was given by gastric intubation, but it was found that the pressor responses to tyramine were highly variable.)

Results and discussion. The intraduodenal tyramine was given at least 30 minutes after anesthesia and the rats were not given more than one dose of tyramine. In all cases the blood pressure was allowed to return to base levels after the intravenous doses of amphetamine (5-10 minutes) before tyramine was given. The intraduodenal injection of amphetamine was given one hour before the tyramine. The results are summarized in Table I.

The data clearly demonstrate that amphetamine, over a wide dose range, can markedly potentiate the pressor response to intraduodenally administered tyramine. In the absence of amphetamine, 4 to 10 times as much tyramine is required to evoke a comparable pressor response. The potentiation of tyramine was not seen with the highest dose of amphetamine.

It has been shown in the dog that amphetamine interferes with the inactivation of circulating tyramine(1). Since amphetamine is at best only a very weak inhibitor(6) of monoamine oxidase, it may interfere with uptake of tyramine rather than with its oxidation. It is suggested that a similar mechanism may account for the results reported here in the rat.

Summary. Amphetamine markedly enhanced the pressor potency of intraduodenally

TABLE I. Effect of Amphetamine on Pressor Response to Tyramine.

Dose of tyramine	No. of rats	Avg pressures before tyramine (mm Hg ± S.E.) Diastolic	Mean	Systolic	Avg pressures at peak of response to tyramine (mm Hg ± S.E.) Diastolic	Mean	Systolic	Avg increase in mean pressure (mm Hg ± S.E.)
				Normal (no amphetamine)				
2.5	13	128 ± 4	143 ± 4	157 ± 4	135 ± 5	149 ± 5	165 ± 8	6 ± 4
5.0	8	119 ± 4	134 ± 3	149 ± 1	128 ± 5	148 ± 7	166 ± 10	14 ± 6
10.0	6	115 ± 6	131 ± 6	149 ± 8	139 ± 3	160 ± 6	182 ± 9	29 ± 7
25.0	6	130 ± 7	146 ± 7	163 ± 5	147 ± 4	187 ±11	215 ± 11	41 ±15
				After amphetamine, 0.5 mg/kg i.v.				
2.5	6	114 ± 7	125 ±11	138 ±11	128 ± 6	153 ± 8	174 ± 10	28 ± 3
				After amphetamine, 1.0 mg/kg i.v.				
2.5	6	119 ± 3	133 ± 4	148 ± 4	148 ± 4	168 ± 7	190 ± 8	35 ± 5
				After amphetamine, 2.0 mg/kg i.v.				
2.5	6	122 ± 5	138 ± 5	154 ± 6	138 ± 5	165 ± 7	194 ± 13	27 ± 6
				After amphetamine, 4.0 mg/kg i.v.				
2.5	6	122 ± 3	138 ± 4	155 ± 6	125 ± 6	148 ± 9	171 ± 12	10 ± 7
				After amphetamine, 2.0 mg/kg i.d.				
2.5	7	113 ± 5	128 ± 4	145 ± 4	133 ± 6	157 ±10	178 ± 12	29 ± 8

administered tyramine in rats. This enhancement of the pressor potency of tyramine by amphetamine is comparable to that reported for monoamine oxidase inhibitors(3). The potentiation was observed following either intravenous or intraduodenal administration of the amphetamine.

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Placental Transport of an Active Enzyme, Invertase.* (31326)

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The majority of studies on placental transport of proteins have involved the transport of antibodies during late stages of fetal development(1). Studies on the uptake of yeast invertase by the liver cell and its concentration in liver lysosomes(2) suggest that invertase might be concentrated in the lysosomes of the rat placenta and from there be transmitted to the fetus. Invertase retains its enzymatic properties for a long period of time within lysosomes of tissues(2) and this activity provides a marker for the presence of the active part of the protein.

Materials and methods. Approximately 2,000 units (μM glucose/min/ml saline) of invertase (Nutritional Biochem.) were injected intravenously in the femoral vein of the pregnant rat. In the first experiment 4 single injections of 1 ml were given at 12-hour intervals, the last injection administered 12 hours prior to autopsy on either day 14 or 15 of pregnancy. Control animals were injected with saline. Homogenates were made

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