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- 115 EXTRACTION OF HEPATIC STIMULATORY ACTIVITY (HSA)
FROM (ADULT) RAT LIVER FOLLOWING T₃ INJECTION.
A Francavilla, P Ove, SK Wu, A Dileo, D Van Thiel,
TE Starzl, Departments of Surgery and Gastroenterology,
University of Pittsburgh, Pittsburgh, PA, University
of Bari, Bari, ITALY.

Hormones such as insulin, glucagon, epidermal growth factor and T₃ can stimulate or augment liver regeneration. Hepatic stimulatory activity (HSA) found in Morris hepatomas, weanling and young adult rat liver, and regenerating liver fragments after partial hepatectomy does the same thing. However, a connection between hormone action and HSA production has not been established. We report here an effect of T₃ in promoting the production of HSA in adult rats (B. W. >350g) in which normally HSA activity appears only after 70% hepatectomy. T₃ is able to initiate DNA-synthesis *in vivo* in non-hepatectomized rats after the injection of a pharmacological dose. Unoperated adult rats were injected with 200 mg T₃/100g a dose which has been shown to stimulate hepatic DNA synthesis 5-7 fold. After 24 hours the animals were killed, and HSA prepared. HSA was determined *in vivo*. Twenty normal rats (B.W. 180-230 gm) were injected ip. with 25 mg of HSA 6 hours after 40% hepatectomy. Animals were pulsed with (3H)-thymidine 18 hours after the HSA injection. Ten control rats with 40% hepatectomy were injected with saline solutions and ten more control rats with 40% hepatectomy were injected with normal adult liver extract. Thymidine incorporation into DNA was 61.6 ± 8.3 SE cpm/mg DNA in rats injected with HSA from T₃ treated rats, 12.4 ± 1 SE after injection of HSA from rat treated with saline and 15.4 ± 5.3 SE after injection of HSA from normal adult rats.

Thus, HSA can also be extracted from animals in which hypalocyte proliferation was stimulated by T₃, providing a link between a hormone action and HSA production.