

to test this hypothesis. The transplantable S91 melanoma was used in DBA/1 mice. One set of 10 mice received 5 mgms. of Cortisone Acetate i.p. and 10 controls received the vehicle only. One day later, both series of mice were injected i.v. with 0.3 cc of tumor suspension. Then mice were sacrificed one (1) month later, and the number of lung tumors was counted. The cortisonized animals revealed an average of 33 tumors with a range of 23-56. The control mice had an average of 18 lung tumors with a range of 7-27. Thus, the evidence indicates that a single dose of cortisone is effective in increasing metastases, and the mechanism of action may involve the capillary arrest of more than the usual number of single tumor cells.

### **Effects Of A Steroid On Metastasis**

Irving Zeidman and Dan Albert  
University of Pennsylvania

Previous work by us has demonstrated that a single intraperitoneal dose of 2 mgms. of 6, 9 - difluoroprednisolone caused an increased number of lung tumors in C57 mice following intravenous injection of B16 melanoma cells. The present work concerned the optimum time of administration and the optimum dose of the steroid to produce the above effect on metastasis. Series of mice received single intraperitoneal doses of 0.5, 1.0, 2, 3, or 4 mgms. of the steroid. Time intervals ranged through 2 days before, 24 hours before, 0-12 hours before, 4-8 hours after, 1 day after and 3 days after the intravenous injection of tumor cells. Preliminary results indicated that the optimum dose of steroid was 3 mgms. A larger dose killed the mice and smaller doses resulted in fewer lung tumors. The optimum time of administration of the steroid was 0-12 hours before the injection of tumor cells. Administration of the steroid 3 days after the tumor injection caused a decrease in number of metastases when compared to controls.

### **Lack Of Effect Of Difluoroprednisolone On The Early Development Of The Sand Dollar**

Irving Zeidman and Dan Albert  
University of Pennsylvania

Previous work has demonstrated that one mechanism of steroid action in increasing tumor metastasis involves an increased incidence of arrest of circulating tumor cell emboli (I.Z.). Available evidence indicated that capillaries of steroid treated animals trapped tumor cells more readily because of an endothelial surface change, likely in the nature of increased stickiness. Experiments were performed with Sand Dollars eggs to determine if the steroid, 6, 9, Difluoroprednisolone, would effect the surface of the infertilized or the fertilized and developing eggs. Particular attention was given to the stage of gastrulation, where cell surfaces are likely under-

going marked changes. Steroid doses varied from 0.1 to 3.0 mgms. in 10 cc of sea water containing Sand Dollar eggs. Controls received a similar volume of the steroid vehicle. No effects of the steroid were observed on the following parameters: - morphology of the egg, fertilizability, time of development, and appearances of various stages of development up to the fully developed plutei.

### **Study Of The Lipoprotein Lipase Activity In The Gill System Of The Marine Dogfish (*Squalus Acanthias*).\***

Stephen Zsoldos and H. Earl Ginn, Jr.  
Columbia University

Considerable lipolytic activity with the characteristics of a lipoprotein lipase was previously demonstrated in the mammalian lung either by incubating minced tissue samples or by perfusing the whole organ with substrate. The present study was designed to determine whether similar activity could be demonstrated in the gill system of the *Squalus acanthias*. A substrate containing Ediol, albumin, dogfish serum, and Dogfish Ringer solution was maintained at 37°C and perfused through the gill system via the bulbus arteriosus. Duplicate samples of perfusate were obtained at the beginning of each experiment and at 15 minute intervals for determination of FFA. After 60 minutes varying amounts of either heparin or epinephrine, both known lipoprotein lipase activators, were added to the perfusate. Blank determinations were obtained by incubating substrate with and without heparin or epinephrine at 37°C without perfusion through the gills. Small increases in FFA concentration occurred with and without addition of heparin but these increases were similar to but never exceeded increases in blank substrate without perfusion. These results suggest that dogfish serum contains small amounts of a lipoprotein lipase, however, no enzyme activity could be detected in the gills.

\*Supported in part by a grant from the National Institute of Health, U. S. Public Health Service. CCY-2332.

### **Turnover Of Unesterified Fatty Acids In The Marine Dogfish (*Squalus Acanthias*)**

Stephen Zsoldas, and H. Earl Ginn, Jr.  
Columbia University

This experiment was designed to determine the rate of disappearance of unesterified fatty acid (UFA) in the dogfish. One milliliter of labeled serum containing 5 microcuries of 1-C<sup>14</sup>-Palmitic acid was injected in these fish into the ventral aorta. Aliquots of blood were taken at accurately timed intervals at 2, 4, 6, 8, 10 and 20 minutes. The fish were immediately sacrificed and samples of muscle and liver obtained. Samples of plasma and