Thus the sequence of organs is the same, when considering differences of their growth-rates, or differences of accumulation-rates of their lipoid phosphorus, of free cholesterol and of other constituents.

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Passive Transfer of a Tumour-resistant Agent by Serum Injections

THE question of passive transfer of tumour resistance (or immunity) appears still open[1-3].

We are working with Walker 256 rat carcinoma, subcutaneously transplanted to commercially available susceptible Wistar albino rats. Among hybrid rats (black or hooded) bred in our laboratory there are individuals capable of acquiring a high-grade resistance (immunity) to this tumour, that is, take at the first implantation and regression after some growth, then failure of growth at further implantations. In a previous experiment[4], we found that rats resistant to Walker carcinoma manifest also a significant delay in growth of 3,4-benzpyrene-induced sarcomas, as compared with the Wistar rats. We are breeding a black strain derived from these hybrids by brother–sister mating; every one of the eight sibs in the eighth inbred generation was found resistant to Walker 256 tumour.

In two experiments we injected pooled serum taken from resistant donors of hybrid origin after regression followed by repeated unsuccessful implantation in them of the tumour used, to Wistar rats implanted with the same tumour.

In the first experiment, summarized in Table 1, 21 Wistar females were implanted simultaneously with the Walker carcinoma and given from the same day either 1 ml. intraperitoneal daily of immune serum from resistant donors, or an equal dose of normal Wistar serum, or left untreated. After 12 days from the implantation the tumours were removed and weighed.

In the second experiment (Table 2) 40 Wistar males were used; one more control was inserted, namely, rats injected with normal pooled serum of donors from the tenth inbred generation of resistant rats not immunized by prior implantation of the tumour. The growth of the tumours was measured

Table 1

Treatment	No. of rats	No. of takes	Mean weight of tumours (gm.)	Range of weights
Immune resistant serum	7	7	3·4	0·40–11·50
Normal Wistar serum	7	6	8·6	0·40–17·60
Untreated	7	6	9·3	5·50–14·20

Table 2

Treatment	No. of rats	No. of takes	No. of regressions	Mean area of tumours (mm.²)	Range of tumour area
Immune resistant serum	10	4	2	360	25–945
Normal resistant serum	10	7	–	1,725	25–5,095
Normal Wistar serum	10	9	2	1,310	150–3,895
Untreated	10	8	–	1,220	75–3,005

by calipers on two diameters and is represented in mm.² at the twenty-fourth day after implantation.

Both experiments are in full agreement in tumour-growth retardation after injections of immunized serum of resistant rats. There are some differences in the number of takes and some regressions in the respective groups, owing probably to the sex difference of both groups (the tumour is a mammary adenocarcinoma which arose in a female; some hormonal antitumour factors may co-operate).

The quantitative evaluation of the supposed antitumour agent passively transferred by serum injections, as well as several other implications, are subject to further experiments (for example, in controls injected with non-immune sera there is a suggestion of either inhibitive or stimulative non-specific influence).

The reason for this successful transfer of a tumour-immunity agent by serum injections—in contrast with other reports—is seen in the contraposition of two homologous but heterogenetic strains, one of which is capable of developing an exceptionally high degree of specific antibody formation. The non-specific, anti-Wistar immunization (a Wistar tumour was implanted to non-Wistar strain of rats) seems negligible, as the total body-weight curves of all groups in the second experiment are nearly parallel.

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Fluorescent, Benthic, Pacific Coast Coelenterates

ORANGE fluorescing pigments have been studied extensively in red algae[1,2], where the fluorescence becomes apparent in the moribund plant; but such pigments would appear to be rare in the animal kingdom (see Klüver[3] for evidence of a red-fluorescing pigment in mammals). At depths greater than 10 m. where sunlight becomes deficient in the longer orange and red wave-lengths, divers have sometimes observed brilliantly luminous orange and red animals. Marden[4] noted the phenomenon while photographing a large unidentified anemone in the Red Sea at 20 m., and suggested the animal might have a fluorescent pigment. Our investigations show that certain animals do indeed possess the ability to fluoresce.