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Mouse Interferon in Ascitic Fluids

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Mouse interferon was obtained in relatively large volumes by the use of ascitic fluid from mice bearing sarcoma 180/TG and subsequently inoculated with Germiston virus.

Production of ascitic fluid (AF) in mice by inoculation of sarcoma 180/TG is a practical method for obtaining large volumes of immune fluids that can be substituted for mouse immune sera (5); AF is also a source material for the preparation of complement-fixing and hemagglutinating antigens for some arboviruses (4). This communication describes the use of AF to obtain mouse interferon in relatively large amounts.

Since mice inoculated with Germiston virus develop interferon to high titer in their sera (2), a strain of this virus (SAAr 1050) was used in the present experiments. Six- to 8-week-old mice, derived from the Charles River CD(R)-1 strain bred in this laboratory, were first inoculated intraperitoneally (ip) with 0.2 ml of sarcoma 180/TG ascites (5). Seven to 10 days later, when the mice showed prominent abdominal swelling, they were inoculated ip with virus: 2 to 5 ml of a 10% suspension of freshly harvested, infected newborn mouse brain tissue, prepared in physiological saline. On intracerebral titration in newborn mice, the suspension contained from 10^7 to 10^8 50% lethal doses per ml. AF was harvested either by paracentesis with an 18-gauge needle or by killing the mice via ether inhalation, opening the abdomen, and collecting fluid with a syringe or pipette.

After being allowed to clot, the AF was centrifuged at 10,000 rpm for 30 min, adjusted to pH 2 with N HCl, kept at 4 C for 7 days, and then readjusted to pH 7 with N NaOH. Active virus was not recovered after this treatment. The AF was stored at −60 C.

Assays for interferon activity were carried out as described in detail elsewhere (1, 3); estimates of the number of interferon units were made by comparison with the mouse interferon standard reagent, Research Reagents Branch, National Institutes of Health.

When AF was harvested 1, 2, and 3 days after inoculation of virus (no mouse lived 4 days), the numbers of interferon units were estimated to be: for day 1, 4 mice—90, 100, 360, and 360, respectively; for day 2, 4 mice—150, 240, 360, and 360; and for day 3, 2 mice—700 and 11,000.

When six mice were tapped on day 3 after inoculation of virus, four of the fluids each contained 1,200 interferon units per ml and the other two contained 2,000 and 3,000 units, respectively.

Two pools of AF, harvested from six and eight mice on day 3 after inoculation of virus, contained 3,000 and 9,000 units per ml, respectively.

The amount of AF obtained from each mouse on day 3 after inoculation of Germiston virus varied from 1 to 8 ml; in general, 5 or 6 ml was collected. These are smaller amounts of AF than can be obtained from sarcoma-bearing mice not inoculated with the virus.

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