The present study was undertaken to investigate relation between the distribution of Ga-67 in abscess and the time after subcutaneous injection of turpentine. At various times afterwards, ranging from 2 days to 10 days after subcutaneous injection of 0.2 ml turpentine to the rats, Ga-67 citrate was injected to the rats. Twenty-four hours after injection of Ga-67 citrate, abscess was excised and frozen immediately after excision in the cryostat (-20°C). After this, the frozen tissues were cut into serial thin sections (10 um) in the cryostat. One of these sections was then placed on X-ray film and this film was developed after exposure of several days, and second section was stained with hematoxylin-eosin.

From the observation of the autoradiograms and the stained sections, the following results were obtained. In the case of abscess excised at 2 days after injection of turpentine, concentration of Ga-67 was predominant in areas in which large amounts of neutrophils were seen. But, in abscess obtained after 5 days after injection of turpentine, concentration of Ga-67 was more dominant in areas in which infiltration of macrophages was seen, than in above area.

Previously, we have been reported that the binding of Ga-67 to the normal liver cells was affected by various basal factors in the incubation medium in vitro. Namely, the Ga-67 binding to the normal liver cells was affected by the change of pH in the incubation medium. At low citrate concentration in the medium, the Ga-67 binding to the cells decreased as pH was increased. However, at high concentration of citrate in the medium, the Ga-67 binding to the cells was gradually elevated with increasing pH. In the present study, Ehrlich ascites tumor cells (ETC) were used as a different type of cells from normal liver cells, and the effects of citrate and pH on the Ga-67 binding to the ETC were examined. The ETC were harvested from the mice 10 days after i.p. injection of 1x10⁷ cells. The Ga-67 binding to the ETC was inhibited by citrate in a dose dependent manner. The effect of pH on the Ga-67 binding to the ETC was similar to the results that obtained from the liver cells. These results indicate that the changes of citrate concentration and pH in the incubation medium may affect to the chemical form of gallium in vitro.