

PHAGOCYTE ACTIVITY OF MACROPHAGES IN LUNGS OF
HUMAN AND RATS EXPOSED TO $^{239}\text{PuO}_2$

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ABSTRACT

This paper introduced that the macrophages of human lungs and rat lungs in vitro after exposed to $^{239}\text{PuO}_2$ collected by means of washing lung method to study the difference of phagocyte activity between human and rat macrophages. The $^{239}\text{PuO}_2$ with MMD 1.3um was introduced into rat's lung by intratracheal injection, observing the correlation for phagocyte action of rats in vivo and in vitro.

The results showed that the phagocyte index of rat lung macrophages in vivo and in vitro increased with the length of exposed time. The phagocyte index was 1.65 and 1.77 for exposed time of 72 hours ($P>0.05$), and the phagocyte percentage was 89% and 85% respectively. In invitro the phagocyte index and percentage were 1.49 and 1.72, 92% and 89% respectively ($P>0.05$). The number of both macrophages in human and in rats were over 85% in whole lung washing liquid and their diameters were 12.53 and 11.35um respectively.

By scanning, there were a lot of folds and microvilli on the surface of control human cells. But after 12 hours exposed, the folds and microvilli of treated cells reduced or disappeared.

Interested in the results suggested that the similar action was appeared in rat macrophages for invovo and invitro model. In invitro, the difference of the phagocyte activity of macrophages between human and rat was not significant. It seems possible to mean that experiment for invitro may represent that for invivo and the results of experiment in rat be able to reflect that in human.