血清アルブミンを利用した薬物担体の腫瘍集積性
―― アシル化による体内動態特性の改善 ――

田中哲郎・金尾義治・宮下正日出・
白元正一・井口定男

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Tumor accumulation of serum albumin as drug carriers: Effect of acylation on its disposition in tumor bearing mice.

Tetsuro Tanaka, Yoshiaru Kaneo, Masahide Miyashita,
Shoichi Shiramoto, Sadao Iguchi

The tumor distribution and the disposition of serum albumin were investigated in mice bearing Sarcoma 180. The albumin labeled with fluoresceinisothiocyanate (FITC) were administered to the mice. The FITC-labeled albumin acylated with acid anhydrides, such as acetic anhydride, glutaric anhydride, maleic anhydride and succinic anhydride, were also administered to the mice in order to investigate the effect of chemical modification. The plasma concentration of each acylated albumin was significantly lower than that of the non-acylated albumin at 24 h after administration. The tissue distributions of the acylated albumin were also decreased compared to those of the non-acylated albumin. Especially, the accumulation of albumin in the liver and spleen was significantly reduced with the glutarylation and maleylation. Urinary excretion of albumin was signicantly increased with the acylation because the degradation rates of the acylated albumins were much faster that of non-acylated albumin. On the other hand, the acylated and non-acylated albumin were accumulated effectively in the tumor tissue in mice bearing Sarcoma 180.

It was found that the tumor distribution of albumin was not impaired by the acylation . It was suggested, therefore, that the glutarylated and maleylted albumin

were valuable for relative tumor-selectivity and might be utilized in the macromolecular carrier system of antitumor drugs.

化学修飾した血清アルブミンの担癌マウスにおける体内動態を検討した。化学修飾にはアセチル化、グルタル化、マレイル化及びスクシニル化を選択した。これらのアシル化を施した血清アルブミンは、静注後速やかに血中より消失した。特に、血清アルブミンの肝や脾への分布量は、グルタル化とマレイル化により減少した。これに対して、血清アルブミンの腫瘍集積性は、アシル化によって変化しなかった。

以上より、グルタル化及びマレイル化した血清アルブミンは、制癌薬の薬物担体として有用であると考えられた。