多糖類高分子の肝組織内分布特性

金尾義治，中野貴透，田中哲郎，玉木玲子，岩瀬宏樹，山口泰典

薬剤学，**60**(3)，183–195(2000)

Characteristic Distribution of Polysaccharides in Liver Tissue

Yoshiharu Kaneo, Takayuki Nakano, Tetsuro Tanaka,
Reiko Tamaki, Hiroki Iwase,
and Yasunori Yamaguchi

ABSTRACT: FITC-labeled arabinogalactan (FA), pullulan (FP-60), dextran (FD-70) and mannan (FM) were prepared by reaction with FITC in dimethyl sulphoxide according to the method of deBelder and Granath. Hepatic distribution of the FITC-labeled polysacchrides was examined using a specific high-performance size-exclusion chromatography. The microscopic examination also revealed the site-specific distribution of FITC-labeled polysaccharides. Intravenously injected FA was rapidly eliminated from the blood circulation followed by appreciable distribution to the parenchymal liver cells. FP-60 was also endocytosed specifically by the parenchymal liver cells, but FD-70, the same glucan as a FP-60, showed a preferential distribution to the sinusoidal linking cells such as Kupffer cells and endothelial cells. Intravenously injected FM was taken up particularly by the sinusoidal lining cells. These results demonstrated that although the polysaccharides were markedly accumulated in the liver, target cell types were quite different from each other depending on the constituent sugar species. It was further suggested that the parenchymal liver cells made the highest relative contribution to the excretion of the polysaccharides not only by means of the receptor-mediated endocytosis, but also by means of non-specific fluid-phase endocytosis.

抄録 アラビノガラクタン，プルラン，デキストラン，マンナンの静注後の肝内分布を，高速排除クロマトグラフ法や蛍光顕微鏡法を用いて検討した．アラビノガラクタンは血中から速やかに消失し，肝実質細胞に分布した．プルランも特異的なエンドサイトーシスにより，肝実質細胞に取り込まれた．プルランと同様のグルカンであるデキストラ

ンはクッパー細胞や内皮細胞といったシヌソイド細胞に分布した．静注後のマンナンはシヌソイド細胞に特異的に分布した．これらの結果から，これらの多糖類はいずれも肝に分布するが，その分布細胞は互いに異なり，構成糖の種類に依存することが示唆された．さらに，肝実質細胞は多糖の排泄を司っているが，これには受容体を介したエンドサイトーシスだけでなく，非特異的なエンドサイトーシスも関与することが示唆された．