

アシドフォスファターゼはライソゾームへ  
細胞内移行する際、細胞膜を經由しない

田中喜孝\*, 矢野慎二\*, 古野浩二, 石川豊子\*, 姫野 勝\*, 加藤敬太郎\*

*BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATION*,  
170, (3), 1067-1073 (1990).

**Transport of Acid Phosphatase to Lysosomes Does Not Involve Passage  
through the Cell Surface**

Yoshitaka Tanaka\*, Shinji Yano\*, Koji Furuno, Toyoko Ishikawa\*,  
Masaru Himeno\*, and Keitaro Kato\*

**ABSTRACT** In foregoing studies, we reported that LGP 107, a major lysosomal membrane glycoprotein in the rat liver, distributes in and circulates continuously throughout the endocytic membrane system (endosomes, lysosomes and plasma membrane), in hepatocytes (1, 2). In the present study we examined whether acid phosphatase (APase), an enzyme that is transported to lysosomes as a transmembrane protein, passes through the cell surface during intracellular transport, because transport of newly synthesized APase to lysosomes involves the passage of endosomes containing a ligand which is internalized via receptors on the cell surface and is finally dispatched to lysosomes for degradation (3). When localization of APase in rat hepatocytes was investigated by immunoelectron microscopy, APase was found to be localized in lysosomes and endosomes, but not in coated pits on the cell surface, which are positive for LGP 107, and from which antibodies for LGP 107 are internalized. Further, unlike LGP 107, newly synthesized APase was not detected in plasma membranes isolated from livers of rats given [<sup>35</sup>S] methionine, and when cultured hepatocytes were exposed to <sup>125</sup>I-labeled anti APase IgG at 37°C, there was no transfer of the antibody to lysosomes even after 24 h incubation. Therefore, these results indicate that intracellular movement of APase does not involve cell surface passage in rat hepatocytes, and clearly differs from the recent report that human APase is transported to lysosomes via the cell surface in BHK cells transfected with its cDNA (4).

抄録 アシドホスファターゼがライソゾーム膜構成成分である LGP 107 と同様，生合成後，細胞膜やエンドゾームを経由してライソゾームへ運ばれているのかを調べた。免疫電顕により本酵素を染色すると，エンドゾームには LGP 107 と同じく認められたが，細胞表面には検出されなかった。<sup>35</sup>S メチオニンにより本酵素を標識した場合も，精製した細胞膜に本蛋白質は検出されなかった。更に，本酵素の抗体を<sup>125</sup>I 標識し，細胞膜表面の本蛋白質と反応させ細胞内への取り込みを調べたが，LGP 107 とは違って結果はネガティブであつた。これらの結果から，アシドホスファターゼは生合成後の細胞内移行過程で細胞膜を経由しないことが示唆された。

\* 九州大学薬学部