レプトスピラのホスホリパーゼ
I. Leptospira biflexa におけるホスホリパーゼA_1とリゾホスホリパーゼの存在

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Phospholipases of Leptospira
I. Presence of Phospholipase A_1 and Lysophospholipase in Leptospira biflexa

ABSTRACT The hydrolysis of phosphatidylethanolamine, phosphatidylcholine, lysophosphatidylcholine, and trioleoylglycerol by *Leptospira biflexa* strain Urawa was studied *in vitro*.

Phospholipase A_1 was identified by the formation of ^{32}P- and ^{14}C-labeled lysoderivatives from ^{32}P-phosphatidylcholine, ^{32}P-phosphatidylethanolamine, or l-acyl-2-[1-^{14}C]-oleoyl-*sn*-glycero-3-phosphorylcholine. Phospholipase A_1 activity was independent of lipase in the microorganism since ^{14}C-labeled trioleoylglycerol was scarcely attacked under the same conditions in which the phospholipids were hydrolyzed.

Lysophospholipase activity was also demonstrated using ^{32}P- and non-labeled lysophosphatidylcholine.

The activity of phospholipase A_1 was found in a broad range of pH but no optimal pH was determined. The pH optimum of lysophospholipase was 8.0. Both enzymes were labile to heat.

Phospholipase C activity, however, could not be detected because no radio-active di- and monoacylglycerol was found in the experiment with 1-acyl-2-[1-^{14}C]-oleoyl-*sn*-glycero-3-phosphorylcholine as the substrate.

It was inferred that phosphatidylethanolamine, which was the major component of phospholipids in leptospirae, was hydrolyzed serially by phospholipase A (A_1 and/or A_2?) and lysophospholipase to glycerophosphorylethanolamine *via* 2-acyl-type-lyso-derivative as one metabolic pathway of the substrate.

抄録　*Leptospira biflexa* 浦和株のホスファチジルエタノールアミン，ホスファチジルコリン，リゾホスファジルコリン及びトリオレイルグリセロールの加水分解を調べた。ホスホリパーゼA_1は^{32}P－ホスファチジルコリン，^{32}P－ホスファチジルエタノールアミンや1－アシル－2－〔1－^{14}C〕オレイル－*sn*－グリセロ－3－ホスホリルコリンから^{32}P－と^{14}C－標識のリゾ誘導体の作られることで確認した。ホスホリパーゼA_1活性は，^{14}C－標識トリオレイルグリセロールにほとんど作

用しないことから，レプトスピラ中のリパーゼとは別のものであった。リゾホスホリパーゼ活性も ^{32}P －と非標識リゾホスファチジルコリンを用いて確認した。ホスホリパーゼ A_1 には至適 pHは認められず，広い pH範囲で活性が認められた。リゾホスホリパーゼの至適 pH は 8.0 であり，両酵素とも熱に不安定であった。ホスホリパーゼC活性は認められなかった。

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