

Title	Effects of epidermal growth factor on metallothionein induction in mammalian cells
Sub Title	
Author	小林, 静子(Kobayashi, Shizuko) 鈴木, 純子(Suzuki, Junko) 遠山, 千春(Toyama, Chiharu)
Publisher	共立薬科大学
Publication year	1990
Jtitle	共立薬科大学研究年報 (The annual report of the Kyoritsu College of Pharmacy). No.35 (1990. ) ,p.46- 46
JaLC DOI	
Abstract	
Notes	抄録
Genre	Technical Report
URL	<a href="https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=AN00062898-00000035-0046">https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=AN00062898-00000035-0046</a>

慶應義塾大学学術情報リポジトリ(KOARA)に掲載されているコンテンツの著作権は、それぞれの著作者、学会または出版社/発行者に帰属し、その権利は著作権法によって保護されています。引用にあたっては、著作権法を遵守してご利用ください。

The copyrights of content available on the KeiO Associated Repository of Academic resources (KOARA) belong to the respective authors, academic societies, or publishers/issuers, and these rights are protected by the Japanese Copyright Act. When quoting the content, please follow the Japanese copyright act.

## Effects of Epidermal Growth Factor on Metallothionein Induction in Mammalian Cells

Shizuko KOBAYASHI, Junko SUZUKI and Chiharu TOHYAMA\*

小林静子, 鈴木純子, 遠山千春\*

Recently, it has been demonstrated that metallothionein (MT) gene expression is regulated not only by serum cell growth factors and proteinkinase C activators, but also by cAMP. Metallothionein has been localized mainly in the cytoplasm of hepatocytes of adult rats. In the fetal and neonatal kidney, however, MT has been found mainly in the nucleus and cytoplasm of the proximal tubular epithelial cells of human and rat. Although the exact functions of MT in cell metabolism are unknown, these results suggest that there is a close relation between cellular proliferation and MT synthesis.

In order to elucidate possible physiological roles of isoforms of MT in cellular growth, we have studied effects of zinc, glucocorticoid and epidermal growth factor (EGF) on biosynthesis of isoMTs in a mouse mammary carcinoma cell line (FM3A) by the use of an anion exchange high performance liquid chromatography (HPLC).

In the presence of both  $Zn^{2+}$  ( $15 \mu M$ ) and glucocorticoid (dexamethasone; 1 nM), MTs were either induced in very small amounts or not induced at all. Addition of EGF (10 ng/ml) to the culture medium resulted in significant induction of MTs. Mouse MTs were separated into three isoforms, designated as MT-1, MT-2-1 and MT-2-2. In the growing cells, the HPLC profile of isoMTs induced by EGF and physiological concentrations of both glucocorticoid and  $Zn^{2+}$  showed a single Zn-associated peak, corresponding to MT-2-2 subfraction. Induction of MT-2-2 isoform may be related to cellular proliferation.

---

本報告は *Metallothionein in Biology and Medicine*, edited by C.D. Klaassen and K.T. Suzuki (1990, The Teleford Press, New Jersey) に発表 (in press).

\* 国立環境研究所