

[Biochem. Int., 26, 1073-1078 (1992)]

[Lab. of Molecular Biology]

**Expression of pS2 Gene in Human Breast Cancer Cell Line MCF-7  
is Controlled by Retinoic Acid.**

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The pS2 gene is one whose expression is rapidly and markedly increased by the administration of estradiol in MCF-7 cells, an established human breast cancer cell line derived from a pleural effusion from breast cancer patients. MCF-7 cells have been demonstrated to contain significant amounts of estrogen receptors, and pS2 gene codes for a protein of 84 amino acids, but its physiological function is yet unknown. We established a simplified method for the quantitative measurement of pS2 mRNA using the reverse transcriptase-polymerase chain reaction method. Expression of the pS2 gene, which is transcriptionally induced by estrogen in breast cancer cell line MCF-7 cells, can be repressed by retinoic acid in unstimulated cells.

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[Lab. of Molecular Biology]

**Neurotoxin-Binding Activity in the Supernatant Fraction of the  
Electric Organ from *Torpedo Californica*.**

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We found that neurotoxin-binding activities in the supernatant fraction obtained by ultracentrifugation of a homogenate of the electric organ dissected from the electric ray, *Torpedo californica*. While about half of the electric organ dissected from the electric ray, *Torpedo californica*. While about half of the activity was estimated as due to acetylcholine receptors in dispersed microparticles, the remainder was unassigned. A part of the latter, detected with  $\alpha$ -bungarotoxin, eluted ahead of  $\alpha$ -bungarotoxin-acetylcholine receptor complex on a Sepharose CL-6B column in the presence of 1% Triton X-100. Another component eluted after this complex. Although these activities were immunologically related to AChR, they were different from AChR in their size and reactivity with concanavalin A.

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[Lab. of Molecular Biology]

**Crosslinking of Protein in Acetylcholine Receptor-Rich Membranes  
from *Torpedo Californica* : Relation of 43-kD Protein and *Torpedo*  
dystrophin to Acetylcholine Receptor.**

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We examined the spatial relation of 43-kD protein and *Torpedo* dystrophin, which are cytoplasmic peripheral membrane proteins in the nicotinic acetylcholine receptor (AChR)-rich membranes, to AChR. We used three kinds of the heterobifunctional crosslinking reagents to crosslink proteins in the AChR-rich membranes. As a results, *Torpedo* dystrophin was crosslinked at the same concentrations as were effective for the 43-kD protein and  $\gamma$  subunit. On the basis of these results, we concluded that the 43-kD protein is intimately associated with the  $\gamma$  subunit of AChR and *Torpedo* dystrophin.