Molecular cloning and sequence determination of a cDNA coding for the ?-subunit of a Go-type protein of Xenopus laevis oocytes

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Xenopus laevis oocytes are cells ideally suited to the study of signal transduction and of the G-proteins that are involved in this process. A X. laevis cDNA library in ?gt10 has been screened with a mixture of three oligonucleotide probes designed to detect sequences found in various mammalian ?-subunits of G-proteins. One of these clones has been purified through tertiary screening and the DNA insert has been sequenced. This clone was found to include the total sequence coding for a 354 amino acid protein that is 89% identical to the sequence of ?-subunit of rat Go. The differences with the mammalian protein were clustered in amino acids 290-315, which have been postulated to define the region interacting with the receptor and effector molecule. The homology with the ?-subunits of other mammalian G-proteins is lower (65-70% to Gi and 42% to Gs). On this basis, this clone can be classified as Go-like.