

Human-Xenopus chimeras of Gs α reveal a new region important for its activation of adenylyl cyclase

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G proteins are heterotrimeric GTPases that play a key role in signal transduction. The α subunit of Gs bound to GTP is capable of activating adenylyl cyclase. The amino acid sequences derived from two *X. laevis* cDNA clones that apparently code for Gs α subunits are 92% identical to those found in the short form of human Gs α . Despite this high homology, the *X. laevis* Gs α clones expressed in vitro, yielded a protein that are not able to activate the adenylyl cyclase present in S49 cytochrome b5 membranes in contrast with human Gs α similarly expressed. This finding suggested that the few amino acid substitutions found in the amphibian subunit are important in defining the functionality of the human Gs α . The construction of chimeras composed of different fractions of the cDNAs of the two species was adopted as an approach in determining the regions of the molecule important in its functionality in this assay. Four pairs of chimeras were constructed using reciprocal combinations of the cDNAs coding f