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Assignment[#] of 5-hydroxytryptamine receptor (HTR4) to human chromosome 5 bands q31-->q33 by in situ hybridization.

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[#]To our knowledge this is the first time this gene has been mapped.

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Rationale and significance

5-Hydroxytryptamine 4 receptors (5-HT₄R) were first characterized in 1988 (Dumuis *et al.*, 1988) in mouse colliculi neurons. Since then, it has been shown that 5-HT₄R mediates widespread effects in central and peripheral systems (Eglen *et al.*, 1995). These observations have stimulated the search and discovery of a very large series of selective and potent agonists and antagonists as well as the cloning of the receptor in rat and mouse brain (Eglen *et al.*, 1996; Gerald *et al.*, 1995; Claeysen *et al.*, 1996). In human atria the concentration of 5-HT₄R and α_1 - and α_2 -adrenoceptors vary, depending on whether the patients have been treated with α -adrenergic-blocking agents or not (Kaumann *et al.*, 1994; Ouadid *et al.*, 1992). These observations suggest that a "cross-talk" may exist between the regulation of 5-HT₄R and α -adrenoceptors in human myocardium. To answer these questions, we cloned human 5-HT₄R (gene symbol: HTR4; Claeysen *et al.*, 1997) from heart and mapped the chromosomal location by FISH.

Materials and methods

Human metaphase cells were prepared from phytohemagglutinin-stimulated lymphocytes. Probe was labeled with biotinyl-16-dUTP and FISH was performed as previously described (Taviaux and Demaille, 1993).

Probe name(s): h5-HT_{4s}

Probe type: cDNA

Insert size: 1.2kb

Proof of authenticity: sequencing

Gene reference: GDB:6381308; Claeysen *et al.* (1997)

Results

Mapping data

Location: 5q31→q33

Number of cells examined: 52

Number of cells with specific signal: 1 (19), 2 (8), 3 (6), 4 (1) chromatids per cell

Most precise assignment: 5q32

Location of background signals (sites with >2 signals): none

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Figure legend

Figure 1

A) Hybridization of a human cDNA 5-HT₄ receptor probe to R-band human metaphases. Fluorescent spots are visualized at 5q31→q33. **B)** Ideogram of chromosome 5 homologue showing the fluorescent spot distribution to the 5q31→q33 band for 30 metaphases.

