SUPPLEMENTAL MATERIAL 1, Figs S1-4

Amino acid sequences of GlyR and cannabinoid receptors comparison

Local sequence alignment of CB1R, CB2R and GlyRs α1, α2 and β was generated with the web-based LALIGN/PLALIGN sequence alignment tools (Huang and Miller, 1991) available on the website of European Bioinformatics Institute (http://fasta.bioch.virginia.edu). Using LALIGN/PLALIGN-Local Alignment program we found that inspite of the low level of total sequence homology, some fragments of α1, α2 and β subunits of GlyR and CB1R/CB2R show quite high levels of identity (up to 60%) (Figs. S1-3**).** These fragments contain a number of residues (in particular residues 192, 195 and 282 in CBR1 and 112, 197 in CB2R) suggested to be responsible for cannabinoid agonist binding to CB1R or CB2R (Chin et al., 1999;Rhee et al., 2000;Song et al., 1999;Tao and Abood, 1998;Tao et al., 1999;Shim et al., 2003;McAllister et al., 2002;Mahmoudian, 1997). Local sequence alignments by dot matrix analysis were performed with PLALIGN (Fig. S4).

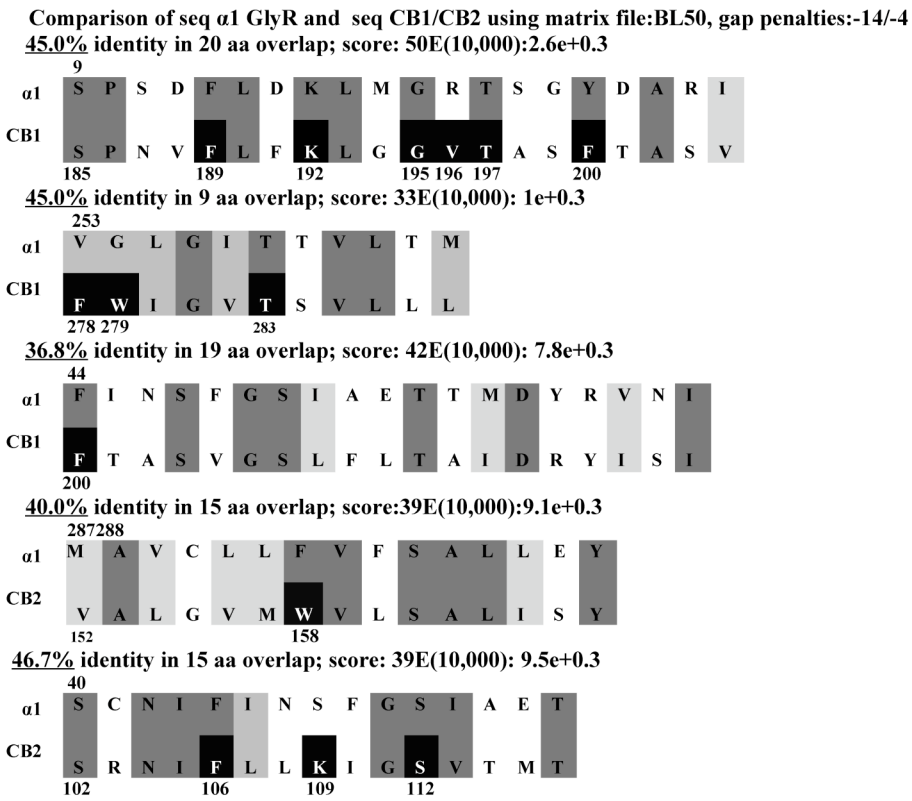


Figure S1. Local sequence alignment of CB1R, CB2R and GlyRs α1 subunit. Blocks of amino acids (aa) of GlyR α1 subunits that share at least 30% identity (as determined by the LALIGN program) with the corresponding sequences from CB1 or CB2 receptors. Both, here and below: gray shading demarcates identical and conserved amino acids in subunits of GlyR and CB1/CB2 receptors. Black shading indicates residues responsible for various cannabinoid agonists binding.

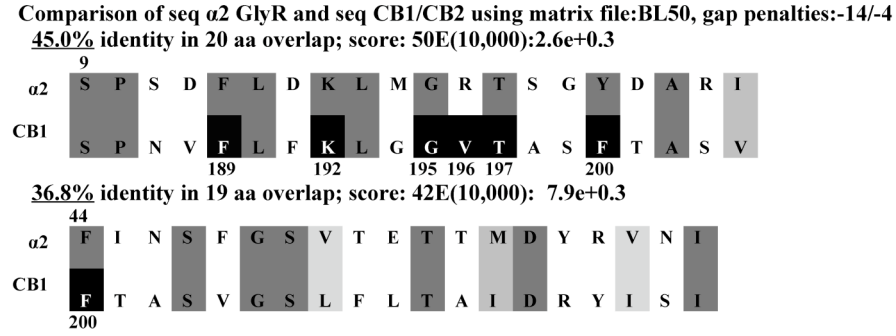


Figure S2. Local sequence alignment of CB1R, CB2R and GlyRs α2 subunit.

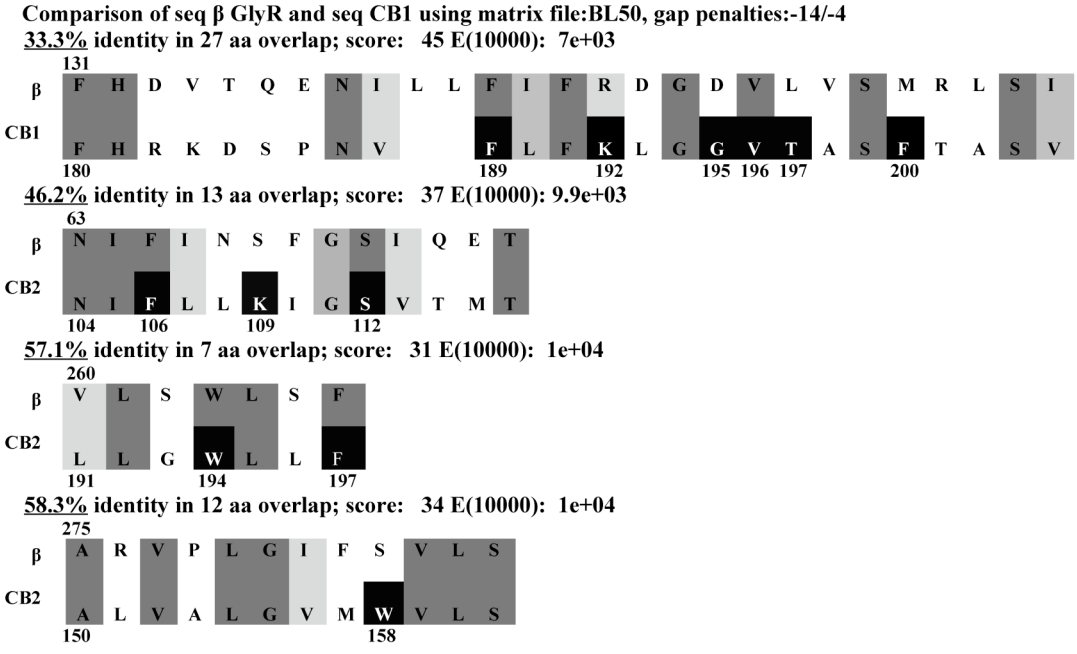
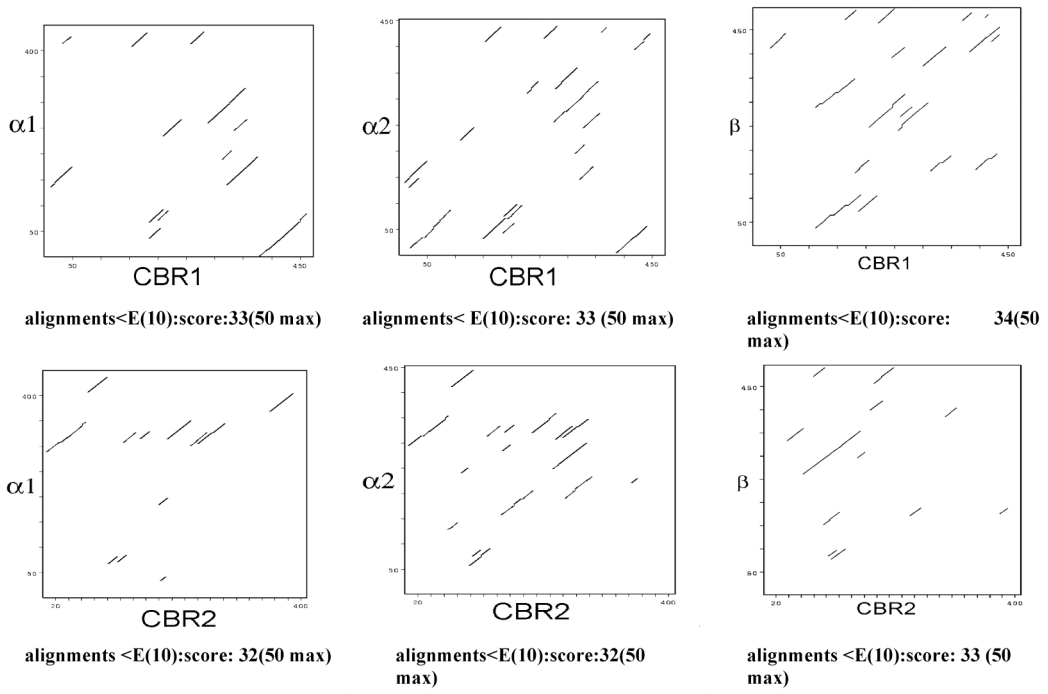


Figure S3. Local sequence alignment of CB1R, CB2R and GlyRs β subunit.

/seqprg/slib/bin/plalign -N 5000 -s BL50 -E 10 -f -12 -g -2 -w 75



alignments<E(10):score:33(50 max) alignments< E(10):score: 33 (50 max) alignments<E(10):score: 34(50 max)

alignments <E(10):score: 32(50 max) alignments<E(10):score:32(50 max) alignments <E(10):score: 33 (50 max)

Figure S4. Graphic "dotplot" output of the alignments

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4. McAllister SD, Tao Q, Barnett-Norris J, Buehner K, Hurst DP, Guarnieri F, Reggio PH, Nowell Harmon KW, Cabral GA, Abood ME (2002) A critical role for a tyrosine residue in the cannabinoid receptors for ligand recognition. Biochem Pharmacol 63: 2121-2136.

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