STRUCTURE-ACTIVITY RELATIONSHIP OF BIOLOGICALLY ACTIVE PEPTIDES

Despite their low bioavailability, peptides have recently been enjoying a resurgence of interest as potential drug candidates, due to their wide range of specific functions as hormones, neurotransmitters, or neuromodulators. Amino acid replacement, peptide-bond modification as well as peptidomimetic design are fundamental in identifying new biologically active compounds. Chemically-modified peptides can be used as pharmacological tools in preclinical studies, but also to develop innovative drugs.

GOALS

- Identification of the main structural requirements that determine either the potency or the efficacy of peptides.
- Peptide-sequence stabilization toward peptidases and synthesis of compounds showing in vivo prolonged activities.
- Identification of the chemical moieties responsible for peptide binding to receptors, typically the G protein-coupled (GPCRs) ones.
- Development of pharmacophoric models to be used for rational design of new peptidic and non-peptidic ligands.

INSTRUMENTS AND METHODS

Solution- and solid-phase peptide synthesis. Purification techniques, such as flash chromatography and preparative HPLC. Mass spectrometry, analytical HPLC, NMR, IR techniques to determine either structure or purity of final compounds.

MAIN SUBJECTS

Pharmacology, molecular biology, conformational analysis

RESEARCH GROUP

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