0031-6997/96/4801-0001$03.00/0
PHARMACOLOGICAL REVIEWS

Vol. 48, No. 1
Printed in U.S.A.

X. International Union of Pharmacology Recommendations for Nomenclature of New Receptor Subtypes

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Introduction

The International Union of Pharmacology (IUPHAR) committee for receptor nomenclature (NC) and drug classification (NC-IUPHAR) met in Paris on July 15 and 16, 1995. During that meeting, it approved the following recommendations for the nomenclature of receptor subtypes. The committee has already acknowledged that historical precedence makes it difficult, if not impossible, to apply these principles to existing receptor subtypes (Bylund et al., 1994; Masaki et al., 1994; Fredholm et al., 1994; Hoyer et al., 1994; Coleman et al., 1994). However, all current members of the committee (table 1) urge their colleagues involved with the pharmacology of new receptors subtypes to adhere to these guidelines.

Guidelines

The following are the recommendations of the NC-IUPHAR committee:

- Mammalian receptor systems are the basis of IUPHAR classifications. The nomenclature may extend to other vertebrates if useful, provided it does not compromise the mammalian classification. Evolutionary changes may be so great that invertebrate receptors are difficult to classify within mammalian-based nomenclature.
- The receptor should be named after the endogenous agonist, or the appropriate collective term when a family of related substances may interact with the receptor.
- The agonist abbreviation, followed by a numerical subscript, is to be preferred in naming new receptors. Further subdivision by subscript letters is allowed when there is a strong basis for grouping receptors together.
- Species homologues should not be given separate names, but the species should be identified if necessary by a lower case prefix, i.e., m 5-HT_{2A} or h 5-HT_{2A} for the mouse and human receptor, respectively. A list of species abbreviations is given in table 2. If necessary, further strain differences should be defined in the text.
- Recombinant receptors without well-defined functional characteristics should be referred to by lower case letters, i.e., 5-ht_6, 5-ht_{1f} or α_{1d}. When the recombinant receptor is shown to be of functional relevance in whole tissues and is fully characterized, upper case letters should then be used, e.g., 5-HT_6 or α_{1D}. When there is strong pharmacological evidence for a new receptor, but the amino acid sequence has not been defined, the receptor will be referred to in upper case italics, e.g., H_3 histamine receptor.
- New splice variants, if pharmacologically relevant,

TABLE 1
Current membership of the IUPHAR Committee for Receptor Nomenclature and Drug Classification

Member	Location
Eric A. Barnard	London, UK
Tom I. Bonner	Bethesda, Maryland, USA
William C. Bowman	Glasgow, UK
Philip B. Bradley	Birmingham, UK
George J. Cosmides	Bethesda, Maryland, USA
B. N. Dhawan	Lucknow, India
Colin T. Dollery	London, UK
Bertil Fredholm	Stockholm, Sweden
C. Robin Ganellin	London, UK
Debbie Girdlestone	Cambridge, UK
Theophile P. Godfraind	Bruxelles, Belgium
Michel Hamon	Paris, France
T. Kendall Harden	Chapel Hill, North Carolina, USA
Patrick P. A. Humphrey	Cambridge, UK
Donald H. Jenkinson	London, UK
Terry Kenakin	Research Triangle Park, North Carolina, USA
Salomon Z. Langer	Paris, France
Tomoh Masaki	Kyoto, Japan
Rodolfo Paoletti	Milano, Italy
Robert R. Ruffolo	Pennsylvania, USA
Michael Spedding (Secretary)	Croissy, France
Ullrich G. Trendelenburg	Tübingen, Germany
Steve Watson	Oxford, UK
Paul M. Vanhoutte (Chairman)	Courbevoie, France

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Abbreviations: NC, nomenclature; IUPHAR, International Union of Pharmacology.

TABLE 2
Proposed list of species abbreviations to precede the receptor name, where further precision is required

Abbreviation	Species
b	bovine
ca	canine
ch	chick
e	equine
f	feline
gp	guinea pig
h	human
mk	monkey
m	mouse
p	porcine
rb	rabbit
r	rat

should be indicated by subscript letters in lower case, in parentheses, e.g., $EP_{3(a)}$, $EP_{3(b)}$, $EP_{3(c)}$, $EP_{3(d)}$ receptor.

- Greek letters and Roman numerals should be avoided in any new nomenclature. The name should not include the letter "R" or "r" as an abbreviation for receptor. Where subscripts are used, there should never be subscripts to an existing subscript.
- Distinct names should be used for G-protein-linked receptors and ligand-gated ion channel receptors activated by the same agonist so that, in the future, the distinction does not depend solely on numerical subscript as presently occurs for the 5-HT_3 receptor.

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