IUPHAR/BPS Guide to Pharmacology CITE
https://doi.org/10.2218/gtopdb/F302/2025.3

Pattern recognition receptors in GtoPdb v.2025.3

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Abstract

Pattern Recognition Receptors (PRRs, [118]) (**nomenclature as agreed by NC-IUPHAR sub-committee on Pattern Recognition Receptors,** [21]) participate in the innate immune response to microbial agents, the stimulation of which leads to activation of intracellular enzymes and regulation of gene transcription. PRRs express multiple leucine-rich regions to bind a range of microbially-derived ligands, termed PAMPs or pathogen-associated molecular patterns or endogenous ligands, termed DAMPS or damage-associated molecular patterns. These include peptides, carbohydrates, peptidoglycans, lipoproteins, lipopolysaccharides, and nucleic acids. PRRs include both cell-surface and intracellular proteins. PRRs may be divided into signalling-associated members, identified here, and endocytic members, the function of which appears to be to recognise particular microbial motifs for subsequent cell attachment, internalisation and destruction. Some are involved in inflammasome formation, and modulation of IL-1β cleavage and secretion, and others in the initiation of the type I interferon response.

PRRs included in the Guide To PHARMACOLOGY are:

Catalytic PRRs (see links below this overview)
Toll-like receptors (TLRs)
Nucleotide-binding oligomerization domain, leucine-rich repeat containing receptors (NLRs, also known as NOD (Nucleotide oligomerisation domain)-like receptors)
RIG-I-like receptors (RLRs)
Caspase 4 and caspase 5

Non-catalytic PRRs
Absent in melanoma (AIM)-like receptors (ALRs)
C-type lectin-like receptors (CLRs)
Other pattern recognition receptors
Advanced glycosylation end-product specific receptor (RAGE)

Contents

This is a citation summary for Pattern recognition receptors in the Guide to Pharmacology database (GtoPdb). It exists purely as an adjunct to the database to facilitate the recognition of citations to and from the database by citation analyzers. Readers will almost certainly want to visit the relevant sections of the database which are given here under database links.

GtoPdb is an expert-driven guide to pharmacological targets and the substances that act on them. GtoPdb is a reference work which is most usefully represented as an on-line database. As in any publication this work should be appropriately cited, and the papers it cites should also be recognized. This document provides a citation for the relevant parts of the database, and also provides a reference list for the research cited by those parts. For further details see [22].

Please note that the database version for the citations given in GtoPdb are to the most recent preceding version in which the family or its subfamilies and targets were substantially changed. The links below are to the current version. If you need to consult the cited version, rather than the most recent version, please contact the GtoPdb curators.

Database links

Pattern recognition receptors
https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=302
- Toll-like receptor family
  https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=316
  - Receptors
    - TLR1
      https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1751
    - TLR2
      https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1752
    - TLR3
      https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1753
    - TLR4
      https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1754
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    - TLR6
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    - TLR7
      https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1757
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      https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1758
    - TLR9
      https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1759
    - TLR10
      https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1760
    - TLR11
      https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1761
- NOD-like receptor family
  https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=317
  - Receptors
    - NOD1(nucleotide binding oligomerization domain containing 1)
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      https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1763
    - NLRC3
      https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1764
    - NLRC4
      https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1782
    - NLRC5
      https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1765
    - NLRX1
      https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1766
    - CIITA
      https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1767
    - NLRP1
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    - NLRP11
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    - NLRP12

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NLRP13
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RIG-I-like receptor family
https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=940
Introduction to RIG-I-like receptor family
https://www.guidetopharmacology.org/GRAC/FamilyIntroductionForward?familyId=940
Receptors
RIG-1(DExD/H-box helicase 58)
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2920
MDA5(interferon induced with helicase C domain 1)
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2921
LGP2(DExH-box helicase 58)
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2922

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