P2Y receptors (version 2019.4) in the IUPHAR/BPS Guide to Pharmacology Database

Maria-Pia Abbracchio¹, Jean-Marie Boeynaems², José L. Boye³, Geoffrey Burnstock⁴, Stefania Ceruti¹, Marta Fumagalli¹, Christian Gachel⁶, Rebecca Hills⁶, Robert G. Humphries⁷, Kazu Inoue⁸, Kenneth A. Jacobson⁹, Charles Kennedy¹⁰, Brian F. King⁴, Davide Lecca¹, Christa E. Müller¹¹, Maria Teresa Miras-Portugal¹², Vera Ralevic¹³ and Gary A. Weisman¹⁴

1. University of Milan, Italy
2. Université Libre de Bruxelles, Belgium
3. University of North Carolina, USA
4. Royal Free Hospital School of Medicine, UK
5. INSERM, France
6. University of Edinburgh, UK
7. AstraZeneca, UK
8. University of Kyushu, Japan
9. National Institutes of Health, USA
10. University of Strathclyde, UK
11. Universität Bonn, Germany
12. Universidad Complutense de Madrid, Spain
13. University of Nottingham, UK
14. University of Missouri, USA

Abstract

P2Y receptors (nomenclature as agreed by the NC-IUPHAR Subcommittee on P2Y Receptors [B, 5]) are activated by the endogenous ligands ATP, ADP, uridine triphosphate, uridine diphosphate and UDP-glucose. The relationship of many of the cloned receptors to endogenously expressed receptors is not yet established and so it might be appropriate to use wording such as 'uridine triphosphate-prefering (or ATP-, etc.) P2Y receptor' or 'P2Y₁-like', etc., until further, as yet undefined, corroborative criteria can be applied [46, 109, 187, 375, 388].

Clinically used drugs acting on these receptors include the dinucleoside polyphosphate diquafosol, agonist of the P2Y² receptor subtype, approved in Japan for the management of dry eye disease [36], and the P2Y₁₂ receptor antagonists prasugrel, ticagrelor and cangrelor, all approved as antiplatelet drugs [52, 316].

Contents

This is a citation summary for P2Y 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.

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**

**P2Y receptors**

http://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=52

Introduction to P2Y receptors

http://www.guidetopharmacology.org/GRAC/FamilyIntroductionForward?familyId=52

Receptors

- **P2Y**<sub>1</sub> receptor
  - http://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=323
- **P2Y**<sub>2</sub> receptor
  - http://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=324
- **P2Y**<sub>4</sub> receptor
  - http://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=325
- **P2Y**<sub>6</sub> receptor
  - http://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=326
- **P2Y**<sub>11</sub> receptor
  - http://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=327
- **P2Y**<sub>12</sub> receptor
  - http://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=328
- **P2Y**<sub>13</sub> receptor
  - http://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=329
- **P2Y**<sub>14</sub> receptor

**References**


49. Buvinic S, Briones R and Huidobro-Toro JP. (2002) P2Y(1) and P2Y(2) receptors are coupled to the NO/cGMP pathway to vasodilate the rat arterial mesenteric bed. *Br. J. Pharmacol.* **136**: 847-56 [PMID:12110609]


114. Filippov AK, Brown DA and Barnard EA. (2000) The P2Y(1) receptor closes the N-type Ca(2+) channel in
neurones, with both adenosine triphosphates and diphosphates as potent agonists. *Br. J. Pharmacol.* **129**: 1063-6 [PMID:10725253]


133. Gao ZG, Ding Y and Jacobson KA. (2010) UDP-glucose acting at P2Y14 receptors is a mediator of mast


Koizumi S, Shigemoto-Mogami Y, Nasu-Tada K, Shinozaki Y, Ohsawa K, Tsuda M, Joshi BV, Jacobson KA, Kohsaka S and Inoue K. (2007) UDP acting at P2Y6 receptors is a mediator of microglial...
phagocytosis. Nature **446**: 1091-5 [PMID:17410128]


242. Lemon G, Brockhausen J, Li GH, Gibson WG and Bennett MR. (2005) Calcium mobilization and spontaneous transient outward current characteristics upon agonist activation of P2Y2 receptors in smooth


