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E3 ubiquitin ligase components in GtoPdb v.2022.3

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Abstract

Ubiquitination (a.k.a. ubiquitylation) is a protein post-translational modification that typically requires the sequential action of three enzymes: E1 (ubiquitin-activating enzymes), E2 (ubiquitin-conjugating enzymes), and E3 (ubiquitin ligases) [28]. Ubiquitination of proteins can target them for proteasomal degradation, or modulate cellular processes including cell cycle progression, transcriptional regulation, DNA repair and signal transduction.
E3 ubiquitin ligases, of which there are >600 in humans, are a family of highly heterogeneous proteins and protein complexes that recruit ubiquitin-loaded E2 enzymes to mediate transfer of the ubiquitin molecule from the E2 to protein substrates. Target substrate specificity is determined by a substrate recognition subunit within the E3 complex.
E3 ligases are being exploited as pharmacological targets to facilitate targeted protein degradation (TPD), as an alternative to small molecule inhibitors [3], through the development of proteolysis targeting chimeras (PROTACs) and molecular glues.

Contents

This is a citation summary for E3 ubiquitin ligase components 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.

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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

E3 ubiquitin ligase components
https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=1023

Enzymes

- cereblon
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=3086
- MDM2 proto-oncogene
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=3136
- STIP1 homology and U-box containing protein 1
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=3202
- von Hippel-Lindau tumor suppressor
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=3204

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