

## E3 ubiquitin ligase components in GtoPdb v.2023.2

Elena Faccenda<sup>1</sup> and Robert Layfield<sup>2</sup>

1. University of Edinburgh, UK
2. The University of Nottingham, UK

### 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) [30]. 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

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### Database links

#### E3 ubiquitin ligase components

<https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=1023>

Enzymes

[Cbl proto-oncogene B](#)

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=3234>

[cereblon](#)

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=3086>

[F-box protein 3](#)

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=3233>

[DDB1 and CUL4 associated factor 1](#)

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=3244>

[MDM2 proto-oncogene](#)

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=3136>

[S-phase kinase associated protein 2](#)

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=3235>

[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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