

MATERIAL DATA SHEET**Parkin, human recombinant****Cat. # E3-160**

The E3 Ubiquitin ligase Parkin (encoded by the PARK2 gene) is an essential part of the cellular machinery that participates in the removal of damaged mitochondria. Mutations in PARK2 are known to cause a form of Parkinson's disease known as autosomal recessive juvenile Parkinson's disease (AR-JP), and the mechanisms by which defective Parkin ligase contributes to the dopaminergic cell death in this disease is an area of intense investigation.

Reported substrates for Parkin include BCL2, GPR37, MIRO1, MFN1, MFN2, TOMM20, USP30, and many others. Parkin (an RBR-class Ubiquitin ligase) structures have recently been reported by multiple groups, and reveal that the ligase is folded upon itself to produce an auto-inhibited state. The auto-inhibition is relieved by interactions with PINK1 kinase (which can phosphorylate both Parkin and Ubiquitin at serine residue number 65) and pS65 phospho-Ubiquitin by mechanisms that are under investigation.

In vitro, Parkin may be activated by treatment with recombinant PINK1, or addition of low concentrations of pS65-phosphoubiquitin. Parkin has been reported to generate poly-Ubiquitin chains in K6, K11, K48, and K63 linkages both *in vitro* and *in vivo*. This recombinant protein is untagged.

Product Information

Quantity:	25 µg
Stock:	X mg/ml (X µM) in 25 mM Tris-HCl pH 8.5, 200 mM NaCl, 0.03% Brij35, 10% (v/v) Glycerol, 5 mM TCEP
MW:	52 kDa
Purity:	≥ 90% by SDS-PAGE under reducing conditions and visualized by Colloidal Coomassie Blue Stain.

Use & Storage

Use:	Reaction conditions will need to be optimized for each specific application. As supplied, Parkin has negligible E3 ligase activity as determined by the lack of autoubiquitination in an <i>in vitro</i> assay. Parkin ligase activity is greatly enhanced by phosphorylation with PINK1 kinase (AP-180) or by the addition of low concentrations of phosphorylated Ubiquitin (U-102).
Storage:	Store at -80°C. Avoid multiple freeze/thaw cycles.

Literature

- References:**
- Bingol, B. *et al.* (2014) Nature **510**: 370
 - Ordureau, A. *et al.* (2014) Mol. Cell **56**: 360
 - Riley, B.E. *et al.* (2013) Nat. Comm. **4**: doi:10.1038/ncomms2982
 - Saraff, S.A. *et al.* (2013) Nature **496**: 372
 - Spratt, D.E. *et al.* (2013) Nat. Comm. **4**: doi:10.1038/ncomms2983
 - Trempe, J.F. *et al.* (2013) Science **340**: 1451
 - Wauer T. *et al.* (2015) Nature **524**: 370
 - Wauer T. & Komander, D. (2013) EMBO J **32**: 2099

For Laboratory Research Use Only, Not For Use in Humans

Rev: 4/07/2016

840 Memorial Drive, Cambridge, MA 02139 Phone: 617-576-2210 FAX: 617-492-3565

www.bostonbiochem.com

The contents of this datasheet (unless otherwise noted) are Copyright © 2008 Boston Biochem, Inc. All rights reserved. Duplication in whole or in part is strictly prohibited without the express written consent of Boston Biochem, Inc. "Boston Biochem" is a Trademark of Boston Biochem, Inc., 840 Memorial Drive, Cambridge, MA 02139