

## Product Information

### Anti-Parkin

Developed in Rabbit, Affinity Isolated Antibody

Product Number **P 5748**

#### Product Description

Anti-Parkin was developed in rabbit using a synthetic peptide CI(298)KELHHFRILGEEQYN(313) corresponding to amino acid residues 298-313 from human parkin as the immunogen.. This sequence is completely conserved between human, mouse and rat. The antibody was affinity isolated on immobilized immunogen.

Anti-Parkin recognizes an ~52 kDa protein representing recombinant human parkin by immunoblotting. It also detects parkin in the pedunculopontine tegmental nucleus in rat brain using immunohistochemical procedures.

Parkinson's Disease, the second most common neurodegenerative disease after Alzheimer's Disease, is characterized by the loss of dopaminergic neurons and the presence of Lewy bodies (comprised of  $\alpha$ -synuclein and parkin inclusions).<sup>1</sup> Recently a new gene, parkin, has been identified that is responsible for Autosomal Recessive Juvenile Parkinsonism (AR-JP).<sup>2</sup> The parkin gene encodes a ubiquitin-protein ligase, which covalently attaches ubiquitin to target proteins, designating them for degradation by the proteasome.<sup>3</sup>

Studies show that parkin interacts with and ubiquitinates the  $\alpha$ -synuclein interacting protein, synphilin-1.<sup>4</sup> Recent analysis of parkin mutations in AR-JP patients reveals that parkin becomes functionally inactive as an E3 enzyme.<sup>5</sup> This suggests that the loss of function mutation within parkin results in a failure of ubiquitin/proteasome-mediated proteolysis of synphilin-1 and the accumulation of proteins within the cell resulting in neuronal cell death.

#### Reagent

The antibody is supplied as 100  $\mu$ g of affinity-isolated antibody at a concentration of 1 mg/ml in phosphate buffered saline containing 1.0 mg/ml BSA and 0.05 % sodium azide as preservative.

#### Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling.

#### Storage/Stability

Store at -20 °C. For extended storage, freeze in working aliquots. Avoid repeated freezing and thawing. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

#### Product Profile

The recommended working dilutions are 0.5  $\mu$ g/ml for immunoblotting and 1  $\mu$ g/ml for immunohistochemistry.

**Note:** In order to obtain best results and assay sensitivities of different techniques and preparations, determination of optimal working dilutions by titration test is recommended.

#### References

1. Hattori, N. and Mizuno, Y., Pathogenetic mechanisms of parkin in Parkinson's disease, *Lancet*, **364**, 722-724 (2004).
2. Gu, W. J., et al., Cloning of rat parkin cDNA and distribution of parkin in rat brain, *J. Neurochem.*, **74**, 1773-1776 (2000).
3. Tanaka, K., et al., Ubiquitin, proteasome and parkin, *Biochim. Biophys. Acta*, **1695**, 235-247 (2004).
4. Lim, K.L., et al., The cast of molecular characters in Parkinson's disease: felons, conspirators, and suspects, *Ann. N.Y. Acad. Sci.*, **991**, 80-92 (2003).
5. Chung, K.K., et al, New insights into Parkinson's disease, *J Neurol.*, **250**, Suppl 3:III15-24 (2003).

MCT,PHC 03/05-1

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.