

Gene Section

Mini Review

PRDX1 (peroxiredoxin 1)

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Published in Atlas Database: December 2000

Online updated version: <http://AtlasGeneticsOncology.org/Genes/PAGID266.html>

DOI: 10.4267/2042/37693

This article is an update of: Prosperi MP, Ferbus D, Goubin G. PAG (Proliferation Associated Gene). Atlas Genet Cytogenet Oncol Haematol 2000;4(4):192

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Identity

Other names: PAGA (Proliferation Associated Gene A); PAG; PRX1; Hs.1163; NKEFA (natural killer-enhancing factor A); Prx-1 (peroxiredoxin 1); HBP23 (Heme-binding protein 23 kDa); MSP23 (macrophage 23-kD stress protein)

HGNC (Hugo): PRDX1

Location: 1p34.1

Note: PAGA/NKEFA/PRDX1/peroxiredoxin 1, located in 1p34, is often confused in databases and elsewhere with PAGA/TDPX2, a pseudogene located in 9p22; PAGA is not either NKEFB/PRDX2/peroxiredoxin 2, located in 13q12; the other peroxiredoxins, PRDX3 and PRDX5, are located in 10q25-26 and in 11q13 respectively.

DNA/RNA

Description

6 exons, 13 kb.

Transcription

937 bp mRNA; 599 bp coding sequence.

Pseudogene

Pseudogene in 9p22.

Protein

Description

199 amino acids; 22 kDa; form dimers through a disulfide bridge.

Expression

Widely expressed, in particular in the various cell types of the central nervous system and in red blood cells; overexpressed following induction of proliferation and oxidative stress.

Localisation

Cytosolic.

Function

Antioxidant, against oxidative stress; Abl SH3-binding protein; inhibitor of c-Abl tyrosine kinase activity; also binds to heme.

Homology

Thioperoxiredoxines.

Implicated in

Disease

Correlations between the expression level and the stage of tumor progression in squamous cell carcinoma of the oral cavity; high expression in follicular thyroid tumors, but not in papillary carcinoma of the thyroid.

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This article should be referenced as such:

Huret JL. PRDX1 (peroxiredoxin 1). *Atlas Genet Cytogenet Oncol Haematol*. 2001; 5(1):14-15.
