

Product Specification Sheet

PHEX Antibodies

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| Cat. # PHEX11-S | Rabbit Anti-Rat PHEX antiserum | SIZE: 100 ul |
| Cat. # PHEX11-A | Rabbit Anti-Rat PHEX IgG (Affinity pure) | SIZE: 100 ug |
| Cat. # PHEX11-P | Rat PHEX Control/blocking peptide | SIZE: 100 ug |

Mutations in the *PHEX* (phosphate regulating gene with homologies to endopeptidases on the X chromosome) gene are responsible for X-linked hypophosphatemic rickets characterized by hypophosphatemia, renal phosphate wasting and defective vit-D metabolism and bone mineralization. The product of the PHEX gene is an enzyme, predominantly expressed in bone and teeth. It is involved in the activation or degradation of peptide factors of renal Pi transport and matrix mineralization. PHEX enzyme is one of the proteases of M-13 family, which comprises several zinc-dependent metalloproteases like **DINE, KELL, ECE, XCE, neprilysin (NEP)** and neprilysin-like proteases (**NEPLs**). The NEPLs (**NEPL- α , NEPL- β , NEPL- γ**) arise from the alternative splicing of a single NEPL gene and are zinc dependent metalloproteases with ~54 % homology to NEP.

phosphate regulating gene with homologies to endopeptidases on the X chromosome (PHEX) (formerly **PEX**) is a zinc-containing, type II integral membrane glycoprotein (~110 kDa; mouse/rat/human 749-aa; chromosome xp22.2-p22.1) with structural resemblance to M13 NEP proteases. In contrast to NEP, PHEX has very narrow substrate specificity and hydrolyzes parathyroid hormone related peptide (PTHrP₁₀₇₋₁₃₉). Compared to NEP, PHEX can proteolyze A β ₄₀ (but not A β ₄₂), at a very low rate and to a very poor extent and therefore is not a major *in vivo* peptidase for A β ; however, it might degrade A β in Alzheimer patients where A β is accumulated in excess and an A β -degradative pathway, alternative to NEP, exists. PHEX is expressed in lymphocytes and fetal brain but not in adult brain, placenta, skeletal muscle, pancreas, heart, liver and lung. Defects in PHEX are a cause of X-linked hypophosphatemic rickets (HYP). PHEX is implicated in bone and dentin mineralization and renal phosphate reabsorption.

FUNCTION: Probably involved in bone and dentin mineralization and renal phosphate reabsorption.

SUBCELLULAR LOCATION: Membrane; Single-pass type II membrane protein (Potential).

SIMILARITY: Belongs to the peptidase M13 family [view classification].

Protein name Metalloendopeptidase homolog PEX

Synonyms EC 3.4.24.-

Phosphate regulating neutral endopeptidase

X-linked hypophosphatemia protein, HYP

Gene name Name: Phex; Synonyms: Hyp, Pex

Source of Antigen and Antibodies

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|---------------------|---|
| Antigen | 17-aa peptide of Rat PHEX; (protein accession #P70669, refs 1) (designated PHEX11-P or control peptide), conjugated to KLH; Epitope location ~ C-terminus |
| Ab Host/type | Rabbit, polyclonal Aff pure IgG (cat #PHEX-A) purified over the antigen column |
| 2-ab | Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available) |
| -ve control | # 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as -ve control |

Form & Storage of Antibodies/Peptide Control

Antiserum (unpurified)

100ul solution lyophilized powder

Supplied in Buffer: 0.05% azide

Reconstitute powder in 100 ul PBS

Affinity pure IgG

100 ug/100ul solution lyophilized powder

Supplied in Buffer: PBS+0.1% BSA

Reconstitute powder in PBS at 1mg/ml

Control/blocking peptide

100 ug/100 ul solution lyophilized powder

Supplied in Buffer: PBS pH 7.5,

Reconstitute powder in PBS at 1 mg/ml.

Storage

Short-term: unopened, undiluted liquid vials at 20°C and powder at 4°C or -20°C..

Long-term: at -20°C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at -20°C or below.

Shipping: 4°C for solutions and room temp for powder

Recommended Usage

Western Blotting (1:1K-5K for neat serum and 1-10 ug/ml for affinity pure using Chemiluminescence technique).

ELISA (1:10K-1:100K; using 50-100 ng of control peptide/well).

Histochemistry & Immunofluorescence: not tested. We recommend the use of affinity pure antibody at 2-20 ug/ml.

Specificity & Cross-reactivity

Rat PHEX11-P antigenic/control peptide is 94% conserved in mouse and 88% in human PHEX. No significant sequence homology of PHEX11-P exists with NEP, NEPLs or other M13-family proteases. Antibody reactivity in various species is not known. Control peptide, because of its low mol. Wt (<3 kDa), is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug control peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity

General References: (1) Brandau O et al (1997) Genome Res. 7, 573-585; Du L et al (1996) Genomics 36, 22-28; Strom TM et al (1997) Hum. Mol. Genet. 6, 165-171; Beck L et al (1997) J. Clin. Invest. 99, 1200-1209; Guo R et al (1997) J. Bone mineral. Res. 12, 1009-1017;

*This product is for *In vitro* research use only.

Related materials available from ADI

Antibodies: NEP, NEP-alpha, -beta, -gamma, DINE, PHEX.

PHEX11-S-A-P 70912J