

Product Specification Sheet

PHEX Antibodies

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

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