ALPHA DIAGNOSTIC INTERNATIONAL

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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 parathroid hormone related peptide ($PTHrP_{107-139}$). Compared to NEP, PHEX can proteolyze $A\beta_{40}$ (but not $A\beta_{42}$), at a very low rate and to a very poor extent and therefore is not a major *in vivo* peptidase for Aβ; however, it might degrade Aβ in Alzheimer patients where Aβ is accumulated in excess and an Aβ-degradative pathway, alternative to NEP, exists. PHEX is expressed 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-temrinus**
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

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