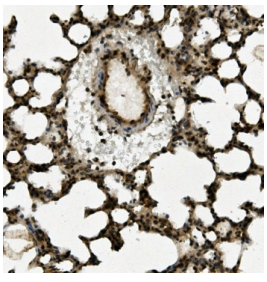
AHR Antibody / Environmental Sensor Protein Antibody (RQ5954)

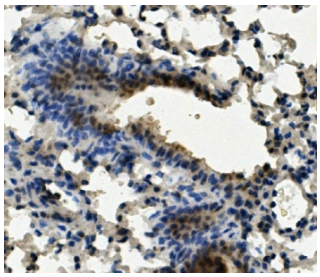
Catalog No.	Formulation	Size
RQ5954	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

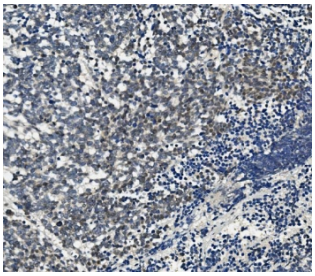
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose and 0.025% sodium azide
UniProt	P35869
RRID	AB_3719372
Applications	Western blot: 0.5-1ug/ml Immunohistochemistry: 1-2ug/ml Immunofluorescence: 2-4ug/ml Direct ELISA: 0.1-0.5ug/ml
Limitations	This AHR Antibody / Environmental Sensor Protein Antibody is available for research use only.



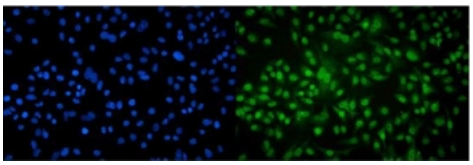
AHR Antibody Rat Lung IHC. Immunohistochemical staining of FFPE rat lung demonstrates AHR expression using an AHR antibody. AHR, also known as Aryl Hydrocarbon Receptor and an Environmental Sensor Protein, is a ligand activated transcription factor that regulates xenobiotic metabolism, immune responses, and cellular adaptation to environmental stimuli. Distinct cytoplasmic and nuclear staining is observed throughout the bronchial epithelium and alveolar cells, consistent with the role of AHR in pulmonary barrier function and responses to inhaled toxicants. Heat induced epitope retrieval was performed by boiling tissue sections in pH 8 EDTA buffer for 20 minutes followed by cooling prior to staining. These results support the utility of AHR Antibody for studies of toxicology, inflammation, and environmental sensing pathways.



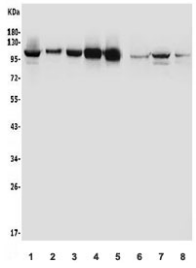
AHR Antibody Mouse Lung IHC. Immunohistochemical staining of FFPE mouse lung demonstrates AHR expression using an AHR antibody. AHR, also known as Aryl Hydrocarbon Receptor and an Environmental Sensor Protein, is a ligand activated transcription factor that integrates xenobiotic, dietary, and endogenous signals to regulate gene expression and immune homeostasis. Prominent nuclear and cytoplasmic staining is observed in bronchiolar epithelial cells and scattered alveolar cells, consistent with activation of AHR signaling pathways in the pulmonary microenvironment. Heat induced epitope retrieval was performed by boiling tissue sections in pH 8 EDTA buffer for 20 minutes followed by cooling prior to staining. These findings support the utility of AHR Antibody for studies of toxicology, barrier immunity, and environmental response pathways.



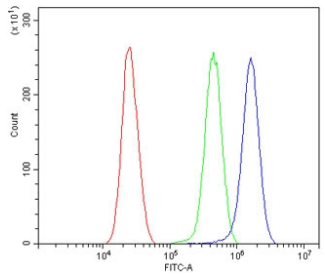
AHR Antibody Human Lung Cancer IHC. Immunohistochemical staining of FFPE human lung cancer demonstrates AHR expression using an AHR antibody. AHR, also known as Aryl Hydrocarbon Receptor and an Environmental Sensor Protein, is a ligand activated transcription factor that regulates xenobiotic metabolism, inflammatory signaling, and cellular responses to endogenous and environmental ligands. Predominantly nuclear and cytoplasmic staining is observed throughout malignant cells, consistent with active AHR signaling and the known involvement of this receptor in tumor progression and metabolic adaptation. Heat induced epitope retrieval was performed by boiling tissue sections in pH 8 EDTA buffer for 20 minutes followed by cooling prior to staining. These results support the utility of AHR Antibody for studies of toxicology, immune regulation, and lung cancer biology.



AHR Antibody A549 Cells IF. Immunofluorescent staining of FFPE human A549 cells demonstrates AHR expression using an AHR antibody (green). AHR, also known as Aryl Hydrocarbon Receptor and an Environmental Sensor Protein, is a ligand activated transcription factor that mediates cellular responses to xenobiotics, endogenous metabolites, and inflammatory signals. Prominent nuclear and perinuclear fluorescence is observed, consistent with the activation and nuclear translocation of AHR required for transcriptional regulation. DAPI nuclear stain identifies cell nuclei (blue). Heat induced epitope retrieval was performed by steaming sections in pH 6 citrate buffer for 20 minutes prior to staining. These results support the utility of AHR Antibody for studies of toxicology, signal transduction, immune regulation, and cancer biology.



AHR Antibody Human Mouse Rat WB. Western blot analysis of AHR expression using an AHR antibody. Lane 1: human A549 cell lysate. Lane 2: human HeLa cell lysate. Lane 3: human PC-3 cell lysate. Lane 4: human U-87 MG cell lysate. Lane 5: human Caco-2 cell lysate. Lane 6: rat kidney tissue lysate. Lane 7: mouse heart tissue lysate. Lane 8: mouse NIH 3T3 cell lysate. AHR, also known as Aryl Hydrocarbon Receptor and an Environmental Sensor Protein, is a ligand activated transcription factor that regulates xenobiotic metabolism and cellular responses to environmental and endogenous signals. A distinct band is detected at approximately 95 kDa in all samples, corresponding to the expected molecular weight of full length AHR. Variations in signal intensity reflect differential expression among tissues and cell types. These results demonstrate conserved AHR expression across human, rat, and mouse samples and support the utility of AHR Antibody for studies of toxicology, signal transduction, and environmental sensing.



AHR Antibody A549 Cells FACS. Flow cytometric analysis of human A549 cells was performed using an AHR antibody following blocking with goat sera. AHR, also known as Aryl Hydrocarbon Receptor and an Environmental Sensor Protein, is a ligand activated transcription factor that regulates xenobiotic metabolism, inflammatory signaling, and cellular responses to endogenous metabolites. Red histogram: cells alone. Green histogram: isotype control. Blue histogram: AHR antibody. The clear rightward shift of the AHR antibody signal relative to both controls demonstrates specific detection of endogenous AHR expression in A549 cells. These results support the utility of AHR Antibody for studies of toxicology, signal transduction, immune regulation, and environmental sensing pathways.

Description

AHR Antibody / Environmental Sensor Protein Antibody recognizes AHR, also known as Aryl Hydrocarbon Receptor, a ligand activated transcription factor that serves as a cellular sensor of environmental, dietary, microbial, and endogenous metabolites. AHR belongs to the basic helix loop helix PER ARNT SIM family of proteins and resides in the cytoplasm in association with molecular chaperones until activated by specific ligands. Upon activation, AHR translocates to the nucleus where it heterodimerizes with ARNT and regulates the expression of genes involved in xenobiotic metabolism, cellular differentiation, and immune responses. Through these functions, AHR coordinates adaptive responses to environmental stimuli and contributes to maintenance of tissue homeostasis.

AHR is best known for mediating responses to environmental contaminants such as dioxins and polycyclic aromatic hydrocarbons, but it also responds to naturally occurring metabolites derived from diet, microbiota, and tryptophan catabolism. Activation of AHR induces expression of enzymes including CYP1A1, CYP1A2, and CYP1B1, thereby promoting detoxification and metabolic adaptation. Beyond xenobiotic metabolism, AHR influences pathways involved in cell proliferation, apoptosis, stem cell maintenance, and differentiation. These activities underscore its broad role as a regulator of physiology and environmental sensing.

AHR plays important roles in the immune system, where it regulates T cell differentiation, innate lymphoid cell function, and inflammatory signaling. Interactions between AHR and pathways such as NF kappa B, Wnt, and estrogen receptor signaling contribute to tissue specific effects in barrier organs including the intestine, skin, and lung. Dysregulated AHR activity has been implicated in inflammatory diseases, autoimmune disorders, metabolic syndromes, and cancer. Depending on cellular context, AHR may function as either a tumor suppressor or a promoter of tumor progression. Altered AHR signaling has been associated with breast cancer, lung cancer, liver cancer, and hematologic malignancies.

Beyond toxicology and immunology, AHR contributes to stem cell biology, neurodevelopment, and maintenance of epithelial barriers. Crosstalk with microbial metabolites and endogenous signaling molecules highlights the role of AHR as a central integrator of environmental and metabolic cues. Consequently, AHR has emerged as an important target in pharmacology, cancer biology, and studies of host microbe interactions.

AHR Antibody / Environmental Sensor Protein Antibody is useful for investigations of xenobiotic metabolism, immune regulation, toxicology, and cancer biology. Detection of endogenous AHR provides a valuable tool for studies of environmental sensing, transcriptional regulation, and diseases associated with altered AHR signaling.

Explore our Signal Transduction Antibodies page to discover AHR antibodies and other regulators of environmental sensing, transcriptional control, and cellular signaling pathways.

Application Notes

Optimal dilution of the AHR Antibody / Environmental Sensor Protein Antibody should be determined by the researcher.

Immunogen

Recombinant human protein (amino acids A6-L842) was used as the immunogen for the AHR antibody.

Storage

After reconstitution, the AHR antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

Aryl Hydrocarbon Receptor Antibody, Ah Receptor Antibody, Dioxin Receptor Antibody, Xenobiotic Sensor Antibody, Ligand Activated Transcription Factor Antibody, PAS Domain Transcription Factor Antibody, BHLHE76 Antibody

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