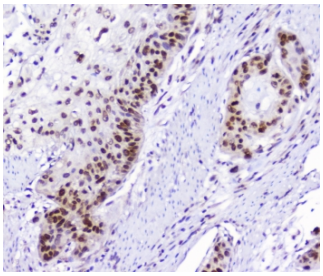
# AHR Antibody / Aryl Hydrocarbon Receptor (RQ4534)

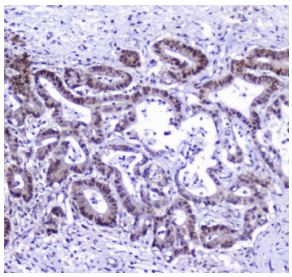
| Catalog No. | Formulation | Size |
|---|---|---|
| RQ4534 | 0.5mg/ml if reconstituted with 0.2ml sterile DI water | 100 ug |

**Bulk quote request**

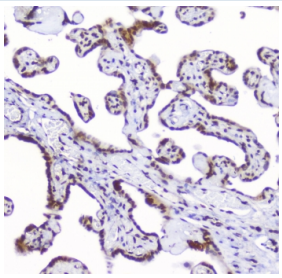
| | |
|---|---|
| **Availability** | 1-3 business days |
| **Species Reactivity** | Human, Mouse, Rat |
| **Format** | Antigen affinity purified |
| **Host** | Rabbit |
| **Clonality** | Polyclonal (rabbit origin) |
| **Isotype** | Rabbit IgG |
| **Purity** | Antigen affinity purified |
| **Buffer** | Lyophilized from 1X PBS with 2% Trehalose and 0.025% sodium azide |
| **UniProt** | P35869 |
| **Localization** | Cytoplasmic, nuclear |
| **Applications** | Western blot: 0.5-1ug/ml<br>Immunohistochemistry (FFPE): 1-2ug/ml<br>FACS: 1-3ug/10^6 cells |
| **Limitations** | This AHR antibody is available for research use only. |



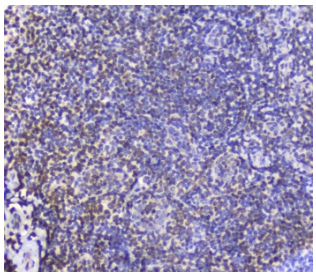
AHR Antibody Esophageal Squamous Carcinoma IHC. Immunohistochemical staining of FFPE human esophageal squamous carcinoma demonstrates AHR expression using an AHR antibody at 1 ug/ml. AHR, also known as Aryl Hydrocarbon Receptor and an Environmental Sensor Protein, is a ligand activated transcription factor that regulates xenobiotic metabolism, inflammatory signaling, and cellular responses to endogenous metabolites. Prominent nuclear staining with accompanying cytoplasmic reactivity is observed in malignant squamous epithelial cells, consistent with activated AHR signaling and its emerging role in tumor progression and epithelial differentiation. Heat induced epitope retrieval was performed by boiling tissue sections in pH 6 10 mM citrate buffer for 10-20 minutes followed by cooling at room temperature for 20 minutes. These results support the utility of AHR Antibody for studies of carcinogenesis, transcriptional regulation, and environmental response pathways.



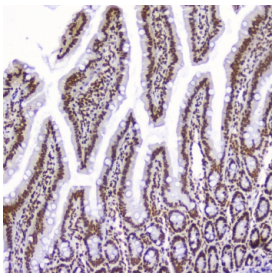
AHR Antibody Cholangiocarcinoma IHC. Immunohistochemical staining of FFPE human cholangiocarcinoma demonstrates AHR expression using an AHR antibody at 1 ug/ml. AHR, also known as Aryl Hydrocarbon Receptor and an Environmental Sensor Protein, is a ligand activated transcription factor that integrates xenobiotic, dietary, and endogenous signals to regulate gene expression and cellular homeostasis. Strong nuclear and cytoplasmic staining is observed throughout malignant glandular epithelial cells, consistent with the involvement of AHR signaling in hepatic metabolism and biliary tract tumor biology. Heat induced epitope retrieval was performed by boiling tissue sections in pH 6 10 mM citrate buffer for 10-20 minutes followed by cooling at room temperature for 20 minutes. These findings support the utility of AHR Antibody for studies of hepatobiliary cancer, transcriptional regulation, and environmental sensing pathways.



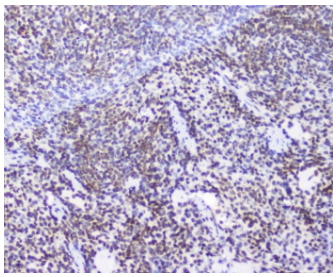
AHR Antibody Placental Villi IHC. Immunohistochemical staining of FFPE human placenta demonstrates AHR expression using an AHR antibody at 1 ug/ml. AHR, also known as Aryl Hydrocarbon Receptor and an Environmental Sensor Protein, is a ligand activated transcription factor that regulates xenobiotic metabolism, developmental signaling, and immune tolerance at the maternal fetal interface. Focal nuclear and cytoplasmic staining is observed in trophoblastic cells lining the chorionic villi, consistent with the role of AHR in placental homeostasis and responses to endogenous metabolites. Heat induced epitope retrieval was performed by boiling tissue sections in pH 6 10 mM citrate buffer for 10-20 minutes followed by cooling at room temperature for 20 minutes. These results support the utility of AHR Antibody for studies of reproductive biology, developmental signaling, and environmental response pathways.



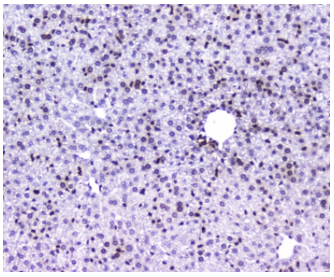
AHR Antibody Human Tonsil IHC. Immunohistochemical staining of FFPE human tonsil demonstrates AHR expression using an AHR antibody at 1 ug/ml. AHR, also known as Aryl Hydrocarbon Receptor and an Environmental Sensor Protein, is a ligand activated transcription factor that regulates immune cell differentiation and inflammatory signaling in response to endogenous metabolites and environmental ligands. Predominantly nuclear staining is observed in lymphoid cells within the tonsillar parenchyma and germinal center regions, consistent with the established role of AHR in adaptive immunity and maintenance of mucosal immune homeostasis. Heat induced epitope retrieval was performed by boiling tissue sections in pH 6 10 mM citrate buffer for 10-20 minutes followed by cooling at room temperature for 20 minutes. These results support the utility of AHR Antibody for studies of immunology, lymphocyte biology, and transcriptional regulation.



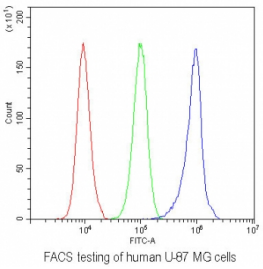
AHR Antibody Rat Small Intestine IHC. Immunohistochemical staining of FFPE rat small intestine demonstrates AHR expression using an AHR antibody at 1 ug/ml. AHR, also known as Aryl Hydrocarbon Receptor and an Environmental Sensor Protein, is a ligand activated transcription factor that integrates dietary, microbial, and xenobiotic signals to regulate intestinal homeostasis and mucosal immunity. Prominent nuclear staining is observed throughout the villous epithelium and crypt compartments, consistent with active AHR signaling in absorptive enterocytes and its established role in maintaining epithelial barrier integrity. Heat induced epitope retrieval was performed by boiling tissue sections in pH 6 10 mM citrate buffer for 10-20 minutes followed by cooling at room temperature for 20 minutes. These findings support the utility of AHR Antibody for studies of gastrointestinal physiology, host-microbiome interactions, and immune regulation.



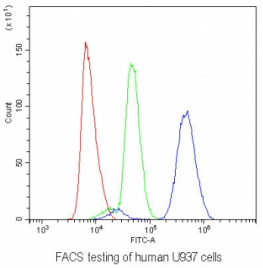
AHR Antibody Rat Spleen IHC. Immunohistochemical staining of FFPE rat spleen demonstrates AHR expression using an AHR antibody at 1 ug/ml. AHR, also known as Aryl Hydrocarbon Receptor and an Environmental Sensor Protein, is a ligand activated transcription factor that regulates immune cell differentiation and inflammatory responses through sensing of endogenous metabolites and environmental ligands. Widespread nuclear staining is observed throughout lymphoid regions, with prominent reactivity in splenic immune cell populations, consistent with the established role of AHR in maintaining immune homeostasis and modulating adaptive immunity. Heat induced epitope retrieval was performed by boiling tissue sections in pH 6 10 mM citrate buffer for 10-20 minutes followed by cooling at room temperature for 20 minutes. These results support the utility of AHR Antibody for studies of immunology, signal transduction, and environmental sensing mechanisms.



AHR Antibody Mouse Liver IHC. Immunohistochemical staining of FFPE mouse liver demonstrates AHR expression using an AHR antibody at 1 ug/ml. AHR, also known as Aryl Hydrocarbon Receptor and an Environmental Sensor Protein, is a ligand activated transcription factor that regulates xenobiotic metabolism and coordinates cellular responses to endogenous and environmental ligands. Predominantly nuclear staining is observed throughout hepatocytes, consistent with active transcriptional signaling and the well-established role of AHR in hepatic detoxification pathways. Heat induced epitope retrieval was performed by boiling tissue sections in pH 6 10 mM citrate buffer for 10-20 minutes followed by cooling at room temperature for 20 minutes. These results support the utility of AHR Antibody for studies of liver physiology, toxicology, and metabolic regulation.



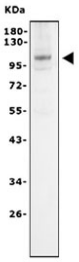

AHR Antibody U-87 MG Cells FACS. Flow cytometric analysis of human U-87 MG cells was performed using an AHR antibody at 1 ug per 10^6 cells following blocking with goat sera. AHR, also known as Aryl Hydrocarbon Receptor and an Environmental Sensor Protein, is a ligand activated transcription factor that integrates signals from xenobiotics, endogenous metabolites, and inflammatory mediators to regulate gene expression. Red histogram: cells alone. Green histogram: isotype control. Blue histogram: AHR antibody. The pronounced rightward shift of the AHR antibody signal relative to both controls demonstrates specific detection of endogenous AHR expression in U-87 MG cells. These results support the utility of AHR Antibody for studies of environmental sensing, signal transduction, neuro-oncology, and transcriptional regulation.




AHR Antibody U937 Cells FACS. Flow cytometric analysis of human U937 cells was performed using an AHR antibody at 1 ug per 10^6 cells 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 immune cell differentiation. Red histogram: cells alone. Green histogram: isotype control. Blue histogram: AHR antibody. The substantial rightward shift of the AHR antibody signal relative to both controls demonstrates specific detection of endogenous AHR expression in U937 monocytic cells. These findings are consistent with the established role of AHR in myeloid cell function and immune homeostasis. These results support the utility of AHR Antibody for studies of immunology, environmental sensing, and signal transduction pathways.




Western blot testing of human recombinant partial protein with AHR antibody.




Western blot testing of human HEK293 cell lysate with AHR antibody. Predicted molecular weight ~96 kDa.

## Description

AHR Antibody recognizes Aryl Hydrocarbon Receptor, a ligand activated transcription factor that functions as a central sensor of environmental, dietary, microbial, and endogenous metabolites. Also known as the Ah Receptor or Dioxin Receptor, AHR belongs to the basic helix loop helix PER ARNT SIM family and resides in the cytoplasm in association with molecular chaperones until activated by specific ligands. Upon activation, AHR translocates to the nucleus where it forms a heterodimer with ARNT and regulates the expression of genes involved in xenobiotic metabolism, detoxification, cellular differentiation, and immune responses. Through these activities, AHR serves as a critical mediator of environmental sensing and tissue homeostasis.

AHR is best known for its role in mediating cellular responses to environmental contaminants such as dioxins and polycyclic aromatic hydrocarbons, but it also responds to naturally occurring compounds derived from the diet, microbiota, and tryptophan metabolism. Activation of AHR induces expression of enzymes including CYP1A1, CYP1A2, and CYP1B1, thereby promoting metabolic adaptation and detoxification. In addition to xenobiotic metabolism, AHR influences cell proliferation, apoptosis, stem cell maintenance, and differentiation. These functions underscore its importance in both normal physiology and adaptive responses to environmental stress.

AHR plays essential roles in the immune system, regulating T cell differentiation, innate lymphoid cell function, and inflammatory signaling. Interactions with NF kappa B, Wnt, estrogen receptor, and transforming growth factor beta pathways contribute to tissue specific effects in barrier organs such as the intestine, lung, and skin. Dysregulated AHR signaling 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 promoter of tumor progression. Altered AHR expression has been reported in lung cancer, breast cancer, liver cancer, and hematologic malignancies, highlighting its importance in oncology and immunology.

Beyond toxicology and immunity, AHR contributes to neurodevelopment, stem cell biology, and maintenance of epithelial barriers. Crosstalk with microbial metabolites and endogenous signaling molecules positions AHR as a key integrator of environmental and metabolic cues. Consequently, AHR has emerged as an important target in cancer biology, pharmacology, and studies of host-microbiome interactions.

AHR Antibody is useful for investigations of environmental sensing, xenobiotic metabolism, immune regulation, and signal transduction. Detection of endogenous AHR provides a valuable tool for studies of transcriptional regulation and diseases associated with altered AHR signaling.

Visit our AHR Antibody page to discover additional antibodies against this Environmental Sensor Protein, including reagents for studies of xenobiotic metabolism, immune regulation, and transcriptional signaling.

## Application Notes

Optimal dilution of the AHR antibody should be determined by the researcher.

## Immunogen

Amino acids AFLNKFQNGVLNETYPAELNNINNTQTTTHLQPLHH were 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.


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