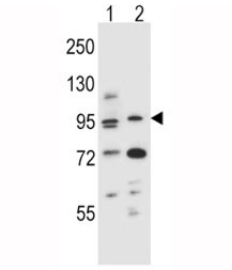
AHR Antibody / Aryl Hydrocarbon Receptor (F49225)

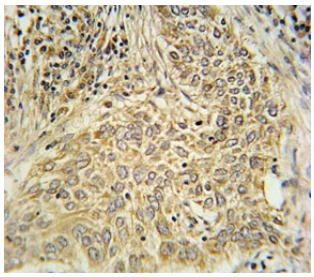
Catalog No.	Formulation	Size
F49225-0.4ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.4 ml
F49225-0.08ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.08 ml

Bulk quote request

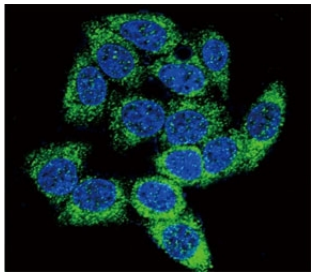
Availability	1-3 business days
Species Reactivity	Human, Mouse
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity
UniProt	P35869
Applications	Western blot: 1:1000 IHC (Paraffin): 1:10-1:50 Immunofluorescence: 1:10-1:50 Flow Cytometry: 1:10-1:50
Limitations	This AHR antibody is available for research use only.



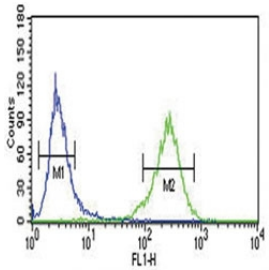
AHR antibody western blot analysis in (1) mouse NIH3T3 and (2) human T47D cell line lysate. Predicted molecular weight ~ 95kDa.



AHR antibody immunohistochemistry analysis in formalin fixed and paraffin embedded human lung carcinoma.



Confocal immunofluorescent analysis of AHR antibody with HeLa cells followed by Alexa Fluor 488-conjugated goat anti-rabbit IgG (green). DAPI was used as a nuclear counterstain (blue).



AHR antibody flow cytometric analysis of NCI-H460 cells (green) compared to a negative control (blue). FITC-conjugated goat-anti-rabbit secondary Ab was used for the analysis.

Description

AHR antibody detects Aryl Hydrocarbon Receptor, a ligand-activated transcription factor that mediates cellular responses to environmental toxins, xenobiotics, and endogenous metabolites. The UniProt recommended name is Aryl Hydrocarbon Receptor (AHR). This receptor functions as a key regulator of gene expression in detoxification pathways and also plays important roles in development, immune regulation, and cell differentiation.

Functionally, AHR antibody identifies an approximately 848-amino-acid cytoplasmic protein that belongs to the basic helix-loop-helix PER-ARNT-SIM (bHLH-PAS) family of transcription factors. In its inactive state, AHR is retained in the cytoplasm bound to chaperone proteins including HSP90, XAP2, and p23. Upon ligand binding, such as to dioxins or polycyclic aromatic hydrocarbons, AHR translocates to the nucleus where it dimerizes with ARNT (Aryl Hydrocarbon Receptor Nuclear Translocator). The heterodimer then binds xenobiotic response elements (XREs) in target gene promoters to activate expression of detoxification enzymes such as cytochrome P450 family members (e.g., CYP1A1 and CYP1B1).

The AHR gene is located on chromosome 7p21.1 and is expressed in a wide range of tissues including liver, lung, thymus, and brain. Beyond its classical role in xenobiotic metabolism, AHR regulates numerous physiological processes including immune tolerance, barrier function, and vascular development. In the immune system, AHR influences differentiation of regulatory T cells and Th17 cells, linking environmental sensing to immune balance. It also participates in stem cell maintenance and circadian rhythm regulation, highlighting its versatility as a transcriptional integrator of environmental and metabolic signals.

Pathologically, dysregulation of AHR signaling has been associated with several conditions including cancer, autoimmunity, and metabolic disorders. Overactivation by environmental pollutants can promote carcinogenesis and disrupt endocrine homeostasis, while insufficient activity can impair immune function and detoxification capacity. In oncology, AHR serves as both a potential biomarker and therapeutic target due to its dual roles in promoting or suppressing tumor growth depending on cellular context.

AHR antibody is validated for use in relevant research applications to detect Aryl Hydrocarbon Receptor expression and study xenobiotic signaling, immune modulation, and transcriptional control. NSJ Bioreagents provides AHR antibody reagents optimized for toxicology, immunology, and cancer research.

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

Titration of the AHR antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

A portion of amino acids 555-582 from the human protein was used as the immunogen for this AHR antibody.

Storage

Aliquot the AHR antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.

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