

Alexa Fluor® 647 anti-BAK1 Antibody

Catalog# / Size	693155 / 25 µg
Clone	W23097D
Regulatory Status	RUO
Other Names	BCL2 antagonist/killer 1, BCL2L7, BAK, CDN1, Apoptosis regulator BAK, Bcl-2 homologous antagonist/killer
Isotype	Rat IgG2a, κ
Description	BAK1 (Bcl-2 homologous antagonist/killer) is a crucial protein involved in regulating apoptosis, or programmed cell death, which is essential for maintaining cellular homeostasis. It functions as a pro-apoptotic factor, promoting cell death in response to various stress signals. BAK1 belongs to the BCL-2 family of proteins and plays a crucial role in the mitochondrial apoptotic process by promoting mitochondrial outer membrane permeabilization, which leads to the release of apoptogenic factors into the cytosol. BAK1 is regulated through interactions with other proteins, such as BCL-2 family members, which can either inhibit or promote its apoptotic activity. Dysregulation of BAK1 has been implicated in several diseases, thus, overexpression of BAK1 can contribute to neurodegenerative and autoimmune diseases by promoting excessive cell death. Conversely, inhibition of BAK1 is associated with the development of cancers, as it allows cells to evade apoptosis and continue proliferating.
Quality Statement	This product was carefully developed for performance and specificity using the following products from Horizon Discovery, a Revvity company: HAP1 WT Cell Line (Horizon Cat No. Cat. No. C631) and HAP1 BAK1 Knockout cell line (Horizon Cat. No. HZGHC005962c001)

Product Details

Verified Reactivity	Human
Antibody Type	Monoclonal
Host Species	Rat
Immunogen	Recombinant Human BAK1 protein
Formulation	Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide
Preparation	The antibody was purified by affinity chromatography and conjugated with Alexa Fluor® 647 under optimal conditions.
Concentration	0.5 mg/mL
Storage & Handling	The antibody solution should be stored undiluted between 2°C and 8°C, and protected from prolonged exposure to light. Do not freeze.
Application	IHC-P - Quality tested ICFC - Verified
Recommended Usage	Each lot of this antibody is quality control tested by formalin-fixed paraffin-embedded immunohistochemical staining. For immunohistochemistry, a concentration range of 2.5 - 10.0 µg/mL is suggested. For flow cytometric staining, the suggested use of this reagent is ≤ 0.25 µg per million cells in 100 µL volume. It is recommended that the reagent be titrated for optimal performance for each application. * Alexa Fluor® 647 has a maximum emission of 668 nm when it is excited at 633 nm / 635 nm. Alexa Fluor® and Pacific Blue™ are trademarks of Life Technologies Corporation. View full statement regarding label licenses
Excitation Laser	Red Laser (633 nm)

Additional Product Notes	For use of this antibody in intracellular flow cytometry (ICFC), we recommend fixation and permeabilization using True-Phos™ Perm Buffer (Cat. No. 425401).
	For use of this antibody in immunohistochemistry on formalin-fixed paraffin-embedded tissues (IHC-P), we recommend antigen retrieval using either Citrate Buffer (Cat. No. 420902), or Tris-EDTA pH 9.0 Antigen Retrieval Buffer (Cat. No. 422704).
RRID	AB_3720605 (BioLegend Cat. No. 693155)

Antigen Details

Structure	BAK1 protein consists of 211 amino acids with a predicted molecular weight of 23 kDa.
Distribution	Mitochondrial outer membrane
Function	• Pro-apoptotic role: BAK1 promotes apoptosis by facilitating mitochondrial outer membrane permeabilization. • Interaction with BCL-2 family: It interacts with other BCL-2 family proteins to regulate apoptosis. • Release of apoptogenic factors: Upon activation, BAK1 helps release factors from the mitochondria that trigger the apoptotic cascade.
Interaction	• BCL-2 and BCL-XL: These anti-apoptotic proteins bind to BAK1, inhibiting its pro-apoptotic activity. • BAX: BAK1 forms heterooligomers with BAX, another pro-apoptotic protein, to promote mitochondrial outer membrane permeabilization. • p53: The tumor suppressor protein p53 interacts with BAK1 in response to cellular stress, enhancing its apoptotic function. • MCL1: This anti-apoptotic protein also interacts with BAK1, regulating its activity. • VDAC2: BAK1 interacts with the mitochondrial voltage-dependent anion channel 2, which is involved in the release of apoptogenic factors
Biology Area	Apoptosis/Tumor Suppressors/Cell Death, Cancer Biomarkers, Cell Biology, Mitochondrial Function, Neurodegeneration
Molecular Family	Mitochondrial Markers
Antigen References	1. Dadsena S, <i>et al.</i> 2021. <i>Biochem Biophys Acta Biomembr.</i> 1863:183716 2. Shalaby R, <i>et al.</i> 2020. <i>Biomolecules.</i> 10:1638 3. Ramesh P, <i>et al.</i> 2020. <i>Apoptosis.</i> 25:305 4. Pena-Blanco A, <i>et al.</i> 2018. <i>FEBS J.</i> 285:416
Regulation	• Protein interactions: BAK1 is regulated through its interactions with pro- and anti-apoptotic BCL-2 family members. • Activation by stress signals: It remains inactive until activated by various cellular stress signals. • Post-translational modifications: Phosphorylation and other modifications can influence BAK1's activity and stability.
Gene ID	578

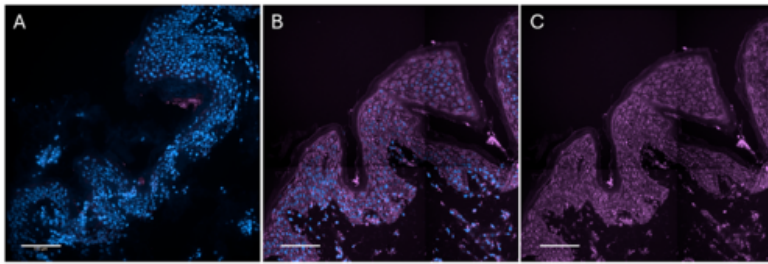
Related Protocols

- [Intracellular Staining With True-Phos™ Perm Buffer in Cell Suspensions Protocol](#)
- [Intracellular Flow Cytometry Staining Protocol](#)
- [Immunohistochemistry Protocol for Paraffin-Embedded Sections](#)

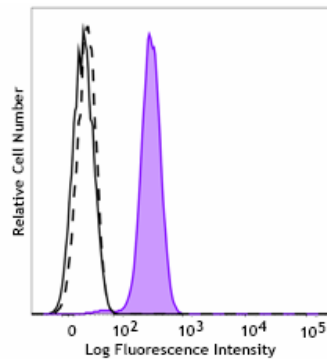
Other Formats

Purified anti-BAK1, Alexa Fluor® 488 anti-BAK1 Antibody, Alexa Fluor® 647 anti-BAK1

Product Data



IHC staining with Alexa Fluor® 647 anti-BAK1 (clone W23097D) was performed on formalin-fixed paraffin embedded human skin tissue following antigen retrieval using Tris-EDTA pH 9.0 Antigen Retrieval Buffer (Cat. No. 422704). The tissue sections were incubated without (panel A) or with Alexa Fluor® 647 anti-BAK1 (clone W23097D) (panels B and C). Nuclei were counterstained with DAPI (Cat. No. 422801) (overlay in panels A and B). The images were captured on a Revvity Operetta CLS™ High Content Analysis System with a 20X objective. Scale bar: 100 µm



HAP1 WT cells (positive cell line, filled histogram) (Horizon Cat. No. C631) and HAP1 BAK1 Knockout cells (negative cell line, open histogram) (Horizon Cat. No. HZGHC005962c0001) were fixed and permeabilized using True-Phos™ Perm Buffer (Cat. No. 425401) and intracellularly stained with Alexa Fluor® 647 anti-BAK1 (clone W23097D) or Alexa Fluor® 647 Rat IgG2a, κ Isotype Control (dashed histogram, representative of both the positive and negative cell lines) (Cat No. 400526).

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