Product datasheet

anti-AAV1 (intact particle) mouse monoclonal, ADK1a, lyophilized, purified

Short overview

Cat. No.	610150
Quantity	50 µg
Concentration	50 µg/ml after reconstitution with 1 ml dist. water

Product description

Host	Mouse
Antibody Type	Monoclonal
Isotype	IgG2a lambda
Clone	ADK1a
Immunogen	AAV1 capsids
Formulation	Lyophilized; reconstitute in 1 ml dist. water (final solution contains 0.09% sodium azide, 0.5% BSA in PBS buffer, pH 7.4)
Binding affinity	KD value (AAV1) = <1.0E-12 M KD value (AAV6) = <1.0E-12 M
Synomym	Adeno-associated virus 1; AAV-1
Conjugate	Unconjugated
Purification	Affinity chromatography
Storage before reconstitution	2-8°C until indicated expiry date
Storage after reconstitution	Up to 3 months at 2-8°C; long term storage in aliquots at -20°C; avoid freeze/thaw cycles
Intended use	Research use only
Application	Affinity chromatography, Dot blot, ELISA, ICC/IF, IP, Neutralization assay
Reactivity	AAV1, AAV12, AAV6
No reactivity	AAV11, AAV2, AAV3, AAV4, AAV5, AAV7, AAV8, AAV9, AAVDJ, AAVrh10, AAVrh74

Applications

Affinity Chromatography	Assay dependent
Dot Blot	1:500 (0.1 µg/ml; non-denaturing conditions)
ELISA	Assay dependent
Immunocytochemistry (ICC)	1:20
Immunoprecipitation (IP)	1:5
Neutralization Assay	EC50 ~2 ng/ml (AAV1) and ~2 ng/ml (AAV6) - assay dependent

Background

For characterization of different stages of infection and very useful for the analysis of the AAV assembly process. ADK1a specifically reacts with intact adeno-associated virus particles, empty and full capsids. Recognizes a conformational epitope of assembled capsids, not present in denatured capsid proteins and native but unassembled capsid proteins. The antibody cannot be used for immunoblotting.

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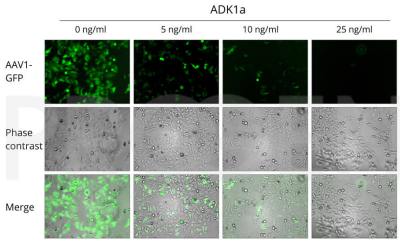
Product images



Neutralization of AAV1-GFP vectors with the ADK1a antibody (Cat. No. 610150). AAV infection was shown in HeLa cells and photos (GFP, CPE, merge) were taken ~48 h post infection. Neutralization was enhanced with increasing ADK1a concentration.

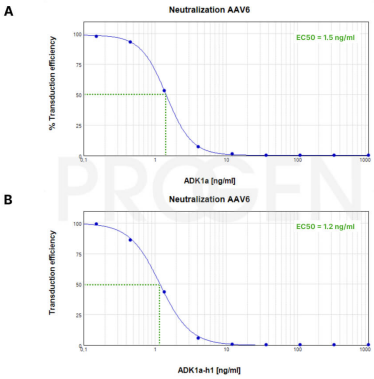
Serotype	Clone	Contact residues	Footprint residues
AAV1	ADK1a	448 R, 450 Q, 453-SGSAQ-457, 500 N	262-#***263-265-268***-270, 271-273, 384, 385 445-447-450-468-472-474, 497-505-519, 551, 552

Tseng et al. Adeno-Associated Virus Serotype 1 (AAV1)- and AAV5-Antibody Complex Structures Reveal Evolutionary Commonalities in Par
Antigenic Reactivity. Journal of Virology (2015) **89**:1794-1808.

In the publication cited below multiple contact sites and footprint residues have been identified for ADK1a, that are very likely to be part of the binding site. The amino acids of each binding site are located in different parts of the protein chains and are recognized as the epitope of the antibody only in the assembled capsid where they are in close proximity to each other and in the correct conformation.

*The residues in the VR are underlined. Those involved in AAV1 transduction are bold and italicized.

Tseng et al. Adeno-Associated Virus Serotype 1 (AAV1)- and AAV5-Antibody Complex Structures Reveal Evolutionary Commonalities in Parvovirus Antigenic Reactivity. Journal of Virology (2015) 89:1794-1808.



Neutralization of AAV6 with mouse monoclonal AAV1 antibody clone ADK1a (A) and human chimeric AAV1 antibody clone ADK1a-h1 (B) by using AAV6-NanoLuc® viral particles from Promega. (A) anti-AAV1 (intact particle) mouse monoclonal, ADK1a (Cat. No. 610150) or (B) anti-AAV1, human chimeric, ADK1a-h1 (Cat. No. 692350) were preincubated with AAV6-NanoLuc® viral particles for 30 min at RT at 300 rpm (antibody

concentrations 0.2-3,000 ng/ml). HEK293 cells (100 µl) were plated at 200,000 cells/ml in DMEM + 1% FCS. Virus-antibody-mix (20 µl) was added to the cells and incubated for 16-24 h at 37°C. Extracellular NanoLuc Inhibitor and Nano-Glo® Live Cell Assay System (Promega) was added to the wells and incubated for 5 min at RT at 300 rpm. Luminescence was measured using an ID5-Reader and plotted with Softmax Pro 7.1 software to determine the EC50 values.

References

Publication	Species	Application
Ohba K. et al. Adeno-associated virus vector system controlling capsid expression improves viral quantity and quality., iScience, 26, 106487, (2023).	AAV1	IP
Emmanuel, S. N., Mietzsch, M., Tseng, Y. S., Smith, J. K. & Agbandje-Mckenna, M. Parvovirus Capsid-Antibody Complex Structures Reveal Conservation of Antigenic Epitopes across the Family. Viral Immunol. 34, 3â€“17 (2021).	AAV1	binding region
Tse, L. V. et al. Structure-guided evolution of antigenically distinct adeno-associated virus variants for immune evasion. Proc. Natl. Acad. Sci. U. S. A. 114, E4812â€“E4821 (2017).	AAV1	cryoEM
Tseng, Y.-S. et al. Adeno-Associated Virus Serotype 1 (AAV1)-and AAV5-Antibody Complex Structures Reveal Evolutionary Commonalities in Parvovirus Antigenic Reactivity. J. Virol. 89, 1794â€“1808 (2015).	AAV1	epitope mapping,neutralization
Adachi, K., Enoki, T., Kawano, Y., Veraz, M. & Nakai, H. Drawing a high-resolution functional map of adeno-associated virus capsid by massively parallel sequencing. Nat. Commun. 5, (2014).	AAV1	Neutralization epitope mapping