

Easy to use AAV analytical tools for gene therapy



Dear AAV Community,

**We are on a mission.
A mission to make gene therapy better.
Together.**

We want to support you in progressing new AAV gene therapies safely, quickly and affordably, so solutions can be provided to people suffering from poor health and affected by disease every day.

This AAV overview contains our growing portfolio of high-quality easy-to-use AAV analytical tools. They are available worldwide and ready to be shipped so we can get them to you quickly and easily. We are continuously striving to understand what you need for your next AAV projects, so don't hesitate to get in touch if you need support.

All the best,



Katja Betts and Maik Lander, CEO's, PROGEN

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AAV ELISAs



Reliable AAV capsid titer determination for safe gene therapy

As the industry gold standard with established success in clinical trials you can rely on PROGEN's AAV ELISAs to consistently deliver dependable capsid titer determination. All ELISAs are based on PROGEN's exclusive portfolio of AAV particle antibodies.

- **Easy-to-use:** easy to implement into every workflow. No expensive equipment or special training needed
- **Quick:** Xpress ELISA kits give you results in less than 2 hours and all products are ready to ship
- **Reliable:** specific recognition of intact AAV particles
- **Reproducible:** show a low inter- & intra-assay variance with a coefficient of variation (CV) below 10%
- **Accurate:** validated by international studies and internal gold standards

Available Products

AAV1 Titration ELISA

AAV2 Titration ELISA

AAV2 Titration ELISA 2.0R

AAV3 Titration ELISA 2.0R

AAV5 Titration ELISA

AAV6 Titration ELISA

AAV8 Titration ELISA

AAV9 Titration ELISA

AAVrh10 Titration ELISA



"We've been using several kits every week and have had no trouble at all with them. We've been getting very good reproducibility and low variability between repeats, assays and users. Everyone is enjoying the speed of the assay and it has increased our throughput too."

R&D Bioprocessing | Pall Corporation

AAV Xpress ELISAs



**Same results as the
AAV Titration ELISA, but
in less than 2 hours**

AAV Xpress ELISAs were created in response to the increasing industry need to get quicker results. The Xpress ELISA kits have been developed based on the standard PROGEN ELISA kits, so they show the same accuracy and reproducibility. The only difference is you will be able to process samples in less than 2 hours.

Available Products

AAV2 Xpress ELISA

AAV5 Xpress ELISA

AAV6 Xpress ELISA

AAV8 Xpress ELISA

AAV9 Xpress ELISA

Simple Plex™ Viral Titer Assays



Available Products

Simple Plex AAV1 Assay

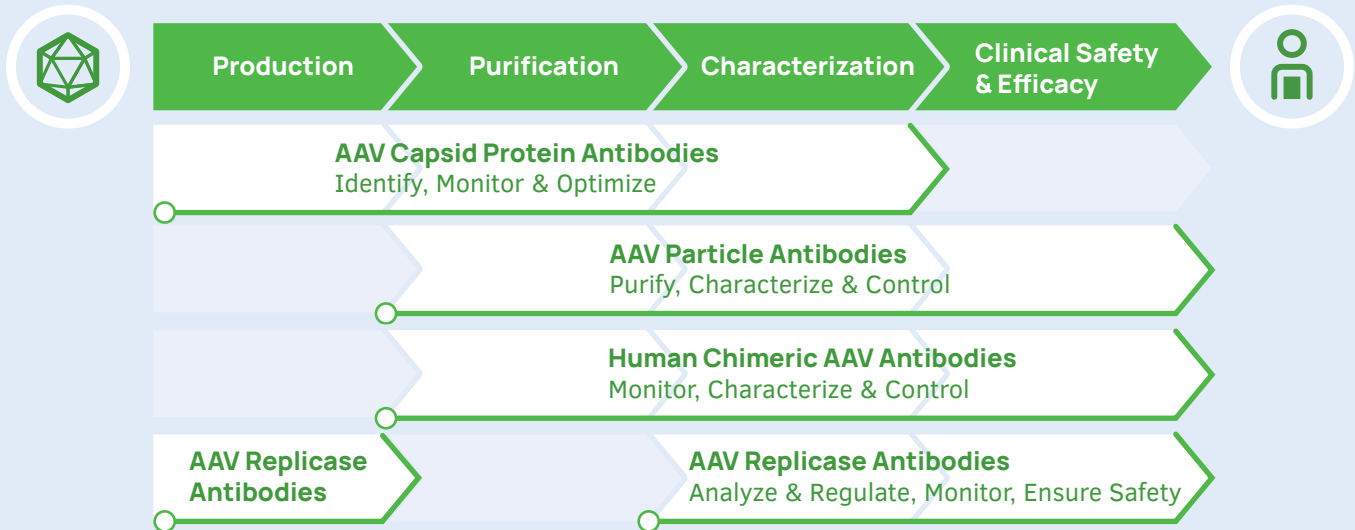
Simple Plex AAV2 Assay

Simple Plex AAV6 Assay

Simple Plex AAV8 Assay

PROGEN and ProteinSimple have teamed up to combine our reliable AAV particle antibodies with the convenient workflow and robustness of ProteinSimple's automated immunoassay system bringing you an automated ELISA kit for AAV quantification.

AAV Antibodies



Exclusive AAV Antibodies for AAV-based gene therapy



You can choose from PROGEN's exclusive portfolio of capsid-specific AAV antibodies for the most commonly used AAV serotypes. PROGEN is made up of a team of AAV experts, we are ISO 13485 certified and have been manufacturing antibodies since 1983.

- **Broad variety:** available for many serotypes and applications
- **Easy-to-use:** wide range of formats available to suit your specific needs
- **Reliable:** highly published and regarded within the field
- **Exclusive:** exclusive rights awarded by the German Cancer Research Center (DKFZ)

AAV Capsid Protein Antibodies

AAV capsid protein antibodies specifically react with linear epitopes of the denatured AAV capsid proteins VP1, VP2 and VP3.

Available Products

- anti-AAV VP1** mouse monoclonal, A1
- anti-AAV VP1/VP2** mouse monoclonal, A69
- anti-AAV VP1/VP2/VP3** mouse monoclonal, B1
- anti-AAV VP1/VP2/VP3** rabbit polyclonal, VP51

AAV Particle Antibodies

AAV particle antibodies recognize conformational epitopes of the viral capsid proteins that are only present on fully assembled capsids.

Available Products

- anti-AAV1** mouse monoclonal, ADK1a
- anti-AAV2** mouse monoclonal, A20
- anti-AAV2** mouse recombinant, A20R
- anti-AAV4** mouse monoclonal, ADK4
- anti-AAV5** rabbit polyclonal
- anti-AAV5** mouse monoclonal, ADK5a
- anti-AAV5** mouse monoclonal, ADK5b
- anti-AAV6** mouse monoclonal, ADK6
- anti-AAV8** mouse monoclonal, ADK8
- anti-AAV8/9** mouse monoclonal, ADK8/9
- anti-AAV9** mouse monoclonal, ADK9
- anti-AAV9** mouse recombinant, ADK9-1R

AAV Replicase Antibodies

AAV replicase antibodies react with the four regulatory proteins Rep78, Rep68, Rep52 and Rep40.

Available Products

- anti-AAV2** replicase mouse monoclonal, 76.3
- anti-AAV2** replicase mouse monoclonal, 226.7
- anti-AAV2** replicase mouse monoclonal, 259.5
- anti-AAV2** replicase mouse monoclonal, 303.9

Human Chimeric AAV Antibodies

Human chimeric AAV antibodies are a reliable assay control to be used when detecting AAV antibodies in human sera.

Available Products

- anti-AAV1**, human chimeric, ADK1a-h1
- anti-AAV2**, human chimeric, A20-h1
- anti-AAV5**, human chimeric, ADK5b-h1
- anti-AAV5**, human chimeric, ADK5b-h2
- anti-AAV8**, human chimeric, ADK8-h1
- anti-AAV9**, human chimeric, ADK9-h1



"The human chimeric anti-AAV9 antibody has exceeded my expectations and it has picked up empty AAV9 capsid couples on Luminex beads. The development data shows the assay is working well and I would highly recommend using these antibodies in ELISAs or other bridging assays e.g. ADAs."

Scientific Specialist
Labcorp Drug Development

AAV Standards

Fully characterized AAV standards to monitor the validity of your results and to ensure comparability of your assays

- **Ensure safety:** comparability of data across assays and labs provides a reliable safety evaluation necessary for approval.
- **Easy-to-use:** products are optimized for a wide range of applications, ready-to-use, available in liquid format.
- **Comprehensive characterization:** all products are comprehensively characterized and provided with precisely determined titer/molar concentration.
- **Quality control:** PROGEN's AAV Standards must pass established QC standard protocols based on our internal reference material.
- **Off-the-shelf:** Ready-to-use and can be shipped immediately, making sure your waiting time is as minimal as possible.

Available Products

AAV1 ELISA Control

AAV2 ELISA Control

AAV3 ELISA Control

AAV5 ELISA Control

AAV6 ELISA Control

AAV8 ELISA Control

AAV9 ELISA Control

AAVrh10 ELISA Control

AAVrh74 ELISA Control

ELISA Controls



Positive controls for your AAV ELISA

AAV ELISA controls are used as positive controls with the corresponding AAV ELISAs. They consist of fully assembled, empty AAV particles and have been characterized according to our internally established reference standard material or in the case of AAV2 and AAV8 according to international reference standards.

AAV Empty Capsids



Reference material for your AAV processes

With high titers of more than 5.0×10^{12} capsids/ml, empty capsids can be used as a reference material in a variety of applications, including dot blot, western blot and ELISA.

Available Products

AAV1 empty capsids

AAV2 empty capsids

AAV5 empty capsids

AAV6 empty capsids

AAV8 empty capsids

AAV9 empty capsids

AAVrh10 empty capsids

AAVrh74 empty capsids

AAV Standard Material



Reference material for your AAV processes

With high titers of more than $1.0E+12$ vg/ml our AAV standard material contains the most commonly used combination of an eGFP transgene with a CMV promoter and can be used in a wide range of applications.

Available Products

AAV1 standard material

AAV2 standard material

AAV3 standard material

AAV5 standard material

AAV6 standard material

AAV8 standard material

AAV9 standard material

AAVrh10 standard material

AAVrh74 standard material

AAV VP Proteins



Monitor and optimize your AAV production

Effective tools to monitor the potency and the correct assembly early on in your production process as well as an in-process control during production and yield optimization.

Available Products

| | |
|------|--------------------------|
| AAV2 | VP1, recombinant protein |
| | VP2, recombinant protein |
| | VP3, recombinant protein |
| | VP1 + VP2 + VP3 set |
| AAV5 | VP1, recombinant protein |
| | VP2, recombinant protein |
| | VP3, recombinant protein |
| | VP1 + VP2 + VP3 set |
| AAV6 | VP1, recombinant protein |
| | VP2, recombinant protein |
| | VP3, recombinant protein |
| | VP1 + VP2 + VP3 set |
| AAV8 | VP1, recombinant protein |
| | VP2, recombinant protein |
| | VP3, recombinant protein |
| | VP1 + VP2 + VP3 set |
| AAV9 | VP1, recombinant protein |
| | VP2, recombinant protein |
| | VP3, recombinant protein |
| | VP1 + VP2 + VP3 set |

OptiPrep™

Established method for AAV purification and separation



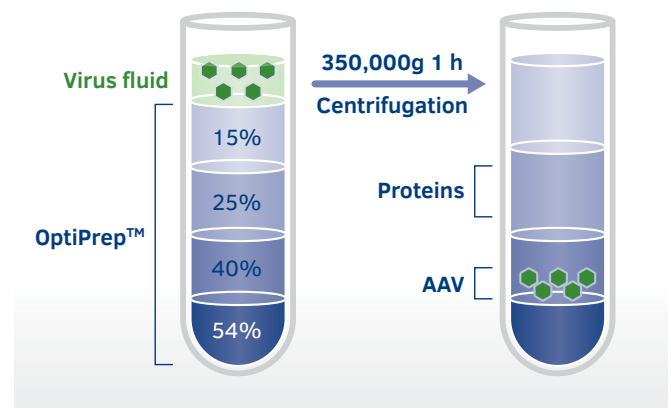
- **Saves time:** no need to remove for most downstream processes
- **High infectivity titer:** causes little or no damage to virus particles and no toxic effects
- **Competitive advantage:** removing empty capsids increases product safety
- **Higher success rate:** improved transduction efficiency allows you to use lower titers
- **Ready for clinical trials:** focusing on safety ensures a smoother transfer

OptiPrep™ is a ready-made, sterile and endotoxin-tested solution of iodixanol that works across research and clinical workflows. Iodixanol can be used for AAV particle purification, as well as full and empty capsid separation.

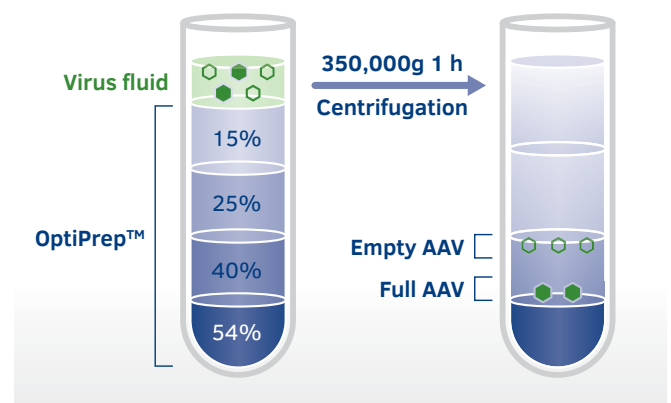
Available Product

OptiPrep™ Iodixanol

AAV Particle Purification



AAV Full & Empty Separation

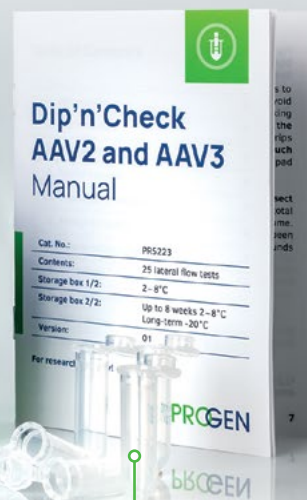


AAV Dip'n'Check Lateral Flow Tests

AAV Test
Strips

Antibody Conjugate A

Antibody Conjugate B



Running Buffer

Reaction Tubes

A quick and easy in-process control for the semi-quantitative detection of fully assembled AAV capsids

PROGEN's AAV Dip'n'Check lateral flow tests are a quick and easy in-process control for AAV capsid purification processes or for analytical pre-testing. A lateral flow sandwich assay for the semi-quantitative detection of fully assembled AAV capsids based on PROGEN's exclusive AAV antibodies.

- **Fast:** results in less than 20 minutes from start to finish
- **Easy-to-use:** simple to use lateral flow test. No expensive equipment or special training needed
- **Flexible:** can be used with both crude and purified AAV materials at different process stages
- **Capsid-specific:** AAV particle antibodies specifically bind to epitopes on fully assembled capsids only

Available Products

Dip'n'Check AAV1 and AAV6

Dip'n'Check AAV2 and AAV3

Dip'n'Check AAV8

Dip'n'Check AAV9



"Dip'n'Check AAV Kits from PROGEN are very easy to use. Semi-quantitative readout by analysing strips with image analysis software tracked extremely well with qPCR-based viral genome titer assays in our hands."

Associate Director | AstraZeneca

How to order



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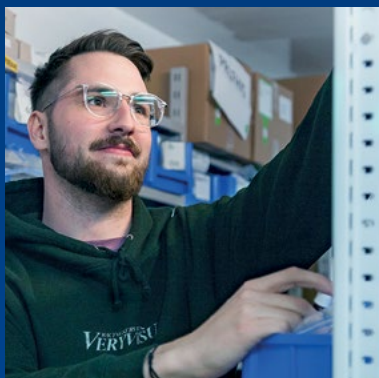
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Making gene therapy better. **Together.**



Making gene therapy better. Together.

Our commitment to scientists is to support them in making new scientific discoveries and groundbreaking research within the life sciences and gene therapy. It is our underlying mission, to help progress new therapies safely, quickly and affordably, so together we can provide solutions to people suffering from poor health and affected by disease every day.

PROGEN is made up of a team of experts within AAV and the life sciences and is partnered with gene therapy experts worldwide. We are more than just a manufacturer of antibodies, proteins and ELISAs kits. We strive to understand what scientists need, so we can create solutions and ultimately deliver high quality antibodies

and exclusive AAV products, which solve your research challenges within academia, biotech and pharma, and ensure PROGEN can continue to be a trusted and reliable partner.



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