teknova: AAV•Tek™ Solutions

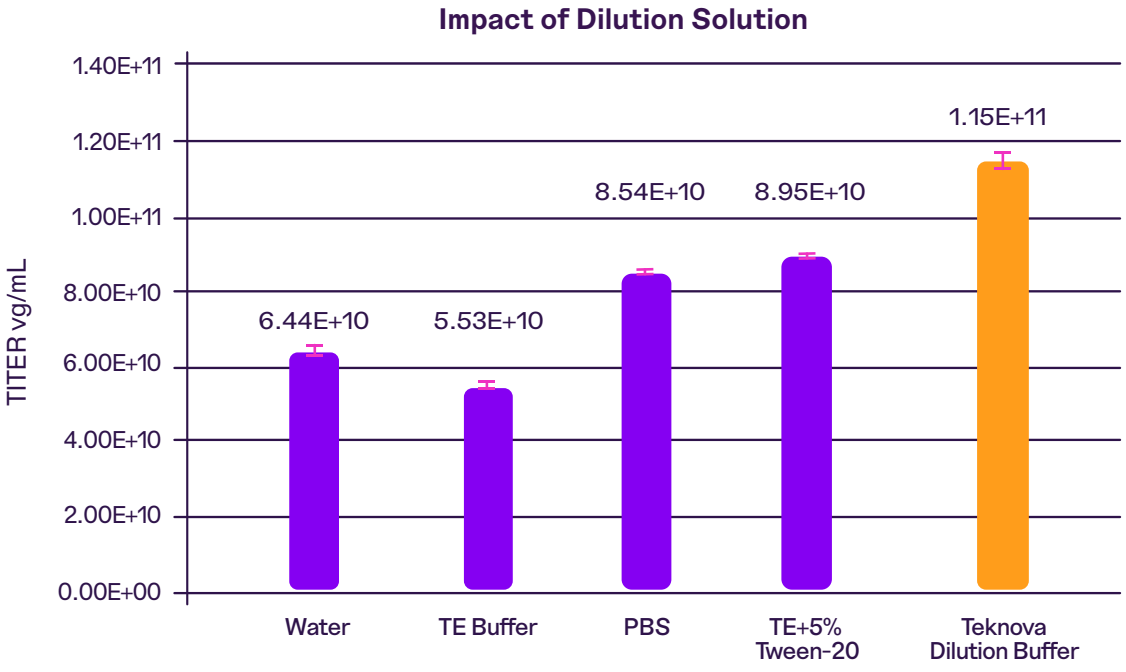
See the data behind the PCR Sample Prep Kit:

Our Approach

To identify serotype-specific buffer formulations, we utilized a Design of Experiments (DOE) approach to address considerations of DNase activation time, EDTA concentration, DNase Inactivation method, and the need for DNA extraction.

Improves Titers More Than Other AAV Diluents

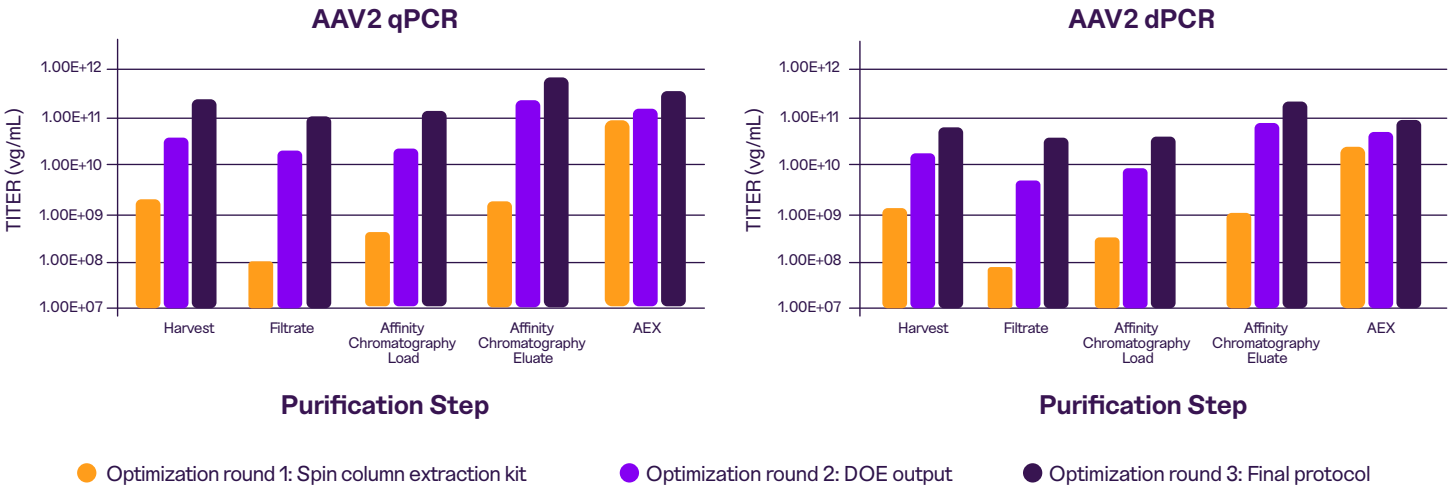
Our Dilution Buffer was developed to aid in AAV stabilization and capsid disruption, and to prevent aggregation. This figure demonstrates improved AAV titers when the performance of the Dilution Buffer is compared to common AAV diluents.



BUFFERS	TE Buffer	PBS	TE+5% Tween-20	Teknova Dilution Buffer
% Enrichment	-16%	25%	28%	44%

Shows Robustness Across Serotypes, Platforms, and Purification Steps

Results were confirmed for AAV2, AAV6, and AAV8. To determine the robustness of the optimized protocol, multiple serotypes, PCR platforms, and steps within the manufacturing workflow were analyzed using the determined method. The figure below shows examples for AAV2 for qPCR and dPCR. The x-axes represent the steps at which the samples were analyzed: Harvest Lysate, Filtrate, Affinity Load and Eluate, and AEX Eluate. Looking at the trends on the graphs, you can see a significant difference between optimization rounds 1 and 2 and a large jump from rounds 2 to 3.

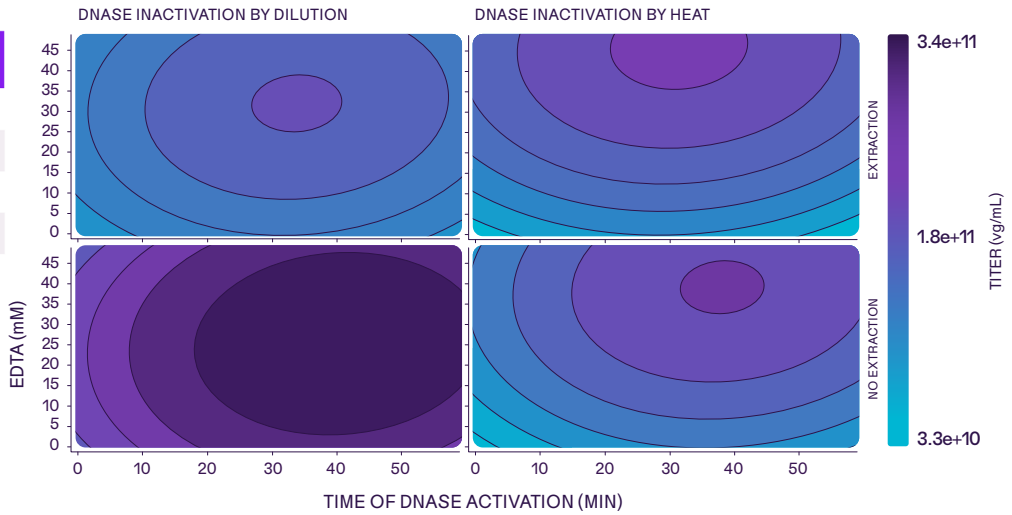


See the Specific DOE parameters

We developed a DOE to address considerations of DNase activation time, EDTA concentration, DNase inactivation method, and the need for DNA extraction. The response contour plot shows a significant range of titers (from 3.3E10 to 3.4E11 vg/mL) by addressing these chosen parameters. Results from the DOE provided the optimal conditions: 30 minutes activation time, 25mM EDTA, removal of DNA extraction, and no heat treatment to inactivate the DNase.

FACTOR	RANGE
DNase Activation Time (min)	0, 10, 30, 60
EDTA Concentration (mM)	0, 15, 25, 50
DNase Inactivation Method	Heat or dilution
Extraction	Yes or no

Response contour plots: titer



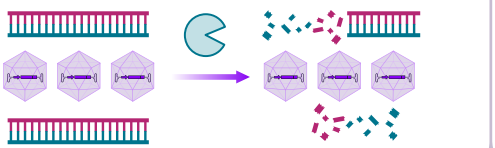
PCR sample preparation simplified

The AAV•Tek PCR Sample Kit is designed to help you overcome five common challenges in AAV sample preparation to ensure you get high yields and reproducible titers.

1 **DNase Treatment:** Removes exogenous DNA

2 **Optimal EDTA concentration:** Stabilizes DNA, hinders nuclease activity, doesn't inhibit PCR

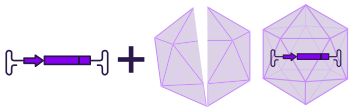
3 **No DNA extraction:** Saves time and costs

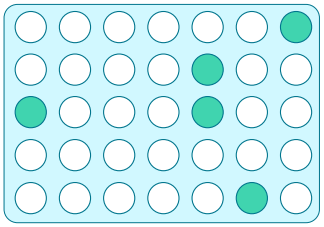


4 **Dilution Buffer:** Stabilizes AAV and prevents aggregation

5 **Capsid Disruption:** Releases AAV genome for quantification

→ Higher and more reproducible titers



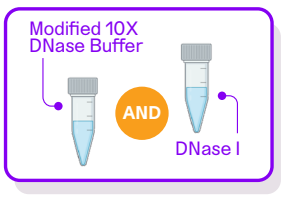


How it works:

DNASE TREATMENT | DILUTION | CAPSID DISRUPTION | PCR

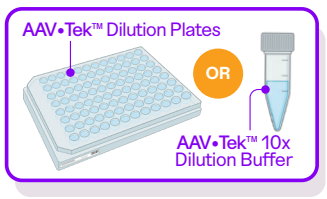
30-minute hold @ 37°C, 10 U

- DNase activation
- Removes exogenous DNA
- No capsid disruption, AAV genome intact



Teknova Dilution Buffer

- Promotes DNase inactivation
- Contains AAV and DNA stabilizing agents
- Samples diluted into PCR range



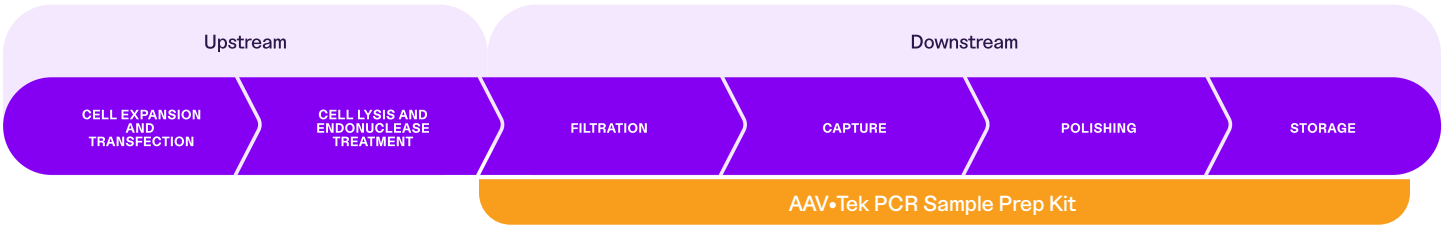
10-minute hold @ 95°C

- Capsids are disrupted
- Exposed genomic DNA is stabilized by the dilution buffer

Diluted DNA is prepared for PCR

- Amplification of DNA for quantification

Use the kit throughout your AAV workflow



AAV•Tek™ PCR Sample Prep Kit

This easy-to-use kit provides more reliable titer quantification and saves time in your AAV sample preparation prior to PCR.

Order your PCR Sample Kit at teknova.com/pcr-kit

PCR Sample Prep Kit:
DNase I Treatment + Dilution Plates
Product ID: 21444

PCR Sample Prep Kit:
DNase I Treatment + Dilution Buffer
Product ID: 21445

WATCH THE WEBINAR TO LEARN MORE

Questions? We're here to help.

Get in touch at info@teknova.com or 1.800.209.4488