

ORDERING INFORMATION

Description	Quantity	Cat. No.
Fast-Trap Adenovirus Purification and Concentration Kit	3-pack	FTAV00003
Fast-Trap Lentivirus Purification and Concentration Kit	3-pack	FTLV00003

Other Useful Millipore Products

Description	Quantity	Cat. No.
Stericup®-GP filter, 0.22 µm Millipore Express® PLUS membrane	12/pk	SCGPU05RE
Steriflip-GP filter, 0.22 µm Millipore Express PLUS membrane	25/pk	SCGP00525
Steriflip filter with Nylon, 100 µm Nylon Net	25/pk	SCNY00100
Millex®-GP filter, 0.22 µm Millipore Express PLUS membrane	50/pk	SLGP033RS
Millex-GS filter, 0.22 µm MCE membrane	50/pk	SLGS033SS



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FOR PRODUCT OR APPLICATION INFORMATION

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Fast-Trap™
Lentivirus and Adenovirus
Purification and Concentration Kits

The Fast-Trap Adenovirus and Lentivirus Virus Purification and Concentration Kits are efficient tools for virus preparation. They use Millipore’s innovative, new vacuum-driven Steriflip® device containing a new membrane to purify crude virus samples, followed by a concentration step using an Amicon® Ultra spin filter. Fast-Trap kits will give you high recoveries of purified virus in less time using a simple protocol!

Highly purified viruses are essential for applications, such as vaccine production and genetic modification of cells. Conventional virus purification methods based on sucrose or cesium chloride gradient ultracentrifugation are time-consuming, difficult, and require expensive instrumentation. Likewise, most membrane-



based purification methods involve messy and potentially hazardous steps. These protocols can also be hampered by low virus recovery. In response to customer requests, Millipore has created two new Fast-Trap virus purification kits that bypass the problems of traditional methods.

Fast-Trap Advantages

Fast-Trap Purification:

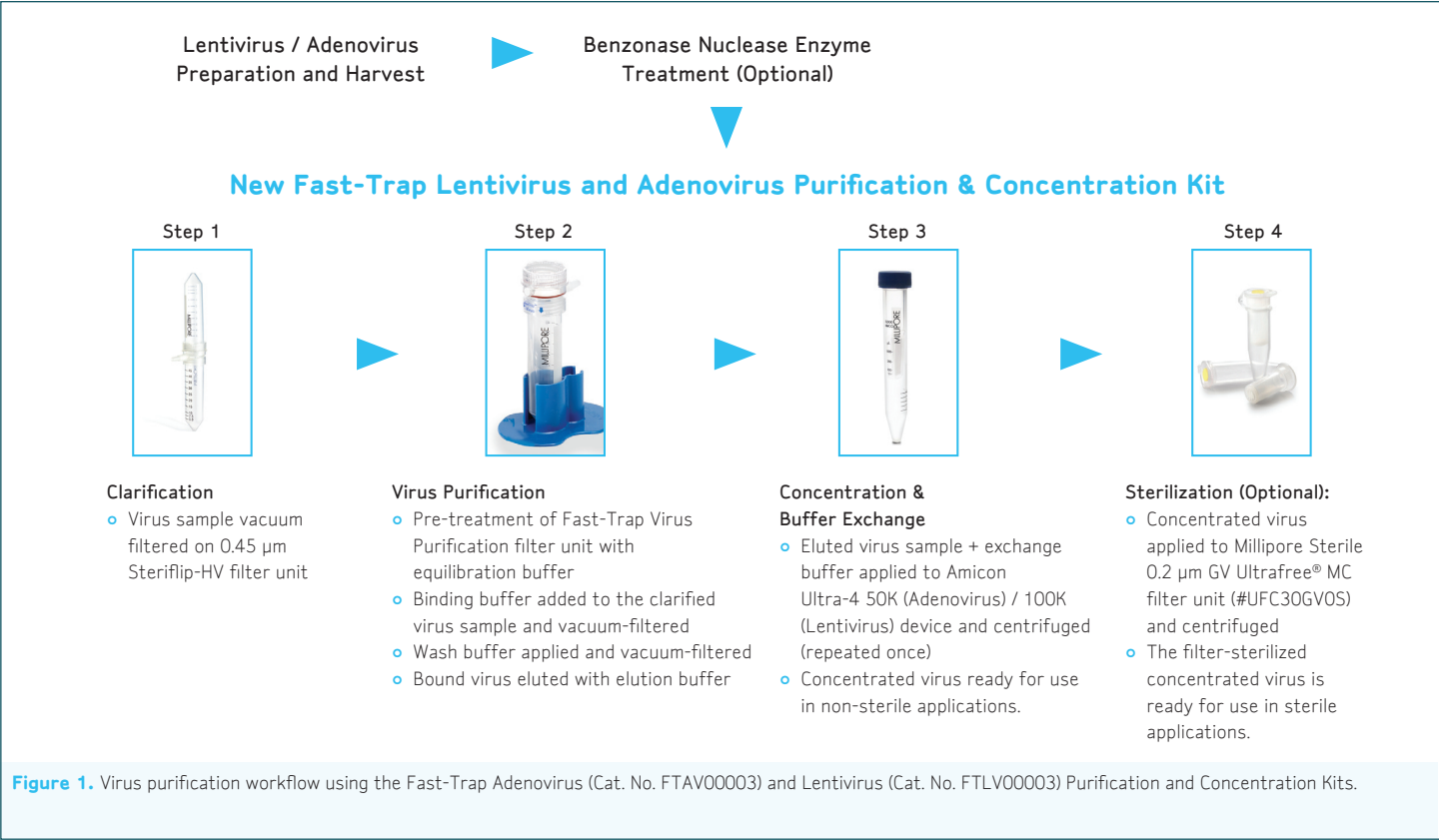
- **Saves time** – protocol can be completed in less than two hours
- **High yield** – recover up to 70% of viral particles
- **Dependable** – simple protocol ensures quality results
- **Easy** – Steriflip filters eliminate messy purification steps and expensive equipment
- **Safe** – uses a closed vacuum device to eliminate potential spill

Traditional Purification:

- **Slow** – traditional methods can take up to two days
- **Low yield** – less than 50% recovery
- **Not reproducible** – variable results
- **Difficult** – labor intensive and requires specialized laboratory equipment

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PURITY

Crude Adenovirus and Lentivirus samples, both purified with Millipore’s Fast-Trap kit, were assessed for overall purity by SDS-PAGE stained with Coomassie Blue and Sypro® Ruby dye respectively. As shown in figures 2 and 3, the majority of the contaminating proteins from host cells and cell culture media/ serum do not bind to the membrane and pass directly into the filtrate (lane 2). Wash fractions (lane 3) indicate the wash buffer is removing remaining weakly bound proteins from the membrane. Elution fractions (lane 4) which represents the purified virus, are containing the adenoviral and lentiviral proteins respectively free from contaminating proteins.

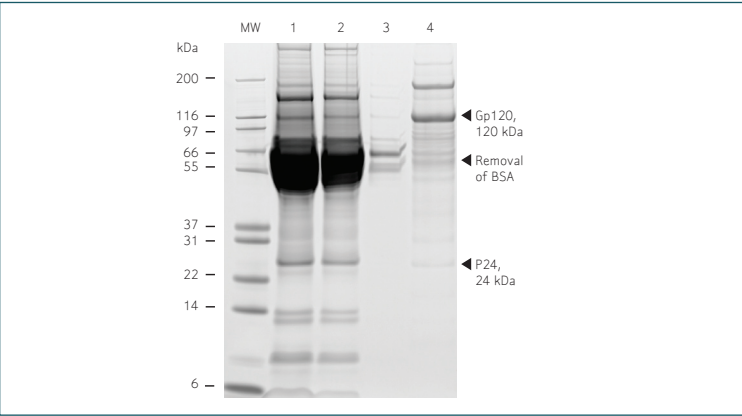
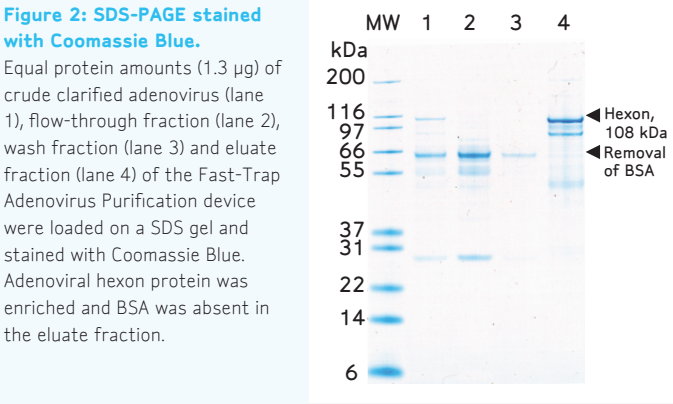


Figure 3: SDS PAGE with Sypro Ruby staining. Analysis of equal volumes of crude clarified lentivirus (lane 1), flow-through fraction (lane 2), wash fraction (lane 3) and eluate (lane 4) from the Fast-Trap Lentivirus Purification. Lentiviral Gp120 and p24 were detectable in the eluate and BSA was absent.

HIGHER RECOVERY

The Fast-Trap kits, when compared with traditional cesium chloride and sucrose gradient purification methods, demonstrate a significant increase in viral recovery.

	Fast-Trap Adenovirus Purification and Concentration kit	Traditional Virus Purification
% Adenovirus Recovery	70	40
	Fast-Trap Lentivirus Purification and Concentration kit	Sucrose Gradient Ultracentrifugation
% Lentivirus Recovery	47	22

Table 1. Virus purification results using Fast-Trap Virus Purification and Concentration Kit and double CsCl gradient ultracentrifugation.

FASTER

Millipore’s new Fast-Trap Adenovirus Kit was compared with other common methods to determine which methods gave the best recoveries in the least time. The Fast-Trap kit was faster than the other methods while giving similar recovery.

Kit	Format	Total Processing Time	Comments
Millipore Fast-Trap Kit	Vacuum	21 min	Millipore Fast-Trap Virus Purification and Concentration Kits are fast, safe, easy and dependable
S	Syringe filter	40 min	Flow rate difficult to control, left with “messy” impression due to occasional drop of liquid when changing syringe filters
V	Centrifugal	1 h 20 min min (40 min if no clogging)	Clarification device clogged
Traditional CsCl	CsCl Density Gradient	Approx. 48 hrs	Labor intensive and requires specialized laboratory equipment

Table 2. A device from each kit challenged was with 2.06x10⁹ infectious viral particles (3 mL crude adenovirus) following the protocol provided with each kit. Total processing time was measured from the time clarification began to the time the final elution ended.

TOTAL SOLUTION KIT COMPONENTS

- 3 – Fast-Trap virus purification filter units
- 3 – Steriflip-HV clarification filter units
- 3 – Amicon Ultra-4 concentrating filter units, 100 kDa NMWL (Lentivirus) or 50 kDa NMWL (Adenovirus)
- 1 – 10x Binding buffer, 20 mL
- 1 – Equilibration buffer, 100 mL
- 1 – Wash buffer, 200 mL
- 1 – Elution buffer, 21 mL
- 1 – Test tube stand

