

## Low-Speed Viral Concentration Kit Handbook

### 1. INTRODUCTION & DESCRIPTION:

Our propriety **Viral Concentration Buffer** comes sterile and ready-to-use for concentrating viruses, pseudoviruses, nanoparticles, and extracellular vesicles. The viral resuspension buffer is cell culture and animal safe. The concentrated viral particles have greatly enhanced transduction efficiencies and high purity for applications such as cryo-electron microscopy imaging. The low-speed protocol does not require an ultra-centrifuge and can be scaled to any size of particle preparation.

#### Highlights:

1. Increase virus and particle concentration 10 to 100-fold
2. Remove impurity
3. Come sterile and ready-to-use
4. Simple protocol and no need for ultra-centrifugation

### 2. INTENDED USE:

This product has been manufactured for research use only and is not intended for diagnostic or therapeutic applications in humans.

### 3. KIT COMPONENTS:

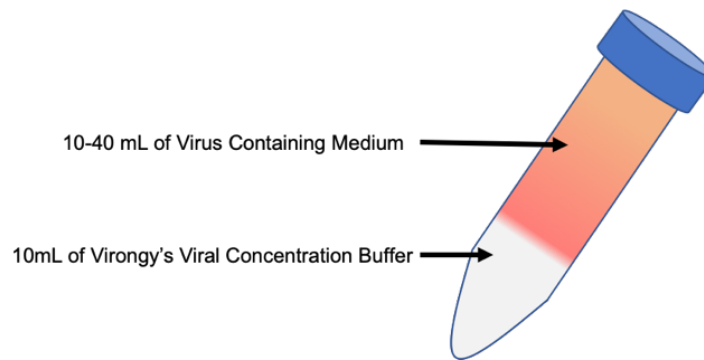
Low-Speed Viral Concentration Kit				
Cat. No.	LSVCK-01	LSVCK-02	LSVCK-03	LSVCK-04
Kit Size	100 mL	250 mL	500 mL	1000 mL

#### Equipment, Supplies and Reagents

Equipment Not Included:	Recommended (Vendor, Cat No)
Centrifuge (Fixed Angle 50 mL Tube Rotor)	Sorvall, SA-600 or similar
50 mL Centrifuge Tubes	Genesee Scientific Cat #: 21-108
Reagents Included:	
Virongy's Viral Concentration Buffer	Virongy LSVC-100 to -1000

#### 4. USER GUIDE

1. Harvest the virus or particle containing supernatant on ice and filter through a 0.45  $\mu\text{m}$  filter to remove cells and debris
2. Prepare the centrifuge tube by adding 10 mL of Virongy's **Viral Concentration Buffer** to the bottom of a 50 mL conical centrifuge tube
3. Carefully to the side of the tube, slowly add 10-40 mL of the virus/particle containing supernatant so the two solutions form two distinct layers. Avoid moving or shaking the tubes to keep the layers separated



4. Carefully transfer the tube to a pre-cooled centrifuge at 4°C and spin the virus and viral concentration buffer solutions at **10,000 x g** for **4** hours.
5. After the spin, carefully decant the supernatant and briefly invert the tube on absorbent paper to remove residual liquid.
6. Resuspend the viral pellet in the desired volume of resuspension buffer (Typically: 100-500  $\mu\text{L}$ ) of your choice, usually **PBS** or **Serum Free Culture Media**. Recommended: Allow the virus to resuspend at 4°C overnight before aliquoting and storing.

## Application Examples:

### Viral Concentration Kit for AAV Lysate Purification and Concentration

This kit purifies AAV particles by reducing empty capsids and removing residual proteins, salts, and cellular debris, resulting in cleaner preparations suitable for downstream applications such as transduction studies, analytical assays, and imaging workflows. Compared with crude lysate preparations, viral particles processed with this kit can achieve higher functional transduction efficiency, while improved sample purity supports enhanced performance in applications including cryo-electron microscopy, infectivity assays, and in vitro or in vivo delivery studies. This kit provides a rapid, and user-friendly solution for concentrating and partially purifying viral particles while preserving biological activity and improving downstream performance.

#### Advantages:

- Eliminates the need for ultracentrifuges or specialized equipment
- Reduces processing time compared with traditional gradient purification methods
- Supports scalable workflows from small-volume pilot studies to larger production preparations
- Improves enrichment of loaded AAV particles relative to empty capsids
- Removes contaminating proteins, salts, and cellular debris

#### AAV Purification and Concentration Protocol

1. Dilute 150  $\mu$ L of AAV-containing lysate (prepared using **AAV Extraction and Maturation Kit #AAVEMK-mini**, following the manufacturer's protocol) with 15 mL of cell culture-grade PBS or media (e.g., DMEM or equivalent). Mix thoroughly.
2. Filter the diluted sample through a 0.45  $\mu$ m filter to remove residual cells and debris.
3. Add 10 mL Virongy Viral Concentration Buffer to the bottom of a 50 mL conical centrifuge tube.
4. Slowly add 10-15 mL of the filtered virus-containing supernatant down the side of the tube so that two distinct liquid layers form.  
*Important: Avoid mixing or disturbing the interface between the layers.*
5. Carefully transfer the tube to a pre-cooled microcentrifuge (**4°C**) and centrifuge at **100,000  $\times$  g** for **4** hours.
6. After centrifugation, carefully decant and discard the supernatant without disturbing the pellet. Briefly invert the tube on absorbent paper to remove residual liquid.
7. Resuspend the viral pellet in 100–500  $\mu$ L viral resuspension buffer or **PBS / serum-free culture media**, depending on your downstream application.

*Recommended: Allow the resuspended virus to recover at 4°C overnight before aliquoting and storage.*