Eppendorf Protein LoBind® Tubes - Your Excellent Choice for Handling and Storage of Viral Samples (in Vaccine Production Workflows)

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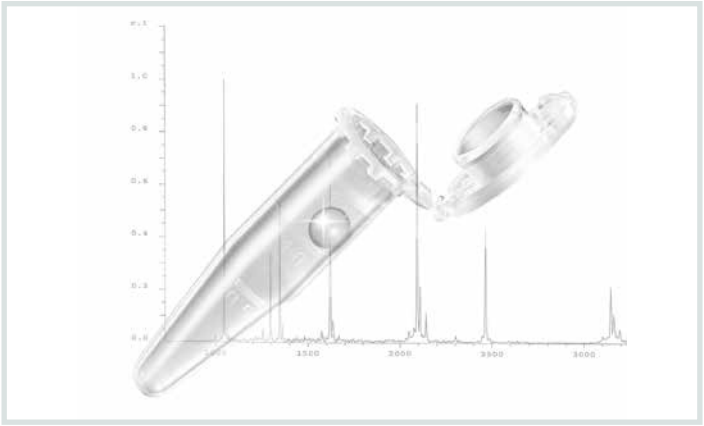
Large quantities of virus particles are often used in gene therapy and vaccine production (i.e. SARS ..). For downstream purification of viruses and proteins various protocols are used: filtration, ion-exchange chromatography and gradient centrifugation.
All of these techniques rely on high quality plastic labware for handling and storage of viral samples. During vaccine production and purification viral samples are rather diluted and viral particles are large. Therefore the unspecific adsorption to plastic labware often poses a major problem and leads to sample loss. The solution to this problem may be the use of high quality Protein LoBind tubes.



ScienceDirect® - "The leading platform of peer-reviewed literature that helps you move your research forward" – published the "Journal of Chromatography A", Volume 1142, Issue 1, 16 February 2007 with the detailed description of a study on "Sorption processes in Ion-exchange chromatography of viruses" by E.I. Trilisky, A.M. Lenhoff, Department of Chemical Engineering, University of Delaware, Newark, USA

The authors of this article tested nine tubes from various manufacturers in the ion-exchange purification protocols. They clearly showed, that only by using Eppendorf Protein LoBind Tubes the concentration of viral particles remained stable during entire storage time of 120 hr. In all other tubes tested the concentration of samples declined down to 60% - 18% of the initial one (Fig. 1).

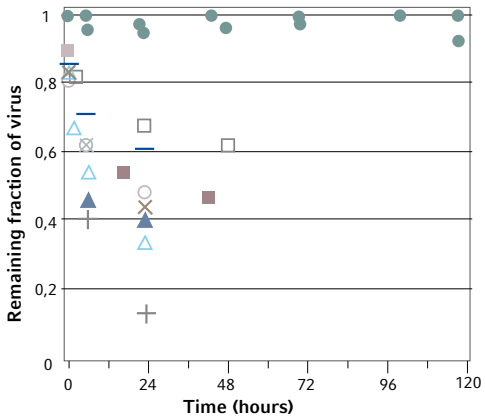


Fig. 1: Virus loss in different containers (20mM HEPES, 150 mM NaCl. Ph 7.8: initial Ad5 concentration was approximately 6 x10^{10} p/mL ≈ 0.02 g/L).
● Eppendorf Protein LoBind Tubes and 8 competitor tubes.
Adapted from [1], page 7, Copyright 2007 by Elsevier B.V.

Noticeably, it was also shown that concentration of viral samples stored in Eppendorf Protein LoBind Tubes remained stable under usage of various buffer systems (HEPES, phosphate, Tris buffers) and broad range of ionic strength conditions: NaCl concentration between 0 and 3 mol/L (Fig. 2, adapted from [1]).

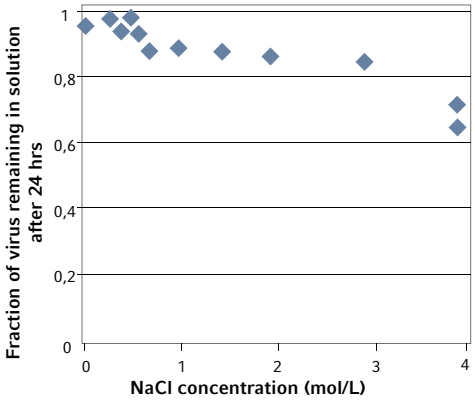


Fig. 2: Virus loss due to binding to the container as a function of ionic strength (0.5 mL LoBind tubes, 20 mM HEPES, pH 7.8, 400 µL solution per tube with an initial concentration of 1.3 x 10^{10} p/mL ≈ 0.04 g/L, data were collected after 24 and 48 h with no significant differences between the two sets of time points).
Adapted from [1], page 7, Copyright 2007 by Elsevier B.V.

The authors conclude that of all containers tested, only one type - Eppendorf Protein LoBind Tubes - did not bind viral particles and is recommended for collection and storage of viral samples.

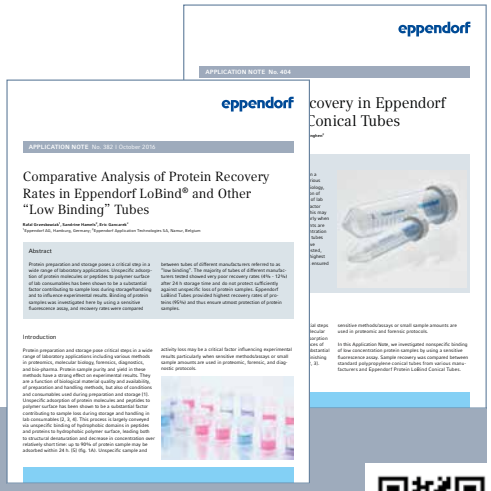
Find more information on the above described article here:

https://pubmed.ncbi.nlm.nih.gov/17240385/

Watch Video

"How it works – Eppendorf LoBind®"

https://www.youtube.com/watch?v=zcRu1XEfoDU



Application Notes 382 – »Comparative Analysis of Protein Recovery Rates in Eppendorf LoBind® and other ›Low Binding‹ Tubes«
www.eppendorf.com/appnote382

Application Note 404 – »Total Sample Recovery in Eppendorf Protein LoBind Conical Tubes«
www.eppendorf.com/appnote404

Literature

[1] E I Trilisky, A M Lenhoff, Sorption processes in ion-exchange chromatography of viruses. J Chromatogr A. 2007 Feb 16;1142(1): 2-12