Concentrating Viruses with an Amicon or Nanosep Centrifugal Ultrafiltration Device

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Abstract

This protocol describes how to concentrate viruses in liquid samples using an Amicon or Nanosep centrifugal ultrafiltration device. We use Amicons to concentrate medium volumes of samples (10s to 100s of mls) down to a final volume of ~4 ml. We use Nanoseps to concentrate smaller volumes of sample (<10ml) down to a final volume of ~40µl.

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Materials

- Amicon Ultra-15 Centrifugal Filter Unit UFC910024 by Emd Millipore
- ✓ Nanosep Centrifugal Device OD100C34 by Contributed by users

Protocol

Amicon Protocol

Step 1.
Add your sample to the upper reservoir of the Amicon

Amicon Protocol

Step 2.
Centrifuge at 1000 x g at 4ºC in a swinging-bucket rotor.

NOTES
VERVE Team 07 Aug 2015
Do not exceed 1000 x g

Amicon Protocol

Step 3.
Centrifuge time will depend on the volume of sample and the amount of material in the sample.

NOTES
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**Do not let the filter go dry

Amicon Protocol

Step 4.
Continue centrifuging until the sample is reduced to the desired volume.

NOTES

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Generally ~1 ml

Amicon Protocol

Step 5.

Remove the concentrated sample from the upper reservoir and place it in a tube of your choice

Amicon Protocol

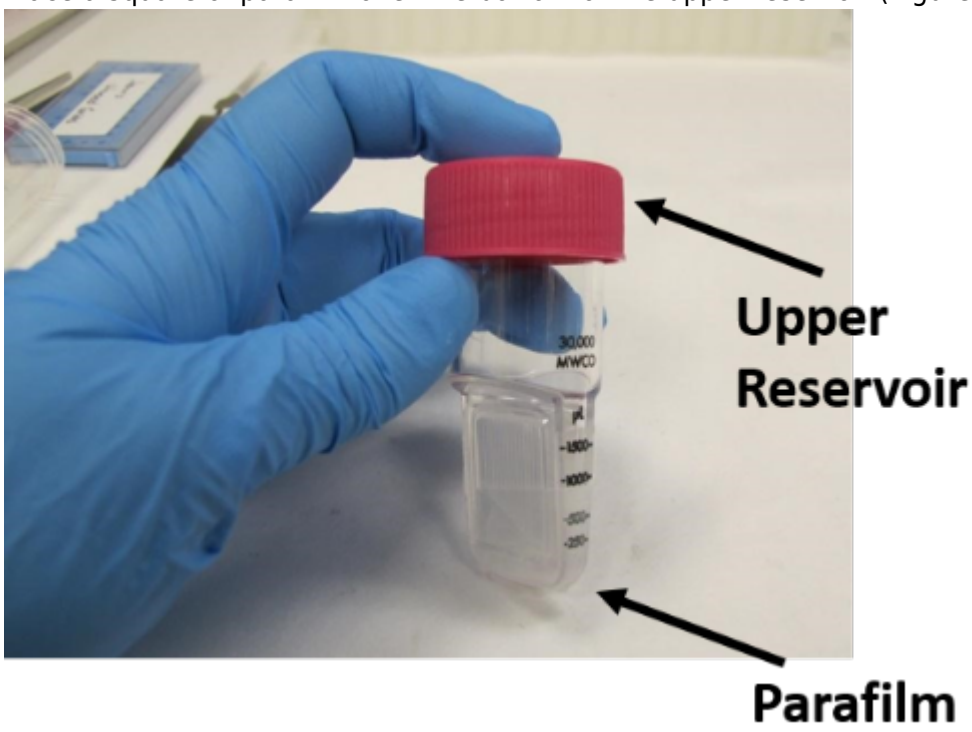
Step 6.

Remove the upper reservoir from the Amicon device

Amicon Protocol

Step 7.

Place a square of parafilm over the bottom of the upper reservoir (Figure 1)



Amicon Protocol

Step 8.

Add enough liquid to cover the filter (1.5 ml)

NOTES

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You can recover the sample using whatever liquid you want (e.g. filtrate, buffer).

Amicon Protocol

Step 9.

Vortex the upper reservoir (filter/parafilm side down) at a setting of 1200 for 20s

DURATION
00:00:20

Amicon Protocol

Step 10.
Remove the liquid from the upper reservoir and add it to your recovered sample

Amicon Protocol

Step 11.
Repeat steps 8-10 to fully recover your sample

Nanosep Protocol

Step 12.
Add your sample to the upper reservoir of the Nanosep

Nanosep Protocol

Step 13.
Centrifuge at 1000 x g at 4ºC

NOTES
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Do not exceed 1000 x g.

Nanosep Protocol

Step 14.
Centrifuge time will depend on the volume of sample and the amount of material in the sample

NOTES

VERVE Team 07 Aug 2015
**Do not let the filter go dry

Nanosep Protocol

Step 15.
Continue centrifuging until the sample is reduced to the desired volume

Nanosep Protocol

Step 16.
Use a pipettor to remove the concentrated sample from the upper reservoir and place it in a tube of your choice

Nanosep Protocol

Step 17.
Add enough liquid to cover the filter (10 µl)

NOTES
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You can recover the sample using whatever liquid you want (e.g. filtrate, buffer)

Nanosep Protocol

Step 18.
Swirl the liquid over the filter and stir it gently with a pipet tip.

NOTES
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You can touch the membrane, but not so hard that you scrape chunks off of it.

Nanosep Protocol

Step 19.
Remove the liquid from the upper reservoir and add it to your recovered sample

Nanosep Protocol

Step 20.
Repeat steps 17 to 19 to fully recover your sample.