Claims

1. A method for large-scale purification of recombinant viral vectors, wherein the method comprises the following steps:

(a) providing a raw material, which comprises recombinant viral vectors to be purified and is a feed liquid, and wherein the feed liquid has a volume of no less than 20 liters;

(b) carrying out a microfiltration treatment on the feed liquid to obtain a microfiltered filtrate, which comprises the recombinant viral vectors; wherein the microfiltration treatment is conducted using a microfiltration hollow fiber column, wherein the microfiltration hollow fiber column is a microfiltration membrane with a cut-off value of 0.4 to 1.0 μm;

(c) concentrating the filtrate to obtain a concentrated filtrate, wherein the concentrating is conducted using an ultrafiltration hollow fiber column with a cut-off value of 200 K to 1000 K;

(d) purifying the filtrate by chromatography to obtain a crude pure product comprising the recombinant viral vectors; and

(e) subjecting the crude pure product to liquid exchange and purification to obtain purified recombinant viral vectors;

wherein the chromatography in step (d) is selected from anion-exchange chromatography, size exclusion chromatography and multimodal composite resin chromatography, or a combination thereof,

wherein the recombinant viral vectors are recombinant lentiviral vectors.

2. The method according to claim 1, wherein anionic resin for the anion-exchange chromatography is selected from: Capto Q, Capto ImpRes and Capto DEAE.

3. The method according to claim 1, wherein the purification by chromatography step comprises performing primary purification by anion-exchange chromatography first and then performing purification by multimodal composite resin chromatography.

4. The method according to claim 1, wherein in step (d), the purified recombinant lentiviral vectors have one or more of the following features:

(p1) the biological titer of the recombinant lentiviral vectors is about $1.06x10^9$ Tu/mL;

(p2) BSA <50 ng/mL;

(p3) endotoxin <1 EU/mL.

5. The method according to claim 1, wherein in step (c), concentration is conducted through ultrafiltration.