

**NEW PRODUCT RELEASE****PEI-HCL-40K****LINEAR POLYETHYLENIMINE HYDROCHLORIDE (MW 40K)****Material Information**

SH-35421	Quantity	Price
PEI-HCL-40K	1 g	\$510
	500 mg	\$300
	Custom	Ask for a quote

PEI-HCL-40K is a fully-deacetylated form of linear polyethylenimine (HCl salt of a 22kDa free base).

For quote and technical information, contact us at bio@synchembio.com or sales@synchem.com

Storage:

PEI-HCL-40K powder: keep at Room temperature out of direct sunlight.

PEI-HCL-40K at 1mg/ml working solution: stable at 4 degree for up to 6 months. For long-term storage, put 3-5ml aliquots in -80 or -20 degree. Once thawed completely, filter through 0.22um filter, aliquot and keep at 4 degree. Do not freeze again.

How to make 1mg/ml PEI-HCL-40K stock solution?

1. weigh 50mg PEI-HCL-40K
2. add 45ml Milli-Q water or water for injection (WFI) as your application requires.
3. stir the solution until PEI-HCL-40K is completely dissolved. This usually takes less than 10 minutes.
4. Add 1N NaOH dropwise to the solution **until pH 7.0** (it is acceptable if the pH is in the range of 7.0 – 7.1). Some researchers use it at pH 7.0-7.5 ([10.1016/bs.mie.2019.05.007](#)), others use it at pH 7.3 ([10.7554/eLife.30233.001](#)).
5. In case the pH accidentally exceeds the desired pH, add 1N HCl (hydrochloric acid) dropwise to the solution and bring the pH back.
6. Adjust final volume to 50ml, **the final concentration is 1mg/ml**
7. Filter through **0.22um filter**.
8. Make aliquots. The stock solution is stable for 6 months at 4 degree. For long-term storage, put 3-5ml aliquots in -80 or -20 degree. Once thawed completely, filter through **0.22um filter**, aliquot and keep at 4 degree.

Sample transfection protocol for adherent cells

1. Seed cells to be 70-90% confluent at the time of transfection.
2. Dilute PEI-HCL-40K in DMEM.
3. Dilute DNA in the same amount of DMEM.
4. **Add the diluted PEI-HCL-40K to the diluted DNA.**
5. Incubate for 10-15 minutes at room temperature.
6. Add DNA/PEI/DMEM mixture dropwise to the cells.
7. (optional) After 3-16 hours, change to fresh media.
8. After 16 hours to 48 hours, check transfection efficiency and proceed to downstream



application.

Ratio of PEI-HCl-40K to DNA

It is best to optimize the ratio of PEI-HCl-40K to DNA. One may test ratios of 1.5:1 to 4:1 PEI-HCl-40K(ug): DNA(ug).

HDAC inhibitors as transfection enhancers

It has been shown that using HDAC inhibitors can enhance transfection efficiency both in suspension cells and adherent cells. HDAC inhibitors known to enhance transfection efficiency include sodium propionate, sodium butyrate, valproic acid, trichostatin A, and vorinostat, etc. These enhancers can be added to cells when PEI/DNA mix is added([10.1038/s41434-020-0152-x](#)), after 3 hour post-transfection, or after 16-20 hour post-transfection([10.1002/bit.21882](#)).