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# MEM, NEAA (with glucose, Earle's salts, without glutamine, phenol red, sodium pyruvate) Product manual

## Basic Information

Cat.NO	Size	Shelf	Form	Storage	Transportation
CMB0036	2L	24 months	Powder	Store at 2-8°C away from light	Room temperature

## Product Introduction

MEM medium (Minimum Essential Medium) is also called the minimum essential medium, minimum basic medium or low-limit Eagle medium. It was developed by Harry Eagle based on Eagle Basic Medium (BEM). It is the most basic and widely applicable medium and one of the most commonly used mediums in animal cell culture. MEM medium contains only 12 essential amino acids, glutamine and 8 vitamins. It has simple ingredients and is mainly used for the culture of adherent cells. It can also be used for other types of cell culture after the formula is modified. MEM medium containing NEAA (non-essential amino acids) is based on MEM medium and adds 7 NEAAs: L-alanine, L-glutamic acid, L-asparagine, L-aspartic acid, L-proline, L-serine and glycine. It can reduce the side effects of the production of non-essential amino acids by cells themselves during cell culture and effectively promote cell proliferation and metabolism.

The culture medium containing NEAA (non-essential amino acids) is based on the original culture medium and added with 7 kinds of NEAAs: L-alanine, L-glutamic acid, L-asparagine, L-aspartic acid, L-proline, L-serine and glycine. It can reduce the side effects of the cells' own production of non-essential amino acids during cell culture and effectively promote cell proliferation and metabolism.

### Preparation of powder

1. Purified water, ultrapure water or water for injection should be used for preparation, and the water temperature should be controlled at 20-30°C during the preparation process;
2. Add 90% of the preparation volume of preparation water to the preparation container (if 1L is required, add 900mL of preparation water here), turn on the mixing system of the

culture medium preparation container (it is recommended that the input power per unit volume of the mixing system is greater than  $10\text{W}/\text{m}^3$ ), stir well, and avoid the generation of bubbles during stirring;

3. Weigh the powder culture medium according to the required preparation volume. Add the accurately weighed culture medium powder to the preparation container of step 2, stir thoroughly for more than 20 minutes until the powder is completely dissolved;
4. After the solution is completely clarified, weigh sodium bicarbonate (analytical grade) powder at a ratio of  $2.2\text{g}/\text{L}$  according to the preparation volume, slowly add it to the solution of step 3, and continue stirring for 5-10 minutes until dissolved;
5. Add preparation water to accurately dilute the completely dissolved step 4 solution to 100% of the preparation volume (if 1L is required, dilute to 1L);
6. Measure the pH value, and adjust the pH value to 7.20-7.30 with  $1\text{mol}/\text{L}$  sodium hydroxide solution or  $1\text{mol}/\text{L}$  hydrochloric acid solution if necessary; since filtration will make the pH value of the culture medium slightly higher, it is lower than the target pH value (7.20-7.40);
7. Sterilize by positive pressure filtration with a filter membrane with a pore size of  $0.2\mu\text{m}$  (pay attention to aseptic operation);
8. After filtration, a small amount of liquid culture medium can be taken for bacterial testing and used only after it passes the test;
9. The filtered culture medium liquid should be used immediately or stored in a glass bottle, culture medium bottle (PET) or disposable liquid storage bag with oxygen barrier coating, stored at  $2-8^{\circ}\text{C}$  away from light. At this time, the shelf life of the liquid culture medium is 1 year.

L-glutamine is a necessary nutrient element in cell culture, but it is unstable in solution and will degrade spontaneously. The medium without L-glutamine can adjust the amount of L-glutamine according to research needs. Adding fresh L-glutamine or its substitute during use is more conducive to cell growth.

## Instructions

1. Balance the culture medium and related solutions in a water bath or at room temperature, and prepare the culture medium required for the experimental cells;
2. Cell inoculation: Remove the cells to be cultured from the original culture container, wash with appropriate culture medium or PBS, and adherent cells need to be digested with trypsin;
3. Collect the cells by centrifugation, centrifuge at  $1000\text{rpm}$  for 3 min at room temperature, and discard the supernatant;
4. Add fresh culture medium to resuspend the cells. Then inoculate the cell suspension into the culture bottle with the corresponding volume of culture medium, mix gently, and culture at  $37^{\circ}\text{C}$  and 5%  $\text{CO}_2$  saturated humidity. Observe and replace fresh culture medium regularly according to cell

growth and cell density.

### **Precautions**

1. During the entire process, be sure to pay attention to aseptic operation to avoid contamination;
2. To maintain the best use effect of this product, do not perform freeze-thaw treatment;
3. This product is only used for research or further research, not for diagnosis and treatment.