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Article 6-4. Bio-magnetic field of Cell and Its Application on Separation of Blood Cell Communities along Environmental Gradient/细胞的生物磁场及血细胞群落在环境梯度上的分离

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Abstract

Biophysical simulation of electromagnetism signals is designed in this article, to identify and cultivate the host cells with different immunology.

Key words: Host Cell, Electromagnetism Signal, Immunology, Biophysical Simulation, Environmental Gradient.

Methods

Step 1. The host cells (such as blood cells of rat) are abstracted from host body.

Step 2. Electrophoresis of blood cells is conducted in moderate electromagnetism; For the simulation of moderate electromagnetism condition, cells are cultivated in electrophoresis pipe for cell electrophoresis, in which the external electric field is added. Subsequently, the electrophoresis pipe is horizontally placed under external vertical magnetism field imposed by magnetic instrument.

Step 3. Different blood cell communities are separated along the environmental gradient over different electric potentials, leading to cell samples with different immunology, which are collected from different electric potentials in electrophoresis pipe. The cell samples, abstracted from different electric potential (j1, j2...jn), are labeled on the basis of electric potential.

Step 4. The specificity of host-invasion interaction is examined on each cell sample. To achieve this, the targeted pathogens are inoculated separately into each blood cell sample prepared in step 3. It is expected that the specific electric potential corresponds to the host cells with apparent antibiotics/antibody against the specific invasive virus (or bacteria), which also becomes the key parameter of biophysical

training for the host cells with immunology against the specific invasive virus (or bacteria). Nevertheless, for the mobilizable blood cells, it is expected that the 'ecological niche' of cells vary in their life cycle along this environmental gradient of electromagnetism signal, because of the variation in bio-magnetic field over cell's life cycle, moving from a specific electric potential to another electric potential.

Step 5. For the biophysical training of host cells under electromagnetism signals, different intensities of both external electric field and external magnetic field can be adjusted gradually in Lab. If the host cells are cultivated for sufficient time under the electromagnetism signals that are designed in above experiment procedure (for example, the immune cells of T lymphocytes and natural killer (NK) cells may be cultivated for approximately 10 generations or two weeks), it is expected that the immunology of host cells will be enhanced. Consequently, it is to further assess the effects of different intensities (both external electric field and external magnetic field) on the host cells' immunology cultivation.

Discussion

Although electrophoresis of blood cells has been used for the pathological diagnose in other people's research before (such as diagnosing ischemic stroke, coronary heart disease, cor pulmonale, myocardial infarction, hypertension, tracheitis, chronic bronchitis and systemic lupus erythematosus)[1], my research combines the electrophoresis of blood cells with the host-pathogen interaction to identify the specific antibiotics/antibody. The bio-magnetic field of blood cells varies even within the same genetic strain, so that different cell communities can be separated according to the gradual variation in electromagnetism signals (environmental gradient of electromagnetism) in this electrophoresis, leading to cell samples with different immunology.

It is expected that the time-varying electromagnetic field of biophysical training is better than constant electromagnetic field, due to the phenotype evolution of invasive virus (bacteria).

References:

[1]. 红细胞电泳。搜狗百科。