

ELECTROCHEMICAL INVESTIGATION OF CHO CELLS WITH VARIOUS REDOX MEDIATORS

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Redox processes occurring in eukaryotic cells are crucial for understanding cellular metabolism and viability. Electrochemical methods enable the study of these processes, their accuracy and sensitivity also depend on the mediators used. When assessing the redox state of cells, it is important to observe how mediators influence electron transfer and adjust research outcomes. Studying cells using electrochemical methods without mediators, there is a risk that redox processes may not be detected at all. Additionally, improper selection of mediators can lead to cell death. Chinese hamster ovary (CHO) cells are widely used in the field of biotechnology due to their ability to easily adapt to changing environmental conditions, high productivity, and capability to perform various human-like modifications [1]. CHO cells are also valuable in electrochemical studies because the purine group metabolites in their structure, such as xanthine and guanine, can generate specific electrochemical signals, enabling the determination of cell viability and ongoing intracellular processes [2]. Scanning electrochemical microscope (SECM) studies will provide deeper insights into electrochemical methods and their application in studying living cells using mediators. The obtained results will also help determine whether mediators are necessary at all. This will contribute to future electrochemical cell studies aimed at more accurately assessing cell viability and redox processes using mediators [3]. This study aims to analyze behavior of CHO cells using SECM with two redox mediators, one lipophilic and one hydrophilic.

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