



Detection and Quantification of NADH or NADPH

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Invention Description

Large scale artificial photosynthesis has been a long standing goal of many in the biotech industry. This need has become more dramatic as we search for alternative sources of energy. Some of the methods of mimicking photosynthesis rely on the ability to detect and quantify cofactors associated with the process. This task is currently accomplished by optical spectroscopy and is subject to interference by other materials that absorb light at overlapping wavelengths.

Researchers at ASU have developed a method, using a photoelectrochemical cell, to detect and quantify the amount of cofactors such as, NAD⁺, NADH, NADP or NADPH present in a mixture, or detect and quantify the substrates that are dependant on these cofactors. Thus, significantly increasing the possibility of effectively conducting artificial photosynthesis.

Potential Applications

- Artificial photosynthesis systems (such as bio fuel cells)
- Diagnostics
- Photovoltaics

Benefits and Advantages

- Accuracy and Specificity – supersedes detection accuracy and specificity relative to current methods
- Sensitivity – minimal amount of analyte necessary for positive detection