Measuring Cell-Free Protein Synthesis With NADH

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Our project determined that resazurin, a synthetic fluorescing agent originally used as a bioburden detector, is a practical fluorescing agent for quantifying NADH in cell-free reactions. We were able to develop a standard curve with a remarkable linear relation between NADH concentration and resazurin fluorescence using NADH solid dissolved into a medium imitating a cell-free environment at incremental concentrations. We then used the curve to reliably quantify NADH in samples of cell-free systems. Our research shows resazurin can be used to further optimize protein production by quantifying NADH in cell-free systems, allowing further scale-up of cell-free biomanufacturing.

Awards Won: