# Toxic Effect of Indocyanine Green on Retinal Pigment Epithelium Related to Osmotic Effects of the Solvent

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## 摘要

## Abstract

PURPOSE: To investigate whether the toxic effect on cultured retinal pigment epithelial (RPE) cells after application of indocyanine green is related to the osmolarity of the solvent or to toxic effects of the dye and evaluate whether these changes also occur using infracyanine green. DESIGN: Experimental study with a direct live/dead cell staining technique using fluorescent dyes. METHODS: Cultured human RPE cells were exposed to various solutions and cell viability was confocally measured. RESULTS: Increased cell death was found in cultures incubated in the hypoosmotic solvent that is generally used for indocyanine green ($P < .001$, $n = 12$). Addition of indocyanine green did not alter this observation ($P < .001$, $n = 12$). In cultures exposed to a 5% glucose solution, no increased cell death was found ($P = .94$, $n = 12$), nor when infracyanine green was added ($P = .13$, $n = 12$). CONCLUSION: The observed toxicity of indocyanine green on RPE cells is probably related to the hypo-osmolarity of the solvent and may be avoided by using infracyanine green dissolved in glucose 5%.