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Understanding the effect of Advanced Glycation End products on Cellular Proliferation

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Abstract

Advanced Glycation End products (AGEs)which were largely thought as oxidative derivatives resulting from diabetic hyperglycemia, are increasingly seen as a potential risk for islet β-cell injury, peripheral insulin resistance and diabetes. AGEs are prevalent in diabetic vasculature and contribute to the development of atherosclerosis by forming the cross linking of basement membrane whichcontributes many micro and macro vascular complications. AGEs induce the expression ofvascular endothelial growth factor (VEGF) which in turnpersuades angiogenesis and human dermal endothelial cell proliferation. On the other hand AGEs promote apoptosis through oxidative stress and alter the cell structure and function in the course of natural aging when exposed to hyperglycemic condition. Effect of AGEs on cell proliferation and apoptosis remains unclear.This study aims tocomprehend the effect of AGEs on eukaryotic cell growth. *Saccharomyces cerevisiae,* one of the most popularly used eukaryotic model systems for biological studies was selected as an organism to analyze this effect.*S.cerevisiae*was exposed to various concentrations of AGEs and growth curvewas estimated by measuring dry weight and wet weight of biomass. The protein extracted from yeast cellswere quantified by Lowry's method. Outcome of this study ameliorate the therapeutic routes of several metabolic disorders like diabetes and cancer.