

1,25-dihydroxyvitamin D₃ (1,25-(OH)₂D₃) Induces Cell Apoptosis of Human Mesangial Cells

**Chunjiang Zhang¹, Gang Liu¹, Dan Zhao¹, Zhifeng Lin¹, Rui Yang¹,
Jie Gu², Qingqing Nie² and Xiaoping Yang¹**

*¹Department of Nephrology, the first Affiliated Hospital, School of Medicine,
Shihezi University, Xinjiang, 832000, China*

²Medical College of Shihezi University, Shihezi, Xinjiang, 832000, China

KEYWORDS Apoptosis. Human Mesangial Cell. 1,25-(OH)₂D₃. Mechanism. Mesangial Proliferative Glomerulonephritis

ABSTRACT In China, primary glomerulonephritis is the leading cause of end-stage renal disease (ESRD), and patients who require kidney transplantation often with ESRD. Glomerulonephritis primary's most prevalent subtype is Mesangial proliferative glomerulonephritis (MsPGN). Although the cell apoptosis of human mesangial cells (HMCs) may be harmful in MsPGN, it plays a major role in the elimination of excessive HMCs and reparative glomerular remodelling after inflammation. A powerful mitogen for growing mesangial cells is epidermal growth factor (EGF). Therefore, it is possible to induce the proliferation of HMCs by incubating with EGF *in vitro*. 1,25(OH)₂D₃ (VD₃) may cause cell death in HMCs via activating AKT, caspase-3, caspase-9, JNK, and ERK, as well as elevating Bax and Bad levels.