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# **1,25(OH)<sub>2</sub>D<sub>3</sub> attenuates TGF- $\beta$ 1/ $\beta$ 2-induced increased migration and invasion via inhibiting epithelial-mesenchymal transition in colon cancer cells**

Shanwen Chen <sup>1</sup>, Jing Zhu <sup>1</sup>, Shuai Zuo <sup>1</sup>, Ju Ma <sup>1</sup>, Junling Zhang <sup>1</sup>, Guowei Chen <sup>1</sup>, Xin Wang <sup>1</sup>, Yisheng Pan<sup>1</sup>, Yucun Liu<sup>1</sup>, Pengyuan Wang <sup>1 2</sup>.

## **Abstract**

1,25-Dihydroxyvitamin D<sub>3</sub> (1,25(OH)<sub>2</sub>D<sub>3</sub>) has been reported to inhibit proliferation and migration of multiple types of cancer cells. However, the mechanism underlying its anti-metastasis effect is not fully illustrated. In this study, the effect of 1,25(OH)<sub>2</sub>D<sub>3</sub> on TGF- $\beta$ 1/ $\beta$ 2-induced epithelial-mesenchymal transition (EMT) is tested in colon cancer cells. The results suggest that 1,25(OH)<sub>2</sub>D<sub>3</sub> inhibited TGF- $\beta$ 1/ $\beta$ 2-induced increased invasion and migration of in SW-480 and HT-29 cells. 1,25(OH)<sub>2</sub>D<sub>3</sub> also inhibited the cadherin switch in SW-480 and HT-29 cells. TGF- $\beta$ 1/ $\beta$ 2-induced increased expression of EMT-related transcription factors was also inhibited by 1,25(OH)<sub>2</sub>D<sub>3</sub>. 1,25(OH)<sub>2</sub>D<sub>3</sub> also inhibited the secretion of MMP-2 and MMP-9 and increased expression of F-actin induced by TGF- $\beta$ 1/ $\beta$ 2 in SW-480 cells. Taken together, this study suggests that the suppression of EMT might be one of the mechanisms underlying the anti-metastasis effect of 1,25(OH)<sub>2</sub>D<sub>3</sub> in colon cancer cells.

**Key words:** 1,25(OH)<sub>2</sub>D<sub>3</sub>, Colon cancer, EMT, VDR, SW-480, HT-29

## **1. Introduction**

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