华东师范大学学报(自然科学版) 2010 2010 (2): 102-110 ISSN 1000-5641 CN 31-1298/N

生命科学

# 纳米银对体外培养细胞附着形态及膜功能的影响

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**收稿日期** 2009-4-22 **修回日期** 2009-7-22 **网络版发布日期** 2010-3-25 **接受日期** 2009-9-11

**摘要** 通过研究纳米银的急性细胞毒性及其对体外培养的人脐静脉内皮细胞(HUVEC)和人脐动脉平滑肌细胞(HUASMC)附着形态、膜流动性和膜完整性的影响，初步探讨了纳米银的生物安全性.实验结果表明：浓度为0.0039～0.5 mg/mL的纳米银没有急性细胞毒性，但会影响细胞的附着形态，使细胞变小变圆，附着性变差;纳米银聚集沉积在细胞膜周围，影响细胞膜的流动性和细胞膜的完整性，从而产生一定的细胞毒性.

**关键词** 纳米银；生物安全性；细胞毒性

**分类号** R318



# In vitro study of the effect of silver nanoparticles on the adhesion and membrane function of cells

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**Abstract**

In this paper, the acute cytotoxicity of silver nanoparticles, as well as their influence on the adhesion state and membrane functions of Human Umbilical Vein Endothelial Cells ( HUVEC) and Human Umbilical Artery Smooth Musle Cells (HUASMC) were studied in vitro, for the sake of clinic using security. The results are as follows. Silver nanoparticles whose concentration ranged from 0.0039 mg/mL to 0.5 mg/mL did not show acute cytotoxicity within 8 hours, but the effects on the adhesion state of both cell lines were observed. The shape of the cells abnormally became small and round, which indicated that they were not well adhered on the culture plate. At the mean time, silver nanoparticles were found aggregating on the cell membrane, and the membrane fluidity and integrity of the cells were alternated, which implied that Ag nanoparticles had cytotoxicity in a certain degree.

**Key words** silver nanoparticles biological safety cytotoxicity

DOI:

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