

论著

125I 标记酪氨酸-多壁碳纳米管在小鼠体内的生物分布

叶 兵, 梁戈玉, 尹立红, 浦跃朴

东南大学公共卫生学院, 南京 210009

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摘要 背景与目的: 研究¹²⁵I标记酪氨酸-多壁碳纳米管经尾静脉注射后在小鼠体内的生物分布。材料与方
法: 合成酪氨酸-多壁碳纳米管, 并用¹²⁵I进行标记, 尾静脉注射进入健康雌性ICR小鼠体内, 于注射后10
min、30 min、1 h、6 h、12 h、24 h、48 h处死小鼠, 取血、心、肝、脾、肺、肾、脑、肌肉、骨、胃、肠、皮
肤和胸腺等进行¹²⁵I放射性检测, 计算每克组织百分注射剂量率并进行分布分析。结果: 肺脏的¹²⁵I含量最
高, 且48 h内无明显降低(P>0.05); 肾脏¹²⁵I含量其次, 且随着时间的增加迅速降低(P<0.05); 肝脏和脾脏有
一定¹²⁵I含量累积效应, 随着时间的增加无持续降低趋势; 血液、心脏、肌肉、骨骼、胃、肠、皮肤、胸腺的
¹²⁵I含量很低, 且随着时间的增加呈持续降低趋势; 脑¹²⁵I含量最低。结论: 尾静脉注射后酪氨酸-多壁碳
纳米管主要分布于小鼠肺脏中, 且肺脏、肝脏和脾脏对酪氨酸-多壁碳纳米管可能具有一定蓄积作用。

关键词 [多壁碳纳米管](#); [酪氨酸](#); [125I标记](#); [小鼠](#); [生物分布](#)

Biodistribution of ¹²⁵I Labeled Tyrosine-Multiwalled Carbon Nanotubes in Mice

YE Bing, LIANG Ge-yu, YIN Li-hong, PU Yue-pu

School of Public Health, Southeast University, Nanjing 210009, China

Abstract BACKGROUND AND AIM: To study the biodistribution of the ¹²⁵I labeled tyrosine-multiwalled carbon nanotubes via a single tail vein injection in ICR mice. MATERIALS AND METHODS: Tyrosine-multiwalled carbon nanotubes were prepared and labeled by ¹²⁵I. Healthy adult female ICR mice received intravenous injection of ¹²⁵I marked tyrosine-multiwalled carbon nanotubes. The mice were sacrificed at 10 min, 30 min, 1 h, 6 h, 12 h, 24 h and 48 h after injection. The tissues, including the blood, heart, liver, spleen, lung, kidney, brain, muscle, bone, stomach, intestine, skin and thymus gland, were immediately dissected. Each tissue was weighed and counted for ¹²⁵I activity. The distribution in the tissues was represented by the percent of the injected dose per gram of tissue(%ID/g). RESULTS: ¹²⁵I activity was mainly detected in the lung and without significant reduction at 48 h after injection (P>0.05). The second highest level was found in the kidney but rapidly declined within 48 h (P<0.05). ¹²⁵I activity was found accumulated and remained constant in the liver and spleen. The ¹²⁵I activity was very low in blood, heart, muscle, bone, stomach, intestine, skin and thymus gland and continuous decreased within 48 h. Lastly, it was rarely detected in brain. CONCLUSION: Intravenous tyrosine-multiwalled carbon nanotubes were mainly distributed in the lung of ICR mice and might be stored in the lung, liver and spleen.

Keywords [multi-walled carbon nanotubes](#) [tyrosine](#) [125I labeling](#) [mice](#) [biodistribution](#)

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