

工程化人胃癌裸鼠原位模型的建立及其活体荧光成像观察 [\(点击查看pdf全文\)](#)

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Title: Establishment of a nude mouse model of orthotopic engineered gastric tumor and its in vivo fluorescence imaging

作者: [孙培鸣](#); [金润森](#); [杜晓辉](#); [徐迎新](#); [孙慧伟](#); [李荣](#)

Author(s): -

关键词: [胃肿瘤](#); [组织工程](#); [疾病模型](#); [原位移植](#); [裸鼠](#); [绿色荧光蛋白](#)

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摘要: 目的建立工程化人胃癌裸鼠原位模型, 并利用活体荧光成像技术进行观察。方法以胶原为支架材料, 表达绿色荧光的人

胃癌BGC823-EGFP细胞为种子细胞, 建立人胃癌体外模型; 倒置显微镜观察肿瘤细胞生长状态; 通过注射将体外模型移植到裸

鼠体内; 活体荧光成像评估胃癌原位模型的建立; 解剖观察原位肿瘤的移植成功率, 生长及转移情况; 冰冻切片及HE染色进行

组织学观察。结果工程化人胃癌体外模型中肿瘤细胞呈立体生长; 原位肿瘤成瘤率100%, 可见腹腔重要脏器转移; 组织学特征

呈典型低分化腺癌; 活体荧光观察可见原位肿瘤形成, 但效果不理想。结论建立了工程化人胃癌裸鼠原位模型; 绿色荧光成像

效果较差, 活体荧光成像观察应选用穿透力较强的荧光。

Abstract: Objective To establish a nude mouse model of orthotopic engineered gastric tumor for in vivo fluorescence imaging studies. Methods An engineered gastric tumor was constructed in vitro using collagen as the scaffold and the human gastric cancer cell line BGC823-EGFP cells expressing enhanced green fluorescence protein (EGFP) as the seed cells. The engineered tumor was then implanted into the stomach of nude mice, and the tumor growth was observed with in vivo fluorescence imaging. The nude mice were sacrificed 6 weeks after the transplantation to assess the tumor growth and metastasis, and the tumor histology was evaluated. Results The tumor cells in the engineered tumor model grew well in three-dimensional culture. The success rate of orthotopic gastric tumor implantation was 100% (10/10) in nude mice with metastasis in the abdominal organs. The isolated tumor mass, weighing 1.719 ± 0.349 g, showed a histological characteristic of poorly differentiated adenocarcinoma. In vivo fluorescence imaging detected EGFP-expressing tumors in the abdominal cavity of the

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nude mice, but not accurately. Conclusion The nude mouse model bearing orthotopic engineered gastric tumor provides a simple animal model for the study of gastric cancer, but a stronger fluorescence than green fluorescence is more desirable for more effective observation in in vivo fluorescence imaging.

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