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131I标记CD133单链抗体对人肝癌CD133 +HepG2干细胞的抑制作用 点此下载全文

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摘要：

目的：研究131I标记CD133单链抗体(single chain rariable fragment, ScFv)在体外对人肝癌CD133 + HepG2干细胞的epG2细胞，流式细胞术检测分选前后HepG2细胞的CD133表达率，克隆形成实验及体内成瘤实验验证 CD133 + HepG2细胞133 ScFv并测定标记率、比活度、放射性浓度。将分选出的CD133 + HepG2细胞分为131I-CD133抗体治疗组、131I治疗组、33抗体治疗组，MTT法检测各组中对CD133 + HepG2细胞生长抑制的最适剂量和不同药物在12、48、72 h三个时间点对CD13用，流式细胞术检测各组细胞周期的变化。结果：分选的HepG2细胞的CD133表达率显著高于未分选细胞\[（97.71±1 13）%=1.13、 P =0.000\]。CD133 + HepG2细胞相对于CD133 - HepG2细胞具有更强的体外成球、克隆形成能力\[（45 04)%； t =3.92， P =0.000\]和体内成瘤能力。131I-CD133 ScFv的标记率为88.92%，放射化学纯度为98.63%。当1抗体为1 μg/100 μl时，对CD133 + HepG2细胞的抑制率最高，达（ 89.58±0 74）%；在此剂量下131I-CD133 ScFv治长抑制率显著高于其余各实验组，且呈时间依赖性。 131I-CD133 ScFv治疗组 G 0/G 1期细胞比例为（27.50±1.12）%，0.05）。结论：成功制备的131I-CD133 ScFv在体外能有效抑制人肝癌CD133 + HepG2干细胞的生长。

关键词：肝癌干细胞 CD133 131I 单克隆抗体 单链抗体

Inhibitory effect of 131I-labeled anti-CD133 ScFv on CD133 + human hepatocellular carcinoma cells

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Abstract:

Objective:To study the inhibitory effect of the anti-CD133 single chain variable fragment (ScFv) labeled with stem cells (CSCs) sorted form human hepatocellular liver carcinoma HepG2 cells in vitro . Methods: CD133 isolated from HepG2 cells through magnetic-activated cell sorting (MACS). CD133 expression in both sorted an analyzed by flow cytometry (FCM). The property of CD133 + CSCs was validated by sphere-forming assay an vitro and tumor formation assay in nude BALB/c mice in vivo . The monoclonal antibody CD133 was labele chloramines T method and the labeling rate, specific activity and radioactivity were evaluated. CD133 + CSCs CD133 ScFv, 131I-CD133 ScFv, and 131I+CD133 ScFv. At 12, 24 and 48 hours after treatment, cell proliferatio were assessed by MTT assay and FCM respectively. Results: CD133 was detected in (97.71±1.13)% of the so but in only (1.52±0.78)% of unsorted HepG2 cells (P =0.0001). As compared with CD133 - HepG2 cells, CI a higher tumor sphere formation ability (\[45.03±1.35\]% vs \[7.4±0 54\]%, P <0.001). The 131I labe 88.92%, and the radiochemical-purity was 98.63%. A maximal CD133 + cell growth inhibition of (89.58±0.74) <0.05) when 131I was used at 3.7 MBq/100 μl and CD133 ScFv was used at 1 μg/100 μl, significantly higher t The proportion of G 0/G 1 phase arrest in cells treated with 131I-CD133 ScFv was significantly reduced as c <0 05). Conclusion: Radioisotope 131I labeled CD133 ScFv may effectively inhibit growth of CD133-positive carcinoma cells in vitro .

Keywords:liver cancer stem cell CD133 131I monoclonal antibody single chain rariable fragment(ScFv)

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