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CD137单抗联合IL-15体外扩增NK细胞及其对肺癌细胞的杀伤活性 点此下载全文

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摘要：

目的：建立CD137单抗联合IL-15体外扩增NK细胞的方案，研究扩增后NK细胞对肺癌细胞的杀伤活性。方法：分离健康人外周血单个核细胞，经免疫磁珠阴性分选获取CD3 -CD56 +NK细胞，将NK细胞分成对照组、IL-2组、IL-2+CD137单抗组、IL-2+IL-15组、IL-2+CD137单抗+IL-15组进行培养，经锥虫蓝染色法计算NK细胞的扩增倍数，流式细胞术检测NK细胞的表型，LDH酶释放法检测NK 细胞对肺癌细胞株A549的杀伤活性，ELISA法检测扩增后NK细胞培养液上清中IFN-γ的分泌量。结果：经磁珠分选后NK细胞纯度为（93.28±3.21）%。IL-2+CD137单抗+IL-15组NK细胞扩增倍数明显高于IL-2+CD137单抗组、IL-2+ IL-15组、IL-2组及对照组\[（86.20±5.00) vs (60.01±5.00)、(49.06±4.39)、(17.04± 1.49)、(3.95+0.23)倍，P<0.01\]。IL-2+CD137单抗+IL-15组NK细胞对A549细胞的杀伤效率明显高于其他各组\[(93.14±3.27)% vs (83.15±4.03)%、（71.25±3.24)%、（62.27±3.01)%、（49.38±2.35)%, P<0.01\]。IL-2+ CD137单抗+IL-15组培养液上清中的IFN-γ的分泌水平明显高于IL-2+ CD137单抗组、IL-2+ IL-15组、IL-2组及对照组\[（296.25±9.79）vs （260.47±11.55）、（201.13±6.36）、（138.36±6.09）、（38.42±3.56） pg/ml, P<0.01\]。结论：CD137单抗联合IL-15能高效扩增NK细胞，扩增的NK细胞高效杀伤A549肺癌细胞。

关键词：NK细胞 CD137单抗 IL-15 IFN-γ 肺癌细胞

In vitro expansion of NK cells by combination of CD137 monoclonal antibody and IL-15 and their cytotoxicity against lung cancer cells Download Fulltext

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Abstract:

Objective:To explore an in vitro expansion method of NK cells by CD137 monoclonal antibody combination with IL-15, and to study the cytotoxicity of expanded NK cells against lung cancer cells. Methods:CD3 -CD56 +NK cells were isolated from peripheral blood mononuclear cells (PBMCs) using negative MACS, and divided into five groups: a control group, IL-2, IL-2+ CD137mAb, IL-2+IL-15, and IL-2+IL-15+ CD137mAb groups. The expansion, phenotype and cytotoxicity of lung cancer A549 cells and IFN-γ secretion of NK cells were evaluated by MTT, FACS, LDH, and ELISA, respectively. Results: The purity of NK cells increased to (93.28+3.21)% after MACS sorting. In group IL-2+IL-15+CD137mAb, the NK cells were expanded obviously higher than were those in IL-2+CD137mAb, IL-2+IL-15, IL-2 and control groups（86.20±5.00 vs 60.01±5.00, 49.06±4.39, 17.04±1.49, 3.95+0.23, P<0.01). The cytotoxicity of expanded NK cells in group IL-2+IL-15+CD137mAb was significantly higher than that in the other groups (\[93.14±3 27\]% vs \[83.15±4 03\]%, \[7125±3.24\]%, \[62.27±3.01\]%, \[49.38±2.35\]%, P<0.01). In group IL-2+IL-15+CD137mAb, the IFN-γ level in cell supernatant was significantly higher than that in IL-2+CD137mAb, IL-2+IL-15, IL-2 and control groups (\[296.25±9.79\] vs \[260.47±11.55\], \[201.13±6.36\], \[138.36±6.09 \], \[38.42±3.56\] pg/ml; P<0.01).Conclusion: CD137 monoclonal antibody combination with IL-15 can efficiently expand NK cells with an effective cytotoxicity on lung cancer A549 cells.

Keywords:natural killer cell CD137mAb IL-15 IFN-γ lung cancer cell

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