

[1]吴畏,徐海伟,屈娅,等.微流控电融合芯片的研制及其在体细胞重编程中的应用[J].第三军医大学学报,2013,35(01):29-33.

Wu Wei,Xu Haiwei,Qu Ya,et al.Development of microfluid cell electro-fusion chip and its application in somatic cell reprogramming [J].J Third Mil Med Univ,2013,35(01):29-33.

[点击复制](#)

## 微流控电融合芯片的研制及其在体细胞重编程中的

《第三军医大学学报》[ISSN:1000-5404/CN:51-1095/R] 卷: 35 期数: 2013年第01期 页码: 29-33  
栏目: 论著 出版日期: 2013-01-15

Title: Development of microfluid cell electro-fusion chip and its application in somatic cell reprogramming

作者: [吴畏](#); [徐海伟](#); [屈娅](#); [张小玲](#); [胡宁](#); [阴正勤](#)  
第三军医大学西南医院全军眼科中心, 视觉损伤与再生修复重庆市重点实验室; 重庆大学生物工程学院

Author(s): [Wu Wei](#); [Xu Haiwei](#); [Qu Ya](#); [Zhang Xiaoling](#); [Hu Ning](#); [Yin Zhengqin](#)  
Department of Ophthalmology, Key Lab of Visual Damage and Regeneration & Restoration of Chongqing, Southwest Hospital, Third Military Medical University, Chongqing, 400038; College of Bioengineering, Chongqing University, Chongqing, 400030, China

关键词: [电融合](#); [体细胞重编程](#); [微流控芯片](#); [胚胎干细胞](#)

Keywords: [electro-fusion](#); [somatic cells reprogramming](#); [microfluid chips](#); [embryonic stem cells](#)

分类号: Q319; R394-33; R394.3

文献标志码: A

摘要: 目的 开发高通量的细胞电融合平台,并通过此平台将小鼠胚胎干细胞(mouse embryonic stem cells, mESCs)与体细胞融合,探讨融合细胞的多能性。方法 本实验室自主研发微流控芯片,将转染了绿色荧光的mESCs与转染了红色荧光的NIH3T3细胞进行电融合,并计算其排队率与融合率。通过流式细胞仪筛选出表达两种荧光的融合细胞,观察融合细胞的表型。RT-PCR检测NIH3T3、mESC以及融合细胞的多能性基因(Nanog、OCT4、SOX2和LIN28) mRNA的表达水平。结果 自主研发了微流控芯片,构建了高通量的细胞电融合平台,通过此平台将mESCs与NIH3T3进行电融合,其排队率为(44.35±10.99)%,融合率为(59.88±20.03)%,融合细胞可形成类似于ESC样的克隆。RT-PCR法结果显示mESC和融合细胞均表达多能性基因Nanog、OCT4、SOX2和LIN28 mRNA,而NIH3T3不表达。结论 通过自主研发的微流控芯片,可实现mESCs与NIH3T3的高效融合,使体细胞重编程为多能性干细胞。

Abstract: Objective To establish a high throughput cell electro-fusion platform, by which to fuse mouse embryonic stem cells (mESCs) with somatic cells, and to explore the pluripotency of the fused cells. Methods With the microfluid chip developed by our lab, we fused the mESCs carrying GFP with

导航/NAVIGATE

[本期目录/Table of Contents](#)

[下一篇/Next Article](#)

[上一篇/Previous Article](#)

工具/TOOLS

[引用本文的文章/References](#)

[下载 PDF/Download PDF\(1147KB\)](#)

[立即打印本文/Print Now](#)

[查看/发表评论/Comments](#)

[导出](#)

统计/STATISTICS

[摘要浏览/Viewed](#) 302

[全文下载/Downloads](#) 109

[评论/Comments](#)

[RSS](#) [XML](#)

NIH3T3 cells carrying RFP, and explored the alignment efficiency and electro-fusion efficiency. The fused cells were sorted by flow cytometry (FACS) and observed under a microscope. The mRNA levels of Nanog, Oct4, Sox2 and Lin28 in the three types of cells were detected by RT-PCR. Results A high throughput cell electro-fusion platform was developed. The alignment and electro-fusion efficiencies of mESCs and NIH3T3 fused cells were  $(44.35 \pm 10.99)\%$  and  $(59.88 \pm 20.03)\%$ , respectively. The fused cells can form embryonic stem cell-like clones. The RT-PCR results showed mESCs and fused cells rather than NIH3T3 cells could express Nanog, Oct4, Sox2 and Lin28. Conclusion Using the microfluidic chip developed by our lab, the mESCs and NIH3T3 cells can be fused efficiently to reprogram somatic cells as pluripotent stem cells.

---

#### 参考文献/REFERENCES:

吴畏, 徐海伟, 屈娅, 等. 微流控电融合芯片的研制及其在体细胞重编程中的应用[J]. 第三军医大学学报, 2013, 35(1): 29-33.

---

更新日期/Last Update: 2012-12-31