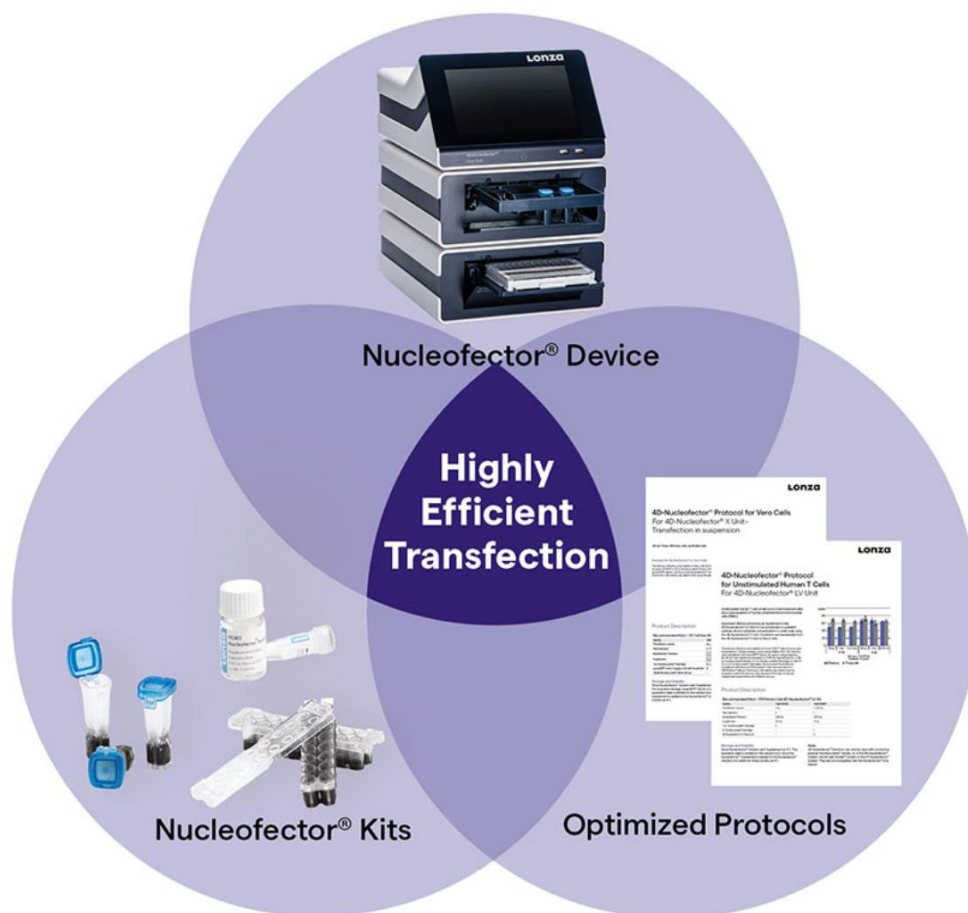


# LONZA核转染技术简介



Lonza Bioscience 简介

Lonza Nucleofector™ 技术

LONZA核转染技术简介

设备耗材简介

使用LONZA官网找到所需的信息

## Lonza龙沙公司简介

**“在生命科学领域提供合同生产和开发服务的全球领先者和值得信赖的供应商”**

**Lonza**



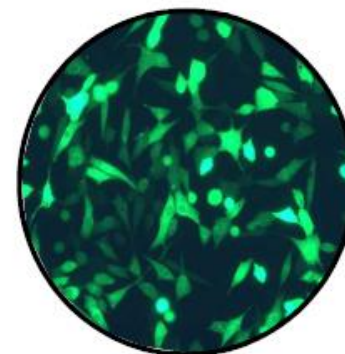
**Lonza:**  
提供者

**Lonza**

您的原代细胞、培养基以及转染的专业方案



Animal (Eukaryotic) Cell



Clonetics™ 系列原代  
细胞 & 培养基

Poietics™ 系列干细  
胞 & 培养基

疾病状态的细胞

定制细胞分离服务

特殊培养基

4D Nucleofector™ 设备  
与试剂盒

X 单元

96-孔Shuttle™系统

LV单元: 大规模转染

Y单元: 24-孔贴壁转染

384-孔高通量

Nucleofector™ 系统

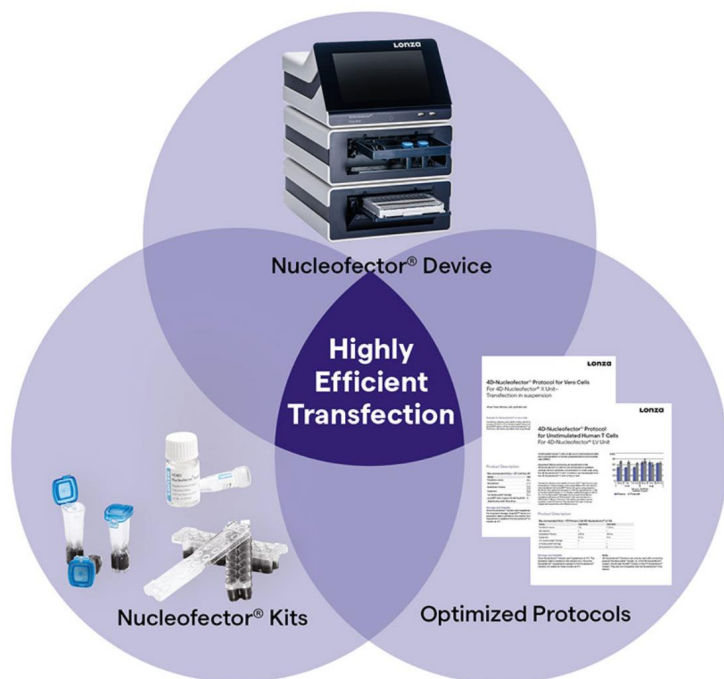
MycoAlert™ 支原体检  
测

ViaLight™ 细胞增殖  
分析

ToxiLight™ 细胞毒  
性测定

# 先进的转染： 专利的Nucleofector™ 技术

## 外源基因转染的整体解决方案



### 独特的组合:

- **Nucleofector™ 硬件**

包含为每种优化的细胞类型预编程的独特电参数，可将底物直接输送到细胞核和细胞质中。我们提供的不同平台为各种应用提供不同的规格。

- **特定的Nucleofector™ 试剂盒**

包含专用的 **Nucleofector™** 试剂。这些充当高转染效率和细胞活力保护的环境，同时保持生理相关的细胞条件。还提供了指定的核转染容器、移液管和荧光阳性对照载体（**pmaxGFP** 对照载体）。

- **详细的预优化的实验方案**

优化的实验方案为最佳 **Nucleofection™** 条件提供全面指导，以及有关细胞来源、传代、生长条件和培养基以及转染后培养的提示。

**实现卓越的转染性能的同时维持细胞的功能性！**

\*NOTE: Nucleofector™ Kits and Devices are for research use only and are not intended for human therapeutic or diagnostic use

# 总结-Nucleofector® 技术

## 核心

DNA的高效非病毒递送直接进入原代细胞和细胞系的细胞核

## 主要优势

1. **高转染效率和生存能力**
2. **维持细胞功能**
3. 允许转染**非分裂**细胞，入神经元
4. 底物的核转染使基因的表达**独立于细胞分裂**和**更快的基因表达**
5. **优化的即插即用型**
6. **多功能性**-可转染原代细胞或细胞系中的质粒DNA、DNA oligos、mRNA、肽段、RNP
7. 使用相同的转染条件**可扩展**到更高通量或更大体积

# Nucleofector™ 设备平台

## 适应客户需求

|             | 优化/生产                                                                              |                                                                                    |                                                                                      | 高通量筛选                                                                                 |                                                                                       |
|-------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|             | 悬浮                                                                                 |                                                                                    | 贴壁                                                                                   | 悬浮                                                                                    |                                                                                       |
| *用于原位贴壁电转流程 |   |   |   |    |    |
| 模块          | 4D-Nucleofector™<br>LV Unit                                                        | 4D-Nucleofector™<br>X Unit                                                         | 4D-Nucleofector™<br>Y Unit*                                                          | 4D-Nucleofector™<br>96-Well Unit                                                      | 384-well<br>4D-Nucleofector™<br>System                                                |
| 通量          | 非常低                                                                                | 低-中等                                                                               | 中等                                                                                   | 高                                                                                     | 非常高                                                                                   |
| 反应体系        |  |  |  |  |  |
| 细胞数量        | $10^7$ to $10^9$                                                                   | 20µl: $10^4$ to $10^6$<br>100µl: $10^5$ to $10^7$                                  | $10^4$ to $10^5$                                                                     | $10^4$ to $10^6$                                                                      | $10^4$ to $10^6$                                                                      |



# 先进的模块化转染平台： 4D-Nucleofector™ X 模块 – 具有广泛兼容性的模块

## 操作简单灵活

不同的转染体系（20μl 与100μl）使用相同的操作手册

100μl 体系可转染细胞数量可达 $2 \times 10^7$

20μl 体系可转染细胞数量最少可至 $2 \times 10^4$

## 通量多元化

样本处理量1-16 个

可平行进行1-2 个 100μl 样品

可为100μl 和20μl 样品预设50个以上的参数

可根据需求选择20μl 体系，降低成本



## 转染原代细胞

5 种试剂盒可覆盖所有原代细胞类型

转染优化实验更加简单便捷（存在于数据库中的细胞，无需进行条件优化）

## 保护细胞功能

4D 系统采用导电聚合物电极，不会产生金属离子泄露，保护细胞不受损伤





# 先进的模块化转染平台：

## 4D-Nucleofector™ Y 模块 – 贴壁细胞转染模块

**Y Unit – 细胞能够在贴壁状态下直接转染只需要将细胞培养在24 孔板中，在转染时将电极板插入即可。**



转染前后，细胞始终置于24 孔板中

可在细胞生长的任何时期进行转染

无需消化，成活率高，转染效率最高可达70%

与Cloneitcs 原代动物神经元细胞兼容

简化试剂盒，我们提供了两种转染试剂AD1 和AD2，可适用于所有细胞类型

也适用于其他类型细胞和应用

内皮细胞

成纤维细胞

心肌细胞

巨噬细胞

血管组织

...



# 先进的模块化转染平台： 96-well Shuttle™ 系统



## 96-well shuttle – 小体积，中通量Nucleofector模块

每个板可运行多达96个独立程序，在 < 5分钟内自动处理  
模块化6 × 16 Nucleocuvette plate可实现通量的扩展  
优化任何难以转染的细胞系，只需1个板  
每个反应 $10^4$ - $10^6$ 个细胞数  
可以与液体处理系统/工作站整合实现自动化



# 针对不同实验设计的独特耗材——4D

100  $\mu$ l Nucleocuvette™



$10^5 - 10^6$  cells

20  $\mu$ l Nucleocuvette™ Strip



$10^4 - 10^6$  cells

Suspension Nucleofection™

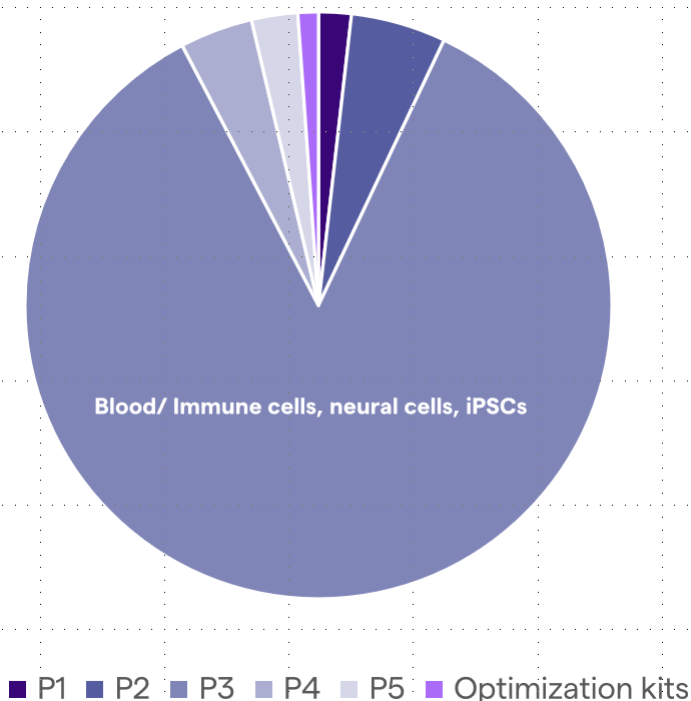
导电聚合材料代替传统金属电极，拒绝金属离子危害细胞

悬浮转染，20ul体系、100ul体系满足不同细胞量需求

电转液：solution:supplement = 4.5:1，现用现配，配好后4℃保存3个月

# 4D-Nucleofector® Primary Cell Kits

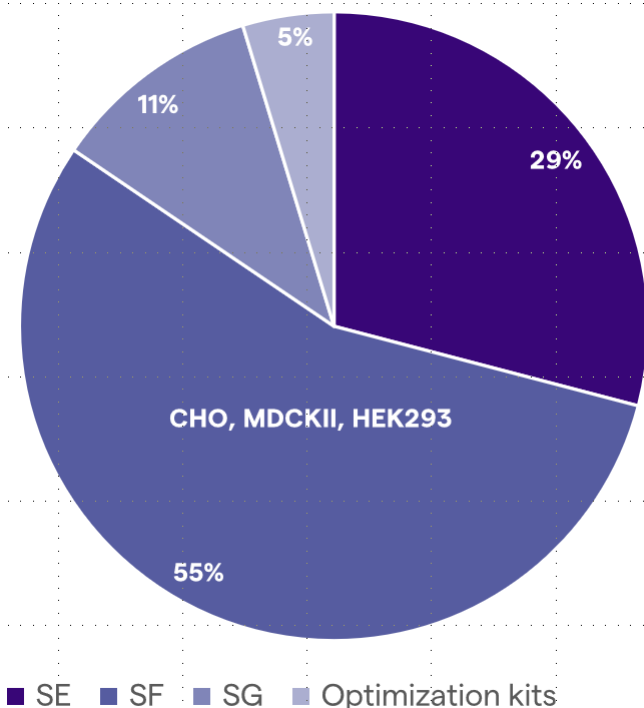
Share of sales for the primary cell kits: P1, P2, P3, P4, P5



| Kits | Primary Cell Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P1   | ADSC undiff. (human), <a href="#">MSC (human)</a> , Preadipocytes (human), <a href="#">PrEC (human)</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| P2   | Macrophage (mouse), <a href="#">NHDF (human)</a> , <a href="#">neonatal</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| P3   | <a href="#">B cell (human)</a> , <a href="#">CD34+ cell (human)</a> , <a href="#">Chondrocyte (human)</a> , DC (human), <a href="#">DC (mouse)</a> , <a href="#">mature</a> , <a href="#">ES (human)</a> , <a href="#">H9</a> , <a href="#">ES (mouse)</a> , <a href="#">Hepatocyte (human)</a> , <a href="#">HMEC (human)</a> , <a href="#">Keratinocyte (human)</a> , <a href="#">Macrophage (human)</a> , <a href="#">Monocyte (human)</a> , <a href="#">Neuron (rat)</a> , brain Hi/Cx, <a href="#">NHBE (human)</a> , RPE (human), <a href="#">T cell (human)</a> , <a href="#">stim.</a> , <a href="#">T cell (human)</a> , <a href="#">unstim.</a> , <a href="#">T cell (mouse)</a> , <a href="#">unstim.</a> |
| P4   | <a href="#">B cell (mouse)</a> , <a href="#">DC (mouse)</a> , <a href="#">immat.</a> , <a href="#">MEF (mouse)</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| P5   | <a href="#">HUVEC</a> , Skeletal Myoblast, hum.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

## 4D-Nucleofector® Primary Cell Kits

Share of sales of the cell line kits: SF, SE, SG



| Kits | Cell Line                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SF   | 293-F (FreeStyle), 32D <a href="#">A-20</a> , A2058, <a href="#">A375</a> , <a href="#">A431</a> , <a href="#">A549</a> , <a href="#">AGS</a> , ARPE-19, BetaTC/6, BxPC-3, <a href="#">C6</a> , CCRF-CEM, <a href="#">CHO-K1</a> , <a href="#">CHO-S</a> (Invitrogen), <a href="#">Cos-1</a> , EL4, FDC-P1, H9c2 (2-1), HEK293, <a href="#">Hel9217</a> , <a href="#">HepG2</a> , High 5, <a href="#">HL-60</a> , <a href="#">HMC-1-8</a> , HT-1080, HT-29, <a href="#">Hut-78</a> , HUV-EC-C, <a href="#">IMR-32</a> , <a href="#">J774A.1</a> , <a href="#">K-562</a> , <a href="#">KG-1</a> , <a href="#">L-428</a> , LNCaP, MDA-MB-453, <a href="#">MDBK</a> , <a href="#">Molt-4</a> , MV-4-11, <a href="#">Nalm-6</a> , NB-4, <a href="#">NCI-H1299</a> [H1299], <a href="#">Neuro-2a</a> [N2a], NG108-15, <a href="#">NS0</a> , <a href="#">P19</a> , P815, <a href="#">PC-12</a> , <a href="#">PC-3</a> , <a href="#">Raw 264.7</a> , RBL-1, <a href="#">RBL-2H3</a> , Reh, <a href="#">Rin m5F</a> , RPMI 8226, S2, <a href="#">S49</a> , <a href="#">SaOS</a> , SF9, <a href="#">SH-SY5Y</a> , <a href="#">SK-BR-3</a> , <a href="#">SK-N-AS</a> , <a href="#">SK-N-MC</a> , <a href="#">SK-N-SH</a> , <a href="#">SK-OV-3</a> , <a href="#">Sp2/O-Ag14</a> , SW480, T2, T84, TF-1, U266B1, <a href="#">U-937</a> , <a href="#">Vero</a> |
| SE   | <a href="#">3T3-L1, diff.</a> , <a href="#">3T3-L1, undiff.</a> , A-10, <a href="#">A7r5</a> , BHK-21, BJ, <a href="#">C2C12</a> , <a href="#">CaCo-2</a> , <a href="#">Calu-3</a> , Capan-1, <a href="#">Cos-7</a> , DU145, GH3, HCT116, HeLa, <a href="#">HeLa S3</a> , <a href="#">IMR-90</a> , Jurkat (DSMZ), <a href="#">Jurkat E6.1</a> , KG-1a, <a href="#">L6</a> , <a href="#">MCF7</a> , <a href="#">MDA-MB-231</a> , MDA-MB-468, <a href="#">MDCK</a> , MDCK II, <a href="#">MEG-01</a> , <a href="#">MG-63</a> , MRC-5, NCTC clone 929, <a href="#">Panc-1</a> , T/G-HA VSMC, <a href="#">T-47D</a> , U2OS, <a href="#">U-87 MG</a> , <a href="#">WI-38</a> , <a href="#">T84</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| SG   | <a href="#">Ba/F3</a> , Colo-205, <a href="#">CHO-S</a> , H4, NIH/3T3, <a href="#">Raji</a> , <a href="#">Ramos</a> , <a href="#">THP-1</a> , WEHI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

## 如何开始实验?

### 第一步: 访问Lonza的开放数据库

- Lonza Knowledge Center:  
<https://knowledge.lonza.com/>
- 超过 650 种即用型协议
- 输入细胞类型并勾选筛选项“Transfection”
- 点击“See Transfection Data”
- 筛选目的平台
  - 下载优化好的协议或
  - 尝试表中提供的条件或
- 没有数据可用时
  - 参考优化协议或
  - 联系我们 [bioscience.china@lonza.com](mailto:bioscience.china@lonza.com)

**Lonza**

CD34

2 results sorted by newest first

**Data Type**

- ☒ Cell Information (2)
- ☐ Citations (0)
- ☐ FAQ (0)
- ☐ Culture Media (0)

**Category**

- ☐ Primary Cells and Media (2)
- ☒ Transfection (2)

**CD34+ cell, human**

Hematopoietic stem cells isolated from peripheral blood, bone marrow, cord blood or fetal liver. **CD34** is a known marker for hematopoietic progenitor cells. As these cells mature and differentiate, **CD34** expression is lost.

[See Transfection Data](#)

**CD133+, human**

CD133+ are subset of **CD34+** (hematopoietic stem cells isolated from peripheral blood, bone marrow, cord blood or fetal liver.)

[See Transfection Data](#)

**Transfection Information**

[Lonza Optimized Protocol](#)

[Optimization Guideline](#)

Filter:

The table below shows data for the cell type and Nucleofector™ Platform selected. Those data are either based on Lonza Optimized Protocols or on results shared from customers who performed an optimization based on our guidelines. In case no data are shown for the selected Nucleofector™ Platform, please take a look at our optimization strategy to get further guidance on how to easily determine optimal Nucleofection conditions yourself.

| Protocol | Kit          | Program   | Cells | Efficiency | Viable Cells | Substrate         | Format | Platform |
|----------|--------------|-----------|-------|------------|--------------|-------------------|--------|----------|
|          | P3           | 96-EO-100 | 5e4   | 78-88%     | 56-68%       | Plasmid (general) | 0.4 µg | 20 µl    |
|          | CD34+, human | U-008     | 1e6   | 60-82%     |              | Plasmid (general) | µg     | 100 µl   |
|          | P3           | EO-100    | 5e4   | 62-70%     | 79-91%       | Plasmid (general) | 0.4 µg | 20 µl    |

# 如何使用网站工具找到所需的信息

← → http://knowledge.lonza.com/search-results?search=293&type=Cell Information&type=Citations&type=FAQ Transfection Search Results

## Lonza

293

133 results sorted by relevance

### Data Type

- ☒ Cell Information (7)
- ☒ Citations (120)
- ☒ FAQ (5)
- ☐ Culture Media (1)

### Category

- ☒ Transfection (85)
- ☐ Primary Cells and Media (28)
- ☐ Classical Media and Reagents (27)
- ☐ Serum-free and Speciality Media (27)
- ☐ Cell Lines and Primary Cancer Cells (7)
- ☐ Electrophoreses and Analysis (3)
- ☐ Bioassay (2)

### Research Area

- ☐ Cancer Research/Cell Biology (42)
- ☐ Basic Research (41)



#### Pro293

Pro293 Chemically Defined, Serum-free Media were optimized to support high-density growth and recombinant protein production in **293** human kidney cells. They are chemically defined to ease regulatory compliance and downstream protein purification...



#### 293

Also called HEK**293**. Embryonic kidney cells transformed by adenovirus type 5  
[See Transfection Data](#)



#### 293H

The **293-H** strain is a variant of the **293** cell line that demonstrates better adherence in monolayer culture and ease of use for plaque assays and other anchorage dependent applications  
[See Transfection Data](#)



#### EcR293

Derived from HEK **293** cells. Stably expresses pVgRXR, which encodes a heterodimer of the ecdysone receptor and the retinoid X receptor.  
[See Transfection Data](#)

http://knowledge.lonza.com/cell?id=46&search=293#transfection\_information

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# 如何使用网站工具找到所需的信息

← → http://knowledge.lonza.com/cell?id=46&search=293#transfection\_information Transfection cells

Optimization Guideline

Filter: Any Substrate Any Platform

The table below shows data for the cell type and Nucleofector™ Platform selected. Those data are either based on Lonza Optimized Protocols or on results shared from customers who performed an optimization based on our guidelines. In case no data are shown for the selected Nucleofector™ Platform, please take a look at our [optimization strategy](#) to get further guidance on how to easily determine optimal Nucleofection conditions yourself.

| Protocol | Kit | Program   | Cells | Efficiency | Viable Cells | Substrate         | Platform         |
|----------|-----|-----------|-------|------------|--------------|-------------------|------------------|
|          | SF  | 96-CM-130 | 2e5   | 83% ±9     | 93% ±4       | Plasmid (general) | 0.4 µg Shuttle   |
|          | V   | A-023     | 1e6   | 36% ±12    |              | Plasmid (general) | 1 µg I/II/2b     |
|          | V   | A-023     | 1e6   | 57% ±16    |              | Plasmid (general) | 1 µg I/II/2b     |
|          | V   | Q-001     | 1e6   | 81% ±5     |              | Plasmid (general) | 5 µg I/II/2b     |
|          | V   | Q-001     | 1e6   | 84% ±1     |              | Plasmid (general) | 5 µg I/II/2b     |
|          |     |           | 1e5   | 31%        | 100%         | Plasmid (general) | 1 µg             |
|          |     |           |       | 80%        |              | Plasmid (general) |                  |
|          | SF  | CM-130    | 2e5   | 92.7% ±1   | 88.7% ±5     | Plasmid (general) | 0.4 µg 4D X-Unit |
|          | SF  | CM-130    | 1e6   | 88.6% ±5   | 72.6% ±5     | Plasmid (general) | 2 µg 4D X-Unit   |
|          | SF  | CA-137    | 2e5   | 70-80%     | +++          | Plasmid (general) | 0.4 µg 4D X-Unit |
|          | SF  | CM-130    | 2e5   | 70-80%     | +++          | Plasmid (general) | 0.4 µg 4D X-Unit |

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# 如何使用网站工具找到所需的信息



## Citations (46)

### Targeted deletion of BMK1/ERK5 in adult mice perturbs vascular integrity and leads to endothelial failure

**Categories:** Transfection  
**Authors:** Hayashi M, Kim SW, Imanaka-Yoshida K, Yoshida T, Abel ED, Eliceiri B, Yang Y, Ulevitch RJ and Lee JD  
**In:** J Clin Invest (2004) 113(8): 1138-48

### New non-viral method for gene transfer into primary cells

**Categories:** Transfection  
**Authors:** Gresch O, Engel FB, Nescic D, Tran TT, England HM, Hickman ES, Korner I, Gan L, Chen S, Castro-Obregon S, Hammermann R, Wolf J, Muller-Hartmann H, Nix M, Siebenkotten G, Kraus G and Lun K  
**In:** Methods (2004) 33(2): 151-163

### Apolipoprotein E is required for cell proliferation and survival in ovarian cancer

**Categories:** Transfection  
**Authors:** Chen YC, Pohl G, Wang TL, Morin PJ, Risberg B, Kristensen GB, Yu A, Davidson B and Shih IeM  
**In:** Cancer Res (2005) 65(1): 331-337

### The low density lipoprotein receptor-related protein (LRP) is a novel beta-secretase (BACE1) substrate

**Categories:** Transfection  
**Authors:** von Arnim CA, Kinoshita A, Peltan ID, Tangredi MM, Herl L, Lee BM, Spoelgen R, Hshieh TT, Ranganathan S, Battey FD, Liu CX, Bacskai BJ, Sever S, Irizarry MC, Strickland DK and Hyman BT  
**In:** J Biol Chem (2005) 280(18): 17777-17785

### Exocytosis of CTLA-4 Is Dependent on Phospholipase D and ADP Ribosylation Factor-1 and Stimulated during Activation of Regulatory T Cells

**Categories:** Transfection  
**Authors:** Mead KI, Zheng Y, Manzotti CN, Perry LC, Liu MK, Burke F, Powner DJ, Wakelam MJ and Sansom DM  
**In:** J Immunol (2005) 174(8): 4803-4811

### c-Jun NH2-terminal kinase-interacting protein-3 facilitates phosphorylation and controls localization of amyloid-beta precursor protein

**Categories:** Transfection  
**Authors:** Muresan Z and Muresan V

**Thank You for Your Kind Attention!**

