

# LXgeo 的使用

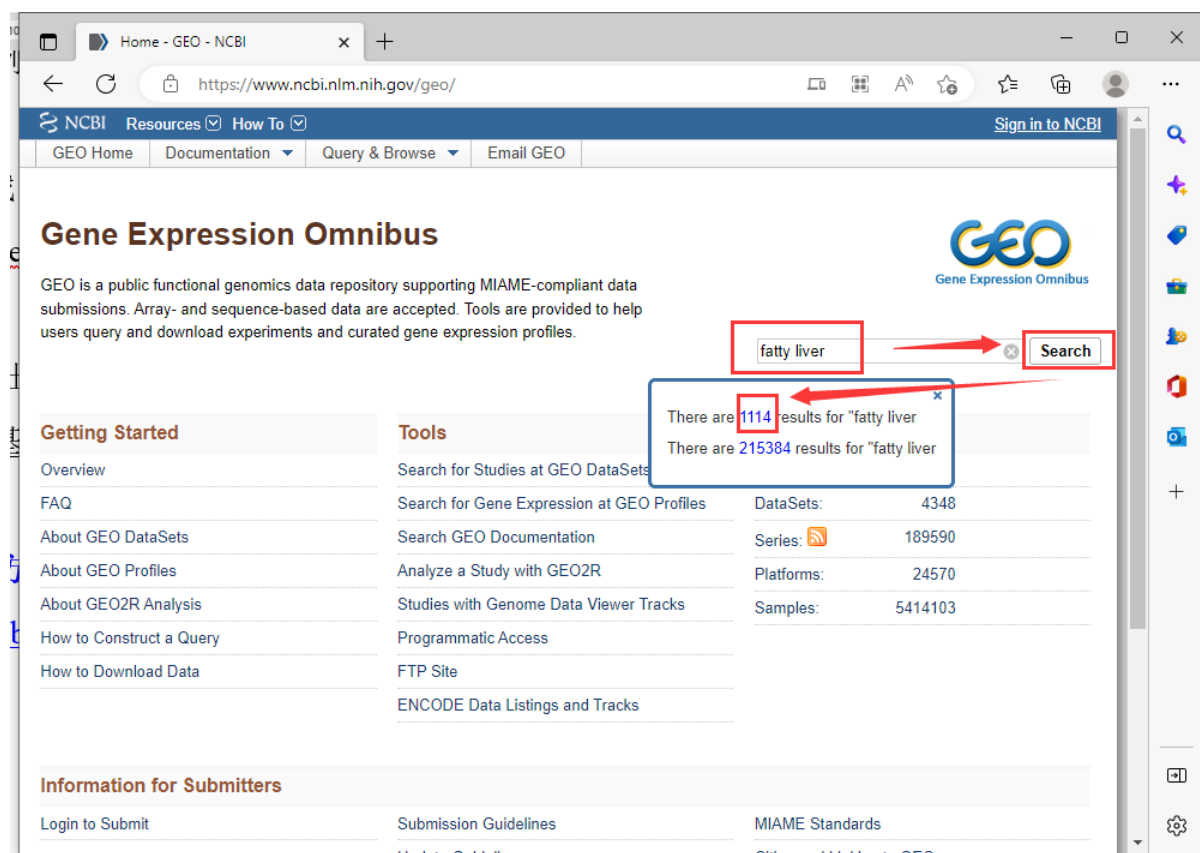
林兴 2023.4.15

**一、制作 LXgeo 的目的：** 在没有开展转录组测序的情况下，如何快速知道哪些基因参与了疾病的调控。例如，想开展延龄草苷抗非酒精性脂肪肝（NAFLD）的研究，可以这么操作：

- （1）利用 LXgeo 找出正常组与模型组的差异基因，即疾病相关基因；
- （2）用 pharmpaper、targetnet、CTD、SEA 等在线数据库查找延龄草苷 targets，即药物靶基因；
- （3）用 LXvenn 筛出 疾病相关基因 和 药物靶基因 的共同基因，即两者的交集基因，然后，用交集基因作 LXkegg 分析，确定研究哪个代谢通路/信号通路。

## 二、LXgeo 的使用方法：

- （1）<https://www.ncbi.nlm.nih.gov/geo/> 查找疾病关键词，设定查找条件：



fatty liver - GEO DataSets - NCBI

https://www.ncbi.nlm.nih.gov/gds

National Library of Medicine  
National Center for Biotechnology Information

筛选条件: 如 小鼠, 基因列表、转录组

GEO DataSets

Search: fatty liver

Entry type: DataSets (0)  
Series (245)  
Samples (0)  
Platforms (0)

Organism: Customized ...

Study type: clear  
Expression profiling by array  
Methylation profiling by array  
Customize ...

Author: Customize ...

Attribute name: Tissue (180)  
Strain (120)  
Customize ...

Publication dates: 30 days  
1 year

Search results  
Items: 1 to 20 of 245

Filters: Manage Filters

Top Organisms [Tree]  
Mus musculus (180)  
Homo sapiens (42)  
Rattus norvegicus (17)  
Danio rerio (2)  
Mesocricetus auratus (1)  
More...

Find related data  
Database: Select  
Find items

Search details  
("fatty liver"[MeSH Terms] OR fatty liver[All Fields]) AND ("gse"[Filter] AND "Expression profiling by array"[Filter])

NIK/MAP3K14 in hepatocytes orchestrates NASH to hepatocellular carcinoma progression via JAK2/STAT5 inhibition

(Submitter supplied) Nonalcoholic fatty liver disease (NAFLD) ranges from steatosis to nonalcoholic steatohepatitis (NASH), that often progresses to hepatocellular carcinoma (HCC) through a largely undefined mechanism. NASH and HCC both depend on inflammatory signaling whose master regulator is the NFkB transcription factor family, activated by canonical and non-canonical pathways. Here, we investigated non-canonical NFkB-inducing kinase (NIK/MAP3K14) in metabolic NASH, NASH to HCC transition as well as in DEN-induced HCC. more...

Organism: Homo sapiens  
Type: Expression profiling by array  
Platform: GPL10558 12 Samples  
Download data: TXT  
Series Accession: GSE146049 ID: 200146049  
PubMed Analyze with GEO2R

(2) 选出合适的芯片 (GSE): 同时含有基因表达矩阵和基因 symbol

基因表达矩阵: 芯片 GSE205390, 检测平台 GPL1261

(fatty liver) AND "Mus musculus"

https://www.ncbi.nlm.nih.gov/gds

Download data: CEL, CHP  
Series Accession: GSE198173 ID: 200198173  
PubMed Full text in PMC Similar studies Analyze with GEO2R

IkB $\zeta$  Regulates the Development of Nonalcoholic Fatty Liver Disease through the Attenuation of Hepatic Steatosis in Mice

(Submitter supplied) IkB $\zeta$  is a transcriptional regulator that augments inflammatory responses from the Toll-like receptor or interleukin signaling. These innate immune responses contribute to the progression of nonalcoholic fatty liver disease (NAFLD); however, the role of IkB $\zeta$  in the pathogenesis of NAFLD remains elusive. We investigated whether IkB $\zeta$  was involved in the progression of NAFLD in mice. We generated hepatocyte-specific IkB $\zeta$ -deficient mice (Alb-Cre; Nfkbiz1/fl) by crossing Nfkbiz1/fl mice with Alb-Cre transgenic mice. more...

Organism: Mus musculus  
Type: Expression profiling by array  
Platform: GPL1261 6 Samples  
Download data: CEL  
Series Accession: GSE205390 ID: 200205390  
Analyze with GEO2R

检测平台

芯片号

内容合适

GSM6211295 Liver\_Luciferase\_4w\_rep3

Relations  
BioProject PRJNA844960

Analyze with GEO2R

Download family  
SOFT formatted family file(s)  
MINIML formatted family file(s)  
Series Matrix File(s)

Format  
SOFT [?] [?]  
MINIML [?]  
TXT [?]

Supplementary file

Supplementary file	Size	Download	File type/resource
GSE205390_RAW.tar	19.4 Mb	(http)(custom)	TAR (of CEL)

Raw data provided as supplementary file  
Processed data included within Sample table

基因表达矩阵

NLM | NIH | GEO Help | Disclaimer | Accessibility |  
HHS Vulnerability Disclosure



### (3) 安装和运行 LXgeo

# 安装 LXgeo

```
if(!requireNamespace("devtools"))
```

```
  install.packages("devtools")
```

```
library(devtools)
```

```
install_github("gluck4668/LXgeo")
```

```
library(LXgeo)
```

??LXgeo #查看使用方法

```
rm(list=ls())
```

```
setwd("D:/Desktop/R_example/LXgeo_example")
```

```
GSE_id="GSE205390" # https://www.ncbi.nlm.nih.gov/geo/query/acc.cgi
```

```
Platforms="GPL1261" # Please check if there is the gene symbol.
```

```
LXgeo(GSE_id, Platforms)
```