

# 107-2 系統生物學概論 軟體/套件安裝教學

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助教：李伯詮

[zunmatched@gmail.com](mailto:zunmatched@gmail.com)

# 軟體/套件列表

- R
- RStudio
- R套件:  
Bioconductor(GEOquery, oligo, limma, DESeq2)  
pheatmap, ggfortify
- JAVA
- GSEA
- Cytoscape

R

Google: R → [The R Project for Statistical Computing](#)



# The R Project for Statistical Computing

## Getting Started

[\[Home\]](#)

**Download**

[CRAN](#)

**R Project**

[About R](#)

R is a free software environment for statistical computing and graphics. It compiles and runs on a wide variety of UNIX platforms, Windows and MacOS. To [download R](#), please choose your preferred CRAN mirror.

If you have questions about R like how to download and install the software, or what the license terms are, please read our [answers to frequently asked questions](#) before you send an email.

找到"**Taiwan**"後  
任選一個進入

**Taiwan**

<https://ftp.yzu.edu.tw/CRAN/>  
<http://ftp.yzu.edu.tw/CRAN/>  
<http://cran.csie.ntu.edu.tw/>

Department of Computer Science and Engineering, Yuan Ze University  
Department of Computer Science and Engineering, Yuan Ze University  
National Taiwan University, Taipei

## The Comprehensive R Archive Network

### Download and Install R

Precompiled binary distributions of the base system and contributed packages, **Windows and Mac** users most likely want one of these versions of R:

- [Download R for Linux](#)
- [Download R for \(Mac\) OS X](#)
- [Download R for Windows](#)

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R is part of many Linux distributions, you should check with your Linux package management system in addition to the link above.

## R for Windows

Subdirectories:

[base](#)  
[contrib](#)  
[old.contrib](#)  
[Rtools](#)

選擇  
"base"

Binaries for base distribution. This is what you want to [install R for the first time](#).

Binaries of contributed CRAN packages (for R  $\geq$  2.13.x; managed by Uwe Ligges). There is also information on [third party software](#) available for CRAN Windows services and corresponding environment and make variables.

Binaries of contributed CRAN packages for outdated versions of R (for R  $<$  2.13.x; managed by Uwe Ligges).

Tools to build R and R packages. This is what you want to build your own packages on Windows, or to build R itself.

Please do not submit binaries to CRAN. Package developers might want to contact Uwe Ligges directly in case of questions / suggestions related to Windows binaries.

You may also want to read the [R FAQ](#) and [R for Windows FAQ](#).

Note: CRAN does some checks on these binaries for viruses, but cannot give guarantees. Use the normal precautions with downloaded executables.

## R-3.5.3 for Windows (32/64 bit)

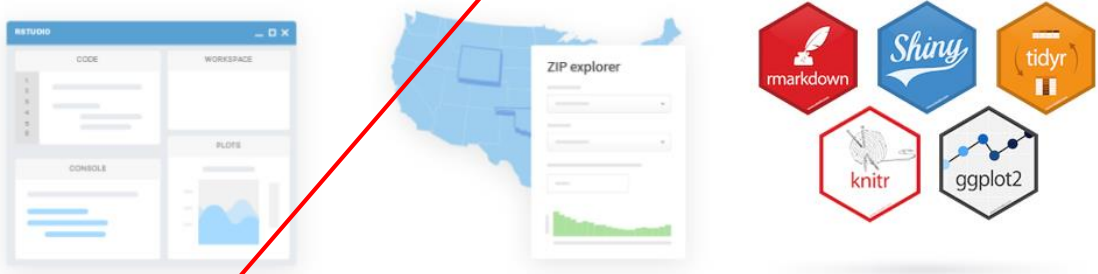
[Download R 3.5.3 for Windows](#) (79 megabytes, 32/64 bit)

[Installation and other instructions](#)

[New features in this version](#)

# RStudio

Google: RStudio → [RStudio: Open source and ...](#)



**RStudio**

RStudio makes R easier to use. It includes a code editor, debugging & visualization tools.

[Download](#) [Learn More](#)

**Shiny**

Shiny helps you make interactive web applications for visualizing data. Bring R data analysis to life.

[Learn More](#)

**R Packages**

Our developers create popular packages to expand the features of R. Includes ggplot2, dplyr, R Markdown & more.

[Learn More](#)

RStudio Desktop Open Source License	RStudio Desktop Commercial License	RStudio Server Open Source License	RStudio Server Pro Commercial License	RStudio Server Pro + RStudio Connect Commercial License
FREE	\$995 per year	FREE	\$9,995 per year	\$29,995 per year
<a href="#">DOWNLOAD</a>	<a href="#">BUY</a>	<a href="#">DOWNLOAD</a>	<a href="#">DOWNLOAD</a>	<a href="#">TALK</a>
<a href="#">Learn More</a>	<a href="#">Learn More</a>	<a href="#">Learn More</a>	<a href="#">Learn More</a>	<a href="#">Learn More</a>

**Installers for Supported Platforms**

Installers	Size	Date	MD5
RStudio 1.1.463 - Windows Vista/7/8/10	85.8 MB	2018-10-29	58b3d796d8cf96fb8580c62f46ab64d4
RStudio 1.1.463 - Mac OS X 10.6+ (64-bit)	74.5 MB	2018-10-29	a79032ba4d7daaa86a8da01948278d94
RStudio 1.1.463 - Ubuntu 12.04-15.10/Debian 8 (32-bit)	89.3 MB	2018-10-29	8a6755fa9fae2bafce289df3358aaf63
RStudio 1.1.463 - Ubuntu 12.04-15.10/Debian 8 (64-bit)	97.4 MB	2018-10-29	bc50d6bd34926c1cc3ae4a209d67d649
RStudio 1.1.463 - Ubuntu 16.04+/Debian 9+ (64-bit)	65 MB	2018-10-29	cf6d659db18619cc78d1592feaa7c753
RStudio 1.1.463 - Fedora 19+/RedHat 7+/openSUSE 13.1+ (32-bit)	88.1 MB	2018-10-29	742f0bad60dfeaa3281576e14ad6699e
RStudio 1.1.463 - Fedora 19+/RedHat 7+/openSUSE 13.1+ (64-bit)	90.6 MB	2018-10-29	c7303067a0ca99deea7e427b856952d1

依據作業系統進行選擇

# 安裝R套件

- 開啟RStudio或R
- 於左側Console內依序輸入以下指令：

```
# 安裝Bioconductor
```

```
source("http://www.bioconductor.org/biocLite.R")  
biocLite()
```

```
# 安裝Bioconductor套件
```

```
source("http://www.bioconductor.org/biocLite.R")  
biocLite(c("GEOquery", "oligo", "limma", "DESeq2"))
```

```
# 安裝非Bioconductor之R套件
```

```
install.packages(c("pheatmap", "ggfortify"))
```

# 呼叫/測試R套件

- 開啟Rstudio或R
- 於左側Console內依序輸入以下指令：

```
library(GEOquery)
```

```
library(oligo)
```

```
library(limma)
```

```
library(DESeq2)
```

```
library(pheatmap)
```

- 請注意執行安裝、呼叫命令時所出現的提示訊息，若出現“**Error:**”則代表安裝、呼叫失敗。通常是因為其套件需要其他尚未安裝的套件(**packages**)來協助工作，請詳細閱讀提示訊息並將套件補齊後再執行呼叫，直到不再出現**Error**為止。(安裝指令請參考上一頁)

# R套件列表

- **Bioconductor**套件列表：

<https://www.bioconductor.org/packages/release/bioc/>

- **R套件(非Bioconductor套件)**列表：

[https://cran.r-project.org/web/packages/available\\_packages\\_by\\_name.html](https://cran.r-project.org/web/packages/available_packages_by_name.html)

# JAVA

- 下載GSEA、Cytoscape前，請先確定電腦是否已安裝**JAVA 8**(建議安裝**JAVA 8 SE**版)

Google: Java SE → [Java SE - Downloads](#) | [Oracle Technology Network](#) | [Oracle](#)

請勿安裝8u以外的版本

**Java SE 8u201 / Java SE 8u202**  
Java SE 8u201 / Java SE 8u202 includes important bug fixes. Oracle strongly recommends that all Java SE 8 users upgrade to this release.  
[Learn more](#)

- Installation Instructions
- Release Notes
- Oracle License
- Java SE Licensing Information User Manual
  - Includes Third Party Licenses
- Certified System Configurations
- Readme Files
  - JDK ReadMe
  - JRE ReadMe

**JDK**  
[DOWNLOAD](#)

**Server JRE**  
[DOWNLOAD](#)

**JRE**  
[DOWNLOAD](#)

Which Java package do I need?

- Software Developers: JDK** (Java SE Development Kit). For Java Developers. Includes a complete JRE plus tools for developing, debugging, and monitoring Java applications.
- Administrators running applications on a server: Server JRE** (Server Java Runtime Environment) For deploying Java applications on servers. Includes tools for JVM monitoring and tools commonly required for server applications, but does not include browser integration (the Java plug-in), auto-update, nor an installer. [Learn more](#)
- End user running Java on a desktop: JRE**: (Java Runtime Environment). Covers most end-users needs. Contains everything required to run Java applications on your system.

**Java SE Development Kit 8u201**

You must accept the [Oracle Binary Code License Agreement for Java SE](#) to download this software.

☐ Accept License Agreement ☒ Decline License Agreement

Product / File Description	File Size	Download
Linux ARM 32 Hard Float ABI	72.98 MB	<a href="#">jdk-8u201-linux-arm32-vfp-hflt.tar.gz</a>
Linux ARM 64 Hard Float ABI	69.92 MB	<a href="#">jdk-8u201-linux-arm64-vfp-hflt.tar.gz</a>
Linux x86	170.98 MB	<a href="#">jdk-8u201-linux-i586.rpm</a>
Linux x86	185.77 MB	<a href="#">jdk-8u201-linux-i586.tar.gz</a>
Linux x64	168.05 MB	<a href="#">jdk-8u201-linux-x64.rpm</a>
Linux x64	182.93 MB	<a href="#">jdk-8u201-linux-x64.tar.gz</a>
<b>Mac OS X x64</b>	245.92 MB	<a href="#">jdk-8u201-macosx-x64.dmg</a>
Solaris SPARC 64-bit (SVR4 package)	125.33 MB	<a href="#">jdk-8u201-solaris-sparcv9.tar.Z</a>
Solaris SPARC 64-bit	88.31 MB	<a href="#">jdk-8u201-solaris-sparcv9.tar.gz</a>
Solaris x64 (SVR4 package)	133.99 MB	<a href="#">jdk-8u201-solaris-x64.tar.Z</a>
Solaris x64	92.16 MB	<a href="#">jdk-8u201-solaris-x64.tar.gz</a>
<b>Windows x86</b>	197.66 MB	<a href="#">jdk-8u201-windows-i586.exe</a>
<b>Windows x64</b>	207.46 MB	<a href="#">jdk-8u201-windows-x64.exe</a>

依據作業系統進行選擇



# GSEA

Google: GSEA → [GSEA - Broad Institute](#)

初次安裝  
請先註冊Email

**GSEA**  
Gene Set Enrichment Analysis

[GSEA Home](#) [Downloads](#) [Molecular Signatures Database](#) [Documentation](#) [Contact](#)

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### Login to GSEA/MSigDB

**Login**

[Click here](#) to register to view the MSigDB gene sets and/or download the GSEA software. This helps us track and better serve our user community.

If you have already registered for GSEA or MSigDB please enter your registration email address below.

Items marked with \* are required.

Email: \*

若已註冊Email  
則可直接輸入

### GSEA/MSigDB Registration

**Instructions to obtain GSEA software and/or MSigDB gene sets.**

1. Fill in the form below.
2. The software and gene sets are available under the terms listed [here](#). Registration data is used to measure usage only. See [here](#) for the [GSEA and MSigDB Privacy Policy](#)

Items marked with \* are required.

Email: \*

Organization: \*

下載後直接點選檔案  
即可開啟GSEA

### Downloads

**Software**

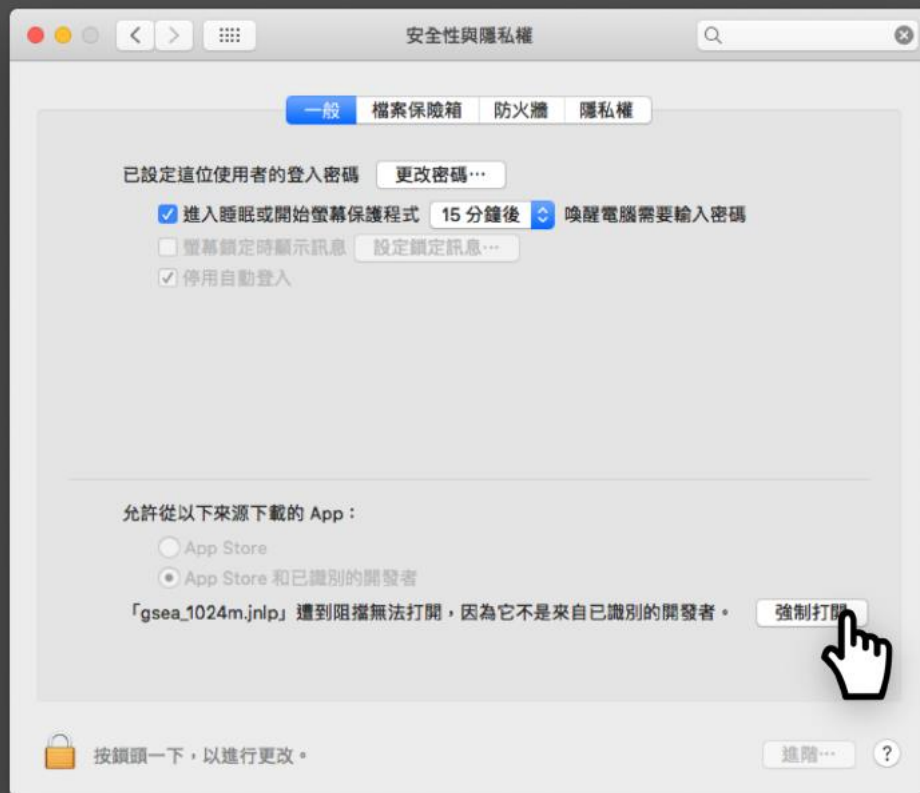
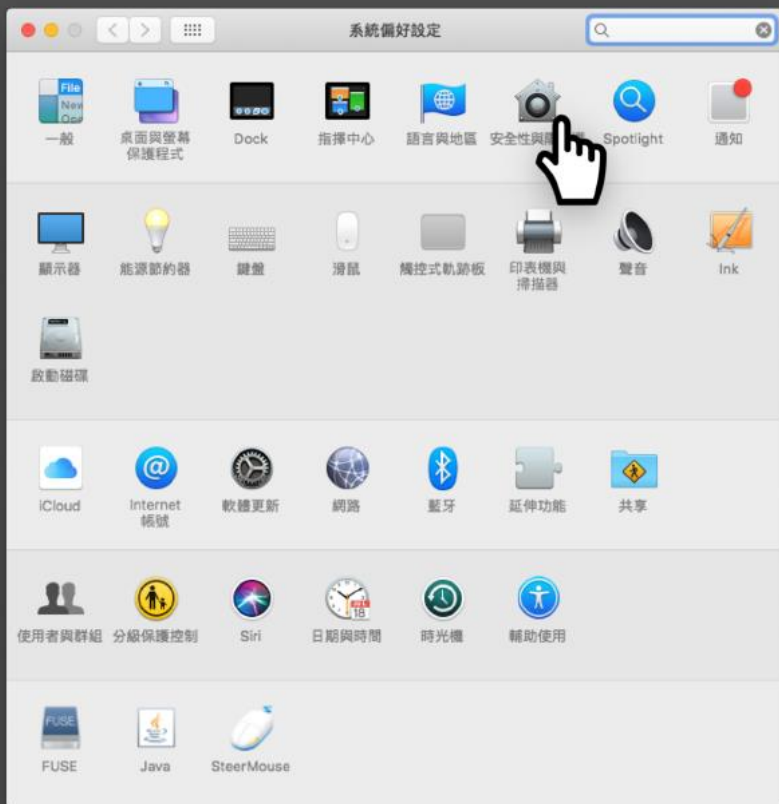
There are several options for GSEA software. All options implement exactly the same algorithm. Usage recommendations and installation instructions are listed below. Current Java implementations of GSEA require Java 8.

See the [license terms page](#) for details about the license for the GSEA software and source code. Please note that the license terms vary for different versions of the software.

javaGSEA Desktop Application	
<ul style="list-style-type: none"><li>▶ Easy-to-use graphical user interface.</li><li>▶ Runs on any desktop computer (Windows, macOS, Linux etc.) that supports Java 8. <b>Oracle Java is recommended as there are known issues when running with OpenJDK. Java 9 and higher are not supported at this time.</b></li><li>▶ Produces richly annotated reports of enrichment results.</li><li>▶ This release is open source under a <a href="#">BSD-style license</a>. The source is available on our <a href="#">GitHub repository</a>. The changes are noted in the <a href="#">Release Notes</a>.</li><li>▶ We recommend using a memory configuration smaller than your computer's total memory.</li></ul>	<p>Launch with</p> <p>1GB (for 32 or 64-bit Java) ▼ memory:</p> <p><input type="button" value="Launch"/></p>

選擇1GB版本  
下載即可

macOS可能會遇到如右圖的問題  
解決方法如下



# Cytoscape

Google: Cytoscape → [Cytoscape: An Open Source ...](#)



# Cytoscape - EnrichmentMap

