

# System Requirements

## **QLUCORE OMICS EXPLORER VERSION 3.8 REQUIRES:**

### *FOR WINDOWS VERSIONS*

- 64-bit versions of Windows 10 or Windows 11
- 1 GB of RAM memory
- A graphical card with support of at least Open GL 2.1
- 5 GB of free hard disk space

The program takes full advantage of processors with multiple cores and computers with multiple processors.

### *FOR MAC VERSIONS*

- Mac OS 11 and 12
- 1 GB of RAM memory
- A graphical card with support of at least Open GL 2.1
- 5 GB of free hard disk space

## **NGS-MODULE ADDITIONAL REQUIREMENTS:**

- 12 GB of RAM memory
- A graphical card with support of at least Open GL 3.3.
- At least 100 GB free hard disk space, preferable a SSD disk
- Intel Core i7 or similar processor preferable with 4 cores

## **NGS-MODULE RECOMMENDED HARDWARE SET-UP:**

- 16 GB of RAM memory
- A discrete graphical card with support of at least Open GL 3.3 and at least 1GB RAM.
- 250 GB free SSD disk space
- Additional enough storage for BAM files, fully dependent on experiment sizes.
- Intel Core i7 or similar processor with at least 8 cores

## **QLUCORE OMICS EXPLORER BASE CONFIGURATION AND PERFORMANCE EXAMPLES**

The below examples are based on a native Windows set-up. Tests have been done with a Microsoft Windows computer. The estimates are rough recommendations and cannot be taken as a guarantee.

*200 SAMPLES AND 50 000 VARIABLES*

<b>Item</b>	<b>Recommendation</b>
Internal memory	Qlucore Omics Explorer will require 1GB, i.e. the computer should have at least 4GB RAM
Processor	At least Core i5 processor or similar
Graphics card	Should support Open GL version 2.1 or higher.

*1000 SAMPLES AND 500 000 VARIABLES*

<b>Item</b>	<b>Recommendation</b>
Internal memory	Qlucore Omics Explorer will require 5GB, i.e. the computer should have at least 8 GB RAM
Processor	At least Core i7 processor or similar
Graphics card	Should support Open GL version 2.1 or higher. A powerful graphical card is recommended.

*50 000 SAMPLES AND 30 000 VARIABLES*

<b>Item</b>	<b>Recommendation</b>
Internal memory	Qlucore Omics Explorer will require approximately 20GB, i.e. the computer should have at least 24 GB RAM
Processor	At least Core i7 processor or similar. The more cores the better.
Graphics card	Should support Open GL version 2.1 or higher. A powerful graphical card is recommended.

**NOTES:**

**Maximum number of data set entries:** Qlucore Omics Explorer upper limit is  $2^{31}-1$ , which equals a matrix with a maximum of 2 147 483 647 entries

**Hierarchical clustering:** Internal RAM memory is the most limiting factor when doing hierarchical clustering on larger data sets. For a computer with only Qlucore Omics Explorer running the following estimates are a rough guide. Note that the clustering will take a significant time and the program will not be responsive during calculations:

<b>Data set size</b>	<b>Recommended Internal RAM</b>
18000 variables and 100 samples	8 GB
30000 variables and 100 samples	16 GB
38000 variables and 100 samples	32 GB

**Bam file import:** The bam file import does not require more memory than mentioned above. It can though be time consuming. There are two cases to consider.

1. Without variant calling, the size of the file is dominating, and the speed of the hard disk is normally the limiting factor. You can expect one to two minutes for each RNA-seq bam file (Example: On a fast desktop computer 10 RNA-seq files of average size of 2,4 GB will take 8 minutes when the files are stored on a local disk.)
2. Including variant calling, then the import of one file takes in the range of one hour.

**Cel file import:** Some ThermoFisher (Affymetrix) chips have very large annotation files and will not work with less than 6 GB of available RAM.

## Research purpose only

Qlucore Omics Explorer is only intended for research purposes.

## Disclaimer

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