1 Installation

It is important to install additional software other than R and Bioconductor libraries, for the complete functionality of oneChannelGUI.

The external tools and data needed to run exon array analysis in oneChannelGUI are shown in figure 1.

Figure 1: External tools needed for exon array analysis when oneChannelGUI add-on is loaded in affylmGUI.
1.1 Windows users

The latest version of R needs to be installed. It can be downloaded at: [http://www.r-project.org/](http://www.r-project.org/) oneChannelGUI needs the installation of the following packages:

```r
> packageDescription("oneChannelGUI")$Depends
```

[1] "Biobase, affylmGUI, tkWidgets, GOstats, AnnotationDbi"

oneChannelGUI suggests the installation of the following packages:

```r
> packageDescription("oneChannelGUI")$Suggests
```

[1] "annotate, genefilter, maSigPro, pamr, pdmclass, \nRgraphviz, affy, annaffy, affyPLM"

In order to install all the Bioconductor packages needed to run oneChannelGUI a specific R function can be downloaded from [http://www.bioinformatica.unito.it/oneChannelGUI/](http://www.bioinformatica.unito.it/oneChannelGUI/) To use it user needs to open an R session on a computer connected to internet and copy and paste the following code:

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

> biocLite(c("affylmGUI", "limma", "tcltk", "annotate", "annaffy", "genefilter",
"affyPLM", "affy", "GO", "graph", "GOstats", "Biobase", "ssize", "sizepower",
"tkrplot", "R2HTML", "xtablate", "ABarray", "beadarray", "maSigPro", "multtest",
"siggenes","hgu133a.db", "hgu133a2.db","hgu133acdf","hgu133a2cdf",
"hgu133aprobe", "hgu133a2probe", "hgu133plus2.db", "hgu133plus2cdf",
"hgu133plus2probe", "hgu95av2cdf", "hgu95av2probe", "pamr", "pdmclass",
"RColorBrewer","geneplotter", "Rgraphviz", "widgetTools", "tkWidgets", "DynDoc",
"RankProd", "org.Hs.eg.db", "org.Mm.eg.db", "org.Rn.eg.db", "AffyCompatible",
"Biostrings", "metaArray", "illuminaHumanv1ProbeID.db",
"illuminaHumanv2ProbeID.db", "illuminaHumanv3ProbeID.db", "oneChannelGUI",
"biomaRt", "MiPP"))
```

oneChannelGUI inherits the core graphical interface of affylmGUI. This interface need, under windows, the installation of TCL/TK libraries that can be download from: [http://www.activestate.com/Products/ActiveTcl/](http://www.activestate.com/Products/ActiveTcl/)

To load Hs/Mm/Rn exon 1.0 ST Affymetrix arrays users need to install APT tools 1.8.5. The windows binaries can be downloaded from: [http://www.affymetrix.com/support/developer/powertools/index.affx](http://www.affymetrix.com/support/developer/powertools/index.affx) In addition library files for gene/exon arrays are directly downloaded and installed locally from oneChannelGUI interface, the first time an Exon 1.0 ST or Gene 1.0 ST analysis is started. Or using the function `oneChannelGUI: Set library folder and install Affy gene/Exon library files` present in the General tools Menu.
IMPORTANT APT TOOLS AND EXON LIBRARY FILES NEED TO BE LOCATED IN A FOLDER CHARACTERIZED BY A PATH WITHOUT SPACES
C:/apt.1.8.0 THIS IS OK
C:/PROGRAM FILES/APT.1.8.0 STARTING APT TOOLS FROM oneChannelGUI will produce an error.

Furthermore, blast executable from [ftp://ftp.ncbi.nih.gov/blast/executables/](ftp://ftp.ncbi.nih.gov/blast/executables/) need to be installed in a blast folder into the apt folder, e.g. C:/apt/blast. This is mandatory for exon level analysis to map alternative spliced exon-level probesets to reference sequences.

1.2 Unix users

The packages to be downloaded for unix users are those indicated for windows users unless for the TCL/TK libraries.

To use Tcl/Tk then the interface package tcltk must be installed into R. If an R package uses Tcl/Tk then Tcl/Tk must be installed on the OS before the R package can be installed into R. Furthermore, these two Tcl/Tk packages are needed by oneChannelGUI, affylmGUI and limmaGUI for their functionality:

1. BWidget, this is a package written entirely in the tcl scripting language and hence is not compiled. Consequently it is the same on any platform and should be in the Tcl/Tk path.

2. Tktable, this package has some code written in C and hence is a compiled package. It therefore is different for each type of CPU and OS.

It is possible to encounter problems in installing those libraries on x64 machines. For this reason I found quite useful the suggestions of Keith Satterley (24 Apr 2007) subject: Re: [Bioc-devel] Tcl/TK package "Bwidget" available on the Bioconductor mailing list.