

# NGS-InVi: Integration and visualization of NGS data

Luciano Fernández Ricard and Marcela Dávila López

Bioinformatics Core Facility, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden

## Abstract

Visualization of Next Generation Sequencing (NGS) data is vital to allow researchers to explore and understand the data from experiments or large-scale datasets. A common process involves processing NGS files to create suitable input files (e.g. files in BED format) to be used by visualization software like Circos (<http://circos.ca/>). Depending on the visualization application, the creation of complex configuration files may be required additionally. This task is time consuming, repetitive and requires constant input from the user to adjust the views to fit the demands.

Here we present **NGS-InVi** an integration and visualization tool that aims to:

- ✓ Integrate already established technologies
- ✓ Employ state-of-the-art circular visualizations
- ✓ Use intuitive point and click navigation
- ✓ Make data queries and filtering easy
- ✓ Generate graphical representations effortlessly
- ✓ Create customized reports

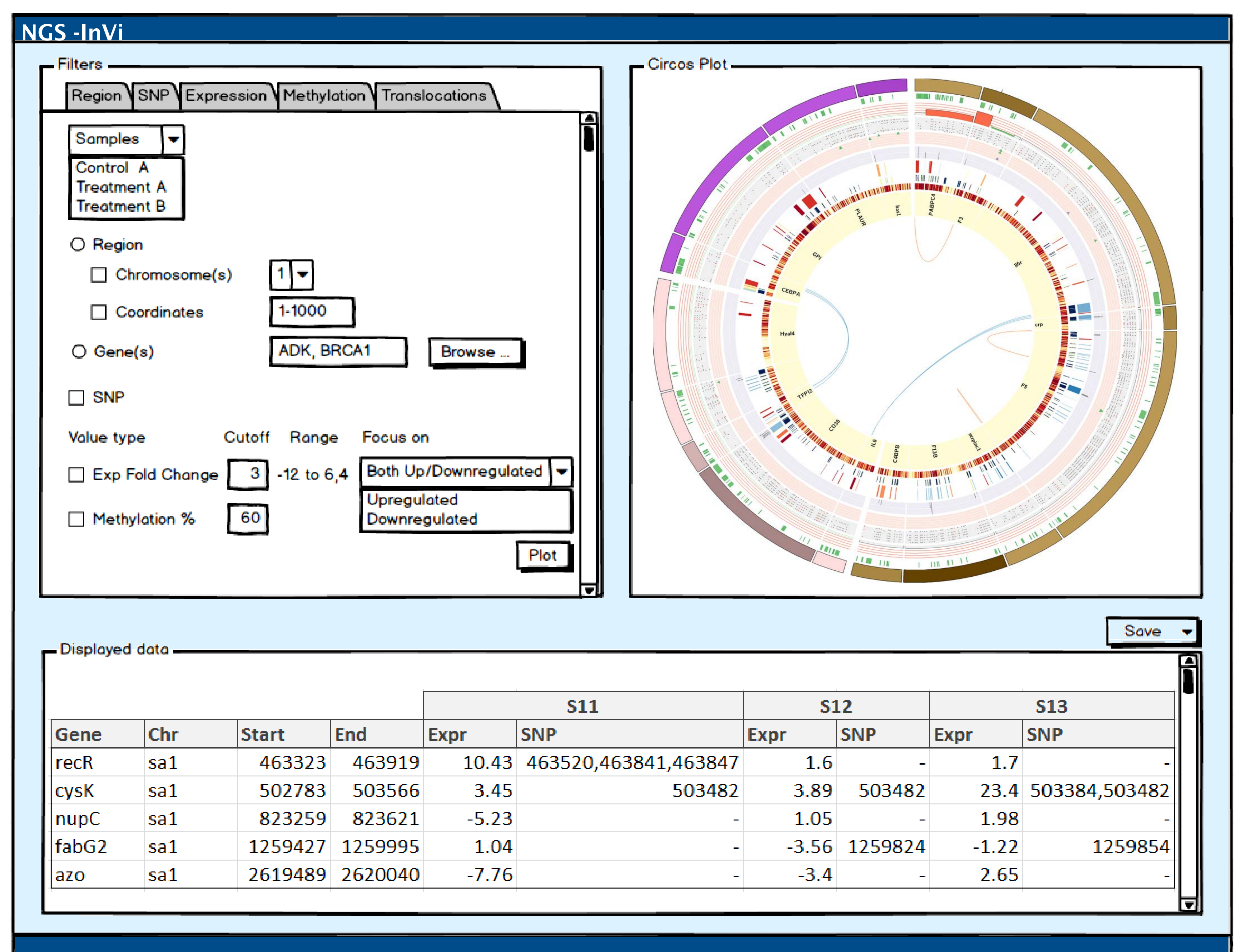
## Query your data

One key aspect of **NGS-InVi** is that it stores the relevant data in a relational database. This feature allows the user to ask varied and precise questions to the system. The resulting queries can be either visualized and navigated using interactive circular displays or presented as tabular reports.

Importing varied NGS data into a database present data integration challenges, for this reason we designed **NGS-InVi** to be as general as possible to accommodate prokaryotic and eukaryotic genomes.

## Generate graphical representations

Circular layouts have proven to be one of the most effective and attractive means to display NGS data. Arguably the most established and powerful tool is Circos. Unfortunately Circos is not simple. There have been many attempts to produce more user friendly (or program friendly) versions of this tool with various degrees of success but at the end Circos is still the best. Because of this **NGS-InVi** uses Circos as its graphic engine, complementing it with JavaScript to provide interactivity. This allows to produce the best quality circular layouts and the possibility to make the layouts fully interactive.



## Create customized reports

As useful and enchanting as visual representation of data is, the use of data in tabular form is irreplaceable in research. **NGS-InVi** aims at offering a full range of reports in tabular format.

The user will be able to save them as tab delimited files for further processing or just to browse thru the data inside the system.



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Contact: marcela.davila@gu.se