



CUSSB 12th anniversary

Università Vita-Salute San Raffaele

Venerdì 27 Gennaio 2017,

ore 11:00-13:00 Aula Asclepio

THE IMPORTANCE OF BEING REPRODUCIBLE.

A STATISTICAL PERSPECTIVE

- 11:00-11:30 Clelia di Serio (CUSSB): Welcome and introduction.
The importance of being reproducible: some statistical issues on reproducibility
- 11:30-12:00 Paola Rancoita (CUSSB)
The importance of being reproducible: reproducibility, robustness and validation
- Coffee Break**
- 12:15-13:00 Claudia Angelini (Relatore Ospite: CNR Napoli)
The importance of being reproducible: Challenges and solutions for the analysis of NGS data

Claudia Angelini, IAC, Istituto per la Applicazioni del Calcolo "M. Picone"

Next Generation Sequencing (NGS) has revolutionized the way of thinking and of performing biomedical research. However, despite the technological advances, the way in which data analysis is performed and described in most of scientific papers does not facilitate the reproducibility of scientific results. Complex analyses are often poorly described in few lines of methods section and they often lacking of the technical information crucial to reproduce the results. Therefore, the problem of the "Reproducible Research", here-denoted RR, is emerging as a serious issue for all Life Sciences.

In this talk, we first introduce the concept of computational RR. Then, we discuss a simple way to develop novel computational tools that implement RR by using R and Bioconductor packages. In particular, we show how RR can be incorporated within a graphical user-friendly interface and how such tools can automatically generate reproducible analysis. As a concrete working example of our approach, we illustrate RNASeqGUI and IntegrHO, two novel tools that implement RR.