Integration and analysis of heterogeneous big data for precision medicine and suggested treatments for different types of patients.

iASiS: Big Data to Support Precision Medicine and Public Health Policy

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http://project-iasis.eu

@Project_IASIS

SC1-PM-18-2016: Big Data supporting Public Health policies
Vision and Objectives

iASiS Vision:
**Turn clinical, pharmacogenomics, and other Big Data into actionable knowledge** for personalized medicine and health policy-making

Objectives:

- **Integrate** automated unstructured and structured data analysis, image analysis, and sequence analysis into a **Big Data framework**
- **Develop a framework** for supporting personalised diagnosis and treatments
Pilot 1: Lung Cancer

Motivation:

• Lung cancer among the most common and deadly diseases
• costly cancers
• Lung cancer is a heterogeneous disease. Characteristics differ
  • between patients
  • among a tumor regions

The iASiS framework will enable:

• Discovery of correlations among tumor spread, prognosis, response to treatment
• Unraveling molecular mechanisms that predict response to different tumor types (signatures)
Pilot 2: Alzheimer's disease

**Motivation:**

- Approximately, **10% of people** over 65 suffer from Alzheimer’s.
- **Heterogeneity** of the symptoms impedes accurate diagnosis and treatments.

**iASiS will enable**

- **Discovery** of patterns associated with prognosis, outcomes and response to treatments.
- **Association** of medical and lifestyle advice to Alzheimer’s risk and stages of severity.
The iASiS Framework

iASiS will provide a Big Data framework and data analytics tools for supporting:
• precision medicine and
• public health policy making.

During all the steps of data management and analytics, the iASiS framework will enforce
• privacy and
• access control.
## How the Community can contribute?

### Datasets:

**Pharmacogenomics** and **Clinical datasets:**
- Information about **Lung cancer** or **Alzheimer’s** patients
- **Clinical record** data, **images** related to clinical records, and **genomic** data

### Data Analytics Tools:

**Data analytics** tools able to
- **Run** on top of the the **iASiS** knowledge base and
- **Uncover unknown** patterns in patients with **Lung cancer** or **Alzheimer’s** disease.

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*iASiS: Big Data to Support Precision Medicine and Public Health Policy. ESWC May 2017.*
Partners involved

iASiS: Big Data for Precision Medicine