



Intelligent **S**ystems **B**iology

Pioneering bioinformatics
towards

**Discovery of integrated Biomarkers
in personalized Healthcare Industry**

InSyBio – Intelligent Systems Biology

About

- Launching of Scientific tool “BioInBook”;
- First prize in Entrepreneurship Competition “Hellenic Startup in BioMed April 2013: Uncovering Endless Opportunities”;
- Insybio participates in NBG Business Seeds as from June 2015.
- At January 2016, InSyBio selected as semifinalist for the 2nd round of MITEF Greece Startup Competition.

Medicine and Innovation

- Medicine & Life Sciences: Always a fertile ground for innovation;
- Nowadays a deep knowledge from various scientific domains is required: Medicine & Biology, Physics and Information Technology.

Dominant trend for many years:

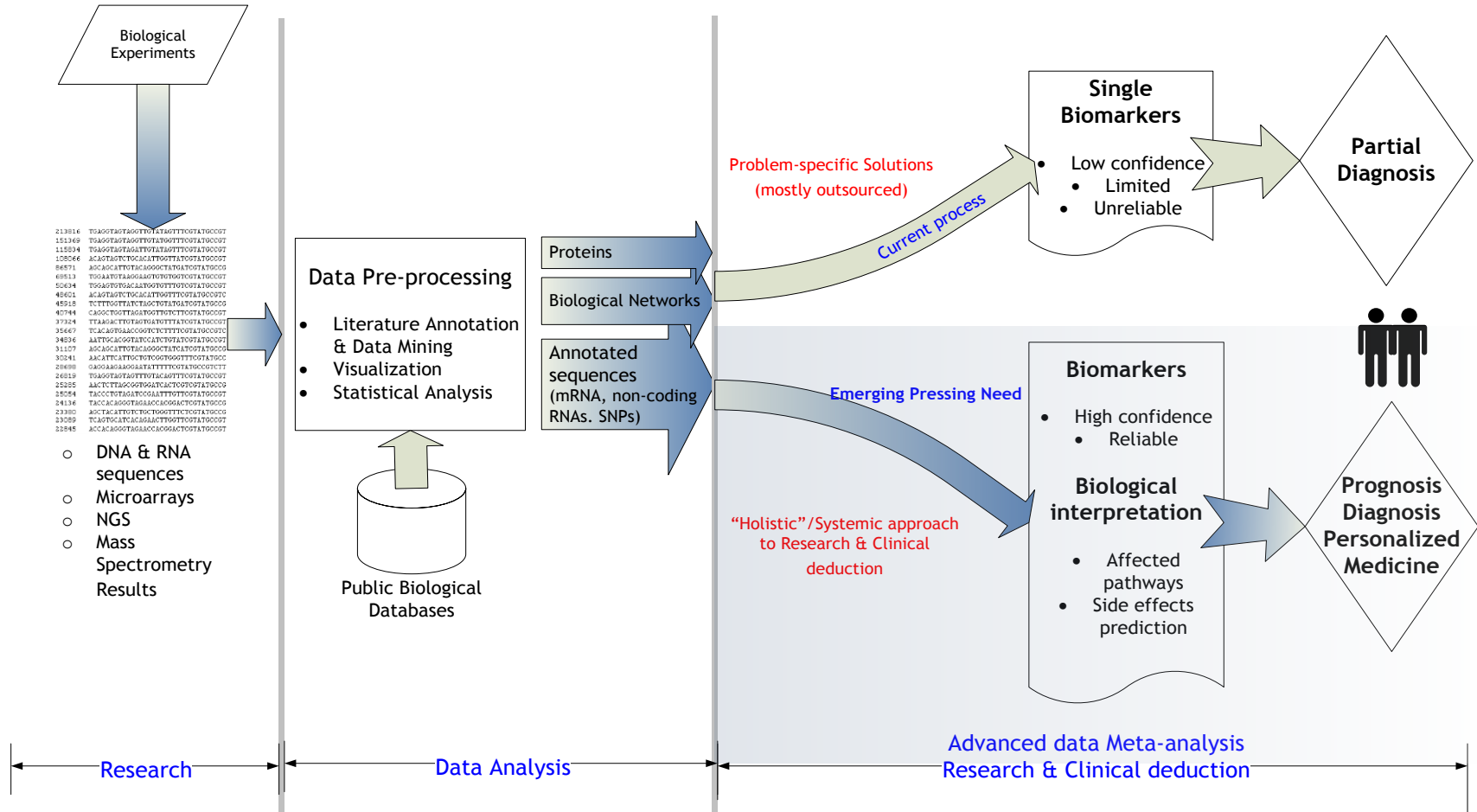
- Personalized Medicine with new medicinal drugs for individualized therapies;
- Commercially: A huge Eco-space!

Biological data analysis is a window for innovation

- Data grows fast;
- Demand for Processing, storage and analysis grows faster!
- Diagnosis, prognosis and therapeutics require accurate biomarkers;
- Available analysis solutions are not up to the task, since they:
 - Are expensive & time-consuming;
 - Provide only problem-specific solutions;
 - Have low performance;
 - Treat different types of biomarkers (genes, RNA, proteins, clinical biomarkers etc.) separately;
- Meta-analysis algorithms are not available for non-bioinformatics experts.

The road to personalized medicine

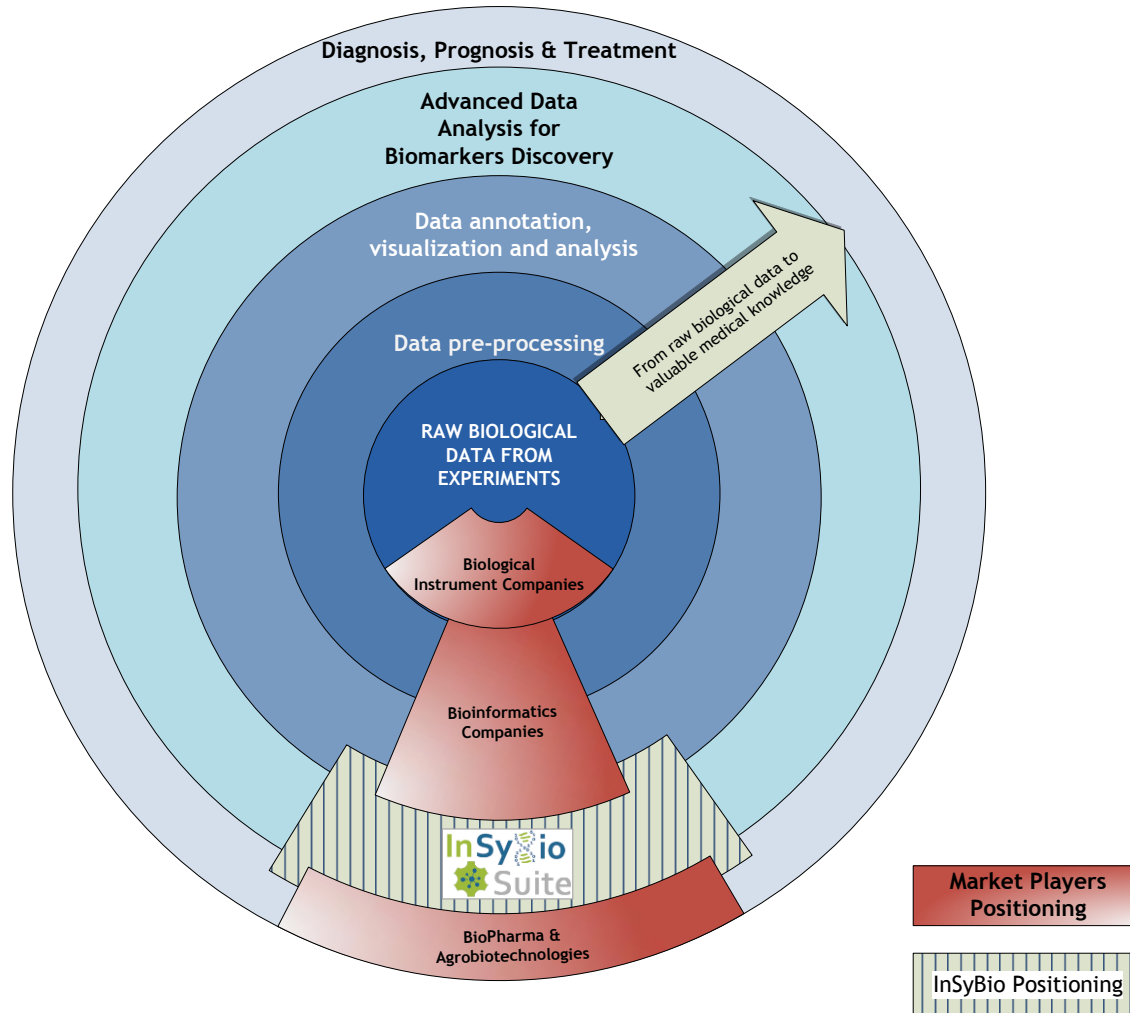
From biological data to valuable medical knowledge



Insybio's pioneering objectives

- Discovery of Biomarkers using Biological networks;
- Present a comprehensive and integrated framework for analysis, meta-analysis and prognosis/diagnosis;
- Make it a tool for all scientists and biology researchers for
 - Neuro-degenerative diseases;
 - Cancer.

Bioinformatics Market Ecosystem



A scalable Solution

Robust Analysis in an Integrated Environment



Advanced machine learning meta-analysis tools for biological big data (patent protected-pending)

Money and Time saver



Cost-effective algorithmic solutions integrating heterogeneous data sources

Software as a Service



User-friendly **SaaS** web-based platform, easy to use by non-experts

Insybio Tools

- **Interact**: a tool offering preprocessing and analysis options for proteomics and interactomics biological data and prediction of protein interactions;
- **ncRNAseq**: a tool for the analysis of non-coding RNA molecules and extraction of biomarkers from them;
- **BioNets**: a tool which enables the application of data mining techniques on biological networks and the analysis of transcriptomics datasets for biomarker discovery;
- **Data Store**: a set of tools for storing and managing biological datasets.

Application of InSyBio Suite in Parkinson disease

- Microarrays experiments in blood samples for 22,283 genes from Gene Expression Omnibus database:
 - 50 patients with Parkinson disease-early stage
 - 22 healthy subjects
 - 33 patients with other neuro-degenerative diseases

Method	Number of Biomarkers	% of Biomarkers associated with Parkinson (Source: DisGeneNet (Piñero et al, 2015))
Wilcoxon Rank Sum Test	834	7,47%
InSyBio BioNets	52	13,46%

- ✓ Fewer Biomarkers
- ✓ Higher Prognosis/Diagnosis Precision

Contact Us

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