OncoSNIPE

Accuracy & Precision for Refractory Cancer Patients

OncoSNIPE®, AI initiative designed to identify and characterize patients resistant or non responder to cancer treatments.

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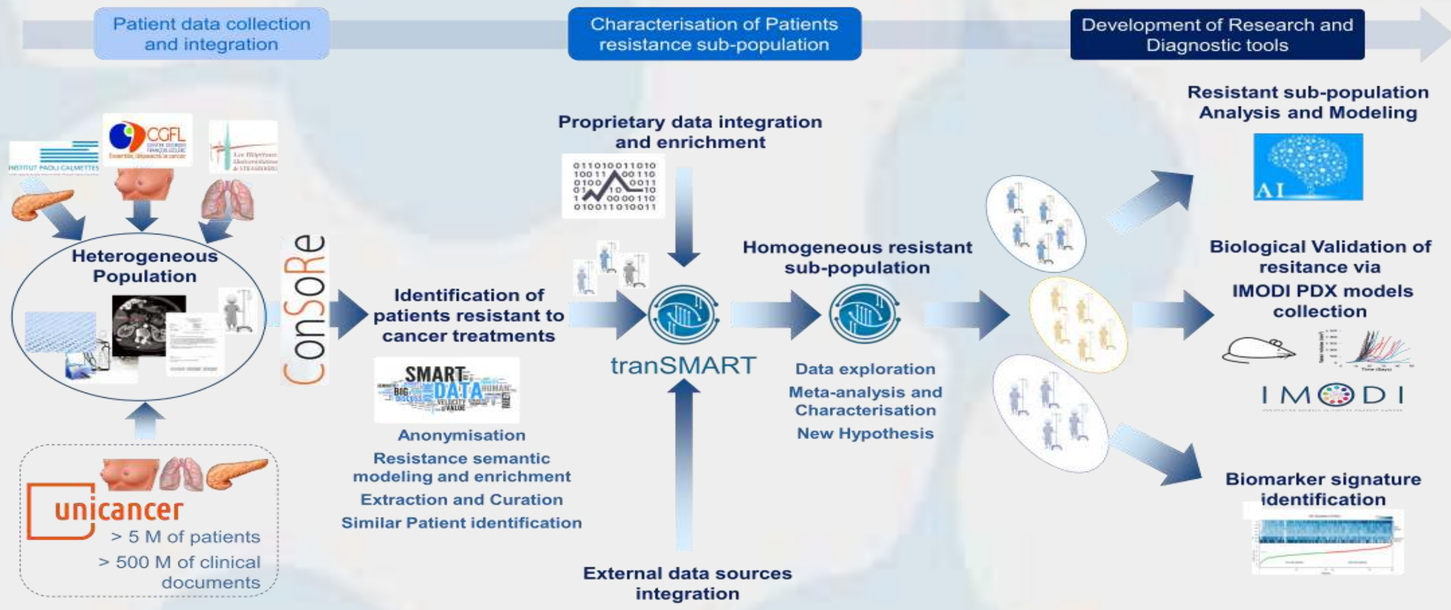
Overall Process



Abstract

Based on the implementation of bio-informatics, artificial intelligence, statistical learning and semantic enrichment approaches, OncoSNIPE® is designed to identify and characterize patients resistant to cancer treatments.

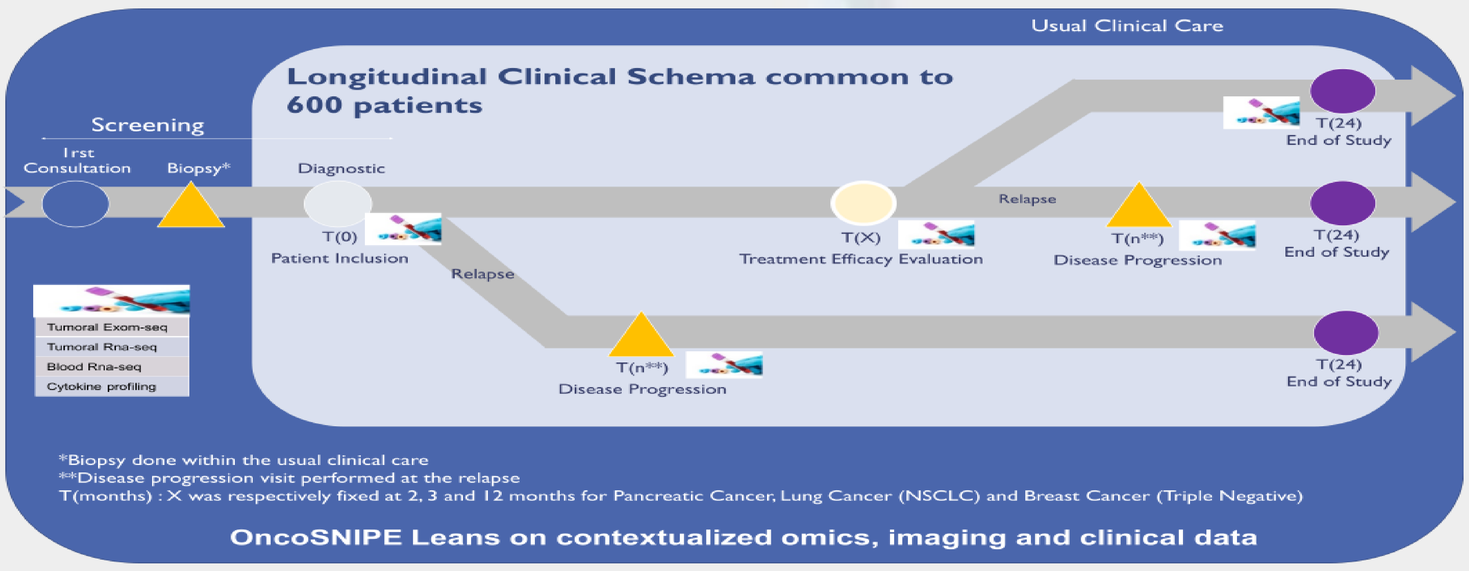
The project, which will last four years, is managed and coordinated by Oncodesign with the financial support of the BPI France (PIA, Investments for the Future Programme). It will bring together four industrial partners with complementary expertise and core businesses – Expert System, Sword, Acobiom and Oncodesign – and four French academic institutions, including – Unicancer, Strasbourg University Hospital and two anticancer centers – the George François Leclerc anticancer center in Dijon and the Paoli Calmettes Institute in Marseille.

OncoSNIPE® plans to enroll 600 patients, and their clinical, genomic and medical imaging data is subject to longitudinal monitoring in three cancer indications representing sources of resistance and unresponsiveness – Lung Cancer (NSCLC), Breast Cancer (Triple Negative) and Pancreatic Cancer. This will include traditional clinical monitoring as well as NGS genomic monitoring of their tumor (Exom-seq and RNA-seq) and blood markers (RNA-seq) at the time of diagnosis, and monitoring of best therapeutic responses and the emergence of resistance. The resulting informations will be contextualized using semantic enrichment through ConSoRe, a digital 3.0 platform dedicated to cancer and will be used to model resistance mechanisms, identify biomarkers, discover new therapeutic targets and generate the knowledge needed to create a precision medicine approach dedicated to patients who are resistant to cancer treatments.

Identification and characterisation process in three major steps :

1. Identification of resistant patients to cancer treatments from **Heterogenous Population** based on resistance semantic modeling on EHR data patients from ConSoRe platform add-ons.
2. Data integration within tranSMART and **Homogeneous Resistant sub-Population** caracterisation.
3. Development and validation of Resistance models.

Clinical Trial



600 patients will be enrolled in three indications representing major resistance issues in oncology – triple negative breast cancer (30% of resistance to cancer treatment), pancreatic cancer (50 to 75% of resistance to cancer treatment) and non small cell lung cancer (45% of resistance to cancer treatment).

All the clinical, genomic and medical imaging data generated in this longitudinal monitoring clinical trial, will be contextualized with Resistance Features generated through ConSoRe semantic enhancement.

Expected Results & Benefits

Scientific :

- Semantic modeling of resistance teatures
- New AI based NLP component
- Identification of new resistance mechanism of actions
- AI patient resistant models
- New therapeutics targets

Industrial :

- Semantic cartridge for anonymisation
- Biomarker Kit for Resistant Patient identification
- ConSoRe add-ons (Similar Patient Identification/ Anonymisation/Imaging and Omics integration)
- New Drugs candidates and/or Diagnostic Radiotracer