Drug target identification

Enabling our pharmaceutical and biotech partners to effectively discover proteins or genes as novel targets
Target identification and validation are among the most important steps in developing a new drug. A target can cover a range of biological entities, including proteins, genes and RNA. A good target must be druggable, i.e. accessible to the drug and upon binding, must elicit a biological response, that is measurable both in vitro and in vivo. Additionally, a good target must be efficacious and meet clinical and commercial needs.

Intomics applies state-of-the-art bioinformatics knowledge and procedures, when we identify and document drug targets for our pharmaceutical and biotech partners.
Intomics benefits:

- We are life science data experts understanding how to handle data, not IT specialists trying to handle life science
- We are experts in systems biology and network biology
- We have experience in working with all types of biomedical big data, in any type or format
- We apply a range of unique, value-adding in-house resources to a collaboration, including our best-in-class protein-protein interaction network, inBio Map™
- For almost a decade, we have worked closely with pharmaceutical and biotech clients and added significant value to their drug discovery and development pipeline

*Li et al., Nature Methods 14, 61–64 (2017)*
In the scoping and preparation phase for all our client projects, we work closely with our clients to ensure the optimal data foundation, since this is a central parameter for successful project outcomes. For drug target projects this often includes:

- Conducting a thorough data survey of existing data
- Evaluating data quality/experimental background
- Including biological signal from relevant omics data
- Checking for consistency among data sets and known disease mechanism

When project scoping and collection of all relevant data have been finalized, we move into the data analysis and interpretation phase. In a typical drug target identification project a process involves:

Data types:
- Genetic data
- Expression data (RNA and/or Protein)
- Clinical data
- Epigenetic data
- Metabolomics
- Other omics data
- Real world data

Scoping and data collection

Data analysis and interpretation
Upon project conclusion, we ensure that the project deliverables have actionable outputs. Historically we have provided:

- Prioritized list of targets
- Hypothesis linking drug targets to disease mechanisms

• Applying Intomics standard QC procedures to evaluate data quality
• Combining data types to enhance the biological signal and applying our proprietary network biology data to:
  › Discover novel biological relationships
  › Establish prioritized biological hypothesis for identified drug targets based on consistency across data
• Establishing drug targets from network-guided machine learning/AI
The deliverables, that Intomics provides at the end of a project or project phase, are of very high quality and are well documented. In the project scoping and throughout the execution of the projects, we work closely with our clients to ensure that the results from the projects are as actionable for the individual clients as possible. In drug target identification projects our deliverables often include:

- A ranked list of identified drug targets with associated, supporting evidence
- A link of the prioritized drug targets and the associated biological context/hypothesis
- An extensive project report (data quality, methods, summary of key findings, list of additional interesting findings, description of role of targets, target properties and druggability assessment)
- And, when relevant, well-documented motivation for additional project work that would increase the value of the project
Complete list of all processed project data

 Ranked list of the most significant and important drug targets
About intomics:

Intomics is specialized in deriving core biological insights from analysis and integration of biomedical big data.

By applying our sophisticated technology and integrating different biomedical data sets, we increase the success rate of drug discovery and development projects for global clients in the pharmaceutical industry.

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