German Genethics

Fighting Cancer Hand in Hand

Frankfurter Innovationszentrum Biotechnologie

New.
German
Engineering.

German Genethics: innovative approach to cancer diagnostics

Concept

Therapy optimization with the help of Smart Data: German Genethics matches the molecular profile of the patient with the worldwide available clinical studies and therapies. This creates a well-founded individual therapy recommendation.

Product

The product is a recommendation letter for the oncologist that contains a detailed molecular analysis of the tumor in connection with available therapies, clinical studies and drugs. The treating doctor is thus enabled to make an informed and tailored decision for each cancer patient. Excellent scientific expertise, short turn-over time and superior German data protection standards are our guiding principles.

Particularity

The unique database of German Genethics combines information from science journals and highly specialized molecular biology databases with the latest research results from clinical trials and knowledge about validated therapies. Through complex algorithms this Smart Data solution can classify the DNA characteristics of each individual sample.

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USPs of German Genethics

„Within German Genethics we accelerate the integration of genetic data with the knowledge of leading journals and biological patterns for individualized cancer treatments, **providing a second opinion for the oncologists**"

Reliable
through German data security and process quality standards

Fast
through high computing power

Affordable
though guaranteeing a favorable price

Applicable
through technology transfer

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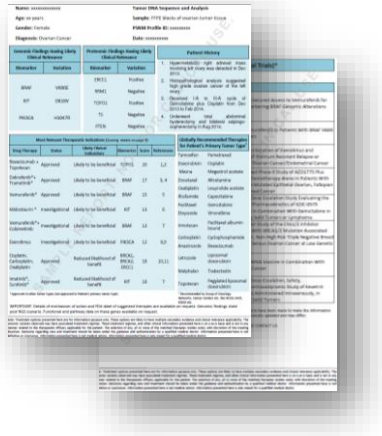
German Genethics: 3-step-process

Analyze it!
DNA sequencing:
GG cancer panel tests hundreds of different clinically actionable genetic variants.

Empower the decision!
Providing international clinics and doctors a solid and safe - German Engineered - reporting service.



Spot it!
Mapping of oncological problems and matching them with the knowledge database.

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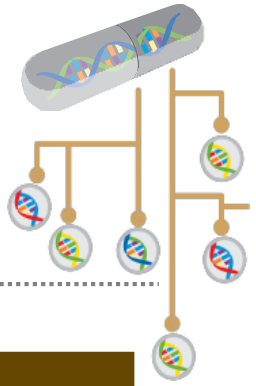
Molecular profiling of cancer--the future of personalized cancer medicine

Multi-omics Technologies -> Bioinformatics -> Reference Databases



In order to generate a clinically meaningful report, the data coming from the Bioinformatics pipeline is aligned to scientific evidence. This is achieved by connecting specific Oncology knowledge-sets:

Registry data aggregated and integrated from

- ClinicalTrials.gov
- ISRCTN
- EudraCT (European Registry)

Salient features

2800 Oncology drugs

2730 Tumor types

560 genes and variants

2300
Drug target relationship/ drug gene association

7500+
Oncology focused clinical trials

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Benefits of German Genethics: improvement of the public health

"Personalized medicine is empowering because your personal genetic and other predictive information allows you to take action that is specific for you – rather than the "one size fits all" approach."
Francis Collins, MD, PhD, Director, National Institutes of Health

Benefits to patients

- Increasing opportunity to prevent disease
- Helping avoid adverse drug reactions
- Increasing treatment options
- Pinpointing optimal dosing
- Increasing success rate of the therapies

Benefits to clinics and oncologists

- More quickly targeting right treatment for a patient
- Expansion to a knowledge-driven institution
- Faster connecting patients to a right clinical trial

Benefits to health care system

- Saving costs for patients, clinics and insurances through a more efficient healthcare system
- Decreasing society's socioeconomic burden from disease by increasing the productivity of the citizens and decreasing the number of premature deaths

Upside Potential: Smart Data for the development of new targeted therapies

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By-product: Big Data analytics

"By 2025 between 100 mill. and 2 bill. human genomes will be sequenced resulting in 2–40 exabytes of genomic data."*

Transforming Big Data into Smart Data

- Data cleaning
- Data structuring & annotation
- Data mining & matching
- Data analysis

Creating new databases for various economic uses

- Scientific research
- Improvement of cancer therapies
- As basis for the pharmaceutical and nutrition industries for the R&D (e.g. predicting properties of drug molecules, identifying new drug targets, segmenting patients to better target medicines)

Expertise: in chemistry, pharmacology, clinical research, genomics, proteomics, cellular and molecular biology, pharmacy, nutrition, toxicology, phytochemistry, applied chemistry, microbiology, immunology, pathology, medicine, cancer, medical nutrition, biotechnology, biochemistry, organic/inorganic/analytical chemistry, bioinformatics and pharmacy

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*Source: Stephens, Z. D. et al. PLoS Biol., http://dx.doi.org/10.1371/journal.pbio.1002195 (2015).





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