

MANIFESTO PER UNA SANITÀ "INTELLIGENTE"

Draft 10/10/2017 – riservato e non circolabile

La Medicina Personalizzata

Maurizio Simmaco, MD

Diagnostica di Laboratorio

Diagnostica Molecolare Avanzata



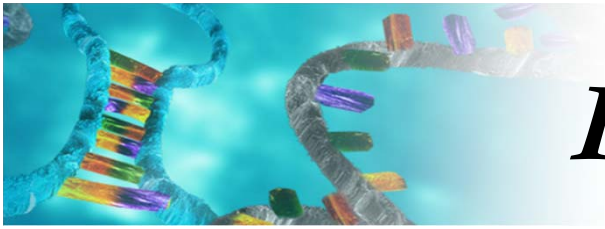
Italian Society Personalized Medicine



SISTEMA SANITARIO REGIONALE

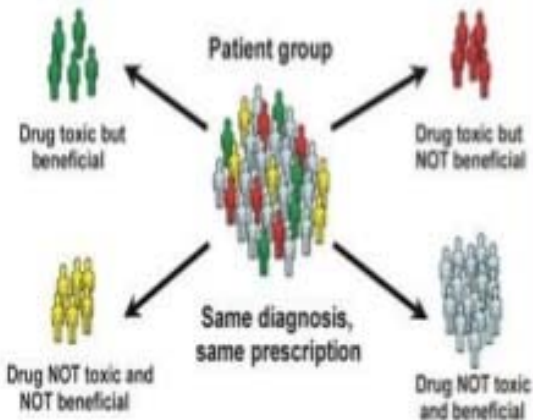
**AZIENDA OSPEDALIERO-UNIVERSITARIA
SANT'ANDREA**





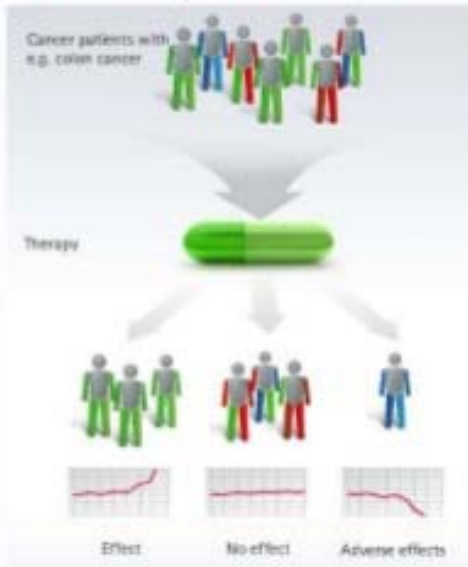
IMPRECISION MEDICINE

Personalized medicine, sometimes referred to as precision or individualized medicine, is an emerging field of medicine that uses diagnostic tools to identify specific biological markers, often genetic, to help assess which medical treatments and procedures will be best for each patient.

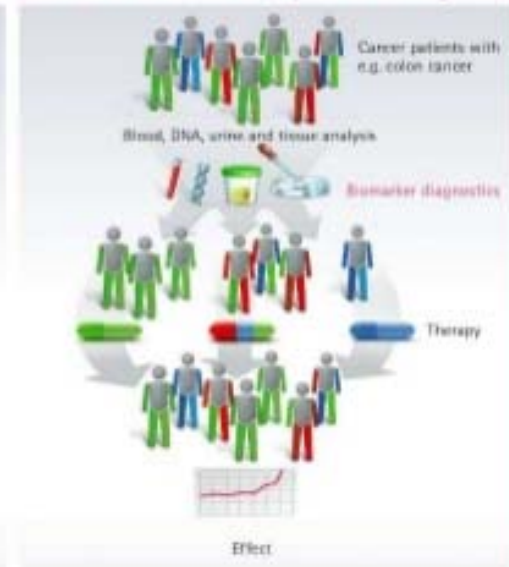


Personalized medicine: tailored treatments

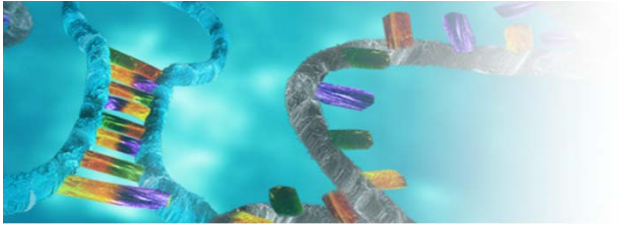
Medicine of the present: one treatment fits all



Medicine of the future: more personalized diagnostics



Different people respond differently to the same therapy: while one treatment brings about the desired success in one group of patients with e.g. colon cancer, it does not change the condition of other groups at all, or even leads to adverse effects (left). The reason: the genetic makeup and metabolic profile of each individual patient influences the effect of a drug. Personalized medicine takes these individual patterns of cellular and metabolic products into account in the diagnostic phase: biomarker diagnostics separates patients into groups with similar characteristics, and provides information on the best individual treatment. This should enable all patients to benefit from their own, "personal" therapy.



Uso farmaci in Italia

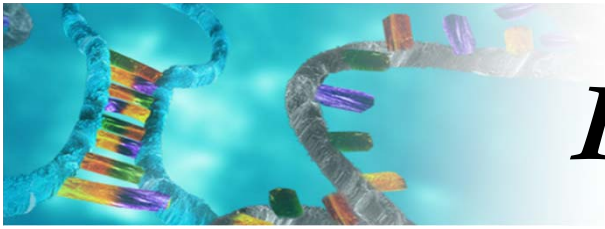
Database OsMed - AIFA

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<u>Number of drugs</u>	<u>Patient number > 65 anni</u> 12.301.537
<u>5-9 drugs</u>	6.024383 (49.0%)
<u>>10 drugs</u>	1.389.591 (11.3%)
<u>Therapy reduced adherence</u>	
<u>Antidepressant drugs</u>	201.290 (63.9%)
<u>Anti-hypertensive drugs</u>	179.975 (46.4%)
<u>Hypoglycemic drugs</u>	92.017 (63.0%)
<u>Anti-osteoporotic drugs</u>	56.621 (52.4%)

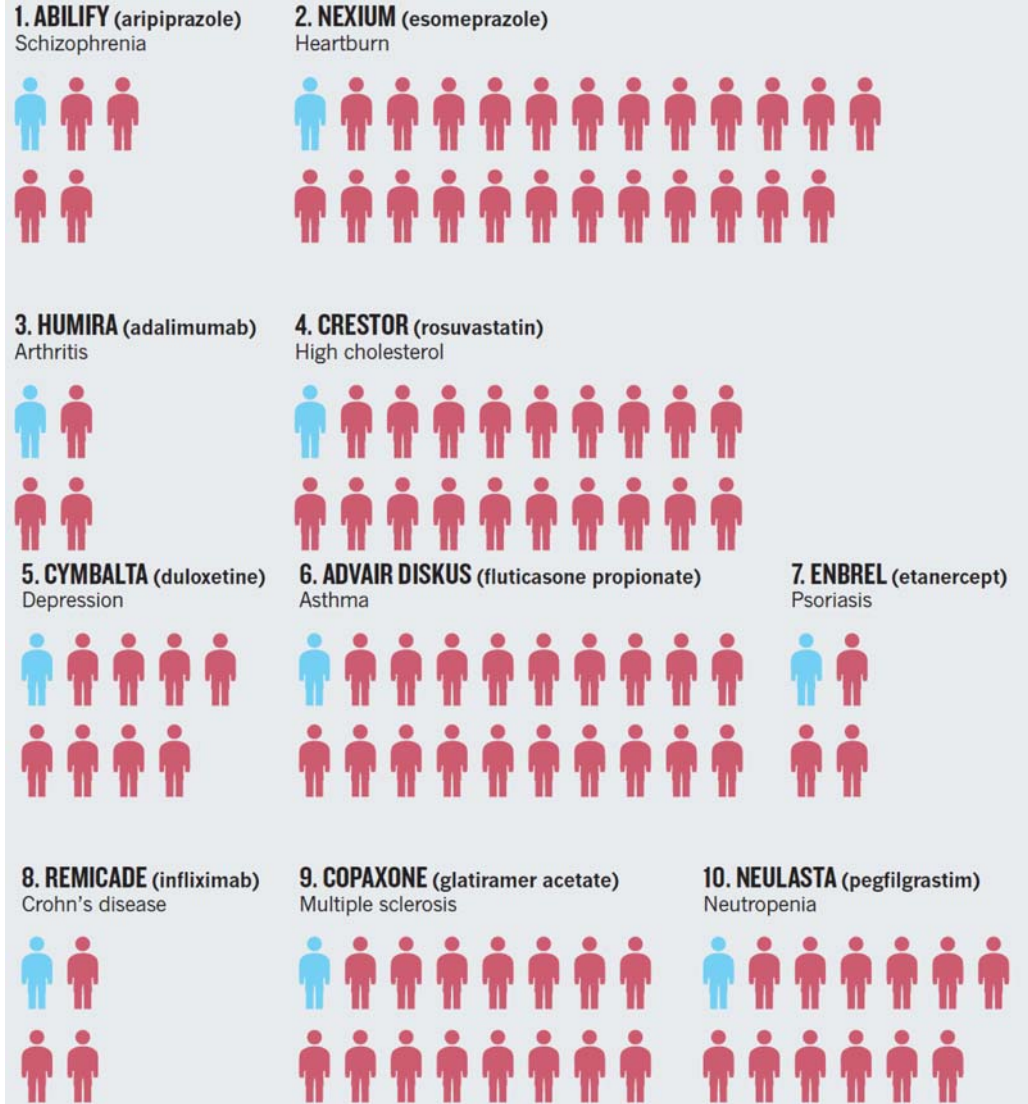
Aderenza alla prescrizione farmaci in Europa

- 50% pazienti che assumono farmaci in modo diverso dalla prescrizione
- Ogni anno circa 200.000 persone muoiono in Europa per motivi legati alla mancata adesione a trattamenti prescritti

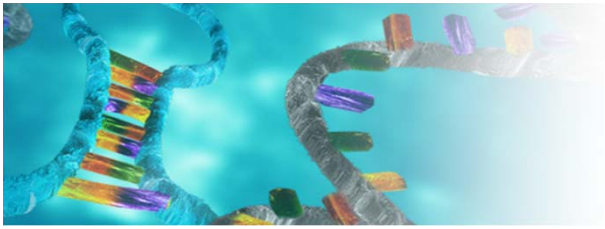


IMPRECISION MEDICINE

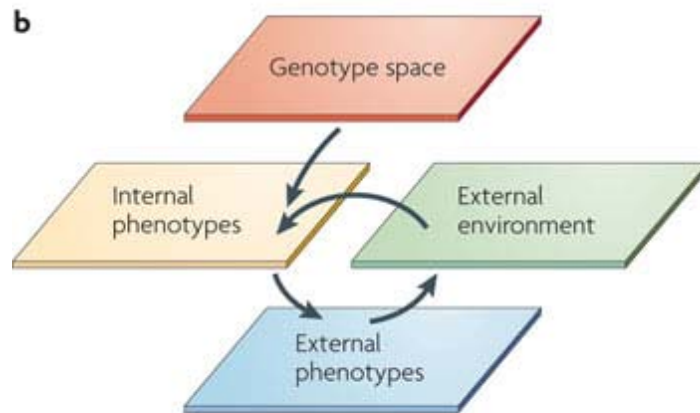
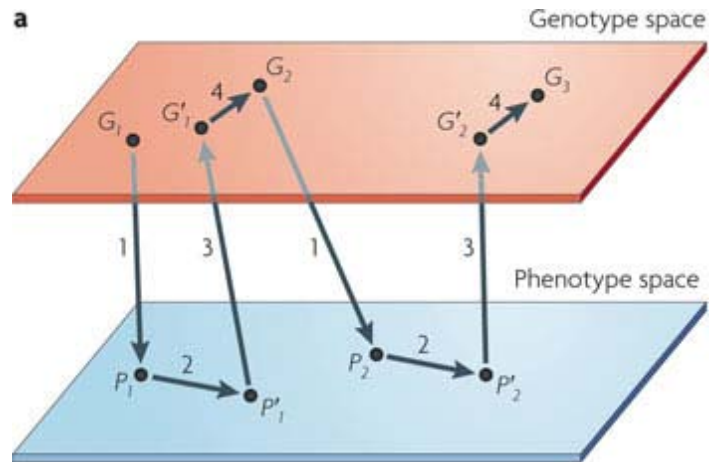
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Nicholas J. Schork, Nature, 2016



The Sant'Andrea experience: NOT just Genomics



Nature Reviews | Genetics

Phenomics: the next challenge

David Houle*, Diddahally R. Govindaraju[†] and Stig Omholt^{§||}

Abstract | A key goal of biology is to understand phenotypic characteristics, such as health, disease and evolutionary fitness. Phenotypic variation is produced through a complex web of interactions between genotype and environment, and such a 'genotype–phenotype' map is inaccessible without the detailed phenotypic data that allow these interactions to be studied. Despite this need, our ability to characterize phenomes — the full set of phenotypes of an individual — lags behind our ability to characterize genomes. Phenomics should be recognized and pursued as an independent discipline to enable the development and adoption of high-throughput and high-dimensional phenotyping.

Nature Reviews Genetics 11, 855–866 (December 2010)

<http://bioinformatics.charite.de/transformer/>

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TRANSFORMER



Home



Prodrugs



Drugs



Cocktail



Biotransformation



FAQ



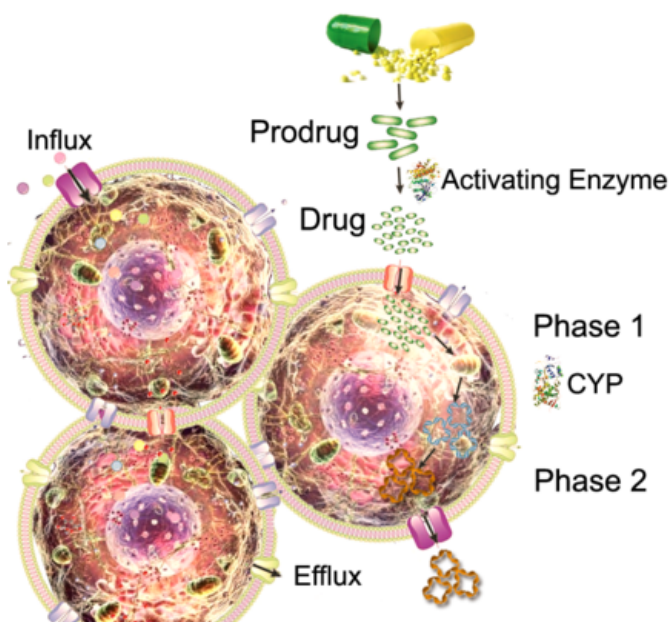
Contact



About

Transformer - Metabolism of Xenobiotics Database

Drug Transformation



Transformer

Welcome to the open access database [Transformer](#)! It provides comprehensive information on the transformation and transport of xenobiotics in the human body. It contains the interactions of phase I and II enzymes and drug transporters with drugs, prodrugs, alimentary and Traditional Chinese Medicine compounds.

A particular highlight is the ability to detect mutual effects of several drugs. To this end, the [cocktail tool](#) displays interactions of drugs on the basis of their effect on the enzymes and transporters. Suggestions of alternative medications with appropriate indication, based on ATC-code, are provided. If you are using [Transformer](#), please give us credit by linking to [Transformer](#) and citing the paper about [Transformer](#). Drug cocktail optimization in chemotherapy of cancer.

Note: Do not stop taking any medications without consulting your doctor or pharmacist.