OIST OKINAWA INSTITUTE OF SCIENCE AND TECHNOLOGY GRADUATE UNIVERSITY
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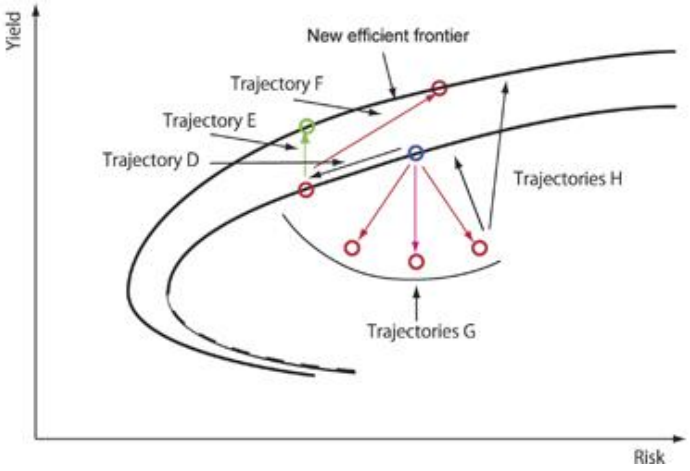
Anti-Cancer Drug Screening

The Problem

A serious discrepancy exists between cultured cells used for drug screening, which become adapted to specific culture conditions and higher growth rate, and the genetically diverse cancer cells of a tumor which are optimized for robustness against a broader range of perturbations, limiting the validity of drug screening tests.



A population of cells is mapped onto a yield-risk space and the efficient frontier is shown. Chemotherapy for cancer may shift the point inside the efficient frontier with different end points because of heterogeneous subpopulations (Trajectories G). However, tumor cells may evolve to gain proliferation potential despite the presence of anticancer drugs (Trajectories H).

The Solution

Cell cultures exposed to multiple perturbations are exposed to multiple pharmaceuticals at multiple dosages to determine the optimum combination of cancer agents.

Applications

- Drug screening (e.g. anti-cancer)
- Stem-cell growth

Benefits

- Evaluation of efficacy in multiple therapeutic regimes

Keywords

Bioinformatics, cell selection, drug screening, anti-cancer drug screening, GI50, genetic portfolio selection

Opportunity

- Collaborative research

Patent Status

This technology is granted as: EP11792212.2, JP2010-130513, and has entered the National Phase as: US13/702,215

For more information

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