## Drug Combination Testing



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Combining drugs that affect different synergistically-acting targets has become a promising new strategy for cancer therapy because of its potential to increase the therapeutic effect, reduce toxicity, or minimize drug resistance.

## > Approach

Depending on the drugs' effectiveness and their mechanisms of action, different approaches are being used to determine combinatorial drug effects. At Reaction Biology, we can perform (i) a one-sided approach, i.e., the concentration of one drug is set, and the concentration of the other drug changes or (ii) a two-sided approach, i.e., both drugs are tested with several concentrations in a checkerboard matrix setup.

Combination testing is available for Soft Agar Assay, Migration Assay, and 3D Tumor Spheroid Assay. Highthroughput 384 well-based drug combination testing can be performed with the Cell Proliferation Assay and ProLiFiler.

## > Study example with two-sided synergistic effect



**Synergy of Selumetinib and AZ-628:** The impact of the Selumetinib/AZ-628 combination on the proliferation of OPM2 cells was analyzed in the dose-response mode of one compound in the presence of another compound. Increasing the concentrations of one compound decreased the IC50 values of the other compound and vice versa.



**Bliss-Factor Analysis:** A Bliss-Factor matrix was used to calculate the expected effects for a merely additive situation based on the effects of the compounds alone. This was compared with the actual data obtained. The difference between both numbers is given in the Bliss factor analysis, showing positive numbers for synergistic effects. These calculations are shown as threedimensional plot: a hill on the plot indicates synergism.

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