Application of a high throughput, multi-parametric single-cell assay to assess the diversity in drug effects on multiple cell populations

- Healthy donors
- Patients with hematological malignancies: acute myeloid leukemia (AML), multiple myeloma (MM), others

Peripheral blood  |  Bone marrow

High throughput flow cytometry

- B cells (CD19⁺)
- NK cells (CD56⁺)
- T helper cells (CD3⁺ CD4⁺)
- Cytotoxic T helper cells (CD3⁺ CD8⁺)
- Monocytes (CD14⁺)

Drug exposure

Venetoclax  ▶ similar cell specific effects in all tested samples independently whether healthy or malignant
  ▶ the variation in response is purely lineage specific

Midostaurin  ▶ effect on CD19⁺/B cells (median IC50, 314 nM) was comparable to FLT3-ITD mutated AML CD34⁺CD38⁺ blasts

Comparison of drug responses in healthy and neoplastic cells showed that healthy cell responses are predictive of the corresponding malignant cell response

Majumder et al., Haematologica, 2020