IQVIA LABORATORIES

Functional Cell Killing Assays

IQVIA Laboratories In Vitro Immunology offers a broad menu of assays, advancing programs from discovery to pre-IND and exploratory clinical stages. With a focus on in vitro translational immunology in a non-regulated/R&D context, we help customers screen therapeutic candidates for adverse safety issues including immunogenicity and toxicity, evaluating potency of the candidate drug in functional assays.

Our in vitro immunology team delivers services to help you:

- In vitro and in silico immunogenicity assays
- Functional cell-based assays
- Explorative clinical cellular mediated immunity
- Consultative services, including theoretical immunogenicity and immunology courses, protocol review and optimization, data analysis and interpretation, and hands-on training on the isolation and cryopreservation of PBMCs from whole blood.

Our services are tailored to each project. Our team brings years of expertise in recommending the most appropriate assays and optimizing them for your needs. Whether you need an off-the-shelf assay or a custom solution, we can help. Our agile approach ensures that we connect with customers after each stage to determine the next step.

Assays for lead candidate selection with a specific focus on cytotoxicity assays

- Antibody-dependent cellular cytotoxicity (ADCC) assay
- Complement-dependent cytotoxicity (CDC) assay
- Antibody-dependent cellular phagocytosis (ADCP) assay
- Antigen-specific/recall killing assay
- 3D spheroid killing assay

Assays established with a variety of cell types

- Peripheral blood mononuclear cells (PBMCs)
- T cells
- Natural killer (NK) cells
- Neutrophils
- Macrophages

Experience with a variety of molecule types

- Monoclonal/bispecific antibodies
- Antibody-drug conjugates
- New antibody formats
- Small molecules
- Cancer vaccines (peptides, mRNA, lipid nanoparticles [LNPs])

Our lab in Gosselies, Belgium holds a Belgian Biobank License and houses **>1300 high-quality PBMC samples from healthy donors** with **4-digit HLA typing, immunophenotyping and antigen response assessment.**

Available platforms / readouts

Flow cytometry

Target cell tracking, immunophenotyping, intra-cellular cytokine staining, proliferation

96-well plates

Live cell imaging

Real-time cytotoxicity, apoptosis induction, phagocytosis, reactive oxygen species (ROS) production

Multiple formats possible

Luminescence assays

MTT, LDH, ATP assays with plate reader

96-well plates

Antigen-specific response assays

ELISpot, FluoroSpot, pMHC multimer staining, intracellular cytokine staining (ICS)/multiplex flow cytometry readout

Additional services

Cytokine production via ELISA or multiplexed Luminex® and LEGENDPlex™ assays

Generation of cell pellets or cryopreservation for downstream analysis (cell sorter available)

Reporting formats

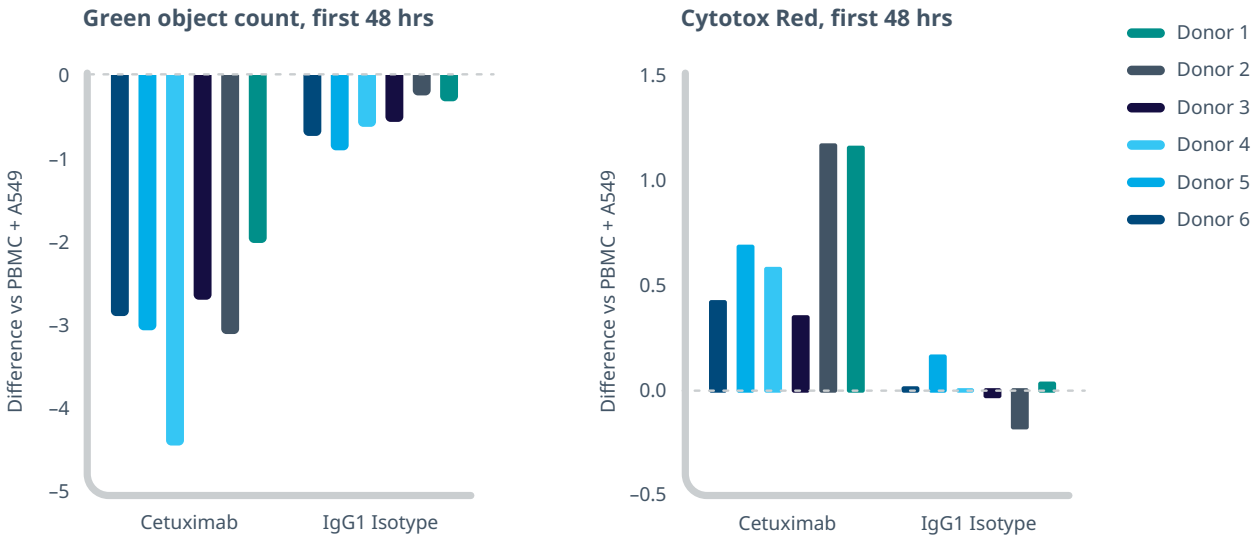
Raw data

Overview report (PowerPoint with Biostatistics)

Quality controls

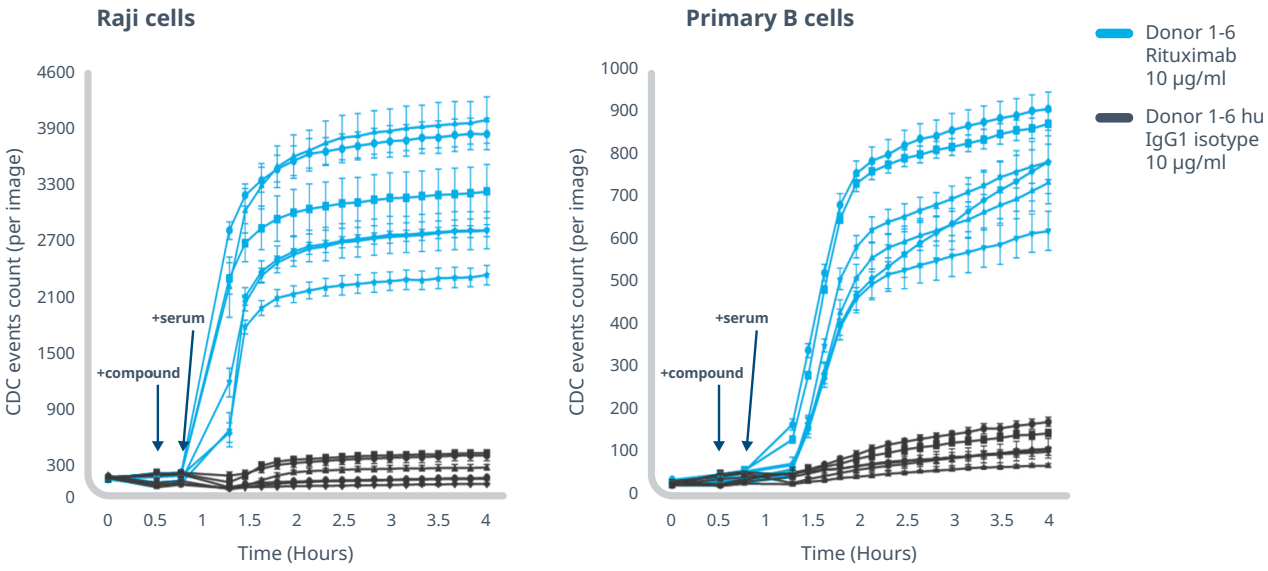
Full report (PowerPoint + Word report with Biostatistics)

Antibody-dependent cellular cytotoxicity (ADCC) assay



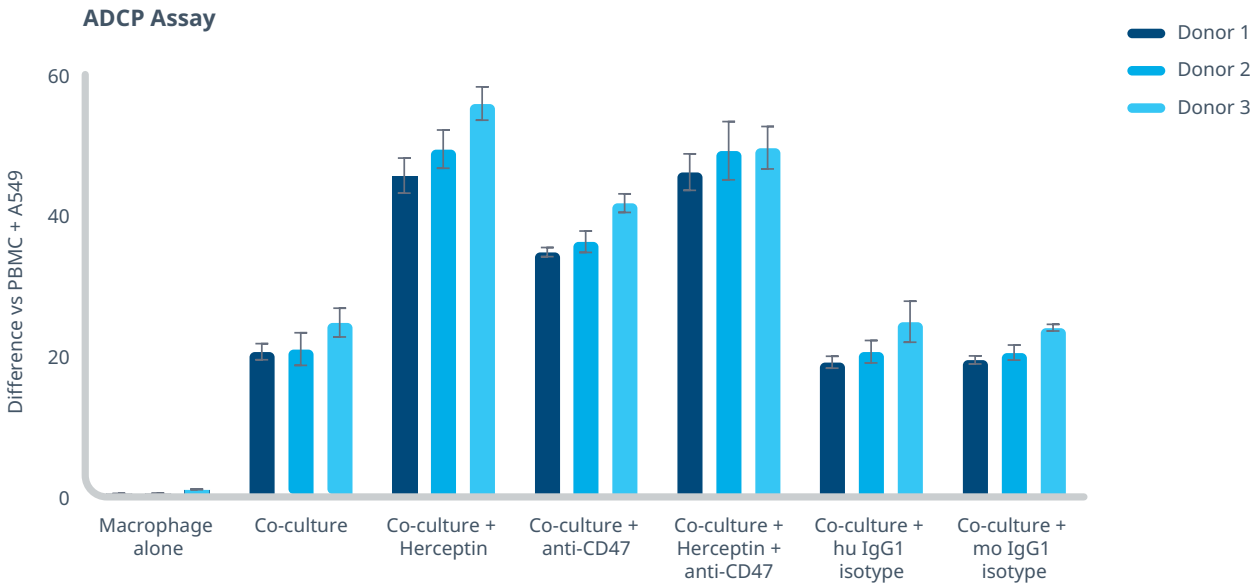
A549 target cells expressing a green fluorescent marker were co-cultured with PBMCs from 6 healthy donors and treated with cetuximab or an IgG1 isotype control in the presence of an Incucyte Cytotox Red Dye. Evaluation of cytotoxicity was performed in a live cell imaging assay by tracking the reduction of green object counts and the red fluorescent signal real-time.

Complement-dependent cytotoxicity (CDC) assay



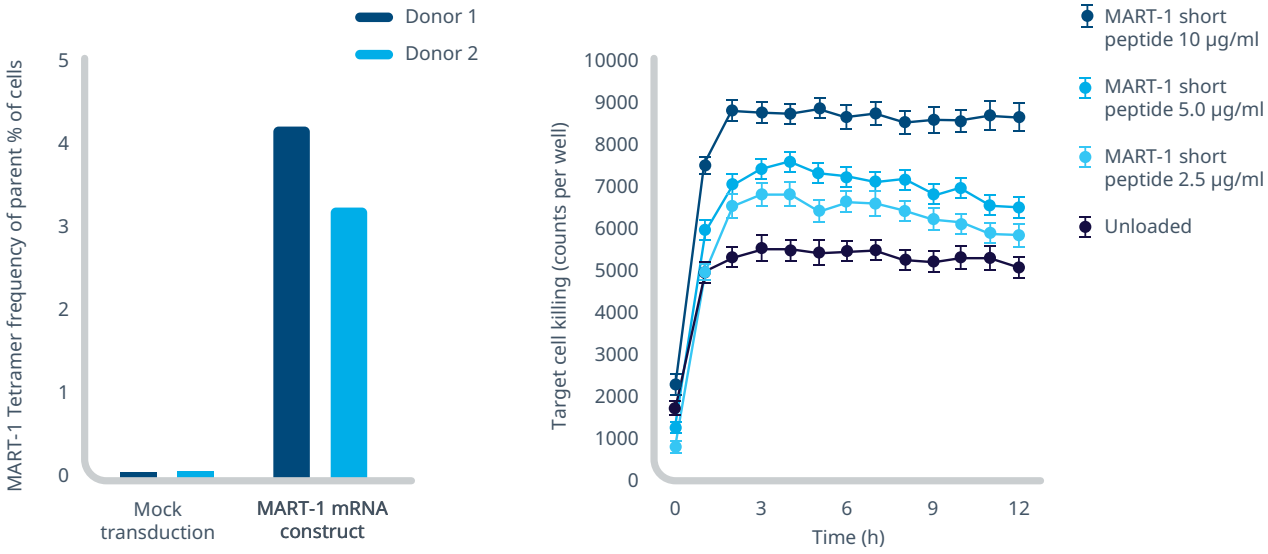
Raji cells and primary B cells (healthy donors) were treated with rituximab or an IgG1 isotype control and serum of 6 healthy donors in the presence of a fluorescent Cytotox dye. Complement-dependent cytotoxicity was evaluated real-time in a live cell imaging assay.

Antibody-dependent cellular phagocytosis (ADCP) assay



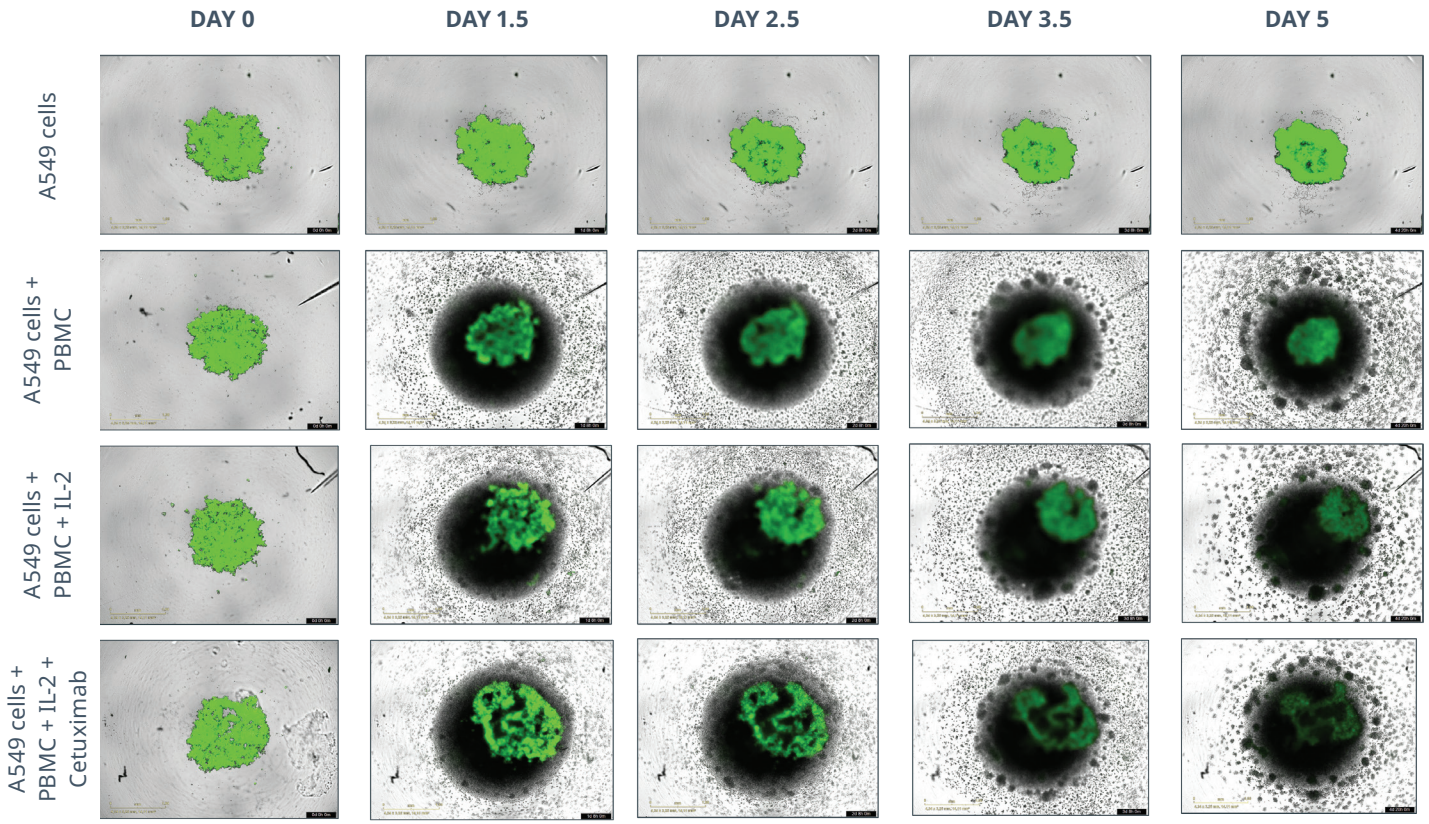
Target cells were labeled with a CellTrace dye and co-cultured with M2-like macrophages from 3 healthy donors. Co-cultures were treated with Herceptin®, anti-CD47, human IgG1, mouse IgG1 or left untreated. Antibody-dependent phagocytosis was evaluated by flow cytometry quantification of the % of CellTrace positive macrophages.

Antigen-specific/recall killing assay



Autologous B cells loaded with MART-1 peptide were co-cultured with in vitro generated MART-1 specific $CD8^+$ T cells. MART-1 specificity was confirmed via a MART-1 tetramer staining. Evaluation of cytotoxicity was performed in a live cell imaging assay by tracking a fluorescent Cytotox dye signal real-time.

3D spheroid killing assay



A549 target cells expressing a green fluorescent marker were seeded at 1 density per well. PBMCs from healthy donors were added after 3 days at 1 effector : target ratio. The co-cultures were treated with IL-2 and cetuximab for 5 days. Evaluation of cytotoxicity was performed in a live cell imaging assay by tracking the total green area signal real-time.

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