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Overview

Vivia Biotech can scale CDC and ADCC assays at physiological levels using real native environment with autologous serum and effective E:T ratios with autologous NK Cells

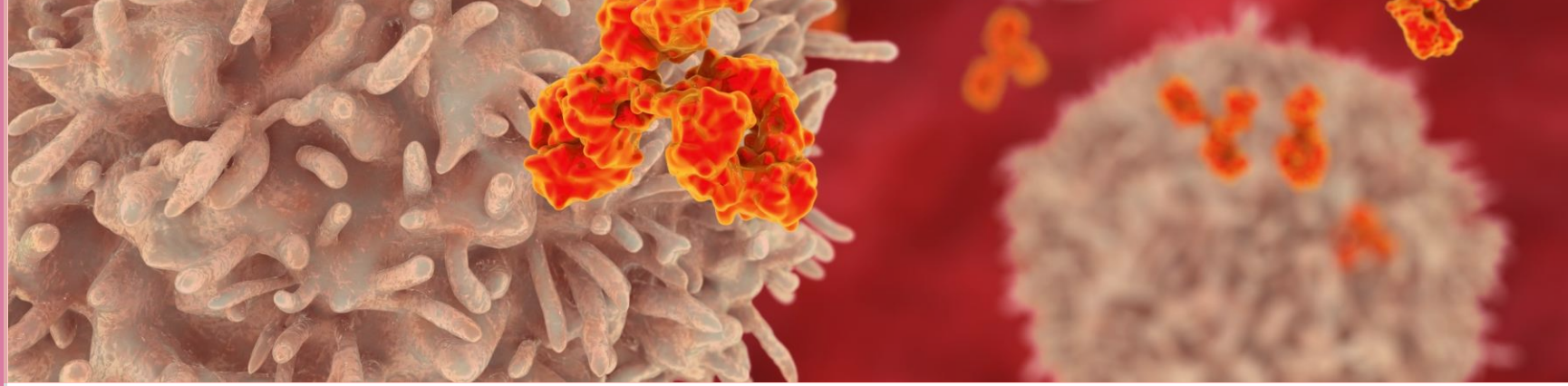
Click to learn more

Click for custom assays in solid tumors

Click for custom assays in hematological malignancies

Santiago Grisolia 2
28760 . Madrid . Spain
(+34) 91 129 3151
admin@viviabiotech.com

www.viviabiotech.com

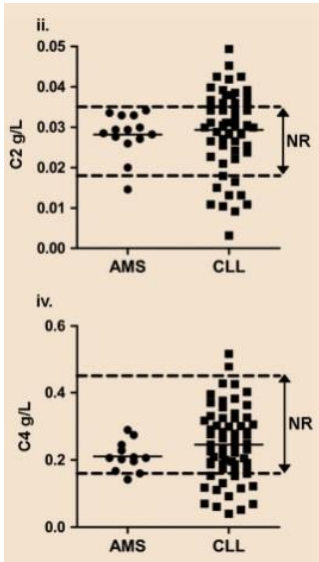


ADCC & CDC Activity Ex Vivo Assays at Physiological Levels

We use real patient samples preserving their native environment including the different levels of complement proteins which vary from patient to patient. This is a differential factor compared to other standard assays where the concentration of complement proteins is fixed.

KEY HIGHLIGHTS

- Therapeutic antibodies *ex vivo* activity reveals high interpatient variability
- Complement protein levels vary in each patient*. We can capture inter-patient variability.
- We preserve the different levels of complement proteins as a differential factor compared to other standard assays where the amount added is fixed
- Vivia can provide reliable and high-quality CDC and ADCC assays using real samples from patients
- ADCC Assay incorporate real E:T ratios (NK Cells: Leukemic Cells) to capture the activity of these therapeutic antibodies mediated by cells displaying Fc receptors.
- CDC and ADCC assays with autologous plasma and NK cells capture the activity of therapeutic antibodies evaluating their depletion results based in the quantification of live cells.
- We can measure by flow cytometry the expression of complement proteins, i.e., CD55, CD59, etc.
- ADCC vs CDC assays allow patient selection and stratification to tailor personalized treatment
- We directly use the patient sample with his real autologous serum, obtaining a personalized profile of the pharmacological activity of the therapeutic antibody.



** From Middleton O et al. Leukemia 2014*

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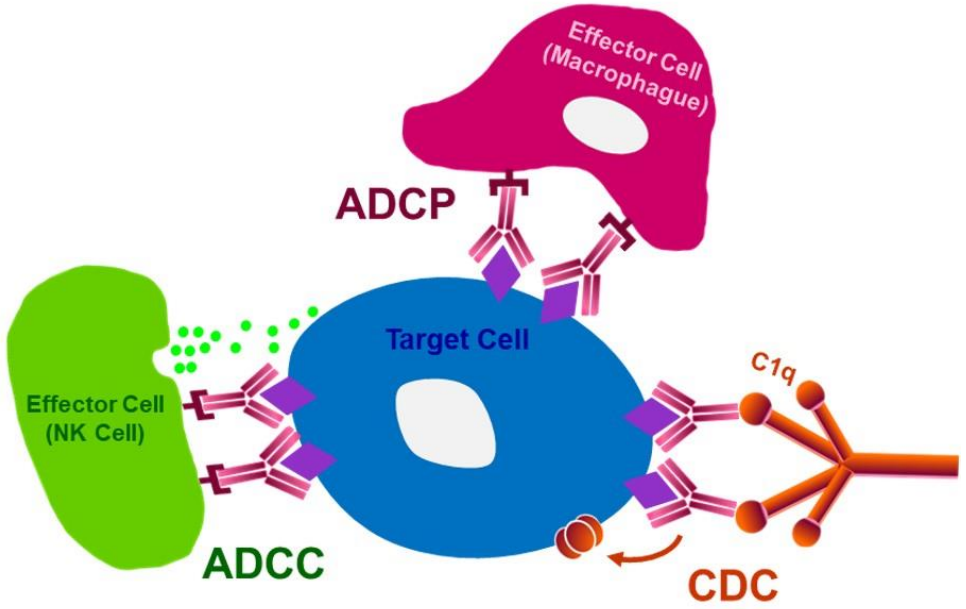
Therapeutic monoclonal antibodies (mAbs) induce cell death through different mechanisms involving NK Cells (antibody-dependent cell mediated cytotoxicity; ADCC), phagocytic cells (antibody-dependent cellular phagocytosis; ADCP), or activating a cascade of complement-related reactions (complement-dependent cytotoxicity: CDC).



Most therapeutic monoclonal antibodies (mAb) make use of complement in their MoA, so the complement pathways have to be fully effective to achieve better clinical efficacy. Clinical investigations have shown that the level and activity of complement proteins vary among patients with haematological malignancies, which together with the complement deficiencies that have been observed, including overexpression of membrane complement regulatory proteins in the tumor microenvironment, often cause unresponsiveness and resistance to treatment with these mAbs

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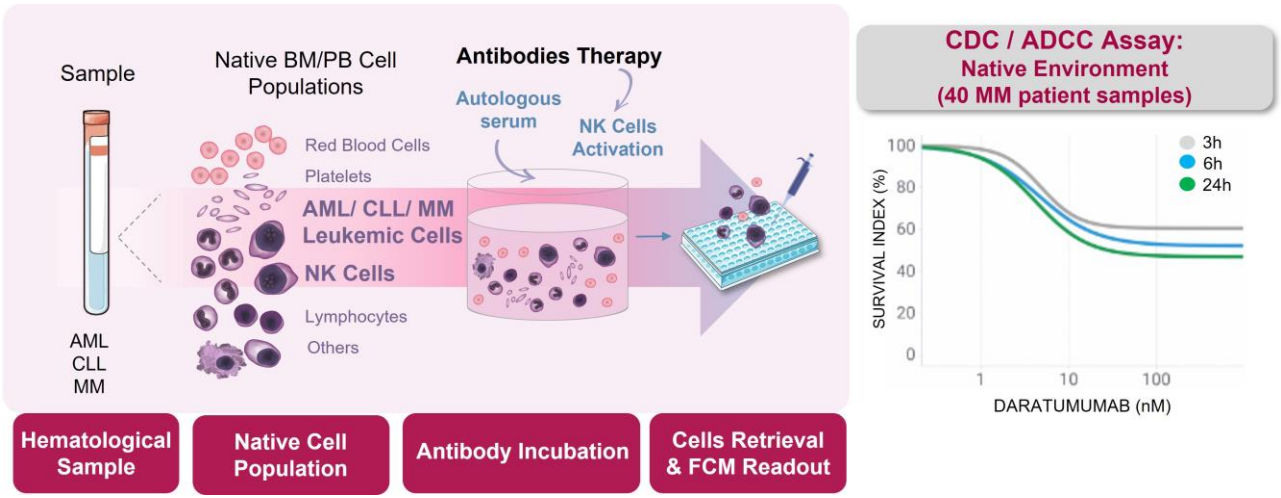
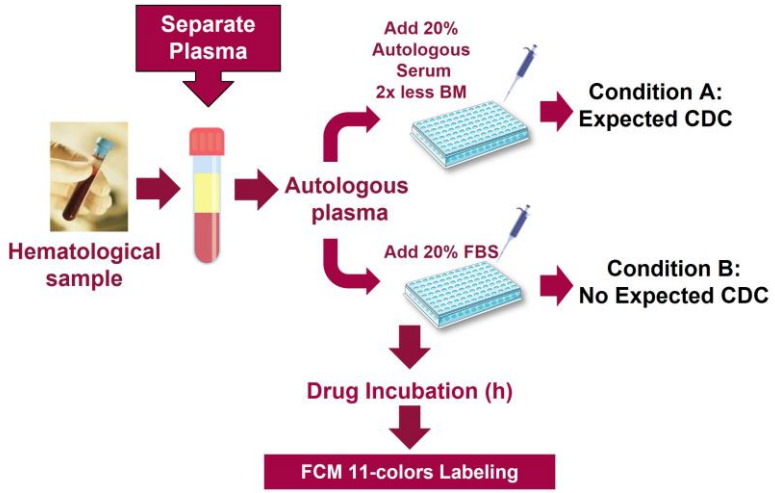
Vivia Biotech can scale CDC assays at physiological level, using real native environment with samples from patients with hematological malignancies. By the other hand, the use of effective E:T ratios using autologous NK Cells can elicit ADCC activity.

CDC & ADCC Assays Using Autologous Serum and NK Cells from Hematological Patients



At Vivia Biotech we can capture the mechanism of action of therapeutic antibodies by incorporating or removing the patient's autologous plasma.



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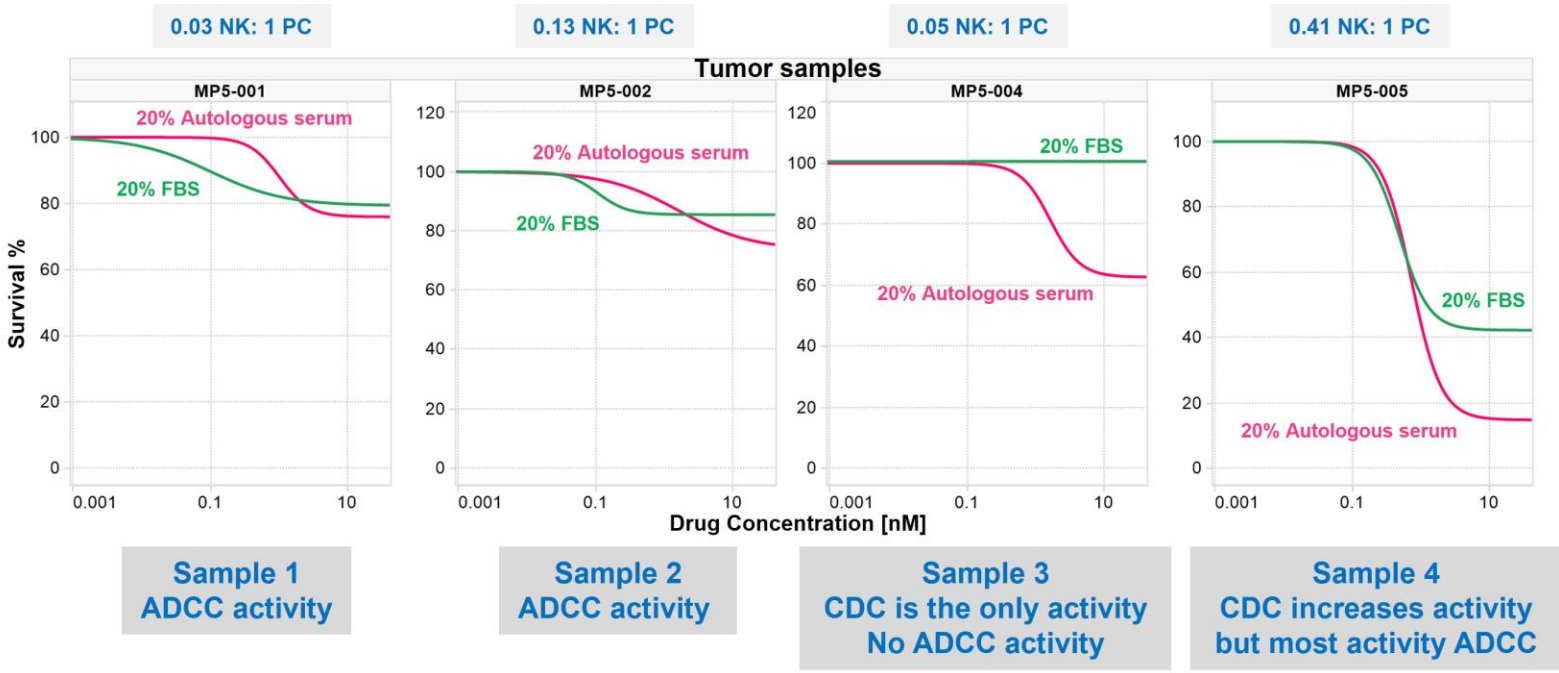
Vivia Native Environment improves the impact of ADCC vs CDC activity at physiological level



Daratumumab killing activity with 20% autologous serum (red) vs 20% FBS (green). Results show that Daratumumab requires human complement present in Vivia MM Native Environment at 2x dilution from BM patient sample.