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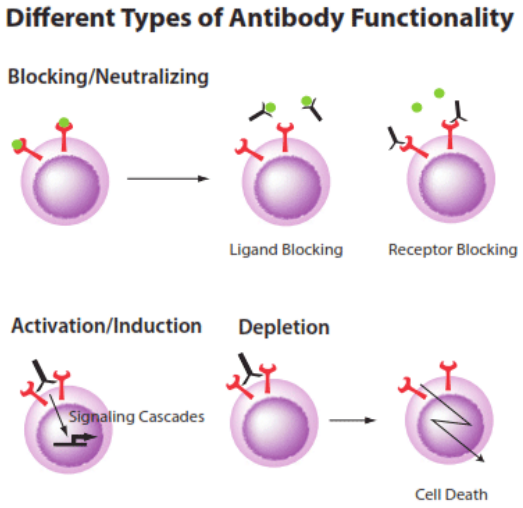
# Biologically active antibodies

They are sometimes qualified as antagonist, sometimes as agonist. Sometimes named inductive, sometimes repressive, sometimes blocking, or sometimes neutralizing. But they are always called antibodies. Have you ever guessed what it was about? Yes, that's them, the **biologically active antibodies**!




Depending on the nature of the antigen, a specific antibody can demonstrate different biological functions:

- if the target is a cell surface marker for instance, the desired effect of the mAb may involve proliferation (**induction/activation** effect through a signaling cascade ), inhibition, cell maturation or even the killing of the target cell. **Cell depletion** will then occur through the recruitment of immune mediators with the Fc portion of the mAb to trigger antibody-dependent cellular cytotoxicity (ADCC), antibody-mediated phagocytosis cytotoxicity (ADCP) or complement-dependent cytotoxicity (CDC).
- if the target is a soluble molecule such as plasma protein (TNF, VEGF…) or a drug, the binding may trigger a **blocking effect**. When bound to the mAb, these drugs are not able to interact with their normal targets anymore. Of course, blocking effect can also occur via the cell surface receptor like the well-known immune checkpoint inhibitors (targeting CTLA-4, LAG3, PD1 and PDL1).
- If the target is an infectious organism, the desired function of antibodies may be **neutralization** of the foreign host, so disabling the virus, bacteria or other. In fact, most licensed vaccines teach the body how to make neutralizing antibodies.

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Diaclone SAS
6 rue Dr Jean-François-Xavier Girod
BP 1985 - 25020 Besançon cedex – France

Tél : +33 (0)3 81 41 38 38
Fax : +33 (0)3 81 41 36 36
Email : Info@diaclone.com

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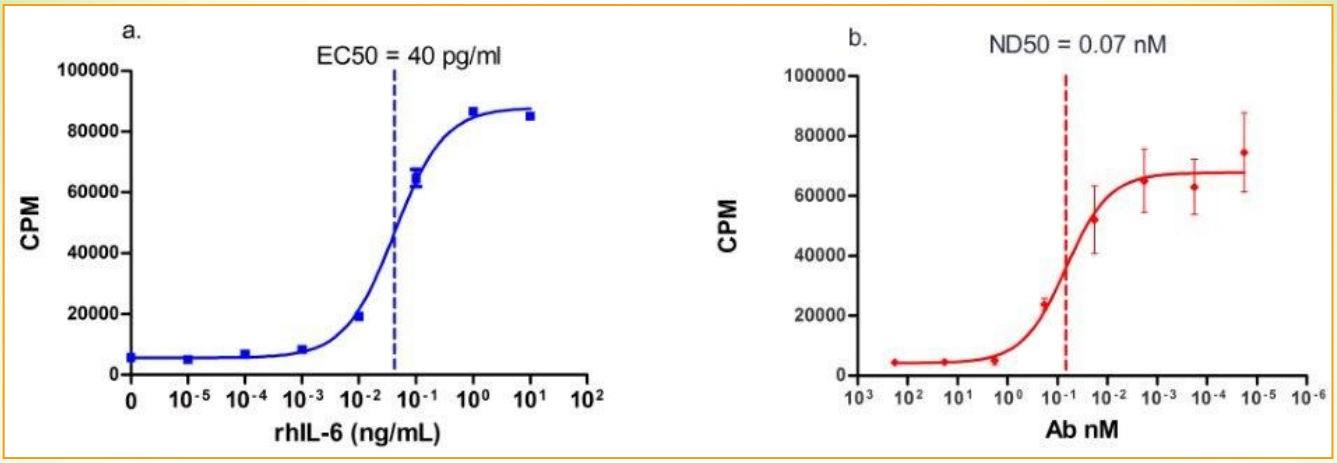


***Cell proliferation induced by IL-6 and Neutralization by anti-IL-6 antibody**. (a) Recombinant human IL-6 stimulates proliferation in XG1 cell line in a dose-dependent manner. The ED50 is typically 30-40 pg/mL. (b) Proliferation elicited by rhIL-6 (1ng/ml) is neutralized by increasing concentrations of human IL-6 monoclonal antibody. The ND50 is 0.07nM.*

Unfortunately, many difficulties can appear during the process of raising biologically functional antibodies. We can name:

- epitope masking by variable loops or multimerization event,
- the presence of cryptic binding domains,
- the very high binding affinity of the target for its receptor, which makes the generation of inhibitory antibodies extremely challenging,
- the very narrow window for neutralizing antibodies to act before the establishment of a virus infection and its genome integration into the cell host.

Either from a classical hybridoma approach or by phage display technique, DIACLONE has over the years learned to tackle all these obstacles to offer you **the best possible antibody references**. Thanks to its **bioassay platform**, all our references are highly validated via proliferation, cytotoxicity, neutralization or various cell functionality tests.

**Want to know more about these unique antibody references?**
**Or you desire to validate your antibodies via our bioassays?**
**Don't hesitate to contact us !**

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Email : Info@diaclone.com