**Editorial**

Non-Hodgkin’s lymphomas (NHLs) are the second fastest growing cancer in terms of incidence and deaths in the United States and Europe. NHLs are a heterogeneous cancer group including several haematological neoplasias with different degree of aggressiveness. In spite of the progresses, conventional therapies do not ensure long-term survival [1]. The NHL patients, who have a poor life expectation, could take advantage from innovative therapeutic strategies, such as immunotherapy. Specific antibodies can preferentially bind tumour cells over normal tissues. This specificity is based upon characteristics (surface antigens) that are completely independent from the parameters that allow for differential toxicity of chemo- and radiotherapy. The vascular nature of most lymphomas and their antigen expression make these tumours a favourable setting for treatment with monoclonal antibodies. In fact, the first successful use of antibodies as treatments for cancer was demonstrated in NHLs [2,3]. CD20 has been largely exploited as target antigen for immunotherapy with antibodies because it is expressed at high levels on B-lymphoma cells and is not expressed on stem cells [4].

Rituximab is the first mAb approved by US FDA for the treatment of indolent or relapsed NHLs. It is a chimeric antibody, consisting of variable regions of murine origin and constant regions derived from human IgG1. It is able to kill target cells prevalently by CDC, but also variable regions of murine origin and constant regions derived from indolent or relapsed NHLs. It is a chimeric antibody, consisting of engineered antibodies with humanised CDR and modified Fc regions, to augment binding affinity for CD20 antigen and for the FcγRIIIa receptor on effector NK cells. A first group of engineered antibodies (also named second generation anti-CD20 mAbs) has been developed with the intent to reduce immunogenicity; it consists of humanised molecules, with murine portion restricted to only hypervariable regions, or fully human molecules (OFA, veltuzumab, and ocrelizumab). A second group (also named third generation anti-CD20 mAbs) consists of engineered antibodies with humanised CDR and modified Fc regions, to augment binding affinity for the FcγRIIIa receptor and consequently ADCC (rhmAb v114, ocaratuzumab, obinutuzumab, TRU-015, EMAB-6) [2,4]. Most of these new mAbs are still in clinical trials and several positive results have been reported, despite their complete clinical potential has not been yet exploited.

Certainly, the availability of a panel of human anti-CD20 mAbs...
with different efficacy on the various NHL subtypes will lead to an improvement of clinical responses.

This scenario indicates that a future golden age for NHL therapy can be near when it will be possible to match the more effective and tolerated agents with a single lymphoma subtype, obtaining personalized schedule tailored to single lymphoma patients.

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References

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