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The group uses its own fully synthetic phage display library of humanized llama recombinant single domain antibody that can provide high affinity binders without animal immunization. The library contains 3.10^9 independent nanobodies.

Specifically, our interests are mainly focused on three subjects :

1. Identification of antibodies for known antigens

Both soluble antigens and receptors expressed on the cell surface have been successfully used to isolate antibodies suitable for different immune techniques. Their characterization has been performed *in vitro* and *in vivo* and the recent acquisition of a SPR device allowed the determination of the affinity of the isolated antibodies for their substrate as well as the identification of their specificity for common or exclusive epitopes. We are working on the possibility to isolate antibodies specific for determined epitopes that have a functional or regulative interest. Finally, we investigate the limit of our approach in terms of minimal antigen requirements (mass, accessibility, absolute number, chemical features).

2. Isolation and characterization of antibodies specific for new cancer markers

Cells recovered starting from tumor samples represent a valuable source of material for direct panning. This approach is aimed at identifying unknown markers useful for characterizing different populations of tumor cells that can be exploited for both diagnostic and therapeutic needs. We expect that the collaboration with the clinic will help in developing the techniques for isolating antibodies suitable for different applications such as direct tumorigenesis inhibition, cell separation by flow cytometry, cancer cell identification in tissue biopsy, antigen detection in blood samples.

3. Development of technologies for optimizing the antibody-dependent imaging and drug delivery

The group is strongly committed in designing immune reagents able to maximize the *in vivo* activity of the selected antibodies. Different technologies have been exploited to obtain fusion immunoproteins with different geometry and pharmacokinetic features with the aim of identifying more effective imaging tools and drugs to destroy cancer cells without damaging the surrounding healthy tissues.



Therapeutic antibodies (Tab-IP) and recombinant antibodies Platforms

The aim is to prepare a set of tools that will be used for evaluating the potential clinical impact of any recombinant antibody in short time and reliable way. This effort will allow focusing on the promising candidates and identifying the best application opportunities for each of them.

Services

The facility offers antibodies with modified species while keeping their specificity (same antibody with a rabbit, mouse or human Fc part). These antibodies have mostly been selected *in vitro* by phage display methods or derived from existing hybridoma.

Link to the [catalog](#):

Id : **visitor**

Password : **visitor**

Click on "Antibodies Datasheet", then on "Search!".

Phage display screening for specific project are available.

Key publications

Year of publication 2016

Sandrine Moutel, Nicolas Bery, Virginie Bernard, Laura Keller, Emilie Lemesre, Ario de Marco, Laetitia Ligat, Jean-Christophe Rain, Gilles Favre, Aurélien Olichon, Franck Perez (2016 Jul 20)

NaLi-H1: A universal synthetic library of humanized nanobodies providing highly functional antibodies and intrabodies.

eLife : [DOI : 10.7554/eLife.16228](https://doi.org/10.7554/eLife.16228)