

Hybrigenics Services will give a talk entitled

“ Synthetic VHH library, phage display and yeast Two-Hybrid, a new way for antibody and intrabody selection.”

Antibodies represent central tools in most biological studies to analyze protein localization and function. One of the remaining limitations is the challenge to make them work inside a living cell. For this purpose intrabodies can be selected as powerful tools to answer complex biological questions, as has been shown for example with a conformational intrabody recognizing specifically the GTP-bound form of the small GTPase Rab6 (1), GTP-tubulin (2), or farnesylated PSD95 (3).

So far, the access to intrabodies was limited to highly trained lab specialists in this field. We have therefore set up a new platform for intrabody screening and designed for this purpose a fully synthetic humanized naïve Llama VHH library containing 3x10⁹ antibodies, based on a unique scaffold with random complementary determining regions (CDRs). We use a combination of phage display and subsequent yeast two-hybrid (Y2H) screening to identify antibodies against native antigens and eventually intrabodies. The VHH clones are directly accessible and the recombinant antibodies can be produced as fusions to either a human, mouse or rabbit Fc domain (4).

We successfully selected from this library VHH against a variety of antigens including large proteins, haptens and receptors directly selected from cell surface expression. The affinity of our VHH is similar to the affinity of antibodies selected after animal immunization.

Using only a single round of phage display followed by one round of Y2H screening we were able to significantly enrich the selection in intrabodies. In addition, we took advantage of yeast genetics to further study and characterize the selected intrabodies. Here this technique will be exemplified with the selection of intrabodies against GFP, p53 and USP7.

- 1) Nizak C. et al. Science 2003, 300: 984
- 2) Dimitrov A. et al. Science 2008, 322: 1353
- 3) Fukata Y et al. J. Cell Biol. 2013, 202: 145
- 4) Moutel S. et al. BMC Biotechnology 2009, 9: 14

Presentation by: Dr. Jean-Christophe RAIN, Deputy General Manager, Hybrigenics Services



Place:

Pierre Potier Center, Toulouse

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Save the date: **Friday September 16th, 2016**



Call our team of experts

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