

# Ecobody technology: Rapid and Direct Screening of Monoclonal Antibodies from Single B cells of humans and rabbits

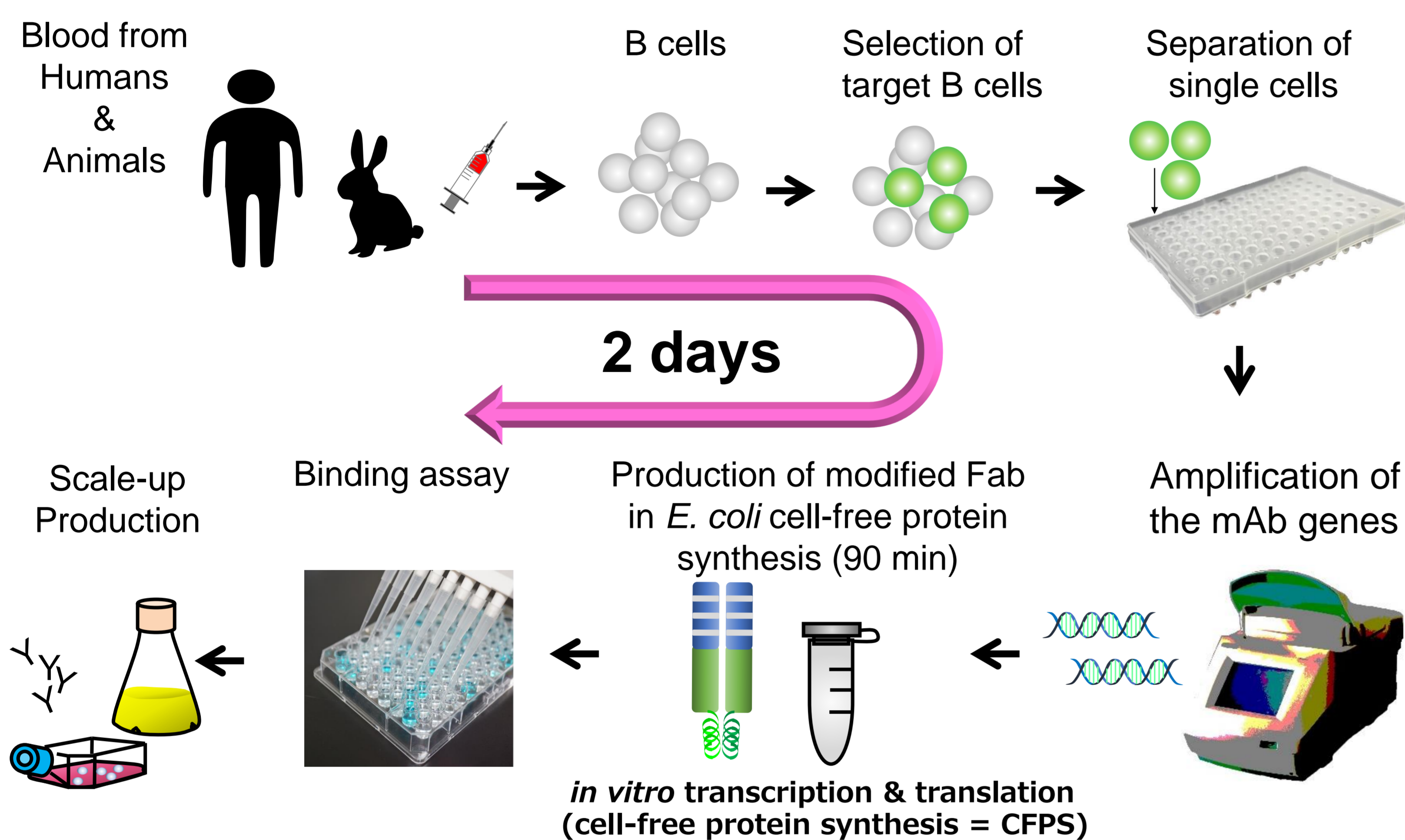
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**Abstract** We have developed Ecobody technology which allows rapid generation and evaluation of monoclonal antibodies (mAbs) from single B cells. In this method, we use single B cells in the peripheral blood obtained from immunized animals or human volunteers. After direct amplification of mAb genes from the selected single B cells, the modified format of mAb proteins 'Zipbody with N-terminal SKIK peptide tag' are produced in *E. coli*-based cell-free protein expression system. Since this technology doesn't require any cell cultivation step, we can finish mAb screening for only two days. Using Ecobody technology, we successfully obtained rabbit mAbs for pathogenic bacteria, peptide toxin, low-molecular-weight compound, and human mAbs for influenza viruses and some antigens which may cause diseases.

**Conclusion** Ecobody technology enables rapid screening of valuable mAbs from humans and rabbits, which are difficult to obtain by the conventional hybridoma technology.

## Ecobody technology<sup>1,2</sup>

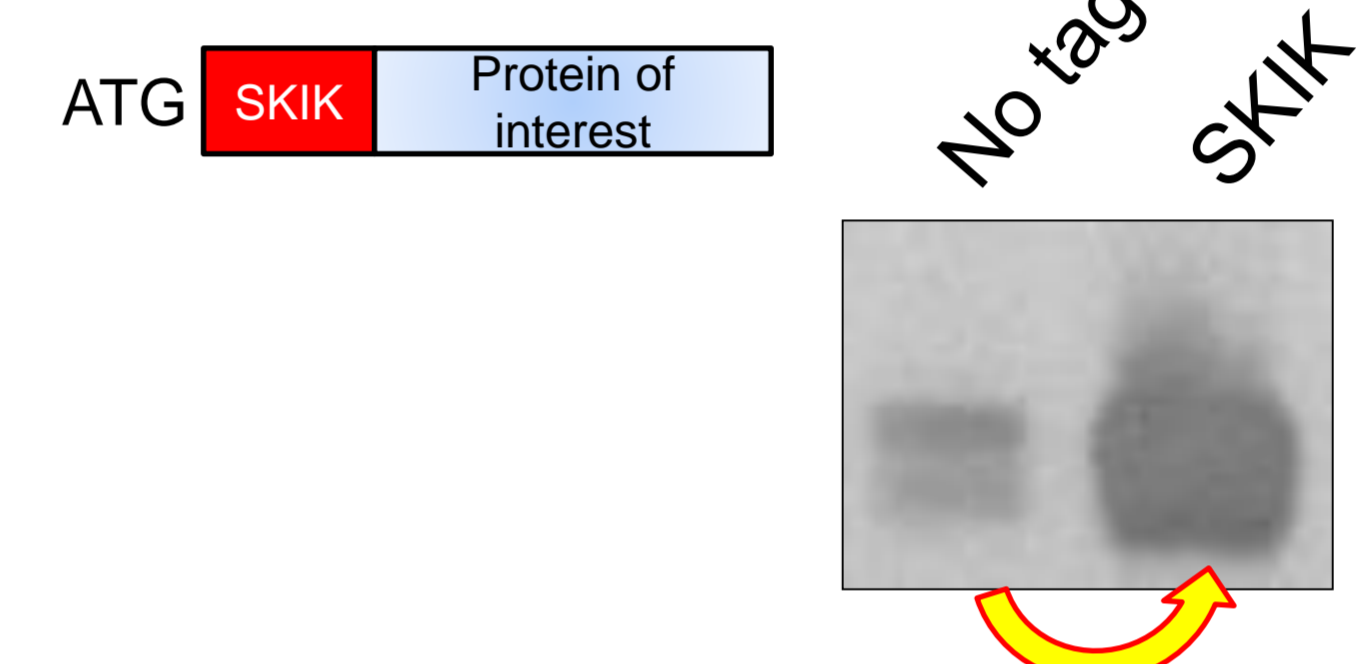


- Rapid, Low-cost mAb screening without cell culturing
- Only *in vitro* reactions
- No special equipment

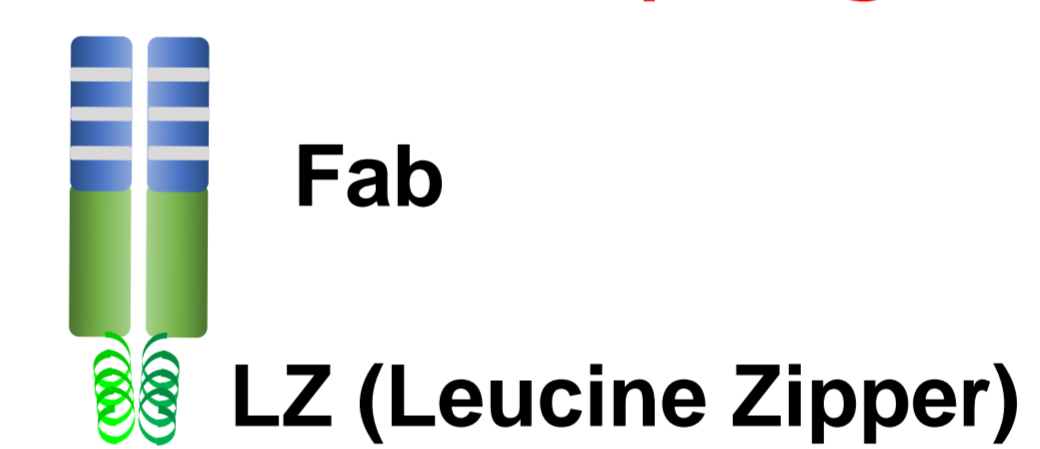
## Key Techniques

to produce sufficient amount of functional mAb proteins *in vitro*

**N-terminal SKIK tag<sup>3</sup>**  
can increase protein expression



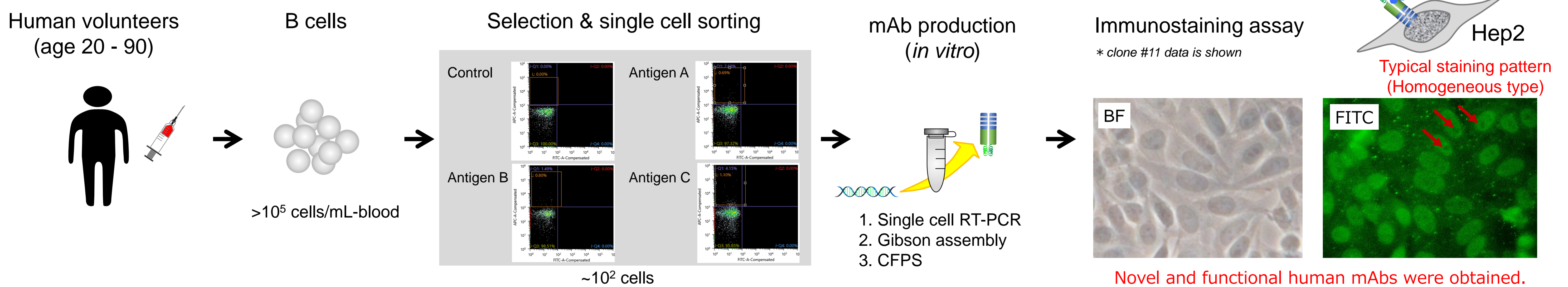
**Zipbody<sup>4</sup>**  
Leucine Zipper is fused to Fab to facilitate H-L pairing



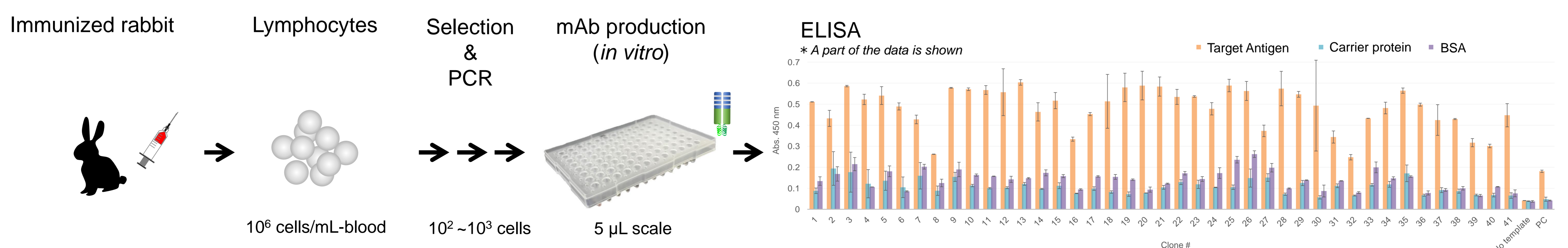
- Adhesive peptide pairs to form heterodimer
- $K_D$  = about  $10^{-8}$  M

## Results

### Anti-Nuclear mAbs from humans



### Anti-cAMP mAbs from an immunized rabbit



A hundreds of mAb genes were obtained and seamlessly evaluated by ELISA at once. Anti Low-molecular-weight compound mAbs were obtained from a rabbit. The mAbs had sequence diversity.

For More Information, Contact Us



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#### References

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- Ojima-Kato et al., Rapid generation of monoclonal antibodies from single B cells by Ecobody technology. *Antibodies*, 7, 38 (2018)
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