



# PREPARATION OF ANTIGEN-ADJUVANT EMULSION WITH PRECELLYS EMULSION KIT AND MINILYS HOMOGENIZER

## CONTEXT

The generation of antigen-specific antibodies involves the injection of an immunogenic antigen-adjuvant emulsion in animals at defined time intervals. Preparing high-quality emulsions is a critical step to successfully generate specific antibodies. The **two-syringe technique** is widely employed as the standard method for emulsion preparation. This method has **three important limitations**: **1) reproducibility**, due to operator preparation's variability; **2) cost and time-efficiency**, with a long procedure that requires large quantities of costly reagents, and **3) repetitive strain injury** due to repetitive motions of thumb and wrist.

The **Precellys Emulsion kit**, combined with the use of the **Minilys personal homogenizer**, has been developed to overcome these limitations and ensure consistent and reliable preparations of high-quality emulsions.

This application note presents the results obtained by researchers of Innate Pharma SA (A clinical-stage biotechnology company in immuno-oncology based in Marseille) in an immunization project using **the Precellys Emulsion kit** and **the Minilys personal homogenizer**. Following preparation and injection of the immunogenic antigen-adjuvant emulsion, the quality of the triggered immune response was monitored by titration of mouse antisera.

## MATERIALS

- **Minilys personal homogenizer** (Bertin Technologies, Montigny-le-Bretonneux, France)
- **Precellys Emulsion kit** (Bertin Technologies, Montigny-le-Bretonneux, France)
- Freund's adjuvant
- Immunogen X
- Mice (BALB/C strain)



*Minilys Personal Homogenizer*



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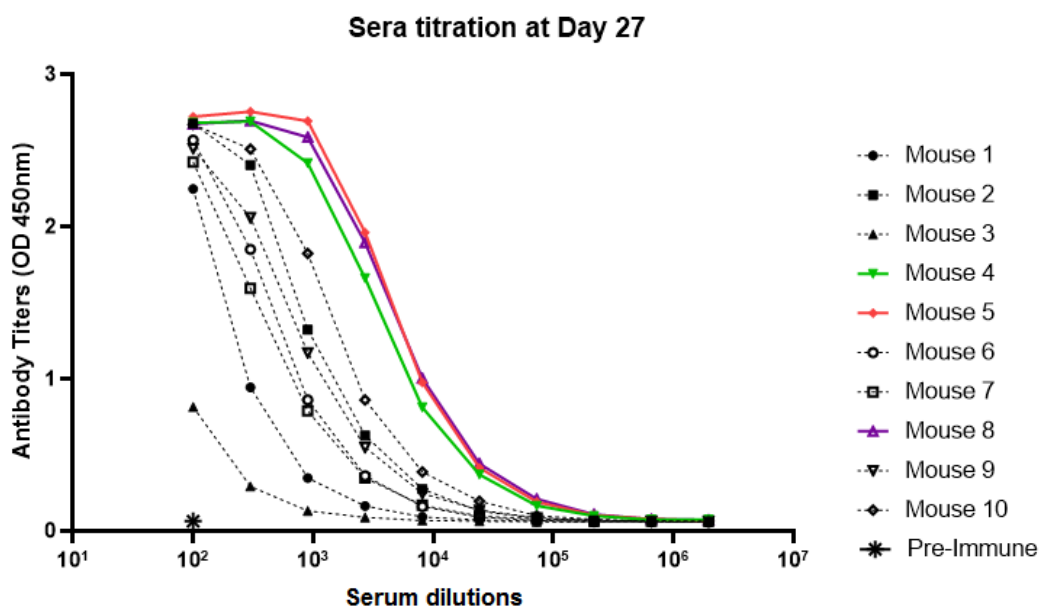
## PROTOCOL

In the immunization procedure described below, Immunogen X was prepared as an emulsion in combination with Freund's adjuvant using the Precellys Emulsion kit and the Minilys personal homogenizer. Ten mice were primed at day 0 and day 14 with the immunogenic preparation.

At day 27, collection and titration of mouse antisera were performed, and the best responsive mice were challenged with an antigenic boost stimulation at day 34. Animals were sacrificed at day 37 and mouse spleens were collected and processed for further analysis.

## RESULTS

The efficacy of the immune response triggered by the injection of Immunogen X was assessed by an Enzyme-linked immunosorbent assay (ELISA) in which Immunogen X was used as a coating agent. The results are depicted in the Figure below. No background signal was observed with the pre-immune serum. All mice responded strongly against Immunogen X in ranges usually observed in previous immunization campaigns performed at Innate Pharma. The three mice exhibiting the highest serum titers (depicted in red, purple, and green respectively in the figure below) were subsequently boosted with an Immunogen X preparation and sacrificed for further processing.



*ELISA Serum titration of mice immunized with Immunogen X*

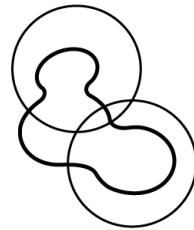


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## CONCLUSION

This study has demonstrated the efficacy of the combination of the Precellys Emulsion kit and the Minilys personal homogenizer for preparing immunogenic antigen-adjuvant emulsions. Ten mice were immunized with this preparation and showed promising results. Overall, titer levels obtained during the process were in accordance with titers observed in previous immunization campaigns, and the best-responding mice were boosted and sacrificed for downstream applications.

The Precellys Emulsion kit and the Minilys personal homogenizer offer several advantages over traditional emulsion preparation methods. This combination enables fast and pain-free preparation. Compared to the two-syringe method, minimal loss of material was observed. Thanks to these benefits, researchers at Innate Pharma SA have chosen to adopt the Precellys Emulsion kit and the Minilys personal homogenizer for their upcoming immunization projects.



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