

# POLYCLONAL ANTIBODIES

*ANTI-PEPTIDE*



**Expert in Antibody Engineering**

From Research to Discovery

*ISO 9001 : 2015 certified*

**covalab**  
R&D in Biotechnology

# PROTOCOL OVERVIEW

## 1

### IMMUNOGEN

#### SUPPLY BY YOU

You supply your own peptide(s) for the immunization.

#### DESIGN & SYNTHESIZE BY COVALAB

Our experience allow us to perform the design, synthesis and conjugation of selected, specific and immunogenic peptides.

## 2

### HOST SPECIES

#### 8 CHOICES

Find your perfect host among rabbit, mouse, rat, guinea pig, goat, sheep, chicken or llama !

## 3

### IMMUNIZATION PROTOCOLS

#### SPECIFIC TO THE ANTIGEN AND HOST

Our protocols are optimised according to the host species in order to ensure the best immune response.

#### SPECIFIC TO YOU

Specific and personalised protocols can be run upon request.

## 4

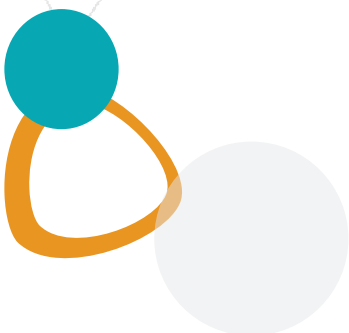
### ADDITIONAL SERVICES

#### PRE-IMMUNE SERA

Test different sera in your specific conditions and choose the most suitable hosts.

#### ELISA & PURIFICATION (PACK SERVICE)

ELISA tests are running to follow sera immunoreactivity and react if needed. Part of the final sera is immunopurified.



# CUSTOM POLYCLONAL ANTIBODIES

During the immune reaction, antigen-processing cells activate quiescent B-cells into plasmocytes to secrete immunoglobulins directed against that antigen.

Each plasmocyte produces immunoglobulins that are specific for one epitope of a given antigen.

Polyclonal antibodies are composed of a mix of immunoglobulins secreted by multiple plasmocytes clones, and thus recognise multiple epitopes on one antigen.

COVALAB, YOUR PARTNER IN ANTIBODY ENGINEERING SINCE 1995

MADE IN FRANCE - ISO 9001 : 2015 CERTIFIED

## Advantages

**Ready-to-use** serum

Multi-epitope specificity is useful in **detection** and **capture applications** (IP and ChIP)

Protocols are **well-proven** and relatively **short**

## Drawbacks

High cross-reactivity due to non-specific antibodies contain in the serum

Limited quantity and no reproducibility between projects

*Real issue? Prefer our monoclonal antibodies development !*

## OUR OFFERS

### STANDARD PROJECT

#### IMMUNOGEN

Send us your immunogen.  
OR

We design the most relevant peptide(s) based on the sequence, target domain, cross-reactivity, expected application... of the target protein.

#### HOST IMMUNIZATION

You received intermediates test sera to run tests in your specific condition.

### PACK PROJECT

STANDARD PROJECT  
(see opposite)

+

#### IMMUNOREACTIVITY MONITORING

ELISA test for every sample to follow the immunoreactivity.

+

#### PEPTIDE AFFINITY PURIFICATION

Immunopurification up to 5 mL of the final immune sera.

# DETAILED PROTOCOLE



1.

## IMMUNOGEN

Co-immunization with at least 2 peptides is recommended, in order to increase the immune response against the epitopes.

### Step 1: Design

Covalab uses and inhouse expertise to design the most relevant peptides based on:

Their physico-chemical properties

(hydrophobicity, antigenicity, accessibility to solvents, tertiary structure...)

Their homology with other sequences

(to ensure minimal cross-reactivity with non-relevant proteins)



### Step 2: Synthesis

Peptides are synthesized using solide phase Fmoc chemistry, and analysed by HPLC and mass spectrometry (MS).

After the immunization, you received the remaining peptide(s) and technical data sheet with HPLC and MS profiles.



### Step 3: Conjugation

Peptides are conjugated to one of the following carrier proteins:

KLH

(Keyhole limpet hemocyanin)

OVA

(Ovalbuminin)

BSA

(Bovine serum albumin)



### POST-TRANSLATIONAL MODIFICATION (PTM)

Our scientists are specialised in both the post-translational modification and the peptide synthesis fields. Using this knowledge, we can provide a high quality service in order to develop specific antibodies against post-translational modifications using peptides modified in vitro.

2.

## HOST SPECIES

The most common host animal is the New Zealand white rabbit as it used to show a good immunoreactivity and offer a good ratio between the large volum of serum at the end and its price.

We recommend to immunise at least two animals, due to the variability of the immune response to a given antigen between individuals.



Rabbit

Test serum : 5 - 15 mL  
Final serum : 70 - 100 mL



Mouse

Test serum : 30 - 50 µL  
Final serum : 0.5 mL



Rat

Test serum : 200 - 300 µL  
Final serum : 2.5 - 3 mL



Guinea pig

Test serum : 200 - 300 µL  
Final serum : 5 - 10 mL



Chicken<sup>(1)</sup>

Test serum : 1 - 2 mL  
Final serum : 5 - 10 mL



Goat

Test serum : 5 - 20 mL  
Final serum : 1 000 mL



Sheep

Test serum : 5 - 20 mL  
Final serum : 1 000 mL



Llama

Test serum : 10 - 20 mL  
Final serum : 500 mL

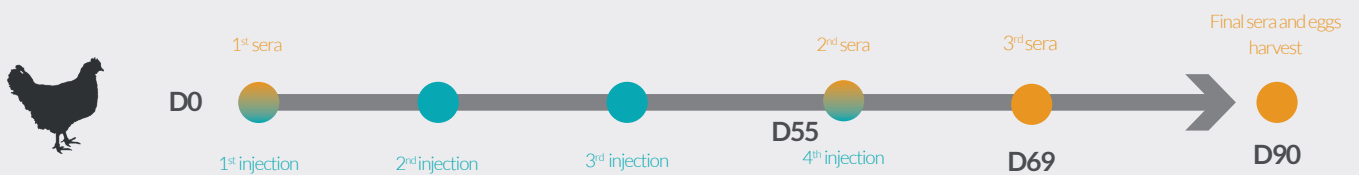
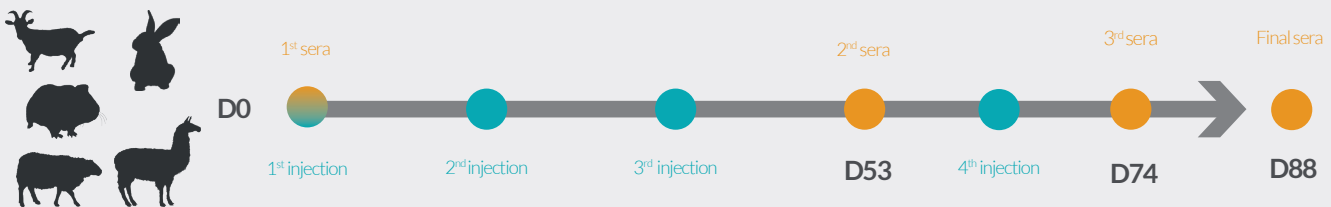
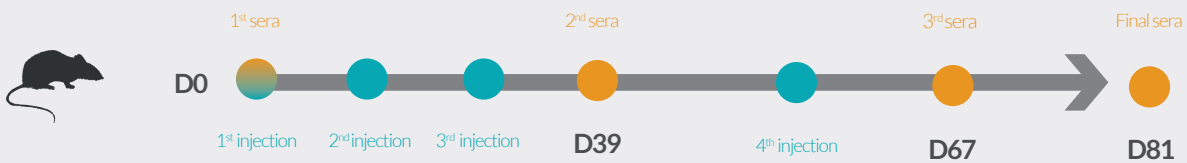
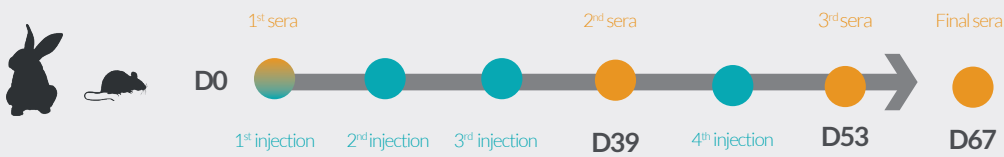
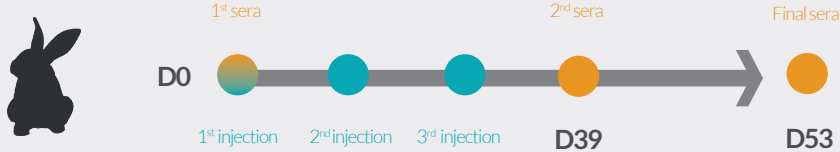
<sup>(1)</sup> Chickens produce unique class of immunoglobulins called IgY, in their eggs, which are functionally equivalent to mammalian IgG. Due to the phylogenic separation between birds and mammals, chicken are more likely to produce an immune response against conserved proteins within the class of mammals. Moreover, as the structure of the Fc region of chicken IgY is sufficiently different from mammalian IgG, the background signal in very sensitive immunological applications is dramatically reduced.

# 3.

## IMMUNIZATION PROTOCOLS

Every species has its own immunoreactivity towards an antigen. The frequency, quantity and volume of injections must then be carefully adapted. Our strong experience allowed us to optimize protocols for each species, thus maximizing the probability to generate high amounts of specific polyclonal antibodies.

On request, pre-immune sera can be tested in order to choose the most suitable hosts (lower background). Indeed, test sera from several animals per project can be tested in your specific conditions to select the best animals to be immunized.



All the experiments are carried out by experienced and authorised personnel according to H&S procedures, established in accordance to the French legislation. Our animal house is registered under the reference C21 464 04 EA.

### YOU RECEIVE



- A **provisional calendar** with the main steps of the protocol: injections, sera and deliveries.
- The **intermediate test sera** to run tests in your specific conditions.
- The **final sera** and the remaining peptide(s) with their HPLC and mass spectrometry profiles.

### IN ADDITION WITH THE PACK OPTION

- **ELISA results** for each serum, showing their immunoreactivity and their evolution over the protocol.
- Part of the final immune sera **immunopurified** or, for chicken, **purified IgY** from 3 egg yolks. The columns used are sent with the final sera.
- **Data report** showing the conditions and results of the purification.

SCIENTIFIC  
SUPPORT  
**EXPERTISE**  
HIGH  
QUALITY  
**REACTIVITY**  
FLEXIBILITY  
SINCE 1995

**covalab**  
R&D in Biotechnology

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**BUREAU VERITAS**  
Certification

