

An innovative antibody development technology using breakthrough nanotaxis leading to the antigen expression by the chosen animal species .

inCellart

Has discovered more than 200 different antibodies for less than 2 years.

Generates antibodies specific to antigens under their conformational and native structure.

Does not need a recombinant protein and a peptide at any stage of antibody development process.

ICANtibodies™

Requires only in-Silico DNA sequence to develop antibodies.

Produces high quality antibodies for many applications (WB, IHC, ELSA, Pull-down assay and FACS).

Provides a solution to get antibodies against challenging targets such as GPCRs and ionic channels.

Saves time to develop polyclonal and monoclonal antibodies.

**PARTNERSHIP**

Sanofi, Pierre Fabre,  
GlaxoSmithKline,  
Geneuro, Merial,  
Cancer Research UK,  
Institut Cochin...

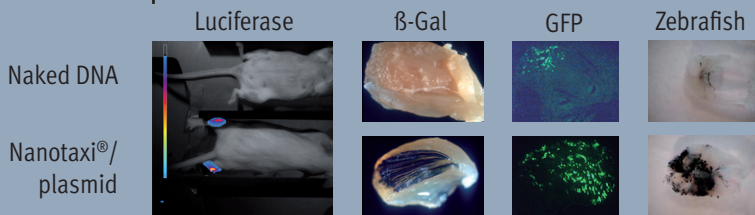
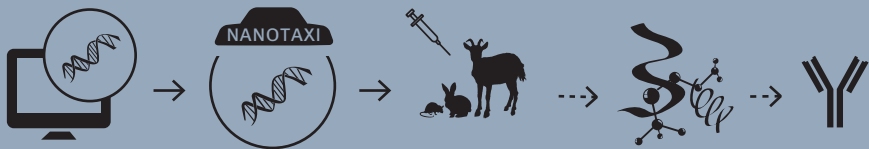
# ICANtibodies™

ICANtibodies™ is a fully integrated process from plasmid DNA antigen design and synthesis, patented breakthrough Nanotaxi®/plasmid formulation and immunization in various species including mice, rats, rabbits and goats, to antibody quality controls.

**incellart** can also discover human monoclonal antibodies since it has access to transgenic animals reconstituted with the human immune system. Nanotaxi®/plasmid formulation leads to higher expression of antigen in muscle tissues compared to existing genetic immunization technologies, including naked DNA, Gene gun and Electroporation.

In the absence of recombinant protein, **incellart** patented Nanotaxi® allows for the development of functional antibodies against any natively expressed antigen.

**incellart** has achieved an important technological breakthrough and is now able to produce novel antibodies against membrane targets as well as intracellular nuclear and secreted antigens.



*Antigen expression in muscular tissues after injecting nakedDNA and Nanotaxi®/plasmid DNA formulation*

## Benefits to use ICANtibodies™

ICANtibodies™ technology combines all the advantages of classical methods of new antibody development while avoiding the requirement for recombinant protein or peptide synthesis.

General features of immunization methods	Peptide-based immunization	Protein-based immunization	Genetic immunization	ICANtibodies™
Immunogen production and purification	Easy	Hard	Easy	Easy
Immunogen cost	Low	High	Low	Low
Native expression of the antigen (or even the multimeric protein)	No	Moderate	Yes	Yes
Generation of conformational antibodies	No	Moderate	Yes	Yes
Antibody titer	High	High	Low	High
Time to generate antibodies	Short	Long	Short	Short
Generation of anti-GPCR and membrane protein antibodies	No	No	Yes	Yes
Generation of antibodies against highly conserved or identical proteins	No	No	Low	Yes
Antigen expression and immune system stimulation	/	/	Low	High

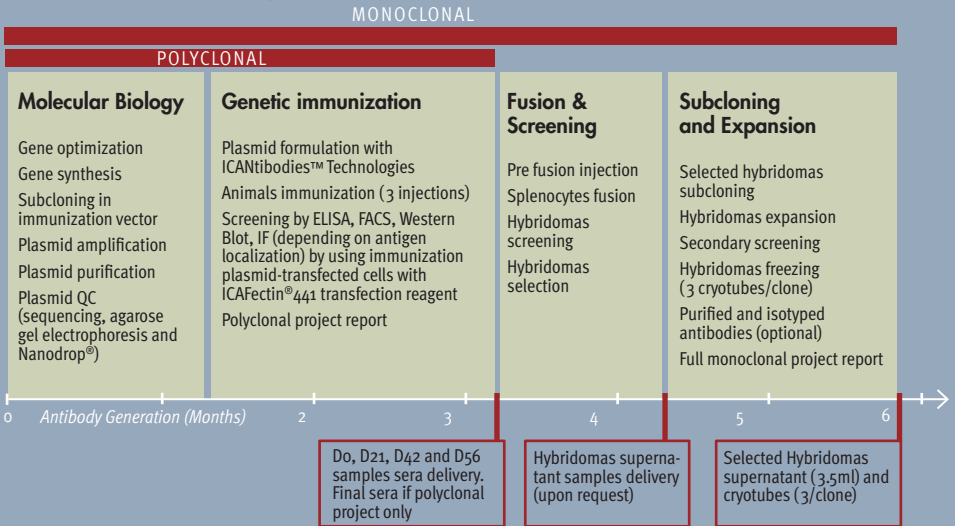
**inCellart** antibodies developed by ICANtibodies™ are effective in a wide range of applications, from western Blot assays using denatured proteins, to immunohistochemistry and FACS assays requiring recognition of the native form of the protein as shown below.

**inCellart** controls the discovered antibodies using cells transfected with ICAFectin® 441 delivering the DNA antigenic sequence.

	Peptides	Recombinant proteins		ICANtibodies™
		Bacteria	Mammalian cells	
<b>Denatured proteins</b>				
Western Blot	•••	•••	•••	••
<b>Partially denatured proteins</b>				
Immunohistochemistry	•	••	••	•••
<b>Native proteins</b>				
Pull-down assay		•	••	•••
FACS		•	••	•••
ELISA		•	••	•••

# General protocol of ICANtibodies™

Time to generate antibodies by ICANtibodies™ is very short: **5-6 months** for monoclonal antibodies. For polyclonal antibodies, you can select 10 mice, 6 rats, 2 rabbits or 1 goat while for monoclonal antibodies you can choose either 10 mice or 6 rats.



## What do you provide to use ICANtibodies™?

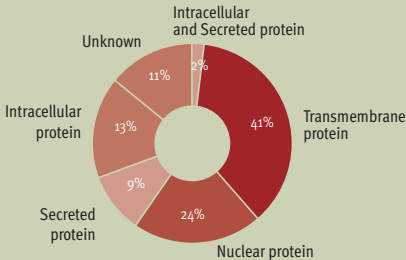
**Only one piece of information** so that you can order ICANtibodies™ very easily : **Information about the nucleotide sequence of antigen** (target name, cDNA length, species from which antigen originates, FASTA sequence or accession number) **or information about the amino-acid sequence of antigen** (protein name and protein length).

## What do you receive from ICANtibodies™?

Polyclonal antibody discovery	Monoclonal antibody discovery
Antigen cDNA sequence Immune response analysis results Animal antisera (mice, rats, rabbits or goats) Full project report	Antigen cDNA sequence Immune response analysis results Animal antisera (mice or rats) Full project report Hybridoma supernatant samples Final clones

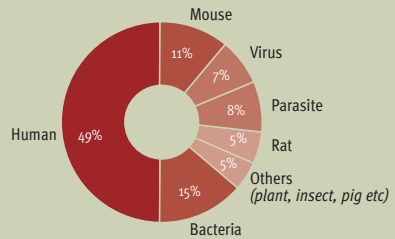
## ICANTibodies™ by localization

More than 250 antibodies in 2.5 years



## ICANTibodies™ by origin

More than 250 antibodies in 2.5 years



## Some discovered antibodies against membrane proteins

### Human

Odorent Receptors  
 Chemokine Receptors  
 CD14, CD19, CD20, CD22, CD81, CD127, CD212  
 Guanine Nucleotide-binding Protein  
 Interleukin Receptors  
 Natural Killer Protein Ligand  
 Leucine-rich repeat-containing G-protein coupled receptor  
 Tolerance-related Protein

Ephrin Type-A Receptor  
 Thyrotropin Receptor  
 Testis Anion Transporter  
 Oxidoreductase  
 Toll-like Receptors  
 Epidermal Growth Factor Receptor  
 Integral plasma-membrane proteins at the tight junctions  
 Sodium Channels

### Mouse

Odorent Receptors  
 Rhodopsin Family of G protein-coupled Receptors  
 Melatonin Receptors  
 Oxidoreductase

Toll-like Receptors  
 Epidermal Growth Factor Receptors  
 Ligand of Notch Signaling Pathway

### Virus

Fusion Protein from Nipah Virus  
 Attachment Protein from Hendra Virus  
 Transmembrane Proteins from Mumps Virus  
 Capsid Proteins from Viruses

Glycoprotein G Antigen from Rabdovirus  
 Transmembrane Proteins from Hepatitis C Virus  
 Influenza Virus HA

### Others

Rat CD138  
 Secretory Adhesin from Toxoplasma Gondii  
 Swine Leucocyte Antigen  
 Transmembrane proteins from Drosophila melanogaster

Transmembrane Protein from Arabidopsis lyrata  
 Promastigote Surface Antigen from Leishmania amazonensis



In-Cell-Art  
Immeuble Bio-Ouest, halle 13  
21, rue la Noue-Bras-de-Fer  
44200 Nantes – France

Tel. +33 (0)2 40 71 67 17  
Fax +33 (0)2 72 88 22 01

info@incellart.com  
www.incellart.com

### **Contact**

Sohei Fukuyama, Business Development  
Tel. +33 (0)2 40 71 67 17  
sohei.fukuyama@incellart.com

**inCellart**, which is headquartered in Nantes (France) is a biopharmaceutical company specializing in the preclinical and pharmaceutical development of nanocarriers for macromolecular drugs. Its founder and research team, which includes a Nobel Laureate, have designed new classes of vectors that are organized on a nanometric scale, which enables them to cross the cell barrier efficiently and safely. **inCellart** offers a range of reagents and biotechnology development services.