

### Identité / Personal details

Genre / Gender (Femme / Homme / Autre)	M
Nom et prénom / Name and first name:	<b>VERRIER Bernard</b>
Pays / Country	France

### Poste actuel / Current position

#### Titre / Function

DRCE2 CNRS - Team leader "Colloidal vectors and therapeutic targeted engineering"

#### Organisme(s) public(s) français / French public organisation(s)

Code RNSR / RNSR code	Organisme / Organisation	Laboratoire / Laboratory	Code unite / Unit code	Code postal / Postcode	Ville / Town
201320569F	CNRS	LBTI	UMR5305	69007	Lyon

#### Autres activités / Other activities

*Activités de direction, encadrement, enseignement, activité d'évaluation dans des commissions ou d'expertise scientifique / Executive board, supervision of student, teaching, memberships in panels or individual scientific reviewing activities*

- Trainer of more than 35PhD students (private industry and research sectors).
- Regular Reviewer for NIH, European Commission, HCERES, ANR, Sidaction, ANRS, DGA, Cifre and papers review.
- Head of Ethical committee for animal experiments. (CE2A 15, CECCAPP), since 2008
- Co-founder of the company Adjuvatis ([www.adjuvatis.com](http://www.adjuvatis.com))

### Postes antérieurs / Previous positions

Début / Start date	Fin / End date	Ville / Town	Etablissement / Organisation	Fonction / Function
Since 2021		Lyon (France)	CNRS	DRCE2 CNRS Team leader (Colloidal vectors and therapeutic targeted engineering)
2011	2020	Lyon (France)	CNRS	Director of the joint Unit CNRS/University of Lyon UMR 5305 LBTI (DRCE1 CNRS) Team leader (Biodegradable nanoparticulate carrier and Mucosal immunity induction)
2007	2010	Lyon (France)	CNRS	Group leader (Nanocarriers and Mucosal immunity) UMR 5086
2006	2007	Lyon (France)	CNRS	Scientific director on HIV vaccine research, UMR 2714 CNRS-BioMérieux
2004	2006	Lyon (France)	CNRS	Head of the joint unit CNRS-BioMérieux, FRE 2736, and scientific director (HIV vaccine research)
2000	2004	Lyon (France)	CNRS	Assistant Professor, project leader on HIV vaccine studies, HIV virology
1989	2000	Lyon (France)	CNRS	Assistant Professor, group leader on HIV molecular virology
1988	1989	Lyon (France)	CNRS	CR1 scientist
1985	1988	Heidelberg (Germany)	EMBL	EMBL Post doctoral Fellow

### Interruption(s) de carrière / Career interruption(s)

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## Formation supérieure / Education

1992: Habilitation, Claude Bernard University, Lyon (France)  
1985: Ph.D., Molecular Virology, Claude Bernard University, Lyon (France)  
1981: M.S., Chemical engineering, CPE, Lyon (France)

## Productions scientifiques / Scientific productions

Projets de recherche, prix, distinctions, bourses, etc. / Grants, prizes, awards, fellowships, etc.

### Ongoing Research Support

#### 2021-2024 ANR-21-ICRAD

*NucNanoFish*: Nucleic nanovaccine for fish. Role: **Coordinator**

#### 2020-2021 ANR-20-COVI-0092

*CovidNanoMed*: Nanoformulations of current therapeutic drug candidates against SARS-CoV-2 for pulmonary delivery.  
Role: **Coordinator**

#### 2020-2024 ANR-19-CE18-0035

*VacMuclL7*: Administration *in situ* d'IL-7 comme adjuvant de vaccination muqueuse. Role: **Co-Investigator**

#### 2017-2021 Eranet EuroNanoMed III

*FluNanoAir*: Design of Human Influenza vaccines using multifunctional micelles harnessing innate immunity.  
Role: **Coordinator**

#### 2016-2021 ANR-16-CE20-0002

*Fish-RNAvax*: Advanced eco-compatible mRNA vaccines for induction of protective immune responses in farmed fish.  
Role: **Coordinator**

#### 2016-2021 ANR-16-CE15-0002

*MEMO-SIGN*: Impact of vaccine formulation on the TFH and B memory signatures. Role: **Co-Investigator**

### Completed Research Support

#### 2015-2018 JTC HIVERA 2014

*HIVNANOVA*: Rationally designed therapeutic vaccine against HIV-1 based on a novel formulation of nanoparticle-protected mRNA. Role: **Co-Investigator**

#### 2011-2017 280873 EU FP7

*ADITEC*: Advanced Immunization Technologies - Coordinator of advanced animal models program.  
Role: **Co-Investigator**

#### 2014-2017 ANR-14-ASTR-0030

*PaNaCée*: Biodegradable and bioactive nanostructures for skin wounds functional reconstruction.  
Role: **Co-Investigator**

#### 2013-2015 AP-FPB-2012/06

Induction of poly-reactive blocking HIV-1 antibodies at mucosal sites by a multifunctional particulate vaccine.  
Role: **Coordinator**

#### 2011-2013 ANR 2010-ERNA-002-01

*iNanoDCs*: Design of multifunctional nanoparticles targeting TLR or Nod receptors for dendritic cell immune therapy.  
Role: **Coordinator**

#### 2010-2014 ANR-10-NANO-010-02

*PECSDDel*: Processable intelligent Colloids for Mucosal Drug Delivery. Role: **Co-Investigator**

#### 2010-2014 FP7 CE/Université Pierre et Marie Curie - Paris 6 n°241904

*CUTHIVAC*: Cutaneous and Mucosal HIV Vaccination. Role: **Co-Investigator**

## Publications

With his collaborators, he published more than 160 papers in international journals (see: <https://www.ncbi.nlm.nih.gov/pubmed/?term=verrier+b>) and is the owner of 6 patents, among them two on particles delivery.

5 publications majeures / 5 most relevant publications		Quel est l'apport majeur de cette publication ? / What is the major contribution of this publication?
1	Biodistribution of surfactant-free poly(lactic-acid) nanoparticles and uptake by endothelial cells and phagocytes in zebrafish: Evidence for endothelium to macrophage transfer. Rességuier J, Levraud JP, Dal NK, Fenaroli F, Primard C, Wohlmann J, Carron G, Griffiths GW, Le Guellec D, <b>Verrier B</b> . 2021 <i>J Control Release</i> 331:228-245.	This paper illustrates the added value of fluorescent PLA particles to decipher uptakes mechanisms by targeted cells through biodistribution imaging studies in whole body zebrafish. It emphasizes the importance of cross talk between cells (ex endothelial cells and macrophages) after endocytosis of particles.
2	Recombinant Haemagglutinin Derived From the Ciliated Protozoan <i>Tetrahymena thermophila</i> Is Protective Against Influenza Infection. Jawinski K, Hartmann M, Singh C, Kinnear E, Busse DC, Ciabattini A, Fiorino F, Medagliani D, Trombetta CM, Montomoli E, Contreras V, Le Grand R, Coiffier C, Primard C, <b>Verrier B</b> , Tregoning J. 2019 <i>Front Immunol</i> 10:2661.	We show for the first time that HA recombinant proteins prepared in <i>tetrahymena thermophila</i> when loaded onto PLA nanoparticles could protect mice from a Flu challenge, with very low dose of protein when combined with a Nod2 ligand.
3	Poly(lactic acid) nanoparticles and cell-penetrating peptide potentiate mRNA-based vaccine expression in dendritic cells triggering their activation. Coolen AL, Lacroix C, Mercier-Gouy P, Delaune E, Monge C, Exposito JY, <b>Verrier B</b> . 2019 <i>Biomaterials</i> 195:23-37.	This article shows the importance of a cell penetrating peptide able to condense mRNA and to favor mRNA delivery in dendritic cells after adsorption onto PLA nanoparticle.
4	Poly(Lactic Acid) Nanoparticles Targeting $\alpha 5\beta 1$ Integrin as Vaccine Delivery Vehicle, a Prospective Study. Dalzon B, Lebas C, Jimenez G, Gutjahr A, Terrat C, Exposito JY, <b>Verrier B</b> , Lethias C. 2016 <i>PLoS One</i> 11(12).	In this paper, we use specific proteins motifs (human fibronectin FNIII9/10 recombinant proteins) loaded at the surface of PLA nanoparticles to specifically target $\alpha 5\beta 1$ receptor. By this proof of concept, we show the added value of PLA particles to target specific cells when specific ligand could be designed.
5	Directing vaccine immune responses to mucosa by nanosized particulate carriers encapsulating NOD ligands. Pavot V, Climent N, Rochereau N, Garcia F, Genin C, Tiraby G, Vernejoul F, Perouzel E, Lioux T, <b>Verrier B</b> , Paul S. 2016 <i>Biomaterials</i> 75:327-39.	This article is a proof of concept illustrating the fact that we could « nano-manipulate » quality and intensity of immune responses by incorporating specific immune-stimulatory molecules in nanoparticles carrying a vaccine antigen. We show that using a Nod2 ligand and intramuscular route of vaccination could induce mucosal immunity at distant mucosal sites.

## Valorisation

*brevet, licence, création d'entreprise, développement de logiciel, base de données, prototype, etc. / patent, creation of a start-up, software development, database, prototype, etc.*

Founder of the start-up Adjuvatis in 2014, [www.adjuvatis.com](http://www.adjuvatis.com)

Co-author of 12 patents, the more recent being submitted in 2021, regarding the design of biodegradable mucosal patches (oral-dispersible) for active compounds delivery through sub-lingual route.