

## **INSB Collège B1 PERCHE Federico**

### **Chercheur CNRS section 28**

Equipe Assemblages Macromoléculaires et Systèmes Complexes (MACS, Pr Hamacek)

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### **Formation**

**2020** Habilitation à Diriger des Recherches, Université d'Orléans

**2007-2010** Thèse en Biologie Moléculaire et Cellulaire, Centre de Biophysique Moléculaire CNRS UPR4301 *Transfert d'ARNm par des lipopolyplexes et vaccination anti mélanome : ciblage des cellules dendritiques à l'aide de lipopolyplexes mannosylés*

**2000-2006** Université d'Evry (France), Mastère Biologie et Génomes

### **Postes de recherche**

**Depuis 2016** Chargé de Recherche CNRS, Centre de Biophysique Moléculaire, CNRS UPR4301 Equipe MACS (Pr Josef Hamacek) *Délivrance ADN/ARNm/ siRNA*

**2013-2015** 2<sup>ème</sup> stage postdoctoral Department of Materials Engineering, Graduate School of Engineering, The University of Tokyo (Pr. K. Kataoka) JSPS Postdoctoral Fellowship. *Délivrance ARNm/ siRNA*

**2011-2013** 1<sup>er</sup> stage postdoctoral Center for Pharmaceutical Biotechnology and Nanomedicine, Boston (Pr. V. Torchilin) *Délivrance stimuli-sensible de médicaments/ siRNA*

### **Activités de recherche**

Production scientifique: 23 articles, 6 revues, 3 chapitres de livres, 2 brevets

ORCID 0000-0002-7400-7219, nombre de citations > 1000, h-index=19 d'après Google scholar

Encadrement doctoral et stagiaires au CNRS : 2 thèses en cours, 1 co-encadrée, 10 stagiaires master

### **Responsabilités collectives**

Responsable de la Structure Bien-Etre Animal du laboratoire depuis 2022

Membre du F4SCT de la DR08 CNRS depuis 2023

Membre du Comité d'Ethique local depuis 2022

### **Publications choisies**

- In cellulo and in vivo comparison of cholesterol, beta-sitosterol and dioleoylphosphatidylethanolamine for lipid nanoparticle formulation of mRNA. Medjmedj A, Ngalle-Loth A, Clemençon R, Hamacek J, Pichon C, **Perche F**, *Nanomaterials (Basel)*. 2022 Jul 17;12(14):2446.

- DNA minicircles as novel STAT3 decoy oligodeoxynucleotides endowed with anticancer activity in triple-negative breast cancer. Casas G, **Perche F**, Midoux P, Pichon C, Malinge JM, *Mol Ther Nucleic Acids*. 2022 Jun 22;29:162-175.

- In Vivo Bone Tissue Induction by Freeze-dried Collagen-nanohydroxyapatite Matrix Loaded with BMP2/NS1 mRNAs Lipopolyplexes. Wang P, Perche F, Midoux P, Cabral SD, Malard V, Correia IJ, EI-Hafci H, Petite H, Logeart-Avramoglou D, Pichon C. *J Control Release*. 2021 Jun 10;334:188-200.

- Co-delivery of NS1 and BMP2 mRNAs to murine pluripotent stem cells leads to enhanced BMP-2 expression and osteogenic differentiation. Wang P, Logeart-Avramoglou D, Petite H, Gonçalves C, Midoux P, **Perche F**, Pichon C\*. *Acta Biomater* 2020 May 108:337-346.
- Neutral lipopolyplexes for in vivo delivery of conventional and replicative RNA vaccine. **Perche F**\*; Clemençon R; Schulze K, Ebensen T; Guzmán CA; Pichon C\* *Mol Ther Nucleic Acids* 2019 Sep 6; 17:767-775
- Cardiolipin-based lipopolyplexes platform for the delivery of diverse nucleic acids into Gram-negative bacteria. **Perche F**, Le Gall T, Montier T, Pichon C, Malinge JM. *Pharmaceuticals (Basel)*. 2019 May 28; 12(2). pii: E81.
- Glucose-linked sub-50-nm unimer polyion complex-assembled gold nanoparticles for targeted siRNA delivery to glucose transporter 1-overexpressing breast cancer stem-like cells. Yi Y, Kim HJ, Zheng M, Mi P, Naito M, Kim BS, SuMin H, Hayashi K, **Perche F**, Toh K, Liu X, Mochida Y, Kinoh H, Cabral H, Miyata K, Kataoka K *J Control Release*. 2019 Feb 10;295:268-277.
- Improved brain expression of anti-amyloid  $\beta$  scFv by complexation of mRNA including a secretion sequence with PEG-based block cationer. **Perche F**, Uchida S, Akiba H, Lin CY, Ikegami M, Disrala A, Nakashima Td Itaka K, Tsumoto K, Kataoka K; *Curr Alzheimer Res*; 2017;14:295-302.
- Messenger RNA-based therapeutics for brain diseases: An animal study for augmenting clearance of beta-amyloid by intracerebral administration of neprilysin mRNA loaded in polyplex nanomicelles. Lin CY, **Perche F**, Ikegami M, Uchida S, Kataoka K, Itaka K; *J Control Release*. 2016; 235:268-75.
- Hydroxychloroquine-conjugated gold nanoparticles for improved siRNA activity. **Perche F**, Yi Yu, Hespel L, Dirisala A, Cabral H, Miyata K and, Kataoka K; *Biomaterials*. 2016; 90:62-71.
- Matrix metalloproteinase 2-sensitive multifunctional polymeric micelles for tumor-specific codelivery of siRNA and hydrophobic drugs. Zhu L, **Perche F**, Wang T, Torchilin VP; *Biomaterials*. 2014; 35: 4213-22.
- Hypoxia-targeted siRNA delivery. **Perche F**<sup>†</sup>, Biswas S<sup>†</sup>, Wang T, Zhu L, Torchilin VP; *Ang Chem*. 2014; 126: 3430-34. <sup>†</sup> equal contribution
- Polymeric micelles containing reversibly phospholipid-modified anti-survivin siRNA: a promising strategy to overcome drug resistance in cancer. Salzano G, Riehle R, Navarro G, **Perche F**, De Rosa G, Torchilin VP; *Cancer Letters*. 2014; 343:224-31.
- Enhanced anticancer activity of nanopreparation containing an MMP2-sensitive PEG-drug conjugate and cell-penetrating moiety. Zhu L, Wang T, **Perche F**, Taigind A, Torchilin VP; *Proc Natl Acad Sci U S A*. 2013;110: 17047–52.
- Octa-Arginine-Modified Pegylated Liposomal Doxorubicin: An Effective Treatment Strategy for Non-Small Cell Lung Cancer. Biswas S, Deshpande PD, **Perche F**, Dodwadkar NS; Sane SD, Vladimir P. Torchilin VP; *Cancer Letters*. 2013 Jul 10; 335(1):191-200.
- Accumulation and toxicity of antibody-targeted doxorubicin-loaded PEG-PE micelles in ovarian cancer cell spheroid model. **Perche F**, Patel NR, Torchilin VP; *J Control Release*. 2012 Nov 28; 164(1):95-102.
- Cancer cell spheroids as a model to evaluate chemotherapy protocols. **Perche F** & Torchilin VP; *Cancer Biol Ther*. 2012 Oct 1; 13 (12).
- Copolymers for the delivery of drugs into cells, Zhu L, **Perche F**, Torchilin V, WO/2014/085579
- Hypoxia-targeted delivery system for pharmaceutical agents, Torchilin V, Biswas S, **Perche F**, WO/2015/061321, PCT/US2014/061582

### **Financements en tant que porteur**

Financement des Comités Régionaux de la Ligue Contre le Cancer en 2018, 2019, 2021, 2022. Coordinateur ANR CreaBone en partenariat avec le B3OA (Paris) et RMeS (Nantes) 2021-2025 Cancéropôle Grand-Ouest Emergence en collaboration avec le Dr Nathalie Labarrière (CRCINA) en 2020. METSA (Microscopie Electronique et Sondes Analytiques) pour de la cryo-TEM en 2021.

### **Activité éditoriale**

Reviewing pour: International Journal of Nanomedicine, Pharmaceutics, Nanomaterials, J. Controlled Release, Frontiers in Oncology, ANR