

# CURRICULUM VITAE/Prof. Elias Fattal

## Current address:

Université Paris-Saclay  
School of Pharmacy  
Institut Galien Paris-Saclay  
UMR CNRS 8612  
Châtenay-Malabry  
FRANCE

## Education

1983: Degree in Pharmacy (University Paris-Sud).  
1986: Master in Pharmaceutical Technology and Biopharmacy (University Paris-Sud). 1990: Ph.D. in Pharmaceutical Sciences (University Paris-Sud).  
1996: Habilitation Thesis (HDR) (University Paris-Sud)

## Awards and honors

1987: Master award of the Paul Neumann Foundation/ APGI.  
1988: Master award of the School of Pharmacy (University Paris-Sud).  
1990: Award from the Association Française pour la Recherche Thérapeutique.  
1991: Ph.D. award (University Paris-Sud).  
1991: Ph.D. award from the French Academy of Pharmacy.  
1999: Colloidal Drug carrier Award (Berlin, Germany).  
2004: Elected corresponding Member of the French Academy of Pharmacy.  
2005: Member of honor of APV (Arbeitsgemeinschaft für Pharmazeutische Verfahrenstechnik).  
2006: Knight in the National Order of Academic Palms.  
2007: Pharmaceutical Sciences World Congress (PSWC) Research Achievement Award.  
2009: Full Member of the French Academy of Pharmacy.  
2012: Member of honor of ADRITELF (Associazione Docenti e Ricercatori Italiani di Tecnologie e Legislazione Farmaceutiche).  
2014: Officer in the National Order of Academic Palms.  
2016: Controlled Release Society Fellow Award.  
2016: Award of the French Academy of Sciences.  
2018: Maurice-Marie Janot Award and Lecture  
2022: Elected corresponding member of the National Academy of Medicine  
2022: Elected fellow of the European Academy of Sciences

## Experience

1983-1986: Hospital Residency (Lille) Expertise in clinical Pharmacy and Toxicology.  
1990-1991: Post-doctoral Fellow (UCSan Francisco, USA).  
1991-1992: Assistant Professor (UMR CNRS 8612, University Paris-Sud).  
From 1992: Associate Professor (UMR CNRS 8612, University Paris-Sud).  
From 1998: Team Leader at the UMR CNRS 8612.  
From 2000: Full Professor, (UMR CNRS 8612, Université Paris-Saclay).  
2007-2009: Vice director of the research unit UMR CNRS 8612.  
2010-2019: Director of the research unit UMR CNRS 8612.  
From 2020: Vice-Dean for Research of the School of Pharmacy

## Scientific Societies

2000-2002: Vice-President () of Groupe Thématique de Recherche sur les Vecteurs (GTRV) today SF Nano.  
2003-2010: President of the Association de Pharmacie Galénique Industrielle (APGI).  
2010-2022: Vice-President of the Association de Pharmacie Galénique Industrielle (APGI).  
2020-2023: President of the 2<sup>nd</sup> Section of the French Academy of Pharmacy

## Chair or co-chair of national and international congresses or symposia

### Chair

- 2nd European Workshop on Particulate Systems, Paris, France, 22-23 May 1998.
- 1st Intensive Programme on Innovative Therapeutics: from molecules to drugs, Châtenay- Malabry, France, 2-12 July 2001.
- 8th European Workshop on Particulate Systems, Paris, France, 4-5 June 2010.
- 10th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology, Glasgow UK, 4-7 April 2016.

### **Co-chair**

- GTRV Summer school – Therapeutic application of nucleic acids. Aussois, France, 27-29 September, 1999.
- 1st EUFEPS Conference on Optimising Drug Delivery and Formulation: New Challenges in Drug Delivery, Versailles, France, 29 September-1er October 2003.
- European Conference on Drug Delivery and Pharmaceutical Technology, Sevilla, Spain, 10-12 May 2004.
- 12th International Cyclodextrin Symposium, Montpellier, France, 16-19 May 2004.
- 2nd EUFEPS Conference on Optimising Drug Delivery and Formulation: Evaluation of Drug Delivery Systems Issues and Perspectives, Versailles, France, 20-23 November 2005.
- 5th World Meeting on Pharmaceutics Biopharmaceutics Pharmaceutical Technology, Geneva, Switzerland, 27-30 March 2006.
- 2nd Symposium Skin and Formulation, Versailles, France, 9-10 October 2006.
- 1st Conference on Innovation in Drug Delivery: From Biomaterials to Devices, Naples, Italy, 30 September-3 October 2007.
- 6th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology, Barcelone, Spain, 7-10 April 2008.
- 2nd Conference Innovation in Drug Delivery: From preformulation to development through innovative evaluation process, Aix-en-Provence, France, 3-6 October 2010.
- 7th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology, La Valette, Malta, 8-11 March 2010.
- 4th Conference on Innovation in Drug Delivery Antibes-Juan Les Pins, France, 25-28 September 2016.
- 12th France-Japan DDS Symposium, Abbaye des Vaux de Cernay, France. 9-12 October 2016.

### **Teaching activities**

#### **Pharmacy Bachelor Degree**

Responsible for the course to the third grade in Pharmacy entitled “Drug formulation, manufacturing, and biopharmaceutical aspects.” In charge of the “Advanced Drug Delivery” course.

#### **Master degree**

Responsibility until 2010 for the master program “Pharmaceutical Technology and Biopharmacy.” Since 2010, I am performing several courses within this program but also others (Microbiology, Biotechnology) (15 EPT)

#### **Doctoral School**

Within the doctoral school "Therapeutic innovation: from fundamentals to applications". I am responsible for the "Pharmaceutical Technology and Physical Pharmacy" section, which hosts more than 50 doctoral students. I am also responsible for the "Nanomedicines " teaching unit (10 EPT).

#### **In other institutions**

I have been teaching in different Master Programs in different universities (Université de Marseille, Université de Bordeaux, Université de Cergy Pontoise, Université de Paris).

#### **In other countries**

I have been a coordinator and partner of different Socrates Intensive Programmes. As coordinator from 1997 to 2000 responsible for the course “New dosage forms and routes of administration” (ICP 96-F- 4003/12) from 2001 to 2003 “Therapeutic innovation from the molecules to drugs” (27963-IC-1999). From 1998 to 2003, I was a partner in the program Erasmus -IC-1 -97-1-DE-ERASMUS-IP- « Cell Culture and ex-vivo models for Drug Delivery Research » Coordinated by Pr. Claus Michael Lehr (University of Saarbrücken, Germany). I have been giving more than 30 lectures in European summer schools.

I have been invited as a Professor to different universities and institutions: University Federal of Rio Grande do Sul, (BRAZIL) (1992, 1994, and 2006) at the National Research Institute, Osaka (JAPAN), University of Navarra (SPAIN) (2005), University of Santiago de Compostella (SPAIN) (2006),

University of Cagliari (ITALY) (2006 and 2008), University of Naples (ITALY) (1998 and 2004), University of Parma (ITALY), (2000).

### **Expertise**

#### **International**

- Natural Sciences and Engineering Research Council of Canada (NSERC) (2000-2004).
- Italian Ministry of Universities and Research (MIUR) (2001-2005).
- Luxembourg National Research Fund (FNR) (2009).
- Academy of Finland (2011 & 2017).
- Austrian NANO Initiative (2007).
- European Union
  - ✓ Member of the working group on nanotechnology risks of the Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR) (2005).
  - ✓ Member of the working group "Nanosubstances in Cosmetics" of the Scientific Committee on Consumer Products (SCCP) (2006).

- ✓ Evaluator of the European "Meditrans" Program (2008-2009).
- ✓ Reviewer for the ERC consolidator program (2014).
- ✓ Member of the Euronanomed Program Panel (ERA-NET) (2013 and 2019).
- ✓ Member of the ERC consolidator grant panel (2022-).
- Member of the scientific council of the Helmholtz Institute for Pharmaceutical Research Saarland (2010-2015).
- Member of the Board of Pharmaceutical Sciences (FIP) representing the Association de Pharmacie Galénique Industrielle (APGI) since 2003.

#### **National**

- Member of the scientific council of the French Agency Against Myopathy (AFM) (2008-2009).
- National Research Agency (ANR) since its creation.
- High Council for the Evaluation of Research and Higher Education (HCERES) since its creation.
- Expert for the Parliament office for evaluating scientific and technological choices (2004).
- AFSSAPS, Non-Clinical Innovation Working Group (2008-2010).
- ANSES, Evaluation of projects of the National Environment-Health-Work Research Program (2019)
- Advisor to ITMO Health Technology in Aviesan (2015-2019).
- Member of the working group on chemical imaging agents in the France Life Imaging infrastructure (FLI).

#### **Companies**

Dompe, Nanobiotix, O'boticario, Pierre Fabre, Virsol, Sanofi, Santen, Zambon...

#### **Ph.D. supervision**

1. FERNANDEZ Rocio - Evaluation of liver toxicity of polymer nanoparticles – 22 November 1995.
2. BLANCO Maria José - Formulation and characterization of poly(lactide-co-glycolide) microspheres prepared by the multiple emulsion solvent evaporation method for the encapsulation of peptides – 22 March 1996.
3. RAMALDES Gilson - Study of the potential of liposomes to stimulate the intestinal mucosal immune response – 18 September 1996.
4. BOCHOT Amélie - Development of a dispersion of liposomes in a temperature-sensitive gel for intra ocular delivery of oligonucleotides – 29 January 1998.
5. DE OLIVEIRA Monica Cristina - Design of pH-sensitive liposomes for the administration of antisense oligonucleotides: physico-chemical and biopharmaceutical aspects – 15 March 1999.
6. LEVISAGE Catherine - Development of poly(methylidene malonate 2.1.2) microparticles. Application to the induction of immune tolerance by the oral route – 07 September 1999.
7. LAMBERT Grégory - Design and biological evaluation of nanospheres and nanocapsules with aqueous content for the administration of antisense oligonucleotides – 14 November 2000.
8. NICOLI Sara Design of Triptorelin nanoparticles for skin delivery – 25 January 2001 - Cosupervision University of Parma, Italy (P. COLOMBO).
9. BOURGEOIS Sandrine - Design of a prototype drug based on pectin particles containing  $\beta$  lactamases – 13 December 2004.
10. BOULMEDARAT Laila - Design of a bioadhesive system based on liposomes dispersed in gels for the buccal administration of peptides. – 14 January 2005.
11. PHAN Guillaume - Pharmacokinetic and delivery approaches to actinide decorporation by a complexing agent – 24 May 2005.
12. GOMES DOS SANTOS Anna - Characterization and evaluation of poly(D,L-lactic-co-glycolic acid) microspheres encapsulating an antisense oligonucleotide/cationic polymer complex for intraocular administration – 03 October 2005.
13. SHAKWEH Monjed - Contribution to the study of the parameters controlling the fate of biodegradable particles after oral administration – 27 October 2005.
14. PISANI Emilia Perfluorocarbon nanocapsules for ultrasound imaging - 03 February 2006 – Cosupervision University of Turin, Italy (Pr. L. CATTEL).
15. GOMES GAETE Carolina - Trojan microparticles for the intraocular administration of corticosteroids – 11 December 2007.
16. SURACE Claude - Design of hyaluronic acid-conjugated cationic lipoplexes for DNA targeting to cells expressing the CD44 receptor – 12 December 2008 - Cosupervision University of Turin, Italy (Pr. S. ARPICCO).
17. ROQUES Caroline - Development and evaluation of synthetic carriers for the administration of nucleic acids in muscle tissue 24 September 2008.
18. SPAGNUL Aurélie - Development of a pharmaceutical form carrying a calixarene intended to treat healthy or injured skin contaminated with uranium – 16 November 2009.
19. DIAZ LOPEZ Raquel - Micro and nanocapsules of perfluorooctyl bromide for ultrasonography: modifications of surface properties and fate in vivo – 10 December 2009.
20. KHODER Mouhammad - Pectin beads for colonic administration of absorbent products – 11 October 2010.
21. MENARD Nathalie - Surfactants of natural origin for the solubilization of active principles: synthesis, physical

- chemistry, and toxicity – 02 December 2011.
22. DIOU Odile 21. Synthesis of polymer nanocapsules for detecting solid tumors by ultrasound and fluorine MRI – 20 November 2012.
  23. BRUXEL Fernanda Délivrance d'oligonucléotides anti-topoisomérase II de Plasmodium falciparum à partir de nanoémulsions – 01 February 2012 – Cosupervision with UFRGS, Porto Alegre, Brasil (Pr. H. TEIXEIRA).
  24. GRABOWSKI Nadege - Pulmonary toxicology of biodegradable nanoparticles 23. Cytotoxic and inflammatory effects on epithelial cells and macrophages – 13 December 2013.
  25. AL SABBAGH Chantal - Stealth thermosensitive liposomes for ultrasound-triggered delivery of 5- Fluorouracil – 26 September 2014.
  26. GIACCALONE Giovanna - Implant loaded with nanoparticles for the controlled release and lymphatic targeting of nucleotides and nucleotide analogs – 28 November 2014.
  27. GRIVES Sophie - Study of the in vitro toxicity and the ex vivo and in vivo efficacy of galenic forms of calixarene developed to treat skin contamination due to uranium compounds – 13 March 2015.
  28. LEITE NASCIMENTO Thais - Lipoplexes coated with hyaluronic acid to target interfering RNA to tumor cells overexpressing the CD44 receptor – 17 September 2015.
  29. EL SHAIR Walhan - Functionalization of liposomes against aptamers for the active targeting of cancer cells – 21 March 2016.
  30. LORSCHIEDER Mathilde - Dexamethasone palmitate nanoparticles for passive targeting in treating rheumatoid arthritis - 26/10/2017.
  31. QUAILLET Marion - Nanoformulation of an antiretroviral molecule for targeting HIV-1 reservoirs – 30 November 2018.
  32. NASCIMENTO Ludmila - Alveolar macrophage targeting strategies for glucocorticoid delivery – 15 July 2019
  33. TWAROG Caroline - Comparaison des promoteurs d'absorption intestinaux, SNAC et C10 pour la délivrance orale de peptides : études biophysiques, in vitro et ex vivo – 03 July 2020 - Cosupervision with University College Dublin (Pr. D. BRAYDEN)
  34. YU Zhibo - Dendriplexes for anti-TNF siRNA delivery as an anti-inflammatory strategy in treating rheumatoid arthritis – 27 October 2020.
  35. TESSIER Barbara - Trojan microparticles based on polymeric prodrugs of Budesonide for the treatment of COPD – 18 December 2020.
  36. TOUSSAINT Balthazar - Plasma stability and biodistribution of an EPAC1 inhibitor, (R)-CE3F4, and modifications brought about by lipid nanovectors – 08 September 2021.
  37. MATHIEU Clélia - Cellular and intracellular targeting of the TRAP-1 protein as a new therapeutic approach for cancer – 15 December 2021

#### Post-Doctoral Fellows

- 1 NAKADA Yiuchiro - 1994-1995
- 2 LEO Eliana - 1995-1996
- 3 QUAGLIA Fabiana - 1996-1997
- 4 ROJAS Judith - 1996-1998
- 5 PASSIRANI Catherine - 1997-1998
- 6 CUTRIGNELLI Anna-Lisa - 1998-1999
- 7 MONTISCI Marie-Jeanne - 1998-2000
- 8 BONNAFOUS David - 1998-2000
- 9 SAHLI Hamid - 1999-2000
- 10 GIANNAVOLA Claudia - 2000-2001
- 11 PIETZONKA Peter - 2000-2001
- 12 DESIRE Laurent - 2001-2002
- 13 DE ROSA Giuseppe - 2000-2002
- 14 HARRAGA Said - 2000-2002
- 15 HARVEY Richard - 2002-2003
- 16 HUGUET Hélène - 2004-2005
- 17 GERVELAS Claudia - 2004-2005
- 18 PISANI Emilia - 2006 -2007
- 19 MINARINI Paolo - 2007-2008
- 20 MURA Simona - 2008-2011
- 21 REUL Regina - 2009-2010
- 22 REYNAUD Franceline - 2010-2011
- 23 CANIONI Romain - 2011-2012
- 24 SKANJI Rym - 2012
- 25 SANTIAGO Leticia - 2011-2012
- 26 RUGE Christian - 2013

- 27 CALLEJA Patricia - 2013
- 28 BOHR Adam - 2013
- 29 GRABOWSKI Nadege - 2014
- 30 SIMON Rosana - 2014-2016
- 31 Ur REHMAN Mujeeb - 2018
- 32 REYNAUD Franceline - 2018-2019
- 33 MARENGO Alessandro - 2018-2020
- 34 EVEN Benjamin - 2019-2020

## Invited speaker and plenary lecturer in Scientific meetings and Universities

### National invitations

1. Vecteurs colloïdaux lipidiques et polymériques : aspects technologiques. Galenika 89, Les journées pratiques des préparateurs en Pharmacie, La Défense, France, 7-8 october, 1989.
2. Liposomes. Il congresso de Farmácia e Análisis Clínicas, Ponta Grossa, Brasil, 8-12 October, 1992.
3. Les liposomes, préparation, caractérisation et utilisation en Dermatologie. Journées Chevreuil 1992 - Applications des corps gras en Cosmétologie, Hygiène corporelle et Pharmacie, Dijon, France, 26- 27 November, 1992.
4. Vectorisation de principes actifs à l'aide de liposomes. Réunion Echange et coordination Recherche- Industrie (ECRIN), Thiais, France, 28 January, 1993.
5. Interaction des liposomes avec des structures cutanées. 4ème Journées de Pharmacologie cutanée, Paris, France, 25-26 March, 1993.
6. Encapsulation par les liposomes. Applications cosmétiques. Club libération modifiée, Strasbourg, France, 2 December, 1993.
7. Les liposomes : applications thérapeutiques. Réunion ARCHIMEX, Vannes, France, 20-21 April, 1994.
8. Applications par voie orale des vecteurs polymères. Ecole d'été du GTRV, Oléron, France, 19-21 September, 1994.
9. Les vecteurs colloïdaux : une alternative nouvelle pour le traitement des infections opportunistes. INTERMED 95, Bordeaux, France, 28-29 September, 1995.
10. Les liposomes. Premières Journées de Formation Dermatologiques en Cosmétologie, Paris, France, 12-13 January, 1996.
11. Microencapsulation de peptides et de protéines : application à la vaccination par voie orale. Réunion Echange et coordination Recherche-Industrie (ECRIN), Thiais, France, 23 October, 1997.
12. Microencapsulation de peptides et de protéines : application à la vaccination par voie orale. Journées de la SFC « Polymères et Santé Rouen », Mont Saint Aignan, France, 25 May, 1998.
13. Place de Biotechnologies dans le développement de nouveaux systèmes d'administration. Chimie Santé Innovation, Rouen, France, 20-21 December, 2000.
14. Induction de la tolérance orale chez la souris par administration des microsphères de poly (lactide- co-glycolide) contenant la  $\beta$  lactoglobuline chez la souris. Académie Nationale de Pharmacie, Paris, France, 28 March, 2001.
15. Systèmes particuliers pour l'administration d'oligonucléotides antisens. 17èmes Journées du GTRV, Paris, France, 12-13 December, 2002.
16. Nouveaux systèmes d'administration des médicaments. Cycle de conférences « conception, développement, recherche » Ecole centrale de Paris - Châtenay-Malabry, France, 6 February, 2003.
17. Nanotechnologies pour la vectorisation des médicaments. INSERM - Séminaire de sensibilisation en Nanobiotechnologies, Paris, France, 13 May, 2003.
18. Nano et Microtechnologies pour l'administration d'acides nucléiques. Séminaire NanoBio. Grenoble, France, 21 May, 2003.
19. Les nanosciences pour mieux soigner : la vectorisation des médicaments. Colloque Nanosciences et Médecine au 21<sup>o</sup>Siècle organisé par l'office parlementaire d'évaluation des choix scientifiques et technologiques Sénat, Palais du Luxembourg, Paris, France, 6 February, 2004.
20. Systèmes d'administration pour les peptides et protéines. Atelier INSERM du peptide naturel au médicament, La Grande Motte, France, 26-28 February, 2004.
21. L'innovation par la vectorisation des médicaments. Réunion Pharmaceutique SCHERING PLOUGH, L'innovation pharmaceutique et sa prise en charge à l'hôpital, Marakech, Morocco, 9 October, 2004.
22. Microencapsulation et libération contrôlée des molécules fragiles. Colloque CPE Lyon, Stabilité des principes actifs et produits formulés. Lyon, France, 16-18 March, 2005.
23. Vectorisation de Médicaments Vers le colon. 2<sup>ème</sup> congrès de la faculté de Pharmacie de l'université Saint Joseph, Beirut, Lebanon, 12-13 May, 2006.
24. Des vaccins par voie orale : nouvelles formes galéniques. 2<sup>ème</sup> congrès de la faculté de Pharmacie de

- l'université Saint Joseph, Beirut, Lebanon, 12-13 May, 2006.
25. Local Gene and oligonucleotide delivery, Primer simposio internacional de medicina genomica y nuevos sistemas de liberacion de medicamento, Mexico city, Mexico, 20-21 February, 2008.
  26. Site specific delivery of proteins, Primer simposio internacional de medicina genomica y nuevos sistemas de liberacion de medicamentos, Mexico city, Mexico, 20-21 February, 2008.
  27. Modèle de distribution des nanoparticules. Congrès de la Société de Pharmaco-Toxicologie Cellulaire Paris, France, 29-30 May, 2008.
  28. Lipid-based nano and microtechnologies for intraocular and lung delivery of poorly stable and/or poorly absorbed active drugs. Gattefossé St Remy de Provence Meeting on Nanotechnology for Improving Drug Delivery, France, 27-29 June, 2008.
  29. Nanotechnologies for the Delivery of Nucleic Acids and Contrast Agents. Wissenschaftliche Tagung der Österreichischen Pharmazeutischen Gesellschaft, Vienne, Austria, 16-18. April, 2009.
  30. Nanotechnologies for the delivery of nucleic acids. Conférence au séminaire de l'IFR141 : Innovation thérapeutique du fondamental au médicament. Châtenay-Malabry, France, 6 April, 2009.
  31. Nanomédicaments : spécificités et recommandations règlementaires. Séminaire dans le cadre du canceropole de Lyon, France, 30 November, 2009.
  32. Les nanotechnologies pour l'administration ciblée du médicament 38ème Séminaire du club Français des radiopharmaceutiques, Vichy, France, 20-21 May, 2010.
  33. Les nanotechnologies pour l'administration ciblées d'acides nucléiques. 3<sup>o</sup> journées Tunisiennes des nanosciences et nanotechnologies, Sousse, Tunisia, 29-31 July, 2010.
  34. Nanotechnologies for drug delivery: are they safe and efficient? Workshop Novel Structures and Delivery Systems: Application to food stabilisation and controlled release of bioactives, Massy, France, 28-29 October, 2010.
  35. Nanotechnologies pour l'administration ciblée de médicaments. Conférence Plénière d'ouverture - 4èmes rencontres Normande en Chimie-Biologie-Santé - De Galien à la nanovectorisation des médicaments, Caen, France, 25 November, 2010.
  36. Micro- et nanovecteurs pour l'ultrasonographie et l'échographie Collège de France - Séminaire du 29 March 2010 dans le cadre de la Chaire d'Innovation technologique Liliane Bettencourt.
  37. Nanotechnologies et Peau - Congrès de la Société de Pharmaco-Toxicologie Cellulaire (SPTC) "La peau et ses alternatives" Toulouse, France, 19-20 May, 2011.
  38. Médicaments nanoparticulaires pour l'administration ciblée des molécules actives. Journée de la nanomédecine, Faculté de Médecine, Pierre et Marie Curie, Paris, France, 25 November, 2011.
  39. Les médicaments à l'échelle du nanomètre pour atteindre plus efficacement les tissus malades – Institut Français de Jordanie, Amman, Jordan, 26 September, 2012.
  40. Biodistribution & nanotoxicité des médicaments nanoparticulaires. Quand l'Imagerie rencontre les Nanotechnologies Colloque organisé par le Cancéropôle, Grand Ouest, Bordeaux, France, 3-4 December, 2014.
  41. Nanotechnologies : opportunités pour l'environnement et la santé. OFI ASSET MANAGEMENT, Les nanotechnologies : un nouvel enjeu de RSE ? Paris, France, 30 September, 2014.
  42. Administration locale de médicaments nanoparticulaires : efficacité et sécurité. CIMATH2 Colloque final, Nantes, France, 22-23 September, 2014.
  43. Nanoparticules et agents d'imagerie. La Rochelle, Club des Radiopharmaceutiques, Atelier de Réflexion Stratégique Académiques-Industriels, La Rochelle, France, 22-23 May, 2014.
  44. Toxicocinétique des nanoparticules : passage des barrières, distribution, élimination Colloque conjoint ARET – STG : Eco-Géno-Toxicologie des nanomatériaux : bilan et perspectives, Paris, France, 3- 5 June, 2014.
  45. Les nanoparticules médicamenteuses inhalées. Aerosolstorming, 6ème Journées Scientifique du Groupe Aerosol Thérapie, Paris, France, 15 June, 2015.
  46. Nanomédicaments pour l'administration ciblée d'acides nucléiques, Colloque Interfaces chimie des matériaux - Biologie – Médecine, Collège de France, Paris, France, 18 February, 2016
  47. Nanomédicaments pour l'administration ciblée d'acides nucléiques. Conférence Culture/Sciences Sanofi – Chilly Mazarin/Longjumeau, France, 7 March, 2017.
  48. Conception de nanomédicaments à partir de liposomes. 50<sup>ème</sup> anniversaire du centre de Biophysique Moléculaire. Orléans, France, 15 September, 2017.
  49. Vers des nanomédicaments anti-VIH. 10ème rencontres Janssen – Une nouvelle dimension en infectiologie, Paris, France, 17 au 18 November 2017.
  51. Nanomedicines for targeted drug delivery - IDMIT AND DIM1HEALTH SYMPOSIUM -, Fontenay-aux-Roses, France, 27 - 28, June 2018.
  52. Nanotechnologies pour la nanomédecine : Questions sur la toxicité et aspects règlementaires, Colloque Chimie, Nanomatériaux, Nanotechnologies, Mayson de la Chimie, Paris, France, 7 November, 2018.
  53. Nanoparticules pour l'adressage spécifique de petites molécules et d'acides nucléiques – Colloque Recherche et

Maladies Rares à Paris Sud, Le Kremlin-Bicêtre, France, 19 November 2019.

54. Nanomedicines : solutions for better delivery of nucleic acids - Mini-Symposium for PhD Students in Pharmaceutical Sciences Nanotechnologies in pharmaceutical sciences, Organisé par l'université de Milan, Milano, Italy, 21-23 May, 2018.
55. De la nanobiologie aux nanotechnologies : panorama global - 4e édition du Colloque Innovations technologiques De la nanobiologie aux nanotechnologies, Paris, France, 24 January, 2019.
56. Prospettive nell'utilizzo delle nanoparticelle per via inalatoria - Patologie interstiziali polmonari in corso di malattie del collagene: incontro multidisciplinare pneumo-reumatologico, Pavia, Italy, 29 March, 2019.
57. Local and targeted delivery of nucleic acids - Innovative Researches in Pharmaceutical and Environmental Sciences, Pisa Italy, 27 November, 2019.
58. Stratégies thérapeutiques pour l'application clinique des ARN interférents. Communication à l'académie nationale de médecine, Paris, France (virtual), 1<sup>er</sup> December 2020.
59. Lipid-based nanomedicines for drug delivery in cancer and inflammatory diseases - 20th Annual Meeting of the Graduate Program in Pharmaceutical Sciences at the Federal University of Rio Grande do Sul (PPGCF-UFRGS) (virtual), 9-11 December, 2020.
60. Driving nanoparticles to macrophages – Webinar - Nanotechnology and chronic lung diseases – Pavia, Italy (virtual), 22 January 2021.
61. Nanomedicines for the treatment of rheumatoid arthritis. NetwOArk Webseminar, 28 september, 2021.
62. Lipid and dendrimer-based nanomedicines as a therapeutic strategy in cancer and inflammatory diseases, 10ème Journée scientifique du Médicament, Grenoble, France, 10 June, 2021.

### **Internationals**

1. Infected cells to study the efficacy of new drug delivery systems. European Symposium of *in vivo* and *ex vivo* test systems to rationalize drug design and delivery, APGI/FIP, Paris, France, 13-14 December, 1993.
2. Polyalkylcyanoacrylate nanoparticles - state of the art. Colloidal drug carriers/ 1st expert meeting in Berlin, Berlin, Germany, 15-17 June, 1995.
3. Delivery of antisense oligonucleotides by means of colloidal systems. 2nd France/Japan Drug Delivery System Symposium, Orléans, France, 13-14 September, 1996.
4. Design of liposomes formulations for systemic and local delivery of antisense oligonucleotides. Liposomes advances: progress in drug and vaccine delivery, London, United-Kingdom, 16-20 December, 1996.
5. How can new drug delivery systems improve the treatment of HIV patients: Are time-released techniques an option? European Aids Treatment Group Symposium, Rotterdam, Holland, 29 August, 1997.
6. Design of liposomes for nucleic acid delivery, The second annual meeting of the association of College of Pharmacy in the Arab world, Byblos, Lebanon, 16-18 October, 1998.
7. Biodegradable microspheres for the mucosal delivery of vaccines. 3rd France/Japan Drug Delivery System Symposium, Kisarazu, Japan, 8-11 November, 1998.
8. Systemic and local delivery of oligonucleotides by liposomes 27th International Symposium on controlled release of bioactive materials, Paris, France, 7-13 July, 2000.
9. Biodegradable particles for oral immunisation and tolerance. CRS Greek Chapter workshop. CR – Systems New developments, Patras, Greece, 9 September, 2000.
10. Particles transport across the GI tract: a pathway to induce oral vaccination and tolerance. 6th Pharmatech - International conference on pharmaceuticals and pharmaceutical technology, Symposium membrane transport, Recife, Brasil, 5-8 August, 2001.
11. Biodegradable microparticles for the mucosal delivery of antibacterial and dietary antigens. The 13th International Symposium on Microencapsulation, Angers, France, 5-7 September, 2001.
12. Gel and solid matrix systems for the controlled delivery of drug carrier-associated nucleic acids. 11th International Pharmaceutical Technology Symposium, Istanbul, Turkey, 9-11 September, 2002.
13. Peptides, Proteins and Vaccine Delivery: A biopharmaceutical Approach VI Congreso de la Sociedad Española de Farmacia Industrial y Galénica. 3<sup>a</sup> Jornadas de Tecnología Farmacéutica Industrial. Grenada, Spain, 9-11 February, 2003.
14. Nanotechnologies made of amphiphilic molecules for drug targeting. Symposium of the World Academy of Biomedical Technologies on Nanotechnologies, Paris, France, 26-27 May, 2003.
15. Interfering with Gene expression: to deliver or not? 1<sup>st</sup> EUFEPS Conference on Optimising Drug Delivery and Formulation: New Challenges in Drug Delivery, Versailles, France, 29 September, 2003-1er October, 2003.
16. Smart and controlled delivery of proteins and vaccines. From Structural Genomics to Drug Discovery, Parma, Italy, 27-28 September, 2004.
17. Biodegradable particles for the delivery of antisense oligonucleotides. XIII Congress Italian-latin American of ethnomedical science. Salerno, Italy, 22-25 September, 2004.
18. Site-specific delivery of proteins in the GI tract. EUFEPS 2004 New Safe Medecine – Towards mechanistic prediction, Bruxelles, Belgium, 17-20 October, 2004.
19. New polymeric systems for the delivery of Biomimetic products X International Macromolecular Colloquium,

- Gramado, Brasil, 10-13 April, 2005.
20. Site-specific delivery of peptides/proteins to the colon. Debio-GTRV 2005 Summer School on "Formulation and Delivery of Macromolecular Drugs" Martigny, Switzerland, 7-9 September, 2005.
  21. Trojan particles for the ocular delivery of oligonucleotides, International Symposium of Advanced Therapies Rio de Janeiro, Brasil, 29 -30 août, 2005.
  22. Polysaccharide beads for colon delivery of antibiotic degrading enzymes, 15th International Symposium on microencapsulation Parma, Italy, 18-21 September, 2005.
  23. Biodegradable Polymers for stimulation or inhibition of cell proliferation, CRS Workshop, Protein drugs and drug delivery systems Pula, Cagliari, Italy, 13-14 October, 2005.
  24. Passive Targeting by Nanoparticles: Benefits and Risks? APS Pharmaceutical Nanotechnology: Nanoscale toxicology: lessons from drug delivery, London, United-Kingdom, 27 February, 2006.
  25. Trojan Implantable Systems for the Delivery of Nanotechnologies Carrying Nucleic Acids 6th International Conference and Workshop on Cell Culture and in-vitro Model for Drug Absorption and Delivery, Saarbrücken, Germany, 1-10 March, 2006.
  26. Nano and microtechnologies for the intracocular delivery of nucleic acids. 7th France-Japan DDS Symposium, Otsu, Japan, 24-27 September, 2006.
  27. Intraocular delivery of oligonucleotides by means of polymeric systems XX symposium of ADRITELF, Catania, Italy, 4-7 October 2006.
  28. Particle design for nucleic acids and contrast agents. 3rd Pharmaceutical Sciences World Congress Amsterdam, Holland, 22-25 April, 2007.
  29. Colon delivery of bacterial enzymes by polysaccharide beads. XI International Symposium on "Technological advances in controlled release systems" Argentina Controlled Release Society Local Chapter, Buenos Aires, Argentina, 28-29 August, 2007.
  30. Nanotechnologies for the delivery of ultrasound contrast agents. XI International Symposium on "Technological advances in controlled release systems" Argentina Controlled Release Society Local Chapter, Buenos Aires, Argentina, 28-29 August, 2007.
  31. Biodegradable particles for the intraocular delivery of nucleic acids. XI Congress of Industrial Pharmacy and Biochemistry (SAFYBI), Buenos Aires, Argentina, 27-30 August, 2007.
  32. Biodegradable particles for the intraocular delivery of nucleic acids. Keynote Presentation at the 6th annual meeting of the Israel Controlled Release Society Local Chapter, Advances in drug delivery: new carriers, devices and therapies, Caesarea, Israel, 5-6 September, 2007.
  33. Nanotechnologies for targeting ultrasound contrast agents. 6th annual meeting of the Israel Controlled Release Society Local Chapter, Advances in drug delivery: new carriers, devices and therapies, Caesarea, Israel, 5-6 September, 2007.
  34. Intraocular delivery of nucleic acids using Trojan delivery systems. The 7th International Symposium on Ocular Pharmacology & Therapeutics, Budapest, Hungary 28February-3 March, 2008.
  35. Nanotechnologies for the delivery of nucleic acids. Cell Course 2008. 7th Conference and Workshop. Saarbrücken, Germany, 20-29 February, 2008.
  36. Nanotechnologies for dual ultrasound and 19F MRI imaging. 14th International Pharmaceutical Technology Symposium, Antalya, Turkey, 8-10 September, 2008.
  37. Particle engineering for local drug delivery and contrast agents. 2nd PharmSciFair, Nice, France, 8- 12 June, 2009.
  38. Nanotechnologies for the delivery of nucleic acids. Nanobio-Europe 2009 Grenoble, France, 16-18 June, 2009.
  39. Delivery Systems for the Removal of Colonic Residual Antibiotic to Reduce the Emergence of Resistances. 36th Annual Meeting & Exposition of the Controlled Release Society. Copenhagen, Denmark, 18-22 July, 2009.
  40. Nanotechnologies for the delivery of nucleic acids delivery and ultrasound imaging. French- Norwegian Interdisciplinary Symposium on Nano and Micro Frontiers in Biology and Medicine. Bergen, Norway, 31 August-2 September 2009.
  41. Fate of nanotechnologies after their intravenous and oral administration. French-Norwegian Interdisciplinary Symposium on Nano and Micro Frontiers in Biology and Medicine. Bergen, Norway, 31 August-2 September, 2009.
  42. Nanosized ultrasound contrast agents : towards a theranostic approach. XXI Simposium ADRITELF Cagliari, Italy, 10 -13 September, 2009.
  43. Nanotechnologies for nucleic acid delivery and ultrasound imaging. EuroNanoMedicine 2009, Bled, Slovenia, 28-30 September, 2009.
  44. Nanodevices as new contrast agents for ultrasound imaging. 7th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology, Valetta, Malta, 8-11 March, 2010.
  45. Nanotechnologies for ultrasound imaging and nucleic acid delivery. Pharmatech 2010. International Conference and Exhibition on Pharmaceutical Nutraceutical and Cosmetical Technology. Kuala Lumpur, Malasia, 25-27



- May, 2010
46. Nanotechnologies for drug delivery: are they safe and efficient? International Postgraduate Student Meeting on Pharmaceutical Sciences. Cesme-Izmir, Turkey, 24-27 June, 2010.
  47. Nanotechnologies as a platform for theragnostic applications. 9th France Japan DDS Symposium. Kumamoto, Japan, 26-29 September, 2010.
  48. Targeting Delivery of nucleic Acids AAPS short course “nanotechnology from A – Z: Achievement in Drug Delivery and Tissue engineering” - 2010 PSWC/AAPS Annual Meeting – New Orleans, USA, 14-18 November, 2010.
  49. Lung and nanotoxicology of biodegradable nanoparticles. 3rd Pharmaceutical Sciences Fair and Exhibition, Prague, Czech Republic, 13-17 June, 2011.
  50. Nanotechnologies for multimodalities imaging and triggered drug release. COST TD1004 Meeting “theragnostics”, Turin, Italy, 17-18 February, 2012.
  51. PLGA nanoparticles meet the bronchial airways: how surface properties affect their interaction with mucus and epithelial cells. 6th AITUN Annual Meeting, Parme, Italy, 8-9 March, 2012.
  52. The in vivo fate of nanomedicines and nanotoxicity In vitro testing industrial platform, Spring Meeting 2012, “Safety assessment of nanomaterials : current status and challenges ahead”, Bilbao, Spain, 19 April, 2012.
  53. Testing lung toxicity of nanoparticles - European Summit for Clinical Nanomedicine - Basel, Switzerland, 7-9 May, 2012.
  54. Formulations of Nanotechnologies for Skin Application : Structure and Fate/Efficacy and safety of nanotechnologies designed for skin application, International Meeting "The Fundamental Pillars of Nanotechnology in Cosmetics Industry.", Sao Paulo, Brasil, 17 & 18 May, 2012.
  55. Polymer nanocapsules as a new platform for theranostics - Helmholtz Institute for Pharmaceutical Research Saarland, 2nd Symposium, Saarbrücken, Germany, 28 June, 2012.
  56. CD44-targeted nanotechnologies, 10th DDS France-Japan Symposium, Bordeaux, France, 11-13 October, 2012.
  57. Physico-chemical characterization of nanoparticles in regards to fate and toxicity Londres, “COST Action TD1004 Meeting “Theranostics Imaging and Therapy: An Action to Develop Novel Nanosized Systems for Imaging-Guided Drug Delivery”, London, United-Kingdom, 28-30 October, 2012.
  58. Nanotechnologies for local and systemic delivery of active drugs” EuroNanoForum2013, Dublin, Ireland, 18-20 June, 2013.
  59. Perfluorocarbon nanocapsules for multimodal imaging and drug delivery 19th International Symposium on Microencapsulation Pamplona, Spain, 9-11 September, 2013.
  60. CD 44 targeted nanotechnologies 3rd Conference Innovation in Drug Delivery: Advances in Local Drug Delivery, Pisa, Italy, 22-25 September, 2013.
  61. Nanotoxicology: what should be relevant for nanomedicine and regulatory agencies? International Conference on Nanosciences and Healthcare, Paris, France, 8 November, 2013.
  62. Nanotechnologies for drug delivery: are they safe and efficient? Conference AMPTEC 2014 Advanced Materials and Pharmaceuticals Technologies. Villeneuve d'Ascq, France, 9-11 July, 2014.
  63. Nanotechnologies for lung delivery: efficacy and safety. 7th International Pharmaceutical Technology Symposium-IPTS 2014 Antalya, Turkey, 8-10 September, 2014.
  64. Tailoring nanomaterials for personalized drug delivery: safety and efficacy. 10th Central European Symposium on Pharmaceutical Technology, Portoroz, Slovénie, 18-20 September, 2014.
  65. Nanotechnologies for Lung Delivery: Efficacy and Safety. 11th France-Japan DDS Symposium, Recent Achievements and Further Challenges in Drug Delivery Research, Awaji Yumebutai International Conference Center, Hyogo, Japan, 5-8 October, 2014.
  66. Inhaled nanomedicine: safety and efficacy. CLINAM - The European Summit for Clinical Nanomedicine and Targeted Medicine - The Translation to Knowledge-Based Nanomedicine Eighth Conference and Exhibition, Basel, Switzerland, 28 June-1st July, 2015.
  67. CD44 Nanotechnologies, 5th HIPS Symposium on Pharmaceutical Sciences devoted to Infection Research. Saarebrück, Germany, 2 juillet, 2015.
  68. Inhalable targeted nanomedicine : safety and efficacy. 3rd International TB-Meeting Inhaled therapies for tuberculosis and other infectious diseases Parma, Italy, 14-16 October, 2015.
  69. Tailoring nanomaterials for personalized drug delivery: safety and efficacy, Nanoparticles: Advances in nanoparticulate carriers: Applications in diseases and infections. Paris, France, 19-21 October, 2015.
  70. Lipoplexes coated with hyaluronic acid for targeted delivery to CD44 receptor expressing cells. Workshop on Polysaccharides in Drug Delivery, Turin, Italy, 27 October, 2015.
  71. Safety of inhalable biodegradable nanoparticles. SFNano: European Nanomedicine Meeting. Grenoble, France, 7-9 December, 2015.
  72. Nanoemulsions for skin decontamination of uranium. Perspectives in Percutaneous Penetration 2016, La Grande Motte, 29 March – 1er April, 2016.
  73. Targeted delivery of nucleic acids, Nano2016.pt, Lisbon, Portugal, 15 April 2016.

74. Nanomedicines for nucleic acid delivery. 22nd EAFF (European Association of Faculties of Pharmacy annual conference, Châtenay-Malabry, France, 12-14 May 2016.
75. Targeted nanomedicines for local and systemic delivery of nucleic acids 11th Central European Symposium on Pharmaceutical Technologie, Belgrade, Serbia, 22-24 September 2016.
76. Nanotechnologies for targeted delivery of nucleic acids. International Conference On Nanomedicine And Nanobiotechnology – ICONAN 2016, Paris, France, 28-30 September 2016.
77. Lung toxicology of biodegradable nanoparticles. Emerging Device and Particle Engineering Technologies for Optimal Pulmonary Drug Delivery- Meeting Cost Siminhale Valetta, Malta, 20-22 February, 2017
78. Nanomedicines for the treatment of cancer and inflammatory diseases. Advanced School in Nanomedicine – Pula, Sardinia, Italy 25-28 September 2017
79. Designing particles for pulmonary nucleic acids delivery – Workshop from COST Siminhale Particle Engineering and Device Development for Pulmonary Drug Delivery: What is new? Belgrade - Serbia, 27-28 February 2018
80. Tackling physiological resistances to drug delivery, Maurice-Marie Janot Lecture, 11th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology - Grenade, Spain - 19- 22 March 2018
81. Nanomedicines and inflammation: triggering or treating? 11th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology - Grenade, Spain - 19 - 22 March 2018
82. Glucocorticoids in nanopharmaceuticals for the treatment of inflammatory diseases. 19th International Pharmaceutical Technology Symposium-IPTS 2018 – Antalya, Turquie – 17- 19 September, 2018
83. Novel approaches in formulating nanomedicine in the treatment of inflammatory diseases - 13th France-Japan DDS Symposium, Ise-Shima, Mie, Japan, 21-24 October 2018
84. Tailoring Nanomaterial for drug and contrast agent delivery - Sino-France Healthcare Theranostic Forum, Shanghai, DHU, China, 11-13 November 2018.
85. Nanotoxicology a crucial step in order to bring nanomedicines to the market - Formulation days 2019 - Advances in Formulation of Active Ingredients, Lyon, France, 10-11 January 2019.
86. Aptamer-Guided Nanomedicines for Nucleic Acid Delivery - 10th International Congress Nanotechnology in Biology & Medicine 15 - 17 April 2019, Graz / Austria
87. CD44-targeted delivery of siRNA – Keystone Symposia on Delivering Therapeutics Across Biological Barriers, Dublin, Ireland, 6– 9 May, 2019.
88. Lipid and Phospholipid-Based Nanomedicines for Drug Delivery in Cancer and Inflammatory Diseases - 6th International Symposium on Phospholipids in Pharmaceutical Research 9-10 September 2019, Heidelberg, Allemagne
89. Emerging inhaled nanomedicines and associated excipient technologies - International Conference on Current Challenges and Future Opportunities for Inhalation Therapies - Athens, Greece, 30 September – 2 October 2019.
90. Lipid and dendrimer-based nanomedicines for drug delivery in cancer and inflammatory diseases – Seminar Series, University of Yale, (USA), 9 December, 2020 (virtual).
91. Novel Approaches for Targeted & Lung Delivery of RNAi. 2<sup>nd</sup> Annual RNAi-based therapeutics summit, 15-17 June 2021 (virtual).
92. Tackling physiological resistances to drug delivery by mean of nanomedicines. Micro- and nanotechnologies for medicine and life sciences organized by the European Academy of Sciences EURASC – 14 April, 2021 (virtual)
93. Nanomedicine and inflammatory disease. 1st EUGLOH Symposium on Nanomedicines. 28 June 2021 (virtual)
94. Lipid and dendrimer-based nanomedicines for siRNA 28<sup>th</sup> congress of the Italian Chemical Society. 14-23 September 2021 (virtual)

### **Editorial Board**

Member of the Editorial Board of:

- Journal of Controlled Release (IF= 9.776)
- Expert Opinion on Drug Delivery (IF= 6.648)
- European Journal of Pharmaceutics and Biopharmaceutics (IF= 5.571)
- International Journal of Pharmaceutics (IF= 5.875)
- Drug delivery and translational research (4.617)
- Journal of Drug Delivery Sciences and Technology (IF= 3.981)
- Precision nanomedicine (no IF).

### **Grants**

I have received eight grants from the National Research Agency founded in 2005, among which projects were coordinated by myself. I have also received other grants (ARC, AFM, ANSES...). I have been a member of one European Consortium Marie Curie « Galenos » and obtained two Euronanomed projects and a member of the management committee of the COST Siminhale Action - Action MP1404. Finally, I have received three bilateral Grants: two with Italy and one with Brazil.

### **Citations in press media**

I have regularly been cited in newspapers and magazines (Le Temps, Le Figaro, La Tribune, Les Echos, Le Quotidien du Médecin, L'usine Nouvelle, Le Monde, La Croix, Biologiste Infos, What's Up Doc, Industrie Pharma...). I have also contributed to different articles in press media. I also gave interviews on radios such as Radio Canada, Europe I, Radio France Internationale France Info, BFM, and RCJ.

### **Private contract**

Since 1990, I have got many collaboration agreements with companies (>20 000 euros/year) (Negma, Procter & Gamble, Nestlé, Virsol, Lavipharm, Ceva Santé Animale, Pierre Fabre Dermopharmaceutique, Servier, Novagali Guerbet, Sanofi). I have also filed 14 families of patents. One patent was licensed to SANOFI. 4 Patents were licensed to DA VOLTERRA which is producing a medical device that is now in a clinical trial (phase II). One patent was licensed to CEVIDRA, leading to a medical device currently on the market (Calixarene Cevidra®).

### **Patents and licensing**

1. Bru-Magniez N., C. Le Visage, E. Fattal, P. Couvreur, P. Breton Novel Poly(methylidene) malonate microspheres, preparation method and pharmaceutical compositions containing them. Patent n° WO 99/55309 published on 4 November, 1999 from PCT/FR1999/001005.
2. Bru-Magniez N., E. Mysiakine, E. Fattal, P. Couvreur, P. Breton Pharmaceutical form comprising a cell regulating factor and/or a cell proliferation promoter. Patent n° WO 02/11779 published on 14 February, 2002 from PCT/FR2001/002554.
3. Limal D., Breton P., Couvreur P., Fattal E., Bonnafous D. Novel cationic copolymers, use thereof for the vectorisation of biomolecules and synthetic intermediates for the same. Patent n° WO/2004/074336.
4. Bourgeois S., E. Fattal, P. Couvreur, A. Andreumont Galenic formulation for colon targeted delivery of active principles. Patent n° WO/2004/016248 published on 26 February, 2004 from PCT/FR2003/002474.
5. Bochet, A., Alphandary, H., Duchene, D. & Fattal, E. - Systèmes pour microencapsulation et leurs applications. Patent n° WO 2004/066906 published on August 12, 2004 from PCT/FR2004/000119.
6. Bru-Magniez N., V. Larras, D. Bonnafous, S. Sagodira, P. Breton, E. Fattal, P. Couvreur, G. Riess Novel cationic copolymers, use thereof for the vectorisation of biomolecules and synthetic intermediates for the same. Patent n° WO/2004/074336 published on 2 September, 2004 from PCT/FR2003/003937.
7. Huguet H., N. Tsapis, A. Andreumont, E. Fattal, Colonic Delivery of Adsorbents Patent n° WO 2006/122835 published on 23 November, 2006 from PCT/EP2006/005629.
8. Huguet H., N. Tsapis, A. Andreumont, E. Fattal, Colonic Delivery of active agents. Patent n° WO/2006/122835 published on 17 August, 2006 from PCT/GB2006/000448.
9. Spagnul A., C. Bouvier-Capely, G. Phan, F. Rebière, E. Fattal cosmetic and pharmaceutical formulations of calixarene molecules Patent n° WO/2010/070049 published on 24 June, 2010 from PCT/EP2009/067416.
10. Fattal E., N. Tsapis, F. Reynaud Galenic form suitable for absorbing, in a specific manner, the undesirable molecules in the digestive tract Patent n° WO/2011/036400 published on 31 March, 2011 from PCT/FR2010/051976 from PCT/FR2010/051976.
11. Huguet H., N. Tsapis, A. Andreumont, E. Fattal, Site-Specific Intestinal Delivery of Adsorbents, Alone or in Combination with Degrading Molecules. Patent n° WO/2012/0107367 published on 5 March, 2012 from PCT/EP2007/054831.
12. Fattal E., Tsapis N., Reynaud F., Lorscheider M., Canioni R., Nanoparticulate prodrugs, EP 16 189 635.2.
13. Deschamps F., De Baere T., Tselikas L., Moine L., Isoardo T., Huang N., Fattal E., Tsapis N. Emulsions eau-dans-huile injectables et leurs utilisations. FR17 56773
14. Hillaireau H., Fattal E., Giacalone G., Quaillet M., Saidi H., Pallara S., Gougeon M.L., Novel nanoparticles of antiretroviral drugs, their preparation, and their use for the treatment of viral infections EP18306506.9

### **Invited editor**

1. International Journal of Pharmaceutics - Papers from the 2nd European Workshop on Particulate Systems, 183 (1), 1999.
2. International Journal of Pharmaceutics - Papers from the 8th European Workshop on Particulate Systems, 416, (2) 2011.
3. European Journal of Pharmaceutical Sciences- A special issue dedicated to COST Action SimInhale: cross-disciplinary perspective on the current state of the art and challenges in pulmonary drug delivery, 113, 1-192, 2018.
4. Advanced Drug Delivery Reviews- Aptamers in drug delivery, 2018
5. Journal of Drug Targeting's Life-time Achievement Award issue for Patrick Couvreur, 2019.

### **Publications in international peer-reviewed journals**

1. Laham, A., Claperon, N., Durussel, J.J., Fattal, E., Delattre, J., Puisieux, F., Couvreur, P., Rossignol, P., Liposomally-entrapped ATP: improved efficiency against experimental brain ischemia in the rat. Life Sciences, 40(20), 2011-2016, 1987.
2. Laham, A., Claperon, N., Durussel, J.J., Fattal, E., Delattre, J., Puisieux, F., Couvreur, P., Rossignol, P., Intracarotid administration of liposomally-entrapped ATP: improved efficiency

- against experimental brain ischemia. *Pharmacological Research Communications*, 20(8), 699- 705, 1988.
3. Youssef, M., Fattal, E., Alonso, M.J., Roblot-Treupel, L., Sauzieres, J., Tancrede, C., Omnes, A., Couvreur, P., Andremont, A., Effectiveness of nanoparticle-bound ampicillin in the treatment of *Listeria monocytogenes* infection in athymic nude mice. *Antimicrobial Agents and Chemotherapy*, 32(8), 1204-1207, 1988.
  4. Laham, A., Claperon, N., Durussel, J.J., Fattal, E., Delattre, J., Puisieux, F., Couvreur, P., Rossignol, P., Liposomally entrapped adenosine triphosphate. Improved efficiency against experimental brain ischaemia in the rat. *Journal of Chromatography*, 440455-458, 1988.
  5. Fattal, E., Youssef, M., Couvreur, P., Andremont, A., Treatment of experimental salmonellosis in mice with ampicillin-bound nanoparticles. *Antimicrobial Agents and Chemotherapy*, 33(9), 1540-1543, 1989.
  6. Seijo, B., Fattal, E., Roblot-Treupel, L., Couvreur, P., Design of nanoparticles sizing less than 50 nm: preparation, characterization and drug loading. *International Journal of Pharmaceutics*, 62(1), 1-7, 1990.
  7. Couvreur, P., Fattal, E., Andremont, A., Liposomes and nanoparticles in the treatment of intracellular bacterial infections. *Pharmaceutical Research*, 8(9), 1079-1086, 1991.
  8. Fattal, E., Rojas, J., Youssef, M., Couvreur, P., Andremont, A., Liposome-entrapped ampicillin in the treatment of experimental murine listeriosis and salmonellosis. *Antimicrobial Agents and Chemotherapy*, 35(4), 770-772, 1991.
  9. Fattal, E., Rojas, J., Roblot-Treupel, L., Andremont, A., Couvreur, P., Ampicillin-loaded liposomes and nanoparticles: comparison of drug loading, drug release and in vitro antimicrobial activity. *Journal of Microencapsulation*, 8(1), 29-36, 1991.
  10. Couvreur, P., Fattal, E., Alphandary, H.P., F., Andremont, A., Intracellular targeting of antibiotics by means of biodegradable nanoparticles. *Journal of Controlled Release*, 19F259-268, 1992.
  11. Puisieux, F., Fattal, E., Couvreur, P., Rossignol, P., Delattre, J., Liposomes their fate in-vivo and their possible therapeutic use (iv route) - efficiency of liposome-entrapped ATP in cerebral- ischemia. *Phosphorus Sulfur and Silicon and the Related Elements*, 77(1-4), 661-664, 1993.
  12. Maaßen, S., Fattal, E., Muller, R.H., Couvreur, P., Cell cultures for the assessment of toxicity and uptake of polymeric particulate drug carriers. *STP Pharma Science*, 3(1), 11-22, 1993.
  13. Blanco-Prieto, M.J., Delie, F., Fattal, E., Tartar, A., Puisieux, F., Gulik, A., Couvreur, P., Characterization of V3 BRU peptide-loaded small PLGA microspheres prepared by a (W(1)/O)W(2) emulsion solvent evaporation method. *International Journal of Pharmaceutics*, 111(2), 137-145, 1994.
  14. Fattal, E., Nir, S., Parente, R.A., Szoka, F.C., Jr., Pore-forming peptides induce rapid phospholipid flip-flop in membranes. *Biochemistry*, 33(21), 6721-6731, 1994.
  15. Puisieux, F., Fattal, E., Lahiani, M., Auger, J., Jouannet, P., Couvreur, P., Delattre, J., Liposomes, an interesting tool to deliver a bioenergetic substrate (ATP). in vitro and in vivo studies. *Journal of Drug Targeting*, 2(5), 443-448, 1994.
  16. Skiba-Lahiani, M., Auger, J., Terribile, J., Fattal, E., Delattre, J., Puisieux, F., Jouannet, P., Stimulation of movement and acrosome reaction of human spermatozoa by PC12 liposomes encapsulating ATP. *International Journal of Andrology*, 18(6), 287-294, 1995.
  17. Fernandez-Urrusuno, R., Fattal, E., Porquet, D., Feger, J., Couvreur, P., Influence of surface properties on the inflammatory response to polymeric nanoparticles. *Pharmaceutical Research*, 12(9), 1385-1387, 1995.
  18. Fernandez-Urrusuno, R., Fattal, E., Porquet, D., Feger, J., Couvreur, P., Evaluation of liver toxicological effects induced by polyalkylcyanoacrylate nanoparticles. *Toxicology and Applied Pharmacology*, 130(2), 272-279, 1995.
  19. Aynie, I., Vauthier, C., Foulquier, M., Malvy, C., Fattal, E., Couvreur, P., Development of a quantitative polyacrylamide gel electrophoresis analysis using a multichannel radioactivity counter for the evaluation of oligonucleotide-bound drug carrier. *Analytical Biochemistry*, 240(2), 202-209, 1996.
  20. Blanco-Prieto, M.J., Durieux, C., Dauge, V., Fattal, E., Couvreur, P., Roques, B.P., Slow delivery of the selective cholecystinin agonist pBC 264 into the rat nucleus accumbens using microspheres. *Journal of Neurochemistry*, 67(6), 2417-2424, 1996.
  21. Blanco-Prieto, M.J., Leo, E., Delie, F., Gulik, A., Couvreur, P., Fattal, E., Study of the influence of several stabilizing agents on the entrapment and in vitro release of pBC 264 from poly(lactide- co-glycolide) microspheres prepared by a W/O/W solvent evaporation method. *Pharmaceutical Research*, 13(7), 1127-1129, 1996.
  22. Fernandez-Urrusuno, R., Fattal, E., Rodrigues, J.M., Feger, J., Bedossa, P., Couvreur, P., Effect of polymeric nanoparticle administration on the clearance activity of the mononuclear phagocyte system in mice. *Journal of Biomedical Materials Research*, 31(3), 401-408, 1996.
  23. Nakada, Y., Fattal, E., Foulquier, M., Couvreur, P., Pharmacokinetics and biodistribution of oligonucleotide adsorbed onto poly(isobutylcyanoacrylate) nanoparticles after intravenous administration in mice. *Pharmaceutical Research*, 13(1), 38-43, 1996.
  24. Ramaldes, G.A., Deverre, J.R., Grognet, J.M., Puisieux, F., Fattal, E., Use of an enzyme immunoassay for

- the evaluation of entrapment efficiency and in vitro stability in intestinal fluids of liposomal bovine serum albumin. *International Journal of Pharmaceutics*, 143(1), 1-11, 1996.
25. Ramaldes, G.A., Fattal, E., Puisieux, F., Ollivon, M., Solubilization kinetics of phospholipid vesicles by sodium taurocholate. *Colloids and Surfaces B-Biointerfaces*, 6(6), 363-371, 1996.
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  27. Allaoui-Attarki, K., Pecquet, S., Fattal, E., Trolle, S., Chachaty, E., Couvreur, P., Andremont, A., Protective immunity against *Salmonella typhimurium* elicited in mice by oral vaccination with phosphorylcholine encapsulated in poly(DL-lactide-co-glycolide) microspheres. *Infection and Immunity*, 65(3), 853-857, 1997.
  28. Blanco-Prieto, M.J., Fattal, E., Gulik, A., Dedieu, J.C., Roques, B.P., Couvreur, P., Characterization and morphological analysis of a cholecystokinin derivative peptide-loaded poly(lactide-co-glycolide) microspheres prepared by a water-in-oil-in-water emulsion solvent evaporation method. *Journal of Controlled Release*, 43(1), 81-87, 1997.
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  32. Fernandez-Urrusuno, R., Fattal, E., Feger, J., Couvreur, P., Therond, P., Evaluation of hepatic antioxidant systems after intravenous administration of polymeric nanoparticles. *Biomaterials*, 18(6), 511-517, 1997.
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