Curriculum Vitae of Pr Daniel Scherman, PhD

Exceptional Class Director
Centre National de la Recherche Scientifique (CNRS)
National Scientific Research Center - France.
Born 12/07/1953

- Chairman of the Health and Medicine Committee of EURASC, European Academy of Sciences
- Creator and former Director of the Centre de Recherche Pharmaceutiques de Paris CRP2 Faculté de Pharmacie - Université Paris Descartes
- Creator of the Laboratory: Chemical and Biological Technologies for Health (Université Paris Descartes – Chimie ParisTech - UMR 8258 - CNRS – UMR-S 1022 Inserm)
- Director of the French Foundation of Rare Disease (Fondation Maladies Rares)
- « Grand Prix de l'Académie des Sciences » - Main Prize of the French National Academy of Sciences: Emilia Valori Prize for the Applications of Sciences, to be officially received in November 2017
- Expert of H2020 European Union programmes.

Main scientific field and domain of competence:

- Gene and Cell therapy - Biotechnology – Biomaterials - Non-viral delivery of DNA and SiRNA - Plasmid optimization - Chemical DNA vectors - Physical DNA delivery (electrotransfer and hydrodynamic delivery) - Drug delivery - Cancer therapy - Lysosomal storage disorders - Bioimaging using photonic, SPECT and IRM techniques.

- Main issued and developped patents and discoveries concern gene delivery vectors, including chemical vectors and electroporation delivery methods, biosafe miniplasmids for gene therapy, plasmid purification techniques, and bioimaging. Patents licenced to one Big Pharma or Biotech companies (Avantis Pharma, Plasmid Factory, Gencell) and at the origin of several Biotech SMEs (Eyevensys, Polyplus, Sphergen).

Scientific Publications:

- Total Publications 509
- h-index 64
- Average citations per item 37,98
- Sum of times cited 19 332 - Without self citations 17 885
- 50 books chapters
- 40 independent patent applications in the fields of gene therapy, drug delivery, drug discovery and bioimaging.
- 90 invited speaker lectures in International Meetings
- Editor in the series "Advances in Behavioral Biology" (Plenum Press): Physiology and the Biology of the Blood-Brain Barrier.

- Editor of “**Handbook of Gene Therapy and Genetic Pharmacology**”, Imperial College Press, 2014.

Scientific awards

- 2017: Valori Prize of the French Natinal Academy of Science Academic
- 2004: Palms National Medal
- 2001: Prize of the French National Academy of Medicine/*"Académie nationale de Médecine"*
- 2000: Silver Medal of the CNRS
- 1998: Research Prize of the Rhône-Poulenc Group
- 1986: Neurobiology Prize of the Foundation for Medical Research/*"Fondation pour la Recherche Médicale"*
- 1982: Prize of the Physico-chemical Institute of Biology/"*Institut de Biologie Physico-Chimique*".

Diplomas

- 1975: Ecole Polytechnique.
- 1977: Ecole Nationale des Ponts et Chaussées.
- 1979: Doctorat de 3ème cycle in Biochemistry (University Paris VII).
- 1984: Doctorat d'Etat és-Sciences (University Paris VII).

Scientific Responsibilities and main past functions

- 2004 – 2018: Director of the Laboratory: “Chemical and Biological Technologies for Health” (INSERM, CNRS, Paris Pharmacy Faculty, Chemistry ParisTech).
- 2014 - 2018 Director of the « Centre de Recherche Pharmaceutique de Paris”, 300 scientists.
- 2015-ongoing: Expert of Horizon 2020 Committees.
- 2013-2016: Président of the CNRS French National Research Scientific Committee (“Section 28”) on Parmacology, Bioengineering, Bioimaging and Biotechnology.
- Coordinator Eranet E-Rare2 TANSPOSMART focused on the gene therapy of a rare clotting disorder, the von Willebrand disease).
- Team and Task Leader of the “Target AMD” FP7 Collaborative Program: Clinical trial on non-viral gene therapy of Age-Related Macular Degeneration.
- Since 2009: President of the “Non Viral Gene Therapy” Committee of the European Society of Cell and Gene Therapy (ESGCT).
- Since 2017: Member of the Scientific Committee of the American Society for Gene and Cell Therapy (ASGCT). Third Mandate.
- 2006-2009: Scientific Director and Chief Scientific Officer of the GENETHON Laboratory for Gene and Cell Therapy of Rare Diseases.
- Coordinator of the European research consortium MOLEDA, from the 5thPCRDT.
- Two terms as member of the Non-viral Vectors Committee of the American Society of Cell and Gene Therapy .
- Co-founder of the French Society of Cell and Gene Therapy and Committee member (2000-2011). Main organizer of the 2006 meeting.
- 1991-2002: Creator and Director of UMR 7001 Joint Unit "Molecular and Cellular Vectorology", in collaboration with CNRS - ENSCP - Aventis Pharma Gencell. Research. Staff: 25. Topics: Drug Delivery / Oral drug absorption (enhancement and cellular in vitro models) / Blood brain barrier (brain targeting and cellular in vitro models) / Formulation / Gene delivery, gene therapy.

- 1991-2002: Permanent Consultant of Rhone-Poulenc-Rorer / Aventis Gencell company.
- Professor at Ecole Polytechnique (1991-2003).
- Permanent expert representative of the Department of Bio-Engeneering of the Direction of the Technology of the Ministry of Research and Technology.
- President of the “Groupe Thematique de Recherche sur les Vecteurs” (GTRV), 2001-2003.
- Representative at the CNRS Interdisciplinary Research Program IMABIO “Ingéniérie des macromolécules Biologiques” 1991-1992.
- Responsible of CNRS Action "Interface Chimie-Biologie".
- Member of the National Committee of the Centre National de la Recherche Scientifique (CNRS) in Section 24 “Cell Biology, Viruses and Parasites”, 1991-1995 and Section 20 “Biomolecules, Structure and Action Mechanism”, since 1995

10 Major publications:

Inhibition of replication of hepatitis B virus in transgenic mice following administration of hepatotropic lipoplexes containing guanidinopropyl-modified siRNAs.
Marimani MD, Ely A, Buff MC, Bernhardt S, Engels JW, Scherman D, Escriou V, Arbuthnot P.
J Control Release. 2015 Jul 10;209:198-206. doi: 10.1016/j.jconrel.2015.04.042. Epub 2015

Persistent nanophosphors activated in vivo for the optical imaging of vascularization, tumours and grafted cells
Maldiney T, Bessière A, Seguin J, Teston E, Sharma S, Viana B, Bos A, Dorenbos P, Bessodes M, Gourier D, Scherman D, and Richard C
Nature Materials, 2014 Avril;13(4):418-426.

High and prolonged sulfamidase secretion by the liver of MPS-IIIA mice following hydrodynamic tail vein delivery of antibiotic-free pFAR4 plasmid vector.
Quiviger M, Arfi A, Mansard D, Delacotte L, Pastor M, Scherman D, Marie C.
Gene Ther. 2014 Dec; 21(12):1001-1007.

Anionic polymers for decreased toxicity and enhanced in vivo delivery of siRNA complexed with cationic liposomes.
Schlegel A, Largeau C, Bigey P, Bessodes M, Lebozec K, Scherman D, Escriou V.
J Control Release. 2011 Jun 30, 152(3): 393-401.

pFARs, plasmids free of antibiotic resistance markers, display high-level transgene expression in muscle, skin and tumour cells
Marie C, Vandermeulen G, Quiviger M, Richard M, Préat V, Scherman D.
J Gene Med. 2010 Apr;12(4):323-32. (brevet en cours de négociation de licence).

Nanoprobes with near-infrared persistent luminescence for in vivo imaging".
Le Masne de Chermont Q, Chaneac C, Seguin J, Pelle F, Maitrejean S, Jolivet JP, Gourier D, Bessodes M, Scherman D.

Proc. Natl. Acad. Sci. USA 2007, 104(22), 9266-71. (brevet avec la socité Biospace Labs).

Plasmid electrotransfer of eye ciliary muscle: principles and therapeutic efficacy using hTNF-alpha soluble receptor in uveitis.
Bloquel C, Bejjani R, Bigey P, Bedioui F, Doat M, BenEzra D, Scherman D, Behar-Cohen F.
FASEB J. 2006 Feb, 20(2): 389-91. Epub 2005 Dec 13 (brevet Inserm)

High efficiency gene transfer into skeletal muscle mediated by electric pulses
Mir L., Burau M., Gehl J., Rangara R., Rouy D., Caillaud J-M., Delaere P., Branellec D., Schwartz B. et Scherman D.
Proc. Natl Acad. Sci. USA , 1999, 96, 4262-4267 (2 brevets exploités ar Inovio Biomedicals)

Minicircle: an Improved DNA Molecule for in vitro and in vivo Gene Transfer
Darquet A-M., Rangara R., Kreiss P., Schwartz B., Naimi S., Delaere P., Crouzet J. and Scherman D.
Gene Therapy, 1999, 6, 209-218. (brevet licencié à Plasmid Factory)

Virus-sized self-assembling lamellar complexes between plasmid DNA and cationic micelles promote gene transfer
Pitard B., Aguerre O., Airiau M., Lachages A-M., Bouknikachvillit T., Byk G., Dubertret C., Daniel J-C., Herviou C., Scherman D., Mayaux J-F. and Crouzet J.
Proc. Natl. Acad. Sci. USA , 1997, 94, 14412-14417

Efficient purification of plasmid DNA for gene transfer using triple-helix affinity chromatography
Wils P., Escriou V., Warnery A., Lacroix F., Lagneaux D., Ollivier M., Crouzet J., Mayaux J-F. & Scherman D.
Gene Therapy , 1997, 4, 323-330. (brevet exploité par Aventis-Centelion)