



**ROLS Marie-Pierre**, Born August 3, 1962, in Decazeville (France)

**Professional address:** IPBS-CNRS (UMR 5089)  
205, route de Narbonne  
31077 Toulouse cedex FRANCE  
**Phone / Fax :** 33.5.61.17.58.11 / 33.5.61.17.59.94  
**E-mail:** rols@ipbs.fr  
<http://www.ipbs.fr/?-Cellular-Biophysics-Marie-Pierre->

### Functions:

- Director of Research at the CNRS.
- Group leader at the IPBS (Institute for Biophysics and Structural Biology, Toulouse, France).
- Head of the Biophysics and Structural Biology department at the IPBS.
- Deputy Director of the GDR 2025 Happybio « Applications de Procédés Physiques à la Biologie »
- President and Vice-President of the French GEIMM society (Groupe d'Etude des Interactions Molecules Membranes) from 2006 to 2008; Board member of the French GEM society (Groupe d'Etude des Membranes) since 2009.
- Board member and Secretary of the French Society for Nanomedicine SFNano ([http://www.sfnano.fr/en/accueil\\_en/](http://www.sfnano.fr/en/accueil_en/)) since 2014.
- Board member of the Bio Electrochemical Society (BES), since 2018 (<http://www.bioelectrochemical-soc.org/council.php>).
- Since 2016: Council member in charge of “biological sciences” of the ISEBTT (International Society for Electroporation-based Therapies and Treatments), society created in 2015 following the 1st world congress on electroporation ([http://electroporation.net/News/July-2017-\(ISEBTT\)](http://electroporation.net/News/July-2017-(ISEBTT))).
- Participation to national and international networks :
  - Member of the management committee and Working Group Leader “mechanisms of electroporation” of the COST TD1104 European network for development of electroporation-based technologies and treatments (EP4Bio2Med) (<http://www.electroporation.net/>)
  - Member of the management committee of the International Bioelectrics Consortium (<http://ww2.odu.edu/engr/bioelectrics/consortium.html>)
  - Member of the management committee of the European Associated Laboratory (LEA) “Pulsed Electric Fields Applications in Biology and Medicine (<http://lea-ebam.prod.lamp.cnrs.fr/>)

### Research activities

Her research interests lie in the fields of membrane destabilization by pulsed electric fields leading to the electroporation of cells and tissues. She is involved in different aspects including the mechanisms of cell electroporation, cell electrofusion, DNA electrotransfer, as well as biomedical applications for cancer treatment and gene therapy and, more recently, in biotechnological applications. She develops for many years a multidisciplinary approach combining Cell Biology and Biophysics. Her approach is to use various imaging tools to visualize and define these phenomena at the molecular level on

models of increasing complexity: giant vesicles, cells in culture, multicellular spheroids, small animal.

She has an expertise in cytotoxic drugs and nucleic acids electrotransfer and has been involved in biomedical applications of electroporation for cancer treatment and gene therapy (she participated to clinical trials on electrochemotherapy: melanoma in humans, sarcoid in horses).

### **Education & Professional Experience**

- 1982: DEUG Sciences des structures et de la matière, option physique et chimie-physique (University Paul Sabatier, Toulouse, France)
- 1984 : Master of Biochemistry (University Paul Sabatier, Toulouse)
- 1989: PhD (University Paul Sabatier, Toulouse, France)
- 1990: Postdoctoral Fellowship (University of Bielefeld, Germany and Red Cross Laboratory, Rockville, MD)
- 1990: CNRS Junior scientist (Centre de recherche de Biochimie et de Biologie Cellulaire, Toulouse, France)
- 1995: Certificate for directing research studies (University Paul Sabatier, Toulouse, France)
- 2006: Senior scientist CNRS (Institut de Pharmacologie et de Biologie Structurale, Toulouse, France)
- 2009: Cellular Biophysics group leader at the IPBS
- 2014: Co-head of the Biophysical and Structural Biology department at the IPBS
- 2016: Head of the Biophysical and Structural Biology department at the IPBS

### **University teaching responsibilities**

- Supervised 16 PhD theses, 37 Master students.
- Tutor/teacher in the Ecole Doctorale Biologie-Santé-Biotechnologie.
- Speaker in advanced international schools (Ph D Course on Electroporation for drug and gene delivery from the laboratory to clinical use, Denmark, in 2010, 2012, 2013; International School on Biophysics & Bioelectrochemistry for Medecine, Roumania, 2010; International Scientific Workshop on Electroporation Based Technologies and Treatments, Slovenia, 2007-2021), Bioelectric Workshop on Fundamental and Applied Biophysics, Norfolk, VA in 2014-2016).

### **Publications**

>185 publications, h-index=47, ≈ 7000 citations (WebofScience)

### **Oral communications**

> 120 communications at national and international meetings (Gordon conferences, ASGCT, BES, EBSA...) of which 32 as invited speaker, of 23 seminars in Universities or Institutions worldwide.

### **Distinctions**

- 1993: Awarded Galvani Prize (Bio Electrochemical Society)
- 2005: Awarded Innovation Prize (Région Midi-Pyrénées)
- 2013 & 2020: Scientific Excellence Award (CNRS)