

Curriculum Vitae of Eric HONORE

• PERSONAL INFORMATION

Researcher unique identifier(s): orcid.org/0000-0002-8007-0919

URL for web site: <https://www.ipmc.cnrs.fr?page=honore>

• EDUCATION

1989 University Habilitation
1986 PhD in Physiology and Pharmacology
Université des Sciences et Techniques de Lille, France
1983 Master in Physiology and Pharmacology
Université des Sciences et Techniques de Lille, France

• CURRENT POSITION(S)

1991 – 2017 Director of Research 1st Class CNRS (tenured position)
Team leader “Molecular and Integrative Mechanobiology”
Institut de Pharmacologie Moléculaire et Cellulaire UMR7275 Centre National
de la Recherche Scientifique – Université de la Côte d’Azur, France
<https://www.ipmc.cnrs.fr/cgi-bin/ipmcx.cgi>
2017-2018 Invited Professor – The State Key Laboratory of Pharmaceutical Biotechnology
Department of Pharmacology and Pharmacy
The University of Hong Kong (China)

• PREVIOUS POSITIONS

1986 – 1991 Lecturer Animal Physiology
Université des Sciences et Techniques de Lille, France
2012-2016 Invited Professor – CAPES/Fiocruz (CDTS, Rio de Janeiro, Brazil)

• FELLOWSHIPS AND AWARDS

PRIZES:

- * 2006 Cino del Duca Prize Laureate - French Academy of Sciences
- * 2007 Jansen Prize Laureate - French Academy of Medicine
- * 2007 « La Recherche » Prize Laureate, France
- * 2007 Jean Valade Prize Laureate – Foundation of France
- * 2008 SGAM Prize Laureate – Foundation for Medical Research, France
- * 2010 E. Delcroix VLIZ Flanders Marine Institute Prize Laureate, Ostende, Belgium
- * 2011 Kidney Foundation Prize Laureate, France
- * 2013 Jean-Paul Binet Prize Laureate – Foundation for Medical Research, France

MOLECULAR AND INTEGRATIVE MECHANOBIOLOGY

Mechanosensitive ion channels

SCIENTIFIC LEADERSHIP PROFILE:

I was trained both at the Medical School of Lille (France) and at the Department of Physics of the University of Calgary (Canada), before graduating in 1986. My PhD work concerned the excitation-contraction coupling of cardiac cells. Soon after graduating, I became a lecturer at the University of Science and Technology of Lille (France), teaching animal physiology and doing research on voltage-dependent calcium channels. Then, I moved for a couple of years to the University of Bordeaux (France) to study smooth muscle calcium channels, in the early days of the patch clamp method. In 1989, I joined the team of Pr. Michel Lazdunski at the Institute of Molecular and Cellular Pharmacology in Nice (France) and became interested in the molecular physiology of potassium channels. Next, I was a visiting scientist at the Rockefeller University (New York City, USA) for two years, where I studied molecular embryology and axonal guidance in the team of Pr. Ali Brivanlou. Then, I started my own research group at the IPMC, focusing on polycystic kidney disease and associated arterial anomalies. My most recent work concerns the role of mechanosensitive ion channels in renovascular physiopathology, with a special focus on Piezo1. Our group has demonstrated that opening of Piezo1 contributes to the arterial remodeling of small arteries in the course of hypertension. In summary, using a combination of transdisciplinary approaches combining mechanics, biophysics, cell biology, integrative physiology, and clinical studies our group is studying how changes in force affect biological systems. This work will contribute to solve unexplored important questions of physiology and hopefully will yield new valuable translational perspectives for the fight against obesity, hypertension, nephropathies, as well as malaria.

SELECTED RECENT PUBLICATIONS:

Reviews:

Honoré E. The neuronal background K_{2P} channels: focus on TREK-1 (2007) **Nature reviews neurosci.** 8, 251-261.

Duprat F., Lauritzen I., Patel A., and **Honoré E.** The TASK background K_{2P} channels: chemo-and nutrient sensors (2007) **Trends Neurosci.** 30, 573-580.

Chemin J., Sachs F., Patel A., Delmas P., Lazdunski M. and **Honoré E.** Regulation of the mechano-gated K_{2P} channels by phospholipids (2007) **Curr. Topics Membr.** 59, 155-170.

Dedman A., Sharif-Naeini R., Folgering JH., Duprat F., Patel A. and **Honoré E.** The mechano-gated K_{2P} channel TREK-1 (2009) **Eur. Biophys. J.** 88, 293-303.

Sharif-Naeini R. , Folgering JHA, Bichet D, Duprat F., Delmas P., Patel A. and **Honoré E.** Sensing pressure in the cardiovascular system: Gq-coupled mechanoreceptors and TRP channels (2010) **J. Mol. Cell. Cardiol.** 48, 83-89.

Patel A., Sharif-Naeini R., Folgering J.R., Bichet D., Duprat F. and **Honoré E.** Canonical TRP channels and mechanotransduction: from physiology to disease states (2010) **Pflügers Arch.** 460, 571-581.

Patel A. and **Honoré E.** Polycystins and mechanosensory transduction (2010) **Nature reviews nephrol.** 6, 530-538.

Nilius B. and **Honoré E.** Sensing pressure with ion channels (2012) **Trends Neurosci.** 35, 477-486.

Demolombe S., Duprat F., **Honoré E.** and Patel A. Slower Piezo1 inactivation in dehydrated hereditary stomatocytosis (xerocytosis) (2013) **Biophys J.** 105(4):833-4.

Delmas P, Coste B, **Honoré E.** A special issue on physiological aspects of mechanosensing (2015) **Pflügers Arch.** Jan;467(1):1-2.

Patel A. Demolombe S and **Honoré E.** An alternative to force for Piezo1 opening (2015) **eLife** Jun 5;4. doi: 10.7554/eLife.08659.

Honoré E, Martins JR, Penton D, Patel A, Demolombe S. The Piezo Mechanosensitive Ion Channels: May the Force Be with You! (2015) **Rev Physiol Biochem Pharmacol.** 169:25-41.

Original articles:

Chemin J., Patel A.J., Duprat F., Sachs F., Lazdunski M. and **Honoré E.** Up- and down-regulation of the mechano-gated K_{2P} channel TREK-1 by PIP_2 and other membrane phospholipids (2007) **Pflügers Arch.** 455, 97-103.

Gottlieb P., Folgering JH., Maroto R., Raso A., Wood TG, Kurosky, A., Bowman C., Bichet D., Patel A., Sachs F., Martinac B., Hamill OP. and **Honoré E.** Revisiting TRPC1 and TRPC6 mechanosensitivity (2008) **Pflügers Arch.** 455, 1097-1103.

Sharif-Naeini R., Folgering J.H.A., Bichet D., Duprat F., Lauritzen I., Arhatte M., Jodar M., Dedman A., Chatelain F., Schulte U., Retailleau, K., Loufrani L., Patel A., Sachs F., Delmas P., Peters D.J.M., and **Honoré E.** Polycystin-1 and -2 dosage regulates pressure sensing (2009) **CELL.** 139, 587-596.

Giamarchi A., Feng S., Rodat-Despoix L., Xu Y., Bubenshchikova E., Newby L.J., Hao J., Gaudio C., Crest M., Lupas A.N., **Honoré E.**, Williamson M.P., Obara T., Ong A.C., Delmas P. A polycystin-2 (TRPP2) dimerization domain essential for the function of heteromeric polycystin complexes (2010) **EMBO J.** 29, 1176-1191.

Bagriantsev SN, Peyronnet R, Clark KA, **Honoré E.** Minor DL Jr. Multiple modalities converge on a common gate to control K_{2P} channel function (2011) **EMBO J.** 30, 3594-606.

Peyronnet R., Sharif-Naeini R., Folgering J.H.A., Arhatte M., Jodar M., El Boustany C., Gallian C., Tauc M., Duranton C., Rubera I., Lesage F., Pei Y., Peters D.J.M., Somlo S., Patel A., **Honoré* E.** and Duprat F.

*** corresponding author**

Mechanoprotection by polycystins against apoptosis is mediated through the opening of stretch-activated K2P channels (2012) **CELL Reports**. 1, 241-250.

Peyronnet R., Martins J.R., Duprat F., Demolombe S., Arhatte M., Jodar M., Tauc M., Duranton C., Paulais M., Teulon J., **Honoré* E.** and Patel A.

*** corresponding author**

Piezo1-dependent stretch-activated channels are inhibited by Polycystin-2 in renal tubular epithelial cells (2013) **EMBO Reports**. 14, 1143-8.

Retailleau K., Duprat F., Arhatte A., Ranade S., Peyronnet R., Martins J.R., Jodar M., Moro C., Offermanns S., Feng Y., Demolombe S., Patel A. and **Honoré E.**

Piezo1 in smooth muscle cells is involved in hypertension-dependent arterial remodeling (2015) **CELL Reports**. 13, 1-11.

Retailleau K., Arhatte M., Demolombe S., Peyronnet R., Baudrie V., Jodar M., Bourreau J., Henrion d., Offermanns S., Nakamura F., Feng Y., Patel A., Duprat F. and **Honoré E.**

Arterial myogenic activation through smooth muscle Filamin A (2016) **CELL Reports**. 14, 2050-8.

Ma S., Cahalan S., LaMonte G., Grubaugh N.D., Zeng W., Murthy S.E., Paytas E., Gamini R., Lukacs V., Whitwam T., Loud M., Lohia R., Berry L., Khan S.M., Janse CJ, Bandell M, Schmedt C., Wengelnik K., Su A.I., **Honore E.**, Winzeler E.A., Andersen K.G., Patapoutian A. Common PIEZO1 Allele in African Populations Causes RBC Dehydration and Attenuates Plasmodium Infection (2018) **CELL** 173(2):443-455