

THOMAS J. JENTSCH, M.D., PH.D.

Affiliation: Leibniz-Forschungsinstitut für Molekulare Pharmakologie (FMP)/ Max Delbrück Centrum für Molekulare Medizin (MDC), Robert-Rössle-Str. 10, 13125 Berlin, Germany
Phone: +49 30 9406 2961
Email: jentsch@fmp-berlin.de
Homepage: <http://www.fmp-berlin.de/jentsch.html>
Position: Deputy Director of Leibniz-Forschungsinstitut für Molekulare Pharmakologie (FMP); Head, Department of Physiology and Pathology of Ion Transport, Leibniz-Forschungsinstitut für Molekulare Pharmakologie (FMP) and Max Delbrück Centrum für Molekulare Medizin (MDC) Full Professor (W3), Charité - Universitätsmedizin Berlin



EDUCATION

1991 Habilitation in Cell Biochemistry, University Medical Center Hamburg
1984 M.D. (thesis on pH_i -regulating processes; thesis adviser: Prof. Wiederholt), Institute for Clinical Physiology, Freie Universität Berlin (FU)
1982 Ph.D. in Physics (thesis on field ionization (surface physics); thesis adviser: Prof. Block); Fritz-Haber-Institute (Max-Planck-Society), Berlin
1974 – 1980 Studies in Physics, FU Berlin
1972 – 1978 Studies in Medicine, FU Berlin

PROFESSIONAL BACKGROUND

since 2009 Deputy director of Leibniz-Forschungsinstitut für Molekulare Pharmakologie (FMP)
since 2006 Head, Department of Physiology and Pathology of Ion Transport, Leibniz-Institut für Molekulare Pharmakologie and Max Delbrück Center for Molecular Medicine
since 2006 Full Professor (W3), Charité - Universitätsmedizin Berlin
2001 - 2003 &
1995 – 1998 Director, Center for Molecular Neurobiology Hamburg (ZMNH), Hamburg University
1993 – 2006 Full Professor (C4), Director Dept. Molecular Neuropathology, ZMNH
1988 – 1993 Research group leader, ZMNH
1986 – 1988 Postdoctoral fellow with Harvey F. Lodish at the Whitehead Institute (MIT), Cambridge, Massachusetts
1981 – 1985 Staff scientist (Prof. Wiederholt), Institut für Klinische Physiologie, FU Berlin

ACADEMY MEMBERSHIPS

2006 Elected member of the Hamburg Academy of Science
2004 Elected member of Leopoldina (German National Academy of Science)
2001 Member of the Joachim Jungius Society, Hamburg
2001 Elected Member of the Berlin-Brandenburg Academy of Sciences and Humanities
2000 Elected Member of the Academia Europaea (European Academy of Sciences)

AWARDS/ HONORS

- 2018 'Society needs Science' Prize (by Stifterverband / Leibniz Gemeinschaft)
- 2017 Honorary Degree (Dr. h.c.) by Medical Faculty of Hamburg University
- 2017 Awarded second European Research Council (ERC) Advanced Grant
- 2013 Cátedra de Investigación Dr. García-Sainz, Univ. Autón. San Luís Potosí, MX
- 2012 Hans Ussing Award Lecture (American Physiological Society)
- 2012 Awarded European Research Council (ERC) Advanced Grant
- 2006 Hodgkin-Huxley-Katz Prize (Physiological Society, London)
- 2004 Adolf-Fick-Prize for Physiology/Biophysics
- 2004 Homer W. Smith Award (highest nephrology prize, American Society of Nephrology)
- 2004 Carl W. Gottschalk Distinguished Lectureship (American Physiological Society)
- 2003 'Berliner Professorship' at Yale University
- 2001 Ernst Jung-Preis für Medizin
- 2000 Elected Member of EMBO (European Molecular Biology Organization)
- 2000 Feldberg Prize (Foundation for Anglo-German Science)
- 2000 Familie Hansen Preis (Bayer Foundation)
- 2000 Prix Louis-Jeantet de médecine
- 1999 International Prize for Translational Neuroscience of the Gertrud Reemtsma Foundation
- 1998 Alfred Hauptmann Preis (for research on epilepsy)
- 1998 Franz Volhard Preis (for research in nephrology)
- 1995 Gottfried-Wilhelm-Leibniz-Preis of the DFG
- 1992 Wilhelm-Vaillant-Preis (for medical research)

MEMBERSHIPS IN ADVISORY BOARDS

- 2017 - Advisory Board Institut de l'Audition (Paris)
- 2016 - 2019 Strategic Committee Université Côte d'Azur (Nice)
- 2013 - 2020 Scientific Committee of the Louis-Jeantet-Foundation, Genève, Switzerland
- 2010 - Int. Advisory Board of CECS (Centro de Investigaciones Científicas), Valdivia, Chile
- 2009 - 2020 International Advisory Board of Max-Planck-Institut für Experimentelle Medizin, Gö
- 2003 - 2011 Advisory Board of Ernst-Jung Stiftung für Wissenschaft und Forschung
- 2002 - 2010 Advisory Board Reemtsma Foundation within the Max Planck Society
- 2002 - 2006 Advisory Board of Hermann and Lilly Schilling Foundation
- 1998 - 2000 International Scientific Advisory Board, Instituto de Ciencias Biomédicas, Universidad de Chile, Santiago de Chile

ORGANIZATION OF INTERNATIONAL SCIENTIFIC CONFERENCES

- 2019 Co-Organizer 39th Blankenese Conference 'Signaling in Health and Disease', Hamburg, Germany
- 2010 International Titisee Conference 'Sensory Transduction: the Gateway to Perception' (Co-chair Petit and Lewin) Titisee, Germany, Oct 13-17
- 2009 Symposium 'CLC Cl channels and transporters' at Physiology of Anion Transport and Cell Volume Regulation meeting (Co-chair: Uchida) Okazaki, Japan, Aug 4
- 2008 ESF Research Conference on Rare Diseases: Transporters and Channels (Co-chair: Palacín) Sant Feliu de Guixols, Spain, March 8-12
- 2002 Workshop 'Channelopathies', Instituto Juan March de Estudios e Investigaciones (Co-chairs: Ferrer-Montiel, Lerma) Madrid, Spain, March 11-13

Research interests and achievements

My lab is broadly interested in ion transport processes. Our research spans the whole spectrum from newly identifying 'novel' ion channels to studying how their structure determines biophysical transport properties, to determining their role in cellular and organismal processes. Besides plasma membrane channels, we elucidate the roles of ion transport in intracellular organelles. A strong focus is on the role of ion transport in physiology and disease, which we address with genetic mouse models and human genetics.

We are particularly interested in anion channels. We discovered, for the first time, the CLC family of anion channels and transporters (1990), the molecular identity of volume-regulated VRAC/LRRC8 anion channels (2014), and of acid-activated ASOR/TMEM206 Cl channels (2019). We discovered and/or analyzed the roles of CLCs in myotonia, kidney stones, osteopetrosis, neurodegeneration, leukodystrophy, blindness, deafness, renal salt loss and hyperaldosteronism.

We also discovered all four neuronal Kv7 K channels (KCNQ2-KCNQ5), their role in epilepsy and deafness, and studied the (patho-)physiology of the K-Cl cotransporters KCC2, -3, and -4 using mouse models.

FORMER COWORKERS IN LEADING ACADEMIC POSITIONS

T. Böttger (Group Leader, MPI HLR, Bad Nauheim, DE)	K. Dedek (Ass. Prof. U. Oldenburg, DE)
R. Estévez (Prof. U. Barcelona, ES)	P. Fong (Prof. U. Manhattan, US)
T. Friedrich (Prof. T.U. Berlin, DE)	S. Gründer (Prof. U. Aachen, DE)
C.A. Hübner (Prof. U. Jena, DE)	S. Jabs (Ass. Prof. U. Kiel, DE)
S.-E. Jordt (Prof. Duke U., US)	D. Keating (Prof. Flinders U., AU)
U. Kornak (Prof. U. Göttingen, DE)	C. Kubisch (Prof. U. Hamburg, DE)
P. Lange (Ass. Prof. U. Brit. Columbia, CAN)	U. Ludewig (Prof. U. Hohenheim, DE)
G. Novarino (Prof., IST, AT)	B. Pál (Ass. Prof. U. Debrecen, HU)
M. Poët (Group Leader, U. Nice, FR)	M. Pusch (Director Istituto Biofisica, CNR, Genova, IT)
M. Rust (Prof. U. Marburg, DE)	B. Schwappach (Prof. U. Hamburg DE, Dean Med. Fac.)
G. Spitzmaul (Ass. Prof., U. Nac. del Sur, AR)	T. Stauber (Prof. Medical School Hamburg, DE)
V. Stein (Prof. U. Bonn, DE)	R. Vicente García (Ass. Prof. U. Pompeu Fabra, ES)
S. Waldegger (Prof. U. Innsbruck, AT)	B. Wollnik (Prof. U. Göttingen, DE)
A.A. Zdebik (Senior Lecturer, UCL, UK)	P. Zhou (Ass. Prof. South. Med. U. Guangzhou, China)

SELECTED LECTURES OF LAST 10 YEARS

- 2022, May 11 'Structure and function of tvolume-regulated VRAC/LRRC8 channels', IUPS Conference, Beijing, China (online)
- 2022, May 7 'Acid-activated anion channel ASOR – a previously enigmatic channel' EMBO Lecture, EMBO/FEBS course on ion channels, Erice, Italy
- Corona Break -----
- 2019, Nov 4 'Señalización por canales de cloruro'. Inaugural Lecture, Societed Mexicana de Bioquímica, Querétaro, MX
- 2019, Oct 1 'Volume-regulated VRAC and acid-activated ASOR: widely expressed anion channels with multiple functions', Keynote Lecture, Meeting of the German Physiological Society, Ulm, Germany
- 2019, Aug 5 'Physiological Roles of Endo-Lysosomal Cl/H⁺-exchange', Gordon Research Conference on Organellar Channels & Transporters, Mount Snow, VT, USA
- 2019, June 19 'The ClC-2 chloride channel and its role in aldosterone secretion', Ion Channel Modulation Symposium, Clare College, Cambridge, UK
- 2018, Sept 21 'Properties and Functions of VRAC/LRRC8 Volume-Regulated Anion Channels' Keynote Lecture, Conference of International Transmembrane Transporter Society (ITTS), Vienna, Austria

- 2017, May 16 'VRACs: volume-regulated anion channels with role beyond cell volume regulation', EMBO Lecture, EMBO/FEBS course on ion channels, Erice, Italy
- 2017, Mar 6 'Role of CLC anion/proton exchangers in lysosomal ion homeostasis and function', Gordon Research Conference on Lysosomal Diseases, Il Ciocco, Italy
- 2015, Nov 25 'Molecular identification and role in physiology of the volume-regulated anion channel VRAC', John A. Young Plenary Lecture, FAOPS (Federation of Asian and Oceanic Physiological Societies) meeting, Bangkok, Thailand
- 2015, Nov 4 'Molecular identification and role in physiology of the volume-regulated anion channel VRAC', Plenary Lecture, 51st meeting of the Argentinian Society for Investigations in Biochemistry and Molecular Biology, Mar del Plata, Argentina
- 2015, June 17 'Physiological Roles of Vesicular Cl/H⁺ Exchange', Gordon Research Conference on Organellar Channels & Transporters, Waltham, MA, USA
- 2014, Jul 15 'Molecular composition of volume-stimulated organic osmolyte / anion channel VSOAC', Gordon Research Conference on Membrane Transport Proteins, Mount Snow, VT, USA
- 2013, Sep 6 'Enigmatic and less enigmatic roles of Cl/H⁺-exchange in endosomes and lysosomes', Society of General Physiologists 67th Annual Meeting 'The enigmatic role of chloride ion', Woods Hole, MA
- 2013, Mar 22 'Biología sensorial: el papel de canales de K⁺ y Cl⁻ en el oído, el tacto, y la olfacción', Cátedra de investigación 'Dr. Jesús Adolfo García Sainz', Universidad Autónoma de San Luís Potosí, México
- 2012, July 5 'Endosomal / lysosomal Cl/H⁺ exchangers: Focus on CIC-7', Gordon Research Conference 'Membrane Transport', Les Diablerets, CH
- 2012, Apr 24 'Ion homeostasis in endosomes and lysosomes: role in kidney, bone, and brain disease' Hans Ussing Award Lecture, Experimental Biology, San Diego, CA, USA
- 2012, Jan 23 'The need for H⁺-driven vesicular Cl⁻ accumulation: Insights from human disease, mice and biophysics', Keystone Symposium 'Membranes in Motion', Tahoe, CA, USA

Selected 50 publications (out of >170 original publications)

(* corresponding author; not indicated if last author; h-index = 87, > 23,000 cited (Web of Science, excl. Reviews); corresponding author on 32 out of 34 original papers cited >200 times, >130 citations per item)

1990 - 2009

Jentsch T.J.*, Steinmeyer K., Schwarz, G. (1990). Primary structure of *Torpedo marmorata* chloride channel isolated by expression cloning in *Xenopus* oocytes. **Nature** 348: 510-514. (with *News & Views*)

Steinmeyer K., Ortland C., Jentsch T.J. (1991). Primary structure and functional expression of a developmentally regulated skeletal muscle chloride channel. **Nature** 354: 301-304.

Steinmeyer K., Klocke R., Ortland C., Gronemeier M., Jockusch H., Gründer S., Jentsch T.J. (1991). Inactivation of muscle chloride channel by transposon insertion in myotonic mice. **Nature** 354: 304-308.

Thiemann A., Gründer S., Pusch M., Jentsch T.J. (1992). A chloride channel widely expressed in epithelial and non-epithelial cells. **Nature** 356: 57-60.

Koch M.C., Steinmeyer K., Lorenz C., Ricker K., Wolf F., Otto M., Zoll B., Lehmann-Horn F., Grzeschik K.H., Jentsch T.J. (1992). The skeletal muscle chloride channel in dominant and recessive human myotonia. **Science** 257: 797-800.

Gründer S., Thiemann A., Pusch M., Jentsch T.J. (1992). Regions involved in the opening of CIC-2 chloride channel by voltage and cell volume. **Nature** 360: 759-762.

Steinmeyer K., Lorenz C., Pusch M., Koch M.C., Jentsch T.J. (1994). Multimeric structure of CIC-1 chloride channel revealed by mutations in dominant myotonia congenita (Thomsen). **EMBO J.** 13: 737-743.

- Pusch M., Ludewig U., Rehfeldt A., Jentsch T.J. (1995). Gating of the voltage-dependent chloride channel CIC-0 by the permeant anion. **Nature** 373: 527-531.
- Ludewig U., Pusch M., Jentsch T.J. (1996). Two physically distinct pores in the dimeric CIC-0 chloride channel. **Nature** 383: 340-343. (with *News & Views*)
- Biervert C., Schroeder B.C., Kubisch C., Berkovic S.F., Propping P., Jentsch T.J.*, Steinlein O.K.* (1998). A potassium channel mutation in neonatal human epilepsy. **Science** 279: 403-406.
- Schroeder B.C., Kubisch C., Stein V., Jentsch T.J. (1998). Moderate loss of function of cyclic-AMP-modulated KCNQ2/KCNQ3 potassium channel causes epilepsy. **Nature** 396: 687-690.
- Kubisch C., Schroeder B.C., Friedrich T., Lütjohann B., El-Amraoui A., Marlin S., Petit C., Jentsch T.J. (1999). KCNQ4, a potassium channel expressed in sensory outer hair cells, is mutated in dominant deafness. **Cell** 96: 437-446.
- Schroeder B.C., Waldegger S., Fehr S., Bleich M., Warth R., Greger R., Jentsch T.J. (2000). A constitutively open potassium channel formed by KCNQ1 and KCNE3. **Nature** 403: 196-199. (with *Comment* in TIPS)
- Piwon N., Günther W., Schwake M., Bösl M.R., Jentsch T.J. (2000). CIC-5 Cl⁻ channel disruption impairs endocytosis in a mouse model for Dent's disease. **Nature** 408: 369-373.
- Kharkovets T., Hardelin J.P., Safieddine S., Schweizer M., El-Amraoui A., Petit C., Jentsch T.J. (2000). KCNQ4, a K⁺-channel mutated in a form of dominant deafness, is expressed in the inner ear and in the central auditory pathway. **Proc. Natl. Acad. Sci. U.S.A.** 97: 4333-4338. (with *Perspective*)
- Stobrawa S.M., Breiderhoff T., Takamori, S., Engel D., Schweizer M., Zdebik A.A., Bösl M.R., Ruether K., Jahn H., Draguhn A., Jahn R., Jentsch T.J. (2001). Disruption of CIC-3, a chloride channel expressed on synaptic vesicles, leads to a loss of the hippocampus. **Neuron** 29: 185-196. (with *Preview*)
- Kornak U., Kasper D., Bösl M.R., Kaiser E., Schweizer M., Schulz A., Friedrich W., Delling G., Jentsch T.J. (2001). Loss of the CIC-7 chloride channel leads to osteopetrosis in mice and man. **Cell** 104: 205-215. (with *News & Views* in *Nature*)
- Hübner C.A., Stein V., Hermanns-Borgmeyer I., Meyer T., Ballanyi K., Jentsch T.J. (2001). Disruption of KCC2 reveals an essential role of K-Cl-cotransport already in early synaptic inhibition. **Neuron** 30: 515-524.
- Estévez R., Boettger T., Stein V., Birkenhäger R., Otto E., Hildebrandt F., Jentsch T.J. (2001). Barttin is a Cl⁻ channel β -subunit crucial for renal Cl⁻ reabsorption and inner ear K⁺ secretion. **Nature** 414: 558-561. (with *News & Views*)
- Bösl M.R., Stein V., Hübner C., Zdebik A.A., Jordt S.E., Mukhopadhyay A.K., Davidoff M.S., Holstein A.F., Jentsch T.J. (2001). Male germ cells and photoreceptors, both depending on close cell-cell interactions, degenerate upon CIC-2 Cl⁻ channel disruption. **EMBO J.** 20: 1289-1299.
- Boettger T., Hübner C.A., Maier H., Rust M., Beck F.X., Jentsch T.J. (2002). Deafness and renal tubular acidosis in mice lacking the K-Cl co-transporter KCC4. **Nature** 416: 874-878.
- Estévez R., Schroeder B.C., Accardi A., Jentsch T.J.*, Pusch M.* (2003). Conservation of chloride channel structure revealed by an inhibitor binding site in CIC-1. **Neuron** 38: 47-59.
- Kasper D., Planells-Cases R., Fuhrmann J.C., Scheel O., Zeitz O., Ruether K., Schmitt A., Poët M., Steinfeld R., Schweizer M., Kornak U., Jentsch T.J. (2005). Loss of the chloride channel CIC-7 leads to lysosomal storage disease and neurodegeneration. **EMBO J.** 24: 1079-1091.
- Scheel O., Zdebik A.A., Lourdel S., Jentsch T.J. (2005). Voltage-dependent electrogenic chloride proton exchange by endosomal CLC proteins. **Nature** 436: 424-427.
- Kharkovets T., Dedek K., Maier H., Schweizer M., Khimich D., Nouvian R., Vardanyan V., Leuwer R., Moser T., Jentsch T.J. (2006). Mice with altered KCNQ4 K⁺ channels implicate sensory outer hair cells in human progressive deafness. **EMBO J.** 25: 642-652.

Poët M., Kornak U., Schweizer M., Zdebik A.A., Scheel O., Hoelter S., Wurst W., Schmitt A., Fuhrmann J.C., Planells-Cases R., Mole S.E., Hübner C.A., Jentsch T.J. (2006). Lysosomal storage disease upon disruption of the neuronal chloride transport protein CIC-6. **Proc. Natl. Acad. Sci. USA** 103: 13854-13859.

Lange P.F., Wartosch L., Jentsch T.J.*, Fuhrmann J.C. (2006). CIC-7 requires Ostm1 as a β -subunit to support bone resorption and lysosomal function. **Nature** 440: 220-223.

Blanz J., Schweizer M., Auberson M., Maier H., Muenscher A., Hübner C.A., Jentsch T.J. (2007). Leukoencephalopathy upon disruption of the chloride channel CIC-2. **J. Neurosci.** 27: 6581-6589.

Rickheit G., Maier H., Strenzke N., Andreescu C.E., De Zeeuw C.I., Zdebik A.A., Jentsch T.J. (2008). Endocochlear potential depends on chloride channels: mechanism underlying deafness in Bartter syndrome IV. **EMBO J.** 27: 2907-2917.

2010 - present

Tzingounis A.V., Heidenreich M., Kharkovets T., Spitzmaul G., Jensen H.S., Nicoll R.A., Jentsch T.J. (2010). The KCNQ5 potassium channel mediates a component of the afterhyperpolarization current in mouse hippocampus. **Proc. Natl. Acad. Sci. USA** 107: 10232-10237.

Novarino G., Weinert S., Rickheit G., Jentsch T.J. (2010). Endosomal chloride-proton exchange rather than chloride conductance is crucial for renal endocytosis. **Science** 328: 1398-1401. (with *Perspective*)

Weinert S., Jabs S., Supanchart C., Schweizer M., Gimber N., Richter M., Rademann J., Stauber T., Kornak U., Jentsch T.J. (2010). Lysosomal pathology and osteopetrosis upon loss of H⁺-driven lysosomal Cl⁻ accumulation. **Science** 328:1401-1403. (with *Perspective*)

Leisle L., Ludwig C.F., Wagner F.A., Jentsch T.J.*, Stauber T. (2011). CIC-7 is a slowly voltage-gated 2Cl⁻/H⁺-exchanger and requires Ostm1 for transport activity. **EMBO J.** 30: 2140-2152.

Billig G.M., Pál B., Fidzinski P., Jentsch T.J. (2011). Ca²⁺-activated Cl⁻-currents are dispensable for olfaction. **Nature Neurosci.** 14: 763-769.

Heidenreich, M., Lechner S.G., Vardanyan V., Wetzel C., Cremers C.W., De Leenheer E.M., Aránguez G., Moreno-Pelayo M.A., Jentsch T.J.*, Lewin G.R.* (2012). KCNQ4 K⁺ channels tune mechanoreceptors for normal touch sensation in mouse and man. **Nature Neurosci.** 15: 138-145. (with *News & Views*)

Seja P., Schonewille M., Spitzmaul G., Badura A., Klein I., Rudhard Y., Wisden W., Hübner C.A., De Zeeuw C.I., Jentsch T.J. (2012). Raising cytosolic Cl⁻ in cerebellar granule cells affects their excitability and vestibulo-ocular learning. **EMBO J.** 31: 1217-1230.

Hoegg-Beiler M.B., Sirisi S., Orozco I.J., Ferrer I., Hohensee S., Auberson M., Gödde K., Vilches C., López de Heredia M., Nunes V., Estévez R., Jentsch T.J. (2014). Disrupting MLC1 and GlialCAM and CIC-2 interactions in leukodystrophy entails glial Cl⁻ channel dysfunction. **Nature Communications** 5: 3475.

Voss F.K., Ullrich F., Münch J., Lazarow K., Lutter D., Mah N., Andrade-Navarro M.A., von Kries J.P., Stauber T., Jentsch T.J. (2014). Identification of LRRC8 heteromers as an essential component of the volume-regulated anion channel VRAC. **Science** 344: 634-638. (with *Perspective in Science and Highlight in Nature Rev. MCB*)

Fidzinski P., Korotkova T., Heidenreich M., Maier N., Schuetze S., Kobler O., Zuschratter W., Schmitz D., Ponomarenko A., Jentsch T.J. (2015). KCNQ5 K⁺ channels control hippocampal synaptic inhibition and fast network oscillations. **Nature Communications** 6: 6254.

Planells-Cases R., Lutter D., Guyader C., Gerhards N.M., Ullrich F., Elger D.A., Kucukosmanoglu A., Xu G., Voss F.K., Reincke S.M., Stauber T., Blomen V.A., Vis D.J., Wessels L.F., Brummelkamp T.R., Borst P., Rottenberg S., Jentsch T.J. (2015). Subunit composition of VRAC channels determines substrate specificity and cellular resistance to Pt-based anti-cancer drugs. **EMBO J.** 34, 2993-3008. (with *News & Views*)

Gödde K., Gschwend O., Puchkov D., Pfeffer C.K., Carleton A., Jentsch T.J. (2016) Disruption of Kcc2-dependent inhibition of olfactory bulb output neurons suggests its importance in odor discrimination. **Nature Communications** 7, 12043.

Fernandes-Rosa F.L., Daniil G., Orozco I.J., Göppner C., El Zein R., Jain V., Boulkroun S., Jeunemaitre X., Amar L., Lefebvre H., Schwarzmayr T., Strom T.M., Jentsch T.J.*, Zennaro M.C.* (2018). A gain-of-function mutation in the *CLCN2* chloride channel gene causes primary aldosteronism. **Nature Genetics** 350, 355-361. (with Research Highlight in *Nature Rev Nephrol*)

Stuhlmann T., Planells-Cases R, Jentsch T.J. (2018). LRRC8/VRAC anion channels enhance β -cell glucose sensing and insulin secretion. **Nature Communications** 9, 1974.

Ullrich F., Blin S., Lazarow K., Daubitz T., von Kries J.P., Jentsch T.J. (2019). Identification of TMEM206 proteins as pore of PAORAC/ASOR acid-sensitive chloride channels. **eLife** e49187.

Göppner C., Orozco I.J., Hoegg-Beiler M.B., Soria A.H., Hübner C.A., Fernandes-Rosa F.L., Boulkroun S., Zennaro M.C., Jentsch T.J. (2019). Pathogenesis of hypertension in a mouse model for *CLCN2*-related hyperaldosteronism. **Nature Communications** 10, 4678.

Weinert S., Gimber N., Deuschel D., Stuhlmann T., Puchkov D., Farsi Z., Ludwig C.F., Novarino G., López-Cayuqueo K.I., Planells-Cases R., Jentsch T.J. (2020). Uncoupling endosomal proton from chloride transport causes severe neurodegeneration. **EMBO J.** 39, e103358 (with *News & Views*)

Zhou C., Chen X., Planells-Cases R., Chu J.,, Qiu Z.*, Jentsch T.J.*, Xiao H.* (2020). Transfer of cGAMP into bystander cells by LRRC8 volume-regulated anion channels augments STING-mediated interferon responses and anti-viral immunity. **Immunity** 52: 767-781.

Gao X., Bender F., Soh H., Chen C., Altfati M., Schütze S., Heidenreich M., Gorbati M., Corbu M-A., Carus-Cadavieco M., Korotkova T., Tzingounis A.V., Jentsch T.J.*, Ponomarenko A.* (2021). Place fields of single spikes in hippocampus involve Kcnq3 channel-dependent entrainment of complex spike bursts. **Nature Commun.** 12: 4801

Wang C.#, Polovitskaya M.M.#, Delgado B.D., Jentsch T.J.*, Long S.B*. (2022) Gating choreography and mechanism of the human proton-activated chloride channel ASOR. **Science Advances** 8: eabm3942

Zeziulia M, Blin S., Schmitt F.W., Lehmann M. Jentsch T.J. (2022) Proton-gated anion transport governs macropinosome shrinkage. **Nature Cell Biol**, *in press*.