Curriculum vitae - Matthias A. Hediger

Personal Information

Family name, first name:	Hediger Matthias A.
Date of birth:	August 7, 1953
Nationality:	Swiss
URL for web site:	https://www.bioparadigms.org/
h-index (Google Scholar):	102

Education and training

1983	Dr. sc. nat. ETH (Ph.D.)	Swiss Federal Institute of Technology, Switzerland
1977	Dipl. sc. nat. (Biochemistry)	Swiss Federal Institute of Technology, Switzerland

Current Position

2019- Group Leader & Head of Membrane Transport Discovery Lab, Department of Nephrology and Hypertension, University Hospital Bern Inselspital, Bern, Switzerland.

Previous Positions

2005-2019 Professor Ordinarius, Institute of Biochemistry and Molecular Medicine, University of Bern, Switzerland.

1995-2005 Associate Professor of Medicine (Biological Chemistry and Molecular Pharmacology), Harvard Medical School, Boston, MA, USA.

1989-1995 Assistant Professor of Medicine, Harvard Medical School, Boston, MA, USA.

1986-1989 Assistant Research Physiologist, Dept. of Physiology, UCLA School of Medicine, Los Angeles, CA, USA.

1984-1986 Postgraduate Research Biochemist, Dept. of Biological Chemistry, UCLA School of Medicine, Los Angeles, CA, USA.

1982-1983 Postgraduate Research Biochemist, Dept. of Biochemistry, University of Connecticut Health Center, Farmington, CT, USA.

Institutional responsibilities

2005-2017 Director, Institute of Biochemistry and Molecular Medicine, University of Bern, Switzerland.

2010-2014 Director, NCCR TransCure (the Swiss National Center of Competence in Research, TransCure), Medical Faculty, University of Bern, Switzerland.

1999-2005 Director, Membrane Biology Program, Brigham and Women's Hospital, Harvard Medical School, Boston, USA.

Fellowships and Awards

2018 Special Award, MDO/JSSX International Joint Meeting, Kanazawa, Japan.

2009 Japanese Society for the Study of Xenobiotics Award (Kyoto, Japan)

2003 Rank Prize Funds, Surrey, UK Award in recognition of work on the identification, molecular characterization and control of cellular nutrient transporters

1998 Recipient of an award to support interdisciplinary and interdepartmental research at Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA

1996 Visiting Professor, University College London

1989 Annual Award for Excellence in Renal Research in recognition of research of the human Na^+/glucose cotransporters. American Physiological Society

Supervision of junior researchers at graduate and postgraduate levels

- Ongoing supervision and training of bachelor and master students. Current Master Student: Anojh Thevarasa (starting date February 1, 2023). Recently completed master theses by: Ashley Leon Fernandes, Sven Baumann, Gabriel Jonathan Klesse, Jan Dernič, Marina Troxler, Mey Boukenna, Damian Nydegger, Stefanie Graeter, Andrea Amati and Nicolas Wenger.
- Doctoral theses in biology: Current PhD students: Damian Nydegger and Sven Baumann. Recent PhD theses completed by Mey Boukenna (2019), Marie-Christine Franz (2015), Marc Bürzle (2012) and Katrin A. Bolanz (January 2010).
- Over the past 25 years, Matthias Hediger has supervised and trained over 40 post-doctoral researchers.

Teaching activities

Coordinator and lecturer (until 2019): Membrane Biochemistry lectures (yearly master lecture series, lectures to veterinary medicine (VetSuisse) and medical students; coordinator and lecturer, endocrinology lecture series for 2nd year medical students. PBL teaching to medical students.

Reviewing activities:

1989-	Ongoing peer review (Science, Nature, Cell, PNAS, Nature Commun, eLife, etc.)
2003-2005	Vice Chair, Steering Committee, Epithelial Transport Group, Am. Physiol. Society
1995-	Specialist Advisor, HUGO Gene Nomenclature Committee (http://www.genenames.org)
1995	Partners Research Task Force of Massachusetts General Hospital and Brigham and Women's Hospital, Harvard Medical School to support new joint studies

Memberships in scientific societies, fellowships in renowned academies

Ongoing	American Physiological Society (APS), International BioIron Society (IBS), Life Sciences Switzerland (LS2), American Association for the Advancement of Science (AAAS)

Major Recent Collaborations

- Alexander Sobolevsky, Department of Biochemistry and Molecular Biophysics at Columbia University, New York City, NY, USA
- Christoph Romanin, Johannes Kepler University, Linz, Austria
- Nicolas Demaurex, Department of Cellular Physiology and Metabolism, University of Geneva, Geneva, Switzerland
- Edmund Kunji, Medical Research Council Mitochondrial Biology Unit, Trinity Hall, Cambridge University, Cambridge, UK
- Raimund Dutzler, Department of Biochemistry, University of Zurich, Zürich, Switzerland
- Jean-Louis Reymond, Department of Chemistry, Biochemistry and Pharmacology, University of Bern, Bern, Switzerland
- Martin Lochner, Department of Biochemistry and Molecular Medicine, University of Bern
- Andrew B. Stergachis, Division of Medical Genetics, University of Washington, Seattle, WA USA
- Christopher Chidley and Peter Sorger, Department of Systems Biology, Harvard Medical School, Boston, MA USA
- Kostas Pantopoulos, Lady Davis Institute for Medical Research, Jewish General Hospital, Montreal, CA
- Christopher Landowski, Protein Production Team Leader at VTT Technical Research Centre of Finland
- Anna Köttgen, Institute of Genetic Epidemiology, University Medical Center Freiburg, Freiburg, Germany
- Klaus Seuwen and Juergen Reinhardt, Novartis Pharma AG, Basel, Switzerland

Major Achievements – Matthias A. Hediger

1. Original contributions to the field of membrane transporters (SLC solute carriers) in health and disease:

Research arising from our laboratory has historically focused on the structure, function and physiological roles of novel clinically important membrane transporters, also known as SLC solute carriers, as well as calcium channels. Our laboratory has created an array of techniques to identify, isolate and characterize transporters of various classes. Over the past 30 years, this work has led to breakthrough successes that have allowed us to publish the first primary structures and mechanistic bases for a number of important SLC solute carriers and ion channels in high-impact journals such as Nature and PNAS. These successes include the following transporters and channels:

- The Na^+/glucose cotransporter SLGT1 (SLC5A1) of the intestinal brush border membrane, defects of which lead to the life-threatening autosomal recessive disorder glucose-galactose malabsorption (1, 2).
- The Na^+/glucose cotransporter SGLT2 (SLC5A2) of the renal proximal tubules, the target of the type 2 diabetes drugs canagliflozin, dapagliflozin, and empagliflozin, which act as SGLT2 inhibitors (3).
- The divalent metal ion transporter DMT1 (SLC11A2) of intestinal brush border membrane and part of transferrin-dependent iron uptake in cells throughout the body, defects of which lead to severe iron-deficiency anemia (4).
- Vitamin C transporters SVCT1 (SLC23A1) and SVCT2 (SLC23A2), which are essential for maintaining adequate systemic vitamin C concentrations and for delivering vitamin C to tissues with high requirements for enzymatic reactions or for protection against oxidative stress (5).
- The UT1 (SLC14A1) and UT2 (SLC14A1) urea transporters of the renal tubules that contribute to the vasopressin-dependent urinary concentration mechanism (6).
- The neuronal glutamate transporter EAAC1 (SLC1A1) the is key to excitatory neurotransmission (7).
- The dibasic amino acids transporter subunit SLC3A1, mutations of which lead to the autosomal recessive kidney stone disease cystinuria (8).
- The intestinal oligopeptide transporter PepT1 (SLC15A1), the principal mechanism by which our protein digestion products are absorbed (9). PepT1 also serves as an important drug transporter
- The 1,25-vitamin D-regulated intestinal epithelial calcium channel CAT1/TRPV6 and its renal homolog TRPV5, vital for the maintenance of calcium and bone homeostasis (10-12).
- Additional work has recently been devoted to the mechanisms of store-operated calcium entry by the Stim-Orai pathway (13).

These advances led to patent protection for several commercially important transporters that either play key roles in major diseases or improve drug bioavailability, with patent licensing agreements (US patent, PepT1 drug transporter) for major pharmaceutical companies.

A recent systematic *in silico* discovery effort in search of additional novel solute carrier-like proteins in the human genome revealed a surprising 134 human proteins that are SLC-like but have not been officially part of the SLC nomenclature (14). This work is expected to serve as a stepping stone for future studies of the biological function of the many underexplored SLC solute carriers and for the development of novel therapeutic applications in the future (15, 16).

1. Hediger, M. A., Coady, M. J., Ikeda, T. S., and Wright, E. M. (1987) Expression cloning and cDNA sequencing of the Na+/glucose co-transporter. Nature 330, 379-381
2. Gyimesi, G., Pujol-Giménez, J., Kanai, Y., and Hediger, M. A. (2020) Sodium-coupled glucose transport, the SLC5 family, and therapeutically relevant inhibitors: from molecular discovery to clinical application. Pflugers Arch 472, 1177-1206
3. Kanai, Y., Lee, W. S., You, G., Brown, D., and Hediger, M. A. (1994) The human kidney low affinity Na+/glucose cotransporter SGLT2. Delineation of the major renal reabsorptive mechanism for D-glucose. The Journal of Clinical Investigation 93, 397-404
4. Gunshin, H., Mackenzie, B., Berger, U. V., Gunshin, Y., Romero, M. F., Boron, W. F., Nussberger, S., Gollan, J. L., and Hediger, M. A. (1997) Cloning and characterization of a mammalian proton-coupled metal-ion transporter. Nature 388, 482-488
5. Tsukaguchi, H., Tokui, T., Mackenzie, B., Berger, U. V., Chen, X. Z., Wang, Y., Brubaker, R. F., and Hediger, M. A. (1999) A family of mammalian Na+-dependent L-ascorbic acid transporters. Nature 399, 70-75
6. You, G., Smith, C. P., Kanai, Y., Lee, W.-S., Stelzner, M., and Hediger, M. A. (1993) Cloning and characterization of the vasopressin-regulated urea transporter. Nature 365, 844-847
7. Kanai, Y., and Hediger, M. A. (1992) Primary structure and functional characterization of a high-affinity glutamate transporter. Nature 360, 467-471

8. Wells, R. G., and Hediger, M. A. (1992) Cloning of a rat kidney cDNA that stimulates dibasic and neutral amino acid transport and has sequence similarity to glucosidases. Proceedings of the National Academy of Sciences 89, 5596
9. Fei, Y. J., Kanai, Y., Nussberger, S., Ganapathy, V., Leibach, F. H., Romero, M. F., Singh, S. K., Boron, W. F., and Hediger, M. A. (1994) Expression cloning of a mammalian proton-coupled oligopeptide transporter. Nature 368, 563-566
10. Peng, J. B., Chen, X. Z., Berger, U. V., Vassilev, P. M., Tsukaguchi, H., Brown, E. M., and Hediger, M. A. (1999) Molecular cloning and characterization of a channel-like transporter mediating intestinal calcium absorption. J Biol Chem 274, 22739-22746
11. Yue, L., Peng, J. B., Hediger, M. A., and Clapham, D. E. (2001) CaT1 manifests the pore properties of the calcium-release-activated calcium channel. Nature 410, 705-709
12. Bhardwaj, R., Lindinger, S., Neuberger, A., Nadezhdin, K. D., Singh, A. K., Cunha, M. R., Derler, I., Gyimesi, G., Reymond, J. L., Hediger, M. A., Romanin, C., and Sobolevsky, A. I. (2020) Inactivation-mimicking block of the epithelial calcium channel TRPV6. Sci Adv 6
13. Augustynek, B., Gyimesi, G., Dernič, J., Sallinger, M., Albano, G., Klesse, G. J., Kandasamy, P., Grabmayr, H., Frischauf, I., Fuster, D. G., Peinelt, C., Hediger, M. A., and Bhardwaj, R. (2022) Discovery of novel gating checkpoints in the Orai1 calcium channel by systematic analysis of constitutively active mutants of its paralogs and orthologs. Cell Calcium 105, 102616
14. Gyimesi, G., and Hediger, M. A. (2022) Systematic in silico discovery of novel solute carrier-like proteins from proteomes. PLoS One 17, e0271062
15. César-Razquin, A., Snijder, B., Frappier-Brinton, T., Isserlin, R., Gyimesi, G., Bai, X., Reithmeier, R. A., Hepworth, D., Hediger, M. A., Edwards, A. M., and Superti-Furga, G. (2015) A Call for Systematic Research on Solute Carriers. Cell 162, 478-487
16. Gyimesi, G.; Hediger, M.A. Transporter-Mediated Drug Delivery. Preprints 2022, 2022110062 (doi: 10.20944/preprints202211.0062.v1).

2. Generation of new inhibitors for medically relevant transporters and channels as a basis for the development of novel therapeutic applications:

Recently, our laboratory has made great progress in the development and characterization of specific inhibitors for medically important transport proteins and calcium ion channels such as the divalent metal transporters DMT1 (SLC11A1) (1, 2), ZIP8 (SLC29A8)(1, 3) ZIP14 (SLC39A14), the amino acid transporter SLC38A2 (4, 5), the 1,25-vitamin D regulated epithelial calcium channel TRPV6 (6-8) and store-operated Orai channels (9). This work has been and continues to be carried done in collaboration with chemists Prof. Jean-Louis Reymond and Prof. Marin Lochner (University of Bern), Nicolas Demaurex (University of Geneva) and the Novartis FastLab in Basel. The newly identified inhibitors form the basis for the development of therapeutic applications for the treatment of major human diseases such cancer (i.e., colorectal, ovary, breast, prostate and bladder cancer), diabetes, pancreatitis, osteoporosis, osteoarthritis, immunological disorders, etc.

1. Pujol-Giménez, J., Poirier, M., Bühlmann, S., Schuppisser, C., Bhardwaj, R., Awale, M., Visini, R., Javor, S., Hediger, M. A., and Reymond, J. L. (2021) Inhibitors of Human Divalent Metal Transporters DMT1 (SLC11A2) and ZIP8 (SLC39A8) from a GDB-17 Fragment Library. ChemMedChem 16, 3306-3314
2. Manatschal, C., Pujol-Giménez, J., Poirier, M., Reymond, J. L., Hediger, M. A., and Dutzler, R. (2019) Mechanistic basis of the inhibition of SLC11/NRAMP-mediated metal ion transport by bis-isothiourea substituted compounds. Elife 8
3. Verouti, S. N., Pujol-Giménez, J., Bermudez-Lekerika, P., Scherler, L., Bhardwaj, R., Thomas, A., Lenglet, S., Siegrist, M., Hofstetter, W., Fuster, D. G., Hediger, M. A., Escher, G., and Vogt, B. (2022) The Allelic Variant A391T of Metal Ion Transporter ZIP8 (SLC39A8) Leads to Hypotension and Enhanced Insulin Resistance. Front Physiol 13, 912277
4. Kandasamy, P., Gyimesi, G., Kanai, Y., and Hediger, M. A. (2018) Amino acid transporters revisited: New views in health and disease. Trends Biochem Sci 43, 752-789
5. Kandasamy, P., Zlobec, I., Nydegger, D. T., Pujol-Giménez, J., Bhardwaj, R., Shirasawa, S., Tsunoda, T., and Hediger, M. A. (2021) Oncogenic KRAS mutations enhance amino acid uptake by colorectal cancer cells via the hippo signaling effector YAP1. Mol Oncol 15, 2782-2800
6. Bhardwaj, R., Lindinger, S., Neuberger, A., Nadezhdin, K. D., Singh, A. K., Cunha, M. R., Derler, I., Gyimesi, G., Reymond, J. L., Hediger, M. A., Romanin, C., and Sobolevsky, A. I. (2020) Inactivation-mimicking block of the epithelial calcium channel TRPV6. Sci Adv 6
7. Hofer, A., Kovacs, G., Zappatini, A., Leuenberger, M., Hediger, M. A., and Lochner, M. (2013) Design, synthesis and pharmacological characterization of analogs of 2-aminoethyl diphenylborinate (2-APB), a known store-operated calcium channel blocker, for inhibition of TRPV6-mediated calcium transport. Bioorg Med Chem 21, 3202-3213
8. Cunha, M. R., Bhardwaj, R., Carrel, A. L., Lindinger, S., Romanin, C., Parise-Filho, R., Hediger, M. A., and Reymond, J. L. (2020) Natural product inspired optimization of a selective TRPV6 calcium channel inhibitor. RSC Med Chem 11, 1032-1040
9. Augustynek, B., Gyimesi, G., Dernič, J., Sallinger, M., Albano, G., Klesse, G. J., Kandasamy, P., Grabmayr, H., Frischauf, I., Fuster, D. G., Peinelt, C., Hediger, M. A., and Bhardwaj, R. (2022) Discovery of novel gating checkpoints in the Orai1 calcium channel by systematic analysis of constitutively active mutants of its paralogs and orthologs. Cell Calcium 105, 102616

3. Strategies used to advance the field of SLC solute carriers and ion channels in the biomedical and pharmaceutical sectors:

A. Foundation of NCCR TransCure (https://www.nccr-transcure.ch/research/): To accelerate the transfer of knowledge from basic research to pharmaceutical applications in the field of membrane transporters and ion channels, I initiated the National Center of Competence in Research (NCCR) "TransCure", a Swiss network of 15 internationally renowned scientists, which has been funded with a total of 14.5 million Swiss francs from 2010 to 2022. TransCure's approach has been to combine expertise in the three major disciplines Physiology/Medicine, Structural Biology and Chemistry. The output of TransCure led to the elucidation of several high-resolution structures of key membrane transports proteins, such as the human metal ion transporter DMT1 and multidrug transporters, followed by development of synthetic inhibitors for various medically relevant transporters and channels. The inspiring TransCure research environment was the seed for new studies on membrane transporters and calcium channels with far reaching implications for drug discovery. The high-quality academic performance and the training of many talented young scientists greatly contributed to Switzerland's international attractiveness and competitiveness in this research area of research.

B. Establishment of the BioMedical Transporter Conference Series (https://www.bioparadigms.org/): In 1999, I furthermore established the biennial International BioMedical Transporter Conference Series, in order to promote the transporter/ion channel field in the biomedical and pharmaceutical sector. The Conferences Series were originally established as a Harvard Medical School- and University of Zürich-based collaboration. The central aim was to enable experts from industry and academia to act as the nucleus for new scientific breakthroughs. I organized a total of 11 international conferences with about 200 participants, the most recent ones in St. Moritz, Lugano, Lausanne and Lucerne. Participants consisted of a mixture of scientists from the United States, Japan, Europe and other countries. These conferences made a significant contribution to the field of membrane transport and ion channels by establishing many new international collaborations between academia and industry.

C. Generation of the SLC solute carrier nomenclature: In my role as specialty advisor to the HUGO Gene Nomenclature Committee (HGNC), I was asked to develop a uniform gene nomenclature system for the rapidly emerging human membrane transporter genes and I coined the SLC curation system that is currently used for the 65 human transporter gene families of the SLC superfamily. It currently contains ~430 genes, but our latest systematic in silico discovery revealed an additional ~130 SLC-like genes , making a total of over 550 in human, ~5% of the human protein-coding genes. The SLC tables are organized on our BioParadigms website with cross references to major databases (http://slc.bioparadigms.org/). It serves as a widely used resource for the scientific community and provides up-to-date information on all approved SLC families and their members.

D. Establishment of review series on the SLC solute carrier families: In order to generate comprehensive descriptions of each of the different SLC families, I served as guest editor of two review series that were published in Pflügers Archives in year 2004 (see: Hediger MA, Romero MF, Peng JB, Rolfs A, Takanaga H, Bruford EA "*The ABCs of solute carriers: physiological, pathological and therapeutic implications of human membrane transport proteins: Introduction*", Pflugers Arch. 2004 Feb;447(5):465-8) and in Molecular Aspects of Medicine in year 2013 (see: Hediger MA, Clémençon B, Burrier RE, Bruford EA. "*The ABCs of membrane transporters in health and disease (SLC series): introduction*", Mol Aspects Med. 2013;34:95-107). In addition, together with David Hepworth (Pfizer, Boston, USA) I guest-edited a review series in Med. Chem. Comm (Royal Society of Chemistry), Volume 7, 2016, which contains a collection of articles honoring all areas of research in which the chemical sciences have influenced the study of the SLC superfamily.

E. Establishment of an international network with pharmaceutical companies: An extensive network and discussion forum with international pharmaceutical companies has been established through the BioMedical Transporter Conference Series, our corporate-sponsored research projects with GelTex (Genzyme), Millennium Pharmaceuticals and Yamanouchi Pharmaceutical Co. and through specific collaborations such as the drug screening project with Novartis AG in Basel.

Funding - Matthias A. Hediger:

Currently active grants:

1. SNF | Research Grant 310030_204972 | *Modulation of calcium influx by Orai channel isoforms and pharmaceutical interventions* | November 1, 2021 - October 31, 2025 | CHF 812'000 | PI Matthias Hediger; Co-PI: Martin Lochner (IBMM, University of Bern)
2. Swiss Cancer League | Research Grant KFS-5534-02-2022 | *The role of nutrient transporters in the development of anticancer drug resistance* | August 1, 2022 - July 31, 2025 | CHF 353'100 | PI Matthias Hediger; Co-PI Inti Zlobec (Institute of Pathology, University of Bern
3. SNF/NRP78 | Research Grant 4078P0_198281 | N*ew insights into the COVID-19 pandemic: Genetic polymorphisms, role of SLC6 amino acid transporters, renal aspects and therapeutic perspectives* | November 1 2020 - June 30 2023 | CHF 612'620 | PI Matthias Hediger; Co-PI Bruno Vogt (Head of the Department of Nephrology and Hypertension, Inselspital, University of Bern)
4. SNF | Research Grant 310030_182272 | *Intestinal absorption of transition metals in human health and disease* |CHF 496'000 | February 1, 2019 – January 31, 2023 | PI Matthias Hediger
5. SNF/ Sinergia Grant CRSII5_180326 | The role of mitochondrial carriers in metabolic tuning and reprogramming by calcium flow across membrane contact sites | September 1, 2018 – August 31 2023 | CHF 2'300'000 | PI Matthias Hediger; Co-PIs: Martin Lochner and Edmund Kunji (MRC Mitochondrial Biology Unit, University of Cambridge, UK)
6. Bangerter-Rhyner Stiftung | *Molecular mechanisms of intestinal heme-iron absorption* | January 1, 2022 - December 31, 2022 | CHF 75'000 | PI Matthias Hediger

Submitted grant application:

7. SNF | Submitted Research Grant 310030_215719 | *Role of divalent metal ion transporters in iron metabolism and development of novel transporter inhibitors as biomedical tools for basic and translational research* | September 1, 2023 – August 31, 2027 | PI Matthias Hediger

Publication list, past 10 years – Matthias A. Hediger

For a complete list of publications please visit:
https://scholar.google.com/citations?user=khdoO98AAAAJ&hl=en

*) **Co-Corresponding author**

2022

1. Gyimesi, G. & **Hediger, M.A**. Transporter-Mediated Drug Delivery. Preprints 2022, 2022110062; https://doi.org/10.20944/preprints202211.0062.v1
2. Lee S, Weiss T, Buehler M, Mena J, Lottenbach Z, Wegmann R, Bihl M, Augustynek B, Baumann S, Goetze S, van Drogen A, Rushing EJ, Wollscheid B, **Hediger MA**, Weller M, Snijder B. Targeting tumour-intrinsic neural vulnerabilities of glioblastoma. bioRxiv 2022.10.07.511321; https://doi.org/10.1101/2022.10.07.511321
3. Gyimesi G, & **Hediger MA** (2022) Systematic in silico discovery of novel solute carrier-like proteins from proteomes PLOS ONE 17(7): e0271062. PMID: 35901096; https://doi.org/10.1371/journal.pone.0271062
4. Augustynek B, Gyimesi G, Dernič J, Sallinger M, Albano G, Klesse GJ, Kandasamy P, Grabmayr H, Frischauf I, Fuster DG, Peinelt C, **Hediger MA***), Bhardwaj R. Cell Calcium. 2022 Jul;105:102616. doi: 10.1016/j.ceca.2022.102616. Discovery of novel gating checkpoints in the Orai1 calcium channel by systematic analysis of constitutively active mutants of its paralogs and orthologs, Cell Calcium, Volume 105, 2022.
5. Anderegg MA, Gyimesi G, Ho TM, **Hediger MA**, Fuster DG. The Less Well-Known Little Brothers: The SLC9B/NHA Sodium Proton Exchanger Subfamily-Structure, Function, Regulation and Potential Drug-Target Approaches. Front Physiol. 2022 May 25;13:898508. doi: 10.3389/fphys.2022.898508. eCollection 2022. PMID: 35694410.
6. Verouti SN, Pujol-Giménez J, Bermudez-Lekerika P, Scherler L, Bhardwaj R, Thomas A, Lenglet S, Siegrist M, Hofstetter W, Fuster DG, **Hediger MA**, Escher G, Vogt B. The Allelic Variant A391T of Metal Ion Transporter ZIP8 (SLC39A8) Leads to Hypotension and Enhanced Insulin Resistance. Front Physiol. 2022 Jun 15;13:912277. doi: 10.3389/fphys.2022.912277. eCollection 2022. PMID: 35784893.

2021

7. Tiffner A, Hopl V, Schober R, Sallinger M, Grabmayr H, Höglinger C, Fahrner M, Lunz V, Maltan L, Frischauf I, Krivic D, Bhardwaj R, Schindl R, **Hediger MA**, Derler I. Orai1 Boosts SK3 Channel Activation. Cancers (Basel). 2021 Dec 17;13(24):6357. doi: 10.3390/cancers13246357. PMID: 34944977.
8. Havukainen S, Pujol-Giménez J, Valkonen M, **Hediger MA**, Landowski CP. Functional characterization of a highly specific L-arabinose transporter from Trichoderma reesei. Microb Cell Fact. 2021 Sep 8;20(1):177. doi: 10.1186/s12934-021-01666-4. PMID: 34496831; PMCID: PMC8425032.
9. Pujol-Giménez J, Poirier M, Bühlmann S, Schuppisser C, Bhardwaj R, Awale M, Visini R, Javor S, **Hediger MA***), Reymond JL. Inhibitors of Human Divalent Metal Transporters DMT1 (SLC11A2) and ZIP8 (SLC39A8) from a GDB-17 Fragment Library. ChemMedChem. 2021 Nov 5;16(21):3306-3314. doi: 10.1002/cmdc.202100467. Epub 2021 Aug 31. PMID: 34309203; PMCID: PMC8596699.
10. Havukainen S, Pujol-Giménez J, Valkonen M, Westerholm-Parvinen A, **Hediger MA**, Landowski CP. Electrophysiological characterization of a diverse group of sugar transporters from Trichoderma reesei. Sci Rep. 2021 Jul 19;11(1):14678. doi: 10.1038/s41598-021-93552-7. PMID: 34282161; PMCID: PMC8290022.
11. Kandasamy P, Zlobec I, Nydegger DT, Pujol-Giménez J, Bhardwaj R, Shirasawa S, Tsunoda T, **Hediger MA**. Oncogenic KRAS mutations enhance amino acid uptake by colorectal cancer cells via the hippo signaling effector YAP1. Mol Oncol. 2021 Oct;15(10):2782-2800. doi: 10.1002/1878-0261.12999. Epub 2021 Jun 18. PMID: 34003553; PMCID: PMC8486573.
12. Kar P, Lin YP, Bhardwaj R, Tucker CJ, Bird GS, **Hediger MA**, Monico C, Amin N, Parekh AB. The N terminus of Orai1 couples to the AKAP79 signaling complex to drive NFAT1 activation by local Ca²⁺ entry. Proc Natl Acad Sci U S A. 2021 May 11;118(19):e2012908118. doi: 10.1073/pnas.2012908118. PMID: 33941685; PMCID: PMC8126794.
13. Anderegg MA, Albano G, Hanke D, Deisl C, Uehlinger DE, Brandt S, Bhardwaj R, **Hediger MA**, Fuster DG. The sodium/proton exchanger NHA2 regulates blood pressure through a WNK4-NCC dependent pathway in the kidney. Kidney Int. 2021 Feb;99(2):350-363. doi: 10.1016/j.kint.2020.08.023. Epub 2020 Sep 18. PMID: 32956652

2020

14. Cunha MR, Bhardwaj R, Carrel AL, Lindinger S, Romanin C, Parise-Filho R, **Hediger MA**[*)], Reymond JL. Natural product inspired optimization of a selective TRPV6 calcium channel inhibitor. RSC Med Chem. 2020 Jul 16;11(9):1032-1040. doi: 10.1039/d0md00145g. PMID: 33479695; PMCID: PMC7513592.
15. Poirier M, Pujol-Giménez J, Manatschal C, Bühlmann S, Embaby A, Javor S, **Hediger MA**[*)], Reymond JL. Pyrazolyl-pyrimidones inhibit the function of human solute carrier protein SLC11A2 (hDMT1) by metal chelation. RSC Med Chem. 2020 Jun 2;11(9):1023-1031. doi: 10.1039/d0md00085j. PMID: 33479694; PMCID: PMC7649969.
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