

# Publications

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## Recent Publications

(2005-present)

Zhang, X.-D., Baladandayuthapani, V., Lin, H., Mulligan, G., Li, B., Esseltine, D.-L., Qi, L., Xu, J., Hunziker, W., Barlogie, B., Saad, Z., Usmani, S.Z., Zhang, Q., Crowley, J., Hoering, A., Shah, J.J., Weber, D.M., Manasanch, E.E., Thomas, S.K., Li, B.-Z., Wang, H.-H., Zhang, J., Kuitase, I., Tang, J.-L., Wang, H., He, J., Yang, J., Milan, E., Cenci, S., Ma, W.-C., Wang, Z.-Q., Davis, R.E., Yang, L., and Orlowski, R.Z. (2016)

Tight junction protein 1 modulates proteasome capacity and proteasome inhibitor sensitivity in multiple myeloma via EGFR/JAK1/STAT3 signaling.

**Cancer Cell.**29:639-652.

Featured in:

- Mitsiades, C.S. (2016) Tight Junction Protein 1: New insights into proteasome inhibitor resistance and myeloma pathophysiology. *Cancer Cell* 29:611-612.

- University of Texas M. D. Anderson Cancer Center. "TJP1 protein may identify multiple myeloma patients most likely to benefit from proteasome inhibitors." *ScienceDaily*, 28 April 2016

Su, X., Tan, Q.S.W., Parikh, B.H., Tan, A., Mehta, M.N., Wey, Y.S., Li, Q.L.J., Han, X.-Y., Wong, T.Y., Hunziker, W., Lu, C., Owada, Y., Fu, X.-Y., Barathi, V.A., Zhang, S.S., Chaurasia, S.S. (2016) Characterization of fatty acid binding protein 7 (FABP7) in the murine retina.

**Invest. Ophthalmol. Vis. Sci.**57:3397-3408.

Yorulmaz, S., Jackman, J.A., Hunziker, W., Cho, N.-J. (2016)

Influence of membrane surface charge on adsorption of complement proteins onto supported lipid bilayers.

**Colloids and Surfaces B: Biointerfaces**148:270-277.

Tian, J., Sampathy, A., Ng, E.S., Ong, S.G., Cheng, W., Burgunder, J.-M., and Hunziker, W. (2016)

Motion analytics of zebrafish using fine motor kinematics and multi-view trajectory.

**Multimedia Syst.**22:713-723.

Yorulmaz, S., Jackman, J., Hunziker, W., Cho, N.-J. (2015)

Supported lipid bilayer platform to test inhibitors of the membrane attack complex: insights into biomacromolecular assembly and regulation.

**Biomacromolecules.**16:3594-3602.

Zapf, T., Zafiu, C., Zaba, C., Tan C.-W.D, Hunziker, W., and Sinner K.-E. (2015)  
Nanoscopic leg irons: harvesting of polymer-stabilized membrane proteins with antibody-functionalized silica-nanoparticles.

***Biomater.Sci.***3:1279-1283.

Yao, F., Kausalya, J.P., Sia, Y.Y., Teo, A.S.M., Lee, W.H., Ong, A.G.M.,Zhang, Z., Tan, J.H.J., Li, G., Bertrand, D., Liu, X., Poh, H.M., Guan, P., Zhu, F., Pathiraja, T.N., Ariyaratne,P.N., Rao, J., Woo, X.Y., Cai, S., Mulawadi, F.H., Poh, W.T., Veeravalli. L., Chan, C.S., Lim, S.S., Leong, S.T., Neo, S.C., Choi, P.S.D., Chew, E.G.Y., Nagarajan, N., Jacques, P.-E., So, J.B.Y., Ruan, X., Yeoh, K.G., Tan, P., Sung, W.-K., Hunziker, W.°, Ruan, Y.°, Hillmer, A.M.° (2015)

Recurrent fusion genes in gastric cancer:*CLDN18-ARHGAP26*induces loss of epithelial integrity.

***Cell Rep***12:272-285.

***(°jointcorresponding and senior authors)***

***Featured in: A\*STAR Research***

Yorulmaz, S., Tabaei, S.R., Kim, M., Seo, J., Hunziker, W., Szebeni, J., Cho, N.-J. (2015)  
Membrane attack complex formation on a supported lipid bilayer: initial steps towards a CARPA predictor nanodevice.

***Eur. J. Nanomed.***7:245-255.

Chen, Y., Kim, S.-J., Guo, J., Kang, Y., Kausalya, P.J., Ong, A.G.M., Hunziker, W., Chung, J. (2015)

Portable coulter counter with enhanced sensitivities for high throughput applications.

***Sens. Actuator B-Chem.***213:375-381.

Arteaga E., M.E., Hunziker, W., Teo, S.M.A., Hillmer, A., and Mutchinick, O.M. (2015)  
Familial hypomagnesemia with hypercalciuria and nephrocalcinosis: variable phenotypic expression in three affected sisters from Mexican ancestry.

***Ren. Fail.***37:180-183.

Itoh, M., Nakadate, K., Horibata, Y., Matsusaka, T., Xu, J., Hunziker, W.°, Sugimoto, H.° (2014)

Tjp1 plays an integral role in the establishment of the renal glomerular filtration barrier.

***PLoS ONE*** 9:e106621.

***(°joint corresponding authors)***

Cheng, W., Tian, J., Burgunder, J.-M., Hunziker, W., and Eng, H.-L. (2014)

Myotonia congenital-associated mutations in chloride channel-1 affect zebrafish body wave kinematics of swimming. *PLoS ONE*9:e103445.

(°joint corresponding authors)

Phua, D.C.Y., Xu, J., Ali, S.M., Boey, A., Gounko, N.V., and Hunziker, W. (2014)  
ZO-1 and ZO-2 are required for extra-embryonic endoderm integrity, primitive ectoderm survival and normal cavitation in embryoid bodies derived from mouse ES cells.  
*PLoS ONE*9:e99532.

Lee, M.C., Chan, A.S.Y., Goh, S.R., Hilmy, M.H., Nongpiur, M.E., Hong, W., Aung, T., Hunziker, W., Vithana, E.N. (2014)  
Expression of the primary angle closure glaucoma (PACG) susceptibility gene PLEKHA7 in endothelial and epithelial cell junctions in the eye.  
*Invest. Ophthalmol. Vis. Sci.*, 55:3833-3841.

Beguin, P., Nagashima, K., Mahalakshmi, R.N., Vigot, R., Matsunaga, A., Miki, T., Ng, M.Y., Hwang, L.-A., Firsov, D., Tang, B.L., Inagaki, N., Mori, Y., Seino, S., Launey, T°, and Hunziker, W°. (2014)  
BARP suppresses voltage-gated calcium channel activity and Ca<sup>2+</sup>-evoked exocytosis.  
*J. Cell Biol.*205:233-249.

(°joint corresponding authors)

Featured in: In This Issue: Leslie, M. (2014) Closing the calcium floodgates. *J. Cell Biol.*205:128.

Luczka, E., Syne, L., Nawrocki-Raby, B., Kileztky, C., Hunziker, W., Birembaut, P., Gilles, C., and Myriam P. (2013)  
Regulation of membrane-type 1 matrix metalloproteinase expression by zonula occludens-2 in human lung cancer cells.  
*Clin. Exp. Metastasis*:30:833-843.

Xu, J., Phua, D.C.Y., Kausalya, P.J., Limviphuvadh, V., Maurer-Stroh, S., and Hunziker, W. (2012).  
ZO-1 regulates Erk, Smad1/5/8, Smad2 and RhoA activities to modulate self-renewal and differentiation of mouse embryonic stem cells.  
*Stem Cells.*, 30:1885-1900.

Tan, C.D., Wijaya, I.P.M., Andreasson-Ochsner, M., Vasina, E.N., Nallani, M., Hunziker, W.°, and Sinner, E.-K.° (2012).  
A novel microfluidics-based method for probing weak protein-protein interactions.

**Lab Chip**, 12:2726-2735.

(°joint corresponding authors)

Lupo, J., Sueur, C., Conti, A., Coly P.-A., Couté, Y., Hunziker, W., Burmeister, W.P., Germi, R., Manet, E., Gruffat, H., Morand, P., Boyer, V. (2012).

Identification of new interacting partners of the shuttling protein Ubinuclein (Ubn-1).

**Exp. Cell Res.**, 318:509-520.

Bryse, A., Mestdagt, M., Polette, M., Luczka, E., Hunziker, W., Noel, A., Birembaut, P., Foidart, J.M., and Gilles, C. (2012).

Regulation of CXCL8/IL-8 expression by Zonula Occludens-1 in human breast cancer cells.

**Mol. Cancer Res.**, 10:121-132.

Nallani, M.°, Andreasson-Ochsner, M., Tan, C.D., Sinner, E.-K.°, Wisantoso, Y., Geifman-Shochat, S., and Hunziker, W.° (2011).

Proteopolymersomes: In vitro production of a membrane protein in polymersome membranes.

**Biointerphases**, 6:153-157.

(°joint corresponding authors)

Kausalya, P.J., Müller, D., and Hunziker, W. (2011)

Methods to assess subcellular localization and trafficking of Claudins.

**Methods Mol. Biol.**, 763:129-146.

Vedula, S.R.K., Lim, T.S., Hunziker, W., Lim, C.T. (2011)

Biophysical methods to probe Claudin mediated adhesion at cellular and molecular level.

**Methods Mol. Biol.**, 763:77-89.

Varelas, X., Miller, B.W., Sopko, R., Song, S., Gregorieff, A., Fellouse, F.A. Sakuma, R., Pawson, T., Hunziker, W., McNeill, H., Wrana, J.L., and Attisano, L. (2010)

The Hippo pathway regulates Wnt/ $\beta$ -catenin signalling.

**Dev. Cell** 18:579-591.

Featured in: Hergovich, A., and Hemmings, B.A. (2010) Taz-mediated crosstalk between Wnt and Hippo signaling. *Dev. Cell* 18:508-509.

Xu, J., Anuar, F.B.M., Ali, S.M., Ng, M.Y., Phua, D.C.Y., and Hunziker, W. (2009)

ZO-2 is critical for blood-testis barrier integrity and male fertility.

**Mol. Biol. Cell** 20:4268-4277.

Günzel, D., Amasheh, S., Richter, J., Pfaffenbach, S., Kausalya, P.J., Hunziker, W., and Fromm, M. (2009)

Claudin-16 affects paracellular Cl<sup>-</sup> secretion in MDCK cells.

**J. Physiol.** 587:3777-3793

Phua, D.C.Y., Humbert, P.O., and Hunziker, W. (2009)

Vimentin regulates Scribble activity by protecting it from proteasomal degradation.

**Mol. Biol. Cell**, 20:2841-2855.

Featured in: InCytes from MCB and the June 2009 American Society for Cell Biology Newsletter

Günzel, D., Stuver, M., Kausalya, P.J., Haisch, L., Krug, S.M., Rosenthal, R., Meij, I.C., Hunziker, W., Fromm, M., and Müller, D. (2009)

Claudin-10 exists in six alternatively spliced isoforms which exhibit distinct localization and function.

**J. Cell Sci.**, 122:1507-1517.

Hunziker, W., Kiener, T.K., Xu, J. (2009)

Vertebrate animal models unravel physiological roles for the Zonula Occludens tight junction adaptor proteins.

**Ann. N.Y. Acad. Sci.**, 1165:28-33.

Günzel, D., Haisch, L., Pfaffenbach, S., Krug, S.M., Miltaz, S., Amasheh, S., Hunziker, W., Müller, D. (2009)

Claudin function in the thick ascending limb of Henle's loop.

**Ann. N.Y. Acad. Sci.**, 1165:152-162.

Lim, T.S., Vedula, S.R.K., Hunziker, W., and Lim, C.T. (2008)

Kinetics of adhesion mediated by extracellular loops of Claudin-2 as revealed by single molecule force spectroscopy.

**J. Mol. Biol.**, 381:681-691.

Lim, T.S., Vedula, S.R.K., Shi, H., Kausalya, P.J., Hunziker, W., and Lim, C.T. (2008)

Dynamic response of Claudin-2 mediated adhesion to pH changes probed by single molecule force microscopy.

**Exp. Cell. Res.**, 314:2643-2651. (Featured in: *Highlights, Exp. Cell Res.* 314:v.)

Vedula, S.R.K., Lim, T.S., Kausalya, P.J., Lane, E.B., Rajagopal, G., Hunziker, W., and Lim, C.T. (2008)

Quantifying forces mediated by integral tight junction proteins in cell-cell adhesion.

**Exp. Mech.**,49:3-9.

Vedula, S.R.K., Lim, T.S., Kirchner, E., Guglielmi, K.M., Dermody T.S., Stehle, T., Hunziker, W., and Lim, C.T. (2008)

A comparative molecular force spectroscopy study of homophilic Jam-A interactions and Jam-A interactions with reovirus attachment protein  $\sigma 1$ .

**J. Mol. Recognit.**,21:210-216.

Vedula, S.R.K., Lim, T.S., Hunziker, W., and Lim, C.T. (2008)

Mechanistic insights into physiological functions of cell adhesion proteins using single molecule force spectroscopy.

**Mol. Cell. Biomech.**,5:169-182.

Burgunder, J.-M., Huifang, S., Béguin, P., Baur, R., Eng, C.S., Seet, R.C.S., Lim, E.C.H., Ong, B.K.C., Hunziker, W., and Sigel, E. (2008)

Novel chloride channel mutations leading to mild myotonia among chinese.

**Neuromusc. Disord.**,18:633-640.

Chan, S.W., Lim, C.J., Guo, K., Ng, C.P., Lee, H.L., Hunziker, W., Zeng, Q., and Hong W. (2008)

A role for TAZ in migration, invasion and tumorigenesis of breast cancer cells.

**Cancer Res.**68:2592-2598.

Xu, J., Kausalya, P.J., Phua, D.C.Y., Ali, M.S., Hossain, Z., and Hunziker, W. (2008)

Early embryonic lethality of mice lacking ZO-2 but not ZO-3 reveals critical and nonredundant roles for individual ZO proteins in mammalian development.

**Mol. Cell. Biol.**28:1669-1678.

Kiener, T.K., Sleptsova-Friedrich, I., and Hunziker, W. (2008)

Tjp3/zo-3 is critical for epidermal barrier function in zebrafish embryos.

**Dev. Biol.**,316:36-49.

Lim, T.S., Vedula, S.R.K., Kausalya, P.J., Hunziker, W., and Lim, C.T. (2008)

Single molecular level study of claudin-1 mediated adhesion.

**Langmuir**, 24:490-495.

Bao Y.Q., Lopez, J.A., James, D.E., and Hunziker, W. (2008)

Snapin interacts with the Exo70 subunit of the exocyst and modulates Glut4 trafficking.

**J. Biol. Chem.**, 283:324-331.

Vedula, S.R.K., Lim, T.S., Hui, S., Kausalya, P.J., Lane, B., Rajagopal, G., Hunziker, W., and Lim, C.T. (2007) Molecular force spectroscopy of homophilic nectin-1 interactions. **Biochem. Biophys. Res. Commun.**362:886-892.

Kiener, T.K., Sleptsova-Friedrich, I., and Hunziker, W. (2007) Identification, tissue distribution and developmental expression of *tjp1/zo-1*, *tjp2/zo-2* and *tjp3/zo-3* in the zebrafish, *Danio rerio*. **Gene Exp. Patterns (Mech. Dev.)**7:767-776.

Mahalakshmi, R.N., Ng, M.Y., Guo, K., Qi, Z., Hunziker, W., and Beguin, P. (2007) Nuclear localization of endogenous RGK proteins and modulation of cell shape remodeling by regulated nuclear transport. **Traffic**,8:1164-1178.

Mahalakshmi, R.N., Nagashima, K., Ng, M.Y., Inagaki, N., Hunziker, W., and Beguin, P. (2007) Nuclear transport of Kir/Gem requires specific signals and importin  $\alpha 5$  and is regulated by calmodulin and predicted serine phosphorylations. **Traffic**, 8:1150-1163.

Vedula, S.R.K., Lim, C.T., Lim, T.S., Rajagopal, G., Hunziker, W., Lane, B., and Sokabe, M. (2007) Role of external mechanical forces in cell signal transduction. In: **Biomechanics at micro- and nonoscale levels**. Wada, H. (ed.). Vol III, p.80-104. World Scientific Publishing.

Polette, M., Mestdagt, M., Bindels, S., Nawrocki-Raby, B., Hunziker, W., Foidart, J.M., Birembaut, P. and Gilles, C. (2007)  $\beta$ -catenin and ZO-1: shuttle molecules involved in tumor invasion-associated epithelial-mesenchymal transition processes. In: *Advances in epithelial-mesenchymal transitions*. Thompson, E.W. and Savagner, P. (eds). **Cells Tissues Organs**185:61-65.

Beguin, P., Ng, Y.J.A., Krause, C., Mahalakshmi, R.N., Ng, M.Y., and Hunziker, W. (2007) | RGK GTP-binding proteins interact with the nucleotide kinase domain of Ca<sup>2+</sup>-channel  $\beta$ -subunits via an uncommon effector binding domain. **J. Biol. Chem.**282:11509-11520.

Hossain, Z., Ali, M.S., Ko, H.L., Xu, J., Ng, C.P., Guo, K., Qi, Z., Ponniah, S., Hong, W., and Hunziker, W. (2007) Glomerulocystic kidney disease in mice with a targeted inactivation of *Wwtr1*.

***Proc. Natl. Acad. Sci. U.S.A.***104:1631-1636.

Ng, S., Han, R., Chang, S., Ni, J., Hunziker, W., Goryachev, A.B., Ong, S.H., and Yu, H. (2006)

Improved hepatocyte excretory function by immediate presentation of polarity cues.

***Tissue Eng.***12:2181-2191.

Müller, D., Kausalya, P.J., Bockenhauer, D., Thumfart, J., Meij, I.C., van't Hoff, W., and Hunziker, W. (2006). Unusual clinical presentation and possible rescue of a novel Claudin 16 mutation.

***J. Clin. Endocrinol. Metabol.***91:3076-3079.

Appleton, B., Zhang, Y., Wu, P., Yin, J.P., Hunziker, W., Skelton, N.J., Sidhu, S.S., and Wiesmann, C. (2006)

A comparative structural analysis of the Erbin PDZ domain and the first PDZ domain of ZO-1: insights into determinants of PDZ domain specificity.

***J. Biol. Chem.***281:22312-22320.

Zhang, Y., Yeh, S., Appleton, B., Held, H.A., Kausalya, P.J., Phua, D.C.Y., Wong, W.L., Lasky, L.A., Wiesmann, C., Hunziker, W., and Sidhu, S.S. (2006)

Convergent and divergent ligand specificity amongst the PDZ domains of the LAP and ZO families.

***J. Biol. Chem.***281:22299-22311.

Kausalya, P.J., Amasheh, S., Günzel, D., Wurps, H., Müller, D., Fromm, M., and Hunziker, W. (2006)

Disease-associated Claudin-16 mutants display intracellular trafficking or paracellular magnesium permeability defects.

***J. Clin. Invest.***116:878-891.

Müller, D., Kausalya, P.J., Meij, I.C., and Hunziker, W. (2006)

Familial hypomagnesemia with hypercalciuria and nephrocalcinosis: blocking endocytosis restores surface expression of a novel Claudin-16 mutant that lacks the entire C-terminal cytosolic tail.

***Hum. Mol. Genet.***15:1049-1058.



Beguín, P., Mahalakshmi, R.N., Nagashima, K., Cher, D.H.K., Takahashi, A., Yamada, Y., Seino, Y., and Hunziker, W. (2006)

Nuclear sequestration of  $\beta$ -subunits by Rad and Rem is controlled by 14-3-3 and calmodulin and reveals a novel mechanism for  $\text{Ca}^{2+}$  channel regulation.

**J. Mol. Biol.**355:34-46.

Vedula, S.R.K., Lim, T.S., Kausalya, P.J., Hunziker, W., Rajagopal, G., and Lim, C.T. (2005) Biophysical approaches to study the integrity and function of tight junctions.

**Mol. Cell. Biomech.**2:105-123.

Polette, M., Gilles, C., Nawrocki-Raby, B., Lohi, J., Hunziker, W., Foidart, J.-M., Birembaut, P.

(2005) Membrane-type 1 matrix metalloproteinase expression is regulated by zonula occludens-1 in human breast cancer cells.

**Cancer Res.**65:7691-7698.

Beguín, P., Mahalakshmi, R.N., Nagashima, K., Cher, D.H.K., Kuwamura, N., Yamada, Y., Seino, Y., and Hunziker, W. (2005) Roles of 14-3-3 and calmodulin binding in subcellular localization and function of the small G protein Rem2.

**Biochem.J.**390:67-75.

Beguín, P., Mahalakshmi, R.N., Nagashima, K., Kiat, D.C.H., Takahashi, A., Yamada, Y., Seino, Y., and Hunziker, W. (2005) 14-3-3 and calmodulin control subcellular distribution of Kir/Gem and its regulation of cell shape and calcium channel activity.

**J. Cell Sci.**118:1923-1934.

Ellinger, I., Reischer, H., Lehner, C., Leitner, K., Hunziker, W., and Fuchs, R. (2005) Overexpression of the human neonatal Fc-receptor  $\alpha$ -chain in trophoblast-derived BeWo cells increases cellular retention of  $\beta$ 2-microglobulin.

**Placenta**26:171-182.