

Publications 2006-2020

- Scheeff, S., Rivière, S., Ruiz, J., Abdelrahman, A., Schulz-Fincke, A.-C., Köse, M., Tiburcy, F., Wieczorek, H., Gütschow, M., Müller, C. and Menche, D. (2020) Synthesis of novel potent Archazolids: Pharmacology of an emerging class of anticancer drugs. *J. Med. Chem.* 63, 1684-1698.
- Vitavska, O., Bartölke, R., Tabke, K., Heinisch, J.J. and Wieczorek, H. (2018) Interaction of mammalian and plant H⁺/sucrose transporters with 14-3-3 proteins. *Biochem. J.* 475, 3239-3254.
- Vitavska, O. and Wieczorek, H. (2017) Putative role of an SLC45 H⁺/sugar cotransporter in mammalian spermatozoa. *Pflügers Archiv - European Journal of Physiology*, 469, 1433-1442.
- Vitavska, O., Edemir, B. and Wieczorek, H. (2016) Putative role of the H⁺/sucrose symporter SLC45A3 as an osmolyte transporter in the kidney. *Pflügers Archiv - European Journal of Physiology* 468, 1353-1362.
- Gölz, J.P., Bockelmann, S., Mayer, K., Steinhoff, H.-J., Wieczorek, H., Huss, M., Klare, J.P., and Menche, D. (2016) EPR studies of V-ATPase with spin-labeled inhibitors DCC and archazolid: Interaction dynamics with proton translocating subunit c. *ChemMedChem.* 11, 420-428.
- Stein, P., Vitavska, O., Kind, P., Hoppe, W., Wieczorek, H. and Schürer, N.Y. (2015) The biological basis for poly-L-lactic acid-induced augmentation. *J. Dermatol. Science* 78, 26-33.
- Rawson, S., Phillips, C., Huss, M., Tiburcy, F., Wieczorek, H., Trinick, J., Harrison, M.A., and Muench, S.P. (2015) Structure of the vacuolar H⁺-ATPase rotary motor reveals new mechanistic insights. *Structure* 23, 1–11.
- Bartölke, R., Heinisch, J.J., Wieczorek, H. and Vitavska, O. (2014) Proton-associated sucrose transport of mammalian Solute Carrier Family 45: an analysis in *Saccharomyces cerevisiae*. *Biochem. J.* 464, 193-201.
- Tabke, K., Albertmelcher, A., Vitavska, O., Huss, M., Schmitz, H.-P., and Wieczorek, H. (2014) Reversible disassembly of the yeast V-ATPase revisited under in vivo conditions. *Biochem. J.* 462, 185-197.
- Muench, S.P., Scheres, S.H.W., Huss, M., Phillips, C., Vitavska, O., Wieczorek, H., Trinick, J. and Harrison, M.A. (2014) Subunit positioning and stator filament stiffness in regulation and power transmission in the V1 motor of the *Manduca sexta* V-ATPase. *J Mol Biol.* 426, 286-300.
- Song, C.F., Papachristos, K., Rawson, S., Huss, M., Wieczorek, H., Paci, E., Trinick, J., Harrison, M.A., and Muench, S.P. (2013) Flexibility within the rotor and stators of the vacuolar H⁺-ATPase. *PLOS ONE* 8 (12), e82207.
- Vitavska, O. and Wieczorek, H. (2013) The SLC45 gene family of putative sugar transporters. *Molecular Aspects of Medicine* 34, 655–660.
- Tiburcy, F., Beyenbach, K.W. and Wieczorek, H. (2013) Protein kinase A dependent and independent activation of the V-ATPase in Malpighian tubules of *Aedes aegypti*. *J. Exp. Biol.* 216, 881-891.
- Persch, E., Basile, T., Bockelmann, S., Huss, M., Wieczorek, H., Carlomagno, T., and Menche, D. (2012) Synthesis and biological evaluation of a water-soluble derivative of the potent V-ATPase inhibitor archazolid. *Bioorg. Med. Chem. Lett.* 22, 7735-7738.
- Osteresch, C., Tobias Bender, T., Grond, S., von Zezschwitz, P., Kunze, B., Rolf Jansen, R., Huss, M., and Wieczorek, H. (2012) The binding site of the V-ATPase inhibitor apicularen is in the vicinity to those of bafilomycin and archazolid. *J. Biol. Chem.* 287, 31866-31876.
- Dreisigacker, S., Latek, D., Bockelmann, S., Huss, M., Wieczorek, H., Filipek, S., Gohlke, H., Menche, D., and Carlomagno, T. (2012) Understanding the inhibitory effect of highly potent and selective archazolides binding to the vacuolar ATPase. *J. Chem. Inf. Model.* 52, 2265-2272.

- Horstmann, N., Essig, S., Bockelmann, S., Wieczorek, H., Huss, M., Sasse, F., and Menche, D. (2011) Archazolid A-15-O- β -D-glucopyranoside and Iso-Archazolid B: Potent V-ATPase inhibitory polyketides from the myxobacteria *Cystobacter violaceus* and *Archangium gephyra*. *J. Nat. Products* 74, 1100-1105.
- Huss, M., Vitavska, O., Albertmelcher, A., Bockelmann, S., Nardmann, C., Tabke, K., Tiburcy, F., and Wieczorek, H. (2011) Vacuolar H⁺-ATPases: Intra- and intermolecular interactions. *Eur. J. Cell Biol.* 90, 688–695.
- Meyer, H., Vitavska, O. and Wieczorek, H. (2011) Identification of an animal sucrose transporter. *J. Cell Sci.* 124, 1984-1991.
- Bockelmann, S., Menche, D., Rudolph, S., Bender, T., Grond, S., von Zezschwitz, P., Stephen Muench, S., Wieczorek, H., and Huss, M. (2010) Archazolid A binds to the equatorial region of the c-ring of the vacuolar H⁺-ATPase. *J. Biol. Chem.* 285, 38304-38314.
- Burkard, N., Bender, T., Westmeier, J., Nardmann, C., Huss, M., Wieczorek, H., Grond, S., and von Zezschwitz, P. (2010) New fluororous photoaffinitylabels (F-PAL) and their application in V-ATPase inhibition studies. *Eur. J. Org. Chem.* 2010, 2176-2181.
- Wieczorek, H., Beyenbach, K.W., Huss, M., and Vitavska, O. (2009) Vacuolar-type proton pumps in insect epithelia. *J. Exp. Biol.* 212, 1611-1619.
- Muench, S.P., Huss, M., Phillips, C., Wieczorek, H., Trinick, J., and Harrison, M.A. (2009) Cryo-electron microscopy of the vacuolar ATPase motor reveals its mechanical and regulatory complexity. *J. Mol. Biol.* 386, 989-999
- Huss, M. and Wieczorek, H. (2009) Inhibitors of V-ATPases: Old and new players. *J. Exp. Biol.* 212, 341-346.
- Huss, M. and Wieczorek, H. (2007) Influence of ATP and ADP on dissociation of the V-ATPase into its V₁ and V₀ complexes. *FEBS Lett.* 581, 5566-5572.
- Voss, M.*, Vitavska, O.*, Walz, B., Wieczorek, H., and Baumann, O. (2007) Stimulus-induced phosphorylation of plasma membrane V-ATPase by protein kinase A. *Both authors contributed equally to the results. *J. Biol. Chem.* 282, 33735–33742.
- Menche, D., Hassfeld, J., Steinmetz, H., Huss, M., Wieczorek, H., and Sasse, F. (2007) The first hydroxylated archazolid from the myxobacterium *Cystobacter violaceus*: Isolation, structural elucidation and V-ATPase inhibition. *J. Antibiot.* 60, 328-331.
- Kunze, B., Sasse, F., Wieczorek, H., Höfle, G., and Huss, M. (2007) Cruentaren A, a highly cytotoxic benzolactone from Myxobacteria, is a novel selective inhibitor of mitochondrial F₁-ATPases. *FEBS Lett.* 581, 3523-3527.
- Bender, T., Markus Huss, M., Wieczorek, H., Grond, S., and von Zezschwitz, P. (2007) Convenient synthesis of a [1-¹⁴C]diazirinybenzoic acid as photoaffinity label for V-ATPase binding studies of bafilomycin A₁ and concanolid A₁. *Eur. J. Org. Chem.* 2007, 3870-3878.
- Menche, D., Hassfeld, J., Sasse, F., Huss, M., and Wieczorek, H. (2007) Synthesis and biological evaluation of novel analogues of archazolid: a highly potent simplified V-ATPase inhibitor. *Bioorg. Med. Chem. Lett.* 17, 1732–1735.
- Menche, D., Hassfeld, J., Steinmetz, H., Huss, M., Wieczorek, H., and Sasse, F. (2007) Archazolid-7-O- β -D-glucopyranoside - Isolation, structural elucidation and solution conformation of a novel V-ATPase inhibitor from the myxobacterium *Cystobacter violaceus*. *Eur. J. Org. Chem.* 2007, 1196–1202.
- Kunze, B., Steinmetz, H., Höfle, G., Huss, M., Wieczorek, H., and Reichenbach, H. (2006) Cruentaren, a new antifungal salicylate-type macrolide from *Byssovorax cruenta* (Myxobacteria) with inhibitory effect on mitochondrial ATPase activity: Fermentation and biological properties. *J. Antibiot.* 59, 664-668.
- Beyenbach, K.W., and Wieczorek, H. (2006) The V-type H⁺-ATPase: Molecular structure and function, physiological roles and regulation. *J. Exp. Biol.* 209, 577-589.

Selected publications prior to 2006

- Huss, M., Sasse, F., Kunze, B., Jansen, R., Steinmetz, H., Ingenhorst, G., Zeeck, A., and Wieczorek, H. (2005) Archazolid and apicularen: Novel specific V-ATPase inhibitors. *BMC Biochemistry* 6, 13.
- Vitavska, O., Merzendorfer, H., and Wieczorek, H. (2005) The V-ATPase subunit C binds to polymeric F-actin as well as to monomeric G-actin and induces cross-linking of actin filaments. *J. Biol. Chem.* 280, 1070-1076.
- Vitavska, O., Wieczorek, H., and Merzendorfer, H. (2003) A novel role for subunit C in mediating binding of the H⁺-V-ATPase to the actin cytoskeleton. *J. Biol. Chem.* 278, 18499-18505
- Huss, M., Ingenhorst, G., König, S., Gaßel, M., Dröse, S., Zeeck, A., Altendorf, K., and Wieczorek, H. (2002) Concanamycin A, the specific inhibitor of V-ATPases, binds to the V_o subunit c. *J. Biol. Chem.* 277, 40544-40548.
- Reineke, S., Wieczorek, and Merzendorfer, H. (2002) Expression of *Manduca sexta* V-ATPase genes mvB, mvG and mvd is regulated by ecdysteroids. *J. Exp. Biol.* 205, 1059-1067.
- Radermacher, M., Ruiz, T., Wieczorek, H., and Grüber, G. (2001) The structure of the V₁ ATPase determined by three-dimensional electron microscopy of single particles. *J. Struct. Biol.* 135, 26-37.
- Merzendorfer, H., Reineke, S., Zhao, X.-F., Jacobmeier, B., Harvey, W.R., and Wieczorek, H. (2000) The multigene family of the tobacco hornworm V-ATPase: novel subunits a, C, D, H and putative isoforms. *Biochim. Biophys. Acta* 1467, 369-379.
- Grüber, G., Radermacher, M., Ruiz, T., Godovac-Zimmermann, J., Canas, B., Kleine-Kohlbrecher, D., Huss, M., Harvey, W.R., and Wieczorek, H. (2000) Three-dimensional structure and subunit topology of the V₁ ATPase from *Manduca sexta* midgut. *Biochemistry* 39, 8609-8616.
- Wieczorek, H., Brown, D., Grinstein, S., Ehrenfeld, J., and Harvey, W.R. (1999) Animal plasma membrane energization by proton-motive V-ATPases. *BioEssays* 21, 637-648.
- Merzendorfer, H., Huss, M., Schmid, R., Harvey, W.R., and Wieczorek, H. (1999) A novel insect V-ATPase subunit M9.7 is glycosylated extensively. *J. Biol. Chem.* 274, 17372-17378.
- Svergun, D.I., Konrad, S., Huss, M., Koch, M.H.J., Wieczorek, H., Altendorf, K., Volkov, V.V., and Grüber, G. (1998) Quaternary structure of V₁- and F₁-ATPase: significance of structural homologies and diversities. *Biochemistry* 37, 17659-17663.
- Merzendorfer, H., Harvey, W.R., and Wieczorek, H. (1997) Sense and antisense RNA for the membrane associated 40 kDa subunit M40 of the insect V-ATPase. *FEBS Lett.* 411, 239-244.
- Gräf, R., Harvey, W.R., and Wieczorek, H. (1996) Purification and properties of a cytosolic V₁-ATPase. *J. Biol. Chem.* 271, 20908-20913.
- Lepier, A., Gräf, R., Azuma, M., Merzendorfer, H., Harvey, W.R., and Wieczorek, H. (1996) The peripheral complex of the tobacco hornworm V-ATPase contains a novel 13-kDa subunit G. *J. Biol. Chem.* 271, 8502-8508.
- Jaeger, D., Novak, F.J.S., Harvey, W.R., Wieczorek, H., and Klein, U. (1996) Temporal and spatial distribution of V-ATPase and its mRNA in the midgut of moulting *Manduca sexta*. *J. Exp. Biol.* 199, 1019-1027.
- Azuma, M., Harvey, W.R., and Wieczorek, H. (1995) Stoichiometry of K⁺/H⁺ antiport may help to explain strong alkalization of extracellular medium in a model epithelium. *FEBS Lett.* 361, 153-156.
- Sumner, J.P., Dow, J.A.T., Earley, F., Klein, U., Jäger, D., and Wieczorek, H. (1995) Regulation of plasma membrane V-ATPase activity by dissociation of peripheral subunits. *J. Biol. Chem.* 270, 5649-5653.
- Gräf, R., Harvey, W.R., and Wieczorek, H. (1994) Cloning, sequencing and expression of cDNA

encoding an insect V-ATPase subunit E. *Biochim. Biophys. Acta* 1190, 193-196.

- Gräf, R., Lepier, A., Harvey, W.R., and Wieczorek, H. (1994) A novel 14-kDa subunit in the tobacco hornworm midgut. *J. Biol. Chem.* 269, 3767-3774.
- Novak, F.J.S., Gräf, R., Waring, R., Wolfersberger, M.G., Wieczorek, H., and Harvey, W.R. (1992) Primary structure of V-ATPase subunit B from *Manduca sexta* midgut. *Biochim. Biophys. Acta* 1132, 67-71.
- Gräf, R., Novak, F.J.S., Harvey, W.R., and Wieczorek, H. (1992) Cloning and sequencing of cDNA encoding the putative insect plasma membrane V-ATPase subunit A. *FEBS Lett.* 300, 119-122.
- Wieczorek, H., Putzenlechner, M., Zeiske, W., and Klein, U. (1991) A vacuolar-type proton pump energizes K⁺/H⁺-antiport in an animal plasma membrane. *J. Biol. Chem.* 266, 15340-15347.
- Wieczorek, H., Cioffi, M., Klein, U., Harvey, W.R., Schweikl, H., and Wolfersberger, M.G. (1990): Isolation of goblet cell apical membrane from tobacco hornworm midgut and purification of its vacuolar-type ATPase. *Methods Enzymol.* 192, 608-616.
- Wieczorek, H., Weerth, S., Schindlbeck, M., and Klein, U. (1989) A vacuolar-type proton pump in a vesicle fraction enriched with potassium transporting plasma membranes from tobacco hornworm midgut. *J. Biol. Chem.* 264, 11143-11148.
- Schweikl, H., Klein, U., Schindlbeck, M., and Wiecezorek, H. (1989) A vacuolar-type ATPase, partially purified from potassium transporting plasma membranes of tobacco hornworm midgut. *J. Biol. Chem.* 264, 11136-11142.
- Wieczorek, H., and Wolff, G. (1989) The labellar sugar receptor of *Drosophila*. *J. Comp. Physiol. A* 164, 825-834.
- Wieczorek, H., Shimada, I., and Hopperdietzel, C. (1988) Treatment with pronase uncouples water and sugar reception in the labellar water receptor of the blowfly. *J. Comp. Physiol. A* 163, 413-419.
- Wieczorek, H., Wolfersberger, M.G., Cioffi, M., and Harvey, W.R. (1986) Cation stimulated ATPase activity in purified plasma membranes from tobacco hornworm midgut. *Biochim. Biophys. Acta* 857, 271-281.
- Wieczorek, H., and Schweikl, H. (1985) Concentrations of cyclic nucleotides and activities of cyclases and phosphodiesterases in an insect chemosensory organ. *Insect Biochem.* 15, 723-728.
- Wieczorek, H., and Gnatzy, W. (1985) The electrogenic potassium pump of insect cuticular sensilla: Further characterization of ouabain- and azide-insensitive, K⁺-stimulated ATPases in the labellum of the blowfly. *Insect Biochem.* 15, 225-232.
- Wieczorek, H., and Köppl, R. (1982) Reaction spectra of sugar receptors in different taste hairs of the fly. *J. Comp. Physiol.* 149, 207-213.
- Wieczorek, H. (1982) A biochemical approach to the electrogenic potassium pump of insect sensilla: potassium sensitive ATPases in the labellum of the fly. *J. Comp. Physiol.* 148, 303-311.
- Wieczorek, H. (1980) Sugar reception by an insect water receptor. *J. Comp. Physiol.* 138, 167-172.
- Wieczorek, H., and Köppl, R. (1978) Effects of sugars on the labellar water receptor of the fly. *J. Comp. Physiol.* 126, 131-136.
- Wieczorek, H. (1978) Biochemical and behavioral studies of sugar reception in the cockroach. *J. Comp. Physiol.* 124, 353-356.
- Wieczorek, H. (1976) The glycoside receptor of the larvae of *Mamestra brassicae* L (Lepidoptera, Noctuidae). *J. Comp. Physiol.* 106, 153-176.
- Wieczorek, H. (1973) Zur Kenntnis der Adlerfarninsekten. Ein Beitrag zum Problem der biologischen Bekämpfung von *Pteridium aquilinum* (L.) Kuhn in Mitteleuropa. *Z. angew. Entomol.* 72, 337-358.