

7. Literatur

7.1 Zitierte Literatur anderer Autoren

- Aarhus R., Graeff RM., Dickey DM., Walseth TF., and Lee HC. (1995) ADP-ribosyl cyclase and CD38 catalyze the synthesis of a calcium-mobilizing metabolite from NADP⁺. *J. Biol. Chem.* **270**, 30327-30333.
- Aktories K. (1994) Clostridial ADP-ribosylating toxins: effects on ATP- and GTP-binding proteins. *Mol. Cell. Biochem.* **138**, 167-176.
- Aktories K. (1997) Identification of the catalytic site of clostridial ADP-Ribosyltransferases. *Adv. Exp. Med. Biol.* **419**, 53-60.
- Barrio JR., Secrist III JA., and Leonard NJ. (1972) A fluorescent analog of nicotinamide adenine dinucleotide. *Proc. Natl. Acad. Sci. USA* **69**, 2039-2042.
- Berridge MJ. (1993) Inositol trisphosphate and calcium signalling. *Nature* **361**, 315-325.
- Boyer CS., Moore GA., and Moldéus P. (1993) Submitochondrial localization of the NAD⁺ glycohydrolase: implications for the role of pyridine nucleotide hydrolysis in mitochondrial calcium fluxes. *J. Biol. Chem.* **268**, 4016-4020.
- Broekemeier KM., Dempsey ME., and Pfeiffer DR. (1989) Cyclosporin A is a potent inhibitor of the inner membrane permeability transition in liver mitochondria. *J. Biol. Chem.* **264**, 7826-7830.
- Bull HG., Ferraz JP., Cordez EH., Ribbi A., and Apitz-Castro R. (1978) Concerning the mechanism of the enzymatic and nonenzymatic hydrolysis of nicotinamide nucleotide coenzymes. *J. Biol. Chem.* **253**, 5186-5192.
- Burzio LO., Saez L., and Cornejo R. (1981) Poly(ADP-ribose)synthetase activity in rat testis mitochondria. *Biochem. Biophys. Res. Commun.* **103**, 369-375.
- Carafoli E. (1979) The calcium cycle of mitochondria. *FEBS Lett.* **104**, 1-5.
- Carafoli E. (1987) Intracellular calcium homeostasis. *Annu. Rev. Biochem.* **56**, 395-433.
- Cassel D. and Pfeuffer T. (1978) Mechanism of cholera toxin action: covalent modification of the guanyl nucleotide-binding protein of the adenylate cyclase system. *Proc. Natl. Acad. Sci. USA* **75**, 2669-2673.
- Cayama E., Apitz-Castro R., and Cordes EH. (1973) Substrate-dependent, thiol-dependent, inactivation of pig brain nicotinamide adenine dinucleotide glycohydrolase. *J. Biol. Chem.* **248**, 6479-6483.
- Cervantes-Laurean D., Minter DE., Jacobson EL., and Jacobson MK. (1993) Protein glycation by ADP-ribose : studies of model conjugates. *Biochemistry* **32**, 1528-1534.
- Cervantes-Laurean D., Loflin PT., Minter DE., Jacobson EL., and Jacobson MK. (1995) Protein modification by ADP-ribose via acid-labile linkages. *J. Biol. Chem.* **270**, 7929- 7936.
- Chambon P., Weil JD., and Mandel P. (1963) Nicotinamide mononucleotide activation of a new DNA-dependent polyadenylic acid synthesizing nuclear enzyme. *Biochem. Biophys. Res. Commun.* **11**, 39-43.
- Chambon P., Weil JD., Doly J., Strasser MT., and Mandel P. (1966) On the formation of a novel adenylic compound by enzymatic extracts of liver nuclei. *Biochem. Biophys. Res. Commun.* **25**, 638-643.

- Chini EN. and Dousa TP. (1995) Enzymatic synthesis and degradation of nicotinate adenine dinucleotide phosphate (NAADP), a Ca^{2+} -realising agonist, in rat tissues. *Biochem. Biophys. Res. Commun.* **209**, 167-174.
- Chini EN., Beers KW., and Dousa TP. (1995) Nicotinate adenine dinucleotide phosphate (NAADP) triggers a specific calcium release system in sea urchin eggs. *J. Biol. Chem.* **270**, 3216-3223.
- Clapham DE. (1995) Calcium signaling. *Cell* **80**, 259-268.
- Clapper DL., Walseth TF., Dargie PJ., and Lee HC. (1987) Pyridine nucleotide metabolites stimulate calcium release from sea urchin egg microsomes desensitized to inositol trisphosphate. *J. Biol. Chem.* **262**, 9561-9568.
- Collier RJ. (1975) Diphtheria toxin: mode of action and structure. *Bacteriol. Rev.* **39**, 54-85.
- Crompton M., Costi A., and Hayat L. (1987) Evidence for the presence of a reversible Ca^{2+} -dependent pore activated by oxidative stress in heart mitochondria. *Biochem. J.* **245**, 915-918.
- Crompton M., Ellinger H., and Costi A. (1988) Inhibition by cyclosporin A of a Ca^{2+} -dependent pore in heart mitochondria activated by inorganic phosphate and oxidative stress. *Biochem. J.* **255**, 357-360.
- Dargie PJ., Agre MC., and Lee HC. (1990) Comparison of Ca^{2+} mobilizing activities of cyclic ADP-ribose and inositol trisphosphate. *Cell Regul.* **1**, 279-290.
- Denton RM. and McCormack JG. (1990) Ca^{2+} as a second messenger within mitochondria of the heart and other tissues. *Annu. Rev. Physiol.* **52**, 451-466.
- Dong C., Wang J., Neame P., and Copper MD. (1994) The murine BP-3 gene encodes a relative of the CD38/NAD glycohydrolase family. *Int. Immunol.* **6**, 1353-1360.
- Euler Von H., Albers H., and Schlenk F. (1936) Chemische Untersuchungen an hochgereinigter Co-Zymase. *Hoppe-Seyl. Z. Physiol. Chem.* **240**, 113-126.
- Frei B. and Richter C. (1988) Mono(ADP-ribosylation) in rat liver mitochondria. *Biochemistry* **27**, 529-535.
- Funaro A., Reinis M., Trubiani O., Santi S., Di Primio R., and Malavasi F. (1998) CD38 functions are regulated through an internalization step. *J. Immunol.* **160**, 2238-2247.
- Furuya Y., Takasawa S., Yonekura H., Tanaka T., Takahara J., and Okamoto H. (1995) Cloning of a cDNA encoding rat bone marrow stromal cell antigen 1 (BST-1) from the islets of Langerhans. *Gene* **165**, 329-330.
- Franco L., Zocchi E., Calder L., Guida L., Benatti U., and De Flora A. (1994) Self-aggregation of the transmembrane glycoprotein CD38 purified from human erythrocytes. *Biochem. Biophys. Res. Commun.* **202**, 1710-1715.
- Galione A. and White A. (1994) Ca^{2+} -release induced by cyclic ADP-ribose. *Trends Cell. Biol.* **4**, 431-436.
- Galione A., Lee HC., and Busa WB. (1991) Ca^{2+} -induced Ca^{2+} release in sea urchin egg homogenates: modulation by cyclic ADP-Rribose. *Science* **253**, 1143-1146.
- Galione A., McDougall A., Busa WB., Willmott N., Gillot I., and Whitaker M. (1993a) Redundant mechanisms of calcium-induced calcium-release underlying calcium waves during fertilization of sea urchin eggs. *Science* **261**, 348-352.

- Galione A., White A., Willmott N., Turner M., Potter BVL., and Watson SP. (1993b) cGMP mobilizes intracellular Ca^{2+} in sea urchin eggs by stimulating cyclic ADP-ribose synthesis. *Nature* **365**, 456-459.
- Gholson RK. (1966) The pyridine nucleotide cycle. *Nature* **212**, 933-935.
- Glick DL., Hellmich MR., Beushausen S., Tempst P., Bayley H., and Strumwasser F. (1991) Primary structure of a molluscan egg-specific NADase, a second-messenger enzyme. *Cell Regul.* **2**, 211-218.
- Graeff RM., Walseth TF., Fryxell K., Branton WD., and Lee HC. (1994) Enzymatic synthesis and characterization of cyclic GDP-ribose: a procedure for distinguishing enzymes with ADP-ribosyl cyclase activity. *J. Biol. Chem.* **269**, 30260-30267.
- Graeff RM., Walseth TF., Hill HK., and Lee HC. (1996) Fluorescent analogs of cyclic ADP-ribose: synthesis, spectral characterization, and use. *Biochemistry* **35**, 379-386.
- Guida L., Franco L., Zocchi E., and De Flora A. (1995) Structural role of disulfide bridges in the cyclic ADP-ribose related bifunctional ectoenzyme CD38. *FEBS Lett.* **368**, 481-484.
- Gunter TE. and Pfeiffer DR. (1990) Mechanisms by which mitochondria transport calcium. *Am. J. Physiol.* **258**, C755-C786.
- Hagen T. and Ziegler M. (1997) Detection and identification of NAD-catabolizing activities in rat tissue homogenates. *Biochim. Biophys. Acta* **1340**, 7-12.
- Hajnóczky G., Robb-Gaspers LD., Seitz MB., and Thomas AP. (1995) Decoding of cytosolic calcium oscillations in the mitochondria. *Cell* **82**, 415-424.
- Halestrap AP. (1989) The regulation of the matrix volume of mammalian mitochondria in vivo and in vitro and its role in the control of mitochondrial metabolism. *Biochim. Biophys. Acta* **973**, 355-383.
- Handler P. and Klein JR. (1942) The inactivation of pyridine nucleotides by animal tissues in vitro. *J. Biol. Chem.* **143**, 49-57.
- Harada N., Santos-Argumedo L., Chang R., Grimaldi JC., Lund FE., Brannan CI., Copeland NG., Jenkins NA., Heath AW., Parkhouse RME., and Howard M. (1993) Expression cloning of a cDNA encoding a novel murine B cell activation marker: homology to human CD38. *J. Immunol.* **151**, 3111-3118.
- Hellmich MR. and Strumwasser F. (1991) Purification and characterization of a molluscan egg-specific NADase, a second-messenger enzyme. *Cell Regul.* **2**, 193-202.
- Hilz H., Koch R., Fanick W., Klapproth K., and Adamietz P. (1984) Nonenzymic ADP-riboseylation of specific mitochondrial polypeptides. *Proc. Natl. Acad. Sci. USA* **81**, 3929-3933.
- Hirata Y., Kimura N., Sato K., Ohsugi Y., Takasawa S., Okamoto H., Ishikawa J., Kaisho T., Ishihara K., and Hirano T. (1994) ADP-ribosyl cyclase activity of a novel stromal cell surface molecule, BST-1. *FEBS Lett.* **356**, 244-248.
- Hofstetter W., Mühlebach T., Lötscher HR., Winterhalter KH., and Richter C. (1981) ATP prevents both hydroperoxide-induced hydrolysis of pyridine nucleotides and release of calcium in rat liver mitochondria. *Eur. J. Biochem.* **117**, 361-367.
- Howard M., Grimaldi JC., Bazan JF., Lund FE., Santos-Argumedo L., Parkhouse RME., Walseth TF., and Lee HC. (1993) Formation and hydrolysis of cyclic ADP-ribose catalyzed by lymphocyte antigen CD38. *Science* **262**, 1056-1059.

- Iglewski WJ. (1994) Cellular ADP-ribosylation of elongation factor 2. *Mol. Cell. Biochem.* **138**, 131-133.
- Itoh M., Ishihara K., Tomizawa H., Tanaka H., Kobune Y., Ishikawa T., Kaisho T., and Hirano T. (1994) Molecular cloning of murine BST-1 having homology with CD38 and *Aplysia* ADP-ribosyl cyclase. *Biochem. Biophys. Res. Commun.* **203**, 1309-1317.
- Jackson DG. and Bell JI. (1990) Isolation of a cDNA encoding the human CD38 (T10) molecule, a cell surface glycoprotein with an unusual discontinuous pattern of expression during lymphocyte differentiation. *J. Immunol.* **144**, 2811-2815.
- Jacobson EL., Cervantes-Laurean D., and Jacobson MK. (1994) Glycation of proteins by ADP-ribose. *Mol. Cell. Biol.* **138**, 207-212.
- Jacobson MK., Amé J-C., Lin W., Coyle DL., and Jacobson EL. (1995) Cyclic ADP-ribose: a new component of calcium signaling. *Receptor* **5**, 43-49.
- Jouaville LS., Ichas F., Holmuhamedov EL., Camacho P., and Lechleiter JD. (1995) Synchronization of calcium waves by mitochondrial substrates in *Xenopus laevis* oocytes. *Nature* **377**, 438-441.
- Just I., Wollenberg P., Moss J., and Aktories K. (1994) Cysteine-specific ADP-ribosylation of actin. *Eur. J. Biochem.* **221**, 1047-1054.
- Kaisho T., Ishikawa J., Oritani K., Inazawa J., Tomizawa H., Muraoka O., Ochi T., and Hirano T. (1994) BST-1, a surface molecule of bone marrow stromal cell lines that facilitates pre-B-cell growth. *Proc. Natl. Acad. Sci. USA* **91**, 5325-5329.
- Katada T. and Ui M. (1982a) Direct modification of the membrane adenylate cyclase system by islet-activating protein due to ADP-ribosylation of a membrane protein. *Proc. Natl. Acad. Sci. USA* **79**, 3129-3133.
- Katada T. and Ui M. (1982b) ADP-ribosylation of the specific membrane protein of C6 cells by islet-activating protein associated with modification of adenylate cyclase activity. *J. Biol. Chem.* **257**, 7210-7216.
- Karasawa T., Takasawa S., Yamakawa K., Yonekura H., Okamoto H., and Nakamura S. (1995) NAD⁺-glycohydrolase from streptococcus pyogenes shows cyclic ADP-ribose forming activity. *FEMS Microbiol. Lett.* **130**, 201-204.
- Kim H., Jacobson EL., and Jacobson MK. (1993) Synthesis and degradation of cyclic ADP-ribose by NAD glycohydrolases. *Science* **261**, 1330-1333.
- Koguma T., Takasawa S., Tohgo A., Karasawa T., Furuya Y., Yonekura H., and Okamoto H. (1994) Cloning and characterization of cDNA encoding rat ADP-ribosyl cyclase/cyclic ADP-ribose hydrolase (homologue to human CD38) from islets of Langerhans. *Biochim. Biophys. Acta* **1223**, 160-162.
- Kontani K., Nishina H., Ohoka Y., Takahashi K., and Katada T. (1993) NAD glycohydrolase specifically induced by retinoic acid in human leukemic HL-60 cells: identification of the NAD glycohydrolase as leukocyte cell surface antigen CD38. *J. Biol. Chem.* **268**, 16895-16898.
- Kun E., Zimmer PH., Chang ACY., Puschendorf B., and Grunicke H. (1975) Macromolecular enzymatic product of NAD⁺ in liver mitochondria. *Proc. Natl. Acad. Sci. USA* **72**, 1436-1440.
- Laemmli UK. (1970) Cleavage of structural proteins during the assembly of the head of bacteriophage T4. *Nature* **227**, 680-685.
- Lee H. and Iglewski WJ. (1984) Cellular ADP-ribosyltransferase with the same mechanism of action as diphtheria toxin and Pseudomonas toxin A. *Proc. Natl. Acad. Sci. USA* **81**, 2703-2707.

- Lee HC. (1996) Modulator and messenger functions of cyclic ADP-ribose in calcium signaling. *Recent Prog. Horm. Res.* **51**, 355-389.
- Lee HC. and Aarhus R. (1991) ADP-ribosyl cyclase: an enzyme that cyclizes NAD⁺ into a calcium-mobilizing metabolite. *Cell Regul.* **2**, 203-209.
- Lee HC. and Aarhus R. (1993) Wide distribution of an enzyme that catalyzes the hydrolysis of cyclic ADP-ribose. *Biochim. Biophys. Acta* **1164**, 68-74.
- Lee HC. and Aarhus R. (1995) A derivative of NADP mobilizes calcium stores insensitive to inositol trisphosphate and cyclic ADP-ribose. *J. Biol. Chem.* **270**, 2152-2157.
- Lee HC., Walseth TF., Bratt GT., Hayes RN., and Clapper DL. (1989) Structural determination of a cyclic metabolite of NAD⁺ with intracellular Ca²⁺-mobilizing activity. *J. Biol. Chem.* **270**, 1608-1615.
- Lee HC., Aarhus R., and Walseth TF. (1993) Calcium mobilization by dual receptors during fertilization of sea urchin eggs. *Science* **261**, 352-355.
- Lee HC., Galione A., and Walseth TF. (1994a) Cyclic ADP-ribose: metabolism and calcium mobilizing function. *Vitamins and Hormones* **48**, 199-257.
- Lee HC., Aarhus R., Graeff ME., Gurnack ME., and Walseth TF. (1994b) Cyclic ADP-ribose activation of the ryanodine receptor is mediated by calmodulin. *Nature* **370**, 307-309.
- Lee HC., Aarhus R., and Graeff RM. (1995) Sensitization of calcium-induced calcium release by cyclic ADP-ribose and calmodulin. *J. Biol. Chem.* **270**, 9060-9066.
- Lehninger AL., Vercesi A., and Bababunmi EA. (1978) Regulation of Ca²⁺ release from mitochondria by the oxidation-reduction state of pyridine nucleotides. *Proc. Natl. Acad. Sci. USA* **75**, 1690-1694.
- Lötscher HR., Winterhalter KH., Carafoli E., and Richter C. (1979) Hydroperoxides can modulate the redox state of pyridine nucleotides and the calcium balance in rat liver mitochondria. *Proc. Natl. Acad. Sci. USA* **76**, 4340-4344.
- Lötscher HR., Winterhalter KH., Carafoli E., and Richter C. (1980) Hydroperoxide-induced loss of pyridine nucleotides and release of calcium from rat liver mitochondria. *J. Biol. Chem.* **255**, 9325-9330.
- Ludden PW. (1994) Reversible ADP-ribosylation as a mechanism of enzyme regulation in procaryotes. *Mol. Cell. Biochem.* **138**, 123-129.
- Lund F., Solvason N., Grimaldi JC., Parkhouse RME., and Howard M. (1995) Murine CD38: an immunoregulatory ectoenzyme. *Immunol. Today* **16**, 469-473.
- Mailhammer R., Reiness G., Ponta H., Yang H.-L., Schweiger M., Zillig W., and Zubay G. (1975a) RNA polymerase modifications after T-phage infections of *E. coli*. In: Shaltiel S. (ed.) Metabolic interconversion of enzymes 1975. *Springer-Verlag, Berlin Heidelberg* pp 160-167.
- Mailhammer R., Yang H.-L., Reiness G., and Zubay G. (1975b) Effects of bacteriophage T4-induced modification of *Escherichia coli* RNA polymerase on gene expression in vitro. *Proc. Natl. Acad. Sci. USA* **72**, 4928-4932.
- Malavasi F., Funaro A., Roggero S., Horenstein A., Calosso L., and Mehta K. (1994) Human CD38: a glycoprotein in search of a function. *Immunol. Today* **15**, 95-97.
- Masmoudi A. and Mandel P. (1987) ADP-ribosyl transferase and NAD glycohydrolase activities in rat liver mitochondria. *Biochemistry* **26**, 1965-1969.

- Masmoudi A., Islam F., and Mandel P. (1988) ADP-ribosylation of highly purified rat brain mitochondria. *Neurochem. J.* **51**, 188-193.
- Maxfield FR. and Mayor S. (1997) Cell surface dynamics of GPI-anchored proteins. *Adv. Exp. Med. Biol.* **419**, 355-364.
- McDonald LJ., Wainschel LA., Oppenheimer NJ., and Moss J. (1992) Amino acid-specific ADP-ribosylation: structural characterization and chemical differentiation of ADP-ribosyl-cysteine adducts formed nonenzymatically and in pertussis catalyzed reactions. *Biochemistry* **31**, 11881-11887.
- McDonald LJ. and Moss J. (1993a) Stimulation by nitric oxide of an NAD linkage to glyceraldehyde-3-phosphate dehydrogenase. *Proc. Natl. Acad. Sci. USA* **90**, 6238- 6241.
- McDonald LJ. and Moss J. (1993b) Nitric oxide-independent, thiol-associated ADP-ribosylation inactivates aldehyde dehydrogenase. *J. Biol. Chem.* **268**, 17878-17882.
- Mészáros LG., Bak J., and Chu A. (1993) Cyclic ADP-ribose as an endogenous regulator of the non-skeletal type ryanodine receptor Ca^{2+} channel. *Nature* **364**, 76-79.
- Moss J. and Vaughan M. (1977) Mechanism of action of cholera toxin. Evidence for ADP-ribosyltransferase activity with arginine as an acceptor. *J. Biol. Chem.* **252**, 2455- 2457.
- Moss J. and Vaughan M. (1988) ADP-ribosylation of guanyl nucleotide-binding regulatory proteins by bacterial toxins. *Adv. Enzymol.* **61**, 303-379.
- Moss J., Stanley SJ., Watkins PA. (1980) Isolation and properties of an NAD- and guanidine-dependent ADP-ribosyltransferase from turkey erythrocytes. *J. Biol. Chem.* **255**, 5838- 5840
- Moss J., Jacobson MK., and Stanley SJ. (1985) Reversibility of arginine-specific mono(ADP-ribosylation): identification in erythrocytes of an ADP-ribose-L-arginine cleavage enzyme. *Proc. Natl. Acad. Sci. USA* **82**, 5603-5607.
- Moss J., Tsai S-C., Adamitz R., Chen H-C., and Stanley SJ. (1988) Purification and characterization of ADP-ribosylarginine hydrolase from turkey erythrocytes. *Biochemistry* **27**, 5819-5823.
- Moser B., Winterhalter KH., and Richter C. (1983) Purification and properties of a mitochondrial NAD^+ glycohydrolase. *Arch. Biochem. Biophys.* **224**, 358-364.
- Muller-Steffner H., Muzard M., Oppenheimer N., Schuber F. (1994) Mechanistic implications of cyclic ADP-ribose hydrolysis and methanolysis catalyzed by calf spleen NAD^+ glycohydrolase. *Biochem. Biophys. Res. Commun.* **204**, 1279-1285.
- Nata K., Sugimoto T., Tohgo A., Takamura T., Noguchi N., Matsuoka A., Numakunai T., Shikama K., Yonekura H., and Takasawa S. (1995) The structure of the *Aplysia kurodai* gene encoding ADP-ribosyl cyclase, a second-messenger enzyme. *Gene* **158**, 213-218.
- Nicotera P., Bellomo G., and Orrenius S. (1992) Calcium-mediated mechanisms in chemically induced cell death. *Annu. Rev. Pharmacol. Toxicol.* **32**, 449-370.
- Oei SL., Griesenbeck J., and Schweiger M. (1997) The role of poly(ADP-ribosylation). *Rev. Physiol. Biochem. Pharmacol.* **131**, 127-173.
- Oei SL., Griesenbeck J., Ziegler M., and Schweiger M. (1998) A novel function of poly(ADP-ribosylation): silencing of RNA polymerase II-dependent transcription. *Biochemistry* **37**, 1465-1469.
- Ogawa Y. (1994) Role of ryanodine receptors. *Crit Rev. Biochem. Mol. Biol.* **29**, 229-274.

- Okazaki IJ. and Moss J. (1996) Structure and function of eukaryotic mono-ADP- ribosyltransferases. *Rev. Physiol. Biochem. Pharmacol.* **129**, 51-104.
- Oppenheimer NJ. (1994) NAD hydrolysis: chemical and enzymatic mechanisms. *Mol. Cell. Biochem.* **138**, 245-251.
- Philibert K. and Zwiers H. (1995) Evidence for multisite ADP-ribosylation of neuronal phosphoprotein B-50/GAP-43. *Mol. Cell. Biochem.* **150**, 183-190.
- Price SR. and Pekala PH. (1987) Pyridine nucleotide-linked glycohydrolases. In: Dolphin D., Avramovic O., Poulson R (eds) Pyridine nucleotide coenzymes: chemical, biochemical, and medical aspects, vol II, part B. *Wiley-Interscience, New York* pp 513-548.
- Richter C. (1990) The prooxidant-induced and spontaneous mitochondrial calcium release: inhibition by meta-iodo-benzylguanidine (MIBG), a substrate for mono(ADP- ribosylation). *Free Rad. Res. Commun.* **8**, 329-334.
- Richter C. (1996) Control of the pro-oxidant-dependent calcium release from intact liver mitochondria. *Redox Report* **2**, 217-221.
- Richter C. and Frei B. (1988) Ca²⁺ release from mitochondria induced by prooxidants. *Free Rad. Biol. Med.* **4**, 365-375.
- Richter C. and Kass GEN. (1991) Oxidative stress in mitochondria: its relationship to cellular Ca²⁺ homeostasis, cell death, proliferation, and differentiation. *Chem-Biol. Interactions* **77**, 1-23.
- Richter C., Winterhalter KH., Baumhuter S., Lötscher HR., and Moser B. (1983) ADP- ribosylation in the inner membrane of rat liver mitochondria. *Proc. Natl. Acad. Sci. USA* **80**, 3188-3192.
- Robinson PJ. (1997) Signal transduction via GPI-anchored proteins. *Adv. Exp. Med. Biol.* **419**, 365-370.
- Rossi CS. and Lehninger AL. (1963) Stoichiometric relationships between accumulation of ions by mitochondria and the energy-coupling sites in the respiratory chain. *Biochem. Z.* **338**, 698-713.
- Rusinko N. and Lee HC. (1989) Widespread occurrence in animal tissues of an enzyme catalyzing the conversion of NAD⁺ into a cyclic metabolite with intracellular Ca²⁺- mobilizing activity. *J. Biol. Chem.* **264**, 11725-11731.
- Saxty BA. and van Heyningen S. (1995) The purification of a cysteine dependent NAD⁺ glycohydrolase from bovine erythrocytes and evidence that it exhibits a novel ADP- ribosyltransferase activity. *Biochem. J.* **310**, 931-937.
- Schuber F., Travo P., and Pascal M. (1976) Calf-spleen nicotinamide-adenine dinucleotide glycohydrolase: kinetic mechanism. *Eur. J. Biochem.* **69**, 593-602.
- Schuber F., Pascal M., and Travo P. (1978) Calf-spleen nicotinamide-adenine dinucleotide glycohydrolase: properties of the active site. *Eur. J. Biochem.* **83**, 205-214.
- Schuber F., Travo P., and Pascal M. (1979) On the mechanism of action of calf spleen NAD⁺ glycohydrolase. *Bioorg. Chem.* **8**, 83-90.
- Schweizer M. and Richter C. (1994) Gliotoxin stimulates Ca²⁺ release from intact rat liver mitochondria. *Biochemistry* **33**, 13401-13405.
- Schweizer M. and Richter C. (1996) Peroxynitrite stimulates the pyridine nucleotide-linked Ca²⁺ release from intact rat liver mitochondria. *Biochemistry* **35**, 4524-4528.

- Schweizer M., Schlegel J., Baumgartner D., and Richter C. (1993) Sensitivity of mitochondrial peptidyl-prolyl cis-trans isomerase, pyridine nucleotide hydrolysis and Ca^{2+} release to cyclosporin A and related compounds. *Biochem. Pharmacol.* **45**, 641-646.
- Schweizer M., Durrer P., and Richter C. (1994) Phenylarsine oxide stimulates pyridine nucleotide-linked Ca^{2+} release from rat liver mitochondria. *Biochem. Pharmacol.* **48**, 967-973.
- Sekine A., Fujiwara M., and Narumiya S. (1989) Asparagine residue in the rho gene product is the modification site for botulinum ADP-ribosyltransferase. *J. Biol. Chem.* **264**, 8602-8605.
- Sitsapesan R., Mc Garry SJ., and Williams AJ. (1995) Cyclic ADP-ribose, the ryanodine receptor and Ca^{2+} release. *Trends Pharmacol. Sci.* **16**, 386-391.
- Strittmatter SM., Valenzuela D., Kennedy TE., Neer EJ., and Fishman MC. (1990) G_0 is a major growth cone protein subject to regulation by GAP-43. *Nature* **344**, 836-841.
- Summerhill RJ., Jackson DG., and Galione A. (1993) Human lymphocyte antigen CD38 catalyzes the production of cyclic ADP-ribose. *FEBS Lett.* **335**, 231-233.
- Takasawa S., Togho A., Noguchi N., Koguma T., Nata K., Sugimoto T., Yonekura H., and Okamoto H. (1993) Synthesis and hydrolysis of cyclic ADP-ribose by human leukocyte antigen CD38 and inhibition of the hydrolysis by ATP. *J. Biol. Chem.* **268**, 26052-26054.
- Takasawa S., Ishida A., Nata K., Nakagawa K., Noguchi N., Togho A., Kato I., Yonekura H., Fujisawa H., and Okamoto H. (1995) Requirement of calmodulin-dependent protein kinase II in cyclic ADP-ribose-mediated intracellular Ca^{2+} mobilization. *J. Biol. Chem.* **270**, 30257-30259.
- Tanaka Y. and Tashjian Jr. AH. (1995) Calmodulin is a selective mediator of Ca^{2+} -induced Ca^{2+} release via the ryanodine receptor-like Ca^{2+} channel triggered by cyclic ADP-ribose. *Proc. Natl. Acad. Sci. USA* **89**, 11352-11356.
- Tanuma S., Kawashima K., and Endo H. (1987) An NAD : cysteine ADP-ribosyltransferase is present in human erythrocytes. *Biochem. J.* **101**, 821-824.
- Tanuma S., Kawashima K., and Endo H. (1988) Eukaryotic mono(ADP-ribosyl)transferase that ADP-ribosylates GTP-binding regulatory G_i protein. *J. Biol. Chem.* **263**, 5485-5489.
- Tanuma S. and Endo H. (1990) Identification in human erythrocytes of mono(ADP-ribose)protein hydrolase that cleaves mono(ADP-ribose) G_i linkages. *FEBS Lett.* **261**, 381-384.
- Tarnus C., Muller H., and Schuber F. (1988) Chemical evidence in favor of a stabilized oxocarbenium-ion intermediate in the NAD^+ glycohydrolase-catalyzed reactions. *Bioorg. Chem.* **16**, 38-51.
- Thorn P., Gerasimenko O., and Petersen OH. (1994) Cyclic ADP-ribose regulation of ryanodine receptors involved in agonist evoked cytosolic Ca^{2+} oscillations in pancreatic acinar cells. *EMBO J.* **13**, 2038-2043.
- Tohgo A., Takasawa S., Noguchi N., Koguma T., Nata K., Sugimoto T., Furuya Y., Yonekura H., and Okamoto H. (1994) Essential cysteine residues for cyclic ADP-ribose synthesis and hydrolysis by CD38. *J. Biol. Chem.* **260**, 28555-28557.
- Vandekerckhove B., Schering B., Bärman M., and Aktories K. (1988) Botulinum C2 toxin ADP-ribosylates cytoplasmic β/γ -actin in arginine 177. *J. Biol. Chem.* **263**, 696-700.
- Vu CQ., Lu PJ., Chen CS., and Jacobson MK. (1996) 2'-Phospho-cyclic ADP-ribose, a calcium-mobilizing agent derived from NADP. *J. Biol. Chem.* **271**, 4747-4754.
- Walseth TF., Aarhus R., Zeleznikar Jr. RJ., and Lee HC. (1991) Determination of endogenous levels of cyclic ADP-Ribose in rat tissues. *Biochim. Biophys. Acta* **1094**, 113-120.

- Weis M., Kass GEN., Orrenius S., and Moldeus P. (1992) N-acetyl-p-benzoquinone imine induces Ca^{2+} release from mitochondria by stimulating pyridine nucleotide hydrolysis. *J. Biol. Chem.* **267**, 804-809.
- West Jr. RE., Moss J., Vaughan M., Liu T., and Liu TY. (1985) Pertussis toxin-catalyzed ADP-ribosylation of transducin. Cysteine 347 is the ADP-ribose acceptor site. *J. Biol. Chem.* **260**, 14428-14430.
- Yamauchi J. and Tanuma S. (1994) Occurrence of an NAD^+ glycohydrolase in bovine brain cytosol. *Arch. Biochem. Biophys.* **308**, 327-329.
- Yuan JH. and Anderson BM. (1971) Bull semen nicotinamide adenine dinucleotide nucleosidase. I. purification and properties of the enzyme. *J. Biol. Chem.* **246**, 2111- 2115.
- Zhang F-J. and Sih CJ. (1995) Novel enzymatic cyclizations of pyridine nucleotide analogs: cyclic-GDP-ribose and cyclic-HDP-ribose. *Tetrahedron Lett.* **36**, 9289-9292.
- Zhang F-J., Gu QM., Jing PC., and Sih CJ. (1995) Enzymatic cyclization of nicotinamide adenine dinucleotide phosphate (NADP). *Bioorg. Med. Chem Lett.* **5**, 2267-2272.
- Zhang J., Ziegler M., Schneider R., Klocker H., Auer B., Schweiger M. (1995) Identification and purification of a bovine liver mitochondrial NAD^+ -glycohydrolase. *FEBS Lett.* **377**, 530-534.
- Zocchi E., Franco L., Guida L., Benatti U., Bargellesi A., Malavasi F., Lee HC., and De Flora A. (1993) A single protein immunologically identified as CD38 displays NAD^+ glycohydrolase, ADP-ribosyl cyclase and cyclic ADP-ribose hydrolase activities at the outer surface of human erythrocytes. *Biochem. Biophys. Res. Commun.* **196**, 1459-1465.
- Zocchi E., Franco L., Guida L., Calder L., and De Flora A. (1995) Self-aggregation of purified and membrane-bound erythrocyte CD38 induces extensive decrease of its ADP-ribosyl cyclase activity. *FEBS Lett.* **359**, 35-40.
- Zolkiewska A., Nightingale MS., and Moss J. (1992) Molecular characterization of NAD : arginine ADP-ribosyltransferase from rabbit skeletal muscle. *Proc. Natl. Acad. Sci. USA* **89**, 11352-11356.
- Zolkiewska A. and Moss J. (1993) Integrin $\alpha 7$ as a substrate for a glycosylphosphatidyl-anchored ADP-ribosyltransferase on the surface of skeletal muscle cells. *J. Biol. Chem.* **268**, 25273-25276.
- Zoratti M. and Szabò I. (1995) The mitochondrial permeability transition. *Biochim. Biophys. Acta* **1241**, 139-176.
- Zwiers H., Hollenberg MD., McLean KN., and Philibert KD. (1997) Endogenous ADP- ribosylation of phosphoprotein B-50/GAP-43 and other neuronal substrates. *Adv. Exp. Med. Biol.* **419**, 279-288.

7.2 Zitierte eigene Veröffentlichungen

- Jorcke D., Ziegler M., and Schweiger M. (1997) Characterization of hydrosoluble and detergent-solubilized forms of mitochondrial NAD⁺ glycohydrolase from bovine liver. *Adv. Exp. Med. Biol.* **419**, 447-451.
- Jorcke D., Ziegler M., Herrero-Yraola A., and Schweiger M. (1998) Enzymic, cysteine-specific ADP-ribosylation in bovine liver mitochondria. *Biochem. J.* **332**, 189-193.
- Oei SL., Griesenbeck J., Buchlow G., Jorcke D., Mayer-Kuckuk P., Wons T., and Ziegler M. (1996) NAD⁺ analogs substituted in the purine base as substrates for poly(ADP-ribosyl)transferase. *FEBS Lett.* **397**, 17-21.
- Ziegler M., Jorcke D., Zhang J., Schneider R., Klocker H., Auer B., and Schweiger M. (1996) Characterization of detergent-solubilized beef liver mitochondrial NAD⁺ glycohydrolase and its truncated hydrosoluble form. *Biochemistry* **35**, 5207-5212.
- Ziegler M., Jorcke D., and Schweiger M. (1997a) Metabolism of cyclic ADP-ribose : A new role for NAD⁺ glycohydrolases. *Rev. Physiol. Biochem. Pharmacol.* **131**, 89-126.
- Ziegler M., Jorcke D., Herrero-Yraola A., and Schweiger M. (1997b) Bovine liver mitochondrial NAD⁺ glycohydrolase. Relationship to ADP-ribosylation and calcium fluxes. *Adv. Exp. Med. Biol.* **419**, 443-446.
- Ziegler M., Jorcke D., and Schweiger M. (1997c) Identification of bovine liver mitochondrial NAD⁺ glycohydrolase as ADP-ribosyl cyclase. *Biochem. J.* **326**, 401-405.