

Literaturverzeichnis

- [1] HOLLEMAN, A.F. ; WIBERG, E. ; WIBERG, N.: *Lehrbuch der anorganischen Chemie*. Bd. 100. Auflage. Walter de Gruyter, Berlin - New York, 1985. – 524–531 S
- [2] OLDFIELD, J.E.: *Selenium world atlas*. Selenium-Tellur Development Association (STDA) – Grimbergen, Belgien, 1999/2002
- [3] OSTER, O.: *Zum Selenstatus in der Bundesrepublik Deutschland*. Universitätsverlag Jena, 1992
- [4] ROBINSON, W.O.: Determination of selenium in wheat and soil. In: *J. Assoc. Off. Anal. Chem.* 16 (1933), S. 423–428
- [5] FRANKE, K.W.: A new toxicant occurring naturally in certain samples of plant food-stuffs. In: *J. Nutr.* 8 (1934), S. 597–608
- [6] LEVANDER, O. A.: A global view of human selenium nutrition. In: *Ann. Rev. Nutr.* 7 (1987), S. 227–250
- [7] GE, K. ; XUE, A. ; BAI, J. ; WANG, S.: Keshan disease-an endemic cardiomyopathy in China. In: *Virchows Arch.* 401 (1983), S. 1–15
- [8] BECK, M. A. ; LEVANDER, O. A. ; HANDY, J.: Selenium deficiency and viral infection. In: *J. Nutr.* 133 (2003), S. 1463S–1467S
- [9] GRAMM, H.J. ; KOPF, A. ; BRÄTTER, P.: The necessary of selenium substitution in total perenteral nutrition and artificial alimentation. In: *J. Trace Elem. Med. Biol.* 9 (1995), S. 1–12
- [10] COMDS, G.F. ; GRAY, W.P.: Chemopreventive agents: selenium. In: *Pharmacol. Ther.* 79 (1998), Nr. 3, S. 179–192
- [11] VENDELAND, S.C. ; BUTLER, J.A. ; WHANGER, P.D.: Intestinal absorption of selenite, selenate, and selenomethionine in the rat. In: *J. Nutr. Biochem.* 3 (1992), July, S. 359–365
- [12] SCHRAUZER, G.N.: Selenomethionine: a review of its nutritional significance, metabolism and toxicity. In: *J. Nutr.* 130 (2000), S. 1653–1656

- [13] KLEIN, E.A. ; LIPPMAN, S.M. ; THOMPSON, I.M. ; GOODMAN, P.J. ; ALBANES, D. ; TAYLOR, P.R. ; COLTMAN, C.: The selenium and Vitamin E cancer prevention trial. In: *World J. Urol.* 21 (2003), S. 21–27
- [14] CHAMBERS, I. ; FRAMPTON, J. ; GOLDFARB, P. ; AFFARA, N. ; MC BAIN, W. ; HARRISON, P. R.: The structure of the mouse glutathione peroxidase gene: the selenocysteine in the active site is encoding by the termination codon, TGA. In: *EMBO J.* 5 (1986), Nr. 6, S. 1221–1227
- [15] DIAMOND, A. ; DUDOCK, B. ; HATFIELD, D.: Structure and properties of a bovine liver UGA suppressor serine tRNA with a tryptophan anticodon. In: *Cell* 25 (1981), S. 497– 506
- [16] HAWKES, W.C. ; LYONS, D.E. ; TAPPEL, A.L.: Identification of a selenocysteine-specific aminoacyl transfer RNA from rat liver. In: *Biochim. Biophys. Acta* 699 (1982), S. 183–191
- [17] BURKE, S.A. ; LO, S.L. ; KRZYCKI, J.A.: Clustered Genes encoding the methyltransferases of methanogenesis from monomethylamine. In: *J. Biol. Chem.* 180 (1998), Nr. 13, S. 3432–3440
- [18] SRINIVASAN, G. ; JAMES, C.M. ; KRZYCKI, J.A.: Pyrrolysine encoded by UGA in archaea: charging of a UGA-Coding specialized tRNA. In: *Science* 296 (2002), S. 1459–1461
- [19] LEE, B. J. ; RAJAGOPALAN, M. ; KIM, Y. S. ; YOU, K. H. ; JACKOBSOM, K. B. ; HATFIELD, D.: Selenocysteine tRNA sersec gene is ubiquitous within the animal kingdom. In: *Molecular and cellular biology* 10 (1990), Nr. 5, S. 1940–1949
- [20] BÖCK, A. ; FORCHHAMMER, K. ; HEIDER, J. ; BARON, C.: Selenoprotein synthesis: an expansion of the genetic code. In: *TIB* 16 (1991), S. 463–467
- [21] STADTMAN, T.C.: Selenocysteine. In: *Annu. Rev. Biochem.* 65 (1996), S. 83– 100
- [22] SCHWARZ, K. ; FOLTZ, C. M.: Selenium as an integral part of factor 3 against dietary necrotic liver degeneration. In: *J. Am. Chem. Soc.* 79 (1957), S. 3292–3293
- [23] MCKEEHAN, W. L. ; HAMILTON, W. G. ; HAM, R. G.: Selenium is an essential trace nutrient for growth of MI-38 diploid human fibroblasts. In: *Proc. Natl. Acad. Sci. USA* 73 (1976), Nr. 6, S. 2023– 2027
- [24] BÖSL, M.R. ; TAKAKU, K. ; OSHIMA, M. ; NISHIMURA, S. ; TAKETO, M.M.: Early embryonic lethality caused by targeted disruption of the mouse selenocysteine tRNA gene (trsp). In: *Proc. Natl. Acad. Sci. USA* 94 (1997), S. 5531–5534

- [25] ROTRUCK, J.T. ; POPE, A.L. ; GANTHER, H.E ; SWANSON, A.B. ; HAFEMANN, D.G. ; HOEKSTRA, W.G.: Selenium: Biochemical role as a component of glutathione peroxidase. In: *Science* 179 (1973), S. 588–590
- [26] FLOHE, L. ; GUNTZLER, W. A. ; SCHOCK, H. H.: Glutathione peroxidase: a selenoenzyme. In: *FEBS Letter* 32 (1973), S. 132–134
- [27] ZINONI, F. ; BIRKMANN, A. ; STADTMAN, T.C. ; BÖCK, A.: Nucleotide sequence and expression of the selenocysteine-containing polypeptide of formate dehydrogenase (formate-hydrogen-lyase-linked) from *Escherichia coli*. In: *Biochemistry* 83 (1986), S. 4650–4654
- [28] ZINONI, F. ; BIRKMANN, A. ; LEINFELDER, W. ; BÖCK, A.: Cotranslational insertion selenocysteine into formate dehydrogenase from *Escherichia coli* directed by UGA codon. In: *Proc. Natl. Acad. Sci. USA* 84 (1987), S. 3156–3160
- [29] FORCHHAMMER, K. ; LEINFELDER, W. ; BOESMILLER, K. ; VEPREK, B. ; BÖCK, A.: Selenocysteine synthase from *Escherichia coli*. In: *J. Biol. Chem.* 266 (1991), Nr. 10, S. 6318–6323
- [30] FORCHHAMMER, K. ; LEINFELDER, W. ; BÖCK, A.: Identification of a novel translation factor necessary for the incorporation of selenocysteine into protein. In: *Nature* 342 (1989), S. 453–456
- [31] FORCHHAMMER, K. ; RUCKNAGEL, P. ; BÖCK, A.: Purification and biochemical characterization of SELB, a translation factor involved in selenoprotein synthesis. In: *J. Biol. Chem.* 265 (1990), S. 9346–9350
- [32] LEINFELDER, W. ; ZEHELEIN, E. ; MANDRAND-BERTHELOT, M.-A. ; BÖCK, A.: Gene for a novel tRNA species that accepts L-serine and cotranslationally inserts selenocysteine. In: *Nature* 331 (1988), S. 723–725
- [33] VERES, Z. ; KIM, I.Y. ; SCHOLZ, T.D. ; STADTMAN, T.C.: Selenophosphate synthetase. In: *J. Biol. Chem.* 269 (1994), Nr. 14, S. 10597–10603
- [34] ZINONI, F. ; HEIDER, J. ; BÖCK, A.: Features of the formate dehydrogenase mRNA necessary for coding of the UGA codon as selenocysteine. In: *Proc. Natl. Acad. Sci. USA* 87 (1990), S. 4660–4664
- [35] BERRY, M.J. ; BANU, L. ; CHEN, Y. ; MANDEL, S.J. ; KIEFFER, J.D. ; HARNEY, J.W. ; LARSEN, P.R.: Recognition of UGA as a selenocysteine codon in Type I deiodinase requires sequences in the 3' untranslated region. In: *Nature* 353 (1991), S. 273–276
- [36] GUIMARAES, M.J. ; PETERSON, D. ; VICARI, A. ; COCKS, B.G. ; COPELAND, N.G. ; GILBERT, D. J. ; JENKINS, N.A. ; FERRICK, D.A. ; KASTELEIN, R.A. ; BAZAN, J.F.

- ; ZLOTNIK, A.: Identification of a novel selD homolog from eucaryotes, bacteria, and archaea: is there an autoregulatory mechanism in selenocysteine metabolism? In: *Proc. Natl. Acad. Sci. USA* 93 (1996), S. 15086–15091
- [37] COPELAND, P.R. ; STEPANIK, V.A. ; DRISCOLL, D.M.: Insight into mammalian selenocysteine insertion: domain structure and ribosome binding properties of sec insertion sequence binding protein2. In: *Mol. Cell. Biol.* 21 (2001), Nr. 5, S. 1491–1498
- [38] TUJEBAJEVA, R.M. ; COPELAND, P.R. ; XU, X-M. ; CARLSON, B.A. ; HARNEY, J.W. ; DRISCOLL, D.M. ; HATFIELD, D.L. ; BERRY, M.J.: Decoding apparatus for eukaryotic selenocysteine insertion. In: *EMBO Rep.* 1 (2000), Nr. 21, S. 158–163
- [39] FLETCHER, J.E. ; COPELAND, P.R. ; DRISCOLL, D.M. ; KROL, A.: The selenocysteine incorporation machinery: interactions between the SECIS tRNA and the SECIS-binding protein SBP2. In: *RNA* 7 (2001), S. 1442–1453
- [40] COPELAND, P.R.: Regulation of gene expression by stop codon recoding: selenocysteine. In: *Gene* 312 (2003), S. 17–25
- [41] CARLSON, B.A. ; XU, X-M. ; KRYOKOV, G.V. ; RAO, M. ; BERRY, M.J. ; GLADYSHEV, V.N. ; HATFIELD, D.L.: Identification and characterization of phosphoseryl-tRNA^{[ser]^{sec}} kinase. In: *Proc. Natl. Acad. Sci. USA* 101 (2004), Nr. 35, S. 12848–12853
- [42] TAMURA, T. ; YAMAMOTO, S. ; TAKAHATA, M. ; SAKAGUCHI, H. ; TANAKA, H. ; STADTMAN, T.C. ; INAGAKI, K.: Selenophosphat synthetase genes from lung adenocarcinoma cells: sps1 for recycling L-selenocysteine and sps2 for selenite assimilation. In: *Proc. Natl. Acad. Sci. USA* 101 (2004), Nr. 46, S. 16162–16167
- [43] ESAKI, N. ; NAKAMURA, T. ; TANAKA, H. ; SODA, K.: Selenocysteine lyase, a novel enzyme that specifically acts on selenocysteine. In: *J. Biol. Chem.* 257 (1982), Nr. 8, S. 4386–4391
- [44] LACOURCIERE, G.M. ; STADTMAN, T.C.: The NIFS Protein Can Function as a Selenide Delivery Protein in the Biosynthesis of Selenophosphate. In: *J. Biol. Chem.* 273 (1998), S. 30921–30926
- [45] WALCZAK, R. ; WESTHOF, E. ; CARBON, P. ; KROL, A.: A novel RNA structural motif in the selenocysteine insertion element of eukaryotic selenoprotein mRNAs. In: *RNA* 2 (1996), S. 367–379
- [46] MARTIN III, G.W. ; HARNEY, J.W. ; BERRY, M.J.: Functionality of mutations at conserved nucleotides in eukaryotic SECIS elements is determined by the identity of a single nonconserved nucleotide. In: *RNA* 4 (1998), S. 65–73

- [47] SHEN, Q. ; LEONARD, J.L. ; NEWBURGER, P.E.: Structure and function of the selenium translation element in the 3'-untranslated region of human cellular glutathione peroxidase mRNA. In: *RNA* 1 (1995), S. 519–525
- [48] WALCZAK, R. ; CARBON, P. ; KROL, A.: An essential non-Watson-Crick base pair motif in 3'UTR to mediate selenoprotein translation. In: *RNA* 4 (1998), S. 74–84
- [49] HATFIELD, D.L. ; GLADYSHEV, V.N.: How selenium has altered our understanding of the genetic code. In: *Mol. Cell. Biol.* 22 (2002), Nr. 11, S. 3565–3576
- [50] WARNER, G.J. ; BERY, M.J. ; MOUSTAFA, M.E. ; CARLSON, B.A. ; HATFIELD, D.L. ; FAUST, J.R.: Inhibition of selenoprotein synthesis by selenocysteine tRNA^{[ser]^{sec}} lacking Isopentenyladenosine. In: *J. Biol. Chem.* 275 (2000), Nr. 36, S. 28110–28119
- [51] BJÖRG, G.R. ; ERICSON, J.U. ; GUSTAFSSON, C.E.D. ; HAGERVALL, T.G. ; JÖNSSON, Y.H. ; WIKSTRÖM, P.M.: Transfer RNA modification. In: *Annu. Rev. Biochem.* 56 (1987), S. 263–287
- [52] KIM, H.C. ; JHOO, W.K. ; CHOI, D.Y. ; IM, D.H. ; SHIN, E.J. ; SUH, J.H. ; FLOYD, R.A. ; BING, G.: Protection of methamphetamine nigrostriatal toxicity by dietary selenium. In: *Brain Res.* 862 (2000), S. 247–252
- [53] KIM, L.K. ; MATSUFUJI, T. ; MATSUFUJI, S. ; CARLSON, S.S. ; HATFIELD, D.L. ; LEE, B.J.: Methylation of the ribosyl moiety at position 34 of selenocysteine tRNA^{[ser]^{sec}} is governed by both primary and tertiary structure. In: *RNA* 6 (2000), S. 1306–1315
- [54] DIAMOND, A.M. ; CHOI, I.S. ; CRAIN, P.F. ; HASHIZUME, T. ; POMERANTZ, S.C. ; CRUZ, R. ; STEER, C.J. ; BURK, R.F. ; MCCLOSKEY, J.A. ; D.L., Hatfield: Dietary selenium affects methylation of the wobble nucleide in the anticodon of selenocysteine tRNA^{[ser]^{sec}}. In: *J. Biol. Chem.* 268 (1993), Nr. 19, S. 14215–14223
- [55] CARLSON, B.A. ; XU, X.-M. ; GLADYSHEV, V.N. ; HATFIELD, D.L.: Selective rescue of selenoprotein expression in mice lacking a highly specialized methyl group in selenocysteine tRNA. In: *J. Biol. Chem.* 280 (2005), Nr. 7, S. 5542–5548
- [56] NASIM, M.T. ; JAENECKE, S. ; BELDUZ, A. ; KOLLMUS, H. ; FLOHE, L. ; MCCARTHY, J.E.G.: Eukaryotic selenocysteine incorporation follows a nonprocessive mechanism that competes with translational termination. In: *J. Biol. Chem.* 275 (2000), Nr. 20, S. 14846–14853
- [57] MEHTA, A. ; REBSCH, C.M. ; KINZY, S.A. ; FLETSCHER, J.E. ; COPELAND, P.R.: Efficiency of mammalian selenocysteine incorporation. In: *J. Biol. Chem.* 279 (2004), Nr. 36, S. 37852–37859

- [58] BERRY, M.J. ; MAIN, L. ; KIEFFER, J.D. ; HARNEY, J.W. ; LARSEN, P.R.: Substitution of cysteine for selenocysteine in Type I Iodothyronine deiodinase reduces the catalytic efficiency of the protein but enhances its translation. In: *Endocrinology* 131 (1992), Nr. 4, S. 1848–1852
- [59] BERRY, M.J. ; HARNEY, J.W. ; OHAMA, T. ; HATFIELD, D.L.: Selenocysteine insertion or termination: factors affecting UGA codon fate and complementary anticodon:codon mutations. In: *Nucleic Acids Res.* 22 (1994), Nr. 18, S. 3753–3759
- [60] BERMANO, G. ; ARTHUR, J.R. ; HESKETH, J.E. a.: Role of the 3' untranslated region in the regulation of cystolic glutathione peroxidase and phospholipid-hydroperoxide glutathione peroxidase gene expression by selenium supply. In: *Biochem. J.* 320 (1996), S. 891–895
- [61] WINGLER, K. ; BÖCHER, M. ; FLOHE, H. ; BRIGELIUS-FLOHE, R.: mRNA stability and selenocysteine insertion sequence efficiency rank gastrointestinal glutathione peroxidase high in the hierarchy of selenoproteins. In: *Eur. J. Biochem.* 259 (1999), S. 149–157
- [62] BEHNE, D. ; KYRIAKOPOULOS, A.: Mammalian Selenium-containing proteins. In: *Annu. Rev. Nutr.* 21 (2001), S. 453–473
- [63] HILL, K. E. ; LLOYD, R. S. ; YANG, J-G. ; READ, R. ; BURK, R. F.: The cDNA for rat selenoprotein P contains 10 TGA codons in the open reading frame. In: *J. Biol. Chem.* 266 (1991), Nr. 16, S. 10050– 10053
- [64] SAIJOH, K. ; SAITO, N. ; LEE, M.J. ; FUJII, M. ; SUMINO, K.: Molecular cloning of cDNA encoding a bovine selenoprotein P-like protein containing 12 selenocysteines and a (his-pro) rich domain insertion, and its regional expression. In: *Mol.Brain Res.* 30 (1995), S. 301–311
- [65] KRYUKOV, G. V. ; CASTELLANO, S. ; NOVOSELOV, S. V. ; LOBANOV, A. V. ; ZEHTAB, O. ; GUIGO, R. ; GLADYSHEV, V. N.: Characterization of mammalian selenoproteomes. In: *Science* 300 (2003), S. 1439–1443
- [66] THISSE, C. ; DEGRAVE, A. ; KRYUKOV, G. V. ; GLADYSHEV, V. N. ; OBRECHT-PFLUMIO, S. ; KROL, A. ; THISSE, B. ; LESCURE, A.: Spatial and temporal expression pattern of selenoprotein genes during embryogenesis in zebrafish. In: *Gene Expression Patterns* 3 (2003), S. 525– 532
- [67] CONDELL, R.A. ; TAPPEL, A.L.: Amino acid sequence around the active-site selenocysteine of rat liver glutathione peroxidase. In: *Biochim. Biophys. Acta.* 709 (1982), S. 304–309

- [68] GUNZLER, W. A. ; STEFFENS, G. J. ; GROSSMANN, A. ; KIM, S. M. A. ; OTTING, F. ; WENDEL, A. ; FLOHE, L.: The amino-acid sequence of bovine glutathione peroxidase. In: *Hoppe-Seyler's Z. Physiol. Chem.* 365 (1984), S. 195–212
- [69] ARTHUR, J.R.: The glutathione peroxidases. In: *Cell. Mol. Life Sci.* 57 (2000), S. 1825–1835
- [70] MAIORINO, M. ; AUMANN, K.-D. ; BRIGELIUS-FLOHE, R.B. ; DORIA, D. ; VAN DEN HEUVEL, J. ; MCCARTHY, J. ; ROVERI, A. ; URSINI, F. ; FLOHE, L.: Probing the presumed catalytic triad of a selenium-containing peroxidase by mutational analysis. In: *Z. Ernährungswiss. Suppl.* 1 (1998), S. 118–121
- [71] SHERRI, L.W. ; SUNDE, R.A.: Cis-acting elements are required for selenium regulation of glutathione peroxidase-1 mRNA level. In: *RNA* 4 (1998), S. 816–827
- [72] SUN, X. ; MORIARTY, P.M. ; MAQUAT, L.E.: Nonsense-mediated decay of glutathione peroxidase1 mRNA in the cytoplasm depends on intron position. In: *EMBO J.* 19 (2000), Nr. 17, S. 4734–4744
- [73] CHU, F.F. ; DOROSHOW, J.H. ; ESWORTHY, R.S.: Expression, characterization and tissue distribution of a new cellular selenium-dependent glutathione peroxidase GSHPx-GI. In: *J. Biol. Chem.* 268 (1993), S. 2571–2576
- [74] TAKAHASHI, K. ; AVISSAR, J. ; COHEN, H.J.: Purification and characterization of human plasma glutathione peroxidase: a selenoglycoprotein distinct from the known cellular enzyme. In: *Arch. Biochem. Biophys.* 256 (1987), S. 677–686
- [75] AVISSAR, N. ; ORNT, D.B. ; YAGIL, Y. ; HOROWITZ, S. ; WATKINS, R.H. ; KERL, E.A. ; TAKAHASHI, K. ; PALMER, I.S. ; COHEN, H.J.: Human kidney proximal tubules are the main source of plasma glutathione peroxidase. In: *Am. J. Physiol.* 266 (1994), S. C367–C375
- [76] BJÖRNSTEDT, M. ; XUE, J. ; HUANG, W. ; AKESSON, B. ; HOLMGREN, A.: The thioredoxin and glutaredoxin system are efficient elektron donors to human plasma glutathione peroxidase. In: *J. Biol. Chem.* 269 (1994), Nr. 47, S. 29382–29384
- [77] URSINI, F. ; MAIORINO, M. ; VALENTE, L. ; GREGOLIN, C.: Purification from pig liver of a protein which protects lipides and biomembranes from peroxidative degradation and exhibits glutathione peroxidase activity on phosphatitylcholine hydroperoxide. In: *Biochim. Biophys. Acta.* 710 (1982), S. 197–211
- [78] BRIGELIUS-FLOHE, R. ; AUMANN, K.-D. ; BLÖCKER, H. ; GROSS, G. ; KIESS, M. ; KLÖPPEL, K.-D. ; MAIORINO, M. ; ROVERI, A. ; SCHUCKELT, R. ; URSINI, F. ; WINGENDER, E. ; FLOHE, L.: Phospholipid-hydroperoxide glutathione peroxidase. In: *J. Biol. Chem.* 269 (1994), Nr. 10, S. 7342–7348

- [79] BEHNE, D. ; HÖFFER, T. ; VON BERSWORDT-WALLRABE, R. ; ELGER, W: Selenium in the testis of the rat: studies on its regulation and its importance for the organism. In: *J. Nutr.* 112 (1982), S. 1682–1687
- [80] ROVERI, A. ; CASASCO, A. ; MAIORINO, M. ; DALAN, P. ; URSINI, F.: Phospholipid Hydroperoxide glutathione peroxidase of rat testis. In: *J. Biol. Chem.* 267 (1992), Nr. 9, S. 6142–6146
- [81] ROVERI, A. ; MAIORINO, M. ; NISII, C. ; URSINI, F.: Purification and characterization of phospholipid hydroperoxide glutathione peroxidase from rat testis mitochondrial membranes. In: *Biochim. Biophys. Acta.* 1208 (1994), S. 211–221
- [82] BEHNE, D. ; KYRIAKOPOULOS, A. ; KALCKLÖSCHER, M. ; WEISS-NOWAK, C. ; PFEIFER, H. ; GESSNER, H. ; HAMMEL, C.: Two new selenoproteins found in the prostate glandular epithelium and in the spermatid nuclei. In: *Biomed. Environ. Sci.* 10 (1997), S. 340–345
- [83] PUSHPA-REKHA, T.R. ; BURDSALL, A.L. ; OLEKSA, L.M. ; CHISOLM, G.M. ; DRISCOLL, D.M.: Rat phospholipid-hydroperoxide glutathione peroxidase. In: *J. Biol. Chem.* 270 (1995), Nr. 45, S. 26993–26999
- [84] URSINI, F. ; HEIM, S. ; KIESS, M. ; MAIORINO, M. ; ROVERI, A. ; WISSING, J. ; FLOHE, L: Dual function of the selenoproteinPHGPx during sperm maturation. In: *Science* 285 (1999), S. 1393–1395
- [85] MAIORINO, M. ; SCAPIN, M. ; URSINI, F. ; BIASOLO, V. ; FLOHE, L.: Distinct promoters determine alternative transcription of gpx-4 into phospholipid-hydroperoxide glutathione peroxidase variants. In: *J. Biol. Chem.* 278 (2003), Nr. 36, S. 34286–34290
- [86] MOTSENBOCKER, M. ; TAPPEL, A.L.: A selenocysteine-containing selenium-transport protein in rat plasma. In: *Biochim. Biophys. Acta.* 719 (1982), S. 147–153
- [87] CHITTUM, H.S. ; HIMENO, S. ; HILL, K.E. ; BURK, R.F.: Multiple forms of selenoprotein P in rat plasma. In: *Arch. Biochem. Biophys.* 325 (1996), Nr. 1, S. 124–128
- [88] READ, R. ; BELLEW, T. ; YANG, J.-G. ; HILL, K.E. ; PALMER, I.S. ; BURK, R.F.: Selenium and amino acid composition of selenoprotein P, the major selenoprotein in rat serum. In: *J. Biol. Chem.* 265 (1990), Nr. 29, S. 17899–17905
- [89] BURK, R.F. ; HILL, K.E.: Selenoprotein P: an extracellular protein with unique physical characteristics and a role in selenium homeostase. In: *Ann. Rev. Nutr.* 21 (2005), S. 11.1–11.21
- [90] HILL, K. ; LLOYD, R.S. ; BURK, R.F.: Conserved nucleotide sequences in the open reading frame and 3' untranslated region of selenoprotein P mRNA. In: *Proc. Natl. Acad. Sci. USA* 90 (1993), S. 537–541

- [91] DEAGEN, J.T. ; BUTLER, J.A. ; ZACHARA, B.A. ; P.D., Whanger: Dertermination of the distribution of selenium between glutathione peroxidase, selenoprotein P, and albumin in plasma. In: *Anal. Biochem.* 208 (1993), S. 176–181
- [92] SAITO, Y. ; HAYASHI, T. ; TANAKA, A. ; WATANABE, Y. ; SUZUKI, M. ; SAITO, E. ; TAKAHASHI, K.: Selenoprotein P in human plasma as an extracellular phospholipid hydroperoxide glutathione peroxidase. In: *J. Biol. Chem.* 274 (1999), Nr. 5, S. 2866–2871
- [93] HONDAL, J.R. ; SHUGUANG, M. ; CAPRIOLI, R.M. ; HILL, K.E.: Heparin-binding histidine and lysine residues of rat selenoprotein P. In: *J. Biol. Chem.* 276 (2001), Nr. 19, S. 15823–15831
- [94] SAITO, Y. ; TAKAHASHI, K.: Characterization of selenoprotein P as a selenium supply protein. In: *Eur. J. Biochem.* 269 (2002), S. 5746–5751
- [95] SAITO, Y. ; SATO, N. ; HIRASHIMA, M. ; TAKEBE, G. ; NAGASAWA, S. ; TAKAHASHI, K.: Domain structure of bi-functional selenoprotein P. In: *Biochem. J.* 381 (2004), S. 841–846
- [96] BEHNE, D. ; KYRIAKOPOULOS, A. ; MEINHOLD, H. ; KÖHRLE, J.: Identification of Type I Iodothyronine 5'-Deiodinase as a selenoenzyme. In: *Biochem. Biophys. Res. Commun.* 173 (1990), Nr. 3, S. 1143–1149
- [97] BAQUI, M.M.A. ; GEREBEN, B. ; HARNEY, J.W. ; LARSON, P.R. ; BIANCO, A.C.: Distinct subcellular lokalization of transiently expressed types1 and 2 iodothyronine deiodinases as determined by immunofluorescence confocal microscopy. In: *Endocrinology* 141 (2000), Nr. 11, S. 4309–4312
- [98] BIANCO, A.C. ; SALVATORE, D. ; GEREBEN, B. ; BERRY, M.J. ; LARSON, P.R.: Biochemistry, cellular and molecular biology, and physiological roles of the iodothyronine selenodeiodinases. In: *Endocrine Reviews* 23 (2002), Nr. 1, S. 38–89
- [99] TOYODA, N. ; BERRY, M.J. ; HARNEY, J.W. ; LARSON, P.R.: Topological analysis of the integral membrane protein, type I iodothyronine deiodinasa (DI). In: *J. Biol. Chem.* 270 (1995), Nr. 20, S. 12310–12318
- [100] BERRY, M.J. ; BANU, L. ; LARSON, P.R.: Type I iodothyronine deiodinasa is a selenocysteine-containing enzyme. In: *Nature* 349 (1991), S. 438–440
- [101] BERRY, M.J. ; KIEFFER, J.D. ; HARNEY, J.W. ; LARSON, P.R.: Selenocysteine confers the biochemical properties characteristic of the type I iodothyronine deiodinase. In: *J. Biol. Chem.* 266 (1991), Nr. 22, S. 14155–14158

- [102] GERMAIN, D.L.S. ; GALTON, V.A.: The deiodinase family of selenoproteins. In: *Thyroid* 7 (1997), Nr. 4, S. 655–668
- [103] LARSON, P.R. ; FRUMEEES, R.D.: Comparision of the biological effects of thyroxine and triiodothyronine in the rat. In: *Endocrinology* 100 (1977), S. 980–988
- [104] SCHNEIDER, M.J. ; FIERING, S.N. ; PALLUD, S.E. ; PARLOW, A.F. ; GERMAIN, D.L.S. ; GALTON, V.A.: Targeted disruption of the type 2 selenodeiodinase gene (DIO2) results in a phenotype of pituitary resistance to T4. In: *Mol. Endocrinology* 15 (2001), S. 2137–2148
- [105] GUADANO-FERRAZ, A. ; OBREGON, M.J. ; GERMAIN, D.L.S. ; BERNAL, J.: The type 2 iodothyronine deiodinase is expressed primarily in glial cells in the neonatal rat brain. In: *Prod. Natl. Adac. Sci. USA* 94 (1997), S. 10391–10396
- [106] BERNAL, J.: Action of thyroid hormone in brain. In: *J. Endocrinol.Invest.* 25 (2002), S. 268–288
- [107] GROMER, S. ; URIG, S. ; BECKER, K.: The thioredoxin system- from science to clinic. In: *Med. Res. Rev.* 24 (2003), Nr. 1, S. 40–89
- [108] MOORE, E.C. ; REICHARD, P. ; THELANDER, L.: Enzymatic synthesis of deoxyribonucleotides. In: *J. Biol. Chem.* 239 (1964), Nr. 10, S. 34453452
- [109] HOLMGREN, A.: Bovine thioredoxin system. In: *J. Biol. Chem.* 252 (1977), Nr. 13, S. 4600–4606
- [110] TAMURA, T. ; STADTMAN, T.C.: A new selenoprotein from human lung adenocarcinoma cells: purification, properties, and thioredoxin reductase activity. In: *Proc. Natl. Acad. Sci. USA* 93 (1996), S. 1006–1011
- [111] GLADYSHEV, V.N. ; JEANG, K.-T. ; STATMAN, T.C.: Selenocysteine, identified as the penultimate C-terminal residue in human T-cell thioredoxin reductase, corresponds to TGA in the human placental gene. In: *Proc. Natl. Acad. Sci. USA* 93 (1996), S. 6146–6151
- [112] ZHONG, L. ; ARNER, E.S.J. ; HOLMGREN, A.: Structure and mechanism of mammalian thioredoxin reductase: the active site is a redox-active selenolthiol/selenenylsulfide formed from the conserved cysteine-selenocysteine sequence. In: *Proc. Natl. Acad. Sci. USA* 97 (2000), Nr. 11, S. 5854–5859
- [113] NAKAMURA, H.: Thioredoxin as a key molecule in redox signaling. In: *Antioxid. Redox Signal.* 6 (2004), Nr. 1, S. 15–17
- [114] ARNER, A.: Physiological funktions of thioredoxin and thioredoxin reductase. In: *Eur. J. Biochem.* 267 (2000), S. 6102–6109

- [115] SUN, Q.-A. ; ZAPPACOSTA, F. ; FACTOR, V.M. ; WIRTH, P.J. ; HATFIELD, D.L. ; GLADYSHEV, V.N.: Herterogeneity within animal thioredoxin. In: *J. Biol. Chem.* 276 (2001), Nr. 5, S. 3106–3114
- [116] MIRANDA-VIZUETE, A. ; SADEK, C.M. ; JIMENEZ, A. ; KRAUSE, W.J. ; SUTOVSKY, P. ; OKO, R.: The mammalian testis-specific thioredoxin system. In: *Antioxid. Redox Signal.* 6 (2004), S. 25–40
- [117] VENDELAND, S.T. ; BEILSTEIN, M.A. ; CHEN, C.L. ; JENSEN, O.N. ; BAROFSKY, E. ; WHANGER, P.D.: Purification and properties of selenoprotein W from rat muscle. In: *J. Biol. Chem.* 268 (1993), Nr. 23, S. 17103–17107
- [118] WHANGER, P.D.: Selenoprotein W: a review. In: *Cell. Mol. Life Sci.* 57 (2000), S. 1846–1852
- [119] KALKLÖSCHER, M. ; KYRIAKOPOULOS, A. ; HAMMEL, C. ; BEHNE, D.: A new new selenoprotein found in the glandular epithelial cells of the rat prostate. In: *Biochem. Biophys. Res. Commun.* 217 (1995), Nr. 1, S. 162–170
- [120] GLADYSHEV, V.N. ; JEANG, K.-T. ; WOOTTON, J.C. ; HATFIELD, D.L.: A new human selenium-containing Protein. In: *J. Biol. Chem.* 275 (1998), Nr. 45, S. 8910–8915
- [121] KUMARASWAMY, E. ; MALYKH, A. ; KOROTKOV, K.V. ; KOZYAVKIN, S. ; HU, Y. ; KWON, S.Y. ; MOUSTAFA, M.E. ; BRADLEY, A.C. ; BERRY, M.J. ; LEE, B.J. ; HATFIELD, D.L. ; DIAMOND, A.M. ; GLADYSHEV, V.N.: Structure-expression relationships of the 15-kDa selenoprotein gene. In: *J. Biol. Chem.* 275 (2000), Nr. 45, S. 35540–35547
- [122] KYRIAKOPOULOS, A. ; BERTELSMANN, H. ; GRAEBERT, A. ; HOPPE, B. ; KUHbacher, M. ; BEHNE, D.: Distribution of an 18 kDa-selenoprotein in several tissues of the rat. In: *J. Trace Elem. Med. Biol.* 16 (2002), Nr. 1, S. 57–62
- [123] MOSKOVITZ, J. ; JENKINS, N.A. ; GILBERT, D.J. ; COPELAND, F. ; WEISSBACH, H. ; BROTH, N.: Chromosomal localization of the mammalian peptide-methionine sulfoxide reductase gene and its differential expression in various tissues. In: *Proc. Natl. Acad. Sci. USA* 93 (1996), S. 3205–3208
- [124] KRYUKOV, G.V. ; KUMAR, R.A. ; KOC, A. ; SUN, Z. ; GLADYSHEV, V.N.: Selenoprotein R is a zinc-containing stereo-specific methionine sulfoxide reductase. In: *Proc. Natl. Acad. Sci. USA* 99 (2002), Nr. 7, S. 4245–4250
- [125] BAR-NOY, S. ; MOSKOVITZ, J.: Mouse methionine sulfoxide reductase B: effect of selenocysteine incorporation on its activity and expression of the seleno-containing enzyme in bacterial and mammalian cells. In: *Biochem. Biophys. Res. Commun.* 297 (2002), S. 956–961

- [126] WEISSBACH, H. ; ETIENNE, F. ; HOSHI, T. ; HEINEMANN, S.H. ; LOWTHER, W.T. ; MATTHEWS, B. ; JOHN, G.S. ; NATHAN, C. ; BROT, N.: Peptide methionine sulfoxide reductase: structure, mechanism of action, and biological function. In: *Arch. Biochem. Biophys.* 397 (2002), Nr. 2, S. 172–178
- [127] MOGHADASZADEH, B. ; PETIT, N. ; JAILLARD, C. ; BROCKINGTON, M. ; ROY, S.Q. ; MERLINI, L. ; ROMERO, N. ; ESTOURNET, B. ; DESGUERRE, I. ; CHAIGNE, D. ; MUNTONI, F. ; TOPALOGLU, H. ; GUICHENEY, P.: Mutations in SEPN1 cause congenital muscular dystrophy with spinal rigidity and restrictive respiratory syndrome. In: *Nature Gen.* 29 (2001), S. 17–18
- [128] LESCURE, A. ; GAUTHERET, D. ; CARBON, P. ; KROL, A.: Novel selenoproteins identified in silico and in vitro by using a conserved RNA structural motif. In: *J. Biol. Chem.* 274 (1999), Nr. 53, S. 38147–38154
- [129] KRYUKOV, G.V. ; KRYUKOV, V.M. ; GLADYSHEV, V.N.: New mammalian selenocysteine-containing proteins identified with an algorithm that searches for selenocysteine insertion sequence elements. In: *J. Biol. Chem.* 274 (1999), Nr. 48, S. 33888–33897
- [130] KOROTKOV, K.V. ; NOVOSELOV, S.V. ; HATFIELD, D.L. ; GLADYSHEV, V.N.: Mammalian selenoprotein in which selenocysteine (Sec) incorporation is supported by a new form of sec insertion sequence element. In: *Mol. Cell. Biol.* 22 (2002), S. 1402–1411
- [131] BEHNE, D. ; HÖFER-BOSSE, T.: Effects of a low selenium status on the distribution and retention of selenium in the rat. In: *J. Nutr.* 114 (1984), S. 1289–1296
- [132] BEHNE, D. ; WOLTERS, W.: Distribution of selenium and glutathione peroxidase in the rat. In: *J. Nutr.* 113 (1983), S. 456–481
- [133] BEHNE, D. ; HILMERT, H. ; SCHEID, S. ; GESSNER, W.: Evidence for specific selenium target tissues and new biologically important selenoproteins. In: *Biochim. Biophys. Acta.* 966 (1988), S. 12–21
- [134] SIEGAL, G.J. ; AGRANOFF, B.W. ; ALBERS, R.W. ; FISHER, S.K. ; UHLER, M.D.: *Basic Neurochemistry.* 6nd Edition. Lippincott, Williams & Wilkins, Philadelphia, 1999c
- [135] BEAR, M.F. ; CONNORS, B.W. ; PARADISO, M.A.: *Neuroscience: Exploring the brain.* 2nd Edition. Lippincott Williams & Wilkins, Baltimore, 2002
- [136] PURVES, D. ; AUGUSTINE, G.J. ; FITZPATRICK, D. ; KATZ, L.C. ; LAMANTIA, A.-S. ; MCNAMARA, J.O. ; WILLIAMS, S.M.: *Neuroscience.* 2nd Edition. Sinauer Associates Incorporated, 2001

- [137] PFRIEGER, F.W. ; BARRES, B.A.: New views on synapse-glia interactions. In: *Curr. Opin. Neurobiol.* 6 (1996), S. 615–621
- [138] TSACOPOULOS, M. ; MAGISSTRETTI, P.J.: Metabolic coupling between glia and neurons. In: *J. Neurosci.* 16 (1996), Nr. 3, S. 877–885
- [139] DEITMER, J.W.: Glial strategy for metabolic shuttling and neuronal function. In: *BioEssay* 22 (2000), S. 747–752
- [140] KETTENMANN, H.: Physiology of glial cells. In: *Advances in Neurology* 79 (1999), S. 565–571
- [141] HANSSON, E. ; RÖNNBÄCK, L.: Glial neuronal signaling in the central nervous system. In: *FASEB J.* 17 (2003), S. 341–348
- [142] ULLIAN, E.M. ; SAPPERSTEIN, S.K. ; CHRISTOPHERSON, K.S. ; BARRES, B.A.: Control of synapse number by glia. In: *Science* 291 (2001), S. 657–660
- [143] DONG, Y. ; BENVENISTE, E.N.: Immune function of astrocytes. In: *Glia* 36 (2001), S. 180–190
- [144] MERRILL, J.E. ; BENVENISTE, E.N.: Cytokines in inflammatory brain lesion: helpful and harmful. In: *Trends Neurosci.* 19 (1996), S. 331–338
- [145] GIMSA, U. ; OREN, A. ; PANDIYAN, P. ; TEICHMANN, D. ; BECHMANN, R. ; BRUNNER-WEINZIERL, M.C.: Astrocytes protect the CNS: antigen-specific T helper cell responses are inhibited by astrocyte-induced upregulation of CTLA-4 (CD152). In: *J. Mol. Med.* 82 (2004), S. 364–372
- [146] STREIT, W.J. ; WALTER, S.A. ; PENNELL, N.A.: Reactive microgliosis. In: *Progress in Neurobiology* 57 (1999), S. 563–581
- [147] ALOISI, F.: Immune function of microglia. In: *Glia* 36 (2001), S. 165–179
- [148] BANATI, R.B. ; GEHRMANN, J. ; SCHUBERT, P. ; KREUTZBERGER, G.W.: Cytotoxicity of microglia. In: *Glia* 7 (1993), S. 111–118
- [149] GEHRMANN, J. ; MATSUMOTO, Y. ; KREUTZBERG, G.W.: Microglia: intrinsic immunoeffector cell of the brain. In: *Brain Res. Rev.* 20 (1995), S. 269–287
- [150] CROSS, A.K. ; WOODROOFE, M.N.: Immunoregulation of microglial functional properties. In: *Microsc. Res. Tech.* 54 (2001), S. 10–17
- [151] PARDRIDGE, W.M.: Drug and gene targeting to the brain with molecular trojan horses. In: *Nature Neurosci.* 1 (2002), S. 131–139

- [152] ABBOTT, N.J.: Astrocyte-endothelial interactions and blood-brain barrier permeability. In: *J. Anat.* 200 (2002), S. 629–638
- [153] BAUER, H.-C. ; BAUER, H.: Neuronal induction of the blood-brain barrier: still an enigma. In: *Cell. Mol. Neurobiol.* 20 (2000), Nr. 1, S. 13–28
- [154] FANNIG, A.S. ; MITIC, L.L. ; ANDERSON, J.M.: Transmembrane proteins in the tight junction barrier. In: *J. Am. Soc. Nephrol.* 10 (1999), S. 1337–1345
- [155] FANNING, A.S. ; B., Jameson; ; JESAITIS, L.A. ; ANDERSON, J.M.: The tight junction protein ZO-1 establishes a link between the transmembrane protein occludin and the actin cytoskeleton. In: *J. Biol. Chem.* 273 (1998), Nr. 45, S. 29745–29753
- [156] HUBER, J.D. ; EGLETON, R.D. ; T.P., Davis: Molecular physiology and pathophysiology of tight junctions in the blood-brain barrier. In: *Nature Neurosci.* 24 (2001), Nr. 12, S. 719–725
- [157] TU, H.M. ; LEGRADI, G. ; BARTHA, T. ; SALVATORE, D. ; LECHAN, R.M. ; LARSON, P.R.: Regional expression of the type 3 iodothyronine deiodinase messenger ribonucleic acid in the rat central nervous system and its regulation by thyroid hormone. In: *Endocrinology* 140 (1999), Nr. 2, S. 784–790
- [158] BATES, J.M. ; GERMAIN, D.L.St. ; GALTON, V.A.: Expression profiles of the three iodothyronine deiodinases, D1, D2, and D3, in the developing rat. In: *Endocrinology* 140 (1999), Nr. 2, S. 844–851
- [159] TREPANIER, G. ; FURLING, D. ; PUYMIRAT, J. ; MIRAULT: Immunocytochemical localization of seleno-glutathione peroxidase in the adult mouse brain. In: *Neuroscience* 75 (1996), Nr. 1, S. 231–243
- [160] SCHWEIZER, U. ; BRAUER, A.U. ; KORHLE, J. ; NITSCH, R. ; SAVASKAN, N.E.: Selenium and brain function: a poorly recognized liaison. In: *Brain Res. Rev.* 45 (2004), S. 164–178
- [161] CHEN, W.-H. ; HO, Y.-S. ; ROSS, D.A. ; VALENTINE, B.A. ; COMBS, G.F. ; LEI, X.G.: Cellular glutathione peroxidase knockout mice express normal levels of selenium-dependent plasma and phospholipid hydroperoxide glutathione peroxidases in various tissues. In: *J. Nutr.* 127 (1997), S. 1445–1450
- [162] KLIVENYI, P. ; ANDREASSEN, O.A. ; FERRANTE, R.J. ; DEDEOGLU, A. ; MUELLER, G. ; LANCELOT, E. ; BOGDANOV, M. ; ANDERSEN, J.K. ; JIANG, D. ; BEAL, M.F.: Mice deficient in cellular glutathione peroxidase show increased vulnerability to malonate, 3-Nitropropionic acid, and 1-methyl-4-phenyl-1,2,5,6-Tetrahydropyridine. In: *J. Neurosci.* 20 (2000), Nr. 1, S. 1–7

- [163] CRACK, P.J. ; TAYLOR, J.M. ; FLENTJAR, N.J. ; DE HAAN, J. ; HERTZOG, P. ; IANNELLO, R.C. ; KOLA, I.: Increased infarct size and exacerbated apoptosis in the glutathione peroxidase-1 (GPx-1) knockout mouse brain in response to ischemia/reperfusion injury. In: *J. Neurochem.* 78 (2001), S. 1389–1399
- [164] TAKIZAWA, S. ; MATSUSHIMA, K. ; SHINOHARA, Y. ; OGAWA, S. ; KOMATSU, N. ; UTSUNOMIYA, H. ; WATANABE, K.: Immunohistochemical localization of glutathione peroxidase in infarcted human brain. In: *J. Neurol. Sci.* 122 (1994), S. 66–73
- [165] DAMIER, P. ; HIRSCH, E.C. ; ZHANG, P. ; AGID, Y. ; JAVOY-AGID, F.: Glutathione peroxidase, glial cells and parkinson's disease. In: *Neuroscience* 52 (1993), Nr. 1, S. 1–6
- [166] BENSADOUN, J.C. ; MIROCHNITCHENKO, O. ; INOUYE, M. ; AEBISCHER, P. ; ZUM, A.D.: Attenuation of 6-OHDA-induced neurotoxicity in glutathione peroxidase transgenic mice. In: *Eur. J. Neurosci.* 10 (1998), S. 3231–3236
- [167] ISHIBASHI, N. ; PROKOPENKO, O. ; WEISBROT-LEFKOWITZ, M. ; REUHL, K.R. ; MIROCHNITCHENKO, O.: Glutathione peroxidase inhibits cell death and glial activation following experimental stroke. In: *Mol. Brain Res.* 109 (2002), S. 34–44
- [168] YANT, L.J. ; RAN, Q. ; RAO, L. ; VAN REMMEN, H. ; SHIBATANI, T. ; BELTER, J.G. ; MOTTA, L. ; RICHARDSON, A. ; PROLLA, T.A.: The selenoprotein GPX4 is essential for mouse development and protects from radiation and oxidative damage insults. In: *Free Radic. Biol. Med.* 34 (2003), Nr. 4, S. 496–502
- [169] HILL, K.E. ; MCCOLLUM, G.W. ; BOEGLIN, M.E. ; BURK, R.F.: Thioredoxin reductase activity is decreased by selenium deficiency. In: *Biochem. Biophys. Res. Commun.* 234 (1997), S. 293–295
- [170] LOVELL, M.A. ; XIE, C. ; GABBITA, S.P. ; MARKESBERY, W.R.: Decreased thioredoxin and increased thioredoxin reductase levels in alzheimer's disease brain. In: *Free Radic. Biol. Med.* 28 (2000), S. 418–427
- [171] MOSKOVITZ, J. ; STADTMAN, E.R.: Selenium-deficient diet enhances protein oxidation and affects methionine sulfoxide reductase (MsrA) protein level in certain mouse tissues. In: *Proc. Natl. Acad. Sci. USA* 100 (2003), Nr. 13, S. 7486–7490
- [172] STEINERT, P. ; BACHNER, D. ; FLOHE, L.: Analysis of the mouse selenoprotein P gene. In: *Biol. Chem.* 379 (1998), S. 683–691
- [173] YAN, J. ; BARRETT, J.N.: Purification from bovine serum of a survival-promoting factor for cultured central neurons and its identification as selenoprotein-P. In: *J. Neurosci.* 18 (1998), Nr. 21, S. 8682–8691

- [174] ARTEEL, G.E. ; MOSTERT, V. ; OUBRAHIM, H. ; BRIVIBA, K. ; ABEL, J. ; SIES, H.: Protection by selenoprotein P in human plasma against peroxynitrite-mediated oxidation and nitration. In: *Biol. Chem.* 379 (1998), S. 1201–1205
- [175] YONEDA, S. ; SUZUKI, K. T.: Equimolar Hg-Se complex binds to selenoprotein P. In: *Biochem. Biophys. Res. Commun.* 231 (1997), S. 7–11
- [176] BURK, R.F. ; HILL, K.E. ; BOEGLIN, M.E. ; EBNER, F.E. ; CHITTUM, H.S.: Selenoprotein P associates with endothelial cells in rat tissues. In: *Histochem. Cell. Biol.* 108 (1997), S. 11–15
- [177] SCHOMBURG, U. ; HOLTSMANN, B. ; FLOHE, L. ; SENDTNER, M. ; KÖHRLE, J.: Gene disruption discloses role of selenoprotein P in selenium delivery to target tissues. In: *Biochem. J.* 370 (2003), S. 13640–13646
- [178] HILL, K.E. ; ZHOU, J. ; MCMAHAN, W.J. ; MOTLEY, A.K. ; ATKINS, J.F. ; GESTELAND, R.F.: Neurological dysfunction occurs in mice with targeted deletion of the selenoprotein P gene. In: *J. Nutr.* 134 (2003), S. 157–161
- [179] SCHWEIZER, U. ; MICHAELIS, J. ; SCHOMBURG, L.: Efficient selenium transfer from mother to offspring in selenoproteinP-deficient mice enables dose-dependent rescue of phenotypes associated with Se-deficiency. In: *Biochem. J.* 378 (2003), S. 21–26
- [180] SCHWEIZER, U. ; STRECKFUSS, F. ; PELT, P. ; CARLSON, B.A. ; HATFIELD, D.L. ; KÖHRLE, J. ; SCHOMBURG, L.: Hepatically derived selenoprotein P is a key factor for kidney but not for brain selenium supply. In: *Biochem. J.* 386 (2005), S. 221–226
- [181] SCHOMBURG, L. ; SCHWEIZER, U. ; KÖHRLE, J.: Selenium and selenoproteins in mammals: extraordinary, essential, enigmatic. In: *Cell. Mol. Life Sci.* 61 (2004), S. 1988–1995
- [182] BRÄUER, A.U. ; SAVASKAN, N.E. ; NINNEMANN, O. ; NITSCH, R.: Identification and differential regulation of selenoprotein W in the mammalian brain. In: *Society for Neuroscience*, 2001
- [183] PETIT, N. ; LESCURE, A. ; REDERSTORFF, M. ; KROL, A. ; MOGHADASZADEH, B. ; WEWER, U.M. ; GUICHENEY, P.: Selenoprotein N: an endoplasmic reticulum glycoprotein with an early developmental expression pattern. In: *Hum. Mol. Genet.* 12 (2003), S. 1045–1053
- [184] OZTAS, B. ; KILIC, S. ; DURAL, E. ; ISPIR, T.: Influence of antioxidants on the blood-brain barrier permeability during epileptic seizures. In: *J. Neurosci. Res.* 66 (2001), S. 674–678

- [185] SACHS, L.: *Lehrbuch der anorganischen Chemie*. 6. Auflage. Springer-Verlag, Berlin Heidelberg, 1984
- [186] BRADFORD, M.H.: A rapid and sensitive method for quantitation of microgram quantities of protein utilizing the principle of protein-dye binding. In: *Anal. Biochem.* 205 (1976), S. 22–26
- [187] LAEMMLI, U. K.: Cleavage of structural proteins during the assembly of the head of bacteriophage T4. In: *Nature* 227 (1970), S. 280–285
- [188] ECKERSKORN, C. ; JUNGBLUT, P. ; MEWES, W. ; LOTTSPREICH, F.: Identification of mouse brain proteins after two-dimensional electrophoresis and electroblotting by microsequence analysis and amino acid composition analysis. In: *Electrophoresis* 9 (1988), S. 830–838
- [189] RIGHETTI, P.: *Isoelectric Focusing: Theory, methodology and applications*. Elsevier, Amsterdam, 1983
- [190] RIGHETTI, P.: *Immobilized pH gradients: Theory and methodology*. Elsevier, Amsterdam, 1990
- [191] TOWBIN, H. ; STAEGELIN, T. ; GORDON, J.: Electrophoretic transfer of proteins from polyacrylamide gels to nitrocellulose sheets: Procedure and some applications. In: *Proc. Natl. Acad. Sci. USA* 76 (1979), S. 4350–4354
- [192] RABELOUD, T.: A sensitive silver stain for MALDI-MS. In: *Electrophoresis* 13 (1992), S. 429–439
- [193] BEHNE, D. ; SCHEID, S. ; KYRIAKOPOULOS, A. ; HILMERT, H.: Subcellular distribution of selenoproteins in the liver of the rat. In: *Biochim. Biophys. Acta* 1033 (1990), S. 219–225
- [194] MORIMOTO, B.H. ; KOSHLAND, D.E.: Induction and expression of long and short term neurosecretory potentiation in a neural cell line. In: *Neuron* 5 (1990), S. 875–880
- [195] MAHER, P. ; DAVIS, B.J.: The role of monoamine metabolism in oxidative glutamate toxicity. In: *J. Neurosci.* 16 (1996), Nr. 20, S. 6394–6401
- [196] BLASI, E. ; BARLUZZI, V. ; MAZZOLLA, R. ; BISTONI, F.: Immortalization of murine microglial cells by a v-raf/v-myc carrying retrovirus. In: *J. Neuroimmunol.* 27 (1990), S. 229–237
- [197] RICHTER-LANDSBERG, C. ; HEINRICH, M.: OLN-93: a new permanent oligodendroglia cell line derived from primary rat brain glial cultures. In: *J. Neurosci. Res.* 45 (1996), S. 161–173

- [198] MAJOR, E.O. ; MILLER, A.E. ; MOURRAIN, P. ; TRAUB, R.G. ; DE WIDT, E.: Establishment of a line of human fetal glial cells that supports JC virus multiplication. In: *Natl. Proc. Acad. Sci. USA* 82 (1985), S. 1257–1261
- [199] BLASIG, I. E. ; GIESE, H. ; SCHROETER, M. L. ; SPORBERT, A. ; UTEPBERGENOV, D. I. ; BUCHWALOW, I. B. ; NEUBERT, K. ; SCHONFELDER, G. ; FREYER, D. ; SCHIMKE, I. ; SIEMS, W. E. P. ; M HASELOFF, R. F. ; BLASIG, R.: NO and oxyradical methabolism in new cell lines of rat brain capillary endothelial cells forming the blood-brain barrier. In: *Microvas. Res.* 61 (2001), S. 114–127
- [200] KYRIAKOPOULOS, A. ; HOPPE, B. ; GRAEBERT, A. ; KUHbacher, M. ; WESELOH, G. ; BEHNE, D.: Lokalisation of selenoproteins in the perinuclear structure of the rat kidney. In: *Instrumentation science and technology* 32 (2004), Nr. 2, S. 221–232
- [201] RÖTHLEIN, D.: *Charakterisierung von 15 kDa-Selenoproteinen in Geweben der Ratte*, Hahn-Meitner Institut, Dissertationsschrift, 1999
- [202] Kap. Selenhaltige Proteine in einem Zellkultur-Modell der Blut-Hirnschranke In: HOPPE, B. ; KYRIAKOPOULOS, A. ; BEHNE, D.: *Metalloproteine und Metalloidproteine*. Wissenschaftliche Verlagsgesellschaft mbH Stuttgart, 2004, S. 137–142
- [203] WEISS-NOWACK, C.: *Untersuchung zur Stoffwechsel und zur Reinigung biologisch relevanter Selenoproteine*, Hahn-Meitner Institut, Dissertationsschrift, 1993
- [204] CARLSON, B.A. ; NOVOSELOV, S.V. ; KUMARASWAMY, E. ; LEE, B.J. ; ANVER, M.R. ; GLADYSHEV, V.N. ; HATFIELD, D.L.: Specific excision of the selenocysteine tRNA^{[ser]^{sec}} (Trsp) gene in mouse liver demonstrates an essential role of selenoproteins in liver function. In: *J. Boil. Chem.* 279 (2004), Nr. 9, S. 8011–8017