

# PIET BORST

## PUBLICATIONS

25.01.2010

### Selected publications by P. Borst and coworkers

- PB-004 Borst P. Preparation and properties of mitochondria from Ehrlich ascites tumour cells. *J Biophys Biochem Cytol* 1960; 7: 381-383.
- PB-011 Borst P, Peeters EM. The intracellular localization of glutamate-oxaloacetate transaminases in heart. *Biochim Biophys Acta* 1961; 54: 188-189.
- PB-012 Borst P, Colpa-Boonstra JP. The pyridine-nucleotide content of mitochondria isolated from Ehrlich ascites tumour cells. *Biochim Biophys Acta* 1962; 56: 216-226.
- PB-017 Borst P. Hydrogen transport and transport metabolites. In: Karlsson P, ed. *Funktionelle und morphologische Organisation der Zelle*. Springer Verlag, Heidelberg, 1963; p. 137-162.
- PB-018 Borst P. Mitochondriale-Extramitochondriale Wechselwirkungen. In: Bücher Th, ed. *Redoxfunktionen Cytoplasmatischer Strukturen*. Eigenverlag der Wiener medizinischer Akademie für ärztliche Fortbildung, Wien, 1962; p. 189-205.
- PB-025 Weissmann Ch, Borst P, Burdon RH, Billeter MA, Ochoa S. Replication of viral RNA. III. Double-stranded replicative form of MS2 phage RNA. *Proc Natl Acad Sci USA* 1964; 51: 682-690.
- PB-029 Borst P, Weissmann Ch. Studies on the enzymatic mechanism of replication of MS2 RNA. *Proc Natl Acad Sci USA* 1965; 54: 982-987.
- PB-033 Borst P, Ruttenberg GJCM. Renaturation of mitochondrial DNA. *Biochim Biophys Acta* 1966; 114: 645-647.
- PB-042 Borst P, Ruttenberg GJCM, Kroon AM. Mitochondrial DNA. I. Preparation and properties of mitochondrial DNA from chick liver. *Biochim Biophys Acta* 1967; 149: 140-155.
- PB-043 Borst P, Van Bruggen EFJ, Ruttenberg GJCM, Kroon AM. Mitochondrial DNA. II. Sedimentation analysis and electron microscopy of mitochondrial DNA from chick liver. *Biochim Biophys Acta* 1967; 149: 156-172.
- PB-050 Borst P, Kroon AM. Mitochondrial DNA: Physico-chemical properties, replication and genetic function. *Intern Rev Cytol* 1969; 26: 107-190.
- PB-059 Hollenberg CP, Riks WF, Borst P. The glutamate dehydrogenase of yeast: Extra-mitochondrial enzymes. *Biochim Biophys Acta* 1970; 201: 13-19.
- PB-061 Hollenberg CP, Borst P, Van Bruggen EFJ. Mitochondrial DNA. V. A 25-m closed circular duplex DNA molecule in wild-type mitochondria. Structure and genetic complexity. *Biochim Biophys Acta* 1970; 209: 1-15.
- PB-070 Borst P, Grivell LA. Mitochondrial ribosomes. *FEBS Letters* 1971; 13: 73-88.
- PB-077 Ter Schegget J, Borst P. DNA synthesis by isolated mitochondria. II. Detection of product DNA hydrogen-bonded to closed duplex circles. *Biochim Biophys Acta* 1971; 246: 249-257.
- PB-080 Arnberg A, Van Bruggen EFJ, Ter Schegget J, Borst P. The presence of DNA molecules with a displacement loop in standard mitochondrial DNA preparations. *Biochim Biophys Acta* 1971; 246: 353-357.
- PB-081 Ter Schegget J, Flavell RA, Borst P. DNA synthesis by isolated mitochondria. III. Characterization of D-loop DNA, a novel intermediate in mtDNA synthesis. *Biochim Biophys Acta* 1971; 254: 1-14.
- PB-083 Borst P. Mitochondrial nucleic acids. *Ann Rev Biochem* 1972; 41: 333-376.
- PB-084 Aaij C, Borst P. The gel electrophoresis of DNA. *Biochim Biophys Acta* 1972; 269: 192-200.
- PB-095 Hollenberg CP, Borst P, Van Bruggen EFJ. Mitochondrial DNA from cytoplasmic petite mutants of yeast. *Biochim Biophys Acta* 1972; 277: 35-43.
- PB-116 Upholt WB, Borst P. Accumulation of replicative intermediates of mitochondrial DNA in *Tetrahymena pyriformis* grown in ethidium bromide. *J Cell Biol* 1974; 61: 383-397.
- PB-139 Kleisen CM, Borst P. Sequence heterogeneity of the mini-circles of kinetoplast DNA of *Crithidia luciliae* and evidence for the presence of a component more complex than mini-circle DNA in the kinetoplast network. *Biochim Biophys Acta* 1975; 407: 473-478.
- PB-143 Kleisen CM, Borst P, Weijers PJ. The structure of kinetoplast DNA. I. The mini-circles of *Crithidia luciliae* are heterogenous in base sequence. *Eur J Biochem* 1976; 64: 141-151.

- PB-144 Kleisen CM, Weislogel PO, Fonck K, Borst P. The structure of kinetoplast DNA. II. Characterization of a novel component of high complexity present in the kinetoplast DNA network of *Crithidia luciliae*. *Eur J Biochem* 1976; 64: 153-160.
- PB-156 DiFranco A, Sanders JPM, Heyting C, Borst P, Slonimski PP. Restriction enzyme analysis and physical mapping of mitochondrial DNA from petite mutants, carrying a genetic marker for oligomycin or paromomycin resistance. In: Saccone C, Kroon AM, eds. *The Genetic Function of Mitochondrial DNA*. North-Holland, Amsterdam, 1976; p. 291-304.
- PB-169 Goldbach RW, Arnberg AC, Van Bruggen EFJ, Defize J, Borst P. The structure of *Tetrahymena pyriformis* mitochondrial DNA. I. Strain differences and occurrence of inverted repetitions. *Biochim Biophys Acta* 1977; 477: 37-50.
- PB-178 Sanders JPM, Heyting C, Verbeet MPh, Meijlink FCPW, Borst P. The organization of genes in yeast mitochondrial DNA. III. Comparison of the physical maps of the mitochondrial DNAs from three wild-type *Saccharomyces* strains. *Mol Gen Gen* 1977; 157: 239-261.
- PB-181 Opperdoes FR, Borst P. Localization of nine glycolytic enzymes in a microbody-like organelle in *Trypanosoma brucei*: the glycosome. *FEBS Letters* 1977; 80: 360-364.
- PB-196 Bos JL, Heyting C, Borst P, Arnberg AC, Van Bruggen EFJ. An insert in the single gene for the large ribosomal RNA in yeast mitochondrial DNA. *Nature* 1978; 275: 336-338.
- PB-197 Borst P, Grivell LA. The mitochondrial genome of yeast. *Cell* 1978; 15: 705-723.
- PB-203 Goldbach RW, Bollen-de Boer JE, Van Bruggen EFJ, Borst P. Replication of the linear mitochondrial DNA of *Tetrahymena pyriformis*. *Biochim Biophys Acta* 1979; 562: 400-417.
- PB-219 Arnberg AC, Van Ommen GJB, Grivell LA, Van Bruggen EFJ, Borst P. Some yeast mitochondrial RNAs are circular. *Cell* 1980; 19: 313-319.
- PB-221 Frasch ACC, Hajduk SL, Hoeijmakers JHJ, Borst P, Brunel F, Davison J. The kinetoplast DNA of *Trypanosoma equiperdum*. *Biochim Biophys Acta* 1980; 607: 397-410.
- PB-224 Bos JL, Osinga KA, Van der Horst G, Hecht NB, Tabak HF, Van Ommen GJB, Borst P. Splice point sequence and transcripts of the intervening sequence in the mitochondrial 21S ribosomal RNA gene of yeast. *Cell* 1980; 20: 207-214.
- PB-228 Hoeijmakers JHJ, Frasch ACC, Bernards A, Borst P, Cross GAM. Novel expression-linked copies of the genes for variant surface antigens in trypanosomes. *Nature* 1980; 284: 78-80.
- PB-247 Boothroyd JC, Cross GAM, Hoeijmakers JHJ, Borst P. A variant surface glycoprotein of *Trypanosoma brucei* is synthesized with a hydrophobic carboxy-terminal extension absent from purified glycoprotein. *Nature* 1980; 288: 624-626.
- PB-258 Borst P, Grivell LA. One gene's intron is another gene's exon. *Nature* 1981; 289: 439-440.
- PB-260 Bernards A, Van der Ploeg LHT, Frasch ACC, Borst P, Boothroyd JC, Coleman S, Cross GAM. Activation of trypanosome surface glycoprotein genes involves a gene duplication-transposition leading to an altered 3'-end. *Cell* 1981; 27: 497-505.
- PB-263 Visser N, Opperdoes FR, Borst P. Subcellular compartmentation of glycolytic intermediates in *Trypanosoma brucei*. *Eur J Biochem* 1981; 118: 521-526.
- PB-265 Borst P, Grivell LA. Small is beautiful - portrait of a mitochondrial genome. *Nature* 1981; 290: 443-444.
- PB-271 Van der Ploeg LHT, Bernards A, Rijsewijk FAM, Borst P. Characterization of the DNA duplication-transposition that controls the expression of two genes for variant surface glycoproteins in *Trypanosoma brucei*. *Nucl Acids Res* 1982; 10: 593-609.
- PB-273 Van der Ploeg, Liu AYC, Michels PAM, De Lange T, Borst P, Majumder HK, Weber H, Veeneman GH, Van Boom J. RNA splicing is required to make the messenger RNA for a variant surface antigen in trypanosomes. *Nucl Acids Res* 1982; 10: 3591-3604.
- PB-281 Borst P. Animal peroxisomes (microbodies), lipid biosynthesis and the Zellweger syndrome. *TIBS* 1983; 8: 269-272.
- PB-282 Borst P, Cross GAM. The molecular basis for trypanosome antigenic variation. *Cell* 1982; 29: 291-303.
- PB-284 Eperon IC, Janssen JWG, Hoeijmakers JHJ, Borst P. The major transcripts of the kinetoplast DNA of *Trypanosoma brucei* are very small ribosomal RNAs. *Nucl Acids Res* 1983; 11: 105-125.
- PB-289 De Lange T, Borst P. Genomic environment of the expression-linked extra copies of genes for surface antigens of *Trypanosoma brucei* resembles the end of a chromosome. *Nature* 1982; 299: C:\Dana\academia\biochemistry\_molecular\_biology\borst\_piet\borst\_piet\_publications.doc

451-453.

- PB-291 Van der Ploeg LHT, Valerio D, De Lange T, Bernards A, Borst P, Grosveld FG. An analysis of cosmid clones of nuclear DNA from *Trypanosoma brucei* shows that the genes for variant surface glycoproteins are clustered in the genome. *Nucl Acids Res* 1982; 10: 5905-5923.
- PB-292 Grivell LA, Borst P. Mitochondrial mosaics - Maturases on the move. *Nature* 1982; 298: 703-704.
- PB-295 Bernards A, Michels PAM, Lincke CR, Borst P. Growth of chromosome ends in multiplying trypanosomes. *Nature* 1983; 303: 592-597.
- PB-300 Michels PAM, Liu AYC, Bernards A, Sloof P, Van der Bijl MMW, Schinkel AH, Menke HH, Borst P, Veeneman GH, Tromp MC, Van Boom JH. Activation of the genes for variant surface glycoproteins 117 and 118 in *Trypanosoma brucei*. *J Mol Biol* 1983; 166: 537-556.
- PB-301 Liu AYC, Van der Ploeg LHT, Rijsewijk FAM, Borst P. The transposition unit of VSG gene 118 of *Trypanosoma brucei*: Presence of repeated elements at its border and absence of promoter-associated sequences. *J Mol Biol* 1983; 167: 57-75.
- PB-305 Heymans HSA, Schutgens RBH, Tan R, Van den Bosch H, Borst P. Severe plasmalogen deficiency in tissues of infants without peroxisomes (Zellweger syndrome). *Nature* 1983; 306: 69-70.
- PB-307 De Lange T, Liu AYC, Van der Ploeg LHT, Borst P, Tromp MC, Van Boom JH. Tandem repetition of the 5' mini-exon of variant surface glycoprotein genes: A multiple promoter for VSG genes transcription? *Cell* 1983; 34: 891-900.
- PB-313 Heymans HSA, Van den Bosch H, Schutgens RBH, Tegelaers WHH, Walther JU, Müller-Höcker J, Borst P. Deficiency of plasmalogens in the cerebro-hepato-renal (Zellweger) syndrome. *Eur J Ped* 1984; 142: 10-15.
- PB-320 Bernards A, Van Harten-Loosbroek N, Borst P. Modification of telomeric DNA in *Trypanosoma brucei*, a role in antigenic variation? *Nucl Acids Res* 1984; 12: 4153-4170.
- PB-322 Kooter JM, De Lange T, Borst P. Discontinuous synthesis of mRNA in trypanosomes. *EMBO J* 1984; 3: 2387-2392.
- PB-325 Van der Ploeg LHT, Liu AYC, Borst P. The structure of the growing telomeres of trypanosomes. *Cell* 1984; 36: 459-468.
- PB-326 De Lange T, Michels PAM, Veerman HJG, Cornelissen AWCA, Borst P. May trypanosome mRNAs share a common 5' terminal sequence. *Nucl Acids Res* 1984; 12: 3777-3790.
- PB-328 Van der Ploeg LHT, Schwartz DC, Cantor CR, Borst P. Antigenic variation in *Trypanosoma brucei* analysed by electrophoretic separation of chromosome-sized DNA molecules. *Cell* 1984; 37: 77-84.
- PB-334 Van der Ploeg LHT, Cornelissen AWCA, Michels PAM, Borst P. Chromosome rearrangements in *Trypanosoma brucei*. *Cell* 1984; 39: 213-221.
- PB-340 Van der Ploeg LHT, Cornelissen AWCA, Barry JD, Borst P. Chromosomes of kinetoplastida. *EMBO J* 1984; 3: 3109-3115.
- PB-343 De Lange T, Kooter JM, Luijink J, Borst P. Transcription of a transposed trypanosome surface antigen gene starts upstream of the transposed segment. *EMBO J* 1985; 4: 3299-3306.
- PB-345 Kooter JM, Borst P. Alpha-amanitin-insensitive transcription of variant surface glycoprotein genes provides further evidence for discontinuous transcription in trypanosomes. *Nucl Acids Res* 1984; 12: 9457-9472.
- PB-350 Cornelissen AWCA, Johnson PJ, Kooter JM, Van der Ploeg LHT, Borst P. Two simultaneously active VSG gene transcription units in a single *Trypanosoma brucei* variant. *Cell* 1985; 41: 825-832.
- PB-351 Guyaux M, Cornelissen AWCA, Pays E, Steinert M., Borst P. *Trypanosoma brucei*: a surface antigen mRNA is discontinuously transcribed from two distinct chromosomes. *EMBO J* 1985; 4: 995-998.
- PB-359 Laird PW, Kooter JM, Loosbroek N, Borst P. Mature mRNAs of *Trypanosoma brucei* possess a 5' cap acquired by discontinuous RNA synthesis. *Nucl Acids Res* 1985; 13: 4253-4266.
- PB-366 Borst P. Discontinuous transcription and antigenic variation in trypanosomes. *Ann Rev Biochem* 1986; 55: 701-732.
- PB-371 Osinga KA, Swinkels BW, Gibson WC, Borst P, Veeneman GH, Van Boom JH, Michels PAM, Opperdoes FR. Topogenesis of microbody enzymes: A sequence comparison of the genes for the glycosomal (microbody) and cytosolic phosphoglycerate kinases of *Trypanosoma brucei*. *EMBO J* 1985; 4: 3811-3817.
- PB-376 Van der Bliek AM, Van der Velde-Koerts, Ling V, Borst P. Overexpression and amplification of C:\Dana\academia\biochemistry\_molecular\_biology\borst\_piet\borst\_piet\_publications.doc

- five genes in a multidrug-resistant Chinese hamster ovary cell line. Mol Cell Biol 1986; 6: 1671-1678.
- PB-379 Borst P. How proteins get into microbodies (peroxisomes, glyoxysomes, glycosomes). Biochim Biophys Acta GSE 1986; 866: 179-203.
- PB-388 De Bruijn MHL, Van der Bliek AM, Biedler JL, Borst P. Differential amplification and disproportionate expression of five genes in three multidrug-resistant Chinese hamster lung cell lines. Mol Cell Biol 1986; 6: 4717-4722.
- PB-394 Borst P, Fase-Fowler F, Gibson WC. Kinetoplast DNA of *Trypanosoma evansi*. Mol Biochem Parasitol 1987; 23: 31-38.
- PB-396 Borst P, Greaves DR. Programmed gene rearrangements altering gene expression. Science 1987; 235: 658-668.
- PB-398 Van der Bliek AM, Meyers MB, Biedler JL, Hes E, Borst P. A 22-kDa protein Sorcin/V19), encoded by an amplified gene in multidrug resistant cells, is homologous to the calcium-binding light chain of calpain. EMBO J 1986; 5: 3201-3208.
- PB-405 Jongsma APM, Spengler BA, Van der Bliek AM, Borst P, Biedler JL. Chromosomal localization of three genes coamplified in the multidrug-resistant CH<sup>R</sup>C5 Chinese hamster ovary cell line. Cancer Res 1987; 47: 2875-2878.
- PB-407 Laird PW, Zomerdijk JCBM, De Korte D, Borst P. In vivo labelling of intermediates in the discontinuous synthesis of mRNAs in *Trypanosoma brucei*. EMBO Journal 1987; 6: 1055-1062.
- PB-412 Johnson P, Kooter JM, Borst P. Inactivation of transcription by UV irradiation of *Trypanosoma brucei* provides evidence for a multicistronic transcription unit that includes a variant surface glycoprotein gene. Cell 1987; 51: 273-281.
- PB-413 Kooter JM, Van der Spek HJ, Wagter R, d'Oliveira CE, Van der Hoeven F, Johnson PJ, Borst P. The anatomy and transcription of a telomeric expression site for variant-specific surface antigens in *Trypanosoma brucei*. Cell 1987; 51: 261-272.
- PB-415 Van der Bliek, Baas F, Ten Houte De Lange T, Kooiman PM, Van der Velde-Koerts T, Borst P. The human mdr3 gene encodes a novel P-glycoprotein homologue and gives rise to alternatively spliced mRNAs in liver. Embo J 1987; 6: 3325-3331.
- PB-429 Swinkels BW, Evers R, Borst P. The topogenic signal of the glycosomal (microbody) phosphoglycerate kinase of *Crithidia fasciculata* resides in a carboxy-terminal extension. EMBO J 1988; 7: 1159-1165.
- PB-432 Crozatier M, De Brij RJ, Den Engelse L, Johnson PJ, Borst P. Nucleoside analysis of DNA from *Trypanosoma brucei* and *Trypanosoma equiperdum*. Mol Biochem Parasitol 1988; 31: 127-132.
- PB-434 White TC, Fase-Fowler F, Van Luenen H, Calafat J, Borst P. The H-circles of *Leishmania tarentolae* are a unique amplifiable system of oligomeric DNAs associated with drug resistance. J Biol Chem 1988; 263: 16977-16983.
- PB-440 Van der Bliek AM, Borst P. Multi-drug resistance. Adv Cancer Res. 1989; 52: 165-203.
- PB-450 Borst P. Peroxisome biogenesis revisited. Biochim Biophys Acta GSE 1989; 1008: 1-13.
- PB-453 Borst P. Citation Classics: A treasure trove for molecular biologists A Citation Classic commentary by P. Borst (Borst P. Mitochondrial nucleic acids. Ann Rev Biochem 41 (1972) 333-376). Current Contents (ISI) 1989; Vol 32: 16.
- PB-459 Lincke CR, Van der Bliek A, Schuurhuis GJ, Van der Velde-Koerts T, Smit J, Borst P. The multidrug resistance phenotype of human BRO melanoma cells transfected with a wild-type human mdr1 cDNA. Cancer Res 1990; 50: 1779-1785.
- PB-461 Ouellette M, Fase-Fowler F, Borst P. The amplified H circle of methotrexate-resistant *Leishmania tarentolae* contains a novel P-glycoprotein gene. EMBO J 1990; 9: 1027-1033.
- PB-462 Zomerdijk JCBM, Ouellette M, Ten Asbroek ALMA, Kieft R, Bommer AMM, Clayton CE, Borst P. The promoter for a variant surface glycoprotein gene expression site in *Trypanosoma brucei*. EMBO J 1990; 9: 2791-2801.
- PB-477 Ten Asbroek ALMA, Ouellette M, Borst P. Targeted insertion of the neomycin phosphotransferase gene into the tubulin gene cluster of *Trypanosoma brucei*. Nature 1990; 348: 174-176.
- PB-478 Ouellette M, Hettema E, Wüst D, Fase-Fowler F, Borst P. Direct and inverted DNA repeats associated with P-glycoprotein gene amplification in drug resistant *Leishmania*. EMBO J 1991; 10: 1009-1016.

- PB-479 Borst P. Molecular genetics of antigenic variation. *Immunoparasitology Today* March (91) A29-A33. *Immunology Today* 1991; 12: 129; *Parasitology Today* 1991; 7: 69 (combined issue).
- PB-480 Lincke CR, Smit JJM, Van der Velde-Koerts T, Borst P. The structure of the human *mdr3* gene and physical mapping of the human *mdr* locus. *J Biol Chem* 1991; 266: 5303-5310.
- PB-481 Zomerdijk JCBM, Kieft R, Duyndam M, Shiels PG, Borst P. Antigenic variation in *Trypanosoma brucei*: a telomeric expression site for variant-specific surface glycoprotein genes with novel features. *Nucl Acids Res* 1991; 19: 1359-1368.
- PB-482 Schinkel AH, Roelofs MEM, Borst P. Characterization of the human *mdr3* P-glycoprotein and its recognition by P-glycoprotein-specific monoclonal antibodies. *Cancer Res* 1991; 51: 2628-2635.
- PB-484 Borst P. Why kinetoplast DNA networks? *Trends Genet* 1991; 7: 139-141.
- PB-485 Gommers-Ampt J, Lutgerink J, Borst P. A novel DNA nucleotide in *Trypanosoma brucei* only present in the mammalian phase of the life-cycle. *Nucl Acids Res* 1991; 19: 1745-1751.
- PB-490 Schinkel AH, Borst P. Multidrug resistance mediated by P-glycoproteins. *Seminars in Cancer Biology* 1991; 2: 213-226.
- PB-497 Zomerdijk JCBM, Kieft R, Borst P. Efficient production of functional mRNA mediated by RNA polymerase I in *Trypanosoma brucei*. *Nature* 1991; 353: 772-775.
- PB-499 Eijdems EWHM, Borst P, Jongsma APM, De Jong S, De Vries EGE, Van Groenigen M, Versantvoort CHM, Nieuwint AWM, Baas F. Genetic transfer of non-P-glycoprotein-mediated multidrug resistance in somatic cell fusion; dissection of a compound MDR phenotype. *Proc Natl Acad Sci USA* 1992; 89: 3498-3502.
- PB-508 Zomerdijk JCBM, Kieft R, Borst P. A ribosomal RNA gene promoter at the telomere of a mini-chromosome in *Trypanosoma brucei*. *Nucl Acids Res* 1992; 20: 2725-2734.
- PB-510 Lincke CR, The I, Van Groenigen M, Borst P. The P-glycoprotein gene family of *Caenorhabditis elegans*: cloning and characterization of genomic and complementary DNA sequences. *J Mol Biol* 1992; 228: 701-711.
- PB-511 Borst P. How mycoplasma varies its surface. *Current Biology* 1992; 2:304-306
- PB-512 Borst P. Antigenic variation in African trypanosomes. In: *The Encyclopaedia of Molecular Biology* (Kendrew J, Lawrence E, eds). Blackwell Scientific Publications, Oxford, England, 1994, pp. 62-65.
- PB-520 Zomerdijk JCBM, Kieft R, Borst P. Insertion of the promoter for a variant surface glycoprotein gene expression site in an RNA polymerase II transcription unit of procyclic *Trypanosoma brucei*. *Mol Biochem Parasitol* 1993; 57: 295-304.
- PB-524 Borst P, Nussenzweig V. Molecular parasitology at Woods Hole. *Cell* 1992; 71: 895-899
- PB-525 Ten Asbroek ALMA, Mol CAAM, Kieft R, Borst P. Stable transformation of *Trypanosoma brucei*. *Mol Biochem Parasitol* 1993; 59: 133-142.
- PB-527 Lincke CR, Broeks A, The I, Plasterk RHA, Borst P. The expression of two P-glycoprotein (*pgp*) genes in transgenic *Caenorhabditis elegans* is confined to intestinal cells. *EMBO J* 1993; 12: 1615-1620.
- PB-529 Schinkel AH, Arceci RJ, Smit JJM, Wagenaar E, Baas F, Dollé M, Tsuruo T, Mechetner EB, Roninson IB, Borst P. Binding properties of monoclonal antibodies recognizing external epitopes of the human *MDR1* P-glycoprotein. *Int J Cancer* 1993; 55: 478-484.
- PB-531 Zaman GJR, Versantvoort CHM, Smit JJM, Eijdems EWHM, De Haas M, Smith AJ, Broxterman HJ, Mulder NH, De Vries EGE, Baas F, Borst P. Analysis of the expression of MRP, the gene for a new putative transmembrane drug transporter, in human multidrug resistant lung cancer cell lines. *Cancer Research* 1993; 53: 1747-1750.
- PB-532 Gommers-Ampt JH, Teixeira AJR, Van de Werken G, Van Dijk WJ, Borst P. The identification of hydroxymethyluracil in DNA of *Trypanosoma brucei*. *Nucl Acids Res* 1993; 21: 2039-2043.
- PB-548 Smit JJM, Schinkel AH, Oude Elferink RPJ, Groen AK, Wagenaar E, Van Deemter L, Mol CAAM, Ottenhoff R, Van der Lugt NMT, Van Roon M, Van der Valk MA, Offerhaus GJA, Berns AJM, Borst P. Homozygous disruption of the murine *mdr2* P-glycoprotein gene leads to a complete absence of phospholipid from bile and to liver disease. *Cell* 1993; 75: 451-462.
- PB-552 Borst P, Gommers-Ampt JH, Ligtenberg MJL, Rudenko G, Kieft R, Taylor MC, Blundell PA, Van Leeuwen F. Control of antigenic variation in African trypanosomes. *Cold Spring Harbor Symposia on Quantitative Biology, DNA and Chromosomes - volume 58 (1993)* 105-115.
- PB-553 Borst P, Schinkel AH, Smit JJM, Wagenaar E, Van Deemter L, Smith AJ, Eijdems EWHM, Baas F, C:\Dana\academia\biochemistry\_molecular\_biology\borst\_piet\borst\_piet\_publications.doc

- Zaman GJR. Classical and novel forms of multidrug resistance and the physiological functions of P-glycoproteins in mammals. Symp. Molecular Aspects of Chemotherapy Gdansk, Polen, 23-25 juni 1993. *J Pharmac & Ther* 1993; 60: 289-299.
- PB-554 Gommers-Ampt JH, Van Leeuwen F, De Beer ALJ, Vliegenthart FG, Dizdaroglu M, Kowalak JA, Crain PF, Borst P.  $\beta$ -D-glucosyl-hydroxymethyluracil: a novel modified base present in the DNA of the parasitic protozoan *Trypanosoma brucei*. *Cell* 1993; 75: 1129-1136.
- PB-561 Smit JJM, Schinkel AH, Mol CAAM, Majoor D, Mooi WJ, Jongsma APM, Lincke CR, Borst P. The tissue distribution of the human MDR3 P-glycoprotein. *Lab Investigations* 1994; 71: 638-649.
- PB-563 Ligtenberg MJL, Bitter W, Kieft R, Steverding D, Janssen H, Calafat J, Borst P. Reconstitution of a surface transferrin binding complex in insect form *Trypanosoma brucei*. *EMBO J* 1994; 13: 2565-2573.
- PB-564 Schinkel AH, Smit JJM, Van Tellingen O, Beijnen JH, Wagenaar E, Van Deemter L, Mol CAAM, Van der Valk MA, Robanus-Maandag EC, te Riele HPJ, Berns AJM, Borst P. Disruption of the mouse *mdr1a* P-glycoprotein gene leads to a deficiency in the blood-brain barrier and to increased sensitivity to drugs. *Cell* 1994; 77: 491-502.
- PB-565 Rudenko G, Blundell P, Taylor MC, Kieft R, Borst P. VSG gene expression site control in insect form *Trypanosoma brucei*. *EMBO J* 1994; 13: 5470-5482.
- PB-566 Borst P, Rudenko G. Antigenic variation in African Trypanosomes. (special issue *Parasitology*) *Science* 1994; 264: 1872-1874.
- PB-567 Mauad TH, Van Nieuwkerk CMJ, Dingemans KP, Smit JJM, Schinkel AH, Notenboom RGE, Van den Bergh Weerman MA, Verkruisen RP, Groen BK, Oude Elferink RPJ, Borst P, Offerhaus GJA. Mice with homozygous disruption of the *mdr2* P-glycoprotein gene: a novel animal model for studies of nonsuppurative inflammatory cholangitis and hepatocarcinogenesis. *Am J Pathol* 1994; 145: 1237-1245.
- PB-572 Zaman GJR, Flens MJ, Van Leusden MR, De Haas M, Mülder HS, Lankelma J, Pinedo HM, Scheper RJ, Baas F, Broxterman HJ, Borst P. The human multidrug resistance-associated protein (MRP) is a plasma membrane drug efflux pump. *PNAS* 1994; 91: 8822-8826.
- PB-573 Eijdems EWHM, de Haas M, Coco-Martin JM, Ottenheim CPE, Zaman GJR, Dauwense JG, Breuning MH, Twentyman PR, Borst P, Baas F. Mechanisms of MRP overexpression in four human lung cancer cell lines and analysis of the MRP amplicon. *Int J Cancer* 1995; 60: 676-684.
- PB-575 Eijdems EWHM, De Haas M, Timmerman AJ, Van der Schans GP, Kamst E, De Nooy N, Astaldi Ricotti GCB, Borst P & Baas F. Reduced topoisomerase II activity in multidrug resistant human non-small cell lung cancer cell lines. *Brit J Cancer* 1994; 71: 40-47.
- PB-576 Smit JJM, Mol CAAM, Van Deemter L, Wagenaar E, Schinkel AH, Borst P. Characterization of the promoter region of the human *MDR3* P-glycoprotein gene. *Biochimica et Biophysica Acta section Gene Structure and Expression* 1995; 1261: 44-56.
- PB-577 Müller M, Meijer C, Zaman GJR, Borst P, Scheper RJ, Mulder NH, De Vries EGE, Jansen PLM. Overexpression of the multidrug resistance associated protein (MRP) gene results in increased ATP-dependent glutathione S-conjugate transport". *PNAS* 1994; 91: 13033-13037.
- PB-578 Smith AJ, Timmermans-Hereijgers JLPM, Roelofsen B, Wirtz KWA, Van Blitterswijk WJ, Smit JJM, Schinkel AH and Borst P. The human MDR3 P-glycoprotein promotes translocation of phosphatidylcholine through the plasma membrane of fibroblasts from transgenic mice. *FEBS Letters* 1994; 354: 263-266.
- PB-580 Eijdems EWHM, Zaman GJR, De Haas M, Versantvoort CHM, Flens MJ, Scheper RJ, Kamst E, Borst P, Baas F. Altered MRP is associated with multidrug resistant and reduced drug accumulation in human SW-1573 cells. *Br J Cancer* 1995; 72: 298-306.
- PB-582 Gommers-Ampt JH, Borst P. Hypermodified bases in DNA. *FASEB J* 1995; 9: 1034-1042.
- PB-583 Borst P, Ouellette M. New mechanisms of drug resistance in parasitic protozoa. *Annual Rev Microbiol* 1995; 49: 427-460.
- PB-586 Schinkel AH, Mol CAAM, Wagenaar E, van Deemter L, Smit JJM, Borst P. Multidrug resistance and the role of P-glycoprotein knockout mice. *Eur J Cancer* 1995; 31A: 1295-1298.
- PB-587 Borst P, Rudenko G, Taylor MC, Blundell PA, van Leeuwen F, Bitter W, Cross M, McCulloch R. Antigenic variation in trypanosomes. *Archives of Medical Research* 1996; 27: 379-388.
- PB-588 Schinkel AH, Wagenaar E, Van Deemter L, Mol CAAM, Borst P. Absence of the *mdr1a* P-glycoprotein in *Trypanosoma brucei*. *FEBS Letters* 1995; 365: 11-14.

- glycoprotein in mice affects tissue distribution and pharmacokinetics of dexamethasone, digoxin, and cyclosporin A. *J Clin Invest* 1995; 96: 1698-1705.
- PB-595 Zaman GJR, Lankelma J, Van Tellingen O, Beijnen J, Dekker H, Paulusma C, Oude Elferink RPJ, Baas F, Borst P. Role of glutathione in the export of compounds from cells by the multidrug resistance-associated protein. *PNAS* 1995; 92: 7690-7694.
- PB-596 Borst P, Bitter W, McCulloch R, Van Leeuwen F, Rudenko G. Antigenic variation in malaria. *Cell* 1995; 82: 1-4.
- PB-598 Geijtenbeek TBH, Smith AJ, Borst P, Wirtz KWA. cDNA cloning and tissue-specific expression of the phosphatidylcholine transfer protein gene. *Biochemical Journal* 1996; 316: 49-55.
- PB-599 Rudenko G, Blundell PA, Dirks-Mulder A, Kieft R, Borst P. A ribosomal DNA promoter replacing the promoter of a telomeric Variant Surface Glycoprotein gene expression site can be efficiently switched on and off in *Trypanosoma brucei*. *Cell* 1995; 83: 547-553.
- PB-600 Smit JJM, Baas F, Hoogendijk JE, Jansen GH, Van der Valk MA, Schinkel AH, Berns AJM, Acton D, Nooter K, Burger H, Borst P. Peripheral neuropathy in mice transgenic for a human MDR3 P-glycoprotein mini-gene. *J of Neuroscience* 1996; 16:6386-6393.
- PB-601 Evers R, Zaman GJR, Van Deemter L, Jansen H, Calafat J, Oomen LCJM, Oude Elferink RPJ, Borst P, Schinkel AH. Basolateral localization and export activity of the human multidrug resistance-associated protein (MRP) in polarized pig kidney cells. *J Clin Invest* 1996; 97: 1211-1218.
- PB-602 Zaman GJR, Borst P. MRP, mode of action and role in MDR. In: Gupta S, Tsuruo T, editors. Multidrug resistance in cancer cells. Sussex: John Wiley & Sons Ltd. 1996; chapter 6, p. 95-107.
- PB-603 Borst P, Schinkel AH. Mice with disrupted P-glycoprotein genes. In: Gupta S and Tsuruo T, editors. Multidrug resistance in cancer cells. Sussex: John Wiley & Sons Ltd. 1996; chapter 23, p. 345-356.
- PB-604 Dunia I, Smit JJM, Van der Valk MA, Bloemendaal H, Borst P, Benedetti EL. Human MDR3-P-glycoprotein expression in transgenic mice induces lens membrane alterations leading to cataract. *J. Cell Biology* 1996; 132: 701-716.
- PB-605 Blundell PA, Rudenko G, Borst P. Targeting of exogenous DNA into *Trypanosoma brucei* requires precise homology between donor and target DNA. *Mol Biochem Parasitol* 1996; 76: 215-229.
- PB-606 Borst P, Bitter W, Blundell P, Cross M, McCulloch R, Rudenko G, Taylor MC, Van Leeuwen F. The expression sites for variant surface glycoproteins of *Trypanosoma brucei*. In: Hide G, Mottram JC, Coombs GH and Holmes PH (eds.). *Trypanosomiasis and Leishmaniasis: biology and control*. British Society for Parasitology/CAB International, Oxford 1997; chapter 7, p. 109-131.
- PB-607 Van Asperen J, Schinkel AH, Beijnen JH, Nooijen WJ, Borst P and Van Tellingen O. Altered pharmacokinetics of vinblastine in mdr1a P-glycoprotein deficient mice. *JNCI* 1996; 88: 994-999.
- PB-610 Bitter W, Kieft R, Gerrits H, Borst P. How *Trypanosoma brucei* may cope with the diversity of transferrins in its mammalian hosts. *Nature* 1998; 391: 499-502
- PB-611 Paulusma CC, Bosma PJ, Zaman GJR, Bakker CTM, Otter M, Scheffer GL, Scheper RJ, Borst P, Oude Elferink RPJ. Congenital jaundice in rats with a mutation in a multidrug resistance-associated protein gene. *Science* 1996; 271: 1126-1128.
- PB-616 Borst P, Schinkel AH. What have we learnt thus far from mice with disrupted P-glycoprotein genes? *Eur J Cancer* 1996; 32A: 985-990.
- PB-619 Tommasini R, Evers R, Vogt E, Mornet C, Zaman GJR, Schinkel AH, Borst P and Martinoia E. The human multidrug resistance-associated protein (MRP) functionally complements the yeast cadmium resistance factor 1. *PNAS* 1996; 93: 6743-6748.
- PB-620 Van Leeuwen F, Wijsman ER, Kuyl-Yeheskiely E, Van der Marel GA, Van Boom JH and Borst P. The telomeric GGGTTA repeats of *Trypanosoma brucei* contain the hypermodified base J in both strands. *Nucl Acids Res* 1996; 24: 2476-2482.
- PB-622 Mayer U, Wagenaar E, Beijnen JH, Smit JW, Meijer DKF, Van Asperen J, Borst P and Schinkel AH. Substantial excretion of digoxin via the intestinal mucosa and prevention of long-term digoxin accumulation in the brain by the mdr1a P-glycoprotein. *Br J Pharmacol* 1996; 119: 1038-1044.
- PB-630 Van Helvoort A, Smith AJ, Sprong H, Fritzsche I, Schinkel AH, Borst P, Van Meer G. MDR1 P-glycoprotein is a lipid translocase of broad specificity, while MDR3 P-glycoprotein specifically

- translocates phosphatidylcholine. *Cell* 1996; 87: 507-517.
- PB-632 Zaman GJR, Cnubben NHP, Van Bladeren PJ, Evers R and Borst P. Transport of the glutathione conjugate of ethacrynic acid by the human multidrug resistance protein MRP. *FEBS Lett* 1996; 391: 126-130.
- PB-635 Borst P, Rudenko G, Blundell PA, Van Leeuwen F, Cross MA, McCulloch R, Gerrits H, Chaves IMF. Mechanisms of antigenic variation in African trypanosomes. *Behring Inst Mitt* 1997; 99: 1-15.
- PB-636 Borst P. and Schinkel AH. P-glycoprotein, a guardian of the brain. In: Pardridge WM (ed.). *An Introduction to the Blood-Brain Barrier: Methodology and Biology*. Cambridge University Press; 1998; 198-206.
- PB-637 McCulloch R, Rudenko G, Borst P. Gene conversion mediating antigenic variation in *Trypanosoma brucei* can occur in Variant Surface Glycoprotein expression sites lacking 70-base pair repeat sequences. *Mol Cell Biol* 1997; 17: 833-843.
- PB-638 Borst P and Schinkel AH. Genetic dissection of the function of mammalian P-glycoproteins. *Trends in Genetics* 1997; 13: 217-222.
- PB-641 Paulusma CC, Kool M, Bosma PJ, Scheffer GL, Ter Borg F, Scheper RJ, Tytgat G, Borst P, Baas F, Oude Elferink RPJ. A mutation in the human *cMOAT* gene causes the Dubin-Johnson syndrome. *Hepatology* 1997; 25: 1539-1542.
- PB-645 Sparreboom A, Van Asperen J, Mayer U, Schinkel AH, Smit JW, Meijer DKF, Borst P, Nooijen WJ, Beijnen JH and Van Tellingen O. Limited oral bio-availability and active epithelial excretion of paclitaxel (taxol) caused by P-glycoprotein in the intestine. *Proc Natl Acad Sci USA* 1997; 94: 2031-2035.
- PB-652 Kool M, De Haas M, Scheffer GL, Scheper RJ, Van Eijk MJT, Juijn JA, Baas F and Borst P. Analysis of expression of *cMOAT (MRP2)*, *MRP3*, *MRP4*, and *MRP5*, homologs of the multidrug resistance-associated protein gene (*MRP1*), in human cancer cell lines. *Cancer Res*. 1997; 57: 3537-3547.
- PB-655 Schinkel AH, Mayer U, Wagenaar E, Mol CAAM, Van Deemter L, Smit JJM, Van der Valk MA, Voordouw AC, Spits H, Van Tellingen O, Zijlmans JMJM, Fibbe WE and Borst P. Normal viability and altered pharmacokinetics in mice lacking mdr1-type (drug-transporting) P-glycoproteins. *Proc Natl Acad Sci USA* 1997; 94: 4028-4033.
- PB-656 Van Asperen J, Van Tellingen O, Sparreboom A, Schinkel AH, Borst P, Nooijen WJ and Beijnen JH. Enhanced oral bioavailability of paclitaxel in mice treated with the P-glycoprotein blocker SDZ PSC 833. *Br J Cancer* 1997; 76: 1181-1185.
- PB-658 Wijnholds J, Evers R, Van Leusden MR, Mol CAAM, Zaman GJR, Mayer U, Beijnen J, Van der Valk M, Krimpenfort P, Berns A and Borst P. Increased sensitivity to anticancer drugs and decreased inflammatory response in mice lacking MRP. *Nature Medicine* 1997; 11: 1275-1279.
- PB-661 Crawford AR, Smith AJ, Hatch VC, Oude Elferink RPJ, Borst P and Crawford JM. Hepatic secretion of phospholipid vesicles critically depends on mdr2 or MDR3 P-glycoprotein expression. *J Clin Invest* 1997; 100: 2562-2567.
- PB-662 Evers R, Kool M, Van Deemter L, Jansen H, Calafat J, Oomen LCJM, Paulusma CC, Oude Elferink RPJ, Baas F, Schinkel AH and Borst P. Drug export activity of the humanmultispecific organic anion transporter in polarized kidney MDCK cells expressing *cMOAT (MRP2)* cDNA. *J Clin Invest* 1998; 101: 1310-1319.
- PB-669 Mayer U, Wagenaar E, Dorobek B, Beijnen JH, Borst P, Schinkel AH. Full blockade of intestinal P-glycoprotein and extensive inhibition of blood-brain barrier P-glycoprotein by oral treatment of mice with PSC 833. *J Clin Invest* 1997; 100: 2430-2436.
- PB-672 Borst P, Bitter W, Blundell PA, Chaves I, Cross M, Gerrits H, Van Leeuwen F, McCulloch R, Taylor M and Rudenko G. Control of VSG gene expression sites in trypanosoma brucei. *Mol. Biochem. Parasitol* 1998; 91: 67-76.
- PB-673 Borst P and Van Leeuwen F. J.  $\beta$ -D-glucosyl-hydroxymethyluracil, a novel base in African trypanosomes and other kinetoplastida. *Mol Biochem Parasitol* 1997; 90: 1-8.
- PB-674 Blundell PA and Borst P. Analysis of a Variant Surface Glycoprotein gene expression site promoter of *Trypanosoma brucei* by remodelling the promoter region. *Mol. Biochem. Parasitol* 1998; 94: 67-C:\Dana\academia\biochemistry\_molecular\_biology\borst\_piet\borst\_piet\_publications.doc

85.

- PB-675 Cross M, Taylor MC and Borst P. Frequent loss of the active site during VSG expression site switching *in vitro* in *Trypanosoma brucei*. Mol Cell Biol 1998; 18: 198-205.
- PB-676 Van Leeuwen F, Wijsman ER, Kieft R, Van der Marel GA, Van Boom JH, Borst P. Localisation of the modified base J in telomeric VSG gene expression sites of *Trypanosoma brucei*. Genes and Development 1997; 11: 3232-3241.
- PB-677 Borst P, Kool M and Evers R. Do cMOAT (MRP2), other MRP homologues, and LRP play a role in MDR? Seminars in Cancer Biology 1997; 8: 205-213.
- PB-679 Rudenko G, Chaves I, Dirks-Mulder A and Borst P. Selection for activation of a new VSG gene expression site in *Trypanosoma brucei* *in vitro* can uncover events deleting the old expression site. Mol Biochem Parasitol 1998; 95: 97-109.
- PB-681 Borst P. Editor's introduction. Seminars in Cancer Biology 1997; 8: 131-134
- PB-682 Blundell PA, Van Leeuwen F, Brun R. and Borst P. Changes in expression site control and DNA modification in *Trypanosoma brucei* during differentiation of the bloodstream form to the procyclic form. Mol Biochem Parasitol 1998; 93: 115-130.
- PB-683 Smith AJ, Mayer U, Schinkel AH, and Borst P. Decreased availability of PSC 833, a substrate and inhibitor of P-glycoproteins in various concentrations of serum. J. of the Natl Cancer Inst. 1998; 90: 1161-1166.
- PB-687 Rudenko G, Cross M, and Borst P. Changing the end: antigenic variation at the telomeres of African trypanosomes. Trends in Microbiology 1998; 3: 113-117.
- PB-688 Evers R, Cnubben NHP, Wijnholds J, van Deemter L, van Bladeren PJ, and Borst P. Transport of glutathione prostaglandin A conjugates by the multidrug resistance protein 1. FEBS Lett. 1997; 419: 112-116.
- PB-690 Smith AJ, de Vree JML, Ottenhoff R, Oude Elferink RPJ, Schinkel AH and Borst P. Hepatocyte-specific expression of the human *MDR3* P-glycoprotein gene restores the biliary phosphatidylcholine excretion absent in *Mdr2* (-/-) mice. Hepatology 1998; 28: 530-536.
- PB-693 van Leeuwen F, De Kort M, Van der Marel GA, Van Boom JH and Borst P. The modified DNA base  $\beta$ -D-glucosyl-hydroxymethyluracil confers resistance to micrococcal nuclease and is incompletely recovered by  $^{32}$ P-postlabeling. Anal. Biochem. 1998; 258: 223-229.
- PB-694 Van Leeuwen F, Taylor MC, Mondragon A, Moreau H, Gibson W, Kieft R and Borst P.  $\beta$ -D-Glucosyl-hydroxymethyluracil is a conserved DNA modification in kinetoplastid protozoans and is abundant in their telomeres. Proc Natl Acad Sci USA 1998; 95: 2366-2371.
- PB-697 Borst P, Fairlamb AH. Surface receptors and transporters of *Trypanosoma brucei*. Annual Rev Microbiol. 1998; 52: 745-78.
- PB-698 Van Leeuwen F, Dirks-Mulder A, Dirks RW, Borst P and Gibson W. The modified DNA base  $\beta$ -D-glucosyl-hydroxymethyluracil is not found in the tsetse fly stages of *Trypanosoma brucei*. Molecular and Biochemical Parasitology 1998; 94: 127-130.
- PB-699 Chaves I, Zomerdijk J, Dirks-Mulder A, Dirks RW, Raap AK and Borst P. Subnuclear localisation of the active variant surface glycoprotein gene expression site in *Trypanosoma brucei*. Proc Natl Aca Sci USA, 1998; 95: 12328-12333.
- PB-700 Van Leeuwen F, Kieft R, Cross M and Borst P. Biosynthesis and function of the modified DNA base  $\beta$ -D-glucosyl-hydroxymethyluracil in *Trypanosoma brucei*. Mol Cell Biol. 1998; 10: 5643-5651.
- PB-701 Wijnholds J, Scheffer GL, Van der Valk M, Van der Valk P, Beijnen JH, Schepers RJ, and Borst P. Multidrug resistance protein 1 protects the oropharyngeal mucosal layer and the testicular tubules against drug-induced damage. J Exp Med 1998; 188: 797-808.
- PB-703 Paulusma CC, van Geer MA, Evers R, Heijn M, Ottenhoff R, Borst P, Oude Elfering RPJ. The canalicular multispecific organic anion transporter (cMOAT/MRP2) mediates low-affinity transport of reduced glutathione. Biochem J. 1999; 338: 393-401.
- PB-709 Cross M, Kieft R, Sabatini R, Wilm M, De Kort M, Van der Marel GA, Van Boom JH, Van Leeuwen F and Borst P. The modified base J is the target for a novel DNA-binding protein in kinetoplastid protozoans. EMBO J 1999;18: 6573-6581.
- PB-714 Kool M, van der Linden M, de Haas M, Baas F and Borst P. Expression of human *MRP6*, a homologue of the multidrug resistance protein gene *MRP1*, in tissues and cancer cells. Cancer Res. C:\Dana\academia\biochemistry\_molecular\_biology\borst\_piet\borst\_piet\_publications.doc

- 1999; 59: 1275-182.
- PB-715 Borst P, van Blitterswijk WJ, Borst J, Tepper AD, and Schinkel AH. New physiological functions for drug-transporting P-glycoproteins? *Drug Resistance Updates* 1998; 1: 337-339.
- PB-716 Bakos E, Evers R, Szakás G, Tusnády GE, Welker E, Szabó, de Haas M, van Deemter L, Borst P, Váradi A, Sarkadi B. Functional multidrug resistance protein (MRP1) lacking the N-terminal transmembrane domain. *J Biol Chem subm.* 1998; 273: 32167-32175.
- PB-736 Sheader K, Berberof M, Isobe T, Borst P, Rudenko G. Delineation of the regulated Variant Surface Glycoprotein gene expression site domain of *Trypanosoma brucei*. *Mol Biochem Parasitol* 2003; 128: 147-156.
- PB-737 Evers R, de Haas M, Sparidans R, Beijnen J, Wielinga P, Lankelma J, Borst P. Vinblastine and sulfinpyrazone export by the multidrug resistance protein MRP2 is associated with glutathione export. *Brit J Cancer* 2000; 83:375-383.
- PB-738 Chaves I, Rudenko G, Dirks-Mulder A, Cross M, Borst P. Control of variant surface glycoprotein gene expression sites in *Trypanosoma brucei*. *EMBO J* 1999;18: 4846-4855.
- PB-740 Kool M, Van der Linden M, De Haas M, Scheffer GL, De Vree ML, Smith AJ, Jansen G, Peters GJ, Ponne N, Scheper RJ, Oude Elferink RPJ, Baas F, Borst P. MRP3, a new organic anion transporter able to transport anti-cancer drugs. *Proc Natl Aca Sci USA* 1999; 96: 6914-6919.
- PB-742 Hooijberg JH, Broxterman HJ, Kool M, Assaraf YG, Peters GJ, Noordhuis P, Scheper RJ, Borst P, Pinedo HM, Jansen G. Antifolate resistance mediated by the multidrug resistance proteins MRP1 and MRP2. *Cancer Research* 1999; 59: 2532-2535.
- PB-750 Schultz MJ, Wijnholds J, Peppelenbosch MP, Vervoordeldonk MJBM, Speelman P, Van Deventer SJH, Borst P and Van der Poll T. Mice lacking the multidrug resistance protein 1 are resistant to *Streptococcus pneumoniae*-induced pneumonia. *J. Immunol.* 2001; 166: 4059-4064.
- PB-751 Bakos E, Evers R, Sinkó E, Váradi A, Borst P, Sarkadi B. Interactions of the human multidrug resistance proteins MRP1 and MRP2 with organic anions. *Mol Pharmacol* 2000; 57: 760-768.
- PB-753 Van Helvoort A, De Brouwer A, Ottenhoff R, Brouwers JFHM, Wijnholds J, Beijnen JH, Rijneveld A, Van der Poll T, Van der Valk MA, Majoor D, Voorhout W, Wirtz KWA, Oude Elferink RPJ, Borst P. Mice without phosphatidylcholine transfer protein have no defects in the secretion of phosphatidylcholine into bile or into the lung airspaces. *Proc Natl Acad Sci USA* 1999; 96: 11501-11506.
- PB-755 Borst P, Zelcer N, Van Helvoort A. ABC-Transporters in lipid transport. BBA; Special thematic issue on Intracellular Lipid Transport. *Biochim Biophys Acta (Mol. And Cellular Biology of Lipids)* 2000; 1486: 128-144.
- PB-756 Wijnholds J, De lange ECM, Scheffer GL, Van dern Berg D-J, Mol CAAM, Van der Valk M, Schinkel AH, Scheper RJ, Breimer DD, Borst,P. Multidrug resistance protein 1 protects the choroid plexus epithelium and contributes to the blood-cerebrospinal fluid barrier *J Clin Invest* 2000; 105: 27-285.
- PB-757 Borst P, Evers R, Kool M, Wijnholds J. The multidrug resistance protein family. *Biochim Biophys Acta (special issue 'Structure and function of ABC transporters')* 1999;1461: 347-357.
- PB-758 Dooijes D, Chaves I, Kieft R, Dirks-Mulder A, Martin W, Borst P. Base J originally found in Kinetoplastida is also a minor constituent of nuclear DNA of *Euglena gracilis*. *Nucl Acids Res.* 2000; 28: 3017-3021.
- PB-760 Van Leeuwen F, Kieft R, Cross M, Borst P. Tandemly repeated DNA is a target for the partial replacement of thymine by β-D-glucosyl-hydroxymethyluracil (J) in *Trypanosoma brucei*. *Mol Biochem Parasitol* 2000; 109:133-145.
- PB-765 Borst P, Evers R, Kool M, Wijnholds J. A family of drug transporters, the MRP's. *J Natl. Cancer Inst.* 2000; 92:1295-1302.
- PB-766 Evers R, Kool M, Smith AJ, Van Deemter L, De Haas M, Borst P. Inhibitory effect of the reversal agents V-104,GF120918 and pluronic L61 on MDR1 PGP, MRP1 and MRP2 mediated transport. *Brit J Cancer* 2000; 83: 366-374.
- PB-767 Wijnholds J, Mol CAAM, Van Deemter L, De Haas M, Scheffer GL, Baas F, Beijnen JH, Scheper RJ, Hatse S, De Clercq E, Balzarini J and Borst P. Multidrug-resistance protein 5 is a multispecific

- organic anion transporter able to transport nucleotide analogs. Proc Natl Acad Sci USA 2000; 97: 7476-7481.
- PB-773 Borst P. Antigenic variation of eukaryotic parasites. Chapter on antigenic Variation to Mobile DNA II. (eds. Craig LC, Craigie R, Gellert M, Lambowitz A) ASM Press Washington D.C. 2002: 953-971.
- PB-775 Borst P and Ulbert S. Control of VSG gene expression sites.[review] Mol Biochem Parasitol 2001; 114; 17-27.
- PB-781 Borst P, Borst J, Smets LA. Does resistance to apoptosis affect clinical response to antitumor drugs? Drug Resistance Updates 2001; 4: 129-131.
- PB-790 Scheffer GL, Kool M, De Haas M, De Vree JML, Pijnenborg ACLM, Bosman DK, Oude Elferink RPJ, Van der Valk P, Borst P, Schepers R.J. Tissue distribution and induction of human MRP3. Lab Invest 2002; 82:193-201.
- PB-791 Gerrits H, Mussmann R, Bitter W, Kieft R, Borst P. The physiological significance of transferrin receptor variations in *T. brucei*. Mol Biochem Parasitol 2002; 119: 237-247.
- PB-793 Zelcer N, Saeki T, Reid G, Beijnen JH, Borst P. Characterization of drug transport by the human multidrug resistance protein 3(ABCC3). J Biol Chem 2001; 276: 46400-46407.
- PB-795 Borst P, Reid G, Saeki T, Wielinga P, Zelcer N. The multidrug resistance proteins 3-7. In: ABC proteins: From bacteria to man. (Eds: Holland IB, Kuchler K, Higgins CF, Cole SPC) Elsevier Ltd, London 2003: 445-458.
- PB-796 Borst P, Van Meer G, Oude Elferink R. Lipid transport by ABC-transporters. In: ABC proteins: From bacteria to man. (Eds: Holland IB, Kuchler K, Higgins CF, Cole SPC) Elsevier Ltd, London 2003: 461-478.
- PB-797 Mussmann R, Janssen H, Calafat J, Ansorge I, Clayton C, Borst P. The expression level determines the surface distribution of the transferrin receptor in *Trypanosoma brucei*. Mol Microbiol 2003; 47: 23-35.
- PB-798 Borst P and Oude Elferink R. Mammalian ABC transporters in health and disease, In: Annual Review of Biochem. 2002; 71: 537-592.
- PB-799 Ulbert S, Chaves I, Borst P. Expression site activation in *Trypanosoma brucei* with three marked variant surface glycoprotein gene expression sites. Mol Biochem Parasitol 2002; 120: 225-235
- PB-800 Sabatini R, Meeuwenhoord N, Van Boom JH, Borst P. Recognition of base J in duplex DNA by J-binding protein. J Biol Chem 2002; 277: 958-966
- PB-802 Cross M, Kieft R, Sabatini R, Dirks-Mulder A, Chaves I, Borst P. J binding protein increases the level and retention of the unusual base J in trypanosome DNA. Mol Microbiol 2002; 46: 37-47.
- PB-804 Berriman M, Hall N, Shearer K, Bringaud F, Tiwari B, Isobe T, Bowman S, Corton C, Clark L, Cross GAM, Hoek M, Zanders T, Berberof M, Borst P, Rudenko G. The architecture of Variant Surface Glycoprotein gene expression sites in *Trypanosoma brucei*. Mol Biochem Parasitol 2002; 122: 131-140
- PB-805 Wielinga PR, Reid G, Challa EE, Van der Heijden I, Van Deemter L, De Haas M, Mol C, Kuil AJ, Groeneveld E, Schuetz JD, Brouwer C, De Abreu RRA, Wijnholds J, Beijnen JH and Borst P. Thiopurine metabolism and identification of the thiopurine metabolites transported by MRP4 and MRP5 overexpressed in human embryonic kidney cells. Mol Pharmacol 2002; 62: 1321-1331.
- PB-809 Borst P. Antigenic variation and allelic exclusion. (mini-review) Cell 2002; 109: 5-8
- PB-811 Zelcer N, Saeki T, Bot I, Kuil A, Borst P. Transport of bile acids in multidrug resistance protein 3 over-expressing cells co-transfected with the ileal sodium-dependent bile acid transporter. Biochem J 2003; 369: 23-30.
- PB-812 Sabatini R, Meeuwenhoord N, Van Boom JH, Borst P. Site-specific interactions of JBP with base and sugar moieties in duplex J-DNA: evidence for both major and minor groove contacts. J Biol Chem 2002; 277: 28150-28156.
- PB-813 Burg D, Wielinga P, Saeki T, Zelcer N, Mulder GJ, Borst P. Inhibition of the multidrug resistance protein 1 (MRP1) by peptidomimetic glutathione-conjugate analogues. Mol Pharmacol 2002; 62: 1160-1166.
- PB-816 Ulbert S, Cross M, Boorstein RJ, Teebor GW, Borst P. Expression of the human DNA glycosylase hSMUG1 in *Trypanosoma brucei* causes DNA damage and interferes with J-biosynthesis. Nucl

- Acids Res 2002; 30: 3919-3926.
- PB-818 Reid G, Wielinga P, Zelcer N, De Haas M, Van Deemter L, Wijnholds J, Balzarini J, Borst P. Characterization of the transport of nucleoside analog drugs by the human multidrug resistance proteins MRP4 and MRP5. Mol Pharmacol 2003; 63: 1094-1103.
- PB-819 Zelcer N, Reid G, Wielinga P, Kuil A, Van der Heijden I, Schuetz JD, Borst P. Steroid and bile acid conjugates are substrates of human multidrug resistance protein (MRP)4 (ATP-binding cassette C4). Biochem J 2003; 371: 361-367.
- PB-820 Reid G, Wielinga P, Zelcer N, Van der Heijden I, Kuil A, De Haas M, Wijnholds P, Borst P. The human multidrug resistance protein MRP4 functions as a prostaglandin efflux transporter and is inhibited by nonsteroidal antiinflammatory drugs. Proc Natl Acad Sci USA 2003; 100: 9244-9249.
- PB-821 Borst P. Mechanisms of antigenic variation: an overview. In: Antigenic Variation (Eds: Craig A and Scherf A). Elsevier Ltd, London 2003: 1-15.
- PB-826 Ulbert S, Eide L, Seeberg E, Borst P. Base J, found in nuclear DNA of *Trypanosoma brucei*, is not a target for DNA glycosylases. DNA Repair 2004; 3: 145-154.
- PB-828 Wielinga P, Van der Heijden I, Reid G, Beijnen JH, Wijnholds J and Borst P. Characterization of the MRP4- and MRP5-mediated transport of cyclic nucleotides from intact cells. J Biol Chem 2003; 278: 17664-17671.
- PB-829 Martin W and Borst P. Secondary loss of chloroplasts in trypanosomes. Proc Natl Acad Sci USA 2003; 100: 765-767.
- PB-831 Zelcer N, Huisman MT, Reid G, Wielinga P, Breedveld P, Kuil A, Knipscheer P, Schellens JH, Schinkel AH and Borst P. Evidence for two interacting ligand binding sites in human MRP2 (ATP binding cassette C2). J Biol Chem 2003; 278: 23538-23544.
- PB-832 Borst P, Balzarini J, Ono N, Reid G, De Vries H, Wielinga P, Wijnholds J, Zelcer N. The potential impact of drug transporters on nucleoside-analog-based antiviral chemotherapy. Antiviral Res. 2004; 62: 1-7.
- PB-837 Mussmann R, Engstler M, Gerrits H, Kieft R, Bentin Toaldo C, Onderwater J, Koerten H, Van Luenen HGAM, Borst P. Factors affecting level and localization of the transferrin receptor in *T. brucei*. J Biol Chem 2004; 279: 40690-40698.
- PB-850 Wielinga P, Hooijberg JH, Gunnarsdottir S, Kathmann I, Reid G, Zelcer N, Van der Born K, De Haas M, Van der Heijden I, Kaspers G, Wijnholds J, Jansen G, Peters G, Borst P. The human multidrug resistance protein MRP5 transports folates and can mediate cellular resistance against antifolates. Cancer Res. 2005; 65: 4425-4430.
- PB-851 Van Luenen HGAM, Kieft R, Mussmann R, Engstler M, Ter Riet B, Borst P. Trypanosomes change their transferrin receptor expression to allow effective uptake of host transferrin. Mol. Microbiol. 2005; 58: 151-165.
- PB-852 Zelcer N, Van de Wetering K, Hillebrand M, Sarton,E., Kuil A, Wielinga PR, Tephly T, Dahan,A., Beijnen JH, Borst P. Mice lacking multidrug resistance protein 3 show altered morphine pharmacokinetics and morphine-6-glucuronide antinociception. Proc. Natl. Acad. Sci. USA 2005; 102: 7274-7279.
- PB-853 Borst P, Rottenberg S. Cancer cell death by programmed necrosis? Drug Resist. Updat. 2005; 7: 321-324
- PB-854 Genest PA, Ter Riet B, Dumas C, Papadopoulou B, Van Luenen HGAM, Borst P. Formation of linear inverted repeat amplicons following targeting of an essential gene in *Leishmania*. Nucleic Acids Res 2005; 33: 1699-1709.
- PB-857 Zelcer N, Van de Wetering K, De Waart R, Scheffer G, Marschall H.-U., Wielinga P, Kuil A, Kunne C, Smith A, Van der Valk M, Wijnholds J, Oude Elferink R, Borst P. Mice lacking Mrp3 (Abcc3) have normal bile salt transport, but display altered hepatic transport of endogenous glucuronides. Hepatology 2006; 44: 768-775.
- PB-860 Toaldo CB, Kieft R, Dirks-Mulder A, Sabatini R, Van Luenen HG, Borst P. A minor fraction of base J in kinetoplastid nuclear DNA is bound by the J-binding protein 1. Mol. Biochem. Parasitol. 2005; 143: 111-115.
- PB-862 Borst P, Zelcer N, Van de Wetering K. MRP2 and 3 in health and disease. Cancer Letters 2006; 234: 51-61.

- PB-863 De Wolf CJF, Yamaguchi H, Van der Heijden I, Wielinga PR, Hundscheid S, Ono N, Scheffer, GL, De Haas M, Schuetz JD, Wijnholds J, Borst P. cGMP transport by vesicles from human and mouse erythrocytes. *FEBS J.* 2007; 274: 439-450.
- PB-866 Borst P. Ethidium DNA agarose gel electrophoresis: how it started. *IUBMB Life* 2005; 57: 745-747.
- PB-869 Borst P, Zelcer N, Van de Wetering K, Poolman, B. On the putative co-transport of drugs by multidrug resistance proteins. *FEBS Letters* 2006; 580: 1085-1093.
- PB-870 Borst P. How I became a Biochemist. *IUBMB Life* 2006; 58: 177-182.
- PB-871 Borst P, De Wolf C, Van de Wetering K. Multidrug Resistance associated Proteins 3, 4 and 5. *Pflügers Arch – Eur. J Physiol* 2007; 453: 661-673.
- PB-872 Yu Z, Genest PA, Ter Riet B, Sweeney K, Dipaolo C, Kieft R, Christodoulou E, Perrakis A, Simmons J, Hausinger R, Van Luenen H, Rigden D, Sabatini R, Borst P. The protein that binds to DNA base J in trypanosomatids has features of a thymidine hydroxylase. *Nucl Acids Res* 2007; 35: 2017-2115.
- PB-873 Rottenberg S, Nygren AOH, Pajic M, Van Leeuwen FWB, Van der Heijden I, Van de Wetering K, Liu X, De Visser KE, Van Tellingen O, Schouten JP, Jonkers J, Borst P. Selective induction of chemotherapy resistance of mammary tumors in a conditional mouse model for hereditary breast cancer. *Proc. Natl. Acad. Sci. USA*: 2007; 104: 12117-12122.
- PB-874 Borst P, Genest PA. Parasitology: Switching like for like. *Nature* 2006; 439: 926-927.
- PB-875 Ono N, Van der Heijden I, Scheffer GL, Van Deemter E, Van de Wetering K, De Haas M, Boerke A, Gadella BM, De Rooij DG, Neefjes JJ, Groothuis TAM, Oomen L, Brocks L, Ishikawa T, Borst P. Multidrug Resistance-associated Protein 9 (ABCC12) is present in testicular germ cells and in mature sperm. *Biochem J* 2007; 406: 31-40.
- PB-881 Genest PA, Ter Riet B, Cysouw T, Van Luenen H, Borst P. Telomeric localization of the modified DNA base J in the genome of the protozoan parasite *Leishmania*. *Nucl Acids Res* 2007; 35: 2116-2124.
- PB-885 Genest PA, Borst P. Analysis of telomere length variation in *Leishmania* over time. *Mol Biochem Parasitol* 2007; 151: 213-215.
- PB-887 Van de Wetering K, Zelcer N, Kuil A, Feddema W, Hillebrand M, Vlaming MLH, Schinkel AH, Beijnen JH, Borst P. Multidrug resistance protein 2 and 3 provide alternative routes for hepatic excretion of morphine-glucuronides. *Mol Pharmacol* 2007; 72: 387-394.
- PB-893 Borst P, Jonkers J, Rottenberg S. What makes tumors multidrug resistant? *Cell Cycle* 2007; 6: 2782-2787.
- PB-894 De Wolf CJ, Jansen R, Yamaguchi H, De Haas M, Van de Wetering K, Wijnholds J, Beijnen J, Borst P. Contribution of the drug transporter ABCG2 (Breast Cancer Resistance Protein) to resistance against anti-cancer nucleosides. *Mol Cancer Ther* 2008; 6: 3092-3102.
- PB-897 Borst P, Sabatini R. Base J: discovery, biosynthesis and possible functions. *Ann Rev Microbiol* 2008; 62: 235-251.
- PB-901 Van de Wetering K, Burkon A, Feddema W, Bot A, De Jonge H, Somoza V, Borst P. Intestinal breast cancer resistant protein (BCRP)/Bcrp1 and multidrug resistant protein 3 (MRP3)/Mrp3 are involved in the pharmacokinetics of resveratrol. *Mol. Pharmacol.* 2009; 75: 876-885.
- PB-902 Borst P, Rottenberg S, Jonkers J. How do real tumors become resistant to cisplatin? *Cell Cycle* 2008; 7: 1353-1359.
- PB-903 Borst P, Van de Wetering K, Schlingemann R. Does the absence of ABCC6 (Multidrug Resistance Protein 6) in patients with *Pseudoxanthoma elasticum* prevent the liver from providing sufficient vitamin K to the periphery? *Cell Cycle* 2008; 7: 1575-1579.
- PB-905 Pajic M, Iyer JK, Kersbergen A, Van der Burg E, Nygren AOH, Jonkers J, Borst P, Rottenberg S. A moderate increase in *Mdr1a/1b* expression causes *in vivo* resistance to doxorubicin in a mouse model for hereditary breast cancer. *Cancer Res.* 2009; 69: 6369-6404.
- PB-906 Vainio S, Genest PA, Ter Riet B, Van Luenen H, Borst P. Evidence that J-binding protein 2 is a thymidine hydroxylase catalyzing the first step in the biosynthesis of DNA base J. *Mol. Biochem. Parasitol.* 2009; 164: 157-161.
- PB-908 Van de Wetering K, Feddema W, Helms JB, Brouwers JF, Borst P. Targeted metabolomics identifies glucuronides of dietary phytoestrogens as a major class of MRP3 substrates in vivo.

- Gastroenterology 2009; 137: 1725-1735.
- PB-909 Zander S, Kersbergen A, Van der Burg E, De Water N, Van Tellingen O, Gunnarsdottir S, Jaspers J, Nygren AOH, Jonkers J, Borst P, Rottenberg S. Sensitivity and acquired resistance of BRCA1; P53-deficient mouse mammary tumors to the topoisomerase I inhibitor topotecan. Cancer Res. 2009, in press.
- PB-910 Beedholm-Ebsen R, Van de Wetering K, Hardlei T, Nexø E, Borst P, Moestrup SK. Identification of multidrug resistance protein 1 (MRP1/ABCC1) as a molecular gate for cellular export of cobalamin. Blood 2009, in press.