

VERÖFFENTLICHUNGEN

- 1) Hartmann R. W., Kranzfelder G., v. Angerer E., Schönenberger H., Antiestrogens. Synthesis and evaluation of mammary tumor inhibiting activity of 1,1,2,2-tetraalkyl-1,2-diphenylethanes, *J. Med. Chem.* **1980**, 23, 841-848
- 2) Hartmann R. W., Buchborn H., Kranzfelder G., Schönenberger H., Potential antiestrogens. Synthesis and evaluation of mammary tumor inhibiting activity of 1,2-dialkyl-1,2-bis(3'-hydroxyphenyl)ethanes, *J. Med. Chem.* **1981**, 24, 1192-1197
- 2 a) Hartmann, R.W., Synthesis of new hexestrol derivatives and their evaluation of antiestrogenic and mammary tumor inhibiting activity, *Journal of Cancer Research and Clinical Oncology* **1981**, 99 (3), pp. A52-A53
- 3) Kranzfelder G., Hartmann R. W., v. Angerer E., Schönenberger H., Bogden A. E., 3,4-Bis(3'-hydroxyphenyl)hexane - A new mammary tumor-inhibiting compound, *J. Cancer Res. Clin. Oncol.* **1982**, 103, 165-180
- 4) Hartmann R. W., Schönenberger H., Wrobel K.-H., 3,4-Bis(3'-hydroxyphenyl)hexane - A new mammary tumor-inhibiting compound. Studies on the mechanism of action on the DMBA-induced, hormone-dependent mammary tumor of the rat, *J. Cancer Res. Clin. Oncol.* **1982**, 103, 241-254
- 5) Hartmann R. W., 3,4-bis(3'-hydroxyphenyl)hexane - A new mammary tumor inhibiting compound. Studies on the mechanism of action on the DMBA-induced, hormone-dependent mammary tumor of the rat, *Verh. Dtsch. KrebsGes.* **1983**, 4, 156
- 6) Engel J., Hartmann R. W., Schönenberger H., Metahexestrol, *Drugs Future* **1983**, 8, 413-419
- 7) Hartmann R. W., Tumor growth-stimulating and inhibiting effects of antiestrogens on the DMBA-induced mammary carcinoma of the ovariectomized, diethylstilbestrol-treated SD Rat. A study on the mechanism of action of antiestrogens, *Eur. J. Cancer Clin. Oncol.* **1983**, 19, 959-964
- 8) Hartmann R. W., Schwarz W., Schönenberger H., Ring-substituted 1,2-dialkylated 1,2-bis(hydroxyphenyl)ethanes. 1. Synthesis and estrogen receptor binding affinity of 2,2'- and 3,3'-disubstituted hexestrols, *J. Med. Chem.* **1983**, 26, 1137-1144
- 9) Hartmann R. W., Heindl A., Schönenberger H., Ring-substituted 1,2-dialkylated 1,2-bis(hydroxyphenyl)ethanes. 2. Synthesis and estrogen receptor binding affinity of 4,4'-, 5,5'-, and 6,6'-disubstituted metahexestrols, *J. Med. Chem.* **1984**, 27, 577-585
- 10) Hartmann R. W., Screening procedure for the development of mammary tumour-inhibiting anti-oestrogens, *Cancer Treat. Rev.* **1984**, 11, 155-161 (Suppl. A).
- 11) Hartmann R. W., Screening-Verfahren zur Auffindung von Antiöstrogenen mit Wirkung am hormonabhängigen Mammakarzinom, *Beitr. Onkol.* **1984**, 18, 247-258
- 12) Hartmann R. W., Heindl A., Schwarz W., Schönenberger H., Ring-substituted 1,2-dialkylated 1,2-bis(hydroxyphenyl)ethanes. 3. Synthesis, estrogen receptor binding affinity, and evaluation of antiestrogenic and mammary tumor inhibiting activity of 2,2'-disubstituted butestrols and 6,6'-disubstituted metabutestrols, *J. Med. Chem.* **1984**, 27, 819-824

- 13) Hartmann R. W., TetramethylHES, *Drugs Future* **1985**, 10, 48-49
- 14) Hartmann R. W., Schwarz W., Heindl A., Schönenberger H., Ring-substituted 1,1,2,2-tetraalkylated 1,2-bis(hydroxyphenyl)ethanes. 4. Synthesis, estrogen receptor binding affinity, and evaluation of antiestrogenic and mammary tumor inhibiting activity of symmetrically disubstituted 1,1,2,2-tetramethyl-1,2-bis(hydroxyphenyl)ethanes, *J. Med. Chem.* **1985**, 28, 1295-1301
- 15) Hartmann R. W., Sinchai T., Kranzfelder G., Anti-proliferative effects of 1,2-diphenylethane oestrogens and anti-oestrogens on human breast cancer cells, *J. Cancer Res. Clin. Oncol.* **1985**, 110, 17-24
- 16) Hartmann R. W., Heindl A., Schneider M. R., Schönenberger H., Influence of alkyl-chain fluorination on the action of mammary tumor inhibiting 2,3-bis(hydroxyphenyl)butanes and 2,3-bis(hydroxyphenyl)but-2-enes, *J. Med. Chem.* **1986**, 29, 322-328
- 17) Hartmann R. W., Batzl C., Aromatase inhibitors. Synthesis and evaluation of mammary tumor inhibiting activity of 3-alkylated 3-(4-aminophenyl)piperidine-2,6-diones, *J. Med. Chem.* **1986**, 29, 1362-1369
- 18) Hartmann R. W., Influence of alkyl chain ramification on estradiol receptor binding affinity and intrinsic activity of 1,2-dialkylated 1,2-bis(4- or 3-hydroxyphenyl)ethane estrogens and antiestrogens, *J. Med. Chem.* **1986**, 29, 1668-1674
- 19) Schneider M. R., Hartmann R. W., Sinowatz F., Amselgruber W., Nonsteroidal antiestrogens and partial estrogens with prostatic tumor inhibiting activity, *J. Cancer Res. Clin. Oncol.* **1986**, 112, 258-265
- 20) Batzl C., Hartmann R. W., Hemmstoffe der Aromatase. Synthese und pharmakologische Bewertung von potentiellen mammatumorhemmenden 4-Alkyl-3-(4-aminophenyl)-3-ethyl-piperidin-2,6-dionen, *Arch. Pharm. (Weinheim)* **1987**, 320, 51-58
- 21) Hartmann R. W., Schönenberger H., Antitumormittel - Hormone und Antihormone. In: Kleemann A., Lindner E., Engel J. (Hrsg.) *Arzneimittel-Fortschritte 1972-1985*, Verlag Chemie, Weinheim **1987**, 1308-1366
- 22) Hartmann R. W., Batzl C., Schönenberger H., Structure-activity studies and evaluation of mammary tumor inhibiting activity of new aromatase-inhibitors of the aminoglutethimide-type, *Steroids* **1987**, 50, 627-628
- 23) Hartmann R. W., Schwarz W., Schneider M. A., Engel J., Schönenberger H., D-18954. A new antiestrogen with mammary and prostatic tumor inhibiting activity, *Drugs Future* **1988**, 13, 720-721
- 24) Krischke W., Hartmann R. W., Schneider, M., Schönenberger H., A simple method of delayed processing of tumor tissue in a soft agar clonogenic assay, *J. Cancer Res. Clin. Oncol.* **1988**, 114, 170-176
- 25) Hartmann R. W., vom Orde H.-D., Heindl A., Schönenberger H., N-(4-hydroxyphenyl)-N-(1,1,1-trifluor-2-propyl)-4-hydroxybenzamid: Synthese und pharmakologische Bewertung eines neuen Antiestrogens, *Arch. Pharm. (Weinheim)* **1988**, 321, 497-501
- 26) Hartmann R. W., Batzl C., Mannschreck A., Seydel J. K., New aromatase inhibitors. QSAR and evaluation of mammary tumor inhibiting activity. In: van der Goot H., Pallos L., Timmermann H. (Eds.) *Trends in Medicinal Chemistry 1988*, Elsevier, Amsterdam **1989**, 821-838

- 27) Schönenberger H., Gust R., Karl J., Spruß T., Schneider M. R., Hartmann R. W., Batzl C., Schertl S., Engel J., Lux F., Trebert-Haeberlin S., Rezeptorgebundene Chemotherapie. In: *Antiöstrogene in Forschung und Klinik, aus der Reihe Aktuelle Onkologie*, Zuckschwerdt Verlag, München **1989**, 71-86
- 28) Hartmann R. W., Estrogenabhängige Tumoren und ihre Behandlung, *Pharm. Ztg.* **1989**, *134*, 2629-2638
- 28 a) Schwarz, W., Hartmann, R.W., Engel, J., Schneider, M.R., Schönenberger, H., Ester derivatives of the mammary-tumor-inhibiting antiestrogen 2,3-bis(2-fluoro-4-hydroxyphenyl)-2,3-dimethylbutane, In: *Journal of Cancer Research and Clinical Oncology* **1989**, *115* (2), 161-165
- 29) Schönenberger H., Gust R., Karl J., Spruß T., Schneider M. R., Hartmann R. W., Batzl Ch., Schertl S., Engel J., Lux F., Trebert-Haeberlin S., Chancen und Stand der Entwicklung neuer antineoplastischer Substanzen II. In: Dengler H.J., Schmitt C.G.: *Klinische Pharmakologie und Onkologie*, Gustav Fischer Verlag, Stuttgart, **1990**, 255-278
- 30) Hartmann R. W., Batzl C., Mannschreck A., Pongratz T., Stereoselective aromatase inhibition by the enantiomers of 3-cyclohexyl-3-(4-aminophenyl)-2,6-piperidinedione. In: Holmstedt B., Frank H., Testa B.: *Chirality and Biological Activity*, Alan R. Liss, New York **1990**, 185-190
- 31) Hartmann R. W., vom Orde H.-D., Schönenberger H., Antiestrogene N-(4-Hydroxyphenyl)-N-(1,1,1-trifluor-2-propyl)-4-hydroxybenzamide: Beeinflussung der Wirkung durch hydrophobe Reste in ortho-Position des Benzamidfragments, *Arch. Pharm. (Weinheim)* **1990**, *323*, 73-78
- 32) Schwarz W., Hartmann R. W., Engel J., Schneider M. R., Schönenberger H.; Cytotoxic ester derivatives of the mammary tumor inhibiting antiestrogen 2,3-bis(2-fluoro-4-hydroxyphenyl)-2,3-dimethylbutane, *Arch. Pharm. (Weinheim)* **1990**, *323*, 121-124
- 32 a) Hartmann, R.W., Enzyme inhibitors in the treatment of malignant tumors, *Archiv der Pharmazie* **1990**, *323* (8), pp. 529-530
- 33) Schwarz W., Hartmann R. W., Schönenberger H.; Potentielle Antiöstrogene vom Typ des 1,2-Diphenyl-1-pyridyl-but-1-ens, Teil 1: Synthese, *Arch. Pharm. (Weinheim)* **1991**, *324*, 223-229
- 34) Schwarz W., Hartmann R. W., Schönenberger H.; Potentielle Antiöstrogene vom Typ des 1,2-Diphenyl-1-pyridyl-but-1-ens, Teil 2: Biologische Prüfung, *Arch. Pharm. (Weinheim)* **1991**, *324*, 231-234.
- 35) Bayer H., Hartmann R. W., Neue Hemmstoffe der Aromatase. Synthese und biologische Aktivität Pyridyl-substituierter Phenanthrenonderivate, *Arch. Pharm. (Weinheim)* **1991**, *324*, 833-836
- 36) Bayer H., Hartmann R. W., Pyridyl-substituierte Tetralonderivate. Eine neue Klasse nichtsteroidaler Aromatase-Inhibitoren, *Arch. Pharm. (Weinheim)* **1991**, *324*, 815-820
- 37) Bayer H., Batzl C., Hartmann R. W., Mannschreck A., New aromatase inhibitors. Synthesis and biological activity of pyridyl-substituted tetralone derivatives, *J. Med. Chem.* **1991**, *34*, 2685-2691
- 38) Hartmann R. W., Batzl C., Synthesis and evaluation of 4-alkylanilines as mammary tumor inhibiting aromatase inhibitors, *Eur. J. Med. Chem.* **1992**, *27*, 537-544

- 39) Hartmann R. W., Batzl C., Pongratz T., Mannschreck A., Synthesis and aromatase inhibition of 3-cycloalkyl-substituted 3-(4-aminophenyl)piperidine-2,6-diones, *J. Med. Chem.* **1992**, 35, 2210-2214
- 40) Hartmann R. W., Development of a postmenopausal rat mammary tumor model, *Pharm. Pharmacol. Lett.* **1992**, 2, 146-149
- 41) Hartmann R. W., Grün G., Bartz U., Palzer M., Evaluation of the racemate and the enantiomers of a new highly active and selective aromatase inhibitor of the aminoglutethimide type, *J. Steroid Biochem. Mol. Biol.* **1992**, 43, 641-648
- 42) Bednarski P. J., Hartmann R. W., Synthesis and evaluation of sulfur-containing glutethimide derivatives for aromatase and desmolase inhibitory activity, *Arch. Pharm. (Weinheim)* **1993**, 326, 391-394
- 43) Herrmann S. M., Reichert M., Hartmann R. W., Entwicklung eines Hemmassays und Synthese von nicht-steroidalen Inhibitoren der NADPH:  $\Delta^4$ -3-Oxosteroid-5 $\alpha$ -Oxidoreduktase (5 $\alpha$ -Reduktase). In: Hirschelmann R. (Hrsg.) Entzündung und verwandte Reaktionen – neue Erkenntnisse - neue Wirkstoffe, Jenapharm-Verlag, Jena **1993**, 62-69
- 44) Grün G., Hartmann R. W., Hochaktive nichtsteroidale Aromatase-Inhibitoren: In vitro und in vivo Untersuchungen zur Selektivität und tumorhemmenden Aktivität. In: Hirschelmann R. (Hrsg.) Entzündung und verwandte Reaktionen - neue Erkenntnisse - neue Wirkstoffe, Jenapharm-Verlag, Jena **1993**, 204-214
- 45) Sergejew T. F., Hartmann R. W., Sexualhormonspiegel-reduzierende Platinkomplexe: Untersuchungen zum Wirkungsmechanismus. In: Hirschelmann R. (Hrsg.) Entzündung und verwandte Reaktionen - neue Erkenntnisse - neue Wirkstoffe, Jenapharm-Verlag, Jena **1993**, 215-222
- 46) Hartmann R. W., Bayer H., Grün G., Aromatase inhibitors. Syntheses and structure-activity studies of novel pyridyl-substituted indanones, indans and tetralins, *J. Med. Chem.* **1994**, 37, 1275-1281
- 47) Sergejew T., Hartmann R. W., Pyridyl substituted benzocycloalkenes: New inhibitors of 17 $\alpha$ -hydroxylase / 17,20-lyase (P450 17 $\alpha$ ), *J. Enz. Inhib.* **1994**, 8, 113-122
- 48) Hartmann R. W., Selective inhibition of steroidogenic P450 enzymes: current status and future perspectives, *Eur. J. Pharm. Sci.* **1994**, 2, 15-16
- 49) Hartmann R. W., Reichert M., Göhring S., Novel 5 $\alpha$ -reductase inhibitors. Syntheses and structure-activity studies of 5-substituted 1-methyl-2-pyridones and 1-methyl-2-piperidones, *Eur. J. Med. Chem.* **1994**, 29, 807-817
- 50) Mitrenga M., Hartmann R. W., N-Oxide formation causes loss of aromatase inhibitory activity of pyridyl substituted tetrahydronaphthalenes, *Eur. J. Med. Chem.* **1995**, 30, 241-244
- 51) Kattner L., Göhring S., Hartmann R. W., Synthesis and biochemical evaluation of (carbamoyl-alkenyl)phenoxy carboxylic acid derivatives as non-steroidal 5 $\alpha$ -reductase inhibitors, *Arch. Pharm. (Weinheim)* **1995**, 328, 239-245
- 52) Hartmann R. W., Bayer H., Grün G., Sergejew T., Bartz U., Mitrenga M., Pyridyl-substituted tetrahydrocyclopropa[a]naphthalenes: highly active and selective inhibitors of P450 arom, *J. Med. Chem.* **1995**, 38, 2103-2111
- 53) Njar V. C. O., Hartmann R. W., Robinson C. H., Synthesis of 6 $\alpha$ ,7 $\alpha$ - and 6 $\beta$ ,7 $\beta$  - aziridinoandrost-4-ene-3,17-diones and related compounds: potential aromatase inhibitors,

- 54) Njar V. C. O., Grün G., Hartmann R. W., Evaluation of 6,7-aziridinyl steroids and related compounds as inhibitors of aromatase (P-450<sub>arom</sub>), *J. Enz. Inhib.* **1995**, 9, 195-202
- 55) Hartmann R. W., Wächter G. A., Sergejew T., Würtz R., Düerkop J., 4,5-Dihydro-3-(2-pyrazinyl)naphtho[1,2-c]pyrazole: A potent and selective inhibitor of steroid-17 $\beta$ -hydroxylase-C17,20-lyase (P450 17), *Arch. Pharm. (Weinheim)* **1995**, 328, 573-575
- 56) Ledergerber D., Hartmann R. W., Development of a screening assay for the *in vitro* evaluation of thromboxane A<sub>2</sub> synthase inhibitors, *J. Enz. Inhib.* **1995**, 9, 253-261
- 57) Njar V. C. O., Düerkop J., Hartmann R. W., Novel 19-(cyclopropylamino)-androst-4-en-3,17-dione: A mechanism-based inhibitor of aromatase, *J. Enz. Inhib.* **1995**, 10, 47-56
- 58) Hector M., Hartmann R. W., Njar V. C. O., Pyridinium dichromate: A novel reagent for the oxidation of steroidal  $\Delta^5$ -3 $\beta$ -alcohols to the corresponding  $\Delta^4$ -3,6-diketones, *Synth. Commun.* **1996**, 26, 1075-1082
- 59) Njar V. C. O., Düerkop J., Hartmann R. W., Synthesis of 10 $\beta$ -(1'-aziriny)estr-4-en-3,17-dione as an aromatase inhibitor, *Steroids* **1996**, 61, 138-143
- 60) Wächter G. A., Hartmann R. W., Sergejew T., Grün G. L., Ledergerber D., Tetrahydronaphthalenes: Influence of heterocyclic substituents on inhibition of steroidogenic enzymes P450 <sub>arom</sub> and P450 17, *J. Med. Chem.* **1996**, 39, 834-841
- 61) Hartmann R. W., Frotscher M., Ledergerber D., Wächter G. A., Grün G. L., Sergejew T. F. Synthesis and evaluation of azole-substituted tetrahydronaphthalenes as inhibitors of P450 <sub>arom</sub>, P450 17 and P450 TxA<sub>2</sub>, *Arch. Pharm. Pharm. Med. Chem.* **1996**, 329, 251-261
- 62) Njar V. C. O., Hector M., Hartmann R. W., 20-Amino- and 20,21-aziridinyl pregnene steroids: development of potent inhibitors of 17 $\alpha$ -hydroxylase/C17,20-lyase (P450 17), *Bioorg. Med. Chem.* **1996**, 4, 1447-1453.
- 63) Hartmann R. W., Mark M., Soldati F., Inhibition of 5 $\alpha$ -reductase and aromatase by PHL-00801 (Prostatonin®), a combination of PY102 (Pygeum africanum) and UR102 (Urtica dioica) extracts, *Phytomedicine* **1996**, 3, 121-128.
- 64) Sergejew T. F., Hartmann R. W., Effect of a diphenylethylenediamine platinum complex on steroidogenesis in rats, *J. Steroid Biochem. Mol. Biol.* **1996**, 58, 243-248
- 65) Ledergerber D., Frotscher M., Hartmann R. W., Novel highly active thromboxane A<sub>2</sub> synthase inhibitors void of carboxylic groups, *Arch. Pharm. Pharm. Med. Chem.* **1997**, 330, 3-5
- 66) Ducrey B., Marston A., Göhring S., Hartmann R. W., Hostettmann K., Inhibition of 5 $\alpha$ -reductase and aromatase by the ellagitannins oenothain A and oenothain B from *epilobium* species, *Planta Med.* **1997**, 63, 111-114
- 67) Le Borgne M., Marchand P., Duflos M., Delevoye-Seiller B, Piessard-Robert S., Le Baut G., Hartmann R.W., Palzer M., Synthesis and *in vitro* evaluation of 3-(1-azolylmethyl)-1*H*-indoles and 3-(1-azolyl-1-phenylmethyl)-1*H*-indoles as inhibitors of P 450 <sub>arom</sub>, *Arch. Pharm. Pharm. Med. Chem.* **1997**, 330, 141-145
- 68) Le Borgne M., Marchand P., Duflos M., Piessard-Robert S., Le Baut G, Ahmadi M., Palzer M., Hartmann R. W., Comparison of the *in vitro* aromatase inhibitory activity for 3-(azolylmethyl)-1*H*-indoles, *Pharm. Sci.* **1997**, 3, 279-281

- 69) Hartmann R. W., Frotscher M., Grün G. L., Hector M., Ledergerber D., Mitrenga M., Sergejew T., Wächter G. A., Metabolism of endobiotics and therapeutic aspects of P450 inhibitors. In Awouters F. (Ed.) Proceedings, 14th International Symposium for Medicinal Chemistry, Elsevier Scientific Publishers, Amsterdam **1997**, 109-116
- 69a) Becker H., Hartmann R.W., Kallmayer H.-J., Lehr, C.-M., Loth H., Maurer H. H., Die Pharmazie an der Universität des Saarlandes, *Pharm.unserer Zeit* **1997**, 26, 199-201
- 70) Zhuang, Y., Zapp J., Hartmann R.W., Synthesis of Z- and E-1-methyl-2-(1-hydroximinoethyl)-6-methoxy-3,4-dihydronaphthalene and evaluation as inhibitors of 17 $\alpha$ -hydroxylase-C17,20-lyase (P450 17), *Arch. Pharm. Pharm. Med. Chem.* **1997**, 330, 359-361
- 70 a) Ledergerber, D., Frotscher, M., Hartmann, R.W. Novel highly active thromboxane A2 synthase inhibitors devoid of carboxylic groups, *Archiv der Pharmazie* **1997**, 330 (1-2), pp. 3-5
- 71) Huang, Y., Hartmann R.W., The improved preparation of 7,8-dihydro-quinoline5(6*H*)-one and 6,7-dihydro-5*H*-1-pyrindin-5-one, *Synth. Comm.* **1998**, 28, 1197-1200
- 72) Baston, E., Hartmann R.W., A new route to 6-aryl-substituted 3,4-dihydronaphthalene derivatives via Pd (O)-catalyzed cross-coupling reaction of aryl zinc chlorides with an aryl triflate, *Synth. Comm.* **1998**, 28, 2725-2729
- 73) Zhuang, Y., Hartmann, R.W., Synthesis of novel oximes of 2-aryl-6-methoxy-3,4-dihydronaphthalene and evaluation as inhibitors of of 17 $\alpha$ -hydroxylase-C17,20-lyase (P450 17), *Arch. Pharm. Pharm. Med. Chem.* **1998**, 331, 36-40
- 74) Marchand, P., Le Borgne M., Duflos, M., Robert-Piessard, S., Le Baut, G., Ahmadi, M., Hartmann, R.W., Palzer M., 3-(azolylmethyl)-1*H*-indoles as selective P450 aromatase inhibitors, *Pharm. Pharmacol. Commun.* **1998**, 4, 211-218
- 75) Dannhardt, G., Flemmer, L., Hartmann, R.W., Kleber A. and Schulze,E., Spectrofluorimetric quantification of malondialdehyde for evaluation of cyclooxygenase-1/thromboxane synthase inhibition, *Arch. Pharm. Pharm. Med. Chem.* **1998**, 331, 359-364
- 76) Le Borgne, M., Marchand, P., Delovoye-Seiller, B., Robert, J.-M., Robert-Piessard, S., Le Baut G., Hartman R.W., Palzer, M., New selective nonsteroidal aromatase inhibitors: Synthesis and inhibitory activity of 2,3 or 5-( $\alpha$ -azolybenzyl)-1*H*-indoles, *Bioorg. Med. Chem. Lett.* **1999**, 9, 333-336
- 77) Wachall, B.G., Hector, M., Zhuang, Y., Hartmann, R.W., Imidazole substituted biphenyls - a new class of highly potent and in vivo active inhibitors of P450 17 as potential therapeutics for treatment of prostate cancer, *Bioorg. Med. Chem.* **1999**, 7, 1913-1924
- 78) Zhuang, Y., Hartmann, R.W., Synthesis and evaluation ofazole-substituted 2-aryl-6-methoxy-3,4-dihydronaphthalenes and -naphthalenes as inhibitors of 17  $\alpha$ -hydroxylase-C17,20-lyase (P450 17), *Arch. Pharm. Pharm. Med. Chem.* **1999**, 332, 25-30
- 79) Baston, E., Hartmann, R.W., N-substituted 4-(5-indolyl)benzoic acids. Synthesis and evaluation of steroid 5 $\alpha$ -reductase type I and II inhibitory activity, *Bioorg. Med. Chem. Lett.* **1999**, 9, 1601-1606
- 80) Hartmann, R.W., Frotscher, M., 1-Imidazolylcarbonyloxy-substituted tetrahydroquinolines and pyridines: Synthesis and evaluation of P450 TxA2 inhibition, *Arch. Pharm. Pharm. Med. Chem.* **1999**, 332, 358-362

- 81) Haider, N., Hartmann, R.W., Steinwender, A., Synthesis of 2-[2-(1-imidazolyl)ethyl]-4-phenylcycloalka[g]]phthalazin-1(2H)-ones as thromboxane A<sub>2</sub> synthase inhibitors, *Arch. Pharm. Pharm. Med. Chem.* **1999**, 332, 408-409
- 81a) LeBorgne, M., Loquet, D., Na, Y.M., Robert-Piessard, S., Le Baut, G., Hartmann, R.W., Palzer, M., New 7-( $\alpha$ -azolylbenzyl)-indoles and indolines acting as P450 aromatase inhibitors, *Journal of Pharmacy and Pharmacology* **1999**, 51 (SUPPL.), pp. 113
- 82) Zhuang, Y., Wachall, B.G., Hartmann, R.W., Novel imidazolyl and triazolyl substituted biphenyl compounds: Synthesis and evaluation as nonsteroidal inhibitors of human 17  $\alpha$ -hydroxylase-C<sub>17,20</sub>-lyase(P450 17), *Bioorg. Med. Chem.* **2000**, 8, 1245-1252
- 83) Jacobs, C., Frotscher, M., Dannhardt, G., Hartmann, R.W., 1-Imidazolyl(alkyl)-substituted di- and tetrahydroquinolines and analogues: Syntheses and evaluation of dual inhibitors of thromboxane A<sub>2</sub> synthase and aromatase, *J. Med. Chem.* **2000**, 43, 1841-1851
- 84) Picard, F., Baston, E., Reichert, W., Hartmann, R.W., Synthesis of N-substituted piperidine-4-(benzylidene-4-carboxylic acids) and evaluation as inhibitors of steroid-5  $\alpha$ -reductase type 1 and 2, *Bioorg. Med. Chem.* **2000**, 8, 1479-1487
- 85) Hartmann, R.W., Reichert, M., New nonsteroidal steroid 5 $\alpha$ -reductase inhibitors. Syntheses and structure-activity-studies on carboxamide phenylalkyl-substituted pyridones and piperidones, *Arch. Pharm. Pharm. Med. Chem.* **2000**, 333, 145-153
- 86) Reichert, W., Jose, J., Hartmann, R.W., 5  $\alpha$ -reductase in intact DU145 cells: Evidence for isozyme I and evaluation of novel inhibitors, *Arch. Pharm. Pharm. Med. Chem.* **2000**, 333, 201-204
- 87) Le Borgne, M., Duflos, M., Le Baut, G., Nicholls, P.J., Hartmann R.W., Synthesis and biological evaluation of indole derivatives acting as anti-inflammatory or antitumoral drugs, *Ann. Pharm. Fr.* **2000**, 58, 316-320
- 88) Baston, E., Paluszczak, A., Hartmann, R.W., 6-Substituted 1H-quinolin-2-ones and 2-methoxy-quinolines: Synthesis and evaluation as inhibitors of steroid 5 $\alpha$ -reductases type 1 and 2, *Eur. J. Med. Chem.* **2000**, 35, 931-940
- 89) Hartmann, R.W., Hector, M., Haidar, S., Ehmer, P., Jose, J., Synthesis and evaluation of novel steroidal oximes as inhibitors of P450 17 (17 $\alpha$ -hydroxylase / C<sub>17</sub>-20-lyase) and 5 $\alpha$ -reductase 1 and 2, *J. Med. Chem.* **2000**, 43, 4266-4277
- 90) Hartmann, R.W., Hector M., Wachall, B.G., Paluszczak, A., Palzer, M., Huch V., Veith, M., Synthesis and evaluation of 17-aliphatic heterocycle substituted steroidal inhibitors of 17  $\alpha$ -hydroxylase / C<sub>17,20</sub>-lyase (P450 17), *J. Med. Chem.* **2000**, 43, 4437-4445
- 91) Kleber, A., Hartmann, R.W., Jose, J., Development of an improved in vitro model to study the adhesion of tumor cells to the basement membrane, *Pharm. Pharmacol. Lett.* **2000**, 10, 55-58
- 92) Ehmer, P.B., Jose, J., Hartmann, R.W., Development of a simple and rapid assay for the evaluation of inhibitors of human 17  $\alpha$ -hydroxylase-C<sub>17,20</sub>-lyase (P450c17) by coexpression of P450c17 with NADPH-cytochrome-P450-reductase in Escherichia coli, *J. Steroid Biochem. Mol. Biol.* **2000**, 75, 57-63
- 93) Reichert, W., Hartmann, R.W., Jose, J., Stable expression of the human 5 $\alpha$ -reductase - isoenzymes type I and type II in HEK293 cells to identify dual and selective inhibitors, *J. Enz. Inhib.* **2001**, 16, 47-53

- 94) Recanatini, M., Bisi, A., Cavalli, A., Belluti, F., Gobbi, S., Rampa, A., Valenti, P., Palzer, M., Paluszczak, A., Hartmann, R.W., A new class of non steroidal aromatase inhibitors: Design and synthesis of chromone and xanthone derivatives, and inhibition of P450 enzymes aromatase and 17  $\alpha$ -hydroxylase/C17,20-lyase, *J. Med. Chem.* **2001**, *44*, 672-680
- 95) Reichert, W., Michel, A., Hartmann R.W., Jose, J., Stable expression of human 5 $\alpha$ -reductase type II in COS1 cells due to chromosomal gene integration: a novel tool for inhibitor identification, *J. Steroid Biochem. Mol. Biol.* **2001**, *78*, 275-284
- 96) Kleber, A., Hartmann, R.W., Jose, J., No effect of thromboxane A<sub>2</sub> on the attachment of tumor cell lines MDA MB 231, DU145, and U937 to the basement membrane in an in-vitro model, *J. Cancer Res. Clin. Oncol.* **2001**, *127*, 751-754
- 97) Schertl, S., Hartmann, R.W., Batzl-Hartmann, C., Schlemmer, R., Spruß, T., Bernhardt, G., Gust, R., Schönenberger, H., 1-(2,6-Dichloro-4-hydroxyphenyl)-2-phenylethanes - new biological response modifiers for the therapy of breast cancer. Synthesis and evaluation of estrogenic/antiestrogenic properties, *Arch. Pharm. Pharm. Med. Chem.* **2001**, *334*, 125-137
- 98) Baston, E., Klein, C.D.P., Grimminger, W., Hebecker, N., Hartmann, R.W., Synthesis, evaluation and QSAR studies of highly potent aromatase inhibitors of the piperidinedione type, *Anti Cancer Drug Des.* **2001**, *16*, 37-47
- 99) Haidar, S., Klein, C.D.P., Hartmann, R.W., Synthesis and evaluation of steroidal hydroxamic acids as inhibitors of P450 17 (17  $\alpha$ -hydroxylase/C17-20-lyase), *Arch. Pharm. Pharm. Med. Chem.* **2001**, *334*, 138-140.
- 100) Hartmann, R. W., CYP-17-Inhibitoren: Steroidomimetika zur Behandlung des Prostatakarzinoms, *Pharm. Ztg.* **2001**, *146*, 2285-2289
- 101) Hartmann, R.W., Die rationale Entwicklung eines Hemmstoffs von CYP 17, einem neuartigen Target zur Behandlung des Prostatacarcinoms, *Magazin Forschung, UdS* **2001**, *2*, 2-9
- 102) Lehr, C.-M., Hartmann, R.W., Lenhof, H.-P., Das virtuelle Biolabor, *Pharm. Ztg.* **2001**, *146*, 2541-2543
- 103) Haidar, S., Ehmer, P.B., Hartmann, R.W., Novel Steroidal Pyrimidyl Inhibitors of P450 17 (17  $\alpha$ -hydroxylase/C17-20-Lyase), *Arch. Pharm. Pharm. Med. Chem.* **2001**, *334*, 373-374
- 103a) Hartmann, R.W., CYP-17 inhibitors: Steroid agonist for the treatment of prostate carcinoma [Steroidomimetika zur Behandlung des Prostatakarzinoms] *Pharmazeutische Zeitung* **2001**, *146* (27), pp. 11-15
- 103 b) Hartmann, R.W., Klein, C. *Archiv der Pharmazie - Pharmaceutical and Medicinal Chemistry: Editorial, Archiv der Pharmazie,* **2001**, *334* (2), pp. 33
- 104) Salem, O.I.A., Schulz, T., Hartmann, R.W., Synthesis and biological evaluation of 4-(4-alkyl- and Phenylaminocarbonyl)benzoyl)benzoic acid derivatives as non-steroidal inhibitors of steroid 5  $\alpha$ -reductase isozymes 1 and 2, *Arch. Pharm. Pharm. Med. Chem.* **2002**, *335*, 1-6
- 105) Hartmann, R.W., Ehmer, P. B., Haidar, S., Hector, M., Jose, J., Klein, C.D.P., Seidel, S. B., Sergejew, T., Wachall, B. G., Wächter, G. A., and Zhuang Y., Review: Inhibition of



- CYP 17, A new strategy for the treatment of prostate cancer, *Arch. Pharm. Pharm. Med. Chem.* **2002**, 335, 119-128
- 106) Picard, F., Schulz, T., Hartmann, R.W., 5-Phenyl substituted 1-methyl-2-pyridones and 4'-substituted biphenyl-4-carboxylic acids. Synthesis and evaluation as inhibitors of steroid-5  $\alpha$ -reductase type 1 and 2, *Bioorg. Med. Chem.* **2002**, 10, 437-448
- 107) Ehmer, P.B., Bureik, M., Bernhardt, R., Müller, U., Hartmann, R.W., Development of a test system for inhibitors of human aldosterone synthase (CYP11B2): screening in fission yeast and evaluation of selectivity in V79 cells, *J. Steroid Biochem. Mol. Biol.* **2002**, 81, 173-179
- 108) Picard, F. and Hartmann, R.W., *N*-substituted 4-(4-carboxyphenoxy)benzamides. Synthesis and evaluation as inhibitors of steroid-5  $\alpha$ -reductase type 1 and 2, *J. Enzym. Inhib. Med. Chem.* **2002**, 17, 187-196
- 109) Picard, F., Barassin S., Mokhtarian, A., Hartmann, R.W., Synthesis and evaluation of 2'-substituted 4-(4'-carboxy- or 4'-carboxymethylbenzylidene)-*N*-acylpiperidines: highly potent and *in vivo* active steroid 5  $\alpha$ -reductase type 2 inhibitors, *J. Med. Chem.* **2002**, 45, 3406-3417
- 110) Haidar, S. and Hartmann, R.W., C16 and C17 substituted derivatives of pregnenolone and progesterone as inhibitors of 17  $\alpha$ -hydroxylase-C17,20-lyase: synthesis and biological evaluation, *Arch. Pharm. Pharm. Med. Chem.* **2002**, 335, 526-534
- 111) Baston, E., Salem, O.I.A. and Hartmann, R. W., 6-substituted 3,4-dihydro-naphthalene-2-carboxylic acids: synthesis and structure-activity studies in a novel class of human 5  $\alpha$  reductase inhibitors, *J. Enz. Inhib. Med. Chem.* **2002**, 17, 303-320
- 111a) Salem, O.I.A., Schulz, T., Hartmann, R.W. Hydrogels formed by crosslinked poly(vinyl alcohol) as sustained drug delivery systems, *Archiv der Pharmazie* **2002**, 335 (2-3), pp. 89-93
- 112) Mathur, S., Hassel, M., Steiner, F., Hollemayer, K., Hartmann, R.W., Development of a new approach for screening combinatorial libraries using MALDI-TOF-MS and HPLC-ESI-MS/MS, *J. Biomol. Screening* **2003**, 8, 136-148
- 113) Hartmann, R.W., Müller, U., Ehmer, P.B., Discovery of selective CYP11B2 (aldosterone synthase) inhibitors for the therapy of congestive heart failure and myocardial fibrosis, *Eur. J. Med. Chem.* **2003**, 38, 363-366
- 114) Baston, E. Salem, O.I.A., Hartmann, R.W., Cyclohex-1-ene carboxylic acids: synthesis and biological evaluation of novel inhibitors of human 5 $\alpha$  reductase, *Arch. Pharm. Pharm. Med. Chem.* **2003**, 336, 31-38
- 115) Haidar, S., Ehmer P.B., Barassin, S., Batzl-Hartmann, C., Hartmann, R.W., Effects of novel 17  $\alpha$ -hydroxylase/C17, 20-lyase (P450 17, CYP 17) inhibitors on androgen biosynthesis *in vitro* and *in vivo*, *J. Steroid. Biochem. Mol. Biol.* **2003**, 84, 555-562.
- 116) Leroux, F., Hutschenreuter, T., Charrière, C., Scopelliti, R., Hartmann, R.W., *N*-(4-Biphenylmethyl)imidazoles as potential therapeutics for the treatment of prostate cancer: metabolic robustness due to fluorine substitution?, *Helv. Chim. Act.* **2003**, 86, 2671-2686.
- 117) Marchand, P., Le Borgne, M., Palzer, M., Le Baut, G., Hartmann R.W., Preparation and pharmacological profile of 7-( $\alpha$ -Azolylbenzyl)-1*H*-Indoles and indolines as new aromatase inhibitors, *Bioorg. Med. Chem. Lett.* **2003**, 13, 1553-1555

- 118) Aboul-Enein, H.Y., Hefnawy M.M., Ehmer, P.B., Hartmann, R.W., Enantiomeric resolution of some human aldosterone synthase[CYP 11 B2]inhibitors on derivatized polysaccharide chiral stationary phases, *J. Sep. Sci.* **2003**, 26, 1455-1458
- 119) Clement, O.O., Freeman, C.M., Hartmann, R.W., Paluszczak A., Handratta, V.D., Vasaitis, T.S., Brodie, A.M.H., Njar, V.C.O., Three dimensional pharmacophore modeling of human CYP17 inhibitors: Potential agents for prostate cancer therapy, *J. Med. Chem.* **2003**, 46, 2345-2351
- 120) Hutschenreuter, T.U., Ehmer, P.B., Hartmann, R.W., Synthesis of hydroxy derivatives of highly potent non-steroidal CYP 17 inhibitors as potential metabolites and evaluation of their activity by a non cellular assay using recombinant human enzyme, *J. Enz. Inhib. Med.Chem.* **2004**, 19, 17-32
- 121) Aboul-Enein, H.Y., Kladna, A., Kruk, I., Lichszteid, K., Marchlewicz, M., Michalska, T., Salem, O.I.A., Hartmann, R.W., Prooxidant and antioxidant action of 4-(4-phenoxybenzoyl)benzoic acid derivatives, *Biopolymers* **2004**, 73, 631-639
- 122) Mathur, S., Picard, F., Dossou, U., Barassin, C., Seidel, S.B., Kang, M.J., Hartmann, R.W., Evaluation of cell permeation of a potent 5 $\alpha$ -reductase inhibitor using MALDI-TOF MS, *J. Enz. Inhib. Med. Chem.* **2004**, 19, 425-429
- 123) Hartmann, R.W., Paluszczak, A., Lacan, F., Ricci, G., Ruzziconi, R., CYP 17 and CYP 19 inhibitors. Evaluation of fluorine effects on the inhibiting activity of regioselectively fluorinated 1-(naphthalen-2-ylmethyl)imidazoles, *J. Enz. Inhib. Med. Chem.* **2004**, 19, 145-155
- 124) Neugebauer, A., Klein, C.D.P., Hartmann, R.W., Protein-dynamics of the putative HCV receptor CD81 large extracellular loop, *Bioorg. Med. Chem.Lett.* **2004**, 14, 1765-1769
- 125) Haider, S., Hartmann, R.W., Inhibition of CYP 17, Potential treatment of prostate cancer, *Arab J. Pharm. Sci.* **2004**, 2, 59-76
- 126) Gupta, R.B., Jindal, D.P., Jit, B., Narang, G., Paluszczak, A., Hartmann, R.W., Synthesis and evaluation of a dimer of 2-(4-pyridylmethyl)-1-indanone as a novel nonsteroidal aromatase inhibitor, *Arch. Pharm. Pharm. Med. Chem.* **2004**, 337, 398-401
- 127) Schertl, S., Hartmann, R.W., Batzl-Hartmann, C., Bernhardt, G., Spruß, T., Beckenlehner, K., Koch, M., Krauser, R., Schlemmer, R., Gust, R., Schönenberger, H., [1,2-Bis(2,6-difluoro-3-hydroxyphenyl)ethylenediamine]platinum(II) complexes, compounds for the endocrine therapy of breast cancer – mode of action I: antitumor activity due to the reduction of the endogenous estrogen level, *Arch. Pharm. Pharm. Med. Chem.* **2004**, 337, 335-348
- 128) Schertl, S., Hartmann, R.W., Batzl-Hartmann, C., Bernhardt, G., Spruß, T., Beckenlehner, K., Koch, M., Krauser, R., Schlemmer, R., Gust, R., Schönenberger, H., [1,2-Bis(2,6-difluoro-3-hydroxyphenyl)ethylenediamine]platinum(II) complexes, compounds for the endocrine therapy of breast cancer – mode of action II: contribution of drug inactivation, cellular drug uptake and sterical factors in the drug-target interaction to the antitumor activity, *Arch. Pharm. Pharm. Med. Chem.* **2004**, 337, 349-359
- 129) Kang, M.J., Mathur, S., Hartmann, R.W., Quantitative analysis of 5 $\alpha$ -reductase inhibitors in DU145 cells using matrix-assisted laser desorption/ionisation time-of-flight mass spectrometry and high-performance liquid chromatography/tandem mass spectrometry, *J. Mass Spectrometry* **2004**, 39, 762-769

- 130) Hutter, M.C., Hartmann, R.W., QSAR of human steroid 5 $\alpha$ -reductase inhibitors: Where are the differences between isoenzyme type 1 and 2?, *QSAR Comb. Sci.* **2004**, 23, 406-415
- 131) Lisurek, M., Kang, M.J., Hartmann, R.W., Bernhardt, R., Identification of Monohydroxy progesterones produced by CYP106A2 using comparative HPLC and electrospray ionisation collision-induced dissociation mass spectrometry, *Biochem. Biophys. Res. Comm.* **2004**, 319, 677-682
- 132) Voets, M., Müller-Vieira, U., Marchais-Oberwinkler, S., Hartmann, R.W., Synthesis of amidinohydrazones and evaluation of their inhibitory effect towards aldosterone synthase (CYP11B2) and the formation of selected steroids, *Arch. Pharm. Pharm. Med. Chem.* **2004**, 337, 411-416
- 133) Kang, M.J., Lisurek, M., Bernhardt, R., Hartmann R.W., Use of high-performance liquid chromatography/electrospray ionization collision-induced dissociation mass spectrometry for structural identification of monohydroxylated progesterones, *Rapid Comm. in Mass Spec.* **2004**, 18, 2795-2800
- 134) Leonetti, F., Favia, A., Rao, A., Aliano, R., Paluszczak, A., Hartmann, R.W., Carotti, A., Design, synthesis and 3D QSAR of novel potent and selective aromatase inhibitors, *J. Med. Chem.* **2004**, 47, 6792-6803
- 135) Lézé, M.P., Le Borgne, M., Marchand, P., Loquet, D., Kogler, M., Le Baut, G., Paluszczak, A., Hartmann, R.W., 2- and 3-[(aryl)(azolyl)methyl]indoles as potential non-steroidal aromatase inhibitors, *J. Enz. Inhib. Med. Chem.* **2004**, 19, 549-557
- 136) Bild, T., Jose, J., Hartmann, R.W., Discovery of inhibitors of the MCF-7 tumor cell adhesion to endothelial cells and investigation on their mode of action, *Arch. Pharm. Pharm. Med. Chem.* **2004**, 337, 687-694.
- 137) Mathur, S., Park, J.D., Kim, D.H., Hartmann, R.W., A method for screening enzyme inhibitors using size exclusion chromatography and ESI-LC-MS/MS, *J. Biomol. Screening* **2005**, 10, 30-35
- 138) Ulmschneider, S., Müller-Vieira, U., Mitrenga, M., Hartmann, R.W., Marchais-Oberwinkler, S., Klein, C.D.P., Bureik, M., Bernhardt, R., Antes, I., Lengauer, T., Synthesis and evaluation of imidazolymethylenetetrahydronaphthalenes and imidazolymethyleneindanes: potent inhibitors of aldosterone synthase, *J. Med. Chem.* **2005**, 48, 1796-1805
- 139) Haidar, S., Hartmann, R.W., Enzyme inhibitor examples for the treatment of prostate tumor. In: Smith, H.J., Simons, C. (Hrsg.) *Enzymes and their inhibition: drug development*, CRC Press **2005**, 241-253
- 140) Streiber, M., Picard, F., Scherer, C., Seidel, S.B., Hartmann, R.W., Methyl esters of *N*-(dicyclohexyl)acetyl-piperidine-4-(benzylidene-4-carboxylic acids) as drugs and prodrugs: a new strategy for dual inhibition of 5 $\alpha$ -reductase type 1 and type 2, *J. Pharm. Sci.* **2005**, 94, 473-480
- 141) Ulmschneider, S., Müller-Vieira, U., Klein, C.D.P., Antes, I., Lengauer, T., Hartmann, R.W., Synthesis and evaluation of (pyridylmethylene)tetrahydronaphthalenes/-indanes and structurally modified derivatives: potent and selective inhibitors of aldosterone synthase, *J. Med. Chem.* **2005**, 48, 1563-1575, *Add. and Corr. J. Med.Chem.* **2005**, 48, 4489-4490

- 142) Panter, B., Jose, J., Hartmann, R.W., 5  $\alpha$ -reductase in human embryonic kidney cell line HEK293: evidence for type II enzyme expression and activity, *Mol. Cell. Biochem.* **2005**, *270*, 201-208
- 143) Jindal, D.P., Bedi V., Jit, B., Karkra, N., Guleria, S., Bansal, R., Paluszczak, A., Hartmann, R.W., Synthesis and study of some new N-substituted imide derivatives as potential anticancer agents, *Il Farmaco* **2005**, *60*, 283-290.
- 144) Angotti, M., Hartmann R.W., Kirby, A.J., Simons, C., Nicholls, P.J., Sewell R.D.E., Smith, H.J., Effect of 2-(4-aminophenylmethyl)-6-hydroxy-3,4-dihydronaphthalen-1(2H)-one on all-trans and 13-cis-retinoic acid levels in plasma quantified by high performance liquid chromatography coupled to tandem mass spectrometry, *J. Enz. Inhib. Med. Chem.* **2005**, *20*, 219-226
- 145) Müller-Vieira, U., Angotti, M., Hartmann, R.W., The adrenocortical tumor cell line NCI-H295R as an in vitro screening system for the evaluation of CAP11B2 (aldosterone synthase) CYP11B2 (steroid-11 $\beta$ -hydroxylase) inhibitors, *J. Steroid Biochem. Mol. Biol.* **2005**, *96*, 259-270
- 146) Voets, M., Antes, I., Scherer, C., Müller-Vieira, U., Biemel, K., Barassin, C., Marchais-Oberwinkler, S., Hartmann, R.W., Heteroaryl substituted naphthalenes and structurally modified derivatives: selective inhibitors of CYP11B2 for the treatment of congestive heart failure and myocardial fibrosis, *J. Med. Chem.* **2005**, *48*, 6632-6642
- 147) Cavalli, A., Bisi, A., Bertucci, C., Rosini, C., Paluszczak, A., Gobbi, S., Giorgio, E., Rampa, A., Belluti, F., Piazzini, L., Valenti, P., Hartmann, R.W., Recanatini, M., Enantioselective nonsteroidal aromatase inhibitors identified through a multi disciplinary medicinal chemistry approach, *J. Med. Chem.* **2005**, *48*, 7282-7289
- 148) Logé, C., Le Borgne, M., Marchand, P., Robert, Le Baut, G., J.-M., Palzer, M., Hartmann, R.W., Three-dimensional model of cytochrome P450 human aromatase and docking studies in to the active site, *J. Enz. Inhib. Med. Chem.* **2005**, *20*, 581-585
- 149) Ulmschneider, S., Negri, M., Voets, M., Hartmann, R.W., Development and evaluation of a pharmacophore model for inhibitors of aldosterone synthase (CYP11B2), *Bioorg. Med. Chem. Lett.* **2006**, *16*, 25-30
- 150) Lézé, M.P., Le Borgne, M., Pinson, P., Paluszczak, A., Duflos, M., Le Baut, G., Hartmann, R.W., Synthesis and biological evaluation of 5-[(aryl)(1H-imidazol-1-yl)methyl]-1H-indoles: Potent and selective aromatase inhibitors, *Bioorg. Med. Chem. Lett.* **2006**, *16*, 1134-1137
- 151) Salem, O.I.A., Frotscher, M., Scherer, C., Neugebauer, Biemel, K., S., Streiber, M., Maas, R., Hartmann, R.W., Novel 5  $\alpha$ -reductase inhibitors: Synthesis, structure-activity studies and pharmacokinetic profile of phenoxybenzoylphenyl acetic acids, *J. Med. Chem.* **2006**, *49*, 748-759.
- 152) Voets, M., Antes, I., Scherer, C., Müller-Vieira, U., Biemel, K., Marchais-Oberwinkler, S., Hartmann, R.W., Synthesis and evaluation of heteroaryl-substituted dihydronaphthalenes and indenes: Potent and selective inhibitors of aldosterone synthase (CYP11B2) for the treatment of congestive heart failure and myocardial fibrosis, *J. Med. Chem.* **2006**, *49*, 2222 -2231
- 153) Schuster, D., Laggner, C., Steindl, T.M., Paluszczak, A., Hartmann, R.W., Langer, T.;

Pharmacophore modeling and In Silico screening for new P450 19 (Aromatase) Inhibitors, *J. Chem. Inf. Model.* **2006**, *46*, 1301-1311

- 154) Görlitzer, K., Bonnekessel, Ch., Jones, P.G., Paluszczak, A., Hartmann, R.W., Exemestan-Derivate – Synthese und Prüfung auf Aromatase-Hemmung, *Pharmazie* **2006**, *61*, 575-582
- 155) Gobbi, S., Cavalli, A., Rampa, A., Belluti, F., Piazza, L., Paluszczak, A., Hartmann, R.W., Recanatini, M., Bisi, A., Lead optimization providing a series of flavone derivatives as potent nonsteroidal inhibitors of the cytochrome P450 aromatase enzyme, *J. Med. Chem.* **2006**, *49*, 4777-4780
- 156) Jazbutyte, V., Hu, K., Kruchten, P., Bey, E., Maier, S., Fritzeimer K.-H., Prella, K., Hegele-Hartung, C., Hartmann R.W., Neyses, L., Ertl, G., Pelzer, T., Ageing reduces the efficacy of estrogen substitution to attenuate cardiac hypertrophy in female SHR, *Hypertension* **2006**, *48*, 579-586
- 157) Engel, M., Hindie, V., Lopez-Garcia, L.A., Stroba, A., Schaeffer, F., Adrian, I., Imig, J., Idrissova, L., Nastainczyk, W., Zeuzem, S., Alzari, P.M., Hartmann, R.W., Piiper, A. and Biondi, R.M., Allosteric activation of protein kinase PDK1 with low molecular weight compounds, *EMBO J.* **2006**, *23*, 5469-5480
- 158) Drăgan, C.A., Hartmann, R.W., Bureik, M., A fission yeast based test system for the determination of IC<sub>50</sub> values of anti prostate tumor drugs acting on CYP21, *J. Enz. Inhib. Med. Chem.* **2006**, *21*, 547-556
- 159) Schertl, S., Hartmann, R.W., Batzl-Hartmann, C., Spruß, T., Maucher, A., von Angerer, E., Schiller, C.D., Schneider, M.R., Gust, R., Schönenberger, H., Platinum(II) complexes interfering with testicular steroid biosynthesis: drugs for the therapy of advanced or recurrent prostate cancers? Preclinical studies, *Cancer Res. Clin. Oncol.* **2007**, *133*, 153-167
- 160) Gobbi, S., Cavalli, A., Negri, M., Schewe K., Belluti F., Piazza L., Hartmann, R. W., Recanatini M., Bisi A., Imidazolymethylbenzophenones as highly potent aromatase inhibitors, *J. Med. Chem.* **2007**, *50*, 3420-3422
- 161) McCarthy, A., Hartmann R.W., Abell, A., Evaluation of 4'-substituted bicyclic pyridones as non-steroidal inhibitors of steroid 5 $\alpha$ -reductase, *Bioorg. Med. Chem. Lett.* **2007**, *17*, 3603-3607
- 162) Neugebauer, A., Hartmann, R.W., Klein, C.D.P., Prediction of protein-protein interaction inhibitors by chemoinformatics and machine learning methods, *J. Med. Chem.* **2007**, *19*, 4665-4668
- 163) Le Borgne, M., Marchand, P., Nourrisson, M.R., Loquet, D., Palzer, M., Le Baut, G., Hartmann, R.W., Synthesis and biological evaluation of 3-( $\alpha$ azolylmethyl)-1H-indoles and 3-(azolylbenzyl)-1H-indoles as selective aromatase inhibitors, *J. Enz. Inhib. Med. Chem.* **2007**, *22*, 667-676
- 164) Pinto-Bazurco Mendieta, M. A.E., Negri, M., Jagusch, C., Hille, U.E., Müller-Vieira, U., Schmidt, D., Hansen, K., Hartmann, R.W., Synthesis, biological evaluation and molecular modeling studies of novel ACD- and ABD-ring steroidomimetics as inhibitors of CYP17, *Bioorg. Med. Chem. Lett.* **2008**, *18*, 267-273
- 165) Jagusch, C., Negri, M., Hille, U.E., Hu, Q., Bartels, M., Jahn-Hoffmann, K., Pinto-Bazurco Mendieta M.A.E., Rodenwaldt, B., Müller-Vieira, U., Schmidt, D., Lauterbach, T., Recanatinti, M., Cavalli, A., Hartmann, R.W., Synthesis, biological evaluation and molecular modeling studies of methyleneimidazole substituted biaryls

as inhibitors of human 17  $\alpha$ -hydroxylase-17,20-lyase (CYP17) - Part I: heterocyclic modifications of the core structure, *Bioorg. Med. Chem.* **2008**, *16*, 1992-2010

- 166) Frotscher, M., Ziegler, E., Marchais-Oberwinkler, S., Kruchten, P., Neugebauer, A., Fetzter, L., Scherer, C., Müller-Vieira, U., Messinger, J., Thole, H., Hartmann, R.W., Design, synthesis and biological evaluation of (hydroxyphenyl)naphthalene and quinoline derivatives: Potent, selective and nonsteroidal inhibitors of 17 $\beta$ -hydroxysteroid dehydrogenase type 1 (17 $\beta$ -HSD1) for the treatment of estrogen-dependent diseases, *J. Med. Chem.* **2008**, *51*, 2158-2169
- 167) Holzer, M., Ziegler, S., Kronenberger, B., Klein, C.D.P., Hartmann, R.W., Microwave assisted syntheses of amino acid ester substituted benzoic acid amides: Potential inhibitors of human CD81-receptor HCV-E2 interaction, *The Open Med. Chem. J.* **2008**, *2*, 21-25
- 168) Holzer, M., Ziegler, S., Albrecht, B., Kronenberger B., Kaul, A., Bartenschlager R., Kattner, L., Klein, C.D., Hartmann, R.W., Identification of terfenadine as an inhibitor of human CD81-receptor HCV-E2 interaction, synthesis and structure optimization, *Molecules* **2008**, *13*, 1081-1110
- 169) Hartmann, R.W., Müller-Vieira, U., Ulmschneider, S., Voets, M., Discovery of potent and selective inhibitors of human aldosterone synthase (CYP11B2) – a new target for the treatment of congestive heart failure and myocardial fibrosis: A review, In: *Medicinal Chemistry: Chemical and Molecular Aspects of Drug Design and Action*, Taylor and Francis/ CRC Publishing Company **2008**, *12*, 165-175
- 170) Bey, E., Marchais-Oberwinkler, Kruchten, P., S., Frotscher, M., Werth, R., Oster, A., Algul, Ö., Neugebauer, A., Hartmann, R.W., Design, synthesis and biological evaluation of bis(hydroxyphenyl) azoles as potent and selective non steroidal inhibitors of 17 $\beta$ -hydroxysteroid dehydrogenase type 1 (17 $\beta$ -HSD1) for the treatment of estrogen dependent diseases, *Bioorg. Med. Chem.* **2008**, *16*, 6423-6435
- 171) Holzer, M., Ziegler, S., Neugebauer, A., Kronenberger, B., Klein, C.D.P., Hartmann, R.W., Structural modification of salicylates: inhibitors of human CD81-receptor HCV-E2 interaction, *Arch. Pharm. Chem. Life Sci.* **2008**, *341*, 478-484
- 172) Marchais-Oberwinkler, S., Kruchten, P., Frotscher M., Ziegler, E., Neugebauer, Bhoga, U., Bey, E., Müller-Vieira, U., Messinger, J., Thole, H., Hartmann, R.W., Substituted 6-phenyl-2-naphthols. Potent and selective nonsteroidal inhibitors of 17 $\beta$ -hydroxysteroid dehydrogenase type 1 (17  $\beta$ -HSD1): Design, synthesis, biological evaluation and pharmacokinetics, *J. Med. Chem.* **2008**, *51*, 4685-4698
- 173) Heim, R., Lucas, S., Grombein, C.M., Ries, C., Schewe, K.E., Negri, M., Müller-Vieira, U., Hu, Q Hartmann, R.W., Overcoming undesirable CYP1A2 potency of pyridylnaphthalene type aldosterone synthase inhibitors: Influence of heteroaryl substitution on potency and selectivity, *J. Med. Chem.* **2008**, *51*, 5064-5074
- 174) Hu, Q., Negri, M., Jahn-Hoffmann, K., Zhuang, Y., Olgen, S., Bartels, M., Müller-Vieira, U., Lauterbach, T., Hartmann, R.W., Synthesis, biological evaluation and molecular modelling studies of methylene imidazole substituted biaryls as inhibitors of human 17 $\alpha$ -hydroxylase-17, 20-lyase (CYP17) – Part II: Core rigidification and influence of substituents at the methylene bridge, *Bioorg. Med. Chem.* **2008**, *16*, 7715-7727
- 175) Pinto-Bazurco Mendieta M., Negri, M., Jagusch, C., Müller-Vieira, U., Lauterbach T., Hartmann, R.W., Synthesis, biological evaluation and molecular modeling of abiraterone analogs: Novel CYP17 inhibitors for the treatment of prostate cancer, *J. Med. Chem.* **2008**, *51*, 5009-5018

- 176) Lucas, S., Heim, R., Negri, M., Antes, I., Ries, C., Schewe, K., Bisi, A., Gobbi, S., Hartmann, R.W., Novel aldosterone synthase inhibitors with extended carbocyclic skeleton by a combined ligand-based and structure-based drug design approach, *J. Med. Chem.* **2008**, *51*, 6138-6149
- 177) Castellano, S., Stefancich, G., Ragno, R., Schewe, K., Santoriello M., Caroli, A., Hartmann, R.W., Sbardella, G., CYP19 (Aromatase): Exploring the scaffold flexibility for novel selective inhibitors, *Bioorg. Med. Chem.* **2008**, *18*, 8349-8358.
- 178) Pinto-Bazurco Mendieta M., Negri, M., Hu, Q., Hille, U., Jagusch, C., Jahn-Hoffmann, K., Müller-Vieira, U., Jahn-Hoffmann, K., Schmidt, D., Lauterbach, T., Hartmann, R.W., CYP17 inhibitors. Annulations of additional rings in methyleneimidazole substituted biphenyls: Synthesis, biological evaluation and modelling, *Arch.Pharm. Chem. Life Sci.* **2008**, *341*, 597-609
- 179) Léze, M.-P., Paluszczak, A., Hartmann, R.W., Le Borge M., Synthesis of 6- or 4-functionalized indoles via a reductive cyclization approach and evaluation as aromatase inhibitors, *Bioorg. Med. Chem.* **2008**, *18*, 4713- 4715
- 180) Bey, E., Marchais-Oberwinkler, S., Werth, R., Negri, M., Al-Soud, Y., Kruchten, P., Oster A., Frotscher, M., Birk, B., Hartmann, R.W., Design, synthesis, biological evaluation and pharmacokinetics of bis(hydroxyphenyl)substituted azoles, thiophenes, benzenes and aza-benzenes as potent and selective non-steroidal inhibitors of 17  $\beta$  -hydroxysteroid dehydrogenase type 1 (17 $\beta$ -HSD1), *J. Med. Chem.* **2008**, *51*, 6725-6739
- 181) Gaube, F., Wöfl, S., Pusch, L., Werner, U., Kroll, T.C., Schrenk, D., Hartmann R.W., Hamburger M., Effects of *Leuzea carthamoides* on human breast adenocarcinoma MCF-7 cells determined by gene expression profiling and functional assays, *Planta Medica* **2008**, *74*, 1701-1708
- 182) Lucas, S., Heim, R., Ries, C., Schewe, K., Birk B., Hartmann, R.W., In vivo active aldosterone synthase inhibitors with improved selectivity: Lead optimization providing a series of pyridine substituted 3,4-dihydro-1H-quinolin-2-one derivatives, *J. Med. Chem.* **2008**, *51*, 8077-8087
- 183) Marchais-Oberwinkler, S., Frotscher, M., Ziegler, E., Werth, R., Kruchten, P., Messinger, J., Thole, H., Hartmann, R.W., Structure-activity study in the class of 6-(3'-hydroxyphenyl)naphthalenes leading to an optimization of a pharmacophore model for 17 $\beta$ -hydroxysteroid dehydrogenase type1 (17 $\beta$ -HSD1) inhibitors, *Mol. Cell. Endocrinol.* **2009**, *301*, 205-211
- 184) Kruchten, P., Werth, R., Marchais-Oberwinkler, S., Frotscher, M., Hartmann, R.W., Development of a biological screening system for the evaluation of highly active and selective 17 $\beta$ -HSD1-inhibitors as potential therapeutic agents, *Mol. Cell. Endocrinol.* **2009**, *301*, 154-157
- 185) Al-Soud, Y. A., Bey, E., Oster A., Marchais-Oberwinkler, S., Werth, R., Kruchten, P., Frotscher, M., Hartmann, R.W., The role of the heterocycle in bis(hydroxyphenyl)triazoles for inhibition of 17 $\beta$ -hydroxysteroid dehydrogenase (17 $\beta$ -HSD) type 1 and type 2, *Mol. Cell. Endocrinol.* **2009**, *301*, 212-215
- 186) Kruchten, P., Werth, R., Bey, E., Oster, A., Marchais-Oberwinkler, S., Frotscher, M.,

- Hartmann, R.W., Selective inhibition of 17 $\beta$ -hydroxysteroid dehydrogenase type 1 (17 $\beta$ HSD1) reduces estrogen responsive cell growth of T47-D breast cancer cells, *J. Steroid Biochem. Mol. Biol.* **2009**, *114*, 200-206
- 187) Hille, U., Hu Q., Bartels, M., Müller-Vieira, U., Schmidt, D., Lauterbach, T., Hartmann, R.W., Novel CYP17 inhibitors: Synthesis, biological evaluation, structure-activity relationships and modelling of methoxy- and hydroxy-substituted methyleneimidazolyl biphenyls, *Eur. J. Med. Chem.* **2009**, *44*, 2765-2775
- 188) Ries, C., Lucas, S., Heim, R., Birk, B., Hartmann, R.W., Selective aldosterone synthase inhibitors reduce aldosterone formation in vitro and in vivo, *J. Steroid Biochem. Mol. Biol.* **2009**, *116*, 121-126
- 189) Stroba, A., Schaeffer, F., Hindie, V., Lopez-Garcia, L., Adrian, I., Fröhner, W., Hartmann, R.W., Biondi, R.M., Engel, M., 3,5-Diphenylpent-2-enoic acids as allosteric activators of the protein kinase PDK1: Structure-activity relationships and thermodynamic characterisation of binding as paradigms for PIF-binding pocket-targeting compounds, *J. Med. Chem.* **2009**, *15*, 4683-4693.
- 190) Ziegler, S., Kronenberger B., Albrecht B. A.-M., Kaul A., Gamer A.-L., Klein, C.D., Hartmann, R.W., Development and evaluation of a FACS-based medium throughput assay for HCV entry inhibitors, *J. Biomol. Screening* **2009**, *6*, 620-626
- 191) Kruchten, P., Werth, R., Marchais-Oberwinkler, S., Bey, E., Ziegler E., Oster A., Frotscher, M., Hartmann, R.W., Development of biological assays for the identification of selective inhibitors of estradiol formation from estrone in rat liver preparations, *Comptes Rendus Chimie* **2009**, *12*, 1110-1116
- 192) Hille, U., Hu, Q., Pinto-Bazurco Mendieta, M., Bartels, M., Vock, C.A., Lauterbach, T., Hartmann, R.W., Steroidogenic cytochrome P450 (CYP) enzymes as drug targets: Combining substructures of known CYP inhibitors leads to compounds with different inhibitory profile, *Comptes Rendus Chimie* **2009**, *12*, 1117-1126
- 193) Bey, E., Marchais-Oberwinkler, S., Negri, M., Kruchten, P., Oster A., Klein, T., Spadaro, A., Werth, R., Frotscher, M., Birk, B., Hartmann, R.W., New insights into the SAR and binding modes of bis(hydroxyphenyl)thiophenes and benzenes: Influence of additional substituents on 17  $\beta$ -hydroxysteroid dehydrogenase type 1 (17 $\beta$ -HSD1) inhibitory activity and selectivity, *J. Med. Chem.* **2009**, *52*, 6724-6743
- 194) Hu, Q., Negri, M., Olgen, S., Hartmann, R.W., The role of fluorine substitution in biphenyl methylene imidazole type CYP17 inhibitors for the treatment of prostate carcinoma, *ChemMedChem* **2010**, *5*, 899-910
- 195) Oster, A., Klein, T., Werth, R., Kruchten, P., Bey, E., Negri, M., Marchais-Oberwinkler, S., Frotscher, M., Hartmann, R.W., Novel estrone mimetics with high 17 $\beta$ -HSD1 inhibitory activity, *Bioorg. Med. Chem.* **2010**, *18*, 3494-3505
- 196) Haller, F., Moman, E., Hartmann, R.W., Adamski, J., Mindnich, R., Molecular framework of steroid/retinoid discrimination in 17 $\beta$ -hydroxysteroid dehydrogenase type 1 and photoreceptor-associated retinol dehydrogenase, *J. Mol. Biol.* **2010**, *399*, 255-267
- 197) Bansal, R., Guleria, S., Ries, C., Hartmann R.W., Synthesis and antineoplastic activity of O-alkylated derivatives of 7-hydroximinioandrost-5-ene steroids, *Arch. Pharm. Chem. Life Sci.* **2010**, *343*, 377-383



- 198) Negri, M., Recanatini, M., Hartmann, R.W., Insights in 17 $\beta$ -HSD1 enzyme kinetics and ligand binding by dynamic motion investigation, *PLoS One* **2010**, *5*, e12026
- 199) Welker, M.-W., Von Wagner, M., Ochs, D. Zimmer, V., Hofmann, W.P., Piiper, A., Hartmann, R.W., Herrmann, E., Zeuzem, S., Kronenberger, B., Influence of amantadine on CD81 expression on lymphocytes in chronic hepatitis C, *Digestive and Liver Disease* **2010**, *42*, 735-740
- 200) Hu, Q., Jagusch, C., Hille, U., Hauptenthal, J., Hartmann, R.W., Replacement of imidazolyl by pyridyl in biphenylmethylenes results in selective CYP17 and dual CYP17/CYP11B1 inhibitors for the treatment of prostate cancer, *J. Med. Chem.* **2010**, *53*, 5749-5758
- 201) Gobbi, S., Zimmer, C., Belluti, F., Rampa, A., Hartmann, R.W., Recanatini, M., Bisi, A., Novel highly potent and selective nonsteroidal aromatase inhibitors: Synthesis, biological evaluation and structure-activity relationships investigation, *J. Med. Chem.* **2010**, *53*, 5347-5351
- 202) Hu, Q., Yin, L., Jagusch, C., Hille, U.E., Hartmann, R.W., Isopropylidene substitution increases activity and selectivity of biphenylmethylene 4-pyridine type CYP17 inhibitors, *J. Med. Chem.* **2010**, *53*, 5049-5053
- 203) Hahner, S., Stürmer, A., Fassnacht, M., Hartmann, R.W., Schewe, K., Cochran S., Zink M., Schirbel A., Allolio B., Etomidate unmasks intraadrenal regulation of steroidogenesis and proliferation in adrenal cortical cell lines, *Horm. Metab. Res.* **2010**, *42*, 528-534
- 204) Reum, N., Fink-Straube, C., Klein, T., Hartmann, R.W., Lehr, C.-M., Schneider, M., Multilayer coating of gold nanoparticles with drug-polymer coadsorbates, *Langmuir* **2010**, *26*, 16901-16908
- 205) Oster, A., Hinsberger, S., Werth R., Marchaise-Oberwinkler, S., Frotscher, M., Hartmann, R.W., Bicyclic substituted hydroxyphenylmethanones as novel inhibitors 17 $\beta$ -HSD1 for the treatment of estrogen-dependent diseases, *J. Med. Chem.* **2010**, *53*, 8176-8186
- 206) Heinzerling, L., Hartmann, R.W., Frotscher, M., Neumann, D., Predicting putative inhibitors of 17 $\beta$ -HSD1, *Mol. Inf.* **2010**, *29*, 695-705
- 207) Zimmer, C., Hafner, M., Zender, M., Amman, D., Hartmann, R.W., Vock, C.A., N-(pyridin-3-yl)benzamides as selective inhibitors of human aldosterone synthase (CYP11B2), *Bioorg. Med. Chem. Lett.* **2011**, *21*, 186-190
- 208) Wetzel, M., Marchais-Oberwinkler, S. Hartmann, R.W., 17-HSD2 inhibitors for the treatment of osteoporosis: Identification of a promising scaffold, *Bioorg. Med. Chem.* **2011**, *19*, 807-815
- 209) Mohammed, A. H., Ba-Bernardi, L., Burkholz T., Schumann, E., Diesel, B., Zapp, J., Kiemer, A.K., Ries, C., Hartmann, R.W., Hosny M., Jacob, C., Facile synthesis of chrysin-derivatives with promising activities as aromatase inhibitors, *NPC* **2011**, *6*, 31-34
- 210) Marchais-Oberwinkler, S., Wetzel, M., Ziegler, E., Kruchten, P., Werth, R., Henn, C., Hartmann, R.W., Frotscher, M., New drug-like hydroxyphenylnaphthol steroidomimetics as potent and selective 17 $\beta$ -HSD1 inhibitors for the treatment of

estrogen-dependent diseases, *J. Med. Chem.* **2011**, *54*, 534-547

- 211) Hille, U. E., Zimmer, C., Vock, C.A., Hartmann, R.W., First selective CYP11B1 inhibitors for the treatment of cortisol dependent diseases, *ACS Med. Chem. Lett.* **2011**, *2*, 2-6
- 212) Oster, A., Klein, T., Henn, C., Werth, R., Marchais-Oberwinkler, S., Frotscher, M., Hartmann, R.W., Bicyclic substituted hydroxyphenylmethanone type inhibitors of 17 $\beta$ -hydroxysteroid dehydrogenase type 1 (17 $\beta$ -HSD1): The role of the bicyclic moiety, *ChemMedChem.* **2011**, *3*, 476-487
- 213) Yadav, M.R., Sabale, P.M., Giridhar, R., Zimmer, C., Haupenthal, J., Hartmann, R.W., Synthesis of some novel androstanes as potential aromatase inhibitors, *Steroids* **2011**, *76*, 464-470
- 214) Bansal, R. Guleria, S., Thota, S., Hartmann, R.W., Zimmer, C., Synthesis and biological evaluation of 16*E*-arylidenosteroids as cytotoxic and anti-aromatase agents, *Chem. Pharm. Bull.* **2011**, *59*, 327-311
- 215) Stefanachi, A, Favia, A.D., Nicolotti, O., Leonetti, F., Pisani, L., Catto, M., Zimmer, C., Hartmann, R.W., Carotti, A., Design, synthesis, and biological evaluation of imidazolyl derivatives of 4,7-disubstituted coumarins as aromatase inhibitors selective over 17- $\alpha$ -hydroxylase/C17-20 Lyase, *J. Med. Chem.* **2011**, *54*, 1613-1625
- 216) Lucas, S., Negri, M., Heim, R., Zimmer, C., Hartmann, R.W., Fine-tuning the selectivity of aldosterone synthase inhibitors: Structure-activity and structure-selectivity insights from studies of heteroaryl substituted 1,2,5,6-tetrahydropyrrolo [3,2,1-*ij*] quinolin-4-one derivatives, *J. Med. Chem.* **2011**, *54*, 2307-2319
- 217) Pistorius, D., Ullrich, A., Lucas, S., Hartmann, R.W., Kazmaier, U., Müller, R., Biosynthesis of 2-alkyl-4(1*H*)-quinolones in *Pseudomonas aeruginosa*: Potential for therapeutic interference with pathogenicity, *ChemBioChem* **2011**, *12*, 850-853
- 218) Xu, K., Wetzel, M., Hartmann R.W., Marchais-Oberwinkler, S., Synthesis and biological evaluation of spiro- $\delta$ -lactones as inhibitors of 17 $\beta$ -hydroxysteroid dehydrogenase type 2 (17 $\beta$ -HSD2), *Letf. Drug Des. Discov.* **2011**, *8*, 406-421
- 219) Marchais-Oberwinkler, S., Henn, C., Möller, G., Klein, T., Negri, M., Oster, A., Spadaro, A., Werth, R., Wetzel, M., Xu, K., Frotscher, M., Hartmann, R.W., Adamski, J., 17 $\beta$ -Hydroxysteroid dehydrogenases (17 $\beta$ -HSDs) as therapeutic targets: Protein structures, functions, and recent progress in inhibitor development, *J. Steroid Biochem. Mol. Biol.* **2011**, *125*, 66-82
- 220) Klein, T., Henn, C., Negri, M., Frotscher, M., Structural basis for species specific inhibition of 17 $\beta$ -hydroxysteroid dehydrogenase typ 1(17 $\beta$ -HSD1): Computational study and biological validation, *PLoS One* **2011**, *6*, e22990
- 221) Bansal, R., Narang, G., Ries, C., Hartmann, R.W., Synthesis of some imidazolyl substituted 2-benzylidene indanone derivatives as potent aromatase inhibitors for breast cancer therapy, *Med. Chem. Res.* **2011**, *20*, 661-669
- 222) Welker, M.-W., Welsch, C., Ochs, D., Hofmann W.P., Herrmann, E., Piiper, A., Hartmann, R.W., Zeuzem, S., Sarrazin, C., Kronenberger, B., Comparison of Envelope 2 CD81 binding regions in PBMC-derived versus serum-derived hepatitis C virus isolates: Higher conservation in CD81 region 2 in PBMC isolates, *J. Viral Hepat.* **2011**, *18*, 181-192
- 223) Hille, U.E., Zimmer, C., Haupenthal, J., Hartmann, R.W., Optimization of the first

selective steroid-11 $\beta$ -hydroxylase (CYP11B1) inhibitors for the treatment of cortisol dependent diseases, *Med. Chem. Lett.* **2011**, *2*, 559-564

- 224) Negri, M., Recanatini, M., Hartmann, R.W., Computational investigation of the binding mode of bis(hydroxyphenyl)arenes in 17 $\beta$ -HSD1: molecular dynamics simulations, free energy calculations, and molecular electrostatic potential maps, *J Comput Aided Mol Des.* **2011**, *25*, 795-811
- 225) Xu, K., Yaseen, A. S., Wetzel, M., Hartmann, R. W., Marchais-Oberwinkler, S., Triazole ring-opening leads to the discovery of potent nonsteroidal 17 $\beta$ -hydroxysteroid dehydrogenase type 2 inhibitors, *Eur. J. Med. Chem.* **2011**, *46*, 5978-5990
- 226) Wetzel, M., Marchais-Oberwinkler, S., Perspicace, E., Möller, G., Adamski, J., Hartmann, R.W., Introduction of an electron withdrawing group on the hydroxyphenylnaphthol scaffold improves the potency of 17 $\beta$ -hydroxysteroid dehydrogenase type 2 (17 $\beta$ -HSD2) inhibitors, *J. Med. Chem* **2011**, *54*, 7547-7557
- 227) Al-Soud Y. A., Heydel, M., Hartmann, R.W., Design and synthesis of 1,3,5-trisubstituted 1,2,4-triazoles as CYP enzyme inhibitors, *Tetrahedron Lett.* **2011**, *52*, 6372-6375
- 228) Yadav, M.R., Sabale, P.M., Giridhar, R., Baria, D., Zimmer, C., Hartmann, R.W., Synthesis and preliminary screening of novel A- and D-ring modified steroids as aromatase inhibitors, *Lett. Drug. Des. Discov.*, **2011**, *8*, 943-950
- 229) Wetzel, M., Gargano, E. M., Hinsberger, S., Marchais-Oberwinkler, S., Hartmann, R.W., Discovery of a new class of bicyclic substituted hydroxyphenylmethanones as 17 $\beta$ -hydroxysteroid dehydrogenase type 2 (17 $\beta$ -HSD2) inhibitors for the treatment of osteoporosis, *Eur. J. Med. Chem.*, **2012**, *47*, 1-17
- 230) Spadaro, A., Negri, M., Marchais-Oberwinkler, S., Bey, E., Frotscher, M.,  
Hydroxybenzothiazoles as new nonsteroidal inhibitors of 17beta-hydroxysteroid dehydrogenase type 1 (17beta-HSD1), *PLoS One*, **2012**, *7*, e29252
- 231) Henn, C., Einspanier, A., Oberwinkler-Marchais, S., Frotscher, M., Hartmann, R.W., Lead optimization of 17 $\beta$ -HSD1 inhibitors of the (hydroxyphenyl)naphthol sulfonamide type for the treatment of endometriosis, *J. Med. Chem.*, **2012**, *55*, 3307-3318
- 232) Lu, C., Kirsch, B., Zimmer, C., De Jong, J.C., Maurer, C., Müsken, M., Häussler, S., Steinbach, A., Hartmann, R.W., Discovery of antagonists of PqsR, a key player in 2-Alkyl-4-quinolone-dependent *Quorum Sensing* in *Pseudomonas aeruginosa*, *Chem. Biol.* **2012**, *19*, 381-390
- 233) Spadaro, A., Frotscher, M., Hartmann, R.W., Optimization of hydroxybenzothiazoles as novel potent and selective inhibitors of 17 $\beta$ -HSD1, *J. Med. Chem.* **2012**, *55*, 2469-2473
- 234) Bansal, R., Guleria, S., Thota S., Bodhankar, s.L., Moreshwar, R.P. Zimmer, C., Hartmann, R.W., L Harvey, A., Design, synthesis and evaluation of novel 16-imidazolyl substituted steroidal derivatives possessing potent diversified pharmacological properties, *Steroids*, **2012**, *77*, 621-629
- 235) Yadav, M.R., Sabale, M.P., Giridhar, R., Zimmer, C., Hartmann, R.W., Steroidal carbonitriles as potential aromatase inhibitors, *Steroids*, **2012**, *77*, 850-857

- 236) Haidar S., Boettcher, S., Al Maridini M.A., Hartmann R.W., Purity of five generic bulk montelukast sodium using liquid chromatography/mass spectrometry, *Int J Pharm Pharm*, **2012**, 4, 686-690
- 237) Henn, C., Boettcher, S., Steinbach, A., Hartmann, R.W., Catalytic enzyme activity on a biosensor chip: Combination of surface plasmon resonance and mass spectrometry, *Anal. Biochem.* **2012**, 428, 28-30
- 238) Yin, L., Lucas, S. Maurer, F., Kazmaier, U., Hu, Q., Hartmann, R.W., Novel imidazol-1-ylethyl substituted 1,2,5,6-Tetrahydro-pyrrolo[3,2,1-ij]quinolin-4-ones as potent and selective CYP11B1 inhibitors for the treatment of cushing's syndrome, *J. Med. Chem.***2012**, 55, 6629-6633
- 239) Aggarwal, S., Thareja, S., Bhardwaj, T.R., Hauptenthal, J., Hartmann, R.W., Kumar, M., Synthesis and biological evaluation of novel unsaturated carboxysteroids as human 5 $\alpha$ -reductase inhibitors: A legitimate approach, *Eur. J. Med. Chem.* **2012**, 54, 728-39
- 240) Al-Soud, Y. A., Marchais-Oberwinkler, S., Frotscher, M., Hartmann, R.W., Synthesis and biological evaluation of phenyl substituted 1*H*-1,2,4-triazoles as non-steroidal inhibitors of 17 $\beta$ -hydroxysteroid dehydrogenase type 2, *Archiv der Pharmazie*, **2012**, 345, 610-621
- 241) Hu, Q., Yin, L., Hartmann, R.W., Selective dual inhibitors of CYP19 and CYP11B2: Targeting cardiovascular diseases hiding in the shadow of breast cancer, *J. Med. Chem.* **2012**, 55, 7080-7089
- 242) Abadi, A. H., Abo-Seri, S. Hu, Q., Negri, M., Hartmann, R.W., Synthesis and biological evaluation of imidazolymethylacridones as cytochrome P-450 enzymes inhibitors, *MedChemComm.* **2012**, 3, 663-666
- 243) Klein, T., Henn, C., de Jong J.C., Zimmer, C., Kirsch, B., Maurer, C.K., Pistorius, D., Müller, R., Steinbach, A., Hartmann, R.W., Identification of small-molecule antagonists of the *pseudomonas aeruginosa* transcriptional regulator PqsR: Biophysically guided hit discovery and optimization, *ACS Chem. Biol.* **2012**, 7, 1496-1501
- 244) Hauptenthal, J., Hüsecken, K., Negri, M., Maurer, C., Hartmann, R.W., Influence of DNA template choice on transcription and inhibition of *E. coli* RNA polymerase, *Antimicrob. Agents Chemother.* **2012**, 56, 4536-4539
- 245) Storz, M., Maurer, C., Zimmer, C., Wagner, N., Brengel, C., de Jong, J., Lucas, S., Müsken, M., Häussler, S., Steinbach, A., Hartmann, R., Validation of PqsD as anti-biofilm target in *Pseudomonas aeruginosa* by development of small molecule inhibitors, *J. Am. Chem. Soc.*, **2012**, 134, 16143-16146
- 246) Bansal, R., Thota, S., Karkra, N., Minu, M., Zimmer, C., Hartmann, R.W., Synthesis and aromatase inhibitory activity of some new 16*E*-arylidenerosteroids, *Bioorg. Chemistry*, **2012**, 45, 36-40
- 247) Yin, L., Hu, Q., Hartmann, R.W., 3-Pyridyl substituted aliphatic cycles as CYP11B2 inhibitors: Aromaticity abolishment of the core significantly increased selectivity over CYP1A1, *PLoS One*, **2012**, 7, e48048
- 248) Bielecki, P., Lukat, P., Hüsecken, K., Dötsch, A., Steinmetz, H. Hartmann, R.W., Müller, R., Häussler, S., Mutation in elongation factor G confers resistance to the antibiotic argyrisin in the opportunistic pathogen *Pseudomonas aeruginosa*,

- 249) Krug, S., Hu, Q., Hartmann, R.W., Hits identified in library screening demonstrate selective CYP17A1 lyase inhibition, *J. Steroid Biochem.Mol. Biol.*, **2012**, *134*, 75-79
- 250) Bansal, R., Guleria, S., Thota, S., Hartmann, R.W., Zimmer, C., Synthesis of imidazole-derived steroidal hybrids as potent aromatase inhibitors, *Med. Chem. Res.* **2013**, *22*, 692-698
- 251) El-Gamil, D.S., Ahmed, N.S., Gary, B.D., Piazza, G.A., Engel, M., Hartmann, R.W., Abadi, A.H., Design of novel  $\beta$ -carboline derivatives with pendant 5-bromothieryl and their evaluation as phosphodiesterase-5 inhibitors, *Archiv der Pharmazie*, **2013**, *346*, 23-33
- 252) Marchais-Oberwinkler, S., Xu, K., Wetzler, M., Perspicace, E., Negri, M., Meyer, A., Odermatt, A., Möller, G., Adamski, J., Hartmann, R. W., Structural optimization of 2,5-thiophene amides as highly potent and selective 17 $\beta$ -hydroxysteroid dehydrogenase type 2 inhibitors for the treatment of osteoporosis, *J. Med. Chem.* **2013**, *56*, 167-81
- 253) Yin, L., Hu, Q., Hartmann, R. Tetrahydropyrroloquinolinone type dual inhibitors of aromatase/aldosterone synthase as a novel strategy for breast cancer patients with elevated cardiovascular risks, *J. Med. Chem.* **2013**, *56*, 460-470
- 254) Nermin, S. A., Ali, A .H., El-Nashar, S. M., Gary, B. D., Fajardo, A. M., Tinsley, H. N., Piazza, G. A., Negri, M., Abadi, A.H., Exploring the PDE5 H-pocket by ensemble docking and structure-based design and synthesis of novel  $\beta$ -carboline derivatives, *Eur. J. Med. Chem.* **2012**, *57*, 329 – 343.
- 255) Gobbi, S., Hu, Q., Zimmer, C., Belluti, F., Rampa, A., Hartmann, R.W., Modulation of cytochromes P450 with xanthone-based molecules: from aromatase to aldosterone synthase and steroid 11 $\beta$ -hydroxylase inhibition, *J. Med. Chem.*, **2013**, *56*, 1723-1729
- 256) Hüsecken, K., Negri, M., Fruth, M., Hartmann, R.W., Haupenthal, J., Peptide-based investigation of the Escherichia coli RNA polymerase  $\sigma$ 70:core interface as target site, *ACS Chem. Biol.* **2013**, *8*, 758–766
- 257) Perspicace, E., Marchais-Oberwinkler. S., Hartmann, R.W. Synthesis and biological evaluation of thieno[3,2-*d*]pyrimidinones, thieno[3,2-*d*]pyrimidines and quinazolinones, conformationally restricted 17 $\beta$ -Hydroxysteroid Dehydrogenase Type 2 (17 $\beta$ -HSD2), *Molecules*, **2013**, *18*, 4487-4509
- 258) Sahner, H. J., Groh, M., Negri, M., Haupenthal, J., Hartmann, R.W., Novel small molecule inhibitors targeting the “Switch Region” of bacterial RNAP: Structure-based optimization of a virtual screening hit, *Eur. J. Med. Chem.*, **2013**, *65*, 223-231
- 259) Zhu, W., Groh, M., Haupenthal, J., Hartmann, R.W., A detective story in drug discovery: Elucidation of a screening artifact reveals polymeric carboxylic acids as potent inhibitors of RNA polymerase, *Chem. Eur. J.*, **2013**, *19*, 8397-8400
- 260) Yin, L., Hu, Q., Hartmann, R.W., Recent progress in pharmaceutical therapies for castration-resistant prostate cancer, *Int. J. Mol. Sci.*, **2013**, *14*, 13958-13978

- 261) Weidel, E., DeJong, J., Brengel, C., Storz, M., Braunshausen, A., Negri, M., Plaza, A., Steinbach, A., Müller, R., Hartmann, R., Structure Optimization of 2-Benzamidobenzoic acids as PqsD inhibitors for *Pseudomonas aeruginosa* infections and elucidation of binding mode by SPR, STD NMR and molecular docking, *J. Med. Chem.*, **2013**, *56*, 6146–6155
- 262) Pinto-Bazurco Mendieta, M., Hu, Q., Engel, M., Hartmann, R.W., Highly potent and selective non-steroidal dual inhibitors of CYP17 / CYP11B2 for the treatment of prostate cancer to reduce risks of cardiovascular diseases, *J. Med.Chem.*, **2013**, *56*, 6101–6107
- 263) Steinbach, A., Maurer, C.K., Henn, C., Weidel, E., Brengel, C., Hartmann, R.W., Negri, M., Molecular basis of HHQ biosynthesis: Molecular dynamics simulations, surface plasmon resonance and enzyme kinetic studies, *BMC Biophys*, **2013**, *6*:10
- 264) Berényi, Á., Frotscher, M., Marchais-Oberwinkler, S., Hartmann, R.W., Minorics, R., Ocsovszki, I., Falkay, G., Zupkó, I., Direct antiproliferative effect of nonsteroidal 17 $\beta$ -hydroxysteroid dehydrogenase type 1 inhibitors *in vitro*, *J. Enzyme Inhib. Med. Chem.*, **2013**, *28*, 695-703
- 265) Emmerich, J., Hu, Q., Hanke, N., Hartmann, R.W., Cushing's syndrome: development of highly potent and selective CYP11B1 inhibitors of the (pyridylmethyl)pyridine type, *J. Med. Chem.*, **2013**, *56*, 6022–6032
- 266) Maurer, C., Steinbach, A., Hartmann, R.W., Development and validation of a UHPLC-MS/MS procedure for quantification of the *Pseudomonas* Quinolone Signal in bacterial culture after chemical derivatization for characterization of new quorum sensing inhibitors, *J. Pharm. Biomed. Anal.*, **2013**, *86*, 127-134
- 267) Hamed, M. M., El Ella, D.A.A., Keeton, A.B., Piazza, G.A., Engel, M., Hartmann, R.W., Abadi, A.H., Quinazoline and tetrahydropyridothieno[2,3-d]pyrimidine derivatives as irreversible EGFR tyrosine kinase inhibitors: influence of the position 4 substituent, *MedChemComm*, **2013**, *4*, 1202-1207
- 268) Hamed, M.M., El Ella, D.A.A., Keeton, A.B., Piazza, G.A., Abadi, A.H., Hartmann, R.W., Engel, M., "6-aryl and heterocycle quinazoline derivatives as potent EGFR inhibitors with improved activity toward Gefitinib-sensitive and -resistant tumor cell lines", *ChemMedChem*, **2013**, *8*, 1495-1504
- 269) Zender, M., Klein, T., Henn, C., Kirsch, B., Maurer, C.K., Kail, D., Ritter, C., Dolezal, O., Steinbach, A., Hartmann, R.W., Discovery and Biophysical Characterization of 2-Amino-Oxadiazoles as novel Antagonists of PqsR - an important regulator of *Pseudomonas aeruginosa* virulence, *J. Med. Chem.*, **2013**, *56*, 6761–6774
- 270) Perspicace, E., Giorgio, A., Carotti, A., Marchais-Oberwinkler, S., Hartmann, R.W., Novel N-methylsulfonamide and retro-N-methylsulfonamide derivatives as 17 $\beta$ -Hydroxysteroid Dehydrogenase Type 2(17 $\beta$ -HSD2) inhibitors with good ADME-related physicochemical parameters, *Eur. J. Med. Chem.*, **2013**, *69*, 201-215
- 271) Schaadt, N. S., Steinbach, A., Hartmann, R.W., Helms, V., Rule-based regulatory and metabolic model for Quorum sensing in *P. aeruginosa*, *BMC Systems Biology*, **2013**, *7*:81
- 272) Ferlin, M. G., Carta, D., Bortolozzi, R., Ghodsi, R., Chimento, A., Pezzi, V., Moro, S., Hanke, N., Hartmann, R.W., Basso, G., Viola, G., Design, synthesis and SARs of

azolymethyl-pyrroloquinolines as non steroidal aromatase inhibitors, *J. Med. Chem.*, **2013**, *56*, 7536-7551

- 273) Sahner, H.J., Brengel, C., Storz, Groh, M., Plaza, A.P., Negri, M., Müller, R., Hartmann, R.W., Combining in silico and biophysical methods for the development of *Pseudomonas aeruginosa* quorum sensing inhibitors - an alternative approach for structure-based drug design, *J. Med.Chem.*, **2013**, *56*, 8656-8664
- 274) Hinsberger, S., Groh, M., Negri, M., Hauptenthal, J., Hartmann, R., Discovery of novel bacterial RNA polymerase inhibitors: Pharmacophore based virtual screening and hit optimization, *J.Med.Chem.* **2013**, *56*, 8332–8338
- 275) Abdel-Halim, M., Keeton, A.B., Gurpinar, E., Gary, B.D., Vogel, S. M., Engel M., A. Piazza, G.P., Frank M. Boeckler, F.M., Hartmann, R.W., Ashraf H. Abadi, A.H. Trisubstituted and tetrasubstituted pyrazolines as a novel class of cell-growth inhibitors in tumor cells with wild type p53, *Bioorg.Med.Chem*, **2013**, *21*, 7343–7356
- 276) Grombein, C.M., Hu, Q., Heim, R., Huch, V., Hartmann, R.W., Unexpected results of a  $S_{N,Ar}$ - reaction. A novel synthetic approach to 1-arylthio-2-naphthols, *Tetrahedron Lett.*, **2013**, *54*, 6615-6618
- 277) Storz, M.P., Brengel, C., Weidel, E., Hoffmann, M., Hollemeyer, K., Empting, M. Steinbach, A., Müller, R., Hartmann, R.W., Biochemical and biophysical analysis of a chiral PqsD inhibitor revealing tight-binding behavior and enantiomers with contrary thermodynamic signatures, *ACS Chem. Biol.*, **2013**, *8*, 2794-2801
- 278) Elgaher, W.A.M., Fruth, M., Groh, M., Hartmann, R.W., Expanding the scaffold for bacterial RNA polymerase inhibitors: Design, synthesis and structure activity relationships of ureido-heterocyclic-carboxylic acids, *RSC Adv.*, **2014**, *4*, 2177
- 279) Lu, C., Maurer, C.K., Kirsch, B., Steinbach, A., Hartmann, R.W. Overcoming unexpected functional inversion of PqsR antagonist in *Pseudomonas aeruginosa* led to the first in vivo potent anti-virulence agent targeting pqs quorum sensing, *Angewandte*, **2014**, *53*, 1109 –1112
- 280) Hinsberger, S., De Jong, J., Groh, M., Hauptenthal, J., Hartmann, R.W. Benzamidobenzoic acids as potent PqsD inhibitors for the treatment of *Pseudomonas aeruginosa* infections: How to gain selectivity over RNA polymerase, *Eur. J. Med. Chem.*, **2014**, *76*, 343-351
- 281) Schmitt, C., Kail D., Mariano, M., Empting, M., Weber, N., Paul, T., Hartmann, R.W., Engel, M. Design and synthesis of a library of lead-like 2,4-bisheterocyclic substituted thiophenes as selective Dyrk/Clk inhibitors, *PLoS One*, **2014**, *9*, e87851
- 282) Lu, C., Kirsch, B., Maurer, C.K., de Jong, J., Braunshausen, A., Steinbach, A., Hartmann, R.W. Optimization of anti-virulence PqsR antagonists regarding aqueous solubility and biological properties resulting in new insights into structure-activity relationships, *Eur. J. Med. Chem.*, **2014**, *79*, 173–183
- 283) Thomann, A., Boerger, C., Empting, M., Hartmann, R.W. Microwave-assisted synthesis of 4-substituted 2-methylthiopyrimidines, *SYNLETT*, **2014**, *25*: 935-938
- 284) Hutter, M.C., Brengel, C., Henn, C., Zimmer, C., Hartmann, R.W., Steinbach, A., Negri, M. Computational results suggest that the catalytic machinery of PqsD works without a catalytic triad, *J. Mol. Model.*, **2014**, *20*: 2255

- 285) Laggai, S., Kessler, S., Boettcher, S., Gemperlein, K., Lederer, E., Mueller, R., Hartmann, R., Haybaeck, J., Kiemer, A. The IGF2 mRNA binding protein p62/IGF2BP2-2 induces fatty acid elongation as a critical feature of steatosis, *J. Lipid Res.*, **2014**, *55*, 1087-1097
- 286) Abdelsamie, S. A., Bey, E., Hanke, N., Empting, M., Hartmann, R.W., Frotscher, M., Inhibition of 17 $\beta$ -HSD1: SAR of bicyclic substituted hydroxyphenylmethanones and discovery of new potent inhibitors with thioether linker, *Eur. J. Med. Chem.*, **2014**, *82*, 394-406
- 287) Hu, Q., Yin, L., Hartmann, R.W., Aldosterone synthase inhibitors as promising treatments for mineralocorticoid dependent cardiovascular and renal diseases, *J. Med. Chem.*, **2014**, *57*, 5011–5022
- 288) Yin, L., Hu, Q., Hartmann, R.W. Novel pyridyl or isoquinolinyl substituted indolines and indoles as potent and selective aldosterone synthase inhibitors, *J. Med. Chem.*, **2014**, *57*, 5179–5189
- 289) Zhu, W., Hauptenthal, J., Groh, M., Fountain, M., Hartmann, R.W. New insights into the bacterial RNA polymerase inhibitor CBR703 1 as a starting point for optimization as an anti-infective agent, *Antimicrob Agents Chemother*, **2014**, *58:7*, 4242-4245
- 290) Perspicace, E., Cozzoli, L., Gargano, E. M., Hanke, N., Carotti, A., Hartmann, R.W. Marchais-Oberwinkler, S. Novel, potent and selective 17 $\beta$ -hydroxysteroid dehydrogenase type 2 inhibitors as potential therapeutics for osteoporosis with dual human and mouse activities, *Eur. J. Med. Chem.*, **2014**, *83*, 317-337
- 291) Storz, M., Allegretta, G., Kirsch B., Empting, M., Hartmann, R. From *in vitro* to *in cellulo*: Structure-activity relationship of (2-nitrophenyl)methanol derivatives as inhibitors of PqsD in *Pseudomonas aeruginosa*, *OBC*, **2014**, *12*, 6094-6104
- 292) Nafee, N., Husari, A., Maurer, C.K., Lu, C., de Rossi, C., Steinbach, A., Hartmann, R.W., Lehr, C.M., Schneider, M. Antibiotic-free nanotherapeutics: Ultra-small mucus-penetrating solid lipid nanoparticles enhance the pulmonary delivery and anti-virulence efficacy of novel quorum sensing inhibitors, *J Control Release*, **2014**, *192*, 131-140
- 293) Hu, Q., Hartmann, R.W. The Renaissance of CYP17 Inhibitors for the treatment of prostate cancer, *Cancer Drug Design and Discovery*, Second Edition, **2014**, chapter 11, 319-356
- 294) Abdel-Halim, M., Diesel, B., Kiemer, A., Abadi, A., Hartmann, R., Engel, M. Discovery and optimization of 1,3,5-trisubstituted pyrazolines as potent and highly selective allosteric inhibitors of protein kinase C- $\zeta$ , *J. Med. Chem.*, **2014**, *57*, 6513–6530
- 295) Schmitt, C., Miralinaghi, P., Mariano, M., Hartmann R., Engel, M. Hydroxybenzothiophene ketones are efficient pre-mRNA splicing modulators due to dual inhibition of Dyrk1A and Clk1/4, *ACS Med. Chem. Lett.*, **2014**, *5*, 963–967
- 296) Gargano, M., Perspicace, E., Hanke, N., Carotti, A., Marchais-Oberwinkler, S., Hartmann, R. Metabolic Stability Optimization and Metabolite Identification of 2,5-Thiophene Amide 17 $\beta$ -Hydroxysteroid Dehydrogenase Type 2 Inhibitors, *Eur. J. Med. Chem.*, **2014**, *87*, 203–219
- 297) Miralinaghi, P., Schmitt, C., Hartmann, R.W., Frotscher, M., Engel, M. 6-Hydroxybenzothiophene ketones: potent inhibitors of 17 $\beta$ -hydroxysteroid dehydrogenase type 1 (17 $\beta$ -HSD1) due to favorable molecule geometry and conformational pre-organization, *ChemMedChem*, **2014**, *9*, 2294-308



- 298) Zhu, W., Hu, Q., Hanke, N., vanKoppen, C., Hartmann, R. Potent 11 $\beta$ -Hydroxylase inhibitors with inverse metabolic stability in human plasma and hepatic S9 fractions to promote wound healing, *J. Med. Chem.*, **2014**, *57*, 7811-7
- 299) Hüsecken, K., Hinsberger, S., Hauptenthal, J., Hartmann, R.W. Surface plasmon resonance – more than a screening technology: Insights in the binding mode of  $\sigma$ 70:core RNAP inhibitors, *Future Med. Chem.*, **2014**, *6*, 1551-65
- 300) Fruth, M., Plaza, A., Hinsberger, S., Sahner, J.H., Hauptenthal, J., Bischoff, Jansen, R., Müller, R., Hartmann, R. Binding mode characterization of novel RNA polymerase inhibitors using a combined biochemical and NMR approach, *ACS Chem. Biol.*, **2014**, *9*, 2656-63
- 301) Allegretta, G., Weidel, E., Empting, M., Hartmann, R.W. Catechol-based substrates of chalcone synthase as a scaffold for novel inhibitors of PqsD, *Eur. J. Med. Chem.*, **2014**, *90C*:351-359
- 302) Grombein, C., Hu, Q., Heim, R., Rau, S., Zimmer, C., Hartmann, R. 1-Phenylsulfinyl-3-(pyridin-3-yl)naphthalen-2-ols: A new class of potent and selective aldosterone synthase inhibitors, *Eur. J. Med. Chem.*, **2015**, *89*, 597e605
- 303) Al-Masoudi, N.A., Ali, D.S., Saeed, B., Hartmann, R.W., Engel, M., Rashid, S., Saeed, A. New CYP17 hydroxylase inhibitors: Synthesis, biological evaluation, QSAR, and molecular docking study of new pregnenolone analogs, *Arch. Pharm. Chem. Life Sci.* **2014**, *347*, 896–907
- 304) Stefanachi, A., Hanke, N., Pisani, L., Leonetti, F., Nicolotti, O., Cellamare, S., Hartmann, R., Carotti, A. Discovery of new 7-Substituted-4-imidazolymethyl coumarins and 4'-substituted-2-Imidazolyl acetophenones open analogues as potent and selective inhibitors of steroid-11 $\beta$ -hydroxylase, *Eur. J. Med. Chem.*, **2015**, *89*, 106-114
- 305) Mariano, M., Schmitt, C., Miralinaghi, P., Catto, M., Hartmann, R.W., Carotti, A., Engel, M. First selective dual inhibitors of tau phosphorylation and beta-amyloid aggregation, two major pathogenic mechanisms in Alzheimer's disease, *ACS Chem. Neurosci.*, **doi: 10.1021/cn5001815**
- 306) Weidel, E., Negri, M., Empting, M., Hinsberger, S., Hartmann, R.W. How to compose compound libraries for hit 3 discovery – rationality-driven preselection or 4 random choice aiming at structural diversity? *Future Med. Chem.*, **accepted**
- 307) Grombein C.M., Hu, C., Rau, S., Zimmer, C., Hartmann, R.W. Heteroatom insertion into 3,4-Dihydro-1H-quinolin-2-ones leads to potent and selective inhibitors of human and rat aldosterone synthase, *EJMC*, **doi: 10.1016/j.ejmech.2014.12.022**
- 308) Murthy J. N., Badrinarayan, P., Rao, A. R. R., Sastry N., Hartmann R.W., Design and synthesis of imidazolyl-1,2,3,4-tetrahydroquinolines as potent aromatase inhibitors, *ChemMedChem.*, **submitted**
- 309) Abdelsamie, A., Bey, E., Hanke, N., Zanter, E.-S., Gargano, E., Empting, M., Frotscher, M. Halogenated 17 $\beta$ -HSD1 Inhibitors: Discovery of Highly Potent and Metabolically Stable Compounds Enabling a Proof of Principle Study in Rodents, N.N.
- 310) Sahner, J.H., Sucipto, H., Wenzel, S.C., Groh, M., Hartmann, R.W., Müller, R. Advanced Mutasynthesis Studies on Natural  $\alpha$ -Pyrone Antibiotics from *Myxococcus fulvus*, *RCS*, **submitted**

- 311) Sahner, J.H., Empting, M., Kamal, A., Weidel, E., Börger, E., Hartmann, R. Exploring the chemical space of ureidothiophene-2-carboxylic acids as inhibitors of the quorum sensing enzyme PqsD from *Pseudomonas aeruginosa*, *Eur. J. Med. Chem.*, **submitted**

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Thomann, A., Boerger, C., Empting, M., ChemInform Abstract: Microwave-Assisted Synthesis of 4-Substituted 2 Methylthiopyrimidines., *ChemInform* 11/2014; 45(45). DOI: 10.1002/chin.201445185