

# MEDICAL FACULTY UNIVERSITY HOSPITAL MAGDEBURG

## EXPERIMENTAL OBSTETRICS AND GYNAECOLOGY

### Publications

#### Selected publications of the Department of Experimental Gynecology and Obstetrics

#### 2020

**Santamaria CG, Meyer N, Schumacher A, Zenclussen ML, Teglia CM, Culzoni MJ, Zenclussen AC, Rodriguez HA.** (2020) Dermal exposure to the UV filter benzophenone-3 during early pregnancy affects fetal growth and sex ratio of the progeny in mice. Arch Toxicol. 2020 May 19. doi: 10.1007/s00204-020-02776-5. Online ahead of print. PMID: 32430675

**Meyer M, Langwisch S, Scharm M, Zenclussen AC.**(2020) Using ultrasound to define the time point of intrauterine growth retardation in a mouse model of heme oxygenase-1 deficiency. Biol Reprod. 2020 Apr 28;ioaa057. doi: 10.1093/biolre/ioaa057. Online ahead of print. PMID: 32342097

**Michael L. Dustin and Ana Claudia Zenclussen.** (2020) A checkpoint cliffhanger at the dawn of placental mammals. J Biol Chem

**Violeta Stojanovska and Ana Claudia Zenclussen.** (2020) Innate and adaptive immune responses in HELLP syndrome. Front Immunol

**Mandy Busse, Kim-Norina Jutta Campe, Anke Redlich, Anika Oettel, Roland Hartig, Serban-Dan Costa and Ana Claudia Zenclussen.** (2020) Regulatory B Cells Are Decreased and Impaired in Their Function in Peripheral Maternal Blood in Pre-term Birth. Front Immunol 20 March 2020, doi: 10.3389/fimmu.2020.00386

**Nicole Meyer, Ana Claudia Zenclussen.** (2020) Immune Cells in the Uterine Remodeling: Are They the Target of Endocrine Disrupting Chemicals? Front Immunol, 11, 246 2020 Feb 19 eCollection 2020, DOI: 10.3389/fimmu.2020.00246

**Ute Bank, Katrin Deiser, Carlos Plaza-Sirvent, Lisa Osbelt, Amelie Witte, Laura Knop, Rebecca Labrenz, Robert Jänsch, Felix Richter, Aindrila Biswas, Ana C Zenclussen, Eric Vivier, Chiara Romagnani, Anja A Kühn, Ildiko R Dunay, Till Strowig, Ingo Schmitz, Thomas Schöler.** (2020) c-FLIP Is Crucial for IL-7/IL-15-dependent NKp46 + ILC Development and Protection From Intestinal Inflammation in Mice. Nat Commun , 11 (1), 1056 2020 Feb 26, DOI: 10.1038/s41467-020-14782-3

**Nicolás Anselmino, Michael Starbuck, Estefania Labanca, Javier Cotignola, Nora Navone, Geraldine Gueron, Ana C Zenclussen, Elba Vazquez** (2020). Heme Oxygenase-1 Is a Pivotal Modulator of Bone Turnover and Remodeling: Molecular Implications for Prostate Cancer Bone Metastasis. Antioxid Redox Signal, 2020 Jan 20 [Online ahead of print]; DOI: 10.1089/ars.2019.7879

#### 2019

**Anne Schumacher, Ana C Zenclussen.** (2019) Human Chorionic Gonadotropin-Mediated Immune Responses That Facilitate Embryo Implantation and Placentation. Front Immunol, 10, 2896 2019 Dec 10 eCollection, DOI: 10.3389/fimmu.2019.02896

**Ehrentraut S, Sauss K, Neumeister R, Luley L, Oettel A, Fettke F, Costa S-D, Langwisch S, Zenclussen AC, Schumacher A.** (2019) Human Miscarriage Is Associated With Dysregulations in Peripheral Blood-Derived Myeloid Dendritic Cell Subsets. *Frontiers in Immunol* 2019 Oct 15; Volume 10 | Article 2440. doi: 10.3389/fimmu.2019.02440

**Luo Y, Meyer N, Jiao Q, Scheffel J, Zimmermann C, Metz M, Zenclussen AC, Mauerer M, Siebenhaar F.** (2019) Chymase-Cre; Mcl- 1fl/fl Mice Exhibit Reduced Numbers of Mucosal Mast Cells. *Frontiers in Immunol* 2019 Oct 15, Volume 10 | Article 2399. doi: 10.3389/fimmu.2019.02399

**Busse M, Campe KJ, Nowak D, Schumacher A, Plenagl S, Langwisch S, Tiegs G, Reinhold A, Zenclussen AC.** (2019) IL-10 producing B cells rescue mouse fetuses from inflammation-driven fetal death and are able to modulate T cell immune responses. *Sci Rep.* 2019 Jun 27; 9(1): 9335. doi: 10.1038/s41598-019-45860-2.

**Meyer N, Santamaria C, Müller JE, Schumacher A, Rodriguez HA and Zenclussen AC.** (2019) Exposure to 17 $\beta$ -ethinyl estradiol during early pregnancy affects fetal growth and survival in mice. *Environ Pollut.* 2019 May 9;251:493-501. doi: 10.1016/j.envpol.2019.04.144. [Epub ahead of print]

## 2018

**Santamaría CG, Abud JE, Porporato MM, Meyer N, Zenclussen AC, Kass L, Rodríguez HA.** (2018) The UV filter benzophenone 3, alters early follicular assembly in rat whole ovary cultures. *Toxicol Lett.* 2018 Dec 30;303:48-54. doi: 10.1016/j.toxlet.2018.12.016. [Epub ahead of print]

**Meyer N, Schüler T, Zenclussen AC,** High Frequency Ultrasound for the Analysis of Fetal and Placental Development *In Vivo*. *JOVE* in press.

**Ewert L, Fischer A, Brandt S, Scurt FG, Philipson L, Müller AJ, Girndt M, Zenclussen AC, Lindquist JA, Gorny X, Mertens PR** (2018) Cold shock Y-box binding protein-1 acetylation status in monocytes is associated with systemic inflammation and vascular damage. Available online 22 September 2018. <https://doi.org/10.1016/j.atherosclerosis.2018.09.020> "provisional"

**Consentius C, Mirenska A, Jurisch A, Reinke S, Scharm M, Zenclussen AC, Hennig C, Volk HD.** (2018) In situ detection of CD73+ CD90+ CD105+ lineage: Mesenchymal stromal cells in human placenta and bone marrow specimens by chipcytometry. *Cytometry A*, 2018 Sep 13. doi: 10.1002/cyto.a.23509

**Schumacher A, Sharkey DJ, Robertson SA, Zenclussen AC.** (2018) Immune Cells at the Fetomaternal Interface: How the Microenvironment Modulates Immune Cells To Foster Fetal Development. *J Immunol.* 2018 Jul 15;201(2):325-334. doi: 10.4049/jimmunol.1800058.

**Meyer N, Zenclussen AC.** (2018) Mast cells-Good guys with a bad image? *Am J Reprod Immunol.* 2018 Jun 19:e13002. doi: 10.1111/aji.13002. [Epub ahead of print]

**Müller JE, Meyer N, Santamaria CG, Schumacher A, Luque EH, Zenclussen ML, Rodriguez HA, Zenclussen AC.** (2018) Bisphenol A exposure during early pregnancy impairs uterine spiral artery remodeling and provokes intrauterine growth restriction in mice. *Sci Rep.* 2018 Jun 15;8(1):9196. doi: 10.1038/s41598-018-27575-y.

**Anne Schumacher, Stefanie Ehrentraut, Markus Scharm, Hongsheng Wang, Roland Hartig, Herbert C. Morse III and Ana Claudia Zenclussen** (2018) Plasma Cell Alloantigen 1 and IL-10 Secretion Define Two Distinct Peritoneal B1a B Cell Subsets With Opposite Functions, PC1<sup>high</sup> Cells Being Protective and PC1<sup>low</sup> Cells Harmful for the Growing Fetus. *Front. Immunol.*, 15 May 2018 | <https://doi.org/10.3389/fimmu.2018.01045>

**Sauss K, Ehrentraut S, Zenclussen AC, Schumacher A.** (2018) The pregnancy hormone human

chorionic gonadotropin differentially regulates plasmacytoid and myeloid blood dendritic cell subsets. *Am J Reprod Immunol.* 2018 Feb 28. doi: 10.1111/aji.12837

**Meyer N, Schüler T, Zenclussen AC.** (2018) Simultaneous ablation of uterine natural killer cells and uterine mast cells in mice leads to poor vascularization and abnormal Doppler measurements that compromise fetal well-being. *Frontiers Immunol* (in press). DOI: 10.3389/fimmu.2017.01913

## 2017

**Ranjan S, Goihl A, Kohli S, Gadi I, Pierau M, Shahzad K, Gupta D, Bock F, Wang H, Shaikh H, Kähne T, Reinhold D, Bank U, Zenclussen AC, Niemz J, Schnöder TM, Brunner-Weinzierl M, Fischer T, Kalinski T, Schraven B, Luft T, Huehn J, Naumann M, Heidel FH, Isermann B.** (2017) Activated protein C protects from GvHD via PAR2/PAR3 signalling in regulatory T-cells. *Nature Communications* 8, Article number: 311 (2017) doi:10.1038/s41467-017-00169-4

**Meyer N, Woidacki K, Maurer M, Zenclussen AC.** (2017) Safeguarding of Fetal Growth by Mast Cells and Natural Killer Cells: Deficiency of One Is Counterbalanced by the Other. *Frontiers in Immunology* 2017 Juni 16. doi: 10.3389/fimmu.2017.00711

**Kohli S, Hoffmann J, Lochmann F, Markmeyer P, Huebner H, Fahlbusch FB, Al-Dabet MM, Gadi I, Manoharan J, Löttge M, Zenclussen AC, Aharon A, Brenner B, Shahzad K, Ruebner M, Isermann B.** (2017) p45 NF-E2 regulates syncytiotrophoblast differentiation by post-translational GCM1 modifications in human intrauterine growth restriction. *Cell Death Dis.* 2017 Apr 6;8(4):e2730. doi: 10.1038/cddis.2017.127.

**Meyer N, Woidacki K, Knöfler M, Meinhardt G, Nowak D, Velicky P, Pollheimer J, Zenclussen AC.** (2017) Chymase-producing cells of the innate immune system are required for decidual vascular remodeling and fetal growth. *Sci Rep.* 2017 Mar 22;7:45106. doi: 10.1038/srep45106.

**Schumacher A, Dauven D, Zenclussen AC.** Progesterone-driven local regulatory T cell induction does not prevent fetal loss in the CBA/J×DBA/2J abortion-prone model. *Am J Reprod Immunol.* 2017 Mar;77(3). doi: 10.1111/aji.12626.

**Weissenborn C, Ignatov T, Nass N, Kalinski T, Costa SD, Zenclussen AC, Ignatov A.** (2017) GPER Promoter Methylation Controls GPER Expression in Breast Cancer Patients. *Cancer Investigation*, 2017, S. 1-8, doi: 10.1080/07357907.2016.1271886.

## 2016

**Dauven D, Ehrentraut S, Langwisch S, Zenclussen AC, Schumacher A.** (2016) Immune Modulatory Effects of Human Chorionic Gonadotropin on Dendritic Cells Supporting Fetal Survival in Murine Pregnancy. *Front. Endocrinol.*, 15 November 2016

**Bronchud MH, Tresserra F, Xu W, Warren S, Cusido M, Zantop B, Zenclussen AC, Cesano A.** (2016) Placental immune editing switch (PIES): learning about immunomodulatory pathways from a unique case report. *Oncotarget.* 2016 Nov 11. doi: 10.18632/oncotarget.13306. [Epub ahead of print]

**Fettke F, Schumacher A, Canellada A, Toledo N, Bekeredjian-Ding I, Bondt A, Wuhler M, Costa SD, Zenclussen AC.** (2016) Maternal and fetal mechanisms of B cell regulation during pregnancy: human Chorionic Gonadotropin stimulates B cells to produce IL-10 while alpha-fetoprotein drives them into apoptosis. *Front. Immunol.* doi: 10.3389/fimmu.2016.00495

**Kohli S, Ranjan S, Hoffmann J, Kashif M, Daniel EA, Al-Dabet MM, Bock F, Nazir S, Huebner H, Mertens PR, Fischer KD, Zenclussen AC, Offermanns S, Aharon A, Brenner B, Shahzad K, Ruebner M, Isermann B.** (2016) Maternal extracellular vesicles and platelets promote preeclampsia through inflammasome activation in embryonic trophoblast. *Blood.* 2016 Sep 2. pii: blood-2016-03-705434. [Epub ahead of print]

**Oettel A, Lorenz M, Stangl V, Costa SD, Zenclussen AC, Schumacher A.** (2016) Human Umbilical Vein Endothelial Cells foster conversion of CD4<sup>+</sup>CD25<sup>-</sup>Foxp3<sup>-</sup> T cells into CD4<sup>+</sup>Foxp3<sup>+</sup> Regulatory T Cells via Transforming Growth Factor- $\beta$ . *Scientific Reports*

**Poloski E, Oettel A, Ehrentraut S, Luley L, Costa SD, Zenclussen AC, Schumacher A.** (2016) JEG-3 Trophoblast Cells Producing Human Chorionic Gonadotropin Promote Conversion of Human CD4<sup>+</sup>FOXP3<sup>-</sup> T Cells into CD4<sup>+</sup>FOXP3<sup>+</sup> Regulatory T Cells and Foster T Cell Suppressive Activity. *Biol Reprod.* 2016 Mar 9. pii: biolreprod.115.135541. [Epub ahead of print]

**Spilker C, Nullmeier S, Grochowska KM, Schumacher A, Butnaru I, Macharadze T, Yuanxiang PA, Gomes GM, Bayraktar G, Rodenstein C, D'Hanis W, Roskodien T, Mikhaylova M, Budinger E, Ohi FW, Stork O, Zenclussen AC, Karpova A, Schwegler H, Kreutz MR.** (2016) A Jacob/Nsmf gene knock-out results in hippocampal dysplasia and impaired BDNF signalling in dendritogenesis. *PLoS Genetics* (in press)

**Figueiredo AS, Schumacher A.** (2016) The Th17/Treg paradigm in pregnancy. *Immunology.* 2016 Feb 8. doi: 10.1111/imm.12595.

## 2015

**Fest S, Soldati R, Christiansen NM, Zenclussen ML, Kilz J, Berger E, Starke S, Lode HN, Engel C, Zenclussen AC, Christiansen H.** (2015) Targeting of Heme Oxygenase-1 as a novel immune regulator of neuroblastoma. *Int J Cancer.* 2015 Nov 23. doi: 10.1002/ijc.29933.

**Zenclussen AC, Wong RJ.** (2015) Heme Oxygenases: Novel Regulators of Reproductive Processes. *Front. Pharmacol.* 6:282. doi: 10.3389/fphar.2015.00282.

**Woidacki K, Meyer N, Schumacher A, Goldschmidt A, Maurer M, Zenclussen AC.** (2015) Transfer of regulatory T cells into abortion-prone mice promotes the expansion of uterine mast cells and normalizes early pregnancy angiogenesis. *Sci Rep.* 2015 Sep 10;5:13938. doi: 10.1038/srep13938.

**Schumacher A, Zenclussen AC.** (2015) The Paternal Contribution to Fetal Tolerance. *Adv Exp Med Biol.* 2015;868:211-25. doi: 10.1007/978-3-319-18881-2\_10.

**Zenclussen AC, Hämmerling GJ.** (2015) Cellular Regulation of the Uterine Microenvironment That Enables Embryo Implantation. *Front Immunol.* 2015 Jun 17;6:321. doi: 10.3389/fimmu.2015.00321. eCollection 2015.

**Zenclussen, Maria L.; Linzke, Nadja; Schumacher, Anne; Fest, Stefan; Meyer, Nicole; Casalis, Pablo A.; Zenclussen, Ana C.** (2015) Heme oxygenase-1 is critically involved in placentation, spiral artery remodeling, and blood pressure regulation during murine pregnancy. *Front Pharmacol.* 2015 Jan 13;5:291. doi: 10.3389/fphar.2014.00291. eCollection 2014.

**Schumacher, Anne; Zenclussen, Ana C.** (2015) Effects of heme oxygenase-1 on innate and adaptive immune responses promoting pregnancy success and allograft tolerance In: *Frontiers in pharmacology.* *Front Pharmacol.* 2015 Jan 6;5:288. doi: 10.3389/fphar.2014.00288. eCollection 2014. Review.

## 2014

**Luley L, Schumacher A, Mulla MJ, Franke D, Löttge M, Fill Malfertheiner S, Tchaikovski SN, Costa SD, Hoppe B, Abrahams VM, Zenclussen AC.** (2014) Low Molecular Weight Heparin Modulates Maternal Immune Response in Pregnant Women and Mice with Thrombophilia. *Am J Reprod Immunol.* 2014 Dec 11. doi: 10.1111/aji.12348.

**Muzzio DO, Soldati R, Ehrhardt J, Utpatel K, Evert M, Zenclussen AC, Zygmunt M, Jensen F.** (2014) B cell development undergoes profound modifications and adaptations during pregnancy in mice. *Biol Reprod.* 2014 Nov;91(5):115. doi: 10.1095/biolreprod.114.122366. Epub 2014 Sep 10.

**Fettke F, Schumacher A, Costa SD, Zenclussen AC.** (2014) B cells: the old new players in reproductive immunology. *Front Immunol.* 2014 Jun 23;5:285. doi: 10.3389/fimmu.2014.00285. eCollection 2014.

**Mikhaylova M, Schumacher A, Borutzki C, Neumann JR, Macharadze T, El-Mousleh T, Wahle P, Zenclussen AC, Kreutz MR.** (2014) Analysis of Y-P30/Dermcidin expression and properties of the Y-P30 peptide. *BMC Res Notes.* 2014 Jun 26;7(1):400. [Epub ahead of print]

**Teles A, Zenclussen AC.** (2014) How cells of the immune system prepare the endometrium for implantation. *Semin Reprod Med.* 2014 Sep;32(5):358-64. doi: 10.1055/s-0034-1383735. Epub 2014 Jun 24.

**Woidacki K, Zenclussen AC, Siebenhaar F.** (2014) Mast Cell-Mediated and Associated Disorders in Pregnancy: A Risky Game with an Uncertain Outcome? *Front Immunol.* 2014 May 19;5:231. eCollection 2014. Review.

**Schumacher A, Costa SD, Zenclussen AC.** (2014) Endocrine Factors Modulating Immune Responses in Pregnancy. *Front Immunol.* 2014 May 8;5:196. eCollection 2014. Review.

**Schumacher A, Zenclussen AC.** (2014) Regulatory T Cells: Regulators of Life. *Am J Reprod Immunol.* Mar 24. doi: 10.1111/aji.12238. [Epub ahead of print]

**Zenclussen ML, Casalis PA, Jensen F, Woidacki K, Zenclussen AC.** (2014) Hormonal Fluctuations during the Estrous Cycle Modulate Heme Oxygenase-1 Expression in the Uterus. *Front Endocrinol (Lausanne).* Mar 13;5:32. doi: 10.3389/fendo.2014.00032. eCollection 2014.

**Schumacher A, Poloski E, Spörke D, Zenclussen AC.** (2014) Luteinizing Hormone Contributes to Fetal Tolerance by Regulating Adaptive Immune Responses. *Am J Reprod Immunol.* Mar 5. doi: 10.1111/aji.12215. [Epub ahead of print]

**Weißborn C, Ignatov T, Ochel HJ, Costa SD, Zenclussen AC, Ignatova Z, Ignatov A.** (2014) GPER functions as a tumor suppressor in triple-negative breast cancer cells. *J Cancer Res Clin Oncol.* Feb 20. [Epub ahead of print]

**Schmerse F, Woidacki K, Riek-Burchardt M, Reichardt P, Roers A, Tadokoro CE, Zenclussen AC.** (2014) In vivo visualization of uterine mast cells by 2-photon microscopy. *Reproduction.* Feb 17. [Epub ahead of print]

**Weißborn C, Ignatov T, Poehlmann A, Wege AK, Costa SD, Zenclussen AC, Ignatov A.** (2014) GPER functions as a tumor suppressor in MCF-7 and SK-BR-3 breast cancer cells. *J Cancer Res Clin Oncol.* Feb 11. [Epub ahead of print]

**Landgraf P, Mikhaylova M, Macharadze T, Borutzki C, Zenclussen AC, Wahle P, Kreutz MR.** (2014) Binding of Y-P30 to Syndecan 2/3 Regulates the Nuclear Localization of CASK. *PLoS One.* Feb 3;9(2):e85924. doi: 10.1371/journal.pone.0085924. eCollection 2014.

**Muzzio DO, Soldati R, Rolle L, Zygmunt M, Zenclussen AC, Jensen F.** (2014) B-1a B cells regulate T cell differentiation associated with pregnancy disturbances. *Front Immunol.* Jan 21;5:6. doi: 10.3389/fimmu.2014.00006. eCollection 2014.

## 2013

**Linke N, Schumacher A, Woidacki K, Croy BA, Zenclussen AC.** (2013) Carbon monoxide promotes proliferation of uterine natural killer cells and remodeling of spiral arteries in pregnant hypertensive heme oxygenase-1 mutant mice. *Hypertension.* Dec 23. [Epub ahead of print]

**Panayotova-Dimitrova D, Feoktistova M, Ploesser M, Kellert B, Hupe M, Horn S, Makarov R,**

**Jensen F, Porubsky S, Schmieder A, Zenclussen AC, Marx A, Kerstan A, Geserick P, He YW, Leverkus M.** (2013) cFLIP Regulates Skin Homeostasis and Protects against TNF-Induced Keratinocyte Apoptosis. *Cell Rep.* Oct 31;5(2):397-408. doi: 10.1016/j.celrep.2013.09.035.

**Teles A, Thuere C, Wafula PO, El-Mouseh T, Zenclussen ML, Zenclussen AC.** (2013) Origin of Foxp3(+) cells during pregnancy. *Am J Clin Exp Immunol.* Oct 16;2(3):222-33.

**Rolle L, Memarzadeh Tehran M, Morell-García A, Raeva Y, Schumacher A, Hartig R, Costa SD, Jensen F, Zenclussen AC.** (2013) Cutting Edge: IL-10-Producing Regulatory B Cells in Early Human Pregnancy. *Am J Reprod Immunol.* Oct 10. doi: 10.1111/aji.12157. [Epub ahead of print]

**Jensen F, Muzzio D, Soldati R, Fest S, Zenclussen AC.** (2013) Regulatory b10 cells restore pregnancy tolerance in a mouse model. *Biol Reprod.* Oct 17;89(4):90. doi: 10.1095/biolreprod.113.110791. Print 2013

**Ignatov T, Modl S, Thulig M, Weißenborn C, Treeck O, Ortmann O, Zenclussen A, Costa SD, Kalinski T, Ignatov A.** (2013) GPER-1 acts as a tumor suppressor in ovarian cancer. *J Ovarian Res.* Jul 13;6(1):51. doi: 10.1186/1757-2215-6-51.

**Teles A, Schumacher A, Kühnle MC, Linzke N, Thuere C, Reichardt P, Tadokoro CE, Hämmerling GJ, Zenclussen AC.** (2013) Control of uterine microenvironment by foxp3(+) cells facilitates embryo implantation. *Front Immunol.* Jun 20;4:158. doi: 10.3389/fimmu.2013.00158

**Kahlo K, Fill Malfertheiner S, Ignatov T, Jensen F, Costa SD, Schumacher A, Zenclussen AC.** (2013) HO-1 As Modulator of the Innate Immune Response in Pregnancy. *Am J Reprod Immunol.* Jul;70(1):24-30. doi: 10.1111/aji.12115.

**Woidacki K, Jensen F, Zenclussen AC.** (2013) Mast cells as novel mediators of reproductive processes. *Front Immunol.* ;4:29. doi: 10.3389/fimmu.2013.00029. Epub 2013 Feb 14.

**Zenclussen AC.** (2013) Adaptive immune responses during pregnancy. *Am J Reprod Immunol.* Apr;69(4):291-303. doi: 10.1111/aji.12097.

**Schumacher A, Heinze K, Witte J, Poloski E, Linzke N, Woidacki K, Zenclussen AC.** (2013) Human Chorionic Gonadotropin as a central regulator of pregnancy immune tolerance. *J Immunol.* Mar 15;190(6):2650-8.

**Muzzio D, Zenclussen AC, Jensen F.** (2013) The role of B cells in pregnancy: the good and the bad. *Am J Reprod Immunol.* April;69(4):408-12. doi: 10.1111/aji.12079.

**Berger E, Soldati R, Huebener N, Hohn O, Serman A, Durmus T, Lobitz S, Zenclussen AC, Christiansen H, Lode HN, Fest S.** (2013) Salmonella SL7207 application is the most effective DNA vaccine delivery method for successful tumor eradication in a murine model for neuroblastoma. *Cancer Lett.* May 1;331(2):167-73. doi:10.1016/j.canlet.2012.12.026.

**Woidacki K, Popovic M, Metz M, Schumacher A, Linzke N, Teles A, Poirier F, Fest S, Jensen F, Rabinovich GA, Maurer M, Zenclussen AC.** (2013) Mast cells rescue implantation defects caused by c-kit deficiency. *Cell Death & Disease.* Jan 17. 4:e462. doi: 10.1038/cddis.2012.214.

**Teles A, Zenclussen AC, Schumacher A.** (2013) Regulatory T Cells are Baby's Best Friends. *Am J Reprod Immunol.* Apr. doi: 10.1111/aji. 12067. Epub Jan 7.

**Zenclussen AC, Olivieri DN, Dustin ML, Tadokoro CE.** (2013) *In vivo* multiphoton microscopy technique to reveal the physiology of the mouse uterus. *Am J Reprod Immunol.* Mar; 69(3):281-9. doi: 10.1111/aji.12066

## 2012

**Schumacher A, Wafula PO, Teles A, El-Mousleh T, Linzke N, Zenclussen ML, Langwisch S, Heinze K, Wollenberg I, Casalis PA, Volk HD, Fest S, Zenclussen AC.** (2012) Blockage of Heme Oxygenase-1 Abrogates the Protective Effect of Regulatory T Cells on Murine Pregnancy and Promotes the Maturation of Dendritic Cells. PLoS ONE 7(8): e42301. doi:10.1371/journal.pone.0042301

**Zierau O, Zenclussen AC, Jensen F.** (2012) Role of female sex hormones, estradiol and progesterone, in mast cell behavior. Front Immunol. ;3:169. Epub 2012 Jun 19.

**Woudwyk MA, Monteavaro CE, Jensen F, Soto P, Barbeito CG, Zenclussen AC.** (2012) Study of the Uterine Local Immune Response in a Murine Model of Embryonic Death Due to *Tritrichomonas foetus*. Am J Reprod Immunol. doi: 10.1111/j.1600-0897

**Zenclussen AC, Olivieri DN, Dustin ML, Tadokoro CE.** (2012) *In vivo* multiphoton microscopy technique to reveal the physiology of the mouse placenta. Am J Reprod Immunol. Sept; 68(3):271-8. doi: 10.1111/j.1600-0897.2012.01161.x.

**Jensen F, Wallukat G, Herse F, Budner O, El-Mousleh T, Costa SD, Dechend R, Zenclussen AC.** (2012) CD19+CD5+ cells as indicators of preeclampsia. Hypertension. 59(4):861-868.

**El-Mousleh T, Casalis PA, Wollenberg I, Zenclussen ML, Volk HD, Langwisch S, Jensen F, Zenclussen AC.** (2012) Exploring the potential of low doses carbon monoxide as therapy in pregnancy complications. Med Gas Res. 20;2(1):4

**Zenclussen ML, Jensen .F, Rebelo S, El-Mousleh T, Casalis PA, Zenclussen AC.** (2012) Heme Oxygenase-1 Expression in the Ovary Dictates a Proper Oocyte Ovulation, Fertilization, and Corpora Lutea Maintenance. Am J Reprod Immunol: 10.1111/j.1600-0897.2011.01096.x. [Epub ahead of print]

**Soldati R, Berger E, Zenclussen AC, Jorch G, Lode HN, Salatino M, Rabinovich GA, Fest S.** (2012) Neuroblastoma triggers an immunoevasive program involving galectin-1-dependent modulation of T cell and dendritic cell compartments. Int J Cancer. 1;131(5):1131-41. doi: 10.1002/ijc.26498. Epub

## 2011

**Zenclussen ML, Casalis PA, El-Mousleh T, Rebelo S, Langwisch S, Linzke N, Volk HD, Fest S, Soares MP, Zenclussen AC.** (2011) Haem oxygenase-1 dictates intrauterine fetal survival in mice via carbon monoxide. J Pathol, DOI: 10.1002/path. 2946

**Leber A, Zenclussen ML, Teles A, Brachwitz N, Casalis P, El-Mousleh T, Jensen F, Woidacki K, Zenclussen AC.** (2011) Pregnancy: Tolerance and Suppression of Immune Responses. Suppression and Regulation of Immune Responses. Methods and Protocols. Series: Methods in Molecular Biology, Vol. 677: 397-417.

## 2010

**Jensen F, Woudwyk M, Teles A, Woidacki K, Taran F, Costa S, Fill Malfertheiner S, Zenclussen AC.** (2010) Estradiol and Progesterone Regulate the Migration of Mast Cells from the Periphery to the Uterus and Induce Their Maturation and Degranulation. PLoS ONE 5 (12): e14409. doi:10.1371/journal.pone.0014409

**Huang SJ, Zenclussen AC, Chen CP, Basar M, Yang H, Acruri F, Li M, Kocamaz E, Buchwalder L, Rahman M, Kayisli U, Schatz F, Toti P, Lockwood CJ.** (2010) The Implication of Aberrant GM-CSF Expression in Decidual Cells in the Pathogenesis of Preeclampsia. Am J Pathol 177 (5):2472-2482.

**Leber A, Teles A, Zenclussen AC.** (2010) Regulatory T cells and their role in pregnancy. *Am J Reprod Immunol* 63:445-459.

**Zenclussen ML, Thuere C, Ahmad N, Wafula PO, Fest S, Teles A, Leber A, Casalis PA, Bechmann I, Priller J, Volk HD, Zenclussen AC.** (2010) The persistence of paternal antigens in the maternal body is involved in regulatory T cell expansion and fetal-maternal tolerance in murine pregnancy. *Am J Reprod Immunol* 63:200-208.

## 2009

**Wafula PO, Teles A, Schumacher A, Pohl K, Yagita H, Volk HD, Zenclussen AC.** (2009) PD-1 but not CTLA-4 blockage abrogates the protective effect of regulatory T cells in a pregnancy murine model. *Am J Reprod Immunol* 62:283-292.

**Fest S, Huebener N, Bleeke M, Durmus T, Stermann A, Woehler A, Baykan B, Zenclussen AC, Michalsky E, Jaeger IS, Preissner R, Hohn O, Weixler S, Gaedicke G, Lode HN.** (2009) Survivin minigene DNA vaccination is effective against neuroblastoma. *Int J Cancer* 1;125(1):104-114

**Schumacher A, Brachwitz N, Sohr S, Engeland K, Langwisch S, Dolaptchieva M, Alexander T, Taran A, Fill Malfertheiner S, Costa SD, Zimmermann G, Nitschke C, Volk HD, Alexander H, Gunzer M, Zenclussen AC.** (2009) Human chorionic gonadotropin attracts regulatory T cells into the fetal-maternal interface during early human pregnancy. *J Immunol* 182:5488-5497.

## 2008

**Gratze P, Dechend R, Stocker C, Park JK, Feldt S, Shagdarsuren E, Wellner M, Gueler F, Rong S, Gross V, Obst M, Plehm R, Alenina N, Zenclussen A, Titze J, Small K, Yokota Y, Zenke M, Luft FC, Muller DN.** (2008) Novel role for inhibitor of differentiation 2 in the genesis of angiotensin II-induced hypertension. *Circulation* 20;117(20):2645-2656.

**Zenclussen AC, Kökény G, Thimm O, Sollwedel A, Godo M, Casalis PA, Zenclussen ML, Volk HD, Hamar P.** (2008) Mechanisms behind flare of renal lupus during murine pregnancy. *Reprod BioMedicine Online* 17 (1):114-126.

**Fest S, Brachwitz N, Schumacher A, Zenclussen ML, Khan F, Wafula PO, Casalis PA, Fill S, Costa SD, Mor G, Volk HD, Lode HN, Zenclussen AC** (2008) Supporting the hypothesis of pregnancy as a tumor: survivin is upregulated in normal pregnant mice and participates in human trophoblast proliferation. *Am J Reprod Immunol* 59 (1):75-83.

## 2007

**Thuere C, Zenclussen ML, Schumacher A, Langwisch S, Schulte-Wrede U, Teles A, Paeschke S, Volk HD, Zenclussen AC.** (2007) Kinetics of regulatory T cells during murine pregnancy. *Am J Reprod Immunol* 58 (6):514-523.

**Schumacher A, Wafula PO, Zambon Bertoja A, Sollwedel A, Thuere C, Wollenberg I, Yagita H, Volk HD, Zenclussen AC.** (2007) Mechanisms of action of regulatory T cells specific for paternal antigens during pregnancy. *Obstetrics & Gynecology* 110 (5):1137-1145.

**Kökény G, Godo M, Nagy E, Kardos M, Kotsch K, Casalis P, Bodor C, Rosivall L, Volk HD, Zenclussen AC, Hamar P.** (2007) Skin disease is prevented but nephritis is accelerated by multiple pregnancies in autoimmune MRL/lpr mice. *Lupus* 16 (7):465-477.

**Schmid M, Sollwedel A, Thuere C, Zenclussen ML, Wafula PO, Mueller DN, Gratze P, Wociechowsky C, Volk HD, Zenclussen AC.** (2007) Murine pre-eclampsia induced by unspecific activation of the immune system correlates with alterations in the eNOS and AT1 receptor expression in the kidneys and placenta. *Placenta* 28 (7): 688-700.

**Zenclussen AC, Schumacher A, Zenclussen ML, Wafula P, Volk HD.** (2007) Immunology of pregnancy: cellular mechanisms allowing fetal survival within the maternal uterus. *Expert Rev Mol Med* 9 (10):1-14.

## 2006

**Zenclussen AC.** (2006) Regulatory T cells and pregnancy. *Springer Semin Immunopathol* 28 (1):31-39.

**Bertoja AZ, Zenclussen ML, Casalis PA, Sollwedel A, Schumacher A, Woiciechowsky C, Volk HD, Zenclussen AC.** (2006) Anti-P- and E-selectin therapy prevents abortion in the CBA/J x DBA/2J combination by blocking the migration of Th1 lymphocytes into the foetal-maternal interface. *Cell Immunol* 238 (2):97-102.

**Zenclussen AC, Gerlof K, Zenclussen ML, Ritschel S, Zambon Bertoja A, Fest S, Hontsu S, Ueha S, Matsushima K, Leber J, Volk HD.** (2006) Regulatory T cells induce a privileged tolerant microenvironment at the fetal-maternal interface. *Eur J Immunol* 36 (1):82-94.

**Zenclussen ML, Bertoja A, Anegon I, Chauveau C, Vogt K, Gerlof K, Sollwedel A, Volk HD, Ritter T, Zenclussen AC** (2006) Upregulation of heme oxygenase-1 by adenoviral gene transfer improves pregnancy outcome in a murine model of abortion. *J Reprod Immunol* 69 (1):35-52.

**Zenclussen AC.** (2006) A novel mouse model for preeclampsia by transferring activated Th1 cells into normal pregnant mice. *Methods Mol Med* 122:401-412.

**Fest S, Zenclussen AC, Joachim R, Hagen E, Demuth HU, Hoffmann T.** (2006) Stress and substance P but not the substance P-metabolite SP5-11 trigger murine abortion by augmenting TNF-alpha levels at the feto-maternal interface. *Scand J Immunol.* 63(1):42-49

## 2005

**Zambon Bertoja A, Zenclussen ML, Casalis P, Sollwedel A, Schumacher A, Woiciechowsky C, Volk HD, Zenclussen AC.** (2005) Anti-P+-E selectin therapy prevents abortion in the CBA/J x DBA/2J combination by blocking the migration of Th1 lymphocytes into the fetal-maternal interface. *Cell Immunol* 238 (2):97-102.

**Paeschke S, Chen F, Horn N, Fotopoulou C, Zambon-Bertoja A, Sollwedel A, Zenclussen ML, Casalis PA, Dudenhausen JW, Volk HD, Zenclussen AC.** (2005) Pre-eclampsia is not associated with changes in the levels of regulatory T cells in peripheral blood. *Am J Reprod Immunol* 54:1-6.

**Zenclussen AC, Gerlof K, Zenclussen ML, Sollwedel A, Zambon Bertoja A, Ritter T, Kotsch K, Leber J, Volk HD.** (2005) Abnormal T cell reactivity against paternal antigens in spontaneous abortion: Adoptive transfer of pregnancy-induced CD4+CD25+ T regulatory cells prevents fetal rejection in a murine abortion model. *Am J Pathol* 163 (3): 811-822.

**Sollwedel A, Zambon Bertoja A, Zenclussen ML, Gerlof K, Lisewski U, Wafula P, Sawitzki B, Woiciechowsky C, Volk HD, Zenclussen AC.** (2005) Protection from abortion by HO-1 up-regulation is associated with increased levels of bag-1 and neuropilin-1 at the fetal-maternal interface. *J Immunol* 175:4875-4885.

**Bertoja AZ, Zenclussen ML, Wollenberg I, Paeschke S, Sollwedel A, Gerlof K, Woiciechowsky C, Volk HD, Zenclussen AC.** (2005) Upregulation of Bcl-2 at the foetal-maternal interface from mice undergoing abortion. *Scand J Immunol.* 61(6):492-502

**Zenclussen AC.** (2005) CD4+CD25+ T regulatory cells in murine pregnancy. *J Reprod Immunol* 65 (2):101-110.

**Zenclussen AC, Zenclussen ML, Ritter T, Volk HD.** (2005) The use of gene therapy tools in reproductive immunology. Invited Review. *Current Gene Therapy* 55:459-466.

**Zenclussen AC, Sollwedel A, Bertoja AZ, Gerlof K, Zenclussen ML, Woiciechowsky C, Volk HD.** (2005) Heme oxygenase as a therapeutic target in immunological pregnancy complications. *Int Immunopharmacol.* 5(1):41-51

## 2004

**Frewert S, Stockhammer F, Warschewske G, Zenclussen AC, Rupprecht S, Volk HD, Woiciechowsky C.** (2004) Intratumoral infusion of interleukin-1beta and interferon-gamma induces tumor invasion with macrophages and lymphocytes in a rat glioma model. *Neurosci Lett.* 8;364(3):145-148

**Sehmsdorf US, Zenclussen AC, Arck P, Hertwig K, Joachim RA, Klapp B, Hildebrandt MO.** (2004) Human miscarriage is associated with increased number of CD26 decidual lymphocytes. *Scand J Immunol.* 59(4):400-407

**Zenclussen AC, Fest S, Joachim R, Klapp BF, Arck PC.** (2004) Introducing a novel mouse model for pre-eclampsia: Adoptive transfer of activated Th1 cells leads to pre-eclampsia like symptoms exclusively in pregnant mice. *Eur J Immunol* 34 (2):377-387

**Tometten M, Klapp BF, Joachim R, Fest S, Zenclussen AC, Peters EM, Hertwig K, Arck PC.** (2004) Nerve growth factor and its functional receptor TrkA are up-regulated in murine decidual tissue of stress-triggered and substance P-mediated abortion *Am J Reprod Immunol.* 51(1):86-93

## 2003

**Joachim R, Zenclussen AC, Polgar B, Douglas AJ, Fest S, Knackstedt M, Klapp BF, Arck PC.** (2003) The progesterone derivative dydrogesterone abrogates murine stress-triggered abortion by inducing a Th2 biased local immune response. *Steroids.* 68(10-13):931-940

**Zenclussen AC, Blois S, Stumpo R, Olmos S, Arias K, Malan Borel I, Roux ME, Margni RA.** (2003) Murine abortion is associated with enhanced interleukin-6 levels at the feto-maternal interface. *Cytokine.* 21;24(4):150-160

**Zenclussen AC, Lim E, Knoeller S, Knackstedt M, Hertwig K, Hagen E, Klapp BF, Arck PC.** (2003) Heme oxygenases in pregnancy II: HO-2 is downregulated in human pathologic pregnancies. *Am J Reprod Immunol.* 50(1):66-76

**Knackstedt MK, Zenclussen AC, Hertwig K, Hagen E, Dudenhausen JW, Clark DA, Arck PC.** (2003) Th1 cytokines and the prothrombinase fgl2 in stress-triggered and inflammatory abortion *Am J Reprod Immunol.* 49(4):210-220

## 2002

**Canellada A, Färber A, Zenclussen AC, Gentile T, Dokmetjian J, Keil A, Blois S, Miranda S, Berod L.** (2002) Interleukin regulation of asymmetric antibody synthesized by isolated placental B cells. *Am J Reprod Immunol.* 48(4):275-282

**Zenclussen AC, Fest S, Busse P, Joachim R, Klapp BF, Arck PC.** (2002) Questioning the Th1/Th2 paradigm in reproduction: peripheral levels of IL-12 are down-regulated in miscarriage patients. *Am J Reprod Immunol.* 48(4):245-251

**Zenclussen AC, Joachim R, Hagen E, Peiser C, Klapp BF, Arck PC.** (2002) Heme oxygenase is downregulated in stress-triggered and interleukin-12-mediated murine abortion. *Scand J Immunol.* 55(6):560-569

## 2001

**Zenclussen AC, Fest S, Sehmsdorf US, Hagen E, Klapp BF, Arck PC.** (2001) Upregulation of decidual P-selectin expression is associated with an increased number of Th1 cell populations in patients suffering from spontaneous abortions. *Cell Immunol.* 1;213(2):94-103

**Margni RA, Zenclussen AC.** (2001) During pregnancy, in the context of a Th2-type cytokine profile, serum IL-6 levels might condition the quality of the synthesized antibodies. *Am J Reprod Immunol.* 46(3):181-187

**Zenclussen AC, Gentile T, Kortebrani G, Mazzolli A, Margni R.** (2001) Asymmetric antibodies and pregnancy. *Am J Reprod Immunol.* 45(5):289-294

## 2000

**Zenclussen AC, Kortebrani G, Mazzolli A, Margni R, Malan Borel I.** (2000) Interleukin-6 and soluble interleukin-6 receptor serum levels in recurrent spontaneous abortion women immunized with paternal white cells. *Am J Reprod Immunol.* 44(1):22-29