



## Clinical Research Unit KFO 243

# ELITE

## Early Immunological Determinants of Late Transplant Outcome

### KFO 243 Project-Related Publications August 2010 – December 2017

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## Project P1:

### The role of antimicrobial peptides in allogeneic transplantation

Prof. Dr. rer. nat. Thomas Hehlhans, Immunology

Prof. Dr. med. Ernst Holler, Internal Medicine III, Haematology and Oncology

1. Weber D, Frauenschläger K, Ghimire S, **Peter K**, Panzer I, Hiergeist A, Weber M, Kutny D, Wolff D, Grube M, Huber E, Oefner P, Gessner A, **Hehlhans T**, Herr W, **Holler E** (2017) The association between acute graft-versus-host disease and antimicrobial peptide expression in the gastrointestinal tract after allogeneic stem cell transplantation. *PLoS One*. 12(9):e0185265.
2. Hartwell MJ, Özbeck U, **Holler E**, Renteria AS, Major-Monfried H, Reddy P, Aziz M, Hogan WK, Ayuk F, Efebera YA, Hexner EO, Bunworasate U, Qayed M, Ordemann R, Wölfl M, Mielke S, Pawarode A, Chen YB, Devine S, Harris AC, Jagasia M, Kitko CL, Litzow MR, Kröger N, Locatelli F, Morales G, Nakamura R, Reshef R, Rössler W, Weber D, Wudhikarn K, Yanik GA, Levine JE, Ferrara JL (2017) An early-biomarker algorithm predicts lethal graft-versus-host disease and survival. *JCI insight*. 2(3):e89798.
3. Wanke D, Mauch-Mücke K, **Holler E**, **Hehlhans T** (2016) Human beta-defensin-2 and-3 enhance proinflammatory cytokine expression induced by TLR ligands via ATP release in a P2X7R dependent manner. *Immunobiology*. 221:1259-65.
4. Lal G, Kulkarni N, Nakayama Y, Singh AK, Sethi A, Burrell BE, Brinkman CC, Iwami D, Zhang T, **Hehlhans T**, and Jonathan S. Bromberg (2016) IL10 from marginal zone precursor B cells controls the differentiation of Th17, Tfh and Tfr cells in transplantation tolerance. *Immunol. Lett.* 170:52-63.
5. Levine JE, Braun TM, Harris AC, **Holler E**, Taylor A, Miller H, Magenau J, Weisdorf DJ, Ho VT, Bolanos-Meade J, Alousi AM, Ferrara JL. (2015) A prognostic score for acute graft-versus-host disease based on biomarkers: A multicenter study. *Lancet Haematol*. 2:21-29.
6. Sporrer D, Gessner A, **Hehlhans T**, Oefner P, **Holler E**. (2015) The microbiome and allogeneic stem cell transplantation, *Curr Stem Cell Rep*. 1: 53-59.
7. **Holler E**, Butzhammer P, Schmid K, Hundsrucker C, Koestler J, **Peter K**, Zhu W, Sporrer D, **Hehlhans T**, **Kreutz M**, Holler B, Wolff D, **Edinger M**, Andreesen R, Levine JE, Ferrara JL, Gessner A, Spang R, Oefner PJ. (2014) Metagenomic analysis of the stool microbiome in patients receiving allogeneic stem cell transplantation: loss of diversity is associated with use of systemic antibiotics and more pronounced in gastrointestinal graft-versus-host disease. *Biol Blood Marrow Transplant*. 20(5):640-645.
8. Wege AK, Huber B, Wimmer N, Männel DN, **Hehlhans T**. (2013) LT $\beta$ R expression on hematopoietic cells regulates acute inflammation and influences maturation of myeloid subpopulations. *Innate Immun*. 20(5):461-470.
9. Chai Q, Onder L, Scandella E, Gil-Cruz C, Perez-Shibayama C, Cupovic J, Danuser R, Sparwasser T, Luther SA, Thiel V, Rüllicke T, Stein JV, **Hehlhans T**, Ludewig B. (2013) Maturation of lymph node fibroblastic reticular cells from myofibroblastic precursors is critical for antiviral immunity. *Immunity*. 38(5):1013-1024.
10. Barabas N, **Röhl J**, **Holler E**, **Hehlhans T** (2013) Beta-defensins activate macrophages and synergize in proinflammatory cytokine expression induced by TLR ligands. *Immunobiology* 218(7):1005-1011.
11. Harris AC, Ferrara JL, Braun TM, **Holler E**, Teshima T, Levine JE, Choi SW, Landfried K, Akashi K, Vander Lugt M, Couriel DR, Reddy P, Paczesny S (2012) Plasma biomarkers of lower gastrointestinal and liver acute GVHD. *Blood* 119:2960-2963.

12. **Röhrl J**, Huber B, **Koehl GE**, **Geissler EK**, **Hehlgans T** (2012) Mouse  $\beta$ -defensin 14 (Defb14) promotes tumor growth by inducing angiogenesis in a CCR6-dependent manner. *J Immunol.* 188:4931-4939.
13. **Röhrl J**, **Geissler EK**, **Hehlgans T** (2012) Friend or foe: A novel role of  $\beta$ -defensins in tumor development. *Oncoimmunology* 8:1159-1160.
14. Ferrara JL, Harris AC, Greenson JK, Braun TM, **Holler E**, Teshima T, Levine JE, Choi SW, Huber E, Landfried K, Akashi K, Vander Lugt M, Reddy P, Chin A, Zhang Q, Hanash S, Paczesny S (2011) Regenerating islet-derived 3-alpha is a biomarker of gastrointestinal graft-versus-host disease. *Blood* 118:6702-6708.
15. Landfried K, Zhu W, Waldhier MC, Schulz U, **Ammer J**, Holler B, Wolff D, **Edinger M**, **Peter K**, **Kreutz M**, Andreesen R, Oefner PJ, **Holler E** (2011) Tryptophan catabolism is associated with acute GVHD after human allogeneic stem cell transplantation and indicates activation of indoleamine 2,3-dioxygenase. *Blood* 118:6971-6974.
16. Gutiérrez A, **Holler E**, Zapater P, Sempere L, Jover R, Pérez-Mateo M, Schoelmerich J, Such J, Wiest R, Francés R. (2011) Antimicrobial peptide response to blood translocation of bacterial DNA in Crohn's disease is affected by NOD2/CARD15 genotype. *Inflamm Bowel Disease* 17:1641-1650.

### **Project P2:**

#### **Interplay between receptors of innate immunity and vitamin D3 for the induction of alloreactions through antigen-presenting cells**

**Prof. Dr. med. Ernst Holler, Internal Medicine III, Haematology and Oncology**

**Prof. Dr. rer. nat. Marina Kreutz, Internal Medicine III, Haematology and Oncology**

**Prof. Dr. med. Sigrid Karrer, Dermatology**

1. Ghimire S, Matos C, Caioni M, Weber D, **Peter K**, **Holler E**, **Kreutz M**, **Renner K**. (2018) Indoxyl 3-sulfate inhibits maturation and activation of human monocyte-derived dendritic cells. *Immunobiology.* Feb;223(2):239-245. doi: 10.1016/j.imbio.2017.10.014. Epub 2017 Oct 6.
2. Weber D, Jenq RR, Peled JU, Taur Y, Hiergeist A, Koestler J, Dettmer K, Weber M, Wolff D, Hahn J, Pamer EG, Herr W, Gessner A, Oefner PJ, van den Brink MR, **Holler E**. (2017) Microbiota disruption induced by early use of broad-spectrum antibiotics is an independent risk factor of outcome after allogeneic stem cell transplantation. *Biol Blood Marrow Transplant.* May;23(5):845-852. doi: 10.1016/j.bbmt.2017.02.006. Epub 2017 Feb 14.
3. Hartwell MJ, Özbek U, **Holler E**, Renteria AS, Major-Monfried H, Reddy P, Aziz M, Hogan WJ, Ayuk F, Efebera YA, Hexner EO, Bunworasate U, Qayed M, Ordemann R, Wölfl M, Mielke S, Pawarode A, Chen YB, Devine S, Harris AC, Jagasia M, Kitko CL, Litzow MR, Kröger N, Locatelli F, Morales G, Nakamura R, Reshef R, Rösler W, Weber D, Wudhikarn K, Yanik GA, Levine JE, Ferrara JL. (2017). An early-biomarker algorithm predicts lethal graft-versus-host disease and survival. *JCI Insight.* Feb 9;2(3):e89798. doi: 10.1172/jci.insight.89798.
4. Roider T, Katzfuß M, Matos C, Singer K, **Renner K**, Oefner PJ, Dettmer-Wilde K, Herr W, **Holler E**, **Kreutz M**, **Peter K**. (2016) Antithymocyte globulin induces a tolerogenic phenotype in human dendritic cells. *Int J Mol Sci.* Dec 11;17(12).

5. Levine JE, Braun TM, Harris AC, **Holler E**, Taylor A, Miller H, Magenau J, Weisdorf DJ, Ho VT, Bolaños-Meade J, Alousi AM, Ferrara JL; Blood and Marrow Transplant Clinical Trials Network (2015). A prognostic score for acute graft-versus-host disease based on biomarkers: a multicentre study. *Lancet Haematol.* 2015 Jan;2(1):e21-9. doi: 10.1016/S2352-3026(14)00035-0. Epub 2014 Dec 23.
6. Weber D, Oefner PJ, Hiergeist A, Koestler J, Gessner A, Weber M, Hahn J, Wolff D, Stämmler F, Spang R, Herr W, Dettmer K, **Holler E**. (2015). Low urinary indoxyl sulfate levels early after transplantation reflect a disrupted microbiome and are associated with poor outcome. *Blood.* Oct 1;126(14):1723-8. doi: 10.1182/blood-2015-04-638858. Epub 2015 Jul 24.
7. **Peter K**, Rehli M, Singer K, **Renner-Sattler K**, **Kreutz M**. (2015) Lactic acid delays the inflammatory response of human monocytes. *Biochem Biophys Res Commun.* 13;457(3):412-418.
8. **Holler E**, Butzhammer P, Schmid K, Hundsrucker C, Koestler J, **Peter K**, Zhu W, Sporer D, **Hehlgans T**, **Kreutz M**, Holler B, Wolff D, **Edinger M**, Andreesen R, Levine JE, Ferrara JL, Gessner A, Spang R, Oefner PJ. (2014) Metagenomic analysis of the stool microbiome in patients receiving allogeneic stem cell transplantation: loss of diversity is associated with use of systemic antibiotics and more pronounced in gastrointestinal graft-versus-host disease. *Biol Blood Marrow Transplant.* 20(5):640-645.
9. Bouazzaoui A, Dickhöfer S, **Kreutz M**, Huber E, **Holler E**, Wolff D (2014).Cytostatic conditioning in experimental allogeneic bone marrow transplantation: Busulfan causes less early gastrointestinal toxicity but Treosulfan results in improved immune reconstitution. *Immunopharmacol Immunotoxicol* Apr;36(2):158-64.
10. Moser C, Ruemmele P, Gehmert S, Schenk H, **Kreutz MP**, Mycielska ME, Hackl C, **Kroemer A**, **Schnitzbauer AA**, Stoeltzing O, **Schlitt HJ**, **Geissler EK**, Lang SA. (2012) STAT5b as molecular target in pancreatic cancer--inhibition of tumor growth, angiogenesis, and metastases. *Neoplasia* 14(10):915-925.
11. Gutiérrez A, Scharl M, Sempere L, **Holler E**, Zapater P, Almenta I, González-Navajas JM, Such J, Wiest R, Rogler G, Francés R (2014) Genetic susceptibility to increased bacterial translocation influences the response to biological therapy in patients with Crohn's disease. *Gut* 63(2):272-280.
12. **Kreutz M**, **Karrer S**, Hoffmann P, Gottfried E, Szeimies RM, Hahn J, **Edinger M**, Landthaler M, Andreesen R, Merad M, **Holler E** (2012) Whole-body UVB irradiation during allogeneic hematopoietic cell transplantation is safe and decreases acute graft-versus-host disease. *J Invest Dermatol.* 132:179-187.
13. Hausmann M, Zeitler C, Weber A, Krebs M, Kellermeier S, Rosenstiel P, de Vallière C, Kosovac K, Fried M, **Holler E**, Rogler G (2012) MIP-3 $\alpha$  expression in macrophages is NOD dependent. *Digestion* 85:192-201.
14. Zhu W, Stevens AP, Dettmer K, Gottfried E, Hoves S, **Kreutz M**, **Holler E**, Canelas AB, Kema I, Oefner PJ. (2011) Quantitative profiling of tryptophan metabolites in serum, urine, and cell culture supernatants by liquid chromatography-tandem mass spectrometry. *Anal Bioanal Chem.* 401(10):3249-3261.
15. Landfried K, Zhu W, Waldhier MC, Schulz U, **Ammer J**, Holler B, Wolff D, **Edinger M**, **Peter K**, **Kreutz M**, Andreesen R, Oefner PJ, **Holler E** (2011) Tryptophan catabolism is associated with acute GvHD following human allogeneic stem cell transplantation and indicates activation of indole-amine-2,3-dioxygenase. *Blood* 118:6971-6974.

### Project P3:

#### Role of IL-13 and TGF- $\beta$ in the development of chronic rejection in solid organ transplantation Prof. Dr. med. Stefan Fichtner-Feigl, Surgery

1. Balam S, **Kesselring R, Eggenhofer E**, Evert K, Evert M, **Schlitt HJ, Geissler EK**, van Blijswijk J, Lee S, Reis e Sousa C, **Brunner SM, Fichtner-Feigl S**. Cross-presentation of dead-cell-associated antigens by DNGR1+ dendritic cells contributes to chronic allograft rejection and fibrotic organ remodeling. Submitted
2. **Junger HH, Schlitt HJ, Geissler EK, Fichtner-Feigl S, Brunner SM**. (2017) Bile duct regeneration and immune response by passenger lymphocytes signals biliary recovery versus complications after liver transplantation. *Liver Transpl.* 23(11):1422-1432. doi: 10.1002/lt.24836.
3. \* **UKR Medical Faculty "Highlight in Biomedical Research" selection - Sept. 2016**  
**Schiechl G**, Hermann FJ, Rodriguez Gomez M, Kutzi S, Schmidbauer K, Talke Y, Neumayer S, Goebel N, **Renner K**, Brühl H, Karasuyama H, Obata-Ninomiya K, Utpatel K, Evert M, Hirt SW, **Geissler EK, Fichtner-Feigl S, Mack M**. (2016) Basophils trigger fibroblast activation in cardiac allograft fibrosis development. *Am J Transplant.* 16(9):2574-2588. doi: 10.1111/ajt.13764. Epub 2016 Mar 28.
4. **Brunner SM, Schiechl G, Kesselring R, Martin M**, Balam S, **Schlitt HJ, Geissler EK, Fichtner-Feigl S**. (2013) IL-13 signaling via IL-13R $\alpha$ 2 triggers TGF- $\beta$ 1-dependent allograft fibrosis. *Transplant Res.* 22;2(1):16. doi: 10.1186/2047-1440-2-16.
5. **Schiechl G, Brunner SM, Kesselring R, Martin M**, Ruemmele P, **Mack M**, Hirt SW, **Schlitt HJ, Geissler EK, Fichtner-Feigl S**. (2013) Inhibition of innate co-receptor TREM-1 signaling reduces CD4(+) T cell activation and prolongs cardiac allograft survival. *Am J Transplant.* 13(5):1168-1180. doi: 10.1111/ajt.12186. Epub 2013 Mar 6.
6. **Brunner SM, Junger HH**, Ruemmele P, **Schnitzbauer AA**, Doenecke A, Kirchner GI, Farkas SA, Loss M, Scherer MN, **Schlitt HJ, Fichtner-Feigl S**. (2013) Bile duct damage after cold storage of deceased donor livers predicts biliary complications after liver transplantation. *J Hepatol.* 58(6):1133-1139. doi: 10.1016/j.jhep.2012.12.022. Epub 2013 Jan 12.
7. Goessmann H, Lang SA, **Fichtner-Feigl S**, Scherer MN, **Schlitt HJ**, Stroszczyński C, Schreyer AG, **Schnitzbauer AA**. (2012) Biliodigestive anastomosis: indications, complications and interdisciplinary management. *Chirurg.* 2012 Dec;83(12):1097-1098. doi: 10.1007/s00104-012-2365-z. Review. German.
8. **Brunner SM, Schiechl G**, Falk W, **Schlitt HJ, Geissler EK, Fichtner-Feigl S**. (2011) Interleukin-33 prolongs allograft survival during chronic cardiac rejection. *Transpl Int.* 24(10):1027-1039. doi: 10.1111/j.1432-2277.2011.01306.x. Epub 2011 Jul 28.
9. **Fichtner-Feigl S, Kesselring R, Martin M**, Obermeier F, Ruemmele P, Kitani A, **Brunner SM**, Haimerl M, **Geissler EK, Strober W, Schlitt HJ**. (2014) IL-13 orchestrates resolution of chronic intestinal inflammation via phosphorylation of glycogen synthase kinase-3 $\beta$ . *J Immunol.* 192(8):3969-3980.

## Project P4:

### Collagen-producing hematopoietic cells (fibrocytes) in experimental heart transplantation and their regulation by basophils and T cells

Prof. Dr. med. Matthias Mack, Nephrology

1. Altmann, U, Boger, CA, Farkas, S, **Mack, M**, Luchner, A, Hamer, OW, Zeman, F, Debl, K, Fellner, C, Jungbauer, C, **Banas, B** and Buchner, S. (2017) Effects of reduced kidney function because of living kidney donation on left ventricular mass. *Hypertension* 2017. 69: 297-303.
2. \* **UKR Medical Faculty “Highlight in Biomedical Research” selection - Sept. 2016**  
**Schiechl, G**, Hermann, FJ, Rodriguez Gomez, M, Kutzi, S, Schmidbauer, K, Talke, Y, Neumayer, S, Goebel, N, **Renner, K**, Bruhl, H, Karasuyama, H, Obata-Ninomiya, K, Utpatel, K, Evert, M, Hirt, SW, **Geissler, EK**, **Fichtner-Feigl, S** and **Mack, M**. (2016) Basophils trigger fibroblast activation in cardiac allograft fibrosis development. *Am J Transplant*. 16(9):2574-2588.
3. Bain, CC, Hawley, CA, Garner, H, Scott, CL, Schridde, A, Steers, NJ, **Mack, M**, Joshi, A, Williams, M, Mowat, AM, Geissmann, F and Jenkins, SJ. (2016) Long-lived self-renewing bone marrow-derived macrophages displace embryo-derived cells to inhabit adult serous cavities. *Nat Commun* 2016. 7: ncomms11852.
4. **Mack M** and Yanagita M. (2015) Origin of myofibroblasts and cellular events triggering fibrosis. *Kidney Int*. 87:297-307.
5. Hermann FJ, Rodriguez Gomez M, Doser K, **Edinger M**, Hoffmann P, **Schiechl G**, Talke Y, Gobel N, Schmidbauer K, Bruhl H and **Mack M**. (2014) Basophils inhibit proliferation of CD4 T cells in autologous and allogeneic mixed lymphocyte reactions and limit disease activity in a murine model of graft versus host disease. *Immunology* 145(2):202-212.
6. Rodriguez Gomez M, Talke Y, Hofmann C, Ketelsen I, Hermann F, Reich B, Goebel N, Schmidbauer K, Dunger N, Bruhl H, **Renner K**, Syed SN and **Mack M**. (2014) Basophils control T-cell responses and limit disease activity in experimental murine colitis. *Mucosal Immunol*. 7:188-199.
7. Newson J, Stables M, Karra E, Arce-Vargas F, Quezada S, Motwani M, **Mack M**, Yona S, Audzevich T and Gilroy DW. (2014) Resolution of acute inflammation bridges the gap between innate and adaptive immunity. *Blood* 124:1748-1764.
8. Bischof A, Brumshagen C, Ding N, Kirchhof G, Briles DE, Gessner JE, Welte T, **Mack M** and Maus UA. (2014) Basophil expansion protects against invasive pneumococcal disease in mice. *J Infect Dis*. 210:14-24.
9. Reich B, Schmidbauer K, Rodriguez Gomez M, Johannes Hermann F, Gobel N, Bruhl H, Ketelsen I, Talke Y and **Mack M**. (2013) Fibrocytes develop outside the kidney but contribute to renal fibrosis in a mouse model. *Kidney Int*. 84:78-89.
10. London A, Benhar I, Mattapallil MJ, **Mack M**, Caspi RR and Schwartz M. (2013) Functional macrophage heterogeneity in a mouse model of autoimmune central nervous system pathology. *J Immunol*. 190:3570-3578.
11. **Schiechl G**, **Brunner SM**, **Kesselring R**, Martin M, Ruemmele P, **Mack M**, Hirt SW, **Schlitt HJ**, **Geissler EK**, **Fichtner-Feigl S** (2013). Inhibition of innate co-receptor TREM-1 signaling reduces CD4+ T cell activation and prolongs cardiac allograft survival. *Am J Transplant*. 13:1168-1180.

12. Reich B, Schmidbauer K, Rodriguez Gomez M, Hermann F, Göbel N, Brühl H, Ketelsen I, Talke Y, **Mack M** (2013) Fibrocytes develop outside the kidney but contribute to renal fibrosis in a mouse model. *Kidney Int.* 84(1):78-89.
13. Zigmund E, Varol C, Farache J, Elmaliyah E, Satpathy AT, Friedlander G, **Mack M**, Shpigel N, Boneca IG, Murphy KM, Shakhar G, Halpern Z, Jung S (2012) Ly6C(hi) monocytes in the inflamed colon give rise to proinflammatory effector cells and migratory antigen-presenting cells. *Immunity* 37:1076-1090.
14. Dhaliwal K, Scholefield E, Ferenbach D, Gibbons M, Duffin R, Dorward DA, Morris AC, Humphries D, MacKinnon A, Wilkinson TS, Wallace WA, Rooijen N, **Mack M**, Rossi AG, Davidson DJ, Hirani N, Hughes J, Haslett C, Simpson A (2012) Monocytes control second-phase neutrophil emigration in established LPS-induced murine lung injury. *Am J Respir Crit Care Med.* 186:514-524.
15. London A, Itskovich E, Benhar I, Kalchenko V, **Mack M**, Jung S, Schwartz M (2011) Neuroprotection and progenitor cell renewal in the injured adult murine retina requires healing monocyte-derived macrophages. *J Exp Med.* 208:23-39.
16. Rodriguez Gomez M, Talke Y, Goebel N, Hermann F, Reich B, **Mack M** (2010) Basophils support the survival of plasma cells in mice. *J Immunol.* 185:7180-7185.

#### **Project P5:**

**The role of innate effector cells in ischemia reperfusion injury and alloresponses**

**Prof. Dr. med. Alexander Krömer, Surgery**

**PD Dr. rer. nat. Elke Eggenhofer, Experimental Surgery**

**Prof. Edward K. Geissler, PhD, Experimental Surgery**

1. Rovira J, **Renner P**, **Sabet-Baktach M**, **Eggenhofer E**, **Koehl GE**, Lantow M, Lang SA, **Schlitt HJ**, Campistol JM, **Geissler EK**, **Kroemer A.** (2016) Cyclosporine A inhibits the T-bet-dependent antitumor response of CD8(+) T cells. *Am J Transplant.* 16(4):1139-1147.
2. **\* UKR Medical Faculty "Highlight in Biomedical Research" selection - May 2016**  
**Eggenhofer E**, **Sabet-Rashedi M**, Lantow M, **Renner P**, Rovira J, **Koehl GE**, **Schlitt HJ**, **Geissler EK**, **Kroemer A.** (2016) ROR $\gamma$ t(+) IL-22-producing NKp46(+) cells protect from hepatic ischemia reperfusion injury in mice. *J Hepatol.* 64(1):128-134.
3. Lantow M, **Eggenhofer E**, **Sabet- Baktach M**, **Renner P**, Rovira J, **Koehl GE**, **Schlitt HJ**, **Geissler EK**, **Kroemer A.**(2015) CD27<sup>low</sup> natural killer cells prolong allograft survival in mice by controlling alloreactive CD8<sup>+</sup> T Cells in a T-bet-dependent manner. *Transplantation* 99:391-399.
4. **\* UKR Medical Faculty "Highlight in Biomedical Research" selection - April 2014**  
Malaisé M, Rovira J, **Renner P**, **Eggenhofer E**, **Sabet-Baktach M**, Lantow M, Lang SA, **Koehl GE**, Farkas SA, Loss M, Agha A, Campistol JM, **Schlitt HJ**, **Geissler EK**, **Kroemer A.** (2014) KLRG1<sup>+</sup> NK cells protect T-bet-deficient mice from pulmonary metastatic colorectal carcinoma. *J Immunol.* 192(4):1954-1961.
5. Friedmann Angeli JP, Schneider M, Proneth B, Tyurina YY, Tyurin VA, Hammond VJ, Herbach N, Aichler M, Walch A, **Eggenhofer E**, Basavarajappa D, Rådmark O, Kobayashi S, Seibt T, Beck H, Neff F, Esposito I, Wanke R, Förster H, Yefremova O, Heinrichmeyer M, Bornkamm GW, **Geissler EK**, Thomas SB, Stockwell BR, O'Donnell VB, Kagan VE, Schick JA, Conrad M. (2014) Inactivation of the ferroptosis regulator Gpx4 triggers acute renal failure in mice. *Nat Cell Biol.* 16:1180-1191.



6. **Renner P**, Rovira J, Klein C, **Schlitt HJ**, **Geissler EK**, **Kroemer A**. (2014) KLRG1+ natural killer cells protect against pulmonary metastatic disease by immunosurveillance. *Oncoimmunology* 2014 Apr 8;3:e28328. eCollection 2014.
7. **Sabet-Baktach M**, **Eggenhofer E**, Rovira J, **Renner P**, Lantow M, Farkas SA, Malaisé M, **Edtinger K**, Shaotang Z, **Koehl GE**, Dahlke MH, **Schlitt HJ**, **Geissler EK**, **Kroemer A**. (2013) Double deficiency for ROR $\gamma$ t and T-bet drives Th2-mediated allograft rejection in mice. *J Immunol*. 191:4440- 4446.
8. **Eggenhofer E**, Popp FC, Mendicino M, Silber P, van't Hof W, **Renner P**, Hoogduijn MJ, Pinxteren J, van Rooijen N, **Geissler EK**, Deans R, **Schlitt HJ**, Dahlke MH. (2013) Heart grafts tolerized through third-party multipotent adult progenitor cells can be re-transplanted to secondary hosts with no immunosuppression. *Stem Cells Transl Med Stem Cells Transl Med*. 2:595-606.
9. **Eggenhofer E**, Rovira J, **Sabet-Baktach M**, **Groell A**, Scherer MN, Dahlke MH, Farkas SA, Loss M, **Koehl GE**, Lang SA, Melter M, **Schlitt HJ**, **Geissler EK**, **Kroemer A** (2013) Unconventional ROR $\gamma$ t<sup>+</sup> T cells drive hepatic ischemia reperfusion injury. *J Immunol*. 191:480-487.
10. Rovira J, **Sabet-Baktach M**, **Eggenhofer E**, Lantow M, **Koehl GE**, **Schlitt HJ**, Campistol JM, **Geissler EK**, **Kroemer A** (2013) A color-coded reporter model to study the effect of immunosuppressants on CD8+ T-cell memory in antitumor and alloimmune responses. *Transplantation* 95:54-62.
11. **Eggenhofer E**, **Benseler V**, **Kroemer A**, Popp FC, **Geissler EK**, **Schlitt HJ**, Baan CC, Dahlke MH, Hoogduijn MJ (2012) Mesenchymal stem cells are short-lived and do not migrate beyond the lungs after intravenous infusion. *Front Immunol*. 3:297.
12. Wege AK, Ernst W, Eckl J, Frankenberger B, Vollmann-Zwerenz A, Männel DN, Ortmann O, **Kroemer A**<sup>\*</sup>, Brockhoff G<sup>\*</sup> (2011) Humanized tumor mice--a new model to study and manipulate the immune response in advanced cancer therapy. *Int J Cancer* 129:2194-2206. <sup>\*</sup>Equal senior authors

### **Project P6: \*\***

#### **Humoral immune reconstitution after allogeneic stem cell transplantation**

**Prof. Dr. med. Matthias Edinger, Internal Medicine III, Haematology and Oncology**

\*\* The main findings from P6 are not yet published due to recent overlapping papers. Data will be combined with patient data on B cell precursors in BM samples of SCT recipients with vs. w/o GVHD for publication in a high-impact journal. Sample collection is complete, data analysis still ongoing (cooperation with D. Wolff & E. Holler).

1. Bohmann EM, Fehn U, Holler B, Weber D, **Holler E**, Herr W, Hoffmann P, **Edinger M**, Wolff D. (2017). Altered immune reconstitution of B and T cells precedes the onset of clinical symptoms of chronic GVHD and is influenced by the type of onset. *Ann Hematol*; 96(2):299-310.



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**Project P7:  
Project not funded in 2010**

**Project P8:**

**Project funded in 1st funding period from 2010-2013, but not continued in 2nd funding period**

**Comparing the early immunological responses of liver transplant recipients treated under a bottom-up immunosuppressive regimen utilising either CsA or Everolimus**

**Dr. Dr. James Hutchinson, Experimental Surgery  
Prof. Dr. med. Andreas Schnitzbauer, Surgery  
Professor Dr. med. Hans-Jürgen Schlitt, Surgery**

1. Haarer J, Riquelme P, Hoffmann P, **Schnitzbauer A, Schlitt HJ, Sawitzki B, Geissler EK, Hutchinson JA.** (2016) Early enrichment and restitution of the peripheral blood Treg pool is associated with rejection-free stable immunosuppression after liver transplantation. *Transplantation.* 100:e39-40. doi: 10.1097/TP.0000000000001190.
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### **\* UKR Medical Faculty “Highlight in Biomedical Research” selection**

The “Highlight in Biomedical Research” program features top research projects selected from the University of Regensburg Medical Faculty (UKR). In particular, young scientists are highlighted and given a prominent platform to present their research.

#### **UKR Glanzlichter biomedizinische Forschung:**

Mit den Glanzlichtern biomedizinischer Forschung möchten wir Ihnen einen Einblick in die an der Medizinischen Fakultät der Universität Regensburg geleistete Forschung geben. Vor allem jungen Kolleginnen und Kollegen wird hier eine Plattform geboten, ihre Forschungsarbeit vorzustellen.