The Team:
Head of Department: K-M. Debatin
Professors: C. Beltinger, G. Lahr, M. Wabitsch
Group Leaders/Postdocs: D. Fabricius, P. Fischer-Posovszky, L.H. Meyer, G. Strauss, M-A. Westhoff
Additional Members of Thesis Advisory Committees: P. Agostinis (Leuven), B. Baumann (Ulm), A. Bürkle (Konstanz), C. Classen (Rostock), C. Friesen (Ulm), S. Fulda (Frankfurt), I. Jeremias (Neuherberg), H.A. Kestler (Ulm), T. Kietzmann (Oulu), P. Lovat (Newcastle), M. Lutz (Würzburg), O. Micheau (Dijon), T. Seufferlein (Ulm), S. Stilgenbauer (Ulm), G. te Kronnie (Padua), I. Wernstedt Asterholm (Dallas), L. Wiesmüller (Ulm), R. Zwacka (Galway)

Department of Pediatrics and Adolescent Medicine

Apoptosis and Cancer Therapy
Heads: Prof. Dr. Klaus-Michael Debatin, Dr. Mike-Andrew Westhoff

The aim of our group is to understand how malignancies develop resistance to common cancer therapies and are thus able to avoid apoptosis and other forms of cell death.

We made key contributions to translational cell death research and have successfully developed combination approaches, whereby conventional therapy is paired with novel pharmacological substances that allow for the use of reduced amounts of chemotherapeutics, and thus reduced side effects, without the loss of potency, while concurrently enhancing tumor-specificity. Many of these approaches are currently being evaluated in vivo or are already being transferred to a clinical setting.
Pathogenesis and Experimental Therapy of Pediatric Tumors

Head: Prof. Dr. Christian Beltinger

The Beltinger group investigates the pathogenesis of embryonic tumors and their stem cells and develops new preclinical therapies for these and other pediatric tumors. In the process, the molecular analysis of apoptosis and other types of cell death play an important role.

Leukemia

Heads: PD Dr. Lüder Hinrich Meyer, Prof. Dr. Klaus-Michael Debatin

The main aims of our group are to characterize features of leukemia biology reflecting patient outcome and to identify novel therapeutic strategies. Employing a previously established xenograft leukemia model, we are investigating mechanisms of leukemia development in different organ compartments and functionally evaluating aberrant signaling in leukemia cells as a target for directed treatment of pediatric leukemia.

Immunoregulation and GVHD

Head: PD Dr. Gudrun Strauss

T cells are the mediators of the cellular immune response. They eliminate invading pathogens and protect from diseases but they can also turn their reactivity against self and induce either autoimmunity or the deleterious graft-versus-host disease (GVHD), the main complication after allogeneic bone marrow transplantation. A prerequisite for both processes is the specific activation of T cells by the cognate antigen. Our work focuses on the role of death receptors in antigenic T cell activation and the development of new treatment strategies for GVHD by interfering with death receptor pathways or by using myeloid-derived suppressor cells.

Experimental Obesity Research

Heads: PD Dr. Pamela Fischer-Posovszky, Prof. Dr. Martin Wabitsch

The excessive accumulation of adipose tissue in obesity leads to the development of severe comorbidities such as type 2 diabetes mellitus and cardiovascular disease. Complementing our clinical studies in obese children and adolescents, our experimental research has centered on the biology and pathobiology of adipose tissue. Using a variety of molecular, cellular and in vivo approaches, we aim to understand the mechanisms controlling adipose tissue mass.

Selected Publications: