2nd Translational Research Conference
IMMUNE & CELLULAR THERAPIES: Focus on Advanced Gene-Engineered Immune Cells
September 12-14, 2022 - Berlin, Germany
Chairpersons: Chiara Bonini (Milan), Michael Hudecek (Würzburg), Stan Riddell (Seattle)

Monday, September 12th, 2022

08:30–08:40	**Welcome**	Chiara Bonini (Milan) Michael Hudecek (Würzburg)

SESSION I – Status of pre-clinical and clinical development of CAR-T cell therapy
Chairs: Michael Hudecek (Würzburg), Eliana Ruggiero (Milan)

08:40-08:45	Introduction	Michael Hudecek (Würzburg) Eliana Ruggiero (Milan)
08:45-09:05	CAR T cells: a road trip from the lab to clinic (and back)	Michael Hudecek (Würzburg)
09:05-09:10	*Discussion*	
09:10-09:30	Harnessing T memory stem cells for adoptive immunotherapy of cancer	Luca Gattinoni (Regensburg)
09:30-09:35	*Discussion*	
09:35-09:55	Tailoring adoptive cell therapy to the most promising tumor antigens in high-risk pediatric cancer	Sabine Heitzeneder (Stanford)
09:55-10:00	*Discussion*	
10:00-10:07	**Selected brief oral communication** *CSF1R blockade improves response to CAR T-cell in aggressive lymphoma*	Philipp Gödel (Cologne)
10:07-10:10	*Discussion*	
10:10-10:40	*Panel discussion*	
10:40-11:10	***Coffee Break***	

SESSION II – Gene editing applied to engineered immune cell therapy
Chairs: Dirk Busch (Munich), Annette Künkele (Berlin)

11:10-11:15	Introduction	Dirk Busch (Munich) Annette Künkele (Berlin)
11:15-11:35	Pooled CRISPR Knockin Screens: Reprogramming Therapeutic T Cells	Franziska Blaeschke (San Francisco)
11:35-11:40	*Discussion*	

11:40-12:00	Engineering T lymphocytes with newly identified TCRs for the treatment of hematological and solid tumors	Eliana Ruggiero (Milan)
12:00-12:05	*Discussion*	
12:05-12:25	Advanced engineering of recombinant TCR expressing T-cells for adoptive immunotherapy	Dirk Busch (Munich)
12:25-12:30	*Discussion*	
12:30-12:37	**Selected brief oral communication** *EBAG9-silencing links cytolytic efficacy and memory formation in CD8+ T cells for improved cancer immunotherapy*	Anthea Wirges (Berlin)
12:37-12:40	*Discussion*	
12:40-13:10	*Panel discussion*	
13:10-14:50	***Lunch***	

SESSION III – Engineered immune cell therapy: Beyond T-cells
Chairs: Giulia Casorati (Milan), Jürgen Kuball (Utrecht)

14:50-14:55	Introduction	Giulia Casorati (Milan) Jürgen Kuball (Utrecht)
14:55-15:15	Adoptive immunotherapy of acute leukemia by iNKT cells retargeted against CD1c	Giulia Casorati (Milan)
15:15-15:20	*Discussion*	
15:20-15:40	Genetic engineering and bispecific formats inspired by γδT cells and their receptors	Jürgen Kuball (Utrecht)
15:40-15:45	*Discussion*	
15:45-15:52	**Selected brief oral communication** *Enhancement of CD33-CAR-NK Cell-Mediated Anti-Leukemic Cytotoxicity By Knockout of Immune Checkpoint NKG2A*	Evelyn Ullrich (Frankfurt)
15:52-15:55	*Discussion*	
15:55-16:02	**Selected brief oral communication** *Early cancer immune surveillance via Vg9Vd2 TCR T cells regulated by novel BTN3A1-linked protein network*	Astrid Cleven (Utrecht)
16:02-16:05	*Discussion*	
16:05-16:40	*Panel discussion*	
16:40-17:10	***Coffee break***	

SESSION IV – Engineered immune cell therapy: Beyond CARs
Chairs: Aude Chapuis (Seattle), Mirjam Heemskerk (Leiden)

17:10-17:15	Introduction	Aude Chapuis (Seattle) Mirjam Heemskerk (Leiden)
17:15-17:35	Tackling mechanisms of immune escape to TCR therapy	Aude Chapuis (Seattle)
17:35-17:40	*Discussion*	
17:40-18:00	Optimization of TCR gene therapy and preventing tumor escape	Mirjam Heemskerk (Leiden)
18:00-18:05	*Discussion*	
18:05-18:25	New mechanisms of T-cell recognition via dissection of successful cancer immunotherapy	Andrew Sewell (Cardiff)
18:25-18:30	*Discussion*	
18:30-18:37	**Selected brief oral communication** *Pre-clinical development and characterization of a decitabine-induced regulatory HLAG+CD4+-T cell-enriched cell product against GvHD*	Dionysia Kefala (Rio)
18:37-18:40	*Discussion*	
18:40-18:47	**Selected brief oral communication** *CAR-Tregs for Systemic Lupus Erythematosus*	Matteo Doglio (Milan)
18:47-18:50	*Discussion*	
18:50-19:20	*Panel discussion*	

19:20-20:30 **Mentored poster walk - Welcome get-together buffet dinner for all**
Leaders (biology): Mirjam Heemskerk (Leiden), Luca Gattinoni (Regensburg)
Leaders (clinical): Aude Chapuis (Seattle), Annette Künkele (Berlin)

Tuesday, September 13th, 2022

09:00-10:00 **3 simultaneous Meet the Expert sessions**

1. Engineering CAR-Ts for solid tumors — Michael Jensen (Seattle)
2. Gene Transfer and gene editing for pediatric CAR-Ts — Annette Künkele (Berlin), Franziska Blaeschke (San Francisco)
3. Development and genetic engineering of TCR-transgenic T cells — Dirk Busch (Munich)

10:00-10:30 ***Coffee break***

SESSION V – Synthetic biology in engineered immune cell therapy
Chairs: Yvonne Chen (Los Angeles), Chiara Bonini (Milan)

10:30-10:35	Introduction	Yvonne Chen (Los Angeles) Chiara Bonini (Milan)

10:35-10:55	Engineering next-generation CAR-T cell therapy for cancer	Yvonne Chen (Los Angeles)
10:55-11:00	*Discussion*	
11:00-11:20	Synthetic solutions for improving CAR-T solid tumor immunotherapy	Michael Jensen (Seattle)
11:20-11:25	*Discussion*	
11:25-11:45	Translation of new CAR-T cells into the clinic	Marcela Maus (Boston)
11:45-11:50	*Discussion*	
11:50-11:57	**Selected brief oral communication** *Improving bone marrow homing and rersistence of CD33. CAR-CIK cells by overexpression of a gain-of-function variant of CXCR4 to increase efficacy in acute myeloid leukemia*	Marta Biondi (Monza)
11:57-12:00	*Discussion*	
12:00-12:30	*Panel discussion*	
12:30-14:35	***Lunch***	

13:25-14:25 **SATELLITE SYMPOSIUM**

CAR-T in clinical practice: exploring the evidence for treatment of r/r FL and r/r DLBCL

Chair: Antonia Müller (Vienna)

Speakers: Christian Buske (Ulm), Roch Houot (Rennes), Annalisa Chiappella (Milan)

This symposium is organized and sponsored by Novartis

SESSION VI – Engineered immune cell therapy: B-cell tumors and beyond
Chairs: Michael Hudecek (Würzburg), Marcela Maus (Boston)

14:35-14:40	Introduction	Michael Hudecek (Würzburg) Marcela Maus (Boston)
14:40-15:00	Real life anti-CD19 CAR-T cell therapy in relapsed/refractory Lymphoma patients	Cristiana Carniti (Milan)
15:00-15:05	*Discussion*	
15:05-15:25	CAR-engineered NK cells - Empowering the first line of defense against cancer	Winfried Wels (Frankfurt)
15:25-15:30	*Discussion*	
15:30-15:50	Modification of GD2.car t-cells with a constitutively active IL7 receptor for the treatment of GD2 expressing malignancies	Cliona Rooney (Houston)
15:50-15:55	*Discussion*	
15:55-16:02	IF-BETTER-gated CAR T cells detect combinatorial target signatures and prevent antigen-low AML escape.	Sascha Haubner (New York)
16:02-16:05	*Discussion*	

16:05-16:12	**Selected brief oral communication** *Pharmacologically inhibiting MYCN improves L1CAM-directed CAR T cell efficacy against MYCN-amplified neuroblastoma*	Laura Grunewald (Berlin)
16:12-16:15	*Discussion*	
16:15-16:45	*Panel discussion*	
16:45-17:05	***Coffee break***	

SESSION VII – Going universal with engineered immune cells
Chairs: Maria Themeli (Amsterdam), Cliona Rooney (Houston)

17:05-17:10	Introduction	Maria Themeli (Amsterdam) Cliona Rooney (Houston)
17:10-17:30	The big bang of universal immune receptors	Daniel Powell (Philadelphia)
17:30-17:35	*Discussion*	
17:35-17:55	Switchable CAR-T for safe and efficient targeting of less differentiated antigens	Marc Cartellieri (Dresden)
17:55-18:00	*Discussion*	
18:00-18:20	iPSC-derived CAR-T and CAR-NK	Maria Themeli (Amsterdam)
18:20-18:25	*Discussion*	
18:25-18:32	**Selected brief oral communication** *Pluripotent STEM cell-derived CAR-neutrophils for immunotherapy of SOLID tumors*	Igor Slukvin (Madison)
18:32-18:35	*Discussion*	
18:35-19:05	*Panel discussion*	

Wednesday, September 14th, 2022

08:00-09:00 **3 simultaneous Meet the Expert sessions**

1. Engineered NK cells for adoptive therapy — Winfried Wels (Frankfurt)
2. Imaging of CAR & TCR art work — Johannes Huppa (Vienna)
3. Synthetic immunity concepts – logic gates and universal cells — Yvonne Chen (Los Angeles), Maria Themeli (Amsterdam)

SESSION VIII – Overcoming T-cell exhaustion and the immune-suppressive tumor microenvironment
Chairs: Chiara Bonini (Milan), Daniel Powell (Philadelphia)

09:10-09:15	Introduction	Chiara Bonini (Milan) Daniel Powell (Philadelphia)

09:15-09:35	Genome editing to overcome T-cell exhaustion	Chiara Bonini (Milan)
09:35-09:40	*Discussion*	
09:40-10:00	Mechanisms that adjust and control the T cell effector capacity	Dietmar Zehn (Freising)
10:00-10:05	*Discussion*	
10:05-10:25	Decoding the mode of action of CAR-T cells using intravital imaging	Philippe Bousso (Paris)
10:25-10:30	*Discussion*	
10:30-10:37	**Selected brief oral communication** *Joint forces - synergizing microbiome-derived metabolites and T cell engineering to combat solid tumors*	Maik Luu (Wüzburg)
10:37-10:40	*Discussion*	
10:40-11:10	*Panel discussion and/or controversial debates*	
11:10-11:40	***Coffee break***	

SESSION IX – Imaging engineered immune cells at the receptor, cell and organism level
Chairs: Johannes Huppa (Vienna), Michael Jensen (Seattle)

11:40-11:45	Introduction	Johannes Huppa (Vienna) Michael Jensen (Seattle)
11:45-12:05	Interrogating TCR & CAR function with high-end microscopy	Johannes Huppa (Vienna)
12:05-12:10	*Discussion*	
12:10-12:30	Super-resolution fluorescence imaging of plasma membrane receptors by dSTORM	Markus Sauer (Würzburg)
12:30-12:35	*Discussion*	
12:35-12:55	Imaging and monitoring engineered immune cells art work	Louisa von Baumgarten (Munich)
12:55-13:00	*Discussion*	
13:00-13:07	**Selected brief oral communication** *Superresolution microscopy reveals disparity in CAR expression and function of CAR T cell generated using distinct gene-transfer strategies*	Leon Gehrke (Wüzburg)
13:07-13:10	*Discussion*	
13:10-13:40	*Panel discussion*	
13:40-13:50	***Closing remarks***	Chiara Bonini (Milan) Michael Hudecek (Würzburg)

MEETING CLOSURE