

Accepted abstracts for Poster presentations

#64

Topic: *AS01 UPDATE ON THE APPROVED THERAPIES***DIRECT CELL REPROGRAMMING OF FIBROBLASTS TO NATURAL KILLER CELLS**D. Cabral^{1,2}, I. Caiado^{1,2,3}, I. Kurochkin^{1,2}, E. Sitnicka¹, G. Telliam¹, F. Pereira^{1,2,3}¹Lund University - Lund Stem Cell Center, Molecular Medicine And Gene Therapy, Lund, Sweden, ²Lund University - Wallenberg Centre, Molecular Medicine And Gene Therapy, Lund, Sweden, ³University of Coimbra, Center For Neuroscience And Cell Biology, Coimbra, Portugal

#90

Topic: *AS01 UPDATE ON THE APPROVED THERAPIES***DISTINCT ANTIBODY- AND T CELL-BASED IMMUNE RESPONSES TO SARS-COV-2 VACCINATION AND INFECTION IN PATIENTS TREATED WITH ANTI-CD19 CAR T CELL THERAPY**J.M. Marin Morales¹, R. Teipel², M. Middeke², K. Egger-Heidrich², M. Tietze¹, M. Lugar¹, M. Von Bonin², J. Schetelig², E. Bonifacio¹, M. Bornhäuser², A. Fuchs¹¹Technische Universität Dresden, Center For Regenerative Therapies Dresden, Dresden, Germany, ²Universitätsklinikum Carl Gustav Carus, Medizinische Klinik Und Poliklinik I, Dresden, Germany

#151

Topic: *AS02 CURRENTLY ONGOING CLINICAL TRIALS***3RD-GENERATION CD19-DIRECTED CHIMERIC ANTIGEN RECEPTOR T-CELLS (CAR-T) FOR RELAPSED/REFRACTORY CHRONIC LYMPHOCYTIC LEUKEMIA (CLL) – UPDATE ON THE ONGOING ACADEMIC PHASE 1/2 TRIAL (HD-CAR-1)**P. Derigs¹, A. Kunz¹, P. Dreger¹, A. Schmitt¹, M.-L. Schubert¹, M. Brüggemann², H. Bernhard³, G. Kobbe⁴, A. Lindemann⁵, M. Rummel⁶, L. Wang¹, B. Michels¹, P. Waldhoff¹, F. Korell¹, S. Laier⁷, A.D. Ho¹, C. Müller-Tidow¹, M. Schmitt¹¹University Hospital Heidelberg, Department Of Internal Medicine V, Heidelberg, Germany, ²University Hospital Schleswig-Holstein, Department Of Internal Medicine Ii, Kiel, Germany, ³Klinikum Darmstadt, Department Of Internal Medicine V, Darmstadt, Germany, ⁴University Hospital Düsseldorf, Department Of Hematology, Oncology And Clinical Immunology, Düsseldorf, Germany, ⁵Onkologie in Ettlingen, Praxis Onkologie, Ettlingen, Germany, ⁶University Hospital Giessen, Department Of Internal Medicine Iv, Giessen, Germany, ⁷Institute for Clinical Transfusion Medicine and Cell Therapy (IKTZ), German Red Cross (drk) Blood Donation Service Baden-württemberg - Hessen, Heidelberg, Germany

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Topic: *AS02 CURRENTLY ONGOING CLINICAL TRIALS***IMPACT OF DIFFERENT Γ -CHAIN CYTOKINES ON CLINICAL CAR T CELL MANUFACTURING**

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#150

Topic: *AS02 CURRENTLY ONGOING CLINICAL TRIALS***THIRD-GENERATION CHIMERIC ANTIGEN RECEPTOR (CAR) T CELLS IN ADULT ALL AND NHL PATIENTS**

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#50

Topic: *AS03 NOVEL CLINICAL APPROACHES AND COMBINATION THERAPIES***OVERCOMING THE CHALLENGES FOR CAR T-CELL IMMUNOTHERAPY AGAINST GLIOBLASTOMA BY IMMUNOMODULATION OF THE TUMOR MICROENVIRONMENT**

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#54

Topic: *AS03 NOVEL CLINICAL APPROACHES AND COMBINATION THERAPIES***COMBINATORIAL TARGETING OF SOLID TUMOR ANTIGENS FOR CAR T CELL THERAPY**

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Topic: AS03 NOVEL CLINICAL APPROACHES AND COMBINATION THERAPIES

NKG2D-CAR MEMORY T CELLS TARGET PEDIATRIC T-CELL ACUTE LYMPHOBLASTIC LEUKEMIA IN VITRO AND IN VIVO BUT FAIL TO ELIMINATE LEUKEMIA INITIATING CELLS

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Topic: AS03 NOVEL CLINICAL APPROACHES AND COMBINATION THERAPIES

ANTI-TUMOR POTENTIAL OF NKG2D CAR T CELLS AGAINST PEDIATRIC MALIGNANT CENTRAL NERVOUS SYSTEM TUMORS

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Topic: AS03 NOVEL CLINICAL APPROACHES AND COMBINATION THERAPIES

THE POTENTIAL USE OF CAR-T EXTRACELLULAR VESICLES (EVS) AS A THERAPEUTIC STRATEGY FOR SOLID TUMORS

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#105

Topic: AS03 NOVEL CLINICAL APPROACHES AND COMBINATION THERAPIES**DEVELOPMENT OF A CLINICAL SCALE MANUFACTURING PROCESS FOR GENERATING ORGAN-TARGETED REVCAR REGULATORY T-CELLS**

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#164

Topic: AS03 NOVEL CLINICAL APPROACHES AND COMBINATION THERAPIES**GPMB-TARGETING CAR T CELL THERAPY OF MIT/TFE-DRIVEN CANCERS**

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#120

Topic: AS03 NOVEL CLINICAL APPROACHES AND COMBINATION THERAPIES**NOVEL RNA CAR-T CELLS AGAINST GBM-ASSOCIATED ANTIGEN PTPRZ1 SHOW ANTI-TUMOR EFFICACY BOTH IN VITRO AND IN VIVO**

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Topic: AS03 NOVEL CLINICAL APPROACHES AND COMBINATION THERAPIES

CYTOKINE-ARMORED DENDRITIC CELL PROGENITORS SYNERGIZE WITH CAR-T CELLS IN SOLID TUMORS.

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#96

Topic: AS03 NOVEL CLINICAL APPROACHES AND COMBINATION THERAPIES

TUMOR-DIRECTED MACROPHAGE GENE DELIVERY OF NATURAL AND SYNTHETIC CYTOKINES EMPOWERS CAR T CELLS IN THE GLIOBLASTOMA MICROENVIRONMENT TO THWART TUMOR GROWTH

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Topic: AS03 NOVEL CLINICAL APPROACHES AND COMBINATION THERAPIES

EVALUATION OF CD318 AS TARGET FOR CAR T CELL THERAPY OF PANCREATIC DUCTAL ADENOCARCINOMA

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Topic: AS04 SUPERPOWERED LYMPHOCYTES

ENGINEERING AVIDCARS FOR COMBINATORIAL ANTIGEN RECOGNITION

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Topic: *AS04 SUPERPOWERED LYMPHOCYTES*

ENHANCING TCR EFFICACY THROUGH CD3Z MODIFICATIONS

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#100

Topic: *AS04 SUPERPOWERED LYMPHOCYTES*

ADAPTING ANTIVIRAL AND REGULATORY T CELL PRODUCTS FOR USE IN THE TRANSPLANTATION SETTING: RESISTANCE TO TACROLIMUS ACHIEVED BY A GMP-GRADE CRISPR/CAS9 TECHNOLOGY APPROACH

L. Amini¹, L.-M. Burkhardt², A. Roemhild², D. Kaiser², G. Zarrinrad³, N. Wiese², S. Schlickeiser³, D.J. Wending³, K. Ou³, D. Wagner¹, O. Klein⁴, J. Polánsky-Biskup³, M.-F. Mashreghi⁵, H.-D. Volk⁶, M. Schmueck-Henneresse³, P. Reinke²

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Topic: *AS04 SUPERPOWERED LYMPHOCYTES*

ISOLATION OF ANTIGEN-SPECIFIC HUMAN REGULATORY T CELLS ENABLED BY GENOME EDITING

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Topic: *AS04 SUPERPOWERED LYMPHOCYTES*

SUPERIOR ANTI-TUMOR EFFICACY OF CD4+ CAR-T CELLS IN HEMATOLOGICAL MALIGNANCIES

Q. Chen, L. Wang, D. Sedloev, M. Scheller, J. Unglaub, A. Schmitt, C. Müller-Tidow, M. Schmitt, T. Sauer

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#97

Topic: AS04 SUPERPOWERED LYMPHOCYTES**TURNING AN IMMUNOSUPPRESSIVE MARKER INTO A T-CELL ACTIVATING SIGNAL: USING THE REVCAR SYSTEM TO TARGET IMMUNE CHECKPOINTS**

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#223

Topic: AS04 SUPERPOWERED LYMPHOCYTES**SYNTHETIC DUAL-COSTIMULATION FOR TCR AND TCR-LIKE TARGETED CELL THERAPIES**

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#61

Topic: AS04 SUPERPOWERED LYMPHOCYTES**DUAL TARGETING OF PD-L1 AND ERBB2 BY CAR-NK CELLS ENABLES SPECIFIC ELIMINATION OF SOLID TUMOR CELLS AND OVERCOMES IMMUNE ESCAPE VIA ANTIGEN LOSS**

J. Eitler^{1,2}, K. Freudenberg^{1,2}, I. Ben-Horin^{3,4}, P. Montero^{1,2}, W. Rackwitz^{1,2}, W. Wels^{3,4,5}, T. Tonn^{1,2,6}
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#67

Topic: AS04 SUPERPOWERED LYMPHOCYTES**TURNING NKG2D CAR-T THERAPY INTO AN IMPROVED IL18 TRUCK AS A TREATMENT FOR PEDIATRIC CENTRAL NERVOUS SYSTEM TUMORS**

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Topic: AS04 SUPERPOWERED LYMPHOCYTES**ENHANCING T CELLS EFFECTOR FUNCTIONS THROUGH CRISPR/CAS9 GENE KNOCK-OUT**

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#177

Topic: AS04 SUPERPOWERED LYMPHOCYTES**BEST OF TWO WORLDS: ENGINEERING NKT-CELLS TO GENERATE AN ALTERNATIVE ADAPTIVE CELL THERAPY STRATEGY AGAINST NEUROBLASTOMA**

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Topic: AS04 SUPERPOWERED LYMPHOCYTES**PROFILING NEOANTIGEN-SPECIFIC T CELL RECEPTOR ACTIVATION: MODERATE STIMULATION PATTERNS LINKED TO INCREASED T CELL RESILIENCE**

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Topic: *AS04 SUPERPOWERED LYMPHOCYTES*

INVERTED LENTIVIRAL VECTOR COMPRISING INDEPENDENT PROMOTERS FOR ON-COMMAND GENE-CARGO DELIVERY BY TUMOR REDIRECTED T-CELLS

P. Reichenbach, G. Giordano Attianese, K. Ouchen, E. Cribioli, M. Triboulet, S. Ash, M. Saillard, R. Vuillefroy De Silly, G. Coukos, M. Irving
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Topic: *AS04 SUPERPOWERED LYMPHOCYTES*

SPECIFIC TCR/CDR MUTATIONS POSITIVELY OR NEGATIVELY MODULATE THE FUNCTIONAL EFFICACY OF NY-ESO-1-REDIRECTED CD8 T CELLS IN A MUTUALLY EXCLUSIVE MANNER

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Topic: *AS04 SUPERPOWERED LYMPHOCYTES*

USING AN ADAPTOR CAR SYSTEM TO TARGET FIBROBLAST ACTIVATION PROTEIN FOR DIAGNOSTIC AND THERAPEUTIC PURPOSES

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Topic: *AS04 SUPERPOWERED LYMPHOCYTES*

A NOVEL STRATEGY TO ENHANCE ADOPTIVE T CELL IMMUNOTHERAPY WITH MICRORNA-29A

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Topic: AS04 SUPERPOWERED LYMPHOCYTES**FOURTH GENERATION CAR-T CELLS SECRETING A TLR MODIFIED LIGAND EXHIBIT AN ANTITUMOR PROFILE IN VITRO**

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#112

Topic: AS04 SUPERPOWERED LYMPHOCYTES**HIGHLY SPECIFIC CAR-T CELLS OVERCOMING THE IMMUNOSUPPRESSIVE TUMOR MILIEU IN LUNG CANCER: 4TH GENERATION TECHNOLOGY TARGETING CD176**

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#106

Topic: AS04 SUPERPOWERED LYMPHOCYTES**PRE-CLINICAL EVALUATION OF NOVEL CAR T CELLS TARGETING FOLATE RECEPTOR 1 EXPRESSING HIGH GRADE SEROUS OVARIAN CANCER**

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#63

Topic: AS04 SUPERPOWERED LYMPHOCYTES**SYSTEMS BIOLOGY APPROACHES ALLOW INVESTIGATING THE SIGNALING AND METABOLIC REPROGRAMMING OF T CELLS**M. Masid¹, V. Hatzimanikatis², G. Coukos¹¹UNIL-CHUV, Department Of Oncology, Lausanne, Switzerland, ²EPFL, Chemistry And Chemical Engineering, Lausanne, Switzerland

#113

Topic: AS04 SUPERPOWERED LYMPHOCYTES**LMP2A-TARGETING TCR-ENGINEERED T CELLS WITH INDUCIBLE INTERLEUKIN-18 EXPRESSION TO TREAT EPSTEIN-BARR VIRUS-ASSOCIATED MALIGNANCIES**P. Mausberg¹, A. Bonifacius¹, A.C. Dragon¹, S. Stoll¹, P. Spieler², S. Thölke¹, M.F. Lammoglia Cobo³, T. Nerreter², S. Tischer-Zimmermann¹, R. Blasczyk¹, M. Hudecek², A. Schambach⁴, L. Hansmann³, B. Maecker-Kolhoff⁵, B. Eiz-Vesper¹¹Hannover Medical School (MHH), Institute Of Transfusion Medicine And Transplant Engineering, Hannover, Germany, ²University Hospital of Würzburg, Department Of Internal Medicine II, Würzburg, Germany, ³Charité-Universitätsmedizin Berlin, Department Of Hematology, Oncology And Tumor Immunology, Berlin, Germany, ⁴Hannover Medical School (MHH), Department Of Experimental Hematology, Hannover, Germany, ⁵Hannover Medical School (MHH), Department Of Pediatric Hematology And Oncology, Hannover, Germany

#175

Topic: AS04 SUPERPOWERED LYMPHOCYTES**BANANA LECTIN EXPRESSING CAR T CELLS ENHANCE ANTI-TUMOR ACTIVITY AGAINST HETEROGENOUS SOLID TUMORS**K. Mckenna¹, A. Ozcan¹, D. Markovitz², M. Brenner¹¹Baylor College of Medicine, Center For Cell And Gene Therapy, Houston, United States of America, ²University of Michigan, Internal Medicine, Ann Arbor, United States of America

#209

Topic: AS04 SUPERPOWERED LYMPHOCYTES**UNBIASED CHEMOKINE RECEPTOR SCREENING REVEALS SIMILAR EFFICACY OF LYMPH NODE- AND TUMOR-TARGETED T CELL IMMUNOTHERAPY**L. Pachmayr¹, A. Mühlbauer¹, S. Flommersfeld¹, F. Graml¹, J. Hönninger¹, L. Von Baumgarten², V. Buchholz¹, S. Grassmann³¹Technical University of Munich, Institute For Med. Microbiology, Immunology And Hygiene, München, Germany, ²Ludwig-Maximilians-Universität, Neurochirurgische Klinik Und Poliklinik,

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#133

Topic: *AS04 SUPERPOWERED LYMPHOCYTES*

A NON-CD25-BINDING IL-2 VARIANT FOR THE EXPANSION OR ENGINEERING OF T CELLS THAT CONFER SUPERIOR TUMOR CONTROL

Y. Ortiz Miranda¹, M. Masid¹, C. Jimenez Luna¹, G.M. Montalvo Bereau², T. Muller¹, N. Rayroux¹, E. Cribioli¹, J. Corra-Osorio¹, H. Carrasco Hope¹, B. Seijo¹, P. Ginefra¹, K. Leon², N. Vannini¹, I. Crespo¹, V. Hatzimanikatis³, M. Irving¹, G. Coukos¹

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#115

Topic: *AS04 SUPERPOWERED LYMPHOCYTES*

VITAMIN C CONDITIONING CREATES STABLE CAR-T CELLS WITH SUPERIOR CYTOTOXIC CAPACITY AND METABOLIC FITNESS TO COMBAT THE IMMUNOSUPPRESSIVE TUMOR MICROMILIEU

P. Rahmati¹, A. Bonifacius¹, A.C. Dragon¹, C. Malinconico², R. Blasczyk¹, M. Hudecek³, S. Floess⁴, J. Huehn⁴, B. Eiz-Vesper¹

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#135

Topic: *AS04 SUPERPOWERED LYMPHOCYTES*

BEYOND CRISPR: NON-GENE EDITING, MULTIPLEX GENE EXPRESSION TUNING FOR CELL-BASED IMMUNOTHERAPY

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#138

Topic: AS04 SUPERPOWERED LYMPHOCYTES**SPECIFIC IMMUNOTHERAPEUTIC TARGETING OF GLIOBLASTOMA USING THE SWITCHABLE REVCAR NK-92 SYSTEM**

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#128

Topic: AS04 SUPERPOWERED LYMPHOCYTES**A CHIMERIC SYNGENEIC MOUSE MODEL FOR HUMAN TCR EVALUATION AND DEVELOPMENT OF COENGINEERING STRATEGIES**

A. Semilietof^{1,2}, E. Stefanidis¹, J. Pujol¹, P. Reichenbach¹, E. Gray-Gaillard¹, A. D'Esposito¹, P. Guillaume¹, G. Coukos¹, V. Zoete^{1,2}, M. Irving¹, O. Michielin^{1,2,3}
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#172

Topic: AS04 SUPERPOWERED LYMPHOCYTES**DEVELOPING THERAPY FOR ACUTE MYELOID LEUKEMIA WITH FIVE-GENE ENGINEERED T-CELLS EXPRESSING TRANSGENIC WT-1 TCR, GM-CSF LIGAND-BASED CAR, CD3X33 BITE AND EGFR SUICIDE GENE SYSTEM.**

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#194

Topic: AS04 SUPERPOWERED LYMPHOCYTES**RUNX1 NEOANTIGENS AS TARGETS FOR TCR GENE THERAPY IN ACUTE MYELOID LEUKEMIA**

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#65

Topic: *AS04 SUPERPOWERED LYMPHOCYTES*

**STEPWISE SOLUTIONS TO IMMUNOSUPPRESSIVE TUMOR MICROENVIRONMENTS BY CAR-
IMAC**

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#71

Topic: *AS04 SUPERPOWERED LYMPHOCYTES*

**'SPLICESEEK'- A NEW METHOD FOR CRISPR-BASED SCREEN OF ALTERNATIVE SPLICING
EVENTS IN ACTIVATED T CELLS- REVEALS NOVEL TARGETS FOR CANCER
IMMUNOTHERAPY**

S. Tzaban^{1,2}, P. Appasamy^{1,2}, E. Abdallah^{1,2}, R. Lewis^{1,2}, E. Zisman^{1,2}, S. Klein^{1,2}, R. Karni³, G.
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#118

Topic: *AS04 SUPERPOWERED LYMPHOCYTES*

**HARNESSING IMMUNOMETABOLISM TO REINVIGORATE THE EFFECTOR FUNCTION AND
ANTITUMOR IMMUNITY OF CAR T CELLS IN MANTLE CELL LYMPHOMA**

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#141

Topic: *AS04 SUPERPOWERED LYMPHOCYTES*

**IMPACT OF CO-STIMULATION ON IN VITRO PERSISTENCE OF A MODULAR CHIMERIC
ANTIGEN RECEPTOR PLATFORM**

L. Zimmermann¹, S. Loff¹, A. Langer¹, J.-E. Meyer¹, D. Silva Apango¹, N. Jacob², G. Ehninger³, M.
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Germany

#28

Topic: *AS05 NON-VIRAL CAR/TCR ENGINEERING***AN ENHANCED TCBUSTER(TM) (TC-B-M(TM)) TRANSPOSASE HAS BEEN DEVELOPED FOR HIGHLY EFFICIENT AND ROBUST DELIVERY OF THERAPEUTIC CARGO FOR BOTH RUO AND CLINICAL APPLICATIONS.**

D. Hermanson¹, T. Zarecki¹, N. Otto¹, X. Patrinsotro¹, B. Jones¹, B. Barnes¹, M. Böhmer², J. Kaper³
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#159

Topic: *AS05 NON-VIRAL CAR/TCR ENGINEERING***CLINICAL TRANSLATION OF CRISPR-CAS9-MEDIATED TCR ENGINEERING FOR THE TREATMENT OF VIRAL INFECTIONS**

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#222

Topic: *AS05 NON-VIRAL CAR/TCR ENGINEERING***PREVENTING TRANSLOCATIONS IN MULTIPLEX-EDITED ALLOGENEIC CAR T CELLS BY COMBINING DIFFERENT CRISPR NUCLEASES FOR SIMULTANEOUS KNOCK-IN AND BASE EDITING**

V. Glaser^{1,2}, C. Flugel¹, J. Kath^{1,2}, W. Du¹, V. Drosdek¹, C. Franke², M. Stein¹, A. Pruß³, M. Schmück-Henneresse², H.-D. Volk², P. Reinke¹, D. Wagner²
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#169

Topic: *AS05 NON-VIRAL CAR/TCR ENGINEERING***SLEEPING BEAUTY PLATFORM FOR ENGINEERING DONOR-DERIVED CAR-CIK CELLS TOWARDS B-ALL MULTI-TARGETING**

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#157

Topic: *AS05 NON-VIRAL CAR/TCR ENGINEERING*

AN INDIVIDUALIZED, NON-VIRALLY ENGINEERED TCR-T CELL THERAPY TARGETING NEOANTIGENS FOR THE TREATMENT OF SOLID TUMORS

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#195

Topic: *AS05 NON-VIRAL CAR/TCR ENGINEERING*

A HIGH THROUGHPUT AND MULTIPLEXED SYSTEM FOR ANTIGEN SPECIFIC TCR IDENTIFICATION FROM THE NAÏVE REPERTOIRE

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#220

Topic: *AS05 NON-VIRAL CAR/TCR ENGINEERING*

EFFICIENT TCR SILENCING BY MRNA-BASED EPIGENETIC EDITING OF THE TCR ALPHA LOCUS

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#75

Topic: *AS05 NON-VIRAL CAR/TCR ENGINEERING*

PRECISE GENOME EDITING TO ENABLE NEXT-GENERATION T CELL THERAPIES.

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#88

Topic: *AS05 NON-VIRAL CAR/TCR ENGINEERING*

HOW TO IMPROVE MRNA-BASED CAR-T CELL GENERATION AND FUNCTIONALITY? A LAB-SCALE COMPARISON

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#147

Topic: *AS05 NON-VIRAL CAR/TCR ENGINEERING*

ISOLATION AND CHARACTERIZATION OF NEOEPITOPE-SPECIFIC TCRS FOR T CELL THERAPY IN GASTROINTESTINAL CANCER

S. Braun¹, L. Warmuth¹, K. Wagner¹, A. Brutau-Abia¹, R. Mejías-Luque¹, M. Gerhard^{1,2}, E. D'Ippolito¹, D. Busch^{1,2}

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#104

Topic: *AS06 UNIVERSAL DONOR CELLS & ADVANCED TCR ENGINEERING*

EARLY MEMORY-ENRICHED ALLOGENEIC CAR-T CELLS TARGETING NKG2D LIGANDS: A FURTHER STEP TOWARDS UNIVERSAL CANCER IMMUNOTHERAPY

C. Aparicio¹, M. Queipo¹, M. Belver¹, A. Valeri², A. Leivas², D.J. Powell Jr.³, J. García-Sancho¹, J. Martínez-López², A. Sánchez¹, M.Á. De La Fuente¹, M. Gonzalez-Vallinas¹

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#43

Topic: *AS06 UNIVERSAL DONOR CELLS & ADVANCED TCR ENGINEERING*

DESIGNER CAR TRANSMEMBRANE DOMAINS PROVIDE PREDICTABLY TUNABLE T CELL FUNCTIONAL POTENCY

M. Call¹, A. Elazar², N. Chandler¹, A. Davey¹, J. Weinstein³, R. Trenker⁴, J. Nguyen¹, R. Cross⁵, M. Jenkins⁵, M. Call¹, S. Fleishman³

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#149

Topic: *AS06 UNIVERSAL DONOR CELLS & ADVANCED TCR ENGINEERING*

T-CELL RECEPTOR (TCR)-MODIFIED T-CELL DEVELOPMENT FOR THE RECOGNITION OF NY-ESO-1119-143 PEPTIDE PRESENTED ON HLA-DRB3*02:02

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#173

Topic: *AS06 UNIVERSAL DONOR CELLS & ADVANCED TCR ENGINEERING*

TCRVB MODIFICATIONS TO IMPROVE TCR EXPRESSION AND T CELL FUNCTION

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#140

Topic: *AS06 UNIVERSAL DONOR CELLS & ADVANCED TCR ENGINEERING*

THE INTEGRATED MULTI-OMIC CHARACTERIZATION OF “OFF-THE-SHELF” CD19-CAR-T CELLS ALLOWS THE IDENTIFICATION OF ENGINEERED CELLS ENDOWED WITH SUPERIOR ANTI-TUMOR FITNESS AND LOWER PRO-INFLAMMATORY ACTIVITY

A. Al Sulaiti¹, M. El Anbari², M. Toufiq³, S. Jacob⁴, S. Kotegar Balayya⁴, E. Chin-Smith¹, S. Mohan⁵, D. Olagunju⁵, C. Cugno², S. Deola², D. Chaussabel³, C. Bonini⁶, M. Casucci⁶, C. Maccalli¹

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#137

Topic: *AS06 UNIVERSAL DONOR CELLS & ADVANCED TCR ENGINEERING*

INCREASING THE PERSISTENCE AND EFFICIENCY OF CHIMERIC ANTIGEN RECEPTOR - NK CELLS

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#178

Topic: *AS07 BEYOND ALPHA-BETA T CELLS*

CHIMERIC ANTIGEN RECEPTOR DEVELOPMENT IN Δ 1 T CELLS

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#69

Topic: *AS07 BEYOND ALPHA-BETA T CELLS*

FEEDER-FREE CULTURE SYSTEM FOR EX VIVO GENERATION OF LARGE NUMBERS OF NK AND CAR-NK CELLS FROM HEMATOPOIETIC STEM AND PROGENITOR CELLS

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#215

Topic: *AS07 BEYOND ALPHA-BETA T CELLS*

BABOON ENVELOPE PSEUDOTYPED LENTIVIRAL VECTOR AS AN EFFECTIVE TRANSDUCTION TOOL FOR ENGINEERING CAR Δ T CELLS

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#101

Topic: *AS07 BEYOND ALPHA-BETA T CELLS*

B7H3 CAR V DELTA 2 GAMMA DELTA T CELLS ARMORED WITH A POTENT SECRETED IL15 AGONIST SHOW EFFECTIVE KILLING OF OSTEOSARCOMA PDXOS IN-VITRO

R. Tuna Deveci¹, D. Fowler¹, A. Kanouta¹, M. Barisa¹, J. Anderson¹, K. Chester², J. Fisher¹
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#93

Topic: *AS07 BEYOND ALPHA-BETA T CELLS*

METHOD COMPARISON OF TIME-RESOLVED CYTOTOXICITY DETERMINATIONS IN NK-92 CELL EXPANSION

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#57

Topic: *AS08 IN VIVO T CELL ENGINEERING*

GENERATION OF IN VIVO CAR-T CELLS VIA NON-VIRAL DELIVERY VECTORS

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#168

Topic: *AS09 TARGETING NON-MALIGNANT DISEASES*

GENOME INTEGRITY AND SCALABLE GMP-COMPLIANT MANUFACTURING OF HDR GENE EDITED CD4+ T CELLS FOR THE TREATMENT OF HYPER IGM 1

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#48

Topic: AS09 TARGETING NON-MALIGNANT DISEASES**THERAPEUTIC GENE EDITING OF T CELLS CORRECTS CTLA4 INSUFFICIENCY.**

T. Fox¹, B. Houghton¹, L. Petersone¹, E. Waters¹, N. Edner¹, A. McKenna¹, O. Preham¹, C. Hinze¹, C. Williams¹, A. Albuquerque¹, A. Kennedy¹, A. Pesenacker¹, P. Genovese², L. Walker¹, S. Burns¹, D. Sansom¹, C. Booth³, E. Morris³

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#92

Topic: AS09 TARGETING NON-MALIGNANT DISEASES**DEVELOPMENT OF A NOVEL ACE2 DECOY FOR BOTH SARS-COV-2 VARIANT NEUTRALIZATION AND INFECTED CELL ELIMINATION VIA UNMODIFIED OR CAR MODIFIED IMMUNE CELLS**

L. Drewitz¹, A. Kegler¹, C. Arndt^{1,2}, C. Daglar¹, L. Rodrigues Loureiro¹, N. Mitwasi¹, C. Neuber¹, K.E. González Soto¹, T. Bartsch¹, L. Baraban¹, H. Ziehr³, M. Heine³, A. Nieter³, A. Moreira-Soto⁴, A. Kühne⁴, J.F. Drexler⁴, B. Seliger^{5,6}, M. Laube¹, D. Máthé^{7,8,9}, B. Pályi¹⁰, P. Hajdrik⁷, L. Forgách¹¹, Z. Kis¹⁰, K. Szigeti⁷, R. Bergmann^{1,7}, A. Feldmann^{1,12,13}, M. Bachmann^{1,12,13}

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#68

Topic: AS09 TARGETING NON-MALIGNANT DISEASES**CAGA-SPECIFIC CD8+ T CELLS CONTROLLING HELICOBACTER PYLORI FOR PREVENTION OF GASTRIC CANCER DEVELOPMENT**

M. Koch, J. Schiede, A. Ralser, R. Gong, V. Friedrich, D. Busch, M. Gerhard, R. Mejías-Luque
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München, Germany

#129

Topic: AS09 TARGETING NON-MALIGNANT DISEASES**PROTCELL™: EX-VIVO GENERATED T LYMPHOID PROGENITORS EXHIBIT THYMIC REGENERATIVE PROPERTIES**

J. Paillet^{1,2}, P. Gaudeaux^{1,2}, S. Žuklys³, R. Devi Moirangthem¹, M. Martin Corredera^{1,2}, H. Sadek², J. Roche-Naude², A. Corneau⁴, M. Cavazzana², G. Holländer³, T.S. Soheili², O. Negre², I. André¹
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#51

Topic: AS09 TARGETING NON-MALIGNANT DISEASES**CAR AGAINST ALLERGIES**

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#73

Topic: AS09 TARGETING NON-MALIGNANT DISEASES**ENGINEERING SARS-COV-2 SPECIFIC IMMUNOSUPPRESSIVE DRUG RESISTANT ARMORED (IDRA) T CELLS FOR CELL THERAPY IN ORGAN TRANSPLANTED PATIENTS.**

Q. Chen¹, A. Tan¹, N. Le Bert¹, S.K. Hang¹, Z. Ho², Y. Peng³, F. Gao³, A. Vathsala⁴, L.-E. Wai², T. Dong³, A. Bertoletti¹
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#134

Topic: AS09 TARGETING NON-MALIGNANT DISEASES**FCYRIIA-SPECIFIC DARPINS DISPLAYED ON VIRAL VECTORS FOR HIV GENE THERAPY**

S. Theuerkauf¹, A. Jamali¹, V. Riechert¹, S. Hein², P. Adams³, E. Herrera-Carrillo³, B. Berkhout³, K. Cichutek¹, J. Hartmann⁴, C. Buchholz^{1,4}

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#179

Topic: AS09 TARGETING NON-MALIGNANT DISEASES**ENGINEERED T REGULATORY CELLS AS A TREATMENT OPTION FOR MULTIPLE SCLEROSIS**

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#111

Topic: AS09 TARGETING NON-MALIGNANT DISEASES**DEVELOPMENT OF A SARS-COV-2 CAR-T CELL THERAPY**

M. Vazquez¹, N. Egri², E. González², R. Martínez¹, B. Casanovas Albertí¹, D. Abba-Moussa³, M. Naranjo³, M. Juan², H. Calderon²

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#146

Topic: AS10 OTHER**IN-DEPTH CHARACTERIZATION OF THE IMMUNE MICROENVIRONMENT OF PATIENTS UNDERGOING CAR T CELL THERAPY**

M. Alb¹, U. Weirauch², R. Weiß³, D. Löffler², V. Kopfnagel⁴, C. Blumert², J. Düll¹, L. Scheller¹, A. Boldt³, V. Vucinic⁵, U. Platzbecker⁵, U. Köhl², M. Hudecek¹, K. Reiche²

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#107

Topic: *AS10 OTHER*

RAPID AND EFFICIENT GENE EDITING OF PRIMARY HUMAN RESTING CD4 T CELLS ALLOWS UNPRECEDENTED FUNCTIONAL ANALYSES

M. Albanese^{1,2}, A. Ruhle², E. Mejías-Pérez², M. Gapp², O.T. Fackler³, A. Lanzavecchia¹, O.T. Kepler²

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#125

Topic: *AS10 OTHER*

DUAL-TARGETING CD19 AND NKG2D LIGANDS CAR T-CELLS ARE EFFECTIVE AGAINST CD19 POSITIVE AND CD19 NEGATIVE B CELL MALIGNANCIES.

J. Bolsée, C. Jacques-Hespel, B. Violle, J. Marijsse, E. Breman
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#188

Topic: *AS10 OTHER*

GETTING OUT OF THE MOUSE HOLE: OPTIMIZING MURINE CAR T CELL GENERATION TOWARDS IMPROVED CAR T CELL FUNCTION

C. Büttner, F. Gsottberger, A. Mackensen, F. Müller
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#122

Topic: *AS10 OTHER*

PHOSPHOPROTEOMIC ANALYSIS OF SECOND GENERATION CHIMERIC ANTIGEN RECEPTOR SIGNALLING FOR THE TREATMENT OF GLIOBLASTOMA

R. Cross¹, J. Sandow², D. Pires³, J. Yousef², M. Iliopoulos¹, A. Webb², M. Jenkins¹
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#110

Topic: AS10 OTHER

CONTROLLING GLIOBLASTOMA WITH CAR T CELLS TARGETING AN ALTERNATIVELY SPLICED DOMAIN D OF TENASCIN CJ. De Sostoa^{1,2}, V. Widmer^{1,2}, S. Davature^{1,2}, V. Dutoit^{1,2}, D. Migliorini^{1,2,3}¹AGORA, Cancer Research Center, Lausanne, Switzerland, ²Center for Translational Research in Onco-Hematology, University Of Geneva, Geneva, Switzerland, ³Geneva University Hospital, Department Of Oncology, Geneva, Switzerland

#211

Topic: AS10 OTHER

LIVECYTE: ANALYSIS OF T-CELL KILLING INTERACTION KINETICS USING LABEL FREE IMAGING OF T-CELLSJ. Rickman¹, M. Jotangia¹, P. Djali¹, G. Giangreco², R. Köchl³¹Phase Focus Ltd, Business Development, Sheffield, United Kingdom, ²The Francis Crick Institute, Tumor Cell Biology Laboratory, London, United Kingdom, ³Kings College London, Immunology & Microbial Sciences, London, United Kingdom

#221

Topic: AS10 OTHER

TARGETING CARBOHYDRATES IN ADENOCARCINOMAS: STN-CAR T CELLSC. Forcados¹, R. Abrantes^{2,3,4}, E. Senra^{2,3}, A.F. Costa^{2,3,4}, D. Warren⁵, C. Gomes^{2,3}, E.M. Inderberg¹, C. Reis^{2,3,4,6}, S. Wälchli¹¹Oslo University Hospital, Dept Of Cellular Therapy, Oslo, Norway, ²i3S, Instituto De Investigação E Inovação Em Saúde, Universidade Do Porto, Porto, Portugal, ³IPATIMUP, Instituto De Patologia E Imunologia Molecular Da Universidade Do Porto, Porto, Portugal, ⁴ICBAS, Instituto De Ciências Biomédicas Abel Salazar, Porto, Portugal, ⁵The Tumor Marker Group, Department Of Medical Biochemistry, Oslo University Hospital, Oslo, Norway, ⁶FMUP, Faculty Of Medicine, University Of Porto, Porto, Portugal

#158

Topic: AS10 OTHER

RAG2-/-/FC-/- MICE HUMANIZED WITH CD34+ HEMATOPOIETIC STEM CELLS ARE A SUITABLE TOOL TO SCREEN FOR FUNCTIONAL EWING SARCOMA-SPECIFIC T CELLS IN VIVOU. Thiel¹, S. Heim¹, H. Gassmann¹, K. Von Heyking¹, S. Schober¹, M. Thiede¹, M. Niemeyer², D. Busch³, R. Oostendorp⁴, I. Esposito⁵, J. Hauer¹, S. Burdach⁶, G. Richter⁷¹Technical University Munich, Germany; TUM School of Medicine, Department Of Pediatrics, Munich, Germany, ²Tumor- und BrustZentrum Ostschweiz, Klinik Stephanshorn, St Gallen,

Switzerland, ³Technical University of Munich, Immunology And Hygiene, Munich, Germany, ⁴Technical University of Munich, School of Medicine, Munich, Germany, Department Of Internal Medicine Iii, Munich, Germany, ⁵Heinrich-Heine University and University Hospital of Dusseldorf, Institute Of Pathology, Dusseldorf, Germany, ⁶Technical University of Munich, Germany; TUM School of Medicine, Translational Pediatric Cancer Research-institute Of Pathology, Munich, Germany, ⁷Charité-Universitätsmedizin, Division Of Oncology And Hematology, Department Of Pediatrics, Berlin, Germany

#44

Topic: AS10 OTHER**ENHANCING ANTITUMOR IMMUNITY WITH IMMUNOTHERAPY: A COMBINATION OF NOVEL BISPECIFIC T-CELL ENGAGERS TARGETING COLORECTAL CANCER**

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#108

Topic: AS10 OTHER**NEW GMP CLEAN ROOM SOLUTIONS AT FINNISH RED CROSS BLOOD SERVICE (FRCBS) FOR PRODUCTION OF ADVANCED CELL THERAPIES**

H. Hongisto, E. Kerkelä, A. Luostarinen, M. Patrikoski, A. Kotovuori, A. Vuorela, J. Ahoniemi, K. Lähteenmäki, E. Hokkanen, T. Kangasmaa, A. Laitinen
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#109

Topic: AS10 OTHER**TARGETING SENESCENT CELLS IN PROSTATE CANCER USING CAR T CELL THERAPY**

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#213

Topic: *AS10 OTHER***IMMUNOTHERAPY TARGETING MUTANT NUCLEOPHOSMIN-1 ON ACUTE MYELOID LEUKEMIA**

G. Koutsoumpli¹, D. Van Der Lee¹, N.C. Groenland¹, M.W. Honders¹, R. De Jong¹, R.S. Hagedoorn¹, H. Veelken¹, P. Van Veelen², D. Lock³, M. Heemskerk¹, J.H.F. Falkenburg¹, I. Johnston³, M. Griffioen¹

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Topic: *AS10 OTHER***THE GENOMIC AND IMMUNOLOGICAL CHARACTERIZATION OF COLORECTAL AND BREAST CANCER STEM CELLS: IMPLICATIONS FOR CANCER IMMUNOTHERAPY**

N. Gopinath¹, I. Gupta¹, O. Hussein¹, A. Turdo², E. Chin-Smith¹, R. Metthiew³, H. Shobha Manjunath³, M. Toufiq⁴, S. Tomei³, M. Todaro², G. Stassi⁵, I. Skvortsova⁶, C. MacCalli¹

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#182

Topic: *AS10 OTHER***TCRCLASS: A NOVEL COMPUTATIONAL APPROACH FOR IDENTIFYING T CELL RECEPTOR SPECIFICITY AND PHENOTYPE IN SINGLE CELL RESOLUTION.**

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#66

Topic: *AS10 OTHER***CHARACTERIZATION OF CAR T CELL PRODUCTS FOR FUNCTIONALITY AND FITNESS IN REGARD OF MANUFACTURING PROCESS ADJUSTMENTS**

D. Pitsch, M. Maluski, T. Wegner, D. Gudert, L. Strobel, B. Weidemann, S. Schallenberg, J. Moer, M. Flügge, B. Schulte, T. Töpfer, I. Johnston, B. Engels, N. Mockel-Tenbrinck, M. Assenmacher
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#204

Topic: AS10 OTHER**AUTOLOGOUS ANTI-GD2 CAR-T CELLS EFFICIENTLY TARGET PRIMARY HUMAN GLIOBLASTOMA**

C. Chiavelli¹, G. Rovesti^{1,2,3}, M. Prapa^{1,4}, G. Neri^{1,2}, G. Pugliese^{1,5}, L. Trudu^{1,2,3}, M. Silingardi¹, M. Dall'Ora⁶, G. Golinelli^{1,7}, G. Grisendi¹, M. Bestagno⁸, C. Spano⁶, R.V. Papapietro³, R. Depenni³, K. Di Emidio³, A. Pasetto^{9,10}, D. Nascimento Silva¹⁰, A. Feletti¹¹, S. Berlucchi¹², C. Iaccarino¹², G. Pavesi¹², M. Dominici^{1,3,6}

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#154

Topic: AS10 OTHER**ENHANCING EFFECTOR FUNCTION OF TUMOUR INFILTRATING T CELLS IN KIDNEY CANCER**

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#85

Topic: AS10 OTHER**DISSECTING PHENOTYPICAL AND FUNCTIONAL DIFFERENCES BETWEEN REGULATORY T CELLS FROM ADULT PERIPHERAL BLOOD, UMBILICAL CORD BLOOD AND PEDIATRIC THYMUS**

S. Santosh Nirmala¹, F. Floegel¹, K.L. Kamalapuram Krishnakumar^{*1}, Y. Hu¹, J. Winkler², A. Eschenbach², C. Birdir², A. Fuchs¹

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#87

Topic: *AS10 OTHER***SINGLE-CELL CRISPR SCREENS IN PRIMARY HUMAN T CELLS IDENTIFY REGULATORS OF TH2 CELL SKEWING**

A. Loregger, J. Irnstorfer, N. Untermoser, N. Vinko, A. Krejci, H. Schmidt, T. Bürckstümmer
Myllia Biotechnology, Single-cell Crispr Screening, Vienna, Austria

#185

Topic: *AS10 OTHER***COMBINATION OF CD4+ AND CD8+ T CELLS IN T CELL THERAPY OF HBV INFECTION ENHANCES VIRUS CONTROL IN VIVO BY INCREASING IFN-G AND TNF-A SECRETION**

S. Schreiner¹, S. Schreiber^{1,2}, E. Loffredo-Verde¹, A. Kosinska^{1,2,3}, U. Protzer^{1,2,3}
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#186

Topic: *AS10 OTHER***IDENTIFICATION OF 13 T-CELL RECEPTORS FROM SARS-COV-2-SPECIFIC CD8+ T-CELL CLONES**

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#99

Topic: *AS10 OTHER***MASS SPECTROMETRY-BASED IMMUNOPEPTIDOMICS APPROACH REVEALS IMMUNOGENICITY OF A POTENTIAL NEOANTIGEN IN THE MULTIPLE MYELOMA CELL LINE JJN3**

G. Zuleger¹, S. Lutzenberger¹, C.-Y. Lee², N. De Andrade Krätzig³, C. Tretter⁴, M. Hiltensperger⁴, R. Rad³, E. Bräunlein¹, A. Krackhardt¹
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