

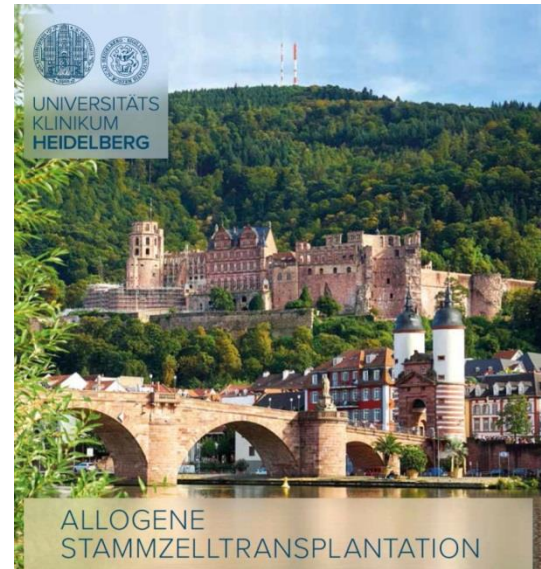


UNIVERSITÄTS  
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# Sektion Stammzelltransplantation

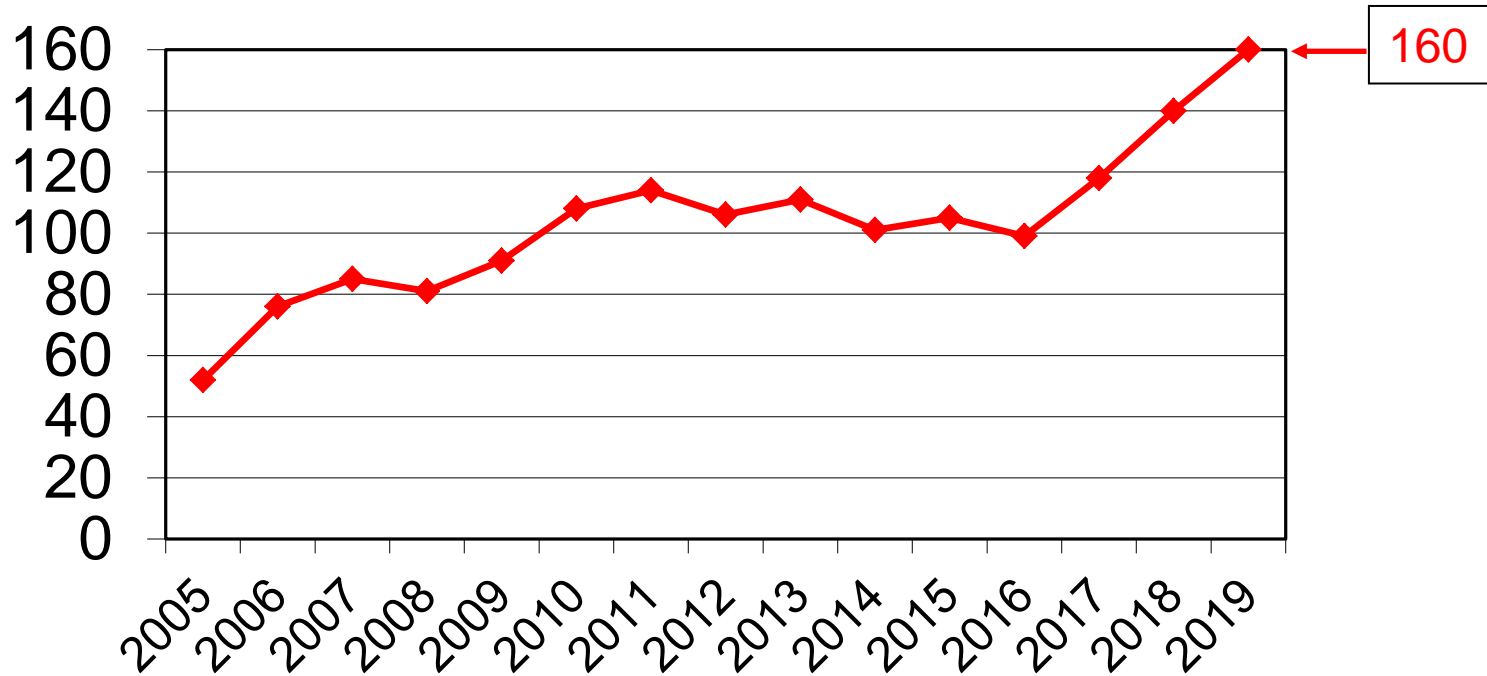
# Jahresbericht 2019

Prof. Dr. Peter Dreger  
Klinik Innere Medizin V  
Universitätsklinikum Heidelberg

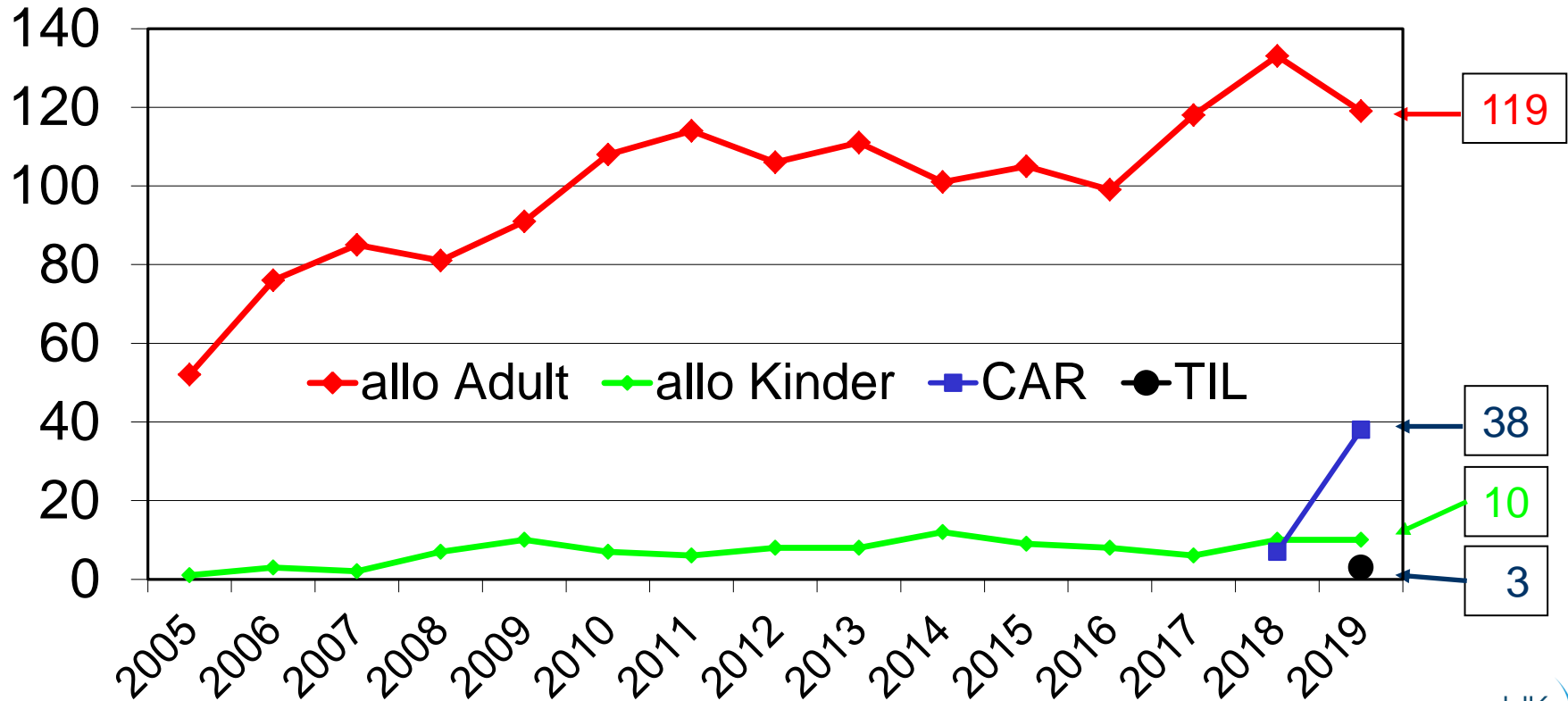


# Zelluläre Immuntherapien HD 2019

(Erwachsene, ohne DLI)

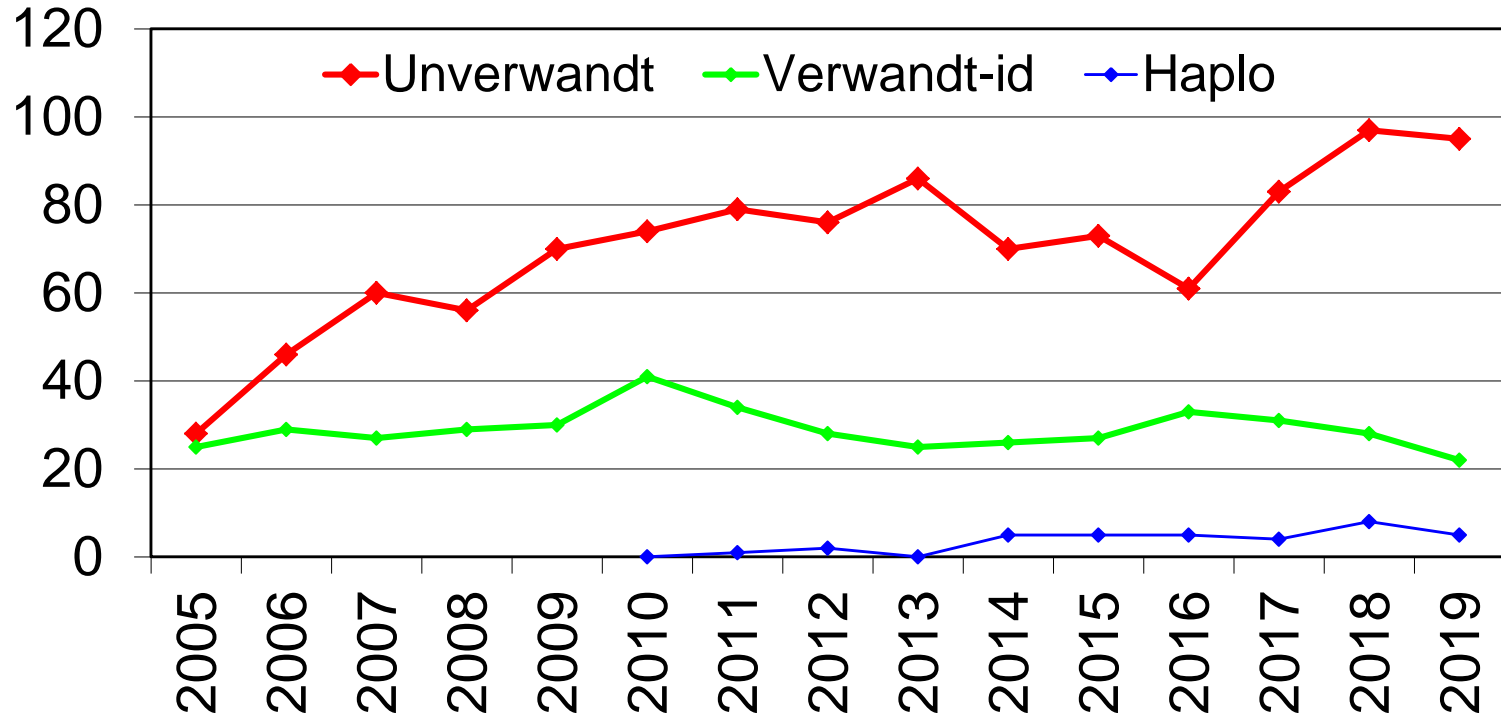


# Zelluläre Immuntherapien (Arten)

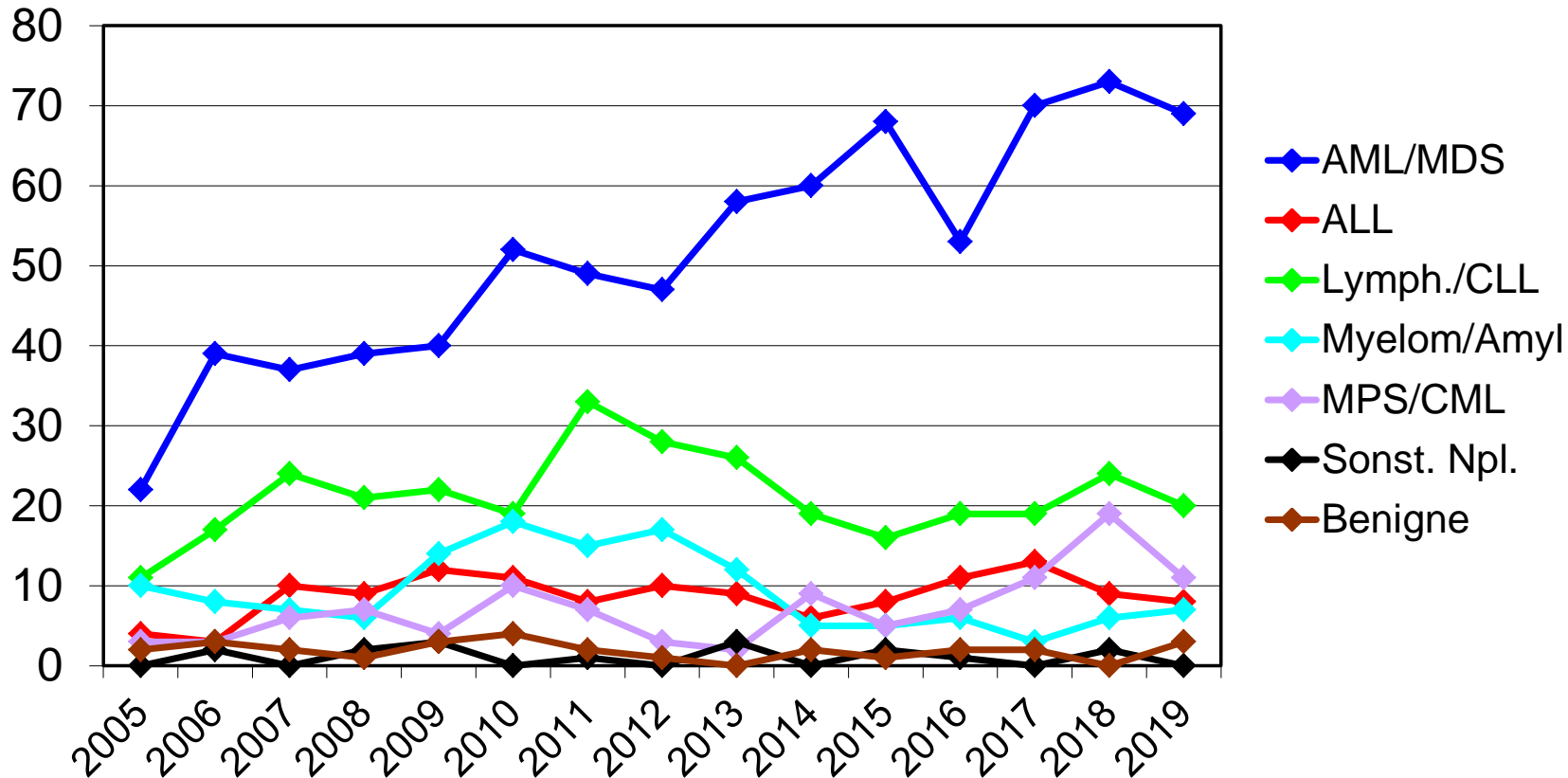


Kennzahlen  
alloHCT

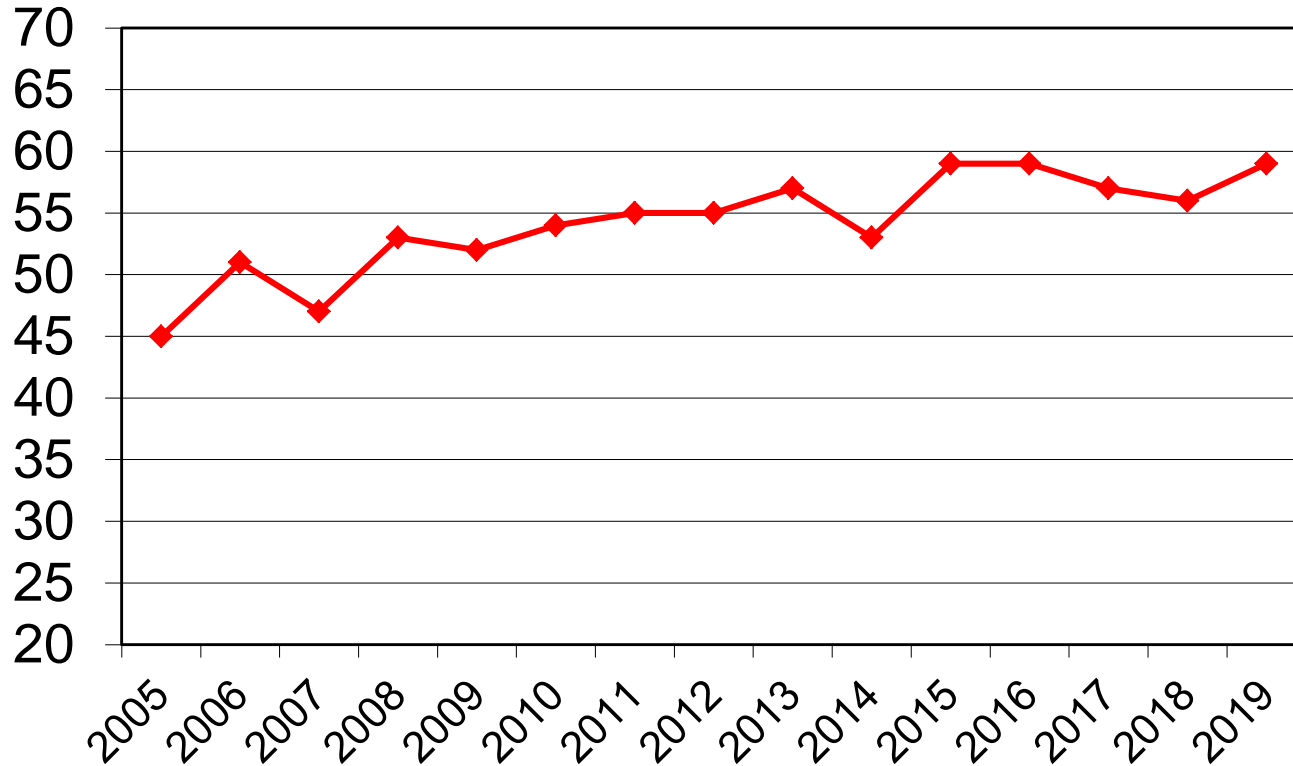
# Spender



# Indikationen

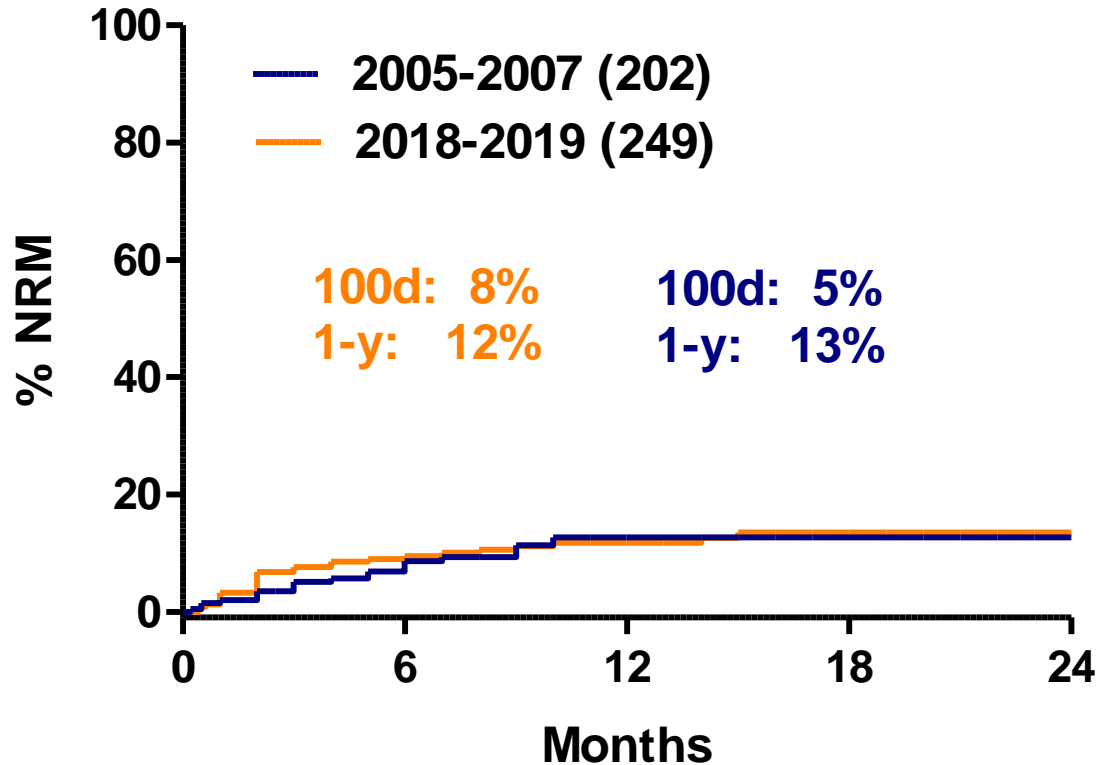


# Medianes Patientenalter



2018/2019:  
21 Pat.  $\geq$ 70J,  
max. 75J  
NRM = 14%

# Non-relapse mortality by period

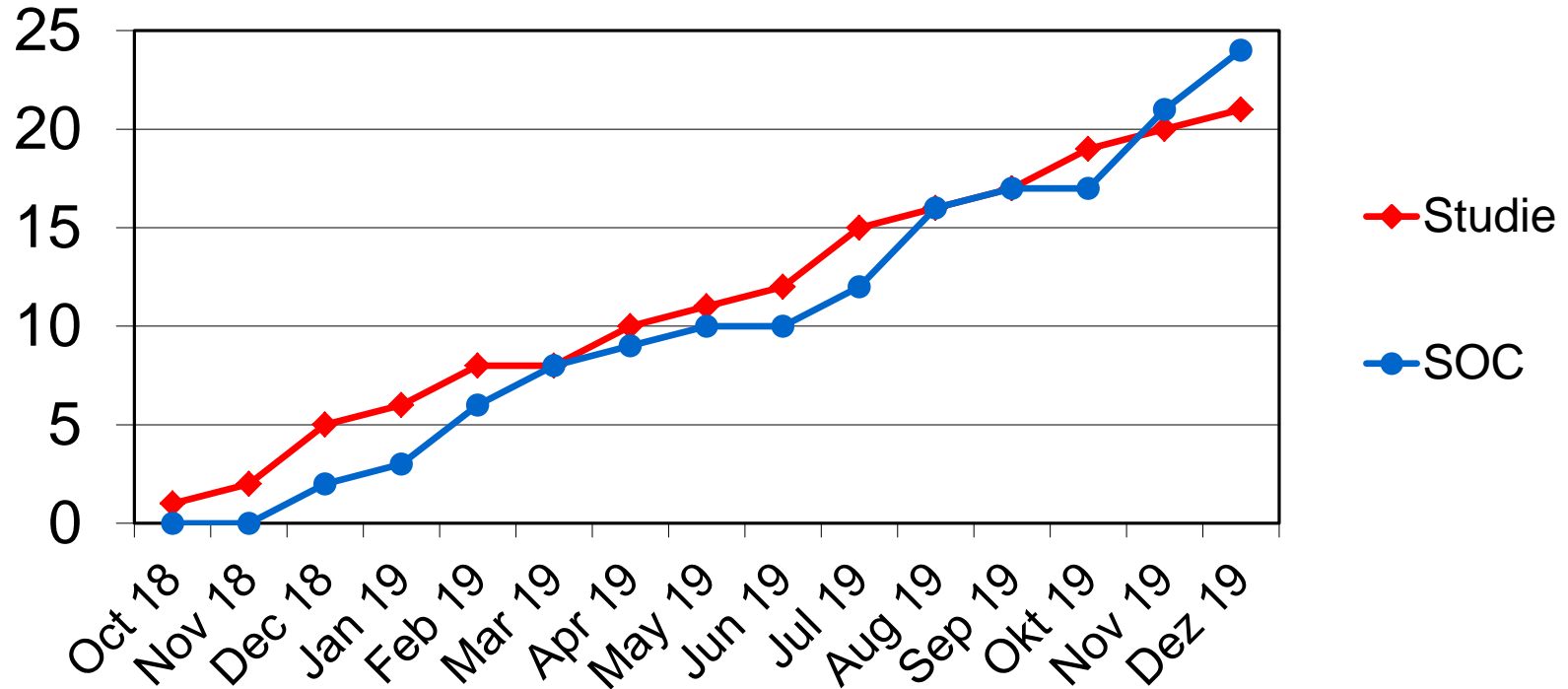




Kennzahlen

CARTs

# CART activity 2018/2019 (reinfusions, cumulative)



# HD-CAR-1: Protocol synopsis

## Indications

Relapsed or refractory CD19<sup>+</sup> lymphoid disease:

- **Stratum I:** Acute lymphoblastic leukemia (**ALL**)
- **Stratum II:** Pediatric **ALL**
- **Stratum III: NHL**
  - CLL
  - **DLBCL**
  - FL
  - MCL

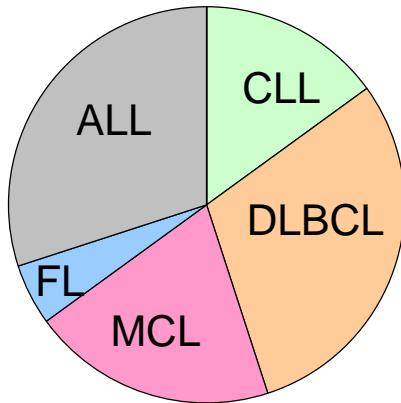
## Sample size

- Phase I/II dose-escalation trial to evaluate safety of escalating doses of CAR T cells expressing CARs targeting the CD19 molecule (CD19.CAR)
- Three dose levels:
  - $1 \times 10^6$  transduced cells/m<sup>2</sup>
  - $5 \times 10^6$  transduced cells/m<sup>2</sup>
  - $20 \times 10^6$  transduced cells/m<sup>2</sup>
- **2-16 patients/stratum** → **6-48** patients planned to be treated within this study

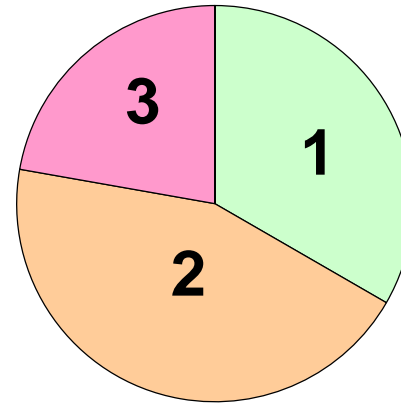
# HD-CAR-1: Diagnoses & Dose Levels

(Dec 31, 2019; n=18 applications)

## Diagnoses



## Dose levels



- 1 1x10E6/qm
- 2 5x10E6/qm
- 3 2x10E7/qm

# SOC CARTs HD Nov 2018 - Dec 2019: Baseline characteristics

**Eligible (Tumor board) N=38**

Age 55 (20-71)

DLBCL/PMBCL 35/3

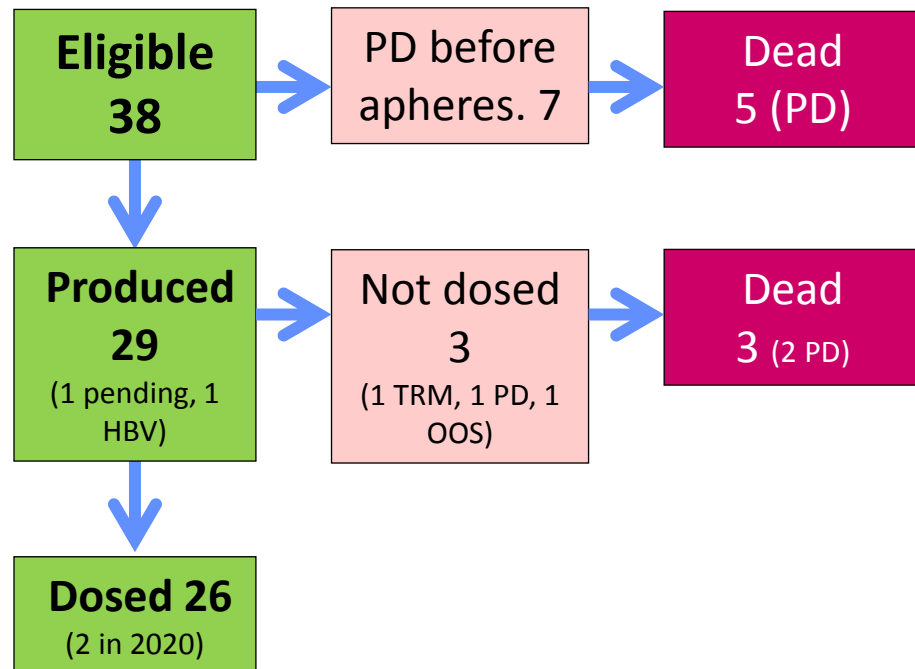
Pretreatment lines (#) 3 (2-9)

Prior auto/allo 5/4

**ZUMA-1 ineligible 66%**

Need for bridging 71%

Kymriah/Yescarta 4/34



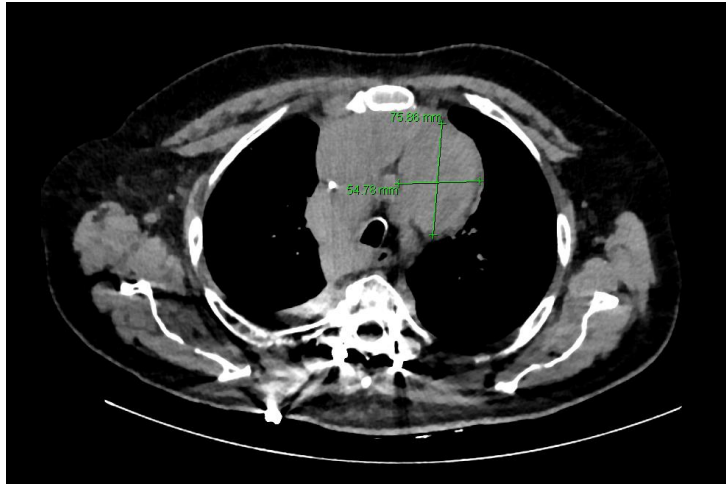
# SOC CARTs HD dosed Nov 2018 - Dec 2019:

## Toxicity

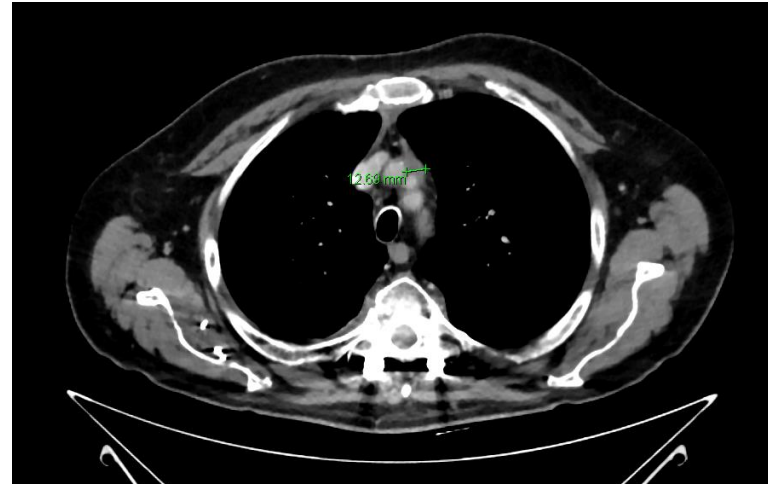
Product	Yescarta	Kymriah
n	22	2
° 5 AE	0	0
° 1-4 (3-4) CRS	(71%) 0	50% (0)
° 1-4 (3-4) ICANS	48% (29%)	0
Days WBC >1.0/nl	10 (0-37)	8-10
Hospitalization (d)	14 (9-49)	12

# Male patient, 68y (Taubert)

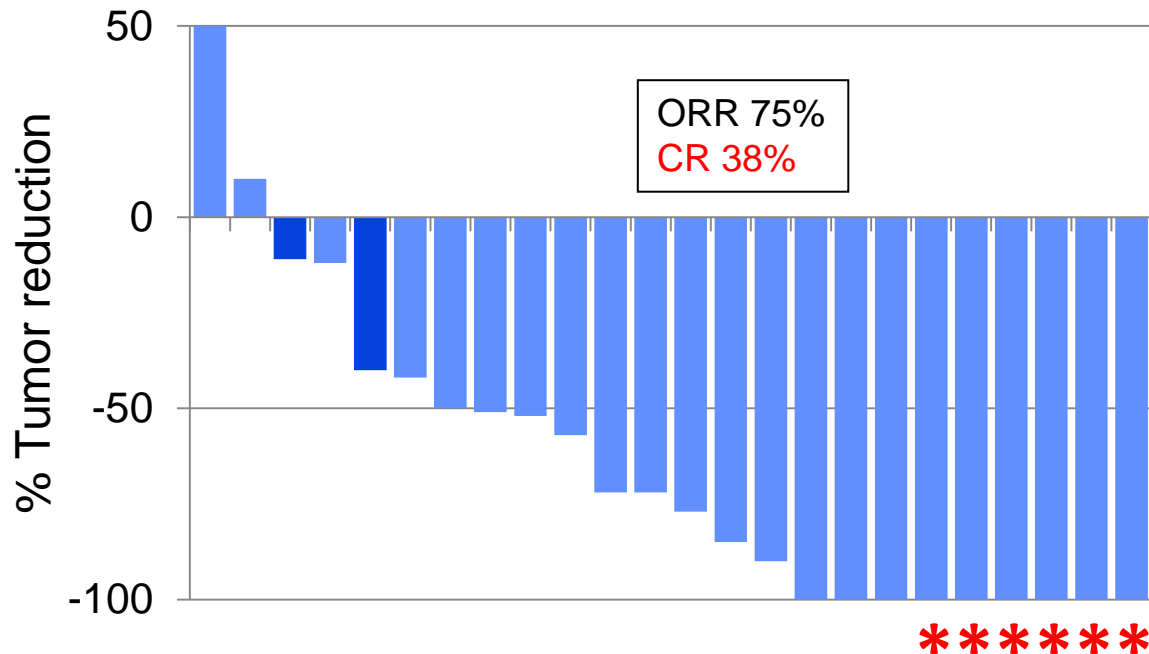
Day -2 before CAR-T



Day +185 after CAR-T



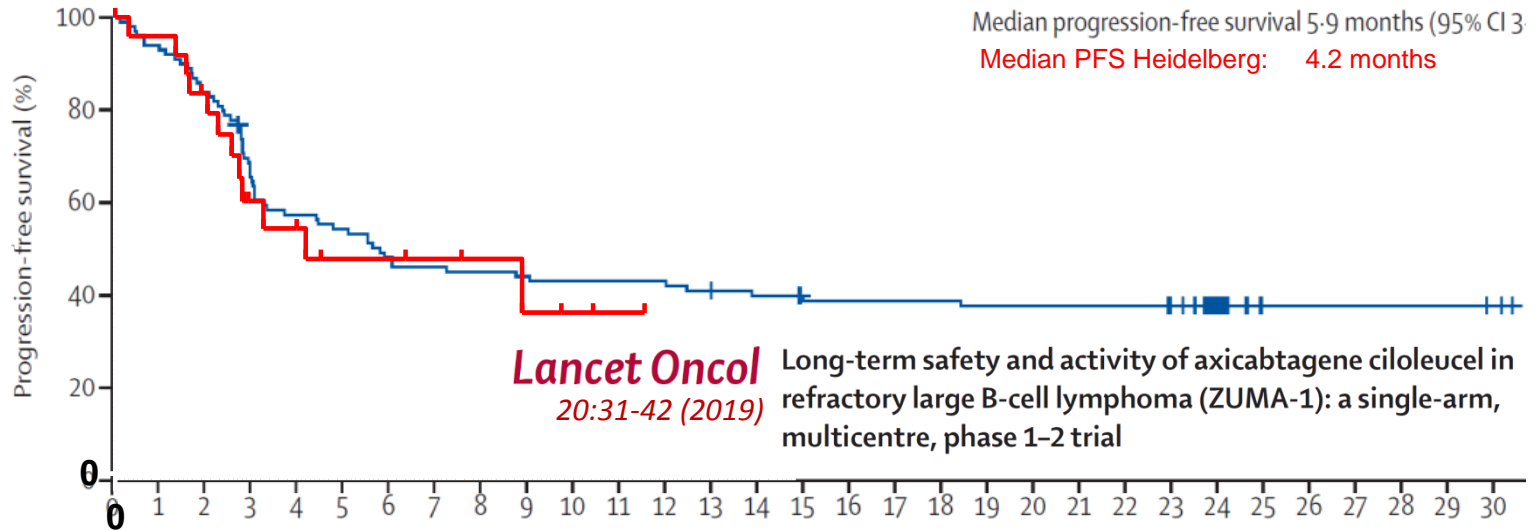
# SOC CARTs HD dosed Nov 2018 - Dec 2019: Best response



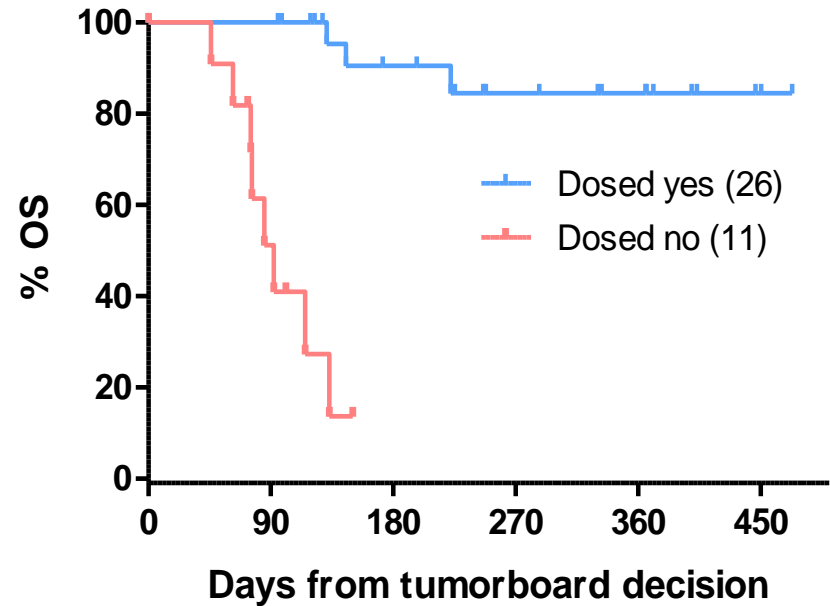
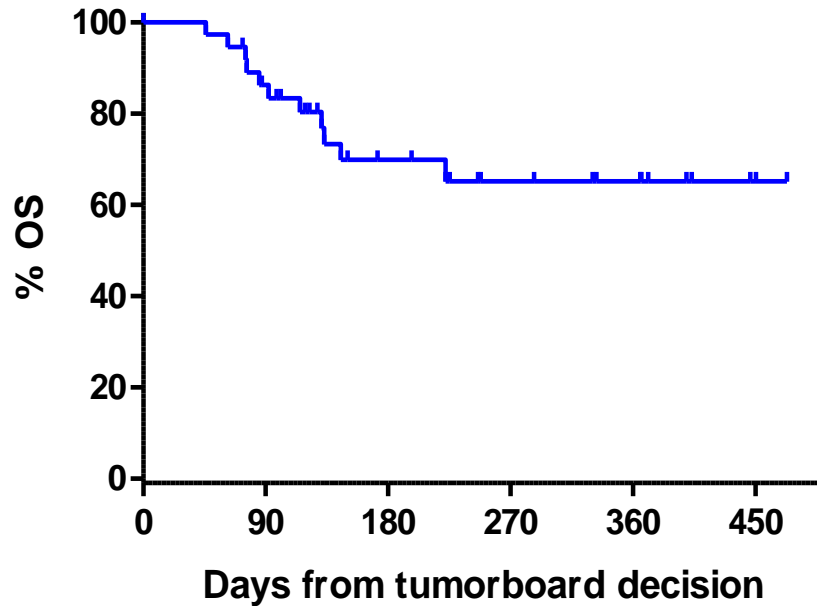
**Time to best Response (CT or \* PET/CT scan): 45 (23-329) d**



# SOC CARTs HD dosed Nov 2018 - Dec 2019: PFS



# SOC CARTs HD Nov 2018 - Dec 2019: OS from tumor board decision (n=38)



# Kennzahlen Wissenschaft

# Publikationen alloHCT 2019

Publikationen 2019: Sektion Stammzelltransplantation (ohne AG Schmitt)

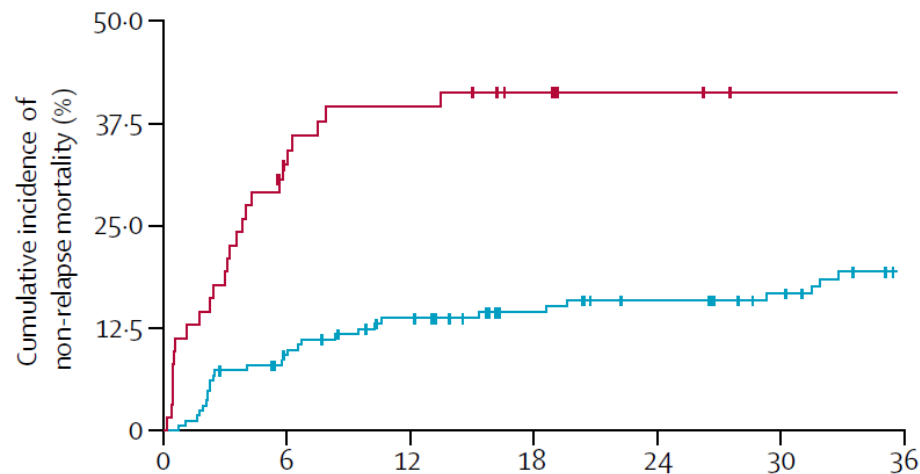
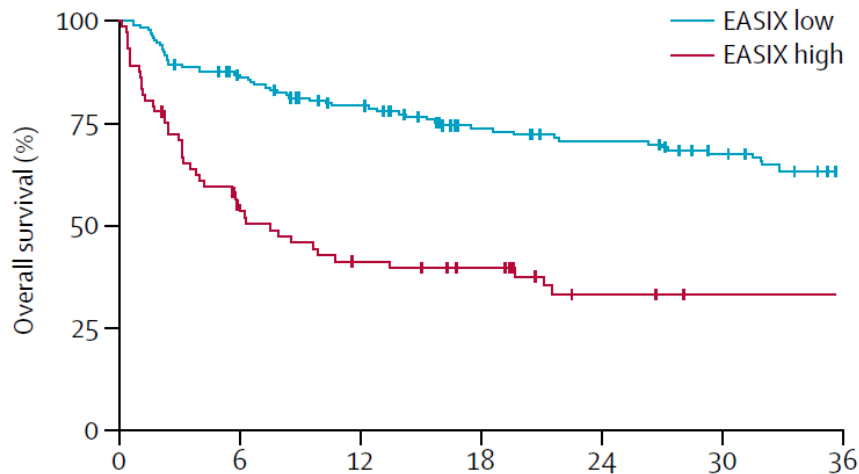
Jahr	Titel	Veröffentlicht in	Gruppe	Journal Impact Faktor 2018	Punkte	Publikationspunkte	Autor Med V
2019	Residual abdominal lymphadenopathy after intensive frontline chemoimmunotherapy in patients with relapsed and refractory diffuse large B-cell lymphoma: a retrospective analysis	Leukemia	Koautorenschaft	9,94	1	9,94	Dreger
2019	Pre-transplant testosterone and outcome of men after allogeneic stem cell transplantation	Haematologica	Erst-/Letztautorenschaft	7,57	10	75,70	Radujkovic, Luft
2019	Interleukin-18 and outcome after allogeneic stem cell transplantation: A retrospective analysis	EBioMedicine	Erst-/Letztautorenschaft	6,68	10	66,80	Radujkovic, Luft
2019	Allogeneic hematopoietic stem cell transplantation for patients with relapsed and refractory diffuse large B-cell lymphoma: a retrospective analysis	Bone Marrow Transplant	Letztautorenschaft	4,67	8	37,39	Dreger
2019	Myeloablative and Reduced-Intensity Conditioned Allogeneic Hematopoietic Stem Cell Transplantation for Relapsed and Refractory Diffuse Large B-Cell Lymphoma: A Retrospective Analysis	Biol Blood Marrow Transplant	Koautorenschaft	3,60	1	3,60	Radujkovic
2019	Long-term outcome after allogeneic hematopoietic cell transplantation for relapsed and refractory diffuse large B-cell lymphoma: a retrospective analysis	Haematologica	Koautorenschaft	7,57	1	7,57	Radujkovic
2019	Allogeneic Stem Cell Transplantation for Blast Crisis Chronic Myeloid Leukemia: A Retrospective Analysis	Biol Blood Marrow Transplant	Erstautorenschaft	3,60	8	28,80	Radujkovic
2019	Autologous hematopoietic stem cell transplantation for relapsed/refractory diffuse large B-cell lymphoma: a retrospective analysis	Bone Marrow Transplant	Letztautorenschaft	4,67	8	37,39	Dreger
2019	Ibrutinib as a salvage therapy after allogeneic HCT for chronic lymphocytic leukemia: a retrospective analysis	Bone Marrow Transplant	Zweitautorenschaft	4,67	3	14,02	Dreger
2019	EASIX for prediction of survival in lower-risk myelodysplastic syndromes	Blood Cancer J	Erst-/Letztautorenschaft	7,90	10	78,95	Merz, Luft
2019	BRAF inhibitor treatment in classic hairy cell leukemia: a long-term follow-up	Leukemia	Koautorenschaft	9,94	1	9,94	Dreger
2019	Outcome in patients with diffuse large B-cell lymphoma who relapse after a first autologous stem cell transplantation	Bone Marrow Transplant	Koautorenschaft	4,67	1	4,67	Dreger
2019	Analysis of data collected in the European Society for Blood and Marrow Transplantation (EBMT) 2015-2017	Bone Marrow Transplant	Letztautorenschaft	4,67	8	37,39	Dreger
2019	Treosulfan or busulfan plus fludarabine as conditioning treatment before allogeneic stem cell transplantation: a retrospective analysis	Lancet Haematol	Koautorenschaft	11,99	1	11,99	Luft, Dreger
2019	EASIX and mortality after allogeneic stem cell transplantation	Bone Marrow Transplant	Erstautorenschaft	4,67	8	37,39	Luft
2019	Indications for haematopoietic stem cell transplantation for haematological malignancies: a retrospective analysis	Bone Marrow Transplant	Koautorenschaft (Guideline)	4,67	0	0,00	Dreger
2019	Comment to "The outcome of peripheral T-cell lymphoma patients failing first autologous stem cell transplantation"	Haematologica	Erstautorenschaft (Kommentar)	7,57	0	0,00	Dreger
2019	Autologous stem cell transplantation for HIV-associated lymphoma in the autologous stem cell transplantation era: a retrospective analysis	Bone Marrow Transplant	Letztautorenschaft	4,67	8	37,39	Dreger
2019	Maintenance Therapies for Hodgkin and Non-Hodgkin Lymphomas After Autologous Stem Cell Transplantation: A Systematic Review	JAMA Oncol	Koautorenschaft (Konsensus)	22,42	0	0,00	Dreger
2019	Idelalisib for optimized CD19-specific chimeric antigen receptor T cells in chronic lymphocytic leukemia: a phase 1b study	Int J Cancer	Koautorenschaft	4,98	1	4,98	Dreger
2019	PTCy-based haploidentical vs matched related or unrelated donor reduced-intensity conditioning for allogeneic stem cell transplantation: a retrospective analysis	Blood Adv	Erstautorenschaft	noch keiner vergeben	8		Dreger
2019	EBMT prospective observational study on allogeneic hematopoietic stem cell transplantation for relapsed and refractory diffuse large B-cell lymphoma: a retrospective analysis	Bone Marrow Transplant	Letztautorenschaft	4,67	8	37,39	Dreger
2019	Allogeneic transplantation in high-risk chronic lymphocytic leukemia: a single-center retrospective analysis	Haematologica	Erstautorenschaft	7,57	8	60,56	Hoffmann
2019	ADMA levels are associated with early mortality after stem cell transplantation in relapsed and refractory diffuse large B-cell lymphoma: a retrospective analysis	Haematologica	Erst-/Letztautorenschaft	7,57	10	75,70	Radujkovic, Luft
2019	The impact of advanced patient age on mortality after allogeneic hematopoietic stem cell transplantation: a retrospective analysis	Biol Blood Marrow Transplant	Letztautorenschaft	3,60	8	28,79	Dreger
2019	Cell-specific proteome analyses of human bone marrow reveal molecular features of hematopoietic stem cells	Nature Communications	Koautorenschaft	11,88	1	11,88	Luft
2019	Prevention and treatment of relapse after stem cell transplantation in lymphoma: a retrospective analysis	Bone Marrow Transplant	Koautorenschaft (Review)	4,67	0	0,00	Dreger
2019	Shaping of CD56bright Natural Killer Cells in Patients With Steroid-Refractory/Relapsed Diffuse Large B-Cell Lymphoma	Frontiers Immunology	Koautorenschaft	6,43	1	6,43	Luft, Dreger
2019	Editorial: Endothelial Dysfunction During Inflammation and Alloimmunity	Frontiers Immunology	Letztautorenschaft	6,43	0	0,00	Luft
2019	Late treatment-related mortality versus competing causes of death after allogeneic stem cell transplantation: a retrospective analysis	Leukemia	Koautorenschaft	9,94	1	9,94	Luft
						648,99	

# EASIX in patients with acute graft-versus-host disease: a retrospective cohort analysis

Published Online

July 18, 2017

Thomas Luft, Axel Benner, Sonata Jodele, Christopher E Dandoy, Rainer Storb, Ted Gooley, Brenda M Sandmaier, Natalia Becker, Aleksandar Radujkovic, Peter Dreger, Olaf Penack



**Figure 3: Multivariable effect of EASIX on outcome after acute GVHD onset**

# 2019: EASIX goes global...

PubMed logo: US National Library of Medicine National Institutes of Health

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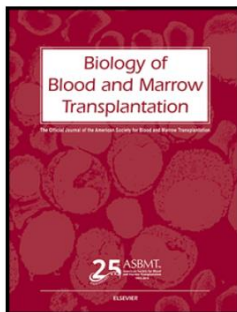
Cellular immunotherapy for refractory DLBCL in the CART era: still a role for allogeneic transplantation?

Peter Dreger, Timothy S. Fenske, Silvia Montoto, Marcelo C. Pasquini, Anna Sureda, Mehdi Hamadani

PII: S1083-8791(20)30003-3  
DOI: <https://doi.org/10.1016/j.bbmt.2019.12.771>  
Reference: YBBMT 55892

To appear in: *Biology of Blood and Marrow Transplantation*

Received date: 5 December 2019  
Accepted date: 30 December 2019



## Journal Pre-proof

Optimized assessment of qPCR-based vector copy numbers as safety parameter for GMP-grade CAR T cells and monitoring of frequency in patients

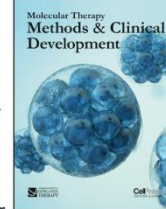
Alexander Kunz, Ulrike Gern, Anita Schmitt, Brigitte Neuber, Lei Wang, Angela Hückelhoven-Krauss, Birgit Michels, Susanne Hofmann, Carsten Müller-Tidow, Peter Dreger, Michael Schmitt, Maria-Luisa Schubert

PII: S2329-0501(20)30028-0  
DOI: <https://doi.org/10.1016/j.omtm.2020.02.003>  
Reference: OMTM 395

To appear in: *Molecular Therapy: Methods & Clinical Development*

Received Date: 17 January 2020

Accepted Date: 11 February 2020



## OS17, Oral session 17 - CAR T-cell therapy 2

### Chairs:

Julio Delgado (Spain)  
Katy Rezvani (United States)



**KTE-X19, AN ANTI-CD19 CHIMERIC ANTIGEN RECEPTOR (CAR) T CELL THERAPY, IN PATIENTS WITH RELAPSED/REFRACTORY (R/R) MANTLE CELL LYMPHOMA (MCL): RESULTS FROM PHASE 2 OF ZUMA-2** 11:00 - 11:11

**SAFETY AND EFFICACY RESULTS FROM TRANSCEND NHL 001, A MULTICENTER PHASE 1 STUDY OF LISOCABTAGENE MARALEUCEL (LISOCEL) IN RELAPSED/REFRACTORY LARGE B-CELL LYMPHOMA** 11:11 - 11:22

**CD19/CD22 DUAL TARGETED (CHIMERIC ANTIGEN RECEPTOR) CAR-T THERAPY FOR RELAPSED OR REFRACTORY (R/R) B-CELL NON-HODGKIN LYMPHOMA (B-NHL)** 11:22 - 11:33

Houli Zhao, Yongxian Hu, Arnon Nagler, Alex Hongsheng Chang, He Huang (China)

**AN UPDATE OF THE EBMT SURVEY ON CAR T-CELL ACTIVITY IN EUROPE. ON BEHALF OF THE CELLULAR THERAPY & IMMUNOBIOLOGY WORKING PARTY (CTIWP)** 11:33 - 11:44

Alvaro Urbano, Arnon Nagler, Gunilla Enblad, Susana Rives, Michael Hudecek, Claire Roddie, Peter Dreger, Ibrahim Yakoub-Agha, Christof Scheid, Victoria Potter, Franco Locatelli, Reuben Benjamin, Katharina Fleischhauer, Ulrike Koehl, Jürgen Kuball, Florent Malard, Paolo Pedrazzoli, Luca Vago, Lotte Wietten, Rose Ellard, Jorinde Hoogenboom, Chiara Bonini, Annalisa Ruggeri, Christian Chabannon (Spain)

**THIRD-GENERATION CAR T CELLS WITHIN THE HEIDELBERG CAR TRIAL 1 (HD-CAR-1) DISPLAY AN EXCELLENT SAFETY PROFILE AND MIGHT IMPROVE PERSISTENCE OF CAR T CELLS** 11:44 - 11:55

**OUTPATIENT TREATMENT WITH LISOCABTAGENE MARALEUCEL IN 3 CLINICAL STUDIES OF RELAPSED/REFRACTORY LARGE B-CELL NHL, INCLUDING SECOND-LINE TRANSPLANT NONELIGIBLE PATIENTS: TRANSCEND NHL 001, OUTREACH, AND PILOT** 11:55 - 12:06

Carlos Bachier, M. Lia Palomba, Jeremy Abramson, Charalambos Andreadis, Alison Sehgal, John Godwin, Gerhard Hildebrandt, Tanya Siddiqi, Don Stevens, Thalia Farazi, Ana Kostic, Nikolaus Trede, Lei Wang, James Lymp, Tennille Thelen, Ken Ogasawara, David Maloney (United States)

**CORRELATIVE ANALYSES OF PATIENT AND CLINICAL CHARACTERISTICS ASSOCIATED WITH EFFICACY IN TISAGENLEUCEL-TREATED RELAPSED/REFRACTORY DIFFUSE LARGE B-CELL LYMPHOMA PATIENTS IN THE JULIET TRIAL** 12:06 - 12:17

**CAR T CELLS (CART) OR ALLOGENEIC TRANSPLANTATION (ALLOHCT) FOR MULTIPLY RELAPSED DIFFUSE LARGE B CELL LYMPHOMA (DLBCL)? A RETROSPECTIVE INTENT-TO-TREAT (ITT) COMPARISON** 12:17 - 12:28

Peter Dreger, Lorenz Selberg, Sascha Dietrich, Maria-Luisa Schubert, Andrea Bondong, Mandy Wegner, Peter Stadtherr, Christoph Kimmich, Anita Schmitt, Thomas Luft, Ute Hegenbart, Anthony D. Ho, Carsten Mueller-Tidow, Michael Schmitt (Germany)





# “Allo” sind...

## „von Dusch“

**M Lommatzsch**

A Dugimont

...und das Team!

## Station

**T Liebrechts**

C Kimmich

E Apondo

A Becker

J Blocka

P Derigs

I Haberbosch

L Hannemann

B Köhler

A Martin

## JACIE

B Beck

& Team

## Koordination

**P Stadtherr**

I Opitz

## Ambulanz

**U Hegenbart**

S Schönland

A Radujkovic

C Pabst

S Raffel

B Beck

U Stiepani

## CART

**M Schmitt**

A Schmitt

& Team

## ECP

**A Schmitt**

R Alexi

& Team

## Case Manager & CART

**A Bondong**

M Wegner

## Labor

**T Luft**

S Dietrich

M Hess

A Radujkovic

A Hof

S Kräker

M Hundemer

## Psychologie

**D Tönnessen**

## Sucheinheit

**H Tran**

K Nerbel

& Team

## Sozialdienst

A Bergner

G Daiß

S Sontowski

## Studienzentrale

**J Klemmer**

& Team

## I.O. und andere Affairs

M Geiss

N Giesen

## Anleitung

T Luft

P Dreger

## Klinikleitung

K Jordan

**C Müller-Tidow**

...alle Mitarbeiter der MedV !

