



## Prof. Dr. med. Georg Lenz

### Aggressive Lymphome

- Medizinische Klinik A des Universitätsklinikums Münster
- Mitglied und Wissenschaftlicher Beirat im Kompetenznetz Maligne Lymphome e.V.

## Darlegung potentieller Interessenskonflikte

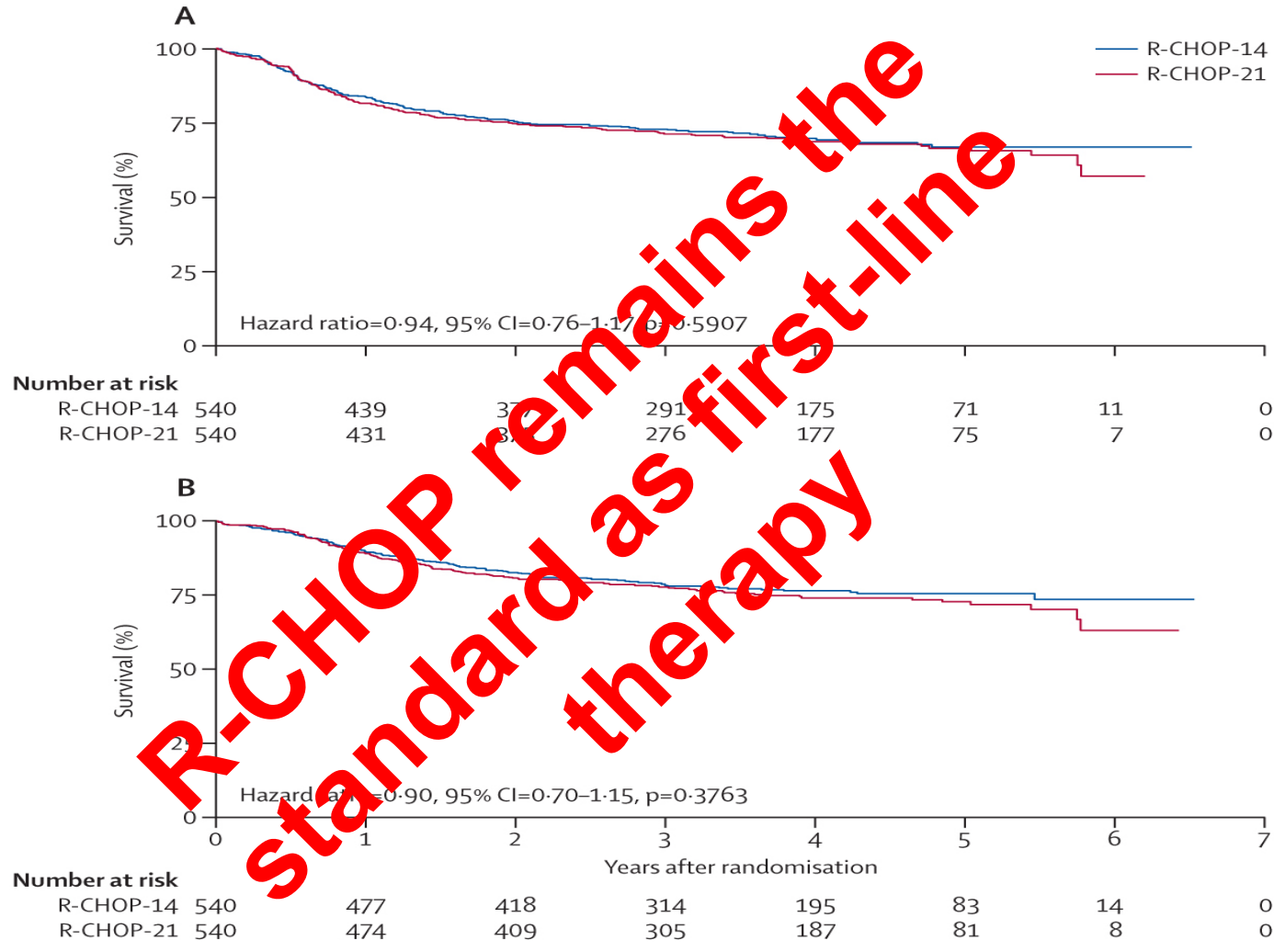
Unternehmen	Interessenskonflikt
Roche	Advisory Board, invited speaker, research support
Gilead	Advisory Board, research support
Janssen	Advisory Board, invited speaker, research support
Bayer	Advisory Board, invited speaker, research support
Celgene	Advisory Board, invited speaker, research support
Novartis	Advisory Board, research support
AstraZeneca	Advisory Board, research support
Takeda	Advisory Board
BMS	Advisory Board
NanoString	Advisory Board
Abbvie	Invited speaker, advisory board
Morphosys	Advisory Board, research support



# Kapitel 1

## Erstlinientherapie

# Aggressive NHL



Cunningham et al., Lancet, 2013

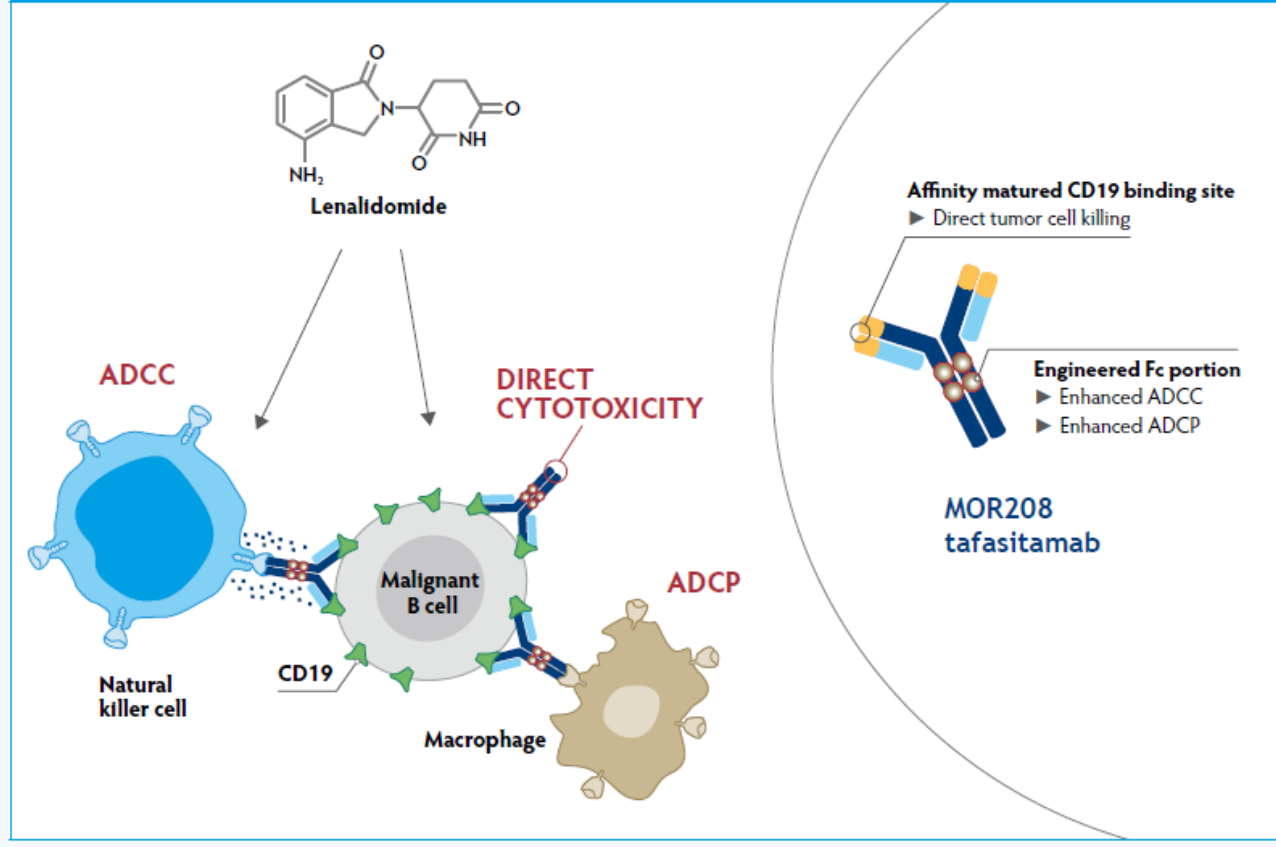


## Kapitel 2

# Neue therapeutische Ansätze bei Patienten mit rezidivierender/refraktärer Erkrankung

# Efficacy of tafasitamab and lenalidomide

Figure 1. MOR208 and LEN modes of action



Maddocks K et al., ASCO 2019



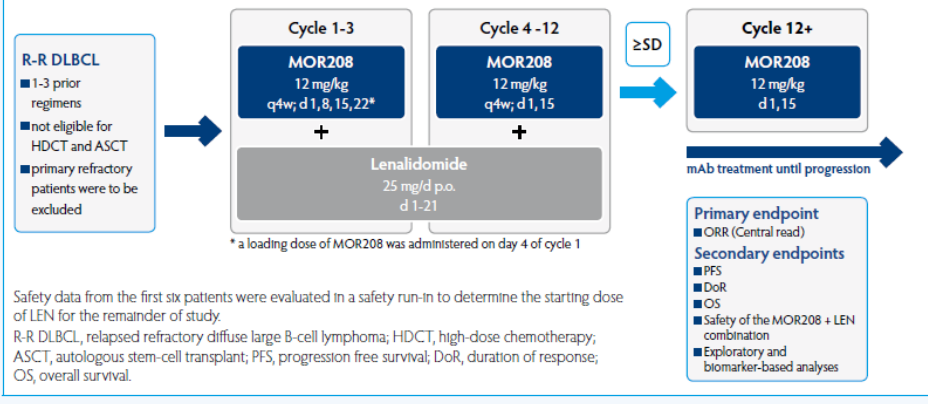
## **LONG-TERM OUTCOMES FROM THE PHASE II L-MIND STUDY OF TAFASITAMAB (MOR208) PLUS LENALIDOMIDE IN PATIENTS WITH RELAPSED OR REFRACTORY DIFFUSE LARGE B-CELL LYMPHOMA**

Author(s): Gilles Salles, Johannes Duell, Eva González-Barca, Wojciech Jurczak, Anna Marina Liberati, Sven de Vos, Zsolt Nagy, Aleš Obr, Gianluca Gaidano, Pau Abrisqueta, Nagesh Kalakonda, Marc André, Martin Dreyling, Tobias Menne, Olivier Tournilhac, Marinela Augustin, Maren Dirnberger-Hertweck, Johannes Weirather, Sumeet Ambarkhane, Kami J. Maddocks

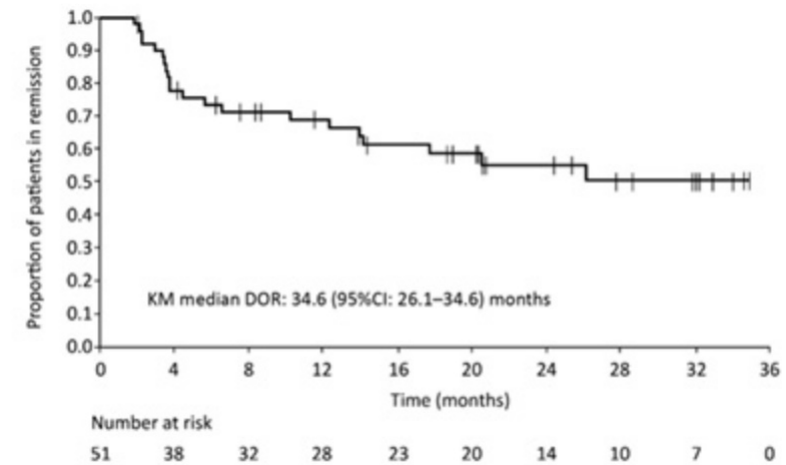
**EHA Library. Salles G. 06/12/20; 293691; EP1201**

# Update L-MIND study

Figure 2. Study design and dosing scheme



Response	
ORR	58,8%
CR	41,3%
PR	17,5%



Salles et al. EHA, #EP1201





## **RE-MIND STUDY: COMPARISON OF TAFASITAMAB + LENALIDOMIDE (L-MIND) VS LENALIDOMIDE MONOTHERAPY (REAL-WORLD DATA) IN TRANSPLANT-INELIGIBLE PATIENTS WITH RELAPSED/REFRACTORY DIFFUSE LARGE B-CELL LYMPHOMA**

Author(s): Pier Luigi Zinzani, Thomas Rodgers, Dario Marino, Maurizio Frezzato, Anna Maria Barbui, Claudia Castellino, Erika Meli , Annarita Conconi, Nicola Cascavilla, Federica Cavallo, Nathan H. Fowler, Bruce Feinberg, Sascha Tillmanns, Stephan Parche, Günter Fingerle-Rowson, Mark Winderlich, Sumeet Ambarkhane , Gilles Salles, Grzegorz Nowakowski

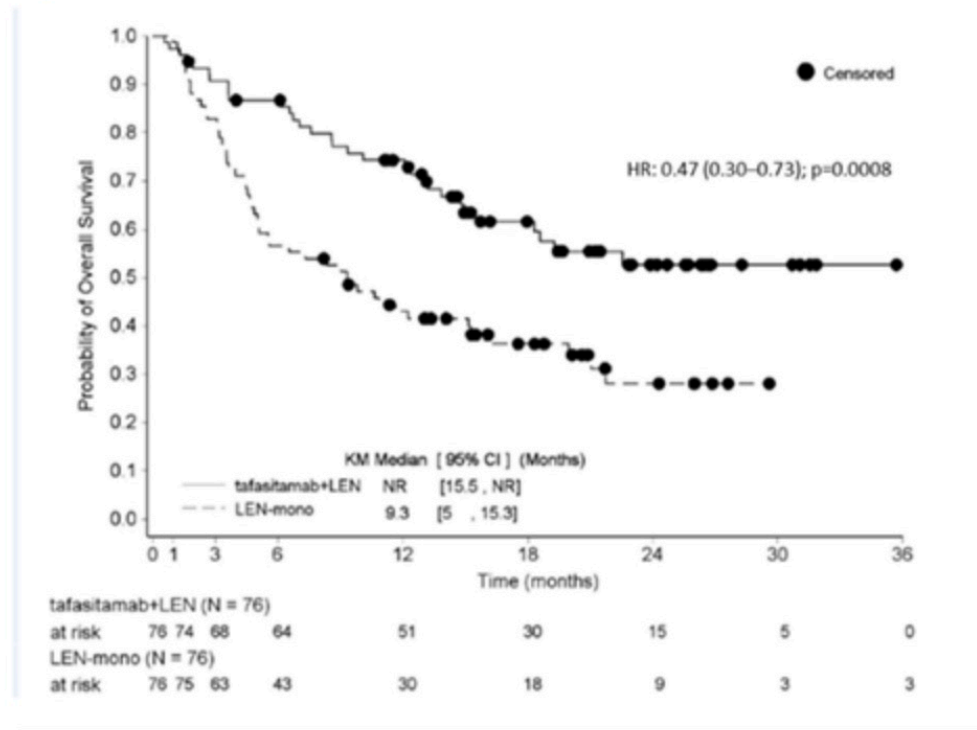
**EHA Library. Zinzani P. 06/12/20; 295058; S238**

# Is L-MIND combination better than lenalidomide? Real-world comparison

## Design

- 490 patients from 58 centers were included
- Patients were treated with initial dose of lenalidomide of 25 mg/day
- Nearest neighbor 1:1 matching methodology; balanced for nine parameters

Figure 1. Overall survival

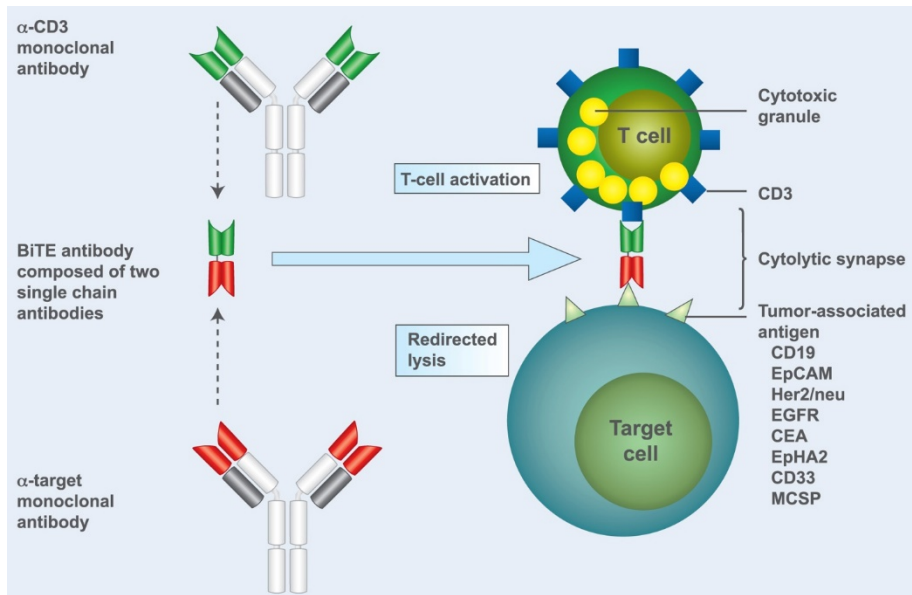


CI, confidence interval; HR, hazard ratio; KM, Kaplan–Meier; LEN, lenalidomide; Mono, monotherapy; NR, not reached.

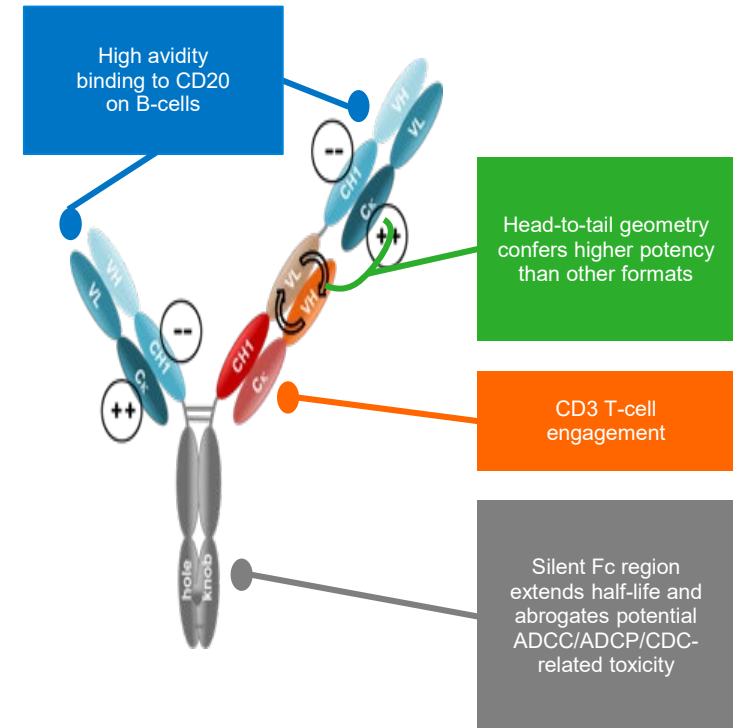
Zinzani et al. EHA, #S238



# Update bispecific antibodies



## CD20-TCB



Baeuerle et al., Cancer Research, 2009



## **CD20-TCB IN RELAPSED OR REFRACTORY NON-HODGKIN LYMPHOMA: DURABLE COMPLETE RESPONSES AND MANAGEABLE SAFETY OBSERVED AT CLINICALLY RELEVANT DOSES IN PHASE I DOSE ESCALATION**

Author(s): Michael J Dickinson, Franck Morschhauser, Gloria Iacoboni, Carmelo Carlo-Stella, Fritz C Offner, Anna Sureda, Gilles Salles, Joaquin Martinez-Lopez, Michael Crump, Linda Lundberg, Mark Dixon, Antonia Kwan, Michael C Wei, Ann-Marie E Bröske, David Carlile, Carol O'Hear, Martin Hutchings

**EHA Library. J Dickinson M. 06/12/20; 293690; S241**

## Efficacy of CD20-TCB – NP30179 phase I study

### Trial design

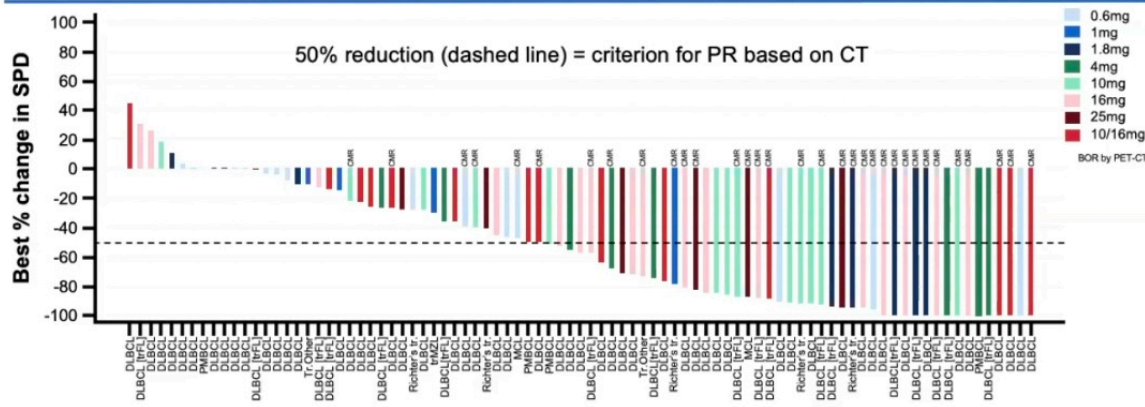
- Patients with relapsed/refractory lymphoma received obinutuzumab on d-7
- Total n = 118 patients; n=102 patients with aggressive lymphoma (n=68 DLBCL; n=19 tFL)
- CD20-TCB doses: 0.6-25 mg

Dickinson et al. EHA, #S241



# Efficacy of CD20-TCB – NP30179 phase I study

## Antitumor activity\* in aggressive non-Hodgkin lymphoma†

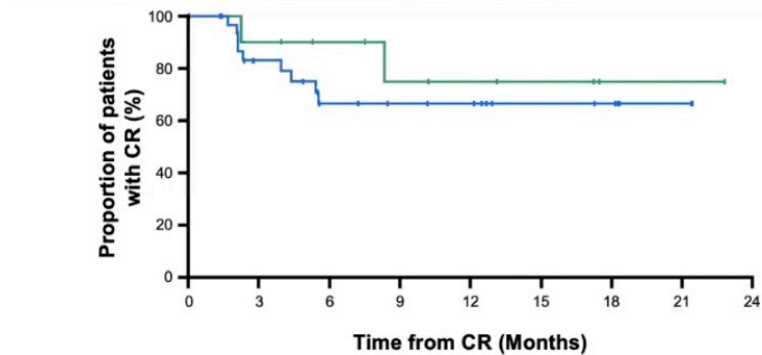


Clinical cut-off date: 17 April 2020. n.b. Patients enrolled in the 10/16mg cohort after September 2019 are not included as the data were captured in a separate database. \* $\geq 0.6$ mg cohorts; assessed by computed tomography (CT) and Lugano criteria.<sup>1</sup> †Aggressive NHL includes DLBCL, transformed FL, PMBCL, MCL, transformed MZL and Richter's transformation. BOR, best overall response; CR, complete response; DLBCL, diffuse large B-cell lymphoma; FL, follicular lymphoma; MCL, mantle cell lymphoma; MZL, marginal zone lymphoma; PMBCL, primary mediastinal large B-cell lymphoma; PR, partial response; Richter's tr, Richter's transformation; SPD, sum of the longest diameters; tr, transformed

1. Cheson BD, et al. J Clin Oncol 2014;32:3059-68

PRESENTED AT: THE 25<sup>TH</sup> EUROPEAN HEMATOLOGY ASSOCIATION (EHA) CONGRESS, VIRTUAL EDITION | 11-14 JUNE 2020

## Durable complete responses\* were seen in patients with indolent and aggressive NHL ( $\geq 0.6$ mg cohorts)



	0	3	6	9	12	15	18	21	24
Aggressive NHL	33	21	14	11	10	6	5	2	
Indolent NHL	11	9	7	5	4	3	1	1	NE

Clinical cut-off date: 17 April 2020. n.b. Patients enrolled in the 10/16mg cohort after September 2019 are not included as the data were captured in a separate database. \*Best response CR; \*\*duration of CR is calculated as the duration between patients' first CR and loss of CR or patient's last assessment visit, whichever is earlier; †aggressive NHL includes diffuse large B-cell lymphoma, transformed FL, primary mediastinal large B-cell lymphoma, MCL, transformed marginal zone lymphoma and Richter's transformation; ‡indolent NHL includes patients with FL Grade 1-3a or unknown Grade. CI, confidence interval; CR, complete response; DOCR, duration of complete response; FL, follicular lymphoma; MCL, mantle cell lymphoma; NE, non-estimable; NHL, non-Hodgkin lymphoma; NR, not reached

PRESENTED AT: THE 25<sup>TH</sup> EUROPEAN HEMATOLOGY ASSOCIATION (EHA) CONGRESS, VIRTUAL EDITION | 11-14 JUNE 2020

**Aggressive NHL†**

- Median follow-up\*\* (months): 10.2 (95% CI: 5.6, 17.3)
- Median DOCR (months): NR (95% CI: 5.5, NE)
  - 24 ongoing CRs:
  - 10 CRs for >12 months
  - 14 CRs for <12 months

**Indolent NHL‡**

- Median follow-up\*\* (months): 10.2 (95% CI: 5.3, NE)
- Median DOCR (months): NR (95% CI: 8.4, NE)
  - 9 ongoing CRs:
  - 4 CRs >12 months
  - 5 CRs <12 months

## Tolerability

- Toxicities: CRS 55.1%, pyrexia 34.7%, neutropenia 34.7%

Dickinson et al. EHA, #S241

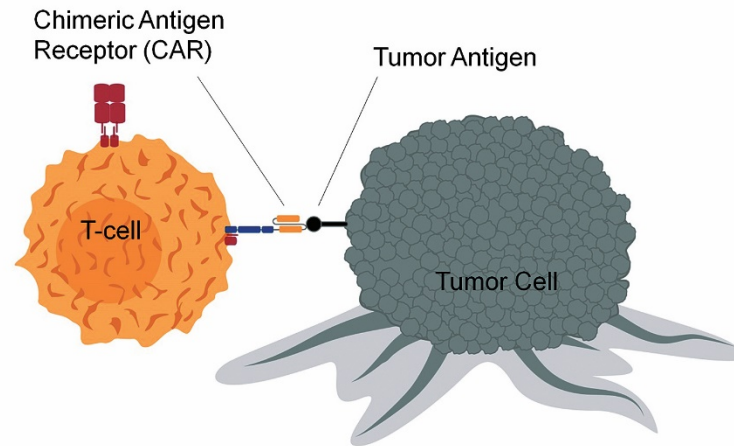
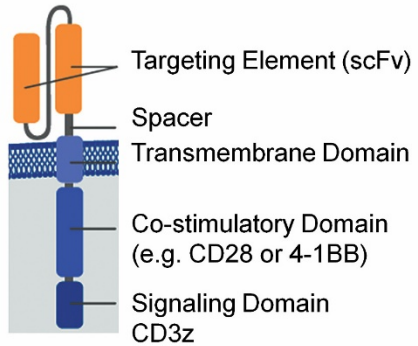


# Kapitel 3

# CAR-T Zell Therapien

# Novel developments using CAR T-cells

## CAR: Modular Design



Novel developments:  
identification of novel  
targets





## **PHASE 1 ALEXANDER STUDY OF AUTO3 THE FIRST BICISTRONIC CHIMERIC ANTIGEN RECEPTOR (CAR) TARGETING CD19 AND CD22 WITH PEMBROLIZUMAB IN PATIENTS WITH RELAPSED/REFRACTORY DIFFUSE LARGE B CELL LYMPHOMA**

Author(s): Aravind Ramakrishnan, Maria Marzolini, Wendy Osborne, Eleni Tholouli, Carlos Bachier, Peter McSweeney, David Irvine, Yiyun Zhang, Muhammad Al-Hajj, Simon Thomas, Martin Pule, Vijay Peddareddigari, Nushmia Khokhar, Maud Jonnaert, Robert Chen, Kirit Ardeszna

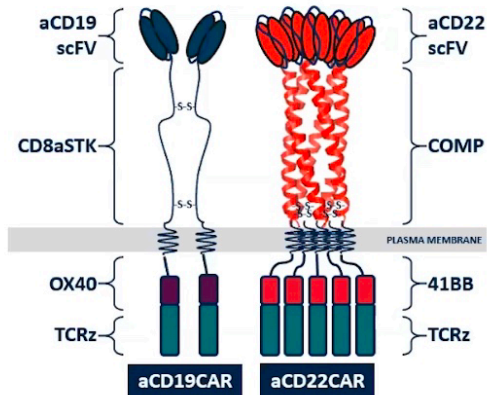
**EHA Library. Osborne W. 06/12/20; 295060; S240**

# Efficacy of phase I Alexander study

## AUTO3: First CD19 and CD22 Targeting Bicistronic CAR

### Gamma Retroviral-Based Vector with RD114 Pseudotype

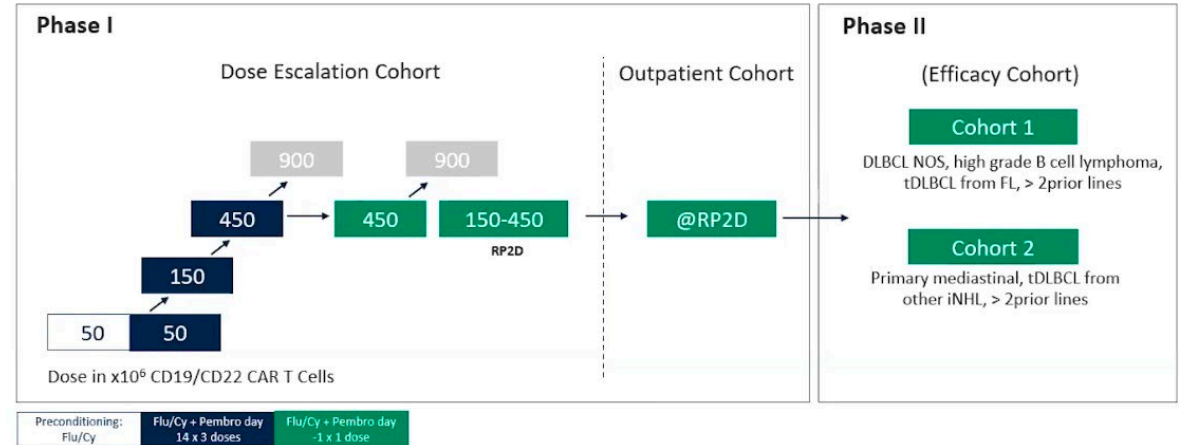
- Dual antigen targeting
- Two independent CARs delivered in single retroviral vector
- Humanized binders
- CD22 CAR with novel pentameric spacer
- OX40/41BB costimulatory domains designed to improve persistence
- Independently target CD19 and CD22



Alexander

## Alexander Study Design

### AUTO3-DB1, Single-Arm, Open-Label, Multi-Center, Phase 1/2 Study



Alexander

Ramakrishnan et al. EHA, #S240

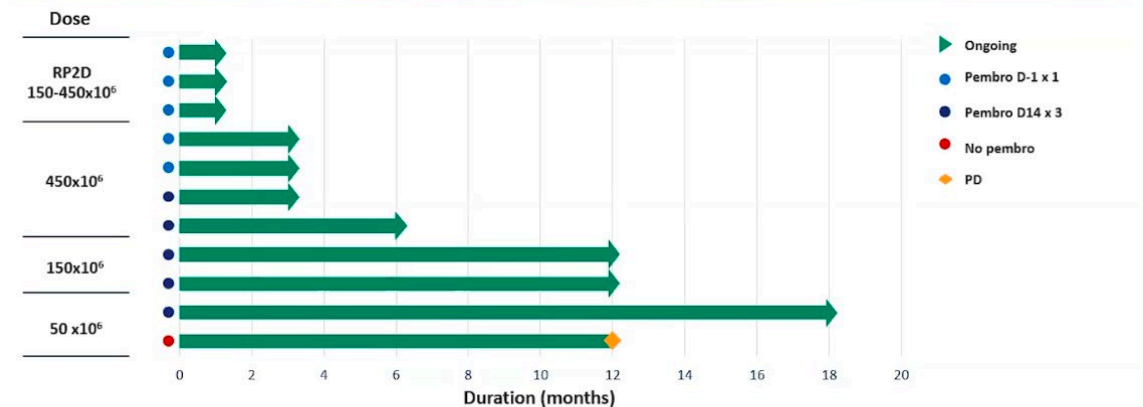
## Efficacy of phase I Alexander study

### Summary

- 28 patients underwent leukapheresis, 27 successfully manufactured, 19 treated
- Median number of prior therapies: 3 (2-10); 89% had refractory disease
- Toxicity: neutropenia (89%), febrile neutropenia (16%), severe neurotoxicity (5%), severe CRS (0%)
- ORR 64%; CR 55%

### Duration of Complete Responses

10 of 11 complete responses ongoing



At  $\geq 150 \times 10^6$  dose all complete responses are ongoing with a median follow up 3 months (range 1-12m)

Alexander

27 April 2020, Data cut 16

Ramakrishnan et al. EHA, #S240

## Aggressive NHL - Zusammenfassung

- R-CHOP bzw. R-CHOP-ähnliche Regime bleiben der Standard in der Erstlinientherapie bei Patienten mit DLBCL
- Vielversprechende Ergebnisse durch neue Antikörper bzw. Antikörperkombinationen bei Patienten mit rezidivierter/refraktärer Erkrankung
- Vielsprechende Ergebnisse durch neue CAR T-Zell Produkte zur Behandlung von Patienten mit rezidiviertem/refraktärem DLBCL



Die Kurzpräsentationen sind online unter  
**[www.lymphome.de/eha2020](http://www.lymphome.de/eha2020)**

Für den Inhalt verantwortlich:

Prof. Dr. med. Georg Lenz

Medizinische Klinik A • Universitätsklinikum Münster

Das Informationsprojekt wird von folgenden Firmen unterstützt.  
Diese hatten keinen Einfluss auf die Inhalte.

abbvie

AstraZeneca 

 Bristol Myers Squibb™  
Celgene | A Bristol Myers Squibb Company



A Sandoz Brand

janssen   
PHARMACEUTICAL COMPANIES  
OF Johnson & Johnson

