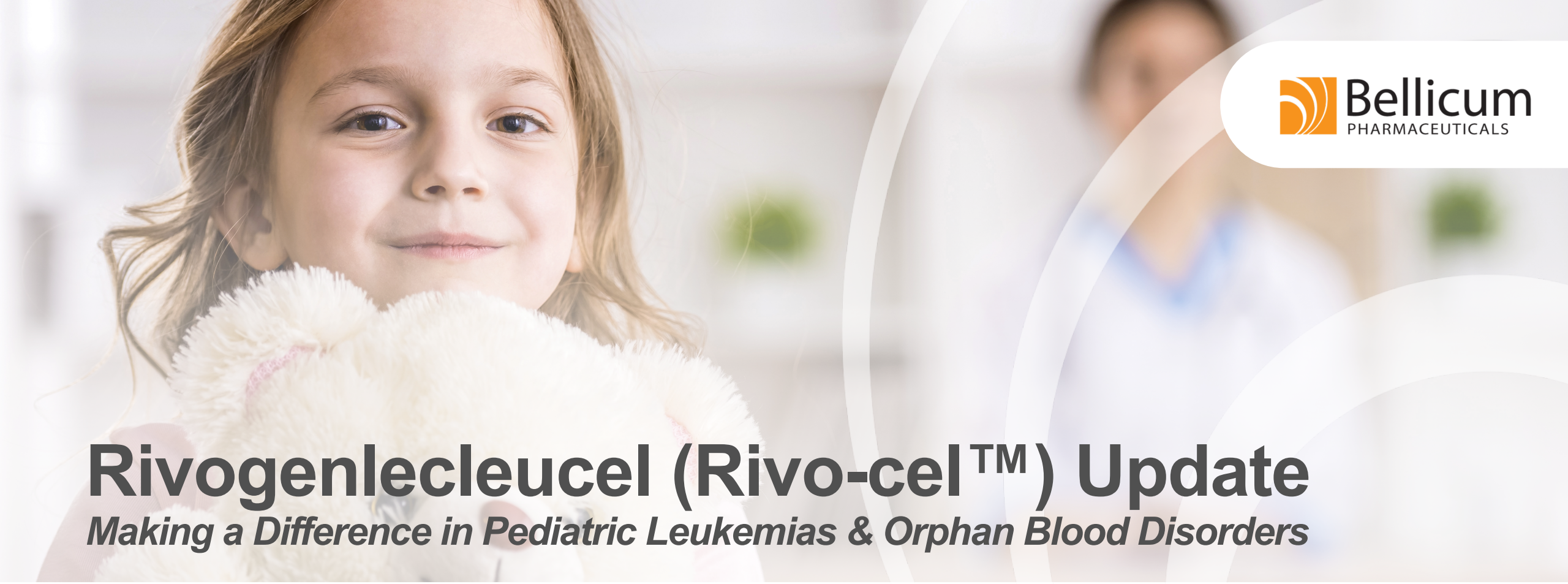


Rivogenlecleucel (Rivo-cel™) Update

Making a Difference in Pediatric Leukemias & Orphan Blood Disorders

December 3, 2018

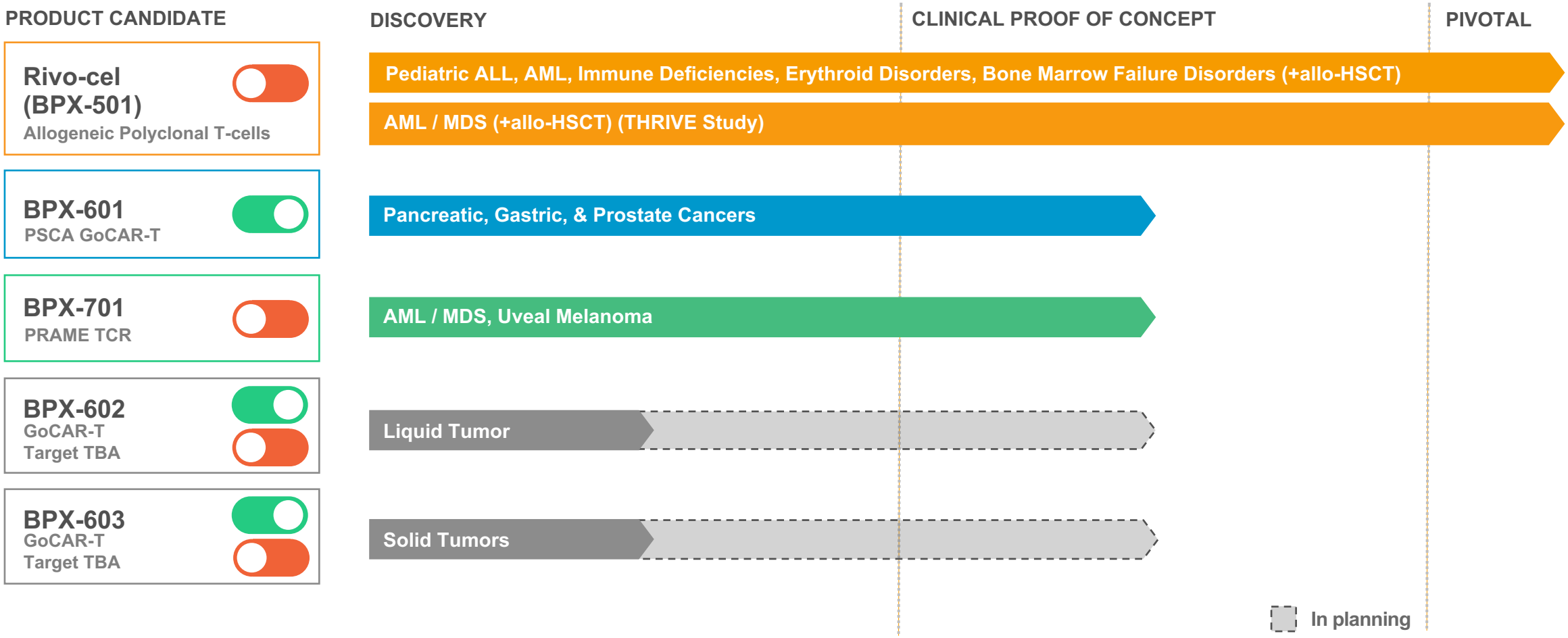
Forward Looking Statement

This presentation contains estimates, projections and other forward-looking statements, concerning, among other things: our research and development activities relating to our CaspaCIDe ("iC9"), GoCAR-T (incorporating "iMC") and related technologies; our product candidates including rivo-cel (previously BPX-501), BPX-601, BPX-602, BPX-603, BPX-701, and rimiducid; the effectiveness of our CaspaCIDe and GoCAR-T programs and their possible range of application and potential curative effects and safety in the treatment of diseases, including as compared to other treatment options and competitive therapies; the success of our collaborations with academic and commercial partners; the timing, progress of enrollment and success of our clinical trials; and the timing of potential European marketing authorization applications for rivo-cel and rimiducid. Our estimates, projections and other forward-looking statements are based on our management's current assumptions and expectations of future events and trends, which affect or may affect our business, strategy, operations or financial performance. Although we believe that these estimates, projections and other forward-looking statements are based upon reasonable assumptions, they are subject to numerous known and unknown risks and uncertainties and are made in light of information currently available to us. Many important factors, in addition to the factors described in this presentation, may adversely and materially affect our results as indicated in forward-looking statements. All statements other than statements of historical fact are forward-looking statements.

Estimates, projections and other forward-looking statements speak only as of the date they were made, and, except to the extent required by law, we undertake no obligation to update any forward-looking statement. These statements are also subject to a number of material risks and uncertainties that are described more fully in Bellicum's filings with the Securities and Exchange Commission, including without limitation our annual report on Form 10-K for the year ended December 31, 2017 and our quarterly report on Form 10-Q for the period ended September 30, 2018.

Rivo-cel Leads a Highly Differentiated Portfolio

Potential for a major advance in leukemias and clinical proof of concept of Bellicum technology



Bellicum Data Presentations in December, 2018

60th American Society of Hematology Annual Meeting

December 1-4, 2018
San Diego, California

Interim analyses of rivo-cel in pediatric leukemias and orphan blood disorders

- Transplant EFS vs comparator MUD study
- RFS and OS in ALL and AML
- Outcomes in β thalassemia major and Fanconi anemia
- GvHD response in patients treated with rimiducid to activate CaspaCIDe safety switch

ESMO GOOD SCIENCE BETTER MEDICINE BEST PRACTICE

ESMO IMMUNO-ONCOLOGY CONGRESS

Preliminary outcomes of advanced metastatic pancreatic cancer patients treated with BPX-601 GoCAR-T

- Safety outcomes from dose escalation
- Preliminary impact of iMC activation on CAR-T activation, expansion, and persistence

Today's Agenda

1	Rivo-cel Program Overview	Paul Woodard, M.D. *VP Clinical Development* *Bellicum Pharmaceuticals*
2	Rivo-cel Outcomes *A Clinician's Perspective*	Alice Bertaina, M.D., Ph.D. *Associate Professor of Pediatrics – Stem Cell Transplantation* *Lucile Packard Children's Hospital – Stanford University*
3	Rivo-cel in Pediatrics *The Opportunity in Europe*	Thierry Darcis, M.D., M.B.A. *General Manager, Europe* *Bellicum Pharmaceuticals*

Paul Woodard, M.D.

Biography

1999-2007	2007-2008	2008-2010	2010-2013	2013-2017	2017-Present
Attending & Vice Chair Division of BMT	Medical Director Medical Affairs	Senior Director Clinical Dev'l	Global Dev Leader Medical Director	Global Dev Leader Tecentriq Hematology	Vice President Head of Clinical Dev'l
St. Jude Children's Research Hospital Finding cures. Saving children.	PDL BioPharma	EXELIXIS	AMGEN	Genentech A Member of the Roche Group	Bellicum PHARMACEUTICALS

Rivo-cel Program Overview

Paul Woodard, M.D.

Vice President, Clinical Development

ASH 2018

Rivo-cel Product Overview

Allogeneic polyclonal T cells incorporating the CaspaCIDe safety switch

Unmet need in leukemias, lymphomas, and inherited blood disorders

- These disorders are potentially cured by allogeneic hematopoietic stem cell transplantation (allo-HSCT)
- Allo-HSCT patients without HLA-matched related donor are at higher risk of morbidity & mortality. Leading causes:
    - Malignant relapse
    - Viral infections
    - Graft versus Host Disease (GvHD)

Potential benefits of rivo-cel

- Graft versus leukemia (GvL) to prevent malignant relapse and extend survival
- Reduce transplant-related mortality (TRM) due to infection
- Ability to treat GvHD via CaspaCIDe

Rivo-cel Pediatric Clinical Development Program

	BP-004[1] BP-U-004[2]	BP-I-008
Study Phase and Objectives	Phase I/II safety and efficacy study of rivo-cel and rimiducid	Phase I safety, PK and efficacy study of rivo-cel in children with recurrent or MRD hematologic malignancies post-allogeneic transplant
Study Design	Multi-center, open label, ascending doses of rivo-cel; rimiducid	Multi-center, open-label, escalating dose levels of rivo-cel, two dose levels of rimiducid
Eligible Population	Pediatric patients with malignant hematological disorders in complete morphological remission or non-malignant hematological disorders eligible for an allogeneic HSCT transplantation	Pediatric patients with recurrent or minimal residual disease (MRD) hematological malignancies post allogeneic transplant
Study Status	Active, not recruiting[1] Recruiting[2]	Recruiting

BP-004 Study: Schema and Enrolled Populations

Phase 1/2 study of rivo-cel gene modified donor T cells following TCR αβ depleted allo-HSCT

High risk malignancies and non-malignant disorders → αβ T-cell and B-cell depleted haplo-HSCT without GvHD Prophylaxis → **rivo-cel** → Rimiducid for patients who develop visceral GvHD or are refractory to SOC treatment

Enrolled Populations

Enrolled Populations	
Malignant	**Non-Malignant**
Diagnosis	**Diagnosis**
Acute lymphocytic leukemia (ALL)	Primary Immune Deficiencies
Acute myeloid leukemia (AML)	β Thalassemia Major
Other	Other Erythroid Disorders
	Bone Marrow Failure Disorders

Outcomes

Rivo-cel:

- Event-free survival at 180 days (regulatory endpoint)
  - TRM/NRM, severe GvHD, life-threatening infections
- Progression-free survival
- Disease status

Rimiducid:

- GvHD response

Bellicum PHARMACEUTICALS

TRM, transplant-related mortality; NRM, non-relapse mortality; GvHD, graft versus host disease; SOC, standard of care; HSCT, hematopoietic stem cell transplantation. ClinicalTrials.gov Identifiers: NCT01744223, NCT02065869.

Unmet Clinical Need in the Treatment Landscape for AML and MDS

Unmet need in AML

- Most common acute leukemia in adults, ~ 20,000 cases per year in the United States[1]
- Overall outcome remains poor due to several factors:
  - increased frequency in older population; less able to tolerate intensive treatments
  - poor response to chemotherapy
  - high relapse rates
  - limited therapy options for relapsed patients
- Allogeneic HSCT for patients with intermediate or unfavorable prognosis AML, especially < 60 years of age[2]
- SoC HSCT approach includes posttransplantation cyclophosphamide
  - incidence of 45% aGvHD and 13% cGvHD
  - median OS of 58%[3]

Unmet need in MDS

- No standard treatment approach for symptomatic patients[4,5]
- Allogeneic HSCT is the only treatment option with the potential for cure for patients with intermediate-2-, high-, or very high-risk MDS[4,5]
- Allogeneic HSCT is limited by advanced age of patient; improved technique and supportive care extends eligibility

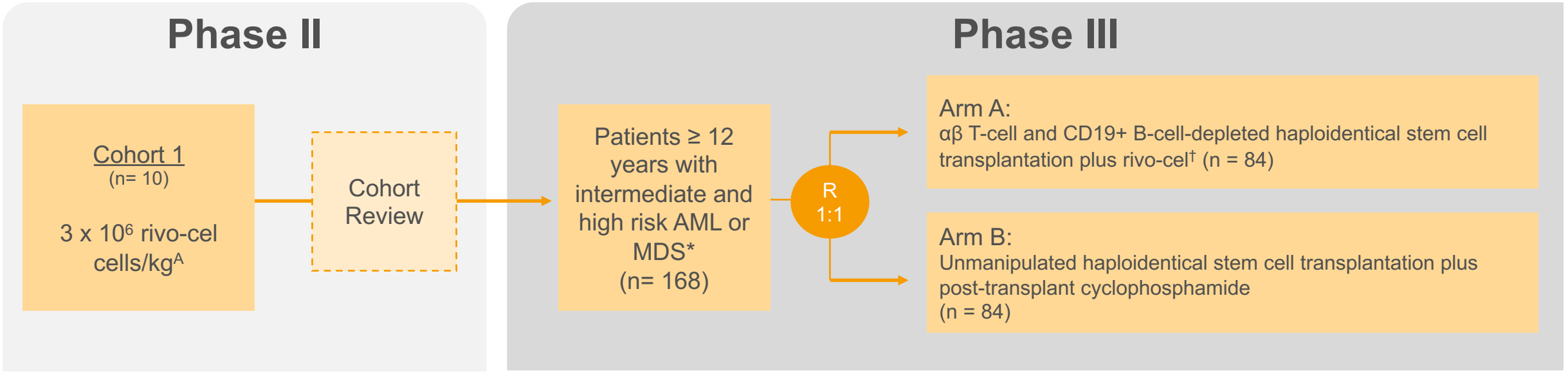
Anticipated rivo-cel benefits

- Graft versus leukemia (GvL) to prevent malignant relapse and extend survival
- Anticipated low rates of aGvHD and cGvHD, similar to observations from BP-004 study
- Ability to treat GvHD via CaspaCIDe

aGvHD, acute graft versus host disease; cGvHD, chronic graft versus host disease; OS, overall survival

1. Siegel RL, et al. *CA Cancer J Clin*. 2018;68(1):7-30. 2. NCCN AML v.2.2018 3. Kanakry et al. Blood 2014; 124: 3817-3827. 4. NCCN MDS v2.2019. 5. Malcovati et al. *Blood.* 2013; 122: 2943.

THRIVE: Study Design



Primary Outcome: Overall Survival

Secondary Outcomes:

- Graft-versus host disease and relapse-free survival (GRFS) at time from randomization until Grade 3-4 acute GvHD, chronic GvHD requiring systemic immunosuppression, disease relapse or death, whichever comes first
- Relapse free survival (RFS)
- Non-relapse mortality (NRM)
- Time to resolution of GvHD after administration of rimiducid

[A] If dose level 1 exceeds the MTD, alternative dose levels (dose level -1: 1 x 10^6 BPX-501 cells/kg) will be explored
[†] No GvHD prophylaxis will be given. Rimiducid will be administered to inactivate rivogenlecleucel (rivo-cel) in the event of GVHD not responsive to standard of care treatment

Updated 8 Nov 2018. Clinicaltrials.gov identifier: NCT03699475

Key Rivo-cel Events in 2019

Pediatric Data

Final readout of BP-004 and C/CP-004 MUD comparator trials in 1H2019

EU Filing

EMA filing for approval of rivo-cel and rimiducid in pediatric patients in 2H2019

THRIVE

Enroll Phase 2 run-in and initiate Phase 3 randomized portion in 2H2019


Bellicum
PHARMACEUTICALS

Alice Bertaina, M.D., Ph.D.
Stanford University Palo Alto, CA

Professional Education:

- Medical Degree from University of Pavia in Italy
- Fellowship in Hematopoietic Stem Cell Transplantation (HSCT) at the Bambino Gesù Children's Hospital in Rome
- PhD Degree in Immunology and Biotechnology at Tor Vergata University in Rome

Professional Appointments:

- *Previous*: Head of the Stem Cell Transplant Unit in the Department of Hematology and Oncology at the Bambino Gesù Children's Hospital in Rome (2013-2017)
  - This institution has the largest number of children transplanted with hematopoietic progenitors/stem cells in Europe
  - Lead site for recruitment for the BP-004 study
- *Current*: Associate Professor of Pediatrics in the Division of Stem Cell Transplantation and Regenerative Medicine at Stanford University (2017-present)

Rivo-cel Key Highlights Presented at the 60th Annual American Society of Hematology Meeting

Alice Bertaina, MD, PhD
Associate Professor
Lucile Salter Packard Children's Hospital
Department of Pediatrics, Division of Stem Cell Transplantation and Regenerative Medicine
Stanford University

Rivo-cel Data Highlights

Administration of Rivo-cel Following αβ T and B-cell-Depleted HLA-Haploidentical HSCT in Children with Malignant or Non-malignant Disorders

- 1st presentation on interim comparisons between rivo-cel (BP-004) and matched unrelated donor study endpoints

Administration of Rivo-cel Following αβ T and B-cell-Depleted HLA Haploidentical HSCT in Children with Acute Leukemias

- Longer follow-up on clinical outcomes of combined leukemia cohorts (AML and ALL; BP-004)

Administration of Rimiducid Following Haploidentical Rivo-cel in Children with Malignant or Non-Malignant Disorders Who Develop Graft-versus-Host-Disease (GvHD)

- 1st comprehensive presentation on clinical response and outcomes for patients who develop visceral GvHD or are refractory to SOC treatment

HLA, human leukocyte antigen; HSCT, Hematopoietic Stem Cell Transplantation; ALL, Acute Lymphocytic Leukemia; AML, Acute Myeloid Leukemia; SOC, standard of care

Allogeneic HSCT Landscape

Haploidentical donor-derived HSCT expands the accessibility of transplant for the patient, but comes with an increase in risk: susceptibility to graft versus host disease (GvHD)

ALLOGENEIC HCST DECISION TREE

HLA-Matched Related Donor (MRD)
(~25-30% of allo-HSCT)

- Preferred donor source
- Only ~1/3 patients have an HLA-identical sibling

Alternative

HLA-Matched Unrelated Donor (MUD)
(~50%)

- High rates of transplant-related mortality (TRM) and GvHD
- Time, cost, and uncertainty in locating donor

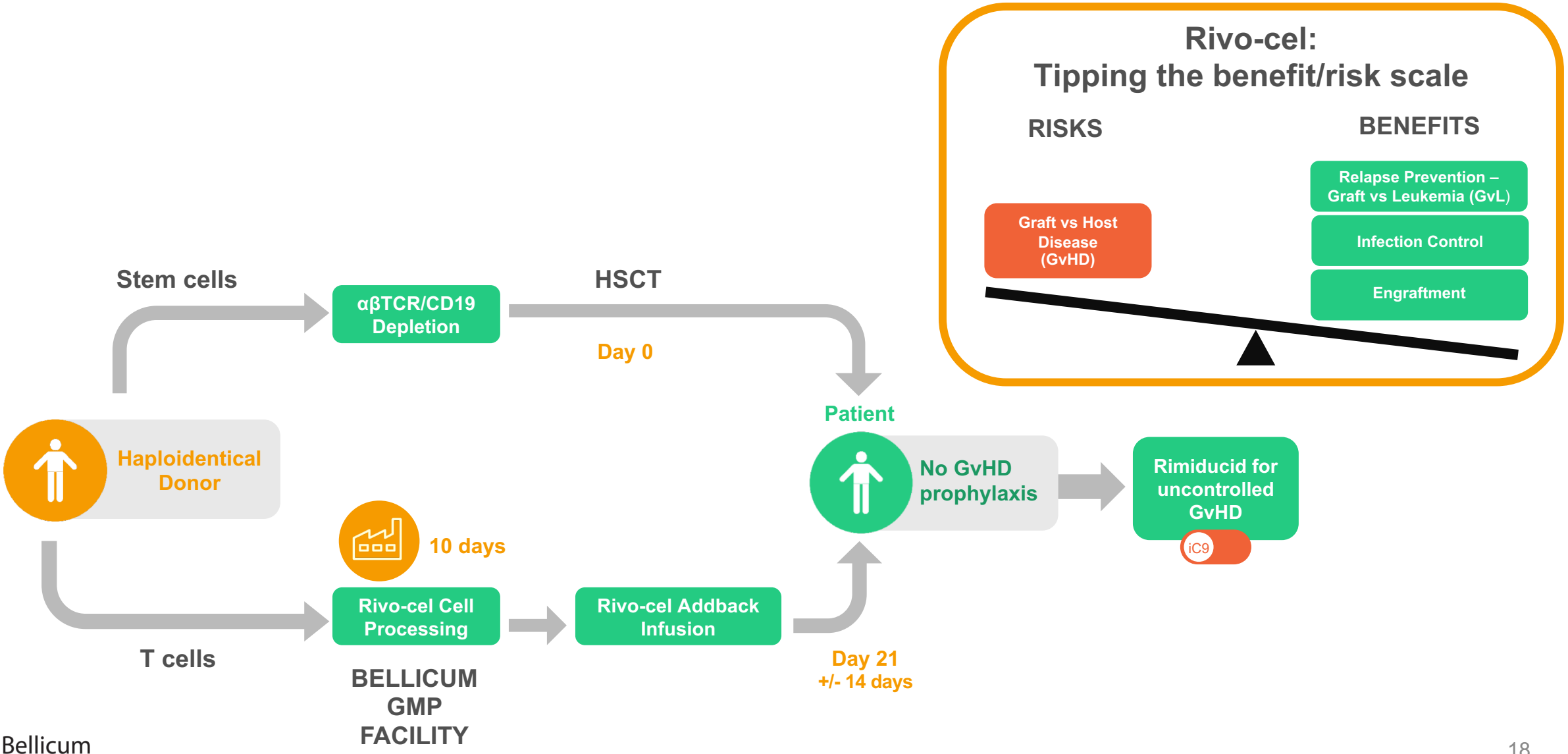
Alternative

Other Donor Options:
Haploidentical
HLA-Mismatched
Umbilical Cord Blood
(~20-25%)

- High rates of morbidity and mortality
- Often not utilized due to concern about risk/benefit

Toxicity

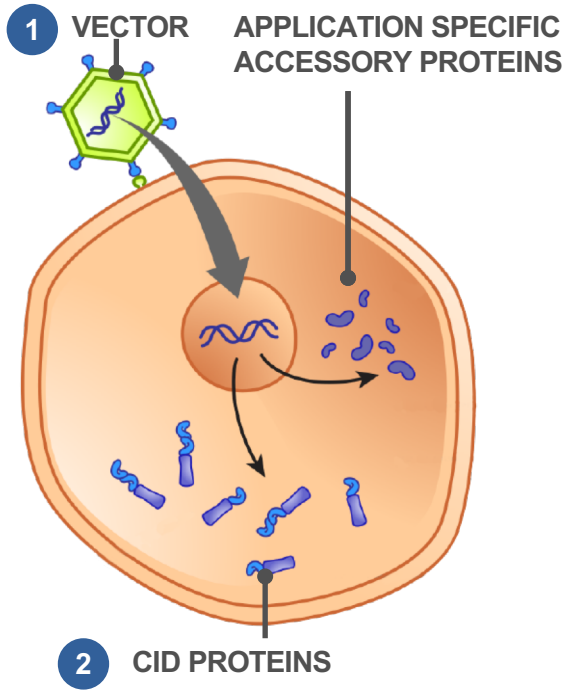
Rivo-cel Addresses the "T-cell Dilemma" in Haplo-HSCT

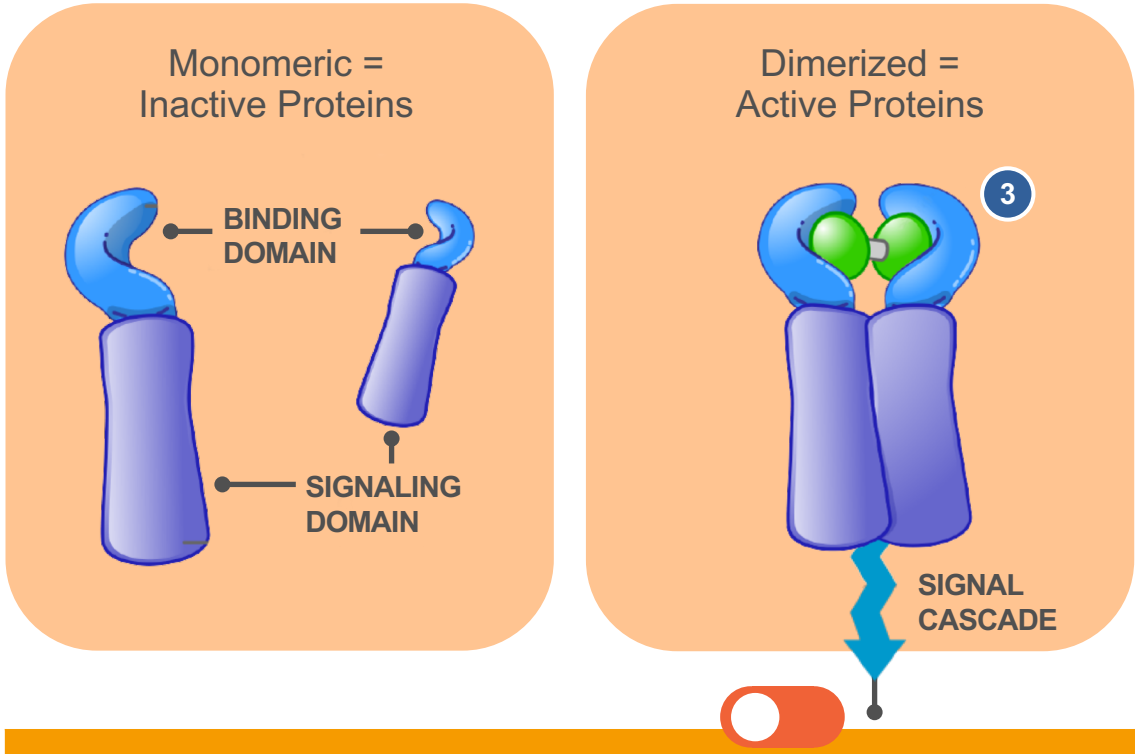


Chemical Induction of Dimerization ("CID") Molecular Switch Platform

Rimiducid infusion activates signaling pathways to control T-cell function

1. Viral transduction transfers the DNA from a **vector** into the target cell nucleus.
2. Vector-derived DNA directs expression of **CID** and **accessory proteins.**
3. **Rimiducid** dimerizes the CID proteins, thus turning on the signal cascade





Signal	Caspase-9 ("iC9")
Result	Apoptosis (cell death)

BP-004 Study: Schema and Enrolled Populations

Phase 1/2 study of rivo-cel gene modified donor T cells following TCR αβ depleted allo-HSCT

High risk malignancies and non-malignant disorders → αβ T-cell and B-cell depleted haplo-HSCT without GvHD Prophylaxis → **rivo-cel** → Rimiducid for patients who develop visceral GvHD or are refractory to SOC

Enrolled Populations

Enrolled Populations	
Malignant	**Non-Malignant**
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Other	Other Erythroid Disorders
	Bone Marrow Failure Disorders

Outcomes

Rivo-cel:

- Event-free survival at 180 days
  - TRM/NRM, severe GvHD, life-threatening infections
- Progression-free survival
- Disease status

Rimiducid:

- GvHD response

Administration of Rivogenlecleucel (rivo-cel; BPX-501) Cells Following αβ-T and B-cell-Depleted HLA-Haploidentical HSCT (haplo-HSCT) in Children With Malignant or Non-Malignant Disorders

Mattia Algeri,[1] Pietro Merli,[1] Waseem Qasim,[2] Mary Slatter,[3] Melissa Aldinger,[3] Franco Locatelli[1]

[1]Sapienza, University of Rome, and IRCCS Ospedale Pediatrico Bambino Gesù, Rome, Italy;
[2]Great Ormond Street Hospital, London, UK; [3]Greater North Children's Hospital, Newcastle, UK;
[4]Bellicum Pharmaceuticals Inc., Houston, TX, USA

Abstract # 2717
Date: Saturday, December 1, 2018
Session Name: 732. Clinical Allogeneic Transplantation
Presentation Time: 6:15 PM - 8:15 PM

Patient and Transplant Characteristics

Characteristic	Patients (N = 184*)
Median age at HSCT (range), years	6.01 (0.21-18.13)
Male / female, n (%)	100 (54.9) / 83 (45.1)
Disease diagnosis, n (%)	
Non-malignant	98 (53.3)
Thalassemia major	26 (14.1)
SCID	20 (10.9)
Other	52 (28.2)
Malignant	86 (46.7)
ALL	44 (23.9)
AML	32 (17.4)
Other	10 (5.4)
Donor type, n (%)	
Parent	175 (95.1)
Sibling	9 (4.9)
Median time to rivo-cel infusion (range), days	17 (10 - 66)

- 184 patients met the safety evaluable population
- Disease diagnosis:
  - ~50/50 malignant, non-malignant populations
- Median follow-up was 20.3 months (range 0.5 months–47.4 months)

Clinical cut off: October 22, 2018; HSCT, Hematopoietic Stem Cell Transplantation; ALL, acute lymphoblastic leukemia; AML, acute myeloid leukemia; SCID, severe combined immunodeficiency; TBI, total body irradiation; TCR, T-cell receptor; *safety evaluable population; 166 patients in the efficacy evaluable population

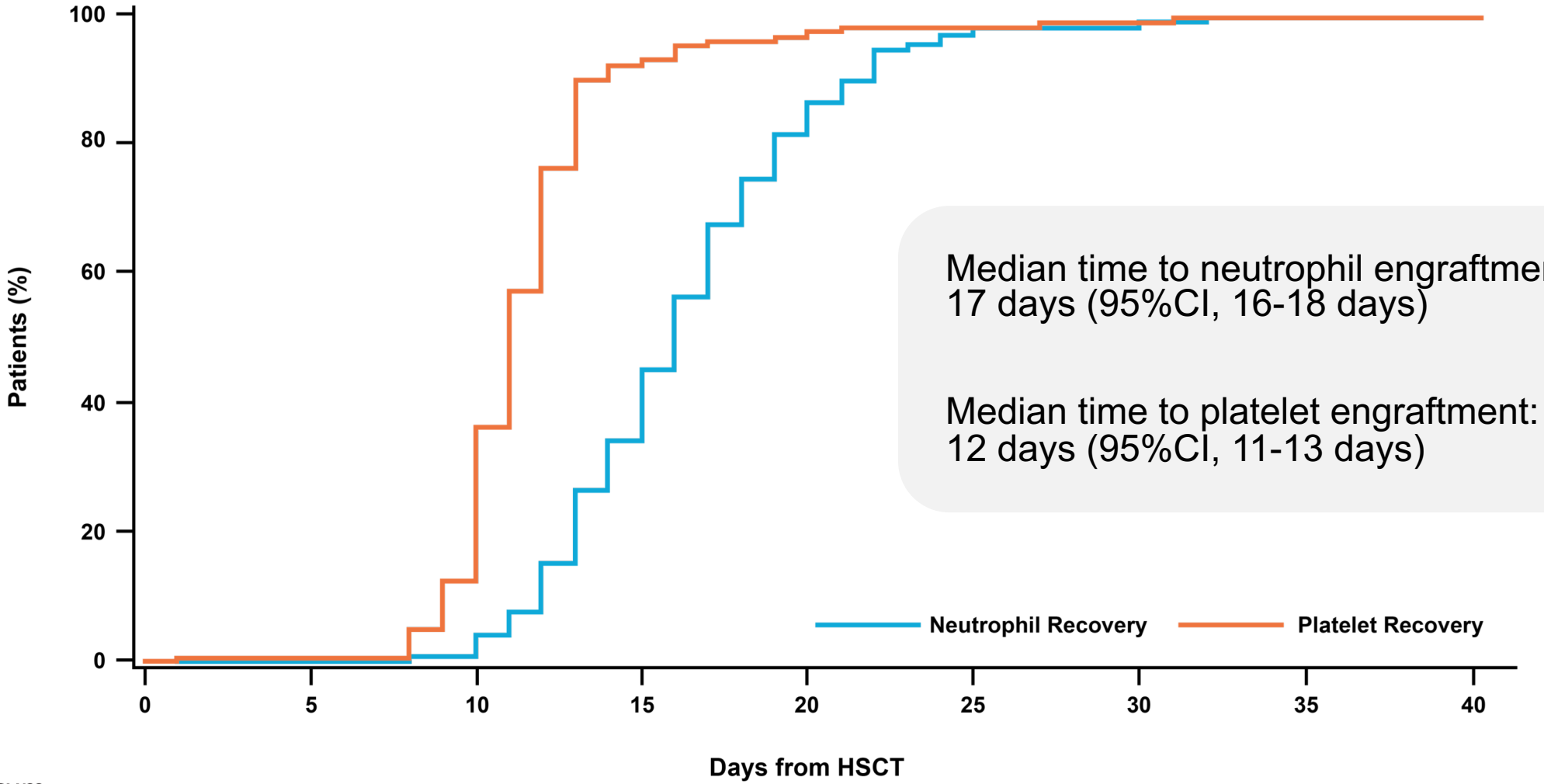
Tolerability of Rivo-cel in Pediatric Patients

	Safety Evaluable Population, N=184 n (%)
Treatment emergent adverse events (TEAEs):	
≥ 1 TEAE, any grade	143 (77.7%)
Grade 3-4 TEAEs	31 (16.8%)
Rivo-cel related TEAEs:	
≥ 1 non-GvHD TEAE	3 (2.0%)
Grade 3-4 TEAEs[A]	2 (1.1%)

[A] hypokalemia, diarrhea

GvHD, graft versus host disease; SEP, safety evaluable population: any pediatric patient with acute high-risk leukemia who had HSCT

Neutrophil and Platelet Recovery was Fast and Robust



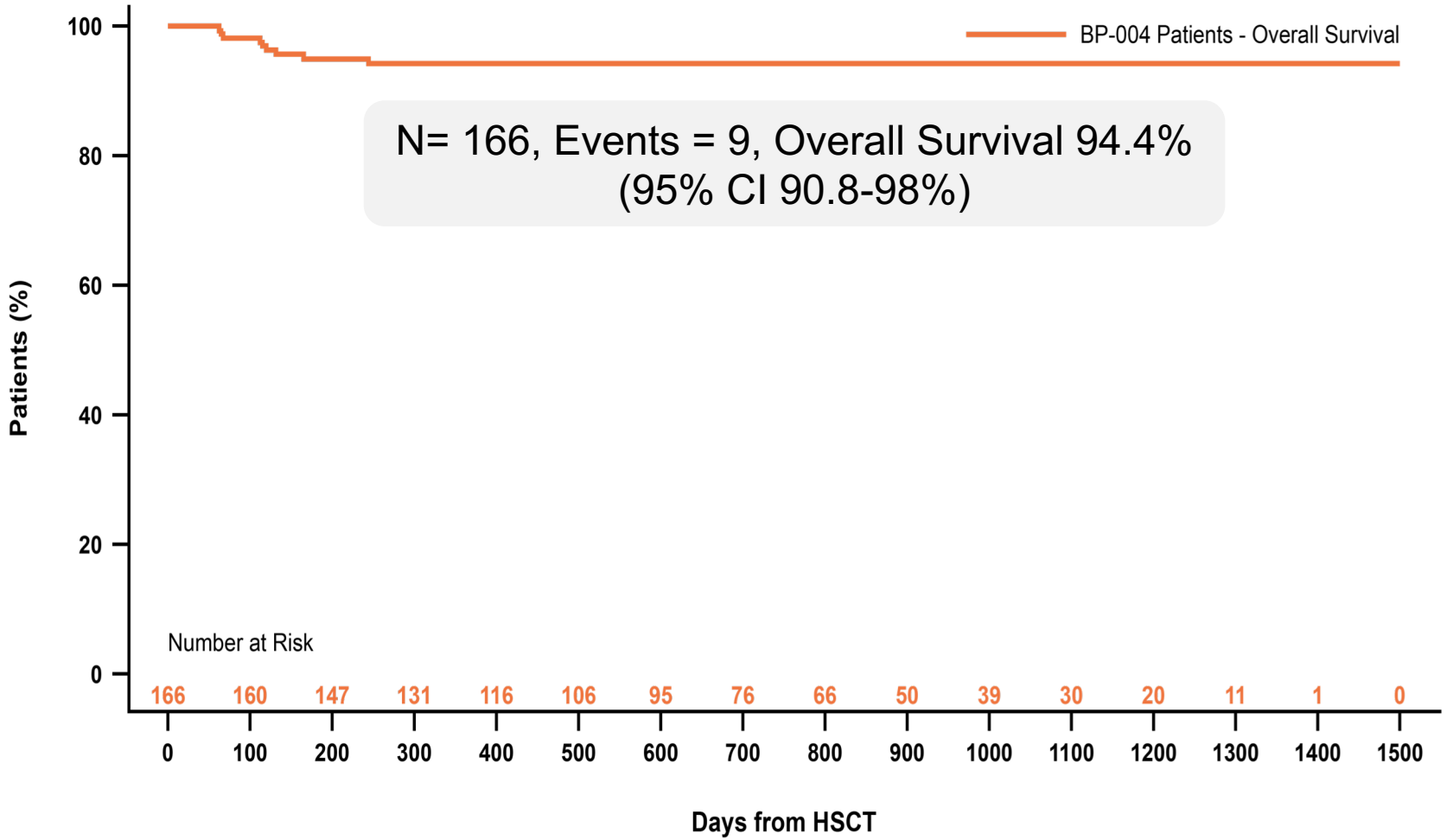
Median time to neutrophil engraftment:
17 days (95%CI, 16-18 days)

Median time to platelet engraftment:
12 days (95%CI, 11-13 days)

Overall, Relapse-Free and Disease-Free Survival

The median follow-up was 20.3 months (range, 0.5 – 47.4 months)

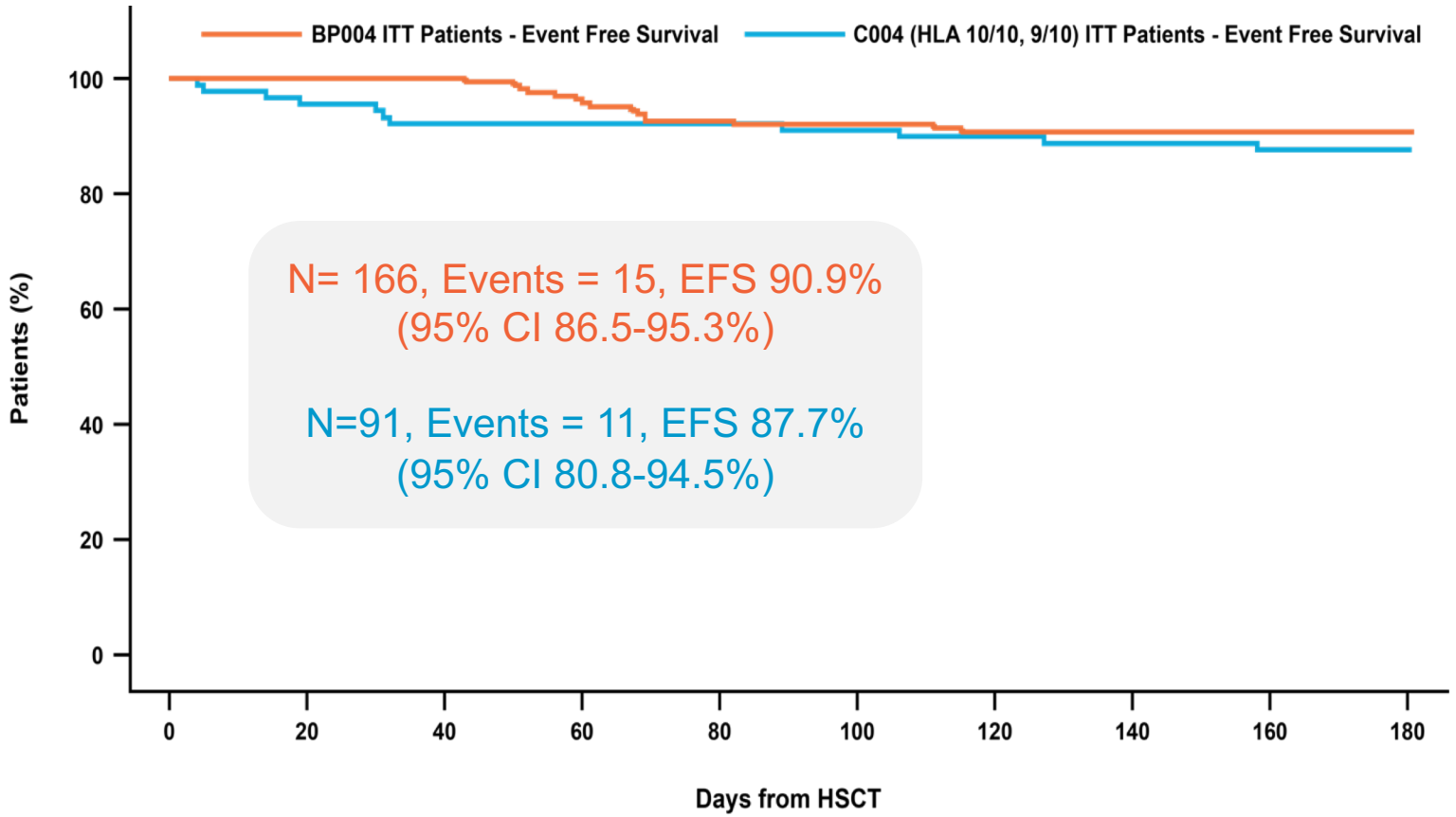
- Relapse-free survival rate in patients with malignant disease was 82.9% (95% CI, 74.8%-91.1%)
- Disease-free survival rate in patients with non-malignant disease was 95.2% (95% CI, 90.7%-99.8%)



Comparable Event-Free Survival for Rivo-cel-Treated Patients and Patients Who Underwent a MUD HSCT

- Observational trial of pediatric patients with malignant (67%) or non-malignant (33%) disease who underwent a MUD (HLA 9/10 and 10/10) HSCT
- EFS for patients who received rivo-cel was similar for patients with malignant and non-malignant disease
- A full data analysis with statistical comparisons patients who received rivo-cel or a MUD HSCT is planned for 2019

Event Free Survival at 180 days



EFS, event free survival; MUD, matched unrelated donor; HSCT, Hematopoietic Stem Cell Transplantation

Administration of Rivogenlecleucel (rivo-cel, BPX-501) Cells Following αβ-T and B-cell-Depleted HLA Haploidentical HSCT (haplo-HSCT) in Children With Acute Leukemias

Franco Locatelli,[1] Annalisa Ruggeri,[1] Pietro Merli,[1] Swati Naik,[2] Rajni Agarwal-Hashmi,[3] Victor Aquino,[4] David Jacobsohn,[5] Waseem Qasim,[6] Eneida Nemecek,[7] Lakshmanan Krishnamurti,[8] Deepa Manwani,[9] Melissa Aldinger,[10] Neena Kapoor[11]

[1]Ospedale Bambino Gesù, Rome, Italy; [2]Texas Children's Hospital, Houston, TX, USA; [3]Lucile Salter Packard Children's Hospital, Palo Alto, CA, USA;[4]University of Texas Southwestern Medical Center, Dallas, TX, USA;[5]Children's National Medical Center, Washington, DC, USA;[6]Great Ormond Street Hospital, London, UK;[7]Oregon Health & Science University, Portland, OR, USA;[8]Pittsburgh Children's Hospital, Pittsburgh, PA;[9]Montefiore Medical Center, Bronx, NY, USA;[10]Bellicum Pharmaceuticals, Inc., Houston, TX, USA;[11]Children's Hospital Los Angeles, Los Angeles, CA, USA

Abstract # 307
Presentation Time: 2:45 PM
Date: Sunday, December 2, 2018
Session Name: : 732. Clinical Allogeneic Transplantation

Key Baseline and Transplant Characteristics

Characteristic	Acute Leukemia Subset (N=100*)	
	AML (n = 46)	ALL (n = 54)
Male / female, n (%)	27 (58.7) / 19 (41.3)	29 (53.7) / 25 (46.3)
Median age at HSCT (range), year	7.94 (0.70-18.41)	9.07 (1.11-17.94)
Patients in first CR, n (%)	17 (37)	9 (16.7)
Patients in second or subsequent CR, n (%)	29 (63)	45 (83.3)
Donor, n (%)		
Parent	38 (82.6)	50 (92.6)
Sibling / half-sibling	6 (13.0) / 2 (4.3)	4 (7.4) / 0
Median time to rivo-cel infusion (range), days	20 (12 -147)	23 (11 - 99)
Median follow-up (range), months	17.17 (1.22-42.66)	15.69 (0.99-41.74)

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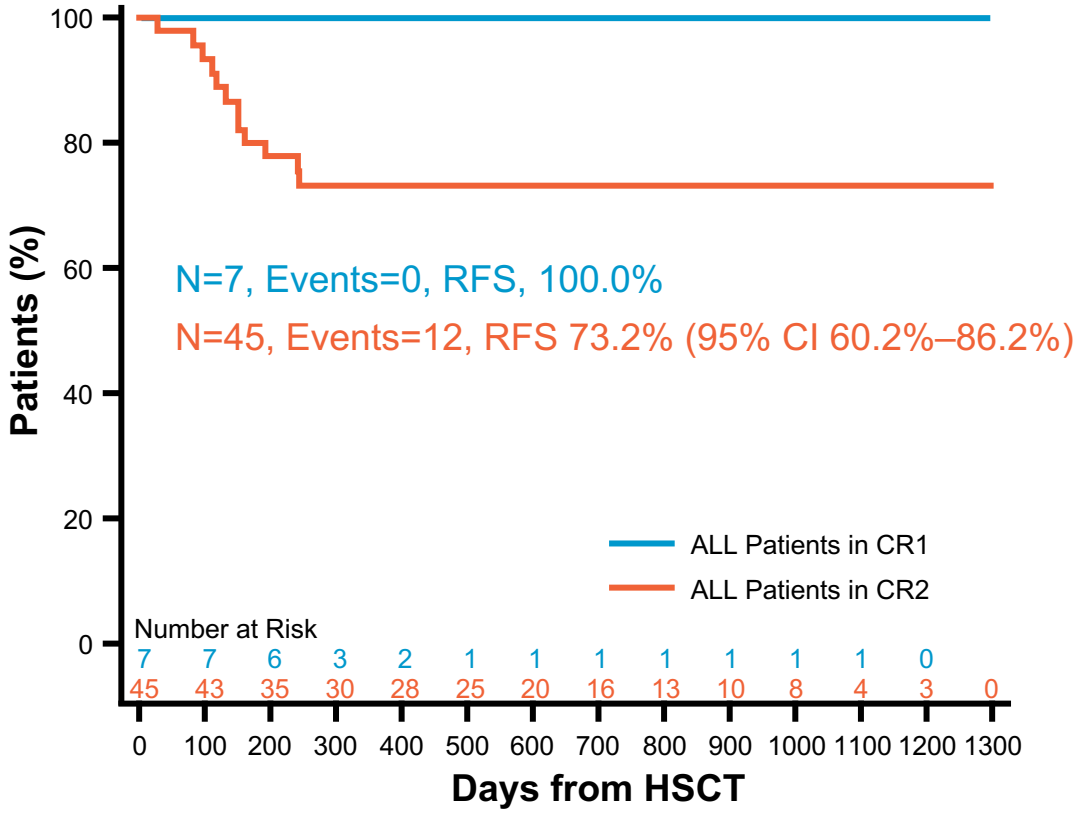
HCST, Hematopoietic Stem Cell Transplantation; CR = complete response
Data cutoff date: September 17, 2018. *safety evaluable population; 95 patients in the efficacy evaluable population

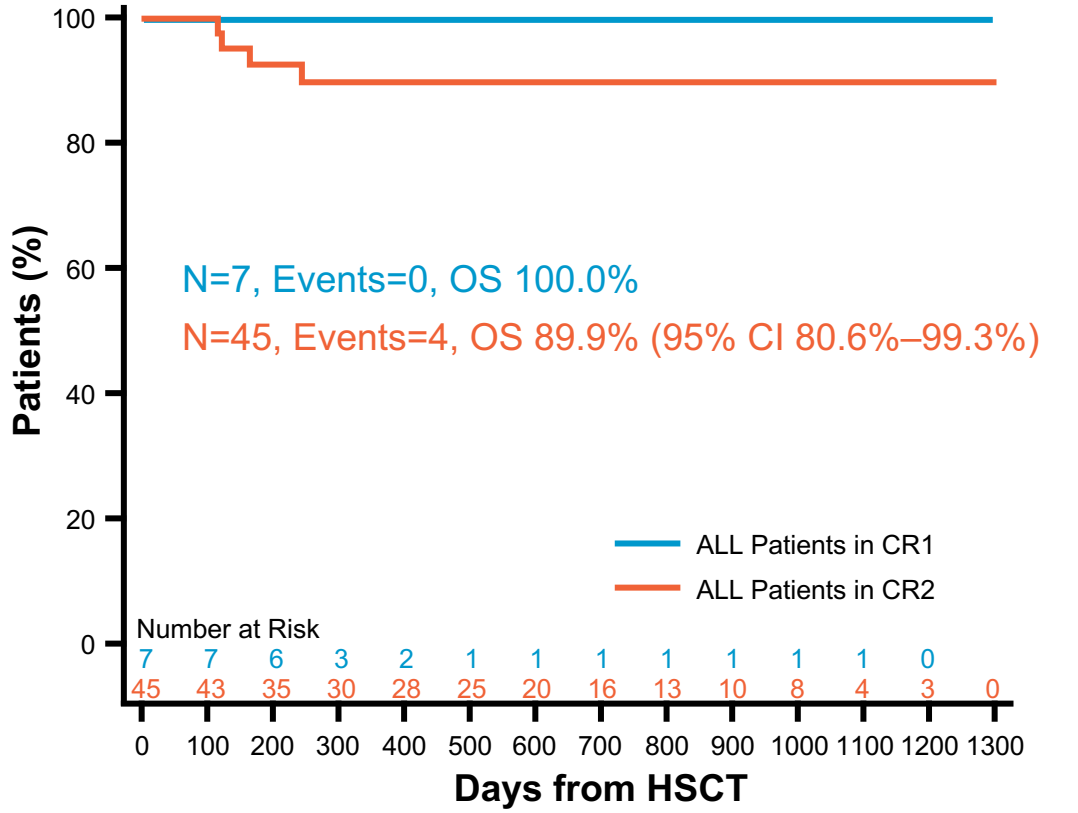
ALL Efficacy Outcomes*

Relapse-free survival and overall survival by CR Status

Relapse-Free Survival by CR Status



Overall Survival by CR Status

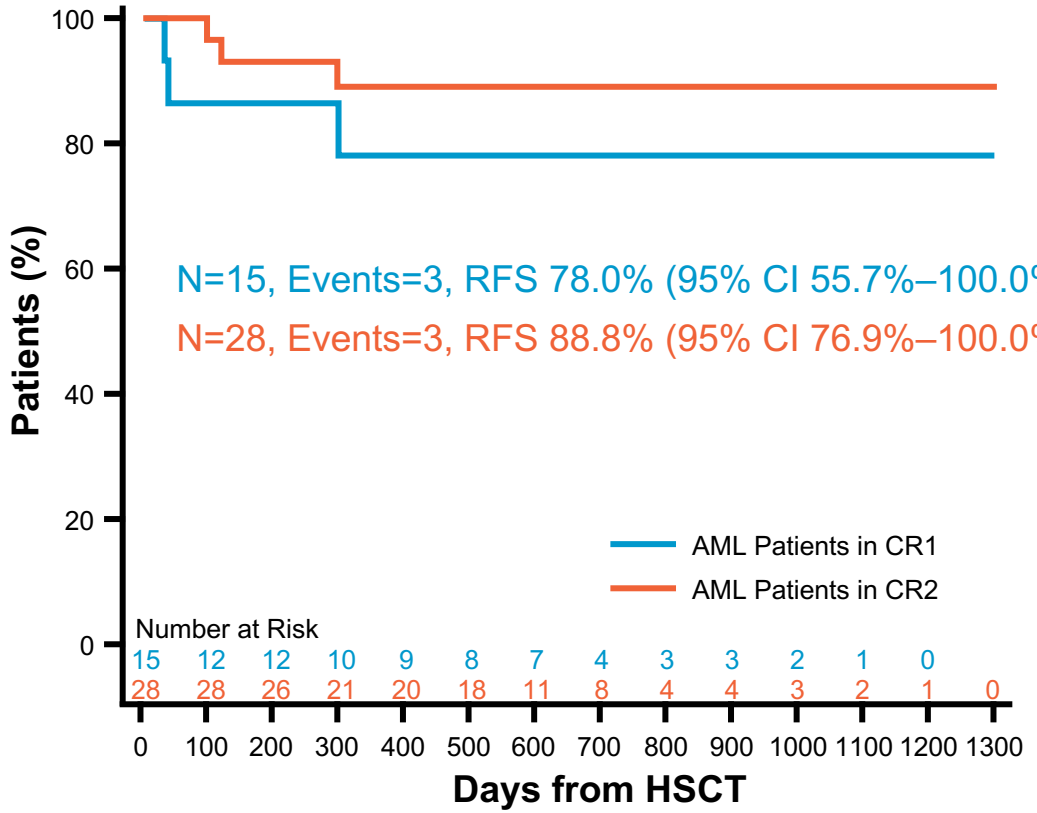


RFS, Relapse-free survival; OS, Overall survival
*Efficacy evaluable population
Data cutoff date: September 17, 2018

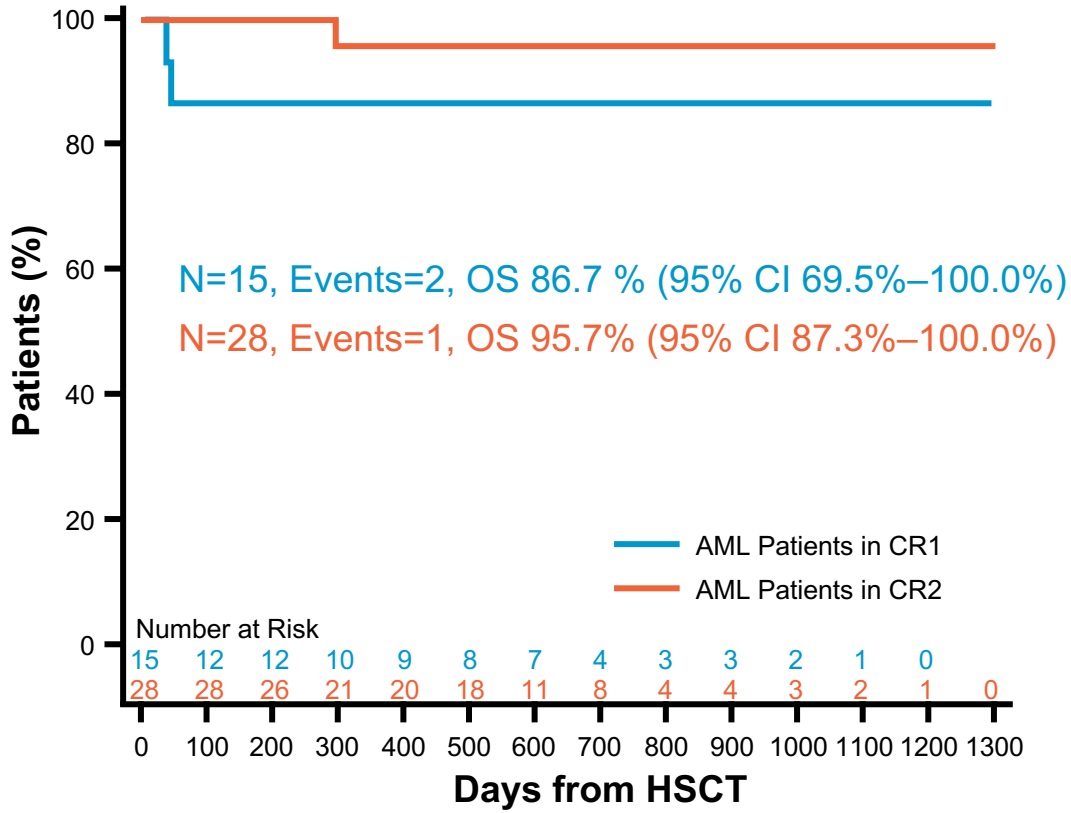
AML Efficacy Outcomes*

Relapse-free survival and overall survival by CR Status

Relapse-Free Survival by CR Status



Overall Survival by CR Status



RFS, Relapse-free survival; OS, Overall survival
*Efficacy evaluable population
Data cutoff date: September 17, 2018

Administration of Rimiducid following Haploidentical Rivo-cel T Cells in Children with Malignant or Non-Malignant Disorders who Develop Graft-versus-Host-Disease (GvHD)

Reem Elfeky,[1] David Jacobsohn,[2] Rajni Agarwal-Hashmi,[3] Swati Naik,[4] Neena Kapoor,[5] Lakshmanan Krishnamurti,[6] Mary Slatter,[1] Federica Galaverna,[7] Pietro Merli,[7] Melissa Aldinger,[8] Franco Locatelli[7]

[1]Great North Children's Hospital, Newcastle, United Kingdom; [2]Children's National Medical Center, Washington, DC, USA; [3]Stanford University School of Medicine, Palo Alto, CA; [4]Texas Children's Hospital, Houston, TX, USA; [5]Children's Hospital Los Angeles, Los Angeles, CA, USA; [6]Children's Hospital of Atlanta, Atlanta, GA, USA; [7]Sapienza, University of Rome, and IRCCS Ospedale Pediatrico Bambino Gesù, Rome, Italy; [8]Bellicum Pharmaceuticals, Inc, Houston, TX, USA

Abstract # 2207
Date: Saturday, December 1, 2018
Session Name: 801. Gene Therapy and Transfer: Poster I
Presentation Time: 6:15 PM - 8:15 PM

Clinical Response to Rimiducid (I)

Key Methods:

Patients who developed visceral GvHD or are refractory to SOC treatment were eligible to receive ≥1 dose (up to 3 at 48 hour intervals) of rimiducid (0.4 mg/kg)

Evaluable Population:

- As of September 17th, 2018, 238 patients were evaluable for GvHD
- 35.7% (85/238) experienced GvHD
  - 54 acute GvHD, all grades, before 100 days
  - 21 additional cases of late-onset GvHD (after 100 days)
  - 10 mild to severe chronic GvHD
- Approximately 28% (24/85) of patients who developed GvHD were treated with rimiducid

Clinical Response to Rimiducid (II)

Best Overall Response (within 7 and 30 days):

The median duration of GvHD treatment prior to first rimiducid administration was 68 days (range 14 – 309 days)

The best overall clinical response (CR/PR) within 7 days post rimiducid was an overall clinical response rate of 70% (16 responders)

- A complete response (CR) or partial response (PR) to rimiducid was observed in 9 and 7 patients, respectively
- Median time to initial response (within 7 days post rimiducid administration) was 1 day (1- 4 days)

4 patients who achieved a partial or non-evaluable response within the first 7 days following rimiducid administration went on to achieve a complete response within 30 days following rimiducid administration

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GvHD: acute graft versus host disease

Clinical Response to Rimiducid (III)

Key Translational & Correlative Data:

A reduction in rivo-cel T cells was observed in all patients following rimiducid administration (n=10 with translational data at time of interim)

Rimiducid effectively eliminates the most highly activated rivo-cel T cells which express the highest level of iC9[1]

- 79% (11/14) of malignant patients treated with rimiducid are relapse free

42.9% of patients (n=9) received a second dose of rimiducid

- 2 patients in partial response at time of second dose of rimiducid went on to achieve a complete response

GvHD: acute graft versus host disease

1. Zhou et al. ASH 2018, a3496

Conclusions

1. Comparable risk of transplant-related mortality and disease free survival was observed with children receiving only αβ-T and B-cell depleted haplo-HSCT or matched unrelated donor HSCT[1]
2. The data showed durable anti-leukemic effects in high-risk pediatric AL patients treated with rivo-cel
3. The administration of rimiducid allowed for effective management of patients who developed visceral GvHD or were refractory to standard of care treatments
4. As these studies are still ongoing, all results, conclusions, and implications will be updated based on final study results

1. Health Resources and Service Administration. US Patient Survival Report. https://bloodcell.transplant.hrsa.gov/research/transplant_data/us_tx_data/survival_data/survival.aspx


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Thierry Darcis, M.D., M.B.A.

Biography

1988-1993	1993-2005	2005-2007	2007-2014	2014-2015	2015-2017	2018
Medical Doctor Practicing Physician	Assistant to CEO Clinical Development New Product Dvpt	Head Global Marketing	SVP/GM Europe	VP & GM EMEA	EVP Europe	GM, Europe

European Commercial Opportunity

Thierry Darcis, M.D., M.B.A.

General Manager, Europe

ASH 2018

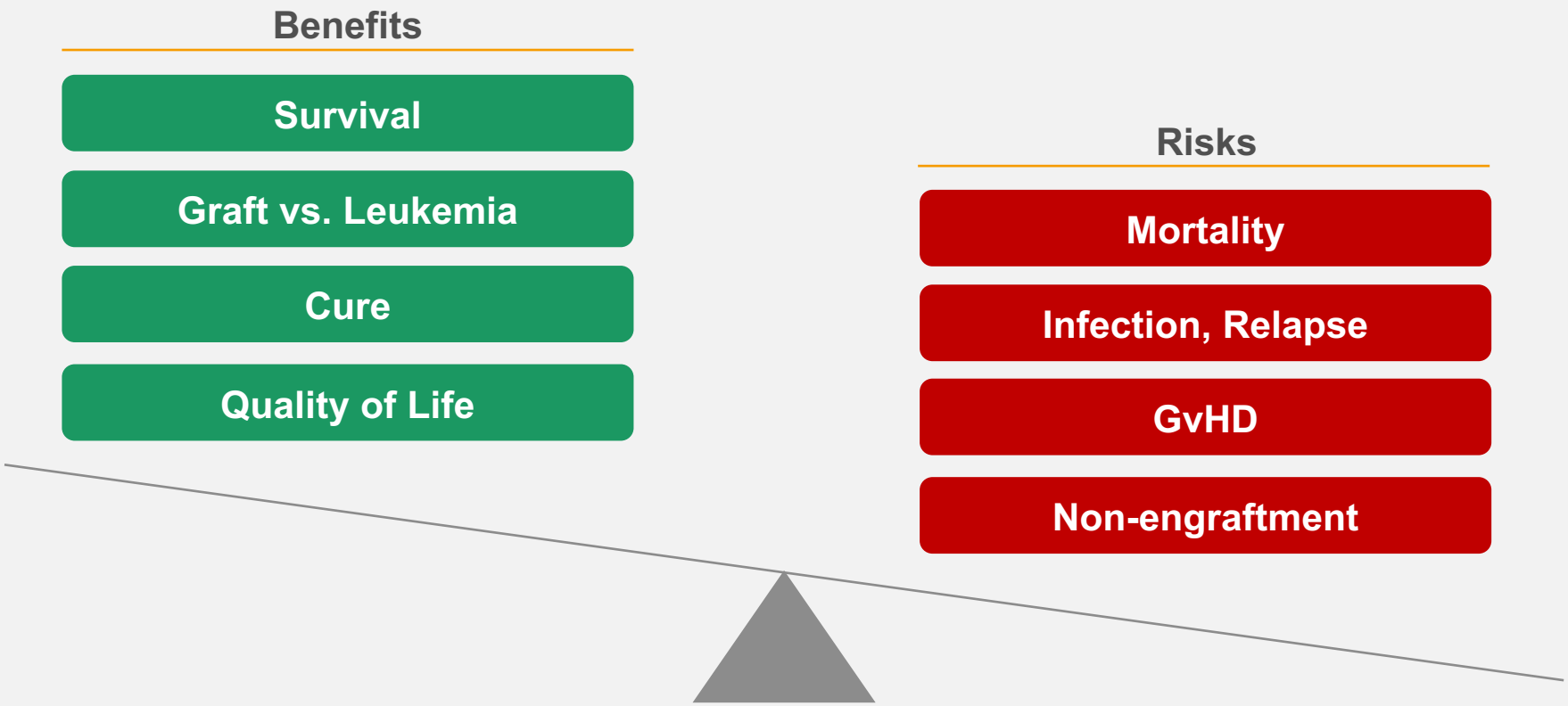
Flow

- Current Paradigm
- Haplo is the “New Black”
- Rivogenlecleucel: The tipping point?
- A concentrated and high market value
- Two years to launch

Current Paradigm: Benefit and Risks of HSCTs Go Hand-in-Hand

Physicians follow a clear and established donor sequence

Trade-off decision to transplant (weighing benefits & risks)



Note: Illustrative

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Physicians Follow Established Donor Search Sequence with Consideration of Haploidentical Donor Currently at End of Path

ALLOGENEIC HSCT DECISION TREE

HLA-Matched Related Donor (MRD)
(~25-30% of allo HSCT)

- Preferred donor source
- Only ~1/3 patients have an HLA-identical sibling

Alternative

HLA-Matched Unrelated Donor (MUD)
(~50%)

- High rates of transplant-related mortality (TRM) and GvHD
- Time, cost, and uncertainty in locating donor

Alternative

Other Donor Options:
Haploidentical
HLA-Mismatched
Umbilical Cord Blood
(~20-25%)

- High rates of morbidity and mortality
- Often not utilized due to concern about risk/benefit

Toxicity

MRD, matched related donor; MUD, matched unrelated donor; HSCT, hematopoietic stem cell

MUD Allo-HSCT Has Numerous Challenges

Operational barriers to MUD transplant

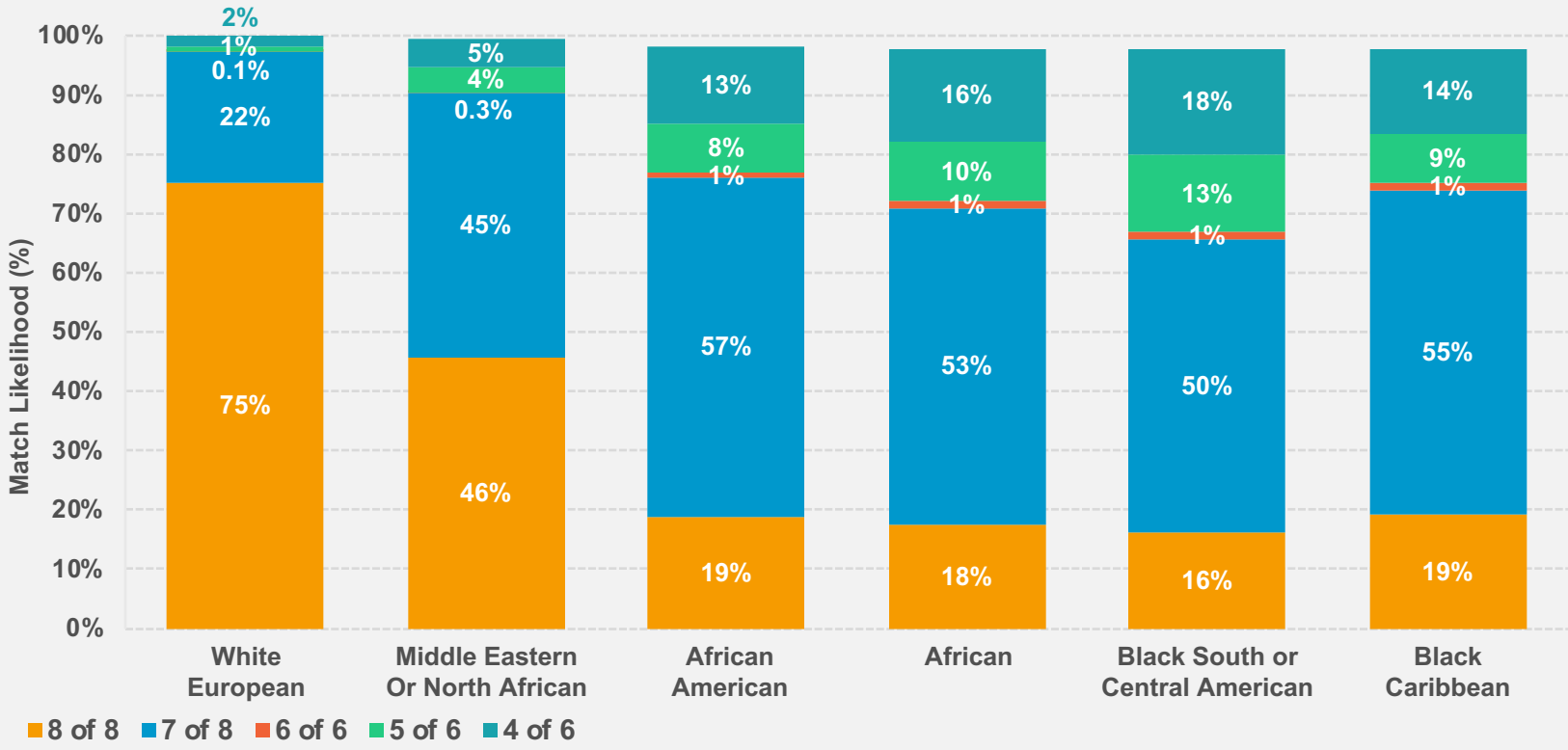
1. Delays to finding a suitable matched donor (avg 2-3 months)
2. Delay between graft collection & infusion
3. Difficulty of repeat donations
4. Operational costs of managing organ donor bank & logistical costs obtaining donor graft

MUD matched rates differ significantly for growing ethnic minorities

Donor match rates are significantly lower for ethnic minorities

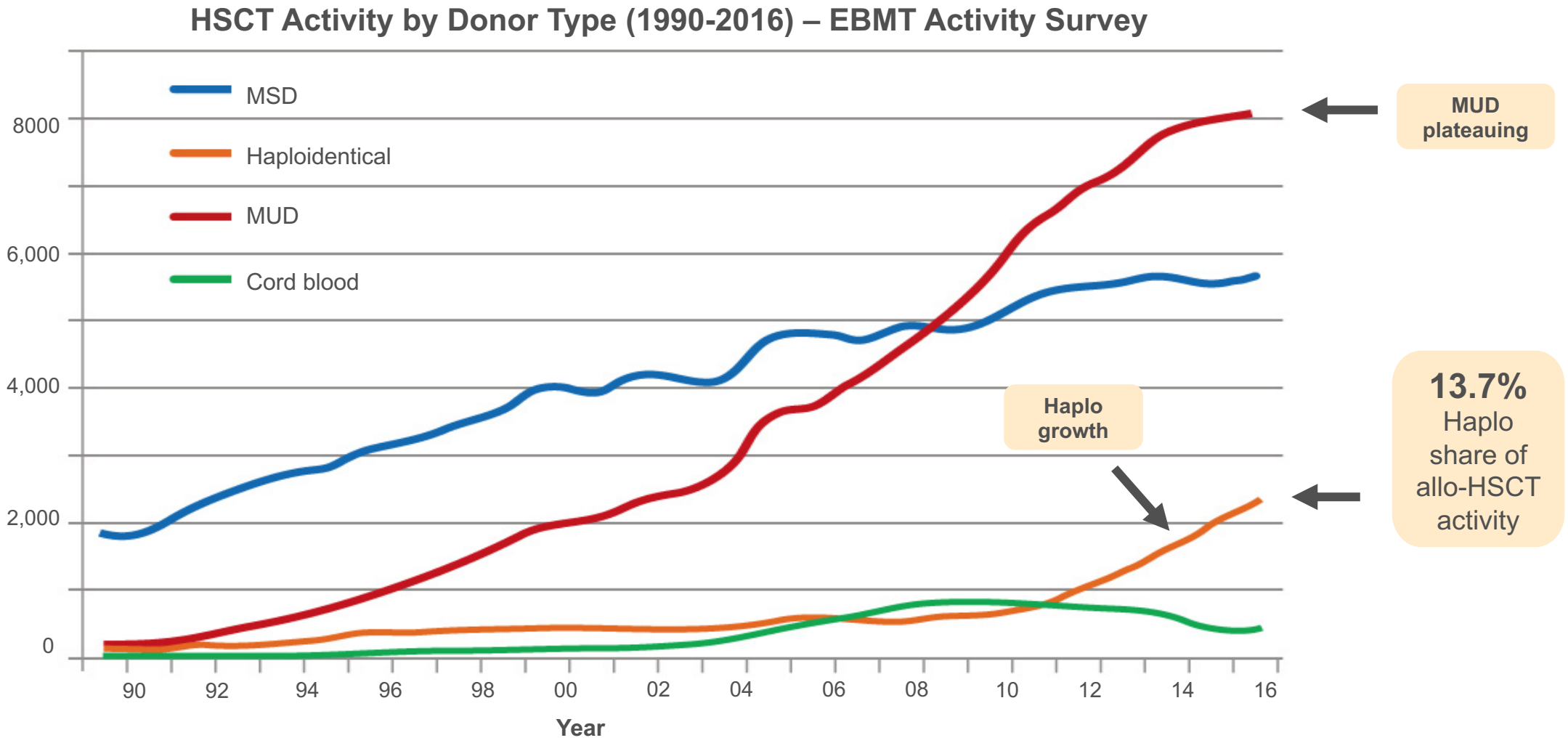
<50% Middle Eastern/ North African

<20% African/ Caribbean



Source: Passweg et al (2018) EBMT activity data

Haplo Growth Drives the Market



Source: Passweg et al (2018) Bone Marr Trans [EBMT activity survey data for children & adults], Note: Auto = Autologous; Allo = Allogeneic; SCT = Stem Cell Transplant

Is Haplo the "New Black"?

Michael A. Pulsipher, Huntsman Cancer Institute

Benefits and risks of haplo transplantation

Availability:
Almost all patients have a haplo donor (parents)

Speed:
Short time to transplant

HLA Diversity:
Higher potential for GvL

Risk:
Significantly higher risk of GvHD

*Blood 2014 124:675-676

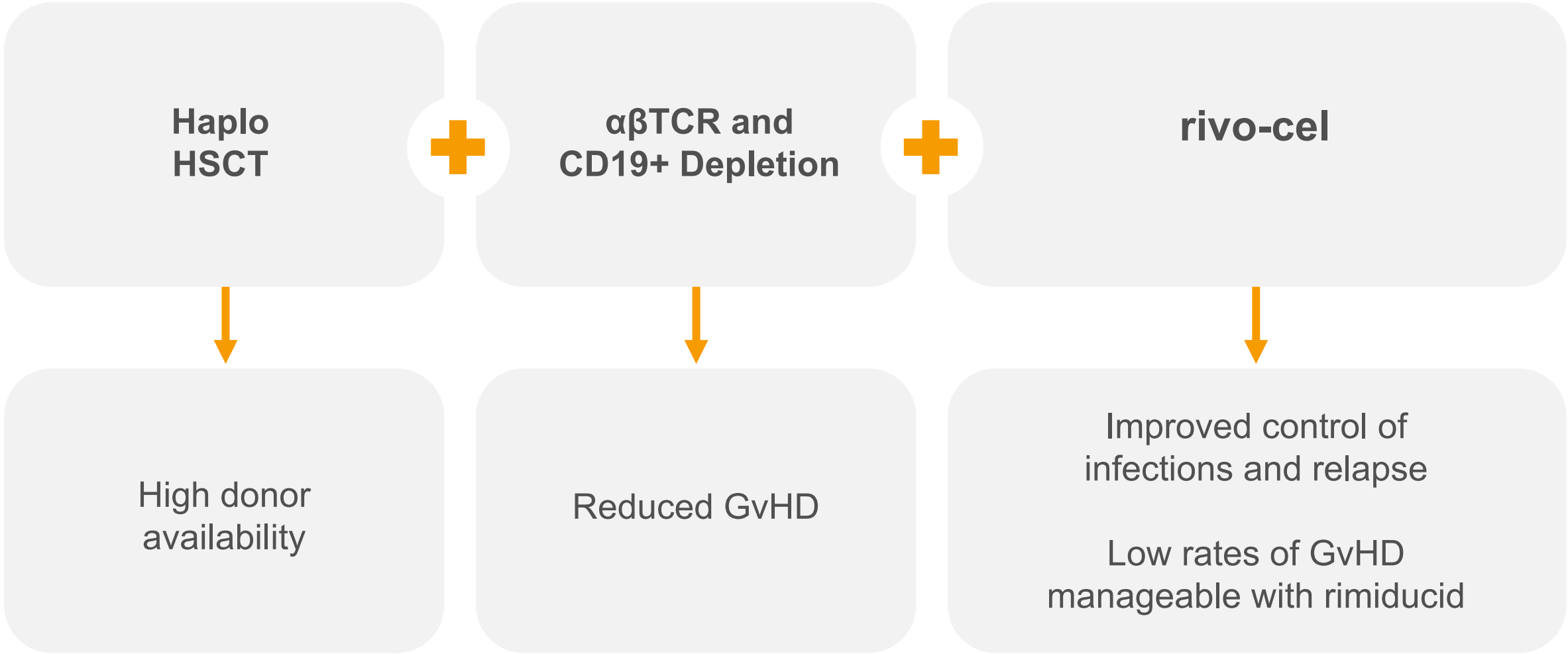
All the scientific energy has been focused on the depletion strategies to reduce GvHD risk: Yes, but…

αβ TCR / CD19+ depletion:
Significant reduction of aGvHD & cGvHD

But:
Increased risks of infections and relapse

Rivogenlecleucel (rivo-cel)

The tipping point?



Could Haplo + Rivo-cel be the New Paradigm… Enabling Improved Access to HSCTs for Seriously Ill Patients?

A POTENTIALLY NEW ALLOGENEIC HSCT DECISION TREE

HLA-Matched Related Donor (MRD)

- Preferred donor source
- But only ~1/3 patients have an HLA-identical sibling

Alternative

HLA-Matched Unrelated Donor (MUD)

- Time, cost, and uncertainty in locating donor
- Only use of 10/10 HLA match acceptable?

Alternative

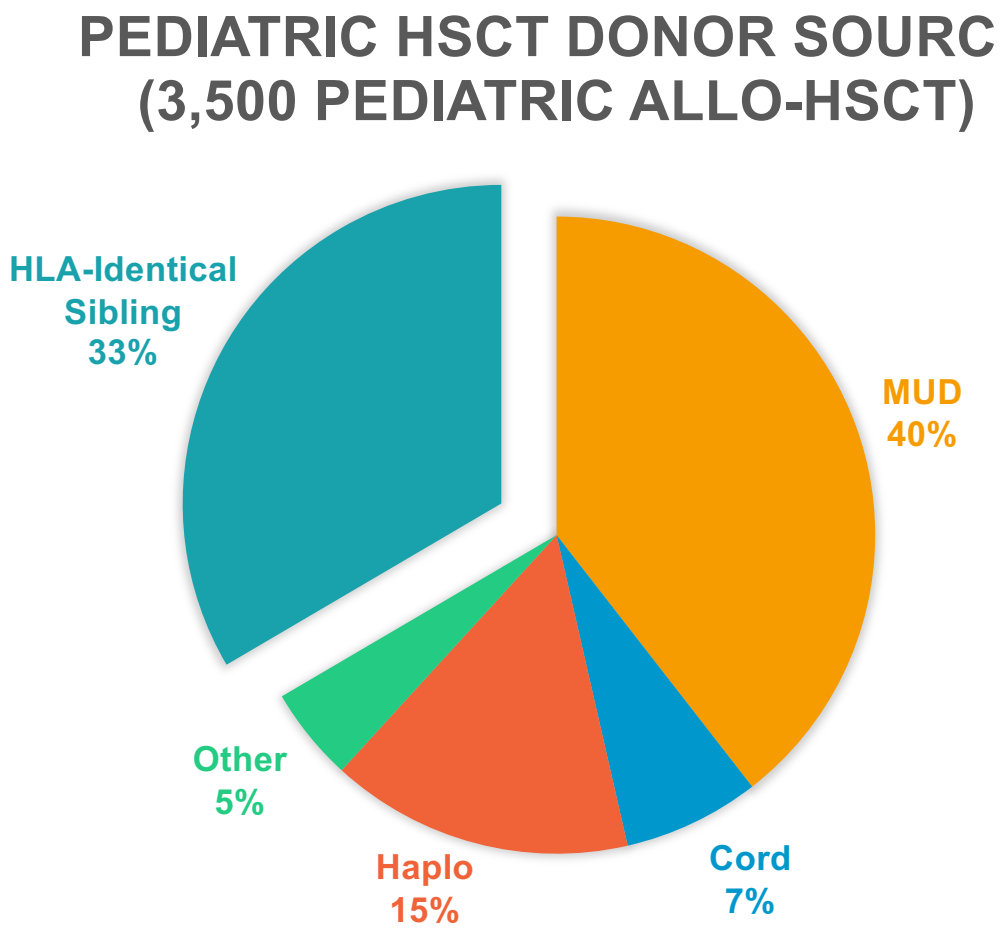
αβT and B Depleted Haplo + rivo-cel

- Comparable outcomes to MUD
- No post-Tx immunosuppression
- Higher HLA disparity for GvL effect
- Broad, rapid access to donor

HSCT, Hematopoietic Stem Cell Transplantation

~ 2,300 Addressable Allo-HSCT Children Per Year in Europe

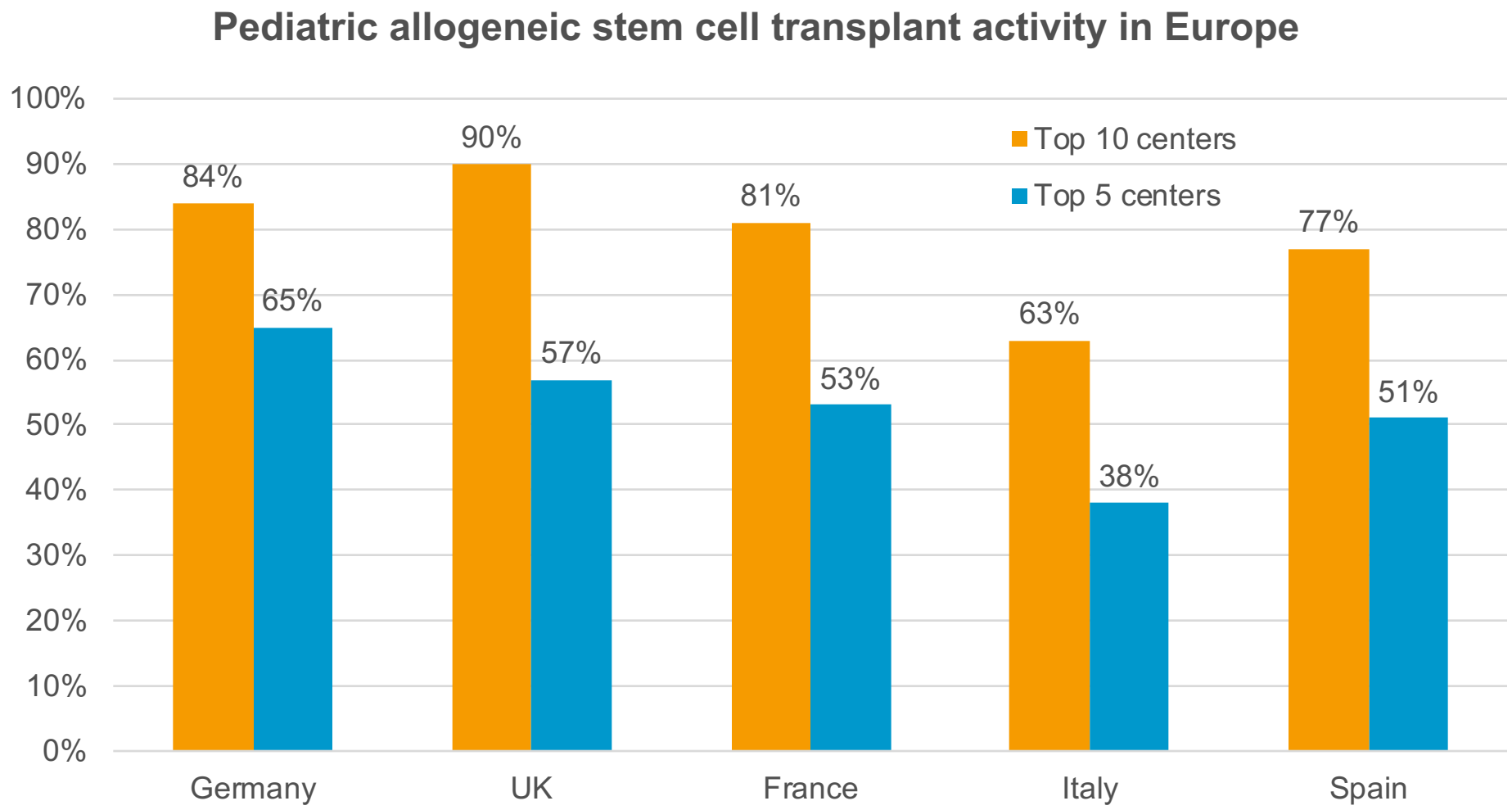
Haploidentical growing rapidly with 545 transplantations in 2016



Source: Passweg et al (2016) Bone Marr Trans [2014 EBMT activity survey data for children & adults]

EU 5: A Concentrated Market of Expert Centers

~50 centers conduct the majority of pediatric allo-HSCT transplants

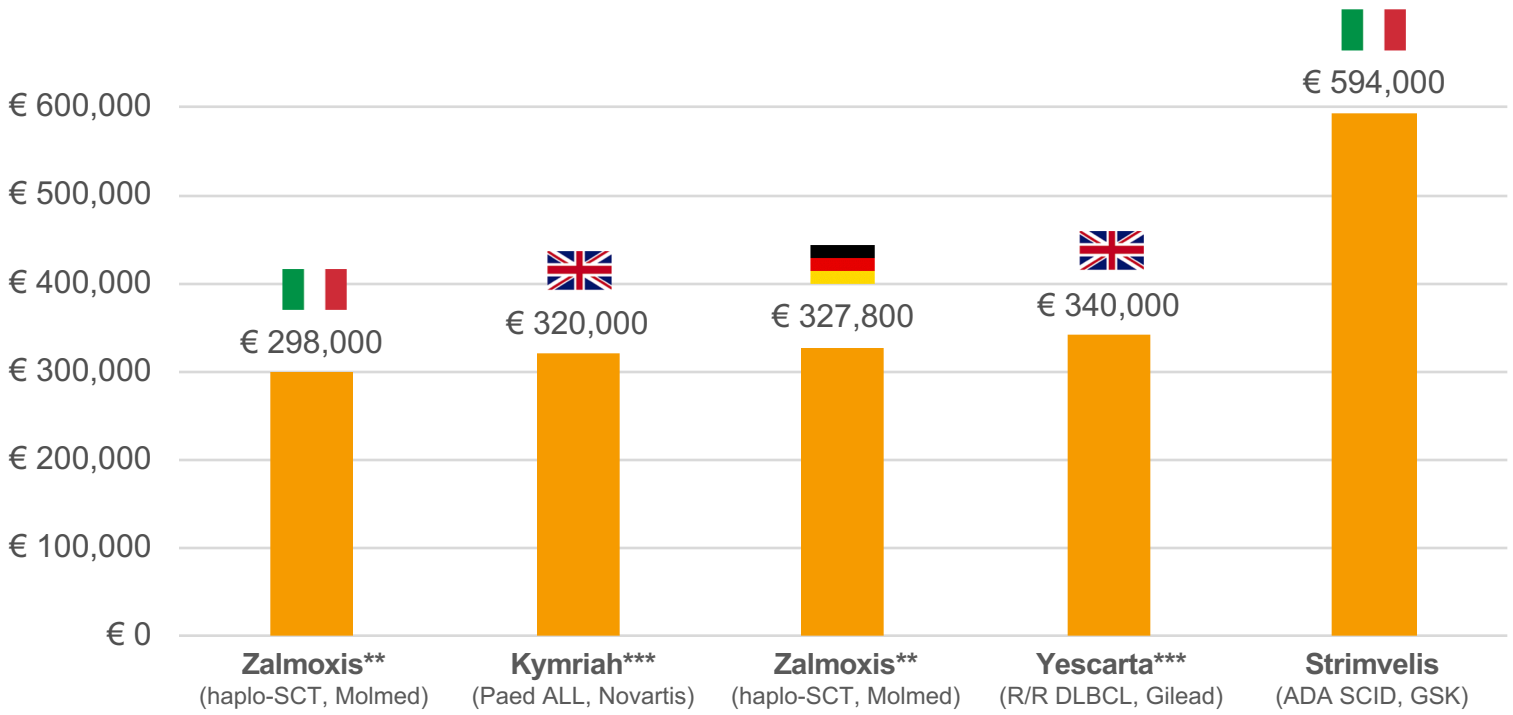


Source: Passweg et al (2016) Bone Marr Trans [2014 EBMT activity survey data for children & adults]

Recent EU Pricing for Products in HSCT / ATMP*

Payers and HCPs recognize value and therapeutic benefit in pricing decisions

Annual acquisition cost/cost of treatment course (list price, €)



Conversion rate assumptions: £: € = 1.1 ; £:$ = 1.3

Rivo-cel key value drivers:

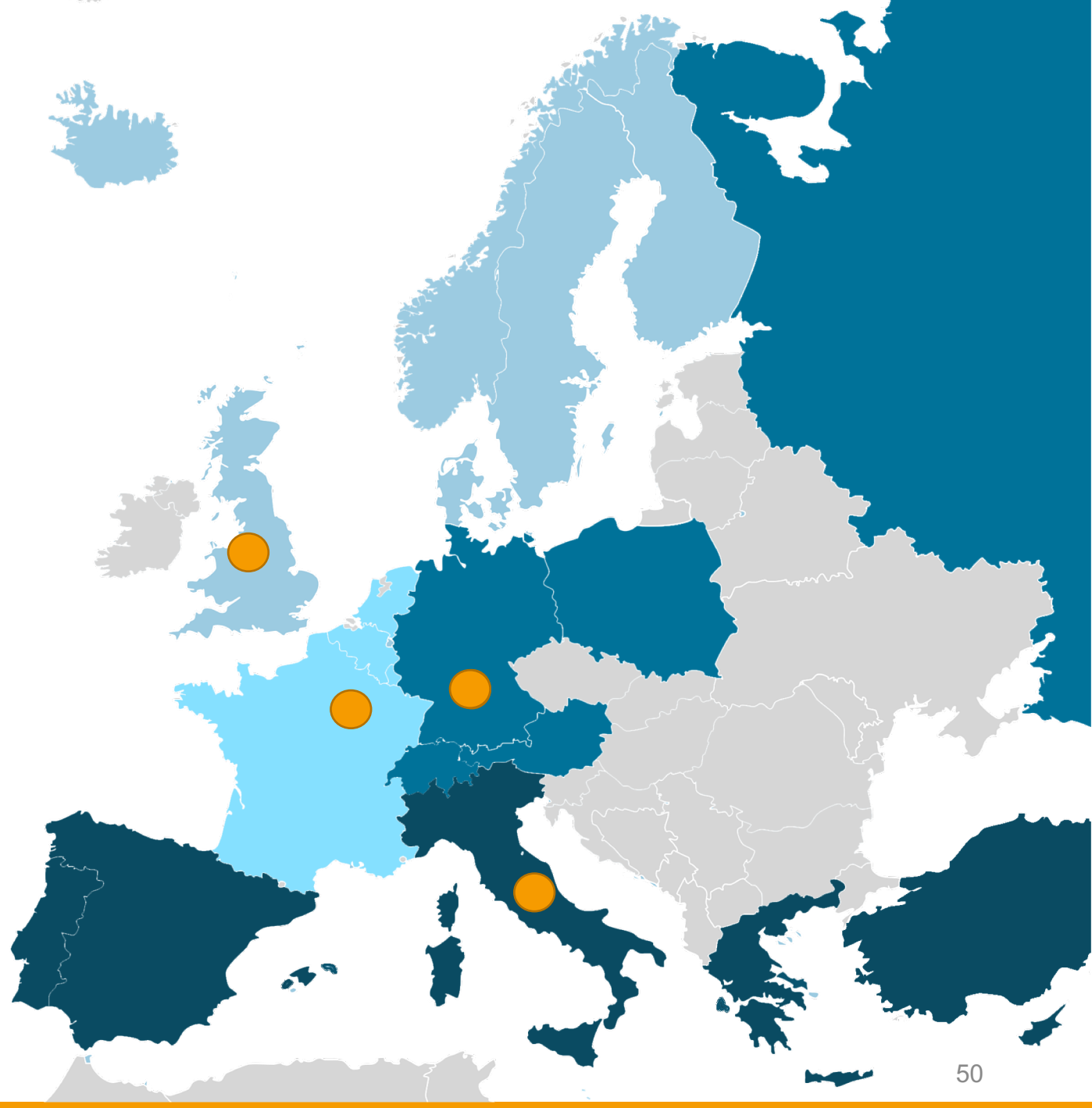
1. Pediatric Indication
2. Orphan Drug Status
3. Cost Effective / Potential for Cure
4. Price Benchmarks
5. Manageable Budget Impact

* ATMP = Advanced Therapy Medicinal Product
**Available as cost per infusion (assumed 2 infusions per courses of treatment – as per clinical trial);
*** Formal list price – commercially confidential price discount agreed between manufacturer & NHS

Bellicum EU Footprint

Experience – Focus – Sense of Urgency

- Build-out of infrastructure focused on serving a highly concentrated and specialized market
- HQ based in Henley, United Kingdom with leadership roles in regulatory affairs, clinical, medical, logistics, and marketing
- Four regional organizations to provide close local support in market access, medical affairs, sales and supply



Rivo-cel: ~Two Years to Launch

Key Priorities

MAA data readout 1H2019

MAA submission 2H2019

‘High-touch’ case management and supply chain solution

Strong value proposition for HCPs and payers, allowing for rapid access post approval

Medical & scientific education to transplant centers prior to launch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