World's First Allogeneic Undirected Cryopreserved Hematopoietic Stem Cell Transplant: Results and impressions on first transplantations

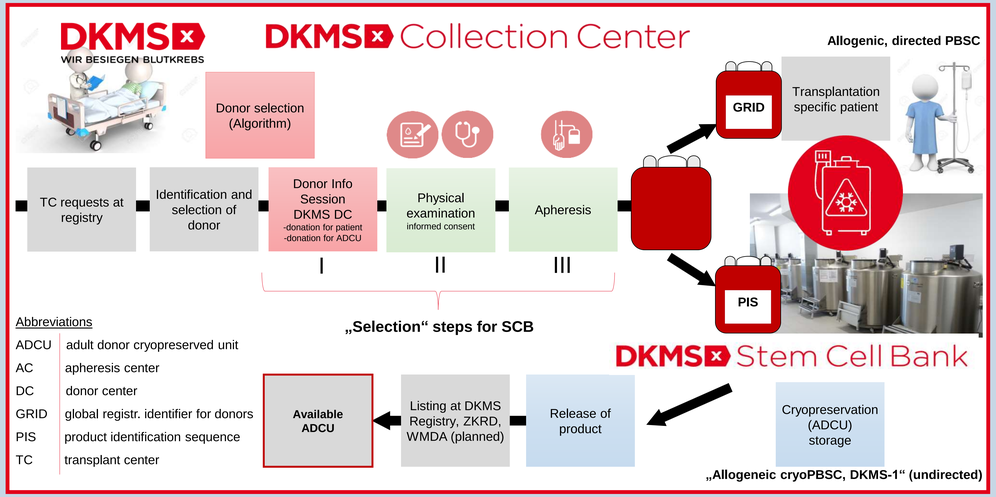
P22

S. Rößler* [1], A. Rieger [1], R. Sporn [1], C. Klemm [1], A. Sauer [1], K. Büttner[1], D. Buk[2], A. Platz [1]

[1] DKMS Stem Cell Bank gGmbH, Enderstraße 94/Haus C, 01277 Dresden, Germany; [2] DKMS Donor Center gGmbH, Kressbach 1, 72072 Tübingen, Germany

Background

DKMS Stem Cell Bank has pioneered a **groundbreaking innovation**: **Adult Donor Cryopreserved Unit (ADCU) from unrelated donors for undirected hematopoietic stem cell transplantation**. Peripheral blood stem cells (PBSC) are mobilized by administration of G-CSF and collected by apheresis. In many cases, cell amounts exceed the requested dose. These **additional cells** were **cryopreserved and stored** as an **undirected stem cell source**, characterized by **explicit quality specifications** and **expeditious availability**.



Donor Algorithm

- suitable candidates are identified **by DKMS Donor Center** using a donor algorithm
- donors show **high motivation to donate** an additional product

	male	female
Age	≤ 40 y	≤ 30 y
Weight	≥ 70 kg	≥ 60 kg
HLA-Type	frequency ranking 1 – 20.000 / 5-loci high res	
donor exclusion	according to guidelines of BÄK and approvals according to §25 AMG	

Donor Safety

- **prolonged apheresis** limited by max. 5h and 4-fold processed blood volume
- **no additional** dose of G-CSF
- donation only if **good mobilization** & enough stem cells for two products (in one day)
- monitoring: donors general condition & well-being

Advantages for patients

- **significantly reduced time to transplant**
  → ADCU availability 100% ~3 days to transplant
- **defined product specifications, cell counts and product quality**
- **optimized planning** according to patient´s needs

ADCU - product details

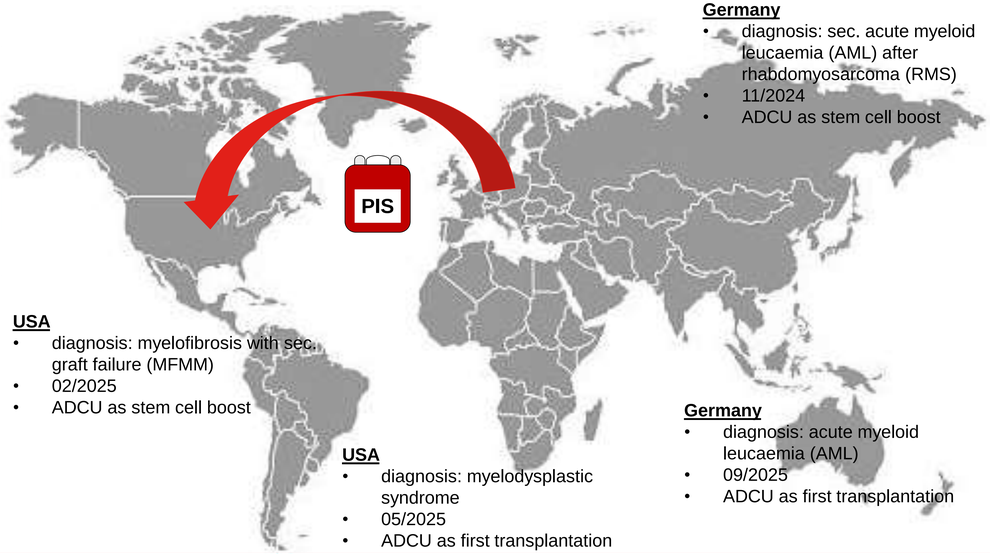
- PBSC are processed with **5% DMSO** to a final volume of **2 × 100 ml** in a clean room grade A in C
- **listing of corresponding data** sets by DKMS Registry and German National Bone Marrow Donor Registry (ZKRD)

	Median	min	max
Viable CD34⁺ cells [× 10^8]	3,83	1,01	10,31
Potential patients weighing [kg] target dose: 4 × 10^6 cells / kg BW	96	25	258

ADCU Work Up

Start ADCU inventory	**11/2023**
Start ADCU listing	**04/2024**
Total ADCU listed	**338** (01.09.2025)
First ADCU shipment	**11/2024**
Total ADCU shipments	**5** (03.09.2025)

Colombia
- diagnosis: acute myeloid leucaemia (AML) 1st complete remission (CR)
- 04/2025
- ADCU helped in case of complications of the patient's well-being while donor was mobilized and transplantation had to be postponed
- patient received ADCU instead of the fresh donation from the same donor



USA
- diagnosis: myelofibrosis with sec. graft failure (MFMM)
- 02/2025
- ADCU as stem cell boost

Germany
- diagnosis: sec. acute myeloid leucaemia (AML) after rhabdomyosarcoma (RMS)
- 11/2024
- ADCU as stem cell boost

USA
- diagnosis: myelodysplastic syndrome
- 05/2025
- ADCU as first transplantation

Germany
- diagnosis: acute myeloid leucaemia (AML)
- 09/2025
- ADCU as first transplantation

Conclusion

The **success of the first ADCU transplantation** marks a **significant milestone**, thereby establishing a new domain for stem cell transplantation. The DKMS Stem Cell Bank's pioneering approach demonstrated its impact just one year after its introduction. The **increasing storage of ADCU** is directly correlated with **DKMS's advancement towards the realization of more expeditious and efficient transplantations**. This development has the potential to engender a renewed sense of hope for a **second chance of life** among patients worldwide.

DKMS Stem Cell Bank
Enderstraße 94/Haus C
01277 Dresden
www.dkms.de/stemcellbank

DKMS Donor Center gGmbH
Kressbach 1
72072 Tübingen, Germany
www.professional.dkms.org

Visit our homepage:

Author contact:
Roessler@dkms-stemcellbank.de