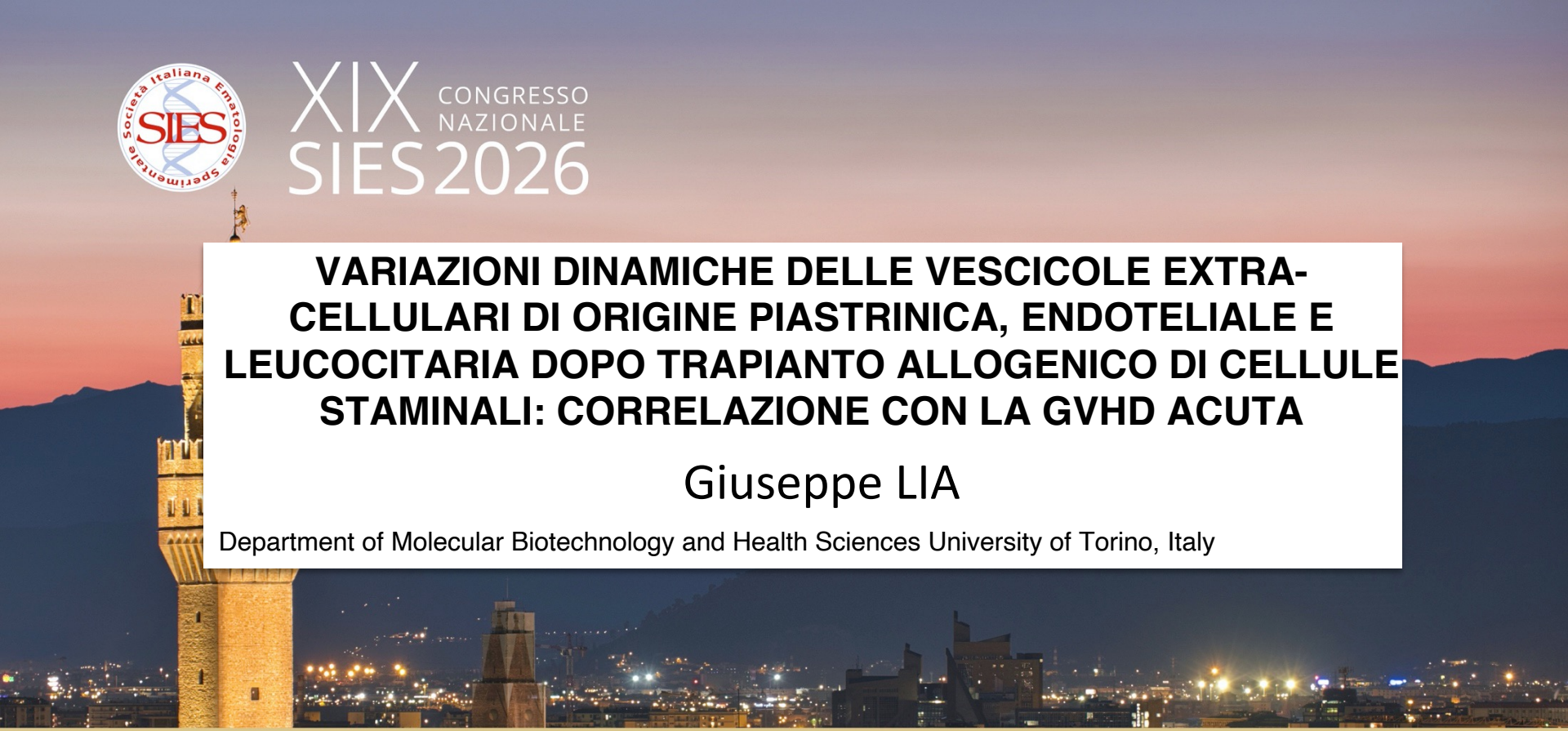


XIX CONGRESSO NAZIONALE SIES 2026

VARIAZIONI DINAMICHE DELLE VESCICOLE EXTRA-CELLULARI DI ORIGINE PIASTRINICA, ENDOTELIALE E LEUCOCITARIA DOPO TRAPIANTO ALLOGENICO DI CELLULE STAMINALI: CORRELAZIONE CON LA GVHD ACUTA

Giuseppe LIA

Department of Molecular Biotechnology and Health Sciences University of Torino, Italy

Firenze | 4-6 marzo 2026
Palazzo degli Affari

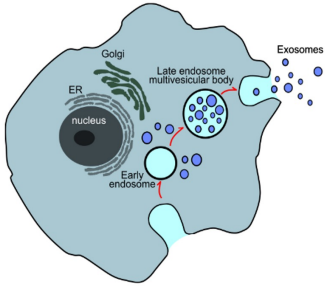
Disclosures of Name Surname

Company name	Research support	Employee	Consultant	Stockholder	Speakers bureau	Advisory board	Other

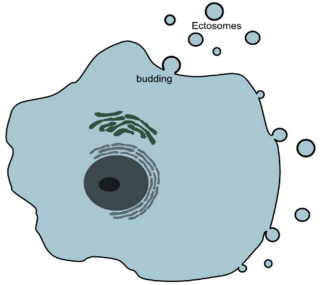
nothing to declare

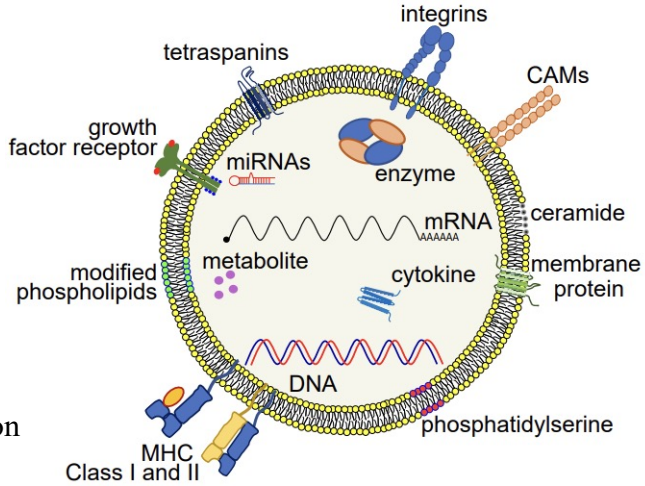
EXTRACELLULAR VESICLES

EXOSOMES



SHEDDING Vesicles





EVs are recognized source of biomarkers in different Hematological condition as in HSCT

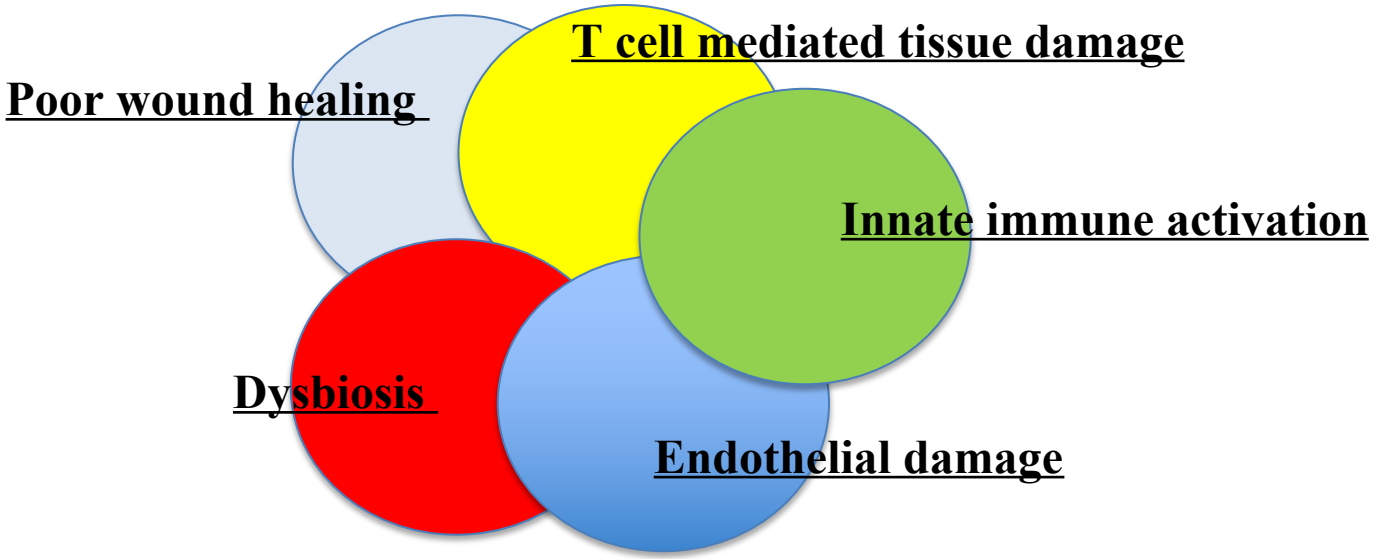
- EVs can be easily extracted from cryopreserved serum samples by a precipitation method and **analyzed by flow cytometry and molecular methods**

- **Increased in several inflammatory conditions** (including all endothelial complications) *

Shah R et al. N Engl J Med 2018

*Lia G. et al Frontier in Immunology May 2021 Vol12

Mechanisms contributing to Acute Graft-vs-Host Disease



Inflammation !!

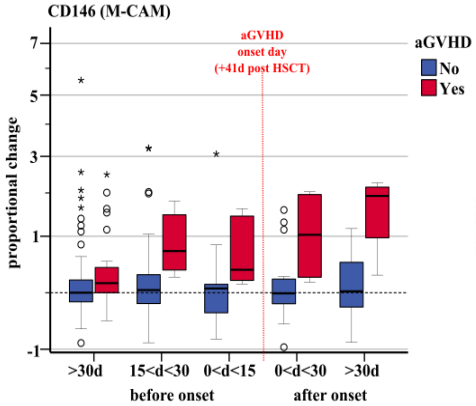
Adapted from He et al. BMT 2018

Correlation of CD146+ EVs and Acute Graft-vs-Host Disease

Serum samples from 41 MM patients allo-HSCT, Stem cells from PBSC, 56% acute GVHD

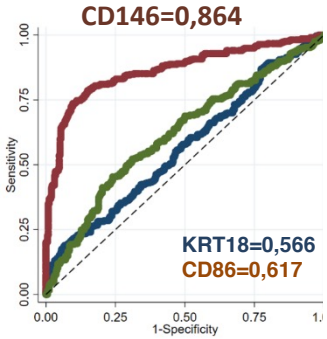
Plasma samples from 32 patients HAPLO-HSCT, Stem cells from BM, 22% acute GVHD

Serum samples from allo-HSCT (recruited in study 73 Pz), 94,12% Stem cells from PBSC, 47% acute GVHD

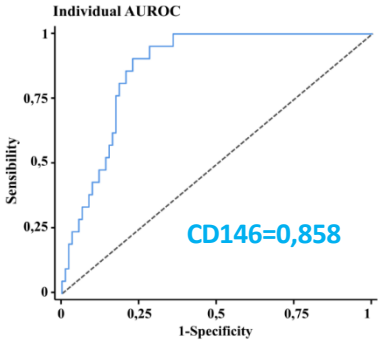


OR 2,93 p<,001
Logistic regression

Serum samples from 73 patients allo-HSCT



Plasma samples from 32 patients HAPLO-HSCT



Lia G. et al Frontier in Immunology 2022 Vol12
Lia G. et al Leukemia 2018 Vol32

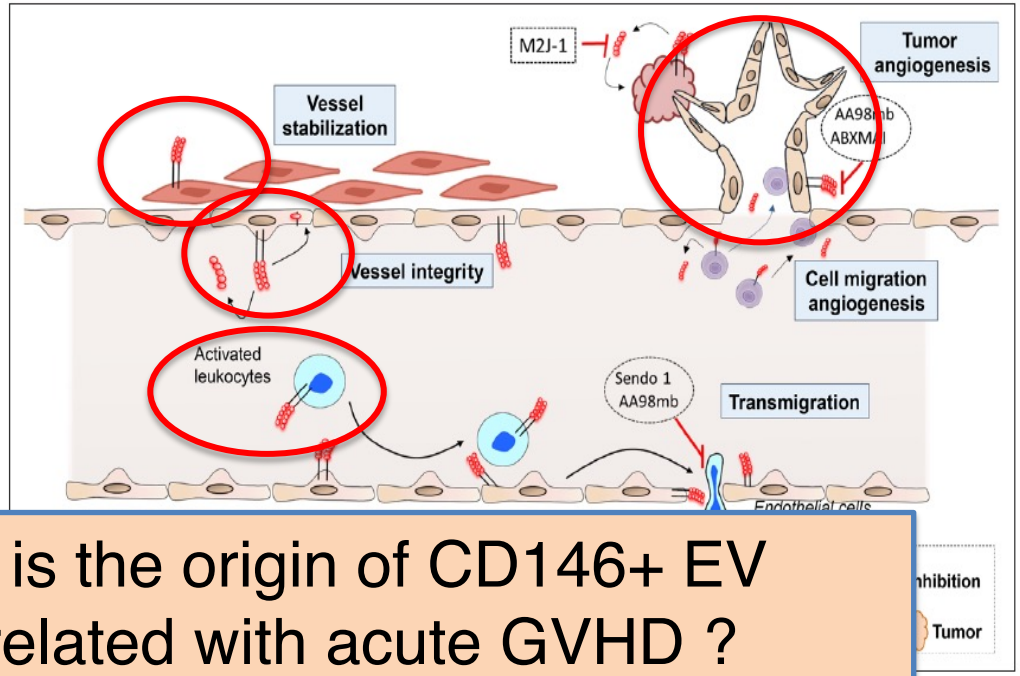
CD146 functions

MCAM (Melanoma Cell Adhesion Molecule) o MUC18

Angiogenesis

Vessel Structure and Permeability

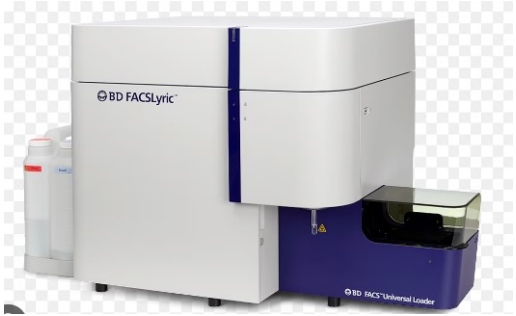
Role of CD146 in Inflammation



What is the origin of CD146+ EV correlated with acute GVHD ?

CD146 (Cluster of Differentiation 146): An Adhesion Molecule Involved in Vessel Homeostasis. Aurélie S Leroyer et al. Arterioscler Thromb Vasc Biol . 2019 Jun;39(6):1026-1033. doi: 10.1161/ATVBAHA.119.312653.

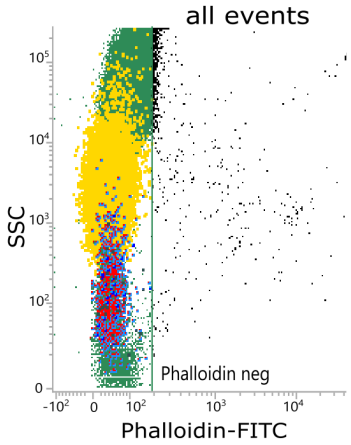
Multiparametric Flow-Cytometry on individual EVs
(absolute count of EVs originated from Endothelial cells, Leukocytes and Platelet)



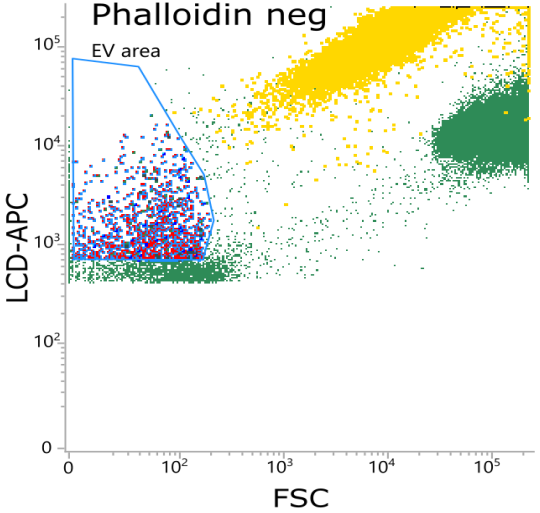
antibodies panel

- Phallodin-FITC
- LCD-APC
- CD41a-PE
- CD31-PE-Cy7
- CD45-V500
- CD146-BV786

Unbroken particle



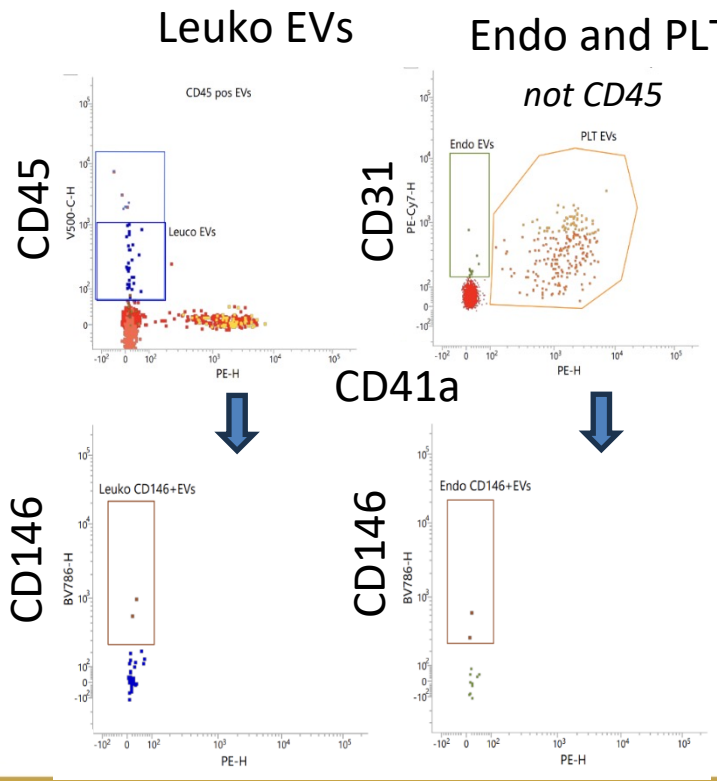
EVs



Marchisio M. et al. (2020) International Journal of Molecular Sciences 22(1):48 **DOI:10.3390/ijms22010048**

Multiparametric Flow-Cytometry on individual EVs

(absolute count of EVs originated from Endothelial cells, Leukocytes and Platelet)



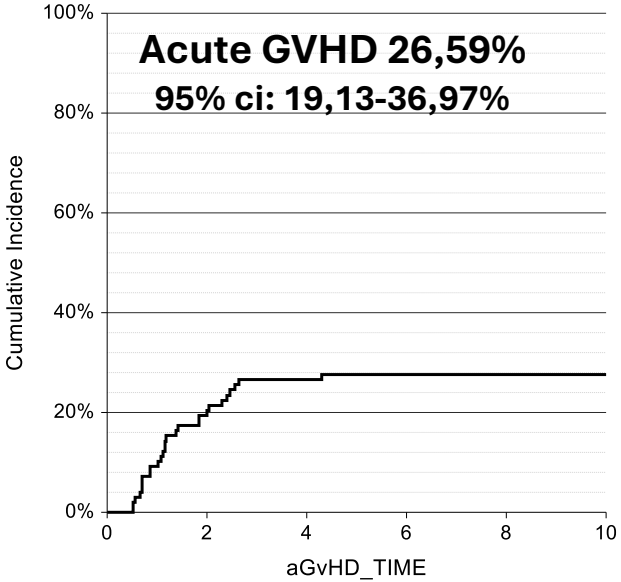
Consecutive enrollment of patients who undergo Allo-HSCT

Citrate samples collected at pre-tx, on TX day and at days:
+3,+7,+10, +14,+18,+24,+28, +35,+45, +60,+70,+80, +90 and +180

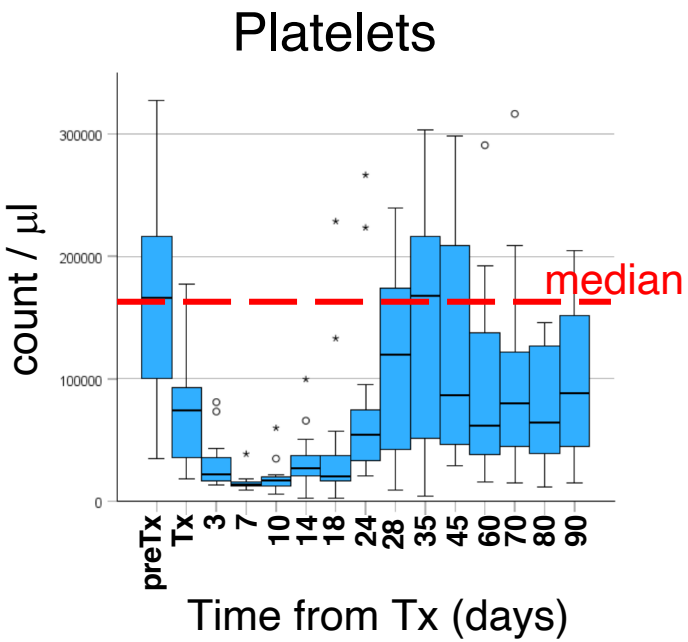
Patients and Transplant Characteristic

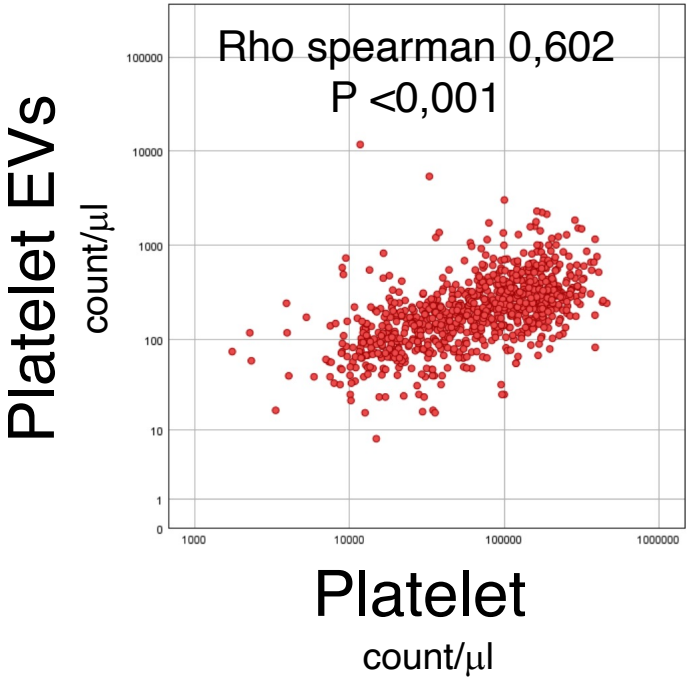
	Number (%)
Patients	91
Median age, years (range)	56.48 (range 20.88-73.27)
Gender	4 (4.4%)
Myeloablative Conditioning	3/32 (9%)
RIC/NMAC - MAC	51 (56.04%) - 40 (43.95%)
ATG vs Pt-Cy	41 (45.1%) / 50 (54.9%)
TRM (at 14 months)	14.01% (95% ci 8.44-23.25%)
Stem Cell Source	
Bone Marrow	2 (2.2%)
Peripheral blood stem cells	89 (97.8%)
GvHD Prophylaxis	
CSA-MTX-ATG	40 (43.96%)
CSA-MMF-PtCy	28 (30.77%)
FK-MMF-PtCy	18 (19.78%)
CSA-PtCY+MMF	3 (3.30%)
Other	2 (2.20%)
aGvHD grade II-IV	25 (27.5%)
Median day of onset (range)	35 (16-131)
aGVHD grade III-IV	11 (12.1%)

Cumulative incidence at 3 months



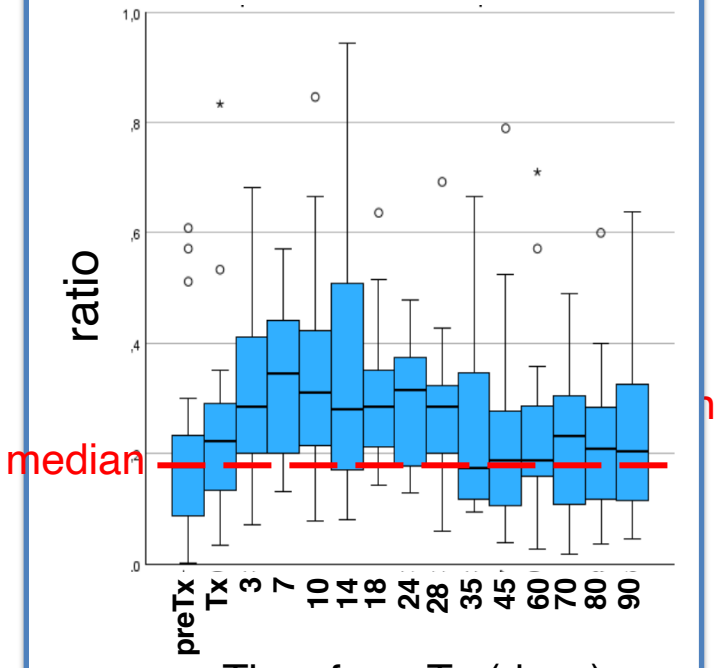
EVs subtypes dynamics after HSCT



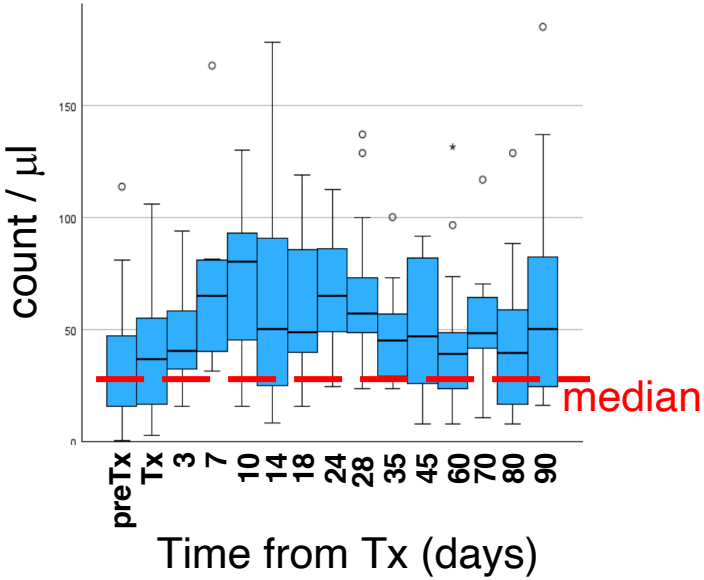


EVs subtypes dynamics after HSCT

Endothelial CD146+ EVs/ Endo EVs

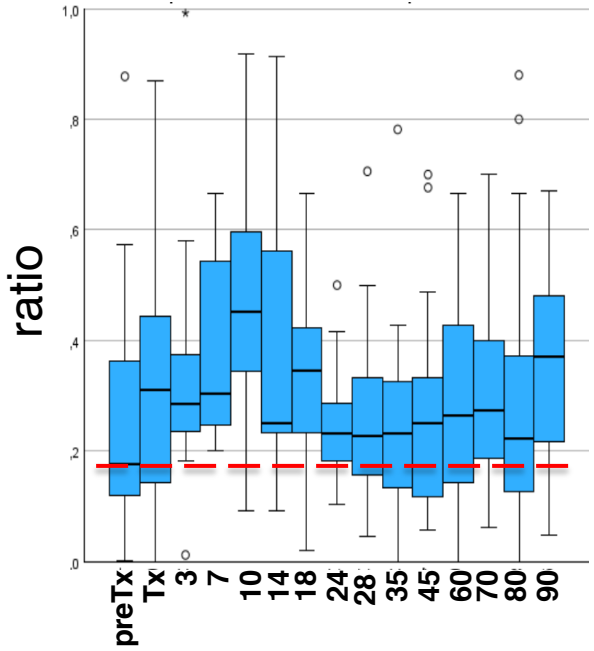


Endothelial CD146+ EVs

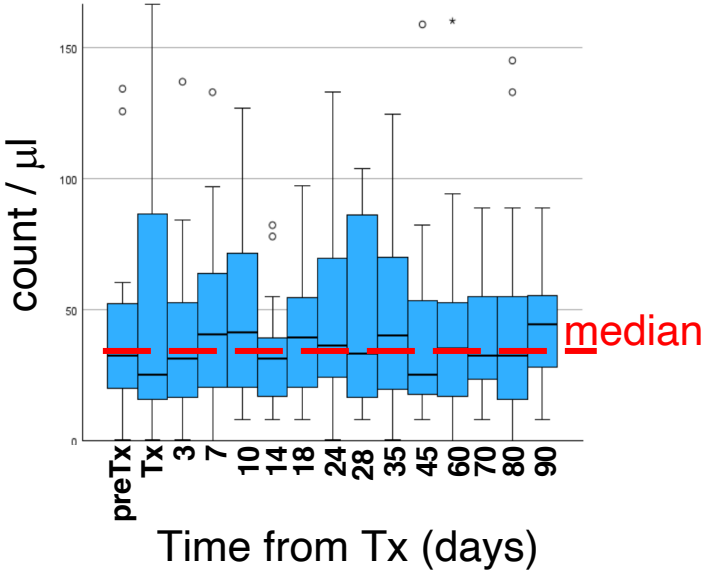


EVs subtypes dynamics after HSCT

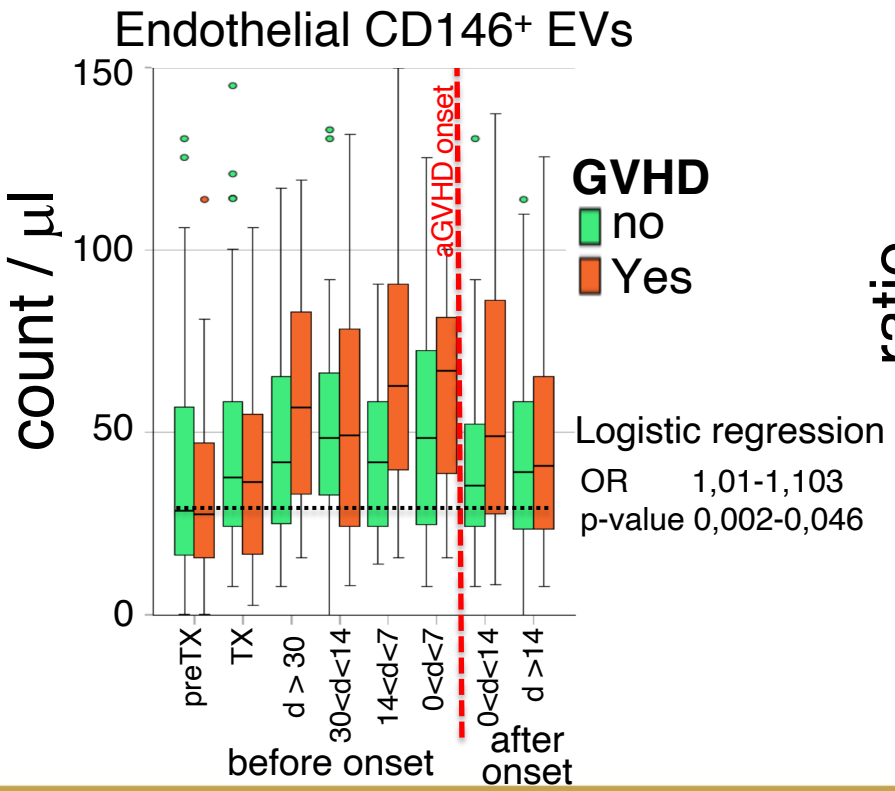
Leukocytes CD146+ EVs/ Leuko EVs

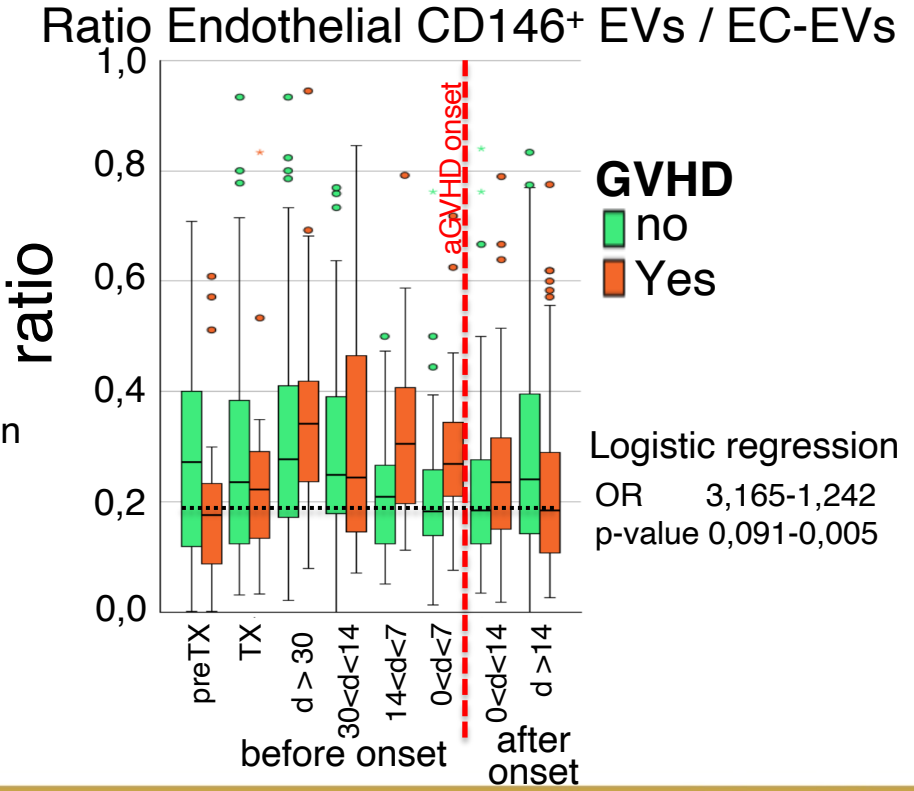


Leukocytes CD146+ EVs



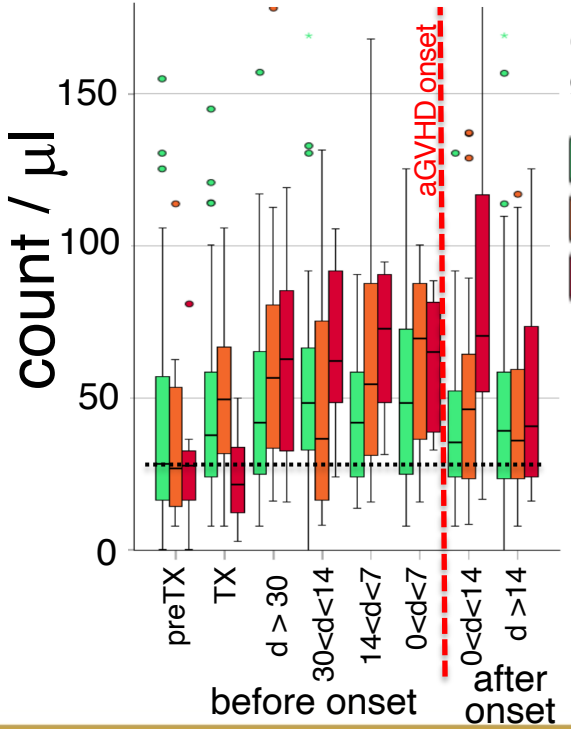
EVs Correlated with aGVHD





EVs Correlated with aGVHD

Endothelial CD146+ EVs



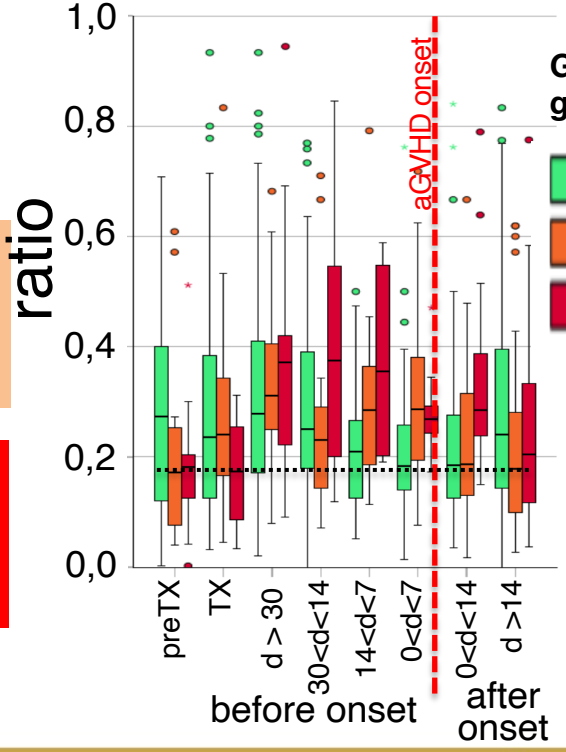
GVHD grade

0-1

grade 2
Logistic regression
OR **1,01**-1,04
p-value **0,04**-0,39

grade 3-4
Logistic regression
OR **1,01-1,17**
p-value **0,001-0,010**

Ratio Endothelial CD146+ EVs / EC-EVs



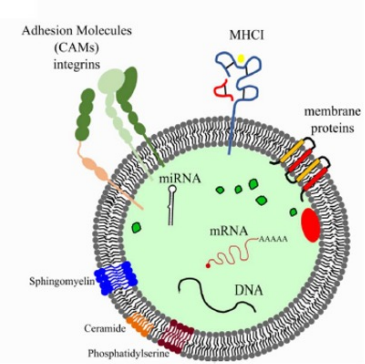
GVHD grade

0-1

grade 2
Logistic regression
OR 1,27-**1,19**
p-value 0,76-**0,04**

grade 3-4
Logistic regression
OR **10,3-1,31**
p-value **0,005-0,008**

Conclusions and Next Steps



The study confirms that CD146+ EVs are correlated with the onset of aGVHD

The CD146+ EV are originated from Endothelial Cells

- Potential diagnostic and prognostic values remain to be determined

In progress:

- We are evaluating the correlation of EVs with other HSCT complications
- We are evaluating other biomarkers using multiplexed assay

Acknowledgments

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Thank you for your attention !