



**Printemps de la
Cardiologie**

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Facultés des sciences médicales
et paramédicales, Marseille
*Faculty of Medical and Paramedical
Sciences, Marseille*

MOBIDIC: Use peripheral blood MOnonuclear cells as Blomarkers of DIabetic Cardiomyopathy

Maëlle Cherpaz, Hélène Thibault, Mélanie Paillard et Cyrille Bergerot.



GRRC
GROUPE
DE RÉFLEXION
SUR LA RECHERCHE
CARDIOVASCULAIRE

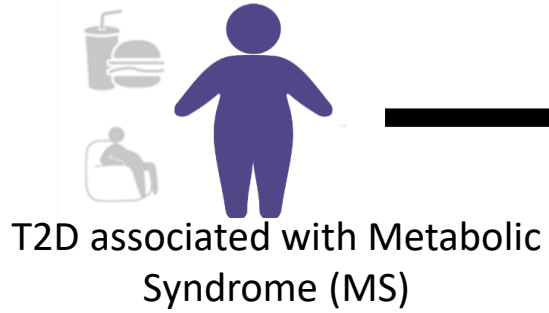


Société
Française de
Cardiologie

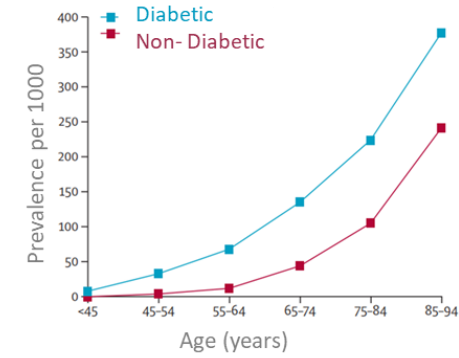
Statement of Competing of Interest

I do not have any potential disclosure to report

Introduction



First cause of death:
cardiovascular diseases

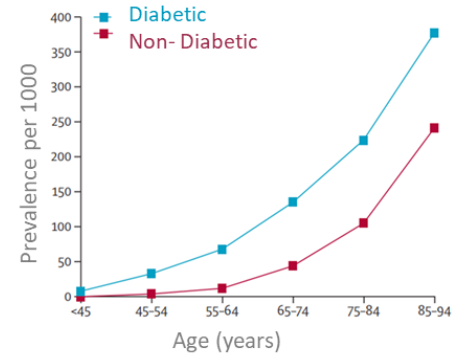


Increased risk of
Heart Failure

Introduction

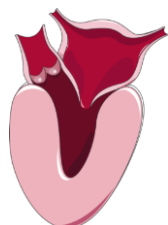


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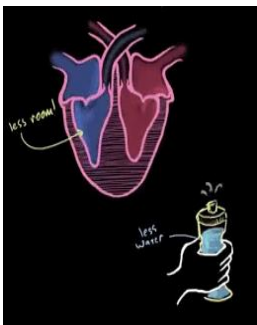


Increased risk of
Heart Failure

T2D associated with Metabolic
Syndrome (MS)

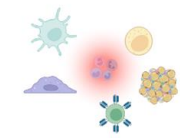


Hypertrophy

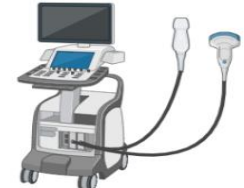


Diabetic Cardiomyopathy (DCM): High
Risk of Evolution towards Heart Failure
with preserved Ejection Fraction (HFpEF)

- Thickening of heart muscle walls
- Decreased cardiac filling
- Preserved ejection fraction



NT-proBNP

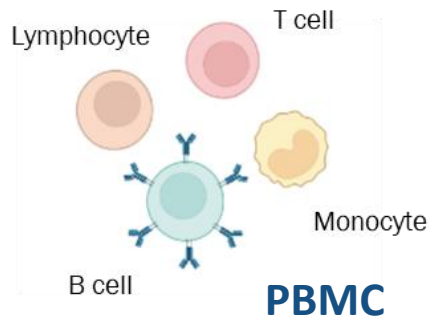


Cardiac phenotype by imaging

**Late and Non T2D specific → Find
news biomarkers**

Introduction

Peripheral Blood Mononuclear Cells (PBMC): novel non-invasive biomarkers



**Ca²⁺ signalling involved in
activation/ polarization of PBMC**

+

**In B cells of T2D patients: Alteration
of calcium homeostasis**

Belia et al, 2009; Balasubramany et al, 2000

PBMC: inflammatory signature

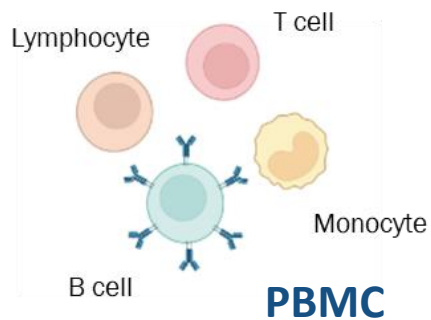
Shift in lymphocyte profile
Increased intermediate monocytes

- ➔ Association with T2D and obesity
- ➔ Use of monocyte as biomarker of cardiac dysfunction

Rattik et al, 2018; Olson et al, 2015; Al Dubayee et al, 2018 Zhong et al, 2022

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Hypothesis:

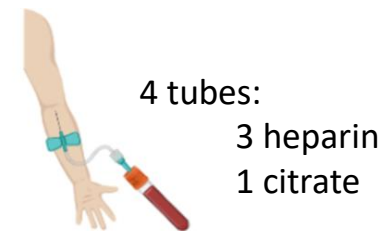
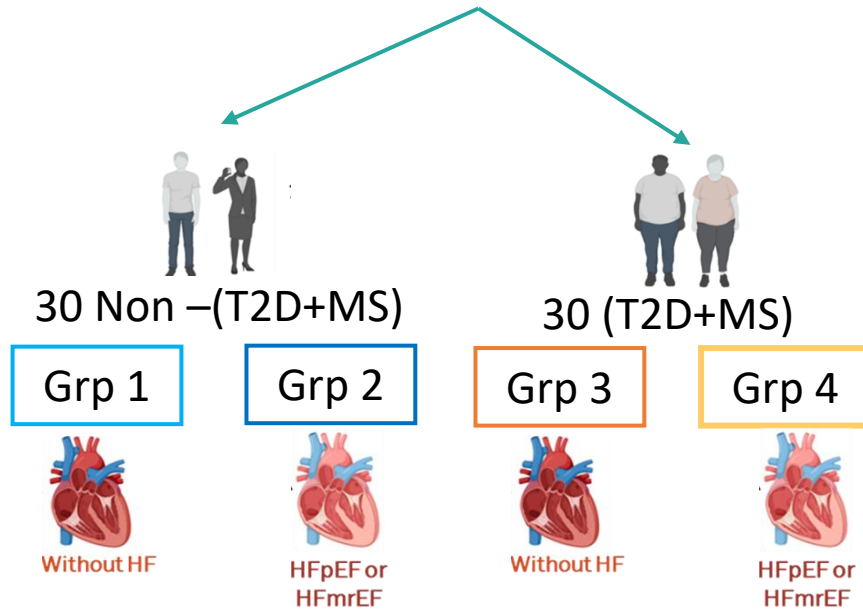
PBMC may carry the :

- **molecular signature** of cardiac remodelling and function
- may be a **DCM biomarker**

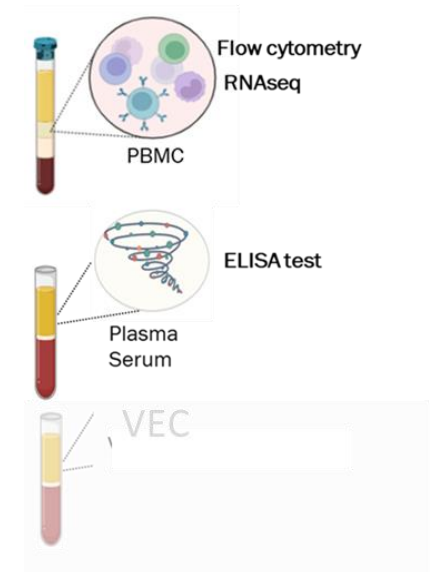
Methods

Commun Criteria:

- ✓ Men – Women 40 at 80 years old
- ✓ LVEF > 40%
- ✓ Agree to biological and genetic analysis

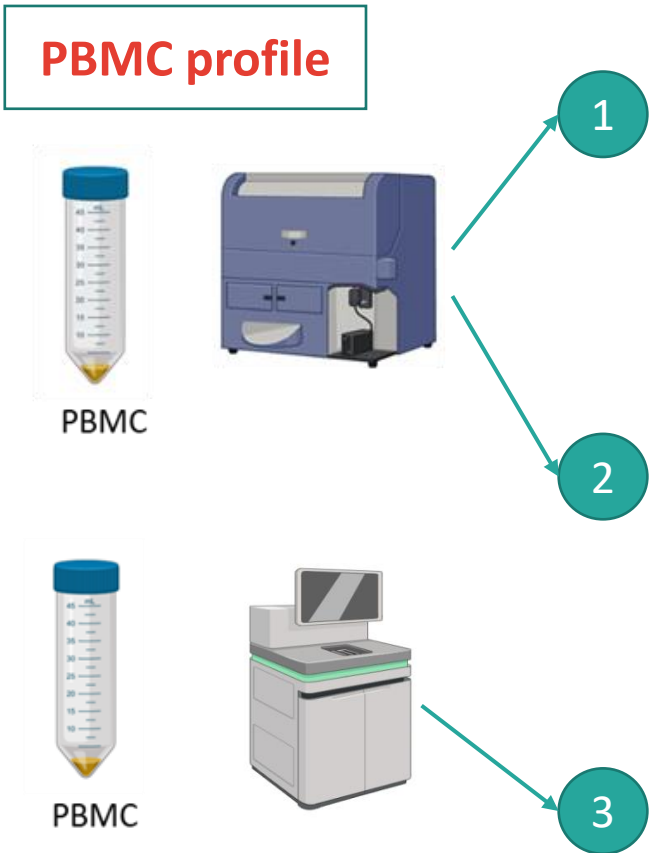


- Clinical Data
- Echocardiography
- Biological data
- Questionnaire on quality of life



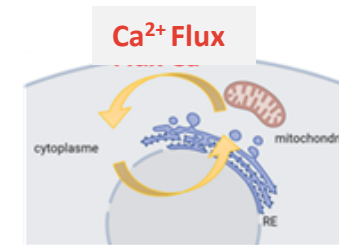
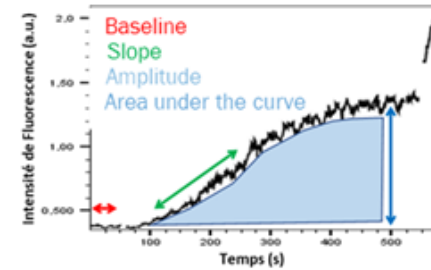
Expected results

Scientific objective: compare PBMC profile from T2D+MS with non T2D+MS patients with or without HFpEF/HFmrEF (LVEF > 40%)



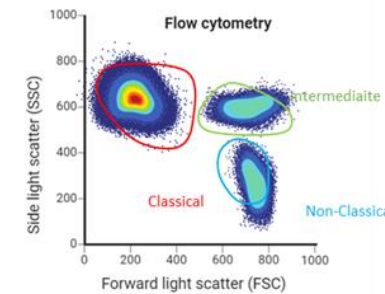
Calcium Profile

Thapsigargin: inhibition of SERCA
Cafeine: activation of RyR
IP3-AM: activation of IP3R



Inflammatory Profile

(δ) CD14; CD16 CX3CR1; CCR2
CD3; CD4; CD8



Transcriptomic Profile

Expression profile

