Immune Contexture of Breast Cancer at diagnosis

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Immunité et Cancer
Is there a role for Immunity in solid tumors?

Solid Tumor

- NK
- Tc
- TBET
- GATA3
- RORγ
- Foxp3
- TH1
- TH2
- TH17

Anti-tumoral vs. Pro-tumoral
Is there a role for Immunity in solid tumors?

Solid Tumor

NK
Tc
TBET
TH1
Foxp3
Treg
RORγ
TH17
GATA3
TH2

Anti-tumoral
+++  
Better survival

Pro-tumoral

Galon et al.
Science 2006
Is there a role for Immunity in solid tumors?

Solid Tumor

NK

Tc

TBET

TH1

GATA3

TH2

RORγ

TH17

Foxp3

Treg

Immune Contexture

Fridman et al
Nat Revue Cancer 2012
Immune contexture in BC

Good prognosis

Mahmoud et al.
JCO 2011
Immune contexture in BC

Breast Cancer

NK

Tc

Cellular immunity and Cytotoxicity

TBET

TH1

GATA3

TH2

RORγ

TH17

Foxp3

Treg

Humoral Immunity

Inflammation

Immunosuppressive function

Immune response type
Objectives

- T cells characterization and regulation in BC

  Tumoral T cells functional characterization
Material & Methods

Patients

13 peripheral Blood from Control → pB-C
7 peripheral Blood from BC patients → pB-BC
30 Mammary tissue from BC → Mt-BC

Mt-BC and pB-BC

CCI → 66.5
% RH + → 73
% T2 → 63.5 %

Flow cytometry analysis
I- What is Mt-BC T cells immune response type?

Mt-BC T cells are $T_H2$ and $T_H17$ T cells
Il- What are Mt-BC T cells functional capacities?
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Mt-BC T cells have poor viability and functional capacities.
CD28 is under-expressed whereas PD1 is overexpressed on Mt-BC T cells
Conclusion

Tumoral T cells have impaired functional capacities linked to:

- Increased proportion of $T_{H2}$ and $T_{H17}$ cells
- Higher susceptibility to death
- Lowest proliferation abilities
- Fewer anti-tumoral cytokines synthesis
- Decreased CD28 and increased PD1 expression

→ Mechanisms probably involved in BC immune escape
Perspectives

Better understand mechanisms and/or molecules involved in BC tumor escape in order to restore anti-tumoral immunity

✓ **T cells localization in BC**
   IHC data

✓ **Role of T cells co-signaling molecules in BC**
   PD1/PDL1 Blocking antibodies

Sites administration of immunotherapies: *In situ?*
Thanks

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Thank you for your attention