

Onco-hématologie et réanimation en 2022

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Institut Cochin, INSERM U1016, CNRS UMR-8104



AER – 17 Novembre 2022

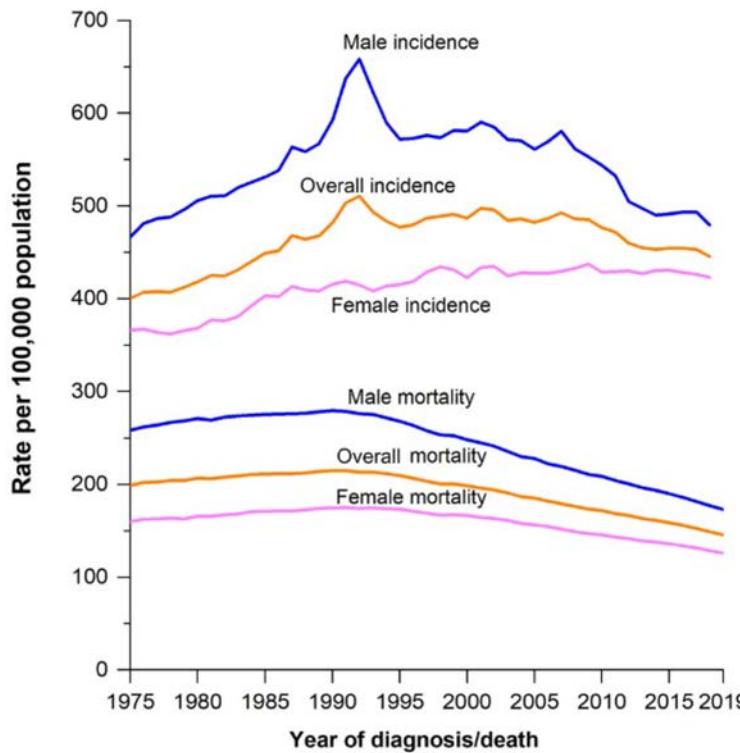
Liens d'intérêt

- **ALEXION: institutional grant**
- **GILEAD: consulting and lecture fees**

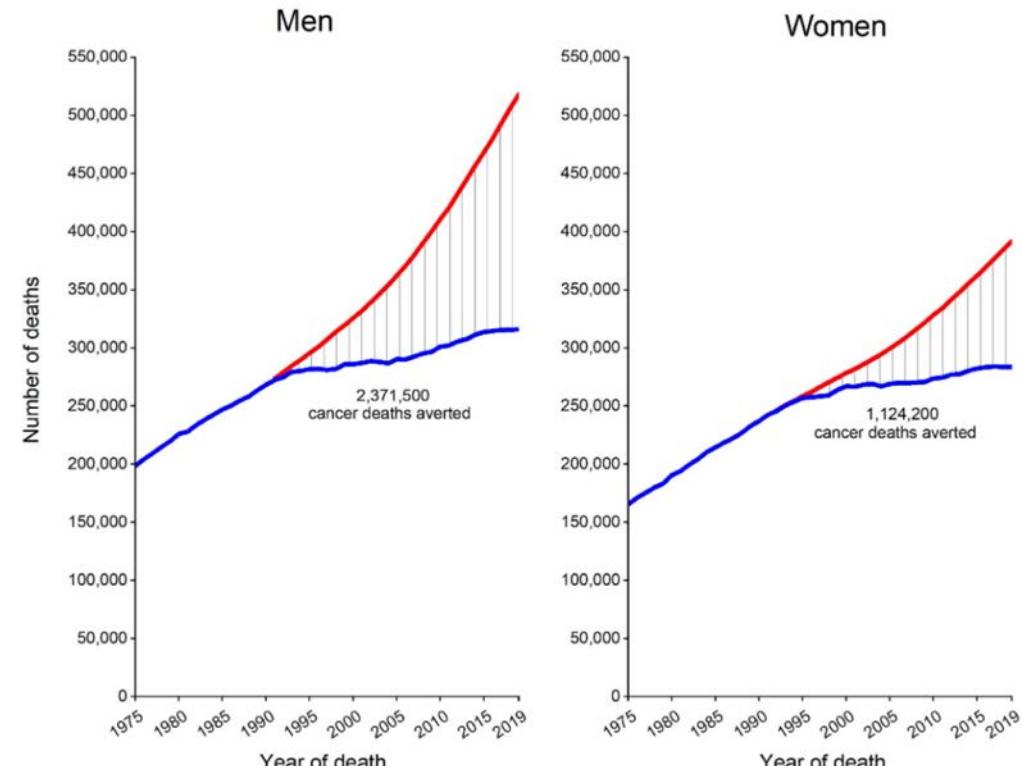


Le cancer aujourd’hui

Incidence et mortalité

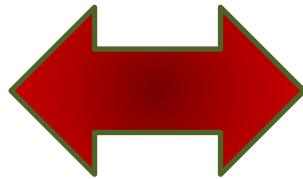
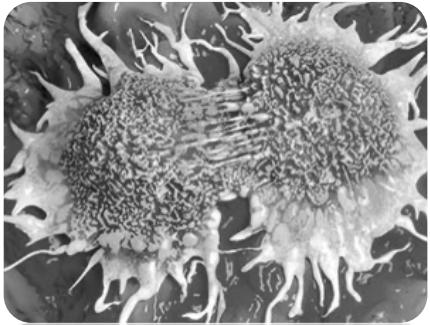


Nombre de décès par cancer

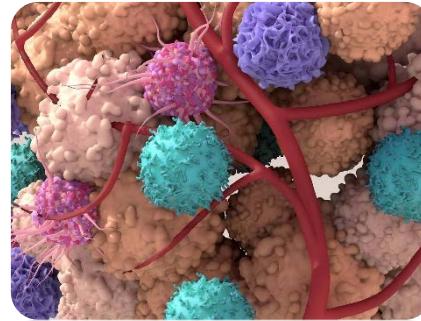


Des révolutions thérapeutiques

La cellule transformée



Le micro-environnement



Chirurgie

Radiothérapie

Chimiothérapie

Thérapies ciblées (inhTK)

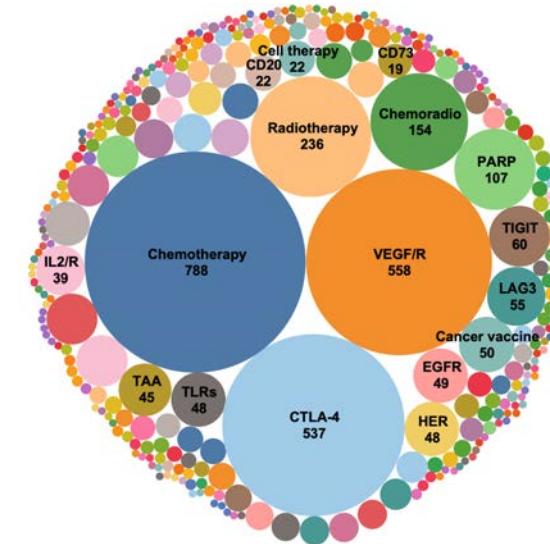
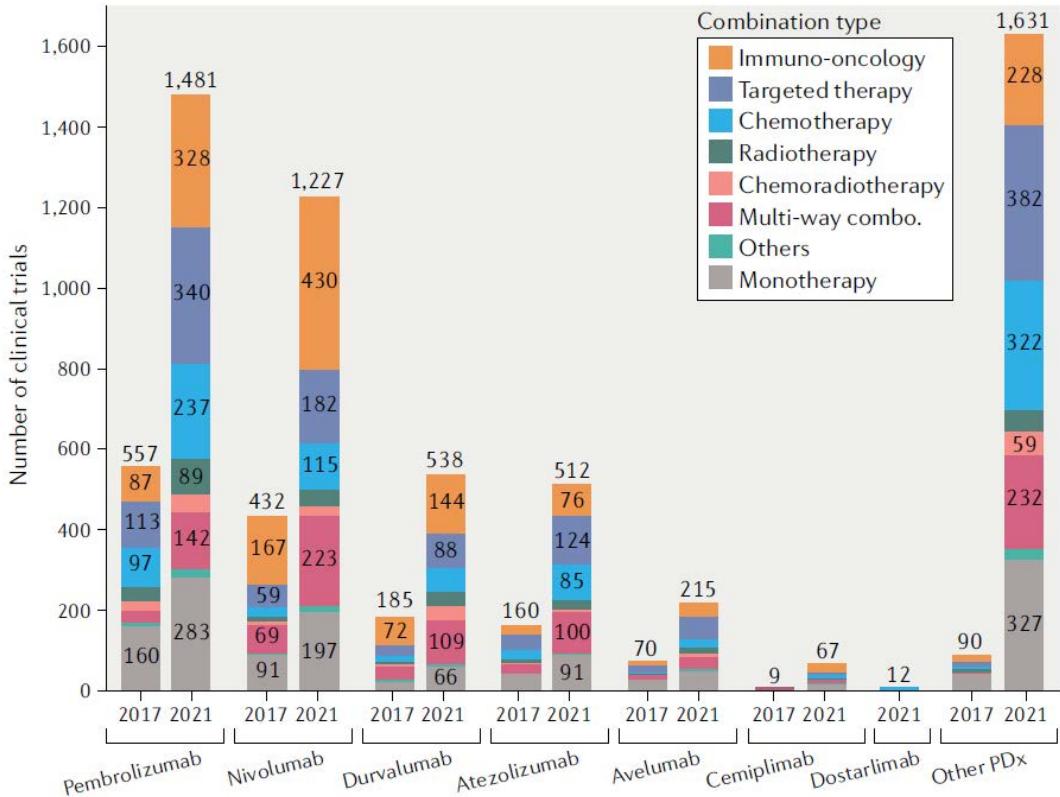
Thérapies cellulaires

Immunothérapie (inh. checkpoints)

Anti-angiogéniques

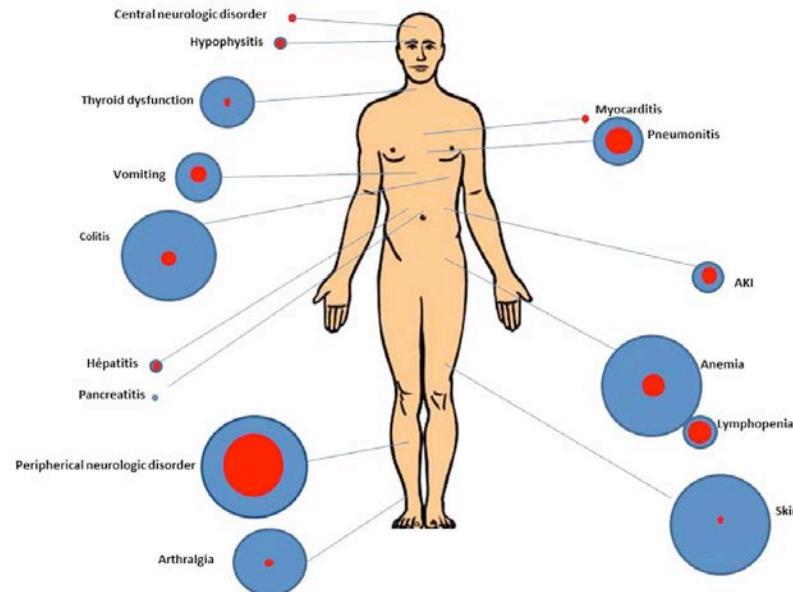
Composés microbiens

PD1/PD-L1 as part of multimodal cancer treatment



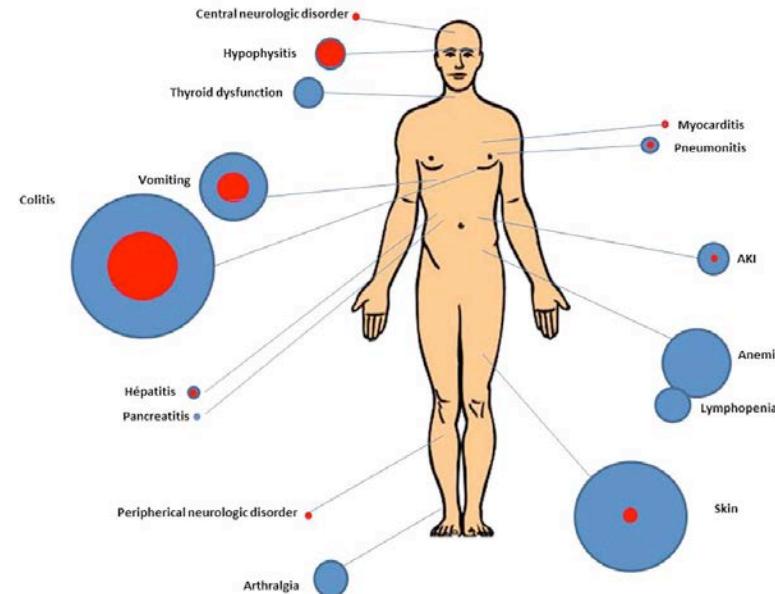
2017-2021
Number of studies + 378%

Toxicities of immune checkpoint inhibitors



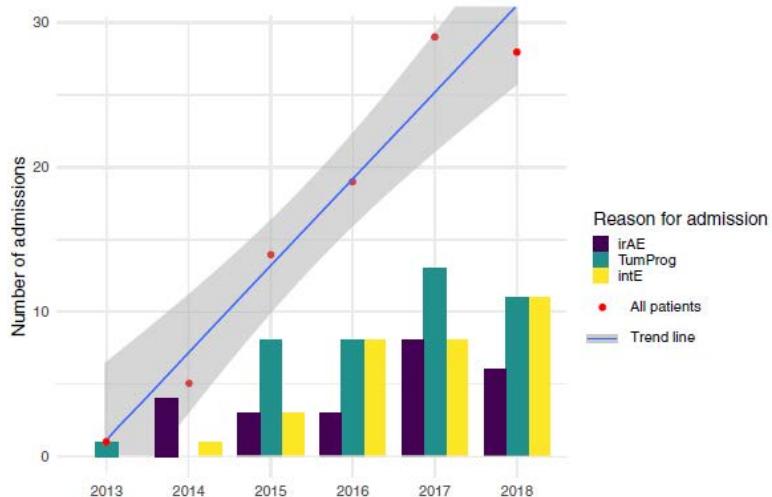
PD1 / PD-L1 inh

- All grade toxicity
- Grade 3-4 toxicity

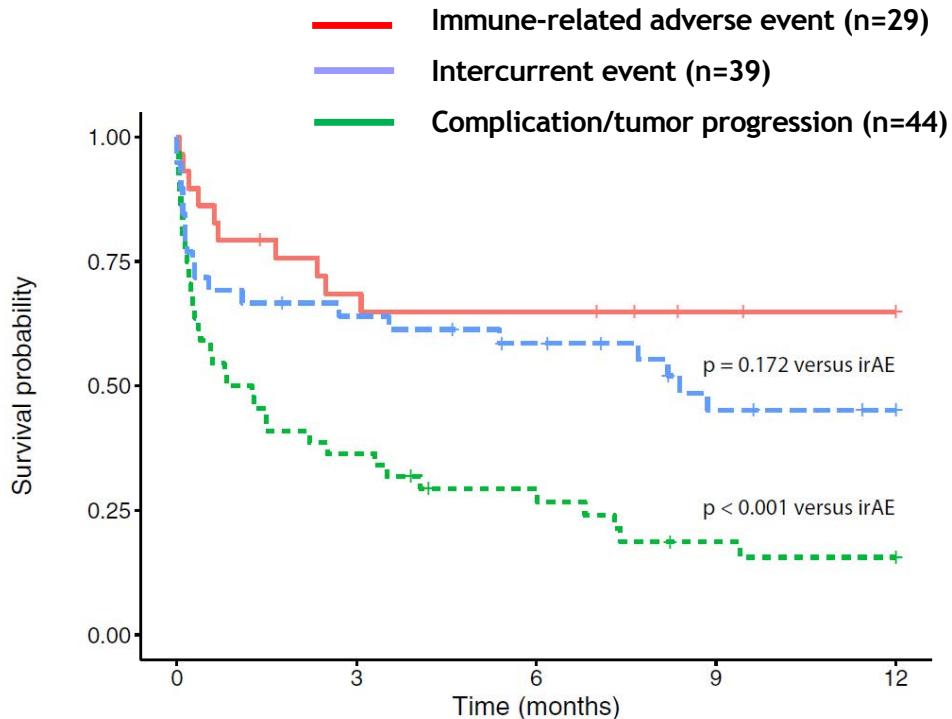


CTLA4 inh

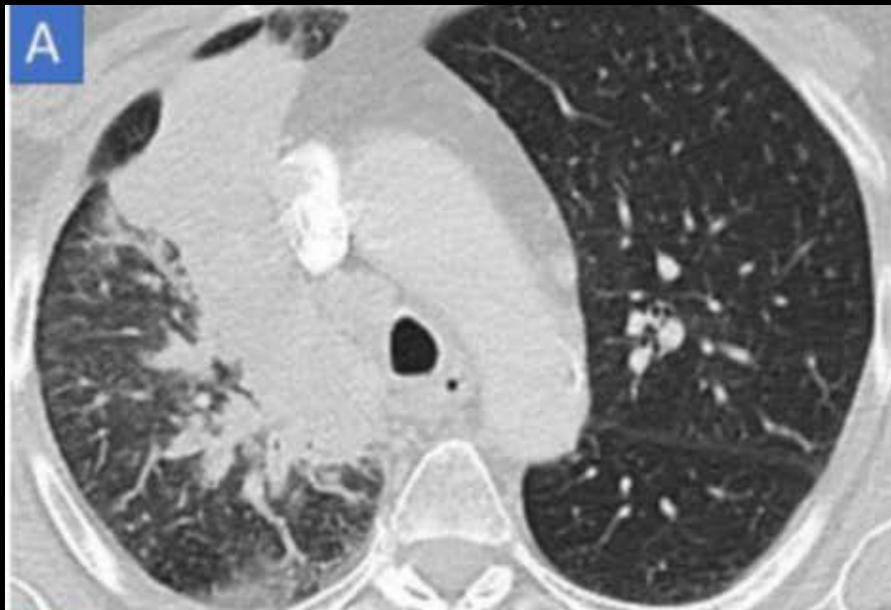
Immune-related adverse events: a retrospective look into the future of oncology in the ICU



4 réanimations (2013-2019)
112 patients sous inh. checkpoints



Addictions oncogéniques: thérapies ciblées

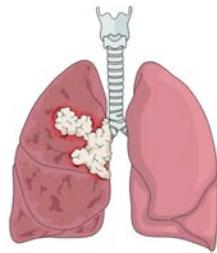


ADK EGFR-muté



Après 2 mois (afatinib)

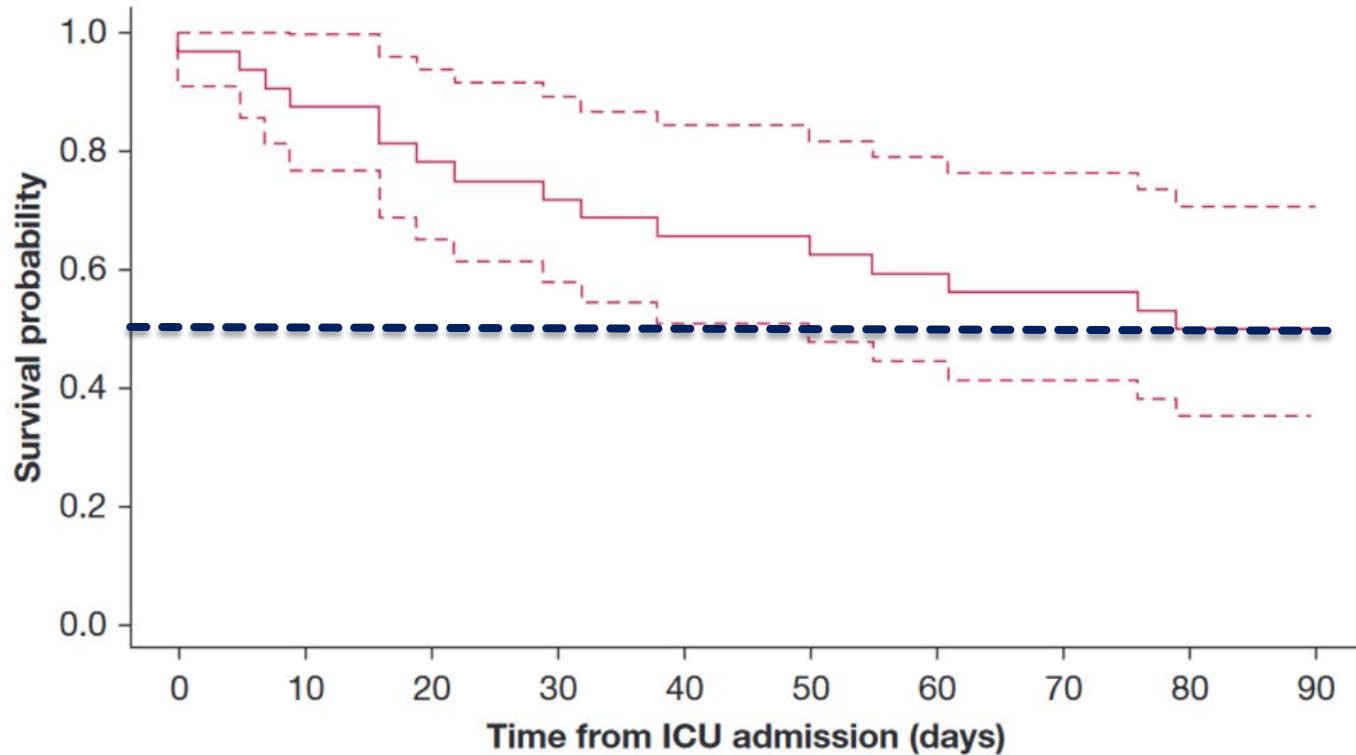
Inh. TK dans l'insuffisance respiratoire aiguë du NSCLC

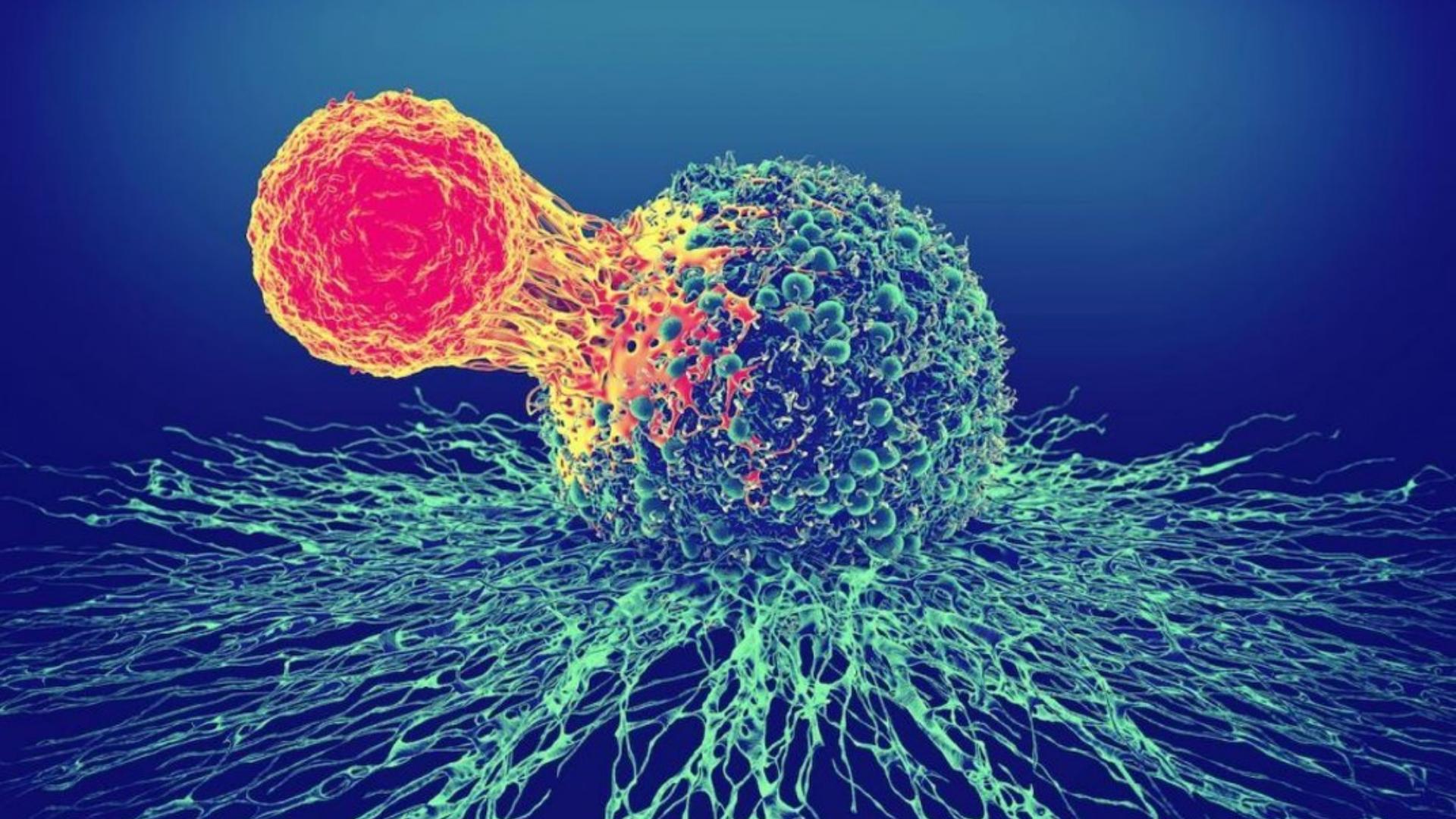


14 réanimations
2009-2019

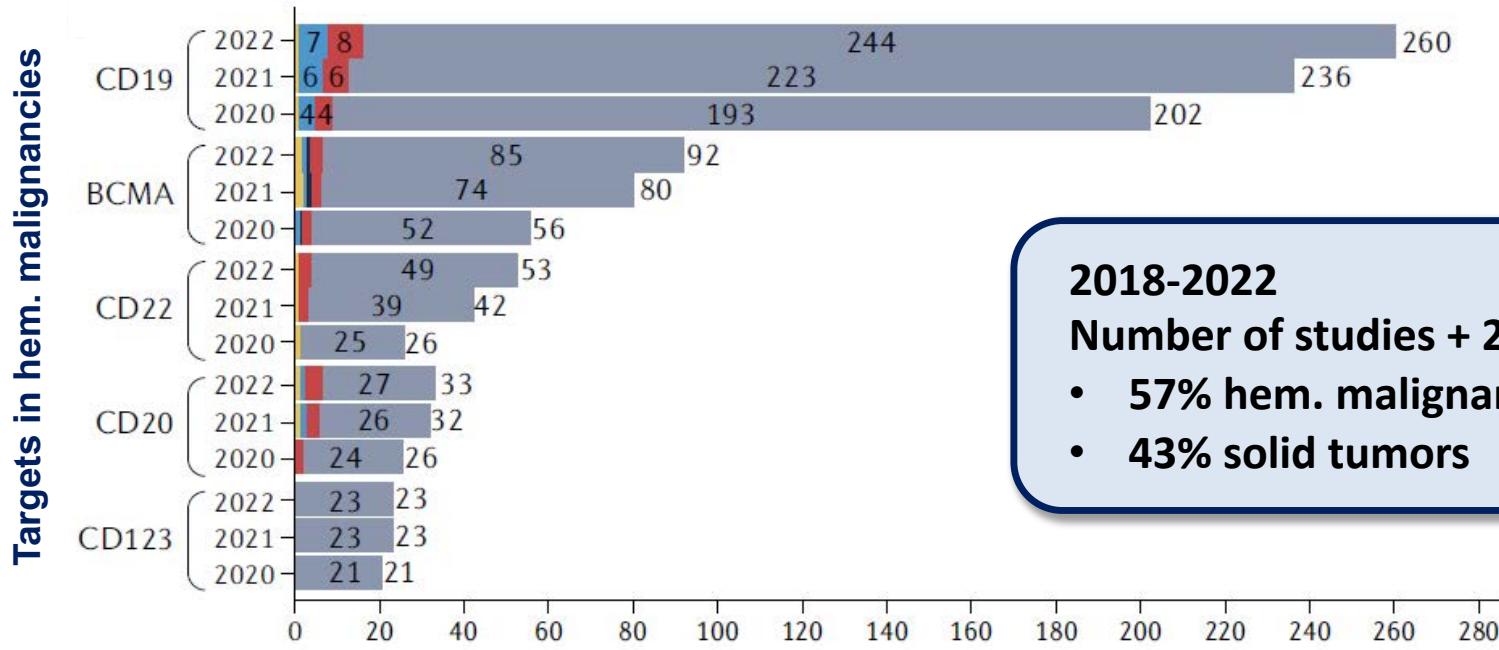
32 patients avec K
du poumon NSCLC
(69% M+)

53% ventilés





Cancer cell therapies in hematological malignancies



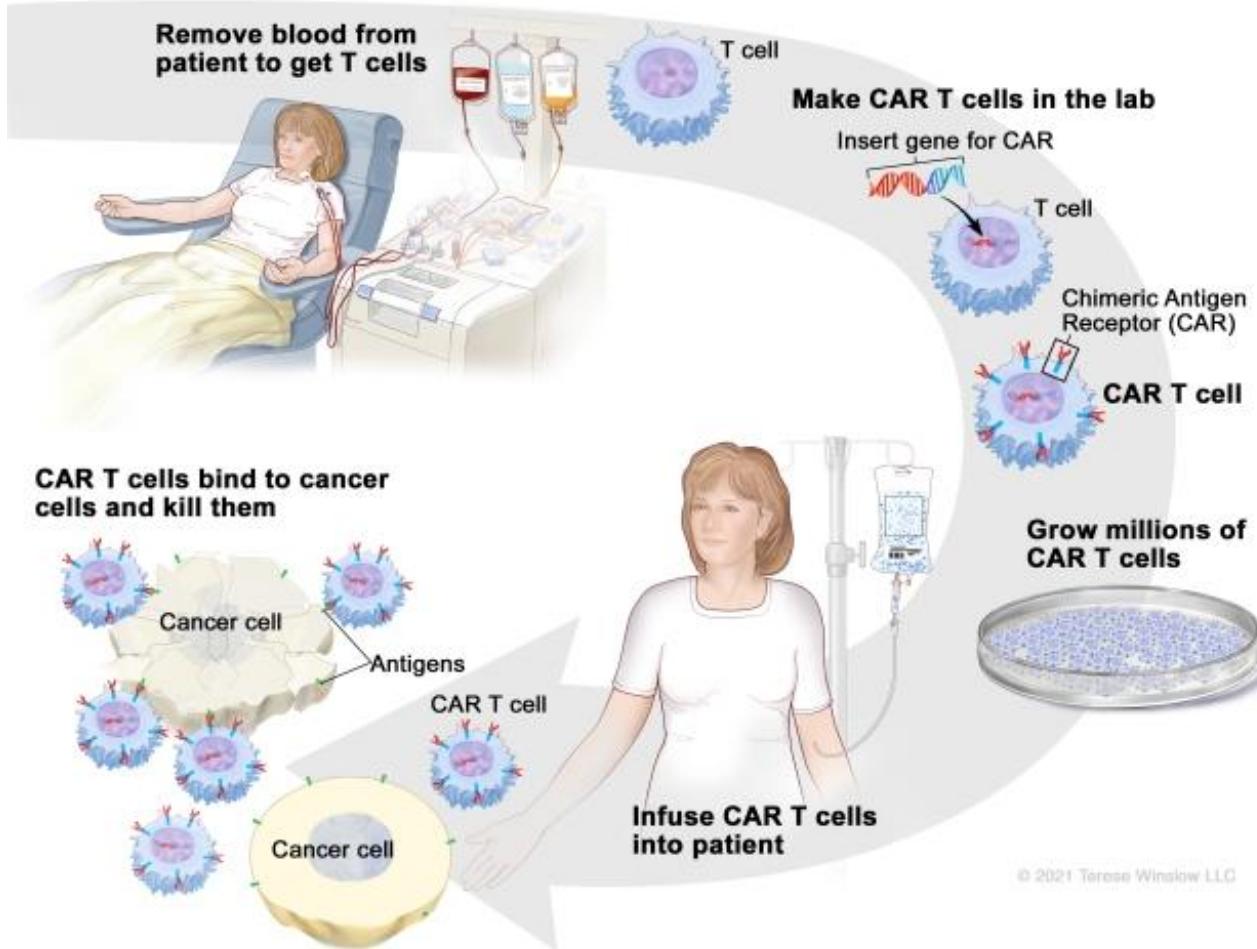
2018-2022

Number of studies + 269%

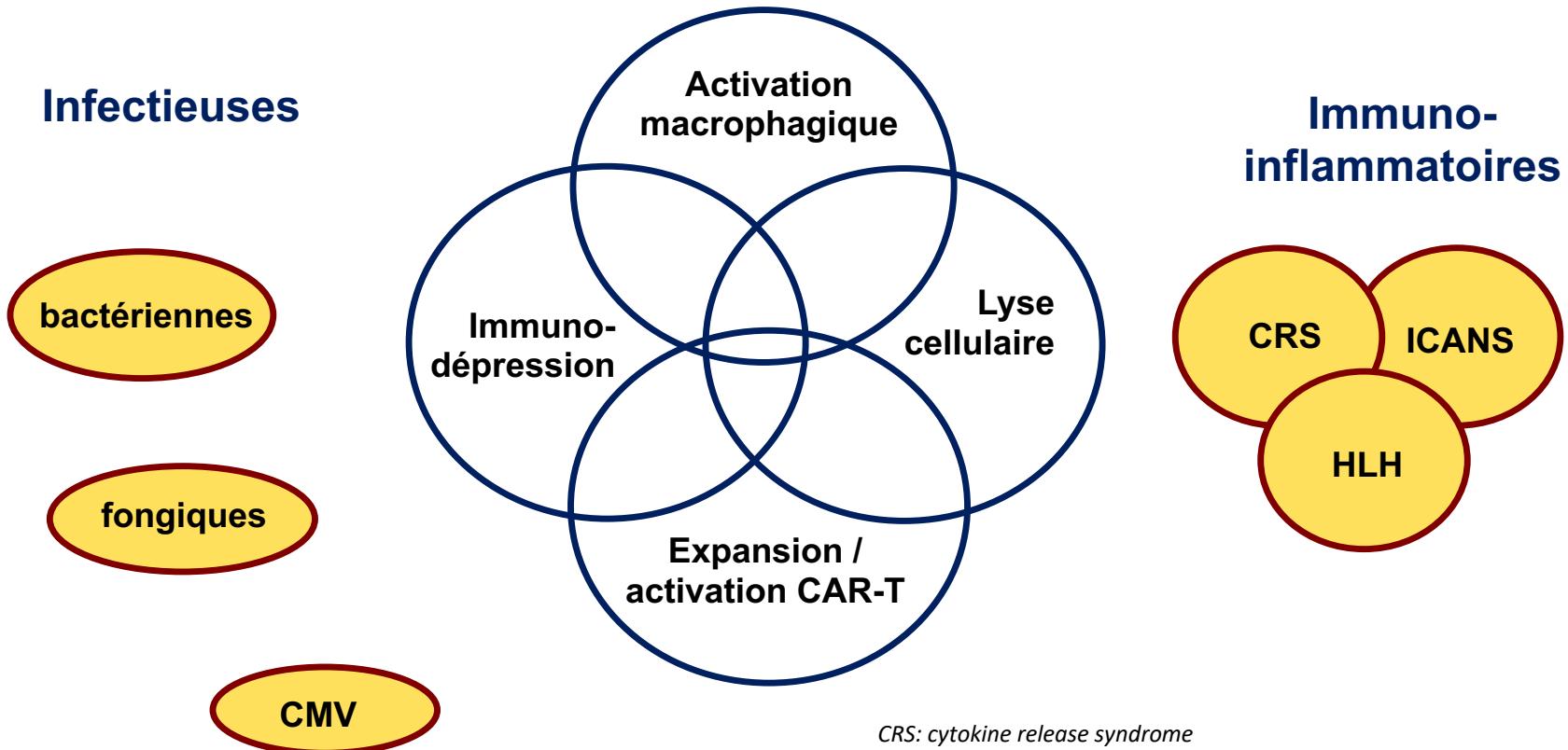
- 57% hem. malignancies
- 43% solid tumors

TIL cell	TCR-T cell	TAA/TSA-targeted T cell	Other T cells/novel T cell technologies
Other cell therapies	NK and NKT cell	CAR-T cell	

CAR T Cell Therapy



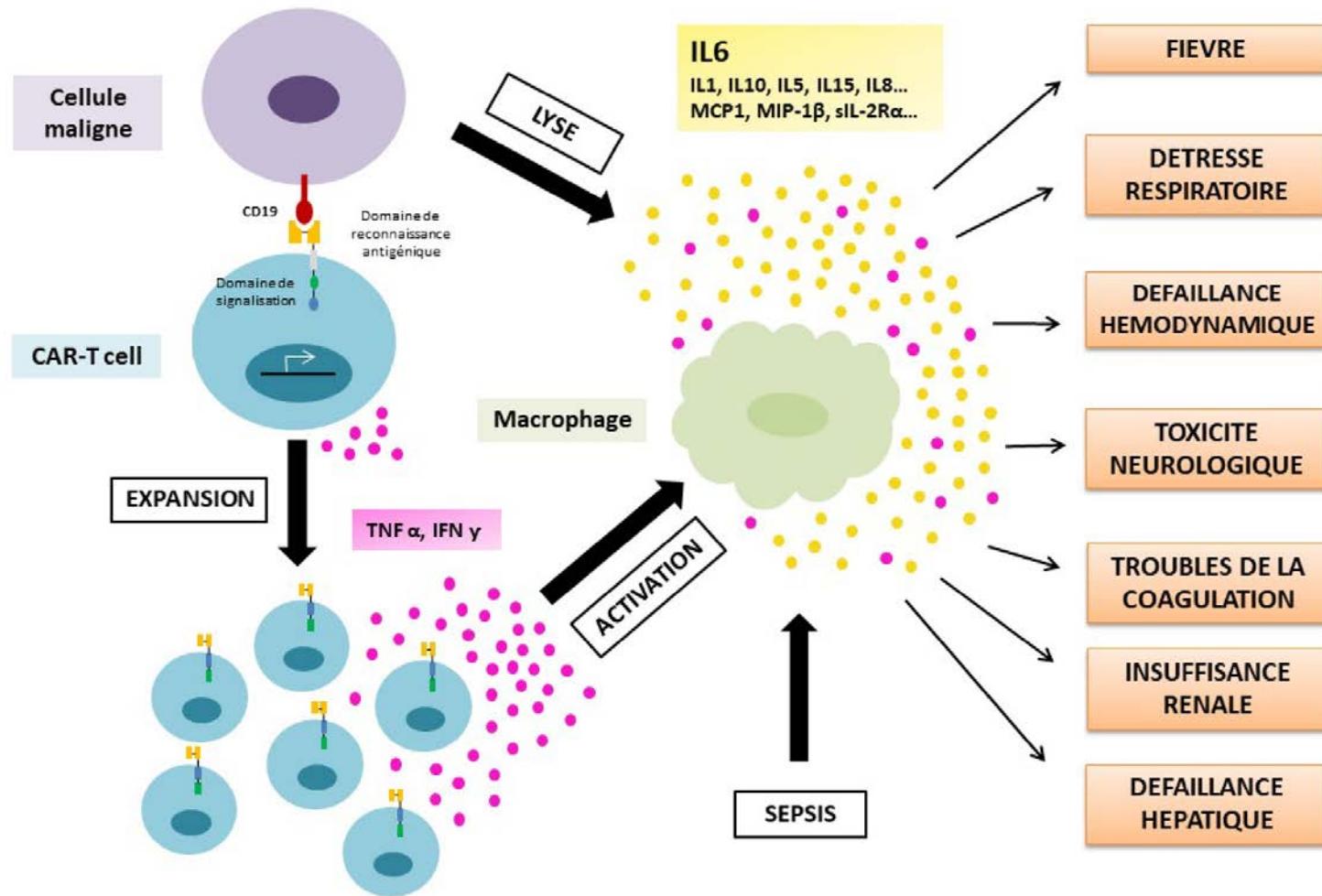
Complications des CAR-T cells



CRS: cytokine release syndrome

ICANS: immune effector cell-associated neurotoxicity syndrome

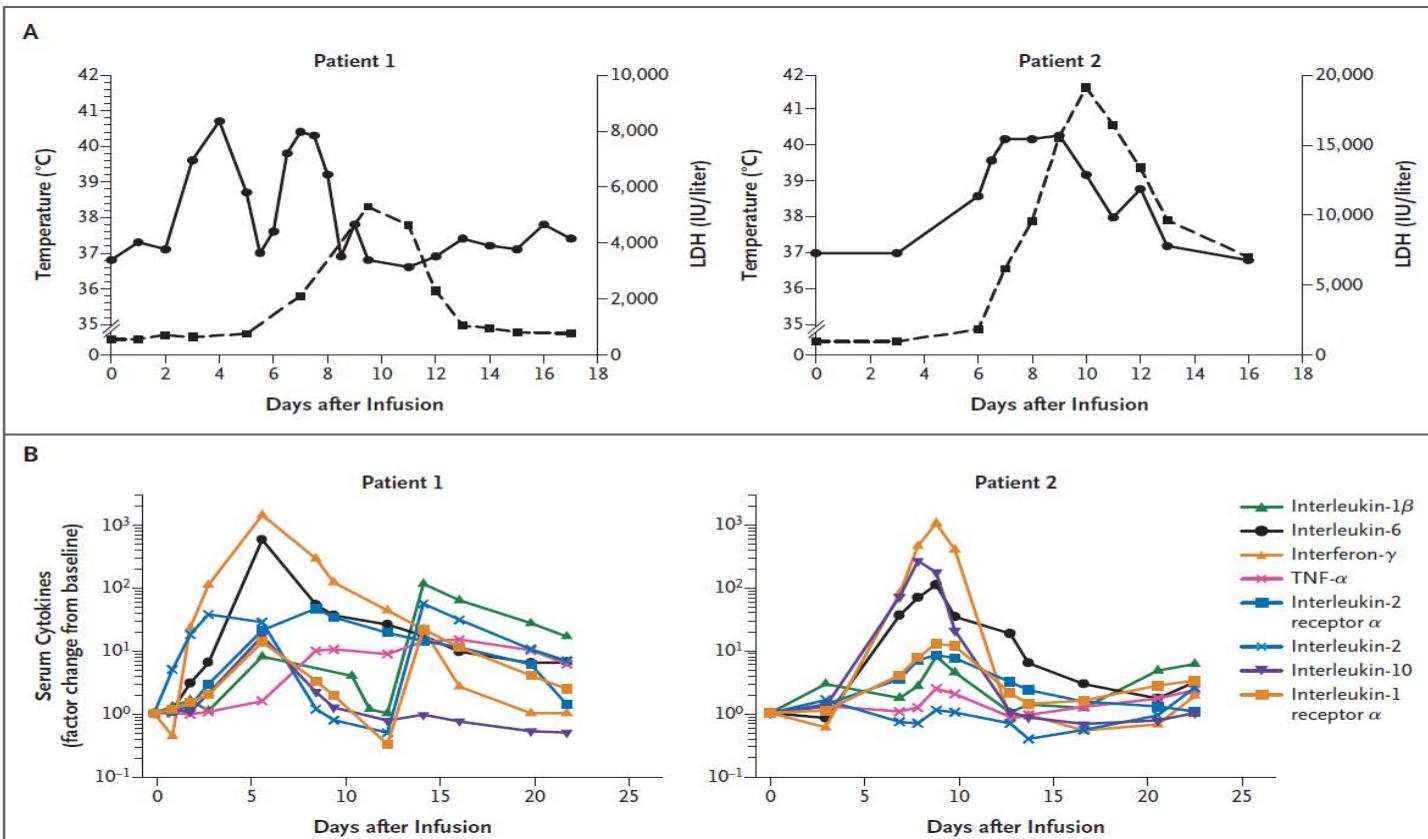
HLH: hemophagocytic lymphohistiocytosis



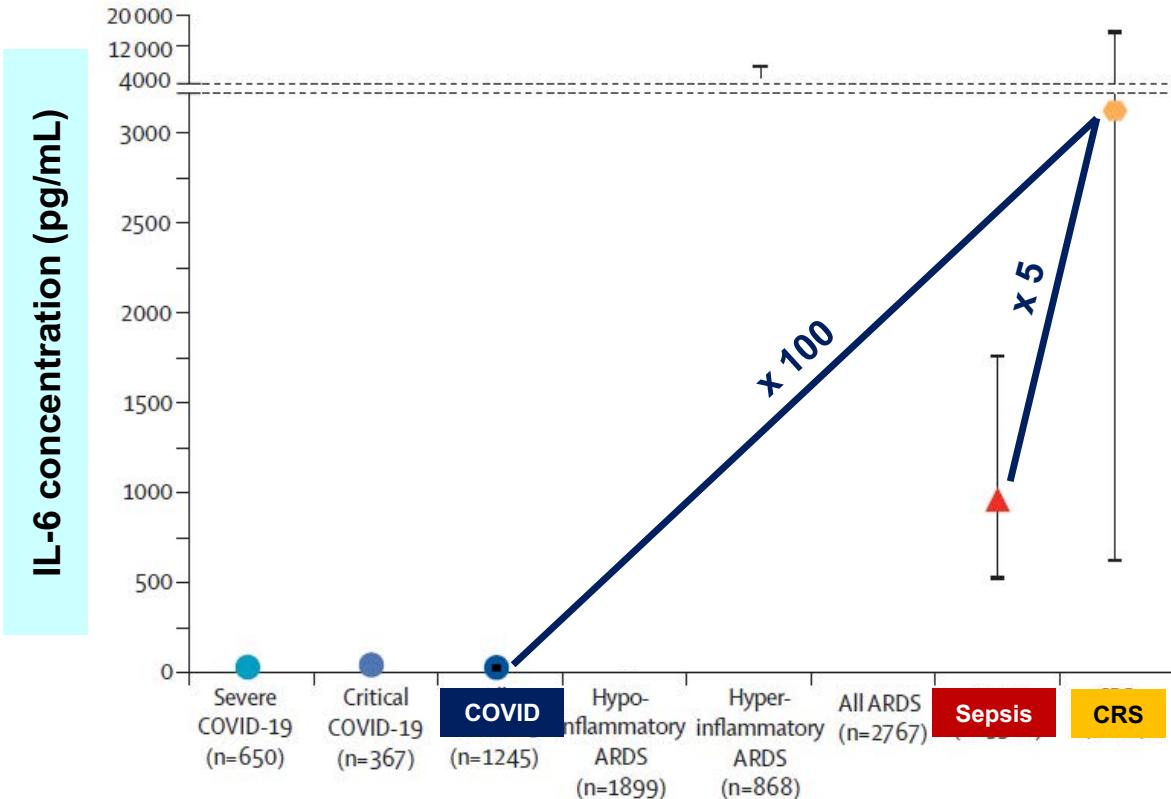
Chimeric Antigen Receptor–Modified T Cells for Acute Lymphoid Leukemia

N Engl J Med 2013;368:1509-18.

Stephan A. Grupp, M.D., Ph.D., Michael Kalos, Ph.D., David Barrett, M.D., Ph.D.,



CRS: une tempête cytokinique



ASTCT Consensus Grading for Cytokine Release Syndrome and Neurologic Toxicity Associated with Immune Effector Cells



Daniel W. Lee^{1,#}, Bianca D. Santomasso^{2,#}, Frederick L. Locke³, Armin Ghobadi⁴, Cameron J. Turtle⁵, Jennifer N. Brudno⁶, Marcela V. Maus⁷, Jae H. Park⁸, Elena Mead⁹, Steven Pavletic⁶, William Y. Go¹⁰, Lamis Eldjerou¹¹, Rebecca A. Gardner¹², Noelle Frey¹³, Kevin J. Curran¹⁴, Karl Peggs¹⁵, Marcelo Pasquini¹⁶, John F. DiPersio⁴, Marcel R.M. van den Brink⁸, Krishna V. Komanduri¹⁷, Stephan A. Grupp^{18,*}, Sattva S. Neelapu^{19,**}

D.W. Lee et al. / Biol Blood Marrow Transplant 25 (2019) 625–638

Journal of Clinical Oncology®

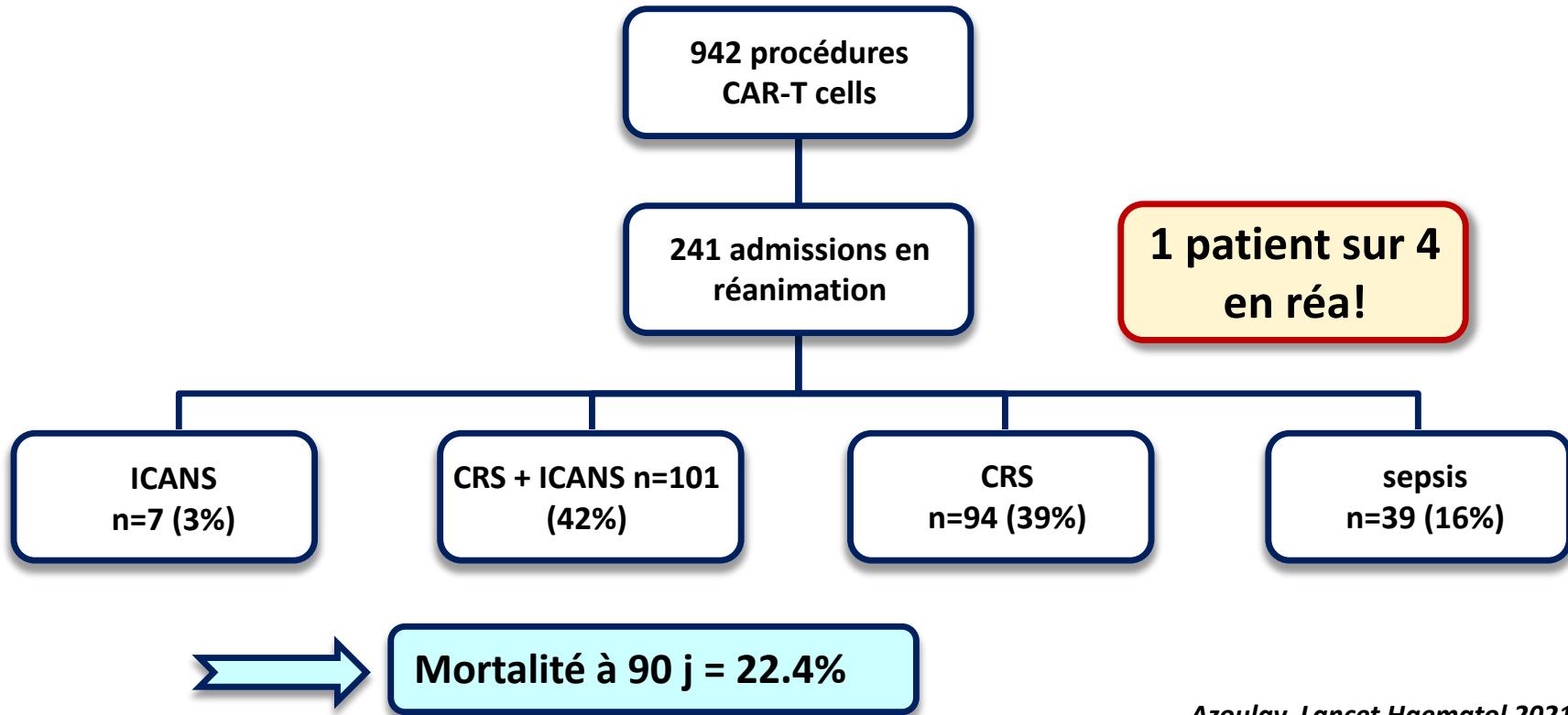
Management of Immune-Related Adverse Events in Patients Treated With Chimeric Antigen Receptor T-Cell Therapy: ASCO Guideline

ASCO special articles

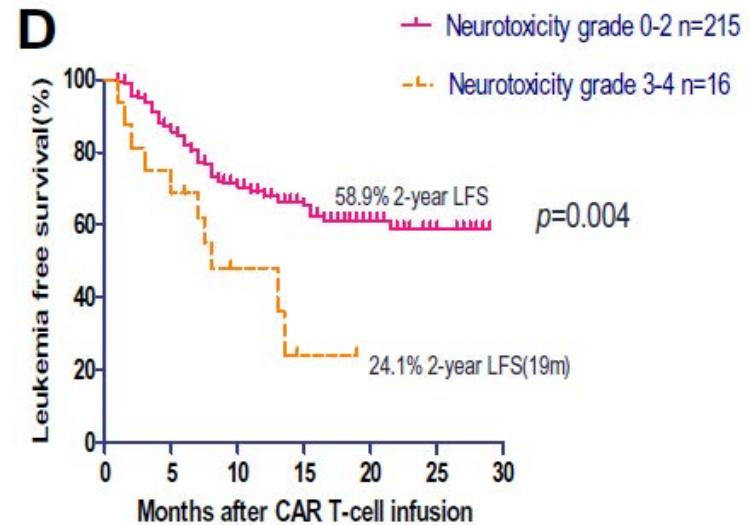
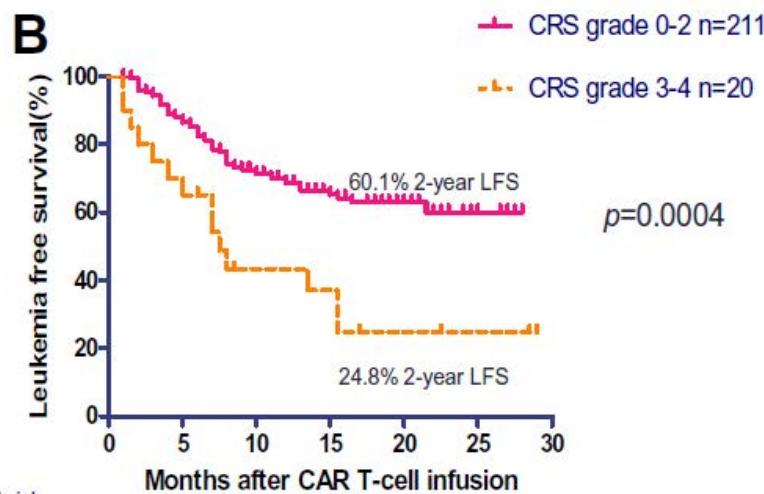
Bianca D. Santomasso, MD, PhD¹; Loretta J. Nastoupil, MD²; Sherry Adkins, RN, MS²; Christina Lacchetti, MHSc³; Bryan J. Schneider, MD⁴; Milan Anadkat, MD⁵; Michael B. Atkins, MD⁶; Kelly J. Brassil, PhD, RN²; Jeffrey M. Caterino, MD, MPH⁷; Ian Chau, MD⁸; Marianne J. Davies, DNP⁹; Marc S. Ernstoff, MD¹⁰; Leslie Fecher, MD⁴; Pauline Funchain, MD¹¹; Ishmael Jaiyesimi, DO, MS¹²; Jennifer S. Mammen, MD, PhD¹³; Jarushka Naidoo, MD¹⁴; Aung Naing, MD²; Tanyanika Phillips, MD¹⁵; Laura D. Porter, MD¹⁶; Cristina A. Reichner, MD¹⁷; Carole Seigel, MBA¹⁸; Jung-Min Song, MSN, RN, CNS¹¹; Alexander Spira, MD, PhD¹⁹; Maria Suarez-Almazor, MD²; Umang Swami, MD²⁰; John A. Thompson, MD²¹; Praveen Vikas, MD²²; Yinghong Wang, MD²; Jeffrey S. Weber, MD, PhD²³; Kathryn Bollin, MD²⁴; and Monalisa Ghosh, MD²⁵

J Clin Oncol 39:3978-3992. © 2021 by American Society of Clinical Oncology

Outcomes in patients treated with chimeric antigen receptor T-cell therapy who were admitted to intensive care (CARTTAS): an international, multicentre, observational cohort study

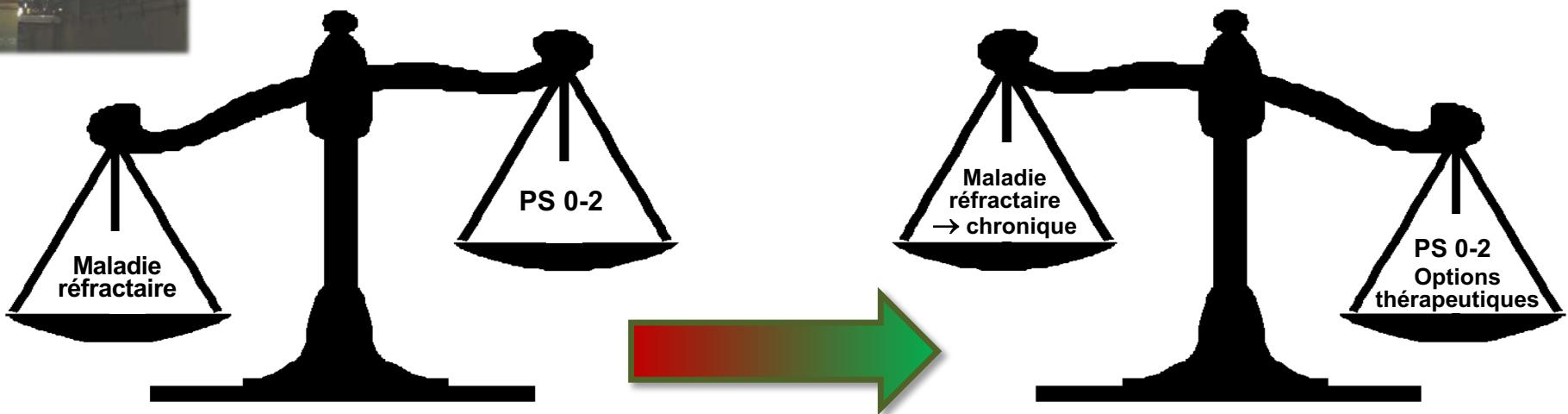


CRS / ICANS: quel impact sur le pronostic de la maladie maligne?





Transfert en réanimation ? Un changement de paradigme





Critically ill cancer patient's resuscitation: a Belgian/French societies' consensus conference

1. Which triage criteria, in terms of complications and considering the underlying neoplastic disease and possible therapeutic limitations, should be used to guide admission of cancer patient to intensive care units?
 2. Which ventilatory support should be used in Non-invasive Ventilation, Endotracheal Intubation, Mechanical Ventilation (IMV), Extracorporeal Membrane Oxygenation (ECMO) and in which complications and in which environment?
 3. Which support should be used for haemodynamic instability, in which complications and in which environment?
 4. Which haemodynamic support should be used, for which complications, and in which environment?
 5. Which benefit of cardiopulmonary resuscitation in cancer patients and for which complications?
 6. Which intensive monitoring in the context of oncologic treatment (surgery, anti-cancer treatment ...)?
 7. What specific considerations should be taken into account for the admission of cancer patients to an intensive care unit?
- 41 recommendations (37 strong + 4 low)**
- **Grade A: 1**
 - **Grade B: 6**
 - **Grade C: 16**
 - **Expert advice: 18**
9. Which training is required for critical care doctors in charge of cancer patients?

Evaluer le pronostic

En réanimation

Défaillances d'organes

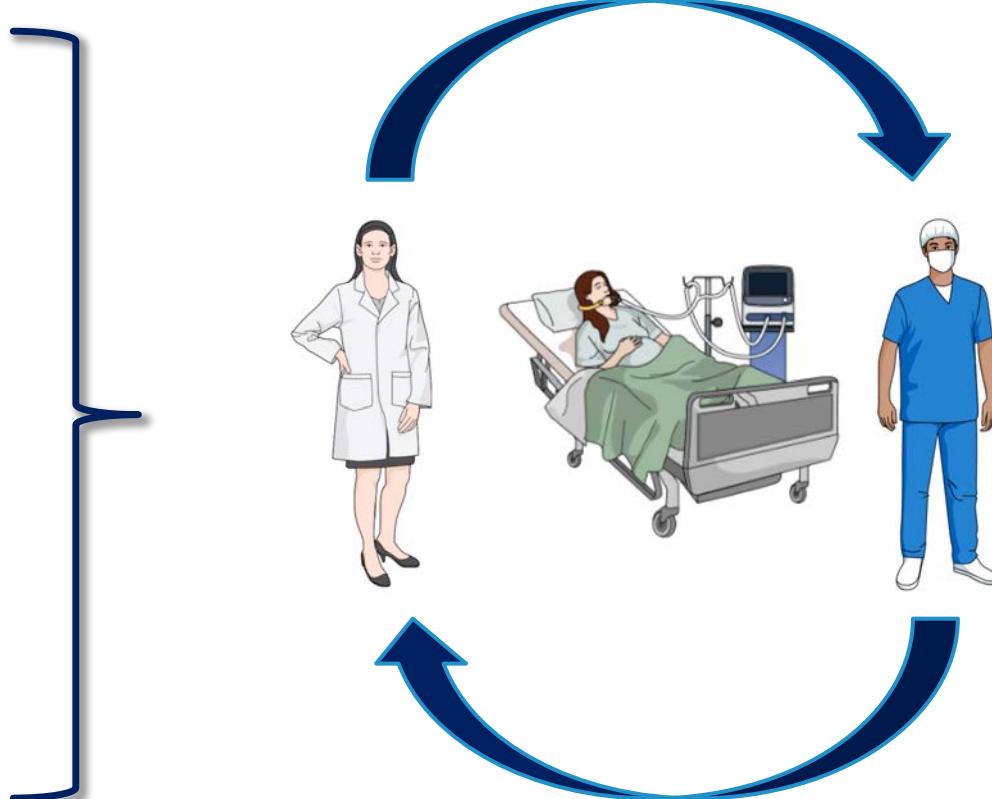
Performance status

+/- caractéristiques du cancer

À long terme (6 mois-1 an)

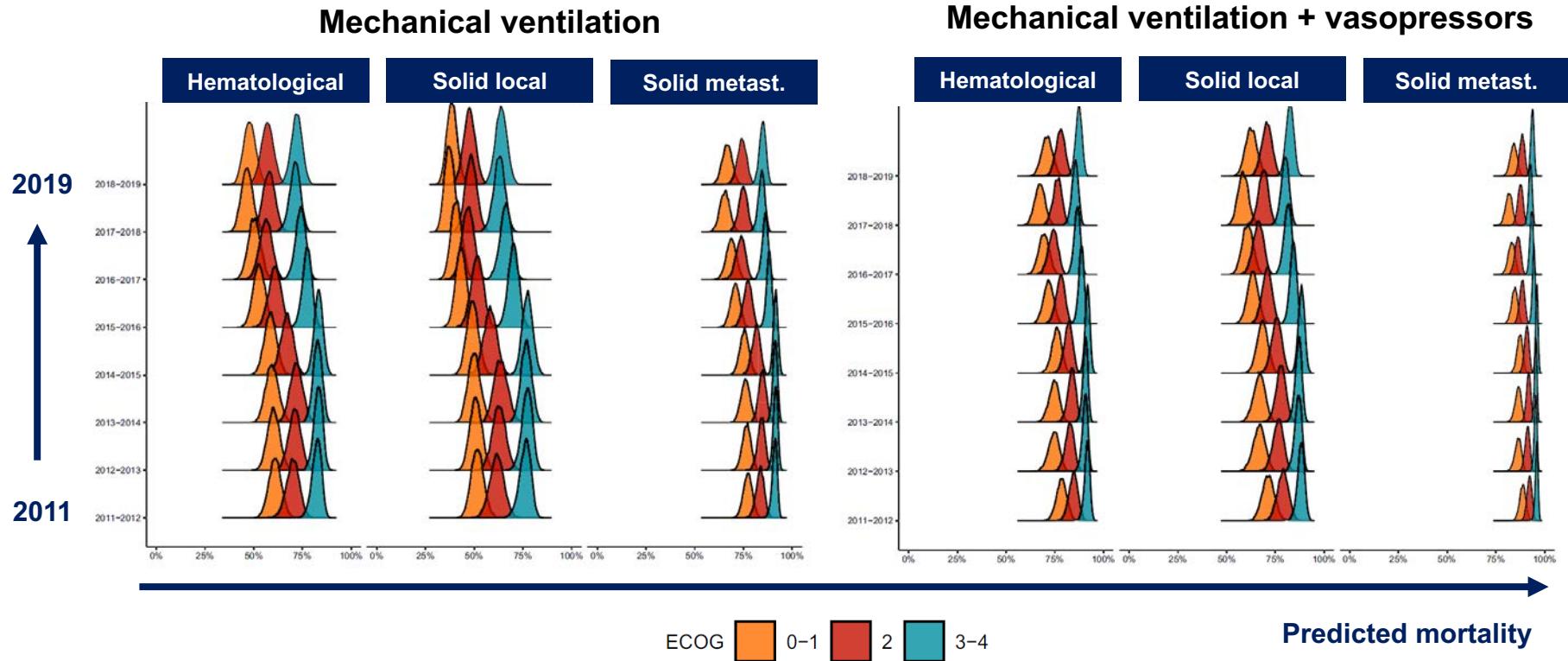
Caractéristiques néoplasiques

Performance status



Heo. *Support Care Cancer* 2015; Xia. *BMC Cancer* 2016; Vincent. *Annals Intensive Care* 2018;
Kingah. *J Crit Care Med* 2018; Vigneron. *Annals Intensive Care* 2021

Performance status: un élément pronostique essentiel



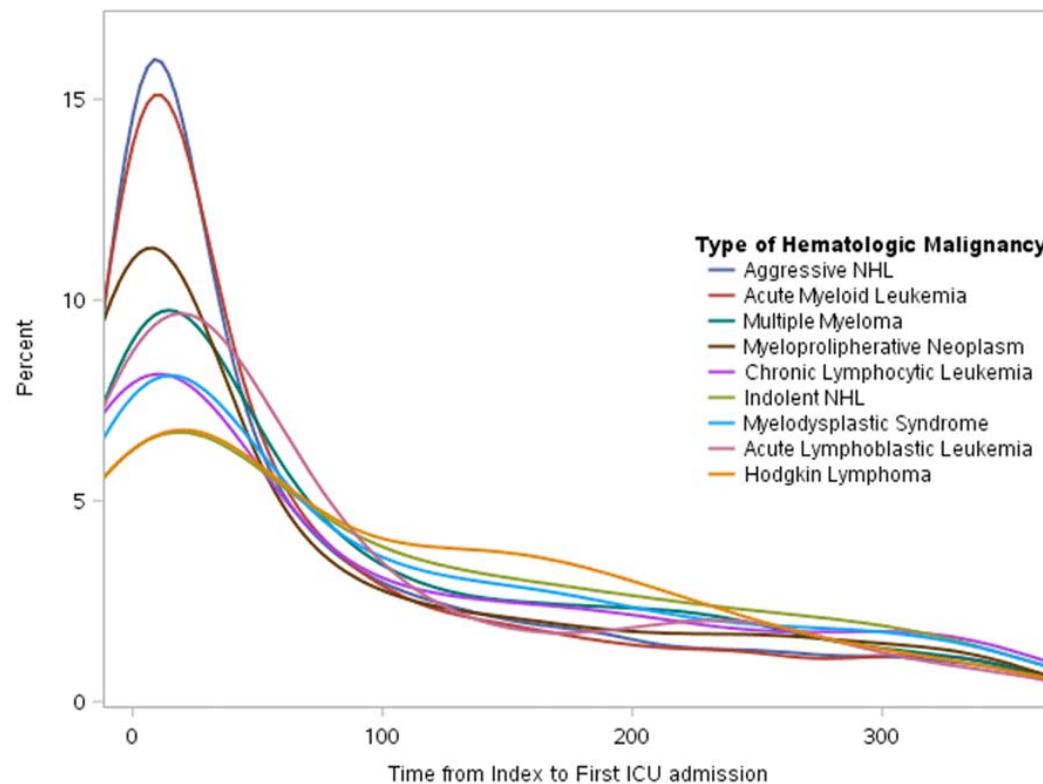
Critical illness in patients with hematologic malignancy: a population-based cohort study



Bruno L. Ferreyro^{1,2,3,10*}, Damon C. Scales^{1,2,4,5,6}, Hannah Wunsch^{1,2,4,5}, Matthew C. Cheung^{5,7,8}, Vikas Gupta^{8,9}, Refik Sasin⁵, Santhosh Thyagu^{8,9} and Laveena Munshi^{1,2,3}



Ontario, CA
2006-2017
87 965 patients
One-year ICU admission 13.9%



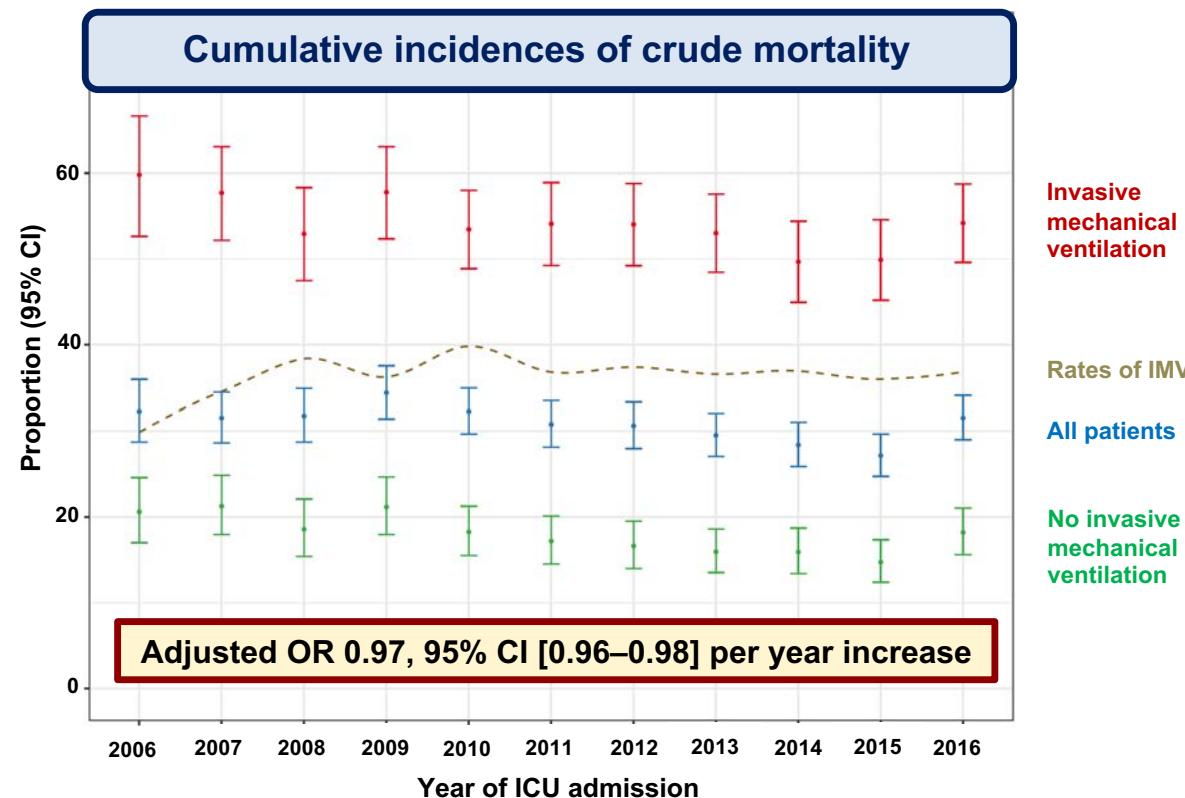
Critical illness in patients with hematologic malignancy: a population-based cohort study



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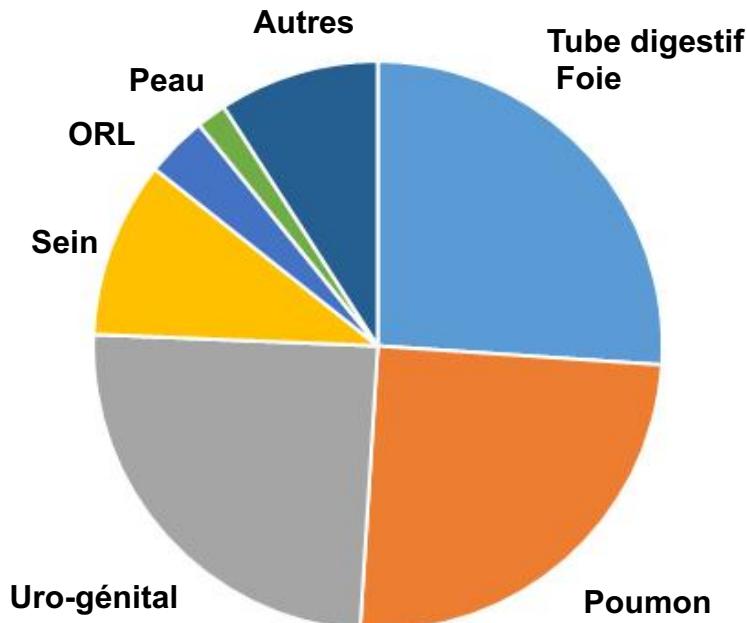
Ontario, CA
2006-2017
87 965 patients
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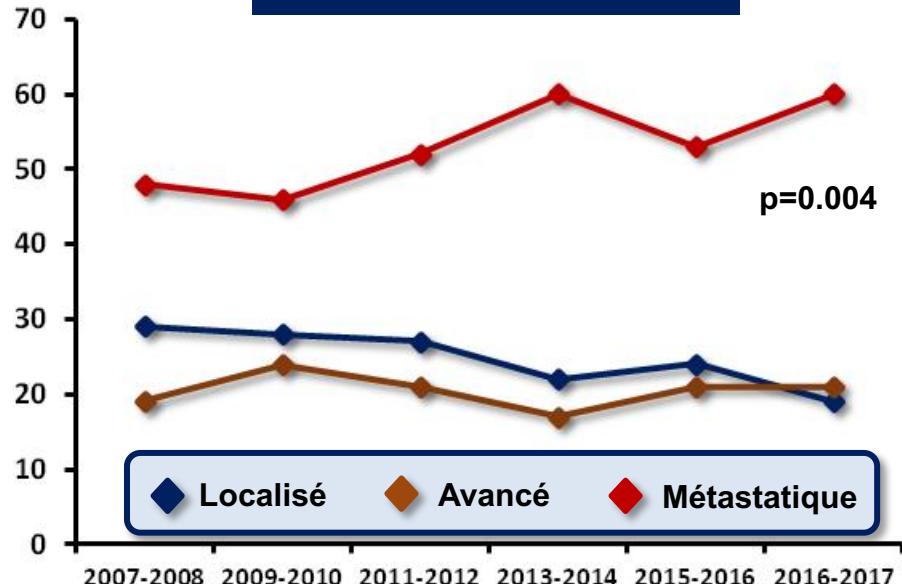
Expérience monocentrique 2007-2018



1525 patients avec tumeurs solides



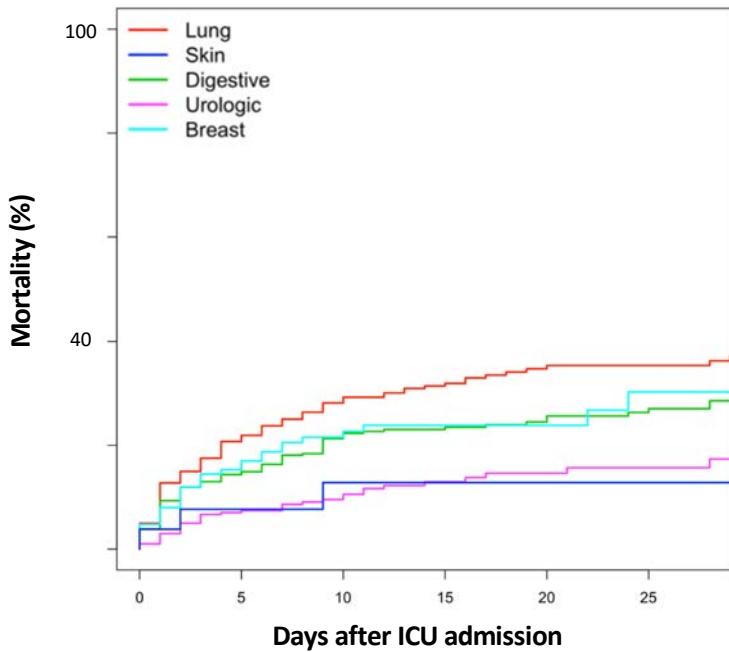
Stade de la maladie



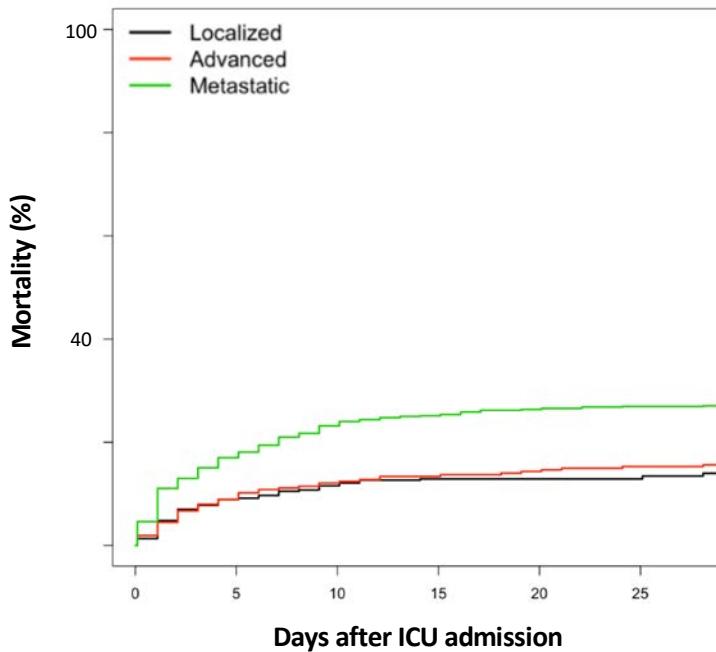
Pronostic à court terme



Type de cancer



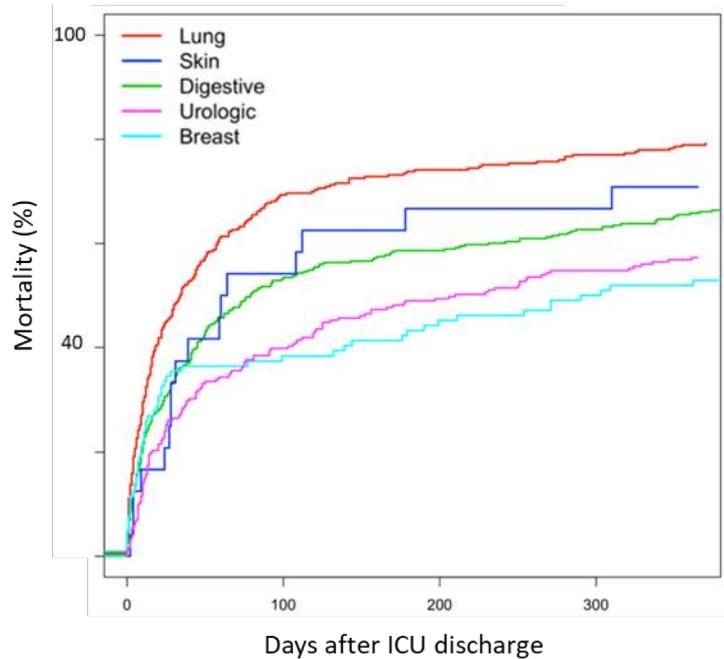
Stade



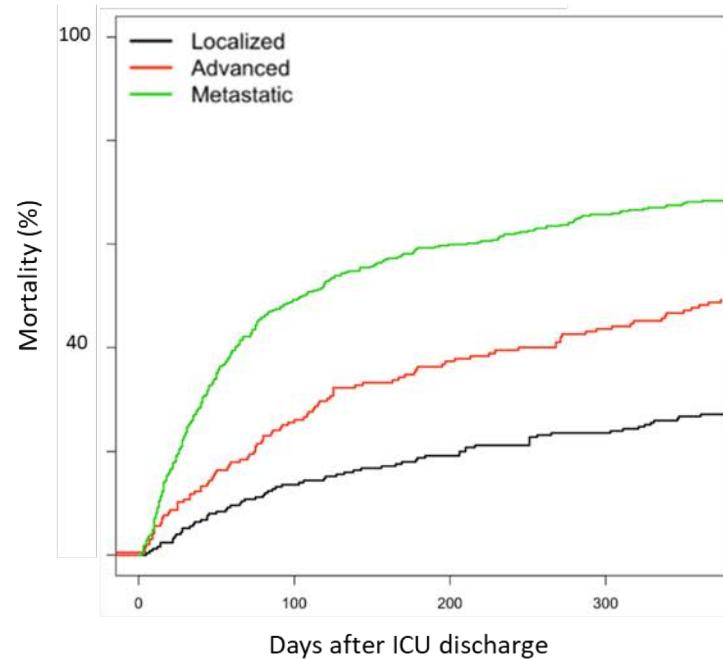
Pronostic à long terme



Type de cancer

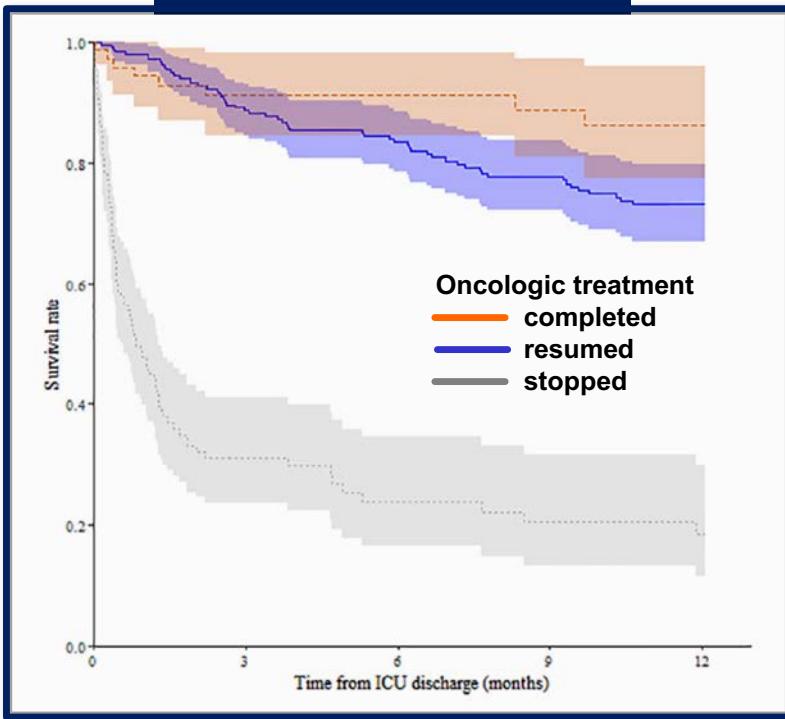


Stade

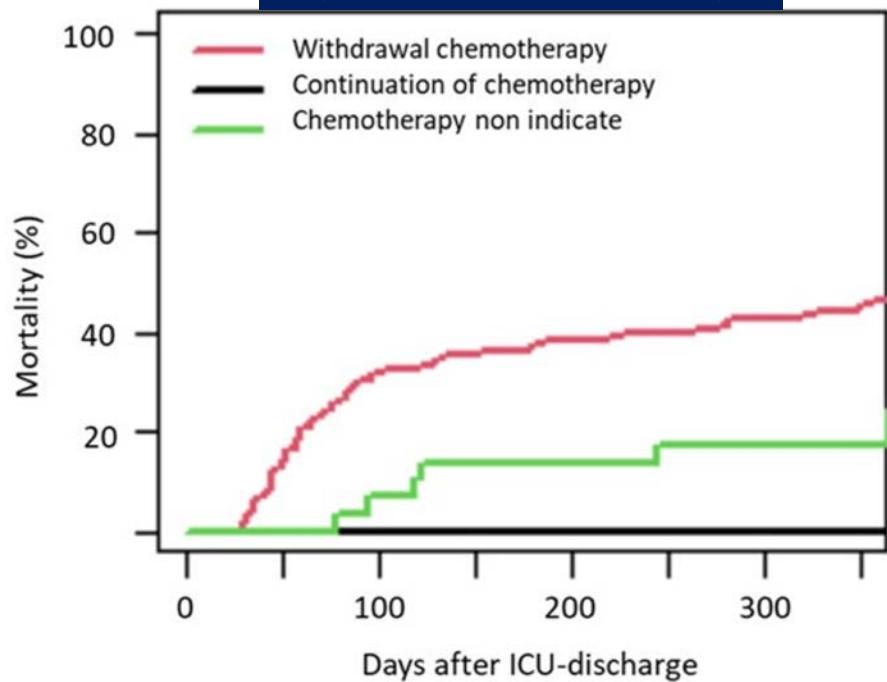


A long terme : la poursuite du traitement

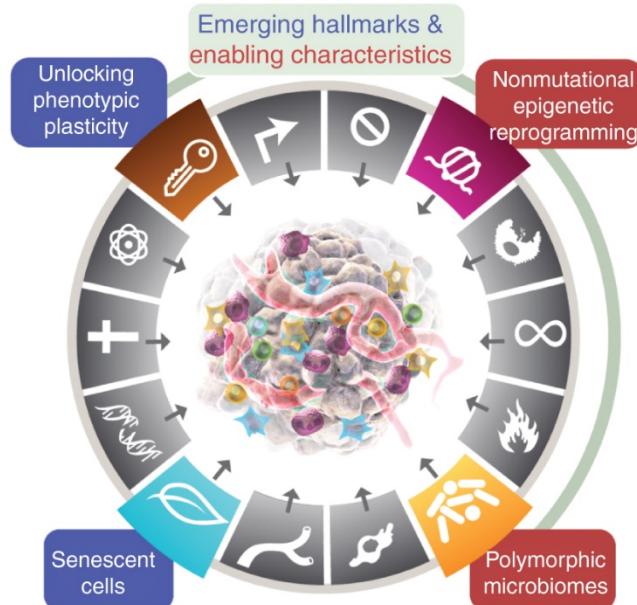
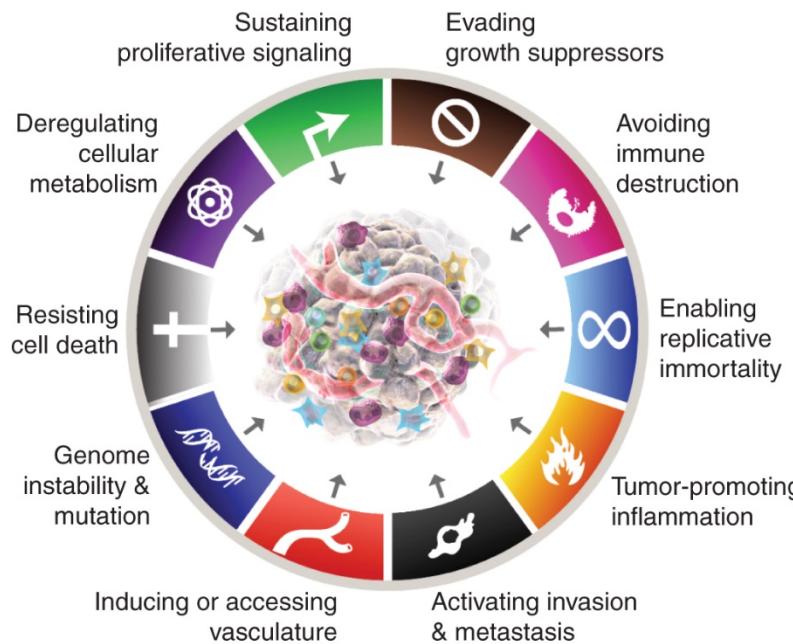
Mortalité à 1 an



Mortalité à 1 an
(cancers du poumon)



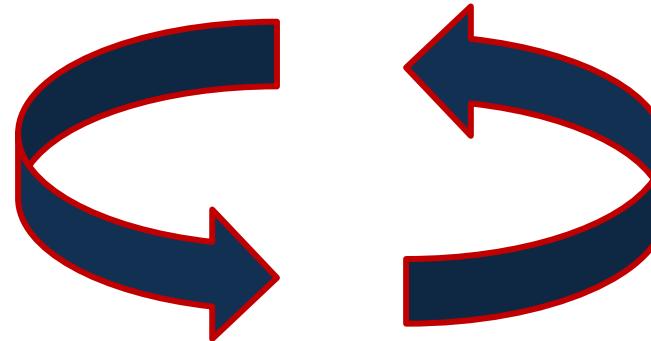
Hallmarks of Cancer: New Dimensions



Sepsis and Cancer: An Interplay of Friends and Foes

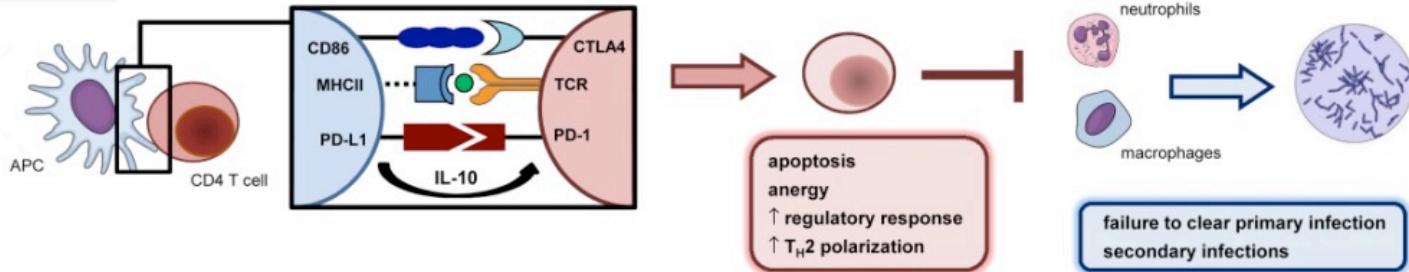
Adrien Mirouse^{1,2,3}, Clara Vigneron^{1,2,4}, Jean-François Litjos^{1,2,4}, Jean-Daniel Chiche^{1,2,4}, Jean-Paul Mira^{1,2,4}, Djamel Mokart⁵, Elie Azoulay^{1,3}, and Frédéric Pène^{1,2,4}

How does cancer impact on the susceptibility and outcome to sepsis?

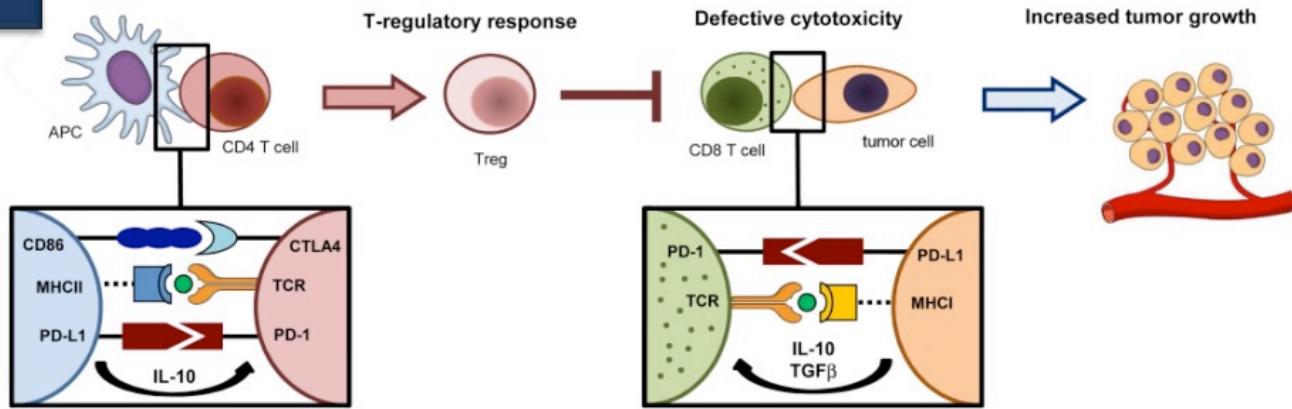


Does sepsis impact on the susceptibility to cancer?

Sepsis



Cancer



Sepsis and Risk of Cancer Among Elderly Adults in the United States

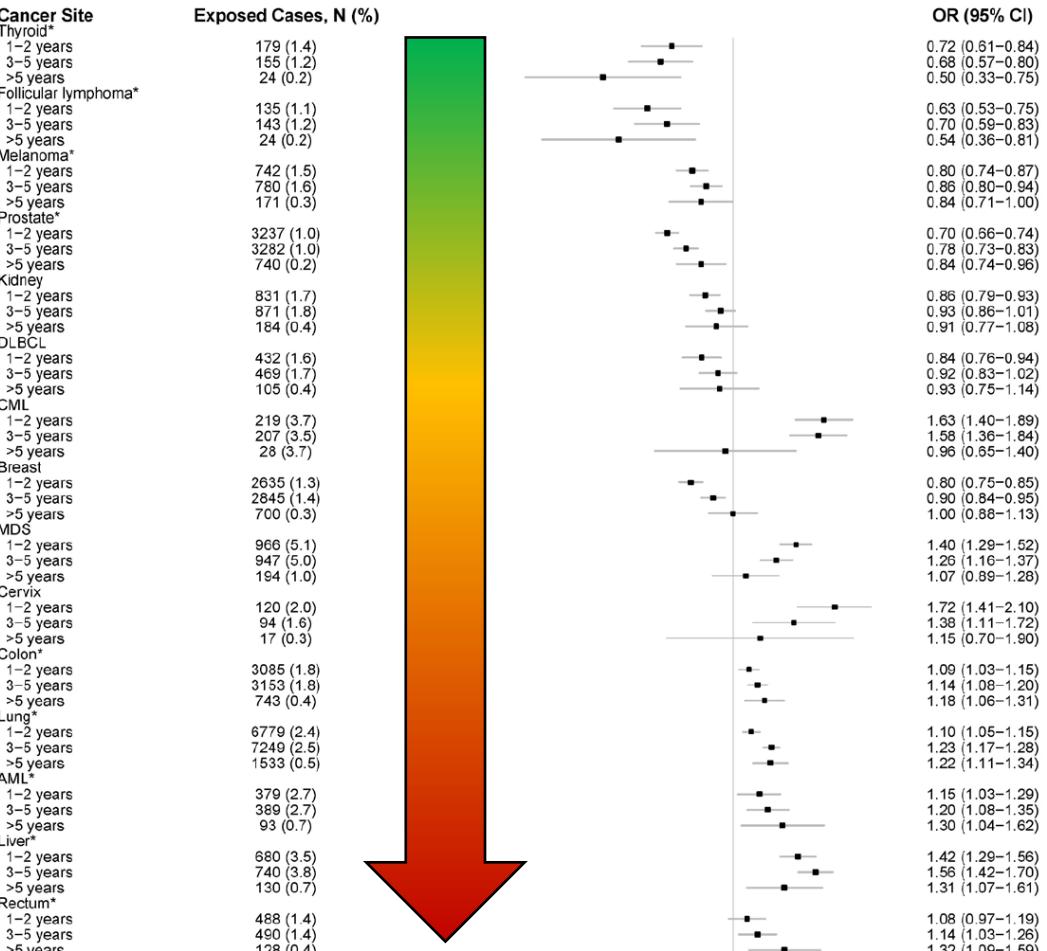
Zhiwei Liu, Parag Mahale, and Eric A. Engels

Division of Cancer Epidemiology and Genetics, National Cancer Institute, Rockville, Maryland

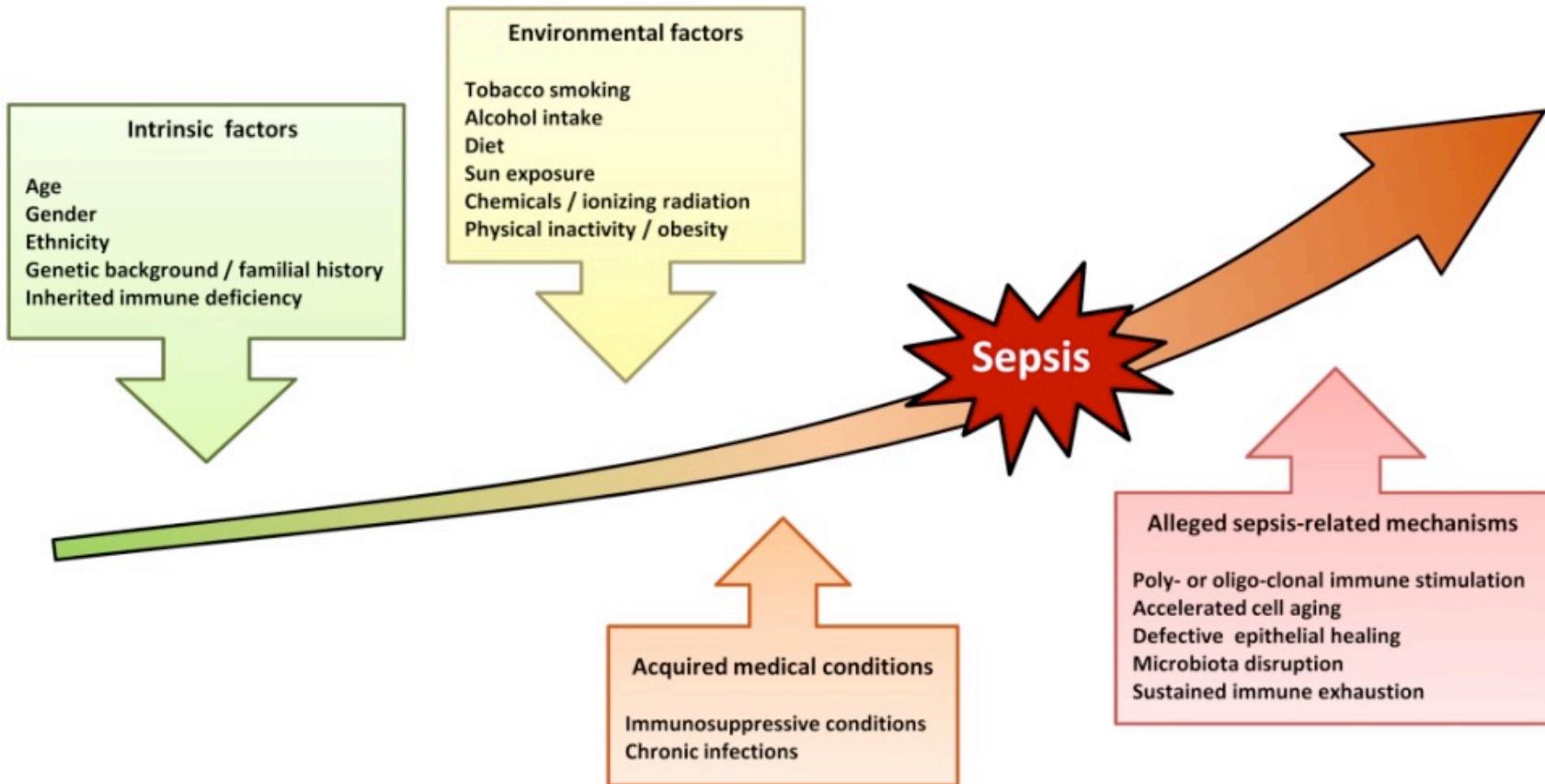
**Medicare (5%)
1992-2013
66 - 115 y.o.
1 801 156 cases
200 000 controls**

**Myeloid
hematological
malignancies**

**Epithelial
cancers**



Determinants of cancer in a life-time



Conclusions

- Traitement du cancer: une iatrogénie consentie et assumée
- Des thérapies innovantes...
... Et de nouvelles toxicités
- Des indications de réanimation évolutives
- Back to basics: le performance status
- Impact de la complication aiguë sur la maladie maligne?