Nanomedicines for targeted drug delivery and enhanced therapeutic index

IIB-Sant Pau, Hospital de Sant Pau

12 juny 2017

Grup de Oncogènesi i Antitumorals

http://www.recercasantpau.cat/grup/oncogenesi-i-antitumorals/

Hospital de Sant Pau

Surgery Department
Hematology Department
Pathology Department
Pharmacy Department
Oncology Department
Otorhinolaringology Dpt.

Collaborators

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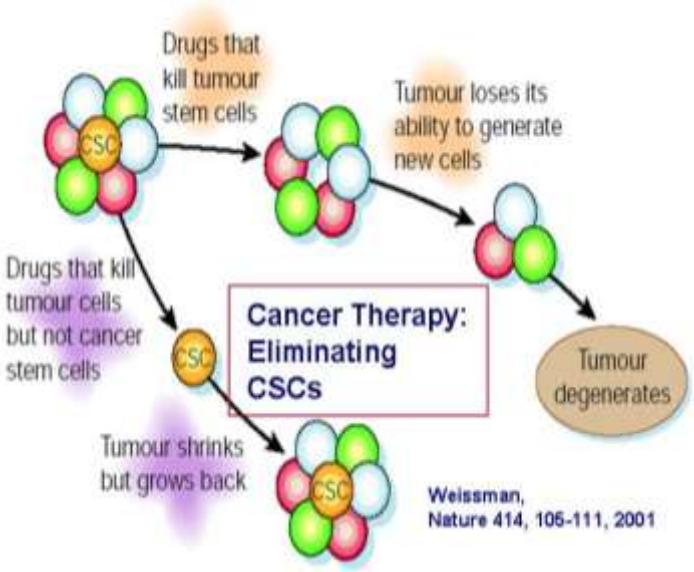
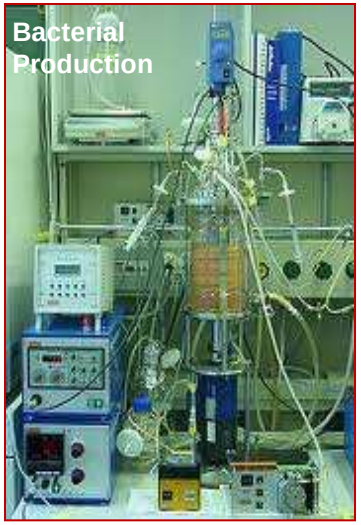
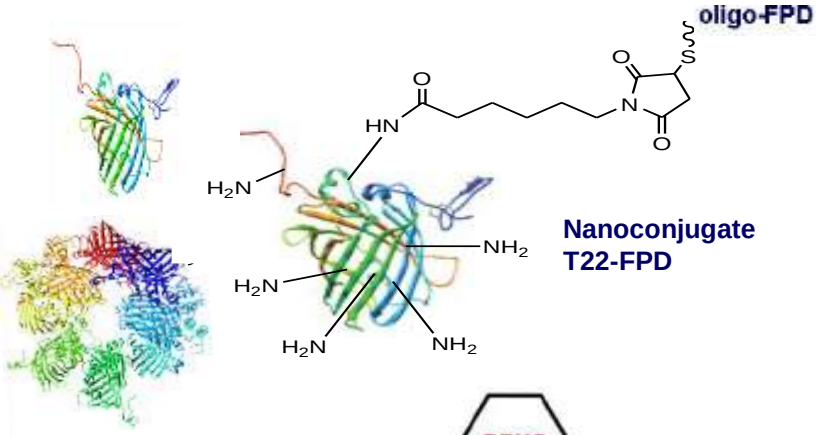
Ramon Eritja (CSIC)

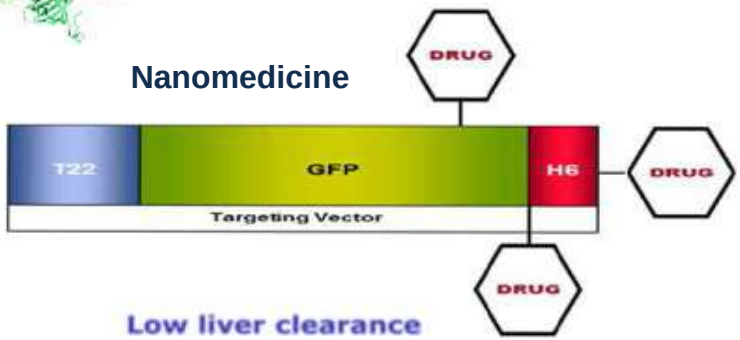
Targeted Drug Delivery to CXCR4+ Metastasis Stem Cells (MetSCs)

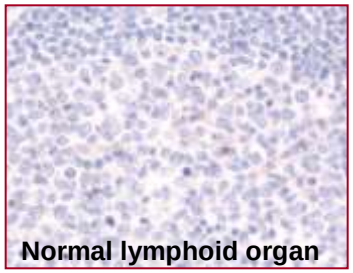


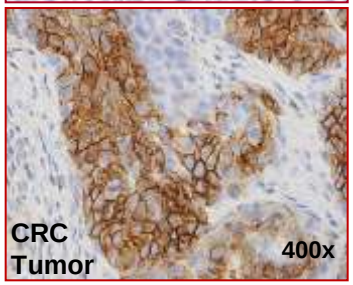


Liganded Fusion Protein Nanoparticle

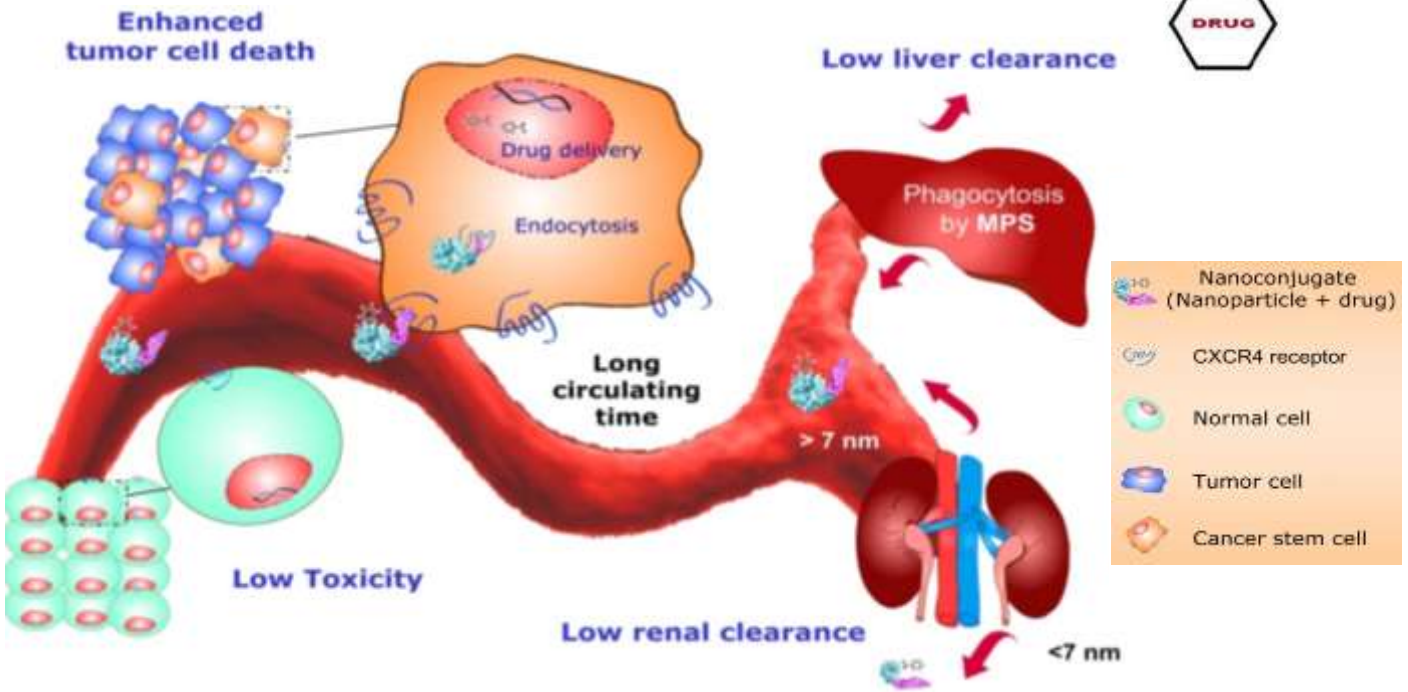






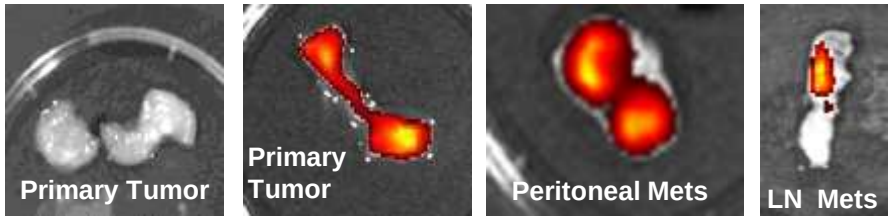


CXCR4 overexpression (MetSCs)



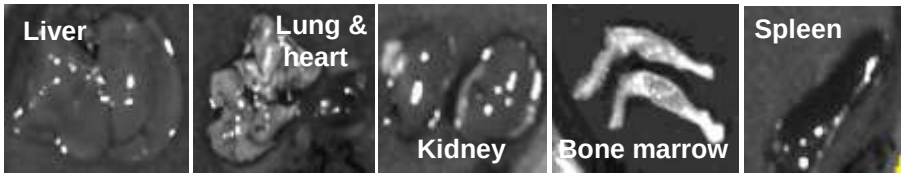
Selective CXCR4-dependent Tumor Uptake

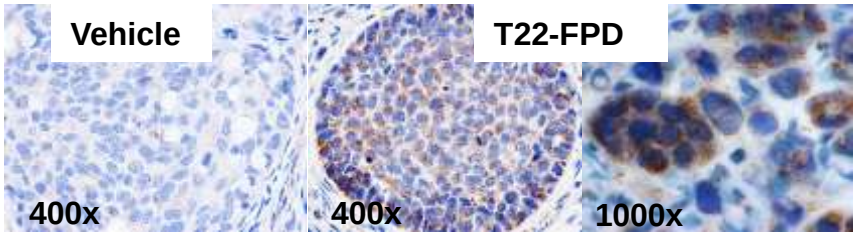
Vehicle-treated | T22-FPD-treated



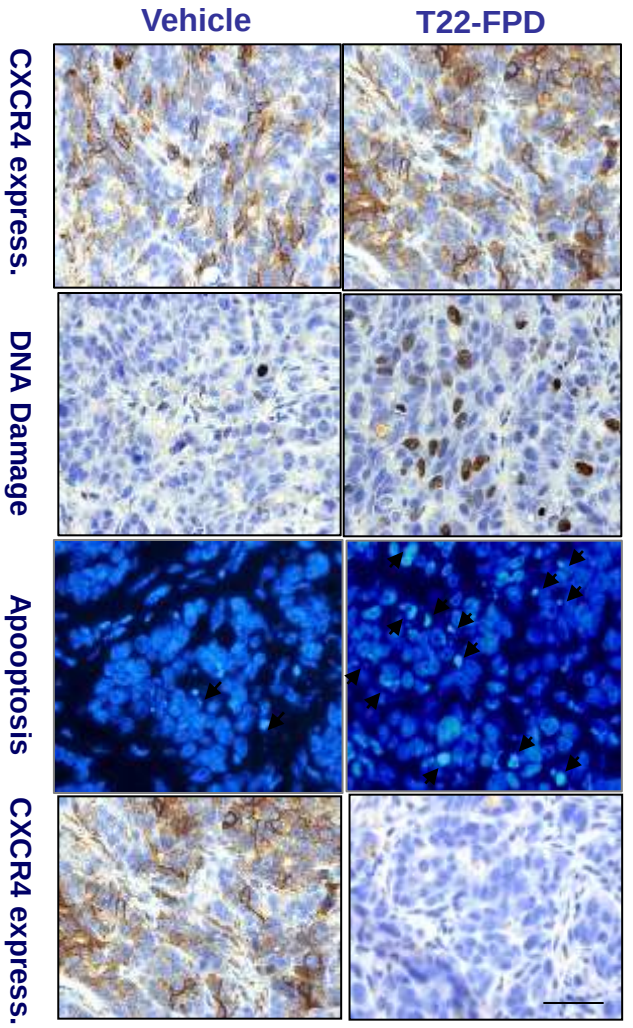
Fuorescent Tumor biodistribution

Lack of Uptake In normal tissues



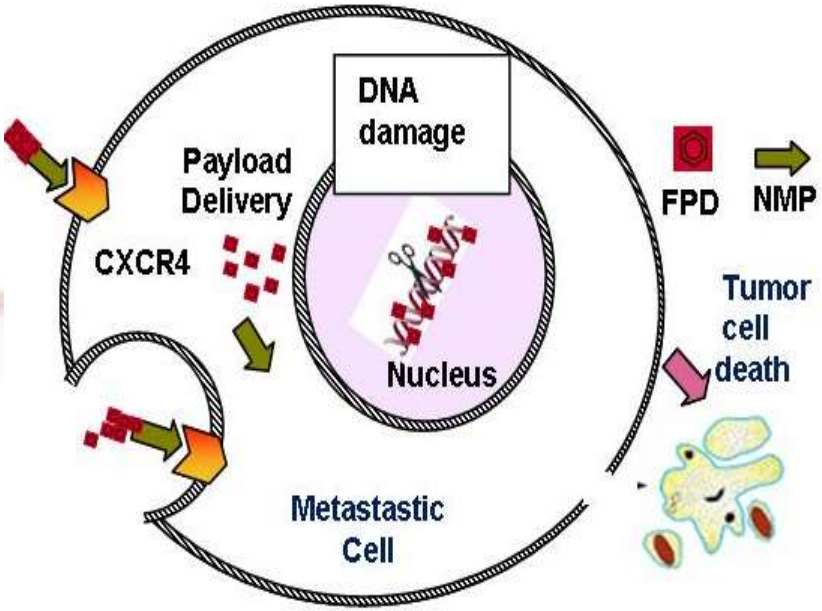


Selective internalization in CXCR4+ cells



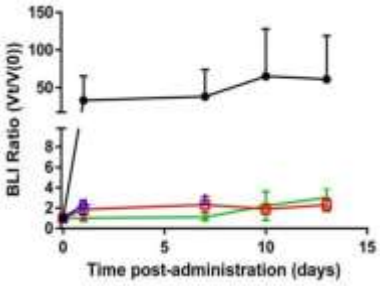
Selective CXCR4+ Tumor Cell Killing

CRC model in NOD/SCID or NSG mice

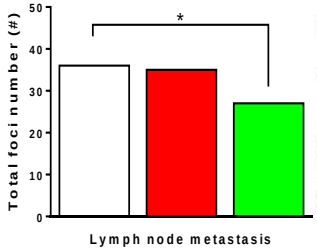


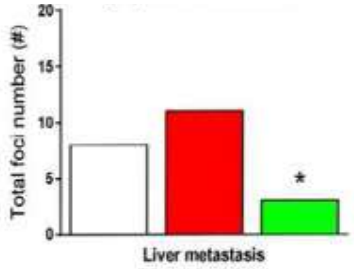
Antimetastatic effect: Prevention of Metastases

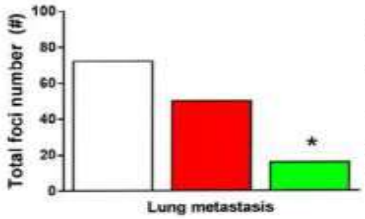
20ug i.v. T22-FPD, q3d, 10 doses

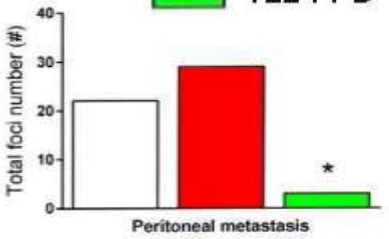


Total Number of Metastatic Foci

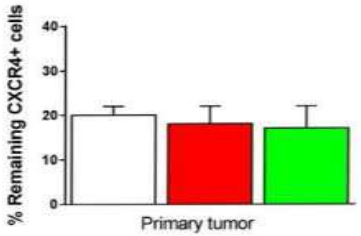


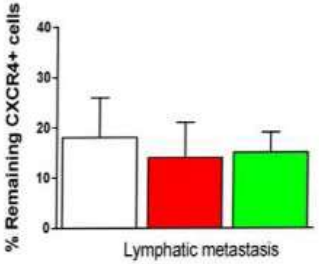


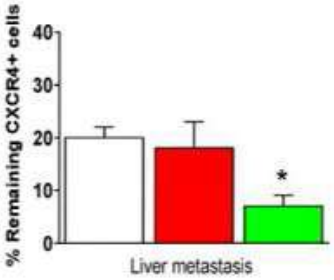


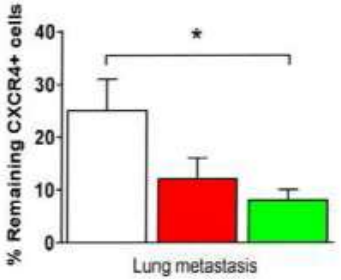


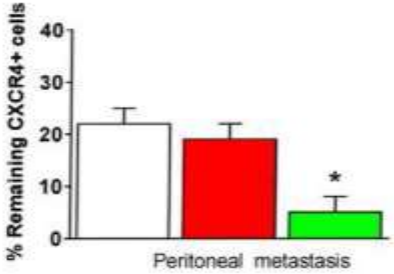
% of Remaining CXCR4+ Cancer Cells after Therapy



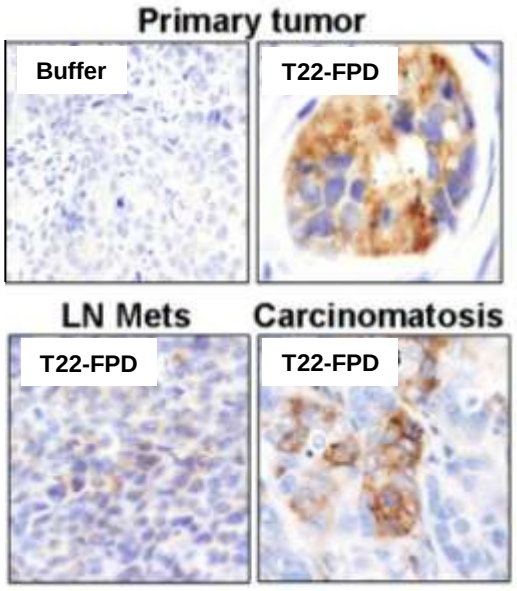


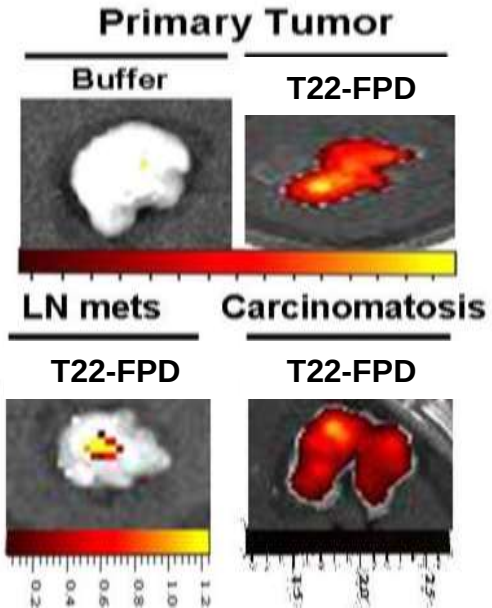




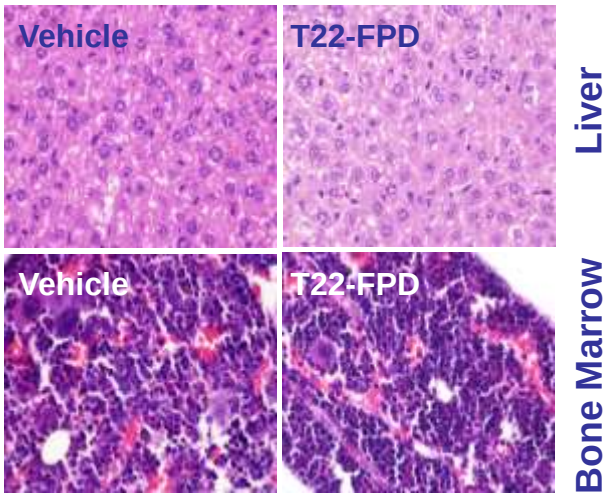


Personalized Medicine: CXCR4-dependent metastasis response





Toxicity

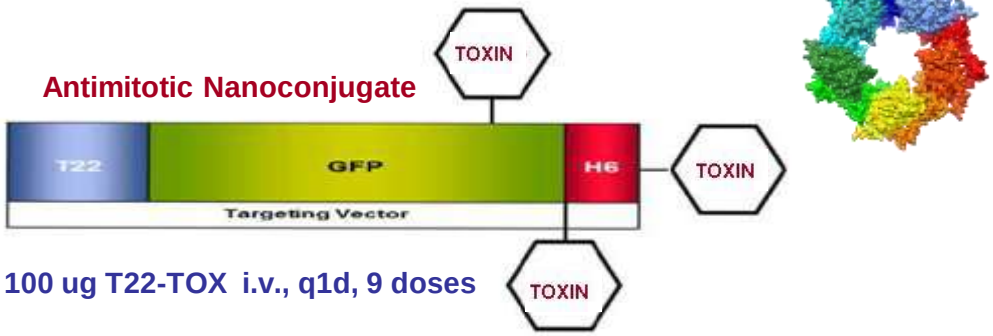


Antitumor activity of T22-TOX in a disseminated AML mouse model

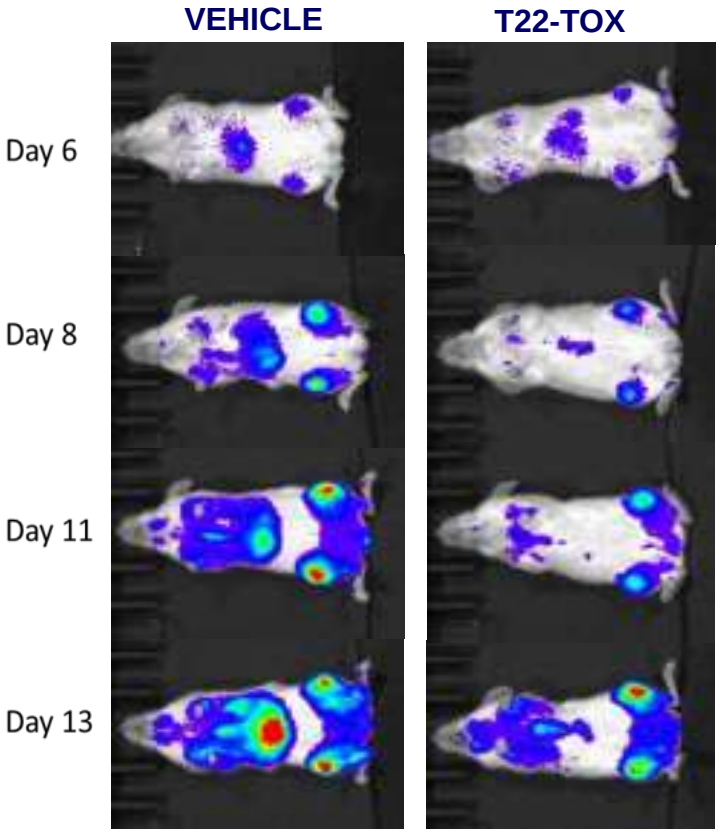
CXCR4-overexpression associated with disemination in AML

THP1-luciferase in NSG mice

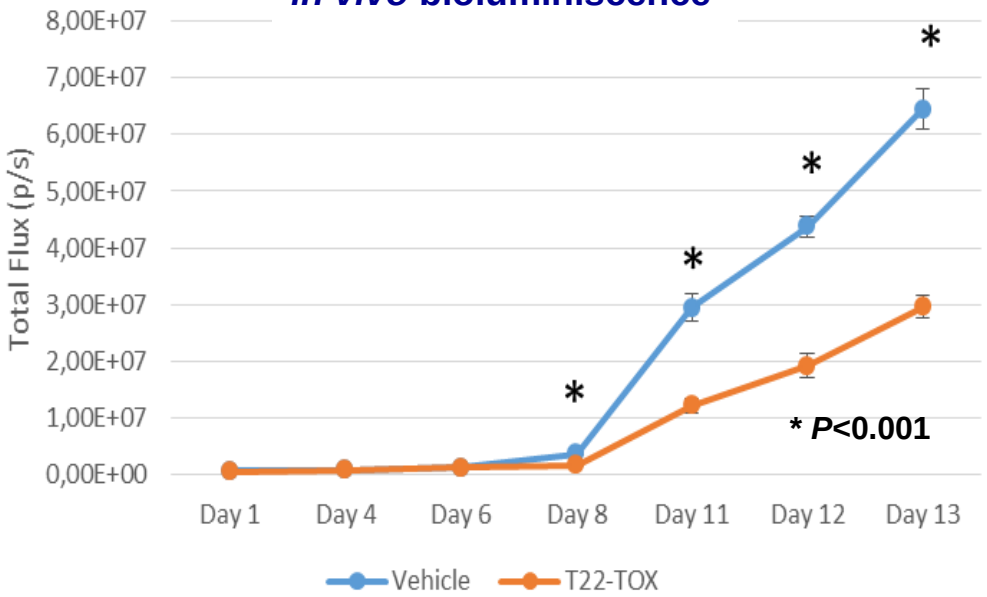
AML-M5, Acute monocytic leukemia with MLL-AF9 translocation

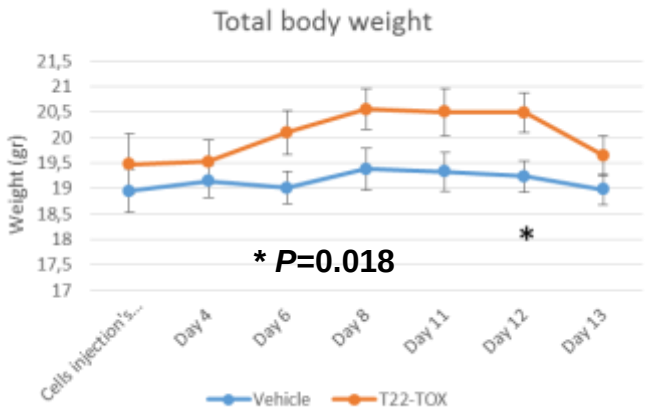


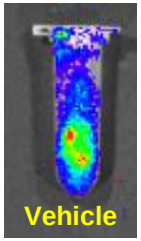
100 ug T22-TOX i.v., q1d, 9 doses

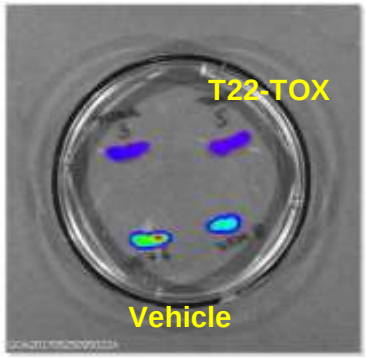


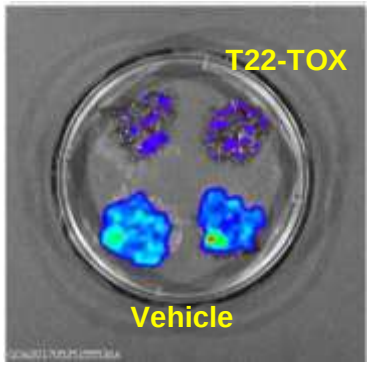
in vivo bioluminiscence

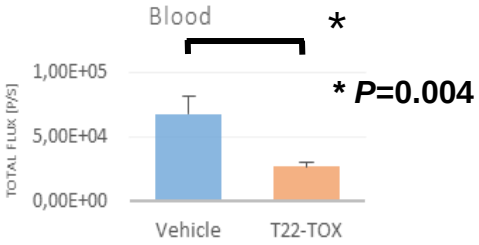


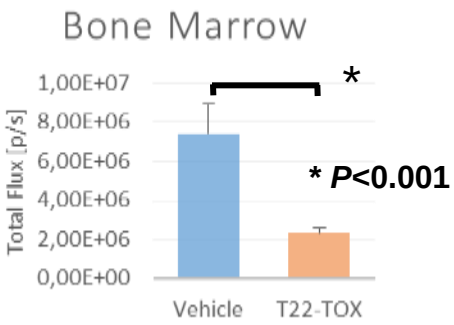


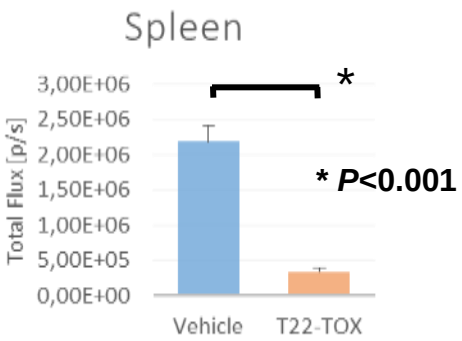


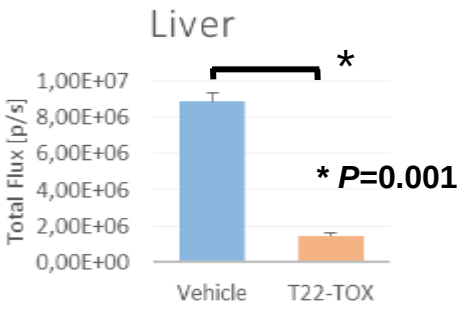




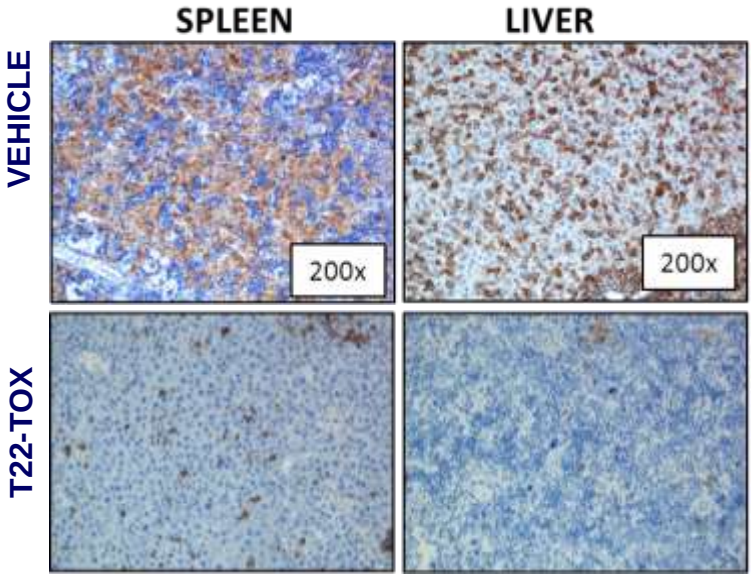








IHC CD45



Toxicity