

# Heterodimeric peptide-based building blocks for nanoparticle functionalization

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ICANS

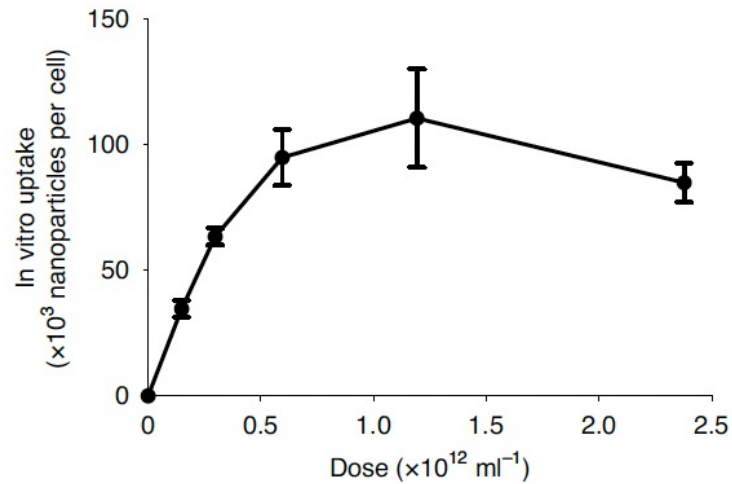
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STRASBOURG

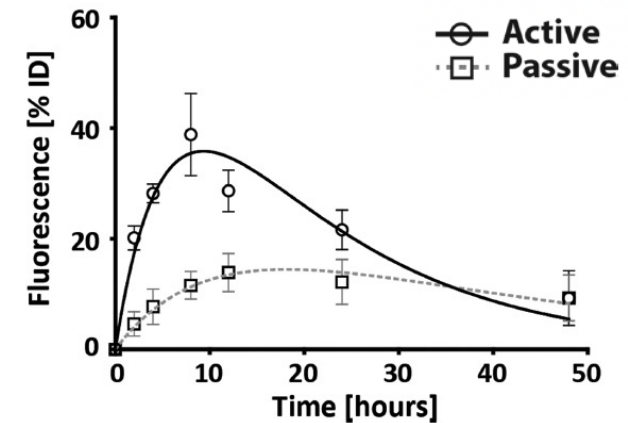
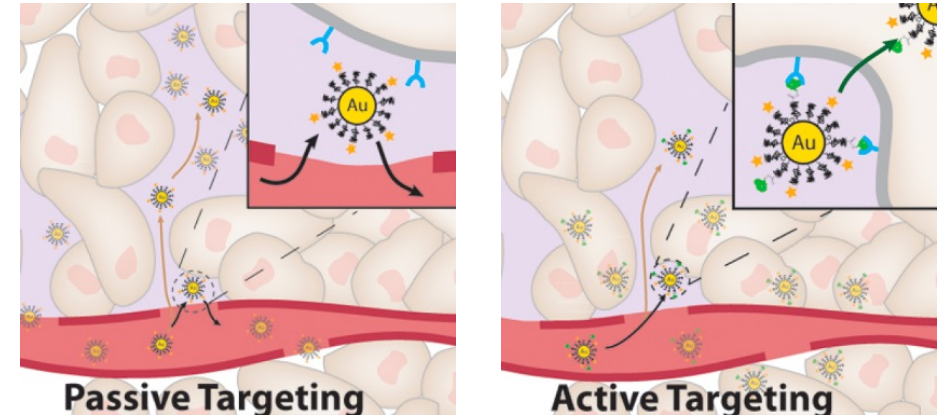
EUROPE

# Problem of nanoparticle uptake by the tumor

Median of **0,7%**  
of the injected dose  
delivered to the tumor

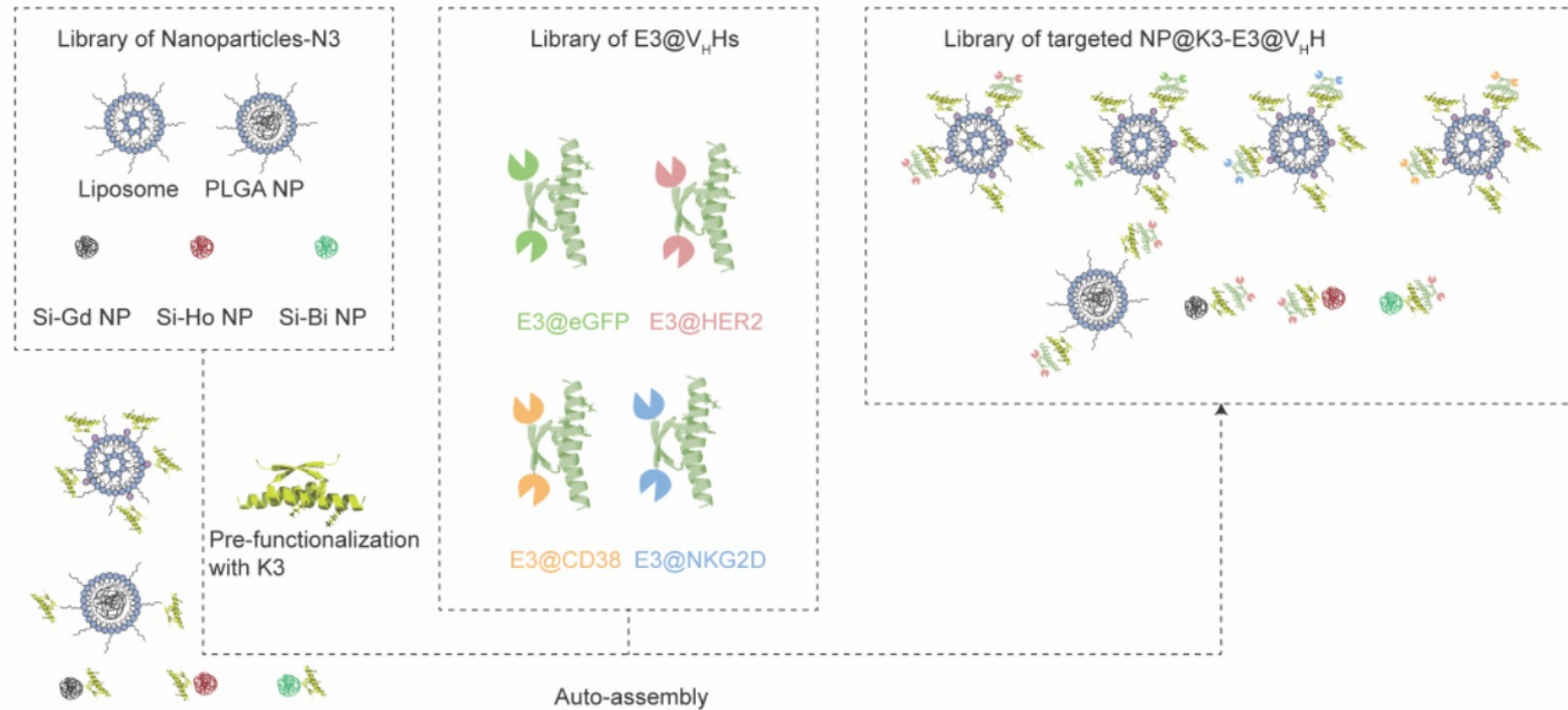


Poor nanoparticle uptake even  
with increasing dosing



Need of a targeting strategy

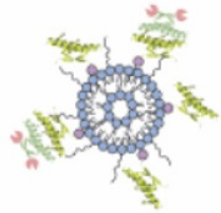
# Targeted nanoparticles approach



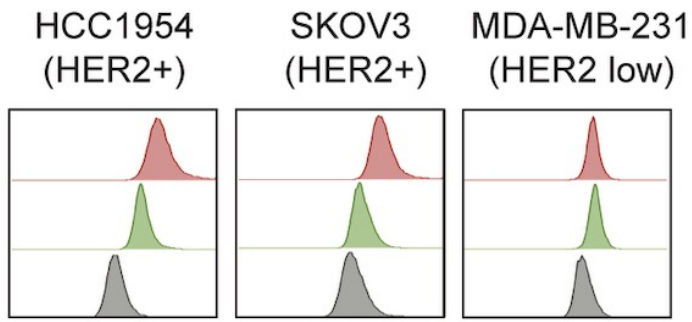
Design of a library of nanoparticles

Nanoparticle targeting both cancer or/and immune cells

# In vitro specificity of the nanoparticles



Liposome@K3  
-E3@HER2



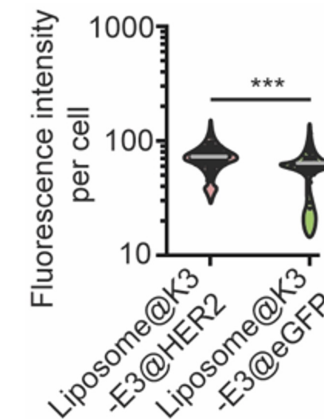
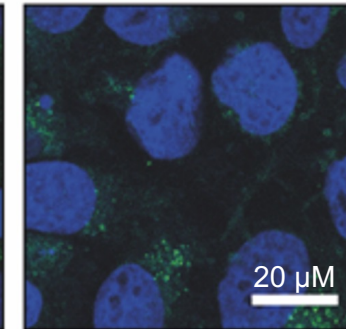
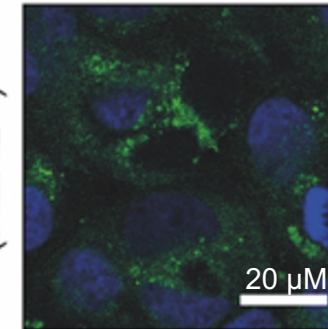
Liposome

- Untreated
- Liposome/K3-E3@HER2
- Liposome/K3-E3@eGFP

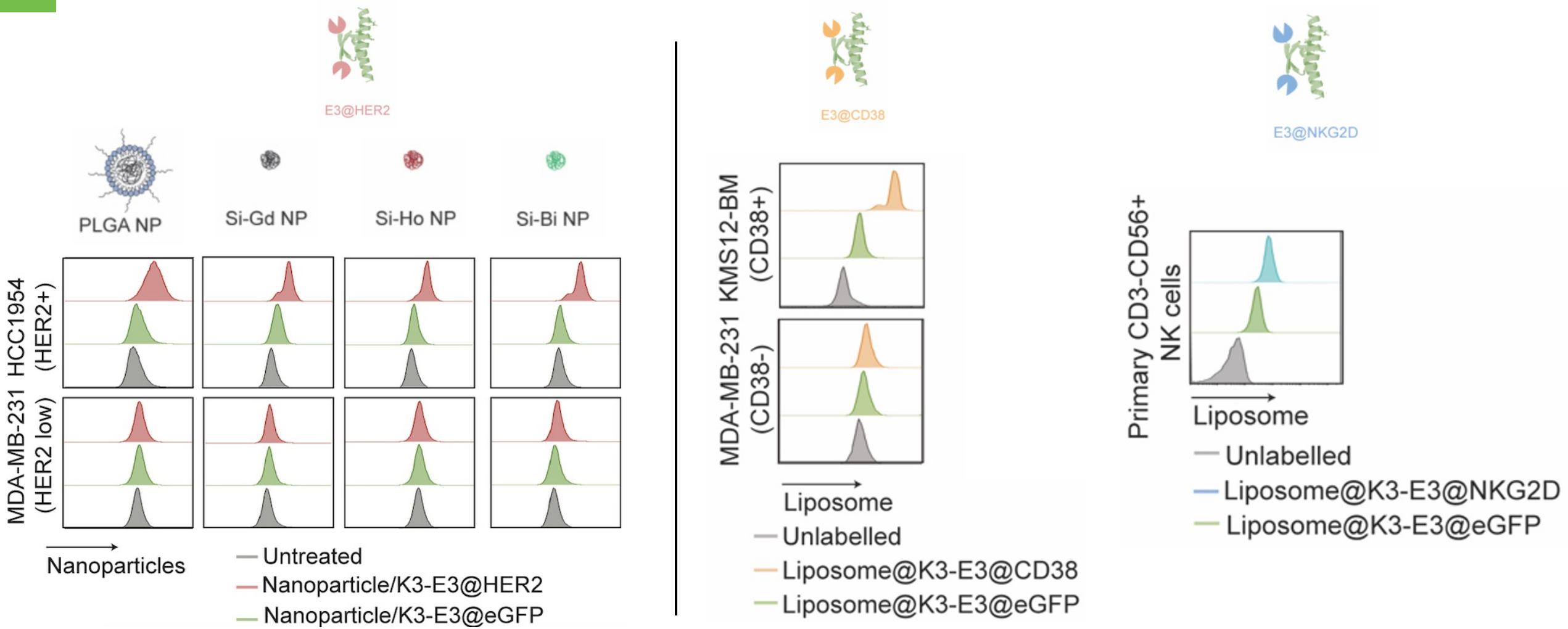
DAPI  
Liposome@K3  
-E3@HER2

DAPI  
Liposome@K3  
-E3@eGFP

HCC1954  
(HER2+)



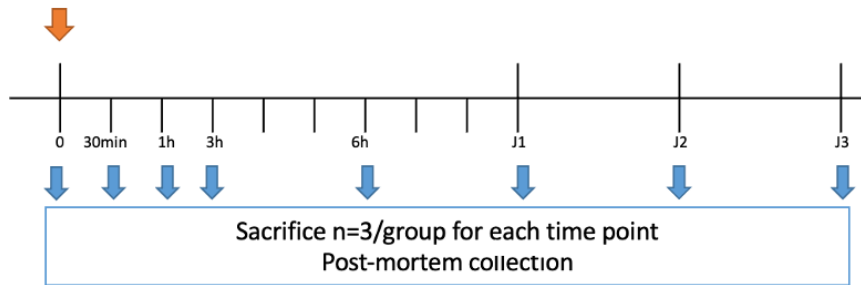
# In vitro specificity of the nanoparticles



Keeping the specificity by changing the nanoparticle  
Targeting cancer and immune cell lines

# In vivo experiment on mouse model

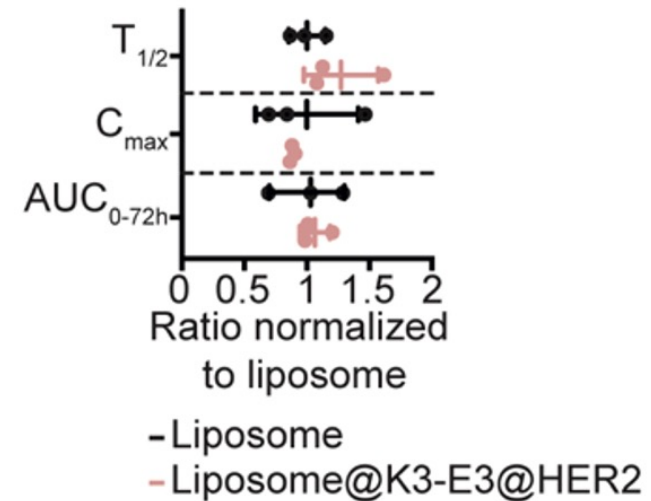
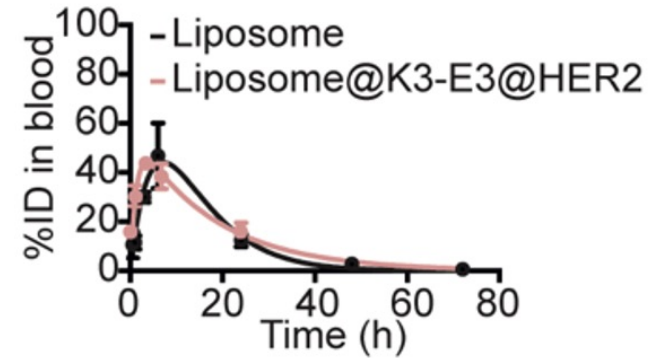
Liposome and  
Liposome@K3-E3@HER2  
injection



Blood  
Liver Spleen  
Lungs Kidneys

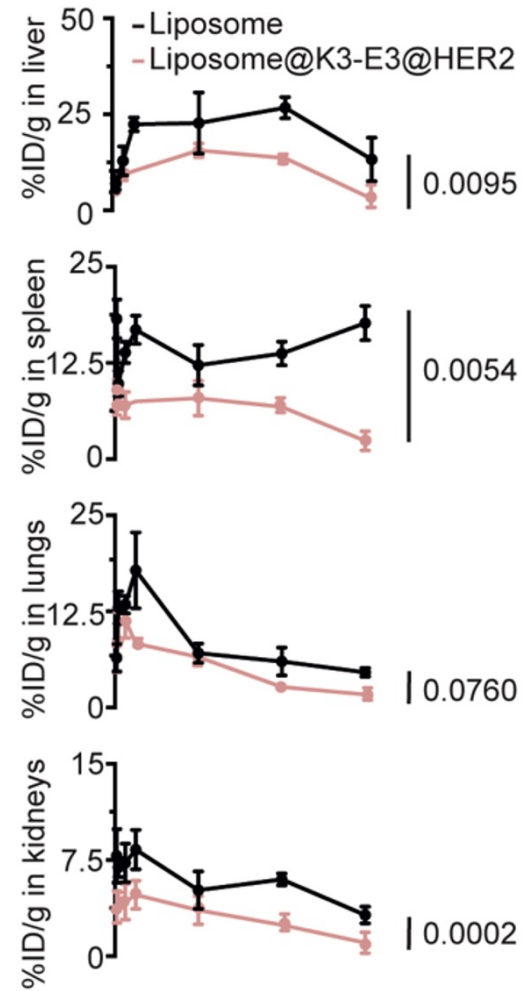
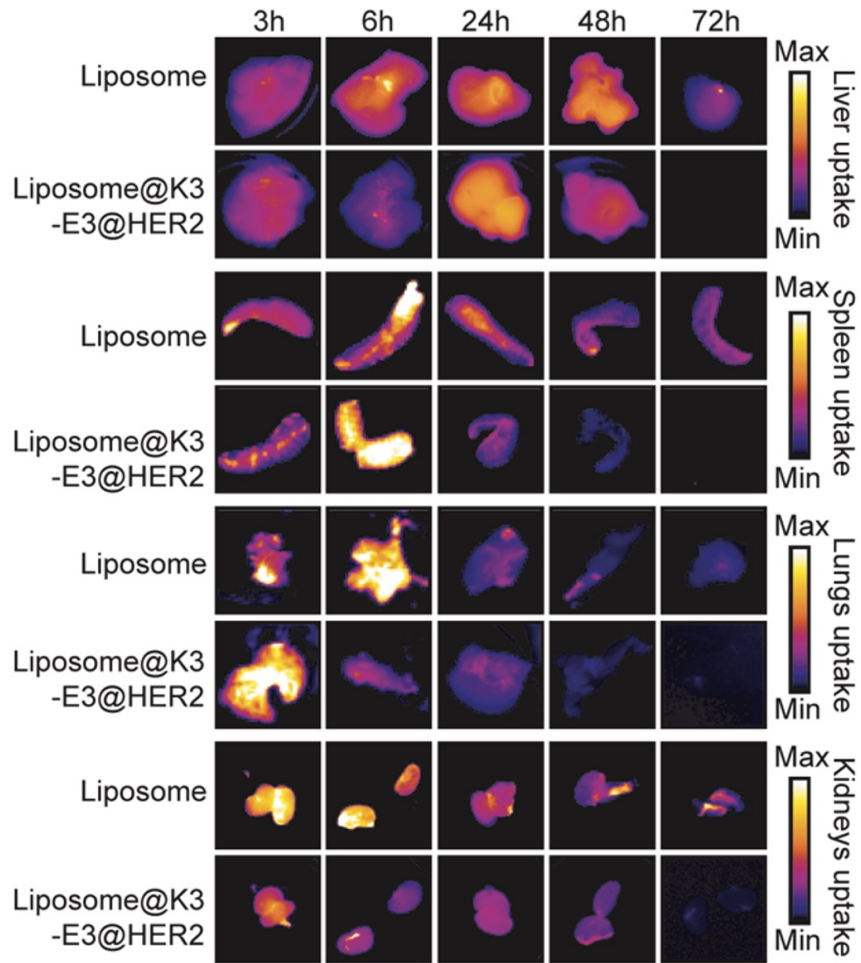


IP injection of  
Liposomes

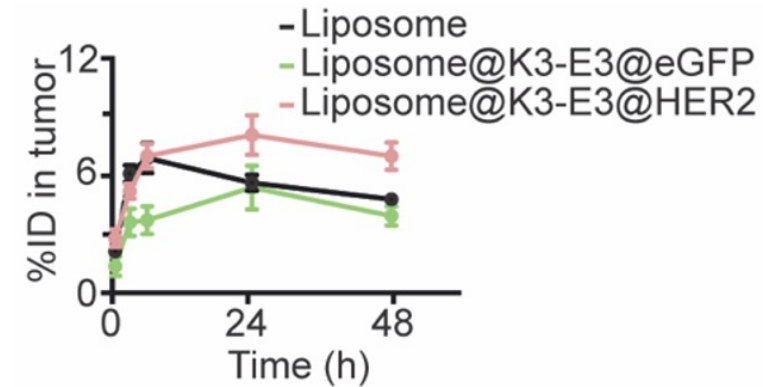
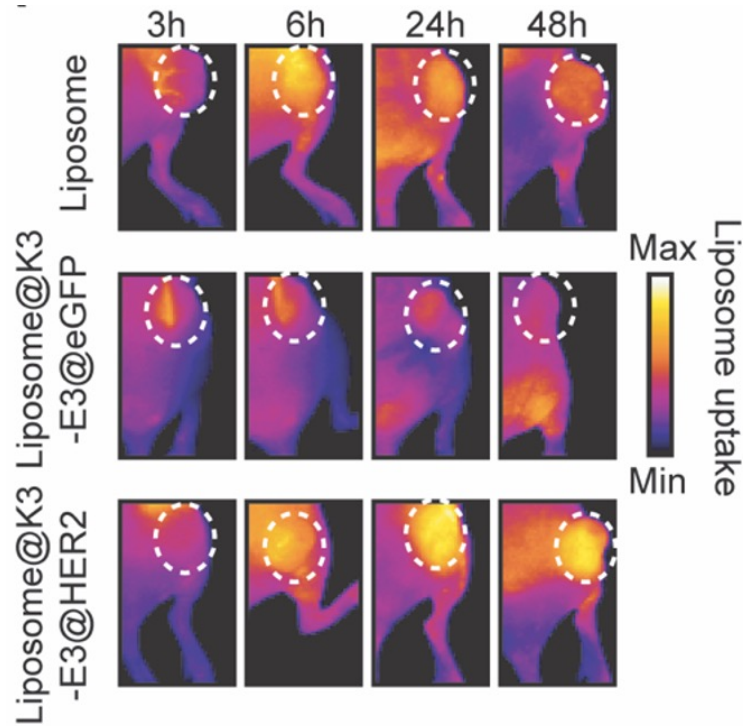
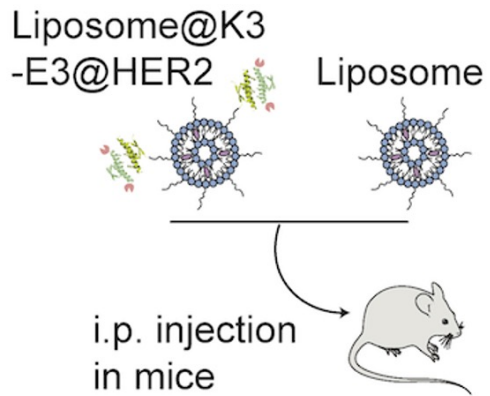


Same pharmacokinetic of targeted and non-targeted liposomes

# In vivo experiment on mouse model

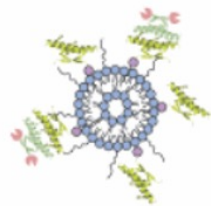


# In vivo studies on HER2+ breast cancer mouse model

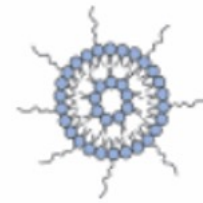




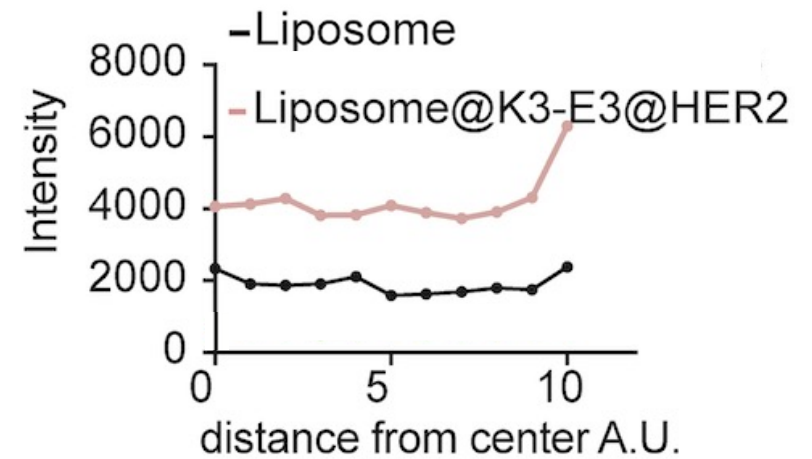
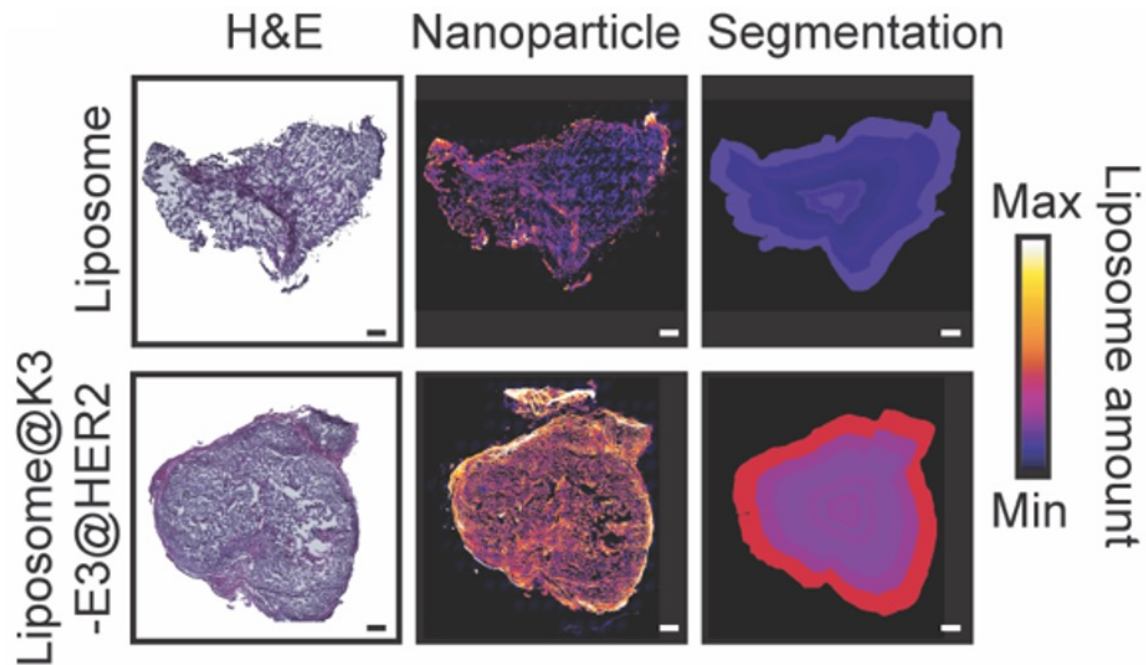
# Ex vivo studies on HER2+ breast cancer mouse model



Liposome@K3  
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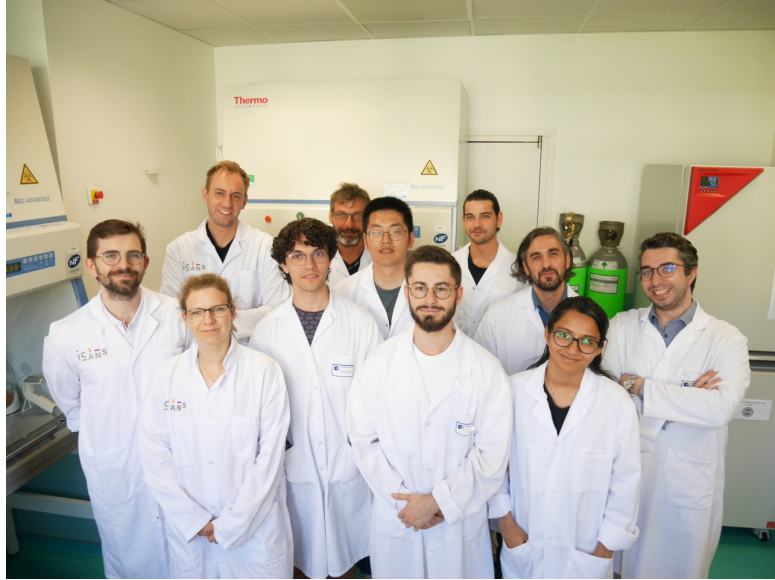


Liposome



Better tumour penetration of targeted liposomes

# Acknowledgements



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