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Brussels RadioTheranostic Platform (BRTP)

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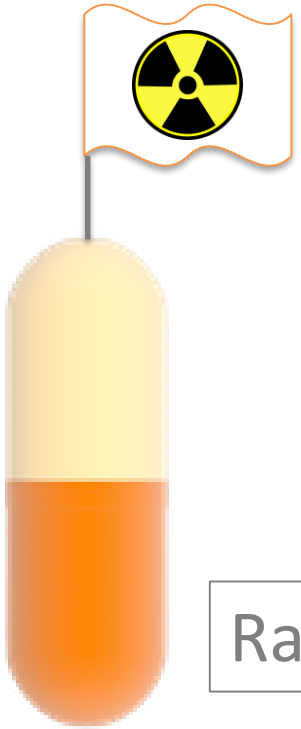
Director ICMI VUB
CSO Camel-IDS

Oncology

European Alliance for Personalised Medicine

Nuclear Medicine



Diagnostic

+

Therapy

=

RadioTheranostic

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Major protagonist of the Radiotheranostic approach

+

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Forefront of innovative vectors based on single domain fragments (sdAbs)

Brussels RadioTheranostic Platform = BRTP

Generation of innovative radiotheranostics

Radiobiology of radiotheranostics

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Design

Preclinical evaluation

Clinical Production

Clinical Evaluation

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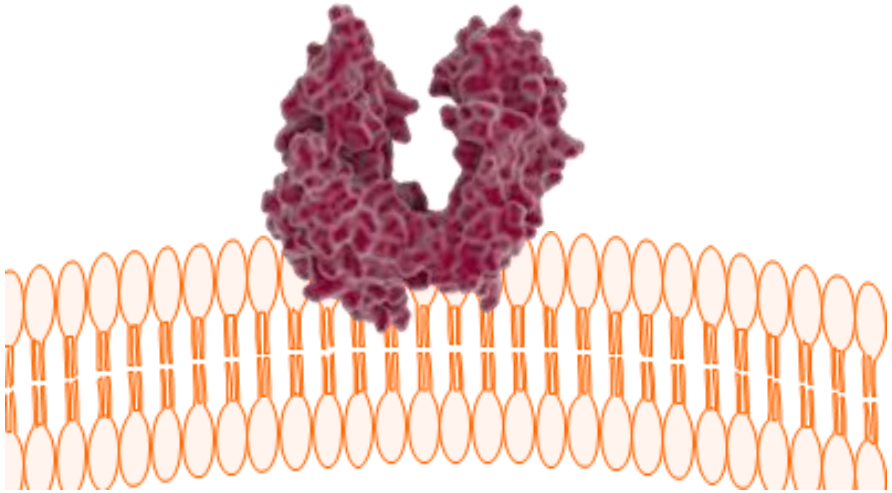
Design

TARGET
VECTOR



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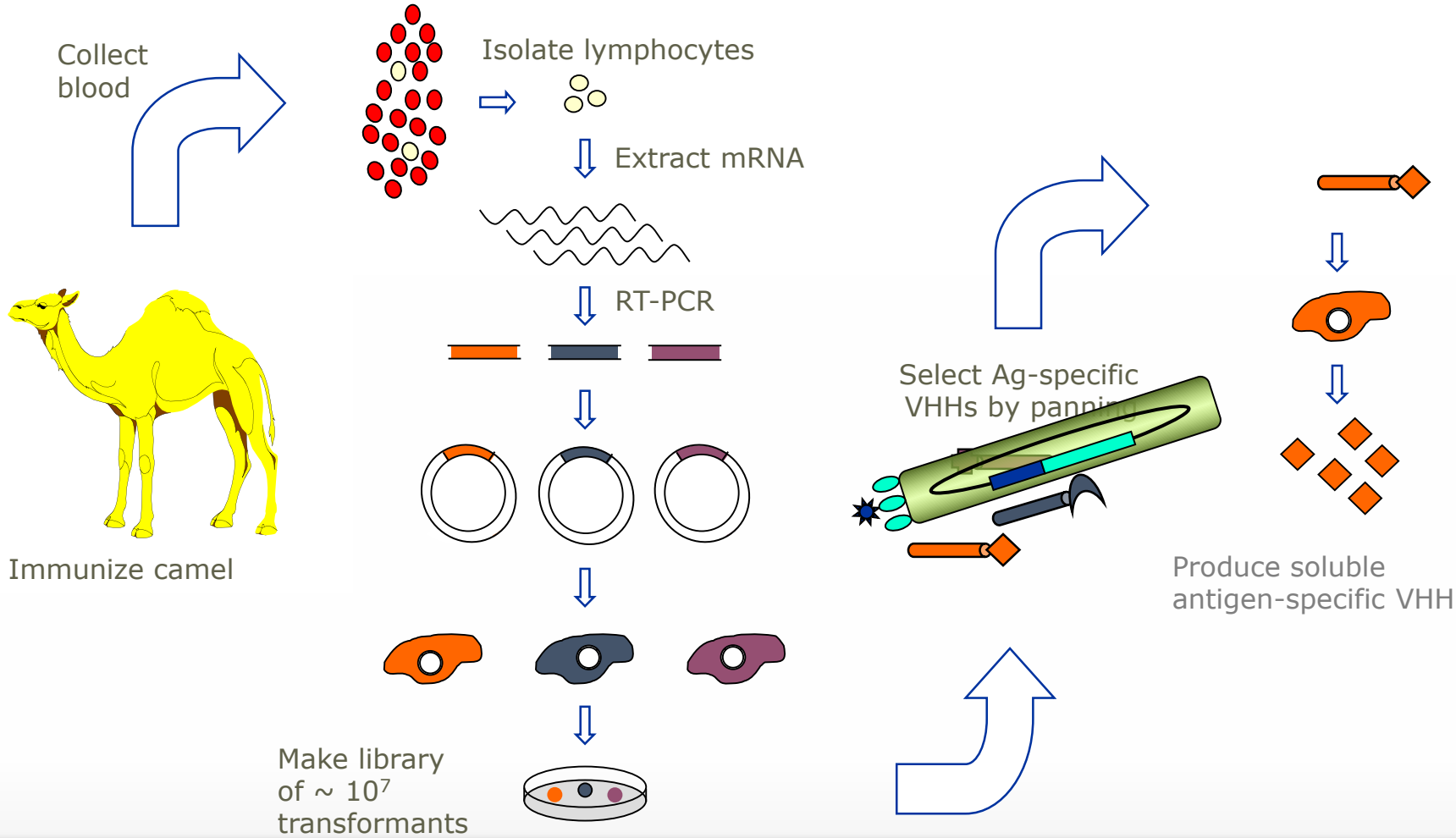
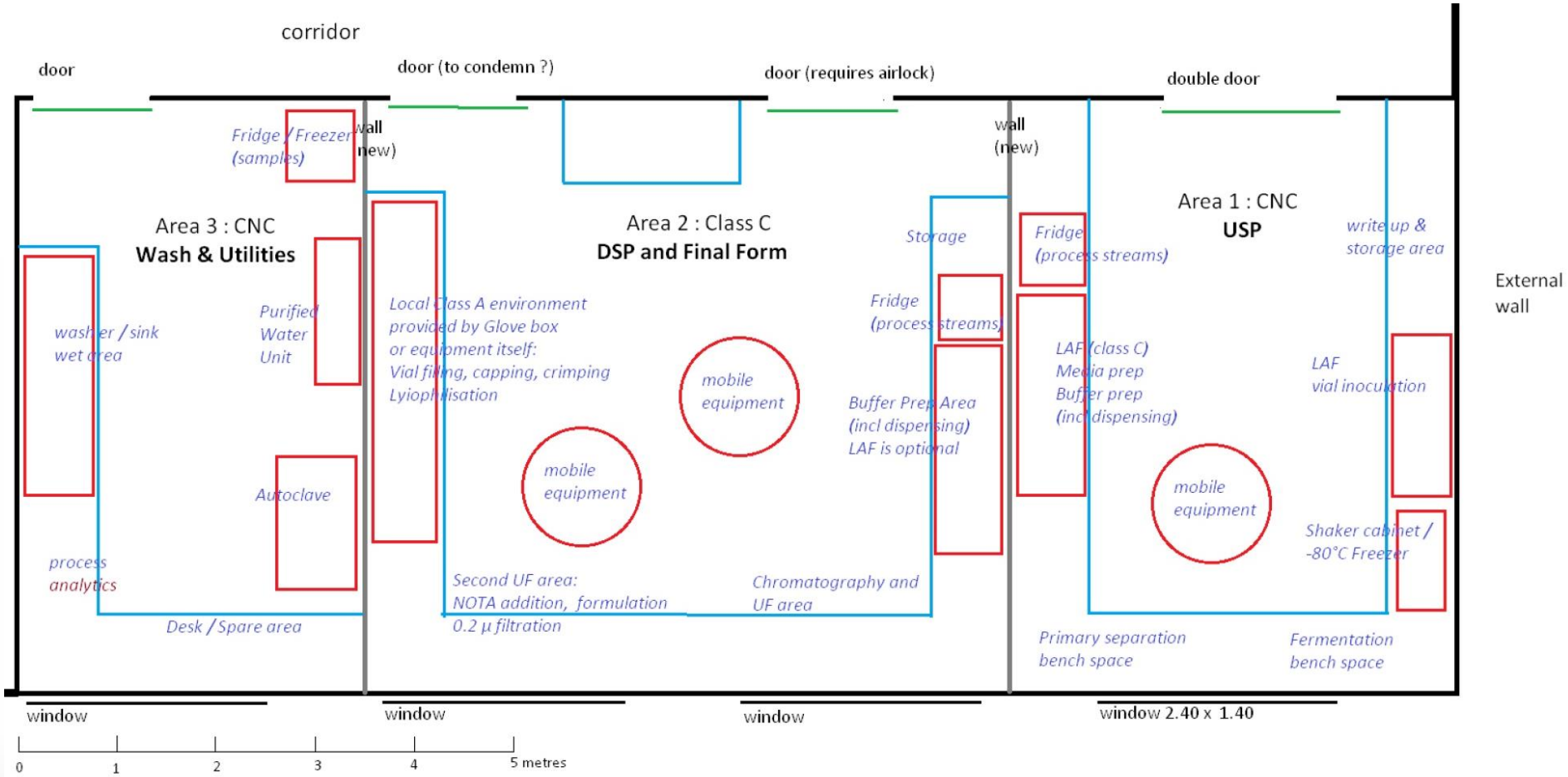
Vector development



Vector development

2020



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Vector development

Pharm Industry

R&D for Companion Imaging Diagnostics

Academic/Industrial Partnerships

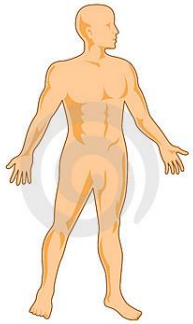
Preclinical Imaging

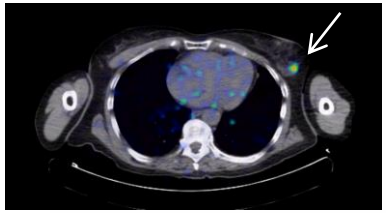
Biodistribution, Target validation

Fundamental Research

Applied Research

Vectors





Clinical Research

Diagnostic

Phase I / II / III clinical trials

Academic/Industrial Clinical Research

Clinical Practice

Introducing validated Radionuclide Therapeutics in clinical practice

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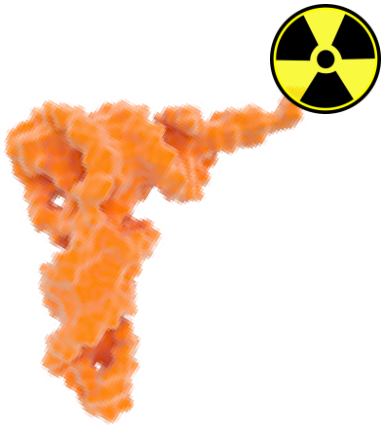
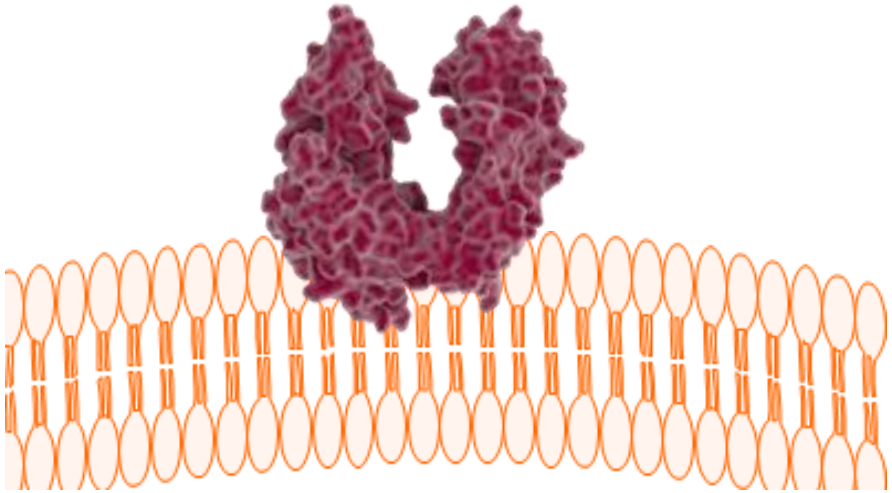
Design

TARGET
PROBE
RADIOLABELING





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Alpha Lab

- **Radionuclides of interest for imaging:**

⇒ β^+ - decay: PET imaging
⇒ γ - decay: SPECT imaging

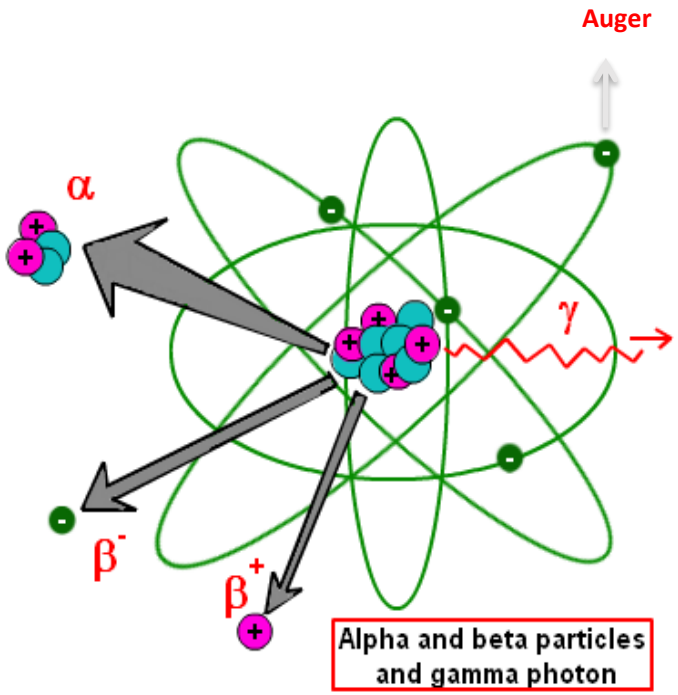
- **Radionuclides of interest for TRNT:**

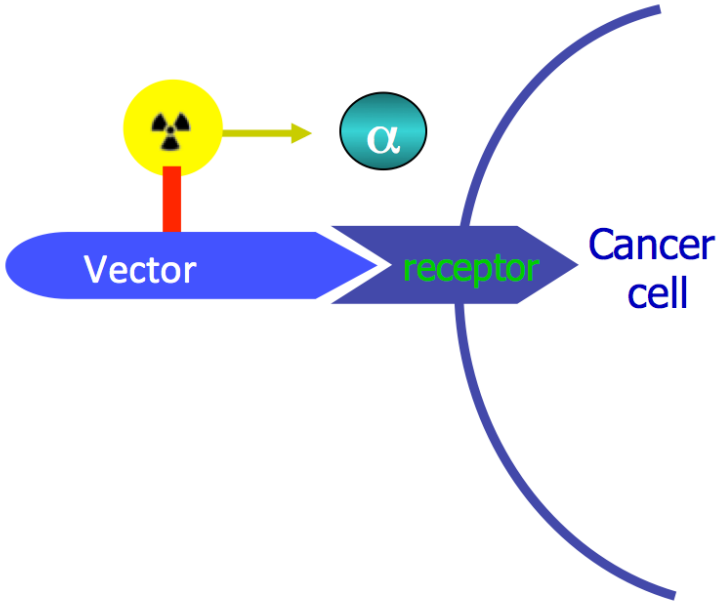
⇒ β^- - decay
⇒ α - decay
⇒ Auger electron - decay

Classification by means of **linear energy transfer**

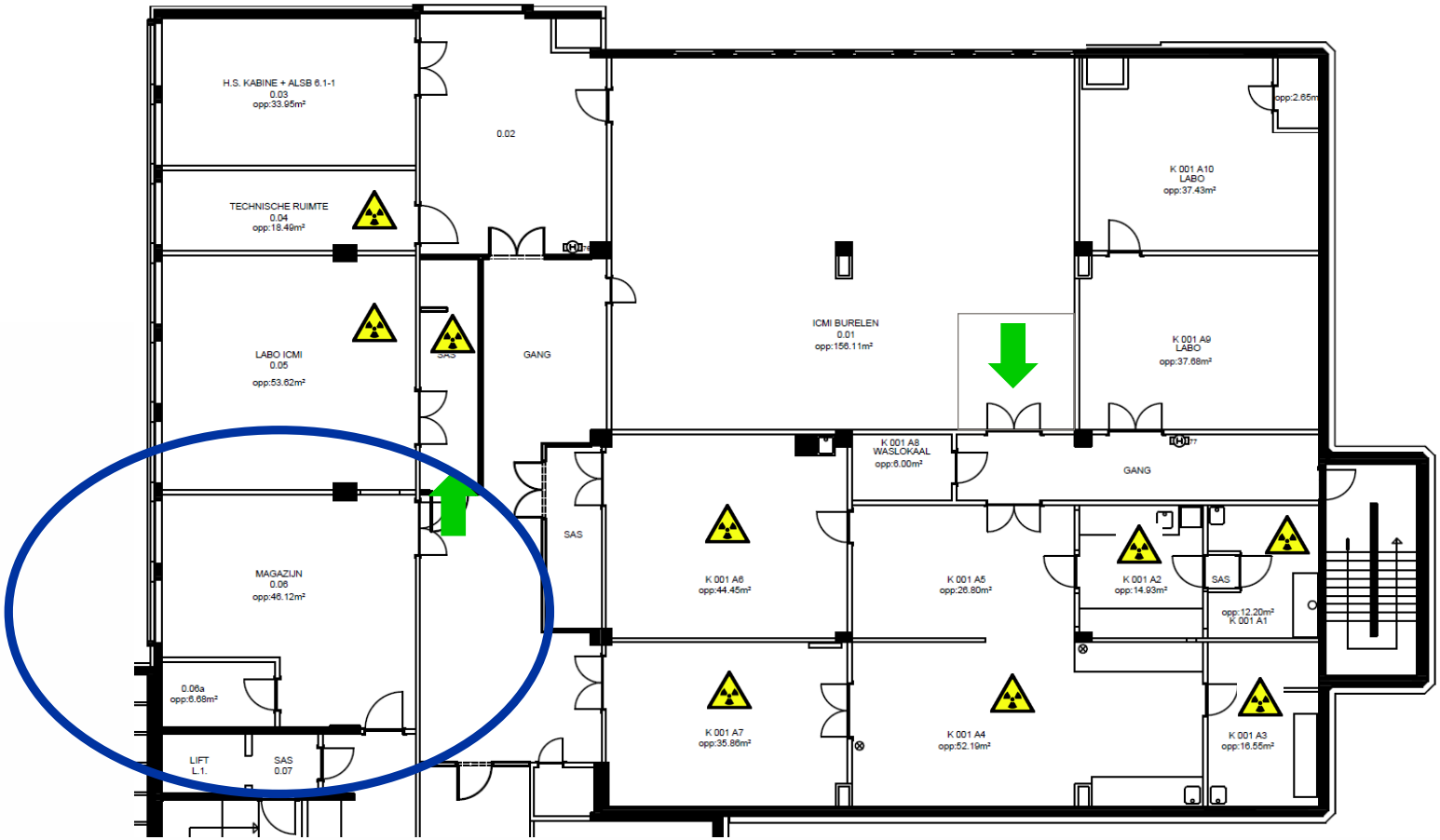
LET corresponds to the energy released over a certain distance.

For the same absorbed dose, high LET is more cytotoxic than low LET radiation.





Alpha Lab



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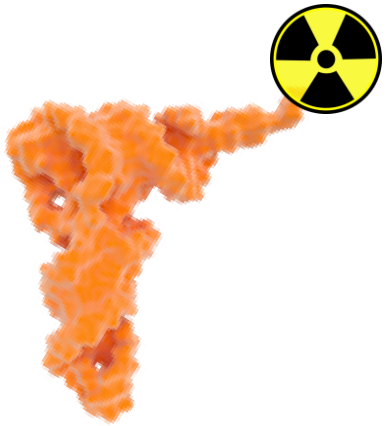
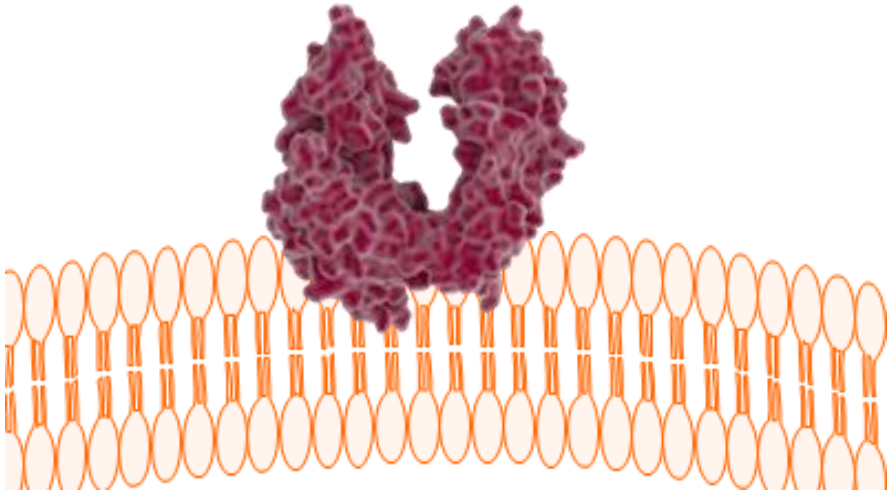
Preclinical evaluation





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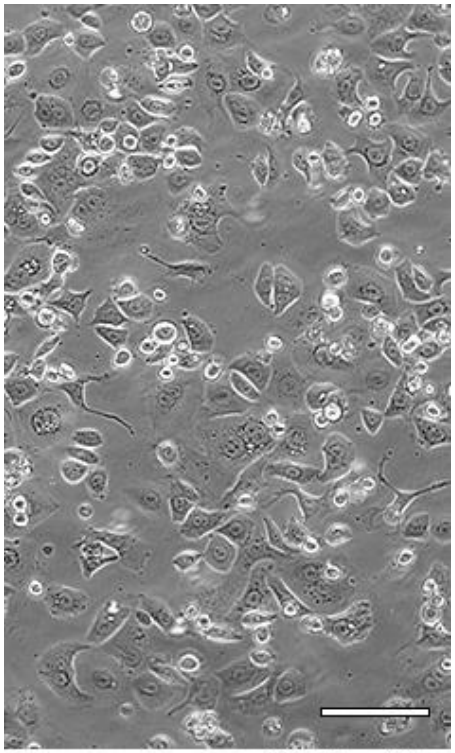
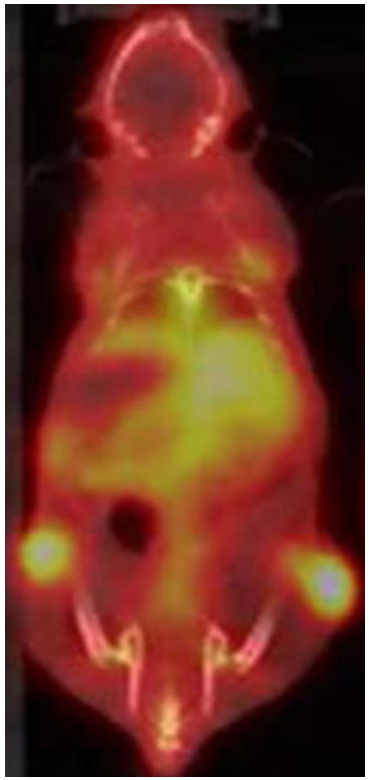
Preclinical evaluation

in vitro

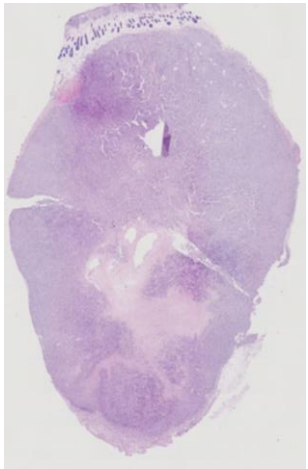


Scale Bar = 100µm

in vivo



ex vivo



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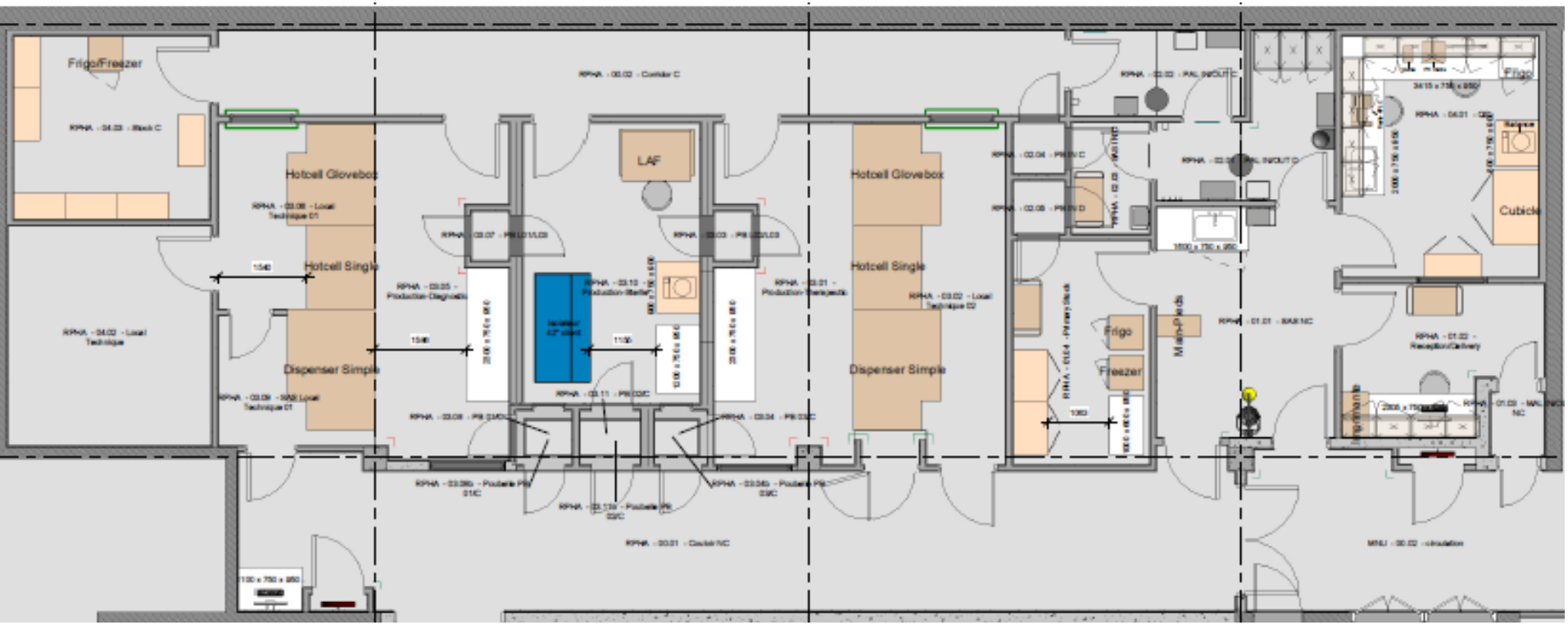
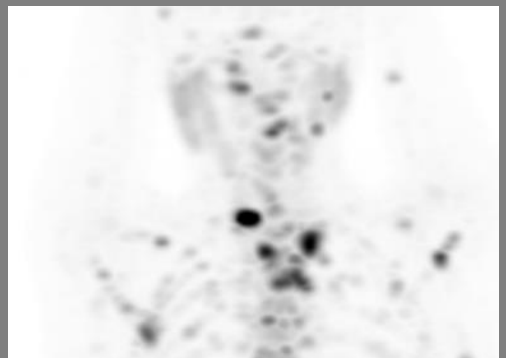
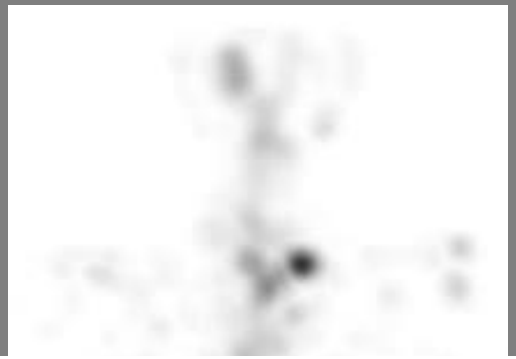
Clinical Production

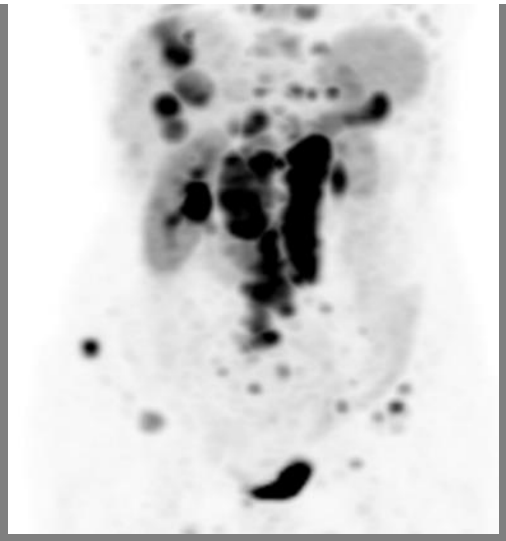
Eudralex Volume 4 Annex 3



Clinical Evaluation

Diagnostic ^{68}Ga-DOTATATE PET	Therapy ^{177}Lu-DOTATATE (SPECT)
	

"You see what you treat and treat what you see"



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Clinical Evaluation

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BRTP

Generation of innovative radiotheranostics

- R&D
- Vector development
- Alpha Lab
- Clinical production
- Translation to patient
- Bench to bedside

Radiobiology of radiotheranostics

- Radioresistance biomarkers
- Radiobiological dynamics
- Cancer cells, animal models, translationally on biological specimens

Network

- Scientist and Clinicians
- Exchanges and collaborations
- Academia and Industry

➔Radiotheranostics to the forefront of oncology research

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