

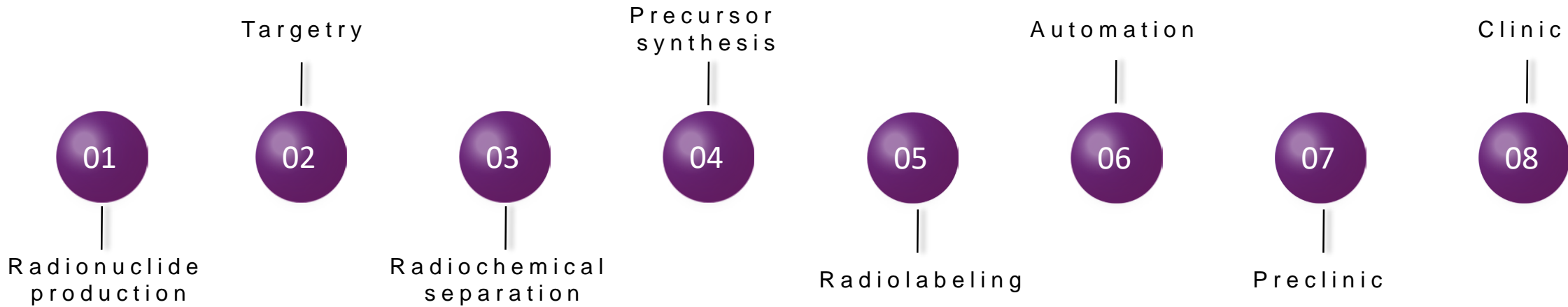
Contribution to SMART | Biolmaging_Lab: Chemistry part – INM-5

Bernd Neumaier

26.06.2023 | GGSB 2023

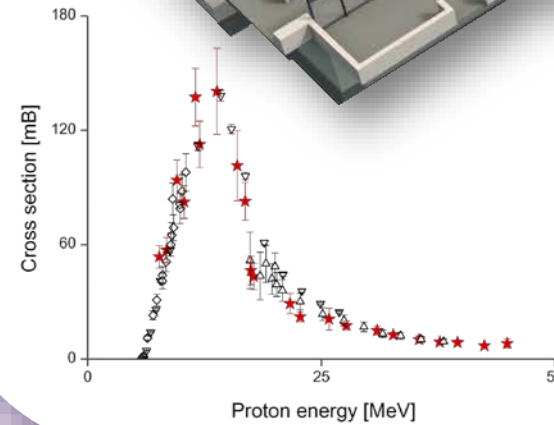
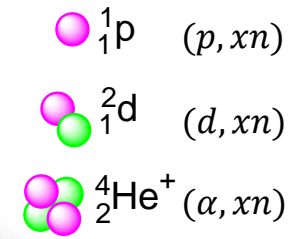
FROM DISCOVERY TO PATIENT CARE:

The stages of radiotracer design in a nutshell



Radionuclide production

| | | | | | |
|--------------------------|------------------|-------------------|-------------------|---------------------------|---------------------------|
| ^{18}F | ^{11}C | ^{15}O | ^{13}N | | |
| $^{34\text{m}}\text{Cl}$ | ^{61}Cu | ^{62}Cu | ^{124}I | ^{77}Br | $^{94\text{m}}\text{Tc}$ |
| ^{73}Se | ^{38}K | ^{153}Sm | ^{211}At | $^{193\text{m}}\text{Pt}$ | $^{117\text{m}}\text{Sn}$ |
| ... | ... | | | | |



Precursor
synthesis

04

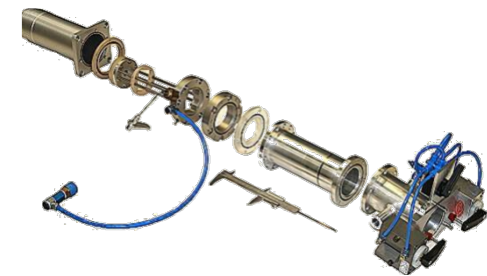
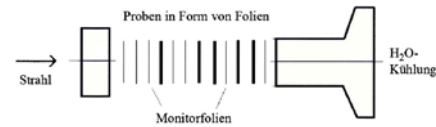
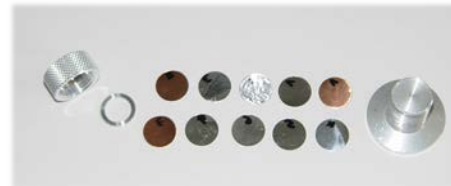
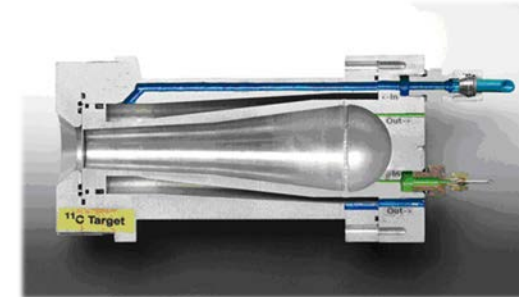
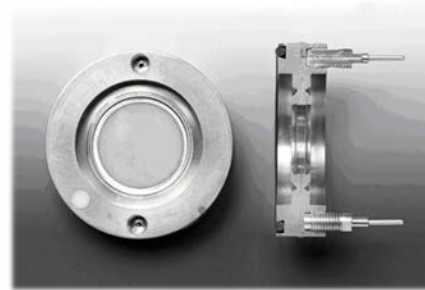
Radiochemical
separation

03

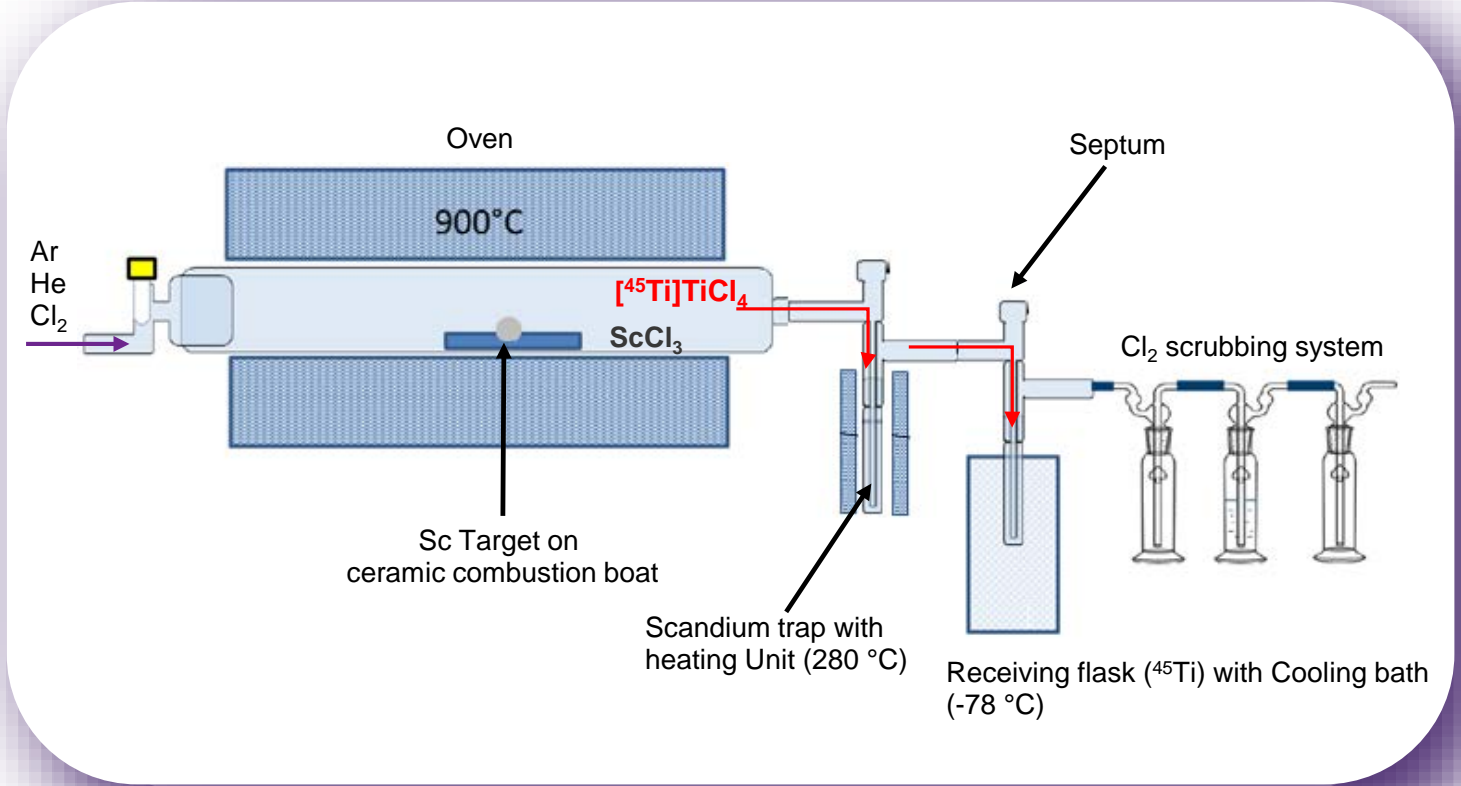
Targetry 02

Radionuclide
production

01



Radiochemical separation

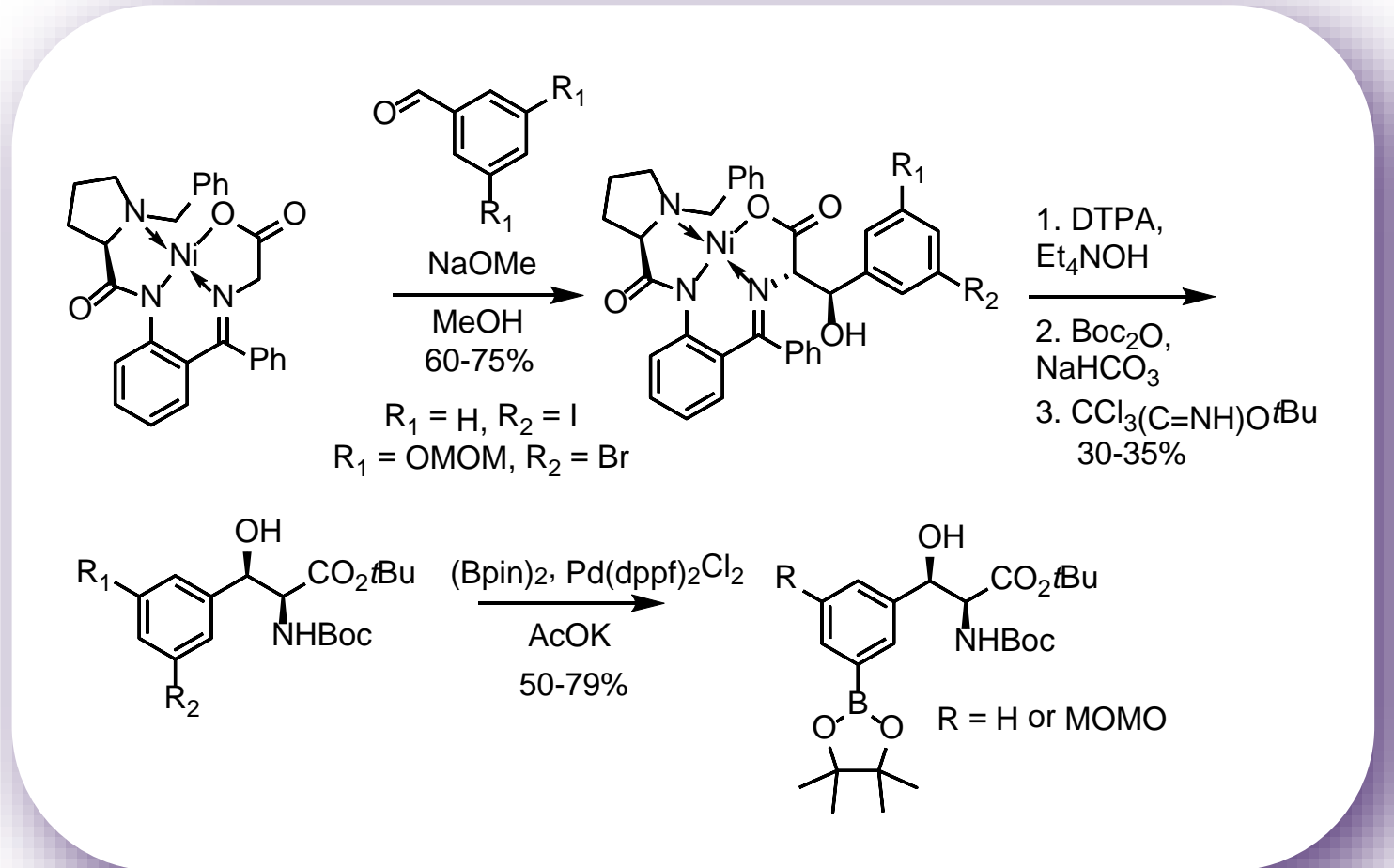


Precursor synthesis

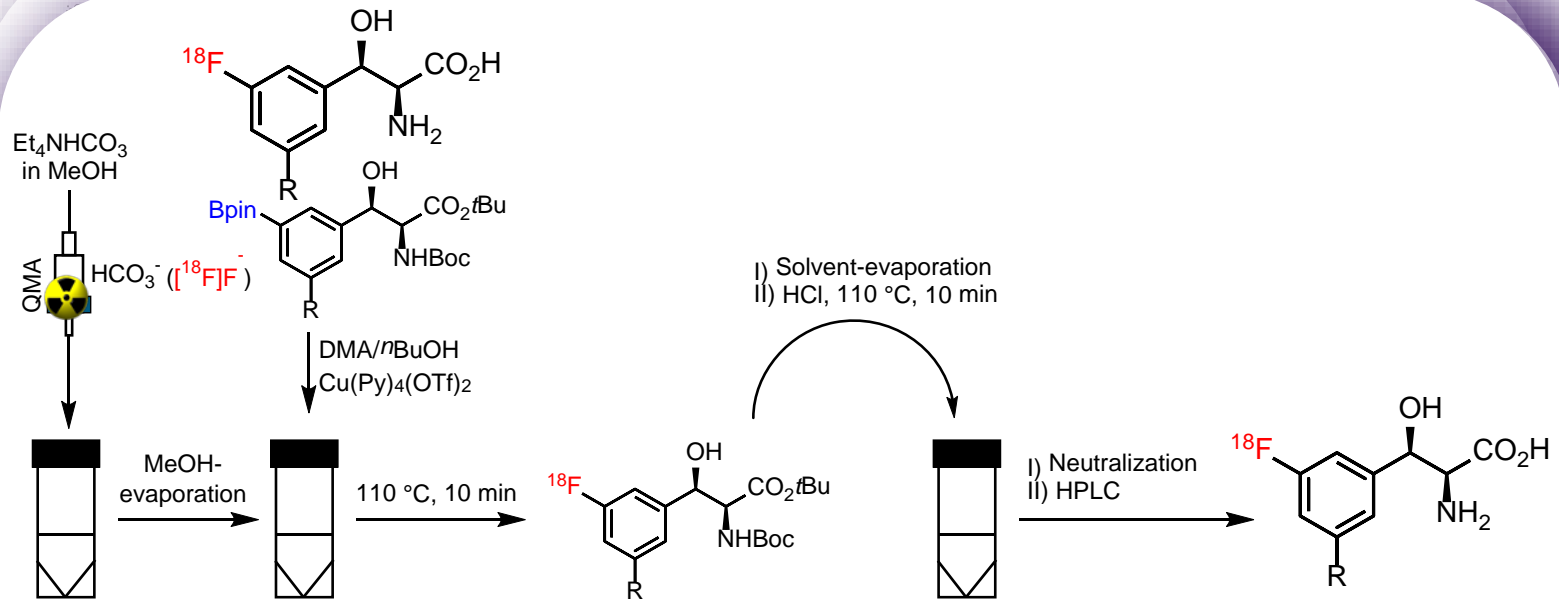
04

03

02



Radiolabeling & Qualitycontrol



Clinic

08

Preclinic

07

Automation

06

Radiolabeling

05

Precursor synthesis

04

Chemical

03



Clinic

08

Preclinic

07

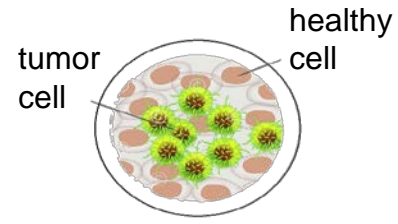
Automation

06

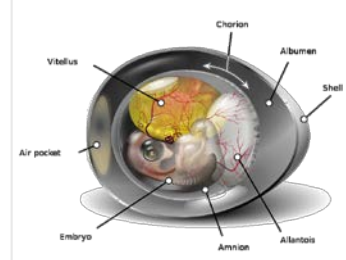
Radiolabeling

05

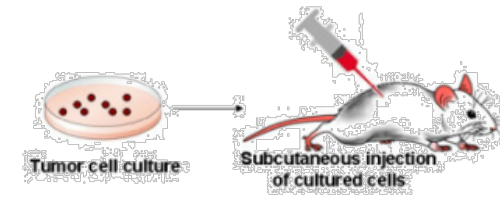
In Vitro Evaluation



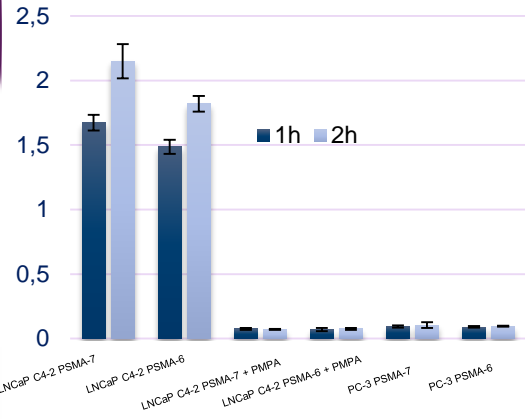
Chorioallantoic Membrane Model



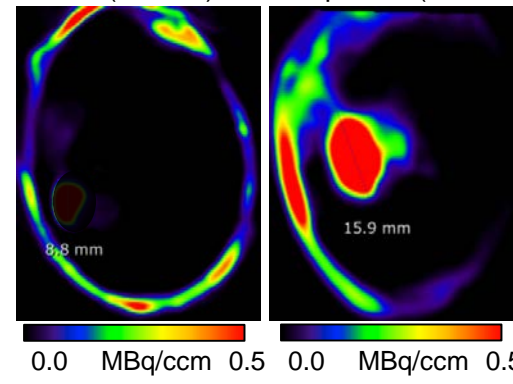
Human Tumor Xenograft Model



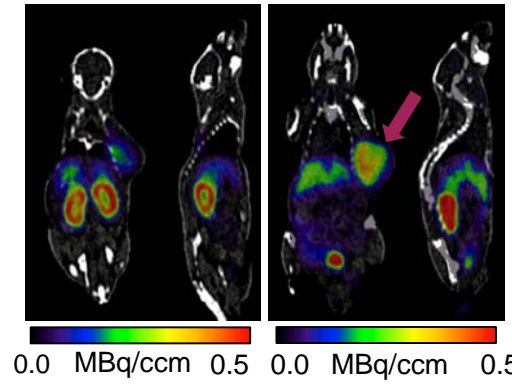
Cellular uptake of PSMA-7



PC-3 (PSMA-) LNCaP C4-2 (PSMA+)



PC-3 (PSMA-) LNCaP C4-2 (PSMA+)



Appendix

#

Clinic 08

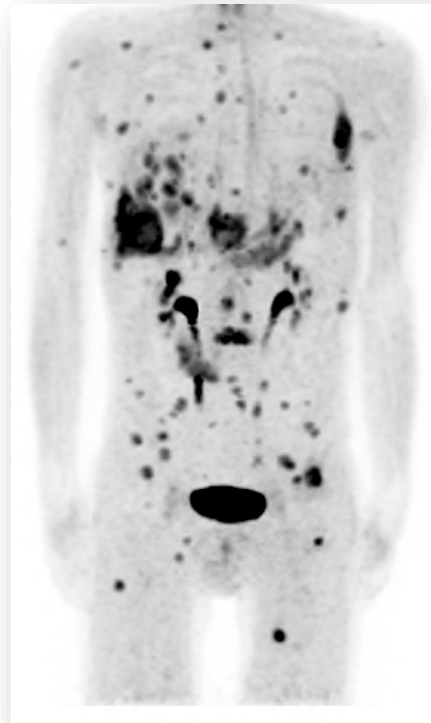
Preclinic

07

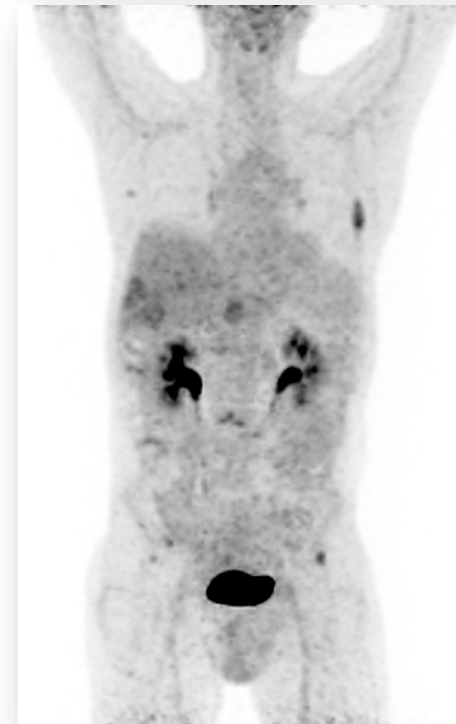
Automation

06

FAPI PET imaging



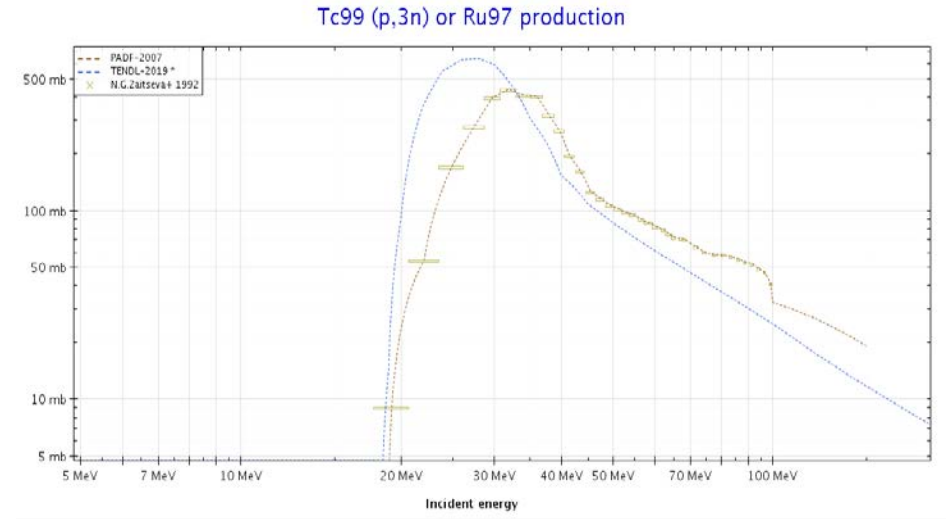
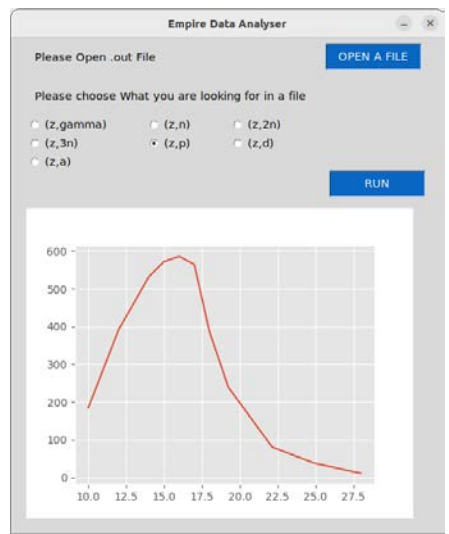
[¹⁸F]AlF-FAPI-42



[¹⁸F]FDG



Janis data vs. empire simulation Ninea Anasovi 01/2023



Appendix #

Clinic 08

Preclinic 07

06

Appendix

#

Clinic

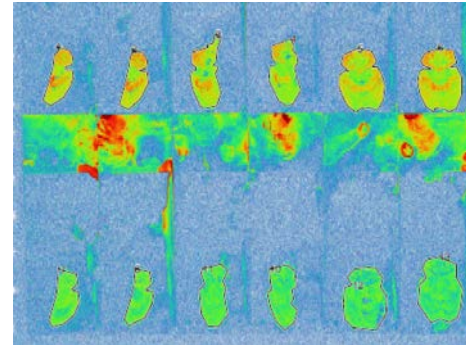
08

Preclinic

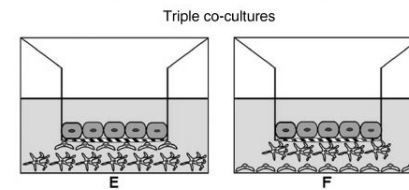
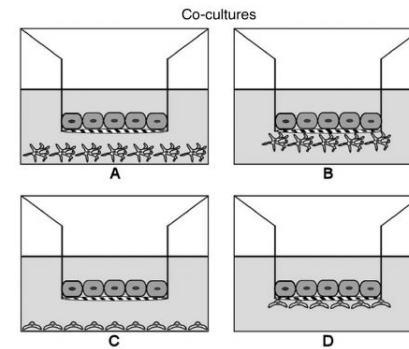
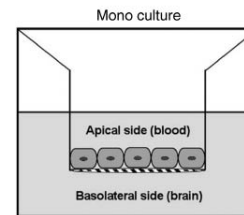
07

Autoradiography

[³H]DPCPX



BBB-Model



-  CEC
-  Astrocyte
-  Pericyte



Tamar Khatisashvili



დიდი მადლობა

Bernd Neumaier | Contribution to SMART | BiImaging_Lab: Chemistry part – INM-5

26.06.2023 | GGSB 2023