

Mini Seminar on remaining work packages for MEDICIS

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Feb 2016

and personalized medicine



NATURE | NEWS FEATURE



Radioisotopes: The medical testing crisis

With a serious shortage of medical isotopes looming, innovative companies are exploring ways to make them without nuclear reactors.

⁹⁹Tc supply shortage

Classification of Isotopes for Medicine

- Established isotopes** “industrial” suppliers
^{99m}Tc, ¹⁸F, ^{123,125,131}I, ¹¹¹In, ⁹⁰Y
supply security
optimization of production/scale effects > cost reduction
- Emerging isotopes** “small” innovative suppliers
⁶⁸Ga, ⁸²Rb, ⁸⁹Zr, ¹⁷⁷Lu, ¹⁸⁸Re
quality, GMP, certification
- R&D isotopes** research labs
^{44,47}Sc, ^{64,67}Cu, ¹³⁴Ce, ¹⁴⁰Nd,
^{149,152,155,161}Tb, ¹⁶⁶Ho, ^{195m}Pt,
²¹¹At, ^{212,213}Bi, ²²³Ra, ²²⁵Ac,...
availability at affordable cost

From U. Koester,
workshop on physics for Health in Europe
CERN, Feb. 2010

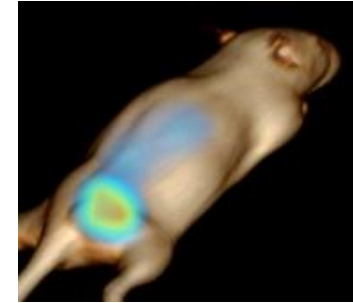


Why radioisotope in medicine?

Xofigo® has been approved (for hormone resistant prostate cancer with metastasis)

when $^{223}\text{RaCl}_2$ replaced $^{224}\text{RaCl}_2$

SPECT/CT



^{177}Lu *F. Bucchegger et al.*

Advanced Accelerator Applications (AAA) Announces Pivotal Phase 3 NETTER-1 Study of Lutathera in Patients with Midgut Neuro Endocrine Tumors Meets Primary Endpoint and Data will be Presented in Presidential Session at the European Cancer Congress 2015

-- FDA Grants Priority Review to AAA's New Drug Application for Somakit-TATE, Lutathera's companion PET (Positron Emission Tomography) Diagnostic --

Sept 2015

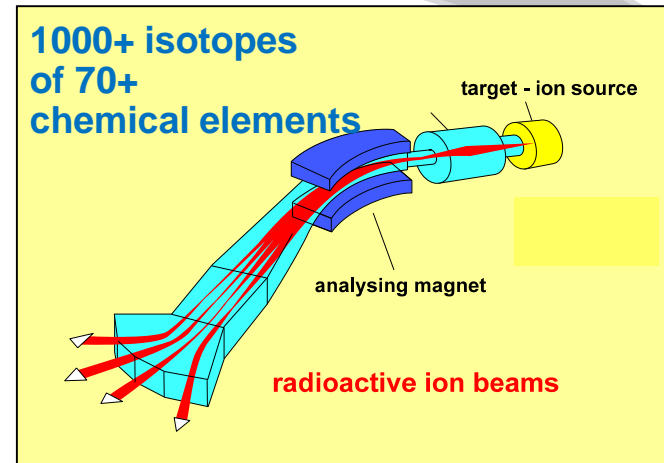
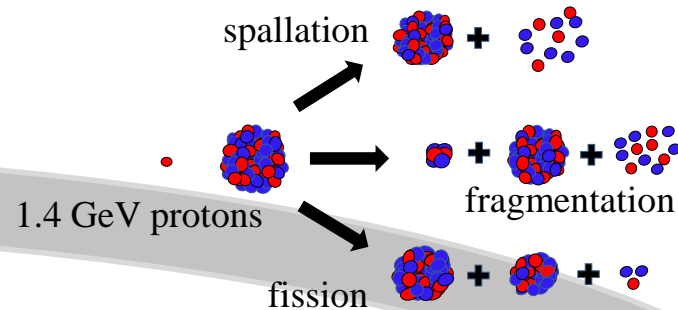
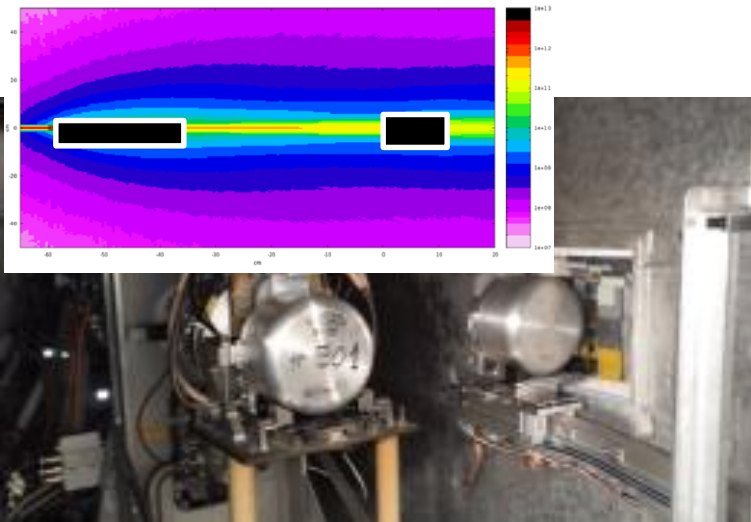


C. Muller et al.
jnumed.112.107540v1



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Isotope production in the dump and mass separation in the lab



Some milestones



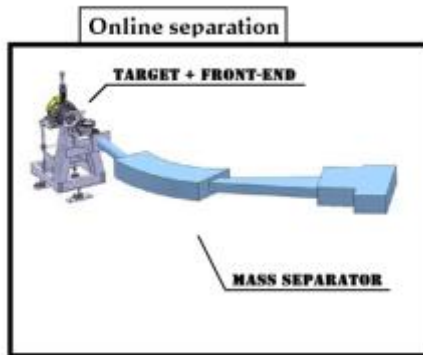
~2010



3rd Sept 2013



Uranium target irradiated
Nov 2015



Finishing installation and starting operation in ????

An external collaboration waiting



Marie Curie ITN (15 fellows) Kicked off in Feb 2016



Prof. L. Buehler



Prof. J. Prior



Prof. O. Ratib



Prof.

CERN-MEDICIS
World-unique facility for novel radioisotopes: CERN-MEDICIS



An international collaboration (10 institutes) will operate the facility with CERN
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And t(w)o-day(s) : planning, resources, others...

Date : 2016-02-03

Management Report

The MEDICIS Project

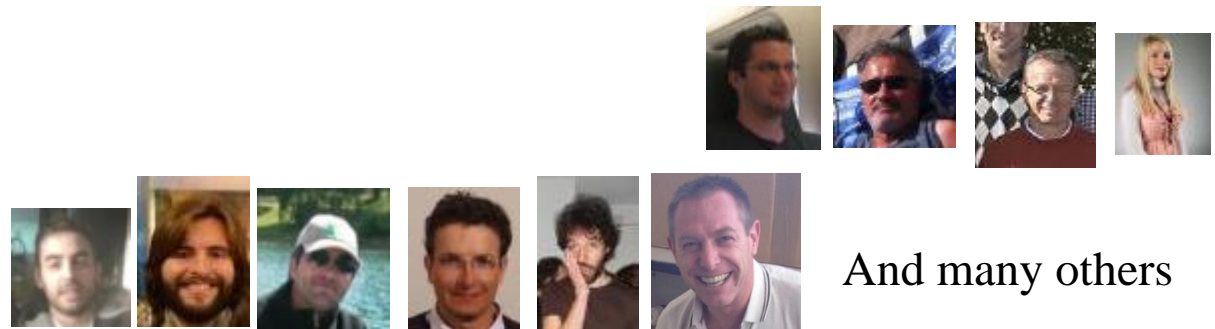
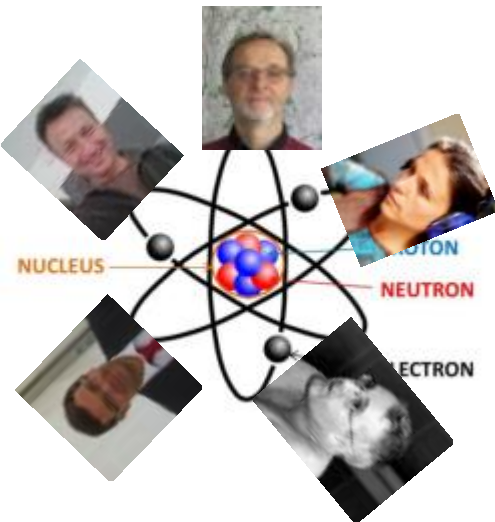
During LS1, the Class A Building 179 was extended to accommodate a facility for the dismantling of the ISOLDE used targets before disposal and to provide space for the CERN-MEDICIS Laboratory. The building now incorporates new services such as a sectorized nuclear ventilation system.

Work Package/Planning	16_I	16-II	16-III	16-IV	17-I	17-II
Beam instrumentation						
Access/interlock						
RP monitoring						
Shielding						
Cooling						
Separator control						
Air locks						
Lab equipment						
Shielded cell						
General Safety						
Front End						
Target						
Electrostatic switchyard						
Collection chamber						
Power converter						
Vacuum control						
Commissioning						

						Available budget	Expenditure	Required manpower	Available manpower
Grand Total						2450	0	13	0
Safety						Available budget	Expenditure	Required manpower	Available manpower
Total						510	0	3	0
Personel Protection	design, procurement, installation	Will be operational after the YETS 2015	BE-ICS	E.Sanchez	80		1		
RP Monitoring	design, procurement, installation	2016	BE-ICS, DGS-RP	J.Vollaire	230		0.5		



- Many people & groups have already contributed



And many others

Core CERN-MEDICIS nucleus

- Thanks for your participation and input today(s)!