

INNOVAZIONE TECNOLOGICA PER IL CAMBIAMENTO DEI MODELLI CLINICI ED ASSISTENZIALI COME BINARI SU CUI CONDURRE IL CAMBIAMENTO DEI MODELLI

A cura AOU Careggi, Firenze

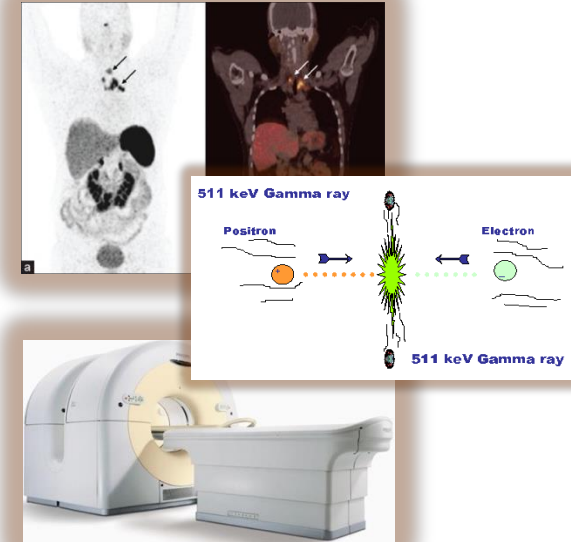
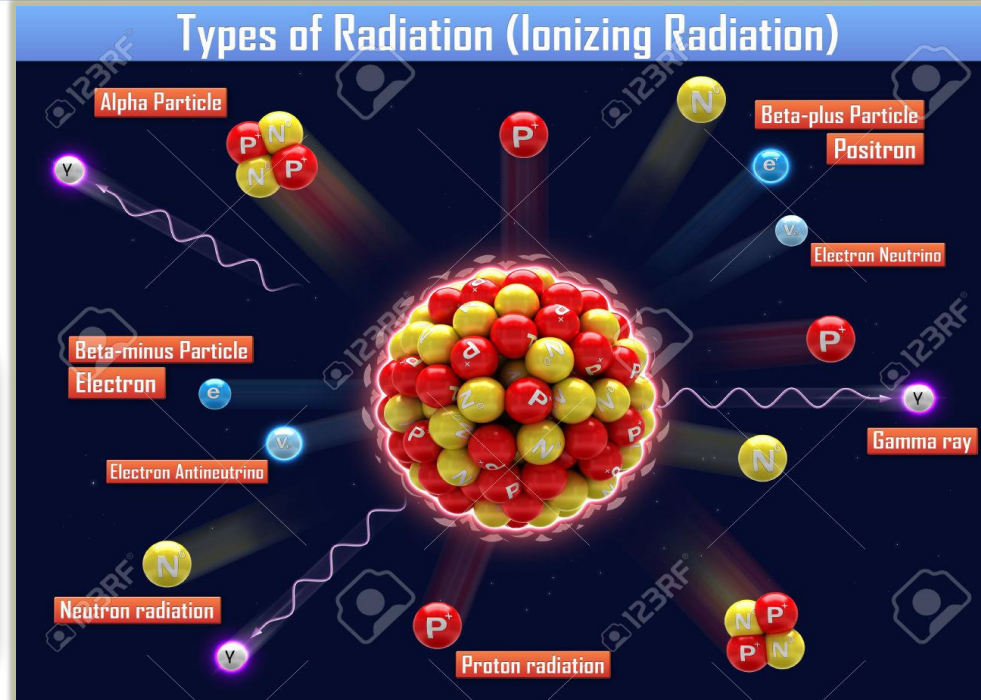
Evoluzione della Medicina Nucleare a livello di Area Vasta per la definizione di nuovi RadioFarmaci per la diagnosi e la cura

Dr. Vittorio Briganti

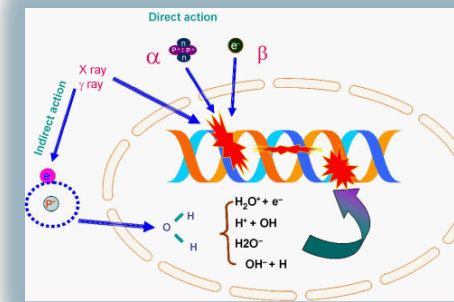
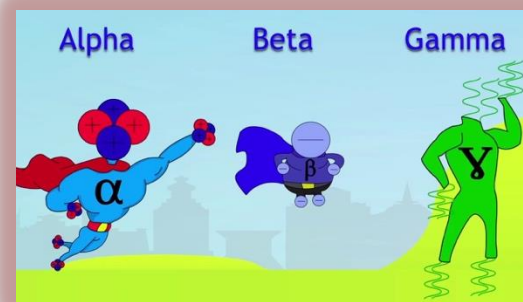
Responsabile equipe di Imaging Molecolare oncologico neoplasie gastroenteriche e neuroendocrine

AOU Careggi

Fisica nucleare, NO grazie!!!

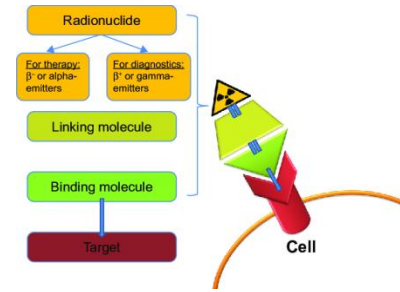


Rappresentazione “fumettistica”



Effetti desiderati ed indesiderati



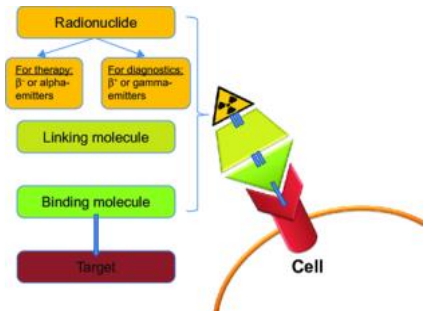


Radiofarmaci Teranostici

Theranostic molecule	Iodine	mIBG	SSA	PSMA-ligands	Benzamide/ arylcarboxamide
Target	Thyroid cancer cells	Neurosecretory granules	SSTR, especially the subtype SSTR2	PSMA	Melanin
Planar imaging/ SPECT or PET	¹³¹ I and ¹²³ I ¹²⁴ I	[¹³¹ I]I-mIBG, [¹²³ I]I-mIBG [¹²⁴ I]I-mIBG	SSA labeled with indium-111 [⁶⁸ Ga]Ga-DOTA-TATE [⁶⁸ Ga]Ga-DOTA-TOC [⁶⁸ Ga]Ga-DOTA-NOC	[¹²³ I]I-MIP-1072 [⁶⁸ Ga]Ga-PSMA-11 [⁶⁸ Ga]Ga-PSMA-617	[¹²³ I]I-BA52 [¹⁸ F]F-ICF15002
Therapeutic agent	¹³¹ I	[¹³¹ I]I-mIBG	[¹⁷⁷ Lu]Lu-DOTA-TATE [¹⁷⁷ Lu]Lu-DOTA-TOC [⁹⁰ Y]Y-DOTA-TOC [⁹⁰ Y]Y-DOTA-TATE	[¹⁷⁷ Lu]Lu-J591 [⁹⁰ Y]Y-J591 [¹³¹ I]I-MIP-1095 [¹⁷⁷ Lu]Lu-PSMA-617	[¹³¹ I]I-BA52 [¹³¹ I]I-ICF15002
Indication	Thyroid cancer	Neuroblastomas, pheochromocytomas, paragangliomas, medullary thyroid carcinomas, and other NEN	NEN, especially GEP-NEN	Metastatic prostate cancer	Metastatic melanoma

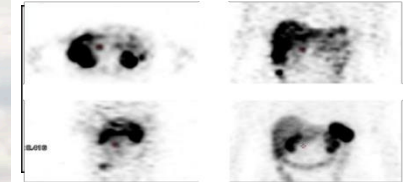
OncoTargets and Therapy Volume 10:4821-4828 · October 2017 DOI: 10.2147/OTT.S140671

Radiofarmaci
Teranostici
Diagnostici



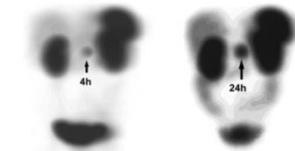
Il cavallo e la zebra

**IT CAN TAKE
 5 YEARS FOR
 SOMEONE
 LIVING WITH
 NEUROENDOCRINE
 CANCER OF
 THE LUNG TO
 BE CORRECTLY
 DIAGNOSED**



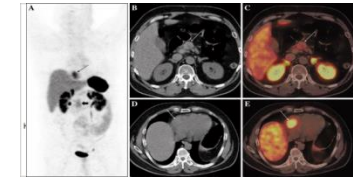
Tektrotyd

Carcioid tumor in a 77-year-old woman with debilitating abdominal pain, diarrhea, and dehydration.

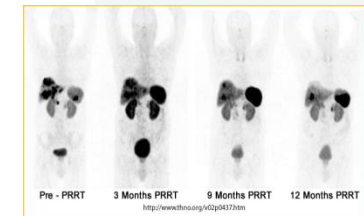


Incremento di "uptake" 4 vs. 24h ► Indice di SPECIFICITA'

Octreoscan

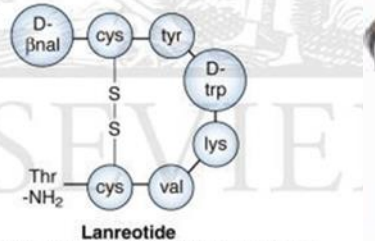
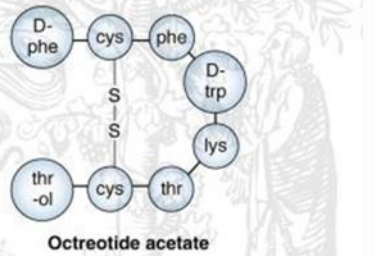
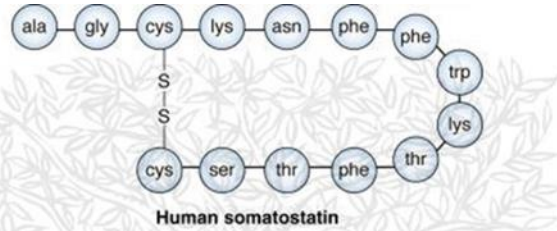
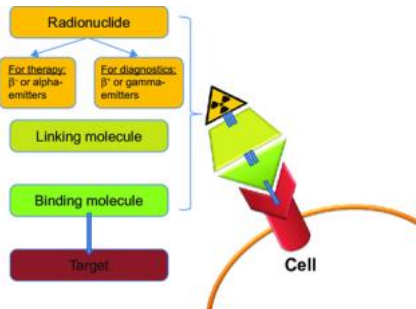


⁶⁸Ga-DOTANOC



⁶⁸Ga-DOTATATE

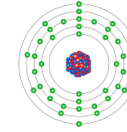
Radiofarmaci
Teranostici
Terapeutici



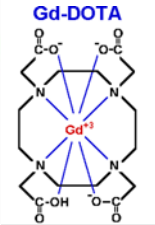
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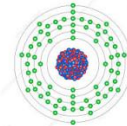
Molecole



Yttrium

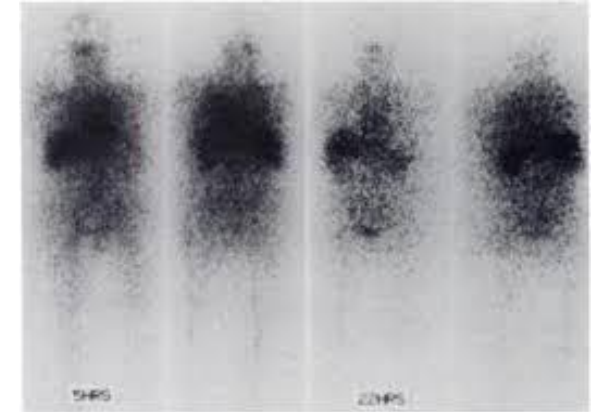


Chelanti

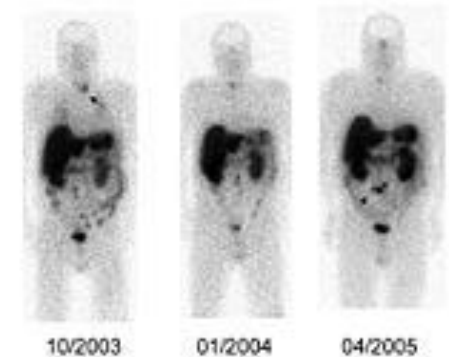


Lutezio

Radio Isotopi



DOTATOC yttrium-90

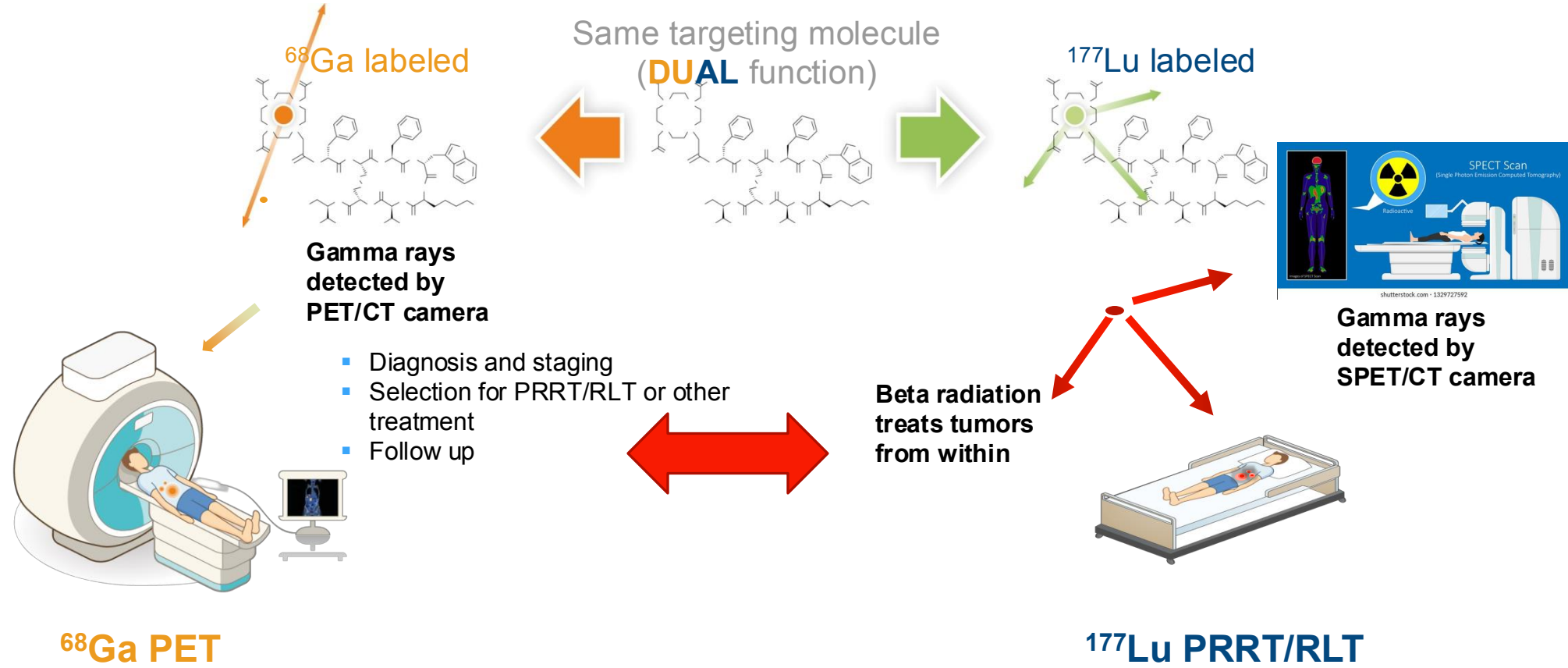


Klinik für Nuklearmedizin, Universität Leipzig

Lutathera

Piattaforma teranostica a doppia funzione

Piattaforma Teranostica



Organizzazione PET/CT ⁶⁸Ga-DOTATOC

MEDICINA NUCLEARE



**Generatore
(8 mesi)**



Somakit

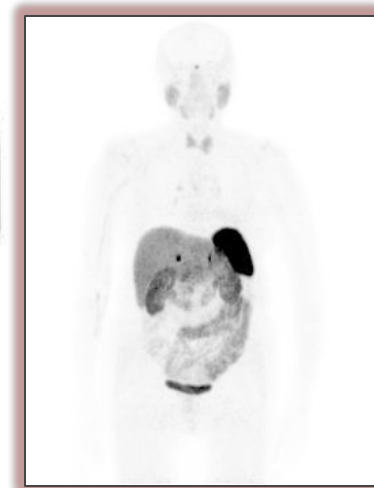
Isolatore



RADIOFARMACIA



Modulo di Sintesi



Organizzazione RLT



GOM

Obiettivi Organizzativi

SODc

ONCOLOGIA MEDICA



RADIOTERAPIA



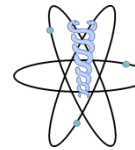
MEDICINA NUCLEARE



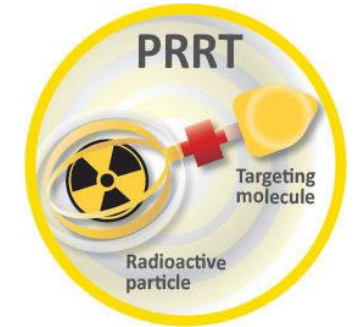
FARMACIA



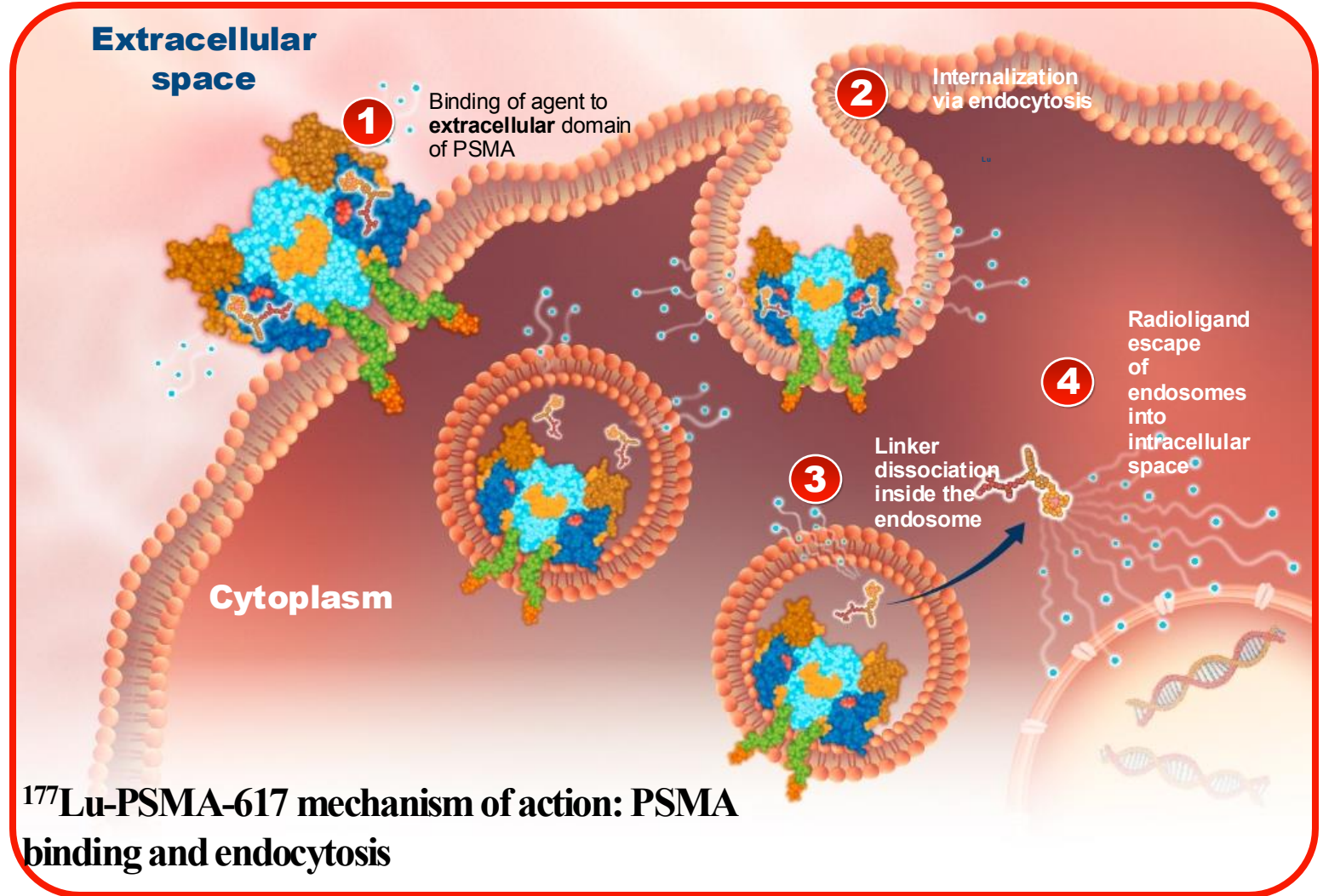
FISICA SANITARIA



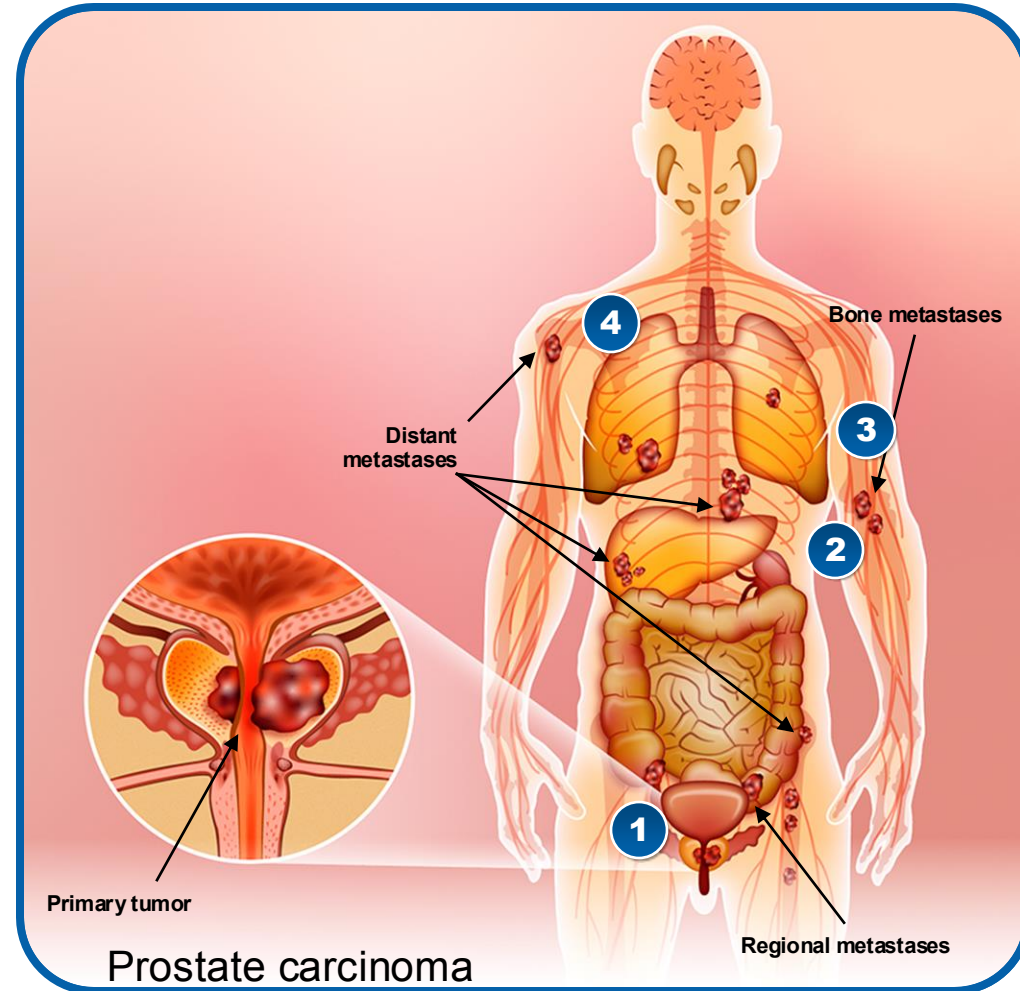
TRATTAMENTO



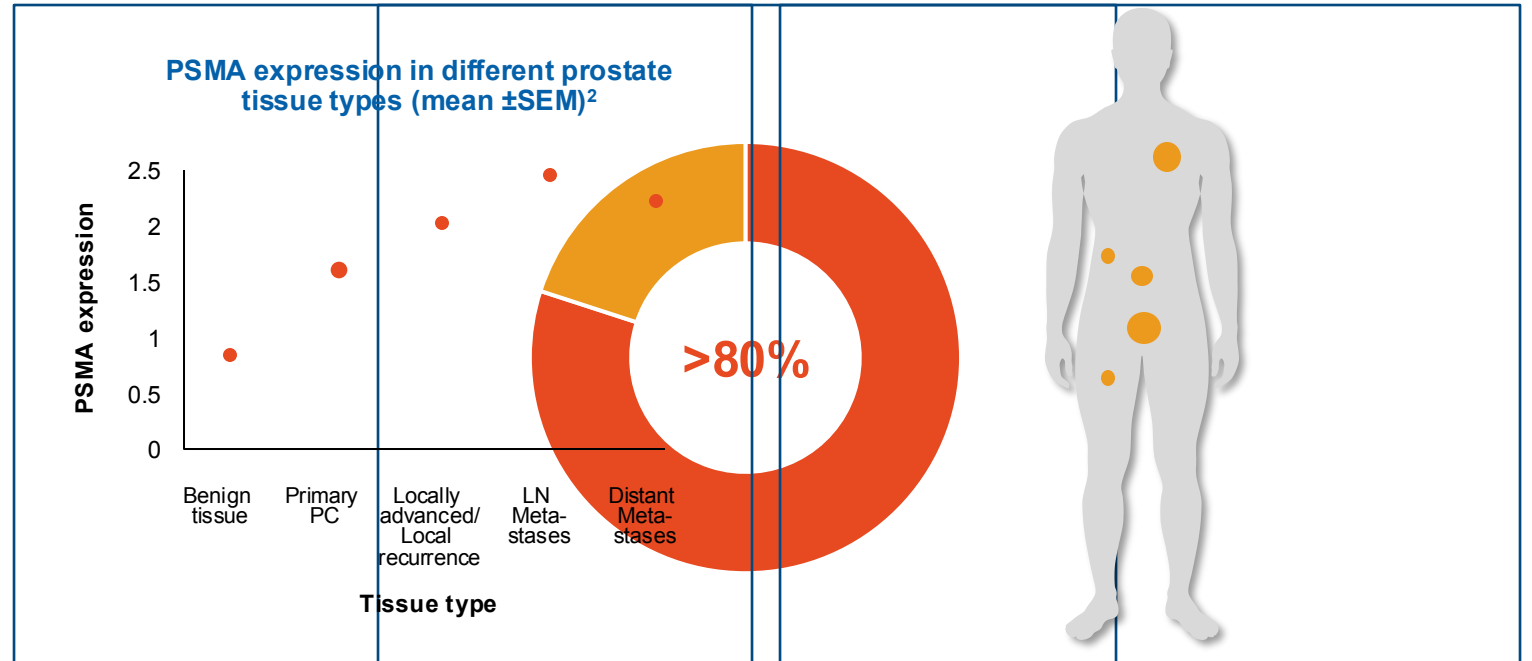
**La prossima
 (già attuale)
 sfida**



Espressione del PSMA



PSMA è altamente espresso in più dell'80% degli uomini con CP



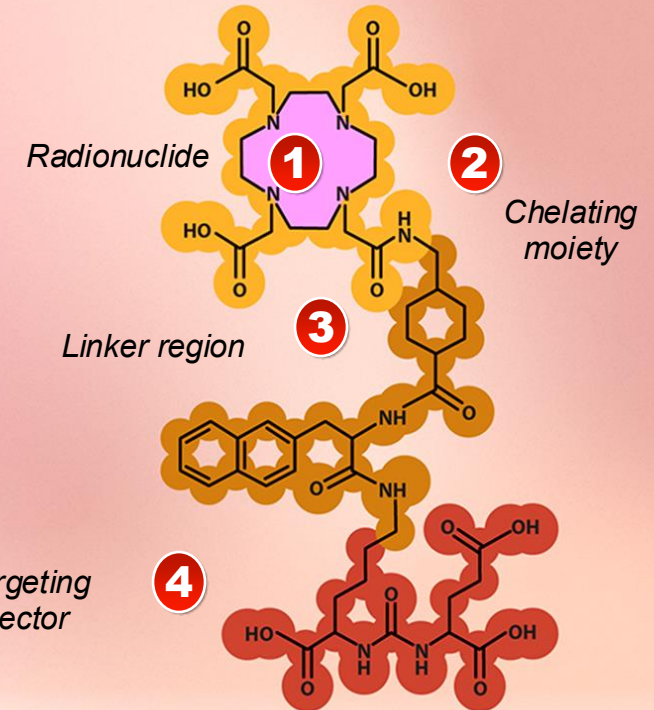
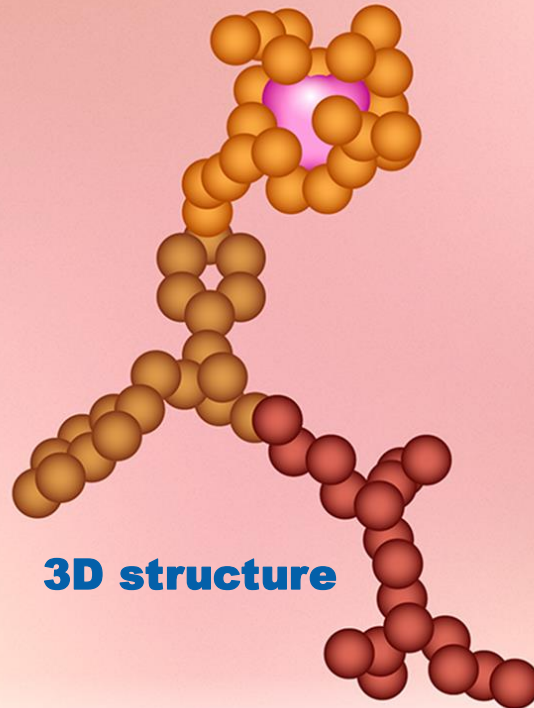
The proportion of PSMA-positive cells* is significantly higher in PC tissue than in benign prostate tissue⁵

PSMA can be highly expressed in both primary prostate carcinoma cells and metastatic tumor cells^{†6,7}

*Based on immunoreactivity for PSMA in 184 radical prostatectomy specimens. Orange circles on figure indicate PSMA expression with lighter colors noting PSMA-expressing non-prostatic, benign tissue.
 1. Hope TA, et al. J Nucl Med. 2017;58(12):1956–1961; 2. Hupe MC, et al. Front Oncol. 2018;8:623; 3. Pomykala KL, et al. J Nucl Med. 2020;61(3):405–411; . Minner S, et al. Prostate. 2011;71(3):281–288; 5. Bostwick DG, et al. Cancer. 1998;82(11):2256–2261; 6. Silver DA, et al. Clin Cancer Res. 1997;3(1):81–85; . Wright GL, et al. Urol Oncol. 1995;1(1):18–28. PC, prostate cancer; PSMA, prostate-specific membrane antigen; SEM, standard error of mean.



Struttura molecolare del ^{177}Lu -PSMA-617



**Chemical
structure**

Informazione Mediatica

Tumore della prostata metastatico resistente alla castrazione: 177Lu-PSMA-617 riduce del 38% il rischio di morte

I risultati presentati al Congresso dell'American Society of Clinical Oncology (ASCO). I pazienti trattati con 177Lu-PSMA-617 hanno inoltre dimostrato una riduzione del 60% del rischio di progressione radiografica rispetto al braccio che aveva ricevuto il miglior standard di cura.

Sono stati annunciati i risultati dello studio di Fase III VISION, che ha valutato l'efficacia del farmaco 177Lu-PSMA-617 in aggiunta al migliore standard di cura nei pazienti con carcinoma della prostata progressivo metastatico resistente alla castrazione (mCRPC) e positivo all'antigene di membrana specifico della prostata (PsmA).

Pazienti arruolabili: cancro della prostata metastatici resistenti alla castrazione, già trattati con inibitori degli androgeni e Taxane, 68Ga-PSMA-PET/CT positivi

TOSCANA: SI STIMANO DA 100 A 120 PAZIENTI ANNO per PLUVICTO

2 Centri attivi:

1) Pisa (AOUP) circa 20 pz./anno per Lutathera (80 trattamenti),
prevede la disponibilità di altri 30 pazienti per Pluvicto (180 trattamenti)

2) Firenze (AOUC) circa 15 pz./anno per Lutathera (60 trattamenti),
prevede la disponibilità di altri 20pz./anno per Pluvicto (120 trattamenti)

1 Centro in procinto di attivarsi:

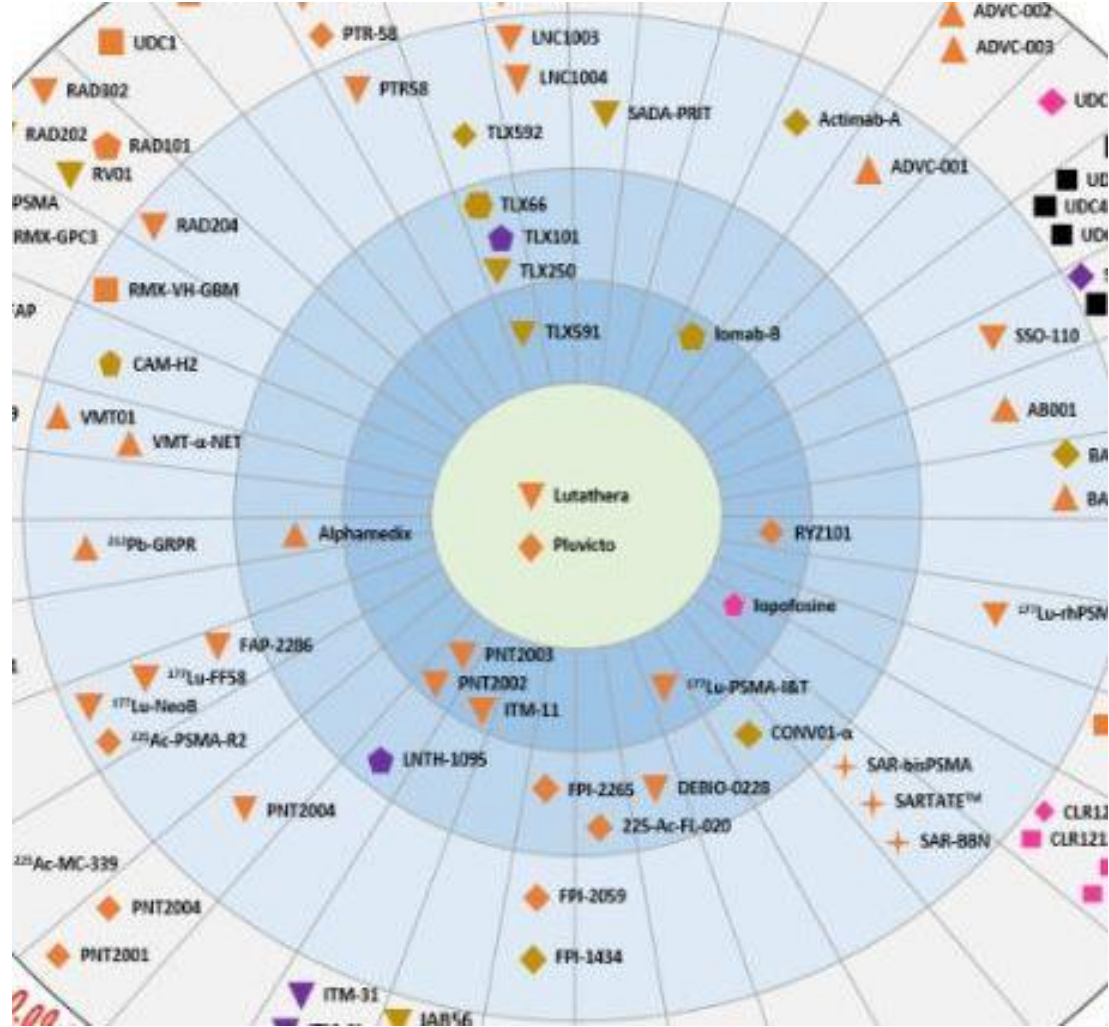
Prato (ASL 10) prevede circa 15/pz./anno per Lutathera (60 trattamenti) e
20/pz./ anno per Pluvicto (120 trattamenti)

TOSCANA: RIMANGONO SCOPERTI CIRCA IL 50% DEI PAZIENTI!





Il futuro



**Grazie
dell'attenzione!**

