

Tumori neuroendocrini e medicina nucleare

NET: gruppo eterogeneo di neoplasie derivati da cellule neuroendocrine sparse in tutto l'organismo.

Clinica:

- 1) Effetto massa**
- 2) Effetto delle secrezioni**

<i>Manifestazione clinica</i>	<i>Ormone ipersecretato</i>
<i>Flushing cutaneo</i>	Serotonina
Diabete mellito	Glucagone, somatostatina, VIP
Diarrea/steatorrea	Gastrina, serotonina, glucagone, somatostatina, VIP
Ipoglicemia a digiuno	Insulina

Biologia molecolare

<i>Tipo cellulare</i>	<i>Ormone prodotto</i>	<i>Pancreas</i>	<i>Stomaco</i>		<i>Intestino</i>					
			<i>CF</i>	<i>An</i>	<i>Tenue</i>			<i>Ap</i>	<i>Crasso</i>	
					<i>D</i>	<i>Dg</i>	<i>I</i>		<i>C</i>	<i>R</i>
P/D1	Grelina	s	+	s	+	s	s			
EC	Serotonina	s	+	+	+	+	+	+	+	+
D	Somatostatina	+	+	+	+	s	s	+	s	+
L	GLI/PYY				s	+	+	+	+	+
A	Glucagone	+	fn							
PP	PP	+			fn					
B	Insulina	+								
X	Sconosciuto		+							
ECL	Istamina		+							
G	Gastrina			+	+					
CCK	CCK				+	+	s			
S	Secretina				+	+				
GIP	GIP				+	+	s			
M	Motilina				+	+	s			
N	Neurotensina				s	+	+			

CF: corpo-fondo; An: antro; D: duodeno; Dg: digiuno; I: ileo; Ap: appendice cecale; C: colon; R: retto; +: presenti; s: presenti in numero scarso; fn: presenti nel feto e nel neonato; EC: enterocromaffine; GLI: immunoreagenti glucagone-simili (glicentina, glucagone-37, glucagone-29); PYY: peptide PP-simile con tirosina-amide N-terminale; PP: polipeptide pancreatico; ECL: enterocromaffino-simile; CCK: colecistochinina; GIP: polipeptide gastro-inibitore.

Limiti dell'imaging morfologico

Alta sensibilità nell'identificazione delle neoplasie di grosse dimensioni, limitata nelle piccole!

Imaging molecolare presenta alta sensibilità, anche nelle piccole.

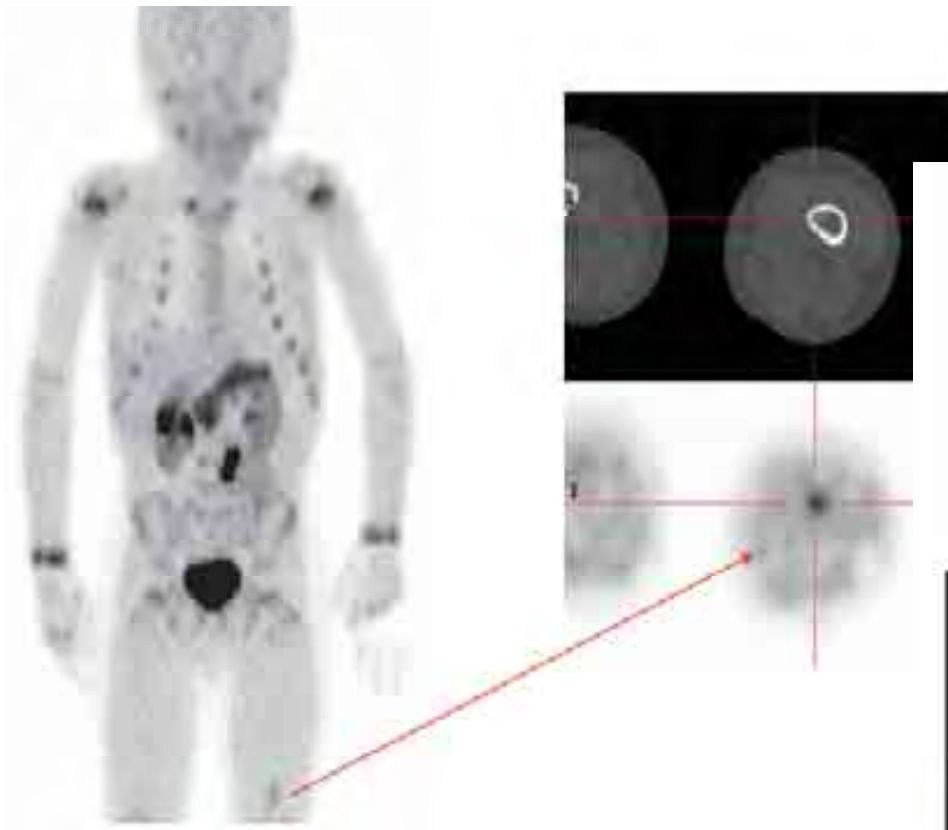
Non valuta l'utilità del trattamento molecolare!

Imaging molecolare predice il ruolo della terapia biologica

Imaging Molecolare : 18F-DOPA (>mIBG)

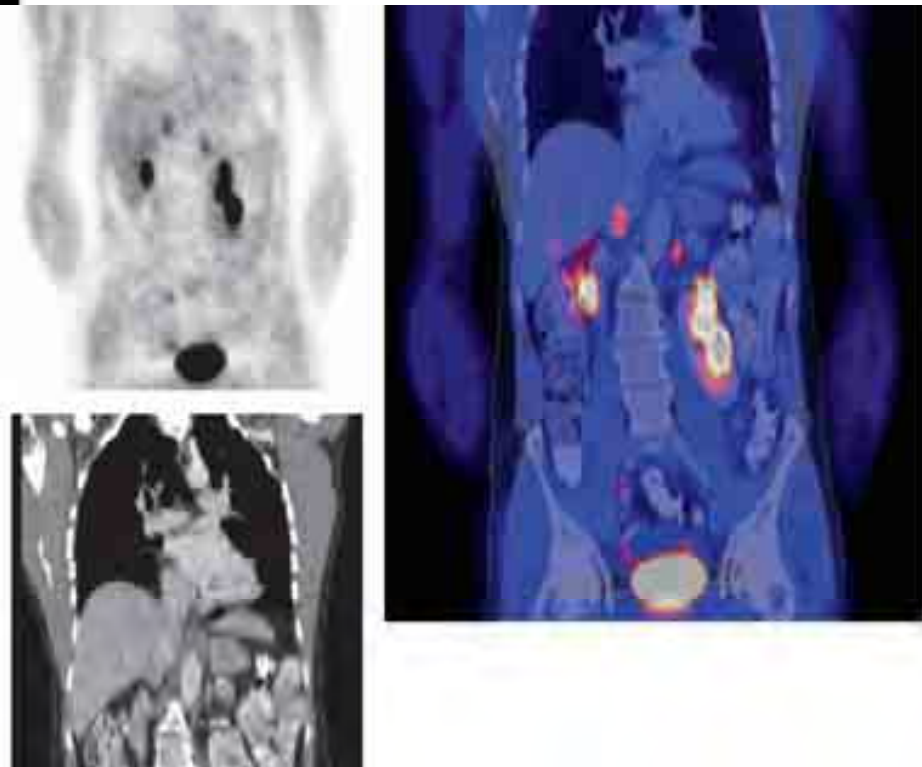
18F_DOPA:

Neuroblastoma in
bambino di 5 anni.

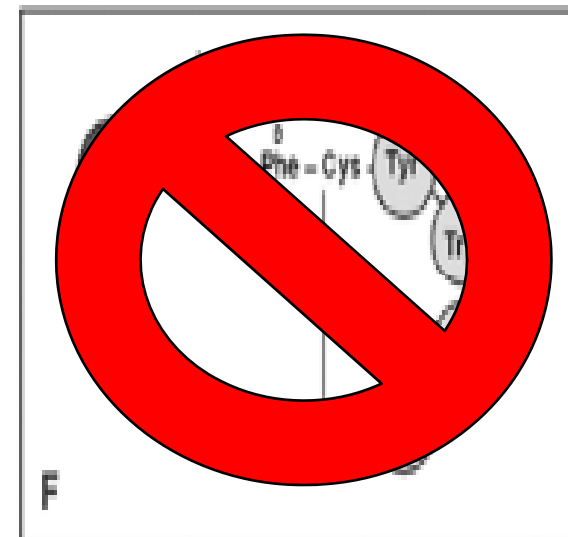
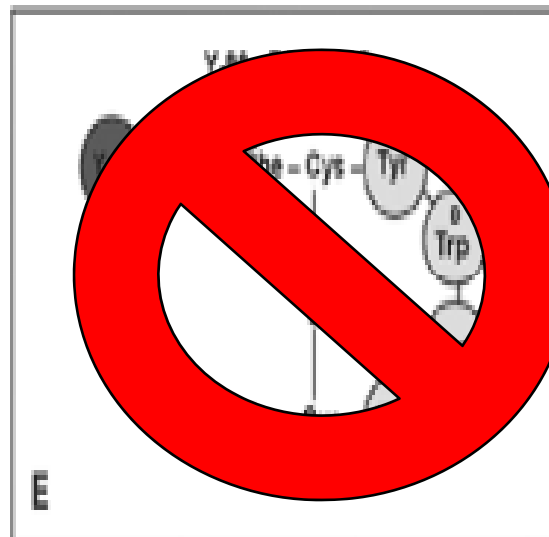
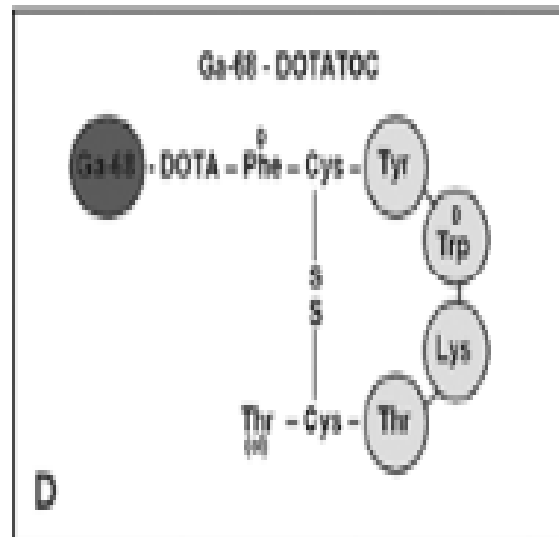
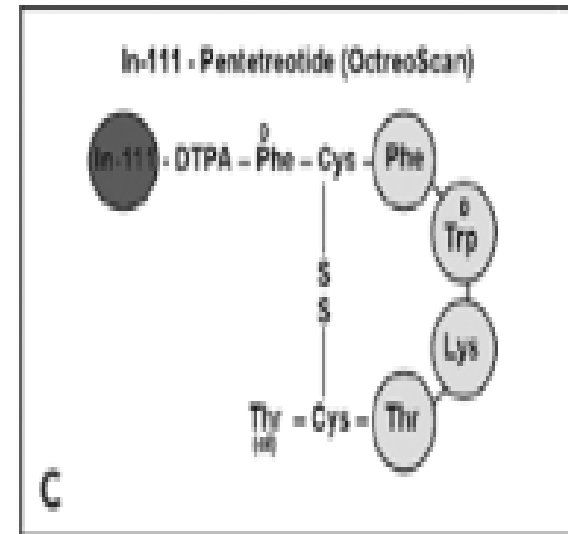
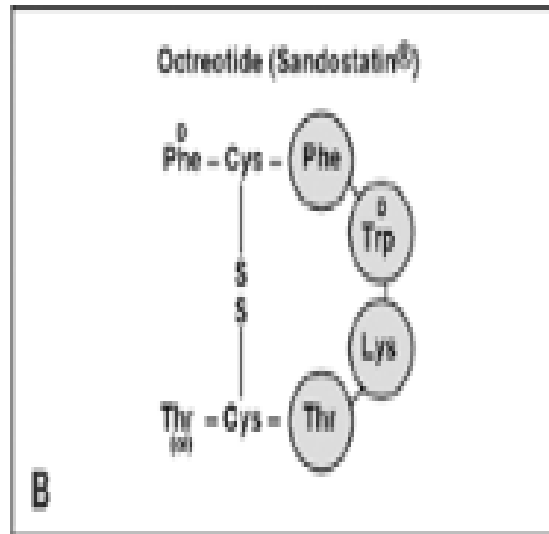
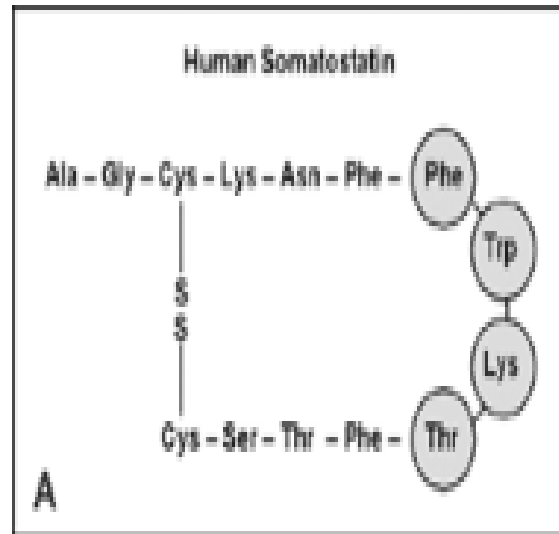


18F_DOPA:

Maschio 37 anni con MEN2a;
feocromocitoma maligno.

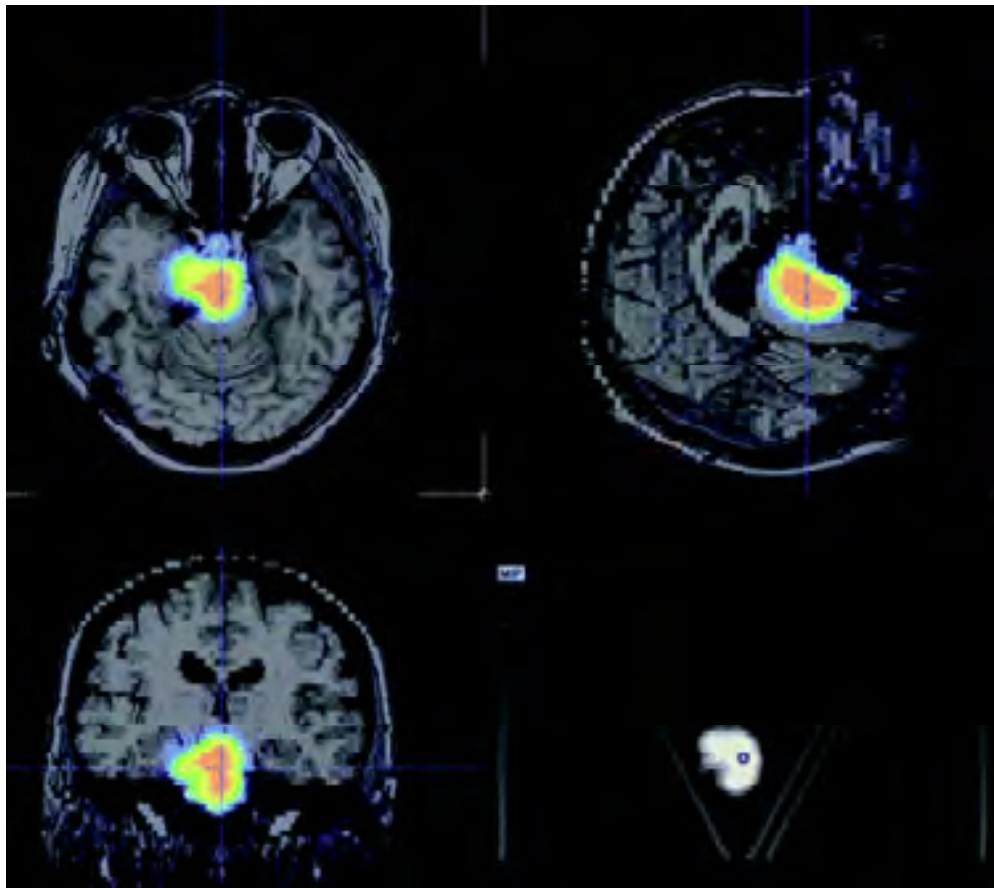


Imaging Molecolare: "Somatostatina"

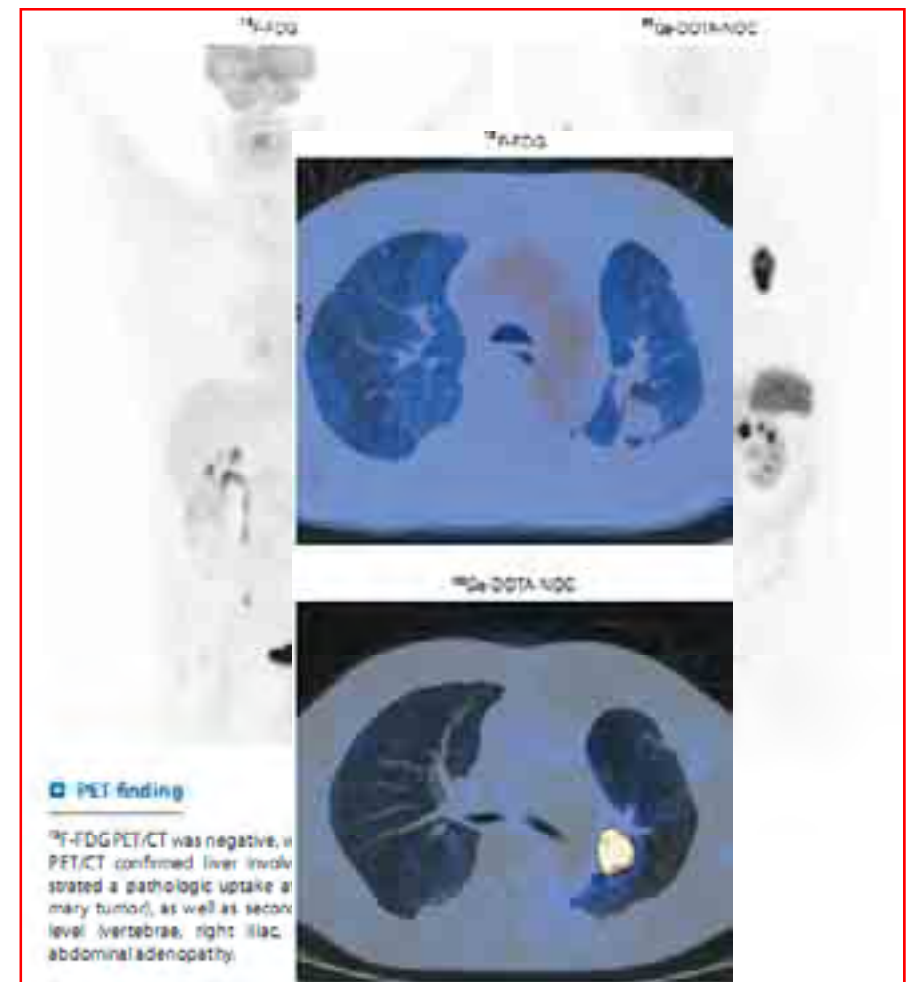


Casi meno frequenti 1

RM+ ^{68}Ga -DOTATOC PET in paziente con **meningioma**.

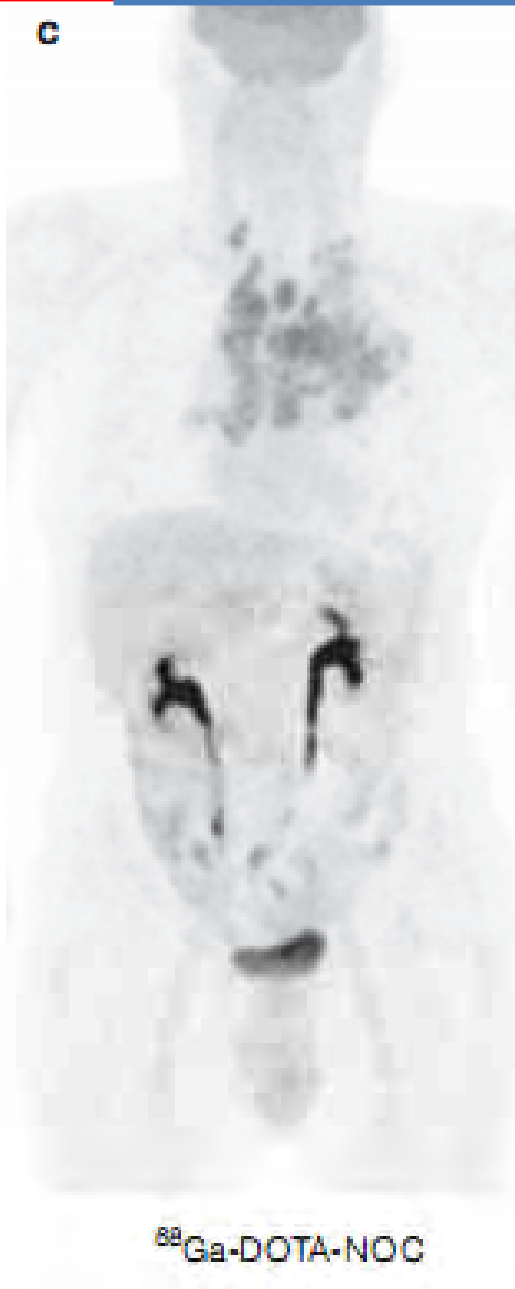


^{18}F -FDG e ^{68}Ga -DOTANOC PET in paziente con **carcinoide**.



Casi meno frequenti 2

c



Sarcoidosi:

(^{68}Ga -DOTANOC è attivamente captato dai linfociti attivati).

NET

della prostata
metastatico
studiato con
Otreoscan

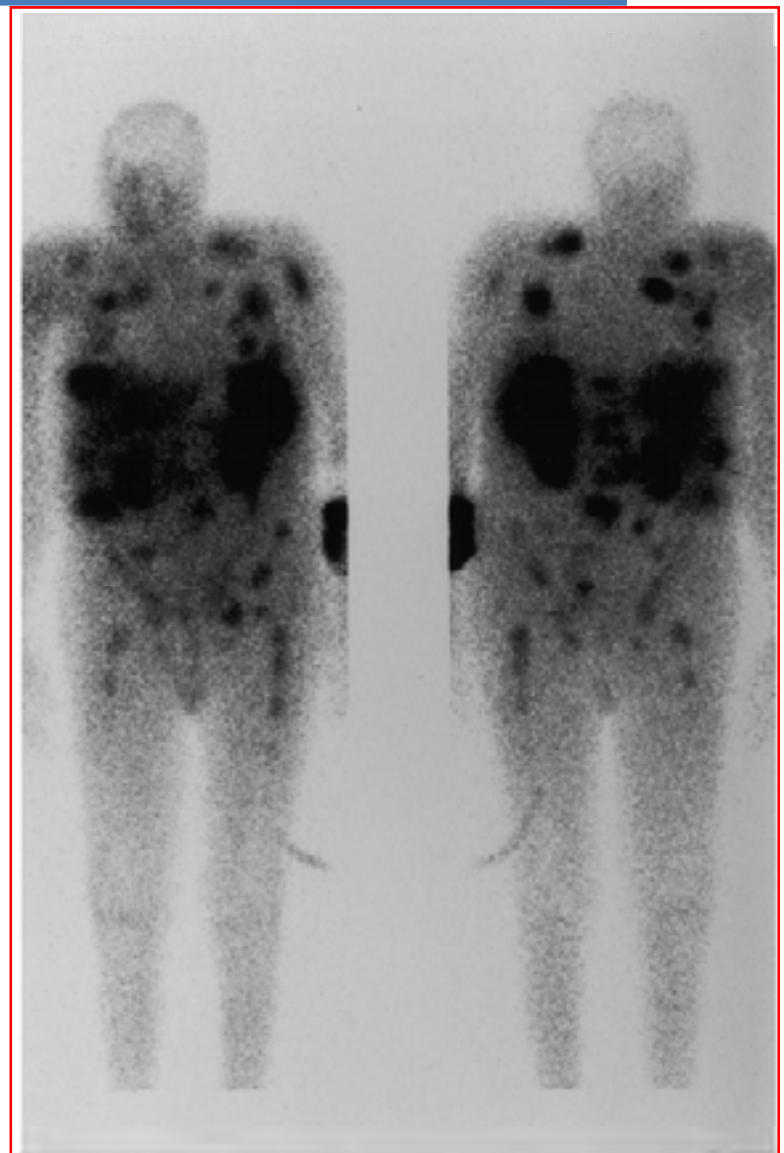
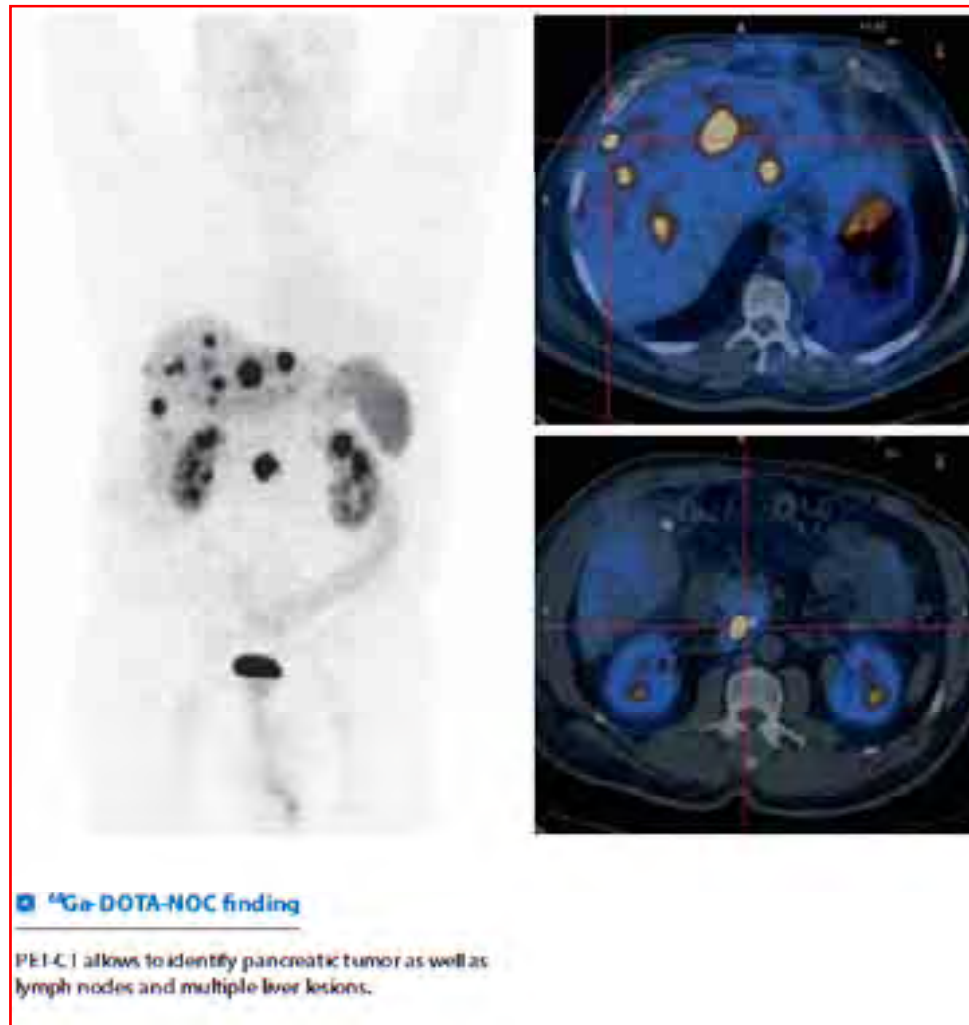


Fig. 6. An In-111 OctreoScan performed on October 13, 1999 shows multiple neuroendocrine bony and soft-tissue metastases more numerous than those shown by the most recent bone scan.

Stadiazione dei NET



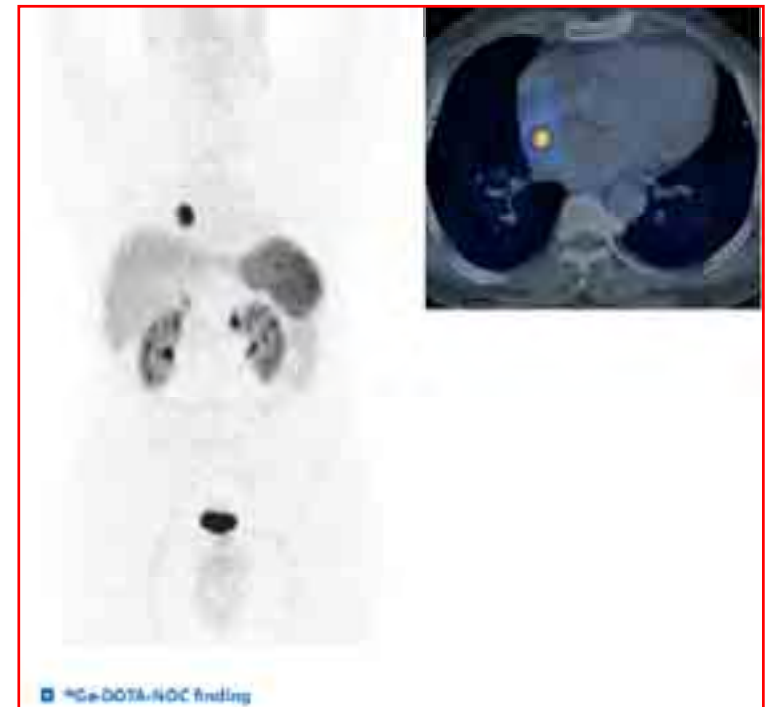
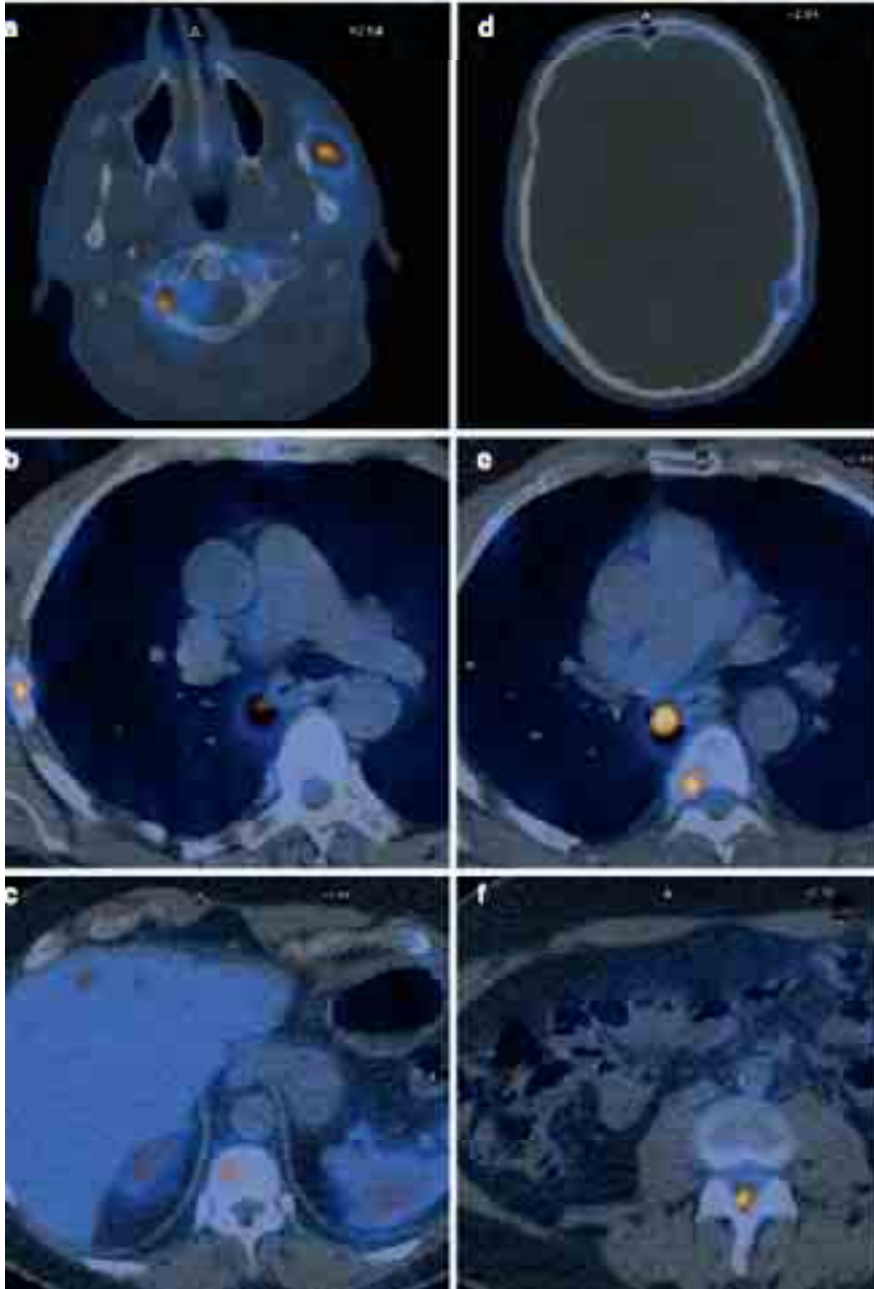
NET del pancreas con metastasi
linfonodali ed a distanza

Carcinoide bronchiale
pluriMTS



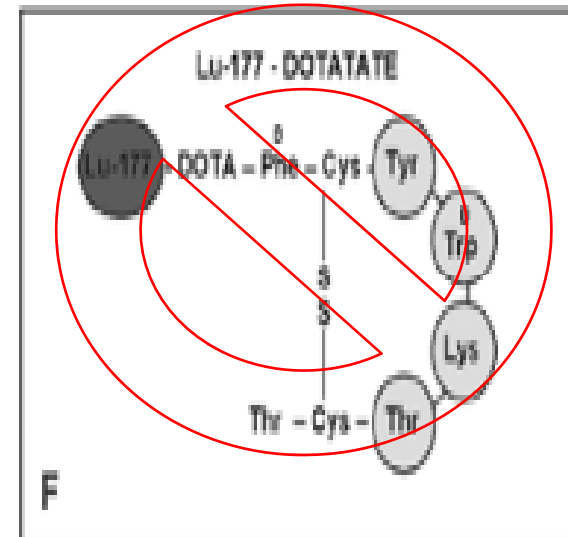
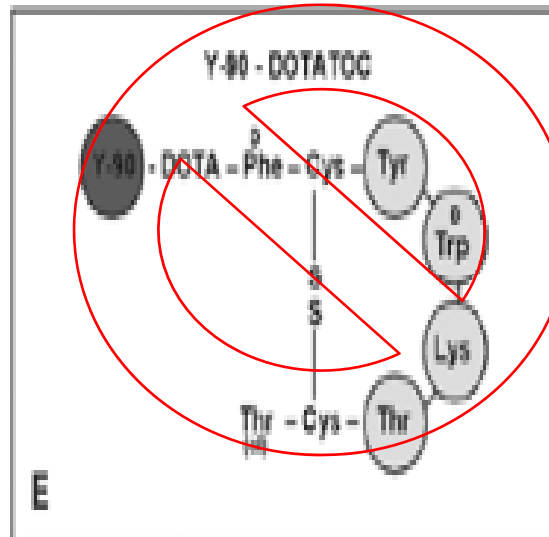
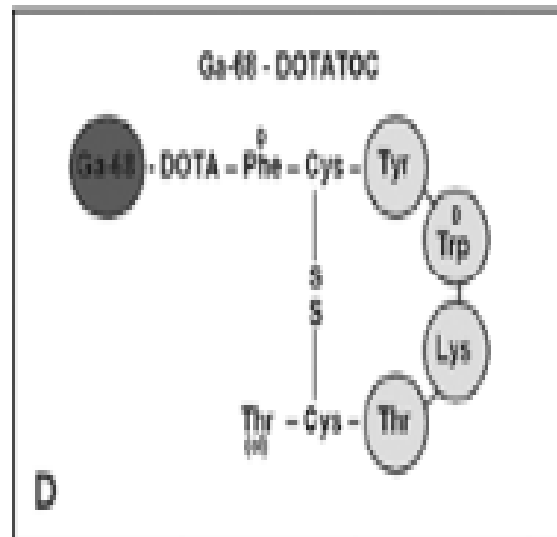
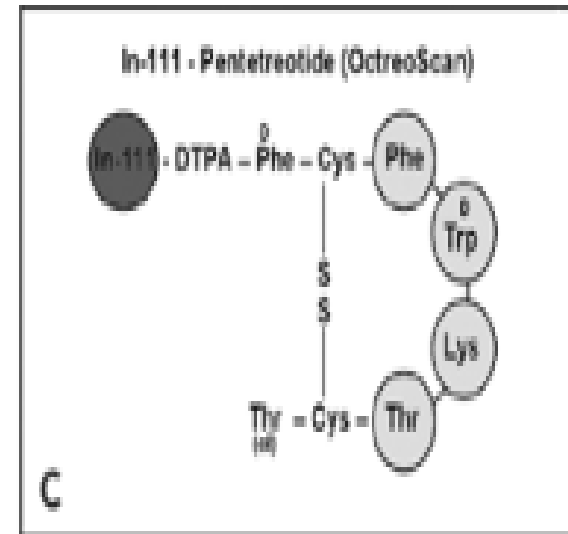
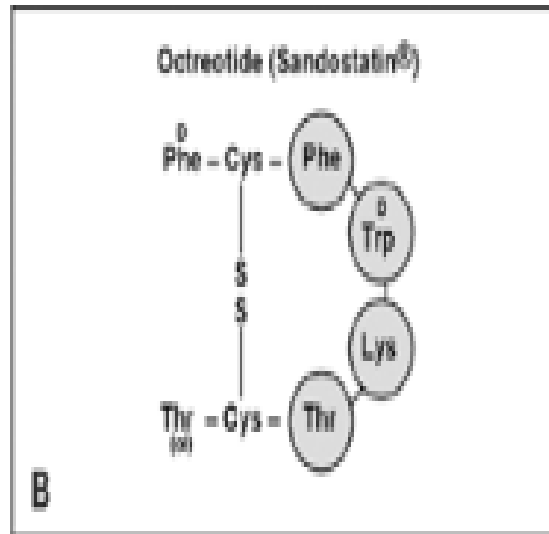
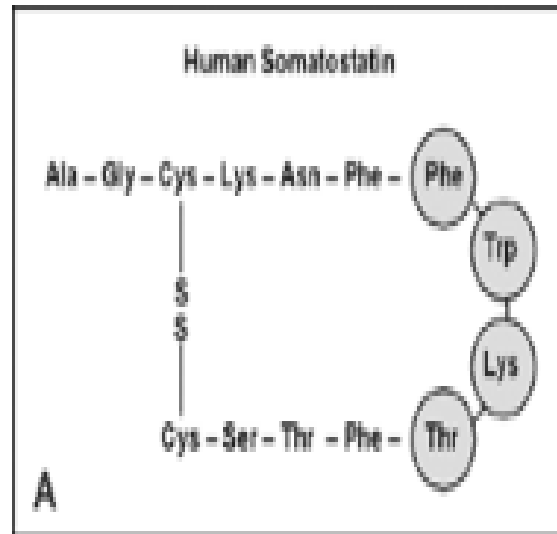
Stadiazione dei NET

Identificazione di
piccole lesioni



Paraganglioma studiato
con ^{68}Ga -DOTANOC

Imaging Molecule



Ristadiazione dei NET dopo terapia

^{177}Lu DOTATATE

Effetto della RTM

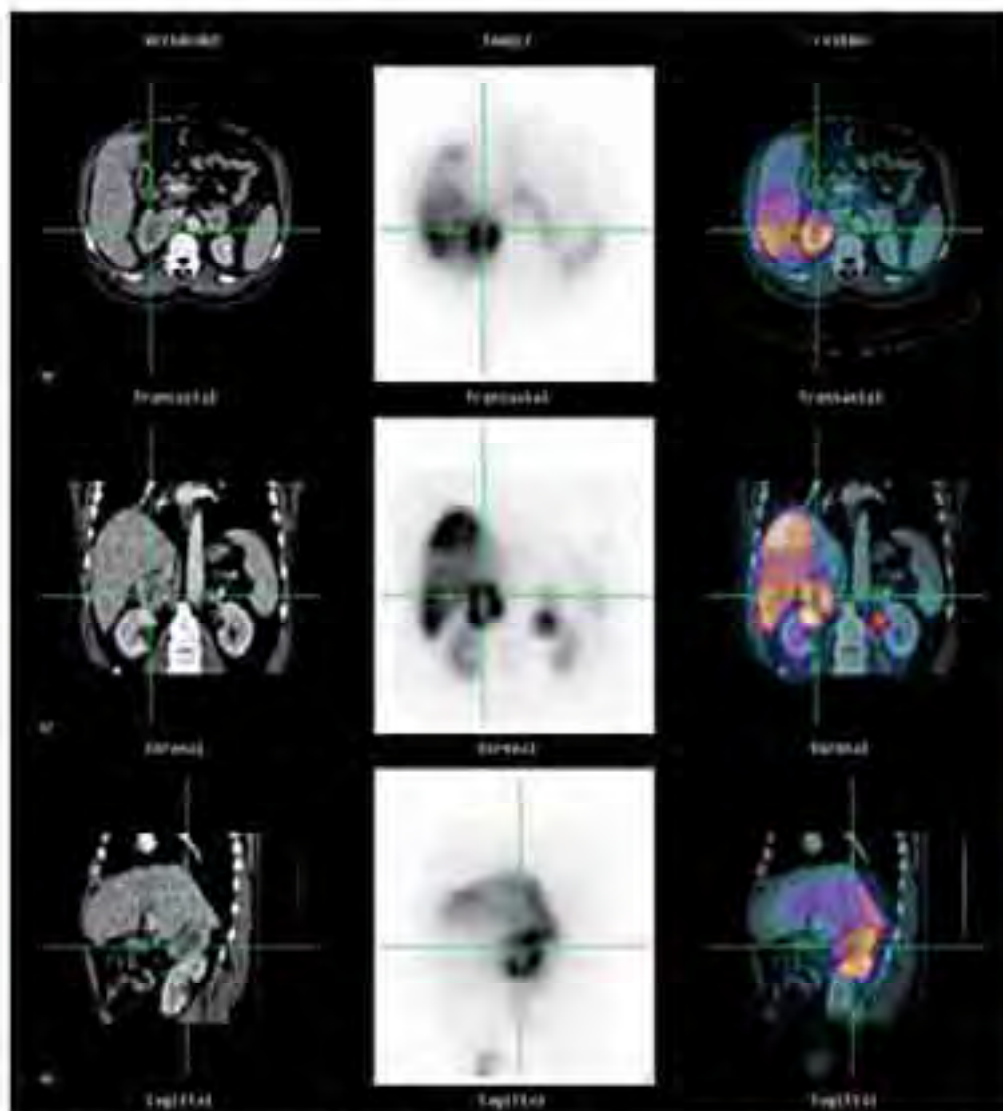
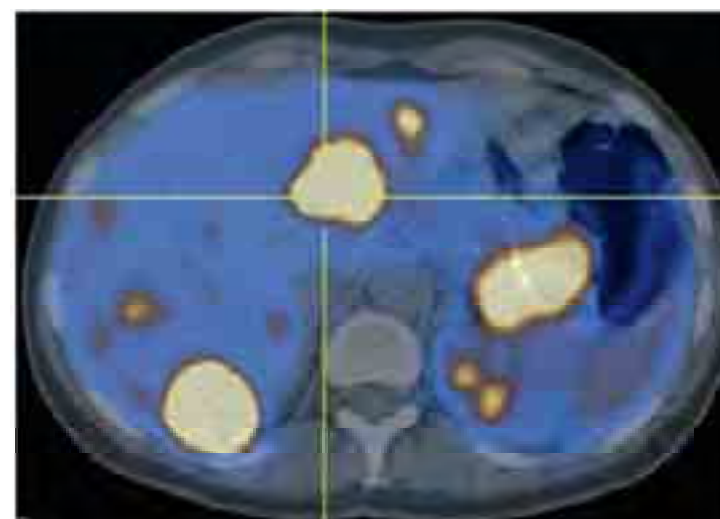


Figure 1. PET/CT scans performed after 300 GBq of ^{177}Lu DOTATATE administration. Tumor uptake is significantly reduced after administration of ^{177}Lu DOTATATE.



before

