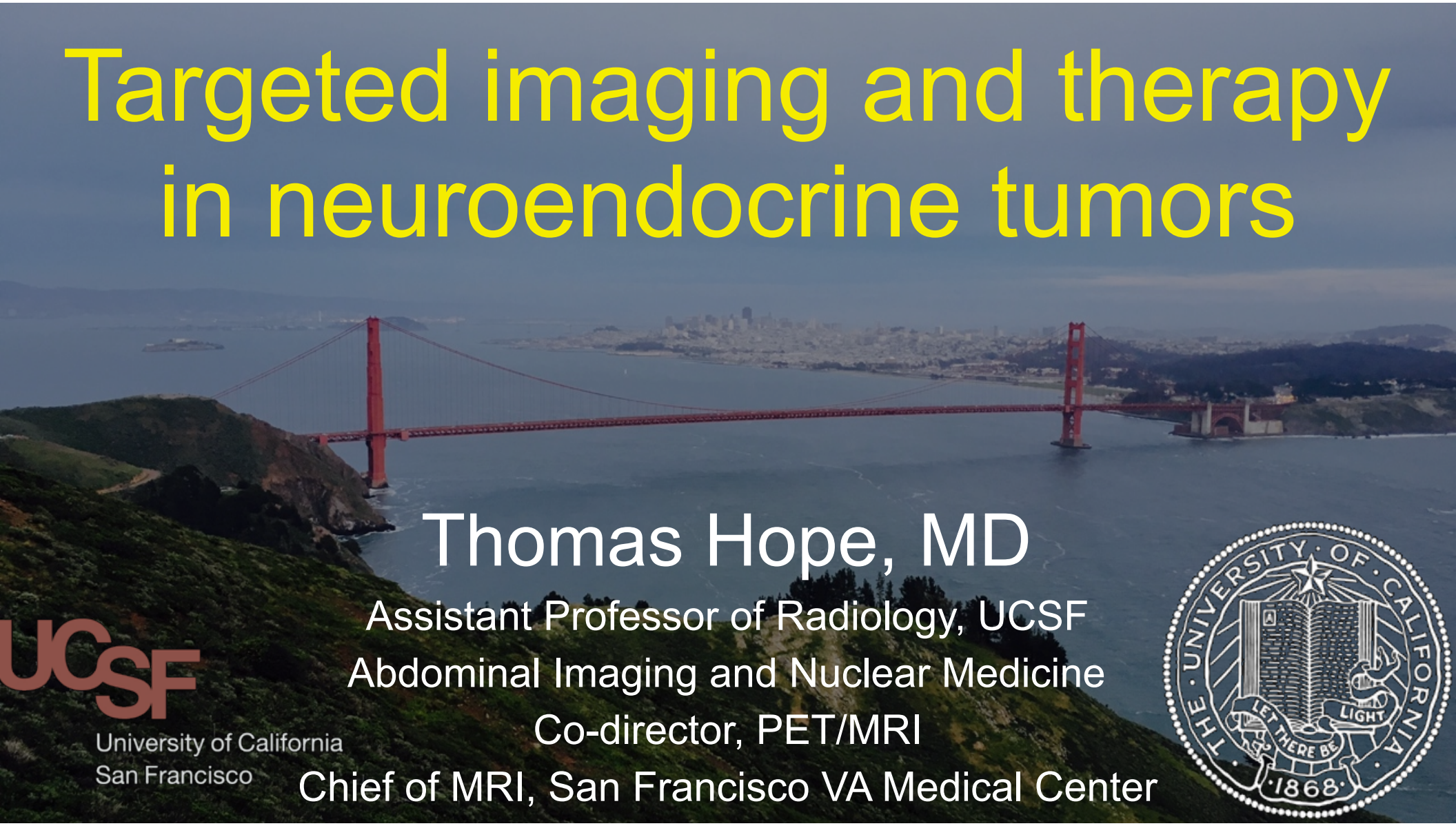
# Targeted imaging and therapy in neuroendocrine tumors

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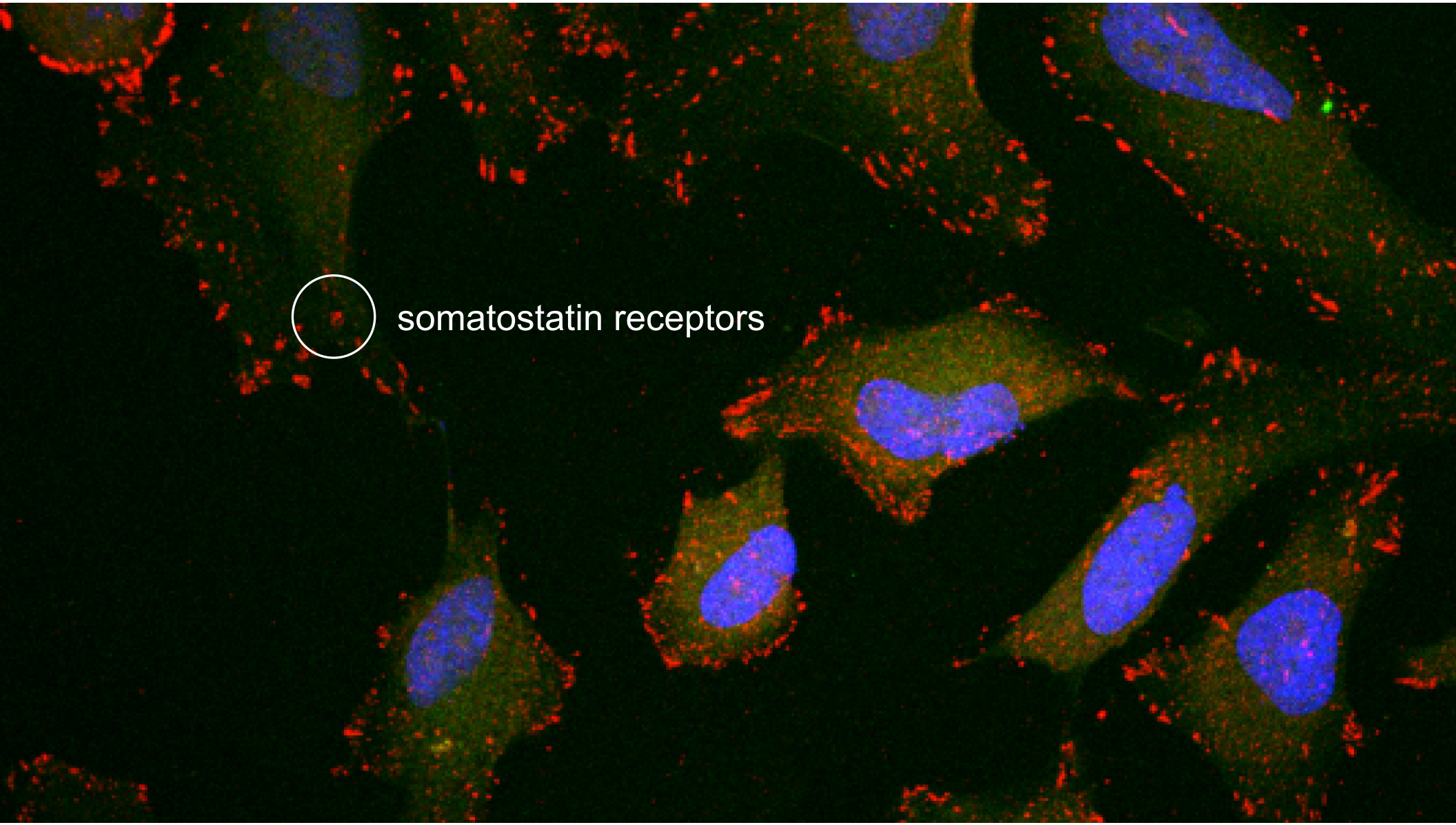
San Francisco

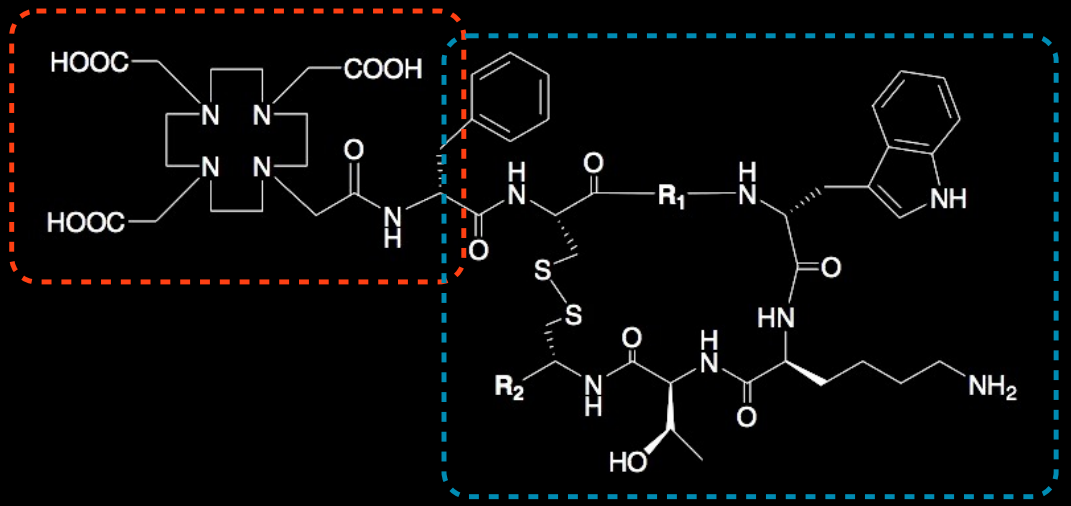
# Neuroendocrine tumors

- Second most common tumor seen in GI oncology clinic
- Diverse sites of origin: small bowel, pancreas, lung, stomach, colon
  - Most common type is a “carcinoid” tumor
- Symptoms are common (diarrhea, flushing)
- Majority express the somatostatin receptor…


somatostatin receptors

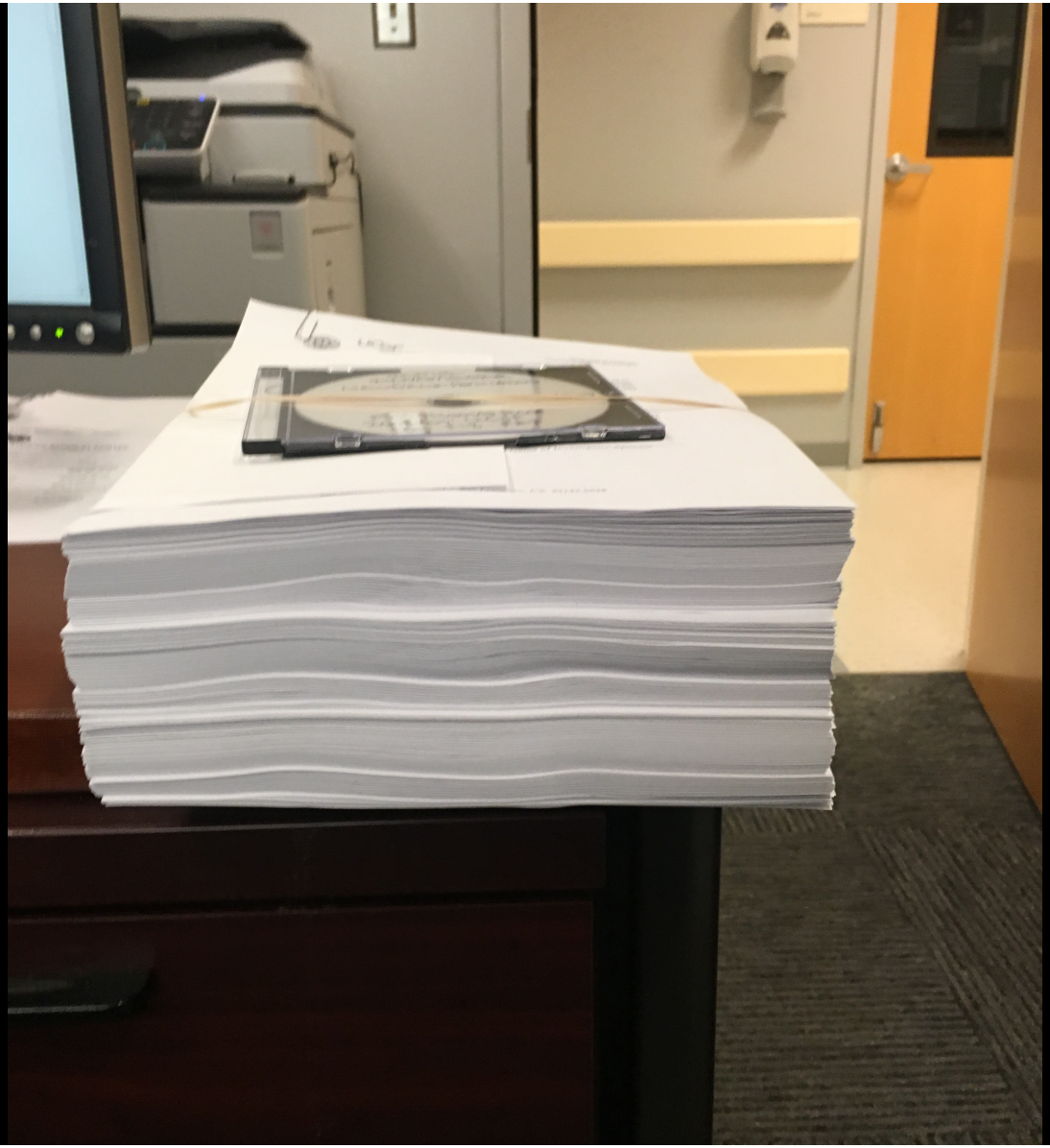
# Somatostatin analogs

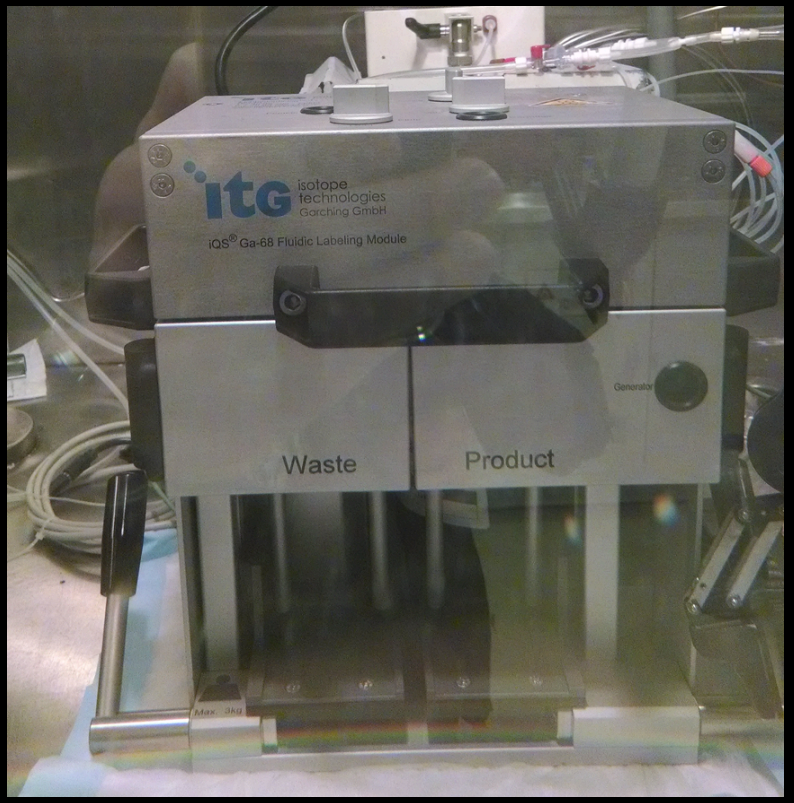
DOTA



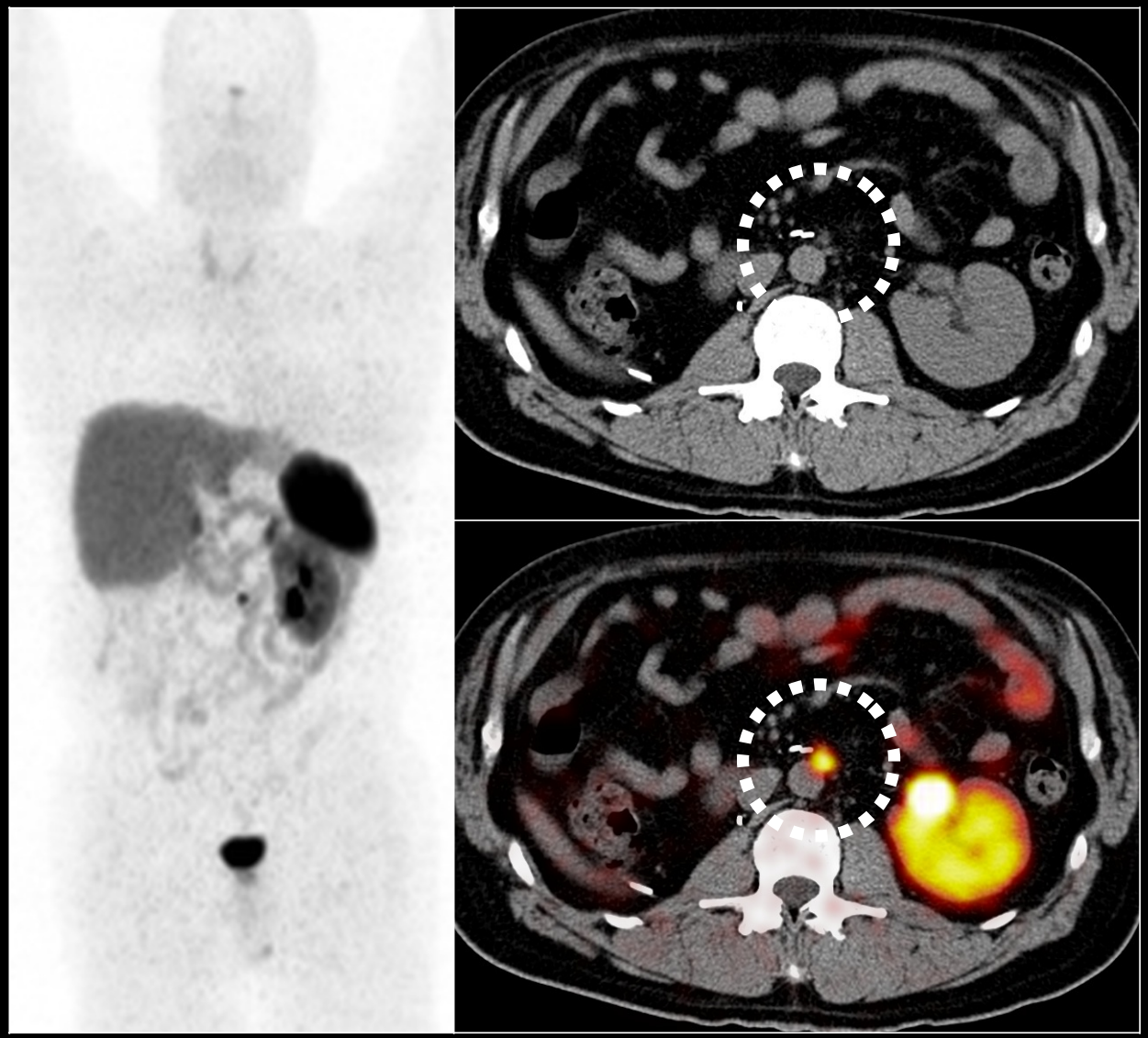

somatostatin analog

| *Compound* | $R_1$ | $R_2$ |
|---|---|---|
| DOTA-OC | Phe | Thr(ol) |
| DOTA-TOC | Tyr | Thr(ol) |
| DOTA-TATE | Tyr | Thr |
| DOTA-NOC | Nal-1 | Thr(ol) |
| DOTA-NOC-ATE | Nal-1 | Thr |
| DOTA-BOC | BzThi | Thr(ol) |
| DOTA-BOC-ATE | BzThi | Thr |

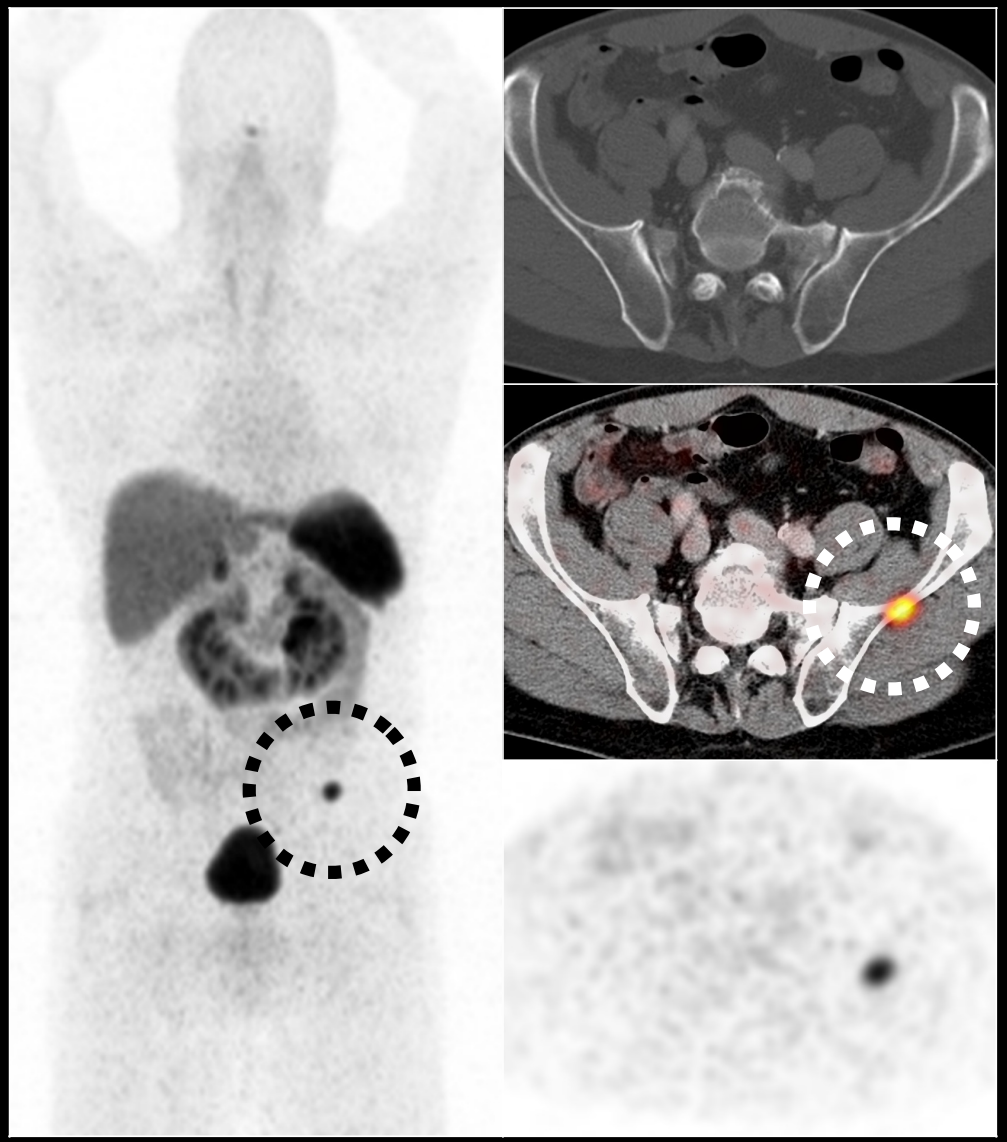



itg
isotope
technologies
Garching GmbH
iQS® Ga-68 Fluidic Labeling Module
Generator
Waste
Product

51 year old with carcinoid status post resection



53 year old man with NET of the kidney status post resection

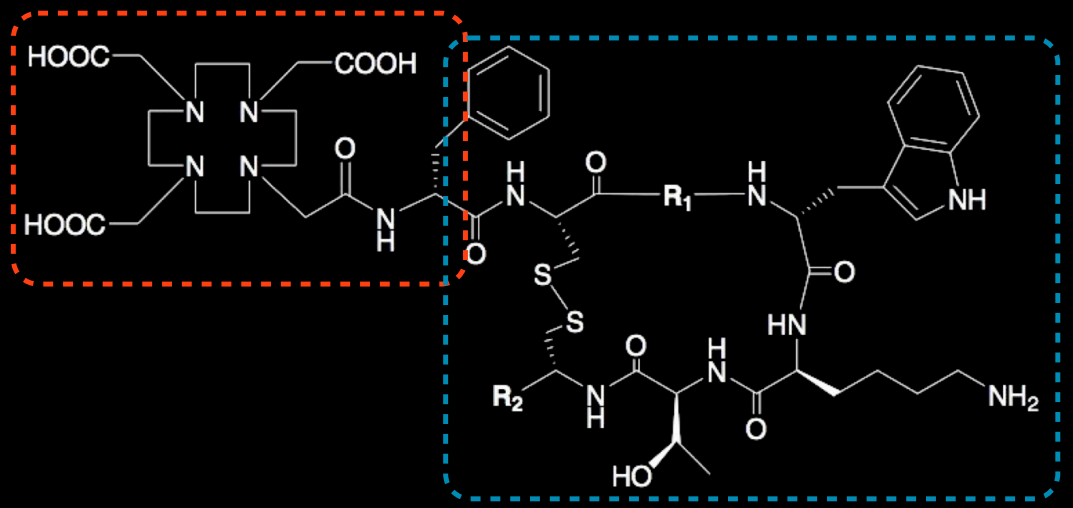


# “Theranostics”

The use of the same compound for both diagnosis and therapy

Imaging:
Ga-68

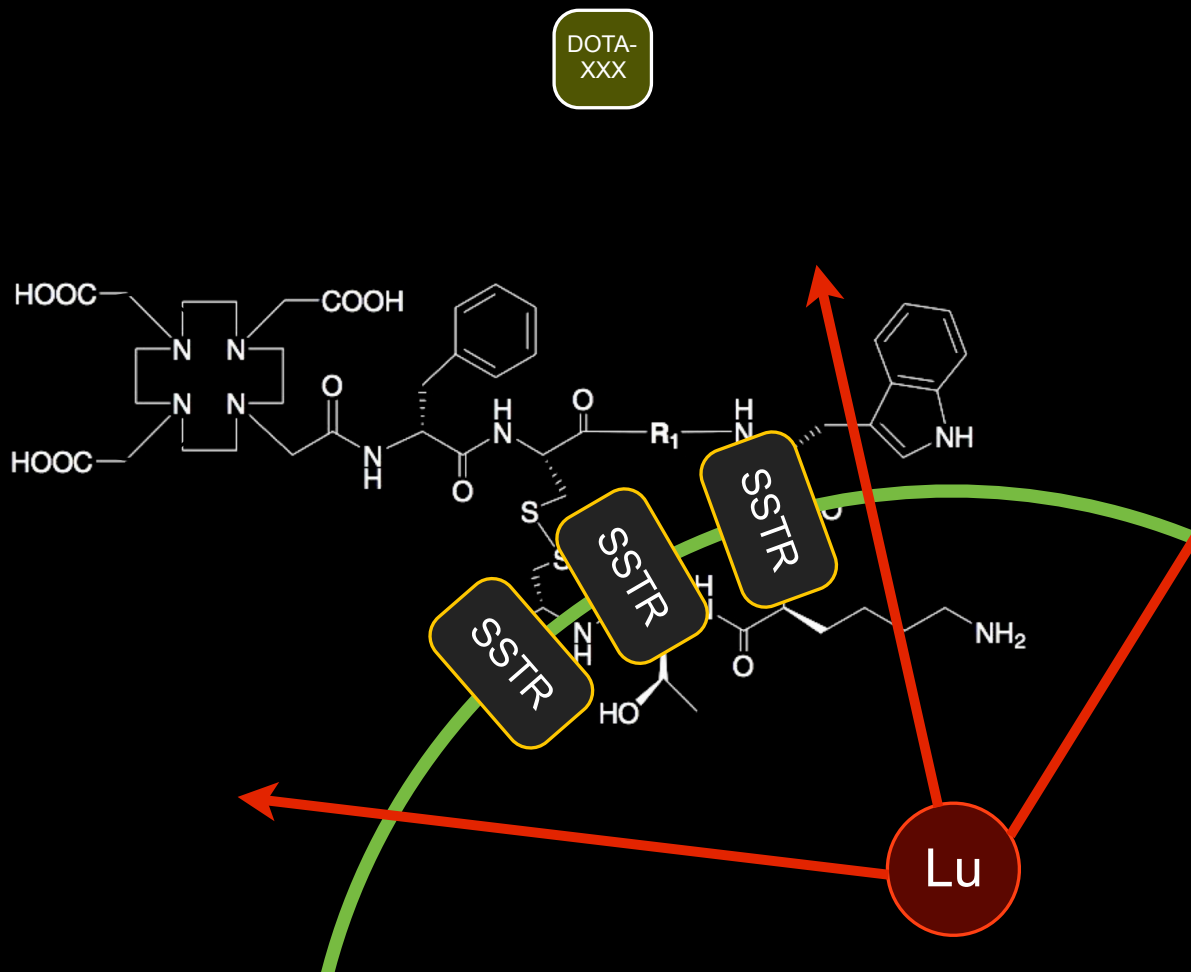
Therapy:
Lu-177
Y-90



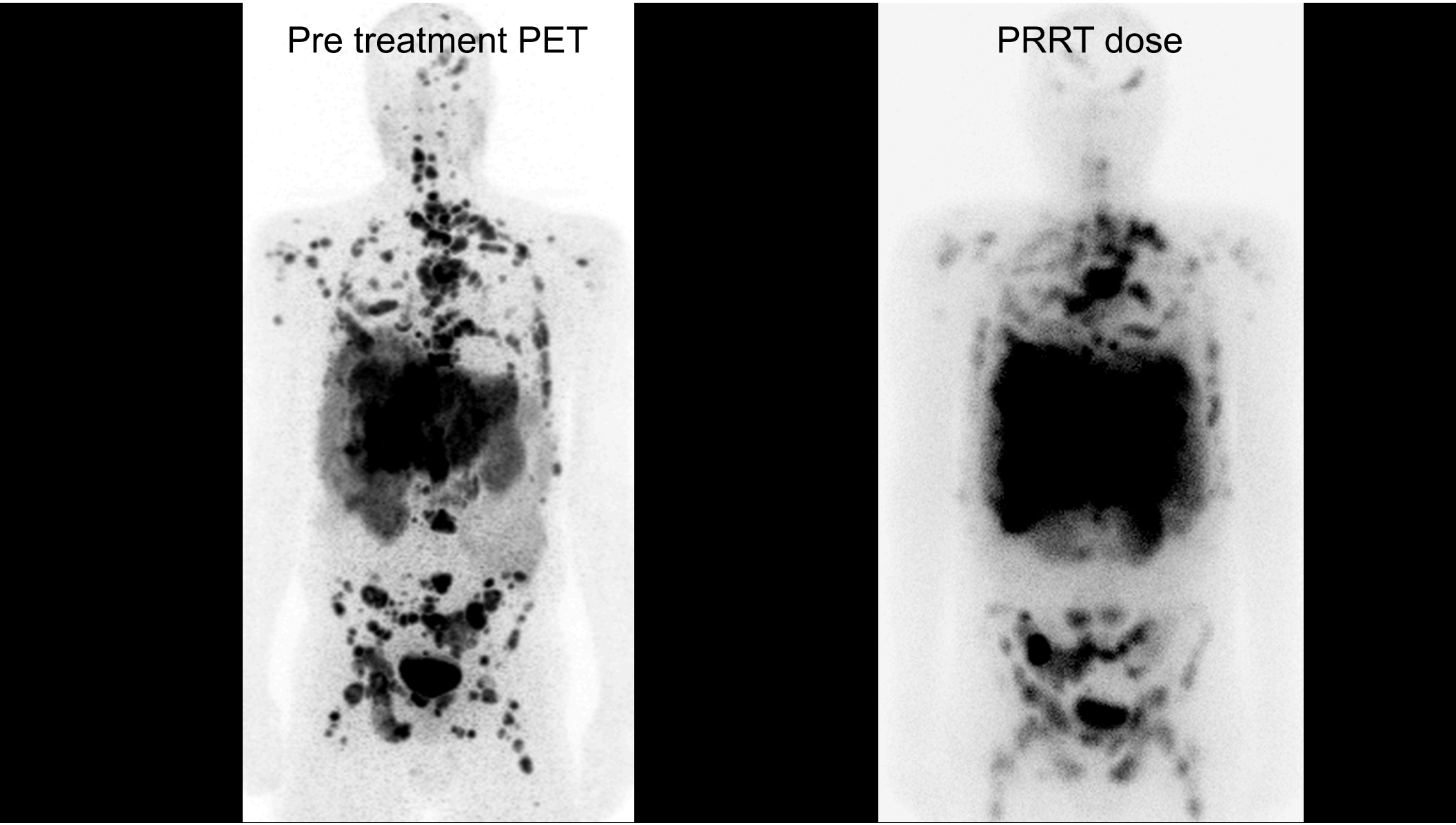

somatostatin analog

# PRRT

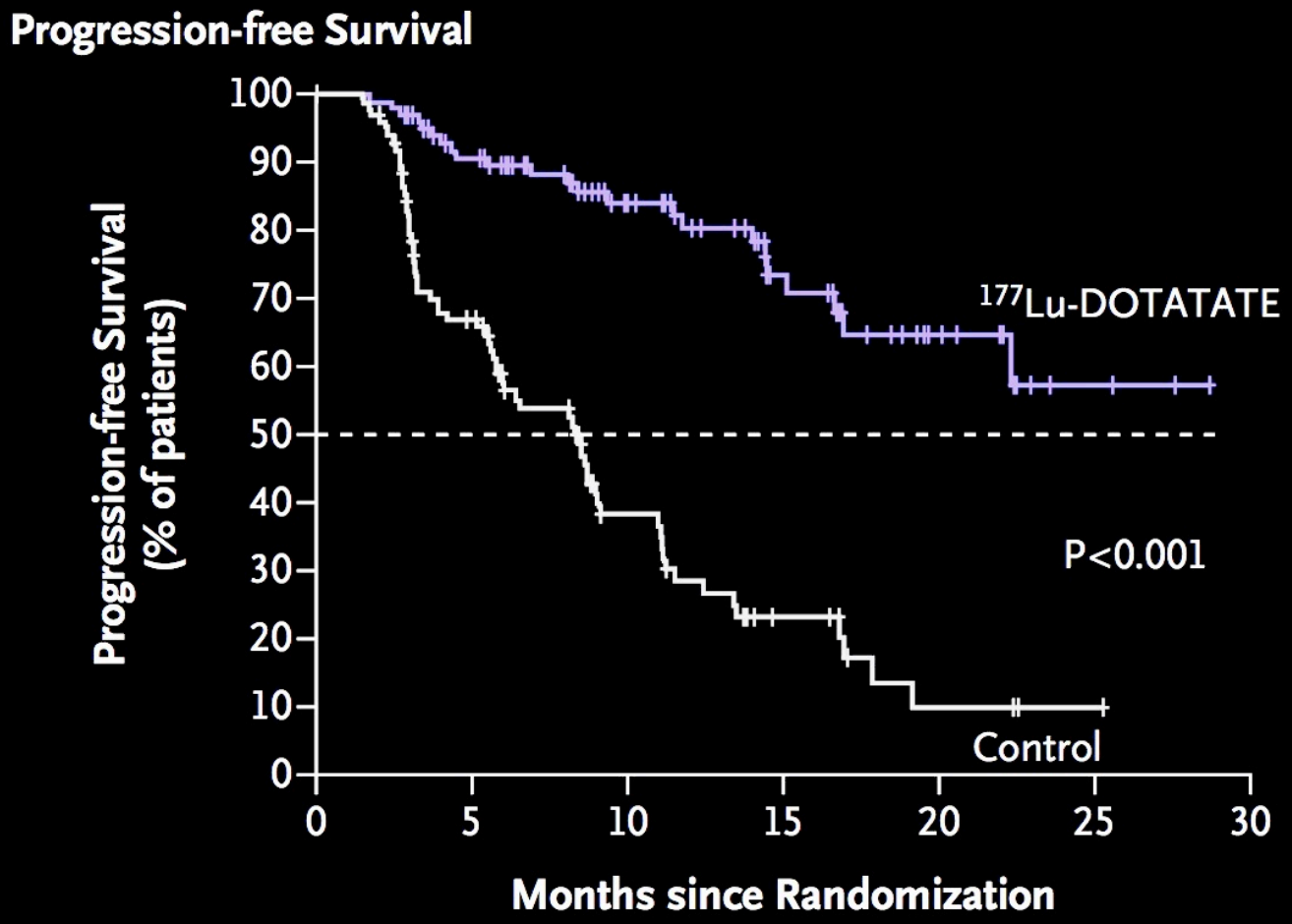
**P**eptide
**R**eceptor
**R**adionucli
**T**herapy




ASSET #136026
CURLIN MEDICAL
LIFT TO OPEN
NO
YES


Pre treatment PET
PRRT dose

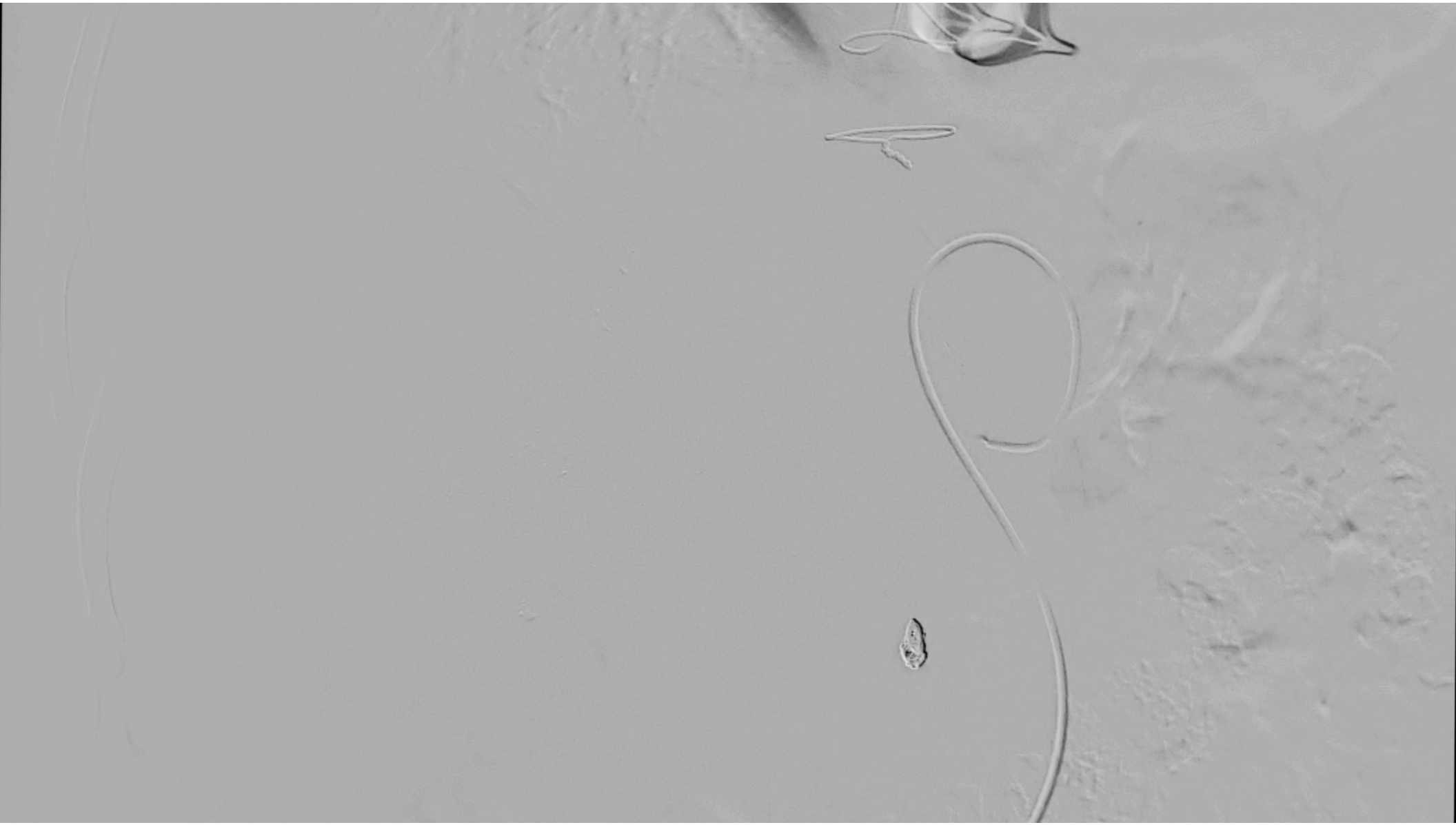
# NETTER-1: Radiographic progression free survival



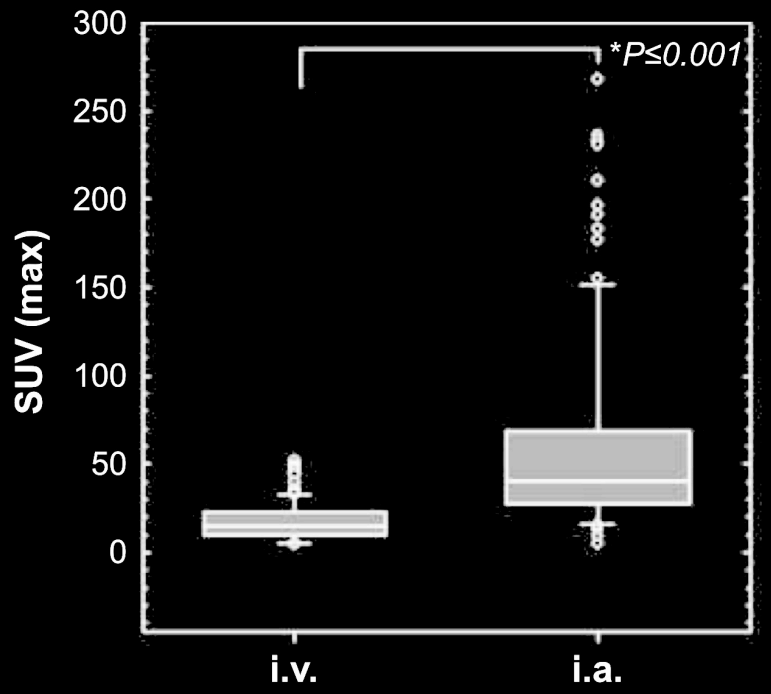

Predetermined endpoint was at 20 months:

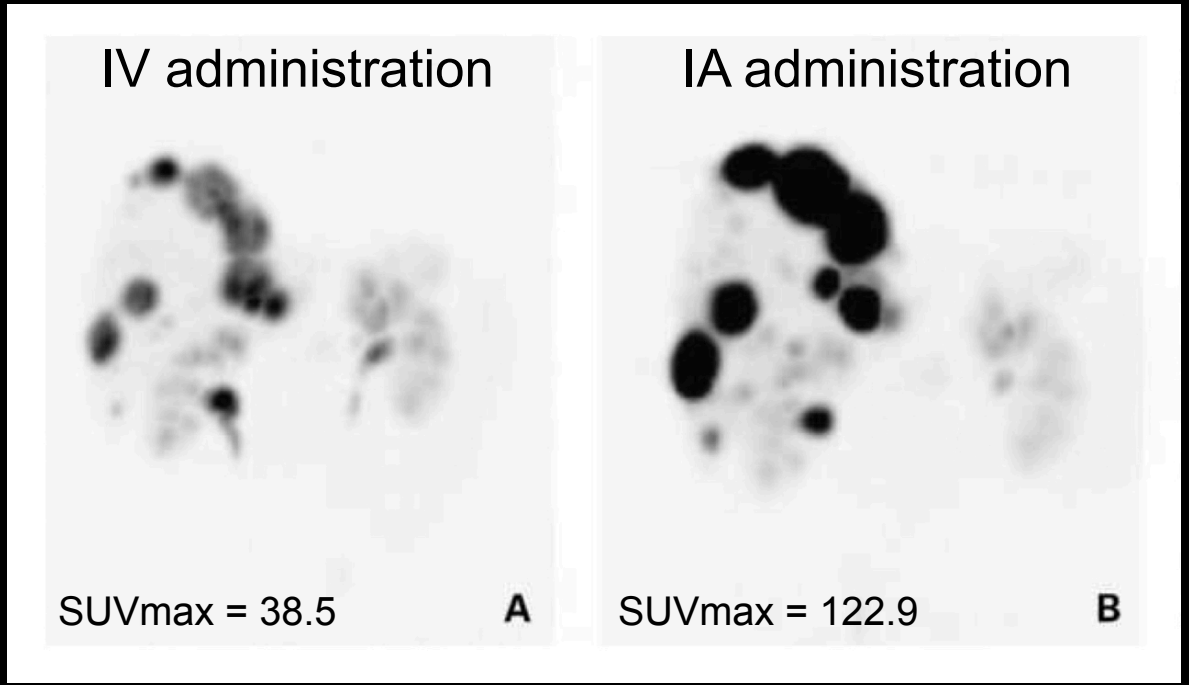
- 65% in DOTATATE arm with our progression
- 11% in control arm

Strosberg 2016, NEJM



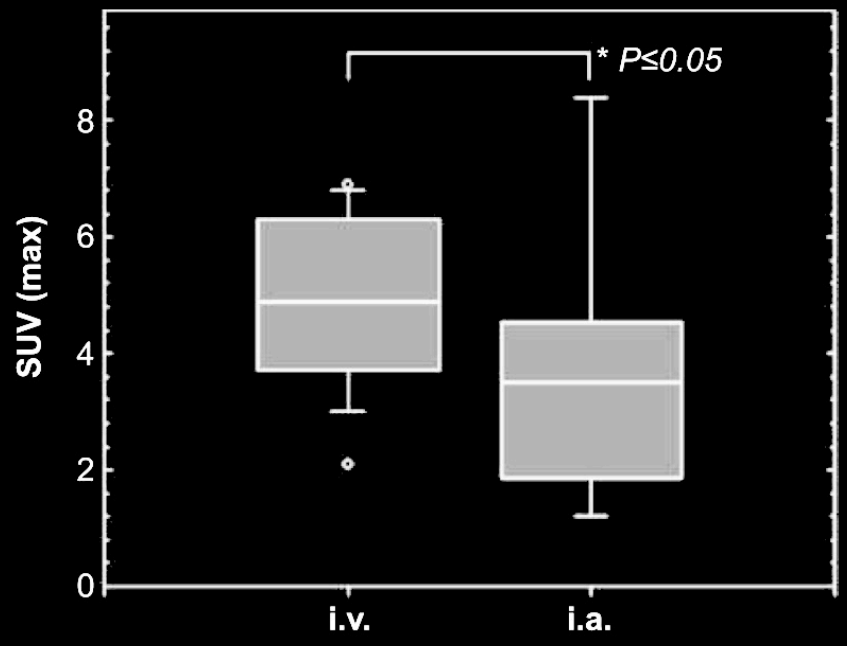
# Arterial (IA) vs venous (IV) administration



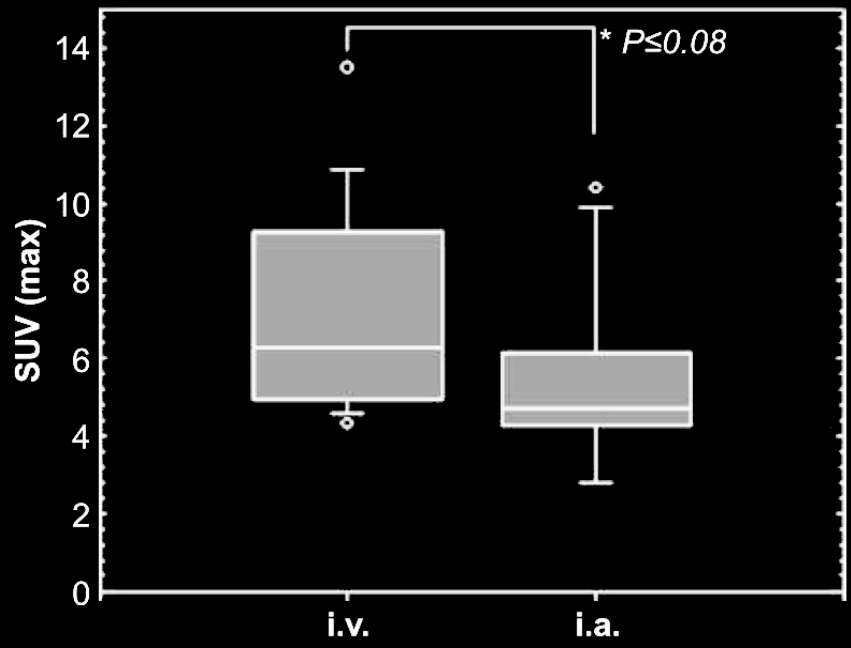



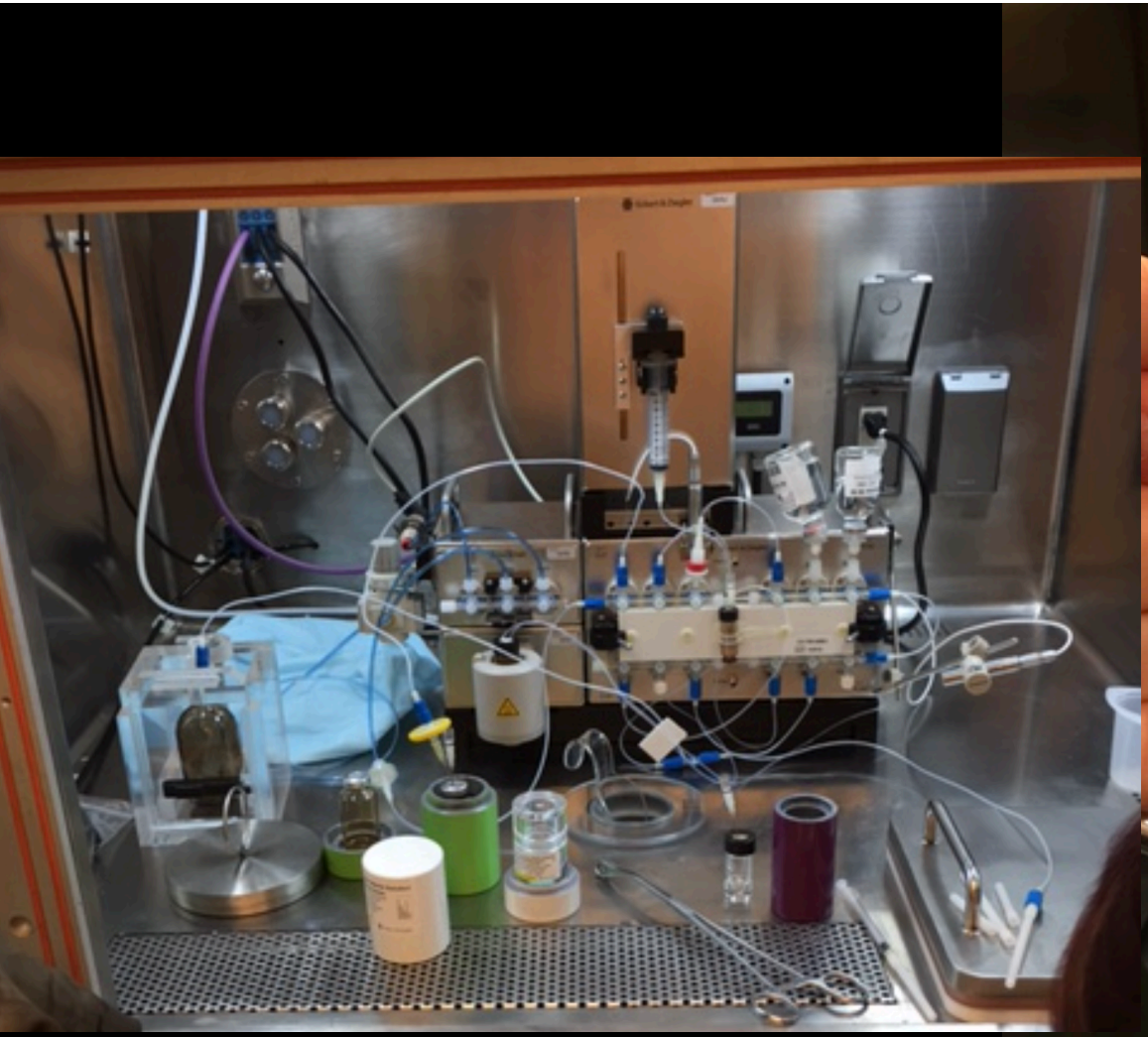
# SSTR-PRRT: IA vs IV administration

pituitary uptake




renal uptake





# “Arterial” administration

- Opened our first in house labeled therapy this summer
- 90Y DOTATOC using hepatic arterial administration

# Summary

1. Somatostatin receptor PET is important in staging NET patients
2. Theranostics is the use of a compound for both imaging and therapy
3. PRRT has proven beneficial in NET patients
4. Novel treatments are being developed at UCSF

# UCSF Acknowledgements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