



Phase 0/1 of PET imaging agent [18F]-ODS2004436 as a marker of EGFR mutation in patients with non small cell lung cancer

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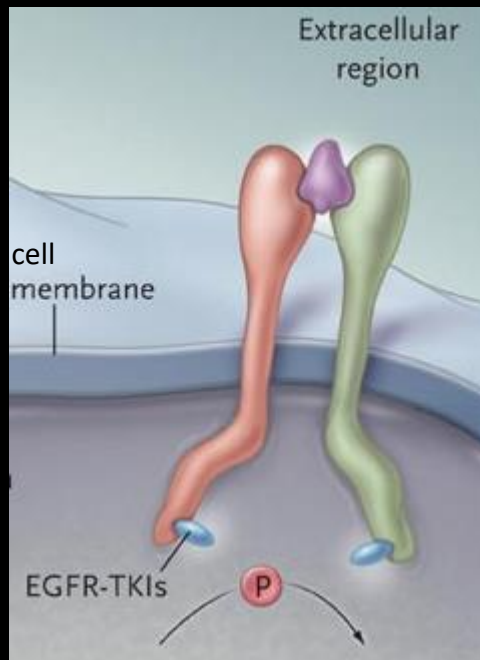
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3: CHU Dijon, France

4 : Oncodesign, Dijon, France

5 : Zionexa, Saint-Bauzire, France



Activating mutations of EGFR:

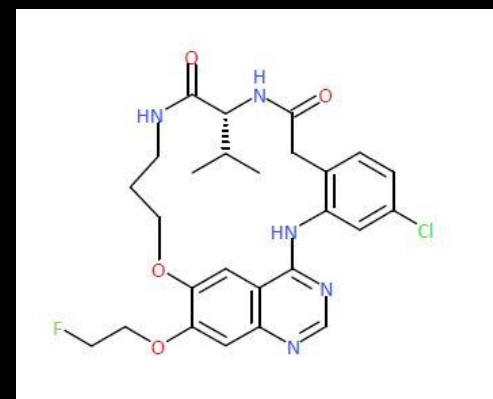
- 15% of adenocarcinomas
- Target for Tyrosine Kinase Inhibitors (erlotinib, gefitinib, afatinib)

Great need to develop imaging biomarkers in order to:

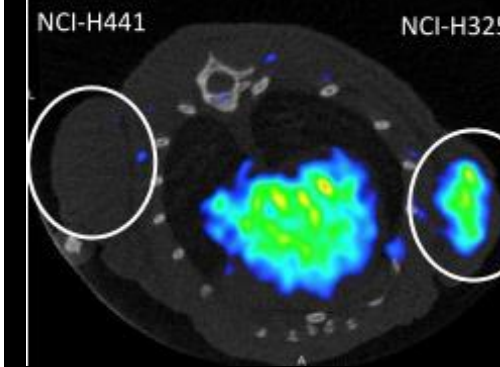
- Quantify the target
- Estimate heterogeneity of expression
- Early detect occurrence of secondary resistant mutations

Our goal:

To evaluate, in a first-in-human study, the sensitivity and specificity of a new PET tracer ([¹⁸F]-ODS2004436) targeting specifically activated EGFR



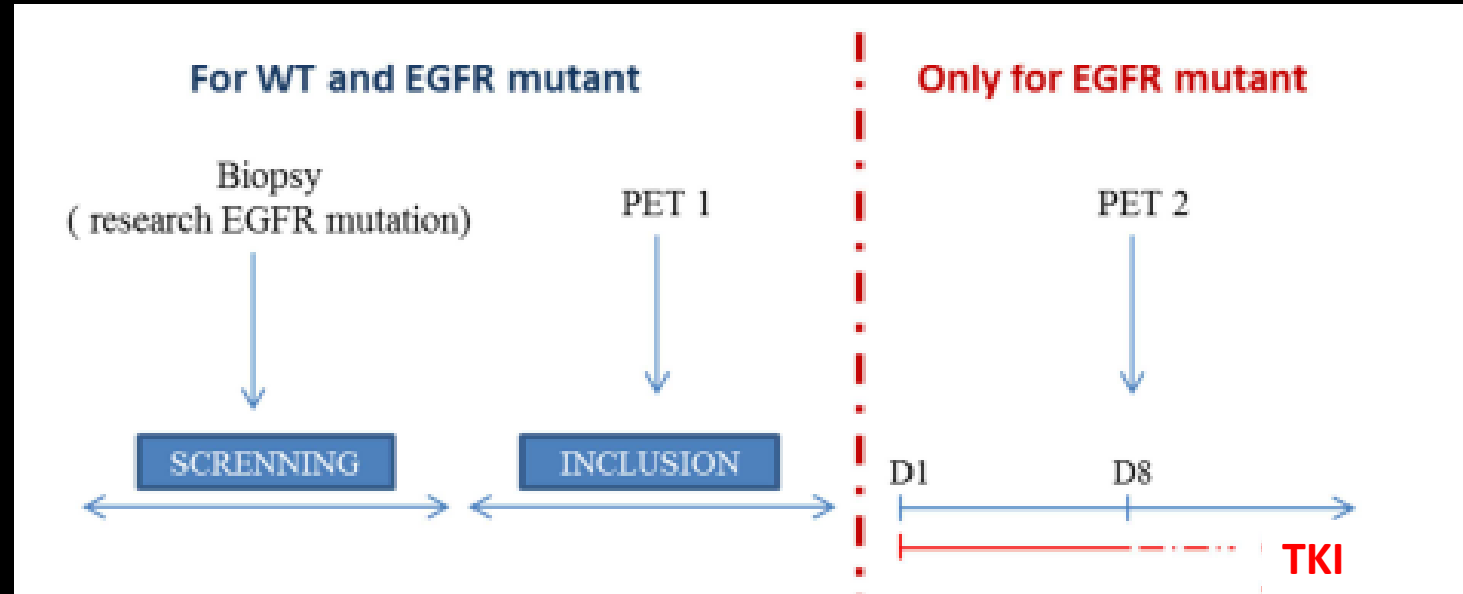
[¹⁸F]-ODS2004436
(licence N°: WO/2017/148925)



EANM 2017 (P225)

3 steps, according to genetic profile of primary tumours:

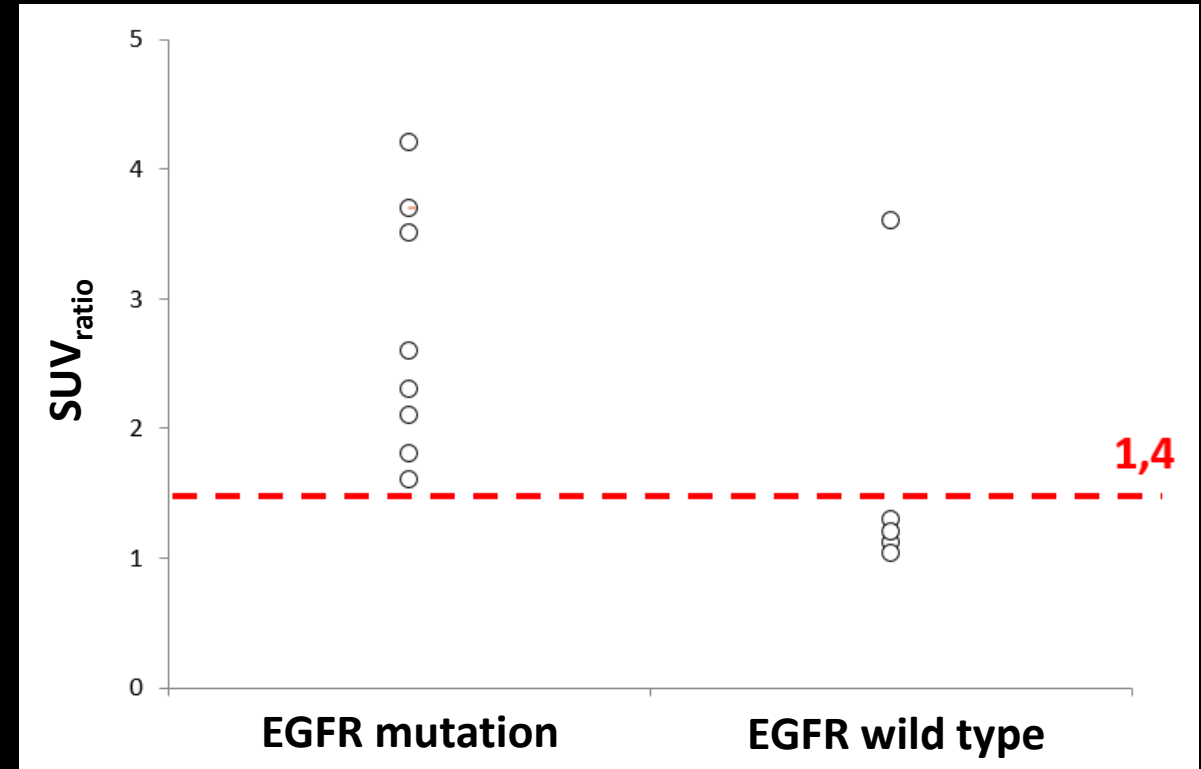
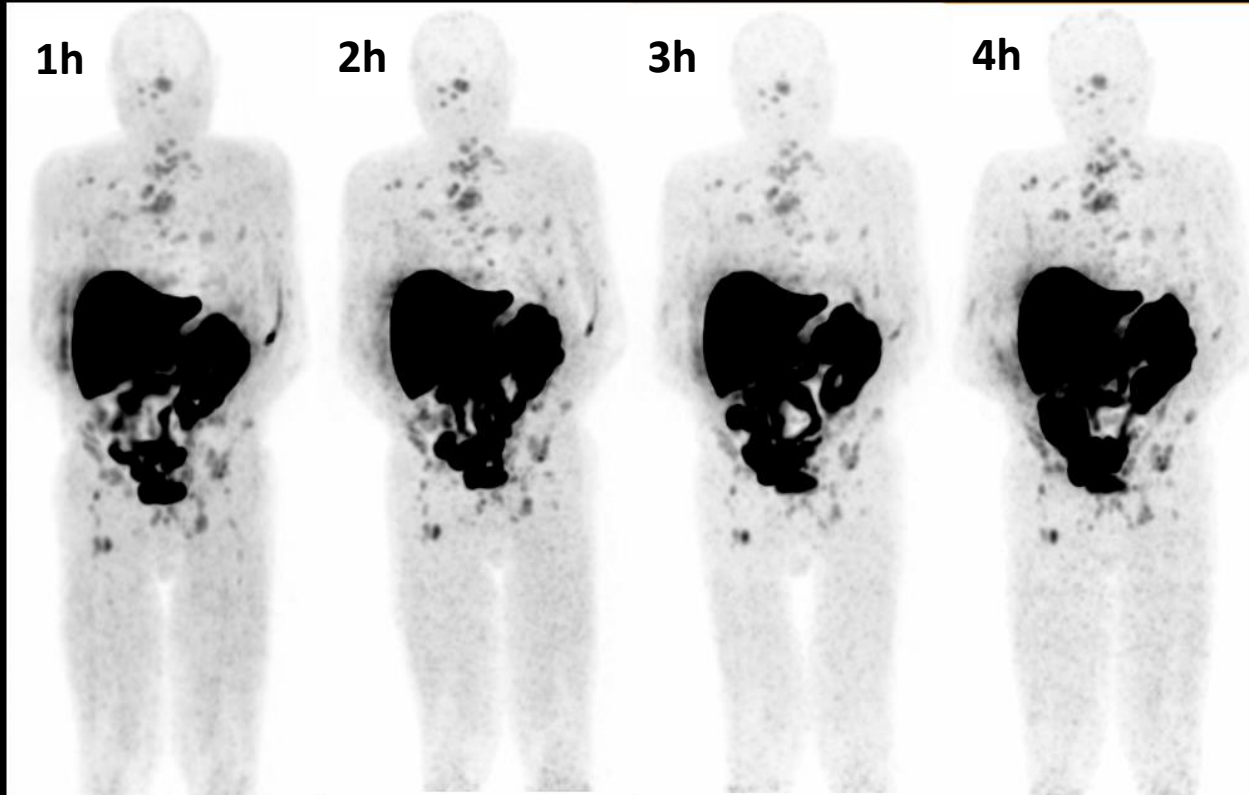
- **Step 1: 8 patients harbouring EGFR mutation (sensitivity)**
- **Step 2: 6 patients EGFR wild type (specificity)**
- **Step 3: 4 patients EGFR mutation (fine-tuning of acquisition procedure)**



Whole-body PET acquisition each hour between 0 and 4 h post-injection (5 MBq/kg)

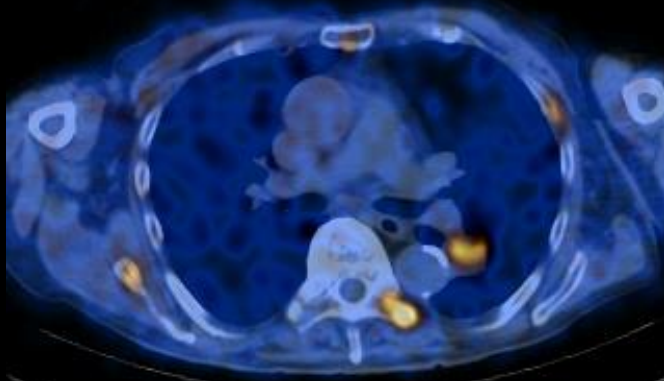


Step 1: EGFR mutation

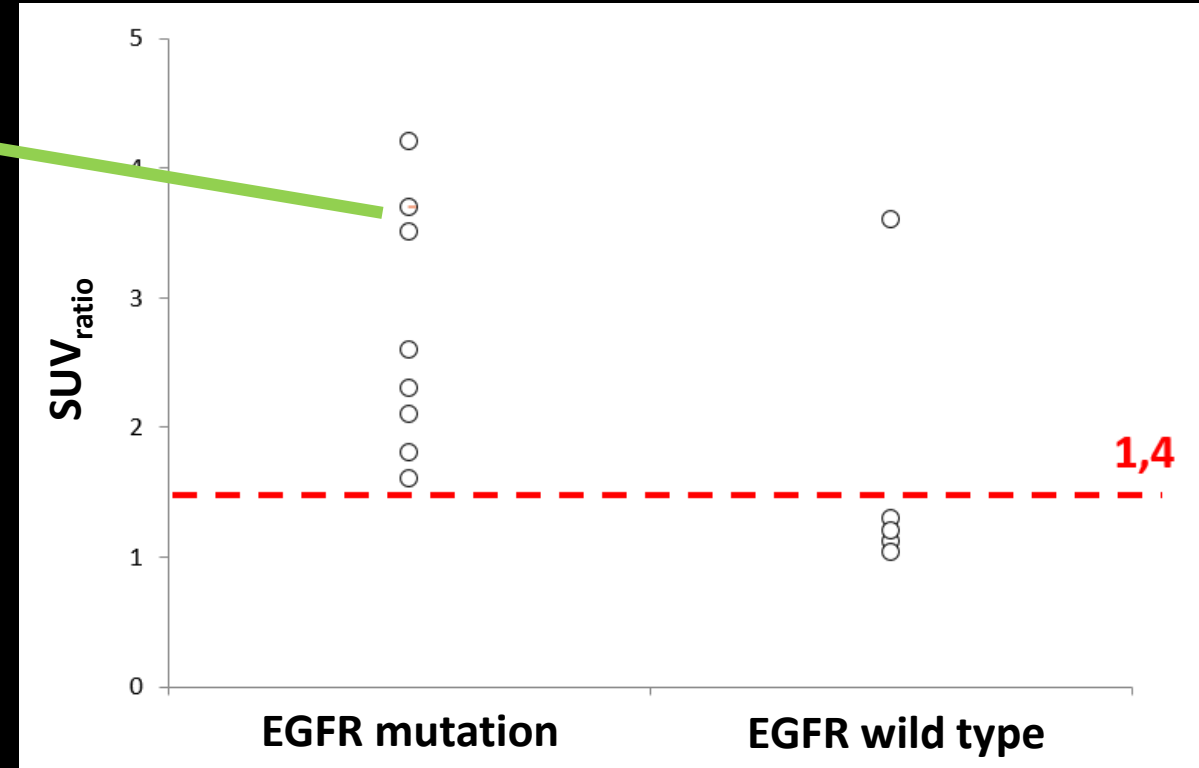
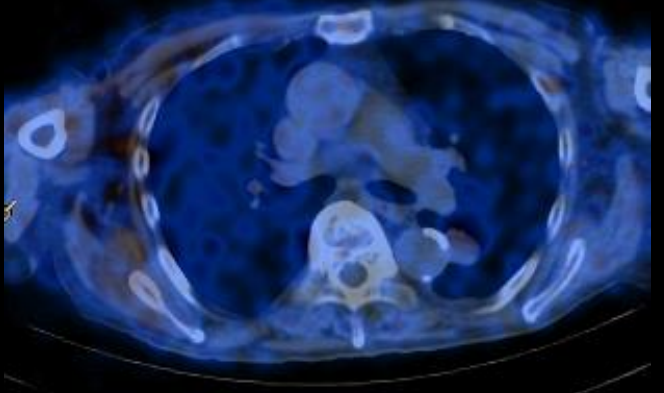


Step 1: EGFR mutation

Baseline:

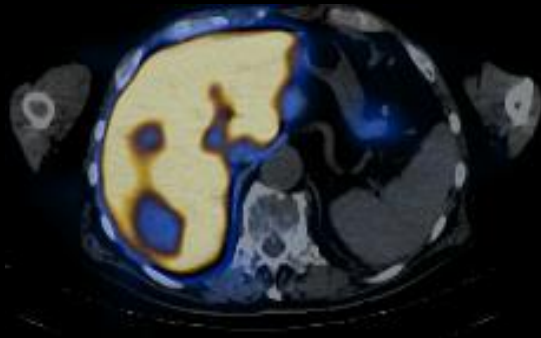


After 7 days of TKI:

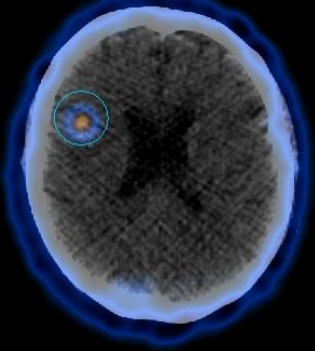


Step 1: EGFR mutation

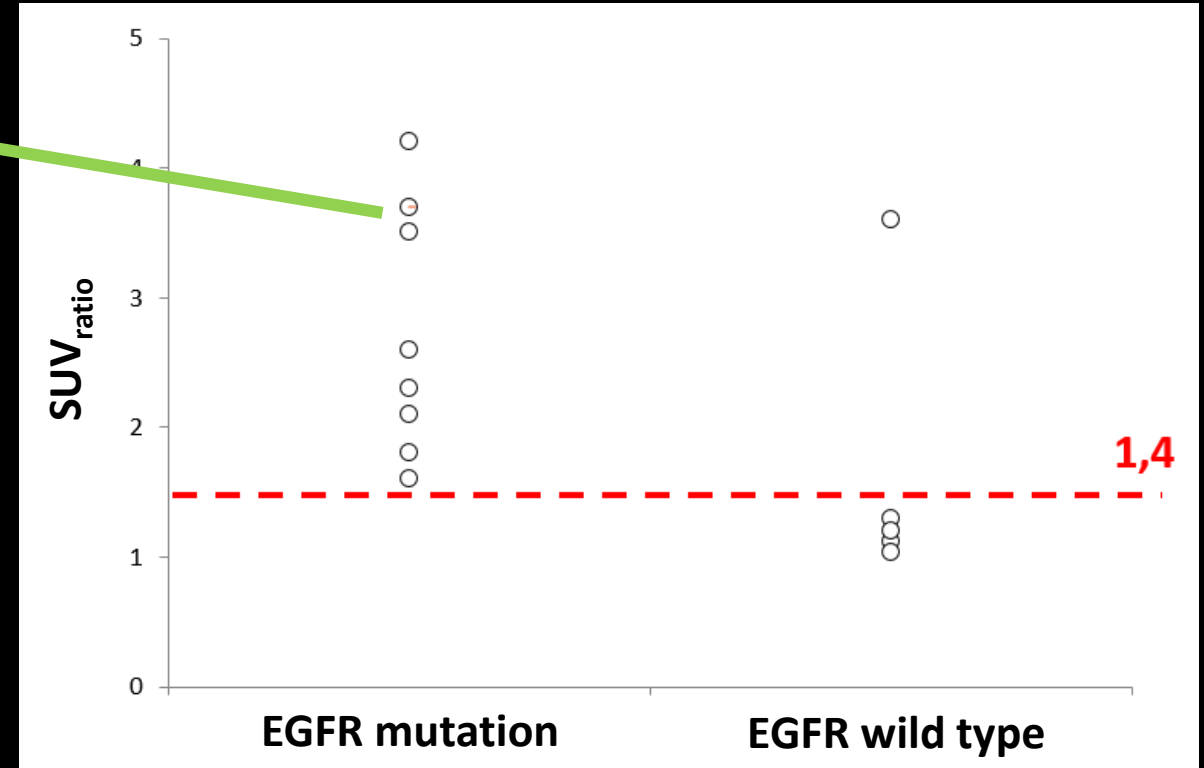
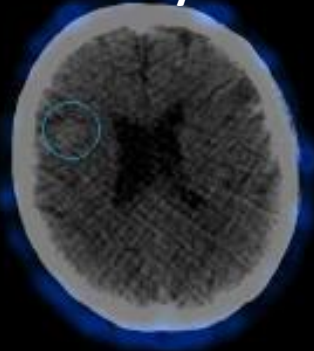
Liver mets:



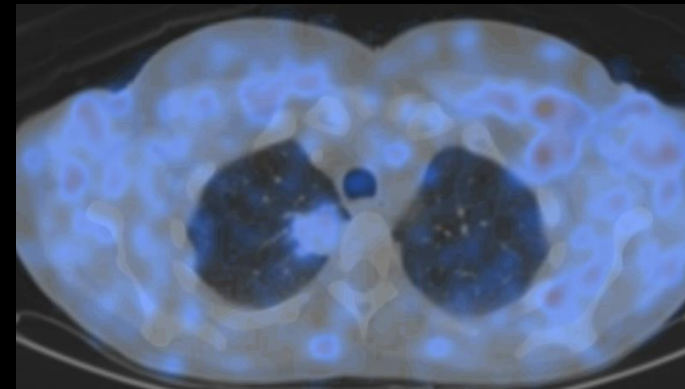
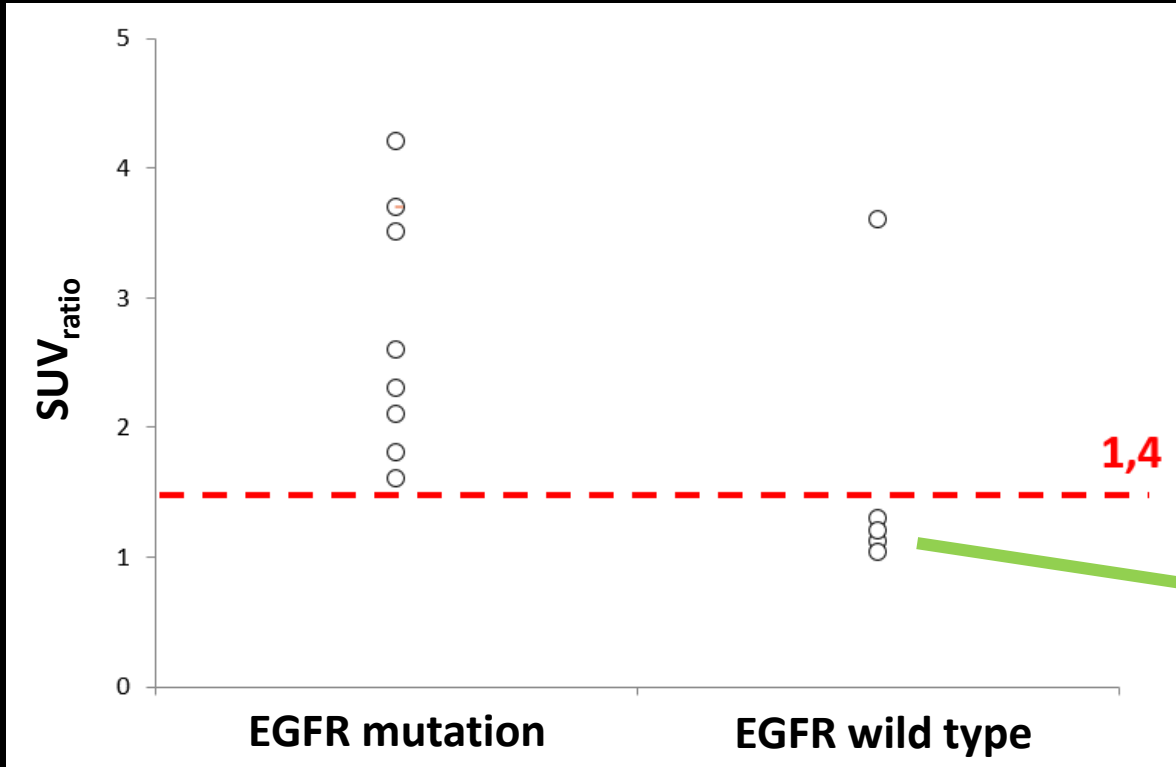
Brain mets:



After 7 days of TKI:



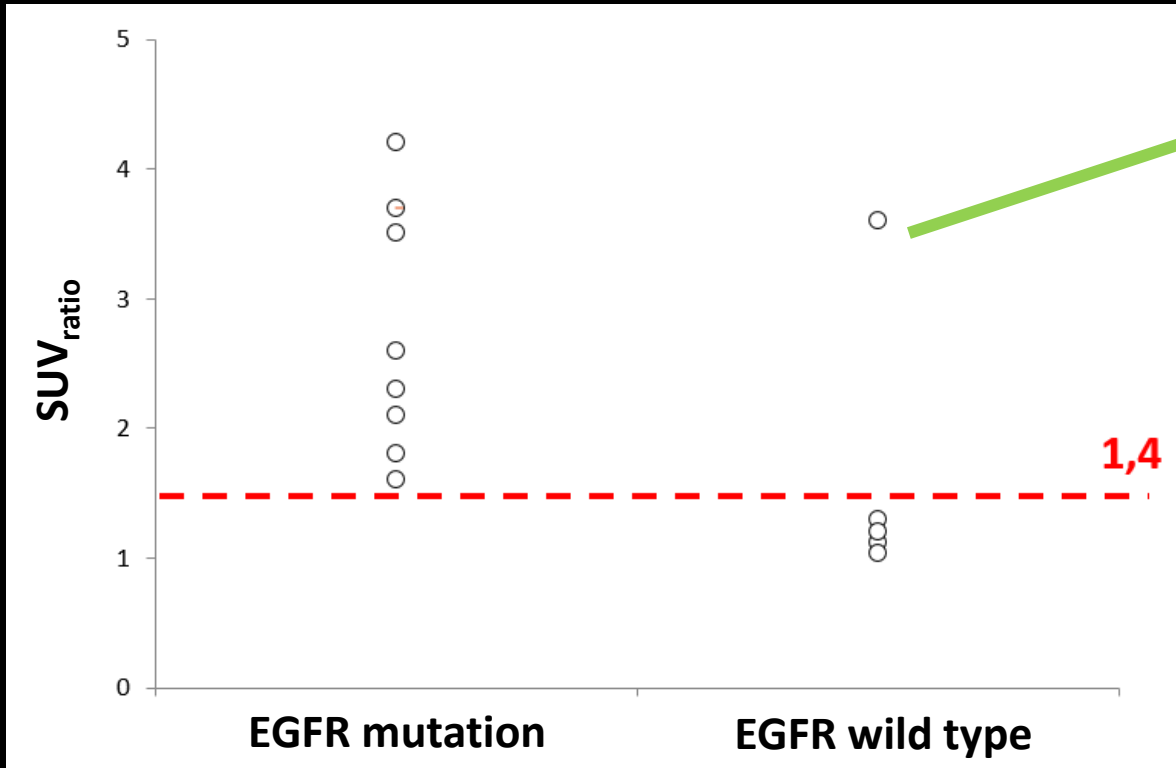
Step 2: EGFR wild type



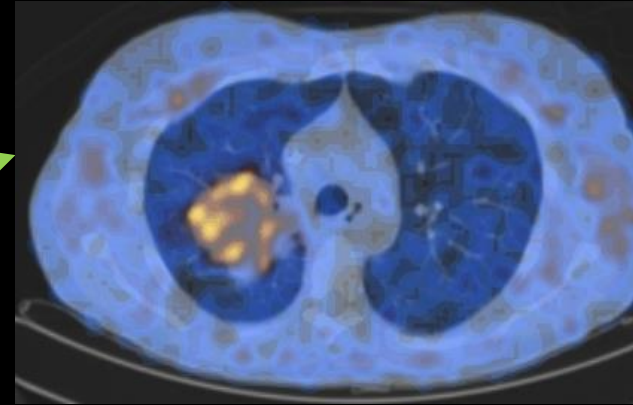
[18F]-ODS2004436 is, subject to further testing and regulatory approval, a new tool for *in vivo* detection and quantification of EGFR activating mutation



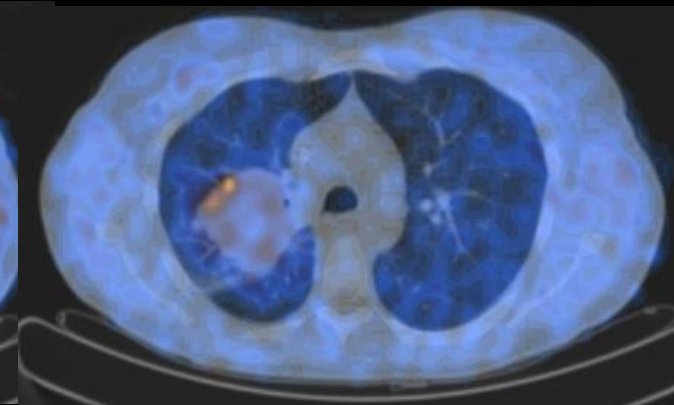
Step 2: EGFR wild type



Baseline:



After 7 days of TKI:



EGFR4 mutation was identified possibly related to the observed uptake

[18F]-ODS2004436 is, subject to further testing and regulatory approval, a new tool for *in vivo* detection and quantification of EGFR activating mutation