



# NEW HORIZONS GIST- VIENNA 2018

## An update on the MITIGATE project

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# What is MITIGATE?

MITIGATE stands for:

- Closed-loop Molecular Environment for Minimally Invasive Treatment of Patients with Metastatic Gastrointestinal Stromal Tumours
- The MITIGATE consortium: 3 European universities, 3 research organisations and 4 SMEs



MEDIZINISCHE  
UNIVERSITÄT  
INNSBRUCK

Medizinische Fakultät Mannheim  
der Universität Heidelberg  
Universitätsklinikum Mannheim



Fraunhofer  
IPA

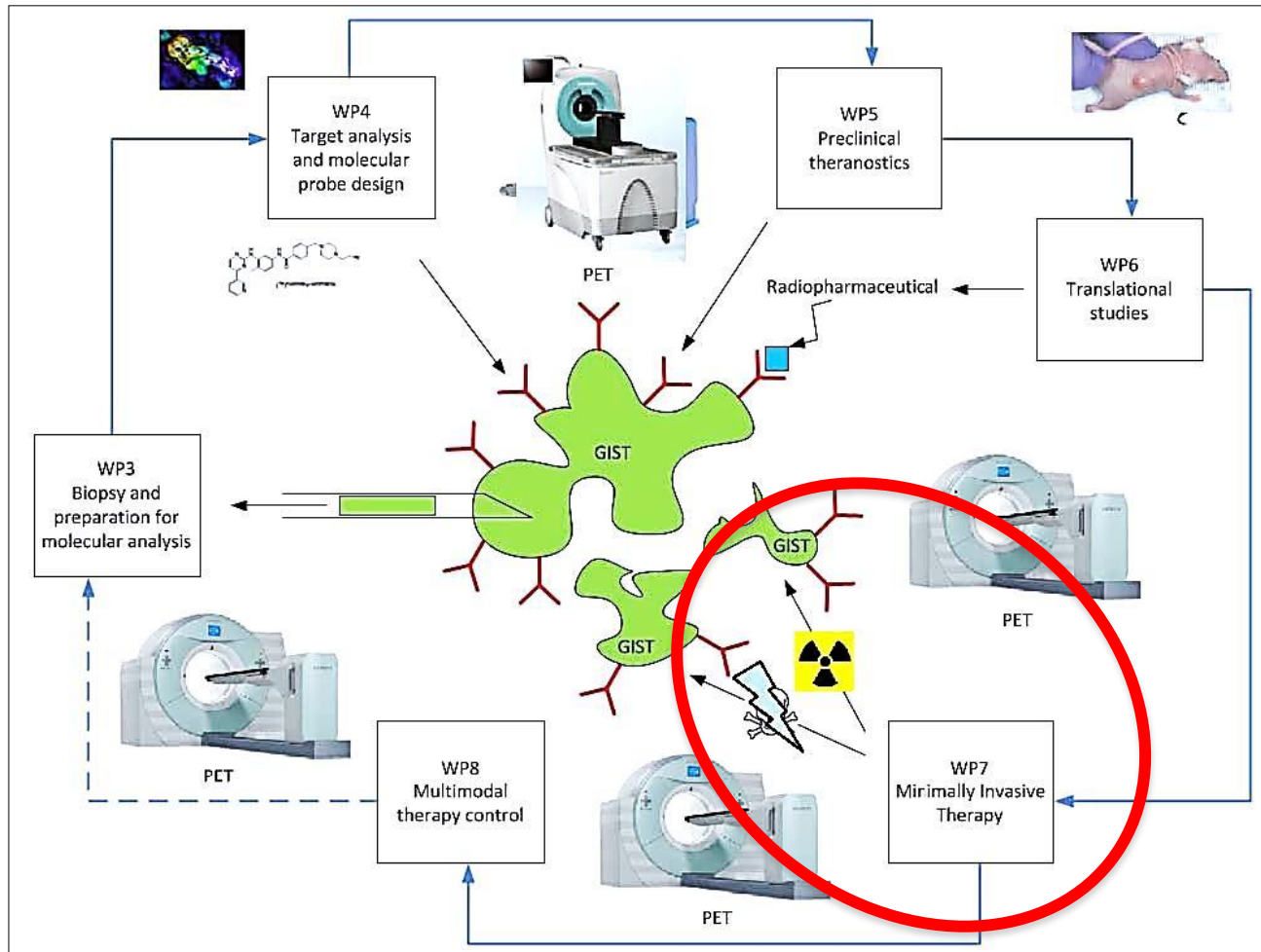
UNIVERSITÀ  
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ALMA UNIVERSITAS  
TAURINENSIS



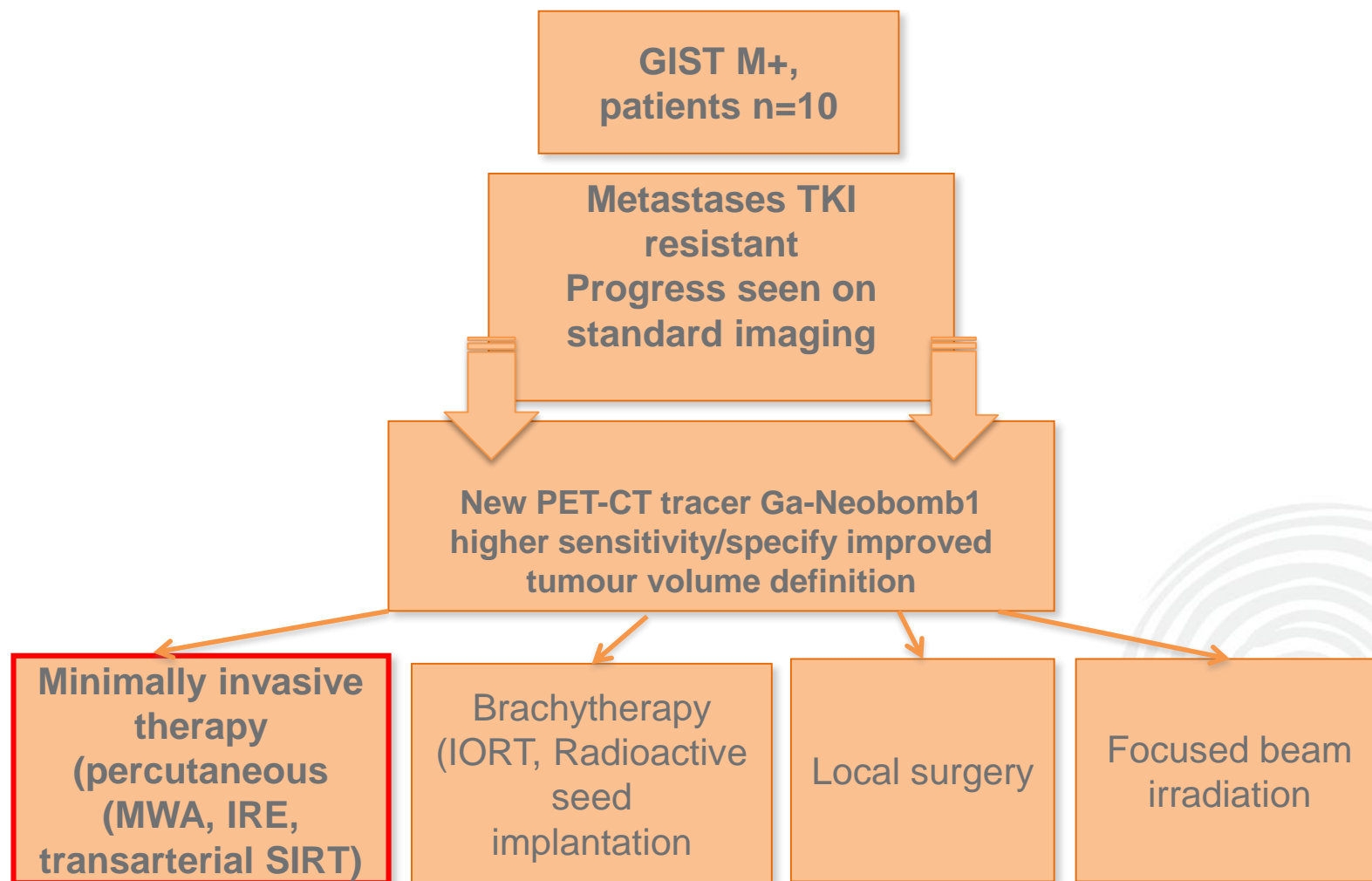
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# Closed loop process overview

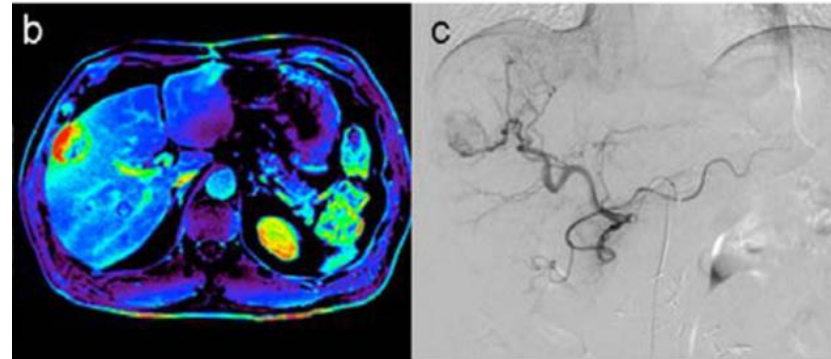


# Approved concept study

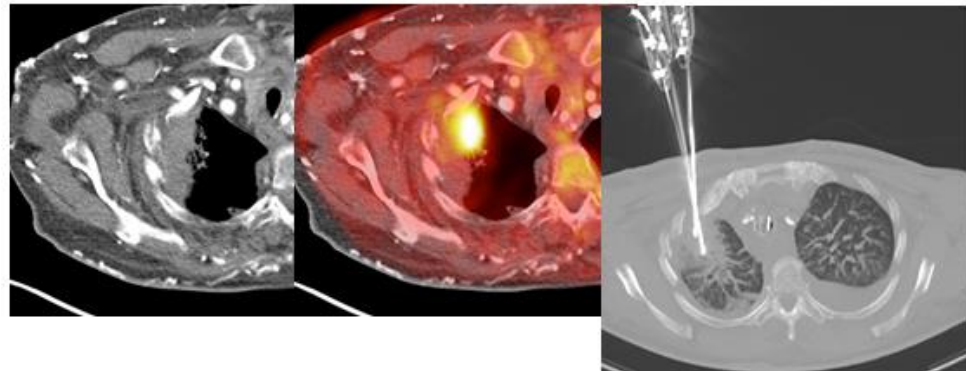


# Ablation methods (selection)

- Trans arterial (SIRT)



- Percutaneous (MWA, IRE)





# Ga68NEOBOMB-1 (bombesin antagonist) Preliminary results on animal PET CT

- NEOBOMB1: New generation bombesin analogue peptide
- Binds with high specificity to the gastrin release peptide receptor (GRPR) expressed in GIST
- In vitro studies: Expression of the GRPR in tumour models, as well as a high affinity and low internalization of the NeoBOMB1
- In vivo studies (mice): <sup>68</sup>Ga-labelled NeoBOMB1 showed a higher uptake compared to <sup>18</sup>F-FDG and an excellent imaging performance



# Ga68NEOBOMB-1

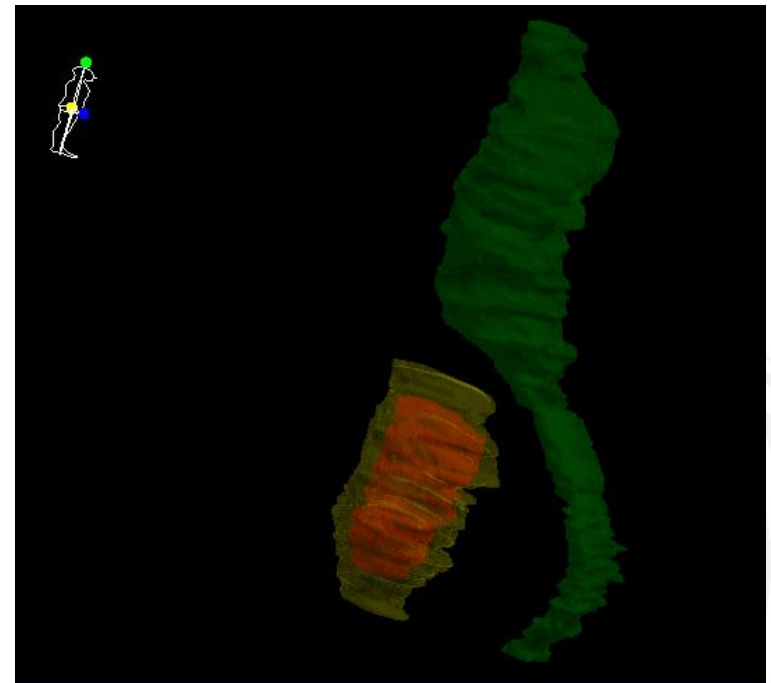
## Preliminary results on animal PET CT

Preliminary results on animal PET CT data show *different tumour* volume definition for EBRT planning

Possible benefits:

- Decreased radiation volume, boost on tumour
- Less dose for risk organs

- Tumour volume based on CT
- Tumour volume based on Neobomb PET-CT
- Volume of spinal cord and brain (risk organ)



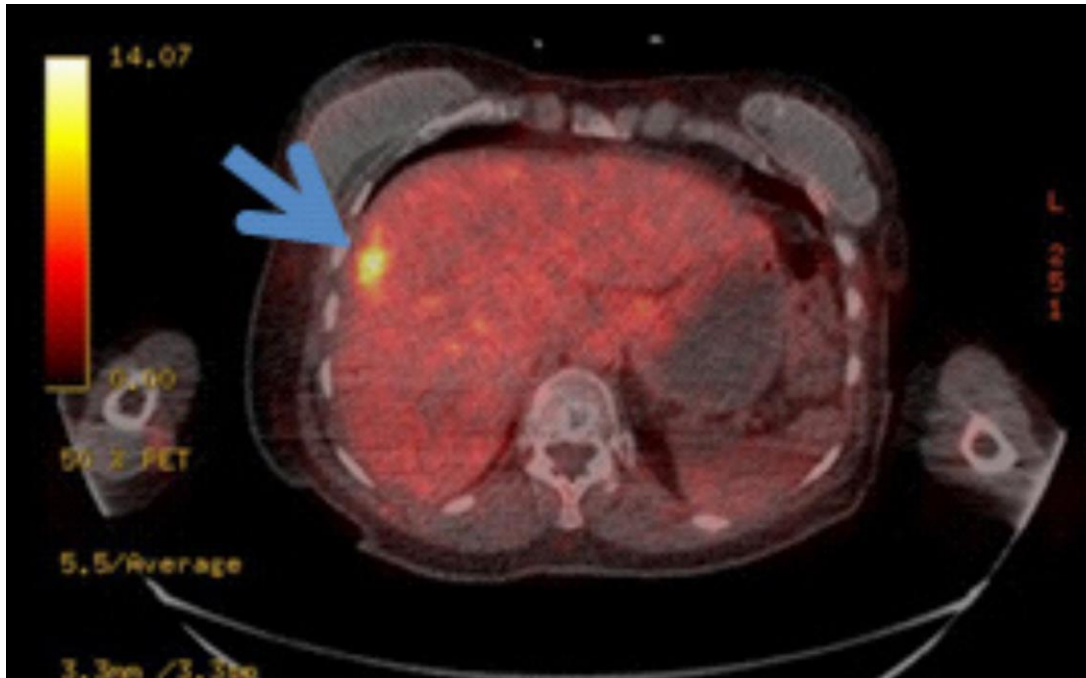


# Safety, tolerability and preliminary targeting properties

- Dynamic PET scans in 3 patients with advanced GIST were included
- Safety monitoring parameters: no severe adverse events due to the administration of  $^{68}\text{Ga}$ -NeoBOMB1 were found
- Physiological enhancement of  $^{68}\text{Ga}$ -NeoBOMB1 was observed most strongly in the pancreas
- Tumour enhancement increased over the time course of the study giving high contrast images at later time points.
- Pharmacokinetics` investigations revealed a high metabolic stability of  $^{68}\text{Ga}$ -NeoBOMB1.



# Safety, tolerability and preliminary targeting properties



Patient with advanced TKI resistant GIST, 1h after injection of  $^{68}\text{Ga}$ -NeoBOMB1



# Next steps: Patient recruitment

## Web-based platform

- General information
  - Primary *diagnostic* trail
  - Patients with GIST M+
  - TKI based medication no longer successful proven by conventin
  - PET-CT, MUI Innsbruck
  - Minimally invasive treatment if applicable (tumour board)

### MITIGATE PATIENT RECRUITMENT

MITIGATE is launching a clinical trial for patients with metastatic Gastro-Intestinal Stromal Tumours (GIST) who are experiencing tumour progression while under treatment with Imatinib (Gleevec®, Gleevec™).

MITIGATE uses an innovative approach focusing on progressive tumour lesions. While the first step of the approach is diagnostic rather than therapeutic, patients may derive real benefits from the imaging procedure, such as improved tumour volume detection of disease.

If your oncologist later determines that a minimally invasive treatment is advisable for you, then the MITIGATE partner Medical Centre Mannheim (UHEI) and the Medical Centre Innsbruck (MUI) can administer such a treatment. Invasive treatment options we offer include treatments like selective internal radiation therapy (SIRT), radiofrequency ablations like microwave ablation (MWA) or irreversible electroporation (IRE).



1. Have you been diagnosed with metastatic gastrointestinal stromal tumour?  
 Yes  
 No
2. Has the mutation status of your primary tumour already been determined by a pathologist?  
 Yes  
 No  
 I don't know
3. Has your oncologist recently informed you that your disease is progressing despite your treatment with a TKI (tyrosine kinase inhibitor)-based medication?  
 Yes  
 No
4. Has a recent scan - either computed tomography (CT) or magnetic resonance imaging (MRI) - shown that you currently have progressive disease?  
 Yes  
 No
5. Is the progression localised in your liver?  
 Yes  
 No  
 I don't know

# Treatment- web-based tumour board

- Tumour board consists of treating physician (usually oncologist or surgeon), surgeon, radiologist, nuclear medicine, radio-oncologist
- Evaluation of medical history including available imaging data
- Evaluation of patient specific value of Neobomb-PET-CT
- Therapy proposal





Thank you

