



19TH WORLD CONGRESS ON
Gastrointestinal
C A N C E R

A glimpse into the crystal ball:

THE RADIOLOGIST IN THE FUTURE

Raquel Perez-Lopez

*The Institute of Cancer Research and The Royal Marsden NHS Trust
London, UK*

raquel.perezlopez@icr.ac.uk

Disclosures



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I have no financial interests or relationships to disclose with regard to the subject matter of this presentation.

Past, present and future of GI imaging

**BACK
TO
THE FUTURE**



Past of GI imaging



XVII century



XIX century

Past of GI imaging



XVII century



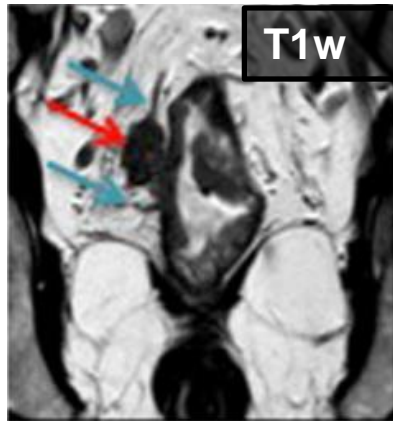
XIX century



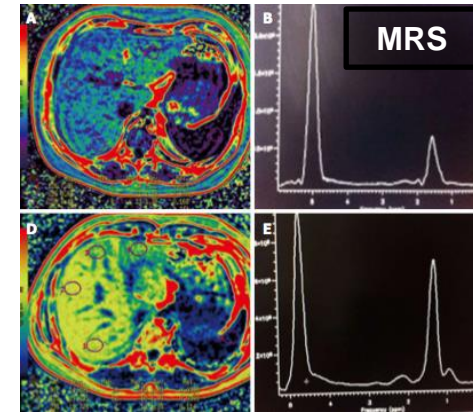
XX century

Present of GI imaging (emerging techniques)

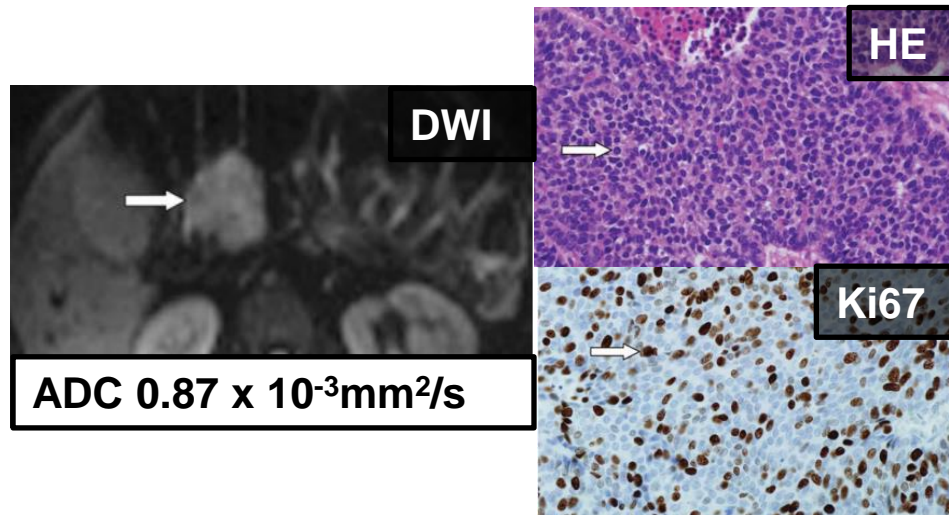
Anatomical features¹



Molecular features²



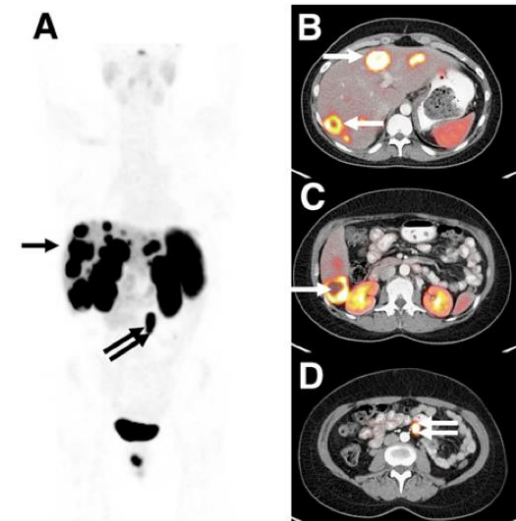
Histological features³



Metabolic features⁴

Octreoscan

⁶⁸Ga-DOTATATE PET/CT



¹ Chand M et al. Ann Oncol. 2014.

² Di Martino M. World J Gastroenterol. 2016.

³ Wang Y. J Magn Reson Imaging. 2011.

⁴ Barrio M. J Nucl Med. 2017

Challenges for the future GI imaging

1. Costs



2. How to measure: reproducible, reliable



3. Predictive biomarkers for targeted therapies

IMMUNOTHERAPIES

4. Response biomarkers for targeted therapies

HETEROGENEOUS RESPONSES

5. Big data analysis



New opportunities for the future GI imaging

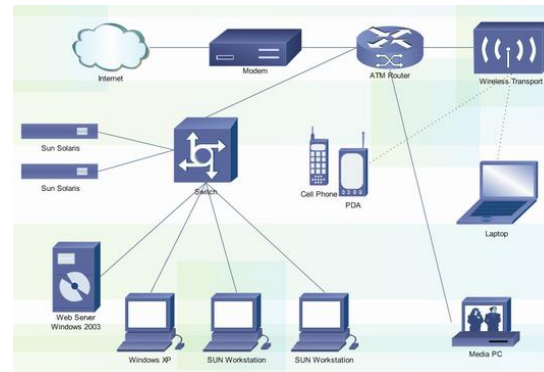
1. Reducing costs

1. Technical imaging acquisition improvements

Reduce exploration time: ultra-fast high quality MRI sequences

Less volume and cheaper iv contrasts

2. Networking and data transfer

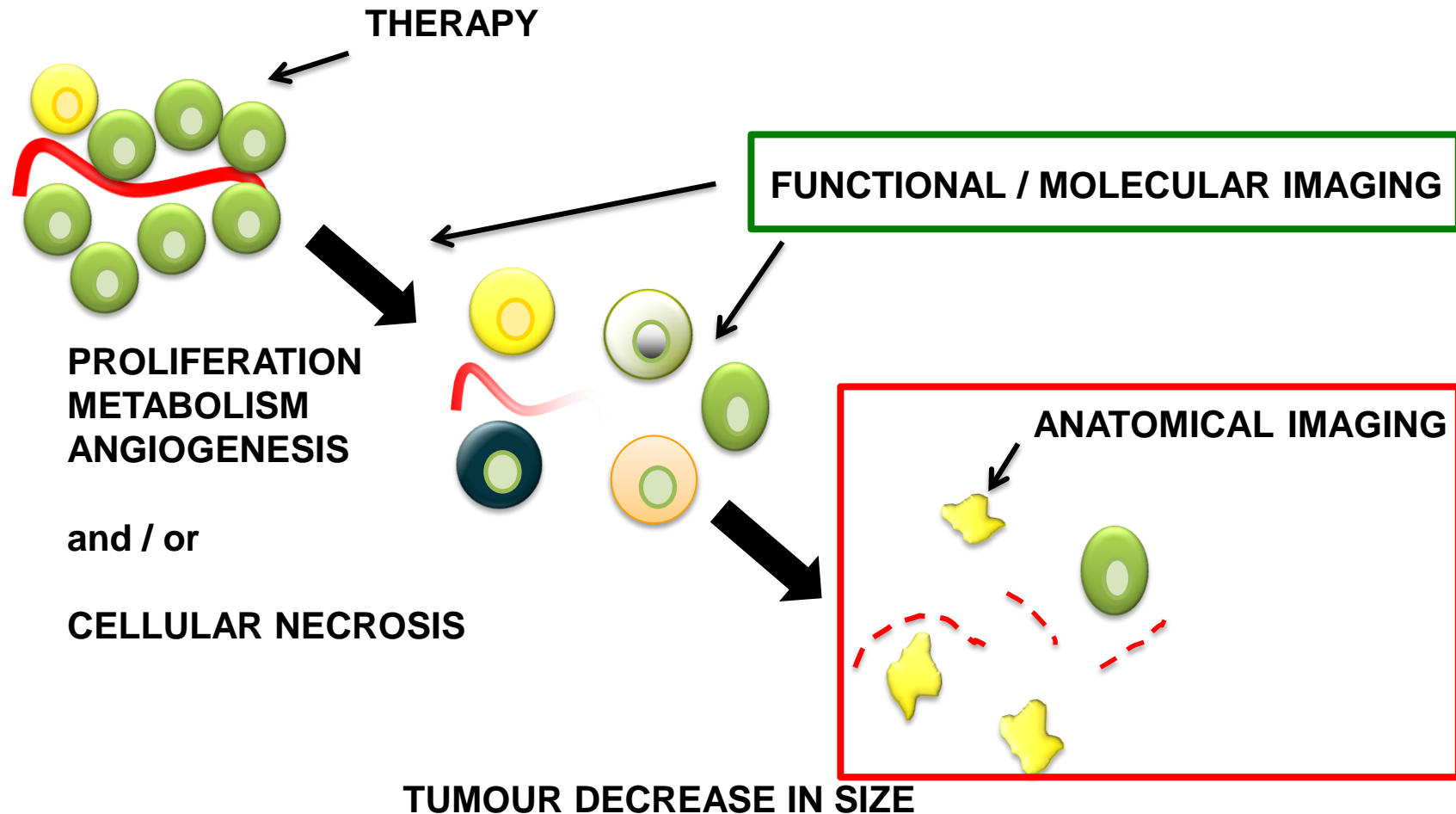


3. Individualized imaging: best imaging technique for each purpose

4. Early detection of response

New opportunities for the future GI imaging

Costs



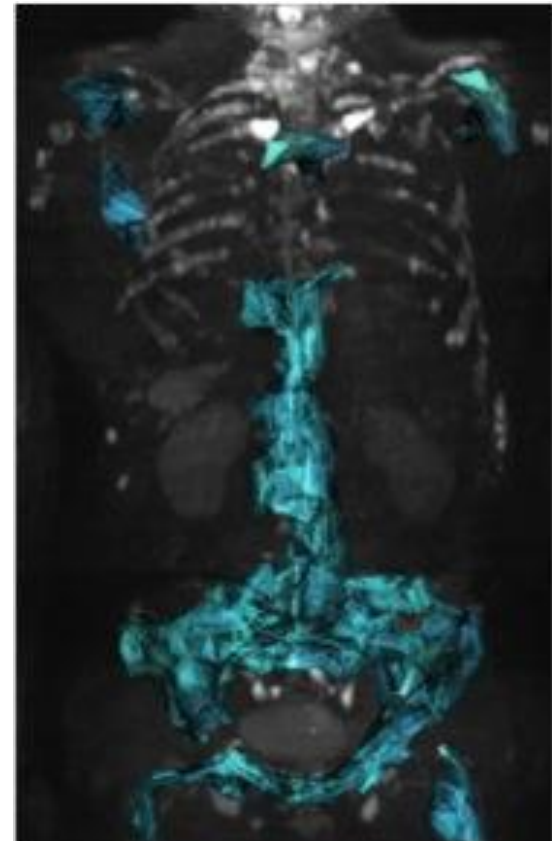
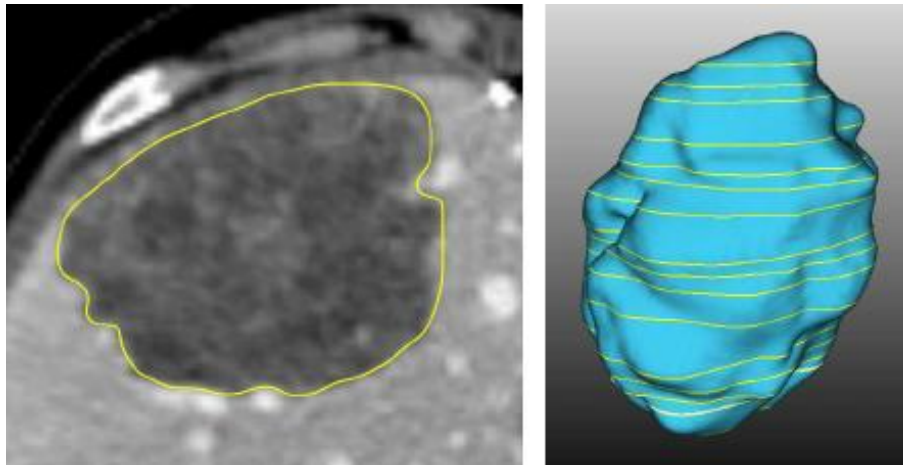
New opportunities for the future GI imaging

How to measure

1. New software

New opportunities for the future GI imaging

Semi-automatic segmentation tool from the OsiriX software v.5.6



All areas of signal abnormality on DWI b900 and T1-weighted MRI corresponding to bone metastases in the axial skeleton*.

* Perez-Lopez R, et al. Radiology. 2016 Jul;280(1):151-60.

New opportunities for the future GI imaging

CRPC responding to olaparib by PSA and CTC.

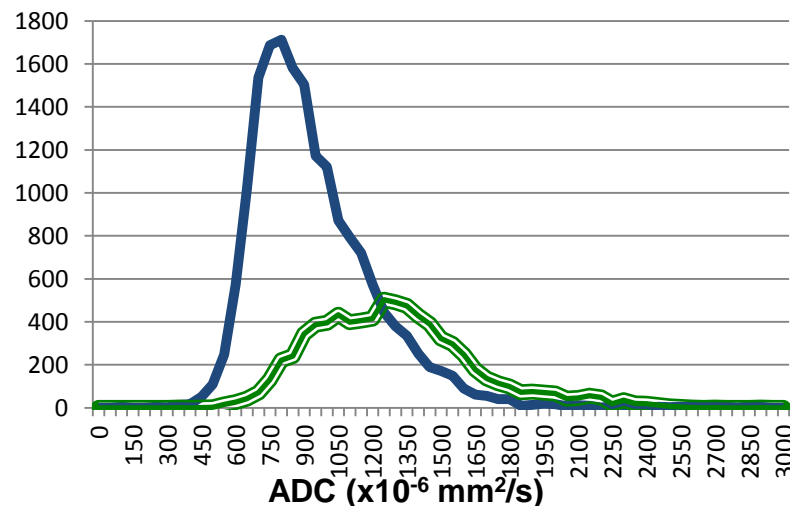
BASELINE

MIP DWI b900



AFTER 12 WEEKS

MIP DWI b900

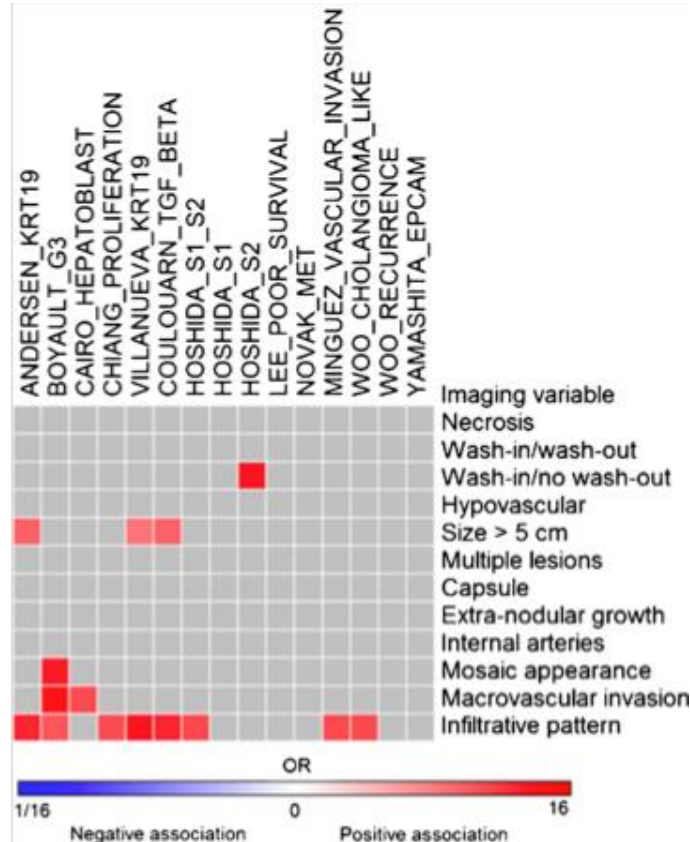


	Volume of bone metastases (L)	Median ADC ($\times 10^{-6} \mu\text{m}^2/\text{s}$)
Baseline	1.32	693
12 weeks	0.54	890
% change	-59%	+28%

New opportunities for the future GI imaging

Predictive biomarkers for targeted therapies

Imaging-based surrogate markers of transcriptome subclasses and signatures in hepatocellular carcinoma: preliminary results.



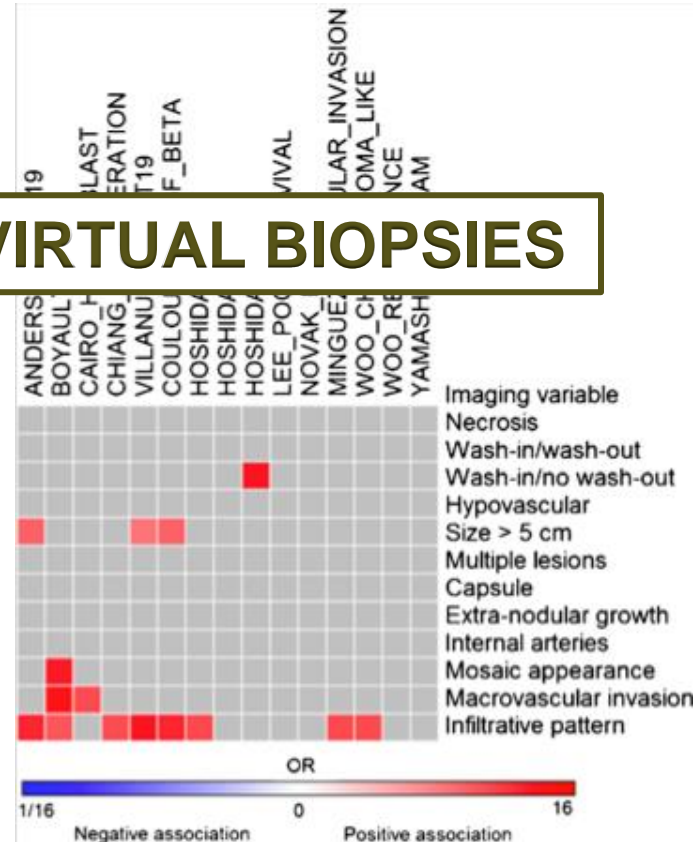
* Taouli B. et al. Eur Rad 2017

New opportunities for the future GI imaging

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VIRTUAL BIOPSIES

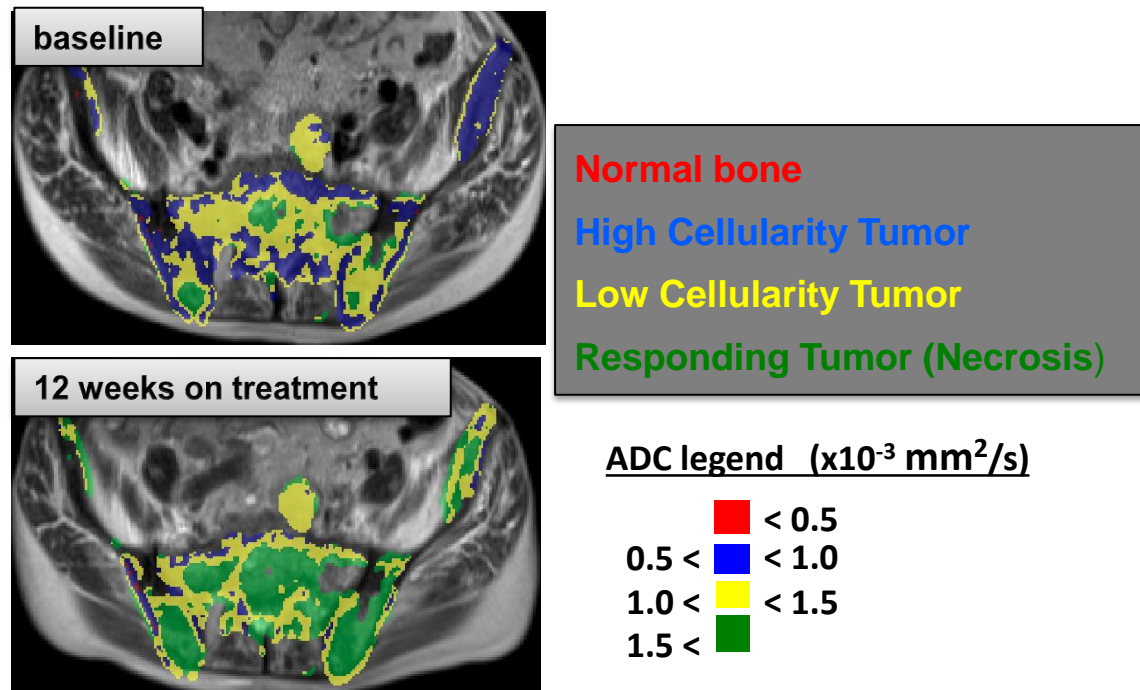


* Taouli B. et al. Eur Rad 2017

New opportunities for the future GI imaging

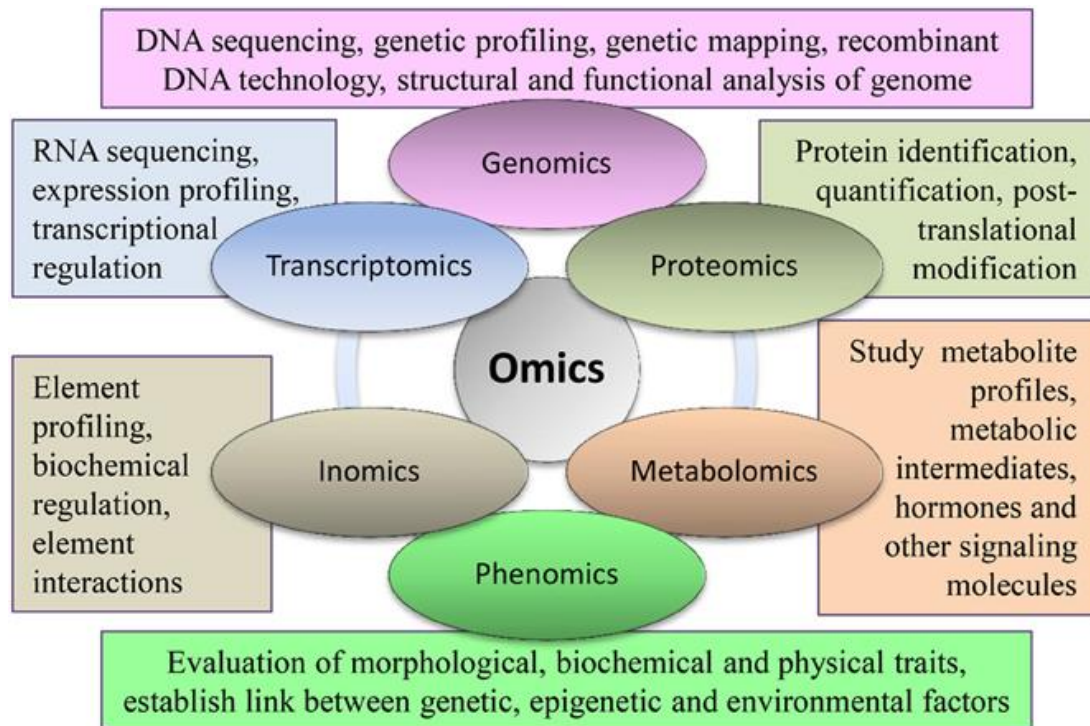
Response biomarkers for targeted therapies

Differential responses \longrightarrow correlation with tumour genomic evolution.



New opportunities for the future GI imaging

Big data analysis



Radiomics

Take home message

