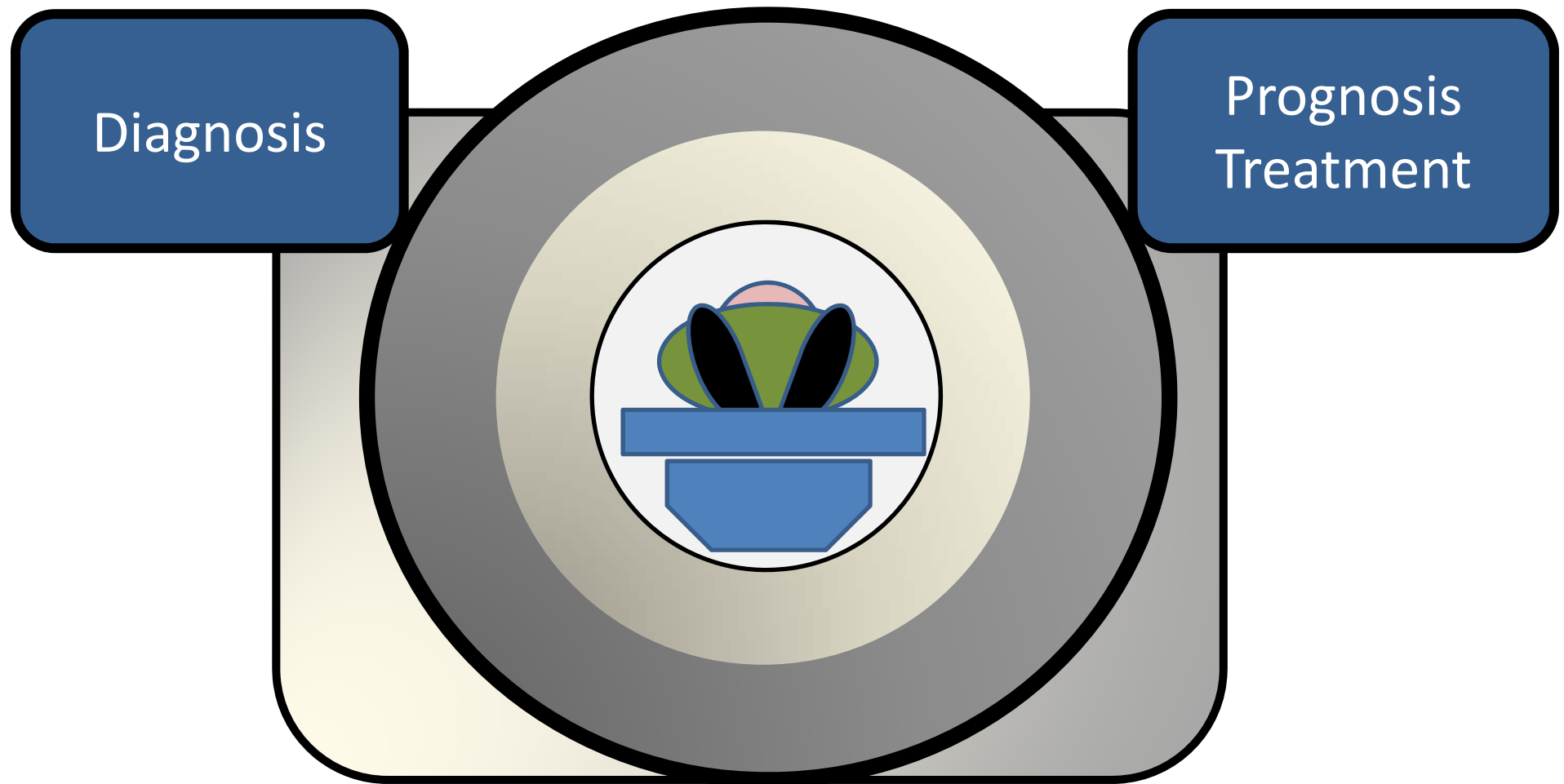
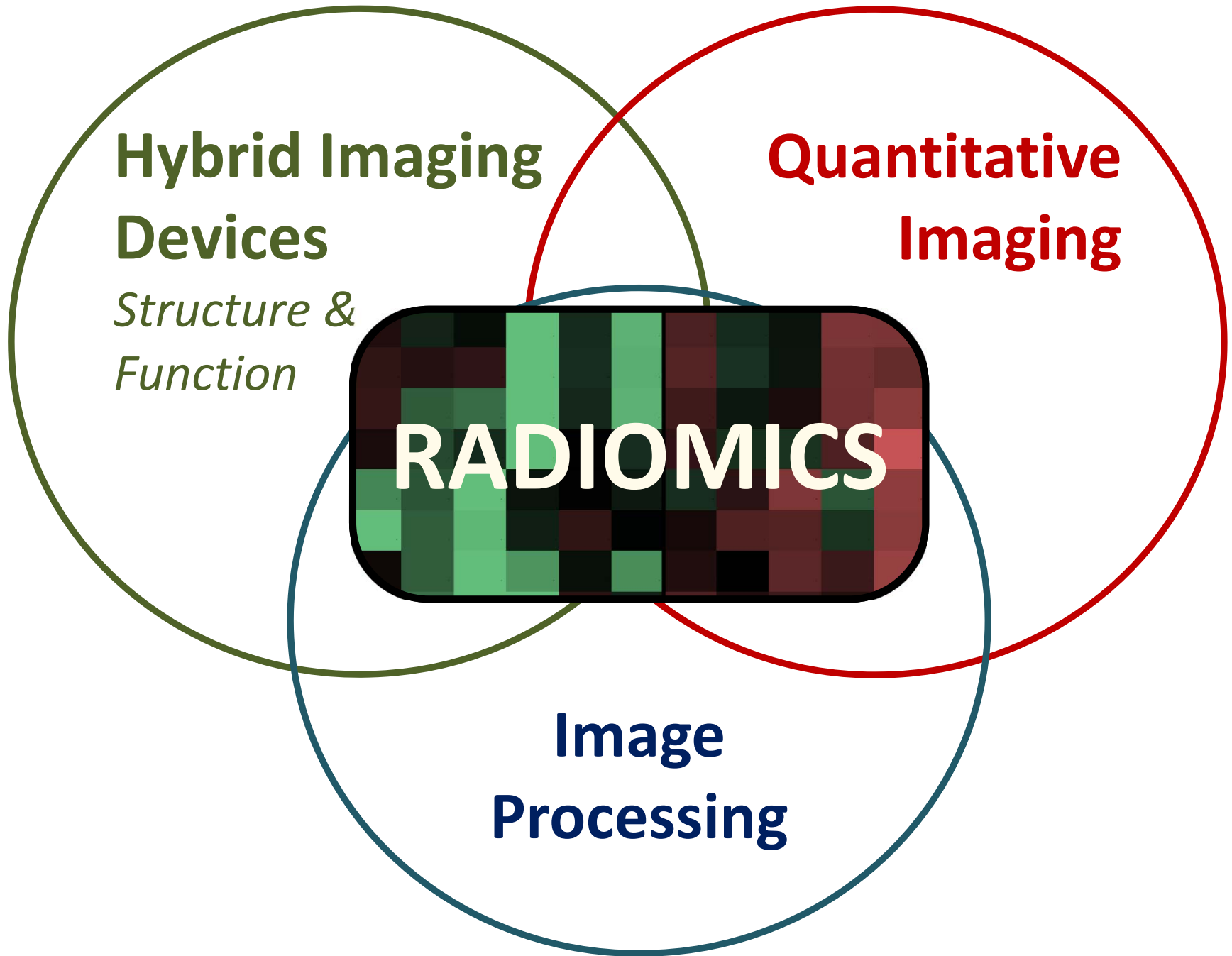


Medical Imaging



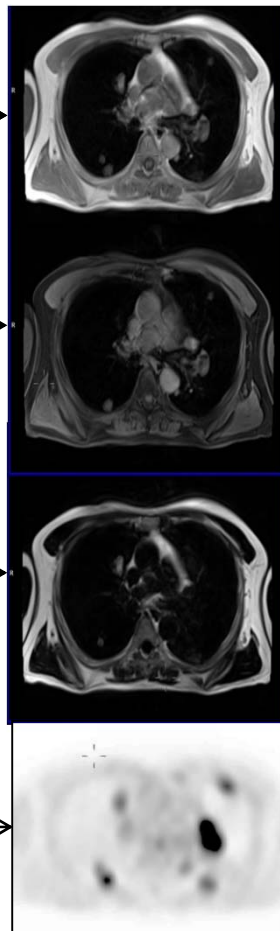
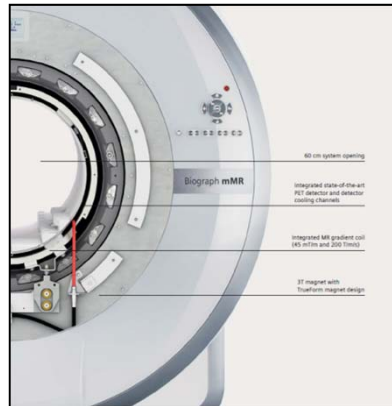


RADIOMICS

Image Acquisition

Data Extraction

Data Analysis



Hybrid Imaging Device

Primary Images

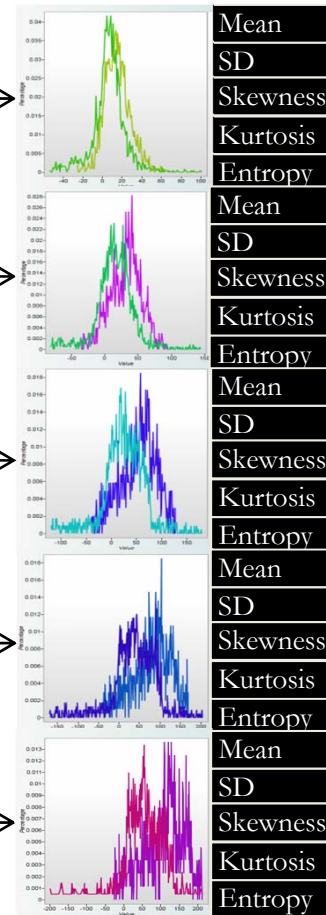
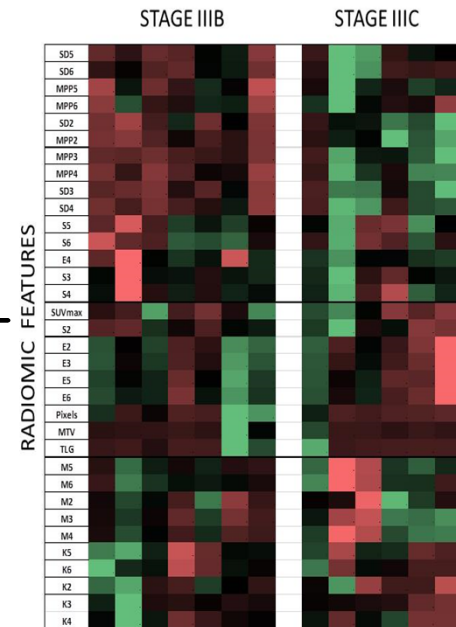


Image Parameters

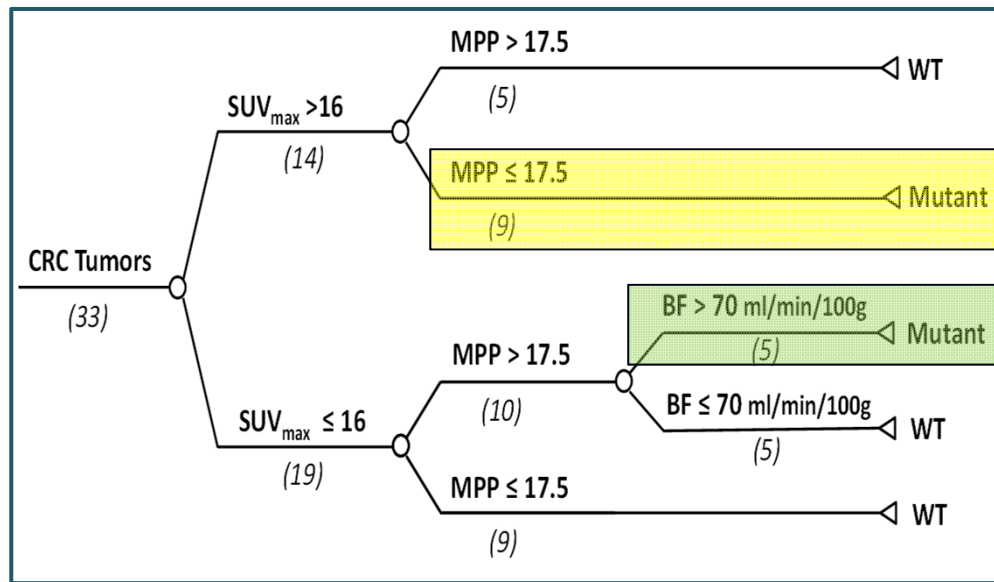
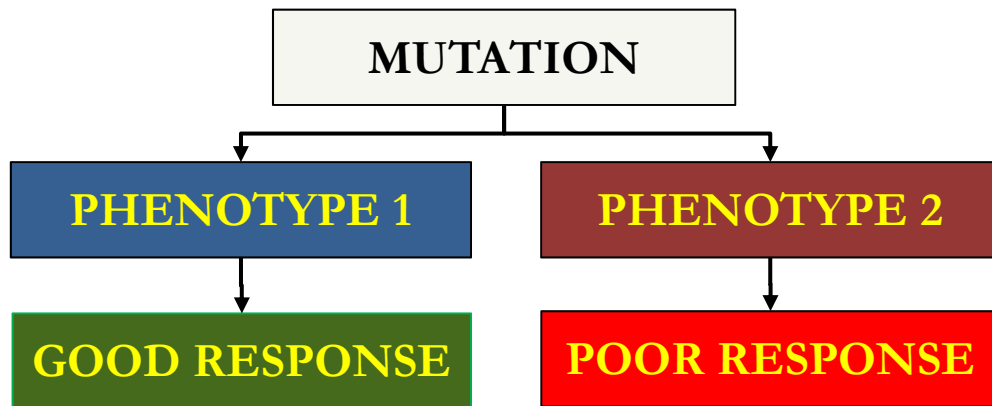


Biological & Clinical Correlates

Advantages of Radiomics

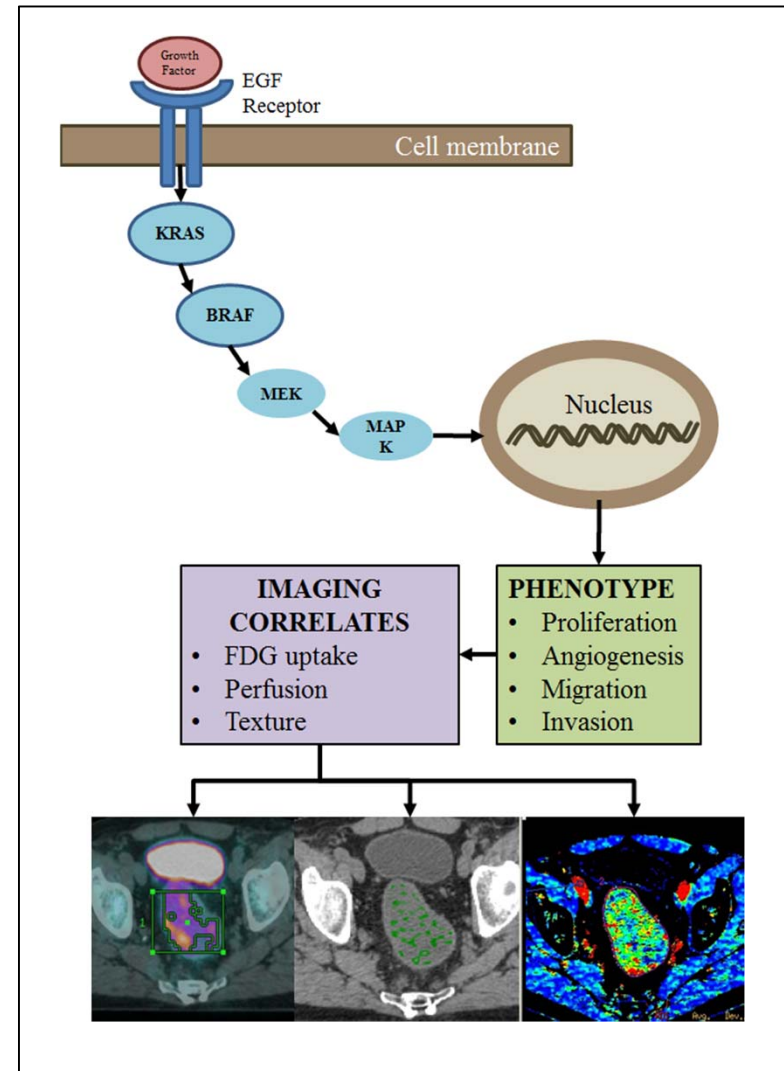
- Non-invasive
- Whole tissue
- Multiple disease sites
- Multiple time points
- Low Cost
 - *Adjunct to diagnostic imaging*
- Phenotype

Multi-parametric Imaging Phenotypes associated with KRAS Mutations in CRC



Sens: 82.4 (63.9-93.9)%; Spec: 100 (89.6-100)%

Miles KA et al J Nuc Med 2014;55:386-91



Radiomics: Challenges for Clinical Implementation

- Technology
 - Software for extraction, reporting and delivery of radiomic data
 - Consistency across imaging platforms
- Knowledge and skills
 - Training of radiologists and technical staff
 - Limited researcher/academic awareness
- Clinical acceptance
 - New clinical paradigm
 - Biological rationale for radiomic signatures
- Competing technologies
 - Tissue and blood based assays

Radiomics: Summary

- Extends the use of existing imaging technologies in clinical decision making
 - Rapid translation
 - Low cost
- Advantages
 - Complementary role to tissue analysis
- Challenges
 - Radiomic-specific technologies
 - Education