

# Cancer Research UK RadNet Manchester is a £16.5M Radiation Research Unit in collaboration with The Christie NHS Foundation Trust.

Established as part of a UK-wide network, CRUK RadNet Manchester will develop an integrated world-leading radiation oncology programme working towards individualised physical and biological targeting based on real-time outcomes and a mechanistic understanding of the tumour microenvironment immune response, comorbidity and genomics.

## Driving innovative translational science into practice-changing cancer care

### Integrate biological and clinical data for Manchester patients treated with radiotherapy

#### Immune Consequences of Radiotherapy



Models of radiation-induced normal tissue immune changes

- Explore the mechanisms of radiotherapy induced immunological effects on the tumour and normal tissue
- Integrate immunology, genomics and the tumour microenvironment towards better therapies for patients

#### Treating Comorbid Cancer Patients



Pre-clinical models of comorbidity; modelling human data

- Understand how comorbidities and polypharmacy impact radiation response and side-effects
- Identify strategies to individualise radiotherapy for "real-world" patients

#### Tumour Microenvironment and Genomics



Hypoxia and genomic instability, immune mechanism

- Understand mechanisms of mutations and chromosomal instability in hypoxic cells during radiotherapy
- Identify novel targets for combined modality trials with precision radiotherapy

### Collaborative 'hubs' for uplifting personnel and maximising clinical impact

#### Proton Research Hub

- National proton beam research facility
- Pre-clinical beamline
- FLASH capability

#### Clinical Informatics Hub

- Support innovative data capture
- Collate and analyse data on patients typically excluded from trials
- National facility, data managers, AI, informatics and medical physics

#### Phase I Trials and Biomarker Hub

- Novel clinical trials
- Stratifying patients on tumour microenvironment and genomics
- Biomarker driven trials

#### Radiographer Doctoral Academy Hub

- Education and research training for radiographers
- Christie School of Oncology

Developing and nurturing multidisciplinary teams through collaboration and recruitment to deliver world-leading science and exceptional clinical care