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The University of Manchester

The University of Manchester
Faculty of Biology, Medicine and Health

Professor Nigel Hooper
Vice Dean for Research and Innovation

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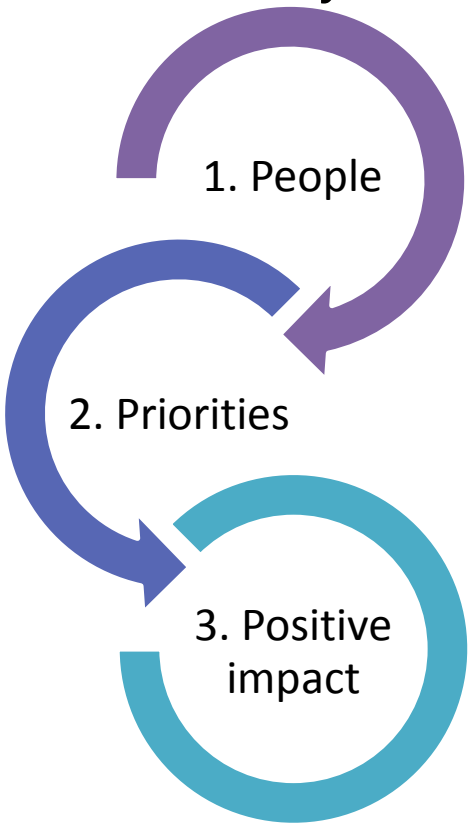
Our research vision

to undertake world-class discovery science, develop effective clinical translation, and facilitate implementation of advances in healthcare for the benefit of society in Manchester, the UK and across the globe



We will support & develop our researchers to achieve their ambitions & our vision

We will achieve international research excellence in key areas by building on current strengths and by identifying & developing emerging areas

We will deliver positive societal impact from our research by maximising its translation & implementation

Our strategic research domains

- Drive large-scale interdisciplinary research projects and collaborative working
- Support staff to deliver innovative, world-leading research
- Aligned closely to the strategic priorities of our partners
- Exploit opportunities presented by £6 billion devolved health and social care budget (DevoManc)

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Cancer

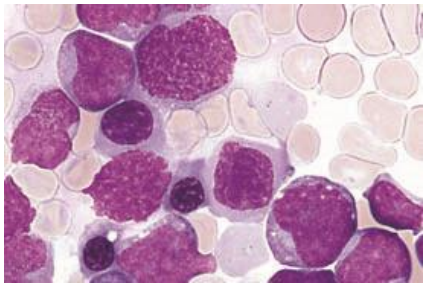
MANCHESTER CANCER RESEARCH CENTRE

CANCER RESEARCH UK | MANCHESTER INSTITUTE

- Cancer Research UK (CRUK) Major Centre
- Christie Hospital
- Manchester Cancer Research Centre (MCRC)
- CRUK Lung Cancer Centre of Excellence
- Movember Centre of Excellence in Prostate Cancer

Biomedical Research Centre
- Cancer prevention & early detection
- Advanced radiotherapy (incl. proton beam therapy)
- Cancer precision medicine

- Lung
- Melanoma
- Prostate
- Ovarian
- Breast
- Haematological



Opportunities
- Cancer immunology
- Living longer with cancer

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Cardiovascular, Endocrine & Metabolic Sciences

Cardiovascular medicine and science
- Hypertension
- Cardiac physiology
- Human genetics of cardiovascular disease

Endocrinology and metabolism
- Metabolic and endocrine disease
- Gut-brain interactions
- Genetic circuits involved in development

Opportunity
- Biological clocks

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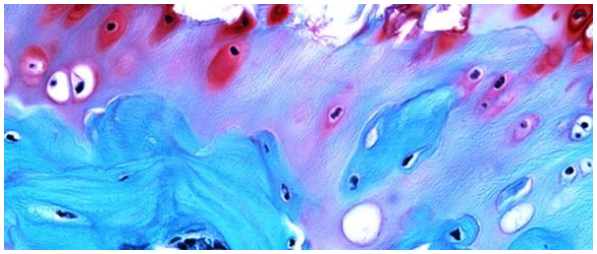
Cellular & Developmental Systems

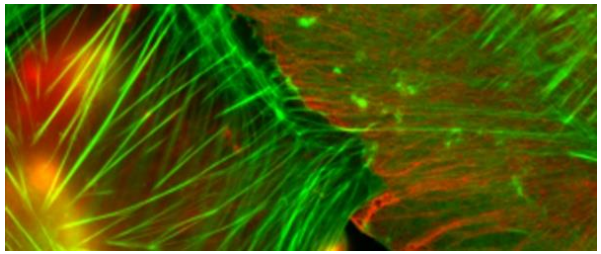
Wellcome Centre for Cell-Matrix Research
- Immuno matrix
- Mechano matrix
- Chrono matrix

wellcome centre cell-matrix research



- Biological timing
- Cell matrix biology
- Development & disease
- Gene expression, chromatin & signalling
- Cell dynamics
- Regenerative medicine

Opportunities
- Quantitative & dynamic biology
- Biological clocks



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Evolution, Systems & Genomics

Manchester Centre for Genomic Medicine – 100,000 genomes project

- Antimicrobial resistance
- Bioinformatics
- Evolutionary biology
- Metagenomes
- Modelling
- Molecular epidemiology
- Organismal behaviour
- Protein structure evolution

Opportunity
- Computational biology

Infection, Immunity, Inflammation & Repair

- Manchester Collaborative Centre for Inflammation Research (MCCIR)
- Manchester Fungal Infection Group: global leaders on aspergillosis
- Arthritis Research UK centres: Genetics & Genomics, Epidemiology

Biomedical Research Centre
- Dermatology
- Musculoskeletal
- Respiratory medicine

- Chronic inflammatory diseases: musculoskeletal, dermatology, respiratory
- Explorative immunology across the life course
- Regenerative medicine, incl. matrix biology
- Infection: mycology, bacteriology & parasite immunology

Opportunities
- Precision medicine for immune-mediated inflammatory diseases
- Cancer immunology
- Chronic wounds

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Neuroscience & Mental Health

ESRC International Centre for Language and Communication Development

Biomedical Research Centre
- Hearing health

LuCiD
The ESRC International Centre for Language and Communicative Development

- Cognitive neuroscience
- Language
- Communication & hearing
- Mental health
- Neurodegeneration
- Stroke
- Systems & computational neuroscience
- Vision research

Opportunities
- Neuro oncology
- Neurovascular diseases

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Population Health

Digital health
- Health e-Research Centre (HeRC)

Health e-Research Centre

Applied Health Research
- NIHR Patient Safety Centre
- NIHR Clinical Research Facility
- Clinical Trials Unit
- NIHR Collaboration for Leadership in Applied Health Research (CLARHC)

CONNECTED HEALTH CITIES

Evidence synthesis Clinical trials Biostatistics
Informatics Health economics Behavioural & social sciences
Patient & public involvement & engagement

Opportunities
- Minimising health inequalities (North-South divide)
- Centre for a sustainable NHS
- Learning health systems

Platform Sciences & Technology - cross-cutting approaches

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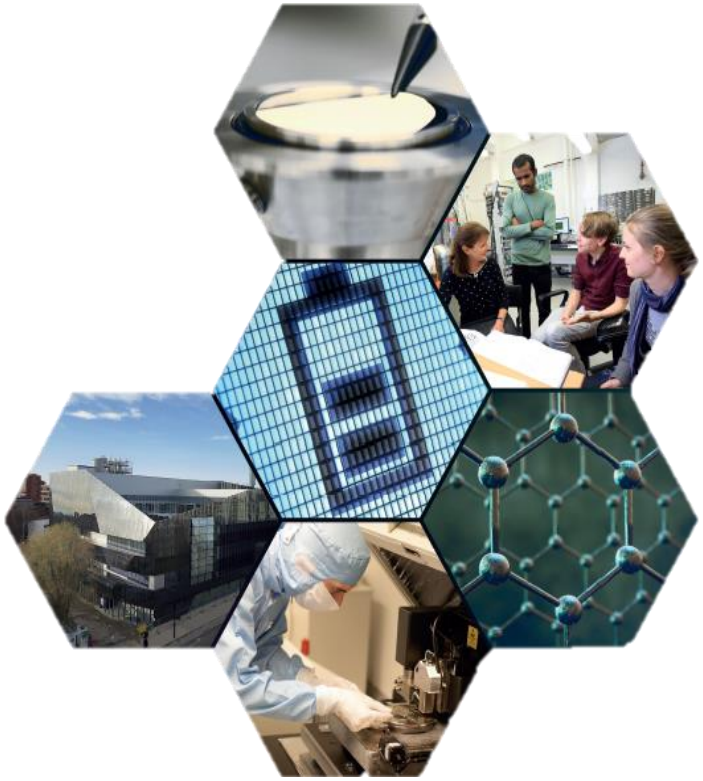
- ***Advanced materials*** – use of advanced materials (incl. graphene) and engineering, cell based therapies

- ***Integrated imaging*** – translational pipeline for identification and characterisation of new imaging biomarkers

- ***Precision medicine*** – integration of health- & bio-informatics, systems medicine, biostatistics - translate clinical genomic & proteomic data into platforms for personalised diagnosis – bridge the gap from biomarker studies to implementation

- National Graphene Institute
- Graphene Engineering Innovation Centre
- Sir Henry Royce Institute for Advanced Materials



Combining technology and innovation to address major health challenges

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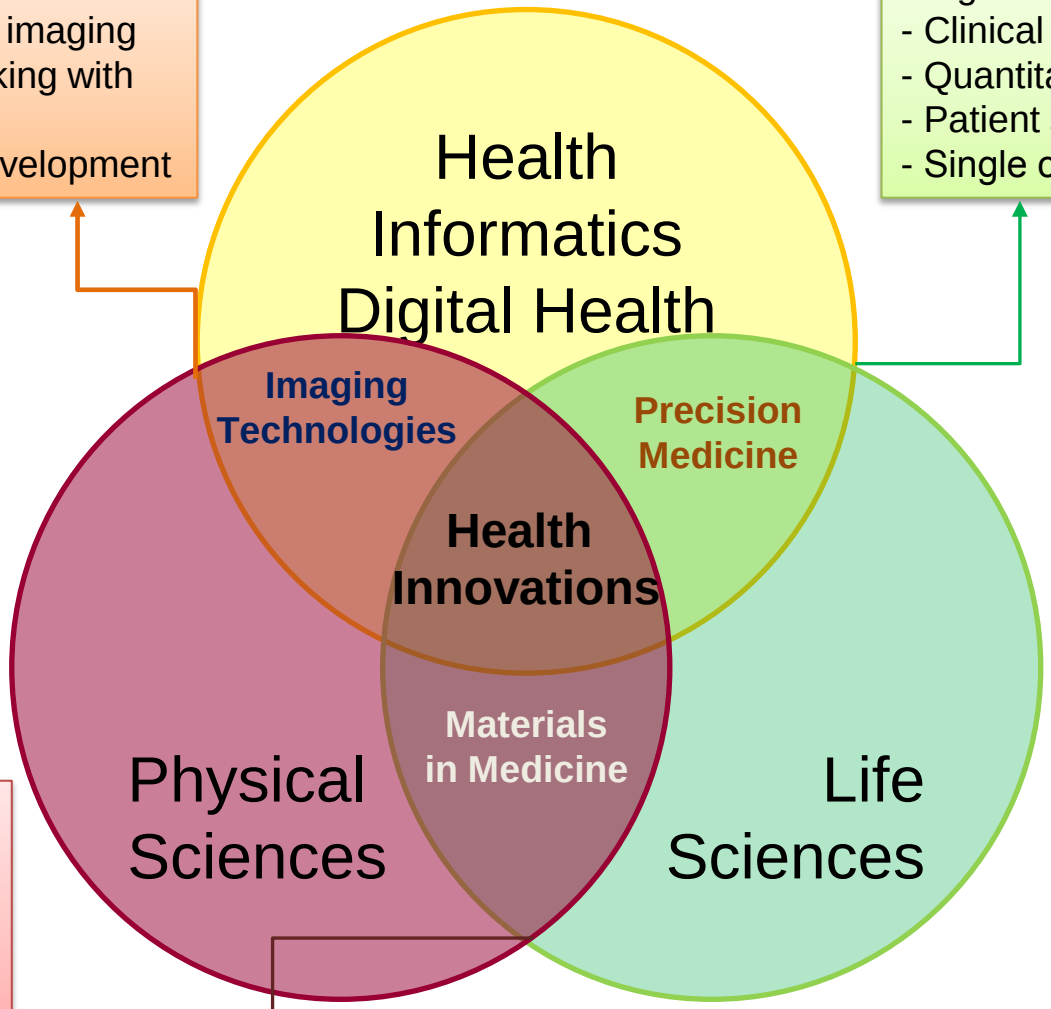
- Creating a link between bioimaging & medical imaging
- Imaging analysis linking with big data
- Imaging software development

- Big data (e-health)
- Clinical genomics, proteomics
- Quantitative biology
- Patient stratification
- Single cell 'omics'



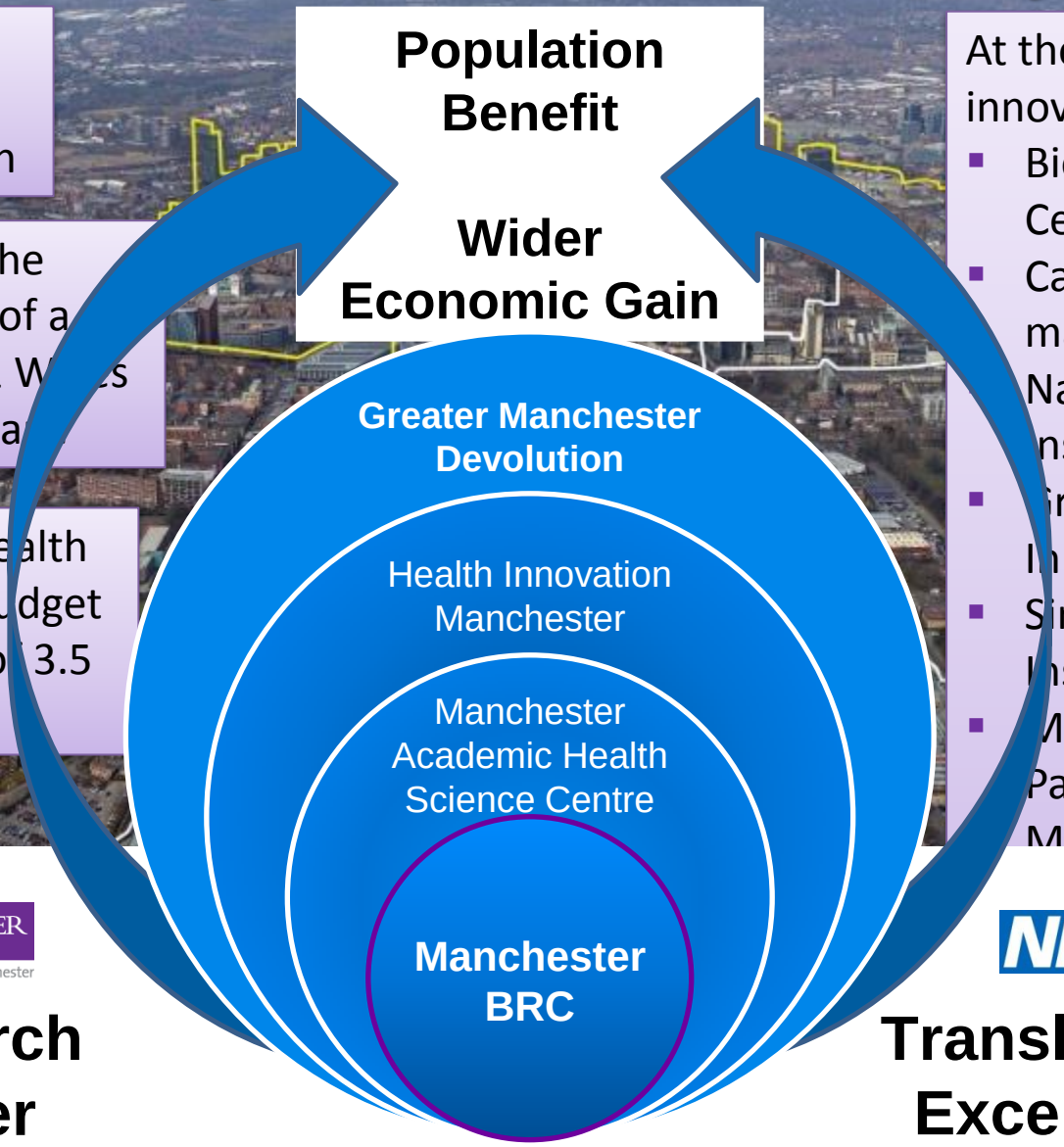
- Biomarkers
- Targeted delivery
- Medical devices
- Sensors
- Diagnostics
- Nanomedicines

Greater Manchester: A regional innovation ecosystem

Proximity to Manchester's "sick" population

Manchester has the lowest likelihood of a man in England & W[illegible]s surviving to 75 yea[illegible]

Devolved £6bn He[illegible]lth and Social Care bu[illegible]dget for a population o[illegible] 3.5 million



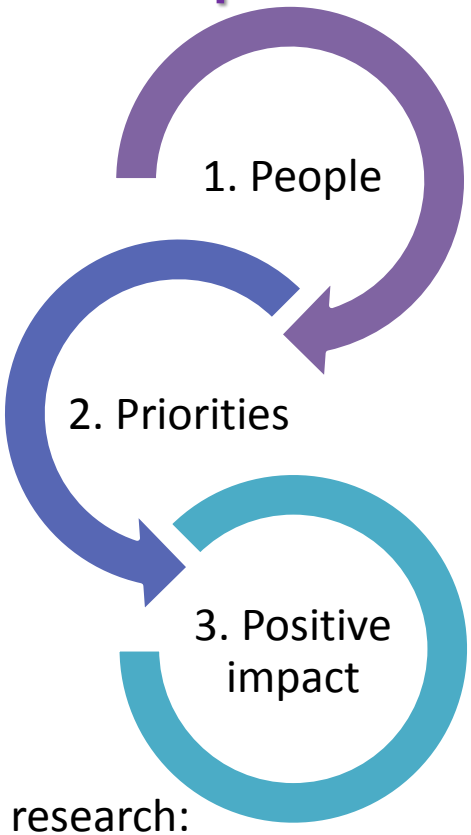
At the core of a regional innovation ecosystem:

- Biomedical Research Centre
- Cancer Research UK major centre
- National Graphene [illegible]nstitute
- [illegible]raphene Engineering [illegible]nnovation Centre
- [illegible]ir Henry Royce [illegible]nstitute
- [illegible]anchester Science Partnerships
- Medicines Discovery [illegible]Biohub [illegible]tion

Research Power

Translational Excellence

Goal 3: Maximising the translation and impact of our research



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Translational research:

- activity originating from discoveries in fundamental science (including population health, methodological research, epidemiology, applied health research, etc)
- then moving through a pipeline that encompasses hypothesis testing and elucidation of disease mechanisms, preclinical research in animal models, **through to clinical trials in humans of new drugs, devices and diagnostic procedures**
- ultimately delivery and adoption within the NHS and third sector organisations.

Goal 3: Maximising the translation and impact of our research

We will:
Maximise the potential for translation of our discovery science by adopting a more proactive approach to identifying opportunities, removing potential barriers & striving to ensure that the component parts of our translational pipeline are integrated.

Key Performance Indicators (KPIs):

- increase the amount of funding received through translation-specific funding schemes by ~30% by 2022 (from current figure of £15.3m, industry funding £17.7m)
- secure 5 MRC DPFS and 5 Wellcome Trust translational awards by 2022, and secure at least 2 EPSRC-led translational awards in the areas of advanced materials and targeted therapeutics
- identify engagement of at least 10 new researchers in translational projects by 2022 through CiC, Wellcome Trust iPTA schemes, etc