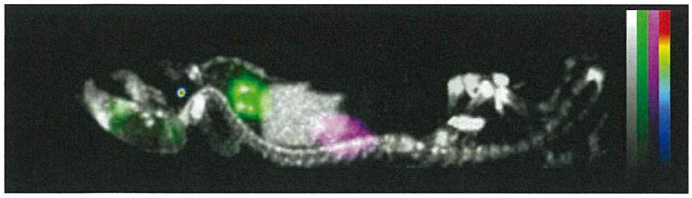
VECTor Simultaneous PET SPECT

Quadruple Isotope Imaging:
1 PET & 3 SPECT tracers



Total body mouse scan of 60 minutes:

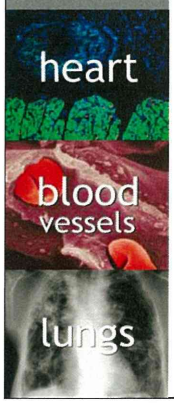
- 100 MBq ^{99m}Tc-HDP (gray)
- 35 MBq ^{18}F-FDG (green)
- 19 MBq ^{111}In-pentetreotide (magenta)
- 5 MBq ^{123}I-NaI (rainbow)

MILabs

Conclusion

- With PET we can do complex quantitative measurements – need very accurate data processing algorithms
- PET only measures radioactivity: need modeling to interpret the data
- Imaging imposes constraints on tracers:
  - high selectivity (no (or few) metabolites
  - high uptake by sites of interest
  - fast equilibration
  - match between biological and physical half life
  - fast chemistry
- Novel radionuclides and tracers are becoming available (52Mn example)
- We are expanding to include single gamma and simultaneous multi-tracer imaging

UBC James Hogg Research Centre



The UBC James Hogg Research Centre (JHRC) at St. Paul's Hospital is a multi-core heart, lung and blood vessel research centre dedicated to the most cutting edge basic science research. In af" liation with the University of British Columbia and Providence Health Care, the JHRC strives for excellence in translational research with the goal of improving patient care. The Centre is equipped with advanced state-of-the-art analytical, imaging and diagnostic facilities, employing the most effective current techniques to increase the breadth, depth and rate of research.

JHRC research technicians have extensive training and experience to ensure that results are consistent and reliable with minimal turnover time.

UBC James Hogg Research Centre

St. Paul's Hospital
166-1081 Burrard Street
Vancouver BC V6Z 1Y6

t. 604.806.8346
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www.hli.ubc.ca

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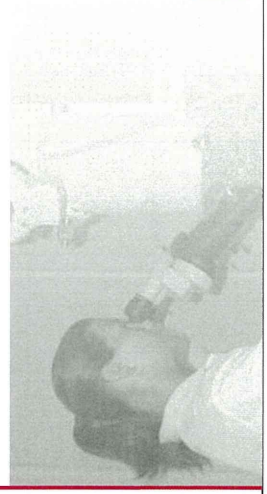
New solutions for health



HEART + LUNG INSTITUTE
UBC JAMES HOGG RESEARCH CENTRE

UBC James Hogg Research Centre

The UBC James Hogg Research Centre at St. Paul's Hospital, is a UBC research centre supported collaboratively by the University of British Columbia Faculty of Medicine and Providence Health Care. Built on a 30 year history of research excellence, the Centre was created in 2000 with the infusion of $21 million of infrastructure funding from the Canada Foundation for Innovation and its partners. The Grand Opening of the expanded and fully equipped laboratories was held in December 2003.

Lead by Director, Dr. Bruce McManus, and Co-Director, Dr. Darryl Knight, investigators and trainees at the UBC James Hogg Research Centre are using the best available technology to image and measure changes in molecules, cells, tissues, organs and whole organisms, including patients, in order to understand the link between our genes and the environment, in causing heart, lung, and blood vessel diseases.

The laboratory is a multi- and trans-disciplinary environment comprising of and investigators with MD and/or PhD.

Associated University of British Columbia departments include:

- Medicine
- Pathology and Laboratory Medicine
- Medical Genetics
- Radiology
- Surgery
- Anesthesiology, Pharmacology & Therapeutics
- Computer Science

The UBC James Hogg Research Centre Investigators come from, and collaborate with a wide variety of disciplines:

- epidemiology
- physiotherapy
- physiology
- medicine
- pathology
- genetics
- population health
- pharmacology
- biochemistry
- computer sciences
- mathematics
- biostatistics
- bioinformatics
- and others

The rich learning environment and multidisciplinary nature of the research and researchers within the Centre allows for interaction between all levels of faculty and trainees on a daily basis. This structure fosters relationship-building skills that are fundamental to current and future collaborations between different disciplines and among the faculty and trainees. To enable the outstanding research work at JHRC, synergy with numerous scientists across faculties at UBC, national and international collaborators and industry has been fostered.

JHRC groups offering services include:

- Biobank
- Histology
- Imaging
- Cellular Imaging & Biophysics Core
- Molecular Phenotyping Core Laboratory
- GEM Facility
- Technology Development Core

For additional information about JHRC, please visit our website at: www.hli.ubc.ca

For information on our research capabilities and services, please contact:

Melanie Hanson, Operations Leader
t: 604.806.9266
e: melanie.hanson@hli.ubc.ca

UBC James Hogg Research Centre

What we can do for you

HEART + LUNG INSTITUTE
UBC JAMES HOGG RESEARCH CENTRE

The UBC James Hogg Research Centre technicians have extensive training and experience to ensure that results are consistent and reliable with minimal turnover time.

Some of our services, equipment and tools are:

Biobank

- Tissue archiving
- Specimen for research
- Gross specimen photography

Cellular Imaging & Biophysics

- Tecnai 12 Transmission Electron Microscope
- Bioscope Atomic Force Microscope with Nanoscope IIIa Controller
- Pelco BioWave Microwave Processor
- Image Processing Work Stations
- Wide Field Fluorescence Microscope
- Leica Upright Fluorescence Microscope with Fast Confocal Scanner and CCD camera
- Leica Inverted Fluorescence microscope with Confocal Scanner

Digital Slide Scanning Service

- Aperio ScanScope XT: brightfield scanner that digitizes whole microscope slides at 20x and 40x magnification

Histology

- Processing and Embedding
- Sectioning
- Immunohistochemistry
- Immuno-peroxidase
- Immuno-alkaline phosphatase
- FITC immunofluorescence
- TUNEL Staining
- in situ Hybridization (ISH)

Molecular Phenotyping & Genotyping

- BeckmanCoulter MoFlo® High Speed Cell Sorter
- Laser Capture Microdissection Pixcell II
- Abbott Cell Dyn 3700
- BeckmanCoulter EpicsXL-MCL Flow Cytometer
- Miltenyi AutoMACS
- ABI PRISM 7900HT
- Luminex IS100 XYP
- ArrayWoRxe Biochip Reader

Preclinical Services

- Available for contract or collaborative animal research project opportunities
- Electronic monitoring surveillance system
- Echocardiology
- Level 2 biocontainment suite
- Colony management services
- Surgical services

Technology Development

- Engineering consultation and rapid prototyping services
- 3D design
- Data collection software
- Software to generate printed circut boards for more sophisticated electrical systems
- Machining tools for rapid prototyping

For more information on our research capabilities and services, please contact:
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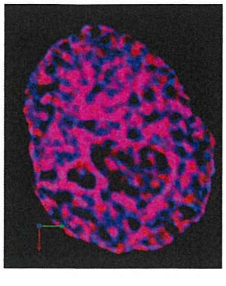
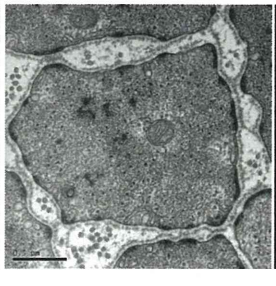
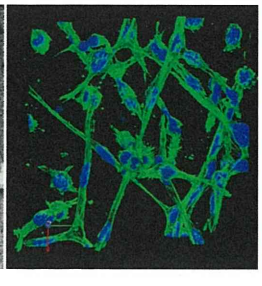
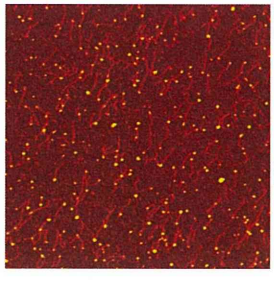
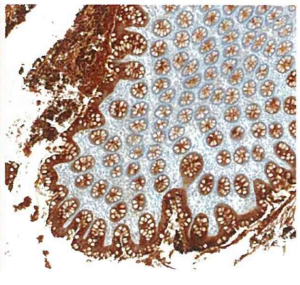
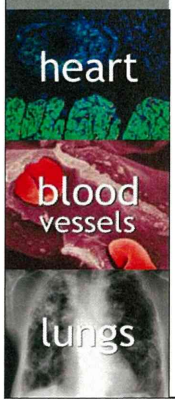






UBC

Heart + Lung Institute
GEM Preclinical Services



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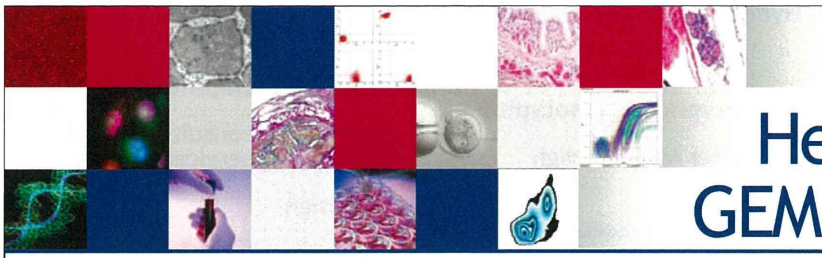
New solutions for health

HEART + LUNG INSTITUTE
UBC JAMES HOGG RESEARCH CENTRE



Heart + Lung Institute
GEM Preclinical Services

The GEM Facility at the UBC James Hogg Research Centre at St Paul's Hospital is available for contract or collaborative animal research project opportunities.

Our 9000 sq ft newly renovated facility offers flexible space, technical services, and high-tech equipment for use with rodent and rabbit models.

Known as the GEM (Genetically Engineered Models), the facility contains a barrier breeding unit, a level 2 Biocontainment suite as well as space for conventionally housed animals.

As part of a network of service providers, we can work with you to achieve your research goals or manage your project for you.

Please contact us for project planning and budget development.

t. 604 806 8852
e. GEM@hli.ubc.ca

FACILITY CAPABILITIES

Our electronic monitoring surveillance system ensures your animals are secure and the facility is maintained within parameters set. Equipment is maintained on a preventative maintenance program with certified biosafety cabinets, calibrated anesthetic equipment and hydrogen peroxide decontamination capabilities.

PROJECT DEVELOPMENT

- Protocol and Model Development
- SOP and Report Writing

ECHOCARDIOGRAPHY

Our Visualsonics echocardiograph system service includes a trained echo technician who can capture your imaging requirements. The echo system has specialized packages such as Doppler, ECG monitoring.

CCAC COMPLIANCE

The GEM Facility has received commendations from the Canadian Council on Animal Care assessment panel for excellent management and animal care procedures. We maintain a biosecure facility.

TECHNICAL SUPPORT

The GEM Facility provides skilled technical support for the conduct and oversight of all animal research projects. Our GEM technicians are CALAS certified and can offer expertise in microsurgery, echocardiography, cardiovascular, pulmonary models, dose response, oncology, dermatology, photodynamic therapy, immunomodulatory, and diabetic models. GEM technical staff can work with you to develop a training program that suits your needs.

BIOCONTAINMENT

Our Level 2 Biocontainment suite provides housing and procedural areas for rodent models with anterooms and monitored HVAC.

COLONY MANAGEMENT SERVICES

We offer a full barrier for on-site production of mouse lines. Our rodent barrier unit adheres to a strict shower in policy. All equipment, supplies and cages are decontaminated by chemical or steam sterilization prior to entering the facility. Services offered include:

Embryo Rederivation
Caesarian Rederivation
Embryo Cryopreservation
Cross Fostering
Breeding plan development
Genotyping
Electronic inventory updates

SURGICAL SERVICES

Our microsurgical suite offers a Leica microscope and training arm with video viewing and capture capabilities. Our surgeons are specially trained in mouse and rat procedures and can customize a technique to meet your research requirements. Some procedures we offer:

Mouse or rat aortic constriction
Mouse and rat coronary artery ligation
Osmotic pump implantation
Tumour implantation

The Providence Heart + Lung Institute at St. Paul's Hospital

PROVIDENCE
HEART + LUNG INSTITUTE
AT ST. PAUL'S HOSPITAL
New solutions for health

The heart and lungs interact with every breath we take. Many symptoms or signs of heart and lung diseases are similar and the causes are often shared — environment, heredity, lifestyle.

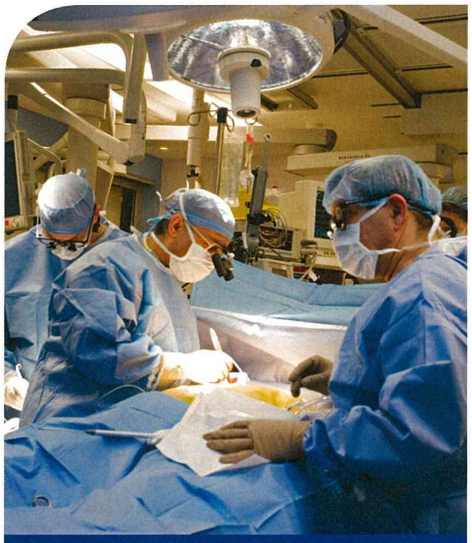
Despite their obvious links, the silos in biomedical research have often kept the study and management of heart and lung disease worlds apart. We are determined to change things. The only institute of its kind in Canada, the Vancouver-based Providence Heart + Lung Institute at St. Paul's Hospital embraces heart and lung research, education and care. An integrated approach to cardio-pulmonary conditions — in every way — will transform how health professionals manage these common ailments and how scientists learn. The more we learn, the more disease we prevent, and the more lives we can save.

Heart and lung disease: The world's epidemic

Heart and lung diseases are enormous global health burdens. In Canada, these diseases account for 25-30 per cent of all hospitalizations, more than any other disease group by far. Cardiovascular diseases are the leading causes of death in Canada and place the largest financial burdens on our healthcare system. Eight out of every 10 Canadians are at risk of developing some kind of cardiovascular disease in their lifetime. Lung disease is on the rise, affecting one in five Canadians and costing the Canadian economy an estimated $15 billion per year. Lung disease is the number one reason for emergency room visits in Canada. Many patients have heart and lung ailments together, whether in the community, the clinic or the intensive care unit. Thus the scope of heart and lung diseases is huge. But the numbers don't reveal the dramatic personal impact on the lives of individuals living with these conditions, or on families and loved ones. We see the suffering every day at the Providence Heart + Lung Institute, deepening our passionate resolve to discover and activate new and better solutions for heart and lung diseases. It's a matter of hope!

Questions we must answer

- Why do some people develop COPD or have hardening of the arteries from smoking while others do not?
- How can patients with heart attacks be given the best immediate care with medicines or devices?
- What biomarkers (e.g., novel blood tests) can we discover that will replace expensive, uncomfortable heart and lung diagnostic procedures like biopsies and angiograms?
- Why are some people susceptible to viruses that damage the heart and lungs?



Our vision for heart and lung research

- Providing world-leading approaches to sustaining and restoring heart and lung health, attracting and retaining the world's sharpest scientific minds and top talents.
- Creating a place where researchers and healthcare providers from many different disciplines and specialties coalesce to ask and answer tough questions – accelerating the transit of new tinctures, tools, techniques, and for prevention and care.
- Ensuring an open environment that fosters and inspires innovative and creative pursuit of new solutions in our leaders, our stalwart caregivers and seekers, and especially our young rising stars who train in the arts of heart and lung care or the depths of science from molecules to populations.

PROVIDENCE
HEART + LUNG INSTITUTE
AT ST. PAUL'S HOSPITAL
New solutions for health

Research saving lives

The Providence Heart + Lung Institute delivers on a 60-year legacy of innovation in heart and lung research and care at St. Paul's Hospital. From the creation of the only Canadian heart-lung machine, to redefinition of quality of education for patients with chronic lung disease, to the world's first minimally invasive "beating heart" surgery to replace the aortic valve, our history is filled with national and global firsts and breakthrough research.

The Institute is home to major education and training facilities for heart and lung professionals, training the caregivers and innovators of the future. We work closely with our leading academic partners, especially the University of British Columbia's Faculty of Medicine and Faculty of Science, including all the relevant departments. Our world-class heart care program provides flagship services not found elsewhere in the province. The Institute offers a full spectrum of cardiac care, from advanced programs aimed at risk reduction and prevention through to leading-edge therapies like transplantation, treatment of arrhythmias and non-invasive heart valve replacements.

An epicentre of breakthrough research poised to revolutionize how hearts and lungs are protected or restored, the Institute is also home to the UBC James Hogg Research Centre, a world-renowned centre for pulmonary and cardiovascular research supported collaboratively by the University of British Columbia's Faculty of Medicine and Providence Health Care. The Laboratory's creator and chronic obstructive lung disease (COPD) expert, Dr. James Hogg, OC, was recently elected to Canada's Medical Hall of Fame. A cornerstone of heart and lung research within the Institute and Vancouver, the Centre set the standard for studies of common causes, mechanisms and shared outcomes of heart, lung and blood vessel diseases. Spawned from the rich environment of discovery in the Centre, the Institute is now home to the PROOF Centre (Prevention of Organ Failure Centre of Excellence), an NCE-funded national multi-sectoral hub for discovery, development, commercialization and implementation of novel biomarkers to prevent, predict, diagnose, and manage heart, lung and kidney failure.

Building on strong partnerships

The Providence Heart + Lung Institute works to highlight and build partnerships that optimize heart and lung health in British Columbia. Working with other health research, teaching and care organizations, as well as private sector and government leaders, we will develop a comprehensive approach to heart and lung health.

PROOF
entre of | Centre d'
EXCELLENCE
Biomarqueurs – Solutions en soins de santé.
Biomarker solutions for health care.

Providence
HEALTH CARE

UBC

THE FRANCIS CRICK INSTITUTE

MRC UCL Imperial College London KING'S College LONDON wellcome trust CANCER RESEARCH UK

THE FRANCIS CRICK INSTITUTE

The Francis Crick Institute

John Cooper
Chief Operating Officer and Deputy CEO
The Francis Crick Institute

Jim Smith
Director
National Institute for Medical Research
Medical Research Council

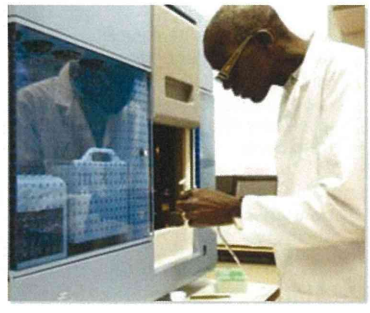
Monday 27 February 2011

2

THE FRANCIS CRICK INSTITUTE

What is The Crick?

- A world-class medical research institute striving to understand and overcome the most significant diseases affecting people today
- A partnership of:
  - Medical Research Council
  - Cancer Research UK
  - Wellcome Trust
  - UCL (University College London)
  - Imperial College London
  - King's College London



THE FRANCIS CRICK INSTITUTE

How will we achieve it?

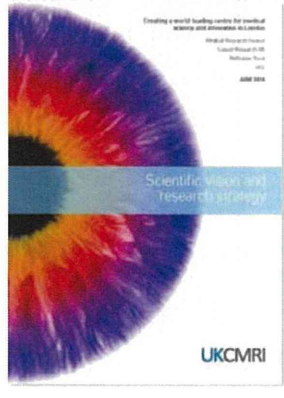
- Bring together the MRC National Institute for Medical Research and the CR-UK London Research Institute with UCL, Imperial and King's and top scientists from around the world
- Working in new and multidisciplinary ways, making discoveries to improve people's health
- Led by Sir Paul Nurse, Nobel Laureate and President of the Royal Society

THE FRANCIS CRICK INSTITUTE

The Science

We will focus on improving human health and tackling the major causes of human mortality, including:

- Cancer
- Heart and circulatory disease
- Infection
- Immunity
- Degeneration and regeneration
- Diseases of the brain and nervous system



THE FRANCIS CRICK INSTITUTE

Scientific Vision and Research Strategy

- Fundamental processes underlying human health and disease
- All areas of disease, from molecule to whole organism
- Multi-disciplinarity
- Constant refreshment of ideas and people
- Development of new technologies
- Culture supporting clinical and commercial translation
- Local, national and international networks, with academia, industry and public sector
- National role for the wider UK science base
- Engagement with the public

6

What is special about The Crick?

- World class research facilities
- Big enough for a critical mass of researchers from many disciplines to focus on major scientific areas
- Close to academic partners and hospitals
- A building that helps researchers to work together more easily and in new ways
- Long-term support for ambitious programmes
- Accelerating the development of new treatments
- Huge potential to change patients' lives

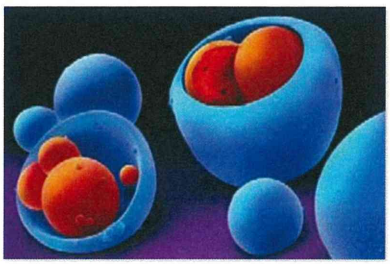
7

National benefits

- Better health, improved quality of life and increased prosperity through investment in excellent medical research
- Develop technologies and train scientists and technical staff to the highest standards, for the benefit of the wider UK biomedical science base

International benefits

- The Crick will be one of the world's leading biomedical research institutions, working to defeat the diseases that affect humankind
- It will recruit from a global pool of talent and seek opportunities to work with partners worldwide
- It will train the research leaders of the future



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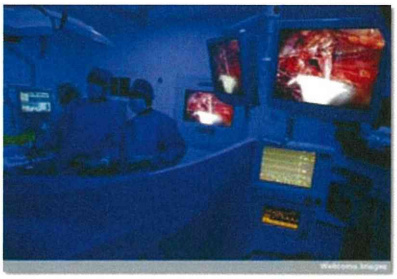
Innovation and translation

- Extensive links with clinical facilities and industry to speed up the translation of discoveries made in the laboratory into effective treatments
- Clinical and commercial translation valued as highly as discovery research



The Francis Crick Institute

The building

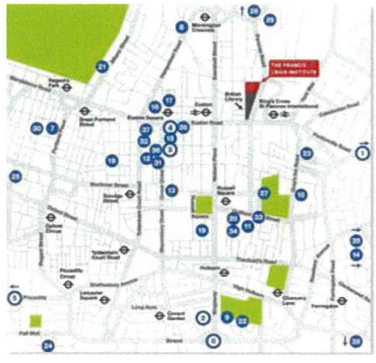
11

Why St Pancras and Somers Town?

- Camden is a centre of medical excellence—more than 30 medical research organisations nearby
- *The close proximity of clinical research facilities and faculties of other disciplines including engineering and maths is vital for the stimulation and support of translational research*

Department for Business, Innovation and Skills

- Excellent national and international transport links
- A very attractive location for the best researchers

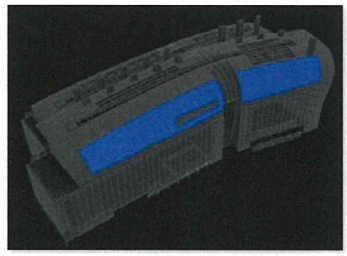


The design

- Four floors of laboratories plus plant above ground
- Space for up to 1,250 researchers plus support staff
- Much of the ground floor will have public access and be available for community use
- Focus on practical sustainability

A sustainable development

- Green principles embedded into the building design and operation:
  - On-site combined heat and power system
  - Solar panels
  - Energy-efficient fittings
  - High-quality landscape areas
  - Extensive cycle storage
- Building materials sourced to minimise environmental impact
- Building Research Establishment Environmental Assessment Methodology *Excellent* rating



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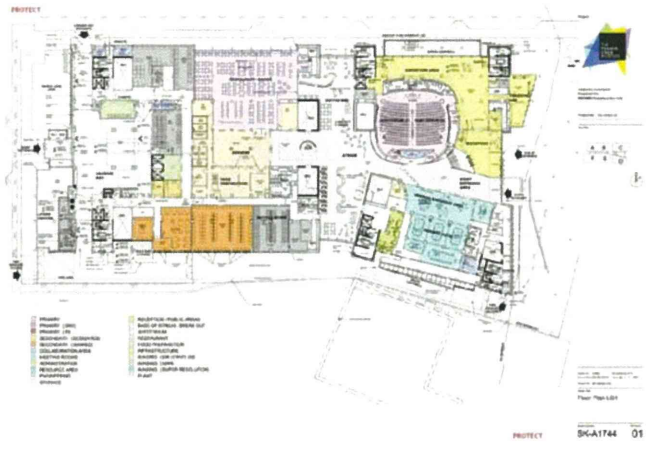
Sympathetic design

- High visual permeability
- Observable interior at street level
- One-third of the building below ground to reduce mass
- Set back on Ossulston Street to create public open space
- The tallest part of the building is away from local homes

16

Ground floor plan



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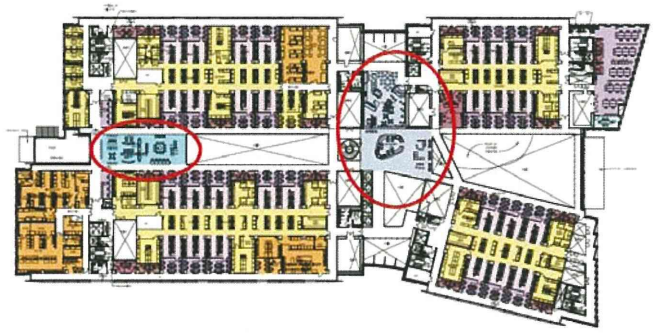
Laboratory floor plan



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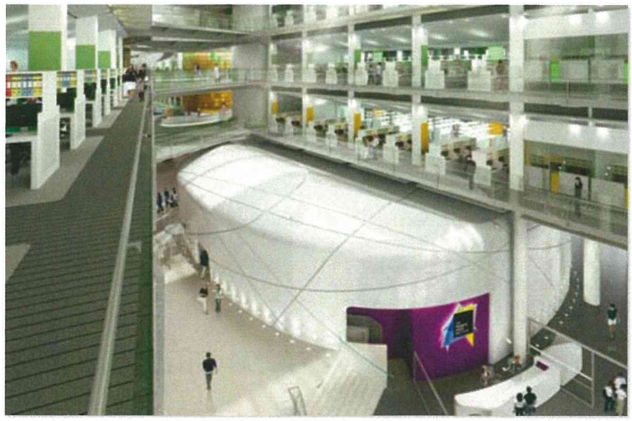


Construction

- Construction week 45 of 179
- Spring 2013—external work completed
- Spring 2015—internal works completed; staff begin to move in

The Francis Crick Institute

Public and community engagement

Education and engagement

- Auditorium and exhibition area
- A teaching laboratory with priority access for local schools
- An ambitious education programme, volunteering, mentoring and work placement schemes
- Extensive public engagement with science programme
- Support for community initiatives to improve local health and well-being

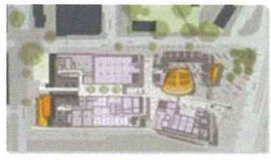
Local community

A community benefits package worth almost £10 million, including:

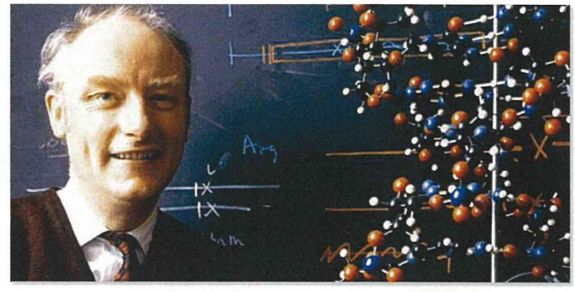
- £3.8 million towards a new district energy centre to provide residents with cheaper heat and power
- £1.7 million for insulation and other improvements to local homes
- Apprentices, job opportunities and local business support
- Improved access and community safety

Living Centre

- Help improve health and wellbeing in the local area
- 450m² space—designed and run in partnership with the community



Francis Crick



- Co-discoverer of the structure of DNA
- Really clever, open to new ideas, collaborative, interdisciplinary, asked the hard questions

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crick.ac.uk

MRC | UCL | Imperial College London | King's College London | wellcome trust | Cancer Research UK

The Max Planck

Drug Discovery & Development Center –

Bridging the •Innovation Gap•

February 2012
B. Klebl
Lead Discovery Center (LDC) Dortmund

From Bench to Bedside

Biologists
Chemists
Pharmacologists
Clinicians

Research
Development
Production

Targets — Leads — NCE — Drugs

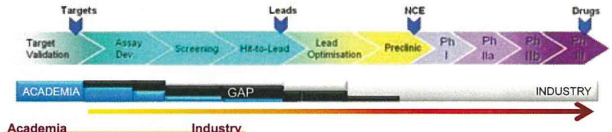
Target Validation — Assay Dev. — Screening — Hit-to-Lead — Lead Optimisation — Preclinic — Ph I — Ph IIa — Ph IIb — Ph III

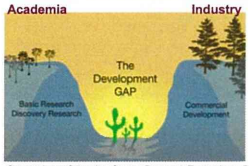
... a risky, long and winding road (~12 y, 1 Bio $)

... an interdisciplinary effort requiring various (specialised) expertises, talents, skill sets, mind sets, working attitudes, supporting functions, ...

Translation Gap

= •**Innovation Gap**□or •**Risk Gap**□or •**Finance Gap**□or □





Increased Value and Commercialisation Potential

□ •**Valley of Death**□

Source: Larry Steranka, Cancer Research Technology; Presentation at BIO 2007

Taken from M. Krebs, IMBA

Key Problem:

- **Inventions at target or hit stage cannot be licensed at reasonable terms**
- **Drug Discovery know-how is lying on the industry side**

Solution:

- **Foundation of the Lead Discovery Center GmbH**

by:

MAX-PLANCK-GESELLSCHAFT

MAX-PLANCK-GESELLSCHAFT

- 80 institutes
  16.900 employees < 6.600 scientists
- >12.000 publications p.a.; 32 nobel laureates
- additional 7.700 young & guest scientists
- ~40 institutes with life science (biomedical) oriented research programs (BMS and CPT)
- 1.73 Bio. annual research budget
- central tech transfer unit:

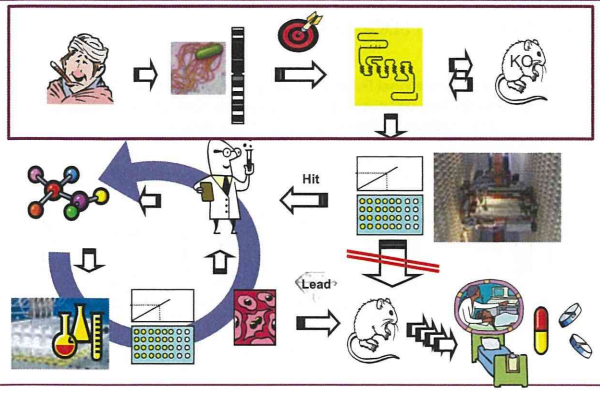
3.200 inventions
1.900 contracts
90 spin-offs

★ MP Florida Institute

Bert Klebl, LDC GmbH 24.02.2012

Why Dortmund?

Drug Discovery and Development



Paving the Way for Innovative Medicines

The Lead Discovery Center GmbH professionally transforms excellent basic research into marketable assets

Setup

- spin-off of Max-Planck-Innovation (founded 2008)
  - Location: BioMedizinZentrum Dortmund, NRW

Company profile

- 47 employees, 85% of PhDs with Pharma experience
- framework contract with Max-Planck-Society
- Industrial Advisory Board: AstraZeneca, Boehringer Ingelheim, BAYER, MERCK SERONO, NYCOMED

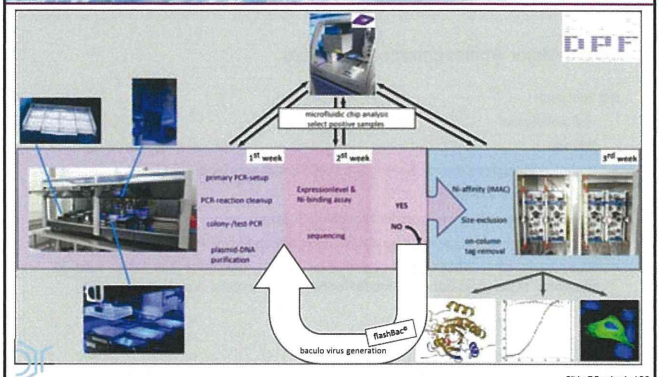
Product profile

- small molecule Lead series with PoC in animal models
- strict Lead criteria according to Industry standards

Core Competencies In-house

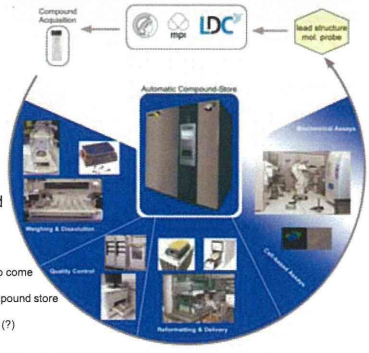
Integrated Core competencies & expertises in **small molecule drug discovery** established in-house

Dortmund Protein Facility



Slide: T.Bergbrede, LDC

COMAS



target → assay development → screening → hit

1st primary HTS completed

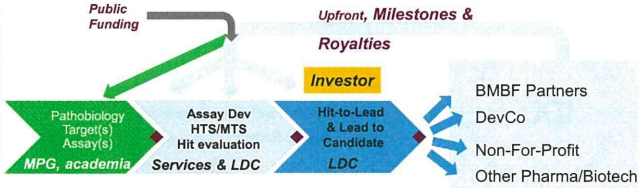
Numbers:
-~182k compounds, ~20k compounds to come
- currently @ ~35k compounds/6 hours
- scalable to increase throughput & compound store
- will move close to LDC
- proprietary: MPI-MP, LDC, other MPG (?)

Definition of LEAD = LDC Product

3 Hallmarks

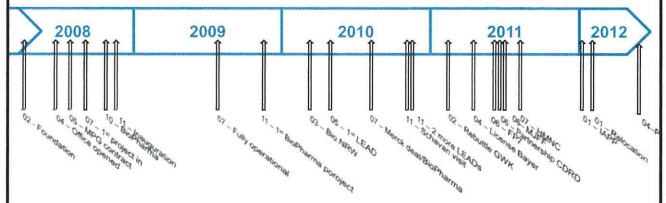
- **Interpretable proof-of-concept in a target- and disease-relevant experimental animal model** (incl. evidence that sufficient concentration of unmodified compound can reach the target long enough)
- **Plausible strategy to further improve on compound properties, potency, specificity, off-target activities, any liabilities identified,**
  - (evidence that properties can be modulated: structure-property relationships)
- **Intellectual property for Lead series secured** or •freedom to operate

Business Model for "Public/Academic" Drug Discovery



Major Milestones of LDC's Development

Established Translational Research Center (Academic Drug Discovery)
- professional drug discovery, professional commercialization, close to the Pis – unique in Germany and globally competitive



Bert Klebl, LDC GmbH 24.02.2012

LDC's Major Achievements in 4 Years

Big success!

- ~50 novel jobs
- 3 leads
- 2 early partnerships (Merck Serono & HMNC) under pre-negotiated terms
- 1 lead licensed to Bayer
- Licensing negotiations initiated for remaining 2 leads
- 2 additional projects licensed/transferred into partnerships (PP2A, FKBP51)
- Blueprint for other TRCs (e.g. expert reviews on IP-K, CDRD for their further funding, possibility to serve as franchise model for European centers *in status nascendi*)

Portfolio Project Requirements

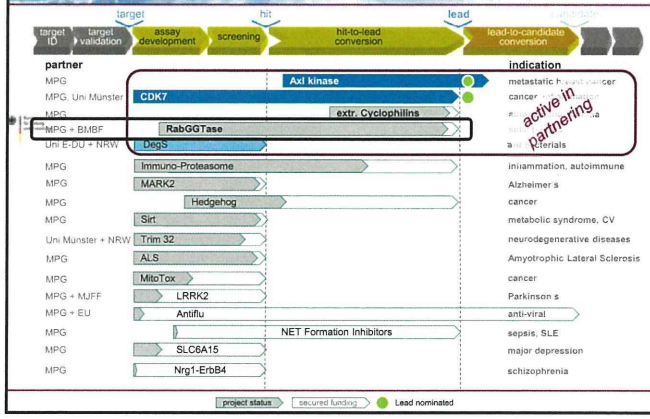
- Innovative, novel science – either (patho)biology, pharmacology or chemistry (know-how is sufficient, IP not essential at this stage)
- Medical need
- Active collaboration/support of sponsor('s group) & LDC
- Know-how in the therapeutic area(s)
- Positive vote by MPG review board or
- Funding secured (MPG, BMBF or NRW, private money, ???)

You have questions, proposals, etc.: then give us a call at 0231-9742-7000

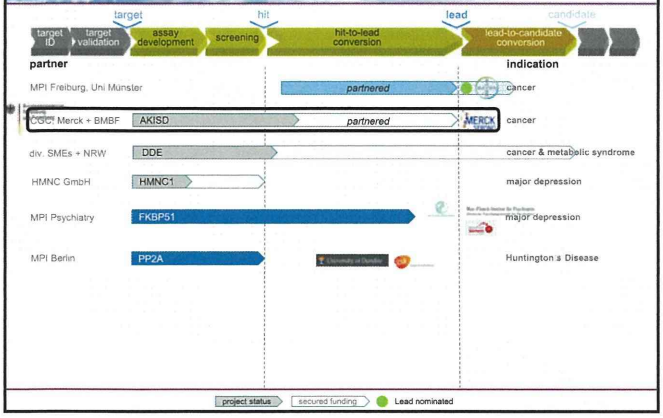
Approval Process for Academic Projects

- Currently >100 proposals w/o scouting, at different diligence levels, large proportion of MPG proposals
- MPG projects undergo a 2-way review:
  - 4/6 MPG directors review scientific content
  - LDC/MI review druggability & commercial potential
- Funding secured through MPG

Portfolio (Q1-2012)



Partnered/Licensed Projects



Validation of LDC Business Model

January 2011

Lead Discovery Center and Merck KGaA Enter Collaboration for the Discovery of Anti-Cancer Compounds

- early discovery collaboration around a novel kinase platform technology
- research funding & licensing payments

April 2011

Lead Discovery Center and Bayer enter into license agreement covering a novel pharmaceutical lead structure.

- small molecule based oncology lead (kinase inhibitor)
- upfront and milestone payments up to 137,5 m plus royalties

Linking Academia & Industry

Bundesministerium für Bildung und Forschung

Trilateral Collaboration Opportunity

to facilitate early drug discovery with an application focus

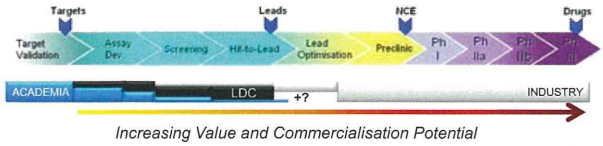
Biotech Collaboration

HolsboerMaschmeyer NeuroChemie GmbH

Scientific Basis: MPI of Psychiatry, Prof. Dr. Dr. Dr. h.c. Florian Holsboer
Goal: Personalized treatment for major depression
Model: Risk Sharing

Limitations of MPG Project Financing

- Support for basic research only = Leads/PoC
  - not all projects are expected to be licensable at lead status
- Funding is not exchangeable, dependent on administrative hurdles within MPG
- Project input from MPG & non-MPG sources (>100) -> MPG budget (6m p.a.) covers just the tip of the iceberg

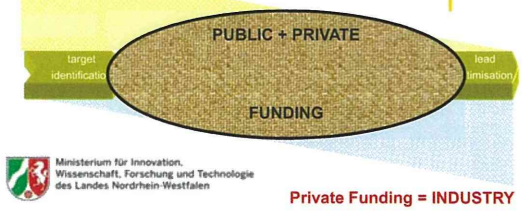


Increasing Value and Commercialisation Potential

Funding Solution for New Early Drug Discovery Paradigm

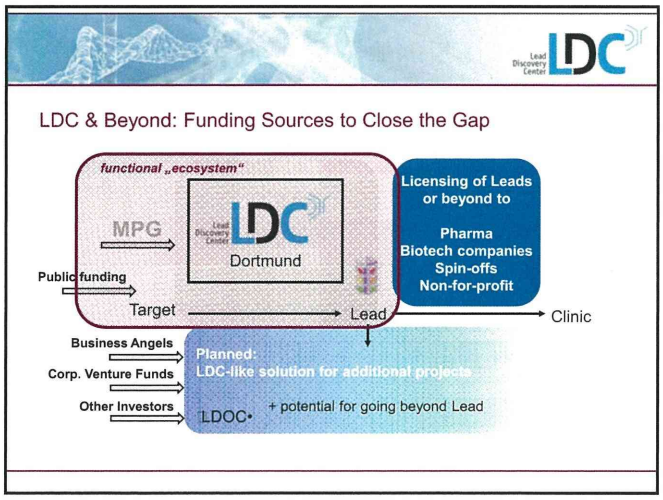
ACADEMIA = Public Funding

Bundesministerium für Bildung und Forschung



Ministerium für Innovation, Wissenschaft, Forschung und Technologie des Landes Nordrhein-Westfalen

Private Funding = INDUSTRY


LDC & Beyond: Funding Sources to Close the Gap
functional „ecosystem“
MPG
LDC
Dortmund
Public funding
Target
Lead
Clinic
Licensing of Leads
or beyond to
Pharma
Biotech companies
Spin-offs
Non-for-profit
Business Angels
Corp. Venture Funds
Other Investors
Planned:
LDC-like solution for additional projects
LDOC
+ potential for going beyond Lead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für Bildung
und Forschung
Matthias Stein-Gerlach
Max-Planck-Innovation
EXZELLENZ STIFTUNG
ZUR FÖRDERUNG DER MAX-PLANCK-GESELLSCHAFT
TechnologieZentrumDortmund
Ministerium für Innovation,
Wissenschaft und Forschung
des Landes Nordrhein-Westfalen
BIO.NRW
AstraZeneca
NYCOMED
General Assembly:
Jörn Erselius
Axel Ullrich
Herbert Waldmann
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BAYER
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Boehringer
Ingelheim

NCI's Experimental Therapeutics Program (NExT): Promoting Collaboration Between Public, Industry, and Investigator

NCI新規抗がん剤開発
産官学連携をどう進めるか
2012年3月6日

Naoko Takebe
Investigational Drug Branch
Cancer Therapy Evaluation Program
DCTD/NCI/NIH

Overview

- To introduce NCI Cancer Therapy Evaluation Program (CTEP) as an example for collaboration between Public, Industry, and Investigator in anti-cancer therapeutics development.
  - NCI CTEP Model: Promoting Investigator Initiated Clinical Trials
  - Introduction to the NCI Experimental Therapeutics (NExT) Program: Source of Anti-cancer Agent
  - Conclusion: What Can Industry-Academia-Government Cooperative Model Do?

NATIONAL CANCER INSTITUTE

Selected NCI/CTEP-sponsored Group Trials Contributing to FDA-approved Indications for New Oncology Agents

- 1991
  - **Fludarabine phosphate** (SWOG)
  - **Pentostatin** (CALGB, SWOG)
- 1992
  - **Paclitaxel** (GOG, CALGB, ECOG, NCCTG, SWOG)
- 1993
  - **Melphalan IV** (CALGB)
- 1994
  - **Pegaspargase** (POG)
- 2001
  - **Imatinib mesylate** (COG, SWOG)
- 2004
  - **Letrozole** (NCIC, Intergroup)
  - **Oxaliplatin** (NCCTG, Intergroup);
  - **Taxotere** (SWOG)
- 2005
  - **Nelarabine** (COG, CALGB)
- 2006
  - **Bevacizumab** (ECOG, Intergroup);
  - **Rituximab** (ECOG, Intergroup)
  - **Herceptin** (NSABP, NCCTG, Intergroup)
- 2008-2011 (May)
  - **Nelarabine** (COG, CALGB)
  - **Imatinib mesylate/GIST-adjuvant**(ACOSOG)
  - **Bortezomib** (MSKCC)
  - Bevacizumab/RCC (CALGB)
  - Romidepsin (NCI CCR)
  - Dasatinib (SWOG)

Updated by Sherry Ansher

NATIONAL CANCER INSTITUTE

Total CTEP R&D Agreements Executed and Active Between 1997-2008