

# Delivering a Translational Agenda in Cancer: the Development of the Centre for Clinical Haematology

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# Introduction

- The DNA revolution has transformed our understanding of the molecular basis of human cancer
- Nowhere has this been more true than in the field of leukaemia which has served in the last decade as a model for targeted therapies
- Now that we know the basis human cancer we have an unprecedented opportunity to develop new and more effective drugs
- A major emerging challenge in translating these scientific advances into clinical benefit is a lack of an early phase drug trial network

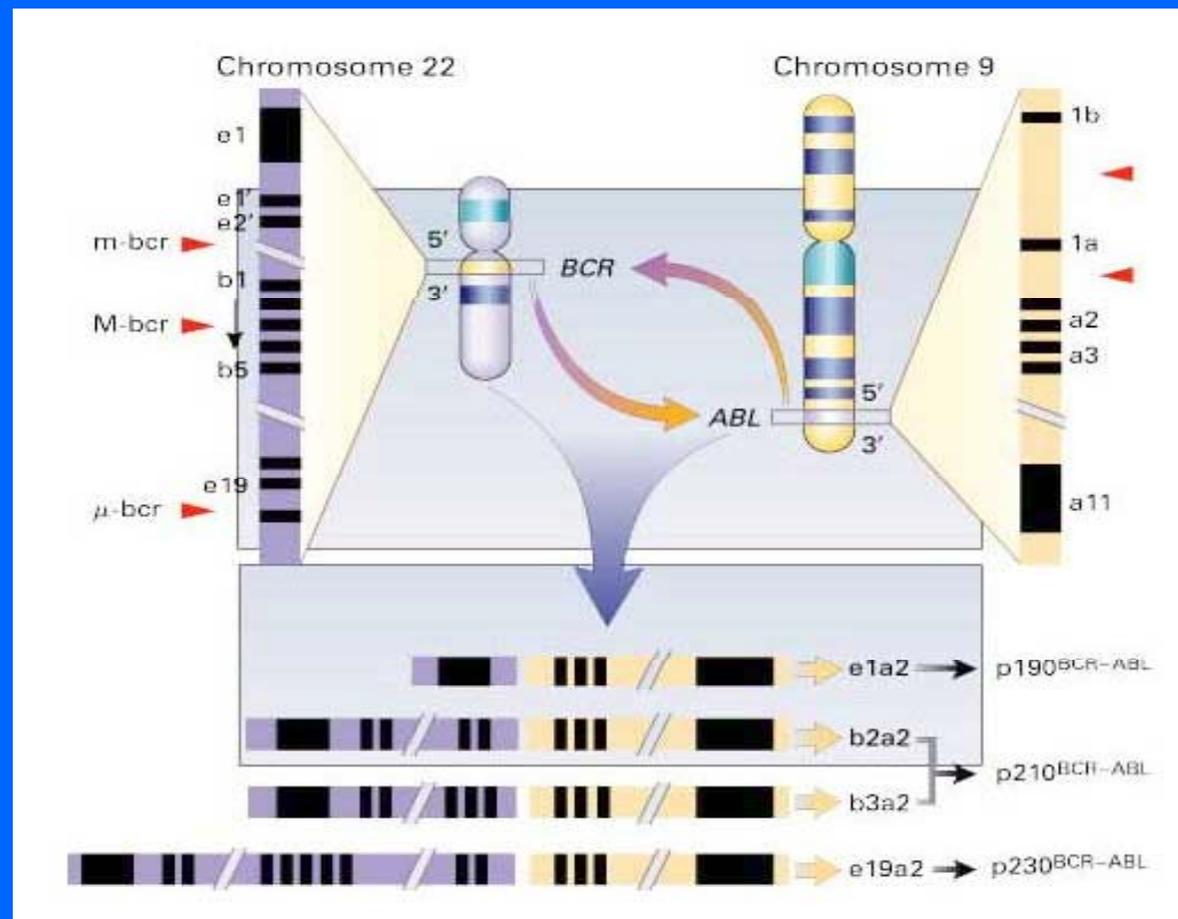
# Watson and Crick Solved the Structure of DNA in 1953



# Leukaemia is a model for translational medicine in all cancers

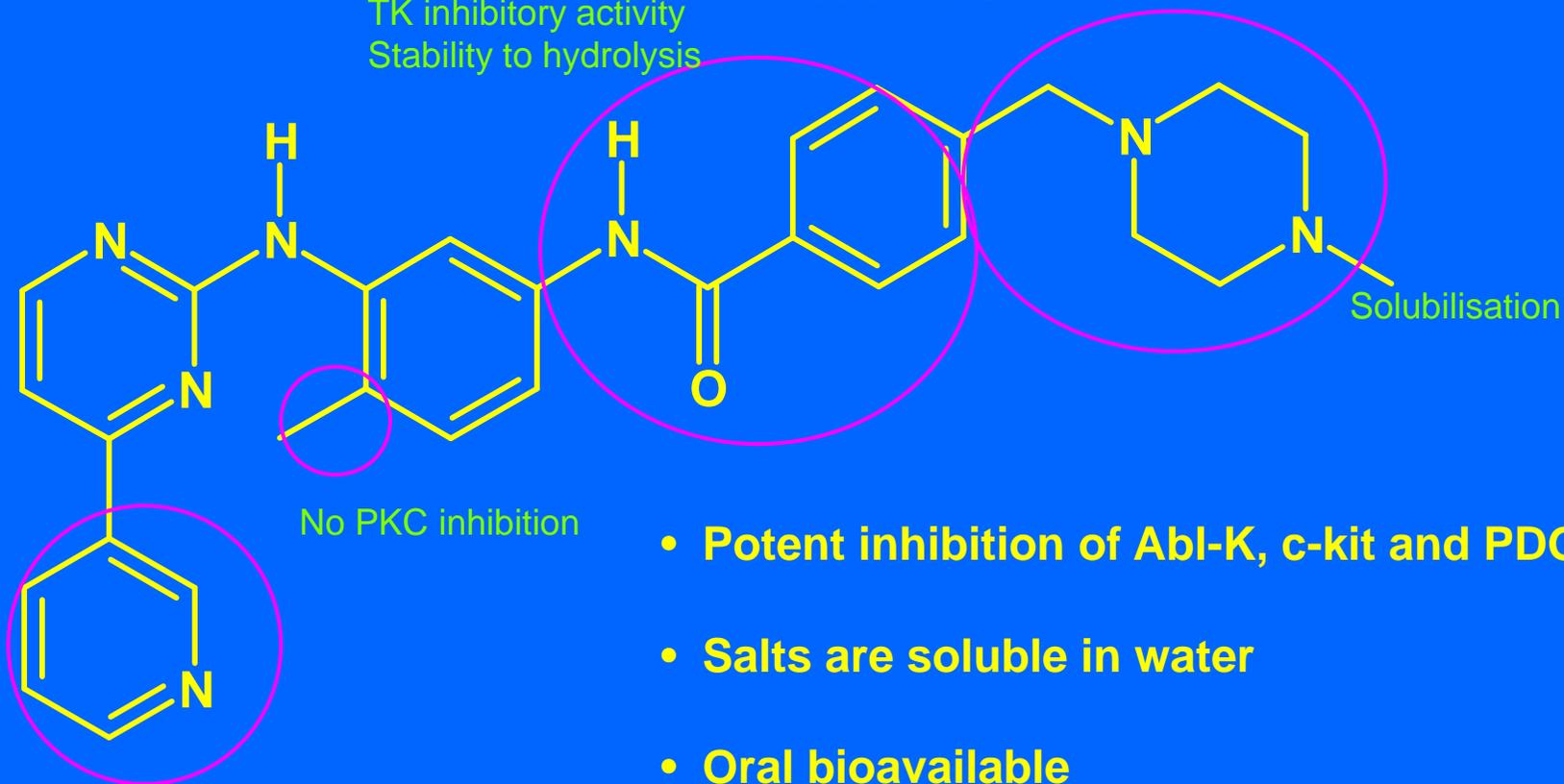
- Leukaemia is currently incurable in the majority of adults with conventional chemotherapy
- Clinical material is readily available from patients with “liquid” cancers
- As a consequence we have an unparalleled understanding of the molecular basis by which leukaemia develops
- This has allowed the development of targeted drug and transplant therapies in patients whose outlook with standard treatments is poor

# The Philadelphia chromosome t(9;22) and BCR-ABL



# CGP57148: A Phenylamino Pyrimidine Derivative

TK inhibitory activity  
Stability to hydrolysis

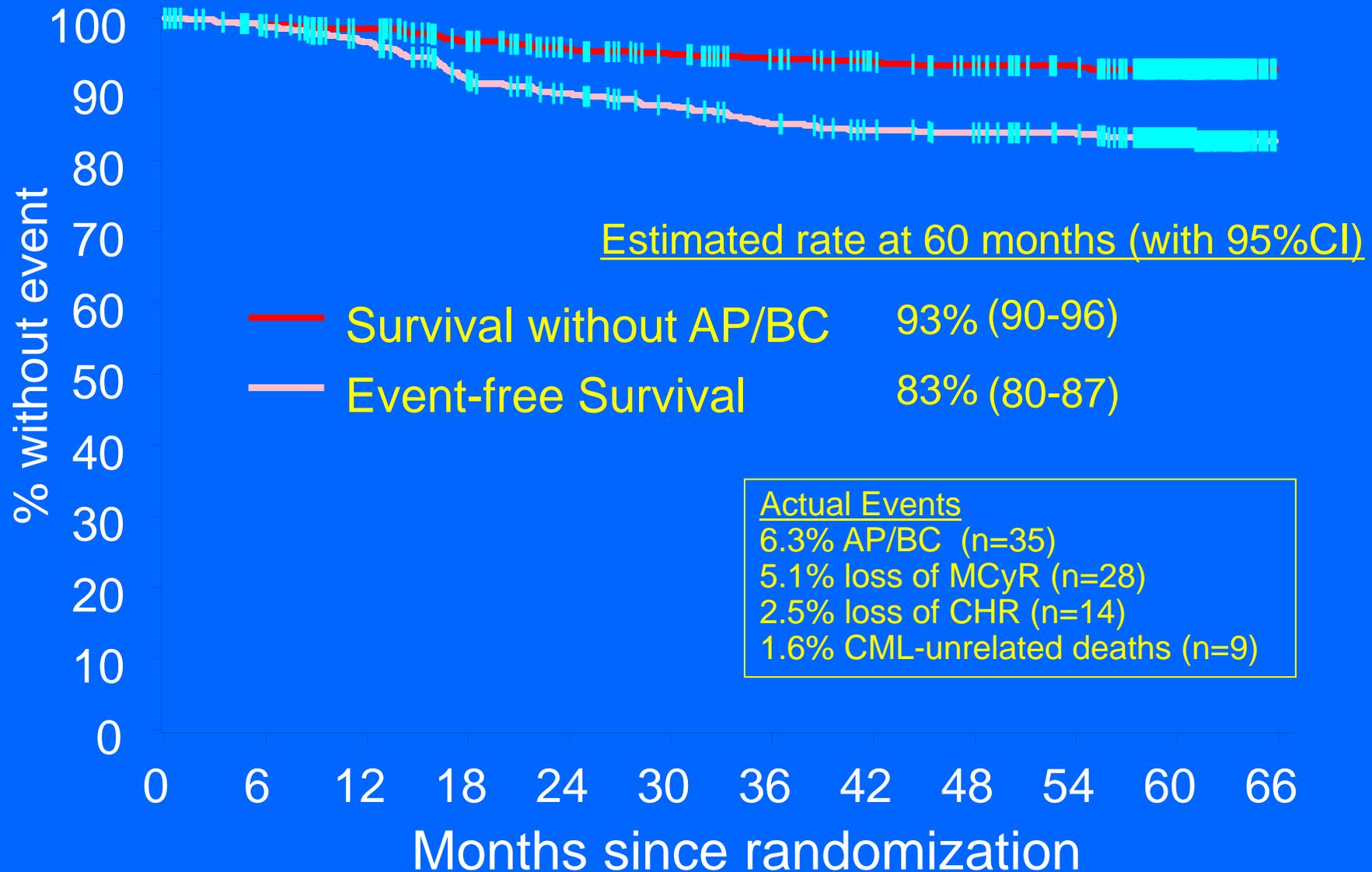


- Potent inhibition of Abl-K, c-kit and PDGF-R
- Salts are soluble in water
- Oral bioavailable
- Not mutagenic

1992

Batch 1:  
331 mg, 26 August 1992

# Event-free Survival and Survival on First-line Imatinib

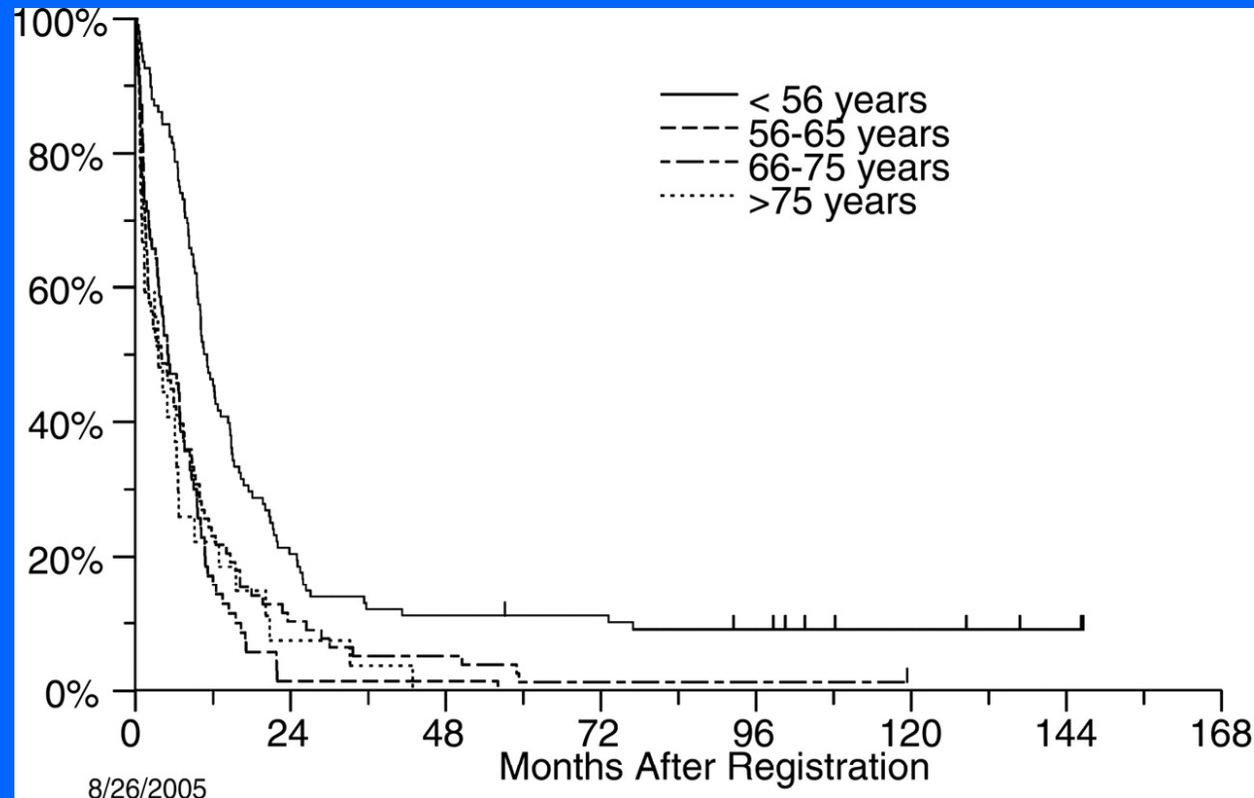


# Basic Research has Transformed Patient Outcome in CML and Confirmed the Promise of Translational Medicine



Time Magazine May 2004

# Overall Survival by age for patients with High risk acute myeloid leukaemia



Appelbaum, F. R. et al. Blood 2006;107:3481-3485

# Challenges in delivering on a translational medicine agenda

- Until recently medical research was focused on centres with basic science expertise-who often lack significant catchment areas
- This challenge applies equally in Europe and USA
- There has been minimal investment in the infrastructure required for early phase clinical trials-where it has been made it has usually been in centres with few patients
- The economic benefits of translational medicine have, until recently, been ignored

# Core requirements for develop an internationally competitive Haem-Onc Unit

- High quality clinical team
- Large catchment area
- Strong academic links
- Suitable infrastructure
- Clinical structure which allows development of specialist expertise

# Strategic Reasons for Development of a Translational Leukaemia Programme in Birmingham

- Largest catchment area in Europe
- Internationally recognised clinical teams
- Largest cancer clinical trials unit in the UK
- Outstanding basic science groups in leukaemia and immunology in University of Birmingham
- Close links with largest leukaemia diagnostic unit in Europe at Birmingham Womens Hospital
- Successful record of interaction between basic scientists and clinical service

## Development of bid to AWM

- 2001 chance encounter with Chief Exec Warwickshire County Council at Edgbaston
- 2002 David Taylor appointed by Trust as Head of Regeneration
- Discussions lead to notion of Centre for Clinical Haematology
- Chief Executive of UHBT offers ground floor of Morris House “if you can find the money”
- Nov 2002 business plan submitted to AWM
- May 2006 Centre for Clinical Haematology opened

# AWM's Defined Outputs

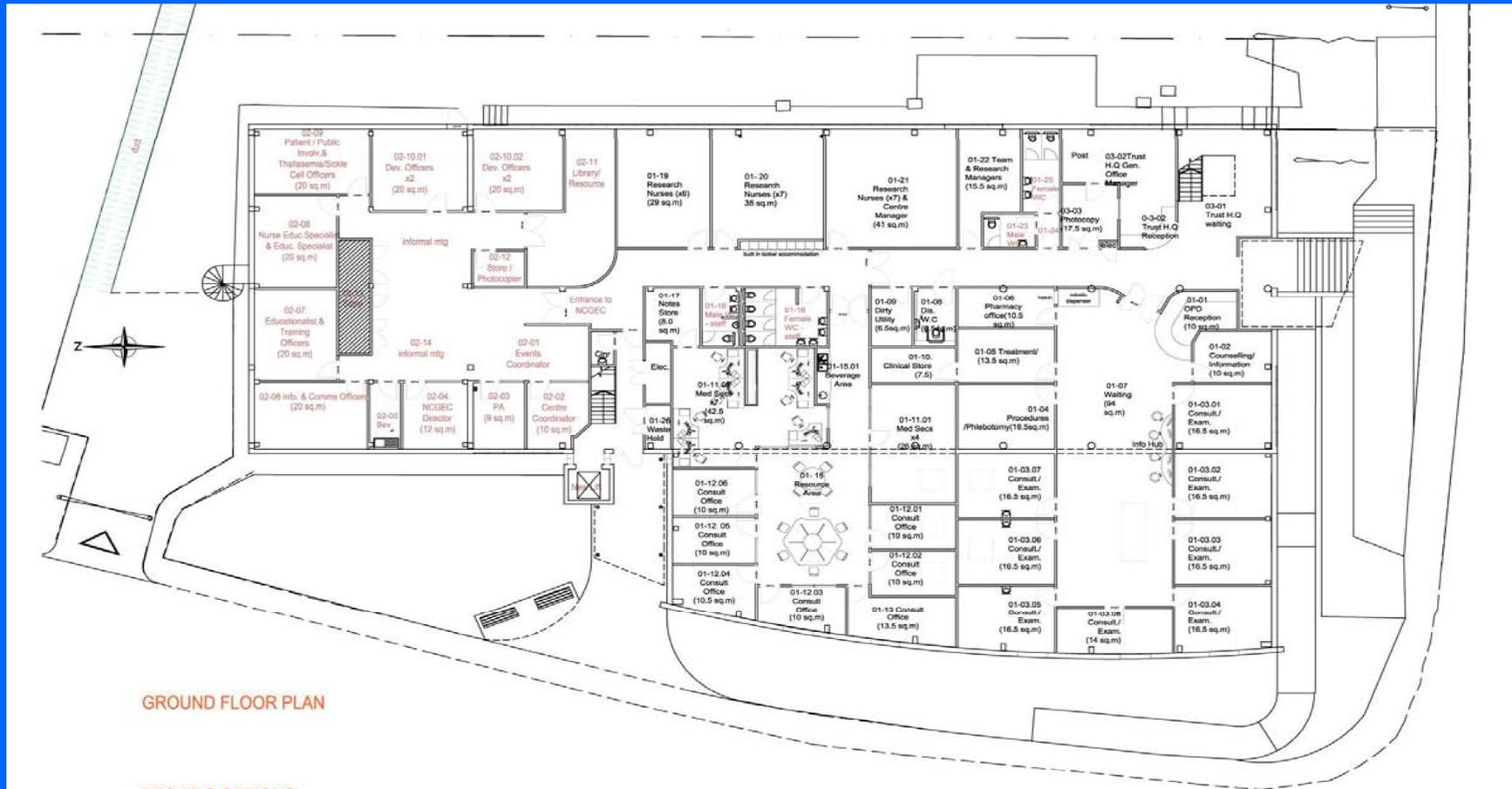
£2.2 million grant to create Centre for Clinical Haematology is dependent on:

- Creation of 105 jobs
- Trialling of 25 new drugs
- Creation of start up companies and assisting new businesses
- Establishment of regular conference programme

Failure to achieve outputs results in repayment of capital by Trust to AWM



# Internal Elevation



GROUND FLOOR PLAN

DESKING OPTIONS



# UHB - Morris House Leukaemia Centre & NHS Genetics Centres Trust: out-patient area

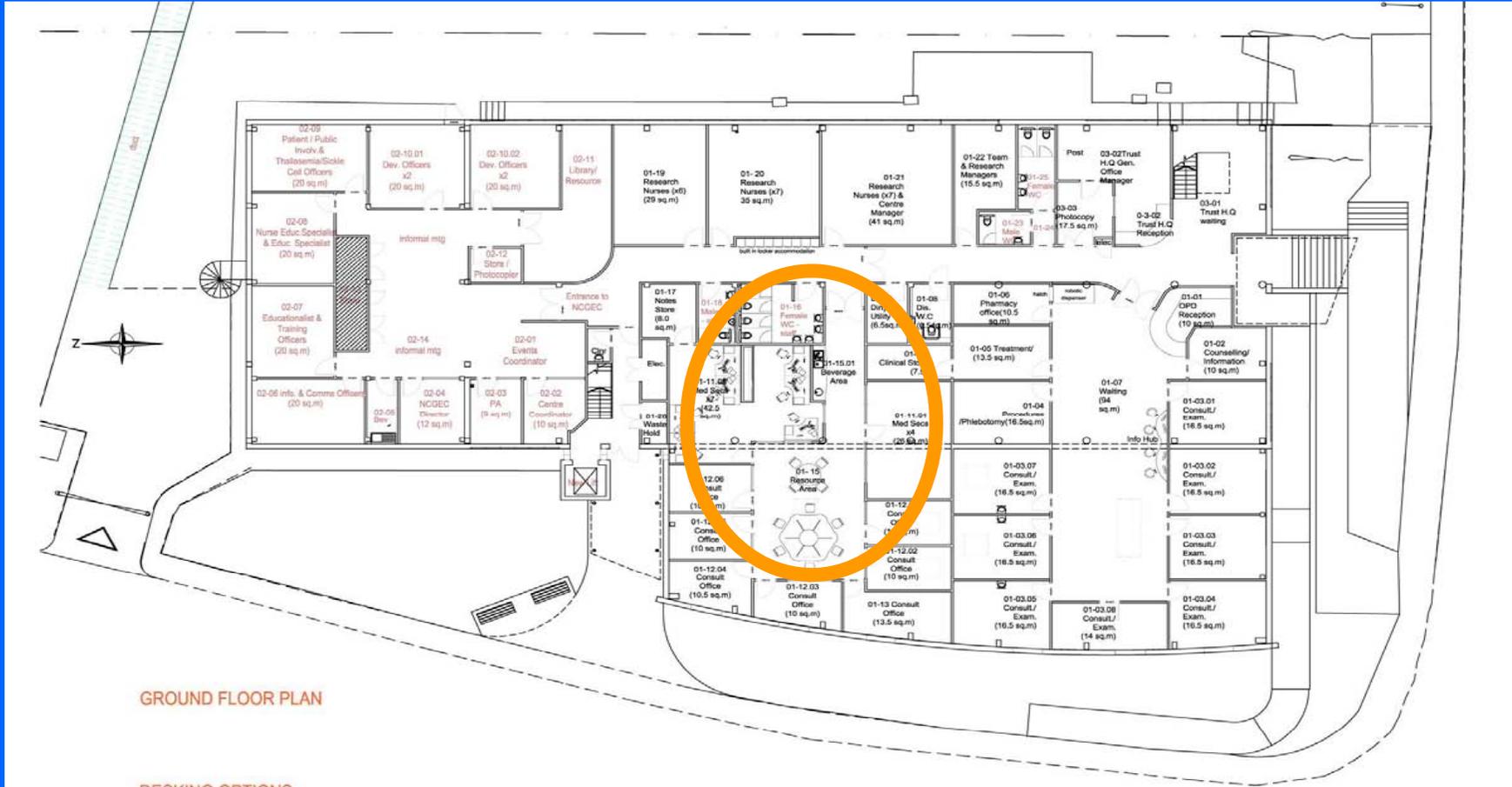


GROUND FLOOR PLAN

DESKING OPTIONS



# UHB - Morris House Leukaemia Centre & NHS Genetics Centres Trust: Clinicians Area



GROUND FLOOR PLAN

DESKING OPTIONS



# UHB - Morris House Leukaemia Centre & NHS Genetics Centres Trust: Research nurse Area



GROUND FLOOR PLAN

DESKING OPTIONS



## What has the Leukaemia Centre delivered since its opening in 2006?

- Allowed the establishment of a large internationally significant leukaemia and transplant programme with attendant scientific benefits
- Transformed clinical environment and increased clinical activity by 50%
- Created 130 new jobs
- 5 business assists
- Trialled 25 novel therapies in leukaemia
- Established Birmingham as international centre of excellence in haematological malignancies

# West Midlands Banking and Trials Infrastructure

Worcester

Hereford

Stoke on Trent

Sandwell

Dudley

Regional Research Nurse Group  
Centre for Clinical Haematology  
University Hospital  
Birmingham

Wolverhampton

Warwick

Central England Haemato-oncology  
Research Bank

Stafford

Coventry

# Friends of Cure Leukaemia



**Geoff Thomas** is a former professional footballer playing for clubs such as Nottingham Forest and Wolves who also won nine England caps and led out Crystal Palace out in the 1990 FA Cup Final against Manchester United. In remission from Chronic Myeloid Leukaemia Geoff is a great supporter of Cure Leukaemia and an active member of the Events Committee

Ashes Hero, **Ashley Giles**, is supporting Cure Leukaemia through his Benefit Year 2006 and has supported many events giving the charity great profile in doing so.



Warwickshire Cricketer, **Dougie Brown** kindly offered to co-lead one of our Sahara Treks in the Autumn amongst other support.



## Conclusions:

- Birmingham has unique national and international strategic advantages in translational medicine
- These primarily revolve around patient numbers and clinical and trialling excellence
- The last three years has demonstrated the economic benefits of an investment in translational medicine
- A Birmingham Institute of Translational Medicine has the potential to fully capitalise on Birmingham's remarkable medical research potential