

Fact finding visit at the School of Life Science, University of Dundee

Welcomed by the University's Principal Iain Gillespie, the Committee heard about the value of universities to Scotland's economy, the contribution of the University of Dundee in education and skills, research and innovation, as well as place-making ("driving economic growth and generating social impact for local and regional benefit"). Members also heard about the challenges and opportunities facing the sector particularly in relation to retaining spinout businesses. Vice Principal (Enterprise and Economic Transformation) Dr David McBeth set out the key projects at the University, whilst Interim Dean of Life Science Professor Sir Mike Ferguson outlined future developments at the university and what is needed to make it a reality. The slides used have been provided in Annexe A.

Members then toured the Drug Discovery Unit and visited the site of the Innovation Hub (currently under construction). During this time, the Members heard about the research being undertaken, the funding and partnerships important to delivering that research and the potential benefits that this research could bring to improving people's lives, contributing to Scotland's economy and translating research into innovation and potential commercial success.

The Committee heard that the Drugs Discovery Unit (DDU) has been operating for 17 years and is unique in the UK, combining not-for-profit projects with commercial activities. It involves 130 scientists, has created new candidate medicines for malaria, leishmaniasis and tuberculosis, and provided the intellectual property for six company spin outs. It receives funding from external partners such as the Gates Foundation and the Wellcome Trust and has partnerships with companies such as GlaxoSmithKline and Takeda. The DDU has top-class research facilities, with industrial standard, rather than academic level, equipment sustaining high-quality jobs, with external funding being secured due to its reputation. For some medicines, the University gives away the intellectual property to downstream not-for-profit development partners, others have a more commercial basis. The Unit works on 'next generation drugs', including a single dose drug to treat malaria which is partnered with Merck and currently at clinical trial stage in Africa, with results expected in December (currently at least three doses are required, which can lead to patients developing resistance and challenges with fully completing the treatment course).

The DDU aims to revolutionise drug discovery by making the treatment of diseases previously thought to be 'undruggable' a reality. It was noted that medicinal chemists "do the reflecting and redesigning that eventually spits out medicine". Funded through the Gates Foundation, two compounds have been developed with the potential to treat tuberculosis, which infects 10 million people a year. One compound is "looking really exciting at the moment for pre-clinical trials". One scientist said they "came here because of our global reputation" and because not many institutions are

capable of developing medicines from fundamental research. Other areas of development include neurological disorders, women's health and cancer (including acute myeloid leukaemia) where a treatment is currently in a phase 2 clinical trial in the United States. It was further noted that drugs are usually tested on men, with variability due to women's menstrual cycles often used as a selection criterion.

Alongside its innovative targets portfolio, the DDU's work also has a anti-infective strand, which provides no commercial return. Very little drug discovery has happened in the area of parasitic diseases until the DDU started working on compounds, with two potential treatments for leishmaniasis now being used in clinical trials. Only one other compound for its treatment is being developed globally. Information is shared freely across the DDU, and drugs that do not make it to human use can be explored to potentially support improved animal health.

The Committee then visited the site of the University's new Innovation Hub, which is designed to help anchor spin out companies in Dundee arising from the DDU, the University's Centre for Targeted Protein Degradation (CeTPD) and Schools of Life Sciences and Medicine, or indeed from elsewhere in Scotland. The University currently has a challenge with companies created as spin out from the University then ending up "feeding jobs in South-East England." The innovation hub will tackle that challenge by providing businesses with the space and facilities to grow. The innovation hub comprises 5,000 square metres of laboratories and office space for bio-tech and bio-pharma companies. However, a follow-on space is needed to base them in Scotland for a much longer period. The University is keen to seek some co-investment from the Scottish National Investment Bank to help develop this 'follow on' space. It was noted that there is complementarity in the areas in which Scottish universities are developing expertise, but all suffer from a lack of 'follow on' space.

Following the tour, a discussion was held with representatives from the University and Dundee City Council, to explore some of the challenges and opportunities highlighted during the visit. That discussion included--

Challenges

- Structural underfunding of research and innovation in the University sector
- Scottish HE Sector becoming less competitive (compared to universities in England) due to relatively lower funding in Scotland for Research & Innovation activities
- How to leverage private investment and venture capital into Scotland
- The Higher Education Innovation Fund (HEIF) for universities in England and Wales supports knowledge exchange and innovation at a level three times higher than the Scottish equivalent – Knowledge Exchange and Innovation Fund (KEIF).
- The costs involved in Research and Development; and the number of small companies that fail due to these early high costs
- Barriers to accessing Proof of Concept Funding to bridge the gap between promising research results and investible business cases
- UK immigration policy (including changes to postgraduate student visas) has negatively impacted on attracting researchers and their families and has led to

a drop in international student numbers (important to generating income for universities).

- Demographics in Scotland (smaller working population, bigger aging population)
- The need for consistency of support, with support for discretionary funding, upskilling and graduate apprenticeships having been withdrawn.
- Consistency of policy from the 'churn' of Scottish Government Cabinet Secretaries and Ministers.

Opportunities

- Public sector investment should be focussed on areas of high return to drive productivity, and university research and innovation has been shown to provide significant return on investment.
- The importance of Proof of Concept Funding to attract venture capital investment and company formation and the need for the 'follow on' space to retain companies in Scotland – is there a role for SNIB to be able to partner with the private sector to help provide follow on space for growing technology-based companies?
- The importance of City Deals as a partnership opportunity for UK and Scottish Governments – but are there opportunities for a greater focus on innovation and revenue funding within City Deals?
- The value and high regard for the Scottish National Innovation Strategy.
- The value of the National Strategy for Economic Transformation, although the Scottish Government Inward Investment Strategy could be more focussed.
- Need to encourage greater diversity in the people who seek to spin out and start up companies to make the most of the economic potential of the university sector's staff and students.

Business Planning Day - discussions

Public Service Reform – Minister for Public Finance

In the discussion with the Minister for Public Finance, the Committee Members explored:

- how the current financial constraints might impact on the reform programme, the Minister's views on the direction of reform and the challenges of culture change to embrace reform opportunities;
- the value of a single clear focus for reform and how the Government is engaging with and communicating its reform ambitions across the public sector;
- the extent to which the remit of the Minister empowers him to drive reform across the Government as well as the barriers to making greater progress;
- The timescales for delivering the reform programme, how to evaluate progress, and how the savings realised are then used;

- The role of the National Performance Framework and whether it drives reform in of itself and provides sufficient focus on outcomes;
- The benefits arising from the Dundee Pathfinder project were discussed, as were the enduring principles in the Christie Commission;
- The level of reporting (and transparency) once fixed term Scottish Government funding streams are completed;
- How the recently announced recruitment freeze could work in practice.

Future financial plans and timings – Cabinet Secretary for Finance and Local Government

In a wide-ranging discussion, Committee Members explored with the Cabinet Secretary:

- The financial challenges likely to inform the approach to the Scottish Budget 2025-26 and their possible impact on the Scottish Government’s general policy approach;
- The relationship so far with the newly elected UK Government and the implications of the UK Government approach to spending reviews on the provision of multiyear spending plans by the Scottish Government;
- The interaction between the public sector pay policy set by the UK Government with that of the Scottish Government;
- The possible investment approaches to support capital projects as well as the roles of the Scottish National Investment Bank and the UK Investment Bank;
- Potential impacts on the timelines of some of the Scottish Government’s forthcoming fiscal documents;
- The potential Budget timetable and how Block Grant Adjustments operate as a result of the UK Government’s spending decisions.

Latest fiscal and economic developments

The Committee received a briefing on recent Scottish Fiscal Commission publications from Professor Graeme Roy (Chair of the Scottish Fiscal Commission). The Committee also heard about recent fiscal and economic developments, including the latest Income Tax outturn data, the Chancellor’s fiscal audit, and the Finance Secretary’s emergency controls from Professor Mairi Spowage (the Committee’s budget adviser) and Ross Burnside from the Financial Scrutiny Unit (Scottish Parliament Information Centre).

Future work programme

The Committee considered its longer-term future work programme as well as aspects of its approach to current inquiries.



University
of Dundee

Visit of the Finance and Public Administration Committee

29 August 2024

What are Universities for?



Education and Skills

Provide skills, knowledge and values to enable individuals to fulfil their potential and contribute to society



Research and Innovation

Develop new thinking, products and systems through research and innovation activity



Place Making

Driving economic growth and generating social impact for local and regional benefit

Economic contribution

- In 2020/21 we supported **£449 million Gross Value Added (GVA)** and **6,760 jobs** in Dundee City
- This translates into **£1.6 billion** and **16,070 jobs globally**
- **1 in every 12 jobs** in Dundee is supported by the University's activities. That's **7% of all high-skilled jobs** in Dundee City
- We generate **£10 of GVA for every £1 from the Scottish Government**
- In 2020/21 international students spent **£35 million** in the City



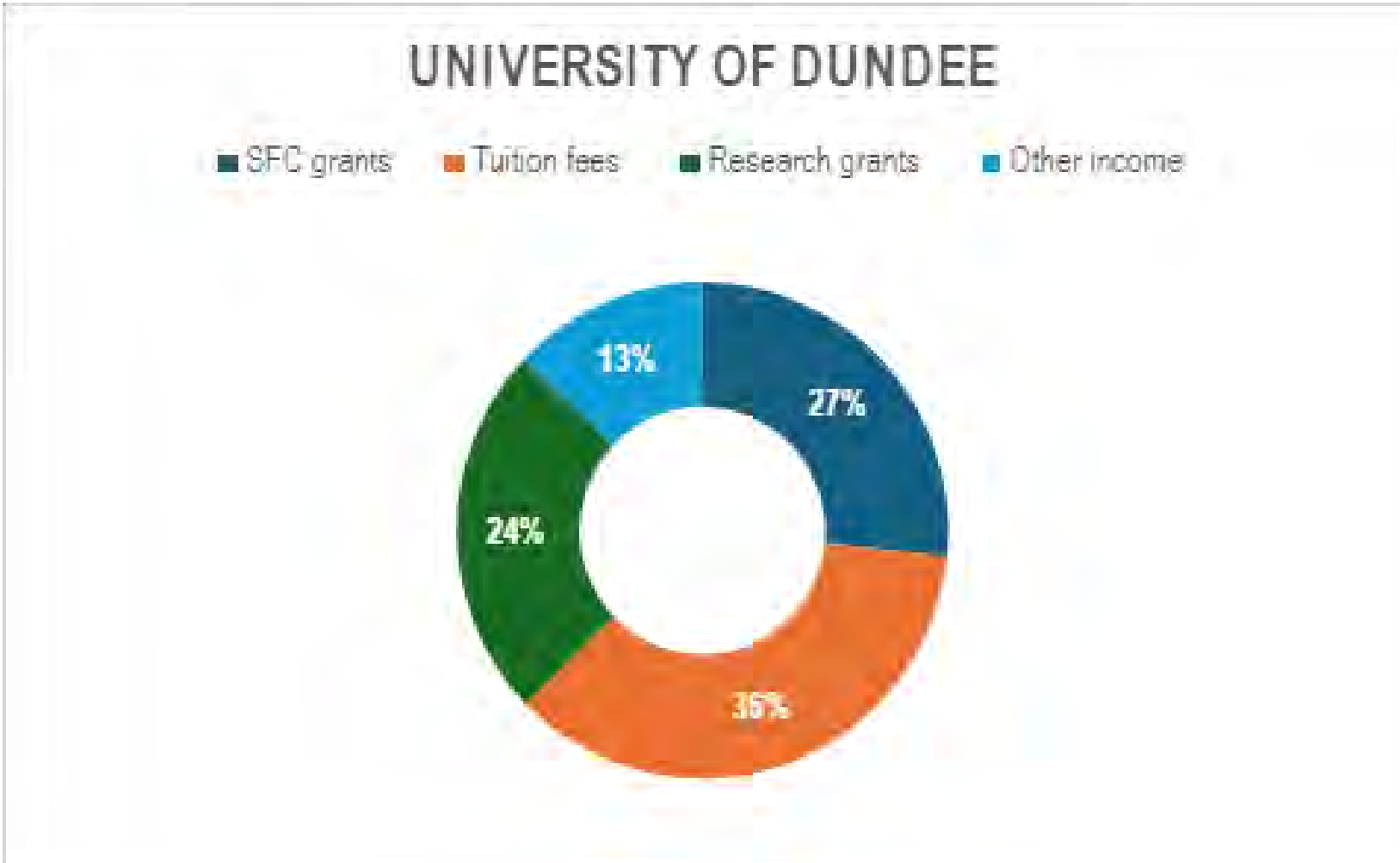
The value of enterprise and commercialisation in HE

- To boost **research collaboration** and **intensity**
- To **demonstrate impact** from the research carried out by the University
- To develop opportunities for our **highly-skilled graduates**, **retain graduate talent** in our Region, and **increase national fiscal returns**
- To **attract** and **retain entrepreneurial** and **externally-engaged academic** and **research staff**
- To **generate financial returns** (exit events, license fees, milestone payments, royalties etc)



- ✓ *University of Dundee rated **number 1 in Life Sciences two REF exercises in a row (REF2024, REF2021)***
- ✓ *University of Dundee named **number 1 in UK for spinout success (Octopus Ventures)***
- ✓ *Total **economic impact** associated with the **School of Life Sciences'** and the **School of Medicine's** research activities in 2021-22 **stands at approximately £497 million (London Economics)***

How are Universities funded?



- SFC Grants
- Tuition Fees
- Research grants
- Other income



Investment into the Tay Cities Regional Deal

Growing the Tay Cities Biomedical Cluster	
Total estimated costs	£46m
University of Dundee investment	£11m
Tay Cities Deal (Scottish Government)	£25m
Scottish Enterprise	£8m
Other	£2m



The University is contributing c.24% of the overall Biomedical Cluster capital costs



Universities have to do more with less to deliver their mission

- There has been a considerable increase in the overall financial risk of Universities and is likely to continue into 2024
- Driven by rising deficits , high inflation, and interest rates, weakening international student growth, and increasing marginal (real terms) losses per home student
- Universities have to rely on cross subsidisation to deliver on our teaching and research
- **In a tough financial landscape, targeted capital investment is required to allow Universities to generate innovation, productivity, growth and deliver high value skills, all fundamental to growing our economy**



UK international postgraduate recruitment 'slumps 44 per cent'

WONKHE

ABOUT US• EVENTS LATEST• JOBS• SUBSCRIPTION• SUS• X Q

Will international recruitment fall even further?

Jim Dickinson reviews the latest official immigration figures - and finds an international education sector in the throes of a rapid and painful contraction

COMMENT | 29/02/24

WONKHE **Avoiding another international crash is all about control**



Dundee

Life Sciences Innovation District

To harness our world-class life sciences research and innovation, accelerating its translation into economic growth and global health impact.



Ambition

Deliver a thriving environment that:

- Enables translation of world-class life sciences research into health and economic benefit
- Provides Life Sciences career opportunities for local and global talent
- Provides the infrastructure and business support for company creation, incubation, scale up to stand alone, anchoring the jobs they create for regional benefit.
- Supports partnerships with industry and attracts inward investment.
- Boosts Scottish life sciences competitiveness.



Economic and health impact: Growing the Tay Cities Biomedical Cluster

Innovation led growth in the regional health and life sciences cluster.

Key elements:

- New 5000sqm Life Sciences Innovation Hub providing transformative laboratory and office space to enable life sciences companies to grow, scale and thrive.
- Refurbishment Medical Technology facilities at the School of Medicine for clinically informed development and testing of emerging medical technologies.
- Project forecast to deliver Net Public Value of £193m
- Inward private sector investment £120m and 800 jobs over 30 years



Life Sciences Innovation Hub – opening Spring 2025



MedTech R&D innovation at School of Medicine



“At the University of Dundee we are opening new areas of research and drug discovery. This is new territory and a world-changing idea. We’re breaking the rules of what we thought would be druggable.”



Economic and health impact: Centre for Targeted Protein Degradation

Dundee pioneering discoveries and next generation therapeutics

- Global market > 4Bn in investment since 2016.
- Dundee led research driving adoption of this technology across the world.

Key elements:

- £5m capital investment from the University
- Over £36m of capital and R&D programme investment from international industry and other partners.
- Currently ~65 skilled professionals from ~ 30 nationalities.
- Centre Director also founder of Amphista Therapeutics (\$53M Series B funding (2021))

Will unlock new drug treatments for many diseases previously considered ‘undruggable’.

Benefits to the regional economy through FDI and job creation.



Centre for Targeted
Protein Degradation
University of Dundee

innovate
collaborate
inspire



erc

European Research Council
Established by the European Commission



EUBOPEN

Enabling & Unleashing Energy in the Open



wellcome



BBSRC
bioscience for the future



almirall



Boehringer
Ingelheim



UKRI
Medical
Research
Council



ONO



HORIZON
2020



medical
research
scotland
FUNDING A HEALTHIER FUTURE



TOCRIS
a biotechne brand



How can Scotland convert more innovation into economic benefit?

The good news

Scotland's HEIs are disproportionately successful in securing competitive peer-reviewed research funding for Bioscience and Clinical Medicine

Scotland's population,		8.2% of UK	
Share of UK Bioscience Research,		22.6%	[2.8X]*
Share of UK Clinical Research	10.0%	[1.2X]*	

- this generates the discoveries that are the raw material for innovation and commercialisation

The bad news

Scotland's share of UK R&D Credits	6%
Scotland's share of UK Life Sciences business	6%



*HESA data

We are not so good as a nation at commercialization and job creation- why is that?

What's missing and what's the fix?

Proof of concept funding - Increasing commercialisation of life sciences research from Universities for economic growth

Match 1% of Scotland's competitively won Life Sciences R&D budget with an Innovation to Investible Asset (PoC) accelerator (£5m pa).

Currently no funding agency is paying for this missing step

- Scottish HEIs nominate their best Life Sciences projects for PoC support
- Fund best 50% to get assets investment-ready
- Expect 50% success for those assets raising investment within 2 years.
- At steady state Fund forecast to yield >£200m pa investment >250 new Scottish jobs pa.
- Invite trusted private sector VCs to participate in project selection – they may co-invest in some at the outset, increasing the fund, or invest post-PoC.

Net result: Economic benefit from more life sciences invested companies arising from Scottish HEI research and innovation.



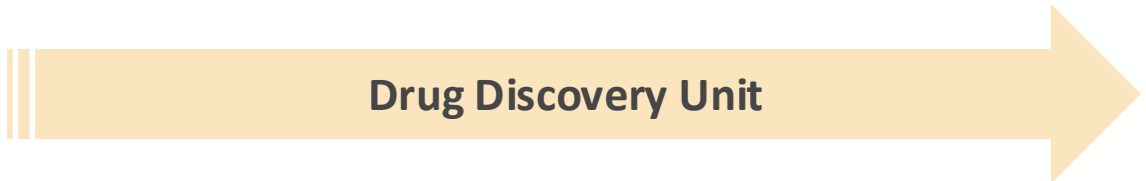
An Innovation to Investible Asset (PoC) fund is needed to counter investor-bias towards SE England.

Tour today: The Drug Discovery Unit

Translating academic research for unmet medical need through innovation and collaboration



Fundamental & disease biology



New candidate drugs for diseases areas such as malaria, TB, neurodegeneration and cancer

Key numbers

6 compounds in clinical development	130 experienced translational scientists	9 assets licensed to pharmaceutical companies
6 new companies enabled with DDU assets	>£100m secured in research funding	



Thank you. Questions?

