

# APPG on Human-Relevant Science Meeting

17 April 2024 | 11am | Minutes

*Location: Room P, Portcullis House*

<b>Parliamentarians in Attendance</b>	Martyn Day MP (Chair), Alison Thewliss MP, Baroness Sue Hayman, Baroness Natalie Bennett, Ben Bradshaw MP
<b>Attendees</b>	Isobel Martin (Animal Free Research UK), Darcie Wilson (Animal Free Research UK), Paul-Enguerrand Fady (Office of Baroness Natalie Bennett), Chris Fegan (Office of Baroness Sue Hayman), Jessie Hellier (FRAME), Lottie Howell (Office of George Eustice)
<b>Apologies</b>	Alex Sobel, Allan Dorans, Caroline Lucas, Elliot Colburn, Fabian Hamilton, George Eustice, Henry Smith, Jess Phillips, Kenny MacAskill, Kerry McCarthy, Kim Johnson, Liz Saville Roberts, Luke Pollard, Patricia Gibson, Pauline Latham, Peter Dowd, Ruth Jones, Sarah Champion, Sir Peter Bottomley, Sir Robert Buckland, Sir Roger Gale, Tan Dhesi, Tracey Crouch, Virginia Crosbie, Lord Foulkes of Cumnock, Alex Davies-Jones, Cat Smith, Feryal Clark, Flick Drummond, Grahame Morris, Karin Smyth, Michael Fabricant, Dr Dan Poulter, Greg Clark, Sir Greg Knight, Greg Smith, Nigel Huddleston, Lord Inglewood, Selaine Saxby, Steve McCabe, Lord Randall, Nickie Aiken
<b>Online attendees</b>	Professor Geoff Pilkington, Rebecca Ram (Safer Medicines), Dylan Underhill (Cruelty Free International), Gemma Davies (Animal Free Research UK), Amy Beale (FRAME), Kathy Archibald (Safer Medicines)

## 1. Speaker: Dr Laura Bramwell

Dr Laura Bramwell, from the University of Exeter Medical School, was the inaugural PhD student in Animal Free Research UK's Animal Replacement Centre of Excellence 2.0. Now a postdoctoral researcher, Dr Bramwell has recently published her research into drug repurposing for ageing and age-related disease, which she presented during this meeting to illustrate the effectiveness of human-relevant techniques.

The slides are available. Key points outlined below:

- LB stated that the leaky clinical trial pipeline sees a 90% failure rate of drugs in clinical development, with 40-50% failing due to clinical efficacy, 30% due to overt toxicity, and the remainder due to poor drug candidacy or lack of commercial interest. If the human-relevance of research was improved, there would be fewer wasted resources, less animal research, a quicker time from bench to bedside and more patients helped.
- 1 in 5 people currently alive will reach their 100<sup>th</sup> birthday, presenting economic and health challenges to the UK. It is therefore vital to study the underlying common contributory mechanisms and causes of age-related diseases such as dementia, diabetes and cardiovascular disease.
- In her research, LB used human relevant techniques such as drug repurposing (putting an existing available drug back into a basic research model to see if it can be used for a different purpose), in vitro screening (outside of a living organism) and in silico analysis (computer-based).
- LB's research presented the below key findings:
  - o Drug repurposing can be useful for identifying potential therapies for age-related disease
  - o Female hormones (oestrogen and progesterone) may influence ageing pathways
  - o Any 'anti-ageing' effects observed in a model could be influenced by the donor of the cells' characteristics (e.g. sex). In fact, this research found that the anti-ageing effect of female hormones only existed in male cells.
    - NB: Would it be possible to have a number of cell lines to account for different characteristics to determine their effect?
    - LB: With three months needed to establish cell lines in my laboratory, time and cost are limiting factors.
    - NB: Once a cell line is established, can it keep going indefinitely?
    - LB: Some cell lines are immortalised but for this particular research, the cells need to age.

- In silico structure-function analyses can identify chemical signatures, which could be used to screen large databases of molecules.
- To conclude, LB noted that drug repurposing means drugs do not need to undergo toxicity testing in animals, improved in vitro models would result in more efficiency in the early stages of the pipeline, and in silico screening will bring greater efficiency in identifying drug candidate compounds.

#### Discussion:

- SH: There is an utter inefficiency in the way things are done at the moment. Why are drug companies, that are profit-driven, not using and championing more efficient research methods?
  - LB: It takes upfront cash investment to develop these new technologies which may be preventing action.
- SH: Are there any drug companies that are leading the way with this?
  - IM: We are not aware of any drug companies that are solely transitioning to animal free research, though we're aware that lots of human-relevant techniques are being used within the pharmaceutical industry.
- SH: We need a change in law and a refocus of funding from Government, but we need a driver. How can I push that forward?
  - IM: Raising awareness about the fact that technically there is no legal requirement for testing on animals as confirmed by the DHSC is key, while also recognising that animal use is culturally embedded.
- NB: Thinking of culture, is there an argument for funding re-training for researchers in human-relevant techniques?
  - IM: This is one of Animal Free Research UK's shorter-term policy recommendations. Our longer-term recommendation is to introduce legislation to accelerate the transition to animal free research. The 'Human-Specific Technologies Act' – or 'Herbie's Law' – would provide a framework for this, following the example of the Climate Change Act.
- PEF: ABPI's policy on this issue is likely to be influential, so a meeting with them could be useful.
- SH: Establishing structures with companies that may be open to this would send a signal to the wider sector that this is the future.
- NB: In this sector, the UK truly could be world-leading.
  - SH: We have a strong life sciences sector in the UK, particularly in Scotland, where we could drive this forward.
- LH: George Eustice is eager to push for imposing a levy on animals used. Does this group think that the carrot or stick approach would be more effective in replacing animals?
  - LB: Personally, positive incentives would be a more effective method.
- NB: How does the serum that is used to grow the cells make the results more human-relevant?
  - LB: This is due to "species interference". The cells might be reacting to the presence of a different cell species when Foetal Bovine Serum (FBS) is used. Serum from adult humans was used in this anti-ageing research as humans do not have proteins found in cow's blood, which are present in FBS.
- DU: We often hear the response from policymakers that they would love to end the use of animals in science but we need to wait for a full list of alternatives. You clearly have demonstrated with your work that there is a lot that can be done already under the existing framework. Do you have any thoughts about what else we can and should be doing in the short term to reduce our use of animals in science?
  - LB: Drug repurposing is efficient, human-relevant and can be used as extra evidence as well as amplification. Pharma companies could be using these results as well as animal results in the short term to reduce animal use.
- DU: Ageing research and in particular the search for anti-ageing and longevity is in vogue and would appear to have great potential as a growth sector. In your view are there any other areas in which animal-free human relevant science could have a boosting or multiplying effect on a key area of science?

- LB: In my opinion, obesity, mental health and ageing are the three key areas where human-relevant research is needed. For example, mice are being used to study autism, yet, as a species, they are not able to experience autism. It is therefore a fallacy that they are continually used in research in this area, and human-relevant alternatives are urgently needed.
- NB: How does the microbiome affect those key areas?
  - LB: At the moment we do not know, but it is a very interesting and important emerging area that demands further research.

## 2. AOB

There was no other business, and the meeting was closed by the Chair.

### **Actions**

Write and circulate minutes and actions	IM, DW
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