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Public involvement insight report:

Proposed Adipose Tissue Bradykinin Receptor-1 as a New Potential Treatment for Type 2 Diabetes project

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Background

Imperial Biomedical Research Centre

The Imperial Biomedical Research Centre (BRC) is a collaboration between Imperial College London (Imperial) and Imperial College Healthcare NHS Trust, which is funded by a five-year infrastructure grant from the National Institute for Health and Care (NIHR) until November 2027. The Imperial BRC supports 14 areas of research focus, including a Respiratory research theme, as well as a number of core facilities.

The Patient Experience Research Centre

The Patient Experience Research Centre (PERC) is a core facility of the Imperial BRC, which undertakes research on involvement in and engagement with translational research and leads on implementing the Imperial BRC Patient, Public, Involvement, Engagement and Participation (PPIEP) in research Strategy.

Public involvement and engagement in research

The NIHR define public involvement in research as "research being carried out 'with' or 'by' members of the public, rather than 'to', 'about', or 'for' them."

The NIHR define public engagement in research as where information and knowledge about research is provided and disseminated.

Public includes patients, carers, people from underserved communities, and individuals with lived experience of health conditions, whether they are current patients or not.[1]

Proposed Research- Bradykinin B1 Receptor and Type 2 Diabetes

Dr Ben Jones, Clinical Associate Professor in Metabolic Medicine, Imperial College London; Dr Alice Pollard, Research Associate at the Institute of Clinical Sciences, Faculty of Medicine, Imperial College London; and Professor Tricia Tan, Consultant in Diabetes, Endocrinology and Metabolic Medicine at Imperial College London and NHS Trust are applying for the Black Leaders in Diabetes PhD Studentship Scheme with Diabetes UK to support Cyndy Appiah, an MRes Clinical Research (Diabetes and Obesity stream) student at Imperial College London. The project is looking at novel ways to treat type 2 diabetes.

Lay summary

Diabetes can happen when the body is not able to fully control levels of glucose (sugar) circulating in the blood. One of the reasons why this can happen is that fat tissue stops responding to the hormone insulin; this "insulin resistance" mainly affects people living with type 2 diabetes.

[1] https://www.nihr.ac.uk/documents/briefing-notes-for-researchers-public-involvement-in-nhs-health-and-social-care-research/27371#definitions-of-involvement-engagement-and-participation

In this project we hope to investigate the possibility of targeting a specific "receptor" - the B1 bradykinin receptor - in fat tissue as a new potential treatment for people living with type 2 diabetes. It is already known that drugs that block this receptor can reduce inflammation and insulin resistance in studies done in mice, but it is not currently known whether this would work in people. However, our preliminary results show that this receptor is found in human fat, raising the possibility that it could be a good treatment target.

In this PhD project, which we are hoping will be supported by Diabetes UK, we plan to perform experiments using a new model of human fat that can be grown in the lab, aiming to understand exactly how B1 bradykinin receptors work and to find out whether this is indeed likely to be a good way to treat people living with type 2 diabetes.

All the experiments will be laboratory based, i.e. we will not be recruiting people with diabetes as part of the study. However, the fat tissue we will use has been collected as part of a different study that specifically focuses on people with type 2 diabetes and/or insulin resistance.

Approach and purpose

To help ensure the research proposal reflected what matters most to people with lived experience, PERC facilitated an online discussion session with community partners living with type 2 diabetes and/or weight management conditions, as well as partners with experience of leading community groups.

The session was held in conjunction with a broader discussion on the overarching programme of work, Multimodal Modelling of Adipose Tissue Across Populations to Drive Therapeutic Interventions for Cardiometabolic Disease, which focuses on understanding how fat supports health across different populations. This provided community partners with the wider context for the second project, which was the primary focus of feedback for this report.

The second project, Adipose Tissue Bradykinin Receptor-1 as a New Potential Treatment for Type 2 Diabetes, is being developed as part of a PhD studentship application to Diabetes UK, led by Dr Alice Pollard, Dr Ben Jones, and Professor Tricia Tan at Imperial College London, with Cindy Appiah, MRes Clinical Research student at Imperial College London, as the proposed PhD candidate. Both projects use the same fat organoid technology, a method of growing fat cells from fat stem cells found in adipose tissue samples. Cyndy presented her project at the session alongside her supervisor Alice Pollard and the PERC team, giving community partners a concrete example of how the broader programme of research translates into a specific scientific question. The aim of the session was:

1. To outline the research background, explain why the project is needed, and describe how the proposed study would be conducted.
2. To seek feedback on the following aspects of the proposed study:

a. Acceptability and feasibility of the proposed plans, including the use of fat tissue samples, fat stem cells, and fat organoid technology
b. Study design, including practicality, inclusivity, and other key considerations
c. Possible barriers and motivations to participation, including trust, data security, consent, and community engagement

Session Overview

The online discussion session was held on 20th July 2026 from 5.00 pm to 7.00 pm via Zoom.

Attendees

The discussion opportunity was circulated through PERC's Imperial BRC community partner network. A total of five community partners expressed interest and took part in the session. All the participants voluntarily provided their demographic details when signing up to express interest in the discussion session, which are available in **Appendix A**.

In accordance with NIHR payment guidelines, attendees were reimbursed £55 for their time for contributing to the 2-hour session, as well as £5 for Wi-Fi/data expenses.

Feedback and Summary of actions

During the session, community partners discussed the following main themes for the Adipose Tissue Bradykinin Receptor-1 as a New Potential Treatment for Type 2 Diabetes project: the rationale for targeting fat cells as a treatment approach for type 2 diabetes and how this differs from existing treatments such as metformin and GLP-1 drugs; the relevance of the research to people who have not responded to current treatments, including lean individuals with type 2 diabetes; and the importance of including people with complex or atypical diabetes histories, such as those who developed diabetes through pregnancy or through long-term medication use.

Further discussions covered the relationship between cause and prevention in type 2 diabetes, with partners exploring how understanding the root cause of fat dysfunction could lead to earlier identification and intervention; the acceptability of laboratory-based genetic manipulation of fat cells, with partners reassured that all experiments are conducted in a laboratory setting using donated samples rather than on participants themselves; and the importance of clearly communicating the difference between treating symptoms and treating the underlying cause of disease, as partners found this framing helpful in understanding the value of the research. Partners also raised questions around possible side effects, the need for a wider range of donors beyond those with straightforward type 2 diabetes, and the importance of public education around fat function before asking communities to engage with or participate in this type of research. The detailed meeting notes, including all partner recommendations and a section for researcher response, are provided in **Appendix B.**

Recommendation/Action Table

Theme	Recommendation/Action	Researcher response
Donor Diversity	• Partners suggested the research would benefit from a wider range of donors beyond straightforward type 2 diabetes cases — including people with co-occurring conditions such as Crohn's disease or thyroid problems.	We agree that ensuring a wide range of donors is important, and this is a particular aim of our research in this area. The main criteria for donor inclusion is a diagnosis type 2 diabetes, but there is no reason why we would exclude people with Crohn's or thyroid disease. We would emphasise that Dr Pollard's broader research programme aims to build larger cohorts of samples from people living with a range of diseases, not just diabetes.
Ongoing Engagement and health literacy	• Partners agreed with researchers' interest to continue with online discussions with community partners as project develops. • Partners agreed the need for broader education around fat function people can fully engage with or understand this type of research — this should be addressed as part of the wider communications strategy.	We are delighted that the community partners would be interested to continue discussions about the project. If the project is awarded funding we will work with the PERC team to arrange this. Although the project has a very defined focus, we would like to include greater engagement about fat tissue research in general as an element of our patient/public involvement/engagemt strategy. Additionally we hope that community partners will be willing to advise on ensuring content we generate e.g. lay summaries are appropriate for the audience.

Appendix A: Demographic

This demographic information was obtained from previously collated self-reported data provided by the public partners (n= 5/5)

Characteristics	**n**
Age groups (in years)	
25 or under	0
26 – 35	0
36 – 45	1
46 – 55	0
56 – 65	1
66 – 75	2
76 – 85	0
86+	0
Prefer not to say	1

Ethnic group (self-reported)

Characteristics	**n**
African	1
Indian	1
Bangladeshi	1
British Asian	1
Black British	1

Appendix B: Meeting Notes

Project 2: Bradykinin B1 Receptor and Type 2 Diabetes

Researcher: Cyndy Appiah, Dr. Alice Pollard, Dr. Ben Jones, Dr. Trica Tan

PERC Staff: Ruchi Wadhwa

Understanding the Research

- Partners asked whether genetic changes would be made to participants. Researcher confirmed all experiments are entirely lab-based using cells from donated samples — no genetic changes are made to participants. Samples will come from the biobank being built through Project 1.
- Partners questioned why this research is needed when drugs like metformin already exist. Researcher explained metformin works primarily on the liver, not fat tissue, doesn't work for everyone, and doesn't address underlying fat dysfunction — this project aims to target the root cause, not just manage symptoms.
- Partners raised concerns about differences between mouse studies and human fat tissue. Researcher confirmed the project starts with human cells precisely to move beyond mouse models, working up from cells to tissues to organoids before any drug development.
- Partners said they were not fully convinced by the rationale and asked for further clarification. Researcher and lead researcher clarified that existing drugs treat symptoms, whereas this project targets the underlying fat dysfunction driving the disease — which could benefit people who don't respond to current treatments, including lean individuals with type 2 diabetes.
- Partners asked whether the research could contribute to prevention. Researcher explained that cause and prevention are intertwined — understanding fat dysfunction could allow earlier identification of at-risk individuals and earlier intervention, potentially before type 2 diabetes develops.

Relevance to Lived Experience

- A partner who works with people living with obesity and significant inflammation — who have made sustained efforts with diet and exercise but cannot lose weight — expressed strong support for the research as something that could help people who have tried everything without results.
- A partner shared their own experience of developing diabetes during pregnancy, which resolved after birth but returned years later, and raised questions about how people with complex or atypical diabetes histories would fit into the study.

- Partners noted that doctors often focus on weight without considering a patient's full medication and condition history that may have contributed to weight gain.

Side Effects

- Partners asked whether targeting the bradykinin B1 receptor would cause side effects. Researcher confirmed that side effect profiling is one of the aims of the project — existing human studies using this receptor have focused on pain relief rather than diabetes, so understanding side effects in this context is part of the work to be done.