University of Leicester
AIM studentship project 2026

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Name of non-academic partner organisation: Almac Discovery, Belfast

Section 2 – *Project Information*

Project Title	Understanding the Role of USP19 Inhibition in Modulating Skeletal Muscle Mass and Metabolic Function in Sarcopenic Obesity

Project Summary

Targeting muscle loss in obesity and ageing through USP19 inhibition

Are you passionate about muscle biology, metabolism, and translational science? This exciting PhD project explores a novel therapeutic strategy to combat sarcopenic obesity—a condition where excess body fat and muscle loss coexist, leading to frailty and poor metabolic health in older adults.

10

You will investigate how inhibiting a protein called USP19 affects muscle growth, energy production, and glucose metabolism. Using advanced lab models that mimic ageing and obesity, you'll test a new compound developed by our industry partners, Almac Discovery, and assess its potential to protect muscle and improve metabolic function. You'll also explore how this treatment interacts with new and emerging weight-loss therapies.

The student wil have the opportunity to spend time at the Universities of Leicester, Nottingham, and Birmingham, providing access to world-class facilities and expertise.

This project will provide hands-on training in:

- Skeletal muscle cell culture modelling
- Molecular and biochemical techniques
- Microscopy and imaging
- Metabolic and functional assays
- Data analysis, interpretation and industry collaboration

You'll also have the opportunity to work with an industry partner, gaining valuable experience in translational research and drug development. This is a unique opportunity to contribute to a growing field with real-world health impact.

References

1. Morgan, P.T., B. Smeuninx, and L. Breen, Exploring the Impact of Obesity on Skeletal Muscle Function in Older Age. Front Nutr, 2020. 7: p. 569904.
2. Sargeant, J.A., et al., A Review of the Effects of Glucagon-Like Peptide-1 Receptor Agonists and Sodium-Glucose Cotransporter 2 Inhibitors on Lean Body Mass in Humans. Endocrinol Metab (Seoul), 2019. 34(3): p. 247-262.
3. Beavers, K.M., et al., GLP1Ra-based therapies and DXA-acquired musculoskeletal health outcomes: a focused meta-analysis of placebo-controlled trials. Obesity (Silver Spring), 2025. 33(2): p. 225-237.
4. Page, N., et al., Abstract LB022: A novel first-in-class USP19 inhibitor for the treatment of cancer-induced muscle atrophy. Cancer Res, 2023. 83(LB022).
5. Allen, S.L., et al., Improving physiological relevance of cell culture: the possibilities, considerations, and future directions of the ex vivo coculture model. Am J Physiol Cell Physiol, 2023. 324(2): p. C420-C427.