

# North East Scotland Masters Training Programme (NES MTP) in Cardiovascular and Diabetes Medicine

## Project Proposal

Project Title: Validation of human liver organoids for diabetes research

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### Brief outline of the project/techniques:

The purpose will be to validate liver organoids for the study of type 2 diabetes drug action.

Our research questions will be:

- (i) Are organoids a valid model for glucagon-stimulated hepatic glucose production and actions of diabetes drugs?
- (ii) Compared with mouse cells, what are the common and divergent proteomic signatures observed in the organoids following stimulation with glucagon and suppression of this response with metformin and salicylate?

The work will dovetail strongly with the grouping's interest in cross-validating fundamental studies with electronic health records [1].

### Key references (Maximum 3):

Cameron, A.R. Morrison, V.L. Levin, D., Mohan, M., Forteach, C., Beall, C., McNeilly, A.D., Balfour, D.J.K., Savinko, T., Wong, A.K.F., Viollet, B., Sakamoto, K., Fagerholm, S.C., Foretz, M. Lang, C.C. and **Rena, G.** (2016) *Circ. Res.* 119, 642-655 Anti-inflammatory effects of metformin irrespective of diabetes status