

Name Jocelyn (Jo) Glazier

Title PhD

Position Honorary Senior Research Fellow



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Research Interests (<200 words)

My research investigates diverse aspects of placental nutrient transport function in normal and complicated pregnancies. Recently, I have been investigating the role of the yolk sac in early embryonic nutrient provision.

My research has focussed on placental development and the regulation of placental function, both in normal pregnancy and in pregnancy complications such as intrauterine growth restriction and pre-eclampsia. I'm interested in the mechanisms underlying placental nutrient transfer capacity and their modes of regulation, and how these might be altered in pregnancy complications leading to altered patterns of fetal development and growth, which may be associated with long term health impacts later on in life. My studies have focused on the placental transport of amino acids, folate and calcium with a strong interest in one-carbon metabolism and the folate-methionine-homocysteine axis of placental function.

More recently, my group has been investigating the effects of maternal immune activation on placental function and the programming of neurodevelopmental diseases such as schizophrenia. I have also been involved in investigating the impact of maternal intermittent fasting (as a model of fasting during Ramadan) on pregnancy outcomes, and growth and development of the baby.

Research Focus

Keywords: Pregnancy, placenta, yolk sac, fetal development, nutrient transport

Research Technologies/Facilities: Molecular and biochemical assays, qPCR, Western blotting, immunohistochemistry, transport assays

Publications

- 10 key papers (ORCID: <https://orcid.org/0000-0002-4215-5727>)
1. D'Souza SW, **Glazier JD**. (2022) Homocysteine Metabolism in Pregnancy and Developmental Impacts. *Front. Cell. Dev. Biol.* **10**, 802285, <https://doi.org/10.3389/fcell.2022.802285>
 2. Kowash HM, Potter HG, Woods RM, Ashton N, Hager R, Neill JC, **Glazier JD**. (2022) Maternal immune activation in rats induces dysfunction of placental leucine transport and alters fetal brain growth. *Clin. Sci.* **136**, 1117-1137, <https://doi.org/10.1042/cs20220245>
 3. Woods RM, Lorusso JM, Potter HG, Neill JC, **Glazier JD**, Hager R. (2021) Maternal immune activation in rodent models: A systematic review of neurodevelopmental changes in gene expression and epigenetic modulation in the offspring brain. *Neurosci. Biobehav. Rev.* **129**, 389-421, <https://doi.org/10.1016/j.neubiorev.2021.07.015>
 4. D'Souza SW, Copp AJ, Greene NDE, **Glazier JD**. (2021) Maternal Inositol Status and Neural Tube Defects: A Role for the Human Yolk Sac in Embryonic Inositol Delivery? *Adv. Nutr.* **12**, 212-222, <https://doi.org/10.1093/advances/nmaa100>
 5. **Glazier JD**, Hayes DJL, Hussain S, D'Souza SW, Whitcombe J, Heazell AEP, Ashton N. (2018) The effect of Ramadan fasting during pregnancy on perinatal outcomes: a systematic review and meta-analysis. *BMC Pregnancy Childbirth* **18**, 421, <https://doi.org/10.1186/s12884-018-2048-y>
 6. D'Souza SW, Solanky N, Guarino J, Moat S, Sibley CP, Taggart M, **Glazier JD**. (2017) Human Placental Arterial Distensibility, Birth Weight, and Body Size Are Positively Related to Fetal Homocysteine Concentration. *Reprod. Sci.* **24**, 1070-1078, <https://doi.org/10.1177/1933719116678694>
 7. Boeuf P, Aitken EH, Chandrasiri U, Chua CL, McInerney B, McQuade L, Duffy M, Molyneux M, Brown G, **Glazier J**, Rogerson SJ. (2013) Plasmodium falciparum malaria elicits inflammatory responses that dysregulate placental amino acid transport. *PLoS Pathog.* **9**, e1003153, <https://doi.org/10.1371/journal.ppat.1003153>
 8. Tsitsiou E, Sibley CP, D'Souza SW, Catanescu O, Jacobsen DW, **Glazier JD**. (2011) Homocysteine is transported by the microvillous plasma membrane of human placenta. *J. Inherit. Metab. Dis.* **34**, 57-65, <https://doi.org/10.1007/s10545-010-9141-3>
 9. Solanky N, Requena Jimenez A, D'Souza SW, Sibley CP, **Glazier JD**. (2010) Expression of folate transporters in human placenta and implications for homocysteine metabolism. *Placenta* **31**, 134-143, <https://doi.org/10.1016/j.placenta.2009.11.017>
 10. Tsitsiou E, Sibley CP, D'Souza SW, Catanescu O, Jacobsen DW, **Glazier JD**. (2009) Homocysteine transport by systems L, A and y+L across the microvillous plasma membrane of human placenta. *J. Physiol.* **587**, 4001-4013, <https://doi.org/10.1113/jphysiol.2009.173393>

Collaborators

Dr S. D'Souza (Manchester). *Maternal nutrition, placental function and fetal growth, role of B vitamins in fetal development.*

Dr R. Hager (Manchester). *Maternal immune activation effects on maternal care and offspring behavioural outcomes.*

Professor J. Neill (Manchester). *Maternal immune activation and offspring behavioural outcomes.*

Dr N. Ashton (Manchester). *Effects of maternal intermittent fasting on fetal developmental outcomes and offspring health.*

Professor M. Harte (Manchester). (1) *Effects of maternal immune activation on epigenetic regulation of brain development and cognitive function.* (2) *Effects of maternal intermittent fasting on offspring cognitive and behavioural outcomes.*

Student/Fellowship Opportunities

We have various PhD studentships opportunities at the University of Manchester that graduate students can apply for.