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**Abstract:**
Our lab studies how local cellular interactions and systemic cues promote reproduction, focusing on the stem cell niche. We use the Drosophila testis as a model, where germline stem cells self-renew together with a population of somatic stem cells called cyst stem cells. Germ cells and somatic cyst cells differentiate together in units composed of two post-mitotic cyst cells and one mitotic germ cell. Starting by asking how cyst cells coordinate cell cycle exit and differentiation, we found a link to cellular metabolism. Not only does metabolism support cyst cell differentiation, but through these studies, we uncovered an intercellular metabolite exchange in which cyst cells provide the glycolytic product, lactate, to the germline. Thus, somatic metabolism plays critical roles in ensuring fertility.

**Biosketch:**
Marc Amoyel was inspired to study developmental biology by Lewis Wolpert, who taught first year undergraduates about gastrulation and morphogens. Following a PhD in developmental neurobiology with David Wilkinson at the National Institute for Medical Research in London (now the Crick), where he studied compartment formation in the zebrafish hindbrain, Marc switched model systems to Drosophila, to study the control of growth and cell competition in wing discs with Laura Johnston at Columbia University (New York). He then moved to New York University to study how stem cells in the Drosophila testis compete for space in the niche and the signals that regulate this behaviour. He then established his lab in Bristol in 2016, moving to UCL in 2018, where his group has continued to exploit our understanding of signalling in the testis stem cell niche to redefine our understanding of stem cell behaviours, and to determine how signalling influences cell biology to control cell fate. A major focus of the lab is now to understand the metabolic networks of intercellular communication that control fertility.