Nuclear export of a key transcription factor regulates cellular nutrient balance

July 11, 2018 – It is important for cells to control the balance of nutrients – including glucose and amino acids – for proper cell function. A key regulator in this process is the transcription factor, TFEB, which travels to the nucleus upon nutrient limitation to activate the cell's recycling of unwanted components to restore nutrient levels. Several mechanisms have been described for how nuclear import of TFEB is prevented when nutrient levels are high. In this article published in *Nature Communications*, Linxin Li, Hans Friedrichsen and colleagues from Prof. Colin Goding's lab describe an additional control of TFEB cellular localisation. Both amino acid and glucose limitations can alter the phosphorylation status of TFEB in a way that inhibits its nuclear export and thus promotes the activation of cellular recycling. Because deregulation of nutrient levels occurs in many diseases including cancer and neurodegeneration, this work has implications for the development of potential therapeutic interventions.