Ubiquitin E3 ligases in the *Leishmania mexicana* cell cycle and genome stability

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Ubiquitination is a highly conserved post-translational modification which drives protein turnover in a wide range of cellular processes across eukaryotes. E3 ligases are the most diverse enzyme in the ubiquitination cascade, catalysing the final step and facilitating the targeted addition of ubiquitin to specific substrates. E3 ligases are well characterised in mammalian and yeast cells with essential roles in DNA repair pathways and cell cycle checkpoints. In *Leishmania mexicana,* however*,* 79 putative E3 ligases have been identified but largely remain uncharacterised and their functions have only recently begun to be explored.

Cell cycle profile and histone phosphorylation analysis were used to screen RING-type E3 ligase knockout populations of *L. mexicana* promastigotes for ubiquitinases which impact important processes in core Leishmania biology. Genes which appear to impact the cell cycle or genome stability were selected for further analysis. This work shows follow-up experiments using CRISPR-based knockout and endogenously tagged cell lines to explore the localisation, fluctuations in expression throughout the cell cycle and roles in the DNA damage response of these shortlisted *L. mexicana* E3 ligases.