ABSTRACT

TITLE:	Investigating Simvastatin as a Treatment for Polycystic Ovary Syndrome
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ABSTRACT: Polycystic Ovary syndrome is a disorder associated with numerous clinical, endocrine and metabolic complications, such as menstrual dysfunction, hyperandrogenism and insulin resistance. The relationship between hyperandrogenism and insulin resistance is a highly studied aspect of PCOS, and, a current target for treatment. High levels of testosterone interfere with the insulin receptor and its substrates to compromise a cell's ability to translocate GLUT4 to the cell membrane to allow for the entry of glucose. To investigate the potential of the emerging drug simvastatin, cultured C2C-12 myoblast cells were treated with the drug for 24 hours followed by insulin stimulation for 2 hours. Phosphorylation ratios of IRS-1(Ser612) to total IRS-1 along with GLUT4 translocation were measured to detect how the drug interacts with the insulin pathway. There was no significant difference between treatment with and without simvastatin regarding the relative level of IRS-1(Ser612) phosphorylation. Flow cytometry results measuring the translocation of GLUT4 to the plasma membrane indicate that treatment with simvastatin increased GLUT4 translocation by 7.5%, but without experimental repeats there is no way to know if these results represent a significant difference. Overall these results show that treatment with simvastatin for 24hr does not change insulin signaling or GLUT-4 translocation in a mouse muscle cell line.