

The Influence Of Excess Body Fat On MCF7 Breast Cancer Cell Line Proliferation and Viability

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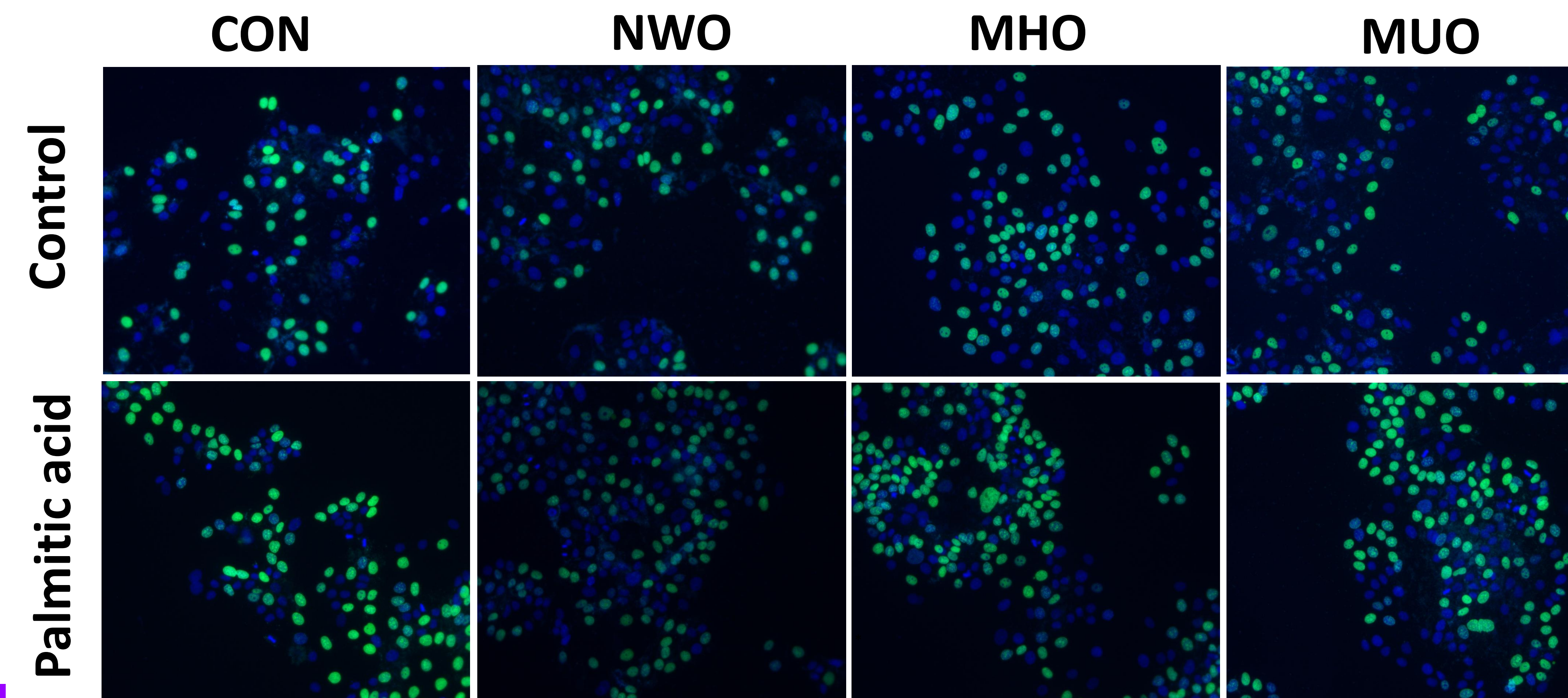
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Abstract

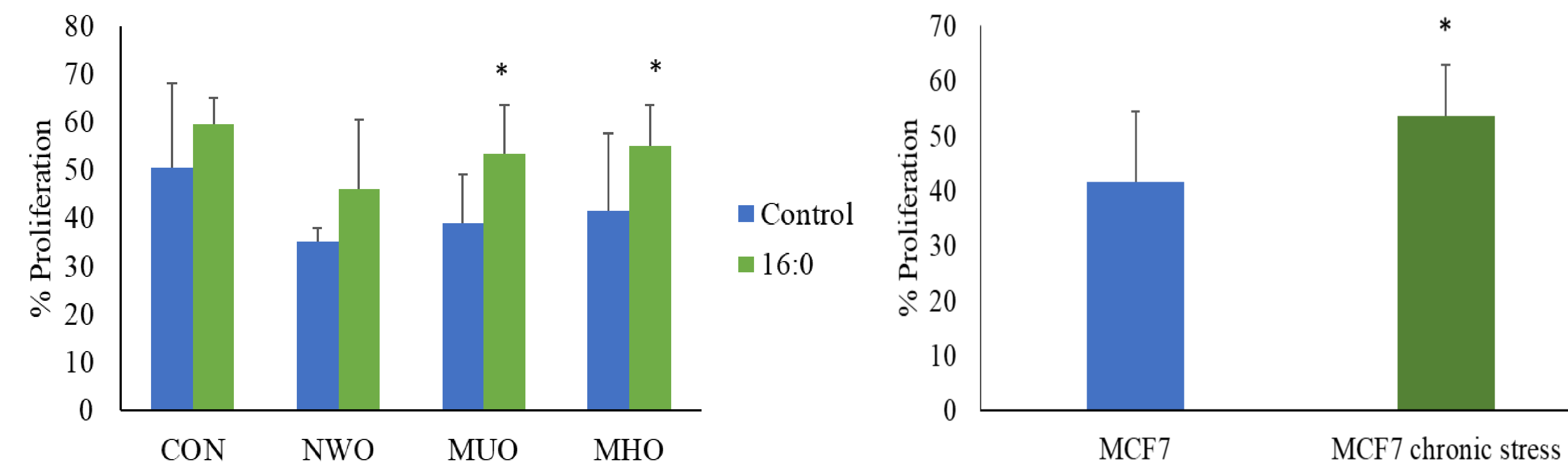
Women who are obese have a much higher risk of being diagnosed with breast cancer than women who maintain a healthy body weight. However, excess body fat, even in the absence of excess body weight, a condition referred to as normal weight obesity also increases breast cancer risk. The goal of our study is to determine how serum from human subjects with three distinct obesity phenotypes, metabolically healthy obese, metabolically unhealthy obese, and normal-weight obese, influences breast cancer cell growth and proliferation. We have already collected preliminary data indicating differences in cell viability via NADH measurement, yet metabolic activity alone does not definitively demonstrate growth or vitality because cells may be metabolically active without entering S-phase or replicating. To conclusively show DNA replication (and thus true proliferation/vitality), our plan is to quantitatively measure differences in DNA synthesis using the Click-iT EdU DNA-synthesis assay, which uses a thymidine analog incorporated into newly synthesized DNA which can be detected by the appearance of fluorescent conjugates. Based on our preliminary findings, we expect that the lower rates of metabolic activity in cells grown in serum from obese subjects are not due to reduced rates of cellular proliferation. These findings could be used to inform improved, targeted nutritional and chemotherapeutic strategies for individuals with distinct obesity phenotypes.

Approach

Results



Conclusions



Acknowledgements