Inhibition of the ROCK Signalling Pathway in mouse osteoblasts

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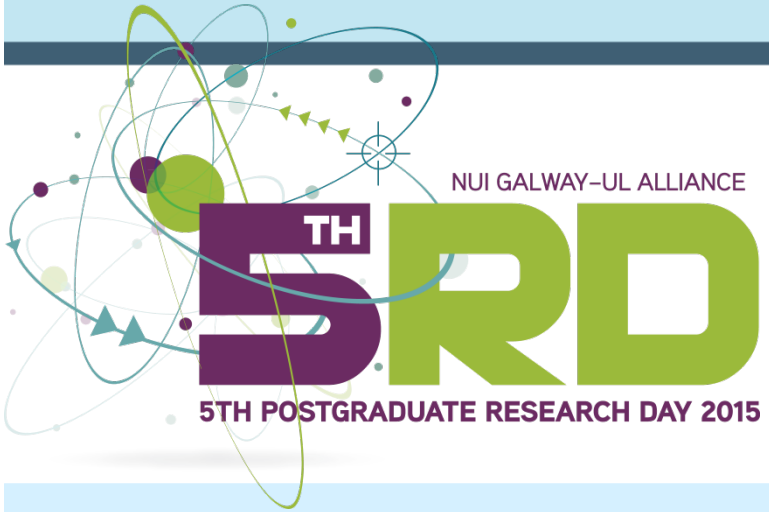
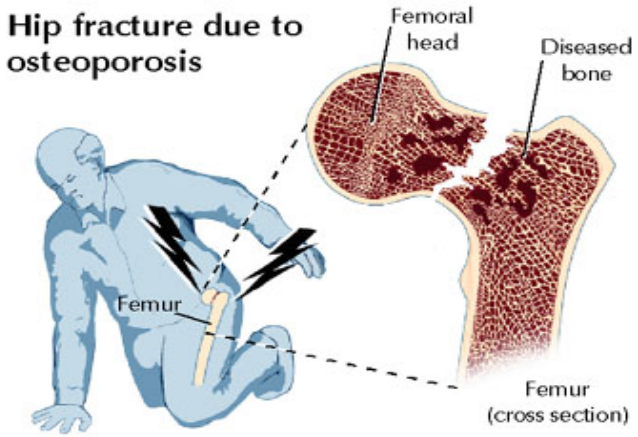


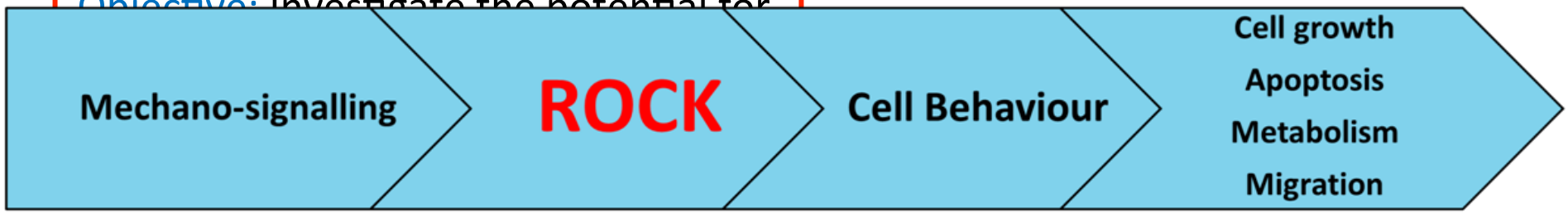
Introduction

Background

- Osteoporosis is a common problem worldwide (1 in 3 women)
- Hormonal Therapy and Bisphosphonates reduce fracture susceptibility by only 50%
- Bone is a mechano-sensitive tissue
- Mechanical loading affects cellular function through Rho/ROCK signalling
- ROCK inhibitors have been used to target cancer

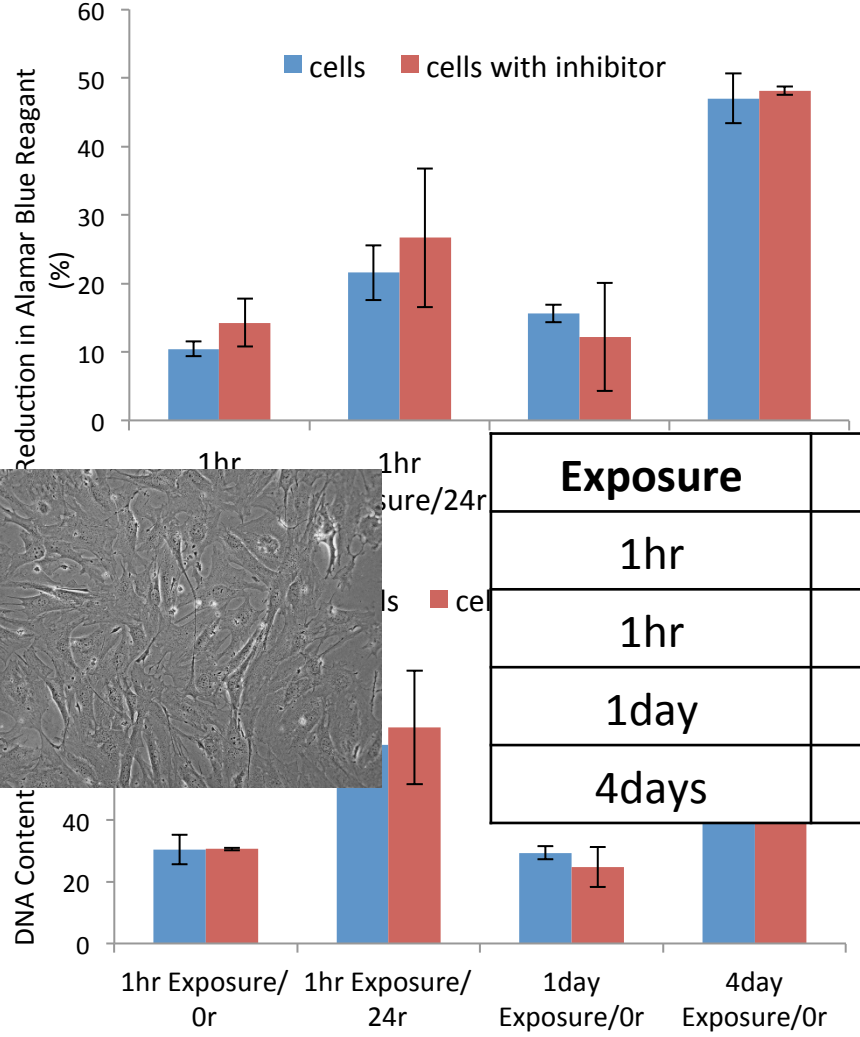


Objective: Investigate the potential for

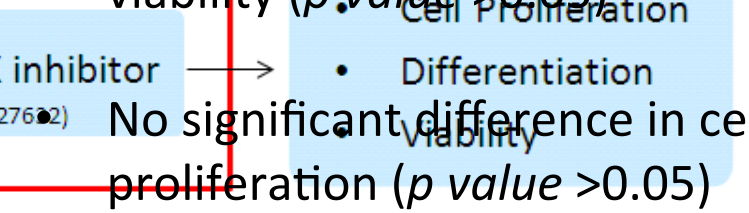


Methodology and Results

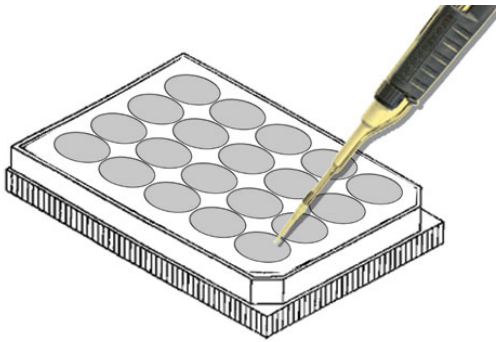
Objective: *To examine the in vitro viability of MC3T3–E1 cells on exposure to Y27632 (10μM). ROCK signaling pathway i*

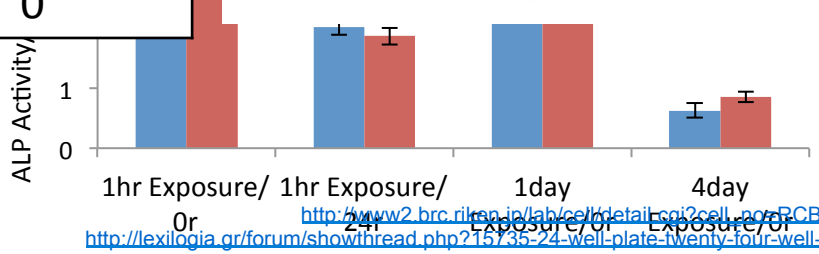


Exposure	Recovery
1hr	0
1hr	24hr
1day	0
4days	0



- No significant difference in cell viability (*p value* >0.05)
- No significant difference in cell proliferation (*p value* >0.05)
- No significant difference in cell

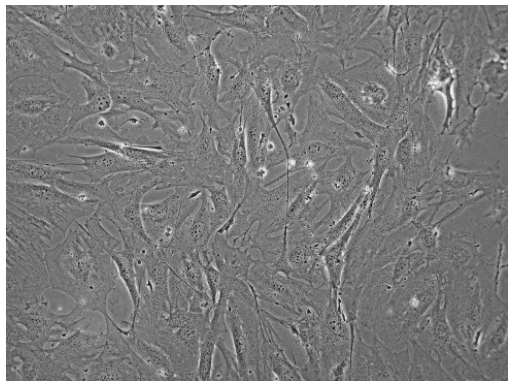




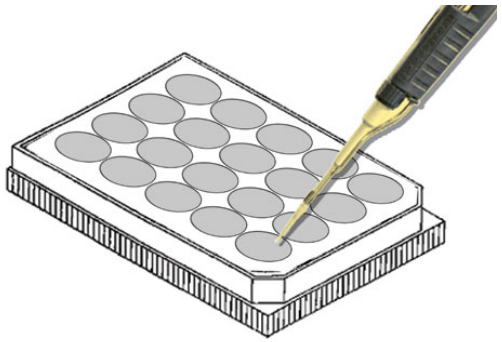
http://www2.brc.riken.jp/lab/cell/detail.cgi?cell_no=RCB1127
http://lexilogia.gr/forum/showthread.php?15735-24-well-plate-Twenty-four-well-plate

Conclusions and Future Work

- MC3T3-E1cells are viable upon exposure to 10µM of ROCK inhibitor (Y27632)
- No adverse affect on the viability or osteogenic differentiation or proliferation of MC3T3-E1 cells following exposure for even 4 days.
- Ongoing studies optimizing inhibitor concentration, exposure time and recovery period



- Inhibitor Concentration
- Exposure Time
- Recovery Period



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Lane W.O., et al., Journal of Visualised Experiments. 2012

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