

THE BIO-COMPATIBILITY OF SILICATED PATENTED HUMAN DENTAL PULP CELLS

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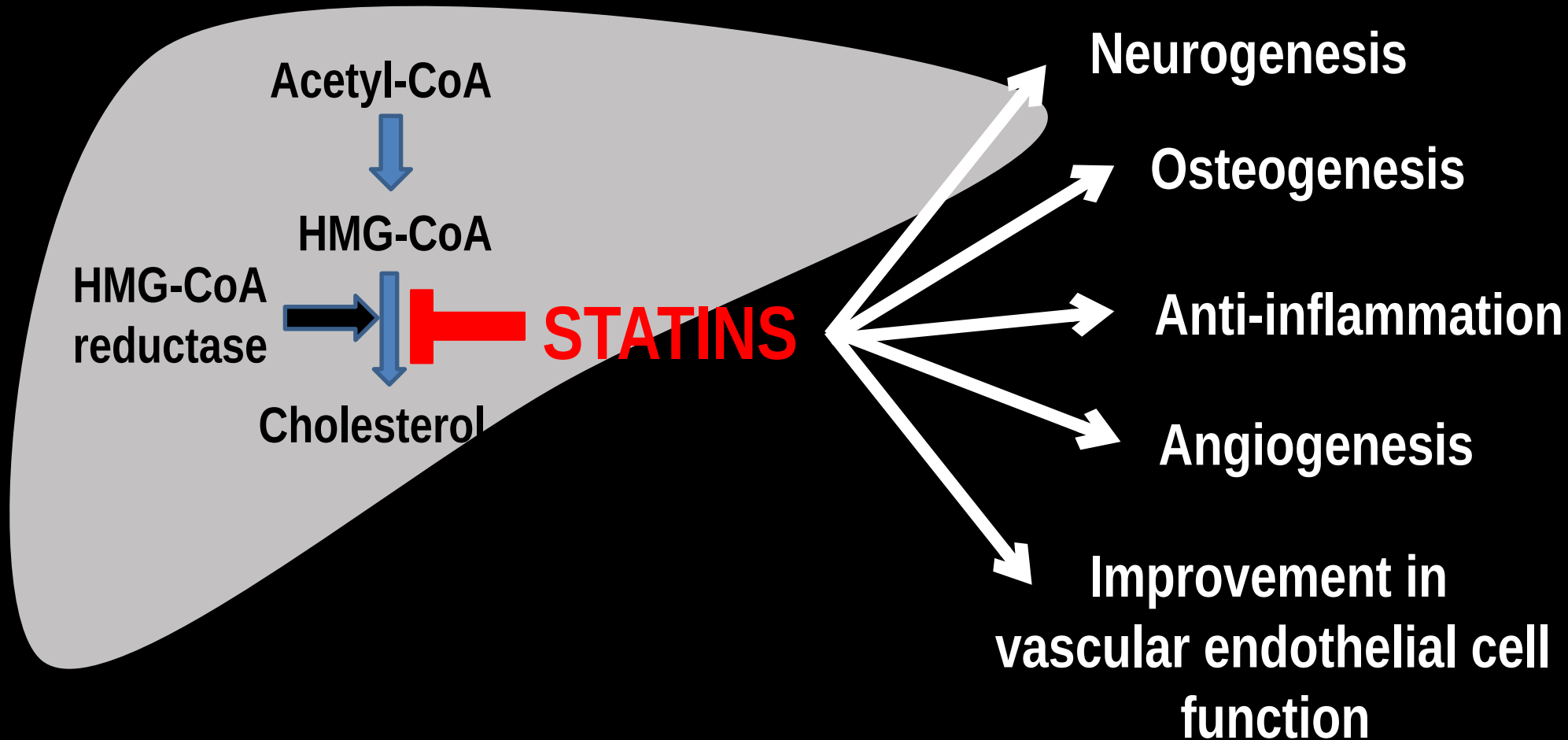
Statins are known to lower cholesterol

So the question is...

What are the long-term effects of Simvastatin on human dental pulp cells?



MECHANISM OF ACTION OF STATIN



Corsini et al, 1999
Kwak et al, 2000
Van Nieuw Amerongen
et al, 2000
Musial et al, 2001
Miron et al, 2007



CLASSIFICATION OF STATINS

High Intensity >50%

- Atorvastatin (Lipitor)*
- Rosuvastatin (Crestor)*

Moderate Intensity 30 - 49%

- Atorvastatin (Lipitor)*
- Rosuvastatin (Crestor)*
- Simvastatin (Zocor)*
- Pravastatin (Pravachol)*
- Lovastatin (Mevacor, Altocor, Altoprev)*
- Fluvastatin (Lescol)
- Pitvastatin

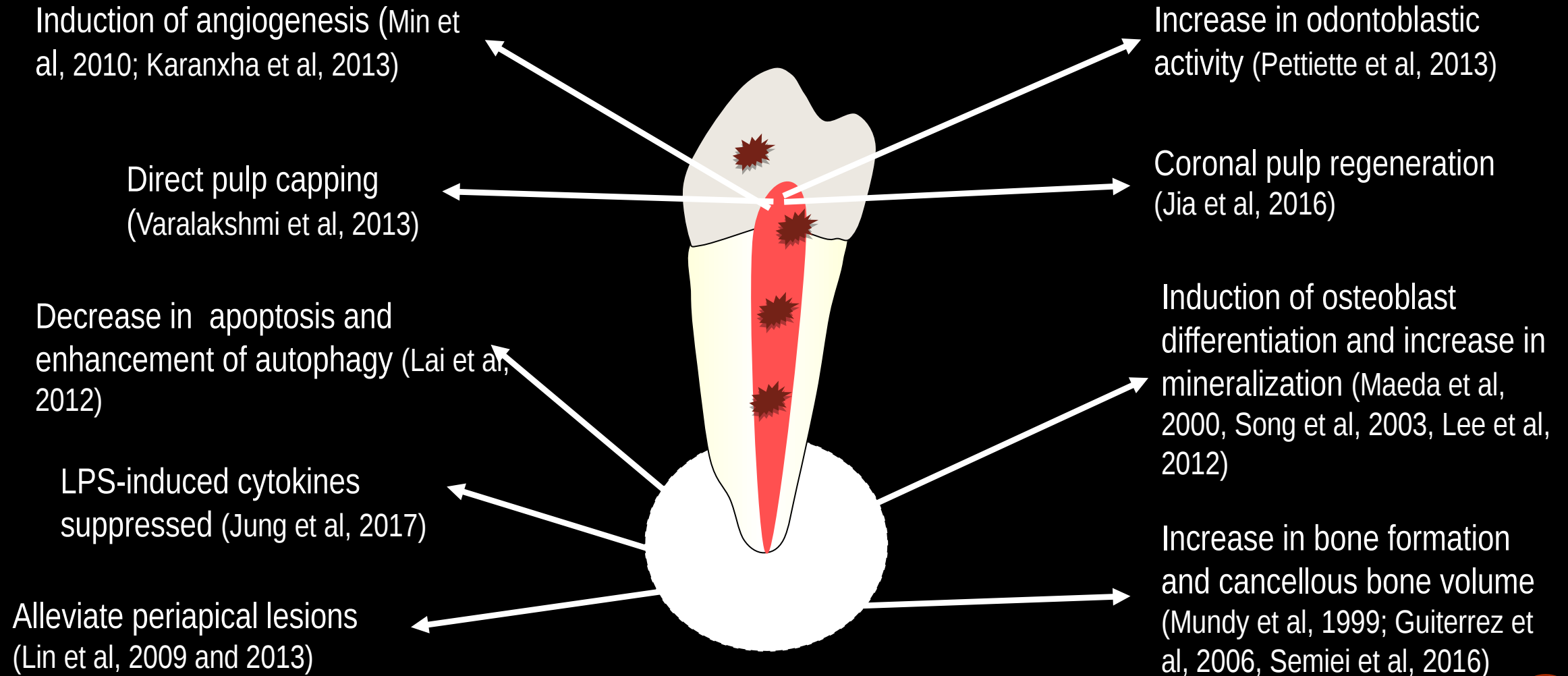
Low Intensity <30%

- Simvastatin (Zocor)*
- Pravastatin (Pravachol)*
- Lovastatin (Mevacor, Altocor, Altoprev)*
- Fluvastatin (Lescol)*
- Pitvastatin

ACC guidelines, 2018
Chou et al, 2016



ENDODONTIC USES



HYPOTHESIS

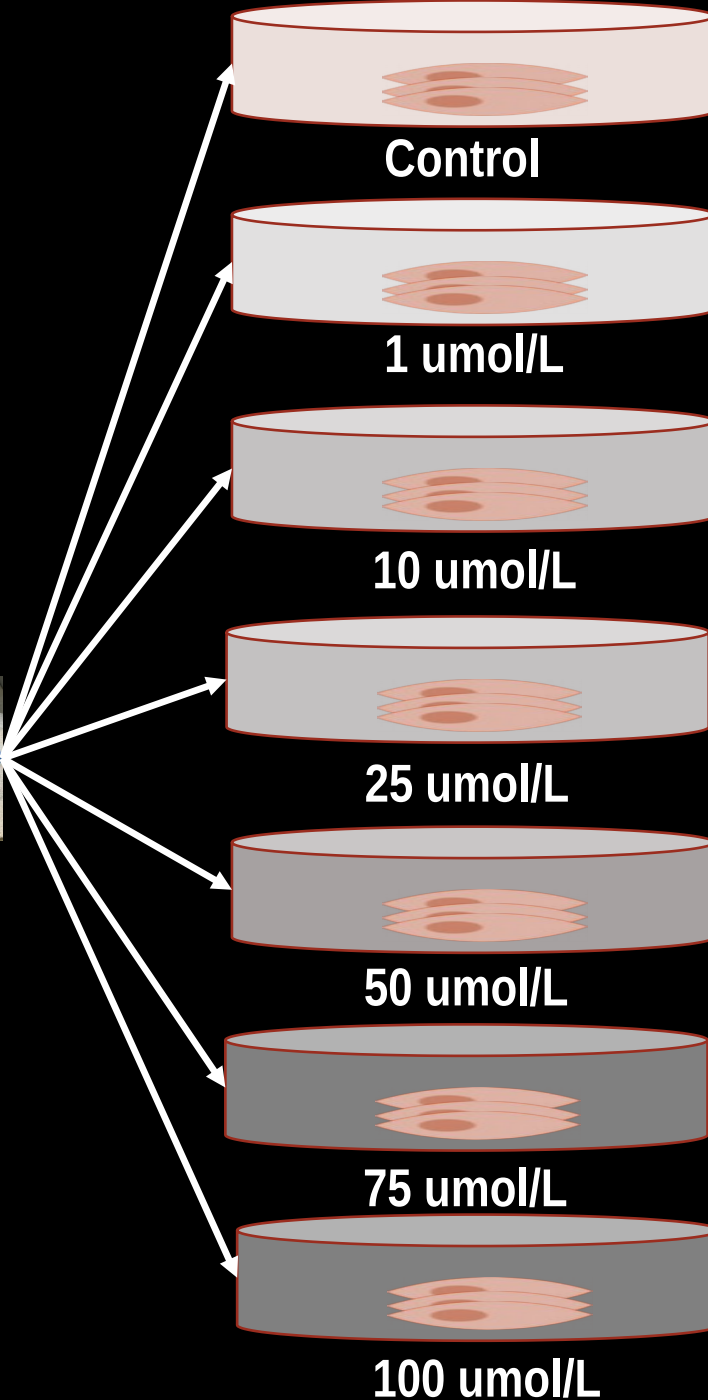
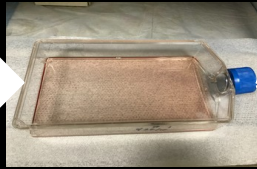
Simvastatin will affect the attachment, proliferation, cytotoxicity and mineralization of human dental pulp cells.



MATERIALS AND METHODS



Simvastatin was prepared based on manufacturer instructions



- Cell attachment efficiency
16 Hours
- Proliferation Rate
- Cytotoxicity
- Cytostasis
- Mineralization
7, 14, 21 days



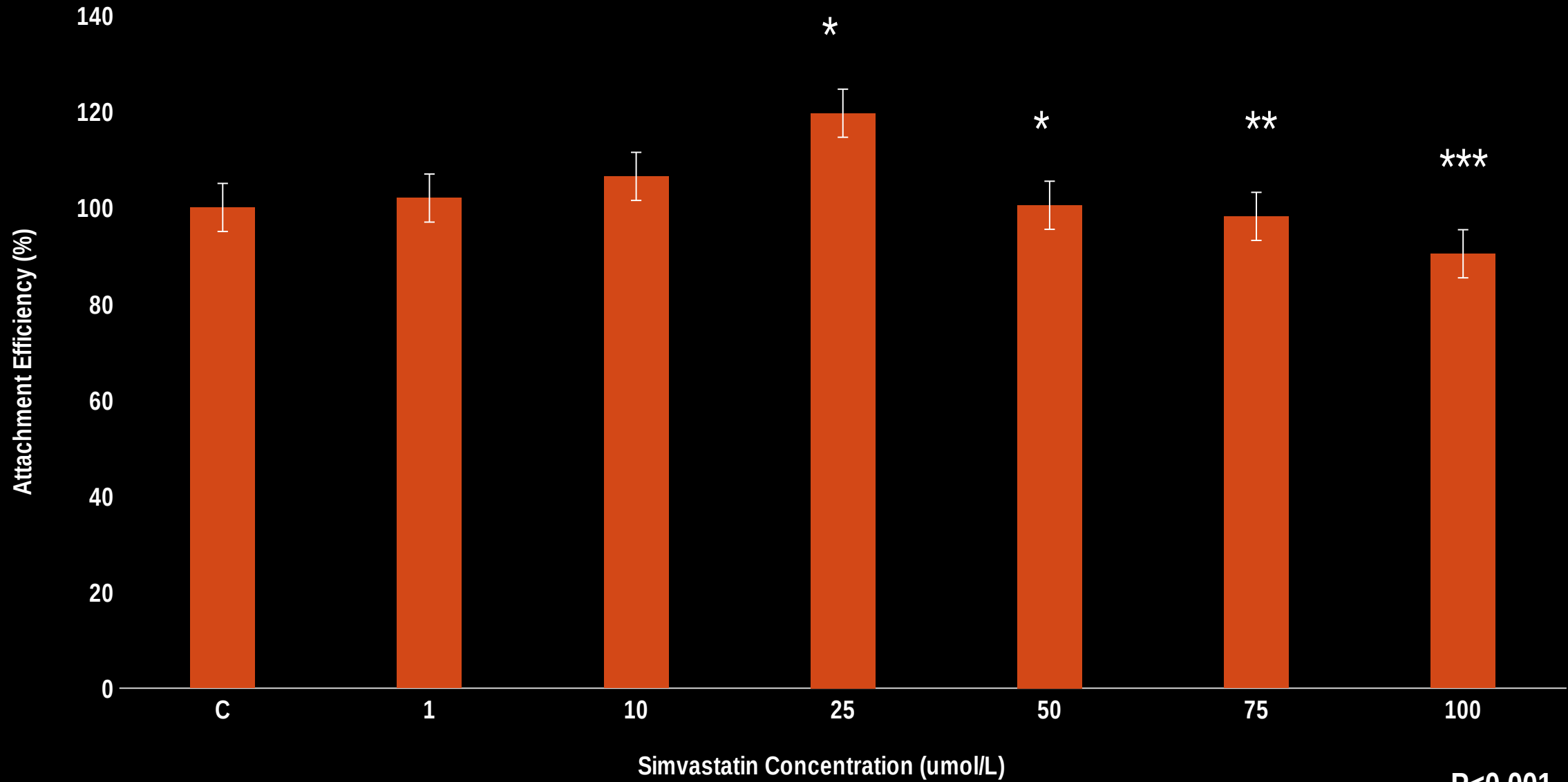
Statistics
Anova and T-Test



RESULTS



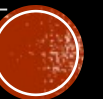
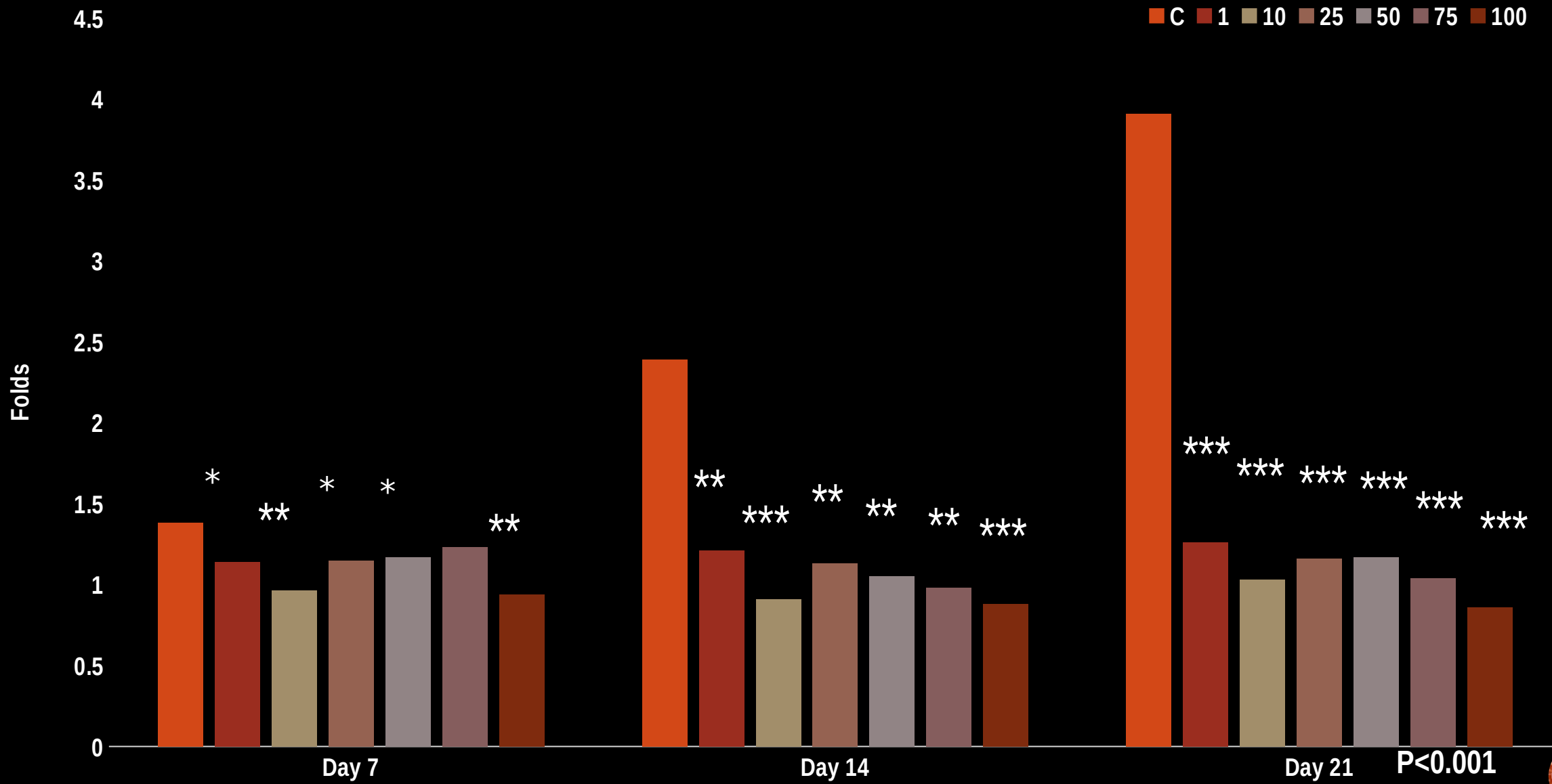
Cell Attachment



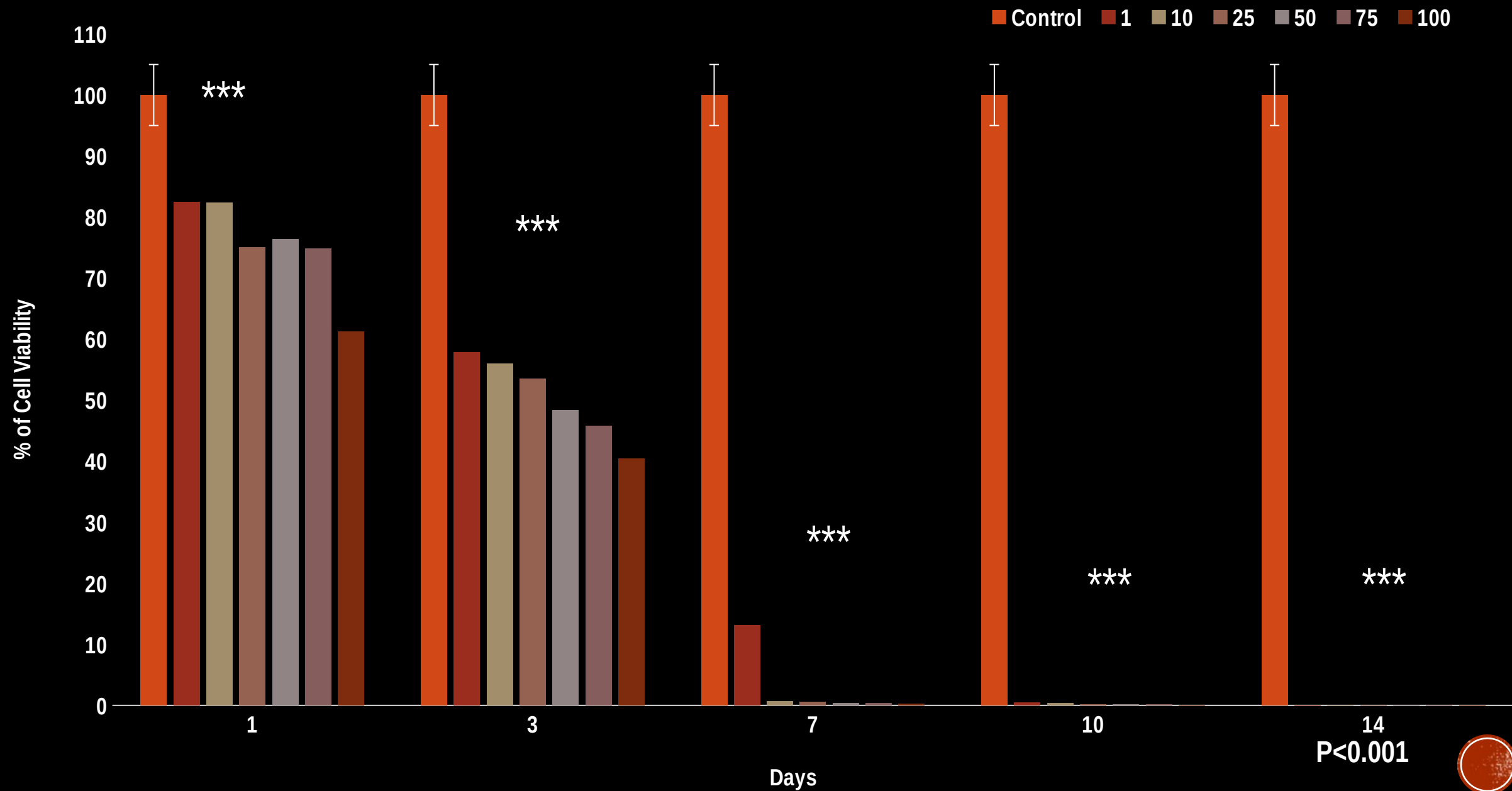
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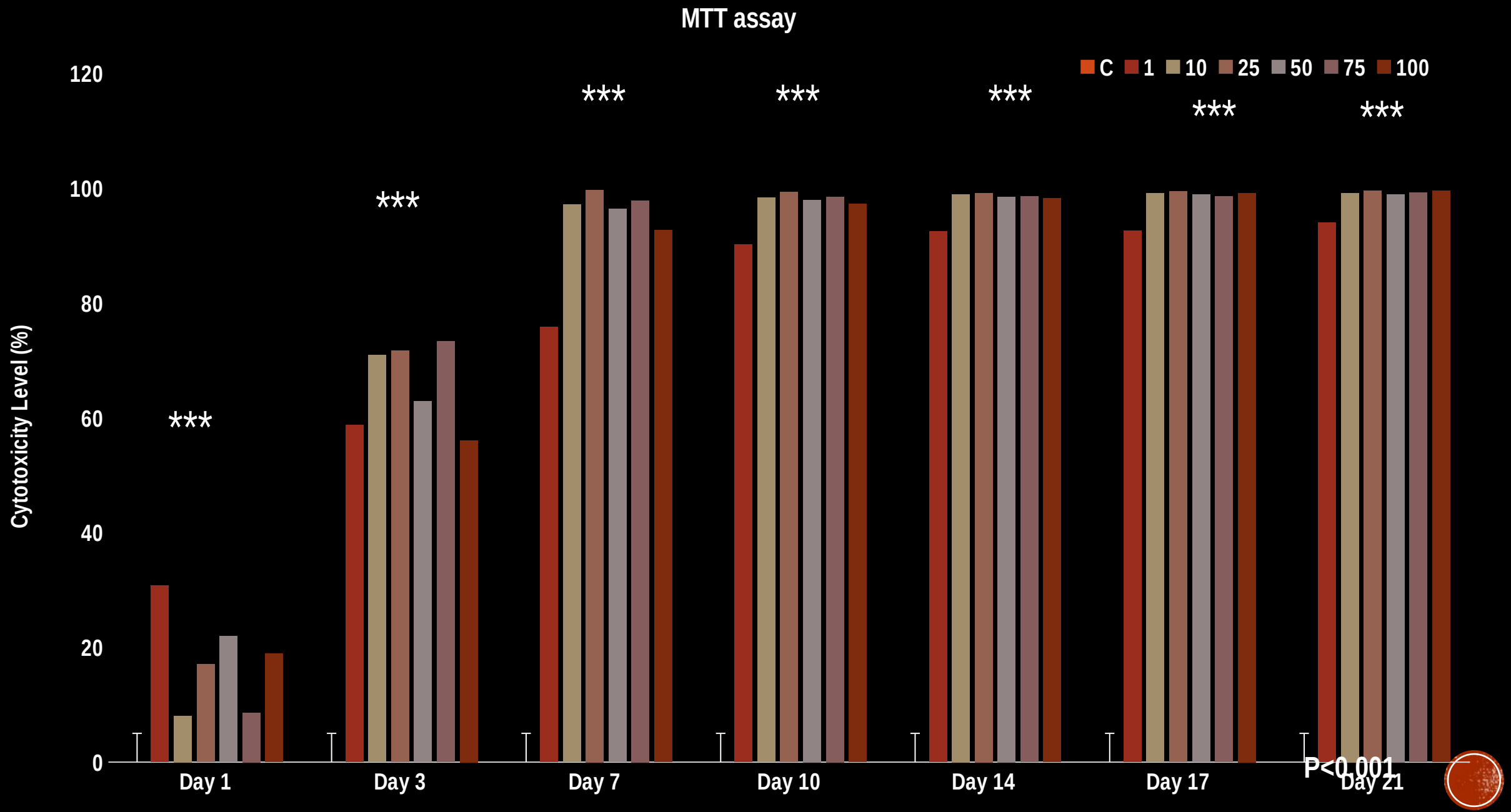


Proliferation Rate

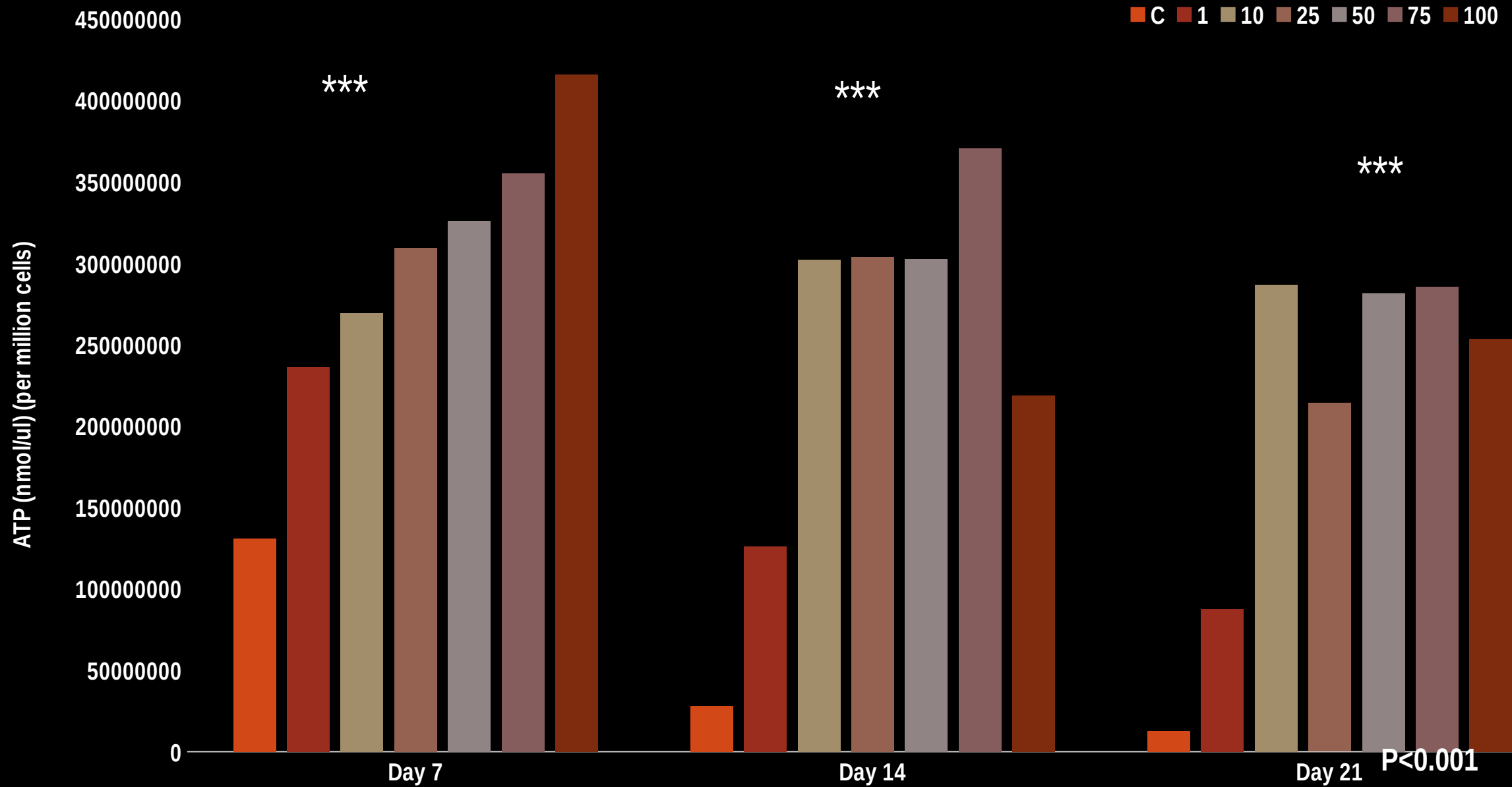


Cell Cytotoxicity Assay

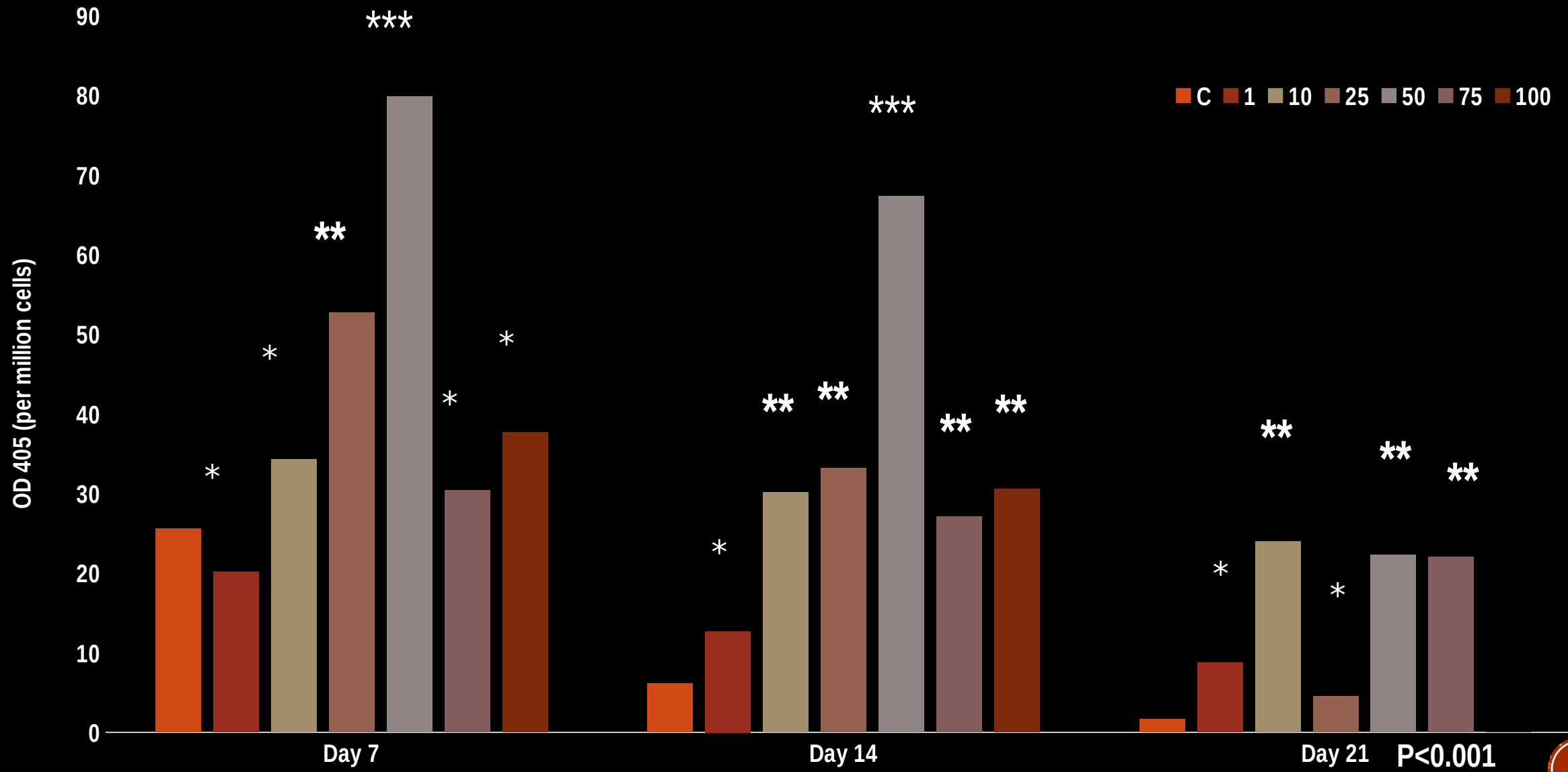




ATP Assay



Mineralization



CONCLUSIONS

- 25umol/L- showed highest cell attachment
- All concentrations except the control downregulated the proliferation rate and mineralization
- Tested concentrations showed signs of toxicity.



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Thank you! Questions?!

