We are exploring the use of a fluorescent hydrogel to examine changes to the microenvironment induced during embryonic stem cells (ESCs) differentiation, with a specific interest in osteogenesis, a process requiring matrix secretion and mineralization. We have begun an initial investigation testing the capacity of this material to maintain ESC growth and support osteogenic differentiation.

**RESULTS**

Figure 2: (A) Phenotypic appearance of mESC cultures during Osteogenic Differentiation. Scale bars = 500 µm

- **Figure 3:** (A) Calcium Assay (B) Alkaline Phosphatase activity

**CONCLUSION**

- Cross-linking reaction precedes for over 10 days in 4°C
- Glyceraldehyde modified hydrogel induced cell clusters compared to the flat lawn of cells in the control
- Current culturing methods must be adapted to suit 3D culturing systems

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