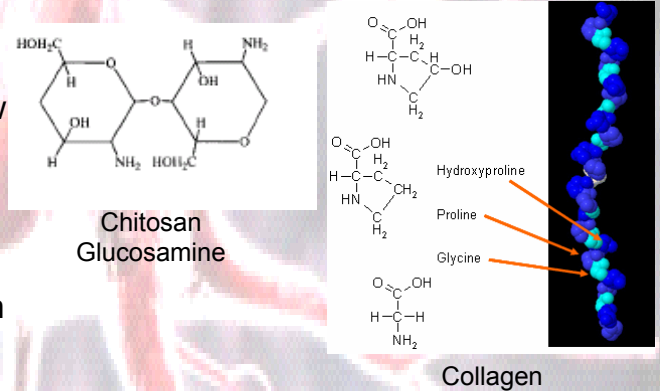


# Creating Collagen-Chitosan Composite Matrices

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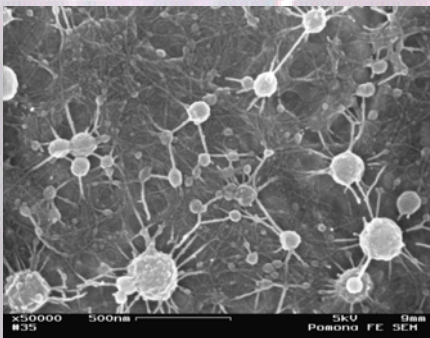
**Background.** Recent studies have displayed the neuroectodermal trans-differentiation capacity of bone-marrow mesenchymal stem cells (MSCs). Furthermore, studies also show that implementation of these MSCs via a matrix implant in the brain can have success in restoring and repairing both cognitive and physiological damage.

**Approach.** Using cell viable collagen along with the antibacterial and restorative properties of chitosan, we hoped to create a cell viable collagen chitosan matrix suitable for implementation into the brain. Matrices were created using two methods: electrospinning and the creation of hydrogels.



Electrospinning Apparatus

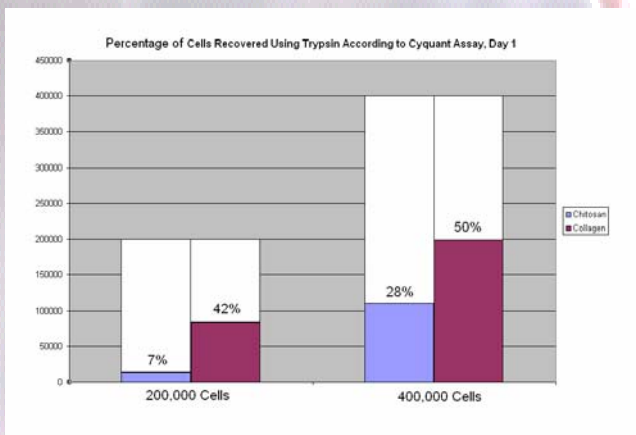
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Electrospun chitosan samples. As can be seen both globs and fibers are present.

**Results.** We were able to successfully electrospin collagen fibers however the viscosity of chitosan proved to be problematic, as globs were present throughout our samples. Hydrogels were successfully created but attempts to test for cell viability were unsuccessful due to the positive charge on chitosan interfering with viability assays.

**Future Work.** We shall continue to electrospin using lower molecular weight chitosan as well as test cell viability of hydrogels with the DNA based CyQuant Assay.



Percentage of recovered cells from the cell viability assay. Low percentages are apparent.

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