

**Luna Innovations is developing a variety of unique technologies for use in the regenerative medicine and tissue engineering fields.**

## RESEARCH AND TECHNOLOGY DEVELOPMENT

LUNA is positioning itself at the forefront of the regenerative medicine and tissue engineering field, developing technologies for use in tissue repair, therapeutic delivery, and cell-based therapies. Our core competencies and areas of research focus include:

- **Biofunctionalized scaffolds:** tissue regeneration, vascularization, cellular attachment
- **Injectable hydrogels:** cartilage regeneration, delivery of proteins and growth factors
- **Spatially organized scaffolds:** vascularized tissue, controlled tissue innervation
- **Electrospinning:** peripheral nerve repair, wound healing, transdermal delivery
- **DNA mediated assembly:** self-assembled scaffolds, tunable surfaces
- **Cell selection and delivery:** vascularized tissue, proangiogenic effect
- **Delipidated adipose grafts:** tissue processing and plastic surgery
- **Burn dressings:** treatment of difficult-to-heal wounds

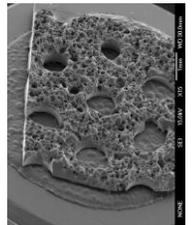
### Injectable Cartilage

- LUNA is exploring injectable hydrogels for repair of craniofacial cartilage and osteoarthritic defects.
- Hydrogels are biocompatible, biodegradable, and stimulate cartilage regeneration with an open porous structure.



### Bioactive Hydrogels

- Large volume tissue loss results in functional and cosmetic defects.
- LUNA is developing 3D, bioactive scaffolds with spatially controlled vascularization and degradation.
- Scaffolds are being designed to fit within current prefabricated flap techniques.



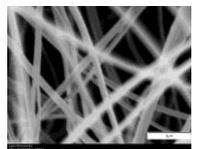
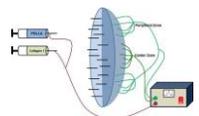
### Delipidated Adipose Grafts

- There is a significant need for increased reproducibility in adipose grafts.
- LUNA is developing a methodology and device to blend tissue and cell based approaches to exploit adipose.
- Force and chemical stimulation lead to delipidation and adipose tissue can be processed to a controlled size.



### Three Dimensional Electrospinning

- Nanofibers are appropriate for use in a variety of tissue engineering applications due to their structural similarity to native ECM.
- LUNA is exploring unique 3D and combinatorial techniques to fabricate a variety of scaffolds.
- They are envisioned for use in tissue engineering, peripheral nerve conduits, and as biomimetic culture surfaces.



## THE TEAM

LUNA's biomaterials and wound healing teams possess significant interdisciplinary expertise that enables us to think outside traditional paradigms to find innovative solutions for complex medical problems. Luna Innovations works closely with collaborators in academia, industry, and the government.

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