

Breaking the silence

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Propositions

accompanying the dissertation

BREAKING THE SILENCE: NANO-ENGINEERED SCAFFOLDS FOR TYMPANIC MEMBRANE REGENERATION

by

Shivesh ANAND

1. Geometry plays a critical role in governing the mechanical, acoustical, and biological properties of the tympanic membrane scaffolds (*Chapter 3*).
2. Chitin nanofibrils allow the fabrication of mechanically reinforced tympanic membrane constructs with immunomodulatory response (*Chapters 4 and 5*).
3. Biomimetic patches with tunable drug releasing capabilities facilitate patient-specific treatment of microbially-induced tympanic membrane perforations (*Chapter 7*).
4. Advanced 3D culture environments stimulate the differentiation of mesenchymal stromal cells toward tympanic membrane regeneration (*Chapter 8*).
5. The use of biofabrication techniques aims to simplify the overly complicated myringoplasty surgeries that demand highly specialized skills and precision (*Chapter 10*).
6. The peer-review process of each publication has a unique story to tell in the end.
7. As tissue engineers, we often forget that the world interprets the term “scaffolds” in completely different contexts.
8. Analogous to cells, the human mind too requires a precise set of stimuli to be “happy” and to perform optimally.
9. The role of societal motivation in academia can be compared to that of the high voltage power supply in electrospinning.
10. The best things in life and the worst things in flasks show up when they are least expected.

These propositions are regarded as opposable and defensible, and have been approved as such by the candidate's supervisors.