OSTEOGENESIS OF DENTAL STEM CELLS

NOVA SOUTHEASTERN UNIVERSITY COLLEGE OF DENTAL MEDICINE
BIOL4990-INDEPENDENT STUDY
DR. UMADEVI KANDALAM
JERRY ENNOLIKARA
This research lab is dedicated to the study of bioengineering bone tissue, an application of biology research within medicine known as “regenerative medicine”, through a variety of in-vivo and in-vitro projects.

The primary focus of our lab is to replace a lifetime of bone graft surgeries associated with cleft palate, a congenital disorder where the palatal process of the maxilla fails to fuse during development, with a noninvasive injectable treatment.

The lab upholds the central motif of tissue engineering of “cells, scaffolds, and growth factors” with our research utilizing periodontal ligamental stem cells/human gingival mesenchymal stem cells; 3D hydrogel scaffolds such as Puramatrix™ and Viagraft™ or bone powder; and osteogenic growth factors such as BMP-2 and more recently, FGF and VEGF in our newer studies.

The research is focused in a dental maxillofacial model yet also has many implications for medicine within the orthopedic field.
The lab is located primarily within the College of Dental Medicine, yet students ranging from the pre-dental to the pre-medical track work in the lab.

Student researchers have the opportunity to work and learn in many cross-curricular laboratory processes/techniques and connect the skills learned from the lab sciences to the real dental and medical field, such as:

- Genetics: PCR, Real Time PCR
- Biochemistry: Western blotting, Enzymatic assaying
- Microbiology: Cell culturing, Cell assaying, Cell staining
- Histology: Microscopy, Slide preparation, Tissue analysis

Most students researcher participate in research-for-credit by setting up and registering for a BIOL4990 Independent Study course section (1-3 credits) with the Biology department.

Each credit is valued to three hours of lab work for every week, or else otherwise as coordinated with Dr. Kandalam (or whoever your research professor is; this process is general for most research-for-credit courses).
HOW TO GET INVOLVED

- The lab is open to any undergraduate students who are passionate about the lab sciences.

- To get involved, please email Dr. Umadevi Kandalam at umadevi@nova.edu with your resume and a letter of interest. From there, she or someone else will get back to you to potentially set up a date to interview with Dr. Kandalam herself and see the lab!

- If you have any other questions, please email me (Jerry Ennolikara) at je788@mynsu.nova.edu

- Additional contacts:
  - Nicole DeLorenzo: ndelorenzo@mynsu.nova.edu (Lab Manager)
  - Shreya Patel: sp1743@mynsu.nova.edu (Student Researcher)