In the Name of God

Islamic Republic of Iran
Ministry of Health and Medical Education
Deputy Ministry for Education

Course Title in English

Oral Biology

Program Description

This fellowship program is a combination of research, academic and medical skills designed to educate individuals on oral biology and familiarize them with lab skills and further research in this field, to be able to come up with scientific innovation regarding country's needs and to broaden the horizons of science in the field of oral biology and dentistry.

Definition

Oral fellowship program in advanced education consisting of balanced sections in research, academic and treatment skills.

Program Objectives

Dentistry has always been a major, going through evolution, and has changed from a solely practical field to both practice and science combined, so much so that nowadays, dentistry does not serve its purpose if there is no scientific side to it. This being said and considering the expansion of the field of dentistry, it seems necessary to improve the research and science attributed to this major.

Major goals are as follows:

1) Teaching the basics of oral mucosa structure, saliva and biological roles of the oral cavity

2) Teaching the needed skills and science to carry out basic clinical research regarding oral biology and dentistry

3) Cooperation with various scientists in multiple dental and medical fields in research and practice

4) Broading the scope of teaching different fields of dentistry and oral biology through the graduates of this course

5) Laying the groundword to carry out key research in the field of dentistry and oral biology

Expected Competencies at the End of the Program

***General Competencies**

Specific Competencies and Skills

- Competency in assessment of changes in the oral mucosa
- Acquiring advanced scientific information on oral physiology
- Acquiring key information on the pathophysiology of oral lesions
- Acquiring needed skills in order to carry out research lab work
- Getting acquainted with team work in research programs
- Competency in educating others on oral physiology and biology
- Competency in understanding of oral functional roles
- Understanding of salivary roles
- Understanding of oral mucosa and teeth
- Understanding of oral oncogenic processess and their treatment
- Being able to cooperate with pharmaceutical companies and understading of each drug's effect on oral mucosa
- Being able to identify non-odontogenic orofacial pain
- Being able to participate in advanced dental research
- Being able to coordinate various research programs in dentistry

Main Services for Graduates

Educating individuals on the basics of oral mucosa, saliva and oral cavity biological roles

Main Field

Oral Medicine

Course Duration

18 Months

Admission Requirements

1. Meeting the general requirements of entering an advanced program based on the guidelines set by the ministry of health, treatment and medical education
2. Board-certified oral medicine specialists who have studied in Iran or abroad
3. Passing fellowship entrance exam by achieving a minimum of ۷۰٪
4. Passing the interview
5. Recommendation letter from two professors during post-graduate studies
6. Based on the nature of the field, priority is given to oral medicine specialists

Educational Strategies, Methods and Techniques

Lecture
Journal Club
Small Group Discussion

Overall Structure of the Course

Program Details

First Semester

Duration: 4 and a half months

Coordinator: Dr. Sepehri

Location

DentistrySchool, Scientific Research Center, Immunology and Human Genetics Research Center

Second Semester:

Duration: 4 and a half months

Coordinator: Dr. Aghahosseini

DentistrySchool, Scientific Research Center, Immunology and Human Genetics Research Center

Third Semester:
Thesis Defense

Course Titles
(general, basic or clinical)

- **Dependent courses**

1. Genetics
2. Histopathology
3. Immunology
4. Emberiology
5. Microbiology

- **Specialized and Practical Courses**
    1. Genetics
    2. Histopathology
    3. Immunology
    4. Embryology
    5. Microbiology

The general structure of the fellowship course

1. **Theoretical Units: 27**

2. **Specific practical units: 1**

Department Ward, unit, or education setting	Syllabus- Measures Content- actions	Hours	Duration (month) Time of unit presentation
Histopathology and embryology department	Oral mucosa structure. General embryology. Oral and maxillofacial embryology . Dental and dental supportive tissue . development Bone development Salivary glands development. TMJ . Dental tissue repair and regeneration .		2
Biology department	Cartilage biology. Bone biology. Hematology. Neurology.		2
Medical microbiology department	Fundamentals of microbiology. Fundamentals of virology. Diagnostic and clinical virology. and bacteriology Viral pathogenesis. Instrumentation and techniques in. medical microbiology		2
Introduction to biomaterials	Dental materials. Fundamentals of biomaterials. Soft tissue and hard tissue. biomaterials		2
Oral biology seminars	Journal clubs. Lecture. (source: novel journals)		2
Discussion of the common topics in oral biology ١	Biological assessment of hard. tissues and physiology and biochemistry of bone and teeth Assessment of the TMJ diseases.		2

	with regards to the basic sciences related to them Regeneration and healing of oral. tissue and differences between soft and hard tissue in healing/biochemistry of healing Biochemistry of hemostasis and. coagulation and bleeding disorders Different orofacial infections and. the cause Role of lymphatics and their. anatomy in infections as a defense mechanism/antimicrobial treatments		
Cellular and molecular biology	Basic course on prokaryotic and. eukaryotic cells Molecular and cell biology. Molecular and cell biology with. emphasis on their applications in dental and oral research		3
Immunology theoretical and practical	Basics of general and specific oral. immunology ,(cellular,molecular,autoimmunity (immune-deficiency syndrome Analysis of the current research. done on oral immunology /(HIVopportunistic infections/oral and periodontal immunopathology/caries immunology/oral allergies		2
Human genetics	Basic human genetics. Genes and development. Biochemistry and molecular. genetics		2
Discussion of the common topics in oral biology (٢)	Dental management of medically. compromised patients Salivary gland function in healthy. individuals/salivary gland diseases Molecular pathology. Orofacial anomalies and defects.		2
Hemostasis in oral system	Normal regulatory functions of.		2

	:various oral systems 1) Immune system 2) Mechanism of salivary secretion and non specific salivary protective mechanism 3) Mechanism of deposition and reabsorbtion of bone,dentine and enamel: hormonal influences on bone regulation		
Oral biology seminar	Journal club new journals on oral biology		1
Neuroscience	Fundamentals of neurobiology		2
Oral oncology	Cancer genetics. Tumor immunology. Principles of cancer surgery. Radiation therapy. Tumor grading. Oral cancer.		2
Thesis	Study of bone calcification. Study of osseointegration. Bone regeneration. Salivary biochemistry with regards. to substances and microorganisms involved in dental caries Assessment of craniofacial growth. and development Oral cavity microbiology. /Mastication.swallowing/speaking/bruxism Oral sensory physiology involved in the perception of pain/taste and heat Pharmacology of therapeutic effects in oral cavity Oral pathology, virology, carcinogens Oncogenic viruses Tumor suppressor genes		

Evaluation of students

Formative assessments including

- Assessments during the course through written exams or interviews

Summative assessments including

- Presentation and evaluation of the log Book indicating the completion of educational programs
- Presentation and defense of the thesis in the presence of the jury and presenting the article for publication in a prestigious English-language journal

References

Oral Biology
by
Roth
Publisher: Mosby; (May ١٩٨١)
ASIN: ٠٨٠١٦٤١٨٢٩

Biochemistry and Oral Biology - BIE
by
Cole Eastoe

Essentials of oral biology
by
David Adams

Biological Basis of Dental Caries: An Oral Biology Textbook
by
Lewis Menaker

,Oral Biology at the Turn of the Century: Misconceptions, Truths
Challenges & Prospects, Congress, Interlaken, August ١٩٩٨
٣٠th Anniversary of the European Research Group for Oral)
(Biology
by
S. Shapiro
pages ٢٩٥
Publisher: S. Karger Publishing; (March ١٩٩٩)
ASIN: ٣٨٠٥٥٦٧٩٥٢

Advances in Oral Biology
by
Peter H. Staple

Neural Mechanisms of Salivary Gland Secretion/Glandular
Mechanisms of Salivary Gland Secretion (Frontiers of Oral
(Biology
by
L.C. Anderson
(Editor)
Hardcover .
Publisher: S. Karger Publishing; (November ٢٠٠٠)
ISBN: ٣٨٠٥٥٦٩٦٤٥ .

,Aspects of Oral Molecular Biology (Frontiers of Oral Physiology
(Vol. ٨
by
D.B. Ferguson
(Editor)
Hardcover: ١۴٣ pages; Dimensions (in Inches): ٠/٥٠ x ٩/٥٠ x ۶/٧٥
Publisher: S. Karger Publishing; (March ١٩٩١)
ISBN: ٣٨٠٥٥٥٢۶١٠

Oral Structural Biology (Thiemeflexi Series)
by
Hubert E. Schroeder
Paperback: ۴٢۴ pages; Dimensions (in Inches): ٠/٧٥ x ٧/٥٠ x ٥/٠٠
Publisher: Thieme Medical Pub; (December ١٩٩١)
ISBN: ٠٨۶٥٧٧٣٨٧۴

Oral Structure Biology Publisher: Thieme Medical Pub; (June ١٩٩١)
ISBN: ٣١٣٧٥٧۶٠١۶

Essentials of Mucosal Immunology
by
Martin Kagnoff
Paperback: ٥٩٧ pages; Dimensions (in inches): ١/١٢ x ٨/٨٩ x ٧/٩۴ ,
Publisher: Academic Press; (July ٢٢, ١٩٩۶)
ISBN: ٠١٢٣٩۴٣٣٠٢

Handbook of Biomaterials Evaluation: Scientific, Technical, and
Clinical Testing of Implant Materials
by
Andreas Von Recum
Hardcover: ٩١٥ pages; Dimensions (in inches); ١/٩٠ x ١٠/٢٨ x ٧/۴١
Publisher: T&F STM; ٢nd edition (December ١٩٩٨)
ISBN: ١٥۶٠٣٢۴٧٩١ AIL Editions

The Biology of Salivary Glands
by
Kathleen Dobrosielski-Vergona
Hardcover: ; Dimensions (in inches): ١/٠٠ x ٩/٧٥ x ۶/٥٠)
Publisher: CRC Press; (January ١٩٩٣)
ISBN: ٠٨۴٩٣٨٨۴٧٣

Cell Biology of Tooth Enamel Formation: Functional Electron
Microscopic Monographs (Monographs in Oral Science, Vol ١۴)
by
Takahisa Sasaki
Hardcover: ٢٠۴ pages
Publisher: S. Karger Publishing; (March ١٩٩٠)
ISBN: ٣٨٠٥٥٥٠۴٥۶

Oral Implantology and Biomaterials: Proceedings (Progress in
(Biomedical Engineering, Vol ٧
by
Haruyuki Kawahara
Publisher: Elsevier Science Ltd; (September ١٩٨٩)
ASIN: ٠٤٤٤٨٧٣٤٧٣

Chemistry and Biology of Mineralized Tissues
by
Melvin J. Glimcher
Paperback: ٩٦٨ pages
Publisher: Taylor & Francis; (September ١٩٣٩)
ISBN: ٠٦٧٧٢٢٣٢٠X

Ten Cate's Oral Histology: Develop.nent, Structure, and Function
by
Antonio Nanci
pages; Dimensions (In inches): ١/٠٠ x ١١/٥٠ x ٩/٠٠ ٤١٦
Publisher: Mosby; ٦th edition (July ٢٠٠٣)
ISBN: ٠٣٢٣٠١٦١٤٦

Lab Manual of Normal Oral Histology
by
Holliston L. Riviere
Publisher: Quintessence Pub Co; ١st edition (July ١٥, ٢٠٠٠)
ISBN: ٠٥٧١٥٣٨٦٥

The fellowship resident should participate in

The fellowship residents are required to have regular and active participation in theoretical classes and attend the relevant departments described in the course plan

The fellowship resident is also highly recommended to

- Expand their knowledge on histopathology, genetics, immunology, PCR techniques
- Participate in joint journal clubs and discussion panels

Minimum academic staff needed for running fellowship course

1. Genetics professor
2. Embryology professor
3. Histopathology professor
4. Immunology professor

Well-informed staff required to run this program

Genetics technician
Medical laboratory technician
Histopathology lab technician

Requirements

- Class room equipped with computer and internet
- Laboratory (genetic,histopathology)

Faculty members participating in the fellowship progrm