

Department of Immunology: 2015 Annual Report



**Department of Immunology**

**School of Medicine**

**Iran University of Medical Sciences**

**Annual Report**

**2015**

**Prepared by:**

**Reza Falak**

**Maryam Foroutan Jazi**

## *Section I Introduction*

### **A. Executive Summary**

In brief, 1394 (March 2015 to March 2016) was an exciting year for Immunology department. Three assistant professors including Dr. Samaneh Khorramim, Dr. Mir Hadi Jazayeri and Dr. Mohammad Ali Assarezadeghan joined us as new members. Dr. Nader Tajik was assigned as the graduate teaching deputy at the School of Medicine, who raised some innovative procedures to facilitate the collaboration of the departments of the clinical and the basic sciences. Two experienced full professors including Dr. Tahereh Mousavi and Dr. Mohammad Ali Bahar were retired.

In **Research**, our members were successful in designing the immunochemistry laboratory and development of some advanced methods in this field.

Research output from the members was published in more than 20 scientific papers and several books. At least three gatherings occurred within the department to celebrate different events including “students Day” and “Research Day”.

In terms of **Education**, the department was excellent by delivering novel undergraduate and graduate programs. During the year the journal club gatherings were regularly conducted. Moreover, several theoretical and practical workshops were held.

In terms of **Service and Administration**, the department had excellent collaboration with Immunology Research Center. Mrs. Maryam Froutan prepared handbook of Policies and Procedures for the Department, accessible through our departmental webpage which was also designed by herself. The department plays a creative role in conducting the biosafety regulations collaborated with biosafety committee of the faculty of Medicine. Mr. Alireza Farahani gathered a concise handbook about biosafety issues and was assigned as the biosafety officer of the department. Some useful equipment including Real-Time PCR, Refrigerated Microfuge and -40°C freezer were purchased and installed which provide facilities to develop more advanced techniques.

I would like to thank Dr. Nazanin Mojtavavi and Dr. Elaheh Safari, deputies of the education of Graduate and Undergraduate training committees of the department, who showed great effort in coordination and arrangement of the courses and the exams. I would like to thank Dr. Reza Falak and Mrs. Froutan for the elaboration of this report. We hope to have further promotion in the next year.

**Dr. Mehdi Shekarabi**

## **B. Faculty Listing**

### **1. List of faculty members with primary appointments in the department**

Dr. Mehdi Shekarabi (Ph.D)

Dr. Mohammad Ali Bahar (Ph.D)

Dr. Kobra Entezami (Ph.D)

Dr. Tahereh Mosavi (Ph.D)

Dr. Nader Tajik (Ph.D)

Dr. Reza Falak (Ph.D)

Dr. Mohammad Ali Asarezadegan (Ph.D)

Dr. Hadi Jazayeri (Ph.D)

Dr. Nazanin Mojtavavi (Ph.D)

Dr. Ali Akbar Delbandi (Ph.D)

Dr. Elahe Safari (Ph.D)

Dr. Samaneh Khorami (Ph.D)

### **2. List of Faculty members with secondary appointments**

**Dr. Amir Hassan Zarnani** (Ph.D) from AVECINNA Research Center

**Dr. Farshid Nourbakhsh** (MD, Ph.D) from Immunology Department, Tehran University of Medical Sciences

**Dr. Mohammad Najafi** (Ph.D) from Biochemistry Department, IUMS

**Dr. Mitra Nourbakhsh** (Ph.D) from Biochemistry Department, IUMS

**Dr. Morteza Fallahpor** (MD) from Department of Clinical Allergy and Immunology

**Dr. Mohammad Hassan Bemanian** (MD) from Department of Clinical Allergy and Immunology

**Dr. Saba Arshi** (MD) from Department of Clinical Allergy and Immunology

**Dr. Mohammad Nabavi** (MD) from Department of Clinical Allergy and Immunology

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**Dr. Leyla Janani** (Ph.D) from Department of Statistics and Social Medicine

**Dr. Tamam Ali Azadi** (Ph.D) from Department of Statistics and Social Medicine

**Dr. Hadi Pourmoghim (MD)** From Department of Clinical Rheumatology

**Dr. Yaseri (MD)** From Department of Clinical Gastroenterology

**Dr. Mohammad Reza Yasinzadeh (MD)** From Department of Emergency Medicine

**Dr. Simin Almasi (MD)** From Department of Clinical Rheumatology

**Dr. Shams (MD)** From Department of Clinical Rheumatology

**Dr. Sedigheh Moradi (MD)** From Department of Clinical Endocrinology

### **3. Teaching and Research Assistants**

**Masomeh Najafi** (Immunochemistry Lab RA, Medical Immunology Lab TA)

**Alireza Najafi** (Medical Immunology Lab RA and TA)

**Alireza Farahani** (Biosafety Officer, Molecular Lab RA, Medical Immunology Lab TA)

**Maryam Foroutan jazi** (Website Manager & Medical Immunology Lab TA)

### **4. Secretary and service providers**

**Soraya Rafiei** (Secretary)

**Hossein Afshar**

## *Section II Research*

### **A. Publications, Lectures, Patents**

#### **Dr. Mehdi Shekarabi (Ph.D)**

**Research interest:** Clinical laboratory immunology, innovations in diagnostic immunology, the role of autoantibodies in SRD



#### **Publications**

Mohsenzadegan M, Tajik N, Madjd Z, **Shekarabi M**, Farajollahi MM. Study of NGEF expression in androgen sensitive prostate cancer cells: A potential target for immunotherapy. Med J Islam Repub Iran. 2015 Jan 13;29:159.

Mohsenzadegan M, **Shekarabi M**, Madjd Z, Asgari M, Abolhasani M, Tajik N, Farajollahi MM. Study of NGEF expression pattern in cancerous tissues provides novel insights into prognostic marker in prostate cancer. Biomark Med. 2015;9(4):391-401.

**Dr. Nader Tajik (Ph.D)**

**Research interest**

Transplantation Immunology and Immunogenetics. Molecular studies of the complexity, polymorphism and functional roles of HLA region (A, B, C, DR, DQ, DP, TAP and LMP) genes. Immunogenetic profiling in transplantation and various clinical conditions. Study of cytokines, killer cell immunoglobulin-like receptors, adhesion and other Immunoregulatory molecules polymorphism in the Iranian population. Regenerative medicine and Immunology of stem cells. Harnessing mesenchymal stem cells immunomodulatory properties to treat autoimmune disorders and transplant rejection.



**Publications**

1. HLA-DRB1 alleles of susceptibility and protection in Iranians with autoimmune hepatitis. Baharlou R, Kashani AF, Faraji F, Najafi-Samei M, Setareh M, Zamani F, **Tajik N**. Hum Immunol. 2016 Jan 11. Doi: 10.1016/j.humimm.2016.01.007.
2. Genotype and allele frequency of CYP2C19\*17 in a healthy Iranian population. Payan M, **Tajik N**, Rouini MR, Ghahremani MH. Med J Islam Repub Iran. 2015 Oct 3;29:269. eCollection 2015.
3. Mohammadi A, **Tajik N**, Shah-Hosseini A, Alavian SM, Sharifi Z, Jarahi L. FAS and FAS-Ligand Promoter Polymorphisms in Hepatitis B Virus Infection. Hepat Mon. 2015 Oct 10;15(10):e26490. doi: 10.5812/hepatmon.26490.
3. Shamseddin J, Akhlaghi L, Razmjou E, Shojaee S, Monavari SH, **Tajik N**, Ebrahimi SA, Meamar AR. Conjugated Linoleic Acid Stimulates Apoptosis in RH and Tehran Strains of Toxoplasma gondii, in Vitro. Iran J Parasitol. 2015 Apr-Jun;10(2):238-44.
4. Saifi B, Aflatoonian R, **Tajik N**, Erfanian Ahmadpour M, Vakili R, Amjadi F, Valizade N, Ahmadi S, Rezaee SA, Mehdizadeh M. T regulatory markers expression in unexplained recurrent spontaneous abortion. J Matern Fetal Neonatal Med. 2015 Jun 5:1-6. [Epub ahead of print]
5. Mohsenzadegan M, **Tajik N**, Madjd Z, Shekarabi M, Farajollahi MM. Study of NGEP expression in androgen sensitive prostate cancer cells: A potential target for immunotherapy. Med J Islam Repub Iran. 2015 Jan 13;29:159.
6. Rahavi H, Hashemi SM, Soleimani M, Mohammadi J, **Tajik N**. Adipose tissue-derived mesenchymal stem cells exert in vitro immunomodulatory and beta cell protective functions in streptozotocin-induced diabetic mice model. J Diabetes Res. 2015;2015:878535.
6. Mohsenzadegan M, Shekarabi M, Madjd Z, Asgari M, Abolhasani M, **Tajik N**, Farajollahi MM. Study of NGEP expression pattern in cancerous tissues provides novel insights into prognostic marker in prostate cancer. Biomark Med. 2015;9(4):391-401.

**Dr. Reza Falak (Ph.D)**



**Research interest**

Molecular Allergology, Cancer Biology, Innovation in practical Immunology, Immunoparasitology

**Award**

**Outstanding medical faculty professor for social accountability**, 2015, IUMS annual medical education festival, School of Medicine, IUMS, Tehran, Iran.

**Publication**

Moghadam M., Ganji A., Varasteh A.R., **Falak R.**, Sankian M.; Refolding process of cysteine-rich proteins: Chitinase as a model; Reports of Biochemistry & Molecular Biology, 2015, 4(1).

**Books**

- 1- **Falak R.**, Hakemi M.; Immunochemistry: Principals and Practice (in Persian), Published in 2015 by Jame-e-Neghar Publication Co.
- 2- Delbandi A.A., **Falak R.**, Zand B.; Immunology for students of Nursery and Midwifery (in Persian), Published in 2015 by Heydari Publication Co.

**Abstract in Scientific Meetings**

- 1- Fazeli Delshad B., Soltanpour Gharibdousti F., **Falak R.**, Ganjalikhani-Hakemi M., Kardar G.A.; The effect of VEGF peptide vaccine on inhibition of metastasis in mice breast cancer model; 10<sup>th</sup> European Breast Cancer Conference (EBCC); Amsterdam, 9–11 March 2016; indexed in European Journal of Cancer, Volume 57 Supplement 2, April 2016.
- 2- Mokhtarian K., Akhlaghi L., **Falak R.**, Razmjou E., Meamar A.R., Gholami S., Najafi M.; Application of Fasciola hepatica fractionated proteins for serodiagnosis. 2<sup>nd</sup> International and 9<sup>th</sup> National Congress of Parasitology and Parasitic Diseases in Iran, 20-22 May 2015.
- 3- Mokhtarian K., Akhlaghi L., **Falak R.**, Razmjou E., Meamar A.R., Gholami S., Najafi M.; Comparative immunoblotting assessment of fractionated and crude extract of Fasciola hepatica. 7<sup>th</sup> International congress of laboratory and clinic (Infectious disease) and 1<sup>st</sup> conference of clinical virology, 12-14 February 2015.
- 4- Soltanpour Gharibdousti F, Fazeli Delshad B, **Falak R.**, Ganjalikhani Hakemi M, Andalib A, Kardar GA; Development of peptide ELISA for detection of polyclonal antibodies induced by VEGF peptide based vaccine; 7<sup>th</sup> International congress of laboratory and clinic (Infectious disease) and 1<sup>st</sup> conference of clinical virology, 12-14 February 2015.

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### Lecturer in Work Shops:

1. **Protein Purification Techniques and Applications;** 6-8 february 2016; 8<sup>th</sup> International Congress of Laboratory & Clinic, and 1<sup>st</sup> National Congress of Basic Medical Sciences and the Knowledge-Based Production.
2. **Cell culture: Basics and Applications;** 6-8 february 2016; 8<sup>th</sup> International Congress of Laboratory & Clinic, and 1<sup>st</sup> National Congress of Basic Medical Sciences and the Knowledge-Based Production.
3. **Extraction of DNA and RNA from peripheral blood mononuclear cells;** 10-11 November 2015, 2<sup>nd</sup> National Conference on New Cellular and Molecular Biotechnology.
4. **Quality Control and Quality Assurance in Immunology and Serology;** 10 January 2015, Deputy of Treatment, IUMS, Tehran, Iran.
5. **Quality Control and Quality Assurance in Immunology and Serology;** 24 April 2015, The 8<sup>th</sup> International & 13<sup>th</sup> National Congress on Quality Improvement in Clinical Laboratories, Razi building, IUMS, Tehran, Iran.



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**Dr. Mohammad Ali Asarezadegan (Ph.D)**

**Research interest:**

Immunology and Allergology



**Publications**

- 1- Dousti F, **Assarehzadegan MA\***, Morakabati P, Khosravi GR, Akbari B, Molecular cloning and expression of Pro j 1: A new allergen of Prosopis juliflora pollen . *Iranian Journal of Allergy, Asthma and Immunology*, 2016; 15(2): 122.131.
- 2- Khosravi GR, **Assarehzadegan MA\***, Morakabati P, Akbari B, Dousti F. Cloning and expression of Aca f 1: A new allergen of Acacia farnesiana pollen. *Central European Journal of Immunology*, 2016; 41 (3):271-283.
- 3- Sheikhi R, Amin M, Hamidinia M, **Assarehzadegan M.-A**, Rostami S, Mojtahedi Z. Comparative Proteomics Analysis of Two Strains of Neisseria meningitidis Serogroup B and Neisseria lactamica. *Jundishapur Journal of Microbiology* 2015; 8(11): e25228.
- 4- Saadi S, **Assarehzadegan M.-A.\***, Pipelzadeh MA., Hadaddezfuli R. Induction of IL-12 from human monocytes after stimulation with Androctonus crassicauda scorpion venom. *Toxicon* 2015; 106: 117-121.
- 5- Hadaddezfuli R, Khodadadi A, **AssarehzadeganM.-A.\***, Pipelzadeh MA, Saadi S. Hemiscorpius lepturus venom induces expression and production of interluckin-12 in human monocytes. *Toxicon* 2015; 100:27-31.
- 6- Zarean M, Maraghi SH, Hajjarian H, Mohebalı M, Feiz-Hadad MH, **Assarehzadegan M.-A.** Comparison of Proteome Profiling of Two Sensitive and Resistant Field Iranian Isolates of Leishmania major to Glucantime® by 2-Dimensional Electrophoresis. *Iranian Journal of Parasitology* 2015; 10(1): 19-29.
- 7- Iranparast S, **Assarehzadegan M.-A.**, Heike Y, Hossienzadeh M, Khodadadi A. Wilms' Tumor Gene (WT1) Expression Correlates with Vascular Epithelial Growth Factor (VEGF) in Newly Acute Leukemia Patients Undergoing Chemotherapy. *Asian Pacific journal of cancer prevention* 2014;15(21): 9217-9223.

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- 8- Khodadadi A, Abdoli Z, Ghaforian boroujerdnia M, **Assarehzadegan M.-A.**, Ghasemi M, Hazrat Mohagheghi S, Dashti Gerdabi N. The effect of G2 adjuvant on gene expression and delivery of NKG2D receptor on NK cells in peripheral blood. *Cancer Biotherapy and Radiopharmaceuticals* 2016; 31(4): 119-124.
- 9- Morakabati P, **Assarehzadegan MA \***, Khosravi GR, Akbari B, Dousti F. Cloning and expression of Ama r 1, as a novel allergen of Amaranthus retroflexus pollen. *Journal of Allergy (Cairo)*, 2016 Article ID 4092817.
- 10- Akbari B, **Assarehzadegan MA\***, Morakabati P, Khosravi GR, Dousti F, Molecular characterization of a new allergen from Kochia scoparia pollen, Koc s 1 . *International Journal of Bioscience*, 2015; 7 (4), 128-138
- 11- Zarinhadidaeh F, Amini A, Borci H, **Assarehzadegan MA\***, Sepahi N, Ali-Sadeghi H. Immunochemical and molecular characterization of allergenic profilin (Koc s 2) from Kochia scoparia. *Journal of Applied Biological Chemistry* 2015; 58 (3), 443-451.
- 12- Ali-Sadeghi H, Khodadadi A, Amini A, **Assarehzadegan MA\***, Sepahi N, Zarinhadideh F. pro j 2 is mesquite profilin: Molecular characteristics and specific IgE binding activity. *Asian Pacific Journal of Allergy and Immunology* 2015; 33 (2): 90-98.

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**Dr. Ali-Akbar Delbandi (Ph.D)**

**Research interests**

Reproductive Immunology, Immunomodulation



**Publication**

“1,25-Dihydroxy Vitamin D3 Modulates Endometriosis-Related Features of Human Endometriotic Stromal Cells” ; Ali-Akbar Delbandi, Mahmoud Mahmoudi, Adel Shervin, Amir-Hassan Zarnani; American Journal of Reproductive Immunology 75 (2016) 461–473

**Book**

Delbandi A.A., Falak R., Zand B.; Immunology for students of Nursery and Midwifery (in Persian), Published in 2015 by Heydari Publication Co.

**Abstract in Scientific Meetings**

1,25-dihydroxy vitamin D3 modulates endometriosis-related features of human endometriotic stromal cells; 2015; A.H. Zarnani, A.A. Delbandi, M. Mahmoudi, A. Shervin, A. Kalantari

**Lecturer in Work Shops:**

- 1- Protein Purification Techniques and Applications; 6-8 february 2016; 8th International Congress of Laboratory & Clinic, and 1st National Congress of Basic Medical Sciences and the Knowledge-Based Production.
- 2- Cell culture: Basics and Applications; 6-8 february 2016; 8th International Congress of Laboratory & Clinic, and 1st National Congress of Basic Medical Sciences and the Knowledge-Based Production.
- 3- Extraction of DNA and RNA from peripheral blood mononuclear cells; 10-11 November 2015, 2nd National Conference on New Cellular and Molecular Biotechnology.
- 4- Primer design; 10-11 November 2015, 2nd National Conference on New Cellular and Molecular Biotechnology.

## *Section III Teaching and Learning*

### **A. Post Graduate Programs**

#### **Ph.D Student Courses**

Bioinformatics and Immunoinformatics (Immunology students)

Clinical Immunology (Immunology students)

Organ Immunology (Immunology students)

Basic Immunology (Nutrition students)

Immunotherapy (Immunology students)

Immunology of Infectious Disease (Bacteriology students)

#### **Ms.c Student Courses**

Immunopathology and Immunotherapy (Immunology students)

Immunoheamatology and Blood Banking (Immunology students)

Immunology of Infectious Disease (Immunology students)

Immunology II (Immunology students)

Practical Immunology and Immunochemistry (Immunology students)

Basic Immunology (Parasitology students)

Principals of Immunochemistry (Immunology students)

Bioinformatics (Immunology students)

### **B. Undergraduate Programs**

Immunology for students of Medicine (Theoretical)

Immunology for students of Medicine (Practical)

## Journal clubs

Title	Speaker	Date
<b>Seminar</b>	Msc students	5-6.11.94
GITR subverts Foxp3+ Tregs to boost Th9 immunity through regulation of histone acetylation	Mona Amani	28.10.94
Synthetic peptides for the immunodiagnosis of hepatitis A virus infection	Mostafa Manian	12.10.94
Durable Therapeutic Efficacy Utilizing Combinatorial Blockade against IDO, CTLA-4, and PD-L1 in Mice with Brain Tumors	Sahel Heidari	30.9.94
Olfactory ectomesenchymal stem cells possess immunoregulatory function and suppress autoimmune arthritis	Mohammad Jafari	23.9.94
Salmonella overcomes tumor immune tolerance by inhibition of tumor indoleamine 2, 3-dioxygenase 1 expression	Leila Samimi	16.9.94
Regulatory T Cells and Myeloid-Derived Suppressor Cells in the Tumor Microenvironment Undergo Fas-Dependent Cell Death during IL-2/aCD40 Therapy	Elham Shokati	9.9.94
miR-155 Upregulation in Dendritic Cells Is Sufficient To Break Tolerance In Vivo by Negatively Regulating SHIP1	Elahe Izadi	2.9.94
<b>Immunodeficiency seminar</b>		25.8.94
Engagement of the ICOS pathway markedly enhances efficacy of CTLA-4 blockade in cancer immunotherapy	Hosein Atwan	18.8.94
PD-L1 is a novel direct target of HIF-1 $\alpha$ , and its blockade under hypoxia enhanced MDSC-mediated T cell activation	Mohammad Davoodzadeh	11.8.94
Therapeutic potential of human-induced pluripotent stem cell-derived endothelial cells in a bleomycin-induced scleroderma mouse model	Pendar Safari	27.7.94
NLRP3 is activated in Alzheimer's disease and contributes to pathology in APP/PS1 mice	Fatemeh Vafashoar	20.7.94
Distinct Inflammatory Profiles in Atopic and Nonatopic Patients With Chronic rhinosinusitis Accompanied by Nasal Polyps in Western China	Farhad Seif	25.3.94
Transient Blockade of Delta-like Notch Ligands Prevents Allograft Rejection Mediated by Cellular and Humoral Mechanisms in a Mouse Model of Heart Transplantation	Rasoul Baharlou	18.3.94
Deletion of microRNA-155 reduces autoantibody responses and alleviates lupus-like disease in the Fas/lpr mouse	Majid Khoshmirsafa	4.3.94
Th1/Th17 plasticity is a marker of advanced beta cell autoimmunity and impaired glucose tolerance in human	Marjan Taherian	28.2.94
<b>Seminar</b>	Msc students	23.2.94

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The Human Fetal Placenta Promotes Tolerance against the Semiallogeneic Fetus by Inducing Regulatory T Cells and Homeostatic M2 Macrophages	Nesa Rashidi	21.2.94
A single glycan on IgE is indispensable for initiation of anaphylaxis	Mohammad Reza Bolouri	14.2.94
بررسی چند شکلی ژن های CTLA4، IFN-VNTR و HLA در دیابت تیپ ۱ و دیابت خودایمن پنهان	Mohammad Khoshro	7.2.94
Maintenance of T Cell Function in the Face of Chronic Antigen Stimulation and Repeated Reactivation for a Latent Virus Infection	Shaghayegh Ebrahimnezhad	31.1.94
Ability of HIV-1 Nef to downregulate CD4 and HLA class I differs among viral subtypes	Paria Jorbozedar	24.1.94
بررسی تاثیر ایمنی زایی واکسن پپتیدی فاکتور رشد اندوتلیال رگی بر مهار تکثیر رده های سلول های سرطانی در حضور VEGF	Faezeh Soltanpour	16.12.93
Influence of Processing on the Allergenic Properties of Pistachio Nut Assessed in Vitro	Fereshteh Varaie	9.12.93
VEGF-A modulates expression of inhibitory checkpoints on CD8+ T cells in tumors	Banafshe Fazeli	2.12.93
تولید پروتئین نو ترکیب از ایمونوزن اصلی فاسیولاهپاتیکا و ارزیابی آن جهت تشخیص فاسیولازیس انسانی با روش الایزا	Kobra Mokhtarian	18.11.93
MicroRNA-Containing T-Regulatory-Cell-Derived Exosomes Suppress Pathogenic T Helper 1 Cells	Mohamdreza Boluri	11.11.93
بررسی ارتباط تنوع ژنتیکی HPAs با بیماری عروق کرونری	Farideh Malakotikhah	4.11.93
Programmed death-1 receptor suppresses g-IFN producing NKT cells in human tuberculosis	Elham Alipour	13.10.93
Thesis lecture	Dr Samaneh Khorrami	6.10.93
Common variable immunodeficiency revisited: normal generation of naturally occurring dendritic cells that respond to Toll-like receptors 7 and 9	Rozbeh Sanaie	27.9.93
Errors and interferences in immunoassays	Dr Nader Tajik	15.9.93
Donor Pre-treatment with IL-1 Receptor Antagonist Attenuates Inflammation and Improves Functional Potency in Islets from Brain-Dead Non-human Primates	Hossein Azami	8.9.93
Investigation of VEGF peptide vaccine on metastasis inhibition in mice with breast cancer	Banafsheh Fazeli	1.9.93
Vaccination with a Modified Vaccinia Virus Ankara-based vaccine protects mice from allergic sensitization	Mohsen Mohammadi	3.8.93
Review of sigleets	Sima Shahmohamdi	19.7.93
Association of maternal KIR and fetal HLA-C genes with the risk of preeclampsia in Chinese Han population	Fatemeh Fraji	5.7.93

## *Section IV Academic & Community Service and ceremonies*



مراسم تجلیل از اساتید بازنشسته



مراسم ترفیع جناب آقای دکتر تاجیک



مراسم جشن آخر سال

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