# The Maurice and Gabriela Goldschleger School of Dental Medicine

Founded by the Alpha Omega International Fraternity

**Newsletter** 







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## MESSAGE FROM THE HEAD OF SCHOOL



Prof. Shlomo Matalon

As the New Year (2023) is at our doorstep, I would like to share with you some updates from the Tel Aviv University School of Dental Medicine.

The new Oral Pathology Lab was inaugurated this past June. The new Lab is cutting edge and will serve to educate new specialists and researchers to save and improve the quality of life of the Israeli population. This project would never have happened without the remarkable efforts of PIP Michael Tenenbaum who is a member of our International Advisory Board and a prominent supporter of our School, in fact a pillar of this institution.

The refurbishment of the undergraduate student clinics has just been completed a few days ago and has been a long time coming (35 years) This accomplishment cannot be over emphasised- suffices to say that it brings these clinical facilities squarely into the 21st century.

In addition, we have started to prepare the ground for a much-needed new post-graduate orthodontic clinic adjacent to the entrance of our building. This was a happy outcome of the increase in dental student enrolment necessitating the relocation of the current orthodontic clinic. This project is due to be completed by the beginning of the next academic year (October 2023). Unfortunately, financial restrictions did not allow upgrading this clinic to the level we had initially intended.

A new three-unit clinic for the elderly and special care population funded by the Wasserman Hirsch and Henie Fund is about to be opened within the next couple of weeks. This clinic will serve the growing elderly population who requires special dental care.

The pre-clinical simulation (mannequin) lab, which has been in use for the past 35 years, needs immediate replacement. Presently, we plan to install 5 virtual reality dental trainers, where students can practice a variety of dental preparations using a real dental handpiece with a highly realistic force feedback. Currently we are unable to purchase these units and are seeking financial support to do so.

I am also pleased to report that a new initiative of student exchange is planned for the coming year with our French AO friends and Andre' Amiach, who is a great supporter of our school and the engine behind this project. Andre' has also initiated the unforgettable hospitality by the AO Marseilles chapter for the Schools' delegation who presented their research works at the IADR Pan European meeting this past September. Furthermore, this year we are looking forward to welcoming student delegations from Michigan University, and from the University of Pennsylvania schools of dental medicine with the support of Dean Mark Wolf who visited our school last month.

The first PhD student, Dr. Shlomo Albahari, of a mutual post graduate program with ACTA, University of Amsterdam School of Dental Medicine has graduated. This lays the ground for other mutual post graduate programs with other foreign universities in addition to the continuation of our research collaborations with numerous universities around the world.

I am proud to be able to inform you that last year our students and staff published more than 150 articles in peer reviewed international journals. This accomplishment is an almost 40 percent increase from that of the previous year!

Our common goals lay ahead with much still left to be accomplished. The impressive past of our school as well as our bright future rests on your continued support, cooperation, and our mutual efforts. Our aim is high and together we will reach new heights.

I wish for each of us that the New Year brings with it only good news and I sincerely hope to welcome you in person here at the Tel Aviv University School of Dental Medicine soon.

I would like to wish you, your families and your dear ones good health and much happiness

Shlomo

### OPENING TO THE COMMUNITY







#### The Pediatric Dental Health Department – 2022

## Dental Health Day for the children of the "Gevanim" school

As part of the Department's tradition, as each year, this year too the sixth year students and the doctors of the Pediatric Dentistry Department took part in community activity at the "Gevanim" school in the south of Tel Aviv on 29.11.22.



The large team of the doctors and students offered a presentation to the third grade classes of the school, about 250 children, about oral and dental health. They taught the children the main rules of maintaining oral hygiene, proper nutrition and oral health. Afterwards they played and assimilated the material with the children in a Bingo game with many participants.

The children participated and took an active part in the activity, and enjoyed

it very much. All the children received toothbrushes, a gift donated by the "Oral-B" company.

The staff of the Department was warmly welcomed by the children and the school's staff. It should be pointed out that the children of this school, from various classes, come to the Tel Aviv School of Dental Medicine each Tuesday in the framework of students clinics.

This special activity has been taking place for several years, and in its framework the Department provides free of charge treatment to children in need of dental care, children who have no legal status or are unable to finance the treatments.

The children receive high-quality treatment and come without fear or concern.

On this important day the students learned where the children study, established an additional relationship beyond the treatment chair and established contact with many more children who learned this important issue of maintaining oral and dental health.

The contribution of the School of Dentistry to the health of the community of children and parents in the areas of Tel Aviv where there is a lack of access to treatment is a contribution worth of support. The children's transport from and to their school is financed by the School of Dental Medicine in addition to the free of charge treatments they receive.



The cooperation of the Department and the "Gevanim" school is praiseworthy and together they share and enjoy their joint activity.

## RESEARCH

#### **Dental Anthropology lab**

Students of the Dental Anthropology lab led by Dr. Rachel Sarig (the Department of Oral biology) have given presentations on new and exciting topics in the world of dental research at various conferences both locally and around the world. Comments have been made by other attendees regarding the high quality of these presentations as well as the wide range of interesting subject matter. These

conferences have included the local chapter of the International Association for Dental Research, both in Tel Aviv and in Jerusalem, as well as the most recent meeting of the Europeans chapter, for which Dr. Maayan Dassa traveled to Marsailles, France. This past summer, five students travelled to Frankfurt, Germany, to present at the 18th International Symposium on Dental Morphology and

represented the only lab to have at least one presentation in every session of the conference. In addition, Michal Peer presented her thesis on burned teeth at the First Conference for Archaeology and Police locally in Beit Shemesh and will be at the 75<sup>th</sup> Annual Scientific Meeting of the American Academy of Forensic Sciences this coming February in Orlando, Florida.









Some of the students who presented in the latest international and local conferences, with Dr. Rachel Sarig. Note examples of the studies that were presented: the study on burned teeth by Michal Peer, and the study of non-caries cervical lesion by Dr. Maayan Dasa.

#### Want to Live Longer? Find Out if You Snore

#### Women over 50 who snore face an elevated risk of sleep apnea

If you're a woman and over 50, we recommend that you find out whether or not you snore at night (your bed partner may already have alerted you to the issue). TAU researchers found that women aged 55 and over who snore are at increased risk of sleep apnea, which can be fatal. Because the phenomenon occurs during sleep, most women who suffer from sleep-disordered breathing are not aware that they are at increased risk.

"The lack of early diagnosis is particularly noticeable in one of the target demographic groups: women over the age of 50, who suffer from an increase in the incidence of sleepdisordered breathing due to hormonal changes that occur during menopause," warns TAU's Prof. Ilana Eli, adding "We wanted to examine and characterize the phenomenon in this group in order to raise a red flag when necessary." The following study was conducted by Dr. Alona Emodi-Perlman, Prof. Ilana Eli, Dr. Jawan Sleiman and Dr. Pessia Friedman-Rubin from the Department of Oral Rehabilitation at The Maurice and Gabriela Goldschleger School of Dental Medicine at Tel Aviv University, and was published in the prestigious Journal of Clinical Medicine.

#### **Drop the Shame**

The researchers examined hundreds of Israeli women, whom they divided into two groups: women aged 20-40 (premenopause) and women aged 55 and over (post-menopause).

They found that 15% of the older women are at significant risk of sleep apnea, compared to only 3.5% of the younger women. In addition, they found that 11% of the women who snore are at increased

risk for sleep apnea, compared to only 1% of the women who do not snore.

In the study, the participants filled out dedicated questionnaires, which included a variety of questions such as: how do you feel when you get up in the morning: Fatigue, headache, tension/stiffness in the muscles of the face, neck and jaw? Do you grind your teeth at night? Do you wake up during the night? Do you feel



tired or drowsy during the day? And the big question, which many women are ashamed of answering: Do you snore? The data were weighted with physical indicators – BMI and neck circumference, which is known to thicken in old age, as well as demographic data – work, number of children, marital status, etc. The findings make it possible to define three categories of risk of sleep apnea: women who are at high, medium and low risk.

Prof. Eli explains that sleep breathing disorders range across a broad spectrum – from mild snoring to the most severe and dangerous disorder – sleep apnea. Sleep apnea causes a decrease in blood oxygen concentration and can, as mentioned, be life-threatening. In addition, if the phenomenon is not diagnosed and treated in time, it can contribute to the development of a variety of systemic diseases, such as

hypertension, cardiovascular disease and stroke.

#### **Ask the Right Questions**

The difficulty in diagnosing it is mainly due to lack of awareness and underreporting: women suffering from the problem are unaware of it because it occurs during sleep. They are more likely to report fatigue, headaches, masticatory muscle soreness upon awaking or sleep problems like insomnia to their doctors. It is therefore important that the attending physician makes the connection, asks the right questions and even seeks further diagnosis in case of suspected sleep apnea.

Grinding of teeth at night, high BMI, and a relatively large neck circumference are additional warning signs, according to the researchers.

In the wake of these findings, the researchers address doctors, and especially those who focus on the orofacial area - dentists: "Take note of symptoms that may indicate a risk of sleep apnea. Ask your older patients the relevant questions that no one is asking, such as: Do you snore? Do you suffer from headaches/neck pain when you wake up? Ask them to fill out a dedicated questionnaire to identify the risk of sleep apnea. Take note of the condition of the teeth - are there any indications of grinding of teeth at night? Note the thickness of the neck, which tends to expand in old age. And the bottom line is, if you have identified a high-risk patient, refer her to a sleep diagnosis specialist. This way, we can diagnose women who are 'under the radar' due to lack of awareness and under-reporting and provide them with appropriate and life-saving care."

## The Adler-Abramovich group has developed a new bio-ink formulation for tissue 3D-printing

Researchers from Tel-Aviv university have developed a new composition of a biological ink (bio-ink) for threedimensional (3D) printing, preventing the need for post-printing processing and therefore possessing great potential in the biomedical field of tissue regeneration. The new ink developed by the researchers contains materials inspired by nature. It is considerably more stable than other inks, thus allowing the printing of scaffolds for bone and skin tissues that have been damaged and require help to recover and heal. The research focused on the stabilization of a gelatin-based bio-ink in physiological conditions by incorporation of short peptide sequences which were conjugated to ethylene-glycol moieties...

The research, published in the prestigious journal Nanoscale was led by Prof. Lihi Adler-Abramovich and the Ph.D. student Francesca Netti, from the School of Dental Medicine and the Center of

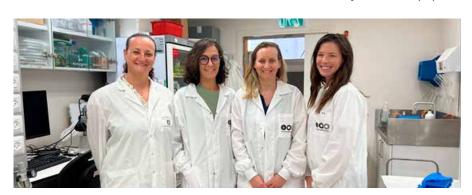
the interest of many researchers due to the possibility of forming scaffolds that are capable of mimicking tissues and organs which were damaged and require rehabilitation. One of the commonly used materials for bio-inks is gelatin due to its excellent biological properties. However, up until now, in order to stabilize gelatin-based scaffolds in the physiological condition, the common approach was the use of semisynthetic gelatin (GelMA), which allows the stabilization of the hydrogel through chemical crosslinking using ultra-violet radiation (UV). Nevertheless, in many cases, the crosslinking could potentially harm the cells embedded in the gelatin, thus decreasing the overall effectiveness of the material for tissue regeneration.

In this research, the researchers planned and prepared new bio-ink formulations for three-dimensional printing based on the co-assembly of a short peptide glycol groups with different lengths and at different concentrations into the hybrid hydrogels".

The results of the research from Tel-Aviv University indicate that although the ethylene-glycol motif did not have a direct effect on improving the hydrogel printing capabilities, their incorporation into gelatin facilitated the three-dimensional printing process. In addition, the new gels exhibited similar mechanical properties and excellent biological compatibility as those of gelatin, which make the formulations suitable candidates as bioinks. The researchers suggested that the hydrogels represent a novel approach for bio-inks for three-dimensional printing and will allow the manufacturing of scaffolds without the need for postprinting crosslinking.

Prof. Adler-Abramovich emphasizes that in her research, one of the goals of regenerative medicine is to promote the regeneration of tissues by using biological materials as temporary resorbable or degradable scaffolds while allowing the growth of new healthy tissue. Whether the scaffold is made from synthetic or natural materials, the ideal biomedical scaffold should be designed to mimic the extracellular matrix (ECM). It would be capable of maintaining its shape and functions while improving tissue regeneration.

Prof. Adler-Abramovich concludes and states that although it will take time until the newly developed bio-ink is implemented, these materials represent a new approach to developing bio-ink for three-dimensional printing, which prevents the need for post-printing processing such as crosslinking via radiation and carry a great potential in the field of tissue engineering.



The researchers: (from left to right) Dr. Moran Aviv, Francesca Netti, Prof. Lihi Adler-Abramovich, Dr. Michal Halperin-Sternfeld

Nanotechnology at Tel-Aviv University. The research was conducted with the help of Dr. Moran Aviv, Yoav Dan, and Dr. Michal Halperin-Sternfeld from the research group.

Prof. Lihi Adler-Abramovich explains that during the last decade, three-dimensional printing techniques have attracted capable of forming a gel, which is conjugated with the ethylene-glycol functional group. Prof. Adler-Abramovich states: "We have investigated the effect of the ethylene-glycol motif on the physical properties of the peptide-based gel. Our results show that control over the mechanical properties of the hydrogel could be achieved by inserting ethylene-

### RESEARCH

#### New hope for patients with severe bone loss

## Global breakthrough: Researchers induced bone regeneration with a special hydrogel that mimics the bone's natural environment



The research was published on the from cover of *Journal of Clinical Periodontology* 

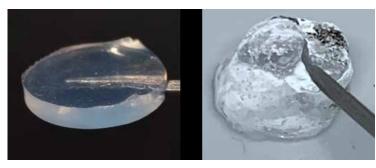
An innovative technology developed at Tel Aviv University will enable bone regeneration to correct large bone defects by means of a special hydrogel. Following successful tests in an animal model, the researchers now plan to move forward to clinical trials.

The groundbreaking study was conducted by experts from TAU's School of Dental Medicine, led by Prof. Lihi Adler-Abramovich and Dr. Michal Halperin-Sternfeld, in collaboration with Prof. Itzhak Binderman, Dr. Rachel Sarig, Dr. Moran Aviv, and researchers from the University of Michigan in Ann Arbor. The paper was published in the *Journal of Clinical Periodontology*.

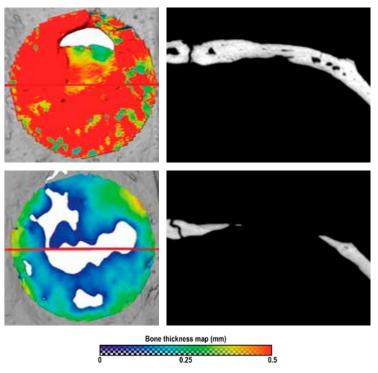
Prof. Adler-Abramovich: "Small bone defects, such as fractures, heal spontaneously, with the body restoring the lost bone tissue. The problem begins with large bone defects. In many cases, when substantial bone loss results from tumor resection (removal by surgery),

physical trauma, tooth extraction, gum disease or inflammation around dental implants, the bone is unable to renew itself. In the current study, we developed a hydrogel that mimics the natural substances in the extracellular matrix of bones, stimulating bone growth and reactivating the immune system to accelerate the healing process."

The researchers explain that the extracellular matrix is the substance surrounding our cells, providing them with structural support. Every type of tissue in our body has a specific extracellular matrix consisting of suitable substances with the right mechanical properties. The new hydrogel has a fibrillary structure that mimics that of the



The hydrogel mimics the bone's natural environment



Micro-computed tomography (micro-CT) of bone. Top row: Bone defect treated with the hydrogel showed bone regeneration; button row the control bone defect that did not heal

### RESEARCH

extracellular matrix of the natural bone. Furthermore, it is rigid, thus enabling the patient's cells to differentiate into bone-forming cells.

"As can be expected, the extracellular matrix of our bones is quite rigid," says Prof. Adler-Abramovich. "In our study, we produced a hydrogel that mimics this specific matrix in both chemical and physical properties. At the nanometric level, the cell can attach itself to the gel, gaining structural support and receiving relevant mechanical signals from the fibers. At first, to test these properties, we grew cells in a 3D model of the gel. Then we examined the impact of the hydrogel on model animals with large bone defects that could not heal spontaneously. We monitored them for two months with various methods, including Micro C.T. To our delight, the bone defects were fully corrected through regeneration, with the bones regaining their original thickness, and generating new blood vessels."

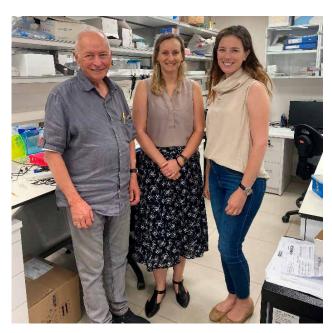
According to Prof. Adler-Abramovich, the innovative gel has extensive clinical applications in both orthopedic and dental medicine: "When we lose teeth due to extensive damage or bacterial infections, the standard treatment is dental implants. Implants, however, must be anchored in a sufficient amount of bone, and when bone loss is too substantial, physicians implant additional bone from a healthy part of the body - a complex medical procedure. Another option is adding bone substitutes from either human or animal sources, but these might generate an immune response. I hope that in the future the hydrogel we have developed will enable faster, safer, and simpler bone restoration."



The researchers: (from left to right) Prof. Lihi Adler-Abramovich, Prof. Rachel Sarig, Prof. Itzhak Binderman, Dr. Michal Halperin-Sternfeld

#### Prof. Itzhak Binderman

## A study first published in 1974 led to the development of a new biomaterial for bone tissue regeneration



The researchers: (from left to right) Prof. Itzhak Binderman, Prof. Lihi Adler-Abramovich, Dr. Michal Halperin-Sternfeld

Understanding the mechanism of bone regeneration captivated my imagination soon after graduation as a DMD and found myself searching for ways to grow bone cells in vitro. Working in the environment of the Weizmann institute with mentors like the late Prof. Ephraim Katzir and Leo Sachs we succeeded in characterizing biochemically the bone formed in culture dishes derived from the periosteum, the lining cells of the bone calvaria. The study published in JCB in 1974 was a pioneer in culturing bone cells. For the next 50 years, I continued to study different aspects of bone formation and remodeling and its application in the endocrinology of mineral metabolism and understanding of bone loss in periodontitis and peri-implantitis. Now, being embraced by Prof. Lihi Adler-Abramovich and Dr. Michal Halperin Sternfeld, we were able to activate the same periosteum cellular environment to regenerate completely bone defect, this time in vivo by using novel biomaterials. I learned from my experience that practicing dentistry is much more fun if you can integrate it with research.

## **KOL HAKAVOD**

**D**r. Shlomo Elbahary, lecturer and instructor at the Tel Aviv University (TAU) School of Dental Medicine, graduated from TAU Dental School and from the department of endodontic residency program. Dr Elbahary received a Ph.D from the University of Amsterdam (UvA) on his thesis "The invasion of bacterial biofilms into the dentinal tubules".

Dr. Elbahary's promoter was Dr. Hagay Shamesh from UvA, together with co-promoters Prof Igor Tsesis and Dr Eyal Rosen from TAU. This research was a first-of-its-kind collaboration between both universities. Dr Elbahary defended his thesis in front of a Ph.D. committee from both TAU and UvA, while among its members were Prof Aviad Tamse and Prof Carlos Nemcovsky from the School of Dental Medicine of Tel Aviv University. The Head of the School of Dental Medicine, Prof Shlomo Matalon, honored the ceremony with his presence.



#### **Outstanding Workers**

This year we distributed certificates to two workers for their job.

The selected employees for this year are:



**Osnat Peretz** 



**Orit Sintov** 

**D**r. Liat Chaushu from the Periodontics Department received outstanding Rector in teaching, the year 2022.



Dr. Liat Chaushu



Ayana Segal Cohen

Ayana Segal Cohen was recently appointed the new Administrative Director of the Goldschleger School of Dental Medicine after 11 years as Special Projects and Global Campaign Manager at the Development and Public Affairs Division of Tel Aviv University.

Before joining the University, Ayana worked in several international organizations, where she gained extensive experience in administrative and financial management, strategic planning and resource development.

Ayana is a graduate of the Hebrew University Schwartz MA Program, specializing in Social Policy and Non-Profit and Community Organization Management.

## **KOL HAKAVOD**

#### **Academic Promotion**



**Dr. Lazar Kats**was promoted to the rank of Lecturer in
Oral Medicine



**Dr. Nir Shpack** was promoted to the rank of Clinical Associate Professor in Orthodontics



**Dr. Ormianer Zeev** was promoted to the rank of Clinical Associate Professor in Oral Rehabilitation



**Dr. Nirit Tagger Green** was promoted to the rank of Lecturer in Periodontology



**Dr. Shifra Levartovsky** was promoted to the rank of Senior Lecturer Oral Rehabilitation



Evgeny Weinberg was promoted to the rank of Senior lecturer in periodontics



**Dr. Nurit Dagon Levy** was promoted to the rank of Lecturer in Pediatric Dentistry



**Dr. Ilan Bitheltom** was promoted to the rank of Senior Lecturer in Periodontology



**Dr. Perry Raz**was promoted to the rank of lecturer in Periodontics



**Dr. Liat Chaushu** was promoted to the rank of Senior Lecturer in Periodontology



**Dr. Asaf Shely**was promoted to the rank of Lecturer in
Oral Rehabilitation



**Dr. Gil Ben-Izhack**was promoted to the rank of lecture in
Oral Rehabilitation



**Dr. Ophir Rosner** was promoted to the rank of Lecturer in Oral Rehabilitation



**Dr. Ofer Sarne**was promoted to the rank of Lecturer in
Orthodontics



**Dr. Rachel Sarig**was promoted to the rank of associate
Prof. in Orthodontics



**Dr. Keren Shemtov** was promoted to the rank of Lecturer Dental Biotechnology



**Dr. Anda Kfir**was promoted to
the rank of Clinical
Associate Professor
in Endodontics



**Dr. Alon Sebaoun**was promoted to the rank of lecturer in
Periodontics



**Dr. Alona Perlman** was promoted to the rank of Senior Lecturer in Oral Rehabilitation



**Dr. Tamar Finkelstein** was promoted to the rank of Clinical lecturer in orthodontics

## SPOT ON THE DEPARTMENT

### The Department of Oral Pathology and Oral Medicine

#### Old places have a soul, so renovate them instead of moving out

Following long years of strenuous efforts of fund raising, with the help of the Canadian Friends of Tel Aviv University and Alpha Omega, the renovation of the laboratory of Oral Pathology has finally been completed. The entire floor has been transformed to a clean, bright,

modern and functional working space, which can now resume its role in teaching, providing active biopsy services for the dental community, training residents, and last but not least - raising the level of facilities available for research. A big thank you is due to all the devoted people

who were involved in the project-from fund raising, to planning, providing the expertise required in multiple aspects, builders, carpenters, electricians, supervisors and others. Without their combined effort this project would not have been complete.



#### Smell, Taste and COVID-19

A novel research project has recently been completed in the department of oral pathology, oral medicine and maxillofacial imaging, regarding smell and taste dysfunction in patients recovering from COVID19 infection but with persistent complaints of taste and/or smell dysfunction. The study combined detailed questionnaires with objective measurements of the smell and taste functions. The ability to identify tastes

and smells, as well as the threshold for identification and the ability to scale the magnitude of individual tastes were all measured, and compared against the patients' own perception of their taste and smell function. An age and gender matched non-COVID control group was included in the study. The results showed that all post-COVID subjects had abnormal result related to taste and / or smell function. However, although

the majority of subjects reported both senses to be affected, the objective measurements demonstrated in most cases only one of the tested senses was dysfunctional, with a low level of agreement between complaints and objective test results. Some optimistic findings from a small group of these patients, who agreed to repeat tests 3 months later, gives some indication for slow improvement over time.

## SPOT ON THE DEPARTMENT

### The Oral Restoration Department



The semi-annual conference of the Israeli Association of Oral Restoration

In the course of September a meeting was held at the Department in which its achievements were presented to the staff.

The Department has over 90 staff members. In 2020-2022 the staff members published 77 articles in international literature, 51 of them together with the Department of Periodontics, Orthodontics, Paradontics and Oral Medicine.

Under the guidance of the Department's staff 74 final theses were presented, 9

in basic science and six Master theses. About 12 instructors of the Department presented the research carried out by them at the IADR conference in Jerusalem and this year 3 staff members will present their work at the conference to be held in Marseilles.

#### **Academic promotions**

To date 11 members of the department were submitted to receive an academic appointment.

In the framework of the study day two guest lectures were given on current issues in the line of oral restoration.

On this festive occasion the staff members said goodbye to Dr. Sima Ofir who retired after 30 years of work at the Department of Oral Restoration at the School, and certificates of honor were presented to Dr. Zeev Ben-Or and Dr. Yair Langer for their many years of contribution to the teaching of students and interns.



Prof. Nissan & Dr. Sima Ofir



Prof. Nissan & Dr. Ben-Or



Prof. Nissan & Dr. Yair Langer

## RETIREE

Recently, **Tamar Meir**, a member of the Scool's administration has retierd after years of productive and frutiful work. We all thank her for her devotion and contribution to our school and wish her many more years of health and happiness.



Tamar Meir

## THANK YOU FRIEND





Prof Shlomo Matalon & Tiffany, Lionell Greenberg's daughter



