האקדמיה הלאומית הישראלית למדעים דאקדמיה ואקדמיה הישראלית למדעים דאקדמיה איקדמיה הישראלית למדעים



כנס אדאמס לשנת 2011 האקדמיה הלאומית הישראלית למדעים

ADAMS CONFERENCE FOR 2011

The Israel Academy of Sciences and Humanities

January 2011 ינואר



ADAMS CONFERENCE

Tuesday, January 4, 2011

Morning Session

כנס אדאמס

יום שלישי, כ״ח ב<mark>טבת, תשע״א</mark>

מושב בוקר

כיבוד קל	9:30-9:50	Refreshments
פרופ' רות ארנון , נשיאת האקדמיה דברי פתיחה	9:50-10:00	Prof. Ruth Arnon , President of the Academy – Opening Remarks
פרופ' חיים סידר , חבר אקדמיה, יו"ר ועדת מלגות אדאמס - הקדמה	10:00-10:10	Prof. Chaim Cedar , Academy Member, Chair of the Adams Committee – Introduction
פרופ' יורם גרונר , חבר אקדמיה, מכון ויצמן למדע על "דרכי לחקר הביולוגיה המולקולארית של תסמונת דאון"	10:10-11:00	Prof. Yoram Groner , Academy Member, Weizmann Institute on "My Way to the Molecular Biology of Down Syndrome"
שאולות ותשובות	11:00-11:15	Questions and Answers
פרופ' צבי מאזה , אוניברסיטת תל-אב על ״כוכבי לכת מחוץ למערכת השמש	11:15-12:00	Prof. Tsevi Mazeh , Tel-Aviv University on "Extra-Solar Planets"
שאלות ותשובות	12:00-12:15	Questions and Answers
ארוחת צהריים ושיחה עם פרופ' רפאל משולם, חבר אקדמיה ויו"ר החטיבה למדעי הטבע, על האם הקשר בין התעשייה והמחקר האקדמי הדוק מדי?"	12:15-13:15	Lunch and round-table discussion led by Prof. Raphael Mechoulam , Academy Member, Chair of the Academy Sciences Division, on "Are the Ties Between Industry and Academic Research Too Tight?"
מושב אחה"צ		Afternoon Session
דני בן צבי, מכון ויצמן למדע, מלגאי אדאמס, תלמיד מחקר של פרופ' נעמה ברקאי ופרופ' בני שיל על ״התאמה בין גודל לצורה במהלך התפתחות עוברית״	13:15-13:45	Danny Ben Zvi, Weizmann Institute, Adams Fellow, student of Professor Naama Barkai and Professor Benny Shiloh, on "Adaptation of Pattern with Size in Embryonic Development"
שאולות ותשובות	13:45-14:00	Questions and Answers
פרופ' משה הלברטל , חבר אקדמיה, האוניברסיטה העברית, על "הרמב"ם על אהבה ויראה"	14:00-14:45	Prof. Moshe Halbertal , Academy Member, Hebrew University, on "Maimonides on Love and Fear"
שאלות ותשובות	14:45-15:00	Questions and Answers

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האקדמיה הלאומית הישראלית למדעים THE ISRAEL ACADEMY OF SCIENCES AND HUMANITIES



Greetings from

Prof. Chaim Cedar Academy Member, Chair of the Adams Fellowships Steering and Selection Committee



As chairman of the academic committee, I would like to extend my own personal greetings to all of the Adams Fellows. It is well known that the level of science in Israel is very high, and this is especially true in the realm of basic research. The nucleus for this success clearly revolves around the students who make up the front line of these research efforts. Israel is blessed with a wonderful cadre of top-notch, well-informed and highly motivated students, who not only provide the intellectual infrastructure for basic research, but also represent future generations of senior scientists.

The Adams fellowship program aims to strengthen this important ingredient by encouraging the very best students to go into science, by providing financial backing to allow these students to devote their time to research and by creating a forum for discussing science and exchanging ideas. It is for this reason that the Adams Conference represents such an important element in this program. This is especially true in today's science arena where interdisciplinary cooperation is an essential ingredient for understanding our complex world. With this in mind, I would like to wish all the participants success in their research and hope that this forum will help expand their horizons, promote good research and stimulate scientific discourse.

I would also like to take this opportunity to thank Batsheva Shor for her excellent work in managing the everyday aspects of the Adams Fellowship program and in organizing this Conference. It is my belief that this program is making a major contribution to Israeli science, and I look forward to continued cooperation with the Adams Family, the Israel Academy of Sciences and with the many wonderful students and mentors involved in this effort.

Sincerely,

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Chaim Cedar



Prof. Yoram Groner

Born in Tel-Aviv, Prof. Groner received his B.Sc. and M.Sc. degrees in Biochemistry from the Hebrew University of Jerusalem, and his Ph.D. in Molecular Biology from the Weizmann Institute of Science. Following his postdoc he joined the staff of the Weizmann Institute and became a Full Professor in 1987. In 1988, he was granted the Barnet Berris Chair of Cancer Research.

In 1981–1982, Yoram Groner spent a sabbatical at the Massachusetts Institute of Technology, and during 1992–1993, he was a scholar–in–residence of the Fogarty Center at the National Institutes of Health in Bethesda, Maryland.

Yoram Groner has contributed enormously to the understanding of the molecular mechanisms by which dysregulated gene expression produces human diseases. He studied gene dosage effects and transcription regulation of tissue specific gene expression using mouse models. Specifically, Yoram Groner investigated the molecular genetics of trisomy 21 and its phenotypic manifestation Down syndrome (DS), an issue of major importance to mankind, and unraveled how overexpression of otherwise normal genes results in DS phenotype. His groundbreaking work established for the first time a direct association between clinical symptoms of DS and a specific gene dosage of an individual gene residing on the trisomic chromosome 21, and thereby proved the "gene-dosage effect" hypothesis.

Yoram Groner has received numerous awards, prizes and honors including the EMET Prize in Genetics and the Rothschild Prize in Biology. He is a member of the Israel Academy of Sciences and Humanities, of the European Molecular Biology Organization (EMBO) and of many other scientific academies and societies. He has published more than 200 scientific papers, articles and chapters in leading journals and books.

Prof. Groner served as Chairman of the Department of Virology (1987–89); in 1989, he established and chaired the Department of Molecular Genetics, until 1992. He served as Vice President of the Weizmann Institute from 1992 until 2001. He is currently the Director of the M.D. Moross Institute for Cancer Research and of the Kekst Family Institute for Medical Genetics.

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Prof. Tsevi Mazeh

Tsevi Mazeh is a professor of astronomy and astrophysics, and the Oren Family Professor of Experimental Physics, at Tel Aviv University. He has been studying extra-solar planets for the last 25 years, since the days when such a study was unpopular. In September 2009 Tsevi Mazeh participated in a team that announced the discovery of CoRoT-7b, the first extra-solar planet with a density quite similar to the Earth's, suggesting a solid, rocky world. In December 2009, Tsevi Mazeh received the Weizmann Prize for Research in Exact Sciences for his studies of extrasolar planets.

Tsevi Mazeh was the director of the Wise Observatory, located in Mitzpe Ramon, Isreael, and was the chairman of the astronomy and astrophysics department in Tel Aviv University. Recently he was a fellow at the Radcliffe Institute for Advanced Studies at Harvard, and was invited as a fellow at All Souls College at Oxford University.

In 2005 Tsevi Mazeh wrote a text book for university students (in Hebrew) "An Introduction to Special Relativity".

Prof. Mazeh is also involved in the community of scientists who grapple with the connections between religion, science and politics. He was for many years the chairman of Oz Veshalom–Netivot Shalom – a political orthodox movement for peace. He is one of the two editors of "Drishat Shalom, Reading Peace and Justice in the Torah", published, in Hebrew, in 2010.



Prof. Raphael Mechoulam

Raphael Mechoulam is a professor of Medicinal Chemistry and Natural Products in the Institute of Drug Research, Medical Faculty, the Hebrew University of Jerusalem.

In the mid 1960's, working at the Weizmann Institute of Science, Mechoulam and his colleague Dr. Y. Gaoni succeeded in the isolation, structure elucidation and total synthesis of delta-9-tetrahydrocannabinol (THC), the main active principle of cannabis and other cannabis constituents, thus clarifying the chemistry of marijuana. This research led later – the mid 1990's – to the isolation and identification in his laboratory in Jerusalem, of the first described endogenous cannabinoid, arachidonoyl ethanolamide, named anandamide. This endocannabinoid and a related one, 2-arachidonoyl glycerol (2-AG), also identified in Mechoulam's lab, are now recognized as the agonists of a new, major signaling system, involved in a large number of biochemical/physiological processes. Thus recently, together with Prof. Itai Bab, his group identified a related endogenous constituent in bones, oleoyl serine, which promotes bone formation.

Prof. Mechoulam has been awarded numerous national and international prizes, (including the Israel Prize) in chemistry, pharmacology and physiology. In 1999, the International Cannabinoid Research Society established the "Raphael Mechoulam Annual Award in Cannabinoid Research".

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Prof. Moshe Halbertal

Moshe Halbertal is the Gruss Professor at NYU Law School and a Professor of Jewish Thought and Philosophy at the Hebrew University. He received his Ph.D. from the Hebrew University in 1989, and from 1988–1992 he was a fellow at the Society of Fellows at Harvard University.

Moshe Halbertal served as a visiting Professor at Harvard Law School and at the University of Pennsylvania Law School. He is the author of the books "Idolatry" (co authored with Avishai Margalit) and "People of the Book: Canon, Meaning and Authority", both published by Harvard University Press. He is as well the author of the books "Interpretative Revolutions in the Making", and "Between Torah and Wisdom: R. Menachem ha-Meiri and The Maimonidean Halakhists in Provence", and "By Way of Truth: Nahmanides and the Creation of Tradition". His latest book "Concealment and Revelation: Esotericism in Jewish Thought and Its Philosophical Implications" was published by Princeton University Press at 2007.

Prof. Halbertal is the recipient of the Bruno Award of the Rothschild Foundation, and the Goren Goldstein award for the Best Book in Jewish Thought in the years 1997–2000, and he is a member of the Israel's National Academy of Sciences and Humanities.



Danny Ben Zvi Adams Fellow

Danny is 32 years old, married to Noa and father to Yonatan. He was born in Be'er Sheva, and grew up in nearby Omer. He did his BSc in Math, Physics and Chemistry in the Hebrew University in Talpiot program. Following his studies, he served six more years as an officer in the intelligence corps.

After finishing his service Danny started his MSc studies in the Weizmann Institute of Science in Bioinformatics in the labs of Prof. Benny Shilo and Prof. Naama Barkai. He transferred to the direct track PhD program the following year. Much of the first part of his graduate studies was done in collaboration with Prof. Abraham Fainsod in the Hadassah Medical School of the Hebrew University in Jerusalem, working on development in the model system Xenopus (frog) development. Later he returned to Weizmann for some more theoretical research and another experimental project, this time on Drosophila (fruit fly) as a model system.

Animals of the same or closely related species vary in size, but keep the same proportions of their body: a bigger animal will have a proportionately bigger head and longer limbs or appendices – but the same number of vertebrae or segments. Little is known about the mechanisms assuring precise and proportionate development.

Danny is studying how cellular differentiation patterns are generated in the developing animal in a manner that maintains the proportions between different cells. He uses a combination of theoretical and experimental work to show how a morphogen gradient is generated and applied during early development. His work is groundbreaking in the sense that it provides an explanation to a fundamental question in developmental biology.

Danny's remarkable achievement was published in *Nature* and received write ups in *Science* and *Cell*. He is described as representing a new breed of researcher in developmental biology and biology at large, with the skill and insight to combine the highest level of computational and experimental work in order to understand the properties of development of complex multi-cellular organisms.