





THE ROBERT H. SMITH VISION PRIZE

AT THE HEBREW UNIVERSITY OF JERUSALEM



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תשע"ז 2017

The Robert H. Smith

Faculty of Agriculture, Food and Environment

The Hebrew University's Robert H. Smith Faculty of Agriculture, Food and Environment was founded in 1942. Located in Rehovot, the "Faculta" – as it is known in Hebrew – is Israel's only university-level institution devoted to basic and applied research in agriculture and environmental management. Long counted among the world's top such faculties due to its cutting-edge scientific breakthroughs and successful agricultural outreach, one might expect the Faculty to rest on its laurels – or its long shelf-life tomatoes, advanced irrigation systems, bio-control and soil solarization methods, optimized dairy and fish production, and heat-tolerant chicken breeding. However, inside its busy laboratories, a deep sense of responsibility for meeting challenges confronting mankind has led to a new vision that builds on the Faculty's

well-established reputation for agricultural innovation, aiming to address the challenges involved in providing sufficient healthy food for the world's growing population while protecting and sustaining the environment.

The Robert H. Smith Faculty of Agriculture, Food and Environment has long played a pivotal role in the development of technologies and techniques benefiting Israel and the entire region. Students from over 155 countries, including many developing nations, have studied at the Rehovot campus, going on to make a difference in their home countries. Thanks to the vision of Robert H. Smith, this type of interdisciplinary innovation, expert teaching and outreach will not only continue, but will expand in dynamic new ways.



Robert H. Smith

Robert H. Smith *z"l*, was a visionary, philanthropist and an exceptionally successful real estate developer who spearheaded the building of Crystal City, Virginia, among other noted real estate projects. Mr. Smith was deeply involved with the Hebrew University and its American Friends (AFHU) association for many years, a tradition begun by his father, Charles E. Smith, and continued by his family following his death in 2009. A former chairman and honorary chairman of the University's International Board of Governors, he also served as President of the Washington, DC chapter of AFHU. Like his father before him, in recognition of his tireless efforts to advance the Hebrew University, Robert H. Smith was honored by the University with an honorary doctorate.

In expression of his enduring conviction of the crucial importance of education, Robert H. Smith supported educational

endeavors both in Israel and in his home community. Robert H. Smith, an alumnus of the University of Maryland, and his family endowed the Robert H. Smith School of Business and the Clarice Smith Performing Arts Center at his alma mater. He generously supported the Charles E. Smith Jewish Day School, established by and named after his father, and was among the architects who made the Jewish community of Washington a model of communal development in American Jewry.

Robert H. Smith's commitment to the Hebrew University and its endeavors to maintain its leadership in sustainable agriculture and environmental conservation has manifested itself in the establishment of the Robert H. Smith Institute of Plant Sciences and Genetics in Agriculture, and in his leadership gift for the Robert H. Smith Faculty of Agriculture, Food and Environment.



David Bruce Smith

David Bruce Smith, son of Robert H. Smith *z"l*, is actively engaged in philanthropic leadership on behalf of The Hebrew University of Jerusalem and American Friends of The Hebrew University. Devoted to Israel's well-being, he is a distinguished member of the Smith family of Washington, DC, longtime supporters and benefactors of the Hebrew University. David Bruce Smith, his sister Michelle, his brother Steven *z"l*, his parents Robert *z"l*, and Clarice Smith, and his grandfather Charles Smith *z"l*, have been dedicated to the Hebrew University and

foster many aspects of the University's work. Among other initiatives of vital importance, the family has been a driving force behind the growth of the Robert H. Smith Faculty of Agriculture, Food and Environment.

An AFHU national board member, David Bruce Smith is on the Campaign Committee, the Hebrew University's Board of Governors, is a member of the advisory board of the Mid-Atlantic Region and is President of the National Institute of Psychobiology in Jerusalem.



Daria Feldman

The Robert H. Smith Vision Prize, 2017

Daria Feldman is a doctoral student in the Department of Plant Pathology and Microbiology at the Robert H. Smith Faculty of Agriculture, Food and Environment.

From early childhood, Daria was fascinated by science and passionate about the environment. After her military service she began her BSc studies in Biochemistry and Food Technology at the Robert H. Smith Faculty of Agriculture, Food and Environment, finishing *summa cum laude*. She then went on to obtain an MSc in Biotechnology, studying in Prof. Oded Yarden's lab at the Smith Faculty. She is currently completing her PhD under the supervision of Prof. Yarden and Prof. Yitzhak Hadar.

Daria's research goal is to improve a rate-limiting step in the production of 2nd generation biofuels. Unlike the 1st generation, currently used around the world and primarily produced from corn, the 2nd generation is mainly produced from agricultural waste in order to not compete with food production. During its production, there is an important step which increases the amenability of sugars for yeast needed for ethanol production. During that treatment step, toxic compounds are generated which inhibit

the yeast. The aim of Daria's study is to identify novel genes involved in detoxification of key toxic compounds.

Daria explored the abilities of *Pleurotus ostreatus*, an edible mushroom that harbors unique enzymatic capabilities, such as the ability to degrade 5-hydroxymethylfurfural (HMF). She demonstrated that the fungus can detoxify HMF through enzymes involved in lignin degradation, a component of the plant cell wall. The degradation of HMF is both extracellular and intracellular.

During her focus on HMF degradation by *P. ostreatus*, Daria identified a family of Small Secreted Proteins (SSPs) that were produced during the fungus exposure to the chemical. Genetic manipulation of SSP production resulted in direct effects on large enzymatic families of lignin degrading enzymes. This suggests that SSPs function as the first discovered regulators of the ligninolytic system.

The data obtained from Daria's research may lay the foundation for future expression of the genes of choice in yeast, thereby improving biofuel production.

The Robert H. Smith Vision Prize



The Robert H. Smith Vision Prize was established by David Bruce Smith in memory of his father Robert H. Smith z"l, benefactor, visionary, friend, and namesake of the Faculty of Agriculture, Food and Environment. The Prize is awarded annually to a PhD student whose research best reflects the vision of Robert H. Smith in feeding the world through sustainable agriculture and whose research shows potential for applicability in fields relevant to agriculture, food or environment.