**Oded Shoseyov’s CV**

* ***Personal Details:***

**Birth :** July 31, 1956; Rehovot, Israel.

**Nationality:** Israeli.

**IDF military service:** 3.5 years of active duty and a Major in the reserve force. Last **position:** Chief operation officer of Artillery Division.

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* ***Academic background and appointments***

|  |  |  |  |
| --- | --- | --- | --- |
| EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, and include postdoctoral training.)* | | | |
| INSTITUTION AND LOCATION | DEGREE  *(if applicable)* | YEAR(s) | FIELD OF STUDY |
| Hebrew University of Jerusalem | B.Sc. | 1979-1981 | The Faculty of Agriculture (magna cum laude) |
| Hebrew University of Jerusalem | M.Sc. | 1982-1983 | The Faculty of Agriculture (magna cum laude). |
| Hebrew University of Jerusalem | Ph.D. | 1984-1988 | The Faculty of Agriculture |
| University of California Davis | Postdoc. | 1988–1990 | Department of Biochemistry and Biophysics. Molecular Biology of Cellulases |
| The Robert H. Smith Faculty of Agriculture, Food and Environment. Plant Molecular Biology and Biotechnology. | Lecturer | 1990 - 1994 | Plant Molecular Biology and Biotechnology |
| The Robert H. Smith Faculty of Agriculture, Food and Environment. Plant Molecular Biology and Biotechnology. | Senior Lecturer | 1994-2002 | Plant Molecular Biology and Biotechnology |
| The Robert H. Smith Faculty of Agriculture, Food and Environment. Plant Molecular Biology and Biotechnology. | Assoc. Professor | 2002-2010 | Plant Molecular Biology and Biotechnology |
| The Robert H. Smith Faculty of Agriculture, Food and Environment. Plant Molecular Biology and Biotechnology. | Professor | 2010-present | Plant Molecular Biology and Biotechnology |

* ***10 most significant PI publications ever***

**1.** Goldstien M.A., Takagi M., Hashida S., Shoseyov O., Doi R.H. and Segel I. H. (1993). Characterization of the Cellulose Binding Domain of the Clostridium cellulovorans Cellulose Binding Protein A (Cbpa). J. Bacteriol. 175: 5762-5768. 3.805; 9/81 in Microbiology category; 86.

**2.** Roiz L. and Shoseyov O. (1995) Stigmatic RNase in self-compatible peach (Prunus persica) . Int. J. Plant Sci. 156(1):37-41. 0.830; 62/142 in Plant sciences category; 2.

**3.** Shani Z., Dekel M., Tsabary G. and Shoseyov O.(1997).Cloning and characterization of elongation specific endo-1,4-ß-glucanase (cel1) from Arabidopsis thaliana. Plant Mol.Biol. 34: 837-842. 2.966; 11/142 in Plant sciences category; 25.

**4.** Shpigel E., Roiz L., Goren R. and Shoseyov O. (1998) Bacterial Cellulose-Binding Domain Modulates in Vitro Elongation of Different Plant Cells. Plant Physiol. 117: 1185-1194. 4.521; 7/142 in Plant sciences category; 26.

**5.** Siegel D., Marton I., Dekel M., Bravdo B., He S., Withers S.G. and Shoseyov O. (2000). Cloning, expression, characterization and nucleophile identification of family 3, A. niger ß-glucosidase. J. Biol. Chem. 275(7): 4973-4980. 7.368; 27/310 in Biochemistry and molecular biology; 35.

**6**. Heyman A. S, Levy I. S, Altman A. C and Shoseyov O PI. (2007). SP1 as a novel scaffold building block for self-assembly nanofabrication of submicron enzymatic structures. Nano Lett. 7(6):1575-9. 9.627; 2/46 in Nanoscience & nanotechnology category; 6. Impact Factor: 12.186. Citation number: 13.

**7.** Medalsy I., S Dgany O. S, Sowwan M. C, Cohen H. S, Yukashevska A., S Wolf S.G. C, Wolf A. C, Koster A. C, Almog O. C, Marton I., C Pouny Y. C, Altman A C, Shoseyov O PI. and Porath D. PI (2008). SP1 protein-based nanostructures and arrays. Nano Lett. 8(2):473-7. 10.371; 2/52 in Nanoscience & nanotechnology category; 5. Impact Factor: 12.186. Impact factor of 4.268. Citation number: 17.

**8.** Behrens S. PI, HeymanA. S, Maul R.S, Essing S. S, Steigerwald S. S,Quintiller A. S, Wenzel W. PI, Bruck J.C , Dgany O. Sand Shoseyov O PI.(2009). Constrained synthesis and organization of catalytically-active metal nanoparticales by self-assembled protein-templates. Advanced Materials. 21:1-5. 8.191; 4/113 in Chemistry, physical category; 3. Impact factor of 10.857. Citation number: 1.

**9.** Qin G, Rivkin A, Lapidot S, Hu X, Arinos SB, Dgany O, Shoseyov O, and Kaplan DL. (2011). Recombinant Exon-Encoded Resilins for Elastomeric Biomaterials. Biomaterials. 32 (35), 9231-9243. Impact factor: 7.882.

**10.** Stein, H. C, Dgany O. C, Wilensky M., T Tsafrir Y. T, Rosenthal M. T, Amir R. C, Avraham T. T, Ofir K. T, Yayon A PI. and Soseyov O. PI (2009) Production of bioactive, post-translationally modified, heterotrimeric, human recombinant type-I collagen in transgenic tobacco. Biomacromolecules 10, 2640-2645 .4.146; 6/73 in Polymer science category 1.

* ***10 most significant PI publications in the last 5 years***

**1**. Wang X. S, Dgany O. S, Wolf S.G. c, Levy I S., Algom R. T, Pouny Y. C, Wolf A. C, Marton I. C, Altman A PI. and Shoseyov O PI. (2006). Aspen SP1, an exceptional thermal, protease and detergent resistant self-assembled nano-particle. Biotechnol Bioeng. 95(1):161-8. 2.999; 32/140 in Biotechnology & applied microbiology category; 5. Impact Factor: 3.377. Citation number: 12.

**2.** Safra-Dassa L., S Shani Z. C, Danin A. S Roiz L.C Shoseyov O. PI and Wolf S. PI (2006). Growth modulation of transgenic potato plants by heterologous expression of bacterial carbohydrate-binding module. Molecular Breeding. 17(4):355-364. 2.135; 3/21 in Horticulture category; 5. Impact factor: 2.27. Citation number: 9.

**3.** Heyman A. S, Barak Y. S, Caspi J.S, Wilson D.B., Altman A. C, Bayer E.A. PI and Shoseyov O. PI (2007). Multiple display of catalytic modules on a protein scaffold: Nano-fabrication of enzyme particles. J. Biotechnol. 131(4):433-439. 2.565; 48/138 in Biotechnology and applied microbiology category; 4. Impact Factor: 2.970. Citation number: 10.

**4.** Heyman A. S, Levy I. S, Altman A. C and Shoseyov O PI. (2007). SP1 as a novel scaffold building block for self-assembly nanofabrication of submicron enzymatic structures. Nano Lett. 7(6):1575-9. 9.627; 2/46 in Nanoscience & nanotechnology category; 6. Impact Factor: 12.186. Citation number: 13.

**5.** Medalsy I., S Dgany O. S, Sowwan M. C, Cohen H. S, Yukashevska A., S Wolf S.G. C, Wolf A. C, Koster A. C, Almog O. C, Marton I., C Pouny Y. C, Altman A C, Shoseyov O PI. and Porath D. PI (2008). SP1 protein-based nanostructures and arrays. Nano Lett. 8(2):473-7. 10.371; 2/52 in Nanoscience & nanotechnology category; 5. Impact Factor: 12.186. Impact factor of 4.268. Citation number: 17.

**6.** Heyman A. S, Medalsy I. S, Dgany O. S, Porath D PI., Markovich G PI. and Shoseyov, O. PI (2009). Float and compress: A honeycomb like array of a highly stable protein scaffold. Langmuir. 25(9):5226-5229. 4.097; 23/113 in Chemistry, physical category; 1. Impact factor of 4.268. Citation number: 3.

**7.** Behrens S. PI, HeymanA. S, Maul R.S, Essing S. S, Steigerwald S. S,Quintiller A. S, Wenzel W. PI, Bruck J.C , Dgany O. Sand Shoseyov O PI.(2009). Constrained synthesis and organization of catalytically-active metal nanoparticales by self-assembled protein-templates. Advanced Materials. 21:1-5. 8.191; 4/113 in Chemistry, physical category; 3. Impact factor of 10.857. Citation number: 1.

**8.** Stein, H. C, Dgany O. C, Wilensky M., T Tsafrir Y. T, Rosenthal M. T, Amir R. C, Avraham T. T, Ofir K. T, Yayon A PI. and Soseyov O. PI (2009) Production of bioactive, post-translationally modified, heterotrimeric, human recombinant type-I collagen in transgenic tobacco. Biomacromolecules 10, 2640-2645 .4.146; 6/73 in Polymer science category.1. Impact Factor: 5.325. Citation number: 12.

**9.** Qin G S, Lapidot S S, Numata K S, Hu X S, Meirovitch SS, Dekel M T, Podoler I S, Shoseyov O PI, Kaplan DLPI. (2009) Expression, cross-linking and characterization of recombinant chitin binding resilin. Biomacromolecules. (2009); 10(12): 3227-3234. 4.146; 6/73 in Polymer science category. 2. Impact Factor: 5.325. Citation number: 10.

**10**. Qin G, Rivkin A, Lapidot S, Hu X, Arinos SB, Dgany O, Shoseyov O, and Kaplan DL. (2011). Recombinant Exon-Encoded Resilins for Elastomeric Biomaterials. Biomaterials. 32 (35), 9231-9243. Impact factor: 7.882.

* ***Description of PI research***

My laboratory study different aspects of protein engineering. We established research collaborations with Universities and Research Centers in the US, Europe and Japan which enable us to conduct true inter-disciplinary research in Agriculture, Chemistry, Physics, Medicine and Nanotechnology.

**Plant Cell Wall**

For many years we study the expression of polysaccharide binding modules and polysaccharide modifying enzymes in plant cell wall. Our research contributes to our understanding of the molecular mechanism that dictates cell wall biosynthesis and fiber assembly. We were first to demonstrate the role of polysaccharide binding domains in cell wall biosynthesis.

**Biomimetic and Molecular Farming of Polymeric Proteins.**

We design express and study recombinant proteins which bind to polysaccharides such as cellulose and orient them in the 3D space of the composite materials. We are using bio-mimetic approach to study the effect of polymeric proteins that possesses extreme mechanical properties such as the strong spider silk protein or the insect derived super-elastic polymeric protein - resilin. We study their self-assembly and engineer into these proteins the ability to bind to cellulose or inorganic surfaces and fabricate composites with elite physical properties. These new biomaterials may be used in the future as biocompatible scaffolds for regenerative medicine, as well as in the automobile, air and space industries. Another self-assembled protein that we study is human Type I collagen.

**SP1- An Extremely Stable Protein Scaffold for Nano-Fabrication.**

In the last 10 years my group studied SP1 in collaboration with Prof. Arie Altman. SP1 is a boiling stable stress induced protein that self-assemble to an extremely stable ring-shape dodecamer. We studied extensively the biochemical and the structural properties of this protein We were able to fabricate nano-bioreactors, metal nano-particles, and several electronic devices such as memory device and enzyme electrodes.

**T2RNase- From Peach Pollen Tube Growth Inhibition, To Cancer Therapy**

T2 RNase is a family of actin binding proteins that control tip growth of pollen tubes in plants, filamentous fungi growth, and angiogenesis and cell migration in mammalian. We have characterized a fungal T2 RNase that inhibits pollen tip growth and consequently abort fertilization in deciduas fruit trees such as peach and nectarine. Most recently we cloned and expressed its homolog from human. The human recombinant protein possesses anti-angiogenic and anti-tumorogenic activities in different cancer models including melanoma. We were the first to demonstrate, that the tip growth inhibition in cell migration is mediated via actin binding of T2 RNase which is independent of its ribonuclease activity. We have demonstrated that this gene function the same across kingdoms (planta and vertebra).

* ***Technologies and IP developed in OS laboratory matured into the following companies:*** CBD-Technologies/Futuragen, CollPlant, Fulcrum Materials, Bondex, Melodea