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Professor Nevo is one of the leaders of evolutionary biology, and among the founders of modern evolutionary theory (Citation from Israel Prize of Life Sciences 2016) at University of Haifa, Israel. Prof. Nevo established and directed the world famous Institute of Evolution (IOE, 1973-2008) and the International Graduate Center of Evolution (IGSE) (2004-2008). Prof. Nevo's scientific career involved interdisciplinary studies of biodiversity evolution, adaptation, and speciation across life based on the science he advanced of Evolutionary Functional Ecological Genetics and Genomics across life from viruses and bacteria through fungi, plants, animals and humans. Prof. Nevo has published ~ 1500 scientific papers, 1000+ peer reviewed, and 37 books. He is one of the highly cited scientist (52,812 citations), h-index 107 and i10 index 812. He contributed substantially to the understanding of genetic diversity, correlates and predictors of genetic diversity in nature, under diverse environmental stresses (chemical, climatic, thermal, biotic, and abiotic). His studies involve genes, genomes, phenomes, populations, species, and ecosystems of bacteria, fungi, plants, animals, and humans focusing on the structure, function, and causation of genetic diversity in nature at *local, regional and global* scales. His major models of biodiversity evolution include: Evolution of blind subterranean mammals (1948-ongoing); Evolution of wild cereals (1975-ongoing); Evolution of Marine organisms as pollution indicators (1980s); *Evolution in action* comprising both adaptive evolution and sympatric speciation at "Evolution Canyons" model, caused by interslope microclimatic divergence at four microsites in Israel, he dubbed the "Israeli Galapagos", and extended to "Evolution Plateau" and "Evolution Slope", Edaphic

microsites in the Upper Galilee (1990- ongoing); Evolution of Dead Sea Fungi (He discovered with Prof Wasser) (1997-ongoing), Evolution of Chimpanzees recently in the Mali Savanna mirroring early human Evolution (2010-ongoing) were developed with Itai Roffman and colleagues. He has conducted *local* (in four natural laboratories of “Evolution Canyons” in Israel), *regional* (in Israel and the Near East Fertile Crescent as natural genetic laboratories), and *global* (across all continents as genetic labs) genetic studies, interdisciplinarily linking genetics and ecology in terms of ecological -genetics and ecological -genomics, bridging genotypes and phenotypes, integrating molecular and organismal biology, organism-environment relationships, and elucidating the patterns and causation of genetic diversity in nature (see full and sub-lists of publications). These studies link environmental stress with the level of genetic polymorphism in proteins and DNA across life (bacteria, fungi, plants, and animals) and the entire planet (all continents). Nevo established the Environmental Theory of Genetic Diversity proposing that, generally, genetic polymorphism AT ALL SCALES, LOCAL, REGIONAL AND GLOBAL, AND ACROSS LIFE, is largely positively correlated with and predictable by environmental stress, *abiotic* and *biotic*. The “Evolution Canyon” (EC) model initiated by Nevo and dubbed by him the “Israeli Galapagos”, became a classical model of biodiversity evolution at a microscale caused by sharp microclimatic interslope divergence confronting biotic representation (biomes) of two continents, Africa and Europa. The 250 papers and four books published on the EC model involve diverse fundamental problems of evolutionary biology. These include biodiversity evolution, genetic polymorphism, transposon and retrotransposon dynamics and their effects on genome size, DNA repair; mutation, recombination, gene conversion rates, adaptation, speciation, and methylation, associated with stress, lateral transfer, splice variation, wide genome gene expression; and the twin evolutionary processes of adaptation and incipient sympatric speciation across life from bacteria through fungi, plants, and animals from invertebrates to mammals.

In application, Nevo advanced a novel genetic methodology to safeguard the quality of marine environments (documented in 25 scientific papers). Likewise, he substantiated the idea that wild progenitors of cereal and other cultivars harbor rich genetic resources that should be conserved *in situ* and *ex situ* (documented in 420+ papers and a book). They represent the best hope for future genetic crop improvement, advancing the second genetic green revolution, thereby guaranteeing the increase and stabilization of world food production, which is of cardinal importance, particularly in a world population that is still exploding. In practice, he mapped, with colleagues, several candidate genes and QTLs

related to adaptation and domestication. Nevo and colleagues discovered 77 species of filamentous fungi in the Dead Sea (DS), cloned several genes, sequenced the first eukaryote filamentous fungus from the DS, *Eurotium rubrum*, transformed the HOG gene to yeast and *Arabidopsis*, and currently to wheat and barley, and showed that, in principle, genetic resources of the Dead Sea fungi, could revolutionize saline agriculture (documented in dozens of papers and one book). Nevo substantiated the study of subterranean mammals across the globe, as a uniquely important global evolutionary experiment in mammals that started some 50 million years ago in the upper Eocene. He wrote with his colleagues some 380+ scientific papers and two books on subterranean mammals across the globe in all continents. In blind subterranean mole rats, genus *Spalax*, Nevo and colleagues identified five species in Israel, four species originated peripatrically (allopatrically) and correlated with climate, and one species by sympatric speciation on the basalt in the upper Galilee. Likewise, they identified hundreds of hypoxia-tolerant genes, linked to cancer resistance, stroke, and cardiovascular resistant diseases, that could revolutionize medicine, space flight, and ocean diving. They transformed *Spalax* VEGF to ischemic mice and saved the leg of an experimental mouse after severing its main blood vessel by generating extensive capillarization and vascularization.

Professor Nevo founded (1973) and directed the Institute of Evolution, at the University of Haifa till October 2008. The Institute of Evolution is a world center of excellence, conducting active integrative research in biodiversity, molecular, genomic, and organismal evolutions, linking field, laboratory, and theoretical research programs across life focusing on stress and genetic/genomic evolution. The Institute of Evolution consists now of 25 research laboratories integrating observations, experiments, and developed the theory of STRESS AND FUNCTIONAL ECOLOGICAL GENOMICS in the contexts of GENOMICS, PROTEOMICS, AND PHENOMICS. In 2004 Nevo established the International Graduate Center of Evolution (IGCE) with 77 PhD students from 13 countries, thus cultivating the future world leaders of biodiversity evolution and genetic diversity in nature. Nevo and colleagues have studied the effects of atomic radiation at the Chernobyl disaster and found numerous molecular mutations associated with cancer in the offspring of liquidators who cleaned the site and in those who were born after the event, indicating that the mutations have passed through the germ line from parents to offspring. For more details see <http://evolution.haifa.ac.il>.

Nevo was elected to the National Academy of Sciences in 2000, and won the Israeli Prize of Life Sciences in 2016. In 2002 he was described as a “Highly Cited Researcher” in Current Content: Upper 1/2% of all published world research during last 2 decades (American Society for Information Science and Technology). According to Thomson Reuters, he is among the top highly cited researchers in the world. He is a Foreign Member of the Linnean Society London (1990), and of the Ukraine Academy of Sciences (1997), an Honorary Member of the Ukraine Botanical Society (1995), of the American Society of Mammalogists (2002), and the Israel Zoological Society (2007). He received Honorary doctorates from World University (1990), the University of Duisburg-Essen (2009) Germany, Yorker International University (2009), and **International Biogeographical Centre, Cambridge (IBC, UK)**.

For additional prizes see long CV.

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