Post-Doc Positions at the Institute of Evolution, University of Haifa, Haifa, Israel

We are looking for **independent**, motivated, diligent, laborious**, dedicated Bioinformaticians** as post-doctorate fellows for a project aimed at revealing the mechanisms of cancer-resistance and anti-cancer activity of the hypoxia-tolerant subterranean, blind mole-rat, *Spalax*. Our project has captured the interest of the scientific community and we have ample financial support for the studies. Generous fellowships ($30K to $40K according to qualifications and performance) are available, **immediately**, primarily **for Post-Docs experts in bioinformatics with a background of good understanding biological questions. That is that can independently handle raw output data of RNA-seq / miR seq/ Genomic, analyze it and can interpret intelligently the relevant biological background.** Outstanding candidates for PhD experienced in Bioinformatics will also be considered. **Training and understanding cancer research is an advantage**. Experience of writing manuscripts for publication **and a publication record in relevant journals are expected.** English skills both oral and written are required. **American, Western-European or Israeli education is a significant benefit.**

Scientific background: We are working with the hypoxia-tolerant (down to 3% O_2), long-lived (>20 years) subterranean blind mole-rat, *Spalax,* which shows an outstanding cancer-resistance and anti-cancer capabilities. Observations of thousands of individuals at our Institute have never noticed a spontaneous malignant tumor. Furthermore, we have found in *Spalax* different structure and function of major genes related to cancer (*p53*, *heparanase*, genes of antioxidant defense and DNA-repair genes). Assessment of *Spalax* transcriptome assembly and expression data has revealed enrichment of genes that overlap cancer resistance, apoptosis, angiogenesis, and hypoxia-tolerance and elicits much wider and stronger expression in *Spalax* than in rat (*Malik et al, 2012, BMC genomics, 13, 615*). Moreover, *Spalax* has shown extremely high cancer-resistance to chemical carcinogens that induced cancer in 100% of mice and rats. Most intriguing, fibroblast cells only from *Spalax,* but not from other species, inhibit growth and kill cancer cells, but not normal cells, from various tissues and species, most importantly a wide range of human cancer cells. This is exhibited in both co-culture system or by exposure to factors secreted into conditioned media harvested from *Spalax* fibroblasts. Decreased cancer cell viability and proliferation, reduced colony formation in soft agar, disturbed cell cycle progression, chromatin condensation, nuclei deformation and mitochondrial fragmentation were reproducibly observed (*Manov et al., 2013, BMC biology **11**, 91*). Our present objectives is to identify and isolate the substances secreted by *Spalax* cells, resolve with which components they interact that are active only on cancer cells, in order to unravel the biological mechanisms and pathways that evolved in *Spalax* cell machinery and ultimately lead to the death of cancer-cells. The study could attest to be a breakthrough in cancer research, using the long lived, hypoxia- and cancer-tolerant *Spalax* as a significant biological resource for biomedical research that hopefully could open new horizons in treatment and prevention of cancer in humans.

Contact: The applications should be submitted, together with extended CV and bibliography, summary of past accomplishments, and contact information of 3 referees, to Prof of Research Aaron Avivi (aaron@research.haifa.ac.il) AND Dr. Imad Shams (imadshams@gmail.com).
(http://evolution.haifa.ac.il/index.php/29-people/personal-websites/77-personal-site-avivi)