

HU researcher granted \$5m. from Gates Foundation to battle parasitic disease

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The Bill and Melinda Gates Foundation has awarded a \$5 million research grant to a Hebrew University of Jerusalem biologist to find ways to combat visceral leishmaniasis, a parasitic disease that affects 500,000 annually and, if left untreated - by 30 days of intramuscular injections - kills 95 percent of its victims. Also known as Kala-azar, the disease exists mostly in the Indian sub-continent, Africa and Brazil. The worst affected region in Africa is southern Sudan and northwest Ethiopia, which will be the focus of the Gates grant to HU; in Ethiopia, visceral leishmaniasis is frequently associated with HIV/AIDS, a leading cause of adult illness and death. Co-infection with HIV makes treatment much more complex. Because the immune system is suppressed in HIV-positive patients, Kala-azar relapses are common, and patients have to be treated multiple times. Given the difficulties of treating large populations in remote areas and the bleak prospects for patients infected by both diseases, efforts must be made to protect people living in HIV/AIDS-endemic areas from contracting Kala-azar, experts say. Leishmania donovani parasites are transmitted by small, mosquito-like insect vectors known as sand flies that become infected while sucking blood from an infected person or animal and transmit the disease during subsequent blood "meals." The parasites then multiply inside cells of the immune system, producing symptoms that include an enlarged spleen and fevers. The project will be led by Prof. Alon Warburg, a vector biologist working at the Institute of Medical Research Israel-Canada at the HU Faculty of Medicine's Kuvim Center for the Study of Infectious and Tropical Diseases. A cutaneous (skin) form of leishmaniasis endemic in Israel is known as Rose of Jericho, but the lethal visceral form is much more serious. Dr. Sanford Kuvim of Florida who founded the eponymous HU center and today is chairman of its international board, said the institution has been a global leader in researching tropical and infectious diseases for more than three decades. "This Gates award offers the opportunity to learn the secrets of transmission, treatment and cure of visceral leishmaniasis, which is devastating the region." The Jerusalem center has coordinated over 25 cooperative projects with developing-country scientists from Africa, the Middle East, Asia and Latin America and focused on malaria, AIDS, tuberculosis, leishmaniasis, schistosomiasis and filariasis. Prof. Baruch Blumberg, who won the 1976 Nobel Prize in Medicine for his work on hepatitis B, reacted to the Gates Foundation announcement by telling Kuvim: "The award is a major recognition of the excellence and the special character of the Kuvim Center. The foundation is very careful with its funding, and this will not only bring in the required money but the affirmation of the importance of your research. We are happy for you and your colleagues and those who will benefit from your research." Only the second and the largest Gates Foundation grant made to HU, the money will fund a collaborative project with Prof. Asrat Hailu from the Faculty of Medicine and Prof. Teshome Gebre-Michael of the Aklilu Lemma Institute of Pathobiology in Addis Ababa University. Additional collaborating institutions include HU's Robert Smith Faculty of Agriculture, Food and Environment, Charles University in Prague, the Volcani Center at Beit

Dagan and the Gertner Institute for Trauma and Emergency Medicine Research. The five-year project is aimed at determining the disease's drivers of transmission, the ecology of sand flies and their larval breeding habitats, genotypes and drug sensitivities of the parasites. It will also be used to identify the weak links in the transmission cycle and devise methods for control of the disease. Warburg said: "Sand fly control is problematic because the breeding sites of their immature stages are unknown, making larval source reduction all but impossible." The Gates Foundation, founded by Microsoft founder Bill Gates and his wife, has distributed \$21 billion since its inception, with its global health program harnessing advances in science and technology to save lives in poor countries. When proven tools exist, the foundation supports sustainable ways to improve their delivery. Where they don't, it invests in research and development of new interventions, such as vaccines, drugs and diagnostics.