

Medical Scientists Develop Rice-Based Vaccination To Fight Pandemic Disease

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Scientists in Japan have developed a rice-based vaccination for cholera. The methodology can be applied to other types of pandemic diseases created by bio-terrorism. The advantage of utilizing this type of vaccination include the ability to store at room temperatures for 1.5 years. In addition, the vaccine is oral and may be widely dispensed in the event of wide-spread disease.

According to the USA Rice Federation there are 40,000 varieties of rice world-wide. Rice is a world-wide crop that may be grown and available on all the continents. Scientists in Japan have developed an oral vaccine utilizing a rice seed as host for a powerful, easily stored cholera vaccine.

The combined research of scientists, Drs. Nochi, Takagi, Yuki, Yang, Masamura et al have developed a rice-based oral vaccine for cholera. The collaborative work of cross and complementary disciplines of medicine, agrobiological sciences, genetic engineering and allergy and immunology provided the background for the nearly two-year study. The implications for other known diseases and acts of bio-terrorism is under investigation. The study is published at PNAS 104:10986-10991, 2007.

In a commentary on this study and other related studies, Dr. David Pascual, Department of Veterinary Medicine at Montana State University believes poor under-served countries will benefit. According to Dr. Pascual today a number of edible plants are utilized as a platform for a number of human and livestock inoculations. Tobacco, soybeans, potatoes, maize and other edible plants provide easily portable and

environmentally sound means of inoculating for Hepatitis B, Norwalk Particle and other diseases effecting man and livestock.

The distinct advantage of the rice-based inoculation research is the ability to store the rice-based vaccines at room temperature. According to the study the team of scientists were able to store the rice seed vaccines for 18 months without the need for cold storage. The advantage to the world-wide population is portability and cost efficient.

A two-fold problem is met. The world-wide problem in available cold storage and the attendant costs. The costs are estimated at 300 million annually. Coupled with the availability and stability of rice as a host, costs savings are significant.

Another advantage according to Dr. Pascual is the ability to do away with needle administered inoculations. The rice-based vaccines obviates the safety concern of disposing of hazardous medical waste. Dr. Pascual's commentary, "Vaccines Are For Dinner" may be read in its entirety at www.pnas.org/cgi/content/full/104/26/10757 .

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