Developing an Atherosclerosis Vaccine

Klaus Ley
Professor and Head, Division of Inflammation Biology, La Jolla Institute for Allergy & Immunology (LJI)

CURRENT RESEARCH

Targeting inflammation and atherosclerosis to combat cardiovascular disease

Cardiovascular disease, and by extension atherosclerosis, is the leading cause of death in the world, according to the World Health Organization. Dr. Klaus Ley, an M.D. by training and Professor and Head of the Division of Inflammation Biology at the La Jolla Institute for Allergy and Inflammation (LIAI) at the University of California, San Diego has developed an atherosclerosis vaccine that reduces the disease in mice by 25-40%, and is working to translate it for use in humans. If he is able to achieve these rates in people, the vaccine would be as good as statins, the best drugs (in terms of lives saved) ever developed. Since the principle of the vaccine (modified immunology) is fundamentally different from that of statins (modified lipids), it is expected that the vaccine could work on top of statins, increasing success rates. Dr. Ley is working with a biotechnology company to further develop this vaccine for market, and needs significant funding to realize his goal. Although his current vaccine is successful in mice, it is not ready for use in humans, but Dr. Ley has already discovered some of the antigens relevant in human atherosclerosis. There are currently gaps in funding for the translation of projects from basic research to translational research, and Benefunder contributions would be greatly useful in making this vaccine a reality in humans.

As Professor and Head of the Division of Inflammation Biology at the La Jolla Institute for Allergy and Immunology (LJII) in San Diego, Dr. Klaus Ley, is primarily concerned with developing an atherosclerosis vaccine. Atherosclerosis is the hardening of the arteries, which if left unchecked, leads to major cardiovascular diseases. It has an inflammatory...

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AFFILIATION

University of California, San Diego

EDUCATION

- M.D. Julius Maximilians University, Wurzburg, Germany, 1976-1982
- 1976 B.S. Graduation from High School/College (Abitur). Altkönigschule-Gymnasium, Kronberg, Hessen, Germany. Major subjects: Mathematics, Physics

AWARDS

- Marie T. Bonazinga Award, 2008
- Plenary Speaker, 2009
- Malpighi Award, 2010
- First plenary speaker at Tokyo Immunology Club for Young Dermatologists, February 2, 2011
- FAHA (Fellow of the American Heart Association); Council on Basic Cardiovascular Research, 2011

RESEARCH AREAS

Life Science, Cardiovascular, Immunology / Inflammatory, Cardiovascular

FUNDING REQUEST

Your contributions will be crucial for funding the translation of this research from animal models to clinical use in humans. There are several scientific components necessary for translating the vaccine, namely identifying targets in humans, understanding how it will work, and filing with the FDA for approval for Phase 1 clinical trials. Dr. Ley is working in collaboration with a biotechnology company to identify an adjuvant to boost the vaccine, and reach a formulation that is transferable.