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Profiling the IgOme - the Repertoire of Antibodies in Polyclonal Serum

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Polyclonal serum consists of vast collections of antibodies. The spectrum of antibody specificities is dynamic and varies with age, physiology, and exposure to pathological insults. The complete repertoire of antibody specificities in blood, the IgOme, is therefore an extraordinarily rich source of information–a molecular record of previous encounters as well as a status report of current immune activity. The ability to profile antibody specificities of polyclonal serum at exceptionally high resolution has been an important and serious challenge which can now be met. Here we describe "Deep Panning" a methodology that merges the flexibility of combinatorial phage display peptide libraries with the power of Next Generation Sequencing to enable high resolution / high-throughput interrogation of the IgOme.

Biography:

Prof. Jonathan M. Gershoni completed his BSc in Biology and PhD in Biochemistry at the Hebrew University of Jerusalem. He then did Post-doctoral training with Prof. George E. Palade at Yale School of Medicine where he began his research on the interplay of viruses and their targets and the defense mechanisms of the immune system. Returning to Israel in 1983 he joined the Department of Biophysics at the Weizmann Institute of Science where he continued his study of the molecular events that govern viral infection. He subsequently joined the Laboratory of Tumor Cell Biology at the National Institutes of Health in Bethesda, MD to work with Dr. Robert C. Gallo on developing new approaches to AIDS therapy and prevention. In 1990 he returned to Israel as one of the founders of the new Department of Cell Research and Immunology at Tel Aviv University where he has served as chairman (2003-2006). Over the last decade Prof. Gershoni has focused on developing new methods for the rational design of vaccines to such pandemic diseases as AIDS, Hepatitis C, influenza and SARS. He continues to investigate the humoral response towards viral pathogens; developing computational methods to profile the IgOme-the complete repertoire of antibodies in polyclonal sera, and developing novel approaches for epitope based vaccines and next generation diagnostics.

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