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&amp;

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### Tick-borne diseases: Challenge in diagnostics and therapies of chronic multiple infections

Lyme-Borreliosis and coinfections are the chameleon of symptoms, laboratory test results and therapy options. Many patients can be infected by tick-bites with several bacteria (multiple infections). Symptoms of tick-borne diseases are not highly-specific for Lyme-Borreliosis or other coinfections (overlapping symptoms). The diagnostic approach should be done by modern and innovative laboratory tests with the highest sensitivity and specificity for each infection. The evasion from the immune system of pathogens plays an important role in the problems of diagnostic testing and therapies in the complexity of chronic multiple infections. Autoimmune disorders, many unexplained syndromes or cancer can be correlated with chronic multiple infections initiated by tick-borne diseases. This presentation aims to show symptoms and corresponding laboratory tests for tick-borne diseases, explaining the different diagnostic test systems and general therapy options for chronic multiple infections, respectively pathogen interactions and biofilms.

### Biography

Armin Schwarzbach is a medical doctor and a specialist for laboratory medicine from the laboratory ArminLabs, Augsburg, Germany. He began by studying biochemistry at Hoechst AG, Frankfurt/Germany and pharmacy at the University of Mainz/Germany in 1984. In 1985, he studied medicine for 6 years at the University of Mainz/Germany and finished his MD in 1991. He developed the worldwide first radioimmunoassay (RIA) for human Gastric Inhibitory Polypeptide (hGIP) from 1986 – 1991, getting his Ph.D in 1992. He is member of the Swiss Association for tick-borne diseases, the German Association of Clinical Chemistry and Laboratory Medicine and the German Society for Medical Laboratory Specialists. He is an advisory board member of AONM London, England and Board Member of German Borreliosis Society and member & former board member of the International Lyme and associated diseases society (ILADS) and has served as an expert on advisory committees on Lyme Disease in England, Australia, Canada, Ireland, France and Germany. He is the Founder and CEO of ArminLabs, Augsburg/Germany and is specialized in diagnostic tests and treatment options for patients with tick-borne diseases for over 15 years.

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