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Suppressing the virus and preventing immune activation: A two-pronged attack to HIV and chronic infections

Franco Lori

ViroStatics, Italy

Abstract

If a pathogen is not cleared by the immune response (chronic infection) persistent immune system hyperactivation results, leading to prolonged T cell hyperproliferation and systemic inflammation. For example, although current highly active HIV therapy suppresses HIV down to undetectable levels, residual hyperactivation eventually causes more harm (eg, strokes, heart attacks, cancer, and accelerated aging) than does the infection itself.

Several groups are exploring strategies to limit immune hyperactivation. Our AV-HALTs (AntiViral-HyperActivation Limiting Therapeutics) have been specifically designed for simultaneous suppression of viral replication and immune hyperactivation to uniquely target the systemic inflammation that drives morbidity and mortality in viral and other chronic diseases. Through their novel dual mechanism of action, AV-HALTs are expected to lessen or prevent cardiovascular and metabolic disorders, tumors and accelerated aging (a disease-modifying approach).

The present-generation “single molecule” AV-HALTs, currently in preclinical stage, follows the trailblazing work of the first-generation “dual molecule” AV-HALTs (VS411) which achieved clinical proof of concept (Phase 2a) for the approach and generated the clinical reference prototype for screening of the present-generation AV-HALTs with distinctive features: a new cellular target and mechanism of action; highly potent stand-alone antiviral activity at nanomolar concentrations combined with the added potentially beneficial antiproliferative activity; potential to reduce immune activation and viral reservoirs; favorable resistance profile expected; no cross-resistance, cross-toxicity anticipated (can be combined with existing HIV drugs across multiple lines of therapy).

Studies are also ongoing to explore the potential of our novel compounds in the treatment of other viral diseases, cancer and inflammatory diseases.

Biography

Franco Lori (M.D.) founded ViroStatics srl in 2005, serving as President and Chief Executive Officer. After his scientific training at the Pavia CNR, Italy, (molecular biology) and NIH, USA (virology, immunology), Dr. Lori has accumulated experience in investigative preclinical and clinical research and drug development interacting with an extensive network in the US and Europe. With 20 years of extensive experience in Biotech management, Dr. Lori has overseen the successful start-up of three biotechnology companies. In 2000 Dr. Lori was awarded "Hero in Medicine" for his achievements in HIV therapy by the International Association of Providers of AIDS Care.