Dr. Suzanne Lentzsch

Project Summary/Abstract
AL Amyloidosis is a rare disease characterized by the formation and deposition of insoluble fibrillary proteins (amyloid) in extracellular spaces of tissues and organs. This results in severe structural and functional organ damage. Currently, treatment of patients with AL amyloidosis is limited to anti-plasma cell chemotherapy to reduce or eliminate the amyloidogenic light chainproducing cells. Although the development of new agents has improved survival, the prognosis still remains poor due to the relentless accumulation of pathologic fibrillar deposits and the resultant loss of vital organ function.

In an effort to induce rapid removal of amyloid from the body, Dr. Solomon developed a murine monoclonal anti-light chain antibody (designated 11-1F4) that is specific for light-chain amyloid fibrils. Moreover, administration of this agent into mice with induced subcutaneous tumors composed of human AL amyloid led to elimination, *i.e*., amyloidolysis, of the pathologic material with no apparent untoward side effects. To facilitate its use in humans, the murine mAb 11-1F4 has been chimerized under the auspices of the National Cancer Institute's Biological Resource Branch Developmental Therapeutic Program and amounts of GMP-grade chimeric (Ch) mAb 11-1F4 have been produced that are sufficient for a Phase Ia/b therapeutic clinical trial. Effective September 9, 2013, the sponsorship of the Investigational New Drug Application (IND) 117316, Chimeric (Ch) monoclonal antibody (mAb) 11-1F4 was transferred to Dr. Lentzsch. We are planning to perform a clinical trial where we will (1) define the maximum tolerated dose (MTD) and safety of (Ch) Ab 11-1F4 in a Phase Ia study, (2) determine the safety, tolerance and possible clinical benefit of the MTD of (Ch) Ab 11-1F4 in a Phase Ib study and (3) determine the serum levels of (Ch) mAb 11-1F4 in treated patients by ELISA when given as a single intravenous infusion (Phase Ia) or as a series of four weekly intravenous infusions (Phase Ib).