Increasing Healthspan and Lifespan:
The Potential for Regeneration through Senescent Cell Clearance

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Aging of the population is a major health, economic and policy challenge facing industrial societies such as the United States. According to Standard and Poor's World Aging Report (2010), "No other force is likely to shape the future of national economic health, public finances and policy making as the irreversible rate at which the world's population is aging." . Optimizing the quality and duration of life is also a personal challenge for each of us as we get older. Eighty percent of U.S. seniors suffer from at least one chronic disease, often impairing both the healthspan and lifespan of millions of Americans. Yet, we are nearing the point at which it will be possible to extend healthspan (the length of time free of the costly and harmful conditions of old age) by targeting and delaying aging-related diseases. This may also extend lifespan.

This presentation will frame the need for improved scientific and medical knowledge for anti-aging research and treatment, and then describe some of SIWA's progress in this field. Specifically, SIWA has developed and tested successfully in rodents a therapeutic antibody that can destroy senescent cells and reverse signs of aging. The potential for such a strategy targeting senescent cells has been demonstrated by the Mayo Clinic (*Nature* 479:232-236 (2011)). The technology developed by SIWA advances and extends the Mayo findings using a therapeutic that does not require genetically engineered cells, a key limitation of the Mayo study. The results of animal studies with this antibody will be summarized, as well as plans to move the agent into clinical testing. Finally, the long-range medical, social and economic implications of this research will be discussed.