

## Age-Related Protein Decline is Reversible



Nine proteins, isolated from blood, decline with age, but researchers from Boston University School of Medicine and University of Texas Medical Branch have found that the profile of some of these proteins can be reversed by testosterone treatment. The team compared protein levels in serum samples from two groups of healthy men - young men ages 18-35 years and older men ages 60-75 years. Seven proteins, which were either growth factors (IGF-1, IL-7, IL-12p40, PDGF[beta]), or were involved in immune response (ENA78, MIP-1[beta], IP-10), and pro-collagen (PIIINP) were all reduced in older men. In contrast the monokine MIG, also involved in immune activity, was elevated. The team found that testosterone treatment increased lean muscle mass, and levels of the appetite suppressing hormone leptin, for both groups of men. Testosterone also increased levels of PIIINP and IGF-1 in young men and the researchers saw a similar increase in a small group of older men. The authors conclude that: "Results from this study suggest that there are potential phenotypic biomarkers in serum that can be associated with healthy aging and that some but not all of these biomarkers reflect gains in muscle mass upon testosterone administration."

---

Banerjee C, Ulloor J, Dillon EL, Dahodwala Q, Franklin B, Sebastiani P, Sheffield-Moore M, Urban RJ, Bhasin S, Montano M. "Identification of serum biomarkers for aging and anabolic response." *Immunity & Ageing* 2011, 8:5, 20 June 2011.