Body: We demonstrated opposite presence of mycobacterial heat shock proteins (Mtb-hsp) 70kDa, 65kDa, 16kDa in sera and lymph nodes in sarcoidosis (SA). We have recently revealed that Mtb-hsp16, Mtb-hsp65, and Mtb-hsp70 concentrations in precipitated immune complexes were significantly higher in SA than in TB and controls. In all tested groups, Mtb-hsp16 concentration was significantly higher than Mtb-hsp70 and Mtb-hsp65. It is possible that in genetically different predisposed hosts, Mtb-hsp16 induced by dose-dependent nitrate/nitrite (NOx) may be involved in latent tuberculosis (TB), active TB or SA development. Low level of NOx may result from a rapid reaction of NOx and superoxide with following production of peroxynitrite (ONOO⁻). Thus, we evaluated serum NOx and ONOO⁻ levels in supernatants of PBMC cultures treated with Mtb-hsp from 20 SA patients, 19 TB patients, and 21 healthy volunteers using Griess method and rhodamine fluorescence, respectively. Significantly increased NOx and ONOO⁻ concentrations with and without Mtb-hsp stimulation were found in SA and TB than in controls, but significantly lower NOx and higher ONOO⁻ levels after Mtb-hsp induction were shown in SA than TB. In summary, in contrast to active TB, lower level of NOx may induce M. tuberculosis genetic dormancy program via higher Mtb-hsp16 expression in SA. Following increased ONOO⁻ concentration, induced by Mtb-hsp, may explain the low level of NOx and initiate an autoimmune response in SA related to mycobacteria’s stationary-phase.