1124-03-394 **Liwu Li*** (lwli@vt.edu), Dept of Biological Sciences, Virginia Tech, Blacksburg, VA 24061, and **Shuo Geng**. *Innate immunity memory dynamics in health and disease.* Preliminary report.

Low-grade inflammatory monocyte polarization may occur during chronic inflammation and deter effective wound repair. However, little is understood about the potential mechanisms of no-resolving monocyte polarization. We demonstrated that both murine and human monocytes can be programmed into a low-grade inflammatory state, as represented by the elevated population of CD11b+Ly6Chigh monocyte and sustained expression of CCR5, through continuous challenges with subclinical dose of bacterial endotoxin. Mechanistically, super-low dose endotoxin caused cellular stress, altered lysosome function and increased the transcription factor IRF5. TUDCA, a potent inhibitor of cellular stress, effectively blocked the monocyte polarization, and improved wound healing in mice injected with super-low dose endotoxin. Instead, prolonged challenges with higher dosages of LPS caused tolerance. The priming and tolerance dynamics can be manifested with TLR7 agonist in monocytes. In contrast, TLR3 agonist preferentially programs for the non-resolving inflammatory state of monocytes without inducing tolerance. Our data reveal systems dynamics of monocyte programming by distinct TLR agonists with varying signal strengths, underlying mechanisms, and pathological implications. (Received September 13, 2016)