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Sommario/riassunto	There is increasing evidence that suggest the presence of innate immune memory as reflected in the altered responses from programmed innate leukocyte challenged with varying natures and signal strength of inflammatory challenges. The rudimentary "memory" responses of innate leukocytes based on prior challenge histories, as well as signal strength and durations, may dramatically affect cellular and tissue homeostasis. At the translational level, innate leukocyte memory may underlie the decision making process of resolving tissue homeostasis as compared to non-resolving inflammatory diseases. Proper resolution of leukocyte homeostasis is essential for the well-being of human physiology such as proper wound repair, eradication of sporadic malignant cells, mucosal defense of infections, and tissue regeneration and growth. On the other hand, lack of inflammation resolution underlies the pathogenesis of wide ranges of acute and chronic diseases ranging from cardiovascular to neurological diseases and cancer. This series of reports will focus on this emerging topics of innate leukocyte programming dynamics and memory in health and disease. Emerging examples of leukocyte programming dynamics may include the following scenarios. First, sequential challenges with distinct inflammatory signals may alter the leukocyte expression profiles of inflammatory mediators, as exemplified by the classically

trained M1 monocyte/macrophage as compared to the alternatively programmed M2 macrophages. Second, leukocytes may be adapted to unique signal strength of inflammatory challenges, as reflected in the generation of non-resolving low-grade inflammatory monocytes adapted by chronic low signals of TLR4/7 agonists. Third, the ontogeny of innate leukocytes from precursor cells as well as the life span of mature leukocytes may also be significantly impacted by the history, dosage, and duration of inflammatory signals. In light of the conceptual and translational significance of innate immune memory, this topic may cover the key aspects listed below. 1) Monocyte priming and tolerance; 2) Neutrophil priming and adaptation; 3) NK cell priming; 4) Cross-talk among innate and adaptive immune programming; 5) Innate leukocyte programming in acute and chronic inflammatory disease.