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KSN: Immune Recovery from Acute Kidney Injury

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Kidney-resident immune cells may play a role in maintaining immunological homeostasis. In mouse kidneys, the majority of resident immune cells are kidney-resident macrophages, and their residence in the tubulointerstitial area may influence both inflammatory and repair processes following the initiation of glomerulitis and tubulitis. Herein, we identified that the VISTA molecule is constitutively expressed in kidney-resident macrophages. This expression conveys a negative signal to counterpart T cells, thereby inhibiting the proliferation and activation of infiltrated T cells following acute tubular and glomerular injuries. This suggests that VISTA-positive macrophages may contribute to the repair process after an injury or mitigate the extent of the injury.

Research into the renal immune system should not be limited to mice but extended to humans because there may be potential differences between these species. However, information on resident immune cells in human kidneys is lacking. We have discovered that the kidney residency of immune cell subsets differs between mice and human kidneys. Analyzing predominant immune cell subsets and their functions in human kidneys may enhance our understanding of homeostasis and diseases, offering valuable insights into potential intervention strategies.