

# Kidney360

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### On the Cover

Proposed functions of resident macrophages during cyst formation and expansion. Multiple processes occur during cyst formation and expansion including increased epithelial proliferation and apoptosis, interstitial inflammation, increased extracellular matrix deposition and renal fibrosis, as well as vasculature abnormalities. Resident macrophages may be involved in controlling several of these processes directly or indirectly. It has been proposed that resident macrophages can promote cystic epithelial proliferation by secretion of cytokines and phagocytosis of apoptotic epithelial cells. Also, renal resident macrophages may drive interstitial myofibroblast activation and proliferation, leading to increased extracellular matrix deposition and renal fibrosis. Resident macrophages may serve as “first responders” in the kidney and control the accumulation and effector function of other immune cells, like neutrophils, infiltrating macrophages, and T cells, to indirectly regulate cyst formation. Finally, renal resident macrophages may also regulate vasculature abnormalities through their proposed pro-angiogenic functions. The inset indicates the reciprocal communication between resident macrophages and the cilia mutant epithelium via mb-CSF1/CSF-1R. ECM: extracellular matrix, mb-CSF1: membrane-bound Colony-Stimulating Factor-1, RM: resident macrophages, IM: infiltrating macrophages. From figure 2 of “Resident macrophages in cystic kidney disease” by Zhang Li, Kurt A. Zimmerman, and Bradley K. Yoder. *KIDNEY* 360 1: 167–175, 2021. doi: 10.34067/KID.0006052020.