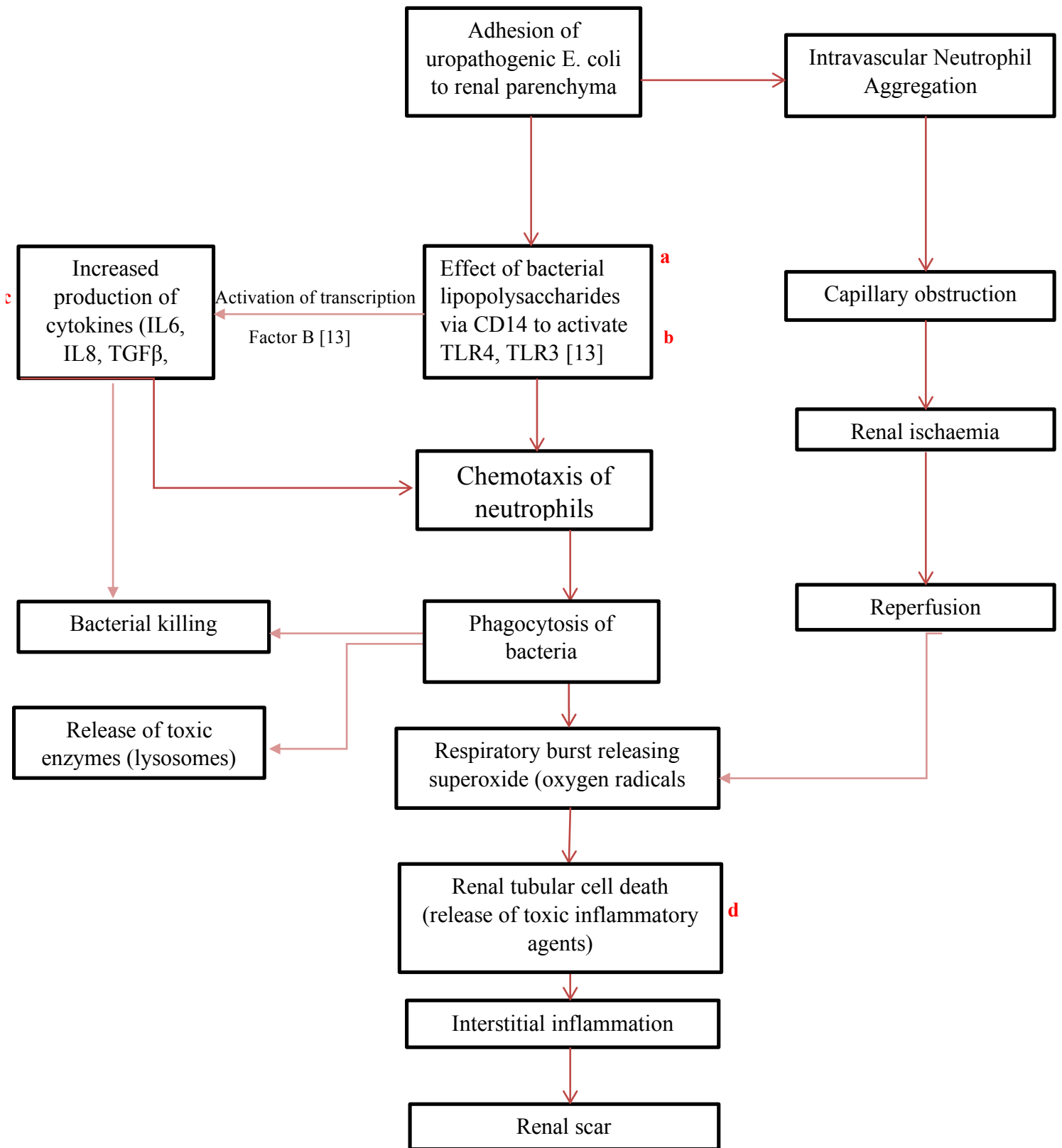


Conceptual framework



**NB: TLR4:** Toll like receptor 4

**IFR3:** Interferon regulator factor 3

**TLR3:** Toll like receptor 3

**IL6:** Interleukin 6

**IF- $\gamma$ :** Interferon gamma

**IL8:** Interleukin 8

**TNF- $\alpha$ :** Tumor necrosis factor – alpha

**TGF $\beta$ :** Transforming growth factor – beta

**VEGF:** Vascular Endothelial growth factor

a | Expression of APOL 1 in renal tubular cells, podocytes, vascular endothelial cells can be increased because evidence exists to support that APOL 1 expression is increased in human embryonic umbilical vein endothelial cells [56] following exposure to lipopolysaccharide.

b | The toll like receptors that are activated by bacterial lipopolysaccharide also increase the expression of APOL 1 when stimulated by double stranded RNA TLR3 agonist [46].

c | Interferon  $\gamma$  and tumor necrosis factor  $\alpha$  are cytokines produced following activation of transcription factor nuclear factor  $\beta$  ( $\mu$ F  $\_K\beta$ ). These cytokines are also known to up-regulate the expression of APOL 1 [57]. Interferon regulating factor 3 (IRF3) is another cytokine produced via NF $\_K\beta$  activation, which is also involved in increased APOL 1 expression [46].

d | Increased expression of APOL 1 in renal tubular epithelial cells resulting in deaths of these tubular cells via APOL 1 mediated apoptosis resulting in deleterious circle of tubular atrophy, cytolytic events and renal scarring [55,56].