

Supplementary Material

Table S1. Genes and Functions of Subtypes of Renal Endothelial Cells

Renal Endothelium	Subtype	Genes	Known functions
cortical endothelium	Afferent arteriolar ECs	<i>Bmp4, Alox12, Slc18a1, Edn1, Gja4, S1pr1, Cldn5, Cxcl12, Kcnn4</i>	Regulating angiotensin and renal blood flow
	Capillary ECs with high ApoE expression	High <i>ApoE, Plpp3, Thrsp</i>	Related to lipid metabolism
	Capillary ECs with low ApoE expression	Low <i>ApoE</i>	Regulating blood volume and sodium excretion
	Angiogenic capillary ECs	<i>Apln, Aplnr, Col4a1, Col4a2, Esm1, Fscn1, Gpihbp1, Plk2, Trp53i11</i>	Involved in the regeneration of damaged ECs
	Interferon-activated ECs	<i>Isg15</i> and <i>Ifit family genes</i>	Exhibit an IFN-response phenotype; Involved in immune surveillance
	Post-capillary	<i>Jup, Nr2f2, Tnxb, Kdr</i>	Drives the transcriptional tagging and identification of specific vascular beds; Maintaining renal tubular reabsorption function
	Efferent arteriolar ECs	<i>Klf4, Calca, Cryab, Slc6a6</i>	Regulating calcium influx.
	Large artery ECs	<i>Mgp, Eln, Gja5, Slc8a1, Kcnn4, Cldn5, Ltbp4, Bmp4, Ace, Cldn5, Jag1, Edn1</i>	Related to elastin fiber assembly; Regulating angiotensin
	Large vein ECs	<i>Plvap, Gas6, CD9, Nr2f2</i>	Facilitating the exchange of water, ions, and small solutes with the proximal and distal renal tubules; Involving in endothelial fenestration
	medullary endothelium	Microvascular	<i>Fbln5, Gja4, Sox17</i>
Descending vasa recta ECs		<i>Crip1, Slc14a1, Scin, Aqp1, Cldn5, Hpgd, End1, Cxcl12, Adipor2, and Slc5a3</i>	Facilitating the transport of aquaporin-2; Involved in the metabolism of vasodilatory prostaglandins

	Papillary descending vasa recta ECs	<i>Nrgn, S100a4, S100a6, Fxyd5, Akr1b3</i>	Concentrating urine; maintaining cell volume under high osmotic conditions.
	Fenestrated capillary ECs	<i>Plpp3, Cd36</i>	Fatty acid transport and metabolism
	Angiogenic capillary ECs	<i>Fscn1, Col4a1, Esm1, Col4a2, Trp53i11, Aplnr, Apln, Plk2, Gpihbp1</i>	Promotes the development of renal vasculature and podocytes
	Interferon-activated capillary ECs	<i>Isg15 and Ifit family genes</i>	Immune-related
	Post-capillary venule ECs	<i>Jup, Nr2f2, Tnxb, Kdr</i>	Maintaining water reabsorption in renal tubules
	Ascending vasa recta ECs	<i>Fxyd6, Gas6, Tek</i>	Urine concentration
	Papillary ascending vasa recta ECs	<i>Ldha, Gapdh, Crip1, Nrgn, Aldoa, Akr1b3, Fxyd5, S100a6</i>	Urine concentration and glycolysis
	Interferon-activated vein ECs	<i>Isg15 and Ifit family genes</i>	Immune-related
glomerular endothelium	Afferent arteriolar ECs	<i>S1pr1, Gja4, Alox12, Kcnn4, Edn1</i>	Involved in the regulation of angiotensin
	Afferent arteriolar/JGA ECs	<i>Cd300lg, Gja5</i>	Regulating renin release and blood pressure
	Efferent arteriolar ECs	<i>Cryab, Klf4, Calca, Slc6a6</i>	Involved in osmotic response
	Efferent arteriolar/JGA ECs	<i>Gas5, Ptpr, Slc26a10</i>	Involved in immune cell adhesion and extravasation; Regulating endothelial cell permeability
	Glomerular capillary ECs	<i>Scn7a, Sema5a, Nostrin, Abcc4, Ehd3, Lpl, Smad6</i>	Maintaining fenestration of glomerular capillaries; Promoting the formation of capillaries

ECs endothelial cells; IFN Immune Interferon