Albuminuria—Kidney Translation of the Existence of Endothelial Dysfunction

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Speaker Disclosure

I have received honoraria as a speaker for Boehringer Ingelheim, Eli Lilly, Janssen Pharmaceuticals Inc., and Merck.

--Dr. Lardinois

In dedication to my mother Virginia Kiel Lardinois





February 28, 1920 - November 10, 2016

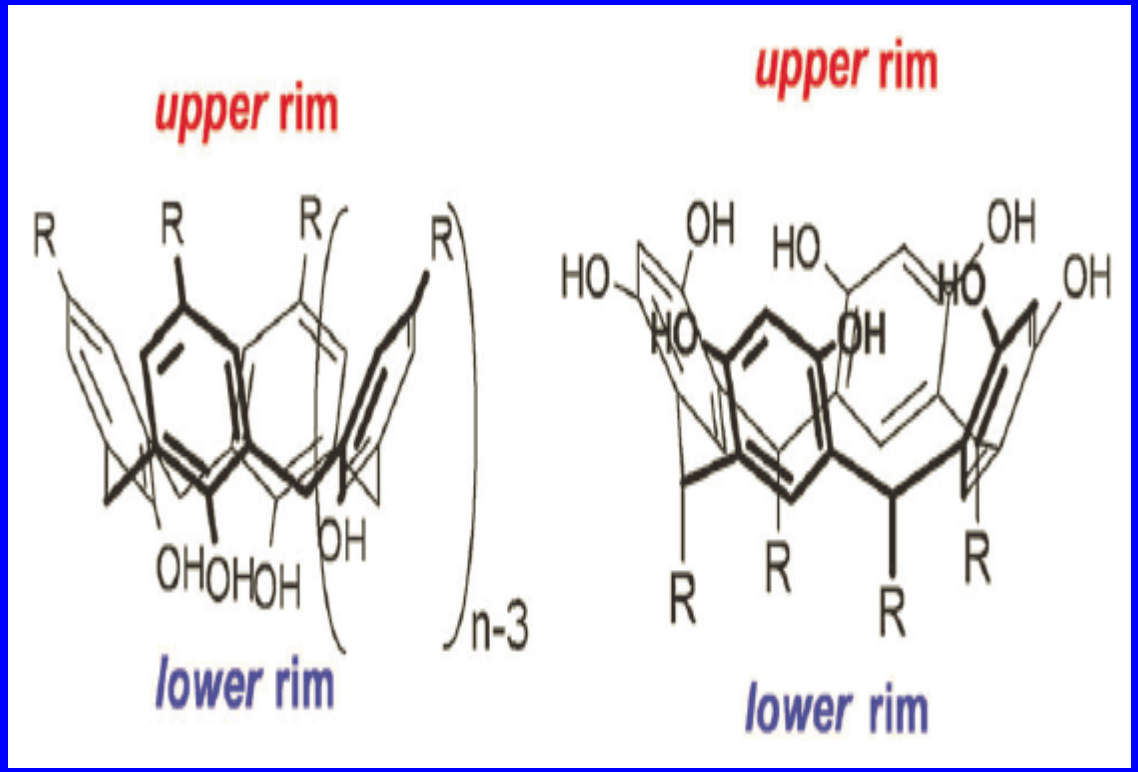
Educational Objectives for Pharmacists and Other Medical Professionals

As a result of this program, participants will be able to (independently and without the use of references)

- ✓ **Recognize the important role of Glycocalyx in microvascular and macrovascular dysfunction;**
- ✓ **Explain how albuminuria is a marker of endothelial dysfunction and symbolizes the kidney's way of translating the existence of vascular damage;**
- ✓ **Identify and discuss the variables that predict long-term decline in renal function;**
- ✓ **Explain the importance of the renin-angiotensin system and mineralocorticoid receptor antagonists in patients with chronic kidney disease; and**
- ✓ **Describe other treatment options available to slow the progression of declining renal function.**

glycocalyx

Calixarenes as Scaffolds for Glycoclusters



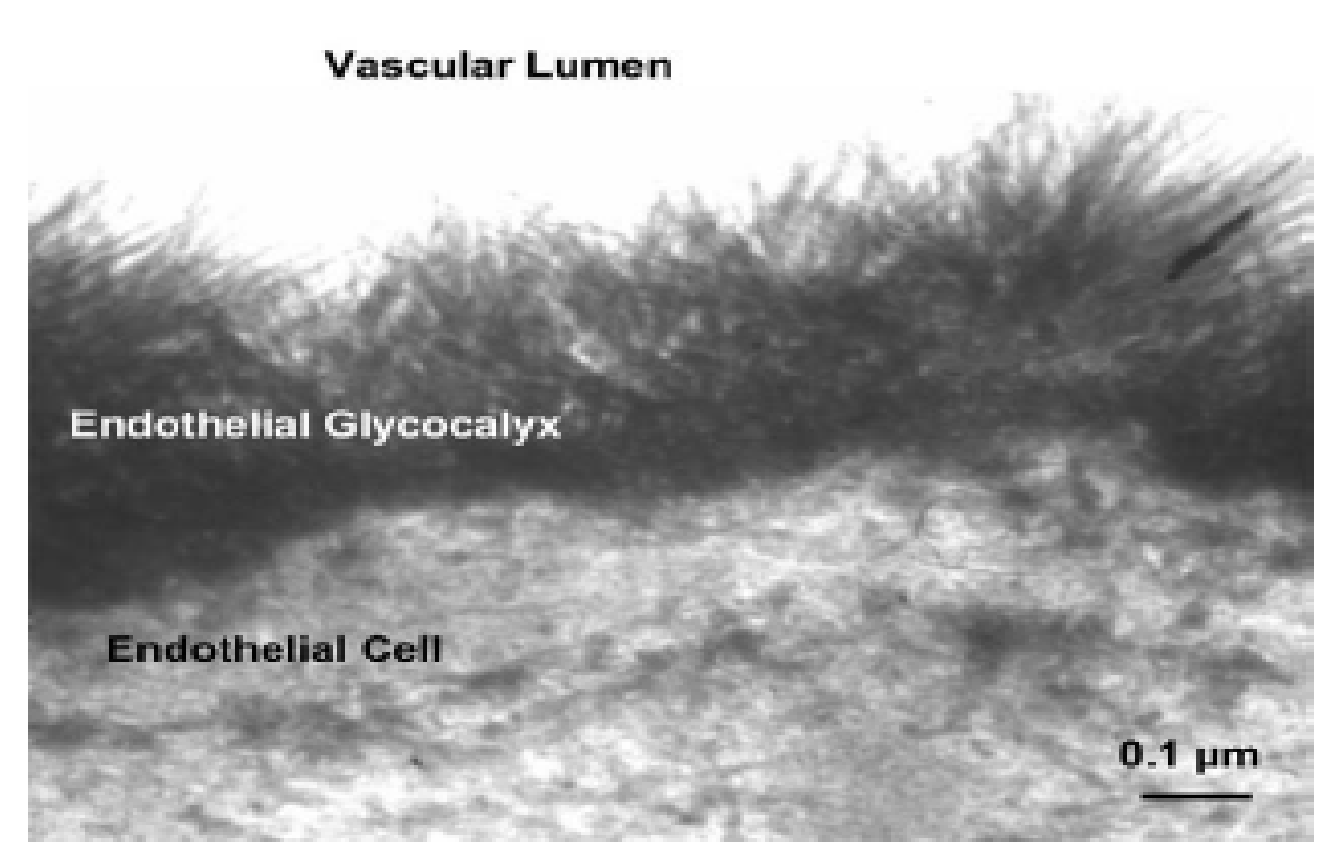


Greek vase
(calyx krater)

Chem Soc Rev 2013;42;4623-4639

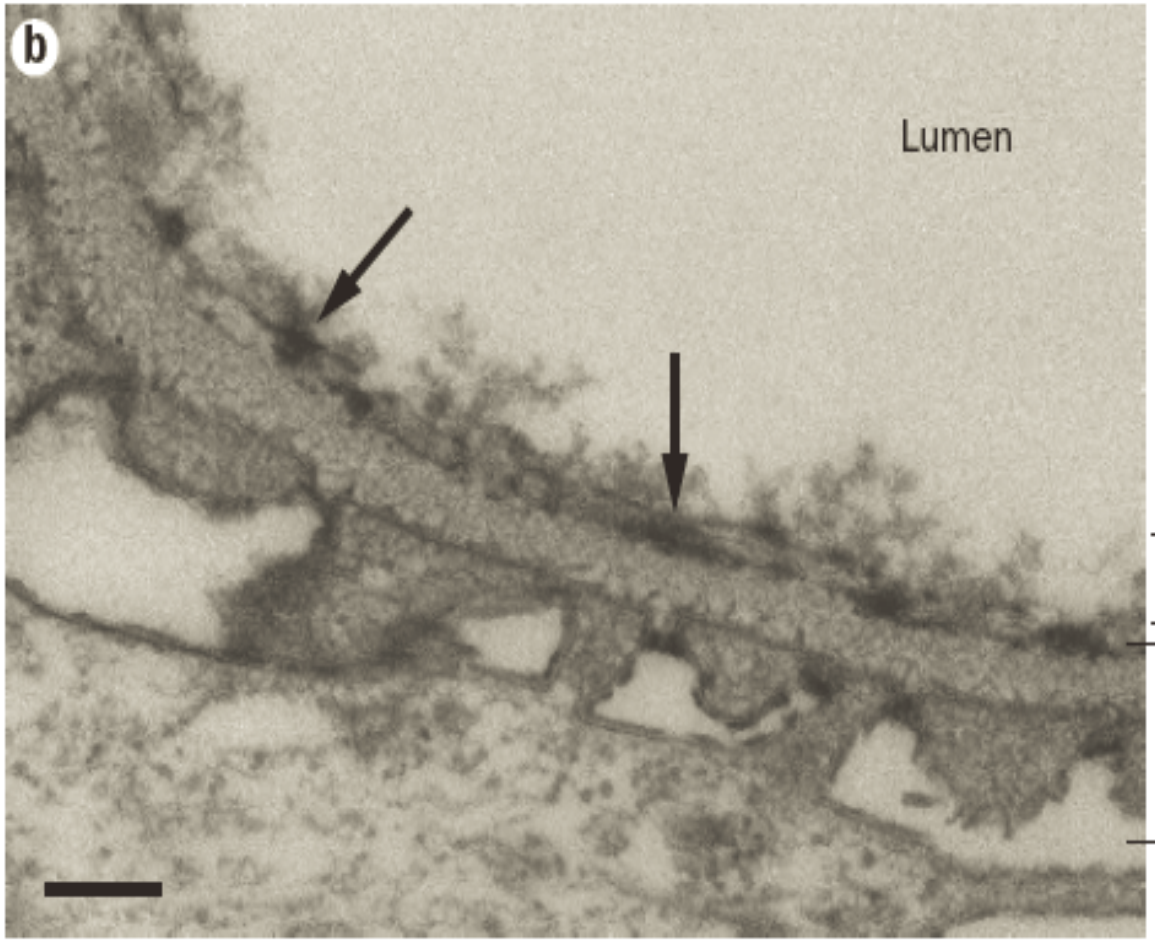
Glycocalyx—

Layer of membrane-bound proteoglycans, glycoproteins, and glycolipids between the vascular lumen and the endothelial cells



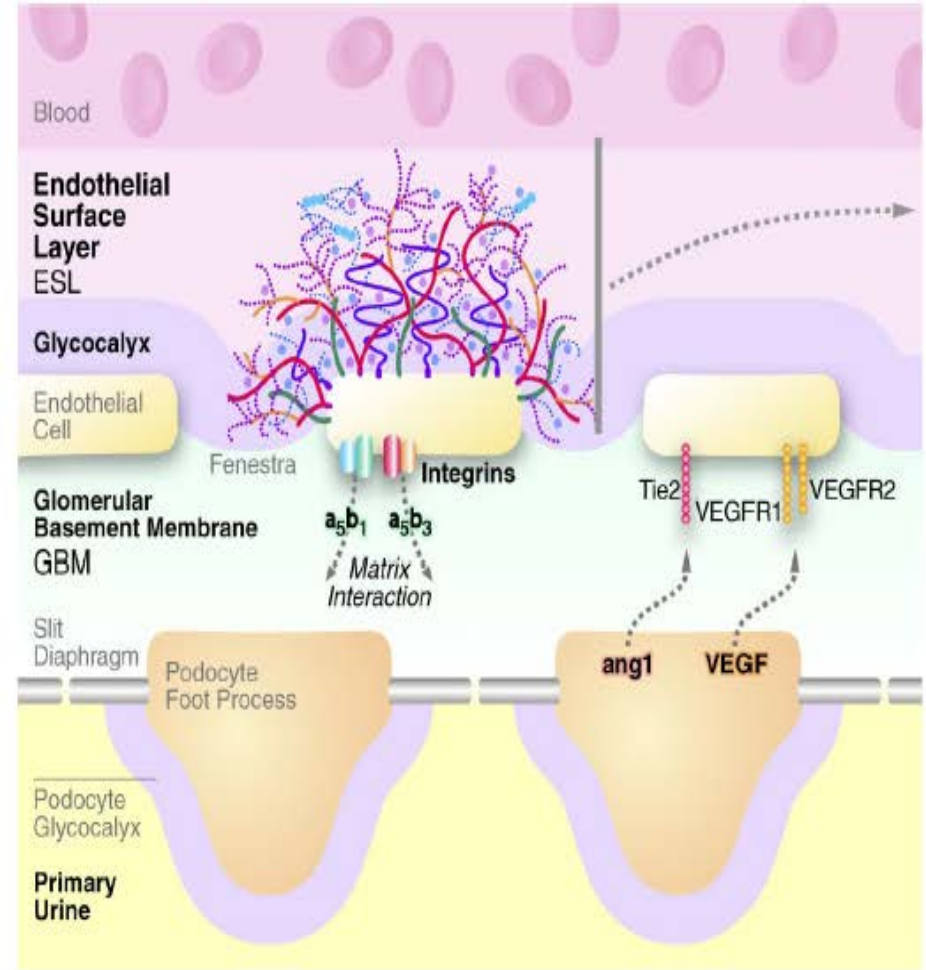
Cardiovasc Res 2007;73:575-586

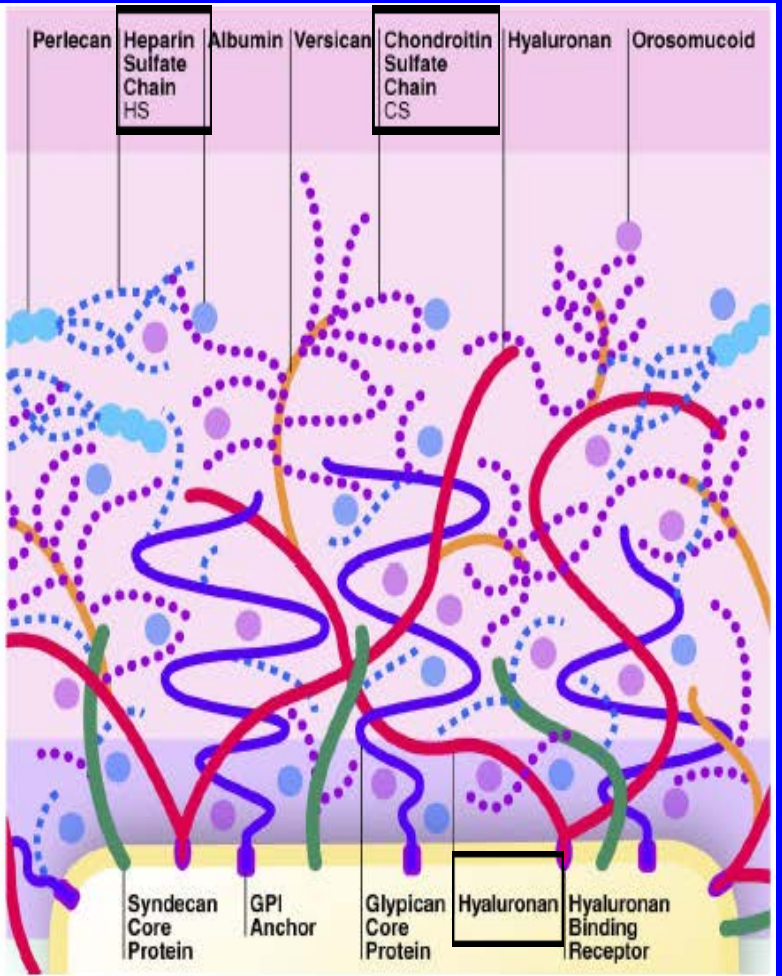
Structure of the Glomerular Endothelial Glycocalyx



Glycocalyx
Endothelium
Podocyte foot processes

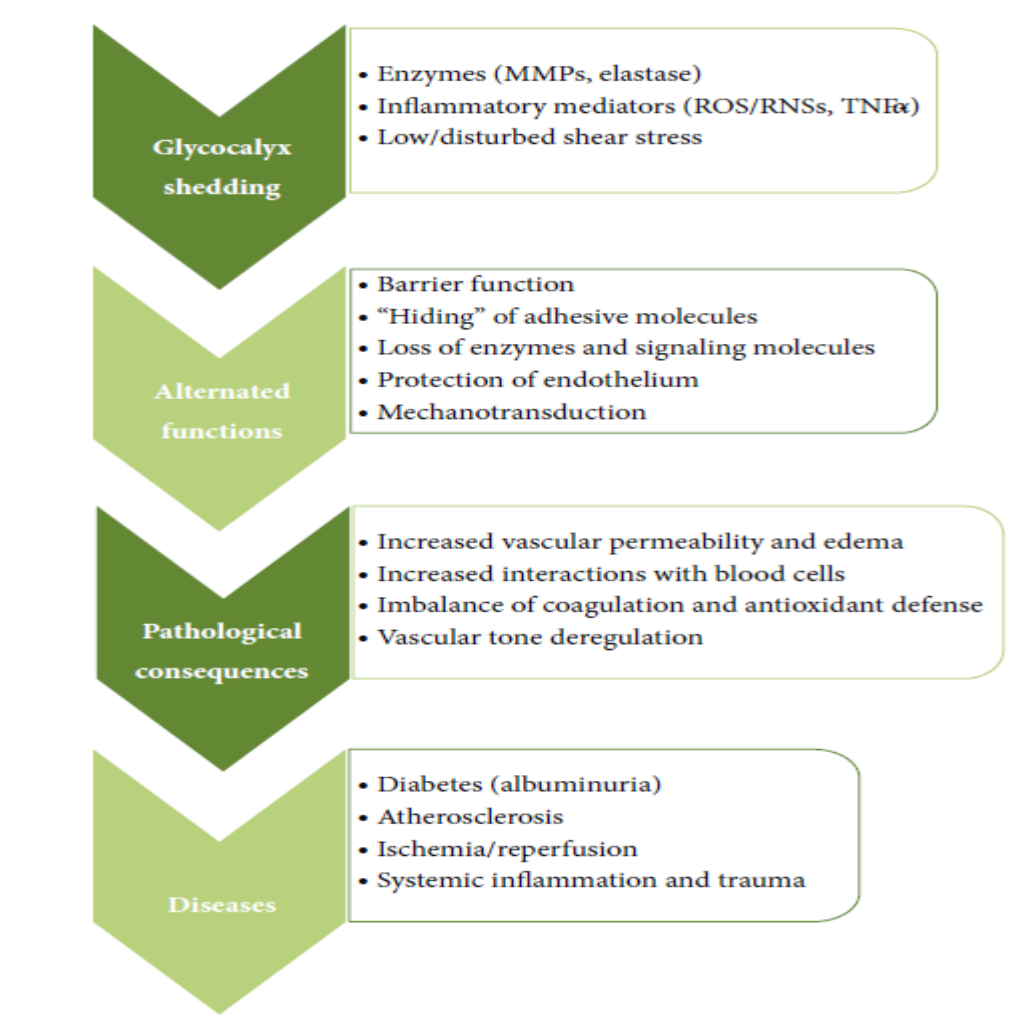
Glomerular Barrier with Components of the Glomerular Endothelium





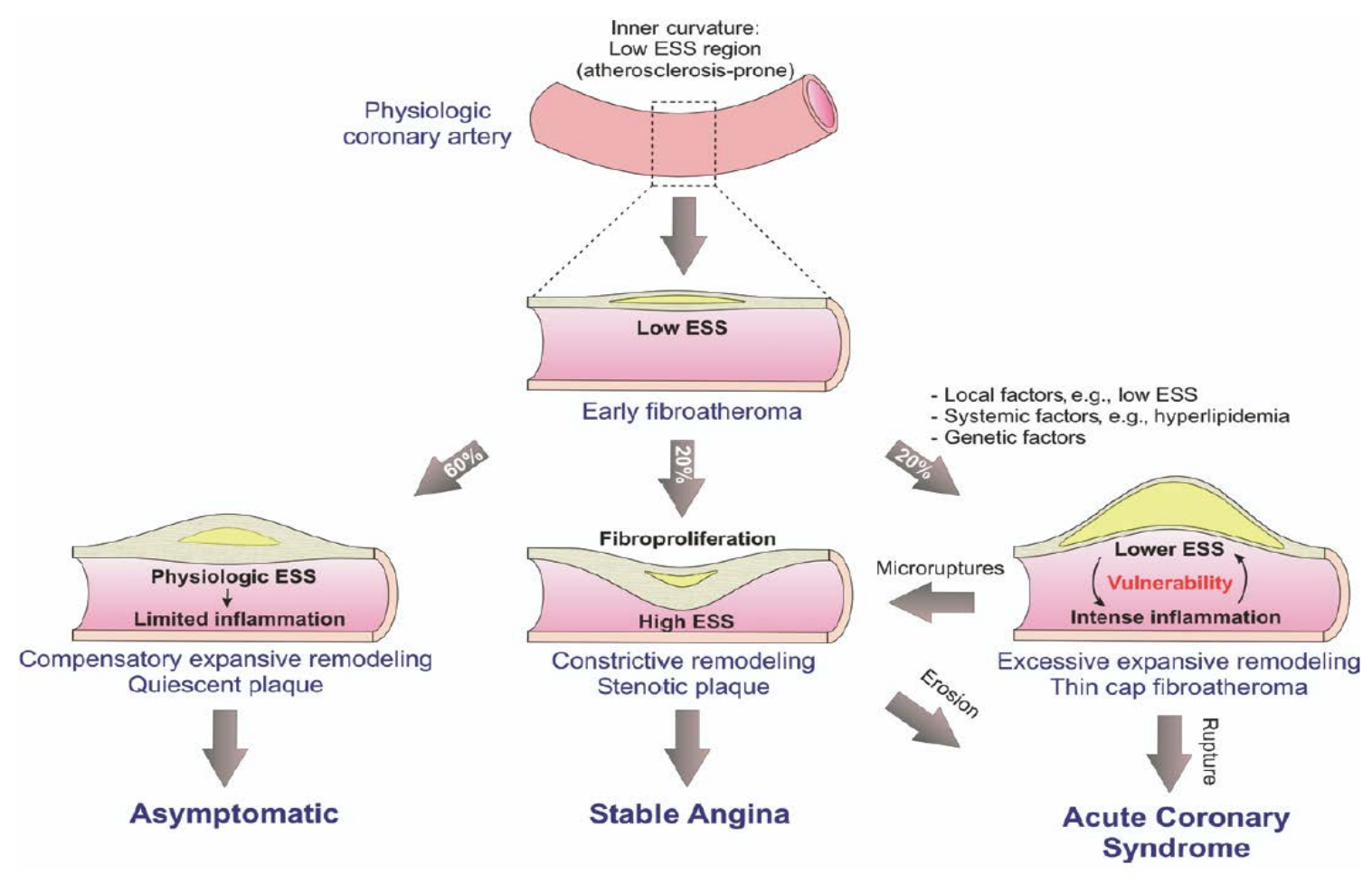
Physiol Rev 2003;83:253-307

Alternated Glycocalyx Functions as a Result of its Shedding



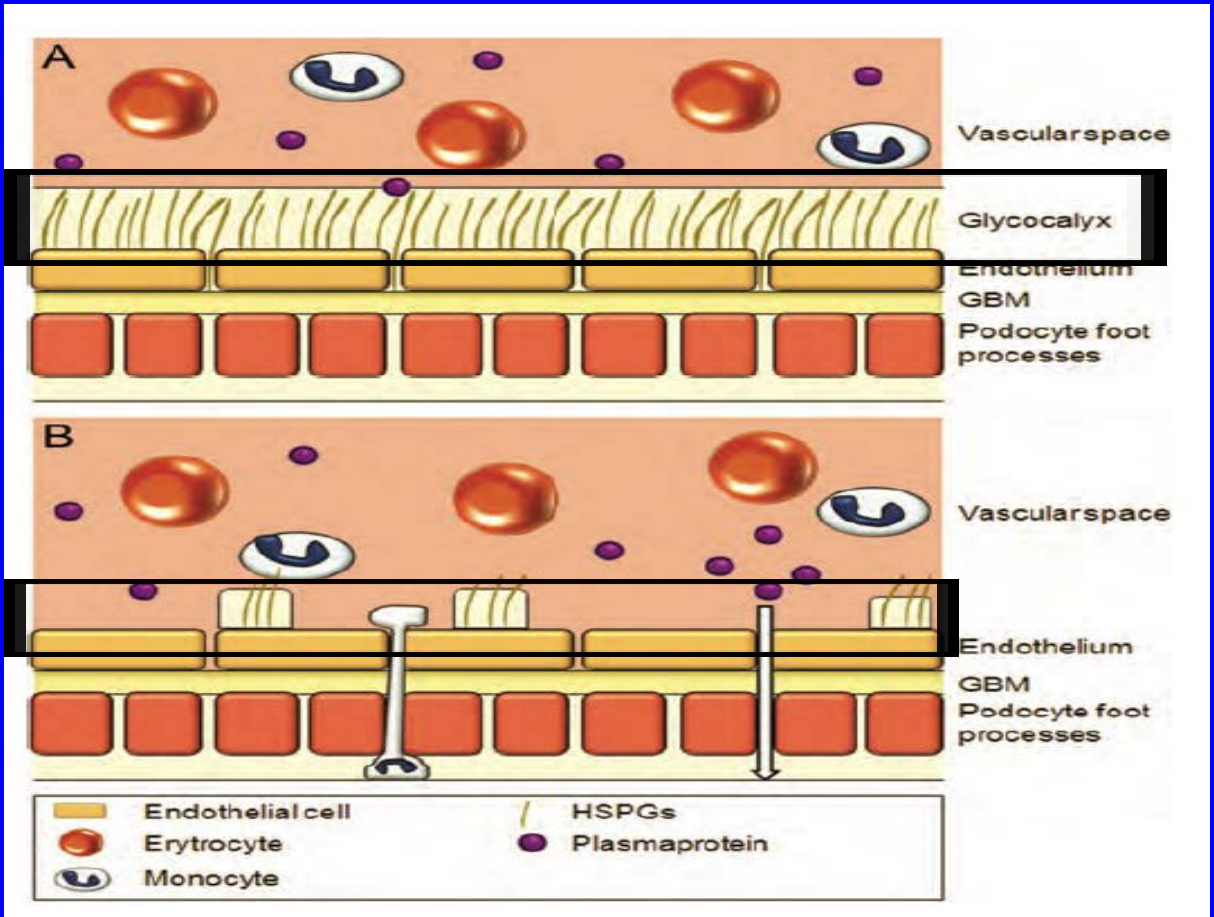
Mediators of Inflammation Volume 2014, Article ID 694312, 17 pages

Low Endothelial Shear Stress Promotes Coronary Atherosclerosis Through Glycocalyx Shedding



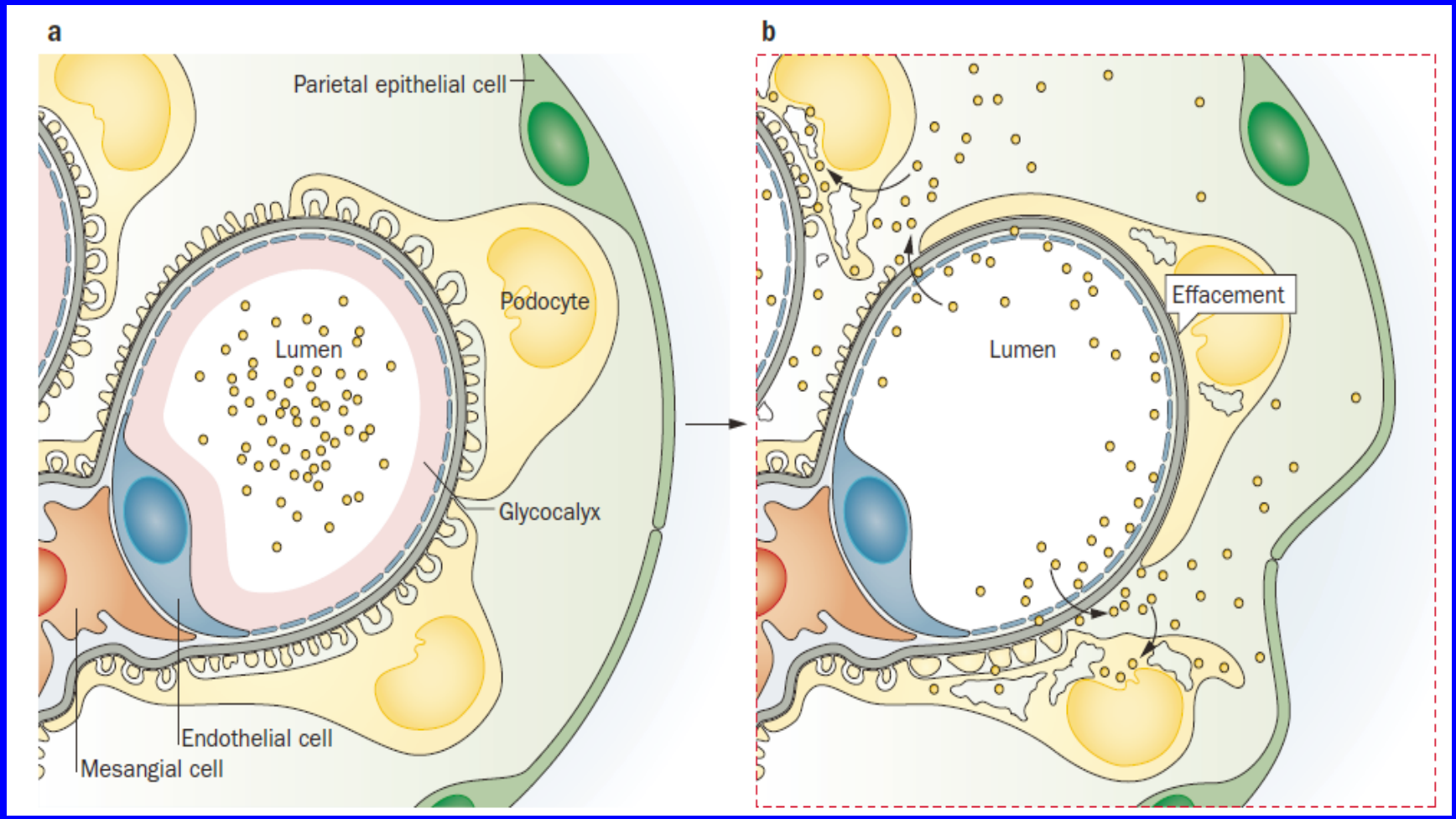
J Am Coll Cardio 2007;49:2379-2393

Shedding of the Glycocalyx Promotes Albuminuria and Inflammation



Nephrol Dial Transplant 2014;29:49–55

Glycocalyx Loss—
Podocyte and Kidney Injury Induces Albuminuria



Nat Rev Nephrol 2015;11:667-676