CORRESPONDENCE

Point-Counterpoint: Pores Versus an Electrical Field

Editor:

In a recent Point-Counterpoint debate (1) we, Bengt Rippe and Carl Öberg, claim that “electrophoresis does not significantly contribute to the permeation of albumin across the glomerular filtration barrier (GFB)” (2), which was the original title of our counterpoint article (in manuscript and proof). Unfortunately, there was an editorial change of the title to “Defending pore theory,” which is a bit misleading. The reason is that both Moeller and Kuppe on the one hand, and Rippe and Öberg on the other, have used pore theory in their calculations of electrokinetic phenomena across the GFB. In that respect, both views are “defending pore theory.” Moeller and his co-workers propose an equivalent small pore radius of 42 Å, while Rippe and Öberg propose a 2-pore model (or a heterogeneous fiber-matrix model). Both authors have calculated the role of electrophoresis in the GFB. The difference is that Moeller and Kuppe suggest that electrophoresis should be treated as a convective process across an “overcharged,” and thereby functionally positively charged, barrier. The opposite view is that electrophoresis is not a convective process, but should be treated as a diffusive phenomenon. Since diffusion of solutes in pores or across fiber-matrices is much more restricted than convective transport, electrophoresis can be calculated to

contribute insignificantly to the permeation of albumin across the GFB. The current paradigm defended by Rippe and Öberg is thus that electrophoresis cannot be treated as a convective process and therefore does not significantly contribute to the transport of negatively charged molecules in the GFB.

DISCLOSURES

The authors have no financial conflicts of interest to declare.

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