



Emerging role of G protein-coupled receptors in microvascular myogenic tone

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Titre	Emerging role of G protein-coupled receptors in microvascular myogenic tone
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Auteur	Kauffenstein, Gilles [1], Laher, Ismail [2], Matrougui, K. [3], Guérineau, Nathalie C [4], Henrion, Daniel [5]
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Résumé en anglais	<p>Blood flow autoregulation results from the ability of resistance arteries to reduce or increase their diameters in response to changes in intravascular pressure. The mechanism by which arteries maintain a constant blood flow to organs over a range of pressures relies on this myogenic response, which defines the intrinsic property of the smooth muscle to contract in response to stretch. The resistance to flow created by myogenic tone (MT) prevents tissue damage and allows the maintenance of a constant perfusion, despite fluctuations in arterial pressure. Interventions targeting MT may provide a more rational therapeutic approach in vascular disorders, such as hypertension, vasospasm, chronic heart failure, or diabetes. Despite its early description by Bayliss in 1902, the cellular and molecular mechanisms underlying MT remain poorly understood. We now appreciate that MT requires a complex mechanotransduction converting a physical stimulus (pressure) into a biological response (change in vessel diameter). Although smooth muscle cell depolarization and a rise in intracellular calcium concentration are recognized as cornerstones of the myogenic response, the role of wall strain-induced formation of vasoactive mediators is less well established. The vascular system expresses a large variety of Class 1 G protein-coupled receptors (GPCR) activated by an eclectic range of chemical entities, including peptides, lipids, nucleotides, and amines. These messengers can function in blood vessels as vasoconstrictors. This review focuses on locally generated GPCR agonists and their proposed contributions to MT. Their interplay with pivotal G(q-11) and G(12-13) protein signalling is also discussed.</p>
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Liens

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