Microvascular vasodilator properties of the angiotensin II type 2 receptor in a mouse model of type 1 diabetes

Submitted by Daniel Henrion on Mon, 09/24/2018 - 15:22

Titre	Microvascular vasodilator properties of the angiotensin II type 2 receptor in a mouse model of type 1 diabetes
Type de publication	Article de revue
Auteur	Begorre, Marc-Antoine [1], Dib, Abdallah [2], Habchi, Khalil [3], Guihot, Anne-Laure [4], Bourreau, Jennifer [5], Vessieres, Emilie [6], Blondeau, Bertrand [7], Loufrani, Laurent [8], Chabbert, Marie [9], Henrion, Daniel [10], Fassot, Céline [11]
Editeur	Nature Research (part of Springer Nature)
Type	Article scientifique dans une revue à comité de lecture
Année	2017
Langue	Anglais
Date	2017 03 31
Pagination	45625
Volume	7
Titre de la revue	Scientific reports
ISSN	2045-2322

Résumé en anglais	Diabetes Mellitus is associated with severe cardiovascular disorders involving the renin-angiotensin system, mainly through activation of the angiotensin II type 1 receptor (AT1R). Although the type 2 receptor (AT2R) opposes the effects of AT1R, with vasodilator and anti-trophic properties, its role in diabetes is debatable. Thus we investigated AT2R-mediated dilatation in a model of type 1 diabetes induced by streptozotocin in 5-month-old male mice lacking AT2R (AT2R). Glucose tolerance was reduced and markers of inflammation and oxidative stress (cyclooxygenase-2, gp91phox p22phox and p67phox) were increased in AT2R mice compared to wild-type (WT) animals. Streptozotocin-induced hyperglycaemia was higher in AT2R than in WT mice. Arterial gp91phox and MnSOD expression levels in addition to blood 8-isoprostane and creatinine were further increased in diabetic AT2R mice compared to diabetic WT mice. AT2R-dependent dilatation in both isolated mesenteric resistance arteries and perfused kidneys was greater in diabetic mice than in non-diabetic animals. Thus, in type 1 diabetes, AT2R may reduce glycaemia and display anti-oxidant and/or anti-inflammatory properties in association with greater vasodilatation in mesenteric arteries and in the renal vasculature, a major target of diabetes. Therefore AT2R might represent a new therapeutic target in diabetes.

URL de la notice	http://okina.univ-angers.fr/publications/ua17600 [12]
DOI	10.1038/srep45625 [13]
Titre abrégé	Sci Rep
Identifiant (ID) PubMed	28361992 [14]

Liens
[1] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=29255
[2] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=25550
[3] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=29256
[4] http://okina.univ-angers.fr/annelaure.guihot/publications
[5] http://okina.univ-angers.fr/jennifer.deschamps/publications
[6] http://okina.univ-angers.fr/emilie.vessieres/publications
[7] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=29257
[8] http://okina.univ-angers.fr/laurent.loufrani/publications
[9] http://okina.univ-angers.fr/marie.chabbert/publications
[10] http://okina.univ-angers.fr/d.henrion/publications
[11] http://okina.univ-angers.fr/celine.fassot/publications
[12] http://okina.univ-angers.fr/publications/ua17600
[13] http://dx.doi.org/10.1038/srep45625
[14] http://www.ncbi.nlm.nih.gov/pubmed/28361992?dopt=Abstract