

# THEMED SECTION: ENDOTHELIUM IN PHARMACOLOGY

## EDITORIAL

### Endothelium in pharmacology: 30 years on

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In this issue, *BJP* is proud to publish an *Endothelium Themed Section* to celebrate the life of Robert F. Furchgott, who died on May 19th 2009. It is 30 years since he discovered endothelium-derived relaxant factor and a decade since he was awarded the Nobel Prize for this work. His discovery has led to an array of new therapeutic targets. The themed section includes three reviews on the pathophysiology of the endothelium and the drug targets that this presents, four research papers and three commentaries on research.

This themed section also forms the nucleus of an online *Virtual Issue* that collects in one place further reviews and research papers on the topic of the 'Endothelium' that *BJP* and our sister journal *BJCP* have published in the past year, and that should help researchers and students to find the latest work in this field.

To view the entire *Endothelium Themed Section* and the *Endothelium Virtual Issue*, please visit: <http://www3.interscience.wiley.com/journal/121548564/issueyear?year=2009>

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This article is part of a themed section on Endothelium in Pharmacology. For a list of all articles in this section see the end of this paper, or visit: <http://www3.interscience.wiley.com/journal/121548564/issueyear?year=2009>

Thirty years ago Robert F Furchgott found that a substance was released from vascular endothelium that caused relaxation of the smooth muscle in the vascular wall (Furchgott and Zawadzki, 1980), a discovery for which, a decade ago, he was

awarded the Nobel Prize (Furchgott, 1999). This remarkable finding was, from my recollection anyway, the most exciting aspect of the second Symposium on Mechanisms of Vasodilatation, held at Wilrijk, Belgium in July 1980 (Vanhoutte and Leusen, 1981) and has been, one suspects, a major part of the reason that this series is now celebrating its 10th occurrence at Matsushima, Miyagi, Japan, in June 2009 (it is planned to publish work arising from this event in *Circulation Journal*).

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**Table 1** papers appearing in the virtual themed issue (<http://www3.interscience.wiley.com/journal/121548564/issueyear?year=2009>)

Reviews	
Endothelial function	Félétou <i>et al.</i> (2009)
Endothelial pathophysiology	Esposito and Cuzzocrea (2009); Félétou (2009); Grgic <i>et al.</i> (2009); Versari <i>et al.</i> (2009)
Research papers with commentaries	
Endothelium-derived hyperpolarizing factor	Garland and Dora (2008) comment on Leuranguer <i>et al.</i> (2008)
Endothelial function	Triggle (2008) comments on Drouin <i>et al.</i> (2008)
Signalling/drug targets	Martin (2009) comments on Andrews <i>et al.</i> (2009); Tammaro (2009) comments on Orié <i>et al.</i> (2009); Miller and Wadsworth (2009) comment on Wenzl <i>et al.</i> (2009)
Research papers	
Endothelium-derived hyperpolarizing factor	Michel <i>et al.</i> (2008); Stirrat <i>et al.</i> (2008)
Endothelial function	Hiebert <i>et al.</i> (2008); Rambaran <i>et al.</i> (2008); Schwedhelm <i>et al.</i> (2008); Tardif and Rhéaume (2008); Tochiara <i>et al.</i> (2008); Skinner <i>et al.</i> (2009); Tahvanainen <i>et al.</i> (2009)
Endothelial pathophysiology	Dianzani <i>et al.</i> (2008); Iwatani <i>et al.</i> (2008); Sena <i>et al.</i> (2008); Wong <i>et al.</i> (2008); Xavier <i>et al.</i> (2008); de Andrade <i>et al.</i> (2009)
Inflammation	Johansson <i>et al.</i> (2008); Sonoki <i>et al.</i> (2008)
Signalling/drug targets	Attinà <i>et al.</i> (2008); Campos-Toimil <i>et al.</i> (2008); Cattaneo <i>et al.</i> (2008); Ciccarelli <i>et al.</i> (2008); Farhat <i>et al.</i> (2008); Jackson <i>et al.</i> (2008); Kozłowska <i>et al.</i> (2008); Muzaffar <i>et al.</i> (2008); Rodriguez-Rodriguez <i>et al.</i> (2008); Watanabe <i>et al.</i> (2008); Xia <i>et al.</i> (2008); Xu <i>et al.</i> (2008); Grossini <i>et al.</i> (2009); Hilgers and De Mey (2009); Leung <i>et al.</i> (2009); McKenzie <i>et al.</i> (2009); Park <i>et al.</i> (2009)

Thirty years on, the endothelium continues to yield information on pathophysiological mechanisms that provides many therapeutic targets for drug discovery and new explanations for drug action. A special *Endothelium Themed Section* in this issue of *BJP* collates three new reviews on the pathophysiology of the endothelium and the drug targets that this presents (Esposito and Cuzzocrea, 2009; Grgic *et al.*, 2009; Versari *et al.*, 2009), four research papers (de Andrade *et al.*, 2009; Andrews *et al.*, 2009; McKenzie *et al.*, 2009; Orie *et al.*, 2009) and three commentaries on research papers that discuss the significance and draw out controversies from their new findings (Martin, 2009, commenting on Andrews *et al.*, 2009; Tammaro, 2009, commenting on Orie *et al.*, 2009; Miller and Wadsworth, 2009, commenting on Wenzl *et al.*, 2009 that was published in an earlier issue).

These Endothelium reviews and two others already published (Félétou, 2009; Félétou *et al.*, 2009) follow up symposia held at the Meeting of the Federation of European Pharmacological Societies (EPHAR) in Manchester, UK, in July 2008, and show the continuing importance of this field. To reflect this and provide access to our extensive portfolio of endothelial papers, we have collated this section with other recent reviews, commentaries and original articles from *BJP* and from our sister journal *BJCP*, in a Virtual Issue on Endothelium, available at: <http://www3.interscience.wiley.com/journal/121548564/issueyear?year=2009> (see Table 1).

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#### Themed Section: Endothelium in Pharmacology

Endothelium in pharmacology: 30 years on: J. C. McGrath

Role of nitroso radicals as drug targets in circulatory shock: E. Esposito & S. Cuzzocrea

Endothelial  $Ca^{2+}$ -activated  $K^+$  channels in normal and impaired EDHF-dilator responses – relevance to cardiovascular pathologies and drug discovery: I. Grgic, B. P. Kaistha, J. Hoyer & R. Köhler

Endothelium-dependent contractions and endothelial dysfunction in human hypertension: D. Versari, E. Daghini, A. Virdis, L. Ghiadoni & S. Taddei

Nitroxyl anion – the universal signalling partner of endogenously produced nitric oxide?: W. Martin

A role for nitroxyl (HNO) as an endothelium-derived relaxing and hyperpolarizing factor in resistance arteries: K. L. Andrews, J. C. Irvine, M. Tare, J. Apostolopoulos, J. L. Favaloro, C. R. Triggle & B. K. Kemp-Harper

Vascular  $K_{ATP}$  channels: dephosphorylation and deactivation: P. Tammaro

$Ca^{2+}$ /calcineurin regulation of cloned vascular  $K_{ATP}$  channels: crosstalk with the protein kinase A pathway: N. N. Orie, A. M. Thomas, B. A. Perrino, A. Tinker & L. H. Clapp

Understanding organic nitrates – a vein hope?: M. R. Miller & R. M. Wadsworth

Increased endothelin-1 reactivity and endothelial dysfunction in carotid arteries from rats with hyperhomocysteinemia: C. R. de Andrade, P. F. Leite, A. C. Montezano, D. A. Casolari, A. Yogi, R. C. Tostes, R. Haddad, M. N. Eberlin, F. R. M. Laurindo, H. P. de Souza, F. M. A. Corrêa & A. M. de Oliveira

Mechanisms of U46619-induced contraction of rat pulmonary arteries in the presence and absence of the endothelium: C. McKenzie, A. MacDonald & A. M. Shaw

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