

References

1. Yanagisawa M, Kurihara H, Kimura S, Tomobe Y, Kobayashi M, Mitsui Y, Yazaki Y, Goto K, Masaki T. A novel potent vasoconstrictor peptide produced by vascular endothelial cells. *Nature* 332, 411-415 (1988).
2. Inoue A, Yanagisawa M, Kimura S, Kasuya Y, Miyauchi T, Goto K, Masaki T. The human endothelin family: Three structurally and pharmacologically distinct isopeptides predicted by three separate genes. *Proc Natl Acad Sci USA* 86, 2863-2867 (1989).
3. Plumpton C, Ashby MJ, Kuc RE, O'Reilly G, Davenport AP. Expression of endothelin peptides and mRNA in the human heart. *Clin Sci* 90, 37-46 (1996).
4. Masaki T, Kimura S, Yanagisawa M, Goto K. Molecular and cellular mechanism of endothelin regulation: Implications for vascular function. *Circulation* 84, 1457-1468 (1991).
5. Hasdai D, Mathew V, Schwartz RS, Smith LA, Holmes DR Jr, Kausic ZS, Lerman A. Enhanced endothelin-B-receptor -mediated vasoconstriction of small porcine coronary arteries in diet-induced hypercholesterolemia. *Arterioscler Thromb Vasc Biol* 17, 2737-2743 (1997).
6. Webb DJ, Monge JC, Rabelink TJ, Yanagisawa M. Endothelin: new discoveries and rapid progress in the clinic. *Trends Pharmacol Sci* 19, 5-8 (1998).
7. Webb DJ, Strachan FE. Clinical experience with endothelin antagonists. *Am J Hypertens* 11, 71S-79S (1998).
8. Kowala MC. The role of endothelin in the pathogenesis of atherosclerosis. *Advances in Pharmacol* 37, 299-316 (1997).

9. Kirchengast M, Münter K. Endothelin-1 and endothelin receptor antagonists in cardiovascular remodeling. *Proc Soc Exp Biol Med* 221, 312-325 (1999).
10. Winkles JA, Alberts GF, Brogi E, Libby P. Endothelin-1 and endothelin receptor mRNA expression in normal and atherosclerotic human arteries. *Biochem Biophys Res Commun* 191, 1081-1088 (1993).
11. Helset E, Sildnes T, Konopski ZS. Endothelin-1 stimulates monocytes in vitro to release chemotactic activity identified as interleukin-8 and monocyte chemotactic protein-1. *Mediators of Inflammation* 3, 155-160 (1994).
12. McCarron RM, Wang L, Stanimirovic DB, Spatz M. Endothelin induction of adhesion molecule expression on human brain microvascular endothelial cells. *Neurosci Lett* 156, 31-34 (1993).
13. Miyauchi T, Sugishita Y, Matsuda M, Sakai H, Suzuki N, Masaki T, Goto K. Increased plasma concentration of endothelin-1 in cholesterol-fed rats. *Atherosclerosis* 93, 257-259 (1992).
14. Uyama H, Haraoka S, Shimokama T, Goto K, Dohi K, Watanabe T. Diet-induced hypercholesterolemia increases endothelin -1 release by aortic endothelial cells. *Pathobiol* 64, 328-332 (1996).
15. Lerman A, Edwards BS, Hallett JW, Heublein DM, Sandberg SM, Burnett Jr JC. Circulating and tissue endothelin immunoreactivity in advanced atherosclerosis. *N Engl J Med* 325, 997-1001 (1991).
16. Tokunaga O, Fan J, Watanabe T, Kobayashi M, Kumazaki T, Mitsui Y. Endothelin, immunohistologic localization in aorta and biosynthesis by cultured human aortic endothelial cells. *Lab Invest* 67, 210-217 (1992).
17. Zeiher AM, Goebel H, Schähinger V, Ihling C. Tissue endothelin-1

- immunoreactivity in the active coronary atherosclerotic plaque, a clue to the mechanism of increased vasoreactivity of the culprit lesion in unstable angina. *Circulation* 91, 941-947 (1995).
18. Ihling C, Göbel HR, Lippoldt A, Wessels S, Paul M, Schaefer HE, Zeiher AM. Endothelin-1-like immunoreactivity in human atherosclerotic coronary tissue: a detailed analysis of the cellular distribution of endothelin-1. *J Pathol* 179, 303- 308 (1996).
19. Kowala MC, Rose PM, Stein PD, Goller N, Recce R, Beyer S, Valentine M, Barton D, Durham SK. Selective blockade of the endothelin subtype A receptor decreases early atherosclerosis in hamsters fed cholesterol. *Am J Pathol* 146, 819-826 (1995).
20. Barton M, Haudenschild CC, D'Uscio LV, Shaw S, Munter K, Luscher TF. Endothelin ETA receptor blockade restores NO-mediated endothelial function and inhibits atherosclerosis in apolipoprotein E-deficient mice. *Proc Natl Acad Sci USA* 95, 14367-14372 (1998).
21. Iwasa S, Fan J, Shimokama T, Nagata M, Watanabe T. Increased immunoreactivity of endothelin-1 and endothelin B receptors in human atherosclerotic lesions. A possible role in atherogenesis. *Atherosclerosis* 146, 93-100 (1999).
22. Miyauchi T, Kobayashi T, Iwasa S, Sakai S, Yamaguchi I, Goto K, Watanabe T. Increased expression of endothelin-1 and endothelin-B receptor in the aorta of apolipoprotein E knockout mice with atherosclerosis (abstract). *Circulation* 96, I-663 (1997).
23. Dagassan PH, Breu V, Clozel M, Künzli A, Vogt P, Turina M, Kiowski W, Clozel JP. Up-regulation of endothelin-B receptors in atherosclerotic human coronary arteries. *J Cardiovasc Pharmacol* 27, 147-153 (1996).

24. Kishino J, Hanasaki K, Kato T, Arita H. Endothelin-induced intracellular Ca²⁺ mobilization through its specific receptors in murine peritoneal macrophages. *FEBS Lett* 280, 103-106 (1991).
25. Sakurai-Yamashita Y, Yamashita K, Yoshida A, Obana M, Takada K, Shibaguchi H, Shigematsu K, Niwa M, Taniyama K. Rat peritoneal macrophages express endothelin ETB but not endothelin ETA receptors. *Eur J Pharmacol* 338, 199-203 (1997).
26. King JM, Srivastava KD, Stefano GB, Bilfinger TV, Bahou WF, Magazine HI. Human monocyte adhesion is modulated by endothelin B receptor-coupled nitric oxide release. *J Immunol* 158, 880-886 (1997).
27. Bacon CR, Cary NRB, Davenport AP. Endothelin peptide and receptors in human atherosclerotic coronary artery and aorta. *Circ Res* 79, 794 -801 (1996).
28. Haller H, Schaberg T, Lindschau C, Lode H, Distler A. Endothelin increases [Ca²⁺]_i, protein phosphorylation, and O²⁻ production in human alveolar macrophages. *Am J Physiol* 261, L478-L484 (1991).
29. Eguchi S, Hirata Y, Imai T, Kanno K, Marumo F. Phenotypic change of endothelin receptor subtype in cultured rat vascular smooth muscle cells. *Endocrinology* 134, 222-228 (1994).
30. Naruse K, Shimizu M, Toki Y, Miyazaki Y, Okumura K, Hashimoto H, Ito T. Long-term inhibition of NO synthesis promotes atherosclerosis in the hypercholesterolemic rabbit thoracic aorta. PGH2 does not contribute to impaired endothelium-dependent relaxation. *Arterioscler Thromb Vasc Biol* 14, 746-752 (1994).
31. Cayatte AJ, Palacino JJ, Horten K, Cohen RA. Chronic inhibition of nitric oxide production accelerates neointima formation and impairs

- endothelial function in hypercholesterolemic rabbits. *Arterioscler Thromb Vasc Biol* 14, 753-759 (1994).
32. Aji W, Ravalli S, Szabolcs M, Jiang XC, Sciacca RR, Michler RE, Cannon PJ. L-Arginine prevents xanthoma development and inhibits atherosclerosis in LDL receptor knockout mice. *Circulation* 95, 430-437 (1997).
33. Ohuchi T, Kuwaki T, Ling GY, Dewit D, Ju KH, Onodera M, Cao WH, Yanagisawa M, Kumada M. Elevation of blood pressure by genetic and pharmacological disruption of the ETB receptor in mice. *Am J Physiol* 276, R1071- R1077 (1999).
34. Strachan FE, Spatt JC, Wilkinson IB, Johnston NR, Gray GA, Webb DJ. Systemic blockade of the endothelin-B receptor increases peripheral vascular resistance in healthy men. *Hypertension* 33[part II], 581-585 (1999).
35. Ohlstein EH, Nambi P, Douglas SA, Edward RM, Gellai M, Lago A, Leber JD, Cousins RD, Gao A, Frazee JS, Peishoff CE, Bean JW, Eggleston DS, Elshourbagy NA, Kumar C, Lee JA, Yue TL, Louden C, Brooks DP, Weinstock J, Feuerstein G, Poste G, Ruffolo RR Jr, Gleason JG, Elliott JD. SB209670, a rationally designed potent nonpeptide endothelin receptor antagonist. *Proc Natl Acad Sci USA* 91, 8052- 8056 (1994).
36. Douglas SA, Edwards RM, Elliott JD, Ohlstein EH. *In vivo* pharmacological characterization of the non-peptide endothelin receptor antagonist SB209670. *Br J Pharmacol* 114, 405-413 (1995).
37. Freed MI, Wilson DE, Thompson KA, Harris RZ, Ilson BE, Jorkasky DK. Pharmacokinetics and pharmacodynamics of SB209670, an endothelin receptor antagonist: effects on the regulation of renal vascular tone. *Clin*

- Pharmacol Ther 65, 473-482 (1999).
38. Plump AS, Smith JD, Hayek T, Aalto-Setä, Walsh A, Verstuyft JG, Rubin EM, Breslow JL. Sever hypercholesterolemia and atherosclerosis in apolipoprotein E-deficient mice created by homologous recombination in ES cells. *Cell* 71, 343-353 (1992).
39. Zhang SH, Reddick RL, Piedahita JA, Maeda N. Spontaneous hypercholesterolemia and arterial lesions in mice lacking apolipoprotein E. *Science* 258, 468-471 (1992).
40. Nakashima Y, Plump AS, Raines EW, Breslow JL, Ross R. ApoE-deficient mice develop lesions of all phases of atherosclerosis throughout the arterial tree. *Arterioscler Thromb Vasc Biol* 14, 133-140 (1994).
41. Reddick RL, Zhang SH, Maeda N. Atherosclerosis in mice lacking apoE. evaluation of lesional development and progression. *Arterioscler Thromb Vasc Biol* 14, 141-147 (1994).
42. de Silva HV, Lauer SJ, Wang J, Simonet WS, Weisgraber KH, Mahley RW, Taylor JM. Overexpression of human apolipoprotein C-III in transgenic mice results in an accumulation of apolipoprotein B48 remnants that is corrected by excess apolipoprotein E. *J Biol Chem* 269, 2324-2335 (1994).
43. Fukuroda T, Fujikawa T, Ozaki S, Ishikawa K, Yano M, Nishikibe M. Clearance of circulating endothelin-1 by ETB receptors in rats. *Biochem Biophys Res Commun* 199, 1461-1465 (1994).
44. Dupuis J, Goresky CA, Fournier A. Pulmonary clearance of circulating endothelin-1 in dogs in vivo: exclusive role of ETB receptors. *J Appl Physiol* 81, 1510-1515 (1996).
45. Ozaki S, Ohwaki K, Ihara M, Fukuroda T, Ishikawa K, Yano M. ETB-

- mediated regulation of extracellular levels of endothelin-1 in cultured human endothelial cells. *Biochem Biophys Res Commun* 209, 483-489 (1995).
46. Kohan DE. Endothelins in the kidney: physiology and pathophysiology. *Am J Kidney Dis* 22,493-510 (1993).
47. Eiam-Ong S, Hiden SA, King AJ, Johns CA, Madias NE. Endothelin-1 stimulates the Na^+/H^+ and $\text{Na}^+/\text{HCO}_3^-$ transporters in rabbit renal cortex. *Kidney Int* 42,18-24 (1992).
48. Guntupalli J, DuBose TD Jr. Effects of ET on rat renal proximal tubule $\text{Na}^+\text{-P}_i$ cotransport and Na^+/H^+ exchange. *Am J Physiol* 266, F658-666 (1994).
49. Burke SE, Lubbers NL, Gagne GD, Wessale JL, Dayton BD, Wegner CD, Opgenorth TJ. Selective antagonism of the ETA receptor reduces neointimal hyperplasia after balloon-induced vascular injury in pigs. *J Cardiovasc Pharmacol.* 1997;30:33-41.
50. Kanse SM, Wijelath E, Kanthou C, Newman P, Kakkar VV. The proliferative responsiveness of human vascular smooth muscle cells to endothelin correlates with endothelin receptor density. *Lab Invest.* 1995;72:376-382.
51. Azuma H, Hamasaki H, Niimi Y, Terada T, Matsubara O. Role of endothelin-1 in neointima formation after endothelial removal in rabbit carotid arteries. *Am J Physiol.* 1994;267:H2259-2267.
52. Douglas SA, Vickery-Clark LM, Louden C, Ohlstein EH. Selective ETA receptor antagonism with BQ-123 is insufficient to inhibit angioplasty induced neointima formation in the rat. *Cardiovasc Res.* 1995;29:641-646.
53. Douglas SA, Louden C, Vickery-Clark LM, Storer BL, Hart T, Feuerstein GZ, Elliott JD, Ohlstein EH. A role for endogenous endothelin-1 in neointimal formation after rat carotid artery balloon angioplasty.

Protective effects of the novel nonpeptide endothelin receptor antagonist SB209670. *Circ Res.* 1994;75:190-197.

54. Tsujino M, Hirata Y, Eguchi S, Watanabe T, Chatani F, Marumo F. Nonselective ETA/ETB receptor antagonist blocks proliferation of rat vascular smooth muscle cells after balloon angioplasty. *Life Sci* 1995;56:PL449-PL454.
55. Porter KE, Olojugba DH, Masood I, Pemberton M, Bell PRF, London NJM. Endothelin-B receptors mediate intimal hyperplasia in an organ culture of human saphenous vein. *J Vasc Surg.* 1998;28:695-701.
56. Ferrer P, Valentine M, Jenkins-West T, Weber H, Goller NL, Durham SK, Molloy CJ, Moreland S. Orally active endothelin receptor antagonist BMS-182874 suppresses neointimal development in balloon-injured rat carotid arteries. *J Cardiovasc Pharmacol.* 1995;26:908-915.
57. Takiguchi Y, Sogabe K. The selective endothelin ETA receptor antagonist FR139317 inhibits neointimal thickening in the rat. *Eur J Pharmacol.* 1996;309:59-62.
58. Verhaar MC, Strachan FE, Newby DE, Cruden NL, Koomans HA, Rabelink TJ, Webb DJ. Endothelin-A receptor antagonist-mediated vasodilatation is attenuated by inhibition of nitric oxide synthesis and by endothelin-B receptor blockade. *Circulation.* 1998;97:752-756.
59. Best PJM, McKenna CJ, Hasdai D, Holmes DR Jr, Lerman A. Chronic endothelin receptor antagonism preserves coronary endothelial function in experimental hypercholesterolemia. *Circulation.* 1999;99:1747-1752.
60. Best PJM, Lerman LO, Romero JC, Richardson D, Holmes DR Jr, Lerman A. Coronary endothelial function is preserved with chronic endothelin receptor antagonism in experimental hypercholesterolemia in vitro. *Arterioscler Thromb Vasc Biol.* 1999;19:2769-2775.

61. Ikeda U, Yamamoto K, Maeda Y, Shimpo M, Kanbe T, Shimada K.

Endothelin-1 inhibits nitric oxide synthesis in vascular smooth muscle cells.

Hypertension. 1997;29(1 pt 1):65-69.