

Journal of Andrology, Vol 17, Issue 4 360-366, Copyright © 1996 by The American Society of Andrology

JOURNAL ARTICLE

Effects of endothelin-1 on the rat testicular vasculature

O. Collin, J. E. Damber and A. Bergh

Department of Anatomy, Umea University, Sweden.

Endothelin-1 (ET-1), a well-known vasoconstrictor substance, is present in the testis but its functional role is unknown. The present study was undertaken to elucidate whether ET-1 may influence testicular blood flow. ET-1 (0.1, 1, 10, 100 ng), an ETA antagonist (BQ123; 0.01, 1, 100 micrograms), or saline were administered by intratesticular injections (0.1 ml) in adult rats. The effect on testicular blood flow was monitored using a Laser Doppler flowmeter.

The localization of immunoreactive ET-1 (irET-1) was studied by immunohistochemistry and the testicular irET-1 concentration was measured in normal and human chorionic gonadotrophin (hCG)-treated rats using a radioimmunoassay. ET-1 injection, in a dose-related way acutely decreased testicular blood flow and this effect was blocked by an ETA antagonist. The antagonist itself did not, however, influence testicular blood flow. Accumulation of polymorphonuclear leukocytes was observed in testicular venules 2 hours after ET-1 injection. Immunoreactive ET-1 was observed in Leydig, Sertoli, and endothelial cells. The testicular irET-1 content was increased 2-fold by hCG stimulation but local injection of the ET-1 antagonist did not influence testicular blood flow in hCG-treated rats. The present study suggests that ET-1 could be a hormonally regulated and locally produced modulator of testicular blood flow and microcirculation.

This article has been cited by other articles:



BIOLOGY of REPRODUCTION

[HOME](#)

Y.-F. Chan, W.-S. O, and F. Tang
Adrenomedullin in the Rat Testis. I: Its Production, Actions on Testosterone Secretion, Regulation by Human Chorionic Gonadotropin, and Its Interaction with Endothelin 1 in the Leydig Cell

Biol Reprod, April 1, 2008; 78(4): 773 - 779.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)

This Article

- ▶ [Full Text \(PDF\)](#)
- ▶ [Alert me when this article is cited](#)
- ▶ [Alert me if a correction is posted](#)

Services

- ▶ [Similar articles in this journal](#)
- ▶ [Similar articles in PubMed](#)
- ▶ [Alert me to new issues of the journal](#)
- ▶ [Download to citation manager](#)

Citing Articles

- ▶ [Citing Articles via HighWire](#)
- ▶ [Citing Articles via Google Scholar](#)

Google Scholar

- ▶ [Articles by Collin, O.](#)
- ▶ [Articles by Bergh, A.](#)
- ▶ [Search for Related Content](#)

PubMed

- ▶ [PubMed Citation](#)
- ▶ [Articles by Collin, O.](#)
- ▶ [Articles by Bergh, A.](#)



BIOLOGY of REPRODUCTION

▶ HOME

S. H. Rudolfsson, P. Wikstrom, A. Jonsson, O. Collin, and A. Bergh
Hormonal Regulation and Functional Role of Vascular Endothelial
Growth Factor A in the Rat Testis

Biol Reprod, February 1, 2004; 70(2): 340 - 347.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)



BIOLOGY of REPRODUCTION

▶ HOME

S. H. Rudolfsson, A. Johansson, I. Franck Lissbrant, P. Wikstrom, and A.
Bergh

Localized Expression of Angiopoietin 1 and 2 May Explain Unique
Characteristics of the Rat Testicular Microvasculature

Biol Reprod, October 1, 2003; 69(4): 1231 - 1237.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)



BIOLOGY of REPRODUCTION

▶ HOME

A. Bergh, O. Collin, and E. Lissbrant

Effects of Acute Graded Reductions in Testicular Blood Flow on
Testicular Morphology in the Adult Rat

Biol Reprod, January 1, 2001; 64(1): 13 - 20.

[\[Abstract\]](#) [\[Full Text\]](#)



PHARMACOLOGICAL REVIEWS

▶ HOME

G. G. Nussdorfer, G. P. Rossi, L. K. Malendowicz, and G. Mazzocchi
Autocrine-Paracrine Endothelin System in the Physiology and
Pathology of Steroid-Secreting Tissues

Pharmacol. Rev., September 1, 1999; 51(3): 403 - 438.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)



THE JOURNAL OF CLINICAL ENDOCRINOLOGY & METABOLISM

▶ HOME

R. Mancina, T. Barni, A. E. Calogero, S. Filippi, S. Amerini, A. Peri, T.
Susini, G. B. Vannelli, N. Burrello, G. Forti, *et al.*

Identification, Characterization, and Biological Activity of Endothelin
Receptors in Human Ovary

J. Clin. Endocrinol. Metab., December 1, 1997; 82(12): 4122 - 4129.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)



ENDOCRINE REVIEWS

▶ HOME

L. Gnessi, A. Fabbri, and G. Spera

Gonadal Peptides as Mediators of Development and Functional
Control of the Testis: An Integrated System with Hormones and
Local Environment

Endocr. Rev., August 1, 1997; 18(4): 541 - 609.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)