



OME HELP FEEDBACK SUBSCRIPTIONS ARCHIVE SEARCH TABLE OF CONTENTS

Journal of Andrology, Vol 15, Issue 4 318-327, Copyright © 1994 by The American Society of Andrology

JOURNAL ARTICLE

The ethane dimethanesulfonate-induced decrease in the fertilizing ability of cauda epididymal sperm is independent of the testis

G. R. Klinefelter, J. W. Laskey, S. D. Perreault, J. Ferrell, S. Jeffay, J. Suarez and N. Roberts
United States Environmental Protection Agency, Developmental Toxicology
Division, Research Triangle Park, North Carolina 27711.

Several decades ago it was reported that when adult male rats were exposed to a single injection of 50 mg/kg body weight ethane dimethanesulfonate (EDS) and mated with untreated females, average litter size was significantly reduced as early as 2 weeks later.

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
- ▶ <u>Download to citation manager</u>

Citing Articles

- ▶ Citing Articles via HighWire
- Liting Articles via Google Scholar

Google Schola

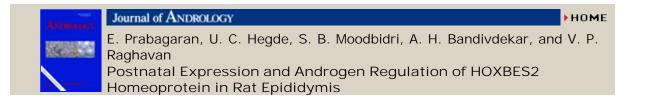
- Articles by Klinefelter, G. R.
- Articles by Roberts, N.
- ▶ Search for Related Content

PubMed

- ▶ PubMed Citation
- Articles by Klinefelter, G. R.
- Articles by Roberts, N.

Recently, we demonstrated that EDS exerts multiple effects in the epididymis of adult rats. Some of these effects were independent of reduced serum testosterone (T) levels. Later we found that EDS has direct effects on epididymal epithelial cells in vitro. Herein, we sought to determine whether EDS perturbs the fertilizing ability of cauda epididymal sperm. Four days after exposure to 50 mg/kg EDS, sperm from the proximal cauda epididymidis were inseminated into adult receptive females in utero; on the next day the percentage of fertilized eggs was determined. Exogenous T administration and castration were used to determine what role, if any, androgen deprivation and the testis had on the fertilizing ability of proximal cauda epididymal sperm. Sperm motion parameters, serum T, T in the caput/corpus epididymidis, and detergent-extracted sperm protein were evaluated and correlated with fertilizing ability. We found that both castration and EDS exposure significantly compromised the fertilizing ability of sperm in proximal cauda epididymidis 4 days after exposure. Exogenous T, sufficient to maintain serum T, completely restored the fertilizing ability of sperm following castration, but not after EDS exposure. Moreover, exogenous T failed to restore fertilizing ability when castrated animals were exposed to EDS. Thus, the effects that EDS exerts on sperm maturation in vivo are independent of the testis. Finally, the only endpoint that was well correlated with fertilizing ability was the relative amount of an acidic 18-kDa sperm protein.

This article has been cited by other articles:



J Androl, September 1, 2007; 28(5): 755 - 771. [Abstract] [Full Text] [PDF]



TOXICOLOGICAL SCIENCES

HOME

G. R. Klinefelter, L. F. Strader, J. D. Suarez, N. L. Roberts, J. M. Goldman, and A. S. Murr

Continuous Exposure to Dibromoacetic Acid Delays Pubertal Development and Compromises Sperm Quality in the Rat Toxicol. Sci., October 1, 2004; 81(2): 419 - 429.

[Abstract] [Full Text] [PDF]



BIOLOGY of REPRODUCTION

HOME

D. K. Tarka-Leeds, J. D. Suarez, N. L. Roberts, J. M. Rogers, M. P. Hardy, and G. R. Klinefelter

Gestational Exposure to Ethane Dimethanesulfonate Permanently Alters Reproductive Competence in the CD-1 Mouse Biol Reprod, September 1, 2003; 69(3): 959 - 967.

[Abstract] [Full Text] [PDF]



BIOLOGY of REPRODUCTION

HOME

W. D. G. Kempinas,, J. D. Suarez,, N. L. Roberts,, L. F. Strader,, J. Ferrell,, J. M. Goldman,, M. G. Narotsky,, S. D. Perreault,, D. P. Evenson,, D. D. Ricker,, et al.

Fertility of Rat Epididymal Sperm after Chemically and Surgically Induced Sympathectomy

Biol Reprod, October 1, 1998; 59(4): 897 - 904.

[Abstract] [Full Text]

HOME HELP FEEDBACK SUBSCRIPTIONS ARCHIVE SEARCH TABLE OF CONTENTS

Copyright © 1994 by The American Society of Andrology.