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JOURNAL ARTICLE

Dogfish shark (*Squalus acanthias*) testes contain a relaxin

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Relaxin is a 6-kd polypeptide that exerts important hormonal effects in many female mammals. Relaxin is produced by the ovary, placenta, or uterus in many mammalian species. The functions of relaxin in the male mammal are not yet firmly established, but there is some evidence suggesting an exocrine effect on sperm motility and fertilizability. In the male mammals that have been studied, relaxin is produced by the prostate gland (human) or seminal vesicles (boar). However, in the bird, the testis is the likely source of relaxin. Among the elasmobranchs, ovaries obtained from dogfish sharks have been shown to contain a polypeptide hormone that is structurally, biologically, and immunologically similar to mammalian relaxins, but the male reproductive tract of this species has not previously been investigated as a potential source of relaxin. Extracts of testes obtained from mature dogfish sharks have now been tested by a specific relaxin bioassay and by a homologous porcine radioimmunoassay for the presence of relaxin. Both crude and partially purified testicular extracts contained unmistakable guinea pig pubic symphysis-"relaxing" activity and relaxin-like immunoactivity. Following immunoaffinity purification, the shark testis polypeptide had an apparent specific activity of 88 microg porcine relaxin equivalents per milligram in the radioimmunoassay, which is similar to the immunoactivity of pure shark ovarian hormones. These data, therefore, strongly support the view that in dogfish sharks, the male as well as the female gonad produces relaxin. Furthermore, as the dogfish shark has existed as a species for about 200 million years, the data suggest that testicular relaxin appeared early in vertebrate evolution.

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R. Ivell and R. A.D. Bathgate
Reproductive Biology of the Relaxin-Like Factor (RLF/INSL3)
Biol Reprod, September 1, 2002; 67(3): 699 - 705.

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