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ANDROGEN BINDING PROTEIN IN TELEOST TESTIS (*Salmo gairdneri*)

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Introduction

In several mammalian species the action of androgen on the genital tract is believed to be modulated by an androgen-binding protein, ABP, specifically produced in the testis by the Sertoli cells (Lobl T.J., 1981) and present in the seminal plasma (Jegou & Le Gac, 1978). Such a protein has, to our knowledge, never been looked for in lower vertebrates, although it would provide an excellent tool to study Sertoli cell function and regulation. The aim of the present study was to investigate sex steroid binding in trout testis.

Results and discussion

A factor binding tritiated testosterone was detected using "steady state" polyacrylamide-gel electrophoresis. It migrated with a Rf identical to that of rat ABP. This binding was thermolabile, and was competitively inhibited by unlabelled testosterone. The dissociation of the steroid-protein complex was rapid ($t_{1/2} = 2$ min.).

The steroid binding protein was found in :

- 1) cytosols from trout testis, which had been previously perfused to reduce plasma contamination
- 2) trout seminal plasma
- 3) the testicular explant incubation media (in larger quantities than could be measured in the explants at the beginning of incubation).

Using a quantitative assay which utilizes DEAE bio-gel (Johnson *et al.*, 1985) and Scatchard analysis, the following results were obtained with a spermiating testis :

	number of sites	affinity constant (4°C)
cytosol	357 pmoles/2gonads	$3.5 \cdot 10^8 \text{ M}^{-1}$
incubation media	13.5 pmoles/g/16hrs	$3.9 \cdot 10^8 \text{ M}^{-1}$

Hormonal specificity was studied by the competition of $^3\text{H-T}$ binding with several concentrations of unlabelled competitors and the following order for affinities was

obtained : 5α -dihydrotestosterone > testosterone > androstenedione > oestradiol > progesterone \approx 11-ketotestosterone \approx 17 α -hydroxy 20 β -dihydroprogesterone > cyproterone acetate > cortisol.

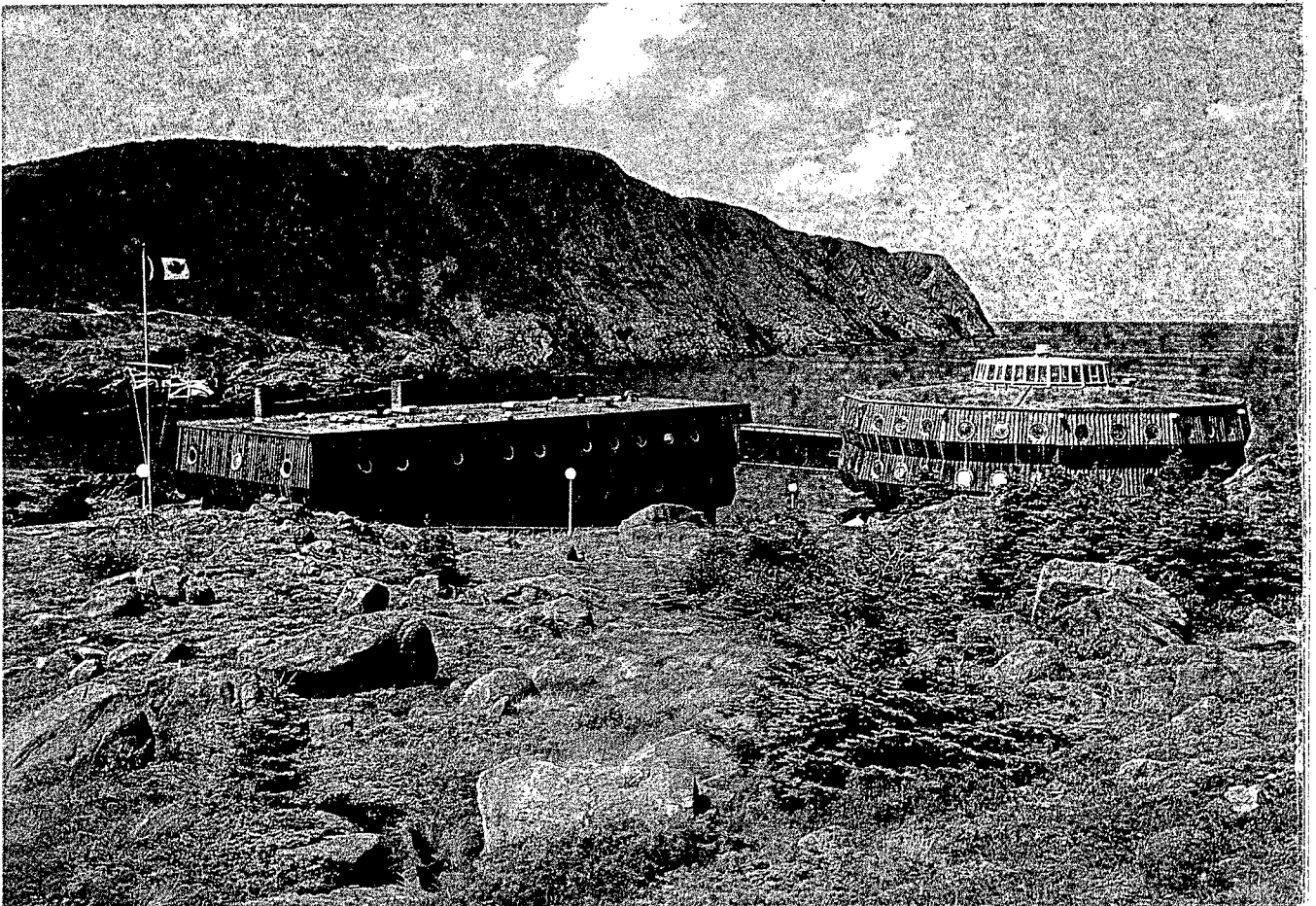
Dissociation kinetics, electrophoretic mobility, affinity and steroid specificity described here differ widely from a classical androgen receptor's characteristics, but are typical of extracellular binding protein. A steroid binding protein (SBP) has been demonstrated in trout plasma (Fostier & Breton, 1975) but certain arguments rule out blood contamination. High testicular cytosol and seminal plasma concentrations and apparent *in vitro* production indicate that the testis may synthesise an "ABP-like" protein in the trout. Such a factor would complicate testicular steroid receptor measurements. However, it would provide a unique marker of Sertoli cell activity in various physiological or experimental situations.

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