# Working to identify an exciting steroid in a viviparous skink, *Tiliqua nigrolutea*

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## Introduction

Estrogen in vertebrates almost universally takes the form of estradiol (E2)

We have found evidence of a polar steroid, produced instead of E2, in blue-tongued lizards (Edwards et al 2002; 2003)

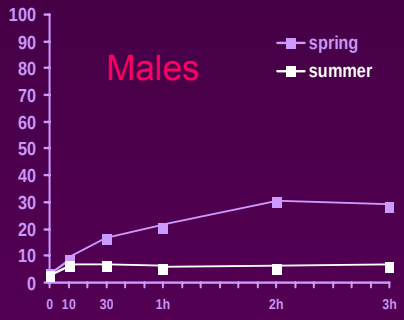
It is more polar than E2, but less polar than estriol (E3) (Edwards et al 2002)

### We already know the polar steroid:

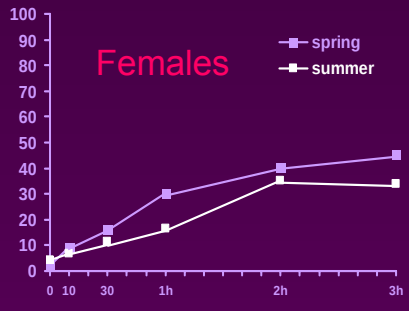
1) Is synthesised by the gonads of both sexes (Edwards et al 2003)

2) Shows sex and seasonal variation in production (Edwards et al 2002)

3) Isn't produced peripherally (Edwards and Jones, unpubl. data)




**% production of the polar steroid *in vitro* is greater in ovary than testis, particularly during vitellogenesis, mating and ovulation (spring)** (Edwards et al., 2002)



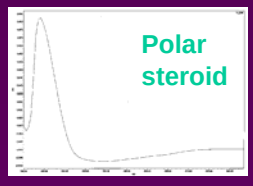

### We believe the polar steroid:

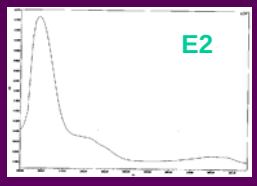
a) Is synthesised from testosterone (T) directly or indirectly – T is actively utilised during *in vitro* incubation as production of the unusual steroid increases (Edwards et al 2003)

b) Is not synthesised from androstenedione (AD) – HPLC with radiometric detection shows no polar steroid synthesis with AD as the precursor (Edwards et al unpubl. data)

c) Is produced instead of E2 – E2 is not produced by the gonads from pregnenolone (P5) (Edwards et al 2002), or AD (Edwards et al unpubl. data)

### Characteristic UV absorbance spectra:

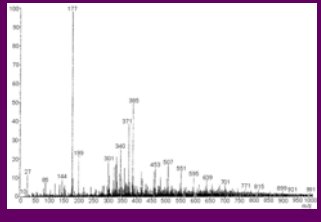



**Characteristic UV absorbance spectra for E2 and the polar steroid are similar enough to both be estrogens, but are not the same compound (Edwards et al 2002).**

### GS-MS data:

Preliminary results are thus far inconclusive



## Conclusion

**We are working to identify a potentially novel steroid in blue-tongued lizards, using *in vitro* incubation, GC-MS UV absorbance spectra and HPLC with radiometric detection techniques.**

**We believe it is an alternative estrogen, synthesised by the gonads instead of E2.**

Edwards A., Jones S.M. and Davies N.W. (2002). A possible alternative to 17β-estradiol in a viviparous lizard, Tiliqua nigrolutea. Gen. Comp. Endocrinol. **129** 114-121.

Edwards A., Jones S.M. and Davies N.W. (2003). Sex and season influence gonadal steroid biosynthetic pathways, end-product production and steroid conjugation in blotched blue-tongued lizards (Tiliqua nigrolutea). Gen. Comp. Endocrinol. **134** 131-138.