102. CLONING AND CHARACTERISATION OF TAMMAR *ATRX* AND *ATRY*

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ATRX (on the human and mouse X chromosome) is responsible for X-linked α-thalassemia and mental retardation. Male patients with mutations in *ATRX* display gonadal dysgenesis, suggesting that *ATRX* has a fundamental role in the testis development pathway. In the tammar wallaby (*Macropus eugenii*), there are two distinct homologous ATRX loci, one on the X chromosome (*ATRX*) and one on the Y (*ATRY*). *ATRX* and *ATRY* were cloned from the tammar by a combination of RT-PCR, 3' and 5' RACE walking and genomic library screening. Tammar *ATRX* is highly homologous to human and mouse *ATRX*, whereas tammar *ATRY* is homologous in most regions to tammar *ATRX*. The full sequence of *ATRX* is about 10 kb in length, whereas *ATRY* appears to be only about 7.5 kb. Using RT-PCR, marsupial *ATRX* is detected in a wide range of tissues, but is absent from the developing testis, whereas *ATRY* is expressed exclusively in the developing and adult testis (1). Antibody to ATRY is not yet available, but immunolocalisation of ATRX with a mouse antibody that will recognise both the ATRX and Y showed ATRX protein present in the testis and ovary from day 23 of pregnancy to 3-4 days before birth (well before gonadal sex differentiation) to the adult. During testis differentiation, ATRX immunostaining was localised in the Sertoli cells, the Leydig cells and in the germ cells suggesting that ATRY may play a role in the differentiation of the testis.

(1) Pask, A., Renfree, M.B. and Graves, J.A.M. (2000). *Proc. Natl Acad. Sci.* **97**, 13198–13202.

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