

Transgenic Mouse Sperm that Have Green Acrosome and Red Mitochondria Allow Visualization of Sperm and Their Acrosome Reaction in Vivo

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Abstract :

In the present paper, we introduce a transgenic mouse line whose sperm express green fluorescent protein (GFP) in their acrosome and red fluorescent protein (RFP) in their mitochondria [*B6D2F1-Tg(CAG/su9-DsRed2, Acr3-EGFP)RBGS002Osb*]. The dual fluorescent sperm showed normal fertilizing ability in both *in vivo* and *in vitro* fertilization and the sperm could be observed through uterine and oviductal walls when female reproductive tracts were dissected out and placed under excitation light. This characteristic could facilitate examination of sperm migration inside the female reproductive tract as well as facilitating *in situ* live imaging of the acrosome reaction, the details of which have remained elusive.

Key Word :

live imaging, oviduct, sperm

Volume 59, Number 1, - 2010 , ISSN 1881-7122 (online), ISSN 1341-1357 (print)