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## Sex Determination of *In Vitro* Fertilized Bovine Embryos by Fluorescence *in situ* Hybridization Technique

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Sexing from bovine embryos which were fertilized *in vitro* implicate a possibility of production of the sex controlled cattle. This study was carried out to investigate the possibility of determining of embryo sex by fluorescence *in situ* hybridization (FISH) technique. FISH was achieved in *in vitro* fertilized bovine embryos using a bovine Y-specific DNA probe which constructed from the btDYZ-1 sequences. To evaluate Y-chromosome specificity of the FISH probe, metaphase spreads of whole embryos and lymphocytes were prepared and tested. A male-specific signal was detected on 100% of Y chromosome bearing metaphase specimens. Using the FISH technique with a bovine Y-specific probe, 232 whole embryos, which were from 8 cells to blastocysts were analyzed. Observing the presence of the Y-probe signal on blastomeres, 102 embryos were predicted as male, and 130 embryos as female. The determining rate of embryo sex by FISH technique was about 93% regardless of embryonic stages. In conclusion, the FISH using a bovine Y-specific DNA probe is an accurate, reliable and quick method for determining the sex of bovine embryos.

**Table 1. Number of *in vitro* fertilized bovine embryos with FISH using a bovine Y-specific probe**

Stage of embryos	Number (%) of embryos			
	Examined	Analyzable	With Dig-signal*	Without Dig-signal
8-cell	63	51 (80.9)	22 (43.1)	29 (56.9)
16-cell	18	17 (94.4)	8 (47.1)	9 (52.9)
Morula	70	68 (97.1)	31 (45.6)	37 (54.4)
Blastocyst	99	96 (97.0)	41 (42.7)	55 (57.3)
Total	250	232 (92.8)	102 (44.0)	130

\* The Dig-signal implicates the presence of Y-chromosome

Key words: *Fluorescence in situ hybridization, Sexing, In vitro fertilized embryo, Bovine*