

**Table S2.** Effect of incubation media and time on the distribution of those proteins related to reproductive processes and apoptosis-stress response in (A) fresh and (B) cryopreserved ram sperm. Peptide spectrum matches (PSMs) of those proteins involved in each process were normalized against the total number of PSMs. Data are expressed as means  $\pm$ SD. Letters (a–d) represent significant differences ( $p < 0.05$ ) in each process in cryopreserved or fresh sperm over time.

**A)**

Reproductive Process	Fresh Sperm (Normalized PSMs Values)					
	0 min	1 min	15 min		240 min	
	SOF-PVA	SOF-ESS	SOF-PVA	SOF-ESS	SOF-PVA	SOF-ESS
Cell cycle-apoptosis-stress	105 $\pm$ 8	106 $\pm$ 4	111 $\pm$ 1	1010 $\pm$ 3	111 $\pm$ 5	100 $\pm$ 10
Embryo development	201 $\pm$ 1 <sup>a</sup>	253 $\pm$ 6 <sup>bc</sup>	236 $\pm$ 2 <sup>c</sup>	276 $\pm$ 3 <sup>b</sup>	238 $\pm$ 5 <sup>c</sup>	349 $\pm$ 4 <sup>d</sup>
Metabolic process	257 $\pm$ 3 <sup>a</sup>	313 $\pm$ 2 <sup>bc</sup>	302 $\pm$ 7 <sup>bc</sup>	317 $\pm$ 1 <sup>bc</sup>	292 $\pm$ 10 <sup>c</sup>	325 $\pm$ 1 <sup>b</sup>
Signal transduction	231 $\pm$ 5 <sup>a</sup>	347 $\pm$ 4 <sup>b</sup>	332 $\pm$ 1 <sup>b</sup>	382 $\pm$ 1 <sup>c</sup>	352 $\pm$ 3 <sup>b</sup>	432 $\pm$ 2 <sup>d</sup>
Sperm capacitation	34 $\pm$ 2 <sup>a</sup>	42 $\pm$ 1 <sup>ac</sup>	41 $\pm$ 2 <sup>ac</sup>	50 $\pm$ 1 <sup>bc</sup>	43 $\pm$ 1 <sup>ac</sup>	57 $\pm$ 1 <sup>b</sup>
Sperm-oocyte interaction	93 $\pm$ 2 <sup>a</sup>	104 $\pm$ 3 <sup>ab</sup>	102 $\pm$ 2 <sup>ab</sup>	108 $\pm$ 2 <sup>b</sup>	106 $\pm$ 1 <sup>ab</sup>	115 $\pm$ 1 <sup>b</sup>

**B)**

Reproductive Process	Cryopreserved Sperm (Normalized PSMs Values)					
	0 min	1 min	15 min		240 min	
	SOF-PVA	SOF-ESS	SOF-PVA	SOF-ESS	SOF-PVA	SOF-ESS
Cell cycle-apoptosis-stress	146 $\pm$ 4 <sup>ac</sup>	131 $\pm$ 2 <sup>a</sup>	148 $\pm$ 6 <sup>ac</sup>	128 $\pm$ 2 <sup>a</sup>	176 $\pm$ 2 <sup>b</sup>	165 $\pm$ 2 <sup>bc</sup>
Embryo development	186 $\pm$ 1 <sup>a</sup>	247 $\pm$ 2 <sup>b</sup>	217 $\pm$ 4 <sup>c</sup>	270 $\pm$ 4 <sup>b</sup>	198 $\pm$ 6 <sup>ac</sup>	221 $\pm$ 2 <sup>bc</sup>
Metabolic process	233 $\pm$ 1 <sup>a</sup>	263 $\pm$ 1 <sup>bc</sup>	254 $\pm$ 2 <sup>ab</sup>	280 $\pm$ 6 <sup>c</sup>	240 $\pm$ 1 <sup>ab</sup>	247 $\pm$ 6 <sup>ab</sup>
Signal transduction	320 $\pm$ 4 <sup>ab</sup>	289 $\pm$ 14 <sup>ac</sup>	310 $\pm$ 1 <sup>ac</sup>	374 $\pm$ 2 <sup>b</sup>	260 $\pm$ 8 <sup>c</sup>	273 $\pm$ 3 <sup>ac</sup>
Sperm capacitation	32 $\pm$ 1 <sup>a</sup>	41 $\pm$ 1 <sup>ab</sup>	35 $\pm$ 1 <sup>a</sup>	47 $\pm$ 2 <sup>b</sup>	32 $\pm$ 1 <sup>a</sup>	34 $\pm$ 3 <sup>a</sup>
Sperm-oocyte interaction	73 $\pm$ 2 <sup>a</sup>	91 $\pm$ 3 <sup>bc</sup>	75 $\pm$ 2 <sup>a</sup>	101 $\pm$ 5 <sup>b</sup>	73 $\pm$ 6 <sup>a</sup>	81 $\pm$ 2 <sup>ac</sup>