

LOCALIZATION OF NOS ISOFORMS IN BOAR SPERMATOZOA

INTRODUCTION

Nitric Oxide (NO) is important for the fertilization ability of sperm, acting as a cellular messenger via three main pathways (Fig. 1). Nitric oxide synthases (NOS) are the enzymes responsible for the conversion of L-Arginine to NO and L-Citrulline. Three different isoforms of NOS, two constitutive (eNOS and nNOS) and one inducible (iNOS), have been identified by Western Blot in ejaculated boar spermatozoa, suggesting a potential ability of the male gamete to synthesize NO (Aquila *et al.*, 2011).

OBJECTIVE

Since the NOS localization has not been described in porcine ejaculated spermatozoa, the aim of this study was to determine their localization by using the immunofluorescence technique.

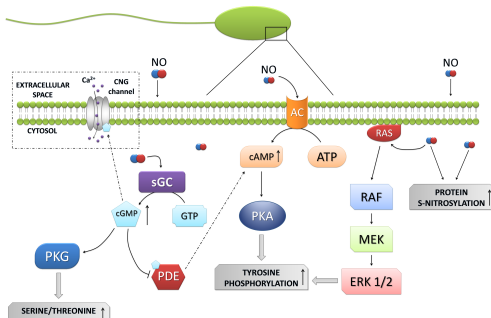
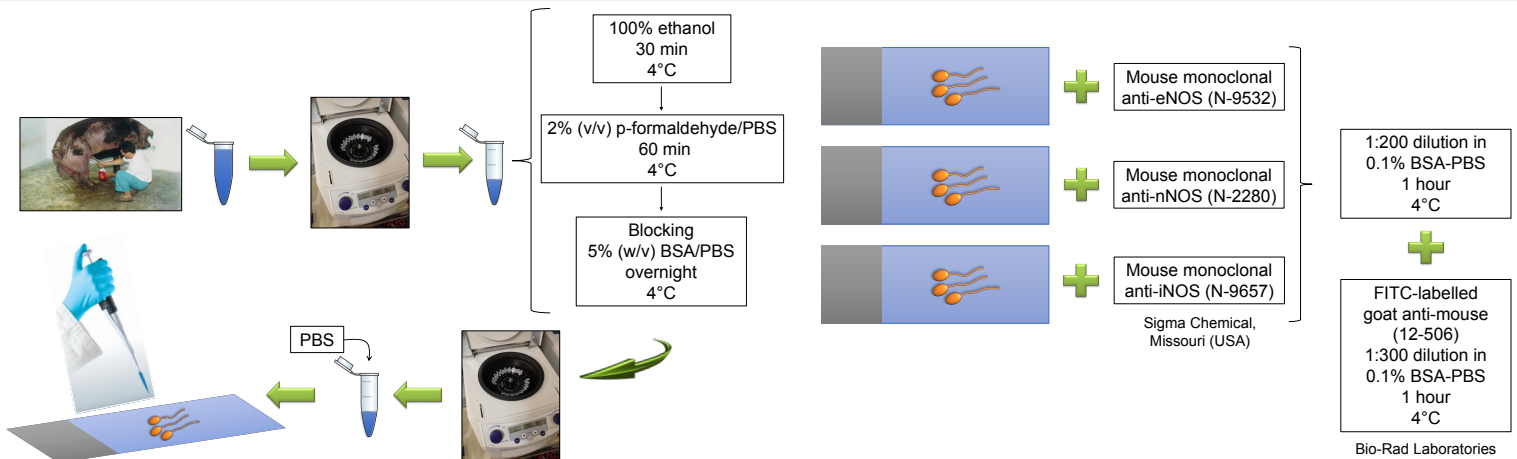
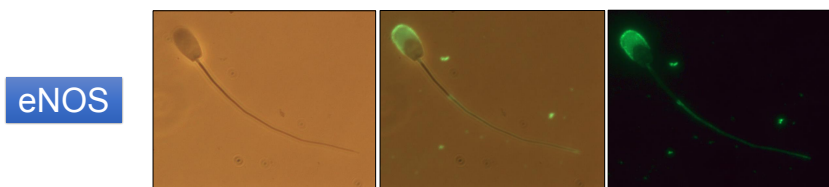


Figure 1. Main pathways through which NO acts in spermatozoa.

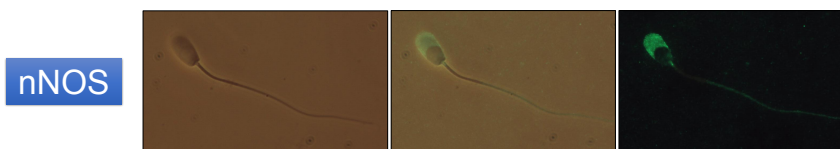
MATERIALS AND METHODS



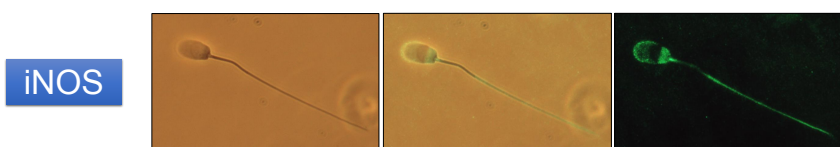
RESULTS



The eNOS was identified in the acrosomal region, although a weak fluorescent signal was also registered in the principal and end piece of the flagellum.



Similarly to eNOS, the nNOS-associated fluorescence was concentrated in the sperm head region, with a lower fluorescence in the principal and end piece of the flagellum.



The immunofluorescent iNOS-staining was spread over the acrosomal, post-acrosomal and neck region, but also in the principal and end piece of the tail.

CONCLUSION

In this study, we provide further evidence of the NOS isoforms presence in ejaculated boar spermatozoa, by applying the indirect immunofluorescence technique to evaluate their distribution.