



Abstract Guidelines for CUVC 2023

Abstract submission deadline “March 13, 2023”

Abstract

General information and requirements

- Abstract can be submitted at email address: **abst.cuvc2023@gmail.com**
- The authors **must** send “**Personal details**” accompany the abstract submission.
- The authors **must** indicate on the personal details form about the “Types of presentations” by marking in the box of “Poster Presentation” or the box of “Oral Presentation”.
- All abstracts must be submitted and presented in **English**.
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For example, “**Tienthai_P.doc**”, for sending your abstract.

Abstract format instruction

- Please strictly adhere to the following format instructions for abstract preparation and submission.
 - Abstract **must** be in English and **must** prepared in Microsoft Word Format (Microsoft Word version 2007 or higher), written in “Times New Roman Font”.
 - Format: Line spacing, alignment is already formatted as in the “Abstract template”.
 - Please do not change and make sure the template formats are not replaced or lost by cut-and-paste procedures.
 - The right margin of the text **must** be justified.
 - The entire paper **must** not exceed “two pages”.
 - Do not include page numbers or line numbers.

Organization of Abstract

1. Title

- Use 14 pt. Times New Roman in regular and **bold** typing. The title must be completed within 2 lines.

2. Authors

- Use 10 pt. Times New Roman, full name of author(s) must be in *italic* typing. (for example: *Paisan Tienthai*)
- The name of the presenting author **must** be in **bold** typing and the corresponding author is emphasized by an asterisk (*).

3. Affiliations

- Use 10 pt. Times New Roman in regular typing.

4. Keywords

- Use 10 pt. Times New Roman in regular typing.
- Not more than **5 keywords**

5. Subheadings

- The paper should contain following subheadings:

- Introduction
- Materials and Methods
- Results and Discussion
- References
- Acknowledgements

If acknowledgements are not applied, “omit” this subheading.

- Subheadings **must** use 10 pt. Times New Roman in regular and **bold** typing.
- Do not use capital letters.
- Each subheading **must** be placed on the center in a single line without body text using a single space between the previous text and the subheading.

6. Body text

- The text **must** be divided into two columns and written immediately beneath the subheading (no blank line under the subheading).
- The paper **must** be understandable on its own.
- The text should state clearly the objective, methods, results, discussion and conclusion of the study.
- Use standard abbreviations and place a special or unusual abbreviation in parentheses after the complete word the first time it is used.
- Use a dot in front of decimals (for example: 0.45) and use a comma in numbers greater than 999 (for example: 7,613).
- If sub-subheadings are used, they should be written in *italics* and followed by a colon (:) and

text in the same line (for example: *Blood samples*: On day 5, blood samples were taken from gilts.....). Leave a blank line above sub-subheadings.

- References **must** be numbered in the order they are mentioned in the text. Cite references in the text by placing the number in parentheses, for example: The modulation of sperm transportation to the site of fertilization (1). The specific proteins have been advised to play a vital role in the formation of the sperm reservoir (9, 10).

7. References:

- The list of references must be written and numbered in the order they are mentioned in the text.
- In case of two authors, must use “&” in the references. For example: Tienthai & Tummaruk, 2015. Thai J Vet Med. 45(4): 500-505.
- In case of more than two authors, use only the last name of the first author, followed by et al. For example: Tummaruk et al., 2015
- Year of the publication should follow the authors’ last names.
- Must use abbreviations on names of journals. For example: Hunter et al., 1996. Anim Repro Sci. 45: 109-121.

8. Figures and Tables:

- Figures and tables must not be fit intext column and must be suitable for printing in black and white.
- Figure headings must be written below the figure.
- Write “**Table 1**” and “**Figure 1**” in regular and **bold** typing and the followed text in Table and Figure must be in regular typing.

Epithelial Cadherin Immunolocalization in the Sperm Reservoir of Thai Swamp Buffalo

Paisan Tienthai^{1,*}, *Padet Tummaruk*²

¹Department of Anatomy, ²Department of Obstetrics, Gynaecology and Reproduction, Faculty of Veterinary Science, Chulalongkorn University, Bangkok 10330, Thailand

*Corresponding author: paisan.t@chula.ac.th

Keywords: cadherin, uterotubal junction, caudal isthmus, sperm adhesion, swamp buffalo

Introduction

The swamp buffalo population in Thailand is dramatically decreased by numerous reasons. The factors for this animal are composed of delayed puberty, long calving interval and poor detection of estrus including reproductive disturbances, e.g. early embryonic death and reduced conception rates (1). These causes have been the main restrictions on improved productivity in swamp buffalo. To increase the production, an essential understanding with mention to the molecular biology in the female reproductive organs, particularly in the oviduct must be investigated. In cattle, the oviducts play a vital role before fertilization, transporting the oocyte from through the infundibulum and ampulla to the place of fertilization (2). The caudal isthmus and uterotubal junction (UTJ), so called "sperm reservoir", are associated in procedures such as sperm transport, storage and capacitation that require preservation of the motility, viability and fertilizing ability of spermatozoa (3). Recently, the hyaluronan and syndecan-1 were definitely contained in the sperm reservoir of swamp buffalo and these substances could involve in the forming of sperm reservoir to maintain sperm viability (4). However, the accurate modulation during sperm-epithelium adhesion within sperm reservoir is still obscured and requires further information. Cadherins are a family of transmembrane glycoproteins that motivate calcium-dependent cell adhesion and they are recognized according to their tissue of derivation composed of epithelial (E), neural (N) and placental (P) cadherins (5). E-cadherin was the first cadherin identified to play an essential role in mediating selective adhesion between epithelial cells and involved in the initial attachment of the embryo to the endometrium (6). E-cadherin was detected in bovine oviduct epithelium, oocyte and spermatozoa (7). Thus, the purpose of this research was to detect E-cadherin in the UTJ and isthmus of Thai swamp buffalo by immuno-histochemistry.

Materials and Methods

The female reproductive organs from swamp buffaloes (n=20) were obtained at the local abattoirs. The chosen stages of estrous cycle, the follicular (n=10) and mid-luteal phases (n=10), were sorted by the manifestation of corpus luteum

and dominant follicle on both ovaries (8). The oviducts were separated from mesosalpinx and then the uterotubal junction (UTJ) and caudal isthmus were collected and submerged in 10% buffered formalin. The oviduct tissues in paraffin blocks were cut into 4- μ m-thick sections and placed on the Poly-L-Lysine coated glass slides (Sigma-Aldrich, Steinheim, Germany), deparaffinized in xylene and rehydrated through graded ethanol dilutions. Thereafter the sections were put in 0.01 M citrate buffer (pH 6.0) in a microwave oven at 750 W. Endogenous peroxidase activity was inhibited by immersing the sections in 3.0% H₂O₂ at room temperature and a non-specific background staining was reduced by incubation with normal horse serum (Vector Laboratories, Burlingame, CA, USA). Mouse monoclonal antibody to E-cadherin (clone NCH-38, DAKO, Grostrup, Denmark) at a dilution of 1:50 was served as primary antibody. Subsequently, the sections were applied with the secondary biotinylated horse anti-mouse antibody (Vector Laboratories, Burlingame) at a dilution of 1:200 followed by Avidin-Biotin Complex (ABC)-mouse reagent (Vector Laboratories). The positive reactions were visualized using freshly prepared the 3, 3'-diaminobenzidine (DAB kit, Vector laboratories) in H₂O₂ and all sections were counterstained with Mayer's hematoxylin and mounted with gelatin-glycerine mixture. All tissue sections were evaluated under light microscopy (BX50, Olympus, Tokyo, Japan) with a digital camera Micropublisher 5.0 (Qimage, Surrey, Canada). The tissue micrographs were taken by program of Image Pro[®] Plus version 6 (Media Cybernetics Inc., MD, USA).

Results and Discussion

As expected, the strong intensity of E-cadherin staining was detected in canine mammary gland carcinoma which served as the positive controls (Fig. 1a, b), whereas no staining was present on the negative controls (inset panel in Fig. 1a). The pattern of E-cadherin expression was clearly observed at the lateral and apical membranes in cells of mammary gland carcinoma (Fig. 1b).

The E-cadherin immunohistochemical reaction was depicted with strong intensity at the

cell-to-cell borders of the epithelial linings of UTJ and caudal isthmus both follicular and mid-luteal phases, whereas a weak immunostaining was appeared within the cytoplasm of these epithelial linings in various area (Fig. 2).

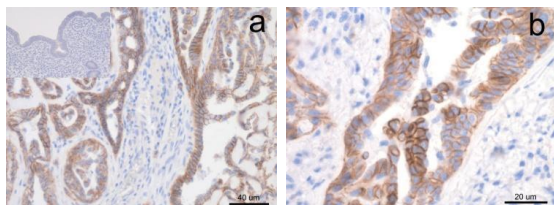


Figure 1 Intense immunolocalization of E-cadherin (dark brown stain) in canine mammary adenocarcinoma cells (positive control) at different magnifications (a, b) that principally demonstrated the membranous E-cadherin staining pattern (b). No positive immunohistochemical staining was detected in negative controls (inset panel).

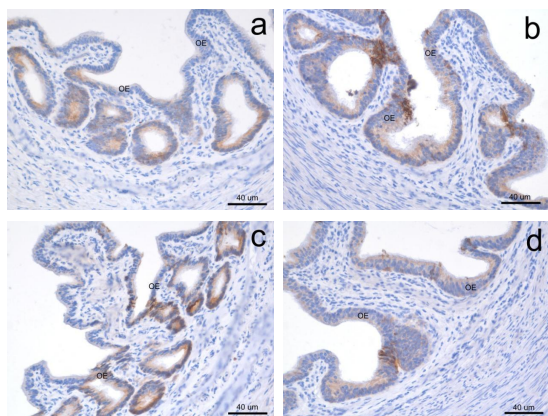


Figure 2 Immunohistochemical staining of E-cadherin in the UTJ (a, b) and caudal isthmus (c, d) at follicular (a, c) and mid-luteal (b, d) phases. Strong E-cadherin appearance was found at the lateral and apical cell membranes of oviduct epithelium (OE) and the positive staining was intermittently depicted throughout the epithelium.

In cattle, it is known that UTJ and caudal isthmus serve as sperm reservoir where supplies numerous functions, e.g. the maintenance of sperm fertilizing proficiency to expand the time during sperm storage until ovulation, the procedure of sperm capacitation and the modulation of sperm transportation to the site of fertilization (3, 9). To comprehensive the complex fertilization processes, the spermatozoa have to store within sperm reservoir to have accountability for spermatozoa to survive and to maintain more capability (10). Recently, glycosaminoglycans (both hyaluronan and syndecans) were found in the swamp buffalo oviduct epithelium of the UTJ and isthmus and

these substances might benefit the maintenance of sperm survival (11).

Among members of cell-cell adhesion proteins, the presence of E-cadherin in bovine gametes and oviduct epithelium supporting their role in gamete interaction (7). By experimental design, the reallocate in E-cadherin localization was also scrutinize in spermatozoa released from co-cultures, indicating the involvement of the adhesion protein in assembly or disassembly of the oviduct-sperm reservoir, as part of the capacitation-related events (12). Previous studies implied the involvement of species-specific carbohydrate recognition in sperm-oviduct interaction and specific proteins have been advised to play a vital role in the formation of the sperm reservoir (9, 13, 14). Various kinds of proteins appear to be lost from the plasma membrane overlying the head during sperm capacitation, and this event is related to a decrease in oviduct epithelium-sperm binding (15). Therefore, E-cadherin could be component of this complicated array of membrane proteins participating in this incident to assure sperm association and/or release from the oviduct epithelium of sperm reservoir.

Acknowledgements

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