

Nidacon News

The news letter from your ART supplier • No 2 • 2023

Contents

The benefits of dry form semen extenders	1
Don't miss our website!	1
Unlocking the power of Caseins	2
How to thaw BotuCrio	3
New additions to the product line?	3
The Fun Collection	3
Coming Up	4
Who to contact	4

The benefits of dry form semen extenders

Antibiotics exhibit a tendency to degrade when in solution. This degradation affects the overall stability and shelf-life of the extender.

The use of extenders in powder form contributes to a lengthened period of stability, providing a practical solution to the challenge of antibiotic degradation.

A noteworthy example is exemplified by the BotuSemen extenders, which, due to their dry formulation, have a shelf life of up to 2 years while retaining their effectiveness. This extended storage duration not only offers practical advantages in terms of storage but also ensures that the extenders remain a reliable and potent resource for artificial insemination processes over an extended timeframe.

Shelf life of up to 2 years while retaining their effectiveness.

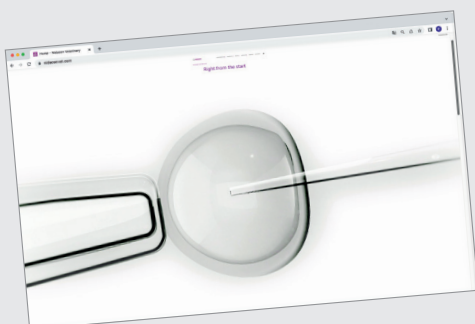


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Unlocking the power of Caseins

Casein is a key component in BotuSemen Gold. Why is it important enough to be included? In this newsletter we have investigated five different scientific publications aiming to answer the question.

The first study explores the protective effect of milk on sperm by investigating whether milk caseins prevent detrimental effects caused by seminal plasma proteins (BSP proteins). The research demonstrates that milk caseins decrease the binding of BSP proteins to sperm, leading to reduced lipid loss and maintained sperm motility and viability during storage. (1)

The next study assesses the impact of sodium caseinate and cholesterol on stallion semen cooling. Results indicate that the combination of sodium caseinate and cholesterol improves fertility in stallions with poor cooling abilities. Sperm motility and membrane stability were enhanced in the presence of these components, particularly in the case of "bad cooler" stallions. (2)

Another study compares two extenders, INRA 96 and BotuSemen Gold, for cooling stallion semen. Results suggest that BotuSemen Gold is a suitable alternative to INRA 96, displaying superior motility and sperm velocity parameters. Embryo recovery rates were similar for both extenders, indicating the potential of BotuSemen Gold in clinical practice. (3)

The fourth article investigates the interaction between Binder of Sperm (BSP) proteins from boar, stallion, and ram semen and milk proteins. The study finds that these BSP proteins display an affinity for milk proteins, supporting the hypothesis that the association of BSP proteins with milk proteins could be a general mechanism for protecting sperm across mammalian species. (4)

The final paper delves into the mechanism of how egg yolk and milk protect sperm during liquid storage or cryopreservation. The research highlights the role of Binder of Sperm (BSP) proteins and their interaction with low-density lipoproteins (LDL) in egg yolk and milk proteins

in maintaining sperm motility and preventing lipid efflux from the sperm membrane during storage, providing new insights into the mechanism of sperm protection by extender components. The paper also includes a very illustrative figure (below) which describes the mechanism of sperm membrane protection by egg yolk and milk (caseins) who prevents lipid loss by binding to the harmful BSP-proteins. (5)

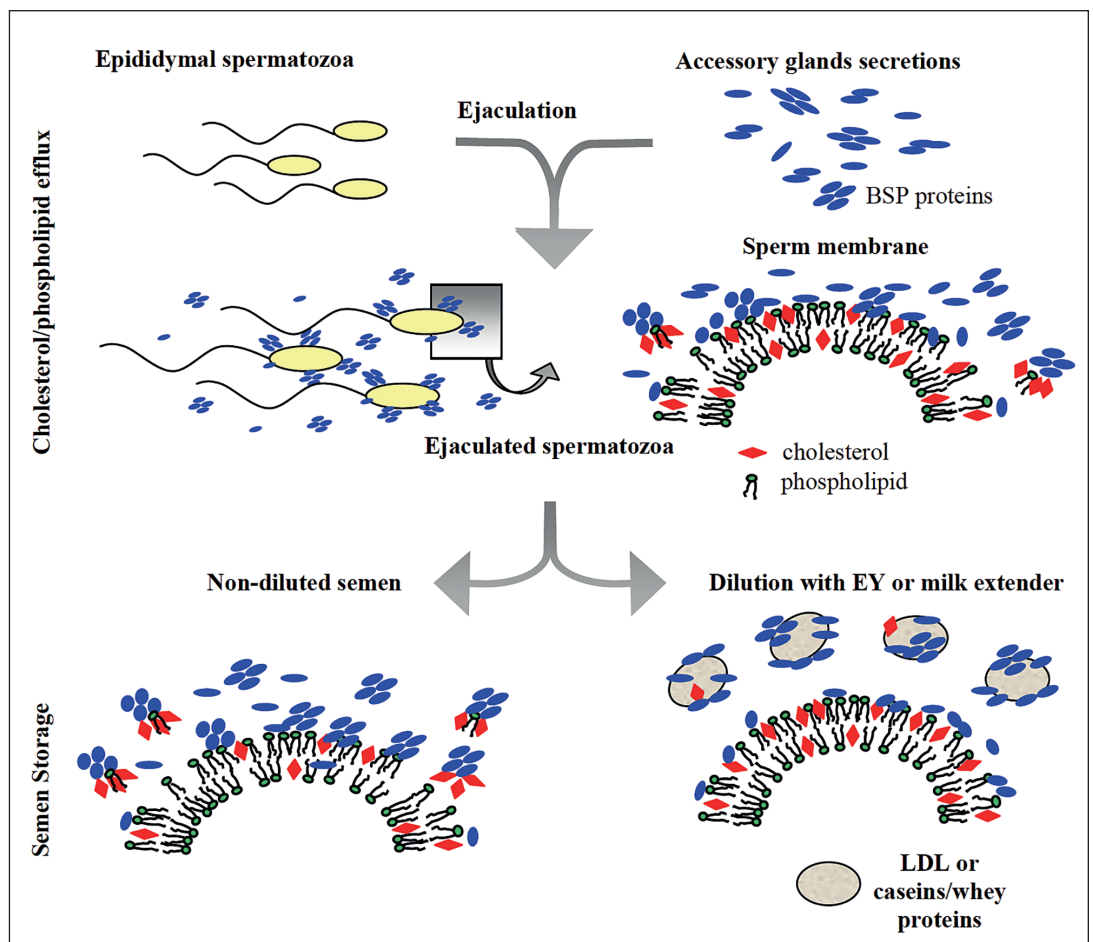
These elements play a crucial role in preserving sperm viability, motility, and membrane stability during storage and cooling.

In summary, these studies enhance our knowledge of the protective mechanisms provided by extenders, with a focus on the contributions of caseins, sodium caseinate, cholesterol, and their effectiveness in preventing the adverse effects of Binder of Sperm (BSP) proteins. These elements play a crucial role in preserving sperm viability, motility, and membrane stability during storage and cooling. The insights gained from

these findings have practical implications for enhancing techniques for preserving semen and improving fertility outcomes across different mammalian species.

References:

- (1) Bergeron A et al, Milk Caseins Decrease the Binding of the Major Bovine Seminal Plasma Proteins to Sperm and Prevent Lipid Loss from the Sperm Membrane During Sperm Storage, *Biology of Reproduction* 11, 120-216 (2007).
- (2) Sodium Caseinate and Cholesterol Improve Bad Cooler Stallion Fertility, Campos G et al, *Journal of Equine Veterinary Science* 93 (2020).
- (3) Stallion Semen Cooling Using Native Phosphocaseinate-based Extender and Sodium Caseinate Cholesterol-loaded Cyclodextrinbased Extender, Novello G et al, *Journal of Equine Veterinary Science*, 92 (2020).
- (4) Plante g et al, Interaction of Milk Proteins and Binder of Sperm (BSP) Proteins from Boar, Stallion, and Ram Semen, *Reproductive Biology and Endocrinology* (2015) 13:92
- (5) Manjunath P, New Insights into the Understanding of the Mechanism of Sperm Protection by Extender Components, *Animal Reproduction v. 9, n.4, pp 809-815* (2012).



How to thaw BotuCrio

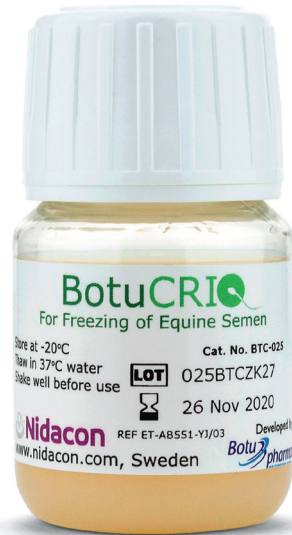
BotuCrio, which includes egg yolk for optimal sperm cell protection during freezing, requires careful thawing to ensure its effectiveness.

While fat aggregation may occur if not thawed correctly, please note that these aggregates are harmless and do not affect the product's functionality.

By following these steps, you'll ensure the proper thawing of BotuCrio, optimizing its performance in sperm preservation.

Important Instructions:

1. Thaw BotuCrio by immersing the bottle in a 37°C water bath.
2. Allow the solution to thaw completely (around 15 minutes)
3. Let the bottle rest at room temperature for 5 minutes.
4. Shake the bottle thoroughly.
5. Ensure the bottle is completely at room temperature and not cold at all before use.



The fun collection

Many have been asking about our fashionable line of clothing, so we decided to make them available through our web shop <https://nidaconvet.com/products/#equine>

GREY/PINK SPERM STOCKINGS SIZES M-L



BLUE/YELLOW SPERM STOCKINGS



BLUE/PINK SPERM STOCKINGS



KNIT GREY CAP



KNIT PINK CAP



New additions to the product line?

We're considering the addition of extenders specifically designed for canine semen to our product line: BotuDog and BotuDog Turbo.

As we are now investigating the possibility of introducing these products, we're very interested in your feedback.

BotuDog and BotuDog Turbo are meticulously crafted extenders tailored for canine semen, aiming to enhance reproductive success in our furry friends.



Nidacon is closed
25 December – 1 January

We wish you happy holidays
and a wonderful new year!



Coming up

ESER European Practitioner Symposium on Equine Reproduction

Ghent, Belgium,
10-11 October
2024



poLSKI CPD

Hotel Meta Szcyrk,
Poland,
23-28 January
2024



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