Ultra line

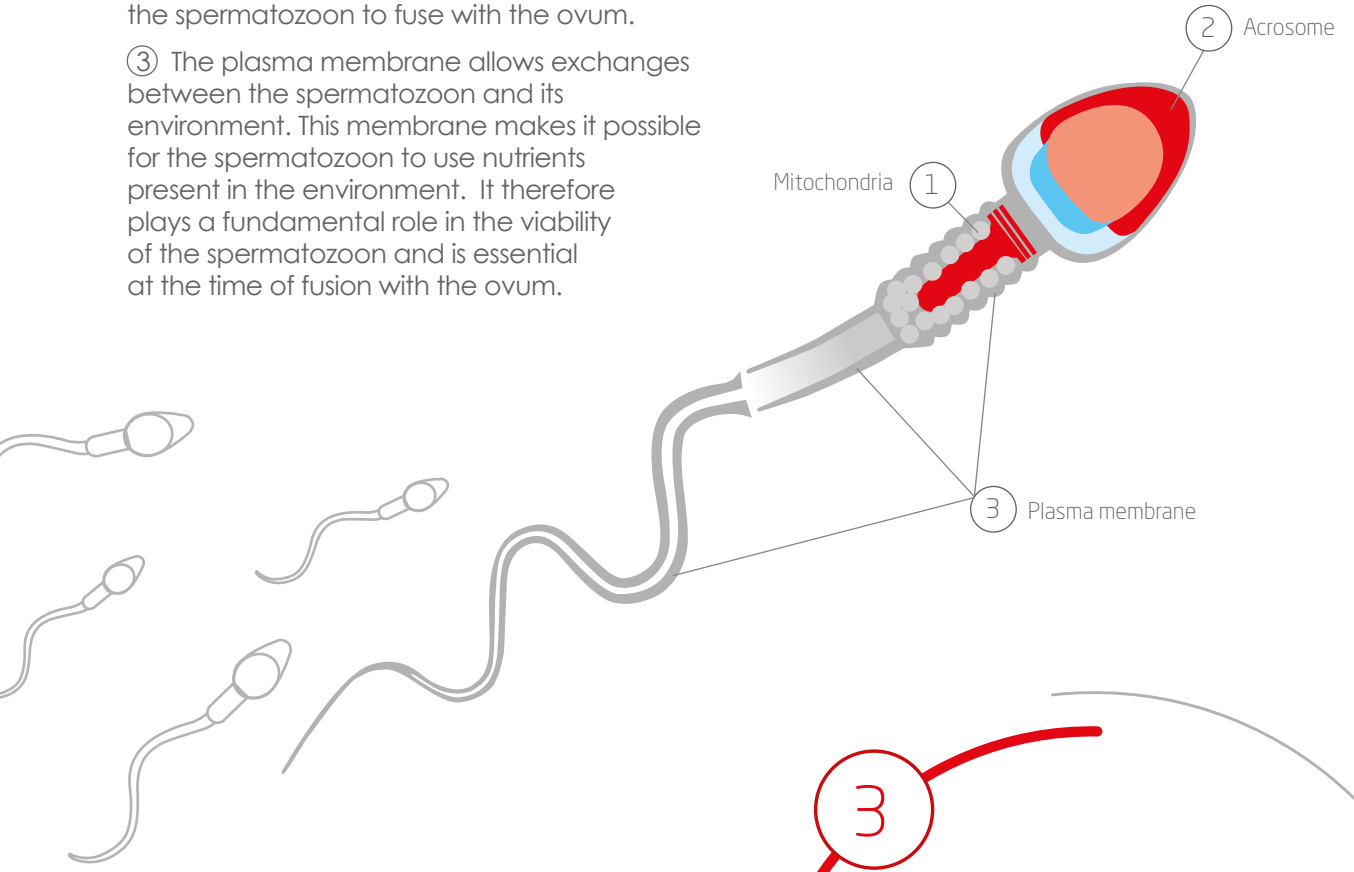
THE NEW GENERATION OF SWINE MEDIA

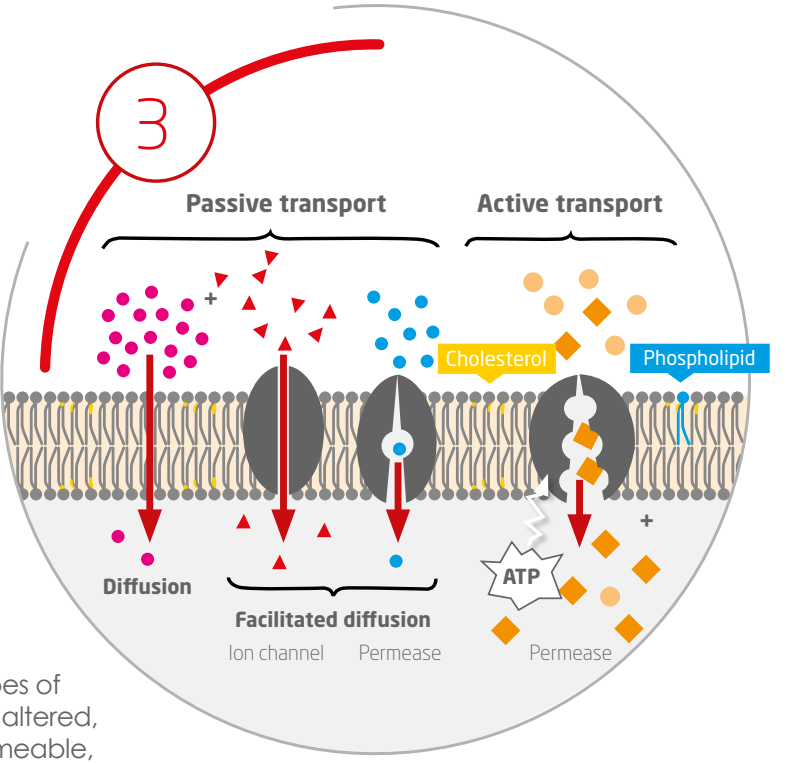
Key functions of spermatozoa

① The mitochondria, located in the middle part of the spermatozoon, produce the energy needed for cell survival and motility.

② The acrosome, located over the anterior part, contains enzymes that allow the spermatozoon to fuse with the ovum.

③ The plasma membrane allows exchanges between the spermatozoon and its environment. This membrane makes it possible for the spermatozoon to use nutrients present in the environment. It therefore plays a fundamental role in the viability of the spermatozoon and is essential at the time of fusion with the ovum.





Characteristics of swine spermatozoa

Swine spermatozoa are characterized by a high content of polyunsaturated fatty acids and a low concentration of cholesterol. This makes them more sensitive to stress, such as thermal shock, than bovine spermatozoa.

Bailey et al., 2008; Martín-Hidalgo et al., 2011; López Rodrigeuz et al., 2012; Schulze et al., 2013

Membrane functionality

The membrane allows exchanges between the cell and its environment through various types of transport. If thermal shock occurs, its structure is altered, and the membrane becomes increasingly permeable, which creates a loss of cell components.
The mobility and vitality of the spermatozoa are then affected.

Drobnis et al., 1993; Johnson et al., 2000; López Rodrigeuz

Performance built on IMV innovations

IMV Technologies Research and Development has developed high-performance additives in order to ensure its media are particularly efficient.

Bioactivator Ultra, a powerful molecule

Bioactivator Ultra maintains the properties of Bioactivator, but adds to it a protective role.
This improved molecule is more effective.
Bioactivator Ultra is a biological compound that stimulates the motility of spermatozoa, promotes ovum penetration, and ultimately improves fertility.

	# Sows (AI)	% Farrowing rate	Piglets born alive	Fertility index
Control (BTS)	356	78,37	11,74	920
Control (BTS) + BioActivator	360	84,72	11,6	982 **+6%**

Bioshield protects cell membranes

Bioshield is a unique protein compound that protects membranes and maintains their structure over time. It also acts as a fatty acid transport agent.

These combined properties offer real advantages: protection against temperature variations and mechanical stress, increased protection against oxidation, slower capacitation induction, improved real motility (% of progressive spermatozoa) and improved agglutination control.

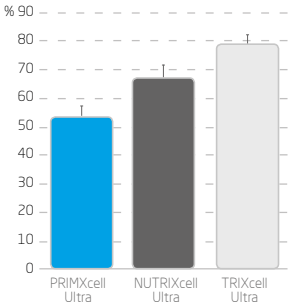
	# Sows (AI)	% Farrowing rate	Piglets born alive	Fertility Index
Control	163 453	86	14	1 232
Control + BioShield	44 370	91	14,7	1 337 **+8.5%**

The Ultra Range ensures plasma membrane functionality

The results of the short hypoosmotic swelling test (sHOST) on Day 7 show that Ultra media maintain the integrity of the plasma membrane.

To conduct its study, IMV used the same protocol that was used in the study by B. Pérez-Llano *et al**. This study shows that the sHOST test accurately reflects the level of integrity of the plasma membrane of spermatozoa.

**A short hypoosmotic swelling test for the prediction of boar sperm fertility (B. Pérez-Llano, J.L. Lorenzo P. Yenes, A. Trejo and P. García-Casado), 2001.*



sHOST results on Day 7
Materials and methods
- 3 groups of 3 boars
- Spermatozoa concentration : 30 M / mL
- Storage at 17 °C

A new formula and a new packaging

The new Ultra Range is formulated with anhydrous ingredients, meaning that it no longer contains any water molecules. This improves its stability and its storage.
The particle size of the various components has been studied in depth to make it easier for the powder to dissolve when preparing the media.

Finally, the new packaging is a bag made from a new generation of film that offers excellent protection against ambient humidity.

PRIMXcell Ultra

Protective medium

PRIMXcell Ultra optimizes sperm performance

PRIMXcell Ultra, with a new optimized formula, offers remarkable efficiency in energy production. Tests show excellent results in the protection of the spermatozoa's various functions: motility, viability, and the integrity of sperm organelles including the mitochondria and the acrosome. A major advancement over the previous formulation…

Key features

- Stimulates energy production
- Presents excellent performance *in vitro*
- Features a robust formula and new packaging
- Is BSA-free

Bioactivator Ultra	★★
Bioshield	
Antibiotics	★
Advanced antioxidant	★
Buffer	★
Membrane protection	★
Motility booster	★★
Agglutination protection	★★
Thermal stress protection	★
Low dose	
Two-step dilution	
Semen storage	16°C-18°C

NUTRIXcell Ultra

Highly Protective medium

NUTRIXcell Ultra protects semen from stress and thermal shock

NUTRIXcell Ultra provides spermatozoa with the nutrients and elements needed for membrane functionality and metabolism, and it protects them from thermal shock, pH variations, bacterial growth, oxidation, and more.

NUTRIXcell Ultra limits agglutination

IMV engineers have optimized NUTRIXcell Ultra to restrict the formation of agglutinates.

Key features

- Presents excellent performance *in vitro*
- Protects semen from agglutination
- Protects spermatozoa during thermal stress
- Features a robust formula and new packaging
- Contains ECC-approved antibiotics
- Is BSA-free

TRIXcell Ultra

Extra Protective medium

TRIXcell Ultra enables improved semen dilution strategies

TRIXcell Ultra allows progressive laboratories to use two-step semen dilutions with confidence. A first dilution at 34°C and a second one at 17°C or 25°C will not impact semen quality, but result in more efficient production.

The Low Dose solution

TRIXcell Ultra helps laboratories decrease the concentration of spermatozoa per milliliter without adverse results. With TRIXcell Ultra you can produce more doses with the same volume of semen and the same number of boars.

Key features

- Maintains the functionality of the plasma membrane
- Preserves sperm quality even for low concentration
- Features a robust formula and new packaging
- Contains ECC-approved antibiotics
- Is BSA-free

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★★	★★★
10°C-25°C	**10°C-25°C**

Production and quality control

The IMV media production laboratory was designed and developed to exceed quality assurance standards.

Production in a controlled setting

Our media production laboratory is ISO 9001 approved and certified. The center is equipped with an air filtering system and a class 100 laminar flow hood. Temperature, humidity, and sterility are regularly controlled to ensure that media are produced under the best possible conditions.

Ongoing control of production

All of our components meet the standards of at least one pharmacopoeia system. Each and every lot of end product is inspected based on its appearance, its packaging, and its physical-chemical properties.

In vitro testing and biocontamination analyses are also carried out on all of our lots.