
MACS
Miltenyi Biotec
Find the fittest
MACS® ART Annexin V System

Easy, fast, and specific depletion of unwanted apoptotic spermatozoa

- Improve quality of sperm preparations
- Obtain desired population within 30 minutes
- Proven technology for optimal results

Improve the quality of spermatozoa preparations

Be specific, be successful
The presence of apoptotic cells in sperm preparations for assisted reproduction is known to decrease specimen quality. Unfortunately, commonly used techniques for preparing sperm may not remove apoptotic spermatozoa with the required specificity.

That's why the MACS® ART Annexin V System was designed to selectively remove apoptotic spermatozoa from sperm preparations. Even early apoptotic spermatozoa with an intact cellular membrane are efficiently depleted, to yield spermatozoa fractions for use in subsequent operations in Assisted Reproductive Technology (ART).

Select only the highest quality for your next sperm preparation.

Researchers have reported that purified sperm populations show higher overall quality in terms of:

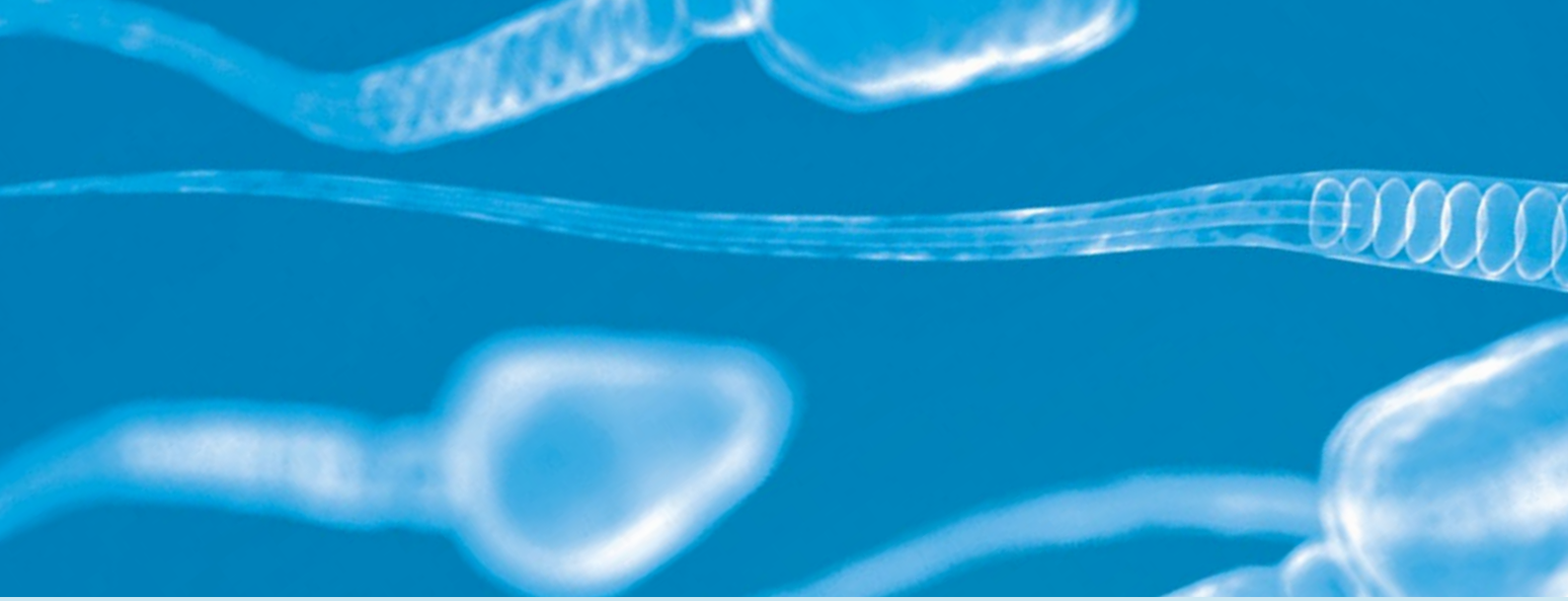
- Morphology[1]
- Sperm Deformity Index[1]
- Motility[2,3]
- DNA fragmentation
- Mitochondria membrane potential integrity[3,4,5]
- Apoptosis
- Cryosurvival rates[2,4]

Scientist obtained a sperm population with:

- Improved sperm fertilization potential (sperm capacitation index, hamster oocyte penetration assay)[6,12]
- Improved Induced Acrosome Reaction Test (IART)[7,8]
- Increased sperm chromatin decondensation[9,11]
- Improved cleavage rates after fertilization[10]

References

1 Aziz, N. *et al.* (2007) Human Reproduction 22: 1413–1419.
2 Said, T. *et al.* (2005) Fertility and Sterility 83: 1442–1446.
3 De Vantéry Arrighi, C. *et al.* (2009) Reproductive Biology Endocrinology 7: 1.
4 Grunewald, S. *et al.* (2006) Cell and Tissue Banking 7: 99–104.
5 Paasch, U. *et al.* (2005) Asian Journal of Andrology 7: 61–69.
6 Said, T. *et al.* (2006) Biology of Reproduction 74: 530–537.
7 Lee, T. *et al.* (2010) Human Reproduction 25: 839–846.
8 Grunewald, S. *et al.* (2006) Ann. N. Y. Acad. Sci. 1090: 138–146.
9 Grunewald, S. *et al.* (2009) Fertility and Sterility 92: 572–577.
10 Dirican, E. K. *et al.* (2008) Journal of Assisted Reproduction and Genetics 25: 375–381.
11 Delbes, G. *et al.* (2013) Journal of Andrology 1: 689–706.
12 Sheikhi, A. *et al.* (2013) Journal of Andrology 1: 845–849.



Specific depletion of apoptotic spermatozoa

The MACS ART Annexin V System is intended for *in vitro* depletion of apoptotic human spermatozoa. The system selectively depletes unwanted cells using the ability of Annexin V to recognize the antigen EPS (externalized phosphatidylserine) in the plasma membrane of apoptotic cells.

Phosphatidylserine-positive cells are depleted from fresh, cryopreserved, or otherwise manipulated semen samples. The yielded spermatozoa fraction is suitable for use in Assisted Reproductive Technology.

How it works

Apoptotic cell depletion begins with magnetic labeling of apoptotic cells by the MACS ART Annexin V Reagent. The labeled cells are then passed through a separation column located in a magnetic field. Unwanted cells are selectively retained in the column. Living spermatozoa are not labeled by the reagent, so they pass through the column and are collected for later use.

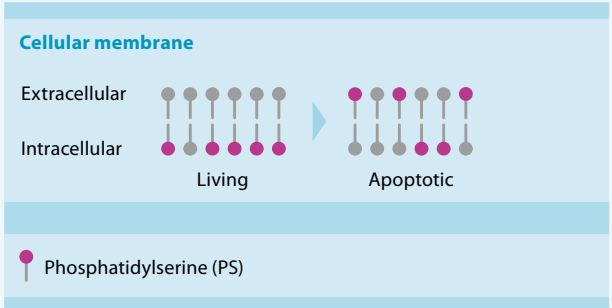


Figure 1: Translocation of PS from the intracellular to the extracellular surface of the plasma membrane during apoptosis.

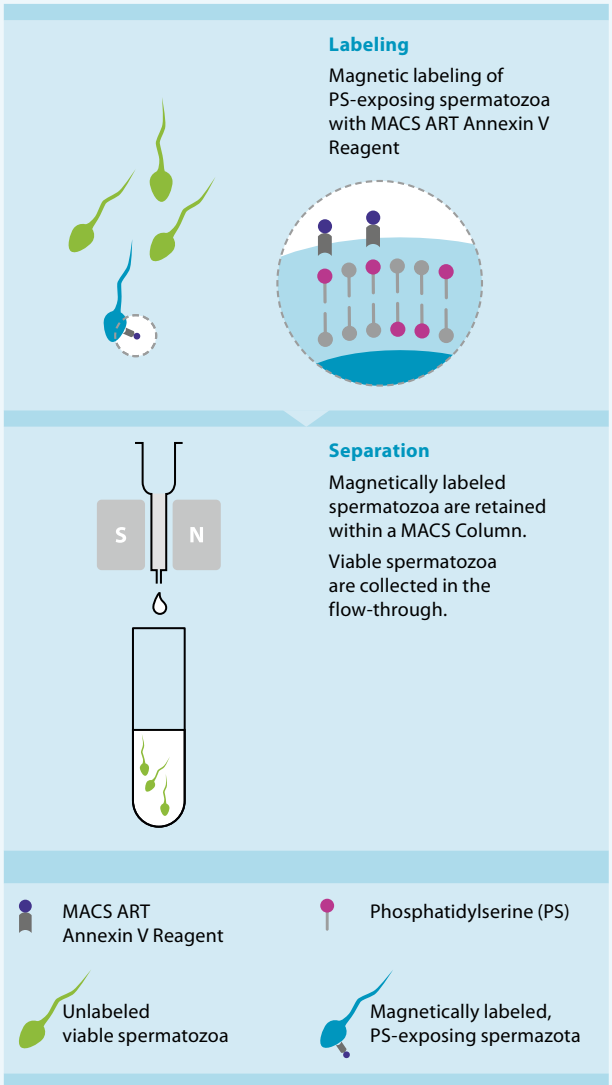
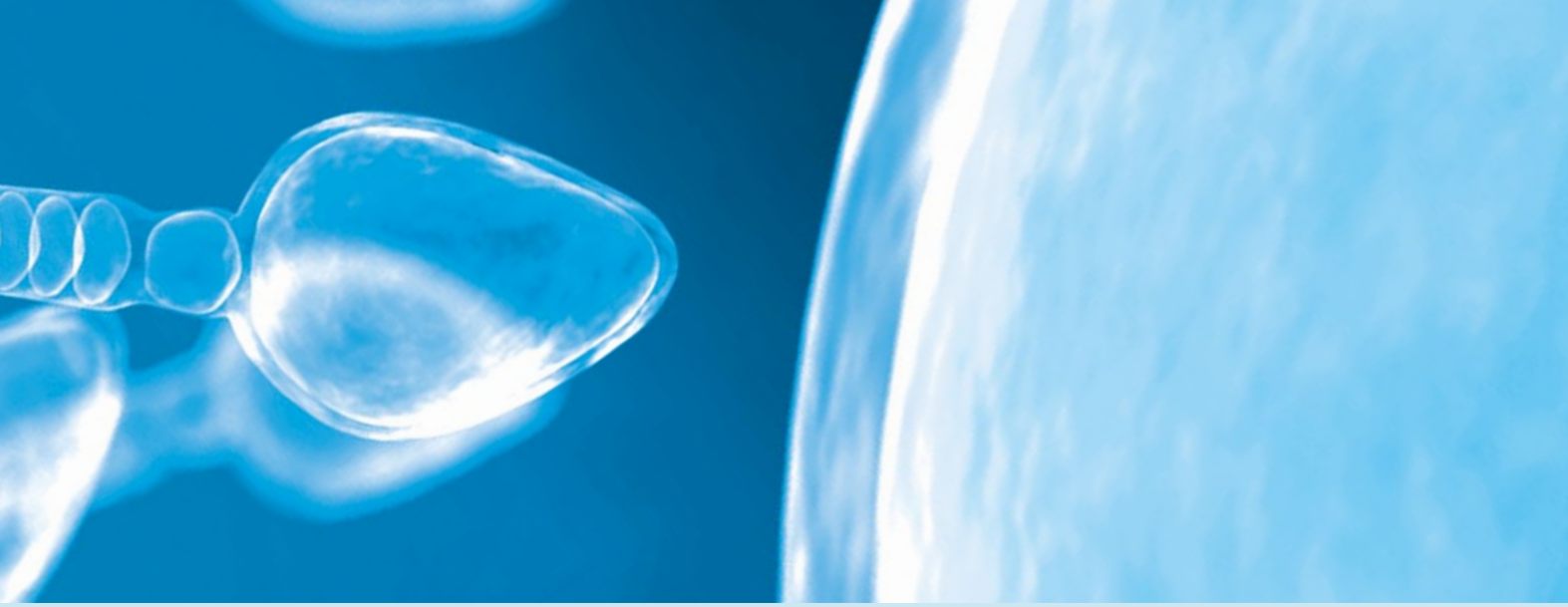


Figure 2: Isolation of PS-exposing cells using the MACS ART Annexin V System.



MACS® ART Annexin V System

Depletion of apoptotic spermatozoa with the MACS ART Annexin V System is simple and fast. It adapts easily into laboratories to enhance classical sperm parameters and lower sperm apoptotic markers. Additionally, it can be combined with other sperm preparation techniques for procedural flexibility.

Components of the MACS ART Annexin V System include the MACS ART Annexin V Reagent, MACS ART Binding Buffer, and MACS ART MS Column. All are free of human and animal-derived components. Product specifications, such as endotoxin content or sterility, are confirmed by batch-specific certificates of analysis to ensure consistency of quality.

The system has been tested in a Mouse Embryo Assay (MEA), which is widely used to assess the toxicity of materials used in human assisted reproduction and to detect embryo-toxic materials. The MACS ART Annexin V System shows no embryo toxicity.

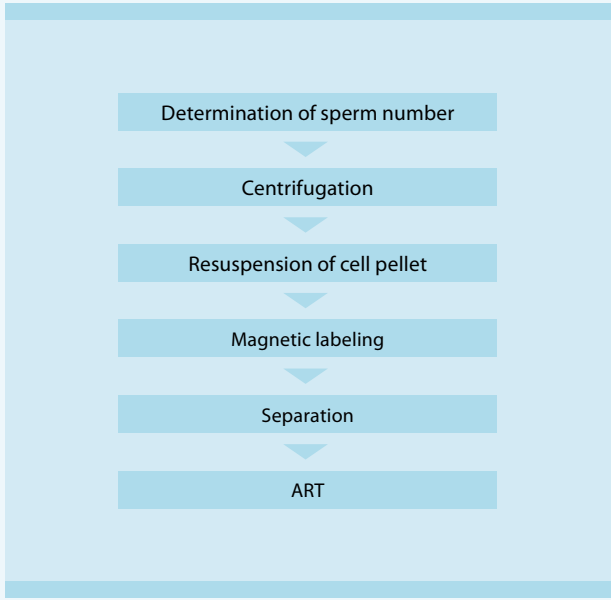
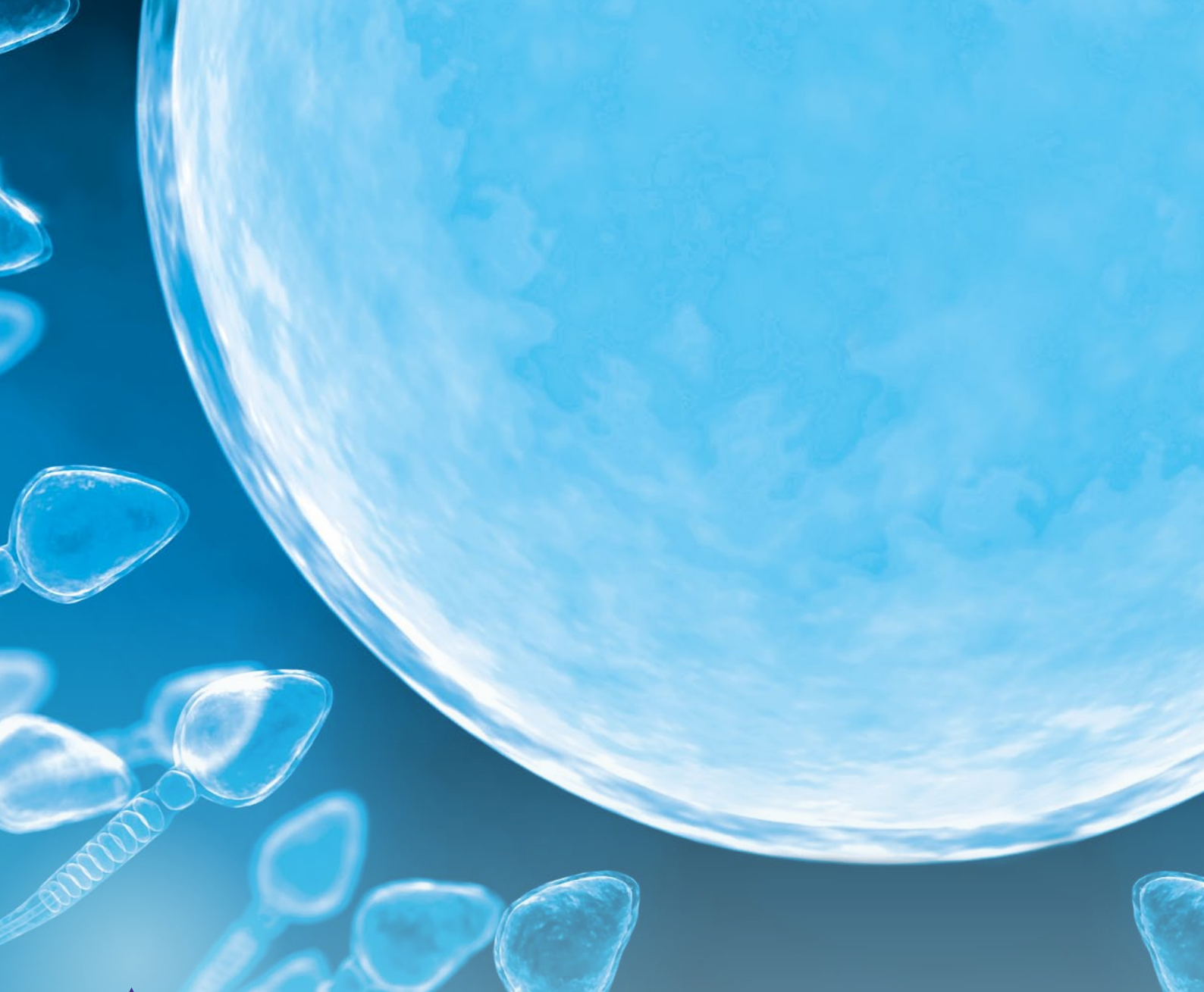


Figure 3: The depletion of apoptotic spermatozoa with the MACS ART Annexin V System is simple and fast.

Product	Content	Order no.
MACS ART Annexin V Reagent	1×0.1 mL reagent	200-070-502
MACS ART Annexin V Reagent	6×0.1 mL reagent	200-070-503
MACS ART Binding Buffer	6×10 mL buffer	200-070-505
MACS ART MS Column	6 columns	200-070-500
MACS ART Separation Unit	1 unit	200-070-501
MACS MultiStand	1 piece	130-042-303
MACS ART Annexin V Complete Kit	6×0.1 mL reagent, 6×10 mL buffer, 6 columns	200-070-507



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