

AF's Validation Summary (Non-Confidential)

AF's efficacy and safety have been confirmed through multiple laboratory and preclinical studies conducted under standardized WHO 6th Edition semen analysis protocols:

1. Computer-Assisted Sperm Analysis (CASA)

- Demonstrated an immediate >700% increase in sperm motility upon contact.
- Enhanced motility persisted for at least one hour post-exposure.

2. DNA Fragmentation Assay

- No increase in sperm DNA fragmentation or evidence of genotoxicity.
- Independent observers verified that DNA integrity remained intact.

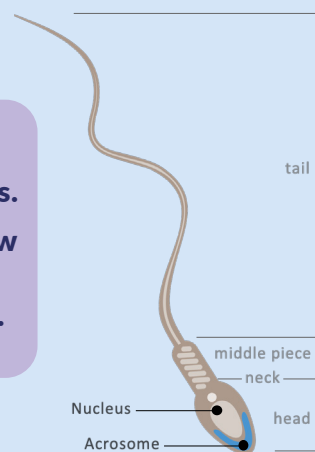
3. Acrosome Integrity Assay

- No disruption to acrosomal membranes or cellular morphology.
- Sperm cells retained normal structure post-exposure.

4. Mouse Vaginal Toxicity Study

- No epithelial damage or local toxicity observed in reproductive tissues after 1 hour and 24 hours.
- Supports biocompatibility and non-irritant profile suitable for human application.

Sperm motility is how efficiently the sperm moves. Motility issues, such as slow or zero progression, may negatively impact fertility.



Key Takeaways

- **Mechanism:** Immediate, contact-based activation of sperm motility through a novel, non-hormonal pathway.
- **Effect Size:** >700% motility increase verified under standardized laboratory conditions.
- **Safety:** Preserved sperm DNA and acrosome integrity; no toxicity to female reproductive tract.
- **Compatibility:** Directly integrates into ART sperm washing media and adaptable for consumer use.
- **Patent Protection:** Composition-of-matter and use patents pending, with expected issuance in 2026 (protection through 2046).

Summary of AF's Mechanism of Action (Non-Confidential)

AF is a proprietary, marine-derived compound that enhances human sperm motility on immediate physical contact. Unlike conventional antioxidant or hormonal approaches that act indirectly or systemically, AF exerts its effect in liquid form, when in direct contact with sperm cells, by influencing the physical and biochemical conditions surrounding sperm motility.

AF's novel mechanism acts at the cellular and membrane-interaction level, rapidly improving sperm velocity and motility without disrupting cell morphology or viability. This distinguishes it from other putative motility enhancers that rely on marginal stimulation or long-term metabolic modification. The precise MoA of AF is proprietary, but it represents a previously unexplored male fertility pathway related to the biophysical activation of sperm function rather than genomic or hormonal modulation.

AF is easily dissolved into sperm washing media, making it immediately compatible with standard Assisted Reproductive Technology (ART) workflows such as IVF and IUI. It can also be added into consumer fertility products (e.g., lubricants or pre-conception gels) as a safe, over-the-counter application.

Learn more about our work at aquafemlabs.com

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