

The next-generation native myeloperoxidase

Athens Bioscience has developed a next-generation native myeloperoxidase, Athens MPO, that maintains the biophysical and biochemical characteristics of traditionally-sourced native MPO. Our novel process will ensure a consistent, high-quality and sustainable source of MPO for our clients.

Athens Bioscience (Athens) has led the way in high-quality myeloperoxidase (MPO) production for over 20 years. And now, Athens has developed a novel MPO source that will provide IVD manufacturers and researchers with a sustainable supply of high-quality MPO: *the next-generation native Athens MPO*.

Traditional sources of MPO, such as neutrophils from both normal and cancer patients, are becoming increasingly scarce and costly. Athens MPO meets these challenges by providing a scalable supply of MPO that maintains all characteristics of traditionally-sourced native MPO, such as structural integrity, purity and activity.

MPO, when produced in the human body, is a tetramer consisting of two heavy and two light chains. As shown in Figure 1, Athens MPO exhibits the tetrameric complex and intact heavy and light chain structures, making it indistinguishable from traditionally-sourced native MPO. Alternative methods to produce MPO, such as recombinant MPO produced in mammalian cells, have been unable to reproduce the tetramer or the heavy/light chain structures.

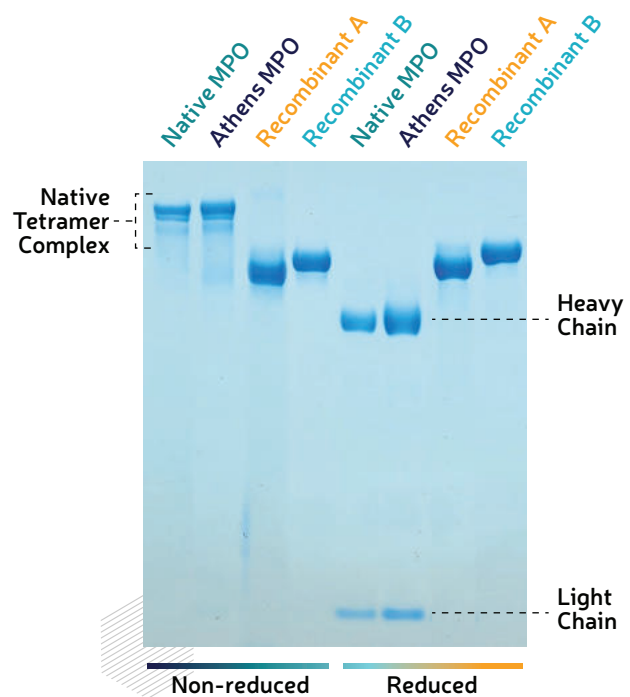


Figure 1. Athens MPO demonstrate the hallmark tetramer complex and heavy and light chains of native MPO. Non-reduced and reduced forms of MPO were analyzed by gradient SDS-PAGE.

As shown in Figure 2, the enzymatic activity of Athens MPO is very similar to that of traditionally-sourced native MPO, while such activity for recombinant MPO is greatly decreased or non-existent.

Athens MPO Application: ANCA Use Case

MPO is used as a key calibrator for IVD tests that diagnose anti-neutrophilic cytoplasmic antibody (ANCA)-associated vasculitis (AAV). AAV is a serious autoimmune disease, characterized by high titers of auto-antibodies against neutrophil proteins, including MPO, resulting in a dangerous inflammatory condition in blood vessels.

A key step in ANCA diagnosis is the identification of the protein target of the patient's autoimmune antibodies. Verifying MPO as the target is extremely valuable, as this provides key information to the doctor, enabling accurate prescription of the most appropriate therapy.

We sought to qualify Athens MPO as a calibrator suitable for use in IVD laboratories, using an internationally recognized standard for MPO-reactive autoantibodies obtained from AAV patients.

Using an ELISA-based binding assay, we demonstrated that both traditionally-sourced native MPO and Athens MPO are equally reactive to the MPO auto-antibodies standard, as illustrated by strong signals at even the highest dilutions (Figure 3). Notably, two different recombinant MPO proteins generated much lower signals, highlighting the superiority of Athens MPO as the top alternative to traditionally-sourced native MPO.

Contact us to learn more and to secure your Athens MPO.

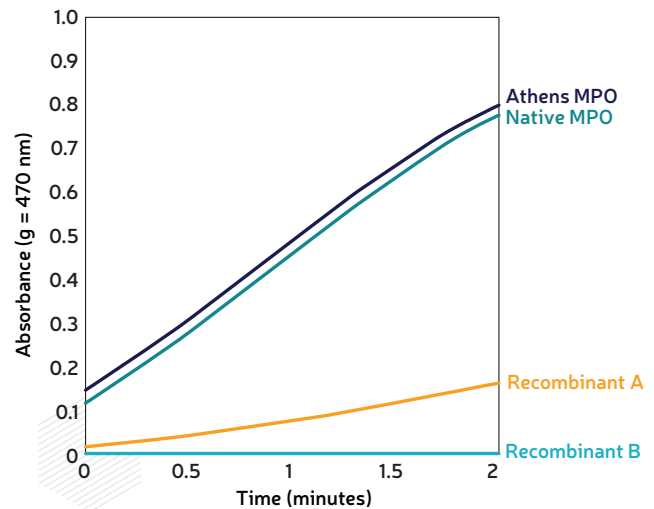


Figure 2. Traditionally-sourced native MPO and Athens MPO have similar enzymatic activity.

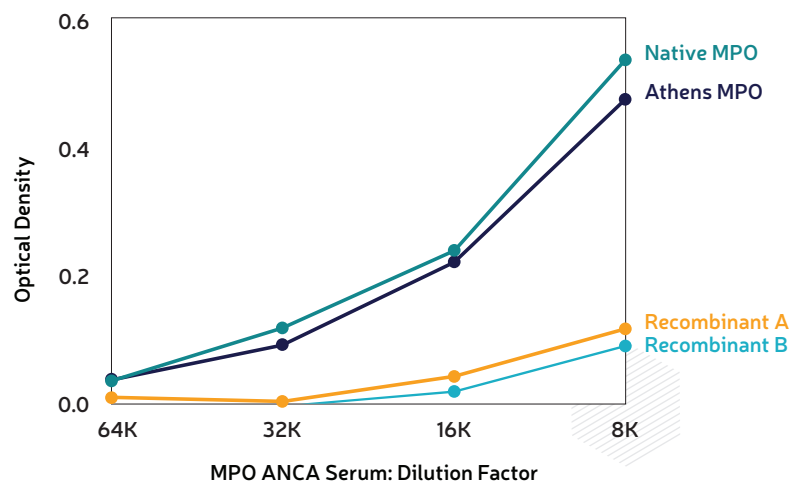


Figure 3. Native MPO and Athens MPO, but not recombinant MPO, are highly reactive to MPO auto-antibodies.



References

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