MMP MultiPack-2: Active MMPs 3, 7, 10, 11, 12

Instruction Manual
BML-AK014

For research use only

✦ MMP MultiPack-2: Active MMPs 3,7,10,11,12✦
BML-AK014

DESCRIPTION/BACKGROUND

The matrix metalloproteinases, or MMPs, are extracellular proteases that function at a neutral pH to cleave a wide variety of substrates. These include basement membrane and extracellular matrix components, growth and death factors, cytokines, and cell and matrix adhesion molecules[1,2,3]. The broad range of substrate specificities and expression patterns of MMPs results in their involvement in many different processes, both normal and pathological. Aberrant expression has been noted in cancer, angiogenesis, arthritis, inflammation, periodontal disease, emphysema, multiple sclerosis, pre-eclampsia, and chronic wounds, among others[1,2,4]. The general structure of an MMP protein consists of a pre domain to direct secretion from the cell, a pro domain, a catalytic domain, and a C-terminal hemopexin domain. The catalytic site involves a coordinately-bound zinc ion. The inactive, or zymogen, form of the enzyme is activated by disruption of one of the coordinate bonds, usually via proteolytic removal of the pro domain[5].

MMP MultiPack-2 includes 2 µg each of the highly active recombinant catalytic domains of matrilysin (MMP-7), metalloelastase (MMP-12), and the stromelysins (MMP-3, MMP-10, and MMP-11), produced in *E. coli*. MMPs consisting of only the catalytic domain represent naturally occurring active forms. Removal of the C-terminal hemopexin-like domain reduces triple-helical collagenase activity, but does not affect activity toward other targets such as gelatin, casein, or peptide substrates[6-9]. For more information on the individual MMP catalytic domains included in this kit, contact Enzo Life Sciences Technical Support, or download individual enzyme datasheets at www.enzolifesciences.com.

1. G. Bergers and L.M. Coussens *Curr. Opin. Genet. Dev.* 2000 **10** 120
2. S.D. Shapiro *Curr. Opin. Cell Biol.* 1998 **10** 602
3. V. Noe *et al. J. Cell Sci.* 2000 **114** 111
4. A.R. Nelson *et al. J. Clin. Oncol.* 2000 **18** 1135
5. J.F. Woessner and H. Nagase Metalloproteinases and TIMPs. 2000 Oxford University Press
6. G. Murphy and V. Knäuper *Matrix Biol.* 1997 **15** 511
7. W. Bode *et al. Cell. Mol. Life Sci.* 1999 **55** 639
8. V. Knäuper *et al. J. Biol. Chem.* 1997 **272** 7608
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COMPONENTS OF BML-AK014

MMP-3 ENZYME, BML-SE109-0010 (HUMAN, RECOMBINANT)
FORM: in 50 mM Tris, pH 7.5, 5 mM $CaCl_2$, 300 mM NaCl, 20 µM $ZnCl_2$, 30% Glycerol, 0.5% Brij-35.
STORAGE: -70°C; **AVOID FREEZE/THAW CYCLES!**
QUANTITY: 10 µg
PRESENTATION: Screw-cap microfuge tube.
Note: MMP-3 is unique in that its pH optimum is 6.0. Activity of this enzyme in pH 7.0 buffers is significantly reduced.

MMP-7 ENZYME, BML-SE181-0010 (HUMAN, RECOMBINANT)
FORM: in 50 mM Tris, pH 7.5, 5 mM $CaCl_2$, 300 mM NaCl, 20 µM $ZnCl_2$, 30% Glycerol, 0.5% Brij-35.
STORAGE: -70°C; **AVOID FREEZE/THAW CYCLES!**
QUANTITY: 10 µg
PRESENTATION: Screw-cap microfuge tube.

MMP-10 ENZYME, BML-SE329-0010 (HUMAN, RECOMBINANT)
FORM: in 50 mM Tris, pH 7.5, 5 mM $CaCl_2$, 300 mM NaCl, 20 µM $ZnCl_2$, 30% Glycerol, 0.5% Brij-35.
STORAGE: -70°C; **AVOID FREEZE/THAW CYCLES!**
QUANTITY: 10 µg
PRESENTATION: Screw-cap microfuge tube.

MMP-11 ENZYME, BML-SE282-0010 (HUMAN, RECOMBINANT)
FORM: in 50 mM Tris, pH 7.5, 5 mM $CaCl_2$, 300 mM NaCl, 20 µM $ZnCl_2$, 30% Glycerol, 0.5% Brij-35.
STORAGE: -70°C; **AVOID FREEZE/THAW CYCLES!**
QUANTITY: 10 µg
PRESENTATION: Screw-cap microfuge tube.
Note: Human (but not mouse) MMP-11 has very unique substrate preferences, and only poorly cleaves typical MMP substrates. Use much higher substrate concentrations and longer incubation times.

MMP-12 ENZYME, BML-SE138-0010 (HUMAN, RECOMBINANT)
FORM: in 50 mM Tris, pH 7.5, 5 mM $CaCl_2$, 300 mM NaCl, 20 µM $ZnCl_2$, 30% Glycerol, 0.5% Brij-35.
STORAGE: -70°C; **AVOID FREEZE/THAW CYCLES!**
QUANTITY: 10 µg
PRESENTATION: Screw-cap microfuge tube.

APPLICATION SUGGESTIONS

Possible applications include study of enzyme regulation or kinetics, comparative studies of substrate or inhibitor specificities, and cleavage of target proteins. Assay or digest conditions can vary widely, but concentrations for the MMP enzymes can range between 10 and 300 nM, or higher. Reaction temperatures can be between 25 and 37°C, and reaction times can range from 10 minutes to overnight, again depending on application and substrate. A typical assay buffer is 50 mM HEPES, pH 7.0, 10 mM $CaCl_2$, 0.05% Brij-35. For more information, contact Enzo Life Sciences Technical Support.

Important: in order to maintain practical enzyme concentrations, these vials contain small liquid volumes. *Centrifuge each vial prior to opening* to ensure that the liquid is pushed to the bottom.

Also available from Enzo Life Sciences: MMP substrates, antibodies, and inhibitors. Visit www.enzolifesciences.com for more details.

DISCLAIMER

NOTE: THE APPLICATION SUGGESTIONS, DESCRIBED ABOVE, ARE INTENDED ONLY AS GUIDELINES. THE INDIVIDUAL USER MUST DETERMINE THE OPTIMAL CONCENTRATIONS OF SUBSTRATES AND INHIBITORS, ASSAY VOLUMES, BUFFER COMPOSITION, AND OTHER EXPERIMENTAL CONDITIONS. NO WARRANTY OR GUARANTEE OF PARTICULAR RESULTS, THROUGH THE USE OF THESE PROCEDURES, IS MADE OR IMPLIED.

USE OF PRODUCT

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TRADEMARKS AND PATENTS

Several of Enzo's products and product applications are covered by US and foreign patents and patents pending.

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