

Technical Brief

Recombinant Creatine Kinase MB

Recombinant Creatine Kinase MB (CK-MB) from Scripps Laboratories is available for cardiac research and assay development. Native CK-MB has served the industry well for many decades, but starting material shortages have impeded purification and driven up its manufacturing cost. By contrast, recombinant CK-MB is produced in *E. coli*, allowing for large purification batch sizes and cost-efficient production. In addition, recombinant CK-MB shows comparable enzymatic and specific activity to native CK-MB.

Recombinant CK-MB is a reliable and economical alternative to native CK-MB. Presented here are various physical and performance characteristics of recombinant CK-MB, which demonstrate its similarity to native CK-MB.

SDS-PAGE

Figure 1 demonstrates the high purity of recombinant CK-MB by SDS-PAGE. The samples in lanes 3 and 4 are reduced and heated, resulting in the generation of smaller molecular weight variants. Lanes 6 and 7 are reduced, non-heated samples and show single-band purity. Major banding appears at approximately 41kDa, which is in line with the reported molecular weight of the M and B subunits of native CK-MB.

AGAROSE GEL ELECTROPHORESIS

Regarding enzymatic activity, Figure 2 is an agarose gel electrophoresis of recombinant CK-MB, stained for creatine kinase activity. The image shows clearly the absence of CK-BB and CK-MM enzymatic activity, indicating the recombinant sample is >99% CK-MB.

SDS-PAGE

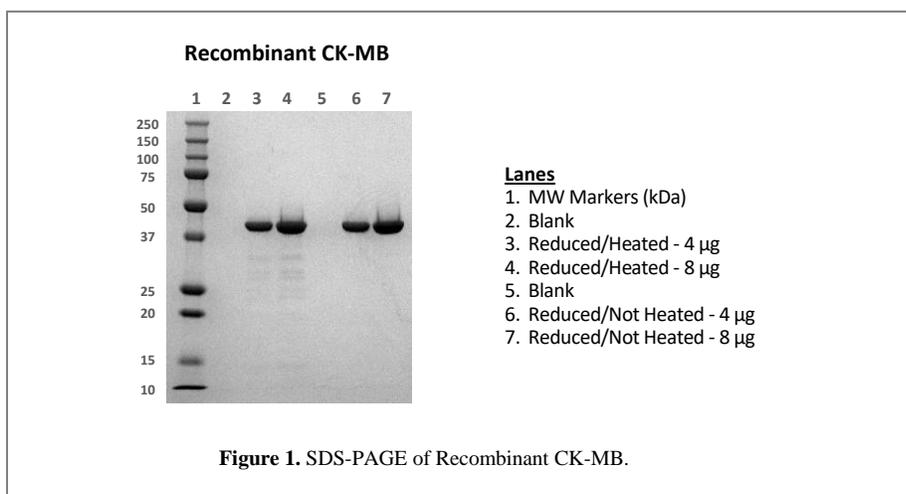


Figure 1. SDS-PAGE of Recombinant CK-MB.

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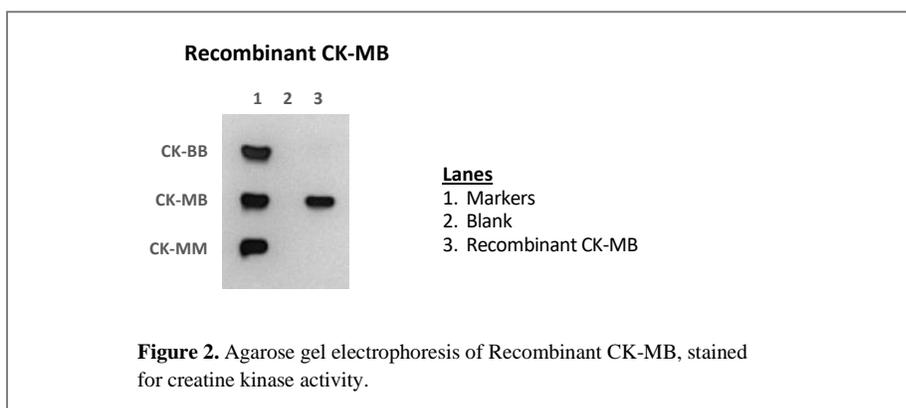


Figure 2. Agarose gel electrophoresis of Recombinant CK-MB, stained for creatine kinase activity.

SPECIFIC ACTIVITY

The specific activities of recombinant and native CK-MB are presented in Table 1. Enzymatic activity was measured kinetically by the CK-NAC assay at 37°C. CK-MB mass was measured on a Siemens Centaur CP® immunoanalyzer. The specific activity, presented as units/mg of CK-MB, was measured for multiple lots of each form of CK-MB. The results are consistent between recombinant and native CK-MB, ranging from 505 units/mg to 645 units/mg.

The data presented here demonstrate recombinant CK-MB is well-suited to replace native CK-MB in cardiac research and assay development. It matches native CK-MB in purity, enzymatic activity, and specific activity. In addition, it is produced in E. coli, enabling economic, large-scale purification for diagnostic assay manufacturing.

Recombinant CK-MB is in stock and available now in two purity levels. Use the links at right to learn more.

SPECIFIC ACTIVITY

SAMPLE DESCRIPTION	SPECIFIC ACTIVITY
Recombinant CK-MB	505 - 631 units/mg
Native CK-MB	531 - 645 units/mg

Table 1. Analysis of the specific activity of Recombinant and Native CK-MB. Enzymatic activity was determined by CK-NAC assay at 37°C. CK-MB mass was measured on a Siemens Centaur® CP immunoanalyzer. The results represent a range of values obtained across multiple lots of each form of CK-MB. (CK-NAC Assay Unit Definition: One unit converts 1 μmole of creatine phosphate to creatine per minute at the specified temperature.)

Ordering Information

Product Description	Cat. No.	Part No.	Format	
Recombinant CK-MB	C1231	90666	Liquid - ≥95%	View C1231-90666
	C1232	90673	Liquid - part. pure	View C1232-90673
Recombinant Troponin T	T1531	90661	Lyophilized	View T1531-90661
	T1531	90672	Liquid	View T1531-90672

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