

## Product Information

# Amelogenin, X isoform

Recombinant, expressed in *E. coli***SAE0117**

## Product Description

Synonyms: AMELX, AMG, AMGX, Amel

Storage Temperature: -20 °C

Amelogenin, X isoform (AMELX) belongs to the family of closely related amelogenin proteins that participate in the amelogenesis process of teeth mineralization. Amelogenins account for more than 90% of the total protein in developing tooth enamel. Mutations in AMELX are responsible for development of the rare disease Amelogenesis imperfecta 1E (AI1E), which is characterized by abnormal tooth enamel development.<sup>1</sup>

Amelogenins act both as attachment factors and as a growth factor for mesenchymal stem cells.<sup>2-4</sup> Amelogenins are of interest in various research applications such as treatment of hard-to-heal wounds, regeneration of tooth-supporting tissues, promoting remineralization of caries lesions, and repair of human tooth enamel.<sup>5-8</sup>

This recombinant AMELX expressed in *E. coli* has the following protein sequence:

MPLPPHPGHPGYINFSEVLTPLKQYQSIRPPYPSYGYEPM  
GGWLHHQIIPVLSQQHPPTHTLQPHHHIPVVPAAQQPVIPQQ  
PMPFVPGQHSMTPIQHHQPNLPPPAQQPYQPQPVQPQPHQP  
MQPQPPVHPMQPLPPQPLPPMFPMQPLPMLPDLTLEAWP  
STDKTKREEVD

This recombinant AMELX protein does not contain any additional sequence tags.

## Precautions and Disclaimer

This product is for R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

## Product

The product is supplied as a lyophilized powder, prepared from a 0.2 µM filtered solution of AMELX in 2% acetic acid without any additives. The lyophilized product is essentially salt-free.

The biological activity of recombinant human AMELX is measured by its ability to promote attachment of Saos-2 cells to a coated surface. The ED<sub>50</sub> is defined as the amount of AMELX per cm<sup>2</sup> that elicits 50% of the maximal attachment activity.

## Storage/Stability

The product retains activity for at least 2 years when stored at -20 °C.

## Preparation Instructions

The product can be reconstituted in water or in 2% acetic acid at a concentration of 0.1-5 mg/mL. Tap the vial to make sure that the protein is reconstituted. Aliquot reconstituted AMELX and store at -20 °C. Avoid repeated freeze/thaw cycles.

AMELX may form thin clear films on some surfaces, leading to reduced concentrations in solution. The exact AMELX concentration can be determined by absorption measurement at 280 nm. A 0.1% AMELX solution has A<sub>280</sub> = 1.35.

## References

1. Lagersstroem-Fermér, M. *et.al.*, *Genomics*, **26(1)**, 159-162 (1995).
2. Izumikawa, M. *et al.*, *ScientificWorldJournal*, **2012**, 879731 (2012).
3. Zeichner-David, M. *et al.*, *Eur. J. Oral Sci.*, **114(Suppl. 1)**, 244-253 (2006).
4. Schwarz, F. *et al.*, *Clin. Oral Investig.*, **8(3)**, 165-171 (2004).
5. Romanelli, M. *et.al.*, *Clin. Interv. Aging*, **3(2)**, 263-72 (2008),
6. Haze, A. *et al.*, *J. Cell. Mol. Med.*, **13(6)**, 1110-1124 (2009).
7. Ren, Q. *et.al.*, *Arch. Oral Biol.*, **100**, 42-48 (2019).
8. Mukherjee, K. *et.al.*, *J. Mater. Res.*, **31(5)**, 556-563 (2016).

## Notice

We provide information and advice to our customers on application technologies and regulatory matters to the best of our knowledge and ability, but without obligation or liability. Existing laws and regulations are to be observed in all cases by our customers. This also applies in respect to any rights of third parties. Our information and advice do not relieve our customers of their own responsibility for checking the suitability of our products for the envisaged purpose.

The information in this document is subject to change without notice and should not be construed as a commitment by the manufacturing or selling entity, or an affiliate. We assume no responsibility for any errors that may appear in this document.

### Technical Assistance

Visit the tech service page at [SigmaAldrich.com/techservice](https://SigmaAldrich.com/techservice).

### Terms and Conditions of Use

Warranty, use restrictions, and other conditions of sale may be found at [SigmaAldrich.com/terms](https://SigmaAldrich.com/terms).

### Contact Information

For the location of the office nearest you, go to [SigmaAldrich.com/offices](https://SigmaAldrich.com/offices).

The life science business of Merck operates as MilliporeSigma in the U.S. and Canada.

Merck and Sigma-Aldrich are trademarks of Merck KGaA, Darmstadt, Germany or its affiliates. All other trademarks are the property of their respective owners. Detailed information on trademarks is available via publicly accessible resources.

© 2019-2023 Merck KGaA, Darmstadt, Germany and/or its affiliates. All Rights Reserved.  
SAE0117pis Rev 09/23 DK,DT,GCY,MAM

The Merck logo, consisting of the word "MERCK" in a bold, red, sans-serif font.