Monoclonal ucGRP Antibody

Mouse monoclonal antibody against uncarboxylated GRP epitope

Product Snapshot

Catalog #	MA:UC50
Target	Human undercarboxylated Gla-rich protein (ucGRP)
Specificity	Selectively recognizes an uncarboxylated epitope of human GRP*
Host / Clonality	Mouse / Monoclonal
Reactivity	Human
Applications	Immunolocalization, immunofluorescence
Quantity / Form	50 µg (lyophilized)
Storage	-20°C (short-term), -80°C (long-term)

Product Overview: Gla-rich protein (GRP) is an unusually Gla-rich vitamin K-dependent protein containing a high density of potential γ-carboxylation sites distributed throughout its sequence. The extent and distribution of γ-carboxylation in native GRP remain largely undefined and are likely influenced by vitamin K availability and other biological factors, giving rise to multiple molecular forms with potentially distinct functional properties. Consequently, the overall carboxylation status of full-length GRP cannot currently be resolved using a single antibody. Antibodies directed against individual carboxylation-sensitive epitopes therefore provide a valuable approach for investigating epitope-specific GRP carboxylation in biological samples.

***Carboxylation-state specific:** This monoclonal antibody was generated against the human uncarboxylated peptide NEFENFVEEQNDEQEERSREAVEQ and selectively recognizes this uncarboxylated epitope, with no cross-reactivity towards the corresponding γ-carboxylated peptide. The antibody is suitable for detecting the corresponding epitope in tissue-based applications, including immunofluorescence and immunolocalization. Specificity has been demonstrated using the corresponding synthetic peptides and by distinct staining patterns obtained with the matched cGRP monoclonal antibody (MA:C50) in tissue-based applications.

Applications & Use Cases

This antibody has been validated for the detection of the targeted uncarboxylated GRP epitope in human tissues and cells by immunofluorescence and immunolocalization.

- Comparative tissue localization studies using matched ucGRP and cGRP (MA:C50) monoclonal antibodies
- Assessment of GRP epitope carboxylation patterns in human tissues

Not recommended for:

- *Detection of total GRP independent of carboxylation status (use C-Term polyclonal PA:T50)*
- Assessment of the overall carboxylation status of full-length GRP, as antibody specificity is restricted to the immunizing epitope
- *Non-human samples*

Specifications

Immunogen: Synthetic peptide corresponding to a region of human GRP within exons 4-5 (NEFENFVEEQNDEQEERSREAVEQ).

Specificity: Recognizes the uncarboxylated human GRP immunizing epitope and does not cross-react with the corresponding γ-carboxylated peptide. Antibody reactivity is restricted to the targeted epitope and should not be interpreted as reflecting the overall carboxylation status of full-length GRP.

Validation: Validated in human tissues and cells by immunolocalization and immunofluorescence. Distinct staining patterns have been observed relative to the matched cGRP monoclonal antibody (MA:C50), consistent with differential recognition of the targeted epitope (see Selected References).

Purity: Affinity purified.

Usage

Reconstitution: Add 50 µL sterile protease-free water for a final concentration of 1 µg/µL. Reconstitute by gentle rotation at 4°C for at least 12 hours.

Recommended dilutions (optimize for your application):

Application	Dilution
Immunolocalization/Immunofluorescence	5 µg/ml

Storage & Handling

Shipment: Room temperature (lyophilized).

Storage: After reconstitution, store at -20°C for up to two months. For long-term storage, -80°C is recommended. Avoid repeated freeze-thaw cycles.

Selected References

1. Viegas CS, Herfs M, Rafael MS, Enriquez JL, Teixeira A, Maria VL, João A, Cavaco S, Ferreira A, Serra M, Theuwissen E, Vermeer C, Simes DC (2014). “Gla-rich protein is a potential new vitamin K target in cancer: evidences for a direct GRP-mineral interaction”. Biomed Res Int. 2014:340216. doi:10.1155/2014/340216.
2. Cavaco S, Viegas CSB, Rafael MS, Ramos A, Magalhães J, Blanco FJ, Vermeer C, Simes DC (2016). “Gla-rich protein is involved in the cross-talk between calcification and inflammation in osteoarthritis”. Cell Mol Life Sci. 73(5):1051-1065. doi:10.1007/s00018-015-2033-9.
3. Viegas CS, Rafael MS, Enriquez JL, Teixeira A, Vitorino R, Luís IM, Costa RM, Santos S, Cavaco S, Neves J, Macedo AL, Willems BA, Vermeer C, Simes DC (2015). “Gla-rich protein acts as a calcification inhibitor in the human cardiovascular system”. Arterioscler Thromb Vasc Biol. 35(2):399-408. doi:10.1161/ATVBAHA.114.304823.
4. Rafael MS, Cavaco S, Viegas CS, Santos S, Ramos A, Willems B, Herfs M, Theuwissen E, Vermeer C, Simes DC (2014). “Insights into the association of Gla-rich protein (GRP) and osteoarthritis: novel splice variants and γ-carboxylation status”. Mol Nutr Food Res. 58(8):1636-1646. doi:10.1002/mnfr.201300941.

Related Products

Catalog #	Product	Use Case
MA:C50	Monoclonal cGRP Antibody	Detect γ-carboxylated GRP epitope
PA:T50	C-Term GRP Polyclonal Antibody	Total GRP (all forms)

Based on PCT/PT2009000046

GenoGla Diagnostics | www.genogla.com | genogla@genogla.com
CRIA - University of Algarve, Campus de Gambelas, 8005-139 Faro, Portugal