

PRODUCT INFORMATION



CHFR (human, recombinant)

Item No. 45178

Overview and Properties

Synonyms: Checkpoint with Forkhead and RING Finger Domains Protein, E3 Ubiquitin-protein Ligase CHFR, RING Finger Protein 196, RING-type E3 Ubiquitin Transferase CHFR, RNF196

Source: Active recombinant human CHFR expressed in *E. coli*

Amino Acids: 2-664 (full length)

Uniprot No.: Q96EP1

Molecular Weight: 73.4 kDa

Storage: -80°C (as supplied)

Stability: ≥1 year

Purity: ≥90% estimated by SDS-PAGE

Supplied in: 50 mM Tris-HCl, pH 7.5, with 200 mM sodium chloride and 20% glycerol

Endotoxin Testing: <1.0 EU/g, determined by the LAL endotoxin assay

Protein

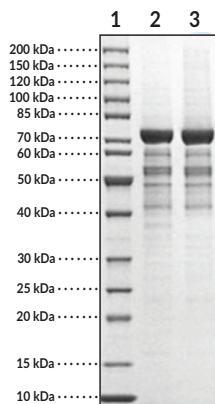
Concentration: *batch specific* mg/ml

Activity: *batch specific* U/ml

Specific Activity: *batch specific* U/mg

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

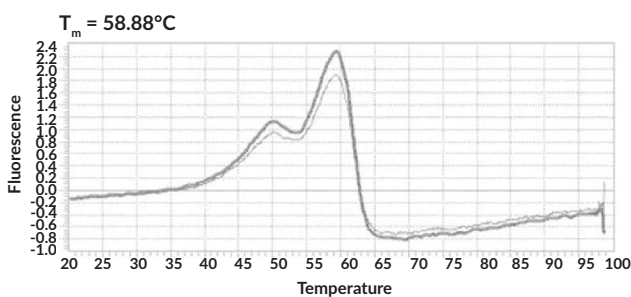
Images



Lane 1: MW Markers

Lane 2: CHFR (2 µg) (reduced)

Lane 3: CHFR (2 µg) (non-reduced)



WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

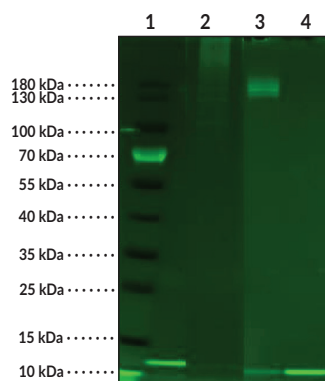
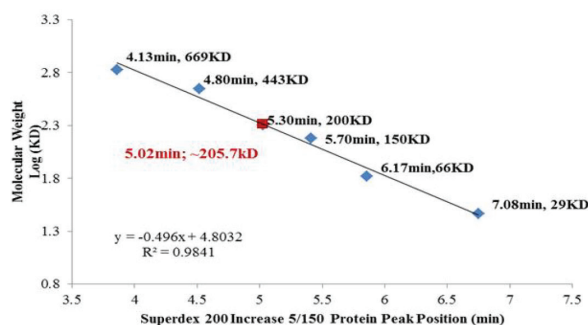
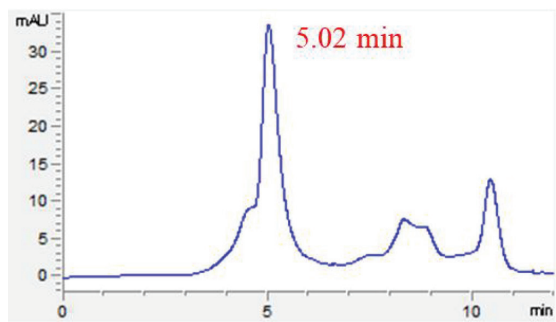
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Analytical SEC



Lane 1: MW Markers
Lane 2: BODIPY-Ub + UBE1 + UbcH5b + CHFR with ATP
Lane 3: BODIPY-Ub + UBE1 + UbcH5b + with ATP
Lane 4: BODIPY-Ub + UBE1 + UbcH5b + without ATP

Gel based ligase assay. The ubiquitin conjugating activity of CHFR was validated through its ability to catalyse the generation of polyubiquitin chains in the presence of the E1 activating enzyme UBE1, the E2 conjugating enzyme UbcH5b and BODIPY-ubiquitin. Incubation of CHFR for 60 minutes at 37°C in the presence of BODIPY-ubiquitin, UBE1, UbcH5b, and ATP (Lane 2) was compared alongside two control reactions with either CHFR (Lane 3) or CHFR and ATP (Lane 4) excluded from the reaction. Ubiquitin conjugates were identified by the migration of the BODIPY-ubiquitin band and

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Description

Checkpoint with forkhead and RING finger domains protein (CHFR) is an E3 ubiquitin ligase and mitotic checkpoint protein involved in regulation of the cell cycle.¹ It is composed of an N-terminal forkhead-associated domain, a central RING finger domain responsible for its ubiquitinating activity, and a cysteine-rich C-terminal region, which associates with target proteins and contains a RAR-binding zinc-finger (PBZ) domain.² CHFR is ubiquitously expressed, but its levels vary throughout the cell cycle and in response to certain stimuli.¹ It ubiquitinates proteins, such as polo-like kinase (Plk), to target them for degradation and is recruited to sites of DNA damage by poly(ADP-ribose) polymerase 1 (PARP1), to ubiquitinate proteins, including PARP1. Under microtubule stress, such as that induced by microtubule depolymerizing compounds, CHFR levels increase and mitosis is delayed, but under unstressed conditions, CHFR levels decrease as the G₂/M checkpoint approaches and the cell cycle progresses.¹⁻³ CHFR expression is reduced in a variety of cancers, including non-small cell lung cancer (NSCLC), where its reduced expression is associated with poor prognosis.³ Cayman's CHFR (human, recombinant) protein can be used for enzyme activity assays and has a calculated molecular weight of 73.4 kDa.

References

1. Derks, S., Cleven, A.H.G., Melotte, V., *et al.* Emerging evidence for CHFR as a cancer biomarker: From tumor biology to precision medicine. *Cancer Metastasis Rev.* **33(1)**, 161-171 (2014).
2. Privette, L.M. and Petty, E.M. CHFR: A Novel mitotic checkpoint protein and regulator of tumorigenesis. *Transl. Oncol.* **1(2)**, 57-64 (2008).
3. Sanbhnani, S. and Yeong, F.M. CHFR: A key checkpoint component implicated in a wide range of cancers. *Cell. Mol. Life Sci.* **69(10)**, 1669-1687 (2012).

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