

Technical Bulletin

Frequently Asked Questions

EX-CELL® CD CHO Serum-Free Medium

CATALOG NO.: 14360C (w/o HT), 14361C (w/ HT), 24360C (w/o HT), 24361C (w/ HT)

What is the advantage of a chemically defined medium?

A chemically defined medium offers the advantages of lot-to-lot consistency and improved product performance. Furthermore, it allows for consistent control over protein production and facilitates downstream processing.

When do I use EX-CELL CD CHO with HT vs. EX-CELL CD CHO without HT?

EX-CELL CD CHO (Catalog No. 14360 and Catalog No. 24360) is formulated without L-glutamine, hypoxanthine and thymidine (HT), making it an appropriate medium for systems that utilize the selective pressure of an HT-deficient or L-glutamine-deficient medium. For applications such as DHFR-, EX-CELL CD CHO without HT (Catalog No. 14360 and Catalog No. 24360) is the optimal choice.

EX-CELL CD CHO (Catalog No. 14361 and Catalog No. 24361) is formulated without L-glutamine, but does contain hypoxanthine and thymidine, making it suitable for applications that do not require the selective pressure of an HT-deficient medium. For CHO-K1 and GS System™ users, EX-CELL CD CHO that contains HT (Catalog No. 14361 and Catalog No. 24361) can improve overall growth performance and culture longevity.

Why use EX-CELL CD CHO over other CHO serum-free media SAFC offers, such as EX-CELL 302 and EX-CELL 325?

While both EX-CELL 302 and EX-CELL 325 are excellent serum-free media for CHO cells, both contain a hydrolysate. A chemically defined media such as EX-CELL CD CHO does not contain a hydrolysate, offering the advantages of lot-to-lot consistency, as well as ease of downstream purification.

What cell lines have been successfully cultured in EX-CELL CD CHO?

EX-CELL CD CHO has been shown to support the growth of numerous CHO clones, including CHO-K1, DXB11 and DG44.

Does EX-CELL CD CHO support suspension or adherent cultures?

EX-CELL CD CHO is designed specifically for suspension-cultures only.

What are the recommended cell culture conditions using EX-CELL CD CHO? What are the optimal parameters?

EX-CELL CD CHO	
Minimum Seeding Density	3 x 10 ⁵ cells/mL
Passage frequency	3 - 4 days
Supplements added at time of use	8 mM L-glutamine
Environment (temperature, CO ₂ , agitation)	37 C (humidified incubator), 8 - 10% CO ₂ and 120 - 130 rpm

How do I adapt cells to this media? Is there the same long adaptation period experienced with other chemically defined CHO media?

CHO cells grown in a serum-containing media can be readily grown in EX-CELL CD CHO medium with little or no adaptation by using healthy, viable cultures in mid-logarithmic growth phase prior to adaptation. CHO cells grown as attachment or suspension cultures in a conventional serum-supplemented medium can be directly adapted to EX-CELL CD CHO without the extensive adaptation protocols and lengthy procedures required by other chemically defined CHO media. Please refer to the SAFC Product Information Sheet for each EX-CELL CD CHO product for more detailed information.

How do I adapt from another chemically defined medium?

For most applications, CHO cells can be directly adapted to EX-CELL CD CHO using seeding densities of 4-5 x 10⁵ cells/mL. However, some applications may require a gradual wean to EX-CELL CD CHO. Please contact Technical Services for additional information.

Can I adapt from EX-CELL 302 or EX-CELL 325?

Yes, CHO cells readily adapt to EX-CELL CD CHO from both EX-CELL 302 and EX-CELL 325 using a direct adaptation-method and seeding densities of 4-5 x 10⁵ cells/mL.

Can EX-CELL CD CHO be used for transfection?

SAFC does not have data to adequately answer this question at this time.

Does EX-CELL® CD CHO support clonal growth?

EX-CELL CD CHO will support growth of CHO cells planted at a single cell theoretical count.

What is the overall protein content of EX-CELL CD CHO?

EX-CELL CD CHO contains approximately 0.1 mg/L of recombinant protein.

What are the molecular weights of the proteins in this medium?

All proteins are < 10 kDa.

What is EX-CELL CD CHO's buffering system?

EX-CELL CD CHO is buffered using a bicarbonate and MOPS system.

What are the best methods for protein purification for product produced from EX-CELL CD CHO?

EX-CELL CD CHO is serum-free, animal-component free and chemically defined. It contains a low level of recombinant protein (0.1 mg/L), therefore downstream processing including protein purification becomes much more amenable. Protein purification can involve a number of steps to achieve a satisfactory yield of final product. These methods can include ultra-filtration and/or chromatography including affinity, size and charge separation. Most likely a combination of these will need to be utilized to attain acceptable yields.

Can EX-CELL CD CHO be used for cryopreservation?**What are recovery rates?**

Yes, CHO cells can be frozen in EX-CELL CD CHO without the reintroduction of serum or other protein components. Healthy, viable (> 90%) cultures in logarithmic growth should be used.

A freezing medium consisting of 45% fresh medium, 45% conditioned medium and 10% dimethyl sulfoxide (DMSO) can be used. Alternatively, cells can be frozen in 90% fresh medium and 10% DMSO. Please refer to the SAFC Product Information Sheet for each EX-CELL CD CHO product for more detailed information.

Recovery rates typically exceed 90%.

Warranty, Limitation of Remedies

SAFC warrants to the purchaser for a period of one year from date of delivery that this product conforms to its specifications. Other terms and conditions of this warranty are contained in SAFC written warranty, a copy of which is available upon request. ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXCLUDED. In no case will SAFC be liable for any special, incidental, or consequential damages arising out of this product or the use of this product by the customer or any third party based upon breach of warranty, breach of contract, negligence, strict tort, or any other legal theory. SAFC expressly disclaims any warranty against claims by any third party by way of infringement or the like. THIS PRODUCT IS INTENDED FOR PURPOSES DESCRIBED ONLY AND IS NOT INTENDED FOR ANY HUMAN OR THERAPEUTIC USE.

Additional Terms and Conditions are contained in the product Catalog, a copy of which is available upon request.

©2013 Sigma-Aldrich Co. LLC. All rights reserved. SAFC and SIGMA-ALDRICH are trademarks of Sigma-Aldrich Co. LLC, registered in the US and other countries. EX-CELL is a trademark of Sigma-Aldrich Co. LLC. GS System is a trademark of Lonza Biologics. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see product information on the SAFC website at www.safcglobal.com and/or on the reverse side of the invoice or packing slip.