

Technical Bulletin

Frequently Asked Questions: EX-CELL™ CD CHO Serum-Free Medium

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 versus 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 Biosciences 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 Biosciences' Product Information Sheet for each EX-CELL™ CD CHO product for more detailed information.

United States

SAFC Biosciences, Inc.
13804 W. 107th Street
Lenexa, Kansas 66215
USA
Phone +1 913-469-5580
Toll free-USA 1 800-255-6032
Fax +1 913-469-5584
E-mail info-na@sial.com

Europe

SAFC Biosciences Ltd.
Smeaton Road, West Portway
Andover, Hampshire SP10 3LF
UNITED KINGDOM
Phone +44 (0)1264-333311
Fax +44 (0)1264-332412
E-mail info-eu@sial.com

Asia Pacific

SAFC Biosciences Pty. Ltd.
18-20 Export Drive
Brooklyn, Victoria 3025
AUSTRALIA
Phone +61 (0)3-9362-4500
Toll free-AUS 1 800-200-404
Fax +61 (0)3-9315-1656
E-mail info-ap@sial.com

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 Biosciences 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 Biosciences' Product Information Sheet for each EX-CELL™ CD CHO product for more detailed information.

Recovery rates typically exceed 90%.

Warranty, Limitation of Remedies

SAFC Biosciences 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 Biosciences' 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 Biosciences 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 Biosciences 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.

EX-CELL™ is a trademark of SAFC Biosciences, Inc.
The GS System™ is a trademark of Lonza Biologics.

© 2006 SAFC Biosciences, Inc.

Issued March 2006 T068
0704 1205

United States

SAFC Biosciences, Inc.
13804 W. 107th Street
Lenexa, Kansas 66215
USA
Phone +1 913-469-5580
Toll free-USA 1 800-255-6032
Fax +1 913-469-5584
E-mail info-na@sial.com

Europe

SAFC Biosciences Ltd.
Smeaton Road, West Portway
Andover, Hampshire SP10 3LF
UNITED KINGDOM
Phone +44 (0)1264-333311
Fax +44 (0)1264-332412
E-mail info-eu@sial.com

Asia Pacific

SAFC Biosciences Pty. Ltd.
18-20 Export Drive
Brooklyn, Victoria 3025
AUSTRALIA
Phone +61 (0)3-9362-4500
Toll free-AUS 1 800-200-404
Fax +61 (0)3-9315-1656
E-mail info-ap@sial.com

www.safcbiosciences.com