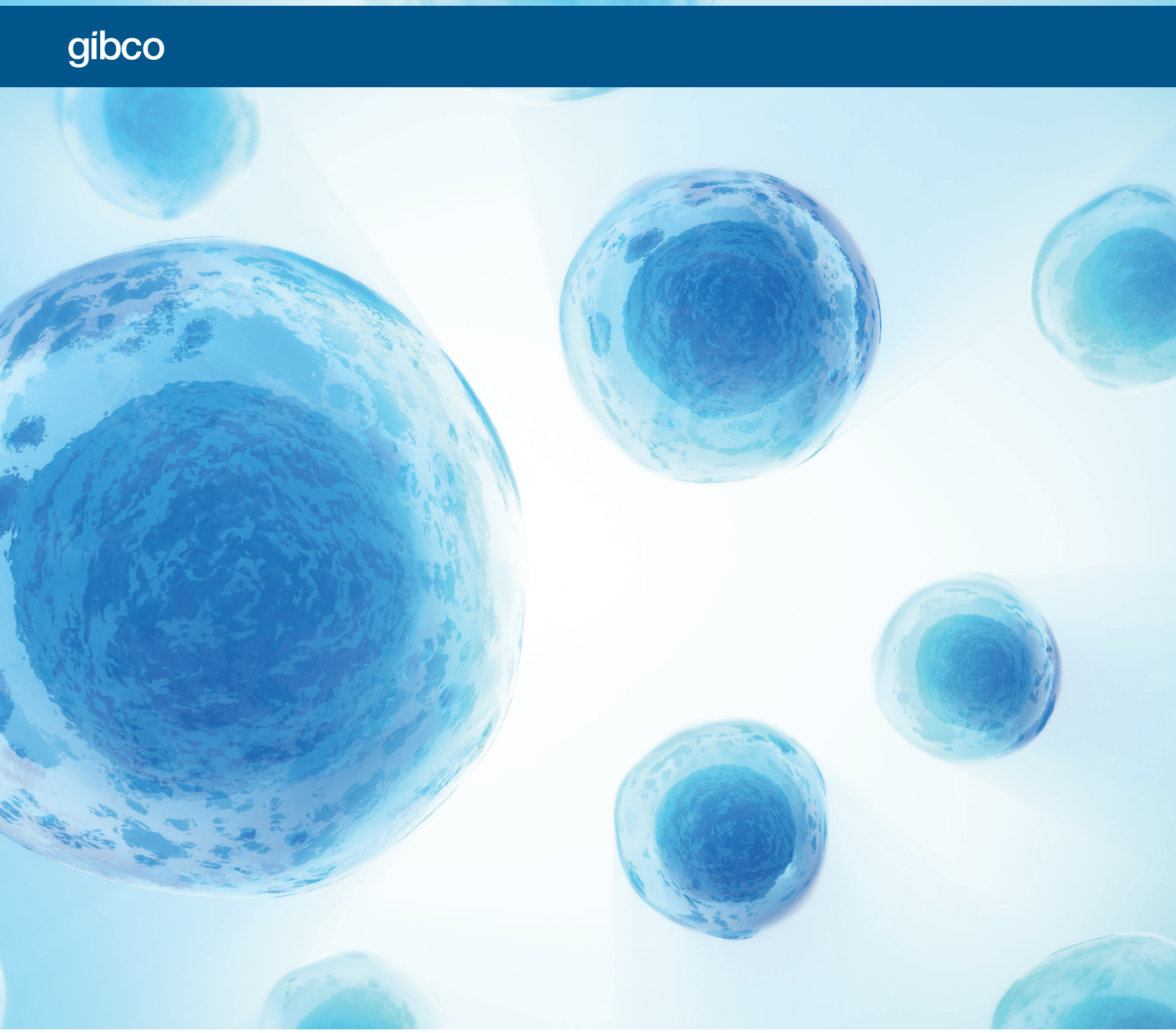
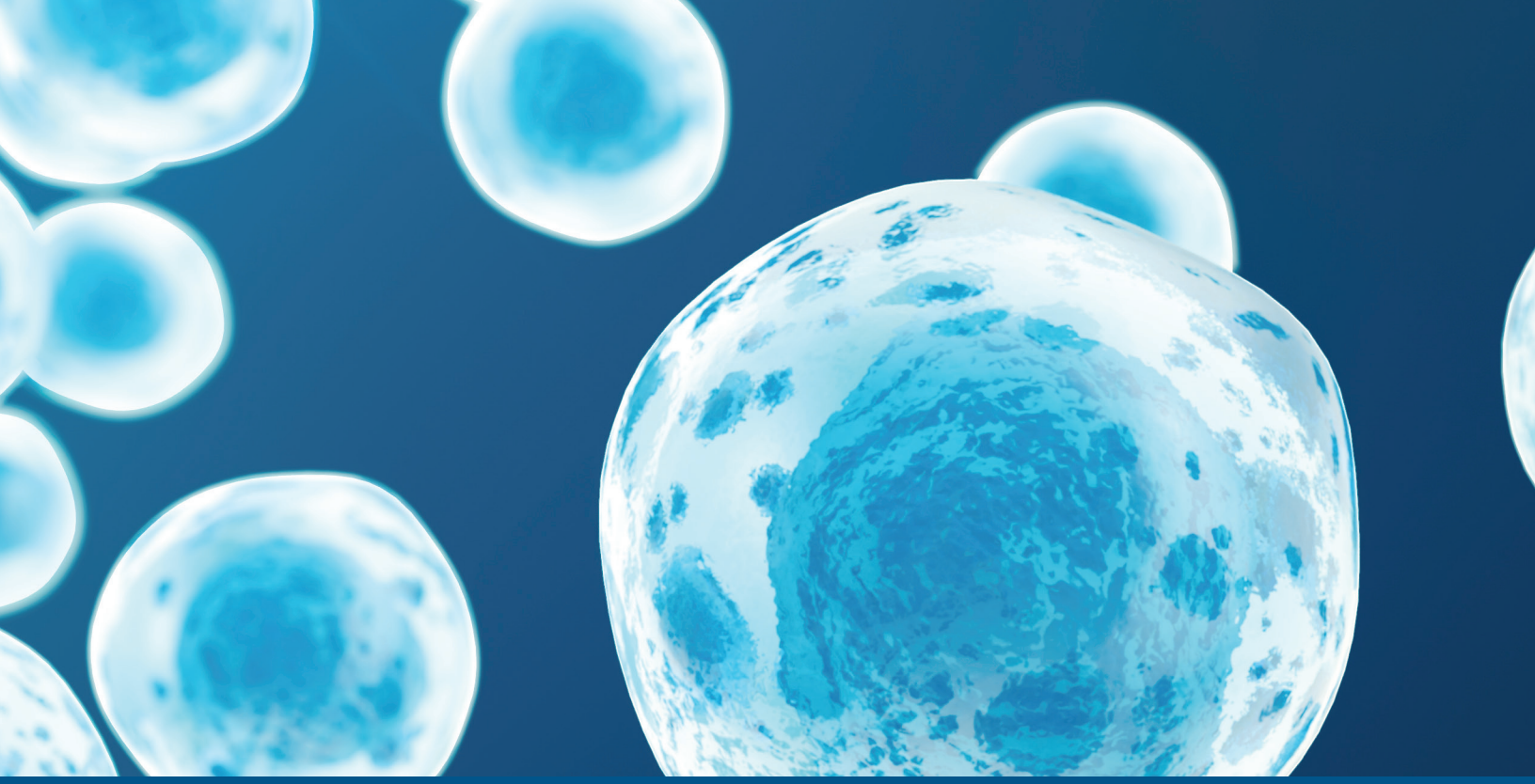
gibco



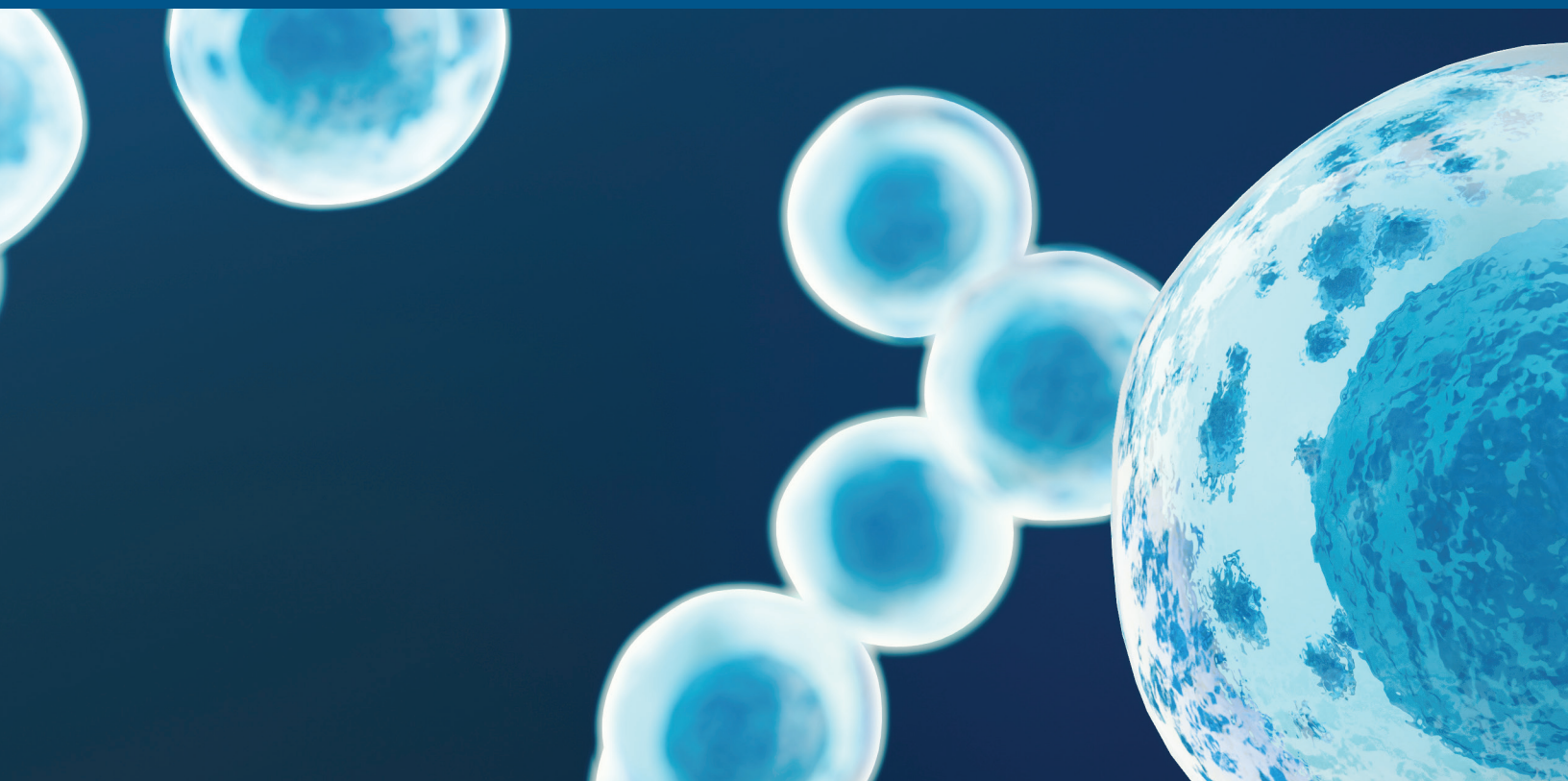
Chemically Defined CHO Media Test Panel Consultation Service

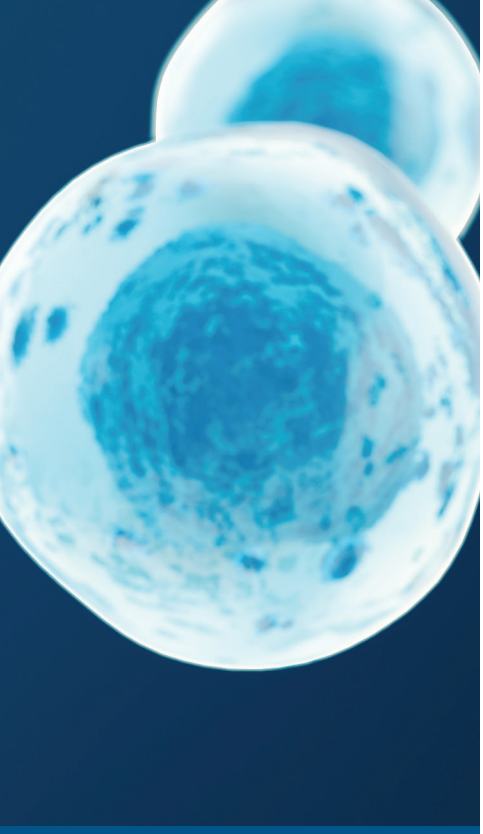
Accelerate your time-to-market

ThermoFisher SCIENTIFIC



If you're looking for rapid, customized solutions for media to improve titers with consultative technical support, the Gibco™ Chemically Defined (CD) CHO Media Test Panel Consultation Service is for you. Leverage our more than 50 years of experience to help you shorten your time-to-market.





Contents

Rapid customization

The Gibco CD CHO Media Test Panel Consultation Service offers rapid access to a media library along with consultative technical support for customers wishing to test and compare multiple formulations. Our experienced technical support team can help you save time by assisting you in planning your experiment and analyzing your results.

Gibco Bioproduction Services (GBS) media panel

Our GBS media panel consists of 5 diverse chemically defined formulations (Table 1) produced using animal origin–free components. These formulations can be further supplemented with growth factors upon request.*

The diversity of the panel, can be seen below in Table 1. Upon completion of your your testing of the formulations in the panel, a Field Application Scientist (FAS) will assist you in identifying a path forward, which may include spent media analysis for further media optimization.

Table 1. GBS formulation panels—key component heat map.

Components	GBS 1 medium formulation	GBS 2 medium formulation	GBS 3 medium formulation	GBS 4 medium formulation	GBS 5 medium formulation
Amino acids					
Vitamins					
Lipids					
Trace metals					
Polyamines					

High level Medium level Low level Absent

* Your Field Application Scientist will advise if further supplementation is recommended based on your cell line and objectives.

These 5 formulations can be mixed to produce multiple conditions to test, depending on your resources and system capabilities (Table 2). No matter the number of conditions tested, our scientists and technical engagement team will be available at every step to assist and answer questions to help shorten your time-to-market.

Table 2. Example of media mixing design strategy to produce 21 test conditions.

Condition	GBS 1 medium formulation	GBS 2 medium formulation	GBS 3 medium formulation	GBS 4 medium formulation	GBS 5 medium formulation
1	100%	0	0	0	0
2	0	100%	0	0	0
3	0	0	100%	0	0
4	0	0	0	100%	0
5	0	0	0	0	100%
6	50%	50%	0	0	0
7	50%	0	50%	0	0
8	50%	0	0	50%	0
9	50%	0	0	0	50%
10	0	50%	50%	0	0
11	0	50%	0	50%	0
12	0	50%	0	0	50%
13	0	0	50%	50%	0
14	0	0	50%	0	50%
15	0	0	0	50%	50%
16	60%	10%	10%	10%	10%
17	10%	60%	10%	10%	10%
18	10%	10%	60%	10%	10%
19	10%	10%	10%	60%	10%
20	10%	10%	10%	10%	60%
21	20%	20%	20%	20%	20%

Technical support and consultation

Your local Field Application Scientist will discuss with you how to test the panel based on your available resources and equipment:

- For labs that may have limited time, personnel, lab space, and resources, your best option is to test the panel as is.
- For those with additional time and space available, moderately complex media mixing with more test conditions, as shown in Table 2, is ideal.

Upon completion of your experiment, your FAS and our internal R&D team will review the results and determine the best path forward. In this consultation, we will cover the following:

- Review growth, titer, and, when applicable, product quality data
  - By analyzing growth and titer, we can suggest points for further optimization or analysis
- Review stored samples and determine if spent media analysis would be helpful; we can help select a subset of samples that would be most beneficial to test
  - By identifying nutrient depletion, we can make suggestions on nutrient add-back strategies to boost culture productivity
- Additional media development services
  - Longer-term projects with our professionals

Situation

- Customer had a pain point (excessive bubbling) in using competitor's media to improve productivity and scale-up
- Customer experienced poor adaptation to catalog CD media

Our response

- Presented GBS CHO panel approach
- Explored non-CD approach with growth factor–containing panel media for customer's cell line
- Supported customer's scale-up process

Value delivered

- Panel media optimized performance of customer's platform cell line
- Cell culture knowledge and expertise of Gibco bioproduction scientists through multiple interactions regarding cell culture media selection and scale-up

Improved titers

Customizing your media for your specific cell line using our chemically defined (CD) CHO test panel media provides higher titers compared to catalog media on the market. Gibco™ CHO-S™ and DG44 cell lines, when tested using the CD CHO test panel media, were shown to have higher titers than in the control medium (catalog product) (Figure 1).

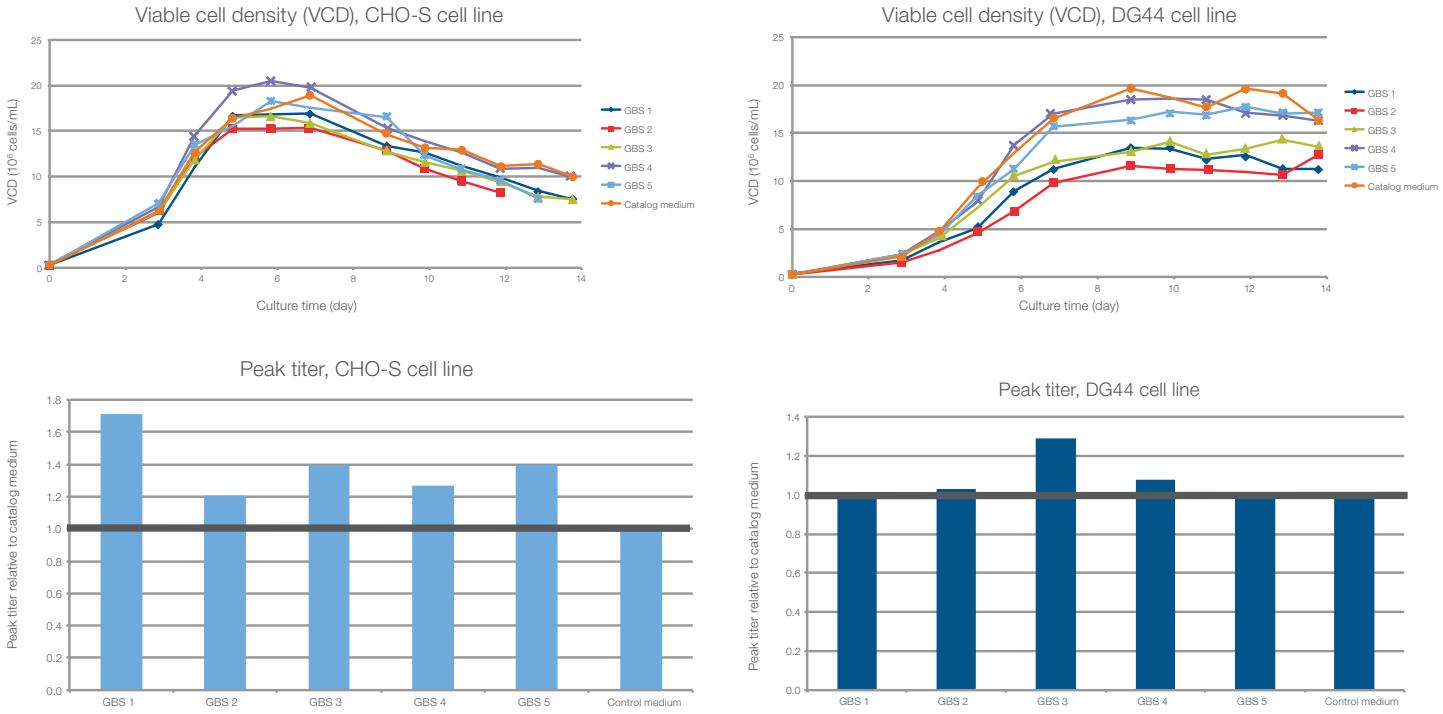


Figure 1. The chemically defined CHO media test panel outperformed control catalog media in simple fed-batch cultures of CHO-S and DG44 cells. Simple fed-batch cultures were fed with glucose to maintain its desired level at 3–6 g/L.

Chemically defined CHO test panel media increased endpoint titers by up to 70% for CHO-S cells and up to 30% for DG44 cells.

Upon further development, tests were performed with chemically defined CHO panel medium 4 (GBS 4) on 2 cell lines that were responsive to LONG™ R³ insulin-like growth factor-1 (IGF-1) supplementation (Repligen). We observed a 30% increase in titer in both cell lines compared to that in catalog media conditions, when IGF-1 was used (Figure 2).

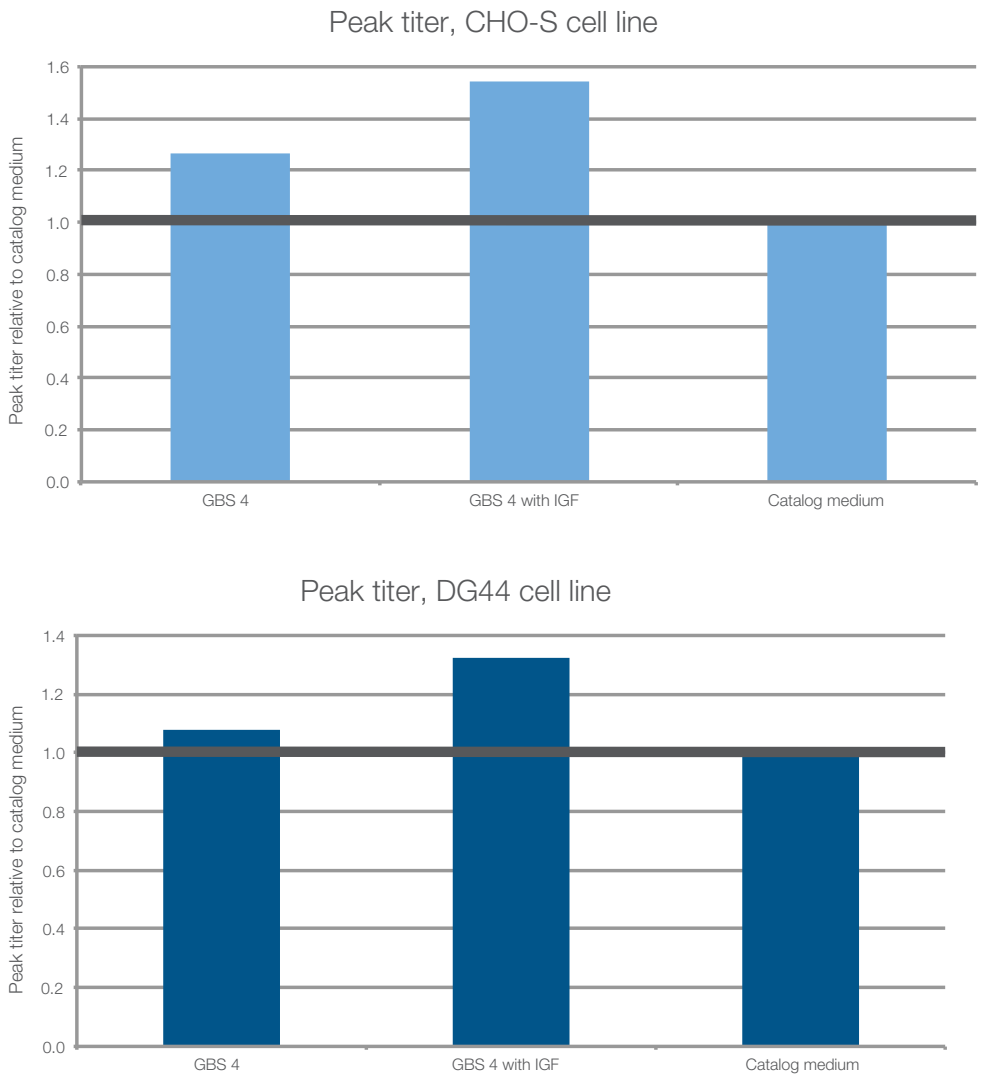


Figure 2. Supplementation of chemically defined CHO panel medium 4 (GBS 4) with LONG R³ IGF-1 increases productivity in simple fed-batch culture of both CHO-S and DG44 cell lines.

Titer increased by approximately 30% for both the CHO-S and DG44 cell lines, compared to catalog medium conditions.

When CHO-S cells grown in CHO panel media were fed with 2X Gibco™ EfficientFeed™ C+ Supplement (2% daily, day 3–12), higher titers were observed compared to cells grown in catalog media under the same feeding conditions (Figure 3).

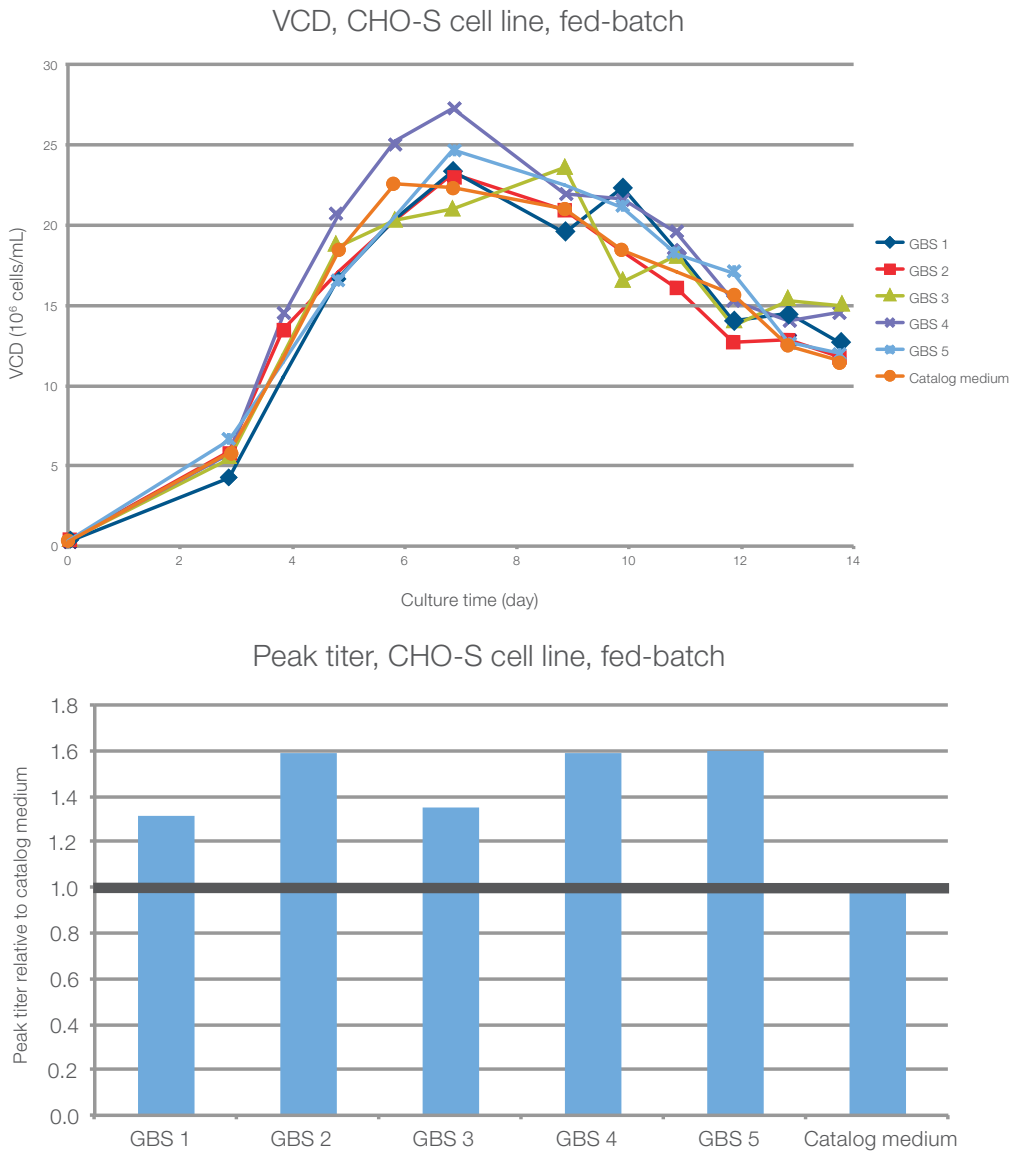
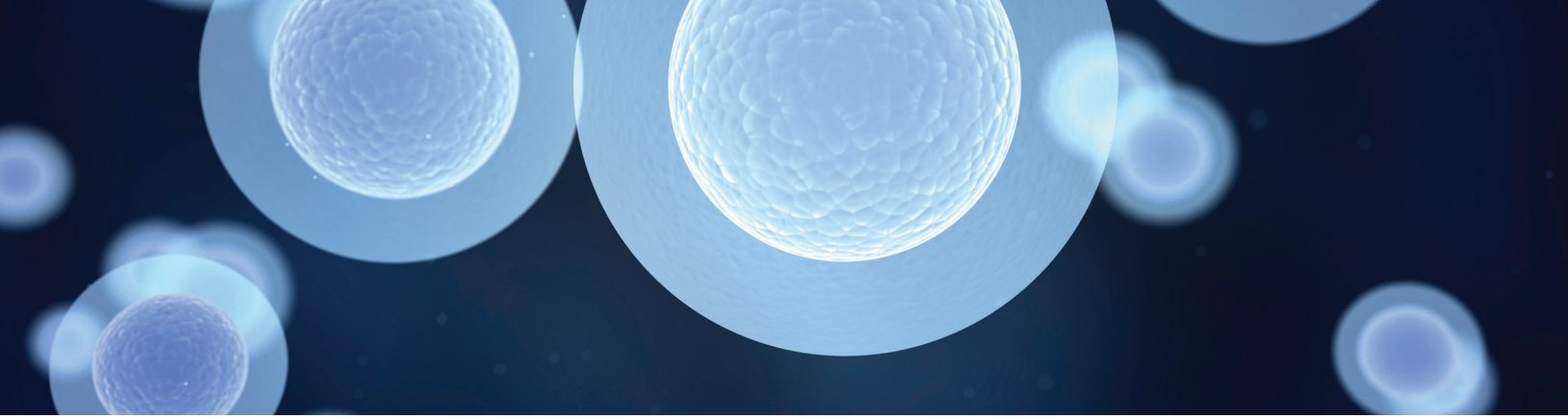


Figure 3. Improved feed response of CHO-S cells in CD CHO panel media compared to catalog media.

Our team of professionals will work with you to recommend proper feed and feeding strategies for your cell line of interest, in order to further increase your titers.



When chemically defined CHO panel medium 4 (GBS 4) was supplemented with LONG R³ IGF-1 in addition to feeding with EfficientFeed C+ Supplement, DG44 cells were positively affected (Figure 4).

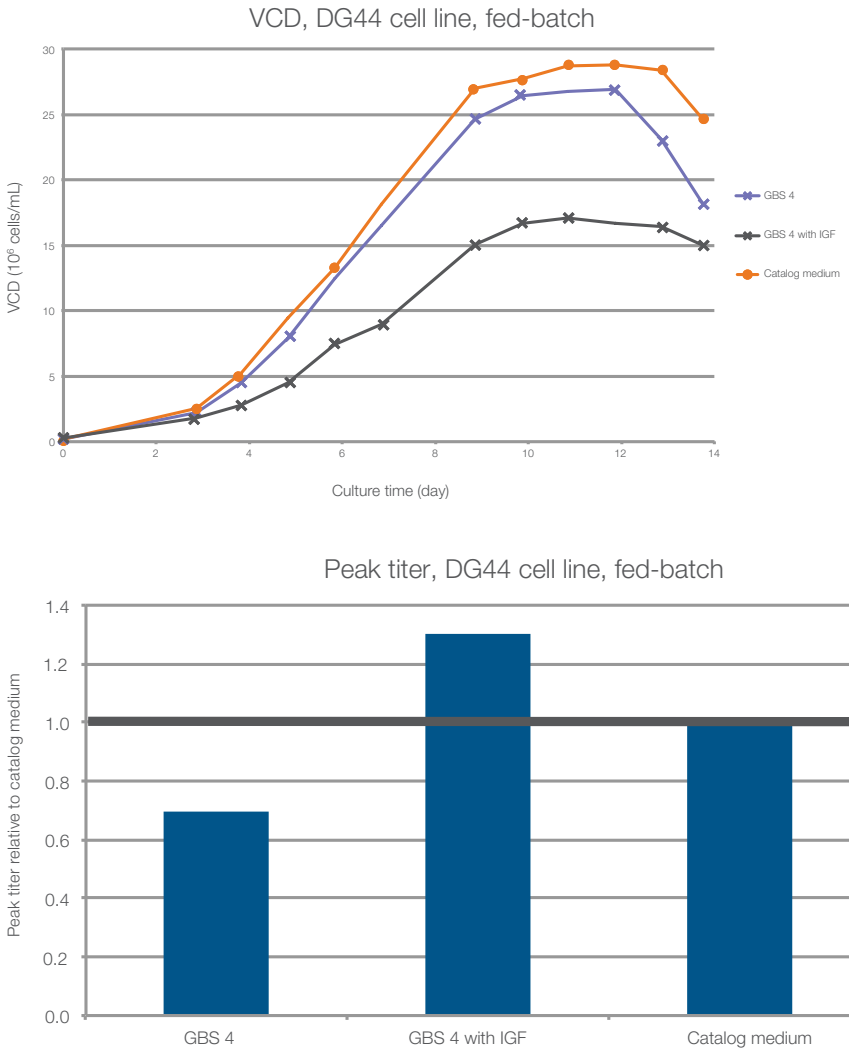
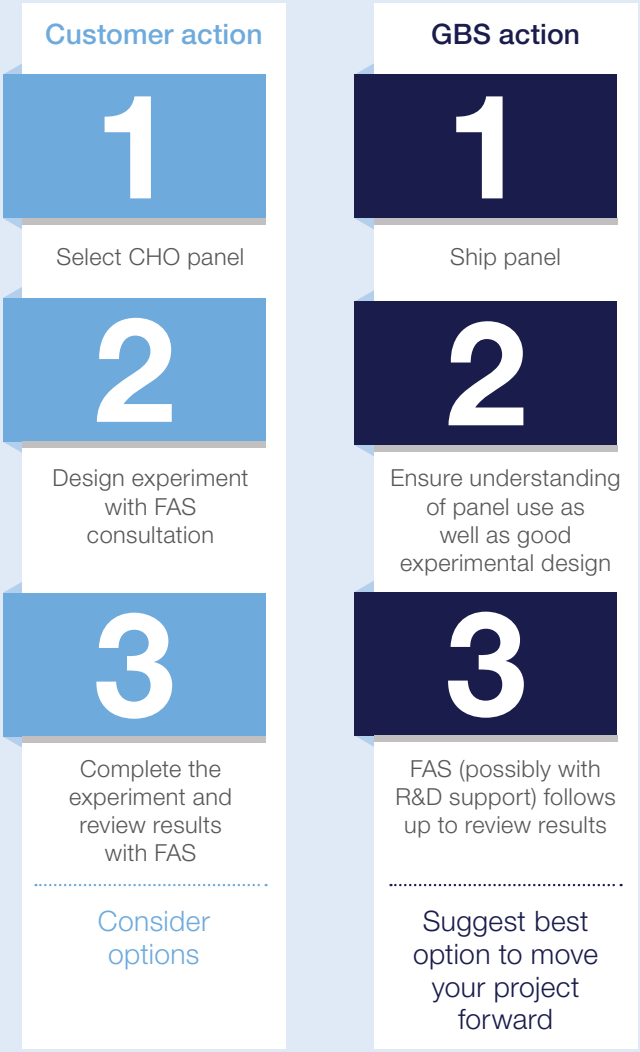


Figure 4. Supplementation of fed-batch culture of DG44 cells with LONG R³ IGF-1 increases productivity.

Not all cell lines will be responsive to addition of growth factor.

Ordering and contact information

Our panel ordering process keeps the end goals of rapid optimization and speed-to-market in mind. That's why we've made the process short and simple with just 3 steps.



To start your path to increased titers, please contact your local Account Manager or Field Application Scientist today to request a consultation, or email gibcoservices@thermofisher.com

gibco

Find out more at **thermofisher.com/gibcobpdservices**

ThermoFisher SCIENTIFIC