What goes into your

For bioprocessing applications, production-scale cell culture media are necessary. Production media are made up of many complex components, essential for supporting the productivity and longevity of your chosen cell line. This facilitates the production of large volumes of a biologic drug.



AOF

Animal origin (AO)

AO

Derived from animals (e.g., biological fluids, tissue extracts, and clots)

> **Rich nutritional** diversity

> Supports rapid growth

Convenient for a wide range of cell lines

Reliant on inherently variable biological material

Requires extra testing

Animal origin–free (AOF)

Not directly derived from animals (e.g., salt solutions, basal media, and complex media)

> **Common in vaccine** development

> > Reduced risk of variation

Less regulatory scrutiny

Supply is not dependent on biological products

Certain applications may require additional growth factors and/or cytokines

What's in your production medium?



Small molecules

Inorganic salts: Maintain osmotic balance, regulate membrane potential, and provide critical ions such as sodium, potassium, and calcium

Amino acids: The concentration of amino acids in the medium determines the maximum cell density that can be achieved

Carbohydrates: A main source of energy for cells in the form of sugars, e.g., glucose

Fatty acids and lipids: Necessary for cell membrane synthesis and activation of important signaling pathways

Vitamins (riboflavin, thiamine, and biotin):

Act as enzyme co-factors and are used to support cell growth and proliferation

Trace elements: Essential for the growth and biological functions of cells. Trace elements are

added to a cell culture medium in the form of inorganic salts and not as pure elements

Nucleosides and polyamines: Support cell proliferation

Anions (phosphate, nitrate, nitrite, sulfate, chloride, and pyruvate): Additional sources of energy

Buffering agents (HEPES, MOPS, and MES):

Maintain correct pH conditions to support optimum growth

Large molecules

Proteins and peptides: Have a variety of functions, including acting as carriers, protective agents, and inhibitors

Growth factors: Proteins that have a specific biological function to promote cell growth

Complex components

Serum: Mix of albumins, growth factors, and growth inhibitors that provide the basic nutrients needed for the growth and function of cells

Pharmaceutical-grade peptones and hydrolysates: Used as

alternatives to serum to enhance cell growth and titer. Specifically manufactured for the pharmaceutical industry to reduce lot-to-lot variability

Other media components

Antibiotics: Minimize loss of cells from bacterial and fungal contamination

L-glutamine: Used to support cell growth, protein synthesis, and glucose production

For support with media development and manufacturing, find out more at: thermofisher.com/media-manufacturing

For Research Use or Further Manufacturing. Not for diagnostic use or direct administration into humans or animals. © 2021 Thermo Fisher Scientific Inc. All rights reserved. All trademarks are the property of Thermo Fisher Scientific and its subsidiaries unless otherwise specified. **COL1375504 0321**

