CAPRICORN SCIENTIFIC

FBS Xtra

Controlled. Defined. Reduced.

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FBS Xtra
the more defined serum

For decades, Fetal Bovine Serum (FBS) has been an established additive in cell culture media. Its unique growth-promoting properties make it a valuable and indispensable ingredient for the cultivation of a wide variety of cell types.

Until now, academic and industrial research, as well as biopharmaceutical manufacturers were dependant on serum supply, availability, and fluctuating prices. FBS Xtra was developed to target these issues and lead the way into a more defined culture environment.

FBS contains proteins, electrolytes, lipids, carbohydrates, hormones, enzymes, and other components, which support culture conditions of various cell types.

Although FBS has been deployed in cell culture for many years, a large proportion of the ingredients remains unidentified. Furthermore, batch-to-batch variations still continue to be an obstacle, when trying to cultivate cells under the same conditions. It has not yet been possible to develop a synthetical growth additive with comparable performance.

In addition, the growing demand of serum with limited availability poses numerous animal welfare issues. With an increasing awareness on this problem, many researchers state that they would like to use less serum – without sacrificing performance.

Our team at Capricorn Scientific strives to steadily improve and facilitate cell culture processes. In collaboration with the University of Applied Science Frankfurt, Germany, we developed an alternative to traditional FBS that is more controlled, defined, and less susceptible to the issues of serum supply.

In an extensive analysis of growth-promoting factors in FBS, we set the goal of discovering the essential factors for optimal cell growth.

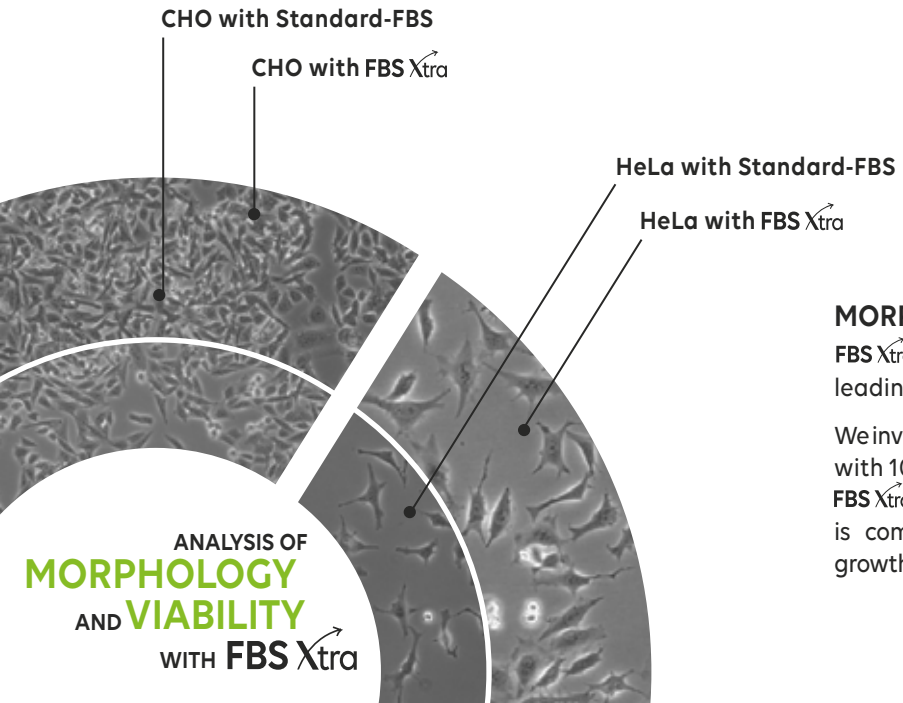
After comprehensive performance assays on multiple widely utilized cell lines, we were able to identify these factors.

The result of this study is our new **FBS Xtra** featuring the identified components for successful cell growth and significantly reduced serum levels. At the same time, batch-to batch variations are reduced to a minimum.

In many cell types **FBS Xtra** achieved even better growth-performance than the standard FBS.

VALIDATED FOR DIVERSE CELL LINES:

- ✓ **HeLa**
- ✓ **NIH-3T3**
- ✓ **HEK293**
- ✓ **Jurkat**
- ✓ **CHO**
- ✓ **Vero**
- ✓ **L929**
- ✓ **... and many more**



MORPHOLOGY AND VIABILITY

FBS Xtra preserves the regular cell morphology while leading to better viability!

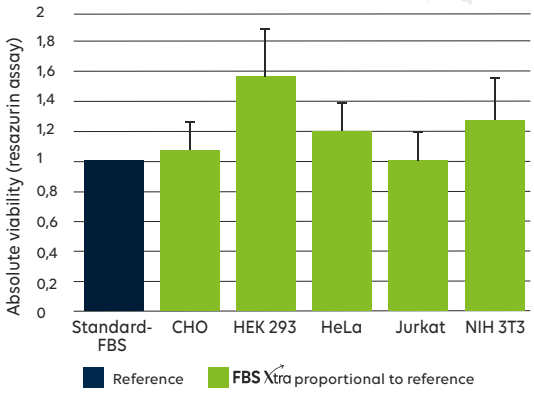
We investigated several cell lines in cultures supplemented with 10% standard FBS vs. cells supplemented with 10% **FBS Xtra**. We confirmed that the regular cell morphology is comparable to standard FBS, with consistent cell growth and viability.

YOUR BENEFITS
at a glance

- ✓ **High performance through defined additives**
- ✓ **Less cell-stress**
- ✓ **Reduced serum content**
- ✓ **Chemically defined trace elements, amino acids, vitamins, and cofactors**
- ✓ **Batch-to-batch homogenity**

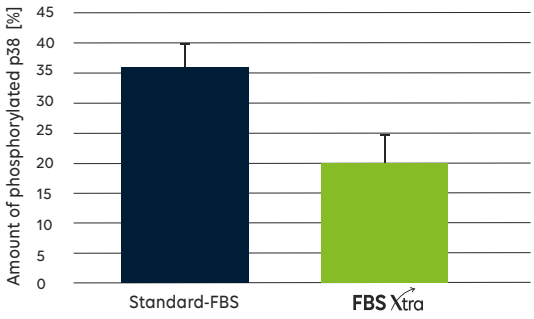
FBS Xtra combines high-quality FBS with identified growth promoting factors like insulin, transferrin, trace elements, and amino acids in a chemically defined and recombinant form. Due to supplementation with these highly pure and defined components, it is possible to reduce the content of Fetal Bovine Serum in FBS Xtra significantly.

In our evaluation phase, FBS Xtra performed just as well or even better, than standard FBS. Cell culture medium supplemented with 10% FBS Xtra has been confirmed to promote excellent cell growth, regular morphology, and furthermore reduced cell stress.



VIABILITY ASSAY

The viability of different cell lines cultured with **FBS Xtra** in reference to standard FBS showed comparable or even better results.



CELL-STRESS ASSAY

The p38 MAP kinase gets activated by a variety of cellular stress pathways. It is activated by phosphorylation to help the cells adapt and cope with noxious conditions. The phosphorylation levels of p38 can therefore be used as a marker to determine the cell's exposure to stressful conditions.

Two weeks after cultivation, HEK293 cells were analyzed for p38 phosphorylation. Cells supplemented with 10% traditional FBS showed almost double the amount of the cellular stress marker p38, when compared to cells supplemented with 10% **FBS Xtra**.

PRODUCT	VOL.	CAT.NO.
FBS Xtra free sample	100 ml	FBS-16B
FBS Xtra	500 ml	FBS-16A

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WHY US?

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Your Partner in Cell Culture

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