

Reducing animal suffering in cancer research with FBS-free cell culture models

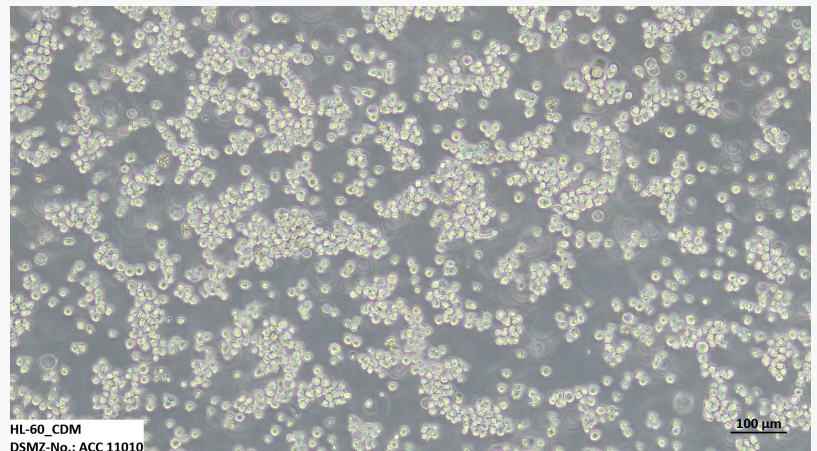
Development and characterisation of human cancer cell lines in animal-component-free media at the DSMZ

BRAUNSCHWEIG, LOWER SAXONY AREA, GERMANY, May 12, 2026 /EINPresswire.com/ -- For decades, human [cancer](#) cell lines have been indispensable models for cancer research, already replacing a significant amount of animal experiments. However, the use of [fetal bovine serum](#) (FBS) in their cultivation is easily overlooked: While promoting the growth of most cell types in the culture dish, the media supplement is ethically questionable as its production involves animal suffering. Additionally, the use of FBS is associated with a number of scientific drawbacks (i. e. problems regarding reproducibility). Therefore, FBS-free media are considered the future of cell culture.

Adaptation of four commonly used human cancer cell lines

To promote the transition towards FBS-free cell culture, the working group Tumor Biology headed by Dr. Sonja Eberth within the department of Human and Animal Cell Lines at the [DSMZ](#) – German Collection of

Microorganisms and Cell Cultures GmbH, has adapted four widely used human cancer cell lines (HELA, HL-60, K-562, JIMT-1) to different animal-component-free media. To replace the



The cell line HL-60 is a commonly used model for acute myeloid leukaemia and can be cultured and cryopreserved in chemically defined medium without the use of fetal bovine serum. It is available under accession number ACC 11010 in the DSMZ catalogue



Main building of the Leibniz Institute DSMZ on the Science Campus Braunschweig-Süd

problematic FBS, human platelet lysate as well as entirely chemically defined media were successfully applied. Through comprehensive macroscopic and molecular characterisation, it was demonstrated that the characteristic cancer-relevant features were maintained in the FBS-free cultures.

Accordingly, cell lines cultivated in appropriate alternative culture media are equally suitable for research as the FBS-containing cultures. The study's findings have recently been published in the journal Alternatives to Animal Experimentation.

FBS-free cell lines in the DSMZ portfolio

To sustainably promote the change towards FBS-free and reproducible cell culture, the DSMZ – as the first cell line bank to do so – is now offering access to the successfully adapted and characterised cancer cell lines to the international scientific community through its catalogue. The first cell line in this series is the leukaemia cell line HL-60, adapted to a completely chemically defined medium

(<https://www.dsmz.de/collection/catalogue/details/culture/AC-C-11010>).

“Thus, individual working groups do not need to invest time and money for the adaptation and characterisation of cancer cell lines to FBS-free media. As the cell lines we have adapted and their molecular data are now readily available, it is possible to make a data-driven decision regarding the suitability of an FBS-free culture for a specific research project”, says Dr. Sonja Eberth.

Background: production of fetal bovine serum

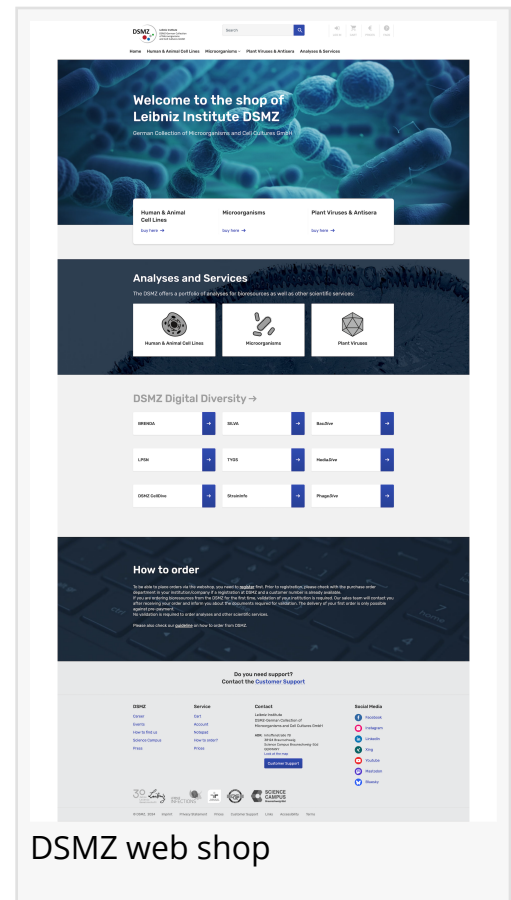
The production of FBS involves animal suffering because fetal blood is taken without sedation as pregnant cows enter the slaughterhouse. Additionally, FBS is a mixture of undefined and varying composition. The fluctuating nature of its composition can therefore impact the reproducibility of cell culture experiments. Since alternative media are not universally applicable, their suitability must be tested for each individual cell line. This constitutes a significant practical hurdle for the transition to FBS-free cell culture.

Original publication: Koelz, A. L., Pommerenke, C., Woitschewski, P., Merkhoffer, Y., Dirks, W. G., & Eberth, S. (2026). Multiparametric evaluation of different FBS-free replacement media for widely used human cancer cell lines. ALTEX - Alternatives to Animal Experimentation.

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DSMZ web shop

About the Leibniz Institute DSMZ

The Leibniz Institute DSMZ-German Collection of Microorganisms and Cell Cultures is the world's most diverse collection of biological resources (bacteria, archaea, protists, yeasts, fungi, bacteriophages, plant viruses, genomic bacterial DNA as well as human and animal cell lines). Microorganisms and cell cultures are collected, investigated and archived at the DSMZ. As an institution of the Leibniz Association, the DSMZ with its extensive scientific services and biological resources has been a global partner for research, science and industry since 1969. The DSMZ was the first registered collection in Europe (Regulation (EU) No. 511/2014) and is certified according to the quality standard ISO 9001:2015. As a patent depository, it offers the only possibility in Germany to deposit biological material in accordance with the requirements of the Budapest Treaty. In addition to scientific services, research is the second pillar of the DSMZ. The institute, located on the Science Campus Braunschweig-Süd, accommodates more than 94,400 bioresources and has around 210 employees. www.dsmz.de

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