Samson's Concentrate

Reagent Concentrate for Counting Cells from Cerebrospinal Fluid (CSF).

Product information for the microscopic counting of WBCs (white blood cells) in Liquor cerebrospinalis (CSF, cerebrospinal fluid).

Important:

Different recipes and protocols are known as “Samson‘s Reagent“ or under similar names. The instructions below exclusively apply to Bioanalytic’s version of Samson‘s Concentrate!

Principle

Microscopic counting of WBCs in a counting chamber.

Reagents

The solution is ready for use. Store at room temperature (+15 ... 25 °C) until the printed expiry date.

The reagent is free of azide and contains no mercury compounds (thimerosal or the like).

Risks and Safety

Please observe the necessary precautions for use of laboratory reagents and body fluids. Applications should be performed by expert personnel only. Follow the national and laboratory internal guidelines for work safety and infection control. Wear suitable protective clothing and disposable gloves while handling.

It is important to ensure effective protection against infection according to laboratory guidelines.

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www.sds-id.com

For additional and general safety information please see details on the label and the corresponding Safety Data Sheet (SDS).

Download by QR code or link: www.sds-id.com/100060-2

Main Components

006688-...	Cont.	Acetic acid 30 %, phenol-fuchsine-ethanol-solution 2 %, non-reactive components.
006688-	REAG	**Samson‘s Concentrate**
006688-0020		1× 20 ml Samson's Concentrate for ~ 200 determinations
006688-0100		1× 100 ml Samson's Concentrate for ~ 1000 determinations

Additionally Required Materials

	Microscope for biomedical lab use, pipettes
CC-FURO *	Fuchs-Rosenthal counting chamber *

* Available at Bioanalytic GmbH

Sample Material

Fresh taken cerebrospinal fluid (CSF). Process sample immediately (within 1 hour, otherwise cells start disintegrating).

Interfering effects: Fibrin clots can lead to lower values.

Reference Ranges

	cells/µl
Normal:	0 ... 3

Sample Preparation

The World Health Organization (WHO) has already classified leukocyte-mixing pipettes as obsolete (imprecise, outdated) in 1988. We recommend working with the more exact dilution procedure B.

Important information

Samson's concentrate containing less than 25% of the content volume should be discarded. It has been shown that frequent opening of the 20 ml or 100 ml bottles below a volume of 25 % results in a shift in composition due to the unfavourable volume-to-air ratio.

With leukocyte-mixing pipettes (Dilution procedure A)

Fill a leukocyte-mixing pipette with Samson’s concentrate up to the mark 1.0. Then draw the liquor bubble-free from an embryo dish to mark 11 (this procedure exactly reverses the steps of the protocol for counting leukocytes from blood). Seal pipette ends and mix thoroughly for approx. 1 minute.

Mixing 9 + 1 volume parts = Dilution 9 : 10 or 1 : 1.111

Dilution with micropipettes (Dilution procedure B)

Transfer 100 µL Samson’s concentrate into a 1.5 mL reaction tube[*1] with a laboratory micropipette. Add 1000 µL CSF. Close the tube and mix thoroughly for approx. 1 minute. For small quantities of test material, the volumes can be scaled down (50 µL Samson’s concentrate + 500 µL CSF). Further reduction of the volumes is not recommended!

Mixing 10 + 1 volume parts = Dilution10 : 11 or 1 : 1.10

Procedure

Prepare the counting chamber for loading. Mix sample directly before use (cell resuspension).

Dilution procedure A:

Discard the first 5 to 8 drops of CSF in the capillary. Load the counting chamber by capillary action.

Dilution procedure B:

Retrieve sample from the tube with pipette and load the counting chamber.

Analysis / Calculation

The following information applies to the Fuchs-Rosenthal counting chamber. Use phase contrast or bright field (lowered condenser) with 100× magnification for counting.

Count the leukocytes in all 16 large squares (1 mm^2 each, made up of 4 × 4 sub-squares)

Calculation for dilution A (1 : 1.111):

Multiply the total cell count from all 16 squares with the conversion factor to obtain the cell number per µL CSF.

Counted cells × 0.35 = cells / µL (cells per µL)

Calculation for dilution B (1 : 1.10):

Multiply the total cell count from all 16 squares with the conversion factor to obtain the cell number per µL CSF.

Counted cells × 0.34 = cells / µL (cells per µL)

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Morphological Diagnostics [3]

According to literature [3], Samson's concentrate can also make an important contribution to the morphological diagnosis of leukocytes in the cerebrospinal fluid and possibly to the detection of malignancy.

This method is used in Japan and has been presented by the JCCLS (Japanese Committee for Clinical Laboratory Standards) since about 2008.

Notes

The reagent concentrations does not correspond to the reference values [1], but has been adapted to the protocol in this instruction. Leukocyte nuclei are released and fixed. Any present (mammalian) erythrocytes are lysed. This guarantees that the characteristically very low cell numbers in CSF can be determined at all.

For historical reasons, cell values are sometimes also given in other units, e. g. n/3 cells. This denotes the cell number in 3 µL liquor. Nowadays, such values must be considered obsolete.

Dye crystals usually do not appear in the microscopic stain. Neverthe¬less, their formation cannot be excluded, e. g. due to storage and strong cooling. If they interfere, Samson's concentrate can be centrifuged for a few seconds at high rpm before use, e. g. in a reaction tube. Then use the supernatant.

Classifications

Not for human diagnostics.

Support / Infoservice

For methodological and technical support, please contact us by E-Mail at support@bioanalytic.de.

Periodically check for updates of this product information on our website.

Feedback

Information from users can be reported to support@bioanalytic.de.

Suggestions for further developments will be considered.

Waste Management

Please observe your national laws and regulations.

Used and expired solutions must be disposed of in accordance with your local regulations.

Inside the EU, national regulations apply that are based on the current, amended version of Council directive 67/548/EEG on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances.

Decontaminated packaging can disposed of as household waste or recycled, unless otherwise specified.

Literature & Footnotes

Legends for the graphic symbols and tags used follow relevant norms or are available on our internet pages.

[1] Lothar Hallmann, Klinische Chemie und Mikroskopie, 11. Auflage, Georg Thieme Verlag, 1980, ISBN 3-13-340711-2.

[2] WHO-Bericht Lab/88.3

[3] Chu Su, Yu, Atlas of Clinical Microscopy, Second Edition (2011). ISBN-13: 978-957-41-8579-5, Author self publishing.

*1) We recommend use vials Eppendorf-Safelock 3810