

MAR 20, 2023

OPEN ACCESS

Protocol Citation: Andreas Sagen 2023. Standard M9 minimal medium. protocols.io

https://protocols.io/view/stand ard-m9-minimal-mediumcrd7v29n

License: This is an open access protocol distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited

Protocol status: In development We are still developing and optimizing this protocol

Created: Mar 17, 2023

Last Modified: Mar 20, 2023

PROTOCOL integer ID:

79007

Keywords: M9 minimal medium, e. coli, Escherichia coli, bacteria, autotrophic medium

Standard M9 minimal medium

Andreas Sagen¹

¹University of Oslo



Andreas Sagen

University of Oslo, The National Institute of Occupational H...

ABSTRACT

M9 minimal media is a highly-referenced microbial growth medium used for the cultivation of E. coli. This buffered minimal microbial medium contains only salts and nitrogen, so it is traditionally supplemented with glucose, amino acids and vitamins as needed.

M9 Minimal Medium is suitable for non-selective cultivation of Escherichia coli strains for cloning, DNA plasmid production and production of recombinant proteins. It is also suitable for selective cultivation when appropriate antibiotics are added. Suitable for non-selective cultivation of E. coli strains for cloning, DNA plasmid production and production of recombinant proteins. Also suitable for selective cultivation when appropriate antibiotics are added.

GUIDELINES

Prepare enough for the necessary number of experiments to perform in order to prevent batch-to-batch variation between experiments. Input chemicals should be of a certain quality in order to prevent contaminants that can impact microbial growth and selection.

MATERIALS

Magnetic stirrer, autoclave, scale, tubes, flask

SAFETY WARNINGS

Be sure to wear appropriate PPE when working with antibiotics and chemicals. Take care when working with hot flasks and tubes.

100 mL 10x Ammonium chloride solution

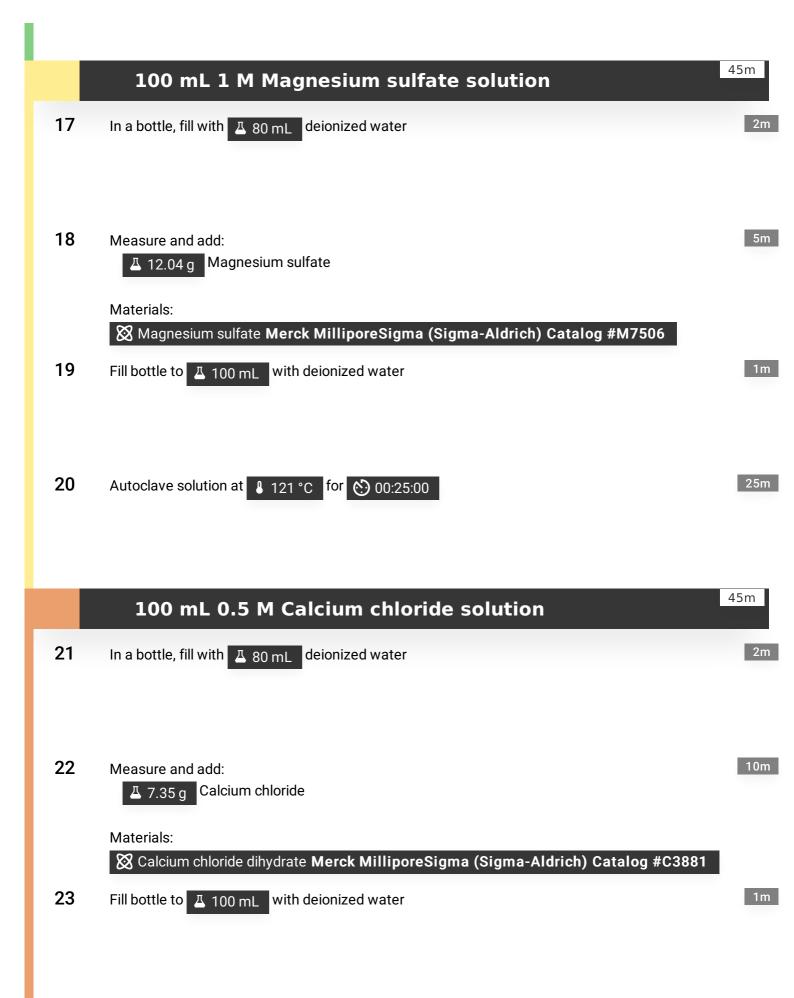
1h

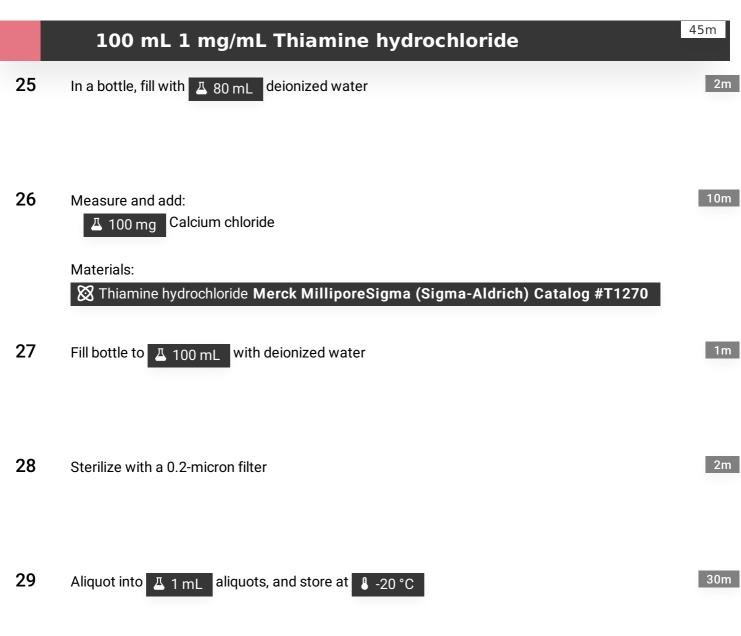
1 In a bottle, fill with 🚨 400 mL deionized water

5m

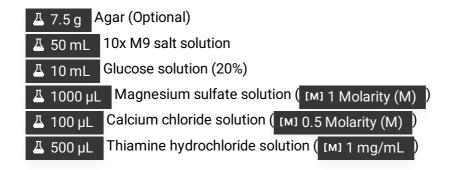
2	Measure and add: Ammonium chloride	15m
3	Materials:	5m
4	Fill bottle to with deionized water	2m
5	Sterilize with a 0.2-micron filter	20m
i	1 000 mL 10x M9 salt solution	2h
6	In a bottle, fill with 4 800 mL deionized water	5m
7	Measure and add: 2 60 g Sodium phosphate (dibasic) 30 g Monopotassium phosphate 5 g Sodium chloride	15m
	Materials: Sodium phosphate dibasic Merck MilliporeSigma (Sigma-Aldrich) Catalog #S0876 Potassium phosphate monobasic Merck MilliporeSigma (Sigma-Aldrich) Catalog #P5379	ı
8	Sodium chloride Merck MilliporeSigma (Sigma-Aldrich) Catalog #S9625 Adjust pH to PH 7.4 using hydrogen chloride or sodium hydroxide	5m







28 Sterilize with a 0.2-micron filter 29 Aliquot into aliquots, and store at -20 °C 500 mL M9 minimal medium 30 In a bottle, fill with 400 mL sterile water 5m



Note

If using agar, autoclave solution with agar only, then cool to approx. \$\ \bigs_{50 \circ}\$, then add the other components. Keep hot enough for the medium to stay liquid, then pour immediately.

Materials:

X Agar Merck MilliporeSigma (Sigma-Aldrich) Catalog #A1296

Adjust pH to ph 7.4 using hydrogen chloride or sodium hydroxide

5m

Fill bottle to 4 500 mL with sterile water and store at 4 °C

5m

Note

While it shouldn't be necessary to sterilize if working aseptically, it is possible to sterilize using a 0.2-micron filter. DO NOT AUTOCLAVE!

Note

Supplement medium with antibiotics, etc. as necessary