

Materials List for

# Synthesis of Masarimycin, a Small Molecule Inhibitor of Gram-Positive Bacterial Growth

Mika Gallati<sup>1</sup>, Bryant Point<sup>1</sup>, Christopher W. Reid<sup>1,2</sup>

<sup>1</sup>Department of Science and Technology, Bryant University <sup>2</sup>Center for Health and Behavioral Sciences, Bryant University

## Corresponding Author

Christopher W. Reid  
creid@bryant.edu

## Citation

Gallati, M., Point, B., Reid, C.W. Synthesis of Masarimycin, a Small Molecule Inhibitor of Gram-Positive Bacterial Growth. *J. Vis. Exp.* (179), e63191, doi:10.3791/63191 (2022).

## Date Published

January 7, 2022

## DOI

10.3791/63191

## URL

jove.com/video/63191

## Materials

| Name  | Company               | Catalog Number  | Comments  |
|---|-----------------------|-----------------|---|
| 2-Iodobenzoic acid                                | SIGMA-ALDRICH         | I7675-25G       | corrosive, irritant, light yellow to orange-brown powder                                  |
| 2-Propanol  | SIGMA-ALDRICH         | 109827-4L       | flammable, irritant, colorless liquid   |
| Acetonitrile                                      | SIGMA-ALDRICH         | 34851-4L        | flammable, irritant, colorless liquid   |
| Aluminum backed silica plates                     | Sorbtech              | 4434126         | silica gel XG F254 on aluminum backed plates  |
| chloroform-d                                      | SIGMA-ALDRICH         | 151823-50G      | solvent for NMR   |
| Compact Mass Spectrometer                         | Advion-Interchim      | Advion CMS      | compact mass spectrometer equipped with APCI source and atmospheric solids analysis probe |
| Corning Costar 96 well flat bottom plates-sterile | fisher chemical       | 07-200-90       | for synergy/antagonism assays   |
| cover slips                                       | fisher chemical       | 12-547          | for microscopy  |
| Cyclohexanecarboxaldehyde                         | CHEM-IMPEX INT'L INC. | 24451           | flammable, irritant, colorless to pink liquid   |
| Cyclohexyl isocyanide                             | SIGMA-ALDRICH         | 133302-5G       | irritant, colorless liquid, extremely unpleasant odor                                     |
| Cyclohexylamine                                   | SIGMA-ALDRICH         | 240648-100ML    | corrosive, flammable, irritant, colorless liquid unless contaminated                      |
| Ethyl acetate                                     | SIGMA-ALDRICH         | 537446-4L       | flammable, irritant, colorless liquid   |
| flash silica cartridge (12g)                      | Advion-Interchim      | PF-50SIHP-F0012 | pack of flash silica columns (12g) for purification of masarimycin                        |
| formaldehyde                                      | SIGMA-ALDRICH         | F8775-25ML      | fixing agent for microscopy   |
| HEPES   | SIGMA-ALDRICH         | H8651-25G       | buffer for microscopy fixing solution   |
| Hexane, mixture of isomers                        | SIGMA-ALDRICH         | 178918-4L       | environmentally damaging, flammable, irritant, health hazard, colorless liquid            |
| High performance compact mass spectrometer        | Advion                | expression      | Atmospheric Solids Analysis Probe (ASAP), low resolution                                  |
| High Vac  | eppendorf             | Vacufuge plus   | vacuum aided by centrifugal force and temperature   |
| Hydrochloric acid                                 | SIGMA-ALDRICH         | 258148-2.5L     | corrosive, irritant, colorless liquid   |

|   |                            |                                |  |
|---|----------------------------|--------------------------------|--|
| hydrochloric acid   | SIGMA-ALDRICH              | 320331-2.5L                    | strong acid  |
| immersion oil   | fisher chemical            | 12-365-19                      | for microscopy   |
| Iodine, resublimed crystals   | Alfa Aesar                 | 41955                          | environmentally damaging, irritant, health hazard, dark grey/purple crystals                         |
| Mestre Mnova  | MestreLab Research         |                                | software for processing NMR spectra  |
| Methanol  | SIGMA-ALDRICH              | 439193-4L                      | flammable, toxic, health hazard, colorless liquid  |
| methylene blue  | SIGMA-ALDRICH              | M9140-25G                      | microscopy stain for staining cell walls   |
| meuller-hinton agar plates + 5% sheep blood                         | fisher chemical            | B21176X                        | growth media for Streptococcus pneumoniae  |
| meuller-hinton broth  | fisher chemical            | DF0757-17-6                    | growth media for Streptococcus pneumoniae  |
| microscope slides   | fisher chemical            | 22-310397                      | for microscopy   |
| Microwave Synthesis Labstation                                      | MILESTONE                  | START SYNTH                    | device that requires the ventilation of a fume hood, equipped with synthesis carousel                |
| NMR tubes   | SIGMA-ALDRICH              | Z562769-5EA                    | 5mm NMR tubes 600 MHz  |
| Nuclear Magnetic Resonance (NMR)                                    | Bruker                     | Ascend 400                     | large superconducting magnet (400MHz)  |
| optochin  | fisher chemical            | AAB21627MC                     | ethylhydrocupreine hydrochloride   |
| petrie plates   | Celltreat                  | 229695                         | for preparing agar plates for bacterial growth   |
| Primo Star Bright field/Phase contrast Microscope with ERC5s camera | Zeiss                      |                                | for morphology studies   |
| puriFlash   | interchim                  | XS520plus                      | flash chromatography purification system   |
| resazurin   | SIGMA-ALDRICH              | R7017-1G                       | for synergy/antagonism assays  |
| Rotary Evaporator   | Heidolph                   | Hei-VAP Value "The Collegiate" | solvent evaporator   |
| Sodium bicarbonate  | SIGMA-ALDRICH              | S6014-500G                     | irritant, white powder   |
| Sodium chloride   | fisher chemical            | S271-1                         | crystalline, colorless   |
| Sodium chloride   | SIGMA-ALDRICH              | S5886-500G                     | for growth of B.subtilis and preparation of LB media   |
| Sodium sulfate  | SIGMA-ALDRICH              | 7985592-500G                   | anhydrous, granular, white   |
| tryptone  | fisher chemical            | BP1421-500                     | for growth of B.subtilis and preparation of LB media   |
| Whitney DG250 Workstation   | Microbiology International | DG250                          | anaerobic workstation. Anaerobic gas mixture used: 5% hydrogen, 10% carbon dioxide, balance nitrogen |
| yeast extract   | fisher chemical            | BP1422-500                     | for growth of B.subtilis and preparation of LB media   |
| Zen Lite (blue) software  | Zeiss                      |                                | for acquiring micrographs  |