

Materials List for:

Antimicrobial Peptides Produced by Selective Pressure Incorporation of Non-canonical Amino Acids

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Materials

| Name | Company | Catalog Number | Comments |
|---|--------------------|----------------|--|
| sodium chloride | Carl Roth, Germany | P029 | |
| guanidine hydrochloride | Carl Roth, Germany | 0035.2 | |
| dipotassium hydrogen phosphate | Carl Roth, Germany | P749.3 | |
| potassium dihydrogen phosphate | Carl Roth, Germany | 3904.3 | |
| sodium dihydrogen phosphate monohydrate | Carl Roth, Germany | K300.2 | |
| disodium hydrogen phosphate | Carl Roth, Germany | P030.2 | |
| L-alanine | Carl Roth, Germany | 3076.2 | |
| L-arginine | Carl Roth, Germany | 3144.3 | |
| L-asparagine monohydrate | Carl Roth, Germany | HN23.1 | |
| L-aspartic acid | Carl Roth, Germany | T202.1 | |
| L-cysteine | Carl Roth, Germany | 3467.3 | |
| L-glutamine | Carl Roth, Germany | 3772.1 | |
| L-glutamic acid | Carl Roth, Germany | 3774.1 | |
| L-glycine | Carl Roth, Germany | 3187.3 | |
| L-histidine | Carl Roth, Germany | 3852.3 | |
| L-isoleucine | Carl Roth, Germany | 3922.3 | |
| L-leucine | Carl Roth, Germany | 3984.3 | |
| L-lysine monohydrate | Carl Roth, Germany | 4207.2 | |
| L-methionine | Carl Roth, Germany | 9359.4 | |
| L-phenylalanine | Carl Roth, Germany | 4491.2 | |
| L-proline | Carl Roth, Germany | T205.3 | |
| L-serine | Carl Roth, Germany | 4682.4 | |
| L-threonine | Carl Roth, Germany | T206.2 | |
| L-tryptophan | Carl Roth, Germany | 4858.2 | |
| L-tyrosine | Carl Roth, Germany | T207.2 | |
| L-valine | Carl Roth, Germany | 4879.4 | |
| ammonium sulfate | Carl Roth, Germany | 3746.3 | |
| magnesium sulfate | Carl Roth, Germany | 0261.2 | |
| D-glucose | Carl Roth, Germany | 6780 | prepare a 20% (w/v) solution for addition into molten agar |
| calcium chloride | Carl Roth, Germany | PN93.2 | |

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| iron(II) chloride | Sigma-Aldrich, Germany | 372870 | |
| thiamine hydrochloride | Sigma-Aldrich, Germany | T1270 | |
| biotin | Carl Roth, Germany | 3822.2 | |
| copper(II) sulfate | Merck, Germany | 102792 | |
| manganese(II) chloride | Carl Roth, Germany | KK36.2 | |
| zinc chloride | Merck, Germany | 108816 | |
| immonium orthomolybdate | Sigma-Aldrich, Germany | 277908 | |
| glycerol | Carl Roth, Germany | 7533.3 | |
| isopropyl β -D-1-thiogalactopyranoside | Sigma-Aldrich, Germany | I6758 | |
| ampicillin sodium salt | Carl Roth, Germany | K029.5 | working concentration 100 μ g/mL for <i>E. coli</i> , prepare 100 mg/mL stock in ddH ₂ O |
| kanamycin sulfate | Carl Roth, Germany | T832.2 | working concentration 50 μ g/mL for <i>E. coli</i> , prepare 50 mg/mL stock in ddH ₂ O |
| chloramphenicol | Carl Roth, Germany | 3886.1 | working concentration 5 μ g/mL for <i>L. lactis</i> , prepare 37 mg/mL stock in ethanol |
| (4S)-fluoroproline | Bachem, Switzerland | F-3970 | |
| (4R)-fluoroproline | Bachem, Switzerland | F-3975 | |
| (4S)-hydroxyproline | Bachem, Switzerland | F-1395 | |
| (4R)-hydroxyproline | Bachem, Switzerland | F-2980 | |
| (4S)-methanoproline | | | chemically synthesized |
| (4R)-methanoproline | | | chemically synthesized |
| hydrochloric acid (HCl) | Carl Roth, Germany | P074.4 | |
| ethanol | VWR, Germany | 20825.324 | |
| M17-broth | Sigma-Aldrich, Germany | 56156 | commercial product, see Terzaghi BE & Sandine WE, <i>Appl Microbiol.</i> , 1975, 29(6):807-13 for contents and preparation |
| agar-agar | Carl Roth, Germany | 5210.5 | |
| Nisin from <i>Lactococcus lactis</i> | Sigma-Aldrich, Germany | N5764 | commercial product, can be used as reference for bioactivity |
| dimethyl sulfoxide (DMSO) | Carl Roth, Germany | A994.1 | |
| imidazole | Carl Roth, Germany | 3899.3 | |
| 1.5 mL autosampler vial for LC-MS | Sigma-Aldrich, Germany | Supelco 854165 | |
| acetonitrile | VWR, Germany | HiPerSolv CHROMANORM ULTRA for LC-MS, 83642 | LC-MS grade required |
| formic acid | VWR, Germany | HiPerSolv CHROMANORM for LC-MS, 84865 | LC-MS grade required |
| 1 mL Ni-NTA IMAC column, e.g. HisTrap FF Crude | GE Healthcare, UK | 29-0486-31 | different manufacturers and resins available for IMAC |
| 0.45 μ m bottle top filter unit | VWR, Germany | 10040-470 | sterile filtration of solutions using a vacuum pump |
| 0.45 μ m syringe filter PVDF membrane | Carl Roth, Germany | CCY1.1 | sterile filtration of solutions using a syringe and to remove particles from cell lysates |
| luer-lock syringe, PP, 50 ml | Carl Roth, Germany | T552.2 | sterile filtration of solutions |
| 1.5 mL Eppendorf tubes | Eppendorf, Germany | 30120086 | |
| petri dishes (polystyrene, sterile) | Carl Roth, Germany | TA19 | |

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| Nile red | Sigma-Aldrich, Germany | 72485 | |
| E. coli ΔproA strain | CGSC, Keio collection | JW0233-2 | proline-auxotrophic E. coli K-12 strain |
| E. coli B834(DE3) | Novagen (Merck), Germany | 69041 | methionine-auxotrophic E. coli B strain |
| λDE3 Lysogenization Kit | Novagen (Merck), Germany | 69734-3 | |
| Lactococcus lactis NZ9000 pNG nisPT | | | bacterial indicator strain, see Khusainov R & Kuipers OP, PLoS One, 8 (9), e74890 |
| benchtop centrifuge for 1.5 mL Eppendorf tubes | Eppendorf, Germany | 5427 R | |
| peristaltic pump | GE Healthcare, UK | P1 | |
| FPLC system | GE Healthcare, UK | Äkta Purifier 10 or the like | |
| inverted microscope | Nikon | TI Eclipse wide-field fluorescence microscope with 100x (N.A. 1.4) objective and Mercury Lamp | example setup for fluorescence microscopy |
| electron multiplying CCD (EMCCD) camera | Andor Technologies, UK | Andor Luca | example setup for fluorescence microscopy |
| fluorescence excitation filter | Thorlabs, USA | Dichroic cube (TLV-U-MF2-TRITC) | example setup for fluorescence microscopy |
| fluorescence emission filter | AHF Analysentechnik, Germany | T 560 LPXR | example setup for fluorescence microscopy |
| cover slip 24 x 60 mm | Carl Roth, Germany | LH26.1 | example setup for fluorescence microscopy |
| Immersion Oil | Carl Zeiss, Germany | Immersol 518 F | example setup for fluorescence microscopy |
| probe sonicator | Bandelin, Germany | Sonopuls HD3200 with sonotrode MS-72 | 200 W maximum HF output |
| C5 HPLC column (2.1x100 mm, 3 μm particle size) | Sigma-Aldrich, Germany | 567227-U | example setup for mass spectrometry |
| ESI-TOF coupled to HPLC system | Agilent, USA | Agilent 6530 Accurate Mass QTOF with 1260 HPLC | example setup for mass spectrometry |