

Materials List for:

# Characterization of Complex Systems Using the Design of Experiments Approach: Transient Protein Expression in Tobacco as a Case Study

Johannes Felix Buyel<sup>1</sup>, Rainer Fischer<sup>1,2</sup>

<sup>1</sup>Institute for Molecular Biotechnology, RWTH Aachen University

<sup>2</sup>Institute for Molecular Biology and Applied Ecology, Fraunhofer Gesellschaft

Correspondence to: Johannes Felix Buyel at [johannes.buyel@rwth-aachen.de](mailto:johannes.buyel@rwth-aachen.de)

URL: <https://www.jove.com/video/51216>

DOI: [doi:10.3791/51216](https://doi.org/10.3791/51216)

## Materials

Name	Company	Catalog Number	Comments
Design-Expert(R) 8	Stat-Ease, Inc.	n.a.	DoE software
Tryptone	Carl Roth GmbH	8952.2	Media component
Yeast extract	Carl Roth GmbH	2363.2	Media component
Sodium chloride	Carl Roth GmbH	P029.2	Media component
Ampicillin	Carl Roth GmbH	K029.2	Antibiotic
Agar-Agar	Carl Roth GmbH	5210.2	Media component
<i>Escherichia coli</i> K12 DH5a	Life Technologies	18263-012	Microorganism
pPAM	GenBank	AY027531	Cloning/expression vector;
NucleoSpin Plasmid	MACHEREY-NAGEL GmbH	740588.250	Plasmid DNA isolation kit
NucleoSpin Gel and PCR Clean-up	MACHEREY-NAGEL GmbH	740609.250	Plasmid DNA purification kit
NanoDrop 2000	Thermo Scientific	n.a.	Spectrophotometer
NcoI	New England Biolabs Inc.	R3193L	Restrictionendonuclease
EcoRI	New England Biolabs Inc.	R3101L	Restrictionendonuclease
Ascl	New England Biolabs Inc.	R0558L	Restrictionendonuclease
NEB 4	New England Biolabs Inc.	B7004S	Restrictionendonuclease buffer
TRIS	Carl Roth GmbH	4855.3	Media component
Disodium tetraborate	Carl Roth GmbH	4403.3	Media component
EDTA	Carl Roth GmbH	8040.2	Media component
Agarose	Carl Roth GmbH	6352.4	Media component
Bromophenol blue	Carl Roth GmbH	A512.1	Color indicator
Xylene cyanol	Carl Roth GmbH	A513.1	Color indicator
Glycerol	Carl Roth GmbH	7530.2	Media component
Mini-Sub Cell GT Cell	BioRad	170-4406	Gel electrophoresis chamber
<i>Agrobacterium tumefaciens</i> strain GV3101:pMP90RK	DSMZ	12365	Microorganism
Electroporator 2510	Eppendorf	4307000.658	Electroporator
Beef extract	Carl Roth GmbH	X975.2	Media component
Peptone	Carl Roth GmbH	2365.2	Media component
Sucrose	Carl Roth GmbH	4621.2	Media component
Magnesium sulfate	Carl Roth GmbH	0261.3	Media component
Carbenicillin	Carl Roth GmbH	6344.2	Antibiotic
Kanamycin	Carl Roth GmbH	T832.3	Antibiotic
Rifampicin	Carl Roth GmbH	4163.2	Antibiotic

FWD primer	Eurofins MWG Operon	n.a.	CCT CAG GAA GAG CAA TAC
REV primer	Eurofins MWG Operon	n.a.	CCA AAG CGA GTA CAC AAC
2720 Thermal cycler	Applied Biosystems	4359659	Thermocycler
RNAfold webserver	University of Vienna	n.a.	Software
Ferty 2 Mega	Kammlott	5.220072	Fertilizer
Grodan Rockwool Cubes 10 x10 cm	Grodan	n.a.	Rockwool block
Greenhouse	n.a.	n.a.	For plant cultivation
Phytotron	Ilka Zell	n.a.	For plant cultivation
Omnifix-F Solo	B. Braun	6064204	Syringe
Murashige and Skoog salts	Duchefa	M 0222.0010	Media component
Glucose	Carl Roth GmbH	6780.2	Media component
Acetosyringone	Sigma-Aldrich	D134406-5G	Phytohormon analogon
BioPhotometer plus	Eppendorf	6132 000.008	Photometer
Osram cool white 36 W	Osram	4930440	Light source
Disodium phosphate	Carl Roth GmbH	4984.3	Media component
Centrifuge 5415D	Eppendorf	5424 000.410	Centrifuge
Forma -86C ULT freezer	ThermoFisher	88400	Freezer
Synergy HT	BioTek	SIAFRT	Fluorescence plate reader
Biacore T200	GE Healthcare	n.a.	SPR device
Protein A	Life Technologies	10-1006	Antibody binding protein
HEPES	Carl Roth GmbH	9105.3	Media component
Tween-20	Carl Roth GmbH	9127.3	Media component
2G12 antibody	Polymun	AB002	Reference antibody