

## 2 Materials

### 2.1 Instruments

Bionas 2500	Bionas GmbH, Rostock, Germany
Cell culture incubator	Thermo Scientific, Massachusetts, USA
Laminar air flow	Integra bioscience, Zizers, Switzerland
Centrifuge 5702	Eppendorf, Hamburg, Germany
Stereomicroscope	Zeiss, Jena, Germany
Laboratory scale	Sartorius, Gottingen, Germany
Tecan Safire <sup>2</sup> microplate reader	Tecan, Maennedorf, Switzerland
Electroporation apparatus	Amata/Lonza, Köln, Germany
Gel documentation system	Peqlab, Erlangen, Germany
PCR mastercycler	Eppendorf, Hamburg, Germany
LightCycler® 480	Roche Appl. Science, Penzberg, Germany
Arraymate reader	Alere Techn. GmbH, Jena, Germany
FACSCalibur	Becton Dickinson, New Jersey, USA
pH-meter	Hanna Instruments, Rhode Island, USA
Pipettes P2, P20, P100, P1000	Eppendorf, Hamburg, Germany
Multistep-Pipette	Eppendorf, Hamburg, Germany
Light microscope, Motic AE31	Motic, Xiamen, China
Photometer	Thermo Spectronic, Madison, WI, USA
Vortex Genie 2	Bender & Hobein, Bruchsal, Germany
NanoDrop 2000c	Thermo Scientific, Massachusetts, USA
Water bath	Neolab, Heidelberg, Germany
Water purification system (EASypureII)	Barnstead Intl., Dubuque, IA, USA
Autoclave VX-95	Systec, Wettenberg, Germany

## 2.2 Laboratory Materials

Cell culture petri dishes	Greiner bio-one, Kremsmuenster, Austria
Cell culture flask	Greiner bio-one, Kremsmuenster, Austria
Bionas metabolic chip	Bionas GmbH, Rostock, Germany
Eppendorf test tubes (1.5/2.0 mL)	Eppendorf, Hamburg, Germany
Polypropylene tubes (15 and 50 mL)	Greiner bio-one, Kremsmuenster, Austria
Pipettes (serological, sterile)	Greiner bio-one, Kremsmuenster, Austria
Flow cytometry tube	Becton Dickinson, New Jersey, USA
Array tube™	Clondiag/Alere GmbH, Jena, Germany
Affymetrix GeneChip® array U133 2.0plus	Affymetrix, Santa Clara, USA
Oxoplate (96 well)	PreSens/BPSA, Wash. DC, USA
Microtiter plates (96-, 24-, 6-well)	Greiner bio-one, Kremsmuenster, Austria

## 2.3 Chemicals

Cisplatin	Sigma-Aldrich, Missouri, USA
Ruthenium complexes	Prof.Dr. Schatzschneider (Univ. Würzburg)
Rhodium complexes	Prof.Dr. Sheldrick (Univ. Bochum)
[Salophene]iron complex	Prof.Dr. Gust (Univ. Innsbruck)
Benzimidazol-2-ylidenes gold complexes	Prof.Dr. Ott (Univ. Braunschweig)
Phloretin	Sigma-Aldrich, Missouri, USA
Phloridzin (Phlorizin)	Sigma-Aldrich, Missouri, USA
Penicillin/Streptomycin	Gibco, Carlsbad, USA
Fetal calf serum (FCS)	PAA, Pasching, Austria
Fetal bovine serum (FBS), fatty acid-free	PAA, Pasching, Austria
Agarose	Roche, Penzberg, Germany
Triton X-100	Sigma-Aldrich, Missouri, USA
Phenol Red	Sigma-Aldrich, Missouri, USA
HEPES	Sigma-Aldrich, Missouri, USA
Ethanol	Sigma-Aldrich, Missouri, USA

Nanofectin	PAA, Pasching, Austria
Glucose	Sigma-Aldrich, Missouri, USA
Sucrose	Sigma-Aldrich, Missouri, USA
Mannitol	Sigma-Aldrich, Missouri, USA
Malate	Sigma-Aldrich, Missouri, USA
Na <sub>2</sub> SO <sub>3</sub>	Sigma-Aldrich, Missouri, USA
KCl	Sigma-Aldrich, Missouri, USA
MgCl <sub>2</sub>	Sigma-Aldrich, Missouri, USA
KH <sub>2</sub> PO <sub>4</sub>	Sigma-Aldrich, Missouri, USA
EDTA	Sigma-Aldrich, Missouri, USA
Tris	Sigma-Aldrich, Missouri, USA
Pyruvate	Sigma-Aldrich, Missouri, USA
ADP	Sigma-Aldrich, Missouri, USA
ATP	Sigma-Aldrich, Missouri, USA
Rotenone	Sigma-Aldrich, Missouri, USA
CCCP (carbonyl cyanide 3-chlorophenylhydrazone)	Sigma-Aldrich, Missouri, USA
Sodium dodecyl sulfate (SDS)	Merck, Darmstadt, Germany
β-Mercaptoethanol	Merck, Darmstadt, Germany
Urea	Sigma-Aldrich, Missouri, USA
Aprotinin	AppliChem GmbH, Darmstadt, Germany
Sodium orthovanadate	AppliChem GmbH, Darmstadt, Germany
Sodium fluoride (NaF)	AppliChem GmbH, Darmstadt, Germany
Phenylmethanesulfonylfluoride (PMSF)	AppliChem GmbH, Darmstadt, Germany
Dihydroethidium	Sigma-Aldrich, Missouri, USA

## 2.4 Kit Systems

RNeasy Mini	Qiagen, Hilden, Germany
RevertAid™ Premium First Strand cDNA Synthesis	Fermentas/Thermo Fisher, USA
Western lightning chemoluminescence reagent	PerkinElmer LifeScience, USA
QIAprep®Miniprep Kit	Qiagen, Hilden, Germany
QIAquick PCR Purification Kit	Qiagen, Hilden, Germany

## 2.5 Primers and Oligonucleotides

List of forward and reverse primers used to perform quantitative real-time PCR

ATF3-5s	5' – CATCCAGAACAAGCACCTC – 3'
ATF3-3as	5' – GCATTACACTTTCCAGC – 3'
CDK6-5s	5' – GATGTGTGCACAGTGTCCAGAAC – 3'
CDK6-3as	5' – GTGGTTTTAGATCGCGATGCAC – 3'
E2F3-5s	5' – GTTCATTACAGCTCCTGAGCCAG – 3'
E2F3-3as	5' – CACTTCTTTTGACAGGCCTTGAC – 3'
SESN1-5s	5' – CTGAAGAGCATCCAGGAAC – 3'
SESN1-3as	5' – GCAGTAGATAGTGCTGAG – 3'
MALAT-5s	5' – GGATCCTAGACCAGCATGC – 3'
MALAT-3as	5' – GGTTACCATAAGTAAGTTCCAG – 3'
GADD45A-5s	5' – CGATAACGTGGTGTGTGTC – 3'
GADD45A-3as	5' – GAATGTGGATTTCGTCACC – 3'
PMAIP1-5s	5' – ATGCCTGGGAAGAAGG – 3'
PMAIP1-3as	5' – CAGGTTCTGAGCAGAAG – 3'
Human $\beta$ -actin-5s	5' – CTGACTACCTCATGAAGATCCTC – 3'
Human $\beta$ -actin-3as	5' – CTGCTGAAGAAGCACATCGATTC – 3'

## 2.6 Biological Software

Bionas analysis software

dChip software (Li and Wong, Harvard University)

DAVID Bioinformatics Resources 6.7 (Database for Annotation, Visualization, and Integrated Discovery) of NIAID (NIH) (<http://david.abcc.ncifcrf.gov/home.jsp>)

SerialCloner 1–3 ([http://serialbasics.free.fr/Serial\\_Cloner.html](http://serialbasics.free.fr/Serial_Cloner.html))

## 2.7 Mammalian Cell Lines

HT-29 (human colon carcinoma)	ATCC, Manassas, USA
HCT116 (human colon carcinoma)	ATCC, Manassas, USA
HepG2 (human liver hepatocellular carcinoma)	ATCC, Manassas, USA
MDA-MB-231 (human breast adenocarcinoma)	ATCC, Manassas, USA
MCF-7 (human breast adenocarcinoma)	ATCC, Manassas, USA
HeLa (human cervix adenocarcinoma)	ATCC, Manassas, USA

## 2.8 Vectors

pcDNA3.1-hSIRT3<sub>WT</sub>-Flag

pcDNA3.1-hSIRT3<sub>H248Y</sub>-Flag

pcDNA3.1-hSIRT3<sub>R80W</sub>-Flag

## 2.9 Media/Buffers/Solutions

Running medium (RM): DMEM without carbonate buffer and glucose (PAN Biotech GmbH, Aidenbach, Germany)

1 g/L glucose

1 mM Hepes

2 mM L-glutamin

100 units/mL penicillin

100 µg/mL streptomycin

15 µg/L phenol red

0.1% FCS

DMEM (Dulbecco's Modification of Eagles Medium) (100 units/mL penicillin, 100 $\mu$ g/mL streptomycin, 10% FCS)	Gibco Invitrogen, Carlsbad, USA
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Leibovitz's L-15 Medium (penicillin/streptomycin (100 units/mL penicillin, 100 $\mu$ g/mL streptomycin 10% FCS, 1% nonessential amino acids)	Gibco Invitrogen, Carlsbad, USA
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TrypLE <sup>TM</sup> Express	Gibco Invitrogen, Carlsbad, USA
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D-PBS (Dulbecco's phosphate buffered saline)	Gibco Invitrogen, Carlsbad, USA
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Respiration buffer (pH 7.4) 25 mM sucrose

100 mM KCl

75 mM mannitol

5 mM MgCl<sub>2</sub>

10 mM KH<sub>2</sub>PO<sub>4</sub>

0.5 mM EDTA

10 mM Tris

0.1% fatty acid-free BSA

10 mM pyruvate

2 mM malate

2 mM ADP

0.5 mM ATP

Oxygen-free water (1% Na<sub>2</sub>SO<sub>3</sub>)

FACS buffer (D-PBS and 1% BSA)

Lysis buffer in PBS (pH 7.2–7.4) (6 M urea, 1 mM EDTA, 5 mM NaF, 0.5% Triton X-100)

## 2.10 Antibodies for Microarrays

phospho-GSK-3 $\beta$ (S9)	R&D Systems, Minneapolis, USA
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phospho-Akt1(S473)	R&D Systems, Minneapolis, USA
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phospho-ERK1(T202/Y204)	R&D Systems, Minneapolis, USA
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phospho-ERK2(T185/Y187)	R&D Systems, Minneapolis, USA
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phospho-CREB(S133)	R&D Systems, Minneapolis, USA
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Human paxillin	R&D Systems, Minneapolis, USA
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