

Design to Implementation Study for Development and Patient Validation of Paper-Based Toehold Switch Diagnostics

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Materials

Name	Company	Catalog Number	Comments
384 well plate covers - aluminum	Sarstedt	95.1995	Used to cover the 384-well plates before they are inserted into the PLUM reader
384 well plate covers - transparent	Sarstedt	95.1994	Used to cover the 384-well plates before they are inserted into the BioTek plate reader
384 well plates	VWR	CA11006-180	2 mm paper-based diagnostics are placed into the wells of these plates for quantification
Agarose	BioShop Canada	AGA001.500	Gel electrophoresis
BSA	BioShop Canada	ALB001.500	Blocking agent for the Whatman filter paper
Cell free reactions	New England Biolabs	E6800L	PURExpress
CPRG	Roche	10884308001	Chlorophenol red-b-D-galactopyranoside
Disposable Sterile Biopsy Punches	Integra Miltex	23233-31	Used to create 2 mm paper discs that fit into a 384-well plate
DNase I	Thermo Scientific	K2981	Digests template DNA following incubation of the in vitro transcription reaction
DNase I Kit	Thermo Scientific	74104	DNase I Kit For removing template DNA from IVT RNA
dNTPs	New England Biolabs	N0446S	Used for PCRs
electrophoresis system	Bio-Rad	1704487	Used to run the agarose gels

Gel imaging station	Bio-Rad	1708265	ChemiDoc XRS+ Imaging System
IVT kit	New England Biolabs	E2040S	Used for in vitro transcribing template (trigger) RNA for switch screening
Nanodrop One	Thermo Scientific	ND-ONE-W	Used for determining nucleic acid concentrations
NASBA kit	Life Sciences Advanced Technologies	NWK-1	Isothermal amplification reaction components
Nuclease free H2O	Invitrogen	10977015	Added to reaction mixes
PAGE electrophoresis system	Biorad	1658001FC	Used to cast and run polyacrylamide gels
pCOLADuet-LacZ DNA	Addgene	75006	https://www.addgene.org/75006/
Phusion polymerase/reaction buffer	New England Biolabs	M0530L	Used for PCRs
Plate reader	BioTek	BioTek NEO2	Multi Mode Plate Reader, Synergy Neo2
Primers	Integrated DNA Technologies		Custom oligo synthesis
Q5 polymerase/reaction buffer	New England Biolabs	M0491L	Used for PCRs
Qiagen PCR Purification Kit	QIAGEN	27106	QIAprep Spin Miniprep Kit
RNA loading dye	New England Biolabs	B0363S	2X RNA loading dye
RNA Purification Kit	QIAGEN	EN0521	QIAamp Viral RNA extraction kit
RNase inhibitor	New England Biolabs	M0314S	Used to prevent contamination of RNases A, B, and C
RT-qPCR kit	QIAGEN	208352	QuantiNova Probe RT-PCR Kit
SYBR Gold	Invitrogen S11494	S11494	PAGE gel stain for nucleic acids
TAE Buffer	BioShop Canada	TAE222.4	Gel electrophoresis buffer
Thermal Cycler	Applied Biosystems	4484073	Used for temperature cycling and incubating reactions
Whatman 42 filter paper	GE Healthcare	1442-042	Used to imbed molecular components for paper-based diagnostics