

Organotypic Slice Cultures as Preclinical Models of Tumor Microenvironment in Primary Pancreatic Cancer and Metastasis

Rüdiger Braun¹, Olha Lapshyna¹, Susanne Eckelmann^{2,3}, Kim Honselmann¹, Louisa Bolm¹, Meike ten

Winkel¹, Steffen Deichmann¹, Oliver Schilling⁴, Charli Kruse^{2,3}, Tobias Keck¹, Ulrich Wellner¹, Peter Bronsert^{4,5,6}, Matthias Brandenburger¹

¹Department of Surgery, University Medical Center Schleswig-Holstein ²Institute of Medical and Marine Biotechnology, University of Lübeck ³Fraunhofer Research and Development Center for Marine and Cellular Biotechnology ⁴Institute for Surgical Pathology, Medical Center - University of Freiburg, Faculty of Medicine, University of Freiburg ⁵Tumorbank Comprehensive Cancer Center Freiburg, Medical Center - University of Freiburg ⁶Core Facility Histopathology and Digital Pathology Freiburg, Medical Center - University of Freiburg

Corresponding Authors

Rüdiger Braun

ruediger.braun@uksh.de

Matthias Brandenburger

matthias.brandenburger@emb.fraunhofer.de

Citation

Braun, R., Lapshyna, O., Eckelmann, S., Honselmann, K., Bolm, L., ten Winkel, M., Deichmann, S., Schilling, O., Kruse, C., Keck, T., Wellner, U., Bronsert, P., Brandenburger, M. Organotypic Slice Cultures as Preclinical Models of Tumor Microenvironment in Primary Pancreatic Cancer and Metastasis. *J. Vis. Exp.* (172), e62541, doi:10.3791/62541 (2021).

Date Published

June 22, 2021

DOI

10.3791/62541

URL

jove.com/video/62541

Materials

Name	Company	Catalog Number	Comments
Advanced DMEM/F-12 Medium	Gibco	12634028	
Agarose Low Melt	Roth	6351.2	8% in Ringer solution
Antibody Diluent, Background Reducing	Dako	S3022	
AquaTex	Merck	108562	
Bioethanol (99%, denatured)	CHEMSolute	2,21,19,010	
Citric Acid monohydrate	Sigma Aldrich	C7129	
Cleaved Caspase-3 (Asp175) (5A1E) Rabbit mAb	Cell Signalling Technology	9664	1:400 dilution
Derby Extra Double Edge Safety Razor Blades	Derby Tokai		
Embedding cassettes	Roth	H579.1	
Eosin Y-solution 0,5% aqueous	Merck	10,98,44,100	
Eukitt Quick hardening mounting medium	Sigma-Aldrich	3989	
Fetal bovine serum	Gibco	10270106	
Formaldehyde solution 4,5%, buffered	Büfa Chemikalien	B211101000	
Hem alum solution acid acc. to Mayer	Roth	T865	
Human EGF	Milteniy Biotec	130-097-794	
Hydrocortisone	Sigma Aldrich (Merck)	H0888	
Hydrogen peroxide 30%	Merck	1,08,59,71,000	

Insulin human	Sigma Aldrich (Merck)	12643	
Liquid DAB+ Substrate Chromogen System	Dako	K3468	
MACS Tissue Storage Solution	Milteniy Biotech	130-100-008	
Methanol	Merck	10.600.092.500	
Microscope Slides Superfrost Plus	Thermo Scientific	J1800AMNZ	
Millicell Cell Culture Insert, 30 mm, hydrophilic PTFE, 0.4 µm	Millipore (Merck)	PICMORG50	
Monoclonal mouse anti-human Cytokeratin 7 (Clone OV-TL 12/30)	Dako	M7018	1:200 dilution
Monoclonal mouse anti-human Ki67 Clone MIB-1	Dako	M7240	1:200 dilution
Monoclonal mouse Anti-vimentin (Clone V9)	Dako	M0725	1:200 dilution
Negative control Mouse IgG2a	Dako	X0943	1:200 dilution
Negative control Mouse IgG1	Dako	X093101-2	1:200 dilution
Paraffin (melting temperature 56°-58°)	Merck	10,73,37,100	
Penicillin-Streptomycin (10.000 U/ml)	Gibco	15140122	
PBS pH 7,4 (1x) Flow Cytometry Grade	Gibco	A12860301	
Resazurin sodium salt; 10 mg/ml in PBS	Sigma Aldrich	R7017	1:250 dilution
Ringer's solution	Fresenius Kabi	2610813	
RPMI-1640 Medium	Sigma Aldrich (Merck)	R8758	
Tissue culture testplate 6	TPP	92006	
Triton X-100	Sigma Aldrich	9002-93-1	
VECTASTAIN Elite ABC-Peroxidase Kit	Vector Laboratories	PK-6200	
Xylene (extra pure)	J.T.Baker	8,11,85,000	
Equipment			
ClarioStar Microplate Reader	BMG Labtech		
Paraffin Embedding Center E61110	Leica		
Rotary Microtome Microm HM355S	Thermo Scientific		
Section Transfer System Microm STS	Thermo Scientific		
VT 1200S Vibratom	Leica		