



ThinCert™ Cell Culture Inserts

List of Peer-reviewed Publications

This document provides a list of studies which all have been conducted using ThinCert™ cell culture inserts and published after peer-review.

Listed publications are categorized according to their fields of application:

1. Co-culture studies
2. Migration and invasion studies
3. Transport, uptake, permeability, polarized growth
4. Skin models, organotypic culture, 3D culture
5. Infection studies and others

1. Co-culture studies

Co-culture describes various techniques where different cell populations are cultivated in close proximity in the same cell culture environment. The applications of co-cultures are multifaceted and include the stimulation and maintenance of cell function and differentiation, the cultivation of embryonic stem cells on feeder cells, investigations of immune cell interactions, infections studies and studies on paracrine interactions. Direct co-culture can be performed in nearly all cell culture dishes, for instance by layering two cell types one on top of the other. In contrast, indirect co-culture takes advantage of ThinCert™ cell culture inserts with porous membranes, to keep co-cultivated cell populations separated.

1.
Authors: Chinnadurai M, Chidambaram S, Ganesan V, Baraneedharan U, Sundaram L, Paul SF, Venkatachalam P.
Title: Bleomycin, neocarzinostatin and ionising radiation-induced bystander effects in normal diploid human lung fibroblasts, bone marrow mesenchymal stem cells, lung adenocarcinoma cells and peripheral blood lymphocytes.
Journal, year: Int J Radiat Biol. 2011 Jul;87(7):673-82.
Key words: Bleomycin, Bystander response, Micronucleus, SRJM 2010;3:3-8
Free full text: Available online
2.
Authors: Chinnadurai M, Paul SF, Venkatachalam P.
Title: The effect of growth architecture on the induction and decay of bleomycin and X-ray induced bystander response and genomic instability in lung adenocarcinoma cells and blood lymphocytes.
Journal, year: Int J Radiat Biol. 2012 Sep 5.
Key words: Bleomycin, X-irradiation, Bystander response, Micronucleus, Translocation and Genomic instability

3.
 Authors: Ciana A, Meier K, Daum N, Gerbes S, Veith M, Lehr CM, Minetti G.
 Title: A dynamic ratio of the alpha+ and alpha- isoforms of the tight junction protein ZO-1 is characteristic of Caco-2 cells and correlates with their degree of differentiation.
 Journal, year: Cell Biol Int. 2010 May 7;34(6):669-78.
 Key words: Caco-2, endothelial cell line, epithelial cell line, pancreatic stem cell, zonula occludens-1 (ZO-1) isoform

4.
 Authors: Elishmereni M, Alenius HT, Bradding P, Mizrahi S, Shikotra A, Minai-Fleminger Y, Mankuta D, Eliashar R, Zabucchi G, Levi-Schaffer F.
 Title: Physical interactions between mast cells and eosinophils: a novel mechanism enhancing eosinophil survival in vitro.
 Journal, year: Allergy. 2011 Mar;66(3):376-85.
 Key words: Allergic inflammation, cell-cell contact, eosinophils, immunologic synapse, mast cells

5.
 Authors: Fong SP, Tsang KS, Chan AB, Lu G, Poon WS, Li K, Baum LW, Ng HK.
 Title: Trophism of neural progenitor cells to embryonic stem cells: Neural induction and transplantation in a mouse ischemic stroke model.
 Journal, year: J Neurosci Res. 2007 Jul;85(9):1851-62.
 Key words: Co-culture, ES cells, C17.2 cells, neuronal differentiation, ischemic strike

6.
 Authors: Gordon-Keylock SA, Jackson M, Huang C, Samuel K, Axton RA, Oostendorp RA, Taylor H, Wilson J, Forrester LM.
 Title: Induction of hematopoietic differentiation of mouse embryonic stem cells by an AGM-derived stromal cell line is not further enhanced by overexpression of HOXB4.
 Journal, year: Stem Cells Dev. 2010 Nov;19(11):1687-98.
 Key words: Embryonic stem, stromal cells, co-culture, HOXB4, induction
 Free full text: Available online

7.
 Authors: Hoechst B, Ormandy LA, Ballmaier M, Lehner F, Krüger C, Manns MP, Greten TF, Korangy F.
 Title: A new population of myeloid-derived suppressor cells in hepatocellular carcinoma patients induces CD4(+)CD25(+)Foxp3(+) T cells.
 Journal, year: Gastroenterology. 2008 Jul;135(1):234-43.
 Key words: Myeloid-derived suppressor cells, hepatocellular carcinoma, co-culture, CD4+ CD25+ Foxp3+ T cells

8.
 Authors: Jarosz LM, Deng DM, van der Mei HC, Crielaard W, Krom BP.
 Title: Streptococcus mutans competence-stimulating peptide inhibits Candida albicans hypha formation.
 Journal, year: Eukaryot Cell. 2009 Nov;8(11):1658-64.
 Key words: Streptococcus mutans, Candida albicans, hypha formation, competence-stimulating peptide, CSP
 Free full text: Available online

9.
 Authors: Krassowska A, Gordon-Keylock S, Samuel K, Gilchrist D, Dzierzak E, Oostendorp R, Forrester LM, Ansell JD.
 Title: Promotion of haematopoietic activity in embryonic stem cells by the aorta-gonad-mesonephros microenvironment.
 Journal, year: Exp Cell Res. 2006 Nov 1;312(18):3595-603.
 Key words: ES cell, Differentiation, Haematopoiesis, AGM, Stromal cell

10.
 Authors: Nagashima H, Nakamura Y, Kanno H, Sawai T, Inoue H, Yamauchi K.
 Title: Effect of genetic variation of IL-13 on airway remodeling in bronchial asthma.
 Journal, year: Allergol Int. 2011 Sep;60(3):291-8.
 Key words: Bronchial asthma, bronchial biopsy, bronchial lavage fluid, IL-13, polymorphisms
 Free full text: Available online

11.
 Authors: Nomoto-Kojima N, Aoki S, Uchihashi K, Matsunobu A, Koike E, Ootani A, Yonemitsu N, Fujimoto K, Toda S.
 Title: Interaction between adipose tissue stromal cells and gastric cancer cells in vitro.
 Journal, year: Cell Tissue Res. 2011 May;344(2):287-98.
 Key words: Adipose tissue stromal cells, Gastric cancer, cells, Cancer-stromal interaction, Mesenchymal stem cells, Myofibroblastic phenotype, Human, Rat (Wistar)
 Free full text: Available online

12.
 Authors: Kizawa T, Nakamura Y, Takahashi S, Sakurai S, Yamauchi K, Inoue H.
 Title: Pathogenic role of angiotensin II and oxidized LDL in obstructive sleep apnoea.
 Journal, year: Eur Respir J. 2009 Jul 2.
 Key words: Co-culture, angiotensin II, oxidized LDL, obstructive sleep apnoe, peripheral blood mononuclear cells, PBMC, endothelial cells
 Free full text: Available online

13.
 Authors: Köhler GA, Assefa S, Reid G.
 Title: Probiotic Interference of Lactobacillus rhamnosus GR-1 and Lactobacillus reuteri RC-14 with the Opportunistic Fungal Pathogen Candida albicans.
 Journal, year: Infect Dis Obstet Gynecol. 2012;2012:636474.
 Key words: Candida albicans, Lactobacillus rhamnosus GR-1, Lactobacillus reuteri RC-14, fungi, women's health, growth suppression, probiotic therapy
 Free full text: Available online

14.
 Authors: Krassowska A, Gordon-Keylock S, Samuel K, Gilchrist D, Dzierzak E, Oostendorp R, Forrester LM, Ansell JD.
 Title: Promotion of haematopoietic activity in embryonic stem cells by the aorta-gonad-mesonephros microenvironment.
 Journal, year: Exp Cell Res. 2006 Nov 1;312(18):3595-603.
 Key words: Co-culture, embryonic stem cells, aorta-gonadal-mesonephros, AM20-1B4 cells, hematopoietic differentiation

15.
 Authors: Lawrenson K, Grun B, Benjamin E, Jacobs IJ, Dafou D, Gayther SA.
 Title: Senescent fibroblasts promote neoplastic transformation of partially transformed ovarian epithelial cells in a three-dimensional model of early stage ovarian cancer.
 Journal, year: Neoplasia. 2010 Apr;12(4):317-25.
 Key words: Senescent fibroblasts, ovarian epithelial cells, neoplastic transformation, ovarian cancer
 Free full text: Available online

16.
 Authors: Liu J, Joha S, Idziorek T, Corm S, Hetuin D, Philippe N, Preudhomme C, Quesnel B.
 Title: BCR-ABL mutants spread resistance to non-mutated cells through a paracrine mechanism.
 Journal, year: Leukemia. 2008 Apr;22(4):791-9.
 Key words: Co-culture, BCR-ABL, DA1-3b, chronic myeloid leukemia

17.
Authors: Miki Y, Ono K, Hata S, Suzuki T, Kumamoto H, Sasano H.
Title: The advantages of co-culture over mono cell culture in simulating in vivo environment.
Journal, year: J Steroid Biochem Mol Biol. 2012 Sep;131(3-5):68-75.
Key words: Breast carcinoma, Co-culture, Aromatase, Cancer microenvironment
18.
Authors: Miranda SG, Wang YJ, Purdie NG, Osborne VR, Coomber BL, Cant JP.
Title: Selenomethionine stimulates expression of glutathione peroxidase 1 and 3 and growth of bovine mammary epithelial cells in primary culture.
Journal, year: J Dairy Sci. 2009 Jun;92(6):2670-83.
Key words: Co-culture, bovine mammary epithelial cell, selenomethionine, glutathione peroxidase
19.
Authors: Moyer HR, Kinney RC, Singh KA, Williams JK, Schwartz Z, Boyan BD.
Title: Alginate microencapsulation technology for the percutaneous delivery of adipose-derived stem cells.
Journal, year: Ann Plast Surg. 2010 Nov;65(5):497-503.
Key words: Adipose-derived stem cells, ADSC, encapsulation, alginate
20.
Authors: Shibahara Y, Miki Y, Onodera Y, Hata S, Chan MS, Yiu CC, Loo TY, Nakamura Y, Akahira J, Ishida T, Abe K, Hirakawa H, Chow LW, Suzuki T, Ouchi N, Sasano H.
Title: Aromatase inhibitor treatment of breast cancer cells increases the expression of let-7f, a microRNA targeting CYP19A1.
Journal, year: J Pathol. 2012 Jul;227(3):357-66.
Key words: Aromatase inhibitors, CYP19A1, let-7, breast cancer
21.
Authors: Spiliotis M, Lechner S, Tappe D, Scheller C, Krohne G, Brehm K.
Title: Transient transfection of Echinococcus multilocularis primary cells and complete in vitro regeneration of metacystode vesicles.
Journal, year: Int J Parasitol. 2007 Nov 21.
Key words: Co-culture, Echinococcus multilocularis, hepatocytes, transient transfection system
22.
Authors: Talayev VY, Matveichev AV, Lomunova MA, Talayeva MV, Tsaturov ME, Zaichenko IY, Babaykina ON.
Title: The effect of human placenta cytotrophoblast cells on the maturation and T cell stimulating ability of dendritic cells in vitro.
Journal, year: Clin Exp Immunol. 2010 Oct;162(1):91-9.
Key words: Placenta, cytotrophoblast cells, peripheral blood monocytes, dendritic cells, co-culture
23.
Authors: Tang SY, Cheah IK, Wang H, Halliwell B.
Title: Notopterygium forbesii Boiss extract and its active constituent phenethyl ferulate attenuate pro-inflammatory responses to lipopolysaccharide in RAW 264.7 macrophages. A „protective“ role for oxidative stress?
Journal, year: Chem Res Toxicol. 2009 Aug;22(8):1473-82.
Key words: Notopterygium , Chinese medicine, phenethyl ferulate, bergaptol, isoimperatorin, oxidative stress, fetal hepatocytes.
24.
Authors: Vasileiadou K, Pantazidis G, Papadopoulou K, Ligoudistianou C, Kourelis A, Petrakis S, Masmanidou E, Testa T, Kourounakis AP, Hadjipetrou L, Papaconstantinou J, Yiangou M.
Title: alpha1-Acid glycoprotein production in rat dorsal air pouch in response to inflammatory stimuli, dexamethasone and honey bee venom.
Journal, year: Exp Mol Pathol. 2010 Aug;89(1):63-71.
Key words: α1-Acid glycoprotein, air pouch, synovial fluid, cytokines, inflammation, adjuvant arthritis
Free full text: Available online

25.
Authors: Yang T, Tsang KS, Poon WS, Ng HK.
Title: Neurotrophism of bone marrow stromal cells to embryonic stem cells: noncontact induction and transplantation to a mouse ischemic stroke model.
Journal, year: Cell Transplant. 2009;18(4):391-404.
Key words: Embryonic stem cell, stromal cell, co-culture, differentiation, transplantation, ischemic stroke

2. Migration and invasion studies

The filter assay is one of the most frequently used assays for studying cell migration. First published in 1962 by Stephen Boyden, this assay is still employed in cell migration studies. The filter assay involves a two-compartment system where cells may be induced to migrate from an upper compartment through a porous membrane into a lower compartment, thus following the gradient of a chemoattractant. Modifications of the filter assay include variants where the porous membrane is coated with an extra-cellular matrix (invasion assays), or where it carries a cell monolayer (transepithelial migration assays).

26.
Authors: Ahmadbeigi N, Seyedjafari E, Gheisari Y, Atashi A, Omidkhoda A, Soleimani M.
Title: Surface expression of CXCR4 in unrestricted somatic stem cells and its regulation by growth factors.
Journal, year: Cell Biol Int. 2010 Jul;34(7):687-92.
Key words: CXCR4, insulin-like growth factor 1 (IGF-1), migration, stem cell, vascular endothelial growth factor (VEGF)
27.
Authors: Attali C, Durmort C, Vernet T, Di Guilmi AM.
Title: The interaction of Streptococcus pneumoniae with plasmin mediates transmigration across endothelial and epithelial monolayers by intercellular junction cleavage.
Journal, year: Infect Immun. 2008 Nov;76(11):5350-6.
Key words: Streptococcus pneumoniae, epithelia, endothelia, barrier, plasminogen, EaHy, A549, aprotinin
Free full text: Available online
28.
Authors: Banning A, Kipp A, Schmitmeier S, Löwinger M, Florian S, Krehl S, Thalmann S, Thierbach R, Steinberg P, Brigelius-Flohé R.
Title: Glutathione Peroxidase 2 Inhibits Cyclooxygenase-2-Mediated Migration and Invasion of HT-29 Adenocarcinoma Cells but Supports Their Growth as Tumors in Nude Mice.
Journal, year: Cancer Res. 2008 Dec 1;68(23):9746-53.
Key words: Invasion, human colon cancer cells, HT-29, GPx2, siRNA, cyclooxygenase-2 (COX-2)-specific inhibitor
29.
Authors: Bartling B, Hofmann HS, Weigle B, Silber RE, Simm A.
Title: Down-regulation of the receptor for advanced glycation end-products (RAGE) supports non-small cell lung carcinoma.
Journal, year: Carcinogenesis. 2005 Feb;26(2):293-301.
Key words: Migration, Lung carcinoma, RAGE
Free full text: Available online

30.
Authors: Bauer K, Dowejko A, Boßerhoff AK, Reichert TE, Bauer R.
Title: P-cadherin induces an epithelial-like phenotype in oral squamous cell carcinoma by GSK-3beta mediated snail phosphorylation.
Journal, year: Carcinogenesis. 2009 Jul 14.
Key words: P-cadherin, epithelial-like phenotype, oral squamous cell carcinoma, GSK-3beta, migration
Free full text: Available online
31.
Authors: Bauer K, Dowejko A, Bosserhoff AK, Reichert TE, Bauer R.
Title: Slit-2 facilitates interaction of P-cadherin with Robo-3 and inhibits cell migration in an oral squamous cell carcinoma cell line.
Journal, year: Carcinogenesis. 2011 Jun;32(6):935-43.
Key words: Slit-2, P-cadherin, cadherins, OSCC cells, oral squamous cell carcinoma, Robo-3, migration
Free full text: Available online
32.
Authors: Bäumer W, Wendorff S, Gutzmer R, Werfel T, Dijkstra D, Chazot P, Stark H, Kietzmann M.
Title: Histamine H4 receptors modulate dendritic cell migration through skin-immunomodulatory role of histamine.
Journal, year: Allergy. 2008 Oct;63(10):1387-94.
Key words: Dendritic cell, histamine H4 receptor, JNJ7777120, pruritus
33.
Authors: Benaitreau D, Dos Santos E, Leneveu MC, Alfaidy N, Feige JJ, de Mazancourt P, Pecquery R, Dieudonné MN.
Title: Effects of adiponectin on human trophoblast invasion.
Journal, year: J Endocrinol. 2010 Oct;207(1):45-53.
Key words: Adiponectin, trophoblast, invasion, HTR-8/SVneo cells
34.
Authors: Borghouts C, Tittmann H, Delis N, Kirchenbauer M, Brill B, Groner B.
Title: The intracellular delivery of a recombinant peptide derived from the acidic domain of PIAS3 inhibits STAT3 transactivation and induces tumor cell death.
Journal, year: Mol Cancer Res. 2010 Apr;8(4):539-53.
Key words: STAT3, PIAS3, tumor, cell death, migration, BL21 CodonPlus (DE3)-RP competent cells
Free full text: Available online
35.
Authors: Brandt DT, Baarlink C, Kitzing TM, Kremmer E, Ivaska J, Nollau P, Grosse R.
Title: SCAI acts as a suppressor of cancer cell invasion through the transcriptional control of beta1-integrin.
Journal, year: Nat Cell Biol. 2009 May;11(5):557-68.
Key words: Suppressor of cancer, SCAI, cell invasion, RhoA, Dia1, signal transduction
36.
Authors: Brideau G, Mäkinen MJ, Elamaa H, Tu H, Nilsson G, Alitalo K, Pihlajaniemi T, Heljasvaara R.
Title: Endostatin overexpression inhibits lymphangiogenesis and lymph node metastasis in mice.
Journal, year: Cancer Res. 2007 Dec 15;67(24):11528-35.
Key words: Endostatin, lymphangiogenesis, metastasis, mast cell, mouse, skin carcinogenesis
Free full text: Available online
37.
Authors: Cain RJ, d'Água BB, Ridley AJ.
Title: Quantification of transendothelial migration using three-dimensional confocal microscopy.
Journal, year: Methods Mol Biol. 2011;769:167-90.
Key words: Endothelium, Transmigration, Cancer, Leukocyte, ECM, HUVEC, Quantification, Confocal, Imaging

38.
Authors: Calderon J, Zavrel M, Ragni E, Fonzi WA, Rupp S, Popolo L.
Title: PHR1, a pH-regulated gene of *Candida albicans* encoding a glucan-remodelling enzyme, is required for adhesion and invasion.
Journal, year: Microbiology. 2010 Aug;156(Pt 8):2484-94.
Key words: *Candida albicans*, PHR1, mutants, adhesion, invasion, human epithelia
39.
Authors: Cesaro A, Brest P, Hofman V, Hébuterne X, Wildman S, Ferrua B, Marchetti S, Doglio A, Vouret-Craviari V, Galland F, Naquet P, Mograbi B, Unwin R, Hofman P.
Title: Amplification loop of the inflammatory process is induced by P2X7R activation in intestinal epithelial cells in response to neutrophil transepithelial migration.
Journal, year: Am J Physiol Gastrointest Liver Physiol. 2010 Jul;299(1):G32-42.
Key words: Inflammatory bowel disease, polymorphonuclear leukocyte, PMNL, purinergic P2X7 receptor, P2X7R, intestinal epithelial cells, T84 cells, transepithelial migration
Free full text: Available online
40.
Authors: Cui YX, Johnson T, Baumbach A, Reeves BC, Rogers CA, Angelini GD, Marsden D, Madeddu P.
Title: Stepwise optimization of the procedure for assessment of circulating progenitor cells in patients with myocardial infarction.
Journal, year: PLoS One. 2012;7(1):e30389.
Key words: Circulating progenitor cells, CPC, diabetes, migration, flowcytometry
Free full text: Available online
41.
Authors: D'Alessandro M, Coats SE, Jonkmann MF, Leigh IM, Lane EB.
Title: Keratin 14-null cells as a model to test the efficacy of gene therapy approaches in epithelial cells.
Journal, year: J Invest Dermatol. 2011 Jul;131(7):1412-9.
Key words: Skin fragility disorder, epidermolysis bullosa simplex, EBS, K14-null mutation, keratin, keratinozyt, migration
Free full text: Available online
42.
Authors: Dittmer A, Vetter M, Schunke D, Span PN, Sweep F, Thomssen C, Dittmer J.
Title: Parathyroid hormone-related protein regulates tumor-relevant genes in breast cancer cells.
Journal, year: J Biol Chem. 2006 May 26;281(21):14563-72.
Key words: Migration, parathyroid hormone-related protein, breast cancer, MDA-MB-231 cells
Free full text: Available online
43.
Authors: Fukushima T, Kawaguchi M, Yamasaki M, Tanaka H, Yorita K, Kataoka H.
Title: Hepatocyte growth factor activator inhibitor type 1 suppresses metastatic pulmonary colonization of pancreatic carcinoma cells.
Journal, year: Cancer Sci. 2011 Feb;102(2):407-13.
Key words: SUI-2 cells, HAI-1 short-hairpin RNA, Hepatocyte growth factor activator inhibitor type 1, pancreatic carcinoma, invasion
Free full text: Available online
44.
Authors: Gawecka JE, Geerts D, Koster J, Caliva MJ, Sulzmaier FJ, Opoku-Ansah J, Wada RK, Bachmann AS, Ramos JW.
Title: PEA15 impairs cell migration and correlates with clinical features predicting good prognosis in neuroblastoma.
Journal, year: Int J Cancer. 2012 Oct 1;131(7):1556-68.
Key words: PEA15, neuroblastoma, migration, RSK2

45.
Authors: Goplen D, Bougnaud S, Rajcevic U, Bøe SO, Skaftnesmo KO, Voges J, Enger PØ, Wang J, Tysnes BB, Laerum OD, Niclou S, Bjerkvig R.
Title: α B-crystallin is elevated in highly infiltrative apoptosis-resistant glioblastoma cells.
Journal, year: Am J Pathol. 2010 Oct;177(4):1618-28.
Key words: Glioblastoma, tumor, α B-crystallin, invasion, migration
46.
Authors: Hannemann S, Madrid R, Stastna J, Kitzing T, Gasteier J, Schönichen A, Bouchet J, Jimenez A, Geyer M, Grosse R, Benichou S, Fackler OT.
Title: The Diaphanous-related Formin FHOD1 associates with ROCK1 and promotes Src-dependent plasma membrane blebbing.
Journal, year: J Biol Chem. 2008 Oct 10;283(41):27891-903.
Key words: CHO-N18-HASPB-GFP cells, Diaphanous-related formin ,FHOD1, ROCK1, Src, invasion, RNAi
Free full text: Available online
47.
Authors: Hiscox S, Jiang WG, Obermeier K, Taylor K, Morgan L, Burmi R, Barrow D, Nicholson RI.
Title: Tamoxifen resistance in MCF7 cells promotes EMT-like behaviour and involves modulation of beta-catenin phosphorylation.
Journal, year: Int J Cancer. 2006 Jan 15;118(2):290-301.
Key words: Migration, invasion, epithelial-to-mesenchymal transition, MCF7 cells, breast cancer, beta-catenin
Free full text: Available online
48.
Authors: Hutcheson IR, Knowlden JM, Hiscox SE, Barrow D, Gee JM, Robertson JF, Ellis IO, Nicholson RI.
Title: Heregulin beta1 drives gefitinib-resistant growth and invasion in tamoxifen-resistant MCF-7 breast cancer cells.
Journal, year: Breast Cancer Res. 2007;9(4):R50.
Key words: Invasion, Heregulin beta 1, MCF-7, gefitinib
Free full text: Available online
49.
Authors: Ji H, Wang J, Fang B, Fang X, Lu Z.
Title: α -Catenin inhibits glioma cell migration, invasion, and proliferation by suppression of β -catenin transactivation.
Journal, year: J Neurooncol. 2010 Sep 26.
Key words: beta-Catenin, alpha-Catenin , EGFR, glioblastoma, migration, invasion, proliferation
50.
Authors: Königshoff M, Kramer M, Balsara N, Wilhelm J, Amarie OV, Jahn A, Rose F, Fink L, Seeger W, Schaefer L, Günther A, Eickelberg O.
Title: WNT1-inducible signaling protein-1 mediates pulmonary fibrosis in mice and is upregulated in humans with idiopathic pulmonary fibrosis.
Journal, year: J Clin Invest. 2009 Apr;119(4):772-87.
Key words: Migration, WNT1-inducible signaling protein-1, idiopathic pulmonary fibrosis, WISP1, ATII cells
Free full text: Available online
51.
Authors: Kitzing TM, Sahadevan AS, Brandt DT, Knieling H, Hannemann S, Fackler OT, Großhans J, Grosse R.
Title: Positive feedback between Dia1, LARG, and RhoA regulates cell morphology and invasion.
Journal, year: Genes Dev. 2007 Jun 15;21(12):1478-1483.
Key words: Invasion, Dia1, LARG, RhoA, MDA-MB-435 cells
Free full text: Available online

52.
Authors: Kwapiszewska G, Wygrecka M, Marsh LM, Schmitt S, Trösler R, Wilhelm J, Helmus K, Eul B, Zakrzewicz A, Ghofrani HA, Schermuly RT, Bohle RM, Grimminger F, Seeger W, Eickelberg O, Fink L, Weissmann N.
Title: Fhl-1, a new key protein in pulmonary hypertension.
Journal, year: Circulation. 2008 Sep 9;118(11):1183-94.
Key words: Migration, pulmonary hypertension, primary pulmonary artery smooth muscle cells, PASM, Fhl-1
53.
Authors: Laurila E, Savinainen K, Kuuselo R, Karhu R, Kallioniemi A.
Title: Characterization of the 7q21-q22 amplicon identifies ARPC1A, a subunit of the Arp2/3 complex, as a regulator of cell migration and invasion in pancreatic cancer.
Journal, year: Genes Chromosomes Cancer. 2009 Apr;48(4):330-9.
Key words: Pancreatic cancer, ARPC1A, RNA interference, AsPC-1, migration, invasion
54.
Authors: Liu D, Martin V, Fueyo J, Lee OH, Xu J, Cortes-Santiago N, Alonso MM, Aldape K, Colman H, Gomez-Manzano C.
Title: Tie2/TEK modulates the interaction of glioma and brain tumor stem cells with endothelial cells and promotes an invasive phenotype.
Journal, year: Oncotarget. 2010 Dec;1(8):700-9.
Key words: Tie2/TEK, glioma, endothelial cells, invasion, microenvironment
Free full text: Available online
55.
Authors: Lucas T, Abraham D, Untergasser G, Zins K, Hofer E, Gunsilius E, Aharinejad S.
Title: Adenoviral-mediated endothelial precursor cell delivery of soluble CD115 suppresses human prostate cancer xenograft growth in mice.
Journal, year: Stem Cells. 2009 Sep;27(9):2342-52.
Key words: Adenovirus, cellular therapy, endothelial cell, gene delivery systems in vivo or in vitro, immunodeficient mouse, peripheral blood stem cells, progenitor cells, xenogeneic stem cell transplantation
Free full text: Available online
56.
Authors: Luo XG, Ding Y, Zhou QF, Ye L, Wang SZ, Xi T.
Title: SET and MYND domain-containing protein 3 decreases sensitivity to dexamethasone and stimulates cell adhesion and migration in NIH3T3 cells.
Journal, year: J Biosci Bioeng. 2007 May;103(5):444-50.
Key words: Migration, SMYD3, NIH3T3 cells, cancer
Free full text: Available online
57.
Authors: Luo XG, Zou JN, Wang SZ, Zhang TC, Xi T.
Title: Novobiocin decreases SMYD3 expression and inhibits the migration of MDA-MB-231 human breast cancer cells.
Journal, year: IUBMB Life. 2010 Mar;62(3):194-9.
Key words: Novobiocin, shRNA, migration, SMYD3, MDA-MB-231
Free full text: Available online
58.
Authors: Malik FA, Sanders AJ, Kayani MA, Jiang WG.
Title: Effect of expressional alteration of KAI1 on breast cancer cell growth, adhesion, migration and invasion.
Journal, year: Cancer Genomics Proteomics. 2009 Jul-Aug;6(4):205-13.
Key words: Breast cancer cells, MDA-MB-231 cells, MCF-7 cells, KAI1, CD82, migration

59.
Authors: Mandic R, Ludwig T, Oberleithner H, Werner JA.
Title: Evaluation of head and neck squamous cell carcinoma invasiveness by the electrical resistance breakdown assay.
Journal, year: Clin Exp Metastasis. 2004;21(8):699-704.
Key words: TEER, invasion, MDCK-C7 cells, HNSCC cells, MMP, TIMP
60.
Authors: Martin TA, Harrison GM, Watkins G, Jiang WG.
Title: Claudin-16 reduces the aggressive behavior of human breast cancer cells.
Journal, year: J Cell Biochem. 2008 Sep 1;105(1):41-52.
Key words: Claudin-16, tight junctions, breast cancer, prognosis, metastasis suppressor
61.
Authors: Mowla S, Pinnock R, Leaner VD, Goding CR, Prince S.
Title: TPA-induced upregulation of TBX3 is mediated by AP-1 and contributes to breast cancer cell migration.
Journal, year: Biochem J. 2010 Oct 13.
Key words: Transcription factor, protein kinase C, TBX3, AP-1, JunB, cancer
Free full text: Available online
62.
Authors: Mowla S, Pinnock R, Leaner VD, Goding CR, Prince S.
Title: PMA-induced up-regulation of TBX3 is mediated by AP-1 and contributes to breast cancer cell migration.
Journal, year: Biochem J. 2011 Jan 1;433(1):145-53.
Key words: Activator protein 1 (AP-1), breast cancer, cell migration, JunB, protein kinase C (PKC), TBX3, transcription factor.
Free full text: Available online
63.
Authors: Murikinati S, Jüttler E, Keinert T, Ridder DA, Muhammad S, Waibler Z, Ledent C, Zimmer A, Kalinke U, Schwaninger M.
Title: Activation of cannabinoid 2 receptors protects against cerebral ischemia by inhibiting neutrophil recruitment.
Journal, year: FASEB J. 2010 Mar;24(3):788-98.
Key words: Stroke, ischemia, cannabinoid 2 receptor, CB(2), JWH-133, neutrophil, migrations
64.
Authors: Murugan AK, Ihara S, Tokuda E, Uematsu K, Tsuchida N, Fukui Y.
Title: SWAP-70 is important for invasive phenotypes of mouse embryo fibroblasts transformed by v-Src.
Journal, year: IUBMB Life. 2008 Apr;60(4):236-40.
Key words: SWAP-70, v-Src, mouse embryo fibroblasts, MEF
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Authors: Oudhoff MJ, Bolscher JG, Nazmi K, Kalay H, van ,t Hof W, Nieuw Amerongen AV, Veerman EC.
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3. Transport, Uptake, Permeability, Polarized Growth

ThinCert™ cell culture inserts with porous membrane supports are widely accepted tools for the reconstruction of functional epithelia and tissues in vitro. In cell culture inserts, high density cell populations may be achieved with nourishment from two different areas: the surface that faces the porous membrane support as well as the one that faces away. This dual nutrient access, along with the presence of a solid substrate that may carry components of the ECM has proven to be an indispensable stimulus to establish polarity in cultivated epithelia. Reconstructed epithelia may be exploited to study transepithelial vectorial transport, substance uptake and permeability.

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Key words: Lung adenocarcinoma, brain metastasis, Gefitinib

4. Skin Models, organotypic culture, 3D culture

For many years live-animal experimentation provided the singular means to access intact and living tissue for biological and pharmaceutical research. This situation changed with the introduction of new cell culture approaches that enabled reconstruction of tissue by multi-layering individual cell types in vitro. Such approaches typically involve the use of porous membrane supports and/or three-dimensional collagen gels to re-create in vivo-like growth within a cell culture environment. With the availability of primary cells from biopsies and organ donations, the spectrum of reconstructed tissues may be expanded to additionally include human material. Today, reconstructed renal and intestinal epithelia, epidermis, full thickness skin, airway epithelia, cornea and oral epithelia are frequently used to assess corrosive, irritating and phototoxic potential of substances as well as to study drug delivery and pathology.

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