Role of integrin adhesions in cellular mechanotransduction

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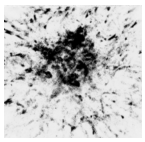
List of Abbreviations

Cas	Crk-associated substrate
CB	Cytoskeleton buffer
CCD	Charged coupled device
cdf	Cumulative distribution function
cdk	Cyclin-dependent kinase
DIC	Differential interference contrast
DMSO	Dimethyl sulfoxide
DRIE	Deep reactive ion etching
dSTORM	Direct stochastic reconstruction microscopy
ECM	Extracellular matrix
EGTA	Ethylene glycol tetraacetic acid
ERK	Extracellular signal-regulated kinases
ES	Embryonic stem
FACS	Fluorescence activated cell sorting
FA	Focal adhesion
FAK	Focal adhesion kinase
FAT	Cell matrix adhesion targeting
FERM	Four-point-one, ezrin, radixin, moesin
GFP	Green fluorescent protein
HEPES	4-(2-hydroxyethyl)-1-piperazineethanesulfonic acid acid
HIPK3	Homeodomain interacting protein kinase 3
IF	Intermediate filaments
ILK	Integrin linked kinase
IPP	ILK-Pinch-Parvin
JNK	c-Jun N-terminal kinase
KO	Knock out
LIM	Lin11, Isi-1, Mec-3
LINC	Linker of nucleoskeleton and cytoskeleton

MAP	Mitogen-activated protein
MAPK	MAP kinase
MEA	Mercaptoethylamine
MEF	Mouse embryonic fibroblast
MES	2-(N-morpholino)ethanesulfonic acid
MT	Microtubules
MYPT2	Myosin phosphatase target 2
NA	Numerical aperture
PAA	Polyacrylamide
PBS	Phosphate buffered saline
PDMS	Poly (DiMethyl)Siloxane
PFS	Perfect focus system
PI3K	Phosphatidylinositol 3-kinase
RAC2	Ras-related C3 botulinum toxin substrate 2
Rb	Retinoblastoma
ROCK	Rho kinase
RPTP-alpha	Receptor-like protein tyrosine kinase alpha
S	Synthesis
SD	Standard deviation
SFM	Serum free medium
SUN	Sad1 and UNC84
VEGF	Vascular endothelial growth factor
VEGFR	VEGF receptor



Publications

1. "Substrate rigidity modulates the association between traction forces and molecular composition of cell matrix adhesions"
   HE Balcıoğlu[1], R Harkes[1], T Schmidt[2], EHJ Danen[2]
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2. "A high-throughput RNAi screen for focal adhesion dynamics"
   M Fokkelman[1], **HE Balcıoğlu**[1], JE Klip, K Yan, FJ Verbeek, EHJ Danen, B van de Water
   in preparation

3. "Tumor-induced remote ECM network orientation steers angiogenesis"
   HE Balcıoğlu, B van de Water, EHJ Danen
   under review at Scientific Reports

4. "Cellular mechanosensing is linked to force exertion via p130Cas"
   H van Hoorn[1], DM Donato[1], **HE Balcıoğlu**, EHJ Danen, T Schmidt
   under review at Biophysical Journal

5. "The mechanical phenotype of Ewing sarcoma cell lines predicts their metastatic niche"
   E Beletkaia, O Iendalzeva, **HE Balcıoğlu**, PCW Hogendoorn, EHJ Danen, T Schmidt
   under review at Biophysical Journal

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6. "A guide to mechanobiology: Where biology and physics meet"
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10. "Integrin signaling in control of tumor growth and progression"
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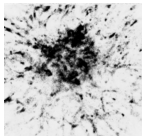

Curriculum vitae

Hayri Emrah Balcıoğlu was born on July 20, 1986 in Şişli, İstanbul, Turkey. He studied Electrical Engineering and Physics in Boğaziçi University from 2004 to 2008 with emphasis on Solid State Engineering and Solid State Physics. After obtaining bachelor degrees in both fields, he started the MS-PhD track at Applied Physics & Applied Mathematics Department in the Fu Foundation School of Engineering & Applied Science, Columbia University in the City of New York. He obtained his MSc degree in Applied Physics in 2009 and worked for some time with Prof. Ben O'Shaughnessy in the Department of Chemical Engineering at Columbia University. His work there on modeling actin stress fibers contributed to two publications.

In 2010 he started as a PhD student on a project, funded by NWO FOM (Foundation for Fundamental Research on Matter) at Leiden University under the supervision of Dr. Erik Danen. The project was part of the Dutch Mechanobiology consortium, and involved close collaboration with Prof. Thomas Schmidt at the Physics of Life Processes group in Leiden University.

In April 2016, Emrah will start a postdoctoral fellowship in the group of Prof. Benoit Ladoux at the Mechanobiology Institute, Singapore.