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Amoeboid cell migration and physicochemical properties of the extracellular environment

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ABBREVIATIONS

TAS	Trajectory Analysis Suite	9
CellProfiler	cell image analysis software Cell Profiler	11
Usiigaci	ushi:gachi	11
TrackPy	Python package for particle tracking in 2D and 3D	11
TrackMate	FIJI plugin for single particle tracking	11
FIJI	open source image processing package in ImageJ	11
TRAIT2D	TRacking Anlysis Toolkit	11
SPT	single-particle tracking	11
FRAP	fluorescence recovery after photobleaching	11
FCS	fluorescence correlation spectroscopy	11
ICS	image correlation spectroscopy	11
ICY	bioimage informatics platform Icy	11
ADAPT	automated detection and analysis of protrusions	12
CelltrackR	Cell Track R	12
FoV	Field of View	12
3D	three dimensional	12
MSD	mean-squared displacement	12
GUI	Graphical User Interface	12
CellEv	Cell Evaluator FIJI Plugin	12
EDA	exploratory data analysis	12
BaSiC	FIJI plugin for background and shading correction for microscopy	13
EMCCD	electron multiplying charge-coupled device	13
Dd	<i>Dictyostelium discoideum</i>	13
GFP	green fluorescent protein	13
umpx	μm per pixel value	14
SDCM	spinning-disk confocal microscopy	16
RFP	red fluorescent protein	16
MATLAB	matrix laboratory proprietary programming language	18
TJ	Trajectory	19
STAT	Statistics	20
TAMSD	time-averaged mean-squared displacement	22
EB	ergodicity breaking parameter	23
PDF	probability density function	24
FBM	fractional Browian motion	24
CTRW	continuous-time random walks	24
1D	one dimensional	25
vHCF	van Hove correlation function	25
vHD	self-part of the Van Hove distribution function	25
NGP	non-Gaussianity parameter	25
IDF	increment distribution function	25

JDD	jump-distance distribution	25
LCH	local convex hull	26
IMSD	local mean-squared displacement	26
rhs	right hand side	28
RW	random walk	28
PRW	persistent random walk	28
Pd	index of directionality	28
RMS	root-mean-squared	28
VCF	velocity correlation function	29
VACF	velocity auto-correlation function	29
TAVCF	time-averaged velocity autocorrelation function	29
TAVACF	time-averaged velocity autocorrelation function	29
3T3	NIH-3T3 mouse embryonic fibroblast	30
MAT	MATLAB MAT-file	31
CSV	comma separated value	31
TIFF	tagged image file format	33
JPEG	joint photographic experts group file format	33
API	Application Programming Interface	34
AnDi	recent anomalous diffusion challenge	36
DLW	direct laser writing	43
PC12	pheochromocytoma of the rat adrenal medulla	43
ORMOCER	Organic Modified Ceramics	43
2PP	two-photon polymerization	43
MA	methylacrylate	43
FRP	free-radical polymerization	43
ECM	extracellular matrix	44
UV	Ultraviolet light	44
PDMS	polydimethyl-siloxane	49
ALS	Amyotrophic lateral sclerosis	53
DPR	dipeptide repeat	53
RNA	ribonucleic acid	55
PIP	plasma-initiated patterning	55
2D	two dimensional	55
G4C2	GGGGCC	59
rpm	rounds per minute	61
CAD	computer-aided design	63
RPMI	Roswell Park Memorial Institute cell culture medium 1640	63
PBS	Phosphate Buffered Saline (pH 7.4)	63
RT	20°C room temperature	63
chloro-silane	trichloro(1H,1H,2H,2H-perfluorooctyl)silane	63
PS	penicillin / streptomycin	64
HS	Horse Serum	64
FBS	fetal bovine serum	64
NGF	nerve growth factor	64
BSA	bovine serum albumin	64

NA	numerical aperture	64
cAMP	cyclic adenosine-monophosphate	78
MFPT	mean first passage time	78
CI	confidence interval	81
n.c.	no cAMP	83
w.c.	with cAMP	83
FPT	first passage time	88
DLD	deterministic lateral displacement	98
cAR1	cAMP Receptor 1	98
BRW	biased random walk	103
ABP	active Brownian particle	116
CPM	cellular-Potts model	116
MMC	Metropolis Monte Carlo	116
CIL	contact-inhibition of locomotion	117
AB-CPM	active Brownian cellular-Potts model	117
Act-CPM	actin-extended cellular-Potts model	117
SEM	scanning electron microscopy	118
MCS	Monte Carlo steps	121
BP	Brownian particle	128
OUP	Ornstein-Uhlenbeck process	163
MSC	mesenchymal stem cell	171
DMEM	Dulbecco's Modified Eagle Medium	172
NCS	Newborn Calf Serum	172
PGMA	polyglycidylmethacrylate	173
C3	three-fold radially symmetric type	192
TEM	transmission electron spectroscopy	192
DT	1,2-dithiolanes	192
PEG	polyethylene glycol polymer	192
TREN	tris(2-aminoethyl)amine	192
SQ	3-Squaramide-TREN	192
SQ	Squaramide	192
SAXS	small angle X-ray scattering	192
NMR	nuclear magnetic resonance	192
DT	Dithiolane	192
RGD	arginylglycylaspartic acid peptide	194
DMSO	dimethylsulfoxide	194
hiPSC	human-induced pluripotent stem cell	194
FACS	fluorescence activated cell sorting	194
HPLC	high performance liquid chromatography	195
SQ-RGD	squaramide-TREN functionalized with RGD	195
HepG2	human liver carcinoma cells	195
SQ-DT	squaramide-TREN functionalized with DT	196
SQ/10SQ-DT	10 mol % of SQ-DT with remainder the monomer SQ	196
DT-RGD	RGD peptides with a DT moiety	196

DNA	deoxyribonucleic acid	197
F-DT-RGD	fluorescent DT-RGD	197
HCR	hybridization chain reaction	197
HP1	oligonucleotide hairpin 1	197
HP2	oligonucleotide hairpin 2	197
DLS	dynamic light scattering	199
NUPACK	Nucleic Acid software Package	199
AFM	atomic force microscopy	199
NB	bicyclo(2-2-1)hept-2-ene or norbornene	200
LAP	lithium phenyl-2,4,6-trimethylbenzoyl-phosphinate	200
PEGdiDT	PEG with two methyl asparagusic termini	200
PEGdiNB	PEG with two NB termini	200
DN	Double network hydrogel made of SQ and PEG	201
DT-NB-PEG	PEGdiDT and PEGdiNB macromonomers with LAP	201
CPI	calceinAM and propidium iodide	201
PN	DT-NB-PEG polymer network	201
SN	SQ-DT supramolecular network	201
DN	SN and PN double network	201
IPN	PN network interpenetrated by SQ filaments	203
hPAC	human primary articular chondrocyte	203
s-GAG	sulphated-glycosaminoglycan	203
TNBCC	triple negative breastcancer cell	204
LED	light emitting diode	205
MW	molecular weight	212
FITC	fluorescein isothiocyanate	212
ROI	region of interest	212
STL	stereolithography file format	230
PSF	point spread function	235
CSLM	confocal scanning laser microscope	237
GSER	generalized Stokes-Einstein equation	239
EOM	equations of motion	239
Hs578t	aneuploid mammary epithelial metastatic breast cell line 578t	245
C2C12	mouse myoblast cell line C2C12	245
SQ-5RGD	SQ with 5% RGD	246
SQ-10RGD	SQ with 10% RGD	246
SQ-15RGD	SQ with 15% RGD	246
PI	propidium iodide	247
calcein AM	calcein acetoxymethyl	247
SQ/10SQ-DT/10SQ-RGD	10 mol % of SQ-DT and 10 mol % of SQ-RGD, with remainder monomer SQ	248
H2B	human histone 2B	252
DGR	RGD reverse sequence	254
DT-DGR	DT with DGR	254
WT	wild type	253
EDTA	ethylene diamine tetra-acetic acid	262
ANOVA	analysis of variance	272

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