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To affinity and beyond: novel molecular tools to explore solute carrier transport proteins

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List of abbreviations

2-NBDG	2-[<i>N</i> -(7-nitrobenz-2-oxa-1,3-diazol-4-yl)-amino]-2-deoxyglucose	CSF	cerebrospinal fluid
5-HT	5-hydroxytryptamine (serotonin)	CTL4	choline transporter-like 4
AAC1	ADP/ATP carrier	CuAAC	copper(I)-catalyzed azide-alkyne cycloaddition
ABC	ATP-binding cassette	Cy	cyanine
ABP	activity-based probe	D ₂ R	dopamine D ₂ receptor
AD	Alzheimer's disease	DA	dopamine
ADHD	attention deficit hyperactivity disorder	DAT	dopamine transporter
ADME	absorption, distribution, metabolism, and excretion	DBD	4- <i>N,N</i> -dimethylaminosulfonyl-2,1,3-benzoxadiazole
ADP	adenosine diphosphate	DCPO	(<i>E</i>)-2-(2-(4-hydroxystyryl)-4 <i>H</i> -chromen-4-ylidene)-malononitrile
AE1	anion exchanger 1	DCSN	(<i>E</i>)-2-(3-(4-(diethylamino)styryl)-5,5-dimethylcyclohex-2-en-1-ylidene) malononitrile
AfBP	affinity-based probe	DDI	drug-drug interaction
α_2 AR	α_2 -adrenergic receptor	DMEM	Dulbecco's Modified Eagles Medium
ALK	anaplastic lymphoma kinase	DRI	dopamine reuptake inhibitor
ANOVA	analysis of variance	dSTORM	direct stochastic optical reconstruction microscopy
ANT1	mitochondrial adenine nucleotide translocator 1	dTAG	degradation tag
AOG	(2'-azi- <i>n</i> -octanol)- β -D-glucoside	EAAT	excitatory amino acid transporter
APP*	4-(4-(dimethylamino)phenyl)-1-methylpyridin-1-ium	EC ₅₀	functional potency
ASBT	apical sodium ion-dependent bile acid transporter	ECHD	epoxycyclohexenedione
ASCT2	alanine/serine/cysteine transporter 2	EGFR	epidermal growth factor receptor
ATP	adenosine triphosphate	EMA	European Medicines Agency
AUC	area under the curve	ENT	equilibrative nucleoside transporter
β_2 AR	β_2 -adrenergic receptor	ER	endoplasmatic reticulum
BODIPY	boron-dipyrromethene	ERK	extracellular signal-regulated kinase
BPP*	1-butyl-4-(4-(dimethylamino)phenyl)pyridin-1-ium	ESI	electrospray ionization
BzG	[(4'-benzoyl)phenyl]-D-glucopyranoside	FATP3	fatty acid transport protein 3
CCC9	cation-chloride cotransporter 9	FBS	fetal bovine serum
CDCA	chenodeoxycholic acid	FDA	U.S. Food and Drug Administration
CFTR	cystic fibrosis transmembrane conductance regulator	FFF	fully functionalized fragment
CHAPS	3-[(3-cholamidopropyl)dimethylammonio]-1-propanesulfonate	FFN	fluorescent false neurotransmitter
CNS	central nervous system	FITC	fluorescein isothiocyanate
CNT	concentrative nucleoside transporter	FRET	Förster (or fluorescence) resonance energy transfer
cryo-EM	cryogenic electron microscopy	GABA	γ -aminobutyric acid
		GAT	γ -aminobutyric acid transporter

GDC	Graves disease carrier	NE	norepinephrine
Glt _{tk}	glutamate transporter (<i>Thermococcus kodakarensis</i>)	NET	norepinephrine transporter
GLUT	glucose transporter	NHE1	sodium-hydrogen antiporter 1
GlyT	glycine transporter	NIR	near-infrared
GOLD	gating-oriented live-cell distinction	NMR	nuclear magnetic resonance
GPCR	G protein-coupled receptor	NOESY	nuclear Overhauser effect spectroscopy
GSH	glutathione	NPC	Niemann-Pick disease type C
HBSS	Hank's Balanced Salt Solution	NPC1	NPC intracellular cholesterol transporter 1
HEK293	human embryonic kidney 293	NRI	norepinephrine reuptake inhibitor
HEPES	4-(2-hydroxyethyl)-1-piperazine ethanesulfonic acid	NSB	non-specific binding
HPLC	high-performance liquid chromatography	NT	nucleoside transporter
IC ₅₀	half-maximal inhibitory concentration	NTCP	sodium/bile acid and sulphated solute cotransporter 1
IFN	interferon	OAT	organic anion transporter
IngMeb	ingenol mebutate	OATP	organic anion transporting polypeptide
ITC	International Transporter Consortium	OCT	organic cation transporter
K _D	kinetic affinity	PARADISO	paralog-dependent isogenic cell assay
K _i	inhibition constant	PAT1	proton-coupled amino acid transporter 1
LAT1	L-type amino acid transporter 1	PD	Parkinson's disease
LC	locus coeruleus	PDB	Protein Data Bank
L-DOPA	L-3,4-dihydroxyphenylalanine	PD-L1	programmed death ligand 1
LeuT	leucine transporter	PEPT	peptide transporter
LYTAC	lysosome targeting chimeras	PET	positron emission tomography
MAT	monoamine transporter	PHT1	peptide transporter 4
MATE	multidrug and toxin extrusion protein	PKC	protein kinase C
MCT	monocarboxylate transporter	PNS	peripheral nervous system
MDD	major depressive disorder	POI	protein of interest
MFS	major facilitator superfamily	PPP*	1-methyl-4-(4-(piperidin-1-yl)phenyl)pyridin-1-ium
MM	molecular mechanics	PROTAC	proteolysis targeting chimeras
MPC2	mitochondrial pyruvate carrier subunit 2	PTM	post-translational modification
MS	mass spectrometry	QM	quantum mechanics
mTOR	mammalian target of rapamycin	RESOLUTE	Research Empowerment on Solute Carriers
NBD-MTMA	<i>N,N,N</i> -trimethyl-2-(methyl(7-nitrobenzo[c][1,2,5]oxadiazol-4-yl)amino)ethan-1-aminium	RMSD	root mean square deviation
NBD-TMA	<i>N,N,N</i> -trimethyl-2-((7-nitrobenzo[c][1,2,5]oxadiazol-4-yl)amino)ethan-1-aminium	ROS	reactive oxygen species
NBTI	<i>S</i> -(4-nitrobenzyl)-6-thioinosine	rt	room temperature
NDRI	norepinephrine-dopamine reuptake inhibitor	RTCA	real-time cell analysis
		RTK	receptor tyrosine kinase
		SAEATA	5'- <i>S</i> -(2-aminoethyl)- <i>N</i> ⁶ -(4-azidobenzyl)-5'-thioadenosine

SAENTA	5'-S-(2-aminoethyl)-N ⁶ -(4-nitrobenzyl)-5'-thioadenosine
ScaD	scaffold domain
SD	standard deviation
SDS-PAGE	sodium dodecyl sulfate polyacrylamide gel electrophoresis
SEM	standard error of the mean
SERT	serotonin transporter
SGLT	sodium-glucose cotransporter
SLC	solute carrier transporter
SNP	single nucleotide polymorphism
SPECT	single-photon emission computed tomography
SWEET	SLC50 sugar exporter
T-ALL	T cell acute lymphoblastic leukemia
TB	total binding
TCA	taurocholic acid
TCI	targeted covalent inhibitor
TFB-TBOA	TFB-threo- β -benzyloxyaspartic acid
THCA	3 α ,7 α ,12 α -trihydroxy-5 β -cholestan-26-oic acid
TIPDG	[2'-iodo-4'-(3''-trifluoromethyldiazirinyloxy)]-D-glucopyranoside
TM	transmembrane
TPD	targeted protein degradation
TRACT	transporter activity through receptor activation
TranD	transport domain
TRI	triple reuptake inhibitor
UAS	upstream activation sequence
VMAT	vesicular monoamine transporter
YFP	yellow fluorescent protein
ZIP7	zinc transporter 7
ZmYS1	iron-phytosiderophore/yellow stripe 1 transporter (<i>Zea mays</i>)
ZnT3	zinc transporter 3

